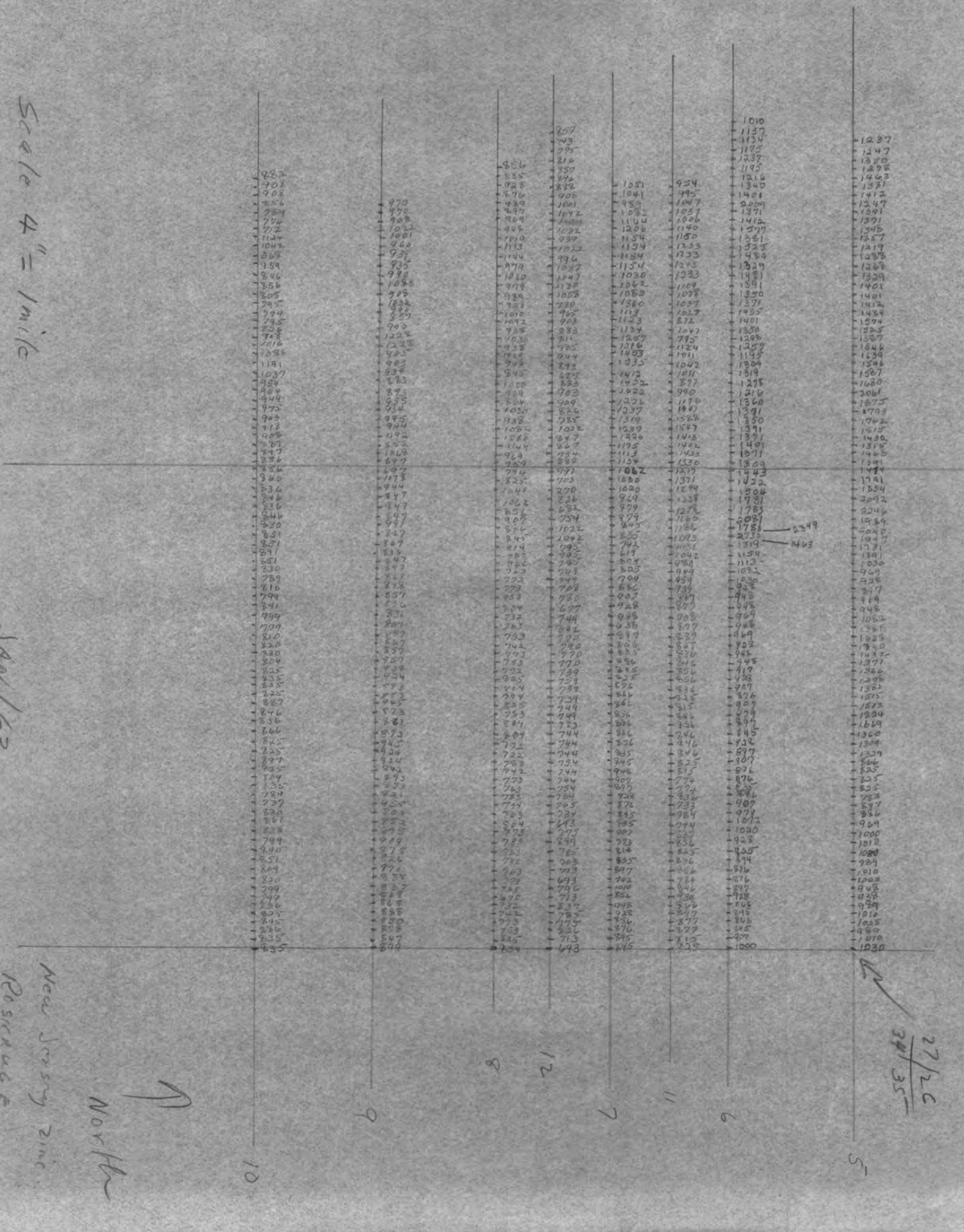
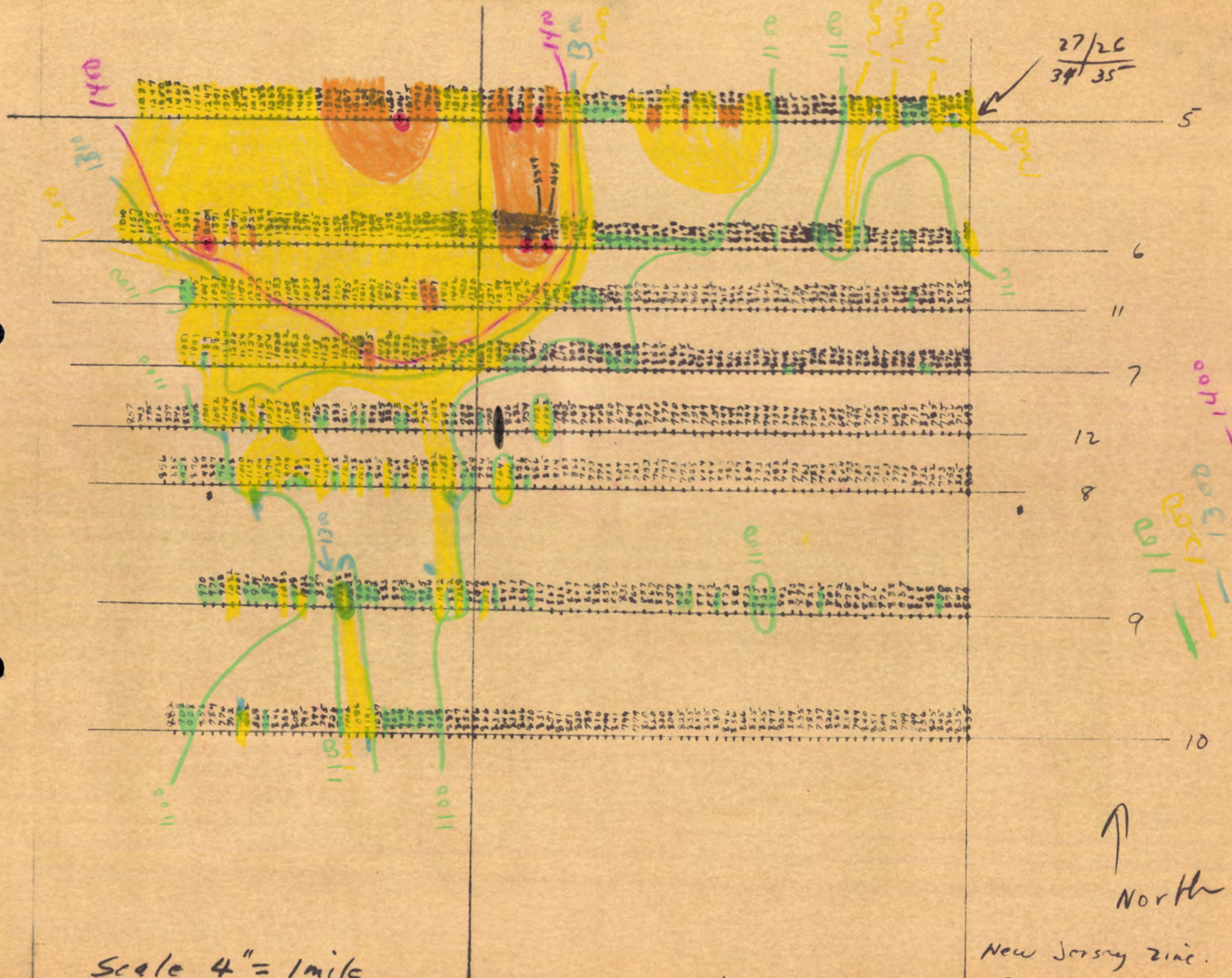
LOW
1000
1200
1500
1000
2000
1500
1000
1500
1000
33
34
2500
2800



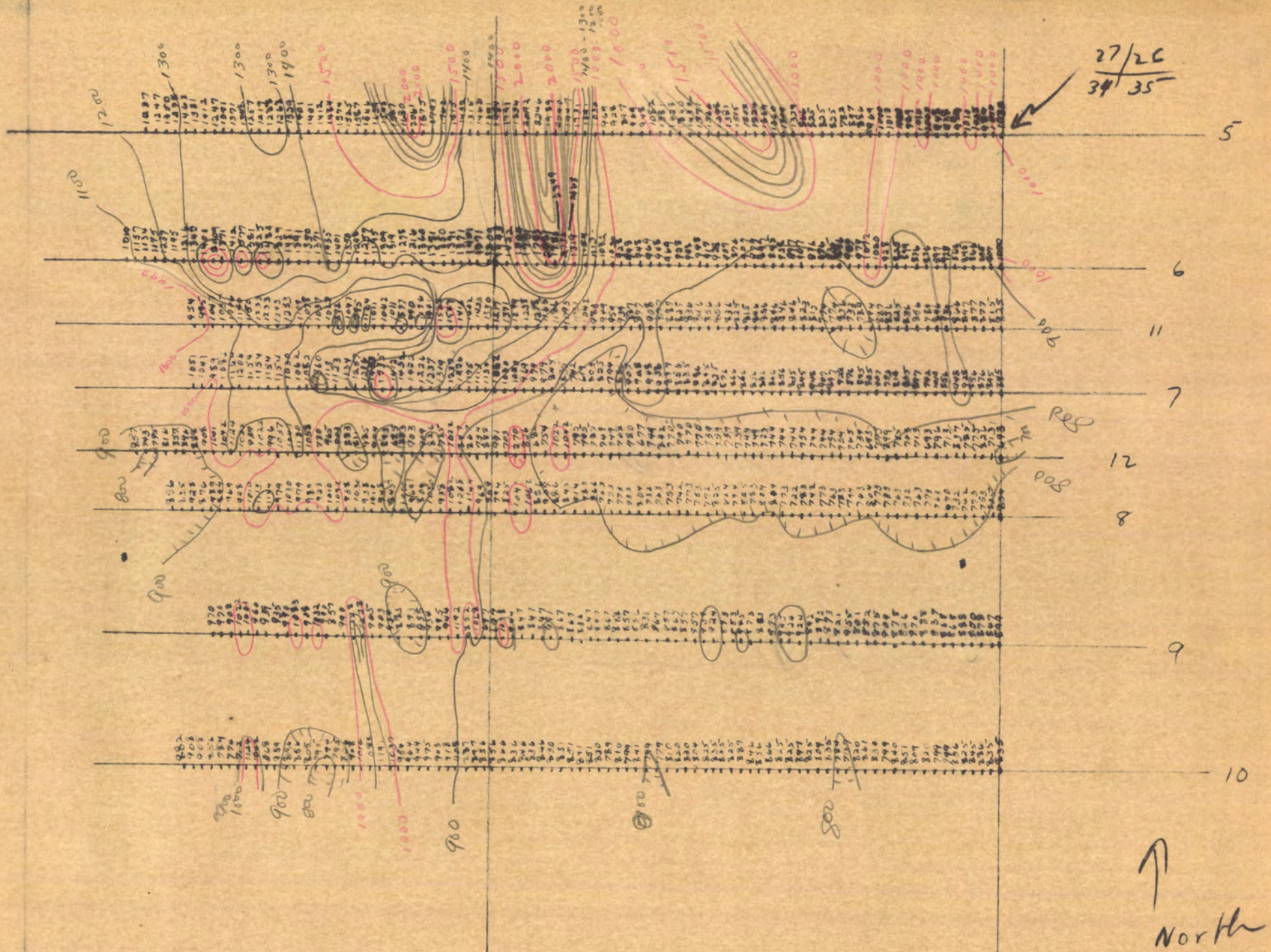
Scale 4" = 1 mile
Jan/63
New Jersey Zinc
North
10
9
8
12
7
11
6
5



Scale 4" = 1 mile

JAN/63

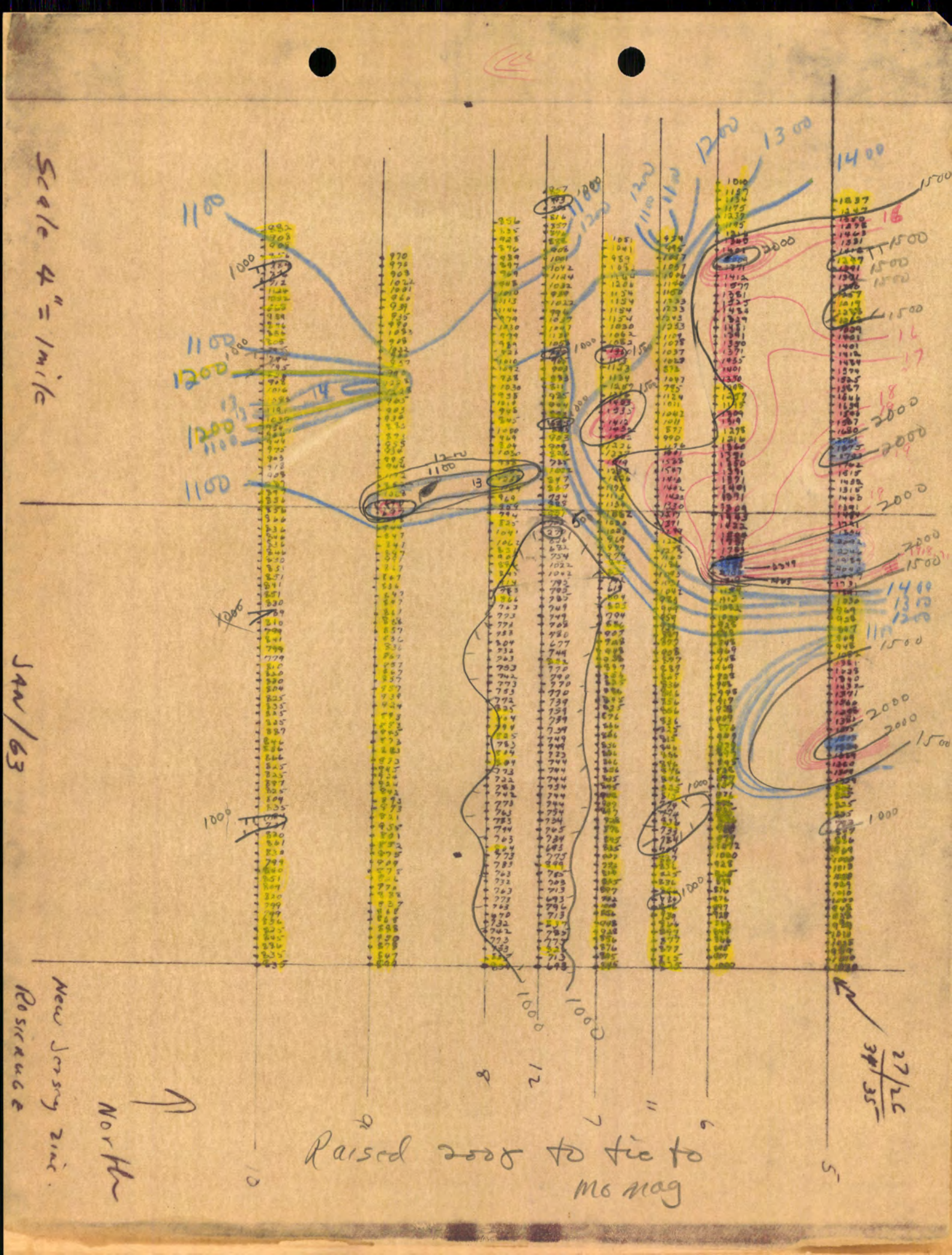
New Jersey Zinc.
Roseange

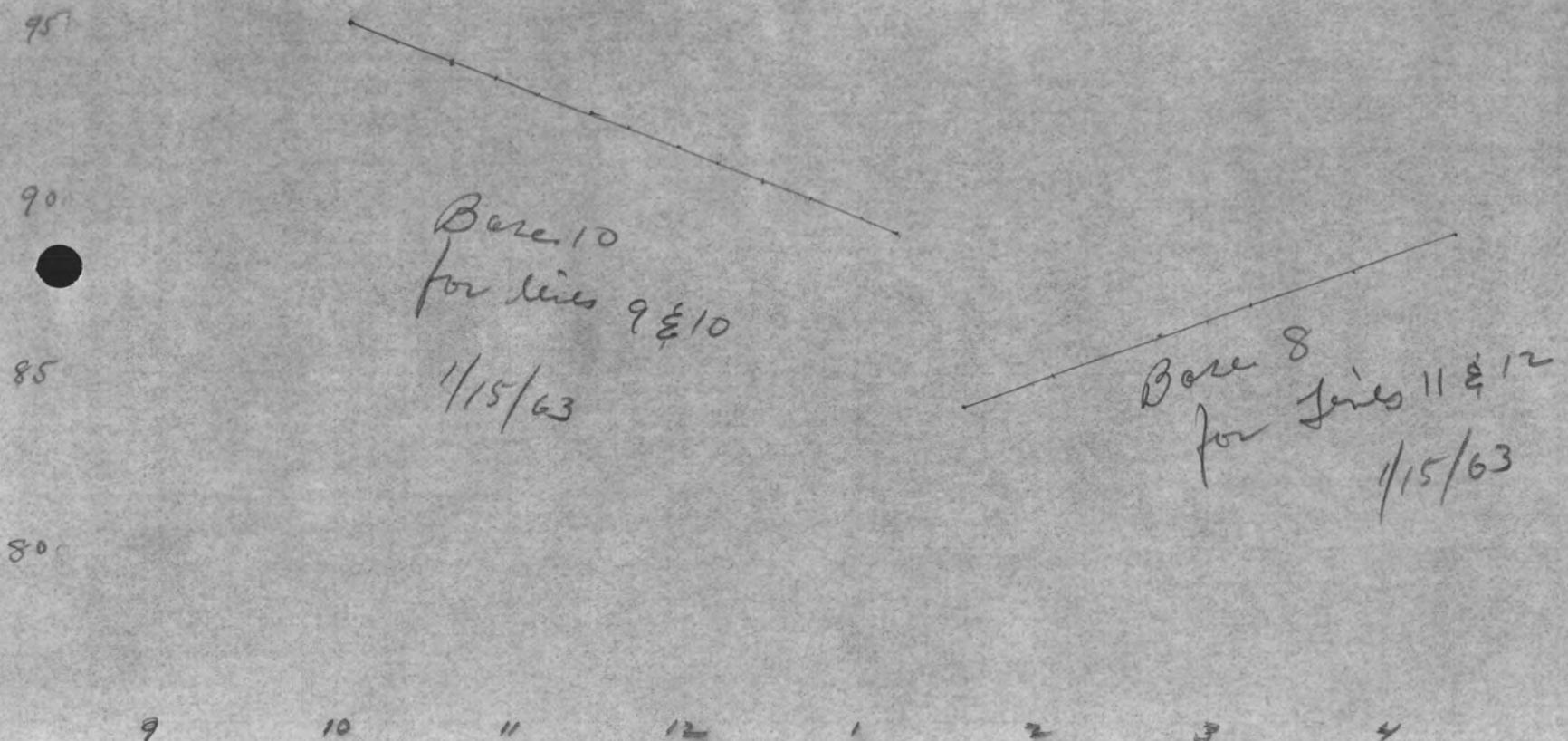


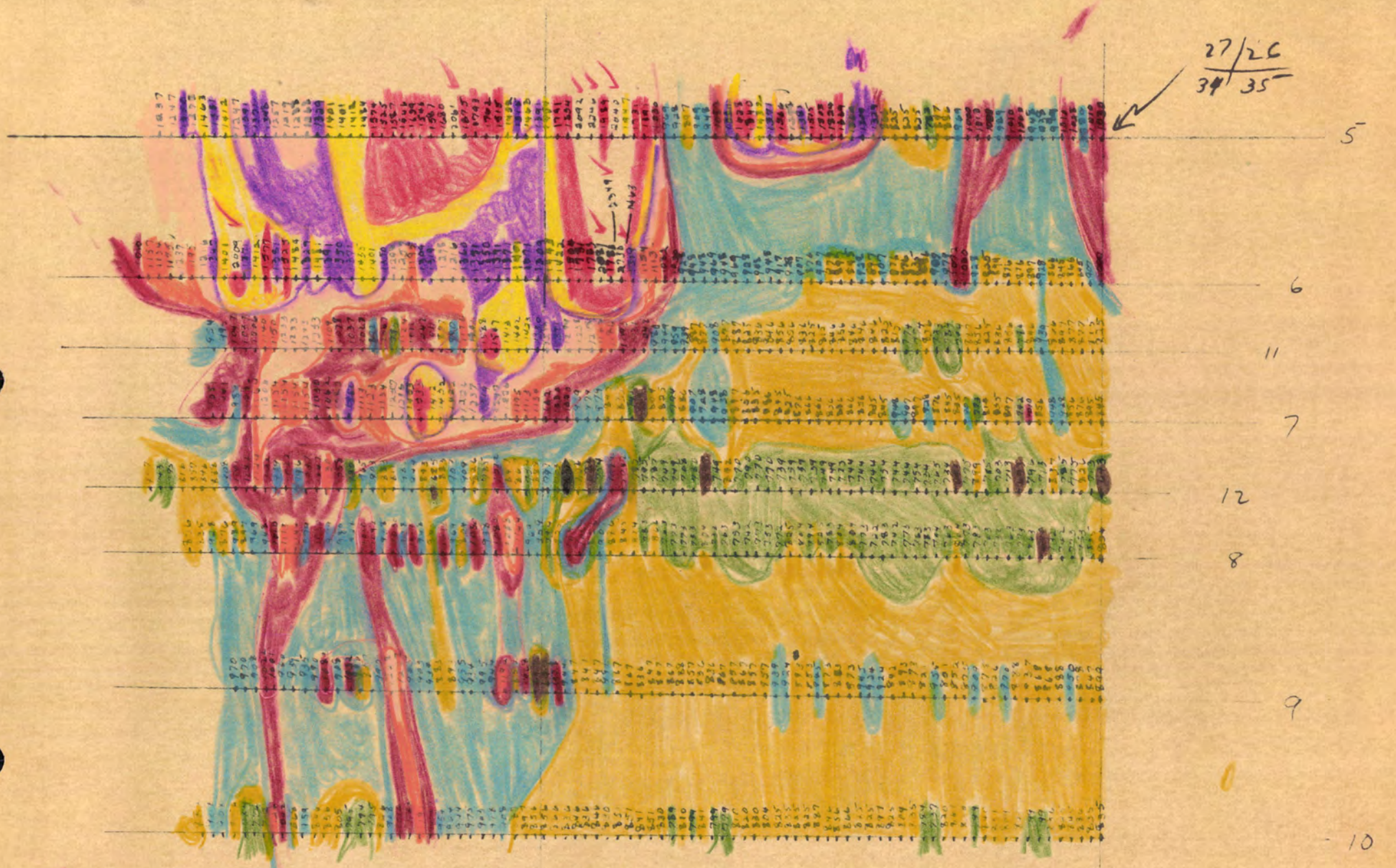
Scale 4" = 1 mile

JAN/63

New Jersey Zinc.
ROSKRUGE


Scale 4" = 1 mile
JAN/63
New Jersey Zinc
Rosicrucie
North
Raised 2008 to tie to
Mo mag
27/26
34/35
1100
1200
1300
1400
1500
1000
2000
10
9
8
7
6
5
12
11


100
95
90
85
80
Base 10
for lines 9 & 10
1/15/63
Base 8
for lines 11 & 12
1/15/63
9
10
11
12
1
2
3
4



✓ above 2000 γ
Red 1500-2000
1400
1300
1200
1100

1000
900
800
700
600
below 600

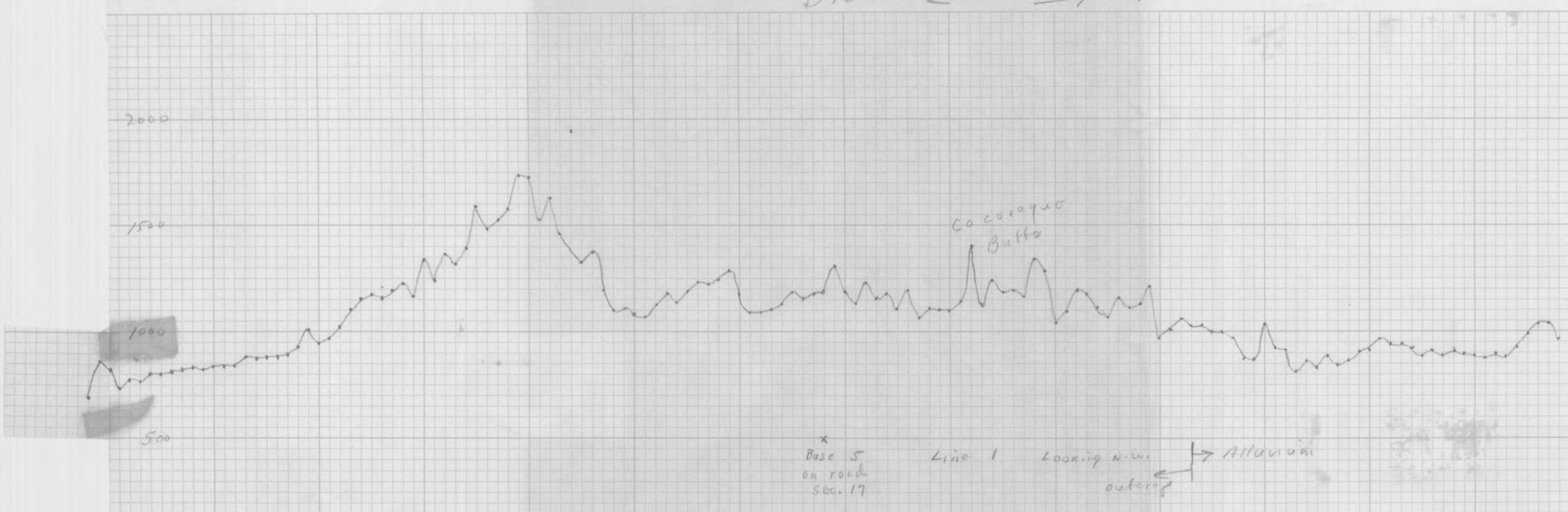
Scale 4" = 1 mile

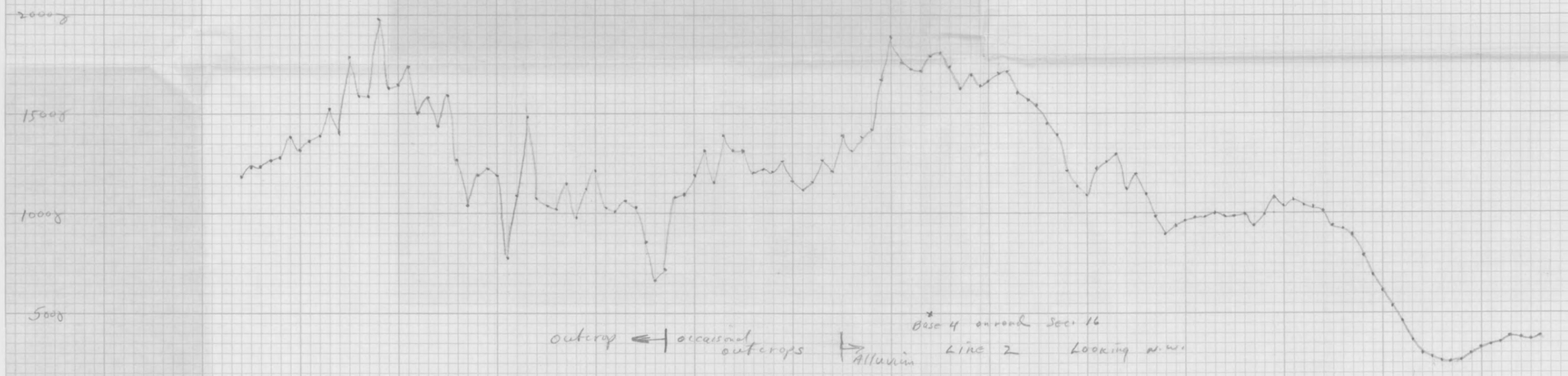
JAN/63

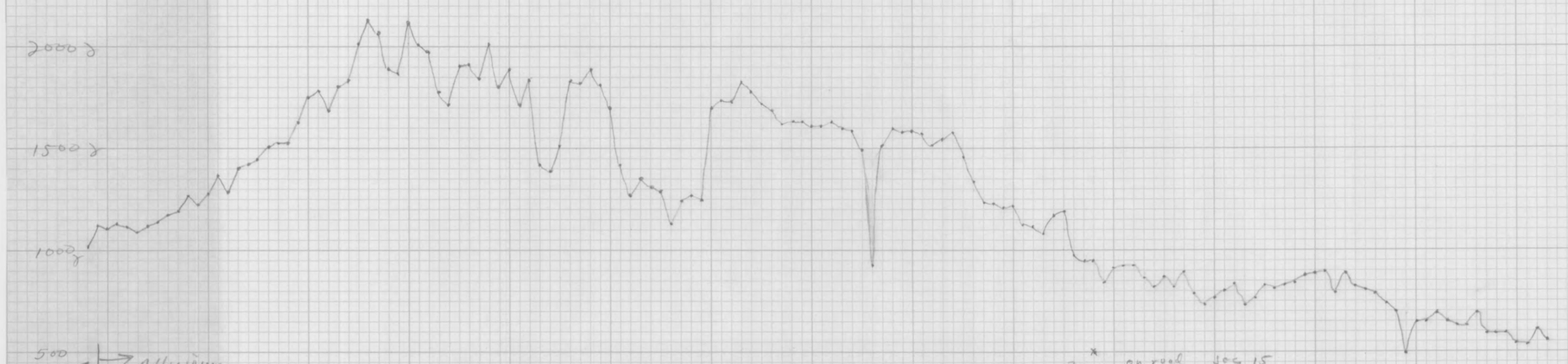
North

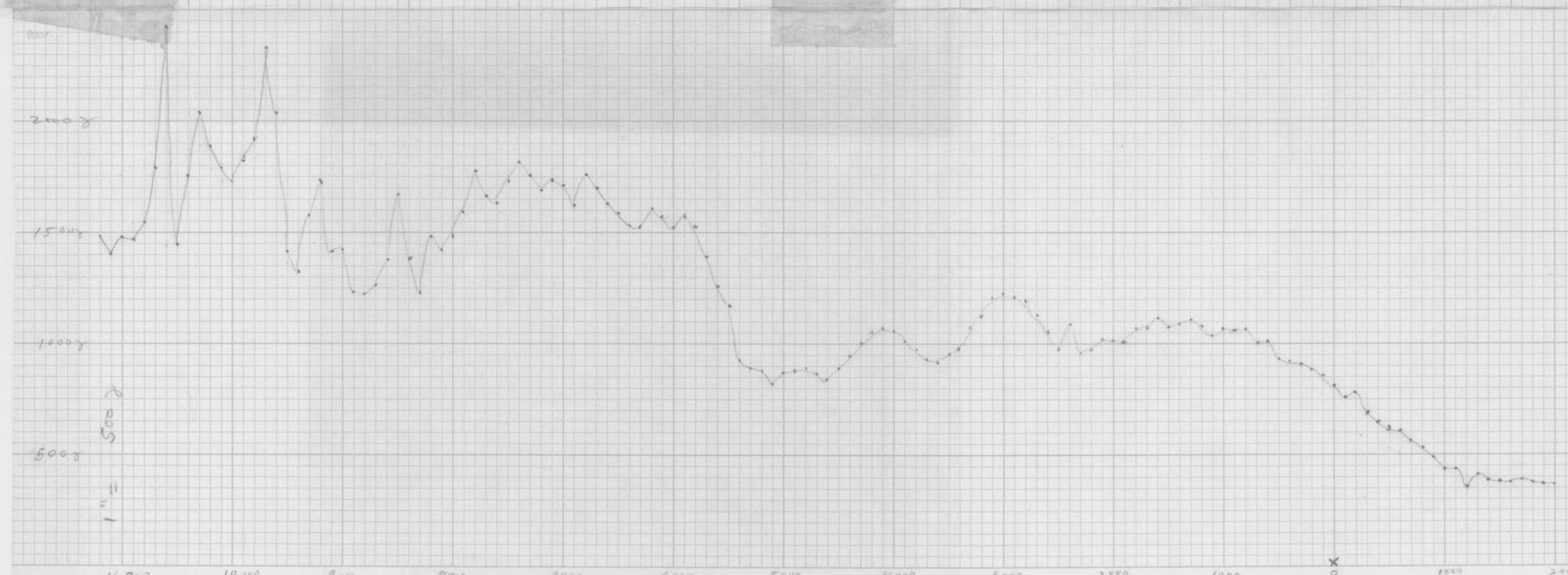
New Jersey Zinc.
Rosenauge

S45W ← → N45E









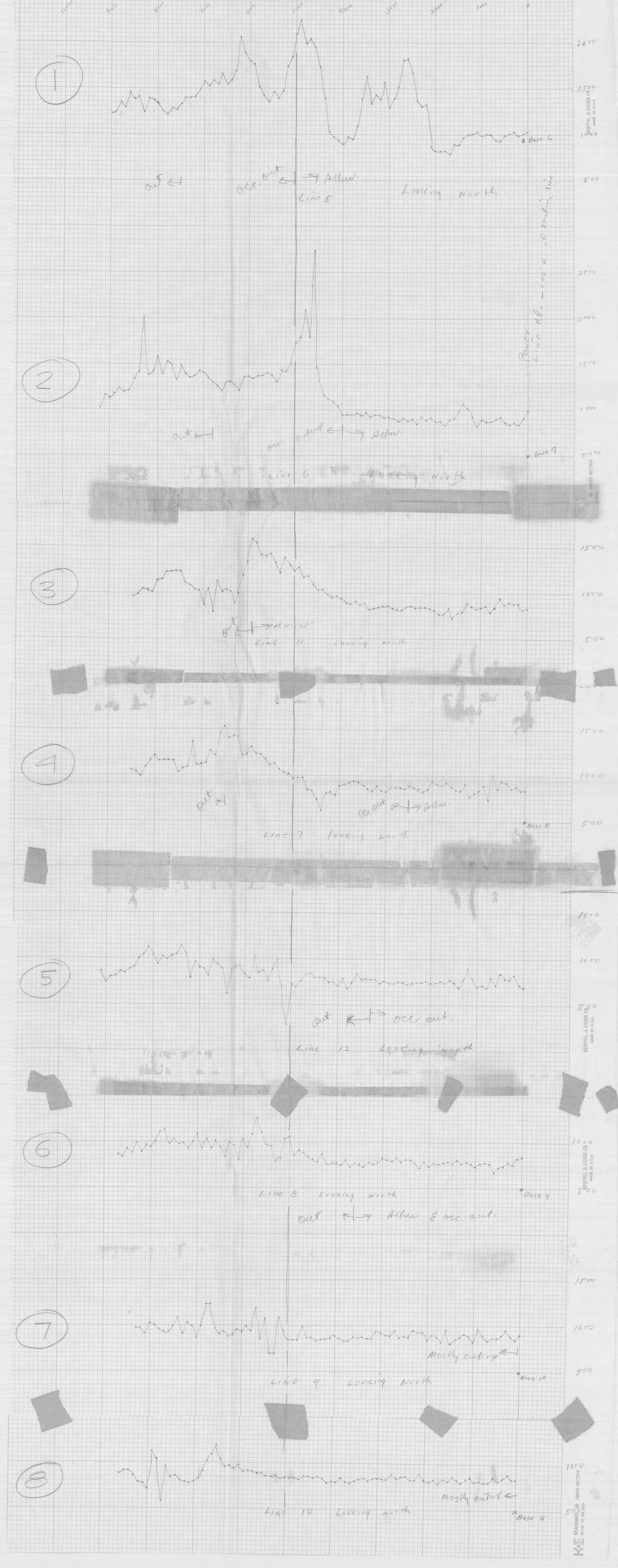
MAGNETIC PROFILES
(vertical intensity)
Lines 1, 2, 3 & 4
Rookrage District, Pima Co., Ariz.
T14S R10E
for
THE NEW JERSEY ZINC COMPANY
by
GEOEX

Jan, 1963

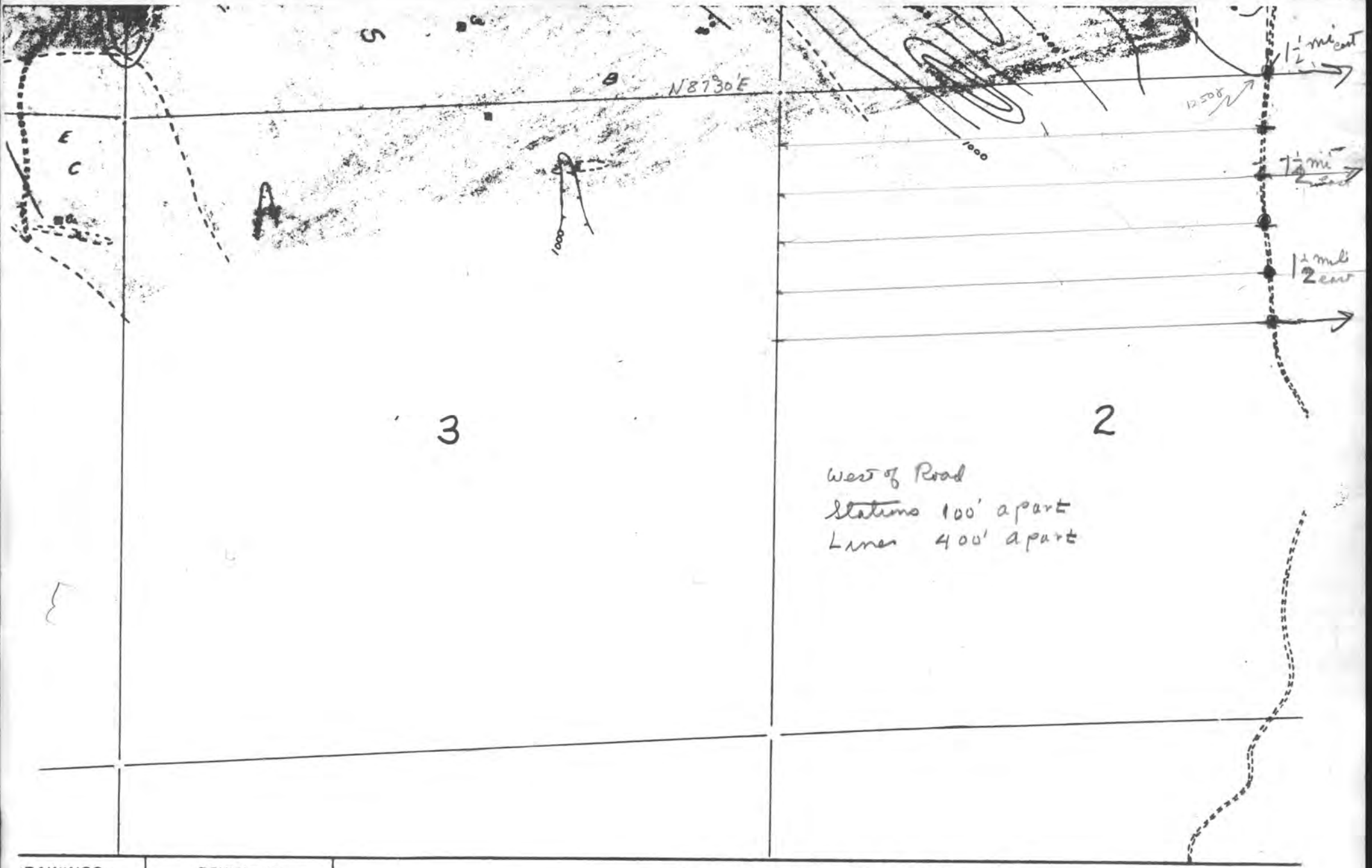
~~Rookrage Area~~
~~for~~
~~New Jersey Zinc Co.~~

KEUFFEL & ESSER CO.
MADE IN U.S.A.

K+E STANDARD CROSS SECTION 10 X 10 TO THE INCH



1
Base 6
out
occ. out
Allow.
Line 5
Looking North
Power Line Rd. - 100'E. of section line
2
out
occ. outcrop
Allow.
Base 7
Line 6
Looking North
3
out
Allow.
LINE 11
Looking North
4
out
occ out
Allow.
Base 8
Line 7
looking North
5
out
occ out.
Line 12
Looking North
6
Line 8
Looking North
Base 9
out
Allow & occ. out.
7
Mostly outcrop
Base 10
LINE 9
Looking North
8
Mostly outcrop
Base 11
Line 10
Looking North
KEUFFEL & ESSER CO.
MADE IN U.S.A.
CROSS SECTION



DRAWINGS	REVISIONS

THE NEW JERSEY ZINC COMPANY
TUCSON, ARIZONA

NEWMONT — ZINC JOINT VENTURE

ROSKRUGE DISTRICT, PIMA COUNTY, ARIZONA

3/20/63

Howard McMurray
Don Bulmer
Bill Malatt
[illegible]

6 lines 400' apart, 100' station

Stat N side Sec 2 T14S, R10E,

& also to east.

21
375
30
25
70
500 +
50

Aroda.

~~$130.00~~ ~~EMI. Service Center~~
~~116 So. Ipt. Ispenil~~

3/20/63

A.R.T. Brant. called:

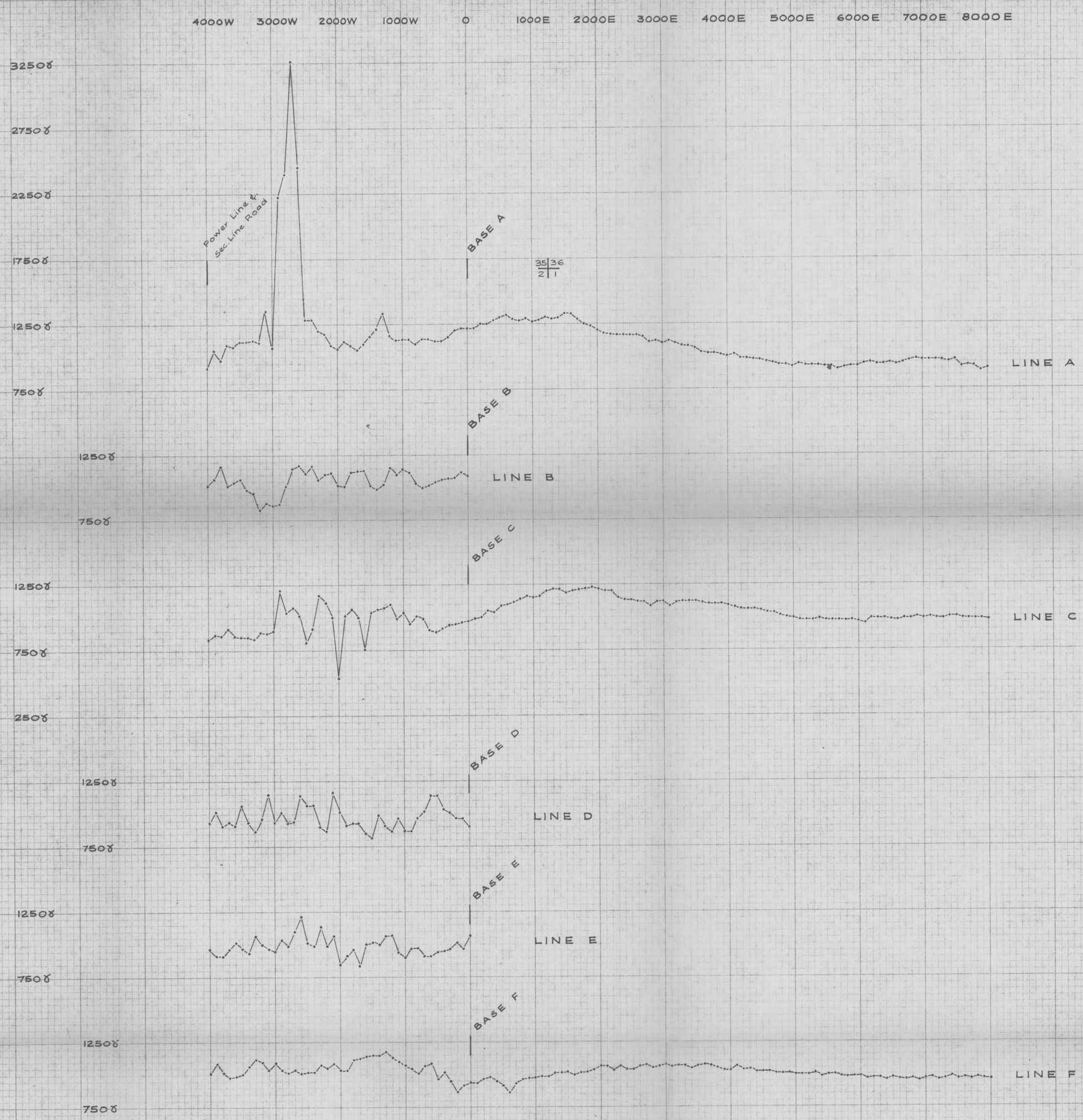
Pace & compass ok. at R.D.

& similar contract as before for V.J.

V.J. people will call details later,

otherwise go ahead ok.

W.



EAST - WEST PROFILES, looking North

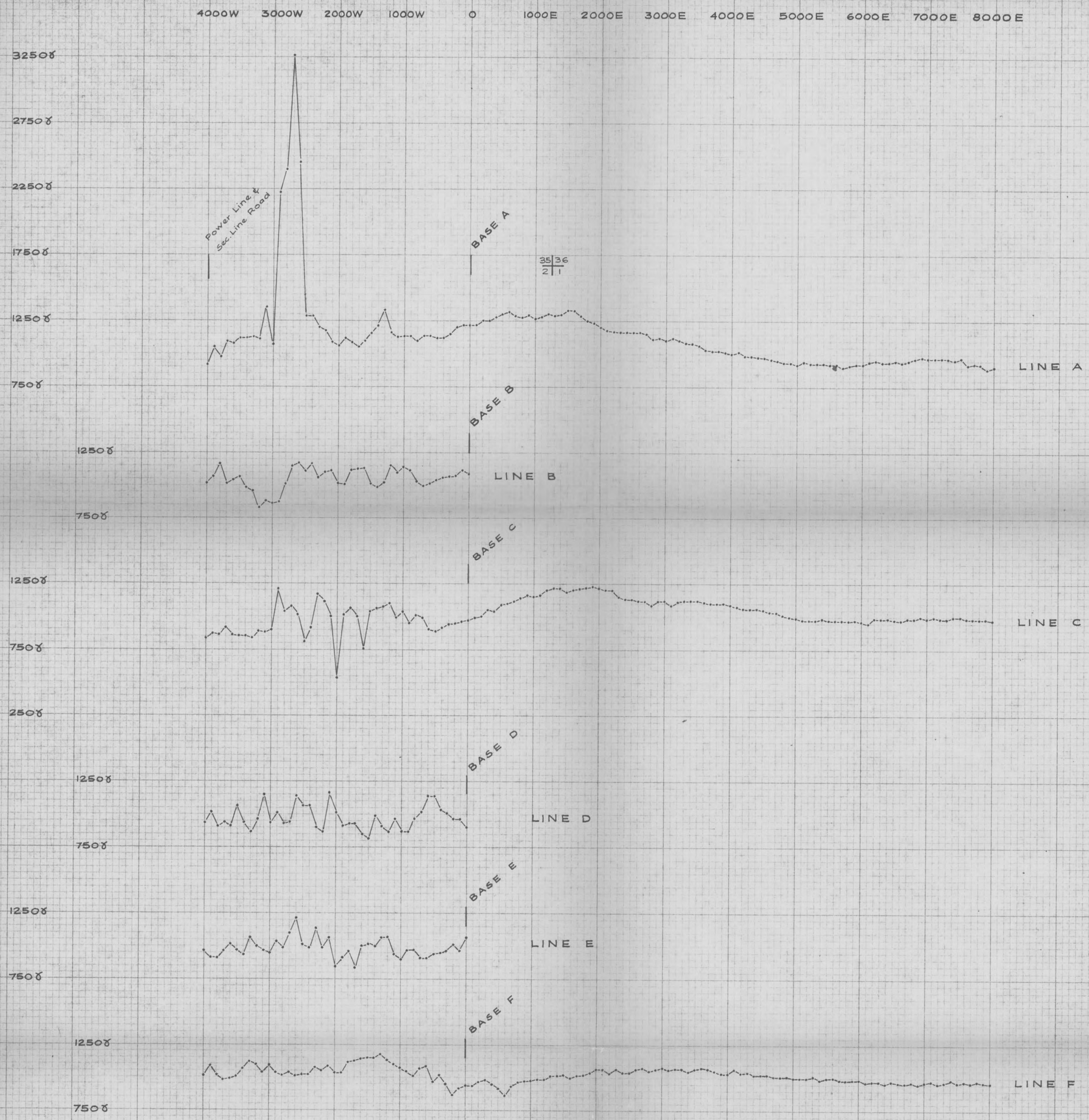
MAP No. 5
MAGNETIC PROFILES
(Vertical Intensity)
Additional Coverage
LINES A thru F inclusive

ROSKRUGE DISTRICT
Pima County, Arizona
T 15 S - R 10 & 11 E
for
THE NEW JERSEY ZINC COMPANY
by
HEINRICHS GEOEXPLORATION CO.

Vert. Scale: 1" = 500γ
Hor. Scale: 1" = 1000'

March 1963

K+E STANDARD ® CROSS SECTION 10 X 10 TO THE INCH
KEUFFEL & ESSER CO. MADE IN U.S.A.
K+E STANDARD ® CROSS SECTION 10 X 10 TO THE INCH



EAST - WEST PROFILES, looking North

MAP No. 5
MAGNETIC PROFILES
(Vertical Intensity)
Additional Coverage
LINES A thru F inclusive

ROSKRUGE DISTRICT
Pima County, Arizona
T 15 S - R 10 & 11 E
for
THE NEW JERSEY ZINC COMPANY
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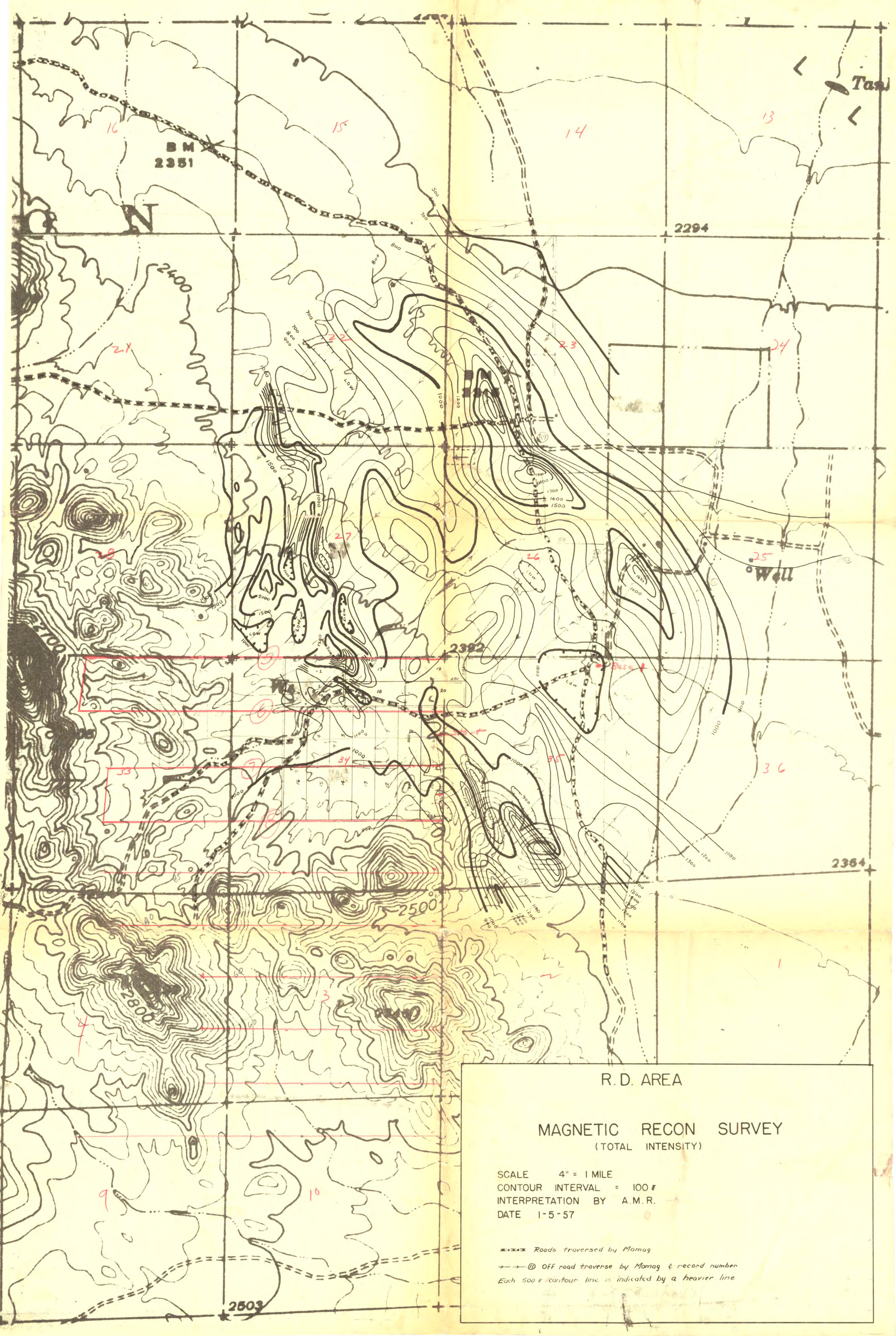
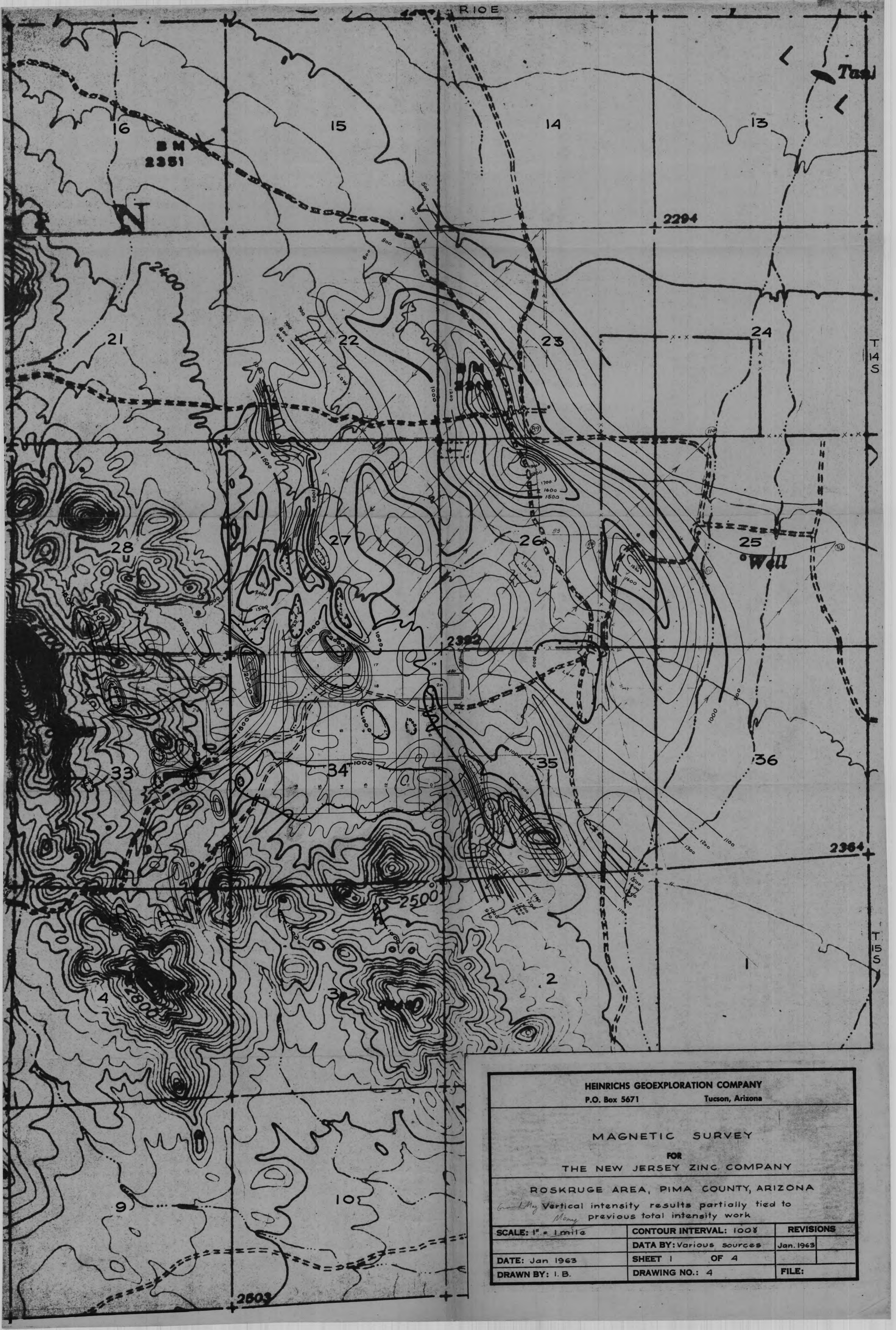
Vert. Scale: 1" = 500γ
Hor. Scale: 1" = 1000'

March 1963

K&E STANDARD ® CROSS SECTION 10 X 10 TO THE INCH
KEUFFEL & ESSER CO. MADE IN U.S.A.
K&E STANDARD ® CROSS SECTION 10 X 10 TO THE INCH


R. D. AREA
MAGNETIC RECON SURVEY
(TOTAL INTENSITY)
SCALE 4" = 1 MILE
CONTOUR INTERVAL = 100 γ
INTERPRETATION BY A.M.R.
DATE 1-5-57
Roads traversed by Mamag
Off road traverse by Mamag & record number
Each 500 γ contour line is indicated by a heavier line
BM 2351
2294
2392
2364
2503
2400
2500
2800
Well
Base
Start
N



HEINRICHS GEOEXPLORATION COMPANY

P.O. Box 5671 Tucson, Arizona

MAGNETIC SURVEY

FOR

THE NEW JERSEY ZINC COMPANY

ROSKRUGE AREA, PIMA COUNTY, ARIZONA

Vertical intensity results partially tied to previous total intensity work

SCALE: 1" = 1 mile	CONTOUR INTERVAL: 100γ	REVISIONS
	DATA BY: Various sources	Jan. 1963
DATE: Jan 1963	SHEET 1 OF 4	
DRAWN BY: I. B.	DRAWING NO.: 4	FILE:

Feb. 12, 1964

M E M O:

To: Walter E. Heinrichs, Jr.

