

MAP No.

105 B 11

ASSESSMENT REPORT  
PROSPECTUS  
CONFIDENTIAL  
OPEN FILE



DOCUMENT NO.: 091935  
MINING DISTRICT: WATSON LAKE  
TYPE OF WORK: TRENCHING

REPORT FILED UNDER: Shakwak Exploration Company Ltd.

DATE PERFORMED: Aug. 15 to Oct. 15/86

DATE FILED: April 6, 1987

LOCATION	LAT.	60°37'N	AREA: RANCHERIA AREA
	LONG.	131°06'N	

CLAIM NAME & NO. GRA 1-42 YA73149-73190  
 REV 1-16 YA73191-73206  
 SHA 1-147 YA73348-73494  
 GRA 43-49 YA90464-90470

VALUE \$ 41,000.00

WORK DONE BY: Graham S. Davidson

WORK DONE FOR: Shakwak Exploration Company Ltd.

DATE TO GOOD STANDING

REMARKS:  
#90 SOURCE  
#35 IRVINE


091935

ASSESSMENT REPORT

SILVER CREEK PROPERTY

SHA 1 - 147, GRA 1 - 42, REV 1 - 16 MINERAL CLAIMS

NTS. 105 B-11

LATITUDE 60° 37' N, LONGITUDE 131° 06' W

WATSON LAKE MINING DISTRICT

YUKON

FOR

SHAKWAK EXPLORATION COMPANY LTD.

BY

GRAHAM S. DAVIDSON, P. GEOL.

MARCH, 1987



This report has been examined by  
the Geological Evaluation Unit  
under Section 53 (4) Yukon Quartz  
Act and is allowed as  
representation work in the amount  
of \$ 41,000.00.

*DA Emond*

*for* Regional Manager, Exploration and  
Geological Services for Commissioner  
of Yukon Territory.

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## INTRODUCTION

Shakwak Exploration Company Limited holds 212 mineral claims (Silver Creek property) in the Rancheria district of southern Yukon under the terms of an option agreement with Nordac Mining Corporation. The claims were staked to cover a large area of anomalous silver values in silt samples and a manganese gossan zone carrying values up to 110 oz/ton silver located during regional exploration in 1971-72.

Exploration conducted by Shakwak during 1985 and 1986 used the nearby high grade CMC silver property of Silver Hart Mines Ltd. as a model. Prospecting and limited soil geochemistry were used to locate manganese gossan zones as initial surface targets. In 1985, three gossan zones at the East Ridge area were tested with 15 blast-trenches and two goassan zones at the West Ridge area were tested with six blast-trenches. In 1986 a John Deere 450 cat with a back hoe attachment was flown onto the property. Twenty trenches were excavated on the East Ridge and four trenches on the West Ridge. The writer conducted the exploration program on the property with supervision from Ron Robertson and Glen MacDonald of Shakwak Exploration Company Limited.

## LOCATION AND ACCESS

The property is located about 270 km southeast of Whitehorse on NTS map sheet 105-B-11 and 30 km due east of Wolf Lake near the headwaters of Gravel Creek. Approximate geographical co-ordinates are 60° 37' north latitude and 131° 06' west longitude. the property location is shown on Figure 1.

Summer access to the property is by helicopter from Rancheria (60 km) or from Watson Lake (140 km). Rancheria is located on the Alaska Highway 330 km southeast of Whitehorse. Winter access is possible via the Wolf Lake tote trail route, from the access road to the CMC (Silver Hart Mines Ltd.) property, or from a winter trail extending along the west side of Pine Lake to the Ice Lakes.

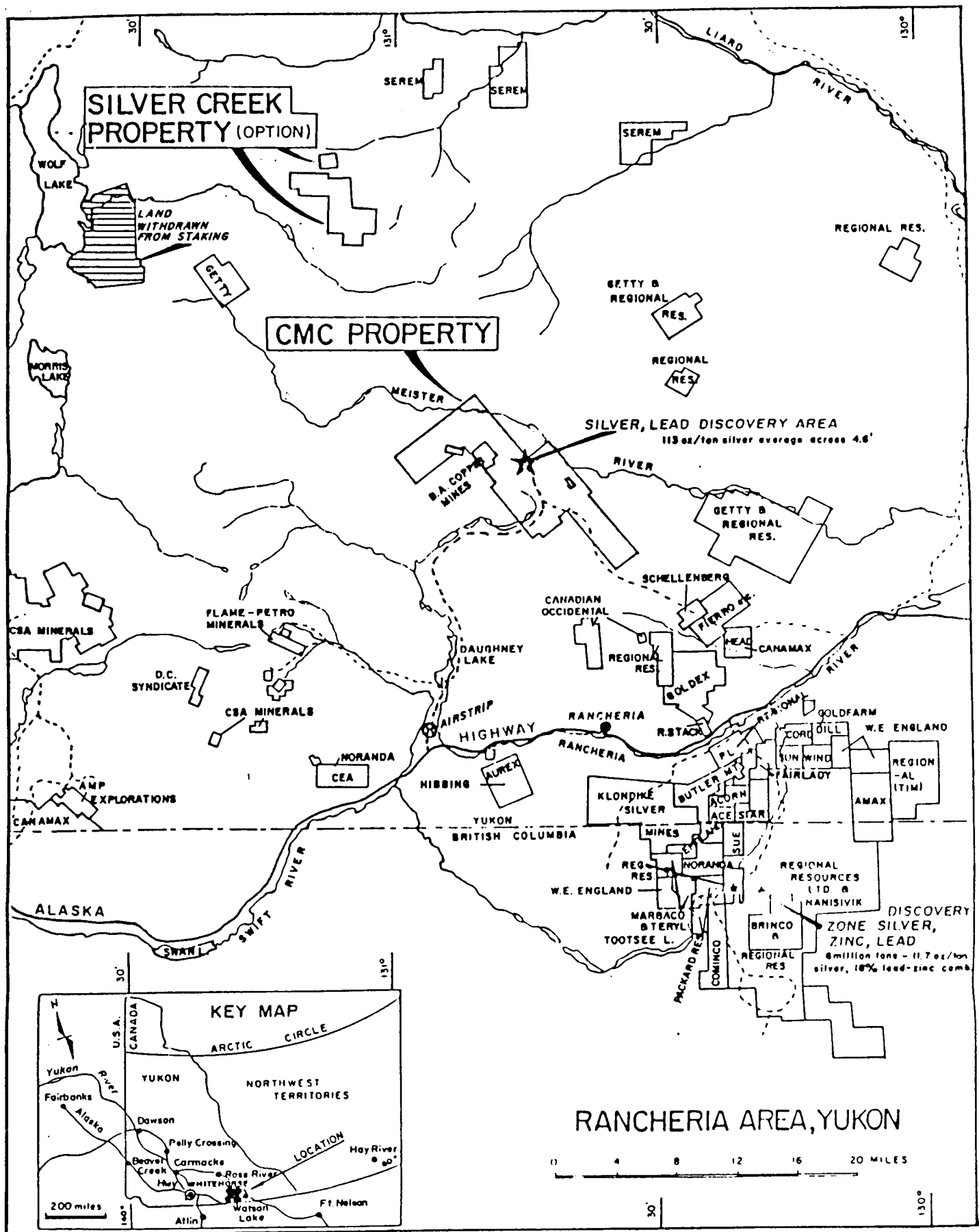


Figure 1:  
PROPERTY LOCATION

An important gravel airstrip is located at Pine Lake, approximately 35 km south of the property. A small gravel strip could probably be constructed on the west side of the property.

## PROPERTY

The Silver Creek property consists of 212 mineral claims staked under the Yukon Quartz Mining Act and recorded in the office of the Watson Lake District Mining Recorder.

**TABLE 1**  
**Property Composition**

<u>Claim</u>	<u>Grant Number</u>	<u>Recording Date</u>
GRA 1-42	YA73149-73190	19 March, 1985
REV 1-16	YA73191-73206	19 March, 1985
SHA 1-147	YA73348-73494	14 June, 1985
GRA 43-49	YA90464-90470	15 October, 1985

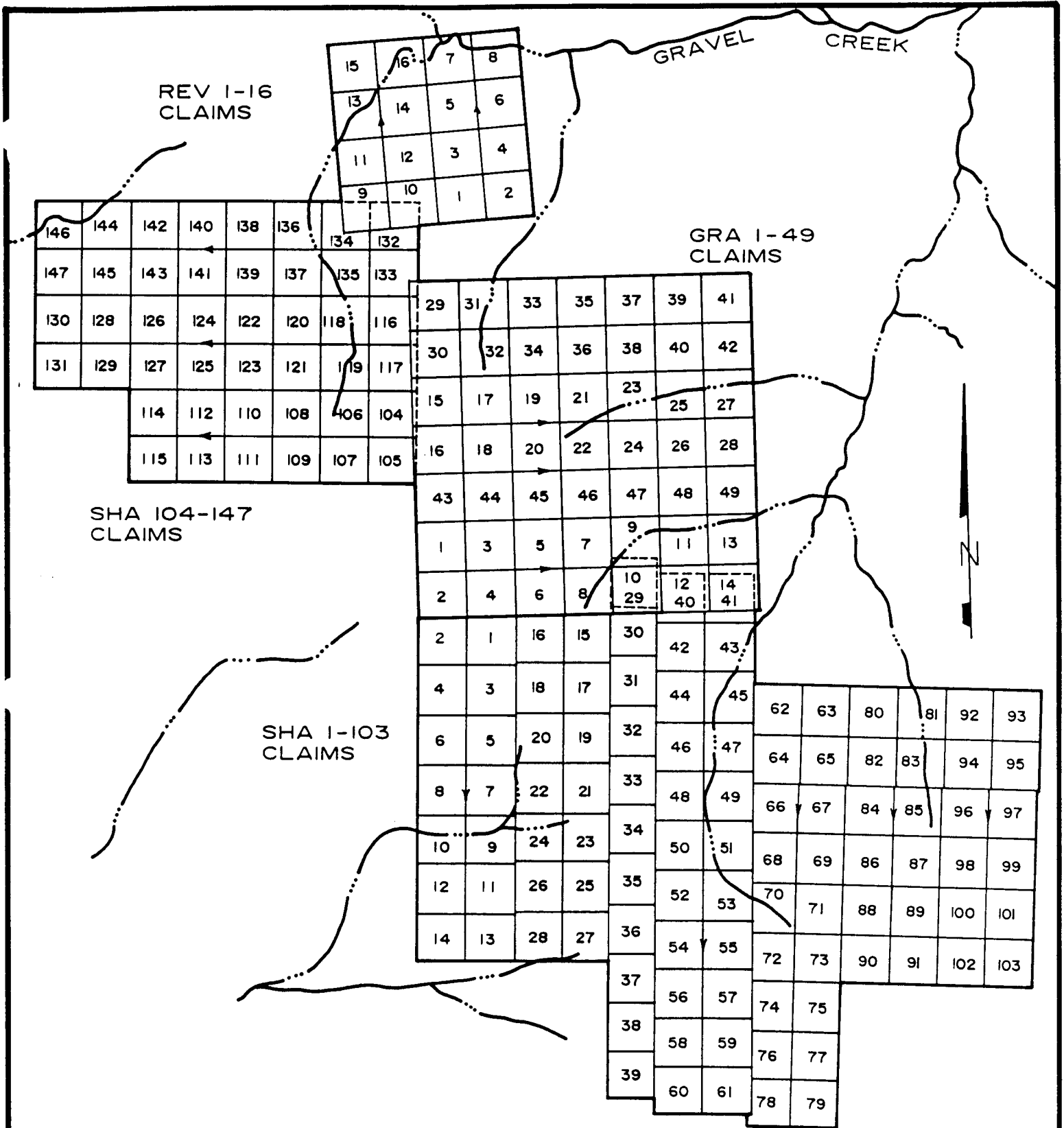
The GRA 1-42 and REV 1-16 claims were originally staked by Archer, Cathro and Associates and subsequently acquired by Shakwak Exploration Company Limited under the terms of an option agreement. The SHA 1-147 and GRA 43-49 claims were staked by Shakwak to protect significant areas outside the original two claim blocks.

Archer, Cathro and Associates' interest in the Silver Creek property was later transferred to Nordac Mining Corporation.

The claim distribution is shown in Figure 2.

## PHYSIOGRAPHY, CLIMATE, VEGETATION

The property covers a block of rounded mountains, outliers of the Cassiar Mountains, which form the headwaters of the Gravel Creek, Irvine Creek and Cabin Creek drainage systems. Elevations range from 1070 m (3500') to 2040 m (6700'), a total relief of 970 m. The area forms a dissected plateau with gently rounded



SHAKWAK EXPLORATION COMPANY LIMITED		
SILVER CREEK CLAIM DISTRIBUTION		
PROJECT 104		YUKON
NTS: 105-B-11	TECHNICAL: RR	DATE: MARCH 1986
SCALE: 1: 50 000	DRAFTING: INTEGRAPHICS	FIGURE: 2

SCALE: 1 : 50 000

0 500 1000 1500 2000 METRES

upper slopes with little outcrop and extensive felsenmeer, often moss-covered. Valley walls are often steep with small cliff-faces but most slopes show little outcrop except close to ridge crests. Lower slopes (even those facing south) seem to have a thick cover of soliflucted material with permafrost and often a thick growth of low spruce and alder.

Climatic conditions are typical of the Cassiar Mountains region, characterized by a northern interior climate. Annual precipitation averages 50 cm. Winters are long, with temperatures occasionally as low as  $-50^{\circ}$  C and sometimes heavy snow cover. Summer temperatures are typically  $15-20^{\circ}$  C with long daylight hours from May to July.

## REGIONAL GEOLOGY

The Silver Creek property is located in the Wolf Lake Map Sheet (105-B) area, mapped by W.H. Poole, J.A. Roddick and L.K. Green of the Geological Survey of Canada in 1951-59. The district is underlain by folded Late Proterozoic to Devonian clastic and carbonate rocks of the Cassiar Platform; by assemblages of sheared ultramafic, volcanic, sedimentary and intrusive rocks accreted onto the North American continent during Mesozoic arc-continent collision; and by Cretaceous intrusions of granite-granodiorite composition (Abbott, 1983).

The Silver Creek property is underlain by limestones, quartzites and phyllites (and their hornfelsed equivalents) which are probably all Lower Cambrian or older in age. This suite is intruded by large bodies of quartz monzonite-granite-part of the mid-Cretaceous (100 m.y.) Marker Lake batholith. Recent workers have suggested that there are a number of granitic intrusions in the district belonging to a 50 m.y. suite.

Apparently three ages of dykes and sills occur in the area. Smith (1984) recognized a suite of mafic grey porphyry sills and dykes on the nearby CMC claims which are foliated parallel to the enclosing biotite schists and limestones. An early suite of dykes and sills was also recognized by Poole et al (1960). Granitic dykes related to the mid-Cretaceous plutons are quite common in the area. Abbott (1983) has suggested that many of the silver-lead veins in the Rancheria district are related

to faults, breccias, mafic and felsic dykes of late Cretaceous-early Tertiary age. Tertiary to Recent volcanic rocks are common in parts of the Jennings River map area immediately to the south (Mulligan, 1969) and late Tertiary basaltic flows outcrop at several places along the Alaska Highway near Rancheria. Cross-cutting rhyolite porphyry dykes of probable early Tertiary age are common in parts of the Silver Creek property.

## EXPLORATION HISTORY

Several different types of mineralization occur on the property and thus the area has been explored at several times for a variety of commodities.

Mineralization was apparently first noted by Geological Survey field parties during regional geological mapping in 1955. In 1971, a regional silt sampling program by Archer, Cathro and Associates located lead, zinc, silver and tungsten anomalies in the area. During follow-up prospecting and soil sampling in 1972, a manganese gossan and veining in limy schists were discovered; grab samples of this material contained up to 110 ounces per ton silver and 1% lead. This gossan is the E-2 zone of this report.

Hudson Bay Exploration and Development staked the ANGIE claims in 1974 and carried out a program of mapping, geochemical sampling, trenching and drilled three holes (445 m) the same year. In 1975 an IP survey and four more holes (361 m) were completed. This work was mainly directed at lead-zinc in quartz and fluorite veins and diopside-magnetite skarn zones.

The Wolf Lake Joint Venture (Comaplex Resources International and Dayton Creek Silver Mines) staked the COM claims in 1978. A report by Allen, 1979, describes a re-examination of one of the old H.B.E.D. trenches in a black manganese-rich gossan zone; no samples were analyzed.

In 1981, Serem staked the SOURCE claims and carried out a program of mapping and sampling tungsten skarn zones; grab samples returned values of several percent  $WO_3$ .

The areas staked at various times as the ANGIE, COM and SOURCE claims at least partially overlap and are located in the present SHA 104-147 claim block, although part of the SOURCE 1-24 block extended farther east into the present GRA claim block. The Hudson Bay trench, re-examined by Allen (1979), is on the manganese gossan described as the W-2 zone in the present report.

Several significant silver-lead-zinc properties have been actively explored in the Rancheria district in recent years, including properties of Silver Hart Mines Ltd., Butler Mountain Minerals, Getty Mines (Meister Lake) and the MIDWAY deposit of Regional Resources. The latter property carries over six million tons of 11.5 oz/ton silver and 18% combined lead-zinc mostly in manto -type massive sulphide zones with some higher silver grades in vein-type structures.

