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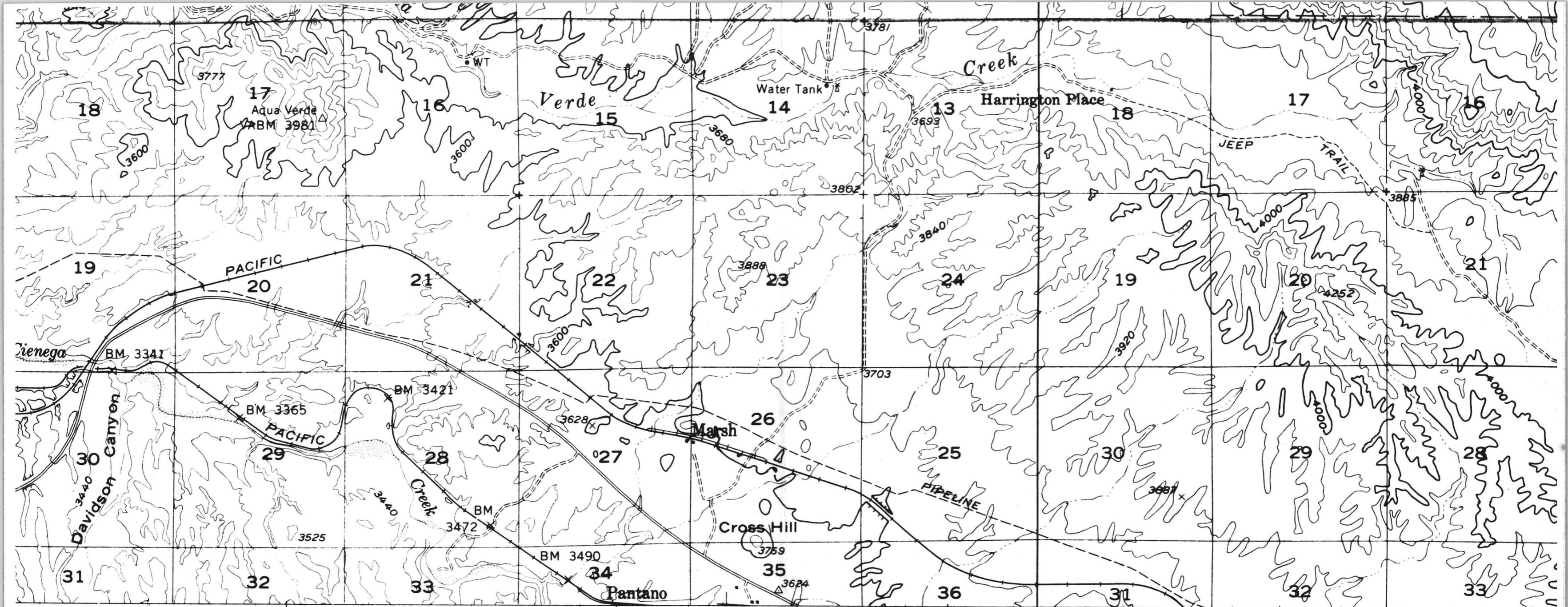
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(PATAGONIA 1:125 000)

R. 17 E.

35'

