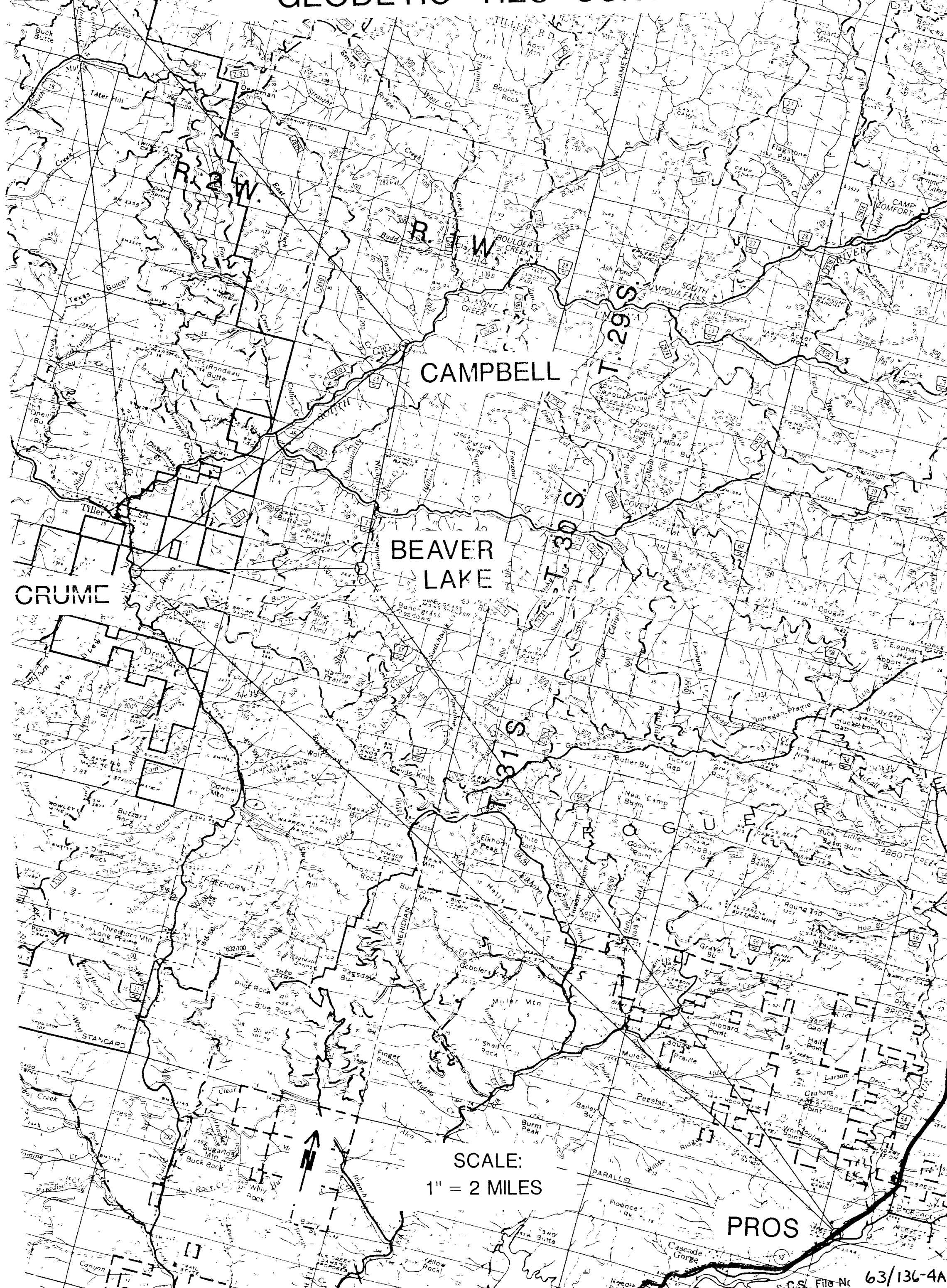


WHITE 2

TILLER92

GEODETIC TIES SURVEY



TILLER92 SURVEY PROJECT REPORT
Umpqua National Forest
May - September, 1992

PURPOSE: This survey was performed to provide geodetic ties for future cadastral surveys on the Tiller Ranger District of the Umpqua National Forest. Horizontal NAD 83(91) positions were established on three new stations: "Campbell", "Crume" and "Beaver Lake".

EQUIPMENT: This survey was conducted with two Trimble 4000-ST's and one Trimble 4000-SE GPS receivers. Trimble software TRIMVEC-PLUS (Rev. E) was used for the data processing and TRIMNET was used for the network adjustment.

PERSONNEL: Leonard Herzstein was the project manager and performed the data processing. Mike Fromdahl, Peggy Sue Roberts, Teri Higgins, and Lawrence Chube were receiver operators. Ken Chamberlain performed the network adjustments.

LOCATIONS: The Section, Township, Range and county of the location of each existing and new station is listed in the attached Control Station Reports. Each report documents the monument found or set and how to reach. Also attached is a control diagram of the project.

PROCEDURES: Group C, Order 3 standards listed in the Federal Geodetic Control Committee's (FGCC) August, 1989 publication "Geometric Geodetic Accuracy Standards and Specifications for Using GPS Relative Positioning Techniques" were followed, with the one exception noted in the second paragraph. NGS Oregon High Precision GPS Network (HPGN) station "Pros" and First Order Triangulation station "White 2" were to be used as the existing National Geodetic Reference System (NGRS) horizontal control for this survey. Four GPS sessions were conducted with two nontrivial baselines determined per session, including the repeat of one baseline observation. No blunders were detected and the internal consistency of the field measurements was good.

In the constrained network adjustment, the NGS published NAD 83(91) position of "White 2" was found to distort the good internal consistency. Only one NGRS network tie was maintained in the final adjustment, due to the poor fit of station "White 2". The final positions were determined from a minimally constrained least-squares network adjustment. However, the final horizontal position for "White 2" was 0.75 feet from the NGS published position. With the exception of the specification "Horizontal Network Control-Minimum Number of Stations", which calls for two network ties, this survey complies with the above FGCC specifications.

