

BOOK 3342

# FIELD NOTES

RE  
OF THE SURVEY OF THE

WEST BOUNDARY OF

THE NAVAJO INDIAN RESERVATION.

(as established by Treaty of June 1, 1868)

3342

Of the

*Navajo Indian Reservation* (inserted to part of record)  
~~Meridian~~

In the State of ARIZONA

EXECUTED BY

LOYD E. SECHRIST

U. S. Transitman

~~In the capacity of U. S. Surveyor~~, under Special Instructions dated September 24 1919,  
issued by the United States Surveyor General to govern surveys included in Group  
No. 97, which were approved by the Commissioner of the General Land  
Office October 8, 1919, and Assignment Instructions dated Oct. 27, 1919

Re Survey commenced November 24, 1919

Re Survey completed April 6, 1920

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BOOK 3342

# INDEX DIAGRAM.

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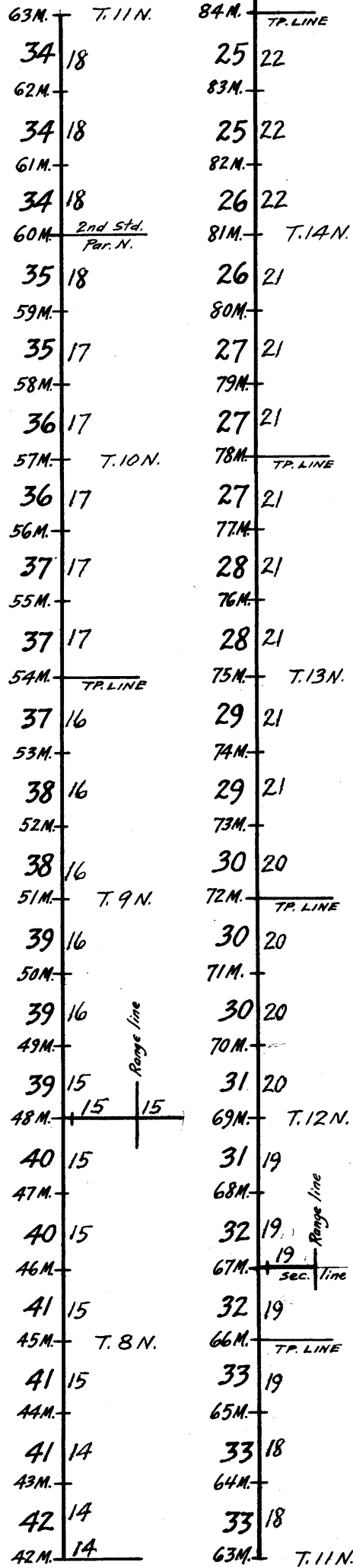
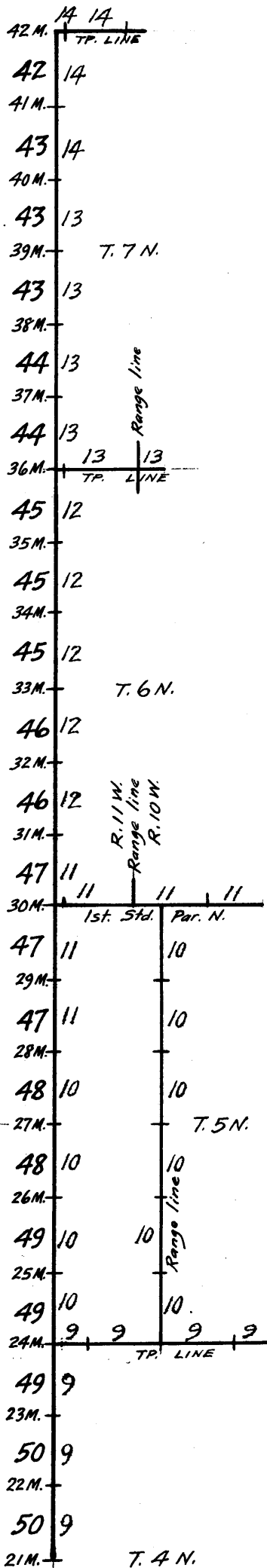
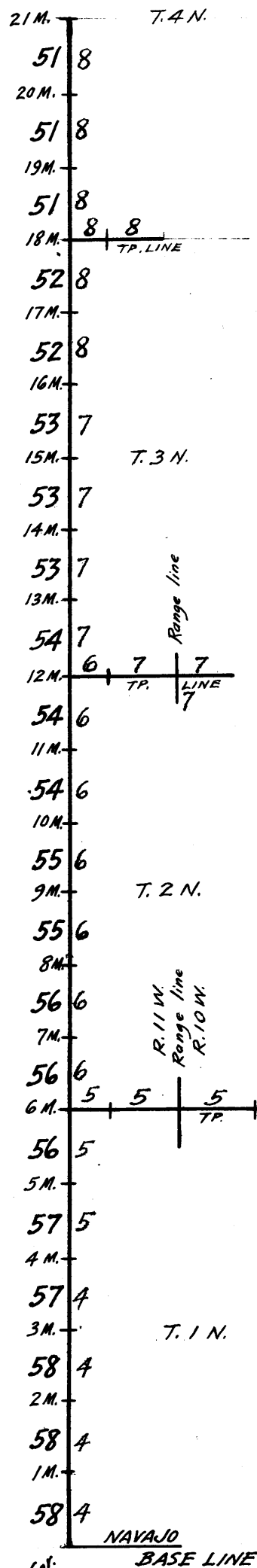
GROUP NO 97 - ARIZONA

"INDEX-DIAGRAM"

Resurvey notes indexed in black figures.  
Retracement notes indexed in red figures.

BOOK 8842

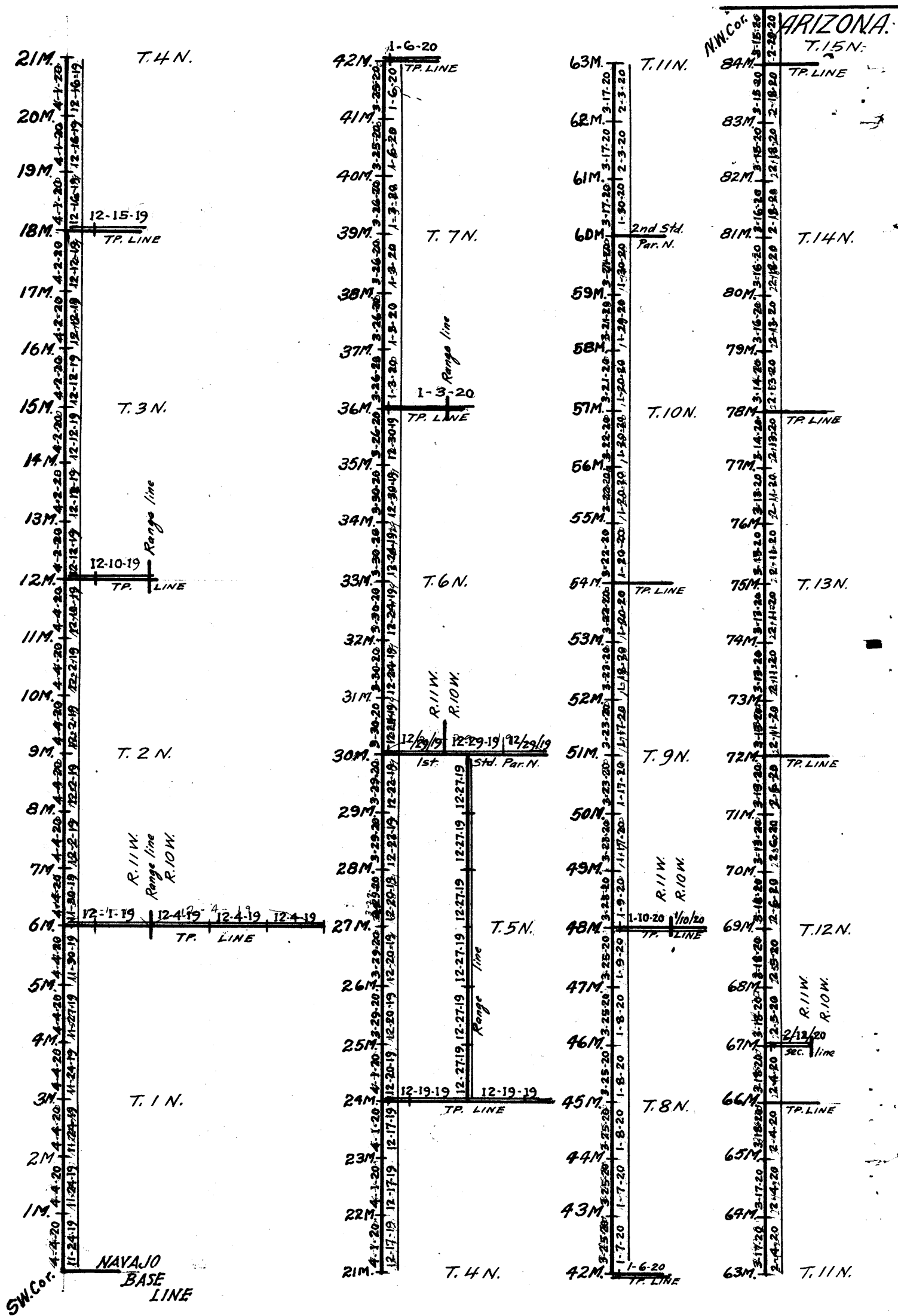
UTAH.  
ARIZONA



~ DATE DIAGRAM ~

Dates of retracement underlined in red.

UTAH



Chains.

Retracement and resurvey, hereinafter described, executed by Loyd E. Sechrist, U. S. Transitman, on days shown on diagram on page 2 of these notes, with Buff & Buff solar transit No. 10124, with improved Smith 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 approved, conditional upon satisfactory field tests, by the Asst. Supervisor of Surveys for Arizona, October 27, 1919.

Unless otherwise specified all measurements are made with a Lallie steel tape 5 chains in length compared with a Lufkin standard steel tape and found correct. The measurements are made on the slope, the vertical angle determined, and the slope measurements properly reduced to true horizontal distances.

Examine the adjustments of the transit, and correct the level and collimation errors; 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, proceed as follows:

Nov. 28, 1919. At camp, which is 51 chs. N. and 32 chs. E. of temp. mile cor. No. 4, on the W. Bdy. of the Navajo Indian Reservation, in approximate latitude  $35^{\circ}50'N.$ , and longitude  $109^{\circ}38'.4 W.$ , I make an altitude observation on Polaris at upper culmination for latitude, making four observations, two each with the telescope in direct and reversed positions:

Mean watch time of observation	9h 23m 37s p.m.
(watch correct with 105th meridian time by comparison)	
Mean observed vertical angle	$36^{\circ} 57' 30''$
Reduced latitude	$35^{\circ} 49' 07'' N.$

Nov. 29, 1919. At the above described station, in latitude  $35^{\circ}49'N.$ , longitude  $109^{\circ}38'.4 W.$ , at 3h 19.1m a.m., l.m.t., I observe Polaris at western elongation, making six observations, three each with the telescope in direct and reversed positions, reading the deflection angle from a nail in a peg driven firmly in the ground, 11 chs. N., west to Polaris:

Azimuth of Polaris at western elongation	$1^{\circ}22'42''$
Mean deflection angle	$1^{\circ}17'30''$
True bearing of mark	$N.0^{\circ}05'12''W.$

At 9h 0m a.m., l.m.t., I set off  $35^{\circ}49'N.$ , on the lat. arc;  $21^{\circ}21'S.$ , on the decl. arc; and determine a meridian with the solar which I find to agree with the true meridian.

At app. noon, with the lat. arc unchanged, I observe the sun on the meridian; the resulting reading of the decl. arc is  $21^{\circ}23'S.$ , which agrees with the computed declination of the sun.

At 3h 0m p.m., l.m.t., with the lat. arc unchanged, I set off  $21^{\circ}23'.5 S.$ , on the decl. arc; and determine a meridian with the solar which I find to agree with the true meridian.

As all of the solar observations during the usual hours of solar work come within  $1'30''$  of the true meridian, I conclude that the adjustments of the instrument are satisfactory.

Resurvey of the West Boundary of  
the Navajo Indian Reservation.  
(as established by Treaty of June 1, 1868)

Chains.

Retracement for resurvey.

Beginning at the original SW. cor. of the Navajo Indian Reservation, which is a cedar post, 7 ins. diam., burned off level with the surface of the ground, The post is charred and set 2½ ft. in the ground. At base of post is a sandstone, 12x10x4 ins., marked "NR". Faint trace of old pits, 2 ft. square, N., S., E. and W. of post, 5½ ft. dist., and mound of earth, 4 ft. base, 6 ins. high, around post; from which  
North end of ridge, bears N.40°13'E.  
South point of Lukachukai Mountain, bears N.34°03'E.  
East end of Black Mesa ( called Squash Mountain in the original notes), bears N.15°05'W.  
Peak on Black Mesa (Squash mountain) Bears N.22°47'W.  
North end of Mesa (Vaca) bears N.39°17'W.  
North end of red sandstone ridge, bears N.47°37'W.

The exact points of original reference are not definitely determinable, but the above bearings closely agree with those given in the original notes.

The original cedar post, 6½ ft. above the ground, has been burned off but the buried butt has never been disturbed. The size and markings of the buried sandstone are as given in the original notes. The cor. is on a grassy, gentle N. slope and depressions of the original pits are plainly visible. The original mound of earth around the cor. post has weathered down to about 6 ins. above the general surface of the ground.

Thence

- North, on a random line, on 1st mile of W. Bdy. of the Navajo Indian Reservation.
- Along edge of scattering timber.
- 21.18 Dry wash, 15 lks. wide, 6 ft. deep, course N.85°W. Leave edge of scattering timber, bears NE. and S. Enter open rolling prairie.
- 71.20 Dry wash, 35 lks. wide, 15 ft. deep, course S.80°W. (Original notes call for "71.00 Ravine, course WSW".)
- 80.00 After diligent search fail to find any evidence of original 1-mile cor.  
Set temp. cor.

- North, on a random line, on 2nd mile of W. Bdy. of the Navajo Indian Reservation.
- 45.50 Dry wash, 100 lks. wide, 8 ft. deep, course N.80°W. (Original notes call for "46.50 Ravine, with running water. Course West.")
- 80.00 After diligent search fail to find any evidence of original 2-mile cor.  
Set temp. cor.

- North, on a random line, on 3rd mile of W. Bdy. of the Navajo Indian Reservation.
- 80.00 After diligent search, fail to find any evidence of original 3-mile cor.  
Set temp. cor.

- North, on a random line, on 4th mile of W. Bdy. of the Navajo Indian Reservation.
- 80.00 After diligent search, fail to find any evidence of original 4-mile cor.

Resurvey of the West Boundary of  
the Navajo Indian Reservation.  
(as established by Treaty of June 1, 1868)

Chains.

Retracement for resurvey, continued.

Set temp. cor., from which  
Right point of Black Mesa (Mesa Calabaza) bears N.16°30'W.  
Peak on same, bears N.26°13'W.  
Mesa (Vaca) bears N.45°55'W.  
The above bearings closely agree with those given in  
the original notes.

80.00 North, on a random line, on 5th mile of W. Bdy. of the  
Navajo Indian Reservation.  
After diligent search, fail to find any evidence of  
original 5-mile cor.  
Set temp. cor.

38.00 North, on random line, on 6th mile of W. Bdy. of the  
Navajo Indian Reservation.  
Old road, bears E. and W.  
(Original notes call for "42.00 Trail brs E. and W.")  
65.00 Main road, bears NW. and SE.  
(Original notes call for "68.00 Trail brs E. and W.")  
80.00 After diligent search, fail to find any evidence of  
original 6-mile cor.  
Set temp. cor.

39.20 From temp. 6-mile cor. on W. Bdy. of Reservation,  
East, on random line, bet. secs. 2 and 35, Ts. 1 and 2 N.,  
R. 11 W.  
(Record dist.) After diligent search, fail to find any  
evidence of original cor. of secs. 1, 2, 25 and 36,  
Ts. 1 and 2 N., R. 11 W.

40.00 Thence,  
East, on random line, bet. secs. 1 and 36, Ts. 1 and 2 N.,  
R. 11 W.  
After diligent search, fail to find any evidence of  
original 1/4 sec. cor.  
80.00 After diligent search, fail to find any evidence of  
original cor. of Ts. 1 and 2 N., Rs. 10 and 11 W.

232.62 Thence,  
East, on random line, bet. Ts. 1 and 2 N., R. 10 W.,  
making diligent search at intervals of 40.00 chs., but  
fail to find any evidence of original 1/4 sec. and Sec.  
cors.  
Edge of bluff, bears SE. and N.85°W.  
(Original notes of line bet. secs. 4 and 33, Ts. 1 and 2  
N., R. 10 W., call for edge of bluff at 47.00 chs. E.  
of the cor. of secs. 4, 5, 32 and 33. This call could  
be satisfied if random line were 5 or 6 chs. North of  
its present position.)

Resurvey of the West Boundary of  
the Navajo Indian Reservation.

(as established by Treaty of June 1, 1868)

Retracement for resurvey, continued.

Chains.

