

DATE: July 24, 1992  
A  
TO: A. Davidson  
COPIES A  
COPIES TO: I. Pirie, G. Wells  
DE  
FROM: C. Burge  
SUBJECT: 1992 Horn Diamond Drill Proposal

822675

## INTRODUCTION

A 2400 meter drill program is proposed to explore the Lower - Middle Aldridge contact for a large tonnage massive sulphide deposit. This contact hosts the giant Sullivan Pb-Zn deposit (160 Mt; 7% Pb, 6% Zn and 80 gpt Ag) located 12 km north of the Horn property. The deposit forms a gently dipping massive sulphide sheet and is one of the largest base metal deposits in the world. The Horn property has seen very limited exploration and drilling will focus on a 1.2 km Pb-Zn-Sn soil anomaly.

## GEOLOGY

### Regional Geology

The Horn property is underlain by Lower and Middle Aldridge formation sediments which form a syncline on the eastern portion of the property and dip moderately west on the western part. The Aldridge formation is Proterozoic in age and consists of deep water turbidite beds that have been intruded by gabbroic bodies which form dikes and semi-conformable sills.

The regional attitude of the Aldridge formation in the area of the Horn property gives the impression that the Hellroaring Creek stock, a Proterozoic age felsic intrusive, may have pushed the stratigraphy up at the south end of the property. The Hellroaring Creek stock is a highly fractionated pegmatite stock containing tourmaline. This stock may be the engine driving hydrothermal activity in the area.

A zone of higher metamorphic grade has been recognized during reconnaissance mapping trending from Sullivan south to the eastern sector of the Horn property. Muscovite +/- sillimanite schists are common along this trend which is normal to the bedding. A clean 20° structural trend occurs when lining up existing stratabound occurrences in the area (Sullivan, Northstar, Stemwinder). The Horn East anomalies lie on this important trend. Could this be a "rift master fault"??!

### Property Geology

The Horn property is divided into two areas. The Horn East area lies on the important Sullivan mineralization/alteration trend and units trend NW-SE and dip moderately beneath a gabbro bluff ("B sill"). The sedimentary units consist of quartzites, wackes and argillites interbedded with semi-conformable gabbro sills. Numerous pegmatite sills of a similar composition to the Hellroaring Creek stock also occur.

Distinctive argillite/quartzite couplets were recognized on the adjacent Darlin property. This sequence is observed in the upper portion of the Lower Aldridge at the Sullivan. A regional extrapolation suggests that the Horn stratigraphy is correlative with Sullivan time and lies on the south limb of a broad north-south trending antiform.

On the western portion of the Horn claims sedimentary units dip moderately to steeply west and do not exhibit a schistose texture. An important sulphide bearing conglomerate known as the Clair fragmental occurs here. Conglomerates are rare in the Aldridge formation and are highly significant as they are evidence of basinal infill material marking graben margins.

## TARGETS

### Horn Grid

P1 will begin testing an extensive 1.2 km soil anomaly delineated on the Horn grid 700 m east of the Darlin property boundary. The soil anomaly shows elevated Pb-Zn-Sn-Cd-Ag values. At the eastern end of the soil anomaly a VLF crossover and mag high was detected. Soil values here are up to 656 ppm Zn. Hand trenching revealed altered sediments with only trace amounts of Pb-Zn. The base metals appear bedded but are not present in sufficient quantities to explain the geophysical anomalies. P3 will test a VLF anomaly associated with the postulated position of Sullivan time in the hanging wall of the Horn soil anomalies. P3 will complete the geologic section and may be extended 200 meters to test the P1 intercept 500 meters downdip.

P2 will test the Darlin zinc exhalite 300 m east. The Darlin horizon assayed .7% Zn/.3 m and is interpreted to be a significant zinc exhalitive horizon. Unfortunately this hole will be the only one possible to test the Darlin horizon due to access difficulties.

P4 will test the Horn soil anomaly 250 meters east where the horizon coincides with a footwall tin anomaly.

P5 will test a coincident VLF/Mag anomaly that represents the east strike extent of strongly mineralized (cp, sph) and altered boulders of gabbro sill. This horizon probably correlates with the pyrrhotite rich zones encountered in the Darlin drill holes.

P6 will test an airborne mag feature represented on the NE corner of the Horn grid by a irregular 500 m by 250 m mag anomaly and a weak VLF conductor. Albitite boulders were observed as float in the field.

