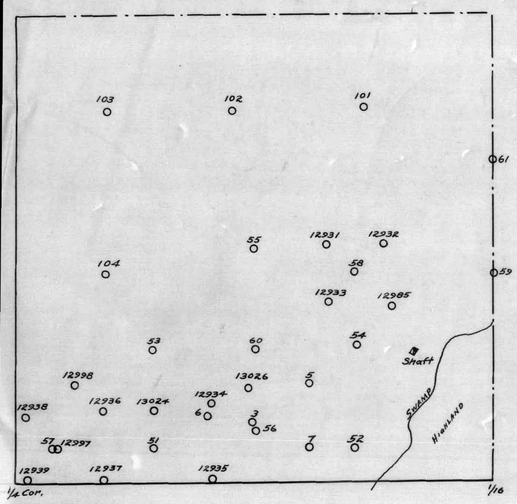
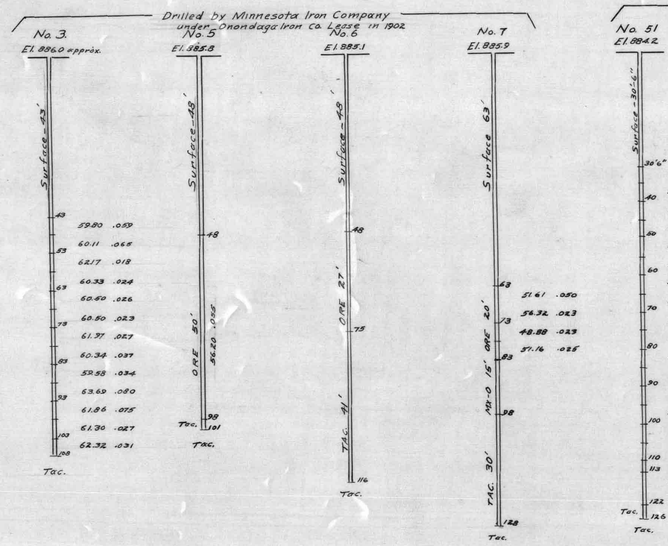
O. I. M. CO.
SE-NW
O. I. M. CO.
SW-NE
O. I. M. CO.
SE-NE
BROADWAY
SW-NW
SE-NW
MESABA
ADAMS
ST.
WOODWARD
CENTRAL
EUCLID
DOUGLAS
ST.
20
T59N R14W
T59
GRANT
NW-SW
O. I. M. CO.
NE-SW
O. I. M. CO.
NW-SE
O. I. M. CO.
NE-SE
GRAHAM
STRIPPING
DUMP
D. M. & I. R. RY.
GRAHAM
NE-SW
L.O. DUMP
SHAFT
NO. 1
OPEN
NO. 2
OPEN PIT
GRAHAM
SW-SW
NO. 2 SHAFT
WENTWORTH NO. 1 RE
(SE-SW
O. I. M. CO.
SE-SW
VIVIAN
SW-SE
SHAFT
STATE
SE-SE
MAYAS
LOADING
MINE
RAMP
N. P.
NE-NW
M. H. ALWORTH ET. AL.
NW-NE
M. H. ALWORTH ET. AL.
NE-NE
STATE
NW-NW
STATE
NE-NW



Note: Where no Mn. determinations are shown, the Mn. is below 1%
See letter from Chester A. Congdon, Pres't of Chemung Iron Co.

Copy from Longyear's Blue print of Dec. 11, 1902
Duluth, Minn, Jan 1, 1904
Oliver Iron Mining Co. and Minn. Iron Co.
Mining Engineering Department.

Drilled by Minnesota Iron Company under Onondaga Iron Co. Lease in 1902



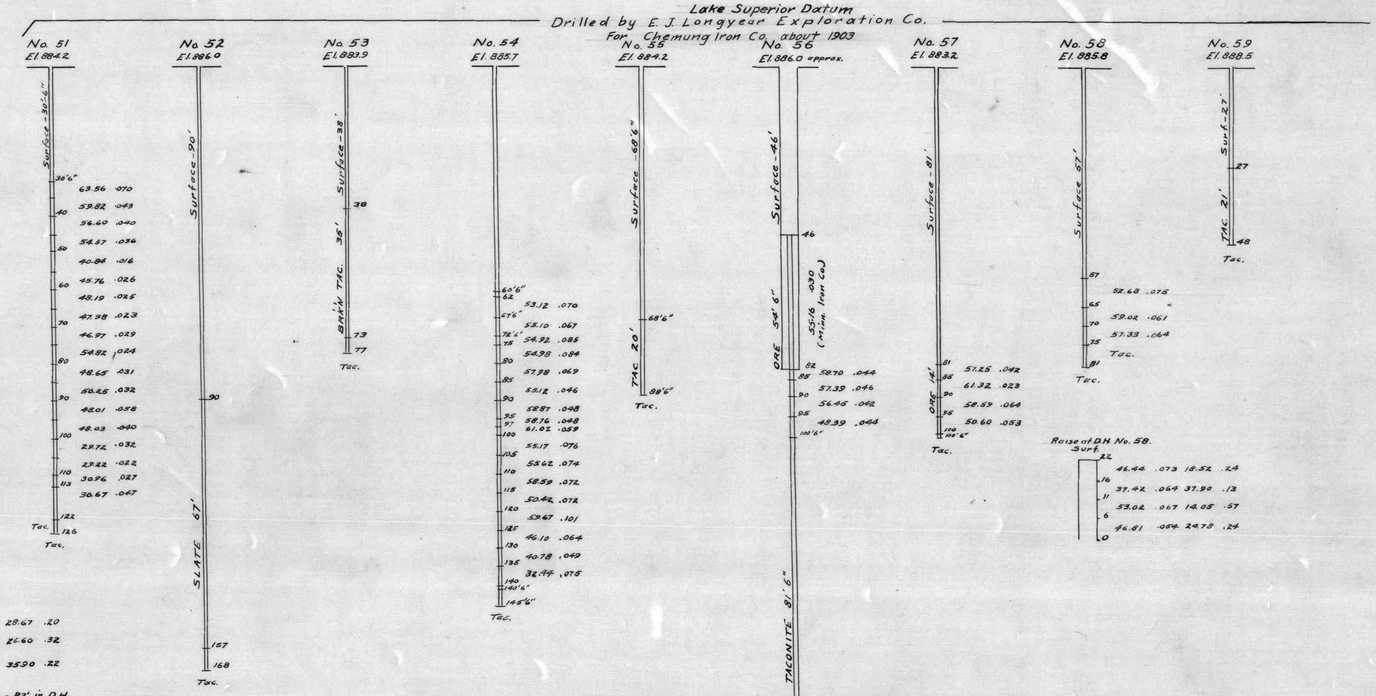
Raise at D.H. No. 7

Surf.				
18				
13	44.12	.045	28.67	.20
8	45.77	.039	26.60	.32
	39.53	.071	35.90	.22

Elev. = 983 = 82' in D.H.

