QUILL and NICKEL CREEKS

MAGNETOMETER SURVEY

Whitehorse Mining District, Yukon Territory
Placer Lease #7633 and Placer Claim #P27080
N.T.S. 115-G-6

By:
GARY C. LEE, P.Eng.

October 1987

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INTRODUCTION

General

Between October 17 and 21, 1987, a magnetometer survey was conducted on Quill and Nickel Creeks. The purpose of the survey was to locate magnetic anomalies which might be related to above background concentrations of magnetic minerals (mainly magnetite-black sand) synonymous with placer gold deposition possibly in old buried channels. Conversely, in areas of high bedrock magnetism, the lowest relative magnetic readings could indicate the deepest valley filling - i.e. deepest buried channel.

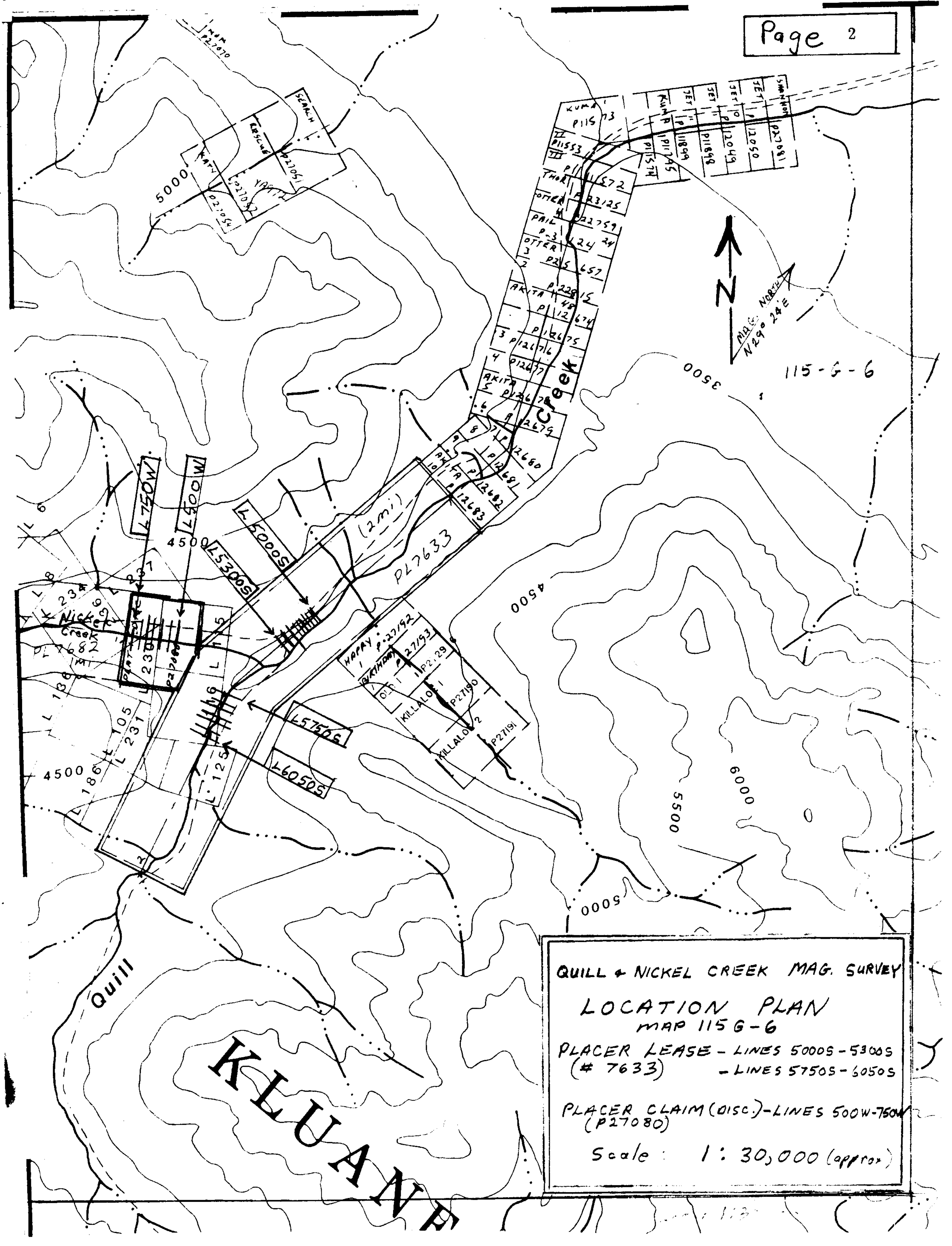
Location

The property is located approximately 310 km NW of Whitehorse, Yukon, on the Alaska Highway and thence 10 km up the Quill Creek road.

Access is excellent, with gravel roads running throughout the survey area. As seen on the Location Plan (page 2), the survey was completed in three different areas: firstly, on Quill Creek, in the area of previous placer mining commencing on L5000S; secondly, on Quill Creek above the mouth of Nickel Creek, commencing on L5750S and proceeding upstream in an unmined area; and thirdly, on Nickel Creek, commencing approximately 300 meters upstream from its confluence with Quill Creek.

Placer Rights

The survey was conducted on Placer Lease PL7633 located on Quill Creek and on Placer Claim P27080 located on Nickel Creek. Placer rights on both of the above have been granted to Mike Nielsen.


9° 30'
Page 2
KUMA 1
P11573
P11553
THOR
OTTER
PAIL
AKITA
JET
KUMA
SHANNON
P27081
P12050
P12049
P11898
P11899
P11795
P11574
P23125
P22759
P12674
P12675
P12676
P12677
P12678
P12679
P12680
P12681
P12682
P12683
SEARCH
RESCUE
KATY
P27061
P27054
P27070
5000
Creek
N
MAG. NORTH N29° 24'E
115-G-6
3500
4500
5500
6000
L750W
L500W
L5000S
L5300S
L5750S
L6050S
(2mi)
PL7633
Nickel Creek
P27080
HAPPY
P.27192
BIRTHDAY
P27193
KILLALOE 1
KILLALOE 2
P27190
P27191
Quill
KLUANE
QUILL & NICKEL CREEK MAG. SURVEY
LOCATION PLAN
MAP 115 G-6
PLACER LEASE - LINES 5000S - 5300S
(# 7633) - LINES 5750S - 6050S
PLACER CLAIM (DISC.) - LINES 500W-750W
(P27080)
Scale : 1 : 30,000 (approx)

FIELD PROCEDURE

For details of grid and location, refer to the Location Plan on page 2. Each of the three areas surveyed have their own base line and grid: two on Quill Creek and one on Nickel Creek. Base lines were run in at 25 meter spacings with cross lines at either 25 or 50 meter spacings. Stations were established at 10 meter spacings, with readings being taken at 5 meter spacing. It is important to note that lines were not cut but simply flagged with stations marked on ribbon with a felt pen. Due to the bare and frozen nature of the ground, many station ribbons were simply tied round a loose rock and left at ground level. Hence, any follow-up work done in the bare areas with snow or glacial ice on the ground would require some back chaining.

A Scintrex MF-2 fluxgate magnetometer was used and readings were taken to the nearest 10 gammas (γ) - occasionally 5 gammas. The instrument reads the vertical component of the earth's magnetic field.

Magnetometer readings were taken along the base lines in short loops and corrected for diurnal. Similarly, each set of two lines was surveyed in a loop checking into the base line readings for each loop and subsequently corrected. All areas surveyed were tied into a common base station. This base station was arbitrarily set at 470 gammas on the most accurate magnetometer scale. Since some of the readings were over 470 gammas lower than the base station, this explains why a few negative readings showed up on the profiles (see Nickel Creek).

