

4-679
(April 1933)

BOOK 4161

FIELD NOTES

OF RETRACEMENT OF

PART OF WEST BOUNDARY

LAND OF THE SURVEY OF

PART OF NORTH BOUNDARY

and

PART OF SUBDIVISION LINES of,

and

TRAVERSE OF RIGHT RIM OF MARBLE CANYON of

the Colorado River thru

TOWNSHIP 37 NORTH, RANGE 6 EAST

Of the Gila and Salt River Meridian,

In the State of Arizona

EXECUTED BY

Bert E. Wakeman, Transitman (P.W.)

and

Elliott Pearson, Transitman (P.W.)

supplemental Under special instructions dated March 27, 1936, which provided

for the surveys included under Group No. 181, Arizona, bearing the approval of the

Commissioner of the General Land Office under date of July 24, 1936

and assignment instructions dated November 9, 1936

Retracement & Survey commenced March 26, 1937

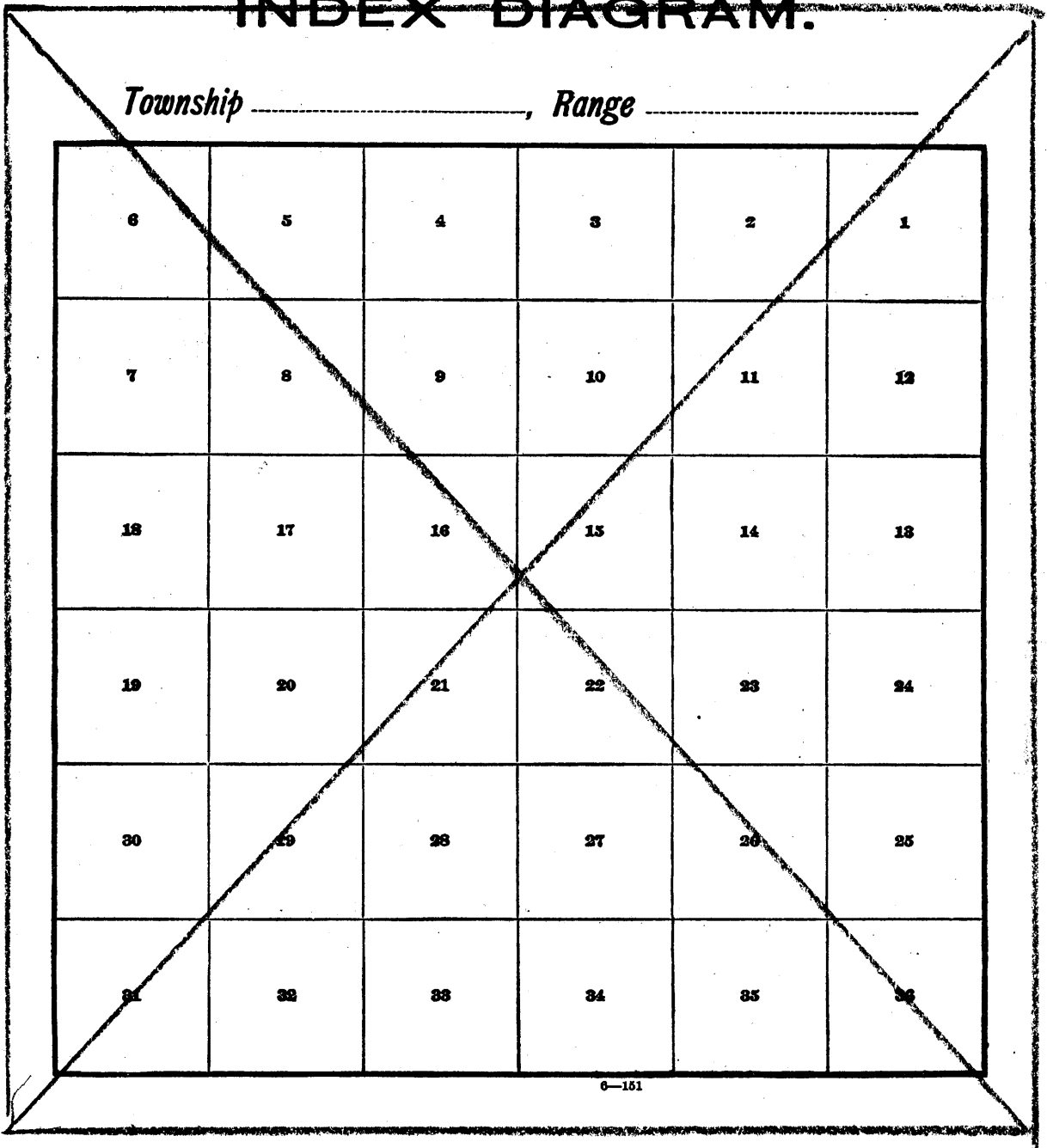
Retracement & Survey completed April 9, 1937

