

copied July 16/09

4-679.

Accepted by Telegram Aug 5/09  
7/

JUL 12 1909 (1)

Book A.  
2106

FIELD NOTES BOOK 2106

2106

OF THE SURVEY OF THE

2106

Fractional North and East Boundaries

of Twp. 5 S. Rg. 15 E.

2106

Of the Gila and Salt River Meridian,

Arizona

AS SURVEYED BY

John P. Hesse, United States Deputy Surveyor,  
Sup. Special Instructions of June 4-1909, issued in connection with  
Under his Contract No. 1578, dated June 4, 1909

Survey commenced June 19, 1909

Survey completed June 23, 1909

6-151

2106

2106

2106

NAMES AND DUTIES OF ASSISTANTS.

<i>C. S. Hepner</i>	<i>Chairman</i>
<i>Frank E. Thomas</i>	<i>Chairman</i>
<i>L. B. Jordan</i>	<i>Arman</i>
<i>Ross Stoker</i>	<i>Arman</i>
<i>W. J. Fellows</i>	<i>Flagman</i>

73  
③

BOOK 2106

# INDEX DIAGRAM.

Township 5 S. , Range 15 E

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

Meanders Page \_\_\_\_\_

6-151

PRELIMINARY OATHS OF ASSISTANTS.


WE, C. S. Hepner and F. E. Thomas

do solemnly swear that we will well and faithfully execute the duties of chainmen; that we will level the chain upon even and uneven ground, and plumb the tally pins, either by sticking or dropping the same; that we will report the true distances to all notable objects, and the true lengths of all lines that we assist in measuring, to the best of our skill and ability, and in accordance with instructions given us, in the survey of the frac'l. north and east boundaries of Twp. 5 S. R. 15 E.

C. S. Hepner, Chainman.  
Frank E. Thomas, Chainman.

Subscribed and sworn to before me this 19th day of June, 1909.

Geo Scott  
Notary Public

 My commission expires April 20th 1911.

WE, \_\_\_\_\_ and \_\_\_\_\_

do solemnly swear that we will well and truly perform the duties of moundmen in the establishment of corners, according to the instructions given us, to the best of our skill and ability, in the survey of \_\_\_\_\_

\_\_\_\_\_, Moundman.  
\_\_\_\_\_, Moundman.

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, 19 \_\_\_\_\_




WE, R. B. Jordan and Ross Stoker

do solemnly swear that we will well and truly perform the duties of axmen in the establishment of corners and other duties, according to instructions given us, to the best of our skill and ability, in the survey of the frac'l. north and east boundaries of Twp. 5 S. R. 15 E.

R. B. Jordan, Axman.  
Ross Stoker, Axman.

Subscribed and sworn to before me this 19th day of June, 1909.

Geo Scott  
Notary Public


 My commission expires April 20th 1911  
I, W. J. Fellows, do solemnly swear that I will well and truly

perform the duties of flagman according to instructions given me, to the best of my skill and ability, in the survey of the frac'l. north and east boundaries of Twp. 5 S. R. 15 E.

W. J. Fellows, Flagman.

Subscribed and sworn to before me this 19th day of June, 1909.

Geo Scott  
Notary Public

 My commission expires April 20th 1911

Trac. East boundary of T. 5 S. R. 15 E

Chains.

Survey commenced June 19, 1909 and executed with a Young and Sons light mountain transit, No. 7532, with solar attachment. The horizontal limb is provided with two double verniers placed opposite to each other, reading to single minutes of arc, which is also the least count of the verniers of the latitude and declination arcs.

The instrument was examined, tested on the true meridian at Phoenix, found correct, and was approved by the surveyor general for Arizona.

