

Date: 7-7-1998 By: JC
 This survey consists of:
 Name: M129-6
 Narrative:
 Control Points:
 DOUGLAS COUNTY SURVEYOR

HORIZONTAL CONTROL, RECOVERY, AND RETRACEMENT MAP

LOCATED IN THE NW 1/4 & NE 1/4 OF SECTION 14, AND THE NE 1/4 OF SECTION 15, T22S, R9W, WILLAMETTE MERIDIAN DOUGLAS COUNTY

SURVEY NARRATIVE

THE PURPOSE OF THIS METRIC SURVEY NETWORK WAS TO ESTABLISH CONTROL FOR THE WEATHERLY CREEK BRIDGE PORTION OF THE ODOT BRIDGE PROJECT CALLED "WEATHERLY CREEK BRIDGE & PARADISE CREEK BRIDGE SECS." THE PROJECT KEY NUMBER IS 08941. THE SURVEY WAS CONDUCTED FROM AUGUST 22ND TO 28TH, 1996.

THE BASIS OF BEARING WAS ESTABLISHED BY OCCUPYING POINT #2 AT WHICH WAS FOUND A 3/8" (16 mm) IRON ROD WITH A 1/2" (38 mm) ALUMINUM CAP STAMPED "OREG. STATE HWY. DIV." AT STATION 374+46.40 FEET LT. AND BACKSIGHTING POINT #1 AT WHICH WAS FOUND A 3/8" (16 mm) IRON ROD WITH A 1/2" (38 mm) ALUMINUM CAP STAMPED "OREG. STATE HWY. DIV." AT STATION 385+50.60 FEET RT.

ASSUMED COORDINATES WERE ASSIGNED TO POINT #2 AND CALCULATED FOR POINT #1 BASED ON THE INFORMATION FOUND ON THE R/W MAP #2B-24-21.

NETWORK POINTS WERE SET THROUGHOUT THE PROJECT AND A HORIZONTAL CONTROL NETWORK WAS RUN. ALL NETWORK POINTS SET ARE 13 mm SO. I. RODS WITH 38 mm DIA. ALUMINUM CAPS STAMPED "O.D.O.T. HORIZ. CONTROL" WITH THE EXCEPTION OF POINT #5 WHICH IS A RAILROAD SPIKE. ORANGE CARSONITE WITNESS POSTS WERE SET BY ALL NETWORK POINTS WITH THE EXCEPTION OF POINTS 8, 12 AND 18.

R/W MONUMENTS AND ONE DLC CORNER MONUMENT WERE DOUBLE TIED FROM THE NETWORK POINTS.

A WILD T1610 ELECTRONIC THEODOLITE AND A WILD D11600 DISTMAT. DISTANCE METER WERE USED TO MAKE THE NETWORK OBSERVATIONS. THE T1610 THEODOLITE HAS A STANDARD ANGULAR ERROR OF +/- 3 SECONDS. THE D11600 HAS A STANDARD DISTANCE ERROR OF +/- 3 mm, +/- 2ppm.

