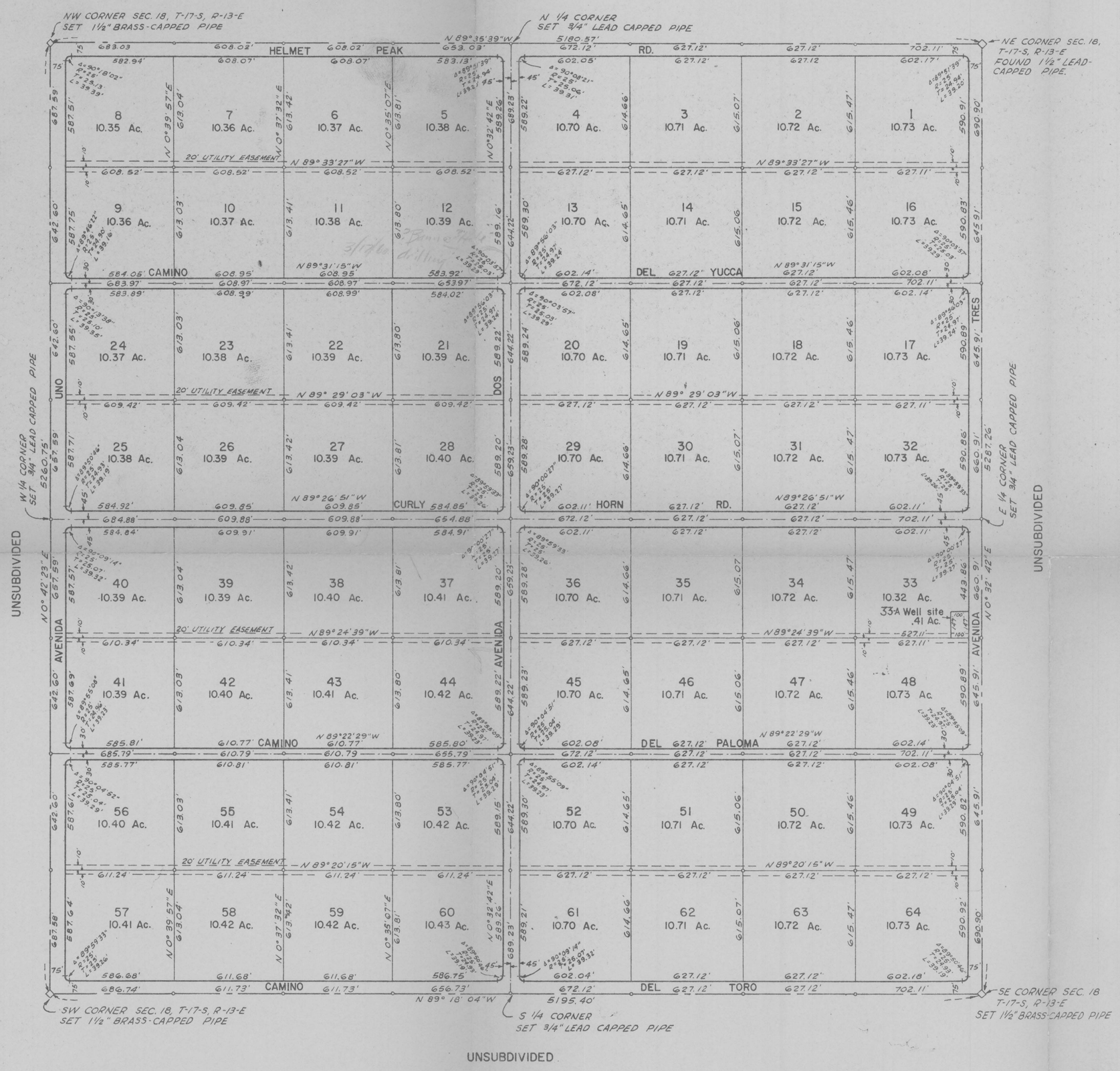
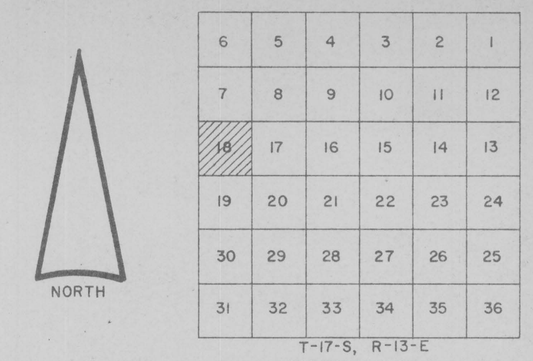
CONTACT INFORMATION
Mining Records Curator
Arizona Geological Survey
3550 N. Central Ave, 2nd floor
Phoenix, AZ, 85012
602-771-1601
http://www.azgs.az.gov
inquiries@azgs.az.gov




T-17-S, R-13-E
LOCATION PLAN
scale: 3" = 6 miles

## DEDICATION

We the undersigned owners of the land shown on this plat hereby consent to the subdivision of said land in the manner shown hereon and hereby dedicate to the use of the public forever all streets and easements so designated.

ARIZONA LAND TITLE AND TRUST COMPANY
an Arizona corporation, as Trustee under Trust Agreement No. 5355-T.

By _____
D. M. Gooder Trust Officer

STATE OF ARIZONA
COUNTY OF PIMA S.S.

This instrument was acknowledged before me this 2nd day of October, 1958 by D. M. Gooder as Trust Officer of the Arizona Land Title and Trust Company, as Trustee.

_____
Notary Public

My commission expires 11-25-61.

## RECORD DATA

STATE OF ARIZONA
COUNTY OF PIMA S.S.

No. 60083
Fee $5.00

Filed for record at the request of Jerry Courtney Investments on the 2 day of October 1958 at 2:25 P.M. in Book 13 of Maps and Plats on Page 33 thereof.

Anna Sullinger
County Recorder

By _____
Deputy

## GENERAL NOTES

1. Set 3/4" lead capped pipe at all street intersections and at all interior lot corners.
2. Set 3/4" lead capped reference pipe in center line of street at lot line extension.
3. ◇ Indicates corners of subdivision, monuments as indicated.
4. Bearings established from east line of Section 18 assumed N. 0° 32' 42" E.
5. Acreage figures shown are commercial acres.

I hereby certify that this represents a survey made under my direction and that all monuments do exist as shown hereon.

REGISTERED LAND SURVEYOR
JOSEPH A. LILLYWHITE
ARIZONA U.S.A.

_____
Registered Land Surveyor

# CURLY HORN RANCHES

BEING A SUBDIVION OF SECTION 18,
T-17-S, R-13-E, G. & S.R.B. & M.
PIMA COUNTY, ARIZONA.

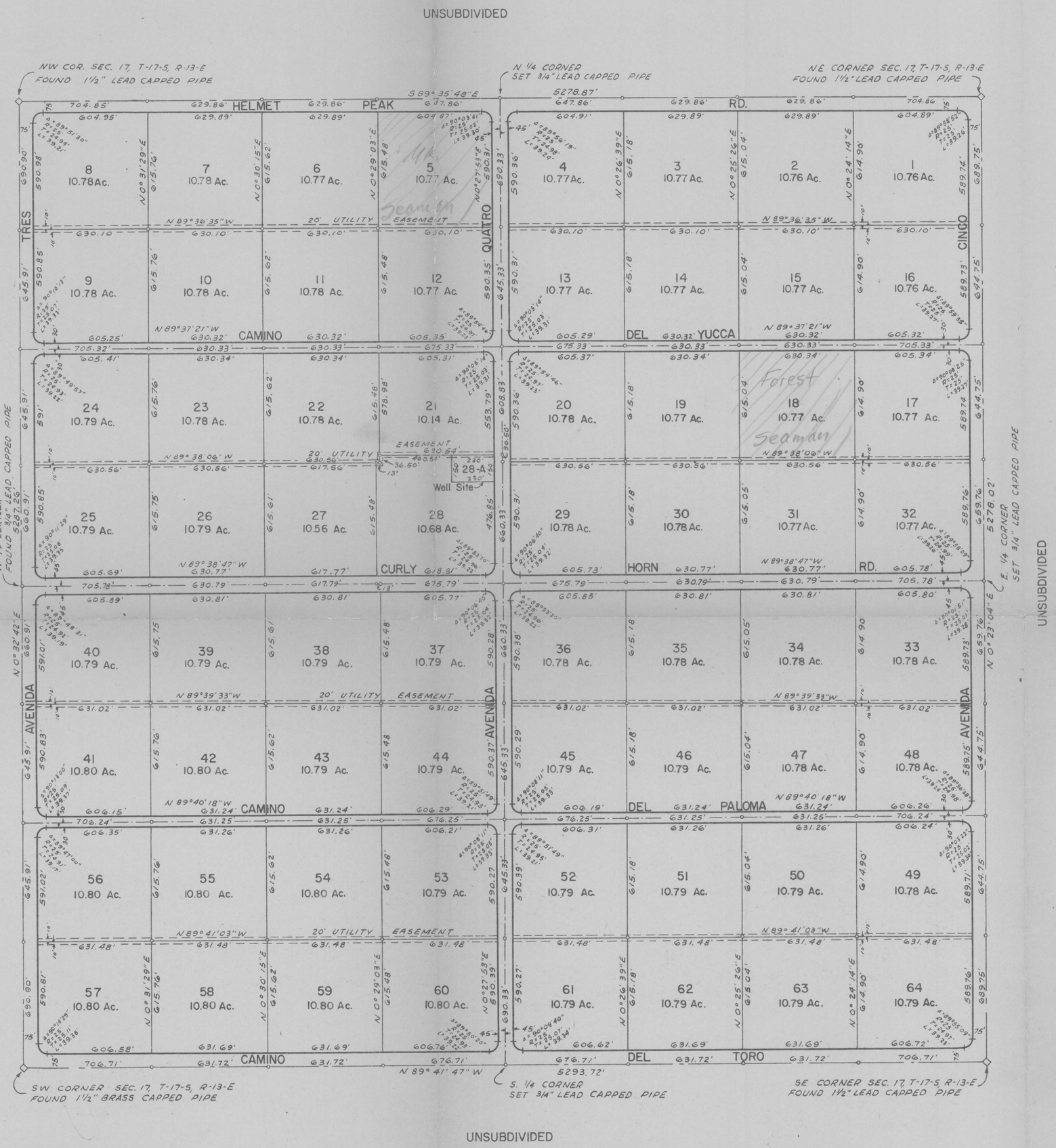
## MADDOCK & ASSOCIATES

SCALE: 1" = 400' SHEET 1 OF 1 SEPTEMBER, 1958

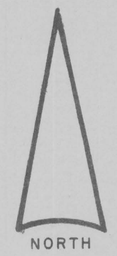
Job No. T580719

Book 13 PAGE 33

Book 13 Page 50




CURLY HORN RANCHES
Book 13, Page 33
October 2, 1958




| | | | | | |
|---|---|---|---|---|---|
| 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 |

T-17-S, R-13-E
LOCATION PLAN
scale: 3" = 6 miles

## DEDICATION

We the undersigned owners of the land shown on this plat hereby consent to the subdivision of the said land in the manner shown hereon and hereby dedicate to the use of the public forever all streets and easements so designated.

