REPORT OF GEOLOGICAL AND GEOCHEMICAL EXPLORATION

CONDUCTED ON THE AMBER PROPERTY DURING 1988

Amber 1 R5391 (7)	Juno R5219 (3)
Amber 2 R5392 (7)	North Star R5220 (3)
Amber 3 R5393 (7)	
Amber 4 R5394 (7)	Claims

Slocan Mining Division

N.T.S. 82 K/6E

50° 18' N., 117° 10' W.

Owners:

Amber 1-4;

Ambergate Explorations Inc.

1016-470 Granville Street

Vancouver, B.C.

V6C 1V5

Juno and North Star;

Mike Linn

Box 422

Kaslo, B.C.

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by

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November 1, 1988

CONTENTS

continued on next page

CONTENTS
continued

Report of Geological and Geochemical Exploration
Conducted on the Amber Property during 1988

SUMMARY

The writers were retained by Ambergate Exploartions Inc. of Vancouver, British Columbia through Cassiar East Yukon Expediting Ltd. to conduct a program of surface exploration on and around the Amber Property.

This exploration was conducted from May 23, until June 22; mostly physical work, and from July 10 until July 24, mostly geological and geochemical surveys. Data compilation continued until September 15, part time.

The Amber Property is located in the Slocan Range of the Selkirk Mountains of southeastern British Columbia. The property comprises 98 claim-units covering 2225 ha (5340 A) centred on 50° 18' N. and 117° 10' W. in the Slocan Mining Division of B.C.

The Juno and North Star claims are held under option. Ambergate can earn 100% interest in them by paying $20,000 in payments concluding in 1990. Ambergate owns 100% of the Amber 1 to 4 claims.

During the 1988 exploration program, direct access to the Amber Property was by helicopter from the town of Nakusp; a 20-minute flight one way.

Nakusp is the closest expediting centre to the property. It is located south of Revelstoke and is about 635 km (408 mi) from Vancouver, B.C.

The central part of the Amber Property straddles a moderately steep ridge southeast of Cascade Creek which flows into the Lardeau River about 12 km (7.5 mi) from the centre of the claims.

The Amber Property base-camp area is located on the northern shore of Blue Lake at an elevation of about 2091 m (6860 ft). Blue Lake is a glacial tarn that occupies a north-facing cirque that includes most of the

southern part of the claim group. The highest peak around the cirque is at 2545 m (8350 ft) elevation. The North Star claim extends southward from the cirque along a high treeless ridge to Meadow Mountain at the southern boundary of the property. The highest point on the claims is on Comstock Ridge at the eastern boundary of the property northeast of the cirque. North of Comstock Ridge where Cascade Creek crosses the northeastern corner of the Juno claim is the lowest elevation on the Amber claims, 1234 m (4050 ft).

The claim-area northwest of Cascade Creek has been burned and logged off, and is now covered with brush and immature trees. In the valley southeast of Cascade Creek is a stand of mature hemlock that extends upslope to about 1676 m (5500 ft) where it is gradually replaced by spruce. On more sunny slopes, the hemlock are joined by cedar. Spruce is the only major tree species in the forest between elevations of 1676 m (5500 ft) and 2134 m (7000 ft). Above that, a minor amount of pine grow among the spruce. Alpine meadows and bare mountain peaks comprise the southern and eastern parts of the property above the spruce forest.

The Amber Property covers five old known mineral properties including seven old showings-areas. Two new showings-areas were discovered during the 1988 exploration program.

The upper Cascade Creek valley was explored extensively from 1925 until 1931. The White Eagle, Snowstorm (including the Silver Sparrow Vein) and possibly the West Ridge were acquired by J. Gallo of Poplar, B.C. for Keene Mountain Gold and Silver Mines Ltd. of Calgary, Alta. The Juno was developed by the Juno Syndicate of Nelson, B.C. It was developed in

conjunction with the Comstock Property located 3 km east of the Juno. The Comstock Property is also controlled by Ambergate Explorations Inc. It is not known who did the former work on the North Star adit.

The Amber Property is underlain by the Palaeozoic-age Broadview Formation. Together with the underlying Index Formation volcanics; the Broadview Formation basal volcanics and sediments form an eugeosynclinal sequence deposited in a trough within the Cordilleran Geosyncline.

The rocks on the property are complexly folded. Fold axial trends strike northwest-southeasterly. Second-phase structures are regionally most important. Late during the second phase of deformation, thrusting translated stratigraphy northeastward over the property.

The North Star Vein is located in the plane of the North Star Thrust. The upper Juno, Snowstorm, Pine Tree, Silver Sparrow, White Eagle and Lakeview showings are located in the footwall block within 400 m from the surface trace of the Amber Thrust. This fault trends northwestward across the central part of the Amber claims. All high gold assays come from showings located just east of the Amber Thrust. There quartz veins are mineralized with argentiferous galena, sphalerite and auriferous pyrite. All showings west of the Amber Thrust contain silver, lead and antimony in galena-stibnite-tetrahedrite$\pm$ sphalerite mineralization in quartz veins.

REPORT OF GEOLOGICAL AND GEOCHEMICAL EXPLORATION CONDUCTED ON THE AMBER PROPERTY DURING 1988

1.0 INTRODUCTION

1.1 Terms of Reference

The writers were retained by Ambergate Explorations Inc. of Vancouver, British Columbia through Cassiar East Yukon Expediting Ltd. to conduct a program of surface exploration on and around the Amber Property.

This exploration was conducted from May 23 until June 22, mostly physical work; and from July 10 until July 24, mostly geological and geochemical surveys. Data compilation continued until September 15, 1988 part time.

Costs are divided into physical and geological work from May 23 until July 13 and physical and geological work from July 14 onward. Although only costs related to the period after July 14 are claimed for assessment credit, all work is reported herein.

1.2 Location and Access

The Amber Property is located in the Slocan Range of the Selkirk Mountains of southeastern British Columbia (Figure 1). The property comprises 98 claim-units covering 2225 ha (5340 A) centred on 50° 18' north latitude and 117° 10' west longitude in the Slocan Mining Division of B.C. (Figures 2 and 3).

It is about 635 km (408 mi) by road from Vancouver to Nakusp, B.C., the nearest supply centre to the property (Figure 2). Travel time from Vancouver to Nakusp is about 10 hours via B.C. highways 5, 1 and 23.

Direct access to the Amber Property from Nakusp is by helicopter; a 20 minute flight one way (Figure 2) to the base camp-area at Blue Lake (Figure 3).

During the 1988 program, equipment and supplies were trucked from Nakusp to near Poplar Creek north of Kaslo and slung by helicopter onto the property (Figure 2). Slinging distance from the loading point on B.C. Highway 31 near Poplar Creek to the camp-area was about 12 km (7.5 mi).

During the 1920's, access to the property-area and its workings was by a 1.5 m wide horse trail. The trail descended the Cascade Creek valley at a generally constant grade to the Lardeau River. There it met a branch of the Canadian Pacific Railway. Subsequently, the railroad was abandoned and B.C. Highway 31 was built on the road bed.

Access to the North Star workings near the southern end of the claim-area, was by a trail that ascended the McKian Creek valley south of the claims (Figures 2 and 3).

Recently, logging was conducted in the lower part of the Cascade Creek valley. A truck road was then built along the northwestern side of Cascade Creek from the highway to the northwestern corner of the Amber 4 claim (Figure 3).

Now, the truck road is abandoned and washed out in several places.

An acceptable mine road could be built from B.C. Highway 31 to the workings on the Amber Property by rebuilding the truck road up the valley to the Amber 4 claim and extending it along the horse trail route to the workings near Blue Lake.

1.3 Terrain and Vegetation

The Amber Property is located in the Slocan Range of the Selkirk Mountains, one of four subdivisions of the Columbia Mountains of southeastern British Columbia (Holland, 1976).

Holland's description of the terrain of the Slocan Range near the Amber Property is as follows:

> South of Trout Lake the area is largely underlain by intrusive rocks, which Cairnes remarks in the Slocan Mountains "show the strong relief characteristic of a mountainous topography in a late adolescent stage of erosion. . . . The areas of Nelson granite and Kaslo series are normally more rugged and sharper in outline than those underlain by sediments of the Slocan series."* The Slocan Ranges are characterized by long, uniformly steep, heavily timbered slopes rising through about 5,000 feet to angular peaks and sharp narrow interconnecting ridges. Cirque glaciers have sculptured the peaks, and high ridges and valley glaciers have facetted the spurs.

The central part of the Amber Property straddles a moderately steep ridge southeast of Cascade Creek (Figure 3). Cascade Creek flows northeastward into the Lardeau River east of Poplar Creek, about 12 km (7.3 mi) from the centre of the property.

The Amber Property base-camp area is located on the northern shore of Blue Lake at an elevation of about 2091 m (6860 ft) (Figure 3). Blue Lake is a glacial tarn occupying the mouth of a north-facing cirque that includes most of the southern part of the claim group. The highest peak around the rim of the cirque attains an elevation of about 2545 m (8350 ft) near the southern boundary of the Amber 2 claim.

The Amber 2 claim overlaps the northern part of the North Star claim which extends southward from the cirque along a high, treeless ridge to Meadow Mountain at the southern boundary of the property.

Northwest of Blue Lake, the Amber Property extends over the shoulder of a broad ridge that forms the southeastern slope of the Cascade Creek valley. This ridge descends from an elevation of about 2315 m (7600 ft) near the centre of the property to 1234 m (4050 ft) at the creek on the

northeastern part of the Juno claim (Figure 3).

Northeast of Blue Lake, slopes rise steeply to a northeasterly trending ridge, named Comstock Ridge by Ambergate's field crew. The ridge crest attains an elevation of 2684 m (8805 ft) at the northeastern corner of the Amber Property.

Soil development on the Amber Property is quite variable. Its character is related directly to local relief, elevation, slope angle and recent alpine glaciation.

Slopes on the property can be divided into three distinct types that are related directly to location and paragenesis. They are: high alpine bluffs, cliffs and skree slopes; glaciated alpine slopes and lower erosional slopes.

High alpine bluffs, cliffs and skree slopes occur at elevations above 2134 m (7000 ft) most commonly on north-facing slopes. These features are formed predominantly by mechanical weathering associated with ice fields. Until the mid-20th century, permanent ice fields occupied most north-facing basins at these elevations in the Slocan Range.

Very little soil has formed on these slopes yet. Regolith here is comprised entirely of unsorted angular pieces of rock.

Glaciated alpine slopes are located generally above 1829 m (6000 ft) elevation. These slopes are moderately steep.

Their general shapes were carved by Pleistocene-age alpine glaciation. During ice retreat, a thin layer of ablation till was deposited on these slopes providing initial regolith for soil development. Periglacial processes such as frost heave have been instrumental in mixing local rock

into the till resulting in soil profiles that are derived mostly from local parent rock below. On these slopes, soils have developed well-defined horizons and comparatively mature profiles.

Lower erosional slopes are located above Cascade Creek and generally below elevations of about 1829 m (6000 ft). They are presumed to have been formed by the down-cutting of Cascade Creek during local post-glacial isostatic rebound.

On these slopes, mass wastage, solifluction and debris slides are very active, locally resulting in immature and multiple soil profiles. Soil is much deeper on these slopes than on the glaciated alpine slopes above.

Although soil profiles are commonly quite mature on these slopes, soil metal concentrations at any one location may be due more to down-slope transport than to local sub-surface metal concentrations.

The area on the Amber Property covered by englacial and alluvial sediments is quite small.

North of Blue Lake (Figure 3), soils are developed on a small flat terminal moraine that extends across the Blue Creek valley.

Alluvium is being deposited by Cascade Creek in its flatter sections below elevations of about 1646 m (5400 ft) (Figure 3).

Elevations on the Amber Property range from 1234 m (4050 ft) at Cascade Creek at the northeastern corner of the Juno claim, to 2688 m (8820 ft) at the northeastern corner of the Amber 1 claim.

This high topographic relief provides a great variety of local physical environments resulting in a great diversity of plant communities

across the property.

The southeasterly facing slope north of Cascade Creek covered by the northwestern part of the Juno claim has been completely burned off within the last twenty years. That slope is now covered by immature brush and tall weeds.. This brush extends across a narrow strip of valley bottom along the northwestern bank of Cascade Creek that has been logged recently. This was the only logging on the property.

Southeast of Cascade Creek on the Juno claim is a large stand of mature hemlock. Tree trunks in this forest are commonly over 1 m thick and there is very little underbrush except near streams and springs. There; willow, alder and devil's club grow in profusion. The hemlock extends upslope to an elevation of about 1676 m (5500 ft) where it is gradually replaced by spruce with an extremely thick undergrowth of berry bushes.

The hemlock forest is replaced to the south near the Juno-Amber 4 claim boundary by a mixed forest of red cedar, hemlock and spruce. Undergrowth in this plant community is diverse and dense, making traversing in this forest slow and difficult. The mixed cedar forest extends up Cascade Creek across the Amber 4 and 3 claims to elevations of about 1676 m (5500 ft).

At this elevation, spruce becomes the dominant tree species. However; unlike at similar elevations on the Juno claim, relatively dry soil conditions on southerly and westerly facing slopes prevent the development of an extremely thick undergrowth of berry bushes beneath the spruce forest.

Spruce is the only major tree species in the forest between elevations of 1676 m (5500 ft) and 2134 m (7000 ft). Above that, a minor amount of pine grow among the spruce.

A community of alpine grasses and flowers occupy the meadows between the spruce forest and the bare mountain peaks southeast of Cascade Creek in the property-area. This plant community also covers slopes in the Meadow and McKian Creek valleys on the North Star claim.

Favourable climatic conditions are permitting a significant advance of the spruce forest up onto the alpine meadows. This advance is most prevalent on the southern part of the Amber 4 claim at elevations of about 2134 m (7300 ft).

Average annual precipitation is moderate and has an even distribution throughout the year. Ridges on the property are covered with snow from October until June. At lower elevations and on southerly facing slopes, the amount and annual duration of snow cover decreases perportionately.

1.4 Property

The Amber Property comprises the following mineral claims all located in the Slocan Mining Division of British Columbia:

Claim Name	Record No.	No. of Units	Record Date
Juno	5219 (3)	18	March 9, 1987
North Star	5220 (3)	16	March 9, 1987
Amber 1	5391 (7)	16	July 13, 1987
Amber 2	5392 (7)	16	July 13, 1987
Amber 3	5393 (7)	12	July 13, 1987
Amber 4	5394 (7)	20	July 13, 1987

The Juno and North Star claims are owned by Mike Linn of Kaslo, B.C. On May 22, 1987 Mike Linn and Ambergate Explorations Inc. wrote an option agreement whereby Ambergate could earn a 100% interest in the Juno and North Star calims by paying to Mike Linn a total of $20,000 in payments

terminating in 1990 and by keeping the claims in good standing during the option period.

The Amber 1 to 4 claims are owned 100% by Ambergate Explorations Inc. (Figure 3).

On N.T.S. map 82 K/6 and on the corresponding B.C. claim map, L5633 and L5634 are plotted atop a bald ridge near 50° 17' 40" N. and 117° 9' W. in the area covered by the North Star and Amber 2 claims (Figure 3). This plotting is not correct (Ostler, 1987).

These claims were located and surveyed near 50° 21' 15" N. and 117° 7' W. in a forest within sight of a surveyed railroad and the Lardeau River below (Figure 3). They appear in their correct location on Mineral Reference Map No.3 of Ainsworth, Trout Lake and Slocan Mining Divisions dated Sept.1, 1928 and on 82 K/W, Sheet 4 printed by the B.C. Dept. of Lands and Forests on July 1, 1956.

1.5 Previous Work

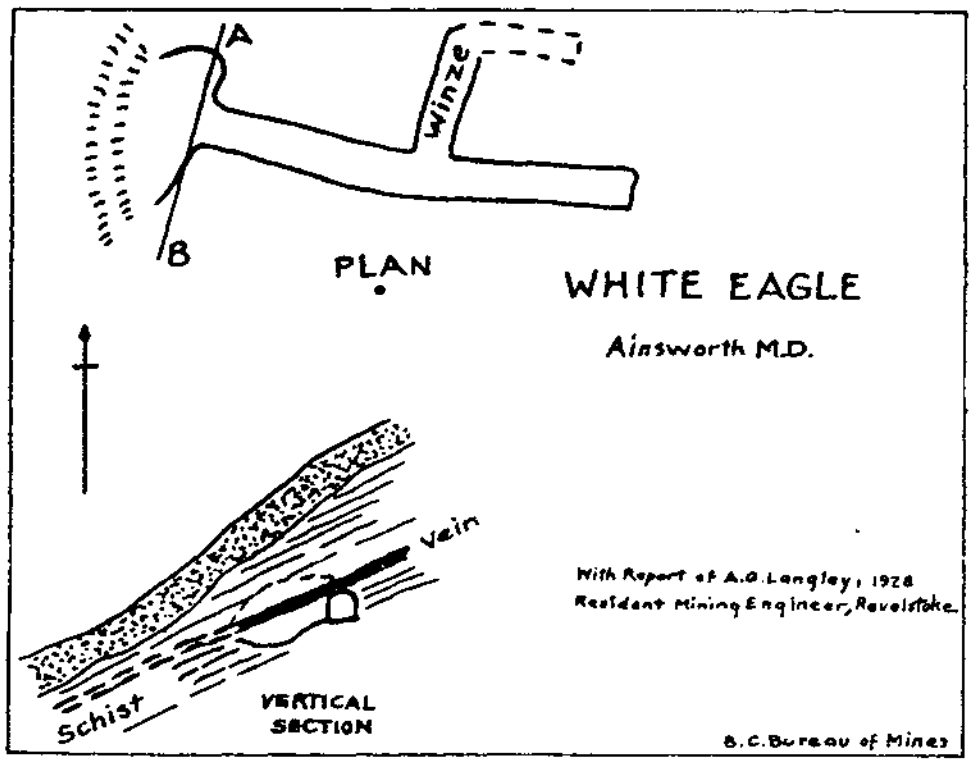
The Amber Property covers five old known mineral properties including seven old showings-areas. Two new showings-areas were discovered during the 1988 exploration program.

The upper Cascade Creek valley was explored extensively from 1925 until 1931. The White Eagle, Snowstorm (including the Silver Sparrow Vein) and West Ridge were acquired by J. Gallo of Poplar, B.C. for Keene Mountain Gold and Silver Mines Ltd. of Calgary, Alberta. The Juno was owned by P.J. Shernan of Nelson, B.C. and explored by the Juno Syndicate along with the Comstock (Ostler, 1988) (Spearing and Ostler, 1987B). The Juno syndicate

was composed of businessmen from Nelson, B.C.

The White Eagle was acquired by J. Gallo in 1928. Work that season comprised trail building, camp renovation and surface stripping near mineral showings. Late in the year, a 9½ ton shipment of sulphide was made to the smelter at Trail, B.C. That work was recorded by a visiting provincial geologist as follows:

> **White Eagle.** This group is situated at the head of Cascade creek at a distance of approximately 12 miles from the railway. The property, consisting of a group of five claims, was acquired during the latter part of the year by the Keene Mountain Gold and Silver Mines, Limited, with a capitalization of 2,500,000 shares of no par value. J. Gallo, who was largely responsible for the incorporation of this company, is in charge of the mining operations. The head office of the company is at Calgary.
>
> The trail closely follows the creek-bed and, crossing the fan-like form of numerous snow-slides, is only suitable for a pack-trail during certain periods of the year. These conditions could be improved by relocating the trail higher up, should developments be found to warrant the considerable expense that would be necessary. The camp consisted of two small cabins, beautifully situated on the shore of a small lake nestled among the summit peaks, at an elevation of 6,800 feet above sea-level.
>
> The formation in the vicinity of the workings consists of slate-schists and occasional bands of limestone. The vein on which the work was being confined, consisting of a quartz-filled fissure conforming to the dip and strike of the enclosing rocks, could be traced for a considerable distance along the hillside, which it traversed at an oblique angle. A little prospecting had been tion. The strongest showing had been laid bare by erosion at the side of a shallow draw, where a width of about 2 feet of massive sulphide ore was exposed, dipping at an angle of 25°.
>
> Here an old prospect-tunnel had been driven along the strike of the vein and was being continued at the time of examination, its total length being 69 feet. A short winze had also been sunk on the vein at a distance of 37 feet from the portal.
>
> These workings do not disclose anything of particular importance, but further surface work near the portal had exposed the vein for about 15 feet on the dip, where massive sulphides and milling-grade ore were exposed across a width of about 2 feet. A sample taken across 21 inches of what appeared to be the best grade of ore gave the following returns: Gold, 0.61 oz. to the ton; silver, 31.6 oz. to the ton; lead, 39.8 per cent.; zinc, 23.2 per cent. A sample of about the average milling-grade ore assayed: Gold, 0.19 oz. to the ton; silver, 15.5 oz. to the ton; lead, 25.7 per cent.; zinc, 12.7 per cent. The ore showed strongly in the bottom of the cut and further work was planned to explore its downward continuation by means of a lower tunnel.



During the latter part of the year a shipment of about 9½ tons was made to the Trail smelter; returns showed this ore carried the following values: Gold, 0.27 oz. to the ton; silver, 21.1 oz. to the ton; lead, 32.6 per cent.; zinc, 21.3 per cent. The net value of the shipment after deduction of freight and smelter charges was $240.20. It is understood that a crew of eight or ten men will be employed during the winter months. The company is also interested in another group of claims in this vicinity which were not examined.

B.C. Min. Mines, Ann. Rept., 1928; pp. C307-C308.

Gallo's crew continued work on the White Eagle throughout 1929. A crew of miners based at the Blue Lake camp explored the vein by extending the crosscut tunnel, driving an inclined shaft down the vein beside the tunnel and driving a long drift 123 ft below the tunnel to intersect the vein at depth.