INTERIOR-GEOLOGICAL SURVEY, WASHINGTON, D. C.-1958-NS

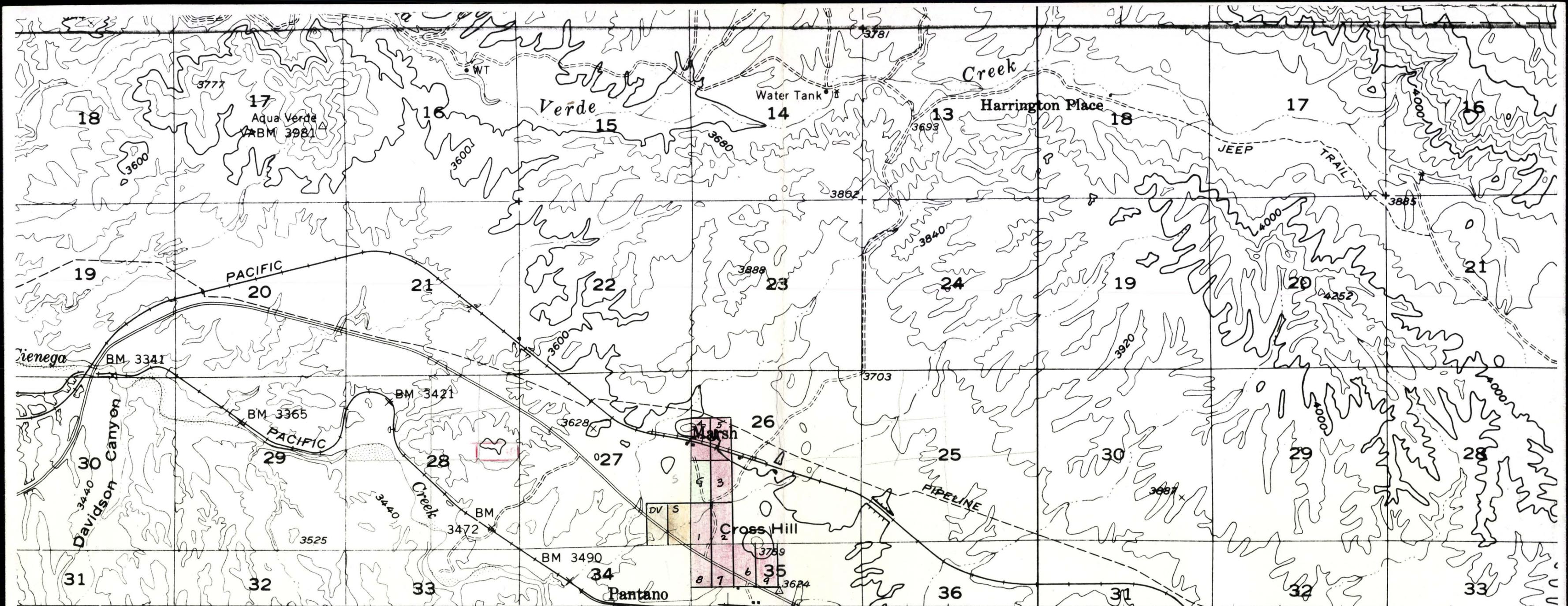
R. 18 E.

546000m.E.

SCALE 1:62500

MR 2387

1



(PATAGONIA 1:125 000)

R. 17 E.

35'

INTERIOR-GEOLOGICAL SURVEY, WASHINGTON, D. C.-1958-NS

R. 18 E.

546000m.E.

SCALE 1:62500

MR 2387

1



THE UNIVERSITY OF ARIZONA  
TUCSON

COLLEGE OF MINES  
DEPARTMENT OF GEOLOGY

November 12, 1959.

Mr. W.F. Grabe  
Grabe Brick Company  
202 N. Linda  
Tucson, Arizona.

Dear Mr. Grabe,

I certainly appreciated the opportunity to examine with you the area of your clay reserves north of Cienega Creek, just east of its confluence with Davidson Canyon.

These deposits occur within the Recreation Redbed formation of Cretaceous age. This formation is unusual in the Cienega Creek area in the high purity and greater thickness of the clay units.

The clay units in the Cienega Creek area are generally low in gypsum and lime. They contain small quantities of montmorillonite clay - sufficient to give them plasticity but not enough to cause bloating on firing. They carry a high percentage of kaolin, thus will have excellent burning characteristics. Color of the fired product will differ for the various strata from buff to dark red, but should be consistent for any one strata.

This clay is suitable for the making of building brick, ceramic tile, and possibly sewer pipe. It is the finest deposit of brick and tile clay that I have encountered in the Tucson - Phoenix area, and in my opinion will be the principal source of brick and tile clay for south-central Arizona.

Sincerely,

*Willard C. Lacy*  
Willard C. Lacy  
Professor of Geology



524

E. N. PENNEBAKER  
CONSULTING GEOLOGIST  
P. O. BOX 817  
SCOTTSDALE, ARIZONA

AFFIDAVIT

STATE OF ARIZONA        )  
                                  :    ss  
County of Maricopa     )

E. N. PENNEBAKER, being first duly sworn, deposes and says:

I am a resident of Scottsdale, Arizona, and a Registered Geologist (No. 1105) in the State of Arizona since 1945. I graduated from the College of Mining, University of California at Berkeley in 1924 with the degree of Bachelor of Science in Economic Geology, and thereafter continued graduate studies in geology at this university for an additional one and one-half years.