ARIZONA LAND TITLE AND TRUST COMPANY
an Arizona corporation, as Trustee under Trust Agreement No. 5355-T.

By John B. Wilkie
John B. Wilkie, Vice President

STATE OF ARIZONA
COUNTY OF PIMA S.S.

This instrument was acknowledged before me this 23rd day of December 1958 by John B. Wilkie as Vice President of the Arizona Land Title and Trust Company as Trustee.

Notary Public

My commission expires 11-25-61.

## RECORD DATA

STATE OF ARIZONA
COUNTY OF PIMA S.S.

No. 81089
Fee $5.00

Filed for record at the request of Jerry Courtney Investments on the 29th day of December 1958 at 3:36 P. m. in Book 13 of Maps and Plats on Page 50 thereof.

Anna Sullinger
County Recorder

By Ida Mae Smyth
Deputy

## GENERAL NOTES

1. Set 3/4" lead capped pipe at all street intersections and at all interior lot corners.
2. Set 3/4" lead capped reference pipe in center line of street at lot line extension.
3. ◇ Indicates corners of subdivision, monuments as indicated.
4. Bearings established from Curly Horn Ranches, Book 13, Page 33.
5. Acreage figures shown are commercial acres.

I hereby certify that this represents a survey made under my direction and that all monuments do exist as shown hereon.

REGISTERED LAND SURVEYOR JOSEPH W. LILLYWHITE DEC 31, 1959 ARIZONA, U.S.A.

Registered Land Surveyor

# CURLY HORN RANCHES NO. 2

BEING A SUBDIVISION OF SECTION 17
T-17-S, R-13-E, G. & S. R. B. & M.,
PIMA COUNTY, ARIZONA.

## MADDOCK & ASSOCIATES

SCALE: 1" = 400' SHEET 1 OF 1 DECEMBER, 1958

Job No. T580719

13/50

## A MAGNETIC APPLICATION IN GROUND WATER STUDIES

General problem here was to determine overall water potential in Sections 17 & 18 and particularly, the relative favorability of lot 5 versus lot 18 in Section 17. Production data in the immediate area was meagre and limited to very small producers. However, quite a few holes were available for measurement of static water level and excellent producers existed a mile or two to the north and east nearer the bottom of the Santa Cruz river valley. This area is on the west side of the valley and is completely alluvial covered but is immediately east of the alluvial outcrop boundary as noted on the accompanying map.

Static water level gradient is presented by dashed line contours and is essentially easterly with some variation effected by the andesite dike. Though not shown, considerable northerly gradient, north of the area is expected since the river flows in that direction and is further evidenced by the good producers in that direction.

The major andesite dike or sill was known from exposure on Twin Buttes Road. As shown, it was a simple objective to magnetically trace this feature across the property. This was done in a few hours by using the continuous recording mobile magnetometer. Results confirming the existence of the dike across the property were most important as this indicated that the possibility of a thick section of alluvium below the water table is nil, and therefore the probability of a large shallow producer from the alluvium is very poor. Of course, a large deep producer is possible, especially south of the dike in the Helmet fauglomerate at an order of magnitude depth of about 700' or 800' or deeper. Porosity and permeability of the andesite is suggested to be less than the fauglomerate, therefore lot 18 is to be preferred over lot 5 for small shallower producers.

Supplemental resistivity work was not done but should aid considerably in further dileneating the possibilities in the area in more detail.

Walter E. Heinrichs, Jr.

Registered Professional Engineer
CERTIFICATE OF REGISTRATION
WALTER E. HEINRICHS, JR.
DEC. 31, 19
ONA, U.S.A.

WEH:jh
August 28, 1961

Project 660

Records of wells in T. 17 S., R. 12 E., sections 1, 12, 13, 24, 25 and 36

Sources: Files of Ground Water Branch, U. S. G. S., Tucson and Agricultural Engineering Department, University of Arizona.

| Well Location | Owner | Driller and date drilled | Depth and diam. (ft;in) | Water level (ft) and date | Remarks |
|---|---|---|---|---|---|
| (D-17-12)1 baa | Pima Mining Co. | --; 8/54 | 570;13 to 5 | 230;8/54 | Exploration hole. Log; 0-185, alluvium; 185-200, residual conglomerate; 200-570, Quartzite (metamorphosed arkose). Elevation land surface 3317'. Analysis on file at U.S. G.S., either this location or 1 bab. |
| (D-17-12)1 bab | Pima Mining Co. | --; 1952 | -- | -- | Group of churn drill holes. Log, sketch and notes attached. |
| (D-17-12)1 bab | Pima Mining Co. | --; 4/54 | 500; -- | 290, -- | Log; 0-180, alluvium, 180-200, residual conglomerate; 200-500, bedrock (gray quartzite) Hit water at 290'. |
| (D-17-12)12 bcd | Turner | O.C. Robinson; 1954 | 1,300; 6 | 135.16, 9/54 | Rep't. 15 gpm with 22' drawdown. Hit seep at 135'. Hit water at 900', which rose to 120'. From "sort of sandstone." Elevation land surface 3450±. |
| (D-17-12)13 db | -- | -- | -- | 47.26, 3/47 | -- |
| (D-17-12)13 dd | M. Baird | -- | 100; -- | 85, 11/41 | Windmill. |
| (D-17-12)24 | No records available. | | | | |
| (D-17-12)25 ac | -- | -- | 90; -- | 76, 11/41 | -- |
| (D-17-12)36 c | -- | -- | 45; -- | 39, 11/41 | Dug well. Domestic use. Hand pump. |

Project 660

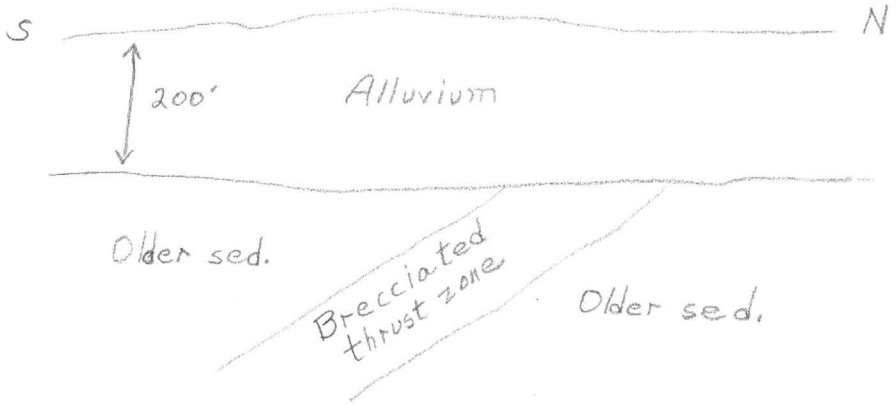
March 30, 1960

Well No. (D-17-12)1 bab
Owner: Pima Mining Co.

This is a group of mining churn drill holes, all within 1/4 mi.
Gen. log as follows:

| | |
|---|---|
| 0-200± | Alluvium of granitic, older sediment, and metamorphosed rocks. A little perched water at base, on top of bedrock. |
| 200-600- | Tilted, faulted, and fractured older sediment and volcanic rocks. of Permiam and Cretaceous age: ls., arkose, rhyolite, and altered flows. A south-dipping E N E striking thrust, highly mineralized with magnetite and chalcopyrite, was found. |

Below top of bedrock, there was a drier zone, then water increasing progressively. At 400 ft, pumpage was 200-250 gpm; at 600 ft, 600 gpm. Now stabilized at 350 ± gpm. In thrust zone, water concentrated along footwall.



Project 660

Records of wells in T. 17 S., R. 13 E., G. and S. R. B. and M.

Sources: Files of Ground Water Branch, U. S. G. S., Tucson, and Agricultural Engineering Department, University of Arizona.

