86-538-15156

GEOLOGY OF THE

MANSON CREEK AREA

Placer Lease Nos. 9590, 9654, 9544, 9548, 9538,9537, 9539, 9540, 9591, 9592, 9541, 9542, 10100, 10099, 9551, 9552.

Omineca Mining Division

FILMED

N. T. S. 93N/9W & 10W

Latitude: 55° 40.1'

Longitude: 30'

by:

Owner(s): R. W. WOOLVERTON, P. ENG., P. Kindrat, J. Hidber, L. Kindrat
Operator: EVERGREEN EXPLORATIONS LTD.

September 10, 1986

Burnaby, B.C.

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GEOLOGY OF THE

MANSON CREEK AREA

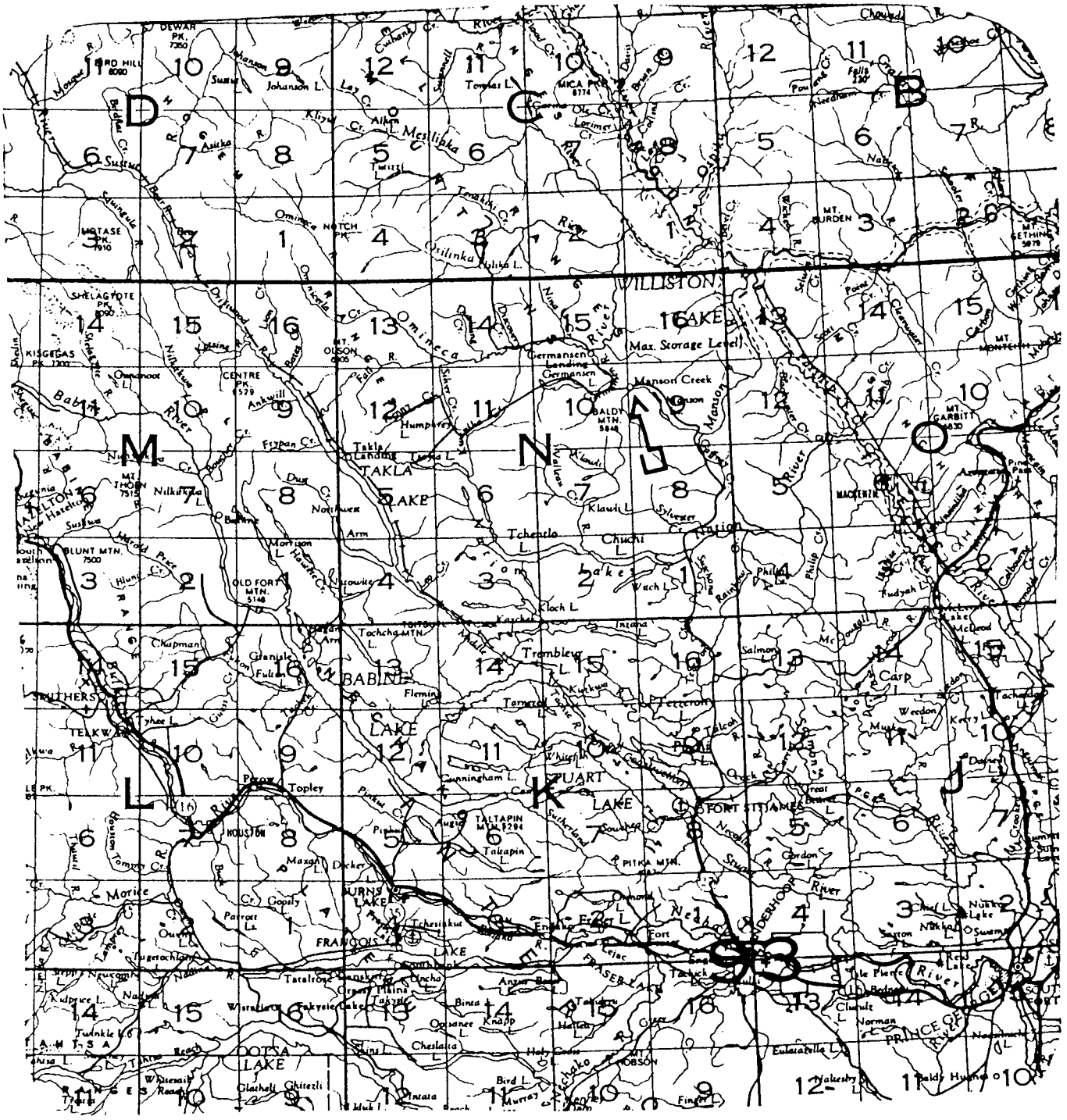
INTRODUCTION

Location

Manson Creek townsite is a combined store, post office, and gas pump, as well as a few tourist cabins on the Fort St. James-Johanson Lake road, about 190 kilometres northeast of Smithers, B. C., and some 760 kilometres north-northwest of Vancouver. It's near the northeast edge of an area of relatively mature topography where, although mountain peaks reach 1,800 metres, they are well-rounded. A mixture of jack pine and poplar make pleasant working conditions, and numerous back roads give ample 4-wheel-drive access. There are a few trout in the Manson River, but no salmon. The placer miners normally work a five month season, and there is no permafrost.

History

Placer gold was first discovered on the Germansen River in 1870, and on Manson Creek, about 16 kilometres to the south, in 1871. Initially, men and supplies reached the new Omineca mining camp from the West Coast, first by river boat up the Skeena River to Hazelton, and then by a 200 kilometre trail that is still partly preserved across the Babine and Takla valleys. Later, a trail was constructed from Fort St. James north to the Omineca, along the same route as the present-day Fort St. James-Johanson Lake road, except for the Old Baldy Mountain section, which was by-passed by the road that reached Manson Creek in 1940.



LOCATION MAP

MANSON CREEK, B. C.

EVERGREEN EXPLORATIONS LTD.

Figure 1

