

**TECHNICAL REPORT  
FOR THE SHORTY CREEK PROJECT,  
LIVENGOOD - TOLOVANA MINING DISTRICT, ALASKA**

Prepared for

Freegold Ventures Limited  
Free Gold Recovery, USA  
and Grizzly Bear Gold Inc.

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## 1. SUMMARY

The Shorty Creek property (Property) is located in the Livengood - Tolovana Mining District about 125 road-kilometers northwest of Fairbanks Alaska. The Property lies about 4 kilometers south of the now-abandoned gold-mining town site of Livengood and the all-weather paved Elliott Highway. The claim group is situated primarily within Township 7 North, Ranges 4 and 5 West, Fairbanks Meridian; in the Livengood B-3 and B-4 quadrangles. The Property is centered on 430000 E, 7257500 N (UTM NAD 27 for Alaska, Zone 6 North datum (Figure 4.2). The Property is comprised of 251 State of Alaska mining claims covering 26,887 acres (10,881.12 hectares).

The Trans-Alaska Pipeline and the associated surface access corridor cross the Property. This 48-inch diameter 800 mile long pipeline currently carries approximately 600,000 barrels per day of crude oil (approx. 50% of design capacity) from production facilities on Alaska's North Slope to the all-weather port of Valdez, Alaska. In addition, the right -of-way for the proposed trans-Alaska natural gas pipeline also passes through the Property and is largely coincident with the oil pipeline right-of-way.

The Property area is largely covered by sub-Arctic taiga forest consisting of black spruce, white spruce, birch and aspen. The forest floor is covered by a thick blanket of tundra vegetation and small shrubs such as dwarf birch, willow, alder, Labrador tea and blueberries. The physiography of Property is characterized as moderately hilly. Elevations range from 150 meters (500 feet) along the Tolovana River, to 660 meters (2,161 feet) on the hilltops generating variable relief to about 510 meters (1,670 feet). This part of Alaska was not glaciated during the Pleistocene however, the project area was near the southwestern terminus of continental ice and winds from this cold ice mass deposited a variably thick layer of aeolian silt over much of Interior Alaska, including the project area. Permafrost is limited to small discontinuous lenses on steep, poorly drained north-facing slopes and has posed no hindrance to past exploration. The climate in this portion of Alaska is dominated by 6 to 8 months of sub-freezing temperatures in winter followed by 4 to 6 months of warm summer weather. Average annual precipitation is 33 cm (13 in.), mostly as snowfall between October and March.

Placer gold was discovered on Livengood Creek in 1914 and placer mining has been conducted in the district on a nearly continuous basis since that time. Total recorded production from the district through 2007 is approximately 530,121 ounces of gold, all from placer operations. The project is located on the south side of the Tolovana River. With the exception of Wilber Creek, also located on the south side of the Tolovana River, the most productive creeks in the district are located on the north side of the Tolovana River valley. Total placer production from the Wilber Creek valley is unknown but likely less than 50,000 ounces.

The Shorty Creek prospect was originally located as an antimony prospect in 1972. It was re-evaluated as a copper-molybdenum prospect by Earth Resources in 1972 and was reportedly drilled in several locations prior to 1974. No technical data remains from this work. Public sector mineral evaluations between 1979 and 1984 indicated that copper, gold and arsenic mineralization was exposed in road cuts on the Alyeska Pipeline access road on what is now the southwestern extension of the Hill 1835 prospect. The Shorty Creek prospect was staked in 1984 and leased to Fairbanks-based Fairbanks Exploration Inc. who conducted exploration on the project in 1985 through 1990, the latter three years under a joint venture with Asarco Inc. These efforts included soil and rock sampling and a total of 6,843.5 feet of reverse circulation drilling in 20 holes. Total cost of these programs was approximately \$400,000. Fairbanks Exploration terminated their interest in the project which was subsequently acquired by Fairbanks-based Gold Range Ltd. Little substantive exploration was conducted until 2005 when California-based Select Resources acquired a lease on the project. During 2005 Select conducted a top of bedrock soil sampling program over the Hill 1835 prospect. A total of 566 soil samples were collected along with 21 grab rock samples collected while soil sampling was under way. Additional non-field related work included digital compilation and evaluation of geological, geophysical, geochemical, GIS and remote sensing data. This work was conducted before, during and after the field program. Freegold acquired the property in July, 2014. They commenced geophysical and geochemical survey shortly after; completing 28.6 line kilometers of induced polarization geophysics and collecting 354 soil samples. Their work defined significant chargeability anomalies and coincident strong copper, gold and bismuth geochemistry.

The Shorty Creek project is located within the Livengood Terrane, a complex and poorly understood belt of Paleozoic through Cretaceous sedimentary, metamorphic and intrusive rocks which is bounded on the north by the northeast trending right lateral Kaltag fault and the northwest trending right lateral Tintina fault. On the south, the Livengood Terrane is bounded by the regionally extensive Yukon Tanana Terrane. Rocks of the Shorty Creek project are hosted within the Wilber Creek unit, a folded sequence of Early Cretaceous flysch sediments which form the youngest bedded rocks in the project area. The principal Wilber Creek flysch lithologies exposed on the Shorty Creek project include black carbonaceous siltstone, gray feldspathic sandstone and silty sandstone, black shale and polymict conglomerate. The Wilber Creek flysch disconformably overlies a thrust package of south dipping Lower Paleozoic carbonates, volcanics and pelitic rocks which host the +20.1 Moz Livengood gold project located about 5 miles north of the Property. A variety of small intermediate igneous bodies occur within and peripheral to the Property. Biotite granodiorite is the most abundant intrusive rock type seen on the property. A potassium - argon age date of 63 Ma was reported for intrusive rocks in the Shorty Creek area while an  $\text{Ar}^{40}/\text{Ar}^{39}$  age date of 65-70 Ma was reported from white mica in intrusive rocks exposed at the collar of drill hole RH8901 on the north end of the Hill 1835 prospect. Limited fluid inclusion data from a granitic pluton on the south side of Wilber Creek indicated the presence of high  $\text{CO}_2$ , high salinity fluids.

The dominant structural elements of the Property are compression-related, generally northwest directed, northeast-trending thrust faults and northeast striking folds. Folds with axes parallel to the northeast-trending Wilber Creek valley are examples of this style of deformation. Rocks of the Wilber Creek flysch are folded into open to recumbent isoclinal folds and subsequently cut by northeast and north-south structures, the largest of which are the Minto and Ranney Hollow faults, two north-south striking left lateral faults with significant vertical offset. The Minto fault bounds a broad topographic lowland immediately west of the project area, and remains active to the present.

Previous work has indicated that biotite hornfels and lesser diopsidic hornfels are widespread in the area. Field evidence suggests that hornfelsing precedes hydrothermal alteration, brecciation and mineralization. Previous mapping indicate that hornfels occurs at the Shorty Creek Cu-Mo prospect, on 1835 prospect, on the flanks of Hill 1870 and in the Hill 2161 area on the southern end of the Shorty Creek project. Although very little intrusive rock is exposed on the Shorty Creek project the widespread and often intense hornfelsing of the sediments, particularly in the Hill 1835 area, suggest a significant size intrusive nearby.

Outcrop exposures containing anomalous gold mineralization were discovered at the Hill 1835 prospect in 1985. Subsequent field activities revealed anomalous gold, silver, mercury, zinc, copper, molybdenum and arsenic in RC drill chips, grab rock and trench rock samples collected in 1985, 1986 and 1988 through 1990. Highly anomalous Au, As, Bi, Te, S, Sn and W were detected in top of bedrock soil samples collected on Hill 1835 in 2005. Other areas with anomalous Au, Cu, As, Sb or Mo include the old Shorty Creek Cu-Mo prospect, Hill 1890 east of Ranney Hollow, Hill 1870 on the south side of the pipeline corridor, Hill 2161 at the head of Eagle and Wilber Creeks and the lower eastern flank of Wilber Creek valley.

The most intense hydrothermal alteration and anomalous metal geochemistry at Shorty Creek is concentrated at the Hill 1835 prospect. The protolith host rocks at Hill 1835 were shale and siltstone of the Wilber Creek flysch which subsequently were hydrothermally altered by vein and flood silicification to a dense light to dark brown hornfels. This rock has undergone variable crackle to matrix-supported brecciation. Rubble and outcrop of this hornfels unit contain large (1 cm) cubic molds after pyrite, often partially filled with limonite. In drill chips, disseminated and fracture-controlled pyrite, pyrrhotite, chalcopyrite, arsenopyrite and bornite have been identified (along with numerous secondary oxide minerals). In total, the area of silicification, brecciation and geochemical enrichment covers a northeast-trending area measuring 1700 meters by 600 meters. Mineralization remains open under Quaternary cover on both ends.

Mineralization at Shorty Creek is hosted by structurally and possibly stratigraphically controlled, polyphase, grain-supported and matrix-supported silicified breccias. Intense flood silicification occurs in matrix-supported breccias and is often accompanied by arsenopyrite-quartz veinlets and disseminated pyrite and arsenopyrite. Drill results indicate that deeper portions of the system contain arsenopyrite-pyrite-chalcopyrite stockwork veinlets along with local

disseminated pyrite, chalcopyrite and rare bornite. Gold values tend to be higher near the top of the drill holes. Widespread pervasive sericite(?) or clay(?) alteration appears to overprint all other alteration and mineralization styles, resulting in a pale yellow to tan “bleached” appearance in altered host lithologies. Outcrops of matrix supported breccia often are restricted to one or more mappable lithologic horizon, indicating possible stratigraphic control of at least a portion of the gold mineralization present. Chemically favorable stratigraphic units are well documented in skarn and replacement deposits around the world however; recent research has demonstrated the importance of host rock porosity and permeability in relation to gold mineralization in the Great Basin of the western United States. It is possible that the rock units referred to as "hornfels" at Shorty Creek are in fact replacement bodies. Significant drill intercepts include 220 feet grading 1.216 gpt gold in hole RH8908, including 25 feet grading 4.577 gpt gold, 60 feet grading 0.800 gpt gold in hole RH9016, 25 feet grading 1.707 gpt gold in hole RH9017 and 55 feet grading 1.035 gpt gold in hole RH9019.

The evaluation presented here would not have been possible without the extensive compilation of all geological, geochemical, geophysical information to a common digital database on the Shorty Creek project completed by Avalon Development Corp. This was the first time all of the information had been compiled and the first time these data were evaluated in the light of new ore deposit models for porphyry Cu-Au-Mo and IRG systems (Freeman, 2010). Previous investigators suggested that there are two primary types of mineralization present at Shorty Creek: a gold-dominant IRG system in the southern part of the Property and a copper-molybdenum-dominant system in the northern part of the Property (centered on the old Shorty Creek Cu-Mo prospect). Freeman (Freeman, 2010) believes that the available data are suggestive of a single, zoned porphyry Cu-Au-Mo system which includes three main zones, a proximal Cu-Mo±Au mineralization (Shorty Creek Cu-Mo, Hill 1890 prospect), a high-sulfidation epithermal Au-As-Bi-W±Cu±Ag mineralization (Hill 1835/Hill 1870) and an intermediate-sulfidation epithermal Au-Ag-Pb-Zn±As±Sb±Mn mineralization (Hill 2161 and ridge south of Wilber Creek). A comparison of salient features of IRG and porphyry Cu-Au-Mo deposits demonstrates that many of the important alteration and mineralization features of a typical IRG deposit are shared by porphyry Cu-Mo-Au deposits. However, in every characteristic that is not common to both deposit types, the data suggest that the operant model at Shorty Creek is a porphyry Cu-Au-Mo system instead of an IRG.

Post-mineral faulting on the north-south trending Minto and Ranney Hollow faults and on the Steel Creek lineament and the other northeast trending structures has offset alteration and mineralization in a consistent sense across all three alteration/mineralization zones. Three-dimensional modeling of magnetic data indicates a strong central magnetic low with highly magnetic bodies surrounding it on the north. The buried magnetic highs may be related to Cu-Fe skarn mineralization developed in Lower Paleozoic carbonates which regional and district-scale mapping indicate dip south under the Wilber Creek flysch sequence.

If this over-all deposit model is correct, and if post-mineral structural deformation has not significantly deformed the actual footprint of the alteration/mineralization, the Shorty Creek project porphyry system covers an area approximately 8 miles in diameter. Zoning of this scale is not uncommon in large porphyry systems such as Bingham District, Utah (5-6 miles), Central Mining District, New Mexico (+10 miles), Los Bronces, Chile (5 miles), Chuquicamata (+10 miles). While the interpretations of this report represent a departure from previous thinking about the Shorty Creek project area, this is the first time a single study has been able to incorporate all of the available data. Previous investigators focused on individual parts of the larger system, but did not recognize these parts as being integral pieces of a larger porphyry copper-gold-molybdenum system.

Based on field, laboratory and literature studies completed to date, the following recommendations for future work are warranted:

1. A new access road to the Hill 1835 project area should be established from the end of the Wilber Creek mine road. This will eliminate the need for access along the Alyeska Pipeline road corridor. The new access, estimated at 4.5 miles of new road, has the advantages of southerly-facing aspect (no permafrost), moderate to flat road grades and currently existing access to the paved Elliott Highway. This route also will have the advantage of traversing the left limit of lower Wilber Creek, an area where historic lode gold prospects have been reported but not evaluated. Permitting for this road is complete. This phase of work is not success-dependent on any other work recommended for the Shorty Creek project. The estimated cost of this program, including labor, permitting, heavy equipment rental, fuel and all consumables is US\$100,000. Alternatively, if the road is not built, a helicopter supported program will cost about the same (\$100,000). The advantage of the road is clear in that it is a one-time cost (although there will be maintenance), and can be used to support the project if it grows and also can be used over multiple years.
2. Reconnaissance exploration on both the original and the new claim blocks, to include prospecting and mapping of ridgelines, stream sediment, and soil sampling where warranted. Mapping and sampling is recommended in prospective areas along the length of the new access road outlined above. Efforts should include infill soil sampling on the existing soil grids; and soil sampling along the northeastern and southwestern extensions of the Hill 1835, Hill 1870, Hill 1710, and Hill 1890 anomaly areas. Induced polarization geophysics is recommended to extend the grid coverage along the northeastern and southwestern extensions of the Hill 1835, Hill 1870, Hill 1710, and Hill 1890 anomaly areas. Daily field work will be on foot or supported by 4WD ATV where possible. All samples should be assayed for gold by fire assay techniques with each sample also analyzed for a multi-

element suite by ICP methods using 4-acid digestion procedures. This phase of work is not success-dependent on any other work recommended for the Shorty Creek project. The estimated cost of this program, including labor, assays, camp, equipment, fuel and all consumables is US\$200,000.

3. Diamond drilling should be conducted at the Hill 1835 gold prospect. Approximately 1,500 meters (4,920 ft.) of drilling are recommended. Drilling will need to extend to depth of 305 meters (1000 ft) in order to test below the 152 meter (500 ft.) depth already tested by the 1989-1990 programs. This phase of work is not success-dependent on any other work recommended for the Shorty Creek project. All drilling should be conducted with a skid-mounted diamond core drill using HQ core (2.5 inch diameter). All core should be logged, digitally photographed, split with a Haley core saw and one-half of each interval should be submitted for analysis. The remaining half should be retained for future use. All core should be assayed for gold by fire assay techniques with each sample also analyzed for a multi-element suite by ICP methods using 4-acid digestion procedures. The estimated cost of this drilling program, including labor, assays, camp, heavy equipment rental, drilling, fuel and all consumables is US\$450,000 (\$300/mt or \$92/ft).
4. Diamond drilling should be conducted at the Hill 1710 Cu-Mo target area. Approximately 2,500 meters (8,200 ft.) of diamond drilling are recommended to test below previous drilling. Initial drill depths should be planned to test depths of 305 to 400 meters (1,000 to 1,300 ft.). This phase of work is not success-dependent on any other work recommended for the Shorty Creek project. All drilling should be conducted with a skid-mounted diamond core drill using HQ core (2.5 inch diameter). All core should be logged, digitally photographed, split with a Haley core saw and one-half of each interval should be submitted for analysis. The remaining half should be retained for future use. All core should be assayed for gold by fire assay techniques with each sample also analyzed for a multi-element suite by ICP methods using 4-acid digestion procedures. The estimated cost of this drilling program, including labor, assays, camp, heavy equipment rental, drilling, fuel and all consumables is US\$750,000 (\$300/mt or \$92/ft).

The total cost of the above-recommended work is approximately US\$1,500,000.



## **2. INTRODUCTION**

### **2.1 Introduction**

At the request of Freegold Ventures Limited, Free Gold Recovery, USA, and Grizzly Bear Gold Inc. (Freegold), this technical report has been prepared for the Shorty Creek property located in the Livengood - Tolovana Mining District, Alaska. The purpose of this report is to provide Freegold with an independent opinion of the technical aspects of the Shorty Creek project and make recommendations for future work. This report conforms to the standards specified in National Instrument 43-101 (NI 43-101) and Form 43-101F (Standards of Disclosure for Mineral Properties).

The author has been provided documents, maps, reports and analytical results by Freegold. The author visited the property September 16 - 19, 2009, while evaluating the property as an acquisition target. During this visit the author reviewed the geology, areas of historical activities, claim corners/locations monument locations, drill holes and other pertinent features of the property.

The work completed by Freegold, along with historical data available to the author, forms the basis of this report. These data include reports from previous operators, including but not limited to, annual, monthly, operations, geological, engineering, metallurgy and production reports.

Unless otherwise noted, all costs contained in this report are denominated in United States dollars (US\$1.00 = CDN\$1.22). Where gold grades are quoted in this report, the abbreviation "opt" means troy ounces per short ton and the abbreviation "gpt" means grams per metric tonne. Historical resource estimates are presented in their original dimensions and measurement units to insure historical accuracy. Historical literature from before 1970 often quotes gold grades in United States dollars per short ton. Gold prices used for conversions to troy ounces per short ton are \$20.67 per ounce for publications prior to 1934 and \$35.00 per troy ounce for publications dating from 1934 to 1968 when the gold price was allowed to float on the open market.

When referring to locations along a creek, this report uses the historical method of description where right limit and left limit refer to the side of the creek as viewed by a person looking downstream. The terms alluvial and placer are considered synonymous for the purposes of this report. For purposes of this report, the abbreviated term "Ma" shall mean "millions of years ago" and the term "Moz" shall mean "millions of ounces". Older literature uses volcanic rock names for clearly plutonic rocks, particularly those of hypabyssal nature. The author has used the classification system of Streckeisen (1973) to convert the incorrect volcanic terms to their

equivalent correct plutonic classification. In this report the name "Shorty Creek Cu-Mo prospect" will be used only to refer to the copper-molybdenum prospect on Hill 1710 that was drilled by Earth Resources in the early 1970s while the term "Hill 1835 prospect" will be used to describe mineralization in the vicinity of Hill 1835 which was explored by Fairbanks Exploration Inc. (FEI) and Select in 1985-1990 and 2005, respectively.

Previous work has indicated that biotite hornfels and lesser diopsidic hornfels are widespread in the area. Field evidence suggests that hornfelsing precedes hydrothermal alteration, brecciation and mineralization. Previous mapping indicate that hornfels occurs at the Shorty Creek Cu-Mo prospect, on 1835 prospect, on the flanks of Hill 1870 and in the Hill 2161 area on the southern end of the Shorty Creek project. Although very little intrusive rock is exposed on the Shorty Creek project the widespread and often intense hornfelsing of the sediments, particularly in the Hill 1835 area, suggest a significant size intrusive nearby.

## 2.2 Units of Measure

Unless otherwise noted, all costs contained in this report are denominated in United States dollars (US\$1.00 = CDN\$1.22).

All units of measurement used in this report are metric unless otherwise stated. Historical grade and tonnage are reported as originally published. Gold grades are reported as referenced and conversion factors are listed below. Freegold uses the UTM coordinate system, NAD 27 Alaska, Zone 6 North datum.

Some of the conversion factors applicable to this report are:

### Analytical Values

	<b>oz/ton (opt)</b>	<b>gm/tonne ( g/t)</b>
<b>1 ppm</b>	0.0291667	1
<b>1 ppb</b>	0.0000291667	0.001
<b>1 oz/ton</b>	1	34.2857

### Linear Measure

1 inch (in)	=2.54 centimeters (cm)
1 foot (ft)	=0.3048 meter (m)
1 yard (yd)	=0.9144 meter (m)
1 mile (mi)	=1.6093 kilometers (km)



## Area Measure

1 acre	=0.4047 hectare	
1 square mile	=640 acres	=259 hectares

## 2.3 Definitions

ADL	Alaska Division of Lands
ADGGS	Alaska Division of Geological and Geophysical Surveys
AOI	Area of Influence
BLM	United States Bureau of Land Management
CFR	Code of Federal Regulations (United States Federal Code)
DDH	Diamond Drill Hole
FA/AA	Fire Assay with Atomic Absorption finish, analytical technique for gold analysis
F, FBM	Fairbanks Base and Meridian
FLYSCH like sandstones	A sequence of shales rhythmically interbedded with thin, hard, greywacke
GPS	Global Positioning System
ICP	Inductively Coupled Plasma (geochemical analytical method)
LR2000	US Bureau of Land Management online Legacy Rehost System (BLM land status)
Moz	Million ounces
NAD	North American Datum
NSR	Net Smelter Royalties
RAB	Reverse Air Blast (Drill Hole)
RC	Reverse Circulation (Drill Hole)
USGS	United States Geological Survey
4WD	Four Wheel Drive vehicle
2WD	Two Wheel Drive vehicle

### **3. RELIANCE ON OTHER EXPERTS**

This report has been prepared by Mark Abrams (Abrams) using public documents acquired by the author and private documents given to the author by Freegold for this purpose. While reasonable care has been taken in preparing this report, Abrams cannot guarantee the accuracy or completeness of all supporting documentation. In particular, Abrams did not attempt to determine the veracity of geochemical data reported by Freegold or third parties, nor did Abrams attempt to conduct duplicate sampling for comparison with the geochemical results provided by other parties. The interpretive views expressed herein are those of the author and may or may not reflect the views of Freegold or the property owners.

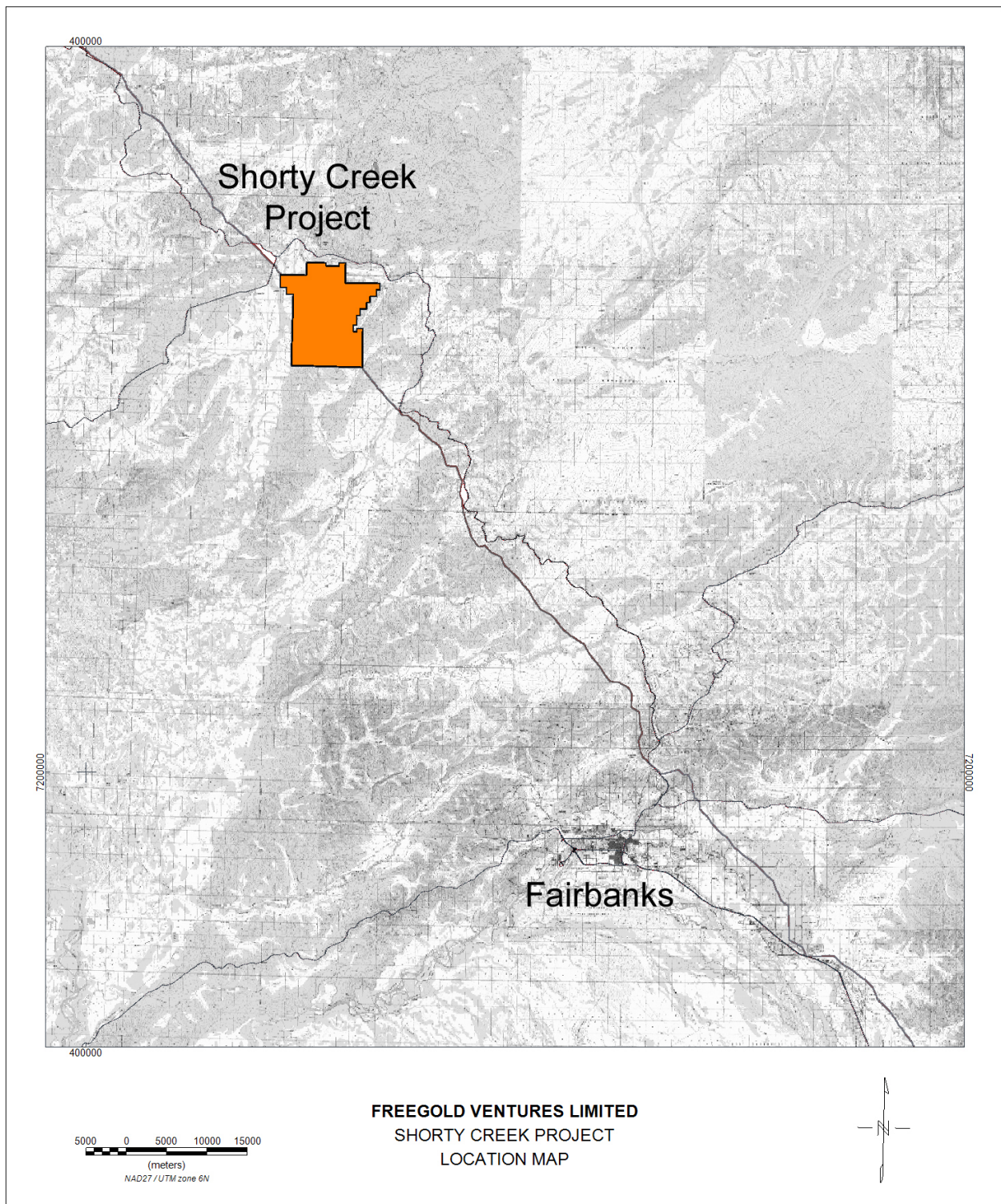
### **4. PROPERTY DESCRIPTION AND LOCATION**

#### **4.1 Area and Location**

The Property is located in the Livengood - Tolovana Mining District about 125 road-kilometers northwest of Fairbanks Alaska (Figure 4.1). The Property lies about 4 kilometers south of the now-abandoned gold-mining town site of Livengood and the all-weather paved Elliott Highway, which connects Fairbanks with Alaska's North Slope petroleum production areas via the Elliott and Dalton Highways. The Trans-Alaska Pipeline and the associated surface access corridor cross the Shorty Creek property. The south-draining Tolovana River wraps around the north and west sides of the property and is a tributary to the Yukon River via the Tanana River.

The claim group is situated primarily within Township 7 North, Ranges 4 and 5 West, Fairbanks Meridian; in the Livengood B-3 and B-4 quadrangles. Geographically the center of the Property lies at about 430000 E, 7257500 N (UTM NAD 27 for Alaska, Zone 6 North datum (Figure 4.2). The Property is comprised of 251 State of Alaska mining claims covering 26,887 acres (10,881.12 hectares). A list of claims is attached in Appendix 1.

The Trans-Alaska Pipeline (Figure 4.2) crosses the property from the southeast to the northwest. The original pipeline corridor, measuring one mile in total width, was closed to mineral entry by Mineral Closing Order 67 in 1980. Subsequently, in 2014 the pipeline corridor was reduced to 600 feet (300 feet on each side of the pipeline). Freegold staked additional claims in the formerly closed area, bringing the total number to claims to its current amount of 251. In addition, a slightly different closing order, Mineral Closing Order 529 was imposed more recently and encompasses the right of way for possible natural gas line construction (Figure 4.2).



**Figure 4.1 Shorty Creek Property Location Map**

## 4.2 Claims and Agreements

In July 2014, Freegold through its wholly owned subsidiary, Grizzly Bear Gold Inc., acquired a lease on the Shorty Creek property from Gold Range, Ltd., a Fairbanks-based private corporation. The Shorty Creek claims under lease include the original 203 State of Alaska mining claims held by Gold Range, Ltd. and an additional 48 State of Alaska claims staked by Freegold in the area of interest. The 48 new claims are subject to the agreement with Gold Range, Ltd. The total number of claims is currently 251 claims covering 26,887 acres (10,881.12 hectares); (Figure 4.2, Appendix 1). Under terms of this lease, Freegold may explore, develop and mine the project under a 10-year lease agreement which calls for a Freegold share payment to Gold Range of 750,000 as consideration. Gold Range, Ltd. will be responsible for the annual State of Alaska rent for the first 5 years for the original 203 claims, after which point Freegold will be responsible for these payments. Gold Range, Ltd. will retain a 2% NSR.