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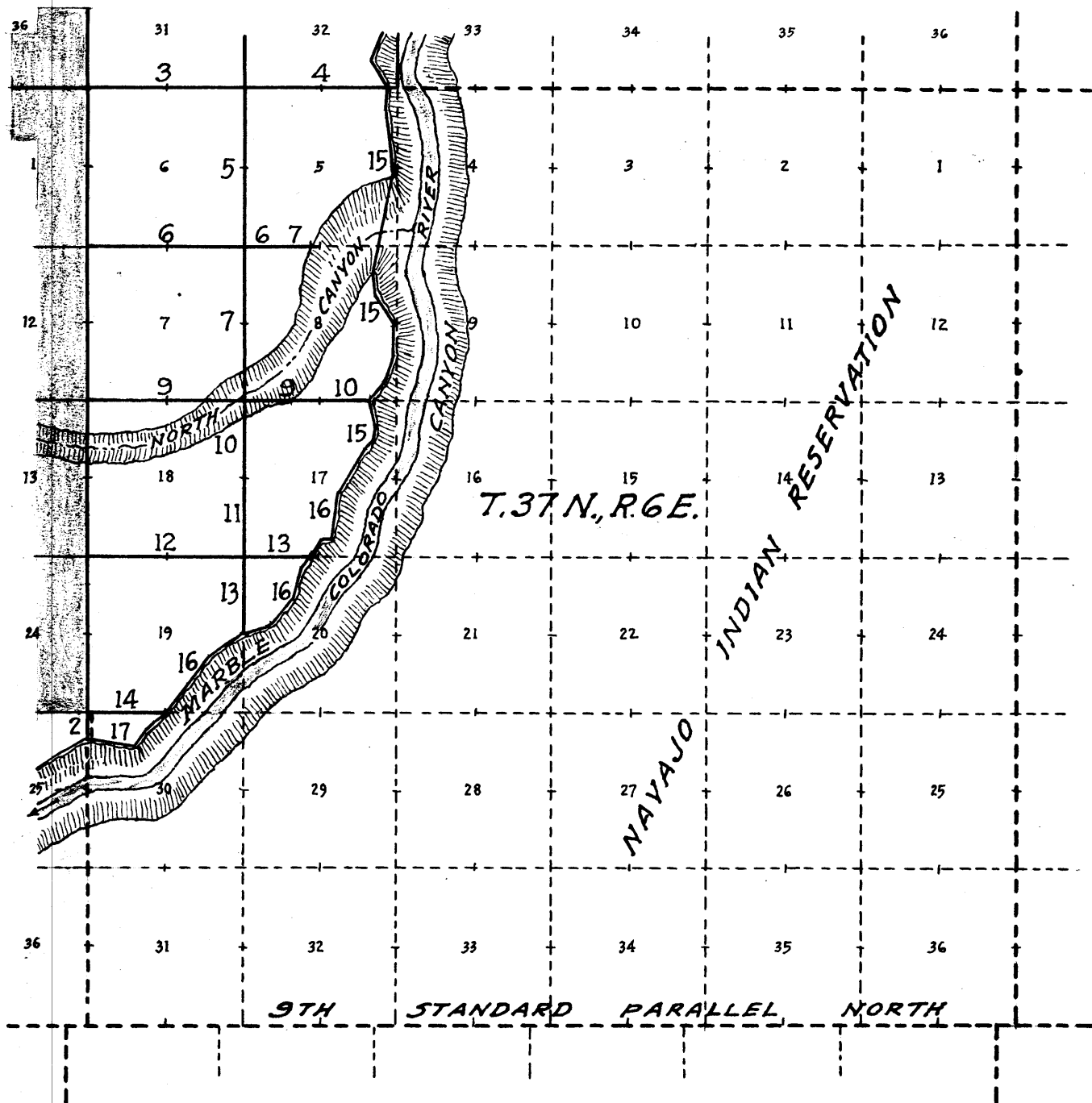
INDEX DIAGRAM.

Township _____, Range _____



INDEX DIAGRAM

BOOK 4161




— Lines of accepted surveys.

- - - Unserved lines.

— Lines surveyed under this group.

- - - Lines retraced under this group.

 Areas surveyed as per accepted plats on file.

The retracement and surveys herein described were executed by Bert E. Wakeman and Elliott Pearson, Transitmen (P.W.) both using Young and Son's transit No. 8526. The instrument is equipped with Smith solar attachment and otherwise conforms to the standard requirements of the General Land Office.

PRELIMINARY TEST OF INSTRUMENT.

March 21, 1937: at station at the $\frac{1}{4}$ sec. cor. of secs. 13 and 18, T. 40 N., Rs. 7 and 8 E., G. & S.R. Meridian, Arizona, in latitude $36^{\circ}52'N.$, longitude $111^{\circ}35'W.$, and on the meridian determined at this station by Polaris observation on January 26 and 27, 1937, as described in field notes of survey of T. 38 N., R. 6 E., test the solar apparatus of Young and Son's transit No. 8526 as follows:

At 9h. 00m., a.m., app.t., set off $36^{\circ}52'N.$ on the lat. arc; $0^{\circ}16\frac{1}{2}'N.$ on the decl. arc; and determine a meridian with the solar, which agrees with the true meridian.

At app. noon, with the lat. arc unchanged, observe the sun on the meridian, and obtain a reading of $0^{\circ}19\frac{1}{2}'N.$ on the decl. arc, which agrees with the computed declination of the sun.

At 3h. 00m., p.m., app.t., with the lat. arc unchanged, set off $0^{\circ}22\frac{1}{2}'N.$ on the decl. arc, and determine a meridian with the solar, which agrees with the true meridian.

As all of the solar observations taken during the usual hours of solar work agree within 1' with the true meridian, conclude that this instrument is in satisfactory adjustment on this date.

Unless otherwise specified, all measurements herein recorded were made with a Lallie steel tape, 5 chs. in length, which was compared with a Lufkin standard tape and found correct. The measurements were made on the slope, the vertical angles determined by a clinometer in good adjustment, and the slope measurements properly reduced to true horizontal values for entry in the field notes.

RETRACEMENT: PART OF WEST BDY. OF T. 37 N., R. 6 E.

2.

Chains

The North four miles of the West bdy. of T. 37 N., R. 6 E. were surveyed in 1926 by W.E.Hiester, U.S.Surveyor, as part of East bdy. of T. 37 N., R. 5 E., and in order to survey the traverse of the right rim of Marble Canyon thru said Tp., the portion of said Tp. bdy. bet. secs. 25 and 30 was surveyed South from cor. of secs. 19, 24, 25 and 30 to the canyon rim. This portion of the Tp. bdy. was designated as a blank line in view of the fact that no permanent corner monuments on the Tp. bdy. were established or witnessed to the south of the said section cor.

The following notes describe a retracement of that portion of the Tp. bdy. between the right rim of Marble Canyon and the cor. of secs. 19, 24, 25 and 30, for the purpose of establishing a temporary monument on the Tp. bdy. near the rim to control the survey of a traverse of said canyon rim thru sec. 30, T. 37 N., R. 6 E.

The cor. of secs: 19, 24, 25 and 30 is an iron post, 2 ins. in diam., projecting 30 ins. above ground, firmly set in ground and mound of stone, with brass cap marked as described in the official record.

Thence

South, bet. secs. 25 and 30 (Part).

Over gently rolling land, thru scattering undergrowth. Ascend gradually over N. slope.

13.06 (Record dist. to temp. traverse point of the traverse of canyon rim thru sec. 25)
Set temp. monument for traverse of right rim of Marble Canyon thru sec. 30, T. 37 N., R. 6 E.

13.12 Right rim of Marble Canyon of the Colorado River, bears SE. and SW.

Land, gently rolling.

Soil, rocky, 4th rate.