TOPOGRAPHY

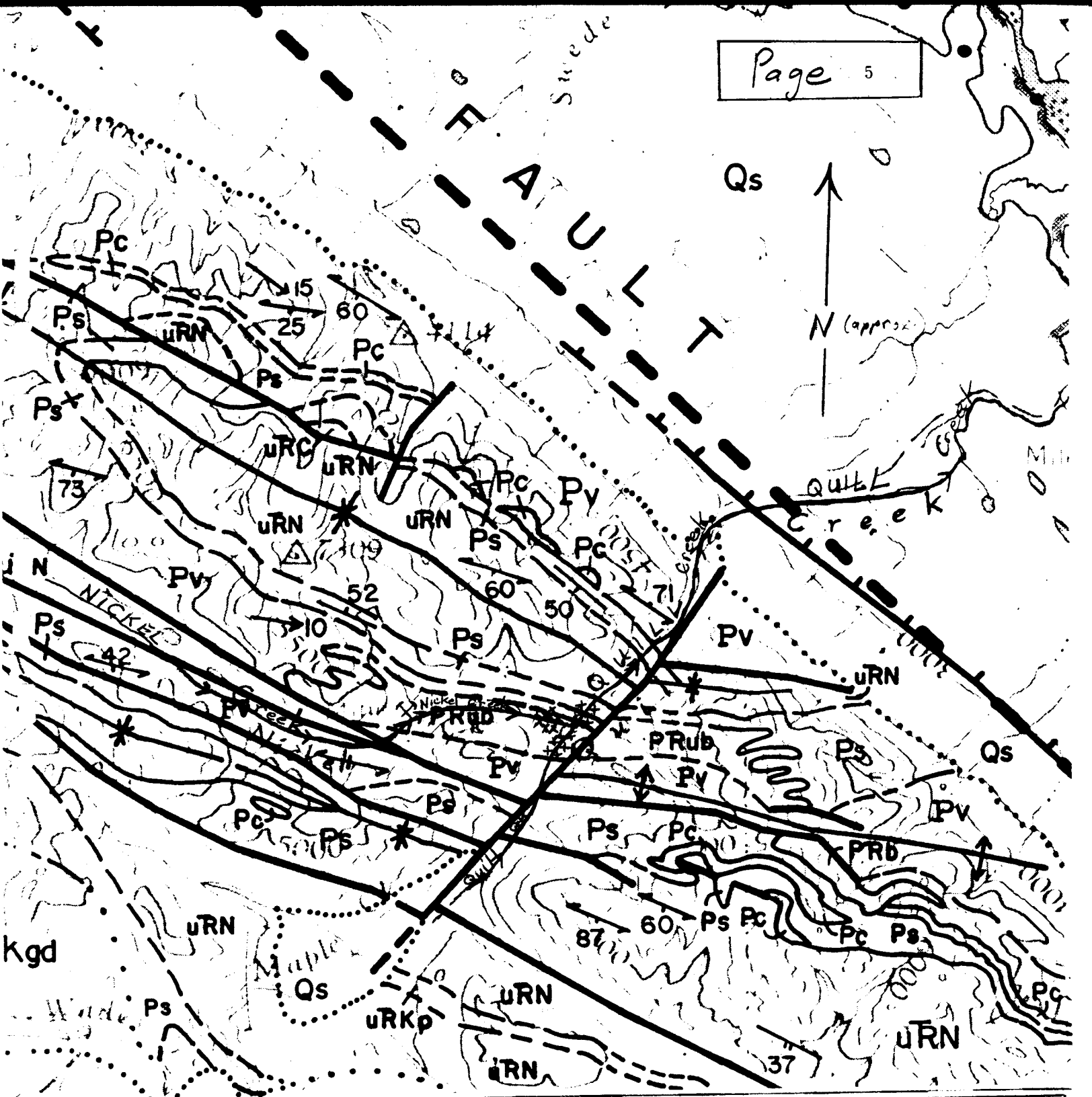
The general direction of drainage of Quill Creek is to the northeast and that of Nickel Creek is to the east. The valley bottoms of both creeks are less than 200 meters across, with steep to moderately dipping valley walls.

(Topography - cont'd)

Vegetation on Quill Creek is bare to patches of brush (survey area only). The right limit (survey area only) of Nickel Creek is bare whereas the left limit is spruce covered on the benches. Numerous one to two meter high benches occur in the survey area plus gently dipping (0-10%) benches which rise up to meet the valley walls, especially on the left limit of Nickel Creek. Details of the topography can be studied in the appendix on the profile sheets since significant breaks in slope have been drawn below each magnetic profile.

GEOLOGY

An enlargement of the geology map (G.S.C. Open File 829) in the area surveyed is shown on page 5. From this, one can see contacts of peridotites, volcanics and sediments on Quill Creek near the mouth of Nickel Creek. Peridotites usually result in high magnetic readings. This can be seen on the magnetic profiles on L5750S, L5800S, L5850S, L5900S and L5950S where many of the readings are over 1,000 gammas. Unfortunately, this contrasting geology usually only serves to complicate placer magnetometer interpretation, especially with the offsetting occurring in the Quill Creek valley.



LEGEND

- PRub - peridotite
- Pv - volcanics
- Ps - sediments
- xxx / xx - area of survey

GEOLOGY

(G.S.C. - OPEN FILE 829)

QUILL & NICKEL CREEK AREA

Scale: 1: (50,000 - 90,000)

PLACER MINING

Approximately 7 km up the Quill Creek road from the Alaska Highway, there is evidence of considerable placer mining activity. Whether this activity is ongoing or from the recent past is uncertain. Also, 10 km up (in the area of the magnetometer survey) there is a mining cut as shown on the Mag Profiles L5000S to L5075S with stripping occurring up to L5150S. The mining cut averages about 60 meters in width by 60 meters long before narrowing downstream (bedrock drain) and upstream (partially stripped). No evidence of bedrock was observed on the bottom of the cut.

INTERPRETATION AND CONCLUSIONS

General

It should be noted that, due to the high amount of near-surface and bedrock magnetism encountered on this particular survey, it should not be used as a primary tool for placer testing here. Any recommended targets arising from this report should only be incorporated into an otherwise planned test program.

On examining the magnetometer profiles contained in the appendix, the abbreviation F-S.M. denotes the final magnetometer reading; this is simply filtering out sudden drops in magnetometer readings due to abrupt changes in slope. For example, standing at the bottom of a narrow, two meter deep ditch (L 600W at 15N) introduces "side magnetism" when the surrounding walls have significant amounts of magnetic minerals.

Quill Creek (L5000S to L5300S) Mining Cut

The high anomalies occurring towards the end of these lines are due to near-surface features or bedrock and should be ignored. For example, L5050S and L5075S at 40W: the anomalies peak at over 800 gammas and are caused by previous cat work since the push piles (tailings?) have a significant concentration of magnetic minerals. Evidence of this can be easily observed by sudden drops in readings due to "side magnetism" when one stands beside the piles (tailings? and/or manmade dykes).

Because of the foregoing and evidence of much near-surface (flood plain) magnetism, there is too much surface interference for a deeper magnetic channel to be detected, if indeed one does exist. The anomaly on L5050S between 15E and 35E could indicate something below the near-surface magnetism. It is in the mining cut and, if bedrock has not been scraped here, then it should be investigated. Although unsubstantiated, the writer was informed verbally that the area mined in this particular pit bottomed on a hard clay rather than bedrock.