On the CMC property held by Silver Hart Mines Ltd. exploration during 1985-1986 included extensive back hoe trenching, 12,000' of diamond drilling and 600' of drifting along the TM zone. Average underground assays graded 70 oz/ton silver, essentially identical to the average surface grades of 69 oz/ton silver (Silver Hart Mines Ltd., 1986).

The CMC discovery prompted Archer, Cathro and Associates to re-examine data collected during regional exploration of the Rancheria district in 1971-72. This review showed an extensive area of strongly anomalous silver values in silt samples and one manganese gossan zone with grab samples grading up to 110 oz/ton silver. The geological environment was very similar to other silver prospects in the district, including CMC; key portions of this area were staked as the GRA and REV claims.

Exploration conducted by Shakwak Exploration Company Limited during 1985 focused on location of manganese gossan zones by careful prospecting, blast-trenching of some of these zones and limited soil geochemical sampling to locate zone extensions in areas covered by overburden. Recognition of manganese gossan zones with little or no visible mineralization is considered essential in locating sulphide rich ore shoots occupying vein-fault structures in the Rancheria district.

In 1985 Shakwak's prospectors located three new manganese gossan float zones and rediscovered the silver rich galena float, sampled by Archer, Cathro and Associates in 1972. They also rediscovered a gossan zone located by Hudson Bay Exploration in 1974. Figure 3 shows the locations of the East Ridge and West Ridge gossan zones on the Silver Creek property.

A follow up program of blast trenching on manganese gossan zones commenced in September, 1985. Twenty-one blast-trenches were excavated on the five gossan zones found through prospecting. Ten trenches on the E-2 zone outlined a vein fault structure containing silver rich galena in manganese and goethite oxides.

Typically the trench floors consisted of frozen, broken oxides and wall rock. Lenses and veins of galena in this material produced an average grade of 50.4 oz/ton silver. Elsewhere on the East Ridge, trenches excavated on manganese gossan float at the E1 and E3 zones failed to uncover manganese and goethite material in bedrock.

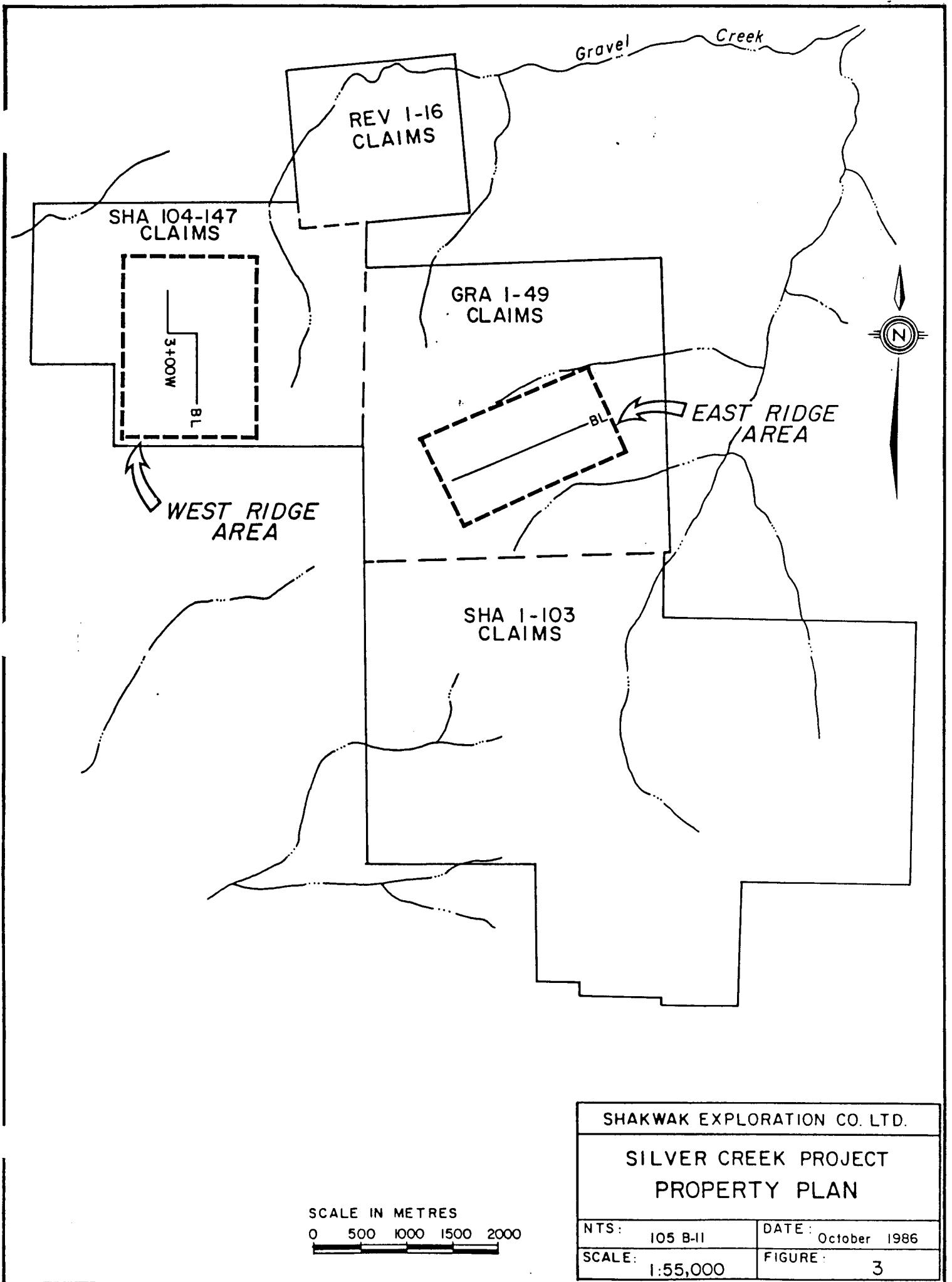
On the West Ridge two zones of manganese gossan float were trenched in 1985. The W1 and W2 zones consisted of oxide gossan over 40 m and 120 m strike lengths respectively. On both western zones, bedrock sources of the gossan material were not located.

One contour soil geochemical line was completed on the northside of the East Ridge. Several strong silver, lead and manganese anomalies were trenched during the 1986 exploration program.

## **1986 EXPLORATION PROGRAM**

### **Introduction**

In August, 1986 a John Deere 450 bulldozer with a back hoe attachment was flown in pieces onto the East Ridge of the Silver Creek property from the Pine Creek airstrip near the Alaska Highway. The equipment was then reassembled and began trenching on August 27th. A camp was established  $\frac{1}{2}$  kilometer north of the East Ridge area on a tributary of Gravel Creek.



SHA 104-147  
CLAIMS

REV 1-16  
CLAIMS

GRA 1-49  
CLAIMS

SHA 1-103  
CLAIMS

Gravel  
Creek

3+00W

BL

BL

WEST RIDGE  
AREA

EAST RIDGE  
AREA



SCALE IN METRES  
0 500 1000 1500 2000

SHAKWAK EXPLORATION CO. LTD.

SILVER CREEK PROJECT  
PROPERTY PLAN

NTS: 105 B-11

DATE: October 1986

SCALE: 1:55,000

FIGURE: 3

The trenching program was directed towards exposing and extending the known manganese and goethite bearing vein fault structures and gossans. Emphasis was placed on the E-2 and W-2 zones located in 1985. Flag line grids were established on the East and West Ridge areas, as shown in Figures 4 and 5. Crosslines were extended from 100 meter centers with 25 meter station intervals. The following sections separately describe the prospecting and trenching programs on the East and West Ridge areas.

### East Ridge

#### **Prospecting and Geology**

Reconnaissance level prospecting and mapping was completed over the East Ridge in 1986 as shown in figures 6 and 7. Descriptions of rock types observed in outcrop and trenches are presented below:

Buff porphyry: Buff weathering, fine grained felsic porphyry dykes, trending 70°, outcrop on ridge tops and were uncovered in several trenches. They contain fine to medium grained quartz eyes and feldspar phenocrysts, and may be brecciated by fine quartz and chalcedony veins. Heavy manganese staining and some manganese oxide veinlets occur in the porphyry at contacts with sedimentary rocks. The buff porphyry dykes are resistant to weathering and form abundant talus in the East Ridge area.

Muscovite quartz-monzonite: Quartz monzonite containing up to 15% muscovite outcrops in several trenches on the south side of the East Ridge area. The quartz monzonite is generally fresh unaltered, however bands of orange clay gouge containing quartz fragments occur in the rock in the E-2 zone.

Aplite, pegmatite, quartz bands: Sills and dykes of aplite and pegmatite are interbedded with marble and muscovite schist in the prominent cliffs along the East Ridge. The more common aplite sills pinch and swell along strike, and contain white quartz bands. Cross cutting pegmatite and quartz breccia veins occur in the E2 and E3 zones. Larger quartz breccia veins contain coxcomb quartz, chalcedony, manganese staining and minor galena.

Marble and Muscovite Schist: The most common rocks on the East Ridge are fine to thickly bedded carbonates and muscovite schist. The carbonates are white to blue grey in color, strike  $80^{\circ}$  and dip  $30-40^{\circ}$  NW. They occasionally contain blebs of galena in narrow quartz veins.

Prospecting on the East Ridge located manganese gossan float zones west of the E1 and E2 areas. It also located, several quartz vein breccia zones occurring in buff porphyry and quartz monzonite. Sample descriptions, values and locations are shown in Figure 6 and 7.

### **Trenching**

Twenty trenches were excavated on the E1, E2 and E3 zones on the East Ridge as shown in Figure 7. All trenches were dug on manganese gossan zones located in 1985, except trenches 86-18 and 86-19 which were placed on soil geochem anomalies. The John Deere back hoe effectively removed overburden to bedrock or to the permafrost surface. Unfortunately it was not able to strip frozen ground, usually found at 1.75 m below surface. On the E-2 zone, last year's blast pits were re-excavated to approximately 3 m of depth. The only effective way of removing permafrost with the small back hoe is to thaw and strip the trench floor over several months. On southerly facing slopes the trench walls are relatively competent whereas on north facing slopes the ground is wet and trench walls slough.

Trench dimensions and volumes are compiled in Table II. East Ridge trench diagrams and legend are shown in Figures 8a-8o.

Eight trenches were excavated on the E-2 zone in 1986. Trench 86-4 cut through seven of the pits blasted in 1985. A 1.0 to 1.5 m wide manganese and goethite oxide zone over 40 m in length and trending  $85^{\circ}$  was exposed in the trench floor (Figure 8e). Veins of galena and sphalerite up to 20 cm wide occur in the oxide material. Silver values of 96 oz/ton and 57.2 oz/ton were obtained over 12 cm and 10 cm respectively from one galena vein. A galena and manganese oxide sample on the same vein returned silver values of 29.2 oz/ton over 1 m. At the eastern end of trench 86-4 a 2 m wide clay and quartz band cuts through the marble and across

Total Vol. 1833.42 m<sup>3</sup>

**TABLE II**  
**1986 Trench Dimensions**

EAST RIDGE

Trench Number	Length (m)	Width (m)	Depth (m)	Volume (m <sup>3</sup> )
Trench 86-1	17	3	1.75	89.25
Trench 86-2	52	1.75	2.25	204.75
Trench 86-3	12	2	2	48.0
Trench 86-4	53	3	2.5	397.5
Trench 86-5	16.5	1.25	2.0	41.25
Trench 86-6	30	1.5	1.0	45.0
Trench 86-7	17	1.75	1.5	44.62
Trench 86-8	20	1.75	2.0	70.0
Trench 86-9	16	1.4	1.75	39.2
Trench 86-10	14	1.0	1.5	21.0
Trench 86-11	16	1.25	1.8	36.0
Trench 86-12	27.5	1.5	1.8	74.25
Trench 86-13	12	1.25	1.25	18.75
Trench 86-14	23	1.5	1.4	48.3
Trench 86-15	22	1.25	1.4	38.5
Trench 86-16	16	1.5	1.75	42.0
Trench 86-17	15	2.5	2.0	75.0
Trench 86-18	12	1.4	.9	15.12
Trench 86-19	10	1.5	.8	12.0
Trench 86-20	9	1.75	2.0	31.5

Sub-Total 1391.99 m<sup>3</sup>

WEST RIDGE

Trench 86-21	33	1.5	2.5	125.75
Trench 86-22	24	3.0	2.5	180.0
Trench 86-23	17	1.75	2.25	66.93
Trench 86-24	20	1.25	2.75	68.75

Sub-Total 441.43 m<sup>3</sup>

Total 1833.42 m<sup>3</sup>

the manganese-goethite oxide zone. It may represent a small cross fault. The western end of trench 86-4 contains buff porphyry in contact with muscovite schist, interbedded with marble. Clay alteration occurs along the contact and the manganese-goethite oxidized material appears to be cut off by the buff porphyry.

Further to the west trenches 86-5, 86-12, 86-14, and 86-16 lie along strike on the E-2 zone. A quartz zone containing manganese oxide veinlets, manganese staining and some clay gouge was uncovered in trenches 86-5, 86-12 and 86-14. This probably represents the continuation of the E-2 vein vault, East of trend 86-4 two trenches failed to locate the E-2 structure.

On the E-1 zone, eight new trenches were excavated on manganese gossan float. Permafrost was encountered in these trenches at approx. 1.75 m of depth. Manganese and goethite oxide material was uncovered at the permafrost surface in trenches 86-3, 86-13, 86-17 and 86-20. Minor galena occurs in quartz rich manganese oxide in trenches 86-17 and 86-20. A silver value of 4.08 oz/ton over 110 cm was recorded in trench 86-13. It is unclear whether one or several structures exist in the E-1 zone. The 1-2 m wide manganese-goethite oxide bands in trenches 86-17 and 86-20 are similar to the E-2 zone and probably contain galena and sphalerite veins at greater depth.

Several heavy manganese gossan zones lie along a westerly trend from the E-1 zone. One zone located at grid 4+12W, 0+72N was tested by trenches 86-1 and 86-15. In trench 86-1 manganese and goethite oxide occurs along a contact between buff porphyry and limestone. The oxide material is heavily weathered and no galena was observed. Other manganese gossan zones found further to the west are marked on Figures 6 and 7.

In the E-3 zone trenches 86-10 and 86-11 were excavated beside the 1985 blast pits. A 60 cm wide manganese oxide band, exposed in trench 86-10 returned high zinc and low silver values. The manganese zone was not intersected in trench 86-11, 10 m uphill from trench 86-10. Orange and blue-grey clay zones in limy muscovite schist exposed in trench 86-11 may represent the continuation of the fault zone.

Anomalous silver values obtained on a contour soil sample line on the north face of the East Ridge were tested by trenches 86-18 and 86-19. Muscovite schist cut by aplite and pegmatite veins contained no significant silver values suggesting that the source of the anomalies is further uphill.

### **Soil Geochemistry**

Two parallel contour soil sample lines were completed at the western edge of the East Ridge. Manganese gossan float is sparsely distributed throughout this area. Consistently anomalous silver-lead-zinc values were obtained in soils suggesting that a vein fault structure passes through this area. Soil sample results are shown on Figure 7.

### **West Ridge**

#### **Prospecting and Geology**

Muscovite schist is the most common rock on the West Ridge. Along the southern edge of the West Ridge muscovite schist lies in contact with quartz monzonite. Sills of quartz monzonite and aplite are interbedded with the muscovite schist close to this contact. Also, crosscutting aplite dykes cut the muscovite schist near the contact. Many quartz veins, some containing fluorite occur in the muscovite schist. Most are conformable with the schist, striking  $40^{\circ}$  and dipping  $35^{\circ}$  NW.

The W1 manganese gossan zone was re-examined by the writer. The pits blasted on the float zone in 1985 did not intersect manganese and goethite material in bedrock. The source of the gossan appears to be uphill and to the north of the existing pits in a 20 meter wide band of marble. Gossan material in this area is fairly widespread indicating that a significant structure is present.

On the east side of the West Ridge one small manganese gossan was discovered in a sharp gully. This gossan zone and the West Ridge geology are shown in Figure 9.

## Trenching

The John Deere bulldozer was walked to the W2 zone in the West Ridge area on September 11, 1986. Trenches 86-21, 86-22, 86-23 and 86-24 were located along the east-west trend of the gossan zone as shown in Figure 9. Three of the four new trenches were excavated on last years blast pits. Frozen ground was encountered at approximately 3 m of depth in all the trenches.

In trenches 86-21 (\*T-18) and 86-23 (\*T-21) lenses of manganese cemented pebble conglomerate occur in the trench walls. Underlying these lenses, the trench floors contain frozen glacial overburden and muscovite schist, but no manganese or goethite material. Rock samples collected from the trench wall lenses, contained up to 10% galena and sphalerite, and returned silver values of up to 5.92 oz/ton.

In trenches 86-22 and 86-24 the frozen trench floors contain bands of manganese and goethite oxide. Samples collected from these bands returned moderately anomalous Ag-Pb-Zn geochemical values. This material probably represents the source of the extensive W2 gossan zone. The West Ridge trench plans are shown in figures 10a-10c.