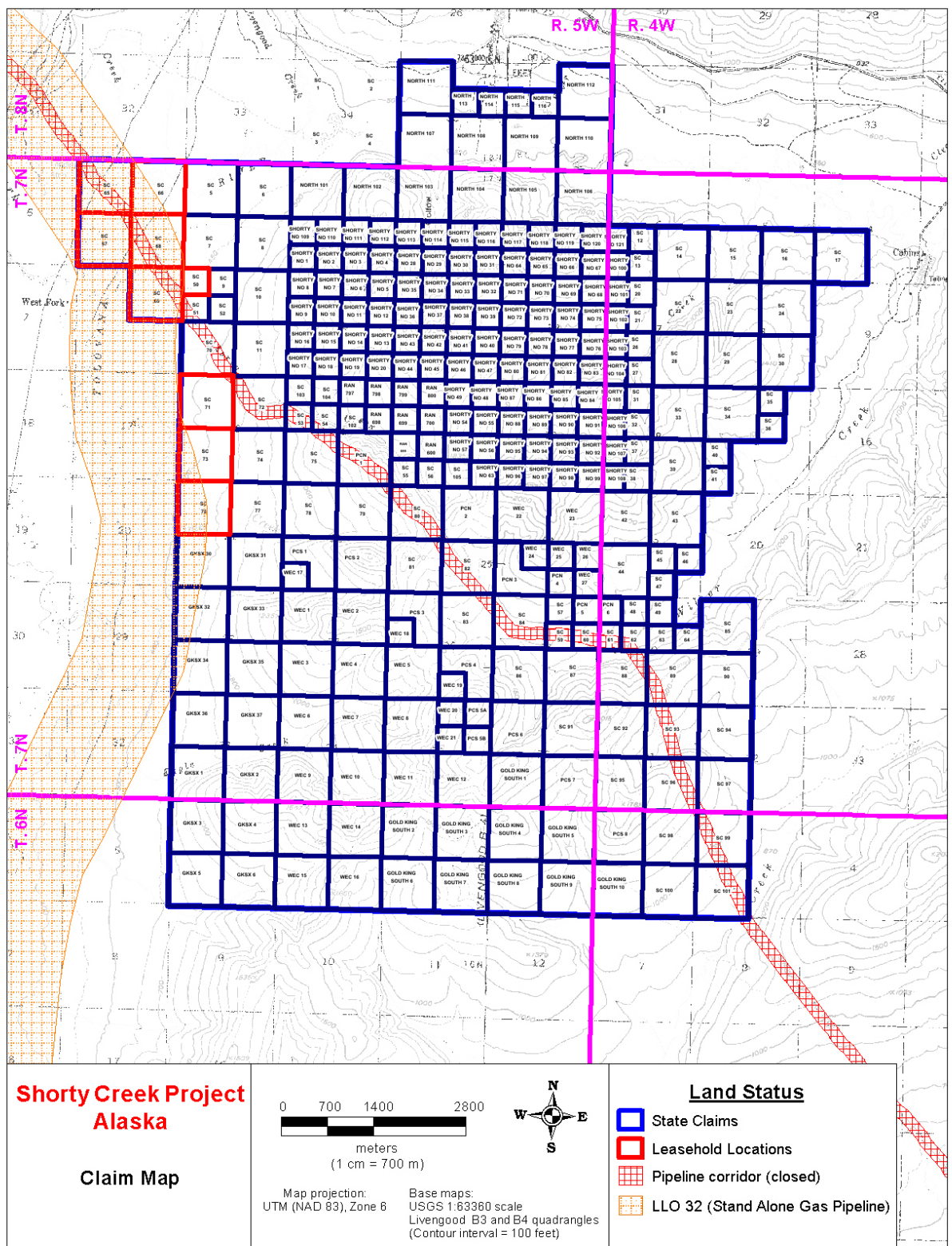
Mineral rights in this part of Alaska are administered by the State of Alaska. The 2014-2015 annual rents at Shorty Creek were paid by Gold Range, Ltd. in November of 2014. These claim rent payments and the annual labor documents recorded by Gold Range, Ltd. are sufficient to keep the claims valid through September 1, 2015. In addition Freegold paid an additional \$5,810 Additional claim rents for the period September 1, 2014 through September 1, 2015 will become due September 1, 2015 Annual work commitment on the properties in the amount of \$2.50 per acre per year is required with amounts in excess of these levels bankable up to four years into the future. To the best of the author's knowledge, all claims at the Shorty Creek project currently are in good standing. The claims of the Shorty Creek project have not been surveyed by a registered land or mineral surveyor and there is no State or federal law or regulation requiring such surveying.

A summary of the claims held by Freegold is shown in Table 4.1. Figure 4.2 shows the land status.

**Table 4.1 Summary of claims comprising the Shorty Creek property**

<b>Claim Type</b>	<b>Total Claims</b>	<b>Total Area (sq mi)</b>	<b>Total Area (acres)</b>	<b>Total Area (hectares)</b>
State of Alaska	251	42.01	26,887	10,881.12
<b>Total</b>	<b>251</b>	<b>42.01</b>	<b>26,887</b>	<b>10,881.12</b>





**Figure 4.2 Shorty Creek Land Status Map**

Surface disturbance associated with past mineral exploration is restricted to a few cut survey lines, drill pad clearings, and partially reclaimed exploration roadways in the northern portion of the Shorty Creek property. To the best of the author's knowledge, there are no unusual environmental liabilities attached to the property.

Depending on the level of exploration work proposed, permits may be required from the Alaska Department of Natural Resources and other State and Federal regulatory agencies and will be applied for on an as-needed basis.

### **4.3 Permits**

Gold Range, Ltd. and Freegold, through its wholly owned subsidiary Grizzly Bear Gold Inc.; have obtained a multi-year Miscellaneous Land Use Permit For Hardrock Exploration and Reclamation, Winter Cross Country Travel permit. Permit #9170 authorizes exploration, road and drill pad construction and winter cross country travel off of the claimblock. The permit also prescribes mitigation and reporting requirements. The permit was issued effective February 26, 2015 and is valid through December 31, 2017. The permit allows for the construction of access road from the Elliot Highway to Hill 1835 and the Cu-Mo target on Hill 1710.

## **5. ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY**

### **5.1 Accessibility**

The Shorty Creek property is located in the Livengood - Tolovana Mining District about 125 road-kilometers northwest of Fairbanks Alaska. The property lies about 4 kilometers south of the now-abandoned gold-mining town site of Livengood and the all-weather paved Elliott Highway. The Elliott Highway connects Fairbanks with Alaska's North Slope petroleum production areas via the Dalton Highway. The southern terminus of the Dalton Highway, the only all-weather road link to Alaska's North Slope, is located approximately 10 kilometers north of the project.

### **5.2 Climate**

The climate in this portion of Alaska is dominated by 6 to 8 months of sub-freezing temperatures in winter followed by 4 to 6 months of warm summer weather. Average annual precipitation is 33 cm (13 in.), mostly as snowfall between October and March. The summer exploration season extends from mid-May through October, although winter drilling programs are common in Interior Alaska. Development of mines in this climate requires additional engineering and cost, but is not prohibitive, as demonstrated by large-scale mining operations conducted by at the Fort

Knox, True North, Greens Creek, Red Dog Usibelli and Pogo mines in Alaska, and numerous mines in Canada's far north.

The Shorty Creek area is largely covered by sub-Arctic taiga forest consisting of black spruce, white spruce, birch and aspen. The forest floor is covered by a thick blanket of tundra vegetation and small shrubs such as dwarf birch, willow, alder, Labrador tea and blueberries.

### **5.3 Local Resources**

Only a few buildings occupied by less than 10 seasonal residents remain in the historic placer mining settlement of Livengood. The Alaska Department of Transportation and Public Facilities maintains a road maintenance facility at Livengood. There are no public services in the Livengood area.

The greater Fairbanks area supports a population of approximately 87,000 and has excellent labor and services infrastructure, including rail and international airport access. The Fairbanks International airport is served by several major airlines with numerous scheduled daily flights. The main campus of the University of Alaska is located in Fairbanks in addition to numerous State and Federal Offices. Major employers within the Fairbanks Area include Fort Knox, Fort Wainwright (US Army), the University of Alaska as well as numerous State and Federal Agencies. Exploration and development costs in the Fairbanks area are at or below those common in the western United States.

### **5.4 Infrastructure**

There currently is no public electrical or communications services in the Shorty Creek project area however, advanced feasibility work is being conducted by International Tower Hill Mines on their Livengood gold deposit. Should development of this project occur, industrial-scale power and communications systems linked to Fairbanks will be constructed only a few kilometers from the Property (see "Adjacent Properties").

The Shorty Creek project is bisected by the Trans-Alaska Pipeline, a 48-inch diameter 800 mile long pipeline currently carrying approximately 600,000 barrels per day of crude oil from production facilities on Alaska's North Slope to the all-weather port of Valdez, Alaska. In the Shorty Creek area, the pipeline is serviced via a controlled-access gravel road whose right-of-way is leased from the State of Alaska by Alyeska Pipeline Service Co., the operator of the Trans-Alaska Pipeline.

The State of Alaska maintains royalty rights to a certain amount of crude oil on the Trans-Alaska Pipeline system. Eight large pumping stations along the pipeline route are powered by crude oil produced from on-site topping plants and diesel demand for any project in the Shorty

Creek area may be able to utilize State royalty oil to create a local diesel fuel product for mine use.

Several competing options currently are being promoted for construction of an Alaska Natural Gas Pipeline. Regardless of the option eventually chosen, this pipeline will parallel the Trans-Alaska oil line from Prudhoe Bay on the North Slope to Fairbanks, and will thus be constructed across the Shorty Creek property, most likely within the same right-of-way that hosts the oil pipeline. There currently is no guarantee that the natural gas line will be built however, if it is constructed, it would offer similar energy alternatives to the Shorty Creek project.

## **5.5 Physiography**

The physiography of Shorty Creek is characterized as moderately hilly. Elevations range from 150 meters (500 feet) along the Tolovana River, to 660 meters (2,161 feet) on the hilltops. The project is drained by Shorty Creek, Steel Creek, Wilber Creek, Eagle Creek, Slate Creek and several other seasonal drainages which feed the Tolovana River which drains across the northern and western edges of the project.

This part of Alaska was not glaciated during the Pleistocene however, the project area was near the southwestern terminus of continental ice and winds from this cold ice mass deposited a variably thick layer of aeolian silt over much of Interior Alaska, including the Shorty Creek project area. Permafrost is limited to small discontinuous lenses on steep, poorly drained north-facing slopes and has posed no hindrance to past exploration.

## **6. HISTORY**

The Tolovana-Livengood district is best known as a placer gold district. Placer gold was discovered on Livengood Creek in 1914 and placer mining has been conducted in the district on a nearly continuous basis since that time. Total recorded production from the district through 2007 is approximately 530,121 ounces of gold, all from placer operations (AMA, 2009). Freeman and Schaefer (1999) reported that over 1 Moz of placer gold resources had been blocked out by drilling on Livengood Creek proper prior to 1940. The most productive creeks in the area are located on the north side of the Tolovana River valley and include Livengood Creek, Myrtle Creek, Olive Creek, Ruth Creek, Gertrude Creek and Lucille Creek.

Wilber Creek is the only past-producing drainage entering the Tolovana River from the south, the same side of the river on which the Shorty Creek project is located. Placer gold discovered on Wilber Creek in 1906 (Freeman, 2010; R. Rybachek, oral comm., 1988) and additional prospects were discovered in 1915 and 1921 (Freeman and Schaefer, 1999). The first recorded placer production from Wilber Creek took place in 1926 and production took place intermittently



between then and the late 1980's when a limited amount of drift mining was conducted. Freeman (Freeman, 1989) based the 1988 Shorty Creek exploration program from the active placer mine at Wilber Creek and was informed by the placer mine operators that high-grade gold in quartz veins was discovered and mined by hand methods from pits and shallow shafts along the left limit (northwest side) of Wilber Creek some-time prior to World War II (Freeman, 2010; R. Rybachek, oral comm., 1988). Limited efforts during the 1988 program to locate these old workings were not successful. Total placer production from the Wilber Creek valley is unknown but likely less than 50,000 ounces.

Joesting (1943) reported considerable tungsten (as wolframite) in a placer concentrate collected from Steel Creek which drains the eastern side of the Shorty Creek project. No other reference to Steel Creek is known to the author.

The Shorty Creek Cu-Mo prospect was originally located as an antimony prospect in 1972 (Hart and others, 1985) but was re-evaluated as a copper-molybdenum prospect by Earth Resources in 1972 and was reportedly drilled in several locations prior to 1974 (Eakins, 1974). The property was located based on a large aeromagnetic anomaly that extends over an area about 10 miles square. Quartz-feldspar porphyry with disseminated sulfides, as well as anomalous concentrations of copper and molybdenum, were found along Shorty Creek near the center of the magnetic anomaly. Eakin (1974) reported anomalous metal concentrations from 4 stream sediment samples collected in Shorty Creek and one stream sediment sample collected in Ranney Hollow. Values from the Shorty Creek samples ranged from 30 to 175 ppm copper, 10 to 50 ppb lead, 70 to 105 ppm zinc, <0.2 to 0.5 ppm silver and <100 ppb gold. The sample from lower Ranney Hollow returned 90 ppm copper, 200 ppb lead, 440 ppm zinc, 0.5 ppm silver and 300 ppb gold.

Field evidence suggests that Earth Resources, possibly in joint venture with BP Minerals America (Robinson and Metz, 1979), drilled ten rotary holes on the south flank of Hill 1710 (Figure 2) but abandoned the property in 1979 due to low copper and molybdenum grades. The joint venture concluded that the copper-molybdenum-silver mineralization is associated with the felsic dikes and sills that intrude the Jurassic-Cretaceous Wilber Creek flysch sequence. Data from this exploration program is not available to the author however; Eakin (1974) collected four grab samples from drill cuttings left at the Earth Resources drill pads. These samples returned 170 to 1,050 ppm copper, 20 to 60 ppb lead, 105 to 640 ppm zinc, <0.2 to 01.1 ppm silver and <100 to 100 ppb gold. One bedrock sample was collected approximately 0.5 miles south of the drill area and returned 150 ppm copper, 20 ppb lead, 60 ppm zinc and no detectible silver or gold.

Regional geochemical results presented by Robinson and Metz (1979), Albanese (1983b) and Metz (1984) indicated that widespread anomalous precious and base metal mineralization is present in the Shorty Creek project area. Sulfide mineralization was described by Robinson and Metz (1979) during their mineral evaluations on the Alyeska Pipeline Corridor on what is now

the southwestern extension of the Hill 1835 prospect. In the excavation adjacent to the buried pipe, sulfides as much as 5 inches thick were described. The sulfide mineralization included arsenopyrite, stibnite, galena, and chalcopyrite. Strongly anomalous concentrations of cobalt and bismuth also were noted, although the exact mineral species hosting these metals was not determined.

The Alaska Division of Geological and Geophysical Surveys (DGGS) conducted a regional geological mapping and rock and stream sediment geochemical sampling program in the Tolovana-Livengood mining district in 1982 and 1983. Mapping was completed at 1:40,000 scale and stream sediment, pan concentrate and rock samples were collected in the Livengood - Tolovana Mining District, including the Shorty Creek project area (Albanese, 1983a, 1983b; Bundtzen, 1983). These samples were subsequently re-analyzed using more sensitive analytical equipment and re-released (Szumigala and others, 2005). Geochemical results from this re-analysis are presented under "Mineralization".

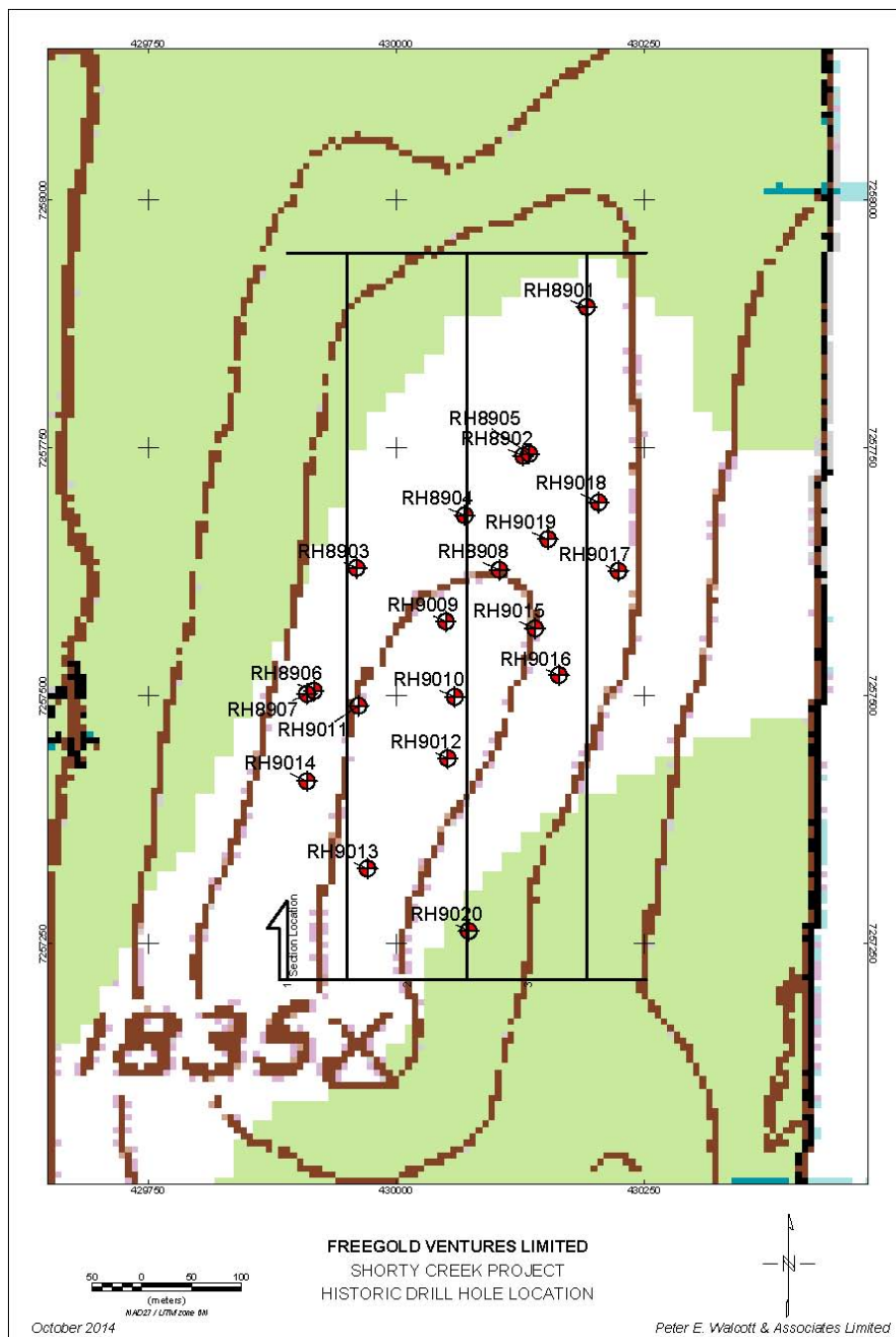
In 1984, local Fairbanks geologist Roger Burleigh utilized the results of these studies to target what was then called the Ranney Hollow - Eagle Creek prospect area (now Shorty Creek project), and stake prospecting sites and mining claims. The claims were subsequently leased to Fairbanks-based Fairbanks Exploration Inc. who in 1985 discovered significant gold, copper and pathfinder element anomalies in the vicinity of Hill 1835, in exposures along the Alaska Pipeline access road and in the vicinity of Hill 1870 to the south of the pipeline road (Hart and others, 1985). During 1985 Fairbanks Exploration geologists spent 53 person-days on the property and collected 130 rock samples which were analyzed for Au, As, Sb, Ag, Pb, and Zn. Total 1985 expenditures at Shorty Creek were not specified by Hart and others (1985) but were less than \$25,000.

The 1986 exploration program was designed to outline and sample the mineralized zone on Hill 1835 and advance it as a drill target. Field exercises in 1986 consisted of 23 man-days of work on the prospect (Freeman and others, 1986). A total of 77 rock samples were collected and analyzed for Au, Ag, As, Sb, Cu, Pb, Zn, Mo, Ba, and Tl by Bondar-Clegg and Company. Four trenches were emplaced using hand and explosive techniques. All of the trenches were emplaced within mineralized portions of the property. Prospecting was conducted along the northeast and southwest projections of the mineralized zone resulting in identification of the mineralized zone over a plus-one mile strike length. Total 1986 expenditures at Shorty Creek were approximately \$13,693.

In June, 1988 Fairbanks Exploration entered into a joint venture agreement with Asarco Inc. to explore and develop the Shorty Creek project (Freeman and others, 1988). Terms of this agreement are not available to the author. Field activities in 1988 consisted of 67 person-days of fieldwork, in which 602 rock samples were collected at 100-foot intervals along lines spaced at 400 feet, covering a 5200 by 4200-foot area over and to the north of the anomalous area defined in 1985-1986. For economy, every other sample collected on a given sample line was sent for

analysis. A total of 340 samples were analyzed for gold, silver and arsenic by Bondar-Clegg and Company of Vancouver, B.C. The remaining 262 rock samples were stored in Fairbanks but were never analyzed and are no longer available. Total 1988 expenditures at Shorty Creek were approximately \$39,630.

Field activities in 1989 consisted of access road and drill pad construction and reverse circulation drilling (Freeman, 1989). A total of 83 man-days were expended on field work between August 31 and September 22, 1989. A 1.5 mile access road was constructed between the Hill 1835 area and the Alyeska Pipeline access road. Eight reverse circulation drill holes, totaling 1,028.5 feet, were completed at the Hill 1835 target (Figure 6.1). A total of 201 drill samples were collected on 5 foot intervals on all holes. All samples were sent to Bondar-Clegg and Company in Vancouver, BC, and analyzed for gold by fire assay with gravimetric finish. Total 1989 expenditures at Shorty Creek were approximately \$58,052.



**Figure 6.1 Map Showing Historical Drill Hole Locations Hill 1835**

A total of 223 man-days of field work was completed on the Ranney Hollow claim block by the Fairbanks Exploration - Asarco joint venture during 1990 (Freeman and Huber, 1990). Twelve reverse-circulation drill holes, totaling 5,815 feet, were completed (Figure 6.1). All holes were vertical with eleven holes terminating at 500 feet depth and one terminating at 315 feet. As in the 1989 program, drilling was completed in the vicinity of Hill 1835 prospect area. A total of 1,174 drill samples were collected at 5 foot intervals in all drill holes. In addition to drilling, recon-scale mapping and sampling was conducted over those portions of the claim block not previously examined. The old Shorty Creek Cu-Mo prospect was re-examined in light of the

highly anomalous copper values returned from the 1990 drilling program. A total of 184 rock samples was collected and analyzed for gold by fire assay, for silver, copper and molybdenum by atomic absorption and for arsenic by neutron activation. A total of 80 pulps from rock samples originally collected on the project in 1985 were re-analyzed for gold by fire assay, for silver, copper and molybdenum by atomic absorption and for arsenic by neutron activation. Total 1990 expenditures at Shorty Creek were approximately \$258,516.18. Asarco elected to abandon mineral exploration in Alaska, and as a result, the Asarco-Fairbanks Exploration joint venture was terminated in late 1990.

Little substantive exploration work was conducted on the Shorty Creek project between 1990 and 2005. Weber and others (1992) published a geologic map of the Livengood quadrangle which was updated and colorized by Weber and others (1997). McCammon and others (1997) published a probabilistic estimate outlining the mineral potential of the Livengood quadrangle but it contained no specific references to the Shorty Creek project. Light and Lee (1997) published a summary of gold bearing samples from the Livengood quadrangle but presented no new information from the Shorty Creek area.

The Alaska Division of Geological and Geophysical Surveys (DGGS) conducted airborne surveys over the Livengood Mining District and released maps and digital data containing magnetic and two frequencies of resistivity derived from electromagnetic survey data (DGGS Staff, 1999a, 1999b and 1999c). DGGS conducted follow-up mapping and geochemical sampling in 2001 and 2003 in the area north of the Elliott Highway but not in the Shorty Creek project area (Athey and others, 2004a, Athey and others, 2004b).

During June 2000, Kennecott Exploration staked a small block of claims on the north side of the Shorty Creek project and conducted additional rock, soil and stream sediment sampling over the Shorty Creek project (Metz, 2000). The work defined three target areas with anomalous concentrations of Au, Cu and As: the Hill 1835 prospect explored by Fairbanks Exploration; the Shorty Creek Cu-Mo prospect area and a third area centered on hill 1890 to the east of Ranney Hollow. Kennecott provided thematic geochemical maps for these three elements showing sample locations and values sized by percentile rank. Raw data from this work were not made available to Fairbanks Exploration.

In 2004, AngloGold Ashanti obtained the assay pulps from the DGGS stream sediment geochemical programs of the early 1980's and had these pulps reanalyzed for gold and a low-level multi-element geochemical suite using modern analytical techniques. The results of this work were provided to ADGGS published by Szumigala and others (2005). A significant number of samples from this work form part of the geochemical database for the Shorty Creek project. Results are discussed under "Mineralization".

In early 2005, California-based Select Resources (Select) announced acquisition of the Shorty Creek project from Fairbanks-based Gold Range Ltd. In March, 2005 Select staked

approximately 5,300 acres of additional State of Alaska mining claims adjacent to the existing 4800 acre Shorty Creek claim block. Later that year Select contracted with Avalon Development to conduct a top of bedrock soil sampling program on an approximately 4 square kilometer area of the project (Noyes and others, 2006). Soil samples were spaced 50 meters apart on east-west lines spaced 100 meters apart. A total of 566 soil samples were collected along with 21 grab rock samples collected while soil sampling was under way. Total 2005 field expenditures at Shorty Creek were approximately \$165,000 however, additional but unknown costs were incurred for geological, geophysical, geochemical, GIS and remote sensing work conducted before, during and after the field program. These additional costs are not available to the author.

No further field work was conducted at Shorty Creek until early June, 2009 when Select staked additional State of Alaska mining claims to increase its land position from approximately 17 square miles to a total of about 39 square miles (Tri-Valley Corp., News Release, 5 June 2009). In September the company announced that it had begun seeking a joint venture partner for the project (Tri-Valley Corp., News Release, 2 Sep 2009).

In order to facilitate seeking a joint venture partner, Select engaged Avalon Development to review all of the previously generated data, summarize it and synthesize targets from this data. This work was summarized in a report by Curt Freeman of Avalon Development (Freeman, 2010). The cost for this work was not available to the author.