Quill Creek (L5750S to L6050S) - Not Mined

There is a bedrock high (Mag.) crossing the valley here, as can be observed by noting that some of the magnetometer profiles do not go below 1,000 gammas (L5800S, L5850S and L5900S). As seen by the "shaded" area on L5950S, L6000S and L6050S, there is a "spiked" high which occurs roughly on the same spot three lines in a row. Because it occurs on only one station on two of the lines, its origin is suspected as being shallow. Also, there is a three-station anomaly on L5800S between 10E and 20E. On L5950S at approximately 15E there is a low shaded in, with bedrock magnetism on the valley walls rising sharply. If the bedrock and overburden magnetism was consistent here, the low could indicate the location of the deepest valley filling (i.e. the further away from the magnetic source, the weaker the readings). If this was the deepest to bedrock, one might have a chance of intersecting a deep buried channel at this location.

Nickel Creek (L500W to L750W)

It can be noted that the road embankment almost always produces a magnetic anomaly. This is probably due to material either pushed up or brought in for the road and should be ignored. The area to the south of the base line is bare and rocky. Steel pipe (debris) and 45-gallon barrels were noted. This, plus the proximity of a steep valley wall ("side magnetism"), makes interpretation difficult. The only unique, unexplained anomaly is that occurring on the bench to the north of the base line on L600W at 45N. Although bedrock is suspected as being the source of this anomaly, it is possible that it could be of placer origin and should be investigated.

RECOMMENDATIONS

Since no obvious placer anomaly systems were encountered, the following should only be incorporated in an otherwise planned test program.

Quill Creek (mined area)		Quill Creek (unmined area)		Nickel Creek	
L5050S	20E	L5950S	30E	L600W	45N
		L5950S	17E		

Respectfully submitted:

Gary C. Lee, P.Eng.

STATEMENT OF COSTS

To: Mike Nielsen
From: Gary Lee

QUILL AND NICKEL CREEK - MAGNETOMETER SURVEY
Whitehorse Mining District, Yukon Territory
Placer Lease #7633 and Placer Claim #P27080
October 1987

FIELD

Labour:	Engineer - 5 days @ $250/day	$ 1,250.00
	Assistant - 5 days @ $125/day	625.00
Truck (4x4): $40/day + 25¢/km + gas		527.00
Magnetometer rental: 5 days @ $25/day		125.00
Batteries		21.52
Supplies - flagging, field book, topo, drafting paper, etc.		75.00
Workers Compensation		50.00
Room and board		397.29

REPORT

Engineer: 3 days @ $250/day	750.00
Typing and binding copies	75.00
SUBTOTAL	$ 3,895.81
Less: 15% (total cost originally quoted at $3,000-3,300)	584.37
TOTAL	$ 3,311.44

Assessment Work:	Apply 2/3 on PL 7633	$ 2,207.63
	Apply 1/3 on P27080	$ 1,103.81

Engineer: Gary Lee, P.O. Box 5348, Whitehorse, Y.T.
Assistant: Darryl Clark, General Delivery, Whitehorse, Y.T.

Gary Lee

FIGURE I

B.L.

L 50755

F-S.M.

PUSH PILES

MINING CUT

TRIB.

ROAD

VALLEY WALL

60E 40E 20E B.L. 20W 40W 60W

- 900
- 850
- 800
- 750
- 700
- 650
- 600
- 550
- 500

MAG. RDG. IN GAMMAS (γ)

MAIN CREEK - OPEN WATER - THIN ICE - NOT POSSIBLE TO TAKE MAG. RDG.

L 50505

Bedrock high

F-S.M.

PUSH PILES

MINING CUT

PUSH PILES

ROAD

VALLEY WALL

60E 40E 20E B.L. 20W 40W 60W

- 900γ
- 850γ
- 800γ
- 750γ
- 700γ
- 650γ
- 600γ
- 550γ
- 500γ

L 50255

MAIN CREEK

PUSH PILES

F-S.M.

BTM BANK

ROAD

STEEP BANK

MINING CUT

60E 40E 20E B.L. 20W 40W

- 850γ
- 800γ
- 750γ
- 700γ
- 650γ
- 600γ
- 550γ

NOTE: MAIN CREEK DIVERSION CROSSES MINING CUT BETWEEN L 50005 & L 50255

092477

F-S.M.

F-S.M.

VALLEY WALL

CREEK (LITTLE WATER)