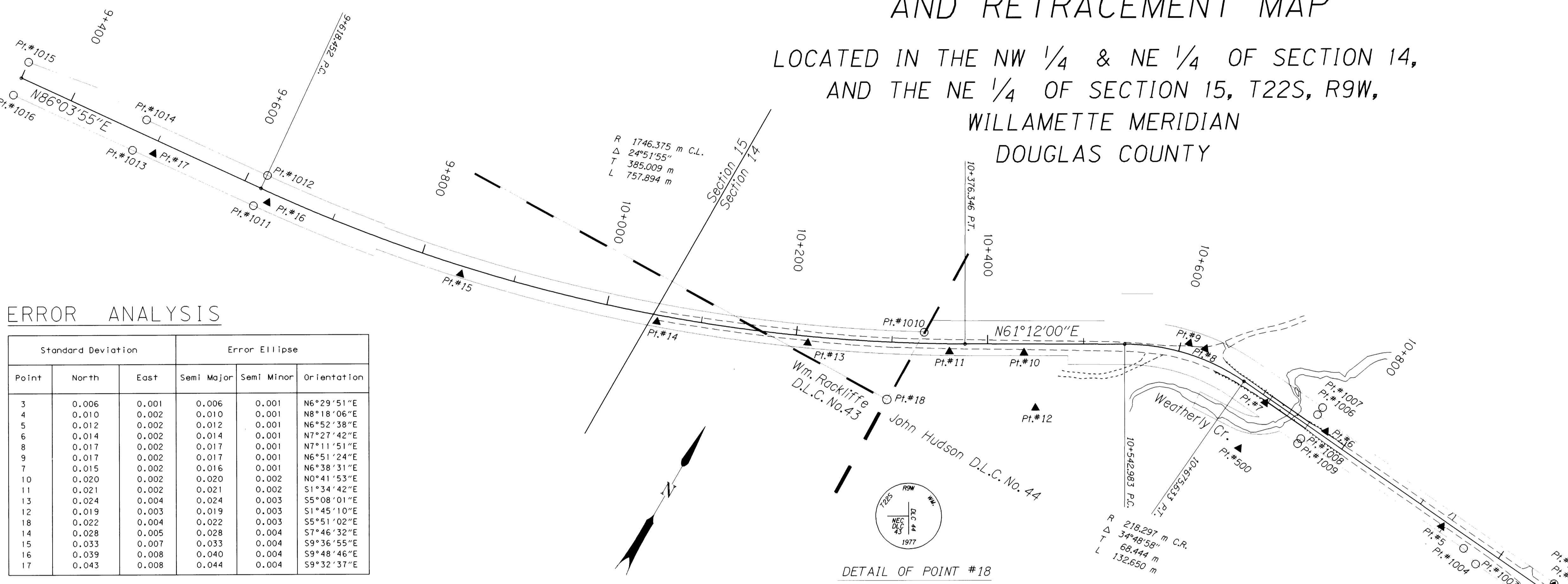
THE LEAST SQUARES ADJUSTMENT PRODUCED: ANGULAR RESIDUALS (THE AMOUNTS THE FIELD OBSERVED ANGLES WERE CHANGED DUE TO THE ADJUSTMENT) OF NO GREATER THAN 3 SECONDS; DISTANCE RESIDUALS (THE AMOUNT THE FIELD OBSERVED DISTANCES WERE CHANGED DUE TO ADJUSTMENTS) OF NO GREATER THAN 2 mm.

THERE IS A 95% PROBABILITY THE FINAL POSITIONS OF THE CONTROL POINTS ARE WITHIN THE ERROR ELLIPSES AS SHOWN ON THE ERROR ANALYSIS TABLE.

THE BENCHMARK # A 247 STAMPED "STATE HIGHWAY DEPT. BENCH MARK ELEVATION ABOVE MEAN SEA LEVEL 60 FEET A 247 1932" WAS THE VERTICAL CONTROL POINT USED TO ESTABLISH ELEVATIONS SHOWN ON THIS MAP. THE RECORD ELEVATION FOR THIS BENCHMARK IS 18.513 m (60.738 FEET). THIS ELEVATION IS BASED ON THE SEA-LEVEL DATUM OF 1929 THROUGH THE MEDIUM OF THE PACIFIC SUPPLEMENTARY ADJUSTMENT OF 1947.

RETRACEMENT OF THE R/W CENTERLINE WAS ACCOMPLISHED BY ANALYZING THE EXISTING ALIGNMENT AS SHOWN ON R/W DRAWING NO. 2B-24-21 IN COMPARISON TO THE LOCATION OF THE FOUND MONUMENTS. A BEST FIT APPROACH WAS TAKEN, AND THE CURVE DATA AND BEARINGS WERE HELD AT THE PROJECT SITE, NAMELY WEATHERLY CREEK. THE ENGLISH STATION 315+56.6 WAS MULTIPLIED BY 0.3048 TO ESTABLISH THE METRIC STATIONING FOR THIS ALIGNMENT.

TO CONVERT COORDINATES TO ENGLISH, DIVIDE THE METRIC COORDINATES BY 0.3048.



ERROR ANALYSIS

Point	Standard Deviation		Error Ellipse		
	North	East	Semi Major	Semi Minor	Orientation
3	0.006	0.001	0.006	0.001	N6°29'51"E
4	0.010	0.002	0.010	0.001	N8°18'06"E
5	0.012	0.002	0.012	0.001	N6°52'38"E
6	0.014	0.002	0.014	0.001	N7°27'42"E
7	0.017	0.002	0.017	0.001	N7°11'51"E
8	0.017	0.002	0.017	0.001	N6°51'24"E
9	0.015	0.002	0.016	0.001	N6°38'31"E
10	0.020	0.002	0.020	0.002	N0°41'53"E
11	0.021	0.002	0.021	0.002	S1°34'42"E
12	0.024	0.004	0.024	0.003	S5°08'01"E
13	0.019	0.003	0.019	0.003	S1°45'10"E
14	0.022	0.004	0.022	0.003	S5°51'02"E
15	0.028	0.005	0.028	0.004	S7°46'32"E
16	0.033	0.007	0.033	0.004	S9°36'55"E
17	0.039	0.008	0.040	0.004	S9°48'46"E
18	0.043	0.008	0.044	0.004	S9°32'37"E

