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FIELD NOTES

OF THE SURVEY OF THE

RETRACEMENT AND DEPENDENT RESURVEY OF THE OREGON AND WASHINGTON

STATE BOUNDARY, FROM 59 MILE 30 CHAIN MONUMENT TO 51 MILE 48

CHAIN MONUMENT

SURVEY OF THE WEST BOUNDARY AND THE

SUBDIVISIONAL LINES OF TOWNSHIP 6 NORTH, RANGE 40 EAST.

Of the WILLAMETTE Meridian,

In the State of OREGON

EXECUTED BY

OTIS O. GOULD. U. S. TRANSITMAN.

In the capacity of U. S. Surveyor, under Special Instructions dated April 11, 1929, issued by the District Cadastral Engineer to govern surveys included in Group No. 135, which were approved by the Commissioner of the General Land Office, May 13, 1929, and Assignment Instructions dated May 19, 1932.

Survey commenced June 27, 1932.

Survey completed Aug. 3, 1932.

ACCEPTED BY THE HON COMMISSIONER B. L. O. 4/23/1934.

INDEX DIAGRAM.

Township 6 North, Range 40 East.

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	<i>Oregon and Washington State Boundary</i>										
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U. S. GOVERNMENT PRINTING OFFICE 6-151

Retracement indexed in red.

Resurveys indexed in blue.

Original surveys indexed in black.

Township 6 North, Range 40 East.

The retracement and dependent resurvey of the Oregon and Washington boundary, the survey of the west boundary and subdivisional lines of township 6 north, range 40 east, were executed with a Burt solar compass made by W. and L. E. Gurley, serial No. 20, U. S. G. S., constructed in accordance with the standard specifications of the General Land Office. The horizontal circle has a diameter $5\frac{3}{4}$ ins., with opposite double verniers reading to single minutes; the sight vanes have a length of 8 inches and a spread of 14 inches. The instrument is equipped with a Burt solar attachment; radius of latitude arc 5.4 ins., and declination arc $4\frac{3}{4}$ ins., each with verniers reading to single minutes.

The observations in camp; on Polaris for the establishment of the meridian; and the altitude observations on the sun on the meridian to verify the latitude and the reading of my watch, were executed with a light mountain solar transit made by Buff and Buff, serial No. 9987, constructed in accordance with the standard specifications of the General Land Office. The horizontal circle has a diameter of $4\frac{1}{2}$ inches, with opposite double verniers reading to single minutes; the vertical circle has a diameter of 4 ins., with one double vernier reading to single minutes; the telescope has fixed stadia wires, ratio 1:132, with focal constant of 1.2 lks. The instrument is equipped with improved Smith solar attachment: radius of latitude arc $2\frac{1}{2}$ ins., and of decl. arc. $3\frac{1}{2}$ ins., each with verniers reading to single minutes. The instruments were in good condition, having been placed in satisfactory adjustment prior to the beginning of the survey, and tested and found free from appreciable error, were approved by the district cadastral engineer on May 19, 1932. I examined all the instrumental adjustments before making the field tests hereinafter recorded.

The directions of all lines were determined by solar compass method, with the exception of the state boundary which was accomplished with the transit and checked by both instrumental and direct solar method. The measurements were made with a Tallie steel tape, 5 chs. in length, graduated every link for the first 100 lks. and the balance at intervals of 10 lks. The tape was tested by comparison with a Lufkin standard 1 ch. steel tape and found correct. The measurements were made on the slope, and the vertical angle of each interval was ascertained by a clinometer in good adjustment; the horizontal equivalents are entered in the field note record.

The data furnished with the special instructions gives the geographic position for the SW. cor. of T. 5 N., R. 39 E., as follows: latitude $45^{\circ}52'N.$, and longitude $118^{\circ}00'W.$

June 19, 1932, in camp near the NW. cor. of sec. 19, T. 6 N., R. 41 E., at 1h 52.1m a. m. l. m. t., or 1h 43.1m a. m. by my watch, which reads correct 120th meridian time as determined by radio signal I observe Polaris at eastern elongation, making two sights each with the telescope in direct and reversed positions, and place a tack at the mean point; on a peg driven firmly in the ground 10 chs. N. After sunrise, I lay off the azimuth of Polaris $1^{\circ}31'47''$, and make a meridian mark on a second peg, 26.70 lks. (17.62 ft.) to the west of the mean point in the line determined by the observation; I verify the angle by a vernier reading of the instrument.