## DISCUSSION

The 1986 trenching program concentrated on the E-1, E-2 and W2 manganese gossan float zones. In most trenches permafrost prevented excavation below 1.75 m of depth and due to the lateness of the season little thawing of the trench floors took place. Experience of the CMC property of Silver Hart Mines indicates that mineralization in the manganese and goethite oxide zones is weathered and leached out close to the surface. Significant mineralization usually occurs at least 2-3 meters below the surface. This suggests that the trenches on the E-1, E-2 and W-2 manganese zones require deepening. An early start in future exploration programs would allow time for repeated thawing and stripping of the trench floors. Exposure of the vein faults at depth would permit a more accurate evaluation of the mineralization in the structures.

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\*Note: 1985 blast pit number.

Two galena samples collected from trench 86-4 in the E-2 zone recorded silver to lead ratios of 1.3 to 1 and 0.76 to 1. Other samples taken from the trench floors consisted almost entirely of manganese and goethite oxide. This material returned moderate silver-lead geochem values and stronger zinc values.

The E-1 and E-2 manganese gossan float zones have been traced along a westerly trend for over 900 meters. Considerable trenching with follow up diamond drilling should be undertaken along these two zones.

On the W-2 zone the bands of manganese and goethite oxide located in trench 86-22 are probably part of the mineralized structure responsible for the extensive W2 gossan. This area requires extensive trenching to evaluate the manganese goethite occurrence.

The W1 gossan float zone requires re-examination; the 1985 blast pits are below the source area for the gossan material. Several new trenches should be excavated above and north of the 1985 blast pits.

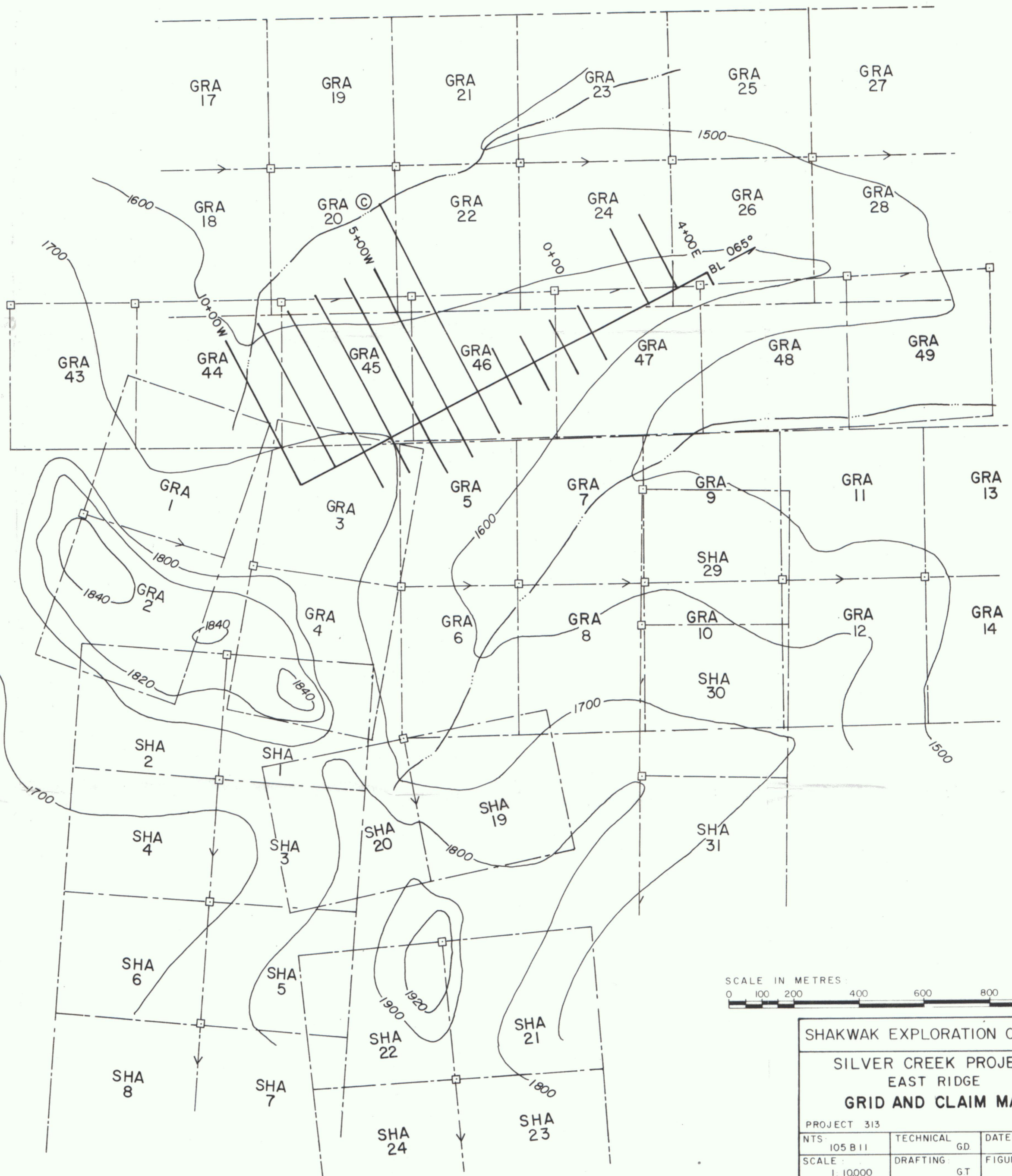
## REFERENCES

- Abbott, J.G., 1983: Silver-bearing veins and replacement deposits of the Rancheria District. Yukon Exploration and Geology 1982, pp 34-44.
- Allen, G., 1979: Report of investigations on the COM 21-26 Claims, Irvine Lake area. Assessment Report No. 09064, Northern Affairs, Whitehorse.
- Mulligan, R., 1969: metallogeny of the region adjacent to the northern part of the Cassiar Batholith, Yukon Territory and British Columbia. Geological Survey of Canada Paper 68-70.
- Poole, W. H., Green, L.H., Roddick, J.A., 1960: Wolf Lake, Yukon Territory. Geological Survey of Canada Map 10-1960.
- Robertson, R.S, 1986: 1985 Exploration report on the Silver Creek Property for Shakwak Exploration Co. Ltd.
- Silver Hart Mines Ltd., 1986: Report to shareholders for the period ended March 31, 1986.
- Smith, F.M., 1984: Unpublished report on CMC claims (105-B-7), Edgar Lake Area. For Silver Hart Mines Ltd.

STATEMENT OF COSTS

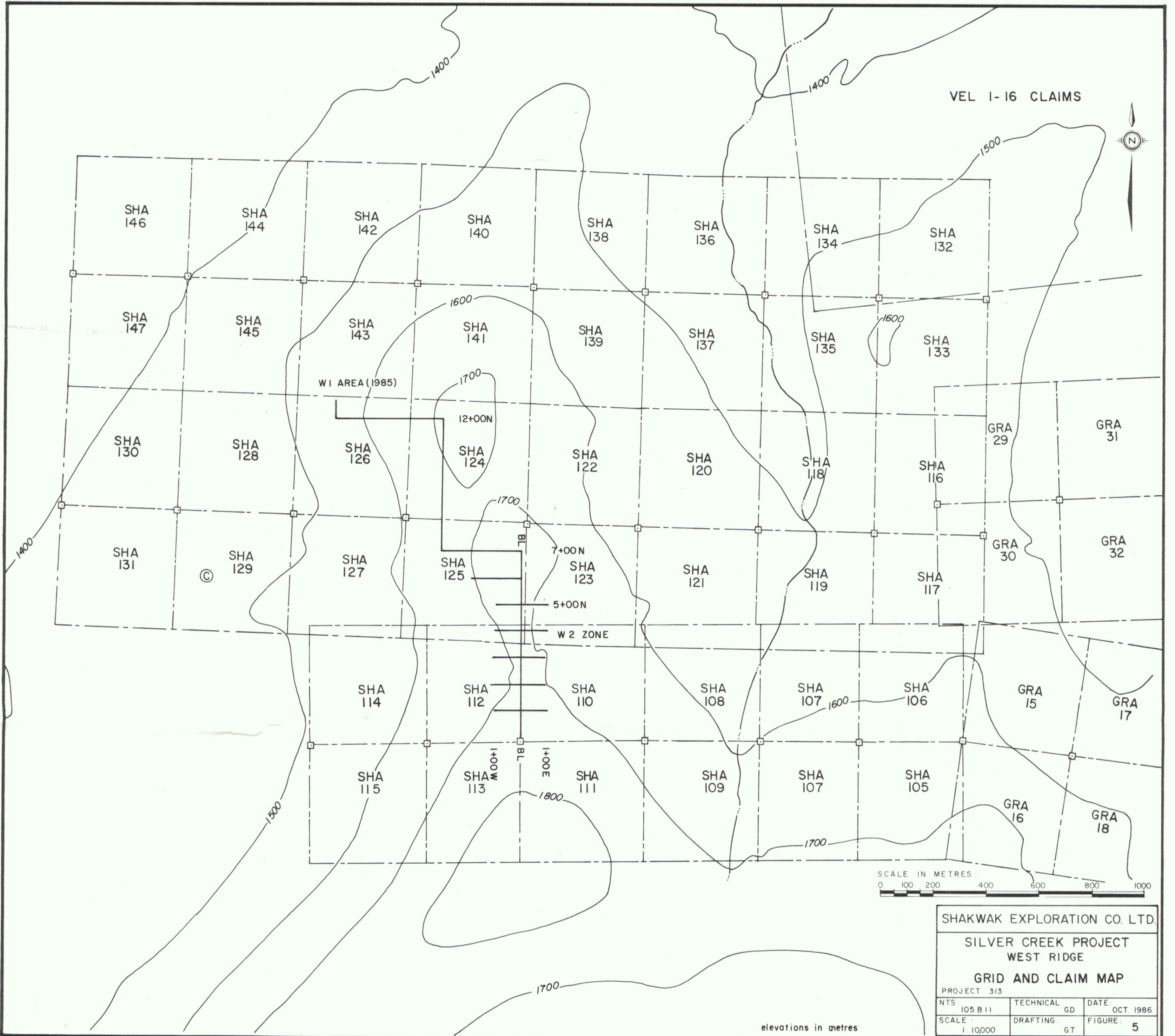
August 15 to October 15, 1986

Backhoe rental and operator (Drilcor) (excluding costs incurred between August 28 - September 3, 1986 which were used in filing assessment on GRA 43 - 49 mineral claims)	\$17,894.38
Helicopter costs (Frontier Helicopters) Bell 212 & 206 helicopters	18,102.56
Personnel:	
G. Davidson (Geologist), 45 days at \$300	13,500.00
M. Vanveen (Assistant), 20 days at \$125	<u>2,500.00</u>
Total Costs	<u><u>\$51,996.94</u></u>



SHAKWAK EXPLORATION CO. LTD.		
SILVER CREEK PROJECT EAST RIDGE GRID AND CLAIM MAP		
PROJECT 313		
NTS: 105 B 11	TECHNICAL: GD	DATE: OCT. 1986
SCALE: 1:10,000	DRAFTING: GT	FIGURE: 4

1000 091935



SHAKWAK EXPLORATION CO. LTD.

SILVER CREEK PROJECT  
WEST RIDGE

GRID AND CLAIM MAP

PROJECT 313

NTS: 105 B 11	TECHNICAL GD.	DATE: OCT. 1986
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SCALE: 1:10,000	DRAFTING: GT	FIGURE: 5
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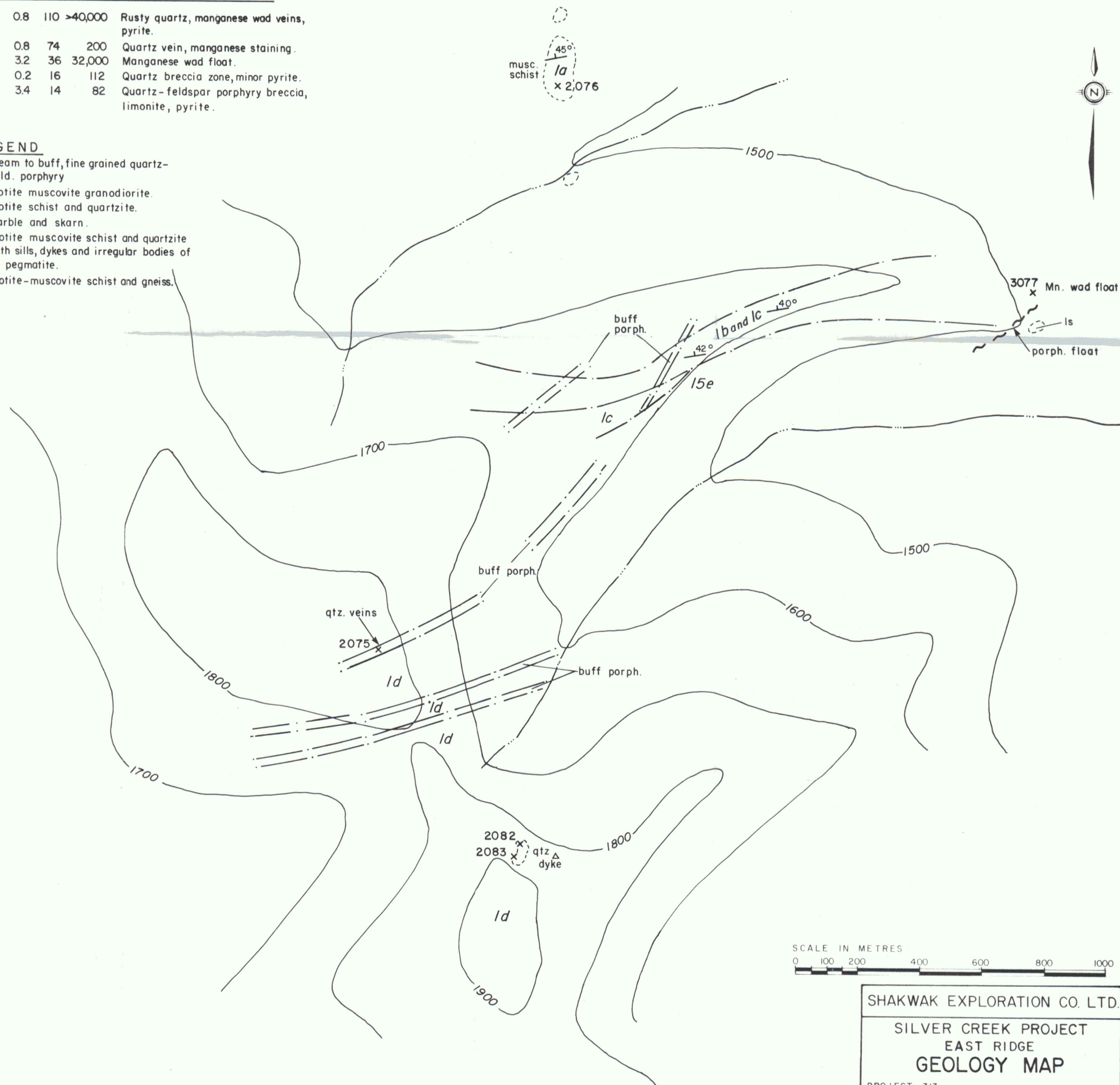
elevations in metres

999 091935

SAMPLE NUMBER	ROCK SAMPLES				Description
	Au (ppb)	Ag (ppm)	Pb (ppm)	Zn (ppm)	
2075	0.8	110	>40,000		Rusty quartz, manganese wad veins, pyrite.
2076	0.8	74	200		Quartz vein, manganese staining.
2077	3.2	36	32,000		Manganese wad float.
2082	0.2	16	112		Quartz breccia zone, minor pyrite.
2083	3.4	14	82		Quartz-feldspar porphyry breccia, limonite, pyrite.

**LEGEND**

- buff porphyry - cream to buff, fine grained quartz-feld. porphyry
- 15e - biotite muscovite granodiorite.
- 1a - biotite schist and quartzite.
- 1b - marble and skarn.
- 1c - biotite muscovite schist and quartzite with sills, dykes and irregular bodies of to pegmatite.
- 1d - biotite-muscovite schist and gneiss.