PUSH PILES - TAILINGS ←?→

BTM. MINING CUT

PUSH PILES

ROAD

VALLEY WALL

MAIN CREEK

100E 80E 60E 40E 20E B.L. 20W 40W 50W

- 900γ
- 850γ
- 800γ
- 750γ
- 700γ
- 650γ
- 600γ
- 550γ
- 500γ

L 50005

LOOKING UPSTREAM

FIGURE I

QUILL CREEK

MAGNETOMER PROFILES

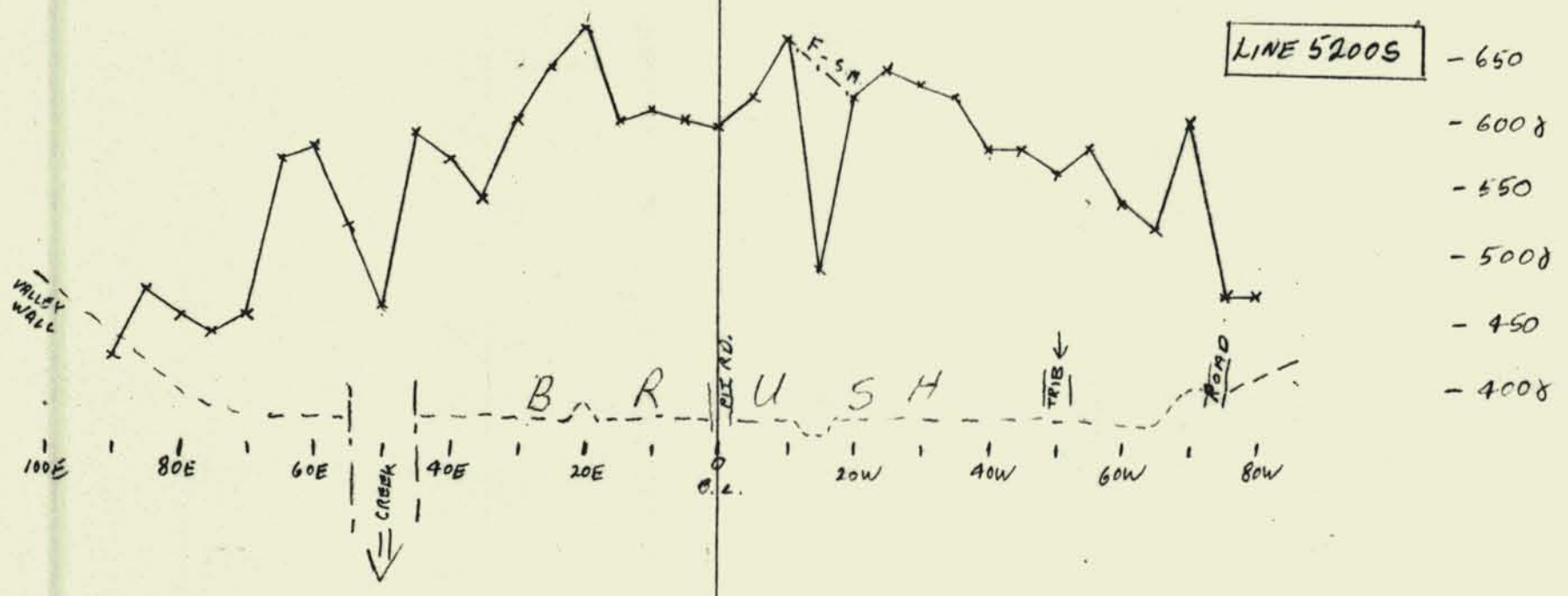
OCT. 1987

Scale: Vert. 1cm. = 50γ

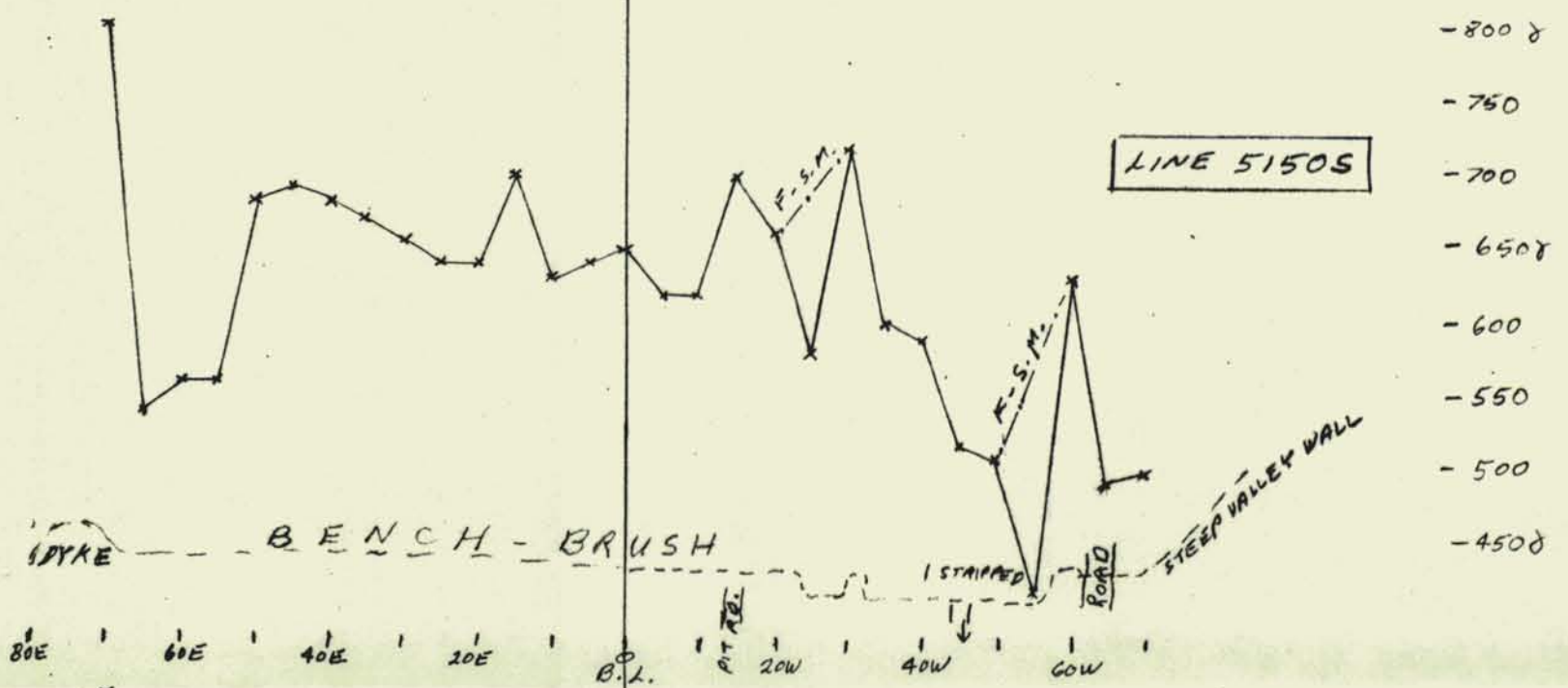
Horiz. 1cm. = 10m.

