Township 5 North, Range 40 East.

Final test of solar attachment.

Oct. 6; Near the center of sec. 17, T. 5 N., R. 40 E., at 4h Om p.m., app. t., I set off 45°55'N., on the lat. arc; 5° 00'S., on the decl. arc; and orient the instrument with the solar; the line of sight agrees with the meridian established by Polaris observation.

Oct. 7; at 8h Om a.m., app. t., I set off 45° 55'N., on the lat. arc: 5° 15½'S. on the decl. arc: and repeat the test of the solar; the line of sight agrees with the meridian established by Polaris observation.

General Description.

This township is located in the Umatilla National Forest Resurve, on top of the blue mountain in the north eastern part of Oregon. The general elevation of the township is around 5,000 ft. above sea level, but in the bottom of the South Fork of the Wenaha River Canyon the elevation is about 2,000 ft. lower. Most of the southern and eastern parts of the township lie on top of a high plateau, and are rolling or nearly level, but the northwestern portion, comprising about one third the total area of the township, and secs. 25 and 36, are exceptionally rough and broken. The soil is of a clayish loam composition but of good rate and pruduces an abundance of grass even on the steeper slopes. The timber is all second growth with the exception of a few patches the fires missed twenty or forty years ago when this forest was burned over. In some places it is impossible to tell exactly were the second growth ends and the old timber was left standing, as a large tree was left standing here and there through out most of the township. The timber consists of fir, pine, spruce, tamarack and yew. The undergrowth consists of huckleberry, vinemaple, alder, mountain laurel, willow, mountain ash, mountain mahogany, Oregon grape, thorn, syringa and wild rose.

Township 5 North, Range 40 East.

The South Fork of the Wenaha River, extending through secs. 3, 4, 9, 17 and 18, is the largest stream of water, from 20 ft. to 40 ft. wide, during the summer months, and flows in a northeasterly direction. Bear Creek in secs. 25, 34, 35 and 36, is the second largest stream. There are also numerous smaller streams and many springs of fresh water throughout the township.

There is an old log cabin at Elk Flat in sec. 13, and at one time several acres of land were plowed and farmed, but the land has long since reverted back to its original state and the settler evacuated. There are two dirt roads that are kept in good traveling condition during the summer months, by the Forest Service, which are paralleled by Forest Service telephone lines. Eden Road through the southeastern part and another dirt road extending through the southern part of the township connecting Eden Road with the Sky Line Road, about 4 miles west of this township. There are many good pack trails throughout the township.

The land extending along the South Fork of the Wenaha River for a half mile on either side is reserved for a cattle range but the rest is leased for the grazing of sheep. About 6,000 sheep are grazed on this township during the summer months annually.

No indications of mineral were noted.

The average of a considerable number of readings over all parts of the township gives a value of 21°30' E., for the mean magnetic declination. There is a range of about 4° in local attraction.

4—680
(August, 1926)

FIELD ASSISTANTS.

NAMES.	CAPACITY.
Leonel R. Davidson	1st chainman
Earl Gould	2nd chainman
Glenn H. Johnson	axeman
Norman Prendergast	axeman
Henry W. Schmidt	cornerman.
Marvin A. Tucker	cornerman.

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CERTIFICATE OF UNITED STATES SURVEYOR.

I, Otis O. Gould, U. S. Transitman. ~~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, 1929 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 first standard parallel north, along the south boundary of T. 5 N., R.40 E.: independent resurvey of the west boundary, survey of the north boundary and the subdivisional lines of township 5 north, range 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.

Otis O. Gould

~~U. S. Surveyor~~.

U. S. Transitman

Portland, Ore.
April 21, 1932.

APPROVAL.

OFFICE OF U. S. SUPERVISOR OF SURVEYS,
DENVER, COLORADO JUN 27 1932, 19

The foregoing field notes of the Retracement and Dependent Resurvey of 1st Standard Parallel North, along the South Boundary of T. 5 N., R. 40 E.; Independent Resurvey of the West Boundary; and Survey of the North Boundary and Subdivisional Lines of Township 5 North, Range 40 East of the Willamette Meridianm Oregon,

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.

U. S. Supervisor of Surveys.

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

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

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C

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, *19* 29, *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, *19* 29, *and Assignment Instructions dated* May 19, *19* 32

Survey commenced June 27, *19* 32.

Survey completed Aug. 3, *19* 32.