The 1929 work on the White Eagle Vein was reported upon in detail by a provincial geologist as follows:

White Eagle.

This group is situated at the head of Cascade creek, at a distance of about 12 miles from the Lardeau-Gerrard branch of the Canadian Pacific Railway. The property was acquired in 1928 by the Keene Mountain Gold and Silver Mines, Limited, of Calgary, and exploratory work has since been carried on continuously by J. Gallo. The lower 7-mile section of the old trail, which leads to this and other prospects, follows the creek-bed and, crossing numerous snowslides where these spread out near the creek, is only suitable for a pack-trail during the summer and fall season. A new location has now been surveyed to provide a safe means of access for all-the-year-round operation and about 3½ miles of new trail has been built along the new route.

The property is described in the Annual Report for 1928. Since then some further work has been done to explore the ore-shoot developed by the old prospect-tunnel at 6,923 feet elevation and surface showings to the west of it. This tunnel has been advanced to 85 feet in from the portal, showing the vein, up to 4½ feet wide, to be well mineralized throughout. Ten feet westerly from the mouth of this tunnel a shaft has been sunk which, when the mine was visited in November, was down 30 feet. Samples taken in this working gave the following results:—Across 3 feet at the bottom: Gold, 0.04 oz. to the ton; silver, 12.65 oz. to the ton; lead, 4.4 per cent.; zinc, 2.35 per cent. A 4- to 12-inch streak adjoining the previous sample on the foot-wall side: Gold, 0.06 oz. to the ton; silver, 8.3 oz. to the ton; lead, 18.1 per cent.; zinc, 5.7 per cent. Across 21 inches 3 feet down: Gold, 1.28 oz. to the ton; silver, 29.3 oz. to the ton; lead, 38.6 per cent.; zinc, 18.1 per cent.

To the west of this shaft, which has since been sunk to a depth of 55 feet, stripping has exposed massive sulphide ore 2 feet wide for a length of 18 feet. A sample across 2 feet of this ore assayed: Gold, 0.16 oz. to the ton; silver, 21.8 oz. to the ton; lead, 36.9 per cent.; zinc, 26 per cent. The above-described workings, together with a winze situated in the tunnel, develop the vein for a length of about 103 feet and a depth of 55 feet. The samples quoted above were taken mainly to determine values in the several types of ore and systematic sampling would be necessary to determine the average values throughout the ore-shoot. A little prospecting has been done along the hillside above and to the east of the tunnel, but the work done is not sufficient to prove the continuity of the mineralization in that direction.

At 6,800 feet elevation, or 123 feet vertically lower than the upper tunnel-workings, a crosscut has been driven 500 feet to explore the downward continuation of the ore-body. This tunnel cut a narrow and sparingly mineralized quartz vein at 478 feet, which coincides roughly with the projected position of the upper tunnel lead. A drift was run on this vein for 50 feet to the east, but without much encouragement. The vein here is poor-looking and splits into stringers near the face. Since the property was examined a drift is reported to have been driven on the same vein for 14 feet west of the crosscut, in which direction it looked more promising. Following a theory, however, that this vein was not the one sought, an inclined raise was put up from near the face of the main tunnel or about 500 feet in from the portal. This raise is reported to have cut a promising quartz vein, containing disseminated lead, zinc, and iron sulphides, at 80 feet up from the level.

Including prospect-workings on other claims of the group not seen by the writer, the total footage of underground work on the property is understood to be about 1,070 feet. An average of twelve men was employed throughout most of the season. The crew was reduced latterly and towards the end of the year work had to be entirely suspended owing to the difficulty of operating in winter under present conditions. The same company, represented by J. Gallo, has been active in taking up other properties in the vicinity of Poplar and these are mentioned under Trout Lake Mining Division, the boundary between the two Divisions being situated along the divide separating Cascade and Poplar creeks.

B.C. Min. Mines, Ann. Rept., 1929; pp. C327-C328.

Work related to the White Eagle continued into 1930 on a reduced scale. It was confined to repairing the horse trail into the Blue Lake camp as was recorded by a provincial geologist as follows:

> **White Eagle.** Minor exploratory activity occurred during the season at this property, which is situated at the head of Cascade creek, about 12 miles from the Lardeau–Gerrard branch of the Canadian Pacific Railway. J. Gallo has been in charge of work for the Keene Mountain Gold and Silver Mines, Limited, of Calgary, since this company acquired the property in 1928. References to the *White Eagle* are contained in the Annual Reports for 1928 and 1929. The ore contains values in gold, silver, lead, and zinc. Work has necessarily been of a seasonal nature owing to snowslides obstructing the old trail in winter and until late in the spring. This condition is gradually being improved by the construction of a new trail which crosses the snowslides above where they fan out into the Cascade Creek valley.

B.C. Min. Mines, Ann. Rept., 1930; p. A257.

During the early 1930's, Gallo's work out of the Blue Lake camp seems to have been concentrated on the Snowstorm. Its workings were described as follows:

> **Snowstorm.** At this property, comprising seventeen claims, situated on the divide between Cascade and Poplar creeks, three men were employed all summer under the direction of Joe Gallo, who acquired the *Snowstorm* from C. Green, of Poplar. Exploratory work done includes a 14-foot shaft, a trench 150 feet long and 6 to 7 feet deep, and two other big trenches. Together these workings develop a quartz vein up to 24 feet wide, assays from which are said to give from $3.40 to $9.80 in gold to the ton.

B.C. Min. Mines, Ann. Rept., 1930; p. A257.

The Snowstorm workings were located just north of the White Eagle workings (Figure 3) and not on a ridge between Cascade and Poplar creeks as described above. The writers now refer to the Snowstorm shaft area as the Silver Sparrow Vein and to the Snowstorm trench-area as the Snowstorm.

The West Ridge was named by the writers to distinguish it from other showings-areas on the Amber Property. It is located on the crest of

the ridge west of Blue Lake (Figures 3, 6 and 12). The writers suspect that the West Ridge contains the "prospect-workings on other claims" referred to in the B.C. Minister of Mines' annual report for 1929 on the White Eagle (page 11 of this report). The writers know of no direct reference to this showing-area anywhere in the literature.

Workings at the West Ridge showing-area include: a 2.4 m (8 ft) square shaft that is now caved and seven groups of trenches on top of the ridge and an adit on the west slope of the ridge (Figure 12).

There is enough material on the dump at the shaft to account for about 15.2 m (50 ft) of depth. The dump at the adit, also which is caved, contains enough material to account for about 152 m (500 ft) of drifting.

These workings explore quartz viens containing galena, stibnite and tetrahedrite.

The Juno Property was owned by P.J. Shernan of Nelson, B.C. during the 1920's. At that time, the property was developed by the Juno Syndicate, backed by business associates of Shernan. Work conducted at that time on several locations on the property was recorded by a provincial geologist as follows:

> **Juno Group.*** This property consists of the *Reco, July, July 28th,* and *Juno* claims, also owned by P. J. Sheran, and included in the property to be developed by the Juno Syndicate. This group is situated about 2 miles in a westerly direction from the *Comstock* property and the claims extend up to near the head of Cascade creek.
>
> The formation, ore, and character of mineralization are much the same as on the *Comstock* group. Scattered over the claims there are numerous showings of quartz of varying widths mineralized with bunches and disseminations of galena, with which pyrite is generally associated and in some places zinc-blende.
>
> The development chiefly consists of open-cuts, most of which have caved so that the width of the mineralization could not in most cases be measured. On the *Reco*, at an elevation of about 5,700 feet, two showings of quartz of undetermined width were examined, the mineralization consisting of disseminated galena and pyrite. Selected ore from the dumps of these showings assayed: Gold, 0.32 oz.; silver, 18.6 oz. to the ton; lead, 32.2 per cent.; zinc, *nil.*

On the *July 28th* there is an old tunnel driven 40 feet in on a well-defined quartz vein from 12 to 26 inches in width mineralized with galena, zinc-blende, pyrite, and oxidation products. The strike of this vein is about east and west (mag.) and its dip about 45° to the north. Some 30 feet from the portal of this tunnel an open-cut has been made exposing a width of 26 inches of ore, which assayed: Gold, 0.04 oz.; silver, 17.6 oz. to the ton; lead, 29.1 per cent.; zinc, 29.8 per cent. Near the face of the tunnel an old winze, said to be 30 feet down, was full of water. About a quarter of a mile back along the trail from this tunnel and at a slightly higher elevation an open-cut exposes a quartz vein 2 to 3 feet wide mineralized with disseminated galena. Continuing farther back along the trail and on the *July* claim there is a big trench and some open-cuts showing quartz on the dumps more or less mineralized with disseminated galena and pyrite of the usual character.

On the *Juno* claim the workings are at an elevation of about 4,700 feet. An open-cut exposes a 12-inch quartz vein, standing nearly vertical and striking N. 55° E. into the hill, in which the mineralization is disseminated galena and pyrite. Near the vein the soft and crushed argillites contain scattered seams of galena associated with stringers of quartz. Farther down the hill and 100 feet vertically below the open-cut there is an old tunnel driven about 20 feet in these argillites. Preparations were being made for building a cabin near this working with a view to continuing the tunnel to intersect the vein showing in the open-cut above.

B.C. Min. Mines, Ann. Rept., 1925; pp. A237-A238

The lower Juno workings including the tunnel and winze were located on the main pack trail down Cascade Creek at an elevation of about 1525 m (5000 ft) on the southern part of the Juno claim (Figures 3 and 6).

The upper Juno cabin was located on a creek between Cascade and Kiss creeks (Figures 3 and 6) at an elevation of about 1737 m (5700 ft) on the southern part of the Juno claim. Some small trenches and quartz float was found just uphill from the cabin none of which contained any economic mineralization. None of the mining tools left in the upper Juno cabin showed any significant signs of wear. It seems that very little work was done at the upper Juno. The cabin was probably more important to the Juno Syndicate as a way station on the trail from the lower Juno to the Comstock Property which was also being explored by the syndicate at that time (Figure 3).

The writers know of no records of previous work done on the North Star showings located at about 2377 m (7800 ft) elevation on the southern part of the North Star claim (Figures 3 and 6).

During its 1987 exploration in the Cascade Creek area, Ambergate Explorations Inc. commenced exploring the area covered by the Amber Property. (Spearing and Ostler, 1987A).

Geological mapping at a scale of 1:10,000 was conducted in the area from Blue Lake northward to the Snowstorm trench-area near the southwestern corner of the Amber 4 claim (Figure 6). This mapping was extended to most of the rest of the Amber Property during Ambergate's 1988 program.

Descriptions of old workings in the Cascade Creek area in the B.C. Minister of Mines' annual reports were found to be very accurate. However, locations of old workings were commonly quite inaccurate. For example, the Snowstorm (page 12 this report) was supposed to be located on a ridge between Poplar and Cascade creeks. It was found to be located south of Cascade Creek near the White Eagle (Figures 3 and 7). The workings were actually in two distinct areas now called the Snowstorm and Silver Sparrow areas.

Showings-areas found by Ambergate's crew during the 1987 program included the Lower Juno, the White Eagle, the Snowstorm and Silver Sparrow, and the West Ridge.

During the 1987 program, a soil survey was conducted over the southwestern part of the Amber 4 claim and adjoining parts of other claims. The survey covered the area between the Snowstorm trenches and the adit at the Silver Sparrow vein. That area, now referred to as Snowstorm Dome, contained significant soil gold and silver anomalies.

The upper White Eagle workings were channel sampled during 1987. The tenor of the mineralization reported upon during the 1920's was confirmed.

1.6 Summary of Present Work

Field work of the 1988 exploration project on the Amber Property was conducted from May 23 until June 22, mostly physical work; and from July 10 until July 24, mostly geological and geochemical surveys. Data compilation continued until September 15, 1988, part time.

Costs are divided into physical and geological work from May 23 until July 13 and physical and geological work from July 14 onward. Although only costs related to the period after July 14 are claimed for assessment credit through this report, all work is reported herein.

The work was conducted by:

C. Geoffrey Spearing, B.Sc.(Eng.) North Vancouver, B.C.	Consulting Mining Engineer
John Ostler; M.Sc., P.Geol. West Vancouver, B.C.	Consulting Geologist
David R. Jones, B.Sc. Vancouver, B.C.	Geological Technician
David P. Nunuk, B.Sc. Aldergrove, B.C.	Geological Technician
W. Adam Foran Toronto, Ontario	Geological Technician

The 1988 work program on the Amber Property included the following:

A. Physical Work;	Man-days	
	Pre July 14	July 14 on
A.(i) Trail Work		
3.1 km of the 1925 Cascade Creek horse trail was cleared of fallen trees and brush (Figures 3 and 7)		
0.455 km of trail was cut out and levelled to a width of 0.5 m from the Blue Lake Camp to the lower White Eagle workings (Figure 7)		
0.154 km of trail was cut out and levelled to a width of 0.5 m from the Blue Lake camp to the Lakeview workings (Figure 7)		

		Man-days	
A.(i)	Trail Work continued	Pre July 14	July 14 on
	0.084 km of trail was built between the Silver Sparrow and Pine Tree workings (Figure 7) 0.063 km of trail was cleared of brush between the West Ridge shaft and adit (Figure 7)	34.0	3.75
A.(ii)	Trenching with dynamite and hand tools		
	125 m^3 of slough was removed from the lower White Eagle workings (Figures 7 and 9) 66 m^3 was removed from 2 trenches along the upper White Eagle vein (Figure 9) 10 m^3 of earth was removed to expose the Silver Sparrow Vein (Figure 10) 40 m^3 of earth was removed from 3 trenches on the Pine Tree vein (Figure 10) 20 m^3 was removed from trench 7 at the West Ridge workings (Figure 12) 60 m^3 of earth was removed from 2 trenches at the Lakeview workings (Figure 11)	43.5	3.0
A.(iii)	Camp Clearing		
	934 m^2 of area around the cabin site at Blue Lake was cleared of second-growth spruce to facilitate helicopter access this area was subsequently seeded with grass	12.0	1.0
A.(iv)	Mobilization and Camp Set Up related to Physical Work		
	this includes travel time to the property and snow clearing from the tent sites during initial set up during May	20.0	6.0
		109.5	11.75
B.	Geological and Geochemical Surveys;		
B.(i)	Geological Mapping		
	1:10,000 scale geological mapping was conducted over the following areas of the Amber Property: (Figure 6)(950 ha mapped) Juno claim; southern part North Star claim; south and central parts Amber 1 claim; northeastern half Amber 2 claim; northeastern and southern Amber 3 claim; eastern half Amber 4 claim; northern part	0.0	14.25

		Man-days Pre July 14	July 14 on
B. Geological and Geochemical Surveys balances carried forward		0.0	14.25
B.(ii)	The following areas were mapped at a scale of 1:500 and sampled: White Eagle (Figure 9)(remapped from 1987 program) Pine Tree (Figure 10) Lakeview (Figure 11) West Ridge (Figure 12) North Star (Figure 13)	0.0	5.50
B.(iii)	Soil Surveys 5.2 km of line were surveyed by hip chain and compass comprising an 8-line grid that extends the 1987 soil survey southward to include a further 24.5 ha of survey (Figure 8) 1.2 km of line was laid out to comprise a 5-line grid covering 4 ha centred on the upper White Eagle workings (Figure 8) Soil samples were taken at 50 m intervals on lines 50 m apart in the extension of the 1987 grid Soil samples were taken at 20 m intervals on lines 50 m apart on the White Eagle survey	5.0	5.5
B.(iv)	Mobilization related to Geological Work this includes travel time to the property and snow clearing from the tent sites during initial set up during May	1.0	6.0
		6.0	31.25

1.7 Claims Worked On

During 1988, work was done on the following claims:

Claim Name	Record No.	Current Expiry Date	No. of units
Juno	5219 (3)	March 9, 1992	18
North Star	5220 (3)	March 9, 1992	16
Amber 1	5391 (7)	July 13, 1992	16
Amber 2	5392 (7)	July 13, 1993	16
Amber 3	5393 (7)	July 13, 1992	12
Amber 4	5394 (7)	July 13, 1992	20
			98

2.0 GEOLOGY

2.1 Regional Geology

The area around Cascade Creek and the Amber Property is underlain by rocks that range in age from Early Palaeozoic to Jurassic. These rocks can be divided into provenancal groups: the Lardeau Group, an eugeosynclinal assemblage; the Milford Group, a miogeosynclinal assemblage and Mesozoic-age granitic intrusives.

These rocks form part of the Kootenay Arc, which extends in southeastern British Columbia from the U.S. border to northeast of Revelstoke (Douglas ed., 1970). Kootenay Arc sediments and volcanics were deposited at the western margin of proto-North America in the Cordilleran Geosyncline. The stratigraphy around the Amber Property was deposited in one of several elongate sub-basins present in the Cordilleran Geosyncline during the Early Palaeozoic Era.

Lithological mapping conducted by Read (1973) around the Amber Property reveals that this region is underlain by a succession of rocks that record the gradual filling of a basin (Figure 4). He later interpreted the rocks across the Amber Property (Figure 5) (Read, 1976).

Northeast of the property is a thick sequence of mafic to intermediate volcanics comprising the Index Formation (Figures 4 and 5). In the Cascade Creek area, these volcanics are accompanied by a minor amount of shale and phyllite. Farther north near Trout Lake, the Index Formation volcanics are accompanied by far more sediments. There, the Index Formation volcanics are interpreted to have been deposited from basin-floor vents in deep water (Fyles and Eastwood, 1962).

Read (1973) mapped a contact between the Index Formation volcanics and the overlying sediments of the Broadview Formation on the northeastern part of the Comstock Property about 2 km north of the Amber claims (Figure 4). Ostler (1988) mapped this contact across the central part of the Comstock 2 claim about 1 km southwest of Read's location.

On the Comstock Property, Ostler (1988) interpreted the contact between the Index volcanics and Broadview sediments to have been originally conformible and gradational, defined by a facies change on the flank and top of a basin-floor volcanic pile. The main mass of the Index Formation volcanics then seems to have been decoupled from the overlying Broadview Formation sediments. Both thrusting and transverse movement probably took place along the Index-Broadview boundary fault.

The Milford Group-Broadview Formation contact was also mapped by Read (1973) southwest of the Amber Property (Figure 4).

Read (1973) mapped across the Broadview Formation northwest of Cascade Creek; about 10 km northwest of the Amber Property. There, he found the Broadview Formation clastics overlain by a thin sequence of phyllites and phyllitic carbonates.

Two reconnaissance traverses into the Amber Property-area from the north and west (Figure 4) hinted that the area of distal basin sedimentation represented by phyllites and phyllitic carbonates increased significantly southeastward. This was confirmed by the writers' mapping in the central part of the Amber Property during Ambergate's 1987 exploration program (Spearing and Ostler, 1987A). Our 1987 and 1988 mapping on the Amber Property confirms that the Broadview Formation is represented in the Cascade Creek

area by a fining-upward sequence of turbidites beneath phyllitic carbonates and phyllites (Figure 6).

The Broadview clastics lie in fault contact with the sandstones of the Milford Group about 700 m southwest of the Amber 3 claim (Figures 4 and 5).

The Milford Group comprises a series of micaceous sandstones, phyllite and calcite-bearing quartzite that form a miogeosynclinal sequence above the Broadview Formation sediments (Read 1973 and 1976) (Figures 4 and 5).

Rocks of the Milford Group and Broadview Formation were intruded during the Lower Jurassic Period by the leucoquartz monzonite and syenite of the Kuskanax Batholith. Batholithic intrusion was succeeded by the intrusion of small parasitic stocks of massive leucoquartz monzonite and syenite along the northeastern margin of the batholith (Read, 1973 and 1976). Some of these parasitic intrusions are exposed along the southwestern margin of the Amber 3 claim (Figures 4 and 5).

Read (1973) recorded three generations of coaxial folding in the rocks northwest of the Amber Property; and locally near intrusions, a fourth generation.

Regionally, the most important structures are second-generation folds which form northwest-southeast trending structures. First-generation folds are most commonly seen as isoclines within second-generation structures. Third-generation structures are most commonly large open warps or minor folds.

The area around Cascade Creek is regionally metamorphosed to the upper greenschist and lower amphibolite grades of metamorphism. Locally;

near intrusive contacts, upper amphibolite and granulite grade metamorphism occurs.

The region is crossed by several long northwest-southeasterly trending faults. The Mount Emmens Fault southwest of the Amber Property and the Mobbs Fault which crosses the property are notable examples (Figures 4, 5 and 6).

2.2 Property Geology

Lithological mapping commenced in the central part of the Amber Property during the 1987 exploration program was extended across the property during the current program. About 80% of the Amber Property, about 1780 ha has been mapped at a scale of 1:10,000.

The property-area is underlain by the basal volcanics and metasediments of the Broadview Formation; interpreted by Read (1973) as an eugeosynclinal sequence recording the infilling of a northwest-southeasterly trending trough.

Rocks of the Broadview Formation on the property are divided by the writers into five lithological units: andesitic volcanics; lithic sandstone and siltstone; siltstone, slate and phyllite; variably carbonaceous slate, phyllite and siltstone, and dolomitic siltstone and impure carbonate (Figure 6).

The andesitic volcanics of the basal Broadview Formation, unit Bav (Figure 6), are identical to and interpreted to have been originally part of the volcanic pile that now comprises the Index Formation. They were decoupled from the main mass of Index Formation volcanics during deformation (Ostler, 1988).

These volcanics are fine-grained tuffs, thin flows and associated volcanogenic sediments. They are generally green on fresh surfaces due to the development of iron-rich minerals during metamorphism. These rocks weather green to rusty brown and are comparatively resistant to erosion. The bluffs at the northeastern corner of the Amber Property are formed of rocks of this unit.