Lake Superior Datum

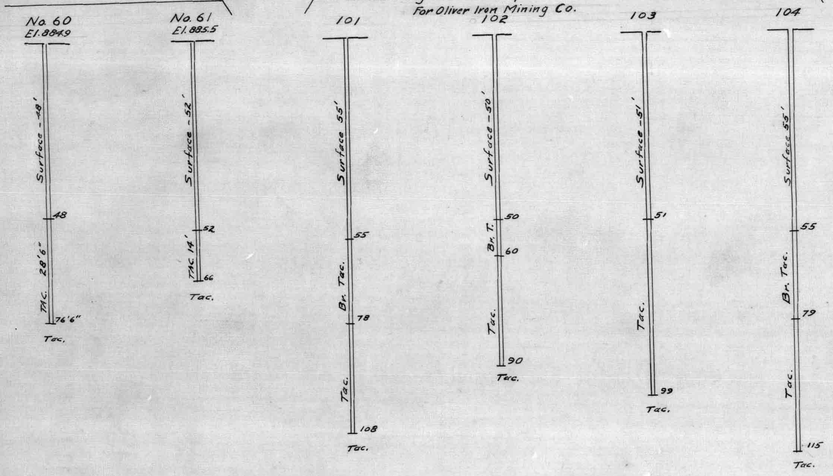
Drilled by E. J. Longyear Exploration Co. For Chemung Iron Co. about 1903



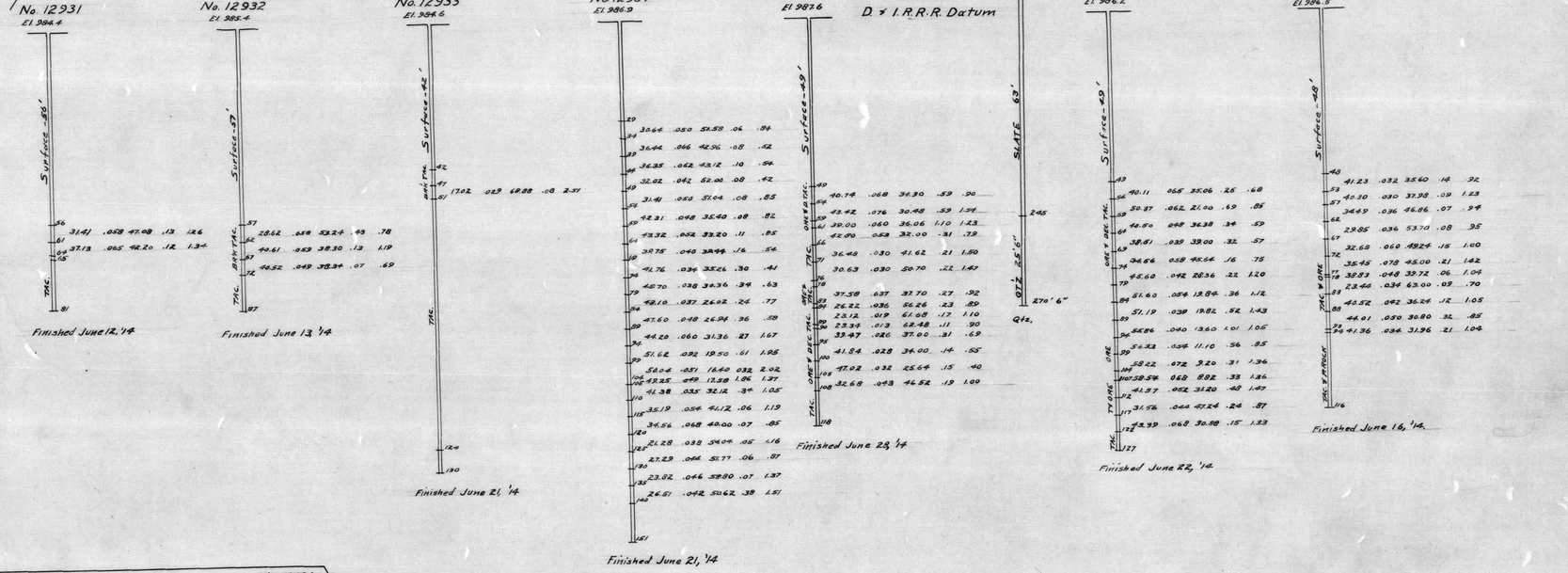
Raise at D.H. No. 58.

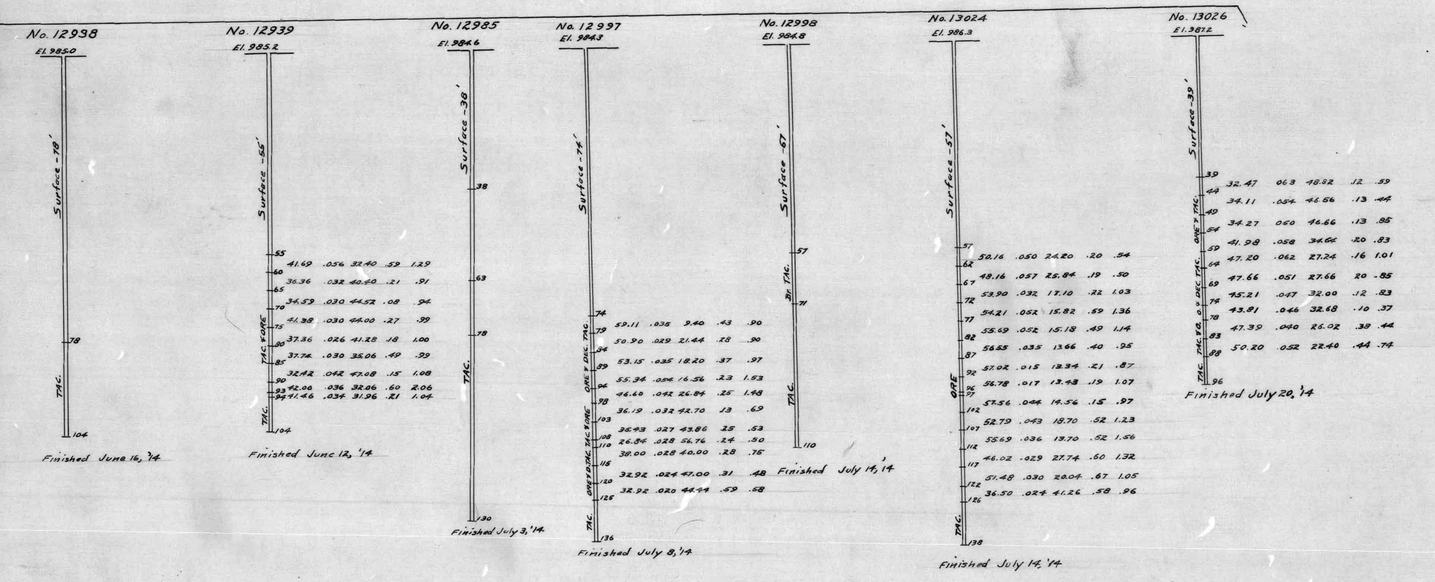
Surf.				
22				
16	46.44	.073	18.52	.24
11	37.42	.064	37.90	.13
6	53.02	.067	14.05	.57
0	46.81	.054	24.70	.24

Drilled by Reien Exploration Co. May 1- 1913 For Oliver Iron Mining Co.