From: Chris S. Ludwig

Re: Comments on Newmont - New Jersey Zinc Report - Roskruge Area dated January 10, 1964

1. Anomaly (1) with a true M of 32, possibly representing 2% sulfides seems to me to be a better bet than they indicate.

2. One 2,000 ft. long 200 ft. a dipole-dipole over the area of Mexco's drilling doesn't seem sufficient to really check it out. It is somewhat surprising that they obtained completely negative results since the drilling seemed to indicate sufficient sulfide for at least a marginal anomaly!!

3. Magnetic results seem to correspond to our thinking and past work.

4. Gravity seems to have worked pretty well in determining sub-alluvial bedrock gradients.

5. I'd like to see several 750 ft. a dipole-dipole spreads in the vicinity of their Anomaly 1 and west to check out the western mag high on Mag Line 6.

6. Also like to see some 250 ft. a dipole-dipole spreads around Mexco's drilling and surrounding areas to possibly pick up any strong sulfide zones.

C. S. Ludwig
Geophysicist

March 26, 1963

STATEMENT

To: The New Jersey Zinc Company
2400 East Grant Road
Tucson, Arizona

Attn: Mr. Don Bulmer

Re: Hand magnetometer survey, Roskruge District, Pima County, Arizona March 1963

Services:

March 23----1 day----------$125.00
March 24----1 extra long day to complete field work-------$175.00

Expenses:

Vehicle, 2 days----------	20.00
149 miles @ $0.10/mi.----------	14.90
Supplies, Stakes & flagging----------	10.00
Office---Notes, drafting--1 day---------	80.00
Reproductions----------	3.12
TOTAL---------	$428.02

COPY

HEINRICHS GEOEXPLORATION COMPANY
MINERAL ENGINEERING CONSULTANTS AND CONTRACTORS
GEOPHYSICAL, GEOLOGICAL AND ECONOMIC APPRAISALS
TUCSON, ARIZONA

WALTER E. HEINRICHS, JR.
E. GROVER HEINRICHS

PHONE: MAIN 2-4202
806-808 WEST GRANT ROAD
MAIL: P. O. BOX 5671

March 26, 1963

Mr. Don Bulmer
The New Jersey Zinc Co.
2400 E. Grant Road
Tucson, Arizona

Dear Don:

Enclosed are three blue line copies and a reproducible sepia of the results of the second phase of hand magnetometer coverage in parts of Sections 1 & 2, T 15 S, R 10 E, and part of Section 6, T 15 S, R 11 E, Roskruge District, Pima County, Arizona requested by you. The field readings were taken March 23 and 24, 1963. Also enclosed are three U.S.G.S. Cocoraque Butte quadrangle maps showing the coverage.

As discussed with you, we are not furnishing a formal report. However, the anomalies to the north, in Section 35, known from previous work, appears to be closed off by this work.

A permanent stake (2"x 2" x 9") was set at each 1,000 ft. station, and flagging tied near each 100 ft. interval. Coverage was obtained with a Jalander vertical intensity magnetometer and lines were run by Brunton and pace. Original control was from the northeast corner of Section 2. This is a steel fence post put in where a scribed rock used to be. Mr. Donaldson's cowboys showed this to us.

Lines were designated by letters to distinguish them from the previous work where numbers were used.

Let us know if anything is not clear from this work, or if you require anything more.

Our billing is enclosed.

Very truly yours,

J. W. Marlatt

JWM:jh
Enclosures

March 26, 1963

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Tucson, Arizona

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Enclosures

J. W. Marlatt

COPY

THE NEW JERSEY ZINC COMPANY

REMITTANCE STATEMENT

INVOICE DATE MO.	INVOICE DATE DA.	VENDOR INVOICE NUMBER AND REMARKS	INVOICE AMOUNT	DISCOUNT	NET AMOUNT
01	21	RD. Feb.	1 056 66		1 056 66
			1 056 66		1 056 66

FEB 1963
GEOEX

THIS CHECK IS IN FULL PAYMENT OF ALL ITEMS LISTED ABOVE. ENDORSEMENT IS SUFFICIENT RECEIPT. IF AMOUNT IS INCORRECT PLEASE RETURN PAPERS AND CHECK.

DETACH THIS STATEMENT BEFORE DEPOSITING CHECK

IBM D32623

January 21, 1963

Mr. Don Bulmer
The New Jersey Zinc Company
2400 East Grant Road
Tucson, Arizona

Dear Don:

Enclosed are the original and two copies of our report and maps for the magnetic work authorized by you in the Roskruge Area, Pima County, Arizona. Also submitted with them are reproducible sepias of the maps and our billing.

As always, we will be happy to discuss with you any aspects of this work if you feel further clarification is necessary.

Sincerely,

J. W. Marlatt

JWM:jh
Enclosures

COPY

January 21, 1963

S T A T E M E N T

To: The New Jersey Zinc Company
2400 East Grant Road
Tucson, Arizona

Attn: Mr. Don Bulmer

Re: Roskruge Area Magnetic Survey, January 1963

January 1963

Field Crew---5 days @ $125/day----------	$625.00
Office staff hours---32 hrs. @ $10/hr---------	320.00
Expenses---Vehicles--5 days @ $10/day---------	50.00
519 miles @ $0.10/mi----------	51.90
Reproductions----------	9.76
TOTAL DUE----------	$1056.66

COPY

MAGNETIC RECONNAISSANCE
(Vertical Intensity)

ROSKRUGE DISTRICT, PIMA COUNTY, ARIZONA

for

THE NEW JERSEY ZINC COMPANY

January 1968

by

HEINRICHS GEOEXPLORATION COMPANY
P. O. Box 5671 Tucson, Arizona

COPY

TABLE OF CONTENTS

Map #1------Location and Index----------Frontpiece

Introduction----------1

Conclusions & Recommendations----------2

Interpretation----------3

Methods & Procedures----------5

MAPS----------In Pocket

No. 2 Magnetic Profiles, Lines 1 - 4

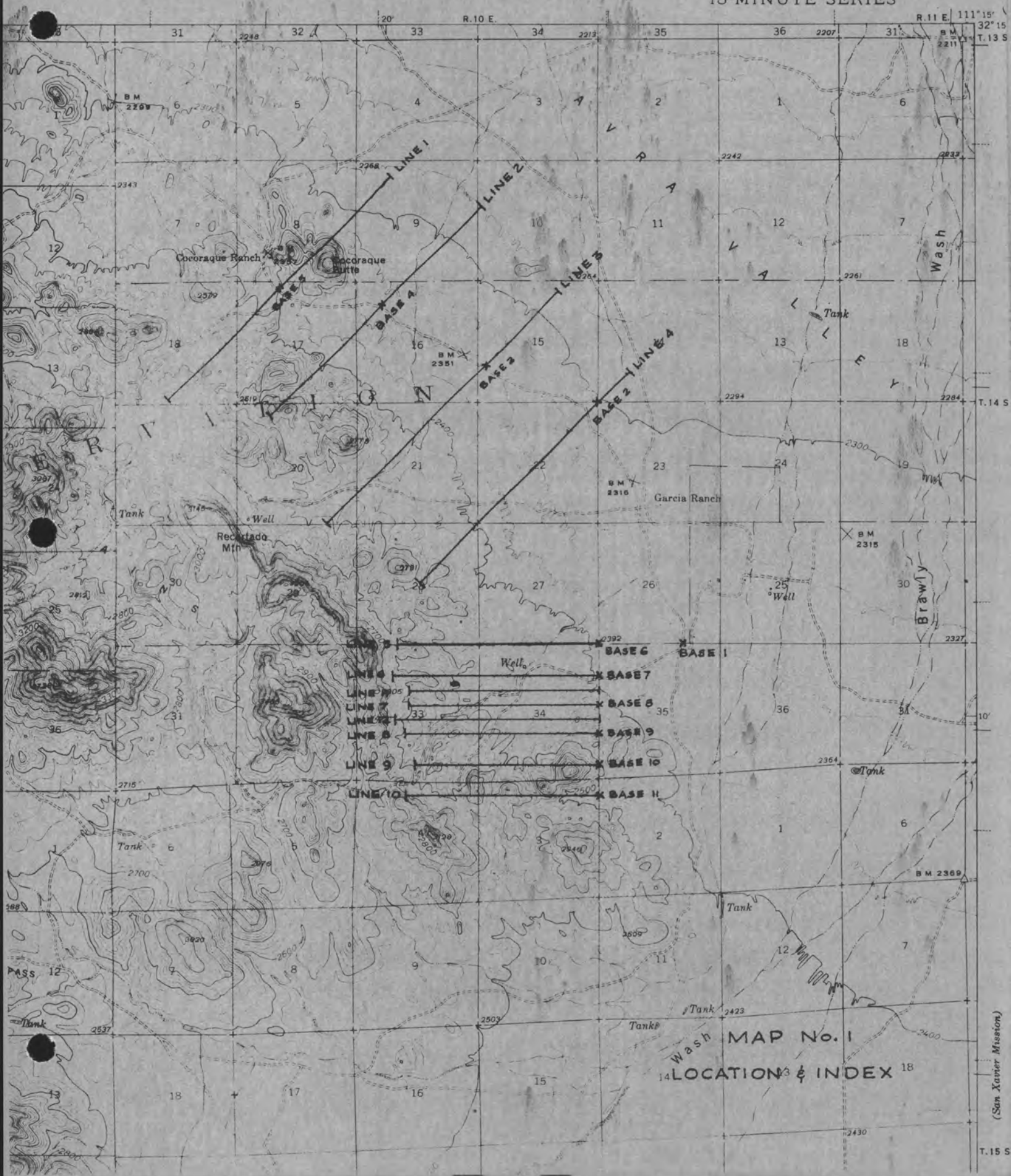
No. 3 Magnetic Profiles, Lines 5 - 12

No. 4 Magnetic contours over topography of Lines 5 - 12

COPY

WAR DEPARTMENT

ARIZONA
(PIMA COUNTY)
COCORAQUE BUTTE QUADRANGLE
15-MINUTE SERIES



MAP No. 1
LOCATION & INDEX

(San Xavier Mission)

INTRODUCTION

At the request of Mr. D. Bulmer of The New Jersey Zinc Company, Heinrichs Geoexploration Company in January 1963 made a reconnaissance magnetic survey in a portion of T 14 S, R 10 E, G.S.R.B.&M., Pima County, Arizona. This area lies on the northeast flank of the Roskruge Mountains. Twelve profile lines were run, as selected by the client. Results of the survey are herewith presented, plotted on maps and the written report contains tentative interpretations.

GEOEX personnel involved were Mr. J. W. Marlatt, geologist and Mr. Floyd Hanly assistant in the field and office as well as the GEOEX staff in the office.

COPY

CONCLUSIONS AND RECOMMENDATIONS

The results of this evaluation--an expanded follow-up of previous work-- has enlarged the total magnetic coverage thus allowing for additional interpretation, but has not significantly altered previous conclusions, i.e. that there are interesting buried magnetic features whose cause is little known. The anomalies showing the more favorable magnetic characteristics for possible economic ore association still appear to be some of those disclosed by the previous work. One of these areas has a few shallow drill holes on it, and magnetite and some mineralization was found.

Possibly the most significant new indication is the break on the northeast end of Line 2. Apparently the rocks comprising Cocoraque Butte and the major magnetic anomaly to the southeast are of a different type and relate to separate structures, with the relatively smooth gradient of the latter seemingly suggesting lower magnetic susceptibility sediments in addition to deepening alluvium. Furthermore, a third structure and/or rock-type, could exist between these two, but the inference of such pronounced banding, although not impossible, may be subject to some doubt.

In the light of what is known from magnetics, geology and the little previous drilling, the area warrants thorough investigation by induced polarization techniques. Land status is of

COPY

course a problem, for much of the favorable ground is on the Papago Indian Reservation. To thoroughly evaluate the area by electrical means, prior to drilling, the program budget will require $20,000 for the geophysical work. If strictly reconnaissance coverage is all that is desired, a few evaluation lines could be run for as little as $5,000 although this usually leaves some aspects in doubt.

INTERPRETATION

Line #1. Much of this line was run over outcrop or near surface bedrock. Results on other lines indicate that additional coverage of a couple of thousand feet more to the northeast would have been desirable, to see if a drop in level occurs. Features of note are that no pronounced high zone occurs over or near Cocoraque Butte whereas there is one farther to the southwest in fairly flat country with an apparent low in the hills at the extreme southwest end of the line. There is a possible correlation of this feature across the next three profiles to the southeast.

Line #2. Broadly speaking, two highs and two lows are shown. On the southwest end is a high with rather erratic readings due to outcropping volcanic type rocks. Going northeast there is a low, then a high caused by a feature buried under shallow alluvium, which might or might not be an extension of Cocoraque Butte. An interesting feature on this line is the

sharp low to the northeast. The alluvium is deeper, there is probably a fault, and the end of the line may be over Paleozoic sediments.

Line #3. In essence this repeats what Line #2 shows except for a convergence of the two highs indicating the two masses causing them to have different strike angles and they may be separated by a fault. The level drop to the northeast is more gradual indicating deepening alluvium.

Line #4. Again the same features as above show with the two highs now even closer together. The major broad deeper source (?) high noted in previous work, is on the northeastern part of the line. It exhibits some character which could correlate with the small smooth deep source (?) highs which show on the northeastern end of Lines #2 & #3 above. The major high appears separated by a fault from the others to the southwest and probably also is in contact with Paleozoic sediments to the northeast where the magnetic gradients drop and then flattens out at a low level.

Line #5. This and the following lines were run east-west and essentially are hard to tie to the four above. For magnetic coverage between the two areas, the former total intensity results obtained with the mobile magnetometer may be utilized. However, the most easterly high appears to tie to the two highs on the southwest ends of the first four lines. The larger high about

midway on the profile correlates with a high on Line #6 and probably is on a fault contact.

Lines #6 - #12. Except for the high on Line #6 mentioned above the rest of the lines show much similarity. It appears likely there are two rock types crossed with the one to the west containing more erratic distributions of magnetite. The two are separated by a fault which does not contain any large amount of magnetite. The rock to the west may be a metamorphic sequence.

METHODS AND PROCEDURES

Readings were taken at 100 ft. intervals along lines run using Brunton compass for direction and distance by pacing. A base was established at a known position on each line. Wooden marker pegs and flagging were placed at 1,000 ft. intervals and ends of the lines.

The instrument used is a Jalander, vertical intensity, flux-gate type, read in scale divisions which are interpretable to 10 gammas. There is some temperature drift with this instrument which is lessened by not reading too early or too late in the day. In this case the amount of driving time involved in getting to and from the job each day reduced this to a minimum which could be ignored except for one day which required the plotting of a drift curve and adjustment of the readings obtained.

A total of about 23 2/3 profile miles were read, plus base

check readings. Profiles are plotted to scale. The contour map is a little arbitrary, especially the ties with old work, and the values of the readings have been raised 200 gammas to give a closer tie to previous total intensity results plotted in contour form at 4" = 1 mile.

Respectfully submitted,

HEINRICHS GEOEXPLORATION CO.

J. W. Marlatt
Geologist

January 21, 1963
P. O. Box 5671
Tucson, Arizona

COPY

New Jersey Zinc Co.
Roskruge Magnetic Survey

125 + 10 + 10.5	Jan. 7	–	Field	, 105 miles	145.50
125 + 10 + 11.2	8	–	"	112 "	291.70
125 + 10 + 10.8	9	–	"	108 "	437.50
125 + 10 + 10.4	10	–	"	104 miles	582.90
70.00	11	–	office	7 staffhours	652.90
10.00	12	–	"	1 " "	662.90
30.00	14	–	"	3 " "	692.90
125 + 10 + 9.	15	–	Field	, 90 miles	836.90
60.00	16	–	office	6 staff hrs	896.90
60.00	17	–	"	6 " "	956.90
70.00	18	–	"	7 " "	1026.90
20.00	21	–	finalize last map + type 2 " "		1046.90
9.76			Reprod. expenses		1056.66

Printing 5.13
+ 3.00 ?
+ 20% 1.63
9.76 ?

Don B. called: 1/4/62

Plot N lines in profile

1/4 in 50 feet

contour?

W.

Sergey Zinc

Larry Drake.

Blue Cu.

So. of Arkota.

James Eddington

Am. Ex.?

Rockridge to U & S.

20 Miles of line

500' intervals & fill in at

100' if necessary.

Arkania.

To Walt

Date 12/28/62 Time 11:10 a.m.

WHILE YOU WERE OUT

M Don Bulmer

of Joey Zinc

Phone EA 6-5977

Area Code Number Extension

TELEPHONED	X	PLEASE CALL	X
CALLED TO SEE YOU		WILL CALL AGAIN	
WANTS TO SEE YOU		URGENT	
	RETURNED YOUR CALL		

Message Sometime today

Mayor may not start Rezoning

may work next week

Operator

Gibson's Arizona Stationers
760 So. Stone Ave., Tucson, Arizona

THE NEW JERSEY ZINC COMPANY
(ESTABLISHED 1848)
CABLE ADDRESS
"JERSEZINC"
160 FRONT STREET
NEW YORK 38, N.Y.

Rec'd: 12/13/62
WEH

PLEASE ADDRESS REPLY TO

2400 East Grant Road
Tucson, Arizona
December 12, 1962

Mr. Walter E. Heinrichs, Jr., President
Heinrichs Geoexploration Company
P. O. Box 5671
Tucson, Arizona

Dear Walt,

We are returning herewith the following Roskruge data which we borrowed from you:

(1) Vertical magnetic intensity, 1" =100', Date - 5/57

(2) Mobile Magnetometer Survey, 1"= 400', Date - 3/57

(3) Drill logs of 5 holes

Thank you for the loan of this material.

Sincerely,

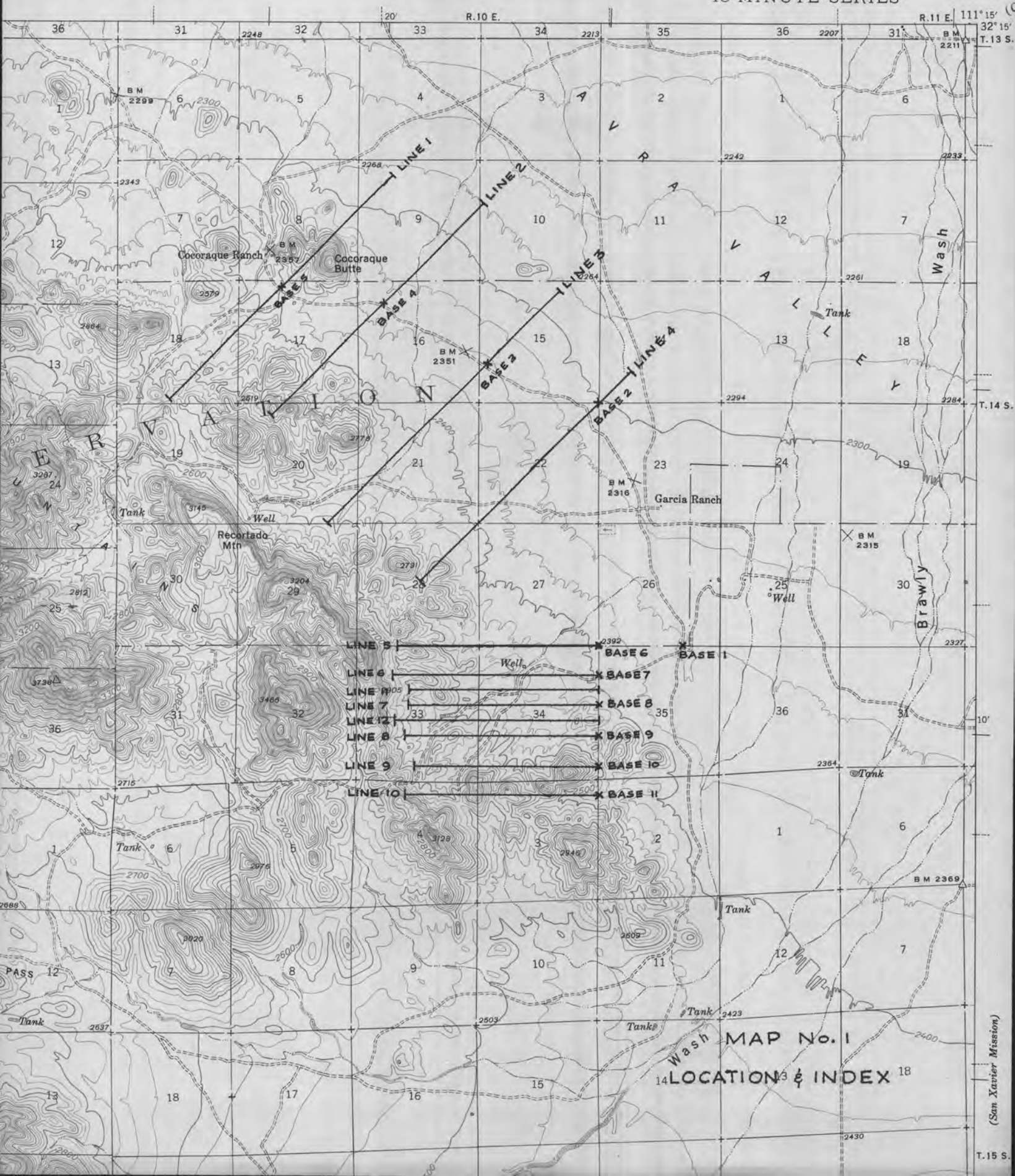
Don B.

D. C. Bulmer

No word yet on the authorization for the mag. work.

WAR DEPARTMENT

ARIZONA
(PIMA COUNTY)
COCORAQUE BUTTE QUADRANGLE
15-MINUTE SERIES



MAP No. 1
LOCATION & INDEX

THE TOPOGRAPHIC MAPS OF T

The United States Geological Survey is making a series of standard topographic maps to cover the United States. This work has been in progress since 1882, and the published maps cover more than 47 percent of the country, exclusive of outlying possessions.

The maps are published on sheets that measure about 16½ by 20 inches. Under the general plan adopted the country is divided into quadrangles bounded by parallels of latitude and meridians of longitude. These quadrangles are mapped on different scales, the scale selected for each map being that which is best adapted to general use in the development of the country, and consequently, though the standard maps are of nearly uniform size, the areas that they represent are of different sizes. On the lower margin of each map are printed graphic scales showing distances in feet, meters, miles, and kilometers. In addition, the scale of the map is shown by a fraction expressing a fixed ratio between linear measurements on the map and corresponding distances on the ground. For example, the scale $\frac{1}{62,500}$ means that 1 unit on the map (such as 1 inch, 1 foot, or 1 meter) represents 62,500 of the same units on the earth's surface.

Although some areas are surveyed and some maps are compiled and published on special scales for special purposes, the standard topographic surveys and the resulting maps have for many years been of three types, differentiated as follows:

1. Surveys of areas in which there are problems of great public importance—relating, for example, to mineral development, irrigation, or reclamation of swamp areas—are made with sufficient detail to be used in the publication of maps on a scale of $\frac{1}{31,680}$ (1 inch = one-half mile) or $\frac{1}{24,000}$ (1 inch = 2,000 feet), with a contour interval of 1 to 100 feet, according to the relief of the particular area mapped.

2. Surveys of areas in which there are problems of average public importance, such as most of the basin of the Mississippi and its tributaries, are made with sufficient detail to be used in the publication of maps on a scale of $\frac{1}{62,500}$ (1 inch = nearly 1 mile), with a contour interval of 10 to 100 feet.

3. Surveys of areas in which the problems are of minor public importance, such as much of the mountain or desert region of Arizona or New Mexico, and the high mountain area of the northwest, are made with sufficient detail to be used in the publication of maps on a scale of $\frac{1}{125,000}$ (1 inch = nearly 2 miles) or $\frac{1}{250,000}$ (1 inch = nearly 4 miles), with a contour interval of 20 to 250 feet.

The aerial camera is now being used in mapping. From the information recorded on the photographs, planimetric maps, which show only drainage and culture, have been made for some areas in the United States. By the use of stereoscopic plotting apparatus, aerial photographs are utilized also in the making of the regular topographic maps, which show relief as well as

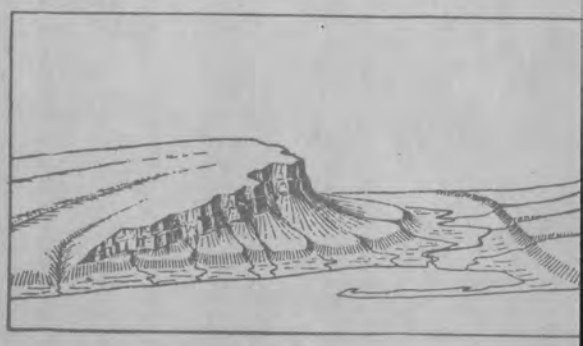
A survey of Puerto Rico is now in pro
the published maps is $\frac{1}{30,000}$.

The features shown on topographic maps
three groups—(1) water, including seas, l
swamps, and other bodies of water; (
mountains, hills, valleys, and other features
(3) culture (works of man), such as town
roads, and boundaries. The symbols use
features are shown and explained below.
some earlier maps, and additional features
some special maps.

All the water features are represented
streams and canals by single blue lines and
by double lines. The larger streams, lak
accentuated by blue water lining or blue
streams—those whose beds are dry for a larg
are shown by lines of blue dots and dashes.

Relief is shown by contour lines in bro
maps are supplemented by shading showin
thrown from the northwest across the area
purpose of giving the appearance of relief
the interpretation of the contour lines. A
sents an imaginary line on the ground (a
of which is at the same altitude above sea
could be drawn at any altitude, but in pra
tours at certain regular intervals of altitud
datum or zero of altitude of the Geological S
sea level. The 20-foot contour would be t
sea should rise 20 feet above mean sea le
show the shape of the hills, mountains, and
their altitude. Successive contour lines th
the map indicate a gentle slope, lines tha
indicate a steep slope, and lines that run
cliff.

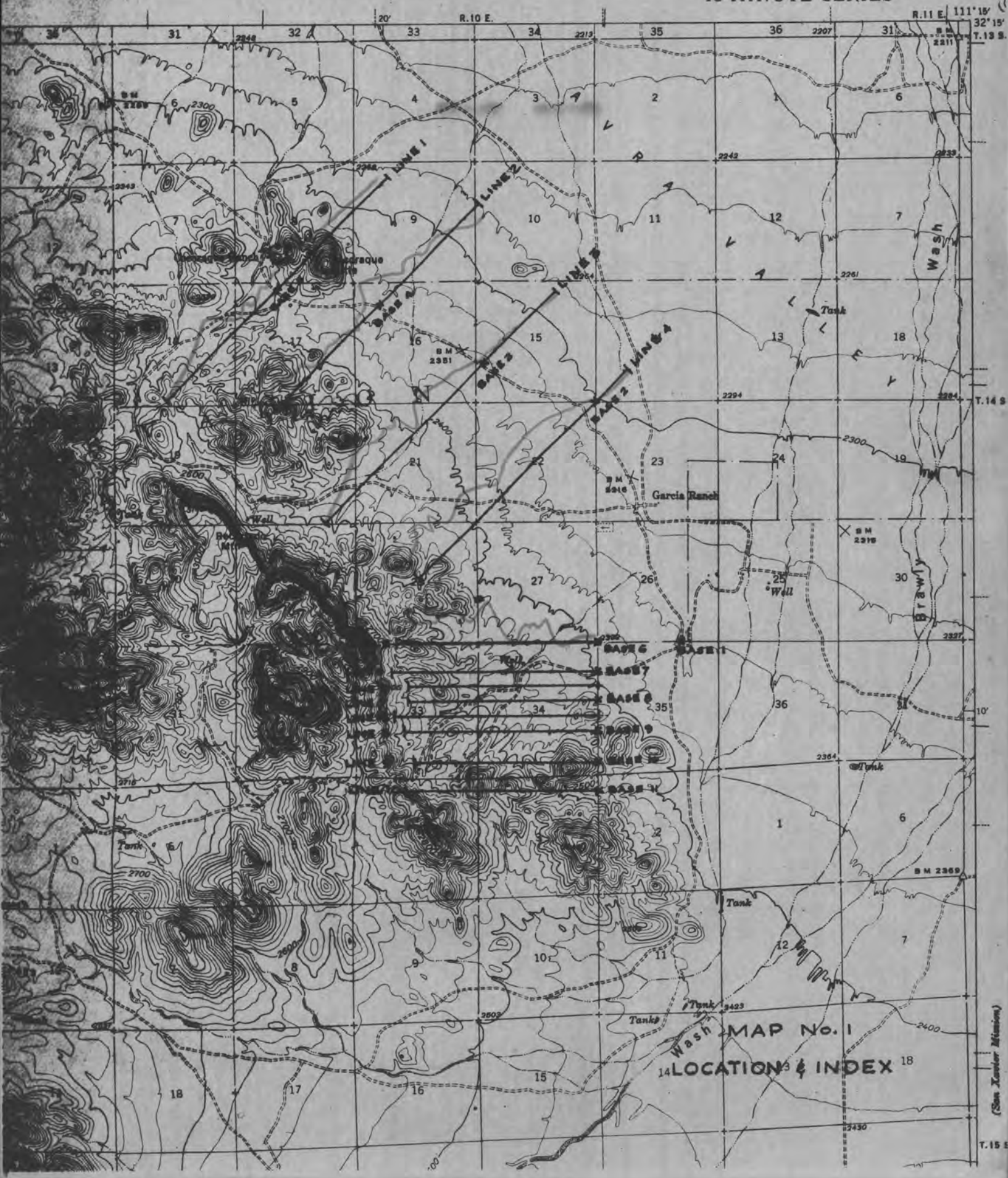
The manner in which contour lines exp
and grade is shown in the figure below.



WAR DEPARTMENT

ARIZONA
(PIMA COUNTY)

COCORAQUE BUTTE QUADRANGLE
15-MINUTE SERIES



MAP No. 1
LOCATION & INDEX

CHANDLER, TULLAR, UDALL & RICHMOND
ATTORNEYS AT LAW
304 SOUTHERN ARIZONA BANK BUILDING
150 NORTH STONE AVENUE
TUCSON, ARIZONA 85701

THOMAS CHANDLER
ROBERT S. TULLAR
D. B. UDALL
JAMES L. RICHMOND
JACK REDHAIR

TELEPHONE
MAIN 3-4353

Donaldson

March 15, 1966

MAR 1966
GEOEX

Mr. E. Grover Heinrichs
Vice President
Heinrichs Geoexploration Company
806 West Grant Road
Tucson, Arizona 85703

Dear Mr. Heinrichs:

Enclosed is the copy of your letter of March 14, 1966, which I have signed, acknowledging receipt of the copy of the report entitled "Geophysical Report, Roskruge Area, Pima County, Arizona, October-November 1963, New Jersey Zinc-Newmont Joint Project," by W. Gordon Wieduwilt.

Thank you for sending me the report.

Very truly yours,

CHANDLER, TULLAR, UDALL & RICHMOND

By Thomas Chandler
Thomas Chandler

TC/mn
Enclosure

HEINRICHS GEOEXPLORATION COMPANY

806 WEST GRANT ROAD, TUCSON, ARIZONA, 85703. P.O. BOX 5671. PHONE: (AREA CODE 602) 623-0578

March 14, 1966

Mr. Thomas Chandler
Chandler, Tullar, Udall & Richmond
304 Southern Arizona Bank Building
150 North Stone Avenue
Tucson, Arizona

Dear Mr. Chandler:

Enclosed is the ONLY material left in our office by Mr. John Donaldson consisting of one report entitled "Geophysical Report, Roskruge Area, Pima County, Arizona, October-November 1963, New Jersey Zinc-Newmont Joint Project" by W. Gordon Wieduwilt, 10 January 1964.

This is in response to your letter of March 3, 1966.

Your acknowledgement of this material by executing in spaces provided below on the enclosed extra copy of this letter and returning same to us will be most appreciated.

Very truly yours,

HEINRICHS GEOEXPLORATION COMPANY

E. Grover Heinrichs
Vice President

EGH:jc
Enclosure: 2
cc: Mr. John Donaldson

RECEIVED BY: _____
Mr. Thomas Chandler

DATE: Mar. 15, 1966

Donaldson file

CHANDLER, TULLAR, UDALL & RICHMOND
ATTORNEYS AT LAW
304 SOUTHERN ARIZONA BANK BUILDING
150 NORTH STONE AVENUE
TUCSON, ARIZONA 85701

THOMAS CHANDLER
ROBERT S. TULLAR
D. B. UDALL
JAMES L. RICHMOND
JACK REDHAIR

TELEPHONE
MAIN 3-4353

March 3, 1966

MAR 1966
GEOEX

Mr. E. Grover Heinrichs
Heinrichs Geoexploration Company
806 West Grant Road
Tucson, Arizona

Dear Mr. Heinrichs:

We are the attorneys for John Donaldson, with whom you have been discussing a proposed agreement wherein you are to act for Mr. Donaldson in connection with the lease, rental or sale of certain minerals or lands containing minerals in Pima County, Arizona.

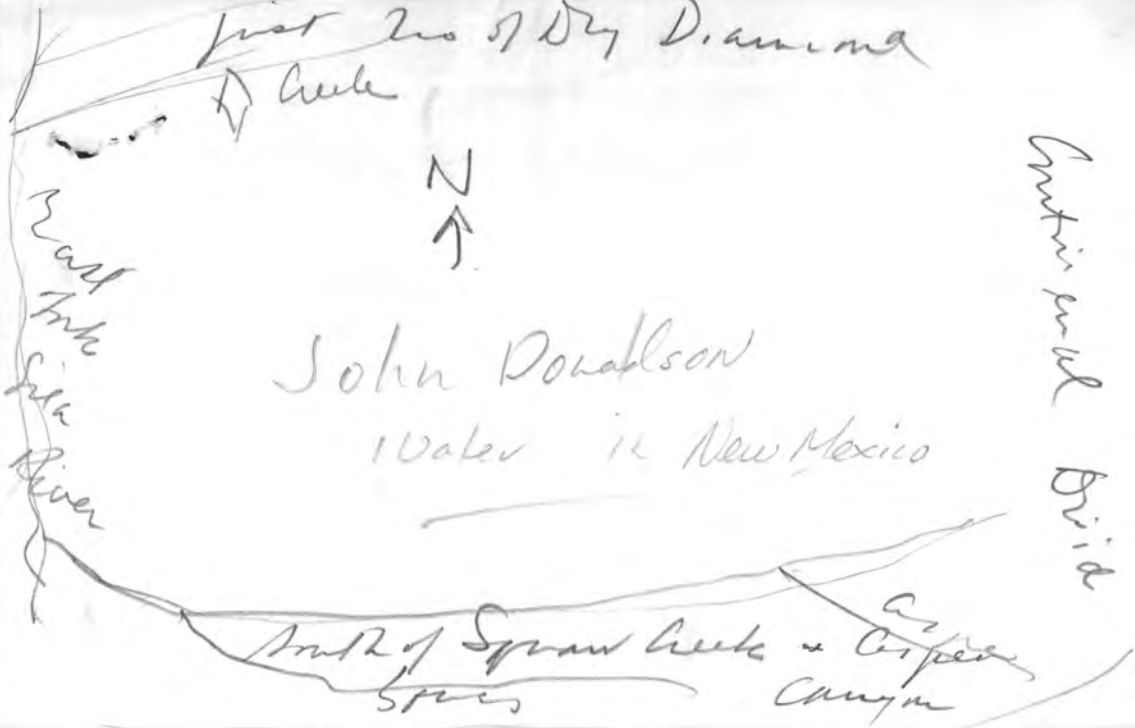
It has come to Mr. Donaldson's attention that because of other employment you have accepted in connection with mining claims in the vicinity of his property that a conflict of interest has developed and that it would be impossible for you to continue any representation of Mr. Donaldson. Mr. Donaldson has instructed us to advise you that any negotiations for a proposed agreement or agreements is hereby terminated, and you are advised that Mr. Donaldson does not wish you to act any further for him. Would you kindly return to Mr. Donaldson or this office any material he has left with you, including the induced polarization work.

Very truly yours,

CHANDLER, TULLAR, UDALL & RICHMOND

By

TC/bb


just 2 mo of Dry Diamond
Creek
N
East Fork Gila River
Continental Divide
John Donaldson
Water in New Mexico
South of Squaw Creek & Aspen Canyon
Springs

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

LOOKOUT MOUNTAIN QUADRANGLE
NEW MEXICO
15 MINUTE SERIES (TOPOGRAPHIC)

Mapped by the Geological Survey and U. S. Forest Service
Edited and published by the Geological Survey

Control by USC&GS and USFS

Culture and drainage in part compiled from aerial photographs taken 1936. Topography by plane-table surveys by the U. S. Forest Service, 1943. Field check 1949

Polyconic projection. 1927 North American datum
10,000-foot grid based on New Mexico coordinate system, west zone

Dashed land lines indicate approximate locations
Certain land lines are omitted in T. 11 S.–R. 9 and 10 W., and T. 9 S.–R. 11 W., and in all of T. 12 S.–R. 9, 10, and 11 W., and T. 10 S.–R. 11 W. because of insufficient data

Unchecked elevations are shown in brown

13½°
TRUE NORTH
MAGNETIC NORTH
APPROXIMATE MEAN DECLINATION, 1949

SCALE 1:62500

1 ½ 0 1 2 3 4 MILES

3000 0 3000 6000 9000 12000 15000 18000 21000 FEET

1 .5 0 1 2 3 4 5 KILOMETERS

CONTOUR INTERVAL 100 FEET
DATUM IS MEAN SEA LEVEL

NEW MEXICO
QUADRANGLE LOCATION

ROAD CLASSIFICATION

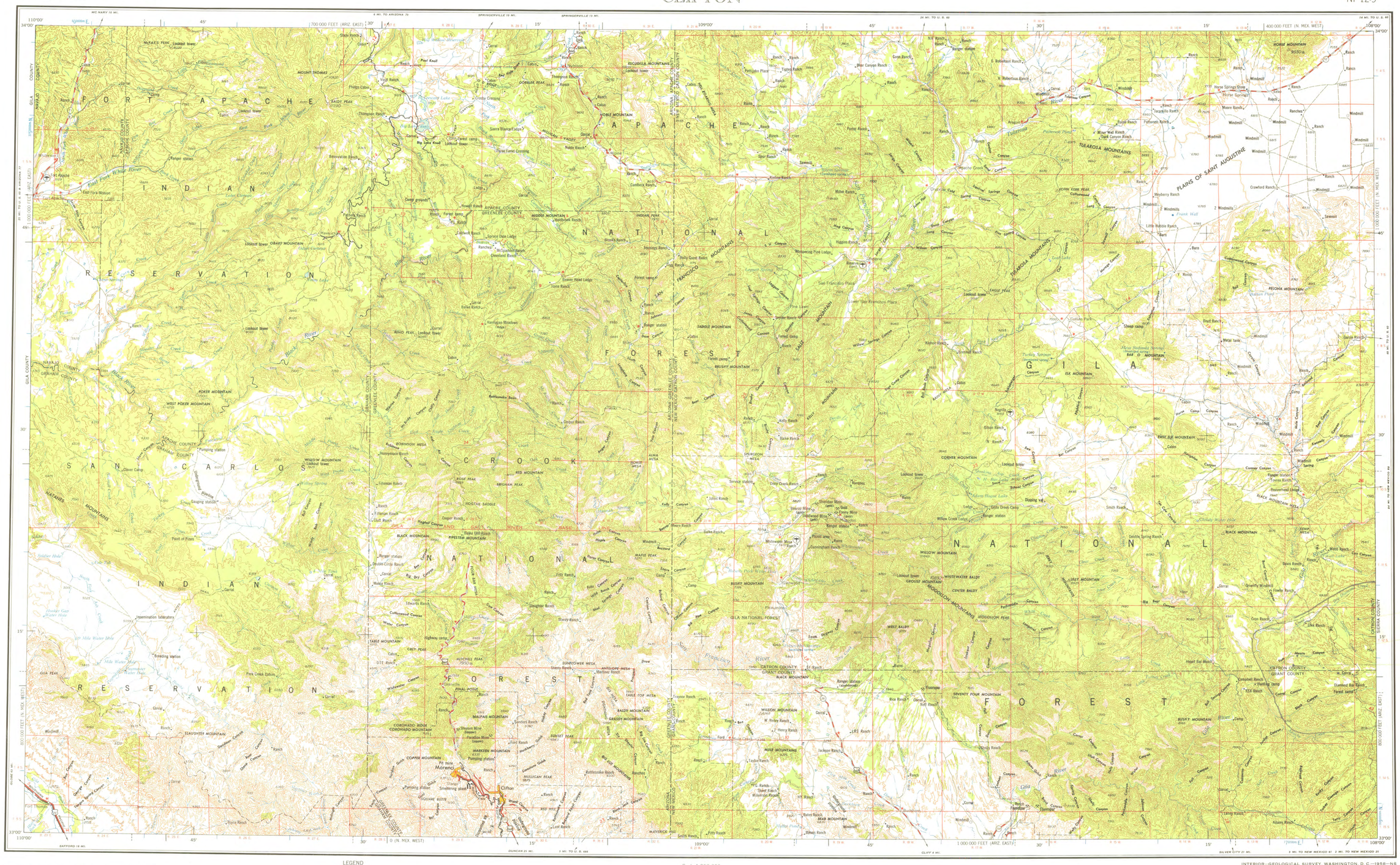
Heavy-duty — 4 LANE | 6 LANE
Medium-duty — 4 LANE | 6 LANE
Light-duty
Unimproved dirt
U. S. Route
State Route

LOOKOUT MOUNTAIN, N. MEX.
N3315—W10745/15
1949

FOR SALE BY U. S. GEOLOGICAL SURVEY, FEDERAL CENTER, DENVER, COLORADO OR WASHINGTON 25, D. C.
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D. C.—1953

CLIFTON



Prepared by the Army Map Service (BEEE), Corps of Engineers, U. S. Army, Washington, D. C. Compiled in 1954 by photogrammetric methods. Horizontal and vertical control by USGS and USC&GS. Aerial photography 1953-1954. Photography field annotated 1954.

100,000 foot grid based on New Mexico coordinate system, west zone and Arizona coordinate system, east zone

10,000 meter Universal Transverse Mercator grid ticks, zone 12, shown in blue

LEGEND

ROAD DATA 1954

Figures in red denote approximate distances in miles between stars

POPULATED PLACES
Over 500,000 — LOS ANGELES
100,000 to 500,000 — OMAHA
25,000 to 100,000 — GALVESTON
5,000 to 25,000 — Lorraine
1,000 to 5,000 — Grand Coulee
Less than 1,000 — Sun Valley

RAILROADS
Standard gauge — Single track, Double or Multiple
Narrow gauge

BOUNDARIES
International
State
County
Park or reservation

ROADS
Hard surface, heavy duty — 3 LANES | 4 LANES
More than two lanes wide
Two lanes wide; Federal route marker — 66
Hard surface, medium duty — 3 LANES | 4 LANES
More than two lanes wide
Two lanes wide; State route marker — 11
Improved light duty
Unimproved dirt
Trail

Landplane airport
Landing area
Seaplane airport
Dry lake
Woods-brushwood

Landmarks: School; Church; Other
Horizontal control point
Spot elevation in feet — 2.2
Marsh or swamp
Intermittent or dry stream
Power line

Scale 1:250,000

5 0 5 10 15 20 Statute Miles

5 0 5 10 15 20 25 30 Kilometers

5 0 5 10 Nautical Miles

CONTOUR INTERVAL 200 FEET
WITH SUPPLEMENTARY CONTOURS AT 100 FOOT INTERVALS

TRANSVERSE MERCATOR PROJECTION

1955 MAGNETIC DECLINATION FOR THIS SHEET VARIES FROM 13°30' EASTERLY FOR THE CENTER OF THE WEST EDGE TO 13°00' EASTERLY FOR THE CENTER OF THE EAST EDGE. MEAN ANNUAL CHANGE IS 0°30' WESTERLY.

FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER 2, COLORADO OR WASHINGTON 25, D. C.

LOCATION DIAGRAM FOR NI 12-9

INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D. C.—1958—NS
M R-2512

SECTIONIZED TOWNSHIP

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

TOWNSHIP OR RANGE LINE
LAND GRANT BOUNDARY

CLIFTON, ARIZONA; NEW MEXICO

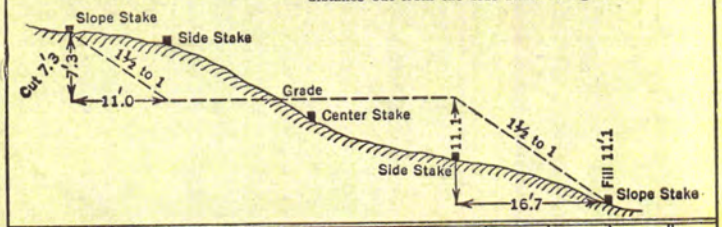
LOCATED
LOCATED
27
TEMP!!
26
PAPAGO INDIAN RESERVATION
KWEN LUN 13
KWEN LUN 11
KWEN LUN 9
KWEN LUN 14
KWEN LUN 12
KWEN LUN 10
REX
7
5
3
1
8
6
4
2
25
REX
1-8 & 15-24 REX ONLY!
400'
23
21
19
17
15
24
22
20
18
16
LOCATED
LOCATED 1/4 CORNER Recent
PAPAGO INDIAN RESERVATION
4200
3960'
PAPAGO INDIAN RESERVATION
3600
5160'
57
55
53
51
49
43
41
39
37
35
33
31
KWEN LUN 25
KWEN LUN 27
KWEN LUN 29
58
56
54
52
50
48
44
42
40
38
36
34
32
KWEN LUN 26
KWEN LUN 28
KWEN LUN 30
34
35
36
59
60
61
62
63
64
66
67
68
69
70
71
72
73
LOCATED
1/4 CORNER Equated
NORTH
Scale: 1" = 500'
Ros Kruge. Mts Area
Map!
Located Section Corners.
Recovery Monument Reported By GEOEX.
KWEN LUN 9
Claim Located By GEOEX.
Valid Claim Boundry.
Claim Boundry Extended On Private Land.
Private Land Not Open To Mineral Entry.
Papago Indian Reservation.
Private Land Open To Mineral Entry.
Private Land
Federal Land Open To Mineral Entry
Kwen Lun → Lode Claim
Rex → Placer Claim
Overlap of Claim Boundrys

Roskruge District

DISTANCES FROM SIDE STAKES FOR CROSS-SECTIONING

Roadway of any Width. Side Slopes 1½ to 1.

In the figure below: opposite 7 under "Cut or Fill" and under .3 read 11.0, the distance out from the side stake at left. Also, opposite 11 under "Cut or Fill" and under .1 read 16.7, the distance out from the side stake at right.



Cut or Fill	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	Cut or Fill
	Distance out from Side or Shoulder Stake										
0	0.0	0.2	0.3	0.5	0.6	0.8	0.9	1.1	1.2	1.4	0
1	1.5	1.7	1.8	2.0	2.1	2.3	2.4	2.6	2.7	2.9	1
2	3.0	3.2	3.3	3.5	3.6	3.8	3.9	4.1	4.2	4.4	2
3	4.5	4.7	4.8	5.0	5.1	5.3	5.4	5.6	5.7	5.9	3
4	6.0	6.2	6.3	6.5	6.6	6.8	6.9	7.1	7.2	7.4	4
5	7.5	7.7	7.8	8.0	8.1	8.3	8.4	8.6	8.7	8.9	5
6	9.0	9.2	9.3	9.5	9.6	9.8	9.9	10.1	10.2	10.4	6
7	10.5	10.7	10.8	11.0	11.1	11.3	11.4	11.6	11.7	11.9	7
8	12.0	12.2	12.3	12.5	12.6	12.8	12.9	13.1	13.2	13.4	8
9	13.5	13.7	13.8	14.0	14.1	14.3	14.4	14.6	14.7	14.9	9
10	15.0	15.2	15.3	15.5	15.6	15.8	15.9	16.1	16.2	16.4	10
11	16.5	16.7	16.8	17.0	17.1	17.3	17.4	17.6	17.7	17.9	11
12	18.0	18.2	18.3	18.5	18.6	18.8	18.9	19.1	19.2	19.4	12
13	19.5	19.7	19.8	20.0	20.1	20.3	20.4	20.6	20.7	20.9	13
14	21.0	21.2	21.3	21.5	21.6	21.8	21.9	22.1	22.2	22.4	14
15	22.5	22.7	22.8	23.0	23.1	23.3	23.4	23.6	23.7	23.9	15
16	24.0	24.2	24.3	24.5	24.6	24.8	24.9	25.1	25.2	25.4	16
17	25.5	25.7	25.8	26.0	26.1	26.3	26.4	26.6	26.7	26.9	17
18	27.0	27.2	27.3	27.5	27.6	27.8	27.9	28.1	28.2	28.4	18
19	28.5	28.7	28.8	29.0	29.1	29.3	29.4	29.6	29.7	29.9	19
20	30.0	30.2	30.3	30.5	30.6	30.8	30.9	31.1	31.2	31.4	20
21	31.5	31.7	31.8	32.0	32.1	32.3	32.4	32.6	32.7	32.9	21
22	33.0	33.2	33.3	33.5	33.6	38.8	33.9	34.1	34.2	34.4	22
23	34.5	34.7	34.8	35.0	35.1	35.3	35.4	35.6	35.7	35.9	23
24	36.0	36.2	36.3	36.5	36.6	36.8	36.9	37.1	37.2	37.4	24
25	37.5	37.7	37.8	38.0	38.1	38.3	38.4	38.6	38.7	38.9	25
26	39.0	39.2	39.3	39.5	39.6	39.8	39.9	40.1	40.2	40.4	26
27	40.5	40.7	40.8	41.0	41.1	41.3	41.4	41.6	41.7	41.9	27
28	42.0	42.2	42.3	42.5	42.6	42.8	42.9	43.1	43.2	43.4	28
29	43.5	43.7	43.8	44.0	44.1	44.3	44.4	44.6	44.7	44.9	29
30	45.0	45.2	45.3	45.5	45.6	45.8	45.9	46.1	46.2	46.4	30
31	46.5	46.7	46.8	47.0	47.1	47.3	47.4	47.6	47.7	47.9	31
32	48.0	48.2	48.3	48.5	48.6	48.8	48.9	49.1	49.2	49.4	32
33	49.5	49.7	49.8	50.0	50.1	50.3	50.4	50.6	50.7	50.9	33
34	51.0	51.2	51.3	51.5	51.6	51.8	51.9	52.1	52.2	52.4	34
35	52.5	52.7	52.8	53.0	53.1	53.3	53.4	53.6	53.7	53.9	35
36	54.0	54.2	54.3	54.5	54.6	54.8	54.9	55.1	55.2	55.4	36
37	55.5	55.7	55.8	56.0	56.1	56.3	56.4	56.6	56.7	56.9	37
38	57.0	57.2	57.3	57.5	57.6	57.8	57.9	58.1	58.2	58.4	38
39	58.5	58.7	58.8	59.0	59.1	59.3	59.4	59.6	59.7	59.9	39
40	60.0	60.2	60.3	60.5	60.6	60.8	60.9	61.1	61.2	61.4	40

KEUFFEL & ESSER CO., N. Y.

Roskruge Project
Field Book

The paper in this book **No. 373A**
is made of **50%** high grade rag stock
with a **WATER RESISTING** surface sizing.

Tranit Survey Notes
Boundary Survey Sec. 34, T14S, R10E

F.S.	Dcc.	B.S.	Dist.	∡	Mag Bear.
	NE. cor, sec. 34	N 1/4 cor sec. 34		Left ∡ to SE Cor. 34 (89°41')	
Pt. on Line To SE. cor. 34					
				Continuation of above	
33+60 from NE Cor.	sec. 34 E 1/4 cor	Sec. 34 NE Cor	14	180°0'	N 0°11'
39+60 from NE Cor.	33+60	E 1/4 cor		180°0'	N 0°11'

Weather: Clear, warm

T - N.E.E. Date: 9/28/56

R - A. Clark

Remarks

NE cor. sec 34, is 6.7' S. of Papago Res. Boundary Fence

NS. boundaries sec. 34 bear N0°11'E

Date: 10/1/56

T - NEE Weather: Clear, warm

R - E.G.H

Ch. - Al. Clark Found E 1/4 cor sec. 34

It chained 2642' from NE cor 34.