FIGURE II

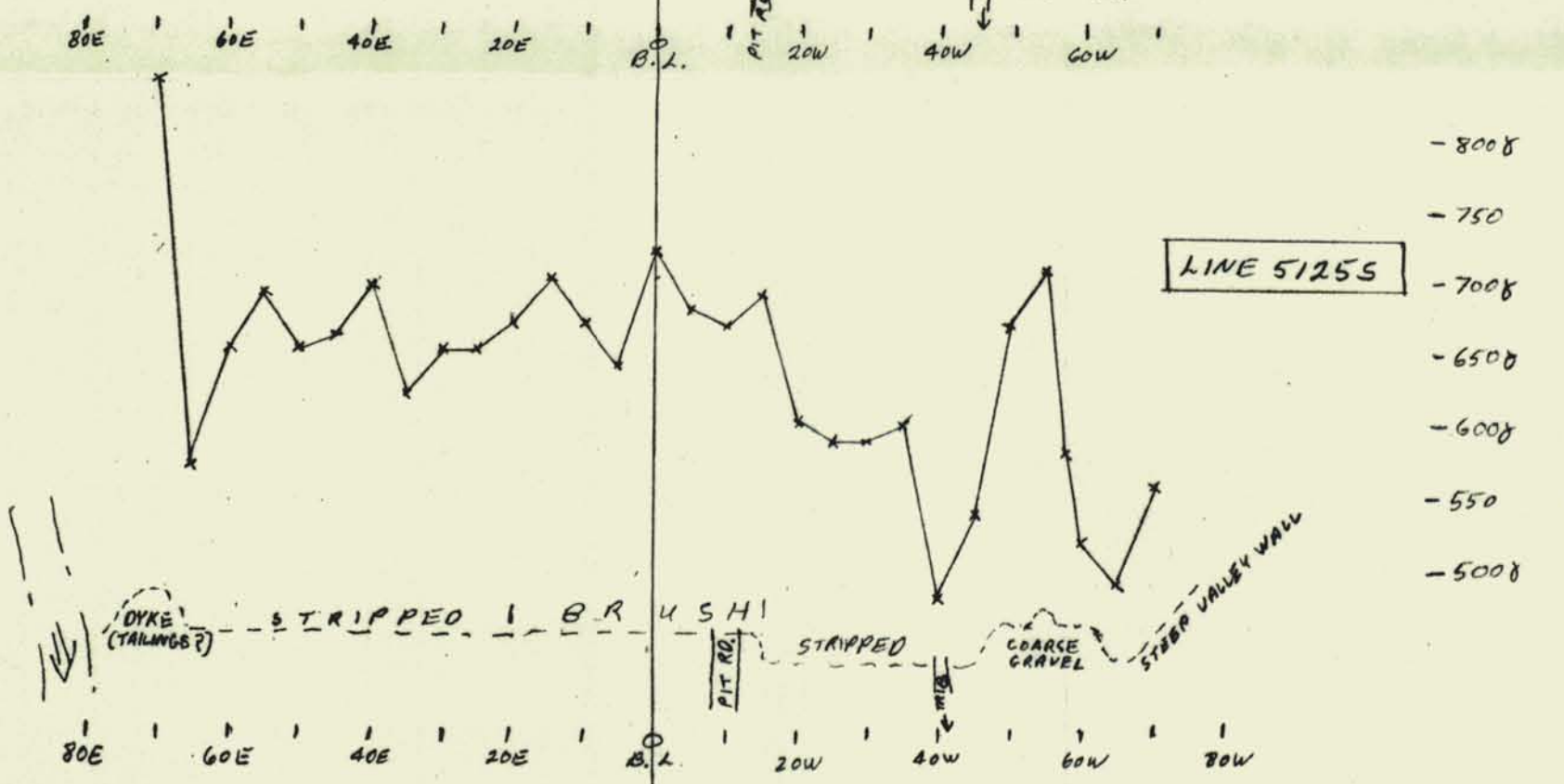
LINE 5200S



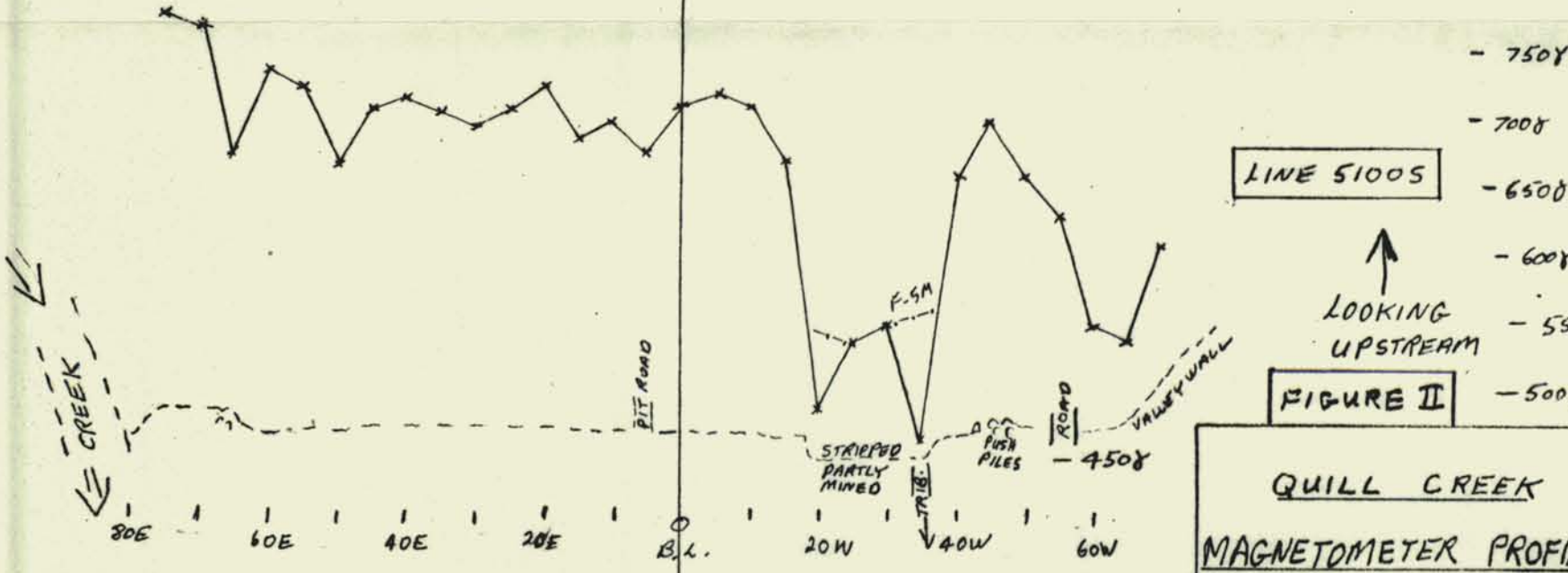
LINE 5150S



LINE 5125S



LINE 5100S



LOOKING UPSTREAM

FIGURE II

QUILL CREEK

MAGNETOMETER PROFILES

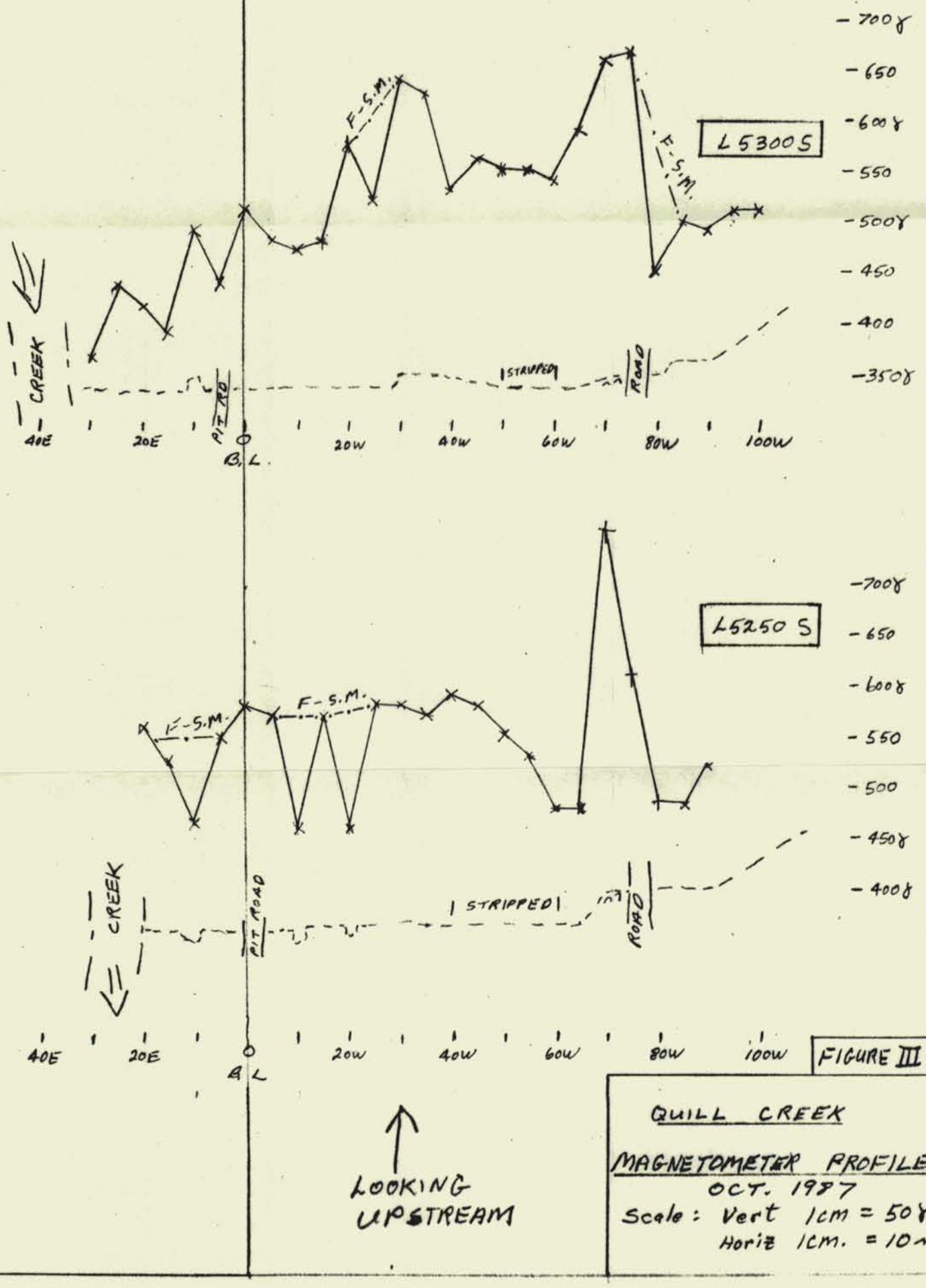
OCT. 1987

Scale: Vert 1cm = 50γ
HORIZ 1cm. = 10 m.