In order to verify the latitude of this station and the reading of my watch, I make a meridian observation of the sun, first setting on the lower limb and noting the transit of the west limb, then after reversal of the instrument, setting on the upper limb and noting the transit of the east limb, as follows:

Mean observed altitude	-----	$67^{\circ}27'00''$
Reduced latitude	-----	$45^{\circ}59'38''$
Mean watch time of observation	-----	11h 52m 06s
watch slow of l. m. t.	-----	9m 00s

Township 6 North, Range 40 East.

Same, by reference to radio time signal and calculated difference in longitude ----- 9m 00s.

Every 30 minutes from 6 to 10.30 a. m. and from 1.30 to 6 p. m., I make proper settings on the arcs of the solar attachment and ascertain that the resulting orientation of the instrument, when compared with the meridian established by Polaris observation, has a maximum error less than 1' 30"

I repeat the tests of the arcs daily by noon observation and verify the meridional indications at frequent intervals throughout the survey.

The observed magnetic declination is 21° 45'E.

Resurvey of Part of the Oregon and Washington Boundary.

"Reestablishment of the surveys of the Oregon and Washington boundary between the 59³/₈ mile monument and the 51 mile 48 ch. monument, surveyed by Daniel G. Major, Astronomer and Surveyor in 1864."

Retracement.

Note: For retracement of the Oregon and Washington bdy. bet. the 60 mile monument and the 56³/₄ mile monument, see field notes of T. 6 N., R. 41 E.

From the 56 mile 60 ch. monument, on the Oregon and Washington boundary.

West, retracing the Oregon and Washington boundary.

99.68 Fall 29 lks. S. of the 55 mile 15 ch. monument.

This line is N.89°50'W., 99.68 chs.

From the monument,

West, retracing the Oregon and Washington boundary.

45.57 Fall 20 lks. S. of the 54 mile 20 ch. monument.

This line is N.89°45'W., 45.57 chs.

From the monument,

West, retracing the Oregon and Washington boundary.

94.77 Fall 48 lks. S. of the witness closing cor. of Tps. 6 N., Rs. 39 and 40 E., Washington.

134.77 Fall 24 lks. S. of the ¹/₄ sec. cor. of sec. 13 only, Washington.

174.77 Fall 31 lks. S. of the cor. of secs. 13 and 14 only, T. 6 N., R. 39 E., Washington.

213.64 Fall 37 lks. S. of the 51 mile 48 ch. monument.

This line is N.89°54'W., 213.64 chs.

True line.

Note: For resurvey of the Oregon and Washington bdy. bet. the 59 mile 30 ch. monument and the 60 mile monument see field notes of T. 6 N., R. 41 E.

I commence the resurvey from the reestablished 59 ³/₈ mile monument, on the Oregon and Washington bdy., as described in the field notes of T. 6 N., R. 41 E.

Resurvey of Part of the Oregon and Washington Boundary.