| Well Location | Owner | Driller and date drilled | Depth and diam. (ft; in) | Water level (ft) and date | Remarks |
|---|---|---|---|---|---|
| (D-17-13)1 aba | L. R. Masek | McDaniel; 3/51 | 255; 20 | 71.0, -- | Partial log; 0-255, clay and gravel. Rep't. 600 gpm. |
| (D-17-13)1 cab | G. Altfillisch | McDaniel; 11/52 | 306; 16 | 121.81, 2/59 | Partial log; 0-306, Sand, clay and gravel. Rep't. 757 gpm with 88' drawdown. Water levels attached. |
| (D-17-13)1 cdc | G. Altfillisch | McDaniel; 12/52 | 311; 16 | 128.84, 2/58 | Partial log; 0-267, Sand, clay and gravel; 267-311, Conglomerate. Rep't. 937 gpm with 49' of drawdown. Water levels attached. |
| (D-17-13)6 aaa | Pima Mining Co. | Pistor; 4/59 | 87; -- | -- | Log; 0-24, Sand, gravel, some clay; 24-87, Clay, some sand and gravel. Did not hit ground water. |
| (D-17-13)6 cbd | Herrick | -- | -- | -- | Elev. 3245±. Rep't. dry. |
| (D-17-13)8 near center | E. C. Tuthill | Forsyth; 5/32? | 263; -- | -- | Log; 0-210, overburden; 210-263, red clay. Dry hole. |
| (D-17-13)8 near center | E. C. Tuthill | Forsyth; 5/32? | 143; -- | -- | Log; 0-140, overburden; 140-143, red clay. Dry hole. |
| (D-17-13)8 ac | E. C. Tuthill | -- | 280; -- | 230, 11/41 | Rep't. to be a windmill. |
| (D-17-13)10 db | Lewisohn | -- | 1150; 8 | 309.10, 2/59 | Mineral prospect. Log; 0-430, valley fill; 430-900, conglomerate; 900-1150, hardrock. 8" casing to 450'. Water levels attached. |
| ✓ (D-17-13)11 dc | Sahuarita School | Pistor; 10/57 | 445; 12 | 167.56, 10/57 | Partial log; 0-445, sand, red clay and gravel. Rep't. 350 gpm with 42' of drawdown. Water levels attached. |
| (D-17-13)12 db | Joe Lopez | Pistor; 5/58 | 210; 8 | 115, 5/58 | Partial log; 0-210, sand, gravel and red clay. |
| (D-17-13)12 dbc | J. E. Tyra | McDaniel; 6/58 | 200; 8 | 107, 6/58 | Partial log; 0-193, sand, clay and gravel; 193-200, hard conglomerate. |
| ✓ (D-17-13)13 ba | -- | -- | --; 6 | 80.70, 3/49 | U. S. G. S. quarterly observation well. Water levels attached. |

| Well Location | Owner | Driller and date drilled | Depth and diam. (ft;in) | Water level (ft) and date | Remarks |
|---|---|---|---|---|---|
| (D-17-13)13 bd | Eagle Pitcher Mill | Pistor;8/52 | 130; 6 | 95, 8/52 | Log: 0-75, pit; 75-85, red sandy clay; 85-130, loose sand. |
| (D-17-13)13 bad | F.H. Appleton | Pistor;1/58 | 190;8 | 105, 1/58 | Partial log; 0-190, sand, clay and gravel. |
| ✓(D-17-13)13 ddd | Rancho Oro Verde Inc. | --; 7/14 | 175; 16 | 35, -- | Partial log; 0-175, sand, clay, gravel and boulders. Rep't. 798 gpm 6-20-41 and 1030 gpm 4-9-52. |
| ✓(D-17-13)17 near center | Mrs. H. M. Spanagel | Forsyth;1932? | 353; 8 | 200, 4/32 | Log; 0-200, no record; 200-220, hard-rock; 220-353, hard cemented out-wash material. Water at 200 only a seep. 70 gpd more or less. No water found below 200. Rep't dry or plugged May 1947 by Dick Shaw. |
| ✓(D-17-13)17 caa | Mrs. Kreutzberg | Forsyth; -- | 350; -- | 213.35,1947 | Estimated elev. 3225'. Makes less than 1 gpd. |
| ✓(D-17-13)17 bd | Curlyhorn Ranch | -- | 350; -- | 325, 1941 | This is possibly a duplication of 17 caa or 17 near center. The depth to water doesn't sound right. DKG. |
| ✓(D-17-13)18 da | Mrs. Kreutzberg | -- | 220; -- | 168±1, 3/47 | Windmill. |
| (D-17-13)20 | Emmons | Pistor;1952? | 610; -- | Dry | Log attached. |
| (D-17-13)20 | L. Emmons | Forsyth;11/37 | 290; -- | Dry | Log; 0-3, clay; 3-273, sandy conglomerate; 273-290, hard yellow clay. |
| (D-17-13)21 bd | L. Emmons | Pistor; 3/37 | 456;6 5/8 | -- | No water level data. U of A questions the location. Possibly in sec. 20. Log attached. |
| ✓(D-17-13)21 bd | Mrs. Emmons | Wetmore; -- | 465; 6 or 8 | 422.68,2/47 | Analysis available TSS=513 ppm. Elevation of M.P. 3146.58'. Dick Shaw measured total depth of 452.5' 1-17-50. Water levels attached. |
| (D-17-13)21 cc | Mrs. Williams | Wetmore; 1932? | 508; -- | 460±,2/47 | First water at 500'. Driller thinks it rose to approx 450'. Pumps 10 min then must rest 1 hr. Rep't. dry at 485' 3/55. Elevation of M.P. 3167.69' Analysis available. TSS=382 ppm. Log attached. |

| Well Location | Owner | Driller and date drilled | Depth and diam. (ft; in) | Water level (ft) and date | Remarks |
|---|---|---|---|---|---|
| (D-17-13)22 aa | J. G. Beard, Jr. | B. Lord; 12/57 | 320; 5 | 255? 12/57 | Log; 0-160, sand and clay; 160-170, dry sand; 170-270, sand and clay, 270-320, water bearing sand and gravel. Water rose 15' during drilling. |
| (D-17-13)22 ba | Jas. Hazen | -- | 355? -- | 287.10, 1/47 | Log; hit rock at 240', water at 288'. Elevation of M. P. 2993.49'. Analysis available. TSS=388 ppm. Water levels attached. |
| (D-17-13)22 ba | Mrs. Eliz. Hazen | Adkins; 1946 | 306; 8 | 287, 1/47 | Rep't. struck limestone at 250. Water supposedly in crevices. Kinsley deepened in 1957 to 355'. Stayed in limestone. Crevice from 330-335, and at 355. Water level estimated at 312. Possibly same well as the first 22 ba. DKG. |
| (D-17-13)22 bc | G. Ainslie | Pistor; 11/31 | 410; 7 5/8 | 310, 11/31 | Analysis available. TSS=288 ppm. Elevation of M. P. 3046.47. Water levels attached. Log attached. |
| (D-17-13)22 da | Mrs. Emmons | -- | 370; 6 | 227.37, 1/47 | Elevation of M. P. 2932.05'. Log attached. Water levels attached. |
| (D-17-13)22 dac | Mrs. F. Emmons | McDaniel; 6/58 | 402; 8 | 281.14, 2/59 | Water level 287.28, 2/60. Log attached. |
| (D-17-13)23 ? | Mrs. E. Hazen | Kinsley; 1/57 | 325; 6 | 235, 1/57 | Elevation of M. P. 2897.59'. Water levels attached. Log attached. |
| (D-17-13)24 acc | Agricultural Products Co. | Pistor; 8/48 ? | 254; 20 | ? 71, 8/48 | Partial log; 0-254, sand, gravel and clay. Analysis available TSS=304 ppm Rep't. 1287 gpm. 6-20-41. Water levels attached. |
| (D-17-13)25 abb | Sahuarita Ranches Inc. | Pistor; 12/51 | 320; 20 | 47.78, 1/52 | Partial log; 0-320, sand, clay and gravel. |
| (D-17-13)25 bd | Kane | Pistor; 2/49 | 230; 16 | 54, 2/49 | Partial log; 0-230, sand, clay and gravel. Rep't. 1200 gpm. |

| Well Location | Owner | Driller and date drilled | Depth and diam. (ft; in) | Water level (ft) and date | Remarks |
|---|---|---|---|---|---|
| (D-17-13)25 ca | Sahuarita Ranches Inc. | Pistor; 11/51 | 320; 16 | 73, 11/51 | Partial log; 0-320, sand, clay and gravel. |
| (D-17-13)25 cc | Co-op Gin | Pistor; 3/55 | 202; 8 | 90, 3/55 | Partial log; 0-202, sand, clay and gravel. |
| (D-17-13)26 bd | M. Baird | Forsyth; 3/50 | 230; 6 5/8 | 125.99, 1/47 | Partial log; 0-130, dug well; 130-230, sand, clay and gravel. Analysis available. TSS=382 ppm. Elevation of M.P. 2830.02'. Water levels attached. |
| (D-17-13)26 cca? | Los Quintas Serenas Water Co. | Robinson; 9/57 | 320; 8 | 196.06, 2/58 | Partial log; 0-320, sand, clay and gravel. Struck water at 212'. Rose to 195'. Elevation of M.P. 2881.43'. Water levels attached. |
| (D-17-13)27 bc | M. Baird | Forsyth; 4/50 | 462; 6 | 325, 5/50 | Elevation of M.P. 3034.90'. Log attached. Water levels attached. |
| (D-17-13)28 bb | M. Baird | Forsyth; 6/42 | 467; 6 | 420, 6/42 | Rep't. hit water 425-430 and 445-452. Baird rep'ts well dry 1-27-50. Log attached. |
| (D-17-13)27 a | J. Blake | -- | 255; -- | -- | Log; 0-5, sandy soil; 5-237, loose sand little clay, caves; 237-255, white limestone. |
| (D-17-13)29 ? | J. Blake | Forsyth; 8/34 | 320; -- | Dry | Log; 0-3, sandy soil; 3-278, sandy clay conglomerate; 278-320, white lime rock. |
| (D-17-13)29 ? | J. Blake | Forsyth; 8/34 | 263; -- | Dry | Log; 0-5, sandy soil; 5-237, loose sandy conglomerate; 237-263, white lime rock. |
| (D-17-13)31 bb | Fay | -- | 140; -- | 125, 11/41 | Rep't. as being a mine shaft used for domestic water supply. |
| (D-17-13)35 ab | Siminoff | --; 1956 | -- | 142.85, 2/58 | Elevation of M.P. 2840.73'. Water level 147.66' 2/59 and 150.36' 2/60. |
| (D-17-13)35 ac | Itzweire | --; 1953 | --; 12 | 140.05, 2/54 | Elevation of M.P. 2837.85'. Water levels attached. |

| Well Location | Owner | Driller and date drilled | Depth and diam. (ft; in) | Water level (ft) and date | Remarks |
|---|---|---|---|---|---|
| (D-17-13)35 db | Itzweire | Pistor; 2/52 | 472; 16 | 116.91, 11/51 | Partial log; 0-472, sand, clay and gravel. Elevation of M. P. 2828.05'. Water levels attached. |
| (D-17-13)35 dc | Itzweire | Pistor; 1952 | 274; 8 | 119.20, 2/52 | Partial log; 0-274, sand, clay and gravel. Elevation of M. P. 2837.84. Water levels attached. |
| (D-17-13)35 ddd | Itzweire | Pistor; -- | 256; -- | 63.48, 1/47 | Partial log; 0-256, sand, clay and gravel. Elevation of M. P. 2795.34'. Rep't. to be a windmill. Water levels attached. |
| (D-17-13)36 add | Itzweire | Scott; 1942? | 158? 14 | 60.53, 1/53 | U of A rep'ts total depth as 200'. Rep't 570 gpm 8/49. |
| (D-17-13)36 bcc | Itzweire | Pistor; 2/42 | 254; 16 | 60, 1942 | Partial log; 0-254, sand, clay, boulders and gravel. Rep't. 940 gpm 8/49. |
| (D-17-13)36 cb | J. Bull | Pistor; 3/49 | 254; 12 | 68, 3/49 | Partial log; 0-254, sand, clay, boulders and gravel. |
| (D-17-13)36 dc | R. A. Land | Pistor; 11/41 | 209; 12 | 49, -- | Partial log; 0-209, sand, clay, silt, boulders and gravel. Rep't. 1000 gpm. |

Additional remarks:

1. There is more information in the files for sections 1, 12, 13, 24, 25, 35 and 36. For tabulating purposes it was not used as it is either a duplication of material already tabulated or it has no value.