Timber, none.

Undergrowth, sage, greasebrush and cacti.

SURVEY: PART OF NORTH BDY. OF T. 37 N., R. 6 E.
LOOK 4161

Chains

The following notes describe the survey of the west 2 miles of the N. bdy. of T. 37 N., R. 6 E., which constitutes all of said township bdy. situate West of the Colorado River, which is surveyable, owing to the canyon.

Begin the survey at the cor. of Ts. 37 and 38 N., Rs. 5 and 6 E., established by W.E.Hiester, U.S.S., in 1926, which is an iron post 3 ins. in diam., projecting 34 ins. above ground, firmly set in ground and mound of stone, with brass cap marked as described in the official record. This cor. is on a flat topped spur, sloping NE.

Thence

East, bet. secs. 6 and 31.

Over rolling land, thru scattering undergrowth.

Desc. 41 ft. over SE. slope.

7.60 Wash, 10 lks. wide, course NE.; asc. 36 ft. over NW. slope.

28.00 Spur, slopes N.; desc. 93 ft. over E. slope.

32.45 Wash, 10 lks. wide, course N.; asc. 83 ft. over W. slope to

39.46 (40.00 chs. minus convergency of 54 lks.) Set an iron post, 3 ft. long, 1 in. in diam., 12 ins. in the ground to bedrock, with a stone 8x12x12 ins., marked with a cross (+) deposited at base, and in a mound of stone to top, for 1/4 sec. cor., with brass cap marked

1/4 S 31
S 6

1937

Asc. 25 ft. over W. slope.

52.50 W. edge of top of spur, brs. N. and S. Thence across flat topped spur, sloping N.

54.45 E. edge of top of spur, brs. N. and S. Leave top of spur. Desc. 70 ft. over E. slope.

59.05 Rocky wash, 15 lks. wide, course N.; asc. 114 ft. over W. slope to

77.28 W. edge of top of ridge, brs. N. and S. Thence across nearly level top of ridge bearing N. and S.

79.46 Set an iron post, 3 ft. long; 2 ins. in diam., 26 ins. in the ground, with a stone 4x6x8 ins., mkd. with a cross (+) deposited at base, for cor. of secs. 5, 6, 31 and 32, with brass cap marked

T38N R6E
S31 | S32
S 6 | S 5
T37N

1937

raise a mound of stone 4 ft. base, 2 ft. high, W. of cor., 3 ft. dist.

SURVEY: PART OF NORTH BDY. OF T. 37 N., R. 6 E.

4.

Chains

This sec. cor. is on nearly level top of ridge bearing N. and S.

Land, rolling and level.

Soil, rocky, 4th rate.

Timber, none.

Undergrowth, native weeds, sage, greasebrush and cacti.

East, bet. secs. 5 and 32.

Over nearly level top of ridge, bearing N. and S. thru scattering undergrowth.

5.00 E. edge of top of ridge, bears NE. and SW. Leave top of ridge. Desc. 50 ft. over SE. slope.

18.65 Small ravine, 4 lks. wide, course SE.; asc. 56 ft. over SW. slope.

33.45 Point of low spur, slopes S.; desc. 48 ft. over SE. slope to

40.00 Set an iron post, 3 ft. long, 1 in. in diam., over a cross (+) 6 ins. long, cut in bedrock, and in a mound of stone to top, for 1/4 sec. cor., with brass cap marked

1/4 S 32 / S 5

1937

stone 4 ft. base, 2 ft. high, N. of cor. raise a mound of

Descend 75 ft. over SE. slope.

56.45 Rocky wash, 15 lks. wide, course NE.; asc. 61 ft. over NW. slope to

74.83 Set an iron post, 3 ft. long, 2 ins. in diam., 8 ins. in the ground to bedrock, with a stone 12x10x8 ins., marked with a cross (+) deposited at base, and in a mound of stone to top, for witness cor. to cor. of secs. 4, 5, 32 and 33, with brass cap marked

T38N R6E / S32 S33 / S 5 S 4 WC / T37N

1937

Asc. slightly over NW. slope to

75.00 Right or west rim of Marble Canyon of the Colorado River bears NW. and S. Discontinue chaining at this point owing to precipitous broken descent over the canyon wall.

80.00 True point for cor. of secs. 4, 5, 32 and 33 falls on the right wall of Marble Canyon where it is inaccessible and cannot be monumented, therefore witness cor. is established 5.17 chs. West as described above.

Land, rolling, broken and mountainous.

Soil, rocky, 4th rate.

Timber, none.

Undergrowth, native weeds, sage, greasebrush and cacti.

SURVEY: PART OF SUBDIVISION OF T. 37 N., R. 6 E.

BOOK

Chains

From cor. of secs. 5, 6, 31 and 32 on N. bdy. of Tp., hereinbefore described,

South, on Sectional Guide Meridian, bet. secs. 5 & 6.

Over nearly level top of ridge bearing N. and S., thru scattering undergrowth.

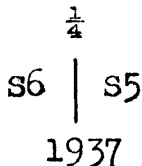
Desc. gradually to

10.00 Leave nearly level top of ridge, brs. N. and SE.; desc. 17 ft. over SW. slope.

14.00 Head of small ravine, course West; asc. 40 ft. over NW. slope.

22.50 Asc. gradually over W. and NW. slopes to

40.00 Flat topped ridge, bears NE. and SW. Set an iron post, 3 ft. long, 1 in. in diam., 28 ins. in the ground, for $\frac{1}{4}$ sec. cor., with brass cap marked



raise a mound of stone, 4 ft. base, 2 ft. high, W. of cor.

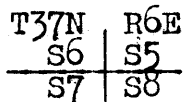
Desc. 30 ft. over SE. slope.

50.80 Ravine, 3 lks. wide, course NE.; asc. 60 ft. over NE. slope.

62.50 Edge of top of ridge, bears NW. and E. Thence across nearly level top of ridge.

67.00 Spur, slopes SW. Leave top of ridge brs. NW. and E. Desc. 30 ft. over SE. slope to

80.00 Set an iron post, 3 ft. long, 2 ins. in diam., 18 ins. in the ground to bedrock, with a stone 12x10x5 ins., marked with a cross (+) deposited at base, and in a mound of stone to top, for cor. of secs. 5, 6, 7 and 8, with brass cap marked



1937

raise a mound of stone 4 ft. base, 2 ft. high, W. of cor.

