DOUGLAS COUNTY SURVEYOR
DIGITALLY FILED SURVEY

Map: ST. HWY 38-018 C
Aug 26 2010 4:03 PM

PURPOSE
THE PURPOSE OF THIS SURVEY WAS TO PROVIDE TOPOGRAPHIC DATA; DIGITAL TERRAIN MODEL; AND A CONTROL, RECOVERY, RETRACEMENT MAP FOR A PROJECT NAMED "OR 38: ELKTON SLIDE - HANCOCK MOUNTAIN ROAD PAVING". SURVEY FIELD WORK WAS PERFORMED BETWEEN NOVEMBER 29 AND DECEMBER 11, 2006. THE ORIGINAL FIELD NOTES FOR THE PROJECT ARE ARCHIVED IN SALEM IN FIELD BOOK NUMBER 4466.

COORDINATES & BASIS OF BEARING
THE BEARINGS ARE BASED ON THE OREGON COORDINATE SYSTEM (OCS) OF 1983 (98 ADJUSTMENT), SOUTH ZONE. THIS SURVEY UTILIZES A LOCAL DATUM PLANE (LDP) WHICH IS RELATIVE TO THE SAID OCS, WITH RESPECT TO THE LOCAL LATITUDE AND GROUND ELEVATION. THE LDP COORDINATES DEFINE TRUE GROUND DISTANCES. TO CONVERT LDP COORDINATES TO THE OCS, MULTIPLY THE COORDINATES BY 0.99992422346. VERTICAL DATUM IS NAVD 1988.

HORIZONTAL CONTROL
NGS POINT "WELK" WAS USED AS THE PRIMARY CONTROL FOR THE PROJECT. A GPS BASE STATION OCCUPIED THE PRIMARY CONTROL POINT FOR THE REAL TIME KINEMATIC (RTK) GPS WORK. THIS WORK CONSISTED OF TYING STRATEGIC POINTS AND EXISTING MONUMENTS TWICE WITH A GPS RTK ROVER WITH AT LEAST 30 MINUTES BETWEEN OCCUPATIONS. MONUMENTS THAT COULD NOT BE TIED BY RTK GPS METHODS WERE TIED BY TOTAL STATION FROM PREVIOUSLY TIED RTK GPS MONUMENTS. A HORIZONTAL CONTROL NETWORK WAS RUN IN THE AREA OF HANCOCK MOUNTAIN HOLDING RTK GPS POINTS 535 AND 536 (GPS COULD NOT BE USED TO TIE RIGHT OF WAY MONUMENTS).

HORIZONTAL CONTROL EQUIPMENT
A LEICA GX1230 DUAL FREQUENCY GPS RECEIVER WAS USED FOR GPS OBSERVATIONS. IT HAS THE FOLLOWING ACCURACY: PHASED DIFFERENTIAL STATIC METHOD HORIZONTAL ERROR OF 5 MM + 0.5 PPM, AND A VERTICAL ERROR OF 10 MM, + 0.5 PPM; PHASED DIFFERENTIAL RTK METHOD HORIZONTAL ERROR OF 10 MM + 1 PPM, AND A VERTICAL ERROR OF 20 MM, + 1 PPM.

A LEICA TCA1800 TOTAL STATION WAS USED FOR GATHERING TOPOGRAPHIC DATA AND SOME OF THE MONUMENT TIES. IT HAS THE FOLLOWING ACCURACY: STANDARD ANGULAR ERROR +/- 1 SECOND; STANDARD DISTANCE ERROR OF +/- 2MM, +/- 2 PPM.

VERTICAL CONTROL
BENCH MARKS S246 AND T246 WERE HELD AS VERTICAL CONTROL FOR THE PROJECT. A LEVEL CIRCUIT WAS RUN TO ESTABLISH ELEVATIONS ON CONTROL POINTS USED FOR THE TOPOGRAPHY WORK.

VERTICAL CONTROL EQUIPMENT
A LEICA NA2002 DIGITAL LEVEL AND A LEICA GBNL4C ALUMINUM LEVEL ROD WAS USED TO COMPLETE THE LEVEL CIRCUITS. THIS INSTRUMENT HAS THE FOLLOWING STANDARD DEVIATION OF 1.5MM IN A 1 KILOMETER DOUBLE RUN LEVEL CIRCUIT.

