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ASSESSMENT REPORT

**YUKON MINERAL CLAIMS**

**MARMOT 1-16**

YB52535-50

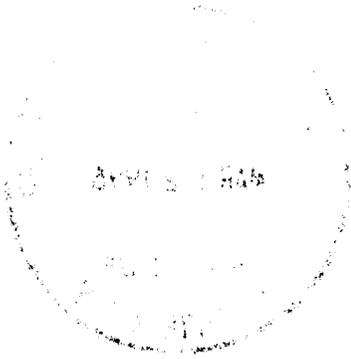
NTS Claim Sheet 115-O-10

63 36°N  
138 47°W



Angus Woodsend

19 February 1996



This report has been examined by  
the Geological Evaluation Unit  
under Section 53 (4) Yukon Quartz  
Mining Act and is allowed as  
representation work in the amount  
of \$ 1600.

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

## SUMMARY

The Marmot claims were recorded on 23 August 1994.

This brief report describes the work performed on the claims in the fall of 1994 and spring of 1995.

The claims are staked along the valley of a small unnamed left limit tributary of the Indian River about three kilometres east of Eureka Creek.

The distribution of placer gold in the Indian River valley immediately to the north suggests the possibility of a local source.

Interpretation of air photographs and satellite images has identified a series of lineaments, one of which follows 'Marmot' creek.

Compilation of existing geological information has identified several locally anomalous features that need to be explored.

Preliminary auger drilling confirmed the depths of overburden, but did not intersect any appreciably altered bedrock associated with the proposed north-south lineament.

Of necessity, the work done to date has been very much of a preliminary nature. A more active exploration programme on the Marmot claims, on the adjacent Gopher claims, and on the recently staked Vole claims is recommended for 1996.

## GENERAL BEDROCK GEOLOGY

Generalized local bedrock geology is shown on the attached 1:25,000 map. Sources are Bostock, 1942, and Mortensen, 1992.

The dominant rock type is a chlorite-biotite schist, mapped by Bostock as Yukon Schists to the south and Klondike Schists to the north. Mortensen considered them to be from Late Devonian to Permian in age. They themselves have been intruded by granites now of similar metamorphic grade.

Mortensen shows a series of pre-Cretaceous thrust faults along with massive greenstones and altered ultramafics were emplaced. One of these thrusts is shown running across the local map area and is apparently coincident with Bostock's Yukon Schist-Klondike Schist boundary.

Both Bostock and Mortensen identified undeformed post-Cretaceous to Eocene intrusives immediately west of the map area that may be associated with Mortensen's thrust faulting.

## GENERAL SURFICIAL GEOLOGY

Though the local map area is within the unglaciated Klondike terrain, it is sufficiently close to the glacial margins to have been affected by glacial outwash.

During the pre-Reid glacial advance the Stewart River appears to have been diverted down the Australia Creek and Indian River valleys causing substantial glaciofluvial sedimentation. Subsequent uplift in the Pleistocene resulted in the removal of much of these gravels, leaving a remnant terrace which covers some 30% of the map area. The depths of these gravels is not known, but probably averages 10m.

South of the gravel terrace most of the north-facing slopes are blanketed by variable depths of 'black muck', a mixture of frozen organic material, wind-blown silt and ice.

Pre-glacial gravels remain intact under their glaciofluvial cover in the Indian River itself, and as a distinct narrow paleochannel seen in AMT's 1994 mine cut.

## RECENT PLACER MINING ACTIVITY

Prior to 1989 there were no identified placer reserves on the Indian River between the mouth of Australia Creek and the mouth of Eureka Creek. On Eureka Creek itself, however, placer mining has been conducted more or less continuously since the turn of the century.

In 1989 the Upper Indian River was systematically explored using a Nodwell-mounted auger drill. Placer reserves were identified below the mouth of Australia Creek and above and below the mouth of Eureka Creek (see attached 1:25,000 map). Various blocks of this ground have been mined since then by Caribou, Airgold and Orion.

In 1994 additional reserves were found at the mouth of 'Gopher' Creek, the left-limit tributary 1.5km east of Eureka Creek. The ground was subsequently mined by AMT.

## INDICATIONS OF A LOCAL GOLD SOURCE

The following features are considered to indicate a possible local gold source.

### 1. Placer gold distribution.

The gap in placer reserves in the centre of the map area is perplexing.

Upstream, economically viable reserves ran out near the mouth of Wounded Moose Creek. Airgold's '94 and Caribou's '89 and '90 cuts were not profitable.