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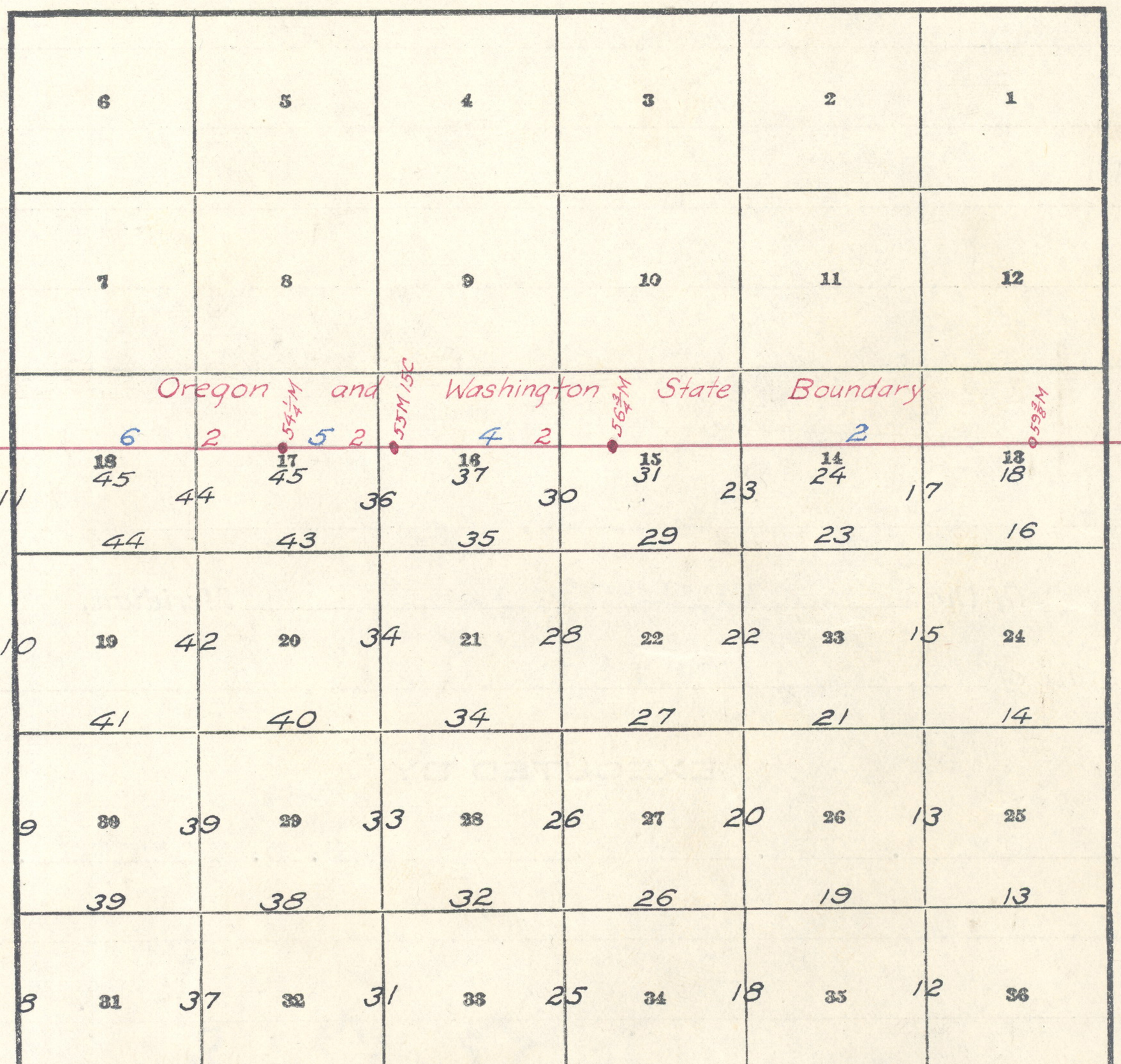
INDEX DIAGRAM.

Township 6 North, *Range* 40 East.



U. S. GOVERNMENT PRINTING OFFICE 6—151

Retracement indexed in red.

Resurveys indexed in blue.

Original surveys indexed in black.

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. 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 5¾ 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 4¾ 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 4½ 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 2½ ins., and of decl. arc. 3½ ins., each with verniers reading to single minutes. The instruments were in good condition, having been placed in satisfactory ajustment 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 Lallie 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°52'N., and longitude 118°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° 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 afer reversal of the instrument, setting on the upper limb and noting the transit of the east limb, as follows:

Mean observed altitude	67° 27' 00"
Reduced latitude	45° 59' 38"
Mean watch time of observation	11h 52m 06s
watch slow of l. m. t.	9m 00s

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. 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 59 3/8 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 56 3/4 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.

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Resurvey of Part of Oregon and Washington Boundary.