2. Partial log was used when the entire section penetrated consisted of alternating layers of sand, gravel, clay, boulders, etc. A more complete log is on file.

March 29, 1960

Proj. 660

Drillers' logs of wells in T. 17 S., R. 13 E.

Source: Ag. Engr. Dept., Univ. of Arizona, and U.S.G.S.

| | | |
|---|---|---|
| Well (D-17-13) 20 | 0-3 | Sandy soil |
| Owner: Emmons | 3-10 | Hard dark brown sandy clay |
| | 10-83 | Yellow sandy clay |
| | 83-104 | Boulders and clay |
| | 104-280 | Yellow sandy clay |
| | 280-320 | Boulders and clay |
| | 320-360 | Cemented boulders and gravel |
| | 360-380 | Cemented boulders and gravel brown |
| | 380-450 | Cemented boulders |
| | 450-470 | Conglomerate, solid |
| | 470-507 | Conglomerate, hard |
| | 507-522 | Cemented boulders |
| | 522-610 | Conglomerate |
| | Reported dry hole | |
| Well (D-17-13)21 bd | 0-235 | Sand, gravel, boulders |
| Owner: L. Emmons | 235-300 | Sand, shale |
| | 300-325 | Hard blue lime |
| | 325-340 | Hard sand |
| | 340-360 | Brown sand clay |
| | 360-370 | Hard granite |
| | 370-395 | Sand, brown clay |
| | 395-420 | No record |
| | 420-430 | Hard granite |
| | 430-440 | Sand and brown shale |
| | 440-445 | Sand, gray |
| | 445-450 | Sand |
| | 450-456 | Broken formation |
| Well (D-17-13)21 cc | 0-350 | Soil, cemented outwash of clay, sand and gravel |
| Owner: Mrs. Williams | 350-460 | Cemented material with rock and boulders up to 8" dia. Driller says had to case this as boulders would break loose. |
| | 460-500 | Limy sandstone or shale. Driller thinks it porous and could carry water. Also thinks this formation stands on edge. Hit water at bottom of this stratum. |

| | | |
|---|---|---|
| | 500-506-8 | Granite or syenite. Went into it far enough to make sure it was solid rock. |
| Well (D-17-13)22 bc<br>Owner: G. Ainslie | 0-50 | Brown clay, gravel and sand |
| | 50-55 | Brown clay and coarse gravel |
| | 55-115 | Clay and gravel |
| | 115-135 | Clay and sand |
| | 135-150 | Clay and gravel |
| | 150-175 | Clay and sand |
| | 175-187 | Clay and gravel |
| | 187-250 | White talc and blue lime rock |
| | 250-262 | White talc |
| | 262-264 | Blue limestone |
| | 264-280 | White talc and blue limestone |
| | 280-285 | Red talc |
| | 285-300 | White talc and blue limestone |
| | 300-307 | Yellow talc |
| | 307-322 | Red talc |
| | 322-350 | White talc and blue limestone |
| | 350-362 | Red talc and blue limestone |
| | 362-370 | White talc and blue limestone |
| | 370-410 | Red quartz with little red talc |
| Well (D-17-13)22 da<br>Owner: Mrs. Emmons | 0-2 | Red clay and gravel |
| | 2-80 | Soft sandy yellow clay conglomerate |
| | 80-95 | Gravelly clay conglomerate |
| | 95-125 | Soft yellow clay conglomerate |
| | 125-140 | Gravelly conglomerate |
| | 140-240 | Soft sandy clay conglomerate |
| | 240-285 | Sand and gravel, soft (water) |
| | 285-340 | Soft silty sand |
| | 340-350 | Sand and gravel (water) |
| | 350-360 | Soft sandy conglomerate |
| | 360-370 | Yellow clay conglomerate, carries gravel |
| Well (D-17-13)22 dac<br>Owner: Mrs. Frances Emmons | 0-3 | Sandy soil |
| | 3-15 | Sandy clay |
| | 15-125 | Conglomerate |
| | 125-135 | Clay |
| | 135-290 | Gravelly clay |
| | 290-325 | Muddy sand and water |
| | 325-335 | Clay |
| | 335-360 | Gravelly clay |
| | 360-390 | Muddy gravel and water |
| | 390-402 | Clay |

| | | |
|---|---|---|
| Well (D-17-13) 23 | 0-25 | Top soil and clay |
| Owner: Mrs. | 25-100 | Alluvium |
| Elizabeth Hazen | 100-235 | Alluvial fill |
| | 235-290 | Sand and gravel |
| | 290-295 | Caliche ledge |
| | 295-325 | Silt and sand |
| Well (D-17-13)27 bc | 0-2 | No record |
| Owner: Matthew | 2-35 | Sandy brown conglomerate |
| Baird | 35-45 | Sandy gray conglomerate |
| | 45-115 | Brown sandy clay |
| | 115-330 | Sandy brown conglomerate, uniform overburden |
| | 330-335 | Sand and gravel-water |
| | 335-345 | Very sandy conglomerate |
| | 345-375 | Muddy sand and gravel-water |
| | 375-385 | Fine sand and gravel-water |
| | 385-390 | Rocky clay conglomerate |
| | 390-405 | Hard cemented clay conglomerate |
| | 405-425 | Brown clay conglomerate |
| | 425-435 | Sand and gravel-water |
| | 435-462 | Hard gray clay conglomerate |
| Well (D-17-13)28 bb | 0-3 | Red clay |
| Owner: Matthew | 3-365 | Sandy gravelly conglomerate |
| Baird | 365-425 | No log |
| | 425-430 | Loose sand and gravel-water |
| | 430-445 | Hard cemented conglomerate |
| | 445-452 | Sand and gravel-water |
| | 452-462 | Hard quartz and limestone |
| | 462-466 | Yellow clay |
| | 466-467 | Hard blue-white limestone (bedrock) |

March 29, 1960

Proj. 660

Records of water-level measurements in wells in T. 17 S., R. 13 E.

Source: Files of Ground Water Branch, U.S.G.S., Tucson and Agricultural Engineering Department, University of Arizona

| Well location | Owner | Depth to water (ft) | Date |
|---|---|---|---|
| (D-17-13)1 cab | Gus Altfillisch | 108.85 | 2/53 |
| | | 199.8 (pumping) | 7/53 |
| | | 112.6 | 1/54 |
| | | 112.89 | 2/55 |
| | | 113.05 | 2/56 |
| | | 116.51 | 2/57 |
| | | 118.95 | 2/58 |
| | | 121.68 | 2/59 |
| | | 121.81(pumping nearby) | 2/59 |
| (D-17-13)1 cdc | Gus Altfillisch | 109.91 | 2/53 |
| | | 162.9 (pumping) | 7/53 |
| | | 117.12 | 1/54 |
| | | 116.98 | 2/55 |
| | | 118.29 | 2/56 |
| | | 123.09 | 2/57 |
| | | 128.84 (pumped recently?) | 2/58 |
| (D-17-13)10 db | Lewisohn | 305.6 | 2/58 |
| | | 309.10 | 2/59 |
| | | 312.14 | 2/60 |
| (D-17-13)11 dc | Sahuarita School | 167.56 | 10/57 |
| | | 168.69 | 2/58 |
| | | 172.73 | 2/59 |
| | | 175.69 | 2/60 |
| (D-17-13)13 ba | -- | 80.70 | 3/49 |
| | | 83.02 | 2/50 |
| | | 84.78 | 1/51 |
| | | 88.04 | 2/52 |
| | | 92.22 | 1/53 |
| | | 100.20 | 2/54 |
| | | 93.60 | 1/55 |
| | | 99.40 | 1/56 |
| | | 97.51 | 1/57 |
| | | Dry | 7/57 |

| | | | |
|---|---|---|---|
| (D-17-13)21 bd | Mrs. Emmons | 422.68 | 2/47 |
| | | 424.75 | 3/48 |
| | | 422.90 | 3/49 |
| | | 422.2 | 1/50 |
| | | 422.85 | 3/51 |
| | | 423.25 | 2/52 |
| | | 423.90 | 2/53 |
| | | 421.35 | 2/55 |
| | | 424.55 | 2/56 |
| | | 426.46 | 3/57 |
| | | 427.42 | 2/59 |
| (D-17-13)22 ba | Jas. Hazen | 287.10 | 1/47 |
| | | 287.78 | 2/47 |
| | | 288.74 | 3/48 |
| | | 290.46 | 2/49 |
| | | 292.40 | 2/50 |
| | | 294.13 | 3/51 |
| | | 296.02 | 2/52 |
| | | 299.80 | 2/53 |
| | | 305.32 | 2/54 |
| | | Dry at 310 | 2/55 |
| | | 314.09 | 3/57 |
| | | 317.30 | 2/58 |
| | | 320.87 | 2/59 |
| | | 324.01 | 2/60 |
| (D-17-13)22 bc | -- | 352.43 | 2/47 |
| | | 334.76 | 3/48 |
| | | 343.00 | 2/49 |
| | | 344.90 | 2/50 |
| | | 346.80 | 3/51 |
| | | 349.10 | 2/52 |
| | | 352.44 | 2/53 |
| | | 357.40 | 2/54 |
| | | 335.7 ? | 2/55 |
| | | 362.96 | 2/56 |
| | | 369.56 | 3/57 |
| | | 370.52 | 2/58 |
| | | 373.61 | 2/59 |
| (D-17-13)22 da | Mrs. Emmons | 227.37 | 1/47 |
| | | 229.23 | 3/48 |
| | | 230.92 | 2/49 |
| | | 231.90 | 2/50 |
| | | 233.41 | 3/51 |