80.00	<p>From temp. 6-mile cor. on W. Bdy. of Reservation, North, on random line, on 7th mile of W. Bdy. of the Navajo Indian Reservation. After diligent search, fail to find any evidence of original 7-mile cor. Set temp. cor.</p>
80.00	<p>North, on random line, on 8th mile of W. Bdy. of the Navajo Indian Reservation. After diligent search, fail to find any evidence of original 8-mile cor. Set temp. cor., from which Mesa Vaca bears N.54°27'W. Mesa Calabaza bears N.30°45'W. Point on Mesa Calabaza bears N.18°20'W. (Original notes give Mesa Vaca as N.18°10'W., evidently an error and should refer to Point on Mesa Calabaza. Otherwise, bearings closely check those given in the original notes.)</p>
80.00	<p>North, on random line, on 9th mile of W. Bdy. of the Navajo Indian Reservation. After diligent search, fail to find any evidence of original 9-mile cor. Set temp. cor.</p>
80.00	<p>North, on random line, on 10th mile of W. Bdy. of the Navajo Indian Reservation. After diligent search, fail to find any evidence of original 10-mile cor. Set temp. cor.</p>
80.00	<p>North, on random line, on 11th mile of W. Bdy. of the Navajo Indian Reservation. After diligent search, fail to find any evidence of original 11-mile cor.</p>
80.00	<p>North, on a random line, on 12th mile of W. Bdy. of the Navajo Indian Reservation. After diligent search, fail to find any evidence of the original 12-mile cor. Set temp. cor.</p>
40.00	<p>From a point 63 lks. N. of the temp. 12-mile cor. on W. Bdy. of Reservation, East, on random line, bet. secs. 2 and 35, Ts. 2 and 3 N., R. 11 W. (Record dist.) After diligent search, fail to find any evidence of original cor. of secs. 1, 2, 35 and 36, Ts. 2 and 3 N., R. 11 W.</p>



Resurvey of the West Boundary of  
the Navajo Indian Reservation.  
(as established by Treaty of June 1, 1868)

Chains.	
	<u>Retracement for resurvey, continued.</u>
	Thence, East, on random line, bet. secs. 1 and 36, Ts. 2 and 3 N., R. 11 E.
40.00	After diligent search, fail to find any evidence of original $\frac{1}{4}$ sec. cor.
80.00	After diligent search, fail to find any evidence of original cor. of Ts. 2 and 3 N., Rs. 10 and 11 W. Set temp. point.
	Thence, East, on random line, bet. secs. 6 and 31, Ts. 2 and 3 N., R. 10 W.
9.67	Top of bluff, bears N. and S. (Original notes call for bluff at 13.00 chs.)
	From the temp. point for cor. of Ts. 2 and 3 N., Rs. 10 and 11 W., South, on random line, bet. secs. 1 and 6, T. 2 N., Rs. 10 and 11 W.
8.40	Top of bluff, bears NE. and SW. (Original notes call for bluff at 46.50. From the con- figuration of the bluff, if the random line bet. Ts. 2 and 3 N. were about 10 chs. N. and the random line bet. Rs. 10 and 11 W., were W. about 2.5 chs., the call of the original notes for this bluff would be satisfied.)
	From temp. 12-mile cor. on W. Bdy. of reservation, North, on random line, on 13th mile of W. Bdy. of the Navajo Indian Reservation.
80.00	After diligent search, fail to find any evidence of original 12-mile cor. Set temp. cor.
	North, on random line, on 14th mile of W. Bdy. of the Navajo Indian Reservation.
80.00	After diligent search, fail to find any evidence of original 14-mile cor. Set temp. cor.
	North, on random line, on 15th mile of W. Bdy. of the Navajo Indian Reservation.
80.00	After diligent search, fail to find any evidence of original 15-mile cor. Set temp. cor.
	North, on random line, on 16th mile of W. Bdy. of the Navajo Indian Reservation.
80.00	After diligent search, fail to find any evidence of original 16-mile cor. Set temp. cor.

Resurvey of the West Boundary of  
the Navajo Indian Reservation.  
(as established by Treaty of June 1, 1868)

Chains.	<p>Retracement for resurvey, continued.</p>
80.00	<p>North, on random line, on 17th mile of W. Bdy. of the Navajo Indian Reservation. After diligent search, fail to find any evidence of original 17-mile cor. Set temp. cor.</p>
80.00	<p>North, on random line, on 18th mile of W. Bdy. of the Navajo Indian Reservation. After diligent search, fail to find any evidence of original 18-mile cor. Set temp. cor.</p>
39.90	<p>From temp. 18-mile cor. on W. Bdy. of Reservation, East, on random line bet. secs. 2 and 35, Ts. 3 and 4 N., R. 11 W. (Record dist.) After diligent search, fail to find any evidence of original cor. of secs. 1, 2, 35 and 36, Ts. 3 and 4 N., R. 11 W.</p>
57.80	<p>Thence, East, on random line, bet. secs. 1 and 36, Ts. 3 and 4 N., R. 11 W. Top of bluff, bears N. and S. (Original notes call for bluff at 76.10 chs. The bluff juts out to the east about 20 chs. N. of random line. If random line were moved N. and W., call of original notes would be satisfied.)</p>
80.00	<p>From temp. 18-mile cor. of W. Bdy. of Reservation, North, on random line, on 19th mile of W. Bdy. of the Navajo Indian Reservation. After diligent search, fail to find any evidence of original 19-mile cor. Set temp. cor.</p>
80.00	<p>North, on random line, on 20th mile of W. Bdy. of the Navajo Indian Reservation. After diligent search, fail to find any evidence of original 20-mile cor. Set temp. cor.</p>
80.00	<p>North, on random line, on 21st mile of W. Bdy. of the Navajo Indian Reservation. After diligent search, fail to find any evidence of original 21-mile cor. Set temp. cor.</p>

Resurvey of the West Boundary of  
the Navajo Indian Reservation.  
(as established by Treaty of June 1, 1868)

Chains.

Retracement for resurvey, continued.

80.00 North, on random line, on 22nd mile of W. Bdy. of the Navajo Indian Reservation.  
After diligent search, fail to find any evidence of original 22-mile cor.  
Set temp. cor.

80.00 North, on random line, on 23rd mile of W. Bdy. of the Navajo Indian Reservation.  
After diligent search, fail to find any evidence of original 23-mile cor.  
Set temp. cor.

80.00 North, on random line, on 24th mile of W. Bdy. of the Navajo Indian Reservation.  
After diligent search, fail to find any evidence of original 24-mile cor.  
Set temp. cor.

30.61 From temp. 24-mile cor. on W. Bdy. of Reservation, East, on random line, bet. secs. 2 and 35, Ts. 4 and 5 N., R. 11 W.  
Top of bluff, bears N. and S.  
(Original notes call for bluff at 27.60 chs. The bluff turns to the NW. about 10 chs. N. of this point and the call of the original notes would be satisfied if random line were moved North.)  
39.80 (Record dist.) After diligent search, fail to find any evidence of original cor. of secs. 1, 2, 35 and 36, Ts. 4 and 5 N., R. 11 W.

40.00 Thence, East, on random line, bet. secs. 1 and 36, Ts. 4 and 5 N., R. 11 W.  
After diligent search, fail to find any evidence of original  $\frac{1}{4}$  sec. cor.  
80.00 After diligent search, fail to find any evidence of original cor. of Ts. 4 and 5 N., Rs. 10 and 11 W.  
Set temp. point.

40.00 Thence, East, on random line, bet. secs. 6 and 31, Ts. 4 and 5 N., R. 10 W.  
After diligent search, fail to find any evidence of original  $\frac{1}{4}$  sec. cor.  
80.00 After diligent search, fail to find any evidence of original cor. of secs. 5, 6, 31 and 32.

Thence, East, on random line bet. secs. 5 and 32, Ts. 4 and 5 N., R. 10 W.

13.  
200

Resurvey of the West Boundary Of  
the Navajo Indian Reservation.  
(as established by Treaty of June 1, 1868)

Chains.	<u>Retracement for resurvey, continued.</u>
24.30 35.00	West bank of Nasilina Creek (Rio Puerco) bears N. and S. Center of Nasilina Creek, course N. A few chains N. the creek changes course to N.15°E. for $\frac{1}{4}$ mile. If line was moved North, the call of the original notes for center of creek at 34.00 chs. would be satisfied, as creek has widened out since time of original survey.
	From the temp. point for cor. of Ts. 4 and 5 N., Rs. 10 and 11 W., North, on random line, bet. Rs. 10 and 11 W., making diligent search at intervals of 40 chs. for original $\frac{1}{4}$ sec. and sec. cors. but fail to find any evidence of same, and at 481.65 chs. (record dist.) make diligent search for the closing cor. of Ts. 5 S., Rs. 10 and 11 W., and for cors. on the 1st St. Par. N., but fail to find any evidence of the original cors.
44.89	From temp. 24-mile cor. on W. Bdy. of the Reservation, North, on random line, on 25th mile of W. Bdy. of the Navajo Indian Reservation. Edge of bluff, bears E. and W. (Original notes call for "17.00 chs. Top of Bluff brs. E. and W.")
80.00	After diligent search, fail to find any evidence of original 25-mile cor. Set temp. cor.
80.00	North, on random line, on 26th mile of W. Bdy. of the Navajo Indian Reservation. After diligent search, fail to find any evidence of original 26-mile cor. Set temp. cor.
3 5.65	North, on random line, on 27th mile of W. Bdy. of the Navajo Indian Reservation. Dry wash, 35 lks. wide, 4 ft. deep, course E. (Original notes call for creek at 4.25 chs. The wash comes from the SW. about 5 chs. W. of line.)
80.00	After diligent search, fail to find any evidence of original 27-mile cor. Set temp. cor.
34.99	North, on random line, on 28th mile of W. Bdy. of the Navajo Indian Reservation. Asc. sandy spur, slopes NE. Edge of main cliff, 2 chs. W. of this point, bears N.15°E. and S.15°W. (Original notes call for 27-mile cor. at foot of bluff.)
75.61	Top of bluff, bears NE. and S.15°W. (Original notes call for top of bluff at 40.00 chs.)
80.00	After diligent search, fail to find any evidence of original 28-mile cor. Set temp. cor.

Resurvey of the West Boundary of  
the Navajo Indian Reservation.  
(as established by Treaty of June 1, 1868)

Chains.	<u>Retracement for resurvey, continued.</u>
80.00	North, on random line, on 29th mile of W. Bdy. of the Navajo Indian Reservation. Red sandstone column bears N.84°59'W. After diligent search, fail to find any evidence of original 29-mile cor. Set temp. cor.
65.45	North, on random line, on 30th mile of W. Bdy. of the Navajo Indian Reservation. Stone column bears S.81°34'W. By calculations from bearings to stone column in original notes, at 68.37 chs. N. of the original 29-mile cor., the stone column would bear West, 239.15 chs. dist. By calculations from bearings as given above, at 24.34 chs. N. of temp. 29-mile cor., stone column would bear West, 277.28 chs. dist. Uncertainty exists as to which stone column is referred to in original notes as one large one and several smaller ones stand at present.
80.00	After diligent search, fail to find any evidence of original 30-mile cor. Set temp. cor.
12.50	By this time it is increasingly evident from the retracement, that the original distances between mile corners were in excess of 80.00 chs., therefore, from a point 37.65 chs. N. of temp. 30-mile cor., East, on random line, along 1st St. Par. N., on S. Bdy. of sec. 35, T. 6 N., R. 11 W. After diligent search, fail to find any evidence of the standard cor. of secs. 35 and 36, T. 6 N., R. 11 W.
40.00	Thence, East, on random line, along 1st St. Par. N., on S. bdy. of sec. 36, T. 6 N., R. 11 W. After diligent search, fail to find any evidence of original standard $\frac{1}{4}$ sec. cor.
80.00	After diligent search, fail to find any evidence of original standard cor. of Ts. 6 N., Rs. 10 and 11 W.
80.00	Thence, East, on random line, along 1st St. Par. N., on S. bdy. of sec. 31, T. 6 N., R. 10 W. Falls in the center of Nasklina Creek. Original notes call for Rio Puerco at 71.50 chs.
69.00	Thence, East, on random line, along 1st St. Par. N., on S. bdy. of sec. 32, T. 6 N., R. 10 W. Rio De Chilly. Original notes call for same at 72.50 chs.
35.00	From temp. 30-mile cor. on W. Bdy. of the Reservation, North, on random line, on 31st mile of W. Bdy. of the Navajo Indian Reservation. Top of bluff, brs. NE. and SW. (Original notes call for

Resurvey of the West Boundary of  
the Navajo Indian Reservation.  
(as established by Treaty of June 1, 1868)

Chains.	Retracement for resurvey, continued.
80.00	<p>same at 73.50 chs. N. of 30-mile cor.)            After diligent search, fail to find any evidence of original 31-mile cor.            Set temp. cor.</p>
10.40	<p>North, on random line, on 32nd mile of W. Bdy. of the Navajo Indian Reservation.</p>
13.84	<p>Leave bluff. Original notes call for same at 50.00 chs. N. of 31-mile cor.</p>
17.94	<p>Road, bears E. and W.</p>
29.34	<p>Road, bears E. and W.            Dry wash, 5.69 chs. wide, 15 ft. deep, course E.            Original notes call for dry creek at 6.00 chs. The dist. of 36.00 chs., as called for, from foot of bluff to creek would only be possible if random line were about 5 chs. W. of present position.</p>
57.40	<p>Foot of bluff, brs. NE. and SW. Call of original notes for same at 15.00 chs. would only be satisfied if random line were moved W. about 5 chs. and allowance made for excess measurement of 1 ch. per mile.</p>
79.93	<p>Top of bluff, bears N.60°E. and S.60°W. Original notes make no reference to top of bluff.</p>
80.00	<p>After diligent search, fail to find any evidence of original 32-mile cor.            Set temp. cor.</p>
80.00	<p>North, on random line, on 33rd mile of W. Bdy. of the Navajo Indian Reservation.            After diligent search, fail to find any evidence of original 33-mile cor.            Set temp. cor.</p>
80.00	<p>North, on random line, on 34th mile of W. Bdy. of the Navajo Indian Reservation.            Spire on Round Rock ('Mesa Ventana'), bears N.11°50'E.            After diligent search, fail to find any evidence of original 34-mile cor.            Set temp. cor.</p>
80.00	<p>North, on random line, on 35th mile of W. Bdy. of the Navajo Indian Reservation.            After diligent search, fail to find any evidence of original 35-mile cor.            Set temp. cor.</p>
71.71	<p>North, on random line, on 36th mile of W. Bdy. of the Navajo Indian Reservation.            Edge of bluff, bears S.85°W. and N.85°E. Original notes make no reference to same.</p>
80.00	<p>Desc. N. slope.            After diligent search, fail to find any evidence of original 36-mile cor.            Set temp. cor.</p>

Resurvey of the West Boundary of  
the Navajo Indian Reservation.

Chains.	(as established by Treaty of June 1, 1868)
	Retracement for resurvey, continued.
14.72	From temp. 36-mile cor. on W. Bdy. of Reservation, East, on random line, bet. secs. 2 and 35, Ts. 6 and 7 N., R. 11 W. (Record dist.) After diligent search, fail to find any evidence of original cor. of secs. 1, 2, 35 and 36, Ts. 6 and 7 N., R. 11 W.
40.00	Thence, East, on random line, bet. secs. 1 and 36, Ts. 6 and 7 N., R. 11 W. After diligent search, fail to find any evidence of original $\frac{1}{4}$ sec. cor.
80.00	After diligent search, fail to find any evidence of original cor. of Ts. 6 and 7 N., Rs. 10 and 11 W.
25.50	Thence, East, on a random line, bet. secs. 6 and 31, Ts. 6 and 7 N., R. 10 W. West Bank of Rio De Chilly. Original notes call for same at 39.70 chs.
2.40	From temp. 36-mile cor. on W. Bdy. of Reservation, North, on random line, on 37th mile of W. Bdy. of the Navajo Indian Reservation. Foot of bluff, bears E. and W. Enter open valley.
80.00	After diligent search, fail to find any evidence of original 37-mile cor. Set temp. cor.
80.00	North, on random line, on 38th mile of W. Bdy. of the Navajo Indian Reservation. Spire on Round Rock ('Mesa Ventana'), bears N.15°06'E. After diligent search, fail to find any evidence of original 38-mile cor. Set temp. cor.
23.05	North, on random line, on 39th mile of W. Bdy. of the Navajo Indian Reservation. Old road, bears E. and W.
80.00	After diligent search, fail to find any evidence of original 39-mile cor. Set temp. cor.
80.00	North, on random line, on 40th mile of W. Bdy. of the Navajo Indian Reservation. After diligent search, fail to find any evidence of original 40-mile cor. Set temp. cor.

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Resurvey of the West Boundary of  
the Navajo Indian Reservation.  
(as established by Treaty of June 1, 1868)

Chains.	Retracement for resurvey, continued.
12.20	North, on random line, on 41st mile of W. Bdy. of the Navajo Indian Reservation.
80:00	South bank of dry wash, 2 chs. wide, 30 ft. deep, course East, Original notes call for creek at 36:00 chs. N. of 39-mile cor.
80:00	After diligent search; fail to find any evidence of original 41-mile cor. Set temp. cor.
80.00	North, on random line, on 42nd mile of W. Bdy. of the Navajo Indian Reservation. After diligent search, fail to find any evidence of original 42nd mile cor. Set temp. cor.
13.80	From temp. 42-mile cor. on W. Bdy. of Reservation, East, on random line, bet, secs. 2 and 35, Ts. 7 and 8 N., R. 11 W. (Record dist.) After diligent search, fail to find any evidence of original cor. of secs. 1, 2, 35 and 36, Ts. 7 and 8 N., R. 11 W.
40.00	Thence, East, on random line; bet. secs. 1 and 36, Ts. 7 and 8 N., R. 11 W. After diligent search, fail to find any evidence of original $\frac{1}{4}$ sec. cor.
67.20	West bank of Rio De Chille. Original notes call for same at 11.20 chs. E. of the cor. of Ts. 7 and 8 N., Rs. 10 and 11 W. An inspection shows that if this line intersected river bank about $\frac{1}{2}$ mile N., original dist. to same would closely check.
80.00	From temp. 42-mile cor. on W. Bdy. of Reservation, North, on random line, on 43rd mile of W. Bdy. of the Navajo Indian Reservation. After diligent search, fail to find any evidence of original 43-mile cor. Set temp. cor.
63.40	North, on random line, on 44th mile of W. Bdy. of the Navajo Indian Reservation.
73.37	Foot of bluff, bears NE. and SW. Top of bluff, 190 ft. high, bears NE. and SW. Original notes make no mention of this bluff. Impossible to have avoided it without offsetting at least 10 chs. E.
80.00	After diligent search, fail to find any evidence of original 44-mile cor. Set temp. cor.