Since then I have been employed by various companies, both in the United States and abroad, for over thirty years in the examination and study of mineral deposits. This work has had to do with both metal-bearing and non-metallic materials.

During the past six months I have been engaged in the examination of clay deposits in central and southern Arizona for Phoenix Brick Yard. During the course of this work I have made an examination of the clay deposits near Pantano in Pima County, where clay of commercial quality occurs and is now being dug and used in the making of bricks by firms located in Tucson, Arizona.

Phoenix Brick Yard is currently engaged in making bricks at its plant in Phoenix, Arizona, where it employs from 50 to 60 men. This company has been occupied in this activity since 1917, during which time it has supplied locally-made bricks to the building industry both in and outside of Phoenix.

In the past and at present, Phoenix Brick Yard obtains the clays, from which its bricks are made, from its own clay pits near Phoenix and by purchase of light-burning material from California producers. Its reserves of clay near Phoenix are now nearing exhaustion, and, in order to insure adequate reserves of basic material to feed its plant, and to obtain clays of higher quality than those presently obtained near Phoenix, particularly those clays that are light-burning, Phoenix Brick Yard, in the name of its president, Mr. A. R. Campbell, has located

8 class B claims on State land covering part of the clay deposits occurring near Pantano, Pima County, Arizona. These claims cover a zone one mile long in a north-south direction, from 1/8 to 3/8 of a mile wide. They are adjacent to and immediately east of ground from which brick-making clay is now being taken.

With reference to the Gila and Salt River Base and Meridian, these claims and their legal descriptions are as follows:

Phoenix Brick No. 1	--	W $\frac{1}{2}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec 26;	T16S;	R17E
Phoenix Brick No. 2	--	E $\frac{1}{2}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec 26;	"	"
Phoenix Brick No. 3	--	E $\frac{1}{2}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec 26;	"	"
Phoenix Brick No. 4	--	W $\frac{1}{2}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec 26;	"	"
Phoenix Brick No. 5	--	E $\frac{1}{2}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec 26;	"	"
Phoenix Brick No. 6	--	W $\frac{1}{2}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec 35;	"	"
Phoenix Brick No. 7	--	E $\frac{1}{2}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec 35;	"	"
Phoenix Brick No. 8	--	W $\frac{1}{2}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec 35;	"	"

Whether or not clay of commercial quality occurs on these claims has been questioned, and this affidavit is for the purpose of confirming the existence of such material on these claims.

Clay occurs in this region as part of an extensive series of lake beds that occupies many square miles. In and near the area of present interest the clay is well bedded in layers that strike NNW and dip east and northeast at 20 to 30 degrees inclination and in places carry seams of gypsum. These clays are generally pink or red in color and are identified in the field by this color, their layered arrangement, their "feel", the appearance of "clay bloom" on weathered cuts, and their freedom from intermixtures of sand and gravel. Locally these beds are overlaid by a thin overburden of younger sand, gravel and soil that is essentially flat. The clays of commercial importance make up a substantial part of the tilted, older series, which is a member of an extensive "bedrock formation", and such clays are not local, erratic occurrences related to weathering of the present land surface.

Clay is presently being dug, transported to Tucson, and made into bricks of commercial quality from pits located in this area. Specifically, from a pit located on a State land class B claim covering the W $\frac{1}{2}$  SE $\frac{1}{4}$  SE $\frac{1}{4}$  Sec 27; T16S; R17E the DeVry Brick Company of Tucson is currently digging clay and making it into bricks. Also on a State land class B claim occupying the E $\frac{1}{2}$  SE $\frac{1}{4}$  SE $\frac{1}{4}$  Sec 27; T16S; R17E, located by Sundt, the Tucson Press Brick

Company is also producing clay and converting it to bricks. I am advised that at least 200,000 to 300,000 bricks have been made from these pits.

This clay makes bricks of superior quality as regards workability, shrinkage, strength and color. Much of it produces a light-colored brick that is in considerable demand.