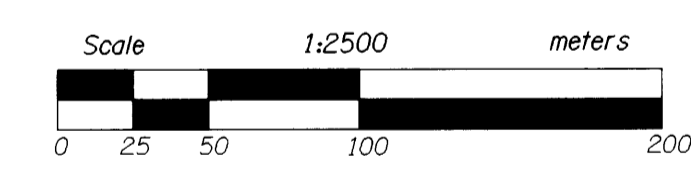
DETAIL OF POINT #18
 NOT TO SCALE

CONTROL NETWORK AND FOUND MONUMENTS

POINT	DESCRIPTION	NORTHING	EASTING	ELEVATION
1	FOUND 3/8" (16 mm) I. Rod with 1/2" (38 mm) Aluminum cap stamped, "OREG. STATE HWY DIV."	20065.597	39668.484	
2	FOUND 3/8" (16 mm) I. Rod with 1/2" (38 mm) Aluminum cap stamped, "OREG. STATE HWY DIV."	20000.000	40000.000	21.633
3	SET 13 mm x 0.76 m Sq. I. Rod with 38 mm Aluminum cap stamped, "ODOT HORIZ. CONTROL 3" Flush with surface.	20042.948	39614.088	20.185
4	SET 13 mm x 0.76 m Sq. I. Rod with 38 mm Aluminum cap stamped, "ODOT HORIZ. CONTROL 4" Flush with surface.	20099.564	39320.550	18.577
5	SET Rail Road Spike in Asphalt Driveway Approach stamped, "5" Flush with surface.	20097.635	39188.904	18.124
6	SET 13 mm x 0.76 m Sq. I. Rod with 38 mm Aluminum cap stamped, "ODOT HORIZ. CONTROL 6" Flush with surface.	20126.122	39034.770	17.902
7	SET 13 mm x 0.76 m Sq. I. Rod with 38 mm Aluminum cap stamped, "ODOT HORIZ. CONTROL 7" Flush with surface.	20121.806	38964.869	18.143
8	SET 13 mm x 0.76 m Sq. I. Rod with 38 mm Aluminum cap stamped, "ODOT HORIZ. CONTROL 8" Flush with surface.	20141.301	38882.669	19.284
9	SET 13 mm x 0.76 m Sq. I. Rod with 38 mm Aluminum cap stamped, "ODOT HORIZ. CONTROL 9" Flush with surface.	20138.307	38865.358	19.137
10	SET 13 mm x 0.76 m Sq. I. Rod with 38 mm Aluminum cap stamped, "ODOT HORIZ. CONTROL 10" Flush with surface.	20046.267	38718.802	19.351
11	SET 13 mm x 0.76 m Sq. I. Rod with 38 mm Aluminum cap stamped, "ODOT HORIZ. CONTROL 11" Flush with surface.	20009.635	38650.223	19.472
12	SET 13 mm x 0.76 m Sq. I. Rod with 38 mm Aluminum cap stamped, "ODOT HORIZ. CONTROL 12" Flush with surface.	20001.152	38757.337	12.415
13	SET 13 mm x 0.76 m Sq. I. Rod with 38 mm Aluminum cap stamped, "ODOT HORIZ. CONTROL 13" Flush with surface.	19946.075	38516.334	19.798
14	SET 13 mm x 0.76 m Sq. I. Rod with 38 mm Aluminum cap stamped, "ODOT HORIZ. CONTROL 14" Flush with surface.	19889.598	38367.908	20.310