Chains	
	51M 48C W O 1931 from which, A fir, 40 ins. diam., bears S.13°E., 14 lks. dist., marked 51 M 48 C O B T. A fir, 8 ins. diam., bears S.81½°W., 23 lks. dist., marked 51 M 48 C O 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. ¼ 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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West Boundary of T. 6 N., R. 40 E.

Chains	
	T6N R39E | R40E S25 | S30 S36 | S31 1932
	from which,
	A fir, 12 ins. diam., bears N.74°E., 88 lks. dist., marked T 6 N R 40 E S 30 B T.
	A fir, 16 ins. diam., bears S.25°E., 86 lks. dist., marked T 6 N R 40 E S 31 B T.
	A fir, 14 ins. diam., bears S.40½°W., 150 lks. dist., marked T 6 N R 39 E S 36 B T.
	A fir, 18 ins. diam., bears N.41½°W., 220 lks. dist., marked T 6 N R 39 E S 25 B T.
	Land, mountainous. Soil, sandy loam, rocky, 3rd rate. Timber, fir, pine, spruce and tamarack. Undergrowth, huckleberry, salal, vinemaple, mountain ash, mountain mahogany, alder, rose, fern, Oregon grape and buck brush.
	North, bet. secs. 25 and 30.
	Desc. 95 ft. over gradual broken NW. slope, through scattering timber and brush.
18.20	Ravine, course W.; asc. 140 ft. over SW. slope.
25.50	Top of ascent, bears E. and W.; thence along W. slope.
33.20	Round Butte Trail, bears NW. and SE.
33.40	Ridge, bears NW. and SE.; desc. 90 ft. over NE. slope, through second growth timber and brush.
40.00	Set an iron post, 3 ft. long, 1 in. diam., 27 ins. in the ground, for ¼ sec. cor., with brass cap marked. ¼ S25 | S30 1932
	from which,
	A fir, 8 ins. diam., bears N.65°E., 32 lks. dist., marked ¼ S 30 B T.
	A spruce, 12 ins. diam., bears N.53°W., 110 lks. dist., marked ¼ S 25 B T.
	Continue to desc. 130 ft. over NE. slope.
47.75	Bottom of descent, bears E. and W.; thence along E. slope.
51.75	Desc. 165 ft. over NE. slope.
60.20	Ravine, course E.; asc. 50 ft. over SE. slope.
63.00	Small spur, slopes E.; desc. 230 ft. over NE. slope.
68.85	Spring branch, 2 lks. wide, course E.; asc. 100 ft. over SE. slope.
72.60	Small spur, slopes E.; desc. 145 ft. over NE. slope.

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

Chains 80.00	Set an iron post, 3 ft. long, 2 ins. diam., 27 ins. in the ground, for cor. of secs. 19, 24, 25 and 30, with brass cap marked T6N R39E | R40E S24 | S19 S25 | S30 1932 from which, A fir, 50 ins. diam., bears N.65°E., 39 lks. dist., marked T 6 N R 40 E S 19 B T. A fir, 28 ins. diam., bears S.78°E., 42 lks. dist., marked T 6 N R 40 E S 30 B T. A fir, 26 ins. diam., bears S.41°W., 29 lks. dist., marked T 6 N R 39 E S 25 B T. A tamarack, 24 ins. diam., bears N.77°W., 39 lks. dist., marked T 6 N R 39 E S 24 B T.
	Land, mountainous. Soil, sandy loam, rocky; 3rd rate. Timber, fir, pine, spruce and tamarack. Undergrowth, huckleberry, salal, vinemaple, willow, alder, elder, fern, mountain laurel, mountain mahogany and Oregon grape.
	North, bet. secs. 19 and 24.
	Desc. 420 ft. over broken NE. slope, through timber and dense undergrowth.
10.75	Spring branch, 1 lk. wide, course NE.; thence over E. slope.
15.30	Ravine, course E.; asc. 580 ft. over SE. slope.
30.70	Spur, slopes E.; desc. 360 ft. over NE. slope.
40.00	Set an iron post, 3 ft. long, 1 in. diam., 8 ins. in the ground to solid rock, and in a mound of stone to top, for ¼ sec. cor., with brass cap marked ¼ S24 | S19 1932 from which, A fir, 10 ins. diam., bears S.68°E., 96 lks. dist., marked ¼ S 19 B T. A fir, 11 ins. diam., bears N.28°W., 77 lks. dist., marked ¼ S 24 B T.
	Continue to desc. 505 ft. over NE. slope.
52.30	Creek, 4 lks. wide, course E.; asc. 740 ft. over SE. slope.
80.00	Set an iron post, 3 ft. long, 2 ins. diam., 12 ins. in the ground to solid rock, and in a mound of stone to top, for cor. of secs. 13, 18, 19, and 24, with brass cap marked. T6N R39E | R40E S13 | S18 S24 | S19 1932