Drilled by O. I. M. Co. in 1914 D & I. R. R. R. Datum





Copied April 22, 1915

EXPLORATION
ON THE
SW 1/4 of SE 1/4 SEC. 20, 59-14.
ST LOUIS CO., MINN.
HORIZ. SCALE 1"=200' VERT. SCALE 1"=20'
April 8, 1915.
[redacted]

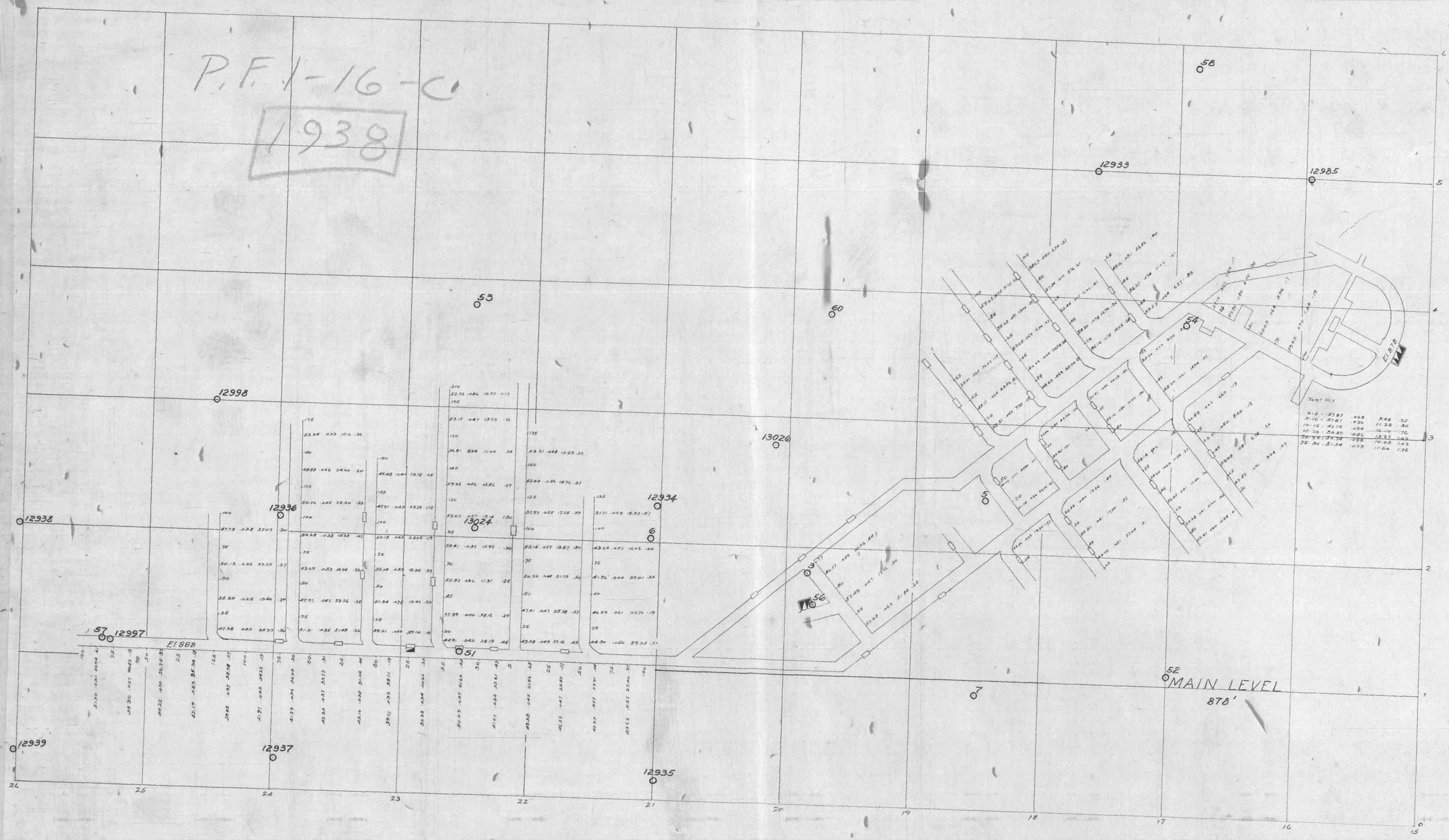
VIVIAN

COPIED JULY 20, 1943
EVERGREEN MINES CO.

CROSBY MINN.

