

**YEIP**  
**04-053**  
**2004**

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**04-053**  
**2004**

**GEOLOGICAL MAPPING, ROCK AND SOIL GEOCHEMISTRY,  
TRENCHING AND BULK SAMPLING ON THE LONE STAR  
(KLONDIKE) PROPERTY  
Klondike Star Mineral Corp.  
Klondike Gold Corp.**

By:  
T. Liverton, Ph.D., F.G.S., F.G.A.C.  
W. Mann, M.Sc.

Claims:

Stam 1-53	YC27202 to YC27253	Oyro	YA32828
Ron 1-40	YA10300 to YA10339	ON 1-2	YC33726 to YC33727
Syndicate 32-83	YA79229 to YA79280	UELD 1-2	YB38768 to YB38769
Bad 1-16	YC17895 to YC19907	VI 1-4	YA55285 to YA55288
RJ 1-62	YA64216 to YA65618	VI 11,12,16,18	YA55295 to YA65525
Win 1--156	YC30697 to YC30852	VI 43-44	YA65550 to YA65551
Nug 1-10	YC28449 to YC28458	Cal 1-24	YC28493 to YC28516
DN-DH33	YA47088 to YA47605	GB 1-3	YC25503 to YC25505
CIM 2, 1, 4, 3	YA64519 to YA64522	BR 1-32	YC30853 to YC30884
Joe 1-10	Y65536 to Y99618	Hun 1-2	YC27270 to YC27271
Rado 55-58	YB17066 to YB17069	Hun 4, 6	YC27273 to YC27275
Rado 179-187	YB17186 to YB17193	Jac 1-30	YC27301 to YC27330
Rex 22-31	YA84204 to YA84213	Jac 31-47	YC25580 to YC25596
K 1-10	YA80506 to YA80515	Indy 1-69	YC28932 to YC29000
Cal 1-32	YC32864 to YC32890	Indy 70-121	YC25401 to YC25452
Chi 1-14	YC28459 to YC28472	Reka 1-6	YC28671 to YC28676
Cul 1-14	YC32830 to YC32843	Reka 7	YC28913
Cul 19-38	YC32844 to YC32863	Reka 9-32	YC28677 to YC28700
ND-ND32	YA47089 to YA49745	Reka 33-50	YC28801 to YC28818
DE 1-14	YA55250 to YA55263	Reka 51-60	YC28914 to YC28923
AC 7-10	YA64276 to YA64279	Reka 61-68	YC28819 to YC28826
AC 11	YA64281	Reka 69-76	YC34307 to YC34314
AC 14	YA65629	FB 1-74	YC25506 to YC25579
AC 16-26	YA65631 to YA65641	May 1-22	YC28517 to YC28538
LB 1-132	YC28539 to YC28670	May 25-32	YC28924 to YC28931
Red 1-20	YC28473 to YC28492	May 1-6	YC33720 to YC33725
Nugget 1-10	YA88228 to YA88237	Gre 1-32	YC27331 to YC27362

Claim owners: Klondike Gold Corp. and its predecessor Arbor Resources Inc.

Map sheets 116 B 03, 115 O 14, 115 O 15 and 115 O 10. Coordinates of the centre of the main  
claim block are: 63°53'N, 138°16'W.

Work performed between 28th. May and 26th. October 2004

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# 2004 KLONDIKE PROGRAM

## 1. INTRODUCTION

This report describes the mineral exploration carried out by the Klondike Gold Corp. and Klondike Star Mineral Corp. joint venture during 2004 on the Klondike quartz claims owned by Klondike Gold Corp., previously called Arbor Resources, and is primarily intended as an assessment report as prescribed under the Yukon Quartz Mining Act.

The 2004 season's work consisted of geological mapping, soil and/or rock sampling on all claim blocks and physical work in the form of bulldozing and backhoe trenching where appropriate to provide rock exposure and access for exploration. Bulk rock sampling was initiated in several localities in the main claim block on map sheet 115 O-14. No drilling was attempted in 2004.

This exploration programme was performed by W. Mann (Exploration Manager), geologists T. Liverton, H. Mueller, F. Andersen, G. McKercher and J. Boyce and prospectors J. Bryde, T. Morgan and V. Matkovitch. This report is based on first-hand data from T. Liverton and W. Mann and the contemporaneous written records (computer files) prepared by the other staff.

## 2. PROPERTY DESCRIPTION

The claim blocks are comprised of the following units:

### MAP SHEET 115 O - 14

The main contiguous claim block in the Bonanza-Eldorado area consists of:

Stam 1-51	YC27202 to YC27252	Klondike Gold Corp.
Stam 53	YC27253	Klondike Gold Corp.
Ron 1-40	YA10300 to YA10339	Arbor Resources Inc.
Syndicate 32	YA79229	Arbor Resources Inc.
Syndicate 39	YA79236	Arbor Resources Inc.
Syndicate 48	YA79245	Arbor Resources Inc.
Syndicate 53-56	YA79250 to YA79253	Arbor Resources Inc.
Syndicate 60-63	YA79257 to YA79260	Arbor Resources Inc.
Syndicate 66-69	YA79263 to YA79266	Arbor Resources Inc.
Syndicate 71-74	YA79268 to YA79271	Arbor Resources Inc.
Syndicate 77-83	YA79274 to YA79280	Arbor Resources Inc.
Bad 1-6	YC17895 to YC17900	Klondike Gold Corp.
Bad 7-8	YC19908 to YC19909	Klondike Gold Corp.
Bad 9-12	YC19901 to YC19904	Klondike Gold Corp.
Bad 14-16	YC19905 to YC19907	Klondike Gold Corp.
RJ 1-32	YA64216 to YA64247	Arbor Resources Inc.

RJ 49-50	YA65605 to YA65606	Arbor Resources Inc.
RJ 59-60	YA65615 to YA65616	Arbor Resources Inc.
RJ 62	YA65618	Arbor Resources Inc.
Win 1-34	YC30697 to YC30730	Klondike Gold Corp.
Win 35-38	YC30731 to YC30734	Klondike Gold Corp.
Win 39-156	YC30735 to YC30852	Klondike Gold Corp.
Nug 1-10	YC28449 to YC28458	Klondike Gold Corp.
DN	YA47088	Arbor Resources Inc.
DN 1-2	YA32783 to YA32784	Arbor Resources Inc.
DN 1-2	YA47090 to YA47091	Arbor Resources Inc.
DN 3-9	YA47890 to YA47896	Arbor Resources Inc.
DN 10	YA47082	Arbor Resources Inc.
DN 11-26	YA32946 to YA32961	Arbor Resources Inc.
DN 27-31	YA47083 to YA47087	Arbor Resources Inc.
DN 32-33	YA47604 to YA47605	Arbor Resources Inc.
CIM 2, 1, 4, 3	YA64519 to YA64522	Arbor Resources Inc.
Joe 1-4	Y65536 to Y65539	Arbor Resources Inc.
Joe 5-10	Y99613 to Y99618	Arbor Resources Inc.
Rado 55-58	YB17066 to YB17069	Arbor Resources Inc.
Rado 179-183	YB17186 to YB17190	Arbor Resources Inc.
Rado 186-187	YB17192 to YB17193	Arbor Resources Inc.
Rex 22	YA84204	Arbor Resources Inc.
Rex 24	YA84206	Arbor Resources Inc.
Rex 26	YA84208	Arbor Resources Inc.
Rex 28	YA84210	Arbor Resources Inc.
Rex 30-31	YA84212 to YA84213	Arbor Resources Inc.
K 1-10	YA80506 to YA80515	Arbor Resources Inc.
Cal 1-5	YC32864 to YC32868	Klondike Gold Corp.
Cal 7-14	YC32869 to YC32876	Klondike Gold Corp.
Cal 19-32	YC32877 to YC32890	Klondike Gold Corp.
Chi 1-14	YC28459 to YC28472	Klondike Gold Corp.
Cul 1-14	YC32830 to YC32843	Klondike Gold Corp.
Cul 19-38	YC32844 to YC32863	Klondike Gold Corp.
ND	YA47089	Arbor Resources Inc.
ND 1-22	YA49724 to YA49745	Arbor Resources Inc.
DE 1-14	YA55250 to YA55263	Arbor Resources Inc.
AC 7-10	YA64276 to YA64279	Arbor Resources Inc.
AC 11	YA64281	Arbor Resources Inc.
AC 14	YA65629	Arbor Resources Inc.
AC 16-23	YA65631 to YA65638	Arbor Resources Inc.
AC 25-26	YA65640 to YA65641	Arbor Resources Inc.
LB 1-132	YC28539 to YC28670	Klondike Gold Corp.
Red 1-20	YC28473 to YC28492	Klondike Gold Corp.
Nugget 1-10	YA88228 to YA88237	Arbor Resources Inc.
Oyro	YA32828	Arbor Resources Inc.
ON 1-2	YC33726 to YC33727	Klondike Gold Corp.
UELD 1-2	YB38768 to YB38769	Arbor Resources Inc.
VI 1-4	YA55285 to YA55288	Arbor Resources Inc.
VI 11-12	YA55295 to YA55296	Arbor Resources Inc.
VI 16	YA65523	Arbor Resources Inc.
VI 18	YA65525	Arbor Resources Inc.
VI 43-44	YA65550 to YA65551	Arbor Resources Inc.
Separate blocks		
In the south central part of the map sheet:		
Cal 1-24	YC28493 to YC28516	Klondike Gold Corp.
In the NW of the sheet:		
GB 1-3	YC25503 to YC25505	Klondike Gold Corp.
At the N edge, overlapping into 116 B 03:		



BR 1-10	YC30853 to YC30862	Klondike Gold Corp.	
BR 12-32	YC30864 to YC30884	Klondike Gold Corp.	
In the NE:			
Hun 1-2	YC27270 to YC27271	Klondike Gold Corp.	
Hun 4	YC27273	Klondike Gold Corp.	
Hun 6	YC27275	Klondike Gold Corp.	(reduced to 4 claims)

MAP SHEET 116 B 03:

Jac 1-30	YC27301 to YC27330	Klondike Gold Corp.
Jac 31-47	YC25580 to YC25596	Klondike Gold Corp.

MAP SHEET 115 O 10:

Indy 1-69	YC28932 to YC29000	Klondike Gold Corp.
Indy 70-121	YC25401 to YC25452	Klondike Gold Corp.
Reka 1-6	YC28671 to YC28676	Klondike Gold Corp.
Reka 7	YC28913	Klondike Gold Corp.
Reka 9-32	YC28677 to YC28700	Klondike Gold Corp.
Reka 33-50	YC28801 to YC28818	Klondike Gold Corp.
Reka 51-60	YC28914 to YC28923	Klondike Gold Corp.
Reka 61-68	YC28819 to YC28826	Klondike Gold Corp.
Reka 69-76	YC34307 to YC34314	Klondike Gold Corp.
FB 1-20	YC25506 to YC25525	Klondike Gold Corp.
FB 22-74	YC25527 to YC25579	Klondike Gold Corp.
FB 21 Fraction	YC25526	Klondike Gold Corp.

MAP SHEET 115 O 15:

May 1-22	YC28517 to YC28538	Klondike Gold Corp.	
May 25-32	YC28924 to YC28931	Klondike Gold Corp.	
May 1-6	YC33720 to YC33725	Klondike Gold Corp.	(reduced)
Overlap onto 115 O 14:			
Gre 1-32	YC27331 to YC27362	Klondike Gold Corp.	

Note: due to the extensive forest fires this last summer relief was granted from assessment requirements for the Reka, Indy, Cal 1-24 (YC28493 etc.), Chi and Nug claim blocks. As part of the joint venture agreement between Klondike Gold Corporation and Klondike Star Mineral Corporation the latter company has now earned a 55% interest in the property (klondikestar.com news release November 30th. 2004).

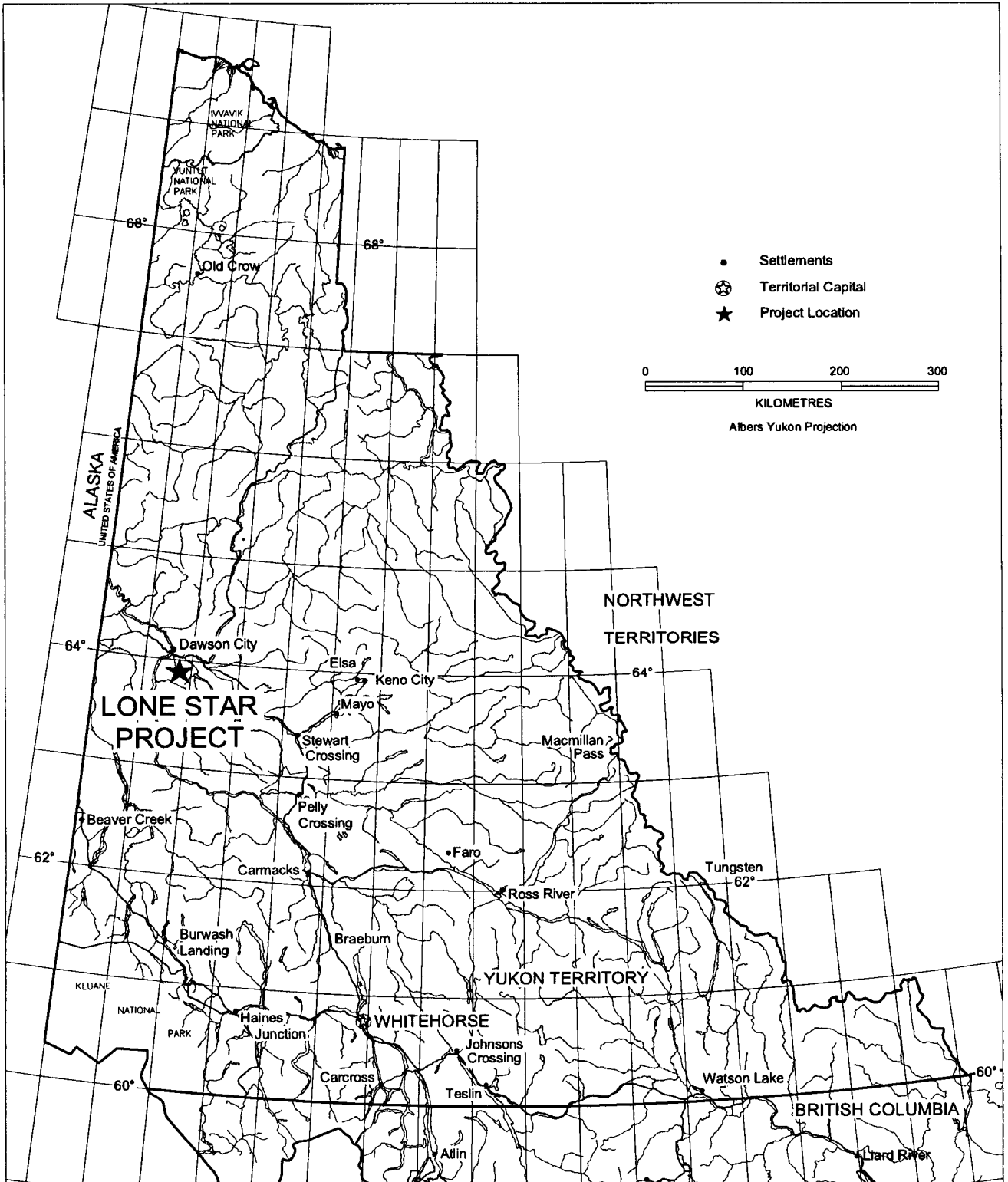
### **3. ACCESSIBILITY, CLIMATE, INFRASTRUCTURE AND PHYSIOGRAPHY**

The Klondike region consists of rugged topography of rounded hills and V-section valleys (since this region was not recently glaciated: Nelson and Jackson, 2003). Dawson City is on the Yukon River at 1050' (320m) elevation and the highest region of the claims, Eldorado Dome is at 1175m. The immediate region of the claims has been historically denuded of large timber by either cutting or forest fires and is now covered by regrowth of spruce, lodgepole pine, poplar and birch. Only the very highest ridges are covered by dwarf willow ("buckbrush").

The Klondike Gold Fields have been the target of prospectors and placer gold miners since 1896. The region therefore, is very accessible by road and trail. Dawson City is approximately 480 km from Whitehorse along the Klondike Highway which is now a completely sealed two-lane road, except for the construction zone within 10 km of Dawson. A 5000'x100' gravel surface, lighted Yukon Government airfield at 1214' (370m) elevation serves Dawson. A gravel airstrip at 640m elevation suitable for light STOL aircraft exists on the claim block at Eldorado Creek. Dawson is served by a scheduled service of twin-engined aircraft from Whitehorse and by highway there are regular freight and bus services. The major valleys (Bonanza and Hunker Creeks) have summer maintained graded gravel roads linking with the Klondike Highway. Eldorado creek has a summer accessible gravel mining road (approximately 26 km to the airstrip from Dawson) and many ridges are traversed by four wheel drive trails. Dawson City offers normal town services such as hotels, restaurants, grocery, clothing and hardware stores, engineering supplies and two bulk fuel depots.

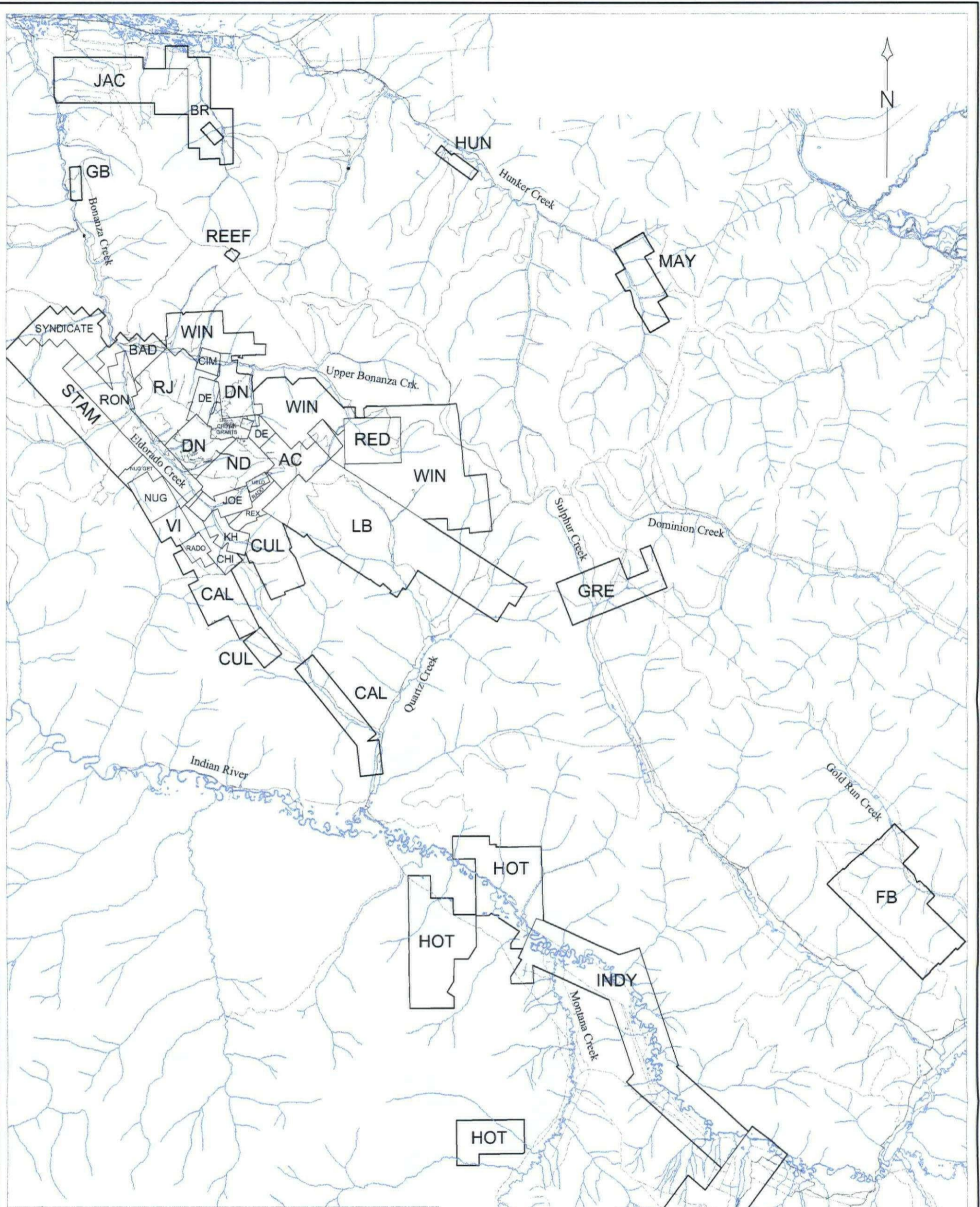
### **4. HISTORY OF THE QUARTZ CLAIMS**

The Klondike region has been prospected since the discovery of gold on Bonanza Creek in 1896 and the subsequent gold rush. Immediately after the prospecting and staking of the placer claims on Bonanza and Eldorado Creeks the search for a hard-rock source began. The Lone Star property was first staked in 1897 and the adjacent Victoria and Pioneer prospects in 1900. The Violet Prospect was staked in 1901. The Lone Star (Boulder Lode) and Violet properties are the hard-rock prospects that have received substantial underground development, but only the Boulder Lode has produced more than a few tonnes of ore. Various attempts at underground development took place between 1911 and 1948. The property then languished until a renewal of interest in 1960. The exploration history of the Lone Star area is included in section 5.5.



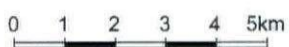
**KLONDIKE STAR MINERAL CORP.**  
**KLONDIKE GOLD CORP.**  
**LONE STAR PROJECT**  
**LOCATION MAP**

SCALE: 1 : 6,000,000	DATE: Feb. 11, 2005
DRAWN:	FIGURE 1



KLONDIKE STAR MINERAL CORP.  
KLONDIKE GOLD CORP.

LONE STAR PROJECT  
Claim Group Location  
KLONDIKE AREA



SCALE: 1:150000

NTS: 115 O/10, 11, 14, 15, 116 B/3

DATE: FEB. 11, 2005

FIGURE 2

## 5. GEOLOGICAL SETTING

### 5.1 YUKON-TANANA TERRANE

The Bonanza-Eldorado-Hunker region is underlain by the Klondike Schist, which is correlated with units of the Yukon-Tanana terrane in Alaska and southern Yukon. The Yukon-Tanana terrane is now considered to include those Devonian-Mississippian strata of continental affinity that are overlain by volcanic arc successions that include backarc and island arc tectonic settings (e.g: Colpron, 2001; Piercey et al., 1999; Murphy, 2004). These units are now polydeformed and, over a regional scale, show a range of metamorphic grade from lower greenschist to amphibolite facies (e.g., Mortensen et al., 1992) and have been intruded by Mississippian to Permian granitoids (e.g., Nelson et al., 2000, Liverton et al., 2005). Structural styles are similar between the Klondike (Mortensen et al., 1992) and the SE Yukon (D'El-Rey Silva et al., 2001), although no comprehensive analysis of the whole terrane has been attempted hence no direct link between NW and SE demonstrated. Folding is consistent with deformation during east to northeastward directed accretion and crustal shortening.

The terrane is preserved in fault-bounded fragments from southern B.C. to Alaska (Nelson and Friedman, 2004; Dusel-Bacon et al., 2004) and is interpreted to represent extended continental margin on which the late Paleozoic volcanic assemblages were intruded and extruded. In part the Yukon-Tanana terrane forms the basement for Quesnellia and the existence of mid Jurassic plutons that intrude both terranes indicate that they were sutured by that time (Nelson and Friedman, 2004). Various workers differ in their interpretation of the extent of separation of Lower Paleozoic basement to the Yukon-Tanana terrane from the continent. For the Alaskan part Dusel-Bacon et al. (2004) require rifting only to produce the bimodal volcanism built on the Devonian-Mississippian. In the Yukon, the wide range of chemical signatures of the volcanics would indicate more considerable separation. Perhaps the tectonic analogue of the present day Aleutian / Kurile arcs proposed by Nelson and Friedman (2004) explains the differences: where cusps of island arcs impinged on promontaries of continental basement the Aleutians and Kuriles have Tertiary backarc basins; in the central parts of the arcs the magmatism was of primitive oceanic affinity.

#### YUKON-TANANA: FOLDING

In both the Klondike and the Yukon-Tanana equivalents in the SE Yukon and adjacent B.C. styles of deformation are similar in that  $F_1$  folding transposed original bedding into parallelism with axial planar foliation such that  $F_1$  fold hinges are rarely seen. During this

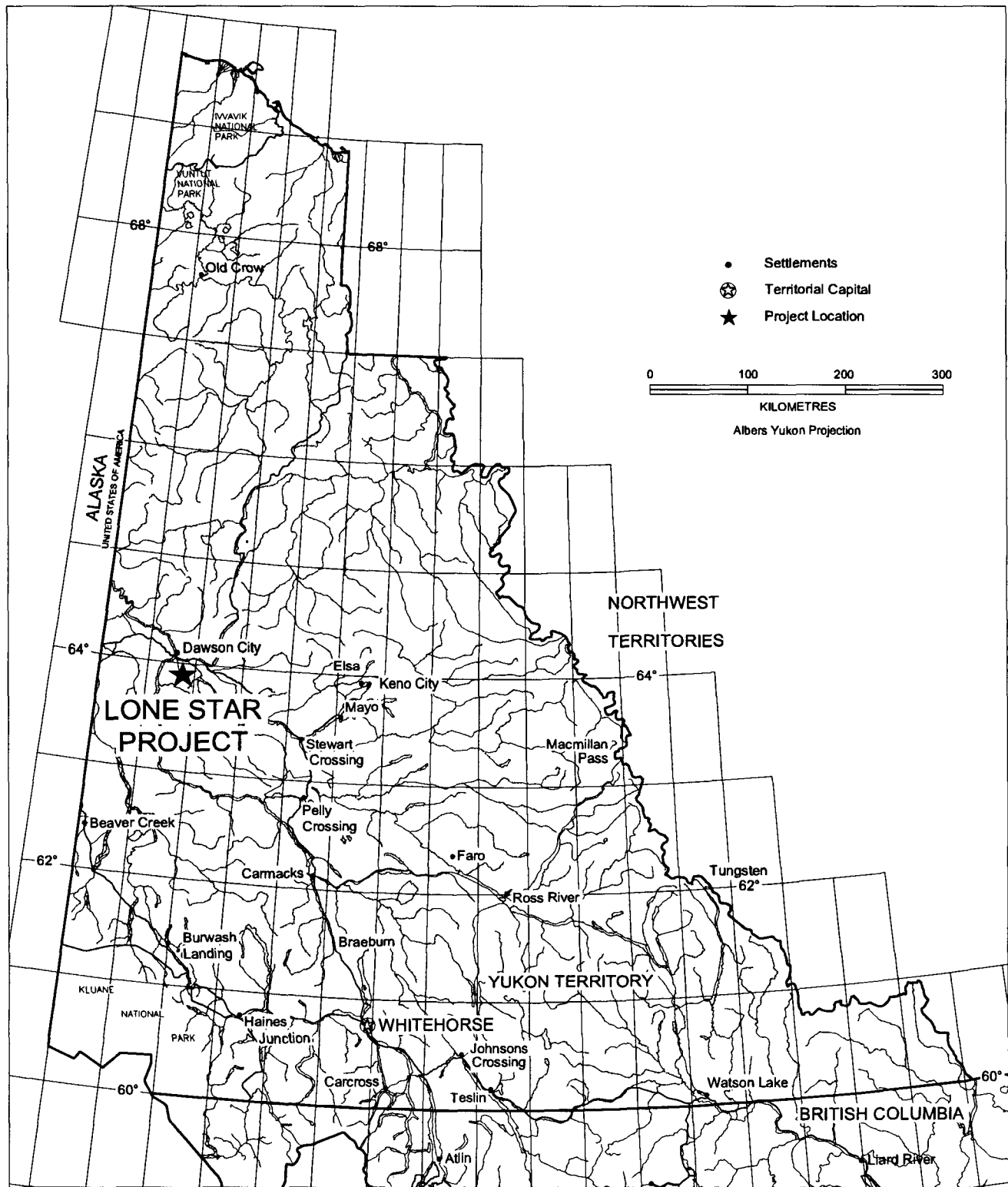
ductile deformation the rocks were metamorphosed to chlorite-biotite facies (and in some regions to amphibolite grade).  $F_2$  folds are more open and often E to NE vergent and in the case of the SE Yukon, are coaxial with  $F_1$  folds. In the Klondike regional scale thrust faulting coincided with the second deformation and is constrained at late Triassic (Rushton et al., 1993). In the SE Yukon the  $F_3$  event produced very open folds nearly normal to the earlier trends and minor extensional faults (D'El-Rey Silva et al., 2001). In the Klondike, third folding  $F_3$  produced open, N-S trending folds over the district, but this deformation is not obvious on the scale of individual ridges.

## 5.2 KLONDIKE REGIONAL GEOLOGY

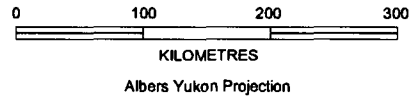
The northwestern Klondike area is underlain by three recognisable thrust fault bounded assemblages (Rushton et al., 1993) that constitute the mid Permian Klondike Schist. These are: Assemblage III of carbonaceous quartz-muscovite phyllite, schist and marble that crops out SW of the Indian River and also to the NE of Hunker Creek; structurally above is Assemblage II of micaceous and chloritic quartzite, feldspathic quartzite, marble and calcareous schists which is intruded by the Mt. Burnham orthogneiss, found in the east of the Klondike; and Assemblage I, of three units: quartz augen schist; the Sulphur Creek orthogneiss; and intercalated chloritic schist, metagabbro, amphibolite, quartzite and felsic schist. The Sulphur Creek orthogneiss and the latter sequence are found in the Eldorado-Bonanza area. Thrust faults are in part marked by slivers of serpentinised ultramafics.

In the immediate claim block area Mortensen (1996) has mapped quartz- and quartz-feldspar-augen schist, interpreted as being a metamorphosed subvolcanic intrusion (his unit Psa) on the immediate west side of Eldorado Creek. The Eldorado to Bonanza ridge (Lone Star) is underlain by unit Psqm: felsic schists, interpreted to have been derived from a sequence of tuffs, cherty tuffs and cherts, on the 27 Pup side and over the Lone Star area. The east side of the ridge is largely unit Psc: chlorite schist, mafic meta-volcanics. Northeast of Bonanza Creek units Psq and Psc predominate.

In the Eldorado-Bonanza area the obvious foliation seen is  $S_1$  i.e, compositional layering transposed by  $F_1$  folding. In only one instance during the present work was original bedding ( $S_0$ ) observed (at 27 Pup). The attitude of  $S_2$  foliation in the Eldorado-Bonanza area describes a ridge-scale macroscopic antiformal structure whose NE limb is likely sheared by a thrust fault low on the NE side of the Lone Star ridge. This is indicated by sheared serpentinite, soapstone and graphitic phyllite encountered during the 2004 trenching (trench 04-17, NW of Jerry Bryde's camp. Late, brittle structures such as the near vertical Buckland shear on the SW side of the antiformal strike almost parallel to fold axes and may be strike-slip faults of little displacement,



- Settlements
- ⊙ Territorial Capital
- ★ Project Location



**KLONDIKE STAR MINERAL CORP.  
KLONDIKE GOLD CORP.  
LONE STAR PROJECT  
LOCATION MAP**

SCALE: 1 : 6,000,000	DATE: Feb. 11, 2005
DRAWN:	FIGURE 1

significance in introduction of local gold mineralization.

### 5.3 GOLD MINERALIZATION

Two types of quartz vein are ubiquitous in the Klondike: foliaform veins that are (a) typically concordant with  $S_1$  and which may be up to metres thick, but which are usually lenticular. these are almost ubiquitously barren of gold, and (b) sharply discordant veins that carry sulphide (pyrite, with minor galena, chalcopyrite and tetrahedrite) mineralization and visible gold which is both commonly contained in selvages of pyrite (or after weathering, pseudomorphs of goethite/limonite) and as free gold grains in the white quartz. The discordant veins are up to 2-3m thick and can persist for hundreds of metres strike length. Some spectacular gold grades are reported from this vein type (Rushton et al., 1993). Those authors date Sheba prospect (Mitchell: Minfile 068) vein formation at early Cretaceous which was a time of lull in magmatic activity (Armstrong, 1988) but of crustal thickening and rapid uplift. Similar ages are also reported for gold mineralization at Erickson Mine, Cassiar and the Cariboo (Rushton et al., 1993).

A model of mesothermal-type vein formation is proposed by Rushton et al. (1993), whereby the SE part of Klondike represents a deeper level in the system and that the Hunker Dome region would have been mineralized as ascending meteoric / metamorphic  $CO_2$  - bearing fluids reached a level sufficient for the exsolved  $CO_2$  gas to have effervesced. They interpret the 27 Pup-Lonestar area as having being mineralized at a comparatively shallow level (pressures of 0.3 to 0.625 kb). More recent work (J.K. Mortensen, pers. comm.) favours a model for foliaform vein formation as secondary structures developed between near horizontal extensional floor and roof faults during the process of rapid early Cretaceous uplift, analagous to formation of detachment faults above metamorphic core complexes.