| | | | |
|---|---|---|---|
| | | 235.49 | 2/52 |
| | | 239.31 | 2/53 |
| | | 244.77 | 2/54 |
| | | 246.86 | 2/55 |
| | | 253.60 | 3/57 |
| (D-17-13)23 ? | Mrs. E. Hazen | 222.33 | 3/57 |
| | | 225.01 | 2/58 |
| | | 228.68 | 2/59 |
| | | 232.50 | 2/60 |
| (D-17-13)24 acc | Agricultural Products Co. | 57.54 | 2/46 |
| | | 66.88 | 1/52 |
| (D-17-13)26 bd | M. Baird | 125.99 | 1/47 |
| | | 125.11 | 3/47 |
| | | 126.70 | 3/48 |
| | | 129.26 | 6/48 |
| | | 131.32 | 10/48 |
| | | 128.04 | 2/49 |
| | | 131.12 | 7/49 |
| | | 132.10 | 10/49 |
| | | 129.50 | 2/50 |
| | | 131.7 | 3/51 |
| | | 133.14 | 7/51 |
| | | 133.10 | 2/52 |
| | | 137.68 | 2/53 |
| | | 142.70 | 2/54 |
| | | 142.89 | 2/55 |
| | | 145.55 | 2/56 |
| | | 151.97 | 3/57 |
| | | 153.02 | 2/58 |
| | | 157.48 | 2/59 |
| | | 158.98 | 2/60 |
| (D-17-13)26 cca? | Los Quintas Serenas Water Co. | 196.06 | 2/58 |
| | | 200.11 | 2/59 |
| | | 203.39 | 2/60 |
| (D-17-13)27 bc | M. Baird | 325.25 | 5/50 |
| | | 326.39 | 3/51 |
| | | 328.93 | 2/52 |
| | | 332.80 | 2/53 |
| | | 337.35 | 2/54 |
| | | 340.76 | 2/55 |
| | | 343.07 | 2/56 |

| | | | |
|---|---|---|---|
| | | 348.18 | 3/57 |
| | | 350.78 | 2/58 |
| | | 354.51 | 2/59 |
| | | 357.55 | 2/60 |
| (D-17-13)35 ac | Itzweire | 140.05 | 2/54 |
| | | 138.00 | 2/55 |
| | | 143.56 | 2/56 |
| | | 145.55 | 2/58 |
| | | 151.02 | 2/59 |
| | | 153.96 | 2/60 |
| (D-17-13)35 db | Itzweire | 116.91 | 11/51 |
| | | 115.21 | 2/52 |
| | | 120.44 | 2/53 |
| | | 130.04 | 2/54 |
| | | 126.69 | 3/55 |
| | | 136.13 | 2/58 |
| | | 142.42 | 2/59 |
| | | 144.14 | 2/60 |
| (D-17-13)35 dc | Itzweire | 119.20 | 2/52 |
| | | 123.60 | 2/53 |
| | | 131.85(pumping) | 2/54 |
| | | 130.48 | 3/55 |
| | | 136.11 | 2/58 |
| | | 146.62 | 2/59 |
| | | 149.18 | 2/60 |
| (D-17-13)35 ddd | Itzweire | 63.48 | 1/47 |
| | | 65.21 | 3/48 |
| | | 66.84 | 2/49 |
| | | 68.25 | 2/50 |
| | | 71.61 | 3/51 |
| | | 74.91 | 2/52 |
| | | 89.70 | 2/54 |
| | | 87.19 | 3/55 |
| | | 89.65 | 2/56 |
| | | 98.13 | 2/58 |
| | | 104.18(pumping) | 2/59 |
| | | 105.90 ? | 2/60 |

Project 660

Records of wells in T. 16 S., R. 13 E., sections 31, 32, 33, 34, 35 and 36

Sources: Files of Ground Water Branch, U. S. G. S, Tucson and Agricultural Engineering Department, University of Arizona.

| Well Location | Owner | Driller and date drilled | Depth and diam. (ft;in) | Water level (ft) and date | Remarks |
|---|---|---|---|---|---|
| (D-16-13)31 a | T. Gibbings | Forsyth;1930? | 218;-- | Dry | Little seep at 195'. Rep't as dry hole. Log attached. |
| (D-16-13)32 | No records available | | | | |
| (D-16-13)33 | No records available | | | | |
| (D-16-13)34 abb | A S and R | Winninger; 1956 | 720;8 | 220.5,1957 | Log as rep't by Jack Clark; 0-350, overburden; 350-720, San Xavier Conglomerate. Analysis available. TSS = 370 ppm. Rep't 420 gpm with 9.4' drawdown. Water level 225.1' 2/59 and 228.64' 1/60. |
| (D-16-13)35 aaa | G. Carey | Pistor;3/57 | 181;8 | 128, 3/57 | Log attached. |
| (D-16-13)35 ac | G. Carey | McDaniel; 3/52 | 300;12 | 139,3/52 | Rep't 840 gpm with 42.5' of drawdown. Log and water levels attached. |
| (D-16-13)35 da | -- | -- | 170;-- | 110, 11/41 | Rep't to be a windmill. Elevation land surface 2730 ±. |
| (D-16-13)36 aab | Pima Mining Co. | Freelove;3/55 | 300;21 | 72.7[illegible] 7/56 | Rep't 1380 gpm with 71' drawdown. Elevation land surface 2663'. |
| (D-16-13)36 aca | Pima Mining Co. | Freelove;1/55 | 300;21 | 75.25 7/56 | Rep't 1200 gpm with 250' drawdown? Elevation land surface 2665±. |
| (D-16-13)36 ada | Pima Mining Co. | Freelove;2/55 | 300;21 | 76.9, 7/56 | Rep't 1690 gpm with 109' drawdown. Elevation land surface 2667±. |
| (D-16-13)36 bb | D. B. Valencia | -- | 110;50 | 107.39,10/39 | Dug well. Windmill. |
| (D-16-13)36 cb | Torington | -- | 114;48 | 109.88,10/39 | Dug well. |
| (D-16-13)36 ddd | M. M. Sundt | Pistor;11/52 | 275;20 | 72, 11/52 | Log attached. |
| (D-16-13)36 ddd | Masek | -- | -- | 58.69, 1/47 | Elevation of M.P. 2676.38'. Water levels attached. |

March 30, 1960

Project 660

Records of water-level measurements in T. 16 S., R. 13 E., sections 31, 32, 33, 34, 35 and 36.

Source: Files of Ground Water Branch, USGS, Tucson and Agricultural Engineering Department, University of Arizona

| Well location | Owner | Depth to water (ft) | Date |
|---|---|---|---|
| (D-16-13)35 ac | G. Carey | 140.99 | 6/52 |
| | | 145.1 | 1954 |
| | | 146.33 | 1955 |
| (D-16-13)36 ddd | Masek | 58.69 | 1/47 |
| | | 61.03 | 3/47 |
| | | 67.33 | 7/47 |
| | | 61.42 | 10/47 |
| | | 59.45 | 2/48 |
| | | 70.25 | 6/48 |
| | | 67.31 | 10/48 |
| | | 61.58 | 2/49 |
| | | 74.25 | 6/49 |
| | | 66.86 | 10/49 |
| | | 62.70 | 2/50 |
| | | 65.12 | 11/50 |
| | | 63.49 | 3/51 |
| | | 77.15 | 7/51 |
| | | 66.59 | 2/52 |

March 30, 1960

Project 660

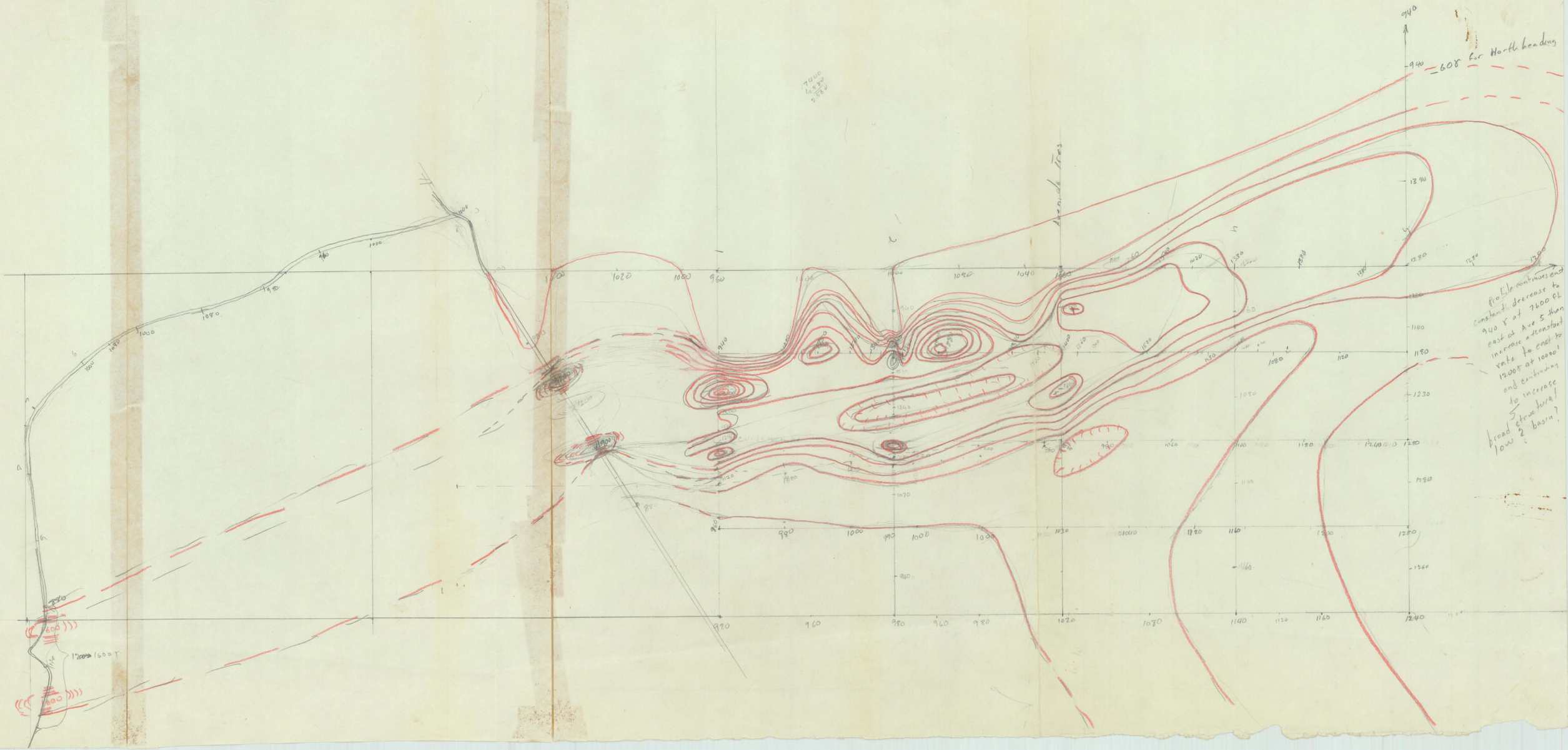
Drillers' logs of wells in T. 16 S., R. 13 E.