The Omineca Camp was originally worked by individuals with rockers or sluice boxes and sweat. Records are spotty to non-existant, although Kerr (p. 13) said the Manson area was "probably the most productive." By the 1930's several operations were mechanized, notably the C. M. & S. dragline on upper Slate Creek and Ventures' monitors on the Germansen. Meanwhile, the Manson continued to be worked by individuals and small syndicates. All the equipment and supplies were either flown in or hauled up the Baldy Trail by horse or bull dozer. A steam shovel arrived at Manson in 1936, after a two year and (Hall, p. 176) 130 mile trip from Vanderhoof. One underground operation, the Dunsmore Mine at Lost Creek, worked a very rich channel that is buried under nearly 30 metres of overburden. World War II closed mining operations in the Omineca.

After the war, Mrs. W. Tait began acquiring leases at Manson and ultimately acquired all of the unleased area through the large Special Placer Mining Lease Number 1473 that was issued in 1958. In 1961, Tait drilled 20 holes (B.C. Department of Mines Assessment Records) on the gravel flats near Elmore's Gulch, across from the Manson Creek townsite. Unfortunately, drill logs are not available. Alina International of Vancouver optioned the Manson Creek Section of SPML 1473 from Tait in the late 1970's, and Esterbrook optioned part of the lower Slate Creek section in the early 1980's, where he established a plant.

Also in the early 1980's Goldmar Ltd. Inc. of Miami obtained Alina's SPML 1473 interests along the Manson River, and built a plant on the upper Manson in 1981. A nine-million-dollar expansion (1, April, 1982 Prospectus) of this operation was scheduled for 1983. The lower Manson Section, including the drilled flats at Elmore's Gulch, was reportedly sub-optioned by Goldmar to an associated company or group called Goldpan. Goldmar's agents failed to file the assessment and pay the rentals due in June, 1982, so the government cancelled SPML 1473.