POINT	DESCRIPTION	NORTHING	EASTING	ELEVATION
15	SET 13 mm x 0.76 m Sq. I. Rod with 38 mm Aluminum cap stamped, "ODOT HORIZ. CONTROL 15" Flush with surface.	19834.465	38164.737	20.068
16	SET 13 mm x 0.76 m Sq. I. Rod with 38 mm Aluminum cap stamped, "ODOT HORIZ. CONTROL 16" Flush with surface.	19803.138	37952.171	
17	SET 13 mm x 0.76 m Sq. I. Rod with 38 mm Aluminum cap stamped, "ODOT HORIZ. CONTROL 17" Flush with surface.	19790.948	37823.192	
500	SET 13 mm x 0.76 m Sq. I. Rod with 38 mm Aluminum cap stamped, "ODOT HORIZ. CONTROL 500" Flush with surface.	20067.002	38963.526	
18	FOUND 2 1/2" (64 mm) Brass Disk on a 2 1/2" (64 mm) Iron pipe. Disk is stamped, "NEC DLC 43, DLC 44, 1977, T22S R9W WM." 0.12 m above surface. Good condition.	19934.052	38617.329	
1000	FOUND 3/8" (16 mm) I. Rod with 1/2" (38 mm) Aluminum cap stamped, "OREG. STATE HWY DEPT." 370+78.69, 50LT. 0.2 m above surface. Good condition.	20080.335	39557.469	
1001	FOUND 3/8" (16 mm) I. Rod with 1/2" (38 mm) Aluminum cap stamped, "OREG. STATE HWY DEPT." 370+78.69, 60RT. 0.15 m above surface. Good condition.	20046.991	39554.019	
1002	FOUND 3/8" (16 mm) I. Rod with 1/2" (38 mm) Aluminum cap stamped, "OREG. STATE HWY DEPT." 364+50, 50LT. 0.07 m above surface. Good condition.	20100.395	39366.837	
1003	FOUND 3/8" (16 mm) I. Rod with 1/2" (38 mm) Aluminum cap stamped, "OREG. STATE HWY DEPT." 360+40, 60RT. 0.01 m above surface. Good condition.	20080.212	39239.012	
1004	FOUND 3/8" (16 mm) I. Rod with 1/2" (38 mm) Aluminum cap stamped, "OREG. STATE HWY DEPT." 359+75, 40RT. 0.27 m above surface. Good condition.	20088.433	39219.987	
1005	FOUND 3/8" (16 mm) I. Rod with 1/2" (38 mm) Aluminum cap stamped, "OREG. STATE HWY DEPT." 363+00, 40LT. 0.1 m above surface. Good condition.	20101.579	39320.807	

POINT	DESCRIPTION	NORTHING	EASTING
1006	FOUND 1/2" (13 mm) I. Rod 0.12 m below surface. Good condition.	20137.109	39018.796
1007	FOUND 1/2" (13 mm) I. Rod 0.2 m below surface. Good condition.	20146.171	39019.762
1008	FOUND 1/2" (13 mm) I. Rod 0.15 m below surface. Good condition. Nearest CL	20106.770	39015.599
1009	FOUND 1/2" (13 mm) I. Rod 0.2 m below surface. Good condition.	20100.750	39014.938
1010	FOUND 3/8" (16 mm) Rebar with a 1/2" (38 mm) Aluminum Cap stamped "SHANER ENGINEERING" monument is on DLC Line at R/W Left. 0.05 m above surface. Good condition.	20014.628	38617.313
1011	FOUND 3/8" (16 mm) Rebar with a 1/2" (38 mm) Aluminum cap stamped, "OREG. STATE HWY DIV." 315+56.60 PC, 65RT. Flush with surface. Good condition.	19792.919	37940.910
1012	FOUND 3/8" (16 mm) Rebar with a 1/2" (38 mm) Aluminum cap stamped, "OREG. STATE HWY DIV." 0.1 m below surface. Good condition.	19827.936	37938.513
1013	FOUND 3/8" (16 mm) Rebar with a 1/2" (38 mm) Aluminum cap stamped, "OREG. STATE HWY DIV." 311+00, 65RT. Flush with surface. Good condition.	19783.412	37802.123
1014	FOUND 3/8" (16 mm) Rebar with a 1/2" (38 mm) Aluminum cap stamped, "OREG. STATE HWY DIV." 311+00, 50LT. Flush with surface. Good condition.	19818.371	37799.714
1015	FOUND 3/8" (16 mm) Rebar with a 1/2" (38 mm) Aluminum cap stamped, "OREG. STATE HWY DIV." 306+50, 50LT. Flush with surface. Good condition.	19811.992	37662.687
1016	FOUND 3/8" (16 mm) Rebar with a 1/2" (38 mm) Aluminum cap stamped, "OREG. STATE HWY DIV." 306+50, 65RT. Flush with surface. Good condition.	19773.989	37665.292



LEGEND

▲ SET MONUMENT

○ FOUND MONUMENT

REGISTERED PROFESSIONAL LAND SURVEYOR

ROBERT G. PAPPE

JANUARY 25, 1991

2-883

Expires: Dec. 31, 1998

OREGON DEPARTMENT OF TRANSPORTATION

HORIZONTAL CONTROL, RECOVERY, AND RETRACEMENT MAP

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