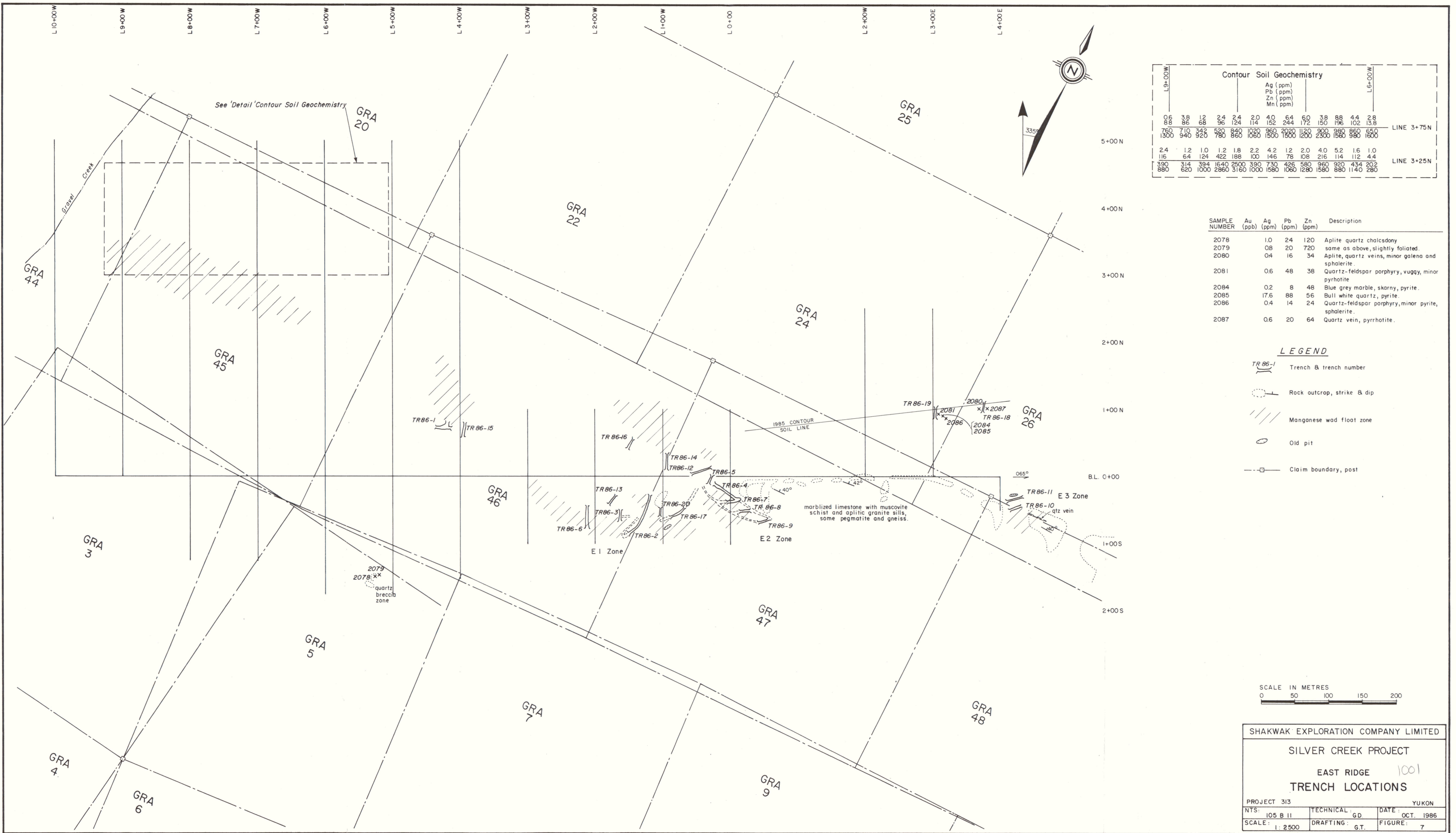


SCALE IN METRES  
 0 100 200 400 600 800 1000

SHAKWAK EXPLORATION CO. LTD.		
SILVER CREEK PROJECT EAST RIDGE GEOLOGY MAP		
PROJECT 313		
NTS: 105 B 11	TECHNICAL GD.	DATE: OCT. 1986
SCALE: 1:10,000	DRAFTING: GT.	FIGURE: 6

997

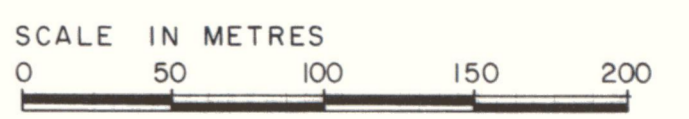
091935



Contour Soil Geochemistry													
		Ag (ppm)		Pb (ppm)		Zn (ppm)		Mn (ppm)					
0.66	3.8	1.2	2.4	2.4	2.0	4.0	6.4	6.0	3.8	8.8	4.4	2.8	
8.8	86	68	96	124	114	152	244	172	150	196	102	13.8	
760	710	342	520	840	1020	960	2020	1120	900	980	860	650	LINE 3+75N
1300	940	920	780	860	1060	1500	1500	1200	2300	1580	880	1800	
2.4	1.2	1.0	1.2	1.8	2.2	4.2	1.2	2.0	4.0	5.2	1.6	1.0	
116	6.4	124	422	188	100	146	78	108	216	114	112	4.4	LINE 3+25N
390	314	394	1640	2500	390	730	426	580	960	920	434	202	
880	620	1000	2860	3160	1000	1580	1060	1280	1580	880	1140	280	

SAMPLE NUMBER	Au (ppb)	Ag (ppm)	Pb (ppm)	Zn (ppm)	Description
2078	1.0	24	120	120	Aplite quartz chalcedony
2079	0.8	20	720		some as above, slightly foliated.
2080	0.4	16	34		Aplite, quartz veins, minor galena and sphalerite
2081	0.6	48	38		Quartz-feldspar porphyry, vuggy, minor pyrrhotite
2084	0.2	8	48		Blue grey marble, skarny, pyrite.
2085	17.6	88	56		Bull white quartz, pyrite.
2086	0.4	14	24		Quartz-feldspar porphyry, minor pyrite, sphalerite.
2087	0.6	20	64		Quartz vein, pyrrhotite.

- LEGEND**
- TR 86-1 Trench & trench number
  - Rock outcrop, strike & dip
  - Manganese wad float zone
  - Old pit
  - Claim boundary, post



SHAKWAK EXPLORATION COMPANY LIMITED

SILVER CREEK PROJECT

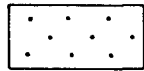
EAST RIDGE 1001

TRENCH LOCATIONS

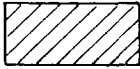
PROJECT 313 YUKON

NTS: 105 B II	TECHNICAL: G.D.	DATE: OCT. 1986
SCALE: 1: 2500	DRAFTING: G.T.	FIGURE: 7

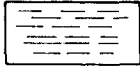
## LEGEND



Overburden, permafrost.



Quartz vein and breccia zone, clay seams, minor galena, fragments of marble and schist in breccia.

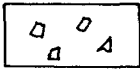


Clay zone contains quartz fragments.

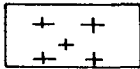


galena vein

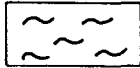
Manganese and goethite wad, some quartz rich wad, galena and sphalerite veins.



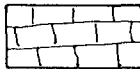
Buff to cream coloured porphyry, fine to medium grained feldspar phenocrysts and quartz eyes. Minor pyrite.



Granitic rock, primarily quartz-feldspar-muscovite granite, less aplite and pegmatite.

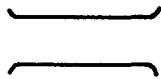


Muscovite schist, less biotite schist.



Marble, contains interbedded muscovite schist, biotite gneiss and sills of granitic rock, some skarn.

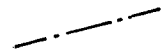
## SYMBOLS



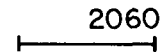
Trench floor outline



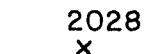
Geological contact



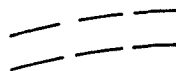
Chip sample interval, sample number.



Grab sample, sample number.



Cat trail.



SHAKWAK EXPLORATION CO. LTD.

SILVER CREEK PROJECT

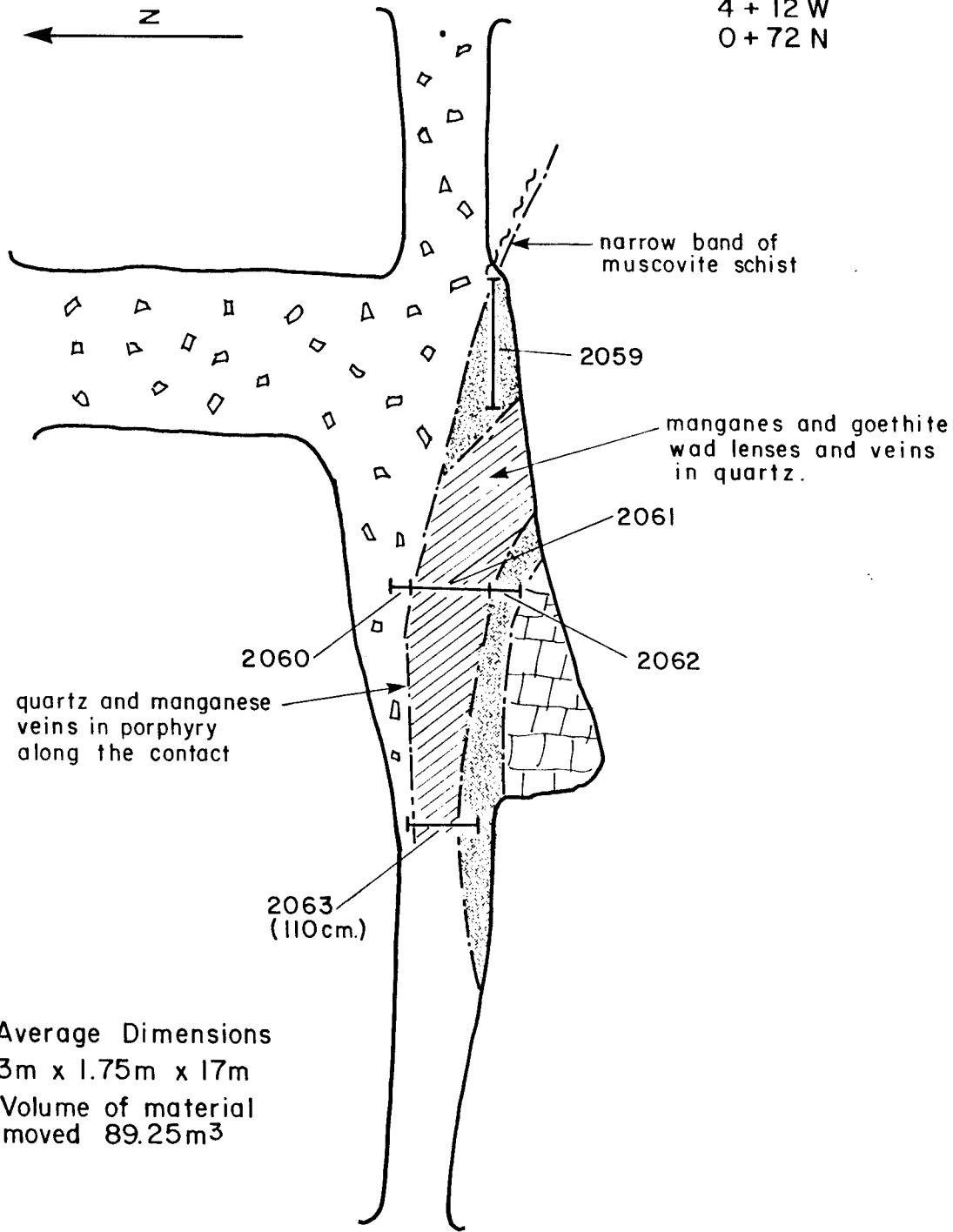
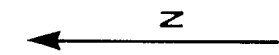
FIGURE :

8 A

Grid coordinates

4 + 12 W

0 + 72 N

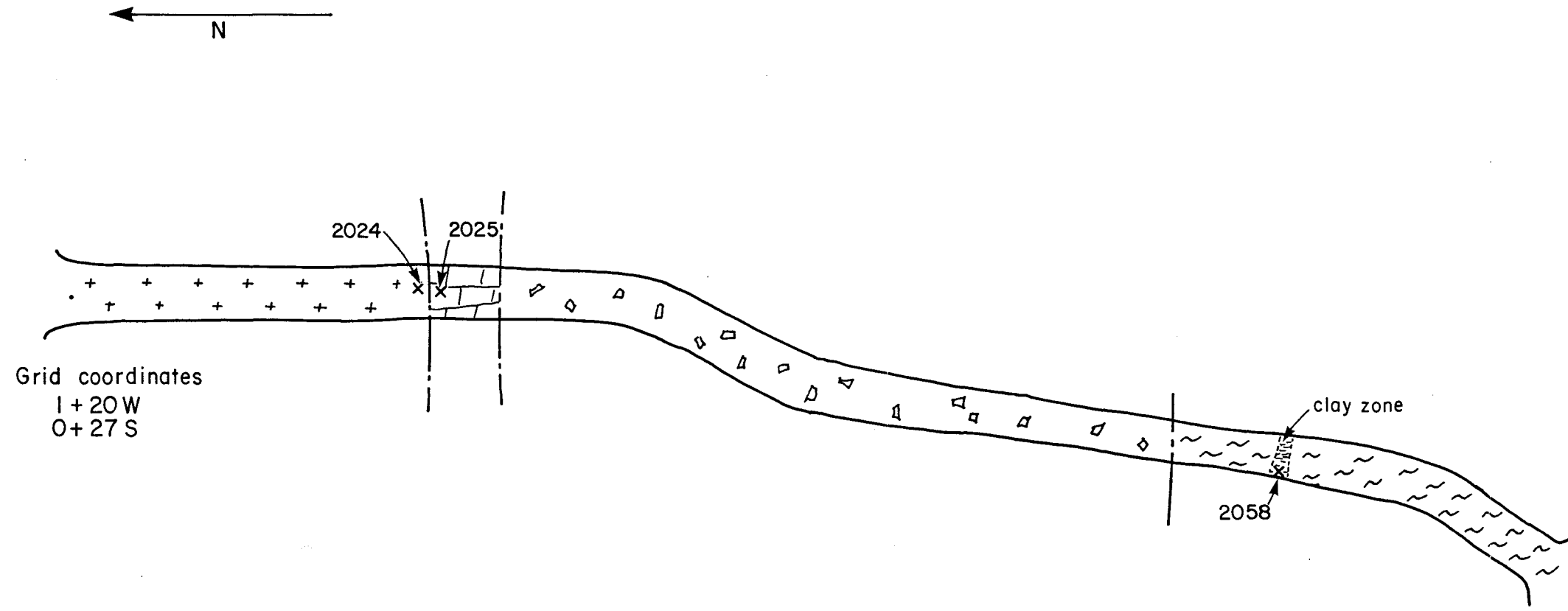


Average Dimensions  
3m x 1.75m x 17m  
Volume of material  
moved 89.25m<sup>3</sup>

SAMPLE NUMBER	WIDTH (cm)	Ag (ppm)	Pb (ppm)	Zn (ppm)	Description
2059	200	8.0	10,000	29,400	Manganese and goethite wad.
2060	30	18.2	7,400	4,600	Altered orange porphyry along contact.
2061	120	2.8	332	2,960	Quartz zone containing manganese wad veins.
2062	50	3.4	62	5,600	Manganese and goethite wad.
2063	110	5.0	142	1,380	Mainly quartz containing some manganese wad.

SHAKWAK EXPLORATION CO. LTD.	
SILVER CREEK PROJECT	
TRENCH 86-1	
SCALE	FIGURE
1:100	8 B

SAMPLE NUMBER	WIDTH (cm.)	Ag (ppm)	Pb (ppm)	Zn (ppm)	Description
2024	grab	2.4	428	580	Grab of muscovite granite cut by quartz veins.
2025	grab	1.8	156	326	Rusty skarny material at marble granite contact.
2058	30	1.6	180	4,900	Clay alteration zone in muscovite schist.



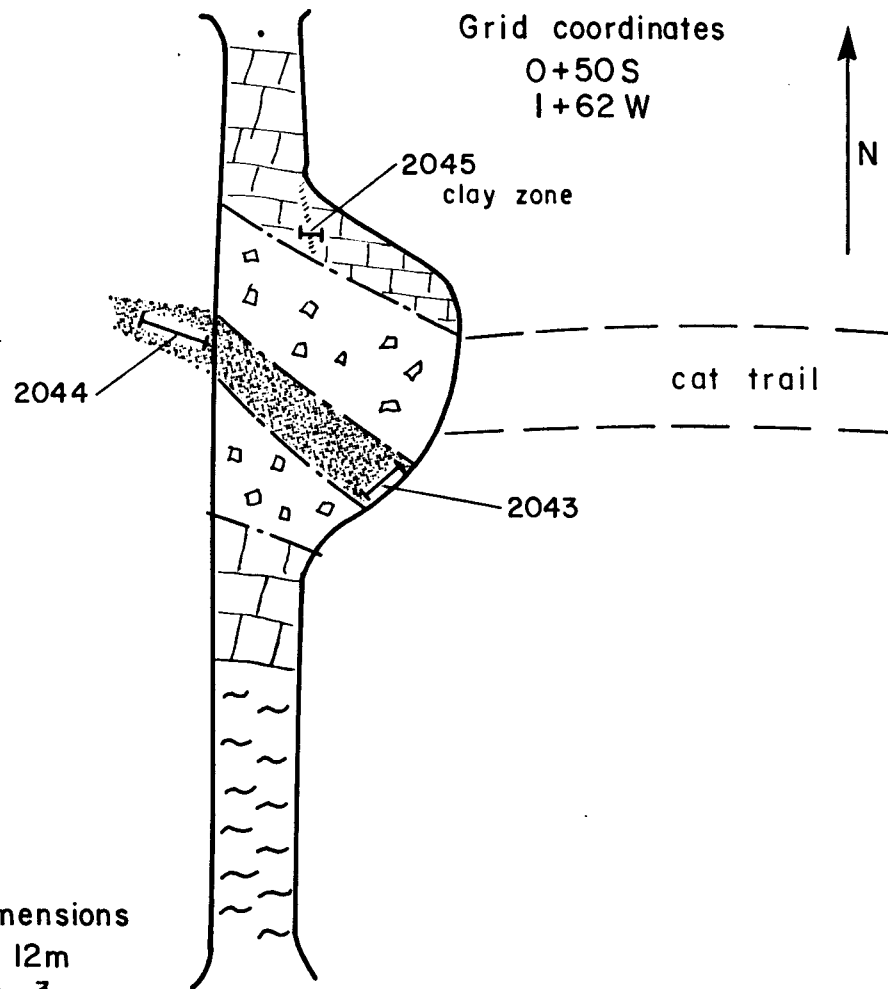
Grid coordinates  
1+20W  
0+27S

Average Dimensions  
1.75m x 2.25m x 52m  
Volume 204.75 m<sup>3</sup>

945

SHAKWAK EXPLORATION CO. LTD.	
SILVER CREEK PROJECT	
TRENCH 86-2	
SCALE: 1:200	FIGURE: 8c

SAMPLE NUMBER	WIDTH (cm.)	Ag (ppm)	Pb (ppm)	Zn (ppm)	Description
2043	60	4.6	750	10,800	Manganese and goethite wad with buff porphyry fragments.
2044	100	4.4	630	12,800	Manganese and goethite wad.
2045	20	2.0	76	5,500	Orange clay gouge zone in marble.