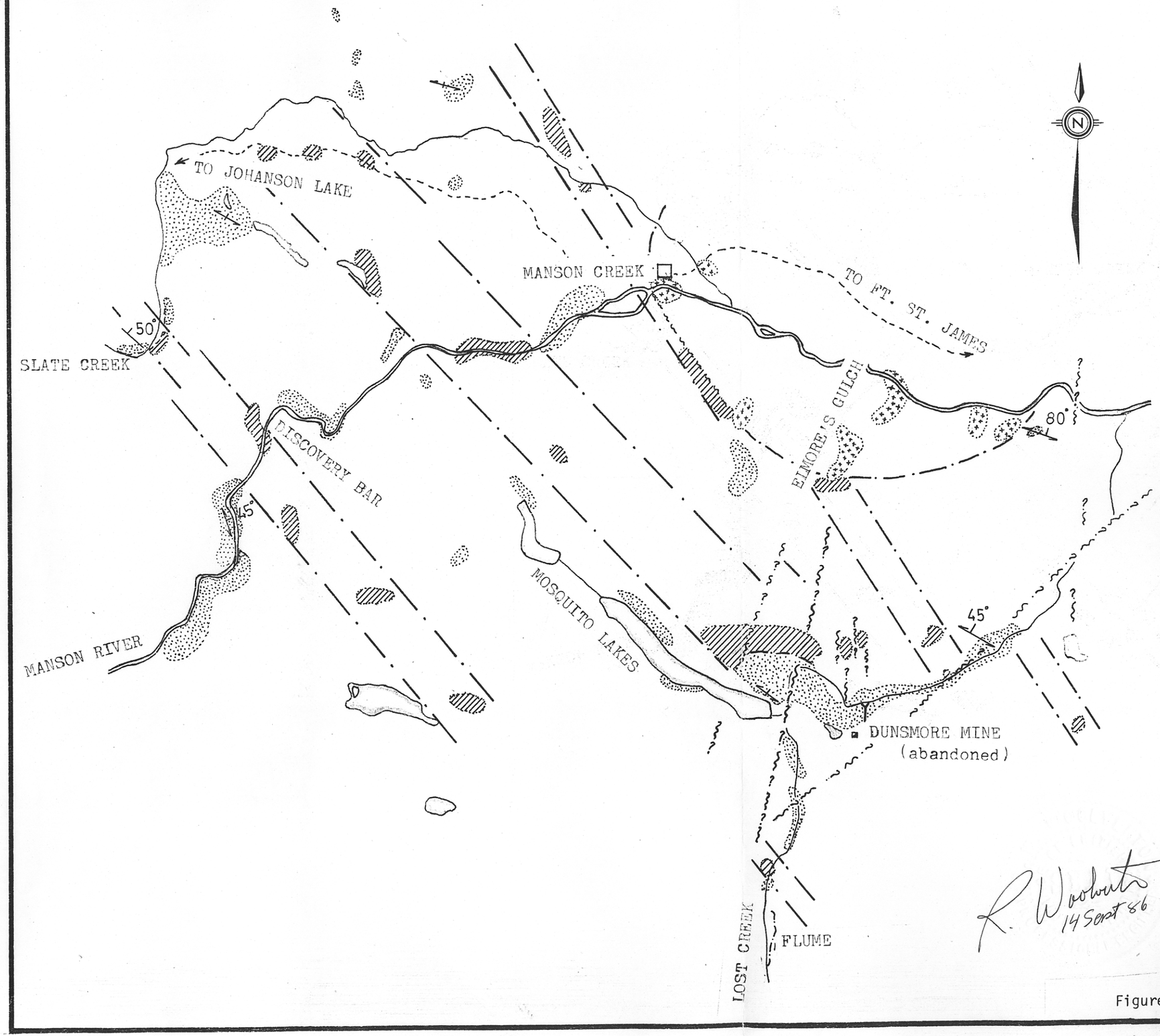
Woolverton and Hidber purchased a sub-lease of the northern section of SPML 1473 from Tait in August 1982, unaware that it was open ground. In late September, to protect their investment after discovering that SPML 1473 had been cancelled, they staked 28 leases that included the Goldmar and Goldpan sites. The cancellation of SPML 1473 was challenged in the B.C. Supreme Court but the government's action was upheld. A subsequent Appeal also upheld the cancellation of SPML 1473. The Woolverton-Hidber group was issued the leases shown in Figure 3 in June 1985.