Resurvey of the West Boundary of  
the Navajo Indian Reservation.  
(as established by Treaty of June 1, 1868)

BOOK 1

Chains.	<u>Retracement for resurvey; continued.</u>
80.00	North, on random line, on 45th mile of W. Bdy. of the Navajo Indian Reservation. After diligent search, fail to find any evidence of original 45-mile cor. Set temp. cor.
80.00	North, on random line on 46th mile of W. Bdy. of the Navajo Indian Reservation. After diligent search, fail to find any evidence of original 46-mile cor. Set temp. cor.
80.00	North, on random line, on 47th mile of W. Bdy. of the Navajo Indian Reservation. Spire on Round Rock ('Mesa Ventana'), bears N.36°36'E. After diligent search, fail to find any evidence of original 47-mile cor. Set temp. cor.
80.00	North, on random line, on 48th mile of W. Bdy. of the Navajo Indian Reservation. After diligent search, fail to find any evidence of original 48-mile cor. Set temp. cor.
93.40	In order to approximately conform to topography, I proceed to a point 45.00 chs. N. of temp. 48-mile cor., Thence, East, on random line, bet. Ts. 8 and 9 N., R. 11 W., making diligent search at record distances, but fail to find any evidence of original sec. and 1/4 sec. cors. Set temp. cor. of Ts. 8 and 9 N., Rs. 10 and 11 W.
28.40	Thence, East, on random line, bet. secs. 6 and 31, Ts. 8 and 9 N., R. 10 W. West bank of Rio De Chilly. Original field notes dist. of 31.35 chs. to same closely checked.
56.00	From temp. 48-mile cor. on W. Bdy. of Reservation, North, on random line; on 49th mile of W. Bdy. of the Navajo Indian Reservation. Foot of bluff, bears NE. and SW.
78.41	Top of bluff, bears NE. and SW; Original notes make no mention of same.
80.00	After diligent search, fail to find any evidence of original 49-mile cor. Set temp. cor.

Resurvey of the West Boundary of the Navajo Indian Reservation.

(as established by Treaty of June 1, 1868)

Retracement for resurvey, continued.

- 80.00 North, on random line, on 50th mile of W. Bdy. of the Navajo Indian Reservation.  
After diligent search, fail to find any evidence of original 50-mile cor.  
Set temp. cor.

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- 64.88 North, on random line, on 51st mile of W. Bdy. of the Navajo Indian Reservation.  
Edge of small bluff, 30 ft. high, bears N.85°E. and S.85°W. Impossible to have avoided same.
- 80.00 After diligent search, fail to find any evidence of original 51-mile cor.  
Set temp. cor.  
Canyons called for in original notes of this mile cannot be found.

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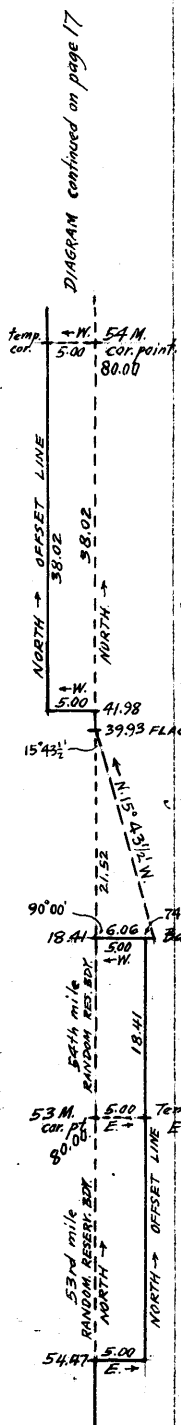
- 5.50 North, on random line, on 52nd mile of W. Bdy. of the Navajo Indian Reservation.  
Foot of bluff, bears NE. and SW. Original notes call for same at 58.00 chs. N. of 51st mile cor.
- 6.89 Top of bluff. Original notes make no mention of same.
- 80.00 After diligent search, fail to find any evidence of original 52-mile cor.  
Set temp. cor.

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- 54.47 North, on random line, on 53rd mile of W. Bdy. of the Navajo Indian Reservation.  
Offset East, 5.00 chs. This dist. corresponds to the offset point called for in original notes, although it is about 25 chs. from the actual foot of cliff.  
Thence, North on offset line, counting measurement from 52nd mile cor.
- 80.00 Original cor. not set. Set temp. cor.

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- 18.41 North, on offset line, on 54th mile of W. Bdy. of the Navajo Indian Reservation.  
Offset West, 5.00 chs. to point on random line.  
Base of cliffs, bears E. and W.  
Thence, North on random line.  
To determine dist. to top of cliffs, set flag on line; then, measure a base East, 6.06 chs. to a point, from which the flag bears N.15°43½'W.; therefore the dist. is  $\cot 15^\circ 43\frac{1}{2}' \times \text{base}$ , or  $3.55166 \times 6.06 = 21.52$  chs., making the total dist. 21.52 plus 18.41 =
- 39.93 Top of cliffs, bears E. and W.
- 41.98 To edge of impassible cliff.  
Offset as follows:  
West, 5.00 chs., thence on offset line,  
North, 38.02 chs., which makes the total distance
- 80.00 Original cor. not set. Set temp. cor.



Resurvey of the West Boundary of  
the Navajo Indian Reservation.  
(as established by Treaty of June 1, 1868)

Chains.

Retracement for resurvey, continued.

80.00 Thence, North, on offset line, on 55th mile of W. Bdy. of the Navajo Indian Reservation.  
Offset East, 5.00 chs. to point on random line projected. Point at which, on original survey, offset was made to true line. Although cor. is called for on high plateau, no mention is made as to the manner in which the offset was made over cliffs, which for several miles north of this point are more inaccessible than at offset point in 53-rd mile.  
After diligent search, fail to find any evidence of original 55-mile cor.  
Set temp. cor.

80.00 Thence, North, on random line, on 56th mile of W. Bdy. of the Navajo Indian Reservation.  
After diligent search, fail to find any evidence of original 56-mile cor.  
Set temp. cor.

80.00 North, on random line, on 57th mile of W. Bdy. of the Navajo Indian Reservation.  
After diligent search, fail to find any evidence of original 57-mile cor.  
Set temp. cor.

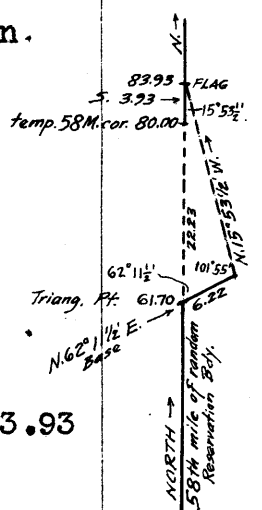
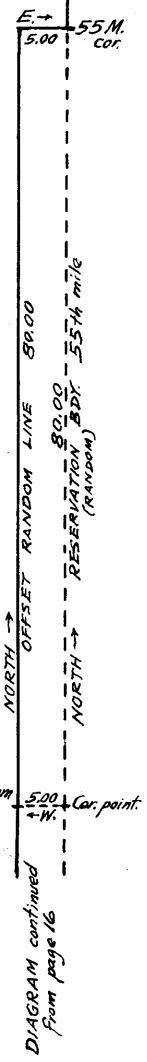
61.70. North, on random line, on 58th mile of W. Bdy. of the Navajo Indian Reservation.  
Edge of perpendicular cliff, bears N.65°E. and W. Impassable on line. Original notes make no mention of same, which could only be avoided if line were at least 25 chs. W. of this point.  
To obtain dist. to base of cliff, set flag on random line projected; then, measure a base N.62°11½'E., 6.22 chs. to a point, from which the flag bears N.15°53½'W.; therefore the dist. is  $\frac{\text{base} \times \sin 101^\circ 55'}{\sin 15^\circ 53\frac{1}{2}'}$

$$\text{or } \frac{6.22 \times .97845}{.27382} = 22.23 \text{ chs.,}$$

making total dist. to flag, 61.70 plus 22.23 or 83.93 chs.

80.00 Thence, South, 3.93 chs. to  
After diligent search, fail to find any evidence of original 58-mile cor.  
Set temp. cor.

80.00 North, on random line, on 59th mile of W. Bdy. of the Navajo Indian Reservation.  
After diligent search, fail to find any evidence of original 59-mile cor.  
Set temp. cor.

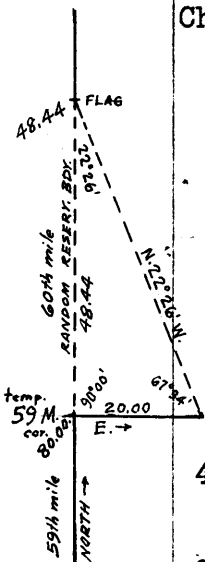


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Resurvey of the West Boundary of  
 the Navajo Indian Reservation.  
 (as established by Treaty of June 1, 1868)

Chains.

Retracement for resurvey, continued.



North, on random line, on 60th mile of W. Bdy. of the Navajo Indian Reservation.

Foot of cliff, impassable on line about 8 chs. N. To obtain dist., set flag on top of cliff, and from temp. 59-mile cor., measure a base East, 20.00 chs. to a point, from which the flag bears N.22°26'W., therefore the dist. is  $\cot 22^\circ 26' \times \text{base}$ , or  $2.42218 \times 20.00$  gives

- 48.44 Top of cliffs, 430 ft. high, bears NE. and SW. Original notes make no mention of same, which could not have been avoided.
- 80.00 After diligent search, fail to find any evidence of original 60-mile cor. Set temp. cor.

North, on random line, on 61st mile of W. Bdy. of the Navajo Indian Reservation.

- 80.00 After diligent search, fail to find any evidence of original 61-mile cor. Set temp. cor.

North, on random line, on 62nd mile of W. Bdy. of the Navajo Indian Reservation.

- 68.31 Top of cliff, 145 ft. high, bears E. and W. Original notes of 61st mile call for "67.00 Leave Bluff" Dist. to edge of cliff would vary as much as 15 chs. for a dist. of 5 chs. E. or W. Exact point of original intersection with cliff impossible to determine.
- 80.00 After diligent search, fail to find any evidence of original 62-mile cor. Set temp. cor.

North, on random line, on 63rd mile of W. Bdy. of the Navajo Indian Reservation.

- 80.00 After diligent search, fail to find any evidence of original 63-mile cor. Set temp. cor.

North, on random line, on 64th mile of W. Bdy. of the Navajo Indian Reservation.

- 80.00 After diligent search, fail to find and evidence of original 64-mile cor. Set temp. cor.

North, on random line, on 65th mile of W. Bdy. of the Navajo Indian Reservation.

- 80.00 After diligent search, fail to find any evidence of original 65-mile cor. Set temp. cor.

Resurvey of the West Boundary of  
the Navajo Indian Reservation.

(as established by Treaty of June 1, 1868)

Chains.

Retracement for resurvey, continued.

North, on random line, on 66th mile of W. Bdy. of the Navajo Indian Reservation.

2.40- South bank of Rio De Chilly, course NW.  
This intersection is about 8 chs. E. of point where creek turns due North for over a mile. Original notes call for Rio De Chille at 8.50 chs. N. of 67-mile cor.

20.00 North bank of Rio De Chilly.

80.00 After diligent search, fail to find any evidence of original 66-mile cor.  
Set temp. cor.  
Although the original field notes call for 66-mile cor. South of the Rio De Chilly, in the notes of the N. Bdy. of T. 11 N., R. 11 W., which closes against this 66-mile cor., no mention is made of crossing the Rio De Chilly. An inspection of the old banks shows that the main channel of the creek has cut West and South about 15 chs. It is most probable that the 65-mile cor. was 8.50 chs. S. of creek instead of 66-mile cor.

North, on random line, on 67th mile of W. Bdy. of the Navajo Indian Reservation.

72.00 Fall 9.78 chs. E. of decomposing red sandstone, 14x8x2 ins., marked 68 M. The stone is lying loose on the ground, about 5 chs. from windmill and Indian trading store but there is no evidence that it has ever been set in the vicinity. As Indians are constantly about, it is probable that the stone has been moved around.

80.00 After diligent search, fail to find any evidence of original 67-mile cor.  
Set temp. cor.

From the old stone marked 68 M., which is 8.00 chs. S. and 9.78 chs. W. of temp. 67-mile cor., S.89°49'E. (record course) on random line, bet. secs. 25 and 36, T. 12 N., R. 11 W.

18.40 (Record dist.) After diligent search, fail to find any evidence of original  $\frac{1}{4}$  sec. cor.

58.40 (Record dist.) After diligent search, fail to find any evidence of original cor. of secs. 25, 30, 31 and 36, Ts. 12 N., Rs. 10 and 11 W.

From temp. 67-mile cor. on W. Bdy. of Reservation, North, on random line, on 68th mile of W. Bdy. of the Navajo Indian Reservation.

72.59 Fall 12.50 chs. E. of decomposing red sandstone, 20x8x3 ins., marked 67 M. The stone is lying loose on the ground and there is no evidence of stone ever being set in this vicinity.

80.00 After diligent search, fail to find any evidence of original 68-mile cor.  
Set temp. cor.

North, on random line, on 69th mile of W. Bdy. of the Navajo Indian Reservation.

74.01 Fall 14.72 chs. E. of decomposing red sandstone, 12x8x4 ins., marked "M"; upper portion of figures broken

Resurvey of the West Boundary of  
the Navajo Indian Reservation.  
(as established by Treaty of June 1, 1868)

Chains.

## Retracement for resurvey, continued.

off, but remainder shows lower part of figures "66". Stone lying loose on hard clay soil, no vegetation, and no evidence in the vicinity of place where cor. had been set. It is evident that 66-mile and 68-mile cors. have been interchanged to relative corresponding positions.

80.00 Set temp. 69-mile cor.  
Original cor. not set. Notes call for point for same in inaccessible canyon.

North, on random line, on 70th mile of W. Bdy. of the Navajo Indian Reservation.

79.90 Set temp. 70-mile cor.  
80.00 Falls on face of perpendicular cliff.  
After diligent search, fail to find any evidence of original 70-mile cor.  
Inspection shows that point for 69-mile cor. might be in canyon which is 7 chs. S. and 10 chs. W. of this point. Original notes call for triangulation of 14.31 chs. across canyon, but it is impossible to find a point on the canyon where the dist. across would be less than 30 chs.

North, on random line, on 71st mile of W. Bdy. of the Navajo Indian Reservation.  
Across canyon, 200 ft. deep; therefore, set flag on line on N. side of canyon.  
Proceed to flag; then, to determine distance across, measure a base West, 22.085 chs. to a point, from which temp. 70-mile cor. bears S.  $19^{\circ}22\frac{1}{2}'$  E.  
The base was double-chained and angles read by repetition.  
Dist. across canyon is given by  $\cot 19^{\circ}22\frac{1}{2}' \times$  base, or  $2.84362 \times 22.085 = 62.80$  chs., which gives for the dist. from point for temp. 70-mile cor.

62.70 N. side of canyon, course SW.  
A number of old cliff dwellings on face of cliffs, bear E., 5 chs, dist.

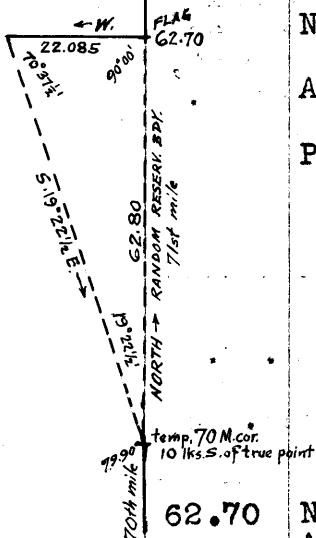
80.00 After diligent search, fail to find any evidence of original 71-mile cor.  
Set temp. cor.

North, on random line, on 72nd mile of W. Bdy. of the Navajo Indian Reservation.

80.00 After diligent search, fail to find any evidence of original 72-mile cor.  
Set temp. cor.

North, on random line, on 73rd mile of W. Bdy. of the Navajo Indian Reservation.

80.00 After diligent search, fail to find any evidence of original 73-mile cor.  
Set temp. cor.



Resurvey of the West Boundary of  
the Navajo Indian Reservation.  
(as established by Treaty of June 1, 1868)

Chains.

Retracement for resurvey, continued.

80.00 North, on random line, on 74th mile of W. Bdy. of the Navajo Indian Reservation.  
After diligent search, fail to find any evidence of original 74-mile cor.  
Set temp. cor.

80.00 North, on random line, on 75th mile of W. Bdy. of the Navajo Indian Reservation.  
After diligent search, fail to find any evidence of original 75-mile cor.  
Set temp. cor.

80.00 North, on random line, on 76th mile of W. Bdy. of the Navajo Indian Reservation.  
After diligent search, fail to find any evidence of original 76-mile cor.  
Set temp. cor.

80.00 North, on random line, on 77th mile of W. Bdy. of the Navajo Indian Reservation.  
After diligent search, fail to find any evidence of original 77-mile cor.  
Set temp. cor.

80.00 North, on random line, on 78th mile of W. Bdy. of the Navajo Indian Reservation.  
After diligent search, fail to find any evidence of original 78-mile cor.  
Set temp. cor.

80.00 North, on random line, on 79th mile of W. Bdy. of the Navajo Indian Reservation.  
After diligent search, fail to find any evidence of original 79-mile cor.  
Set temp. cor.

80.00 North, on random line, on 80th mile of W. Bdy. of the Navajo Indian Reservation.  
After diligent search, fail to find any evidence of original 80-mile cor., as called for in original notes on flat rock. There are patches of exposed sandstone all about, but sand alternately exposes and covers portions of surface rock.  
Set temp. cor.

80.00 North, on random line on 81st mile of W. Bdy. of the Navajo Indian Reservation.  
After diligent search, fail to find any evidence of original 81-mile cor., reported to be on flat rock.  
Set temp. cor.