P7 located 600 meters east of P3 and 600 m west of P1, P3 is a deep hole testing a surface showing returning values of 1.1% Zn and the Horn soil anomaly downdip. A 750 meter hole is required due to difficulties accessing individual targets.

## Clair Grid

P8 will test a PEM anomaly detected in the footwall of fragmental rocks known as the Clair fragmental. Cominco hole 79-1 tested the main fragmental occurrence, however a footwall conglomerate provided a stronger geophysical response and remains untested. This is an expected response given an orebody situated stratigraphically below the fragmental rocks. The conglomerates, therefore, could be interpreted as basin infill material deposited on top of an orebody located in a 2nd order basin.

## CONCLUSIONS

The proposed drill holes will require approximately 2.5 km of roadbuilding to access drill stations. Roadbuilding will not be difficult, however, water may have to be trucked to some of the drill sites.

Each of these drill holes has an excellent chance of success and the program constitutes the most aggressive exploration program carried out in the Sullivan camp for many years.

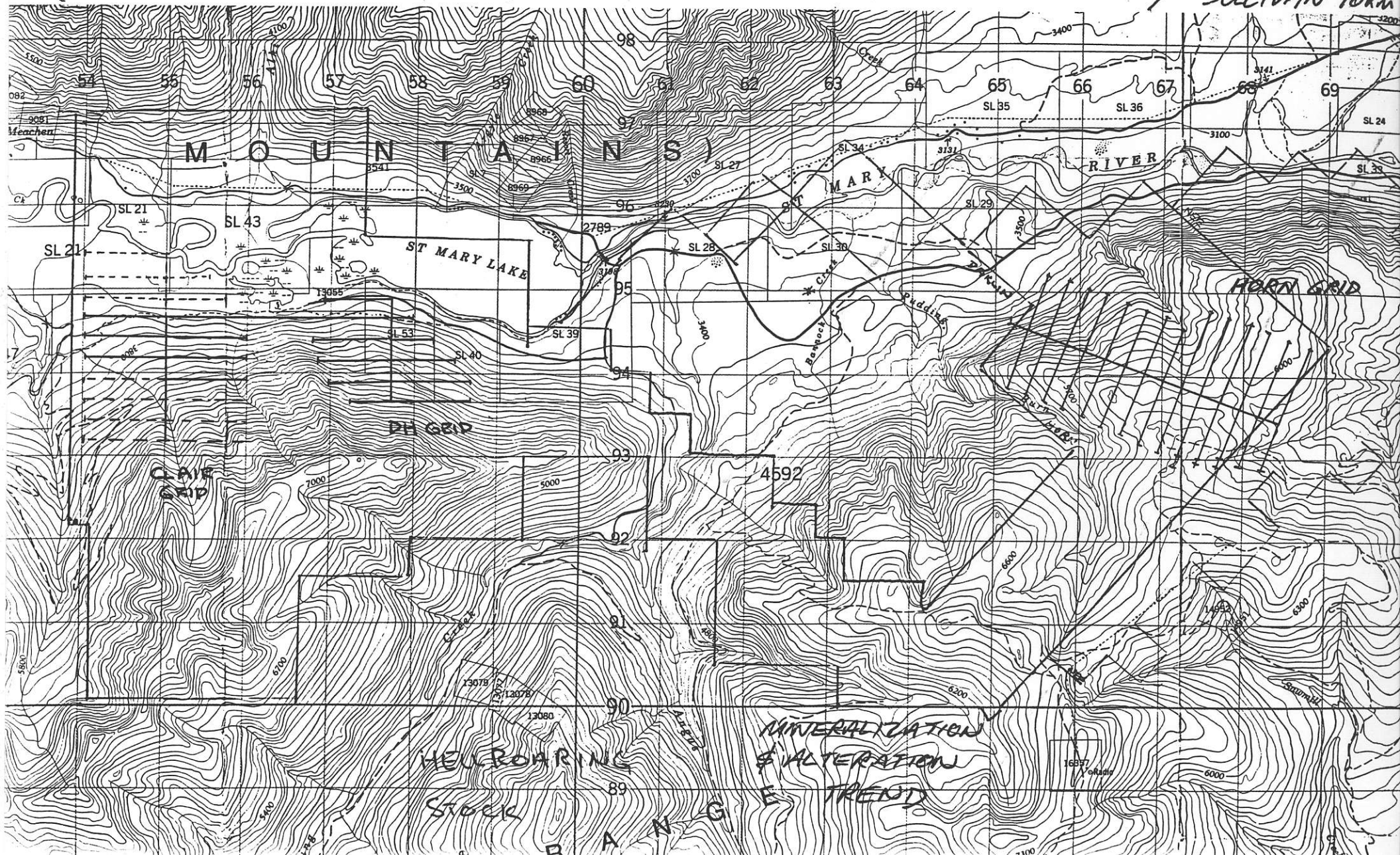
Reno, Thunder Bay, Noranda and Chapais buy your champagne now!!