FILED JP

FEB 25 1993

**COUNTY SURVEYOR
DOUGLAS COUNTY, ORE.**

POSITIONS: Below in Table 1 are listed the published NAD 83(91) positions of "Pros" and "White 2" and the computed coordinates for "White 2" and the new stations. This survey was for horizontal positions only. Station "Campbell" was the only vertical network tie. Its elevation was determined from a NAVD 29 Third Order bench mark, "Ben 35".

TABLE 1

STATION NAME	NAD83 (91) LAT/LON	OREGON COORDINATE		
		SYSTEM, 1983 South Zone int.ft.	ELLIPSOID HEIGHT meters	NAVD 29 MSL feet
Pros FIXED	42° 44' 26.41739"N 122° 30' 37.80897"W	397,897.694 N 4,381,241.872 E	749.388	---
Campbell NEW	43° 00' 44.72782"N 122° 49' 42.76818"W	499,108.986 N 4,298,589.467 E	386.879	1,342.065
Beaver Lake NEW	42° 55' 51.16492"N 122° 49' 22.23752"W	469,359.762 N 4,299,289.921 E	553.605	---
Crume NEW	42° 54' 33.67420"N 122° 55' 54.87563"W	462,347.496 N 4,269,866.385 E	408.861	---
White 2 PUBLISHED	43° 07' 12.98181"N 123° 02' 17.84105"W	540,025.269 N 4,243,710.361 E	---	---
White 2 NEW	43° 07' 12.98870"N 123° 02' 17.83723"W	540,025.958 N 4,243,710.665 E	1,202.954	---

LEONARD E. HERZSTEIN
Land Surveyor, LS No. 2150

Umpqua National Forest
Supervisor's Office
P. O. Box 1008
Roseburg, OR 97470

FEB. 23, 1993

MY REGISTRATION
EXPIRES 12-31-93

TILLER92 SURVEY PROJECT REPORT
 Umpqua National Forest
 May - September, 1992

This survey was performed to provide geodetic ties for future cadastral surveys on the Umpqua National Forest. Horizontal NAD 83(91) positions were established on three new stations: "Campbell", "Crume" and "Beaver Lake".

This survey was conducted with two Trimble 4000-ST's and one Trimble 4000-SE GPS receivers. Trimble software TRIMVEC-PLUS (Rev. E) was used for the data processing and TRIMNET was used for the network adjustment.

Leonard Herzstein was the project manager and performed the data processing. Mike Fromdahl, Peggy Sue Roberts, Teri Higgins, and Lawrence Chube were receiver operators. Ken Chamberlain performed the network adjustments.

Group C, Order 3 standards listed in the Federal Geodetic Control Committee's August, 1989 publication "Geometric Geodetic Accuracy Standards and Specifications for Using GPS Relative Positioning Techniques" were followed, with the one exception noted below. Oregon High Precision Network station "Pros" and First Order Triangulation station "White 2" were to be used as the existing control for this survey. Four GPS sessions were conducted with two nontrivial baselines determined per session, including the repeat of one baseline observation. No blunders were detected and the internal consistency of the field measurements was good.

However, in the constrained network adjustment, the NAD 83(91) position of "White 2" was found to grossly distort the good internal consistency. Only one NGRS network tie could be maintained in the final adjustment, due the poor fit of station "White 2". Final positions were determined from a minimally constrained least-squares network adjustment. With the exception of the specification "Horizontal Network Control-Minimum Number of Stations", which calls for two network ties, this survey complies with the above FGCC specifications.

Below in Table 1 are listed the fixed positions of "Pros" and the computed coordinates for the other stations. This survey was for horizontal positions only. Station "Campbell" was the only vertical network tie. Its elevation was determined from a NAVD 29 Third Order bench mark, "Ben 35".

TABLE 1

STATION NAME	NAD83(91) LAT/LON	OREGON COORDINATE		
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United States
Department of
Agriculture

Forest
Service

Umpqua National Forest

2900 IHW Stewart Pkwy
PO Box 1008
Roseburg, OR 97470
(503) 672-6501

7150

January 26, 1993

Tiller92 Survey Report, Project 92--9

FILED JP

FEB 25 1993

Ms. Janet Lundeen
Douglas County Surveyor
Room 205, Justice Building
Roseburg, OR 97470

**COUNTY SURVEYOR
DOUGLAS COUNTY, ORE.**

Dear Ms. Lundeen:

Please refer to my correspondence of September 3, 1992. Enclosed you will find the survey report resulting from the Tiller92 Geodetic Ties survey I performed for the U.S.D.A. Forest Service from May to September, 1992. Also attached are the descriptions of the three stations established and a sketch map showing the locations and configuration of this GPS survey.

These are provided as information sharing only and are not intended to meet the requirements of ORS 209.250. Please contact me if you need further information.

Sincerely,

LEONARD E. HERZSTEIN
Land Surveyor
Umpqua National Forest

enclosures



REPORT ON SURVEY MARK SET

CONTROL STATION I.D.# CRUME 0003

STATE, COUNTY DOUGLAS COUNTY, OREGON FOREST UMPQUA

SEC. 3, T31S, R2W

MONUMENT SET

SET NO. 5 (5/8" DIAM.) REBAR, 12" LONG, DRIVEN
(Size, Markings, Type) FLUSH WITH THE GROUND, WITH 1-1/2" DIAMETER
ALUMINUM CAP ATTACHED AND MARKED AS SHOWN:

GPS STATION IS SET ON BARE KNOLL, APPROXIMATELY
100 FEET SOUTH OF CRUME'S DRIVEWAY.



REFERENCES TO MONUMENT - 6 FT. ALUMINUM POST, DRIVEN 2 FT. IN THE
(Ties, Guard Post, Etc.) GROUND, BEARS N70°W, 2.1 FT., WITH SIGN
54-9 ATTACHED.