Chains									
	N. 89° 54' W., on a true line from the 54 mile 20 chain monument.								
	Desc. 50 ft. over W. slope, through scattering timber and brush.								
1.73	Point for the 1/4 sec. cor. of sec. 17 only, determined as hereinafter set forth.								
	Continue to desc. 750 ft. over broken W. slope.								
24.50	Ravine, course SW.; continue to desc. 400 ft. over SW. slope.								
41.97	Point for the closing cor. of secs. 17 and 18, T. 6 N., R. 40 E., determined as hereinafter set forth.								
	Continue to desc. 110 ft. over SW. slope.								
45.90	Ravine, course S.; asc. 110 ft. over SE. slope.								
53.00	Spur, slopes SW.; desc. 375 ft. over W. slope.								
63.50	North Fork of the Wenaha River, 50 lks. wide, course S; asc. 380 ft. over E. slope.								
76.00	Spur, slopes NE.; desc. 150 ft. over NW. slope.								
81.97	Point for the 1/4 sec. cor. of sec. 18 only, determined as hereinafter set forth.								
	Continue to desc. 50 ft. over NW. slope.								
84.80	Creek, 5 lks. wide, course NE.; asc. 420 ft. over SE. slope.								
94.77	The true point for closing cor. of Tps. 6 N., Rs. 39 and 40 E.; South, 0.32 ch. dist. from the witness cor.; established under group number 130, Washington, which is an iron post, 3 ins. diam., 2 ft. above ground, and in a mound of stone to top, with brass cap marked								
	<table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>W</td></tr> <tr><td>C C</td></tr> <tr><td>T 6 N</td></tr> <tr><td>R 39 E R 40 E</td></tr> <tr><td>S 13</td></tr> <tr><td>W C</td></tr> <tr><td>O</td></tr> <tr><td>1931</td></tr> </table>	W	C C	T 6 N	R 39 E R 40 E	S 13	W C	O	1931
W									
C C									
T 6 N									
R 39 E R 40 E									
S 13									
W C									
O									
1931									
	from which,								
	A fir, 24 ins. diam., bears N. 68 1/2° E., 53 lks. dist., marked W C T 6 N R 40 E C C B T.								
	A fir, 14 ins. diam., bears N. 22 1/4° W., 124 lks. dist., marked W C T 6 N R 39 E S 13 C C B T.								
	Continue to asc. 550 ft. over SE. slope.								
111.50	Ridge, bears NE. and S.; desc. 210 ft. over NW. slope, through dense brush.								
120.52	Point for the closing cor. of Tps. 6 N., Rs. 39 and 40 E., Oregon, determined as hereinafter set forth.								
	Continue to desc. 35 ft. over NW. slope.								
122.90	Spring branch, 2 lks. wide, course N.; asc. 245 ft. over NE. slope.								
129.30	Spur, slopes N.; desc. 120 ft. over NW. slope.								

Resurvey of Part of the Oregon and Washington Boundary.

Chains	
134.00	Spring branch, 1 lk. wide, course N.; thence along N. slope.
134.77	The $\frac{1}{4}$ sec. cor. of sec. 13 only, established under group No. 130 Washington, which is an iron post, 1 in. diam., protruding 8 ins. above ground, with brass cap marked
	W <u>$\frac{1}{4}$ S 13</u> O 1931
	from which,
	A fir, 36 ins. diam., bears N. $78\frac{1}{2}^{\circ}$ W., 143 lks. dist., marked $\frac{1}{4}$ S 13 B T
	A fir, 72 ins. diam., bears N. $59\frac{1}{2}^{\circ}$ W., 132 lks. dist., marked $\frac{1}{4}$ S 13 B T
	Asc. 40 ft. over broken NE. slope.
142.80	Spur, slopes N.; desc. 270 ft. over broken NW. slope.
148.80	Spring branch, 1 lk. wide, course N.; asc. 10 ft. over broken NE. slope.; enter scattering timber, bears N. and S.
158.00	Creek, 12 lks. wide, course NE.; asc. 100 ft. over SE. slope.
160.64	Point for the $\frac{1}{4}$ sec. cor. of sec. 13 only, determined as set forth in the field notes of T. 6 N., R. 39 E.
	Continue to asc. 435 ft. over SE. slope.
174.77	The cor. of secs. 13 and 14 only, established under group No. 130, Washington.; which is an iron post, 2 ins. diam., protruding 6 ins. above ground, with brass cap marked
	W T6N R39E <u>S14 S13</u> O 1931
	from which,
	A fir, 24 ins. diam., bears N. $45\frac{1}{2}^{\circ}$ E., 110 lks. dist., marked T 6 N R 39 E S 13 B T.
	A fir, 12 ins. diam., bears N. 27° W., 49 lks. dist., marked T 6 N R 39 E S 14 B T.
	Continue to asc. 530 ft. over SE. slope.
176.00	Enter scattering undergrowth, bears NW. and SE.
200.77	Point for the closing cor. of secs. 13 and 14, determined as set forth in the field notes of T. 6 N., R. 39 E., Oregon.
	Continue to asc. 350 ft. over broken SE. slope.
213.64	Ridge, bears N. and S.
	The 51 mile 48 chain monument on the Oregon and Washington boundary, which was reestablished under group 130, Washington, and now is an iron post, 3 ins. diam., set in a mound of stone to top, with brass cap marked

520

Resurvey of Part of Oregon and Washington Boundary.