**Table 6.1 Summary of exploration (1914-2015) conducted on the Shorty Creek property and adjacent prospects**

<b>Company</b>	<b>Years</b>	<b>Exploration/Mining Activity</b>	<b>Principle Targets</b>
Independent prospectors	1914	Placer mining (gold)	Livengood Creek
Independent prospectors	1926 – late 1980s	Placer mining (gold)	Wilbur Creek
Independent prospectors	1943	Placer mining (gold, tungsten)	Steel Creek
Earth Resources	1972 -1979	Geochemical sampling, geophysics and drilling (approximately 10 holes) for Cu-Mo	South Flank of Hill 1710 for porphyry Cu-Mo.
Mineral Industry Research Lab – University of Alaska	1979	Mineral evaluation of the pipeline corridor	Pipeline corridor near Hill 1835
Alaska Division of Geological and Geophysical Surveys	1982 – 1983	Regional geological mapping and rock and stream sediment geochemical sampling.	Tolovana – Livengood mining district
Roger Burleigh	1984	Prospecting	Ranney Hollow, Eagle

Company	Years	Exploration/Mining Activity	Principle Targets
			Creek, Shorty Creek
Fairbanks Exploration	1985 – 1988	Rock and soil geochemical sampling, trenching	Hill 1870, Hill 1835
Fairbanks Exploration/Asarco	1988 – 1990	Rock sampling, property wide mapping, road and drill pad construction, RC drilling	Hill 1835 – 20 holes
Kennecott	2000	Shorty Creek area. Rock, soil and stream sediment sampling.	Property-wide, Hill 1835, Shorty Creek Cu-Mo area and Hill 1890
AngloGold Ashanti	2004	Reanalyzed pulps from the Alaska Division of Geological and Geophysical Surveys stream sediment programs from the early 1980's using modern techniques. The results were published by DGGs.	General Shorty Creek area
Select Resources	2005 -2010	Top of bedrock soil sampling (auger drilling); geological, geophysical and geochemical surveys; remote sensing and GIS.	Property-wide, with focus on Hill 1835.
Freegold	2014 - 2015	Claim staking, soil sampling (354 samples), geophysics (28.6 line km of induced polarization)	North central part of the current claimblock

## 7. GEOLOGICAL SETTING AND MINERALIZATION

### 7.1 Regional and Property Geology

#### 7.1.1 Regional Geology

The following summary of the regional geology of Interior Alaska is generally excerpted from Freeman (2010):

The Shorty Creek project is located within the Livengood Terrane, a complex and poorly understood belt of Paleozoic through Cretaceous sedimentary, metamorphic and intrusive rocks which are bounded on the north by the northeast trending right lateral Kaltag fault and the northwest trending right lateral Tintina fault. On the south, the Livengood Terrane is bounded by the regionally extensive Yukon Tanana Terrane (Weber and others, 1992; Weber and others, 1997). Late Cretaceous and Tertiary dextral motion along the Tintina fault displaced rocks south of the fault at least 430 kilometers westward relative to time-equivalent rocks to the north of the Tintina fault in the Yukon Territory. During Mid-Cretaceous time, the Livengood area was

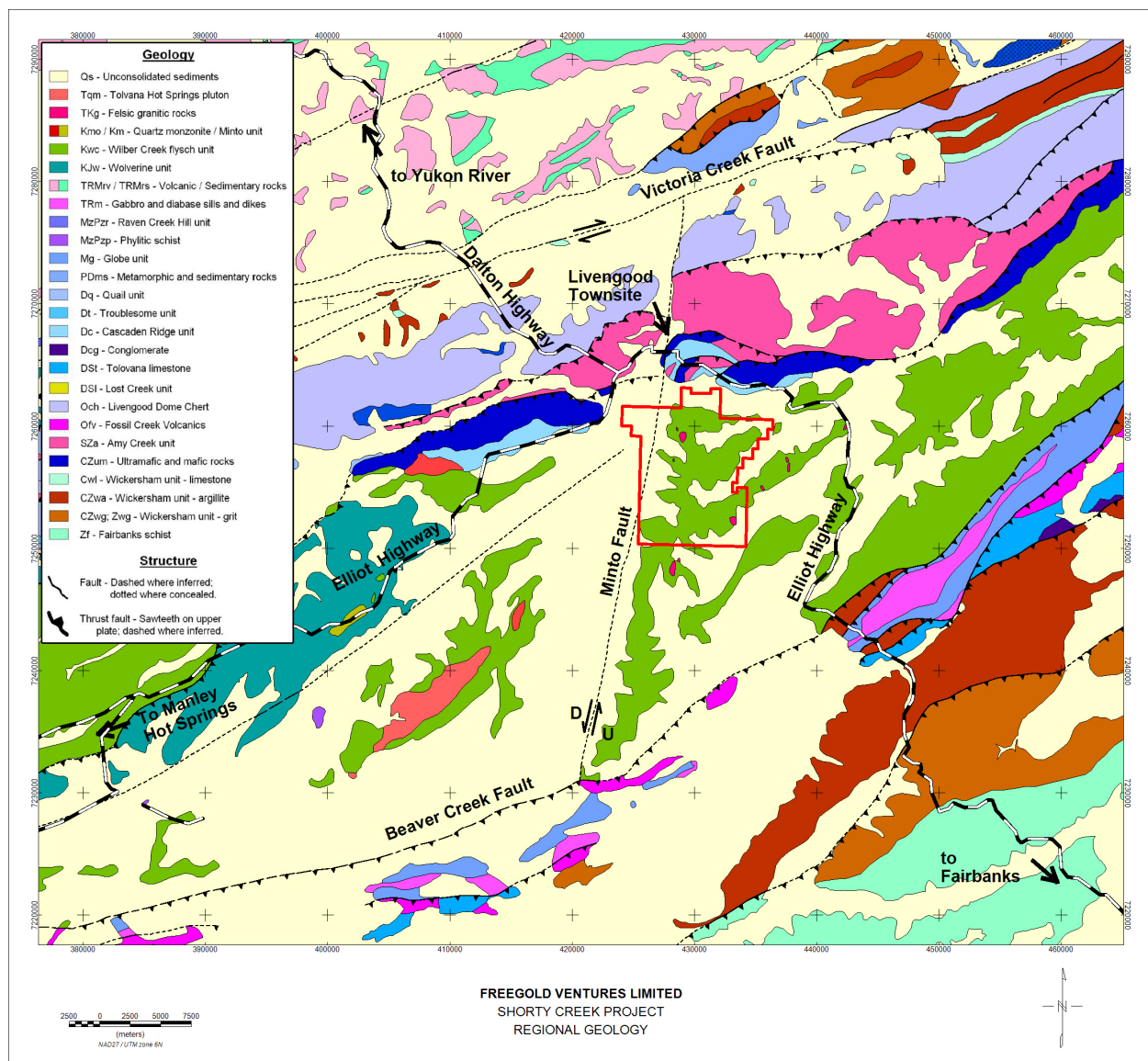


situated approximately in the position of Dawson City relative to the northern cordillera (Hart and others, 2004). The Livengood Terrane sits immediately south of this hinge zone where predominantly northwest trending high angle structures become predominantly northeast trending thrust and reverse faults. To the southeast, the Livengood Terrane is separated from regionally extensive rocks of the Yukon Tanana Terrane by the Beaver Creek thrust fault, a northeast striking, southeast dipping regional-scale structure (Figure 7.1.2).

Rocks of the Shorty Creek project are hosted within the Wilber Creek unit, a folded sequence of Early Cretaceous flysch sediments which form the youngest bedded rocks in the project area. The Wilber Creek flysch disconformably overlies a thrust package of south dipping Lower Paleozoic carbonates, volcanics and pelitic rocks which host the +20.1 Moz Livengood gold project located about 5 miles north of the Shorty Creek project (Bundtzen, 1983, Weber and others, 1992; Weber and others, 1997). Rocks of the Wilber Creek flysch are folded into open to recumbent isoclinal folds and subsequently cut by northeast and north-south structures, the largest of which are the Minto and Ranney Hollow faults, two north-south striking left lateral fault with significant but uncertain vertical offset. The Minto fault bounds a broad topographic lowland immediately west of the project area, and remains active to the present.

Rocks of the Livengood Terrane have been intruded by both mid-Cretaceous (90 to 110 Ma) and Early Tertiary (60-75 Ma) felsic to intermediate plutonic rocks, the latter of which crop out on the Shorty Creek project (Athey and Craw, 2004; Albanese, 1983; Metz, oral comm., 2010). These intrusive rocks are regionally extensive in both the Tintina Gold belt to the west and the Kuskokwim Gold belt to the southwest. In both mineral belts, these intrusives are spatially and probably genetically associated with widespread gold and base metal mineralization (Ebert, 2003, Lang and others, 1999, Hart and others, 2002, Hart and others, 2004; Flanigan and others, 2000, Mortensen and others, 2000, McCoy, 1999, McCoy and others, 1997, McCoy and others, 2002, Bundtzen and Miller, 1997, Eremin, 1995, Baker, 2002, Baker and others, 2006, Klipfel and Giroux, 2009).





**Figure 7.1.2 Regional Geology of the Shorty Creek project, Alaska. Data from Weber and others, 1992 and 1997, modified by Avalon Development, 2010 and modified by Freegold, 2015**

### 7.1.3 Project Geology

The following summary of the Shorty Creek project general geology is derived in large part from Freeman (2010):

Extensive Pleistocene aeolian silt and sub-Arctic vegetation obscure most of the bedrock on the Shorty Creek project (Figure 7.1.3). Its presence is only noted on the project geology map as a dashed line showing where the cover deepens. Limited exposures of the Wilber Creek sequence occur along the Alyeska Pipeline access road corridor and along some ridge tops in the area. Lithologies exposed at Shorty Creek include interbedded shale, siltstone, greywacke sandstone

and conglomerate. Graded bedding is common. Poorly preserved pelecypods within the conglomerate unit suggest a Late Jurassic to Early Cretaceous age although Weber and others (1997) assign the Wilber Creek rocks an Early Cretaceous age in the Shorty Creek project area.

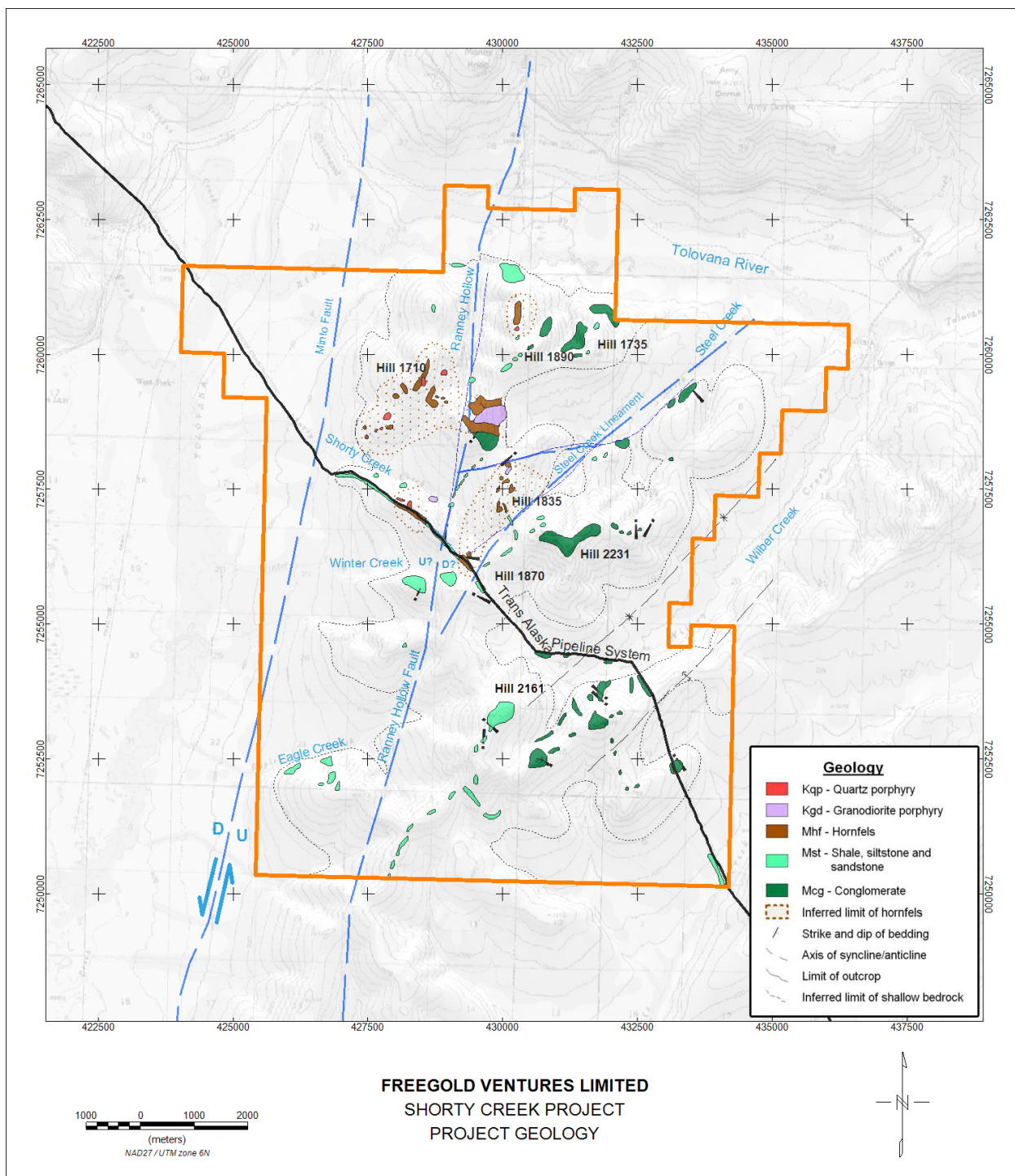
The principal lithologies exposed on the Shorty Creek project include black carbonaceous siltstone, gray feldspathic sandstone and silty sandstone, black shale and polymict conglomerate (Figure 7.1.3, Bundtzen, 1983; Albanese, 1983; Hart and others, 1985; Freeman and others, 1986; Freeman and others, 1988; Freeman, 1989; Freeman and Huber, 1990). Most lithologic units strike N20-60E and dip shallowly to the northwest or southeast. Siltstone, shale and conglomerate beds range from a few inches to several feet in thickness. Slaty cleavage occurs locally where it transects bedding at low angles, suggesting possible large scale isoclinal folding may occur in the Wilber Creek flysch (Albanese, 1983). Graded bedding, evaporite horizons, and load and flute casts all indicate that the stratigraphic sequence on the Shorty Creek project is right-side up. Siltstone and sandstone units are by far the most voluminous with some siltstone units slightly calcareous. Conglomerate lenses within the siltstone and sandstone units commonly form resistant ridge-top outcrops. Conglomerate clasts are subrounded and poorly sorted and range up to 2 centimeters in length. Clast lithologies include quartzite, hematitic chert, grey-black chert, tan sandstone and minor granodiorite. A distinctive, thermally altered(?) pyretic conglomerate has been identified on the south flank of Hill 2161 on the southern edge of the Shorty Creek project.

A variety of small igneous bodies occur within and peripheral to the Shorty Creek project (Figure 7.1.3). Biotite granodiorite is the most abundant intrusive rock type seen on the property. Textures of the biotite granodiorite are typically medium to coarse grained and equigranular to seriate. The granodiorite contains up to 15% black biotite and trace muscovite. Alteration minerals consist of minor calcite and iron oxides. Small medium grained intermediate intrusive bodies encountered during the 1989 and 1990 drilling program are heavily altered to clay(?), quartz and sericite. Quartz porphyry and aplite form smaller apophyses to the granodiorite bodies. The quartz porphyry bodies are light-gray in color and fine to medium-grained with relict plagioclase altered to calcite and quartz, euhedral limonitic opaques, and minor muscovite. The ground mass is altered to calcite in some instances. The igneous bodies encountered by Earth Resources Company during drilling on the Shorty Creek Cu-Mo prospect were thought to be sill-form (C. Herbert, oral comm., 1986). Limited fluid inclusion data from a small granitic pluton on the pipeline access road on the south side of Wilber Creek indicated the presence of high CO<sub>2</sub>, high salinity fluids (P. Metz, oral comm., 2010). A potassium-argon age date of 63 Ma was reported for intrusive rocks in the Shorty Creek area (Albanese, 1983). An Ar<sup>40</sup>/Ar<sup>39</sup> age date of 65-70 Ma was reported from white mica in intrusive rocks exposed at the collar of drill hole RH8901 on the north end of the Hill 1835 prospect (P. Metz., oral comm., 2010). In contrast, Athey and Craw (2004) reported an Ar<sup>40</sup>/Ar<sup>39</sup> age of 91-93 Ma for the Money Knob intrusions in the center of International Tower Hill's 19 Moz Livengood Gold deposit to the north of Shorty Creek.

Previous work has indicated that biotite hornfels and lesser diopside hornfels are widespread in the area. Field evidence suggests that hornfelsing precedes hydrothermal alteration, brecciation and mineralization. Previous mapping indicate that hornfels occurs at the Shorty Creek Cu-Mo prospect, on 1835 prospect, on the flanks of Hill 1870 and in the Hill 2161 area on the southern end of the Shorty Creek project. Although very little intrusive rock is exposed on the Shorty Creek project the widespread and often intense hornfelsing of the sediments, particularly in the Hill 1835 area, suggest a significant size intrusive nearby.

The dominant structural elements of the Shorty Creek property are compression-related, generally northwest directed, northeast-trending thrust faults and northeast striking folds (Bundtzen, 1983; Albanese, 1983; Weber and others, 1997; Athey and Craw, 2004; Noyes and others, 2006). Rocks of the Wilber Creek flysch are folded into open to recumbent isoclinal folds and subsequently cut by northeast and north-south structures, the largest of which are the Minto and Ranney Hollow faults, two north-south striking left lateral faults with significant vertical offset (Figure 7.1.3). The Minto fault bounds a broad topographic lowland immediately west of the project area, and remains active to the present. The Ranney Hollow fault was unrecognized prior to this report but is easily traceable in topography, in the DGGs airborne magnetics and in trace metal geochemistry patterns. Magnetic highs in the Hill 1710 area are offset by the Ranney Hollow fault in an apparent left lateral sense from similar magnitude magnetic highs to the east in the Hill 1890 area. The Ranney Hollow fault can be traced for at least ten miles from Olive Creek, a placer gold producing stream on the north side of the Tolovana River valley, through the Shorty Creek project to the valley of Slate Creek on the south (Figure 7.1.3).

Field evidence from the Hill 1835 area suggests the presence of northeast trending post-mineral structures (Freeman and others, 1986; Freeman and others, 1988). The northeast-trending Steel Creek lineament and possibly a parallel but unexposed structure along the trace of Wilber Creek are examples of this type of structure. Field evidence presented by Freeman and Huber (1990) and geochemical results from the 2005 soil sampling program (Noyes and others, 2006) indicate the presence of northeast-striking faults which bound the northern and southern limits of the anomalous metals at Hill 1835 prospect. The Hill 1835 mineralization appears to be part of the same structural zone exposed over one mile to the southwest on the Alyeska Pipeline access road. At this location exposures of the shear zone are several hundred feet wide and are marked by intense brecciation, silicification and gold-sulfide mineralization. Field observations indicate this is a normal fault zone which has had multiple periods of movement. The probable extension of this mineralized zone can be traced an additional one-half mile to the southwest where it is exposed on the northeast flank of Hill 1870. The zone appears to be truncated by the Ranney Hollow fault on the west flank of Hill 1870.



**Figure 7.1.3 General Geology of the Shorty Creek Project, Livengood – Tolovana Mining District, Alaska. Data from Fairbanks Exploration (1986-1990), Bundtzen (1983) and Noyes and others (2006); modified by Avalon Development, 2010, modified by Freegold (2015).**



## 7.2 Mineralization

Unless otherwise noted, the following summary of mineralization on the Shorty Creek project was modified after Hart and others, 1985, Freeman and others, 1986, Freeman and others, 1988, Freeman, 1989, Freeman and Huber, 1990, Noyes and others, 2006 and Freeman, 2010. Unless otherwise noted, the following summary of mineralization refers to Hill 1835.

Regional geochemical results presented by Albanese (1983b), Metz (1984) and Robinson and Metz (1979) indicated that widespread anomalous precious and base metal mineralization was present in the Shorty Creek project area. Sulfide mineralization was described by Robinson and Metz (1979) during their mineral evaluations on the Alyeska Pipeline Corridor on what is now the southwestern extension of the Hill 1835 prospect. In bedrock exposures to the east and west of the buried pipe, low-quartz sulfide veinlets as much as 5 inches thick were described in oxidized, fractured sediments of the Wilber Creek flysch. The sulfide mineralization included arsenopyrite, stibnite, galena, and chalcopyrite. Secondary scorodite and malachite were also identified. Sulfide veins also returned boron concentrations as high as 300 ppm, bismuth concentrations as high as 610 ppm and cobalt concentrations as high as 0.43% (4,300 ppm). Copper values as high as 0.21%, nickel values as high as 0.17% and antimony values as high as 500 ppm were detected in high-grade samples of sulfide-bearing vein material (Robinson and Metz, 1979). Due to the fact that these exposures were at the center of a one-mile wide mineral closure (since greatly reduced) associated with the pipeline corridor, no further work was conducted in this area until the ground was prospected and staked by Roger Burleigh in 1984 and leased to Fairbanks Explorato in 1985.

Outcrop exposures containing anomalous gold mineralization were discovered at the Hill 1835 prospect in 1985. Subsequent field activities revealed anomalous gold, silver, mercury, zinc, copper, molybdenum and arsenic in RC drill cutting, grab rock and trench rock samples collected in 1985, 1986 and 1988 through 1990. Anomalous Au, As, Bi, Te, S, Sn and W were detected in top of bedrock soil samples collected on Hill 1835 in 2005. Other areas where anomalous Au, Cu, As, Sb and Mo were detected includes the old Shorty Creek Cu-Mo prospect, Hill 1890 east of Ranney Hollow and Hill 1870 on the south side of the pipeline corridor.

The most intense hydrothermal alteration and anomalous metal geochemistry is concentrated at the Hill 1835 prospect where the normally dense sub-Arctic vegetation is absent or greatly reduced. The absence of vegetation is attributed to acidic soils and metal toxicity. This vegetation anomaly on Hill 1835 is visible in false color infrared images as well as full color digital images. The northern and southern limits of the vegetation anomaly correspond to the northern and southern limits of anomalous metal geochemistry, suggesting the boundaries are post-mineral structures. The protolith host rocks at Hill 1835 were shale and siltstone of the Wilber Creek flysch which subsequently were altered to a dense light to dark brown hornfels. The hornfels exhibits variable crackle to matrix-supported brecciation and re-silicification.

Rubble and outcrop of this hornfels unit contain large (1 cm) cubic molds after pyrite, often partially filled with limonite. In drill chips, disseminated and fracture-controlled pyrite, pyrrhotite, chalcopyrite, arsenopyrite and bornite have been identified (along with numerous secondary oxide minerals). In total, the area of, silicification, and geochemical enrichment covers a northeast-trending area about 1700 meters by 600 meters and remains open under Quaternary cover on both ends. The north and south margins of the mineralization at Hill 1835 appears to be structurally bounded by the northeast trending Steel Creek lineament to the south and an unnamed east-northeast trending structure on the north (Figure 7.1.3).

Mineralization at Shorty Creek is hosted by structurally and possibly stratigraphically controlled, polyphase, grain-supported and matrix-supported, silicified breccias. Intense flood silicification occurs in matrix-supported breccias and is often accompanied by arsenopyrite-quartz veinlets and disseminated pyrite and arsenopyrite. Drill results indicate that deeper portions of the system contain arsenopyrite-pyrite-chalcopyrite stockwork veinlets along with local disseminated pyrite, chalcopyrite and rare bornite. Gold values tend to be higher in more intensely altered hornfels while copper values tend to be higher in unaltered or weakly altered sediments. Widespread pervasive sericite(?) or clay(?) alteration appears to overprint all other alteration and mineralization styles, resulting in a pale yellow to tan “bleached” appearance in altered host lithologies. Silicified and brecciated areas stand out in positive relief compared to the surrounding unaltered or strongly sericite/clay(?) -altered country rock. Vuggy, barren, stockwork quartz veins cut grain-supported and matrix-supported breccias and appear to be the last phase of silicification at the Hill 1835 prospect. Supergene and possibly hypogene oxidation products include limonite, jarosite, scorodite, stibiconite, manganese oxide and rare malachite. Based on drilling results, there is no obvious supergene enrichment on the Hill 1835 prospect: copper grades in surface exposures and near-surface drilling are consistently lower than those encountered at depth. Although gold grades generally are higher near or at the surface, several drill holes have significantly higher gold grades at depth (Figure 7.2.1).

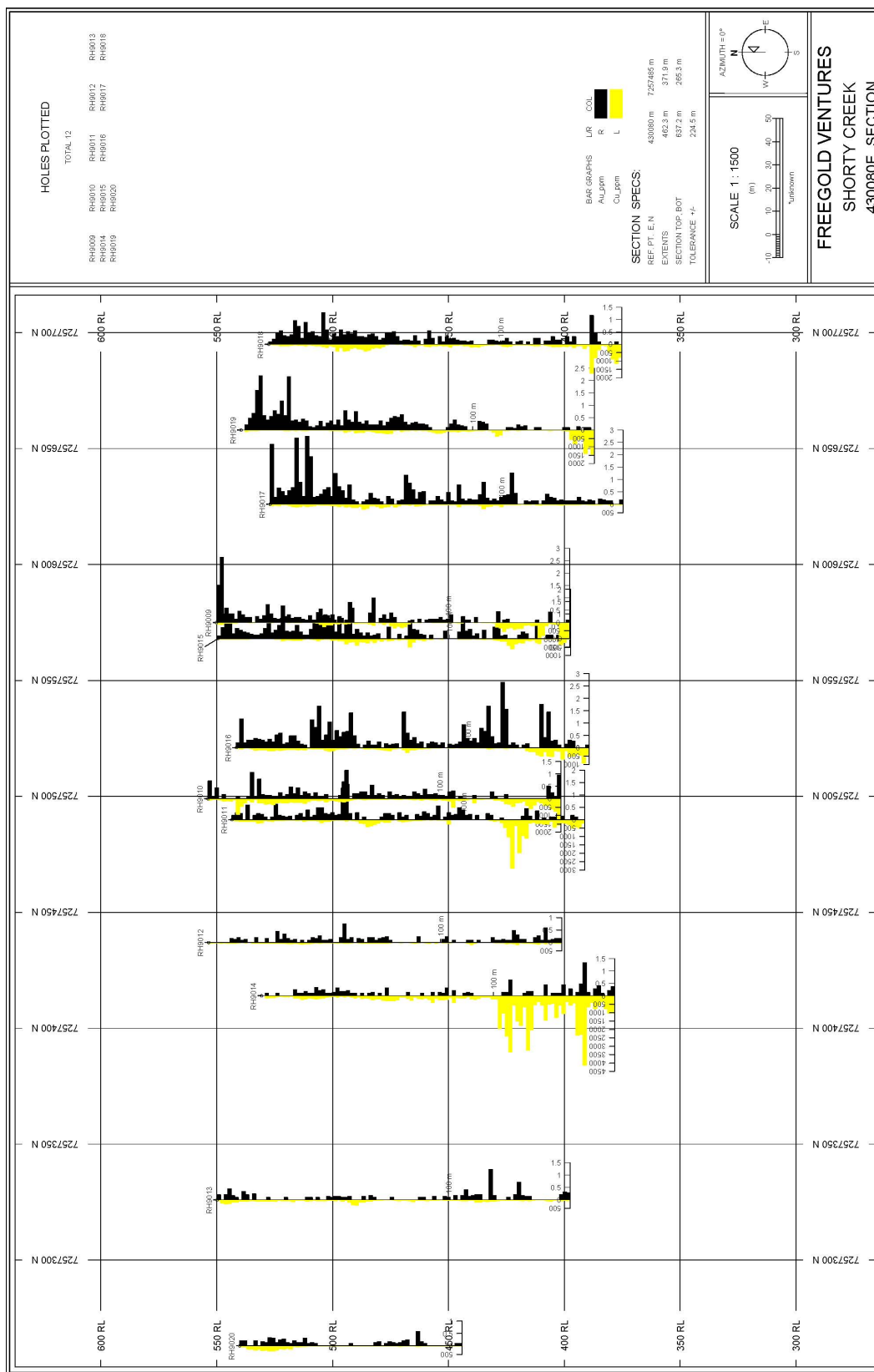


Figure 7.2.1 Hill 1835 - Composite Section E 430080 Looking North

The gold grade appears to be strongly influenced by the intensity of alteration and brecciation within the “hornfels” horizons, regardless of depth. The depth of at least partial oxidation extends beyond the 500-foot limit of drill holes completed in 1989 and 1990.