I examine the adjustments of the transit and find them correct; then, to test the solar apparatus, by comparing its indications, resulting from solar observations made during a. m. and p. m. hours, with a meridian determined by observations on Polaris, I proceed as follows:

At a stone set firmly in the ground and marked with a cross on top about 20 chains north of Winkelman; latitude  $32^{\circ} 59' N.$  longitude approximately  $111^{\circ} 16' W.$ ; I set off  $32^{\circ} 59' N.$  on the lat. arc;  $23^{\circ} 27' N.$  on the decl. arc; and at 4h. oom. p. m. l. m. t., determine with the solar a meridian and mark a point thereof, on a stone set firmly in the ground, 5chs. N. of my station.

June 19, 1909.

June 20: At 1h. 39m. a. m. by my watch, which has correct l. m. t., I observe Polaris at eastern elongation, in accordance with Manual of Instructions, and mark a point in the line thus determined, on a peg driven in the ground 5 chs. N. of my station.

At 7 a. m., l. m. t., I lay off the azimuth of Polaris  $1^{\circ} 24'$  to the West, and mark the meridian thus determined by cutting a small groove in the stone set June 19, on which the meridian falls 0.3 ins. east of the mark determined by the solar.

At 8h. 00m. a. m., l. m. t., I set off  $32^{\circ} 59' N.$  on the lat. arc;  $23^{\circ} 27' N.$  on the decl. arc; and mark a point in the meridian determined with the solar, by a cross on the stone already set 5 chs. N. of my station; this mark falls 0.3 ins. east of the meridian established by the Polaris observation.

The solar apparatus, by p.m. and a.m. observations, defines positions for meridians, respectively about  $0' 16'$  east and west of the meridian established by the Polaris observations; therefore, I conclude that the adjustments of the instrument are satisfactory.

The magnetic bearing of the true meridian, at 8h. 30m. a.m., is  $N. 14^{\circ} 00' W.$ ; the angle thus determined gives the mag. decl.  $14^{\circ} 00' E.$

The cor. of secs. 7, 12, 13 and 18 on the east boundary of the Tp. is a post marked and witnessed as described by the Surveyor General, but as the post is badly rotted I destroy this old cor. and reestablish it in the same place as follows; set a limestone  $24 \times 6 \times 6$  ins. 18 ins. in the ground for cor. of secs. 7, 12, 13 and 18, marked with 4 notches on S. and 3 notches on N. edges; and raise a mound of stone 2 ft. base  $1\frac{1}{2}$  ft. high, W. of cor. Pits impracticable.

from this cor. I run

North bet. secs. 7 and 12.

Descending rough rocky point through mesquite brush.

0.40 Over bed of Gila River dry but subject to overflow.

3.20 Gila River course West, 80 lks. wide, clear running water, 6 ins., deep. Asc. steep rough South slope over loose rocks and boulders.

4.50 Phoenix and Eastern Railroad grade, bears East and West.

22.00 Top of extremely high hill, desc. steep rocky rough NE. slope.

40.00 Set a limestone,  $20 \times 8 \times 8$  ins., 15 ins., in the ground, for  $\frac{1}{4}$  sec. cor. marked  $\frac{1}{4}$  on W. face; and raise a mound of stone, 2 ft. base,  $1\frac{1}{2}$  ft. high, W. of cor. Pits impracticable.