Source: Ag. Engr. Dept., Univ. of Arizona, and U. S. G. S.

| | | |
|---|---|---|
| Well (D-16-13)31 a | 0-10 | Granite conglomerate |
| Owner: Tom Gibbings | 10-30 | Caliche (white) |
| | 30-32 | Large granite boulders |
| | 32-40 | Granite conglomerate and clay (white) |
| | 40-43 | Large boulders |
| | 43-44 | Blue mud |
| | 44-105 | Granite conglomerate and clay (white) |
| | 105-110 | Sand, loose |
| | 110-145 | Clay (white, no gravel) |
| | 145-195 | Granite conglomerate |
| | 195-200 | No. 1 red rock-seepage |
| | 200-218 | No. 1 red clay |
| Well (D-16-13)35 aaa | 0-3 | Topsoil-sandy |
| Owner: Gene Carey | 3-4 | Black clay |
| | 4-15 | Sandy clay |
| | 15-18 | Red clay |
| | 18-130 | Sandy clay |
| | 130-135 | Sand and gravel, water at 128 ft. |
| | 135-181 | Red sandy clay-soft |
| Well (D-16-13)35 ac | 0-5 | Sandy soil |
| Owner: Gene Carey | 5-73 | Gravel |
| | 73-150 | Brown clay |
| | 150-220 | Clayey gravel and water |
| | 220-290 | Gravel w/ increasing clay |
| | 290-300 | Sticky clay, sandy and hard |
| Well (D-16-13)36 ddd | 0-135 | Old well |
| Owner: M. M. Sundt | 135-142 | Sand and gravel |
| | 142-160 | Red clay |
| | 160-166 | Cemented gravel |
| | 166-195 | Red clay-sticky |
| | 195-215 | Cemented gravel-hard |
| | 215-230 | Red clay, very sticky |
| | 230-235 | Cemented gravel |
| | 235-250 | Red clay-very sticky |
| | 250-275 | Red clay-very sticky |

SCALE - 1" = 1000'F

(c/o Banner) 3/60


940
940
608 for North heading
profile continues and constant decrease to 940 ft at 7600 ft east at Ave 5 then increase at constant rate to east to 1200 ft at 10000' and continuing to increase
broad shallow low 2 basin?
1200 ft
1600 ft
1600

10-15-62

# A MAGNETIC APPLICATION IN GROUND WATER STUDIES.

In a subdivision southwest of Tucson, Arizona, the owner of two lots desired advice and help as to availability and/or potential of water for a well on his property. The problem was to determine the overall water potential in Sections 17 and 18 and, particularly, the relative favorability of Lot 5 versus Lot 18 in Section 17.

Water production data in the immediate area was meagre and limited to very small producers. However, a few holes were available for measurement of static water level, and excellent producers exist a mile or two to the north and east nearer the Santa Cruz river valley. This area is on the west side of the valley, is completely alluvial covered, but lies just east of an alluvial - outcrop boundary. See Plate —.

Static water level gradient is essentially easterly with some northward component. A major andesite dike or sill is known from exposures on and near Twin Buttes Road in Section 13. To properly evaluate the water possibilities in the desired area it was felt desirable to know whether the andesite extended into the area, and if so its accurate location, as it might (relative to the enclosing fanglomerate) act as an impermeable dam to ground water movement.

As shown, it was a simple objective to magnetically trace this feature across the property. Using the track mounted, continuous recording, total intensity magnetometer, profiles were obtained in two hours over all the roads of subdivided sections 17 and 18 as well as adjacent roads. Results confirmed the existence of the andesite in both sections and following an arcuate pattern such that it underlies Lot 5. This information was most important as it excluded the possibility of a thick section of alluvium below the water table under Lot 5.

1. Picture of MoMag
2. Copy of this portion of Cooper's Map
3. Plate showing andesite outcrops, roads, subdivision lots, MoMag coverage.
4. Plate showing magnetic contours.

Water-level measurements. March 24, 1960

Project 660

(D-17-13) 8ccc

Drill hole. Water level 148.5′ below top of 2 in. pipe which is 1 ft. above land surface.
Measured with sounder.

(D-17-13) 8 dcc

A S & R well. Man at house says too tight to measure
Pistor worked well over about 1 month ago.
Water level reported approximately 240′.

(D-17-13) 9 bbd

Drill hole. Banner DDH 238, SEC Ida No. 2
Water level 279 ft. below top of 2 in. pipe which is at land surface.
Measured with sounder.

(D-17-13) 9 cca

Drill hole. Banner RDH 69, SEC Ida No. 18
Water level 296 ft. below top 2 in. pipe which is 1 ft. above land surface.
Measured with sounder.

(D-17-13) 16 bcb

Drill hole. NWC A. Sul No. 16
Banner DDH. 235. Tape and sounder hang at 300 ft.
No water this depth.

(D-17-13) 17 aac

Drill hole. NEC Chico No. 13 or SEC Chico No. 14
Too much moisture for tape. Water level 260′ below top of 2 in. pipe which is 1 ft. above land surface.
Measured with sounder.

(D-17-13) 17 abc

Drill hole. NEC Chico No. 9 or SEC Chico No. 10.
Water level 221.92 ft. below top of 2 in. pipe which is 1 ft. below land surface. Spotty on tape.
Checked with sounder.

(D-17-13) 17 bcb

Rig on hole. Deepening.

Water-level measurements. March 24, 1960

continued.

(D-17-13) 17 bdd

Abandoned well. Lot 28 A.
Water level 211.88′ below hole north side of pump base
which is 0.5′ above land surface.
Measured with tape.

(D-17-13) 17 caa

Drill hole between El Rancho No. 3 and El Rancho No. 4
Casing pulled. Plugged at 68 ft.

(D-17-13) 18 adc

Drill hole between Wed. No. 8 and Tue. No. 8
Water level 105 ft. below top of 2 in. pipe which is at land surface.
Measured with sounder.

(D-17-13) 18 cbc

Drill hole. Water level 41.54 ft. below land surface.
Casing pulled. Measured with tape.

(D-17-13) 18 daa

Windmill. Water level 160.01′ below top of clamp which is
2.0′ above surface. Had been pumping.
Off about 10 minutes. Measured with tape.