Moved instru. & set up over

E 1/4 cor. to project E side line to SE cor

sec. 34.

Mag. bea. on transit 0°50' E.

3.

B.S.	Occ.	F.S.
33+60 from NE cor	E 1/4 cor sec. 34	2+83W
		5+66W
		6+00W

Date: Oct. 1, 1956
3, 1956

T - N.E.E.

R - E.G.H.

Ch - Al. Clark

Survey E-W line from E¼ cor W for 3960'.

Angle	Mag. Bearing	Occupied ¼ Cor to 6+00
89°49'	N89°W	

Occupied 6+00 sta on E-W Line
89°49' N89°W to Sta. 23+30

Occupied Sta 28+30 to 29+91
89°49' N89°W

Occupied Sta. 29+91 to 39+62
89°49'

Occupied 39+62 on page 7.

Traverse South
5.

Date Oct 2, 1956

Sta. occupied

1320 E of NW Corner of Section 34

F.S.	B.S.	Angle	to 9+90 S
NW Cor Sec 34	1/4 Cor	89°49'	Mag. S03°30'E

Sta. occupied 9+90 S

BS	ES
1320 E NW Corner	2640 S

Date 10/3/56 6.

Traverse South
from 16+40 E of 1/4 27/34

Sta. No.	F.S.	B.S.	Angle	Mag. Bearing	
E 1/4 27/34 16+40	290' So.	NE Cor. Sec. 34	90°11'	S02°E	1. ✓
	580' So.				2. ✓
	870' So.				3. ✓
	1160' So.				4. ✓
					5.
					6.
					7.
					8.

7. Traverse West 12/3/56
Continuation from pg. 4

F.S.	Sta. Occupied	B.S.	Angle	Mag. Bearing
	39+62	6+00	180°	N 88°30' W
41+62				
44+62				
47+62				
50+62				
52+90.7				

Contin. of above traverse

F.S.	Sta. Occ.	B.S.	∡	Mag. Bea.

See page #9

Traverse West

F.S.	Sta. Occupied	B.S.	Angle	Mag. bearing
	11+60 So NE Cor 34	33+60S	89°49'	N89W
383				
5+66				
8+49				
10+00				
~~11+32~~				
11+32				
~~14+15~~				
~~16+98~~				

Note: All pts on 11+60 So. Line moved 10' So. to conform to 11+70 So line.

N.E.E.

Date: 10/5/56

T. NEE

R. A.D.C.

Contin. Traverse from p. 8

F.S.	Sta. Occ.	B.S.	∡	Mag Bea.
	10+00	8+49	180°0'	
11+32				
2+83				
14+15				

Date 10/5/56

T N.E.E. Traverse along S bound.

R. A.O.C. claims 18, 20 & Mag. 2.

set pencil mark on 14+15, 11+32 & 10+00

to line up on.

11.

Traverse W. 10/17/56

T E.G.H.

R. J-W

FS	Occ. Sta.	BS	∠	Mag Bear.
		Wt. flag on hill		
11+85.5	39+60		89°49'	N88°W
	11+85.5	39+60	180°00'	
	16+59.6	11+85.5		
	21+52	16+59.6		

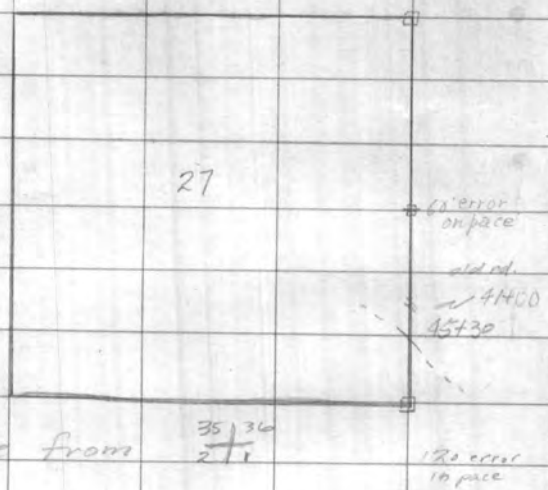
Remarks

Traverse west from pt. 13+20 S of ¼ COR 34-35 laying out S line of S tier of mag group of claims

12/19/56

Notes on McMag Control

E line of Sec. 27



Pace traverse from

Due East

300' to fence line bearing N15°W

thence SE along fence line 180' to bend in fence bearing N50°E.

Proceeded from fence & section line intersection pt. along fence to power line pt. xing power line 1128 bearing Due North. Thence to drain 1423' bearing N15 E

Proceeded along fence line to 2598

cont. on opposite pg.

45

36
+20 drain (small)
33+30 wash (major)
32+40 MOMAG

√27

24
21

18 MOMAG
14+25 drainage complex
12+50

√12
9+30 MOMAG
√9

Continued from opposite page.

Mo Mag line #105 @ fence intersectio

190' diff. between line due E from $\frac{35}{2}$ & pt. which might be section cor. $\frac{35}{2}$ | $\frac{36}{1}$

Thence to Mo Mag line #102 along fence at 4698'

12/20/56

Notes on Mo Mag Control

1/4/57

Line A				
Base Station	Station	Potential	S.P. Drift Correction	R-D Area A_0 Potential (MV)	
At N¼ Cor. Sec. 34	0	-.0072			
Bearing S48°W	A-1003W	-.0210	+0072	-14	
	200	+.0013	+0069	+8	
	300	-.0082	+0066	-2	
	400	+.0076	+0063	+14	
	500	+.0033	+0060	+9	
	600	-.0039	+0057	+2	
	800? 700 (800)	-.0033	+0054	+2	
	900 800	+.0168	+0051	+22	
	1000 900	+.0080	+0048	+13	Middle Dom. Cut. Magnetite
	1100 1000	+.0010	+0045	+6	
	1200 1100	+.0264	+0042	+31	Volcanics
	1300 1200	+.0235	+0039	+27	"
	1400 1300	+.0349	+0036	+38	"
	1430 1400	+.0438	+0032	+47	"
	0	-.0032			
Line B	0	+.0193		+.0250	
Reverse Pots Line B	0	+.0243	.0218 + .0032 = .0250		
Reverse Pots Line A	0	+.0031			

1/4/57

Line Z bearing	Sta.	Patent	Rev.	
N 42 W @ 1/4 cor. 34/27		+ .0044	-.0063	
	Z-0	Ave. .0032	+.0063	+.0095
	Z-0	.0020	.0063	

Line A 1/4/57 ✓

bearing	Sta	Potent	Rev. A_0 Potential (mv)		
N48E	0	-.0031			
	100	.0108	+14	850	.0026
	200	.0192	+22	900	.0238
	300	.0068	+10	950	.0007
	400	-.0030	0	875	.0180
	500	.0087	-6	925	.0090
	600	.0093	-6	0	.0027
	700	.0140	-11		
	800	.0049	-2		A_0 Potential
	900	.0301	-27	850	-0
	1000	.0067	-4	900	-21
	1100	.0083	+11	950	+2
	1200	.0124	+16	875	-15
	1300	.0044	+8	925	-6
	1400	.0145	+18		
	1050	.0051	+8		
	1000	.0023	+1		
	950	?			

✓

Self Potential 1/4/57

Base Station	Station	Potential	Drift Corr	Ao Potential (MV)	Potential Computed -15 MV
B-0	B-0	-.0003		+25.0	+10
548 W	B-100 SW	+.0103	+0003	+36	+21
	200	-.0108	+0003	+14	-1
	300	+.0021	+004	+28	+13
	400	-.0137	+0004	+11	-4.
	500	+.0088	+0005	+34	+19
	600	+.0100	+0005	+36	+21
	700	+.0198	+0006	+45	+30
	800	+.0236	+0006	+49	+34
	900	+.0155	+0007	+41	+26 100' NW of NE Cor H4
	1000	+.0053	+0007	+31	+14
	1100	+.0245	+0008	+50	+35 Middle of Road
	1200	+.0311	+0008	+57	+42
	1300	+.0088	+0009	+34	+19
	1400	+.0188	+0009	+45	+20
	B-0	-.0009			

	Self	Potential		Water in Hole	1/4/57
Base Station	Station	Potential	Drift Correction	A_0 Potential (Mv)	Computed Potentials
Z-0	Z-0	-.0064		+9.5	9
Bearing S48°W	100 SW	-.0024	+.0064	+14	15
	200	+.0011	+.0060	+17	14
	300	+.0069	+.0056	+22	17
	400	+.0129	+.0052	+27	17
	500	+.0177	+.0048	+32	18
	600	+.0173	+.0044	+31	13
	700	Missed			
	800	+.0125	+.0040	+26	+10
	900	+.0091	+.0036	+22	+6
	1000	+.0229	+.0032	+36	+21
	1100	+.0186	+.0028	+31	11+70 +4 & of 2?
	1200	+.0147	+.0024	+27	+11
	1300	+.0195	+.0020	+31	+20
	1400	+.0227	+.0016	+34	+18
	0	-.0015			

Do not use

1/5/57

Line 2

bearing	Sta.	Potent. obs.	Drift Correction	Ao Potential comp.	
N48E	2-0	·0031		+9.5	
	100	·0084	+0037	+22	+7
	200	·0025	+0036	+16	—
	300	·0215	+0036	+34	+17
	400	·0323	+0035	+44	+20
	500	·0153	+0035	+28	+9
	600	·0000	+0034	+13	-7
	700	·0091	+0034	+22	-2
	800	·0061	+0033	+19	
	900	·0056	+0033	+7	
	1000	·0198	+0032	+32	
	1100	·0220	+0032	+35	
	1200	·0075	+0031	+5	
	1300	·0216	+0031	+10	
	1400	·0051	+0030	+7	
	2-0	·0030			

1/5/57

Line: B

bearing	Sta.	Potent.	Drift Corr.	Ao Potential	
N48E	B-0	.0038		+25.0	
	100	.0010	.0036	+28	
	200	.0155	0033	+13	
	300	.0161	0030	+12	
	400	.0119	0028	+16	
	500	.0053	.0025	+22	
	600	.0129	.0022	+14	
	700	.0144	0020	+13	
	790	.0121	0018	+15	- fence
	900	.0078	0015	+19	
	1000	.0170	0012	+9	
	1100	.0048	0010	+21	
	1200	.0137	0008 19, 29, 41, 56,	+12 80, 97,	137 133 108, 120
	1300	+.0102	0006 145, 134, 121, 116,	+36 03, 02	
	1400	+.0086	.0002 .0090	+34	
	B-0	.0000	.0000		

drift toward -

Line 0 Bearing N42W 1/14/57

Base Sta	Line Stat	Potential	Drift Corr.	Computed Potential	
A-0	A-0	-.0039			
	after Drift	-.0152	+0039		
	Z+500	+.0028	37		
	after Drift	-.0113	35		
	Z+400	+.0065	32		
	2" deep no water Z+400	-.0265	30	-10 mv?	
	8" deep water Z+400	-.0157	28		
	8" deep water standing Z+400	-.0065	25		
	2" no water	-.0205	23		
	Z+400	-.0178	21		
no water	Z+300	-.0167	18	+1	
	Z+200	-.0225	16	-5	
	Z+100	-.0058	14	+12	
	Z+0	-.0082	+.0011	+9 mv	
	Y+500	-.0142	9	+3	
	Y+400	-.0188	7	-2	
	Y+300	-.0156	4	+1	
	Y+200	+.0003	+.0002	+17	
	Y+100	+.0028	0	+19	Y+200 Major Kink
	Y+0	+.0038	-.0002	+20	
	X+500	+.0002	4	+16	
	X+400	+.0073	-.0006	+23	X+230 Mo Mag Line

Base Stat	Line Stat.	Potential	Drift Corr.	Computed Potential
	new hole			
	Z + 500	-.0194	-0008	-4 mv
	1st hole			
	Z + 500	-.0146	-0008	
	A - 0	+.0008		

Line A 5 48°W 1/14/57

Base Station	Line Stat.	Potential	Drift Corr.	Computed Potential
A 0	A 0	+.0008		
	A 100	-.0250	-.0008	-14 mv
	A 200	-.0197	-.0008	-9
	A 300	missed ~~-.0212~~	-.0009	—
	A 400	-.0212 ~~-.0303~~	-.0010	-10
	A 500	-.0303 ~~-.0321~~	-.0011	-21
	A 600	-.0321	-.0012	-22
	A 700	-.0318	-.0013	-21
	A 800	-.0245	-.0013	-14
	A 900	-.0133	-.0014	-3
	A 1000	-.0223	-.0015	-12
	A 1100	-.0298	-.0016	-20
	A 1200	-.0018	-.0017	+8
	A 1300	+.0014	-.0018	+11
	A 1400	+.0079	-.0019	+18
	A 0	+.0019		

Using No Water

Start 11:15

Line A 548°W 1/14/57

Base Stat.	Line Stat.	No Water Potential Observed	Water Soaked Potential Observed	Diff (W.S - N.W)	No Water	Water Soaked
A 0 SW	A0 SW		+.0019			
	A 100	-.0253	-.0158	.0095	-27	-18
	200	-.0222	-.0175	.0047	-24	-19
	300	-.0278	-.0247	.0031	-30	-27
	400	-.0191	-.0166	.0025	-21	-19
	500	-.0233	-.0241	-.0008	-25	-26
	600	-.0290	-.0237	.0053	-31	-26
	700	-.0276	-.0221	.0055	-29	-24
	800	-.0222	-.0197	.0025	-24	-22
	900	-.0108	-.0096	.0012	-13	-12
	1000	-.0209	-.0129	.0080	-23	-15
	1100	-.0279	-.0157	.0122	-30	-18
	1200	.0000	+.0057	.0057	~~-2~~ 0	+4
	1300	+.0029	+.0152	.0123	+1	+13
	1400	+.0099	+.0202	.0103	+8	+18
	1050	+.0153	-.0097	.0056	-17	-12
	1150	-.0087	-.0013	.0074	-11	-3
	A0		+.0017			

Water soaked for 40 min

Start 11:55

Line N 48° E/E

Base Station	Line Station	No Water Potential observed	Water Potential observed	Drift Corr. No water	Potential Computed
A 0	A 0		-.0008		+36
	A 100 NE	-.0023	+.0188	+.0008	+34
	200	+.0060	+.0259	8	+43
	300	-.0070	+.0128	9	+30
	400	-.0184	+.0044	9	+18
	500	-.0247	+.0032	9	+12
	600	-.0266	-.0016	10	+10
	700	-.0300	-.0163	10	+7
	800	-.0225	+.0035	10	+14
	900	-.0391	-.0137	11	-2
	1000	-.0230	+.0032	11	+14
	1100	-.0160	+.0081	12	+21
	1200	-.0120	+.0150	12	+25
	1300	-.0133	—	12	+24
	1400	-.0125	—	+0013	+25
	A 0		-.0013		
	Start	1:11 P.M.			

1/14/57

No Water Potential	Water Soaked Pot Observed	No Water Potential Observed
	-.0013	
-.0074	+.0018	—
-.0045	+.0038	+.0005
-.0100	-.0061	-.0103
-.0270	-.0171	-.0232
-.0280	-.0181	-.0246
-.0343	-.0248	-.0292
-.0371	-.0297	-.0339
-.0273	-.0211	-.0242 ~~.0211~~
-.0401	-.0383	-.0354
-.0234	-.0218	-.0199
-.0169	-.0134	-.0131
-.0138	-.0083	-.0111
-.0007	-.0007	

Start 1:56 P.M.

Line 0 # S 42° E +0257

Base Station	Line Station	No Water Potential	Drift Corr	Potential Computed	
A 0	A 0	-.0007		+36	
	A+100	-.0046	+0007	+32	
	A+200	-.0201	9	+16	
	A+300	-.0137	10	+23	330 Wash
	A+400	+.0103	12	+47	400 Sandy S edge wash
	A+500	-.0166	13	+20	
	B	-.0272	-0257 15	+10 mv	
	B+100	-.0038	16	+34	
	B+200	-.0099	18	+28	
	B+300	-.0141	19	+24	
	B+400	-.0206	21	+17	
	B+500	-.0350	22	+3	
	C	-.0266	24	+12	
	Road C+100	-.0234	+0025	+15	
	C+200	—			
	A0	-.0025			

1/14/57

Line 600 SW

Base Stab	Line Station	Potential	Drift Correction	Potential Computed	
A 600	A+600	.0011		-21 mv	
A 600	Z ~~B~~+500	+.0130	+0011	-7	
	Z ~~B~~+400	+.0044	13	-15	
	Z ~~B~~+300	+.0163	15	-3	
	Z ~~B~~+200	+.0224	16	+3	
	Z ~~B~~+100	+.0186	18	-1	Z +67 Fence
	~~B~~ Z	+.0340	20	+15	
	A ~~+600~~	+.0002	21	-19	
	A +100	+.0038	23	-15	
	A+200	+.0249	25	+6	
	A+300	+.0326	26	+14	
	A+400	+.0425	28	+24	390 Wash
	A+500	+.0190	30	+1	
	B	+.0340	+0031	+16	567 Road
	A 600	-.0032			

No Water

Line	B				1/14/57
Base Stat		Potential			
B 600	B 600	0000			
	B 0	-.0028			
	B 600	0000			

Experimental Loop Closure

Base Station	Line Station	Potential	Ave Potential Diff	Potential Diff
~~B 550~~				
SW B 550	SW 550 B ~~600~~	-.0001		
	B 600	-.0020	-.0018	+.0034
	B 100	+.0016	+.0016	
	B 600	-.0017		
	B 550	-.0003		
	A B 600	-.0385	-.0385	+.0373
	B 600	-.0007	-.0012	
	B 550	-.0009		
SW A 050	SW A050	-.0009		
	A SW 0	+.0167		
	SW A 100	-.0040	-.0053	A100-B100 +.0345
	B 100	+.0296	+.0296	A100 B0 +.0237
	B 0	+.0184	+.0184	A0 B100 +.0132
	A 100	-.0066		A0 B0 +.0020
	A 0	+.0161	+.0164	
	A 050 ~~A 050~~	-.0010		
	A 600	-.0127	-.0127	A100-A600 -.0073
	A 100	-.0042	-.0054	
	A 0	+.0171	.0166	

1-15-57

Base Station	Line Station	Potential		
A 050	A 050	-.0018		
	SW A 100	-.0071	~~A100-Z100~~	
	SW Z 100	+.0205	+.0205	A 100-Z 100 +.0274
	A 100	-.0067	-.0069	
	A 050	-.0019		
Z 700 ± SW	Z 700 SW	-.0013		
	Z 600 SW	+.0007	+.0004	SW SW Z 100-Z600 0.
	Z 100	+.0004	+.0004	
	Z 600	0000	0000	A600-Z600 +.0336
	Z 700	-.0018		
	A 600	-.0336	-.0336	
	Z 600	-.0001		
	Z 700	-.0027		

Potential

A_{100} SW	-14 mv	B_{100} SW	+21 mv	Z_{100} SW	+13 mv
A_{600} SW	-21 mv	B_{600} SW	+17 mv	Z_{600} SW	+13 mv
		B_0 SW	+10 mv		

Line Z No Water

Base Station	Line Station	Observed Potential		Potential Computed
Z 700 ± SW	Z 700 ±	-.0020		
	Z 600 SW	0		+ 13 mv
	500	+.0056	-.0002	+ 18
	400	+.0048	-.0004	+ 17
	300	+.0043	-.0006	+ 17
	200	+.0019	-.0008	+ 14
	100 SW	+.0030	-.0010	+ 15
	Z 0	-.0025	-.0012	+ 9
	100 NE	-.0047 2	-.0014	+ 7
	200 NE	~~+.0047~~ 2	-.0016	—
	300	+.0062	-.0018	+ 17
	400	+.0087	-.0020	+ 20
	500	-.0014	-.0022	+ 9
	600	-.0182	-.0024	- 7
	Z 700 NE	-.0125	-.0026	- 2
	Z 600 SW	+.0026		
	Z 700 SW	-.0002		

1/15/57

Base Station	Line Station	Potential	Drift Correction	Potential Computed	Potential
Z ~~600~~ 700+ SW	Z 600SW	+.0026		+ 13 mv	
	Z 700	—			
	800	-.0060	-0026	+ 10	
	900	-.0050	-0025	+ 6	
	1000	+.0108	-0024	+ 21	
	1100	-.0064	-0024	+ 4	
	1200	0	-0023	+ 11	
	1300	+.0090	-0022	+ 20	
	1400SW	+.0070	-0021	+ 18	
	600	+.0021			
	Z 700+	0000			

Line 500 SW

Base Station	Line Station	Potential	Drift Correction	Potential Computed	
A 500	A 500	0			
bearing N 42° W	Reference A 600	.0002		-21 mv	
	100	+.0035	-.0003	-18	25' So. quartz
	200	-.0015	5	-23	
	300	-.0091	7	-31	
	400	+.0029	9	-17	
	500	+.0171	11	-5	
	600	+.0372	13	+15	
	700	+.0384	15	+16	
	800	+.0359	17	+13	
	900	+.0258	19	+3	
	1000	+.0379	21	+15	
	1100	+.0393	23	+16	Mowag Line
	1200	+.0315	25	+8	
	1300	+.0076	27	-16	
	1400	+.0255	-.0029	+2	Volcanic Outcrop
	Ref. A 600	+.0029			
	A 500	+.0019			

✓

Line 500 SW 1/15/57

Base Sta.	Line Sta.	Potent.	Drift Correction	Potential Computed	
A 500 bearing S42°E	A 500 Ref. A600SW	+0029		-21 mv	
	100	-.0032	-0029	-27	
	200	+.0279	29	+5	
	300	+.0316	28	+8	
	400	+.0463	28	+23	Center Wash
	500	+.0255	28	+2	
	600	~~+.0218~~ .0318	27	+8	
	700	+.0369	27	+13	
	800	+.0394	27	+16	
	900	+.0383	26	+15	
	1000	+.0313	26	+8	
	1100	+.0246	26	+1	SE Cor Mag 5
	1200	+.0093	25	-14	
	1300	+.0312	25	+8	
	1400	+.0072	-0025	-16	
	Ref. A600	+.0025			
	A500	+.0046 ?			

Line A (repeat) N48E 1/25/57

Base Sta.	Line Sta.	Potent.	Drift Correct	Not adj. Comput. Potent.
A-1SW	Base A-1SW	-.0035		
bearing				
N48°E	A-0	+.0192	-.0002	+19Mv
	100	+.0301	-.0004	+30Mv.
	200	+.0355	-.0006	+35Mv.
	300	+.0300	-.0008	+29
	400	+.0166	-.0010	+16
	500	+.0043	-.0012	+3
	600	+.0036	-.0014	+2
	700	-.0002	-.0017	-2
	800	+.0100	-.0020	+8
	900	-.0228	-.0023	-25
	1000	+.0012	-.0026	-1
	1100	+.0147	-.0029	+12
	1200	+.0247	-.0032	+22
	1300	+.0135	-.0035	+10
	Base A-1SW	±.000		
	A-0	+.0229		

Note Small amount of water used & allowed to thoroughly soak in.

Line 0 N42W 1/25/57

Base Sta.	Line Sta.	Potent.	Drift Correct.	Not Adj. Comput. Potent
0-100SE	Base A-100SE	.0000		
Bearing				
N42°W	A-0	-.0029	-0002	-3 Mv.
	100	-.0096	-0004	-10Mv.
	200	-.0160	-0006	-17
	300	-.0089	-0008	-9
	400	-.0027	-0010	-4
	500	+.0091	-0012	+8
Line Z-0	600	+.0166	-0014	+15
	700	+.0018	-0017	±0
	800	+.0035	-0020	+2
	900	+.0010	-0023	-1
	1000	+.0217	-0026	+19
	1100	+.0291	-0029	+26
	1200	+.0279	-0032	+25
	1300	+.0221	-0035	+19
	0-100SE	+.0035		
	Reference A-100SW	-.0173	-0035	

Line B (repeat) NE 1/25/57

Base Sta.	Line Sta.	Potent.	Drift Corr.	Not Adj. Comp. Potent.
B-0	B-0	+.0010		
Line bearing				
N48°E	B-100SW	Ref. -.0036		
	B-100NE	+.0087	-.0002	+9 Mv.
	200	-.0079	-.0004	-8
	300	-.0059	-.0006	-7
	400	-.0083	-.0008	-9
	500	-.0008	-.0010	-2
	600	-.0058	-.0012	-7
	700	-.0083	-.0014	-10
	800	-.0076	-.0016	-9
	900	-.0011	-.0018	-3
	1000	-.0129	-.0020	-15
	1100	.0000	-.0022	-2
	1200	-.0066	-.0023	-9
	1300	+.0103	-.0024	+8
	1400	+.0085	-.0026	+6
Base	B-0	+.0036		
	B-100SW	-.0018		

1/25/57 ✓

Line B (repeat) SW

Base Sta.	Line Sta.	Potent.	Drift Corr.	Not adj. Comp. Potent.
B-0	B-0	+.0036		
bearing	B-100 SW	-.0018	-0002	-2 Mv.
S48°W	200	+.0033	-0004	+3 Mv.
	300	+.0102	-0006	+10
	400	-.0070	-0008	-8
	500	+.0164	-0010	+15
	600	+.0154	-0012	+14
	700	+.0227	-0014	+21
	800	+.0217	-0016	+20
	900	+.0197	-0018	+18
	1000	+.0022	-0020	±0
	1100	+.0195	-0022	+17
	1200	+.0251	-0024	+23
	1300	±.0000	-0026	-3
	1400	+.0128	-0028	+10
Wet - 1944	B-1 SW	+.0025		
Wet -	B-0	+.0064		

To estb. E.M. Survey Sta.
Transit Traverse 2/14/57

T - E.G.H.

R - D.J. Bearing N45°E

F.S.	OCC. Sta.	B.S.	∠	Bearing	Remarks
3+00'	27/34	28/33 27/34	135°	N45°E	
6+00'	3+00	27/34	180°	"	
9+00'	6+00	3+00	180°	"	
12+00'	9+00	6+00	180°	"	Line Qt. Electrode
7+00'	12+00	6+00	180°	S45°W	
Bearing	S45°E				
2+56	Base Line 0-pt 7+00	12+00	90°	S45°E	Base Line 0 Pt.
3+00	2+56	7+00	180°	"	
4+65	3+00	2+56	180°	"	
6+00	4+65	3+00	180°	"	
8+00	6+00	3+00	180°	"	
9+00	8+00	6+00	180°	"	
11+00	8+00	6+00	180°	"	
14+00	11+00	8+00	180°	"	

Continued on next page

2/15/57

T E.G.H.

Rod D.J. Bearing S45°E

F.S.	Occ. Sta.	B.S.	∠	Bearing	Remarks
15+00	14+00	11+00	180°	S45°E	S. END of EM BASE
Bearing N45°E					
3+00	14+00	11+00	90°	N45°E	To Elect. line
also 14+00 5+00'	3+00	14+00	180°	N45°E	ON Elect. Line
Bearing S45°E					
16+50	14+00	3+00	90°	S45°E	
17+50	16+50	14+00	180°	S45°E	
19+80	17+50	16+50	180°	S45°E	Small wash & RD TRAIL
22+80	19+80	17+50	180°	S45°E	ON RD Trail
25+00	22+80	19+80	180		ON RD Trail

25+00 S. end of electrode line

Bearing N45°W

3+00	Base Line 0+00	N45E 9+00	90°	N45°W	
6+00	0+00	N45E 9+00	180°	"	
9+00	6+00	3+00	180°	"	
12+00	9+00	6+00	180°	"	
15+00	12+00	9+00	180°	"	

2/15/57

T E.G.H.

Rod D.J. Bearing N45°E

F.S.	Occ. Sta.	B.S.	Δ	Bearing	Remarks
3+00	15+00	12+00	90°	N45°E	To electrode Line
5+00	3+00	15+00	180°	"	
Bearing N45°W					
18+00	ALSO 15+00 N45°W 5+00	NE 3+00	90°	N45°W	ON Electrode LINE
21+00	18+00	15+00	180°	"	
24+00	21+00	18+00	180°	"	
25+00	21+00	18+00	180°	"	
	25+00				END OF ELECTRODE LINE

2/19/57

T E.G.H.

Rod J.W.

Bearing S45°W

To est. Sta. on 6N & 3N

F.S.	Occ Sta.	B.S.	∠	Bearing	Remarks
6N 3+00 W	Base Sta 6+00 N	Base Sta 3+00 N	90°	S45°W	
" 6+00 W	3+00 W	Base Sta. 6+00 N	180°	"	
" 9+00 W	6+00 W	3+00 W	"	"	
" 12+00 W	9+00 W	6+00 W	"	"	
15+00 W	"		"		
18+00 W	"		"		
20+00 W	"		"		
21+19 W	"		"		

Bearing S45°E

1+61	21+19	9+00 W	90°	S45°E
Also 21+19 Line 3N 3+00	1+61	Line 6N 21+19	180°	"

Bearing N45°E

20+00	Line 3N 21+19	1+61	90°	N45°E

Stations 18+00 Thru 0 by line of sight

2/20/57

T E.G.H.

Rod J.W. & D.J.

To est. sta. on lines 3S & 0NS

Bearing S45°W

F.S.	occ. sta.	B.S.	Δ	Bearing	Remarks
0NS 12+00W	27 1/4 / 34	0NS 4+00W	180°	S45°W	
15+00W	All intermediate sta by line of sight				ON Rd.
20+00W					
Bearing S45E					
Line 3S 20+00 W	Line 0NS 20+00 W	Line 0NS 12+00 W	90°	S45E	near rd.
Line 6S 20+00 W			90°		
	Line 3S 20+00W				
18+00					on rd near well in drain

All pts. line of sight within 25' of main wash

Line 3S sta 0 in drain.

2/20/57

T E.G.H.

Rod J.W. & D.J. To est. line 6S

Bearing S45°W

F.S.	Occ. Sta.	B.S.	∠	Bearing
6S 3+00W	6S 0W	3S 0W	90°	S45W
	3+00W	6S 0W		
9+00				
12+00	6+00W			
15+00				
18+00	by line of sight			
20+00				

Bearing S45°E

Line 9S	Line 6S	Line 0		
20+00W	20+00W	20+00	90°	
Line 12S	Line 9S	Line 6S		
20+00W	20+00W	20+00W	180°	

Bearing N45E

Line 9S	Line 9S	Line 6S		
15+19	20+00W	20+00	90°	N45°E
	Line 9S	Line 9S		
	15+19	20+00	180°	"

Remaining Sta. by line of sight

error: Base line stake 9+00S is

100' SW of last surveyed pt. (end of line)
20 NW " " " " " "
∴ Sta 18W actually 17W etc.

2/20/57

π J.W.W.

Rod D.J.

Bearing S45°W Line 12+00S → W

F.S.	Occ. Sta	B.S.	∡	Bearing
3+00W	12S	9S	90°	S45°E
6+00W 9+00W	3+00W	12S	180°	S45°W
12+00W	9+00W	6+00W	180°	S46°W
15+00W	12+00W	Mag.	180°	"
18+00W	15+00W	Mag.	180°	"

error: missed 20+00W state (surveyed before)

by 5'± (we were 1' short, 4½' to SE

Bearing S45°W Line 15+00S → W

F.S.	Occ. Sta.	B.S.	∡	Bearing
3+00W	15S	14S	90°	S45°E
6+00W 9+00W 12+00W	3W	15S	180°	S45°W
15+00W 18+00W 20+00W	12W	9W	180°	"

T J.W.W 2/21/57

Rod D.J.

Bearing S45°W Line 12N → W

F.S	Occ. Sta.	B.S.	Δ	Bearing
12N-3400W	12N	9N	90°	S45°E
			180°	S45°W

2/26/57

T E.G.H.

Rod D.J.

Bearing S45°W

F.S.	Occ. Sta	B.S.	∆	Distance
	EM Base	EM Base		
15N-12W	15+00N	12+00N	90°	1200'
	All intermediate sta. by line of sight			
15N-20W	15N-12W	15+00N		
15N-18W	Heavy Iron sta.	(Shaft 10' deep) Qtz. Vein, 75' approx. N45°W		
15N-17+25W	Heavy Iron stain Qtz Vein.			

Bearing S45°E

		EM Base		
12N-12W	15N-12W	15+00N	90°	300'

Bearing S45°W

	12N-12W	15N-12W	90°	300'
on line	N45°W	to 12+00		line of sight
" "	S45°W	to 12N-20W		

12N-19W on fence line

Bearing S45°E

9N-12W	12N-12W	15N-12W	90°	300'

Bearing S45°W

ON LINE	9N-12W	12N-12W	180°
9N-15+92W	fence line		

4/4/57

Traverse from Sec. Corner 27|26 34|35 elev. 2392 to R-D #1

planetable & stadia methods

Dist.	Rod	Angle	Prod.	Diff.	Plane T. Elev.	Elev.
					27|26 34|35	2392.0
1000	B 14.5	level	19.5	+19.5	2411.5	
880	M -3.1	+1	8.1	+5.0		2416.5
670	M +12.7	level		+12.7	2429.2	
650	M -7.8	+1	+6.5	-1.3		2427.9

R-D #1 elev @ collar

Stadia planetable work

T. E.G.H.
Rod D.J.
Geologist NEE

5/7/57

Dist.	Rod	Angle	Prod.	Diff.	Planet. E.	Elev.
Occupied	Sta #18+00					
230						(1)
325						(2)
210						(3)
190						(4)
95						(5)
145						(6)
205						(7) DDH #2
285						(8)
220						(9)
350						(10)
170						(11)
320						(12)
Occupied	DDH #1		H.I = 4.0		2431.9	2427.9
150	M -6.5	+2	+3.0	-3.5		(13) Elev. D.D.H 4 2428.4
190						(14)
225						(15)
275						(16)
460	M -6.0	+4	+18.4	+12.4		(17) 2444.3 Elev. D.D. 2
215						(18)
Occupied	Sta #20 S. Line 3N					
16						(19)
180	West end line of claim					(20)
250						(21)
230						(22)

Cont reverse pg.

Cont.
Occup. pt. 22

55 (23)
50 (24)

Occup. Sta #20 Line 3 S.

310 (25)
250 (26)
210 (27)
155 (28)
170 (29)

Occup. Sta. #18 Line 3 S.

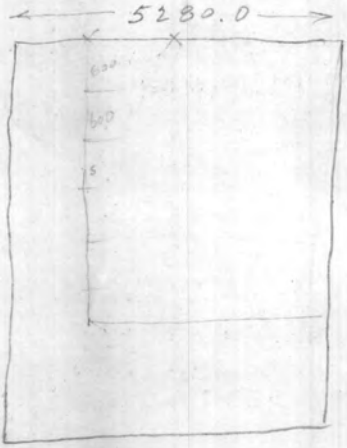
95 (30)
85 (31)
190 (32)
445 (33)

102 N.
105 S.

3600.

3960
3600
360

133½



2 | 566
283
2
566

2264
188
2452

585
2
1170

566
4
2264

566
3
1698
33.4
1659.6

1132
283
1415

2640
1170
1470

2640
1200
1440

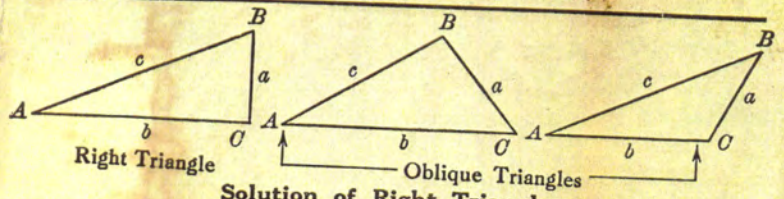
299.4
261.0
38.4

566
566
1132
53.5
1185.5

35960
9149
27011

299.5
246.0
53.5

TRIGONOMETRIC FORMULÆ



Solution of Right Triangles

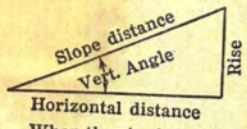
For Angle A. $\sin = \frac{a}{c}$, $\cos = \frac{b}{c}$, $\tan = \frac{a}{b}$, $\cot = \frac{b}{a}$, $\sec = \frac{c}{b}$, $\operatorname{cosec} = \frac{c}{a}$

Given	Required	
a, b	A, B, c	$\tan A = \frac{a}{b} = \cot B,\ c = \sqrt{a^2 + b^2} = a\sqrt{1 + \frac{b^2}{a^2}}$
a, c	A, B, b	$\sin A = \frac{a}{c} = \cos B,\ b = \sqrt{(c+a)(c-a)} = c\sqrt{1 - \frac{a^2}{c^2}}$
A, a	B, b, c	$B = 90° - A,\ b = a \cot A,\ c = \frac{a}{\sin A}.$
A, b	B, a, c	$B = 90° - A,\ a = b \tan A,\ c = \frac{b}{\cos A}.$
A, c	B, a, b	$B = 90° - A,\ a = c \sin A,\ b = c \cos A,$

Solution of Oblique Triangles

Given	Required	
A, B, a	b, c, C	$b = \frac{a \sin B}{\sin A},\ C = 180° - (A + B),\ c = \frac{a \sin C}{\sin A}$
A, a, b	B, c, C	$\sin B = \frac{b \sin A}{a},\ C = 180° - (A + B),\ c = \frac{a \sin C}{\sin A}$
a, b, C	A, B, c	$A + B = 180° - C,\ \tan \frac{1}{2}(A - B) = \frac{(a-b) \tan \frac{1}{2}(A+B)}{a + b},$ $c = \frac{a \sin C}{\sin A}$
a, b, c	A, B, C	$s = \frac{a+b+c}{2},\ \sin \frac{1}{2}A = \sqrt{\frac{(s-b)(s-c)}{b\,c}},$ $\sin \frac{1}{2}B = \sqrt{\frac{(s-a)(s-c)}{a\,c}},\ C = 180° - (A+B)$
a, b, c	Area	$s = \frac{a+b+c}{2},\ \text{area} = \sqrt{s(s-a)(s-b)(s-c)}$
A, b, c	Area	$\text{area} = \frac{b\,c \sin A}{2}$
A, B, C, a	Area	$\text{area} = \frac{a^2 \sin B \sin C}{2 \sin A}$

REDUCTION TO HORIZONTAL



Horizontal distance = Slope distance multiplied by the cosine of the vertical angle. Thus: slope distance = 319.4 ft. Vert. angle = 5° 10′. From Table, Page IX. cos 5° 10′ = .9959. Horizontal distance = 319.4 × .9959 = 318.09 ft. Horizontal distance also = Slope distance minus slope distance times (1 − cosine of vertical angle) With the same figures as in the preceding example, the following result is obtained. Cosine 5° 10′ = .9959. 1 − .9959 = .0041. 319.4 × .0041 = 1.31. 319.4 − 1.31 = 318.09 ft.

When the rise is known, the horizontal distance is approximately:—the slope distance less the square of the rise divided by twice the slope distance. Thus: rise = 14 ft., slope distance = 302.6 ft. Horizontal distance $= 302.6 - \frac{14 \times 14}{2 \times 302.6} = 302.6 - 0.32 = 302.28$ ft.

MADE IN U. S. A.

Recommended S-P line in R-D area.

✓ Repeat Line A NE $A_0 - A_{14}$ ✓

using A 100 SW for reference

Run Line Z+300 1400' both ways

Line 300 SW from 1400' SE of A ~~1~~ 1400' NW of A

~~100 SW~~

✓ Repeat Line ~~Ø~~ O from ~~A~~ A_0 NW 1400'

✓ Repeat Line B 1400 SW ~~to~~ 1400 NE

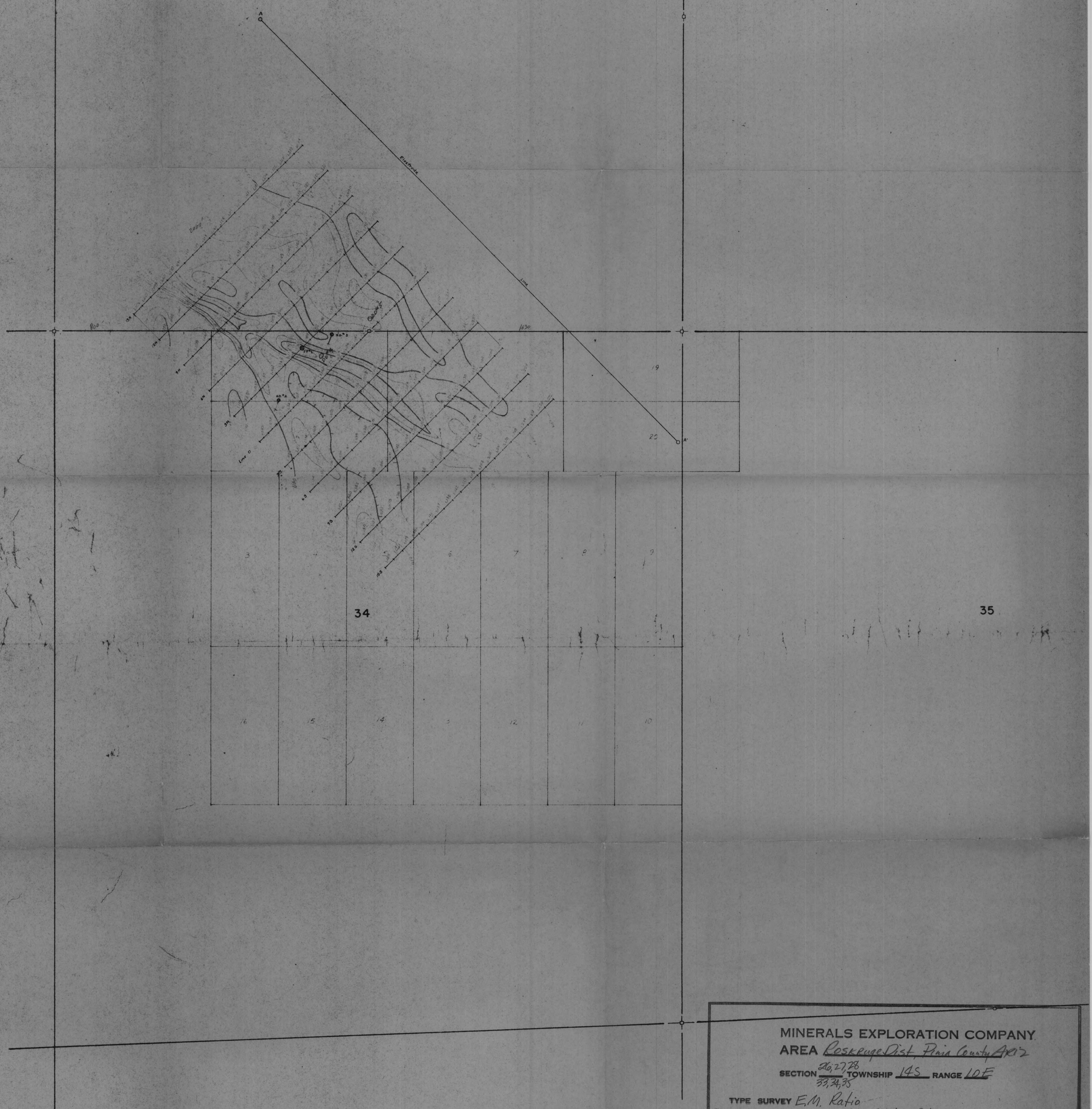
Run Line 900 ~~from~~ ~~Z900 to B900~~

1400" both ways from Line A

Run line 600' due West of all S.P. work

Run line 600' NE of A-0 N-W SE

Run line 600' SW of A-500 NW-SE



MINERALS EXPLORATION COMPANY

AREA Roskruge Dist, Pima County Ariz

SECTION 26, 27, 28, 33, 34, 35 TOWNSHIP 14S RANGE 10E

TYPE SURVEY E.M. Ratio

CONTOUR INTERVAL 0.050 Relative Ratio Units

INTERPRETATION BY N.E.E.

SCALE 1" = 400'

DATE 3/8/57

Geological & Geophysical
and Status & Survey Data

Explanation

Private Land
State Land
Federal Land
Private Mineral

Note

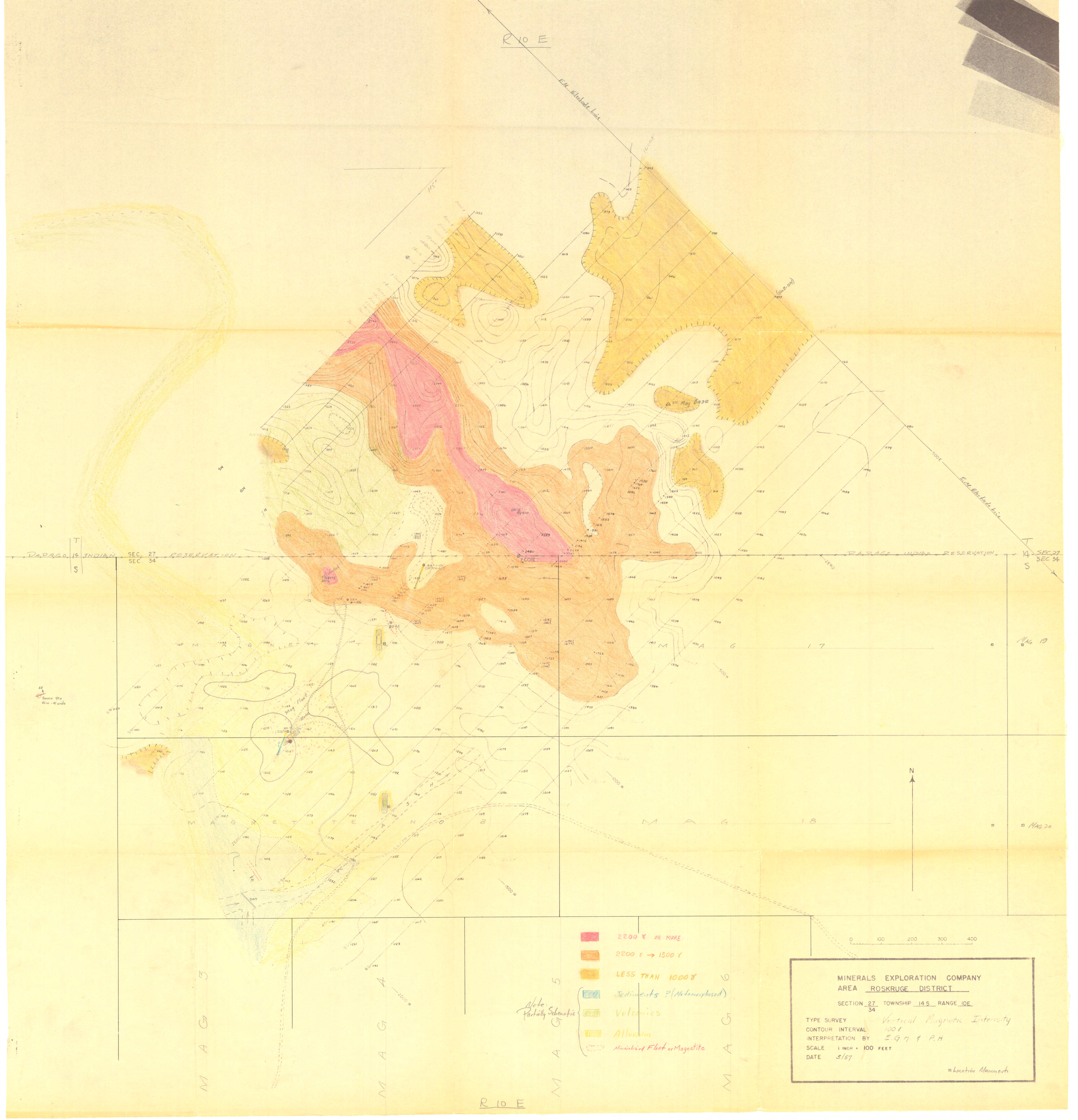
ALL CLAIMS STAKED IN BLOCKS
DIMENSIONS OF CLAIMS AS NOTED

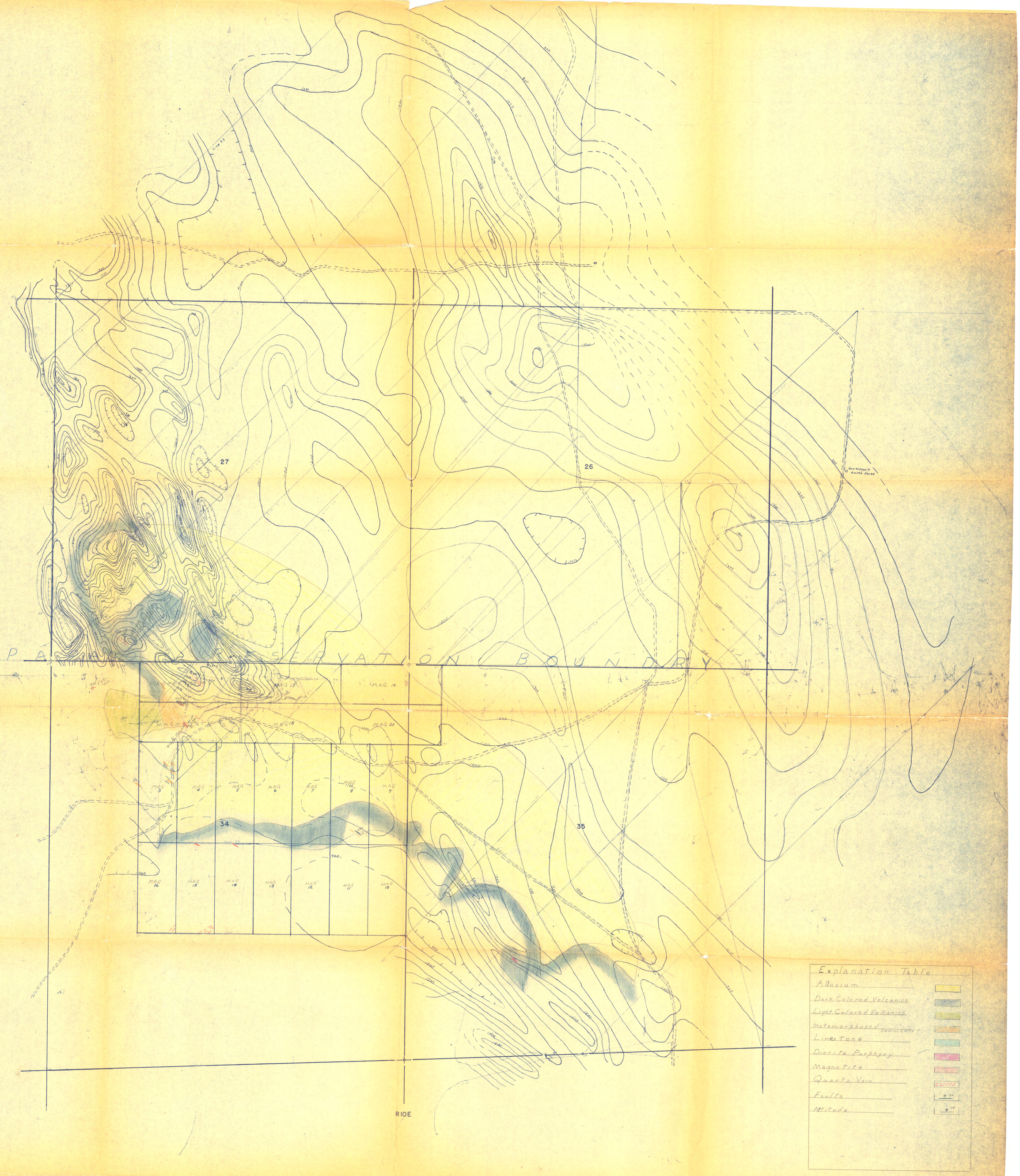
Pertinent Data

MAGNETOMETER LINE
SP SELF POTENTIAL LINE
MM MO MAG. LINE
DISCOVERY POSTS

Survey Data
Land Status
R.D AREA

R-D Project

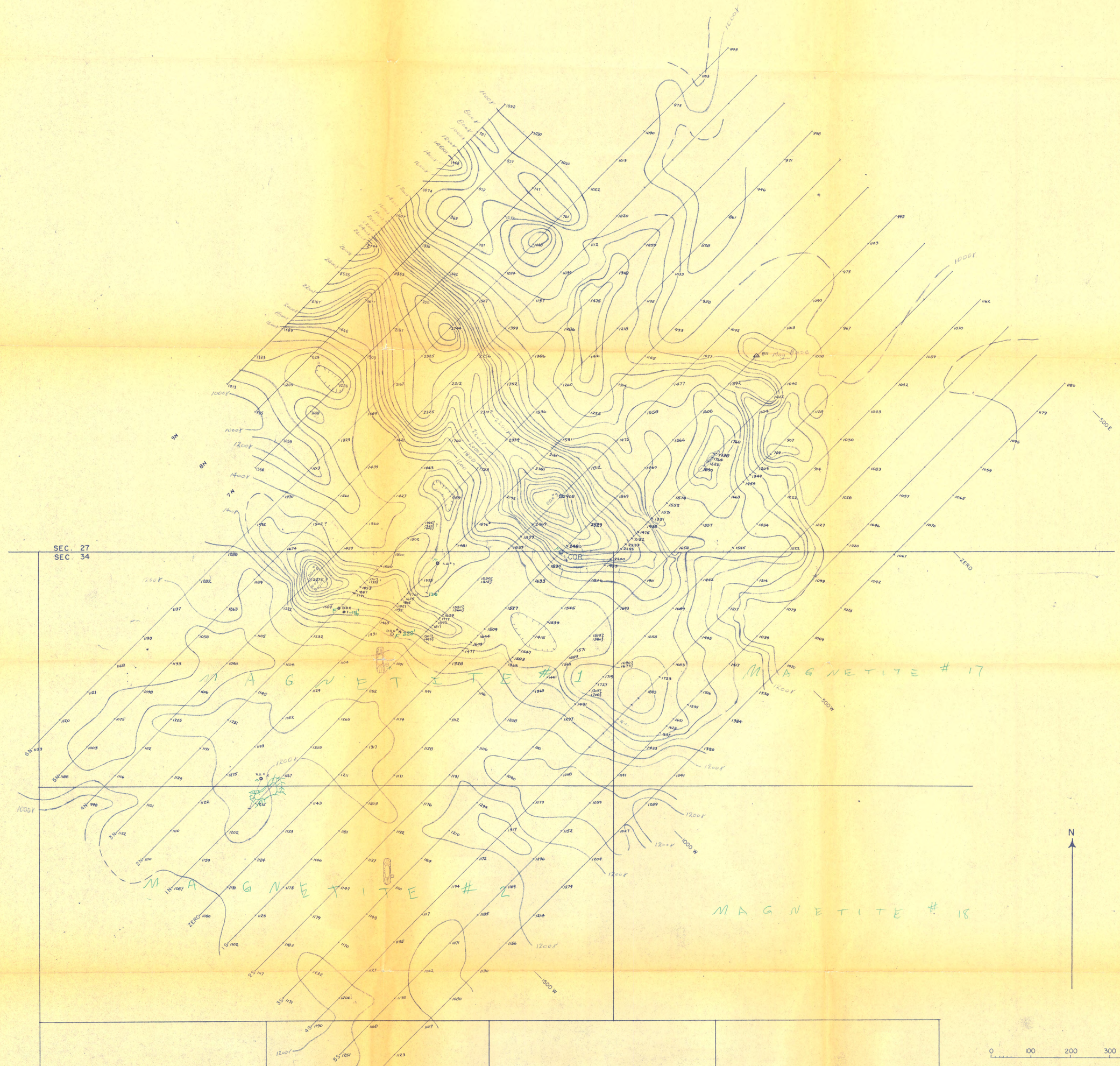

R 10 E
E.M. Electrode line
115'
PAPAGO INDIAN RESERVATION
SEC. 27
SEC 34
T 14 S
MAGNETITE MOUNTAIN
MAG 17
MAG 18
MAG 19
MAG 20
MAG 3
MAG 4
MAG 5
MAG 6
Mag Float Zone
Burrow Qtz Vein - 4' wide
Mag base
N
0 100 200 300 400
2200 γ OR MORE
2200 γ → 1500 γ
LESS THAN 1000 γ
Sediments ? (Metamorphosed)
Volcanics
Alluvium
Mineralized Float or Magnetite
Note: Partially Schematic
MINERALS EXPLORATION COMPANY
AREA ROSKRUGE DISTRICT
SECTION 27/34 TOWNSHIP 14 S RANGE 10E
TYPE SURVEY Vertical Magnetic Intensity
CONTOUR INTERVAL 100 γ
INTERPRETATION BY E.G.M. & P.H.
SCALE 1 INCH = 100 FEET
DATE 5/57
Location Monuments
R 10 E