## East Boundary of Township 5 South Range 15 East.

chains	
80.00	Set a limestone, 16X10X8 ins., 11 ins. in the ground, for cor. of secs. 1, 6, 7, and 12, marked with 1 notch on the N., and 5 notches on the S. edge; and raise a mound of stone, 2 ft. base, 1, 1/2 ft. high, W. of cor. Pits impracticable. Land, rough, rugged and mountainous. Soil, stony and rocky; 4th rate. No timber. Underbrush, greasewood, and cacti and mesquite. Land covered with dense brush, mountainous, exceptionally difficult to survey, 80.00 chs.
-----	
	North bet. secs. 1 and 6. Descending over steep rough slope, covered with loose rocks, and through dense underbrush.
2.00	Wash, course SE., 40 lks. wide, Asc. steep rough slope.
7.00	Drain, course SE.
22.50	Top of Ridge, bears E. and W.; Desc. steep rough slope.
30.00	Wash, 25 lks. wide, course E. Asc. steep rough slope.
36.00	Top of ridge, bears E. and W., Desc. steep rough slope.
40.00	Set a limestone, 16X14X6 ins., 11 ins. in the ground, for 1/4 sec. cor., marked 1/4 on W. face; and raise a mound of stone, 2 ft. base, 1, 1/2 ft. high, W. of cor. Pits impracticable.
41.75	Wash, 50 lks. wide, course E. Asc. steep rough slope.
49.35	Top of steep bluff, bears E. and W., Desc. steep rough slope.
54.85	Drain, course E. Asc. steep rough slope.
59.60	Top of Rim of box canyon, bears SE.
63.00	Wash, 40 lks., course SE. Asc. steep wall of box canyon.
67.75	Top of N. Rim of box canyon, course SE.
70.00	Top of S. Rim of same box canyon. Desc. into canyon.
72.00	Along Wash in canyon.
74.60	Leave wash and asc. steep wall of canyon.
76.00	Top of N. Rim of box canyon, course SW. Asc. steep rough slope.
78.00	Wash, 30 lks. wide, course SE. Asc. steep rough slope.
80.00	Set a malpais stone, 18X8X8 ins., 12 ins. in the ground, for Tps. 5 and 4 S., Rs. 15 and 16 E., marked, 4 S. on NE., 16 E., on SE., 5 S., on SW., and 15 E., on NW. face; with 6 notches on each edge, and raise a mound of stone, 2 ft. base, 1, 1/2 ft. high, S. of cor. Pits impracticable. Land, rough, rugged and mountainous. Soil, stony and rocky; 4th rate. No timber. Underbrush, mesquite, greasewood and cacti. Land, covered with dense underbrush, mountainous, and exceptionally difficult to survey, 80.00 chs.

June 20, 1909.

## Frac. North Boundary of Township 5 South Range 15 East.

chains

June 22: At 7 a.m., l.m.t., I set off  $33^{\circ}01, 1/2'$  on the lat. arc;  $23^{\circ}28, 1/2'$  N. on the decl. arc; and determine a true meridian with the solar at the cor of Tps 4 and 5 S., Rs., 15 and 16 E.,

Thence I run

West on a random line, along the N. bdy. of Tp. 5 S., R. 15 E. setting temp  $\frac{1}{4}$  sec. and sec. cors. at intervals of 40.00 chs.; and, at 161.07 I fall 160 lks. S. of the old cor. of secs. 2, 3, 34, and 35, marked and witnessed as described by Surveyor General. The falling answers to a correction of  $0^{\circ}03'$ , counting from the NE cor. of the Tp.: I reset cor. as follows:

Set a limestone,  $16 \times 12 \times 10$  ins., 11 ins. in the ground, for cor of secs. 2, 3, 34, and 35, marked with 2 notches on the E. and 2 notches on the W. edges; and raise a mound of stones, 2 ft. base,  $1, 1/2$  ft. high, W. of cor. Pits impracticabl  
At this cor. I set off  $23^{\circ}27, 1/2'$  N. on the decl. arc, and observe the sun on the meridian at noon; the resulting lat. being  $33^{\circ}01, 1/2'$  N.

Thence from this cor. I run

S  $89^{\circ}57'$  E. on true line bet. secs 2 and 35.

Asc. steep rough slope covered with dense rocks, thro dense underbrush.

1.70 Top of ridge, bears N. and S., desc steep rough slope over loose rocks.

11.50 Wash, 24 lks. wide, course S. asc steep rough slope over loose rocks, and boulders.

37.70 Top of high bluff, bears N. and S., desc. steep rough slope over loose rocks.

40.20 Drain, course S., asc, steep rough slope over loose rocks.

41.07 Set a granite stone,  $18 \times 8 \times 6$  ins., 12 ins. in the ground, for  $\frac{1}{4}$  sec. cor., marked with  $\frac{1}{4}$  on N. face; and raise a mound of stones 2 ft. base,  $1, 1/2$  ft. high N. of cor. pits imprac.