Resurvey of the West Boundary of  
the Navajo Indian Reservation.  
(as established by Treaty of June 1, 1868)

Chans.	Retracement for resurvey, continued.
80.00	<p>North, on random line, on 82nd mile of W. Bdy. of the Navajo Indian Reservation. After diligent search, fail to find any evidence of original 82-mile cor. Set temp. cor. Assuming that this point is near the original 81-mile cor., search diligently for cor. marked on solid rock. Exposed sandstone about 12 chs. W. and also 10 chs. N. but no evidence of any old markings.</p>
80.00	<p>North, on random line, on 83rd mile of W. Bdy. of the Navajo Indian Reservation. After diligent search, fail to find any evidence of original 83-mile cor. Set temp. cor.</p>
27.11	<p>North, on random line, on 84th mile of W. Bdy. of the Navajo Indian Reservation. South bank of Gothic Wash, 40 ft. deep, course W. for about 30 chs. Steep dirt banks. Course has never changed. Running water in wash from recent rains. Original notes call for Dry Creek at 27.00 chs. N. of 82-mile cor.</p>
35.31	<p>North bank of wash.</p>
41.39	<p>Leave bottom, thence over broken sandstone.</p>
80.00	<p>After diligent search, fail to find any evidence of original 84-mile cor. Set temp. cor.</p>
65.75	<p>North, on random line, on 85th mile of W. Bdy. of the Navajo Indian Reservation. (Record dist.) After diligent search, fail to find any evidence of original NW. cor. of the Reservation. Set temp. cor.</p>
22.42	<p>Thence, North on random line, from temp. NW. cor. Fall 1.54 chs. E. of gray sandstone, 16x12x3 ins., marked "1/4". Stone lying loose upon bare rock surface.</p>
104.64	<p>Intersect boundary line bet. Arizona and Utah, 3.55 chs. W. of 245-mile cor., which is a sandstone, firmly set, 10x8x8 ins. above ground, marked and witnessed as described by the surveyor general.; and 15.00 chs. E. of a red sandstone, 20x20x16 ins., marked "W" on one side, other faint adjacent marking undecipherable. Several figures or letters on one end of stone with 3/4 of lower portion broken off are undecipherable. Stone found lying on the ground, 4 lks. N. of old mound of stone, 6 ft. base, 1 ft. high. Soil is a gravelly clay, with no vegetation, and no evidence of old pits could be found. Extensive digging failed to reveal any buried marked stone. Original notes call for stone 40x20x6 ins., evidently a clerical error as stone is 40x20x16 ins. The stone weighs from 350 to 450 lbs., which makes it improbable that it was ever moved from original position. The old mound of stone has apparently never been disturbed. This is unquestionably the original NW. cor. of the Navajo Indian Reservation in its original position and is so accepted. Reestablish the cor. as follows: Alongside old stone, Set an iron post, 3 ft. long, 3 ins. diam., 28 ins. in the ground, underneath which deposit marked stone, for reestablished NW. cor. of the Navajo Indian Reservation, marked on brass cap</p>



Resurvey of the West Boundary of  
The Navajo Indian Reservation.

East

(as established by Treaty of June 1, 1868)

Chains.

From the reestablished NW. cor. of the Navajo Indian Reservation, hereinbefore described:

82.65 S.0°07½'E., on true line, on 85th mile of West Bdy. of Navajo Indian Reservation.  
Over rolling land, through scattering undergrowth.  
Desc. gradual S. slope.  
The point for the reestablished 84-mile cor. falls on a smooth sandstone on which, cut a cross (X) at the exact corner point and over the cross  
Set an iron post, 3 ft. long, 3 ins. diam., in a mound of stone, 30 ins. high, 4 ft. base, for reestablished 84-mile cor., marked on brass cap

NIR

84 M

1920

from which

A smooth sandstone outcropping, bears S.66°15'E., 87 lks. dist., marked X B O 84.

Largest saw-tooth visible on skyline, about 20 miles dist., bears S.39°05'W.

Land, rolling.  
Soil, gravelly clay; 3 rd rate.  
Timber, none.  
Undergrowth, scattered weeds.

27.96 S.0°07½'E., on true line, on 84th mile of West Bdy. of Navajo Indian Reservation.  
81.04 Desc. gradually over broken S. slope, through scattering undergrowth.  
Dry wash, 75 lks. wide, 2 ft. deep, course W.  
(proportional dist.) Set an iron post, 3 ft. long, 3 ins. diam., 30 ins. in the ground, underneath which deposit marked stone, for reestablished 83-mile cor., marked on brass cap

NIR

83 M

1920

Land, rolling.  
Soil, sandy clay and barren sandstone; 4th rate.  
Timber, none.  
Undergrowth, scattered sage brush, chico and soapweed.

51.00 S.0°07½'E., on true line, on 83rd mile of West Bdy. of Navajo Indian Reservation.  
52.70 Over rolling land, through patches of heavy undergrowth, across spots of barren sandstone.  
53.70 Enter washed bottom, bears E. and W.  
54.70 N. bank of Gothic Wash, bears E. and W.  
Center of Gothic Wash, 40 ft. deep, course W.  
South bank of wash.  
Thence through heavy undergrowth.  
64.00 Leave washed bottom. Asc. N. slope 50 ft.  
81.05 (Proportional dist.) set an iron post, 3 ft. long, 3 ins. diam., 30 ins. in the ground, underneath which deposit marked stone, for reestablished 82-mile cor., marked on brass cap

Resurvey of the West Boundary of  
the Navajo Indian Reservation.  
(as established by Treaty of June 1, 1868)

Chains.

NIR  
82 M  
1920

from which  
A number of black volcano pinnacles bears N.39°48'E.  
S. end of Carrisso mountain, bears S.56°45'E.  
Store at Mexican Water, bears N.36°45'W., about 1 1/4 mi.  
dist.  
Right edge of Elk mountain, bears N.15°W.  
Land, rolling.  
Soil, sandy clay and barren sandstone; 4th rate.  
Undergrowth, chico, soapweed and sage brush.  
Timber, none.

81.04

S.0°07 1/2'E., on true line, on 82nd mile of West Bdy. of  
Navajo Indian Reservation.  
Over rolling land, through patches of short undergrowth,  
across spots of barren sandstone.  
(proportional dist.) The point for the reestablished  
81-mile cor. falls on solid sandstone, on which cut  
a cross (X) at the exact cor. point, and over the cross  
Set an iron post, 3 ft. long, 3 ins. diam., in a mound of  
stone, 30 ins. high, 4 ft. base, for reestablished 81-  
mile cor., marked on brass cap

NIR  
81 M  
1920

from which  
A level, flat sandstone, bears S.36°23'E., 21 lks. dist.,  
marked X BO 81.  
A level, flat sandstone, bears N.35°45'W., 28 lks. dist.,  
marked X BO 81.  
Land, rolling.  
Soil, sandy clay and barren sandstone; 4th rate.  
Timber, none.  
Undergrowth, chico, soapweed and sage brush.

81.05

S.0°07 1/2'E., on true line, on 81st mile of W. bdy. of  
Navajo Indian Reservation.  
Over rolling and broken land, across patches of bare  
sandstone.  
(proportional dist.) The point for the reestablished 80-  
mile corner falls on solid sandstone, on which cut a  
cross (X) at the exact cor. point, and over the cross  
Set an iron post, 3 ft. long, 3 ins. diam., in a mound of  
stone, 30 ins. high, 4 ft. base, for reestablished 80-  
mile cor., marked on brass cap

NIR  
80 M  
1920

from which  
A level, flat sandstone, bears S.39°30'E., 23 lks. dist.,  
marked X BO 80  
Land, rolling.

Resurvey of the West Boundary of  
the Navajo Indian Reservation.  
(as established by Treaty of June 1, 1868)

Chains.

Soil, sandy clay and barren sandstone; 4th rate.  
Timber, none.  
Undergrowth, greasewood, chico and sage brush.

81.04

S.0°07 $\frac{1}{2}$ 'E., on true line, on 80th mile of W. Bdy. of Navajo Indian Reservation.  
Over rolling land, through scattered undergrowth.  
(proportional dist.) Set an iron post, 3 ft. long, 3 ins. diam., 14 ins. in the ground; underneath which deposit quart of charcoal and tin can; in a mound of stone, 15 ins. high, 4 ft. base, for reestablished 79-mile cor., marked on brass cap

NIR  
79 M  
1920

Land, rolling.  
Soil, sandy clay and barren sandstone; 4th rate.  
No timber.  
Undergrowth, greasewood, chico and soapweed.

81.05

S.0°07 $\frac{1}{2}$ 'E., on true line, on 79th mile of W. Bdy. of Navajo Indian Reservation.  
Over rolling and broken land, through scattered undergrowth.  
Asc. gradually across patches of barren sandstone.  
(proportional dist.) 91 ft. above 79-mile cor.  
Set an iron post, 3 ft. long, 3 ins. diam., 6 ins. in the ground on bed rock; underneath which cut a cross (X) at exact cor. point and deposit quart of charcoal and tin can; in a mound of stone, 25 ins. high, 5 ft. base, for reestablished 78-mile cor., marked on brass cap

NIR  
78 M  
1920

Land, rolling and broken.  
Soil, sandy clay and barren sandstone, 4th rate.  
Timber, none.  
Undergrowth, scattered greasewood, chico and soapweed:

81.04

S.0°07 $\frac{1}{2}$ 'E., on true line, on 78th mile of W. Bdy. of Navajo Indian Reservation.  
Over rolling and broken land, through scattered undergrowth.  
Asc. gradually across patches of barren sandstone.  
(proportional dist.) 13 ft. above 78-mile cor.  
The point for the reestablished 77-mile cor. falls on solid sandstone, on which cut a cross (X) at the exact cor. point, and over the cross  
Set an iron post, 3 ft. long, 3 ins. diam., in a mound of stone, 30 ins. high, 3 ft. base, for reestablished 77-mile cor., marked on brass cap

NIR  
77 M  
1920

Resurvey of the West Boundary of  
the Navajo Indian Reservation.  
(as established by Treaty of June 1, 1868)

Chains.

from which  
A sandstone outcropping, bears N.52°27'E., 86 lks. dist.,  
marked X BO 77.  
A sandstone outcropping, bears S.75°18'E., 80 lks. dist.,  
marked X BO 77.  
Largest saw-tooth visible on skyline, about 20 miles dist.,  
bears S.46°13'W.  
A sandstone pillar, bears S.83°45'W.  
A sandstone pinnacle, bears N.82°53'W.

Land, rolling.  
Soil, sandy clay and barren sandstone; 4th rate.  
Timber, none.  
Undergrowth, scattered greasewood, chico and soapweed.

S.0°07½'E., on true line, on 77th mile of W. Bdy. of  
Navajo Indian Reservation.

Over rolling land, through scattered undergrowth.  
Desc. gradually.

81.05 (proportional dist.) Set an iron post, 3 ft. long, 3 ins.  
diam., 30 ins. in the ground, underneath which deposit  
quart of charcoal and tin can, for reestablished 76-  
mile cor., marked on brass cap

NIR  
76 M  
1920

from which  
North end of Carrisso plateau bears N.88°56'E.  
South point of Carrisso mountain bears S.68°36'E.  
A sandstone outcropping, bears S.40°06'W., 164 lks. dist.,  
marked X BO 77.  
Right end of Elk mountain bears N.13°24'W.

Land, rolling.  
Soil, sandy clay and barren sandstone; 4th rate.  
Timber, none.  
Undergrowth, chico.

S.0°07½'E., on a true line, on 76th mile of W. Bdy. of  
Navajo Indian Reservation.

Over rolling land, through scattered undergrowth.  
Descend gradually.

1.00 Foot of slope.  
8.20 Asc. broken N. slope of spur.  
Top of spur slopes NW., 79 ft. above 76-mile cor.  
Across level top of spur.  
14.29 Thence along W. slope of spur, descending gradually.  
30.00 Over rolling sand dunes, through sparse undergrowth.  
81.04 (proportional dist.) Set an iron post, 3 ft. long, 3 ins.  
diam., 30 ins. in the ground, underneath which deposit  
quart of charcoal and tin can, for reestablished 75-  
mile cor., marked on brass cap

NIR  
75 M  
1920

from which  
South point of Carrisso mountain bears S.70°19'E.  
Right edge of Round Rock bears S.9°09'E.

Resurvey of the West Boundary of  
the Navajo Indian Reservation.  
(as established by Treaty of June 1, 1868)

Chains.

Largest saw-tooth visible on skyline, about 20 miles dist.,  
bears S.48°32'W.  
A red sandstone pillar, bears S.87°10'W.  
A small sandstone pinnacle, bears N.77°15'W.  
Land, rolling.  
Soil, sandy clay and barren sandstone; 4th rate.  
Timber, none.  
Undergrowth, scattered greasewood and soapweed.

81.04

S. 0°07½'E., on true line, on 75th mile of W. Bdy. of  
Navajo Indian Reservation.  
Over rolling land, through scattered undergrowth.  
(proportional dist.) Set an iron post, 3 ft. long, 3 ins.  
diam., 30 ins. in the ground, underneath which deposit  
quart of charcoal and tin can, for reestablished 74-  
mile cor., marked on brass cap

NIR  
74 M  
1920

from which  
North end of Carrisso plateau, bears N.83°19'E.  
South point of Carrisso mountain, bears S.75°03'E.  
Largest saw-tooth visible on skyline, about 20 miles dist.,  
bears S.49°47'W.  
A small sharp sandstone pinnacle about 20 miles dist.,  
bears N.74°30'W.  
Land, rolling.  
Soil, sandy clay and barren sandstone; 4th rate.  
Undergrowth, scattered chico and soapweed.  
Timber, none.

13.99

81.05

S.0°07½'E., on a true line, on 74th mile of W. Bdy. of  
Navajo Indian Reservation.  
Over rolling land, through scattered undergrowth.  
Dry wash, 20 lks. wide, 4 ft. deep, course W.  
(proportional dist.) Set an iron post, 3 ft. long, 3 ins.  
diam., 30. ins. in the ground, underneath which deposit  
quart of charcoal and tin can, for reestablished 73-  
mile cor., marked on brass cap

NIR  
73 M  
1920

from which  
North end of Carrisso plateau, bears N.80°32'E.  
South peak of Carrisso mountain, bears S.25°73'E.  
Largest saw-tooth visible on skyline, about 20 miles dist.,  
bears S.51°08'W.  
A sandstone pillar, bears N.89°15'W.  
Land, rolling.  
Soil, sandy clay and barren sandstone; 4th rate.  
Timber, none.  
Undergrowth, scattered chico.

Resurvey of the West Boundary of  
the Navajo Indian Reservation.  
(as established by Treaty of June 1, 1868)

Chains.

15.05 S.0°07½'E., on true line, on 73rd mile of W. Bdy. of  
81.04 Navajo Indian Reservation.  
Over rolling land, through scattered undergrowth.  
Road, bears E. to Fruitland, N.M. and W. to Kayenta, Ariz.  
(proportional dist.) Set an iron post, 3 ft. long, 3 ins.  
diam., 26 ins. in the ground, underneath which deposit  
quart of charcoal and tin can, for reestablished 72-  
mile cor., marked on brass cap

NIR  
72 M  
1920

from which  
Montacello Mountains, bears N.7°37'E., about 75 miles  
dist.  
North end of Carrisso mountain, bears N.84°40'E.  
Highest point on S. end of Carrisso mountain, bears  
S.77°48'E.  
Right edge of Round Rock, bears S.10°25'E.  
Largest saw-tooth visible on skyline, about 20 miles dist.,  
bears S.52°27'W.  
A sandstone pillar, bears N.87°33'W.  
East edge of Elk mountain, bears N.12°28'W.  
  
Land, rolling.  
Soil, sandy clay and barren sandstone; 4th rate.  
Timber, none.  
Undergrowth, scattered greasewood and soapweed

81.05 S.0°07½'E., on a true line, on 72nd mile of W. Bdy. of  
Navajo Indian Reservation.  
Over rolling land, through scattered undergrowth.  
(proportional dist.) Set an iron post, 3 ft. long, 3 ins.  
diam., 28 ins. in the ground, underneath which deposit  
quart of charcoal and tin can, for reestablished 71-  
mile cor., marked on brass cap

NIR  
71 M  
1920

from which  
A bare sandstone knoll, bears N.51°E., about 25 chs. dist.  
Highest peak on that portion of Carrisso mountain which is  
visible, bears S.86°52'E.  
Right edge of Round Rock, bears S.10°52'E.  
Largest saw-tooth visible on skyline, about 20 miles dist.,  
bears S.53°48'W.  
A sandstone pillar, bears N.85°53'W.  
  
Land, rolling.  
Soil, thin sandy clay, 3rd rate.  
Timber, none.  
Undergrowth, scattered soapweed and chico.  
Some grass.

81.04 S.0°07½'E., on true line, on 71st mile of W. Bdy. of  
Navajo Indian Reservation.  
Over rolling land, through scattered undergrowth.  
(proportional dist.) Set an iron post, 3 ft. long, 3 ins.  
diam., 30 ins. in the ground, underneath which deposit  
quart of charcoal and tin can, for reestablished 70-  
mile cor., marked on brass cap

Resurvey of the West Boundary of  
the Navajo Indian Reservation.  
(as established by Treaty of June 1, 1868)

Chains.

Retracement for resurvey, continued.

from which  
South end of Carrisso mountain, bears S.37°26'E.  
Right edge of Elk mountain, bears N.1°37'W.

Destroy old mound of stone, and raise a mound of stone,  
3 ft. base, 2 ft. high, S. of cor.

Complete retracement of the West Boundary of the Navajo Indian Reservation and retracement East therefrom, to locate corners of subdivisional surveys purported to be tied thereto, develops several general facts. From the character of the original corners established and the time elapsed since the original survey was made, evidence of the original survey is largely, if not entirely obliterated. For the first 49 miles on the W. Bdy. stake corners are called for; the remainder of the corners being sandstone, presumably soft red sandstone, as it was most readily available. Had the corners been undisturbed by the Indians, natural forces would, in a comparatively short time, disintegrate this corner material.

Also, Mr. Sam Day, Sr., of St. Michaels, Ariz., a resident of the reservation for 25 or 30 years; local and former U. S. Deputy Surveyor, who had retraced the S. Bdy. of the reservation East of Fort Defiance, stated that he had found the corners either destroyed or interchanged and that it had been formerly the practice of the Indians to do this wherever corners were found.

Diligent search along the entire West Bdy. of the reservation revealed but two original corners in place, the SW. and the NW. corners of the reservation, respectively. The SW. corner is unquestionably fixed by evidence of old pits, buried marked stone and a close check on bearings to natural objects. The size, weight (350 to 450 lbs.), markings and mound of stone fix the NW. cor. as being in its original position. In addition 3 cor. stones were found respectively, near temporary cors. of 67, 68 and 69 mile points. These cors. are marked in succession 68-M, 67-M and presumably 66-M, as all the figures on the latter except a small portion of the lower half, were gone. These cor. stones were found lying on hard clay soil, no adjacent rocks or vegetation within 20 chs. It is evident that these stones have all more or less recently; been moved about, and at some time, cor. stones 66 and 68 interchanged to relatively corresponding positions. Diligent search in the vicinity of these cors. fails to locate, by pits or other evidence, the original position of these cors., although they are undoubtedly within a radius of 6 or 7 chs. of the original cor. positions.

Retracement of subdivisional lines East of the W. Bdy. of the reservation, fails to show any acceptable cors. This was to be expected as the majority of the interior cors. within 3 miles of the boundary, were originally stakes. The one interior stone  $\frac{1}{4}$  sec. cor. found lying loose on solid rock, calls for a stake, presuming it to be somewhere near the original position of the  $\frac{1}{4}$  sec. cor. bet. secs. 1 and 36, Tps. 14 and 15 N., R. 11 W.