MINERALS EXPLORATION COMPANY

ROSKRUGE DISTRICT PROSPECT

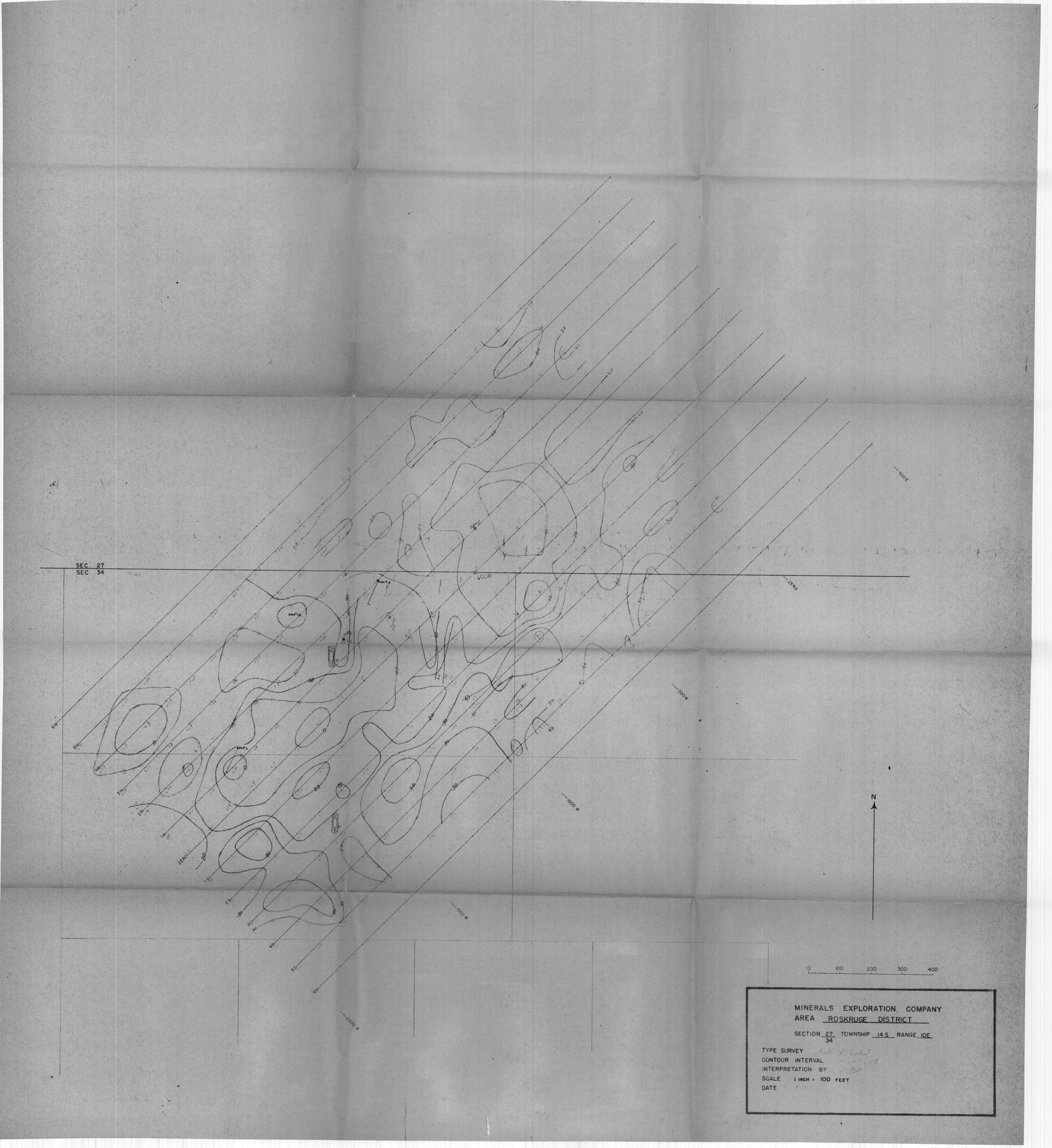
TYPE SURVEY MOBILE MAGNETOMETER
SCALE 1" = 400'
CONTOUR INTERVAL 100 Gammas
INTERPRETATION BY A.M. RUGG, JR.
DATE MARCH 1951

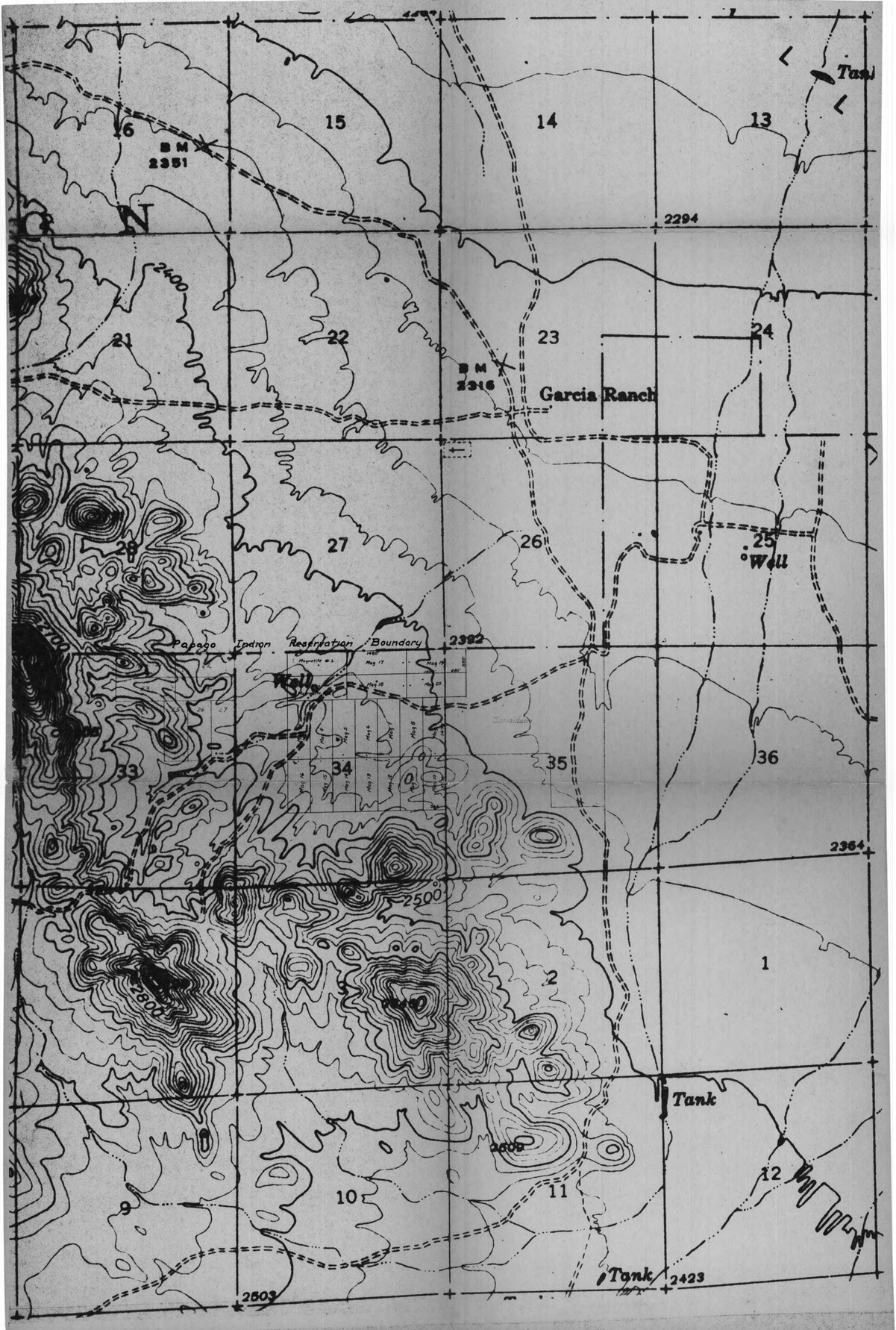


MINERALS EXPLORATION COMPANY
AREA ROSKRUGE DISTRICT

SECTION 27/34 TOWNSHIP 14 S RANGE 10E

TYPE SURVEY Vertical Magnetic Intensity
CONTOUR INTERVAL 100 γ
INTERPRETATION BY E.G.H. & P.H.
SCALE 1 INCH = 100 FEET
DATE 5/57


SEC. 27
SEC. 34
COR
ZERO
500 E
500 W
1000 W
1500 W
2000 W
6N
5N
4N
3N
2N
1N
ZERO
1S
2S
3S
4S
5S
6S
N
0
100
200
300
400
MINERALS EXPLORATION COMPANY
AREA ROSKRUGE DISTRICT
SECTION 27/34 TOWNSHIP 14 S RANGE 10E
TYPE SURVEY
CONTOUR INTERVAL
INTERPRETATION BY
SCALE 1 INCH = 100 FEET
DATE



Geological & Geophysical
Land Status & Survey Data

Explanation

- Private Land
- State Land
- Federal Land
- Private Mineral

Note

ALL CLAIMS STAKED IN BLOCKS
DIMENSIONS OF CLAIMS AS NOTED

Pertinent Data

- MAGNETOMETER LINE
- SELF POTENTIAL LINE
- MONUMENT LINE
- DISCOVERY POSTS

R.D.

Hole RD1: Located Line 3N, Sta. 12W. (EM Grid)

HOLE NO. R.D. 1
FROM 0' - 186' (Bot. hole)
ELEVATION 2428'
COORDINATES Sta. 12too, Line 3N EM Grid. N ____ E
DIRECTION
INCLINATION Vertical DEPTH 186
STARTED 4/8/57 COMPLETED 5/3/57

Note: Hole drilled NX from 36-55, then BX & Reamed NX to 92'. From 92'-186' Drilled BX

SECTION	COL	GEOLOGY	SURVEY	% CORE RECOVERY
J.W.W. 4/9/57		0 0-18 volcanic alluvium - silt, gravel & boulders w/caliche coatings - fn gr. dk. purple w/bl. gn, gy rhyolite? latite? andesite? some med gr. w/qtz phenos. fn gr. lt gn. gy. aphanite		
		-10 Some chips magnetic, but no massive mag - no ore min >1% mag.		
		-15 18± Bedrock?		
JWW 4/11/57		18-24 no core - sludge gravel + mud - cuttings uniform size gravel + smaller - no large rocks - clay cemented. med - fn gr. dk. purple gy rhyolite? some chips iron stained surface.		
		24-25 rhyolite? (above) some bleached & Fe stained tuff? aggomerate?	24	
		28-31 yel - br. sand + mud. Sand uniform med gr. 60% br. 30% wh. 10% gy	32"	28%
	WATER	-30 Driller says hrt alt. bendred + yel sludge since 20' but none so colored or much. no mag weak HCl reaction when dry fault gouge water at 30'±	31	
JWW 4/15/57	(Gravel size) Badly broken	31-36 Iron stained bleached andesite? core sections to 2" (best guess) seams dark fe (mn?) stained tuffaceous? no mag, no HCl react.	35" 36	40%
		36-39 bleached, fe stained andesite - less altered than above (more qtz)	NX 39	16% set NX case @ 36'
		39-41.6 gy andesite, some bleached " " " " (" ")	40 41.6	40%
		41.6-44 fe stained bleached andesite (overall br. color - seams darker) some mn dendrites - no mag - no HCl reaction	44	55%
		44-46 similar to above - slightly less altered	46	25%
		46-51 gy andesite, top part (46'-48'?) bleached 1" qtz frag. 48'± also frag. bleg. auge breccia 48± 48-51 less alt. gy-pur purple no mag no HCl react.	NX 51	25% andesite?
		51-55 gy andesite + "mud" some bleached fe stained, esp on surface fragments washed, water worn gravel appearance	55	45%
		55-61 No core recovery. Driller reports talc.	BX	No core
		61-66 lime stn alt andesite, feld kaolinized, spec. hematite on fract, mn stns, badly broken ground.	61	33%
		66-71 Shat., alt., bleh, andesite some lime stn & some spec. qtz stringer w/spec. & tr sulphide @ 66.5'	66	30%
REE 4/24/57	Shattered	71-76 shat., bleh, alt., lime stn andesite, some water worn	71	
		76-81 gy & purple less alt. andesite, some chlorite? spec. Some specularite. Broken, some mag specs. 80-81 mk mag	BX 76	28%
		81-88 Shat, silic., bleached aphan., some dis fn gr. py. Some frags appear water-worn. serp. slickensides	79 81	28%
		88-91 less alt. gy fn gr aphan, badly broken & shat. on fract. weak py. & serp. on fract.	85 87 88 91	45% 68 80 set BX case @ 92 ft.
		91-93.5 ditto above w/silic ½" seams hvy. py.	93.5	70
		93.5-98.6 lt gy bleached, broken aphan. some limy. nar. strks. py, mag & silic. fault gouge @ 97'	96 97	77 50
		98.6-101.5 lt gy bleached aphan. (tuff?) Limy strks 102.5 & 105.6 Chlor. wk py on fract & diss. Serp. on fract. qtz string. w/py @ 103.5	98 99.6 101.5	50 60
		101.5-102.5 gy fn gr. serp. aphan. w/limy strks & diss. py. Strong py @ 102 - Hvy py behind 6" wide w/serp & chlorite some limy strks.	102 104.5	80
		102-107 Nar. alt. rock bands bleach. fault gouge & shat. zones gy aphan	BX	92
		107-109 Alt. bleach silic aphan brec. w/consid. py. ⅛" seam @ 110 some chlor. & serp on fract.	109 110	67
		109-117 Alt. bleach silic aphan brec. w/consid. py. ⅛" seam @ 110 some chlor. & serp on fract.	115	80
		117-120 lt gy silic gouge (fault?) & shat. gy py, chlor. aphan.	117	60
		120-124 Hvy py in qtz & silic aphan (py 5-10%) Smell H2S nod @ 122 some shat zones	120	52
		124-129 Brec. qtz w/py & minor fault gouge. sev. nar. shat zones.	122 124 126 129	40 75 85 55
		129-135 Fault brec. & gouge w/py. some qtz brec frags some chlor. & serp. on slickensides	130 132	35
		135-140 limy fault gouge & brec cont. some fresh and frags. some chlor. & py. on slickensides.	135	60
		@ 140 1" stringer mass spec. Fe.	140	40
Logged 5/3/57 NEE		140-156 Brec. gy aphan w/talc & serp on fract. Prom. set near vert. partings (bedding?) RX type poss H2O-laid tuffs? or indurated siltstones?	142 144 146	40 85
		156-166 Dk gy less alter. aphan (tuff? or siltstone?) Vert part prom. Carbonates serp & talc on frac. Less broken than above. Clot of serp. w/hvy mag @ 164'	148 152	70
		166-186 Dk gy aphan (tuff? or indur. siltstone?) Vert. part prom w/carb., serp & talc on fract surf. Interval badly broken. Fault gouge @ 186'	156 158 160 162 166 169 171 173 175	60 95 95 75 100 100 85 60 75
		Bot. hole @ 186' Struck H2O @ 24'±		

CORE ASSAYS SECTION	% CU.	% Pb	% Zn	OZ Au	OZ Ag
Sample #					
#623	0.63	0.2	0.1	0.005	0.3
624	0.02	0.1	0.1	tr.	0.2
625	0.03	0.1	tr	tr	0.2
626	0.18	0.2	0.1	0.005	0.3
627	0.04	0.1	0.1	0.005	0.2

Cont. Core Recov. Cal	% Recov.
175	95
177	70
179	75
181	50
183	35
184	70
186	Bot hole

SLUDGE ASSAYS SECTION	% CU.	% Pb	% Zn	OZ Au	OZ Ag
Sample #					
628	0.05	0.2	0.1	tr	0.2
629	0.03	0.1	0.2	tr.	0.3
630	0.12	0.2	0.1	0.005	0.3
631	0.04	0.1	tr	tr.	0.2
632	0.05	0.1	0.1	tr.	0.2

109 — Spec Analy. #635 109

See Col @ Rt.

HOLE NO. RD 2
FROM 0 - 124
ELEVATION 2444'
COORDINATES D.D.H.2 bears S 26°W from D.D.H.1 N. @ 480' from DDH #1
DIRECTION S 26°W (Same as bear from Hole 1 to 2)
INCLINATION -45° DEPTH Total 124'
STARTED 4/8/57 COMPLETED 5/16/57

SECTION	COL	GEOLOGY	SURVEY	% CORE RECOVERED	CORE ASSAYS SECTION	CORE ASSAYS CU.	SLUDGE ASSAYS SECTION	SLUDGE ASSAYS CU.
		0			None		None	
		5						
		10						
		15						
		20?-23 angular but worn fragments fn.gr. volcanic? (hard) mostly purplish, some dk.ga. lt.ga. some epidote lm. coating, seams	20? NX	?				
		23-30 - Same as above, but good core variegated purp., lt.ga. strong, narrow seams calcite (wh) cutting less strong seams epidote. Mn dendrites in seams	23 25.5	80%				
		30-33 same as above, but highly fractured to coarse gravel	30	99				
		33-34 " " " last 1" lt.ga. core	33 34	33 30				
		34-38 missing						
		38-39 lt.ga. fn.gr. volcanic? seamed like above - fairly good core	38	37				
		39-39.5 fe st. siliceous some fn. honeycomb, py in purple volcanic?	NX 40	60				
		39.5-40 highly bleached, kaol., porous, brecciated calcic - slickensides						
		40-51 lt. tk ga. fn.gr. volcanic(?) heavily seamed w/calc. lesser epid. much fractured, 50% gravel	BX 45	26				
		51-54 similar above but darker cleaner, less calc. - gravel + sand	48 50	70 60				
		54-56.5 lt. tk dk ga. fn.gr. volcanic(?) heavily seamed w/calc., little epidote. some brecciated 25% calc.	52 53 54	55 86 70				
		56.5-62 dk.ga. fn.gr. volcanic(?) andesite(?) fractured to gravel calcite seam fragments.	56 57 58	90 80 80				
		62-65 dk.ga. fn.gr. volcanic (andesite?) heavily seamed + fractured w/calc. some brecciated, some bleached white, kaolinized some gravel tr. fe stain.	60 62	55 55				
		65-77 lt. med ga. fn.gr. volcanic(?) some purplish tint - much epidote. fuzzy epidote seams cut by sharp calcite veinlets occasional tr. fe stain - lighter ga. + tan ga. finer gr. ? (siltstone?) 65-66 gravel, rest pretty good core.	65 66 68 71	55 90 100 100				
		77-80.5 like above but less fractured + seamed - little epidote last 3" altered; bleached + crumbled	75 77	80 60				
		80.5-114 med-dk.ga. fn.gr. volcanic? (shale?) massive, less fract. fewer calc. + epid. veinlets tr. fe stain on seams some calc. veinlets blue-green	83 85 86 87	75 90 33 100				
			90	100				
			95	67				
			100	50				
			105	25				
			109	40				
		114-115.5 lighter ga., last 12" bleached, last 6" altered, epidotized, calc. some fe stain	114	30				
		115.5-124 lt purplish fn.gr. volcanic? (andesite?) w/white calc seams highly fractured - faulting along some seams, esp. @ 119.5 squeezed py on fracture surface @ 119.5 - slickensides "talc" tr. fe stain on fractures - "gravelly"	119 122 124	40 80 50				
		Bottom of Hole						

Logged 5/17/57 by J.W.W.

HOLE NO. R-D D.D.H.3
FROM 0- ~~115~~ 120
ELEVATION
COORDINATES 2N, 9+50W N E
DIRECTION S22°W
INCLINATION -45° DEPTH Total ~~115~~ 120'
STARTED 5/20/57 COMPLETED 6/4/57

SECTION	COL	GEOLOGY	SURVEY	% CORE RECOVERED	CORE ASSAYS SECTION	CORE ASSAYS CU.	SLUDGE ASSAYS SECTION	SLUDGE ASSAYS CU.
					None		None	
		Allurium						
		31-46 fn-med gr. lt-med ga (some purplish tint) andesite? rhyolite? much fractured (nothing >2") thin calc. coating seams little epid. 38' lt. gr. talc on some seams	NX 31 32	95 %				
			BX 35	40				
			38	17				
			41	25				
			43	50				
		46-60 similar above some longer cores bleached + epid. zones 53'+54' limy, good HCl react. dk. gn. (chlorite?) coats some calc (white) seams @ 54' 46-47? extra hard, fine gr. some lt ga. purp. tinted-mn. dendrites or some calc. seams, epid seams	46	25				
			49	25				
			50	20				
			52	25				
			53	30				
			55	80				
			57	95				
		60-74 similar above bleached, epid, limy zone @ 65'±	60	80				
			64	60				
			66	60				
			68	60				
			71	95				
		74-89 similar above some calc seams soft alt. 79-80	74	95				
			AX 76	95				
			77	50				
			80	70				
			83	70				
			86	25				
			87	50				
			88	50				
		89-106 similar above badly broken	89	70				
			91	30				
			93	30				
			95	50				
			97	30				
			98	20				
			100	30				
			104	25				
		106-115 similar above- badly broken (gravelly) 107± -111 some white + lt. ga. fragments esp @ 107± white frags. appear bleached, all are hard (silicification not kaolinized) non limy	106	6				
			108	12				
			109	15				
			110	25				
			111	30				
			112	20				
			113	30				
			115	20				
		115-120 no core						
		bottom of hole 120'	120					

J.W.W. 6/3+4/57

HOLE No. R-D DDH 4
FROM 174- 222'
ELEVATION 2428.4
COORDINATES 1+50N, 11+50W N E
DIRECTION
INCLINATION Vertical Total DEPTH 222
STARTED 5/30/57 COMPLETED 6/17/57

J.W.W 6/17/57
Non magnetic (handmagnet)

SECTION	COL	GEOLOGY	SURVEY	% CORE RECOV-D	CORE ASSAYS SECTION	CU.	SLUDGE ASSAYS SECTION	CU.
	170		BY					
	175	174-177 similar above-lt.ga. fault breccia py-bleached, crumbled non calcic	174 176	50%				
		177-179 similar above but solid core-not brecciated-highly calcic some slickensides little dissem py						
	180	179-189 less bleached, less granular finer gr. color variegated white-medga streaked+flecked (replacement?) (breccia?) partly calcic (lt. areas) Fe streak (hematite?) 182'		100				
	185	vuggy calcite areas, some Fe stained "siltstone areas little dissem py	184	90				
	190	189-190 contact above with lt.ga. granitic intrusive heavy py (+chy?) ribbon structure @ 70°±	189	65				
	195	190-195 gn+purp.ga. volcanic? w/ inclusions Tuffaceous foliation @ 60°± finely dissem py 194-195 badly broken	195	40				
	200	195-200 - medga. fn.gr. banded (60°±) non calcic alum. meta-sediment? fine calcite seams tr. Fe stain - bleaching along fractures ^hard slickensides - well broken (3' max.) little dissem. py	200 AT 203	15				
	205	200-206 - dk.ga. fn.gr. volcanic? dissem py very little after 203'	206	70				
		206-206 lt.ga. med.gr. altered intrusive-kaolinized feldspars give dapple appearance, non calcic - diorite? chilled contact? tr. Fe stain along seams very scant dissem py-hardly visible		80				
	210	2126-222 alternating lt.ga. med.gr. granitic intrusive & dk.ga. fn.gr. aluminous metasediment? (volcanic?) w/ lt.ga. banding @ 65° non limy except for calcite seams no sulfides noted	211 2125 2195 216 2175 218	60 95 10 60 100+				
	215							
	220		222	55				
	225	Bottom hole @ 222'						
	230							
	235							
	240							
	245							
	250							
	255							
	260							

HOLE No. R-D DDH 4
FROM 0-174
ELEVATION 2428.4
COORDINATES 1+50N, 11+50W N. E
DIRECTION
INCLINATION Vertical DEPTH
STARTED 5/30/57 COMPLETED 6/17/57

SECTION	COL	GEOLOGY	SURVEY	% CORE RECOVERED	CORE ASSAYS SECTION	CU.	Au	Ag	Pb	Zn	SLUDGE ASSAYS SECTION	CU.
	5											
	10											
	15											
	20											
	25											
	30											
	35											
	40											
	45											
	50											
	55											
	60											
	65											
	70	69-80 highly altered + fractured andesite? rhyolite? bleached, serpentinized (kaolinized?) some fault gauge	N.X. 70 72	60%								
	75	heavily Fe stained tr. gn. talc on some seams	76	85								
	80	75 slickensides 80-86 similar above 81-86 qtz + ich, dissem py	80 81	95 95								
	85	86-93 sst qz., pyritized, on some seams + gauge? talcose, shaly appearance on seams + fractures probably highly altered andesite (?) in fault zone - slickensides, gauge	89 BX 86 88	40 45 70								
	90	few seams have black coating (chlorite?)	92	70								
	95	93-102 similar above, but less talcose, more bleached, granular py dissem on seams galena stringers, esp 98-100 few Fe stained qtz frags. 99-100 highly bleached	93 96	80 40	#639	0.03	0.01	0.35	1.4	0.5		
	100	102-108 similar above less galena heavily altered areas partly limy	100 102 104 106 108 109 110 111 112 114	100 100+ 95 95 100 100+ 70 100 70 70 80								
	105											
	110	108-116 similar above										
	115	116-139 similar above (highly bleached + altered 120-131) coarser py much gauge.	116	80								
	120		120 121	50 20								
	125		126 128	35 65								
	130		131 133	60 100	#640	0.07	tr.	0.1	0.2	0.2		
	135		135	100								
	140	139-155 similar above some "siltstone"? bleached much slickensides tr. galena (i.e. 1468) portions limy, esp more broken, altered areas	139	65 65								
	145		143 145 148	100+ 100+	#641	0.02	0.005	0.1	0.1	0.2		
	150			100								
	155	155-162 metamorphosed sediment? siltstone? fngr. m.gr. less fractured, poorly mineralized, 156-157 brown mostly limy calc. seams, some talcose	153 158	90 100								
	160	162-167 similar above but more broken, pyritized	162	90								
	165	167-174 similar to previous core (i.e. 100-150') coarser gr. more granular crumbly than above much broken + highly altered - fault breccia light py except 168-169 (stronger py)	164 166	50 80								
	170		170	65								
	175		174									

J.W.W. 6/4/57

J.W.W. 6/11, 12, 13/57

HOLE NO. R-D DDH #5
FROM 0' 166'
ELEVATION
COORDINATES 1N, 6W N E
DIRECTION
INCLINATION Vertical TOTAL DEPTH 166'
STARTED 6/10/57 COMPLETED 6/17/57

SECTION	COL	GEOLOGY	SURVEY	% CORE RECOVERED	CORE ASSAYS SECTION	CORE ASSAYS CU.	SLUDGE ASSAYS SECTION	SLUDGE ASSAYS CU.
	5	0-40 soil, Boulders & broken rock			None		None	
	10	(Drilled w/ rotary rig to 40' & only sludge recovered)						
	15							
	20							
	25							
	30							
	35							
	40	40-50 dk ga andesite?-diorite? fn.-med. gr.	NX 40	90				
		Similar to previous unaltered country rock (J. Ware)	41	70				
	45	NeH & NEE think more highly crystalline, coarser	43	95				
		to extent of being diorite (even dolerite?)	45	60				
		less fractured, seams with calc. as before	46	90				
	50		48	75				
			50	60				
	55	50-69 Similar above magnetic to hand magnet	55	60				
		purplish tint to some portions, as in previous holes.	56	100				
	60	69-166 Similar above in all ways	58	100				
		short broken zones @ 71-73, 81', 86' (slickensides)	60	80				
	65	118', 129', 139'	63	100				
	70		69	98				
			72					
	75	note:		90				
	80	entire core interval	78	100				
		magnetic to hand magnet	81					
	85			100				
			86	100				
	90	Interval 65'-166'	88					
		penetrated the same		100				
	95	rock type as that above	94					
	100	w/ frequent broken zones		100				
	105		103	100				
			104					
			105					
	110			100				
	115		113	100				
			115					
	120		119	100				
	125		124.5	95				
	130		129	100				
	135			95				
	140		139					
	145		144	98				
			146	100				
	150		149	100				
	155		155	95				
			156	60				
	160			90				
	165		164	100				
			166		Bottom of hole.			
	170							

J.W.W. 6/13/57 high magnetic susceptibility

J.W.W. 6/17/57

Sunday 18 November 1956 10:00 A.M.

Met Mr. Jones (Dept. Interior, Papago Indian Agency, Sells).
With Papago Dist. Council (Schuk Toak Dist.)
at Santa Rosa Ranch School House, first road N. (right) on Reservation after crossing boundary on road from Tucson, 7-8 miles North of San Vicenti or 17 miles N.E. of Sells. Phone line follows road North.

Meet with Tribal District Council, Papago Indian, Santa Rosa School House.
Angelo McGill in charge of meeting. (Interpreter)

Schuk Toak District: S 1/2 T 14S. R 10 E,
Tribe to lease or issue Prospect Permit 1/2 Township at a time.

Mr. Jones of Indian Agency present to present our application to council.

Only District can grant lease.
District gets 1/2 rental and Tribe gets other half.

According to Code, two ways minerals can be done.
1. Tribe set up area and give permits to prospect and then lease on a advertising basis, high bidder gets lease.
2. Before issue, prospect permit put area up for bid and give highest bidder permit (exclusive) which allows prospector to be sure of obtaining lease on area interested in.

Tribe has tried both ways.
1. Exclusive prospect permit. Four presently but only two have cleared Washington, D.C.
2. Next proposal, Sif Oidak, opened whole District to prospecting to anyone who would pay $100.00 per prospect permit. Lease application later when something found.

Now Jones presents Minerals Exploration Company Application for Schuk Toak District.
Mark Manuel usually signs and writes leases for Tribal Council.
Area as described by Jones:

Garcia Strip from where big wash croses Garcia strip to top of Roskruge Mts.

Company now owns land south of strip and looks like minerals may run on to reservation and they want permit to prospect to see if they do.

Strip, 3 miles N-S, and 6 miles E-W. Want 1/2 Township 18 square miles ±.

Since we have land just south of Reservation and know what is there, we naturally do not want to wait so Jones suggestion to council (to avoid delay) that they open area for prospect (or on exclusive prospect permits) and issue prospect permits to any one that desires to prospect. Then if ore found on reservation, can apply for lease and present lease application to Washington.

Tribe can open area to non-exclusive prospecting without Washington approval.

Jones says:
Reason he suggests this method is that three other districts have decided to do this.
Sif Oidak District formed 33 prospect districts. (?)

District Council to pass resolution to do this and Tribe Council OK. Then grant prospect permit for one year ($100.00)

Jones put in plug for Minerals Exploration, mentioned Walts part in Pima discovery and that three fellows with Minerals would be doing work, and they looked like honest people.
Jones has suggested that extta $100.00 to go direct to District, might expedite passing and O.K. prospect permit applecation

Introduced Walt to Council and he to speak.
Walt emphasized need to get started and Walt has offered to give District "bonus" (this at Jones suggestion) to District of $100.00, amount of prospect permit.

Jones threw open meeting to questions from members.

Federal regulation requires $1000.00 bond to be posted to pay for any damages (surface, etc.).
Bond in favor of U. S. Government.
Jones is under $50,000.00 bond. Bonded by four bonding contracts.

Francisco spoke.

Jones pointed out to Council that no one had right to use any land for any purpose without permission from council.

Another old Indian spoke. (Pablo Francisco)
District Chairman talking about same thing as first Francisco talked about. That delegates must speak up.

Tribe Council meets next Dec. 7.
Jones to draw up resolution, present it to Angelo Tuesday and District delegate take it to Tribal Council for Tribe Council approval.
District chairman and secretary must sign resolution to show Council really passed the resolution.

Agency cannot do anything until council approves and resolution gives their authority. Then Jones to draw up necessary permit papers to be issued (and take care of bond arrangements, etc.)

Jones	N'Archco	)	Ranching in area of
		)	Interest Forman. (?)
Ramon	Al Veraz	)	

September 19, 1956

Ace Photo Copy Service
206-208 West Adams Street
Phoenix, Arizona

Dear Sirs:

Please send us the cheapest, standard photostatic copies of the original and supplements for the General Land Office plats as follows:

Township plats of T 14 S, and T 15 S, R 10 E, Pima County, Arizona.

R.D.P.

Any of the following section plats which show patented mining claims: sec 25, 26, 27, 28, 33, 34, 35, 36, T 14 S, R 10 E and sec 1, 2, 3, 4, 9, 10, 11, 12, T 15 S, R 10 E, Pima County, Arizona.

Apparently No Pat. claims.

Any of the district or mineral connected sheets which show patented mining claims in the following sections: sec 25, 26, 27, 28, 33, 34, 35, 36, T 14S, R 10 E and sec 1, 2, 3, 4, 9, 10, 11, 12, T 15 S, R 10 E, Pima County, Arizona.

J.D.P.

Any of the district or mineral connected sheets which show patented mining claims in the following townships: T 15 S, T 16 S, R 22 E and T 15 S, T 16 S, R 23 E, Cochise County, Arizona.

Will remit payment upon receipt of your bill.

Very truly yours,

Norman Eastmoore, Jr.

NE/nnp

Minerals Exploration Company

P.O. BOX 5671

TUCSON, ARIZONA

October 31, 1956

Messers Rugg, Hicks and Bell
c/o Allen M. Rugg, Jr.
5202 East 16th. Street
Tucson, Arizona

Gentlemen:

Enclosed please find eighteen Location Notices on the Mag group Nos. 3 to 20 as recorded and certified by the Pima County, Arizona, Recorders Office.

These eighteen claims are contiguous with your Magnetite No. 1 and No. 2 claims, and together they cover the whole of Federal land in Section 34 and a slight overlap into Section 35, all in Township 14 South, Range 10 East.

For your information, all pits and statutory posting have been completed on all 20 claims according to our agreement.

Very truly yours,

Walter H. Heinrichs, Jr.
Exploration Manager

WHH/np

enclosure

cc: Mr. Hicks
Mr. Bell

R-D. Corres. file

MINERALS EXPLORATION COMPANY

MARCH 11, 1957

Mr. Priest

Papago Indian Agency called from Sells.

Re:

Disturbing old claim posts and pits, etc. for validation of invalidation of old mining claims on the reservation by U.S. Bureau of Land Management team who have scheduled checking our area in the very near future.

It was agreed we would not disturb such in any manner and any work of this nature would be preceeded by a photo for proof and would only be done in completely virgin ground so no possible conflict or confusion could arise.

Walter E. Heinrichs Jr.

CC:

Norman Eastmoore Jr.

Grover Heinrichs

Airmail

Dear Guy:

Enclosed are five copies of the option agreement with Rugg, et al. Their part has been executed and is ready for our signature and notarization if agreeable. Also of course, the date should be inserted on page one. If the agreement is OK and we decide to go ahead, one copy can be kept for the Los Angeles files. The other executed copies should be returned to me for local files and distribution to the other parties. Vic Verity has looked over the agreement.

My feeling is that this is a good option. Effectively, we have twelve months for nothing and eighteen months for $3,000 spent on the ground before committing ourselves to a minimum yearly $15,000 payment thereafter, should we decide to continue retaining our interest. Also the "take out" price of $180,000 is better than average any more.

As to my feeling regarding the merits of the prospect, you have our preliminary report submitted by Norm Eastmoore with which I concur. Putting it a different way, I feel it is type of prospect and an area which we could hit, advantageously, both hard and fast. I would estimate a necessary expendature of approximately $7500 to disprove the area or obtain results which would warrent recommending further work. At present, the potential is anybody's guess, and a continuing investment should be based on favorable results as we go along.

Apparent geological advantages are the strong magnetite association with oxidized copper mineralization and strong skarn type development. Topographic relief is not very great. Fifty-fifty possibility of concealed favorable Paleozoic and/or Cretaceous section dipping into or under volcanics and intrusives(?) to the west. If this should be the case there may also be the vague possibility of concealed disseminated intrusive under the alluvium near by to the east. Relatively shallow alluvium cover over much of the area may have effectively prevented earlier successful prospecting.

The most unfavorable factor is the lack of prior production in the area. Nearest production of any consequence came immediately east across the valley in the Tucson Mountains from the old Gould and Mile Wide properties. This is the same area where we briefly did some work for United. It has since been taken up by Banner, however, to date they have done very little except ~~negotiate~~ try to negotiate with the county for additional mineral rights in the adjoining prior established Tucson Mountain Parks Recreational area. This situation is one reason we became discouraged in the work for United. Leads on Indian or State land would require leasing. In the case of the Indians, the royalty would probably be 10% negotiated or plus a bonus if let on bid basis. Initiation of this would follow staking of open ground.

If agreeable, we plan to go ritht ahead and complete staking claims in the area. Once the property situation was under control, we would then be in a position to trench

sample and possibly cover the more accessible parts with S.P. and the mobile-magnotometer, etc., favorable leads could then be followed either directly or by drilling. If not agreeable let me know right away and I will hold up any further effort pending further decision. My plan would be to have Norm working on this project.

Sincerely yours,

October 17, 1956

Superintendent of Documents
Government Printing Office
Washington 25, D. C.

Dear Sirs:

Please establish a deposit account in the name of Minerals Exploration Company, P. O. Box 5671, Tucson, Arizona, with our enclosed check #306 in the amount of $25.00.

From this account deduct the cost of three copies of CFR, Title #25, which enumerates the regulations relating to the lease, development and sale of minerals on Indian Lands.

Send the three copies of this publication to the Minerals Exploration Company at the above address, along with the deposit account number which you assign to our account.

Thank you.

Sincerely,

Norman Eastmoore, Jr.

NE/np

Off Print 10/2/56

PAID OCT 16 1956

V. #306

Minerals Exploration Company

P.O. BOX 5671

TUCSON, ARIZONA

September 18, 1956

other copy in Papago files.

Papago Indian Agency
Sells, Arizona

Gentlemen:

We are interested in obtaining the latest information and if available, at least two copies of directives, circulars and phamplets pertaining to prospecting and the acquisition of mining leases on Papago Indian and Tribunal lands.

Also in same connection if available, we would appreciate obtaining at least two copies of any map or maps which cover the reservation as a whole or in particular the reservation boundaries.

For your information, our concern is a substantial and thoroughly reliable and experienced organization, and for sometime in the business of mineral exploration, and on one or two occasions in the past have had amenable relations in the development of Tribal-owned Indian mineral resources.

Your earliest acknowledgment, advice and suggestions would be appreciated.

Very truly yours,

Walter E. Heinrichs, Jr.
Exploration Manager

WEH/nnp

August 1956

PRELIMINARY REPORT ON

MAGNETITE AND BADGER CLAIM GROUPS

ROSKRUGE DISTRICT, PIMA COUNTY, ARIZONA

This report summarizes the observations and conclusions resulting from two short reconniassance examinations of the claims submitted by Allen Rugg and partners, Elmer (Ben) Bell, and Ernest Hicks. These three partners are the original locators of the Magnetite Group (2 claims) and the Badger Group (5 claims). See enclosed U. S. G. S. Topo sheet for the approximate location of these two claim groups. The area along the east edge of this sheet is located 20 miles west of Tucson.

The two claims of the Magnetite Group cover part of a magnetic high anomoly which trends S 25 E. A larger magnetic anomoly, (+1200 gammas), occurs just north of the Magnetite claims on the Papago Indian Reservation. (See enclosed sketch map with magnetic contours). These claims are staked on a shallow, alluvium covered pediment, and bedrock exposures are very limited.

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outcropping a short distance to the east.

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It is felt that the metamorphosed sediments containing the outcropping ore indications observed on Magnetite claim #1 may be a favorable host rock for ore deposition. Furthermore, these sediments may occupy a much larger area beneath the adjacent alluvium and igneous rocks than the few scattered outcrops would indicate.

Should the ground be available on favorable terms it is recommended that further work be undertaken to locate and outline the alluvium-covered, contact metamorphic zone or zones present. When delineated such zones should be explored for possible ore concentrations by appropiate geophysical and subsurface exploration methods.

Respectfully submitted,

Norman Eastmoore, Jr.

Norman Eastmoore, Jr.

Minerals Exploration Company
P.O. BOX 5671
TUCSON, ARIZONA

September 18, 1956

Dr. M. Guy Edwards
2154 N. Villa Heights Road
Pasadena 8, California

Dear Guy:

Enclosed are five copies of the option agreement with Rugg, et al. Their part has been executed and is ready for our signature and notarization if agreeable. Also of course, the date should be inserted on page one. If the agreement is OK and we decide to go ahead, one copy can be kept for the Los Angeles files. The other executed copies should be returned to me for local files and distribution to the other parties. Vic Verity has looked over the agreement.

My feeling is that this is agood option. Effectively, we have twelve months for nothing and eighteen months for $3,000 spent on the ground before committing ourselves to a minimum yearly $15,000 payment thereafter, should we decide to continue retaining our interest. Also the "take out" price of $180,000 is better than average any more.

As to my feeling regarding the merits of the prospect, you have our preliminary report submitted by Norm Eastmoore with which I concur. Putting it a different way, I feel it is our type of prospect and an area which we could hit, advantageously, both hard and fast. I would estimate a necessary expendature of approximately $7500 to disprove the area or obtain results which would warrent recommending further work. At present, the potential is anybody's guess, and a continuing investment should be based on favorable results as we go along.

Apparent geological advantages are the strong magnetite association with oxidized copper mineralization and strong skarn type development. Topographic relief is not very great. Fifty-fifty possibility of concealed favorable Paleozoic and/or Cretaceous sectiondipping into or under volcanics and intrusives(?) to the west. If this should be the case there may also be the vague possibility of concealed disseminated intrusive under the alluvium near by to the east. Relatively shallow alluvium cov er over successful prospecting.

Most unfavorable factor is the lack of prior production in the area. Nearest production of any consequence came

immediately east across the valley in the Tucson Mountains from the old Gould and Mile Wide properties. This is the same area where we briefly did some work for United. It has since been taken up by Banner, however, to date they have done very little except try to negotiate with the county for additional mineral rights in the adjoining prior established Tucson Mountain Parks Recreational area. This situation is one reason we became discouraged in the work for United.. Leads on Indian or State land would require leasing. In the case of the Indians, the royalty would probably be 10% negotiated or plus-bonus if let on bid basis. Initiation of this would follow staking of open ground.

If agreeable, we plan to go right ahead and complete staking claims in the area. Once the property situation was under control, we would then be in a position to trench sample and possibly cover the more accessible parts with S.P. and mobile-magnotometer, etc., favorable leads could then be followed either directly or by drilling. If not agreeable let me know ritht away and I will hold up any further effort pending further decision. My plan would be to have Norm working on this project.

Sincerely yours,

Walter E. Heinrichs, Jr.
Exploration Manager

WEH/nnp

Sherm

PRELIMINARY REPORT ON

MAGNETITE AND BADGER CLAIM GROUPS

ROSKRUGE DISTRICT, PIMA COUNTY, ARIZONA

This report summarizes the observations and conclusions resulting from two short reconniassance examinations of the claims submitted by Allen Rugg and partners, Elmer (Ben) Bell, and Ernest Hicks. These three partners are the original locators of the Magnetite Group (2 claims) and the Badger Group (5 claims). See enclosed U. S. G. S. Topo sheet for the approximate location of these two claim groups. The area along the east edge of this sheet is located 20 miles west of Tucson.

The two claims of the Magnetite Group cover part of a magnetic high anomoly which trends S25 E. A larger magnetic anomoly, (+1200 gammas), occurs just north of the Magnetite claims on the Papago Indian Reservation. (See enclosed sketch map with magnetic contours). These claims are staked on a shallow, alluvium covered pediment, and bedrock exposures are very limited.

Two exposures exhibit weak ore mineralization and are shown on the enclosed sketch map. The copper stained outcrop on the Magnetite #2 claim consists of dense, hard, highly metamorphosed limestone containing abundant garnet, some magnetite and other skarn minerals. Similar material occurs as scattered float in the surrounding alluvium. The observed magnetic highs may be related to zones of this mineralization.

A narrow strip of metamorphosed limestone and shales (?) is exposed along the west margin of these claims. These sediments are bordered on the west by a grey felsitic rock and covered to the east by alluvium. Where observed the sediments contain abundant epidote and other skarn minerals. The age of the sediments is not known, but they have similar characteristics to Paleozoic sediments in other parts of Arizona.

The outcrop shown on the Magnetite #1 claim consists of limonite stained quartz with scattered vugs containing oxidized minerals and some residual pyrite. An assay of this material reported 0.01 oz. Au, 0.8 oz. Ag, 0.10% Cu, and 0.2% Pb. From the distribution of quartz float nearby it appears that such material may occur in an alluvium-covered zone fifty feet wide trending S 25 E.

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Another mineral occurrence, whose location is shown by the red line in sec. 4, T 15S, R 10 E, on the Topo sheet, was examined. Here an inclined shaft, 40 feet deep, has been sunk along the hanging wall of a quartz vein approximately 50 feet wide. A representative grab sample of the dump assayed 0.9% Pb. Scattered wulfenite, vanadinite (?) and pyromorphite occurred in the dump material. A wide band of altered, bleached porphyritic rock forms the footwall of the quartz vein. Although not on the ground submitted for our consideration, this occurrence furnishes information relative to general mineralization in the area.

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Should the ground be available on favorable terms it is recommended that further work be undertaken to locate and outline the alluvium-covered, contact metamorphic zone or zones present. When delineated such zones should be explored for possible ore concentrations by appropriate geophysical and subsurface exploration methods.

Respectfully submitted,

Norman Eastmoore, Jr.

Norman Eastmoore, Jr.

Eastmoore

PRELIMINARY REPORT ON

MAGNETITE AND BADGER CLAIM GROUPS

ROSKRUGE DISTRICT, PIMA COUNTY, ARIZONA

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This vein may ∥ qtz. vein on Magnetite #1; esp. if qtz. vein on Mag. #1 ∥ to Magnetic Anomaly (≅ E-W).

It is felt that the metamorphosed sediments containing the outcropping ore indications observed on Magnetite claim #1 may be a favorable host rock for ore deposition. Furthermore, these sediments may occupy a much larger area beneath the adjacent alluvium and igneous rocks than the few scattered outcrops would indicate.

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Respectfully submitted,

Norman Eastmoore Jr.

Norman Eastmoore, Jr.

Preliminary Report on
Magnetite and Badger claim groups,
Roskruge District, Pima County, Arizona.

This report summarizes the observations and conclusions resulting from two short reconnaissance examinations of the claims submitted by Allen Rugg and partners, Elmer (Ben) Bell, and Ernest Hicks. These three partners are the original locators of the Magnetite Group (2 claims) and the Badger Group (5 claims). See enclosed U.S.G.S. Topo sheet for the approximate location of these two claim groups. ~~The east edge of this sheet bounds~~ The area along the east edge of this sheet is located 20 miles west of Tucson.)

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~~Favorable portions of such zone~~

When delineated such zones should be explored for possible ore concentrations by appropiate geophysical and subsurface exploration methods.

Respectfully submitted,

Norman Eastmoore Jr.

8/29/56

Dear Walt,

Have not had any additional lease forms typed up as the we kept the typist occupied with other work all the time I have been in Tucson. Have rented a house at 6337 Eli Drive, out east of San Fernando Village, and expect to bring my family back with me. Planning to arrive back in Tucson evening of Sept. 9 and will call you morning of Sept 10 (Monday). I may want to spend the 10th helping to get the furniture put in the house. If I am not needed there I will plan to work that day but will let you know by phone.

Here is the tentative wording of the agreement w/ al Rugg and partners fitted into your lease form as well as I could. It contains no assignment clause. They are to contact you upon your return and discuss this question. Should negotiations deadlock over this issue I think some quick cash (say $500 - $1000) might bring Hicks (the only one dissenting), around to a deal. He might even be willing to sell his interest outright for some such amount.

Will see you around Sept 10.

Best regards, Norm

over.

Al Rugg has indicated that should you be able to set up an arrangement to buy Ernest Hicks interest outright for possibly $10,000 or less within a years time - that Al and Bew would be willing to go ahead with Minerals on the deal as agreed on in the enclosed terms, (same amounts and periods of time as stated.)

Norm

GOLD FIBRE

8/21/56

Met w/ Al Rugg, E. Hicks & Ben Bell @ 8:30 P.M.
Following terms are stated to be their "rock bottom" final offer:

1. Willing to give one years exploration option before any payments made. End of 12 mo. want $30,000 (3 $10,000 payments - one to each) to exercise option. (This fig. does not apply on purchase price ($150,000))

VI 2. From there on want royalty at prev. agreed rate (sliding scale to 10%), until total royalty of $150,000 pd. (This amt. in addition to to $30,000 required to pick up option.)

3. In event of assigment by Minerals of any part of its interest to 3rd party - Partners want to be bought outright by Minerals paying them the total remaining amount due on $150,000 royalty (in 4 equal installments - the first installment due at time assignment contract becomes legal & another @ end of each successive 3 mo. period until 4 payments completed @ yrs. end.

This out as it amts. to virtual non-assign. clause. (Renegotiate)

4. Minerals has option to buy Partners out at any time while lease in effect by payment to Partners a lump sum equal to 85% of balance due on total royalty amt.

5. Minerals to have assignment rights under above terms.

6. Royalty Rate. 10% max on $10 or more net smelter return. Down to 1% on $1.00 or less " " "

All Royalty to apply toward total of $150,000 purchase price.

7. Work requirement (Non performance).

$1000 spent on property first year.
$2000 " " " 2nd year
$4000 " " " 3rd "
8000 " " " 4th " (amt to double every yr. thereafter)

If during any year full amt. req. not expended diff. to be paid to partners in cash.

(For state Land only)

8. In event state royalty raised before contract becomes effective, Partners want diff. between state royalty & 10%. Should state royalty equal 10% then partners want same deal as on Indian Res. Land. (Partners to get 10% of total royalty to Indians up to purchase price).

9. Minerals to give assistance in doing location work & stand costs of staking new ground & negotiating w/ Indians, for any land desired on Papago Res.

Note

These are lowest terms Partners will consider & they need fast decision. They willing to deal now on these terms but have indicated they will not wait too long before taking deal to someone else. They do not want to haggle further about terms

Considerations.

1. Best area may lie around larger mag. anom. to North Papago Res.

2. Fact that beds dip west <u>into</u> <u>intrusive</u>? may have permitted mineralizing solutions to ascend along bedding & more particularly old unconformity surf. to give explaination for <u>intensity</u> of metamorphic effects.

3. Note chalcopyrite cuprite?, malachite, tenorite? & poss melaconite?, & bournite pres. in skarn-but favoring ls zones w/ less garnet & more qtz. Not favoring dense magnetite min. apparently. Cu miner.

Portilla Fm - Legal Tender

Abrigo up Thru K in Gunnison Hills

Wells of Tomo in 400'-500' Alluv.

Migh kick royalty up just under $ 200,000,

Tell Sherm to ~~Sherm~~ / go right to Guy on Ph.

Cashiers check garnished neg.

Take up Rockfeller send over w/Guy.

Form SCS-603

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
DIVISION OF CARTOGRAPHY
WASHINGTON, D. C.

SHIPPING MEMORANDUM

TO:
Minerals Exploration Co.
P. O. Box 5671
Tucson, Arizona

Date Shipped Nov. 14, 1956

Our Job No. 2324 No. of Packages 1

Your Job No. Ltr. Date Requested 9/25/56

Bill of Lading No.

We are sending you by Parcel Post the materials as listed:

Photographic material covering, Arizona. As shown on the attached sheet.

Appropriation: Inspected by: RH. Packed by:

SHIPMENT RECEIVED

By MAH.

Date RECEIVED NOV 21 1956

Condition of Contents OK.

Please acknowledge receipt of shipment by signing and returning the yellow copy of this memorandum.

Carl E. Dyer
Administrative Assistant,
DIVISION OF CARTOGRAPHY.

U. S. GOVERNMENT PRINTING OFFICE 16—63072-1

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
CARTOGRAPHIC DIVISION

JOB NO. #2824

DATE Oct. 10, 1956

1 Ind. 5x7
6 cont. 10x10

FOR Minerals Exploration Company

REQUESTED BY Norman Eastmoore, Jr.