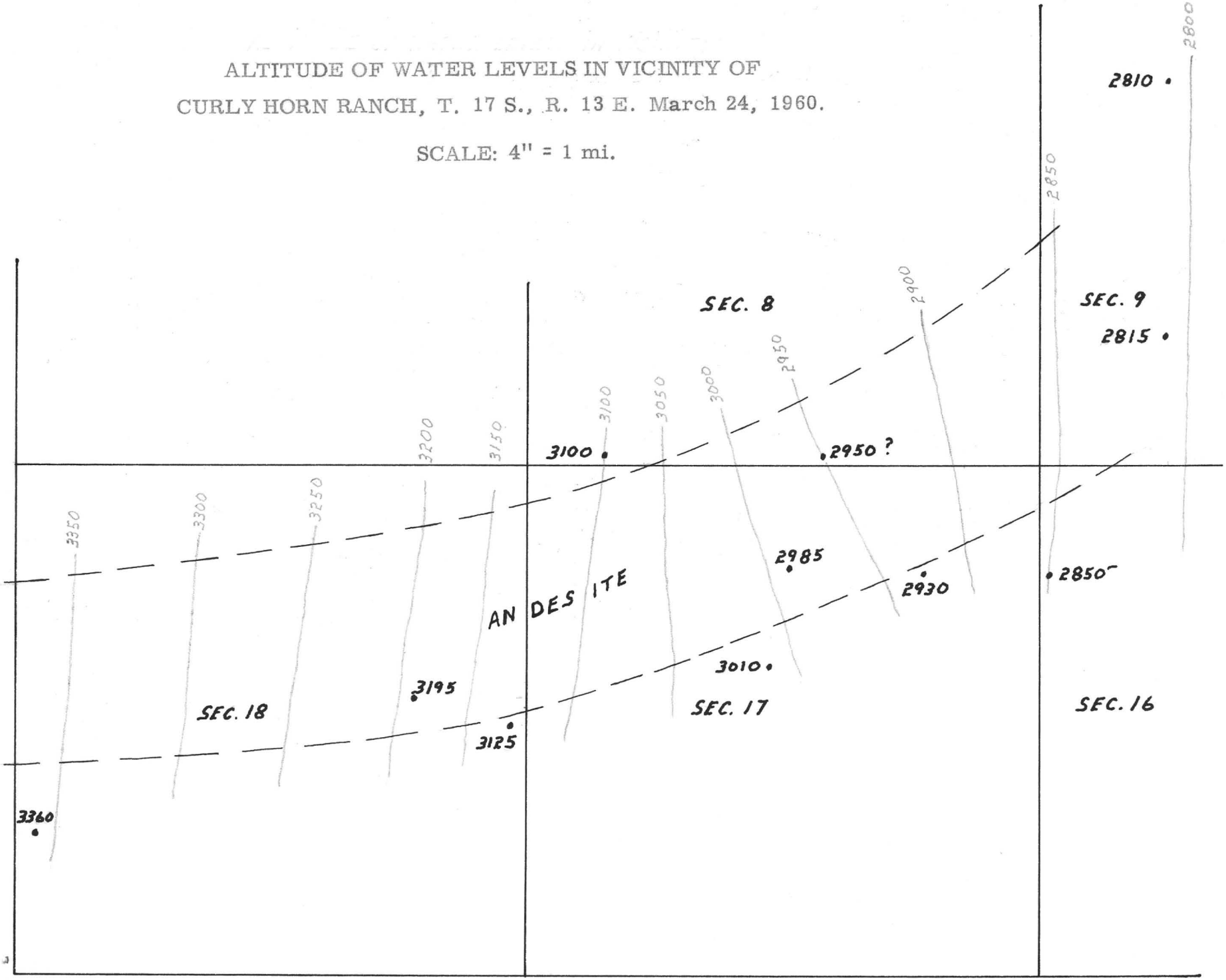
(D-17-13) 18 ddb

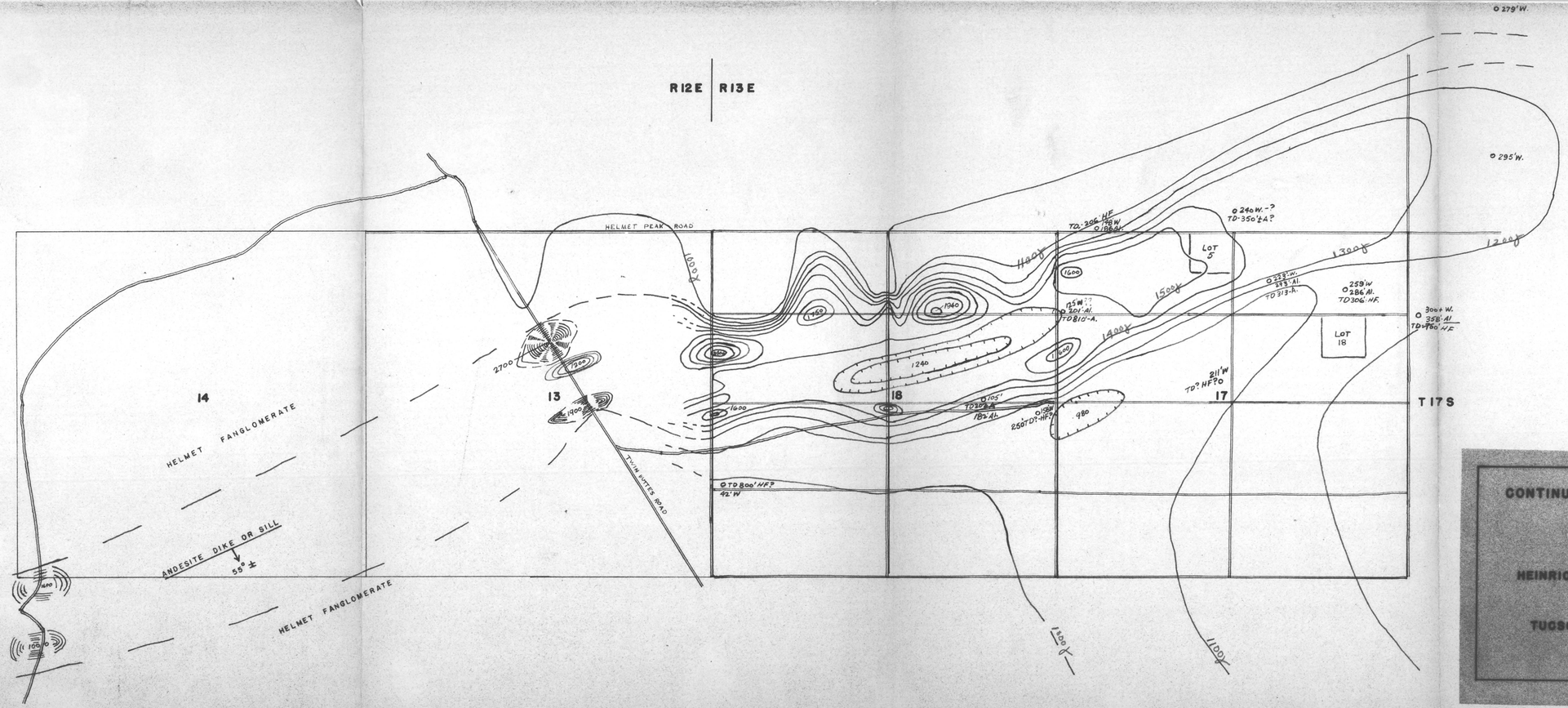
Drill hole between Tue. No. 11 and Wed. No. 11
Cannot locate

Project 660

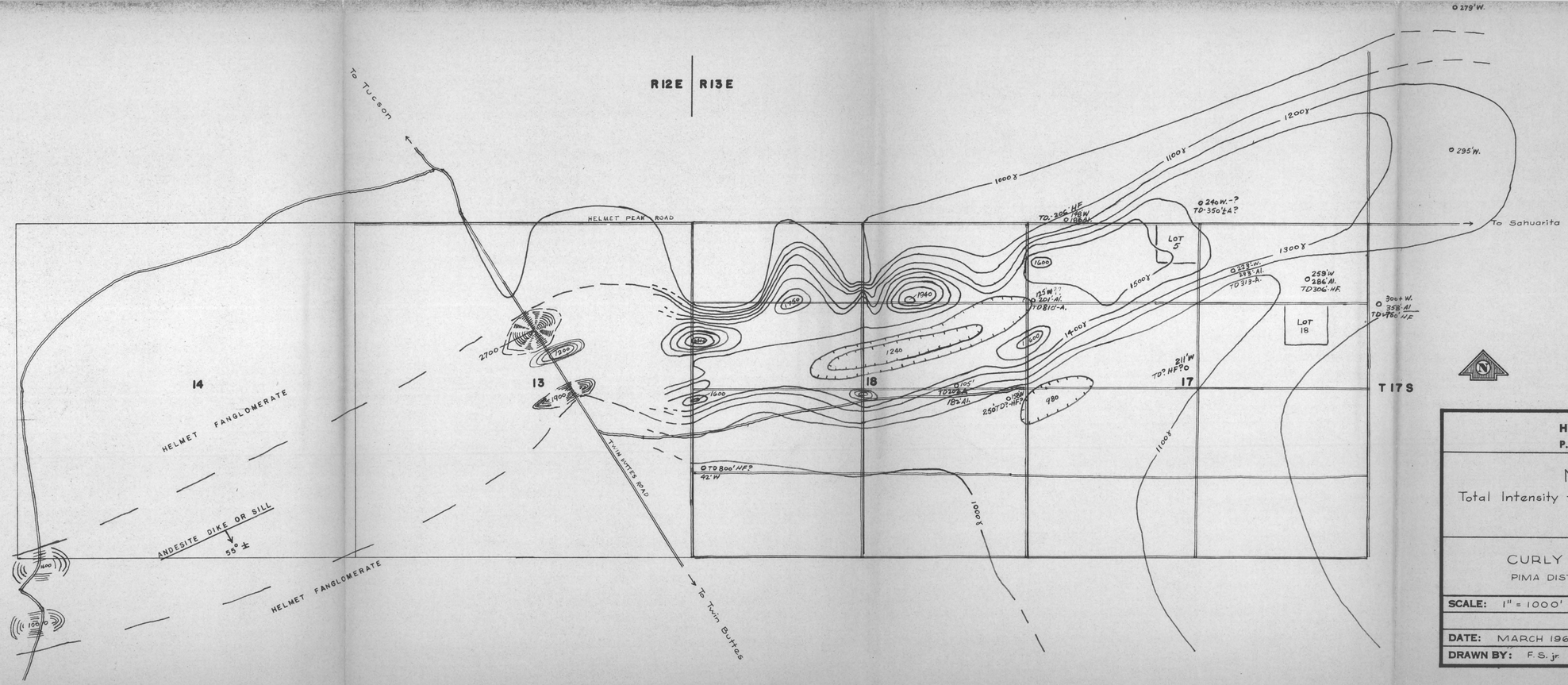
ALTITUDE OF WATER LEVELS IN VICINITY OF
CURLY HORN RANCH, T. 17 S., R. 13 E. March 24, 1960.

SCALE: 4" = 1 mi.






CONTINUOUS RECORD MOBILE MAGNETOMETER
TOTAL INTENSITY
MAGNETIC CONTOURS
BY
HEINRICHS GEOEXPLORATION COMPANY
PIMA DISTRICT
TUCSON, ARIZONA MARCH 1960
100 GAMMA CONTOUR INTERVAL




**HEINRICHS GEOEXPLORATION COMPANY**

P.O. Box 5671 Tucson, Arizona

# MAGNETIC MAP

Total Intensity from continuous Profiles by Mobile Magnetometer

FOR

## CURLY HORN RANCHES & VICINITY

PIMA DISTRICT PIMA COUNTY, ARIZONA

| | | |
|---|---|---|
| SCALE: 1" = 1000' | CONTOUR INTERVAL: 100 γ | REVISIONS |
| | DATA BY: J. W. M. | |
| DATE: MARCH 1960 | SHEET OF | |
| DRAWN BY: F. S. jr. | DRAWING NO.: | FILE: |

## A MAGNETIC APPLICATION IN GROUND WATER STUDIES

General problem here was to determine overall water potential in Sections 17 & 18 and particularly, the relative favorability of lot 5 versus lot 18 in Section 17. Production data in the immediate area was meagre and limited to very small producers. However, quite a few holes were available for measurement of static water level and excellent producers existed a mile or two to the north and east nearer the bottom of the Santa Cruz river valley. This area is on the west side of the valley and is completely alluvial covered but is immediately east of the alluvial outcrop boundary as noted on the accompanying map.