SHAKWAK EXPLORATION CO. LTD.

SILVER CREEK PROJECT

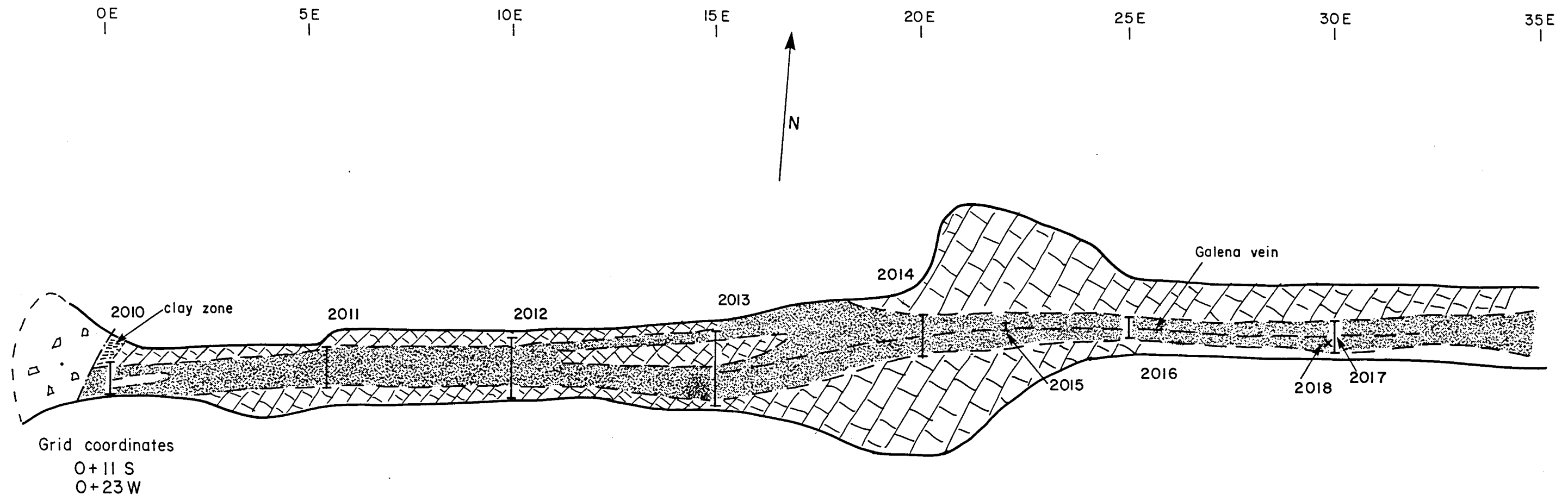
TRENCH 86-3

SCALE:

1: 100

FIGURE:

8 d

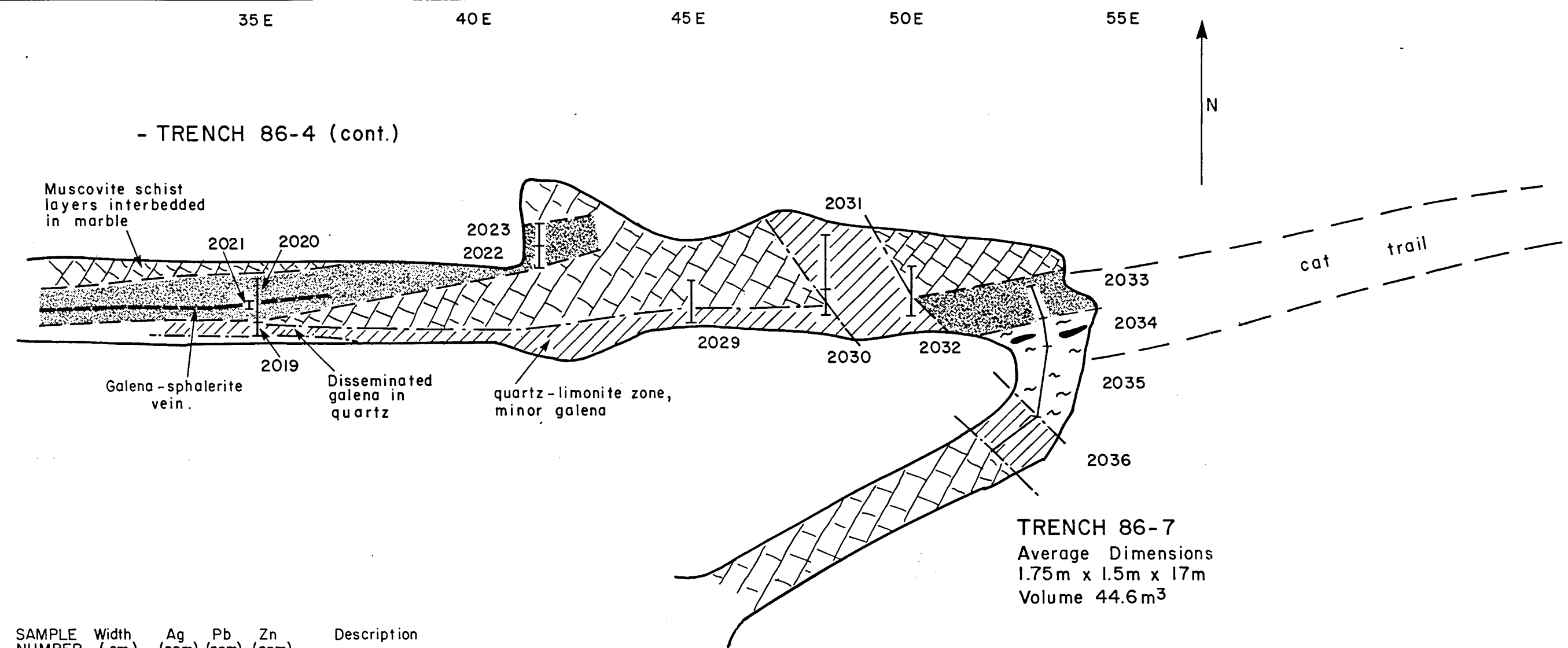


Average Dimensions  
 3m x 2.5m x 53m  
 Volume 397.5 m<sup>3</sup>

SAMPLE NUMBER	WIDTH (cm.)	Ag (ppm)	Pb (ppm)	Zn (ppm)	Description
2010	80	18.6	18,000	11,800	Manganese and goethite wad, some rusty buff porphyry.
2011	100	14.8	13,000	27,800	Manganese and goethite wad, some marble.
2012	150	5.0	3,320	36,400	Manganese and goethite wad, fragments of buff porphyry in permafrost.
2013	180	15.6	9,600	40,000	Manganese and goethite wad, band of bleached porphyry, narrow galena vein.
2014	100	29.2oz/t.	4.64%	40,000	Manganese and goethite wad, 10cm. wide galena vein.
2015	12	96.8oz/t.	72.96%	5,500	Galena vein, massive, semi-crystalline fine to medium grained galena, some anglesite.
2016	50	2.9oz/t.	0.98%	40,000	Manganese and goethite wad, minor galena.
2017	80	14.52oz/t.	20.8%	22,000	Manganese and goethite wad, 10cm. wide galena vein in wad.
2018	10	57.2 oz/t.	75.2%	4,300	Galena vein, massive semi-crystalline.

99

SHAKWAK EXPLORATION CO. LTD.	
SILVER CREEK PROJECT	
TRENCH 86-4	
SCALE: 1:100	FIGURE: 8 e



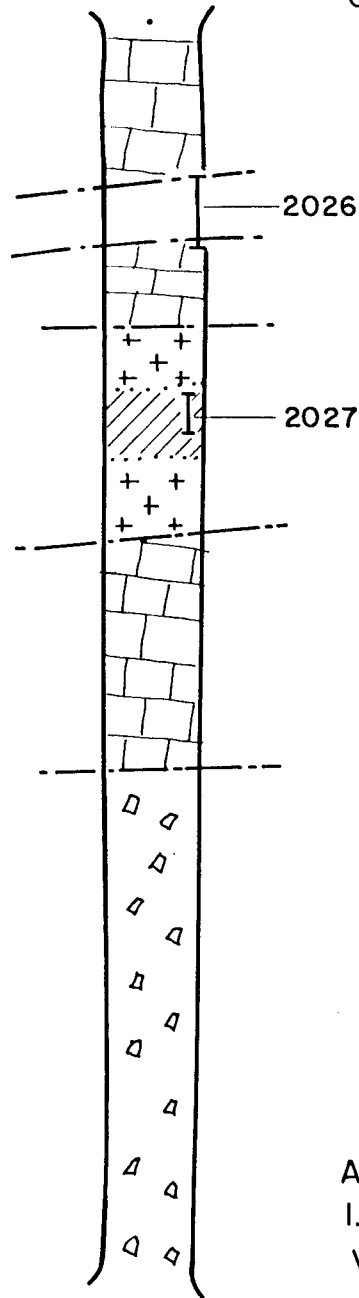
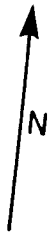
SAMPLE NUMBER	Width (cm.)	Ag (ppm)	Pb (ppm)	Zn (ppm)	Description
2019	30	22.2	3,820	5,100	Quartz-carbonate zone, orange clay alteration, some cubic galena.
2020	100	1.8	9,800	>40,000	Manganese and goethite wad, 20cm. wide vein of galena, spalerite.
2021	20	8.8	20,400	>40,000	Galena - sphalerite vein.
2022	50	13.2	7,200	13,400	Orange weathering carbonate, clay material.
2023	50	21.2	20,800	>40,000	Manganese and goethite wad in permafrost.
2029	100	8.2	1,020	19,400	Orange clay zone with wad lenses.
2030	60	3.6	520	5,200	Carbonate rock, some rusty veins.
2031	120	1.2	26	3,900	Orange quartz-clay zone with manganese wad lenses.
2032	115	3.4	770	4,600	Granitic rock, clay gouge, manganese wad veins, quartz veins.
2033	80	2.8	9,600	40,000	Manganese wad, some muscovite schist.
2034	60	14.8	1,840	16,600	Orange weathering schist and goethite wad.
2035	165	4.8	2,420	4,400	Granitic rock and chlorite schist, clay alteration, minor manganese.
2036	130	3.2	108	1,220	Orange to yellow clay zone, quartz fragments, some chlorite schist, some manganese staining.

927

SHAKWAK EXPLORATION CO. LTD.	
SILVER CREEK PROJECT	
TRENCHES 86-4, 86-7	
SCALE: 1: 100	FIGURE: 8 e (cont.)

Grid coordinates

BL 0+00  
O+27W



Average dimensions  
1.25m x 2m x 16.5m  
Volume 41.25 m<sup>3</sup>

SAMPLE NUMBER	WIDTH (cm.)	Ag (ppm)	Pb (ppm)	Zn (ppm)	Description
2026	100	3.6	108	3000	Quartz-feldspar dyke, manganese staining.
2027	50	2.2	104	480	Quartz-feldspar band, rusty quartz veins, manganese staining.

SHAKWAK EXPLORATION CO. LTD.

SILVER CREEK PROJECT

TRENCH 86-5

SCALE

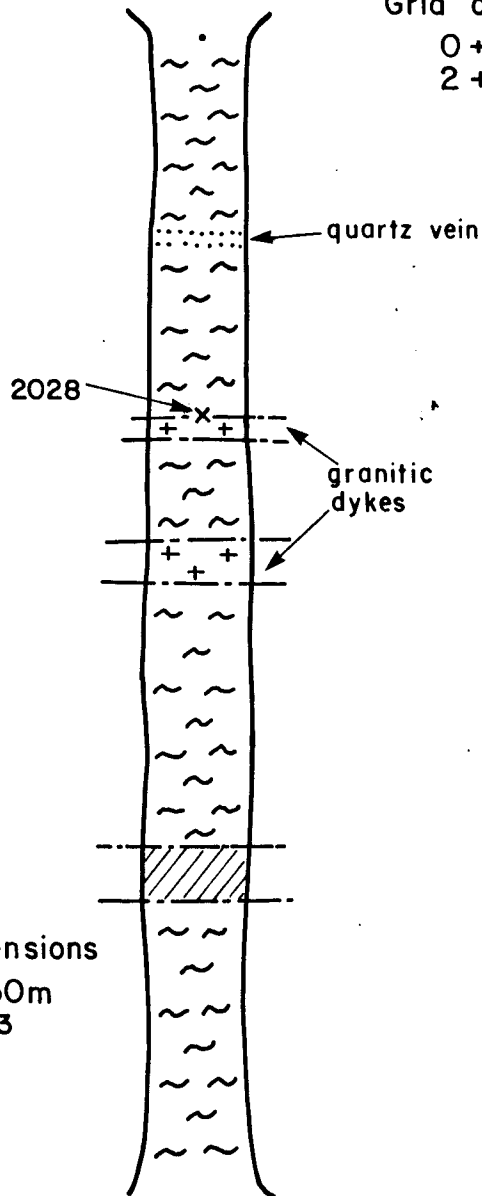
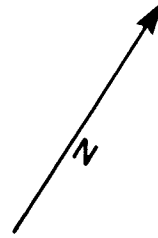
1:100

FIGURE

8 f

Grid coordinates

0 + 45 E  
2 + 10 W



Average dimensions  
1.5m x 1m x 30m  
Volume 45m<sup>3</sup>

SAMPLE NUMBER	WIDTH (cm.)	Ag (ppm)	Pb (ppm)	Zn (ppm)	Description
2028	grab	1.4	68	218	Grab of diopside skarn containing pyrite and chalcopyrite.

SHAKWAK EXPLORATION CO. LTD.