Cataclastic deformation and polyphase silicification of brecciated siltstone suggest several episodes of fracturing and silica plus sulfide introduction. Sample results indicate that precious metal grades are correlative with the intensity of brecciation and alteration while Cu and Mo values appear to be inversely correlative with the intensity of brecciation and alteration (Freeman and others, 1986). Outcrops of matrix supported breccia often are restricted to a mappable lithologic horizon, indicating possible stratigraphic control of at least a portion of the gold mineralization present. Chemically favorable stratigraphic units are well documented in skarn and replacement deposits around the world however, Cook and Carboy (2004) addressed the importance of host rock porosity and permeability in relation to gold mineralization in the Great Basin of the western United States. The apparent restriction of some breccias to specific stratigraphic units at Hill 1835 prospect suggests that host rock porosity and permeability may exert some control on the precious and base metal mineralization at Hill 1835 prospect.

The Asarco-Fairbanks Exploration joint venture completed drilling programs in the Hill 1835 prospect area in 1989 and 1990 (Figure 6.1). In 1989, eight vertical reverse circulation drill holes were completed with a total footage of 1,028.5 feet (Freeman, 1989). The 1990 program tested the same general target area with reverse circulation drilling to depths of 500 feet (Freeman and Huber, 1990). Twelve reverse-circulation drill holes, totaling 5,815 feet, were completed. All holes were vertical with eleven holes reaching 500 feet depth and one terminated at 315 feet. Drill samples were analyzed for gold only in 1989 and for gold, silver and copper in 1990. Gold grades ranged from 0.069 to 9.154 ppm and averaged 0.261 ppm. Silver values ranged from 0.34 to 23.31 ppm and averaged 2.553 ppm. Copper values ranged from 3 to 4,142 ppm and averaged 155 ppm. Significant intercepts from these drilling programs is presented in Table 7.2.1.

**Table 7.2.1: Significant Au, Ag and Cu intercepts in 1989 and 1990 drilling at the Shorty Creek project. Data from Freeman, 1989 and Freeman and Huber, 1990.**

Hole #	From (ft)	To (ft)	interval (ft)	Au (ppm)	Ag (ppm)	Cu (ppm)
RH8901	5	180	175	0.137	ND	ND
RH8902	0	90	90	0.385	ND	ND
RH8903	0	180	180	0.201	ND	ND
RH8904	5	180	175	0.264	ND	ND
RH8905	10	33	23	0.508	ND	ND
RH8906	3	37.5	34.5	0.196	ND	ND
RH8907	5	108	103	0.220	ND	ND
RH8908	0	220	220	1.216	ND	ND



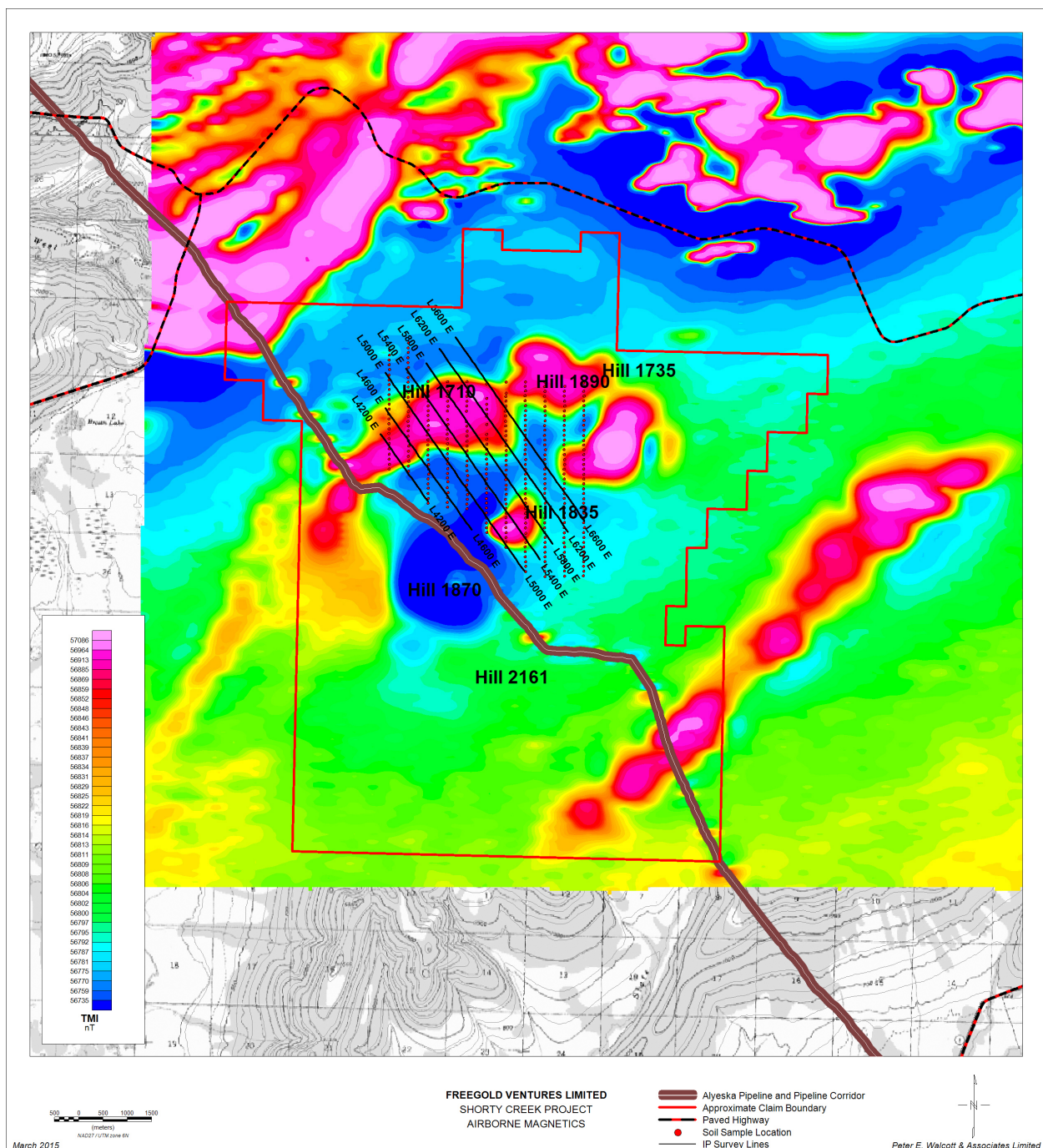
Hole #	From (ft)	To (ft)	interval (ft)	Au (ppm)	Ag (ppm)	Cu (ppm)
including	0	125	125	1.776	ND	ND
including	60	85	25	4.577	ND	ND
RH9009	0	500	500	0.193	1.980	142
And	0	170	170	0.351	3.170	44
including	0	10	10	2.075	12.690	115
RH9010	0	500	500	0.180	2.740	182
including	0	360	360	0.206	3.430	139
RH9011	0	500	500	0.191	1.525	203
RH9012	0	500	500	0.125	3.456	44
RH9013	0	500	500	0.113	2.633	68
RH9014	0	500	500	0.134	0.888	518
RH9015	0	500	500	0.312	2.660	92
including	0	190	190	0.511	4.068	62
RH9016	0	500	500	0.398	3.576	138
including	0	240	240	0.420	3.434	100
including	105	165	60	0.800	3.058	100
And	355	385	30	1.114	8.972	44
RH9017	0	500	500	0.386	2.448	80
including	0	5	5	2.434	10.290	105
And	35	60	25	1.707	5.418	133
RH9018	0	500	500	0.261	2.115	175
including	15	85	70	0.561	3.991	94
RH9019	5	500	495	0.298	3.276	125
including	15	70	55	1.035	5.610	19
RH9020	0	315	315	0.144	3.798	56
including	30	95	65	0.203	3.270	168

Except for the collar of hole RH8901, which was collared in an altered biotite granodiorite but passed into shale at a depth of 20 feet, and a small interval near the bottom of hole RH9018, all holes in the 1989 and 1990 programs were collared in and remained in hornfels, shale, siltstone, sandstone, greywacke and minor amounts of fault gouge and quartz veining. Gold values were consistently above 100 ppb from collar to termination depth in all holes however, the Hill 1835 prospect drilling generally returned higher gold values in the hornfels units in the upper 100-150 feet of drilling. Copper values tend to be higher outside of the hornfels units, particularly near the bottom of some holes. Pervasive oxidation reached an average depth of 250 feet in drill holes, but oxidation along fractures extended to at least the lowest elevation reached in drilling. Hornfels was best developed and most intense in the upper 100 to 250 feet of drill holes with the bottom of most holes entering unaltered or weakly silicified rock. Assay results from the first seven holes, located on the northwest side of Hill 1835, yielded only spotty gold values from 137 to 508 ppb gold over widths of 23 to 175 feet (Table 7.2.1). Drill hole RH8908, drilled farther

southeast than other 1989 holes, returned 220 feet grading 1,216 ppb gold, including 25 feet grading 4,577 ppb gold starting at 60 feet depth (Table 7.2.1). The highest grade interval was hosted at the transition zone between intensely silicified rock above and unaltered or weakly altered siltstone below. Other significant drill results include 60 feet grading 0.800 gpt gold in hole RH9016, 25 feet grading 1.707 gpt gold in hole RH9017 and 55 feet grading 1.035 gpt gold in hole RH9019.

Examination of the drill logs from 1989 suggests that rocks mapped as hornfels breccias are most common near the crest of Hill 1835. Although the distribution of drill holes currently is limited, and structural data between drill holes is lacking, the hornfels appears to be dipping shallowly to the southeast and is located above unaltered or less altered Wilber Creek flysch.

The Hill 1710 and Hill 1890 target areas are located in the northern part of the Shorty Creek claim block (Figure 7.1.3). Steams draining these areas are anomalous in Ag, As, Bi, Mo, Sb, W, Cu, Pb, Zn, and Sn. Rock chip samples are anomalous in Ag, As, Mo, Cu, and Zn. Former Earth Resources-consultant Chuck Herbert reported that silver values from the 1970's drilling on the Shorty Creek Cu-Mo prospect were surprisingly high; however the exact values encountered are not known (B. Donnellan, oral comm., 2010). Copper and molybdenum are closely tied to the south flank of hill 1710 within the old Shorty Creek Cu-Mo prospect and with Hill 1890 on the east side of Ranney Hollow. The Wilber Creek flysch is the dominant rock type in this area and is intruded by small felsic intrusive bodies which were the focus of the exploration drilling on Hill 1710 in the 1970's. Unlike the Hill 1835 area to the south, anomalous Au is not present in the Hill 1710 and Hill 1890 target areas. Both the Hill 1710 and the Hill 1890 areas are associated with curvilinear magnetic highs that are offset by the Ranney Hollow fault in an apparent left lateral sense (Figure 7.2.2).



**Figure 7.2.2 Shorty Creek Project Airborne Magnetics Response Map**

The nearby Minto fault, parallel to and west of the Ranney Hollow fault (Figure 7.1.3), also has apparent left lateral offset but has west-side up motion. The lack of intrusives east of the Ranney Hollow fault and the presence of small, possibly sillform intrusives mapped and drilled to the west at the Shorty Creek Cu-Mo prospect (Figure 7.1.3) argue for a west-side up geometry on the Ranney Hollow fault. Three-dimensional modeling conducted on the magnetic data in this area suggests the magnetic anomalies are discrete magnetic bodies that appear to be annual to the

magnetic low core to the south (Beasley, 2005). The cause of these magnetic anomalies in the Hill 1710 to Hill 1890 area (and beyond to the southeast) is uncertain but is most likely related to contact metamorphism around a buried intrusive mass which has undergone magnetite destructive alteration, a common feature in porphyry Cu-Au-Mo systems (Sillitoe, 2010). Alternatively, the semi-circular magnetic highs in this area may be derived from Cu±Au magnetite skarn mineralization hosted in Lower Paleozoic carbonate units which dip generally to the south beneath the Wilber Creek flysch. These carbonate units are repeated in thrust-bounded packages at the Livengood gold deposit and could provide multiple reactive hosts for Cu-Fe±Au skarn mineralization. Based on current information, the Hill 1710 and Hill 1890 target areas appear to be part of a more proximal porphyry Cu-Mo±Au porphyry setting with potential for stockwork Cu-Au-Mo mineralization, proximal Cu-Fe±Au skarn mineralization hosted in Lower Paleozoic carbonates and Cu-Au sulfide mineralization in a contact metamorphic aureole.

The Hill 1870 target lies 0.5 miles to the west of the Alyeska pipeline in the headwaters of the Winter Creek and Wilber Creek drainages (Figure 7.1.3). Both drainage basins are anomalous in Au, As, Bi, Sb, W, Cu, Pb, Zn and S. Rock chip sample coverage is limited but samples collected from poorly developed matrix supported breccias and strongly altered crackle breccias along a 290 foot section of the Alyeska pipeline road cut are anomalous in Au (<69 to 1,063 ppb), Ag (0.7 to 5.8 ppm) and As (160 to >1,000 ppm). Unfortunately, these were the only metals analyzed in the 1988 rock samples so the level of other Au or Cu pathfinder elements in these samples is unknown. Sampling along the Alyeska pipeline road cut also revealed two other potentially significant details about the mineralization in this area (Freeman and others, 1986; Freeman and others, 1988). Not surprisingly, gold grades from the chip samples on the access road drop gradually as the degree of brecciation and alteration decrease. Perhaps more important, sub-vertical gold-bearing quartz-arsenopyrite veinlets exposed in the pipeline exposures are poorly preserved at the surface, even though soil thickness is <1 foot. The structures and the veins in these structures are not recognizable until a depth below surface of 10 to 12 feet. Freeman and others (1986) reported that a rubble-soil sample from approximately 4 feet above and slightly down slope from visible quartz-arsenopyrite veinlets returned 65 ppb Au, 0.5 ppm Ag, 1451 ppm As and 186 ppm Cu. A grab rock sample from the quartz-arsenopyrite veinlet itself returned 1,050 ppb Au, 2 ppm Ag, >2000 ppm As and 3,828 ppm Cu. This suggests that potentially significant mineralization may exist below soil or rubble-crop which lacks any evidence of mineralization. The pipeline access road exposures fall along the northeast trend of alteration and mineralization discovered on Hill 1835. Along trend to the southwest, mapping has identified quartz porphyry intruding the Wilber Creek flysch on Hill 1870 and hornfels-altered flysch and iron-oxide-cemented breccias were identified in float on the flanks of Hill 1870 (Hart and others, 1985; Freeman and others, 1986). The Hill 1870 anomaly lies in the center of the strong, circular airborne magnetic low (Figure 7.2.2) and within the largest airborne EM conductor in this part of the Shorty Creek project (Noyes and others, 2006). Based on the limited available geological, geochemical and geophysical data, Hill 1870 4 appears to be related to the same system responsible for alteration and mineralization on Hill 1835 prospect.

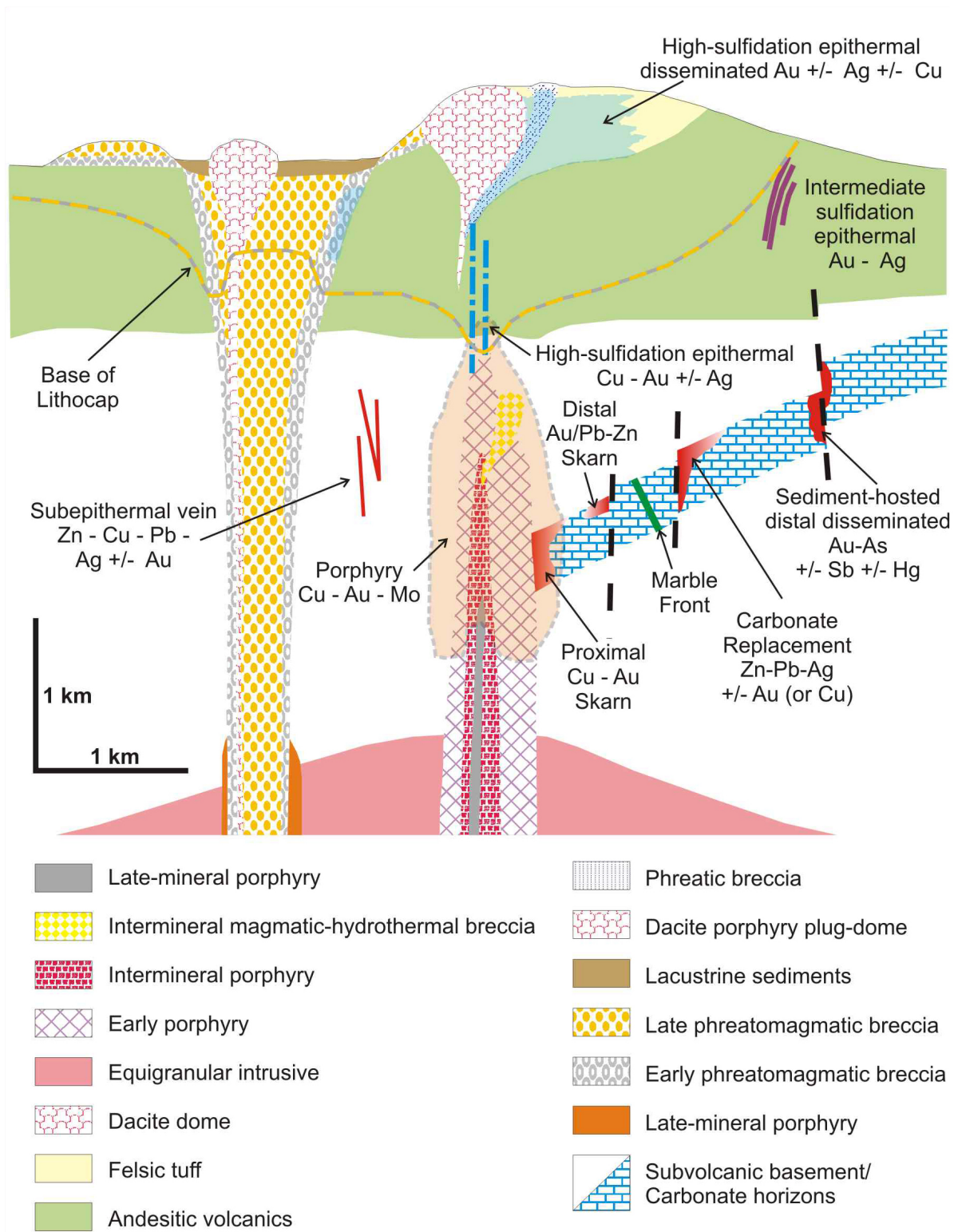
However, the prospect is cut by the Ranney Hollow fault on the west flank of Hill 1870, further complicating the structural setting of this area.

The Hill 2161 anomaly lies in the southern claim block of the Shorty Creek property (Figure 7.1.3). This area is centered on Hill 2161 about two miles to the southeast of the Hill 1710 target and two miles to the west of a small quartz porphyry intrusion mapped along the Alyeska pipeline access road (Bundtzen, 1983). The anomalous area sits at the head of Eagle Creek, Wilber Creek and an unnamed southeast-flowing tributary of Slate Creek. All of the streams flowing from Hill 2161 are anomalous in Au, Ag, Sb, Zn, Mn and S with more sporadic anomalous As, Cu, Fe, Hg and Pb. Elements that are conspicuous by their lack of anomalous values in Hill 2161 include Bi, W, Mo and Sn. Geologic maps of this area indicate this area is underlain by Wilber Creek flysch units however barren hornfels were reported from the southeast flank of Hill 2161 (Myers, written comm., 2004). In addition, a “baked” (hornfelsed?) pyritic conglomerate was reported along the ridgeline extending northeast from Hill 2161 (Myers, written comm., 2004). The southern edge of the DGGs airborne geophysical survey covers the Hill 2161 area and suggests the Hill 2161 target area is related to a prominent northeast trending magnetic high which extends for over 7 miles along the right limit of lower Wilber Creek and the right limit of upper Slate Creek (Figure 7.2.2). There is a strong spatial correlation between anomalous Au + pathfinders in stream sediments and the location of this linear magnetic high. Noyes and others (2006) ascribed the geochemical signature associated with Hill 2161 with distal IRG mineralization. However, the anomalous element suite present, particularly the elevated S and Mn values, is suggestive of intermediate-sulfidation epithermal Cu-Au-As mineralization that is distal to a porphyry Cu-Au-Mo system Figure 8.2.

## 8. DEPOSIT TYPES

Shorty Creek also bears similarities to gold-enriched porphyry copper deposits of Tertiary age that are widespread in Interior Alaska and the western Yukon Territory (Young and others, 1997). Panteleyev (1995) describes a subset of this type of mineralization, referred to as the subvolcanic Cu-Ag-Au system that has numerous similarities to the precious metal mineralization seen to date on the Shorty Creek project. Sillitoe (2010) presents a similar classification but refers to the Au-Cu±Ag mineralization as part of the high-sulfidation epithermal mineralization widely identified near and sometime overlapping the upper portions of the main porphyry Cu-Au-Mo mineralization. Unless otherwise noted, the following model type descriptions are derived from Sillitoe (2010) and Panteleyev (1995) and will be referred to as high-sulfidation epithermal mineralization. The various styles of significant base and precious metal mineralization in porphyry Cu-Au-Mo systems are portrayed in a schematic cross-section in Figure 8.1 (Sillitoe, 2010).





**Figure 8.1 Schematic cross-section through a porphyry Cu-Mo-Au system. Data from Sillitoe, 2010**



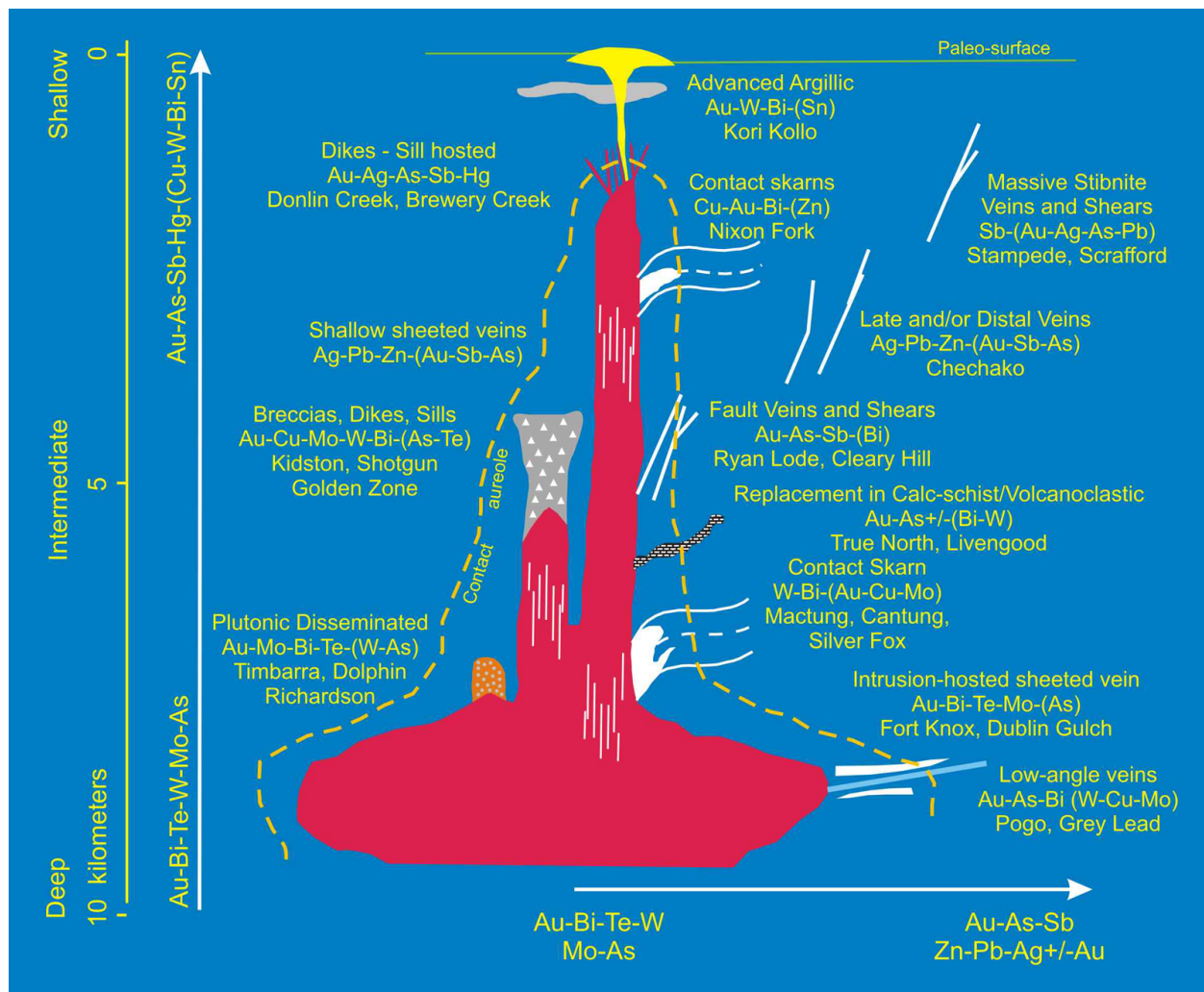
High-sulfidation epithermal mineralization is characterized by elevated values of Au, Cu, Ag, As, Sb, Zn, Cd, Pb, Fe and F. At deeper levels Mo, Bi, W and locally Sn are elevated. In some deposits there is local strong enrichment in B, Co, Ba, K and a marked depletion of Na. Both depth zoning and lateral zoning are evident. While virtually undocumented in Alaska, these deposits are thought to be related to high-level mineralization and alteration peripheral to buried porphyry Cu  $\pm$  Au  $\pm$  Mo deposits. Some large porphyry centers, such as Escondida, Chuquibambilla and Butte show evidence of high-sulfidation epithermal mineralization overprinting the upper portions of the classic disseminated porphyry Cu  $\pm$  Au  $\pm$  Mo deposit. Geological characteristics of this deposit type include pyritic veins, stockworks and breccias in subvolcanic intrusive bodies and/or stratabound to discordant massive pyritic replacements, veins, stockworks, disseminations and related hydrothermal breccias in country rocks extending up to several kilometers from the porphyry center. These deposits commonly contain pyritic auriferous polymetallic mineralization with Ag sulfosalts and other As and Sb-bearing minerals. In form, this style of mineralization occurs as stockwork veins and closely-spaced to sheeted sets of sulfide-bearing veins in zones within intrusions and as structurally controlled and stratabound or bedding plane replacements along permeable units and horizons in host rocks. Veins and stockworks form in transgressive hydrothermal fluid conduits that can pass into pipe-like and/or planar breccias. Breccia bodies are commonly tens of meters and, rarely, a few hundred meters in size. Massive sulfide zones can pass outward into auriferous pyrite-quartz-sericite veins and replacements. Multiple generations of veins and hydrothermal breccias are common. Pyrite is dominant and quartz is minor to absent in veins. Ore minerals include pyrite, commonly as auriferous pyrite, chalcopyrite, tetrahedrite/tennantite; enargite/luzonite, covellite, chalcocite, bornite, sphalerite, galena, arsenopyrite, argentite, sulfosalts, gold, stibnite, molybdenite, wolframite or scheelite, pyrrhotite, marcasite, realgar, hematite, tin and bismuth minerals. Depth zoning is commonly evident with pyrite-rich deposits containing enargite near surface, passing downwards into tetrahedrite/tennantite + chalcopyrite and then chalcopyrite in deeper porphyry intrusions.