In comparison the downstream reserves mined by AMT and Orion were relatively rich.

## 2. Gold fineness (purity).

Variations in placer gold fineness are often an indication of variations in source. Lower Dominion gold has a fineness between 830 and 850, while Eureka's is between 690 and 710, and it has long been believed that Eureka has its own local source.

The fineness of AMT's Indian River valley gold is not known, but Orion's was between 820 and 840. It is also said to be more angular and hackly than Dominion gold.

## 3. Photolineaments.

Most gold-bearing creeks in the Klondike area follow strongly defined gently curving lines which can often be traced to the headwaters of one creek, over the watershed summit, and down into another creek following that same line. This produces sets of photolineaments most clearly seen on aerial photographs and Landsat images.

Examples are Lower Bonanza - Eldorado - Calder, Bear - Little Blanche, Quartz - Allgold, Gold Bottom - Sulphur, and Dominion - Upper Bonanza.

Particularly intriguing was the recent discovery of a rich placer gold deposit on a small unnamed tributary of Dominion which is directly on line with the Gold Run Creek trend.

Airphotographs and Landsat images in the Upper Indian River area show five generally north-north-east south-south-west lineaments. One of them can be clearly seen running southward up 'Gopher' Creek, over the flank of Eureka Dome and down into Child's Gulch, a gold-bearing tributary of Blackhills Creek some twelve kilometres away.

#### 4. Alteration.

As a rule 'bedrock' exposed in placer mining cuts in the upper Indian River area usually shows very little alteration beyond that attributable to sub-aerial weathering.

A glaring exception however was the bedrock exposed in AMT's '94 mining cut. Here a strongly altered multiple shear zone was exposed running parallel to the foliation at 100 deg. dipping steeply north. The most intensely altered zone was 16m across and characterized by the complete breakdown of the chlorite schists to a grey clay gouge with pervasive iron staining and quartz and epidote veining.

This shear appeared to connect with a narrow paleochannel exiting 'Gopher' creek which also carried a high proportion of clay alteration minerals and iron stained and manganese oxide coated pebbles and cobbles.

#### 1994-95 EXPLORATION

Several visits were made to the area to examine the bedrock exposed in placer cuts. AMT's 1994 cut was quickly mapped before it flooded. (It was also sampled but the samples were subsequently lost.)

The upstream end of Orion's 1995 cut has not yet reached bedrock, but when it does, in the spring of 1996, it should expose the extension of the Gopher Creek lineament.

A Nodwell-mounted auger drill was used to drill five 8" holes, two on the Gopher claims and three on the Marmot, so as to sample bedrock. In all five holes the bedrock was relatively unaltered quartz-chlorite schist.

#### PROPOSED 1996 EXPLORATION

Orion's 1996 mining will expose the northern extension of the Gopher Creek lineament which should be mapped and sampled.

The shear zone in AMT's 1994 cut should be auger drilled so as to obtain a suite of samples for analysis.

Further work will depend on the results from exploration on the Vole claims which were recently staked immediately to the east of the Marmot claims.

**STATEMENT OF EXPENDITURES**

Reconnaissance mapping along 'Marmot' creek	1 day @ \$400/day	\$400.00
Auger drilling, three 8" holes totalling 114 feet	114 ft @ \$10/ft	1140.00
Photo interpretation, map compilation, drafting and report preparation	2 days @ \$400/day	<u>800.00</u>
	<b>Total expenditures</b>	<b>\$2340.00</b>
<b>EXPENDITURES CLAIMED 16 x 100</b>		<b>\$1600.00</b>

## STATEMENT OF QUALIFICATIONS

I, Angus Woodsend, a geologist with an address of 290 Eagle Ridge Drive, Salt Spring Island, B.C., V8K 2L1, and P.O.Box 566, Dawson City, Yukon, Y0B 1G0, hereby certify that:

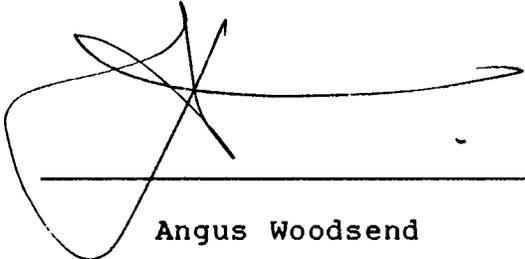
1. I am a graduate of the University of Southampton, England, with a B.Sc. (Hons.) degree in Geology.