1986 Program

As in most placer camps, there are numerous theories in both the literature and among the placer miners, regarding the origin of the placer gold at Manson Creek, and the location of buried channels. Some felt the gold accumulations were due to the slate bedrock acting as a riffle. Others pointed to the fact that, excluding the old C. M. & S. operation at Slate Creek, the placer workings are adjacent to the Manson Fault, or one of its splays or parallel equivalents.

One theory (D. Lay) suggests that the preglacial Germansen River flowed southeasterly, into the Manson Lakes southeast of Wolverine Lake, and that where present streams such as the Manson River, Blackjack and Lost Creeks cut this old channel, the gold has been remobilized to form the present day deposits. Still another theory (Kerr) suggests that the Manson River drained to the north during the Tertiary.

Since an understanding of both gold source areas and preglacial drainage is necessary before any exploration for new deposits is begun, the writer mapped the area in June, 1986. The findings are the subject of this report.



LEGEND:

- Assumed fault - photo lineament
- Fault
- Assumed or covered contact
- Area of scattered outcrops or near-outcrop
- Mine adit
- Mine shaft
- Schistosity
- Bedding
- 3 Diorite
- 2 Mineralized fault zones, intruded by quartz and quartz-ankerite veins and serpentinized dykes. Includes altered wedges of 1.
- 1 Pennsylvanian to Permian Cache Creek slate and minor limestone.