Of the foregoing I am reliably informed, and I have recently inspected these pits and have examined the kind of clay that they contain. I have also traced the continuation and extensions of the bedrock clay deposits therein observed onto adjacent lands and have the following information to report:

1. Claim Phoenix Brick No. 1 occupies the  $W\frac{1}{2}$   $SW\frac{1}{4}$   $SW\frac{1}{4}$  Sec 26; T16S; R17E and is immediately east of and adjacent to the claim from which Tucson Press Brick Company is producing brick-making clay, and some of the clay beds extend from this claim into Phoenix Brick No. 1. Also, near the northeast corner of Phoenix Brick No. 1, and within the boundaries of that claim, red clay of identical appearance is exposed in the bottom of a road.

2. On claim Phoenix Brick No. 2, occupying the  $E\frac{1}{2}$   $SW\frac{1}{4}$   $SW\frac{1}{4}$  Sec 26; R16S; R17E, similar red clay can be seen cropping out beneath a thin gravel cover just south of the north end-line of that claim where the ground surface slopes down toward the main gulch. Furthermore, clay beds tested from No. 3 claim, described in the following paragraph, strike southerly into No. 2 claim.

3. Near the northeast corner of claim Phoenix Brick No. 3 which covers  $E\frac{1}{2}$   $NW\frac{1}{4}$   $SW\frac{1}{4}$  Sec 26; T16S; R17E, and within No. 3 claim, an extensive excavation from 1 to 5 feet deep has recently been dug by caterpillar tractor. This exposes a reddish clay, well-bedded and dipping about 10 degrees northeasterly under a very shallow cover of overburden. Samples of this clay have recently been ground, fired and tested at the plant of Phoenix Brick Yard, and it has been determined that this clay makes light-colored bricks of excellent quality. I have examined these test bricks and have ascertained that this clay is very desirable for commercial brick-making.

4. Some of the clay beds on No. 3 claim strike directly into claim Phoenix Brick No. 4, which occupies the  $W\frac{1}{2}$   $SW\frac{1}{4}$   $NW\frac{1}{4}$  Sec 26; T16S; R17E. Furthermore, there is a broad, bare exposure of pink clay not far south of the northeast corner of No. 3 claim, and clay is exposed in a nearby gully, where beds of this material dip  $34$  degrees northerly. Red clay is also exposed on the north side of a railroad cut in this claim, where there is a bank of clay that is about 15 feet high capped by only a foot of dirt and gravel overburden.

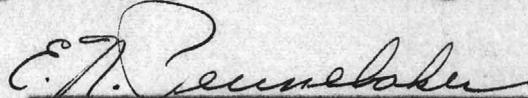
5. Some of the clay beds tested on No. 3 claim strike directly toward claim Phoenix Brick No. 5, which covers the E $\frac{1}{2}$  SW $\frac{1}{4}$  NW $\frac{1}{4}$  Sec 26; T16S; R17E. Furthermore a pinkish clay of satisfactory character is exposed in the bottom of shallow gullies found in the north-central part of No. 5 claim.

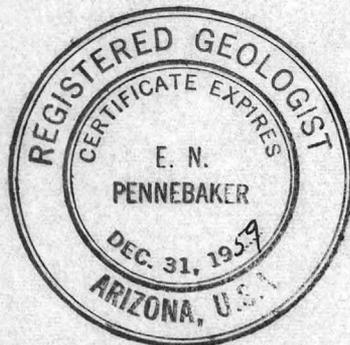
6. Claim Phoenix Brick No. 6 occupies the W $\frac{1}{2}$  NE $\frac{1}{4}$  NW $\frac{1}{4}$  Sec 35; T16S; R17E. Just inside its western side-line in the southerly part of the claim a road-cut about 5 feet high exposes reddish clay beds that dip about 20 degrees easterly.

7. Claim Phoenix Brick No. 7 covers the E $\frac{1}{2}$  NW $\frac{1}{4}$  NW $\frac{1}{4}$  Sec 35; T16S; R17E. Just inside its eastern side-line in the southerly part of the claim, the road-cut referred to above exposes the same group of clay beds in No. 7 claim.

8. Claim Phoenix Brick No. 8 which occupies the W $\frac{1}{2}$  NW $\frac{1}{4}$  NW $\frac{1}{4}$  Sec 35; T16S; R17E shows clay in its southeast portion under very shallow overburden. Furthermore the productive beds from which Tucson Press Brick Company is obtaining clay are only about 600 feet distant from its northern part, and these beds project directly toward No. 8 claim.