While the original field notes furnish meagre details as to topography items, reference to the retracement notes of the W. Bdy. show that in general the measurement on the retracement was short of the distances called for to the main and more definite items of topography, at the rate of approximately 1 chain per mile. This

Resurvey of the West Boundary of  
the Navajo Indian Reservation.  
(as established by Treaty of June 1, 1868)

Chains.

fact holds good to the creek (wash) called for at 27.00 chs. in mile 83, the last item of definite topography called for. This wash is the most definite, unmistakable and stable item of topography found on the W. Bdy. of the reservation. This wash is 2 chs. wide, 30 to 50 ft. deep, steep dirt banks and course W. from point of intersection on random retracement line for about 30 chs.

Also, that the original measurement up to the wash called for in mile 83 was approximately 1 chain long per mile, is shown by measurement East from the random retracement of the W. Bdy. of the reservation. While no corners were found, retracement to definite items of topography, such as the edge of the bluff, the Rio Puerco and the Rio De Chile, shows by inspection on the ground, that allowance being made for a right line between the NW. and SW. cors. of the reservation, and miles of 81 chs. in length, that distances called for would be closely satisfied. That is, all temp. cors. set on the W. Bdy. should be moved N. about one chain per mile and some distance West.

It is therefore evident that some error was made in the recorded distance of 198.75 chs. from the wash in the 83rd mile, North to the NW. corner of the reservation, when the actual distance is 217.39 chs., a difference of 18.64 chs. Preliminary calculation shows that to proportion the total excess of 104.64 chs. throughout the entire length of the boundary would throw 1.234 chs. in each mile. This amount would, in general, throw corner points too far north to agree with the call of the notes. To use the distance to the dry wash to proportion the distance for 84 miles, leaving an unexplained apparent excess in the last mile; throws an excess of 1.0444 chs. per mile, a procedure, which on the whole, will locate the corners very close to positions that will answer the call of the notes with reference to the topography, considering the length of the line involved, the lack of direct evidence, the meagreness and often patent mistakes of the original notes.

This general plan of setting the corners on a right line between the SW. and NW. corners of the reservation and obtaining the proportional mile distances by using the recorded and actual distances to the wash in mile 83 is therefore adopted, it being approved by the U. S. Surveyor General for Arizona in letter of March 3, 1920.

To obtain distance to the center of the creek (wash) on a right line bet. SW. and NW. corners, offset West, 14.50 chs. from temp. 83rd mile cor., thence, North 31.99 chs. to south bank of wash, 33.99 chs. to north bank, a mean of which gives 32.99 chs. to center of wash. 83 miles 32.99 chs. equals 6,672.99 chs. to wash, against a recorded dist. of 82 miles 27.00 chs., or 6,587.00 chs. Recorded dist. of 84th mile cor. is 133.00 chs. north of wash. Then proportional dist. of 84-mile cor. north of wash is to the recorded dist. as 6,672.99 chs. is to 6,587.00 chs., or  $X : 133.00 :: 6,672.99 : 6,587.00$ . Therefore X equals 134.74 chs., the distance of 84th mile cor. north of wash. 6,672.99 chs. plus 134.74 chs. equals 6,807.73 chs. to be equally divided among 84 miles, or each mile is therefore to be 81.0444 chs. long.



Resurvey of the West Boundary of  
the Navajo Indian Reservation.

Chains. (as established by Treaty of June 1, 1868)

NIR  
70 M  
1920

from which  
Highest point on N. end of Carrisso mountain, bears  
N.80°17'E.  
Highest point on S. end of Carrisso mountain, bears  
S.82°32'E.  
Right edge of Round Rock, bears S.11°35'E.  
A sandstone pillar, bears N.89°04'W., about 25 miles dist.  
  
Land, rolling and broken.  
Soil, sandy clay and barren sandstone; 4th rate.  
Timber, none.  
Undergrowth, scattered soapweed.

- 12.41 S.0°07 $\frac{1}{2}$ 'E., on true line, on 70th mile of W. Bdy. of Navajo Indian Reservation. Over rolling land, through scattered undergrowth. A number of old cliff dwellings under cliffs, bears E., about 17.50 chs. dist.
- 21.38 Edge of canyon, bears NE. and SW. Desc. 200 ft.
- 26.50 Base of cliff.
- 76.00 Across level bottom of canyon. Ascend.
- 81.05 (proportional dist.) Set an iron post, 3 ft. long, 3 ins. diam., 20 ins. in the ground, for reestablished 69-mile cor., marked on brass cap

NIR  
69 M  
1920

from which  
A cross (X) on base of cliff, bears N.12°54'E., 237 lks. dist., marked B O 69.  
A cross (X) on base of cliff, bears S.8°00'E., 52 lks. dist., marked B O 69.  
  
Land, rolling and broken.  
Soil, sandy clay and barren sandstone; 4th rate.  
Timber, none.  
Undergrowth, scattered soapweed.

- 0.25 S.0°07 $\frac{1}{2}$ 'E., on true line, on 69th mile of W. Bdy. of Navajo Indian Reservation. Over bottom of canyon.
- 4.46 Base of cliff, bears E. and W. Asc. 150 ft. to.
- 20.00 Top of cliff, bears E. and W.
- 47.64 Top of sandstone spur, slopes SW. 200 ft. above bottom of canyon. Desc. over broken SE. slope through scattered undergrowth.
- 81.04 Foot of slope, bears NE. and SW. Over rolling land. (proportional dist.) Set an iron post, 3 ft. long, 3 ins. diam., 30 ins. in the ground, underneath which deposit marked stone, and alongside set old stone marked 68-M, hereinbefore described, for reestablished 68-mile cor., marked on brass cap

NIR  
68 M  
1920

Resurvey of the West Boundary of  
the Navajo Indian Reservation.

Chains.

(as established by treaty of June 1, 1868)

from which  
Right Edge of Round Rock, bears S.12°43'E. /4.03 chs. dist. destroy same.  
Old stone marked 66(?) M, hereinbefore described, bears N.42°W. /  
Land, 47.64 chs. heavily rolling; remainder, rolling.  
Soil, adobe and sandy clay; 2nd and 3rd rate.  
Timber, none.  
Undergrowth, scattered soapweed and chico.

81.04

S.0°07½'E., on true line, on 68th mile of W. Bdy. of  
Navajo Indian Reservation.  
Over level land, through scattered undergrowth.  
(proportional dist.) Set an iron post, 3 ft. long, 3 ins.  
diam., 30 ins. in the ground, underneath which deposit  
marked stone, and alongside set old stone marked 67M,  
Hereinbefore described, for reestablished 67-mile cor.,  
marked on brass cap

| NIR  
| 67 M  
1920

from which  
Original position of old stone, marked 67 M, hereinbefore  
described, bears N.14°27'E., 2.71 chs. dist.  
Right edge of Round Rock, bears S.13°28'E.

Land, level.  
Soil, sandy clay; 3 rd rate.  
Undergrowth, scattered chico.  
Timber, none.

67.50

81.05

S.0°07½'E., on true line, on 67th mile of W. Bdy. of  
Navajo Indian Reservation.  
Over level land, through scattered undergrowth.  
Road, bears NW. and SE.  
(proportional dist.) Set an iron post, 3 ft. long, 3 ins.  
diam., 26 ins. in the ground, underneath which deposit  
marked stone, for reestablished 66-mile cor., marked  
on brass cap

| NIR  
| 66 M  
1920

from which  
Original position of old stone marked 68 M, hereinbefore  
described, bears N.32°07'E., 5.59 chs. dist.  
Center pipe of windmill, bears N.87°10'E., 136 lks. dist.  
SW. corner of Zinns store, bears S.74°28'E., 310 lks..  
dist.  
Right edge of Round Rock, bears S.14°20'E.

Land, level.  
Soil, sandy clay; 3 rd rate.  
Timber, none.  
Undergrowth, scattered chico and greasewood.

S.0°07½'E., on true line, on 66th mile of W. Bdy. of  
Navajo Indian Reservation.

Resurvey of the West Boundary of  
the Navajo Indian Reservation.  
(as established by Treaty of June 1, 1868)

8842

Chains.

0.05 Over rolling land, through scattered undergrowth.  
Road, bears E. and W.

27.64 Right bank of Rio De Chilly, course N.15°W., comes from South.

81.04 Down center of channel of Rio De Chilly.  
(proportional dist.) Point for reestablished 65-mile cor. falls in center of creek channel. Impossible to establish witness cor. to same on solid ground within 42 chs. N. or S., or 10 chs. E. or W. of point for cor.

Land, 27.64 chs. rolling., 53.40 chs. river bed.  
Soil, sandy clay; 2nd and 3rd rate.  
Undergrowth, chico.  
Timber, none.

41.85 S.0°07 $\frac{1}{2}$ 'E. on true line, on 65th mile of W. Bdy. of Navajo Indian Reservation.  
Down center of channel of Rio De Chilly.  
Left bank of Rio De Chilly, 15 ft. high; bears N. and S.20°E.

43.00 Thence, over rolling land through scattered undergrowth.  
Road, bears NE. and SW.

81.05 (proportional dist.) Set an iron post, 3 ft. long, 3 ins. diam., 26 ins. in the ground, underneath which deposit marked stone, for reestablished 64-mile cor., marked on brass cap

NIR  
64 M  
1920

Land, 41.85 chs. river bed; 39.20 chs. rolling.  
Soil, sandy clay; 2nd and 3rd rate.  
Timber, none.  
Undergrowth, soapweed and cactus.

5.14 S.0°07 $\frac{1}{2}$ 'E., on true line, on 64th mile of W. Bdy. of Navajo Indian Reservation.  
Over rolling land, through scattered undergrowth.  
Log cabin, bears E., about 12.5 chs. dist.

46.34 Road, bears E. and W.  
Across adobe flat, bears E. and W.

65.00 Leave adobe flat, bears E. and W.  
Asc. gradually over rolling N. slope.

81.04 (proportional dist.) Set an iron post, 3 ft. long, 3 ins. diam., 30 ins. in the ground, underneath which deposit marked stone, for reestablished 63-mile cor., marked on brass cap

NIR  
63 M  
1920

Land, 18.66 chs. adobe flat; 34.70 chs. rolling.  
Soil, adobe and sandy clay; 3rd rate.  
Timber, none.  
Undergrowth; soapweed and cactus.

S.0°07 $\frac{1}{2}$ 'E., on true line, on 63rd mile of W. Bdy. of Navajo Indian Reservation.

Resurvey of the West Boundary of  
the Navajo Indian Reservation.  
(as established by Treaty of June 1, 1868)

Chains.

Over rolling land, through scattered undergrowth.  
Ascend gradually.  
81.05 (proportional dist.) Set an iron post, 3 ft. long, 3 ins. diam., 30 ins. in the ground, underneath which deposit marked stone, for reestablished 62-mile cor., marked on brass cap

NIR  
62 M  
1920

Land, rolling.  
Soil, sandy clay; 3rd rate.  
Timber, none.  
Undergrowth, soapweed.

S.0°07 $\frac{1}{2}$ 'E., on true line, on 62nd mile of W. Bdy. of Navajo Indian Reservation.  
Ascend gradually over rolling N. slope, through scattered undergrowth.

64.00 Foot of cliffs, bears E. and W. East edge of mouth of canyon, course N.15°E.

Ascend over broken cliffs on W. slope of canyon.  
81.04 (proportional dist.) Point for reestablished 61-mile cor. falls on inaccessible W. slope of canyon.

90.05 Set an iron post, 3 ft. long, 3 ins. diam., on bed rock; on which cut a cross (X) at exact cor. point; in a mound of stone, 4 ft. base, 30 ins. high, for witness-cor. to the reestablished 61-mile cor., marked on brass cap

WC  
NIR  
61 M  
1920

from which  
Cross (X) on flat sandstone, bears S.45°E., 13 lks. dist., marked BOWC 61.

Land, 64.00 chs. rolling; 17.04 chs. broken W. slope of canyon.  
Soil, sandy clay and barren sandstone; 3rd and 4th rate.  
Timber, none.  
Undergrowth, scattered weeds.

From the point for reestablished 61-mile cor.,  
S.0°07 $\frac{1}{2}$ 'E., on true line, on 61st mile of W. Bdy. of Navajo Indian Reservation.  
Ascend broken W. slope of canyon.

7.91 Top of cliff, 150 ft. high, bears N.15°E. and S.15°W.

9.01 The witness cor. to reestablished 61-mile cor., herein-above described.

Asc. 126 ft. to  
24.45 Top of ascent, bears NE. and SW.

Over rolling land, through scattered undergrowth.  
81.05 (proportional dist.) Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, underneath which deposit marked stone, for reestablished 60-mile cor., marked on brass cap

NIR  
60 M  
1920

Resurvey of the West Boundary of  
the Navajo Indian Reservation.

(as established by Treaty of June 1, 1868)

Chains.	<p>Land, 24.45 chs. broken W. slope of canyon; 56.60 chs. rolling. Soil, sandy clay and barren sandstone; 3rd and 4th rate. Timber, none. Undergrowth, scattered soapweed.</p>
81.04	<p>S.0°07½'E., on true line, on 60th mile of W. Bdy. of Navajo Indian Reservation. Over rolling land, through scattered undergrowth. (proportional dist.) Set an iron post, 3 ft. long, 3 ins. diam., 30 ins. in the ground, underneath which deposit marked stone, for reestablished 59-mile cor., marked on brass cap</p> <p style="text-align: center;">  NIR   59 M 1920</p> <p>from which Peak on N. end of Lukachukai mountain, bears S.75°07'E. Center of square top mountain (Sarah Lee Rock) bears S.50°50'E. Left edge of Round Rock, bears S.29°22'E. Largest saw-tooth visible of sky-line, about 20 miles dist., bears S.74°57'W. Red sandstone pillar, bears N.65°59'W. Right edge of Elk mountain, bears N.9°52'W.</p> <p>Land, rolling. Soil, rocky sandy clay and barren sandstone; 3rd and 4th rate. Timber, none. Undergrowth, scattered weeds.</p>
14.50 23.18 81.04	<p>S.0°07½'E., on true line, on 59th mile of W. Bdy. of Navajo Indian Reservation. Over rolling land, through scattered undergrowth. Desc. 85 ft. over broken sandstone slope, to Top of cliff, bears NE. and S.30°W. Desc. 433 ft. over broken sandstone cliffs and ledges. (proportional dist.) The point for the reestablished 58-mile cor. falls on solid sandstone, on which cut a cross (X) at the exact cor. point, and over the cross Set an iron post, 3 ft. long, 3 ins. diam., in a mound of stone, 4 ft. base, 30 ins. high, for reestablished 58-mile cor., marked on brass cap</p> <p style="text-align: center;">  NIR   58 M 1920</p> <p>Land, 14.50 chs. rolling; 68.54 chs. rough broken slope. Soil, sandy clay and barren sandstone; 3rd and 4th rate. Timber, none. Undergrowth, scattered weeds.</p>

Resurvey of the West Boundary of  
the Navajo Indian Reservation.

(as established by treaty of June 1, 1868)

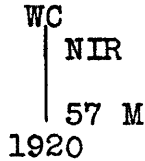
Chains.

S.0°07½'E., on true line, on 58th mile of W. Bdy. of Navajo Indian Reservation.

0.03 Base of perpendicular cliff, 50 ft. high. Thence, over broken sandstone spurs through scattered undergrowth.

81.05 (proportional dist.) Point for reestablished 57-mile cor. falls on inaccessible side of cliff.

87.05 Set an iron post, 3 ft. long, 3 ins. diam., on bed rock; on which cut a cross (X) at exact cor. point; in a mound of stone, 4 ft. base, 30 ins. high, for witness cor. to the reestablished 57-mile cor., marked on brass cap



from which

Cross (X) on flat sandstone, bears N.39°07'E., 16 lks. dist., marked BO WC 57.

Cross (X) on flat sandstone, bears S.57°52'E., 22 lks. dist., marked BO WC 57.

Land, broken sandstone slopes.  
Soil, rocky; 4th rate.  
Timber, none.  
Undergrowth, none.

From the true point for reestablished 57-mile cor., S.0°07½'E., on true line, on 57th mile of W. Bdy. of Navajo Indian Reservation.

Ascend over broken cliffs.

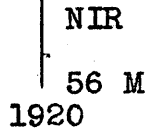
4.40 Top of cliff, bears N.15°E. and S.15°W., 500 ft. above reestablished 58-mile cor.

6.00 The witness cor. to the reestablished 57-mile cor., hereinabove described.

Thence over barren, broken sandstone slope.

60.57 Leave broken sandstone. thence, over rolling land through scattered undergrowth.

81.04 (proportional dist.) Set an iron post, 3 ft. long, 3 ins. diam., 28 ins. in the ground, underneath which deposit marked stone, for reestablished 56-mile cor., marked on brass cap



from which

North end of Carrisso plateau, bears N.44°16'E.

Highest point on S. end of Carrisso mountain, bears N.67°07'E.

North end of Lukachukai mountain, bears S.84°15'E.

Largest sawtooth visible on sky-line, about 20 miles dist., bears S.80°51'W.,

A sandstone pillar, bears N.62°03'W.

Right edge of Elk mountain, bears N.9°17'W.

Land, 60.57 chs. broken barren sandstone; 20.47 chs. rolling.  
Soil, sandy clay and barren sandstone; 3rd and 4th rate.  
Timber, none.  
Undergrowth, scattered chico and cactus. Short grass.

Resurvey of the West Boundary of  
the Navajo Indian Reservation.  
(as established by Treaty of June 1, 1868)

Chains.

81.05 S.0°07½'E., on true line, on 56th mile of W. Bdy of Navajo Indian Reservation.  
Over rolling land, through scattered undergrowth. (proportional dist.) Set an iron post, 3 ft. long, 3 ins. diam., 28 ins. in the ground, underneath which deposit marked stone, for reestablished 55-mile cor., marked on brass cap

NIR  
55 M  
1920

from which  
North end of Carrisso plateau, bears N.42°52'E.  
North end of Lukachukai mountain, bears S.87°16'E.  
Largest sawtooth visible on sky-line, about 20 miles dist., bears S.83°00'W.  
Red sandstone pillar, bears N.60°42'W.  
Land, rolling.  
Soil, sandy clay; 3rd rate.  
Timber, none.  
Undergrowth, scattered chico and cactus. Short grass.