The contact between the basal volcanics and overlying arenaceous sediments is gradational and very difficult to map.

The lithic sandstones and siltstones, unit B1 (Figure 6), are a sequence of turbidites with individual beds ranging up to 2 m thick. They are light grey to buff and weather grey to rusty brown. Textural maturity defined by a decrease in micaceous layers and interclast matrix, seems to increase southwestward in the Amber Property-area.

The contact between the lithic sandstones of unit B1 and the phyllitic siltstones of unit B2 is gradational. It can be defined generally by a rapid decrease in sandy strata compared with silty and pelitic strata.

The siltstone, slate and phyllite of unit B2 are distal equivalents of the lithic sandstones of unit B1. They are far less resistant to erosion than the sandstones and tend to be crumbly and fissile in weathered outcrops. The rocks of this unit are generally grey, weathering to rusty brown. Micaceous development in the first- and second-phase cleavage planes form the most pervasive fabrics in these rocks.

Variably carbonaceous pelites and siltstones form unit B3 (Figure 6). They are grey to black depending on free carbon content. The carbon in these rocks has been metamorphosed to graphite. Micaceous development in

cleavage planes in this unit makes it very fissile causing it to weather recessively.

Contacts between the siltstones of unit B2 and the carbonaceous phyllites of unit B3 are generally gradational. They are defined by the appearance of a predominance of pelitic over silty layers and the appearance of a significant amount of graphite.

Rusty-weathering dolomitic siltstones and impure carbonates comprise unit B4 (Figure 6). They are blue-grey to grey and weather to light brown. The amount of carbonaceous phyllite in this unit is quite variable.

Contacts between the carbonates and other units are generally distinct, due in part to differences in textures of weathered surfaces.

Read's (1973) mapping around the Cascade Creek area revealed that the rocks of the Index and Broadview formations were folded by as many as four phases of deformation in that region. This deformation resulted in a series of northwest-southeasterly trending folds that were subsequently thrusted in a northeasterly direction along local faults. The stratigraphy was later cut at oblique angles by long transverse faults.

The most important folds on the property seem to be southeasterly trending second-phase folds (Figure 6).

First-phase folds are most commonly exposed in pelitic rocks on the property as minor isoclines. The extent to which first-phase folding has tectonically thickened stratigraphy on the property is not known.

Folding intensity seems to be related to ductility in these rocks. Ductility is lowest in the andesitic volcanics of unit Bav and in the lithic sandstones of unit B1. It is highest in the carbonaceous pelites and in the

carbonates of units B3 and B4. Consequently, folding is most intense in the pelites and carbonates.

Cleavages associated with the first and second phases of folding are commonly sub-parallel. Commonly the second cleavage is indistinguishable from the first.

There seem to have been several episodes of faulting related to deformation in the property-area.

Late during the second phase of deformation, major folds were broken through as stratigraphy was thrust northeastward along northwest trending, southwesterly dipping faults. The best exposed thrust on the property is the North Star thrust. Near the North Star workings (Figure 6) siltstones are thrust at a high angle northeasterly over carbonates. All pre second-phase lineations in outcrops of siltstone near this thrust are rotated into the second-phase cleavage direction. Pre second-phase structures in the underlying carbonates within a metre of the fault are unaffected by shearing along the fault plane.

It was deduced that thrusting along the North Star thrust occured late during the second phase of deformation and that rocks beneath the fault plane were decoupled from those above the fault plane.

The North Star Vein occupies this thrust plane and may be related to fluid migration along the thrust plane during brittle deformation.

At the North Star thrust, competent sediments have overridden incompetent sediments. This was similar to rocks along the plane of the Amber Thrust near the centre of the property where competent sandstones of unit B1 were thrust over incompetent carbonaceous phyllites and siltstones (Figure 6).

In the competent hanging wall rocks along the Amber Thrust, pre second phase linear and planar structures are rotated into the second cleavage plane and northeasterly verging second-phase minor folds are ubiquitous, like along the North Star Thrust. Pre second-phase structures in the footwall pelites are unaffected by faulting.

It is presumed that the apparent lack of deformation in the footwall rocks is due to large vertical displacement along these faults. This displacement would bring hanging wall rocks up from depths where high confining pressures would result in comparatively ductile deformation along the thrust plane, up into contact with footwall rocks from higher levels where comparatively low confining pressures would result in more brittle deformation. In summary, it seems that there has been significant vertical displacement along these thrusts during the second phase of deformation.

Thrust faults seem to be located at regular intervals across the property-area (Figure 6). Where they occur, they significantly disrupt the stratigraphy.

It is interesting to note that all of the significant gold assays from the Amber Property come from showings-areas located in footwall rocks within 300 m of the surface trace of the Amber Thrust (Figure 6). All of these gold assays are from veins that are sub-parallel with local second phase cleavages. Although it is obvious that gold-bearing veins on the property were emplaced during activity along the Amber Thrust, no direct link between these veins and the Amber Thrust has been proven.

Two major post-deformational transverse faults are exposed in the upper Cascade Creek valley in the property-area; the Mobbs Fault and the Mount Emmens Fault (Figures 4, 5 and 6).

These faults trend southeastward across the property displacing all stratigraphy and ductile deformation. Displacement on these faults post-dates all regional deformation and metamorphism.

On the ground, the trace of the Mobbs Fault is defined by a shallow depression about 3 m wide that looks like a road when viewed from the air. On the Amber 1 claim about 367 m north of its southwestern corner, hematite scinter is being deposited in mounds up to 1 m high and 3 m in diametre. These are the result of perculation along the fault plane. No significant economic mineralization is associated with these deposits.

The Index-Broadview boundary fault on the Comstock Property northeast of the Amber Property (Ostler, 1988) has a complex history. Movement on that fault seems to include an early period of thrusting followed by a period of transverse movement. It is not known if the Mount Emmens and Mobbs faults on the Amber Property have similar histories.

The rocks southeast of Cascade Creek were mapped by Read (1973) as belonging to the biotite zone of the upper greenschist facies of metamorphism. Mineral assemblages of this zone are typical of the quartz-albite-epidote-biotite sub-facies of the greenschist facies of metamorphism.

South and east of Read's map-area, the writers have observed numerous staurolite phenocrysts in impure carbonates of unit B4. They are most numerous on the peak south of Blue Lake and at lower elevations in the Cascade Creek valley.

Also, garnet phenocrysts assumed to be almandine were observed by the writers in siltstones on the southern part of the Amber 1 claim and in sandstones near the confluence of Cascade and Blue creeks on the Amber 3 claim (Figure 6).

The presence of these minerals indicates that over parts of the property metamorphic grade may be as high as the staurolite-almandine sub-facies of the lower amphibolite facies of metamorphism.

Micaceous mineral growth during deformation is responsible for the development of pervasive cleavages in rocks across the property. The best-developed cleavage is from the first phase of deformation. It is commonly much more prevalent than bedding in pelitic rocks on the property. A cleavage from the second phase of deformation is commonly sub-parallel with the first-phase cleavage and can be difficult to distinguish in outcrop.

The third-phase cleavage mapped regionally by Read (1973) is not obvious on the Amber Property. The fracture cleavage observed by the writers probably post-dates Read's third-phase cleavage.

Large veins were developed parallel with the dominant cleavage planes during late stages of deformation. Many of these veins contain only milky quartz. However; some of them contain large amounts of sphalerite, argentiferous galena and stibnite, and auriferous pyrite. All of the known economic mineral showings on the Amber Property occur in these veins.

2.3 Interpretation of Property Geology

Fyles and Eastwood (1962) interpreted the Index Formation volcanics near Trout Lake; several kilometers north of Cascade Creek, to have been

deposited in deep water in an open basin. Read (1973 and 1976) interpreted the Broadview sediments to have been deposited as an eugeosynclinal sequence of turbidites on top of the Index volcanics.

The writers believe that these interpretations are accurate for these rocks in the Amber Property-area.

These rocks represent a single conformible sequence that was subsequently deformed by progressive deformation.

On the Comstock Property northeast of the Amber Property, tuffs become more predominant over flows in the Index formation volcanics upsection (Ostler, 1988). This perhaps indicates that there was a decrease in local volcanic activity over time. Locally, near the Amber-Comstock claim boundary, many pulses of volcanic activity are recorded in units lav and Bav (Figure 6).

The lithic sandstones and siltstones of unit B1 (Figure 6) were deposited mostly as turbidites. Near the Broadview-Index contact, the sediments in these beds were probably derived from local volcanics on the basin floor. As the basin-floor volcanics themselves were buried beneath the sediment surface, successive turbidite sedimentation was probably from a source terrain northeast of the basin (Fyles and Eastwood, 1962).

As the source terrain northeast of the map-area was being denuded, increasingly mature sedimemts were being dumped into the basin. A general dominance of micaceous (lithic) clasts over feldspathic clasts in this unit indicated that the source terrain was probably composed mostly of volcanic and sedimentary rocks.

The siltstones and pelites of unit B2 (Figure 6) are a result of

finer-grained material being dumped into the basin from a more severely eroded source terrain, or by deposition in a basin that was filling faster than it subsided.

The carbonaceous pelites of unit B3 attest to a period when comparatively little detrital sediment was being deposited into quiet deep water. The presence of free carbon in these rocks may be related to euxinic conditions in the water near the basin floor.

The silty carbonates of unit B4 also contain free carbon as graphite. These carbonates may have been deposited by turbidity currents sweeping basin-margin and reef detritus down into the central part of the basin.

The rocks in the Amber Property-area underwent progressive deformation probably related to the emplacement of the Kuskanax Batholith west of the property (Figures 4 and 5).

During the first phase of deformation, stratigraphy was thickened by minor isoclinal folding in incompetent units. The major compressional stress was northeast-southwest and a steeply dipping cleavage developed that trended northwest-southeast.

Orientation of the major compressive stress changed little during the second phase of deformation. At that time, compression was accomplished by the development of tight to isoclinal major folds in the stratigraphy. Another northwest-southeasterly trending cleavage was also developed at that time. Later during the second phase of deformation, considerable regional uplift or unroofing must have occured. Fold closures were broken and competent beds were thrust northeastward over incompetent beds. Thrusting was accompanied by large-scale fluid migration which resulted in the

emplacement of barren aplite dykes and subsequently, mineralized quartz veins.

Brittle deformation occured after the second phase of deformation. Large transverse faults displaced stratigraphy along northwest-southeast trending planes. The Mount Emmens and Mobbs faults were active at that time.

3.0 GEOCHEMICAL SURVEYS

3.1 Extension of the 1987 Soil Survey

During the 1988 exploration program, the 1987 soil survey was extended southward on the Amber 2 and 3 claims to test the southward extension of zones of sub-anomalous soil metal content located between the Snowstorm and Silver Sparrow workings-areas (Figures 7 and 8).

Soil lines were extended east-west at 50 m intervals from a base line that was located along the Amber 2-3 claim line. The soil lines extended 100 m eastward and 600 m westward. A total of 5.2 line-km were surveyed by hip-chain and compass, comprising an 8-line grid covering an area of 24.5 ha. Soil stations were located at 50 m intervals along the lines (Figures 7 and 8).

Soil survey results comprise Appendix B. The results are contoured in Figure 8.

Soils were sufficiently developed at most stations to enable the collection of a sample from an elluviated "B" horizon. Sampling depths varied from 0.2 m to 0.5 m.

Soils in the grid-area were typical of glaciated alpine slopes where a thin layer of ablation till formed the initial regolith for soil development.

Periglacial processes such as cryoturbation caused mixing with underlying rock. This resulted in well-defined soil horizons and comparatively mature soil profiles derived mostly from local parent rock.

Soil samples were shipped in undyed kraft paper envelopes to Chemex Labs Limited of North Vanocouver, B.C. All 104 samples were analized for copper, lead zinc, silver and gold.

A statistical analysis using the methods of Lepeltier (1969) resulted in the generation of the following contour intervals for the 1987 soil data (Spearing and Ostler, 1987A):

	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Au ppb*
84th centile (sub-anomalous)	68.0	37.0	148.0	0.52	21.5
97.5th centile (anomalous)	121.7	62.2	292.1	0.95	25.5

* gold was not contoured

Soil samples from the 1987 and 1988 surveys are from the same statistical populations. Most of the 1988 data are near the mean (background) for the population. Thus threshold values for anomalous and sub-anomalous soil metal concentrations from the 1987 and 1988 data are not significantly different. Therefore; the threshold values from the 1987 survey are used in plotting the current data (Figure 8).

3.2 White Eagle Soil Survey

A small soil survey was conducted over the White Eagle workings area to test for unexposed veins located east of the upper workings.

Soil lines were laid out in a north-south direction at 50 m intervals along a base line centred at 700 m S and 300 m E (Figure 8).

A total of 1.2 line km were surveyed by hip-chain and compass comprising a 5-line grid covering 4 ha. Soil stations were located at 20 m intervals along the lines (Figures 7 and 8).

A total of 54 samples were shipped to Chemex Labs Limited of North Vancouver, B.C. using the same procedures as described in section 3.1 of this report. The samples were analized for copper, lead, zinc, silver and gold. Methods of analysis and results are in Appendices A and B, respectively.

The soil data were plotted and contoured using the methods of Lepeltier (1969). The 1987 threshold soil metal concentrations were used (Figure 8).

3.3 Interpretation of 1988 Soil Surveys

In the area between the Snowstorm and Silver Sparrow workings (Figure 8), there is a coincident copper-lead-zinc enrichment in soils extending from about 50 m S and 400 m W southeastward to about 350 m S and 100 m W. There is no significant copper mineralization in any of the veins in the area so the copper in these soils must be generated from the weathering of local country rocks. This area of enrichment is interpreted to be from illuviation in soils at a break of slope below outcrops of carbonaceous pelite around Snowstorm Dome.

Of more interest is a coincident gold-silver anomaly in soils located at 00 m N and 400 m W. This may be related to an unexposed vein that trends parallel with the Snowstorm veins.

A gold soil anomaly located at 250 m S and 250 m W just west of the Pine Tree Vein may be related to an unexposed extension of that vein.

The soil gold anomaly located at 350 m S and 200 m W may be related to material transported in soil downhill from the Silver Sparrow Vein.

The soil results from the grid at the White Eagle workings were inconclusive. This was probably due to the masking effects of a Pleistocene-age palaeosol above the workings in the northeastern part of the grid and the enriching effect of the blase apron from the old workings themselves (Figure 8). Of greatest interest are the three consecutive soil gold anomalies along line 200 m E at 740 m S. It is unknown at present whether these anomalies are caused by leakage from the Mobbs Fault, located near these sample sites (Figure 6) or whether they are caused by the weathering of a gold-bearing vein like the White Eagle Vein.

4.0 ECONOMIC MINERALIZATION

4.1 White Eagle Workings; Amber 2 R 5392 (7)

The White Eagle workings are located on a west-facing slope north of Blue lake (Figures 3, 4 and 7). They comprise upper and lower adits, an inclined shaft, a winze in the upper adit and surface trenches (Figure 9). The portal-area of the shaft and the upper adit; considered to be the centre of this workings-area, is at an elevation of about 2176 m (7140 ft). It is located approximately 700 m south and 300 m east of the Amber common corner post on the Amber 2 claim (Figures 7 and 9).

The upper White Eagle workings were mapped in detail and sampled during the 1987 exploration program (Spearing and Ostler, 1987A; Figures 7, 9 and 10).

The upper workings were excavated from 1928 to 1930 to explore the

White Eagle Vein. That vein was an average of 0.6 m thick and was mineralized with galena, sphalerite and pyrite. For 6 m of its exposed length, the vein carried massive sulphide throughout its entire width.

To test this vein at depth, a lower adit was driven during 1929 and 1930 from a portal site about 90 m southwest and 38 m below the upper portal site (Figure 9).

Old reports indicate that the lower adit intersected a mineralized vein about 146 m in from the portal. A drift was extended for 15 m eastward along the vein with poor results. Another drift extended westward on the vein intersected good mineralization 4 m west of the adit.

There seemed to be considerable doubt that the vein encountered 146 m in the lower adit was the same as the vein explored in the upper workings. Because of that uncertainty, the lower adit was extended to a total length of 152 m and an inclined raise was driven 24.5 m upward from the end of the lower adit. A vein containing significant mineralization was encountered at the end of the raise. This second vein was interpreted to have been the vein encountered in the upper workings.

During the 1987 program, the writers found that two parallel veins were exposed in the upper workings; the White Eagle Vein which was well-mineralized, and a parallel vein exposed only in trench WETR 3 which was sparsly mineralized.

During the 1988 program the lower adit was explored 51 m in from the portal. It was confirmed that the lower adit was driven directly beneath the upper workings-area. With that confirmation, the writers were able to speculate upon the veins encountered in the lower adit and the raise.

If, as was suspected in 1929, the vein encountered at the top of the raise in the lower adit was the same as that exposed in the upper workings, either its dip would have to flatten significantly or it would have to be faulted and displaced northeastward between the lower and upper workings. Also for the vein encountered at the top of the raise to be the White Eagle Vein and for the vein encountered at 146 m in the adit to be the lower parallel vein exposed in trench WETR 3, the distance between these veins would have to increase greatly between the upper and lower workings indicating that they were not parallel.

Finally, assuming constant dip and strike of the White Eagle Vein, it should be intersected within a few metres of where it actually is intersected in the lower adit. Now, it seems likely to the writers that the vein intersected at 146 m in the lower adit is the White Eagle Vein and that the vein intersected at the top of the raise in the lower adit is another vein not yet located on surface.

The soil gold anomalies along the eastern margin of the White Eagle soil survey may be an expression of this unexplored vein (Figures 8 and 9).

4.2 Snowstorm Trenches; Amber 4 R5394 (7)

No new work was conducted at this showings-area during the 1988 exploration program (Figure 7). These trenches were mapped and partially sampled during the 1987 exploration program (Spearing and Ostler, 1987A). For their history, see pages 12 and 15 of this report.

4.3 Snowstorm Shaft and the Silver Sparrow Vein; Amber 3 R5393 (7)

The Silver Sparrow Vein is exposed by a trench and penetrated by the Snowstorm shaft on a steep skree-covered slope. This working is located

on the Amber 3 claim about 260 m south and 140 m west of the Amber common corner post (Figures 7 and 10).

The Snowstorm shaft is 6.1 m long (Figure 10). It follows the footwall of the Silver Sparrow Vein, plunging at 19° for 2 m and then levelling off. Subsequent caving has produced a chamber 2.4 m^3 just in from the portal.

The Silver Sparrow Vein strikes 300° and dips 31° northeastward. It is about 1 m thick.

Mineralization comprises stringers of auriferous pyrite and segregations of argentiferous galena. Samples of vein material from the Silver Sparrow Vein taken during the 1987 exploration program assayed up to: 0.802 oz/ton gold, 31.60 oz/ton silver, 56.2% lead and 0.55% zinc (Figure 10) (Spearing and Ostler, 1987A).

The trench at the shaft-site was extended during the 1988 program. A current sample taken from the shaft-site assayed: 0.016 oz/ton gold, 42.6 oz/ton silver, 66.9% lead and 0.85% zinc (Figure 10).

4.4 Pine Tree Vein and Trenches; Amber 3 R5393 (7)

The Pine Tree Vein was discovered during the 1988 exploration program. It is located on the Amber 3 claim about 265 m south and 230 m west of the Amber commom legal corner, about 90 m west of the Silver Sparrow Vein (Figures 7 and 10).

The Pine Tree Vein is exposed for a total length of 20 m in three trenches (Figure 10). In trench PTT 2 located about 68 m west of the Snowstorm shaft, the Pine Tree Vein strikes 251° and dips 31° northwest.

In trench PTT 3, 15 m west of trench PTT 2, the vein attitude rotates to a more southwesterly strike and a steeper dip. Vein thickness varies from 7 cm to 0.5 m.

Mineralization in the Pine Tree Vein is similar to that in the Silver Sparrow Vein. Stringers of auriferous pyrite and segregations of argentiferous galena are disseminated throughout yellow to white quartz. Composite grab samples from this vein assayed up to: 11.885 oz/ton gold and 13.5 oz/ton silver (Figure 10, Appendix C).

4.5 West Ridge Workings; Amber 2 R5392 (7)

The West Ridge workings-area was named by the 1987 exploration crew because it was located atop the ridge west of Blue Lake. The workings of this area were located at an elevation of about 2219 m (7280 ft) (Figures 7 and 12), about 210 m east and 1500 m south of the Amber LCP.

Workings of the West Ridge area include a 2.4 m^2 shaft, an adit and several trenches (Figure 12). The entrances to the shaft and adit are in poor condition.

The shaft is estimated from the size of its dump to have been about 15.2 m deep.

A 0.3 m thick milky quartz vein striking 119° and dipping 45° southwestward is exposed at the shaft collar. This vein is mineralized with disseminations and pods of argentiferous galena.

Samples from the vein assayed up to 10.2 oz/ton silver and 10.3% lead (Figure 12) (Spearing and Ostler, 1987A). A selected grab sample from the shaft dump assayed: 26.7 oz/ton silver, 13.5% lead and 0.73% antimony (Figure 12, Appendix C).

There are several trenches around the shaft collar. None of which are open.

The West Ridge adit is located about 92.5 m south of the shaft on the western slope of the ridge (Figure 12). The adit seems to bear 055°. The volume of dump material at the portal indicates that these underground workings extend in for at least 150 m.

Trenches are located on the eastern slope of the ridge on the projected bearing of the adit.

During the 1988 exploration program, cleaning of one of these trenches, WRT 7 uncovered massive galena-stibnite mineralization in quartz that assayed up to: 44.9 oz/ton silver, 1.58% copper, 41.1% lead and 16.1% antimony (Figure 12, Appendix C). The presence of copper indicates the presence of fine-grained tetrahedrite with the galena and stibnite.