P.F. 1-16-C

1938



29
B'

OLIVER IRON MINING CO

MAP OF

VIVIAN MINE

MAIN LEVEL

P.F. 1-16-C

LEGEND

FT LEVEL — 878

ROCK — SHAFT — SLICING

SCALE

ROCK IN BOTTOM

ROCK IN SIDES

ELEV. OF COLLAR 9933

D. & I. R. RR DATUM.

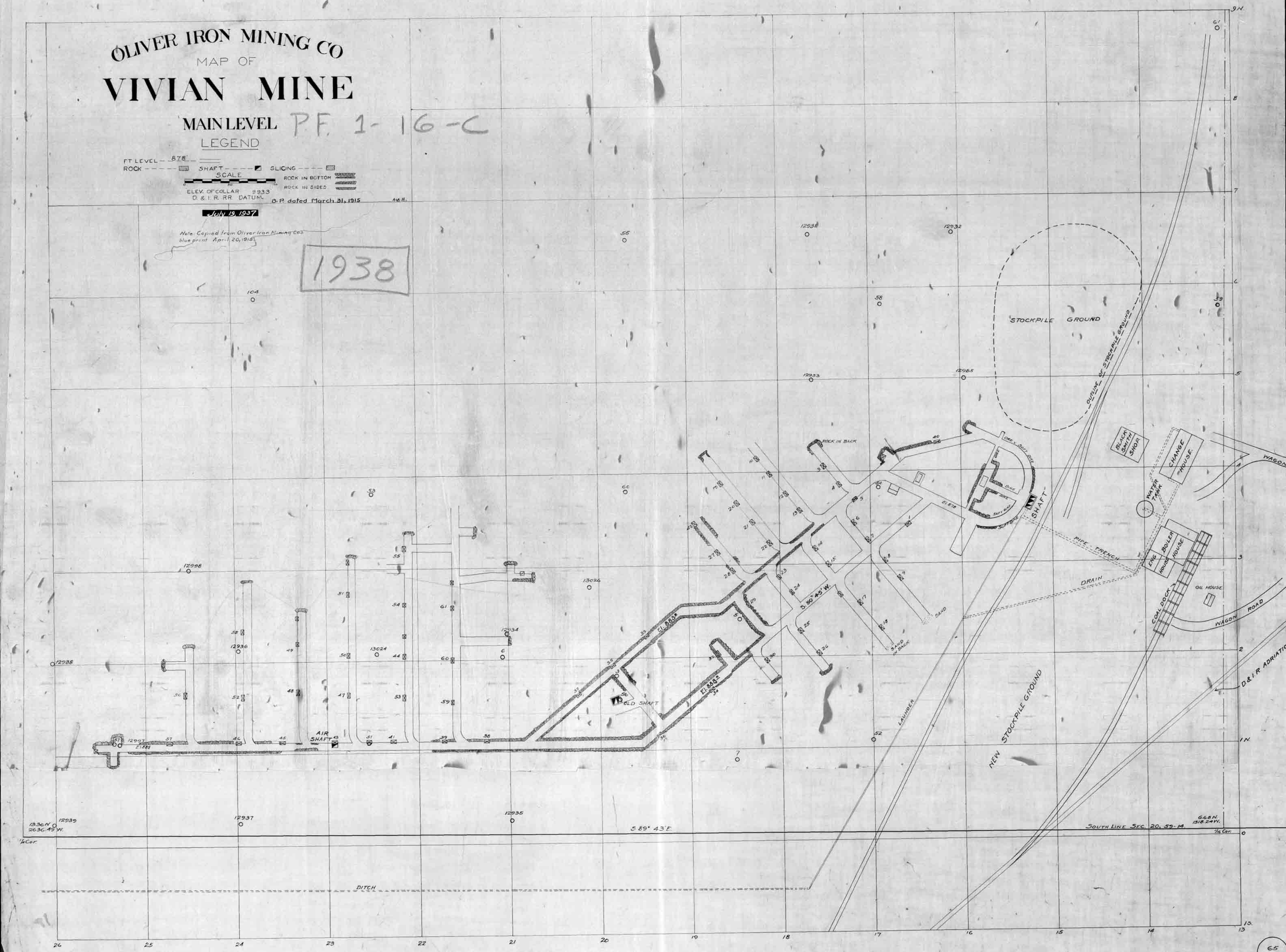
O.P. dated March 31, 1915

M.H.

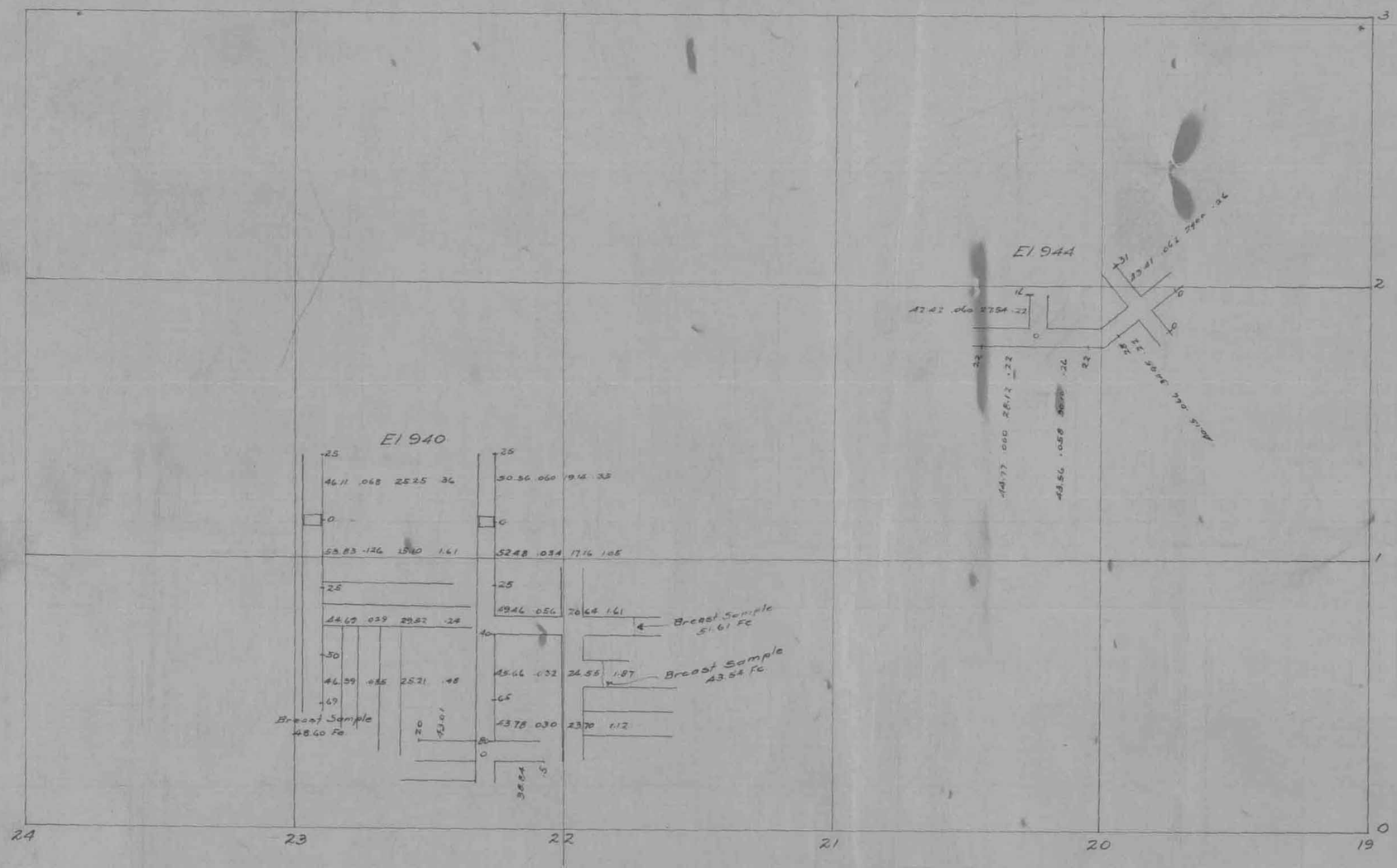
JUN 19, 1937

Note: Copied from Oliver Iron Mining Co's blue print April 20, 1915.