Ore fluids associated with Au-Cu $\pm$ Ag high-sulfidation epithermal mineralization contain varying amounts of magmatic-source fluids with temperatures commonly on the order of 300° C and higher. Fluid salinities are also relatively high, commonly more than 10 weight per cent NaCl-equivalent and rarely in the order of 50% or greater. Favorable tectonic settings include strongly fractured to crackled zones in plutonic cupolas, internal parts of intrusions and associated flow-dome complexes as well as along faulted margins of high-level intrusive bodies. Other favorable hosts include carbonate and/or permeable clastic country rock lithologies, both of primary and secondary origin. Regional scale structures often control clusters of porphyry systems which manifest themselves as magnetic lows due to magnetite-destructive alteration associated with mineralization (Behn and others, 2001). Primary controls are structural features such as faults, shears, fractures, crackle zones and breccias. Secondary controls are porous volcanic and/or sedimentary units, bedding plane contacts and unconformities. Discordant and concordant breccias provide channel ways for hydrothermal fluids originating from deeper porphyry copper systems and commonly carry elevated values of Au and Ag. The deeper high-sulfidation

epithermal Au-Cu±Ag deposits can overlap the stockwork porphyry Cu ± Au ± Mo mineralization and can extend up to several kilometers away from the causative porphyry Cu ± Au ± Mo deposit. Examples of similar systems include gold zones at Lepanto, Philippines, Nena in the Frieda River District, Papua New Guinea, Chelopech, Bulgaria, Kori Kollo, Bolivia, the Rochester District, Nevada, and parts of the Recsk deposit, Hungary and Bor deposit, Serbia.

Recent exploration discoveries in Alaska and the adjacent Yukon Territory have outlined a series of distinctive intrusive-related gold (IRG) occurrences which appear to be genetically related to mid-Cretaceous (90-110 Ma) and early Tertiary (60-75 Ma) plutonic activity. These two subduction related plutonic events affected a large area of northwestern British Columbia, Yukon, Alaska and the Russian Far East (Ebert, 2003, Lang and others, 1999, Hart and others, 2002, Hart and others, 2004; Flanigan and others, 2000, Mortensen and others, 2000, McCoy, 1999, McCoy and others, 1997, McCoy and others, 2002, Bundtzen and Miller, 1997, Eremin, 1995, Baker, 2002, Baker and others, 2006, Klipfel and Giroux, 2009). One of the largest of these IRGs, International Tower Hill's 18.5 Moz Livengood gold deposit, is only a few miles north of the Shorty Creek project and many believe the Livengood and Shorty Creek projects are part of a district-scale IRG system. While a district-scale IRG system may in fact exist in the Livengood deposit area, the Shorty Creek project does not appear to be an IRG target. In order to clarify the geologic model being assigned by the author to Shorty Creek, a discussion of the salient features of a typical IRG deposit are presented below to allow a compare and contrast evaluation of the two models.

A synthesis of current IRG data suggests a deposit model in which metal and high CO<sub>2</sub> bearing fluids fractionate from ilmenite series, I-type intrusions during the late phases of differentiation (porphyritic granites). Fluid inclusion data from typical IRG deposits indicate the fluids are high CO<sub>2</sub>/low salinity fluids. Depending on the rate of ascent of these hydrothermal fluids, the level of the crust they reach before depositing their metallic budget and their associated intrusive rocks, two distinctly different metallogenic systems can form, in some cases in the same mineral prospect. In deeper, higher pressure settings gold mineralization can form at higher temperatures (400°-600°C) and low sulfur fugacities. Such systems are characterized by elevated Au ± Bi ± Te ± W ± As mineralization. Sulfur-depleted metallic minerals such as native bismuth, native arsenic, maldonite and loellingite often form in such environments. These higher temperature systems display isotopic, trace element and fluid inclusion evidence suggesting almost exclusively magmatic fluid involvement and are thought to form in more proximal intrusive settings. In higher level, lower pressure settings, mineralization forms at lower temperatures (250°-400°C) and higher sulfur fugacities and is characterized by elevated Au ± Ag ± As ± Cu ± Sb ± Hg ± Pb ± Zn. These lower temperature systems display isotopic, trace element and fluid inclusion evidence suggesting significant meteoric water mixing and are thought to form in more distal intrusive settings. The various styles of significant hypogene IRG mineralization in the Tintina Gold Belt are portrayed in a schematic cross section in Figure 8.2 (Lang and others, 2000, Baker, 2003).



**Figure 8.2 Schematic Cross-Section Through Intrusive-related Gold Deposits. Modified by Avalon Development, 2010, from Lang and Baker, 2001**

A number of different potentially economic IRG deposit types have been identified in the Tintina Gold Belt. They are:

1. Gneiss or high-grade schist-hosted quartz veins or metasomatic replacement zones proximal to or within causative intrusives. Metals associated include Au, Bi, and As and possibly Cu and W. Pogo (5.6 Moz) and Gil (433,000 oz) are examples of such mineralization.
2. Stockwork-shear style mineralization hosted in porphyritic intermediate to felsic intrusives. Mineralization contains Au with anomalous Bi, Te, W and trace Mo. There is a strong genetic relationship between host intrusion and gold mineralization. Examples include Fort Knox (7.95 Moz) and Dublin Gulch (3.8 Moz).

3. Porphyritic stockwork with intrusion/schist shear hosted Au-As-Sb with a strong genetic relationship between host intrusion and gold mineralization. Ryan Lode (2.4 Moz) and Dolphin (0.6 Moz) are examples of this type of mineralization.
4. Base metal  $\pm$  Au, Ag and W intrusion hosted mineralization with a possible genetic relationship between precious metal mineralization and intrusion. Examples include Silver Fox prospect.
5. Structurally controlled mineralization hosted by schist-only high angle shear zones and veins. Associated metals include Au, As, Sb, Ag, Pb and W in low sulfide quartz-carbonate veins. Alteration adjacent to veins is pervasive quartz-sericite-sulfide alteration that can extend for up to one mile from the source structure. Deposits were mined heavily prior to World War II and are noteworthy because of their exceptional grades (+1 to +5,000 opt Au). Examples include Cleary Hill (280,000 oz production at 1.3 opt) and Hi Yu (110,000 oz production at 1.6 opt).
6. Low angle, disseminated, carbonate and/or volcanic rock hosted Au-As-Sb mineralization associated with brittle thrust or detachment zones distal to generative intrusives. Favorable host rocks may provide chemical and/or physical controls for mineralization. The True North (1.3 Moz) and Livengood (18.5 Moz) deposits are examples of this type of mineralization.
7. Shear-hosted monomineralic massive stibnite pods and lenses. Trace As, Au, Ag and Pb but these prospects are noteworthy because they appear to represent the most distal end members of the intrusive gold hydrothermal systems. Examples include the past producing Scrafford mine in the Fairbanks District and the Stampede mine in the Kantishna District.
8. Peraluminous granite porphyry gold-polymetallic deposits: these occurrences are hosted in granite porphyry dikes and sills that grade upward into shallow intrusives. Host rocks include peraluminous alaskite to alkalic granite, often with garnet. The intrusives show depleted heavy REE trends and can be either reduced or oxidized. Metallic minerals include stibnite, cinnabar, arsenopyrite and Sb-sulfosalts. Generally emplaced at high levels in high angle structures or along low-angle gravity and/or thrust faults. Alteration assemblages are dominated by argillic, potassic and silicic alteration plus dickite. The Donlin Creek deposit (+40 Moz) and the Vinasale deposit (+0.8 Moz) are examples of this style of mineralization.

Freeman (2010) compiled a useful table (Table 8.1) that compares the attributes of typical Interior Alaska IRG and porphyry Cu-Mo-Au systems and the similarity to Shorty Creek. The data was gathered from sources listed in this section.

**Table 8.1 Comparison of Typical Interior Alaska IRG and Porphyry Cu-Mo-Au Systems and Their Similarity to the Shorty Creek Project**

<b>Characteristic</b>	<b>IRG</b>	<b>Porphyry Cu-Au-Mo</b>	<b>Shorty Cr. Data</b>
Host Rocks	Metamorphics and	Metamorphics and flysch	Both
Intrusive Types	Intermediate, I-type	Intermediate, I-type	Both
Intrusive Ages	90-105 Ma	60-65 Ma	Porphyry Cu-Au-
Metamorphic	Low Greenschist to	Low greenschist or absent	Both
Alteration	Qtz + Ser dominant	Potassic-sericitic-argillic-	Both
Carbonate	Ankerite in/near	Not seen	Uncertain
Silicification	Massive to sheeted	Flood silic, stockwork and	Porphyry Cu-Au-
Brecciation	Not common	Common, pipes and tabular	Porphyry Cu-Au-
Magnetite	Low to absent	Abundant	Porphyry Cu-Au-
Total Sulfide	1 to 3% average	>3% average	Porphyry Cu-Au-
Primary Sulfides	BiS-asp+gal+tetra+	Cpy+moly+Au+tetra+asp+	Both
Pyrite	Minimal to absent	Abundant	Porphyry Cu-Au-
Late Stage	Massive stibnite	Au-Ag-base metals-Mn	Porphyry Cu-Au-
Tungsten	Scheelite in skarns	Skarns, proximal to	Both
Bismuth	Proximal, in pluton	Skarns, proximal to	Both
Manganese	Not diagnostic	Distal to causative intrusive	Porphyry Cu-Au-
CO2 content of	CO2 rich	CO2 rich	Both
Salinity of fluids	Low salinity	High salinity	Porphyry Cu-Au-
Age of	88-112 Ma	63-65 Ma	Porphyry Cu-Au-
Sulfur Isotopes	-5 to +5 per mil	-5 to +15, avg 0 per mil	Uncertain
Tectonic Regime	Compressional to	Compressional to Volc Arc	Both
Gneiss Dome	Sometimes	Sometimes	Both
Regional Gravity	Yes	Yes	Both
District Magnetic	Yes	Yes	Both
High Angle Faults	Present, important	Present, important controls	Both
Low Angle Normal	Present, important in	Not common	Uncertain
Contact	Uncommon	Common	Porphyry Cu-Au-
Skarn/Carbonate	W skarns common	Cu-Au, Cu-Ag-Zn, Pb-Zn	Uncertain

## 9. EXPLORATION

As per section 12 of NI43-101-F1, all exploration work conducted by parties other than Freegold is discussed under “History”, “Geologic Setting” or “Mineralization”.

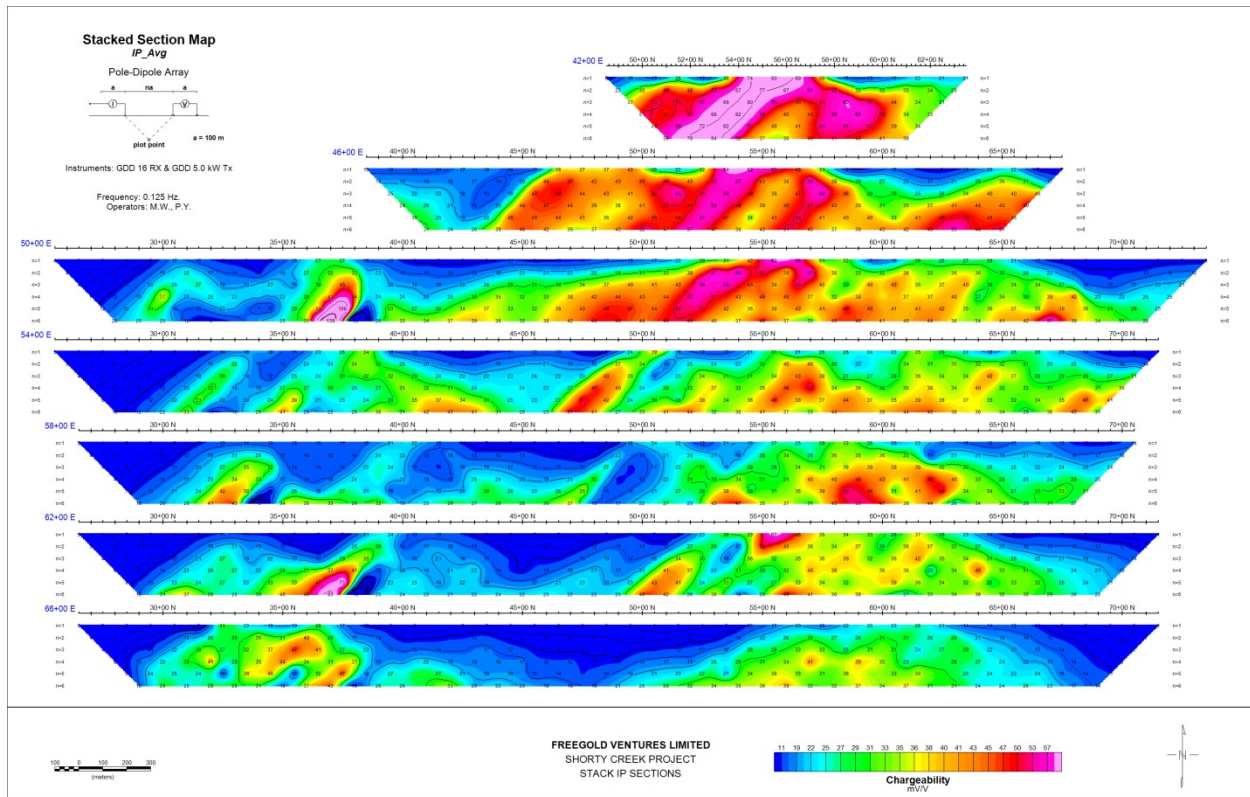
### EXPLORATION 2014

Exploration work at Shorty Creek during the summer comprised of 28.6 kilometres of Induced Polarization (IP) surveying and the collection of 354 soil samples.



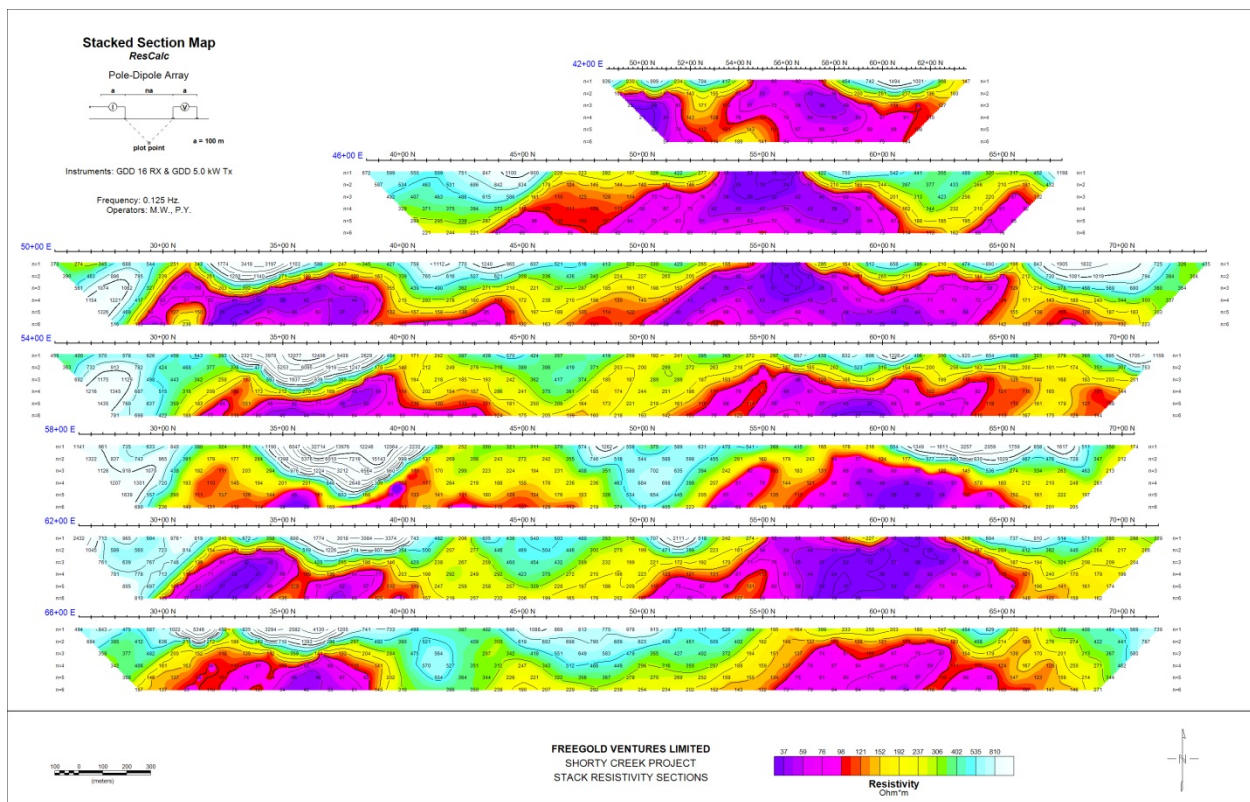
The work was carried out on the western area of the property east of the Trans-Alaska pipeline, and was designed to augment previous studies over Hills 1710 and 1835 respectively.

The IP survey was conducted over seven 400 metre spaced lines established at an azimuth of 325 using the “chain and compass” technique abetted with a Garmin C60 handheld receiver to record horizontal positioning of the respective stations. Measurements – first to sixth separation – of apparent chargeability – the IP response parameter – and resistivity were made along the traverse lines using the pole-dipole technique with a 100 metre dipole as illustrated on the respective stacked pseudo-section plots of apparent chargeability (Figure 9.1) and resistivity (Figure 9.2).



**Figure 9.1 Stacked Pseudo-Section Plots of Apparent Chargeability**





**Figure 9.2 Stacked Pseudo-Section Plots of Apparent Resistivity**

The soil samples were collected on eleven north south traverses – the line direction chosen for simplistic grid establishment – from the “B” horizon using shovels. The results are shown as symbol plots on a topographic grid along with those of the previously done survey by Avalon Development collected by augering to bedrock (Figures 9.3, 9.4, 9.5, 9.6 and 9.7).

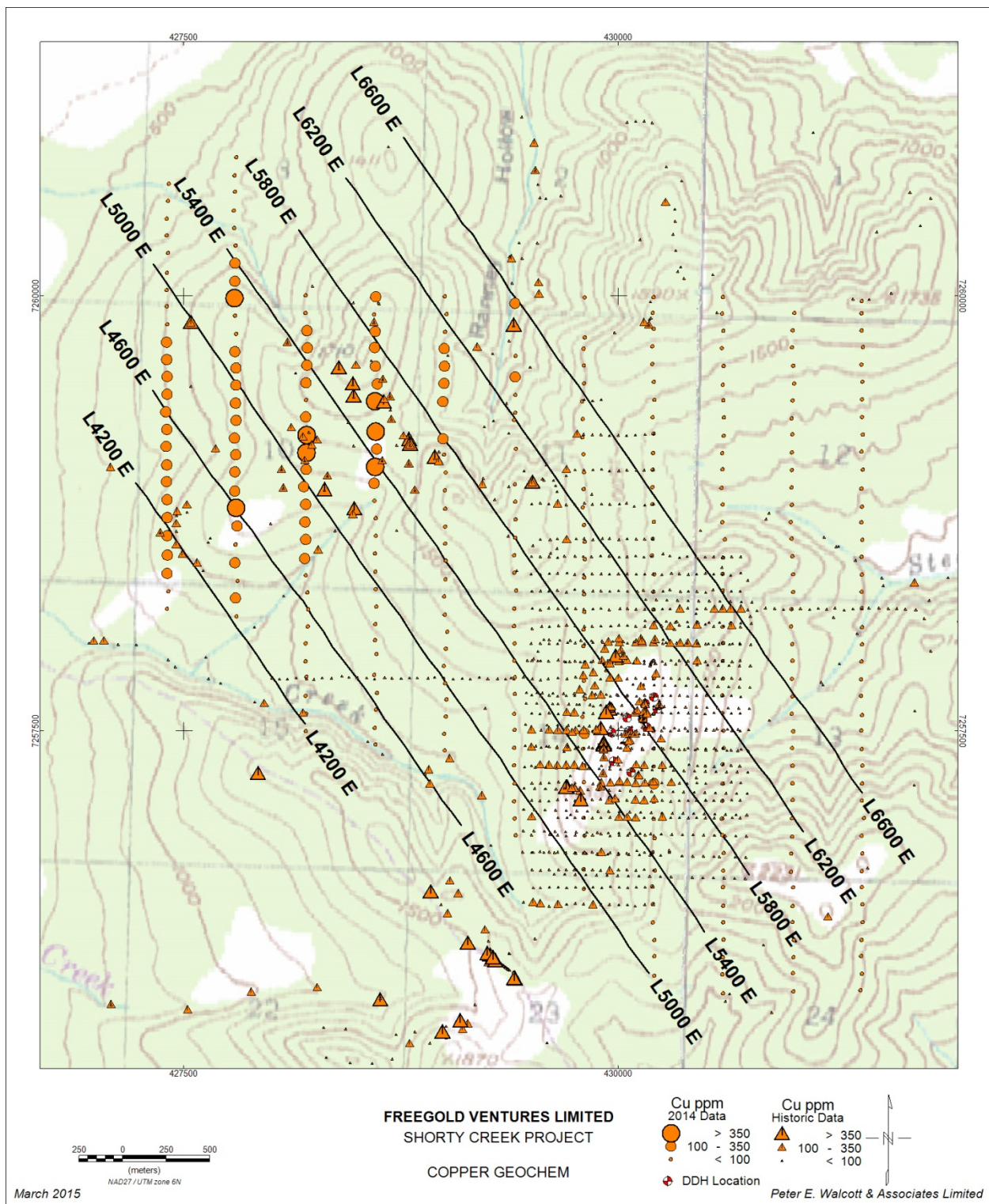
The 1998 DGGS airborne survey showed a discontinuous elliptical ring of magnetic highs – major axis northeast and some 4 kilometres in length – situated in the centre of the claim block (Figure 9.8).

The northwestern limb is offset left laterally by the Ranney Hollow fault as seen on the plot of the total field magnetics and copper geochemistry.

Geosoft Voxi modelling suggests little vertical displacement with the western side somewhat down dropped.

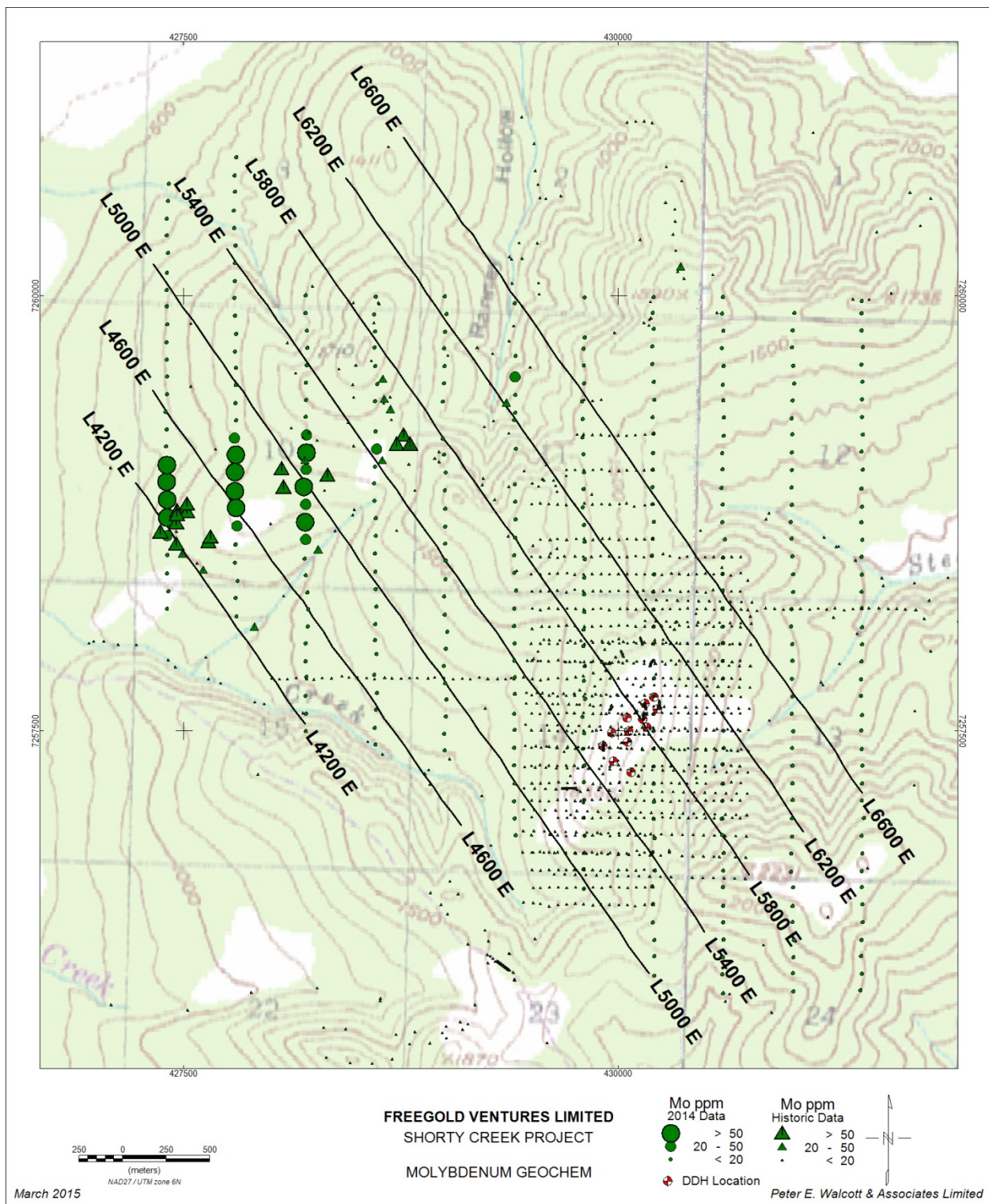
Two zones of anomalous soil geochemistry are clearly discernible, one of Cu-Mo coincident with the magnetic response on Hill 1710 (Figure 9.8, Figure 9.4), and the other of Au-As-Bi and Cu on Hill 1835 (Figure 9.3, Figure 9.5, Figure 9.6, Figure 9.7 and Figure 9.8) around and to the east of the smaller shallower magnetic feature.

Little or no soil geochemical coverage was undertaken on the magnetic feature of Hill 1890 and the larger feature to the north of Steel creek.