2. I have practiced my profession continuously for twenty four years in a variety of countries and have resided in Canada for the last nineteen years.

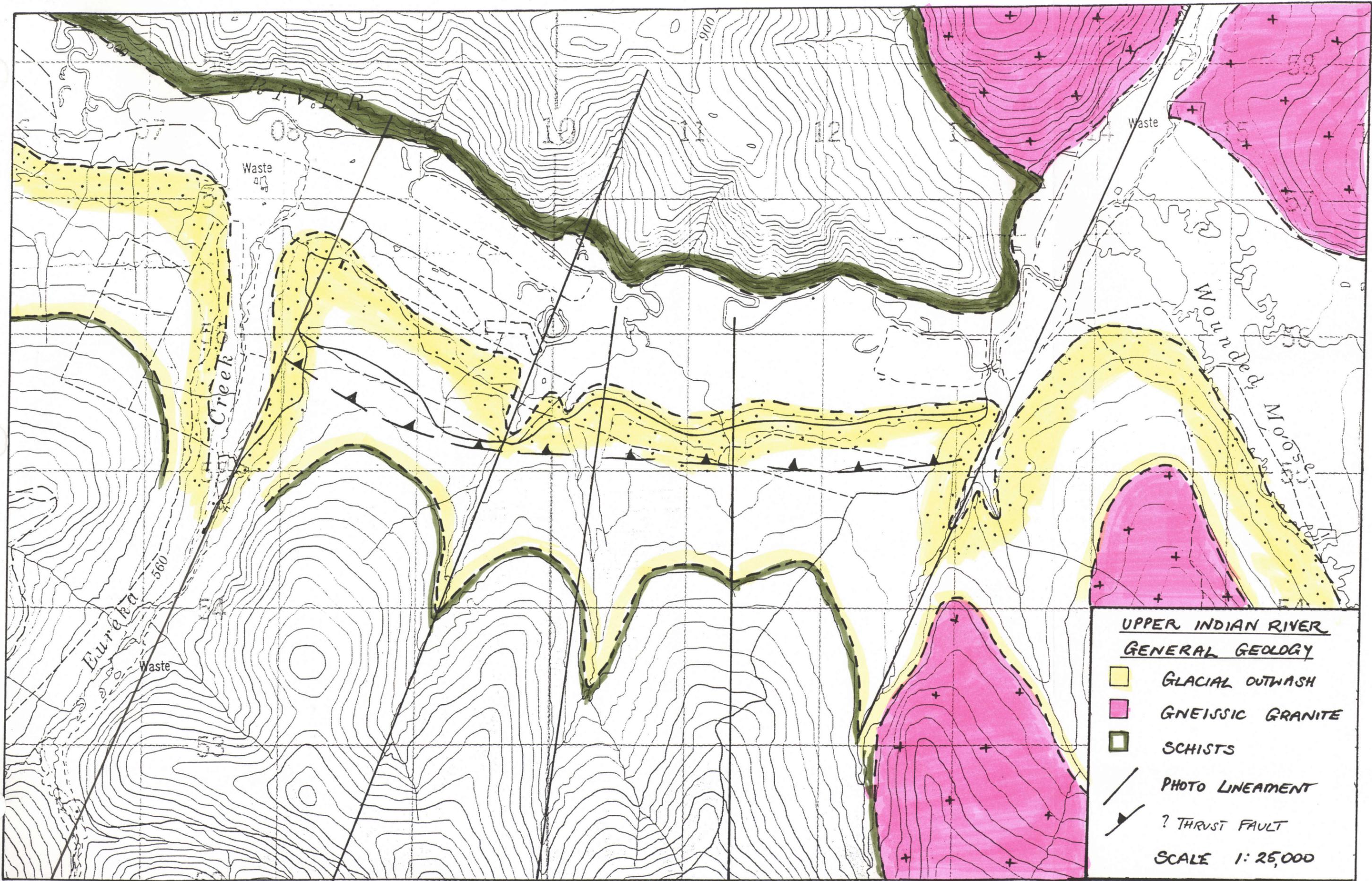
3. I was personally responsible for the work performed on the Marmot claims in the fall of 1994 and spring of 1995.

4. The Marmot claims are currently registered in my own name.

Dated in Ganges, British Columbia, this 19th day of February, 1996.