R. Woolverton
14 Sept 86

Figure 2

MANSON CREEK AREA
OMINECA M.D., B.C. NTS. 93N/9W-10E

GEOLOGY

0 200 500 1000 metres

BY: R. WOOLVERTON SEPT. 1986

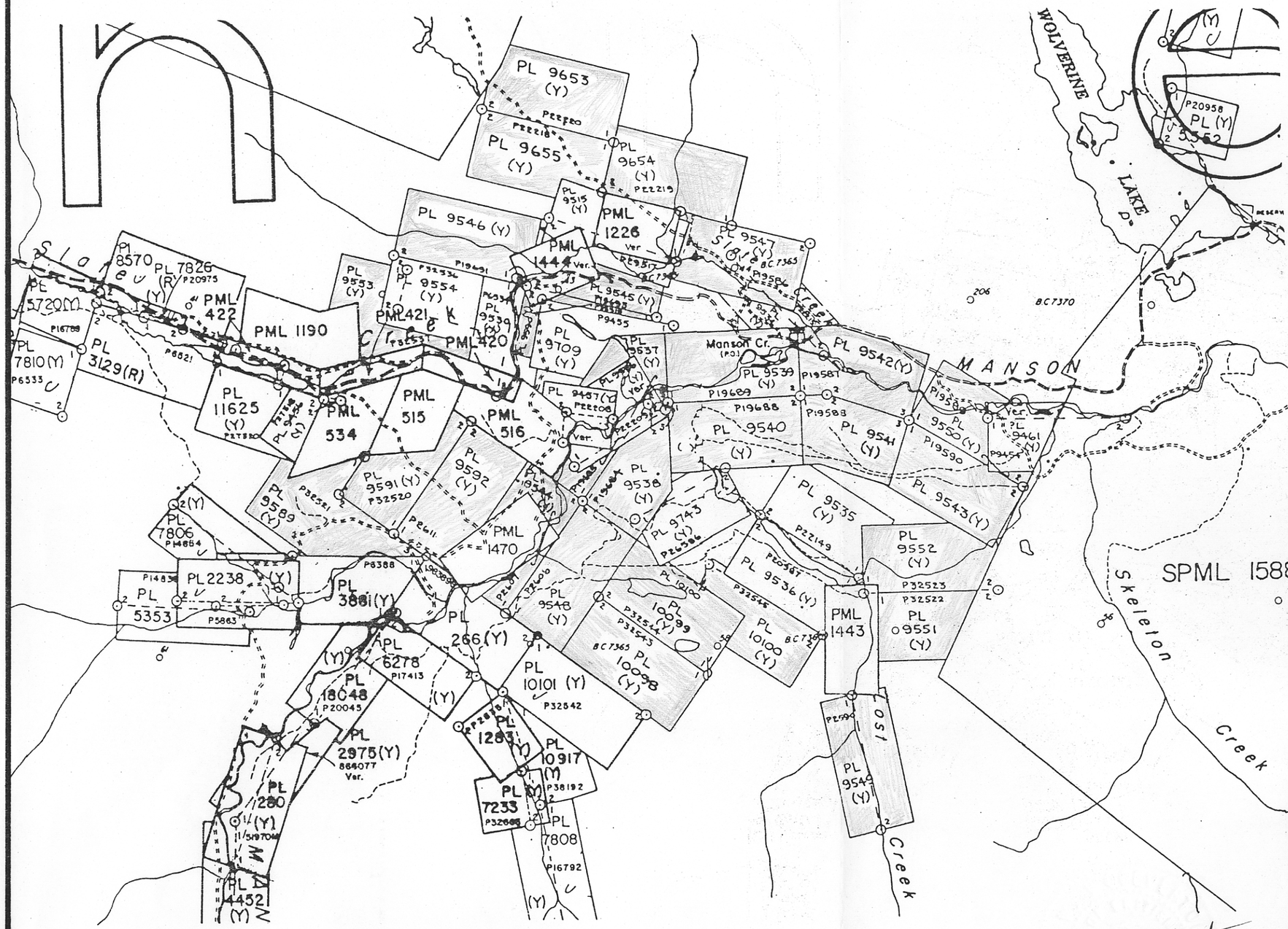
GEOLOGY

Surficial

The most striking feature of the general Manson Creek-Germansen Landing area is stream piracy, due largely to the glacial deepening of the adjacent Wolverine and Omineca valleys that left the Manson drainages "hanging". This is immediately evident as one drives west out of the broad U-shaped Wolverine Valley and enters the east end of the Manson Valley, with its V-shaped post-glacial side-creeks that give the local area an unglaciated appearance. In fact, of course, there are numerous glacial features in the Manson Creek area, but it obviously escaped the more erosionally-active late-phase valley glaciation.

There may be several reasons for the lack of late-phase glacial erosion of the Manson drainages, but one possibility is that the drainage channels were filled with stagnant ice. Stabilized slumping along the high gravel walls on the west side of the north-south section of Slate Creek, suggests that this was an area of late-stage deposition against one of these lobes of ice. To the southeast, meltwater channels incised into the slate bedrock, indicate considerable late-glacial stream erosion of the higher areas between the main drainages.

A reconstruction of the prepiracy drainage pattern, suggests that the preglacial Manson River flowed northward. The present Manson River channel downstream from Blackjack Creek has a decidedly young appearance, especially the steep-canyon section upstream from Manson Creek townsite. The north-south section of the present Slate Valley, near the western edge of the map area (Figure 2) may be part of the old drainage that apparently exited through the Jackfish Creek area. Some seismic profiles with good topographic control would provide the necessary evidence.



Shaded leases are the subject of the accompanying report.

L. Woolverton
14 Sept 86

Figure 3

MANSON CREEK AREA

OMINECA M.D., B.C. N.T.S. 93N/9W-10E

PLACER LEASES

0 500 1000 2000 metres

BY: R. WOOLVERTON SEPT. 1986

Conversely, the lower part of the Lost Creek drainage pattern may be only locally modified by glaciation, in the vicinity of the deep channel at the Dunsmore Mine. However, upper Lost Creek upstream from the mine is obviously post-glacial, and has exposed two north-northwesterly-trending preglacial channels that are marked by gravel-filled areas in the bedrock-walls of the creek gorge. At least one of these channels apparently entered the Mosquito Lakes Valley. However, rim rock on the south side of the largest Mosquito Lake slopes easterly, suggesting that that was the direction of the preglacial drainage. Whichever happened, the Mosquito Lakes Valley has been at least partly modified by glacial erosion.