- WITNESS CORNER OF CENTER 1/4 CORNER BEARS S65°39'53"W, 197.16 FT., WHICH IS BRASS CAP IN 3 FOOT DIAMETER MOUND OF STONE. (BEARING DETERMINED BY T@ W.C., B.S. TO C1/4 BASED ON M65-79.)
- C1/4 (5/8" REBAR) BEARS S78°52'30"W, 182.42 FT. (BEARING & DISTANCE COMPUTED).
- CENTERLINE OF DRIVEWAY BEARS APPROX. N10°E, 100 FT.

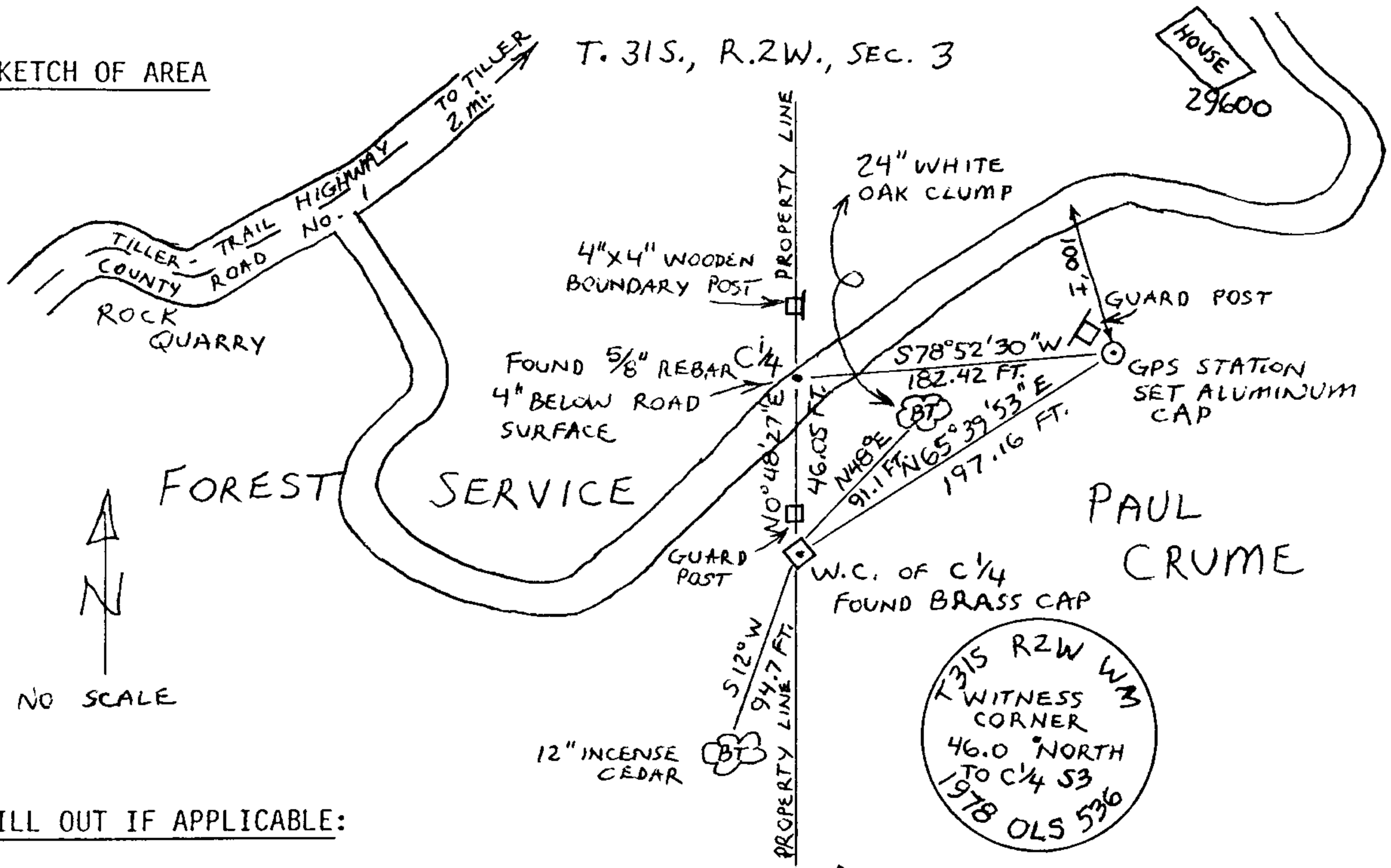
LOCATION DESCRIPTION

(Immediate area, how to get to monument, estimated travel time) FROM TILLER FROM JUNCTION WITH CO. ROAD NO. 46, DRIVE 1.9 MILES ON COUNTY ROAD NO. 1 "TILLER-TRAIL HIGHWAY" TO CRUME'S DRIVEWAY @ SMALL ROCK QUARRY (MP 28.1). TURN LEFT ONTO DRIVEWAY AND DRIVE 0.2 MILES TO PASTURE LAND. GPS STATION IS ± 200 FT. EAST OF C1/4 CORNER'S WITNESS CORNER SOUTH OF THE DRIVEWAY.

(DRIVE TIME IS 5 MINUTES FROM TILLER).

(PACK IN TIME IS 5 MINUTES).

SKETCH OF AREA



FILL OUT IF APPLICABLE:

Land Ownership (other than Forest Service): PAUL CRUME

Name & telephone # 29600 TILLER-TRAIL HWY, TILLER, OREGON (825-3320)

If a gate key is needed, indicate contact and telephone # NO GATE

HORIZON

IF GPS STATION, USE PIE DIAGRAM PROVIDED

IF PHOTO CONTROL, MUST HAVE VISIBILITY OF 45° IN ALL DIRECTORS

PANELED

YES

NO

If yes, show in sketch of panel layout.

SET BY

NAME LEONARD E. HERZSTEIN DATE 5-15-92 UNIT S.O. ENGINEERING

REPORT ON SURVEY MARK SET

CONTROL STATION I.D.# BEAVER LAKE 0004
STATE, COUNTY DOUGLAS COUNTY, OREGON FOREST UMPQUA
SEC. 34, T.30S., R.1W.