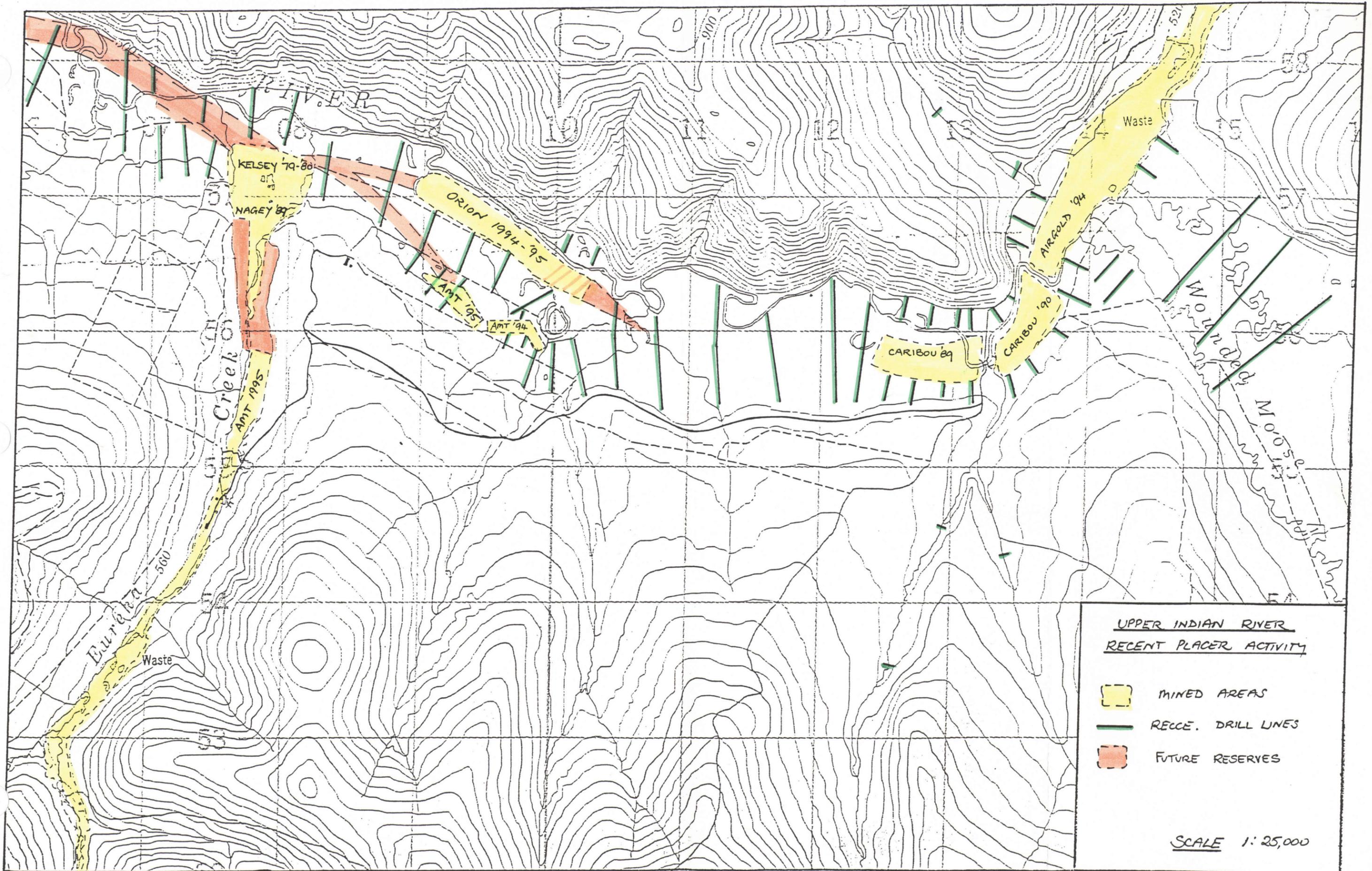
Angus Woodsend

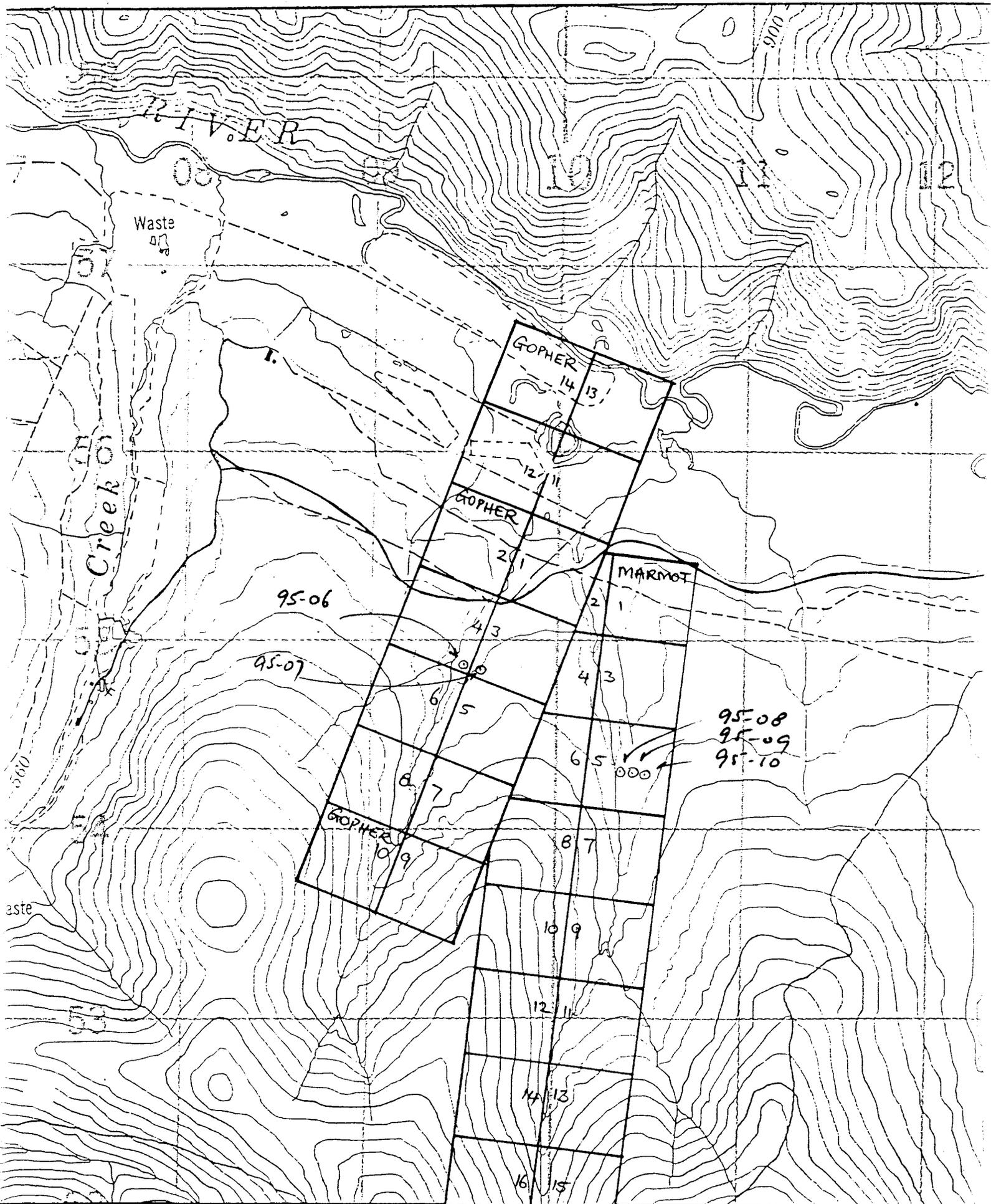


**UPPER INDIAN RIVER  
GENERAL GEOLOGY**

- GLACIAL OUTWASH
- GNEISSIC GRANITE
- SCHISTS
- PHOTO LINEAMENT
- ? THRUST FAULT

SCALE 1:25,000





RIVER

Waste

Creek

95-06

95-07

95-08  
95-09  
95-10

GOPHER

GOPHER

MARMOT

GOPHER

14 13

12 11

20 1

2 1

4 3

4 3

6 5

6 5

8 7

8 7

10 9

10 9

12 11

14 13

16 15

aste

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Mobile YJ8-0297

A. Mining Recorder,  
Dawson M.D.,  
Box 249  
Dawson City.

3 July 96

Re: Gopher and Marmot assessment reports.