This trench is located near the upper end of a boulder dispersion train that can be traced for 137 m down-slope. Blocks of massive galena-stibnite mineralization in the dispersion train are up to 1 m across, indicating the thickness of the unexposed mineralization above. Assays from the massive mineralization in the dispersion train are similar to those from trench WTR 7 (Figure 12).

4.6 Lakeview Trenches and Veins; North Star R5220 (3)

The Lakeview showings were named by the 1988 exploration crew because they were located on a hillside overlooking Blue Lake.

The Lakeview showings-area is located at an elevation of 2106 m (6910 ft) on the North Star claim about 1350 m south and 575 m east of the

Amber common legal corner (Figures 7 and 11).

At the Lakeview showings, two trenches expose sparsly mineralized metasandstone of unit B1 (Figure 6) between two quartz veins (Figure 11). The quartz veins are mineralized with disseminated and massive galena, pyrite and sphalerite. Some of the mineralization at the Lakeview showings closely resembles the massive mineralization at the White Eagle workings located about 500 m to the northwest of the Lakeview showings.

The No.1 Vein at the Lakeview strikes at 128° and dips nearly vertically southwestward. It is 20 cm thick where it is exposed in place at the eastern end of trench LVT 1. There, two samples of disseminated mineralization yielded low assays (Figure 11, Appendix C). However, a composite chip sample from about 10 rotated blocks of vein material taken from the soil at the western end of trench LVT 1 assayed 4.22 oz/ton gold, 4.61 oz/ton silver, 6.04% lead and 3.47% zinc (Figure 11, Appendix C).

The No.2 Vein is exposed in trench LVT 2 4.6 m vertically above the No.1 Vein. The No.2 Vein is exposed in a slit trench over a length of 22 m. This vein strikes at 281° and dips 81° to the north. It splits into two veins at the western end of the trench (Figure 11).

Mineralization in the sandstone between the veins comprises thin sheets of pyrite and minor galena and sphalerite deposited in cleavage planes. It is possible that sufficient tonnage of this low-grade material may be present for bulk mining of the veins and the the mineralized sandstone together.

4.7 Juno Workings; Juno R5219 (3)

The Juno property was developed by the Juno Syndicate in the middle

1920's. Work conducted on several locations on the property was recorded in the B.C. Minister of Mines' annual report of 1925 (pages 13 and 14 this report).

Surface and underground workings comprising the lower Juno workings are located along the main Cascade Creek pack trail at elevations ranging from 1372 m (4500 ft) to 1530 m (5000 ft). The adit and winze discussed in the old reports is located on the trail at 1530 m elevation. It is on the Juno claim about 2000 m north and 1850 m west of the Amber common legal corner (Figures 3 and 6). The Juno cabin is assumed to be the centre of the upper Juno workings-area. It is located on a creek between Cascade and Kiss creeks at an elevation of about 1737 m (5700 ft). It is on the Juno claim about 2000 m north and 1300 m west of the Amber common legal corner.

No significant mineralization has been found yet at any of the Juno workings.

4.8 North Star Adit; North Star R5219 (3)

The writers know of no old reports of work on the North Star showings. It is assumed that the showings were named by Mike Linn, who optioned the North Star claim to Ambergate during 1987.

The North Star workings comprise a short adit and two small trenches. The adit is located on a steep westerly facing treeless slope at an elevation of about 2397 m (7865 ft). It is on the North Star claim about 4300 m south and 1050 m east of the Amber common legal corner. The trenches are located at an elevation of about 2438 m (8000 ft) about 90 m north-northwest of the adit (Figure 13).

The North Star adit bears at 022° for a length of 9 m. It extends through siltstone of unit B2 to the plane of the North Star Thrust near the working face where it penetrates carbonates of unit B4.

Near the portal, the siltstones contain narrow stringers of pyrite about 3 mm thick. Near the working face in the plane of the thrust is a quartz vein containing black gouge. The vein is a maximum of 10 cm thick.

A channel sample from the black gouge assayed: 57.7 oz/ton silver, 1.17% copper, 2.74% lead and 1.14% antimony. The black gouge may be weathered tetrahedrite (Figure 13, Appendix C).

The two trenches uphill from the adit expose a 20 cm thick quartz vein in the plane of the thrust that strikes at 335° and dips 60° to the northeast. The vein contains disseminated galena and tetrahedrite with azurite and malachite on weathered surfaces.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

Geological mapping at a scale of 1:10,000 was extended over most of the Amber Property. The property was underlain by basal volcanics and volcanogenic sediments, turbidites, carbonaceous pelites and carbonates of the Palaeozoic-age Broadview Formation. These rocks formed an eugeosynclinal basin-filling sequence deposited on top of the Index Formation andesites, which were exposed on the Comstock Property northeast of the Amber Property (Figure 6).

The Amber Property covered five old properties: the Juno, White Eagle, Snowstorm, West Ridge and North Star which were explored prior to 1931. The Lakeview and Pine Tree showings were discovered during the 1988

exploration program. To date, a total of nine distinct showings-areas containing at least 12 mineralized quartz veins have been found on the property (Figures 3 and 6).

Thrust faults disrupted the Broadview Formation stratigraphy during the second phase of deformation. All of the mineralized veins on the property seemed to have been emplaced after thrusting during the second phase of deformation.

The North Star Vein is located in the plane of the North Star Thrust. A direct relationship between thrusting and vein emplacement like at the North Star is not yet proven for any of the other veins on the property.

There may be a relationship between the Upper Juno, Snowstorm, Pine Tree, Silver Sparrow White Eagle and Lakeview veins and the Amber Thrust. All of these showings are located in the footwall rocks within 400 m of the surface trace of the Amber Thrust (Figure 6). All significant gold assays from the property are from these showings. The Amber Thrust may be directly related to gold mineralization on the property.

Also, no antimony is found to occur in showings east of the Amber Thrust. All showings west of the Amber Thrust contain antimony.

The thrust faults across the property may have acted as conduits facilitating the migration of mineralizing fluids of different compositions upward from various depths.

Showings east of the Amber Thrust are quartz veins mineralized with argentiferous galena, sphalerite and auriferous pyrite. Showings west of the Amber Thrust are quartz veins mineralized with argentiferous galena,

tetrahedrite, stibnite and minor sphalerite.

The extension of the 1987 soil survey over the Pine Tree and Silver Sparrow showings revealed a soil gold anomaly west of the Pine Tree trenches and a possible location of a mineralized vein at 00 m N. and 450 m W. (Figure 8).

The soil survey over the White Eagle workings was inconclusive.

5.2 Recommendations

The writers recommend that future exploration on the Amber Property include the following aspects in order to expand and develop the known economic potential of the property:

A. Road access to the Amber Property and its workings-areas should be developed to improve the cost and reliability of transport to and around the property.

B. Geological mapping at a scale of 1:10,000 should be completed in the northern and peripheral areas of the property.

D. A soil survey should be conducted over the area between the Mobbs Fault and the Amber Thrust from the Silver Sparrow showings to the southern boundary of the Amber 2 claim.

E. The area around the West Ridge showings should be prospected intensively

F. Trenching should be conducted on the Snowstorm Dome, at the showings along the Amber Thrust and at the West Ridge showings to extend areas of known mineralization.

Vancouver, British Columbia
November 1, 1988

C. Geoffrey Spearing, B.Sc.(Eng.)

John Ostler; M.Sc., P.Geol.

6.0 REFERENCES

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_____; 1928: (Juno) B.C. Minister of Mines', Ann. Rept., p. C309.

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7.0 ITEMIZED COST STATEMENT OF THE 1988 PROGRAM

Wages:	May 23-July 13 Physical		Geological		Post July 13 Physical		Geological	
C.G. Spearing, B.Sc.(Eng.)								
48 days @ $225/day	$ 8325.00				$ 393.75		$ 2081.25	
+ 12.25 days data @ $225			$ 506.25				$ 2250.00	
John Ostler; M.Sc., P.Geol.								
26.5 days @ $250/day	$ 4125.00						$ 2500.00	
+ 3.25 days data @ $250							$ 812.50	
David P. Nunuk, B.Sc.								
47 days @ $175/day	$ 6300.00				$ 1575.00		$ 350.00	
David R. Jones, B.Sc.								
22 days @ $175/day	$ 2800.00		$ 1050.00					
W. Adam Foran								
15 days @ $120/day	$ 480.00				$ 120.00		$ 1200.00	
+ 4 days data @ $120							$ 480.00	
	$22030.00	$22030.00	$ 1556.25	$ 1556.25	$ 2088.75	$ 2088.75	$ 9673.75	$ 9673.75
Transport:								
Helicopter; Highland H.	$ 4111.20		$ 225.20		$ 704.57		$ 1873.83	
Trucks 2 3/4 ton P.UP								
2.08 mo @ $1800x2/mo.	$ 5181.33		$ 283.92		$ 556.02		$ 1478.73	
Gasoline	$ 1084.04		$ 59.40		$ 89.48		$ 237.97	
Highway Tolls	$ 47.40		$ 2.60		$ 5.47		$ 14.53	
	$10423.97	$10423.97	$ 571.12	$ 571.12	$ 1355.54	$ 1355.54	$ 3605.06	$3605.06
Assays:		$	$					
158 soil analyses			$ 742.50				$ 1436.00	
1 rock geochem			$ 16.25					
19 rock assays							$ 793.25	
			$ 758.75	$ 758.75			$ 2229.25	$ 2229.25
Balances carried to pg. 47		$32453.97		$ 2886.12		$ 3444.29		$15508.06

	May 23-July 13 Physical		Geological		Post July 13 Physical		Geological	
Balances Carried forward		$32453.97		$ 2886.12		$ 3444.29		$15508.06
Camp:								
1 base camp + power 2.083 mo @ $1000/mo	$ 1439.27		$ 78.67		$ 154.44		$ 410.75	
Chain Saws + L.C. Equ 2.083 mo @ $600/mo	$ 910.88				$ 339.12			
Traversting equ.			$ 66.67				$ 150.00	
Radiotelephone 2.083 mo @ $300/mo	$ 431.78		$ 23.66		$ 46.33		$ 123.23	
Radio calls	$ 43.88		$ 2.40		$ 3.14		$ 8.36	
Camp and Field supplies	$ 494.10		$ 32.58		$ 20.76		$ 93.88	
Explosives	$ 629.05							
Camp Food	$ 1807.94		$ 99.07		$ 139.69		$ 371.50	
	$ 5756.90	$ 5756.90	$ 303.05	$ 303.05	$ 703.48	$ 703.48	$ 1157.72	$ 1157.72
Crew in Transit:								
Hotel	$ 265.69		$ 14.59		$ 36.80		$ 97.87	
Meals in transit	$ 651.79		$ 35.72		$ 48.98		$ 130.25	
	$ 917.48	$ 917.48	$ 50.31	$ 50.31	$ 85.78	$ 85.78	$ 228.12	$ 228.12
Report Production:								
Drafting; 179.5 hr @ $30/hr			$ 867.38				$ 4517.62	
Typing, blackline and photocopy			$ 66.85				$ 348.20	
			$ 934.23	$ 934.23			$ 4865.82	$ 4865.82
Prorated Totals		$39128.35		$ 4173.71		$ 4233.55		$21759.72

Total cost: $69295.33

John Ostler

John Ostler; M.Sc., P.Geol.
President, Ambergate Explorations

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To: AMBERGATE EXPLORATIONS INC.

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APPENDIX A

A8819579

Comments: ATTN: GEOFFREY SPEARING

CERTIFICATE A8819579

AMBERGATE EXPLORATIONS INC
PROJECT :
P O # : NONE

Samples submitted to our lab in Vancouver, BC.
This report was printed on 2-AUG-88.

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
201	101	Dry, sieve -80 mesh, soil, sed.
203	3	Dry, sieve -35 mesh and ring

• NOTE 1:

The 32 element ICP package is suitable for trace metals in soil and rock samples. Elements for which the nitric-aqua regia digestion is possibly incomplete are: Al, Ba, Be, Ca, Cr, Ga, K, La, Mg, Na, Sr, Ti, Tl, W.

ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
100	104	Au ppb: Pulse 10 g sample	FA-AAS	5	10000
2	104	Cu ppm: HNO3-aqua regia digest	AAS	1	10000
4	104	Pb ppm: HNO3-aqua regia digest	AAS-BKGD CORR	1	10000
5	104	Zn ppm: HNO3-aqua regia digest	AAS	1	10000
6	104	Ag ppm: HNO3-aqua regia digest	AAS-BKGD CORR	0.2	200

SOILS

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APPENDIX A

A8819580

Comments: ATTN: GEOFFREY SPEARING

CERTIFICATE A8819580

AMBERGATE EXPLORATIONS INC
PROJECT :
P O # : NONE

Samples submitted to our lab in Vancouver, BC.
This report was printed on 6-AUG-88.

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
207	19	Assay: Crush,split,pulv -150

ROCKS

ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
398	19	Au oz/T: 1/2 assay ton	FA-AAS	0.002	20.00
385	19	Ag oz/T: Aqua regia digestion	AAS	0.01	20.0
301	19	Cu %: HClO4-HNO3 digestion	AAS	0.01	100.0
312	19	Pb %: HClO4-HNO3 digestion	AAS	0.01	100.0
316	19	Zn %: HClO4-HNO3 digestion	AAS	0.01	100.0
330	10	As %: Assay	NAA	0.001	100.0
347	10	Sb %: Assay	NAA	0.001	100.0

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APPENDIX B

Page No. : 1
Tot. Pages: 3
Date : 2-AUG-88
Invoice # : I-8819579
P.O. # : NONE

CERTIFICATE OF ANALYSIS A8819579

SAMPLE DESCRIPTION	PREP CODE		Au ppb FA+AA	Cu ppm	Pb ppm	Zn ppm	Ag ppm Aqua R
50S 300W	201	---	< 5	62	18	144	0.6
50S 350W	201	---	< 5	90	25	158	0.2
50S 400W	201	---	< 5	105	37	211	0.3
50S 450W	201	---	< 5	156	62	199	0.6
50S 500W	201	---	< 5	46	28	88	0.6
50S 550W	201	---	30	24	19	97	0.4
50S 600W	201	---	45	31	19	78	0.4
100S 300W	201	---	< 5	85	37	174	0.3
100S 350W	201	---	< 5	8	13	21	0.3
100S 400W	201	---	< 5	19	10	61	0.2
100S 450W	201	---	< 5	6	15	22	0.4
100S 500W	201	---	< 5	22	20	44	0.5
100S 550W	201	---	< 5	21	16	41	0.5
100S 600W	201	---	< 5	66	29	141	0.4
150S 050E	201	---	< 5	41	23	113	0.3
150S 100E	201	---	< 5	46	15	92	0.2
150S 000W	201	---	< 5	71	30	119	0.6
150S 050W	201	---	15	51	28	103	0.4
150S 100W	201	---	< 5	89	55	139	0.4
150S 150W	201	---	20	51	37	112	0.7
150S 200W	201	---	15	49	22	127	0.7
150S 250W	201	---	20	57	52	217	0.4
150S 300W	201	---	5	46	18	106	0.4
150S 350W	201	---	< 5	16	14	65	0.3
150S 400W	201	---	< 5	67	22	170	0.4
150S 450W	201	---	15	13	20	33	0.4
150S 500W	201	---	< 5	14	16	41	0.1
150S 550W	201	---	< 5	21	15	64	0.2
150S 600W	201	---	10	38	20	93	0.2
200S 050E	201	---	< 5	64	46	123	0.1
200S 100E	201	---	< 5	53	33	148	0.1
200S 000W	201	---	15	104	48	166	0.4
200S 050W	201	---	10	86	38	114	0.7
200S 100W	201	---	< 5	50	38	91	0.2
200S 150W	201	---	< 5	99	43	176	0.3
200S 200W	201	---	< 5	47	16	121	0.6
200S 250W	201	---	< 5	36	29	107	0.1
200S 300W	201	---	< 5	88	19	193	0.2
200S 350W	201	---	< 5	74	44	169	0.4
200S 400W	201	---	< 5	41	26	130	0.3

CERTIFICATION : Mark Vonk

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APPENDIX B

Page No. : 2
Tot. Pages: 3
Date : 2-AUG-88
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P.O. # : NONE

CERTIFICATE OF ANALYSIS A8819579

SAMPLE DESCRIPTION	PREP CODE	Au ppb FA+AA	Cu ppm	Pb ppm	Zn ppm	Ag ppm Aqua R
200S 450W	201	< 5	34	25	98	0.2
200S 500W	201	< 5	22	15	64	0.3
200S 550W	201	< 5	31	15	75	0.2
200S 600W	201	< 5	29	13	71	0.1
250S 050E	201	< 5	57	25	128	0.2
250S 100E	201	< 5	42	16	99	0.3
250S 000W	201	< 5	55	31	128	0.2
250S 050W	201	< 5	58	34	112	0.3
250S 100W	201	10	84	97	221	0.3
250S 150W	201	15	77	70	149	0.7
250S 200W	201	5	121	61	231	0.1
250S 250W	201	30	72	28	171	0.2
250S 300W	201	< 5	31	16	96	0.2
250S 350W	201	< 5	60	24	115	0.3
250S 400W	201	< 5	6	10	20	0.1
250S 450W	201	< 5	44	18	107	0.2
250S 500W	201	< 5	15	12	38	0.3
250S 550W	201	< 5	32	22	80	0.3
250S 600W	201	< 5	37	36	115	0.1
300S 050E	201	< 5	72	25	142	0.4
300S 090E	201	< 5	86	69	148	0.6
300S 000W	201	< 5	23	15	53	0.6
300S 050W	201	< 5	37	28	100	0.2
300S 100W	201	< 5	50	48	163	0.3
300S 150W	201	< 5	76	39	149	0.1
300S 200W	201	< 5	47	34	143	0.1
300S 250W	201	< 5	37	17	93	0.2
300S 300W	201	< 5	24	19	92	0.1
300S 350W	201	< 5	14	12	43	0.6
300S 400W	201	< 5	6	8	22	0.3
300S 450W	201	< 5	9	12	36	0.2
300S 500W	201	< 5	76	27	21	0.2
300S 550W	201	< 5	52	50	116	0.1
300S 600W	201	< 5	33	23	98	0.1
350S 050E	201	< 5	52	19	81	0.3
350S 100E	201	< 5	123	67	204	0.3
350S 000W	201	< 5	52	19	98	0.8
350S 050W	201	< 5	14	22	42	0.5
350S 100W	201	< 5	119	75	271	0.4
350S 150W	201	< 5	34	25	104	0.1

CERTIFICATION :

Chemex Labs Ltd.
Analytical Chemists • Geochemists • Registered Assayers
212 BROOKSBANK AVE., NORTH VANCOUVER,
BRITISH COLUMBIA, CANADA V7J-2C1
PHONE (604) 984-0221

To: AMBERGATE EXPLORATIONS INC.
1016 - 470 GRANVILLE ST.
VANCOUVER, BC
V6C 1V5
Project :
Comments: ATTN: GEOFFREY SPEARING

APPENDIX B

Page No. : 3
Tot. Pages: 3
Date : 2-AUG-88
Invoice # : I-8819579
P.O. # : NONE

CERTIFICATE OF ANALYSIS A8819579

SAMPLE DESCRIPTION	PREP CODE	Au ppb FA+AA	Cu ppm	Pb ppm	Zn ppm	Ag ppm Aqua R
350S 200W	201	< 5	41	21	116	0.4
350S 250W	201	< 5	35	33	134	0.1
350S 300W	201	< 5	44	22	115	0.3
350S 350W	201	< 5	33	22	89	0.2
350S 400W	201	< 5	8	20	29	0.6
350S 450W	203	< 5	47	20	106	0.5
350S 500W	203	< 5	48	43	126	0.1
350S 550W	201	< 5	24	30	80	0.3
350S 600W	203	< 5	37	29	120	0.3
400S 050E	201	< 5	40	20	97	0.2
400S 100E	201	< 5	101	58	178	0.1
400S 000W	201	< 5	17	12	45	0.2
400S 050W	201	< 5	33	11	74	0.2
400S 100W	201	< 5	35	17	82	0.3
400S 150W	201	< 5	20	14	63	0.5
400S 200W	201	< 5	39	20	105	0.2
400S 250W	201	< 5	17	13	56	0.3
400S 300W	201	< 5	20	15	86	0.2
400S 350W	201	< 5	30	23	98	0.4
400S 400W	201	< 5	9	15	29	0.7
400S 450W	201	< 5	16	12	44	0.3
400S 500W	201	< 5	23	16	78	0.1
400S 550W	201	< 5	5	9	16	0.2
400S 600W	201	< 5	55	16	125	0.1

CERTIFICATION :

Chemex Labs Ltd.
Analytical Chemists • Geochemists • Registered Assayers
212 BROOKSBANK AVE NORTH VANCOUVER
BRITISH COLUMBIA CANADA V7J 2C1
PHONE (604) 984-0221