**Table 1. Proposed 1992 Drilling – Horn Property**

Hole	Location	Collar Azim.	Collar Dip	Length	Cost*	Target
<del>P1</del> H-1	Horn Grid 84+10W; 1+30S	050	-60	<del>250 m</del> 273.4	\$16,250	P1 will test coincident Pb, Zn, Ag soil and rock anomaly with VLF and Mag anomaly
P2	99+60W; 2+60S	050	-65	300 m	\$19,500	P2 will test the Darlin Zinc Exhalite horizon 300 m east and 250 m downdip (D-91-2: 0.7% Zn/.3 m)
<del>P3</del> H-3	87+35W; 6+20S	050	-65	<del>300 m</del> 312.7	\$19,500	P3 will test a VLF anomaly located at the base of the "B" sill. This anomaly occurs at the postulated Sullivan Time horizon. P3 may be extended to 500 m to test P1 horizon at 700 m contingent on results of P1.
<del>P4</del> H-2	81+30W; 1+65S	050	-60	<del>250 m</del>	\$16,250	P4 will test the P1 horizon 250 m east. P4 is contingent on results of P1.
P5	97+50W; 2+10N	050	-60	200 m	\$13,000	P5 will test a coincident VLF–Mag anomaly east on strike of mineralized rock prospected near the property boundary.
P6	70+60W; 7+00N	050	-60	150 m	\$9,750	P6 will test a broad magnetic anomaly with a weak VLF conductor axis. Albitite float occurs in an area of poor exposure.
P7	93+90W; 4+90S	050	-70	750 m	\$48,750	P7 will test the entire Horn package including the Zn + Pb soil anomaly 600 m east and 600 m west of P3 and P1/P2.
P8	Clair Grid	082	-50	200 m	\$13,000	P8 will test a Pulse EM anomaly coincident with the Clair fragmental
<b>Total</b>				<b>2400 m</b>	<b>\$156,000</b>	

\* based on direct drilling + Minnova costs of \$65/m

↑ SULLIVAN 10KM



MOUNTAINERS

ST MARY LAKE

MARY RIVER

CLIFF GRID

DE GRID

HORN GRID

HEUL ROARING  
STOCK

MINERALIZATION  
& ALTERATION  
TRENDS

B A N G E

NE



Soil, Rock  
+ Pb, + Zn  
MAG  
VLF

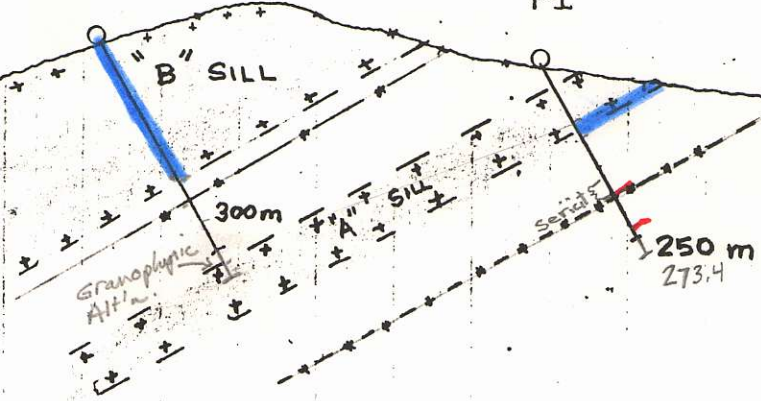
Soil  
+ Sn

SULLIVAN  
TIME  
VLF

H-92-3  
P3 -60°

P1

FIDDING  
CK.