Studies of morphology of gold grains in the placers of the Klondike (Knight et al., 1999; Dumula and Mortensen, 2002) demonstrated a clear relationship between gold particle shape and distance from lode sources in the Klondike. Major and trace element compositions give an even more useful indication of source of placers. Gold, silver, copper and mercury contents are diagnostic of the lode sources e.g., the 27 Pup-Oro Grande-Lone Star quartz lodes and Hunker Dome show distinctively high-fineness gold that is reflected in the placers downstream. Bear Creek and Violet quartz lodes are of lower fineness. Further work on placer gold has the potential to indicate unrecognised just-buried lode sources. Knight et al. (1999) conclude that the composition of placer gold is consistent with its derivation from quartz lode sources.



#### 5.4 PLUTON-RELATED GOLD

In addition to possible 'mesothermal' mineralization a number of moderate-sized gold deposits in the Northern Cordillera are associated with mid Cretaceous granitic plutons (Hart et al., 2000), but may be considered to be part of the spectrum of 'orogenic gold deposits' (see Groves et al., 2003). The Livengood suite and Tombstone suite (92-87 Ma age) of plutons are correlable across the younger Tintina fault. The suite is quite variable in magnetite content, but is considered to be of the oxidized magnetite-series. The Brewery Creek gold deposits (Lindsay et al., 2000) have a spatial relationship to one of the Tombstone suite plutons (Hart et al., 2004). The Mayo suite (95-92 Ma old) is associated with sheeted vein and contact-aureole gold deposits (Dublin Gulch, Scheelite Dome and Clear Creek). This latter group of intrusions are considered to be ilmenite-series by Hart et al. (2004) and to represent a separate type of deposit associated with reduced granitoids. The search for magnetite-series pluton related gold was largely the focus of Kennecott's exploration over the larger part of the Klondike property.

#### 5.5 PREVIOUS EXPLORATION

Since 1897 prospectors in the Klondike region have searched for the hard-rock source of the rich placer deposits of Bonanza and Eldorado Creeks. Many small gold showings were investigated by the excavation of pits and trenches with shallow shafts sunk or short adits driven on the notable prospects. Gold in quartz veins has been the traditional target for the 'pick-and-shovel' prospecting efforts. Any prospects discovered by hand methods would contain an appreciable content of their metal as free gold that would be liberated by simple crushing and panning. The notable properties that were discovered around the turn of the 20th. century were the Lone Star with the Pioneer and Parnell showings (Minfile 072, 150 & 147) on the same trend on the ridge between Eldorado and Bonanza Creeks, the Violet vein (Minfile 146) to the west of Eldorado Creek and the Mitchell and Sheba Veins on King Solomon Dome (Minfile 068).

The principal current Klondike Gold / Klondike Star property is a block of claims that covers the region between Bonanza and Eldorado Creeks, much of the ridge on the SW side of Eldorado, and extends SE across Canyon Creek to the east border of map sheet 1150-14. This property covers the abovementioned historical gold mines and prospects as well more recently discovered showings such as the Hilchey (Minfile 076).

Although this region has been intermittently prospected for a hundred years, with examinations by government geologists over 90 of these, there is still no consensus regarding the

geological setting of the hard-rock gold mineralization. Exploration has been largely a matter of following (the historical approach) either visible gold or assay values from excavations in loosely defined 'zones', without a clear understanding of structural or lithologic controls on the mineralization.

#### THE LONE STAR ZONE (BOULDER LODGE)

The prospect was first staked in 1897 by Messrs. *Chute, Corthay and Stewart*. They prospected the discordant quartz body known as the Corthay vein by shaft sinking and drifting. The larger, more disseminated mineralization of the Boulder Lode was developed from 1909 on by the *Lone Star company*, who mined the open-cut and connected it to a 225m adit by means of an orepass. An amalgamation 4-head stamp mill was built on Victoria Gulch and a gravity tramway connected this to the mine. By 1914 some 7650 tons of rock had been mined and milled (calculated to represent approximately a head grade of 0.202 oz/ton: Cathro, 1979). Engineering problems and the First World War lead to closure. By 1931 the reorganized company had driven a new adit in more stable ground and opened up further underground exposures, but production did not resume. It is obvious that conventional chip sampling of surface and underground rock exposures has been repeatedly unable to duplicate the grades of gold obtained during the early milling. The first attempt at grade estimation was by the government (MacLean, 1914). Re-sampling by Farrell in 1935 encountered similar problems and a combined surface-underground sampling program by the *Yukon Consolidated Gold Corp.* in 1946-7 also lead to uncertain estimates. The probable understimation of ore grade in small-sized samples has likely been a major factor in the property having lain dormant until 1960.

In 1960 *Klondike Lode Gold Mines* acquired the property and carried out two years of prospecting for extensions of the mineralization by bulldozing five contour trenches of 20,000 ft. total, partly along old placer flumes, and sluicing samples of 3 ft<sup>3</sup> volume (i.e., 85 litres or four-five bucketsful). Gold concentrated was expressed qualitatively as number of colours. Colluvial gold was found in the 7 Pup-O'Neil area. In addition to trenching the Bonanza side of the ridge by the Lone Star, sampling was also performed by Hilchey east of Eldorado at French Gulch (one 2100 ft.) and between Gay Gulch and Oro Grande (five smaller trenches). This other work lead to the discovery of several possible sources in the latter area, including the Hilchey prospect.

Archer Cathro and Associates Ltd. re-evaluated the Lone Star for *Dawson Eldorado Gold Explorations Ltd.* (Paul White and Ed Asp) between 1979 and 1983. A resistivity survey and geological mapping were performed in order to form a model for structure. Mortensen proposes a model for the Boulder Lode to contain a part of the gold in vertical quartz 'stringers' that are

discordant to the attitude of the dominant foliation of the host schist, the lode and disseminated mineralization being in the hinge zone of a second-generation ( $F_2$ ) antiformal fold.

Van Angeren (1986) summarized the 1985 regional exploration work and the geology of the Lone Star and Violet properties. He concluded that the known placer deposits in this area were derived mostly from the known hard-rock mineralization. Three types of quartz vein are recognized over the Klondike district: lenticular conformable quartz that is ubiquitous throughout the Klondike Schist and is typically barren of gold; veins that are discordant to foliation in the schist and which typically carry pyrite and very occasionally galena, chalcopyrite or tetrahedrite in their selvages: these are auriferous. Large (metre-scale widths) barite-bearing veins have fairly planar geometry and can carry sulphides and sulphosalts and display high but erratic gold grades, such as the Violet vein and perhaps the Corthay vein at Lone Star. At Lone Star much of the gold present is contained in the discordant quartz veinlets that form a stockwork-like zone, but presence of gold in surrounding pyritic schist is likely (in microfractures). The Boulder Lode was exposed in the open-cut that was mined at  $20^\circ$  to the foliation in the country rock, but which does not follow any obvious hanging- or footwall, the NW end being the only portion ending in an obvious NW striking fault. Van Angeren comments on results of conventional soil geochemistry obtained from 1981-84 (original reports are not available). Well-defined gold anomalies were obtained from around the Lone Star, Eldorado Dome and Hilchey showings and as discontinuous 'spot' anomalies from O'Neil Gulch to lower Glacier Gulch (source unknown in 1985, but postulated to be a NW trending fault zone).

After 1985 the exploration of the area was conducted on a larger scale to cover much of the region from the Klondike River to the Lone Star area, as well as continuing geophysics, geochemistry and drilling in the immediate Lone Star area.



## REGIONAL EXPLORATION AS WELL AS LONE STAR: 1986 on

*The Dawson Syndicate (1983)* carried out more systematic prospecting over the claim block that covered much of the Klondike from upper Adams Gulch to Hunker Creek and from Grand Forks to the Klondike River. Five grids were laid out for soil sampling and geophysics, four on the south side of the Klondike R., within 3km of its valley and the fourth (Penibe claims) south of Hunker on the ridge to the west of Last Chance Creek. Induced polarization surveys detected no response in the Oro Grande to Gay Gulch grids, but a very obvious response from the 27 Pup area (this likely due to the outcropping graphitic phyllite unit). At the French Gulch / Eldorado junction a split anomaly was defined and at Big Skookum a resistivity anomaly noted. Detailed surveying of the Lone Star grid produced some very distinct response. Twenty seven diamond drill holes were used to test anomalies. Seven of these on the west side of Hunker Creek (where distinct magnetic anomalies were noted) encountered sheared graphitic schist and serpentine-peridotite bodies that presumably mark the major thrust fault zones. Thirteen holes drilled in the Bonanza drainage basin tested geologically inferred fault zones: by California Gulch holes EAN 1-3 cut graphitic Nasina schists interlayered with muscovite schist. Magnetised diabase dykes explain the magnetic response. Although carbonate-mariposite veining indicated some hydrothermal activity no significant gold was reported, merely anomalous (22ppm) silver. At the junction of Boulder Creek and Bonanza (hole K1) graphitic schists were again found with mariposite and carbonate alteration. Fracturing with only high arsenic content was noted. At the Adams Gulch-Bonanza junction holes K2-3 investigated apparent sericite alteration seen on the placer ground of Adams Creek and Cheechako Hill. Muscovite schist with no anomalous geochemistry was encountered and the sericite was interpreted to be a weathering product. A presumed fault zone at Little Skookum Gulch intersected by hole K-4 again only found high As (725 ppm). Hole K5 at Big Skookum Gulch tested magnetic and I.P. anomalies and found a magnetite-bearing diabase dyke but no significant assays. On the east side of Bonanza holes KDR 1-3 encountered graphitic pyritic schist and diabase dykes again and in Bonanza Creek hole KDR 4 found brecciated graphitic schist.

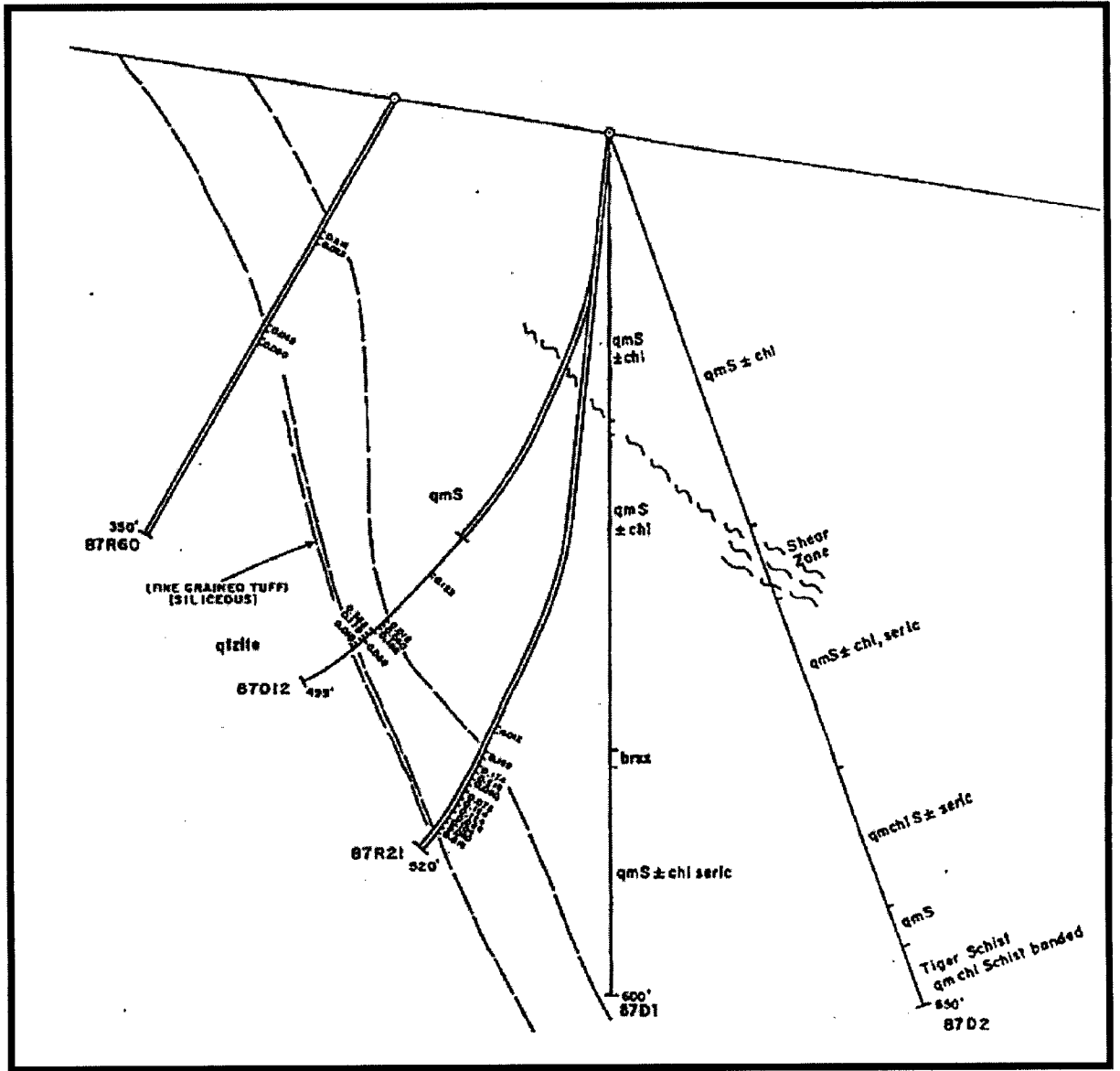
*Arbor Resources Inc.* optioned the Klondike property in 1986 and continued exploration of both the large claim block and the Lone Star Crown grants (Grunenberg and Gonzales, 1987). At French Gulch, near the junction with Eldorado, 10 diamond drill holes were used to investigate I.P. and V.L.F.E.M. anomalies close to zones of quartz veins exposed in placer workings. The shear zone intersected did not yield any anomalous geochemistry and pyritic chlorite schists were barren of gold. The geophysical anomalies correlated with graphitic layers and linear magnetic anomalies with diabase dykes that are reverse polarized and hence give very

sharp negative anomalies. Five zones of from 1.5 to 8 ft. (0.46-2.4m) thickness were intersected giving gold grades of 0.01-0.20 oz/t, each in quartz veins. Seven holes were drilled along Eldorado Creek between Golden Gulch and Little Eldorado Gulch to test shear zones indicated by geophysics and five holes were abandoned due to 'broken ground'. Hole EL3 intersected quartz muscovite schist, quartzite and epidote-bearing muscovite schist and a shear zone beneath pyritic schist exposed in placer workings without finding gold above 0.009 oz/t.

At Lone Star twelve diamond drill holes were completed, numbers LS1-2 to penetrate beneath the Boulder Lode opencut and the rest to test soil geochemistry or I.P. chargeability/resistivity anomalies. DDHs 3 and 11 proved the most promising, with many intersections of >0.05 oz/t and some smaller intervals (2.5 ft.) up to 0.345 oz/t. Also 23 rotary drill holes were completed during the '86-'87 winter, mostly between Oro Grande and Gay Gulch. Several 5-10 ft. zones of 0.013-0.23 oz/t were intersected. The interpretation made of Lone Star mineralization was of two shallow NNE-dipping Au-bearing zones that project beneath the Boulder opencut. This interpretation was made by joining assay intervals between drill holes and has no geological (lithological) control.

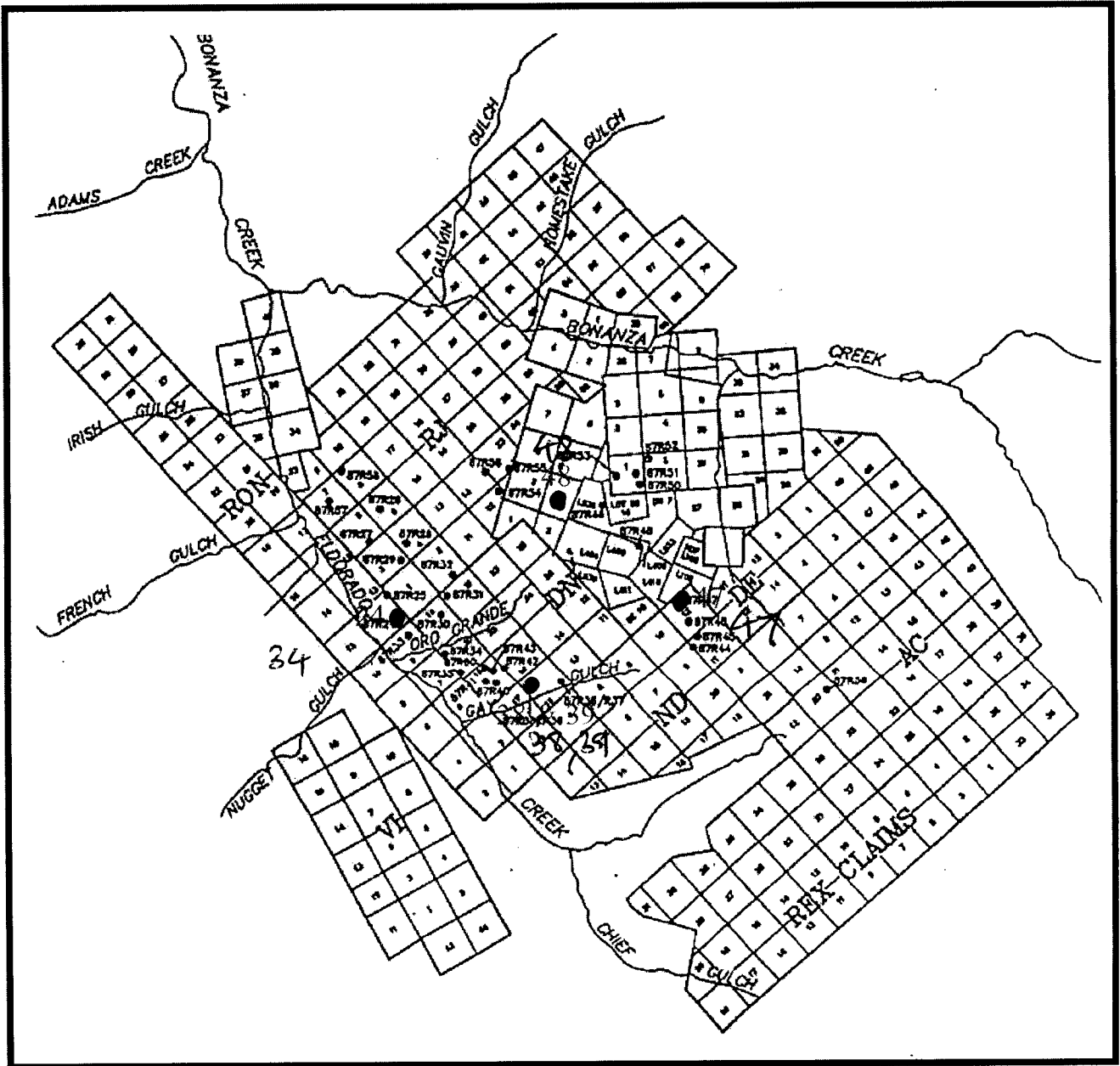
In 1987 (Grunenberg and Gonzales, 1988) prospecting of the outlying areas continued with geological mapping of Eldorado Creek and the Lone Star ridge at 1: 10,000 scale. A unit of 'carbonaceous quartz schist' has been interpreted to underlie Eldorado Creek, with its widest extent at French Gulch. The unit is shown as continuing to the SE on the NE side of Eldorado, being about 400 m uphill at Gay Gulch. Work on the Buckland Zone aimed to verify assay values obtained from Rotary hole 87R-21 by diamond drilling. Two holes were lost, but after pre-collaring with a rotary rig DDH 12 reached the target zone and obtained grades of from 0.01-0.17 oz/t. A 0.8m thick layer of Au-bearing rock interpreted to be rhyolitic tuff was intersected and a 6.7m interval of 0.133 oz/t (Fig. 5). Since in this particular locality there was a correlation between Au and As, Grunenberg and Gonzales (1988) p. 33 interpret this mineralization to be volcanogenic. Above Gay Gulch DDHs 10 and 11 encountered short intervals of good grade in muscovite schist containing quartz stringers (presumably a discordant vein system). 37 rotary holes were drilled in the upper part of 27 Pup and towards Gay-Gulch, in the O'Neil-Lone Star-Victoria area. Numerous significant gold assays were obtained, particularly in 87R- 24, 38, 39 in the Gay Gulch-Oro Grande area (Fig. 6).. Soil geochemistry detected an extensive Au anomaly between Oro Grande and Gay Gulch.

On the Lone Star ridge Rotary holes 87R- 47 and 48 returned significant intersections (the SE projection of the Boulder zone). VLFEM measurements traced an inphase anomaly for 3 km across the head of 7 Pup to Victoria Gulch. On a separate grid on the NE side of the Boulder lode crown grants VLFEM also defined an anomalous zone that coincided with airborne anomalies (possibly a graphitic unit).



COPY OF ARBOR RESOURCES 1987 DRILL SECTION FOR THE BUCKLAND ZONE (GRUNENBERG, 1987)

Figure 5



MAP OF ROTARY DRILL HOLES FROM GRUNENBERG (1987)  
HIGHLIGHTING THOSE OF INTEREST

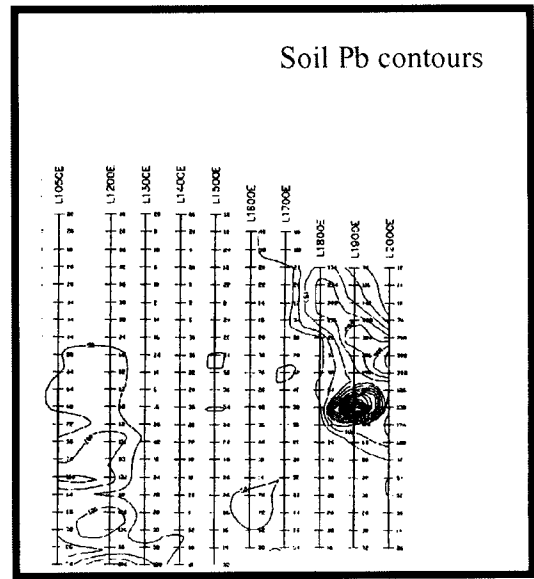
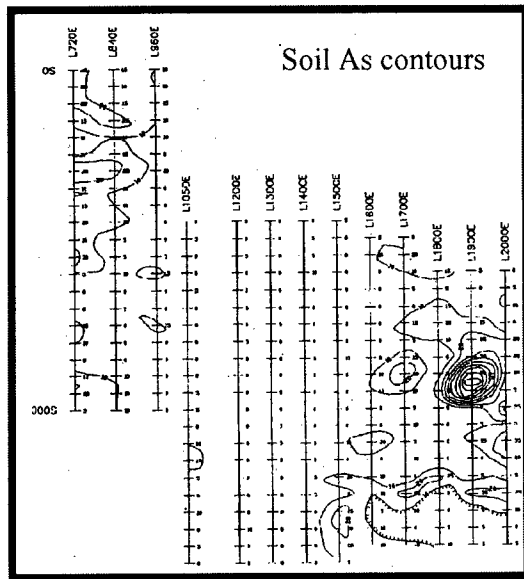
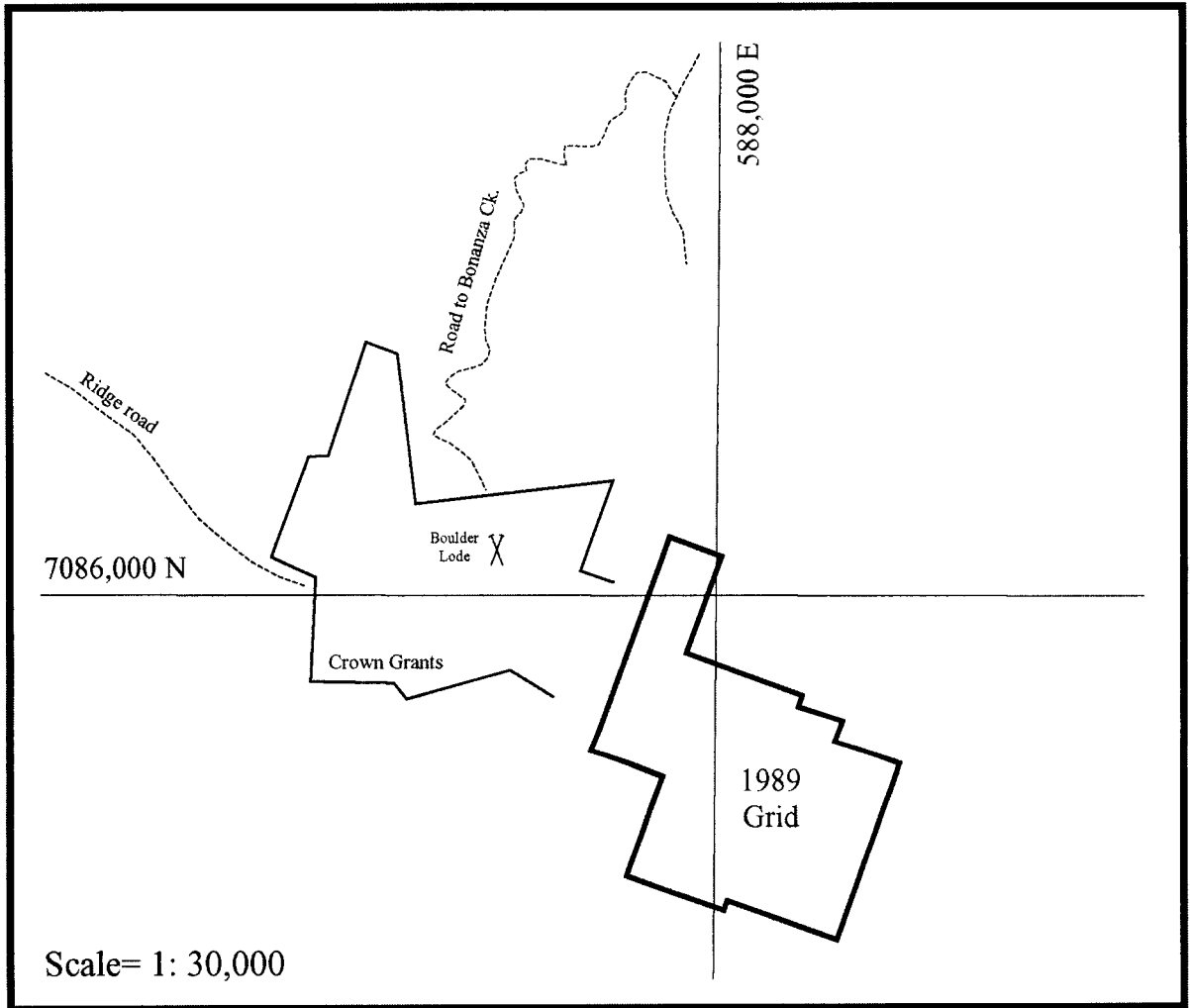
Figure 6



The 1988 programme (Grunenberg, 1989) extended the Lone Star grid to the SE and detected a base metal (especially Pb and As) anomaly at its eastern edge. Ground geophysics (I.P. and magnetic) over the larger claim block and Lone Star grids was employed. It is difficult to now accurately plot the position of the grid (geologists seem to think their grids as being eternal, whereas 16 years later there is no longer any physical evidence of that grid) as no permanent cultural detail is shown on the 1989 sketches. The abovementioned geochemical anomaly on the Lone Star grid is just downslope of a gold anomaly and coincides with the easternmost I.P. anomaly (It is just north of the ridge road). Trenching in this region is somewhat topographically above the anomalies if Grunenberg's maps can be trusted. His notes for trench 35 also indicate this: See Figs.7, 8, 9. Analyses from trenches 31 and 32 did not find gold above detection limit. Trenching on the east side of Eldorado, from 27 Pup to the spur south of Gay Gulch did produce some significant assays (Trenches 11, 26, 6, 3 in progression to south). In the Lone Star area new trenches 88LS2, 88LS3, 88LS4, 88-17, and 88-36 yielded gold assays varying from 0.013 / 10m through 0.332 / 1m to 2.132 / 0.15m (Fig. 9).

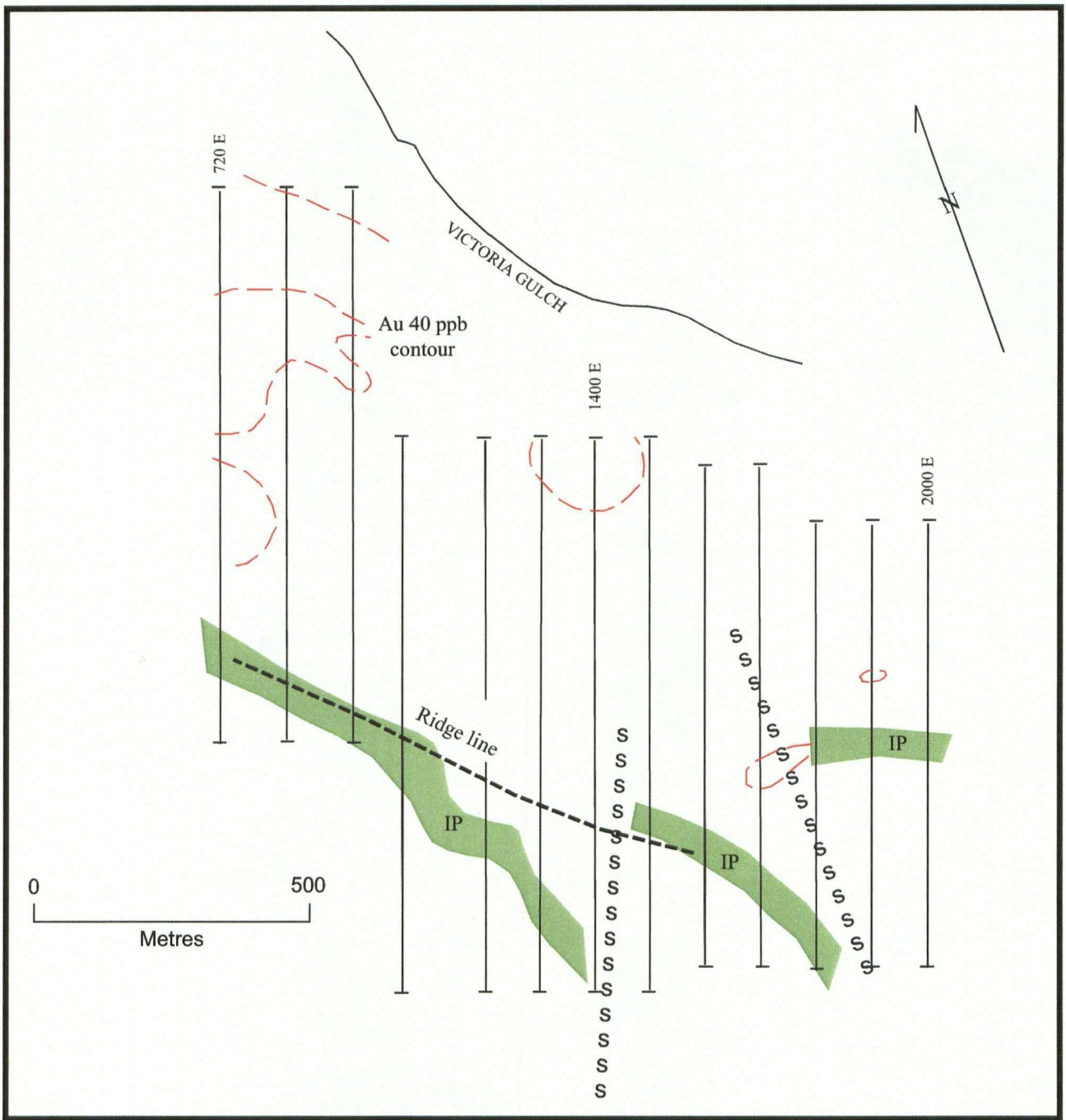
The best summary of work up to and including the 1988 season is provided by Van Angeren (1989) for *Dawson Eldorado Mines Ltd.* Comments pertinent to the Boulder Lode in that report are that there were two mineralized zones recognized: to the SW of the opencut, "zone LS3-a" is 11m wide and interpreted to strike northwesterly and dip 50°NE and at the mouth of the opencut "zone LS3-b" is the historical lode and is separated from LS3-a by 19m of barren schist. In this report Van Angeren interprets the mineralized zones as being shear structures. He quotes assays from four channel samples across LS3a as averaging 0.155 oz/t / 11m. Upon re-assay a value of 0.046 oz/t was obtained and once the 'screen metallics' assay was added the grade was raised to 0.139 oz/t. This data is used to infer a considerable contribution of free gold to the grade. He also notes that several narrow (?) shear zones are mineralized. These are from 3 to 5m width and are exposed in the 1935 and 1947 trenches. An estimate of the overall grades is given as 0.03-0.055 oz/t for the softer clay-altered part of the lode (much of the opencut) and 0.224 oz/t for the siliceous part. Van Angeren's interpretation is that the lode is offset from 80-100m south at trench 87-17/88-02 and again after 88-04 (to be eventually intersected by trench 96-09). Bulk sampling of lode material followed by gravity concentration and cyanide leaching showed that significant amounts of free gold are present, but Van Angeren considers that the coarser fractions from the tests may have contained considerable amounts of sulphides and their contained gold, which would not have been liberated in the leach. He also considers that much of the "LSA" sample may have contained wall-rocks, which were mineralized but of lower grade than the lode material. Although he presents no quantitative data for sulphide content, there does exist a potential problem with gold in sulphides.