SILVER CREEK PROJECT

TRENCH 86-6

SCALE: 1 : 200

FIGURE: 8 g

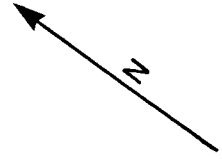
Grid coordinates  
 0+62 S  
 0+52 E

TRENCH 86-9  
 Trench dimensions  
 1.4m x 1.75m x 16m  
 Volume 39.2m<sup>3</sup>

Grid coordinates  
 0+52 S  
 0+30 E

TRENCH 86-8  
 Trench dimensions  
 1.75m x 2m x 20m  
 Volume 70m<sup>3</sup>

2037 — x — 2038



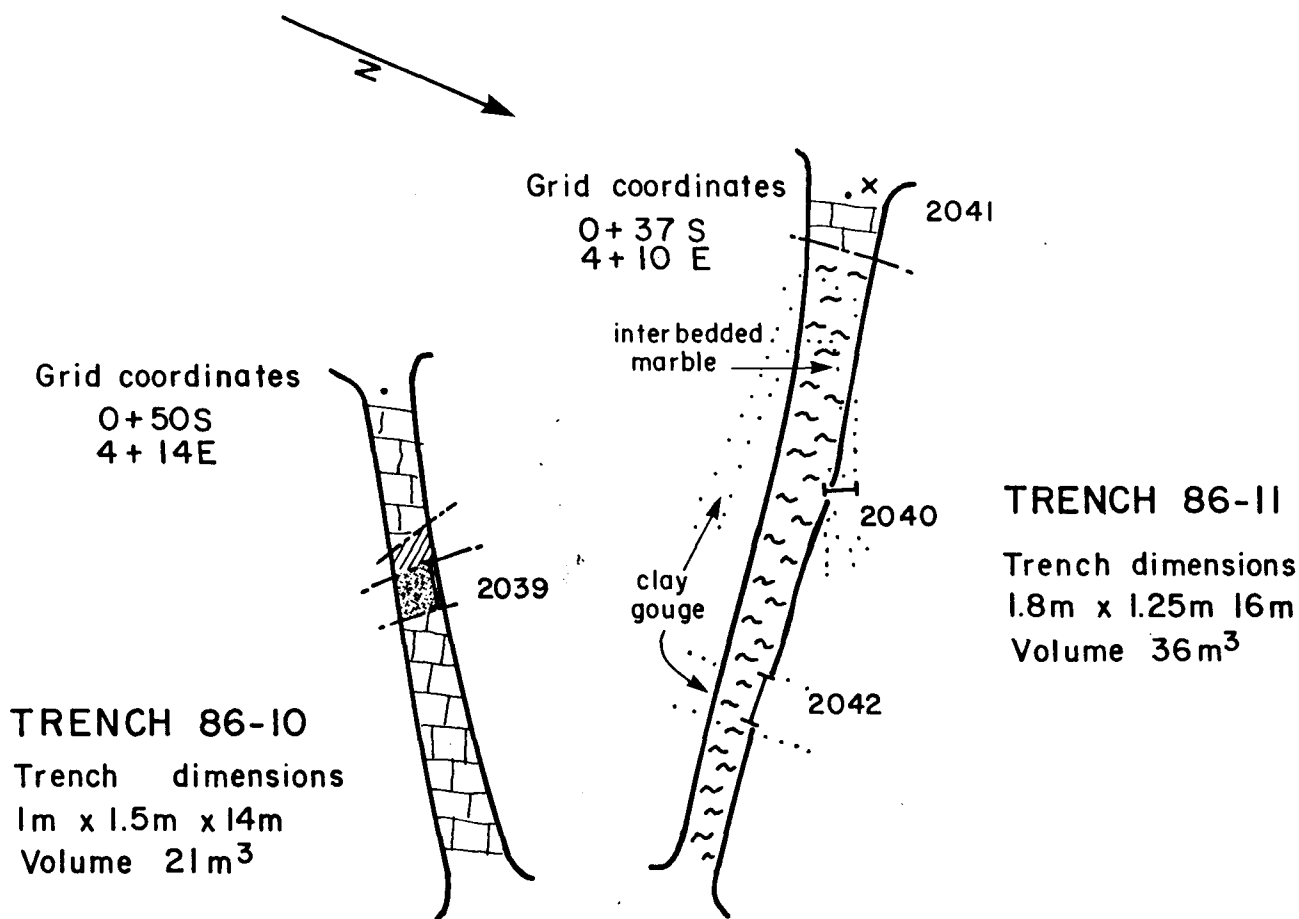
SAMPLE NUMBER	WIDTH (cm.)	Ag (ppm)	Pb (ppm)	Zn (ppm)	Description
2037	100	1.0	4.2	236	Orange to white clay zone, quartz fragments, manganese staining.
2038	grab	5.4	264	7,500	Quartz containing lenses and veins of manganese wad.

SHAKWAK EXPLORATION CO. LTD.

SILVER CREEK PROJECT

TRENCHES 86-8, 86-9

SCALE: 1 : 200      FIGURE: 8 h



SAMPLE NUMBER	WIDTH (cm)	Ag (ppm)	Pb (ppm)	Zn (ppm)	Description
2039	60	1.2	276	25000	Manganese wad, quartz-clay zone.
2040	40	84	700	1,820	Orange to grey clay zone.
2041	grab	14.4	5,500	5,800	Marble containing minor galena.
2042	60	0.6	24	192	Orange clay zone in limy muscovite schist.

SHAKWAK EXPLORATION CO. LTD.

SILVER CREEK PROJECT

TRENCHES 86-10, 86-11

SCALE:

1: 200

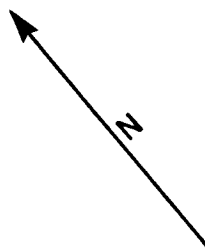
FIGURE:

8 i

Grid coordinates

O+ 14 N

O+ 26 W



SAMPLE NUMBER	WIDTH (cm.)	Ag (ppm)	Pb (ppm)	Zn (ppm)	Description
2046	300	2.0	62	720	Broken quartz zone, some manganese-goethite.
2047	110	6.0	128	1,660	Clay gouge, rusty rock fragments.
2048	120	5.2	352	2,380	Clay zone with quartz fragments.
2049	135	5.6	580	2,880	Quartz zone, mn and goethite wad.
2050	grab	3.4	196	252	Quartz vein, minor galena.

2046

2047

2048

2049

2050

White quartz zone, coxcomb texture, manganese wad veins and lenses, minor galena.

Trench dimensions

1.5m x 1.8m x 27.5m

Volume 74.25m<sup>3</sup>

SHAKWAK EXPLORATION CO. LTD.

SILVER CREEK PROJECT

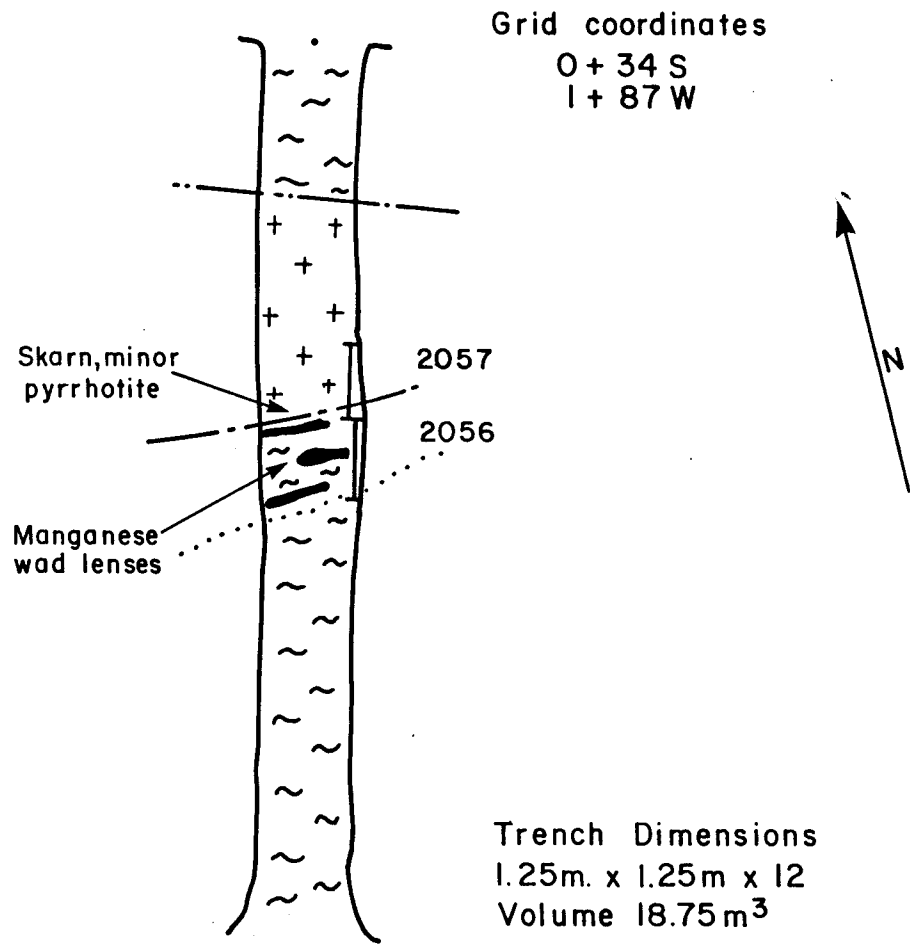
TRENCH 86-12

SCALE:

1:100

FIGURE:

8 j

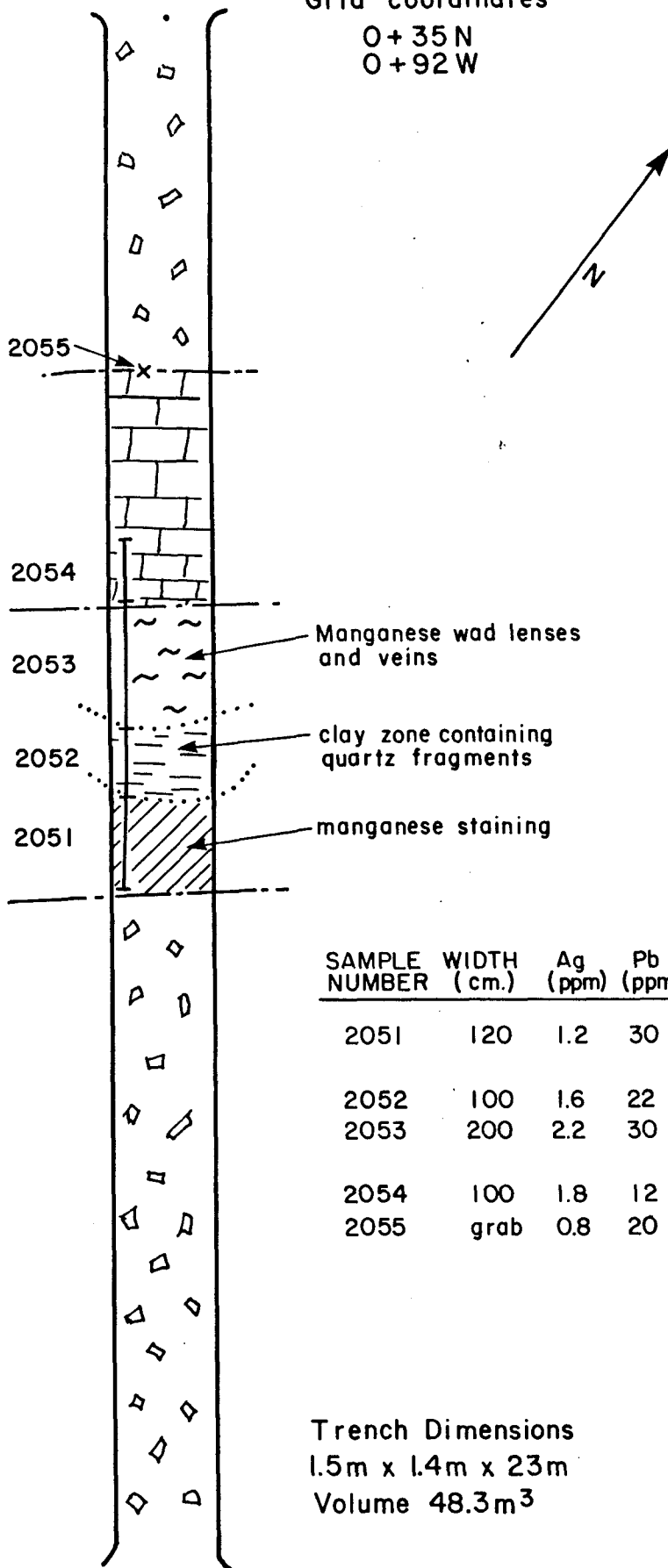


SAMPLE NUMBER	WIDTH (cm.)	Ag (ppm)	Pb (ppm)	Zn (ppm)	Description
2056	110	408oz/t	540	9600	Manganese wad veins in muscovite schist.
2057	100	1.6	118	5,000	Granitic rock, slight manganese staining.

SHAKWAK EXPLORATION CO. LTD.	
SILVER CREEK PROJECT	
TRENCH 86-13	
SCALE: 1: 100	FIGURE: 8 k

Grid coordinates

0+35 N  
0+92 W



SAMPLE NUMBER	WIDTH (cm.)	Ag (ppm)	Pb (ppm)	Zn (ppm)	Description
2051	120	1.2	30	266	Broken quartz zone, manganese + limonite staining.
2052	100	1.6	22	146	Clay gouge, some quartz fragments.
2053	200	2.2	30	176	Muscovite schist, heavy manganese staining, minor wad.
2054	100	1.8	12	280	Marble, manganese staining.
2055	grab	0.8	20	116	Narrow skarn band, pyrite.

Trench Dimensions  
1.5m x 1.4m x 23m  
Volume 48.3m<sup>3</sup>

SHAKWAK EXPLORATION CO. LTD.	
SILVER CREEK PROJECT	
TRENCH 86-14	
SCALE: 1:100	FIGURE: 81

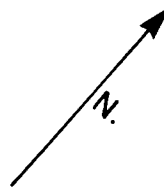
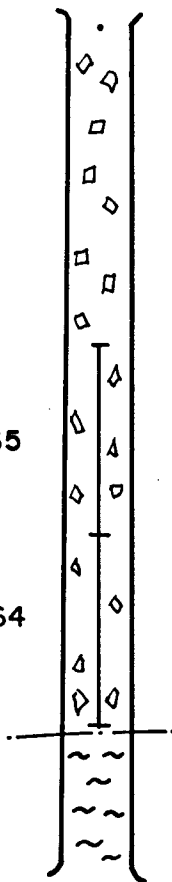
Grid coordinates

0+80 N  
3+92 W

Trench dimensions  
1.25m x 1.4m x 22m  
Volume 38.5m<sup>3</sup>

2065

2064



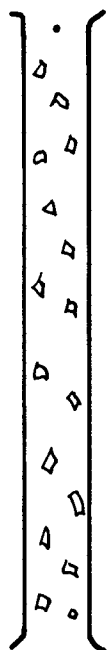
### TRENCH 86-15

SAMPLE NUMBER	WIDTH (cm)	Ag (ppm)	Pb (ppm)	Zn (ppm)	Description
2064	500	1.0	60	142	Buff porphyry, clay seams, quartz veins, manganese staining
2065	500	1.6	90	162	Same as above.

Grid coordinates

0+55 N  
1+42 W

Trench dimensions  
1.5m x 1.75m x 16m  
Volume 42m<sup>3</sup>



### TRENCH 86-16

SHAKWAK EXPLORATION CO. LTD.

SILVER CREEK PROJECT

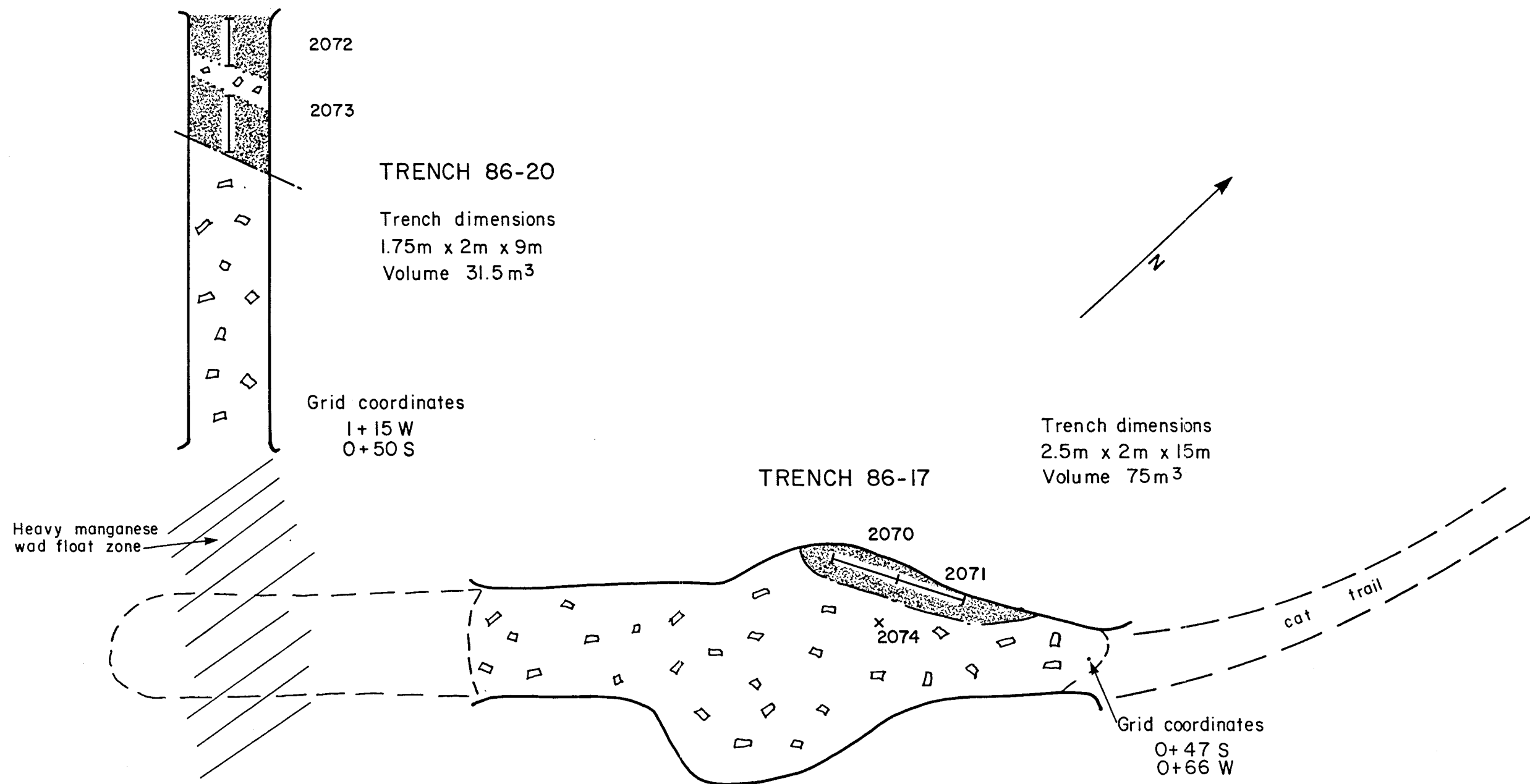
TRENCHES 86-15, 86-16

SCALE:

1:200

FIGURE:

8 m



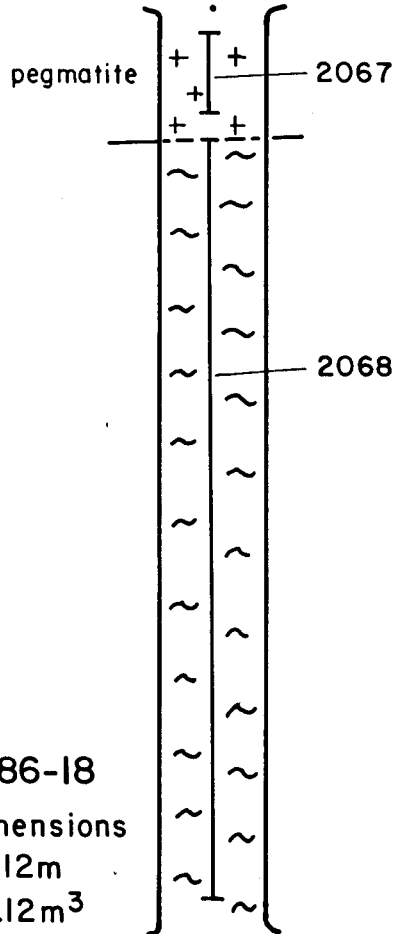
SAMPLE NUMBER	WIDTH (cm.)	Ag (ppm)	Pb (ppm)	Zn (ppm)	Description
2070	150	0.4	590	20,200	Manganese and goethite wad, up to 1% fresh galena, quartz in wad.
2071	150	0.8	340	20,400	same as above
2072	100	2.2	204	8,900	Manganese and goethite wad, permafrost, quartz and minor galena in wad.
2073	120	34	1,440	20,600	Manganese and goethite wad, permafrost.
2074	grab	44.0	1,840	3,200	Manganese wad, ~5% fresh galena.