81.04 S.0°07½'E., on true line, on 55th mile of W. Bdy. of Navajo Indian Reservation.  
Over rolling land, through scattered undergrowth. (proportional dist.) Set an iron post, 3 ft. long, 3 ins. diam., 28 ins. in the ground, underneath which deposit marked stone, for reestablished 54-mile cor., marked on brass cap

NIR  
54 M  
1920

from which  
North end of Carrisso plateau, bears N.41°04'E.  
North end of Lukachukai mountain, bears N.89°15'E.  
Hole in round rock, bears S.51°35'E.  
Largest sawtooth visible on sky-line, about 20 miles dist., bears S.84°39'W.  
Red sandstone pillar, bears N.59°51'W.  
Land, rolling.  
Soil, rocky sandy clay; 4th rate.  
Timber, none.  
Undergrowth, scattered weeds.

81.05 S.0°07½'E., on true line, on 54th mile of W. Bdy. of Navajo Indian Reservation.  
Over rolling land, through scattered undergrowth. (proportional dist.) Set an iron post, 3 ft. long, 3 ins. diam., 28 ins. in the ground, underneath which deposit marked stone, for reestablished 53-mile cor., marked on brass cap

NIR  
53 M  
1920

from which

Resurvey of the West Boundary of  
the Navajo Indian Reservation.  
(as established by Treaty of June 1, 1868)

Chains.

North end of Carrisso plateau, bears N.40°25'E.  
North end of Lukachukai mountain, bears N.86°46'E.  
Hole in Round Rock, bears S.61°13'E.  
Largest sawtooth visible on skyline, about 20 miles  
dist., bears S.87°26'W.

Land, rolling and broken.  
Soil, rocky sandy clay and barren sandstone; 4th rate.  
Timber, none.  
Undergrowth, scattered weeds.

S.0°07½'E., on true line, on 53rd mile of W. Bdy. of  
Navajo Indian Reservation.

Over broken, barren sandstone.

70.00 Top of cliff, 400 ft. high, bears NE. and SW.

75.00 Foot of cliff. Leave broken, barren sandstone, bears NE. & SW.  
Thence, over heavily rolling land, through scattered  
undergrowth.

80.34 Dry wash, 20 lks. wide, 1 ft. deep, course E. Head of  
same bears W., 5 chs. dist.

81.04 (proportional dist.) Set an iron post, 3 ft. long, 3 ins.  
diam., 6 ins. in the ground, underneath which deposit  
marked stone, in a mound of stone, 4 ft. base, 24 ins.  
high, for reestablished 52-mile cor., marked on brass  
cap

NIR

52 M

1920

Land, broken and heavilly rolling.  
Soil, rocky; 4th rate.  
Timber, none.  
Undergrowth, scattered chico.

S.0°07½'E., on true line, on 52nd mile of W. Bdy. of  
Navajo Indian Reservation.

Over heavilly rolling land, through scattered undergrowth.

81.05 (proportional dist.) Set an iron post, 3 ft. long, 3 ins.  
diam., 30 ins. in the ground, underneath which deposit  
marked stone, for reestablished 51-mile cor., marked  
on brass cap

NIR

51 M

1920

from which  
Hole in Round Rock, bears S.88°16'E.  
Center of square top rock (Sarah Lee Rock) bears S.67°19'E.

Land, heavilly rolling.  
Soil, sandy clay, gravelly and rocky; 3rd and 4th rate.  
Timber, none.  
Undergrowth, scattered chico and cactus. Short grass.



Resurvey of the West Boundary of  
the Navajo Indian Reservation.  
(as established by Treaty of June 1, 1868)

Chains.

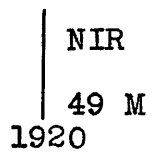
60.06 S.0°07½'E., on true line, on 51st mile of W. Bdy. of  
81.04 Navajo Indian Reservation.  
Over rolling land, through scattered undergrowth.  
Road, bears E. and W.  
(proportional dist.) Set an iron post, 3 ft. long, 3 ins.  
diam., 30 ins. in the ground, underneath which deposit  
marked stone, for reestablished 50-mile cor., marked  
on brass cap



from which  
Right edge of Round Rock, bears N.77°37'E.  
Center of square top rock (Sarah Lee Rock) bears S.63°55'E.

Land, rolling.  
Soil, sandy clay; 3 rd rate.  
Timber, none.  
Undergrowth, scattered chico and cactus. Short grass.

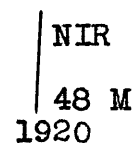
59.77 S.0°07½'E., on true line, on 50th mile of W. Bdy. of  
81.04 Navajo Indian Reservation.  
Over broken, barren ground, ascending gradually.  
Thence over rolling land, through scattered undergrowth.  
(proportional dist.) Set an iron post, 3 ft. long, 3 ins.  
diam., 30 ins. in the ground, underneath which deposit  
marked stone, for reestablished 49-mile cor., marked  
on brass cap



from which  
Right edge of Round Rock, bears N.65°07'E.  
North end of Lukackukai mountain, bears N.74°50'E.

Land, 59.77 chs. broken; 21.22 chs. rolling.  
Soil, sandy clay and barren sandstone; 3rd and 4th rate.  
Timber, none.  
Undergrowth, scattered chico, sagebrush, cactus and  
soapweed.

73.54 S.0°07½'E., on true line, on 49th mile of W. Bdy. of  
78.54 Navajo Indian Reservation.  
81.06 Over rolling land, through scattered undergrowth.  
Top of bluff, 40 ft. high, bears NE. and SW.  
Foot of bluff. Enter level open valley, bears NE. and SW.  
(proportional dist.) Set an iron post, 3 ft. long, 3 ins.  
diam., 30 ins. in the ground, underneath which deposit  
marked stone, for reestablished 48-mile cor., marked  
on brass cap



from which

Resurvey of the West Boundary of  
the Navajo Indian Reservation.  
(as established by Treaty of June 1, 1868)

Chains.

Right edge of Round Rock, bears N.54°12'E.  
North end of Lukachukai mountain, bears N.71°50'E.

Land, rolling.  
Soil, adobe and sandy clay; 3rd rate.  
Timber, none.  
Undergrowth, scattered chico. Some grass.

37.99

48.89

81.04

S.0°07 $\frac{1}{2}$ 'E., on true line, on 48th mile of W. Bdy. of  
Navajo Indian Reservation.

Over level land, through scattered undergrowth.  
Dry wash, 25 lks. wide, 3 ft. deep, course East.

Road, bears NW. and SE.

(proportional dist.) Set an iron post, 3 ft. long, 3 ins.  
diam., 24 ins. in the ground, underneath which deposit  
marked stone, for reestablished 47-mile cor., marked  
on brass cap

NIR

47 M

1920

from which

Right edge of Round Rock, bears N.46°26'E.

North end of Lukachulai mountain, bears N.69°15'E.

Center of Sarah Lee Rock, bears S.69°04'E.

Land, level.  
Soil, adobe; 2nd rate.  
Timber, none.  
Undergrowth, scattered chico and weeds.

81.05.

S.0°07 $\frac{1}{2}$ 'E., on true line, on 47th mile of W. Bdy. of the  
Navajo Indian Reservation.

Over level land, through scattered undergrowth.

(proportional dist.) Set an iron post, 3 ft. long, 3 ins.  
diam., 30 ins. in the ground, underneath which deposit  
marked stone, for reestablished 46-mile cor., marked  
on brass cap

NIR

46 M

1920

from which

Right edge of Round Rock, bears N.39°56'E.

North end of Lukachukai mountain, bears N.66°40'E.

Center of Sarah Lee Rock, bears S.70°47'E.

Land, level.  
Soil, adobe; 3rd rate.  
Timber, none.  
Undergrowth, scattered chico and weeds.

Resurvey of the West Boundary of  
the Navajo Indian Reservation.  
( as established by Treaty of June 1, 1868 )

Chains .  
81.04 S.0°07½'E., on true line, on 46th mile of W. Bdy. of Navajo Indian Reservation.  
Over level land, through scattered undergrowth.  
(proportional dist.) Set an iron post, 3 ft. long, 3 ins. diam., 30 ins. in the ground, underneath which deposit marked stone, for reestablished 45-mile cor., marked on brass cap

| NIR  
| 45 M  
1920

from which  
Right edge of Round Rock, bears N.34°49'E.  
North end of Lukachukai mountain, bears N.64°08'E.  
Center of Sarah Lee Rock, bears S.72°37'E.

Land, level.  
Soil, adobe; 3rd rate.  
Timber, none.  
Undergrowth, scattered chico and weeds.

81.05 S.0°07½'E., on true line, on 45th mile of W. Bdy. of Navajo Indian Reservation.  
Over level land, through scattered undergrowth.  
(proportional dist.) Set an iron post, 3 ft. long, 3 ins. diam., 30 ins. in the ground, underneath which deposit marked stone, for reestablished 44-mile cor., marked on brass cap

| NIR  
| 44 M  
1920

from which  
Right edge of Round Rock, bears N.30°43'E.  
North end of Lukachukai mountain, bears N.61°43'E.  
Center of Sarah Lee Rock, bears S.74°30'E.

Land, level.  
Soil, sandy clay and adobe; 3rd rate.  
Timber, none.  
Undergrowth, scattered chico and weeds. Some grass.

3 5.74 S.0°07½'E., on true line, on 44th mile of W. Bdy. of Navajo Indian Reservation.  
Over gently rolling E. slope, through scattered undergrowth.  
Foot of bluff, bears E. and W.  
Ascend 200 ft. over broken NE. slope.

75.04 Top of spur slopes NE.  
Descend 30 ft. over broken SE. slope.

81.04 (proportional dist.) Set an iron post, 3 ft. long, 3 ins. diam., 10 ins. in the ground, under which deposit marked stone, in a mound of stone, 3 ft. base, 20 ins. high, for reestablished 43-mile cor., marked on brass cap

| NIR  
| 43 M  
1920

42  
232

BOOK 2342

Resurvey of the West Boundary of  
the Navajo Indian Reservation.  
(as established by Treaty of June 1, 1868)

Chains.

from which  
Right edge of Round Rock, bears N.27°31'E.  
North end of Lukachukai mountain, bears N.59°28'E.  
Center of Sarah Lee Rock, bears S.76°19'E.

Land, rolling.  
Soil, sandy clay and sandstone; 3rd and 4th rate.  
Timber, none.  
Undergrowth, scattered chico and weeds.

16.00

S.0°07½'E., on true line, on 43rd mile of W. Bdy. of Navajo Indian Reservation.

Desc. 170 ft. over broken SE. slope.

Foot of descent, bears NE. and SW.

Over level, adobe land, through scattered undergrowth.

52.97

Road, bears NE. and SW.

81.04

(proportional dist.) Set an iron post, 3 ft. long, 3 ins. diam., 28 ins. in the ground, underneath which deposit marked stone, for reestablished 42-mile cor., marked on brass cap

NIR

42 M.

1920

from which

Right edge of Round Rock, bears N.24°45'E.

North end of Lukachukai mountain, bears N.57°13'E.

Center of Sarah Lee Rock, bears S.78°17'E.

Windmill, bears S.3 0°05'E.

Land, 16.00 chs. broken; 65.05 chs. level.

Soil, sandy clay and adobe; 3rd rate.

Timber, none.

Undergrowth, scattered chico and weeds.

81.05

S.0°07½'E., on true line, on 42nd mile of W. Bdy. of Navajo Indian Reservation.

Over level adobe land, through scattered undergrowth.

(proportional dist.) Set an iron post, 3 ft. long, 3 ins. diam., 26 ins. in the ground, underneath which deposit marked stone, for reestablished 41-mile cor., marked on brass cap

NIR

41 M

1920

from which

Right edge of Round Rock, bears N.22°30'E.

North end of Lukachukai mountain, bears N.55°05'E.

Center of Sarah Lee Rock, bears S.80°15'E.

Windmill, bears S.71°06'E.

Land, level.

Soil, adobe; 3rd rate.

Timber, none.

Undergrowth, scattered weeds and chiao.

Resurvey of the West Boundary of  
the Navajo Indian Reservation.  
(as established by Treaty of June 1, 1868)

Chains.

81.04 S.0°07½'E., on true line, on 41st mile of W. Bdy. of Navajo Indian Reservation.  
Over level adobe land, through scattering undergrowth. (proportional dist.) Set an iron post, 3 ft. long, 3 ins. diam., 30 ins. in the ground, underneath which deposit marked stone, for reestablished 40-mile cor., marked on brass cap

NIR  
40 M  
1920

from which  
Right edge of Round Rock, bears N.20°36'E.  
North end of Lukachukai mountain, bears N.53°05'E.  
Center of Sarah Lee Rock, bears S.82°15'E.  
Windmill, bears N.43°43'E.

Land, level.  
Soil, adobe; 3rd rate.  
Timber, none.  
Undergrowth, scattered weeds and chico.

30.45 S.0°07½'E., on true line, on 40th mile of W. Bdy. of Navajo Indian Reservation.  
Over rolling land, through scattered undergrowth. Dry wash, .2 chs. wide, 30 ft. deep, course N.85°E.  
81.05 (proportional dist.) Set an iron post, 3 ft. long, 3 ins. diam., 26 ins. in the ground, underneath which deposit marked stone, for reestablished 39-mile cor., marked on brass cap

NIR  
39 M  
1920

from which  
Right edge of Round Rock, bears N.19°03'E.

Land, rolling.  
Soil, adobe; 2nd rate.  
Timber, none.  
Undergrowth, scattered chico.

29.98 S.0°07½'E., on true line, on 39th mile of W. Bdy. of Navajo Indian Reservation.  
Over level adobe land, through scattered undergrowth. Indian road, bears E. and W.  
81.04 (proportional dist.) Set an iron post, 3 ft. long, 3 ins. diam., 26 ins. in the ground, underneath which deposit marked stone, for reestablished 38-mile cor., marked on brass cap

NIR  
38 M  
1920

from which  
Right edge of Round Rock, bears N.17°36'E.

Resurvey of the West Boundary of  
the Navajo Indian Reservation.  
(as established by Treaty of June 1, 1868)

Chains.

Land, level.  
Soil, adobe; 2nd rate.  
Timber, none.  
Undergrowth, scattered chico..

16.64  
48.69  
81.05

S.0°07½'E., on true line, on 38th mile of W. Bdy. of Navajo Indian Reservation.  
Over level adobe land, through scattered undergrowth.  
Old road, bears E. and W.  
Dry wash, 10 lks. wide, 2 ft. deep, course East.  
(proportional dist.) Set an iron post, 3 ft. long, 3 ins. diam., 28 ins. in the ground, underneath which deposit marked stone, for reestablished 37-mile cor., marked on brass cap

NIR

37 M

1920

from which

Right edge of Round Rock, bears N.17°02'E.  
Center of Sarah Lee Rock, bears S.87°35'E.  
Windmill at Frazer store, bears S.37°22'E.

Land, level.  
Soil, adobe and red clay; 2nd and 3rd rate.  
Undergrowth, scattered chico and weeds.  
Timber, none.

22.04  
81.04

S.0°07½'E., on true line, on 37th mile of W. Bdy. of Navajo Indian Reservation.  
Over level adobe land, through scattered undergrowth.  
Old road, bears NW. and SE.  
(proportional dist.) Set an iron post, 3 ft. long, 3 ins. diam., 28 ins. in the ground, underneath which deposit marked stone, for reestablished 36-mile cor., marked on brass cap

NIR

36 M

1920

from which

Right edge of Round Rock, bears N.15°22'E.  
North end of Lukachukai mountain, bears N.46°00'E.  
Center of Sarah Lee Rock, bears N.89°43'E.

Land, level.  
Soil, adobe and coarse sandy clay; 3rd and 4th rate.  
Timber, none.  
Undergrowth, scattered weeds and chico.

S.0°07½'E., on true line, on 36th mile of W. Bdy. of Navajo Indian Reservation.  
Over rolling land, through scattered undergrowth.

Resurvey of the West Boundary of  
the Navajo Indian Reservation.  
(as established by Treaty of June 1, 1968)

Chains.

- 32.64 Foot of mesa.
- Ascend 300 ft. over broken NW. slope
- 45.00 Edge of mesa, bears NE. and SW.
- Thence over rolling land.
- 81.05 (proportional dist.) Set an iron post, 3 ft. long, 3 ins. diam., 30 ins. in the ground, underneath which deposit marked stone, for reestablished 35-mile cor., marked on brass cap

| NIR  
| 35 M  
1920

from which  
 Right edge of Round Rock, bears N.15°26'E.  
 North end of Lukachukai mountain, bears N.44°27'E.  
 Windmill at Frazer store, bears N.82°29'E.  
 Center of Sarah Lee Rock, bears N.87°40'E.

Land, rolling and broken.  
 Soil, adobe and stony sandy clay; 3rd and 4th rate.  
 Timber, none.  
 Undergrowth, scattered weeds. Fair grass.

- 81.04 S.0°07½'E., on true line, on 35th mile of W. Bdy. of Navajo Indian Reservation.
- Over heavily rolling land, through scattered undergrowth.
- (proportional dist.) Set an iron post, 3 ft. long, 3 ins. diam., 28 ins. in the ground, underneath which deposit marked stone, for reestablished 34-mile cor., marked on brass cap

| NIR  
| 34 M  
1920

From which  
 Right edge of Round Rock, bears N.13°40'E.  
 North end of Lukachukai mountain, bears N.43°02'E.  
 Center of Sarah Lee Rock, bears N.85°43'E.  
 Left edge of Black Mesa, bears S.56°33'W.  
 Right edge of Black Mesa, bears N.52°58'W.

Land, heavily rolling.  
 Soil, rocky sandy clay; 4th rate.  
 Timber, none.  
 Undergrowth, scattered sage brush.

- 17.24 S.0°07½'E., on true line, on 34th mile of W. Bdy. of Navajo Indian Reservation.
- 24.51 Over rolling land, through scattered undergrowth.
- Indian trail, bears E. and W.
- 81.04 (Proportional dist) Set an iron post, 3 ft. long, 3 ins. diam., 26 ins. in the ground, for reestablished 33-mile cor., marked on brass cap

| NIR  
| 33 M  
1920

BOOK 332

Resurvey of the West Boundary of  
the Navajo Indian Reservation.  
(as established by Treaty of June 1, 1868)

Chains.

from which  
Right edge of Round Rock, bears N.12°56'E.  
North end of Lukachukai mountain, bears N.41°40'E.  
Center of Sarah Lee Rock, bears N.83°42'E.  
Left edge of Black Mesa, bears S.60°32'W.  
Right edge of Black Mesa, bears N.50°14'W.

dig pits, 18x18x12 ins. N. and S. of post, 3 ft. dist.