In my opinion, and as a result of my examination in the field, I believe that the productive clay beds are exposed in all of the claims referred to above, and that these clay beds have similar brick-making qualities to the beds from which excellent bricks, mostly of a desirable light color, are now being made.

  
E. N. PENNEBAKER



Subscribed and sworn to before me this 31st day of July, 1959.

  
Notary Public

My Commission Expires:

Jan. 18, 1961

AFFIDAVIT

STATE OF ARIZONA        )  
                                  :    ss  
County of Maricopa     )

E. N. PENNEBAKER, being first duly sworn, deposes and says:

I am a resident of Scottsdale, Arizona, and a Registered Geologist (No. 1105) in the State of Arizona since 1945. I graduated from the College of Mining, University of California at Berkeley in 1924 with the degree of Bachelor of Science in Economic Geology, and thereafter continued graduate studies in geology at this university for an additional one and one-half years.

Since then I have been employed by various companies, both in the United States and abroad, for over thirty years in the examination and study of mineral deposits. This work has had to do with both metal-bearing and non-metallic materials.

During the past 2½ years I have been engaged in the examination of clay deposits in central and southern Arizona for Phoenix Brick Yard. During the course of this work I have made an examination of the clay deposits near Pantano in Pima County, where clay of commercial quality occurs and is now being dug and used in the making of bricks by firms located in Tucson and Phoenix, Arizona.

Phoenix Brick Yard is currently engaged in making bricks at its plant in Phoenix, where it employs from 50 to 60 men. This company has been engaged in this activity since 1917, during which time it has supplied locally-made bricks to the building industry both in and outside of Phoenix.

In order to insure adequate reserves of basic material to feed its plant, and to obtain clays of higher quality than those presently available near Phoenix, Phoenix Brick Yard, in the name of its president, Mr. A. R. Campbell, in 1959 located 8 class B claims on State Land covering part of the clay deposits occurring near Pantano, Pima County, Arizona. These claims occupy parts of sections 26 and 35, township 16 south, range 17 east, Salt River Base and Meridian, and commercial production of clay has been made from these holdings.

Part of this production has come from claim "Phoenix Brick No. 6" covering  $W\frac{1}{2}$   $NE\frac{1}{4}$   $NW\frac{1}{4}$  of Section 35, and recently extensive stripping of overburden from the surface of this claim has been done in order to prepare for very substantial commercial production in the near future.

This stripping indicates that the valuable clay extends to the east, and on August 18, 1961, class B claim "Phoenix Brick No. 9" was located by Donald Campbell for Phoenix Brick Yard. This is adjacent to claim "Phoenix Brick No. 6" and occupies  $E\frac{1}{2}$   $NE\frac{1}{4}$   $NW\frac{1}{4}$  of Section 35.

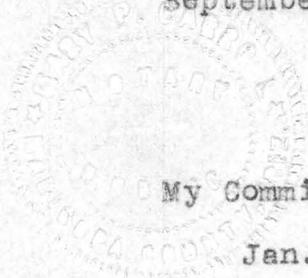
The surface of claim "Phoenix Brick No. 9" is covered by overburden, and the purpose of this affidavit is to confirm the existence of clay of commercial quality and quantity on this ground.

At about the time claim "Phoenix Brick No. 9" was located, a deep bulldozer cut of substantial length was made down the southeast side of the prominent hill that occupies the north-westerly part of the claim. This was examined by me on August 21, 1961, and clay was found to occur in the bottom of the trench in substantial amount. This clay is similar in appearance to that being prepared for extraction on adjacent claim No. 6 on the west.

As a result of my examination I am convinced that the productive clay beds are exposed in claim "Phoenix Brick No. 9" and constitute a deposit of commercially valuable mineral material.

  
E. N. Pennebaker  
E. N. PENNEBAKER

Subscribed and sworn to before me this 13th day of September, 1961.