94

SHAKWAK EXPLORATION CO. LTD.	
SILVER CREEK PROJECT	
<b>TRENCHES 86-17, 86-20</b>	
SCALE: 1:100	FIGURE: 8 n

Grid coordinates

1+12 N  
3+76 E

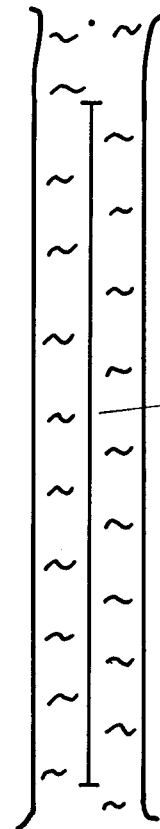


**TRENCH 86-18**

Trench dimensions  
1.4m x .9 x 12m  
Volume 15.12m<sup>3</sup>

Grid coordinates

1+05 N  
3+05 E



2069

quartz rich bands  
in schist

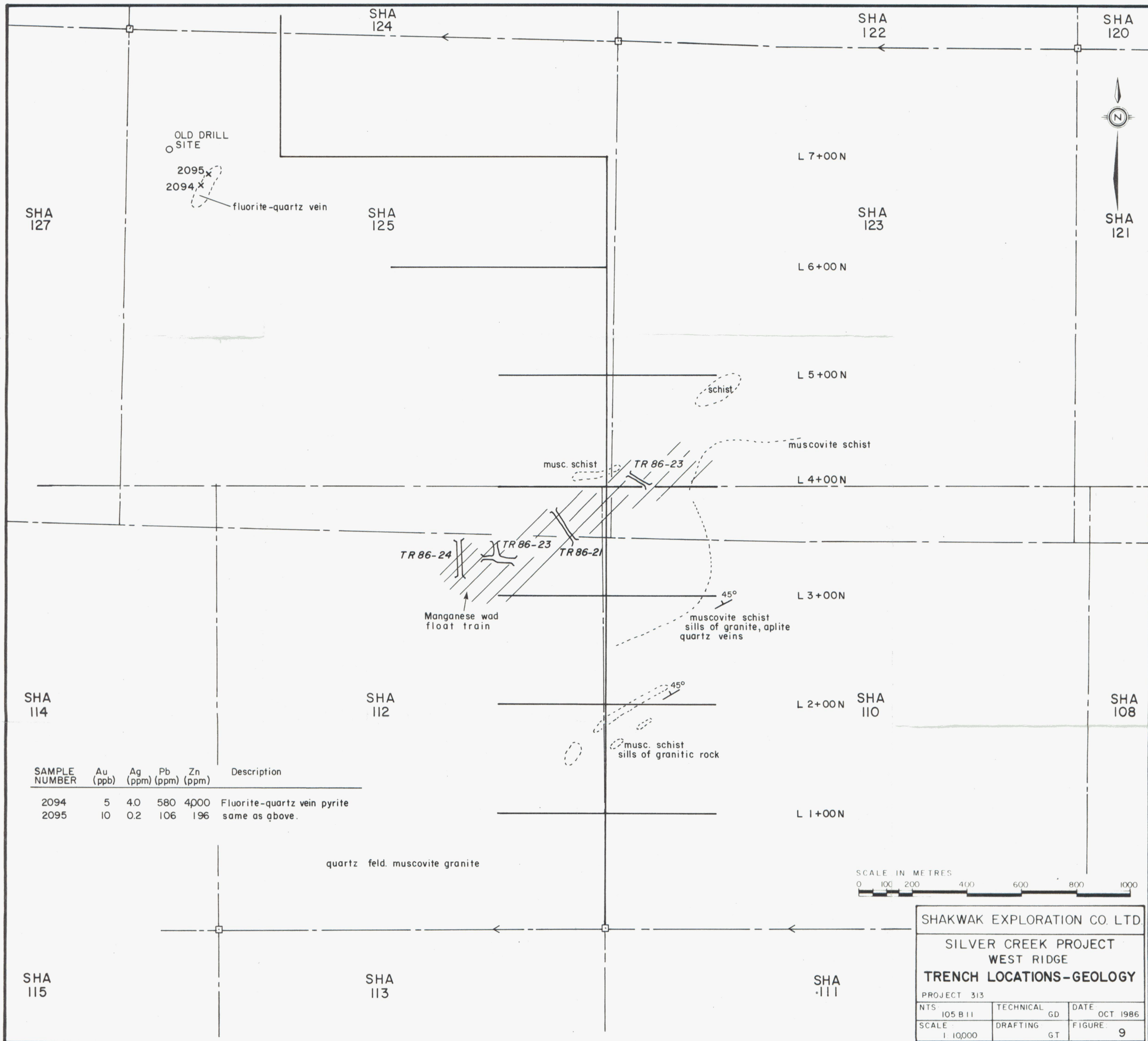
**TRENCH 86-19**

Trench dimensions  
1.5m x .8 x 10m  
Volume 12m<sup>3</sup>

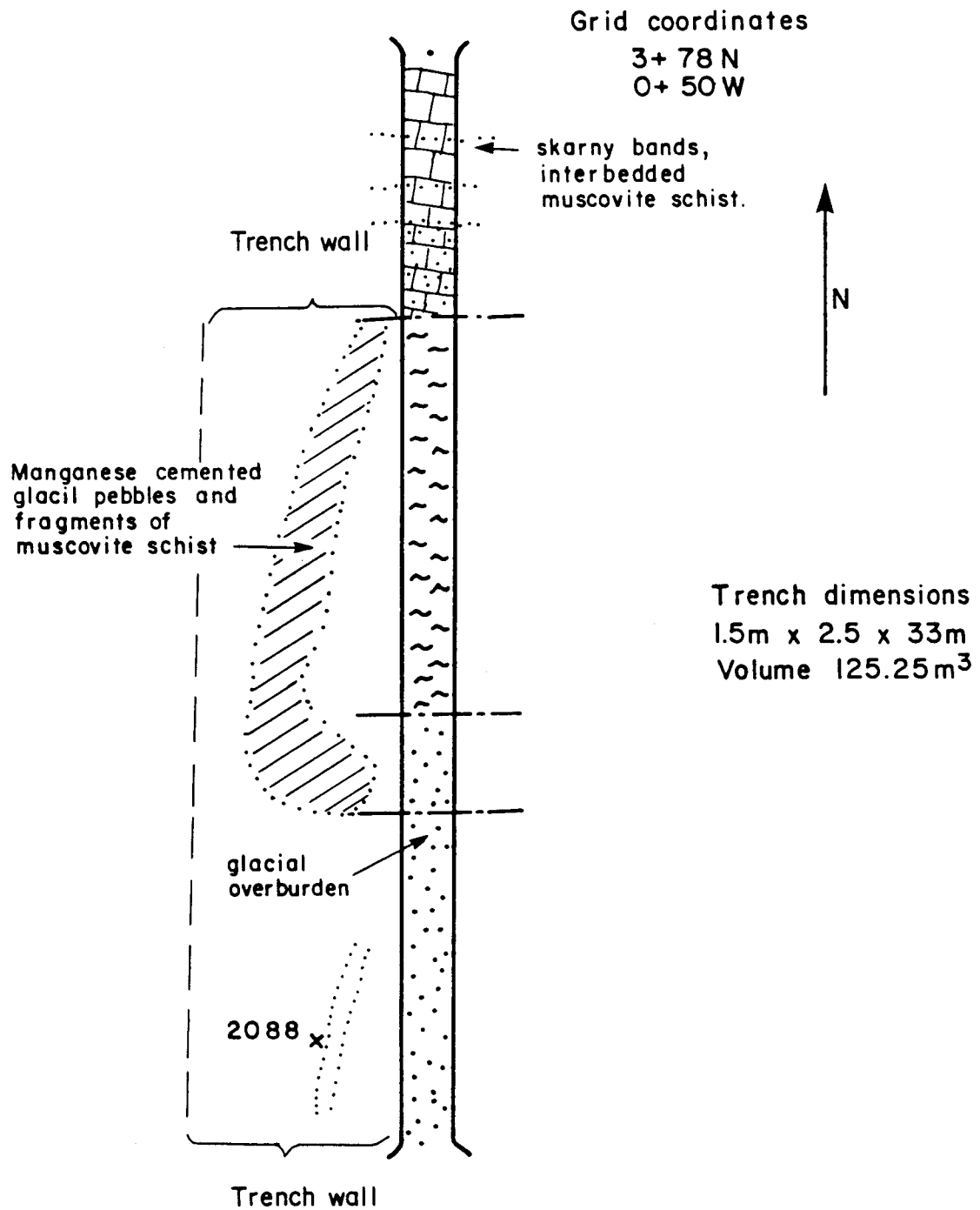


SAMPLE NUMBER	WIDTH (cm.)	Ag (ppm)	Pb (ppm)	Zn (ppm)	Description
2067	100	0.8	52	116	Pegmatite dyke, quartz clay material, manganese staining.
2068	1000	2.0	14	90	Muscovite schist, aplite and pegmatite bands, minor pyrrhotite.
2069	900	0.4	8	62	Silicified schist, some skarn, minor pyrrhotite.

SHAKWAK EXPLORATION CO. LTD.	
SILVER CREEK PROJECT	
TRENCHES 86-18, 86-19	
SCALE: 1:100	FIGURE: 80



SAMPLE NUMBER	Au (ppb)	Ag (ppm)	Pb (ppm)	Zn (ppm)	Description
2094	5	4.0	580	4000	Fluorite-quartz vein pyrite
2095	10	0.2	106	196	same as above.



SAMPLE NUMBER	WIDTH (cm.)	Ag (oz/t)	Pb (%)	Zn (ppm)	Description
2088	grab	5.92	4.4	40000	Brecciated limestone, quartz veins, up to 10% galena and sphalerite. Grab sample in overburden.

SHAKWAK EXPLORATION CO. LTD.

SILVER CREEK PROJECT

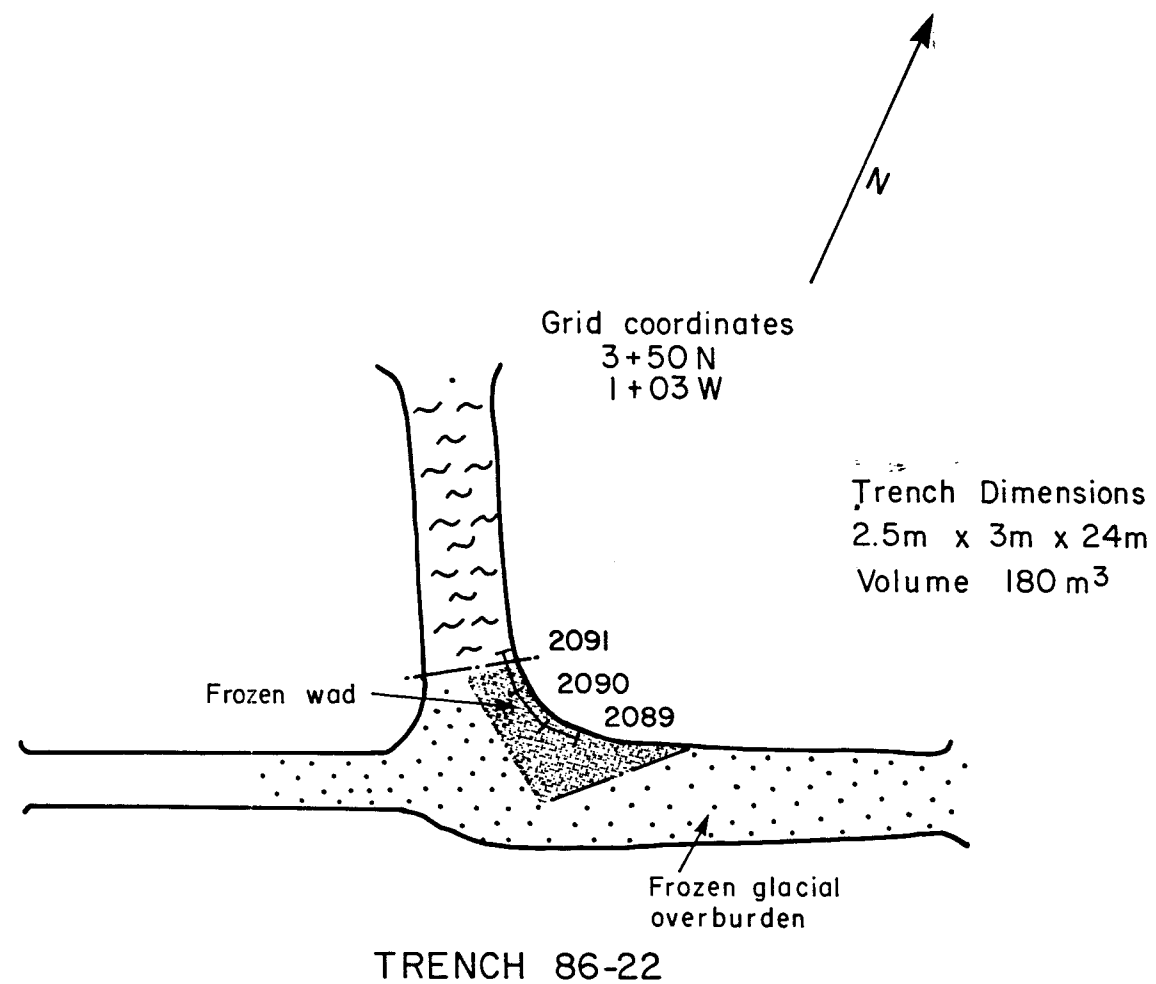
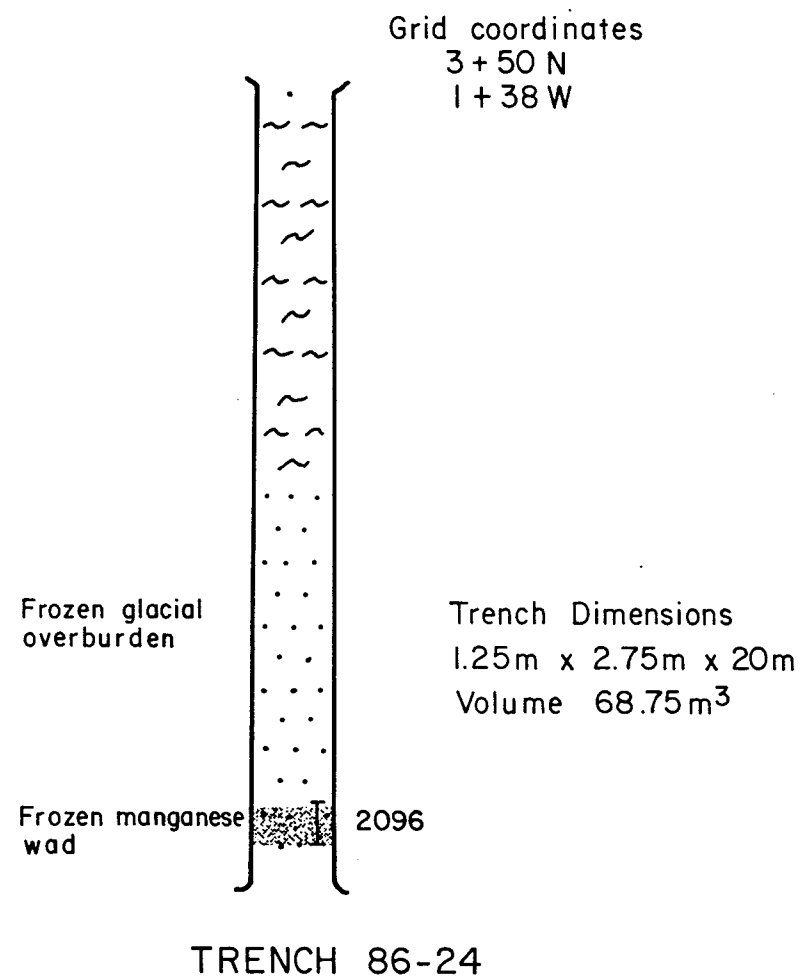
TRENCH 86-21