Land, rolling.  
Soil, sandy clay; 2nd rate.  
Timber, none.  
Undergrowth, scattered chico and cactus. Some grass.

81.05

S.0°07 $\frac{1}{2}$ 'E., on true line, on 33rd mile of W. Bdy. of Navajo Indian Reservation.  
Over rolling land, through scattered undergrowth. (proportional dist.) Set an iron post, 3 ft. long, 3 ins. diam., 28 ins. in the ground, underneath which deposit marked stone, for reestablished 32-mile cor., marked on brass cap

NIR  
32 M  
1920

from which  
North end of Lukachukai mountain, bears N.40°22'E.  
Center of Sarah Lee Rock, bears N.81°42'E.  
Left edge of Black Mesa, bears S.64°50'W.  
Right edge of Black Mesa, bears N.47°23'W.

Land, rolling.  
Soil, sandy clay; 3rd rate.  
Timber, none.  
Undergrowth, scattered cactus and chico. Some grass.

46.05

S.0°07 $\frac{1}{2}$ 'E., on true line, on 32nd mile of W. Bdy. of Navajo Indian Reservation.  
Over rolling land, through scattered undergrowth.  
Edge of mesa, bears N.15°E. and S.15°W.  
Desc. 265 ft. over broken SE. slope.

67.00

Foot of bluff, bears N.15°E., and S.15°W.  
Thence over rolling land.

81.04

(proportional dist.) Set an iron post, 3 ft. long, 3 ins. diam., 30 ins. in the ground, underneath which deposit marked stone, for reestablished 31-mile cor., marked on brass cap

NIR  
31 M  
1920

Land, rolling and broken.  
Soil, adobe and rocky sandy clay; 3rd and 4th rate.  
Timber, none.  
Undergrowth, scattered cactus. Some grass.



Resurvey of the West Boundary of  
the Navajo Indian Reservation.  
(as established by Treaty of June 1, 1868)

Chains.

S.0°07½'E., on true line, on 31st mile of W. Bdy. of the Navajo Indian Reservation.  
Over level land, through scattered undergrowth.  
0.15 N. bank of dry wash, 20 ft. deep, course East.  
7.05 S. bank of dry wash.  
17.90 Road, bears E. and W.  
Asc. 172 ft. to  
31.08 Edge of bluff, bears E. and W.  
Asc. 50 ft. over rocky N. slope.  
38.00 Top of ascent.  
Thence over rolling prairie.  
81.05 (proportional dist.) Set an iron post, 3 ft. long, 3 ins. diam., 30 ins. in the ground, underneath which deposit marked stone, for reestablished 30-mile cor., marked on brass cap

NIR  
30 M  
1920

from which  
A stone column, bears S.72°16'E.  
Left edge of Black Mesa, bears S.74°09'W.  
Right edge of Black Mesa, bears N.42°28'W.

Land, rolling and broken.  
Soil, gravelly sandy clay; 3rd rate.  
Timber, none.  
Undergrowth, scattered weeds.

81.04 S.0°07½'E., on true line, on 30th mile of W. Bdy. of Navajo Indian Reservation.  
Over rolling West slope through scattered undergrowth.  
(proportional dist.) Set an iron post, 3 ft. long, 3 ins. diam., 28 ins. in the ground, underneath which deposit marked petrified wood, for reestablished 29-mile cor., marked on brass cap

NIR  
29 M  
1920

from which  
A Small red sandstone pillar, bears S.88°45'W.  
Right edge of Black Mesa, bears N.40°16'W.  
Left edge of Black Mesa, bears S.79°12'W.

Land, rolling.  
Soil, gravelly sandy clay; 3rd rate.  
Timber, none.  
Undergrowth, scattered chico and cactus. Some grass.

81.05 S.0°07½'E., on true line, on 29th mile of W. Bdy. of Navajo Indian Reservation.  
Over heavilly rolling land, through scattered undergrowth.  
(proportional dist.) Set an iron post, 3 ft. long, 3 ins. diam., 28 ins. in the ground, underneath which deposit marked stone, for reestablished 28-mile cor., marked on brass cap

Resurvey of the West Boundary of  
the Navajo Indian Reservation.  
(as established by Treaty of June 1, 1868)

Chains.

NIR  
28 M  
1920

from which

North end of Lukachukai mountain, bears N.35°43'E.  
Center of Sarah Lee Rock, bears N.74°00'E.

Land, heavilly rolling.  
Soil, sandy clay; 3rd rate.  
Timber, none.  
Undergrowth, scattered chico and cactus.

81.04

S.0°07½'E., on true line, on 28th mile of W. Bdy. of Navajo Indian Reservation.  
Over broken rolling land, through scattered undergrowth. (proportional dist.) Set an iron post, 3 ft. long, 3 ins. diam., 30 ins. in the ground, underneath which deposit marked stone, for reestablished 27-mile cor., marked on brass cap

NIR  
27 M  
1920

from which

North end of Lukachukai mountain, bears N.34°43'E.  
Center of Sarah Lee Rock, bears N.72°10'E.  
Cross on Chin Lee church, bears N.82°10'E.  
Water tank, bears N.84°59'E.

Land, rolling and broken.  
Soil, sandy clay and adobe; 3rd rate.  
Timber, none.  
Undergrowth, scattered chico. Some grass.

10.00  
55.50  
72.25  
78.95  
81.05

S.0°07½'E., on true line, on 27th mile of W. Bdy. of Navajo Indian Reservation.  
Desc. 50 ft. over broken SE. slope, through scattered undergrowth.  
Thence over gentle SE. slope.  
Old Road, bears NE. and SW.  
Old road, bears NE. and SW.  
Dry wash, 20 lks. wide, 2 ft. deep, course NE.  
(proportional dist.) Set an iron post, 3 ft. long, 3 ins. diam., 26 ins. in the ground, underneath which deposit marked stone, for reestablished 26-mile cor., marked on brass cap

NIR  
26 M  
1920

from which

North end of Lukachukai mountain, bears N.33°40'E.  
Center of Sarah Lee Rock, bears N.70°23'E.  
Green water tank, bears N.71°29'E.

Land, rolling.  
Soil, adobe and sandy clay; 2nd and 3rd rate.  
Timber, none.  
Undergrowth, scattered chico. Some grass

Resurvey of the West Boundary of  
 the Navajo Indian Reservation.  
 (as established by Treaty of June 1, 1868)

Chains.

S.0°07½'E., on true line, on 26th mile of W. Bdy. of Navajo Indian Reservation. In Chin Lee Valley. Over level land, through scattered undergrowth.  
 54.19 Old road, bears NE. and SW.  
 66.30 Dry wash, 10 lks. wide, 2 ft. deep, course East.  
 70.25 Dry wash, 12 lks. wide, 2 ft. deep, course East.  
 81.04 (proportional dist.) Set an iron post, 3 ft. long, 3 ins. diam., 28 ins. in the ground, underneath which deposit marked stone, for reestablished 25-mile cor., marked on brass cap

NIR  
 25 M  
 1920

from which  
 North end of Lukachukai mountain, bears N.32°50'E.  
 Cross on Chin Lee church, bears N.55°19'E.  
 Center of Sarah Lee Rock, bears N.68°33'E.

Land, level.  
 Soil, adobe; 2nd rate.  
 Timber, none.  
 Undergrowth, scattered chico and cactus. Some grass.

S.0°07½'E., on true line, on 25th mile of W. Bdy. of Navajo Indian Reservation. In Chin Lee Valley. Over level land, through scattered undergrowth.  
 33.94 Ascend gradual N. slope over barren rocky land.  
 45.91 Foot of bluff. Asc. 205 ft. to  
 61.22 Top of bluff, bears E. and W.  
 Thence over rolling SW. slope, through scattered undergrowth.  
 81.04 (proportional dist.) Set an iron post, 3 ft. long, 3 ins. diam., 28 ins. in the ground, underneath which deposit marked stone, for reestablished 24-mile cor., marked on brass cap

NIR  
 24 M  
 1920

from which  
 Peak on Black Mesa, bears N.75°18'W.  
 Right edge of Black Mesa, bears N.31°42'W.

Land, 33.94 chs. level; 25.28 chs. broken; 19.83 chs. rolling.  
 Soil, adobe and coarse, rocky sandy clay; 2nd and 3rd rate.  
 Timber, none.  
 Undergrowth, scattered chico and weeds. Some grass.

S.0°07½'E., on true line, on 24th mile of W. Bdy. of Navajo Indian Reservation. Over rolling land, through scattered undergrowth.  
 31.57 Dry wash, 10 lks. wide; 2 ft. deep, course W.  
 81.05 (proportional dist.) Set an iron post, 3 ft. long, 3 ins. diam., 12 ins. in the ground, underneath which deposit marked stone, in a mound of stone, 3 ft. base, 20 ins. high, for reestablished 23-mile cor., marked on brass cap

BOOK 3342

Resurvey of the West Boundary of  
the Navajo Indian Reservation.  
(as established by Treaty of June 1, 1868)

Chains.

NIR

23 M

1920

from which  
Peak on Black Mesa, bears N.70°37'W.

Land, rolling.  
Soil, sandy clay; 3 rd rate.  
Timber, none.  
Undergrowth, scattered weeds. Some grass.

S.0°07½'E., on true line, on 23rd mile of W. Bdy. of  
Navajo Indian Reservation.

Over rolling land, through scattered undergrowth.

26.82

Old road; bears E. and W.

32.42

Indian trail, bears E. and W.

59.70

Indian trail, bears NE. and SW.

71.62

Old road, bears NE. and SW.

81.04

(proportional dist.) Set an iron post, 3 ft. long, 3 ins.  
diam., 30 ins. in the ground, underneath which deposit  
marked stone, for reestablished 22-mile cor., marked  
on brass cap

NIR

22 M

1920

from which  
Windmill, bears S.78°45'W.  
Peak on Black Mesa, bears N.66°19'W.

Land, rolling.  
Soil, gravelly sandy clay; 3rd rate.  
Timber, none.  
Undergrowth, scattered chico. Some grass.

S.0°07½'E., on true line, on 22nd mile of W. Bdy. of  
Navajo Indian Reservation.

Over rolling SW. alope, through scattered undergrowth.

64.88

Dry wash, 10 lks. wide, 1½ ft. deep, course West.

79.25

Road, bears NE. to Chin Lee and SW. to Ganada.

81.05

(proportional dist.) Set an iron post, 3 ft. long, 3 ins.  
diam., 24 ins. in the ground, underneath which deposit  
marked stone, for reestablished 21-mile cor., marked  
on Brass cap

NIR

21 M

1920

from which  
Peak on Black Mesa, bears N.62°09'W.  
Windmill, bears N.40°57'W., about 2 miles dist.

dig pits, 18x18x12 ins. N. and S. of post, 3 ft. dist.

Land, rolling, SW. slope.  
Soil, sandy clay; 3rd rate.  
Timber, none.  
Undergrowth, scattered chico and cactus. Good grass.

Resurvey of the West Boundary of  
the Navajo Indian Reservation.  
(as established by Treaty of June 1, 1868)

Chains.

60.18 S.0°07½'E., on true line, on 21st mile of W. Bdy. of Navajo Indian Reservation.  
 77.70 Over rolling SW. slope, through scattered undergrowth. Indian Trail, bears N.75°E. and S.75°W.  
 81.04 Indian trail, bears NE. and SW.  
 (proportional dist.) Set an iron post, 3 ft. long, 3 ins. diam., 28 ins. in the ground, underneath which deposit marked stone, for reestablished 20-mile cor., marked on brass cap

NIR  
 20 M  
 1920

from which  
 Peak on Black Mesa, bears N.58°27'W.

Land, rolling, SW. slope.  
 Soil, sandy clay; 3rd rate.  
 Timber, none.  
 Undergrowth, scattered weeds and cactus. Some grass.

3.19 S.0°07½'E., on true line, on 20th mile of W. Bdy. of the Navajo Indian Reservation.  
 13.18 Over gently rolling SW. slope, through scattered undergrowth.  
 14.90 Old road, bears NW. and SE.  
 36.65 Dry wash, 6 lks. wide, 2 ft. deep, course West.  
 55.80 Indian trail, bears NW. and SE.  
 68.25 Indian trail, bears NW. and SE.  
 81.05 Old road, bears NE. and SW.  
 Old road, bears E. and W.  
 (proportional dist.) Set an iron post, 3 ft. long, 3 ins. diam., 30 ins. in the ground, underneath which deposit marked stone, for reestablished 19-mile cor., marked on brass cap

NIR  
 19 M  
 1920

from which  
 Peak on Black Mesa, bears N.54°47'W.

Land, rolling, SW. slope.  
 Soil, sandy clay; 3rd rate.  
 Timber, none.  
 Undergrowth, scattered weeds and cactus. Sparse grass.

60.81 S.0°07½'E., on true line, on 19th mile of W. Bdy. of Navajo Indian Reservation.  
 81.04 Over gently rolling SW. slope, through scattered undergrowth.  
 Dry wash, 8 lks. wide, 1½ ft. deep, course SW.  
 (proportional dist.) Set an iron post, 3 ft. long, 3 ins. diam., 28 ins. in the ground, underneath which deposit marked stone, for reestablished 18-mile cor., marked on brass cap

NIR  
 18 M  
 1920

Resurvey of the West Boundary of  
the Navajo Indian Reservation,  
(as established by Treaty of June 1, 1868)

Chains.

from which  
Peak on Black Mesa, bears N.51°35'W.

Land, gently rolling, SW. slope.  
Soil, adobe; 3rd rate.  
Timber, none.  
Undergrowth, scattered weeds.

S.0°07 $\frac{1}{2}$ 'E., on true line, on 18th mile of W. Bdy. of  
Navajo Indian Reservation.

Over gently rolling SW. slope, through scattered undergrowth.

22.80 Dry wash, 15 lks. wide, 2 ft. deep, course SW.

53.67 Indian trail, bears N.85°W. and S.85°E.

65.30 Dry wash, 20. lks. wide, 1 ft. deep, course W.

69.55 Old road, bears NE. and SW.

81.05 (proportional dist.) Set an iron post, 3 ft. long, 3 ins.  
diam., 26 ins. in the ground, underneath which deposit  
quart of charcoal and tin can, for reestablished 17-  
mile cor., marked on brass cap

NIR

17 M

1920

from which  
Peak on Black Mesa, bears N.48°40'W.

Land, gently rolling SW. slope.  
Soil, black adobe and sandy clay; 3rd rate.  
Timber, none.  
Undergrowth, scattered weeds, sagebrush and cactus.  
Some grass.

From the above cor., the center of Lake Pragaatzo, bears  
West, 1-mile dist. Lake is about 1 mile long N. and S.  
with an average width of 10 chs.

S.0°07 $\frac{1}{2}$ 'E., on true line, on 17th mile of W. Bdy. of  
Navajo Indian Reservation.

Over gently rolling SW. slope, through scattered under-  
growth.

62.70 Dry wash, 15 lks. wide, 2 ft. deep, course NW.

Thence, over level land.

69.10 Indian trail, bears N.65°W. and S.65°E.

81.05 (proportional dist.) Set an iron post, 3 ft. long, 3 ins.  
diam., 24 ins. in the ground, underneath which deposit  
quart of charcoal and tin can, for reestablished 16-  
mile cor., marked on brass cap

NIR

16 M

1920

from which  
Peak on Black Mesa, bears N.45°56'W.

Land, 62.70 chs. gently rolling SW. slope; 18.34 chs.  
level.

Soil, 62.70 chs. gravelly sandy clay; 3rd rate; 18.34 chs.  
fine black adobe, 2nd rate.

Timber, none.

Undergrowth, scattered weeds, sagebrush and cactus.

Resurvey of the West Boundary of  
the Navajo Indian Reservation.  
(as established by Treaty of June 1, 1868)

BOOK 3342

Chains.

28.90 S.0°07½'E., on true line, on 16th mile of W. Bdy. of Navajo Indian Reservation.  
 81.04 Over level land, through scattered undergrowth.  
 Indian trail, bears NW. and SE.  
 (proportional dist.) Set an iron post, 3 ft. long, 3 ins. diam., 28 ins. in the ground, underneath which deposit quart of charcoal and tin can, for reestablished 15-mile cor., marked on brass cap

NIR  
 |  
 15 M  
 1920

from which  
 Peak on Black Mesa, bears N.43°25'W.

Land, level.  
 Soil, heavy clay and adobe; 2nd rate.  
 Timber, none.  
 Undergrowth, scattered weeds and cactus. Sparse grass.

33.93 S.0°07½'E., on true line, on 15th mile of W. Bdy. of Navajo Indian Reservation.  
 76.97 Over level land, through scattered undergrowth.  
 81.05 Indian trail, bears NW. and SE., over low rolling knoll.  
 Indian trail, bears NE. and SW.  
 (proportional dist.) Set an iron post, 3 ft. long, 3 ins. diam., 28 ins. in the ground, underneath which deposit quart of charcoal and tin can, for reestablished 14-mile cor., marked on brass cap

NIR  
 |  
 14 M  
 1920

from which  
 Peak on Black Mesa, bears N.41°07'W.

Land, level.  
 Soil, heavy clay and adobe; 2nd rate.  
 Timber, none.  
 Undergrowth, scattered weeds and cactus. Sparse grass.

15.00 S.0°07½'E., on true line, on 14th mile of W. Bdy. of Navajo Indian Reservation.  
 70.00 Over gently rolling NW. slope, through scattered undergrowth.  
 81.04 Over a series of low rolling knolls.  
 Across gently rolling, grassy, NW. slope.  
 (proportional dist.) Set an iron post, 3 ft. long, 3 ins. diam., 28 ins. in the ground, underneath which deposit quart of charcoal and tin can, for reestablished 13-mile cor., marked on brass cap

NIR  
 |  
 13 M  
 1920

from which  
 Peak on Black Mesa, bears N.39°02'W.