1938

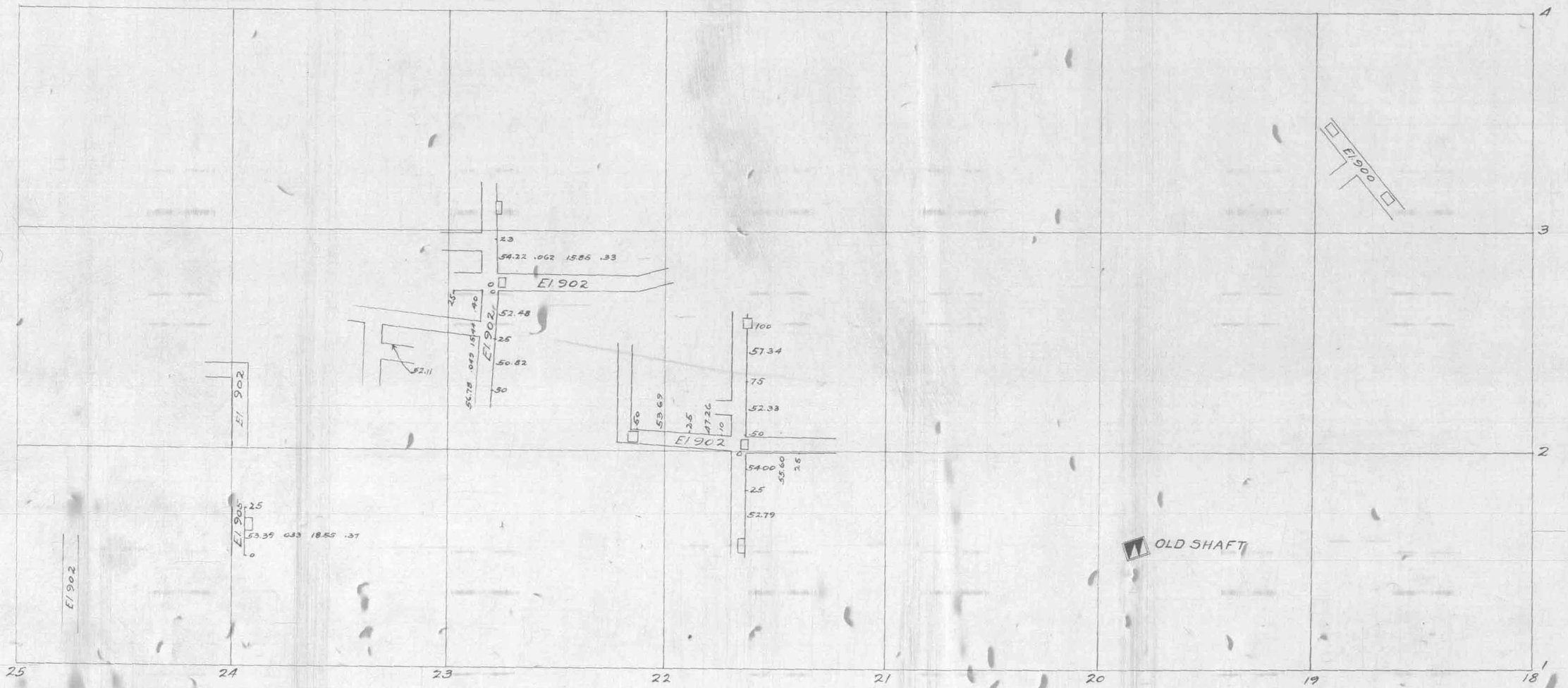


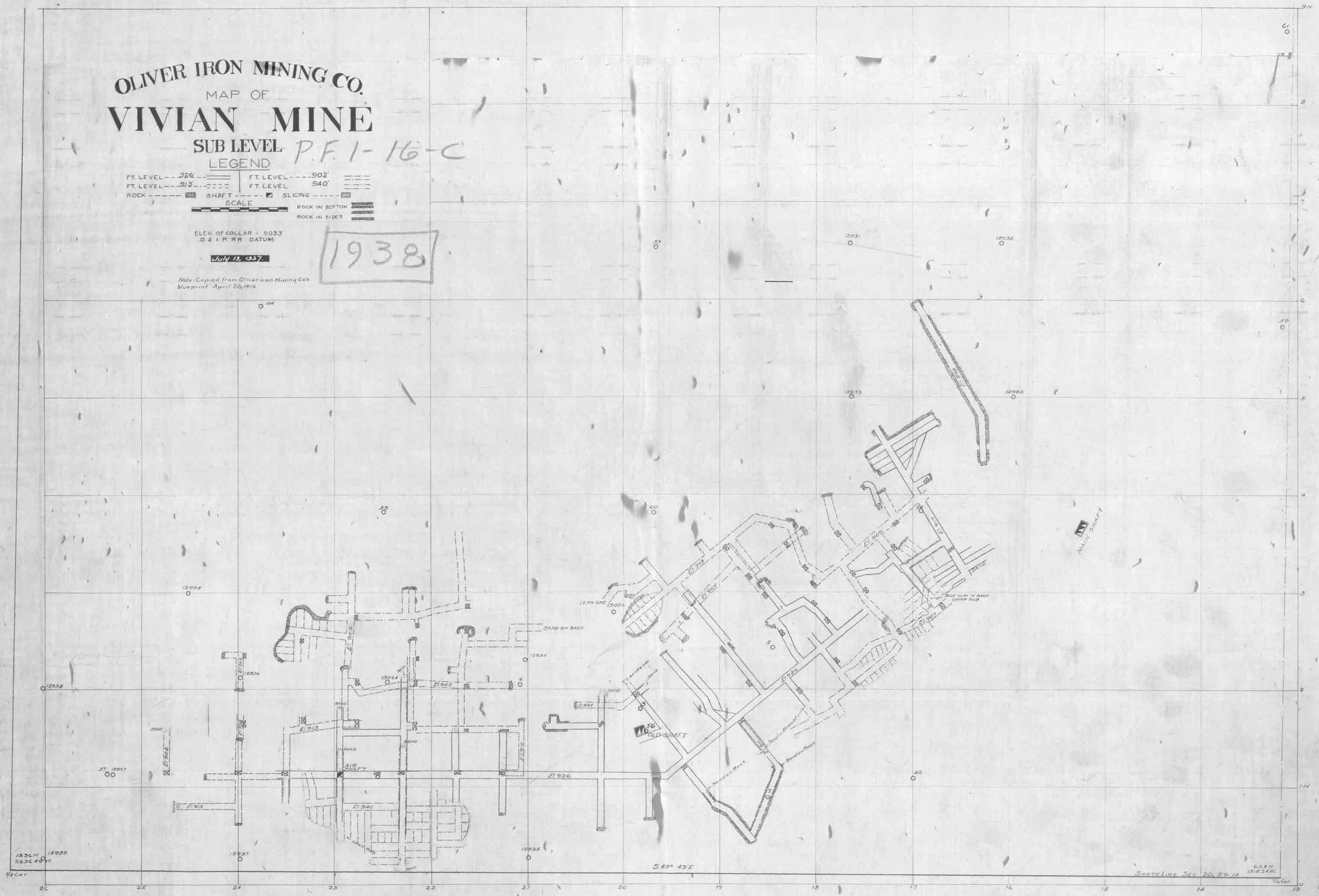
65
A²


El 940
El 944
Breast Sample
48.60 Fe
Breast Sample
51.61 Fe
Breast Sample
43.54 Fe
24
23
22
21
20
19
3
2
1
0