Van Angeren describes the Boulder Lode as =25 metre wide siliceous body of ~0.1 oz/t



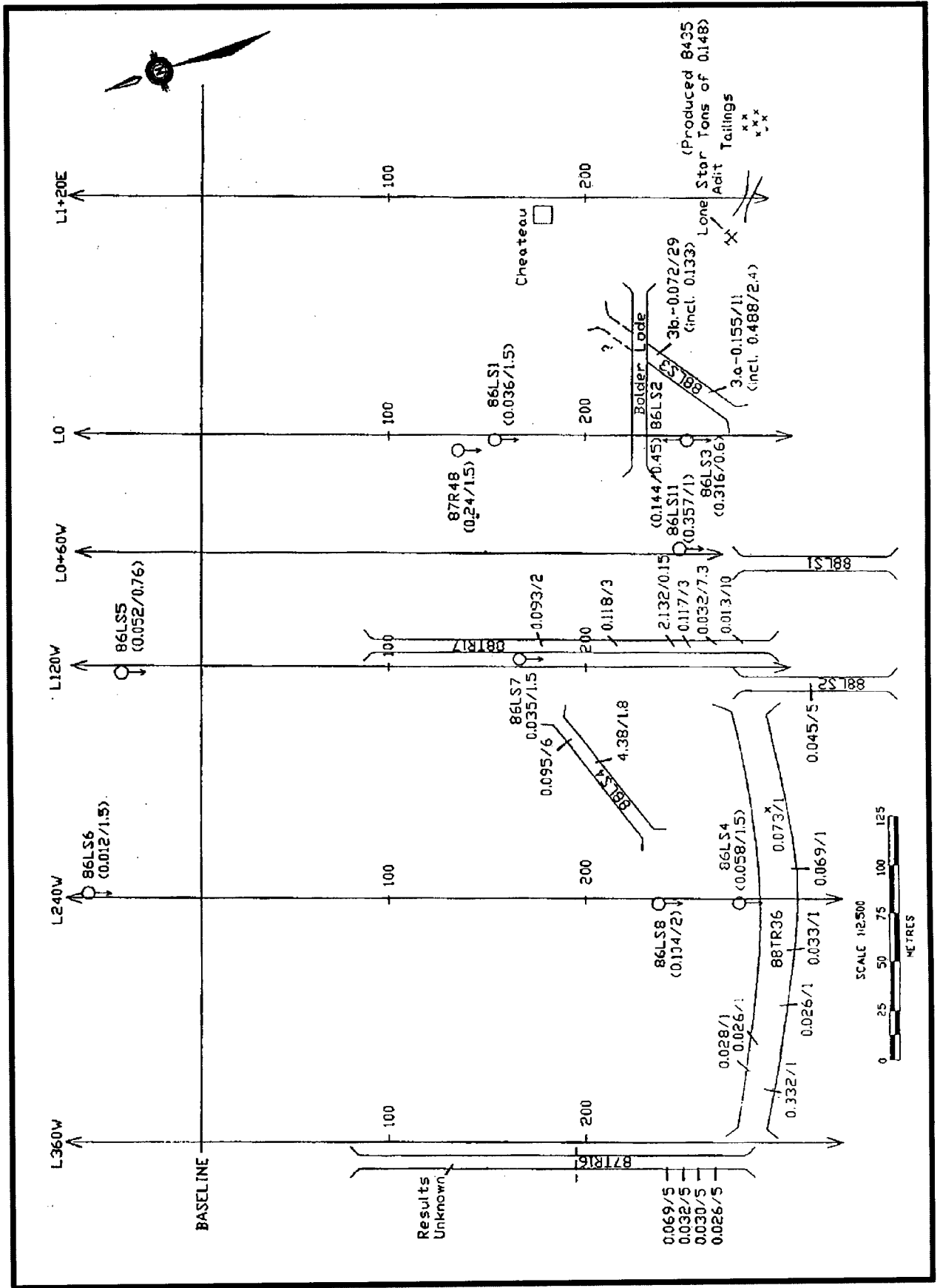
1989 GRID LOCATION RELATIVE TO THE BOULDER LODGE AND SOIL GEOCHEMICAL ANOMALIES AT THE PIONEER PROSPECT

Figure 7



COMPILATION OF I.P. ANOMALIES, INTERPRETED FAULTS AND SOIL GOLD ANOMALIES FOR THE LONE STAR-PIONEER AREA FROM GRUNENBERG (1989)





COPY OF PORTION OF LONE STAR DRILL/TRENCH MAP FROM GRUNENBERG (1989). Figure 10

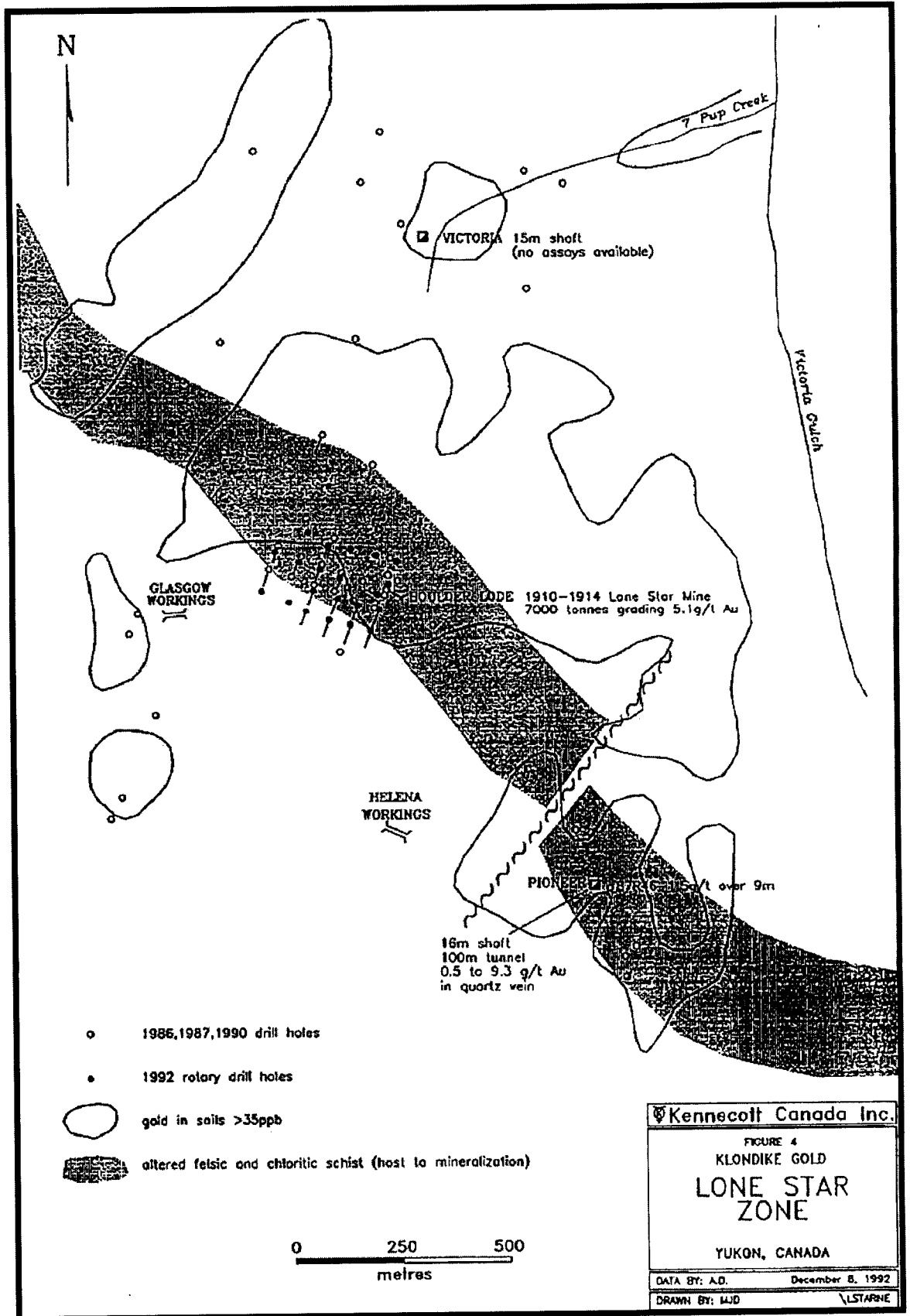
bulk grade within an alteration zone from 20-80m width and of grade =0.04 oz/t. Additional parallel narrower zones exist. On consideration of alteration mineralogy he concludes that the mineralization is of Tertiary age epithermal origin (but this is from visual identification. There was no X-ray diffraction data presented (this will be one topic for the future research).

*Arbor Resources* 1990 work (Tomlinson, 1991) carried out further I.P. surveys in seven localities (Lone Star, 7 Pup, McKay-O'Neil, Eldorado between Skookum and Gay Gulches, Eldorado north of Irish Gulch and French Gulch. The geophysical report was not available to T.L. however, Tomlinson notes that one of the more useful results was that on the Lone Star grid attempts to reach greater depth did detect a response and correlation was noted between chargeability highs, resistivity lows and the mineralized zones. 40 trenches were excavated and 45 reverse circulation rotary holes drilled, numbers 8-24 in the Lone Star area, each of which obtained some economic-grade intervals.

In 1992 *Kennecott* optioned the Lone Star property and continued the rotary percussion and reverse circulation drilling started by Arbor Resources. The Lone Star mineralization was extended out to 250m WNW of the Boulder opencut. Doyle (1993) considers that this is part of an alteration zone that trends NW from the Pioneer prospect (with R.H. fault offset) and which continues towards O'Neil gulch (Fig. 10).

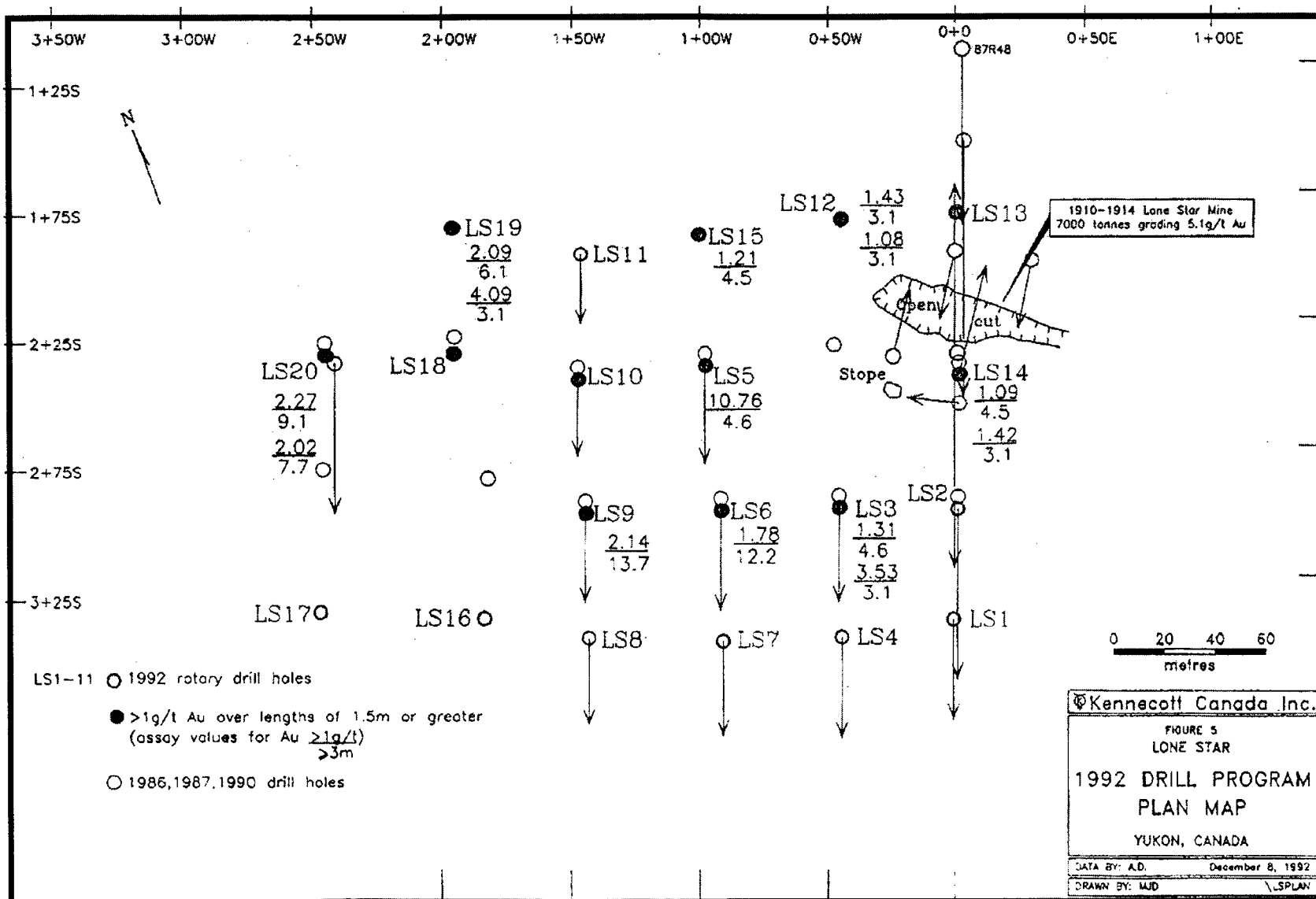
With the additional drill data the mineralized intervals no longer appear to be a shallow-dipping horizon at the Boulder lode (Figs. 12, 13). Significant gold grades were encountered 200 metres west (Fig. 14).

The 1993 programme (Finlayson, 1994) was preceded by preparation of heavy mineral concentrates from cuttings of drill hole LS14. Assays of concentrates produced slightly lower values than the original 1992 drill cutting assays and free gold was not found in mineral concentrates from that hole. The Kennecott report concluded that coarse free gold was not present and, on the basis of gold content in pyrite, that two generations of sulphides exist in the Lone Star rocks: i.e., that gold mineralization was impressed upon existing pyritic schists. Haematite and magnetite are considered to have been formed by oxidation of pyrite during hydrothermal alteration. Also Finlayson fails to find any correlation between metamorphic quartz and gold grade; propylitic vein assemblages of quartz ± calcite ± epidote ± adularia ± chlorite ± haematite seem to be barren of sulphides or gold; neither do white saccharoidal calcite ± quartz veins containing galena and traces of blue chlorite ± sphalerite correlate with gold. Mineralization is seen as being of low-sulphidation, low sulphide epithermal or mesothermal origin. The 1993 drilling was largely undertaken to test the gold soil anomaly downslope of the mine workings that Arbor Resources' work defined and to investigate geophysical anomalies resulting from re-processing of earlier-obtained helicopter airborne data. Mineralization encountered in their drilling consisted of intersections of <10m of >1g/t (>0.029 oz/t) in Boulder



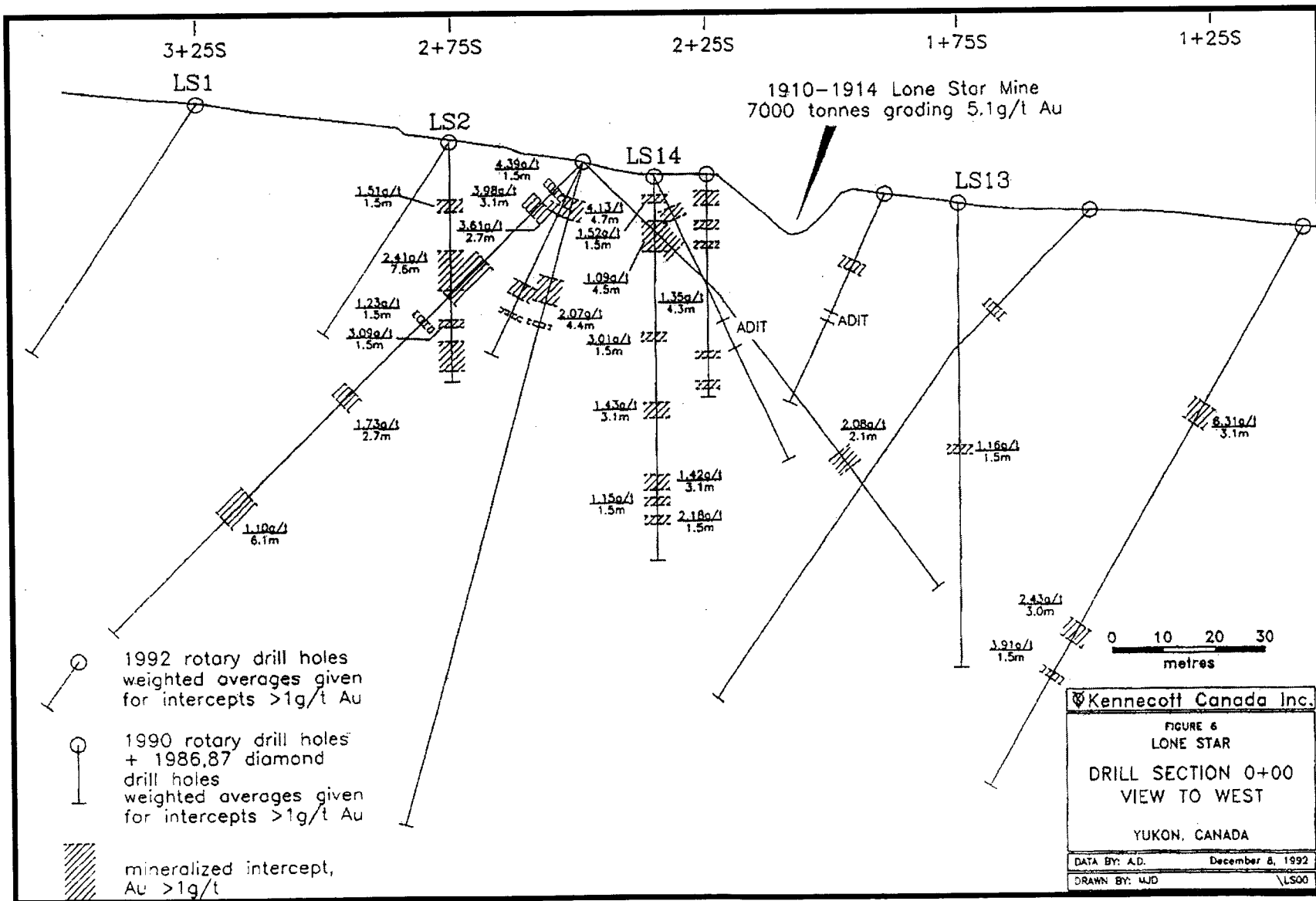
COPY OF MAP FROM DOYLE (1992) SHOWING INTERPRETATION OF MINERALIZED HORIZON. Figure 11

LONE STAR 1992 DRILLING. FROM DOYLE (1993). Figure 12

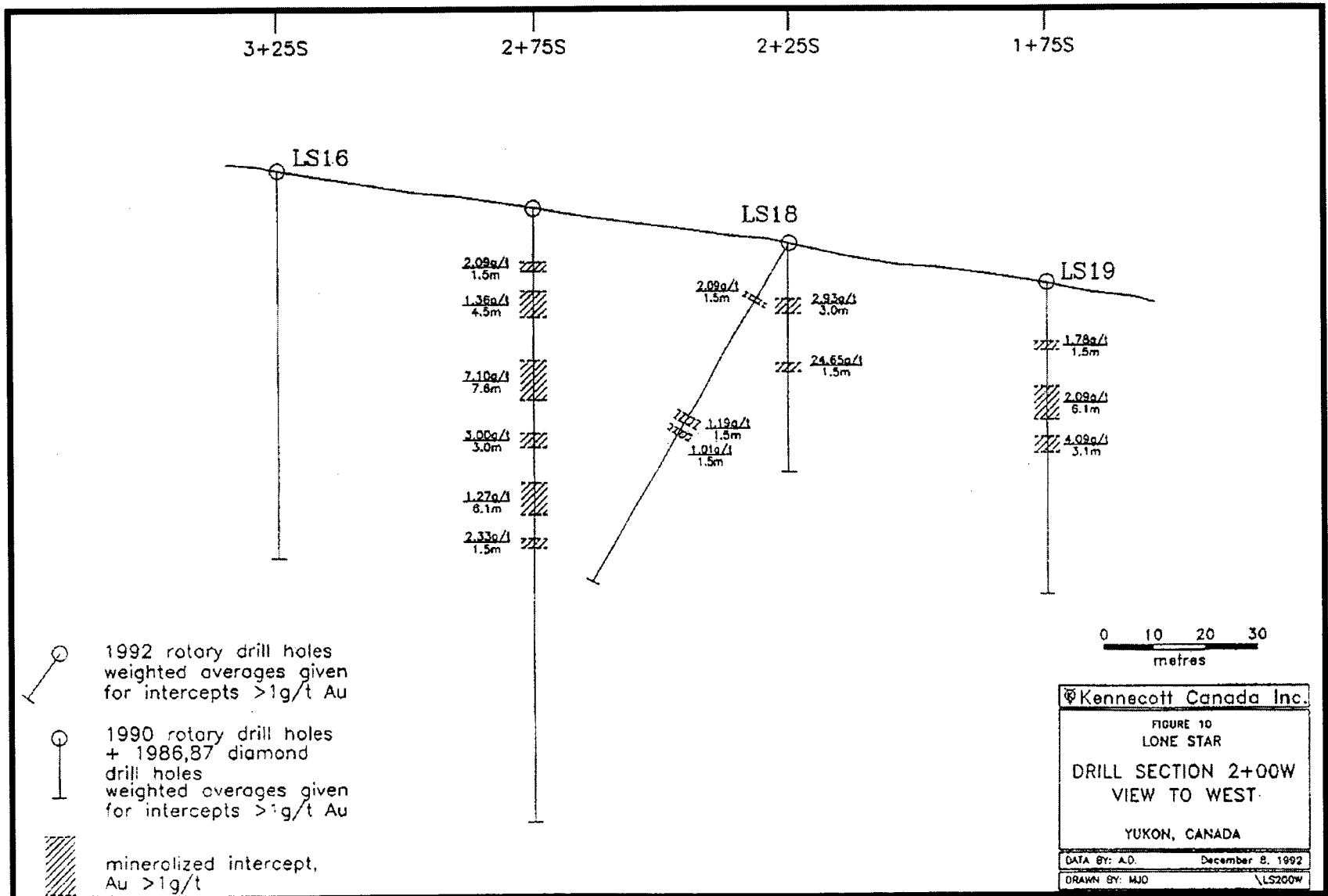




BOULDER LODGE DRILL SECTION. FROM DOYLE (1993). Figure 13



LONE STAR DRILL SECTION 200W. FROM DOYLE (1993). Figure 14



Lode drillholes LS-1, 3, 4, 7, 8 and 9. In the Buckland shear zone holes 20-22 encountered 3 to 15m intersections of >1g/t.

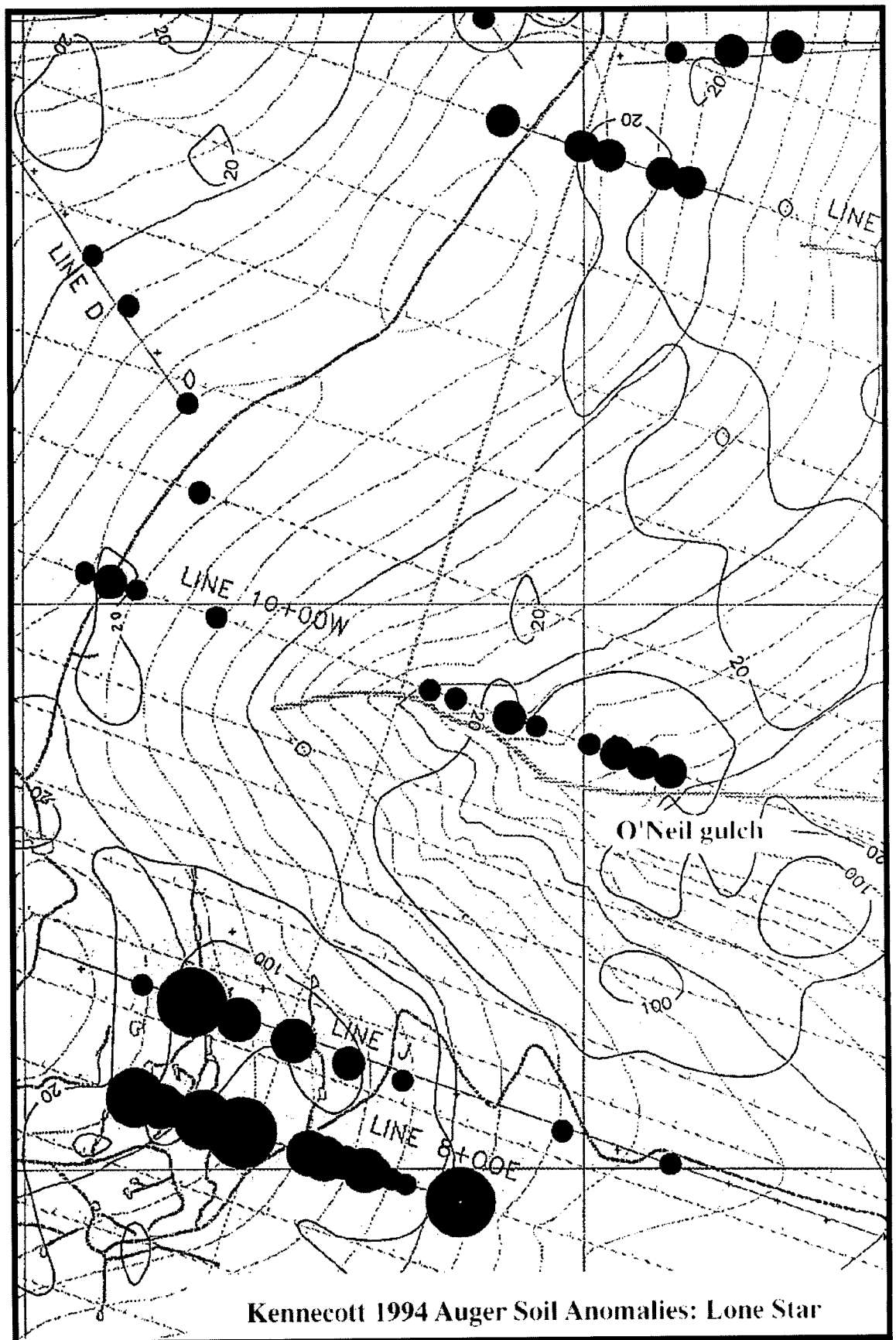
Kennecott's 1994 programme (Cranswick et al., 1995a) aimed at further evaluation of the entire property, especially the Buckland shear zone. Power-driven soil augers were used to obtain continuous sample lines spaced roughly at 1 kilometre intervals down the spurs from the ridge road to Eldorado Ck. and over the Lone Star area (Fig. 15). Significant Au anomalies up to 500 ppm were obtained from the spurs between 27 Pup and Oro Grande and over the NW side of Gay gulch valley and, also perhaps more significantly for present day exploration, directly above O'Neil gulch (Fig. 16). The anomalous region over the Nugget zone was trenched (94-02). Assays of 2.35g/t / 12.0m and 26.5g/t / 2.0m were obtained. In addition low in Gay Gulch, trench 90GG-06 was re-cut and sampled, yielding individual assays of 3.71g/t / 2m; 3.01g/t / 2m; 1.25g/t / 2m; and 1.17g/t / 2m in discordant pyritic quartz veins.

In addition to the work on the Lone Star - Buckland zones regional work was carried out over the rest of the claim block (Cranswick et al., 1995b) in the search for intrusion-related gold (Fort Knox model). The re-processed helicopter-borne magnetic survey was used to infer the presence of a magnetite-type granitic intrusion at Sourdough Gulch, magnetite-bearing porphyry dykes at 77 Pup and the further anomalies at Discovery Pup (Bonanza Creek). Weakly mineralized quartz muscovite schist was exposed by trenching of the hornfelsed aureole of the Sourdough pluton. Auger sampling found no significant gold at the other localities.

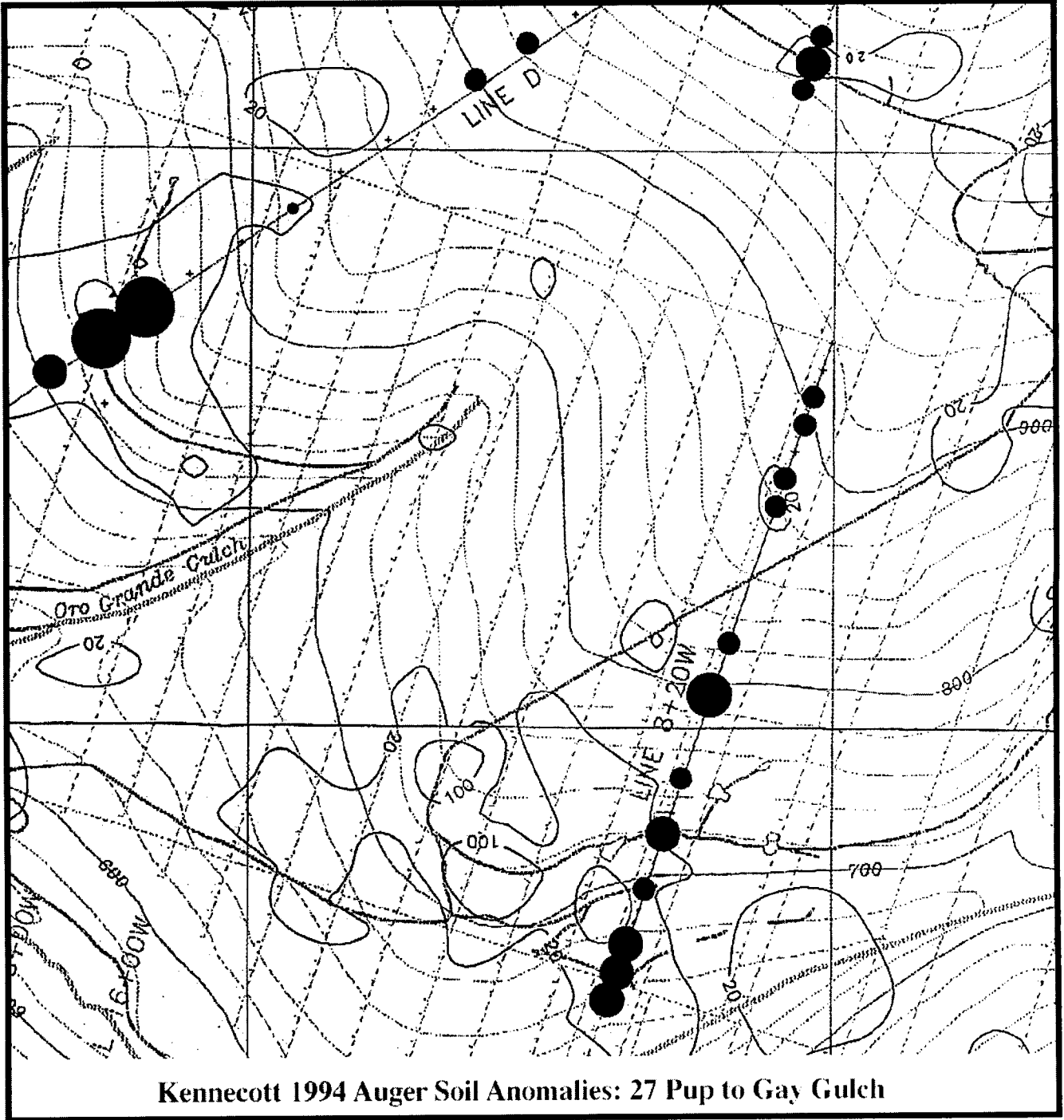
At the end of the season's work Kennecott decided that the mineralization that had been discovered was not sufficiently continuous to meet their criteria for a bulk tonnage target. The option on the property ended January 1995.

Work was continued on the property after Arbor Resources became *Klondike Gold Corp.* A study of the mineralogy and amenability to milling of bulk samples was performed by Newmont Exploration Ltd. as an evaluation of the property. Significant amounts of gold >100 mesh were found in their laboratory tests as well as their assays indicating considerably higher numbers than some of the original rotary drill cutting results. J.E. Tilsley and Associates (Hayden and Tilsley, 1997) carried out further surface sampling of the Lone Star during 1996 to investigate techniques to obtain representative assays. Again, considerable coarse gold was detected in their large-sized (~30kg) samples. This size of sample, however, still did not give reproducible results.

The 1996 work consisted of new trenching plus re-sampling many of the exposures in the Lone Star, Pioneer, Parnell, Buckland, French Hill, Glacier and Oro Grande zones, together with a reinterpretation of the geology (Van Angeren, 1996). Van Angeren has rejected the shear zone model for mineralization that he originally proposed and which was prevalent during Kennecott's work. He now interprets the Boulder Lode as being a "--- foliated zone of alteration apparently



SOIL GOLD ANOMALIES: LONESTAR-O'NEIL AREA FROM CRANSWICK (1995).  
Figure 15



SOIL GOLD ANOMALIES: 27 PUP TO GAY GULCH: FROM CRANSWICK (1995),  
 Figure 16

constrained to a unique volcanosedimentary horizon. Boulder Lode is thought to represent metamorphosed 'syngenetic' or 'paleo-epigenetic' mineralization (such as gold exhalites or structurally-controlled, replacement or alteration zones)." He recognizes that the host lithology is polydeformed and hence difficult to correlate over any distance.