43.20 Top of ridge, bears N. and S. desc. steep rough slope over loose rocks.

46.70 Drain, course S. asc, steep rough slope covered with loose rocks.

55.70 Top of extremely high ridge, bears N. and S.; desc. steep rough slope covered with dense rocks.

81.07 Set a granite stone,  $18 \times 8 \times 8$  ins., 12 ins. in the ground, for cor. of secs 35 and 36, marked with 5 notches on the W. and 1 notch on the E. edges. and raise a mound of stones, 2 ft. base,  $1, 1/2$  ft. high, N. of cor.

Land, rough, rugged and mountainous.

Soil, stony and rocky: 4th rate.

No timber.

Underbrush, mesquite, greasewood, and cacti.

Land mountainous, covered with loose rocks and dense

Underbrush, exceptionally difficult to survey, 81.07 chs.

June 23rd; at 7 a.m., l.m.t., I set off  $33^{\circ}01, 1/2'$  on the lat. arc;  $23^{\circ}27, 1/2'$  N. on the decl. arc and determine a true meridian with the solar at the cor. of secs. 35 and 36; thence I run

S  $89^{\circ}57'$  E. bet. secs. 1 and 36.

Descending steep rough slope over loose rocks thro dense underbrush.

20.00 Wash, 45 lks. wide, course S. Asc. steep rough slope covered with loose rocks.

24.50 Top of high ridge, bears N. and S. Desc. steep rough slope covered with dense rocks.

32.00 Drain course S. Asc. steep rough slope covered with dense rocks.

40.00 Set a granite stone,  $20 \times 8 \times 6$  ins., 15 ins. in the ground, for  $\frac{1}{4}$  sec. cor., marked  $\frac{1}{4}$  on N. face; and raise a mound of stones, 2 ft. base,  $1, 1/2$  ft. high N. of cor. Pits impracticabl

41.00 Ridge, bears N. and S. desc. steep rough slope over loose rocks.

49.00 Drain, course S. asc. steep rough slope covered with

78

8

North Boundary of Township 5 South Range 15 East.

chains.  
 63.00 loose rocks.  
 Top of ridge, bears N. and S. desc. steep rough slope covered with loose rocks.  
 77.50 Wash, 25 lks. wide, course SE. Asc. steep rough slope covered with loose rocks.  
 80.00 Intersect the cor. of Tps. 4 and 5 S., Rs., 15 and 16 E.,  
 Land, rough, rugged and mountainous. <sup>previously described</sup>  
 Soil, rocky and stony.  
 No timber.  
 Underbrush, mesquite, greasewood and cacti.  
 Land, mountainous, covered with loose rocks and dense underbrush, exceptionally difficult to survey, 80.00 chs

Boundaries of fractional Tp. 5 S. Rg. 15 E.  
 Latitudes, departures and Closing errors.

Line designated	True bearing	Distance	Latitudes		Departures	
			N.	S.	E.	W.
East Bdy. T. 5 S., R. 15 E. -----	South	160.00		160.00		
Line bet. Secs. 12 & 13. -----	N 89° 48' W	79.42	0.28			79.42
Line bet. Secs. 13 & 14. -----	South	80.00		80.00		
Line bet. Secs. 14 & 23. -----	S 89° 45' W	76.11		33		76.11
Line bet. Secs. 14 & 23. -----	West	4.00				4.00
W. Bdy. of Secs. 2, 11, & 14. -----	N 0° 23' W	80.00	80.00			0.54
	N 0° 17' W	39.80	39.80			0.20
	N 0° 33' W	37.90	37.90			0.39
	N 0° 06' E	40.12	40.12		0.07	
	N 0° 18' W	40.18	40.18			0.21
North Bdy. T. 5 S., R. 15 E. -----	S 89° 57' E	161.00		0.18	161.00	
Convergency -----					0.08	
Totals -----			240.36	240.49	161.22	160.87
				240.36	160.87	
				.13	.35	

General Description.