MONUMENT SET SET NO. 5 (5/8" DIAM.) REBAR, 24" LONG,
(Size, Markings, Type) DRIVEN 20" IN THE GROUND WITH A
2 FOOT DIAM. MOUND OF STONE TO THE TOP, WITH A
1-1/2" DIAM. ALUMINUM CAP ATTACHED AND
MARKED AS SHOWN:

GPS STATION IS ABOUT 25 FEET OF F.S. SPUR
ROAD 3100-305 AT LOG BARRACADE,



- REFERENCES TO MONUMENT
- 6 FOOT ALUMINUM POST, DRIVEN 1 FOOT (Ties, Guard Post, Etc.) IN THE GROUND, BEARS WEST, 1.1 FEET, WITH SIGN NO. 54-9 ATTACHED.
 - STEEL BOUNDARY POST BEARS N32°W, 74.4 FT., WITH SIGN # 54-2.
 - 9" DOUG. FIR, BEARS N08°W, 32.4 FT., WITH ALUMINUM TAG.
 - 10" DOUG. FIR, BEARS S34°E, 32.5 FT., WITH ALUMINUM TAG.
 - SEC. CORNER OF SEC. 27, 28, 33 AND 34 BRASS CAP BEARS N 13°32'36"W, 152.79 FEET (PER RM 3-76).

LOCATION DESCRIPTION

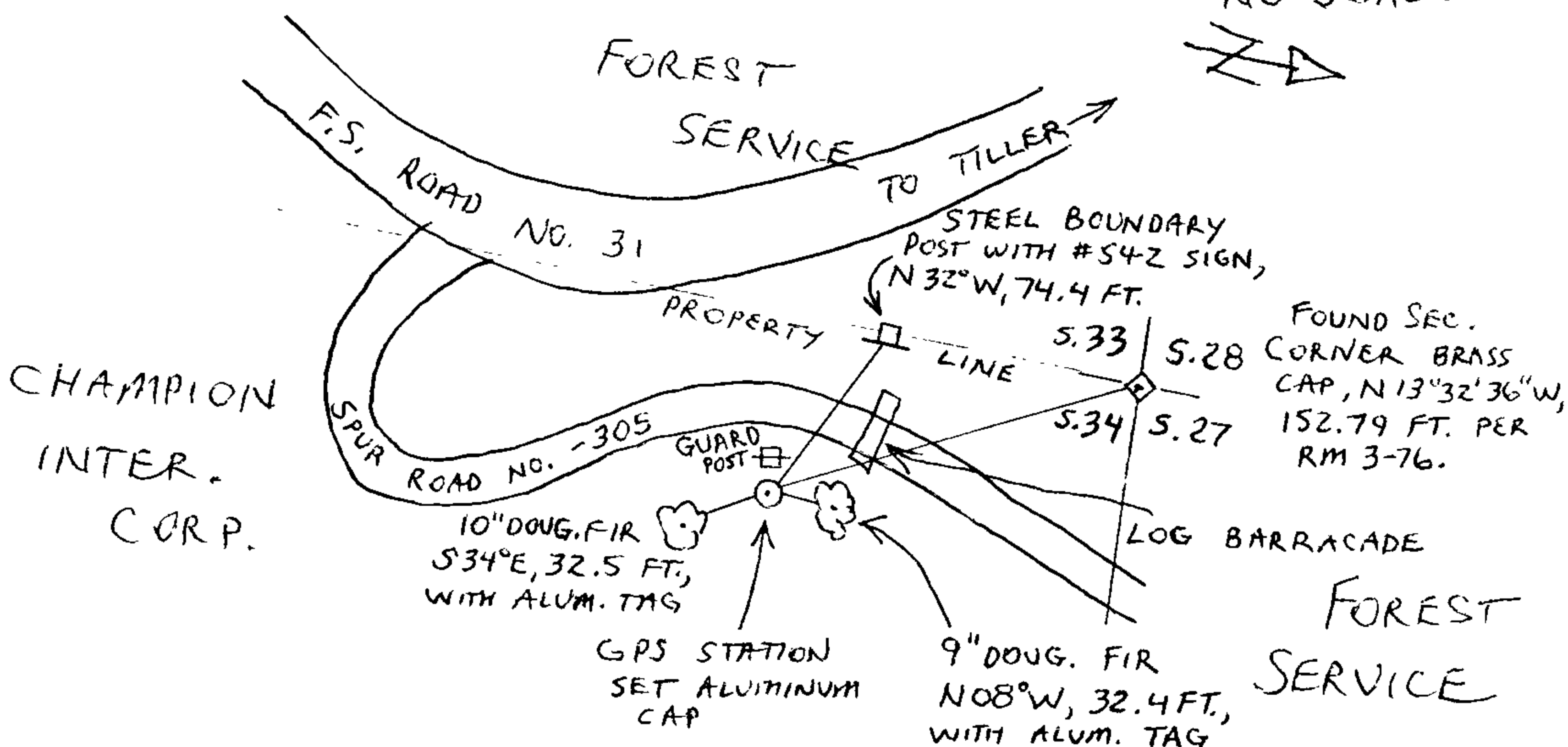
(Immediate area, how to get to monument, estimated travel time) FROM TILLER FROM JCT. WITH CO. ROAD NO. 1, DRIVE 5.2 MILES EAST ON CO. ROAD NO. 46 "SOUTH UMPQUA ROAD", TURN RIGHT ONTO F.S. ROAD NO. 29 "JACKSON CREEK ROAD", AND DRIVE 3.7 MILES. TURN RIGHT ONTO F.S. ROAD NO 31 "BEAVER CREEK ROAD", AND DRIVE 2.1 MILES TURN LEFT ONTO F.S. ROAD NO. 3100-305 (DIRT ROAD) AND DRIVE 300 FEET TO LOG BARRACADE AND GPS STATION ON THE RIGHT.

(FROM TILLER, DRIVE TIME IS 20 MINUTES).

SKETCH OF AREA

T305, RIW, SEC. 34

NO SCALE



FILL OUT IF APPLICABLE:

Land Ownership (other than Forest Service): CHAMPION INTERNATIONAL CORP.