The Buckland zone in contrast is seen as a post-metamorphic, weakly altered, near vertical shear zone that is discordant to the schists and which may also be of anastomosing geometry. Widths of from 4 to 8m are interpreted with grades from 0.04 to 0.19 oz/t found in previous work. The Oro Grande mineralization is seen to be cross-cutting mesothermal quartz veins that contain coarse gold. 27 Pup is seen as being a distinct stratigraphic (tuff-exhalative) horizon characterized by high silver and mercury with gold to 3.77 g/T. Van Angeren recommended concentration of work on the Boulder Lode, Buckland Shear and 27 Pup zones (Van Angeren, 2002), with the work aimed at finding primarily disseminated mineralization rather than crosscutting quartz veins. An emphasis is made on understanding the geology.

#### 5.6 COMMENTS ON PRE-1993 WORK

The various attempts at finding continuous mineralized zones have been hampered primarily by the need to artificially expose all outcrop. Observations made in trenches at best record a variable amount of weathering alteration that makes interpretation of any hydrothermal alteration and even rock type often conjectural. This historical work has been carried out primarily by attempting to correlate assay values between drill holes and trenches with little regard to geology and structure. Future work must make an attempt at careful mapping of lithologies and structures. It may well be necessary to use frequent recourse to petrography to interpret lithologies and alteration assemblages. All mesoscopic-scale structures must be mapped in an attempt to interpret fold structure. No conclusive evidence has been amassed to favour any particular genetic model for the gold of the Lone Star. There are some features present that might be interpreted to indicate any of a syngenetic (V.M.S.) source, mesothermal metamorphic mineralization, post-metamorphic shear zone alteration or an epithermal origin. Again, any future successful exploration must depend upon gaining a better knowledge of the geology of these deposits rather than relying on the old formula of blindly following geophysics and geochemistry. Previous bulk sampling tests, although not entirely reproducible, do indicate that such an approach is preferable for grade determination.

## 6. 2004 EXPLORATION

### 6.1 TECHNIQUES

Work on the main claim block in the Lone Star - Gay Gulch - 27 Pup area was aimed at two objectives: to extend the known mineralization NW from the Lone Star and to confirm previously identified mineralized zones in the Oro Grande, Buckland and 27 Pup zones so that material would be available for mill tests once the plant was operational (see section 6.2). The secondary objective was to increase our knowledge of the geology of the property with the mapping.

Excavation of new trenches was achieved by stripping the surface, especially the 'black muck', with D8K bulldozer and then digging to solid rock where feasible with a large backhoe (EX300). Sampling these trenches consisted of breaking small pieces of rock from the sides of the trench to provide a reasonably continuous sample. For a 5 metre interval approximately 2 kg of material was collected (one 30 x 50 cm plastic bag full). The trenches were geologically mapped at the same time as sampling.

Samples were packed into 'poly-weave' sacks that were sealed with zip ties, packed onto pallets and then covered with shrink-wrap before trucking to Vancouver. They were shipped directly to Acme Analytical Laboratories of Vancouver for assay. Preparation of rock consists of crushing to 70% of the material <10 mesh, split to 250g and further pulverizing. The custom inductively coupled plasma mass spectroscopy (ICPMS) uses a sample aliquot of 30g that is digested in 95°C aqua regia. 35 elements plus gold are determined by ICPMS. Gold is reported for concentration down to 0.5 ppb. Fire assay for gold was carried out on samples that yielded 300 ppb or more on initial analysis. Either 1 or 2 assay-ton (29.2g or 58.4g) pulverized samples. Lead collection followed by acid digestion of the doré bead is followed by determination using inductively coupled plasma emission spectroscopy.

Soil sampling for geochemistry was achieved by hand augering and collecting material from 20-40cm depth. The material was described in the field and a GPS receiver used to obtain the U.T.M. coordinates. Localities were flagged. Acme Analytical Laboratories performed analysis using ICPMS on a 15g aqua regia digested sample.

Since the trench sampling consisted of selection of small pieces of rock across the interval desired rather than a continuous channel sample these results may not be totally representative. It is likely, however, that this technique would underestimate any grades rather than exaggerate them. Also to be considered is the possibility of discrete gold grains being present in the rock. Some of these grains would be expected to be flattened during pulverization and to be removed from the sample during screening at the laboratory. Our trench sampling was

aimed at identifying mineralized zones, not precise gold grades.

Geological mapping at the reconnaissance scale was performed using coarse-acquisition GPS location of data points. Compilation of data was achieved using GIS software and AutoCad. Detailed mapping (as at 27 Pup) used classical surveying techniques for control. End points of trenches and rock exposures were located using tachymetry. Trench mapping used fibreglass survey tapes stretched out from the control points. Compass, clinometer and tape traverses were used to provide some detail of roads.

## 6.2 THE 2004 PROGRAMME

During the 2004 season much of the first work over the whole claim block was driven by the need for assessment work, as all claims were due to expire. Out-lying claims were the subject of soil sampling and reconnaissance-type geological mapping and rock sampling for assay. The principal targets of Lone Star, Buckland shear and 27 Pup received more detailed work in the latter part of the summer. As part of the joint venture agreement between Klondike Gold Corp. and Klondike Star the latter company undertook construction of a pilot plant for gravity concentration of heavy minerals from bulk rock samples and of a small sluicing plant capable of being rapid dismantled and cleaned-up to test bulk soil or alluvial samples. The hard-rock plant was built on Eldorado Creek by 27 Pup (alongside the 'Dysle' prospect). It consists of jaw crushers (a roller mill is to be added in 2005), two unlined ball mills that allow quick clean-up, a screen and feed to a Deister shaker table. This allows bulk samples of from a few tens of kilograms to 1 tonne to be milled to recover free gold and to produce a heavy mineral concentrate. This concentrate would include sulphides that may be assayed. A suite of 11 samples from 9 to 384 Kg weight were run through the plant during October 2004 to test the equipment. It is hoped that the bulk sampling of surface material may produce a representative grade for samples that is unaffected by 'nugget effect' or gold content in sulphides.

Exploration over the Lone Star ridge consisted of excavation of two very long trenches over the NW strike extension of the Boulder Lode soil geochemical anomaly. These utilized previously (1987) bulldozer stripped areas that had allowed the thawing of a 1-1.5m thick layer of Pleistocene peat and soil (the "Klondike black muck"). Other smaller excavations lower on the ridge towards O'Neil Gulch ran into some permafrost and hence provided somewhat discontinuous rock exposure. The new trenches were sampled (2-3 kg bags from each 2-5 m section as required) and sent for assay.

In the Oro grande area (Hilchey Zone) new trenches were cut along the contour and down the spur by backhoe and appropriate sampling carried out. At the Nugget shear zone between



Oro Grande and 27 Pup One bulk sample ('NUG') was taken from the upper zone before stripping commenced. The mineralized intervals at top and bottom of trench 94-02 were stripped to expose outcrop. The Buckland shear was investigated by re-sampling of trenches 91-20, 89-04, 95B-1 and 96-35 to accurately locate the mineralized interval for bulk sampling in 2005. Also some continuous sampling of Kennecott's trenches on the spur south of Gay Gulch (samples 158936 to 950) failed to locate the mineralized zone.

At 27 Pup the recent trenches (2003) were sampled and all exposures mapped in detail using either theodolite or plane table and alidade to provide vertical as well as horizontal control. Within this mapped area, the historic showings above the Dysle adit were later stripped and bulk sampled.

### 6.3 DESCRIPTION OF TRENCHING, SAMPLING AND SURVEY

#### NW EXTENSION OF THE LONE STAR: TRENCHING TOWARDS O'NEIL GULCH

Contour cuts were opened up between Hilchey's lower road at ~870m elevation and O'Neil Gulch. This bulldozing was stopped about 150m short of the Gulch due to permafrost and 'black muck'. Significant gold colours were obtained from colluvium from the cut. The uppermost left-hand branch of the gully was sampled by Tom Morgan for colluvial gold by sluicing approximately 1.3 m<sup>3</sup> of ground through a 'long tom'. This work returned over 1g raw gold, indicating that there are grades of placer mineable colluvium present on this part of the hillside and that it would be advisable to investigate the source. These roads will provide access for further trenching and drilling on the steep frozen NE slope and the work will likely be continued once the 2005 summer allows some thawing.

In order to investigate the northwestern previously unexplored part of the Lone Star soil gold anomaly two long trenches were excavated by backhoe along the routes stripped in previous years. Trenches 04-09 (N & S) and 04-11 (N & S) run NNW down the slope of the ridge and extend the rock exposure a further 320 m further north for 04-09 past trench 87-16. Trench 04-10 cuts along the contour. The geology of these trenches is shown in detail in Fig. 17. Analyses of rock sampling (taken as 2 to 5m intervals according to geology) produced anomalous gold (i.e. >200 ppb) in both southern parts of trenches 9 and 11 in muscovite-chlorite schist, which likely represents an intermediate volcanic protolith. Also in one locality in each of the northern sections interesting grades were obtained (this may coincide with a quartz vein system). In trench 04-10 ore-grade values to 19 g/t could be 'real' or could be a result of some colluvial gold being present



in the sample. That trench was not as well cleaned-out as the others due to frozen 'Klondike muck' overlying this ground which had not been previously stripped. Averages from this sampling gave 0.28 g/t / 24.0 m and 1.36 g/t / 23.0 m.

Other trenches dug to the NW of the Lone Star in the 7 Pup area are:

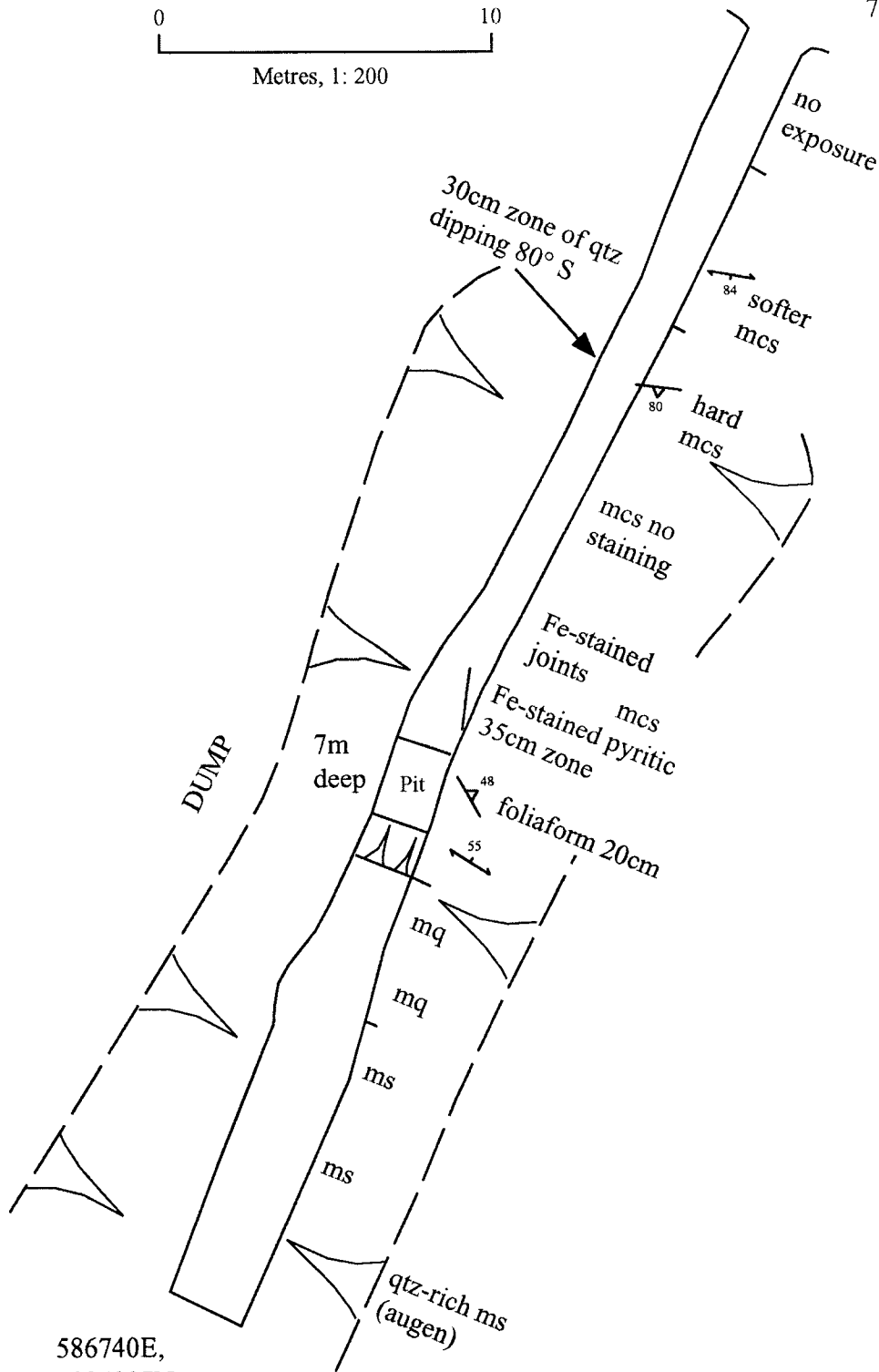
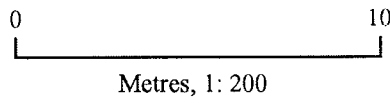
04-14, a deep excavation into muscovite schist and muscovite-chlorite schist (Fig. 18). This was in a region reported to carry colluvial gold (Jerry Bryde quoting the work of Hilchey). Only foliaform quartz is seen in this trench, but some concordant pyritic zones were noted. Trench 04-15 also covered one of Hilchey's targets. It was found to follow a basic dyke, hence coincides with a magnetic anomaly (Fig. 19). Trench 04-16 was dug at Jerry Bryde's workshop on a graphitic zone that had yielded placer gold from colluvial material. It was found to intersect a fault zone that, when correlating intersections on opposite walls of the trench indicates an approximately north strike. Samples 158139-142 of fault zone material yielded only 1.7-14.5 ppm Au (Fig. 20).

Trench 04-17 was excavated along one of Hilchey's old contour cuts, where anecdotal evidence identified one of the geophysical (I.P.) anomalies. The country rock consists of muscovite schist, quartzite and graphitic phyllite. In the centre of the trench are serpentinite, soapstone and asbestos over 10 metres (Fig. 21). This is interpreted to represent altered ultrabasics intruded along a thrust fault zone, probably one of the WNW-trending faults. It may correlate with the similar zone reported from 7 Pup. Rock samples at 5 metre intervals (158143-148) gave analyses of <4 ppb Au, which are surprisingly low for an ultrabasic rock.

#### TRENCHING AT THE HILCHEY ZONE (ORO GRANDE GULCH)

Five trenches were dug early in the 2004 season over the Hilchey anomaly (see 1:5000 scale sketch, Fig. 22). G. McKercher sampled trenches 01, 02 and 05. Only background Au values were obtained on analysis except for the 64-66m interval in trench 01, which yielded 104 ppb. He terminated the sampling of trench 04-02 at about mid point due to poor rock exposure and an unstable excavation (See notes in appendix). Trench 04-03 was not sampled since it was felt that the material in that trench was colluvial. The mid point of that trench however, did unearth many boulders of quartz in which visible gold was noted by Jerry Bryde and later separated (T.L.) from a 26.8 kg composite grab sample "Oro Grande Quartz" in a mill test. Also, opposite the south end of trench 03 two zones of quartz with limonitic material alongside were noted by Jerry Bryde and he panned gold from this material. Samples 158164-166 from this ~1m wide zone (T.L.) gave fire assays of 0.11, 0.23 and 1.57 g/t. Re-examination (by T.L.) noted that above the mid-point of trench 03 much of the rock in the bottom of the trench appeared to be

586757E,  
7087041N

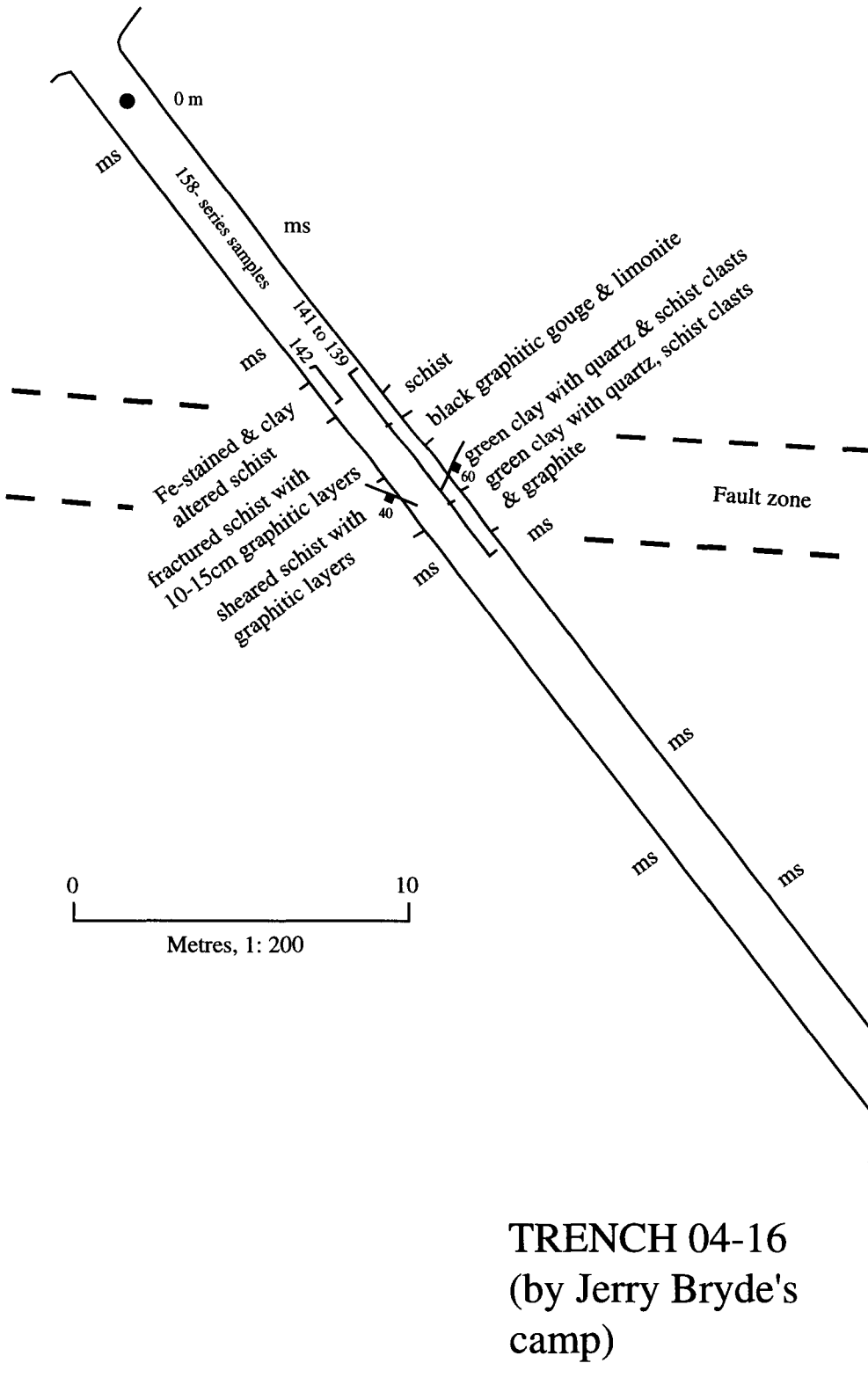


586740E,  
7087007N

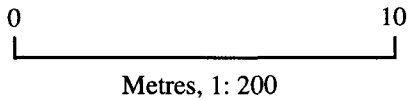
TRENCH 04-14  
("CHARLIE'S")  
Figure 18



UTM Grid North

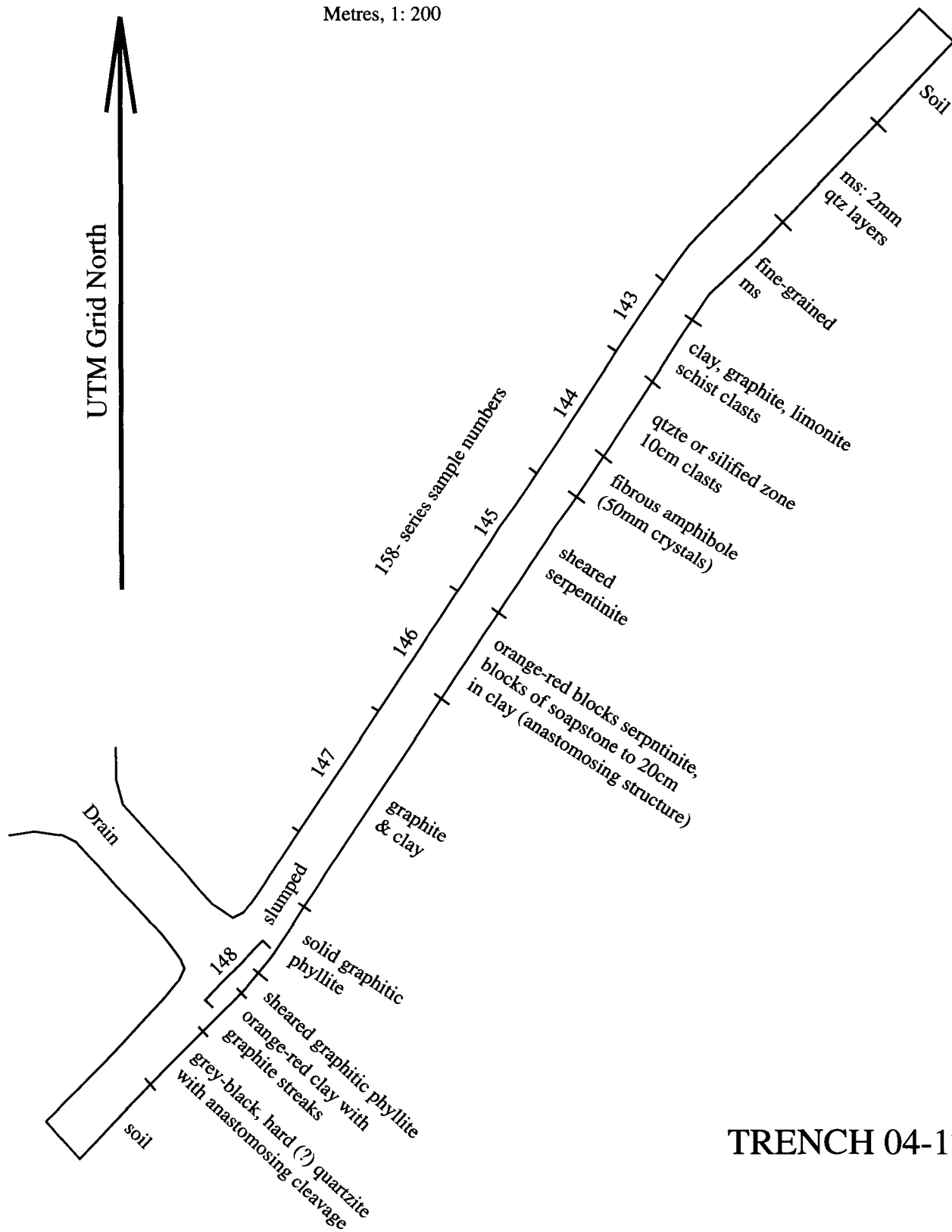


TRENCH 04-16  
(by Jerry Bryde's  
camp)

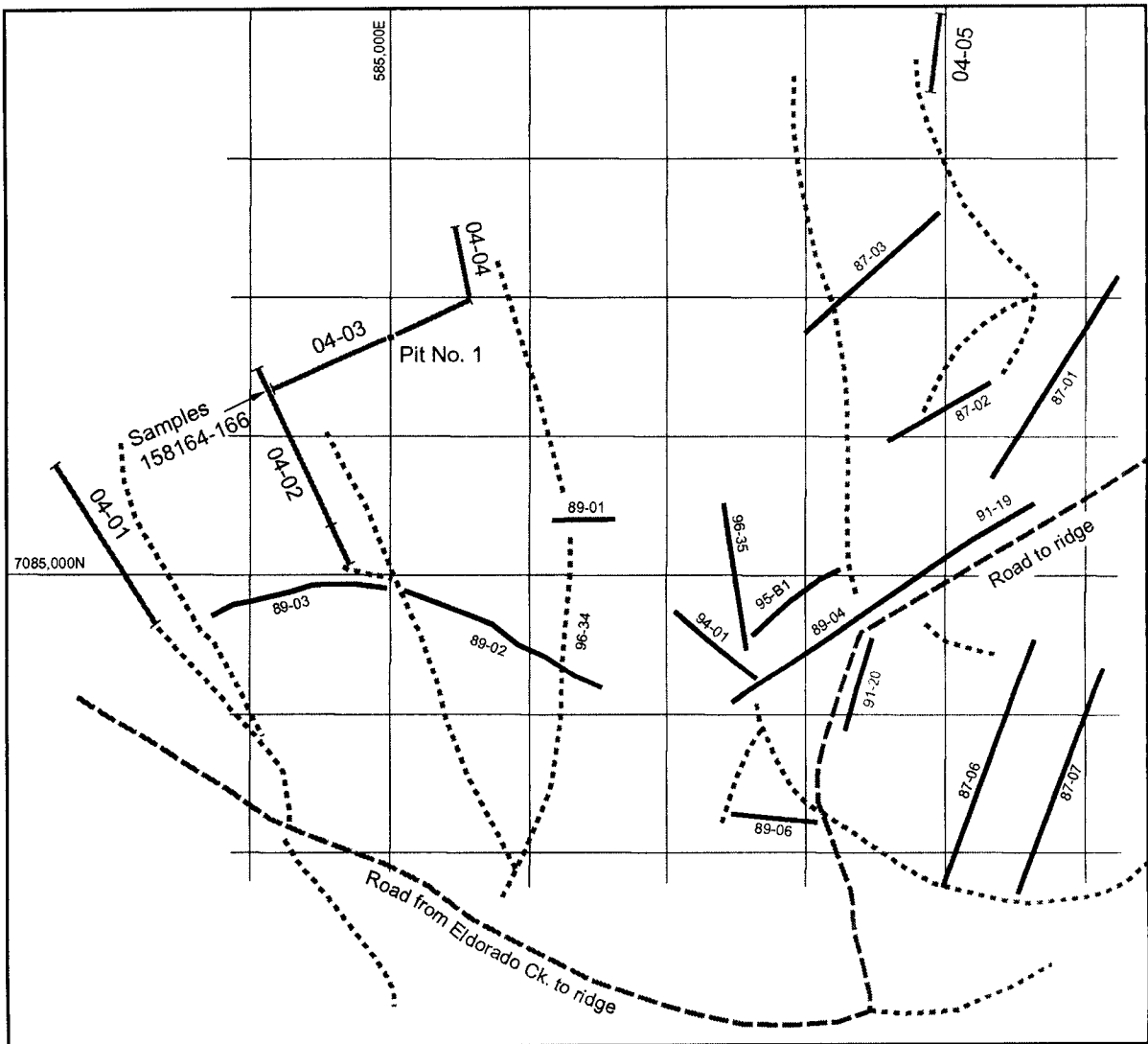


GPS ●




UTM Grid North ↑



TRENCH 04-17



Scale: 1 to 5000. 100m grid squares shown.

-  Road
-  Trail
-  Old trenches
-  2004 trenches

HILCHEY ZONE, ORO GRANDE. LOCATION OF 2004 TRENCHES 1 TO 5 AND "PIT 1"

Figure 22



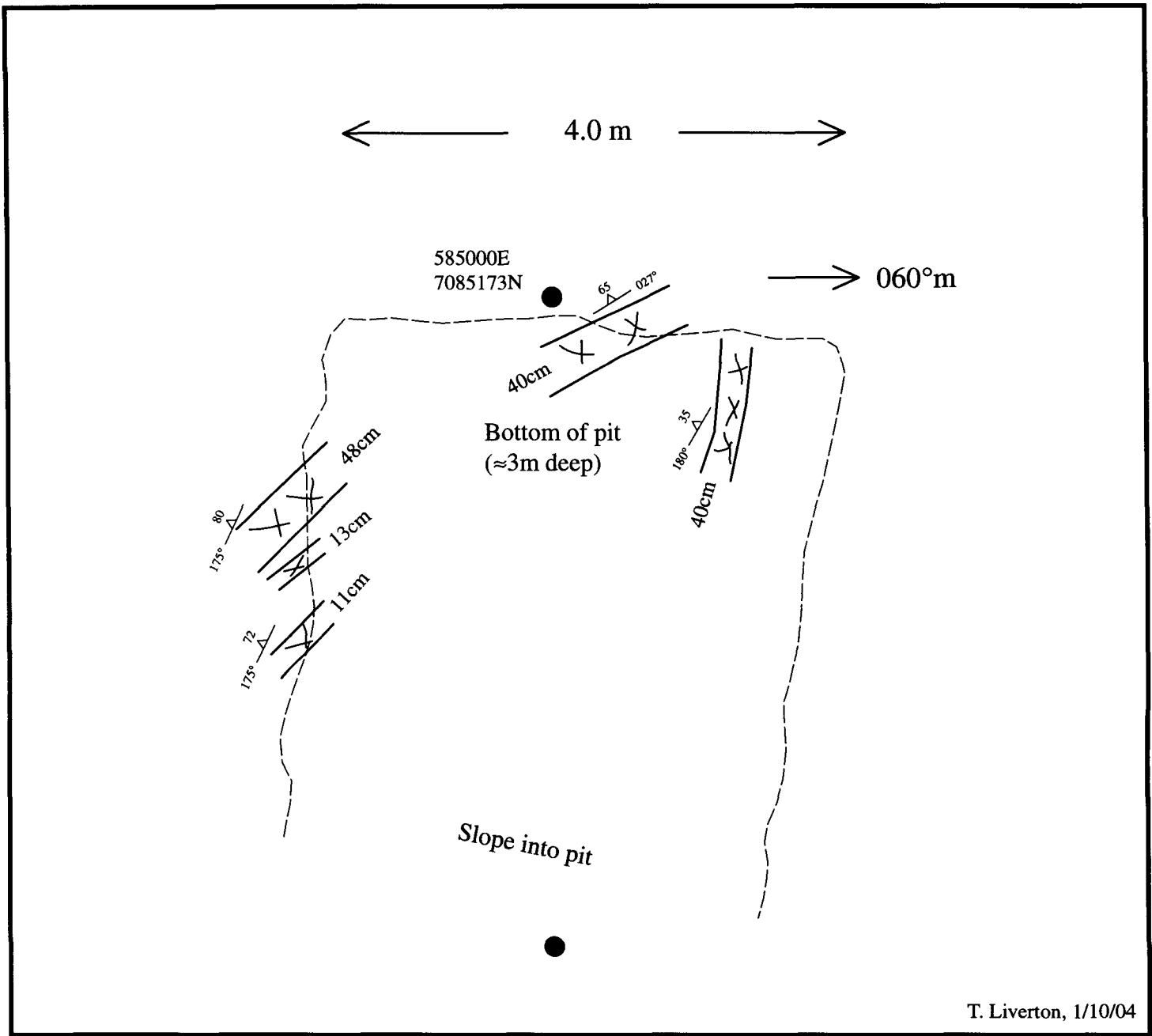
sub-outcrop rather than colluvial or a slump (solifluction lobe) as originally was suspected. It was decided to create an access trail and to excavate this central part. A deep pit, named "Pit No.1", was dug with the backhoe (Fig 23 is a field sketch). Several in-situ discordant quartz veins were intersected in the pit. A further bulk sample was taken from this pit ("Pit No.1").