  
Mary P. Carroll  
Notary Public

My Commission Expires:

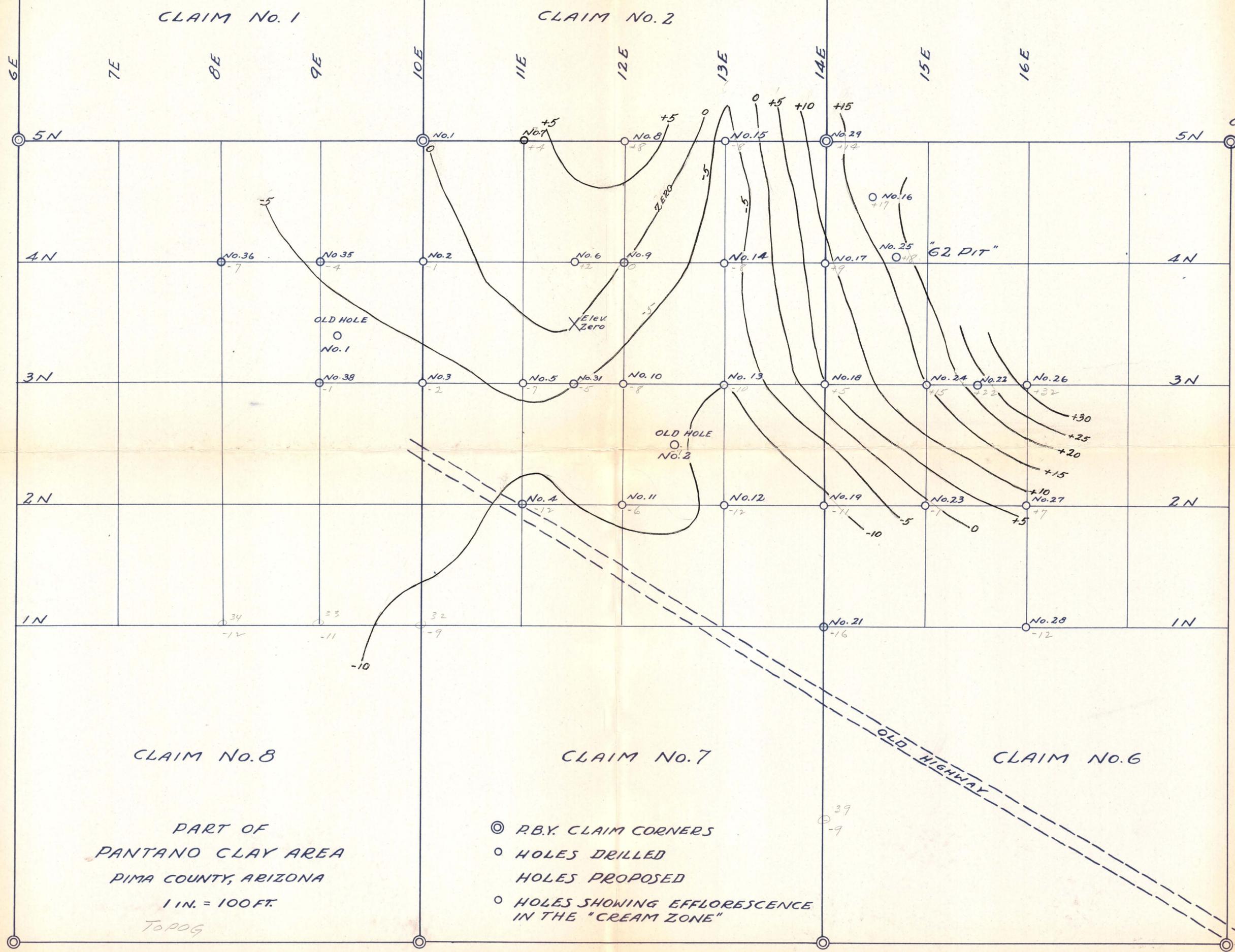
Jan. 18, 1965



PANTANO  
LAND STATUS







PART OF  
 PANTANO CLAY AREA  
 PIMA COUNTY, ARIZONA  
 1 IN. = 100 FT.  
 TOPOG

- ⊙ R.B.Y. CLAIM CORNERS
- HOLES DRILLED
- HOLES PROPOSED
- HOLES SHOWING EFFLORESCENCE IN THE "CREAM ZONE"



W 1/2 SE 1/4 NE 1/4 Sec. 26  
"GRABE NORTH"  
Claims # 226

VACANT ?

SUNDT

VACANT ?