RESOLUTION OF RIGHT OF WAY
INFORMATION SHOWN WITHOUT BRACKETS IS MEASURED/RESOLVED. IF MEASURED/RESOLVED DATA DIFFERS FROM RECORD DATA BOTH ARE SHOWN. IF ONLY RECORD INFORMATION IS SHOWN IT WAS HELD.

CURRENT EXISTING HIGHWAY RIGHT OF WAY CENTER LINE
THE CURRENT EXISTING HIGHWAY RIGHT OF WAY CENTER LINE HAS NO CENTER LINE DESIGNATOR AND WAS RESOLVED USING THE FOLLOWING ODOT RIGHT OF WAY DRAWINGS (DRG) LISTED IN CHRONOLOGICAL ORDER: 1B-22-23, 2B-26-14, 4B-16-12, AND 9B-34-17. THE FIRST TANGENT HELD THE RECORD DISTANCE FROM POINTS 1000 AND 1022. THE NEXT TANGENT HELD THE RECORD DISTANCE FROM POINTS 1032 AND 1035. THE NEXT TANGENT (IN TOWN) I INITIALLY TRIED TO HOLD THE MONUMENTS ON THE NORTHEASTERLY SIDE OF STREET. THE TANGENT DIDN'T HIT THE BRIDGE AS SHOWN ON DRG 1B-22-23 OR FIT THE RECORD DISTANCE TO THE MONUMENTS ON THE SOUTHWESTLY SIDE OF THE STREET. SO I HELD THE RECORD POINT OF INTERSECTION AS MEASURED FROM THE BACK TANGENT AND HELD THE RECORD DELTA AND PROJECTED THE FORWARD TANGENT. THIS RECORD TANGENT HIT THE BRIDGE CORRECTLY AND WAS WITHIN 1.3 FEET OF RECORD DISTANCE OF THE MONUMENTS ON THE SOUTHWESTERLY SIDE OF THE STREET BUT MISSED THE MONUMENTS ON THE NORTHEASTERLY SIDE OF THE STREET BY 7 TO 8 FEET. FOR THE FINAL RESOLUTION OF THIS TANGENT I PROJECTED RECORD DELTA FROM DRG 1B-22-23 FROM THE BACK TANGENT AND HELD THE RECORD DISTANCE FROM POINT 1052. THIS HIT THE BRIDGE CORRECTLY AND MATCHED THE BUILDING FACES BUILT ON THE RIGHT OF WAY LINE. THE NEXT TANGENT IS PARALLEL TO AND 7.00 FEET OFFSET FROM THE BACK TANGENT AT THE CENTER OF MAIN STREET (SEE DRG 2B-26-14). I ARBITRARILY CREATED THIS OFFSET AT THE CENTER OF MAIN STREET BECAUSE NORTHWESTERLY OF MAIN STREET THE RIGHT WAS PURCHASED OFF OF A NEWER CENTER LINE (40 FEET EITHER SIDE OF CENTER LINE); SOUTHEASTERLY OF MAIN STREET THE RIGHT OF WAY WAS PURCHASED ON THE OLD RIGHT OF WAY CENTER LINE. THEN I WENT TO THE END OF THE PROJECT (HANCOCK MTN.) AND WORKED MY WAY BACKWARDS TO ELK CREEK. THE FIRST TANGENT HELD THE SPLIT OF POINTS 1071 AND 1072 AND THE PROPORTIONATE DISTANCE BETWEEN POINTS 1068 AND 1069. THE NEXT TANGENT HELD THE RECORD TOTAL DELTA FROM THE BACK TANGENT AND THE PROPORTIONATE DISTANCE BETWEEN POINTS 1061 AND 1062. THE NEXT 2 TANGENTS HELD THE RECORD DELTA AND DISTANCE BETWEEN POINTS OF INTERSECTION. RECORD DEGREE OF CURVE AND SPIRAL LENGTH (IF THE CURVE WAS SPIRALED) WAS HELD ON ALL CURVES. RECORD STATIONING WAS HELD ON POINTS 1000, 1032, AND AT THE PROPORTIONATE DISTANCE BETWEEN 1061 AND 1062. AN EQUATION WAS PLACED HOLDING THE RECORD AHEAD STATION 1024+09.00 (SEE DRG 1B-22-23).