Land, gently rolling and nearly level.

Soil, rocky, 4th rate.

Timber, none.

Undergrowth, native weeds, sage, greasebrush and cacti.

West, on a random line, bet. secs. 6 and 7.

40.00 Set temp. $\frac{1}{4}$ sec. cor.

79.59 Intersect W. bdy. of Tp. 3 lks. N. of the cor. of secs. 1, 6, 7 and 12, which is an iron post, 2 ins. in diam., projecting 34 ins. above ground, firmly set in ground and mound of stone, with brass cap marked as described in the official record.

SURVEY: SUBDIVISION OF PART OF T; 37 N., R. 6 E.

6.

Chains	
	Thence, N. 89°59'E., on true line, bet. secs. 6 and 7. Over gently rolling land, thru scattering undergrowth. Asc. 23 ft. over W. slope.
5.00	W. edge of top of low spur, brs. N. and S. Thence across nearly level top of spur, sloping N.
15.00	E. edge of top of spur, brs. N. and S. Leave top of spur and enter gently rolling land; desc. gradually over E. slope.
18.00	Ravine, 3 lks. wide, course N.; asc. gradually over N. slope to
39.59	Set an iron post, .3 ft. long, 1 in. in diam., 18 ins. in the ground to bedrock, with a stone 4x4x10 ins., marked with a cross (+) deposited at base, and in a mound of stone to top, for $\frac{1}{4}$ sec. cor., with brass cap marked $\frac{1}{4} \frac{S 6}{S 7}$ 1937 raise a mound of stone 4 ft. base, 2 ft. high, N. of cor. Desc. gradually over NE. slope.
43.90	Head of small ravine, drains NE.; asc. 10 ft. over W. slope.
47.60	Low spur, slopes N.; desc. 19 ft. over E. slope.
53.30	Wash, 4 lks. wide, course NE. near head; asc. 8 ft. over NW. slope.
55.60	Point of spur, slopes N.; desc. 22 ft. over NE. slope.
61.75	Rocky wash, 15 lks. wide, course NW.; asc. 34 ft. over SW. slope.
64.60	Point of spur, slopes SW.; desc. 12 ft. over SE. slope.
68.50	Wash, 5 lks. wide, course SW.; asc. slightly over SW. slope.
69.60	Point of spur, slopes SW.; desc. 20 ft. over SE. slope to
79.59	The cor. of secs. 5, 6, 7 and 8. Land, gently rolling and nearly level. Soil, rocky, 4th rate. Timber, none. Undergrowth, native weeds, sage, greasebrush and cacti.
	East, bet. secs. 5 and 8 (W. $\frac{1}{2}$). Over gently rolling land, thru scattering undergrowth. Desc. slightly over SE. slope.
0.95	Wash, 5 lks. wide, course S. 85°W.; asc. 50 ft. over NW. slope to
22.30	Small ravine, 3 lks. wide, course NW.; asc. 30 ft. over NW. slope.

SURVEY: SUBDIVISION OF PART OF T. 37 N., R. 6 E.

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7.

Chains

- 30.00 Ridge, bears NE. and SW.; desc. slightly over SE. slope to canyon rim.
- 34.30 Set an iron post, 3 ft. long, 1 in. in diam., 27 ins. in the ground, with a stone 12x8x4 ins., mkd. with a cross (+) deposited at base, for witness cor. to $\frac{1}{4}$ sec. cor., with brass cap marked
- $\frac{1}{4}$ $\frac{S 5}{S 8}$ WC
- 1937
- raise a mound of stone
- 4 ft. base, 2 ft. high, N. of cor.
- 34.40 Left rim of North Canyon, bears N. 10°E., and S. 10° W. Discontinue chaining owing to precipitous broken descent into said canyon.
- 40.00 True point for $\frac{1}{4}$ sec. cor. of secs. 5 and 8 falls on left wall of North Canyon where it is inaccessible and cannot be monumented, therefore establish witness cor. at 5.70 chs. West, as described above.
- Land, gently rolling and mountainous.
Soil, rocky, 4th rate.
Timber, none.
Undergrowth, native weeds, sage, greasebrush and cacti.
-
- From cor. of secs. 5, 6, 7 and 8.
- South, on Sectional Guide Meridian, bet. secs. 7 and 8. Over gently rolling land, thru scattering undergrowth.
- 0.50 Small ravine, 5 lks. wide, course West; asc. gradually over NW. slope to
- 40.00 Set an iron post, 3 ft. long, 1 in. in diam., 28 ins. in the ground, for $\frac{1}{4}$ sec. cor., with brass cap marked
- $\frac{1}{4}$
- S7 | S8
- 1937
- raise a mound of stone
- 4 ft. base, 2 ft. high, W. of cor.
- Asc. gradually over NW. slope to
- 62.39 Triangulation and offset point, on low ridge bearing NE. and SW. Desc. 32 ft. over SE. slope to
- 64.33 Left rim of North Canyon, brs. NE. and SW. Discontinue chaining at this point as the remainder of the line bet. secs. 7 and 8 is impassable owing to precipitous broken walls of North Canyon. The vertical angle from this point on sec. line SE. to bottom of canyon is -54°.
- Obtain measurement of sec. line across canyon by a triangulation as follows:

SURVEY: SUBDIVISION OF PART OF T. 37 N., R. 6 E.

BOOK 4161 9.