SUNDT

MARSH

No. 4

No. 5

OH 10  
OH 10 clay  
8.6" in clay

OH 8 5-6  
OH PIT  
20.6" in clay  
clay crops out  
Hard on bottom

No. 3

Buff  
H 9

GRABE

OH 11  
OH 11  
Clay  
Dilled  
Burred  
H.E.P.

No. 1

No. 2

H 30  
Light  
Burning

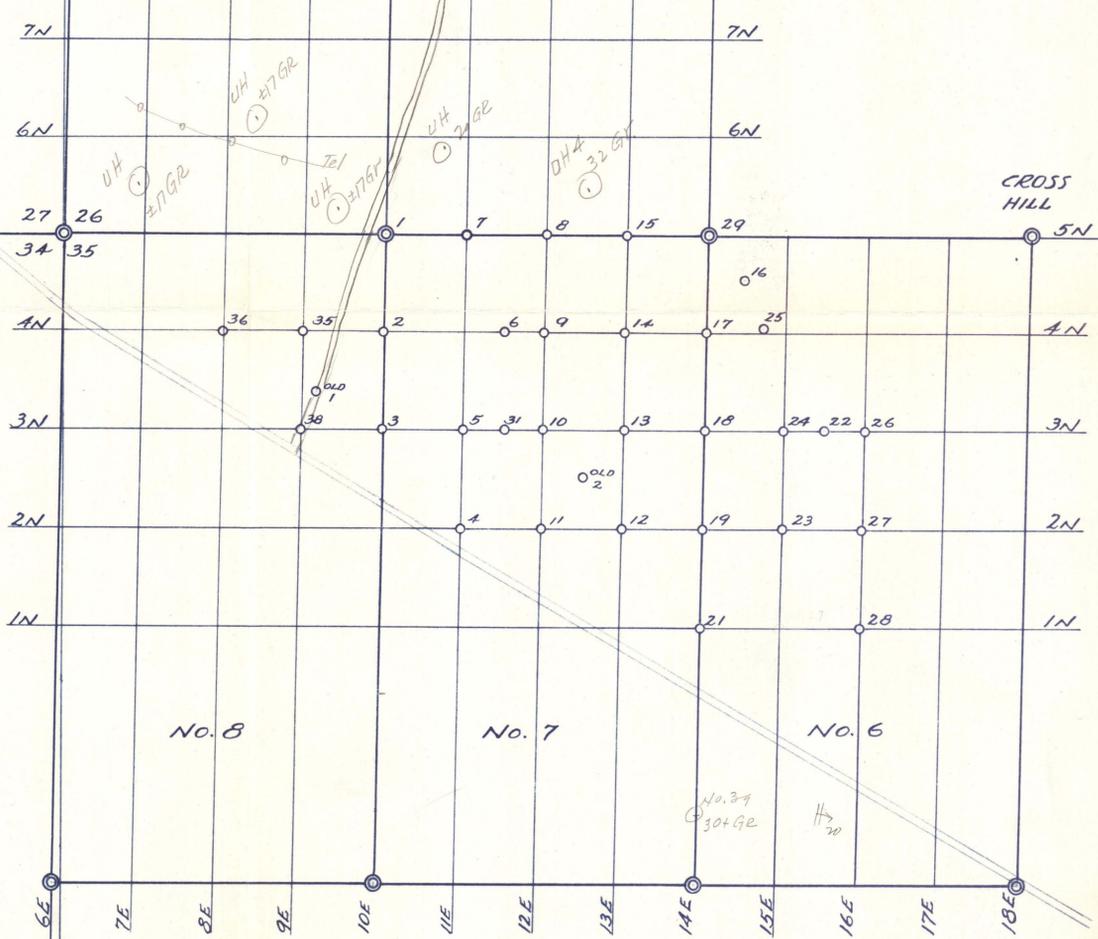
DE VRY

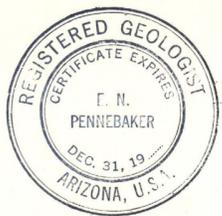
SUNDT  
(TUESON PRESS BRICK)