To : AMBERGATE EXPLORATIONS INC.
1016 - 470 GRANVILLE ST.
VANCOUVER, BC
V6C 1V5

APPENDIX B

Date : 30-JUN-88
Invoice # : I-8817626
P.O. # : NONE

Project :
Comments: ATTN: MR JOHN OSTLER CC: C GEOFFREY SPEARING

CERTIFICATE OF ANALYSIS A8817626

SAMPLE DESCRIPTION	PREP CODE		Au ppb FA+AA	Cu ppm	Pb ppm	Zn ppm	Ag ppm Aqua R
200E 600S	201	--	10	104	55	125	0.4
200E 620S	201	--	5	115	28	141	0.1
200E 640S	201	--	10	74	27	139	0.1
200E 660S	201	--	10	104	31	170	0.1
200E 680S	201	--	< 5	53	21	97	0.1
200E 700S	201	--	< 5	60	26	144	0.1
200E 720S	201	--	10	67	31	196	0.1
200E 740S	201	--	15	73	41	203	0.1
200E 760S	201	--	15	171	71	269	0.1
200E 780S	201	--	5	55	28	146	0.1
200E 800S	201	--	< 5	54	24	149	0.1
250E 600S	201	--	10	108	50	207	0.3
250E 620S	201	--	15	147	70	298	1.1
250E 640S	201	--	10	77	59	161	0.3
250E 660S	201	--	10	96	47	207	0.1
250E 680S	201	--	5	65	39	144	0.2
250E 700S	201	--	< 5	110	17	185	0.8
250E 720S	201	--	5	50	20	140	0.1
250E 740S	201	--	5	43	21	141	0.1
250E 760S	201	--	5	50	33	136	0.1
250E 800S	201	--	10	63	30	142	0.1
300E 600S	201	--	< 5	60	27	145	0.1
300E 620S	201	--	< 5	82	38	174	0.5
300E 640S	201	--	15	84	35	121	1.1
300E 660S	201	--	5	60	37	133	0.2
300E 680S	201	--	15	59	36	125	0.1
300E 700S	201	--	20	72	59	154	0.1
300E 720S	201	--	10	75	104	459	0.8
300E 740S	201	--	15	73	110	387	0.1
300E 760S	201	--	< 5	64	87	223	0.1
300E 780S	201	--	5	50	[illegible]	157	[illegible] 1
300E 800S	201	--	5	63	36	153	0.1
350E 600S	201	--	10	66	27	159	0.1
350E 620S	201	--	10	54	32	139	0.1
350E 640S	201	--	5	37	24	99	0.1
350E 660S	201	--	5	25	28	53	0.1
350E 680S	201	--	10	108	57	188	0.1
350E 700S	201	--	< 5	78	38	189	0.1
350E 720S	201	--	< 5	18	13	49	0.1
350E 740S	201	--	10	39	37	121	0.1

CERTIFICATION : Hart Bichler

Chemex Labs Ltd.
Analytical Chemists • Geochemists • Registered Assayers
212 BROOKSBANK AVE NORTH VANCOUVER
BRITISH COLUMBIA CANADA V7J-2C1
PHONE (604) 984-0221

To: AMBERGATE EXPLORATIONS INC.
1016 - 470 GRANVILLE ST.
VANCOUVER, BC
V6C 1V5

APPENDIX B

Project:
Comments: ATTN: MR JOHN OSTLER CC: C GEOFFREY SPEARING

**Page No. : 2
Tot. Pages: 2
Date : 30-JUN-88
Invoice # : I-8817626
P.O. # : NONE

CERTIFICATE OF ANALYSIS A8817626

SAMPLE DESCRIPTION	PREP CODE	Au ppb FA+AA	Cu ppm	Pb ppm	Zn ppm	Ag ppm Aqua R
350E 760S	201 --	10	80	39	170	0.1
350E 780S	201 --	< 5	47	36	137	0.1
350E 800S	201 --	10	94	58	209	0.1
400E 600S	201 --	10	60	31	124	0.1
400E 620S	201 --	< 5	65	27	134	0.2
400E 640S	201 --	< 5	31	48	98	0.1
400E 660S	201 --	10	15	21	55	0.1
400E 680S	201 --	10	51	35	106	0.2
400E 700S	201 --	40	130	124	157	0.2
400E 720S	201 --	5	81	35	186	0.1
400E 740S	201 --	30	97	48	188	0.4
400E 760S	201 --	25	104	44	230	0.2
400E 780S	201 --	< 5	65	47	188	0.4
400E 800S	201 --	15	52	30	136	0.1

CERTIFICATION : Ian Bickler

Chemex Labs Ltd.
Analytical Chemists * Geochemists * Registered Assayers
212 BROOKSBANK AVE., NORTH VANCOUVER,
BRITISH COLUMBIA, CANADA V7J-2C1
PHONE (604) 984-0221

To: AMBERGATE EXPLORATIONS INC.
1016 - 470 GRANVILLE ST.
VANCOUVER, BC
V6C 1V5

APPENDIX C

Project :
Comments: ATTN: GEOFFREY SPEARING

Page No. : 1
Tot. Pages: 1
Date : 6-AUG-88
Invoice # : I-8819580
P.O. # : NONE

CERTIFICATE OF ANALYSIS A8819580

SAMPLE DESCRIPTION	PREP CODE	Au oz/T	Ag oz/T	Cu %	Pb %	Zn %	As NAA %	Sb NAA %	
J 145	207 --	< 0.002	0.05	< 0.01	0.22	< 0.01	-----	-----	
LVC-88-1-1	207 --	< 0.002	0.04	< 0.01	0.08	< 0.01	-----	-----	LAKEVIEW
LVT-88-1-1	207 --	4.220	4.61	0.01	6.04	3.47	-----	-----	
LVT-88-1-3	207 --	0.083	0.10	0.01	0.12	0.04	-----	-----	
LVT-88-1-4	207 --	0.038	0.08	0.03	0.07	0.05	-----	-----	
NSA-88-1-1	207 --	0.084	57.7	1.17	2.74	0.31	0.056	1.140	NORTH STAR
NST-88-1-1	207 --	0.006	0.95	0.02	0.10	0.02	0.003	0.021	
NST-88-1-2	207 --	0.008	1.09	0.01	0.10	0.02	0.023	0.018	
PTT-88-1-1	207 --	2.024	3.79	< 0.01	7.49	0.04	-----	-----	PINE TREE
PTT-88-2-1	207 --	0.058	13.50	< 0.01	18.50	0.01	-----	-----	
PTT-88-3-1	207 --	11.885	5.07	< 0.01	6.69	0.10	-----	-----	
WRA-88-1-1	207 --	0.086	0.15	< 0.01	0.19	0.01	< 0.001	< 0.001	WEST RIDGE
WRA-88-1-2	207 --	0.030	0.06	< 0.01	0.08	0.01	< 0.001	0.001	
WRP-88-1	207 --	0.044	14.00	0.01	15.40	< 0.01	< 0.001	0.276	
WRP-88-2	207 --	0.088	7.95	0.30	13.80	0.08	0.020	3.78	
WRS-88-1-1	207 --	0.076	26.7	0.56	13.50	0.08	0.029	0.730	
WRT-88-7-1	207 --	0.048	12.50	0.63	36.8	0.07	0.288	13.05	
WRT-88-7-2	207 --	0.020	44.9	1.58	41.1	0.16	0.544	16.10	
SPW-88-1-1	207 --	0.016	42.6	< 0.01	66.9	0.85	-----	-----	SILVERSPARROW

ALL ASSAY DETERMINATIONS ARE PERFORMED OR SUPERVISED BY B.C. CERTIFIED ASSAYERS

CERTIFICATION : J. Kowalczyk

APPENDIX D

I, C. Geoffrey Spearing , of 503-2016 Fullerton Avenue in the City of North Vancouver, Province of British Columbia do hereby certify:

That I am a self-employed mining engineer with office at 1000-401 West Georgia Street, Vancouver, British Columbia;

That I am a graduate of Queen's University at Kingston, Ontario where I did obtain my Bachelor of Science degree in Mining Engineering in 1986;

That my principal employment since 1985 has been in the field of mineral exploration;

That this report is based on data in literature available for public inspection, and on work conducted and supervised by me and John Ostler; M.Sc., P.Geol. on the Amber Property from May 23 to June 22 and from July 10 to 24, 1988;

That I have no interest in the Amber Property nor in the securities of Ambergate Explorations Inc. nor do I expect to receive any.

Dated at Vancouver, British Columbia this 1st day of November, 1988.

C. Geoffrey Spearing, B.Sc.(Eng.)
Consulting Mining Engineer

APPENDIX D

CERTIFICATE OF QUALIFICATION

I, John Ostler, of 2224 Jefferson Avenue in the City of West Vancouver, Province of British Columbia do hereby certify:

That I am a consulting geologist with business address at 1016-470 Granville Street, Vancouver, British Columbia;

That I am a graduate of Carleton University of Ottawa, Ontario where I obtained my Master of Science degree in Geology in 1977;

That I am licenced to practice as a Professional Geologist by the Association of Professional Engineers, Geologists and Geophysicists of Alberta, and I am a Fellow of the Geological Association of Canada;

That I have been engaged in the study and practice of the geological profession for over 15 years;

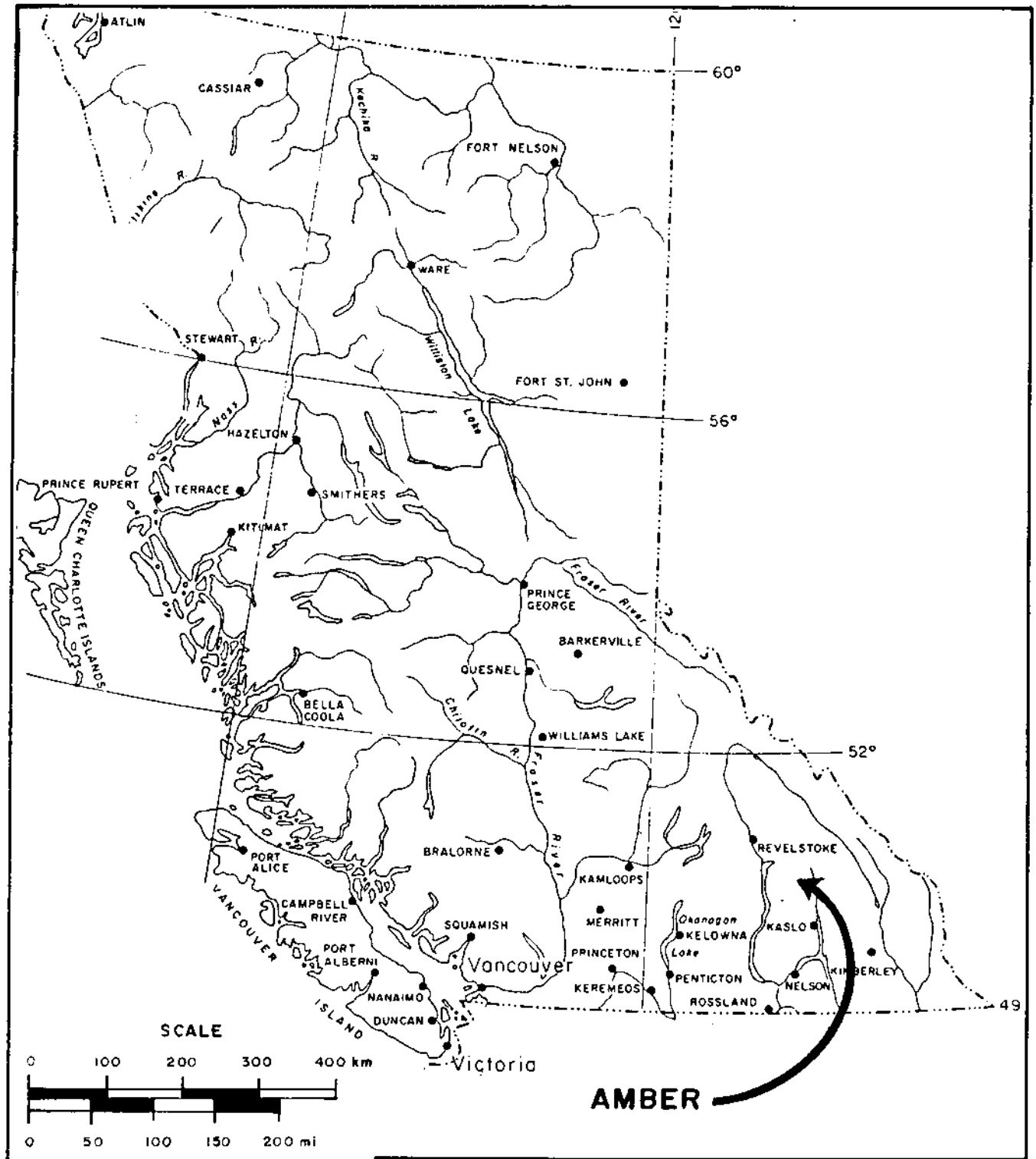
That this report is based on data in literature available for public inspection, and on work conducted by me and C. Geoffrey Spearing, B.Sc. (Eng.) on the Amber Proeprty from May 23 to June 22 and from July 10 to 24, 1988;

That I am a major shareholder and President of Ambergate Explorations Inc. which owns the Amber 1-4 claims and holds option on the Juno and North Star claims.

Dated at Vancouver, British Columbia this 1st day of November, 1988.

John Ostler

John Ostler; M.Sc., P.Geol.
Consulting Geologist
President of Ambergate Explorations Inc.



AMBERGATE EXPLORATIONS INC.

GENERAL LOCATION

AMBER PROPERTY
50°18'N., 117°10'W.

SLOCAN M.D.
C.G. SPEARING, B.Sc.(Eng.)
JOHN OSTLER; M.Sc., P.Geol.

BRITISH COLUMBIA
NOVEMBER, 1988

Figure 1

CASSIAR EAST YUKON EXP. LTD.

LOCATION

Figure 2

CASSIAR EAST YUKON EXP. LTD.

SCALE

0 10 20 30 40 50 60 km

0 10 20 30 40 mi

AMBERGATE EXPLORATIONS INC.

REGIONAL ACCESS

AMBER PROPERTY
50°18'N., 117°10'W.

SLOCAN M.D.
BRITISH COLUMBIA

C.G. SPEARING, B.Sc.(Eng.)
JOHN OSTLER; M.Sc., P.Geol.

NOVEMBER, 1988

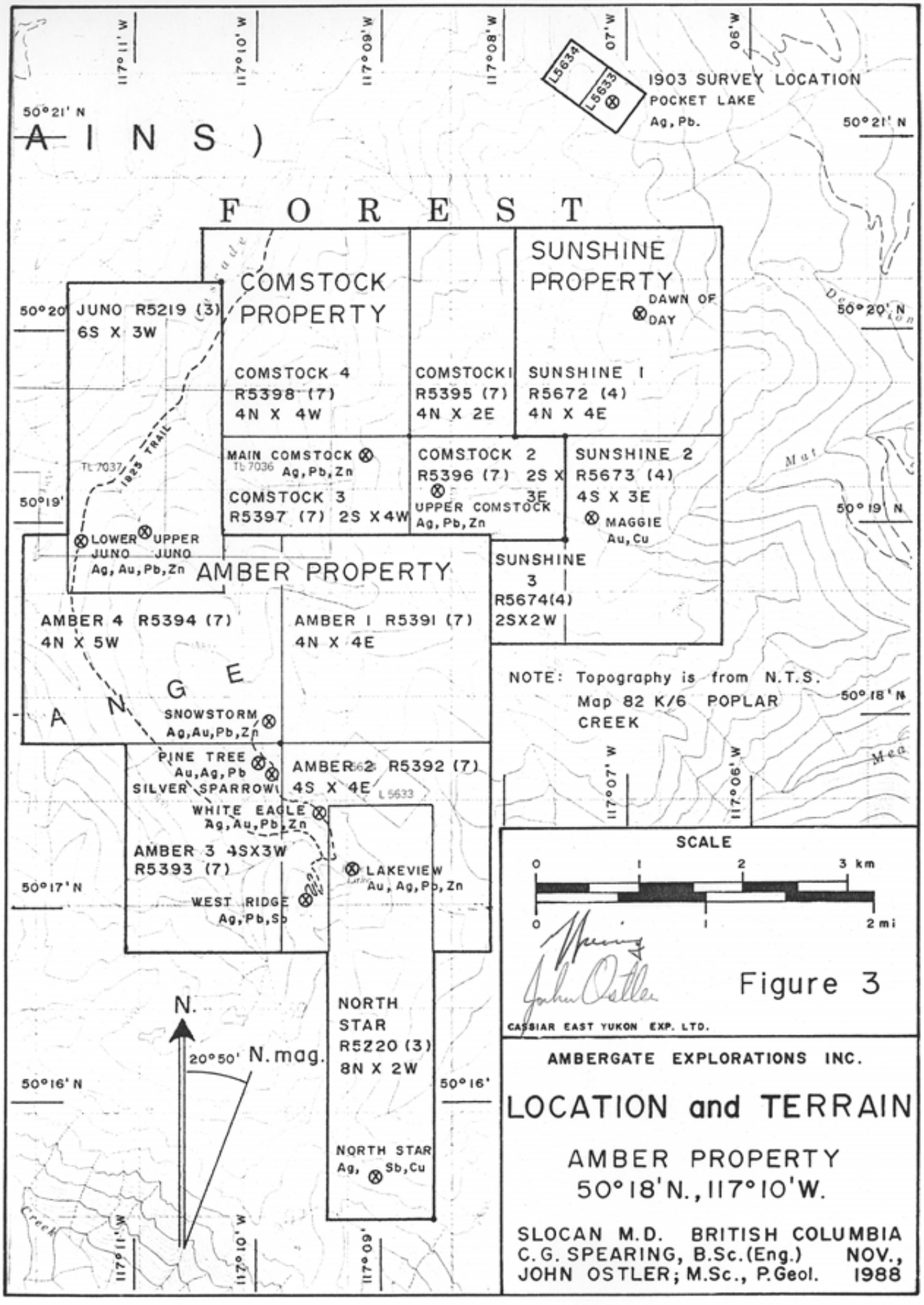


Figure 3

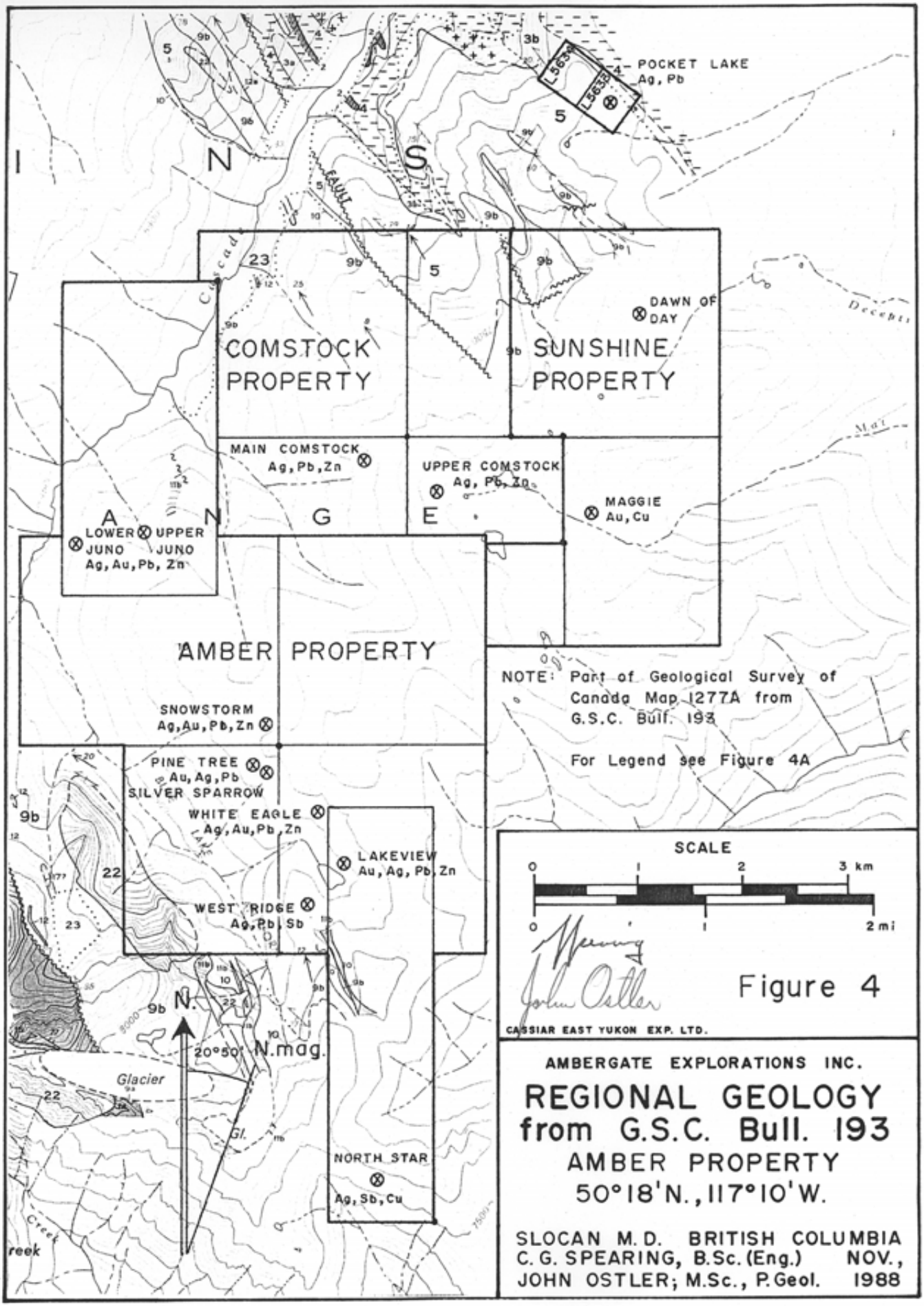
CASSIAR EAST YUKON EXP. LTD.

AMBERGATE EXPLORATIONS INC.

LOCATION and TERRAIN

AMBER PROPERTY
50°18'N., 117°10'W.