#### TRENCHING AT THE NUGGET ZONE (ORO GRANDE TO 27 PUP)

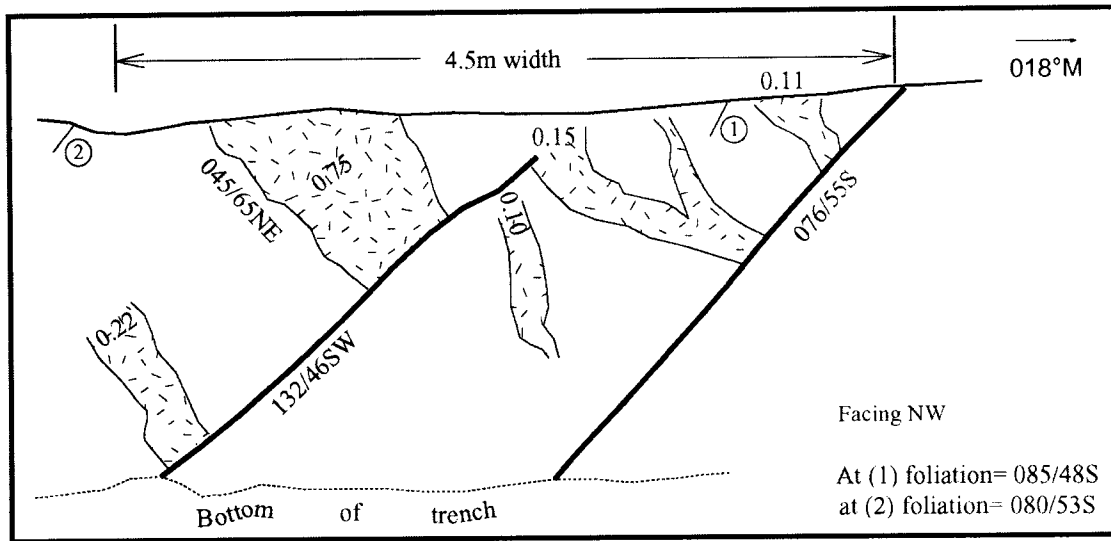
Assays obtained by Kennecott in trench 94-02 indicated that there were mineralized intervals both at the bottom of the trench and near the top. Their sample intervals were discontinuous, so the 'ripper sub-crop' material was re-sampled in a continuous series by Bill Mann early in the 2004 season. The results from the interval 204-206m (measured from the top or NE end) gave a 2 assay-ton fire assay of 7.18 g/t (sample 144778), as well as 326-330m averaging 1.16 g/t (samples 144823-25) at the lower end of the trench. Other results in the 1 g/t range were obtained from below the 200m level.

At the end of the season the upper region (200m mark) of the trench was sampled as a "panel-sample" by Tom Morgan. A 0.2m thick section of the west face of the trench was cut out over a 4.5m length (see field sketch: Fig.24). Half of this sample was run through the mill before winter weather ceased operations. Immediately after the sampling (and before the mill test) the upper region was stripped for placer assessment (Fig. 25) and the quartz vein system cut for this "NUG" sample followed eastwards by backhoe trenching. These excavations were mapped using theodolite tachymetry (Fig. 26). It was noted that the discordant quartz vein stockwork is displaced by shallow-dipping faults that are distinctly limonitic at surface, possibly due to pyrite content. Individual quartz veins in this upper trenching were sampled by Jerry Bryde: samples 144995, 96 and 98 yielding ICP analyses of 5.01, 1.51 and 14.48 ppm Au. Trace copper content, perhaps due to weathering of tetrahedrite, was noted as azurite-malachite in the larger, easternmost vein.

The lower part of trench 94-02 was excavated to expose the quartz vein system there, but was not systematically sampled due to snow fall immediately after it had been roughly mapped (Figs. 27). Grab samples were taken by Jerry Bryde during excavation. Samples 145860, 62 and 63 yielded ICP analyses of 38.9, 43.0 and 32.1 ppm Au. There the quartz vein system dips at ~60° to the NE.



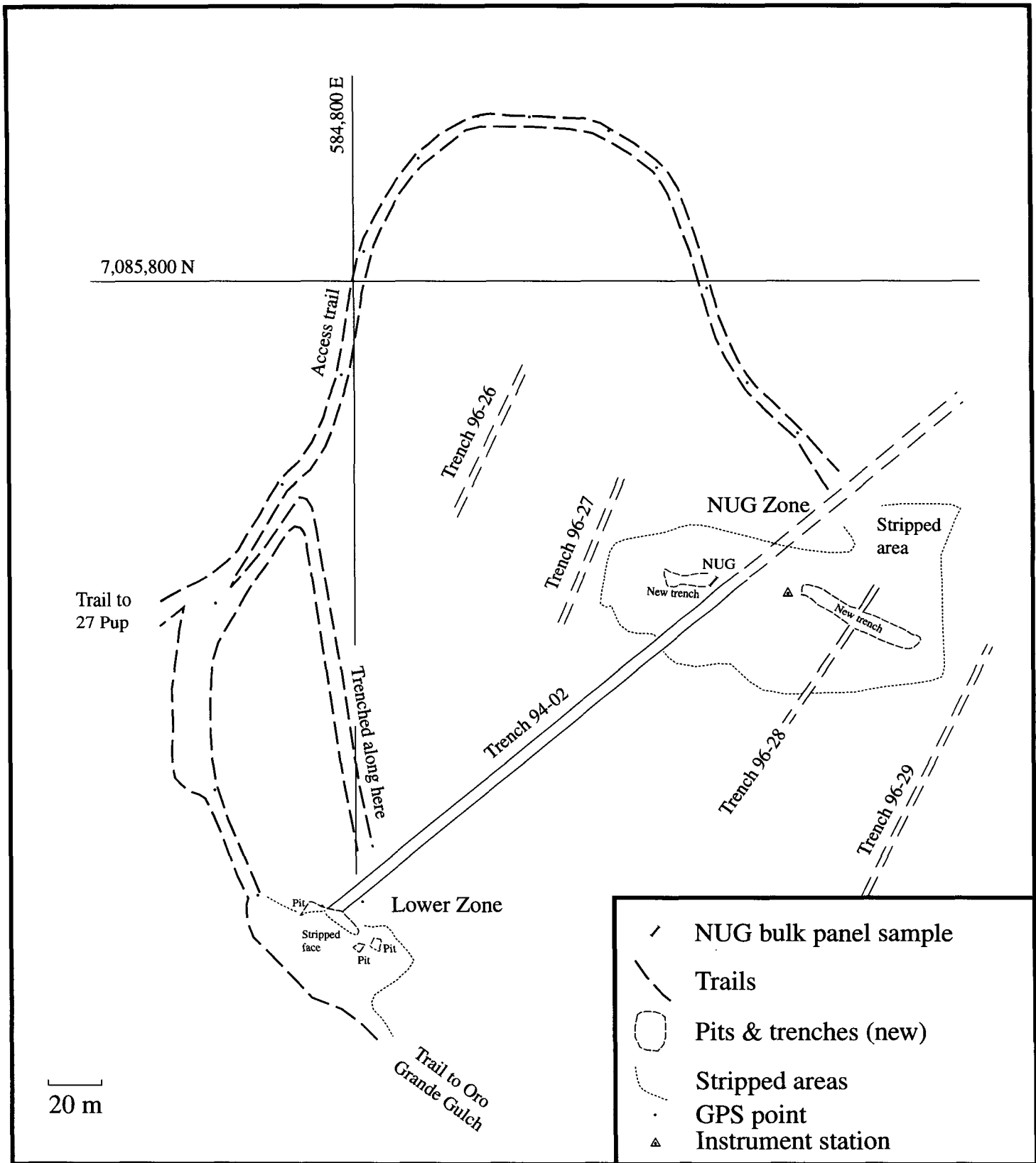
ORO GRANDE HILCHEY ZONE 'PIT NO.1': FIELD SKETCH TO SHOW WIDTHS AND ATTITUDES OF QUARTZ VEIN SYSTEM



FIELD SKETCH OF 'NUG' BULK SAMPLE (12 BUCKETS) TAKEN AS A 20 cm THICK PANEL OVER THE 4.5 m WIDTH.

Quartz veins are shown as a stipple, faults as bold lines. True thickness of quartz veins given at the position measured. Attitude of veins and faults is strike & dip relative to magnetic North.

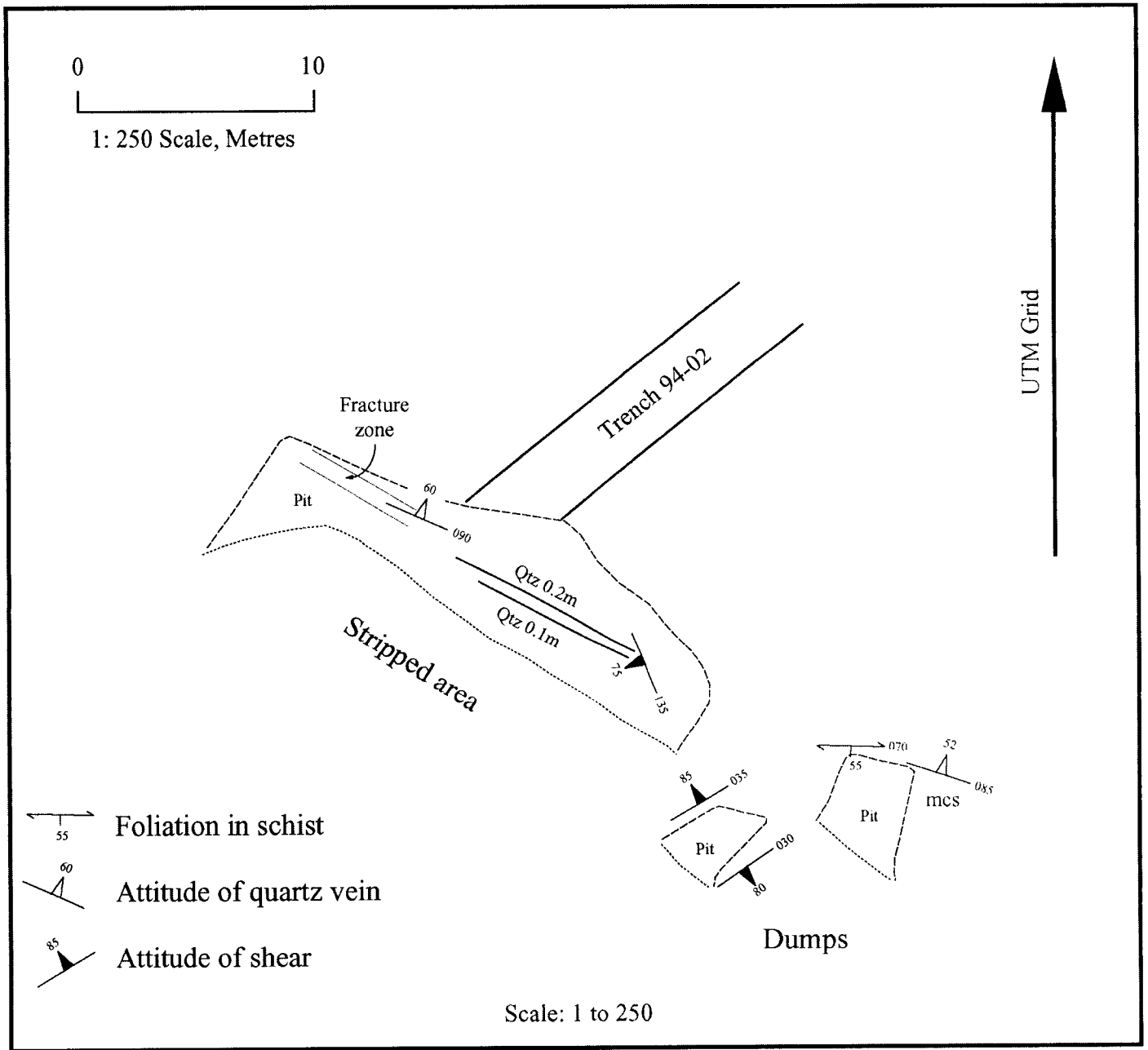
Figure 24



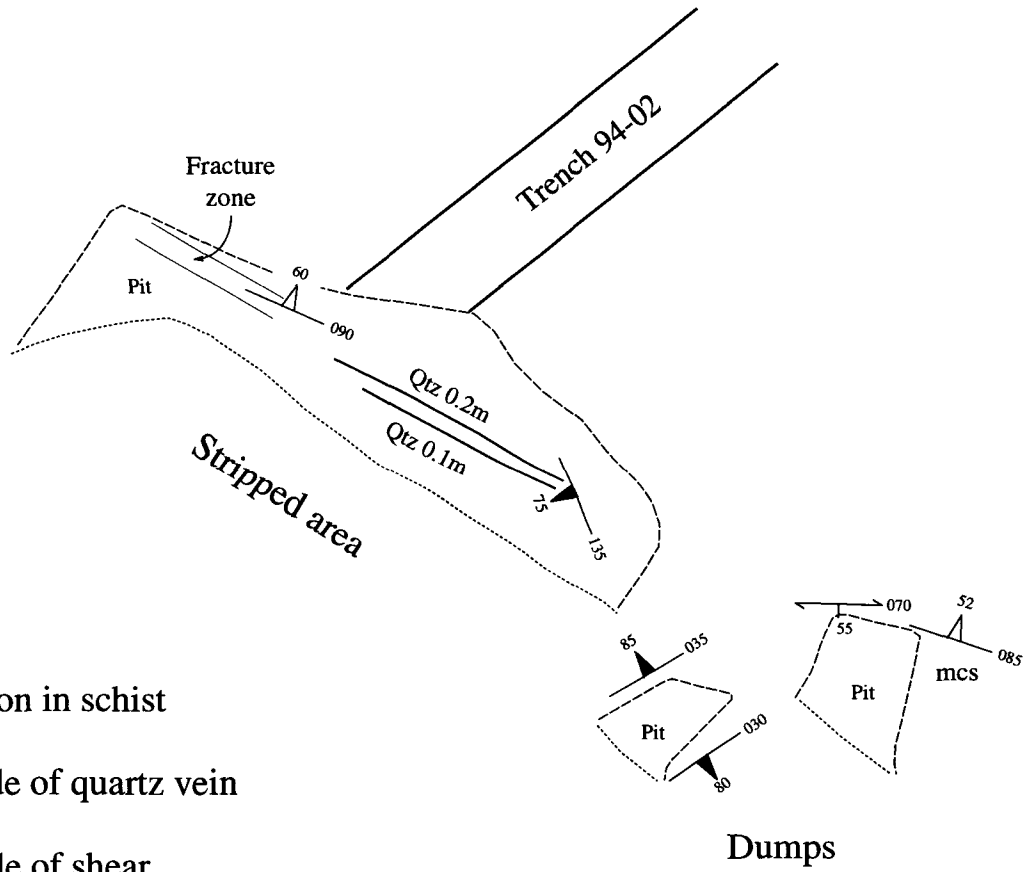
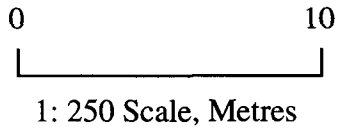
ORO GRANDE: NUGGET SHEAR ZONE SHOWING NEW EXCAVATIONS AND ACCESS TRAILS

Mapped October 2004: T.Liverton  
Scale: 1:2000





ORO GRANDE NUGGET SHEAR ZONE: DETAILED GEOLOGY  
OF LOWER QUARTZ VEIN SYSTEM  
Figure 27



- Foliation in schist
- Attitude of quartz vein
- Attitude of shear

Scale: 1 to 250

ORO GRANDE NUGGET SHEAR ZONE: DETAILED GEOLOGY  
OF LOWER QUARTZ VEIN SYSTEM

## TRENCHING AT 27 PUP AND GEOLOGICAL MAPPING

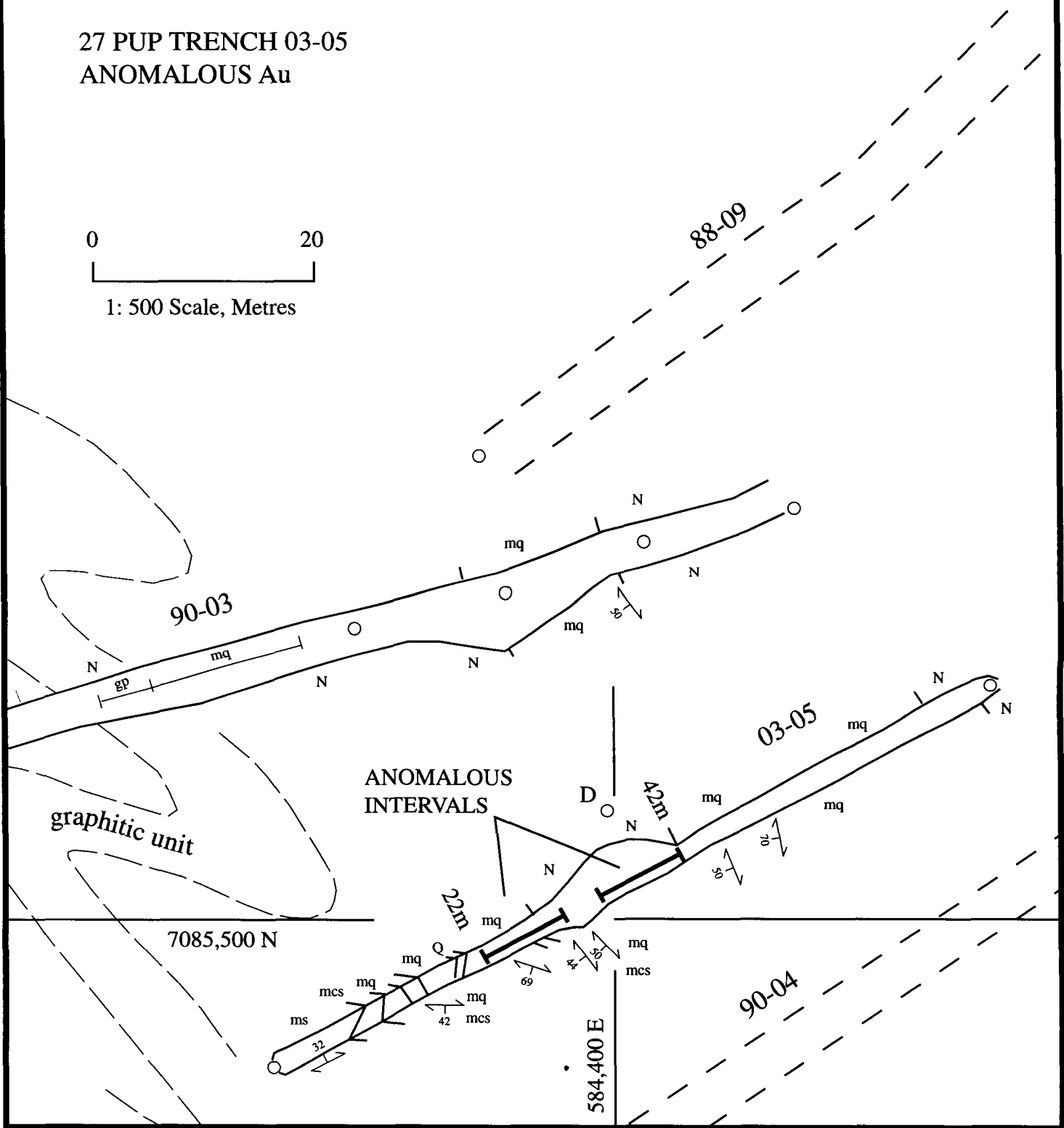
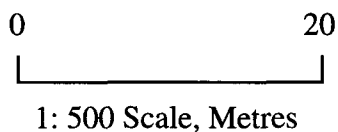
Late in the 2003 season a limited amount of trenching was carried out at 27 Pup, but was not sampled that year. Trench 03-01 was sampled by G. McKercher and J. Boyce early in 2004, and 03-01 extension and 03-03 and 03-05 sampled by G. McKercher and T.L. in August. The other 2003 trenches in the 27 Pup area did not expose outcrop and were not sampled. Trench 03-01 (samples 144537-544) gave analyses all  $<72$  ppb Au; trench 03-01 Ext., samples 144545-565 gave some anomalous values up to 389 ppb; trench 03-03 sampled at 5m intervals from 2 to 70m (uphill) (158051-158062) produced only one anomalous Au analysis: the interval from 2-7m was 320.3 ppb. Trench 03-05, sampled at 2m intervals (numbers 144566-600) produced three anomalous values: 144573= 288.7 ppb, 144577= 650.4 and 144584= 317.3 ppb, corresponding to the 16-18, 22-24 and 36-38m intervals measured from the lower (SW) end of the trench. These are in micaceous quartzite and muscovite-chlorite schist without any prominent quartz veins.

Once the sampling was completed the 27 Pup area was mapped at 1:500 scale using theodolite tachymetry for the larger part and plane table and alidade for the Dysle showing. This is presented as Fig. 28.[pocket] Interpretation of the geology is hampered by lack of suitably distinct lithologies (as a hand specimen) to use as a marker horizon. Variably chloritic lithologies may represent a volcanic protolith (but are not readily correlated between trenches) and particularly sericitic schist such as in trench 91-14 and adjacent exposures is likely meta-rhyolite. The graphitic phyllite unit is seen in several trenches and interpretation of its trend is made assuming fold structures. In trench 03-01 (extension) the graphitic unit is obviously sheared at a low angle to foliation. The zone interpreted by Van Angeren as the Buckland shear zone extension is shown on his compilation map as passing through the lower (i.e., SW) third of trench 90-04, which was not mapped in detail this season since much of the sides had slumped. That location would place the shear through the lower part of trench 03-05. Although no ore-grade results were obtained in our 2004 sampling, anomalous Au values to 650 ppb were found (Fig. 29). Anomalous results found at the west end of trench '03-01 Extension' (Fig. 30). cannot be correlated with this mineralization and may represent separate mineralization.

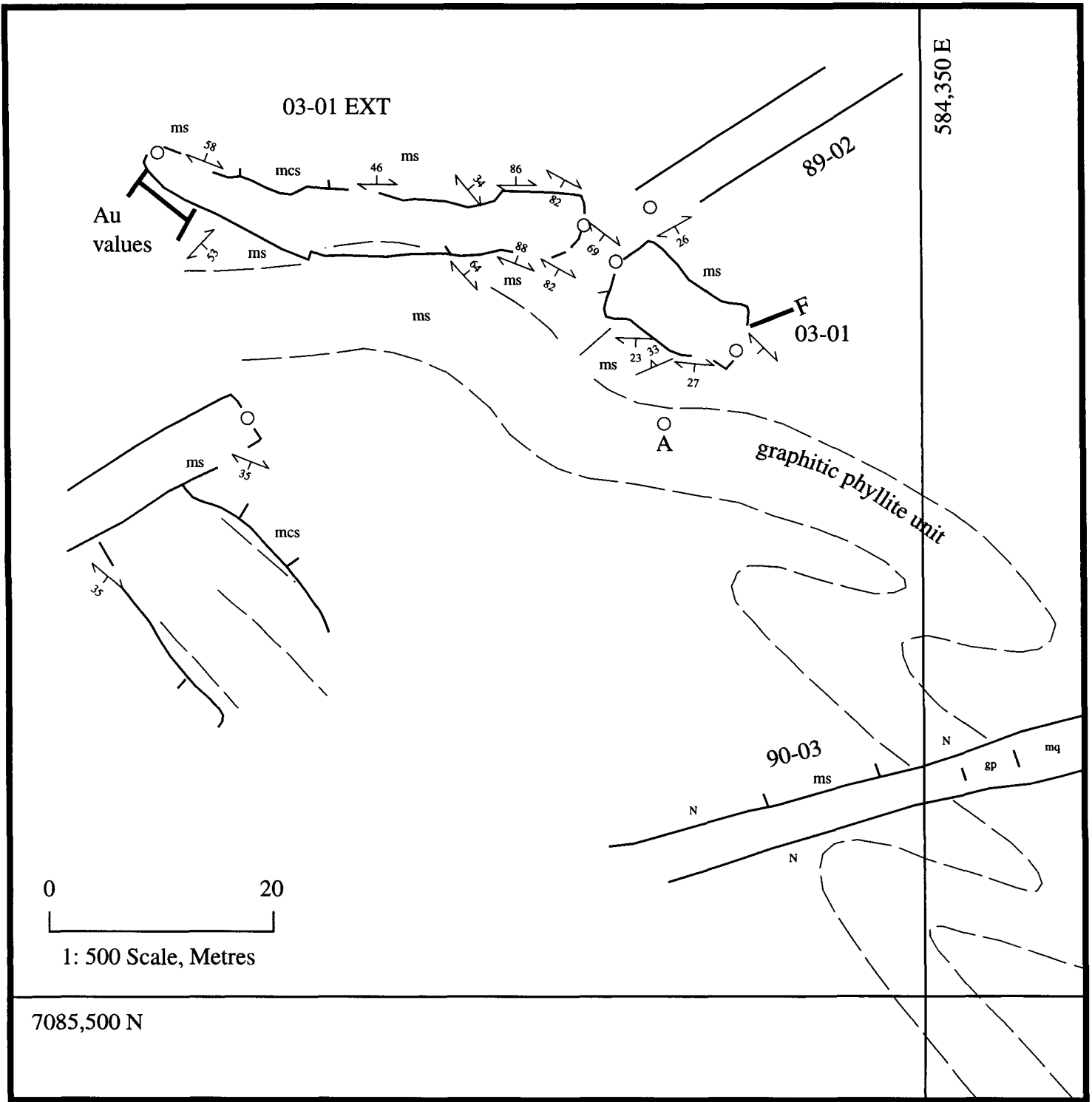
Only in the natural exposure at the bottom of the 27 Pup gully can original bedding be observed in the phyllite and there it is partially transposed by en-echelon micro-faulting. Elsewhere the foliation observed is a completely  $D_1$  transposed surface. Although it is likely that there are common brittle (i.e., late to post-folding) faults in the area only one has been recognized in the centre of the area of the 1:500 scale map (Fig. 28). At the intersection of trenches 89-01 and 90-01 this structure strikes at about  $010^\circ$  true and demonstrates a clear lithological break. These trenches are also the site of two discordant quartz vein systems: en-echelon veins from 10-



27 PUP TRENCH 03-05  
ANOMALOUS Au



SAMPLE INTERVAL Au, ppb			SAMPLE INTERVAL Au, ppb		
144577	22-24m	650.4	144582	32-34m	39
144578	24-26m	255.9	144583	34-36m	214.6
144579	26-28m	142.3	144584	36-38m	317.3
144580	28-30m	224.5	144585	38-40m	246.3
144581	30-32m	39.4	144586	40-42m	219.8



SAMPLE INTERVAL	Au, ppb
144563 34-36m	204.7
144564 36-38m	171
144565 38-40m	389.3

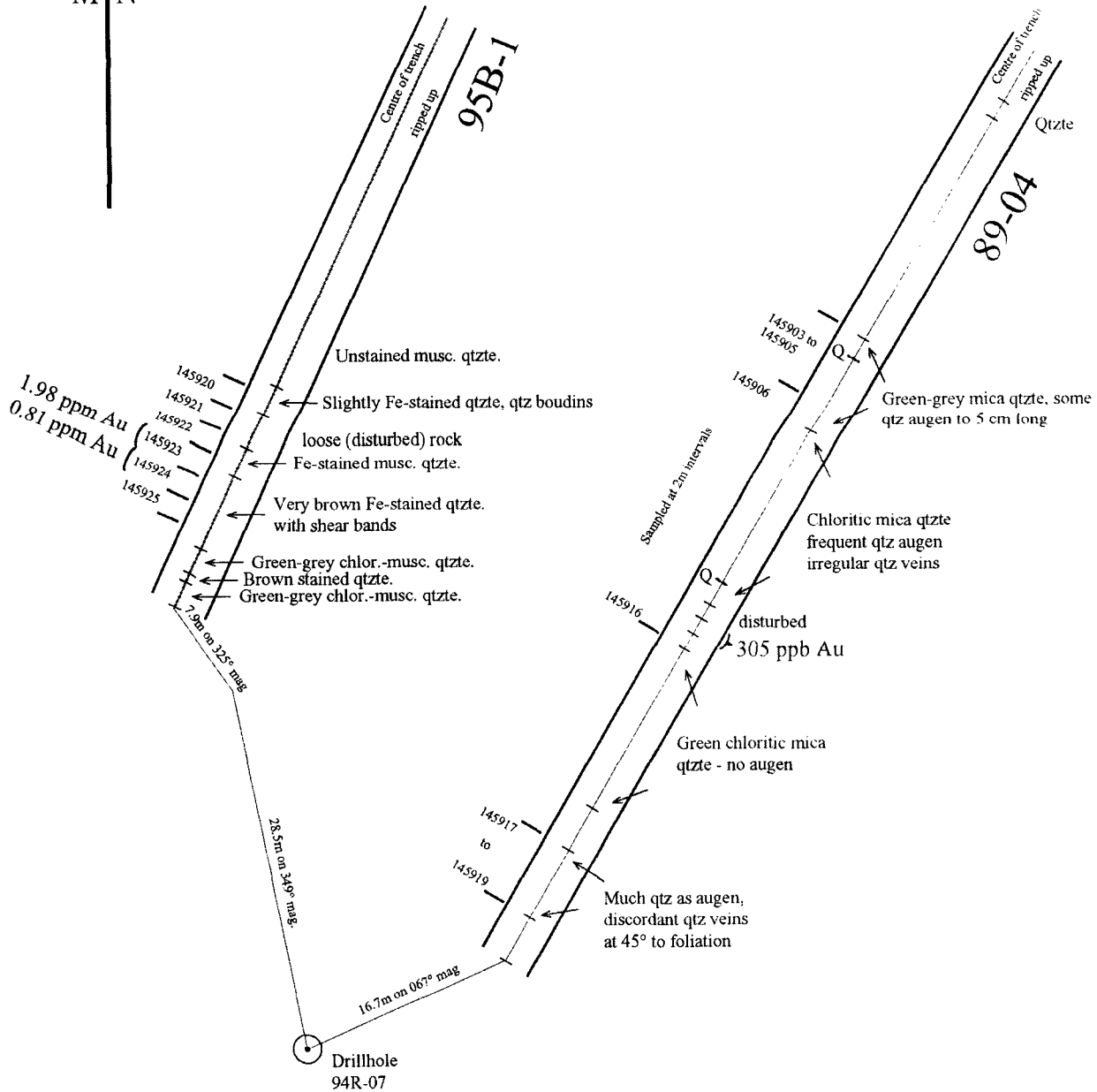
TRENCH 03-01 EXTENSION ANOMALOUS GOLD VALUES

20 cm thickness dipping to the east from 18°-42° in trench 89-01 and, in the region of the trench intersection, flat-lying sets dipping from 9 to 15° to both the north and east, spaced a few centimetres apart and each of a few centimetres thickness. This locality was the site of significant gold grades being extracted from ripped hard-rock during placer operations. Four bulk samples (A, B, C and D) were cut from the walls of the trenches in order to attempt identification of the source. Work on the mineral concentrates is incomplete, but it can be stated that at least some gold is present in all of the lithologies collected. Bulk sampling is described in later section 6.4 (see accompanying Fig. 35 and Table 1).

### BUCKLAND SHEAR ZONE

Previously reported areas of interesting gold grades in the Buckland zone were investigated at two sites. Reverse circulation drillhole 93-20 had shown mineralized sections from 70-75 ft. - 1.18 g/t; 110-115 ft. - 7.41 g/t; 115-120 ft. - 3.57 g/t and 120-125 ft. - 1.44 g/t (mean for the 15' of consecutive intervals = 4.14 ppm). The drill cuttings at the site of this hole were identified and re-sampled after crushing and sieving (see "BULK SAMPLING"). The gold values were confirmed. A trench, 04-18, was excavated by backhoe from alongside the drill collar towards the NE for 52m. The NW face was sampled continuously at 5m intervals. It was noted however, that the rock of the drill cuttings did not correlate with that in the trench. The cuttings were full of quartz, but no quartz veins were seen in the trench. The mineralized zone is either dipping only slightly discordant to the foliation in the schist (strike and dip measurements in the trench were 116/43S and 081/30S true) or it is faulted close to the collar of the hole. The trench was sampled continuously in 5m intervals from 52 to 2m from the west end. The only sample that gave above background values was 158155 = 42 to 47m. This assayed 1.21 g/t by ICP. This interval likely does not correlate with the drillhole mineralization. Neither does it seem to be a structure parallel to the Buckland shear, an ESE strike.

In the western part of the Buckland zone trenches 89-04, 91-20, 95-B1 and 96-35 had yielded some significant assays from the original sampling. Trench 91-20 was examined without finding any obvious indication of a possible mineralized zone, save a few cm-scale quartz veins. Three samples were cut from the NE face at the projected strike of the shear zone from 89-04, from 6 to 12 metres from the NE end of the trench. Samples 145926-28 gave ICP analyses of 11.5, 419.2 and 1031.9 ppb Au. In trench 89-04, despite considerable sampling, (1:500 sketch, Fig. 31) only the interval 30-32m from the SW end gave an analysis of 305.3 ppb. In trench 95B-1, consecutive 2m samples yielded 1.98 and 0.81 g/t Au in obvious limonite-stained rock. Trench 96-35, to the west was also sampled at 2m intervals from 14m to 26m from its south end,



# BUKS ZONE: RE-SAMPLING OF TRENCHES 89-04 & 95B-1

T.Liverton, August 2004

Scale: 1 to 500

which should have included the strike projection of the zone. No analyses >11 ppb resulted.

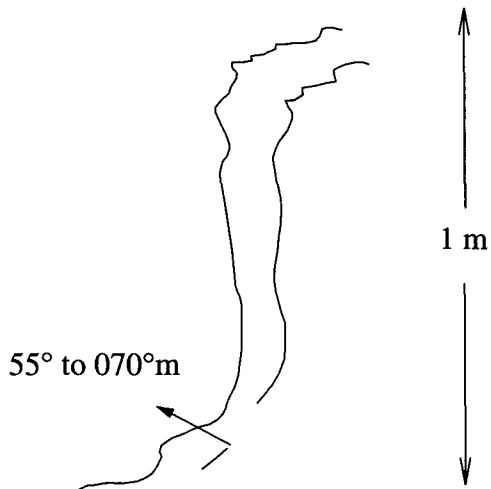
It is obvious that the shear zone is mineralized discontinuously and perhaps anastomoses. It would still be worthwhile to attempt bulk sampling in 2005 between trenches 91-20 and 95B-1 to determine the actual grade of the zone.