LETTER OR P. O. Ltr. 9/25/56

AREA Arizona

DELIVERY DATE

DESCRIPTION OF WORK

"L" Pima Papago Ind.,Res., Arizona

1 card Index ~~#428~~ 34 DW/SM

1 each stereo conts. DW/SM

594 to 596,

673 to 675

SCS 1937

TOTAL COST

WORK AUTHORIZED

NOV 9 1956

JOB COMPLETED

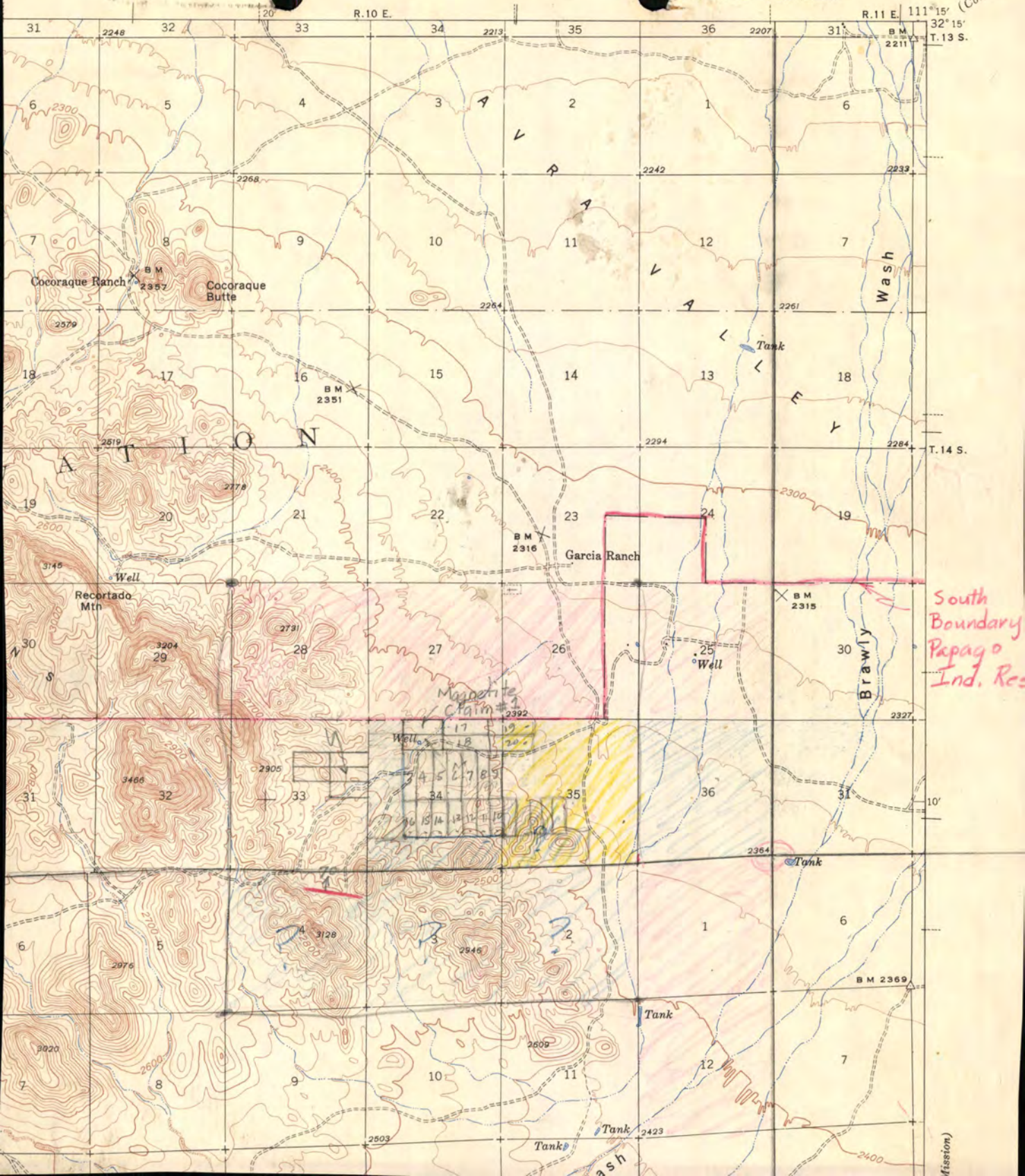
SHIP TO

Minerals Exploration Co.
P.O. Box 5671
Tucson, Arizona

RECEIVED NOV 21 1956

USDA-SCS-BELTSVILLE, MD.-1956
1902

ARIZONA
(PIMA COUNTY)
COCORAQUE BUTTE QUADRANGLE
15 MINUTE SERIES



MINERALS EXPLORATION COMPANY

ROSKRUGE DISTRICT EXPLORATION DATA

ROSKRUGE DISTRICT, PIMA COUNTY, ARIZONA

ITEM NO. 1. Index Map @ 4" = 1 Mile Land Status, Boundaries of area covered by agreement

2. Mobile Magnetometer Contour Map @ 1" = 400'

3. Vertical Magnetic Intensity @ 1" = 100'

4. Reconnaissance Geology Map @ 1" = 400'

5. Self Potential Contour Map @ 1" = 400'

6. E-M Ratio Map @ 1" = 400'

7. E-M Phase Map @ 1" = 400'

8. Drill logs - 6 pages - for D.D. Holes #1,2,3,4, & 5.

MINERALS EXPLORATION COMPANY

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EAGLE-A
AgaWam Onion Skin
100% COTTON CONTENT
USA

MINERALS EXPLORATION COMPANY

MARCH 11, 1957

Mr. Priest

Papago Indian Agency called from Sells.

Re:

Disturbing old claim posts and pits, etc. for validation of invalidation of old mining claims on the reservation by U.S. Bureau of Land Management team who have scheduled checking our area in the very near future.

It was agreed we would not disturb such in any manner and any work of this nature would be preceeded by a photo for proof and would only be done in completely virgin ground so no possible conflict or confusion could arise.

Walter E. Heinrichs Jr.

CC:

Norman Eastmoore Jr.

Grover Heinrichs

RECONNAISSANCE EXPLORATION REPORT

OF A

PORTION OF ROSKRUGE MINING DISTRICT & GARCIA STRIP AREA
OF PAPAGO INDIAN RESERVATION, PIMA COUNTY, ARIZONA
February to June 1957

By Minerals Exploration Company
P.O. Box 5671, Tucson, Arizona

This report describes results of work done by Minerals Exploration Company on Papago Tribal lands under its Mineral Prospecting Permit with the Papago Indian Agency, dated 1 May 1957.

A general geologic study and geophysical reconnaissance survey was conducted only on a small part of the area covered by the prospecting permit. This was done in conjunction with evaluation of a group of mining claims lying just south of the Papago Reservation boundary. A composite map of the results of this survey, showing general features, geology, drill holes and relative total magnetic intensity mobile magnetometer contours, is attached to this report.

One diamond drill hole was drilled on Reservation property, indicated D.D.H. #5 on the map. This hole was located about 100 feet north of the south 1/4 corner, Section 27, T.14S., R.10E. and was drilled to test the magnetic high (see map) which occurred on the northwesterly projection of a geologic trend indicated by work done south of the Reservation boundary. This

drill hole penetrated a total thickness of 166 feet of relatively fresh, unmineralized, dark, basic, crystalline, igneous rock, tentatively identified as either diorite or dolerite. (See copy of drill log attached). This rock contained varying minor amounts of finely disseminated magnetite, which confirmed the magnetic high, but which indicated no economic significance, at least to that depth.

No economic mineralization was found in the area covered, however, the existence of sub-marginal mineralized garnet float and pyrite nearby to the south was established. From our evaluation, the significance of this is only suggestive of mineralization possibility in the area, and does not qualify any important known economic aspect. The chance exists for more favorable ore host rocks underlying the igneous rock cover at some greater, unknown depth. This was considered, but was felt to be beyond the prudent scope of our current effort and knowledge of over-all potential district favorability.

Norman Eastmoore Jr.
Norman Eastmoore, Jr.
Consulting Geologist

W E Heinrichs Jr.
Walter E. Heinrichs, Jr.
Manager

PRELIMINARY RECONNAISSANCE EXAMINATION

Date: Aug 6, 1956

By: Norman Eastmoore, Jr.

Name of Property: 2 claims (Magnetite # 1 & 2), & 5 claims 1/2 mi. west.

State: Arizona County: Pima

Location:

District: Roskrudge(?)

Date of this Report: Aug 7, 1956

By: Norman Eastmoore, Jr.

Map & Aerial Photo Ref.: U.S.G.S. Quadrangle sheet. (Cocoraque Butte)

Extent of Property: Seven full sized mining claims, in two groups. Two claims (Magnetite # 1&2), cover E-W Mag. anomoly just S of Papago Res.

Ownership (Name & Address): Al Rugg, 5202 E. 16, Ben BELL, E. Hicks

Leased or Optioned to (Name & Address): None

Facilities:

(a) Accessibilities (Roads, Trails, etc.): By pickup road

(b) Air Fields: None

(c) Power: None

(d) Telephone: Al Rugg's Tucson, 6-3710

(e) Housing: None

(f) Water: Shallow? well w/pump near south edge of Magnetite # 2.

(g) Labor: Possibly Indian?

(h) Climate: Semiarid

(i) Supply Source: Tucson, Arizona

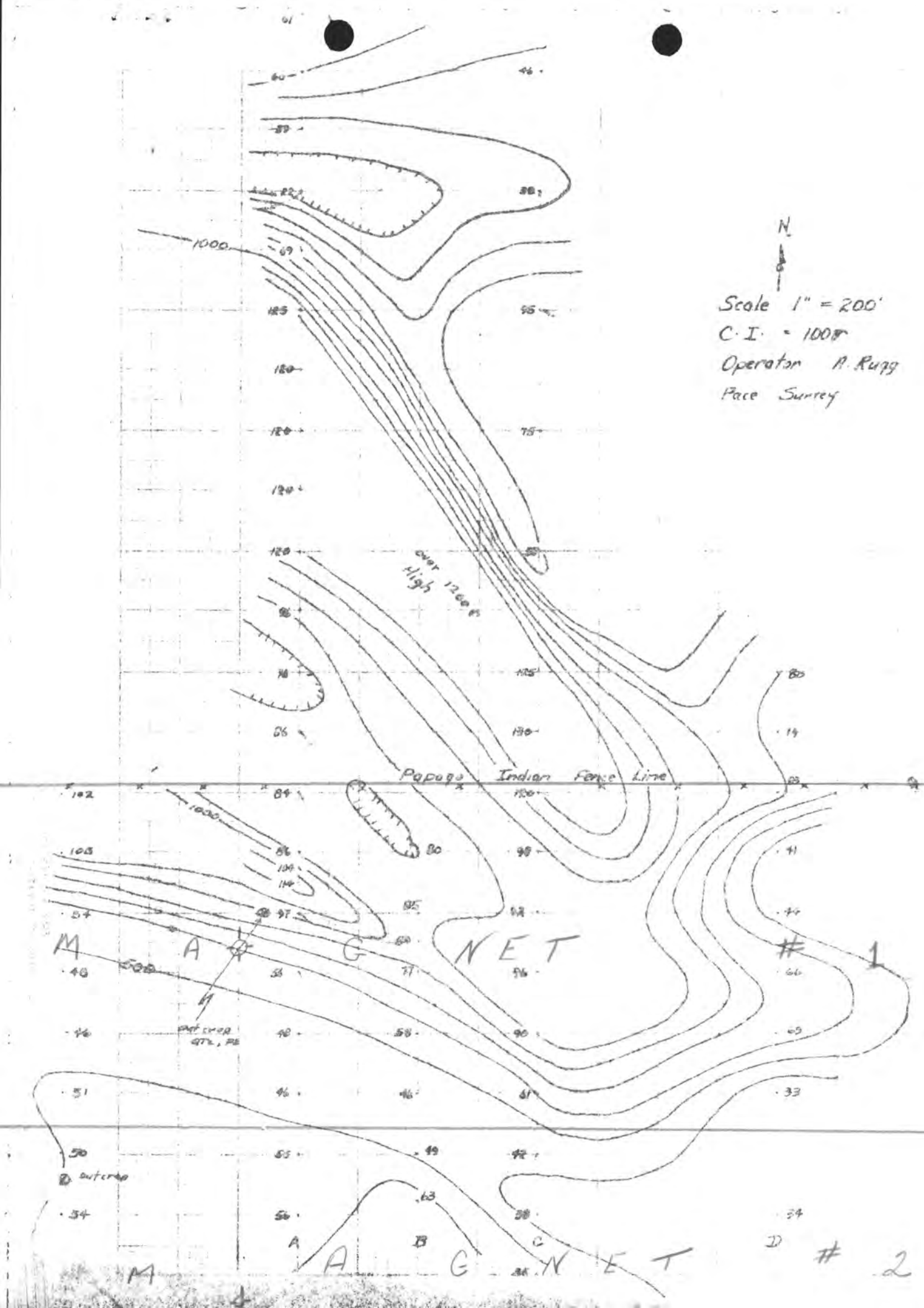
(j) Miscellaneous:

Type of Deposit: (Describe briefly under following headings; Structure, Lithology, Mineralogy, Stratigraphic conditions, Physiographic conditions, Reserves, Possible Extensions, Geology, Geophysics & Drilling):
Contact metamorphic w/some copper association, in soil covered pediment(?). Also 1-inch wide copper stained qtz stringer in vol. rock 1/2 mi W of Contact metamorphic occurrence. Also 50ft plus wide zone with scattered outcrops of vuggy qtzoccur on E end of magnetic anomoly which lies just S of and parallel to the S border of the Papago Ind. Res. Al Rugg has drawn mag. contour map of area covered by Magnetite # 1 & 2 claims and area to N in Papago Res. for distance of about 500 ft.

Mine Workings: (Brief description of methods used, map to be attached if available)
None except that shallow surface cuts. have been dug on 1-inch wide copper stained qtz stringer.

Production Data: (Past, present and possible future)
No previous production.

Sampling and Analysis: (By whom—Results)
One sample run on 1-[illegible] wide Cu string
Results: Cu [illegible]


N
Scale 1" = 200'
C.I. = 100ft
Operator R. Rupp
Pace Survey
over High 1260 ft
Papago Indian Fence Line
MAGNET #1
MAGNET #2
A
B
C
D

PRELIMINARY RECONNAISSANCE EXAMINATION

Date: Aug 6, 1956

By: Norman Eastmoore, Jr.

Name of Property: 2 claims (Magnetite # 1 & 2), & 5 claims 1/2 mi. west.

State: Arizona County: Pima

Location:

District: Roskrudge(?)

Date of this Report: Aug 7, 1956

By: Norman Eastmoore, Jr.

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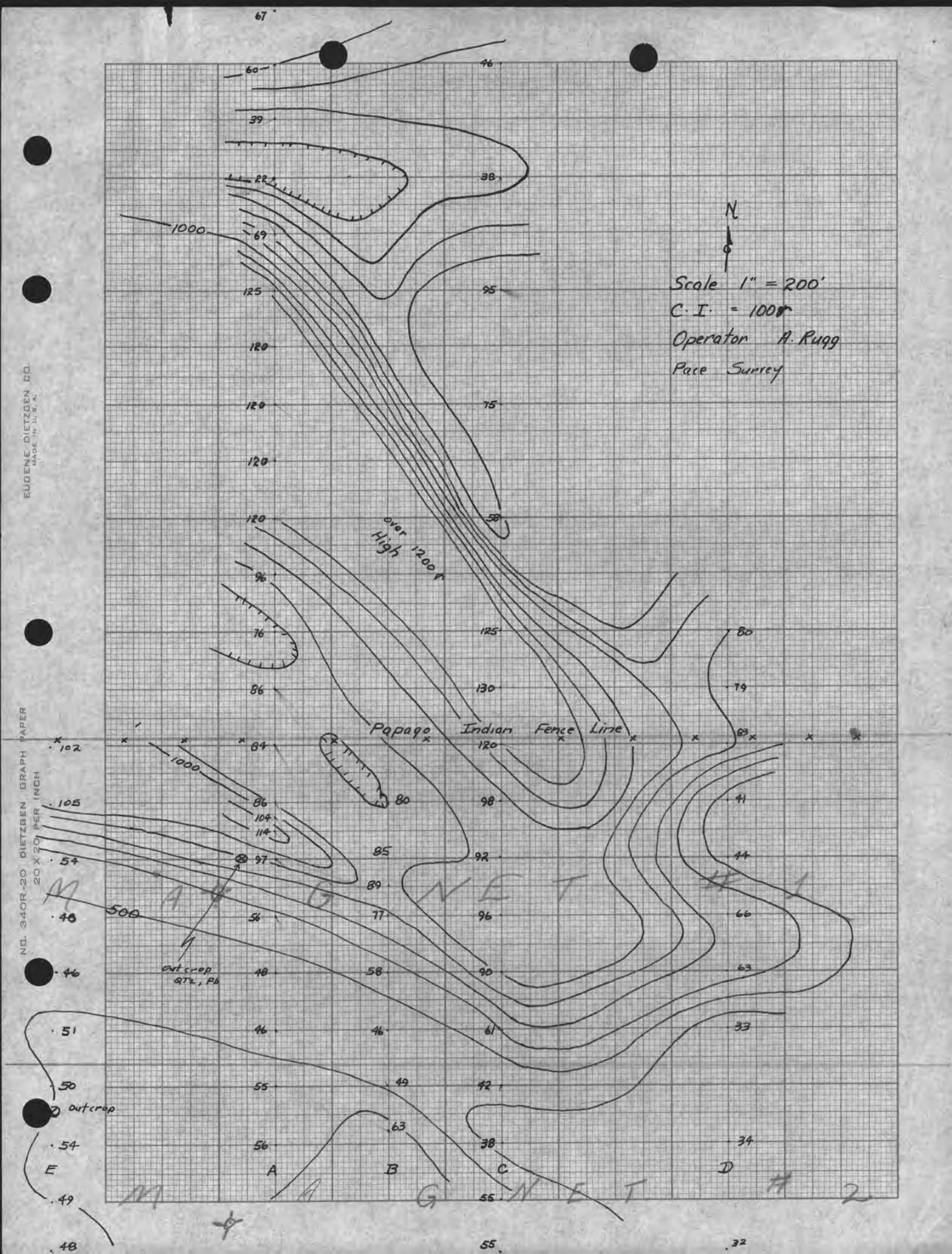
One sample run on 1-inch wide Cu stringer by original locators.
Results: Cu, 9.9%; Ag, 56 ozs.



EUGENE DIETZGEN CO. MADE IN U.S.A.
NO. 340R-20 DIETZGEN GRAPH PAPER 20 X 20 PER INCH

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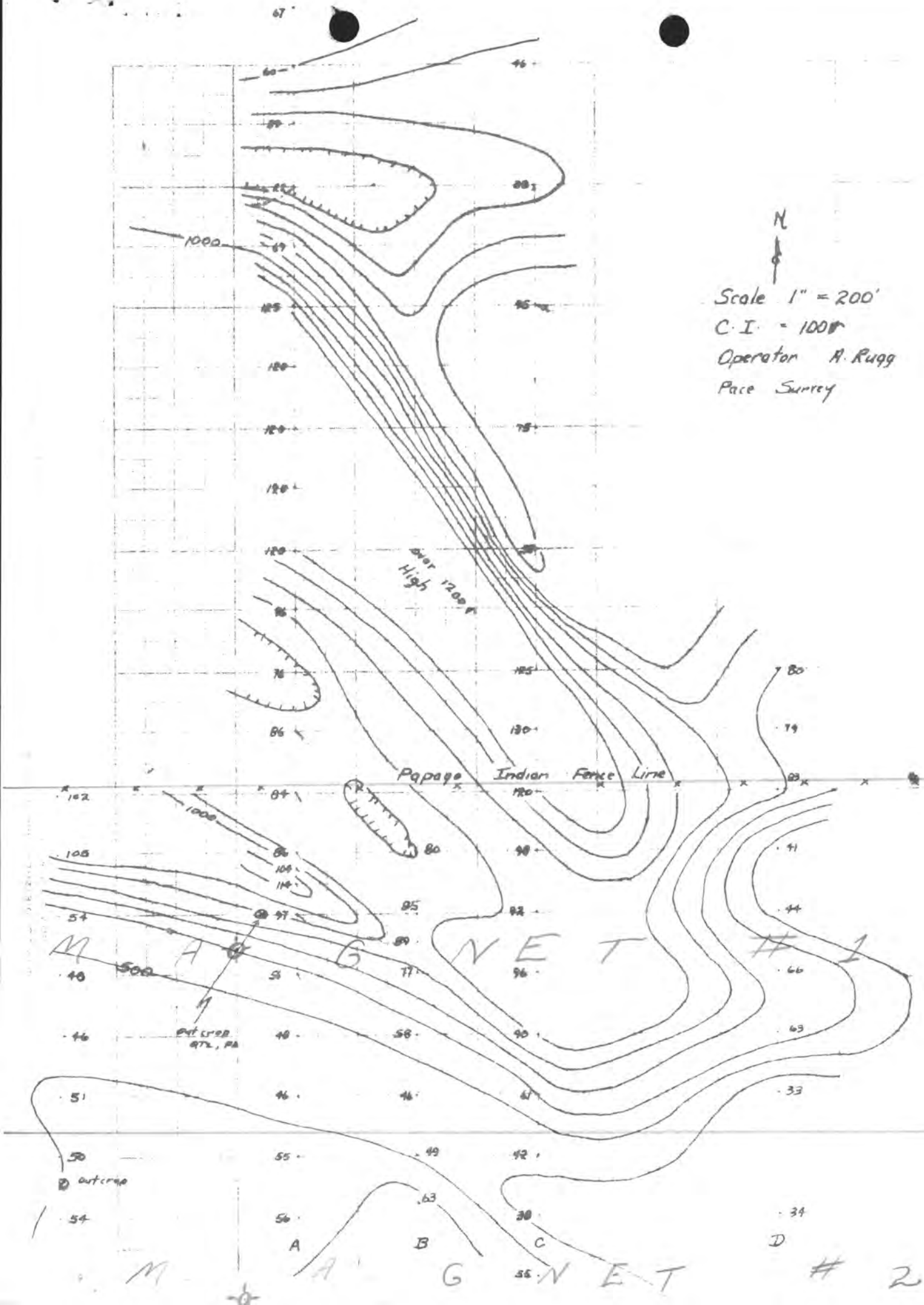
Production Data: (Past, present and possible future)

No previous production.

Sampling and Analysis: (By whom--Results)

One sample run on 1-inch wide Cu stringer [illegible]

Results: Cu, 0.9[illegible]; A , [illegible]


N
Scale 1" = 200'
C.I. = 100
Operator A. Rugg
Pace Survey
Over High 1200
Papago Indian Fence Line
1000
500
outcrop QTZ, PA
outcrop
MAGNET #1
MAGNET #2
A
B
C
D

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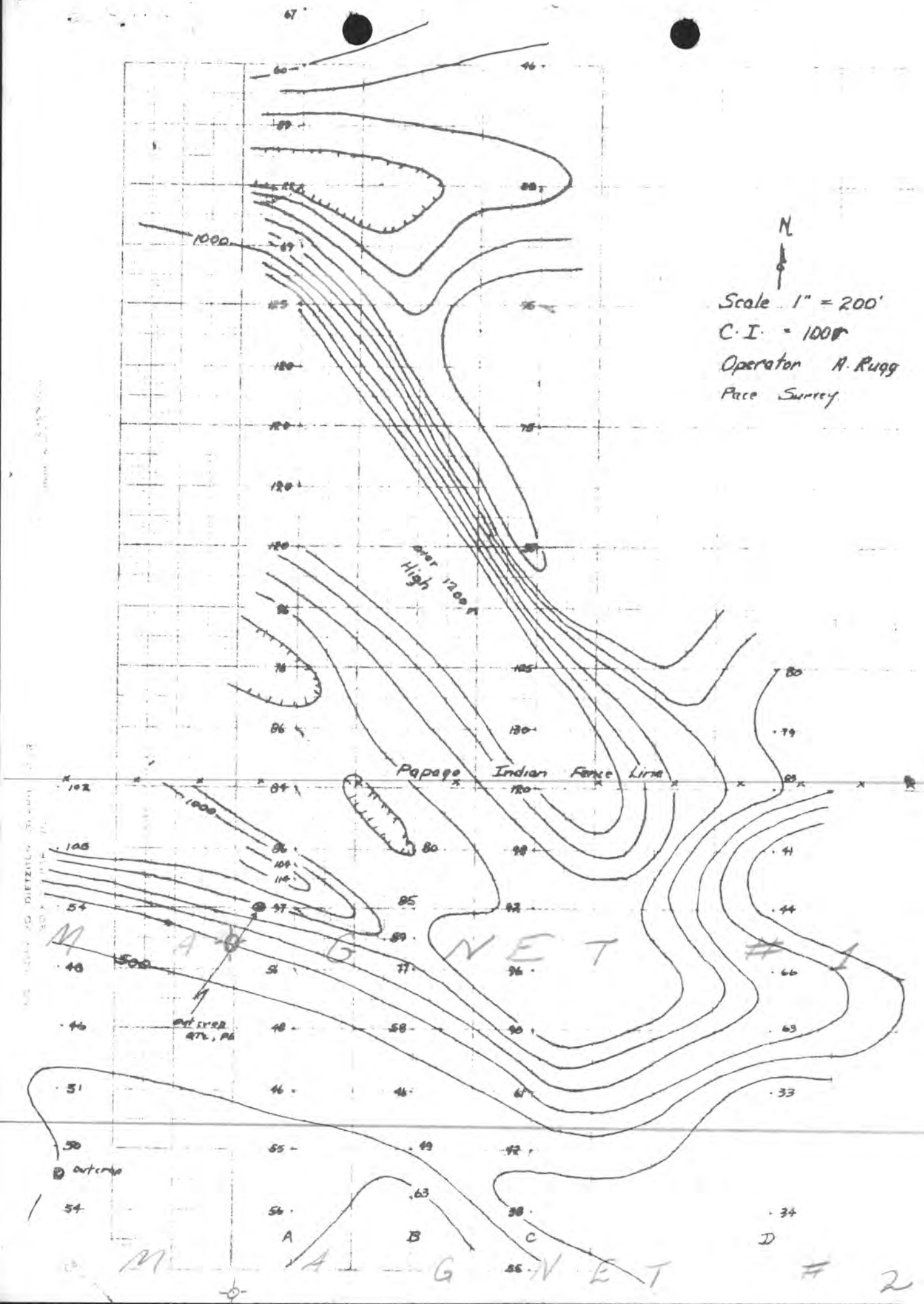
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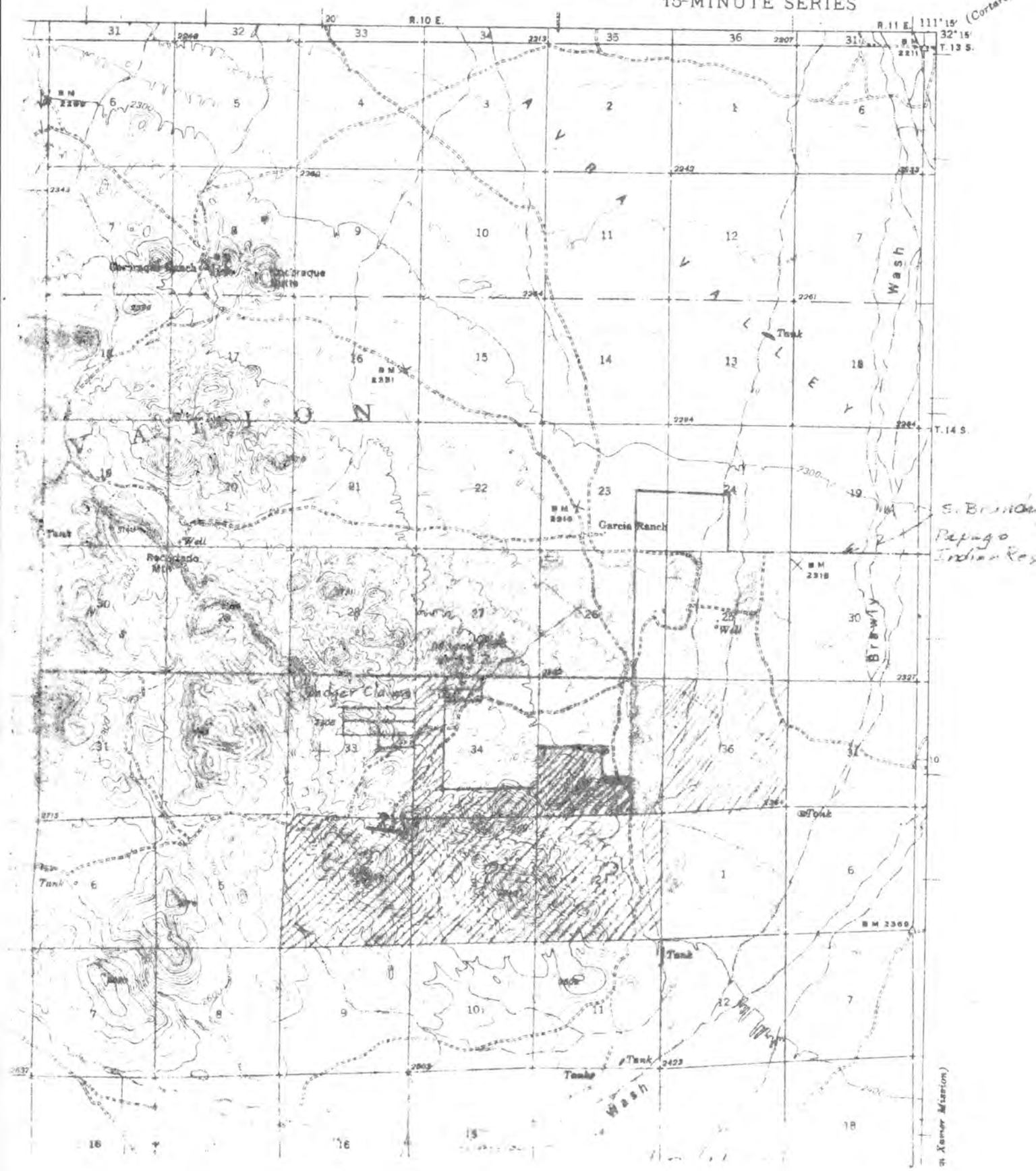
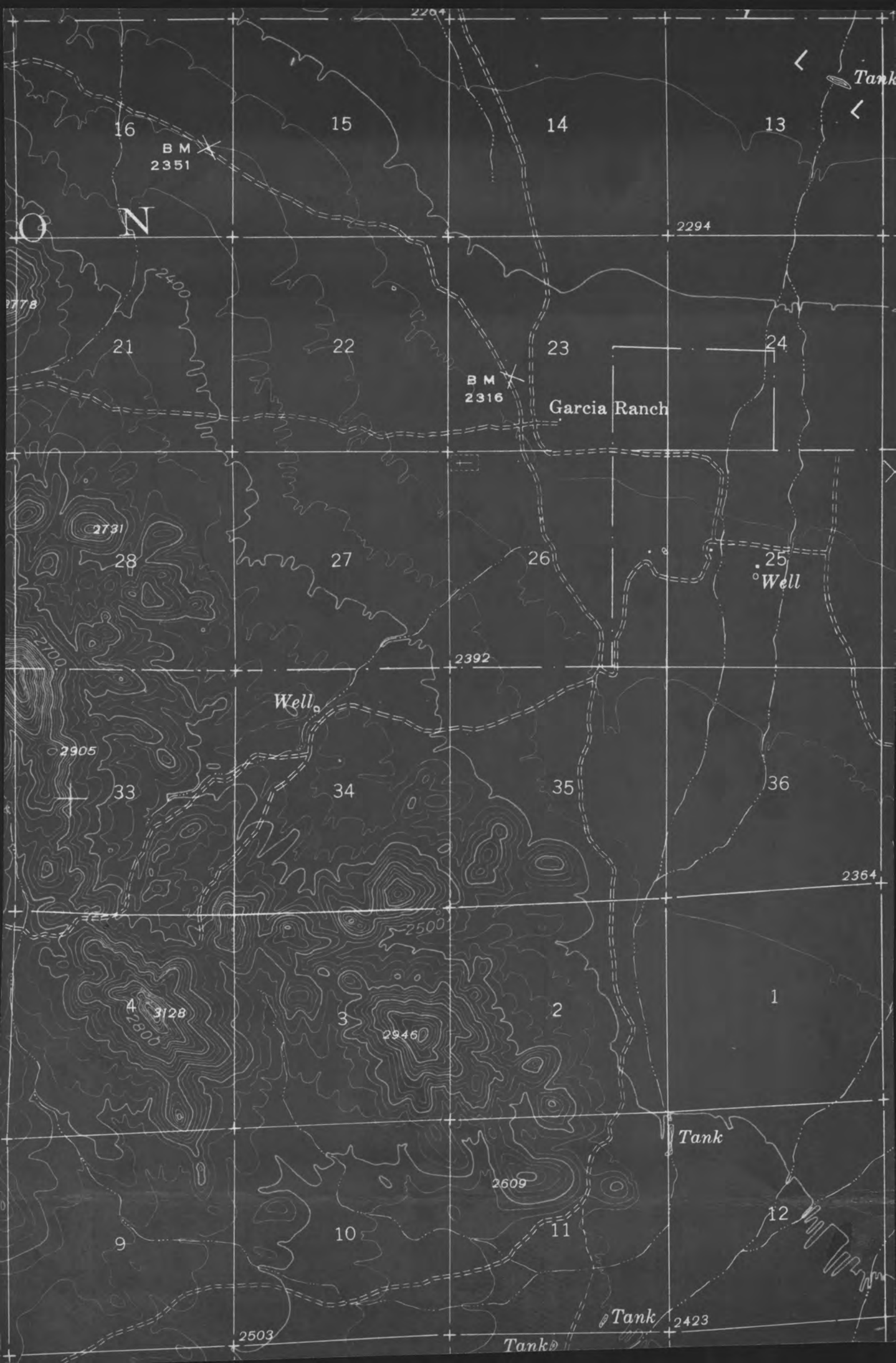
Scale 1" = 200'
C.I. = 100
Operator A. Rugg
Pace Survey
Papago Indian Fence Line
over 1200 ft
High
1000
500
outcrop
A
B
C
D
M A G N E T # 1
M A G N E T # 2

ARTMENT

ARIZONA
(PIMA COUNTY)
COCORAQUE BUTTE QUADRANGLE
15-MINUTE SERIES




Tank
16
15
14
13
B M
2351
O
N
2294
2400
2778
21
22
23
24
B M
2316
Garcia Ranch
2731
28
27
26
25
Well
2700
2392
Well
2905
33
34
35
36
2364
2500
4
3128
2800
3
2946
2
1
Tank
2609
12
9
10
11
Tank
2423
2503
Tank

R.D.

Record #	Feet	Record #	Feet
1	40800	37	3600
2	4800	38	2200
3	6000	39	9400
4	19200	40	8200
5	4800	41	2400
6	1200	42	7200
7	6000	43	16,800
8	25,200	44	2800
9	26,400	45	1200
10	12,000	46	1200
11	4800	46	1200
12	10,800	47	1400
13	800	48	5800
14	7,200	49	2200
15	1200	50	7800
16	1200	51	3200
17	1200	52	12,200
18	3600	53	3400
19	3600	54	7600
20	2800	55	3600
21	4000	56	2800
22	4200	57	25,600
23	7600		
24	5600		
25	6000		
26	6800		
27	5600		
28	4000		
29	2400		
30	1600		
31	8000		
32	7600		
33	7000		
34	6200		
35	4400		
36	3600		

418400'

Total mi.
79.2

200 5 6000 1200 4 4800

1200 21 1200 24 25200

34 1200 6800 34 40800

16 1200 3200 16 19200

22 1200 4400 22 26400

12000

18 4 7200 5.5 4 2200

1200 9 10800

19 400 7600

23.5 4 9400

10.5 4 8200

14 400 5600

17 4 16800 42 400 16800

15 400 6000

14.5 4 5800

20 4 80

14 4 5600

5.5 4 2200

19 400 7600

19.5 4 7800

30.5 4 12200

17.5 400 7000

19 4 7600

15.5 4 6200

64 400 25600

11 400 4400

418400

79.2 miles

Ernest J. Hicks
1251 W. Silverlake
Tucson
phone MA 2-7998
All core stored at
Hicks place as of
2/25/59

Hole RD1: Located Line 3 N, Sta. 12 W (EM Grid)

HOLE NO. R.D. 1
FROM 0' - 186' (Bot. hole)
ELEVATION 2428'
COORDINATES Sta 12too Line 3N EM Grid N E
DIRECTION
INCLINATION Vertical DEPTH
STARTED 4/8/57 COMPLETED 5/3/57

Note: Hole drilled NX from 36-55, then BX & Reamed NX to 92'. From 92'-186' Drilled BX

SECTION: J.W.D. 4/9/57; J.W.D. 4/11/57; J.W.D. 4/15/57; NEE 4/24/57; Logged 5/3/57 NEE; Logged 5/6/57 NEE

COL: (Gravel size) badly broken; shattered

GEOLOGY	SURVEY	% CORE RECOVERY	CORE ASSAYS SECTION ℄	% CU.	% Pb	% Zn	OZ Au	OZ Ag	SLUDGE ASSAYS SECTION ℄	% CU.	% Pb	% Zn	OZ Au	OZ Ag
0-18 volcanic alluvium - silt, gravel & boulders w/caliche coatings - fn gr. dk purple w/ltl. gn, gy rhyolite? latite? andesite? some med gr. w/qtz phenos fn gr. lt gn gy. aphanite. Some chips magnetic, but no massive mag - no ore min >1% mag.			Sample #'						Sample #					
18± Bedrock?														
18-24 No core - sludge gravel + mud - cuttings uniform size gravel + smaller - no large rocks - clay cemented. med-fn gr. dk purple gy rhyolite? Some chips nonstained surface. Some qtz grs. some chips magnetic - no ore min >1% mag														
24-25 rhyolite? (above) some bleached w/fe stained - tuff agglomerate?	24													
28-31 yel-br. sand + mud. Sand uniform med gr. 60% br. 30% ch. 10% gy. Driller says hit alt bandred tye/sludge since 20' but none seepered or much no mag weak HCl reaction when dry fault gouge. Water at 30'±	3½" 31	28%												
31-36 Iron stained bleached andesite? core sections to 2" (best sides) seems dark fe (mn?) stained tuffaceous? no mag, no HCl react.	3½" 36	40%	set NX case @ 36'											
36-39 bleached, Fe stained andesite - less altered than above (more qtz)	NX	16%												
39-41.6 gy andesite, Some bleached " " " " (" ")	39	40%												
41.6-44 Fe stained, bleached andesite (overall br. color - seems darker) Some mn dendrites - no mag - no HCl reaction	41.6 44	55%												
44-46 similar to above - slightly less altered	46	25%												
46-51 gy andesite, Tab part (46'-48'?) bleached 1" qtz frag. 48'± also frag. bleaguge breccia 48'± 48-51 less alt. lyr purple andesite? no mag no HCl react.	NX 51	25%												
51-55 gy andesite + "mud" Some bleached Fe stained, espan surface. Fragments washed, water worn gravel appearance.	NX 55	45%												
55-61 No core recovery. Driller reports talc.	BX	No core												
61-66 limestn alt andesite, feld kaolinized, spec. hematite on fract, mn stns, badly broken ground.	61	33%												
66-71 shat., alt., blch, andesite some lime stn & some spec. qtz stringer w/spec. & tr sulphide @ 66.5'	66	30%												
71-76 shat., blch, alt., lime stn andesite, some water worn	71	28%												
76-81 gy & purple less alt. andesite, some chlorite? spec. Some specularite. Broken, some mag specs 80-81 rk mag	BX 76 79	28% 28%												
81-88 Shat, silic., bleached aphan., some dis fn gr py. Some frags appear water-worn. serp. slickensides on fract.	81 85	33% 45%												
88-91 less alt gy fn gr aphan, badly broken & shat weak py. & serp on fract.	87 88 89	60 80												
91-93.5 ditto above w/silic ½" seams hvy. py.	91 93.5	70	set BX case @ 92 ft.											
93.5-98.6 lt gy bleached, broken aphan. some lime. nar. strks py, mag & silic. fault gouge @ 97'	95 97	77 50												
98.6-104.5 lt gy bleached aphan. (tuff?) L. my strks 102.5 & 105.6 chlor wk p/fract & diss. serp on fract. Qtz string. w/py @ 103.5	99 100 101.5	50 60												
104.5-107.6 gy fn gr serp. aphan. w/lime strks & diss. py. Strong py @ 107 - lime py band 6" wide w/serp & chlorite. some lime strks	105 107	80												
107-109 Nar. alt. horizon bands bleach. fault gouge & shat. zones gy aphan	BX 108 109	92												
109-117 Alt. bleach silic aphan brec. w/consid. py. ⅛" seam @ 116 Some chlor & serp on fract.	110 112	67	109 #623	0.03	0.2	0.1	0.005	0.3	109 628	0.05	0.2	0.1	tr	0.2
117-120 lt gy silic gouge (fault?) & shat. gy py chlor. aphan.	115	80	112 624	0.02	0.1	0.1	tr.	0.2	112 629	0.03	0.1	0.2	tr	0.3
120-124 Hvy py in qtz & silic aphan (py 5-10%) small zone @ 122 some shat zones	117 120	60	115 625	0.03	0.1	tr	tr	0.2	117 630	0.12	0.2	0.1	0.005	0.3
124-129 Brec qtz w/py & minor fault gouge. sev nar. shat zones.	122 124	52 40	120 626	0.18	0.2	0.1	0.005	0.3	120					
129-135 Fault brec. & gouge w/py some qtz brec frags Some chlor & serp on slickensides	129 132	76 88 85 56	126						129 631	0.04	0.1	tr	tr	0.2
135-140 Limy fault gouge & brec cont. some fresh and frags. Some chlor & py. on slickensides. @ 140. 1" stringer mass spec Fe.	135 BX	55 60	130 627 135	0.04	0.1	0.1	0.005	0.2	132 632 135	0.05	0.1	0.1	tr	0.2
140-156 Brec. gy aphan w/talc & serp on fract. Prom. set near vert. partings (bedding?). Rx type poss H_2O laid tuffs? or indurated siltstones?	140 142 146	40 40 40												
156-166 Dk gy less altered aphan (tuff? or siltstone?) Vert part prom. Carbonates serp & talc on frac. Less broken than above. Clot of serp. w/hvy mag @ 164'	148 152 156 158	85 70 60 95												
166-186 Dk gy aphan (tuff? or indur. siltstone?) Vert. part prom w/carb., serp & talc on fract surf. Interval badly broken. Fault gouge @ 186'	160 162 166 169	95 75 100 100	Cont. Core Recov. Col. % Recov. 175 177 179 181 183 184 186	75 70 75 50 75 70 Bot hole										
Bot. hole @ 186'. Struck H_2O @ 24'±	171 173 175	85 60 75												

See Col. @ Rt.

HOLE NO. RD 2
FROM 0 - 124
ELEVATION 2444'
COORDINATES D.D.H.2 bears S 26°W from D.D.H.1 N @ 480' from D.D.A.E.
DIRECTION S 26°W (Same as bear from Hole 1 to 2)
INCLINATION -45° DEPTH Total 124'
STARTED 4/8/57 COMPLETED 5/16/57

SECTION	COL	GEOLOGY	SURVEY	% CORE RECOV-D	CORE ASSAYS SECTION	CORE ASSAYS CU.	SLUDGE ASSAYS SECTION	SLUDGE ASSAYS CU.
		0						
		5						
		10						
		15						
		20?-23 angular but worn fragments fn gr volcanic? (hard) mostly purplish, some dk ga. lt ga. some epidote lm. coating, seams	20? NX	?				
		23-30 - Same as above, but good core variegated purp., lt. ga. strong, narrow seams calcite (wh) cutting less strong seams epidote. mn dendrites in seams	23 25.5	80%				
		30-33 same as above, but highly fractured to coarse gravel	30	99				
		33-34 " " " Last 1' lt ga. core	33 34	33 30				
		34-38 missing						
		38-39 lt. ga. fn. gr. volcanic? seamed like above - fairly good core	38	37				
		39-39.5 re st. siliceous some fn honeycomb py in purple volcanic?	NX 40	60				
		39.5-40 highly bleached, kaol., porous, brecciated, calcic - slickensides	BX					
		40-51 lt. tk ga fn gr. volcanic(?) heavily seamed w/calc. lesser epid much fractured, 50% gravel	45	26				
			48	70				
		51-54 similar above but darker cleaner, less calc. - gravel + sand	50	60				
		54-56.5 lt. tk ga fn gr. volcanic(?) heavily seamed w/calc., little epidote some brecciated 25% calc.	52 53 54	55 86 70				
		56.5-62 dk ga fn gr. volcanic(?) andesite(?) fractured to gravel calcite seam fragments	56 57 58	90 80 60				
		62-65 dk ga fn. gr. volcanic (andesite?) heavily seamed + fractured w/calc. some brecciated, some bleached white, kaolinized some gravel tr. fe stain	60 62	55 55				
		65-77 lt + med ga fn. gr. volcanic(?) some purplish tint - much epidote, fuzzy epidote seams cut by sharp calcite veinlets occasional tr. fe stain - lighter ga + tan ga finer gr ? (siltstone?) 65-66 gravel, rest pretty good core	65 66 68 71	55 90 100 100				
		77-805 like above but less fractured + seamed - little epidote last 3" altered, bleached + crumbled	75 77	80 60				
		805-114 med-dk ga. fn. gr. volcanic ? (shale?) massive, less fract. fewer calc + epid. veinlets tr. fe stain on seams some calc veinlets blue-green	83 85 86 87	75 90 33 100				
			90	100				
			95	67				
			100	50				
			105	25				
			109	40				
		114-1155 lighter ga., last 12" bleached, last 6" altered, some fe stain epidotized, calc.	114	30				
		1155-124 lt purplish fn gr volcanic? (andesite?) w/white calc seams highly fractured - faulting along some seams, esp. @ 119.5 squeezed py on fracture surface @ 119.5 - slickensides "talc" tr. fe stain on fractures - "gravelly"	119 122 124	40 80 50				
		Bottom of Hole						

Logged 5/17/57 by J.W.W.

HOLE NO. R-D D.D.H.3
FROM 0- ~~115~~ 120
ELEVATION
COORDINATES 2N, 9+50W N E
DIRECTION S22°W
INCLINATION -45° DEPTH Total ~~115~~ 120'
STARTED 5/20/57 COMPLETED 6/4/57

SECTION	COL	GEOLOGY	SURVEY	% CORE RECOV-D	CORE ASSAYS SECTION	CU.	SLUDGE ASSAYS SECTION	CU.
					None		None	
		Allurium						
		31-46 fn-med gr. lt-med ga (some purplish tint) andesite? rhyolite? much fractured (nothing >2") thin calc. coating seams little epid 38' lt. gr. talc on some seams	NX 32 / BX 35 / 38 / 41 / 43	45 % / 40 / 17 / 25 / 50				
		46-60 similar above some longer cores bleached + epid. zones 53' + 54' & limy. good HCl react. dk. gn (chlorite?) coats some calc (white) seams @ 54' 46-47? extra hard, fine gr some lt ga. purp. tinted-epid seams mn. dendrites on some calc. seams.	46 / 49 / 50 / 52 / 53 / 55 / 57	25 / 25 / 20 / 25 / 80 / 80 / 95				
		60-74 similar above bleached, epid, limy zone @ 65'±	60 / 64 / 66 / 68 / 71 / 74	80 / 60 / 60 / 60 / 45 / 95				
		74-89 similar above some calc seams soft alt. 79-80	AX 76 / 77 / 80 / 83 / 86 / 87 / 88 / 89 / 91 / 93 / 95 / 97 / 98 / 100	95 / 50 / 70 / 70 / 25 / 50 / 50 / 70 / 30 / 30 / 50 / 30 / 20 / 30				
		89-106 similar above badly broken	104 / 106 / 108 / 109 / 110 / 111 / 112 / 113 / 115	25 / 6 / 12 / 15 / 20 / 20 / 30 / 20				
		106-115 similar above - badly broken (gravelly) 107± - 111 some white + lt ga fragments esp @ 107± white frags appear bleached, all are hard (silicification not kaolinized) non limy						
		115-120 no core						
		bottom of hole 120'	120					

J.W.W. 6/3+4/57

HOLE No. R-D DDH 4
FROM 0-174
ELEVATION 2428.4
COORDINATES 1+50N, 11+50W N E
DIRECTION
INCLINATION vertical DEPTH
STARTED 5/30/57 COMPLETED 6/17/57

SECTION	COL	GEOLOGY	SURVEY	% CORE RECOV-D	CORE ASSAYS SECTION	CU.	Au	Ag	Pb	Zn	SLUDGE ASSAYS SECTION	CU.
	5											
	10											
	15											
	20											
	25											
	30											
	35											
	40											
	45											
	50											
	55											
	60											
	65											
	70	69-80 highly altered + fractured andesite? rhyolite? bleached, serpentinized (kaolinized?) some fault gauge	NX 70 72	60%								
	75	heavily Fe stained lt. gn. "talc" on some seams 75' slickensides	76	85								
	80	80-86 similar above 81-86 qtz + ich. dissem py	80 81	95 95								
	85	86-93 soft, qa., pyritized, on some seams + gauge? talcose, shaly appearance on seams + fractures	84 BX 86 88	40 45 70								
	90	probably highly altered andesite (?) in fault zone - slickensides, gauge other sulphides?	92 93 94	70 90 50								
	95	93-102 Similar above, but less talcose, more bleached granular py dissem on seams qa. cnastringers, esp 98-100" few Fe stained qtz frags. 99-100 highly bleached	96	40 100	#639	0.03	0.01	0.35	1.4	0.5		
	100	102-108 Similar above, less galena heavily altered areas partly limy	100 102 104 106 107 108 109 110 111 112 114	100+ 95 95 100 100+ 70 100 40 70 50								
	105											
	110	108-116 similar above										
	115	116-139 Similar above (highly bleached & altered 120-131) coarser py much gauge.	116	60 50								
	120		120 121	20								
	125		125 128	35 65								
	130		131 133	60 100	#640	0.07	tr.	0.1	0.2	0.2		
	135		135	100								
	140	139-155 Similar above some "siltstone"? bleached much slickensides tr. galena (ie. 146.8)	139	65 65								
	145	portions limy, esp more broken, altered areas	143 145 148	100+ 100+	#641	0.02	0.005	0.1	0.1	0.2		
	150			100								
	155	155-162 metamorphosed sediment? siltstone? fngr. lt. ga less fractured, poorly mineralized, 156-157 brown mostly limy calc. seams, some talcose	153	90								
	160	162-167 similar above but more broken, pyritized	158 162	100								
	165	167-174 Similar to previous core (ie 100-150') coarser gr. more granular, crumply than above much broken + highly altered + fault breccia light py except 168-169 (stronger py)	164 166	90 50								
	170		170	80								
	175		174	65								

J.W.W. 6/4+5/57

J.W.W. 6/11, 12, 13/57

HOLE No R-D DDH 4
FROM 174- 222'
ELEVATION 2428.4
COORDINATES 1+50N, 11+50W N E
DIRECTION
INCLINATION Vertical Total DEPTH 222
STARTED 5/30/57 COMPLETED 6/17/57

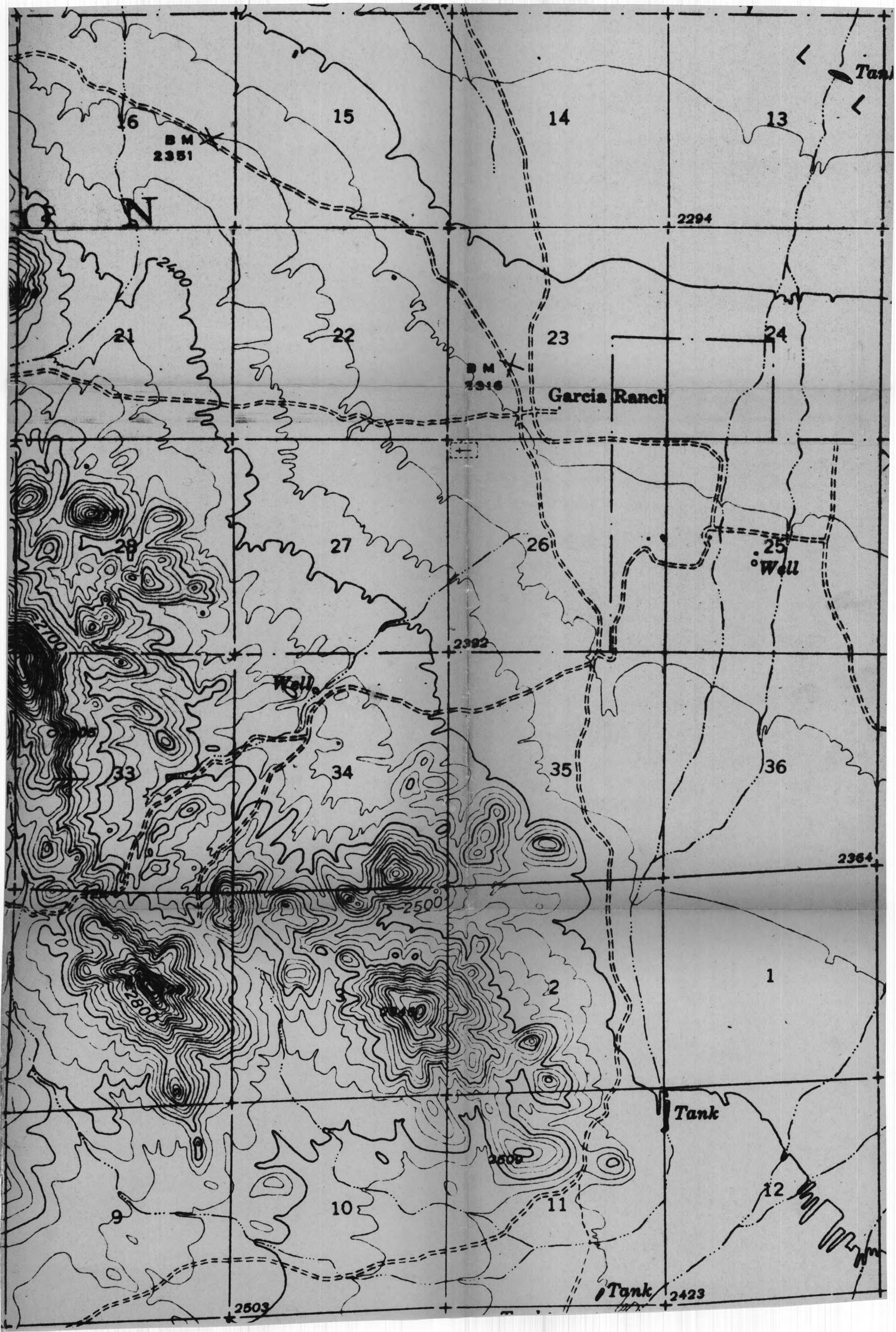
V.W.W 6/17/57

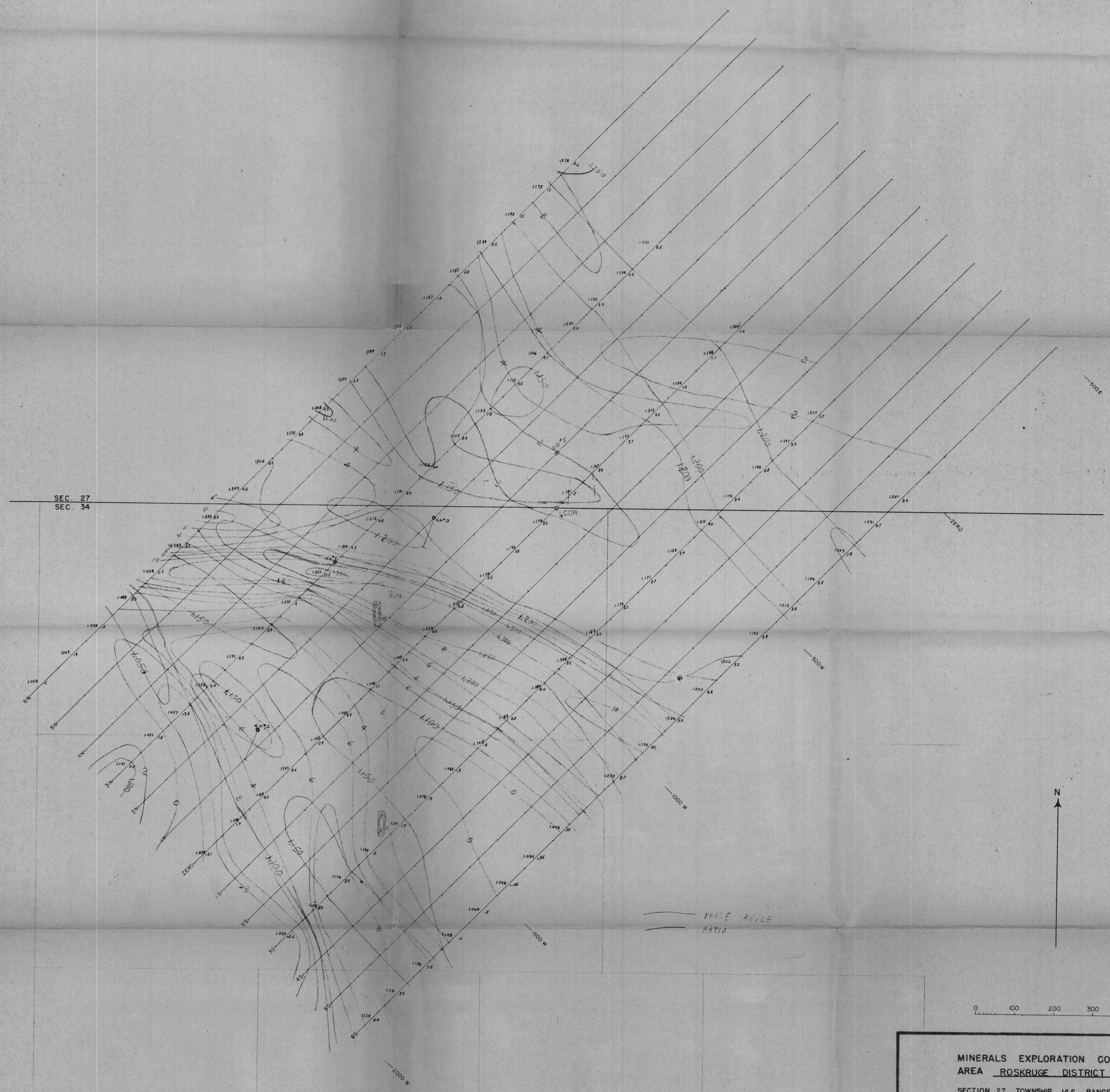
Non magnetic (handmagnet)