MAGNETOMETER READINGS IN GAMMAS (γ)

002477

FIGURE III



QUILL CREEK

MAGNETOMETER PROFILES

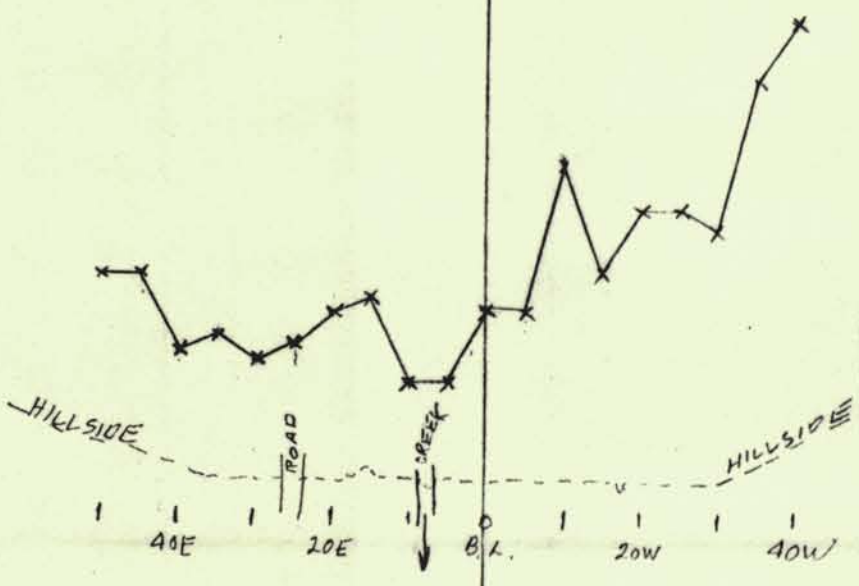
OCT. 1987

Scale: Vert 1cm = 50γ

Horiz 1cm. = 10m

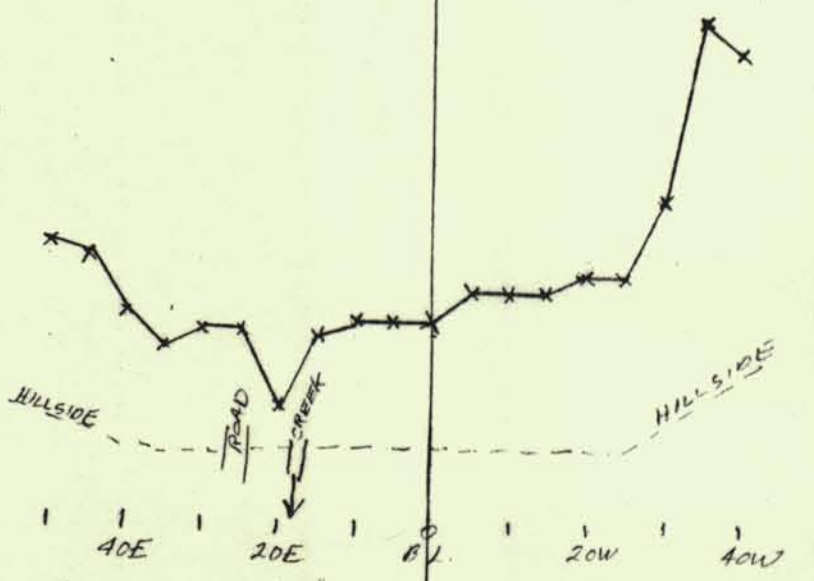
092477

FIGURE IV



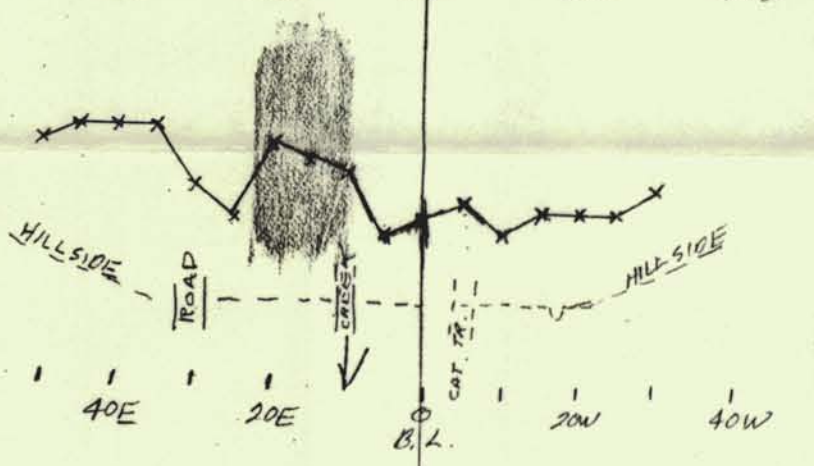
L59005

-1300γ
-1250γ
-1200γ
-1150γ
-1100γ
-1050γ
-1000γ



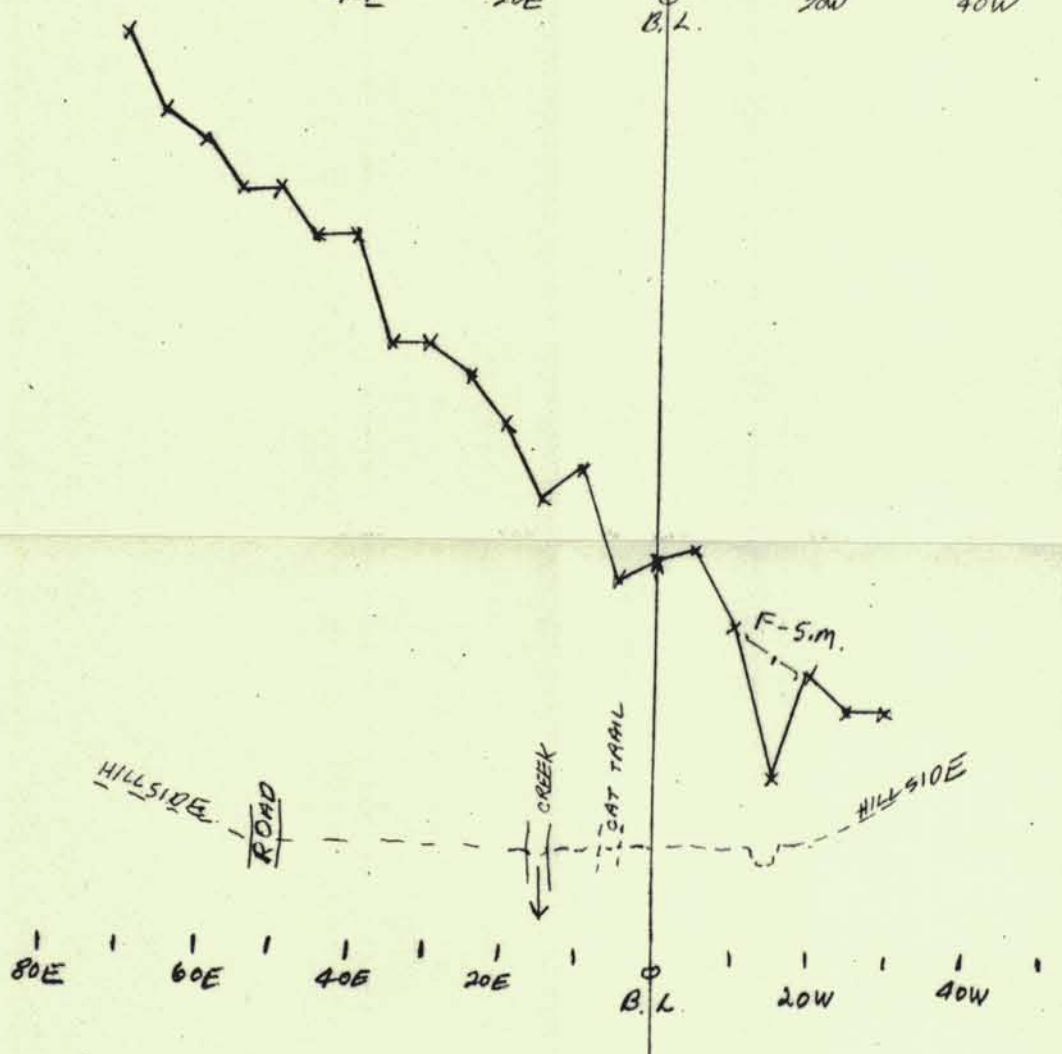
L58505

-1400γ
-1350
-1300γ
-1250γ
-1200γ
-1150γ



L5800 S

-1250γ
-1200γ
-1150γ
-1100γ



L57505

-1250γ
-1200
-1150
-1100
-1050γ
-1000
-950
-900
-850
-800γ
-750
-700

LOOKING UPSTREAM

MAG. PROFILES - GAMMAS

FIGURE IV

QUILL CREEK

MAGNETOMETER PROFILES

OCT. 1987

SCALE: VERT. 1CM. = 50γ
HORIZ. 1CM = 10M.

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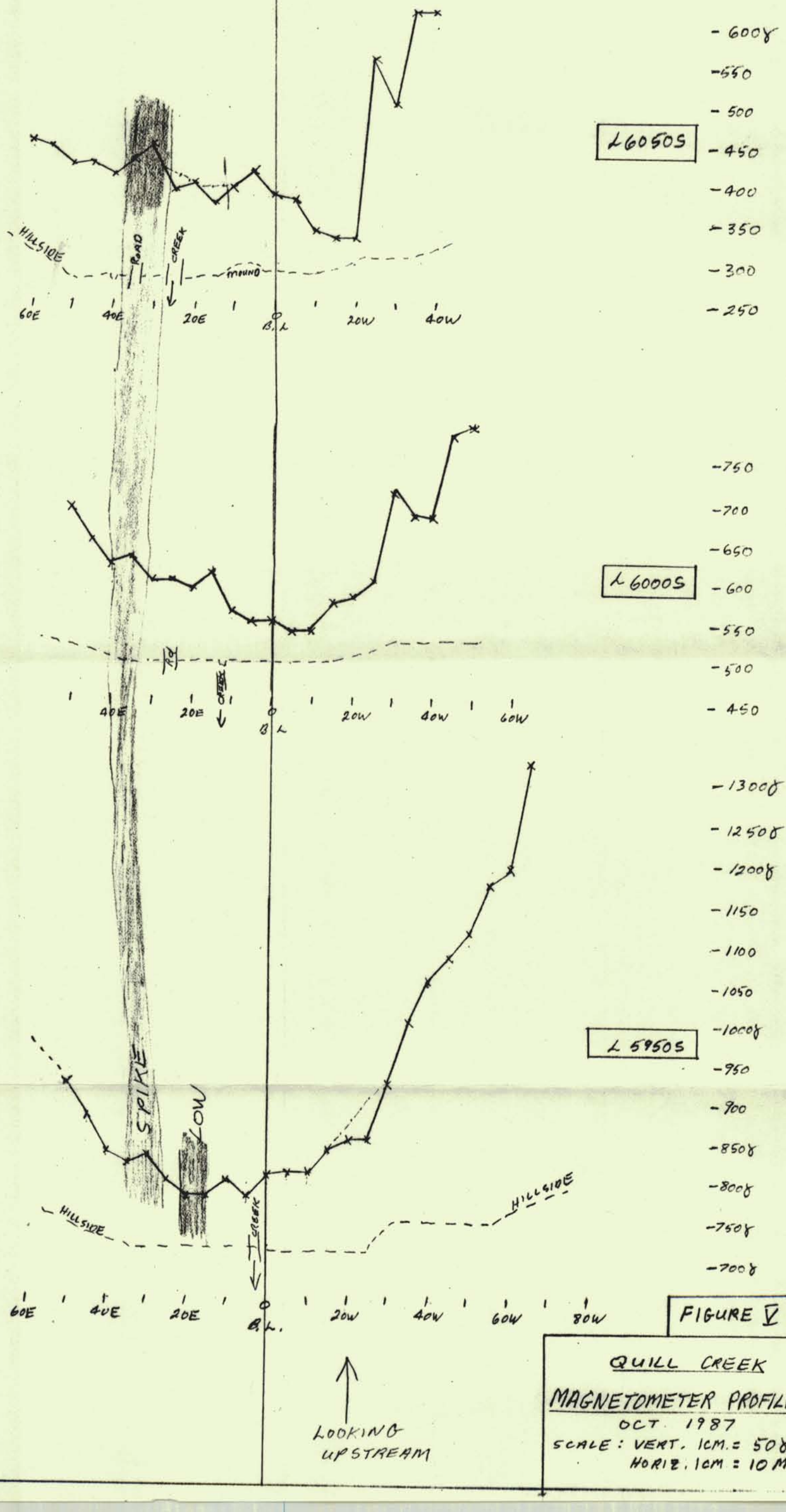
FIGURE V



PDGS. - GAMMAS