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

Chains	
	from which,
	A fir, 18 ins. diam., bears N.25°E., 74 lks. dist., marked T 6 N R 40 E S 18 B T.
	A pine, 16 ins. diam., bears S.31°E., 38 lks. dist., marked T 6 N R 40 E S 19 B T.
	A pine, 22 ins. diam., bears S.25°W., 25 lks. dist., marked T 6 N R 39 E S 24 B T.
	A fir, 22 ins. diam., bears N. 75½°W., 121 lks. dist., marked T 6 N R 39 E S 13 B T.
	Land, mountainous. Soil, sandy loam, rocky, 3rd rate. Timber, fir, pine, spruce and tamarack. Undergrowth, huckleberry, salal, willow, syringa, mountain laurel, mountain mahogany, mountain ash, Oregon grape, buck brush and rose.
	North, bet. secs. 13 and 18.
	Asc. 355 ft. over SE. slope, through scattering timber and dense brush.
14.00	Spur, slopes S.70°E.; desc. 260 ft. over NE. slope.
20.90	Ravine, course E.; asc. 80 ft. over SE. slope.
26.60	Spur, slopes E.; desc. 540 ft. over N. slope.
40.00	Set an iron post, 3 ft. long, 1 in. diam., 27 ins. in the ground, for ¼ sec. cor., with brass cap marked ¼ S13 | S18 1932
	from which,
	A fir, 48 ins. diam., bears N.6°E., 53 lks. dist., marked ¼ S 18 B T.
	A fir, 52 ins. diam., bears S.64°W., 81 lks. dist., marked ¼ S 13 B T.
	Continue to desc. 200 ft. over NW. slope.
44.81	Intersect the Oregon and Washington Boundary.
	Set an iron post, 3 ft. long, 3 ins. diam., 27 ins. in the ground, for closing cor. of Tps. 6 N., Rs. 39 and 40 E., with brass cap marked W | N S13 | S18 R39E | R40E T6N C C 1932
	from which,
	A fir, 56 ins. diam., bears S.24°E., 69 lks. dist., marked T 6 N R 40 E S 18 C C B T.
	A fir, 14 ins. diam., bears S.75°W., 61 lks. dist., marked T 6 N R 39 E S 13 C C B T.

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

Chains	
	From this point the 51 mile 48 chain monument, on the Oregon and Washington boundary, bears N.89°54'W., 93.12 chs. dist., previously described.
	Land, mountainous.
	Soil, sandy loam, rocky; 3rd rate.
	Timber, fir, pine, spruce and tamarack.
	Undergrowth, willow, huckleberry, salal, vinemaple, fern, Oregon grape, mountain laurel, alder and elder.

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

	I commence the subdivisional survey at the cor. of secs. 1, 2, 35, and 36, on the S. bdy. of the Tp., as described in the field notes of T. 5 N., R. 40 E., of this group., in lat. 45° 57'N., and longitude 117° 46' 17"W.
	N.0°01'W., bet. secs. 35 and 36.
	Desc. 800 ft. over broken NW. slope, through scattering timber and dense brush.
40.00	Set an iron post, 3 ft. long, 1 in. diam., 20 ins. in the ground to solid rock, and in a mound of stone to top, for ¼ sec. cor., with brass cap marked ¼ S35 | S36 1932 from which,
	A fir, 10 ins. diam., bears S.4°E., 51 lks. dist., marked ¼ S 36 B T.
	A fir, 6 ins. diam., bears N.47°W., 24 lks. dist., marked ¼ S 35 B T.
40.15	Wenaha River Trail, bears N.70°E., and S.70°W.; thence over level river bottom.
47.10	Right bank of the Wenaha River, course E.
48.15	Left bank of the Wenaha River, course E.
	Ascend 130 ft. over SW. slope.
59.50	Creek, 3 lks. wide, course SW.; continue to asc. 425 ft. over SE. slope.
80.00	Set an iron post, 3 ft. long, 2 ins. diam., 20 ins. in the ground to solid rock, and in a mound of stone to top, for cor. of secs. 25, 26, 35, and 36, with brass cap marked T6NR40E S26 | S25 S35 | S36 1932 from which,
	A fir, 6 ins. diam., bears N.37°E., 164 lks. dist., marked T 6 N R 40 E S 25 B T.
	A pine, 20 ins. diam., bears S.21½°E., 18 lks. dist., marked T 6 N R 40 E S 36 B T.
	A pine, 24 ins. diam., bears S.46½°W., 57 lks. dist., marked T 6 N R 40 E S 35 B T.

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