SECTION	COL	GEOLOGY	SURVEY	% CORE RECOV-D	CORE ASSAYS SECTION	CU.	SLUDGE ASSAYS SECTION	CU.
	170		BY					
	175	174-177 similar above-lt ga fault breccia py - bleached, crumbled non calcic	174 176	50%				
		177-179 similar above but solid core - not brecciated - highly calcic some slickensides little dissem py						
	180	179-189 less bleached, less granular finer gr. color variegated white medga streaked + flecked (replacement?) (breccia?)		100				
	185	partly calcic (lt. areas) Fe streak (hematite?) 182' vuggy calcite areas. Some Fe stained "siltstone" areas little dissem py	184	90				
	190	189-190 contact above with lt. ga. granitic intrusive heavy py (+chy?) ribbon structure @ 70°±	189	65				
	195	190-195 gn + purp. ga. volcanic? w/ inclusions Tuffaceous foliation @ 60°± finely dissem py 194-195 badly broken	195	40				
	200	195-200 - medga. fn. gr. banded (60°±) non calcic alum. meta-sediment? fine calcite seams tr. Fe stain - bleaching along fractures ↖ hard slickensides - well broken (3' max.) little dissem py	200 AX 203	15				
	205	200-206 - dk ga fn. gr. volcanic? dissem by very little after 203'	206	40				
		206-206 lt. ga medga altered intrusive - kaolinized feldspars give dappled appearance, non calcic - diorite? chilled contact? tr. Fe stain along seams very scant dissem py hardly visible		80				
	210	2126-222 alternating lt. ga. medga. granitic intrusive & dk. ga fn. gr. aluminous metasediment? (volcanic?) w/ lt. ga. banding @ 65° non limy except for calcite seams no sulfides noted	211 212.5 214.5 216 217.5 218	60 95 10 60 100+				
	215							
	220		222	55				
	225	Bottom hole @ 222'						

HOLE NO R-D D.D.H #5
FROM 0' 166'
ELEVATION
COORDINATES 1N, 6W N E
DIRECTION
INCLINATION Vertical DEPTH Total 166'
STARTED 6/10/57 COMPLETED 6/17/57

SECTION	COL	GEOLOGY	SURVEY	% CORE RECOV-D	CORE ASSAYS SECTION	CU.	SLUDGE ASSAYS SECTION	CU.
	5				None		None	
	10							
	15							
	20							
	25							
	30							
	35							
J.W.W. 6/13/57 high magnetic susceptibility	40	40-50 dk ga andesite?-diorite? fn.-med. gr. Similar to previous unaltered country rock (J. Waite) NeH & NEE think more highly crystalline, coarser to extent of being diorite (even dolerite?) less fractured, seams with calc as before	NX 40 41 43 45 46 48 50 52	90 70 95 60 90 75 60				
	55	50-69 Similar above magnetic to hand magnet purplish tint to some portions, as in previous holes.	56 58	60 100				
	60	69-166 Similar above in all ways short broken zones @ 71-73, 81, 86 (slickensides) 118, 129, 139'	60 63	100 80				
	65			100				
	70		69 72	98				
	75	note: entire core interval magnetic to hand magnet		90				
	80		78 81	100				
	85		86 88	100 100				
	90			100				
	95		94					
	100			100				
	105		103 104 105	100				
	110			100				
	115		113 115	100				
	120		119	100				
J.W.W. 6/17/57	125		124.5	95				
	130		129	100				
	135			95				
	140		139					
	145		144 146	98 100				
	150		149	100				
	155		155 156	95 60				
	160			90				
	165		164 166	100	Bottom of hole.			
	170							

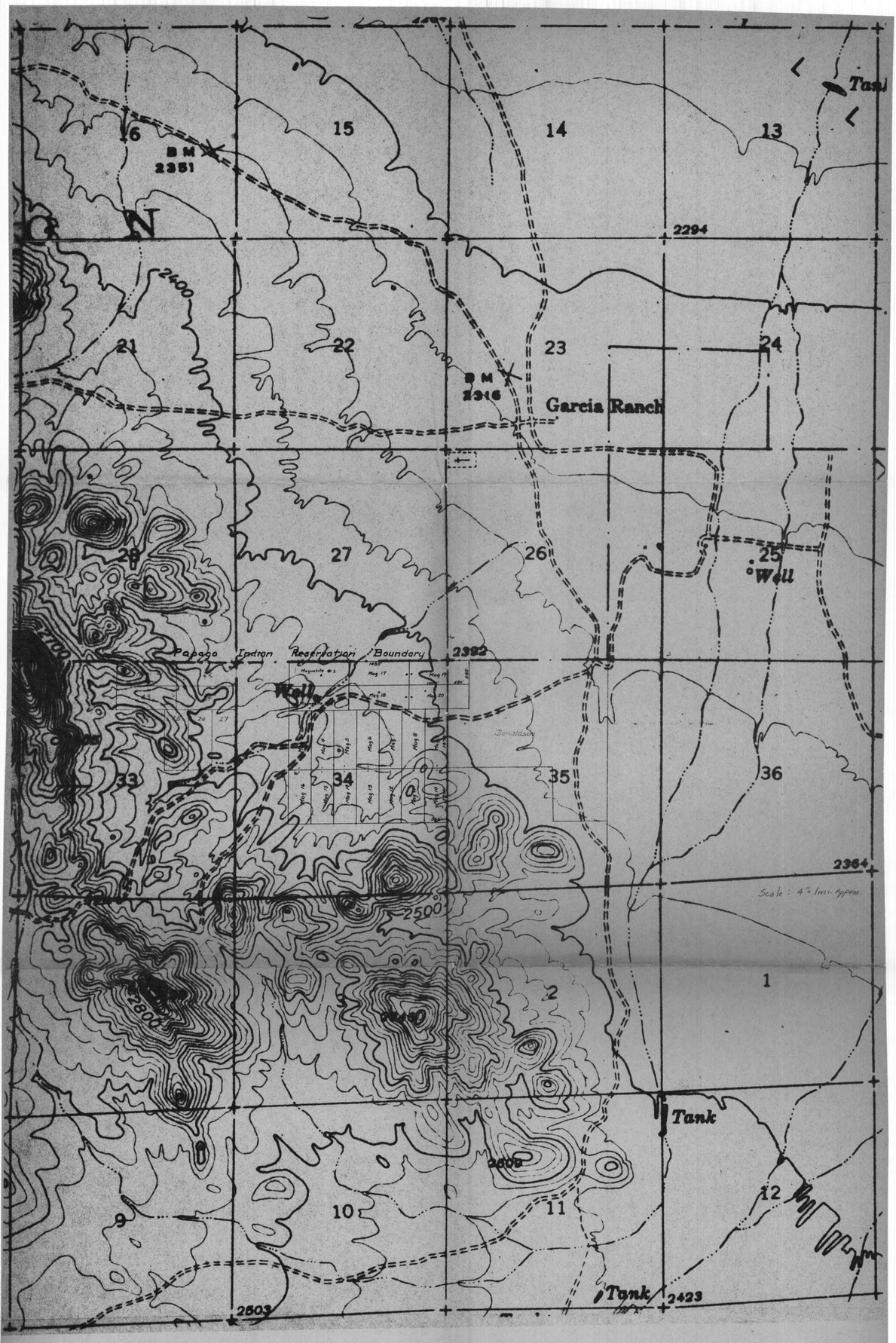

16
BM
2351
15
14
13
Tank
N
2294
2400
21
22
23
24
BM
2316
Garcia Ranch
28
27
26
25
Well
2700
2392
Well
33
34
35
36
2364
2500
2800
2
1
Tank
2600
10
11
12
9
Tank
2423
2503



MINERALS EXPLORATION COMPANY
AREA ROSKRUGE DISTRICT

SECTION 27/34 TOWNSHIP 14 S RANGE 10E

TYPE SURVEY EM Phase ∠ & Ratio
CONTOUR INTERVAL
INTERPRETATION BY
SCALE 1 INCH = 100 FEET
DATE



Geological & Geophysical
Land Status & Survey Data

Explanation

Private Land
State Land
Federal Land
Private Mineral

Note

ALL CLAIMS STAKED IN BLOCKS
DIMENSIONS OF CLAIMS AS NOTED

Pertinent Data

MAGNETOMETER LINE
SELF POTENTIAL LINE
MO MAG LINE
DISCOVERY POSTS

Sun 18 Nov 1956

10 A.M.

Met Mr. Jones (Dept Interior Papago Indian Agency Sells)

With Papago Dist Council (Shuk Toak Dist.)

at Santa Rosa Ranch School House

1st Road N (Right) on Reservation after crossing boundary on road from Tucson, 7-8 Mi N. of San Vicenti or 17 Mi N.E. of Sells. Phone line follows road North.

11/18/56

Meet. w/ Tribal Dist. Council, Papago Ind.
Santa Rosa School House.
Angelo McGill Incharge Meeting. (interpreter)

30	29	28	27	26	25
31	32	33	34	35	36

S 1/2 R10 E, T14S
issue or Prosp. Perm.
Trib. to lease 1/2 Town/Ship
at @ time.

Schuk Toak Dist
~~Shuck Too ok Dist~~

(Mr. Jones of Ind. Agency present to present our Applicat. to Council.

Only Dist can grant lease
" " gets 1/2 rental & Tribe gets other net

According to Code, 2 ways min. can be done
1. Tribe set up Area & give permits to prospect & then lease on a advertising basis. High bidder gets lease.
2. Before issue prosp. perm. ~~issued~~ put area up for bid & give hiest bidder permit (exclusive) which allows prospector to be sure of obtaining lease on area int. in. ~~ested~~.

Tribe has tried both ways:
1) Exclusive pros. permit
4 - presented but only 2 have ~~gone~~
cleared Wash. D.C.

2. Next proposal, sif Oidak
opend Whole dist to prosp
to anyone who would pay
$100/pros. permit.
Lease appli. later when
something found.

Now Jones pres. Min "X" Applicat.
~~Angelo McGill Hd. Trib. Council~~
Mark ~~Mandel~~ Manuel for Schuk Toak Dist.
- Usually signs
& writes leases for Tribal Council.
Area as described by Jones
Garcia Strip from where
big wash X'es Garcia Strip
to top of Roskruge Mts.

Co now owns land S. of Strip
& looks like minerals
may run on to Res & they
want Permit to prosp. to
see if they do.
strip 3 miles N-S & 6 mi E-W
Want 1/2 Twn - 18 sq. miles. ±

Since we have land just S. of Res.
& know what's there Not do not want
to wait so Jones sug. to
council (to avoid delay)
(Non-exclusive pros. permits) that "they open area for prosp.
& issue pros. permits to any
one that desires to prospect.
Then if ore, ~~de~~ found
on res. can apply for lease.
& present lease appl. to
Wash.

Tribe can open area to non-
exclusive prospecting without wash
approval.

Jones says
Reason he suggest This method is that
~~as~~ 3 other dist have decided
to do this
sif oidak Dist. - Formed 3 3 pros dist?

Dist Council to pass. resolut. to do this
& Trib. Council O.K.
Then grant pros. permit for 1 yr. ($100.00)

Jones put in plug for Min. "X"
mont. Walt's part in Pima discovery.
& that 3 fellows ~~wo~~ with
him would be doing work.
& they looked like Honest people.
Jones has sug. that extra $100
to go. direct to Dist. might expedite
pass. & O.K pros. permit Applicat.

Intro. Watt to Council. & he to speak.

Watt empha. need to get started & " has offered to give Dist "bonus" to Dist. of $100.00 - amt of pros. permit.

This @ Jones Sug. →

Jones threw open meet. to questions from members -

Fed. Requit. require $1000 bond to be posted to pay for any damages (Surface etc)
Bond in favor of U.S. Govt.

Jones is under $50,000 bond
Bonded by four bonding contracts

Francisco. spoke

Jones pted out to Council that no one had right to use any land for any purpose without permiss. from Council.

Another old Ind. spoke

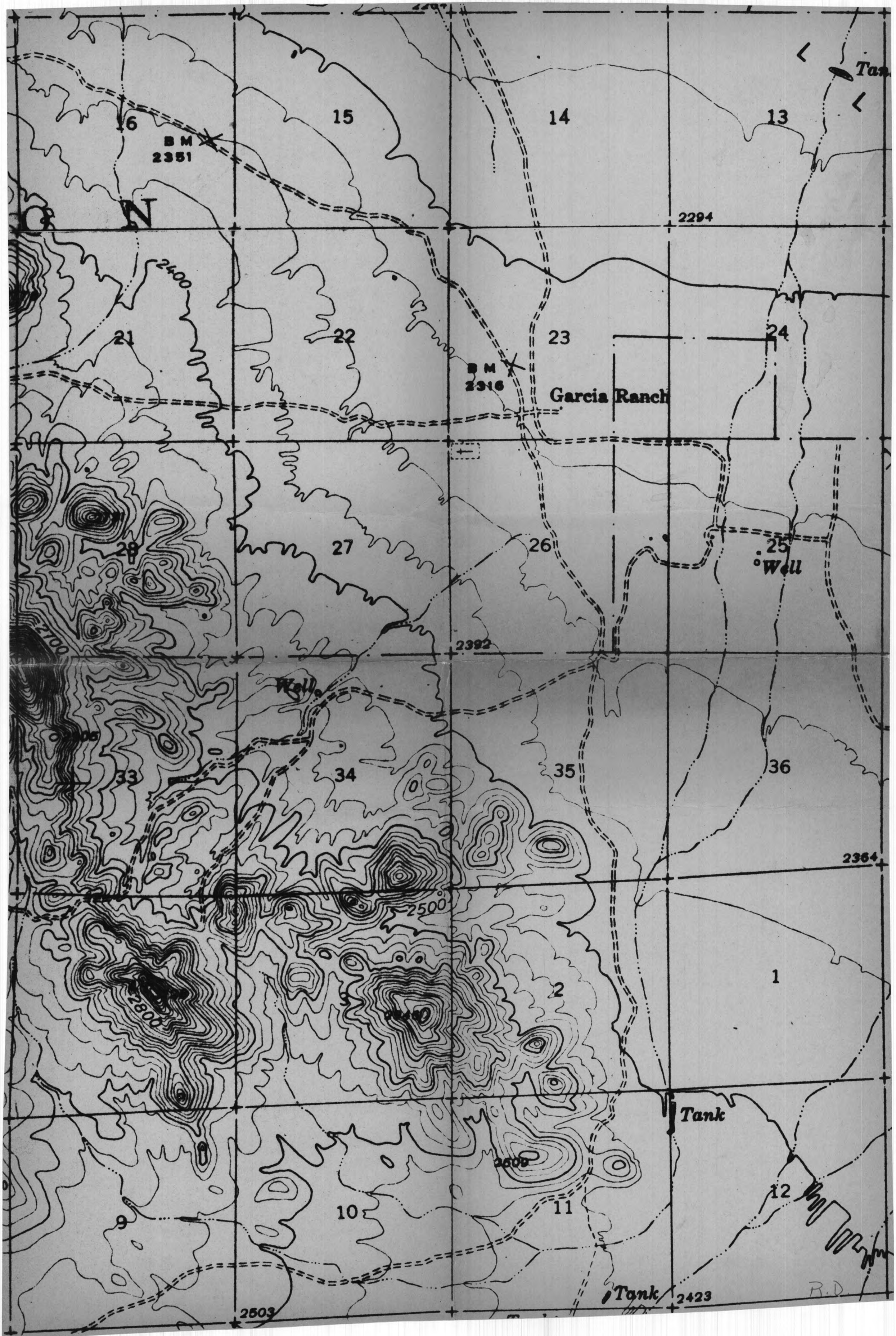
(Pablo Francisco) Dist Chairman Talking about same thing as 1st Francisco talked
That delegates must speak up.

Trib. Council meets next Dec. 7
Jones to draw up resolut.
present it to Angelo Tracs. & Dist. delegate take it to Trib. Counc. for Trib Council Approval

Dist chairman & sec. must sign resolut. to show Council really passed the resolution.

Agency cannot do anything until
Council approv. - & resolut.
gives them authority.
Then Jones to draw up
nec. permit papers to
be issued (& take care
of bond arrang. etc.)

Jones N'Archco. } Ranching in
Ramon — Al Veraz } Area of Inter. Formal?


16
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Garcia Ranch
28
27
26
25
Well
2700
2392
Well
33
34
35
36
2364
2500
2800
3
2
1
Tank
2500
12
10
11
9
Tank
2423
2503

Pima County Roskruge F

Sunday 18 November 1956 10:00 A.M.

Met Mr. Jones (Dept. Interior, Papago Indian Agency, Sells).
With Papago Dist. Council (Schuk Toak Dist.)
at Santa Rosa Ranch School House, first road N. (right) on Reservation after crossing boundary on road from Tucson, 7-8 miles North of San Vicenti or 17 miles N.E. of Sells. Phone line follows road North.

Meet with Tribal District Council, Papago Indian, Santa Rosa School House.
Angelo McGill in charge of meeting. (Interpreter)

Schuk Toak District: S 1/2 T 14S. R 10 E,
Tribe to lease or issue Prospect Permit 1/2 Township at a time.

Mr. Jones of Indian Agency present to present our application to council.

Only District can grant lease.
District gets 1/2 rental and Tribe gets other half.

According to Code, two ways minerals can be done.
1. Tribe set up area and give permits to prospect and then lease on a advertising basis, high bidder gets lease.
2. Before issue, prospect permit put area up for bid and give highest bidder permit (exclusive) which allows prospector to be sure of obtaining lease on area interested in.

Tribe has tried both ways.
1. Exclusive prospect permit. Four presently applied for but only two have cleared Washington, D.C.
2. Next proposal, Sif Oidak, opened whole District to prospecting to anyone who would pay $100.00 per prospect permit. Lease application later when something found.

Now Jones presents Minerals Exploration Company Application for Schuk Toak District.
Mark Manuel usually signs and writes leases for Tribal Council.
Area as described by Jones:

Garcia Strip from where big wash croses Garcia strip to top of Roskruge Mts.

Company now owns land south of strip and looks like minerals may run on to reservation and they want permit to prospect to see if they do.

Strip, 3 miles N-S, and 6 miles E-W. Want 1/2 Township 18 square miles ±.

Since we have land just south of Reservation and know what is there, we naturally do not want to wait so Jones suggestion to council (to avoid delay) that they open area for prospect (or on exclusive prospect permits) and issue prospect permits to any one that desires to prospect. Then if ore found on reservation, can apply for lease and present lease application to Washington.

Tribe can open area to non-exclusive prospecting without Washington approval.

Jones says:
Reason he suggests this method is that three other districts have decided to do this.
Sif Oidak District formed 33 prospect districts. (?)

District Council to pass resolution to do this and Tribe Council OK. Then grant prospect permit for one year ($100.00)

Jones put in plug for Minerals Exploration, mentioned Walts part in Pima discovery and that three fellows with Minerals would be doing work, and they looked like honest people.
Jones has suggested that extra $100.00 to go direct to District, might expedite passing and O.K. prospect permit applecation

Introduced Walt to Council and he to speak.
Walt emphasized need to get started and Walt has offered to give District "bonus" (this at Jones suggestion) to District of $100.00, amount of prospect permit.

Jones threw open meeting to questions from members.

Federal regulation requires $1000.00 bond to be posted to pay for any damages (surface, etc.).
Bond in favor of U. S. Government.
Jones is under $50,000.00 bond. Bonded by four bonding contracts.

Francisco spoke.

Jones pointed out to Council that no one had right to use any land for any purpose without permission from council.

Another old Indian spoke. (Pablo Francisco)
District Chairman talking about same thing as first Francisco talked about. That delegates must speak up.

Tribe Council meets next Dec. 7.
Jones to draw up resolution, present it to Angelo Tuesday and District delegate take it to Tribal Council for Tribe Council approval.
District chairman and secretary must sign resolution to show Council really passed the resolution.

Agency cannot do anything until council approves and resolution gives their authority. Then Jones to draw up necessary permit papers to be issued (and take care of bond arrangements, etc.)

Jones	N'Archco)	Ranching in area of
	)	Interior Forman. (?)
Ramon	Al Veraz)	

10/8/56

Interview w/ Walt 1st Day after his return from L.A. Mining Convent. week before.
3 steps.

1. Continue claim staking
2. Negotiat w/ Papago
3. Physical location work.

} R.D. Proj.

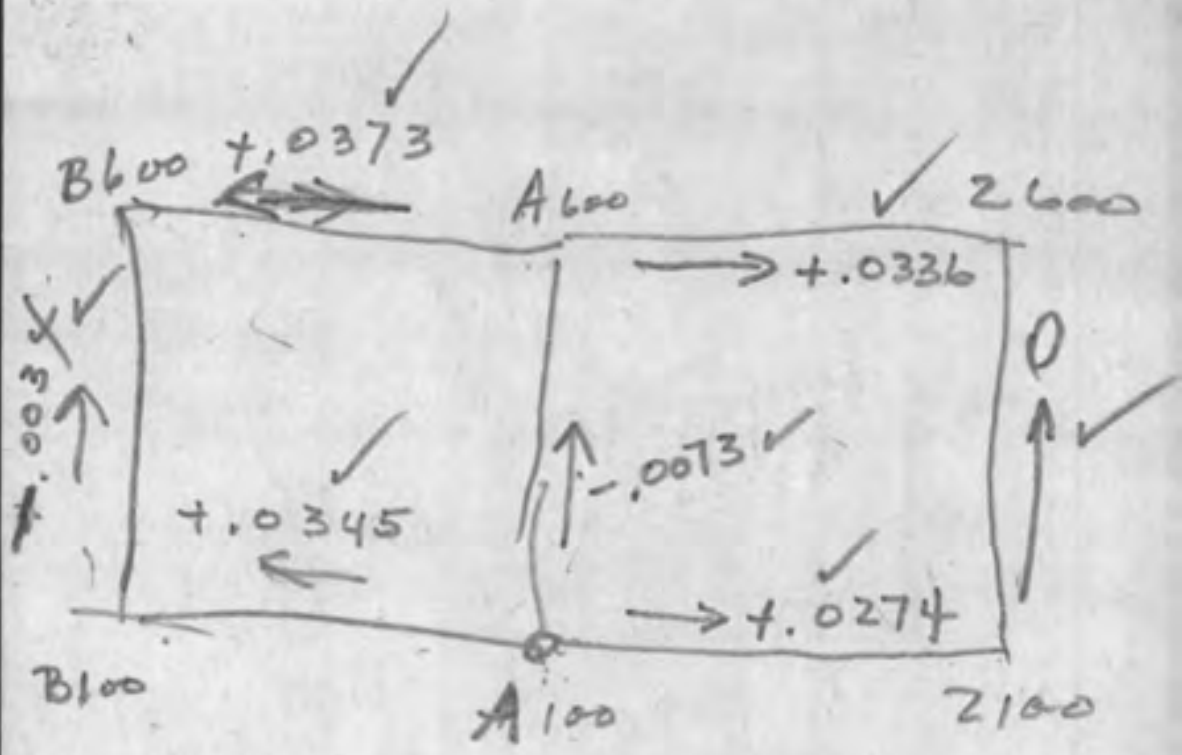
Walt suggests that E.G. & I w/ helpers work on R.D. Proj.

Sherm to start loc. work on J.O. Proj. & prob. to lv. within 2 wks.

0 50 283 300 566 600 1000 1320 1500 2640 3960 5280

Scale: 1" = 1294'

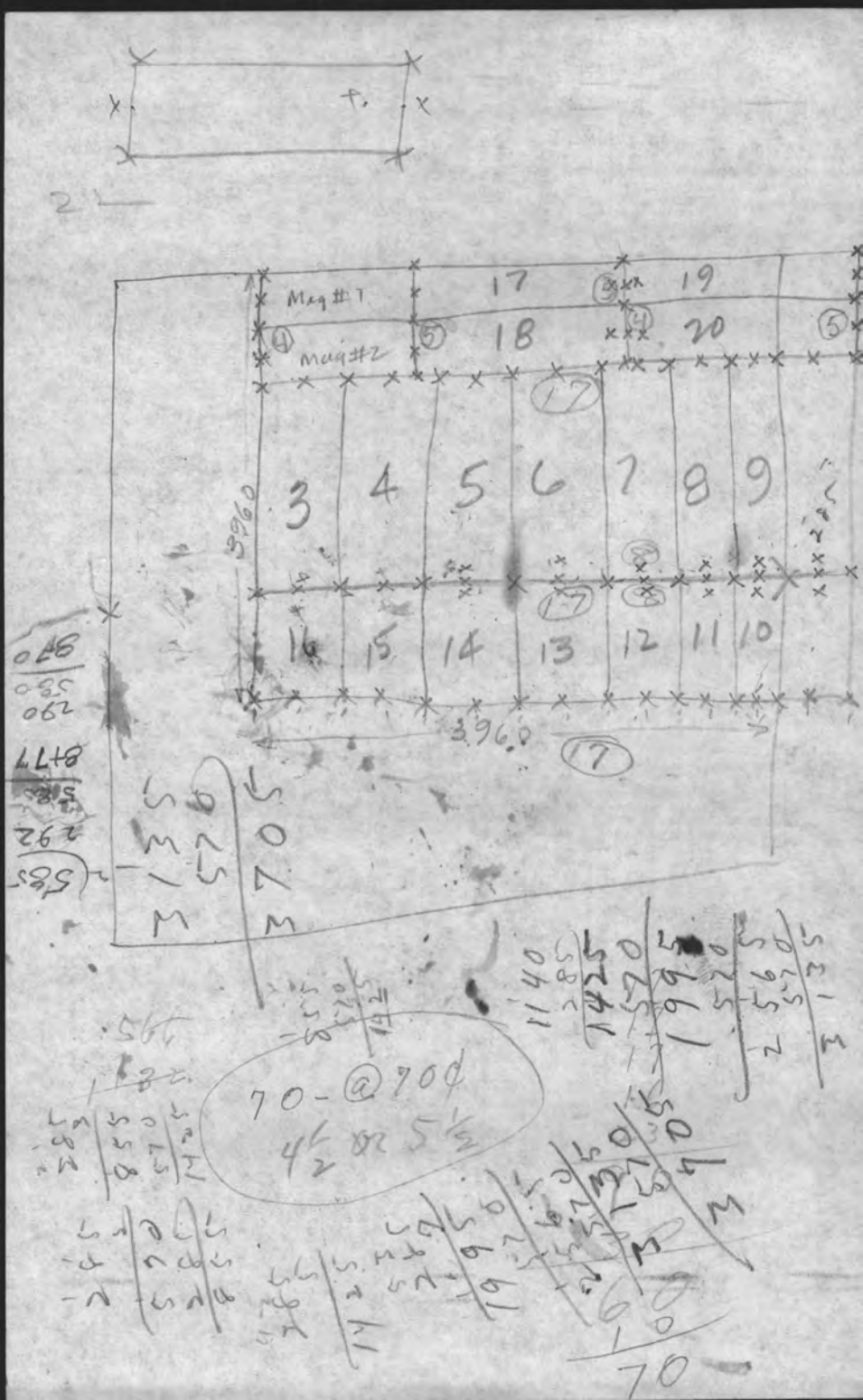
Use with Approx. 4" = 1 Mi. Map. R. D. Proj.

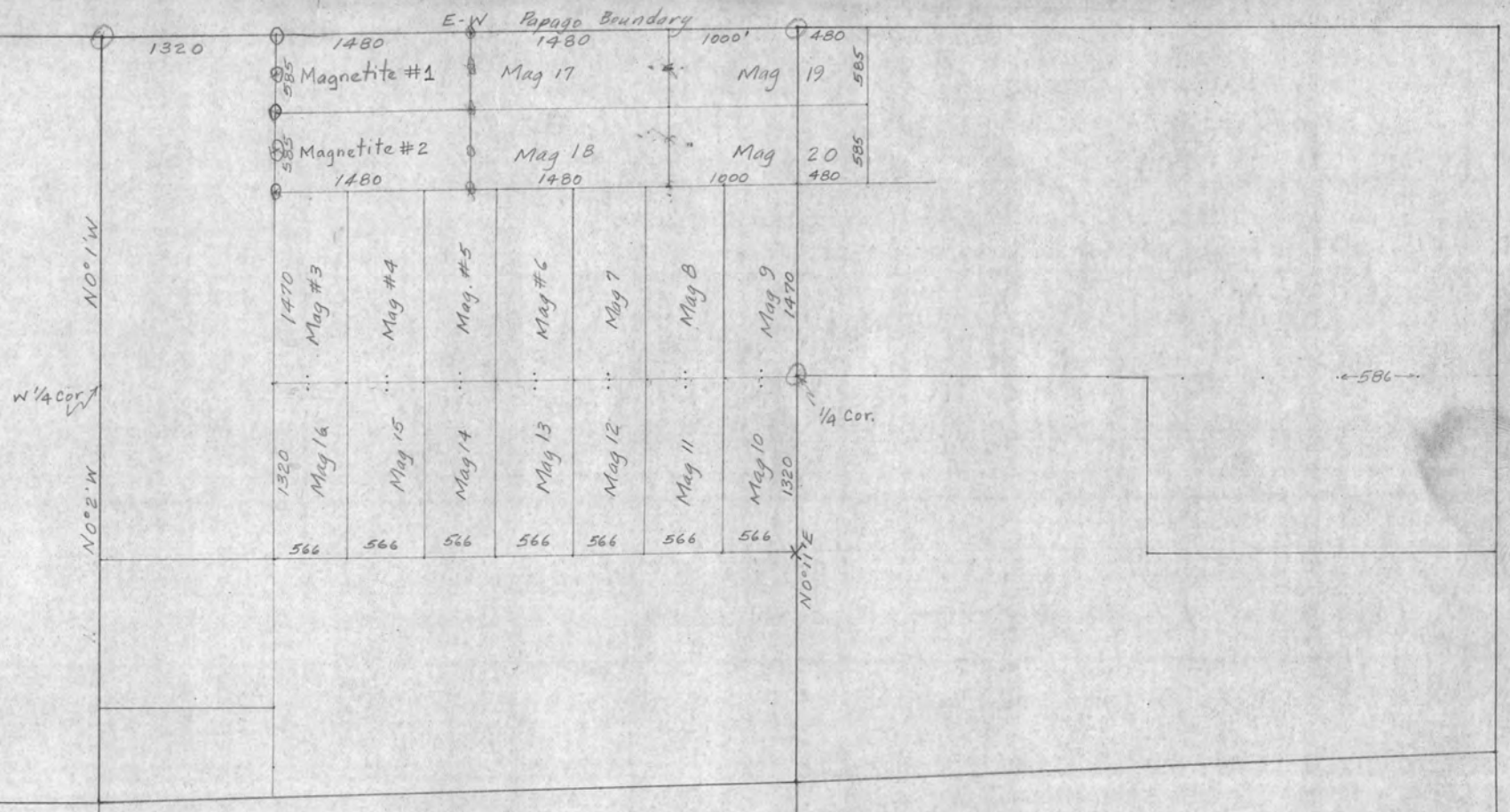


	.0373
+.0345	-.0073
+.0034	.0300
~~+.0379~~	
+.0311	1.1 mv

0336	.0274
-0073	1.5 mv
.0263	

Note: Location Notices for Mag 3-9 incl. described as 1480' long instead of 1470 as shown because W side of claim group tie was About 13 ft. short.


Mag #1
Mag #2
17
18
19
20
3
4
5
6
7
8
9
16
15
14
13
12
11
10
3960
3960
70 - @ 70¢
4½ or 5½


E-W Papago Boundary
1320
1480
1480
1000'
480
585
Magnetite #1
Mag 17
Mag 19
585
585
Magnetite #2
Mag 18
Mag 20
585
1480
1480
1000
480
N0°1'W
1470
Mag #3
Mag #4
Mag #5
Mag #6
Mag 7
Mag 8
Mag 9
1470
W 1/4 Cor.
1/4 Cor.
586
N0°2'W
1320
Mag 16
Mag 15
Mag 14
Mag 13
Mag 12
Mag 11
Mag 10
1320
566
566
566
566
566
566
566
N0°1'E

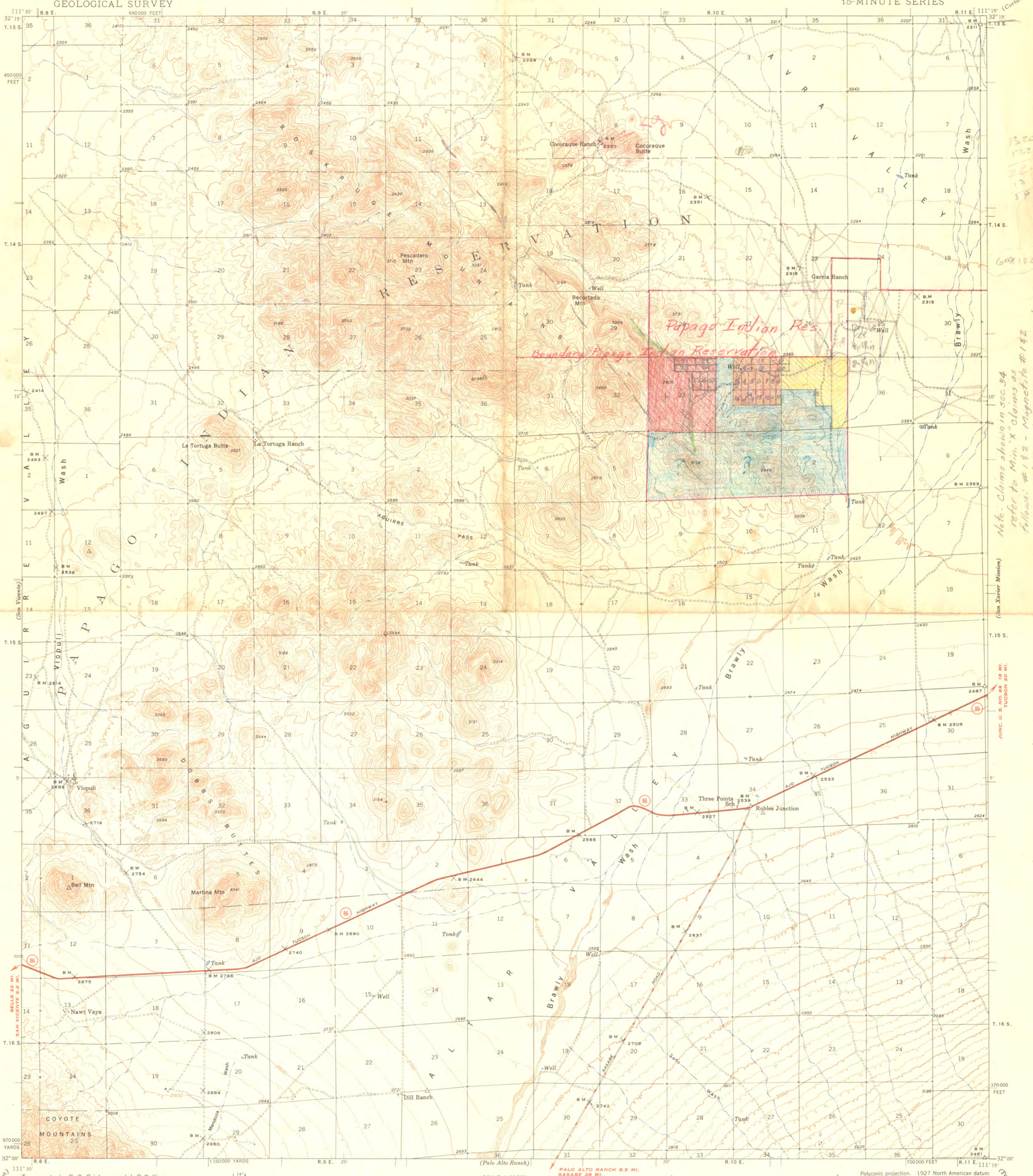
Dick Moore

2, 16; 32, 36.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

WAR DEPARTMENT

ARIZONA
(PIMA COUNTY)
COCOROAQUE BUTTE QUADRANGLE
15-MINUTE SERIES



Topography by P. C. Erickson and J. G. Collins
Surveyed in 1940–1941

ROAD CLASSIFICATION
1947

Dependable hard-surface heavy-duty road — Dry weather roads — U. S. Route 15
Secondary hard-surface all weather road — Loose-surface graded — Unsurfaced, graded — Dirt road — State Route 26
More than two lanes indicated along road with tick at point of change 3 LANE 4 LANE

TRUE NORTH — MAGNETIC NORTH 14°
APPROXIMATE MEAN DECLINATION, 1941

SCALE 1:62500

1 ½ 0 1 2 3 4 MILES
3000 0 3000 6000 9000 12000 15000 18000 21000 FEET
1 .5 0 1 2 3 4 5 KILOMETERS

Contour interval 25 feet
Datum is mean sea level

Land Status	
Surface	Mineral
State - Blue	Blue
Fed - Red	
Private - Yellow	

Polyconic projection. 1927 North American datum
5000 yard grid based on U. S. zone system, F
10000 foot grid based on Arizona (Central)
rectangular coordinate system

COCOROAQUE BUTTE, ARIZ.
Edition of 1943
reprinted 1948
N3200—W11115/15

THE TOPOGRAPHIC MAPS OF THE UNITED STATES

The United States Geological Survey is making a series of standard topographic maps to cover the United States. This work has been in progress since 1882, and the published maps cover more than 47 percent of the country, exclusive of outlying possessions.

The maps are published on sheets that measure about 16½ by 20 inches. Under the general plan adopted the country is divided into quadrangles bounded by parallels of latitude and meridians of longitude. These quadrangles are mapped on different scales, the scale selected for each map being that which is best adapted to general use in the development of the country, and consequently, though the standard maps are of nearly uniform size, the areas that they represent are of different sizes. On the lower margin of each map are printed graphic scales showing distances in feet, meters, miles, and kilometers. In addition, the scale of the map is shown by a fraction expressing a fixed ratio between linear measurements on the map and corresponding distances on the ground. For example, the scale $\frac{1}{62,500}$ means that 1 unit on the map (such as 1 inch, 1 foot, or 1 meter) represents 62,500 of the same units on the earth's surface.

Although some areas are surveyed and some maps are compiled and published on special scales for special purposes, the standard topographic surveys and the resulting maps have for many years been of three types, differentiated as follows:

1. Surveys of areas in which there are problems of great public importance—relating, for example, to mineral development, irrigation, or reclamation of swamp areas—are made with sufficient detail to be used in the publication of maps on a scale of $\frac{1}{31,680}$ (1 inch = one-half mile) or $\frac{1}{24,000}$ (1 inch = 2,000 feet), with a contour interval of 1 to 100 feet, according to the relief of the particular area mapped.

2. Surveys of areas in which there are problems of average public importance, such as most of the basin of the Mississippi and its tributaries, are made with sufficient detail to be used in the publication of maps on a scale of $\frac{1}{62,500}$ (1 inch = nearly 1 mile), with a contour interval of 10 to 100 feet.

3. Surveys of areas in which the problems are of minor public importance, such as much of the mountain or desert region of Arizona or New Mexico, and the high mountain area of the northwest, are made with sufficient detail to be used in the publication of maps on a scale of $\frac{1}{125,000}$ (1 inch = nearly 2 miles) or $\frac{1}{250,000}$ (1 inch = nearly 4 miles), with a contour interval of 20 to 250 feet.

The aerial camera is now being used in mapping. From the information recorded on the photographs, planimetric maps, which show only drainage and culture, have been made for some areas in the United States. By the use of stereoscopic plotting apparatus, aerial photographs are utilized also in the making of the regular topographic maps, which show relief as well as drainage and culture.

A topographic survey of Alaska has been in progress since 1898, and nearly 44 percent of its area has now been mapped. About 15 percent of the Territory has been covered by maps on a scale of $\frac{1}{500,000}$ (1 inch = nearly 8 miles). For most of the remainder of the area surveyed the maps published are on a scale of $\frac{1}{250,000}$ (1 inch = nearly 4 miles). For some areas of particular economic importance, covering about 4,300 square miles, the maps published are on a scale of $\frac{1}{62,500}$ (1 inch = nearly 1 mile) or larger. In addition to the area covered by topographic maps, about 11,300 square miles of southeastern Alaska has been covered by planimetric maps on scales of $\frac{1}{125,000}$ and $\frac{1}{250,000}$.

The Hawaiian Islands have been surveyed, and the resulting maps are published on a scale of $\frac{1}{62,500}$.

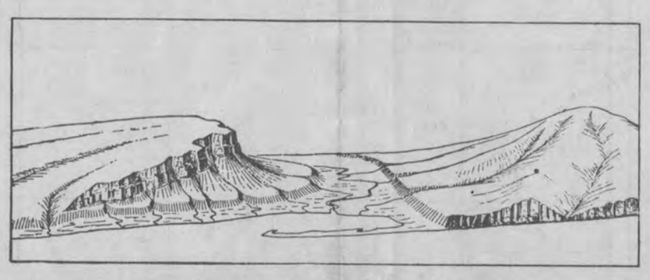
A survey of Puerto Rico is now in progress. The scale of the published maps is $\frac{1}{30,000}$.

The features shown on topographic maps may be arranged in three groups—(1) water, including seas, lakes, rivers, canals, swamps, and other bodies of water; (2) relief, including mountains, hills, valleys, and other features of the land surface; (3) culture (works of man), such as towns, cities, roads, railroads, and boundaries. The symbols used to represent these features are shown and explained below. Variations appear on some earlier maps, and additional features are represented on some special maps.

All the water features are represented in blue, the smaller streams and canals by single blue lines and the larger streams by double lines. The larger streams, lakes, and the sea are accentuated by blue water lining or blue tint. Intermittent streams—those whose beds are dry for a large part of the year—are shown by lines of blue dots and dashes.

Relief is shown by contour lines in brown, which on a few maps are supplemented by shading showing the effect of light thrown from the northwest across the area represented, for the purpose of giving the appearance of relief and thus aiding in the interpretation of the contour lines. A contour line represents an imaginary line on the ground (a contour) every part of which is at the same altitude above sea level. Such a line could be drawn at any altitude, but in practice only the contours at certain regular intervals of altitude are shown. The datum or zero of altitude of the Geological Survey maps is mean sea level. The 20-foot contour would be the shore line if the sea should rise 20 feet above mean sea level. Contour lines show the shape of the hills, mountains, and valleys, as well as their altitude. Successive contour lines that are far apart on the map indicate a gentle slope, lines that are close together indicate a steep slope, and lines that run together indicate a cliff.

The manner in which contour lines express altitude, form, and grade is shown in the figure below.



The sketch represents a river valley that lies between two hills. In the foreground is the sea, with a bay that is partly enclosed by a hooked sand bar. On each side of the valley is a terrace into which small streams have cut narrow gullies. The hill on the right has a rounded summit and gently sloping spurs separated by ravines. The spurs are truncated at their lower ends by a sea cliff. The hill at the left terminates abruptly at the valley in a steep scarp, from which it slopes gradually away and forms an inclined tableland that is traversed by a few shallow gullies. On the map each of these features is represented, directly beneath its position in the sketch, by contour lines.

The contour interval, or the vertical distance in feet between one contour and the next, is stated at the bottom of each map. This interval differs according to the topography of the area mapped: in a flat country it may be as small as 1 foot; in a mountainous region it may be as great as 250 feet. In order that the contours may be read more easily certain contour lines, every fourth or fifth, are made heavier than the others and are accompanied by figures showing altitude. The heights of many points—such as road intersections, summits, surfaces of lakes, and benchmarks—are also given on the map in figures, which show altitudes to the nearest foot only. More precise figures for the altitudes of benchmarks are given in the Geological Survey's bulletins on spirit leveling. The geodetic coordinates of triangulation and transit-traverse stations are also published in bulletins.

Lettering and the works of man are shown in black. Boundaries, such as those of a State, county, city, land grant, township, or reservation, are shown by continuous or broken lines of different kinds and weights. Public roads suitable for motor travel the greater part of the year are shown by solid double lines; poor public roads and private roads by dashed double lines; trails by dashed single lines. Additional public road classification, if available is shown by red overprint.

Each quadrangle is designated by the name of a city, town, or prominent natural feature within it, and on the margins of the map are printed the names of adjoining quadrangles of which maps have been published. More than 4,100 quadrangles in the United States have been surveyed, and maps of them similar to the one on the other side of this sheet have been published.

Geologic maps of some of the areas shown on the topographic maps have been published in the form of folios. Each folio includes maps showing the topography, geology, underground structure, and mineral deposits of the area mapped, and several pages of descriptive text. The text explains the maps and describes the topographic and geologic features of the country and its mineral products. Two hundred twenty-five folios have been published.

Index maps of each State and of Alaska and Hawaii showing the areas covered by topographic maps and geologic folios published by the United States Geological Survey may be obtained free. Copies of the standard topographic maps may be obtained for 10 cents each; some special maps are sold at different prices. A discount of 40 percent is allowed on an order amounting to $5 or more at the retail price. The discount is allowed on an order for maps alone, either of one kind or in any assortment, or for maps together with geologic folios. The geologic folios are sold for 25 cents or more each, the price depending on the size of the folio. A circular describing the folios will be sent on request.

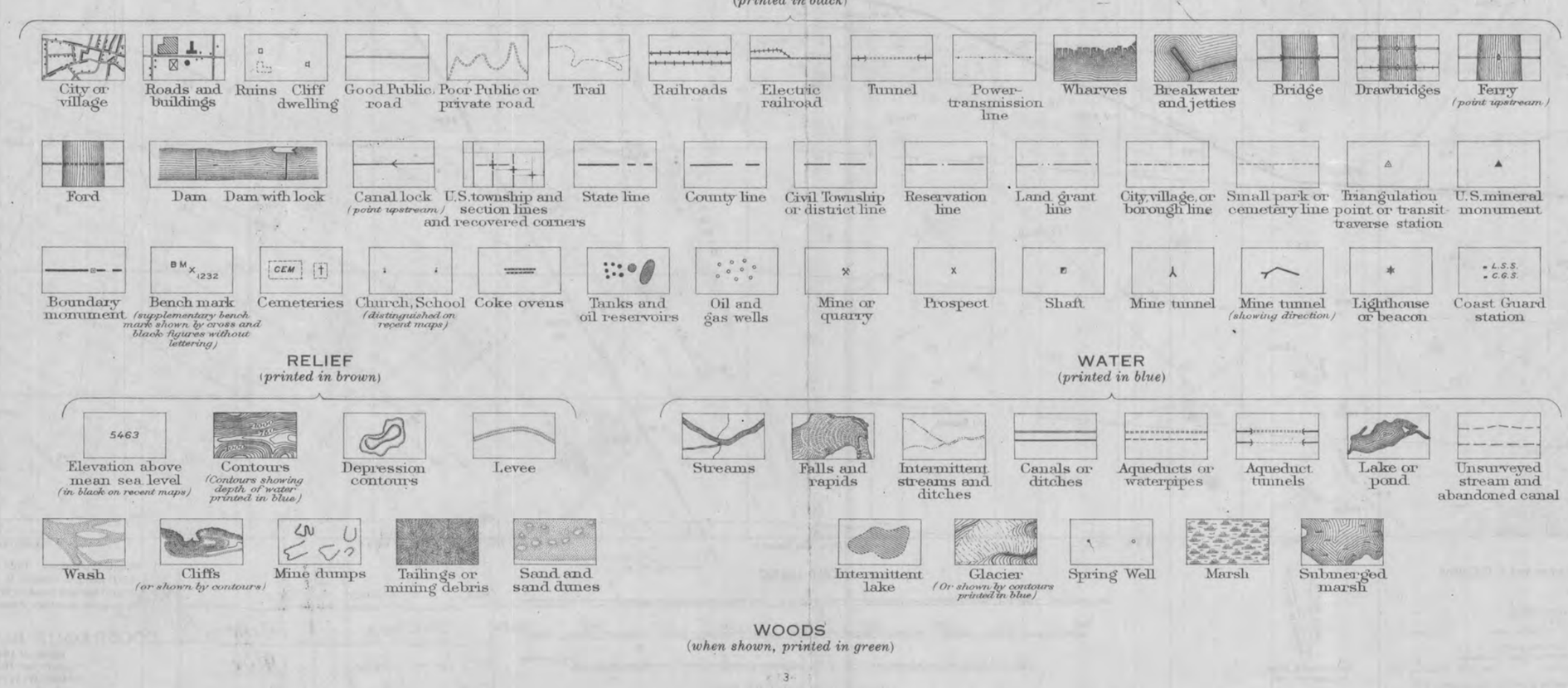
Applications for maps or folios should be accompanied by cash, draft, or money order (not postage stamps) and should be addressed to

THE DIRECTOR,
United States Geological Survey,
Washington, D. C.

November, 1937.

NOTE:—Effective on and after October 1, 1946, the price of standard topographic quadrangle maps will be 20 cents each, with a discount of 20 percent on orders amounting to $10 or more at the retail rate.

STANDARD SYMBOLS



CHRONOLOGICAL CHAIN OF TITLE

INFORMATION FROM PIMA COUNTY COURT HOUSE RECORDS & U. S. BUREAU OF LAND MANAGEMENT

3/24/59

GRANTOR	GRANTEE	PROPERTY DESCRIPTION	PARCEL No.	DATE	BOOK	PAGE
U.S.A.	Jose Luiz Montano Homestead Act of 2/19/09 no reservations No apparent spouse	All property in T.14 S., R.10 E. Sec. 25 W^2 NW^4 " 26 E^2 NE^4	# 1 # 4	4/22/14	Tract Book B. L. M.	
U.S.A.	Juan Montano Homestead Act of 2/19/09 no reservations No Apparent spouse	Sec. 25 SW^4 " 26 E^2 SE^4 " 35 E^2 NE^4	# 2, 3 # 5 # 6	1/26/16	" Pima Co. Records	
Jose Luis Montano	Juan Montano	" 25 " 26	# 1 # 4	7/23/15	60	500
Juan Montano	Manuel Valdez	Sec. 25 " 35	#3 #6	10/7/16	62	528
Juan Montano	Frank R. Rendon & wife Juana	Sec. 25 (other property " 26 including)	# 1, 2 # 4, 5	6/22/27	118	184
Manuel Valdez	Tortuga Cattle Co.	Sec. 35 " (Note # 3 omitted)	# 6	3/14/33	171	320
Frank R. Rendon & wife Juana	Tortuga Cattle Co.	Sec. 25 (other property " 26 including)	# 1, 2 # 4,5	4/1/33	171	322
Tortuga Cattle Co.	Frank R. Rendon & wife Juana	Sec. 25 (other property " 26 including) " 35	# 1, 2 # 4, 5 # 6	9/8/39	227	169
Tortuga Cattle Co.	Frank R. Rendon & wife Juana	(Same description as above again recorded, why is not clear)		9/8/39	261	61
Manuel Valdez	Felix Valdez	Sec. 25	# 3	12/8/42	251	382
Frank R. Rendon	Hubert H. D'Autremont & wife Helen Congdon	Sec. 25 (other property " 26 including) " 35	# 1, 2 # 4, 5 # 6	10/1/43	260	637
Hubert H. D'Autremont & wife Helen Congdon	Rancho Santa Elena Inc.	Sec. 25 (other property " 26 including) " 35	# 1, 2, 3 # 4, 5 # 6	11/30/45	300	239

Note parcel # 3 included but actually not owned by grantor

CHAIN OF TITLE (PAGE TWO)

GRANTOR	GRANTEE	PROPERTY DESCRIPTION	DATE	BK	PG
Note: No record of Rancho Santa Elena Inc. selling to Robinson Carr Locke & wife Elena V.		Principal owners of Rancho Santa Elena are R. C. Locke & wife Elena V.			
Robinson Carr Locke & wife Elena V.	Rancho Santa Elena Inc.	Parcel (Other properties including) Sec. 25 T14S R10E (Other properties included) 1.2,&3 (How? 3)	3/11/46	316	3
		Sec. 26 " " 4 & 5			
		" 35 " " 6			
Felix Valdez & wife	Hubert H. D'Autremont & wife Helen Congdon	" 25 " " 3	3/25/46	301	132
Rancho Santa Elena Inc.	Robinson Carr Locke & wife Elena V.	" 25 " " 1 & 2 (3, omitted)	5/1/50	Docket 253	114
		" 26 " " 4 & 5			
		" 35 " " 6			
Robinson Carr Locke & wife	John Kai & wife Mamie	" 25 " " 1 & 2 (Parcel 3 is specifically mentioned as omitted)	1/15/51	Docket 335	529
		" 26 " " 4 & 5			
		" 35 " " 6			
Rancho Santa Elena Inc.	John Kai & wife Mamie	" 25 " " 3	1/15/51	Docket 325	528
		Note: No record of D'Autremont selling parcel # 3 Sec. 25 to Rancho Santa Elena except as entered on Book 300 page 239.			
John Kai & wife Mamie	John Donaldson & wife Janet	Sec. 25 T14S R10E (Other) 1,2,3	11/5/51	Docket 398	309
		Sec. 26 " " 4,5			
		Sec. 35 " " 6			

GRANTOR	GRANTEE	PROPERTY DESCRIPTION	DATE	BK	PG
Janet Donaldson	John Donaldson (sole)	Quit Claim to property as described Sec. 25 1, 2, 3 26 4,5 35 6	11/5/51	398	310

R-D PROJECT

MOMAG RECORDS

Geological & Geophysical
Land Status & Survey Data

Explanation

- Private Land
- State Land
- Federal Land
- Private Mineral

Note

ALL CLAIMS STAKED IN BLOCKS
DIMENSIONS OF CLAIMS AS NOTED

Pertinent Data

- MAGNETOMETER LINE
- SELF POTENTIAL LINE
- MO MAG LINE
- DISCOVERY POSTS

TIME ON 0725 Dec 20 1956
FIELD 582
RECORDER 254

73,380' 14.0 miles

~~98~~	0	700' W of N.E. Cor Mag 1
38	1140	W End center Mag 2
38	0	" " " " "
	1150	700' W of N.E. Cor Mag 1
30	0	N.E. Cor Mag 17
	1450	100' W of C6
10	0	ROAD JUNCTION.
48	4920	SE Cor mag 10
99	5470	
100	0	950 N of N E Cor Mag 10
42	1020	S E Cor Mag 20
101	2170	180' N of (86?) Res Fence. 2500' W of Res. Fence Cor.
102	0	near bend in N.S. fence.
103	7390'	On road run first day 1800' west (T) ~~of N-S road to point 10~~
104	0 ~~1350~~	1350' west of (7) Head NE
105	3080	At N-S fence line
0	0	SE Cor Sec 35 ? Follow Fence.
105	2140	
102	4250	
107	5640'	S Side Sec 26 at dike and road.
84	8040'	Turn east along fence
108	8820	Turn Southwest along fence
109	9470'	Gate - Turn east

12/20/56

110	11 360	End Line At Gate Donaldson ranch house.
111 112	0 3100	Gate on N-S Fence. Head S.W. 300' South of (107)
105 113	0 7210	Head NE. Road
84 114	0 3450	Head NE Fence corner at ~~co~~ north end of airstrip.
114 110	0 2550	Head South ~~along~~ W edge airstrip End of Line
110 113 115	0 4160 23910	Head ~~toward~~ county road County Road

1:00 PM

Merry Xmas.