MUNUVA/KOKANE  
FORAUE / BARKOR/CHALENU

HORN PROJECT

1:10000

C.B 07/92

NW

SE

MINNOVA / KOKANEE  
KOKANEE / CHAPLEBQ / BARKHOR

SOIL

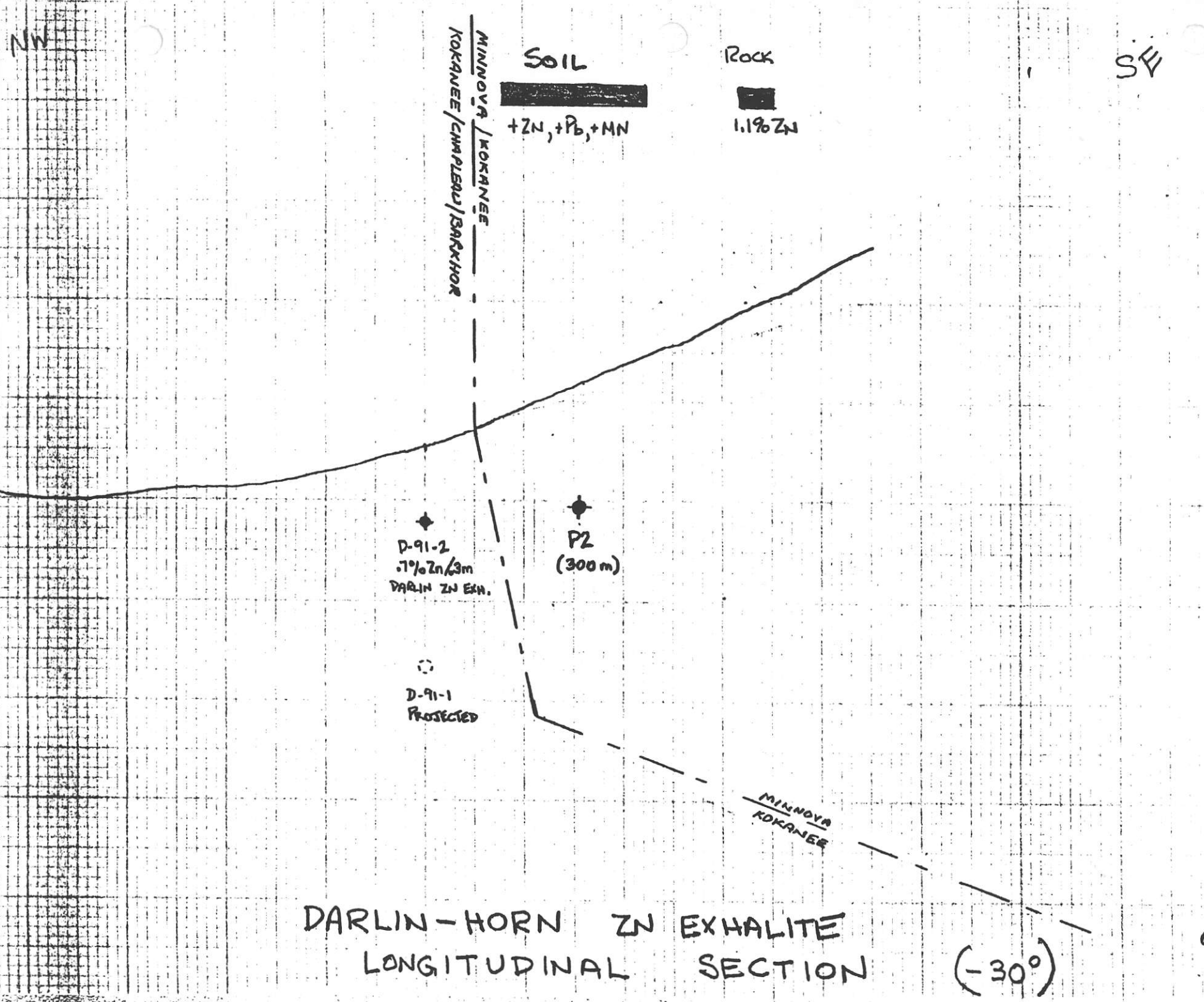
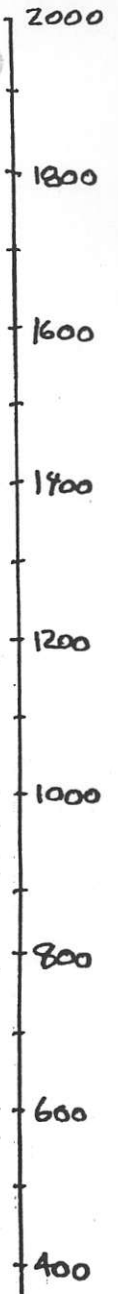


+Zn, +Pb, +MN

ROCK



1.1% Zn



D-91-2  
0.7% Zn / 3m  
DARLIN ZN EXH.