"4B" EXISTING HIGHWAY RIGHT OF WAY CENTER LINE
THE "4B" EXISTING HIGHWAY RIGHT OF WAY CENTER LINE USES "4B" AS A CENTER LINE DESIGNATOR AND WAS RESOLVED USING DRG 4B-16-12. THE FIRST TANGENT USED THE ABOVE RESOLVED TANGENT FALLING BETWEEN POINTS 1061 AND 1062 AND THE RECORD TANGENT DISTANCE AND DELTA TO PROJECT THE FORWARD TANGENT. THE CURVE SHARES THE SAME POINT OF INTERSECTION AS THE CURRENT HIGHWAY RIGHT OF WAY CENTER LINE AND HOLDS THE RECORD CURVE DATA FROM DRG 4B-16-12. STATIONING WAS TAKEN FROM THE CURRENT EXISTING HIGHWAY RIGHT OF WAY CENTER LINE (DESCRIBED ABOVE).

NOTE: THE ELK CREEK BRIDGE SHOWN ON SHEET 7 IS THE OLD BRIDGE WHICH HAS BEEN DEMOLISHED; A NEW BRIDGE WAS CONSTRUCTED IN THE SUMMER OF 2009.

NETWORK OBSERVATIONS	
OCCUPIED	MEASURED
535	536, 10, 11
10	535, 11, 12
11	535, 10, 12, 13
12	10, 13, 14
13	11, 14, 15
14	11, 13, 15
15	13, 14

REGISTERED
PROFESSIONAL
LAND SURVEYOR

DIGITAL SIGNATURE

OREGON
JANUARY 9, 2001
MARSHALL R. WAGSTAFF
49476LS

EXPIRES 6/30/2012

CONTROL MONUMENTS (SEE SHEET 2) NOTE: OFFSETS WITH A - (MINUS) ARE LEFT, WITHOUT ARE RIGHT NAVD 88 ADJUSTED BENCHMARKS S246 AND T246 WERE USED TO ESTABLISH ALL ELEVATIONS