Chains

51M 48C

W

0

1931

from which,

A fir, 40 ins. diam., bears S.13°E., 14 lks. dist.,
marked 51 M 48 C 0 B T.

A fir, 8 ins. diam., bears S.81½°W., 23 lks. dist.,
marked 51 M 48 C 0 B T.

A pine, 10 ins. diam., bears N.42½°W., 59 lks. dist.,
marked 51 M 48 C W B T.

A fir, 15 ins. diam., bears N.21½°W., 32 lks. dist.,
marked 51 M 48 C W B T.

Land, mountainous.

Soil, sandy loam, rocky; 3rd and 4th rate.

Timber, fir, pine, spruce and tamarack.

Undergrowth, huckleberry, vinemaple, salal, alder, elder,
mountain mahogany, mountain laurel, mountain ash, Oregon

grape, fern, rose, yew and willow.

West Boundary of T. 6 N., R. 40 E.

Beginning at the cor. of Tps. 5 and 6 N., Rs. 39 and 40
E., as described in the notes of T. 5 N., R. 40 E., of
this group.

North, bet. secs. 31 and 36.

Asc. 430 ft. over S. slope, through scattering timber and
brush.

17.80 Spur, slopes W.; desc. 235 ft. over NW. slope.

25.90 Ravine, course NW.; asc. 105 ft. over SW. slope.

33.00 Spur, slopes W.; desc. 100 ft. over NW. slope.

38.60 Small ravine, course W.; thence along W. slope.

40.00 Set an iron post, 3 ft. long, 1 in. diam., 27 in. in
the ground, for ¼ sec. cor., with brass cap marked.

S36 S31

1932

from which,

A tamarack, 20 ins. diam., bears S.43°E., 64 lks. dist.,
marked ¼ S 31 B T.

A fir, 20 ins. diam., bears S.21°W., 95 lks. dist.,
marked ¼ S 36 B T.

Asc. 270 ft. over gradual SW. slope.

71.15 Spur, slopes W.; desc. 70 ft. over gradual NW. slope.

80.00 Set an iron post, 3 ft. long, 2 ins. diam., 5 ins. in
the ground to solid rock, and in a mound of stone to
top, for cor. of secs. 25, 30, 31, and 36, with brass
cap marked.

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Subdivision of T. 6 N., R. 40 E.

Chains

closing cor. of secs. 17 and 18, and run

N.89°54'W., along the Oregon and Washington boundary.

40.00

Set an iron post, 3 ft. long, 1 in. diam., 27 ins. in the ground, for $\frac{1}{4}$ sec. cor. of sec. 18 only, with brass cap marked
$$\begin{array}{c} \text{W N} \\ \frac{1}{4} \text{ S } 18 \end{array}$$

1932

from which

A fir, 30 ins. diam., bears S.36 $\frac{1}{2}$ °E., 54 lks. dist., marked $\frac{1}{4}$ S 18 B T.A fir, 20 ins. diam., bears S.45°W., 7 lks. dist., marked $\frac{1}{4}$ S 18 B T.

FINAL TEST OF SOLAR ATTACHMENT.

Aug. 3: In camp located near the center of sec. 25, T. 6 N., R. 39 E., in lat. 45°58'N., longitude 117°53'09"W., at 7h 0m a. m., app. t., I set off 45°58'N., on the lat. arc; 17°30'N., on the decl. arc; and orient the instrument with the solar; the line of sight agrees with the meridian established by Polaris observation.

At 4h 0m p. m., app. t., I set off 45°58'N., on the lat. arc; 17°23'30"N., on the decl. arc; and repeat the test of the solar; the line of sight agrees with the meridian established by Polaris observation.

Aug. 3, 1932.

GENERAL DESCRIPTION.