Name & telephone # _____

If a gate key is needed, indicate contact and telephone # NO GATE

HORIZON

IF GPS STATION, USE PIE DIAGRAM PROVIDED

IF PHOTO CONTROL, MUST HAVE VISABILITY OF 45° IN ALL DIRECTORS

PANELED

YES

NO

If yes, show in sketch of panel layout.

SET BY

NAME LEONARD. E. HERZSTEIN DATE 5-11-92 UNIT S.O. ENGINEERING

REPORT ON SURVEY MARK SET

CONTROL STATION I.D.# CAMPBELL 0002
STATE, COUNTY DOUGLAS, OREGON FOREST UMPQUA
SEC. 33, T. 29S., R. 1W.

MONUMENT SET

(Size, Markings, Type) SET PK-NAIL, WITH RIBBON AND SHINER AT
NORTH EDGE OF PAVEMENT, 2.0 FT.
N 45° W OF FOG LINE. OFFSET STAKE IS N 45° W,
4.0 FT.

NAVD-29 ELEVATION IS 1342.065 FT. (MSL. BASED ON
BEN 35 BENCH MARK).

REFERENCES TO MONUMENT

- (Ties, Guard Post, Etc.) - POWER POLE # 337501, BEARS N 14° W,
14.0 FT., WHICH IS ALSO T.B.M. # 36.
- NORTHWEST CORNER OF GARAGE AT 10117 BEARS S 51° E,
47.9 FT.
- 4" X 4" WOOD BOUNDARY POST BEARS N 38° E, 113.9 FT.
- P.D. 184+02.09, WHICH IS PK-NAIL, BEARS S 2° 50' 33" W, 78.50 FT.
- P.D. 185+02.10, WHICH IS PK-NAIL, BEARS N 79° 59' 23" E, 32.12 FT.
- CE 1/16 CORNER BRASS CAP BEARS S 19° 41' 29" E, 203.65 FT. (COMPUTED FROM
P-LINE TIE). P-LINE BEARINGS BASED ON SOLAR OBSERVATION.

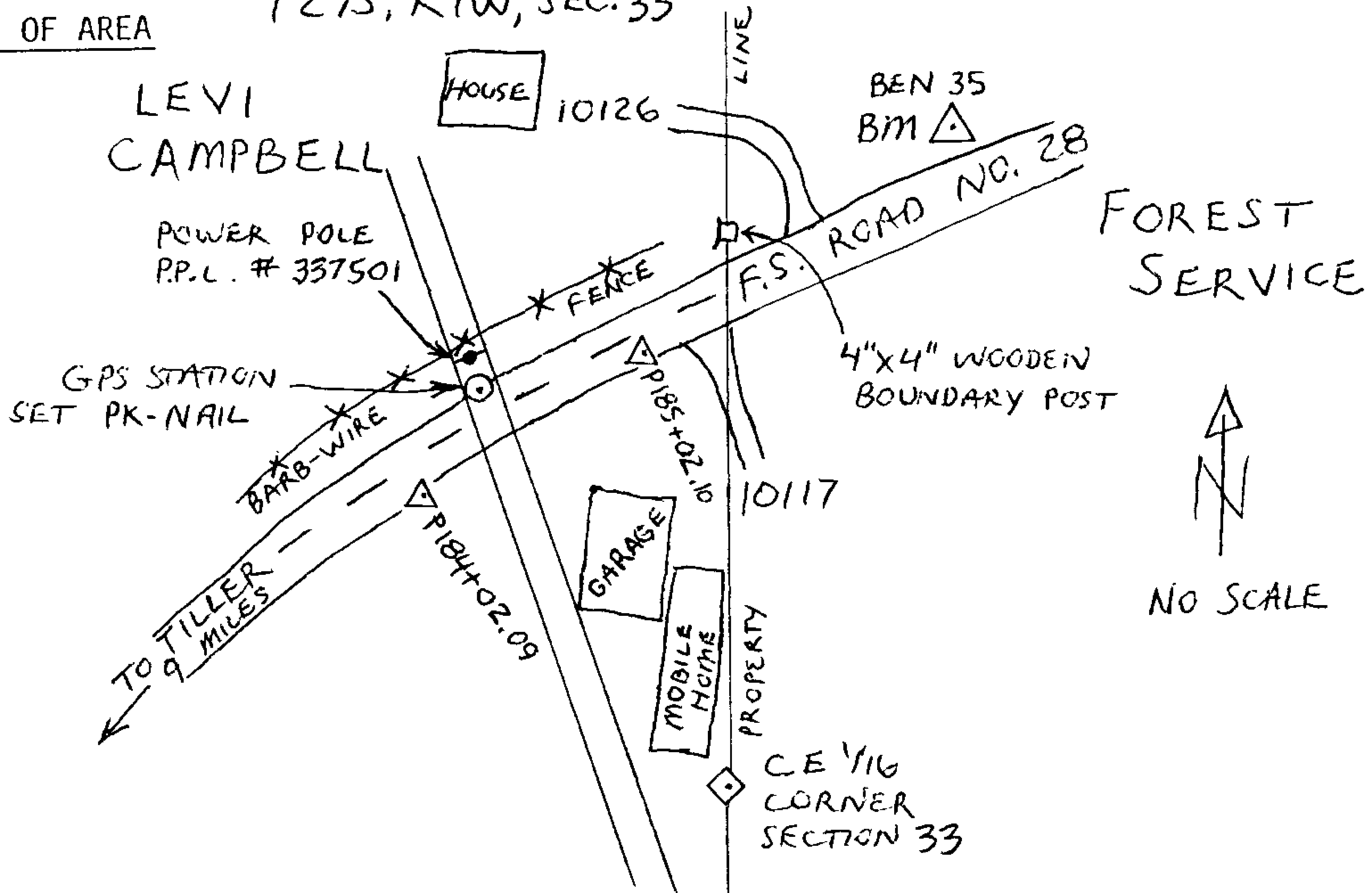
LOCATION DESCRIPTION

(Immediate area, how to get to monument, estimated travel time) FROM TILLER
DRIVE 9.2 MILES ON "SOUTH UMPQUA ROAD," CO. ROAD
NO. 46 AND F.S. ROAD NO. 28, TO GPS STATION
AT POWER POLE.