PT. ID.	LDP NORTHING	LDP EASTING	ELEV.	STATION	OFFSET	DATE	DESCRIPTION	REFERENCE
5	734592.737	4117889.596				12/4/2006	FD. 1/2" SQUARE IRON ROD W/ 1 1/2" ALUM. CAP STAMPED "ODOT HORIZ CONTROL 5" 0.2 FT. BELOW SURFACE IN GOOD CONDITION	38-002
7	733901.097	4116469.532				12/4/2006	FD. 1/2" SQUARE IRON ROD W/ 1 1/2" ALUM. CAP STAMPED "ODOT HORIZ CONTROL 7" FLUSH W/ SURFACE IN GOOD CONDITION	38-002
10	733273.898	4114656.848		1113+57.35	35.66	12/6/2006	SET 5/8" X 30" IRON REBAR W/ 1 1/2" BRASS CAP STAMPED "ODOT CONTROL 10" FLUSH W/ SURFACE	
11	733370.606	4114581.061		1112+55.21	-32.63	12/6/2006	SET 5/8" X 30" IRON REBAR W/ 1 1/2" BRASS CAP STAMPED "ODOT CONTROL 11" FLUSH W/ SURFACE	
12	733486.130	4114234.899		1108+90.36	-34.60	12/10/2006	SET 5/8" X 30" IRON REBAR W/ 1 1/2" BRASS CAP STAMPED "ODOT CONTROL 12" FLUSH W/ SURFACE	
13	733557.145	4113885.227		1105+42.08	-33.75	12/10/2006	SET 5/8" X 30" IRON REBAR W/ 1 1/2" BRASS CAP STAMPED "ODOT CONTROL 13" FLUSH W/ SURFACE	
14	733524.315	4113638.158		1103+01.58	-31.81	12/10/2006	SET 5/8" X 30" IRON REBAR W/ 1 1/2" BRASS CAP STAMPED "ODOT CONTROL 14" FLUSH W/ SURFACE	
15	733291.364	4113291.746		1098+91.38	31.67	12/10/2006	SET 5/8" X 30" IRON REBAR W/ 1 1/2" BRASS CAP STAMPED "ODOT CONTROL 15" FLUSH W/ SURFACE	
514	736832.114	4104082.641				12/4/2006	SET 5/8" X 30" IRON REBAR W/ 1 1/2" BRASS CAP STAMPED "ODOT CONTROL 514" FLUSH W/ SURFACE	
515	736547.471	4104609.866		994+85.43	-24.07	12/4/2006	SET 5/8" X 30" IRON REBAR W/ 1 1/2" BRASS CAP STAMPED "ODOT CONTROL 515" FLUSH W/ SURFACE	
516	735967.626	4105356.325		1004+28.90	33.24	12/4/2006	SET 5/8" X 30" IRON REBAR W/ 1 1/2" BRASS CAP STAMPED "ODOT CONTROL 516" FLUSH W/ SURFACE	
517	735498.369	4106163.031		1013+59.68	-34.74	12/4/2006	SET 5/8" X 30" IRON REBAR W/ 1 1/2" BRASS CAP STAMPED "ODOT CONTROL 517" FLUSH W/ SURFACE	
518	735064.043	4106783.758		1021+17.23	-26.59	12/4/2006	SET 5/8" X 30" IRON REBAR W/ 1 1/2" BRASS CAP STAMPED "ODOT CONTROL 518" FLUSH W/ SURFACE	
519	734706.450	4107193.289		1026+58.09	37.44	12/4/2006	SET 5/8" X 30" IRON REBAR W/ 1 1/2" BRASS CAP STAMPED "ODOT CONTROL 519" FLUSH W/ SURFACE	
520	735953.127	4107077.567				12/4/2006	SET WOOD HUB AND TACK	
521	734258.691	4107865.671	144.28	1034+65.85	27.52	12/4/2006	SET 5/8" X 30" IRON REBAR W/ 1 1/2" BRASS CAP STAMPED "ODOT CONTROL 521" FLUSH W/ SURFACE	
522	734081.086	4108158.224	139.14	1038+06.32	18.77	12/4/2006	SET 5/8" X 30" IRON REBAR W/ 1 1/2" BRASS CAP STAMPED "ODOT CONTROL 522" FLUSH W/ SURFACE	
523	733757.906	4108405.032				12/4/2006	SET WOOD HUB AND TACK	
524	733820.284	4108669.816	131.98	1043+79.50	21.06	12/6/2006	SET 5/8" X 30" IRON REBAR W/ 1 1/2" BRASS CAP STAMPED "ODOT CONTROL 524" FLUSH W/ SURFACE	
525	733639.253	4109001.191	142.09	1047+59.47	23.24	12/4/2006	SET 5/8" X 30" IRON REBAR W/ 1 1/2" BRASS CAP STAMPED "ODOT CONTROL 525" FLUSH W/ SURFACE	
526	733441.306	4109356.499	150.41	1051+63.59	-24.80	12/4/2006	SET 1" DIA. BRASS STAMPED "ODOT CONTROL 526" PLUG IN CONC. SIDEWALK	
527	733152.985	4109664.425	147.57	1055+81.58	-32.13	12/4/2006	SET 1" DIA. BRASS STAMPED "ODOT CONTROL 527" PLUG IN CONC. SIDEWALK	