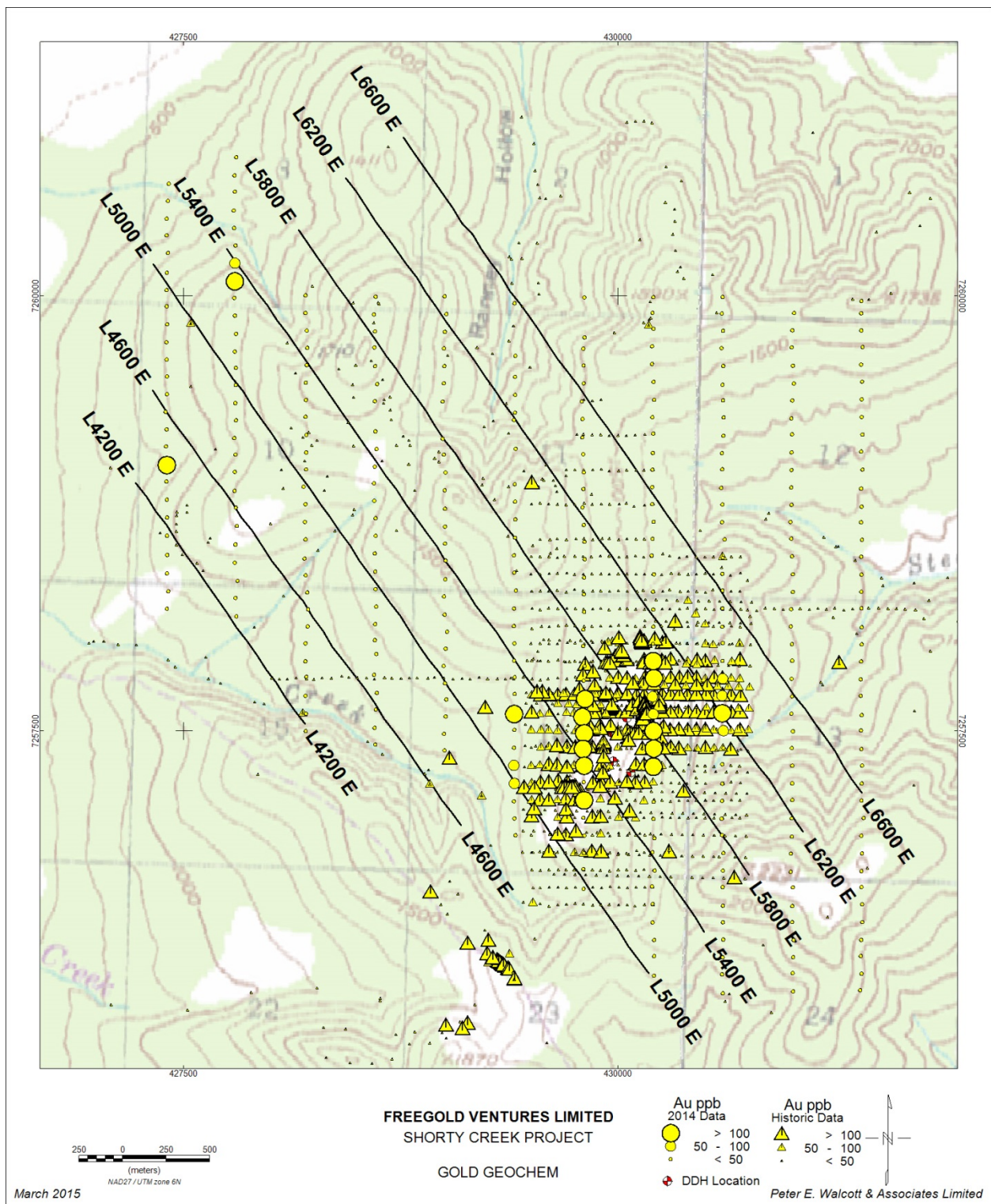


**Figure 9.3 Shorty Creek Soil Cu Geochemistry**



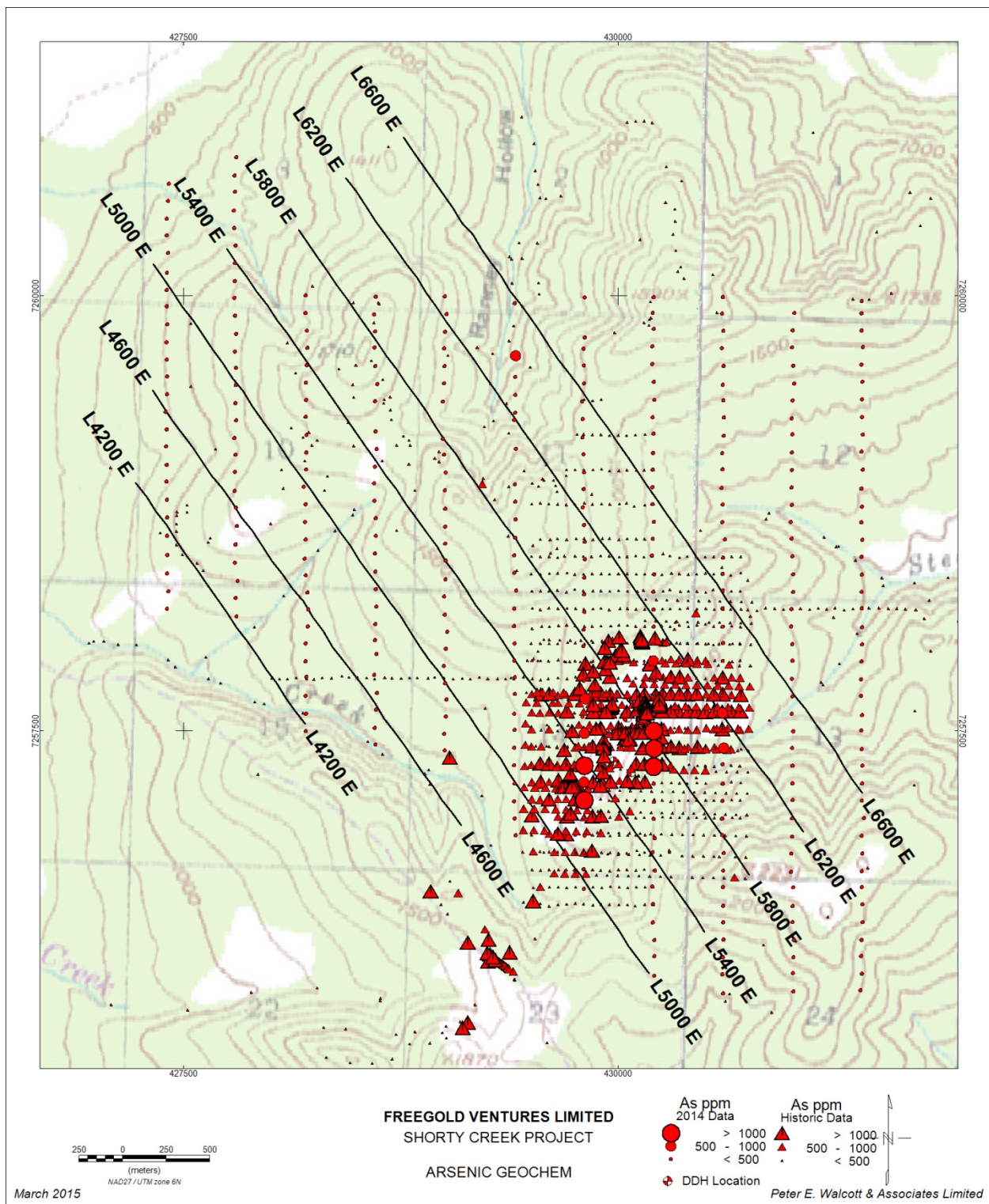


**Figure 9.4 Shorty Creek Soil Mo Geochemistry**

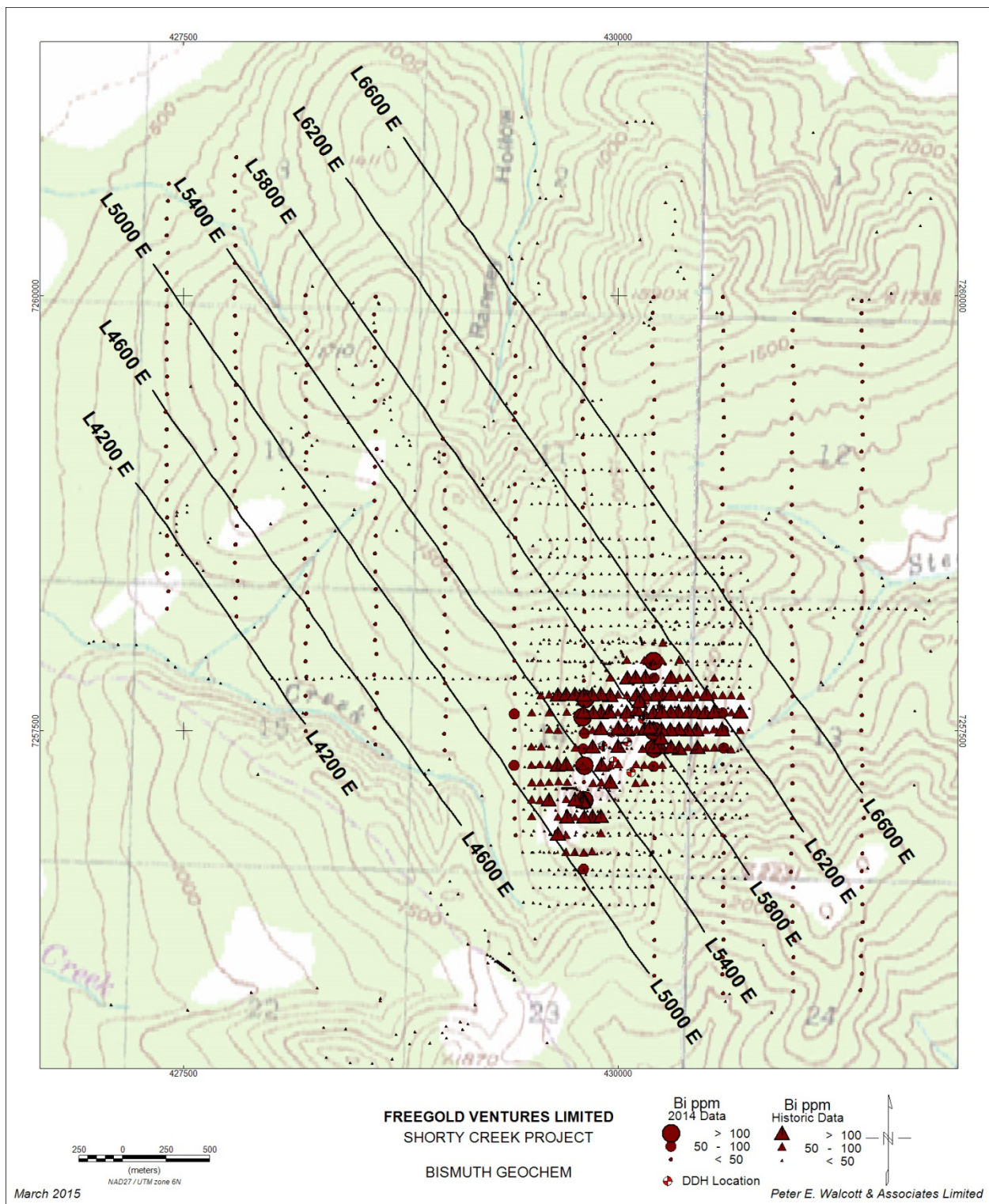


**Figure 9.5 Shorty Creek Soil Gold Geochemistry**



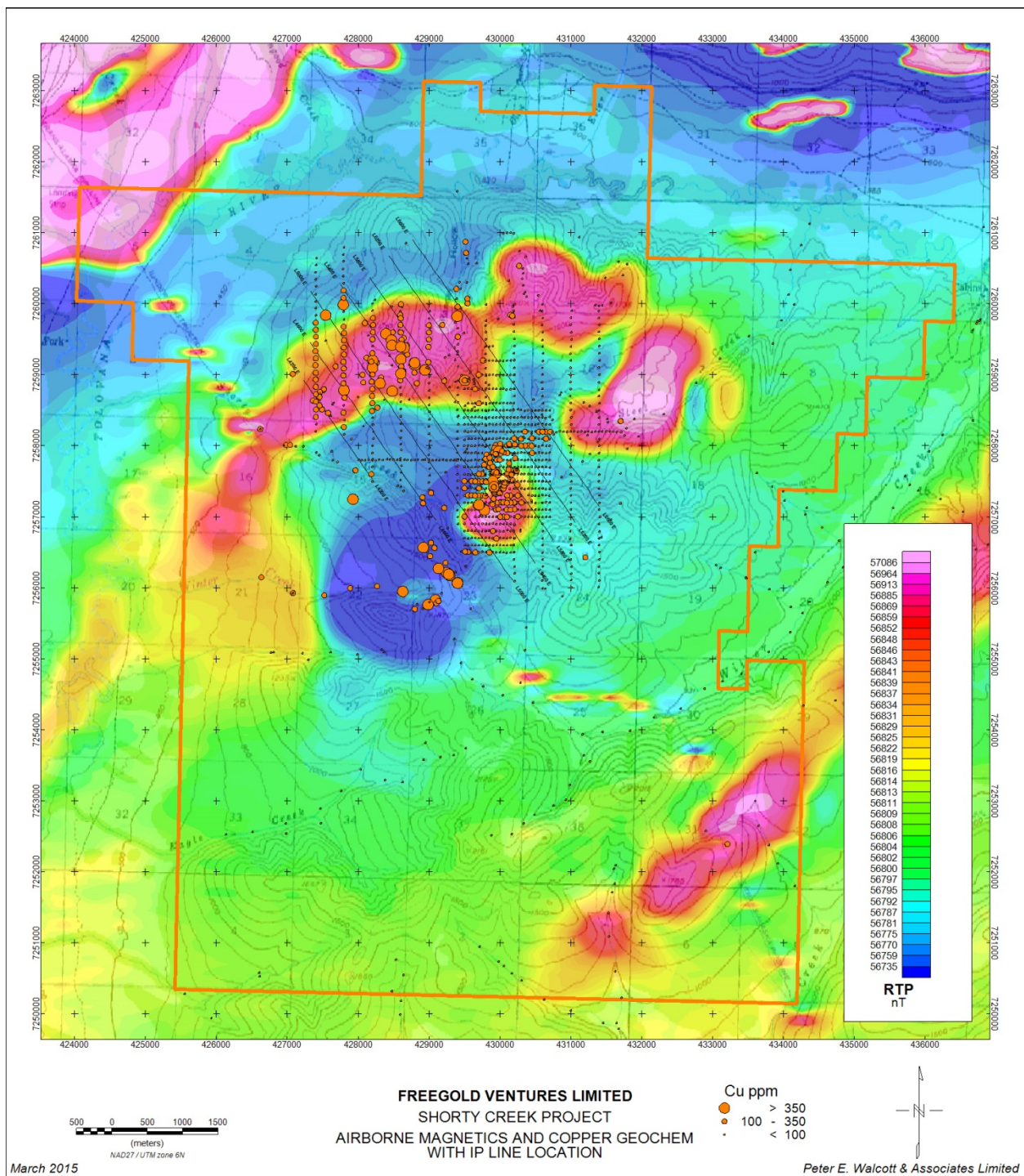


**Figure 9.6 Shorty Creek Soil Arsenic Geochemistry**



**Figure 9.7 Shorty Creek Soil Bismuth Geochemistry**

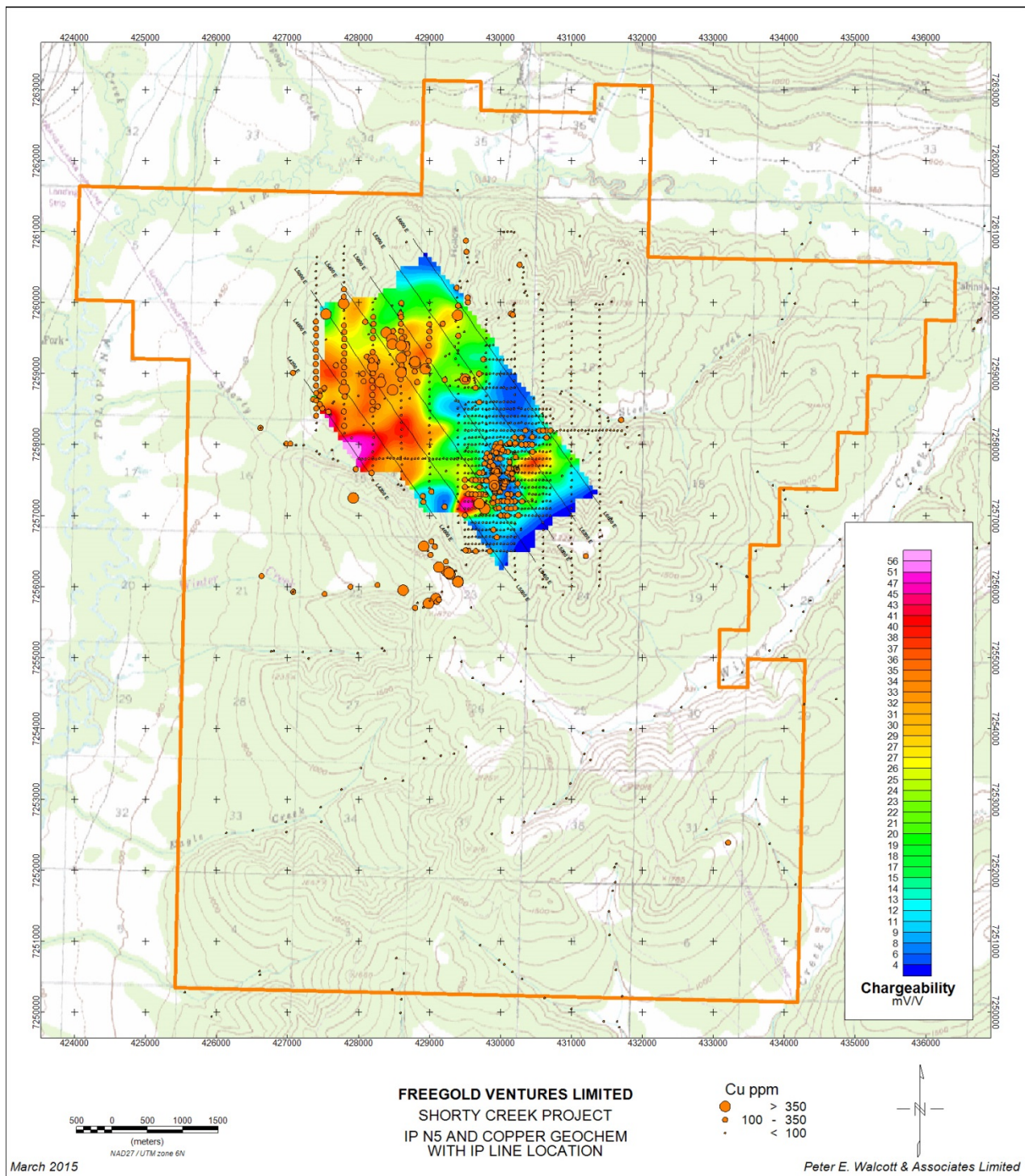




**Figure 9.8 Shorty Creek Soil Cu Geochemistry and Magnetic Response**

The IP survey showed two complex zones of elevated chargeability to exist over the area surveyed (Figure 9.9).





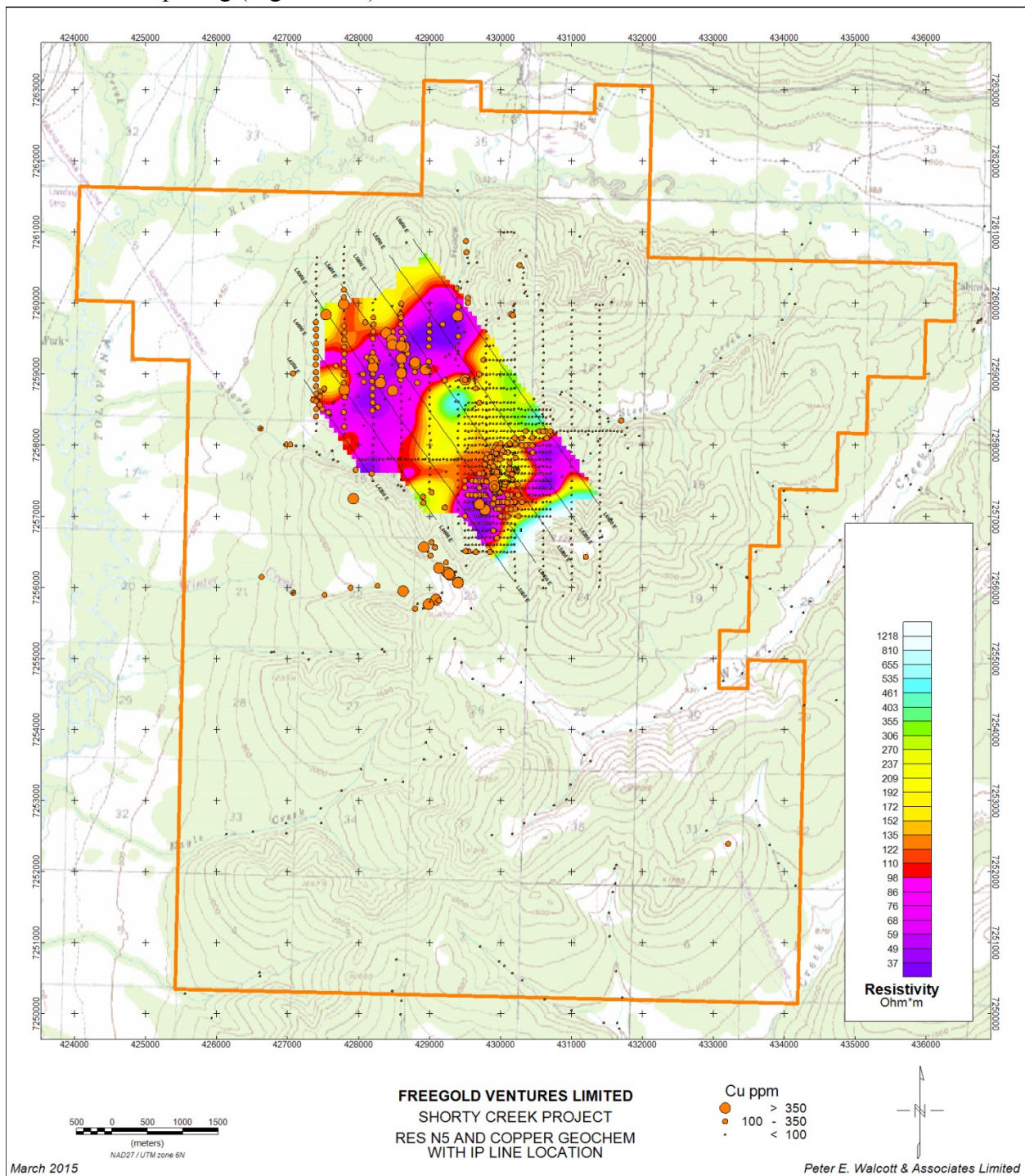
**Figure 9.9 IP Survey Chargeability Map Superposed on Cu Soil Geochemistry**

The more northerly is a broad zone that strikes across the grid between 5000 and 6200N on L4200E to between 5500 and 600N on L6600E that appears to be associated with the northerly magnetic feature. It is undefined to the east and west, and exhibits higher chargeability values in the western portion.



The second feature is a complex zone of smaller features that runs between 3000 and 4000N on L5000E to a similar location on L6600E. It is also undefined at both ends.

These smaller anomalous zones are clustered around an intense resistivity high, seen mostly on the shallower spacing (Figure 9.10).



**Figure 9.10 IP Survey Resistivity Map Superposed on Cu Soil Geochemistry**

This resistivity high represents the silicified hornfels cap of Hill 1835 into which most of the Asarco rotary holes of 500 foot depth penetrated.

Lower resistivities and higher chargeabilities are seen below this feature. Lower resistivities are also observed coincident with most of the northern chargeability zone in particular the more northerly part. The Cu and Mo anomalous soils are associated with the lower chargeabilities on the northern part of the zone. Au-As-Bi and Cu are associated with the resistive cap of the second zone on Hill 1835. A similar geochemical combination is noted on Hill 1870 to the west of the IP grid.

The Steel Creek lineament is well defined by the southern contact of the second zone as evidenced on the respective stack pseudo-section plots. Whether or not the bodies of higher susceptibility are indicative of separate intrusions, or are more magnetic phases of a large intrusion at depth, as evidenced by the widespread hornfelsing, will only be ascertained by considerably more work.

Additional sampling by augering to bedrock to the north beneath the thick cover of aeolian silt along with extension of the IP coverage might determine if the Mo there was related to the core of an individual porphyry with the higher chargeability to the south representative of the pyrite halo, or if to some phase/skarn associated with a large porphyry system.

Deeper holes drilled beneath the resistive cap of Hill 1835 could determine if a Cu porphyry exists there or if the Au to date is the result of an epithermal event associated with a large porphyry.

## **10. DRILLING**

Freegold has not undertaken any drilling on the Shorty Creek prospect.

## **11. SAMPLE PREPARATION, ANALYSES, AND SECURITY**

Soil samples were collected in 2014 by digging a hole through the tundra mat cover down to the mineral soil layer and placing a sample of the soil into a marked bag. The clumps of moss and remaining soil were then returned and the hole was covered up. Sample weights were generally 250 – 500 grams. Samples were taken to ALS Chemex in Fairbanks for analysis. Multi element analysis for gold and pathfinder elements was performed. Fire Assay for gold with an AA finish for the gold and four acid digestion was used for the 33 pathfinder elements. (ICP- AES).

## **12. DATA VERIFICATION**

At the conclusion of the program, samples were laid out in order and subsequently linked through the prepunched holes at the top of each sample bag. Before delivery to ALS Chemex's sample preparatory facility each sample bag was examined for adequate labeling and its number cross checked and entered onto a master spreadsheet. Samples were delivered to ALS Chemex in Fairbanks by Freegold personnel for assay. QAQC was limited to that which was performed by ALS Chemex in the analytical process which included laboratory standards and blanks.

## **13. MINERAL PROCESSING AND METALLURGICAL TESTING**

To the author's knowledge, there has never been mineral processing or metallurgical testing of materials from the Shorty Creek property, nor have there been petrologic or mineralogical studies completed that might suggest the metallurgical character of mineralization on the property.

## **14. MINERAL RESOURCE ESTIMATE**

To the author's knowledge, there has never been a resource estimate completed on the Shorty Creek property.

## **15-22. ITEMS OMITTED**

Items 15-22 omitted since the Shorty Creek property does not qualify as an "advanced property".

## **23. ADJACENT PROPERTIES**

The largest and most significant land position adjacent to the Shorty Creek project is International Tower Hill Mines Ltd's Livengood gold project which sits primarily on the north side of the Tolovana River valley. Unless otherwise noted, the following summary was derived from the Livengood NI 43-101 report by Kunter, Rehn, Prenn, Carew, and Levy (2013).

The Livengood deposit is hosted in a thrust-interleaved sequence of Proterozoic to Paleozoic sedimentary and volcanic rocks. Mineralization is related to a 93 Ma (Fort Knox age) dike swarm that cuts through the thrust stack. Primary ore controls are a combination of favorable lithologies and crosscutting structural zones. In areas distal to the main structural zones the selective development of disseminated mineralization in favorable host rocks is the main ore control. Within the primary structural corridors all lithologies can be pervasively altered and mineralized. Devonian volcanic rocks and Cretaceous dikes represent the most favorable host lithologies and are pervasively altered and mineralized throughout the deposit. Two dominant

structural controls are present: 1) the major shallow south-dipping faults host dikes and mineralization that are related to dilatant movement on structures of the original fold-thrust architecture during post-thrusting relaxation, and 2) steep NNW trending linear zones that focus the higher-grade mineralization which cuts across all lithologic boundaries.

Using a 0.30 g/t gold cut-off grade the total measured and indicated resources are 802,000,000 tonnes at a grade of 0.61 g/t. The total gold in this scenario is 15.7 million ounces. At the same gold cut-off value, there are an additional 266,000,000 tonnes at a grade of 0.52 g/t in the inferred category. When the measured, indicated and inferred ounces are added together the total gold ounces in the deposit area climbs to 20.1 million ounces.

International Tower Hill Mines Ltd. has announced the progress made to date toward optimization of the Livengood Gold Project in 2014 and plans for work in 2015 as follows: the 2014 work has developed an improved production schedule, as compared to the feasibility study that was summarized in the September 4, 2013 NI-43-101 report, and generated detailed work plans for 2015. The work plans will include additional metallurgical tests and engineering and focus on all aspects of the Project, including confirmation of the flow sheet and optimizing the operating costs. Once defined, these operating costs (OPEX) will then be used to evaluate and optimize the project configuration and capital costs (CAPEX), including determination of the optimum scale for the Project (International Tower Hill Ltd, new release, 6 January, 2015).

## **24. OTHER RELEVANT DATA AND INFORMATION**

To the author's knowledge, there are no other data available to the author that bear directly on the information presented in this report.

## **25. INTERPRETATIONS AND CONCLUSIONS**

The Shorty Creek property (Property) is located in the Livengood - Tolovana Mining District about 125 road-kilometers northwest of Fairbanks Alaska. The Property lies about 4 kilometers south of the now-abandoned gold-mining town site of Livengood and the all-weather paved Elliott Highway. The claim group is situated primarily within Township 7 North, Ranges 4 and 5 West, Fairbanks Meridian; in the Livengood B-3 and B-4 quadrangles. The Property is centered on 430000 E, 7257500 N (UTM NAD 27 for Alaska, Zone 6 North datum (Figure 4.2). The Property is comprised of 251 State of Alaska mining claims covering 26,887 acres (10,881.12 hectares).

The Trans-Alaska Pipeline and the associated surface access corridor cross the Property. This 48-inch diameter 800 mile long pipeline currently carries approximately 600,000 barrels per day of crude oil (approx. 50% of design capacity) from production facilities on Alaska's North Slope to the all-weather port of Valdez, Alaska. In addition, the right-of-way for the proposed trans-



Alaska natural gas pipeline also passes through the Property and is largely coincident with the oil pipeline right-of-way.