Bedrock

The Manson Creek area is part of an allochthonous Slide-Mountain-Oceanic-type terrane similar to those that host mesothermal lode gold deposits in the Cassiar, Cariboo, and Bridge River areas. Within the map area (Figure 2), the rocks are predominantly Cache Creek slates with minor limestone. They are cut by three northwest-trending splays of the Manson Fault, that have been intruded by serpentinized dykes and sericitized quartz-ankerite-mariposite veins. Notably, the Manson Fault becomes a terrane boundary about 20 kilometres northwest of the map area. It also extends for several tens of kilometres to the southeast. A diorite stock in the northeast part of the map area, apparently intrudes both the slate and the altered fault zones.

Bedding was not observed in the slates. The schistosity is generally quite steep and trends west to northwest. Bedding was noted in the only limestone exposure found in the map area, on the west side of the Slate Creek Valley at the "Big Bend," where Slate Creek turns from easterly flowing to northerly, near the western edge of the map area. The limestone bedding more or less conforms with the schistosity in the slates. An exposure resembling recrystallized limestone was noted south of Discovery Bar. It may be a wedge of altered limestone within the altered fault zone.

The middle fault zone is up to 400 metres wide, whereas the splay to the southwest is about 200 metres wide, and the Manson Fault proper to the northeast is only 100 metres wide. In addition to being the widest, the middle fault zone has "eroded up" and forms a topographic "backbone." To a lesser extent, the same is true of the southwestern zone but the Manson Fault to the northeast is erosionally neutral. These are complex fault zones, although there is a scarp on the Manson Fault southeast of the townsite, near Elmore's Gulch. Some exposures of the quartz-mariposite rock are schistose and appear to be slabs of highly altered slate that have been incorporated within the zone, similar to the previously mentioned recrystallized limestone.

The three quartz-carbonate-mariposite zones are disrupted by cross-faulting along Lost Creek. The middle zone may also be pinched out. The Lost Creek faulting could be a conjugate of the Manson Fault zone and northeast-southwest movement gave the spreading required to produce the remarkable width of the central quartz-carbonate-mariposite zone. Intriguingly, the buried channel at the abandoned Dunsmore Mine is 30 metres deep, yet there is slate exposed about the same distance northwest of the shaft. The channel is obviously steep sided and leads one to speculate that it follows a splay of the cross faulting.

Mineralization was noted in most of the quartz-carbonate-mariposite exposures but is best developed in the central zone where it is closest to Lost Creek, and on the Manson Fault zone, north of Slate Creek. At both locations there is galena, tetrahedrite, and chalcopyrite, with native gold reported (Kerr, p. 29A) at Lost Creek. Many specimens from the outer edge of these zones are weakly magnetic.

The diorite is medium-grained with a chilled border that has been altered to a fine-grained chlorite-rich rock. Some sections of the stock are mafic rich and slightly magnetic. It is undoubtedly a lobe of the stock shown on the G.S.C. maps of the area. Near the big bend at the east end of Elmore's Gulch, the diorite appears to intrude the serpentine along the

Manson Fault. However, there is at least one northwest-trending sericitized and mineralized siliceous zone within the diorite, that could be genetically related to the three mineralized splays of the Manson Fault. If this is so, then the alteration and mineralization of the Manson Fault system was episodic, and probably occurred over a long period of time.