Chains	<p>East, on true line, bet. secs. 7 and 18.</p> <p>Over gently rolling land, thru scattering undergrowth.</p> <p>Ascend gradually over W. slope.</p> <p>10.00 Low, flat topped ridge, bears N. and S.; desc. 98 ft. over E. slope.</p> <p>24.85 Rocky wash, 25 lks. wide, course S.; asc. 109 ft. over W. slope.</p> <p>36.00 Spur, slopes S.; desc. 15 ft. over E. slope.</p> <p>37.60 Ravine, 5 lks. wide, course S.; asc. 10 ft. over W. slope to</p> <p>39.70 Set an iron post, 3 ft. long, 1 in. in diam., on exposed bedrock, with a stone 14x12x7 ins. marked with a cross (+) deposited at base, and in a mound of stone to top, for $\frac{1}{4}$ sec. cor., with brass cap marked</p> <p style="text-align: center;">$\frac{1}{4} \frac{S 7}{S 18}$</p> <p style="text-align: center;">1937</p> <p>Asc. 15 ft. over W. slope.</p> <p>46.00 Flat topped spur, slopes S.; desc. 80 ft. over E. slope.</p> <p>56.00 Ravine 6 lks. wide, course S.; asc. gradually over SW. slope to canyon rim.</p> <p>59.70 Offset point.</p> <p>60.30 Left rim of North Canyon, and top of almost vertical cliff 400 ft. high, bearing NE. and SW., facing SE.</p> <p>Discontinue chaining at this point. Measurement to sec. cor. point in canyon by offset line as follows:</p> <p style="padding-left: 40px;">From 59.70 ch. station; North 17.61 chs.; thence East, 20 chs. to 62.39 ch. station on line bet. secs. 7 and 8; thence by triangulation South 17.61 chs. to true point for cor. of secs. 7, 8, 17 and 18.</p> <p>76.00 (Approx.) Bottom of North Canyon, 100 lks. wide, course NE.; asc. over precipitous broken NW. slope to</p> <p>79.70 True point for cor. of secs. 7, 8, 17 and 18, on precipitous NW. slope of right wall of North Canyon. Witness cor. established 9.00 chs. South as hereinafter described.</p> <p>Land, gently rolling, broken and mountainous. Soil, rocky, 4th rate. Timber, none. Undergrowth, native weeds, sage, greasebrush and cacti.</p> <hr/> <p>From true point for cor. of secs. 7, 8, 17 and 18.</p> <p>East, bet. secs. 8 and 17.</p> <p>Over mountainous land, in North Canyon.</p> <p>Ascend over precipitous broken NW. and N. slopes on the right wall of said canyon.</p> <p>Measurement to point on sec. line at canyon rim by an off-</p>
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SURVEY: SUBDIVISION OF PART OF T. 37 N., R. 6 E.

10

Chains	
	<p>set line in sec. 17, as follows:</p> <p>From flag point "B" of the triangulation hereinbefore described on line bet. secs. 7 and 8, which is 9.65 chs. South from the sec. cor. point; thence North 65 lks.; thence East, 26.30 chs.; thence North 9.00 chs. to point on sec. line bet. secs. 8 and 17 at 26.30 chs. E. from sec. cor. point.</p>
18.00	(Approx.) Wash, 30 lks. wide, in gulch, course N. from SW.
26.30	Right rim of North Canyon, bears S. 89°W. and N. 40°E. Leave canyon and mountainous land and enter rolling land.
	Continue measurement from sec. cor. point, on sec. line. Asc. 14 ft. over NW. slope, thru scattering undergrowth.
29.30	Spur, slopes NE.; desc. 57 ft. over SE. slope.
32.97	Rocky wash, 25 lks. wide, course NE.; asc. 42 ft. over NW. slope.
36.80	Point of spur, slopes NW.; desc. slightly over NE. slope.
38.20	Head of ravine, course N.; asc. 14 ft. over NW. slope to
40.00	Set an iron post, 3 ft. long, 1 in. in diam., 27 ins. in the ground, for $\frac{1}{4}$ sec. cor., with brass cap marked
	$\frac{1}{4} \frac{S 8}{S 17}$ <p>1937</p>
	Raise a mound of stone, 3 ft. base, 2 ft. high N. of cor.
	This cor. is on flat-topped spur sloping N.
42.70	Leave top of spur, desc. 30 ft. over NE. slope.
47.97	Ravine, 5 lks. wide, course NW.; asc. 95 ft. over W. slope to canyon rim.
65.80	Set temp. monument for traverse of canyon rim thru secs. 5, 8 and 17.
65.90	Right or west rim of Marble Canyon of the Colorado River, bears NE. and SE.
	Discontinue survey of the sec. line at this point as the remainder of the line is in the canyon, and precipitous broken slopes on the canyon wall render the point for cor. of secs. 8, 9, 16 and 17 inaccessible, and no point within prescribed limits of such point is available for the establishment of a witness cor.
	Land, mountainous, broken and rolling. Soil, rocky, 4th rate. Timber, none. Undergrowth, native weeds, sage, greasebrush and cacti.
	From true point for cor. of secs. 7, 8, 17 and 18. South, on Sectional Guide Meridian, bet. secs. 17 and 18. Over mountainous land, on right wall of North Canyon. Ascend over precipitous broken NW. slope.

SURVEY: SUBDIVISION OF PART OF T. 37 N., R. 6 E.

1000 4161

11

Chains

Measurement to 9.65 ch. station by triangulation herein-
before described on line bet. secs. 7 and 8, from which
point chain return measurement North 1.35 chs. to

8.30 Right rim of North Canyon, bears NE. and SW. Leave canyon,
continuing over mountainous land, thru scattering under-
growth.

Resume chaining, continuing line and measurement from sec.
cor. point. Asc. 12 ft. over NW. slope to

9.00 Set an iron post, 3 ft. long, 2 ins. in diam., 10 ins. in
the ground to bedrock, with a glass bottle deposited at
base, and in a mound of stone to top, for witness cor.
to cor. of secs. 7, 8, 17 and 18, with brass cap marked

WC	
T37N	R6E
S 7	S 8
S18	S17

1937

Asc. 12 ft. over NW. slope.

9.65 Spur, slopes NE.; leave mountainous and enter rolling and
broken land. Desc. 68 ft. over SE. slope.

17.40 Rocky wash, 30 lks. wide, course NE.; asc. 70 ft. over NW.
slope.

23.25 Toe of spur, slopes W.; desc. 20 ft. over SW. slope.

30.50 Rocky wash, 15 lks. wide, course NW.; asc. 93 ft. over N.
slope to

35.65 Point of spur slopes N.; asc. 16 ft. along top of spur to

37.40 Leave spur, slopes N. from SE.; desc. 35 ft. over W. slope
to

40.00 Set an iron post, 3 ft. long, 1 in. in diam., 28 ins. in
the ground, for $\frac{1}{4}$ sec. cor., with brass cap marked

$\frac{1}{4}$	
S18	S17

1937

Raise a mound of stone, 4 ft. base, 2 ft. high, W. of cor.

Desc. 15 ft. over W. slope.