SLOCAN M.D. BRITISH COLUMBIA
C.G. SPEARING, B.Sc.(Eng.) NOV.,
JOHN OSTLER; M.Sc., P.Geol. 1988


POCKET LAKE
Ag, Pb
L.5653
L.5652
INSPIRATION
FAULT
COMSTOCK PROPERTY
SUNSHINE PROPERTY
DAWN OF DAY
MAIN COMSTOCK
Ag, Pb, Zn
UPPER COMSTOCK
Ag, Pb, Zn
MAGGIE
Au, Cu
LOWER JUNO
UPPER JUNO
Ag, Au, Pb, Zn
AMBER PROPERTY
SNOWSTORM
Ag, Au, Pb, Zn
PINE TREE
Au, Ag, Pb
SILVER SPARROW
WHITE EAGLE
Ag, Au, Pb, Zn
LAKEVIEW
Au, Ag, Pb, Zn
WEST RIDGE
Ag, Pb, Sb
NORTH STAR
Ag, Sb, Cu
N.
20°50' N.mag.
Glacier
Gl.
Creek
NOTE: Part of Geological Survey of Canada Map 1277A from G.S.C. Bull. 193
For Legend see Figure 4A
SCALE
0 1 2 3 km
0 1 2 mi
John Ostler
CASSIAR EAST YUKON EXP. LTD.
Figure 4
AMBERGATE EXPLORATIONS INC.
REGIONAL GEOLOGY
from G.S.C. Bull. 193
AMBER PROPERTY
50°18'N., 117°10'W.
SLOCAN M.D. BRITISH COLUMBIA
C. G. SPEARING, B.Sc. (Eng.) NOV.,
JOHN OSTLER; M.Sc., P.Geol. 1988

Note The generations of the coloured symbols below are indicated thus, first , second , third

Geological boundary (defined, approximate, assumed)

Bedding, tops unknown (inclined, vertical)

Foliation (inclined, vertical)

S_1 and S_{0+1}, F_1 and F_{0+1}

S_2, F_2

S_3, F_3

Undifferentiated

Lineation

L_1 and L_1, L_2 and I_2, L_3 and I_3

L_4 and I_4

Approximate location of trace of axial plane of fold indicated by name of fold (colour indicates generation where known) CAMPION FACE SYN.

Fault (defined, approximate, assumed)

Geology by P.B. Read, 1962-64

To accompany GSC Bulletin 193 by P.B. Read

Geological cartography by the Geological Survey of Canada

Base-map assembled by the Geological Survey of Canada from maps published at the same scale by the Surveys and Mapping Branch, and the Army Survey Establishment, R.C.E., in 1961-62, 1966

Copies of the topographical edition of this map may be obtained from the Map Distribution Office, Department of Energy, Mines and Resources, Ottawa

Approximate magnetic declination 1970, 22° 16' East, decreasing 3.2' annually

Elevations in feet above mean sea-level

LEGEND

FIGURE 4A

CENOZOIC

QUATERNARY

PLEISTOCENE AND RECENT

23 Glacial, lacustrine, and fluvatile gravel, sand, silt, and clay

MESOZOIC

POST-LOWER JURASSIC

22 KUSKANAX-LIKE INTRUSIONS: massive leucocratic monzonite and leucosyenite

JURASSIC

LOWER JURASSIC

21 KUSKANAX BATHOLITH: foliated leucocratic monzonite and leucosyenite

MESOZOIC AND (?) EARLIER

LOWER JURASSIC (?) AND OLDER

20 POPLAR CREEK GREENSTONES: 20a, amphibolite and hornblende metadiorite; 20b, meta-andesite and metadiorite, sills and dykes (where colour is absent adjacent to unit 5, minor amounts of unit 5 exist)

PALEOZOIC AND (?) MESOZOIC

UPPER MISSISSIPPIAN TO TRIASSIC

MILFORD GROUP (14-19)

19 Coarse fragmental rocks

Calcite-bearing quartzite

17 Grey phyllite and impure meta-sandstone

16 Limy micaceous meta-sandstone

Micaceous meta-sandstone

Crystalline limestone and calc-silicate marble

PRE-UPPER MISSISSIPPIAN (?) TO TRIASSIC

13a, hornblende-plagioclase schist minor white crystalline limestone; 13b grey to green amphibolite, 13c, grey to green amphibolite, 13d, hornblende-plagioclase schist; minor breccia (cross pattern indicates minor amounts of unit 20)

PALEOZOIC AND/OR (?) EARLIER

PRE-UPPER MISSISSIPPIAN

LARDEAU GROUP (1-12)

STRATIGRAPHY OF LARDEAU GROUP (based on Fyles and Eastwood, 1962)

12, 12a Green mica-amphibole schist, minor volcanic breccia, pillow lava, and porphyritic flows; 12a, chloritic marble

11 11a, schistose limestone and lumy schist; 11b, phyllitic limestone and limy phyllite

10 Dark grey phyllite

9 9a, grey to green quartz-mica schist and mica-grit, 9b, grey to green quartz-mica schist and mica-grit

BROADVIEW FORMATION

SILVERCUP RIDGE

SHARON CREEK FORMATION: dark grey phyllite

SHARON CREEK FORMATION

AJAX FORMATION: light grey quartzite

AJAX FORMATION

TRIUNE FORMATION: grey argillite, slate, and phyllite

TRIUNE FORMATION

8 Massive greenstone, pillow lava, volcanic breccia, and limy green phyllite (cross pattern indicates minor amounts of unit 20)

4, 4a 4a, limy chlorite schist, 4a, chloritic marble

3 3a, medium to dark grey phyllite; minor limy phyllite, 3b, phyllitic quartzite, grey quartzose phyllite; minor metavolcanic rocks (cross pattern indicates minor amounts of unit 20)

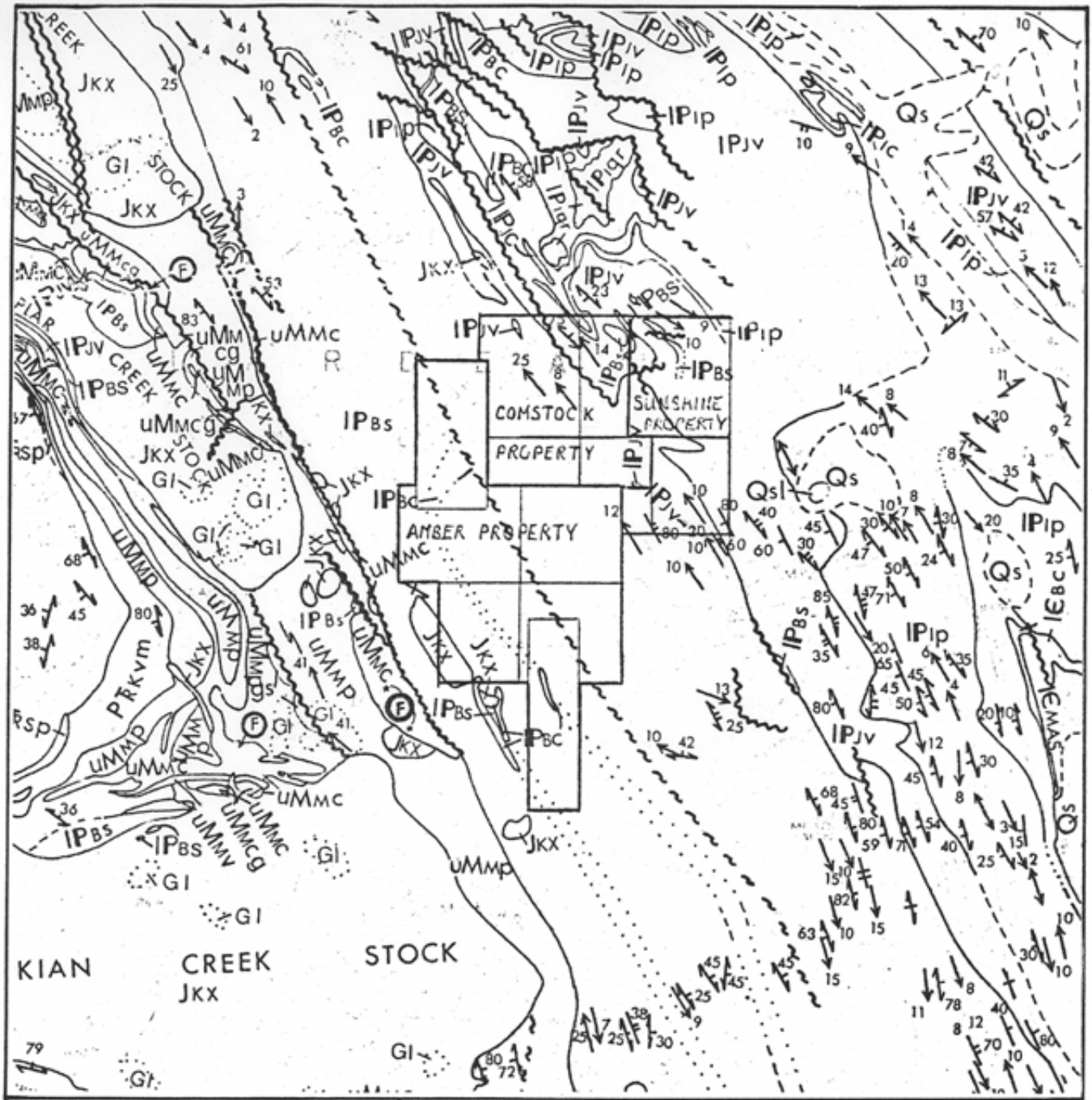
INDEX FORMATION

Phyllitic limestone

1 Grey to green quartz-mica schist and mica-grit (cross pattern indicates minor amounts of unit 20)

LEGEND TO G.S.C. MAP 1277A

Part of G.S.C. Bull. 193



NOTE: Part of Geological Survey of Canada Open File 432

For Legend see Figure 5A

SCALE

0 1 2 3 4 5 6 7 8 9 10 km

0 1 2 3 4 5 6 mi

N.

20°50' N. mag.

Figure 5

CASSIAR EAST YUKON EXP. LTD.

AMBERGATE EXPLORATIONS INC.

REGIONAL GEOLOGY from G.S.C. O.F. 432

AMBER PROPERTY

50°18'N., 117°10'W.

SLOCAN M.D.
BRITISH COLUMBIA

C.G. SPEARING, B.Sc.(Eng.)
JOHN OSTLER; M.Sc., P.Geol.

NOVEMBER, 1988

FIGURE 5A

LEGEND TO G.S.C. O.F. 432

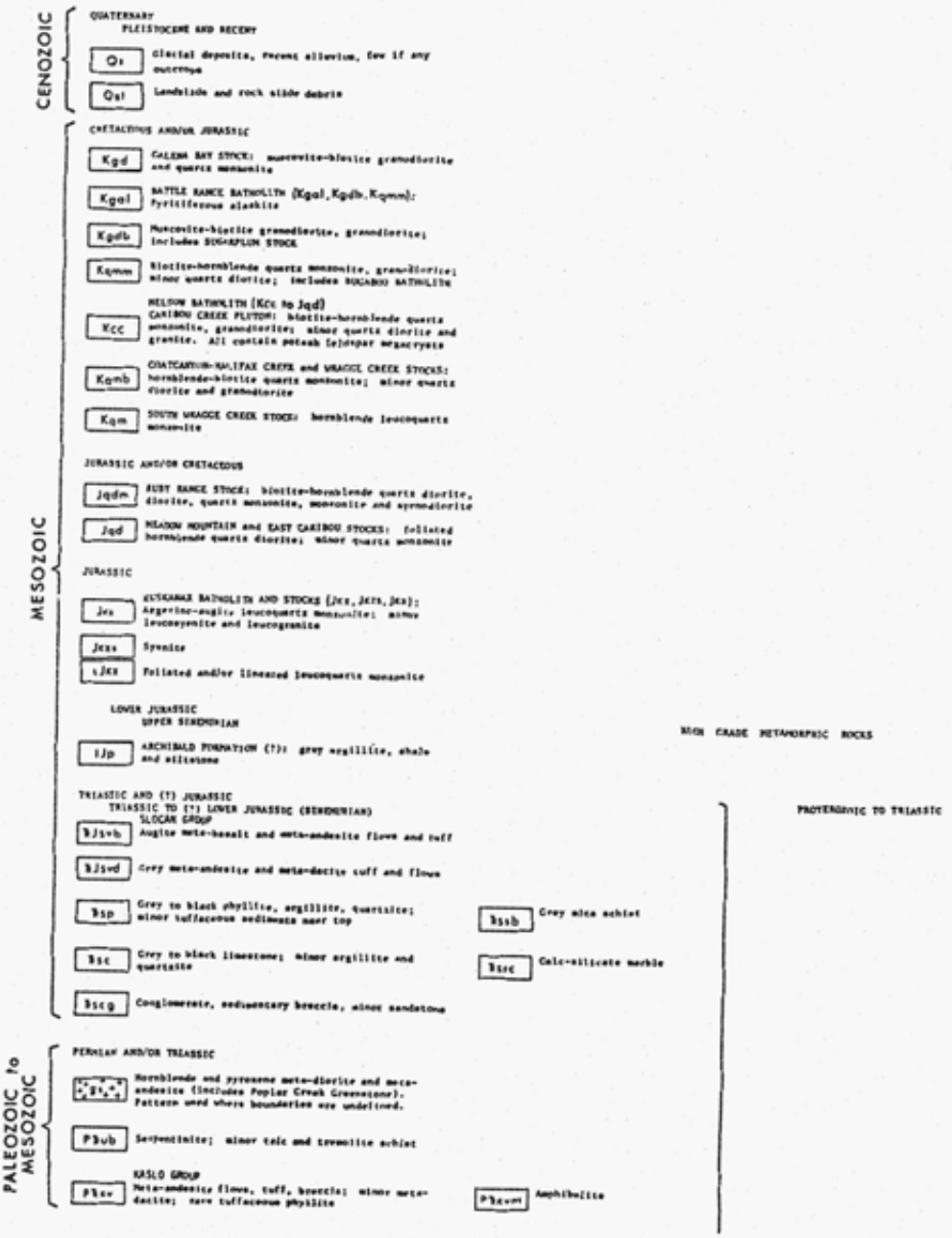


FIGURE 5A

LEGEND TO G.S.C. O.F. 432

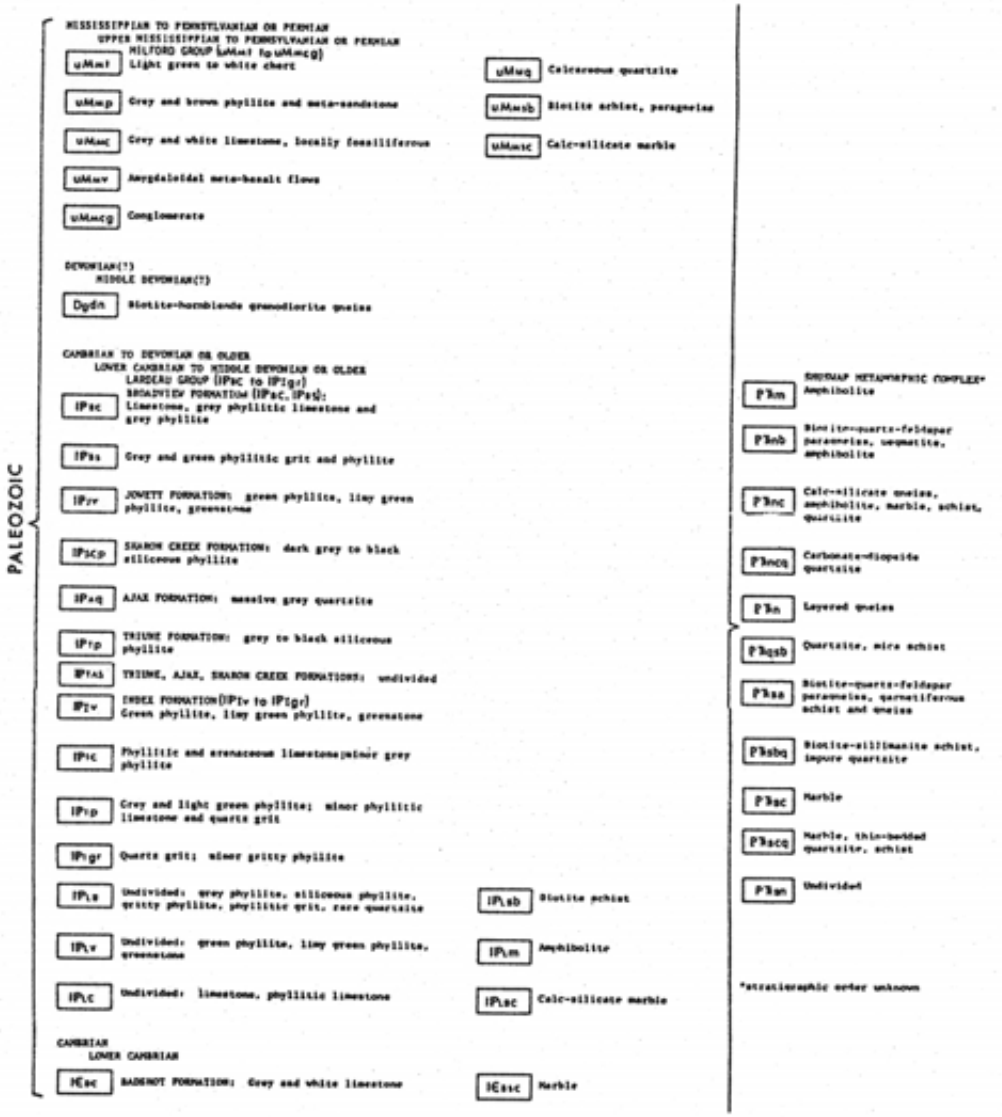
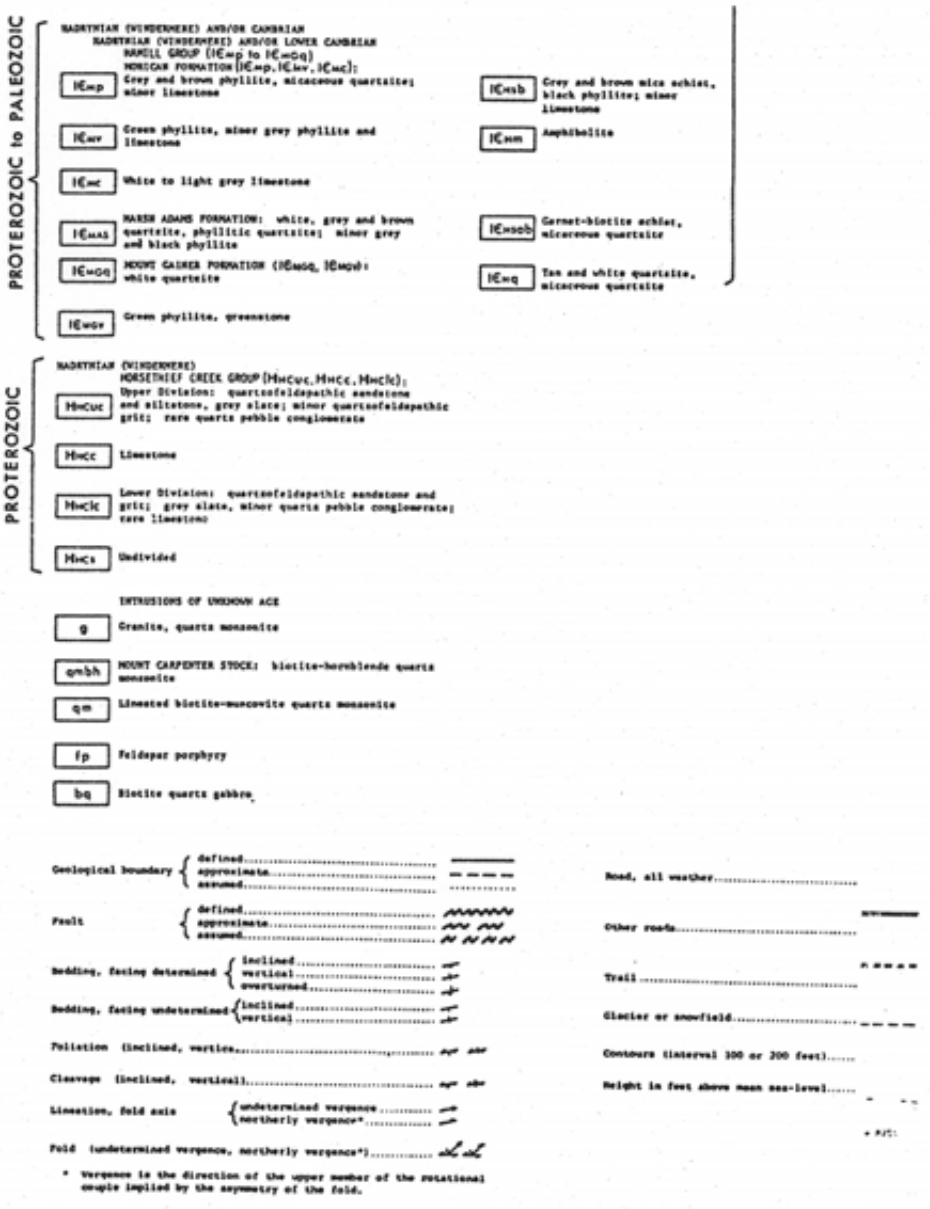


FIGURE 5A

LEGEND TO G.S.C. O.F. 432



200 m W

150 m W

100 m W

250 m S

250 m S

PINE TREE VEIN

SILVER SPARROW VEIN
(SNOWSTORM SHAFT)

TRAIL TO
SNOWSTORM
TRENCHES

TRENCH 1
EL. 7333 ft
2235 m

TRENCH 2
EL. 7340 ft
2238 m

TRENCH 3

32

54

EL. 7240 ft
2207 m

31

PTT-88-3-1
11.885, 5.07, 6.69, 0.10

PTT-88-1-1
2.024, 3.79, 7.49, 0.04

PTT-88-2-1
0.058, 13.50, 18.50, 0.01

1987 Samples	1988 Sample
SPW-SD1 0.250, 9.79, 14.10, 1.87	SPW-88-1-1 0.016, 42.6, 66.9, 0.85
SPW-SD2 0.266, 10.07, 22.90, 0.17	
0070 0.802, 31.60, 56.20, 0.55	

LOWER DUMP-AREA
FOR SILVER SPARROW
WORKING

1987 Samples

SPW-LD1
0.080, 12.38, 24.40, 0.19

SPW-LD2
0.174, 1.93, 4.15, 0.54

0071
0.099, 5.87, 10.80, 0.28

TRAIL TO
WHITE EAGLE
WORKINGS-AREAS

300 m S

300 m S

200 m W

150 m W

100 m W

N.