Tony Ochoa - Donaldson foreman

James N Archo } — Garcia Ranch
Ramon Alvarez - Foreman

Start 11:40 A.M. Dec. 17, 1956 Sor

① Start north of wash from Hwy 86 F.M.O

434
38150 ② N E Cor Sec. 24 16.000

4260
5630
18160 ③ 14 000' Turn east along fence
4200
1120
4890 ④ 22 000 Turn north
35560
4650
116,620

⑤ 27000 Tank

22.2 miles

⑥ 30700 Rd Forks

⑦ 38150 Rd left

---

⑦ 0 Head west

⑧ 4260 End of road

---

⑦ 0 Head north
⑨ 1760 Rd forks

⑩ 5630 Rd forks by tank

12/17/56

(10) 0 Head west
(11) 3960 Rd heads SE
(12) 6930 Opposite well
(13) 8200 West end line of claims
(14) 13890 Top of hill by old workings
(15) 18160 Last road. End line Andesite outcrop

---

(16) 0 Head west
(17) 4200 End of road

---

(18) 0 1440' west of 16
(19) 1120' End of road?

---

(11) 0 Head Southeast toward 9
(9) 4890'

---

(10) 0 Head east
(20) 6610 Turn west
(21) 24000 Windmill
(22) 16600 Rd Forks
(23) 24750 BM
(24) 27800 Rd Fk
(25) 34200 BM
(26) 35860

92402

12/17/56

(10) 0 Need east

(27) 4650 Ranch House - Donaldson

12/18/5c

Start 7:41 A.M. Rec Bal 229
Field Bal 582

27	.00	west along Res. fence.
28	3110'	N E 19
29	N.E. Cor Sec. 34	
30	N E. 17 COR. 4460'	~~(should be marked~~
31	5020	Wash.
		about 100 ft lost across wash.
32	5790	N.E. 17 cor. (should be marked NW. 17
33	5950	1/4 Cor.
34	7520	N W. 1 cor.
35	8520	N W Cor. Sec. 34
36	9820	N W cor 22 Start S. from 36.
36	.00	50' S. of fence. SOUTH
37	600	S W. Cor. 22"
37	00	
38	2800	Cor. "C 2" ~~SW Cor Mag 1~~
39	4200	S E cor 17 - should be marked SW
40	5650	S E cor 17
41	7070	S E " 19.
42	00	S E cor. mag 20
28	1150	N E " " 19

14.0 miles

77
1450
2200
4910
5730
9820
600
7070
1150
1140
1100
3890
4050
3750
4040
7160
5080
6380
3700
73220

30	00	N E. 17
43	1140	S E. mag 18
44	00	SW " " marked N E. 18.
45	290	C. End 18 road,
32	1100	N W cor 17
39	00	N W cor mag 1
46	2590	N W " " 16
47	3890	SW " " "
47	000	
48	4050	S E cor mag 10
45	00	S E " 20
44	2960	SW " 18
49	3750	N E. mag 3
46	00	SW mag 3.
	2680	
	4040	N E. 10
5	000	N E. cor. Sec 27
50	3530	3800' S.E. of N W cor Sec 27
35	7160	100' E. of SW cor Sec 27
35	000	SW Cor Sec 27
51	5080	610' W — of N W cor Sec 27

51	00	610 W of NW cor Sec 27
52	5730	NE. cor Sec 27
53	00	740' W of NE cor Sec 27
54	3170	3300 SE of NW cor Sec 27
55	6380	740' N of SW Cor Sec 27
56	00	870' + 740 N of SW cor 27
57	2560	2400 SE of NW cor Sec 27
58	4910	1700 W of NE cor of Sec 27
59	00	2540 W of NE cor Sec 27
60	1850	1800' SE of NW cor Sec 27
61	3700	2540 N (?) of SW cor Sec 27
62	00	3400 N of SW cor Sec 27
63	1370	900 SE. of NW cor Sec 27
64	5200	5840 W of NE Cor Sec 27
65	000	3440 W of NE Cor Sec 27 (920'?)
66	420	550' SE of NW cor Sec 27
67	1450	760' S of point 740' W of NW Cor.

Discrepancy on 65

5250
3840
1440

5250
3440
1840
900

12/19/56

Start 7:44 A.M. Field Bal 583

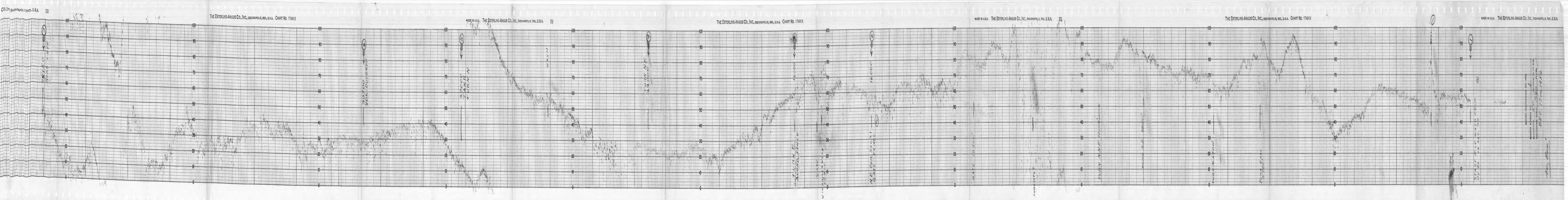
Rec. Zero 2:39

81,090' 15.4 miles

68	0	900' E of NE Cor Sec 27	Head SW
69 (31)	4180	4400' SE of NW Cor Sec 27	
70	7320	260' W of NW Cor Mag. No. 1	
71	0	540' E of NW Cor Mag No. 1	Hd NE
72 (32)	2390	5000' SE of NW Cor Sec 27	
73	7130	1700' E of NE Cor. Sec. 27	
74	0 (910 N of 79)	2400 E and 300' S of NE Cor Sec. 27	Head SW
75 (33)	4910	5900' SE of NW Cor. Sec. 27	
76	6520	1070' W of ~~S 1/4 Cor Sec 27~~ NE Cor Mag 17	
77	0	750 W of NE. Cor Mag 17	
78 (34)	1350	6100 SE of NW Cor Sec 27	
79	5840 (950 N of 80)	(Flag) Fence S of Garcia.	
80	00 (500' N of fence cor)	900' S of 79.	
81 (35)	4270	560' W of NE Cor. Sec 34	
82	00 (500 N of fence)	340 E of NE Cor Sec 34	
83 (36)	3540 (930 N of 84)	300'? E of fence Cor S of Garcia	
84	00 (2570 N of 88)	COR RES. FENCE & E.W. FENCE	
85 (37)	3310	1620 E of NE Cor mag 19	

12-19-54

86 (38)	00	1800 E. of SE Cor Mag 19
87	2060	1520 N of 88 E. Reservation Fence
88	00	SE Cor Res. fence. Sec 26
89 (39)	6570	TURN West. on N line Sec 26
52	8970	
52 (40)	0	Head NE
90	3880	Along N-S Fence line
90 (41)	0	Head north
91	2200	Fence corner
91 (42)	0	Head SW
92	6760	N side Sec. 27 3310' E of NW Cor
93	0	NW Cor Sec. 27 Head NE
94 (43)	7360'	Road Turn east on trail
95	9460'	Turn south on road
89	15610'	
		HEAD S-W.
77	00	
96 (44)	1100	Road 100' W of W end of Mag 18
16	2550	" Junction.
32	00	NW Cor Mag 17
97 (45)	1430	200' NE. of well + 100' N of Wash.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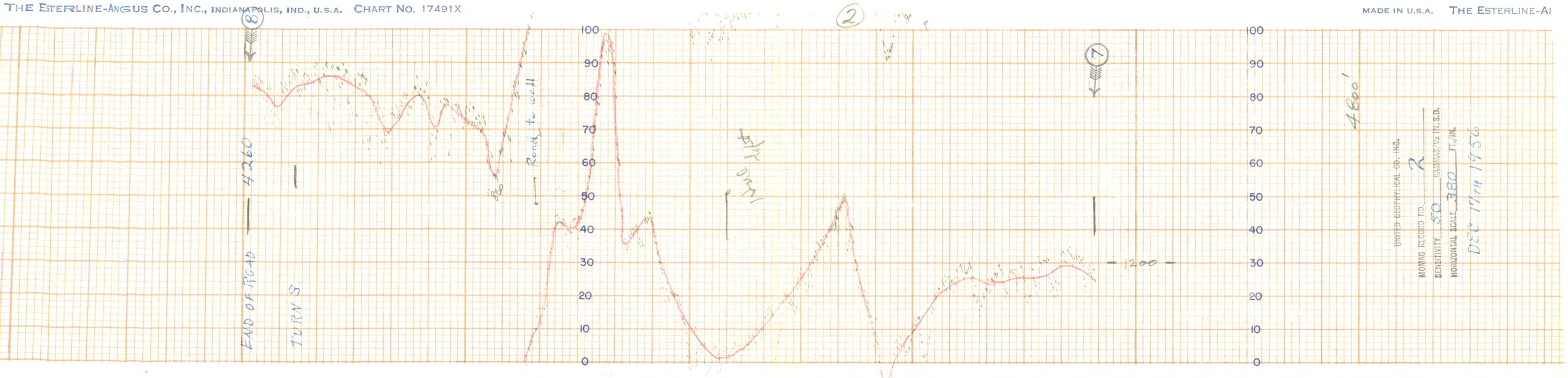
MADE IN U.S.A.

THE ESTERLINE-ANGUS CO., INC., INDIANAPOLIS, IND., U.S.A. CHART NO. 17491X

MADE IN U.S.A. THE ESTERLINE-A



UNITED GEOPHYSICAL CO. INC.

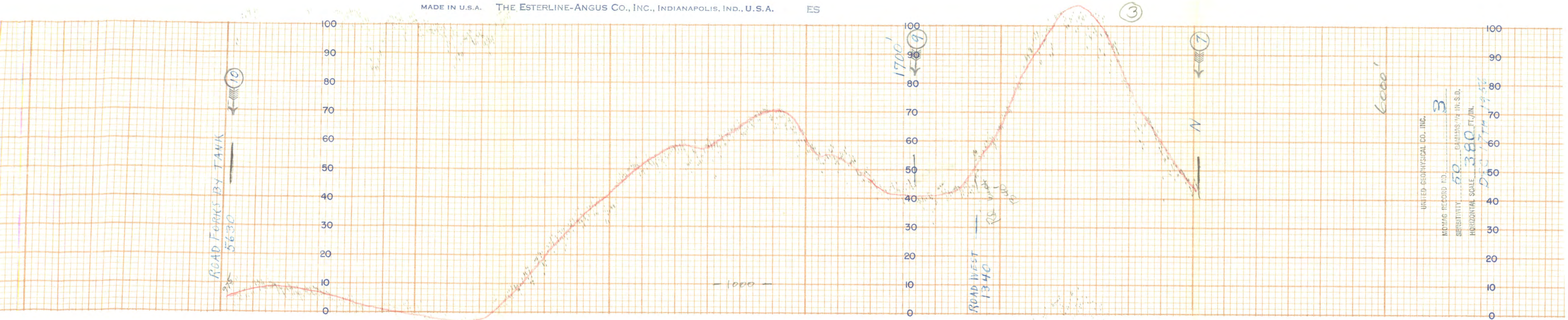
MOMAG RECORD NO. 2

SENSITIVITY 50 GAMMAS/1/2 IN. S.D.

HORIZONTAL SCALE 380 FT./IN.

Dec 17th 1956

MADE IN U.S.A. THE ESTERLINE-ANGUS CO., INC., INDIANAPOLIS, IND., U.S.A. ES



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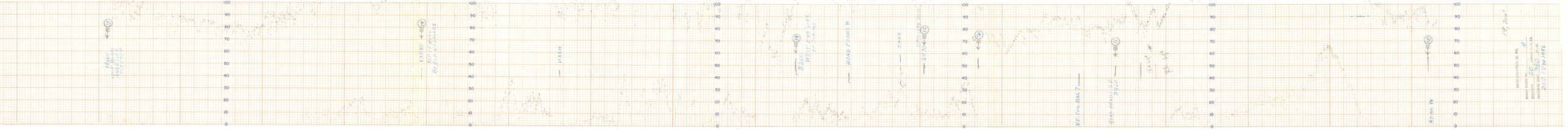
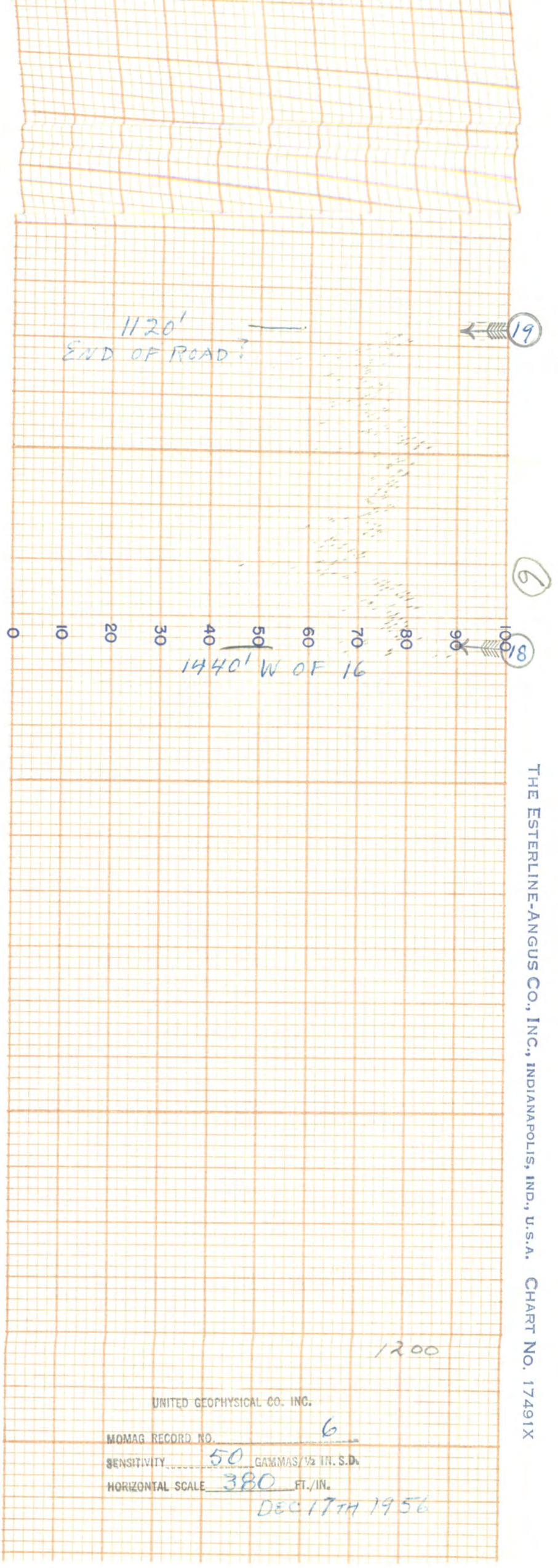
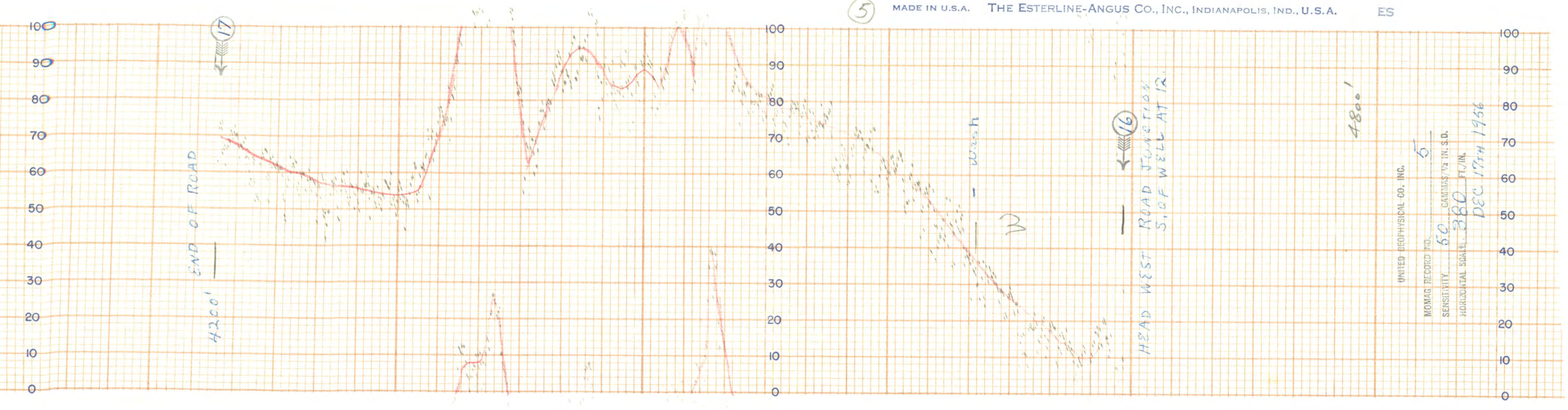
THE ESTERLINE-ANGUS CO., INC., INDIANAPOLIS, IND., U.S.A. CHART NO. 17491X

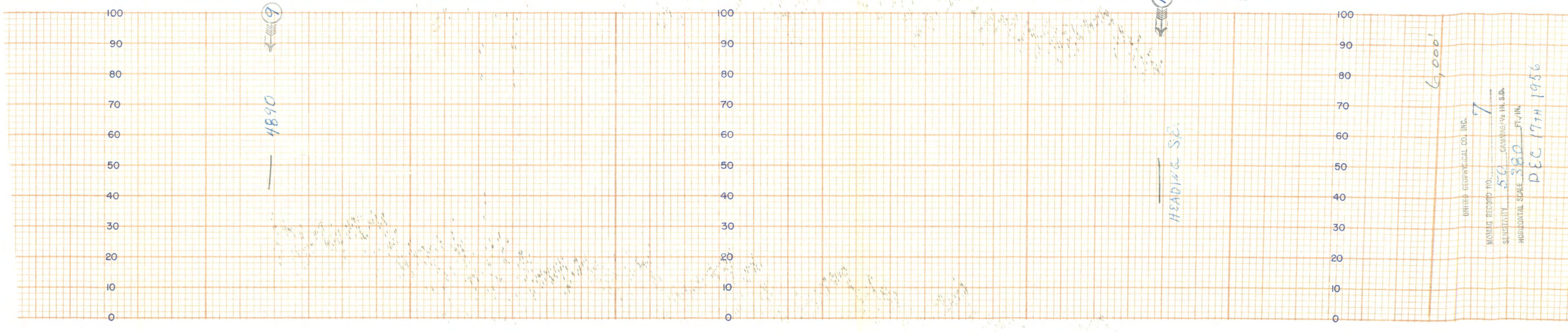



1120'
END OF ROAD?
19
6
0
10
20
30
40
50
60
70
80
90
100
18
1440' W OF 16
1200
UNITED GEOPHYSICAL CO. INC.
MOMAG RECORD NO. 6
SENSITIVITY 50 GAMMAS/½ IN. S.D.
HORIZONTAL SCALE 380 FT./IN.
DEC 17TH 1956
THE ESTERLINE-ANGUS CO., INC., INDIANAPOLIS, IND., U.S.A. CHART NO. 17491X


5
MADE IN U.S.A. THE ESTERLINE-ANGUS CO., INC., INDIANAPOLIS, IND., U.S.A.
ES
100
90
80
70
60
50
40
30
20
10
0
17
END OF ROAD
4200'
16
HEAD WEST ROAD JUNCTION
S. OF WELL AT 12
4800'
UNITED GEOPHYSICAL CO. INC.
MOMAG RECORD NO. 5
SENSITIVITY 60 GAMMAS/1/2 IN. S.D.
HORIZONTAL SCALE 380 FT./IN.
DEC 17TH 1956

MADE IN U.S.A. THE ESTERLINE-ANGUS CO., INC., INDIANAPOLIS, IND. U.S.A. ES

7



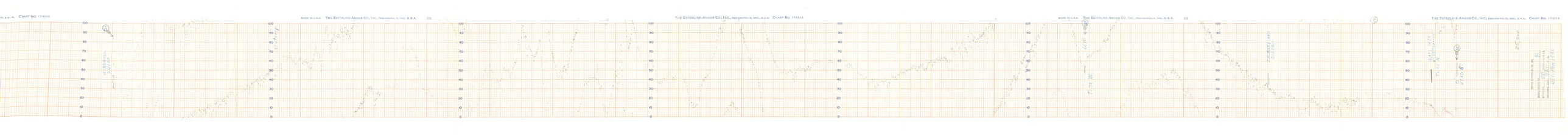
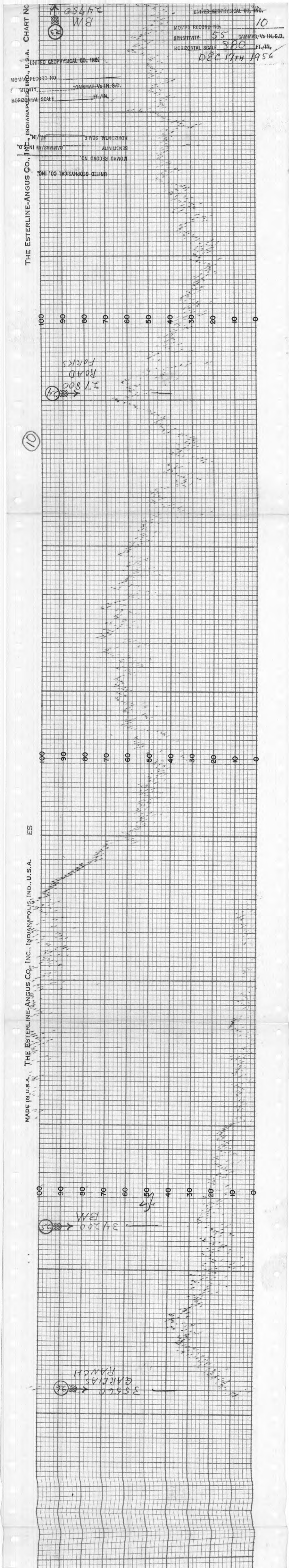


CHART NO. 17491X
MADE IN U.S.A.
THE ESTERLINE-ANGUS CO., INC., INDIANAPOLIS, IND., U.S.A.

17491 K
MADE IN U.S.A. THE ESTERLINE-ANGUS CO., INC. INDIANAPOLIS, IND. U.S.A.
E3
READ FROM
RIGHT
MAX
MIN
CHART
MADE IN U.S.A. THE ESTERLINE-ANGUS CO., INC. INDIANAPOLIS, IND. U.S.A.
E3
THE ESTERLINE-ANGUS CO., INC. INDIANAPOLIS, IND. U.S.A. CHART NO. 17491K
READ FROM
RIGHT
MAX
MIN
CHART
MADE IN U.S.A. THE ESTERLINE-ANGUS CO., INC. INDIANAPOLIS, IND. U.S.A.
E3
THE ESTERLINE-ANGUS CO., INC. INDIANAPOLIS, IN
READ FROM
RIGHT
26,400
DATE CORRECT TO 1900
BOND NOTES NO.
ADDRESS
REMARKS
DEC 14 1955



THE ESTERLINE-ANGUS CO., INC., INDIANAPOLIS, IND., U.S.A.
CHART NO
UNITED GEOPHYSICAL CO. INC.
MOMAG RECORD NO.
SENSITIVITY
GAMMAS/½ IN. S.D.
HORIZONTAL SCALE
FT./IN.
UNITED GEOPHYSICAL CO. INC.
MOMAG RECORD NO. 10
SENSITIVITY 55 GAMMAS/½ IN. S.D.
HORIZONTAL SCALE 380 FT./IN.
DEC 17TH 1956
BM
24750
100
90
80
70
60
50
40
30
20
10
0
27800
ROAD
FORKS
24
10
MADE IN U.S.A.
THE ESTERLINE-ANGUS CO., INC., INDIANAPOLIS, IND., U.S.A.
ES
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(11)

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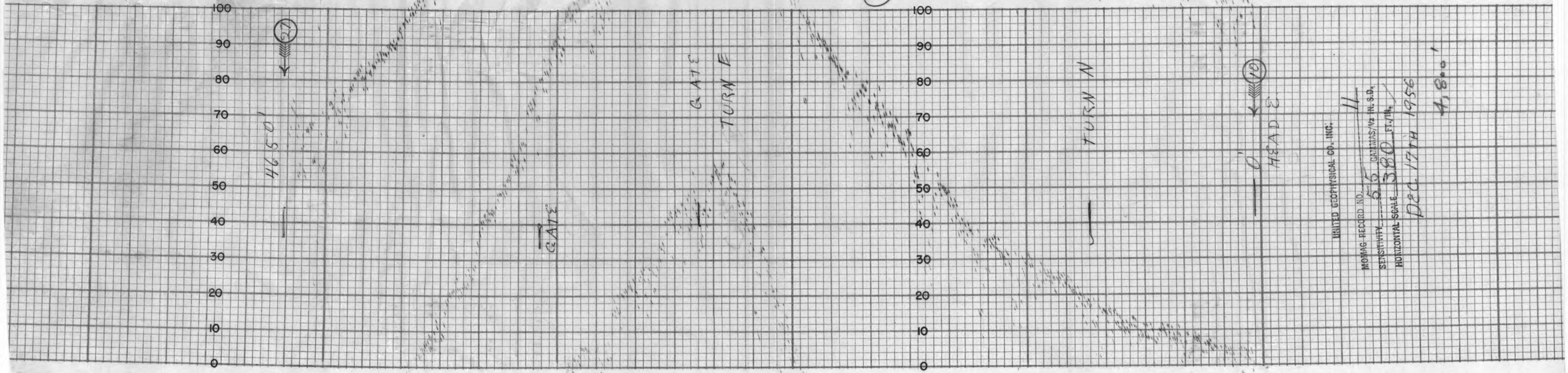


UNITED GEOPHYSICAL CO. INC.

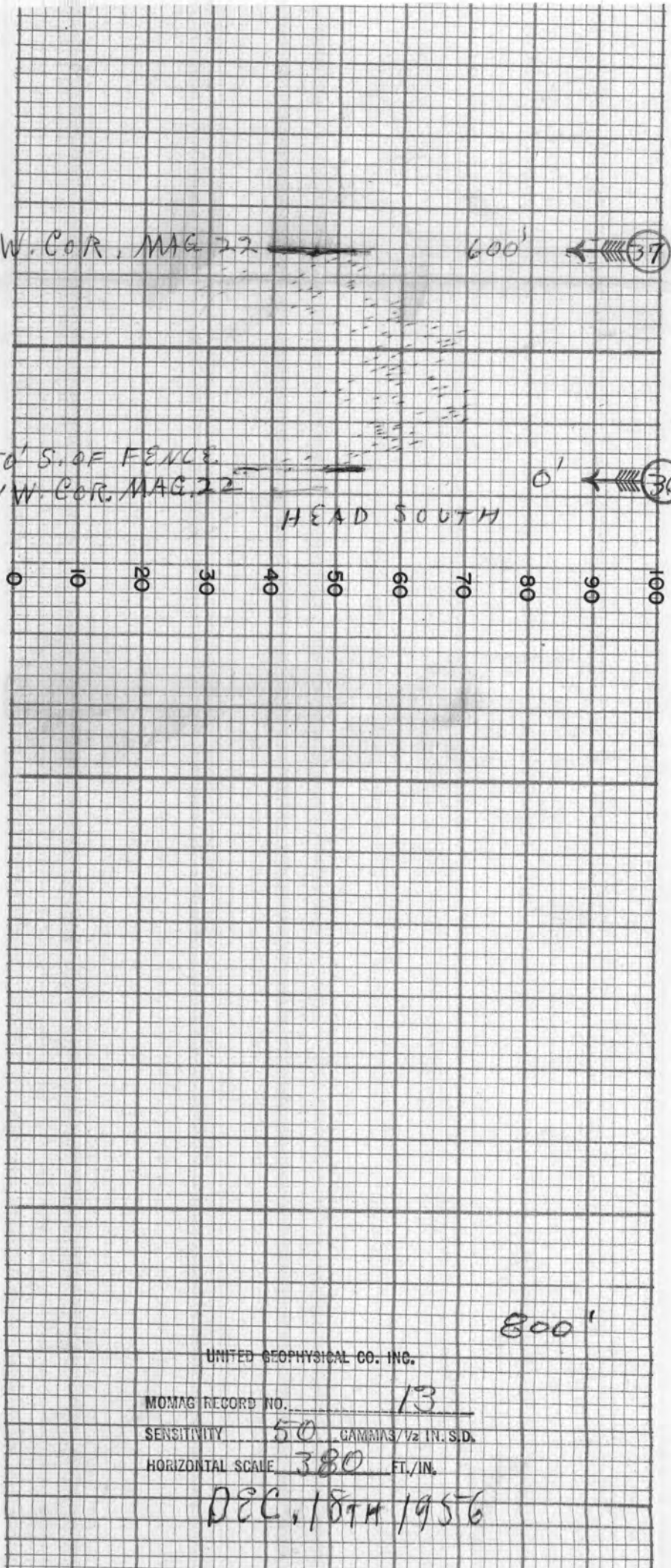
MOMAG RECORD NO. 12

SENSITIVITY 50 GAMMAS/½ IN. S.D.

HORIZONTAL SCALE 380 FT./IN.

DEC 18TH 1956

THE ESTERLINE-ANGUS CO., INC., INDIANAPOLIS, IND., U.S.A. CHART NO. 17491X ES MADE IN U.S.A. THE ESTERLINE-ANGUS CO., INC., INDIANAPOLIS, IND., U.S.A. THE ESTERLINE-ANGUS CO., INC., INDIANAPOLIS



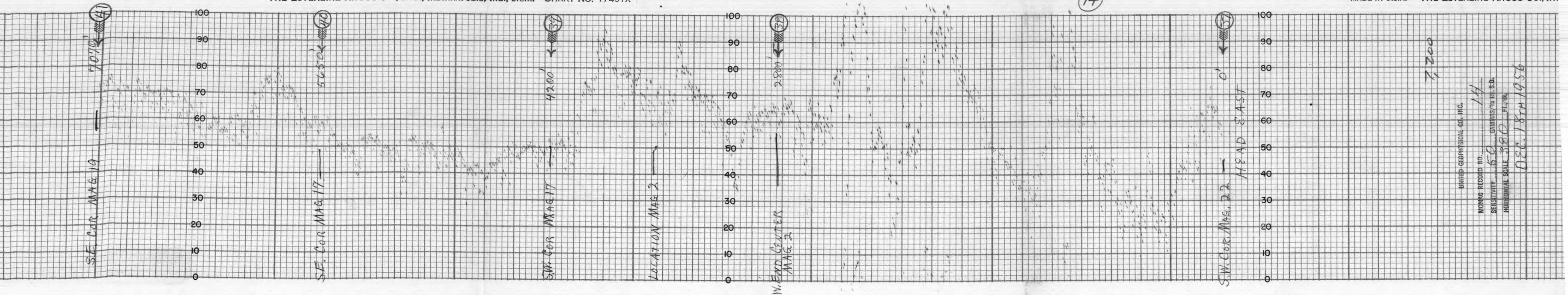
..., INDIANAPOLIS, IND., U.S.A.

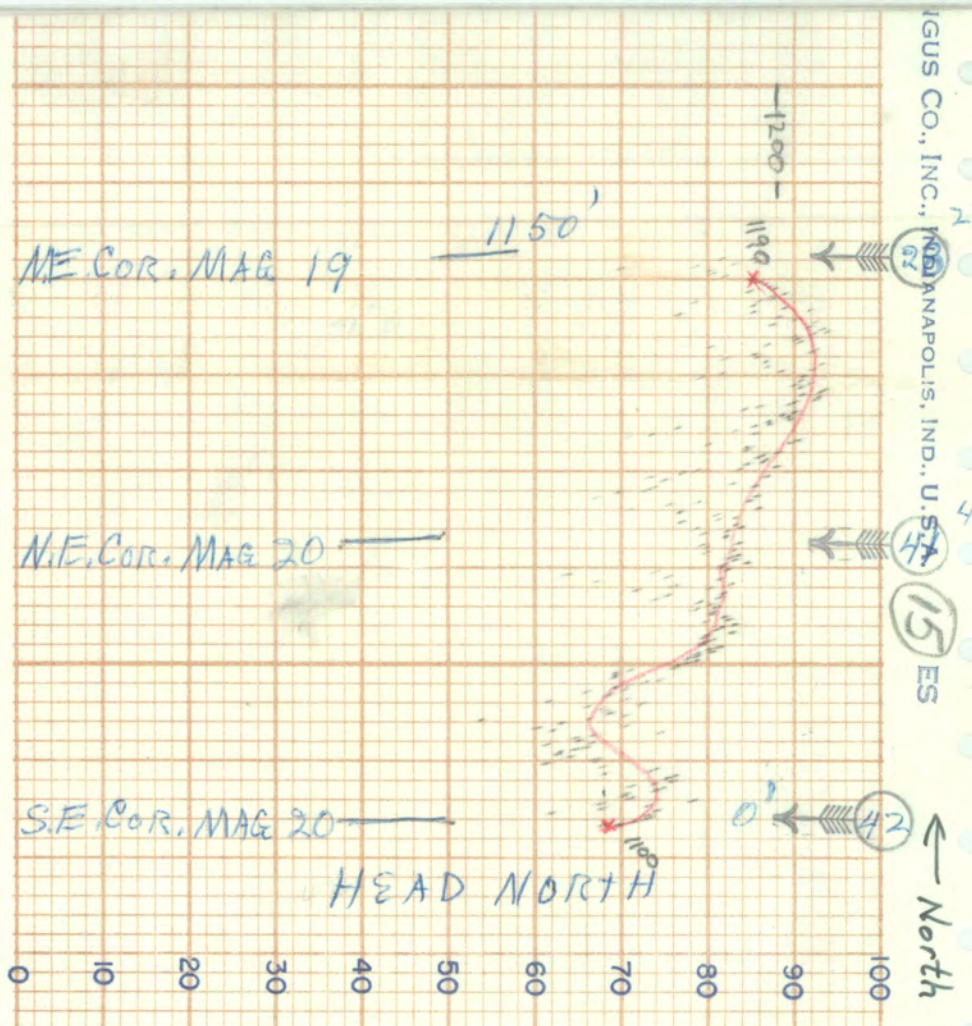
ES 13

THE ESTERLINE-ANGUS CO., INC., INDIANAPOLIS, IND., U.S.A. CHART NO. 17491X

(14)

MADE IN U.S.A. THE ESTERLINE-ANGUS CO., INC





UNITED GEOPHYSICAL CO. INC.

MOMAG RECORD NO. 15

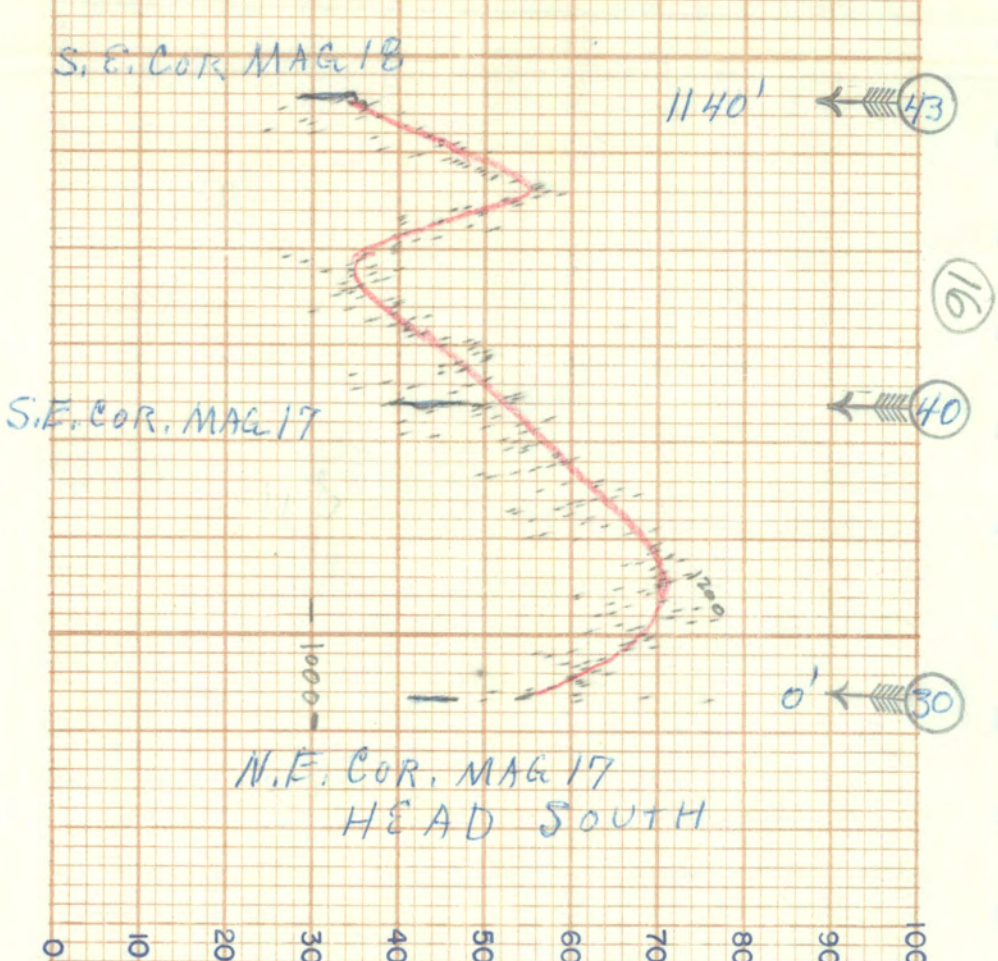
SENSITIVITY 50 GAMMAS/½ IN. S.D.

HORIZONTAL SCALE 380 FT./IN.

DEC. 18TH 1956

15

IGUS CO., INC., INDIANAPOLIS, IND., U.S.A.



UNITED GEOPHYSICAL CO. INC.

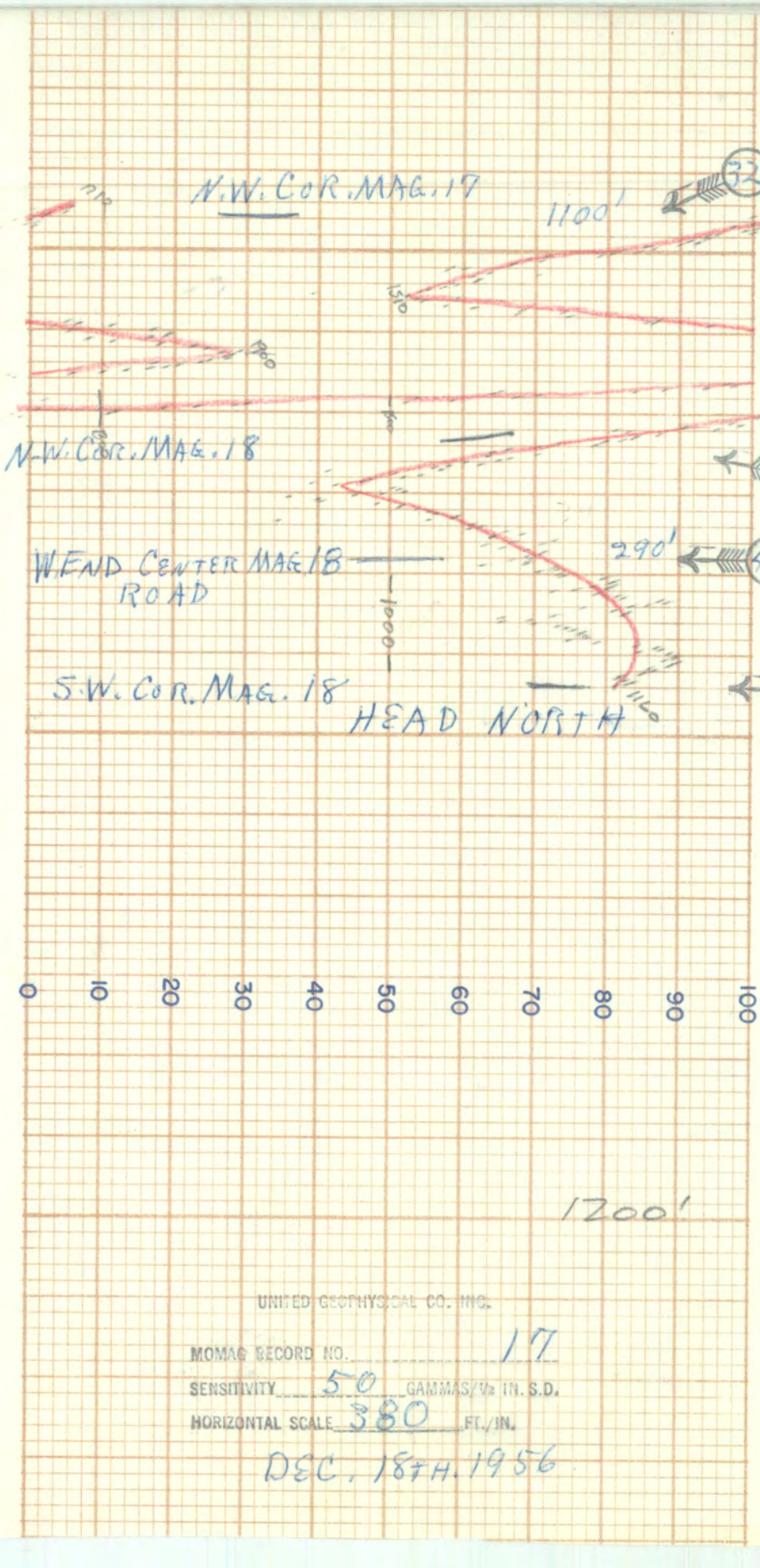
MOMAG RECORD NO. 16

SENSITIVITY 50 GAMMAS/½ IN. S.D.

HORIZONTAL SCALE 380 FT./IN.

DEC. 18TH 1956

MADE IN U.S.A. THE ESTERLINE-AN



UNITED GEOPHYSICAL CO. INC.

MOMAG RECORD NO. 17

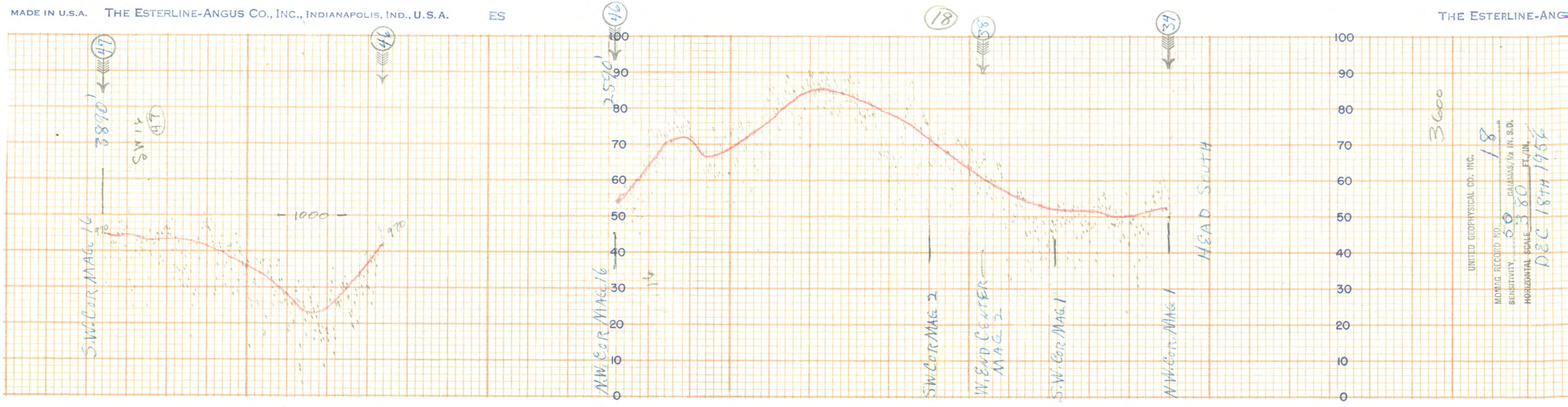
SENSITIVITY 50 GAMMAS/½ IN. S.D.

HORIZONTAL SCALE 380 FT./IN.

DEC. 18TH. 1956

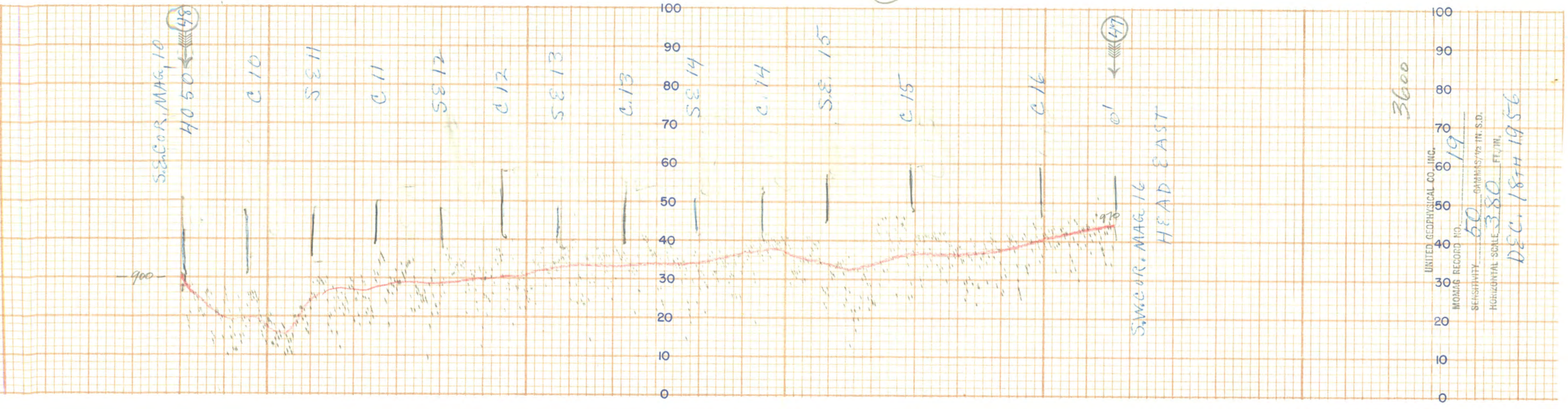
US CO., INC., INDIANAPOLIS, IND., U.S.A. CHART NO. 17491X

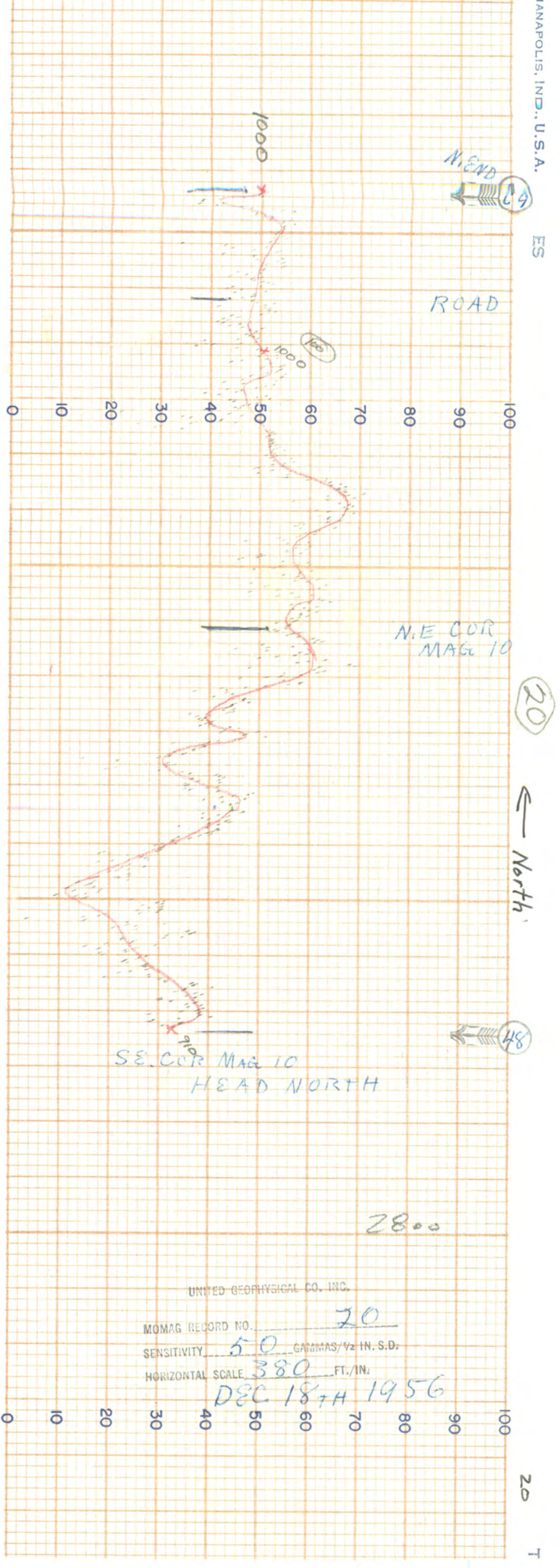
MADE IN U.S.A. THE ESTERLINE-ANGUS CO., INC., INDIANAPOLIS, IND., U.S.A. ES



HE ESTERLINE-ANGUS CO., INC., INDIANAPOLIS, IND., U.S.A. CHART NO. 17491X

(19)

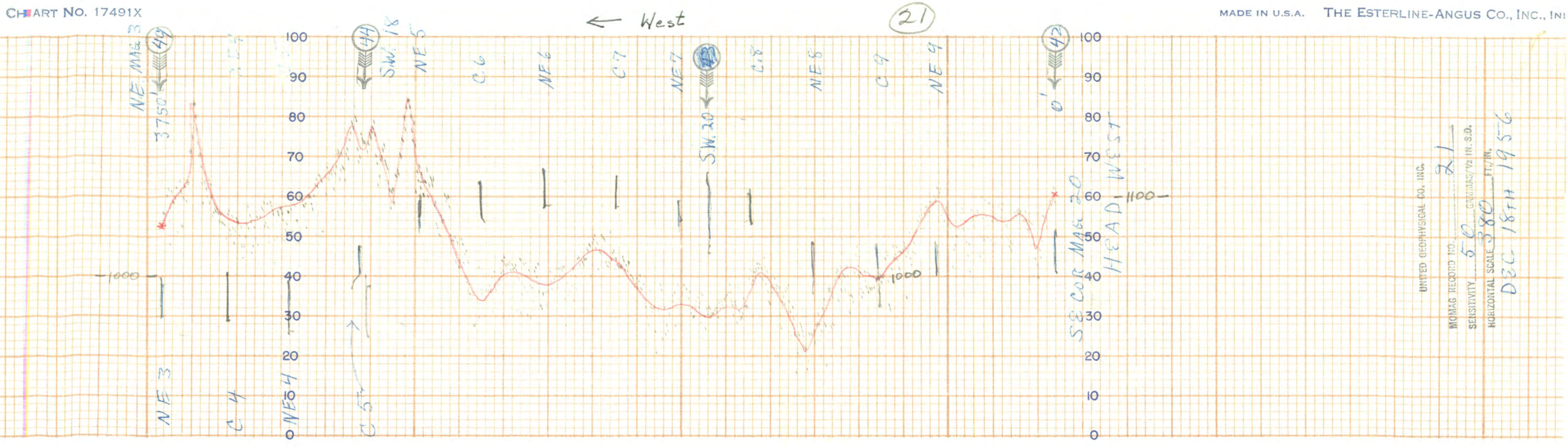


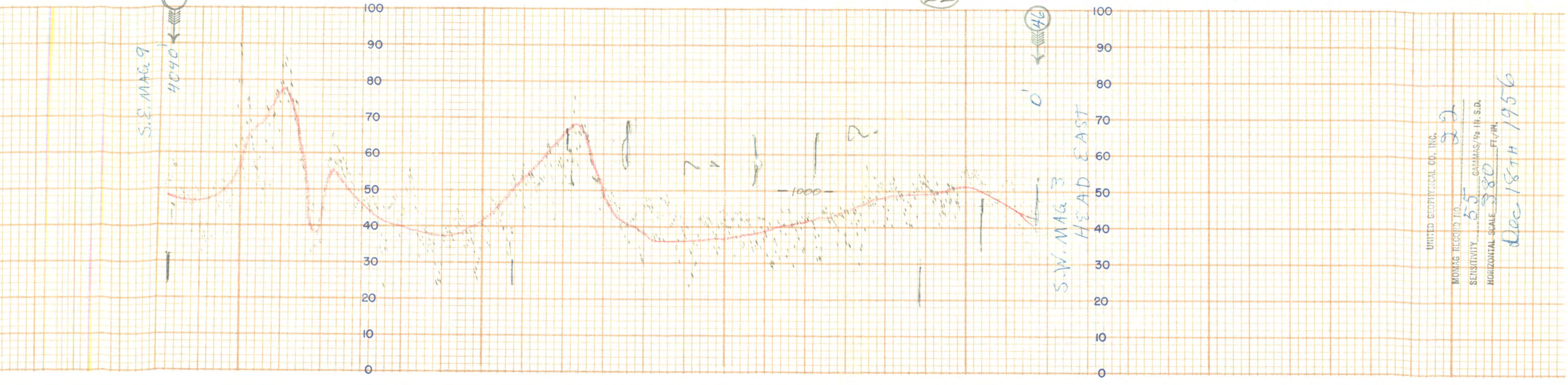


INDIANAPOLIS, IND., U.S.A.