P.F. 1-16-C 1938

P.F. 1-16-C 1938

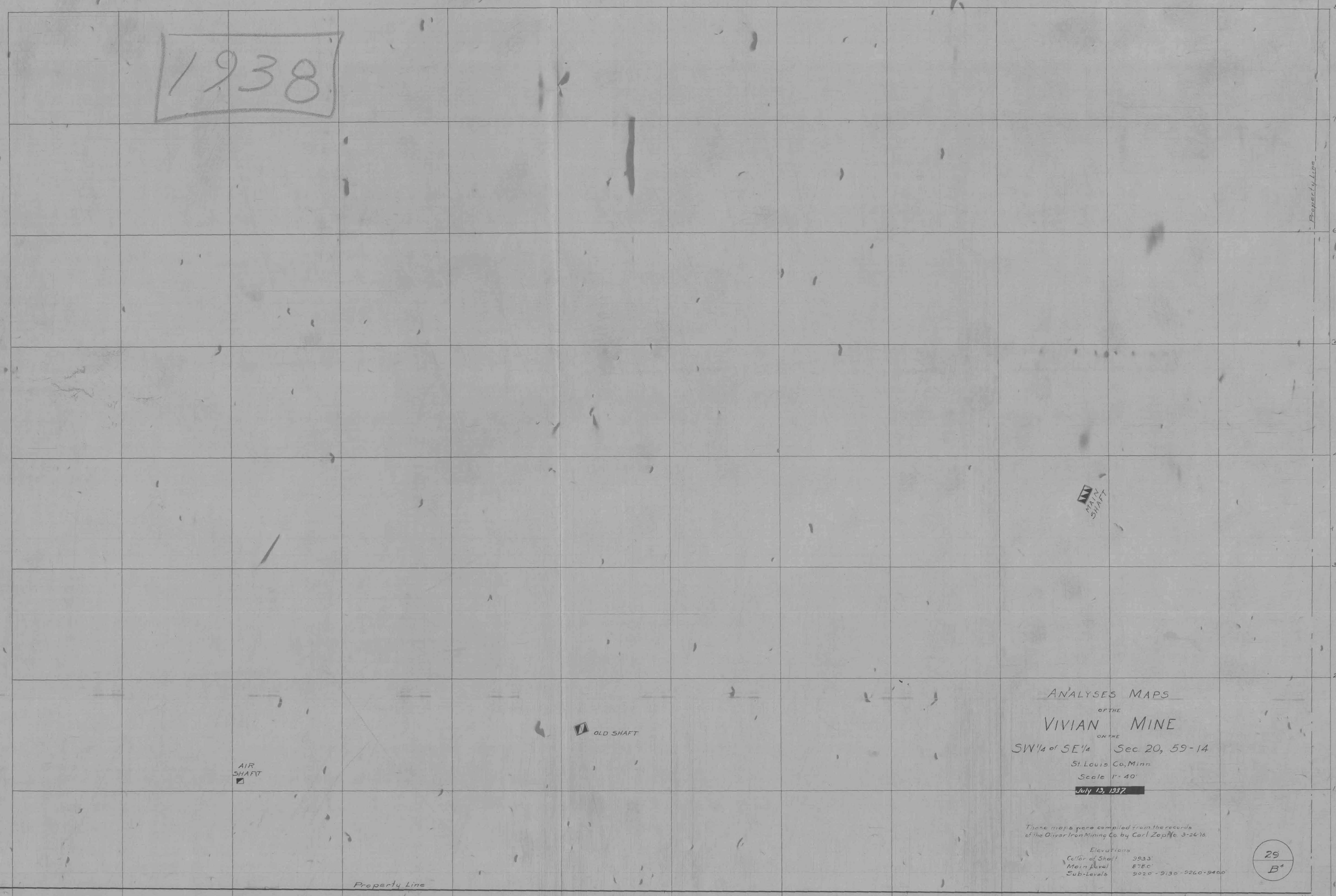

E1900
23
54.22 .062 15.86 .33
E1902
25
.40
52.48
E1902
25
50.82
50
56.78 .049 15.44
52.11
E1902
E1902
100
57.34
75
52.33
50
50
53.69
2.5
47.26
10
E1902
54.00
55.60
2.5
25
52.79
E1902
25
53.39 .033 18.55 .37
E1902
OLD SHAFT
4
3
2
1
25
24
23
22
21
20
19
18


OLIVER IRON MINING CO.
MAP OF
VIVIAN MINE
SUB LEVEL
P.F. 1-16-C
LEGEND
FT. LEVEL 926
FT. LEVEL 913
FT. LEVEL 902
FT. LEVEL 940
ROCK
SHAFT
SLICING
SCALE
ROCK IN BOTTOM
ROCK IN SIDES
ELEV. OF COLLAR - 9933
D & I R.R. DATUM.
July 13, 1937.
1938
Note-Copied from Oliver Iron Mining Co's blueprint April 26, 1915.
El 926
El 913
El 902
El 940
AIR SHAFT
OLD SHAFT
MAIN SHAFT
LEAN ORE
SAND ON BACK
BLUE CLAY IN BACK UPPER SUB
S 89° 43' E
SOUTH LINE SEC 20, 39-14
1/4 Cor.
1/16 Cor.

Sheet 1.

P.F. 1-16-C

1938



ANALYSES MAPS
OF THE
VIVIAN MINE
ON THE
SW 1/4 of SE 1/4 Sec 20, 59-14
St. Louis Co, Minn.
Scale 1" = 40'
July 13, 1937.

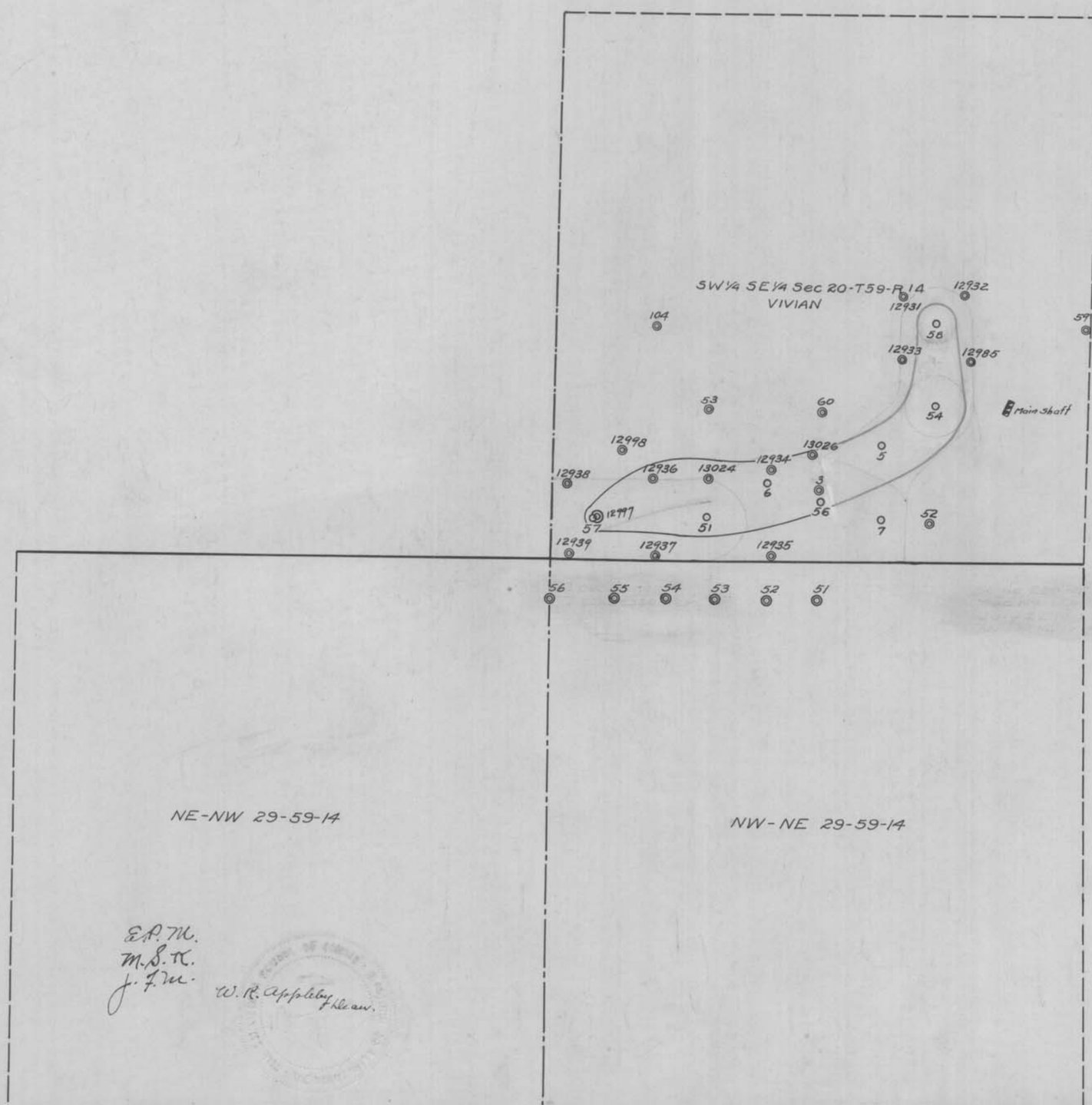
These maps were compiled from the records of the Oliver Iron Mining Co. by Carl Zapffe 3-26-16.