Light  
Burning

CROSS  
HILL

UH = 20 minimum down hole  
NS = No Samples





CLAIM No. 1

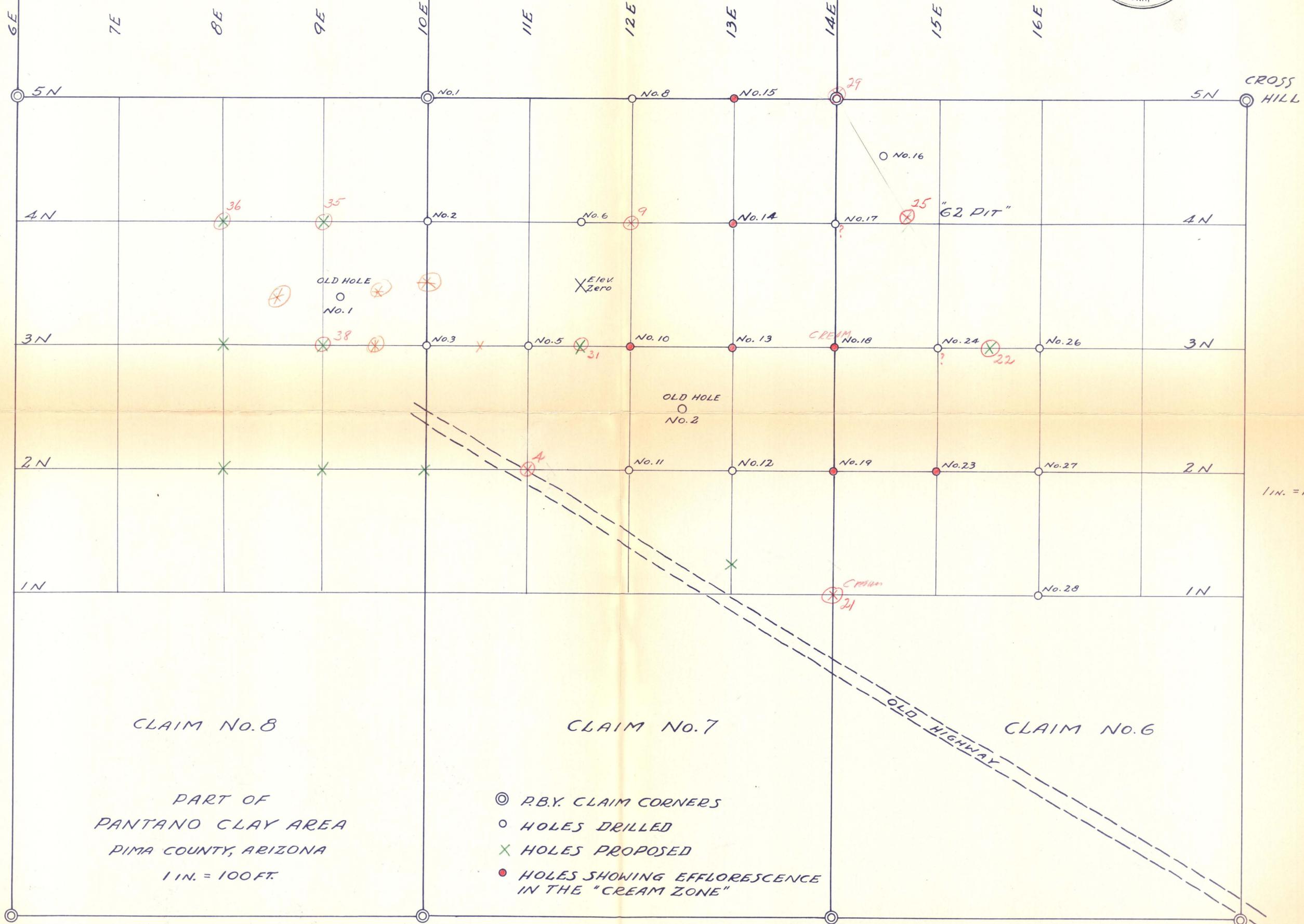
CLAIM No. 2

CLAIM No. 8  
PART OF  
PANTANO CLAY AREA  
PIMA COUNTY, ARIZONA  
1 IN. = 100 FT.

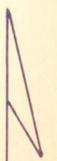
CLAIM No. 7

CLAIM No. 6

- ⊙ R.B.Y. CLAIM CORNERS
- HOLES DRILLED
- ✕ HOLES PROPOSED
- HOLES SHOWING EFFLORESCENCE IN THE "CREAM ZONE"



1 IN. = 100 FT.



CROSS HILL