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FIGURE V

QUILL CREEK

MAGNETOMETER PROFILES

OCT. 1987

SCALE: VERT. 1CM. = 50γ
HORIZ. 1CM = 10 M.

FIGURE VI

L 600W

-450
-400
-350
-300
-250
-200
-150
-100
-50
-0
-(-50)

F-S.M.
F-S.M.
F-S.M.
HILLSIDE STEEP
ROAD
OLD CAT TRAIL
HILLSIDE
405 205 B.L 20N 40N 60N 80N 100N

L550W

-400γ
-350
-300
-250
-200
-150
-100
-50γ
-0

Drop could be due to "side magnetism" from steep valley wall ??
?
F-S.M.
F-S.M.
STEEP VALLEY WALL
Creek
ROAD
OLD CAT TR.
405 205 B.L 20N 40N 60N 80N

-400
-350
-300
-250
-200
-150
-100
-50
-0

L 500 W

F-S.M.
STEEP VALLEY WALL
ROAD
OLD CAT TRAIL
805 605 405 205 B.L. 20N 40N 60N 80N 100N 120N 140N

-(-50)

MAG. PDCS. — GAMMAS

082477

FIGURE VI

LOOKING UPSTREAM

NICKEL CREEK

MAGNETOMETER PROFILES

OCT. 1987

Scale: Vert. 1cm = 50γ
Horiz. 1cm. = 10M.