Elevations

Collar of Shaft	9933'
Main Level	878.0'
Sub-Levels	902.0' - 913.0' - 926.0 - 940.0'

29
B'

236
1016



E.P.M.
M.S.K.
J.F.M.
W.R. Appleby Atty.

Scale 1" = 200'
Map No. 164
July 22-1911
Revised Nov. 29-1915
Revised Mar. 22-1927
Revised Oct. 8-1938

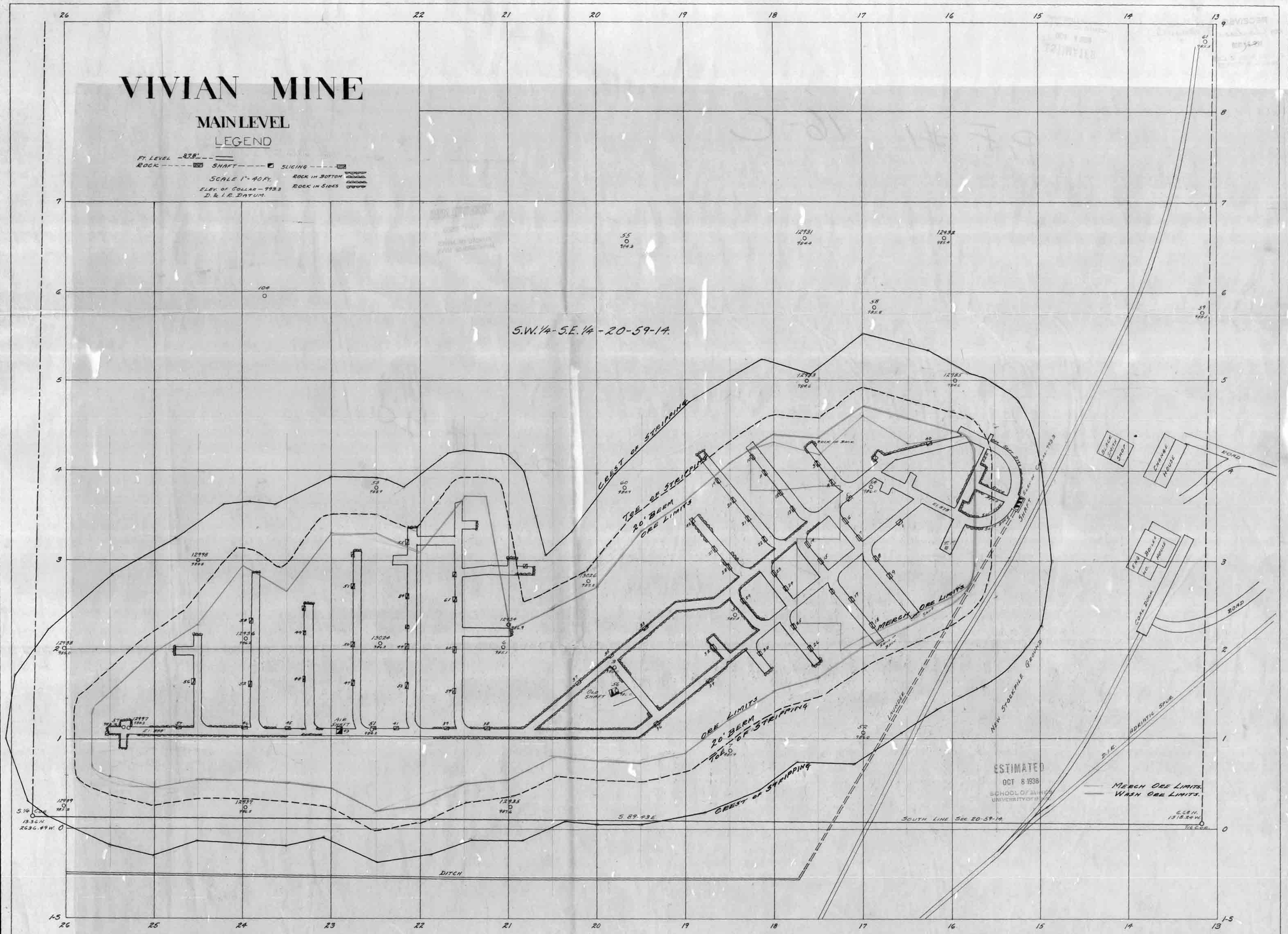
VIVIAN MINE

MAIN LEVEL

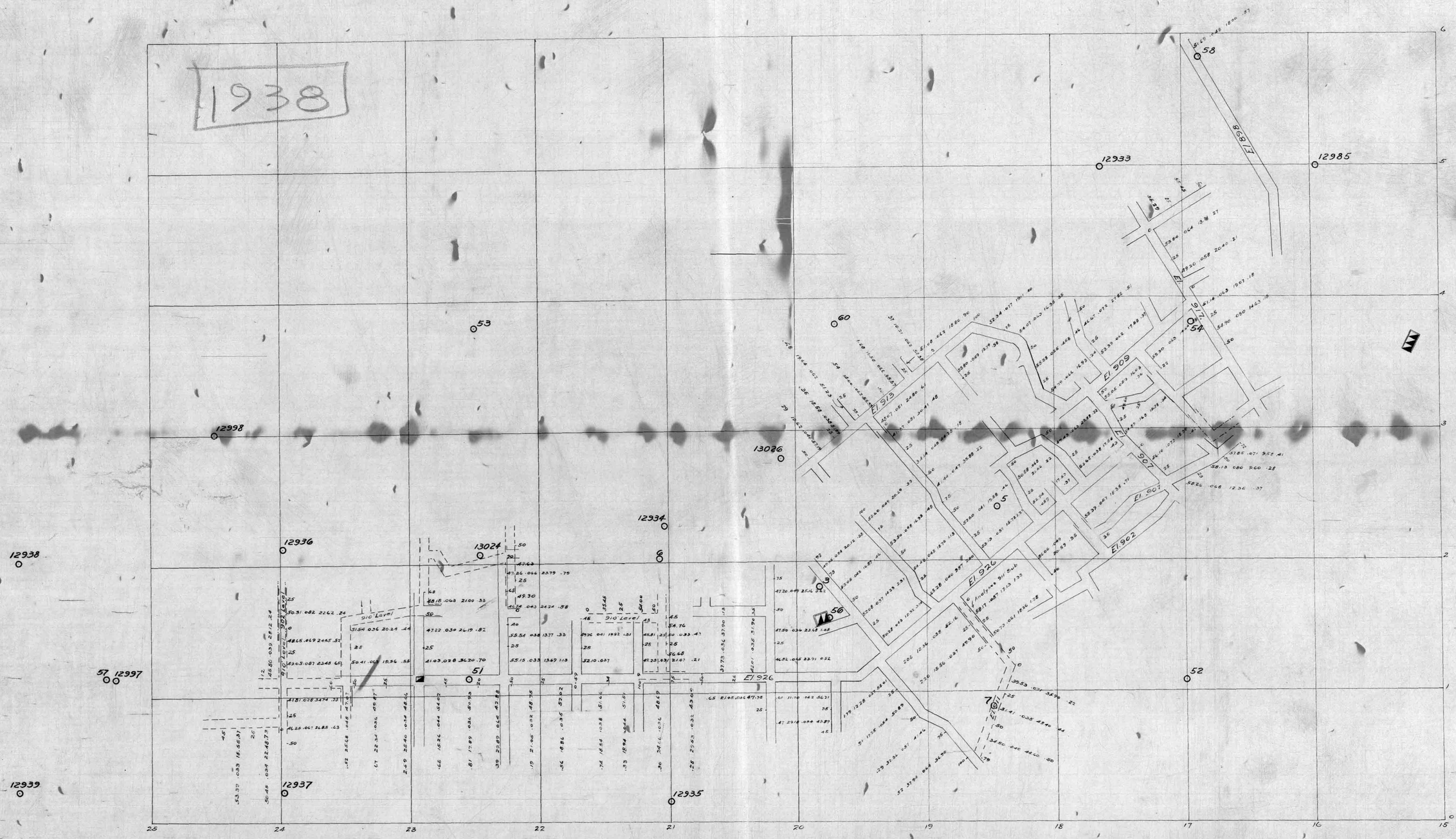
LEGEND

FT. LEVEL -878'-
ROCK
SHAFT
SLICING
ROCK IN BOTTOM
ROCK IN SIDES

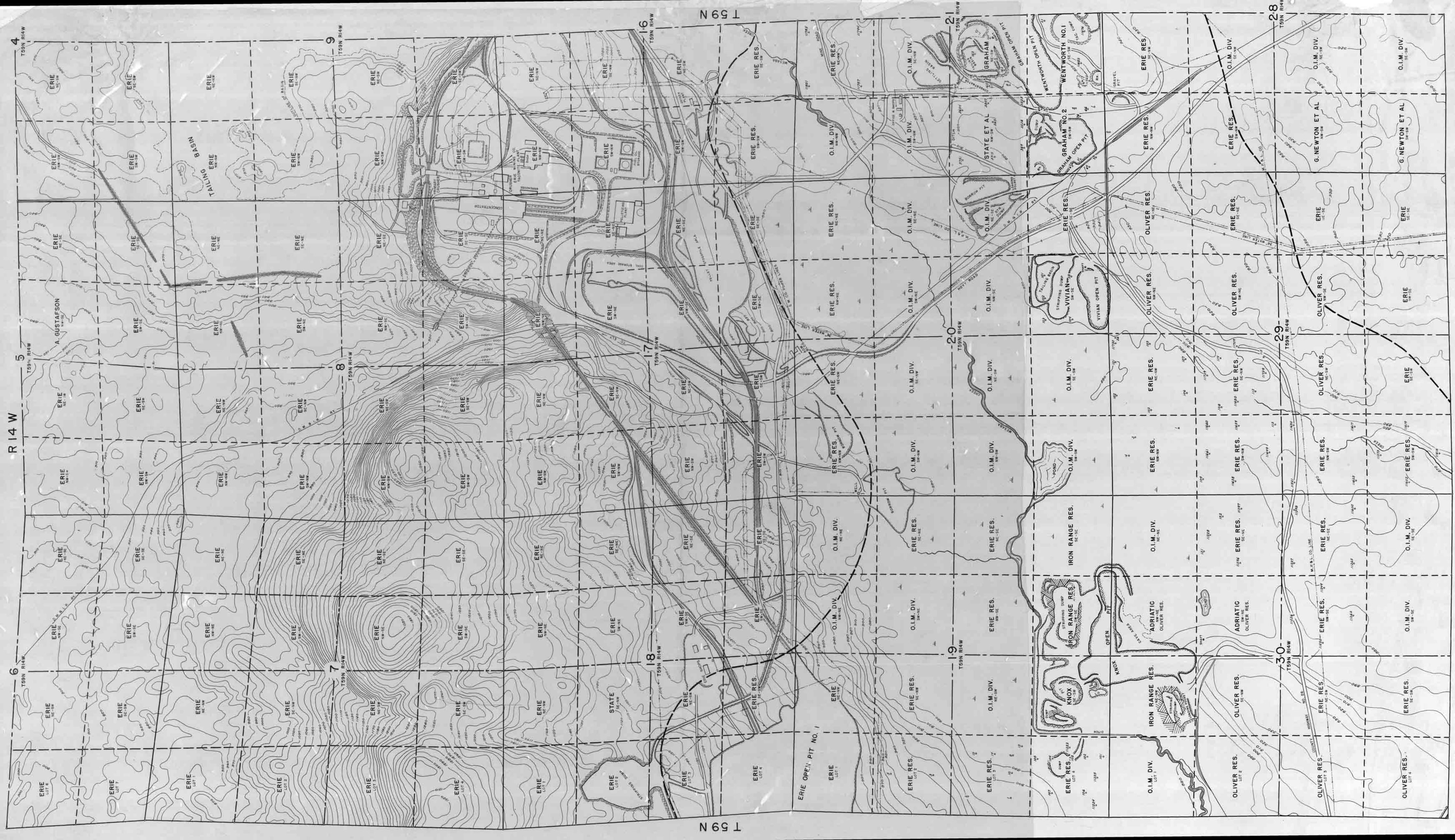
SCALE 1" = 40 FT.
ELEV. OF COLLAR — 993.3
D. & I. R. DATUM.



ESTIMATED
OCT 8 1938
SCHOOL OF MINES
UNIVERSITY OF MINN.



902' Sub-Level
913' Sub-Level
926' Sub-Level


R 14 W
T59N
T59N R14W
TAILING BASIN
CONCENTRATION
ERIE
ERIE RES.
O.I.M. DIV.
STATE ET AL
GRAHAM
GRAHAM OPEN PIT
WENTWORTH NO. 1
WENTWORTH OPEN PIT
VIVIAN
VIVIAN OPEN PIT
OLIVER RES.
G. NEWTON ET AL
IRON RANGE RES.
KNOX
KNOX OPEN PIT
ADRIATIC
ERIE OPEN PIT NO. 1
A. GUSTAFSON
POND
1
4
5
6
7
8
9
16
17
18
19
20
21
28
29
30