528	732939.796	4109853.922	143.72	1058+66.45	-34.72	12/4/2006	SET 1" DIA. BRASS STAMPED "ODOT CONTROL 528" PLUG IN CONC. SIDEWALK	
529	732735.295	4110028.664	142.12	1061+35.43	-32.07	12/4/2006	SET 1" DIA. BRASS STAMPED "ODOT CONTROL 529" PLUG IN CONC. SIDEWALK	
530	732515.273	4110137.765	142.17	1063+74.70	23.25	12/5/2006	SET 5/8" X 30" IRON REBAR W/ 1 1/2" BRASS CAP STAMPED "ODOT CONTROL 530" 0.05 FT. BELOW A.C. SURFACE	
531	732141.868	4110699.657	152.39	1070+37.42	53.69	12/4/2006	SET 5/8" X 30" IRON REBAR W/ 1 1/2" BRASS CAP STAMPED "ODOT CONTROL 531" FLUSH W/ SURFACE	
535	733296.897	4114824.053		1115+09.07	-38.28	12/4/2006	SET 5/8" X 30" IRON REBAR W/ 1 1/2" BRASS CAP STAMPED "ODOT CONTROL 535" FLUSH W/ SURFACE	
536	733090.648	4115201.102				12/4/2006	FD. 5/8" IRON ROD W/ 1 1/4" PLASTIC CAP STAMPED "OSHD RW" 0.1 FT. ABOVE SURFACE IN GOOD CONDITION PADDLE BOARD NEARBY MARKED "SHRW 1119+12.47 PSC 80 RT"	9B-34-17
537	733612.937	4116108.675				12/4/2006	FD. 1/2" SQUARE IRON ROD 0.1 FT. BELOW SURFACE IN GOOD CONDITION CAP NOT FOUND POSSIBLY POINT 8 FROM REFERENCED SURVEY	38-002
538	734443.670	4117402.051				12/4/2006	SET 5/8" X 30" IRON REBAR W/ 1 1/2" BRASS CAP STAMPED "ODOT CONTROL 538" FLUSH W/ SURFACE	
539	737250.660	4088007.275				12/5/2006	SET 5/8" X 30" IRON REBAR W/ 1 1/2" BRASS CAP STAMPED "ODOT CONTROL 539" FLUSH W/ SURFACE	
540	737566.419	4105078.111				12/4/2006	SET WOOD HUB AND TACK	
541	737741.658	4105267.043				12/4/2006	SET WOOD HUB AND TACK	
542	737369.483	4105771.968				12/4/2006	SET WOOD HUB AND TACK	
U246	736728.439	4104342.617		991+62.68	-22.60	12/4/2006	FD. 3" BRASS DISK STAMPED "U.S. COAST AND GEODETIC SURVEY STATION NO. U246 ELEVATION FEET 1934" SET IN NORTH END AND TOP OF BOX CULVERT IN GOOD CONDITION	ODOT 1934
WELK	735644.679	4105819.430		1009+93.47	38.43	12/4/2006	FD. 4" BRASS DISK FLUSH IN TOP OF 24" DIA. CONC. STAMPED "FOR INFORMATION CONTACT OREGON DEPT OF TRANS OR COUNTY SURVEYOR OREGON PRIMARY G.P.S. STATION WELK 1989" FLUSH W/ SURFACE IN GOOD CONDITION GPS BASE STATION	ODOT 1989
S246	732184.628	4110647.266	152.82	1069+80.73	21.11	12/4/2006	DESTROYED 3" BRASS DISK STAMPED "U.S. COAST AND GEODETIC AND STATE SURVEY STATION NO. S246 ELEVATION 149 FEET 1934" SET AT SE CORNER OF BRIDGE OVER ELK CREEK IN CONC. CURB	NGS 1934
T246	732376.826	4110288.467	144.52	1065+77.17	9.18	12/27/2006	DESTROYED 3" BRASS DISK SET IN NW CURB OF WALK OF ANNA ELIZABETH WELLS BRIDGE OVER ELK CREEK STAMPED "STATE HIGHWAY DEPARTMENT T246 ELEVATION ABOVE MEAN SEA LEVEL 140 FEET 1932 FLUSH WITH CONCRETE IN GOOD CONDITION	ODOT 1932

BOUNDARY LINE LEGEND

EXISTING HIGHWAY RIGHT OF WAY

EXISTING STREET RIGHT OF WAY

EXISTING HIGHWAY ACCESS CONTROL/RIGHT OF WAY

DONATION LAND CLAIM (THIS SIDE)

DONATION LAND CLAIM (BOTH SIDES)

TOWNSHIP

SECTION

1/4 SECTION

1/16 SECTION OR GOVERNMENT LOT

USE ODOT PEN TABLE SURV_CRR_GS.TBL (GRAYSHADE) TO PLOT SHEETS

SI FEET

OREGON DEPARTMENT OF TRANSPORTATION

HORIZONTAL CONTROL, RECOVERY AND RETRACEMENT MAP
OR 38: ELKTON SLIDE - HANCOCK MOUNTAIN ROAD PAVING
UMPQUA HWY. NO. 45, OR 38, M.P. 31.74 - 38.09
DOUGLAS COUNTY
FILE:13802RW.DGN MODEL:SHEETS

FOR ODOT REGION 3
3500 NW. STEWART PKWY.
ROSEBURG, OR. 97470

AUGUST 3, 2010

SHEET 3 OF 9