20°50' N. mag.

Magnetic declination for the centre of N.T.S. Map 82 K/6 as of July 1, 1988. Declination decreases 5.1' annually.

PROFESSIONAL GEOLOGIST ALBERTA
JOHN OSTLER
LICENSED TO PRACTICE

LEGEND

For location on property see Figures 3,4 and 7.

Topography:

Trail

Fill

Inclined shaft

Mineralized vein exposure

Vein attitude

Sample
PTT-88-3-1
11.885, 5.07, 6.69, 0.10
Au oz/ton, Ag oz/ton, Pb %, Zn %

CASSIAR EAST YUKON EXP. LTD.

SCALE

0 10 20 30 40 50 metres

0 50 100 150 feet

Figure 10

AMBERGATE EXPLORATIONS INC.

PINE TREE and SILVER SPARROW VEINS
AMBER 3 R5393 (7)
AMBER PROPERTY
50°18'N., 117°10'W.

SLOCAN M.D. BRITISH COLUMBIA

C.G. SPEARING, B.Sc.(Eng.)
JOHN OSTLER; M.Sc., P.Geol.

NOVEMBER, 1988

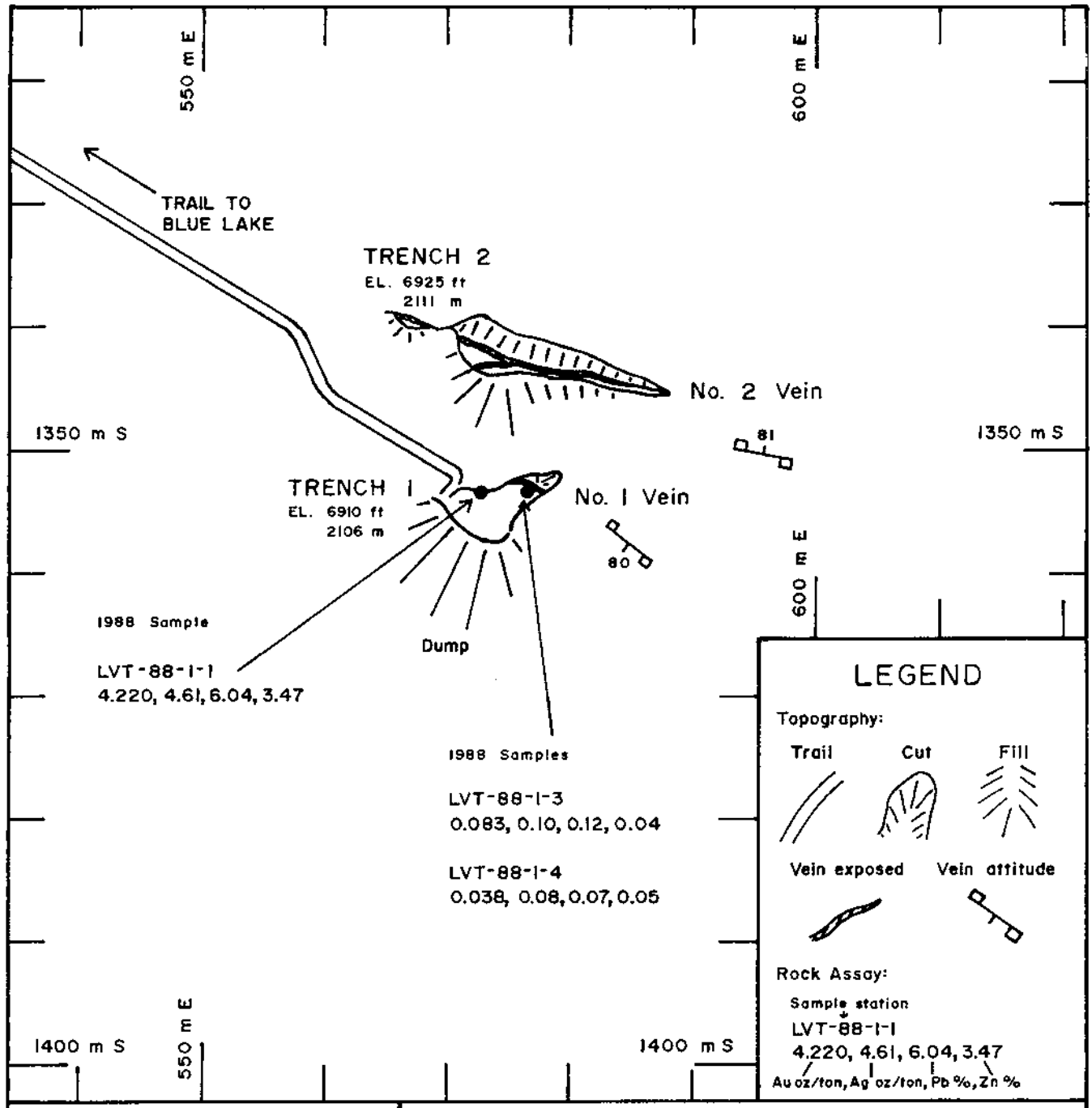


Figure 11

CASSIAR EAST YUKON EXP. LTD.

AMBERGATE EXPLORATIONS INC.

LAKEVIEW VEINS
NORTH STAR R5220 (3)
AMBER PROPERTY
50°18'N., 117°10'W.

SLOCAN M.D.
BRITISH COLUMBIA

C.G. SPEARING, B.Sc.(Eng.)
JOHN OSTLER; M.Sc., P.Geol.

NOVEMBER, 1988

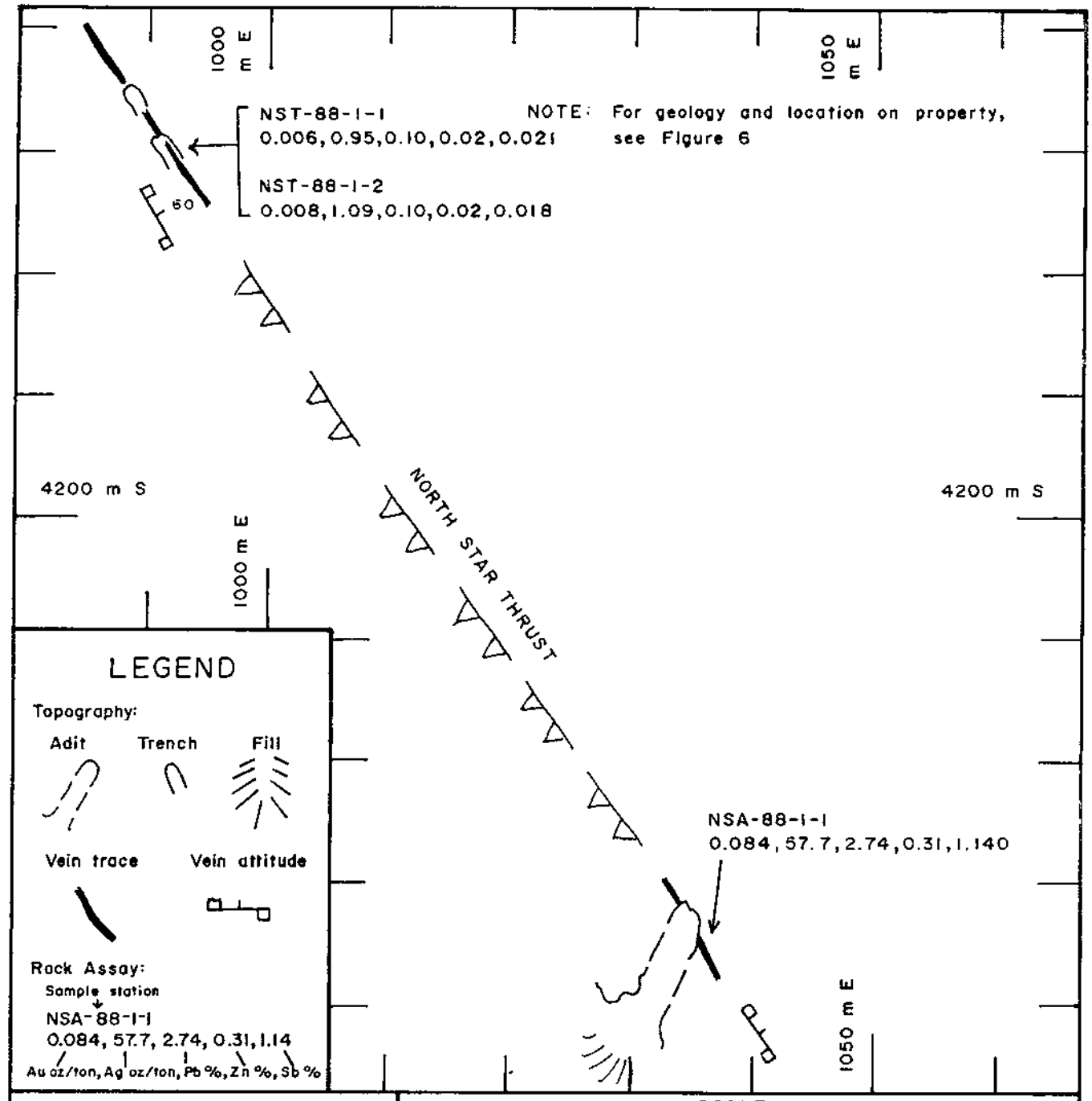


Figure 13

CASSIAR EAST YUKON EXP. LTD.

AMBERGATE EXPLORATIONS INC.

NORTH STAR ADIT
NORTH STAR R5220 (3)
AMBER PROPERTY
50°18'N., 117°10'W.

SLOCAN M.D.
BRITISH COLUMBIA
C.G. SPEARING, B.Sc.(Eng.)
JOHN OSTLER; M.Sc., P.Geol.
NOVEMBER, 1988

LOWER JUNO
Ag, Au, Pb, Zn

UPPER JUNO
Ag, Pb, Zn

JUNO R5219 (3)
6S X 3W

MOBBS FAULT (POST D3)

WEST KISS CREEK

EAST KISS CREEK

MAIN
COMSTOCK
Ag, Pb, Zn

COMSTOCK 3 R5397 (7)
2S X 4W

COMSTOCK 2-R5396 (7)
2S X 3E

Ag, Pb, Zn
UPPER
COMSTOCK

MAT CREEK

AMBER 1 R5391 (7)
4N X 4E

GRADATIONAL CONTACT

ICE

KISS CREEK THRUST (D1-D2)

AMBER THRUST (D1-D2)

AMBER 4 R5394 (7)
4N X 5W

CASCADE CREEK

SNOWSTORM
Ag, Au, Pb, Zn

PINE TREE
Au, Ag, Pb

SILVER SPARROW
Ag, Au, Pb, Zn

WHITE
EAGLE
Ag, Au, Pb, Zn

MOUNT EMMENS FAULT (POST D3)

BLUE CREEK

LAKEVIEW
Au, Ag, Pb, Zn

BLUE LAKE

WEST RIDGE
Ag, Pb, Sb

AMBER 3 R5393 (7)
4S X 3W

AMBER 2 R5392 (7)
4S X 4E

SUNSHINE 3
R5674 (4)
2S X 2W

KISS CREEK THRUST (D1-D2)

AMBER THRUST (D1-D2)

MEADOW CREEK

NORTH STAR THRUST (D1-D2)

BLUE LAKE ANTIFORM (READ, 1973)

NORTH STAR
R5220 (3)
8N X 2W

NORTH STAR
Ag, Sb, Cu

LEGEND

TABLE OF LITHOLOGIC UNITS

LARDEAU GROUP, BROADVIEW FORMATION Palaeozoic, pre-Upper Mississippian age		EQUIVALENT UNITS Map 1277A O.F. 432	
B4	Dolomitic siltstone and impure carbonate commonly with graphitic segregations, grey-blue weathering brown with rough pitted surfaces	IIb	IPBc
B3	Pelite and siltstone, variably carbonaceous black to grey weathering light grey to rusty brown, fissile	10	IPBs
B2	Siltstone and pelite, grey weathering to rusty brown	9b	IPBs
B1	Lithic sandstone and siltstone, grey-brown weathering light grey to rusty brown; contains minor aplite dykes and sills	9b	IPBs
Bav	Andesitic flows, tuffs and lapilli tuffs with minor aplite dykes and sills	9b	IPBs
	Gradational contact, subsequently faulted		

LARDEAU GROUP, INDEX FORMATION Palaeozoic, pre-Upper Mississippian age			
lav	Andesitic flows, tuffs and lapilli tuffs with minor pelitic and siltstone interbeds, and aplite dykes and sills	5	IPlv

STRUCTURE

Bedding: Upright; Overturned; Tops unknown; Parallel with cleavage

Cleavage: First; Second; Third

Vein Attitude:

Folding, probably second phase: Defined; Approximate; Assumed
- Antiform
- Synform

Fault: Defined; Approximate; Assumed

Thrust:

TOPOGRAPHY
Elevation from N.T.S. 82 K/6 in feet

Contour 7000

Mountain Peak + 8050

Lake, tarn or pond; Creek; Limit of ice; Limit of outcrop

Mineral showing area

Lithologic contact: Defined; Approximate; Assumed

CASSIAR EAST YUKON EXP. LTD.

SCALE

0 100 200 300 400 500 600 700 800 900 1000 metres

0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 feet

0 0.25 0.5 0.75 1 mile

N.

20°50' N. mag.

Magnetic declination for the centre of N.T.S. Map 82 K/6 as of July 1, 1988. Declination decreases 5.1' annually.

Figure 6

AMBERGATE EXPLORATIONS INC.

GEOLOGY:
AMBER 1-4 R5391-4 (7), NORTH STAR R5220 (3) and southern JUNO R5219 (3)

AMBER PROPERTY

50° 18' N., 117° 10' W.

SLOCAN MINING DIVISION BRITISH COLUMBIA

C.G. SPEARING, B.Sc. (Eng.)
JOHN OSTLER; M.Sc., P.Geol.

NOVEMBER, 1988

PROFESSIONAL GEOLOGIST ALBERTA
JOHN OSTLER
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GEOLOGICAL BRANCH
ASSESSMENT REPORT

18,136

1000 m W | 00 m | 500 m E | 1000 m E

500 m N

IRON SPRING

1987 SOIL SURVEY AREA

SNOWSTORM TRENCHES
Ag, Au, Pb, Zn

AMBER 4 R5394 (7)
4N X 5W

AMBER 1 R5391 (7)
4N X 4E

L5633 and L5634 as incorrectly located on N.T.S. 82 K/6, for correct location near 50° 21' 15" N., 117° 7' W. see Figure 3.

00 m

AMBER 3 R5393 (7)
4S X 3W

AMBER 2 R5392 (7)
4S X 4E

SNOWSTORM SHAFT (SILVER SPARROW VEIN)
Ag, Au, Pb, Zn

PINETREE VEIN
Ag, Au, Pb

1988 SOIL SURVEY AREAS

500 m S

WHITE EAGLE WORKINGS
Ag, Au, Pb, Zn

NORTH STAR R5220 (3)
8N X 2W

CASCADE CREEK

1000 m S

BASE CAMP

LAKEVIEW TRENCHES
Ag, Au, Pb, Zn

BLUE CREEK

BLUE LAKE

1500 m S

WEST RIDGE WORKINGS
Ag, Pb, Sb

2000 m S

2500 m S

500 m W | 00 m E | 500 m E | 1000 m E

LEGEND

Topography

Stream | Lake | Mineral Spring Deposit | Pack Trails

1988 — date of renovation

Workings:

Trench | Adit or Inclined Shaft | Vertical Shaft

Claims and Surveys

soil sample station
soil line
station where no soil sample was taken
claim line
legal corner post

CASSIAR EAST YUKON EXP. LTD.

SCALE

0 100 200 300 400 500 metres
0 500 1000 1500 feet

N.
20°50' N. mag.

Magnetic declination for the centre of N.T.S. Map 82 K/6 as of July 1, 1988. Declination decreases 5.1' annually.

Figure 7

PROFESSIONAL GEOLOGIST ALBERTA
JOHN OSTLER
LICENSED TO PRACTISE

AMBERGATE EXPLORATIONS INC.

TRAILS and WORKINGS near BLUE LAKE

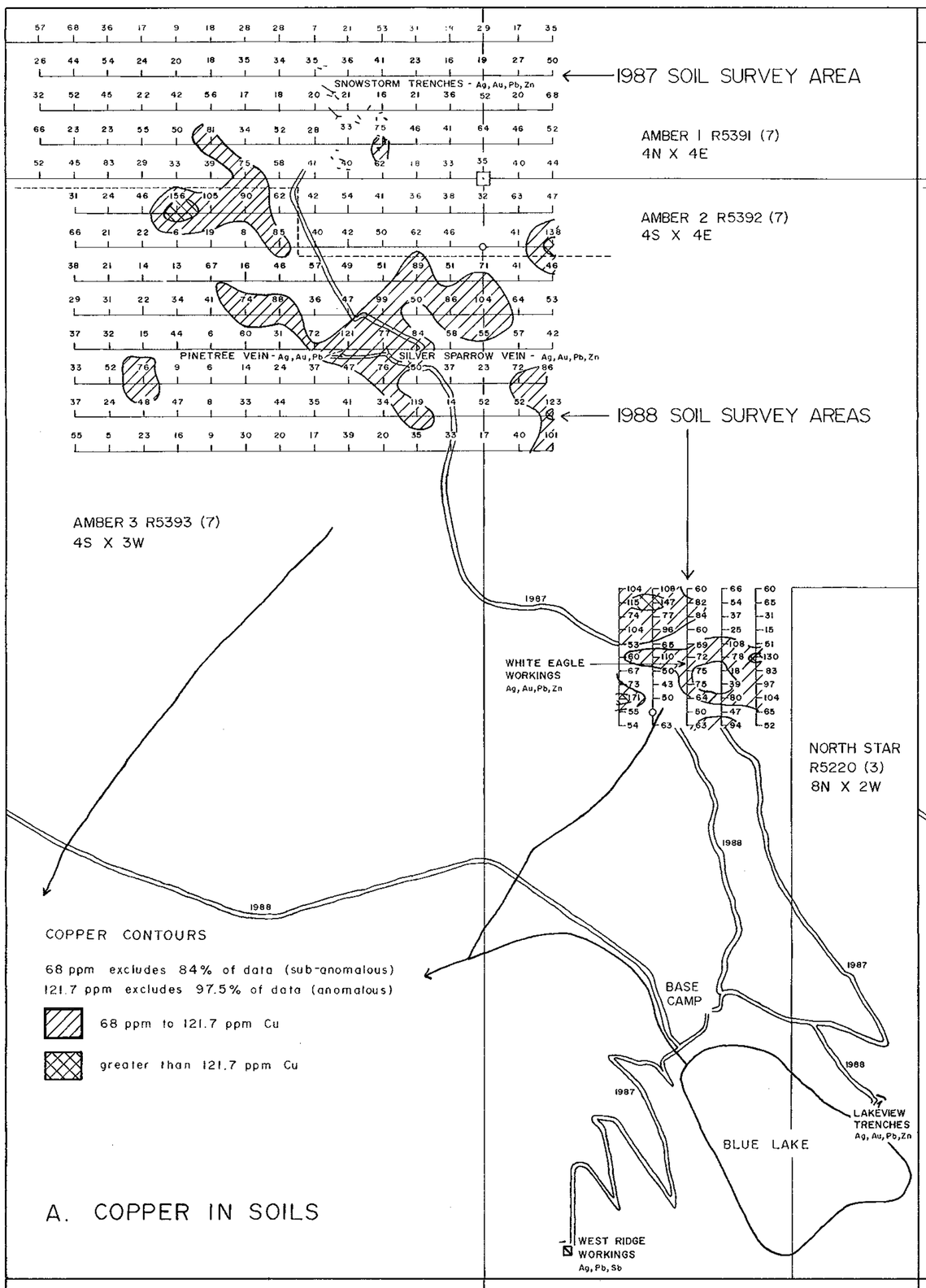
AMBER PROPERTY

50° 18' N., 117° 10' W.