The Property area is largely covered by sub-Arctic taiga forest consisting of black spruce, white spruce, birch and aspen. The forest floor is covered by a thick blanket of tundra vegetation and small shrubs such as dwarf birch, willow, alder, Labrador tea and blueberries. The physiography of Property is characterized as moderately hilly. Elevations range from 150 meters (500 feet) along the Tolovana River, to 660 meters (2,161 feet) on the hilltops generating variable relief to about 510 meters (1,670 feet). This part of Alaska was not glaciated during the Pleistocene however, the project area was near the southwestern terminus of continental ice and winds from this cold ice mass deposited a variably thick layer of aeolian silt over much of Interior Alaska, including the project area. Permafrost is limited to small discontinuous lenses on steep, poorly drained north-facing slopes and has posed no hindrance to past exploration. The climate in this portion of Alaska is dominated by 6 to 8 months of sub-freezing temperatures in winter followed by 4 to 6 months of warm summer weather. Average annual precipitation is 33 cm (13 in.), mostly as snowfall between October and March.

Placer gold was discovered on Livengood Creek in 1914 and placer mining has been conducted in the district on a nearly continuous basis since that time. Total recorded production from the district through 2007 is approximately 530,121 ounces of gold, all from placer operations. The project is located on the south side of the Tolovana River. With the exception of Wilber Creek, also located on the south side of the Tolovana River, the most productive creeks in the district are located on the north side of the Tolovana River valley. Total placer production from the Wilber Creek valley is unknown but likely less than 50,000 ounces.

The Shorty Creek prospect was originally located as an antimony prospect in 1972. It was re-evaluated as a copper-molybdenum prospect by Earth Resources in 1972 and was reportedly drilled in several locations prior to 1974. No technical data remains from this work. Public sector mineral evaluations between 1979 and 1984 indicated that copper, gold and arsenic mineralization was exposed in road cuts on the Alyeska Pipeline access road on what is now the southwestern extension of the Hill 1835 prospect. The Shorty Creek prospect was staked in 1984 and leased to Fairbanks-based Fairbanks Exploration Inc. who conducted exploration on the project in 1985 through 1990, the latter three years under a joint venture with Asarco Inc. These efforts included soil and rock sampling and a total of 6,843.5 feet of reverse circulation drilling in 20 holes. Total cost of these programs was approximately \$400,000. Fairbanks Exploration terminated their interest in the project which was subsequently acquired by Fairbanks-based Gold Range Ltd. Little substantive exploration was conducted until 2005 when California-based Select Resources acquired a lease on the project. During 2005 Select conducted a top of bedrock soil sampling program over the Hill 1835 prospect. A total of 566 soil samples were collected along with 21 grab rock samples collected while soil sampling was under way. Additional non-field related work included digital compilation and evaluation of geological, geophysical, geochemical, GIS and remote sensing data. This work was conducted before, during and after

the field program. Freegold acquired the property in July, 2014. They commenced geophysical and geochemical survey shortly after; completing 28.6 line kilometers of induced polarization geophysics and collecting 354 soil samples. Their work defined significant chargeability anomalies and coincident strong copper, gold and bismuth geochemistry.

The Shorty Creek project is located within the Livengood Terrane, a complex and poorly understood belt of Paleozoic through Cretaceous sedimentary, metamorphic and intrusive rocks which is bounded on the north by the northeast trending right lateral Kaltag fault and the northwest trending right lateral Tintina fault. On the south, the Livengood Terrane is bounded by the regionally extensive Yukon Tanana Terrane. Rocks of the Shorty Creek project are hosted within the Wilber Creek unit, a folded sequence of Early Cretaceous flysch sediments which form the youngest bedded rocks in the project area. The principal Wilber Creek flysch lithologies exposed on the Shorty Creek project include black carbonaceous siltstone, gray feldspathic sandstone and silty sandstone, black shale and polymict conglomerate. The Wilber Creek flysch disconformably overlies a thrust package of south dipping Lower Paleozoic carbonates, volcanics and pelitic rocks which host the +20.1 Moz Livengood gold project located about 5 miles north of the Property. A variety of small intermediate igneous bodies occur within and peripheral to the Property. Biotite granodiorite is the most abundant intrusive rock type seen on the property. A potassium - argon age date of 63 Ma was reported for intrusive rocks in the Shorty Creek area while an  $\text{Ar}^{40}/\text{Ar}^{39}$  age date of 65-70 Ma was reported from white mica in intrusive rocks exposed at the collar of drill hole RH8901 on the north end of the Hill 1835 prospect. Limited fluid inclusion data from a granitic pluton on the south side of Wilber Creek indicated the presence of high  $\text{CO}_2$ , high salinity fluids.

The dominant structural elements of the Property are compression-related, generally northwest directed, northeast-trending thrust faults and northeast striking folds. Folds with axes parallel to the northeast-trending Wilber Creek valley are examples of this style of deformation. Rocks of the Wilber Creek flysch are folded into open to recumbent isoclinal folds and subsequently cut by northeast and north-south structures, the largest of which are the Minto and Ranney Hollow faults, two north-south striking left lateral faults with significant vertical offset. The Minto fault bounds a broad topographic lowland immediately west of the project area, and remains active to the present.

Previous work has indicated that biotite hornfels and lesser diopsidic hornfels are widespread in the area. Field evidence suggests that hornfelsing precedes hydrothermal alteration, brecciation and mineralization. Previous mapping indicate that hornfels occurs at the Shorty Creek Cu-Mo prospect, on 1835 prospect, on the flanks of Hill 1870 and in the Hill 2161 area on the southern end of the Shorty Creek project. Although very little intrusive rock is exposed on the Shorty Creek project the widespread and often intense hornfelsing of the sediments, particularly in the Hill 1835 area, suggest a significant size intrusive nearby.

Outcrop exposures containing anomalous gold mineralization were discovered at the Hill 1835 prospect in 1985. Subsequent field activities revealed anomalous gold, silver, mercury, zinc, copper, molybdenum and arsenic in RC drill chips, grab rock and trench rock samples collected in 1985, 1986 and 1988 through 1990. Highly anomalous Au, As, Bi, Te, S, Sn and W were detected in top of bedrock soil samples collected on Hill 1835 in 2005. Other areas with anomalous Au, Cu, As, Sb or Mo include the old Shorty Creek Cu-Mo prospect, Hill 1890 east of Ranney Hollow, Hill 1870 on the south side of the pipeline corridor, Hill 2161 at the head of Eagle and Wilber Creeks and the lower eastern flank of Wilber Creek valley.

The most intense hydrothermal alteration and anomalous metal geochemistry at Shorty Creek is concentrated at the Hill 1835 prospect. The protolith host rocks at Hill 1835 were shale and siltstone of the Wilber Creek flysch which subsequently were hydrothermally altered by vein and flood silicification to a dense light to dark brown hornfels. This rock has undergone variable crackle to matrix-supported brecciation. Rubble and outcrop of this hornfels unit contain large (1 cm) cubic molds after pyrite, often partially filled with limonite. In drill chips, disseminated and fracture-controlled pyrite, pyrrhotite, chalcopyrite, arsenopyrite and bornite have been identified (along with numerous secondary oxide minerals). In total, the area of silicification, brecciation and geochemical enrichment covers a northeast-trending area measuring 1700 meters by 600 meters. Mineralization remains open under Quaternary cover on both ends.

Mineralization at Shorty Creek is hosted by structurally and possibly stratigraphically controlled, polyphase, grain-supported and matrix-supported silicified breccias. Intense flood silicification occurs in matrix-supported breccias and is often accompanied by arsenopyrite-quartz veinlets and disseminated pyrite and arsenopyrite. Drill results indicate that deeper portions of the system contain arsenopyrite-pyrite-chalcopyrite stockwork veinlets along with local disseminated pyrite, chalcopyrite and rare bornite. Gold values tend to be higher near the top of the drill holes. Widespread pervasive sericite(?) or clay(?) alteration appears to overprint all other alteration and mineralization styles, resulting in a pale yellow to tan "bleached" appearance in altered host lithologies. Outcrops of matrix supported breccia often are restricted to one or more mappable lithologic horizon, indicating possible stratigraphic control of at least a portion of the gold mineralization present. Chemically favorable stratigraphic units are well documented in skarn and replacement deposits around the world however; recent research has demonstrated the importance of host rock porosity and permeability in relation to gold mineralization in the Great Basin of the western United States. It is possible that the rock units referred to as "hornfels" at Shorty Creek are in fact replacement bodies. Significant drill intercepts include 220 feet grading 1.216 gpt gold in hole RH8908, including 25 feet grading 4.577 gpt gold, 60 feet grading 0.800 gpt gold in hole RH9016, 25 feet grading 1.707 gpt gold in hole RH9017 and 55 feet grading 1.035 gpt gold in hole RH9019.

The evaluation presented here would not have been possible without the extensive compilation of all geological, geochemical, geophysical information to a common digital database on the Shorty Creek project completed by Avalon Development Corp. This was the first time all of the

information had been compiled and the first time these data were evaluated in the light of new ore deposit models for porphyry Cu-Au-Mo and IRG systems (Freeman, 2010). Previous investigators suggested that there are two primary types of mineralization present at Shorty Creek: a gold-dominant IRG system in the southern part of the Property and a copper-molybdenum-dominant system in the northern part of the Property (centered on the old Shorty Creek Cu-Mo prospect). Freeman (Freeman, 2010) believes that the available data are suggestive of a single, zoned porphyry Cu-Au-Mo system which includes three main zones, a proximal Cu-Mo±Au mineralization (Shorty Creek Cu-Mo, Hill 1890 prospect), a high-sulfidation epithermal Au-As-Bi-W±Cu±Ag mineralization (Hill 1835/Hill 1870) and an intermediate-sulfidation epithermal Au-Ag-Pb-Zn±As±Sb±Mn mineralization (Hill 2161 and ridge south of Wilber Creek). A comparison of salient features of IRG and porphyry Cu-Au-Mo deposits demonstrates that many of the important alteration and mineralization features of a typical IRG deposit are shared by porphyry Cu-Mo-Au deposits. However, in every characteristic that is not common to both deposit types, the data suggest that the operant model at Shorty Creek is a porphyry Cu-Au-Mo system instead of an IRG.

Post-mineral faulting on the north-south trending Minto and Ranney Hollow faults and on the Steel Creek lineament and the other northeast trending structures has offset alteration and mineralization in a consistent sense across all three alteration/mineralization zones. Three-dimensional modeling of magnetic data indicates a strong central magnetic low with highly magnetic bodies surrounding it on the north. The buried magnetic highs may be related to Cu-Fe skarn mineralization developed in Lower Paleozoic carbonates which regional and district-scale mapping indicate dip south under the Wilber Creek flysch sequence.

If this over-all deposit model is correct, and if post-mineral structural deformation has not significantly deformed the actual footprint of the alteration/mineralization, the Shorty Creek project porphyry system covers an area approximately 8 miles in diameter. Zoning of this scale is not uncommon in large porphyry systems such as Bingham District, Utah (5-6 miles), Central Mining District, New Mexico (+10 miles), Los Bronces, Chile (5 miles), Chuquibambilla (+10 miles). While the interpretations of this report represent a departure from previous thinking about the Shorty Creek project area, this is the first time a single study has been able to incorporate all of the available data. Previous investigators focused on individual parts of the larger system, but did not recognize these parts as being integral pieces of a larger porphyry copper-gold-molybdenum system.

## **26. RECOMMENDATIONS**

Based on field, laboratory and literature studies completed to date, the following recommendations for future work are warranted:

1. A new access road to the Hill 1835 project area should be established from the end of the Wilber Creek mine road. This will eliminate the need for access along the Alyeska Pipeline road corridor. The new access, estimated at 4.5 miles of new road, has the advantages of southerly-facing aspect (no permafrost), moderate to flat road grades and currently existing access to the paved Elliott Highway. This route also will have the advantage of traversing the left limit of lower Wilber Creek, an area where historic lode gold prospects have been reported but not evaluated. Permitting for this road is complete. This phase of work is not success-dependent on any other work recommended for the Shorty Creek project. The estimated cost of this program, including labor, permitting, heavy equipment rental, fuel and all consumables is US\$100,000. Alternatively, if the road is not built, a helicopter supported program will cost about the same (\$100,000). The advantage of the road is clear in that it is a one-time cost (although there will be maintenance), and can be used to support the project if it grows and also can be used over multiple years.
2. Reconnaissance exploration on both the original and the new claim blocks, to include prospecting and mapping of ridgelines, stream sediment, and soil sampling where warranted. Mapping and sampling is recommended in prospective areas along the length of the new access road outlined above. Efforts should include infill soil sampling on the existing soil grids; and soil sampling along the northeastern and southwestern extensions of the Hill 1835, Hill 1870, Hill 1710, and Hill 1890 anomaly areas. Induced polarization geophysics is recommended to extend the grid coverage along the northeastern and southwestern extensions of the Hill 1835, Hill 1870, Hill 1710, and Hill 1890 anomaly areas. Daily field work will be on foot or supported by 4WD ATV were possible. All samples should be assayed for gold by fire assay techniques with each sample also analyzed for a multi-element suite by ICP methods using 4-acid digestion procedures. This phase of work is not success-dependent on any other work recommended for the Shorty Creek project. The estimated cost of this program, including labor, assays, camp, equipment, fuel and all consumables is US\$200,000.
3. Diamond drilling should be conducted at the Hill 1835 gold prospect. Approximately 1,500 meters (4,920 ft.) of drilling are recommended. Drilling will need to extend to depth of 305 meters (1000 ft) in order to test below the 152 meter (500 ft.) depth already tested by the 1989-1990 programs. This phase of work is not success-dependent on any other work recommended for the Shorty Creek project. All drilling should be conducted with a skid-mounted diamond core drill using HQ core (2.5 inch diameter). All core should be logged, digitally photographed, split with a Haley core saw and one-half of each interval should be submitted for analysis. The remaining half should be retained for future use. All core should be assayed for gold by fire



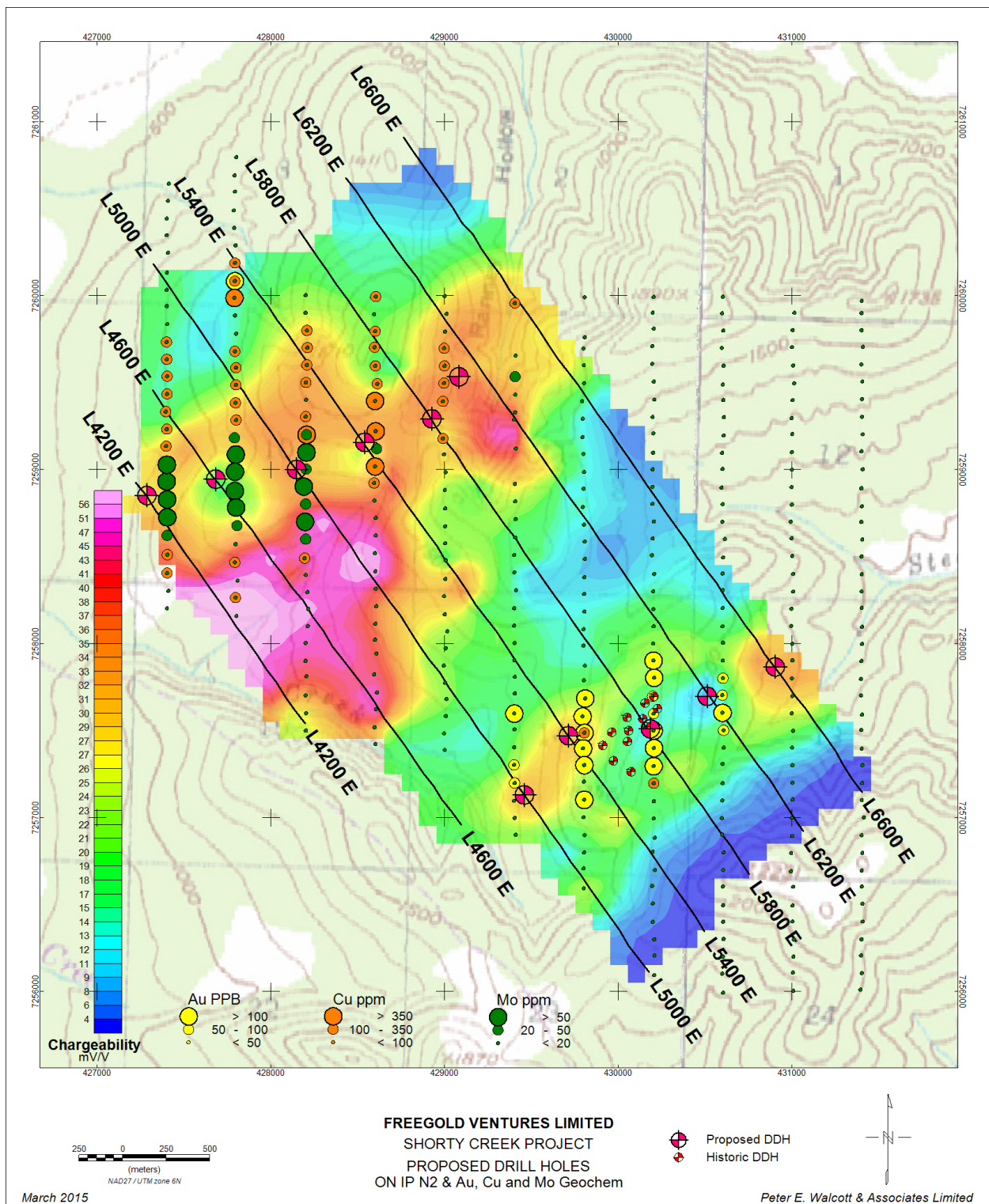
assay techniques with each sample also analyzed for a multi-element suite by ICP methods using 4-acid digestion procedures. The estimated cost of this drilling program, including labor, assays, camp, heavy equipment rental, drilling, fuel and all consumables is US\$450,000 (\$300/mt or \$92/ft).

4. Diamond drilling should be conducted at the Hill 1710 Cu-Mo target area. Approximately 2,500 meters (8,200 ft.) of diamond drilling are recommended to test below previous drilling. Initial drill depths should be planned to test depths of 305 to 400 meters (1,000 to 1,300 ft.). This phase of work is not success-dependent on any other work recommended for the Shorty Creek project. All drilling should be conducted with a skid-mounted diamond core drill using HQ core (2.5 inch diameter). All core should be logged, digitally photographed, split with a Haley core saw and one-half of each interval should be submitted for analysis. The remaining half should be retained for future use. All core should be assayed for gold by fire assay techniques with each sample also analyzed for a multi-element suite by ICP methods using 4-acid digestion procedures. The estimated cost of this drilling program, including labor, assays, camp, heavy equipment rental, drilling, fuel and all consumables is US\$750,000 (\$300/mt or \$92/ft).

The total cost of the above-recommended work is approximately US\$1,500,000.

**Table 26.1 Breakdown of recommended exploration costs for the Shorty Creek project**

Work Program	Cost	Comment
Access Road Construction	100,000	Construction
Geochemistry, Geophysics, Reconnaissance Program	200,000	Mapping, Sampling, Induced Polarization
Hill 1835 Diamond Drilling	450,000	Targeted with previous drilling soil, geology and Induced Polarization results
Hill 1710 Diamond Drilling	750,000	Targeted with previous drilling soil, geology and Induced Polarization results
<b>TOTAL</b>	<b>1,500,000</b>	



**Figure 26.1 Map Showing Areas of Proposed Drilling.**

## 27. DATE AND SIGNATURE PAGE

The effective date of the technical report “Technical Report for the Shorty Creek Project, Livengood – Tolovana Mining District, Alaska” is March 31, 2015.

Dated this 31<sup>st</sup> day of March, 2015



Mark J. Abrams, P.G., R.G., C.P.G., MS



## 28. REFERENCES

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## **CERTIFICATE OF QUALIFIED PERSON**

**Mark J. Abrams**

I, Mark J. Abrams, P.O. Box 33955, Reno, Nevada 89533, do hereby certify that:

- 1) I am a consulting geologist with an office at 604 Elko Summit Dr., Elko, Nevada, 89801, USA.
- 2) I am a graduate of Eastern Washington University in 1978 with a B.S. degree; and in 1980 with a M.S degree, both in Geology.
- 3) I am a member in good standing of the American Institute of Professional Geologists #11451.
- 4) I have practiced my profession continuously since 1979. I have 35 years of experience in all phases of mineral exploration and economic geology.
- 5) I have read the definition of “qualified person” set out in National Instrument 43-101 and certify that by reason of education, experience, independence and affiliation with a professional association, I meet the requirements of an Independent Qualified Person as defined in National Instrument 43-101.
- 6) This report titled “Technical Report for the Shorty Creek Project, Livengood – Tolovana Mining District, Alaska” dated March 31, 2015, is based on a study of the data and literature available on the Shorty Creek Property. I have visited the property most recently September 16-19, 2009.
- 7) 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.
- 8) I am independent of the issuer applying all of the tests in section 1.5 of National Instrument 43-101.
- 9) I have read National Instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.
- 10) I have read National Instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.

Dated this 31<sup>st</sup> day of March, 2015



Mark J. Abrams, P.G., R.G., C.P.G., MS



APPENDIX 1  
SHORTY CREEK PROJECT  
Gold Range Ltd. Claims  
State of Alaska Mining Claims  
All claims located in the Fairbanks Recording Districts, Alaska

<b>ADL</b>	<b>Owner</b>	<b>Classification</b>	<b>Name</b>	<b>Staked</b>	<b>MTRSC</b>	<b>Acre s</b>
ADL 514366	Gold Range Ltd	Mining Claim (MC)	RAN 600	27- Nov- 86	F007N005 W14	40
ADL 514368	Gold Range Ltd	Mining Claim (MC)	RAN 700	27- Nov- 86	F007N005 W14	40
ADL 514370	Gold Range Ltd	Mining Claim (MC)	RAN 800	27- Nov- 86	F007N005 W14	40
ADL 526720	Gold Range Ltd	Mining Claim (MC)	RAN 599	14- Sep-88	F007N005 W14	40
ADL 526727	Gold Range Ltd	Mining Claim (MC)	RAN 698	12- Sep-88	F007N005 W15	38
ADL 526728	Gold Range Ltd	Mining Claim (MC)	RAN 699	13- Sep-88	F007N005 W14	40
ADL 526735	Gold Range Ltd	Mining Claim (MC)	RAN 797	12- Sep-88	F007N005 W15	40
ADL 526736	Gold Range Ltd	Mining Claim (MC)	RAN 798	12- Sep-88	F007N005 W15	40
ADL 526737	Gold Range Ltd	Mining Claim (MC)	RAN 799	13- Sep-88	F007N005 W14	40
ADL 571634	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 1	17- Feb-96	F007N005 W03	40
ADL 571635	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 2	17- Feb-96	F007N005 W03	40
ADL 571636	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 3	17- Feb-96	F007N005 W03	40
ADL 571637	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 4	17- Feb-96	F007N005 W03	40
ADL 571638	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 5	17- Feb-96	F007N005 W10	40
ADL 571639	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 6	18- Feb-96	F007N005 W10	40
ADL 571640	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 7	18- Feb-96	F007N005 W10	40
ADL 571641	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 8	18- Feb-96	F007N005 W10	40
ADL 571642	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 9	24- Feb-96	F007N005 W10	40



<b>ADL</b>	<b>Owner</b>	<b>Classification</b>	<b>Name</b>	<b>Staked</b>	<b>MTRSC</b>	<b>Acres</b>
ADL 571643	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 10	24-Feb-96	F007N005 W10	40
ADL 571644	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 11	24-Feb-96	F007N005 W10	40
ADL 571645	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 12	24-Feb-96	F007N005 W10	40
ADL 571646	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 13	25-Feb-96	F007N005 W10	40
ADL 571647	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 14	25-Feb-96	F007N005 W10	40
ADL 571648	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 15	25-Feb-96	F007N005 W10	40
ADL 571649	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 16	25-Feb-96	F007N005 W10	40
ADL 571650	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 17	2-Mar-96	F007N005 W10	40
ADL 571651	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 18	2-Mar-96	F007N005 W10	40
ADL 571652	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 19	2-Mar-96	F007N005 W10	40
ADL 571653	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 20	2-Mar-96	F007N005 W10	40
ADL 571654	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 28	3-Mar-96	F007N005 W02	40
ADL 571655	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 29	3-Mar-96	F007N005 W02	40
ADL 571656	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 30	3-Mar-96	F007N005 W02	40
ADL 571657	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 31	3-Mar-96	F007N005 W02	40
ADL 571658	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 32	9-Mar-96	F007N005 W11	40
ADL 571659	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 33	9-Mar-96	F007N005 W11	40
ADL 571660	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 34	9-Mar-96	F007N005 W11	40
ADL 571661	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 35	9-Mar-96	F007N005 W11	40
ADL 571662	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 36	10-Mar-96	F007N005 W11	40
ADL 571663	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 37	10-Mar-96	F007N005 W11	40
ADL 571664	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 38	10-Mar-96	F007N005 W11	40
ADL	Gold Range Ltd	Mining Claim	SHORTY NO 39	10-	F007N005	40

<b>ADL</b>	<b>Owner</b>	<b>Classification</b>	<b>Name</b>	<b>Staked</b>	<b>MTRSC</b>	<b>Acres</b>
571665		(MC)		Mar-96	W11	
ADL 571666	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 40	24- Feb-96	F007N005 W11	40
ADL 571667	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 41	24- Feb-96	F007N005 W11	40
ADL 571668	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 42	25- Feb-96	F007N005 W11	40
ADL 571669	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 43	25- Feb-96	F007N005 W11	40
ADL 571670	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 44	25- Feb-96	F007N005 W11	40
ADL 571671	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 45	25- Feb-96	F007N005 W11	40
ADL 571672	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 46	24- Feb-96	F007N005 W11	40
ADL 571673	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 47	24- Feb-96	F007N005 W11	40
ADL 571674	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 48	18- Feb-96	F007N005 W14	40
ADL 571675	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 49	18- Feb-96	F007N005 W14	40
ADL 571676	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 54	18- Feb-96	F007N005 W14	40
ADL 571677	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 55	18- Feb-96	F007N005 W14	40
ADL 571678	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 56	17- Feb-96	F007N005 W14	40
ADL 571679	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 57	17- Feb-96	F007N005 W14	40
ADL 571681	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 63	17- Feb-96	F007N005 W14	40
ADL 571682	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 64	11- Mar-96	F007N005 W01	40
ADL 571683	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 65	11- Mar-96	F007N005 W01	40
ADL 571684	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 66	11- Mar-96	F007N005 W01	40
ADL 571685	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 67	11- Mar-96	F007N005 W01	40
ADL 571686	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 68	12- Mar-96	F007N005 W12	40
ADL 571687	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 69	12- Mar-96	F007N005 W12	40
ADL 571688	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 70	12- Mar-96	F007N005 W12	40

<b>ADL</b>	<b>Owner</b>	<b>Classification</b>	<b>Name</b>	<b>Staked</b>	<b>MTRSC</b>	<b>Acres</b>
ADL 571689	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 71	12-Mar-96	F007N005 W12	40
ADL 571690	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 72	13-Mar-96	F007N005 W12	40
ADL 571691	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 73	13-Mar-96	F007N005 W12	40
ADL 571692	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 74	13-Mar-96	F007N005 W12	40
ADL 571693	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 75	13-Mar-96	F007N005 W12	40
ADL 571694	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 76	12-Mar-96	F007N005 W12	40
ADL 571695	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 77	12-Mar-96	F007N005 W12	40
ADL 571696	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 78	12-Mar-96	F007N005 W12	40
ADL 571697	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 79	12-Mar-96	F007N005 W12	40
ADL 571698	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 80	11-Mar-96	F007N005 W12	40
ADL 571699	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 81	11-Mar-96	F007N005 W12	40
ADL 571700	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 82	11-Mar-96	F007N005 W12	40
ADL 571701	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 83	11-Mar-96	F007N005 W12	40
ADL 571702	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 84	10-Mar-96	F007N005 W13	40
ADL 571703	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 85	10-Mar-96	F007N005 W13	40
ADL 571704	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 86	10-Mar-96	F007N005 W13	40
ADL 571705	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 87	10-Mar-96	F007N005 W13	40
ADL 571706	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 88	9-Mar-96	F007N005 W13	40
ADL 571707	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 89	9-Mar-96	F007N005 W13	40
ADL 571708	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 90	9-Mar-96	F007N005 W13	40
ADL 571709	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 91	9-Mar-96	F007N005 W13	40
ADL 571710	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 92	3-Mar-96	F007N005 W13	40
ADL	Gold Range Ltd	Mining Claim	SHORTY NO 93	3-Mar-	F007N005	40