48.20 Wash, 7 lks. wide, course NW.; asc. 97 ft. over NE. slope
to

60.50 Thence over flat top of spur sloping N.; asc. 35 ft. to

80.00 Set an iron post, 3 ft. long, 2 ins. in diam., 18 ins. in
the ground to bedrock, with a stone 14x12x6 ins. marked
with a cross (+) deposited at base, and in a mound of
stone to top, for cor. of secs. 17, 18, 19 and 20, with
brass cap marked

T37N	R6E
S18	S17
S19	S20

1937

SURVEY: SUBDIVISION OF PART OF T. 37 N., R. 6 E.

12

Chains	
	Land, mountainous, broken and rolling. Soil, rocky, 4th rate. Timber, none. Undergrowth, native weeds, sage, greasebrush and cacti.
	West, on random line, bet. secs. 18 and 19.
40.00	Set temp. $\frac{1}{4}$ sec. cor.
79.80	Intersect W. bdy. of the Tp. 16 lks. S. of the cor. of secs. 13, 18, 19 and 24, which is an iron post, 2 ins. in diam., projecting 10 ins. above ground, firmly set, marked on brass cap and witnessed as described in the official record.
	Thence
	S. 89°53'E., on true line, bet. secs. 18 and 19.
	Over rolling land, thru scattering undergrowth. Desc. slightly over SE. slope.
0.60	Wash, 15 lks. wide, course NE.; from W.; asc. 34 ft. over W. slope.
7.70	Spur, slopes N.; desc. 35 ft. over E. slope.
16.43	Wash, 10 lks. wide, course NE.; asc. gradually over N. slope.
22.87	Wash, 6 lks. wide, course N.; asc. 60 ft. over W. slope.
27.10	Spur, slopes N.; desc. 43 ft. over E. slope.
32.44	Wash, 5 lks. wide, course N.; asc. 40 ft. over W. slope.
36.20	Spur, slopes N.; desc. 52 ft. over E. slope.
39.30	Wash, 6 lks. wide, course N.; asc. slightly over W. slope to
39.80	Set an iron post, $\frac{3}{4}$ ft. long, 1 in. in diam., 27 ins. in the ground, for $\frac{1}{4}$ sec. cor., with brass cap marked
	$\frac{1}{4} \frac{S 18}{S 19}$
	1937
	Raise a mound of stone, 3 ft. base, 2 ft. high, N. of cor. Asc. 70 ft. over W. slope.
45.60	Spur, slopes N.; desc. 26 ft. over E. slope.
49.10	Wash, 5 lks. wide, course N.; asc. 35 ft. over W. slope.
57.70	Flat topped spur, slopes N.; desc. 45 ft. over E. slope.
66.30	Wash, 12 lks. wide, course N.; asc. 45 ft. over W. slope to
75.00	W. edge of top of spur, bears N. and S. Thence over near- ly level top of spur, sloping N.
79.80	The cor. of secs. 17, 18, 19 and 20.

SURVEY: SUBDIVISION OF PART OF T. 37 N., R. 6 E.

BOOK 1861

13

Chains	
	<p>Land, rolling. Soil, rocky, 4th rate. Timber, none. Undergrowth, native weeds, sage, greasebrush and cacti.</p>
	<p>East, bet. secs. 17 and 20 (W. $\frac{1}{2}$)</p> <p>Over nearly level top of spur, sloping N., thru scattering undergrowth.</p>
3.00	E. edge of top of spur, bears N. and S. Leave top of spur, and enter rolling land. Desc. 20 ft. over E. slope.
7.20	Ravine, 5 lks. wide, course N.; asc. 20 ft. over W. slope.
12.00	Spur, slopes NW.; desc. slightly over NE. slope.
13.80	Head of ravine, course N.; asc. 6 ft. over W. slope.
16.10	Spur, slopes N.; desc. 34 ft. over E. slope.
19.55	Ravine, 10 lks. wide, course N.; asc. 53 ft. over W. slope.
26.20	Spur, slopes N.; desc. 10 ft. over E. slope.
30.15	Drain, 5 lks. wide, course N.; asc. gradually over W. slope to canyon rim.
34.60	<p>Set an iron post, 3 ft. long, 1 in. in diam., 4 ins. in the ground to bedrock, with a stone 10x8x6 ins., marked with a cross (+) deposited at base, and in a mound of stone to top, for witness cor. to $\frac{1}{4}$ sec. cor., with brass cap marked</p> <p style="text-align: center;"> $\frac{1}{4} \frac{S \ 17}{S \ 20} \ WC$ 1937 </p>
34.70	<p>Right rim of Marble Canyon of the Colorado River, bears NE. and SW.</p> <p style="text-align: center;">Discontinue chaining at this point owing to precipitous descent over SE. slope on canyon wall. Colorado River, course SW. is about 1800 ft. below.</p>
40.00	<p>True point for $\frac{1}{4}$ sec. cor. falls on right or west wall of Marble Canyon where it is inaccessible and cannot be monumented, therefore witness cor. is established on the sec. line at 5.40 chs. West as described above.</p> <p>Land, rolling and mountainous. Soil, rocky, 4th rate. Timber, none. Undergrowth, native weeds, sage, greasebrush and cacti.</p>
	<p>From the cor. of secs. 17, 18, 19 and 20.</p> <p>South, bet. secs. 19 and 20 (N. $\frac{1}{2}$).</p> <p>Over nearly level top of spur, sloping N., thru scattering undergrowth.</p>
25.00	Low flat-topped ridge, bears NE. and SW. Descend gradually over S. slope to
40.00	Set an iron post, 3 ft. long, 1 in. in diam., 12 ins. in

SURVEY: SUBDIVISION OF PART OF T. 37 N., R. 6 E.

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Chains

the ground to bedrock, with a stone 6x6x4 ins., marked with a cross (+) deposited at base, and in a mound of stone to top, for $\frac{1}{4}$ sec. cor., with brass cap marked

$$\frac{1}{2}$$

S19 | S20

1937

40.10 Right rim of Marble Canyon of the Colorado River, bears NE. and SW.

Discontinue survey at this point owing to precipitous broken descent over the canyon wall, and as the remainder of the sec. line is in the canyon.

Land, nearly level and gently rolling.

Soil, rocky, 4th rate.

Timber, none.

Undergrowth, native weeds, sage, greasebrush and cacti.

From the cor. of secs. 19, 24, 25 and 30, on W. bdy. of the Tp., hereinbefore described.

East, bet. secs. 19 and 30 ($W.\frac{1}{2}$).