CONCLUSIONS AND RECOMMENDATIONS

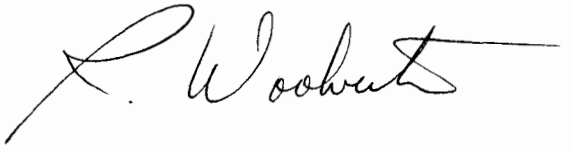
The Manson Creek area was apparently drained by northerly flowing streams in the Late Tertiary. These streams were probably deflected by and tended to flow along the two "hard" quartz-carbonate-mariposite zones that formed topographic "backbones." There were two breaches of these "hard" zones in the Tertiary; along Lost Creek because of cross faulting, and near the north-south section of Slate Creek, where the cause of the breaching is not clear. A third breach of these "hard" zones was finally made by the Manson River near the end of glaciation, when drainage directions were dictated by the location of large masses of melting ice.

The placer deposits probably owe their gold to the erosion of the mineralized quartz-carbonate-mariposite zones. As noted by almost all workers in the area, some of the best placer deposits, such as Discovery Bar, are immediately downstream from quartz-carbonate-mariposite zones. A striking example of this is upper Lost Creek. The present-day creek exposed a buried northwest-trending channel, along the southwest side of a quartz-carbonate-mariposite zone, to which a flume was built many years ago. All the placer workings are downstream from the old channel.

Covered quartz-carbonate-mariposite zones or extensions to known zones may be located by a detailed aeromagnetic survey. Follow-up seismic profiles,

with accurate topographic control, would locate buried drainages near the quartz-carbonate-mariposite zones.

Respectfully submitted,



ROY W. WOOLVERTON, P. ENG.

September 10, 1986.

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ARMSTRONG, J.E. and THURBER, J.B.	(1945):	Manson Creek Map-Area, B. C. G.S.C. Paper 45-9, p. 13
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LAY, D.	(1933):	Report of the B. C. Minister of Mines, p. 109
MONGER, J.W.H.	(1984):	Lithotectonic Terrane Map of Western Canada and Southeastern Alaska, U.S.G.S. Open File 84-523
ROTH, A.	(1982):	President of: GOLDMAR LTD. INC. County National Bank Building, Ste. 307, 801 NE 167th Street, North Miami Beach, Florida, U.S.A. 33162 - Prospectus date: April 1, 1982

STATEMENT OF QUALIFICATIONS

STATEMENT OF QUALIFICATIONS

I, ROY W. WOOLVERTON, Geologist, of 5424 Halifax Street, Burnaby, British Columbia, do hereby certify that:

1) I am a 1960 BSc graduate of the University of British Columbia;

2) I have been a Registered Professional Engineer of the Province of British Columbia since 1969;

3) I have worked as a mineral explorationist since graduation;

4) I personally conducted the field work on the Placer Leases

R. Woolverton

ROY W. WOOLVERTON, P. ENG.

14 Sept 86

DATE

SUMMARY OF COSTS

SUMMARY OF COSTS - PLACER LEASES

MANSON CREEK - LOST CREEK AREA

Expenditures from June 13 - July 2, 1986

SALARIES & WAGES			
R.W. Woolverton	Geologist	June 13-30 July 1-2 20 days @ $400/day	$8,000.00
TRANSPORTATION			
4X4 truck (all inclusive)		24 days @ $50/day	1,200.00
MOB/DEMOB			
Vancouver-Manson Creek-Vancouver 4 days including wages, etc			1,800.00
CAMP MAINTENANCE & SUPPORT			
20 man days @ $50/man/day			1,000.00
Pre-field - airphotos, map preparation, etc			1,000.00
REPORT PREPARATION			
Geologist, drafting, typing, etc			1,500.00
TOTAL COSTS			$14,500.00

APPENDIX III

AFFIDAVIT SUPPORTING SUMMARY OF COSTS

AFFIDAVIT SUPPORTING SUMMARY OF COSTS

I, ROY W. WOOLVERTON, Geologist, Evergreen Explorations Ltd., of Burnaby, British Columbia, do hereby state, that, to the best of my knowledge and belief the Statement of Costs in this report (GEOLOGY OF THE MANSON CREEK AREA) is a true account of the program expenditures.

R. Woolvert

ROY W. WOOLVERTON, P. ENG.

14 Sept 86

DATE