P2  
(300 m)

D-91-1  
PROJECTED

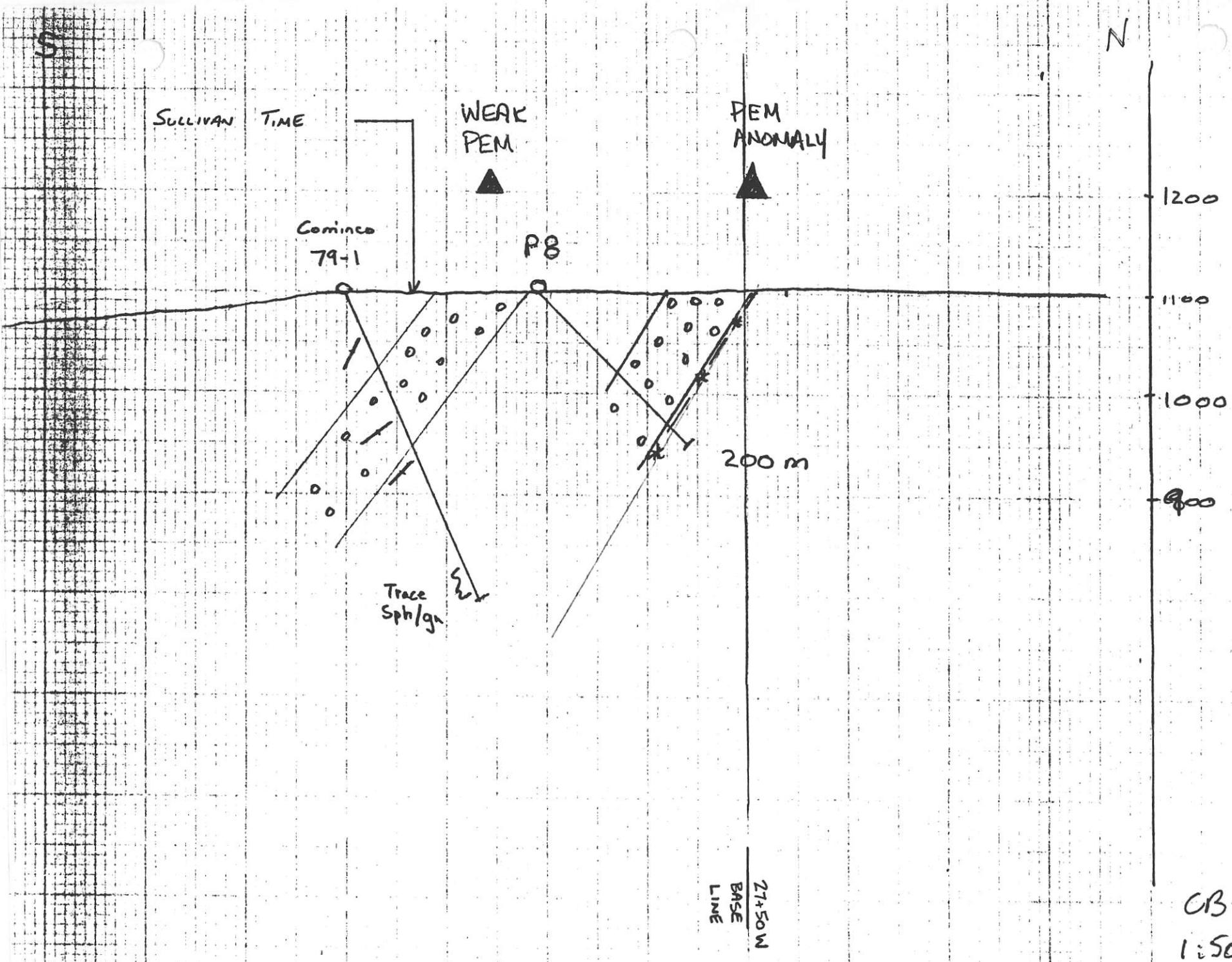
MINNOVA  
KOKANEE

DARLIN-HORN ZN EXHALITE  
LONGITUDINAL SECTION

(-30°)

CB 7/92  
1:10,000





CLAIR FRAGMENTAL

CB 7/92  
 1:5000  
 HORN PROJECT

SW

NE

SOIL  
+Pb +Zn  
[Symbol]