Over gently rolling land, thru scattering undergrowth. Asc. gradually over N. and NW. slopes to

39.82 (40.00 chs. minus convergency of 18 lks.) Set an iron post, 3 ft. long, 1 in. in diam., 8 ins. in the ground to bedrock, with a stone 8x5x3 ins. marked with a cross (+) deposited at base, and in a mound of stone to top, for $\frac{1}{4}$ sec. cor., with brass cap marked

$$\frac{1}{4} \frac{S 19}{S 30}$$

1937

40.00 Right rim of Marble Canyon of the Colorado River, bears NE. and SW.

Discontinue survey of the sec. line at this point, as the E. $\frac{1}{2}$ of the line is in the canyon and is impassable.

Land, gently rolling.

Soil, rocky, 4th rate.

Timber, none.

Undergrowth, native weeds, sage, greasebrush and cacti.

TRAVERSE OF RIGHT RIM OF MARBLE CANYON OF THE COLORADO
RIVER thru T. 37 N., R. 6 E.

BOOK 4161

15

Chains

The following notes describe survey of a traverse of the right or west rim of the Marble Canyon of the Colorado River, downstream thru T. 37 N., R. 6 E. This traverse is chained except across the mouth of North Canyon, and follows the rim as closely as is practicable consistent with safety, and the number of courses is reduced to the minimum.

Begin at the witness cor. to cor. of secs. 4, 5, 32 and 33, on the N. bdy. of the Tp., hereinbefore described, which is 5.17 chs. West from the true cor. point, and 17 lks. West from the canyon rim.

Thence

Traverse thru secs. 5 and 8.

Over rolling and broken land, thru scattering low undergrowth.

South, 11.88 chs., thence,

S. 6°18'E., 31.25 chs., to point where the right rim of Marble Canyon merges with the left rim of North Canyon extending southwesterly. Discontinue chaining.

Leave rolling and enter mountainous land in North Canyon.

S. 11°07'W., 54.52 chs. Measurement by triangulation, across mouth of North Canyon, entering Marble Canyon from the SW. At approximately 35.00 chs. on this course cross the bottom of North Canyon, course NE. The end of this course is on a point where the right rim of Marble Canyon merges with the right rim of North Canyon extending SW.
Thence

S. 5°30'E., 12.60 chs., resuming chaining, over rolling and broken land, thru scattering low undergrowth.
Thence

S. 36°30'E., 17.00 chs., thence,

S. 4°00'W., 13.91 chs., thence,

S. 18°30'W., 16.00 chs., thence,

S. 41°00'W., 11.00 chs. to temp. monument on the sec. line bet. secs. 8 and 17 at 65.80 chs. East from true point for cor. of secs. 7, 8, 17 and 18.

Land, rolling, broken and mountainous.

Soil, rocky, 4th rate.

Timber, none.

Undergrowth, native weeds, sage, greasebrush and cacti.

From temp. monument at 65.80 ch. station (E) on line bet. secs. 8 and 17.

Traverse thru sec. 17.

TRAVERSE OF RIGHT RIM OF MARBLE CANYON OF THE COLORADO
RIVER thru T. 37 N., R. 6 E.

16

Chains

Over rolling land, thru scattering undergrowth.
 S. 9°30'E., 14.76 chs., thence,
 S. 8° 00'W., 5.00 chs., thence,
 S. 41°30'W., 7.00 chs., thence,
 S. 31°00'W., 26.34 chs., thence,
 S. 7°30'W., 24.85 chs., thence,
 N. 87°45'W., 5.91 chs., thence,
 S. 34°02'W., 9.97 chs., to the witness cor. to $\frac{1}{4}$ sec.
 cor. of secs. 17 and 20, on the
 sec. line at 34.60 chs. East
 from the cor. of secs. 17, 18,
 19 and 20.

Land, rolling.
 Soil, rocky, 4th rate.
 Timber, none.
 Undergrowth, native weeds, sage, greasebrush and cacti.

From the witness cor. to $\frac{1}{4}$ sec. cor. of secs. 17 and 20.

Traverse thru sec. 20.

Over rolling land, thru scattering undergrowth.

S. 33°49'W., 6.07 chs., thence,
 S. 16°00'W., 17.69 chs., thence,
 S. 39°30'W., 17.65 chs., thence,
 S. 50°00'W., 2.00 chs., thence,
 S. 77°30'W., 13.88 chs., to the $\frac{1}{4}$ sec. cor. of secs. 19
 and 20, hereinbefore described,
 10 lks. N. of Canyon rim.

Land, rolling.
 Soil, rocky, 4th rate.
 Timber, none.
 Undergrowth, native weeds, sage, greasebrush and cacti.

From $\frac{1}{4}$ sec. cor. of secs. 19 and 20.

Traverse thru sec. 19.

Over rolling land, thru scattering undergrowth.

S. 46°48'W., 5.62 chs., thence,
 S. 63°00'W., 15.00 chs., thence,
 S. 37°30'W., 37.00 chs., to the $\frac{1}{4}$ sec. cor. of secs. 19
 and 30, established as herein-
 before described at 39.82 chs.
 East from cor. of secs. 19, 24,
 25 and 30 on W. bdy. of Tp. and
 10 lks. W. from canyon rim.

Land, rolling.
 Soil, rocky, 4th rate.
 Timber, none.
 Undergrowth, native weeds, sage, greasebrush and cacti.

TRAVERSE OF RIGHT RIM OF MARBLE CANYON OF THE COLORADO
RIVER thru T. 37 N., R. 6 E.

BOOK 1001

17

Chains

From the $\frac{1}{4}$ sec. cor. of secs. 19 and 30.

Traverse thru sec. 30.

Over gently rolling land, thru scattering undergrowth.

S. 59°00'W., 7.18 chs., thence,

S. 47°15'W., 5.00 chs., thence,

S. 33°00'W., 12.68 chs., thence,

N. 78°36'W., 23.53 chs., to temp. monument on W. bdy.
of Tp., set at a point 13.06
chs. South from cor. of secs.
19, 24, 25 and 30, as herein-
before described.

Land, gently rolling.

Soil, rocky, 4th rate.

Timber, none.

Undergrowth, native weeds, sage, greasebrush and cacti.