This fractional township is very rough and mountainous excepting a strip along the north bank of the Gila River which is level. The Gila River runs along the southern part of the portion of this township surveyed under these instructions.

*John A. Hesse*  
 U. S. Deputy Surveyor.



LIST OF NAMES.

A list of the names of the individuals employed by John P. Hesse

United States Deputy Surveyor, to assist in running, measuring, and marking the lines and corners described in the foregoing field notes of the survey of the frac'l

N. and E. boundaries of Tp. 5 S. Rg. 15 E.

showing the respective capacities in which they acted:

C. S. Hepner, Chairman.

Frank E. Thomas, Chairman.

Moundman.

Moundman.

R. B. Jordan, Axman.

Ross Stokes, Axman.

W. J. Fellows, Flagman.

FINAL OATH OF ASSISTANTS.

We hereby certify that we assisted John P. Hesse

United States Deputy Surveyor, in surveying all those parts or portions of the frac'l north and east boundaries of Tp. 5 S. Rg. 15 E.

of the Gila and Salt River meridian, Territory of Arizona, which are represented in the foregoing field notes as having been surveyed by him and under his direction; and that said survey has been in all respects, to the best of our knowledge and belief, well and faithfully surveyed, and the corner monuments established, according to the instructions furnished by the United States Surveyor General for Arizona

Chas S Hepner, Chairman.

Frank E. Thomas, Chairman.

Moundman.

Moundman.

L. B. Jordan, Axman.

Ross Stokes, Axman.

W. J. Fellows, Flagman.

Subscribed and sworn to before me this 1st day of July, 19 09



Geo Scott  
Notary Public

my commission expires April 20th 1911

88  
BOOK 10  
2106

FINAL OATH OF UNITED STATES DEPUTY SURVEYOR.

I, John P. Hesse United States Deputy Surveyor, do solemnly swear that, in pursuance of a contract received from Frank S. Ingalls United States Surveyor General for Arizona, bearing date of the 4th day of June, 1909, I have well, faithfully, and truly, in my own proper person, and in strict conformity with the instructions furnished by the United States Surveyor General for Arizona, the Manual of Surveying Instructions, and the laws of the United States, surveyed all those parts or portions of the fractional North and East Boundaries of Twp. 5 S. Rg. 15 E.

of the Gila and Salt River meridian, in the Territory of Arizona, which are represented in the foregoing field notes as having been surveyed by me, and under my direction; and I do further solemnly swear that all the corners of said survey have been established and perpetuated in strict accordance with the **Manual** of Surveying Instructions, and the special written instructions of the United States Surveyor General for Arizona and in the specific manner described in the field notes, and that the foregoing are the original field notes of such survey.

John P. Hesse  
United States Deputy Surveyor.

Subscribed by said John P. Hesse, and sworn to before me }  
this 12th day of July, 1909

Frank S. Ingalls  
U.S. Surveyor General



APPROVAL.

OFFICE OF THE UNITED STATES SURVEYOR GENERAL,

Phoenix, Ariz. July 19, 1909  
The foregoing field notes of the survey of the fractional North and East Boundaries of Twp. 5 S. Rg. 15 East, Gila and Salt River Base and Meridian, Arizona

executed by John P. Hesse U.S. Deputy Surveyor, under his contract No. 78, dated June 4, 1909, having been critically examined, and the necessary corrections and explanations made, the said field notes, and the surveys they describe, are hereby approved.

Frank S. Ingalls  
United States Surveyor General.

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.

United States Surveyor General.