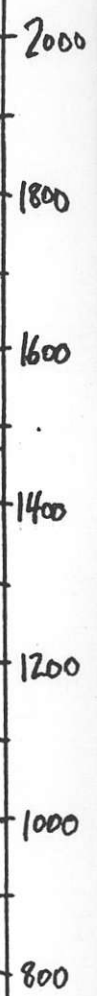
Rock 1.1% ZN  
PROJECTED 150M EAST

PZ

B SILL

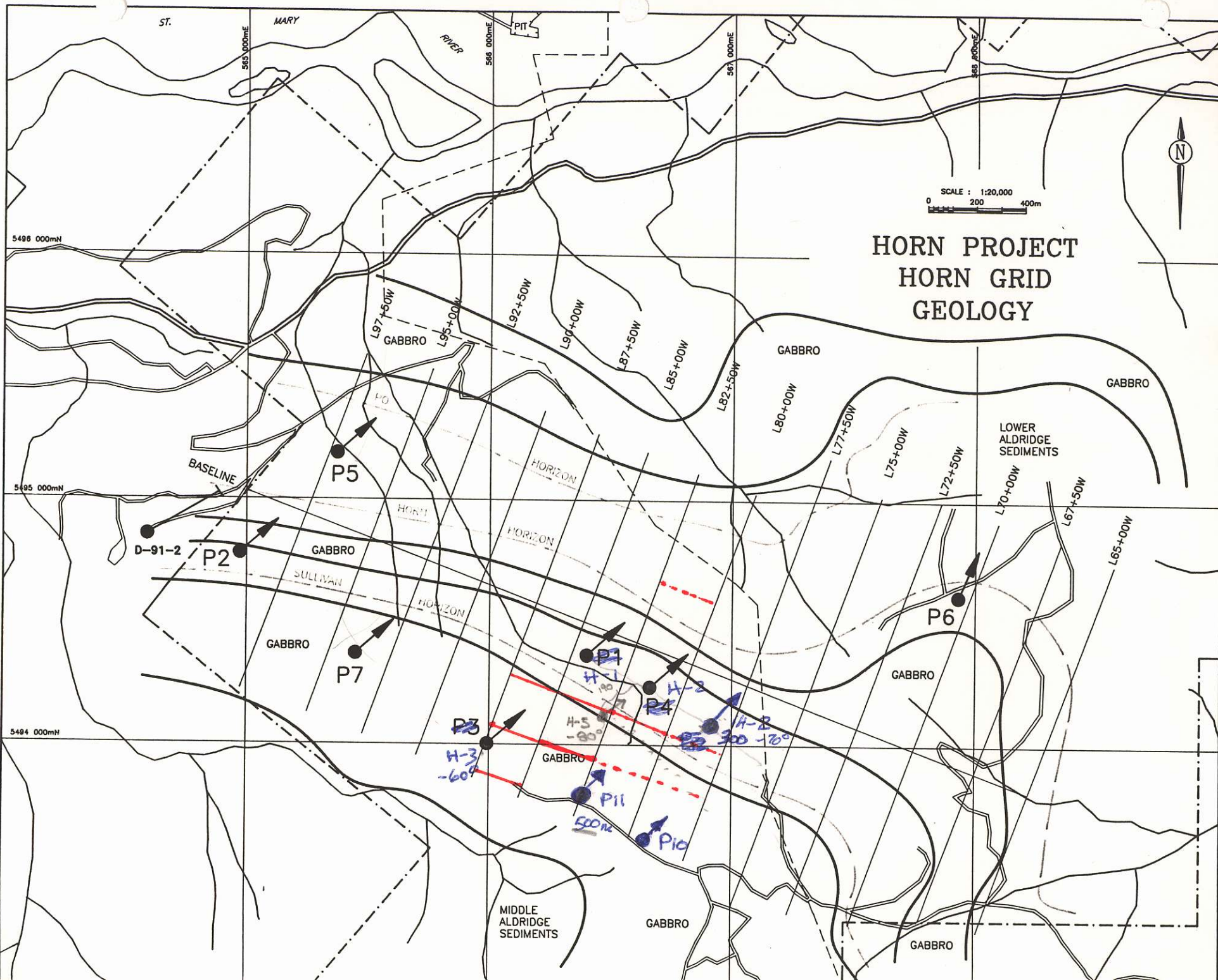
750m

MINNOVA  
KOKANEB



HORN PROJECT

1:10,000  
CB 07/97



# HORN PROJECT HORN GRID GEOLOGY

SCALE : 1:20,000  
0 200 400m



ST.