CHART NO. 17491X

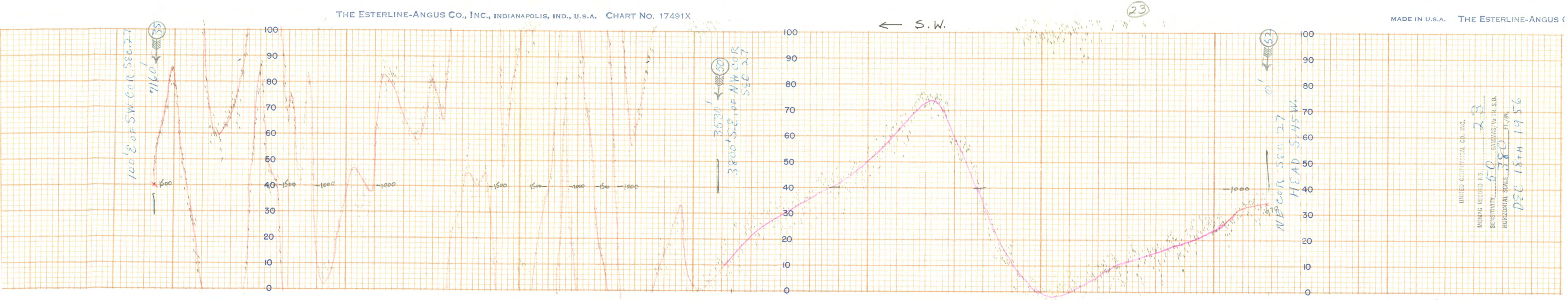
MADE IN U.S.A. THE ESTERLINE-ANGUS CO., INC., IN




S.E. MAG 9
4040'
(46)
0'
S.W. MAG 3
HEAD EAST
100
90
80
70
60
50
40
30
20
10
0
1000
UNITED GEOPHYSICAL CO. INC.
MOMAG RECORD NO. 22
SENSITIVITY 55 GAMMAS/½ IN. S.D.
HORIZONTAL SCALE 380 FT./IN.
Dec 18TH 1956

THE ESTERLINE-ANGUS CO., INC., INDIANAPOLIS, IND., U.S.A. CHART NO. 17491X

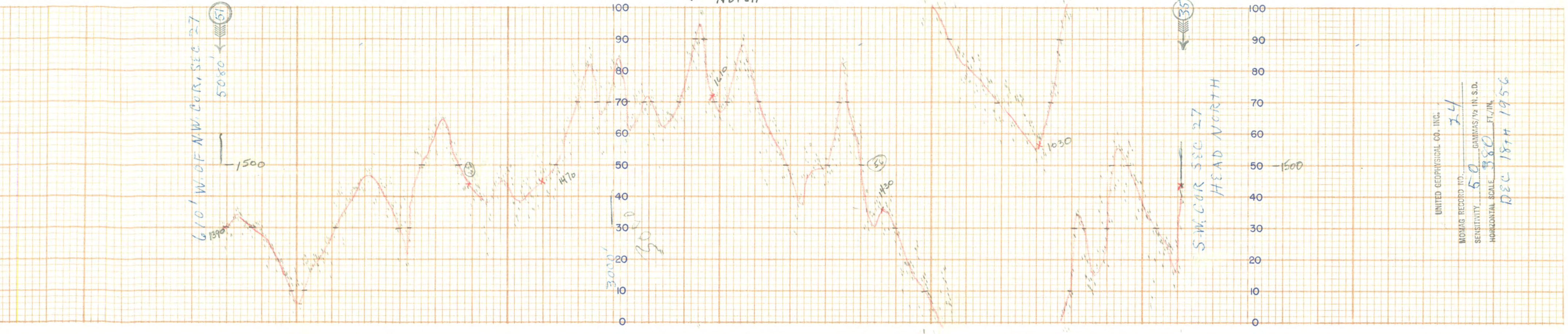
MADE IN U.S.A. THE ESTERLINE-ANGUS C



MADE IN U.S.A. THE ESTERLINE-ANGUS CO., INC., INDIANAPOLIS, IND., U.S.A. ES

24

← North



UNITED GEOPHYSICAL CO. INC.

MOMAG RECORD NO. 25

SENSITIVITY 50 GAMMAS/½ IN. S.D.

HORIZONTAL SCALE 380 FT./IN.

DEC 18TH 1956

THE ESTERLINE-ANGUS CO., INC., INDIANAPOLIS, IND., U.S.A. CHART NO. 17491X

CO., INC., INDIANAPOLIS, IND., U.S.A. ES

THE ESTERLINE-ANGUS CO., INC., INDIANAPOLIS, IND., U.S.A. CHART NO. 17491X

26

UNITED GEOPHYSICAL CO. INC.

MOMAG RECORD NO. 26

SENSITIVITY 50 GAMMAS/½ IN. S.D.

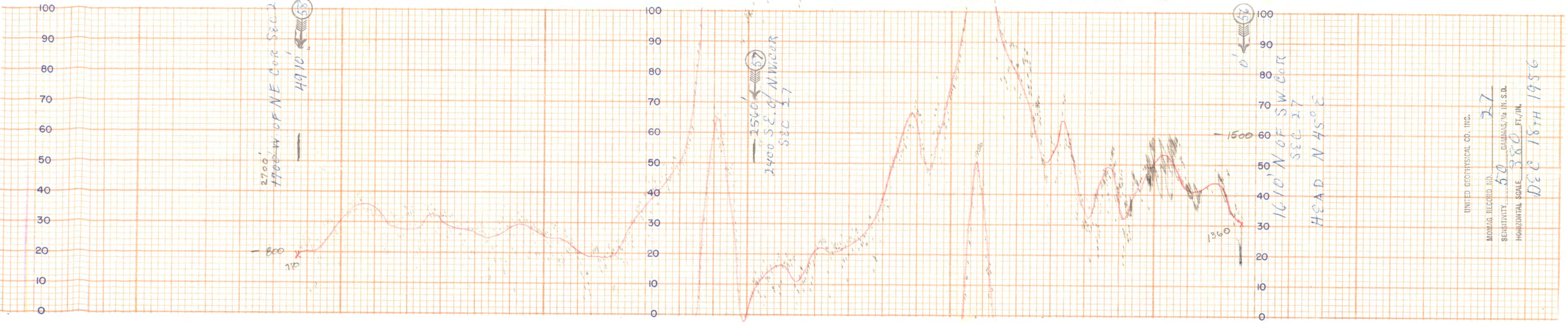
HORIZONTAL SCALE 380 FT./IN.

DEC 18TH 1956

MADE IN U.S.A. THE ESTERLINE-ANGUS

MADE IN U.S.A. THE ESTERLINE-ANGUS CO., INC., INDIANAPOLIS, IND., U.S.A. ES

(27)



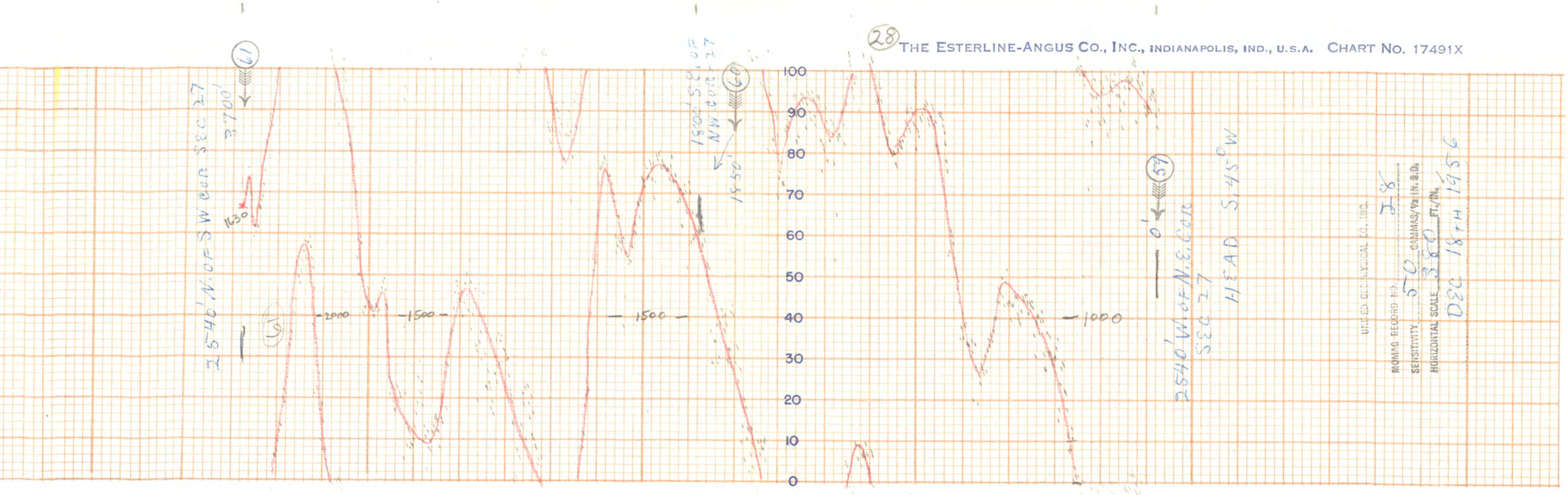
UNITED GEOPHYSICAL CO. INC.

MDM.G. RECORD NO. 27

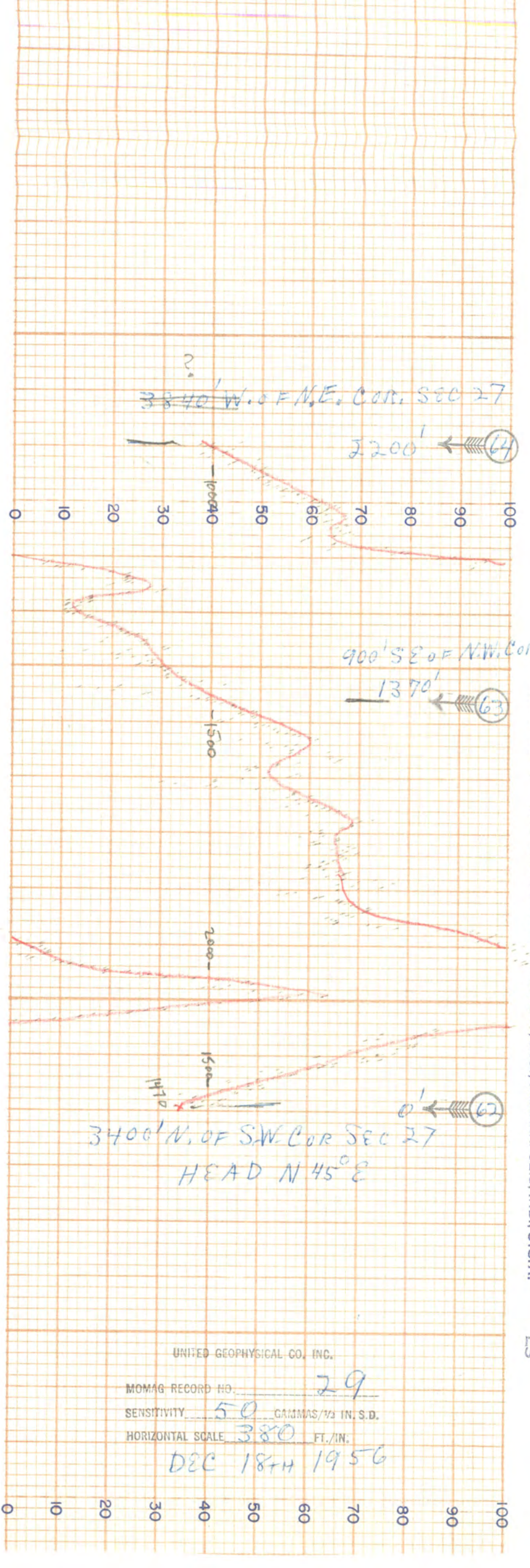
SENSITIVITY 50 GAMMAS/½ IN. S.D.

HORIZONTAL SCALE 380 FT./IN.

DEC 18TH 1956



28
THE ESTERLINE-ANGUS CO., INC., INDIANAPOLIS, IND., U.S.A. CHART NO. 17491X
100
90
80
70
60
50
40
30
20
10
0
2540' N. OF SW COR SEC 27
3700'
1630
61
2000
1500
1500
1800' S.E. OF NW COR 27
1850'
60
0'
59
2540' W. OF N.E. COR SEC 27
HEAD S. 45° W
1000
UNITED GEOPHYSICAL CO., INC.
MOMAG RECORD NO. 18
SENSITIVITY 50 GAMMAS/½ IN. S.D.
HORIZONTAL SCALE 380 FT./IN.
DEC 18TH 1956

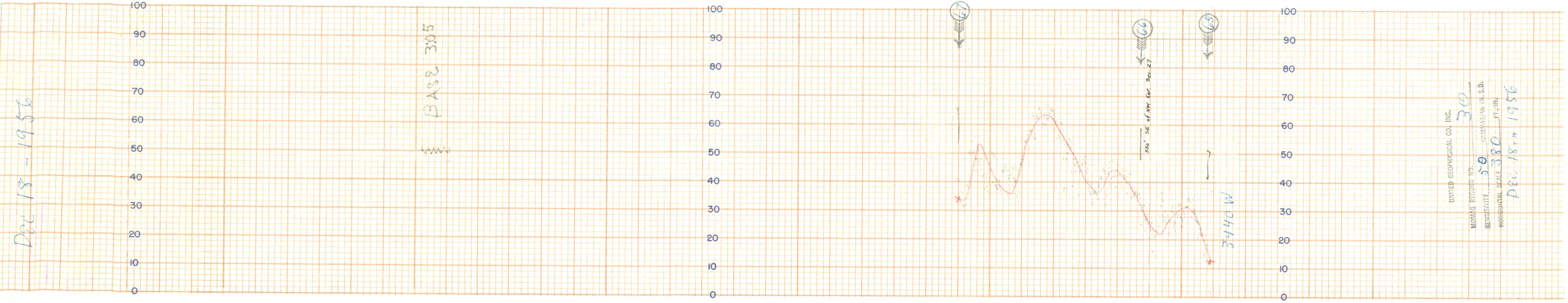


MADE IN U.S.A. THE ESTERLINE-ANGUS CO., INC., INDIANAPOLIS, IND., U.S.A.

ES

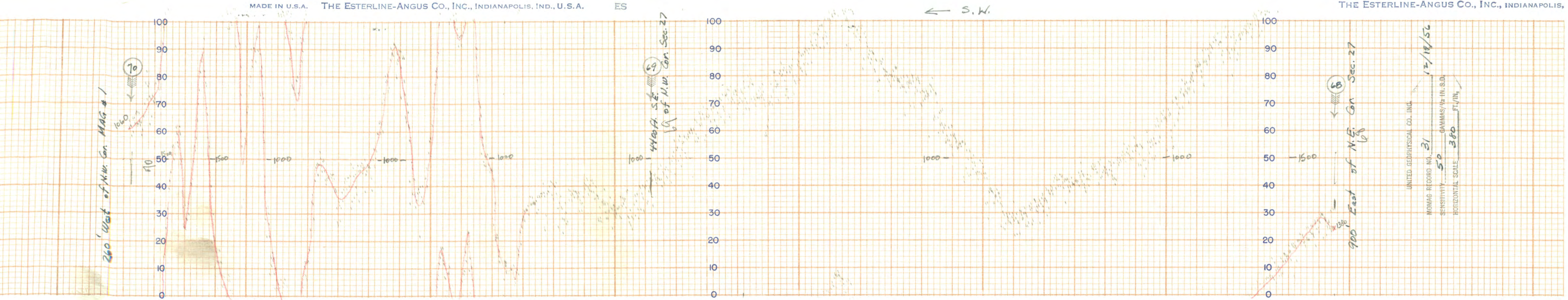
ES

THE ESTERLINE-ANGUS CO., INC., INDIANAPOLIS, IND., U.S.A. (30) CHART NO. 17491X



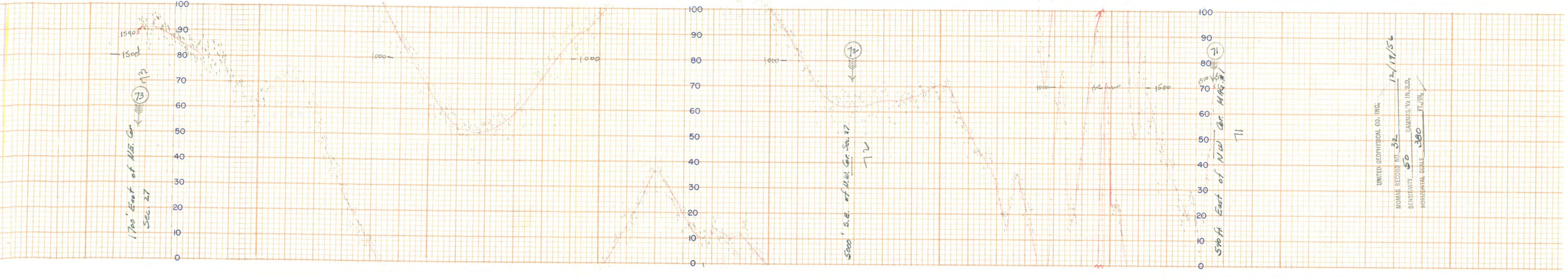
MADE IN U.S.A. THE ESTERLINE-ANGUS CO., INC., INDIANAPOLIS, IND., U.S.A. ES

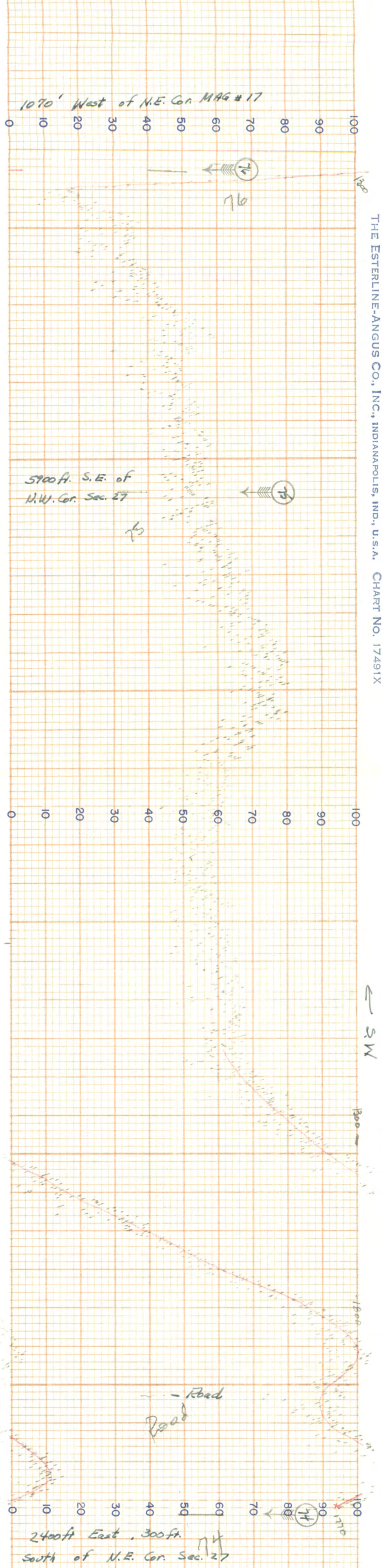
THE ESTERLINE-ANGUS CO., INC., INDIANAPOLIS,



IS, IND., U.S.A. ES

THE ESTERLINE-ANGUS CO., INC., INDIANAPOLIS, IND., U.S.A. CHART NO. 17491X





UNITED GEOPHYSICAL CO. INC.

MOMAG RECORD NO. 33 12/19/56

SENSITIVITY 50 GAMMAS/½ IN. S.D.

HORIZONTAL SCALE 380 FT./IN.

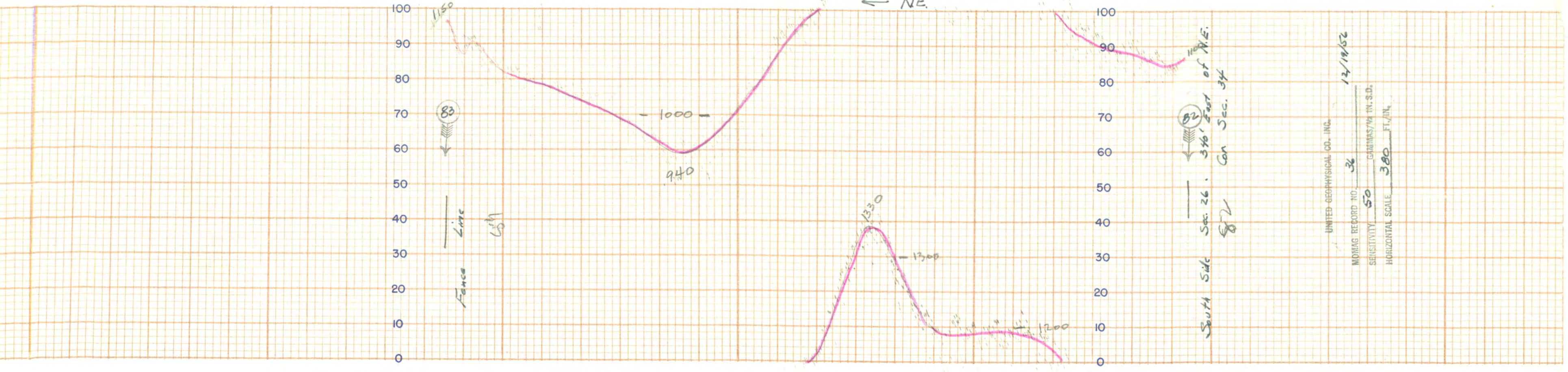
THE ESTERLINE-ANGUS CO., INC., INDIANAPOLIS, IND., U.S.A. CHART NO. 17 491X

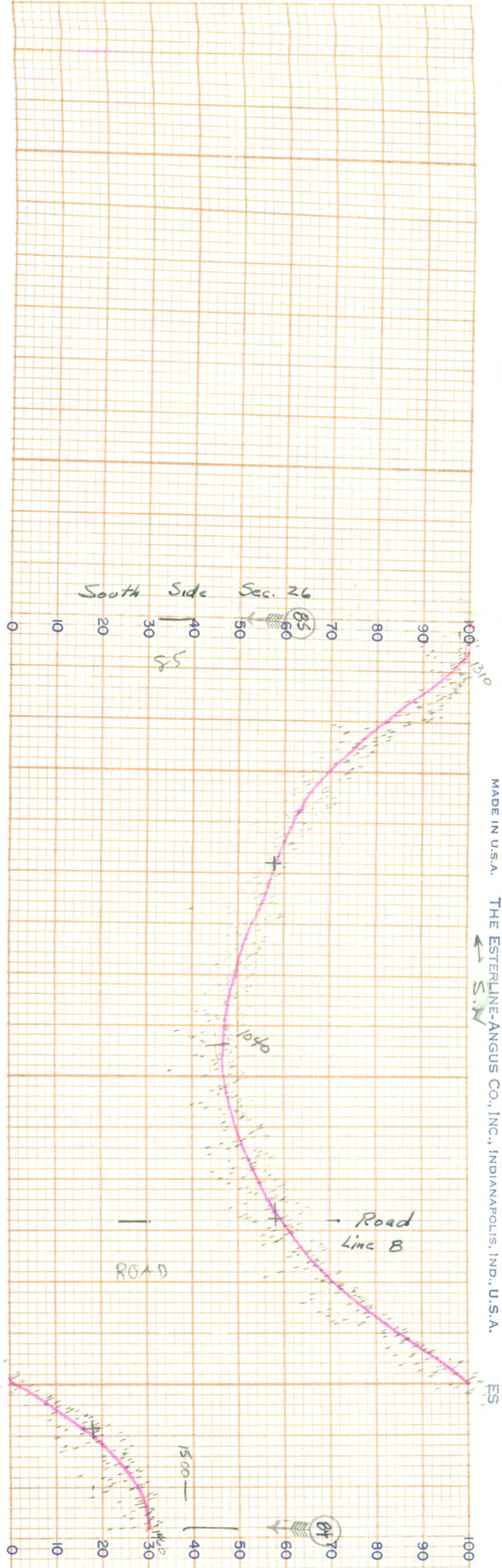
MADE IN U.S.A. THE ESTERLINE-ANGUS CO., INC., INDIANAPOL

THE ESTERLINE-ANGUS CO., INC., INDIANAPOLIS, IND., U.S.A. CHART NO. 17491X
MADE IN U.S.A. THE ESTERLINE-ANGUS CO., INC., INDIANAPOLIS, IND.

MADE IN U.S.A. THE ESTERLINE-ANGUS CO., INC., INDIANAPOLIS, IND., U.S.A. ES

THE ESTERLINE-ANGUS CO., INC., INDIANAPOLIS, IND., U.S.A. CHART NO. 17491X





E-W Fence and N-S Reservation Fence in Section 26.

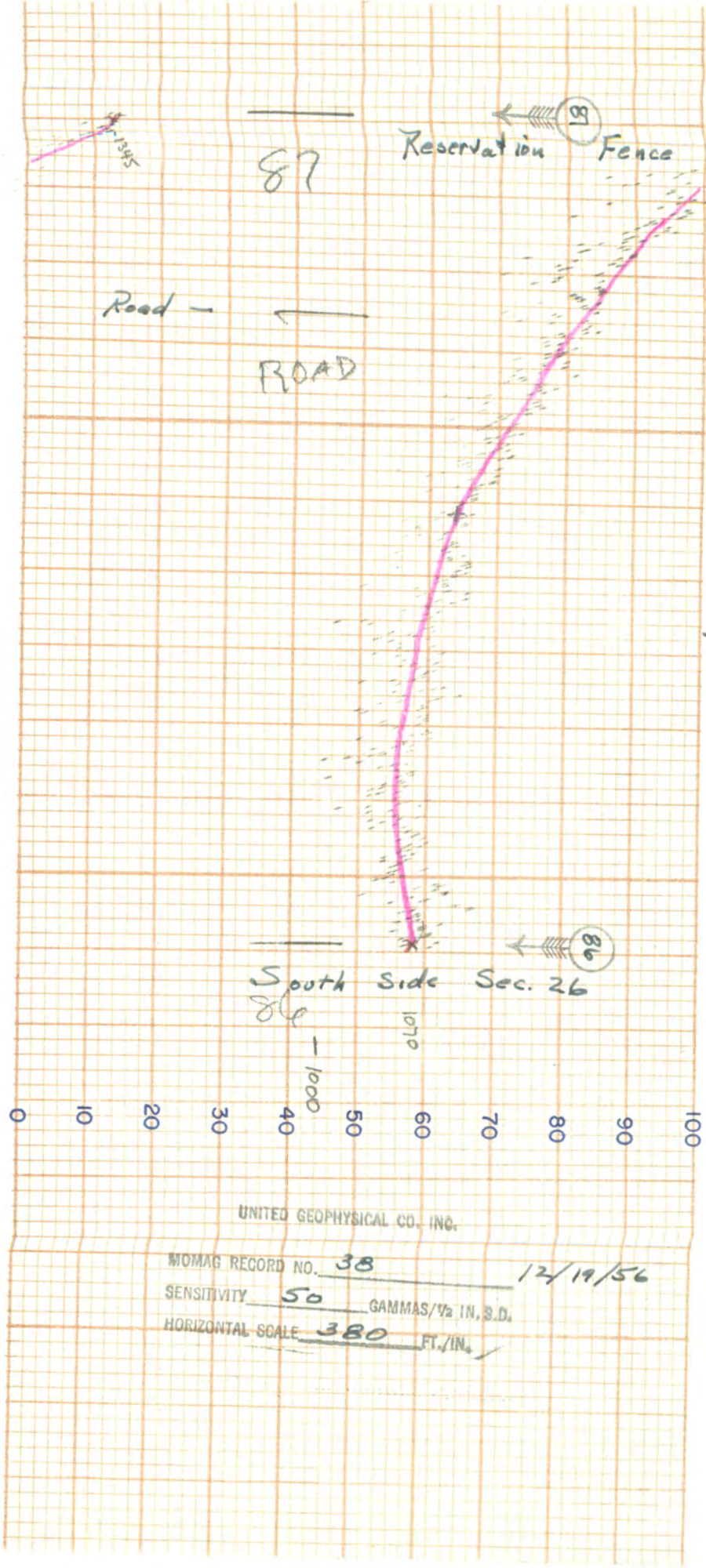
UNITED GEOPHYSICAL CO. INC.

MOMAG RECORD NO. 37 12/19/56

SENSITIVITY 50 GAMMAS/½ IN. S.D.

HORIZONTAL SCALE 380 FT./IN.

MADE IN U.S.A. THE ESTERLINE-ANGUS CO., INC., INDIANAPOLIS, IND., U.S.A.

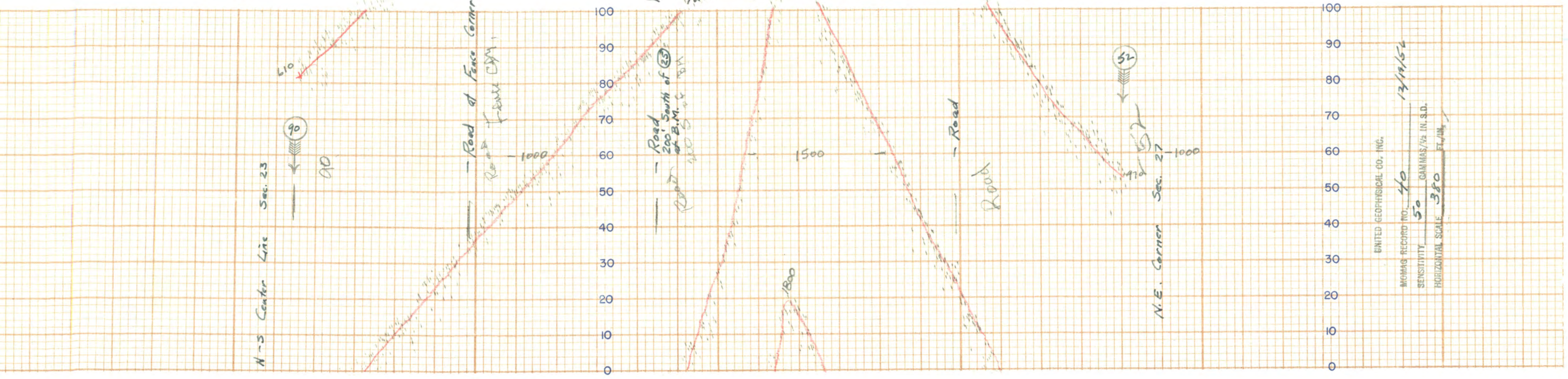


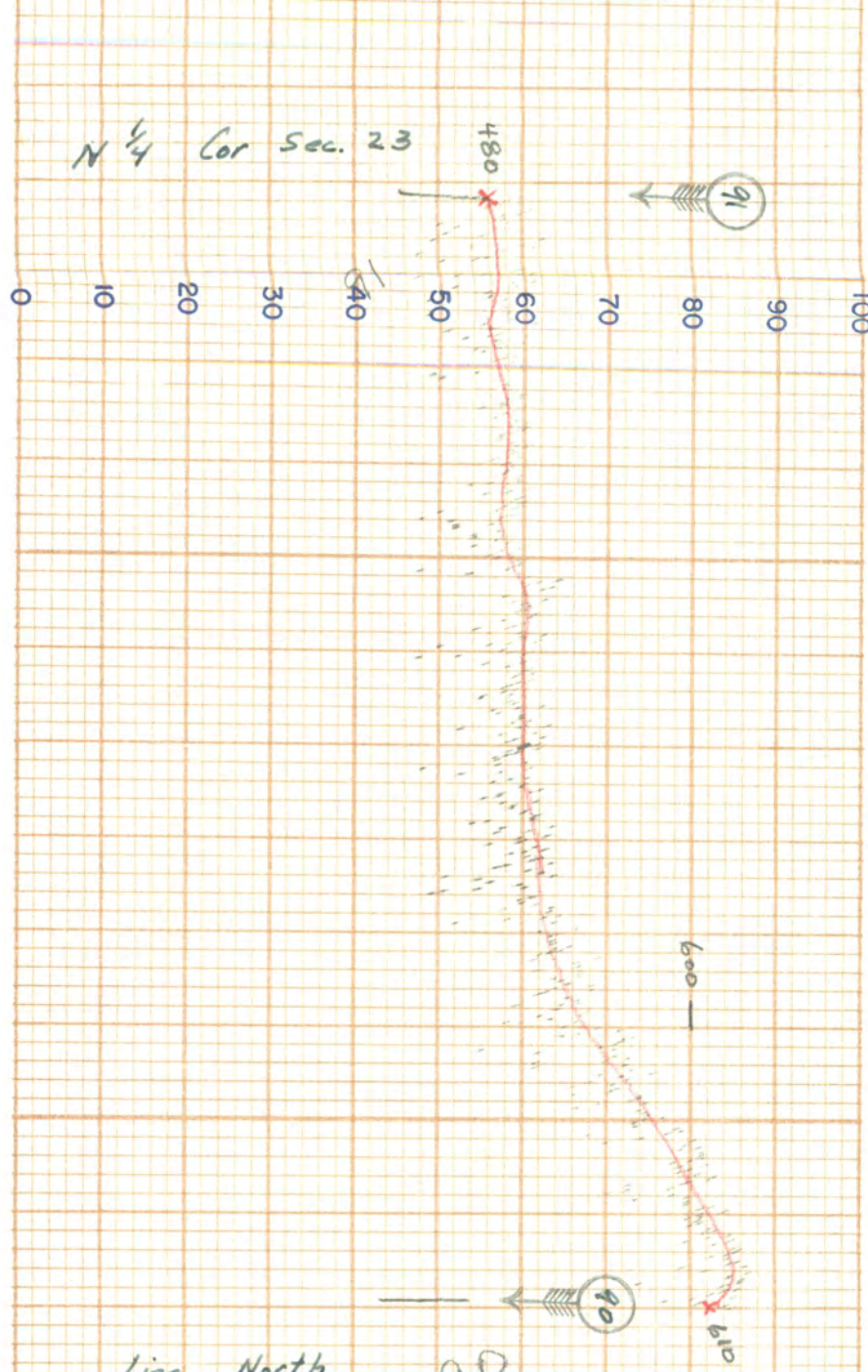
ESTERLINE-ANGUS CO., INC., INDIANAPOLIS, IND., U.S.A. CHART NO. 17491X

N.E.

N.E. Cor. Sec. 27
N. End Line 31
North End Line 32
Road
N. End Line 33
N. End Line 34
N. End Line 35
Fence Corner
Reservation Fence and E-W Fence
N. End Line 38
South Side Sec. 26 at N-S Reservation Fence.
0 10 20 30 40 50 60 70 80 90 100
North
West
THE ESTERLINE-ANGUS CO., INC., INDIANAPOLIS, IND., U.S.A. CHART NO. 17491X
MADE IN U.S.A.
UNITED GEOPHYSICAL CO. INC.
MOMAG RECORD NO. 39
12/19/56
SENSITIVITY 50 GAMMAS/1/2 IN. S.D.
HORIZONTAL SCALE 380 FT./IN.

MADE IN U.S.A. THE ESTERLINE-ANGUS CO., INC., INDIANAPOLIS, IND., U.S.A. ES





UNITED GEOPHYSICAL CO. INC.

MOMAG RECORD NO. 41 12/19/56

SENSITIVITY 50 GAMMAS/1/2 IN. S.D.

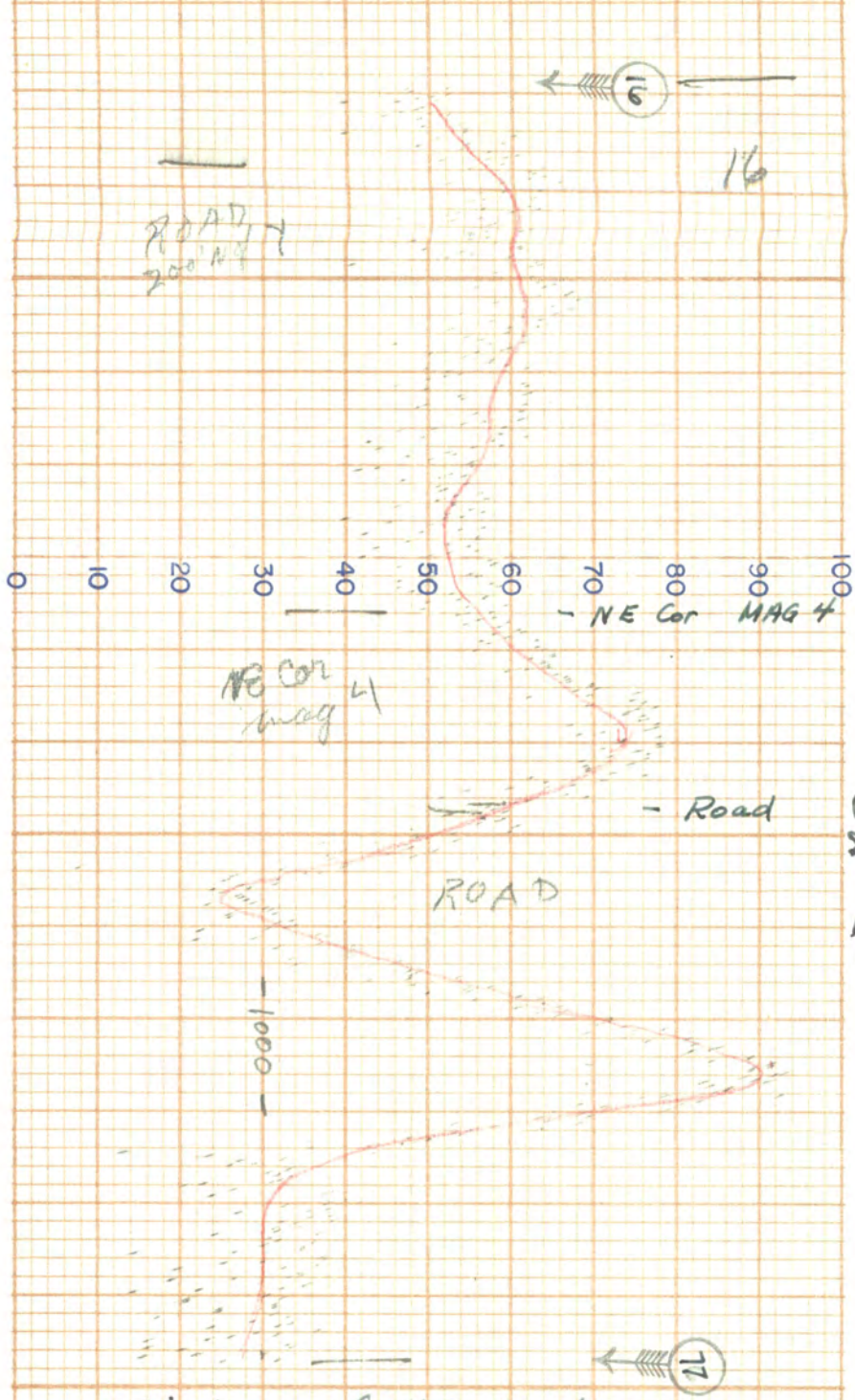
HORIZONTAL SCALE 380 FT./IN.

THE ESTERLINE-ANGUS CO., INC., INDIANAPOLIS, IND., U.S.A. CHART NO. 17491X

← North

ND., U.S.A. CHART NO. 17491X

Road Left
Cross Line 39 40 near Four Corner
Cross Line 42 About 570' SW of (9)
South
East
East
N.E.
Road
Road
N.E.
THE ESTERLINE-ANGUS CO., INC., INDIANAPOLIS, IND., U.S.A. CHART NO. 1749X
MADE IN U.S.A. THE ESTERLINE-ANGUS CO., INC., INDIANAPOLIS, IND., U.S.A. ES
THE ESTERLINE-ANGUS CO., INC., INDIANAPOLIS,
UNITED GEOPHYSICAL CO. INC.
MOMAG RECORD NO. 43 12/19/56
SENSITIVITY 50 GAMMAS/½ IN. S.D.
HORIZONTAL SCALE 380 FT./IN.



750' West of N.E. Cor. MAG #17

76

Line Heads S.W. From Indian Res. Fence

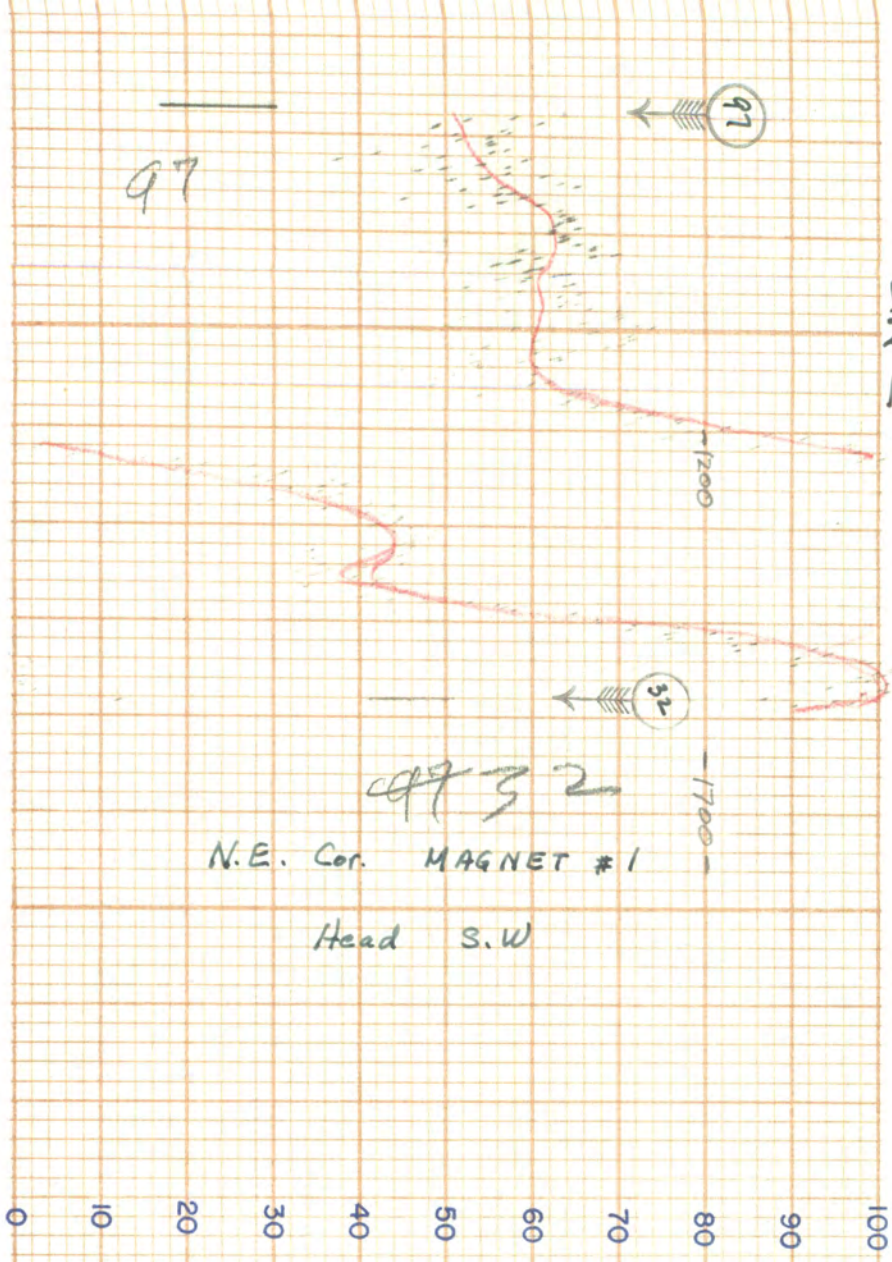
UNITED GEOPHYSICAL CO. INC.

MOMAG RECORD NO. 44 12/19/56

SENSITIVITY 50 GAMMAS/½ IN. S.D.

HORIZONTAL SCALE 380 FT./IN.

MADE IN U.S.A. THE ESTERLINE-ANGUS CO., INC., INDIANAPOLIS, IND., U.S.A.



UNITED GEOPHYSICAL CO. INC.

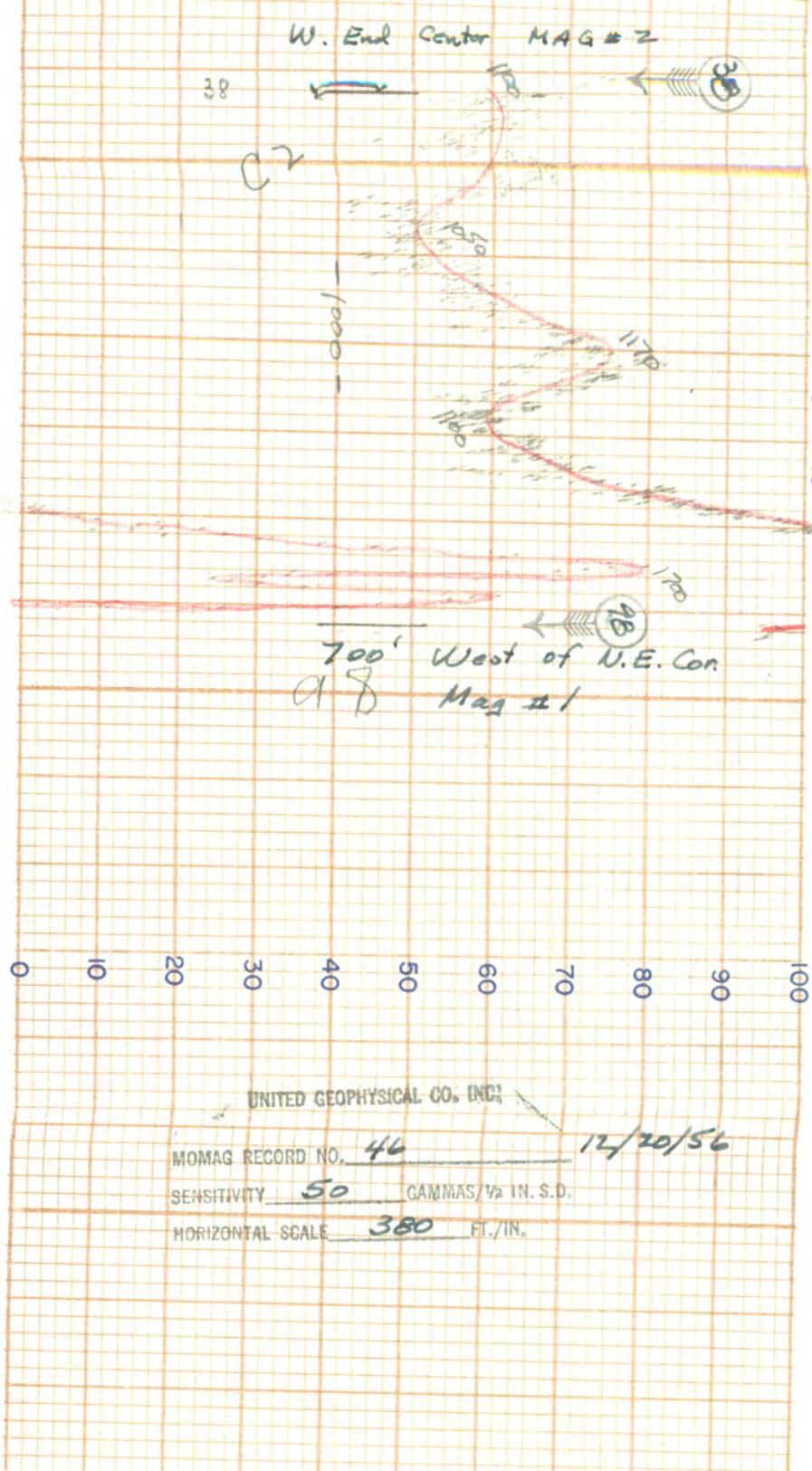
MOMAG RECORD NO. 45 12/19/56

SENSITIVITY 50 GAMMAS/½ IN. S.D.

HORIZONTAL SCALE 380 FT./IN.

GUS CO., INC., INDIANAPOLIS, IND., U.S.A. CHART NO. 17491X

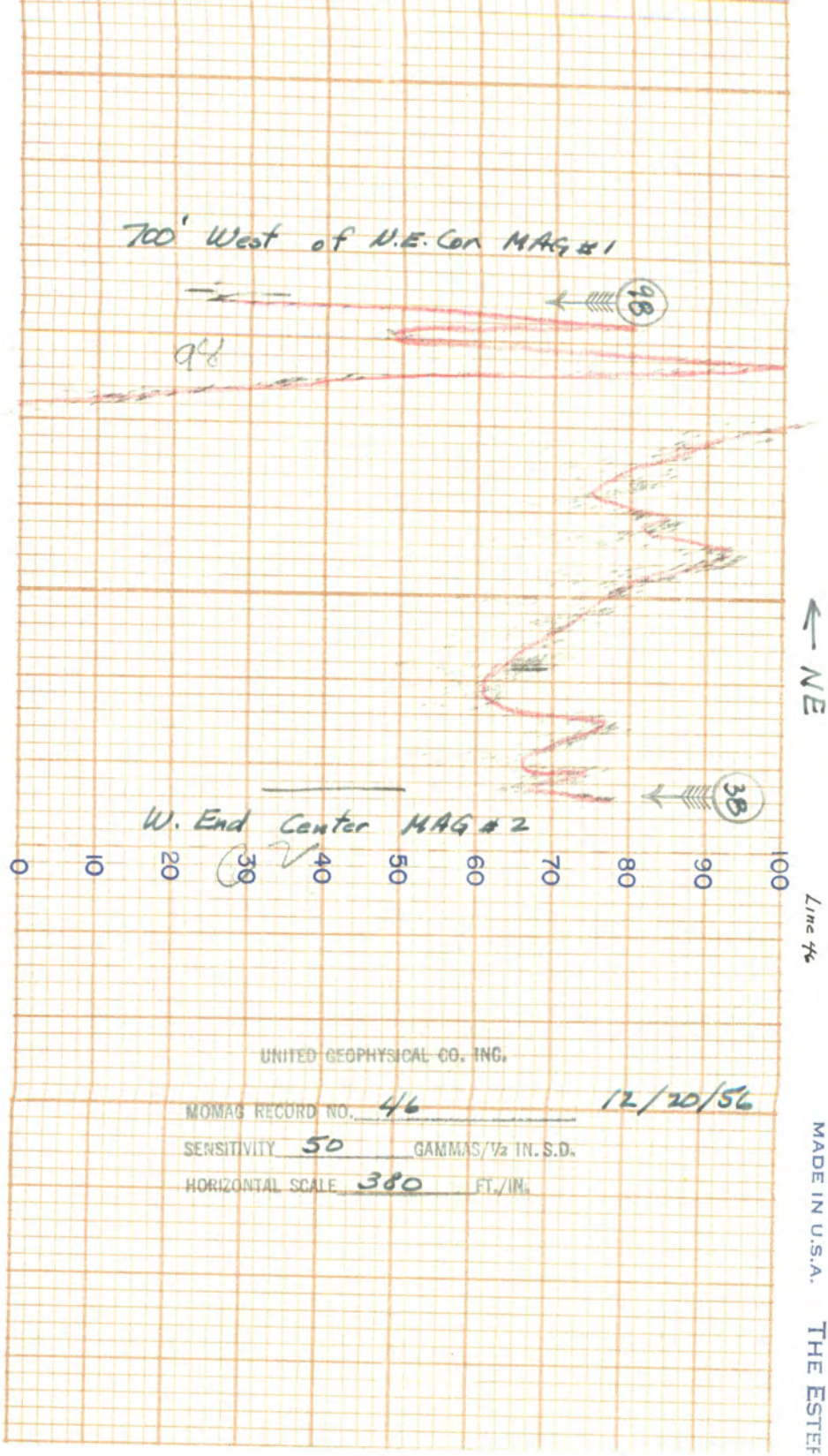
S.W

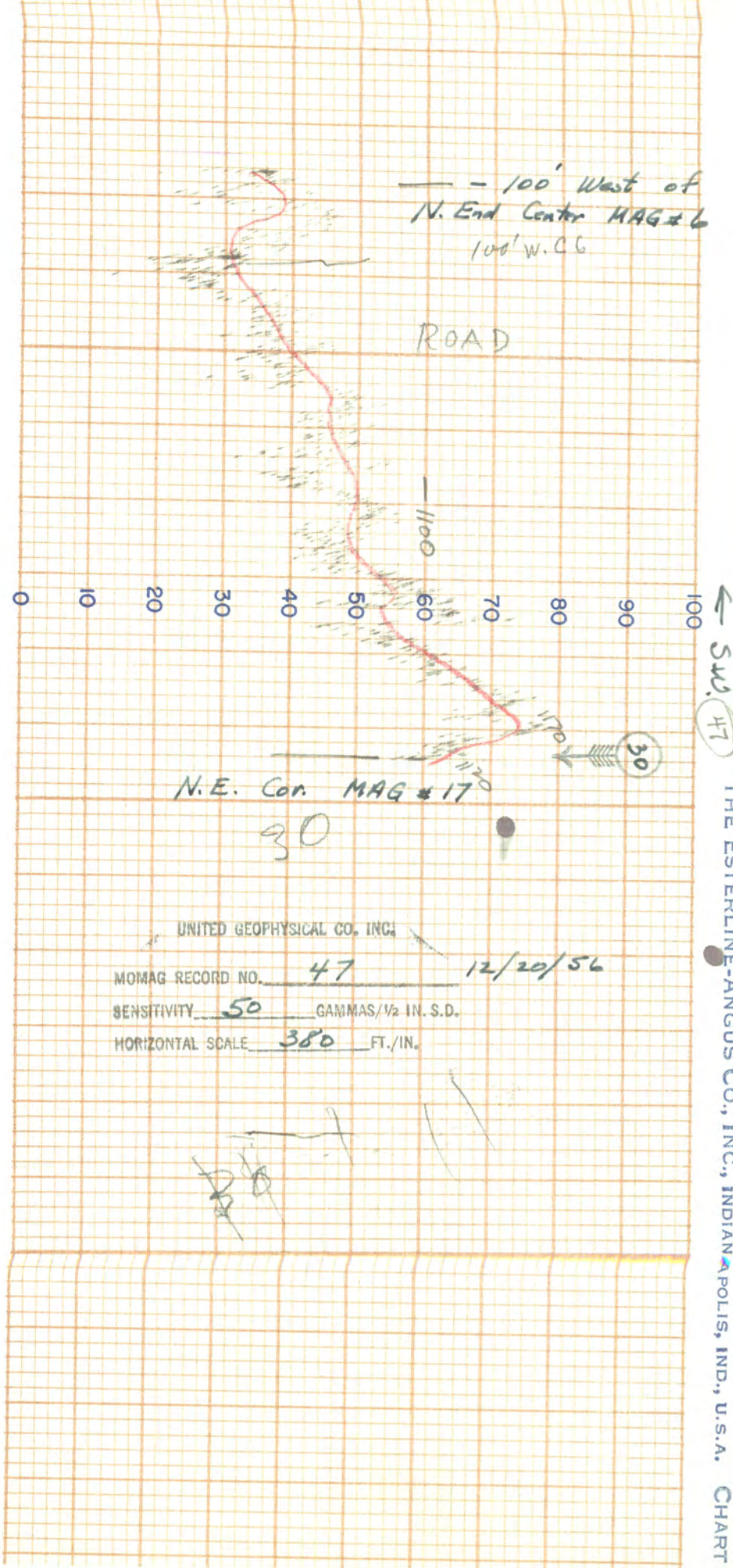


RLINE-ANGUS CO., INC., INDIANAPOLIS, IND., U.S.A.

ES

Line 46


700' West of N.E. Cor MAG #1
98
98
38
W. End Center MAG #2
0
10
20
30
40
50
60
70
80
90
100
← NE
Line 46
UNITED GEOPHYSICAL CO. INC.
MOMAG RECORD NO. 46
12/20/56
SENSITIVITY 50 GAMMAS/½ IN. S.D.
HORIZONTAL SCALE 380 FT./IN.
MADE IN U.S.A.
THE ESTEP


— 100' West of
N. End Center MAG # 6
100' W. C6
ROAD
1100
0
10
20
30
40
50
60
70
80
90
100
← S.W.
47
30
N.E. Cor. MAG # 17
30
UNITED GEOPHYSICAL CO. INC.
MOMAG RECORD NO. 47
12/20/56
SENSITIVITY 50 GAMMAS/½ IN. S.D.
HORIZONTAL SCALE 380 FT./IN.
THE ESTERLINE-ANGUS CO., INC., INDIANAPOLIS, IND., U.S.A.
CHART