GPS STATION IS ABOUT 235 FT. SOUTHWEST
FROM BENCH MARK "BEN 35".

SKETCH OF AREA

T29S, R1W, SEC. 33



FILL OUT IF APPLICABLE:

Land Ownership (other than Forest Service): LEVI CAMPBELL

Name & telephone # 10126 SOUTH UMPQUA ROAD, TILLER, OR 97484
(825-3321)

If a gate key is needed, indicate contact and telephone # NO GATE

HORIZON

IF GPS STATION, USE PIE DIAGRAM PROVIDED

IF PHOTO CONTROL, MUST HAVE VISIBILITY OF 45° IN ALL DIRECTORS

PANELED

YES

NO

If yes, show in sketch of panel layout.

SET BY

NAME LEONARD E. HERTZSTEIN DATE 5-14-92 UNIT S.O. ENGINEERING

CS63/136-4K

SSN--...--DRC CODE--R

QUAD--N 43 1 23 222 QSN--1036

STATION NAME-- WHITE 2 ----- 0001 -----

STATE CODE/COUNTY-- OR/DOUGLAS ----- YEAR ESTABLISHED-- 1938

Organization's Mark-- U.S. COAST & GEODETIC SURVEY

RECOVERY BY--Name-- MIKE FROMDAHL ----- YEAR RECOVERED-- 1992

Organization-- USDA, FOREST SERVICE

Address-- UMPQUA NATIONAL FOREST, P.O. BOX 1008, ROSEBURG, OR, 97470

Please report on the thoroughness of the search in case a mark was not recovered, suggested changes in description, need for repairing or moving the mark, or other pertinent facts. Record letters and numbers found stamped in (not cast in) each mark.

Mark stamped: WHITE 2 1938 Condition: GOOD CONDITION
MONUMENT IS SET IN 8" X 14" STONE IN PLACE, 2" ABOVE THE
GROUND; ABOUT 15 FEET NORTH OF CENTER OF FORMER LOOKOUT.
MONUMENT IS ABOUT 25 FT. EAST OF TOP OF CUTBANK EAST OF
TURNAROUND AT END OF OLD ROAD. OLD ROAD IS NOW UNDRIVE-
ABLE; SEE HOW TO GET TO. GUARD POST BEARS S. 50° W., 6.7
FEET.
OLD ROAD IS 30 FEET ABOVE END OF NEW ROCKED ROAD.

If additional forms are needed,
indicate number required.

This report is authorized by law (Title 33 USC Section 883e). While you are not required to respond,
your cooperation is needed to make the results of this report comprehensive, accurate, and timely.

U.S. G.P.O. 1981-765-012/1006 REG.#6

SEC. 22, T. 28 S., R. 3 W., W.M. UMPQUA NATIONAL FOREST

LOCATION DESCRIPTION

(Immediate area, how to get to monument, estimated travel time)

FROM MYRTLE CREEK, OREGON, ON OLD HIGHWAY 99,
TURN EAST ONTO RIVERSIDE DRIVE (CO. ROAD # 18A) AT FORD
AUTO DEALER JUST SOUTH OF CONCRETE HIGHWAY BRIDGE
OVER MYRTLE CREEK.

DRIVE 1.7 MILES ON RIVERSIDE DRIVE TO JUNCTION WITH
SOUTH MYRTLE ROAD (CO. ROAD # 18).

CONTINUE EAST (RIGHT) ON SOUTH MYRTLE ROAD 13.5 MILES
(MP 15.4) TO JUNCTION WITH B.L.M. ROAD # 29-3-11.1.

TURN LEFT ONTO THE B.L.M. ROAD AND DRIVE 7.0 MILES
TO 4-WAY JUNCTION. (NO ROAD SIGNS AT THIS POINT OR ON).

TURN LEFT AND DRIVE 0.1 MILES TO NEXT JUNCTION.

TURN RIGHT AND DRIVE 0.4 MILES TO ROCK PIT.

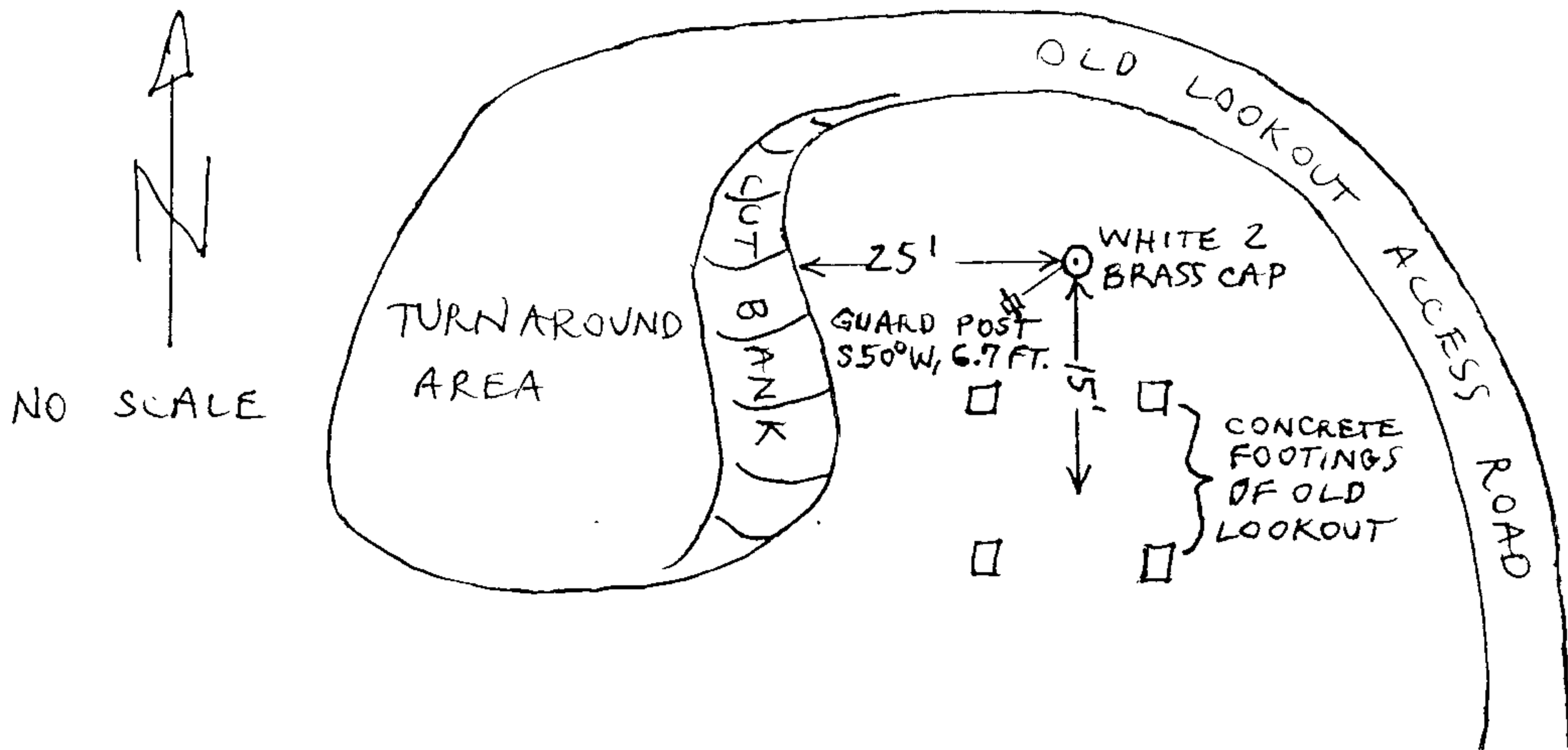
TURN RIGHT (NORTH) AT ROCK PIT AND DRIVE 0.1 MILES TO END
OF ROAD. THEN HIKE UPHILL TO TIMBER LINE AND OLD LOOKOUT