Dear Ms Wittfolt,

Further to your letter dated 27 May 96 regarding Mike Burke's request for further information on the 1995 drill holes, please find herewith drill logs and locations — :

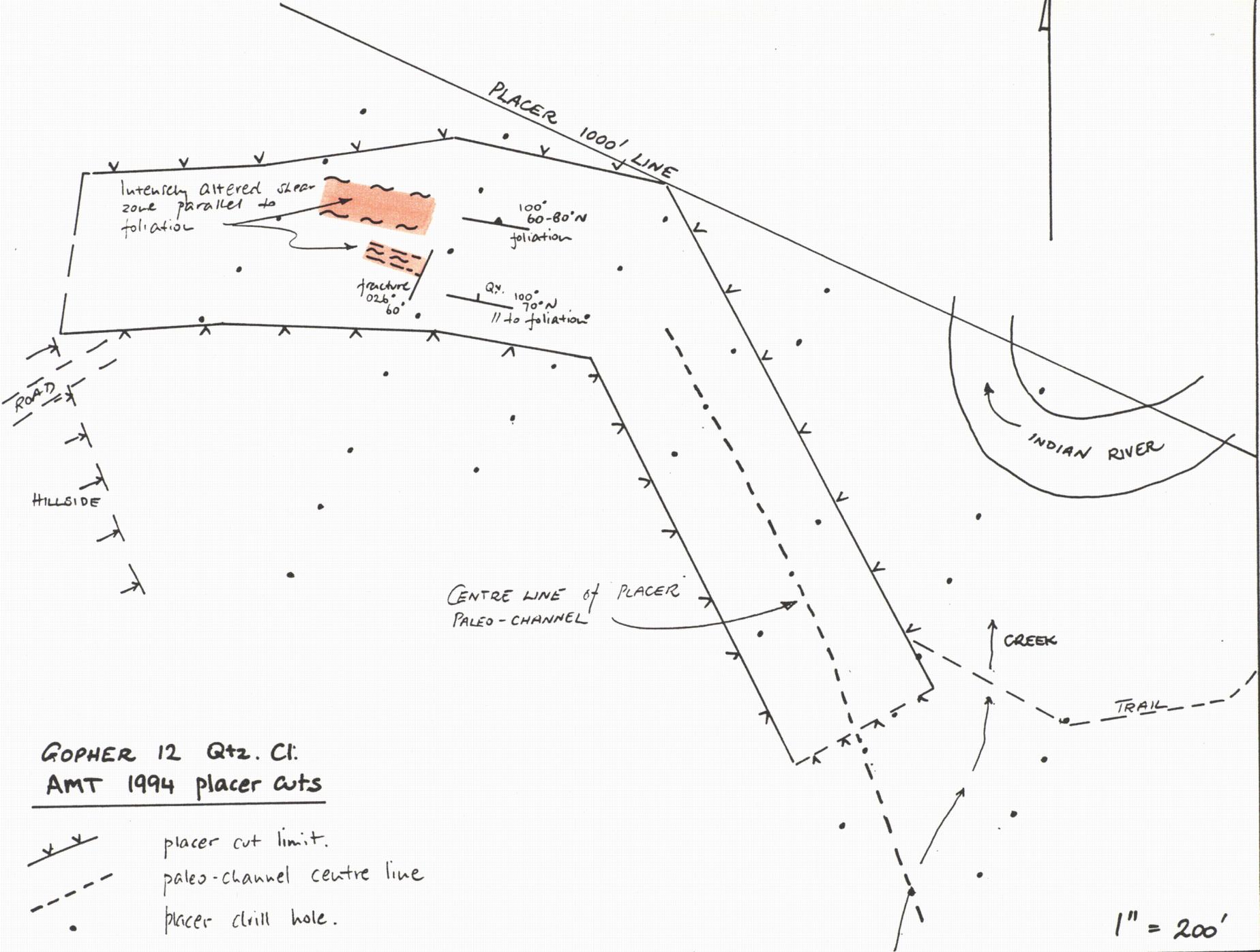
Hole #	Muck	Gravel	Bedrock	Total
95-06	26	2	2	30
95-07	25	2	2	29
95-08	39	1	2	42
95-09	36	—	2	38
95-10	32	—	2	34



UPPER INDIAN RIVER  
 115-0-10  
QUARTZ CLAIMS

GOPHER 1 to 14  
 YB 52367 to 52380  
 MARMOT 1 to 16  
 YB 52535 to 52550

● AUGER DRILL HOLES  
 SCALE 1:25,000



GOPHER 12 Qtz. Cl.  
AMT 1994 placer cuts

-  placer cut limit.
-  paleo-channel centre line
-  placer drill hole.

1" = 200'