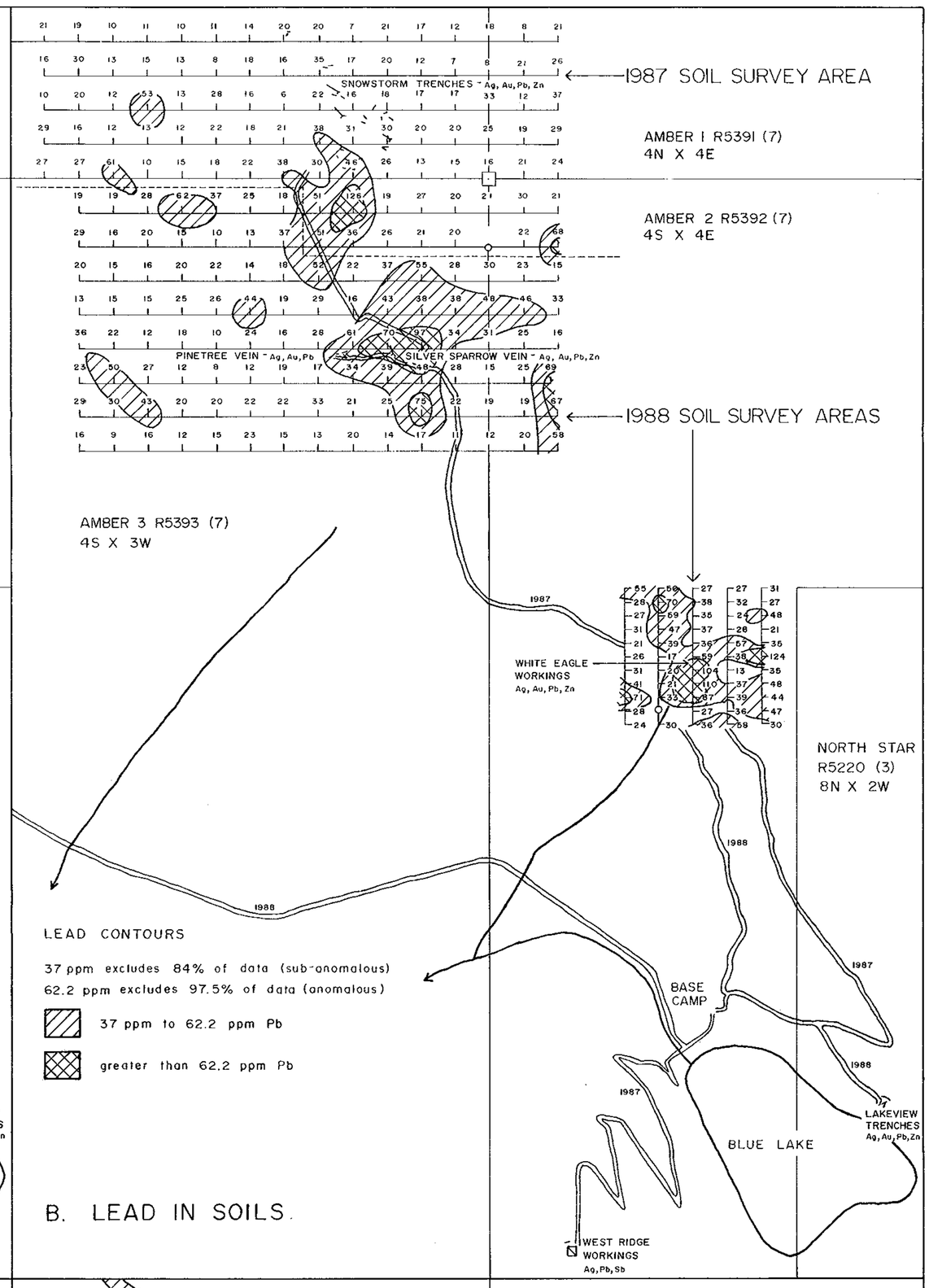
SLOCAN MINING DIVISION — BRITISH COLUMBIA

C. G. SPEARING, B.Sc. (Eng.)
JOHN OSTLER; M.Sc., P.Geol.

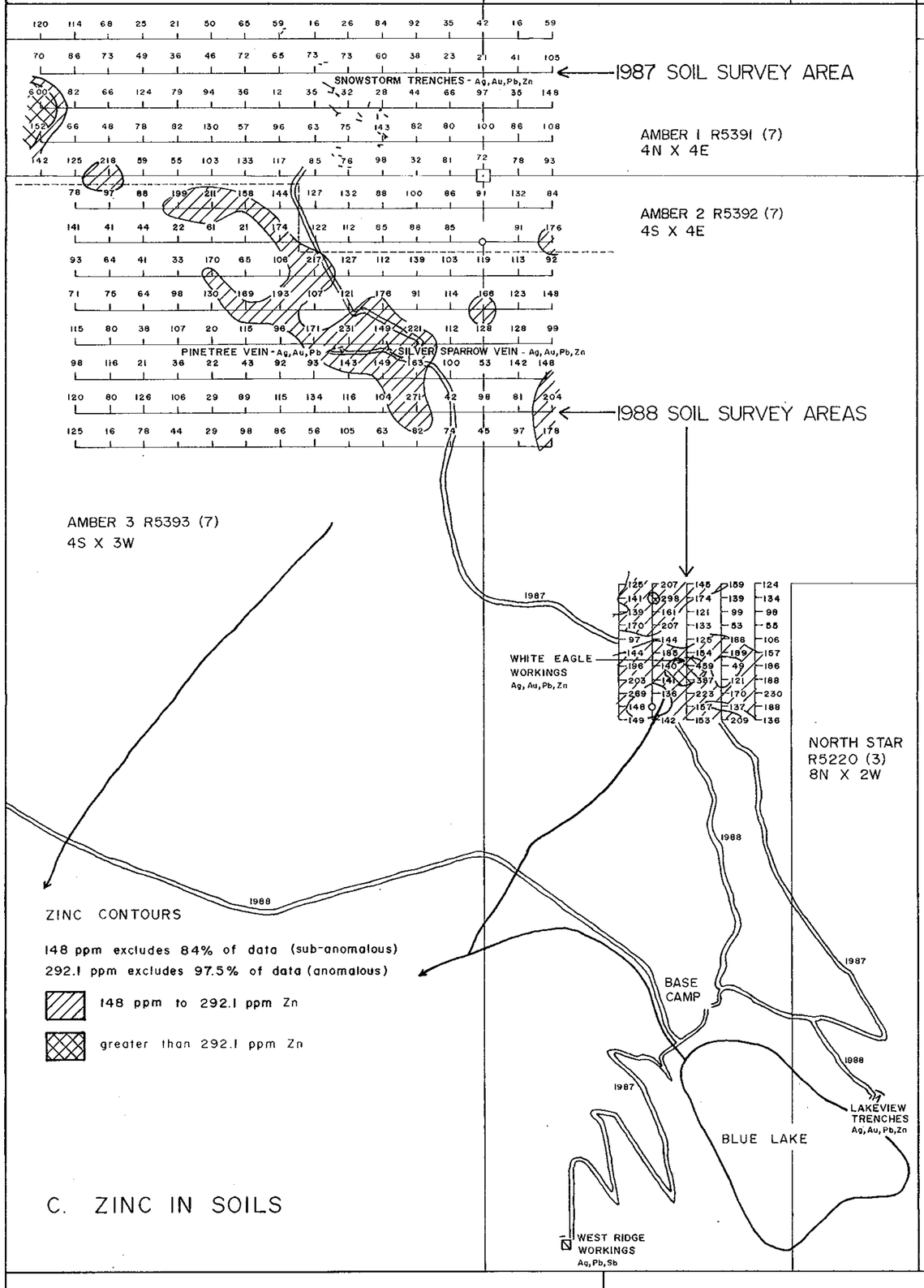
NOVEMBER, 1988



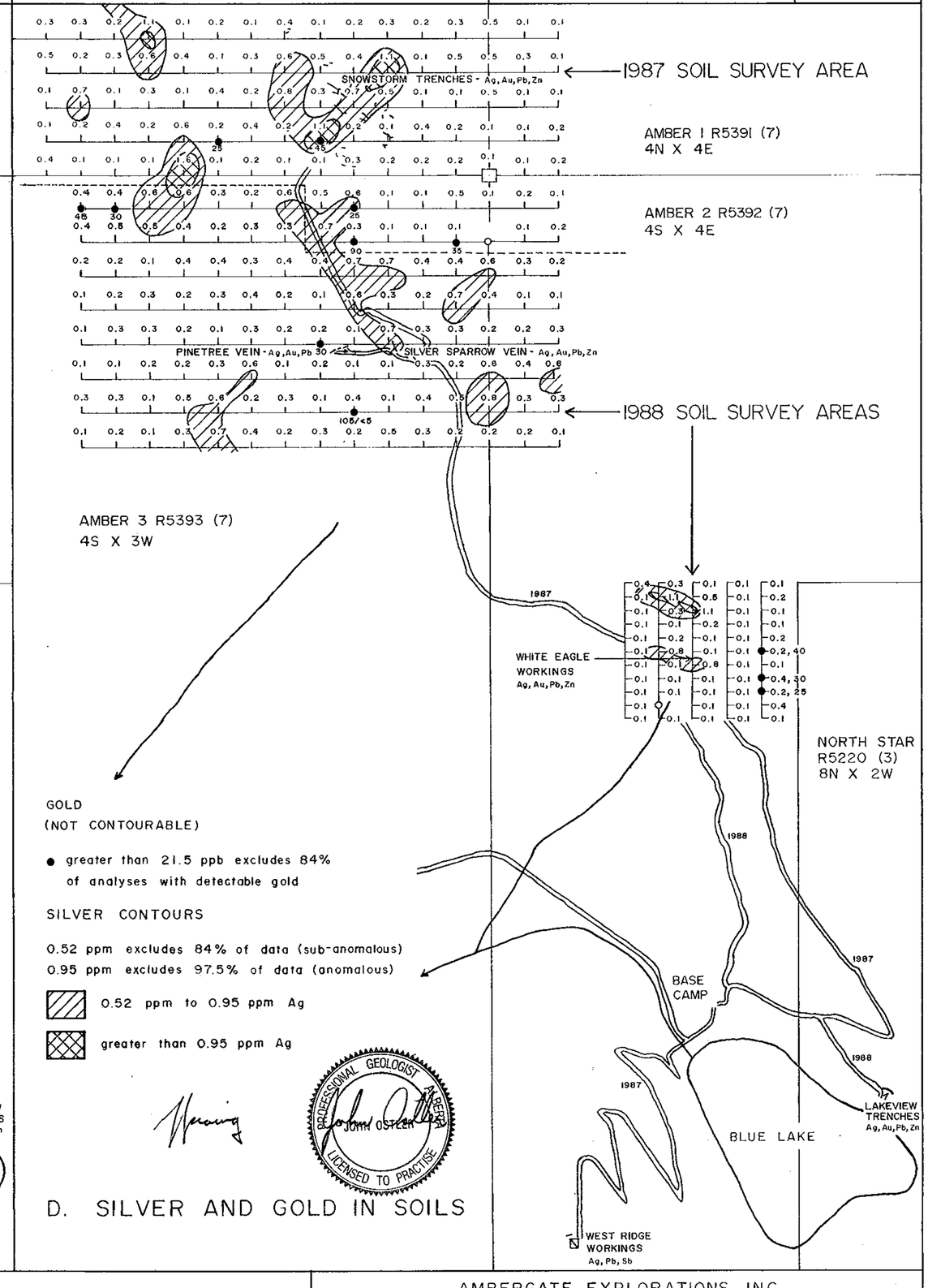
A. COPPER IN SOILS



B. LEAD IN SOILS



C. ZINC IN SOILS



D. SILVER AND GOLD IN SOILS

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LEGEND

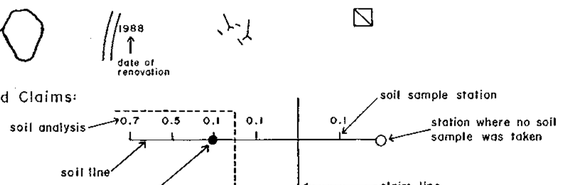
For locations of soil survey areas on the Amber Property see Figures 3, 4 and 7.

Topography:

Stream Lake Trail Trenches Shaft

1988 ↑ date of renovation

Soil Surveys and Claims:



CASSIAR EAST YUKON EXP. LTD.

SCALE

0 100 200 300 400 500 metres

0 500 1000 1500 feet

N.

20°50' N. mag.

Magnetic declination for the centre of N.T.S. Map 82 K/6 as of July 1, 1988. Declination decreases 5.1' annually.

Figure 8

AMBERGATE EXPLORATIONS INC.

1988 SOIL SURVEY AREAS: AMBER 2-3 R5392-3 (7)

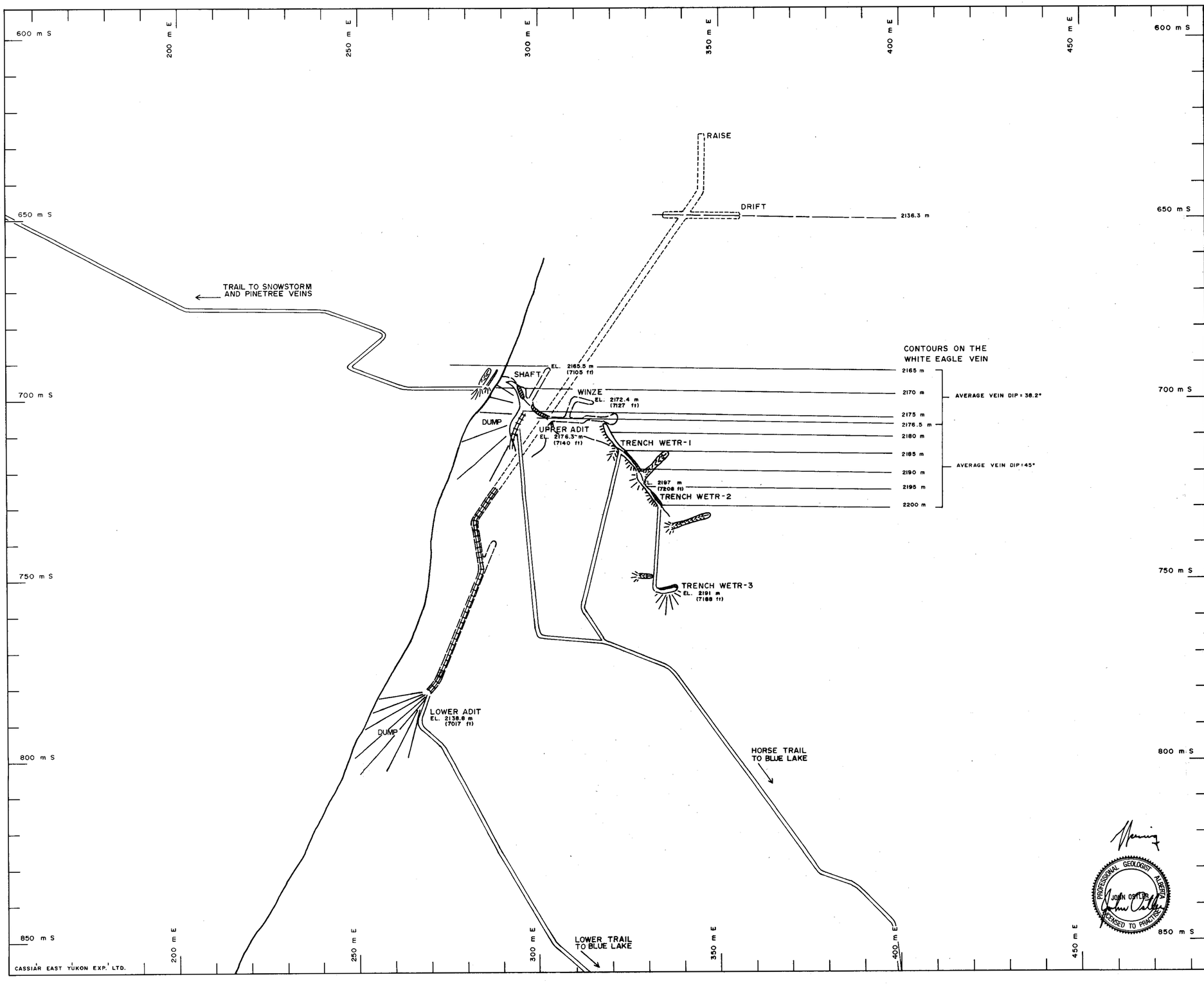
AMBER PROPERTY

50°18'N., 117°10'W.

SLOCAN MINING DIVISION BRITISH COLUMBIA

C.G. SPEARING, B.Sc.(Eng.)
JOHN OSTLER; M.Sc., P.Geol.

NOVEMBER, 1988



LEGEND

Topography

Trail · Track · Cut · Fill · Creek

Mineralized Vein:

Outcrop · Surface trace

Underground Workings:

Compass survey (1987 and 1988)

Configuration and location is estimated from old reports

Notes:

For location on property see Figures 3, 4 and 7

SCALE

0 10 20 30 40 50 metres

0 50 100 150 feet

N.

20°50' N. mag.

Magnetic declination for the centre of N.T.S. Map 82 K/6 as of July 1, 1988. Declination decreases 5.1' annually.

Figure 9

PROFESSIONAL GEOLOGIST ALBERTA JOHN OSTLER LICENSED TO PRACTICE

AMBERGATE EXPLORATIONS INC.

WHITE EAGLE WORKINGS:
AMBER 2 R5392 (7)

AMBER PROPERTY

50° 18'N., 117°10' W.

SLOCAN MINING DIVISION — BRITISH COLUMBIA

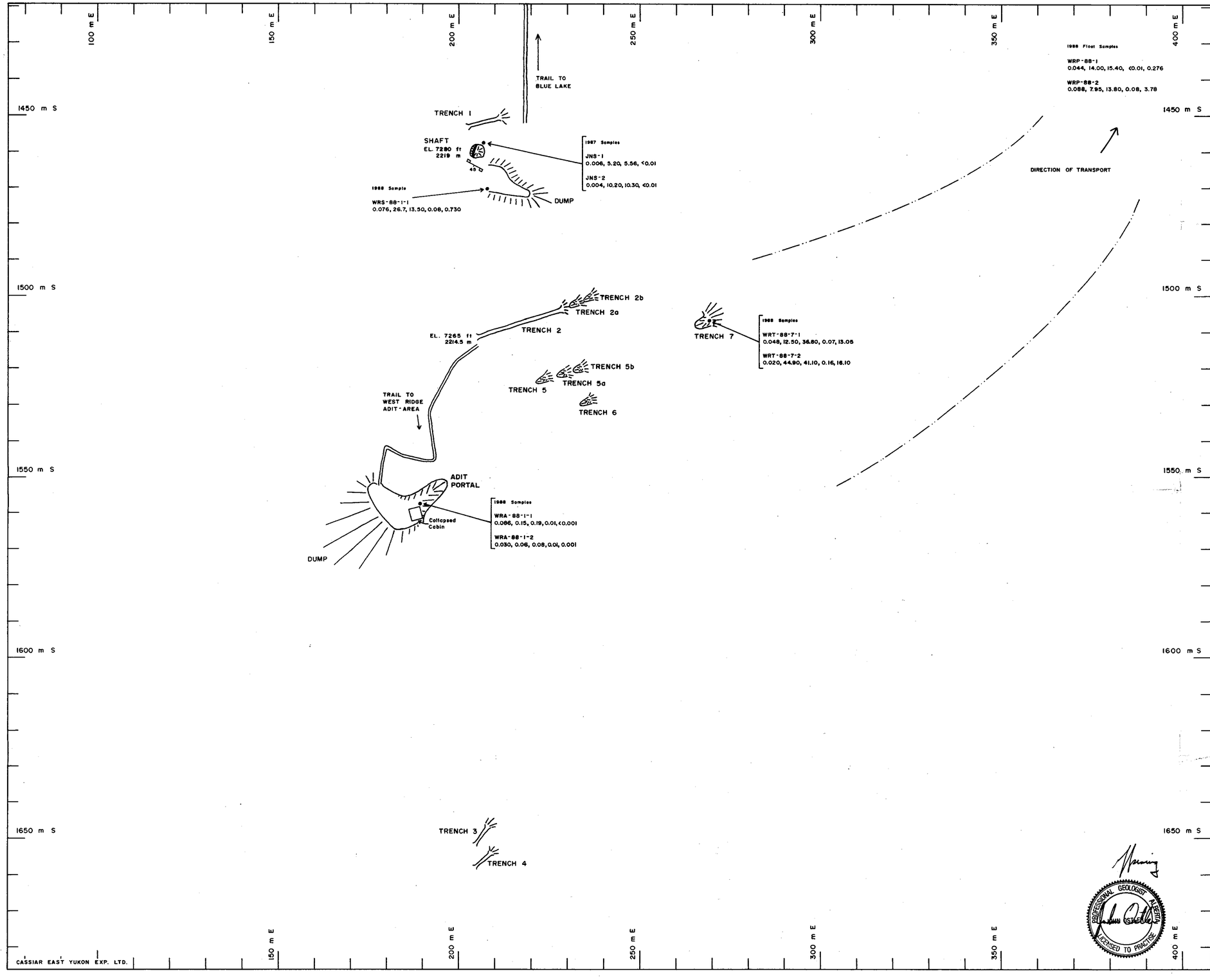
C.G. SPEARING, B.Sc.(Eng.)

JOHN OSTLER; M.Sc., P.Geol.

NOVEMBER, 1988

GEOLOGICAL BRANCH
ASSESSMENT REPORT

18,136



LEGEND

Rock Assay:

sample station
↓
WRT - 88-7-2
0.020, 44.90, 41.10, 0.16, 16.10
↑ gold oz/ton ↑ silver oz/ton ↑ lead % ↑ zinc % ↑ antimony %

1987 samples were not assayed for antimony.

1988 samples were also assayed for copper and arsenic.
For assay results see Appendix C.

Topography:

Trail | Cut | Fill | Shaft | Trench

Mineralization:

Mineralized vein exposure | Vein attitude | Limit of mineralized boulder train

Notes:

For location on property see Figures 3, 4 and 7

SCALE

0 10 20 30 40 50 metres
0 50 100 150 feet

N.
20°50' N. mag.

Magnetic declination for the centre of N.T.S. Map 82 K/6 as of July 1, 1988. Declination decreases 5.1' annually.

Figure 12

AMBERGATE EXPLORATIONS INC.

WEST RIDGE WORKINGS: AMBER 2 R5392 (7)

AMBER PROPERTY
50° 18'N., 117°10' W.

SLOCAN MINING DIVISION BRITISH COLUMBIA

C.G. SPEARING, B.Sc.(Eng.)
JOHN OSTLER; M.Sc., P.Geol.

NOVEMBER 1988

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GEOLOGICAL BRANCH
ASSESSMENT REPORT

18,136