ROAD. FOLLOW OLD ROAD 0.3 MILES TO MOUNTAIN TOP AND MARK
(45 MIN. DRIVE FROM MYRTLE CREEK) (20 MIN. WALK-UP WITH EQUIPMENT)

U.S. File No. 63/136-4

SKETCH OF AREA

T 28S, R 3W, SEC. 22



FILL OUT IF APPLICABLE:

Land Ownership (other than Forest Service): B.L.M.

Name & telephone # ROSEBURG DISTRICT # 440-4930

If a gate key is needed, indicate contact and telephone # NO GATE

HORIZON

IF GPS STATION, USE PIE DIAGRAM PROVIDED

IF PHOTO CONTROL, MUST HAVE VISABILITY OF 45° IN ALL DIRECTORS

PANELED

YES

NO

If yes, show in sketch of panel layout.

SET BY

NAME MIKE FROMDAHL DATE 5-15-92 UNIT UMPQUA N.F. S.O.

CS 63/136 - 4M

REPORT ON CONDITION OF SURVEY MARK

Form Approved: OMB No. 41-R1923
Approval Expires: April 30, 1983

SSN-- ___ DRC CODE-- R

QUAD-- N 42 12242 L QSN--

STATION NAME-- PROS 0005

STATE CODE/COUNTY-- OR/JACKSON

YEAR ESTABLISHED-- 1989

Organization's Mark-- NGS

RECOVERY BY--Name-- PEGGY JUE ROBERTS

YEAR RECOVERED-- 1992

Organization-- UMPQUA NATIONAL FOREST

Address-- P.O. BOX 1008, ROSEBURG, OR, 97470

Please report on the thoroughness of the search in case a mark was not recovered, suggested changes in description, need for repairing or moving the mark, or other pertinent facts. Record letters and numbers found stamped in (not cast in) each mark.

Mark stamped: OREGON PRIMARY PROS 1989 Condition: GOOD
GPS STATION

BRASS CAP IS SET IN BEDROCK IN CLEARING SOUTH OF THE INTERSECTION OF STATE HIGHWAY 62 AND MILL CREEK ROAD.

If additional forms are needed, indicate number required.

This report is authorized by law (Title 33 USC Section 883e). While you are not required to respond, your cooperation is needed to make the results of this report comprehensive, accurate, and timely.

U.S. G.P.O. 1981-765-012/1006 REG.#6

SEC. 31, T. 32S., R. 3E., W.M.

UMPQUA NATIONAL FOREST

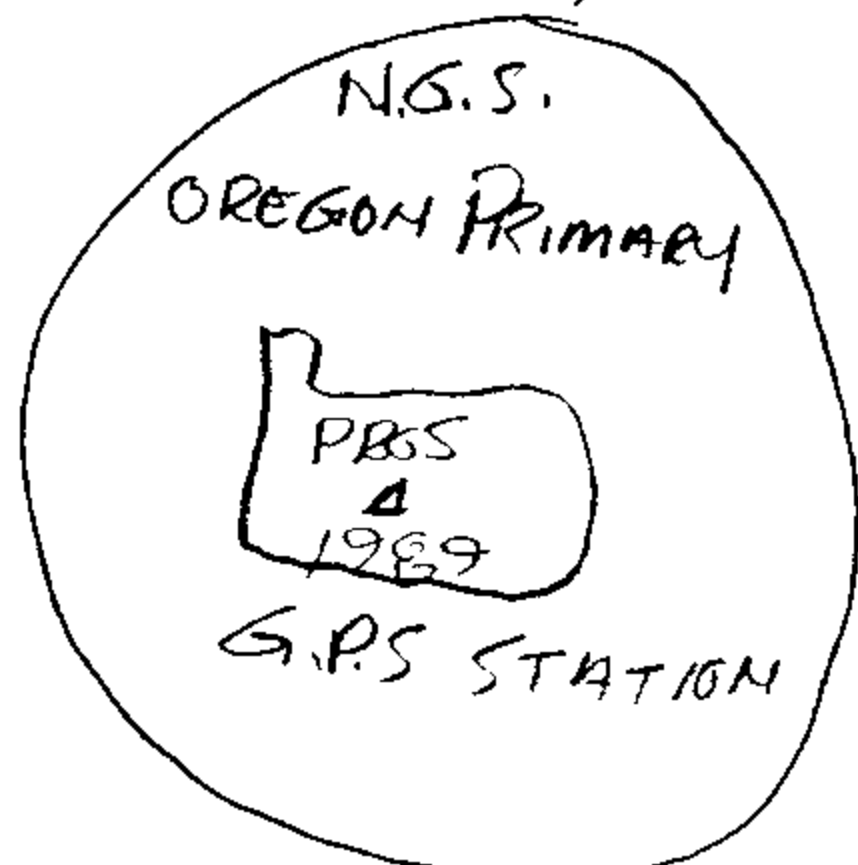
LOCATION DESCRIPTION

(Immediate area, how to get to monument, estimated travel time)