Static water level gradient is presented by dashed line contours and is essentially easterly with some variation effected by the andesite dike. Though not shown, considerable northerly gradient, north of the area is expected since the river flows in that direction and is further evidenced by the good producers in that direction.

The major andesite dike or sill was known from exposure on Twin Buttes Road. As shown, it was a simple objective to magnetically trace this feature across the property. This was done in a few hours by using the continuous recording mobile magnetometer. Results confirming the existence of the dike across the property were most important as this indicated that the possibility of a thick section of alluvium below the water table is nil, and therefore the probability of a large shallow producer from the alluvium is very poor. Of course, a large deep producer is possible, especially south of the dike in the Helmet fauglomerate at an order of magnitude depth of about 700' or 800 ' or deeper. Porosity and permeability of the andesite is suggested to be less than the fauglomerate, therefore lot 18 is to be preferred over lot 5 for small shallower producers.

Supplemental resistivity work was not done but should aid considerably in further dileneating the possibilities in the area in more detail.

Registered Professional Engineer
CERTIFICATE EXPIRES
WALTER E. HEINRICHS, JR.
DEC. 31, 19
ARIZONA, U. S. A.

Walter E. Heinrichs, Jr.

WEH:jh
August 28, 1961

March 26, 1960

Mr. Forest Seaman
2774 E. 22nd Street
Tucson, Arizona

Dear Forest:

This is a letter resume of professional services on potential well site location and preliminary ground water appraisal, Seaman Curly Horn Ranches, Lots 5 and 18, Section 17, T 17 S, R 13 E, Pima County, Arizona.

Lot 5 - 200' to water ± - probable 1 gal./minute ± ?
200' of alluvium ± or overburden to Andesite bedrock
Minimum drill hole depth - 300"

Lot 18 - 275' to water ± - probable 1-2 gal./minute ± ?
possible 5-10 gal./minute ± ?
300' of alluvium ± or overburden to Helmet Fanglomerate bedrock
Minimum drill hole depth - 375'-400'

Possibility of measureably more water with increased depth or hole below recommended minimums, but maximum potential or amount of increase not predictable at present. At least 700' - 1000' for possibility of any appreciable increase.

Very truly yours,

HEINRICHS GEOEXPLORATION COMPANY

Walter E. Heinrichs Jr.

cc: copy of map
WEH/pr

Registered Professional Engineer (Mining)
CERTIFICATE EXPIRES
WALTER E.
HEINRICHS, JR.
DEC. 31, 1960
ARIZONA, U. S. A.

March 26, 1960

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200' of alluvium ± or overburden to Andesite bedrock
Minimum drill hole depth - 300'

Lot 18 - 275' to water ± - probable 1-2 gal./minute ± ?
possible 5-10 gal./minute ± ?
300' of alluvium ± or overburden to Helmet Fanglomerate bedrock
Minimum drill hole depth - 375'-400'

Possibility of measureably more water with increased depth or hole below recommended minimums, but maximum potential or amount of increase not predictable at present. At least 700' - 1000' for possibility of any appreciable increase.

Very truly yours,

HEINRICHS GEOEXPLORATION COMPANY

Walter E. Heinrichs Jr.

cc: copy of map
WEH/pr

Registered Professional Engineer (Mining)
CERTIFICATE EXPIRES
WALTER E.
HEINRICHS, JR.
DEC. 31, 19 60
ARIZONA, U. S. A.

March 26, 1960

# STATEMENT

to: Mr. Forest Seaman
2274 E. 22nd Street
Tucson, Arizona

---

Re: Professional Services; Potential well site location and preliminary ground water appraisal, Lots 5 and 18, Section 17, T 17 S, R 13 E, Pima County, Arizona - March 11, 1960 - March 25, 1960.

---

Original estimate of cost: $500.00

| | |
|---|---|
| Research at University of Arizona and U. S. Geological Survey | $125.00 |
| Research from Mining Companies | 50.00 |
| Mobile Magnetometer detail of andesite location | 100.00 |
| Measure wells in area | 75.00 |
| | $350.00 |
| Expenses: Maps, plats, etc. | 4.43 |
| | $354.43 |
| Misc. office consultations @ $10.00 per hour | N.C. |
| Total | $354.43 |
| Less Advance, 3/14/60 | 200.00 |
| Balance due | $154.43 |

January 12, 1960

Mr. Wayne C. Clampitt
186 N. Meyer Street
Tucson, Arizona

Re: Curley Horn Ranches
Water procurement project
Pima County, Arizona

Dear Mr. Clampitt:

We recommend the following approach to try to successfully develop an adequate water supply for 240 homes known as the Curley Horn Ranches, located in all of Sections 17 & 18, T17S, R13E, GSRB&M, Pima County, Arizona.

The water development program should be divided into three phases:

PHASE I Geological - Hydrological

On the ground examination and data correlation @ $100.00/day
estimated cost----------$300.00

PHASE II Geophysical Survey

a) Magnetic Survey

Based strictly on and subject to the findings of Phase I, a geophysical program may be recommended which would consist of a mobile magnetic survey to outline several magnetically suseptible structural expressions which are known to exist in Section 18 and possibly extend to Section 17 and when correlated with the existing drill data, would certainly have bearing on the location of a favorable drill site. @ $250.00/day, estimated cost---$250.00

b) Resistivity Survey

The objective would be to measure the electrical resistance character of the subsurface at several selected points of which one location is near a good producing well in the general areal
@ $250.00/day
Estimated cost ----------$750.00

PHASE III Drilling Supervision
@ $10.00/hour
Estimated cost----------$150.00
Total estimated cost----------$1450.00

PLUS vehicle expenses of $7.50 per day per vehicle and $0.10 per mile traveled.

Each phase would of course be dependent and conditional to the results obtained by the previous phase and conceivably a considerable reduction in cost could be effected if in our opinion sufficient data is secured at any stage of the investigations.

Prior to sending any crew to the field, it is our custom to require a deposit of 50% (fifty percent) of the total estimated cost. The amount in this instance will be $750.00.

I believe this information will be sufficient. However, if you require more particulars, please feel free to contact this office at any time. I hope we may be of service to you on this project.

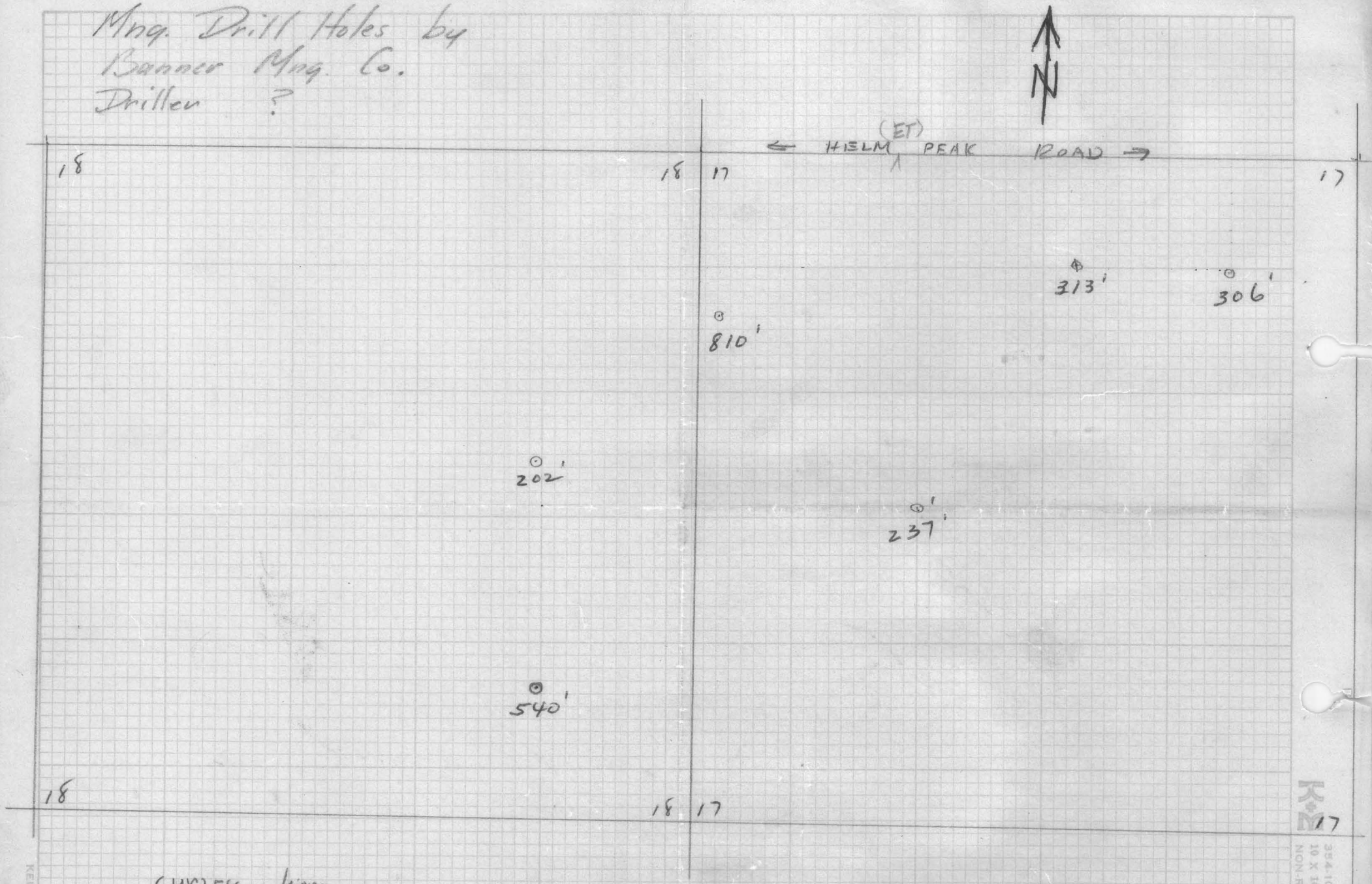
Very truly yours,

HEINRICHS GEOEXPLORATION COMPANY

E. Grover Heinrichs

EGH: jh

Mng. Drill Holes by
Banner Mng. Co.
Driller ?




CURZEY bora
Sec 18, 17
DC Weisten
615 W. ALTURAS
TUCSON

Scale 1" = 1000'