<b>ADL</b>	<b>Owner</b>	<b>Classification</b>	<b>Name</b>	<b>Staked</b>	<b>MTRSC</b>	<b>Acres</b>
571711		(MC)		96	W13	
ADL 571712	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 94	3-Mar-96	F007N005 W13	40
ADL 571713	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 95	3-Mar-96	F007N005 W13	40
ADL 571714	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 96	2-Mar-96	F007N005 W13	40
ADL 571715	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 97	2-Mar-96	F007N005 W13	40
ADL 571716	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 98	2-Mar-96	F007N005 W13	40
ADL 571717	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 99	2-Mar-96	F007N005 W13	40
ADL 571718	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 100	14-Mar-96	F007N004 W06	40
ADL 571719	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 101	14-Mar-96	F007N004 W07	40
ADL 571720	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 102	14-Mar-96	F007N004 W07	40
ADL 571721	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 103	13-Mar-96	F007N004 W07	40
ADL 571722	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 104	13-Mar-96	F007N004 W07	40
ADL 571723	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 105	13-Mar-96	F007N004 W18	40
ADL 571724	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 106	13-Mar-96	F007N004 W18	40
ADL 571725	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 107	14-Mar-96	F007N004 W18	40
ADL 571726	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 108	14-Mar-96	F007N004 W18	40
ADL 576809	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 109	1-Nov-97	F007N005 W03	40
ADL 576810	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 110	1-Nov-97	F007N005 W03	40
ADL 576811	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 111	1-Nov-97	F007N005 W03	40
ADL 576812	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 112	1-Nov-97	F007N005 W03	40
ADL 576813	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 113	2-Nov-97	F007N005 W02	40
ADL 576814	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 114	2-Nov-97	F007N005 W02	40
ADL 576815	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 115	2-Nov-97	F007N005 W02	40



<b>ADL</b>	<b>Owner</b>	<b>Classification</b>	<b>Name</b>	<b>Staked</b>	<b>MTRSC</b>	<b>Acres</b>
ADL 576816	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 116	2-Nov-97	F007N005 W02	40
ADL 576817	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 117	8-Nov-97	F007N005 W01	40
ADL 576818	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 118	8-Nov-97	F007N005 W01	40
ADL 576819	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 119	8-Nov-97	F007N005 W01	40
ADL 576820	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 120	8-Nov-97	F007N005 W01	40
ADL 576821	Gold Range Ltd	Mining Claim (MC)	SHORTY NO 121	9-Nov-97	F007N004 W06	40
ADL 606525	Gold Range Ltd	Mining Claim (MC)	WEC 1	18-Feb-05	F007N005 W27	160
ADL 606526	Gold Range Ltd	Mining Claim (MC)	WEC 2	18-Feb-05	F007N005 W27	160
ADL 606527	Gold Range Ltd	Mining Claim (MC)	WEC 3	18-Feb-05	F007N005 W27	160
ADL 606528	Gold Range Ltd	Mining Claim (MC)	WEC 4	18-Feb-05	F007N005 W27	160
ADL 606529	Gold Range Ltd	Mining Claim (MC)	WEC 5	18-Feb-05	F007N005 W26	160
ADL 606530	Gold Range Ltd	Mining Claim (MC)	WEC 6	18-Feb-05	F007N005 W34	160
ADL 606531	Gold Range Ltd	Mining Claim (MC)	WEC 7	18-Feb-05	F007N005 W34	160
ADL 606532	Gold Range Ltd	Mining Claim (MC)	WEC 8	18-Feb-05	F007N005 W35	160
ADL 606533	Gold Range Ltd	Mining Claim (MC)	WEC 9	18-Feb-05	F007N005 W34	160
ADL 606534	Gold Range Ltd	Mining Claim (MC)	WEC 10	18-Feb-05	F007N005 W34	160
ADL 606535	Gold Range Ltd	Mining Claim (MC)	WEC 11	18-Feb-05	F007N005 W35	160
ADL 606536	Gold Range Ltd	Mining Claim (MC)	WEC 12	18-Feb-05	F007N005 W35	160
ADL 606537	Gold Range Ltd	Mining Claim (MC)	WEC 13	18-Feb-05	F006N005 W03	160
ADL 606538	Gold Range Ltd	Mining Claim (MC)	WEC 14	18-Feb-05	F006N005 W03	160
ADL 606539	Gold Range Ltd	Mining Claim (MC)	WEC 15	18-Feb-05	F006N005 W03	160
ADL 606540	Gold Range Ltd	Mining Claim (MC)	WEC 16	18-Feb-05	F006N005 W03	160
ADL	Gold Range Ltd	Mining Claim	WEC 17	18-	F007N005	40

<b>ADL</b>	<b>Owner</b>	<b>Classification</b>	<b>Name</b>	<b>Staked</b>	<b>MTRSC</b>	<b>Acres</b>
606541		(MC)		Feb-05	W22	
ADL 606542	Gold Range Ltd	Mining Claim (MC)	WEC 18	18- Feb-05	F007N005 W26	40
ADL 606543	Gold Range Ltd	Mining Claim (MC)	WEC 19	18- Feb-05	F007N005 W26	40
ADL 606544	Gold Range Ltd	Mining Claim (MC)	WEC 20	18- Feb-05	F007N005 W35	40
ADL 606545	Gold Range Ltd	Mining Claim (MC)	WEC 21	18- Feb-05	F007N005 W35	40
ADL 606546	Gold Range Ltd	Mining Claim (MC)	WEC 22	18- Feb-05	F007N005 W24	160
ADL 606547	Gold Range Ltd	Mining Claim (MC)	WEC 23	18- Feb-05	F007N005 W24	160
ADL 606548	Gold Range Ltd	Mining Claim (MC)	WEC 24	18- Feb-05	F007N005 W24	40
ADL 606549	Gold Range Ltd	Mining Claim (MC)	WEC 25	18- Feb-05	F007N005 W24	40
ADL 606550	Gold Range Ltd	Mining Claim (MC)	WEC 26	18- Feb-05	F007N005 W24	40
ADL 606551	Gold Range Ltd	Mining Claim (MC)	WEC 27	18- Feb-05	F007N005 W24	40
ADL 606552	Gold Range Ltd	Mining Claim (MC)	NORTH 101	18- Feb-05	F007N005 W03	160
ADL 606553	Gold Range Ltd	Mining Claim (MC)	NORTH 102	18- Feb-05	F007N005 W03	160
ADL 606554	Gold Range Ltd	Mining Claim (MC)	NORTH 103	18- Feb-05	F007N005 W02	160
ADL 606555	Gold Range Ltd	Mining Claim (MC)	NORTH 104	18- Feb-05	F007N005 W02	160
ADL 606556	Gold Range Ltd	Mining Claim (MC)	NORTH 105	18- Feb-05	F007N005 W01	160
ADL 606557	Gold Range Ltd	Mining Claim (MC)	NORTH 106	18- Feb-05	F007N005 W01	160
ADL 606558	Gold Range Ltd	Mining Claim (MC)	NORTH 107	18- Feb-05	F008N005 W35	160
ADL 606559	Gold Range Ltd	Mining Claim (MC)	NORTH 108	18- Feb-05	F008N005 W35	160
ADL 606560	Gold Range Ltd	Mining Claim (MC)	NORTH 109	18- Feb-05	F008N005 W36	160
ADL 606561	Gold Range Ltd	Mining Claim (MC)	NORTH 110	18- Feb-05	F008N005 W36	160
ADL 606562	Gold Range Ltd	Mining Claim (MC)	NORTH 111	18- Feb-05	F008N005 W35	160
ADL 606563	Gold Range Ltd	Mining Claim (MC)	NORTH 112	18- Feb-05	F008N005 W36	160

<b>ADL</b>	<b>Owner</b>	<b>Classification</b>	<b>Name</b>	<b>Staked</b>	<b>MTRSC</b>	<b>Acres</b>
ADL 606564	Gold Range Ltd	Mining Claim (MC)	NORTH 113	18-Feb-05	F008N005 W35	40
ADL 606565	Gold Range Ltd	Mining Claim (MC)	NORTH 114	18-Feb-05	F008N005 W35	40
ADL 606566	Gold Range Ltd	Mining Claim (MC)	NORTH 115	18-Feb-05	F008N005 W36	40
ADL 606567	Gold Range Ltd	Mining Claim (MC)	NORTH 116	18-Feb-05	F008N005 W36	40
ADL 619807	Gold Range Ltd	Leasehold Location (LL)	SC 50	11-Oct-14	F007N005 W09	40
ADL 619808	Gold Range Ltd	Mining Claim (MC)	SC 51	11-Oct-14	F007N005 W09	40
ADL 619809	Gold Range Ltd	Mining Claim (MC)	SC 52	11-Oct-14	F007N005 W09	40
ADL 619810	Gold Range Ltd	Mining Claim (MC)	SC 53	11-Oct-14	F007N005 W15	40
ADL 619811	Gold Range Ltd	Mining Claim (MC)	SC 54	11-Oct-14	F007N005 W15	40
ADL 619812	Gold Range Ltd	Mining Claim (MC)	SC 55	11-Oct-14	F007N005 W14	40
ADL 619813	Gold Range Ltd	Mining Claim (MC)	SC 56	11-Oct-14	F007N005 W14	40
ADL 619814	Gold Range Ltd	Mining Claim (MC)	SC 57	11-Oct-14	F007N005 W25	40
ADL 619815	Gold Range Ltd	Mining Claim (MC)	SC 59	11-Oct-14	F007N005 W25	40
ADL 619816	Gold Range Ltd	Mining Claim (MC)	SC 60	11-Oct-14	F007N005 W25	40
ADL 619817	Gold Range Ltd	Mining Claim (MC)	SC 61	11-Oct-14	F007N004 W30	40
ADL 619818	Gold Range Ltd	Mining Claim (MC)	SC 62	11-Oct-14	F007N004 W30	40
ADL 619819	Gold Range Ltd	Mining Claim (MC)	SC 63	11-Oct-14	F007N004 W30	40
ADL 619820	Gold Range Ltd	Mining Claim (MC)	SC 64	11-Oct-14	F007N004 W30	40
ADL 619821	Gold Range Ltd	Leasehold Location (LL)	SC 65	11-Oct-14	F007N005 W05	160
ADL 619822	Gold Range Ltd	Leasehold Location (LL)	SC 66	11-Oct-14	F007N005 W05	160
ADL 619823	Gold Range Ltd	Leasehold Location (LL)	SC 67	11-Oct-14	F007N005 W05	160
ADL 619824	Gold Range Ltd	Leasehold Location (LL)	SC 68	11-Oct-14	F007N005 W05	160
ADL	Gold Range Ltd	Leasehold	SC 69	11-	F007N005	160

<b>ADL</b>	<b>Owner</b>	<b>Classification</b>	<b>Name</b>	<b>Staked</b>	<b>MTRSC</b>	<b>Acres</b>
619825		Location (LL)		Oct-14	W08	
ADL 619826	Gold Range Ltd	Mining Claim (MC)	SC 70	11- Oct-14	F007N005 W09	160
ADL 619827	Gold Range Ltd	Leasehold Location (LL)	SC 71	11- Oct-14	F007N005 W16	160
ADL 619828	Gold Range Ltd	Mining Claim (MC)	SC 72	11- Oct-14	F007N005 W16	160
ADL 619829	Gold Range Ltd	Leasehold Location (LL)	SC 73	11- Oct-14	F007N005 W16	160
ADL 619830	Gold Range Ltd	Mining Claim (MC)	SC 74	11- Oct-14	F007N005 W16	160
ADL 619831	Gold Range Ltd	Mining Claim (MC)	SC 75	11- Oct-14	F007N005 W15	160
ADL 619832	Gold Range Ltd	Leasehold Location (LL)	SC 76	11- Oct-14	F007N005 W21	160
ADL 619833	Gold Range Ltd	Mining Claim (MC)	SC 77	11- Oct-14	F007N005 W21	160
ADL 619834	Gold Range Ltd	Mining Claim (MC)	SC 78	11- Oct-14	F007N005 W22	160
ADL 619835	Gold Range Ltd	Mining Claim (MC)	SC 79	11- Oct-14	F007N005 W22	160
ADL 619836	Gold Range Ltd	Mining Claim (MC)	SC 80	11- Oct-14	F007N005 W23	160
ADL 619837	Gold Range Ltd	Mining Claim (MC)	SC 81	11- Oct-14	F007N005 W23	160
ADL 619838	Gold Range Ltd	Mining Claim (MC)	SC 82	11- Oct-14	F007N005 W23	160
ADL 619839	Gold Range Ltd	Mining Claim (MC)	SC 83	11- Oct-14	F007N005 W26	160
ADL 619840	Gold Range Ltd	Mining Claim (MC)	SC 84	11- Oct-14	F007N005 W25	160
ADL 619841	Gold Range Ltd	Mining Claim (MC)	SC 85	11- Oct-14	F007N004 W29	160
ADL 619842	Gold Range Ltd	Mining Claim (MC)	SC 86	11- Oct-14	F007N005 W25	160
ADL 619843	Gold Range Ltd	Mining Claim (MC)	SC 87	11- Oct-14	F007N005 W25	160
ADL 619844	Gold Range Ltd	Mining Claim (MC)	SC 88	11- Oct-14	F007N004 W30	160
ADL 619845	Gold Range Ltd	Mining Claim (MC)	SC 89	11- Oct-14	F007N004 W30	160
ADL 619846	Gold Range Ltd	Mining Claim (MC)	SC 90	11- Oct-14	F007N004 W29	160
ADL 619847	Gold Range Ltd	Mining Claim (MC)	SC 91	11- Oct-14	F007N005 W36	160

<b>ADL</b>	<b>Owner</b>	<b>Classification</b>	<b>Name</b>	<b>Staked</b>	<b>MTRSC</b>	<b>Acres</b>
ADL 619848	Gold Range Ltd	Mining Claim (MC)	SC 92	11-Oct-14	F007N004 W31	160
ADL 619849	Gold Range Ltd	Mining Claim (MC)	SC 93	11-Oct-14	F007N004 W31	160
ADL 619850	Gold Range Ltd	Mining Claim (MC)	SC 94	11-Oct-14	F007N004 W32	160
ADL 619851	Gold Range Ltd	Mining Claim (MC)	SC 95	11-Oct-14	F007N004 W31	160
ADL 619852	Gold Range Ltd	Mining Claim (MC)	SC 96	11-Oct-14	F007N004 W31	160
ADL 619853	Gold Range Ltd	Mining Claim (MC)	SC 97	11-Oct-14	F007N004 W32	160
ADL 619854	Gold Range Ltd	Mining Claim (MC)	SC 98	11-Oct-14	F006N004 W06	160
ADL 619855	Gold Range Ltd	Mining Claim (MC)	SC 99	11-Oct-14	F006N004 W05	160
ADL 619856	Gold Range Ltd	Mining Claim (MC)	SC 100	11-Oct-14	F006N004 W06	160
ADL 619857	Gold Range Ltd	Mining Claim (MC)	SC 101	11-Oct-14	F006N004 W05	160
ADL 619858	Gold Range Ltd	Mining Claim (MC)	SC 102	18-Oct-14	F007N005 W15	40
ADL 619859	Gold Range Ltd	Mining Claim (MC)	SC 103	18-Oct-14	F007N005 W15	40
ADL 619860	Gold Range Ltd	Mining Claim (MC)	SC 104	18-Oct-14	F007N005 W15	40
ADL 619861	Gold Range Ltd	Mining Claim (MC)	SC 105	18-Oct-14	F007N005 W14	40
ADL 666591	Gold Range Ltd	Mining Claim (MC)	GOLD KING SOUTH 1	28-May-09	F007N005 W36	160
ADL 666592	Gold Range Ltd	Mining Claim (MC)	GOLD KING SOUTH 2	28-May-09	F006N005 W02	160
ADL 666593	Gold Range Ltd	Mining Claim (MC)	GOLD KING SOUTH 3	28-May-09	F006N005 W02	160
ADL 666594	Gold Range Ltd	Mining Claim (MC)	GOLD KING SOUTH 4	28-May-09	F006N005 W01	160
ADL 666595	Gold Range Ltd	Mining Claim (MC)	GOLD KING SOUTH 5	28-May-09	F006N005 W01	160
ADL 666596	Gold Range Ltd	Mining Claim (MC)	GOLD KING SOUTH 6	28-May-	F006N005 W02	160



<b>ADL</b>	<b>Owner</b>	<b>Classification</b>	<b>Name</b>	<b>Staked</b>	<b>MTRSC</b>	<b>Acres</b>
				09		
ADL 666597	Gold Range Ltd	Mining Claim (MC)	GOLD KING SOUTH 7	28-May-09	F006N005 W02	160
ADL 666598	Gold Range Ltd	Mining Claim (MC)	GOLD KING SOUTH 8	28-May-09	F006N005 W01	160
ADL 666599	Gold Range Ltd	Mining Claim (MC)	GOLD KING SOUTH 9	28-May-09	F006N005 W01	160
ADL 666600	Gold Range Ltd	Mining Claim (MC)	GOLD KING SOUTH 10	28-May-09	F006N004 W06	160
ADL 700545	Gold Range Ltd	Mining Claim (MC)	PCN 1	9-Apr-10	F007N005 W15	160
ADL 700546	Gold Range Ltd	Mining Claim (MC)	PCN 2	9-Apr-10	F007N005 W23	160
ADL 700547	Gold Range Ltd	Mining Claim (MC)	PCN 3	9-Apr-10	F007N005 W24	160
ADL 700548	Gold Range Ltd	Mining Claim (MC)	PCN 4	9-Apr-10	F007N005 W24	40
ADL 700549	Gold Range Ltd	Mining Claim (MC)	PCN 5	9-Apr-10	F007N005 W25	40
ADL 700550	Gold Range Ltd	Mining Claim (MC)	PCN 6	9-Apr-10	F007N004 W30	40
ADL 700552	Gold Range Ltd	Mining Claim (MC)	PCS 1	9-Apr-10	F007N005 W22	160
ADL 700553	Gold Range Ltd	Mining Claim (MC)	PCS 2	9-Apr-10	F007N005 W22	160
ADL 700554	Gold Range Ltd	Mining Claim (MC)	PCS 3	9-Apr-10	F007N005 W26	160
ADL 700555	Gold Range Ltd	Mining Claim (MC)	PCS 4	9-Apr-10	F007N005 W26	160
ADL 700556	Gold Range Ltd	Mining Claim (MC)	PCS 5A	9-Apr-10	F007N005 W35	40
ADL 700557	Gold Range Ltd	Mining Claim (MC)	PCS 5B	9-Apr-10	F007N005 W35	40
ADL 700558	Gold Range Ltd	Mining Claim (MC)	PCS 6	9-Apr-10	F007N005 W36	160
ADL 700559	Gold Range Ltd	Mining Claim (MC)	PCS 7	9-Apr-10	F007N005 W36	160
ADL 700560	Gold Range Ltd	Mining Claim (MC)	PCS 8	9-Apr-10	F006N004 W06	160
ADL 700562	Gold Range Ltd	Mining Claim (MC)	GKSX 1	9-Apr-10	F007N005 W33	160

<b>ADL</b>	<b>Owner</b>	<b>Classification</b>	<b>Name</b>	<b>Staked</b>	<b>MTRSC</b>	<b>Acres</b>
ADL 700563	Gold Range Ltd	Mining Claim (MC)	GKSX 2	9-Apr-10	F007N005 W33	160
ADL 700564	Gold Range Ltd	Mining Claim (MC)	GKSX 3	9-Apr-10	F006N005 W04	160
ADL 700565	Gold Range Ltd	Mining Claim (MC)	GKSX 4	9-Apr-10	F006N005 W04	160
ADL 700566	Gold Range Ltd	Mining Claim (MC)	GKSX 5	9-Apr-10	F006N005 W04	160
ADL 700567	Gold Range Ltd	Mining Claim (MC)	GKSX 6	9-Apr-10	F006N005 W04	160
ADL 701156	Gold Range Ltd	Mining Claim (MC)	GKSX 30	11-May-10	F007N005 W21	160
ADL 701157	Gold Range Ltd	Mining Claim (MC)	GKSX 31	11-May-10	F007N005 W21	160
ADL 701158	Gold Range Ltd	Mining Claim (MC)	GKSX 32	11-May-10	F007N005 W28	160
ADL 701159	Gold Range Ltd	Mining Claim (MC)	GKSX 33	11-May-10	F007N005 W28	160
ADL 701160	Gold Range Ltd	Mining Claim (MC)	GKSX 34	11-May-10	F007N005 W28	160
ADL 701161	Gold Range Ltd	Mining Claim (MC)	GKSX 35	11-May-10	F007N005 W28	160
ADL 701162	Gold Range Ltd	Mining Claim (MC)	GKSX 36	11-May-10	F007N005 W33	160
ADL 701163	Gold Range Ltd	Mining Claim (MC)	GKSX 37	11-May-10	F007N005 W33	160
ADL 719403	Grizzly Bear Gold, Inc.	Mining Claim (MC)	SC 5	16-Sep-14	F007N005 W04	160
ADL 719404	Grizzly Bear Gold, Inc.	Mining Claim (MC)	SC 6	16-Sep-14	F007N005 W04	160
ADL 719405	Grizzly Bear Gold, Inc.	Mining Claim (MC)	SC 7	16-Sep-14	F007N005 W04	160
ADL 719406	Grizzly Bear Gold, Inc.	Mining Claim (MC)	SC 8	16-Sep-14	F007N005 W04	160
ADL 719407	Grizzly Bear Gold, Inc.	Mining Claim (MC)	SC 9	16-Sep-14	F007N005 W09	40
ADL	Grizzly Bear	Mining Claim	SC 10	16-	F007N005	160

<b>ADL</b>	<b>Owner</b>	<b>Classification</b>	<b>Name</b>	<b>Staked</b>	<b>MTRSC</b>	<b>Acres</b>
719408	Gold, Inc.	(MC)		Sep-14	W09	
ADL 719409	Grizzly Bear Gold, Inc.	Mining Claim (MC)	SC 11	16- Sep-14	F007N005 W09	160
ADL 719410	Grizzly Bear Gold, Inc.	Mining Claim (MC)	SC 12	16- Sep-14	F007N004 W06	40
ADL 719411	Grizzly Bear Gold, Inc.	Mining Claim (MC)	SC 13	16- Sep-14	F007N004 W06	40
ADL 719412	Grizzly Bear Gold, Inc.	Mining Claim (MC)	SC 14	16- Sep-14	F007N004 W06	160
ADL 719413	Grizzly Bear Gold, Inc.	Mining Claim (MC)	SC 15	16- Sep-14	F007N004 W05	160
ADL 719414	Grizzly Bear Gold, Inc.	Mining Claim (MC)	SC 16	16- Sep-14	F007N004 W05	160
ADL 719415	Grizzly Bear Gold, Inc.	Mining Claim (MC)	SC 17	16- Sep-14	F007N004 W04	160
ADL 719418	Grizzly Bear Gold, Inc.	Mining Claim (MC)	SC 20	16- Sep-14	F007N004 W07	40
ADL 719419	Grizzly Bear Gold, Inc.	Mining Claim (MC)	SC 21	16- Sep-14	F007N004 W07	40
ADL 719420	Grizzly Bear Gold, Inc.	Mining Claim (MC)	SC 22	16- Sep-14	F007N004 W07	160
ADL 719421	Grizzly Bear Gold, Inc.	Mining Claim (MC)	SC 23	16- Sep-14	F007N004 W08	160
ADL 719422	Grizzly Bear Gold, Inc.	Mining Claim (MC)	SC 24	16- Sep-14	F007N004 W08	160
ADL 719424	Grizzly Bear Gold, Inc.	Mining Claim (MC)	SC 26	16- Sep-14	F007N004 W07	40
ADL 719425	Grizzly Bear Gold, Inc.	Mining Claim (MC)	SC 27	16- Sep-14	F007N004 W07	40
ADL 719426	Grizzly Bear Gold, Inc.	Mining Claim (MC)	SC 28	16- Sep-14	F007N004 W07	160
ADL 719427	Grizzly Bear Gold, Inc.	Mining Claim (MC)	SC 29	16- Sep-14	F007N004 W08	160
ADL 719428	Grizzly Bear Gold, Inc.	Mining Claim (MC)	SC 30	16- Sep-14	F007N004 W08	160
ADL 719429	Grizzly Bear Gold, Inc.	Mining Claim (MC)	SC 31	16- Sep-14	F007N004 W18	40
ADL 719430	Grizzly Bear Gold, Inc.	Mining Claim (MC)	SC 32	16- Sep-14	F007N004 W18	40
ADL 719431	Grizzly Bear Gold, Inc.	Mining Claim (MC)	SC 33	16- Sep-14	F007N004 W18	160
ADL 719432	Grizzly Bear Gold, Inc.	Mining Claim (MC)	SC 34	16- Sep-14	F007N004 W17	160
ADL 719433	Grizzly Bear Gold, Inc.	Mining Claim (MC)	SC 35	16- Sep-14	F007N004 W17	40

<b>ADL</b>	<b>Owner</b>	<b>Classification</b>	<b>Name</b>	<b>Staked</b>	<b>MTRSC</b>	<b>Acres</b>
ADL 719434	Grizzly Bear Gold, Inc.	Mining Claim (MC)	SC 36	16-Sep-14	F007N004 W17	40
ADL 719435	Grizzly Bear Gold, Inc.	Mining Claim (MC)	SC 37	16-Sep-14	F007N004 W18	40
ADL 719436	Grizzly Bear Gold, Inc.	Mining Claim (MC)	SC 38	16-Sep-14	F007N004 W18	40
ADL 719437	Grizzly Bear Gold, Inc.	Mining Claim (MC)	SC 39	16-Sep-14	F007N004 W18	160
ADL 719438	Grizzly Bear Gold, Inc.	Mining Claim (MC)	SC 40	16-Sep-14	F007N004 W17	40
ADL 719439	Grizzly Bear Gold, Inc.	Mining Claim (MC)	SC 41	16-Sep-14	F007N004 W17	40
ADL 719440	Grizzly Bear Gold, Inc.	Mining Claim (MC)	SC 42	16-Sep-14	F007N004 W19	160
ADL 719441	Grizzly Bear Gold, Inc.	Mining Claim (MC)	SC 43	16-Sep-14	F007N004 W19	160
ADL 719442	Grizzly Bear Gold, Inc.	Mining Claim (MC)	SC 44	16-Sep-14	F007N004 W19	160
ADL 719443	Grizzly Bear Gold, Inc.	Mining Claim (MC)	SC 45	16-Sep-14	F007N004 W19	40
ADL 719444	Grizzly Bear Gold, Inc.	Mining Claim (MC)	SC 46	16-Sep-14	F007N004 W19	40
ADL 719445	Grizzly Bear Gold, Inc.	Mining Claim (MC)	SC 47	16-Sep-14	F007N004 W19	40
ADL 719446	Grizzly Bear Gold, Inc.	Mining Claim (MC)	SC 48	16-Sep-14	F007N004 W30	40
ADL 719447	Grizzly Bear Gold, Inc.	Mining Claim (MC)	SC 49	16-Sep-14	F007N004 W30	40