FIGURE VII

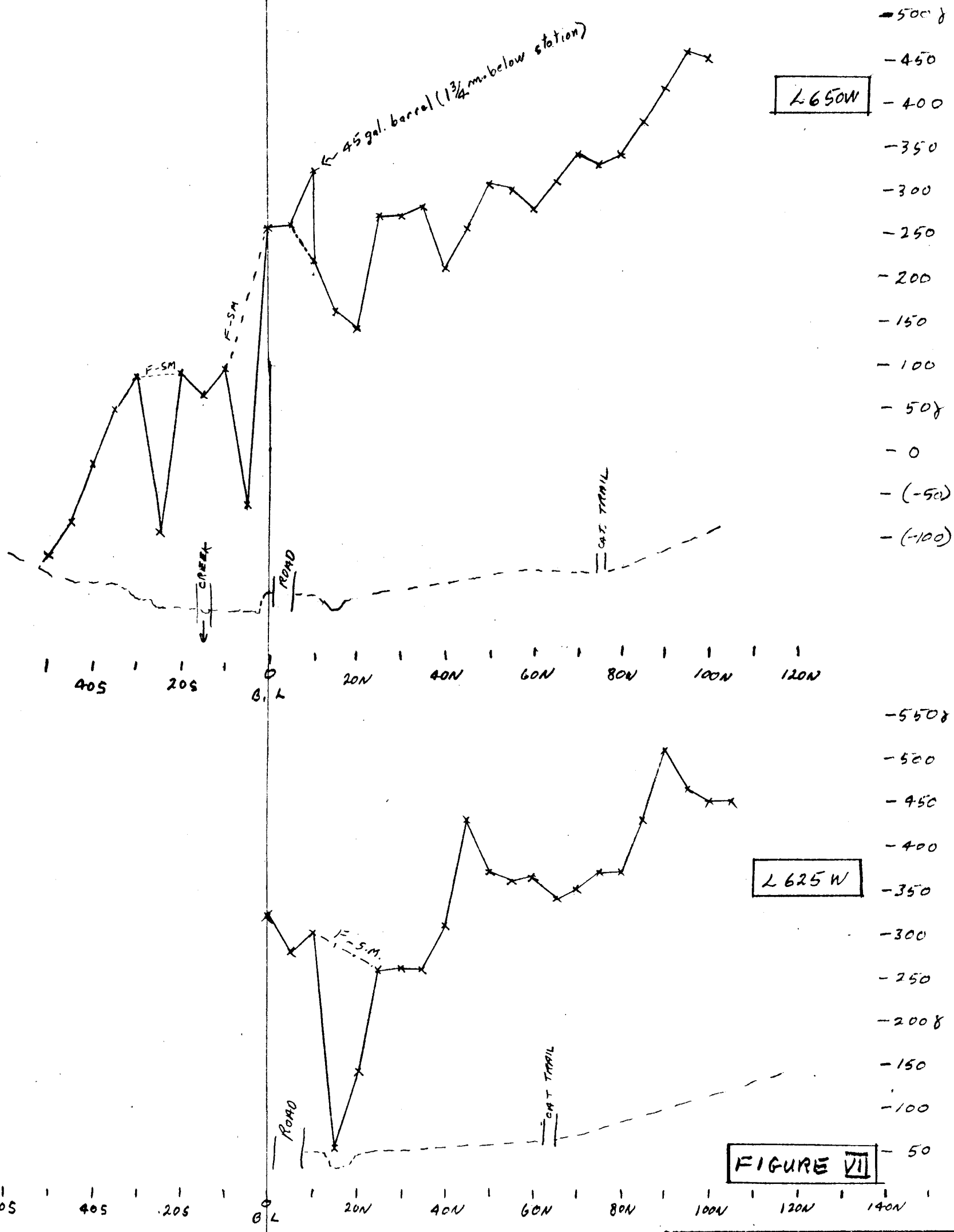

FIGURE VI

NICKEL CREEK

MAGNETOMETER PROFILES

OCT. 1987

Scale: Vert. 1cm. = 50γ
1cm. = 10M.

FIGURE VIII

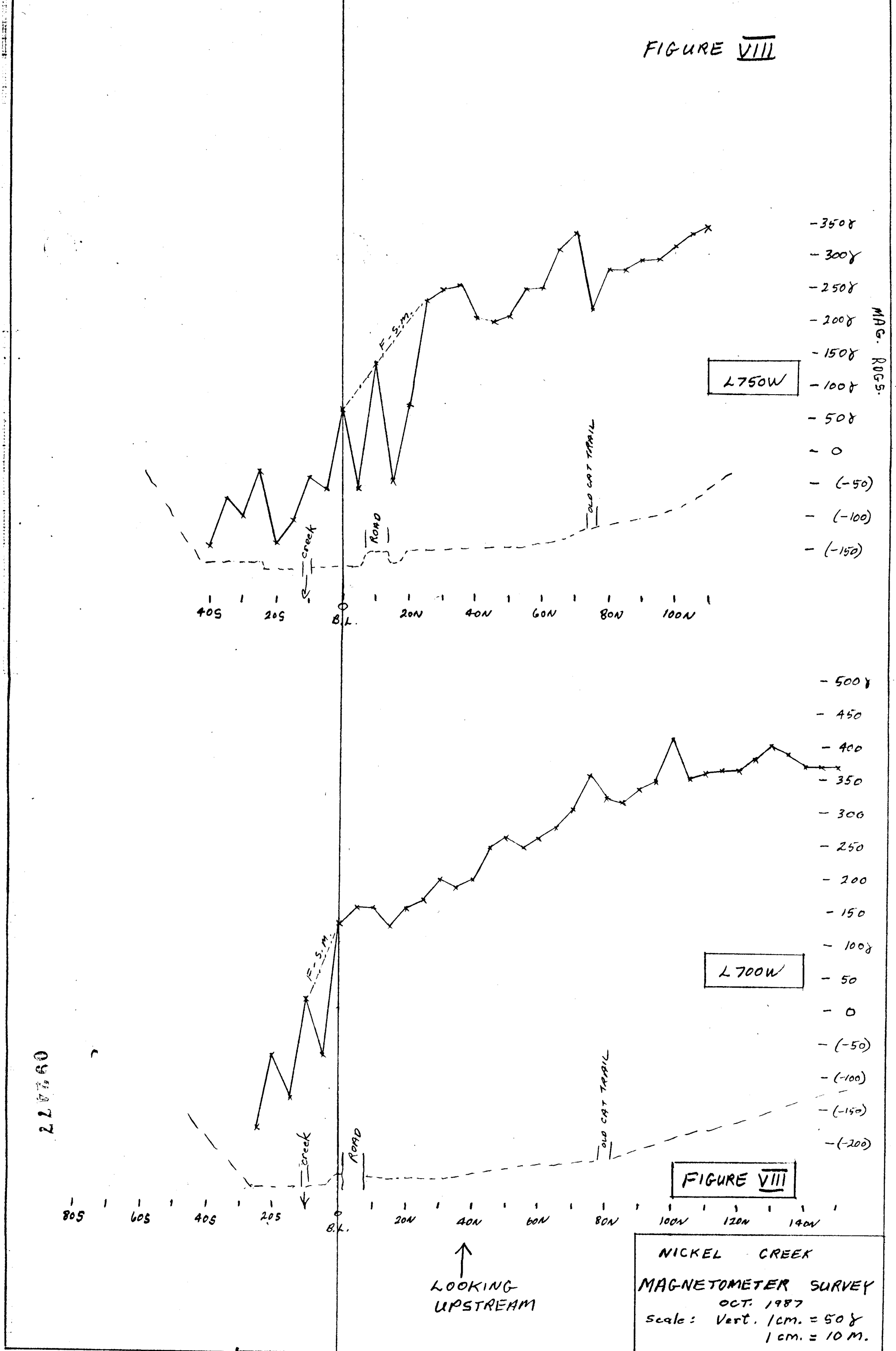

FIGURE VIII

NICKEL CREEK

MAGNETOMETER SURVEY

OCT. 1987

Scale: Vert. 1cm. = 50γ

1cm. = 10M.