FROM TILLER DRIVE SOUTH 26 MILES ON COUNTY ROAD NO. 1 (STATE HIGHWAY 227) TO STATE HIGHWAY 62 AT TRAIL. TURN LEFT ONTO HIGHWAY 62 AND DRIVE 19 MILES TO JCT. WITH MILL CREEK ROAD (MP 42.55). BRASS CAP IS ON THE RIGHT ON ^{TOP OF} THE CUT BANK.

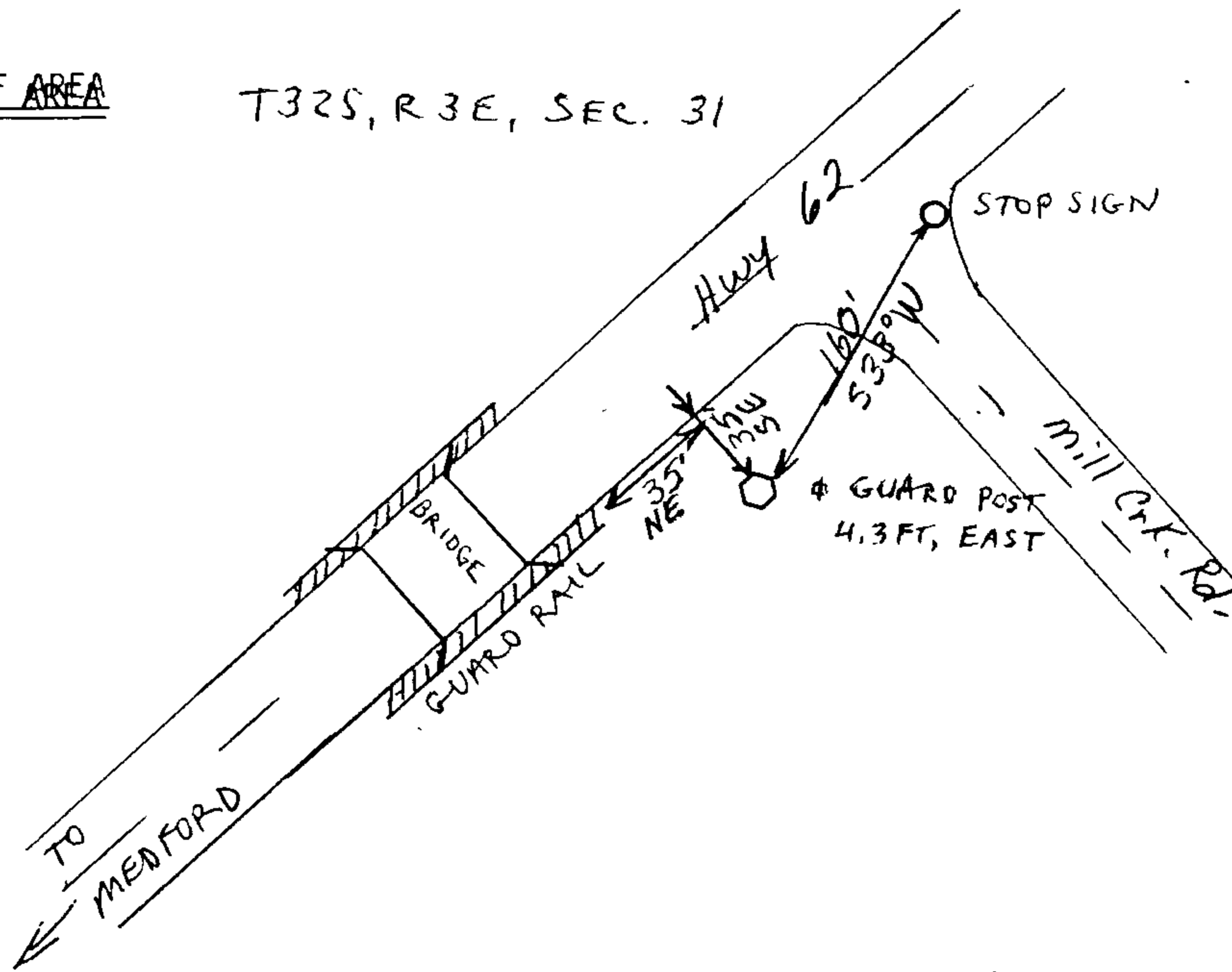
(1 HOUR DRIVE TIME FROM TILLER).

ORANGE CARSONITE GUARD POST IS NEXT TO BRASS CAP IN OPEN AREA. (EAST, 43 FT. FROM BRASS CAP).



SKETCH OF AREA

T32S, R3E, SEC. 31



FILL OUT IF APPLICABLE:

Land Ownership (other than Forest Service): _____

Name & telephone # _____

If a gate key is needed, indicate contact address & telephone # _____

No Key Required

HORIZON

IF GPS STATION, USE PLEED DIAGRAM PROVIDED

IF PHOTO CONTROL, MUST HAVE VISIBILITY OF 45 IN ALL DIRECTIONS

PANELED

YES

NO

If yes, show a sketch of panel layout.

SET BY
SET BY

NAME P. S. ROBERTS

DATE 5-11-92

UNIT S.O. ENG.

UMPQUA N.F.

CS 63/136-40