Resurvey of the West Boundary of  
 the Navajo Indian Reservation.  
 (as established by Treaty of June 1, 1868)

Chains.	<p>Land, level and rolling.            Soil, sandy clay; 2nd and 3rd rate.            Timber, none.            Undergrowth, scattered cactus. Sparse grass.</p>
<p>41.90            44.40            47.00            81.05</p>	<p>S.0°07½'E., on true line, on 13th mile of W. Bdy. of Navajo Indian Reservation.            Asc. gently rolling, grassy, NW. slope, through scattered undergrowth.            Top of low spur, near end, slopes NW. 50 ft. above 13-mile cor.            Center of dirt drain, 25 ft. deep, near end, course NW.            Over rolling prairie.            (proportional dist.) Set an iron post, 3 ft. long, 3 ins. diam., 28 ins. in the ground, underneath which deposit quart of charcoal and tin can, for reestablished 12-mile cor., marked on brass cap</p> <div style="text-align: center;"> <p>  NIR                12 M              1920</p> </div> <p>from which            North end of Lukachukai mountain, bears N.23°53'            Peak on Black Mesa, bears N.37°10'W.</p> <p>Land, rolling.            Soil, sandy clay; 2nd rate.            Timber, none.            Undergrowth, scattered sagebrush, cactus and weeds.            Good Grass.</p>
<p>81.04</p>	<p>S.0°07½'E., on true line, on 12th mile of W. Bdy. of Navajo Indian Reservation.            Over rolling prairie, through scattered undergrowth.            (proportional dist.) Set an iron post, 3 ft. long, 3 ins. diam., 28 ins. in the ground, underneath which deposit quart of charcoal and tin can, for reestablished 11-mile cor., marked on brass cap</p> <div style="text-align: center;"> <p>  NIR                11 M              1920</p> </div> <p>dig pits, 18x18x12 ins., N. and S. of post, .3 ft. dist.</p> <p>Land, rolling.            Soil, sandy clay; 2nd rate.            Timber, none.            Undergrowth, scattered chico. Some grass.</p>
<p>77.78            81.05</p>	<p>S.0°07½'E., on true line, on 11th mile of W. Bdy. of Navajo Indian Reservation.            Over rolling prairie, through scattered undergrowth.            Old road, bears NE. and SW.            (proportional dist.) Set an iron post, 3 ft. long, 3 ins. diam., 28 ins. in the ground, underneath which deposit quart of charcoal and tin can, for reestablished 10-mile cor., marked on brass cap</p>



Resurvey of the West Boundary of  
the Navajo Indian Reservation.  
(as established by Treaty of June 1, 1868)

BOOK 3342

Chains.

NIR  
10 M  
1920

from which  
North end of Lukachukai mountain, bears N.22°05'E.  
North end of Mesa Vaca, bears N.59°58'W.  
Peak on Black Mesa, bears N.43°42'W.

Land, rolling.  
Soil, sandy clay; 2nd rate.  
Timber, none.  
Undergrowth, saattered weeds. Some grass.

81.04

S.0°07½'E., on true line, on 10th mile of W. Bdy. of Navajo Indian Reservation.  
Over gently rolling SW. slope, through scattered undergrowth.  
(proportional dist.) Set an iron post, 3 ft. long, 3 ins. diam., 26 ins. in the ground, underneath which deposit quart of charcoal and tin can, for reestablished 9-mile cor., marked on brass cap

NIR  
9 M  
1920

from which  
South end of Mesa Vaca, bears S.79°00'W.  
North end of Mesa Vaca, bears N.57°14'W.  
Peak on Black Mesa, bears N.32°15'W.

Land, rolling SW. slope.  
Soil, sandy clay; 2nd rate.  
Timber, none.  
Undergrowth, scattered sagebrush. Some grass.

81.04

S.0°07½'E., on true line on 9th mile of W. Bdy. of Navajo Indian Reservation.  
Over gently rolling SW. slope, through scattered undergrowth.  
(proportional dist.) Set an iron post, 3 ft. long, 3 ins. diam., 28 ins. in the ground, underneath which deposit quart of charcoal and tin can, for reestablished 8-mile cor., marked on brass cap

NIR  
8 M  
1920

from which  
North end of Lukachukai mountain, bears N.22°07'E.  
North end of mesa, bears S.57°18'E.  
Peak on Black Mesa, bears N.30°49'W.  
Right point of Black Mesa, bears N.18°16'W.

Land, rolling, SW. slope.  
Soil, sandy clay; 2nd rate.  
Timber, none.  
Undergrowth, scattered sagebrush. Some grass.

Resurvey of the West Boundary of the Navajo Indian Reservation. (as established by Treaty of June 1, 1868)

Chains.

81.05 S.0°07½'E., on true line, on 8th mile of W. Bdy. of Navajo Indian Reservation. Over gently rolling SW. slope, through scattered undergrowth. (proportional dist.) Set an iron post, 3 ft. long, 3 ins. diam., 26 ins. in the ground, underneath which deposit quart of charcoal and tin can, for reestablished 7-mile cor., marked on brass cap

NIR  
7 M  
1920

from which  
Right edge of Mesa Vaca, bears N.52°18'W.  
Peak on Black Mesa, bears N.29°34'W.

Land, rolling, SW. slope.  
Soil, sandy clay; 2nd rate.  
Timber, none.  
Undergrowth, scattered sagebrush. Some grass.

81.04 S.0°07½'E., on true line, on 7th mile of W. Bdy. of Navajo Indian Reservation. Over gently rolling SW. slope, through scattered undergrowth. (proportional dist.) Set an iron post, 3 ft. long, 3 ins. diam., 28 ins. in the ground, underneath which deposit quart of charcoal and tin can, for reestablished 6-mile cor., marked on brass cap

NIR  
6 M  
1920

from which  
North end of mesa, bears S.81°10'E.  
Peak on Black Mesa, bears N.31°39'W.

Land, rolling, SW. slope.  
Soil, sandy clay; 2nd rate.  
Timber, none.  
Undergrowth, scattered sagebrush. Some grass.

20.20 S.0°07½'E., on true line, on 6th mile of W. Bdy. of Navajo Indian Reservation. Over gently rolling W. slope, through scattered undergrowth.  
41.27 Road, bears NW. to Chin Lee and SE. to Ganado.  
64.53 Old road, bears E. and W.  
81.05 Dry wash, 16 lks. wide, 2 ft. deep, course W. (Proportional dist.) Set an iron post, 3 ft. long, 3 ins. diam., 28 ins. in the ground, underneath which deposit quart of charcoal and tin can, for reestablished 5-mile cor., marked on brass cap

NIR  
5 M  
1920

from which

Resurvey of the West Boundary of  
the Navajo Indian Reservation.  
(as established by Treaty of June 1, 1868)

BOOK 332

Chains.

Windmill, bears S.43°23'E.  
Right edge of Mesa Vaca, bears N.47°56'W.  
Peak on Black Mesa, bears N.27°15'W.  
Right edge of, Black Mesa, bears N.16°57'W.

Land, rolling W. slope.  
Soil, sandy clay; 2nd rate.  
Timber, none.  
Undergrowth, scattered sagebrush. Some grass.

S.0°07½'E., on true line, on 5th mile of W. Bdy. of  
Navajo Indian Reservation.  
Over rolling, grassy prairie, through scattered under-  
growth.

30.00 A small lagoon, bears W., 5 chs. dist.  
63.80 Old road, bears S.40°E. and N.40°W.  
81.04 (proportional dist.) Set an iron post, 3 ft. long, 3 ins.  
diam., 30 ins. in the ground, underneath which deposit  
quart of charcoal and tin can, for reestablished 4-  
mile cor., marked on brass cap

NIR  
4 M  
1920

from which  
Windmill, bears N.34°45'E.  
Mesa Vaca, bears N.46°00'W.  
Peak on Black Mesa, bears N.26°14'W.  
Right edge of Black Mesa, bears N.16°33'W.

Land, rolling.  
Soil, adobe; 1st rate.  
Timber, none.  
Undergrowth, scattered chico, weeds and buffalo grass.

S.0°07½'E., on true line, on 4th mile of W. Bdy. of  
Navajo Indian Reservation.  
Over level, grassy prairie, through scattered undergrowth.

5.00 Edge of prairie land, bears N.65°E. and S.65°W.  
29.20 Desc. 35 ft. over rolling SE. slope, to  
32.59 Road, bears N.65°E. to Chin Lee and S.65°W. to Ganado.  
North edge of lagoon, near East end. Lagoon 2 chs. wide,  
and bears SW. for 10 chs.  
81.05 Over level adobe flat, through scattered undergrowth.  
(proportional dist.) Set an iron post, 3 ft. long, 3 ins.  
diam., 26 ins. in the ground, underneath which deposit  
quart of charcoal and tin can, for reestablished 3-  
mile cor., marked on brass cap

NIR  
3 M  
1920

from which  
North end of mesa, bears N.64°45'E.  
East end of mesa, bears S.20°05'W.

Land, level.  
Soil, adobe; 1st rate.  
Timber, none.  
Undergrowth, scattered weeds. Sparse grass.

Resurvey of the West Boundary of  
the Navajo Indian Reservation.  
(as established by Treaty of June 1, 1868)

Chains.	<p>S.0°07½'E., on true line, on 3rd mile of W. Bdy. of Navajo Indian Reservation. Over level land, through scattered undergrowth.</p>
81.04	<p>(proportional dist.) Set an iron post, 3 ft. long, 3 ins. diam., 28 ins. in the ground, underneath which deposit quart of charcoal and tin can, for reestablished 2-mile cor., marked on brass cap</p> <p style="text-align: center;">  NIR   2 M 1920</p> <p>from which North end of mesa, bears N.55°18'E. East end of mesa, bears S.26°27'W.</p> <p>Land, level. Soil, adobe; 1st rate. Timber, none. Undergrowth, scattered chico and weeds.</p>
35.59	<p>S.0°07½'E., on true line, on 2nd mile of W. Bdy. of Navajo Indian Reservation. Over level land, through scattered undergrowth.</p>
81.05	<p>Dry wash, 100 lks. wide, 8 ft. deep, course N.80°W. (proportional dist.) Set an iron post, 3 ft. long, 3 ins. diam., 30 ins. in the ground, underneath which deposit quart of charcoal and tin can, for reestablished 1-mile cor., marked on brass cap</p> <p style="text-align: center;">  NIR   1 M 1920</p> <p>from which North end of mesa, bears N.46°54'E. East end of mesa, bears S.37°30'W. End of red sandstone spur, bears N.73°00'W.</p> <p>Land, level. Soil, adobe; 1st rate. Timber, none. Undergrowth, scattered chico. Some grass.</p>
1.04	<p>S.0°07½'E., on true line, on 1st mile of W. Bdy. of Navajo Indian Reservation. Ascend gradual N. slope, through scattered undergrowth.</p>
9.49	<p>Top of low knoll. Desc. gradually. Dry wash, 35 lks. wide, 8 ft. deep, course S.80°W. Asc. gentle W. slope.</p>
59.71	<p>Dry wash, 15 lks. wide, 6 ft. deep, course N.85°W. Edge of scattered timber, bears NE. and S.</p>
81.04	<p>Asc. gentle N. slope, along edge of scattered timber. Intersect the original SW. cor. of the Navajo Indian Reservation, hereinbefore described, which I reestablish as follows: On top of buried stone and on N. side of old post, Set an iron post, 3 ft. long, 3 ins. diam., 30 ins. in the ground, for reestablished SW. cor. of the reservation and 6½-mile cor. on S. bdy. of reservation, marked on brass cap</p>

Resurvey of the West Boundary of  
the Navajo Indian Reservation.  
(as established by Treaty of June 1, 1868)

5004, 8842

NIR.

61 1/2 M

1919

from which

- A cedar, 10 ins. diam., bears N.36°45'E., 143 lks. dist., marked 61 1/2 M NIR BT.
- A cedar, 8 ins. diam., bears S.28°15'E., 162 lks. dist., marked 61 1/2 M NIR BT.
- A cedar, 24 ins. diam., bears S.14°30'E., 147 lks. dist., marked 61 1/2 M NIR BT.
- A pinon pine, 10 ins. diam., bears S.19°30'W., 140 lks. dist., marked 61 1/2 M NIR BT.

dig pits, 18x18x12 ins., N. and E. of cor., 3 ft. dist., and raise a mound of stone, 2 ft. base, 1 1/2 ft. high, NE. of cor.

This cor. sets on a gentle, grassy N. slope, 250 lks. N. of a red clay bank, which bears N.65°E. and S.65°W., and 50 lks. E. of head of small glade filled with scattered cedar and pinon.

Land, gently rolling.  
 Soil, adobe clay; 1st rate.  
 Timber, scattered pinon and cedar.  
 Undergrowth, scattered chico and buffalo grass.

Final Test of Solar Apparatus.

April 5, 1920. At camp, Ganado, Ariz., 15 chs. NE. of the cor. of secs. 27, 28, 33 and 34, T. 27 N., R. 26 E., Gila & Salt River Meridian, in latitude 35°42'28"N. (obtained by calculation from measurement of 3 miles South from Navajo Base Line), longitude 109°30'W. (approximately), at 6h 31.7m. p.m., l.m.t., I observe Polaris at western elongation, making four observations, two each with the telescope in direct and reversed positions, reading the deflection angle from a nail in a stake driven firmly in the ground, 12 chs. N., west to Polaris:

Mean deflection angle	1°23'30"
Azimuth of Polaris at western elongation	1°22'44"
True bearing of mark	N.0°00'46"E.

April 6, 1920. At the above described station, examine the adjustments of the transit and find them correct; then, test the solar apparatus, by comparing its indications, resulting from solar observations made hourly, with the meridian established by observation on Polaris on April 5.

At 9h 0m a.m., app. t., I set off 35°42.5'N., on the lat. arc; 6°31.5'N. on the decl. arc; and determine a meridian with the solar which I find to agree with the true meridian.

At app. noon, with the lat. arc unchanged, I observe the sun on the meridian; the resulting reading of the decl. arc is 6°34'N., which agrees with the computed declination of the sun.

Resurvey of the West Boundary of  
the Navajo Indian Reservation.  
(as established by Treaty of June 1, 1868)

At 3h 0m p.m., app. t., with the lat. arc unchanged, I set off  $6^{\circ}37'N$ . on the decl. arc; and determine a meridian with the solar which I find to agree with the true meridian.

As all of the solar observations during the usual hours of solar work come within  $1'30''$  of the true meridian, I conclude that the adjustments of the instrument are satisfactory.

#### GENERAL DESCRIPTION.

##### SURFACE:

The general character of the country along this line is rolling and level, varied occasionally by steep bluffs and cliffs. Several small canyons cross the line. The SW. cor. of the reservation is on the divide between the Colorado and Puerco Rivers and at an elevation of about 6500 ft. Between the SW. cor. and the 24-M. cor. the line follows approximately, the low watershed between the Chin Lee Valley and Nasklini Creek, reaching an elevation of about 6200 ft. Chin Lee Valley crosses the line between the 24 and 26 mile corners, thence turns North and parallels the line for many miles, recrossing the line between the 63rd. and 68th. mile corners at an elevation of 5000 ft. The Rio De Chilly and its tributaries drain practically the whole line. Much water was in the Rio De Chilly at the time of survey due to recent rains and melting snow, but in dry seasons the stream dwindles to an intermittent rivulet.

##### SOIL:

The land is typically mesa and prairie country, consisting principally of barren sandstone and rolling sand dunes, varied by stretches of hard clay soil and occasional adobe flats, which last are from all appearances the dry beds of one-time lakes.

##### VEGETATION:

There is no timber along the line except for some scattering cedar and pinon along the first mile. The undergrowth is very scattered and consists of chico, cactus, soapweed, greasewood, sagebrush and low weeds. Grass in varying quantities is intermittently found from the SW. cor. to the 34th. mile cor., generally sufficient for grazing.

##### MINERAL:

No indications of valuable mineral were found on the surface.

##### IMPROVEMENTS AND SETTLERS:

A number of unimproved roads cross the line. The town of Chin Lee is about 4 miles East of the 28th mile. Zinns Indian trading store is near the 66th mile cor. Several windmills and huts are located near the line.

##### SPECIAL:

A number of cliff dwelling ruins are located about  $\frac{1}{4}$  mile East of the line in the 70th. mile.

4-680

FIELD ASSISTANTS.

NAMES.	CAPACITY.
Stanley W. Hart	1st chainman.
Arthur G. Vetter	2nd chainman.
Wylie Binns	flagman.
Harold Mason	Axman.
Joseph L. Duran	moundsman.

CERTIFICATE OF UNITED STATES ~~SURVEYOR.~~ TRANSITMAN

I, Loyd E. Sechrist, <sup>Transitman</sup> ~~Surveyor~~, U. S. ~~Surveyor~~, hereby certify upon honor that, in pursuance of special instructions received from the U. S. Surveyor General, for <sup>Group 97</sup> ~~A~~ Arizona

bearing date of the 24th day of September, 1919, 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, <sup>re</sup> surveyed all those parts or portions of the

WEST BOUNDARY OF

THE NAVAJO INDIAN RESERVATION.

(as established by Treaty of June 1, 1868)

~~of the~~ Meridian, in the State of Arizona, which are represented in the foregoing field notes <sup>and by diagram on page 2 hereof</sup> ~~as~~ having been executed by me, and under my direction; and that all the corners of said <sup>re</sup> survey have been established and perpetuated in strict accordance with the Manual of Surveying Instructions, and the special written instructions of the U. S. Surveyor General, for <sup>Group 97</sup> ~~A~~ Arizona and in the specific manner described in the field notes, and that the foregoing are the original field notes of such <sup>re</sup> survey.

Phoenix, Arizona  
April 16, 1920.

Loyd E. Sechrist

U. S. ~~Surveyor.~~  
Transitman

APPROVAL.

OFFICE OF THE UNITED STATES SURVEYOR GENERAL,

Phoenix, Arizona, July 20, 1920

The foregoing field notes of the survey of the  
WEST BOUNDARY of the  
NAVAJO INDIAN RESERVATION  
(as established by Treaty of June 1, 1868)

in the State of Arizona

executed by Loyd E. Sechrist U.S. Transitman  
under his special instructions dated September 24, 1919 for Group 97, having been critically examined, and the necessary corrections and explanations made, the said field notes, and the <sup>re</sup> surveys they describe, are hereby approved.

Frank D. Wolf  
U. S. 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.~~

~~U. S. Surveyor General.~~