#### MAPPING AT O'NEIL GULCH

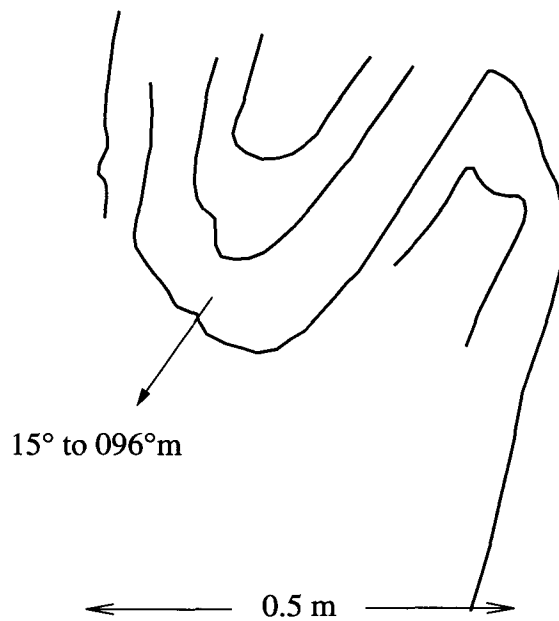
At the end of the season's reclamation of placer mined ground on O'Neil Gulch the miners had stacked and levelled their tailings in the upper part of the workings on the east side of the gully and had left a carefully constructed channel for the stream. This provided a continuous exposure for over 100 metres which showed outcrop of a graphitic phyllite unit. It was decided to map these exposures this year in case placer mining in 2005 covered them again. They were mapped at a scale of 1: 250 with compass, tape and clinometer by G. McKereher and T.L. (Figs. 32 [pocket], 33). The two graphitic phyllite bands are interpreted as having a northerly strike. Two samples chipped across the graphitic unit in the creek showed just background gold contents. Only foliaform quartz veins were noted in the schists so these were not sampled.

#### LONE STAR SURVEY

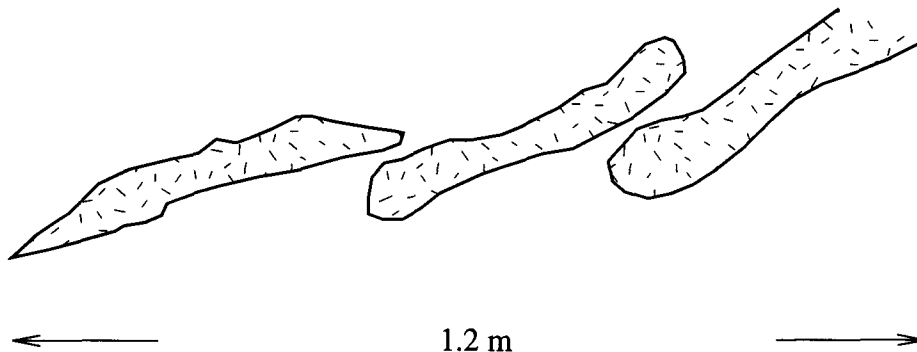
Much of the historical data in map form has been incorporated into an AutoCad version by P. Van Angeren, and this has been used as a base for data collection. Much of the positioning was by GPS, hence apart from a likely horizontal error of 5-10m, there was no accurate vertical control. The lack of this third dimension hampers any attempt to construct an accurate geological cross section. A survey using theodolite tachymetry was carried out over the Lone Star and towards the O'Neil area. Many of the drill holes were located as well as some of the major trenches, the road to Bonanza Creek, and buildings. Although about  $\frac{2}{3}$  of this work covered the Crown Grant leases, the northern part of the survey was on the surrounding claims (DN1 and DN 10) and is suitable for assessment. A sketch is presented at 1:2000 scale: Fig. 34. [pocket]



SKETCH 1: PLAN VIEW



SKETCH 2: PROFILE



SKETCH 3: PROFILE

O'NEIL GULCH DETAILED MAPPING: SKETCHES OF STRUCTURES

## 6.4 BULK SAMPLING FOR MILL TESTS

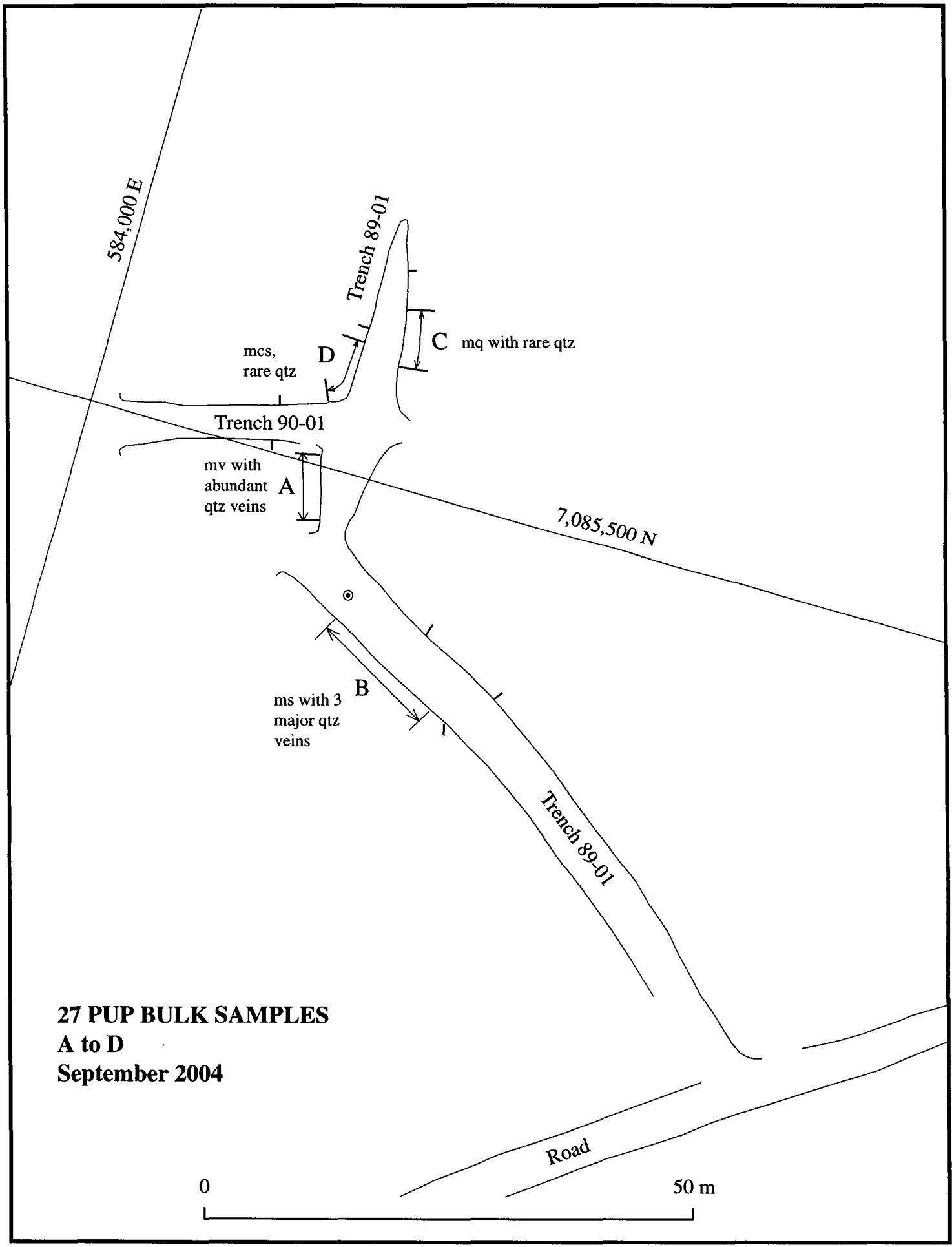
During the latter part of September and October a series of 12 rock samples were taken for preliminary test of the ball mills and Deister table at the mill. Some of these samples will also serve to identify gold-bearing lithologies from the 27 Pup and Gay Gulch areas. Sample weights are given in the accompanying table. The various sample types are:

- 27 Pup: 4 samples (up to five 20 l buckets each) from the trenches 89-01 and 90-01 (see sketch: Fig 35). Sample 'A' is from pyritic muscovite-rich schist, probable meta-rhyolite with shallow-dipping cm-scale quartz veins; Sample 'B' is from quartz muscovite schist with decimetre-scale steep-dipping discordant quartz veins; 'C' is from micaceous quartzite and 'D' is from muscovite chlorite schist with occasional mm-scale quartz veins. This locality is reputed to have yielded good gold grades when the rock was bulldozed and passed through the sluice during placer mining. (Fig. 35)
- Gay Gulch  
93-20 Percussion drillhole 93-20 yielded assay results of 1.18 g/t for the interval 70-75 ft, 7.41 g/t for 110-115 ft, 3.37 g/t for 115-120 ft and 1.44 g/t for 120-125 ft sample intervals in the original (1993) assaying. This material had been split from the cuttings without being crushed. Fortunately every bag of cuttings stacked on site were laid with numbers down so that the bags were still identifiable (which is rarely the case). These samples were recovered, hand crushed and sieved to -20 mesh, then split several times by cone-and-quarter method to obtain a sample for re-assay. Results of new 2 assay-ton fire assays were 1.86, 4.17, 3.67 and 0.99 g/t respectively and the combined sample for 110-125' gave 3.19 g/t. The remainder of the material for the three bags from between 110 and 125 ft was combined and this, plus the bagful from 70-75 ft, were passed over the Deister table at the mill.
- Oro Grande  
Quartz Quartz boulders excavated during trenching of the Hilchey zone were broken to obtain a 26.8 kg sample. This was crushed using the two small jaw crushers at the mill and then pulverised in a chain impactor before passing over the table.
- Oro Grande  
'Pit 1' Discordant quartz veins from the 4m square pit dug at {585,000E, 7,085,172N} were sampled by Jerry Bryde and T.L. (Fig. 23). 11 buckets (total 314.6 kg) were crushed in the jaw crushers and pulverised, then passed over the table. (Fig. 23)

- Oro Grande 'NUG' This sample was obtained by Tom Morgan, with some assistance from T.L. It consisted of a 20 cm thick panel of 4.5m length cut from the face of the small trench at the upper end of trench 94-02 (see 1: 500 scale map and sketch of trench face). Approximately half (340.5 kg) of this sample was prepared and concentrated. The remainder needs to be processed next Spring, so values from this run should be combined with the 2005 run to obtain a representative assay for the zone.
- Dysle veins Mill 1/10/04 Material from 7 small discordant quartz veins was sampled by Vern Matkovich, Jerry Bryde et al. This sample was 383.9 kg weight.
- Mill 3/10/04 299 kg from the NW end of the Dysle zone (Jerry Bryde et al.) was processed.
- Mill 4/10/04 163.9 kg run through the mill. This sample includes chloritic fines and clay gouge. The raw sample was puddled and run through the sluice box to remove clays. The remainder (wet weight recorded) was crushed and run through the mill. An estimated (by Jerry Bryde) total of 24 kg of clays were removed before weighing.

At the time of writing this report the microscopic examination of concentrates, middlings and tailings and their assay is incomplete. The following table, however presents available data. It may be seen that even with say, 300 kg bulk samples, it is feasible to estimate gold content accurately to well below 1g/t content. [Excel: Table 1]





584,000 E

Trench 89-01

mcs,  
rare qtz

mq with rare qtz

Trench 90-01

mv with  
abundant  
qtz veins

7,085,500 N

ms with 3  
major qtz  
veins

Trench 89-01

**27 PUP BULK SAMPLES  
A to D  
September 2004**

Road

0

50 m

Sample	Weight lbs	Weight kg	Weight of concentrate	Weight of initial middlings	Weight of final tabling Middlings (re-processed at Don Kenzie's plant)			Sampling Notes	Microscopy	
					Metallics	Middlings	Tailings		Final clean-up tailings	Middlings
27Pup 'A'	231	104.9	0.16		19.8g	20.14	348	4 buckets of chip samples: see sketch		Iron, qtz, some goethite, considerable gold
27Pup 'B'	302	137.1	0.14		13.67	21.95	806	5 buckets of chip samples		Flattened gold, iron, broken goethite, a little qtz, 1 piece lead.
27Pup 'C'	260.5	118.3	0.11		14.02	36.83	13.46	5 buckets of chip samples		Iron, goethite, fine gold, gold flakes to 5mm and (1) wire 10mm long
27Pup 'D'	264.5	120.1	0.1		86.81	40.03	322	5 buckets of chip samples	Quartz, mica, broken goethite/limonite: no gold found	Much broken goethite/limonite, some qtz & mica. Fine gold and flattened flakes, 1 flake of copper, 1 grain cinnabar.
93-20: 70-75'	54	24.5	34.87 (not re-tabled)	228				Drill cuttings, hand crushed to -20 mesh		
93-20: 110-125	19	8.6	0.18		3.55	65.16	94	Drill cuttings, hand crushed to -20 mesh and three intervals combined	Limonite pseudo., qtz., mica, rare Py, 2 grains Au: 0.5 & 0.15mm long, flattened (picked, added to conc.)	Gold, both crystals and flattened. Much cubic lim. pseudomorphs of Py (0.07mm), broken pseud., some mica. About 1% cinnabar.
Oro Grande quartz boulders	59	26.8	45							
Oro Grande Pit 1 585000E, 7085172N	693	314.6	0.5		45.29	46.11		11 buckets from face of pit sampled on 1/10/04. 585000E, 7085172N		V. flattened gold, much Fe, 4 flakes of lead
Oro Grande NUG 584910E, 7085137N	750	340.5	1.53		29.53	234	1094	Tom Morgan's panel sample (approx. half of material, remainder to be run 2005 i.e., present run is not representative of the whole panel. The remaining material should be run and the two results combined).	Not re-tabled. Qtz, goethite, mica. No gold noted.	Gold, iron
Dysle veins Mill Site 1st. Oct	845.5	383.9			First run 86, second run 189	First run 135, second run 107	1637	SE end of zone (7 ≤ 10cm quartz veins)		
Mill Site 3rd. Oct	658.5	299.0	9.12			Second run 107	749	NW end of sampled zone		Much gold, iron, a few Py crystals, 1 grain cinnabar.
Mill Site 4th. Oct	361	163.9				Second run 83	558	NW end of sampled zone. Chloritic fines, clay gouge. Sample run through sluice to remove clays. Coarse remainder crushed in jaw crusher. Estimated 50lbs of fines washed out. Weighed wet after washing		

## 6.5 PERIPHERAL CLAIMS

### STAMPEDE GULCH TRENCHING AND PROSPECTING

The trail running up Stampede Gulch had been overgrown and was cleaned up by bulldozer. Two small trenches were cut into the northern slope of the gully. This region was examined and rock sampled by Jerry Bryde and Tim Liverton on the 6th. August. Notes are as follows:

At 579352E, 7089176N (NAD 27) a suboutcrop of brown soil containing remnant cobbles of diabase is seen for 10 m along the trail.

579207E, 7088678N is at the NE end of the new trench alongside the road. There are 3m of slightly bluish muscovite-chlorit schist in the bottom with one 0.5m block of white quartz containing vughs of Fe-stained microscopic 'books' of clay minerals (crystals <0.2mm long). No fresh sulphide noted. Loose material at the edge of the trench is massive pyrolusite.

{578796E, 7088120N} is 30m on 186°T from a natural hollow (presumably the site of a pingo). The hollow contains very Fe-stained rock that when broken is a white, fine-grained quartz-muscovite schist. Quartz is in recognisable 0.5mm equant grains (phenocrysts?). Contains 0.2mm euhedral pyrite (~0.5%). Possibly a meta-rhyolite. Samples previously taken by Jerry Bryde (19th. July) are:

578821 E	7088196 N	sample 156328	'rusty' quartz vein, 1m wide	Assay= 0.9
578821 E	7088200 N	sample 156329	adjacent red 'crush-zone'	Assay= 12.8
578833 E	7088195 N	sample 156330	'material adj. to crush zone	Assay= 2.0
578834 E	7088199 N	sample 156331	silvery schist with py	Assay= 1.8

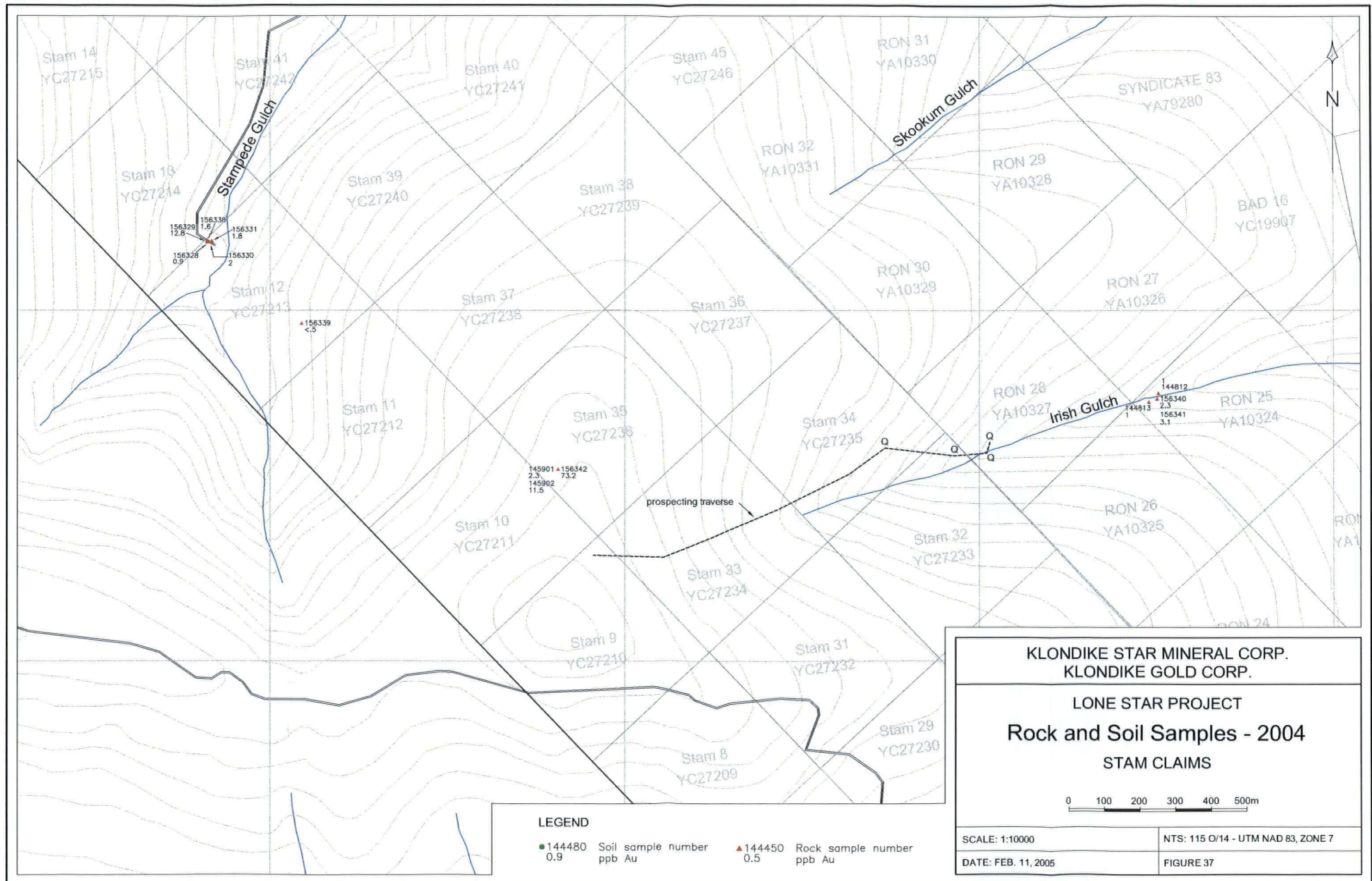
(Assays in ppb)

The prospecting traverse lead up the east side of Stampede Gulch from the fork. Little outcrop is visible, but a few quartz boulders and old prospecting pits were noted.

{579224 E, 7097903 N} is a 75cm quartz boulder with 8mm pseudomorphs of pyrite on the ridge towards Irish Gulch.

{579296 E, 7087934 N} is a very old 4x1m section pit with enough dump for 3m depth.

{579769 E, 7087503 N} is on the top of the ridge. A bulldozer trench, a few years old is about 25m long running 162°. Dump material is mostly muscovite-chlorite schist with some feldspar to 1mm size. Shows anastomosing mica layers. Possibly a meta-granitoid, and therefore is likely the Sulphur Creek Orthogneiss. Some more micaceous material also seen (meta intermediate volcanic?). 0.5m block of quartz on dump showing 4mm limonite pseudomorphs after pyrite in



**KLONDIKE STAR MINERAL CORP.**  
**KLONDIKE GOLD CORP.**

**LONE STAR PROJECT**  
**Rock and Soil Samples - 2004**  
**STAM CLAIMS**

0 100 200 300 400 500m

SCALE: 1:10000	NTS: 115 O/14 - UTM NAD 83, ZONE 7
DATE: FEB. 11, 2005	FIGURE 37

schist at the margin of the quartz. In the trench one 15cm quartz vein trends 075°M (specimen 145901) and a further vein, 2.5m to the SE dips at a shallow angle to the SE (145902). Jerry Bryde also collected material: Sample 156342

Assays: 145901= 2.3 ppb; 145902= 11.5 ppb 579813= 73.2 ppb

The route down the east side of the spur into the head of Irish Gulch was as follows:

UTM, E	UTM, N	UTM, E	UTM, N
579913	7087302	Quartz boulders were noted at:	
580111	7087296	580735	7087608
580231	7087345	580931	7087586
580435	7087433	581022	7087594
580436	7087434	581030	7087624
580633	7087533		

This side of the spur is heavily mantled with colluvium and no exposure was found.

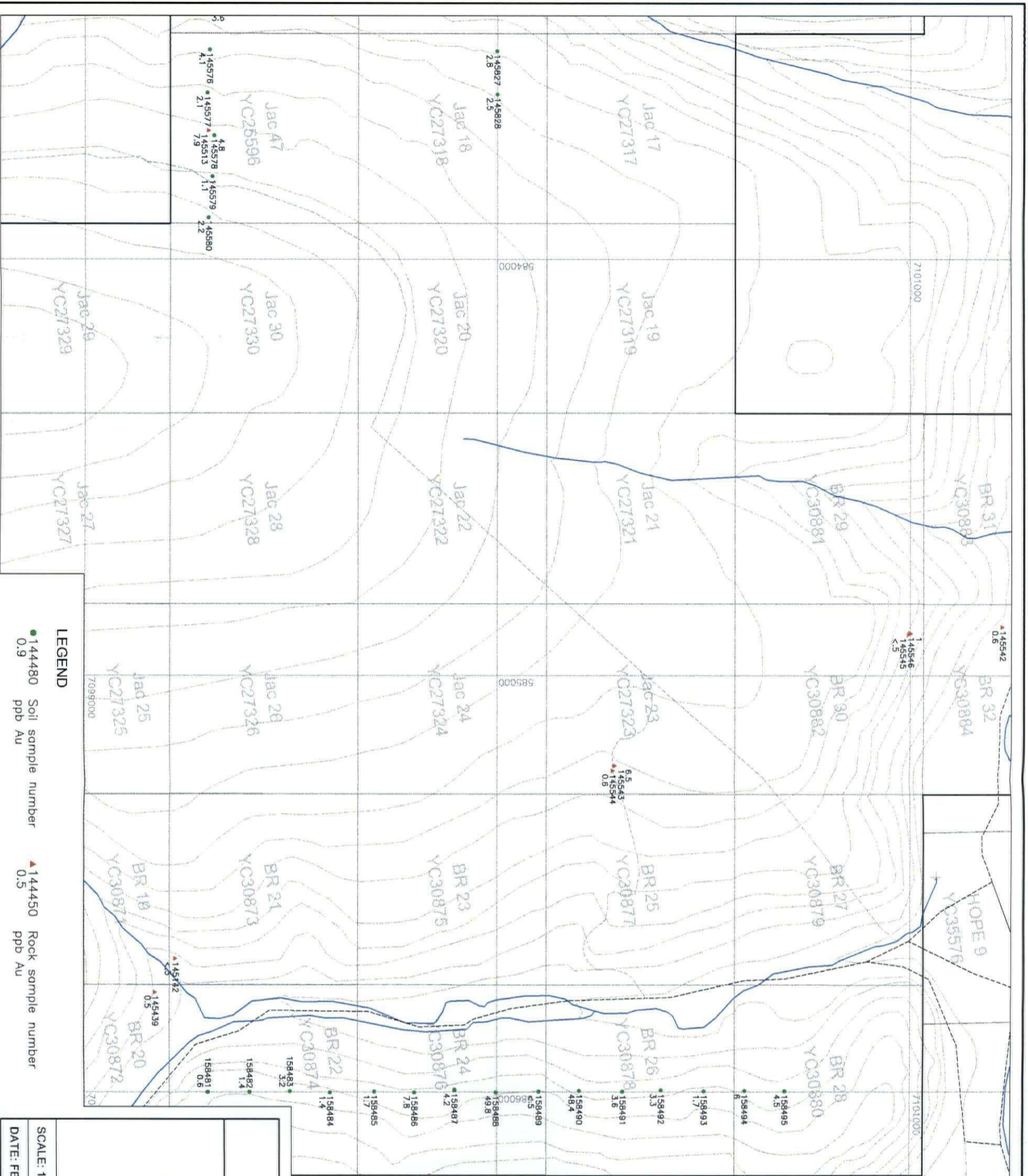
#### MAP SHEET 116 B 03 - BR and JAC blocks

Heiko Mueller, Gord McKercher and Jeff Boyce carried out prospecting with rock and soil sampling on the BR block and a more extensive soil and rock sampling on the JAC claims. The BR claims on Bear Creek surround the historic Virgin mine, one of the more significant showings in the Klondike (minfile 127). Bear creek was a substantial placer gold producer, with low-fineness gold thought to be locally derived (Knight et. al. 1999b). The western part of the JAC claims is mantled by a thick blanket of White Channel gravel; outcrop is confined to placer cuts.

Soil anomalies of 48 and 49 ppb gold on the BR claims, and of 54 and 43 ppb gold on the JAC claims should be followed up. Results of rock sampling were disappointing. Results are shown on the 1: 10,000 scale compilation maps Figs. 38 & 39.

#### MAP SHEET 115 O 10 - FB CLAIMS

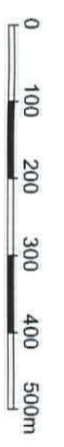
Heiko Mueller and Jeff Boyce prospected, took rock and soil samples from these claims in the Gold Run creek area. Historic workings thought to be part of the "Kentucky Lode" occurrence (not listed in Minfile) are present near the northern part of the claims, including old shafts and adits, and more recent trenching. Results were generally disappointing, with a maximum value of 2.43 g/t gold returned from a quartz vein in a trench. See 1: 15,000 scale compilation map Fig. 40



**LEGEND**

● 144480 Soil sample number  
0.9 ppb Au

▲ 144450 Rock sample number  
0.5 ppb Au



SCALE: 1:10000  
DATE: FEB. 11, 2005

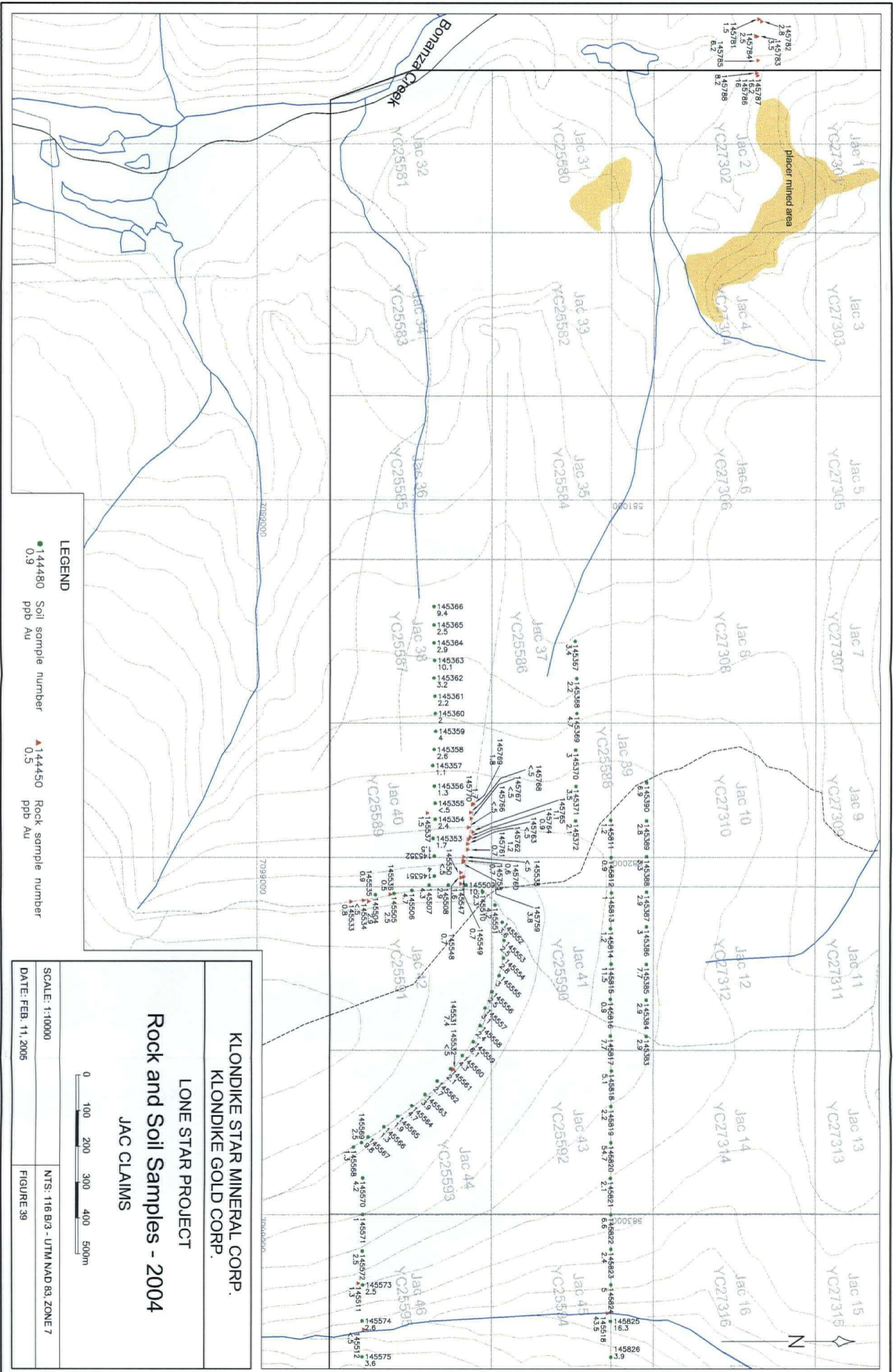
**KLONDIKE STAR MINERAL CORP.  
KLONDIKE GOLD CORP.**

**LONE STAR PROJECT**

**Rock and Soil Samples - 2004**

**BR & JAC CLAIMS**

NTS: 116 B/3 - UTM NAD 83, ZONE 7  
FIGURE 38



**LEGEND**

● 144480 Soil sample number  
0.9 ppb Au

▲ 144450 Rock sample number  
0.5 ppb Au

**KLONDIKE STAR MINERAL CORP.**  
**KLONDIKE GOLD CORP.**

**LONE STAR PROJECT**

**Rock and Soil Samples - 2004**

**JAC CLAIMS**

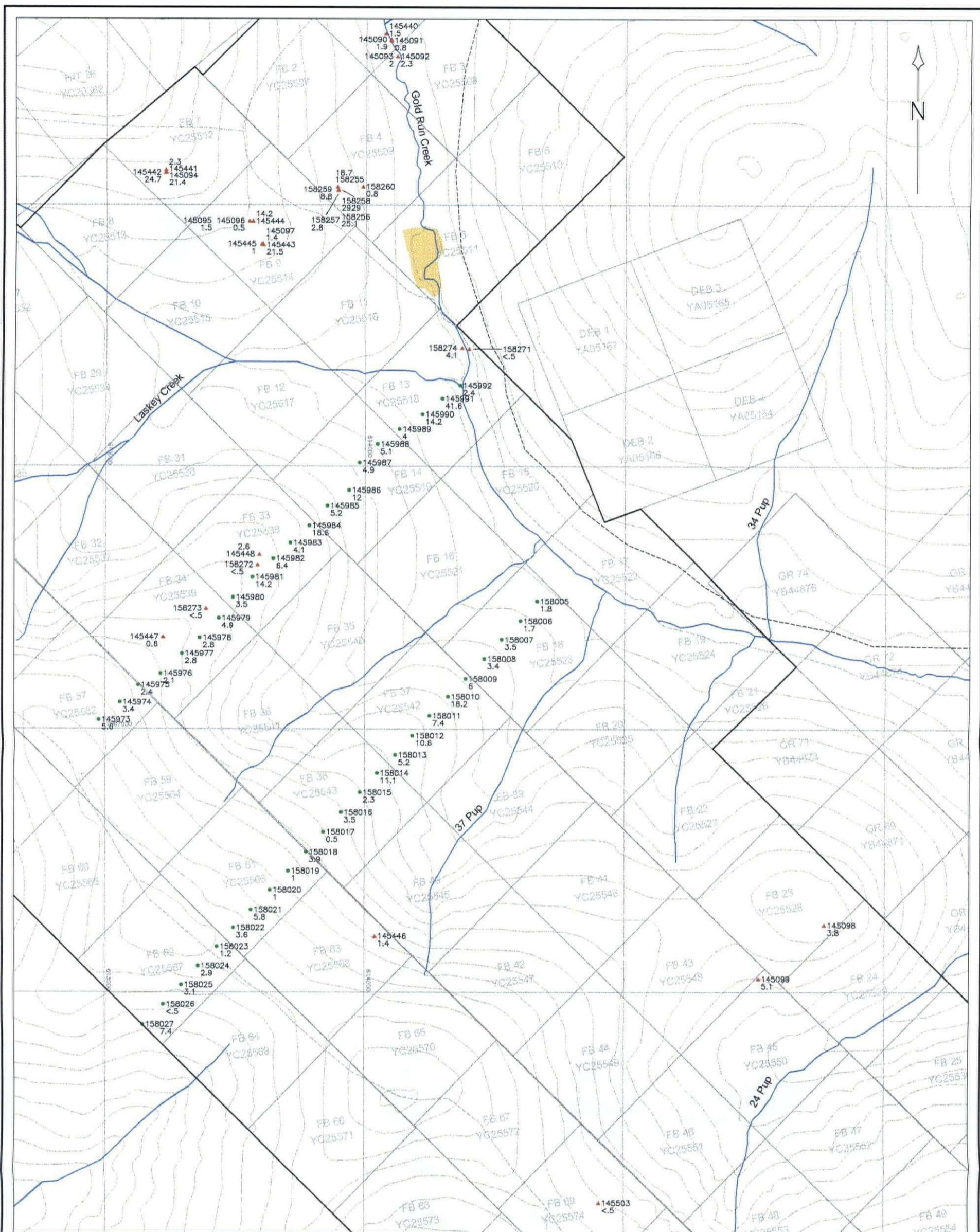
SCALE: 1:10000

DATE: FEB. 11, 2005

NTS: 116 B/3 - UTM NAD 83, ZONE 7

FIGURE 39





KLONDIKE STAR MINERAL CORP.  
KLONDIKE GOLD CORP.