SCALE:

1: 200

FIGURE:

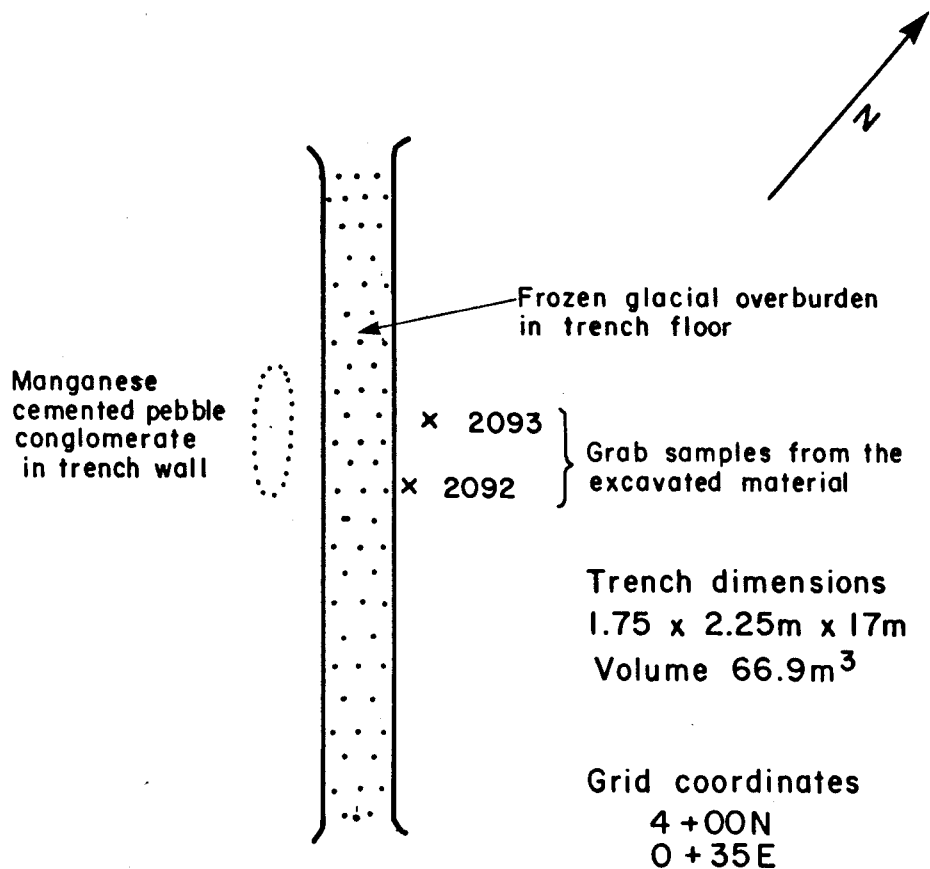
10 a



SAMPLE NUMBER	WIDTH (cm.)	Ag (ppm)	Pb (ppm)	Zn (ppm)	Description
2089	100	7.6	7,800	21,600	Manganese and goethite wad in permafrost.
2090	100	9.8	3,520	40,000	same as above.
2091	100	3.6	2,020	18,200	Manganese and goethite wad, some muscovite schist fragments, all in permafrost.
2096	100	7.6	11,400	15,400	same as above.

996

SHAKWAK EXPLORATION CO. LTD.	
SILVER CREEK PROJECT	
TRENCHES 86-22, 86-24	
SCALE: 1:200	FIGURE 10 b



SAMPLE NUMBER	WIDTH (cm.)	Ag (ppm)	Pb (ppm)	Zn (ppm)	Description
2092	grab	34	236	8300	Dacite, disseminated pyrite, 1% galena and sphalerite.
2093	grab	98	16,600	>40,000	Banded rusty schist, 5% galena and sphalerite.

SHAKWAK EXPLORATION CO. LTD.

SILVER CREEK PROJECT

TRENCH 86-23

SCALE:

1: 200

FIGURE:

10 c

APPENDIX I

## STATEMENT OF QUALIFICATIONS

I, GRAHAM DAVIDSON, of the City of Whitehorse in the Yukon Territory, hereby certify:

THAT I am a consulting geologist AND THAT I participated in the work described in this report.

THAT I am a graduate of the University of Western Ontario (H.B.Sc., Geology, 1981);

THAT I am registered as a Professional Geologist by the Association of Professional Engineers, Geologists and Geophysicists of Alberta (No. 42308);

THAT I have been engaged in mineral exploration on a full-time and part-time basis for seven years, of which five have been spent in the Yukon and Northwest Territories.

SIGNED at Whitehorse, Yukon, this 15 day  
of March, 1987.



G.S. DAVIDSON, P. Geol.

APPENDIX II

CERTIFICATES OF ANALYSIS

ROSSBACHER LABORATORY LTD.

2225 S. SPRINGER AVENUE  
 BURNABY, B.C. V5B 3N1  
 TEL : (604) 299 - 6910

CERTIFICATE OF ANALYSIS

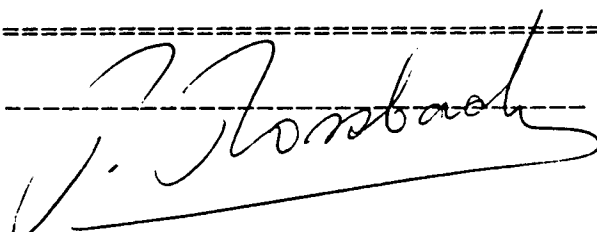
TO : SHAKWAK EXPLORATION CO. LTD.  
 123-470 GRANVILLE ST.  
 VANCOUVER, B.C.

CERTIFICATE#: 86523  
 INVOICE#: 7001  
 DATE ENTERED: 86-10-08  
 FILE NAME: SHAB6523  
 PAGE # : 1

PROJECT: #313  
 TYPE OF ANALYSIS: GEOCHEMICAL SOILS

PRE FIX	SAMPLE NAME	PPM Mn	PPM Ag	PPM Zn	PPM Pb
S	4001	880	2.4	390	116
S	4002	620	1.2	314	64
S	4003	1000	1.0	394	124
S	4004	2860	1.2	1640	422
S	4005	3160	1.8	2500	188
S	4006	1000	2.2	390	100
S	4007	1580	4.2	730	146
S	4008	1060	1.2	426	78
S	4009	1280	2.0	580	108
S	4010	1580	4.0	960	216
S	4011	880	5.2	920	114
S	4012	1140	1.6	434	112
S	4013	280	1.0	202	44
S	4014	1600	2.8	650	138
S	4015	980	4.4	860	102
S	4016	1560	8.8	980	196
S	4017	2320	3.8	900	150
S	4018	1200	6.0	1120	172
S	4019	1500	6.4	2020	244
S	4020	1500	4.0	960	152
S	4021	1060	2.0	1020	114
S	4022	860	2.4	840	124
S	4023	780	2.4	520	96
S	4024	920	1.2	342	68
S	4025	940	3.8	710	86
S	4026	1300	0.6	760	88

CERTIFIED BY :



**ROSSBACHER LABORATORY LTD.**

2225 S. SPRINGER AVENUE  
 BURNABY, B.C. V5B 3N1  
 TEL : (604) 299 - 6910

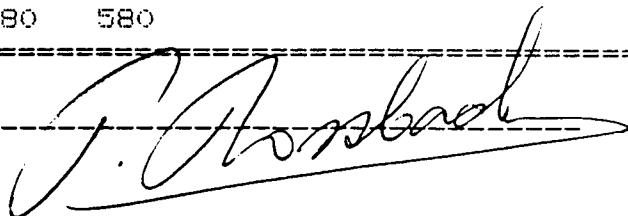
**CERTIFICATE OF ANALYSIS**

TO : SHAKWAK EXPLORATION CO. LTD.  
 123-470 GRANVILLE ST.  
 VANCOUVER, B.C.  
 PROJECT: NOT GIVEN 313  
 TYPE OF ANALYSIS: GEOCHEMICAL *Rock*

CERTIFICATE#: 86450  
 INVOICE#: 6788  
 DATE ENTERED: 86-09-24  
 FILE NAME: SH86450  
 PAGE # : 1

PRE FIX	SAMPLE NAME	PPM Mn	PPM Ag	PPM Zn	PPM Pb
A	2010	12000	18.6	11800	18200
A	2011	25800	14.8	27800	13000
A	2012	32400	5.0	36400	3320
A	2013	35000	15.6	>40000	9600
A	2014	>40000	>50.0	>40000	>40000
A	2015	980	>50.0	5500	>40000
A	2016	>40000	>50.0	>40000	10200
A	2017	>40000	>50.0	22000	>40000
A	2018	3000	>50.0	4300	>40000
A	2019	2840	22.2	5100	3820
A	2020	>40000	1.8	>40000	9800
A	2021	>40000	8.8	>40000	20400
A	2022	13200	13.2	13400	7200
A	2023	>40000	21.2	>40000	20800
A	2024	840	2.4	580	428
A	2025	1880	1.8	326	156
A	2026	3600	3.6	3000	108
A	2027	1140	2.2	480	104
A	2028	5000	1.4	218	68
A	2029	20000	8.2	19400	1020
A	2030	7200	3.6	5200	520
A	2031	3520	1.2	3900	26
A	2032	7800	3.4	4600	770
A	2033	>40000	2.8	40000	9600
A	2034	19000	14.8	16600	1840
A	2035	4800	4.8	4400	2420
A	2036	1840	3.2	1220	108
A	2037	940	1.0	236	42
A	2038	13600	5.4	7500	264
A	2039	>40000	1.2	25000	276
A	2040	980	8.4	1820	700
A	2041	5400	14.4	5800	5500
A	2042	740	0.6	192	24
A	2043	23200	4.6	10800	750
A	2044	31400	4.4	12800	630
A	2045	5500	2.0	5500	76
A	2046	1120	2.0	720	62
A	2047	520	6.0	1660	128
A	2048	1260	5.2	2380	352
A	2049	4200	5.6	2880	580

CERTIFIED BY :



**R ROSSBACHER LABORATORY LTD.**

**CERTIFICATE OF ANALYSIS**

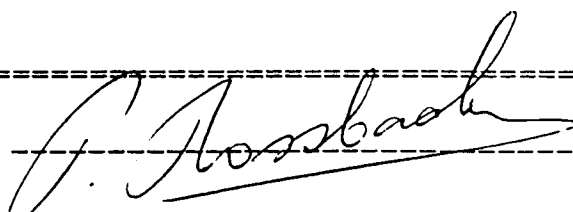
2225 S. SPRINGER AVENUE  
 BURNABY, B.C. V5B 3N1  
 TEL : (604) 299 - 6910

TO : SHAKWAK EXPLORATION CO. LTD.  
 123-470 GRANVILLE ST.  
 VANCOUVER, B.C.  
 PROJECT: NOT GIVEN 313  
 TYPE OF ANALYSIS: GEOCHEMICAL *Rock*

CERTIFICATE#: 86450  
 INVOICE#: 6788  
 DATE ENTERED: 86-09-24  
 FILE NAME: SH86450  
 PAGE # : 2

PRE FIX	SAMPLE NAME	PPM Mn	PPM Ag	PPM Zn	PPM Pb
A	2050	340	3.4	252	196
A	2051	620	1.2	266	30
A	2052	260	1.6	146	22
A	2053	1780	2.2	176	30
A	2054	2600	1.8	280	12
A	2055	1220	0.8	116	20
A	2056	13400	>50.0	9600	540
A	2057	2140	1.6	5000	118
A	2058	3600	1.6	4900	180
A	2059	>40000	8.0	29400	10000
A	2060	1860	18.2	4600	7400
A	2061	4100	2.8	2960	332
A	2062	1280	3.4	5600	62
A	2063	4200	5.0	1380	142
A	2064	240	1.0	142	60
A	2065	780	1.6	162	90
A	2067	1380	0.8	116	52
A	2068	560	2.0	90	14
A	2069	320	0.4	62	8
A	2070	>40000	0.4	20200	590
A	2071	>40000	0.8	20400	340
A	2072	32000	2.2	8900	204
A	2073	29400	3.4	20600	1440
A	2075	>40000	0.8	>40000	110
A	2043A	3720	0.8	2240	18

CERTIFIED BY :



**ROSSBACHER LABORATORY LTD.**

2225 S. SPRINGER AVENUE  
 BURNABY, B.C. V5B 3N1  
 TEL : (604) 299 - 6910

**CERTIFICATE OF ANALYSIS**

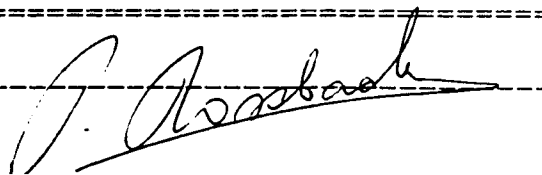
TO : SHAKWAK EXPLORATION CO. LTD.  
 123-470 GRANVILLE ST.  
 VANCOUVER, B.C.

CERTIFICATE#: 86501  
 INVOICE#: 6850  
 DATE ENTERED: 86-10-07  
 FILE NAME: SH86501  
 PAGE # : 1

PROJECT: 86-313  
 TYPE OF ANALYSIS: GEOCHEMICAL *ROCK*

PRE FIX	SAMPLE NAME	PPM Ag	PPM Zn	PPM Pb	PPB Au
A	2075A (2074)	44.0	3200	1840	
A	2076	0.8	200	74	
A	2077	3.2	32000	36	
A	2078	1.0	120	24	
A	2079	0.8	720	20	
A	2080	0.4	34	16	
A	2081	0.6	38	48	
A	2082	0.2	112	16	
A	2083	3.4	82	14	
A	2084	0.2	48	8	
A	2085	17.6	56	88	
A	2086	0.4	24	14	
A	2087	0.6	64	20	
A	2088	182.0	>40000	32000	
A	2089	7.6	21600	7800	
A	2090	9.8	40000	3520	
A	2091	3.6	18000	2020	
A	2092	3.4	8300	236	
A	2093	9.8	>40000	16600	
A	2094	4.0	4000	580	5
A	2095	0.2	196	106	10
A	2096	7.6	15400	11400	

CERTIFIED BY :



**ROSSBACHER LABORATORY LTD.**

2225 S. SPRINGER AVENUE  
BURNABY, B.C. V5B 3N1  
TEL : (604) 299 - 6910

**CERTIFICATE OF ANALYSIS**

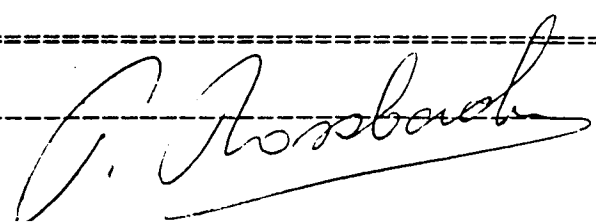
TO : SHAKWAK EXPLORATION CO LTD.  
123 470 GRANVILLE STREET  
VANCOUVER, B.C.

CERTIFICATE#: 86450.A  
INVOICE#: 6788  
DATE ENTERED: 86.09.24  
FILE NAME: SHAB6450.A  
PAGE # : 1

PROJECT:  
TYPE OF ANALYSIS: ASSAY

PRE FIX	SAMPLE NAME	oz/t		%	
		Ag	Pb	Ag	Pb
A	2014	29.20	4.64		
A	2015	96.80	72.96		
A	2016	2.90	0.98		
A	2017	14.52	20.80		
A	2018	57.20	75.20		
A	2056	4.08	0.06		

CERTIFIED BY :



**R' SSBACHER LABORATORY LTD.**  
**CERTIFICATE OF ANALYSIS**

2225 S. SPRINGER AVENUE  
BURNABY, B.C. V5B 3N1  
TEL : (604) 299 - 6910

TO : SHAKWAK EXPLORATION CO. LTD.  
123-470 GRANVILLE ST.  
VANCOUVER, B.C.  
PROJECT: NOT GIVEN 313  
TYPE OF ANALYSIS: ASSAY

CERTIFICATE#: 86501.A  
INVOICE#: 6854  
DATE ENTERED: 86-10-07  
FILE NAME: SHAB6501.A  
PAGE # : 1

PRE FIX	SAMPLE NAME	oz/t Ag	% Pb
A	2075A	3.74	0.18
A	2088	5.92	4.40
A	2001	12.24	0.64

CERTIFIED BY :