MARY

RIVER

PIT

GABBRO

GABBRO

GABBRO

LOWER  
ALDRIDGE  
SEDIMENTS

BASELINE

P5

HORIZON

HORIZON

HORIZON

GABBRO

GABBRO

P7

GABBRO

P6

GABBRO

MIDDLE  
ALDRIDGE  
SEDIMENTS

GABBRO

GABBRO

5496 000mN

5495 000mN

5494 000mN

565 000mE

566 000mE

567 000mE

568 000mE

L97+50W

L95+00W

L92+50W

L90+00W

L87+50W

L85+00W

L82+50W

L80+00W

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L75+00W

L72+50W

L70+00W

L67+50W

L65+00W

D-91-2

P2

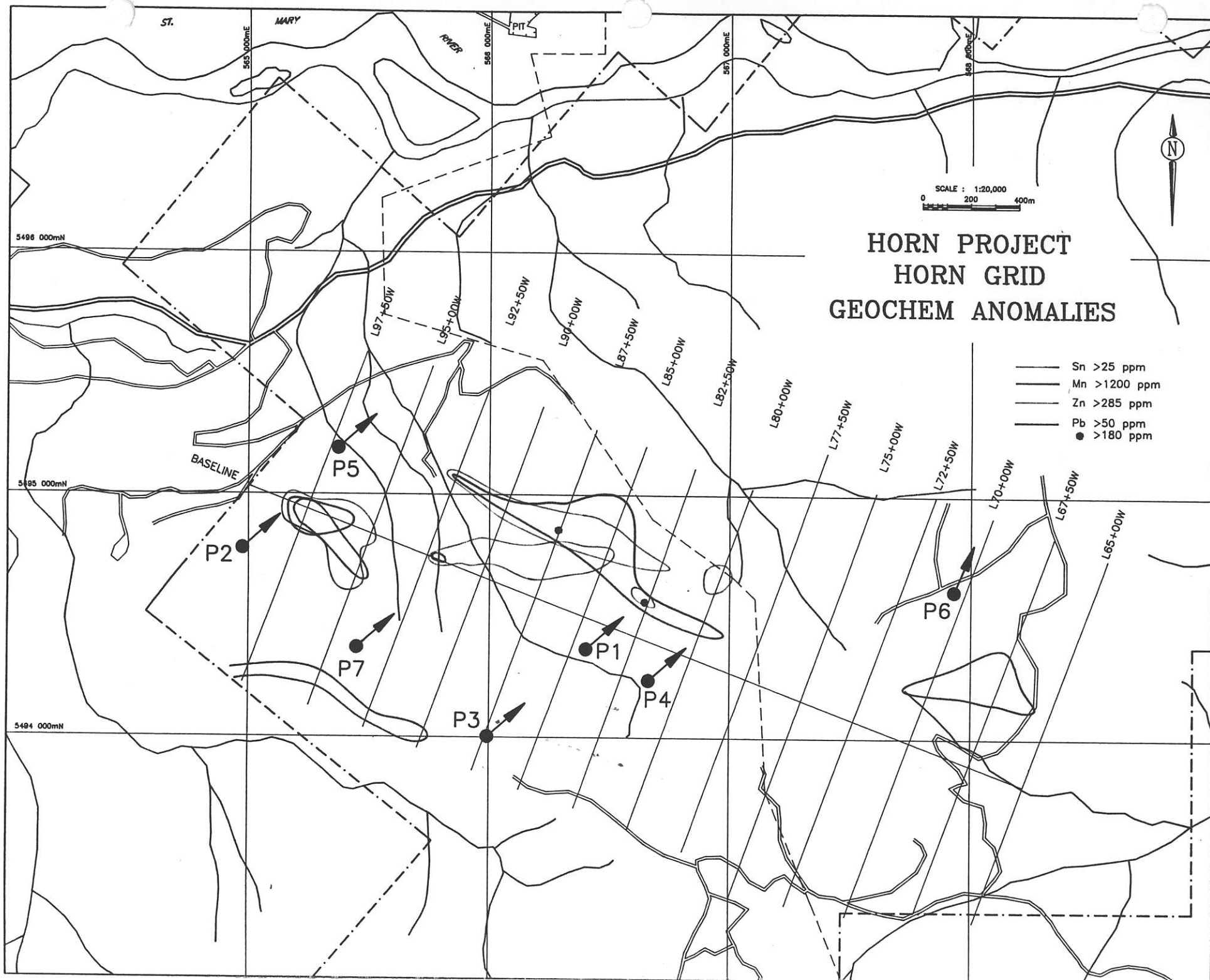
P1

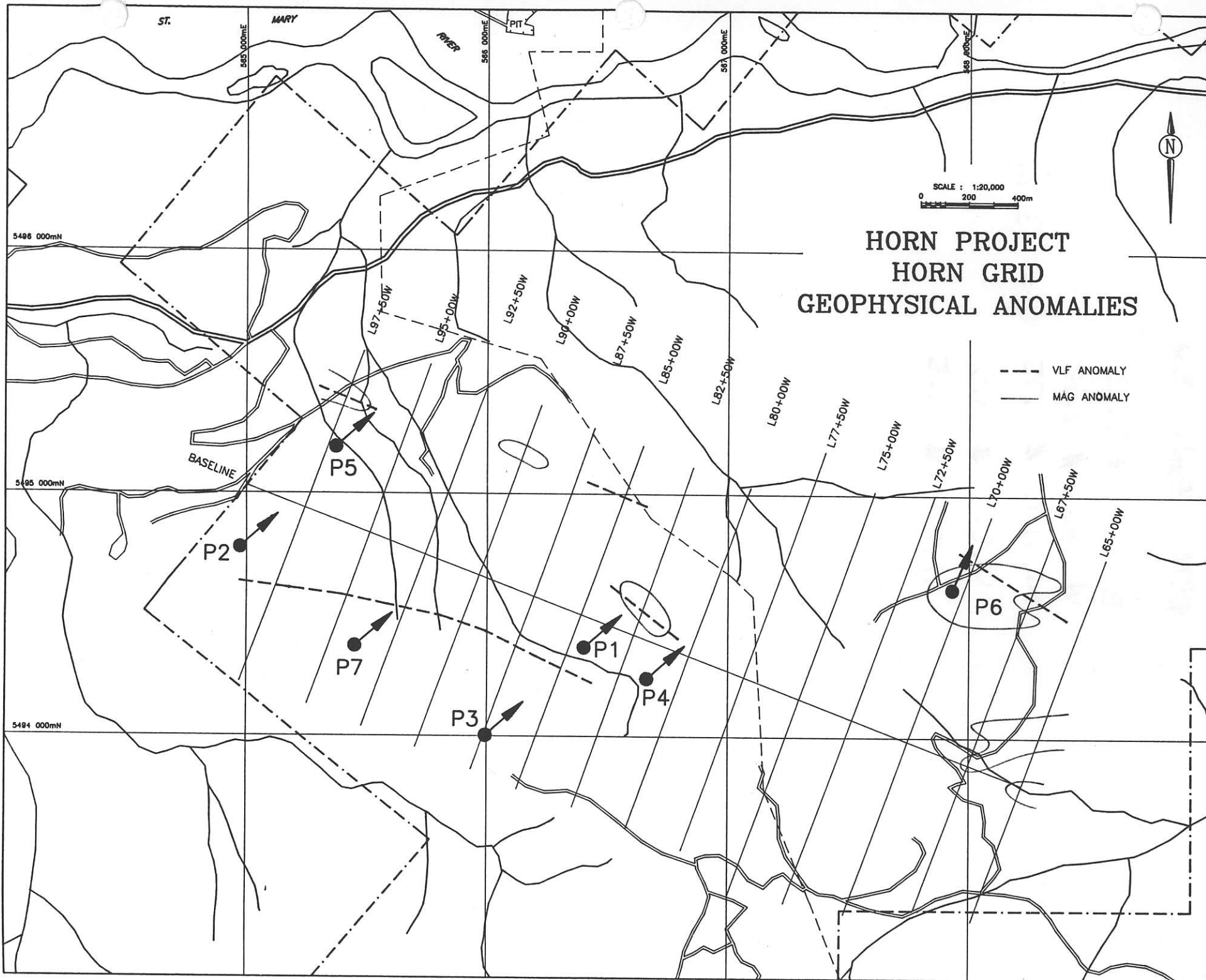
P4

P3

P11

P10





1993

\$9M Expl'n Bud

E. Can # 3.25

W. Can # 2.05

N. W. T. # .75

U.S. # 1.2

INT # 1.5

ГЕОФИЗИКАЛЬНИЙ ЦЕНТРАЛЬНИЙ

НОВИ СКА

НОВИ БІОТЕКСТ

(not I, Z)

1:50,000