LONE STAR PROJECT  
Rock and Soil Samples - 2004  
FB CLAIMS



SCALE: 1:15000	NTS: 115 O/10 - UTM NAD 83, ZONE 7
DATE: FEB. 11, 2005	FIGURE 40

LEGEND

- 144480 Soil sample number 0.9 ppb Au
- ▲ 144450 Rock sample number 0.5 ppb Au

158270  
0.6  
158269  
<.5  
158268  
0.5  
158266  
0.9  
158265  
<.5  
158264  
<.5  
158261  
2.3



## MAP SHEET 115 O 14: CLAIMS SEPARATE FROM THE MAIN BLOCK

### Gre 1-32 BLOCK

Heiko Mueller, Jeff Boyce, Jerry Bryde and Tom Morgan prospected this claim block and collected rock and soil samples. See 1: 10,000 scale compilation map Fig. 41.

There are two main areas of interest on the GRE claims, with gold-rush era pits, shafts and adits near the western part of the claim, and 1980's work near Sulphur creek. The DOT claim adit adjacent to the GRE had galena-bearing rock in the waste dump, however assays were only weakly anomalous. The veins along the ridge that are part of the historic Lloyd group (minfile 115O 066) were moderately anomalous, with a maximum value of 2,448.3 ppb Au from a rusty vein with euhedral quartz and large pyrite crystals.

An assay value of 8.32 g/t gold was returned from a sample of quartz float near the Sulphur Creek and Green gulch confluence. This is near an area trenched and drilled by United Keno Hill Mine in the 1980's. The reports for that work were not available, and the physical work was not obvious on the ground, likely because of subsequent placer mining in the area. A few moderately anomalous soil samples could be followed up.

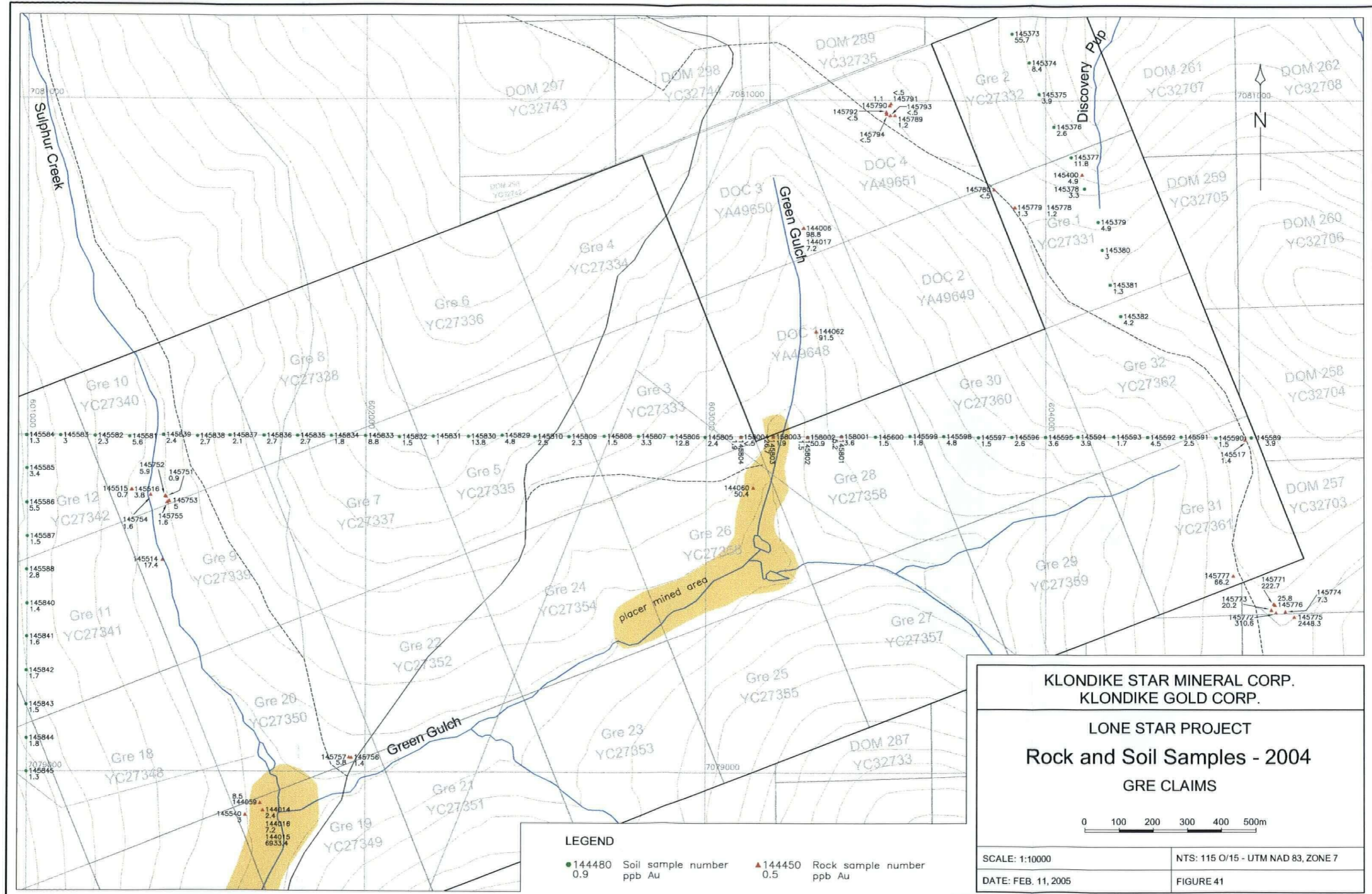
The GRE block is the most promising of the peripheral claim blocks, and is an area that warrants a substantial follow-up exploration program. Work should begin with re-excavation of the Keno Hill trenches.

### GB 1-3 BLOCK

These claims located east of Bonanza creek were reported to have been prospected by Jeff Boyce on his time sheets, and 15 soil samples taken. There is no record of this work in Boyce's field notes, other than a note to "see other notebook", which upon examination has no relevant data. There are no soil sample assays with locations that are unaccounted for. The sample tag books have no record of this work. There are no samples from this area recorded in Boyce's sample spreadsheet. The results of this work are lost to the company. See 1: 10,000 scale compilation map Fig. 42.

### HUN CLAIM BLOCK

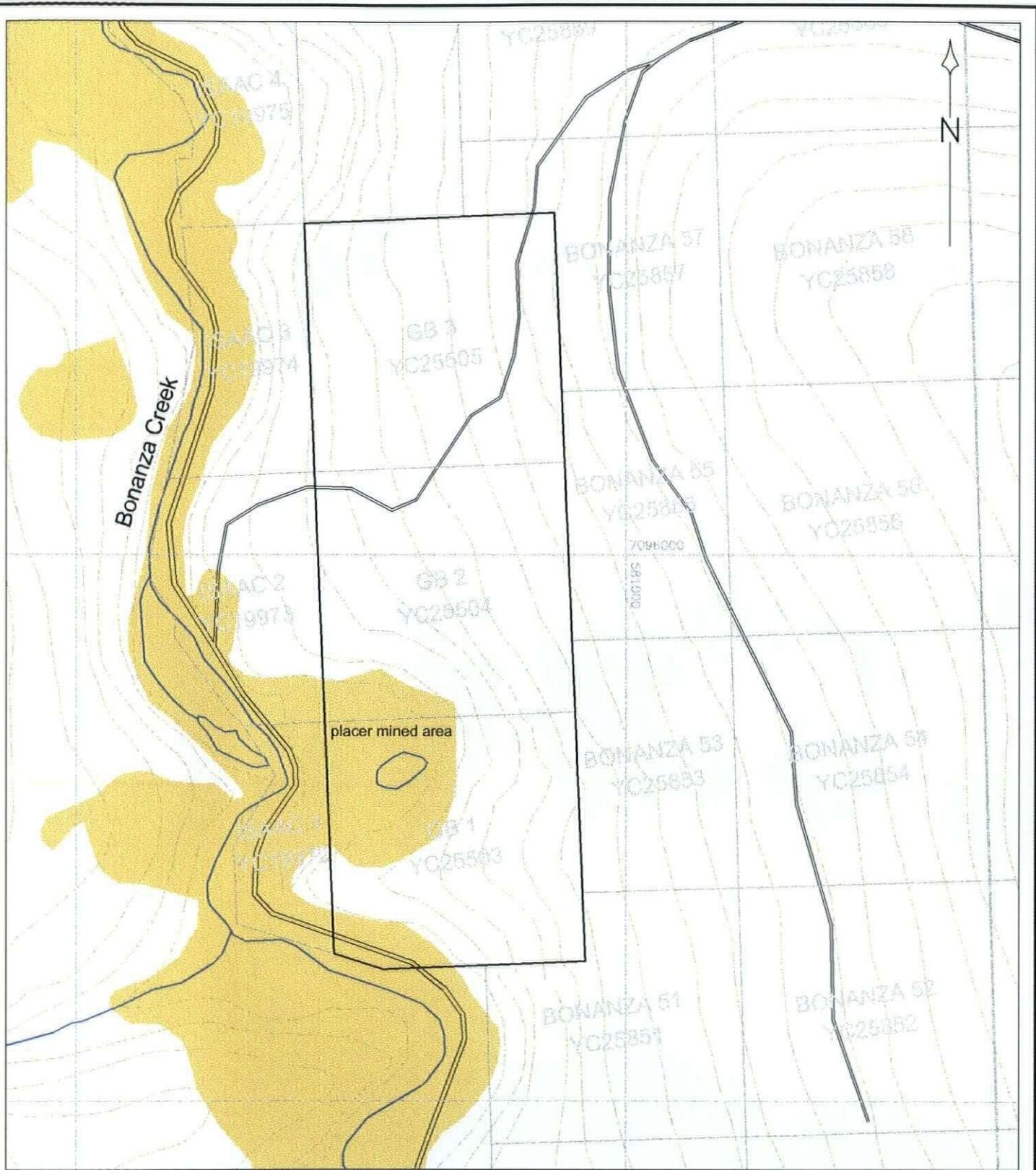
Heiko Mueller and Jeff Boyce prospected this block on lower Hunker creek with little of encouragement to report. There was extensive evidence of previous exploration on the



**LEGEND**

- 144480 Soil sample number 0.9 ppb Au
- ▲ 144450 Rock sample number 0.5 ppb Au

<b>KLONDIKE STAR MINERAL CORP. KLONDIKE GOLD CORP.</b>	
<b>LONE STAR PROJECT</b>	
<b>Rock and Soil Samples - 2004</b>	
<b>GRE CLAIMS</b>	
SCALE: 1:10000	NTS: 115 O/15 - UTM NAD 83, ZONE 7
DATE: FEB. 11, 2005	FIGURE 41



**LEGEND**

- 144480 Soil sample number  
0.9 ppb Au
- ▲ 144450 Rock sample number  
0.5 ppb Au



**KLONDIKE STAR MINERAL CORP.  
KLONDIKE GOLD CORP.**

**LONE STAR PROJECT  
2004  
GB CLAIMS**

SCALE: 1:10000

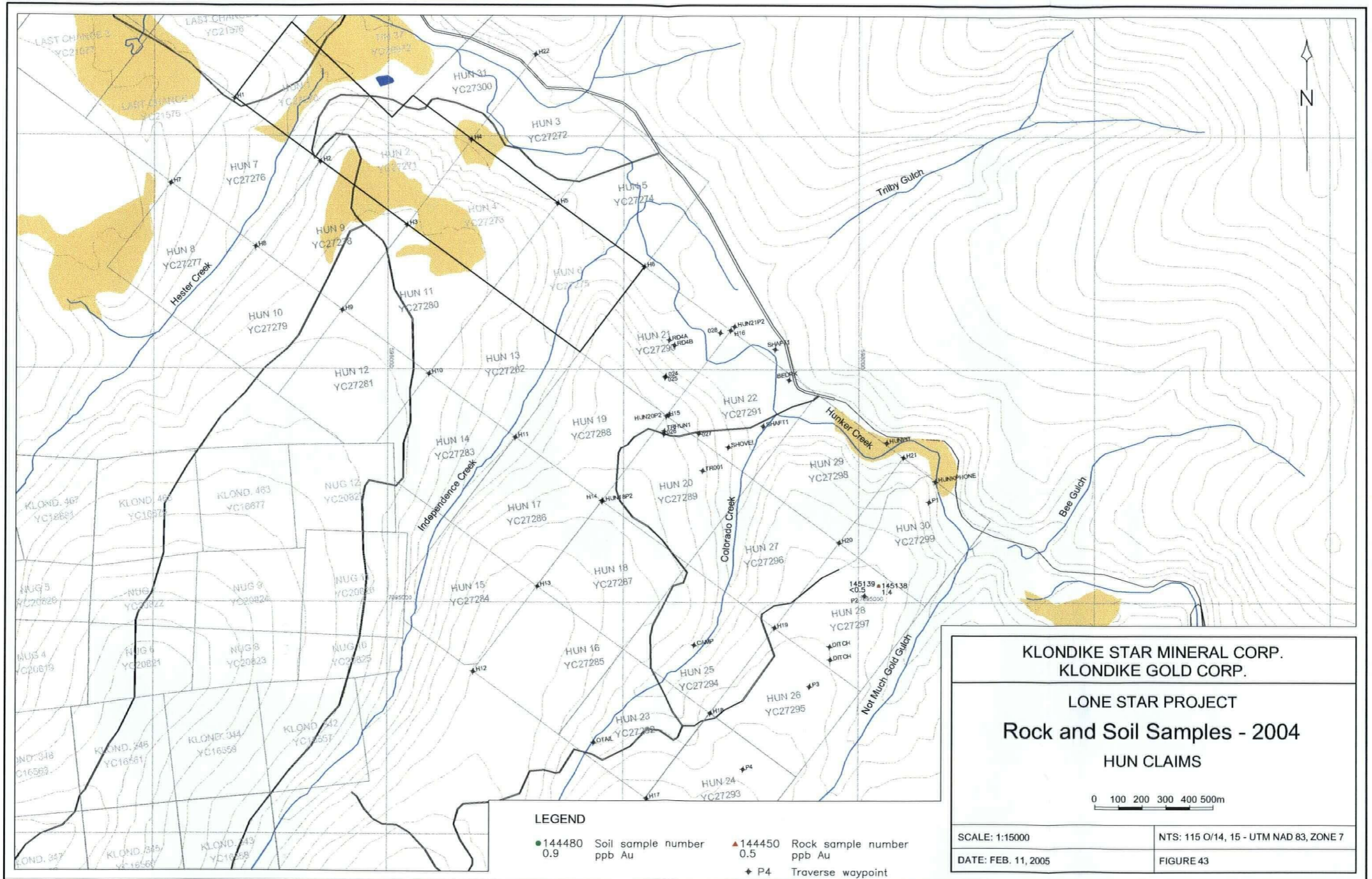
UTM NAD 83, ZONE 7

DATE: Feb. 11, 2005

NTS: 115 O/14

DRAWN:

FIGURE 42



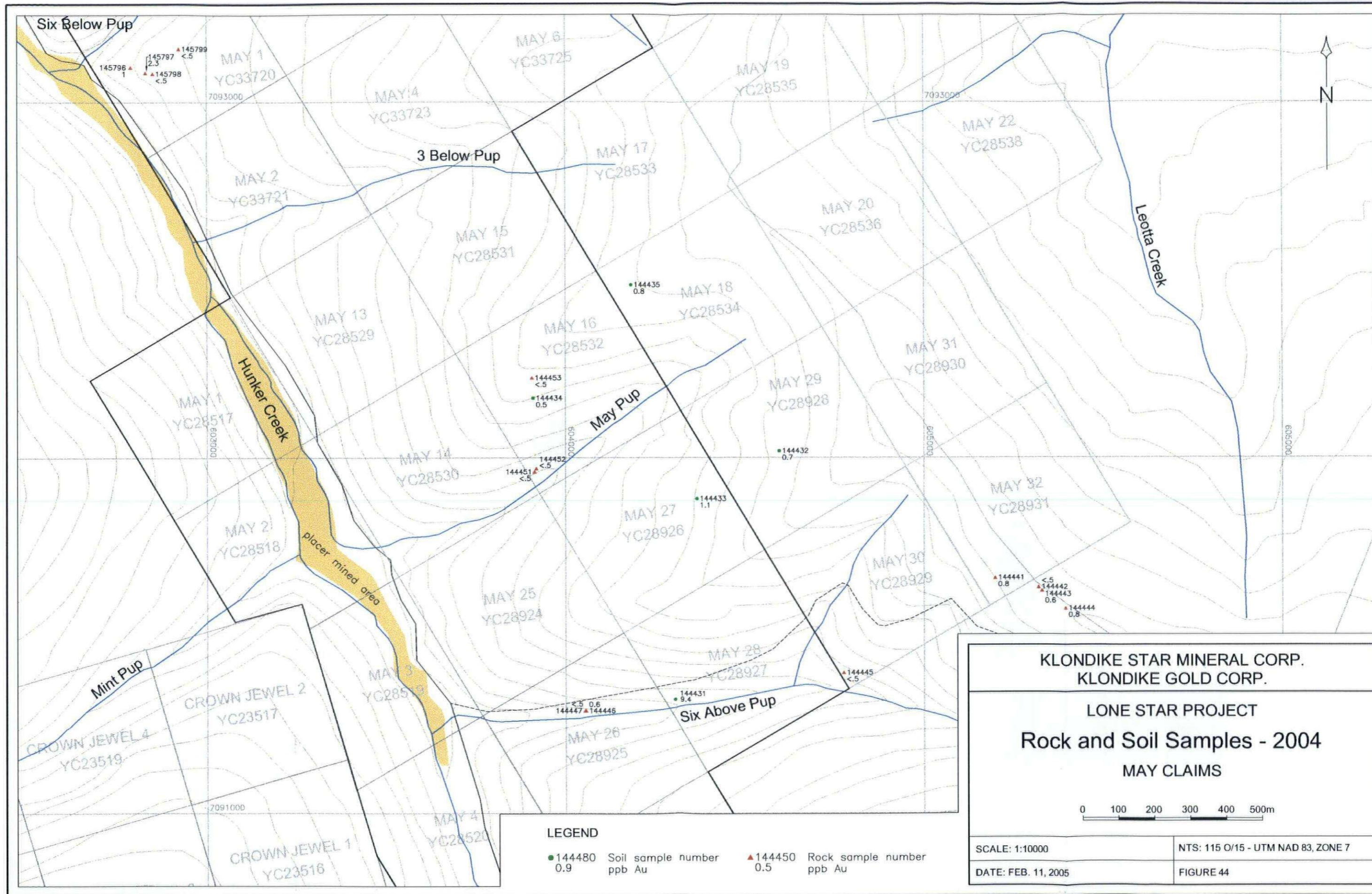
claims, and review of this work indicated only trace amounts of gold in bedrock. The work program on this block was terminated early, and the claim block was reduced to four claims. See 1: 15,000 scale compilation map Fig. 43.

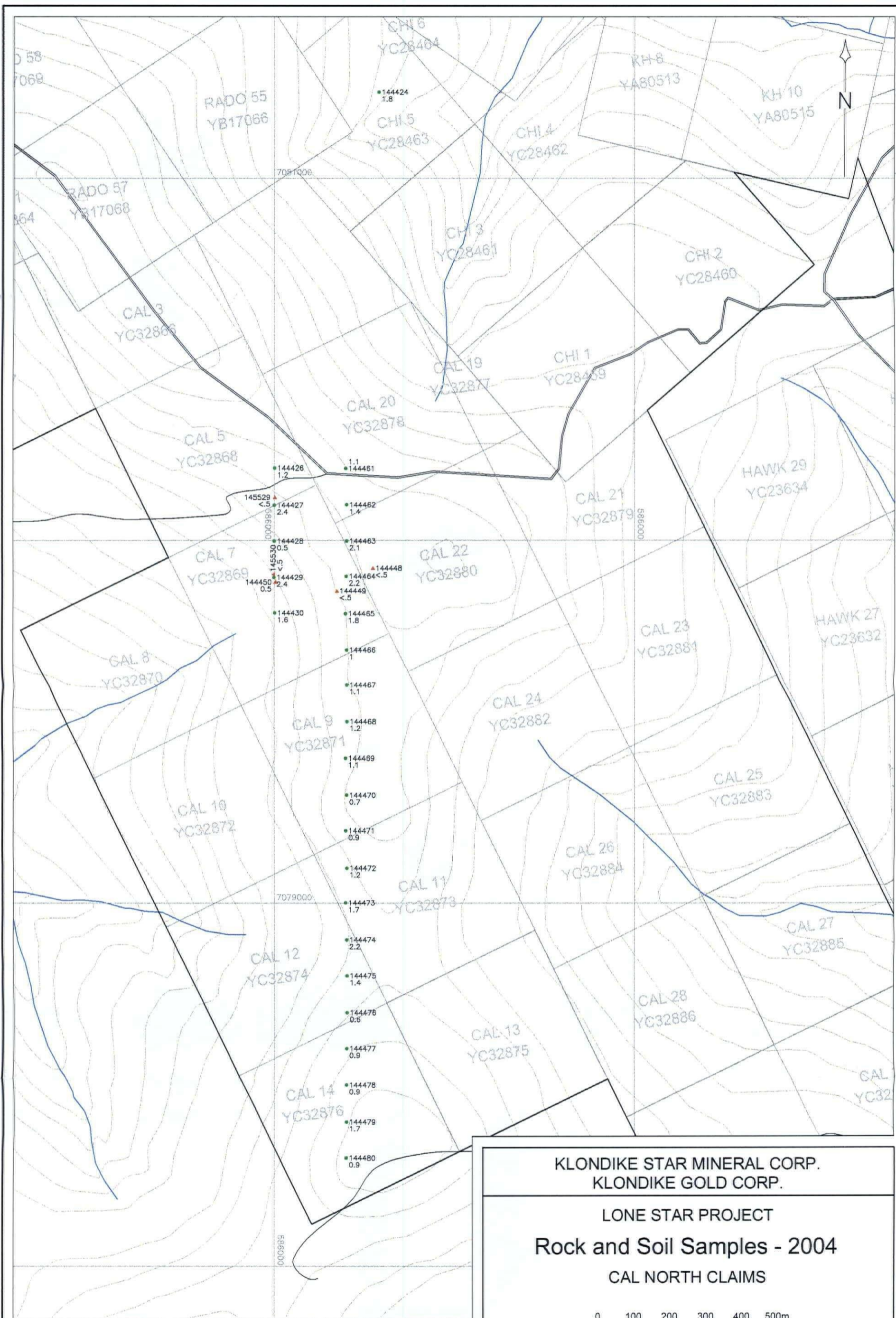
#### MAY CLAIM BLOCK

Heiko Mueller and Jeff Boyce prospected this block on upper Hunker creek with little of encouragement to report. There was extensive evidence of previous exploration on the claims, and review of this work indicated only trace amounts of gold in bedrock. The work program on this block was terminated early, and the size of the claim block was reduced. See 1: 10,000 scale compilation map Fig. 44.

#### REEF CLAIM BLOCK

This single claim is located on the ridge between Hunker and Bonanza creeks, and is surrounded by the claims of Klondike Source Ltd. Heiko Mueller spent one day prospecting here. There are many quartz veins apparent on surface. A maximum value of 46.9 ppb Au was obtained. See 1: 10,000 scale compilation map Fig. 47.

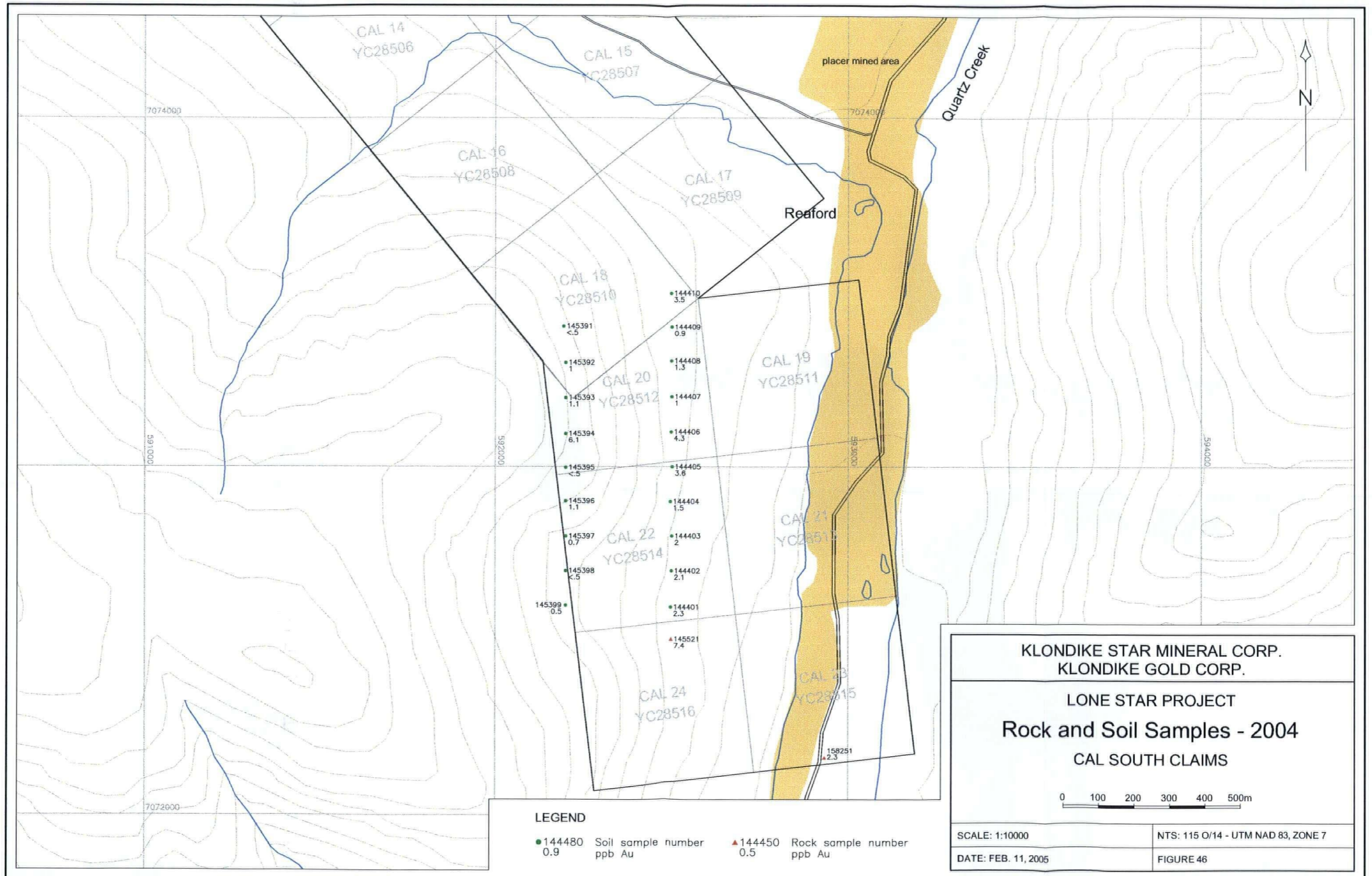




**LEGEND**

- 144480 Soil sample number 0.9 ppb Au
- ▲ 144450 Rock sample number 0.5 ppb Au

<b>KLONDIKE STAR MINERAL CORP. KLONDIKE GOLD CORP.</b>	
<b>LONE STAR PROJECT</b>	
<b>Rock and Soil Samples - 2004</b>	
<b>CAL NORTH CLAIMS</b>	
SCALE: 1:10000	NTS: 115 O/14 - UTM NAD 83, ZONE 7
DATE: FEB. 11, 2005	FIGURE 45



CAL 14  
YC28506

CAL 15  
YC28507

CAL 16  
YC28508

CAL 17  
YC28509

CAL 18  
YC28510

CAL 19  
YC28511

CAL 20  
YC28512

CAL 22  
YC28514

CAL 21  
YC28513

CAL 24  
YC28516

CAL 23  
YC28515

placer mined area

Quartz Creek

Reaford



- 144410 3.5
- 144409 0.9
- 144408 1.3
- 144407 1
- 144406 4.3
- 144405 3.6
- 144404 1.5
- 144403 2
- 144402 2.1
- 144401 2.3
- ▲ 145521 7.4
- 145391 <5
- 145392 1
- 145393 1.1
- 145394 6.1
- 145395 <5
- 145396 1.1
- 145397 0.7
- 145398 <5
- 145399 0.5