Fractional township 6 north, range 40 east, is located entirely within the Umatilla National Forest. Due to the number of large canyons, formed by rivers and large creeks, this is by far the roughest township in group number 135. The elevation of Round Butte, in sec. 30, of the southwest corner of the township and on top of the high ridges along the state boundary, averages around 5,500 ft. above sea level: This elevation drops to about 2,500 ft. above sea level along the Wenaha River, the South Fork of the Wenaha River, Beaver Creek and Slick Ear Creek. The sides of these canyons are exceptionally rough and rocky, broken in many places by ledges of sedimentary rocks, extending for miles and deposited on many different levels. The soil is of a sandy loam composition and is very rocky. The timber is very scattering and small in most parts of this township, due to the exceptionally steep slopes and solid rock ledges. The only large stand of heavy timber is found on top of a high plateau in sections 23 and 24.

The Wenaha River is formed by the confluence of the North Fork of the Wenaha River and the South Fork of the Wenaha River in sec. 34, and flows in an easterly direction through the southern part of the township. The South Fork of the Wenaha River enters the township on the south boundary of sec. 34 and flows in a northeasterly direction. The North Fork of the Wenaha River enters the township on the north boundary of sec. 18 and flows in a southeasterly direction. Beaver Creek enters the township on the north boundary of sec. 16 and flows in a southeasterly direction joining the Wenaha River in sec. 35. Slick Ear Creek enters the township on the north boundary of sec. 14 and flows in a southerly direction, joining the Wenaha River in sec. 35. Rock Creek flows in a southeasterly direction through the northeastern part of the township.

There is an old cabin in the south central part of sec. 34, belonging to the Forest Service. This is the only

Township 6 North, Range 40 East.

building in the township. There are two good trails in this township. The Wenaha River Trail, traversing the Wenaha River and Round Butte Trail, starting near the Forks of the Wenaha River and leading past Round Butte. This trail leaves the township on the west boundary of sec. 30 and joins the Skyline Road in the State of Washington about 3 miles farther on in a northwesterly direction. There are three other trails, Saw Tooth Trail, Decker Trail and Slick Ear Trail in this township. These trails have not been worked or kept in good condition to date. The brush has grown over them in places and they have been washed out or trampled out by sheep in other places.

Several thousand head of sheep are grazed on this township annually during the summer months. The bottom land along the Wenaha River is reserved for cattle range.

The average of a considerable number of readings over all parts of the township gives a value of $22^{\circ}00'E.$, for the mean magnetic declination. There is a range of over 10° in local attraction.

CERTIFICATE OF UNITED STATES SURVEYOR.

U. S. Transitman.

I, Otis O. Gould, ~~U. S. Surveyor~~, hereby certify upon honor that, in pursuance of special instructions received from the District Cadastral Engineer for Oregon bearing date of the 11th day of April, 19 29, I have well, faithfully, and truly in my own proper person, and in strict conformity with said instructions, the Manual of Surveying Instructions, and the laws of the United States, surveyed all those parts or portions of the Retracement and Dependent Resurvey of the Oregon and Washington State Boundary, from the 59 Mile 30 Chain Monument to the 51 Mile 48 Chain Monument; Survey of the West Boundary and the Subdivisional Lines of Township No. 6 North, Range No. 40 East.

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

Portland, Oregon.
Feb. 15, 1933.

Otis O. Gould
U. S. Transitman. ~~U. S. Surveyor~~

APPROVAL.

OFFICE OF U. S. SUPERVISOR OF SURVEYS,

DENVER, COLO., OCT 3 - 1933, 19

The foregoing field notes of the survey of the Retracement and Dependent Resurvey of the Oregon and Washington State Boundary, from the 59 Mile 30 Chain Monument to the 51 Mile 48mChain Monument; Survey of the West Boundary and the Subdivisional Lines of Township No. 6 North, Range No. 40 East

executed by Otis O. Gould, U. S. Transitman. under his special instructions dated April 11, 1929, having been critically examined, and the necessary corrections and explanations made, the said field notes, and the surveys they describe, are hereby approved.

Franklin Johnson
U. S. Supervisor of Surveys.

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

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

4-680
(August, 1926)

FIELD ASSISTANTS.

NAMES.	CAPACITY.
Leonel R. Davidson	1st Chainman.
Richard Ganong	2nd Chainman.
Earl Gould	Cornerman.
Harold Gould	Axeman.
Norman Prendergast	Axeman.