GENERAL DESCRIPTION

The portion of this township surveyed as described in the foregoing field notes includes all of the surveyable land in the township situate west of the Colorado River. The said river flows southwesterly thru the township from the North bdy. of sec. 4 to the W. bdy. of sec. 30, thru a deep canyon with almost perpendicular bare rock walls, about 1800 ft. deep, known as Marble Canyon. This canyon is broken into in secs. 4 and 9 by a side canyon known as North Canyon, entering this township on the W. bdy. of sec. 18, crossing the surveyed portion in a northeasterly direction, and thus dividing the surveyed area into two portions, of nearly equal area to the N. and S. of said North Canyon. The North Canyon is about 20 chs. wide and 200 ft. deep, where it enters this township, but widens and deepens rapidly to its mouth, where it is about 40 chs. wide and 1800 ft. deep. The wash in the bottom of this canyon is dry and the walls of the canyon are precipitous bare rock.

Except the mountainous surface in the canyons, the surface of the area surveyed varies from level and nearly level to rolling and broken, and the soil is gravelly and rocky, 3rd and 4th rates.

There is no timber, and the scattering low undergrowth consists of native weeds, sage, greasebrush and cacti.

There are no springs and the only permanent water is the stream in the Colorado River.

There are no settlers, improvements, roads or trails, and no indications of valuable mineral deposits.

The agricultural value of the land is for grazing and that is of very poor quality.

The center of the Colorado River forms a part of the boundary of the Navajo Indian Reservation, and all of this township to the east of the river is in the said Indian Reservation and is unsurveyed at the present time.

FINAL TEST OF INSTRUMENT.

April 11, 1937: at station at the $\frac{1}{4}$ sec. cor. of secs. 13 and 18, T. 40 N., Rs. 7 and 8 E., in latitude $36^{\circ}52'N.$, longitude $111^{\circ}35'W.$, and on the meridian determined at this station by Polaris observation on January 26 and 27, 1937, as described in field notes of survey of T. 38 N., R. 6 E., test the solar apparatus of Young and Son's transit No. 8526 as follows:

At 9h. 00m., a.m., app.t., set off $36^{\circ}52'N.$ on the lat. arc; $8^{\circ}21'N.$ on the decl. arc; and determine a meridian with the solar, which agrees with the true meridian.

At app. noon, with the lat. arc unchanged, observe the sun on the meridian, and obtain a reading of $8^{\circ}23\frac{1}{2}'N.$ on the decl. arc, which agrees with the computed declination of the sun.

At 3h. 00m., p.m., app.t., with the lat. arc unchanged, set off $8^{\circ}26\frac{1}{2}'N.$ on the decl. arc, and determine a meridian with the solar, which agrees with the true meridian.

As all of the solar observations taken during the usual hours of solar work agree within 1' with the true meridian, conclude that this instrument has remained in satisfactory adjustment throughout the surveys executed with same which are described in the foregoing field notes.

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BOOK 4161

CERTIFICATE OF UNITED STATES SURVEYOR

I, Elliott Pearson, Transitman (P.W.), hereby certify upon honor that, in pursuance supplemental of special instructions received from the District Cadastral Engineer for Arizona bearing date of the 27th day of March, 1936, I have well, faithfully, and truly in my own proper person, and in strict conformity with said instructions, the Manual of Surveying Instructions, and the laws of the United States, surveyed all those parts or portions of

North Boundary

of

Township 37 North, Range 6 East of the Gila and Salt River Meridian, in the State of Arizona, which are represented in

the foregoing field notes as having been executed by me, and under my direction; and that all the corners of said survey have been established and perpetuated in strict accordance with the Manual of Surveying Instructions, and the supplemental special written instructions of the District Cadastral Engineer for Arizona and in the specific manner described in the field notes, and that the foregoing are the original field notes of such survey.

Fredonia, Arizona
January 4, 1938

Elliott Pearson
Transitman (P.W.)

APPROVAL

~~Office of U. S. Supervisor of Surveys,~~

, 19

~~The foregoing field notes of the survey of~~

~~executed by~~

~~under his special instructions dated, 19, having been critically examined, and the necessary corrections and explanations made, the said field notes, and the surveys they describe, are hereby approved.~~

~~U. S. Supervisor of Surveys.~~

~~I certify that the foregoing transcript of the field notes of the above described surveys in~~

~~, has been correctly copied from the original notes on file in this office.~~

~~U. S. Supervisor of Surveys.~~

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CERTIFICATE OF UNITED STATES SURVEYOR

BOOK 4161

I, Bert E. Wakeman, Transitman (P.W.), hereby certify upon honor that, in pursuance supplemental of special instructions received from the District Cadastral Engineer for Arizona bearing date of the 27th day of March, 1936, I have well, faithfully, and truly in my own proper person, and in strict conformity with said instructions, the Manual of Surveying Instructions, and the laws of the United States, retraced all those parts or portions of the West Boundary and surveyed all those parts or portions of the Subdivision Lines of Traverse of Right Rim of Marble Canyon of the Colorado River thru Township 37 North, Range 6 East of the Gila and Salt River Meridian, in the State of Arizona, which are represented in the foregoing field notes as having been executed by me, and under my direction; and that all the corners of said ^{retracement} survey have been established and perpetuated in strict accordance with the Manual of Surveying Instructions, and the ^{supplemental} special written instructions of the District Cadastral Engineer for Arizona and in the specific manner described in the field notes, and that the foregoing are the original field notes of ^{retracement and} such survey.

Phoenix, Arizona
January 3, 1938

Bert E. Wakeman
Transitman (P.W.)

APPROVAL

OFFICE OF SUPERVISOR OF SURVEYS,
Denver, Colorado, July 5, 1938

The foregoing field notes of retracement of Part of West Boundary, and of the survey of Part of North Boundary and Part of Subdivision Lines of, and Traverse of Right Rim of Marble Canyon of the Colorado River thru Township 37 North, Range 6 East of the Gila and Salt River Meridian, in the State of Arizona executed by Bert E. Wakeman and Elliott Pearson, Transitmen (P.W.) supplemental under special instructions dated March 27, 1936 for Group 181, Arizona, having been critically examined, and the necessary corrections and explanations made, the said field notes, and the ^{retracement and} surveys they describe, are hereby approved.

Elliott Pearson
Supervisor of Surveys.

~~I certify that the foregoing transcript of the field notes of the above described surveys in~~
~~has been correctly copied from the original notes on file in this office.~~

U. S. Supervisor of Surveys.