158251  
2.3

7074000

7074000

591000

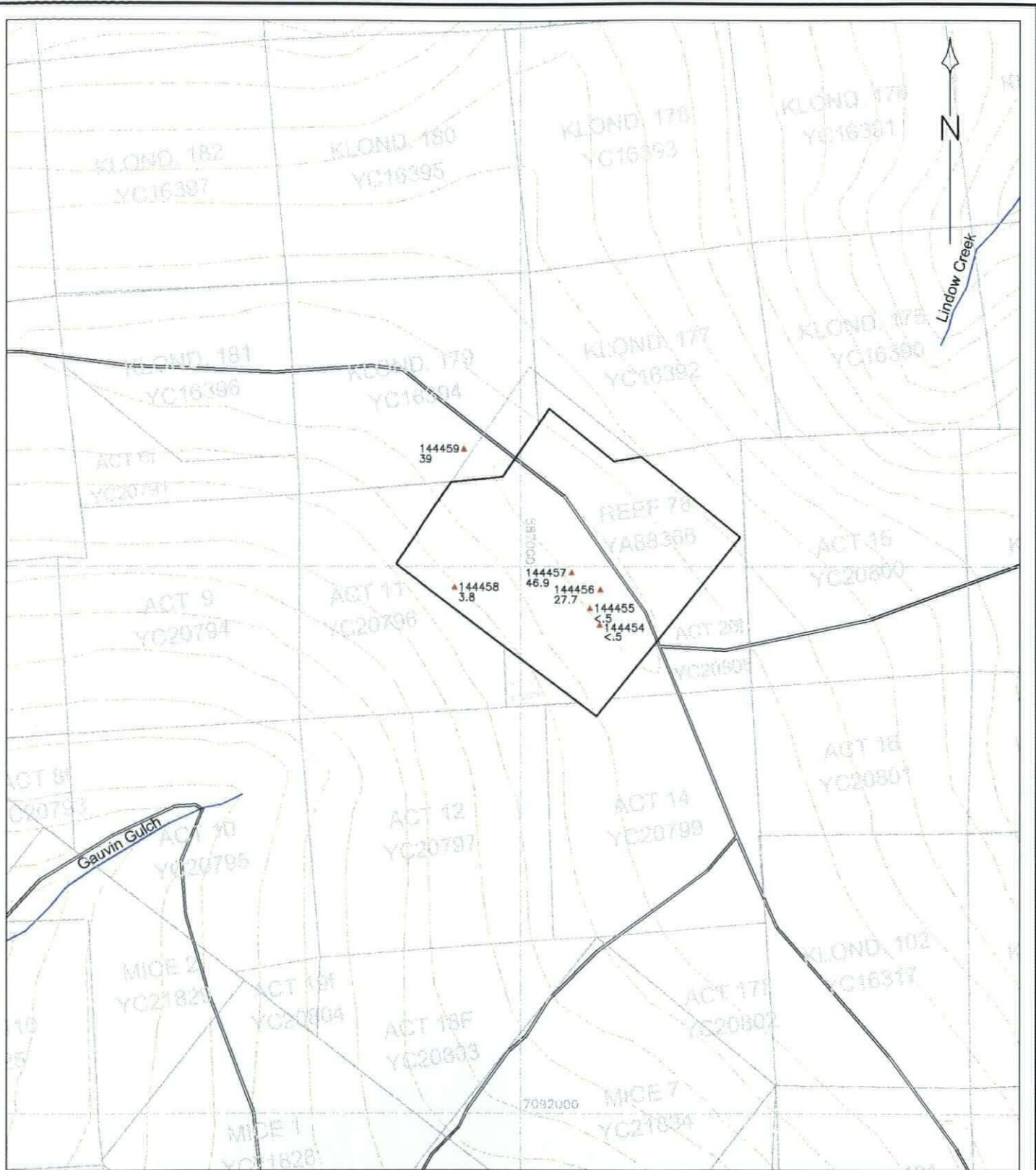
592000

593000

594000

7072000





**LEGEND**

▲ 144450 Rock sample number  
0.5 ppb Au



**KLONDIKE STAR MINERAL CORP.  
KLONDIKE GOLD CORP.**

**LONE STAR PROJECT  
Rock Samples - 2004  
REEF CLAIMS**

SCALE: 1:10000

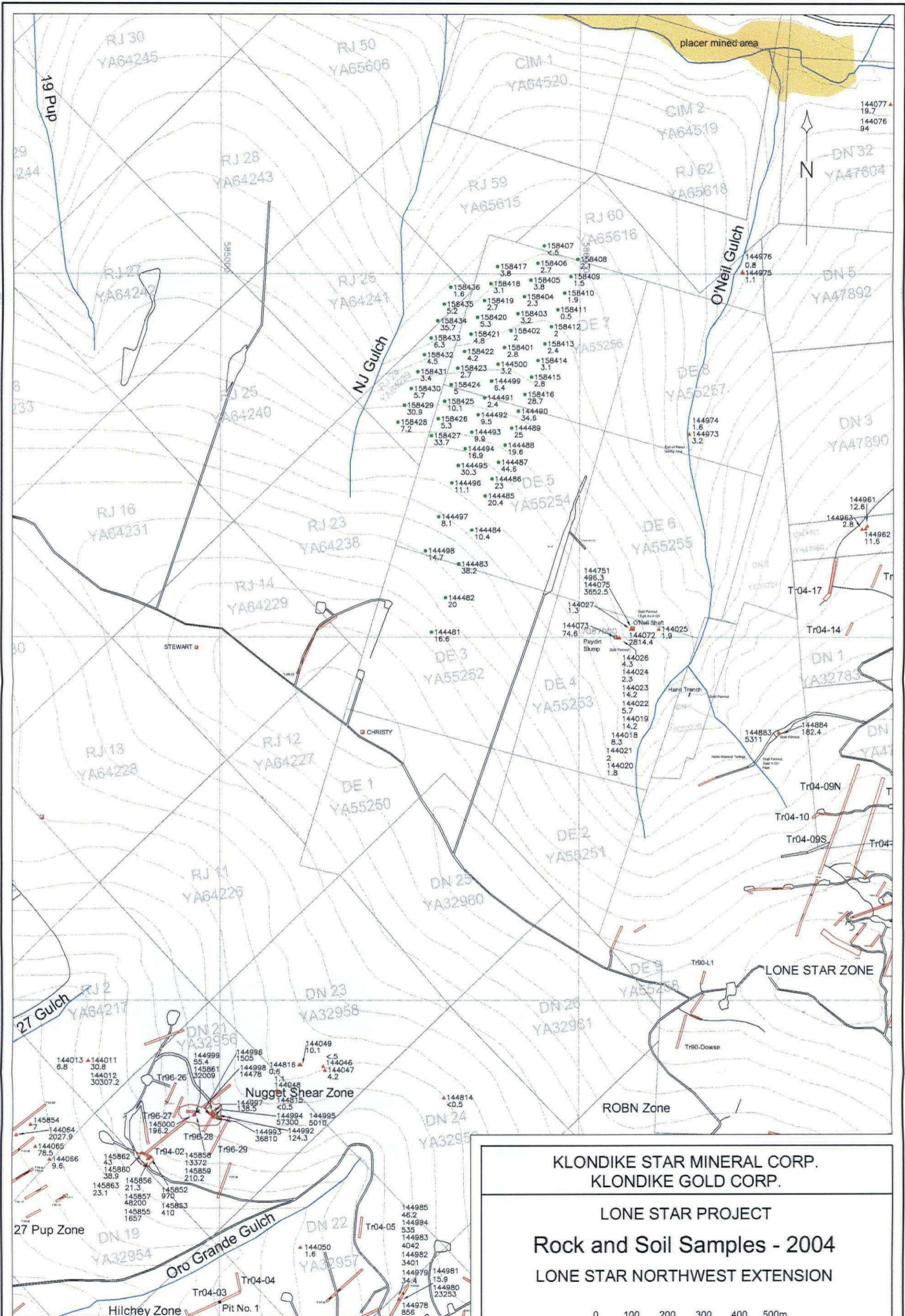
UTM NAD 83, ZONE 7

DATE: Feb. 11, 2005

NTS: 115 O/14

DRAWN:

FIGURE 47



**LEGEND**

- 144480 Soil sample number 0.9 ppb Au
- ▲ 144450 Rock sample number 0.5 ppb Au

<p><b>KLONDIKE STAR MINERAL CORP.</b>  <b>KLONDIKE GOLD CORP.</b></p>	
<p><b>LONE STAR PROJECT</b>  <b>Rock and Soil Samples - 2004</b>  <b>LONE STAR NORTHWEST EXTENSION</b></p>	
SCALE: 1:10000	NTS: 105 O/14 - UTM NAD 83, ZONE 7
DATE: FEB. 11, 2005	FIGURE 48

## 7 DISCUSSION

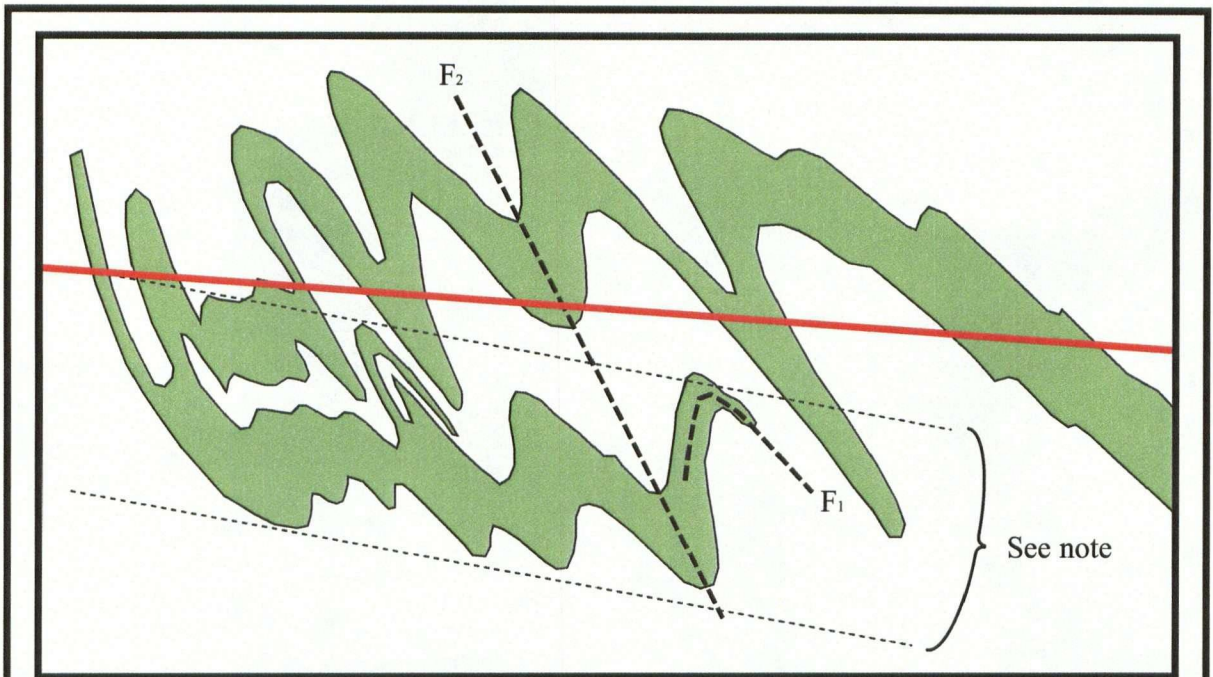
### 7.1 THE LONE STAR - NW EXTENSION

The 2004 work on the NW extension of the Lone Star lode has had mixed results. Discovery of significant grades of colluvial gold above O'Neil Gulch may indicate a nearby hard-rock source that would be an extension of the Boulder Lode zone. The long trenches 04-09 and 11 produced only a few analyses that were highly anomalous in Au. These were in "muscovite chlorite quartzites" that could have a tuff protolith and might indicate a stratiform mineralization, but no ore grade analyses were seen. Only trench 04-10 produced analyses of up to 19 g/t. If these are representative of the rock content the result is significant. The position of the anomalous region is to the north of the projected Lone Star trend.

Soil sampling to the northwest towards Nigger Jim gulch returned significant anomalous values that should be followed up (fig. 48).

### THE LONE STAR ZONE

As already mentioned the previous prospecting in this region has been carried with several metallogenic models in vogue (syn metamorphic mesothermal extensional gold-bearing quartz veins, shear zone hosted mineralization, pluton-related and epithermal mineralization) but there has been little successful documentation of the detailed geology of the Lone Star ridge, simply following assay values in exposures or drillholes, and no attempt at structural mapping. One possible consequence of a polydeformed stratiform mineralization is shown in Fig. 49. This diagram is taken from the structural analysis of the Swift River base metal mineralization, part of the Yukon-Tanana terrane in the SE Yukon. Since the Klondike Schist is recognized as being polydeformed such a scenario is likely. The possibility that such a structural model might exist here (if indeed the original gold was of volcanic exhalative origin) and the additional complication of remobilization of any stratiform mineralization into extensional veins during metamorphism demonstrate the likely complexity of an ore horizon. Some very careful observation needs to be applied to this property. This is planned for the 2005 season with



Cross section of a horizon deformed by two coaxial generations of folding (after D'El-Rey Silva et al., 2001). Axial surfaces of the folds are shown as  $F_1$  and  $F_2$ . If such a structural situation were present at the Lone Star a stratiform zone mineralization could appear to have an overall shallow-dipping envelope, Especially if the level of erosion were that indicated by the red line. Foliation seen at surface would appear to be steeply dipping. This type of structural style is possible in the Klondike, although at present there is no detailed structural mapping to demonstrate the true geometry.

initiation of research projects that, as well as structural geology, should identify rock textures, mineralogies and alteration.

## 7.2 BUCKLAND ZONE

Some marginally economic gold grades have been obtained from an alteration zone on the postulated 'Buckland Shear' in trenches 95-B1 and 91-20. Although adjacent trenches gave disappointing results this may reflect the analysis (these were acid-digested ICP analyses, not fire assay and no 'screen metallic' assays were carried out). Once the mill is fully operational during this coming summer a bulk sample should be taken from 95B-1 to determine the grade. Although a correlation may be made between mineralization in several trenches along this zone it is obvious that there is also gold associated with quartz veins alongside this 'shear', especially coarse gold that was noted by Jerry Bryde during this last season in the selvedge of the quartz in trench 86GG3 and the mineralization investigated in drillhole 93LS20. It is uncertain whether these ESE striking 'veins' are of metamorphic origin or whether they are genetically linked to the 'shear'. It is equally uncertain whether those assays previously reported from other trenches in this vicinity indicate a zone of some width or are just sub-metre scale discontinuous quartz veins (Fig. \*\*\*). Bulk sampling will indicate whether any substantial grade and width occurs, at least in the immediate region of 86GG3. It is uncertain whether simple trenching would yield rock exposure much further SE than trench 86GG3. An examination of the old trench 90GG2 revealed that there were 7 metres of colluvium at that locality with no outcrop seen at the bottom of the trench. The side of Gay Gulch is obviously thoroughly mantled with soil and colluvium.

## 7.3 HILCHEY ZONE TO NUGGET ZONE

The excavations at the Hilchey Zone have revealed mineralization of ore grade. It is, however associated with quartz vein systems, both in trench 04-02 and in "Pit No. 1". The only way to investigate the extent of this mineralization would be by a considerable amount of stripping of the 2m thick overburden. A further larger bulk sample from Pit No. 1 to avoid possible bias towards the quartz veins is warranted as a first step in determining grade. If the present sample has 75% of its concentrate as gold (it has not been not assayed yet) it would represent 1.2 g/t grade over a width of 4m.

The excavation and sampling of the Nugget zone has also discovered interesting gold grades, again associated with quartz veins. Compared to other localities of quartz veins this area

(both the upper and lower zones at trench 94-02) has the distinction that the mineralized zones are also associated with systems of low-angle faulting that displace the quartz on scale of =1m and which presumably carry sulphides. It is not known yet whether these faults are also gold mineralized. Sampling of these zones, with the exception of the "NUG" panel sample was cursory and much more detailed work is required in 2005, as well as bulk sampling.

#### 7.4 27 PUP-DYSLE

The presence of gold in each of the localities sampled (bulk samples A to D) at trenches 89-01 and 90-01 (Fig. 35) is both encouraging and perplexing. It is obvious that much more sampling is needed to determine the extent of the mineralization. If the Buckland shear zone persists at the 27 Pup as stated by Van Angeren it too should be identified and sampled. The region of trench 03-05 (Fig. 29) deserves more careful mapping and sampling. Above the mill site (the Dysle zone) the seven quartz veins and intervening schist gave coarse gold in the mill tests. Grades are not yet available, but this promises to be a zone that can develop grade. It would be useful to apply some better geological techniques in this area. Several of the trench exposures are thought to represent metavolcanics. Rock sampling for petrography and some whole-rock analyses would help us to at least understand the protolith of these units and this could enable us to better recognize lithological units.

## **8 CONCLUSIONS AND RECOMMENDATIONS**

### 8.1 LONE STAR - O'NEIL

During the 2004 season little new work was performed in the immediate vicinity of the Lone Star opencut. Continued work on the Lone Star Lode proper should be aimed at a better understanding of the geology of the mineralization. This will be addressed by the planned research project and core (diamond) drilling will need to be employed to obtain fresh rock and to distinguish actual hydrothermal alteration from weathering. Bulk sampling for mill test of various mineralized zones in the old trenches is feasible and will be useful to verify grades and to determine the extent of free coarse gold present. At least initially large (1-5t) duplicate bulk samples should be taken to verify reproducibility.

An attempt should be made to open the portal of the 1931 adit and if sufficient underground workings are accessible these should be mapped in detail.

The 2004 trenching towards O'Neil Gulch has shown some enigmatic high grades in

trench 04-10. Once that immediate area has thawed late in the 2005 summer the trench could be both deepened to obtain cleaner rock and extended to the west. Further geological work on these trenches could be aimed at a better understanding of lithologies by selecting material for petrography and analysis. Diamond drilling may be warranted here.

The results of the most recent I.P. survey by Kennecott indicate that there was a significant response over the Lone Star that persisted at depth (detected by their increased dipole spacings). That data, together with earlier material (e.g., Walcott and Associates, 1987) should be compiled on the current database and reinterpreted.

## 8.2 HILCHEY ZONE

The gold grades revealed by last season's sampling in trench 04-02 and 'Pit No. 1' are encouraging. They demonstrate that there is hard-rock mineralization beneath this zone of gold-bearing soil and colluvium. The zone should be re-sampled to obtain representative material that may be used for a bulk test. Further trenching is warranted to follow the mineralization and a programme of diamond drilling using large diameter holes, close-spaced core sampling and screen-metallics assays as well as fire assay should be planned once more surface data is available.

## 8.3 NUGGET ZONE

Chip sampling by Jerry Bryde at the mineralization uncovered at the head of trenches 94-02 and 96-28 ('NUG' zone) indicates that ore-grade material exists there. Once the processing of the bulk sample 'NUG' is completed next summer a better idea of the overall grade may be obtained. Further trenching is warranted to trace the mineralization along strike. This could be combined with work on the placer ground. Further bulk samples (e.g. at the position of the 2004 excavation across trench 96-28) should be taken and a programme of diamond drilling using large diameter holes, close-spaced core sampling and screen-metallics assays as well as fire assay should be planned once more surface data is available.

#### 8.4 27 PUP

At 27 Pup three matters of geology need to be clarified: the nature and extent of possible volcanic-derived rock units; the nature (and gold grades) of the “shear zone” postulated in the region of trench 03-05; and extent of gold-bearing units at trench 89-01. Once that is complete a programme of diamond drilling using large diameter holes, close-spaced core sampling and screen-metallics assays as well as fire assay should be planned. At the Dysle prospect final evaluation of grade in the quartz stockwork once 2004 mill concentrates are assayed likely will indicate further physical work at this locality.

#### 8.5 GAY GULCH

The small amount of sampling carried out SE of Gay Gulch failed to confirm Kennecott’s mineralized zone, the SE extension of the “Buckland Shear”. A better attempt should be made to locate the mineralization and to investigate the extent. Further work on the NW slopes of the Gulch is warranted from earlier showings of gold, but it is uncertain how to approach this at present due to the great depth of cover on that slope.

#### 8.6 OTHER: PIONEER / 13 PUP - SE EXTENSION OF LONE STAR

The Lone Star zone appears to be terminated to the southeast by a fault. Previous exploration has assumed a right-lateral offset to mineralization, with an assumed correlation with the historical Pioneer workings. There are significant soil geochemical anomalies in the 13 Pup area that could indicate an offset in the opposite direction, or an additional mineralized zone. An access trail was constructed in 2004 to the 13 Pup area to facilitate future exploration.

Further extrapolations of the Lone Star and Buckland mineralized trends into the Quartz creek drainage are covered by the Red, Win, LB, CUL and CAL claims. Preliminary soil geochemical surveys have returned some gold anomalies that warrant further investigation, especially at the Win and LB claims. Some of the higher gold in soil anomalies are:

122.5 ppb at LB 122

79.8 ppb at LB 63

75.1 ppb at WIN 26

56.3 ppb at WIN 58

A statistical evaluation of gold in soil geochemistry is presented in Appendix 1.



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## STATEMENT OF QUALIFICATIONS

**WILLIAM D. MANN  
19 HAYES CRESCENT, WHITEHORSE, YUKON**

1. I am a Graduate of Queen's University, 1986, with a Master of Science Degree in Mineral Exploration Geology.
2. I am a Graduate of the University of British Columbia, 1983, with a Bachelor of Science Degree in Geology.
3. I have worked in mineral exploration and mining continuously since 1979.
4. I designed, supervised and conducted the work program on the Lone Star project in 2004.
5. I am an employee of Klondike Gold Corp., owner of the claims, and hold stock options in Klondike Gold Corp.

February 10, 2005



William D. Mann, M.Sc.

## STATEMENT OF QUALIFICATIONS

TIMOTHY LIVERTON  
102 Komish Court, Watson Lake, Yukon

### Professional qualifications:

B.Sc. in geology and geophysics, University of Sydney, Australia: 1965  
B.Sc. in economic geology, University of Adelaide, Australia: 1968  
Ph.D. (Thesis: "Tectonics and metallogeny of the Thirtymile Range, Yukon Territory, Canada.")  
Royal Holloway, University of London, U.K.

### Professional experience:

1965-1972 Exploration and mine geologist in Australia, working on tin, tungsten, porphyry copper, VMS base metals, uranium, nickel and placer properties  
1973 Working in civil engineering in England.  
1974-1988 Exploration geologist (tungsten, manganese, uranium, gold and molybdenum properties) in Canada, Brasil, Portugal, Norway and Greenland and mine geologist (Pine Creek mine California).  
1988-1992 Performing research at the Royal Holloway College.  
1993-1995 At the Museum of North Devon: cataloging collections, preparing displays, lecturing.  
1996-1997 Visiting professor at the University of Brasilia (Economic Geology).  
1998-present Self employed in mineral exploration in Yukon, B.C. and the N.W.T.

I have been working as an independent contractor on the Klondike project and do not hold any stock in either Klondike Gold Corp. or Klondike Star Mineral Corp.



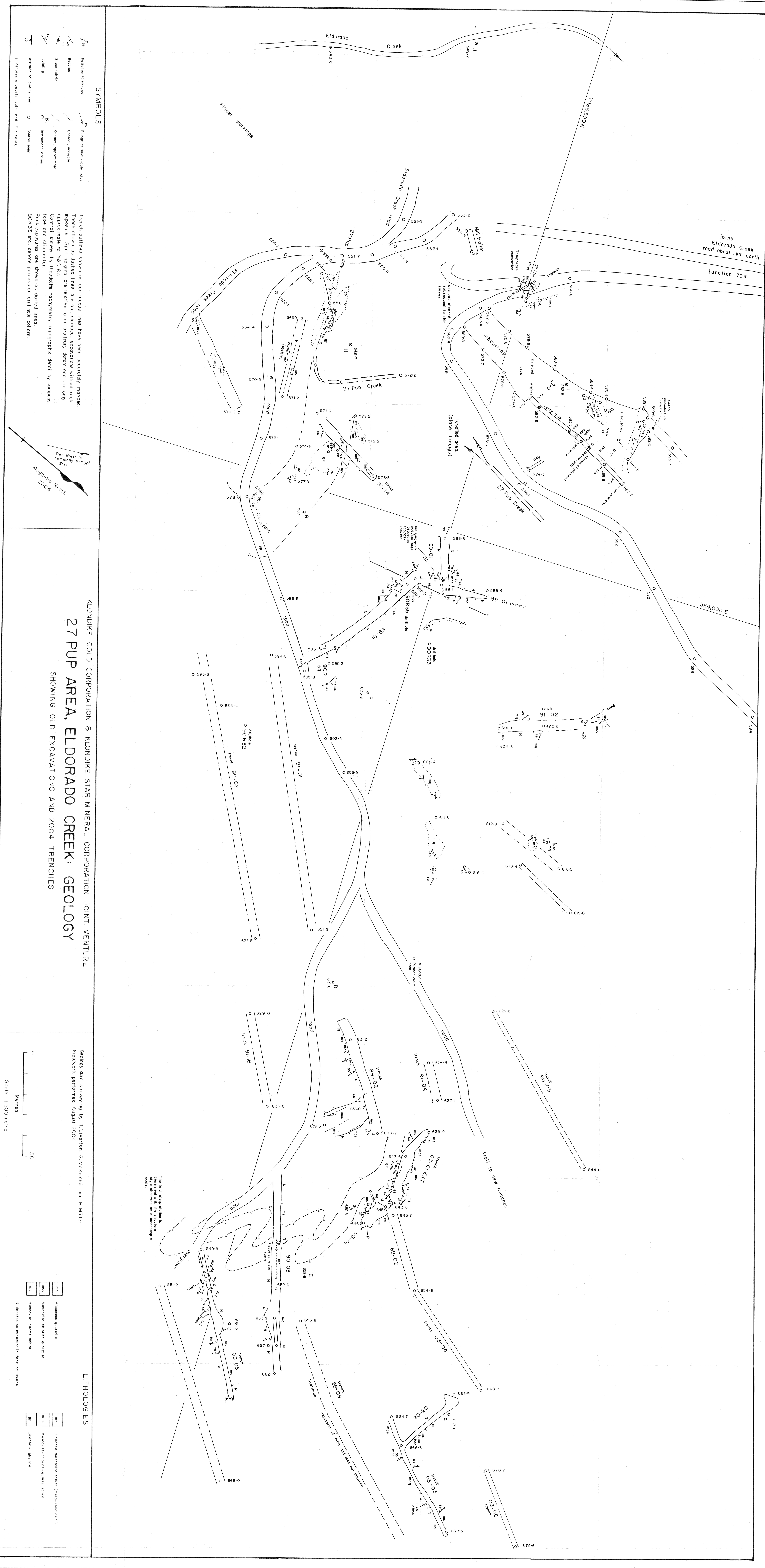
Timothy Liverton  
February 10<sup>th</sup>. 2005

11 APPENDIX 1  
STATISTICAL ANALYSIS OF GOLD IN SOIL GEOCHEMISTRY

The 2004 soil geochemistry program conducted by Klondike Gold Corp. in the Klondike area detected gold to a detection limit of 0.5 ppb. This trace level analysis allows workers to detect subtle anomalies in gold distribution.

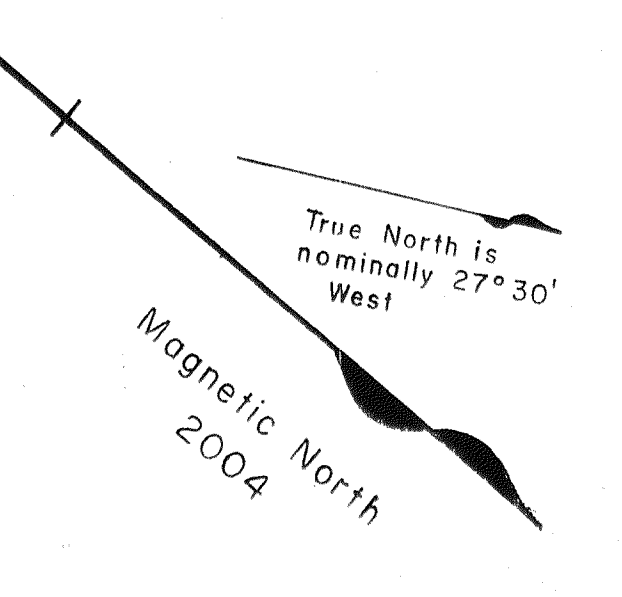
There were 1165 soil samples collected in 2004. The median gold value was 2.6 ppb, the mean is 4.7 ppb, with a standard deviation of 8.8. Gold greater than or equal to 10 ppb is in the top 10% of all samples, and is used as an indication of moderately anomalous value. The mean plus two standard deviations is 22.3 ppb, and identifies highly anomalous gold. Samples were analyzed by ICP, with 36 elements reported. Gold was not found to correlate well with any of the other elements. While gold is locally observed to occur in veins with Ba, Pb, and Cu, these elements are often abundant without significant gold.





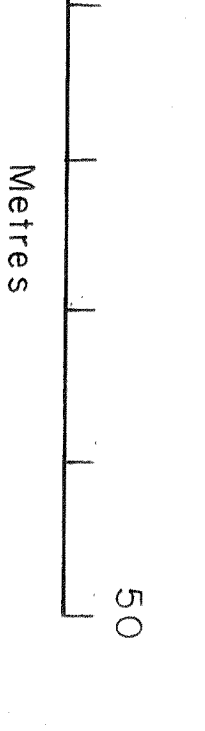
- SYMBOLS**
- Fault/lineament
  - Ridge or road
  - Building
  - Stream
  - Road
  - Fence
  - Well
  - Pit
  - Excavation
  - Rock exposure
  - Control point
  - Instrument station
  - Monument
  - Bench mark
  - Datum point

Trench outlines shown as continuous lines have been accurately mapped. Those shown as dashed lines are old, stumped, excavations without rock exposures. Trench elevations are relative to an arbitrary datum and are only approximate to NAD 83. Control survey by theodolite technique, topographic detail by compass, level and clinometer. Rock exposures are shown as dotted lines. SOR 33 etc denote percussion drill hole collars.



**KLONDIKE GOLD CORPORATION & KLONDIKE STAR MINERAL CORPORATION JOINT VENTURE**  
**27 PUP AREA, ELDERADO CREEK: GEOLOGY**  
 SHOWING OLD EXCAVATIONS AND 2004 TRENCHES

Geology and surveying by T. Liverton, G. McKeicher and H. Müller.  
 Fieldwork performed August 2004.

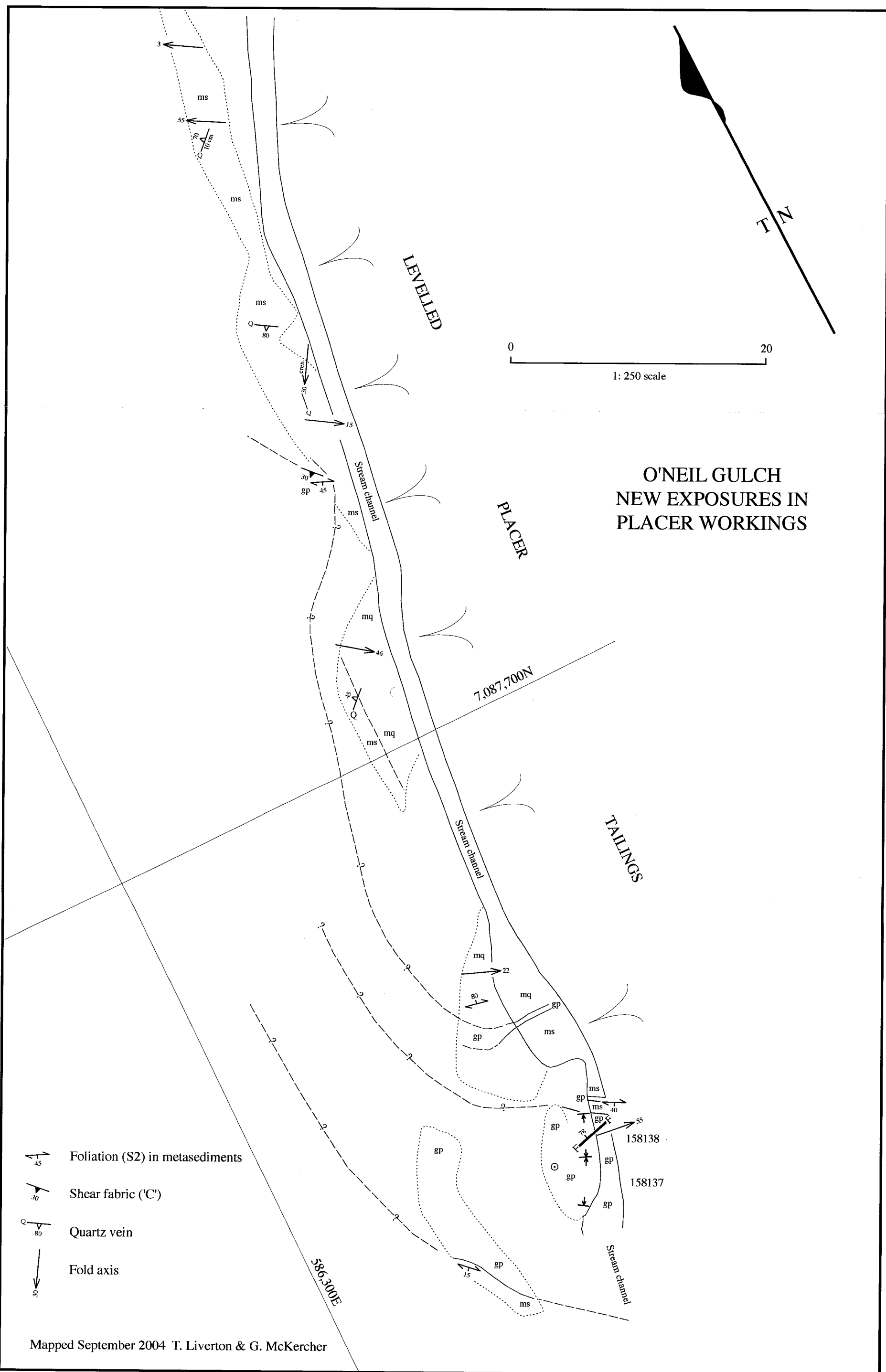


- LITHOLOGIES**
- Massive quartzite
  - Massive chlorite quartzite
  - Massive quartz veins
  - Massive quartz veins with magnetite
  - Massive chlorite-quartz veins with magnetite
  - Massive quartzite with magnetite
  - Massive chlorite-quartzite with magnetite
  - Massive quartzite with magnetite and chlorite
  - Massive chlorite-quartzite with magnetite and chlorite
  - Massive quartzite with magnetite and chlorite and pyrite
  - Massive chlorite-quartzite with magnetite and chlorite and pyrite

N denotes no exposure in face of trench.

The field interpretation is consistent with the published geological map of the area.





Mapped September 2004 T. Liverton & G. McKercher



**LEGEND**

● 14480 Soil sample number  
● 14480 Rock sample number

SCALE 1:1000  
 DATE FEB. 11, 2005

**KLONDIKE STAR MINERAL CORP.**  
**LONE STAR PROJECT**  
**Rock and Soil Samples - 2004**  
**LONE STAR SOUTHEAST RECONNAISSANCE**  
**REDWIN-BULLAC CLAIMS**

N78°15'04" E 071°44'30" W ZONE 7  
 0 100 200 300 400 500  
 METERS

Yukon Energy, Mines & Resources Library



1000762945

includes 4 loose maps

