

COLORADO DEPARTMENT OF TRANSPORTATION

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Sheet Revisions

PROJECT NO. BR 0242-035

STATE HIGHWAY NO. 24 Mile Post 238.5 to Mile Post 239.0
SECTION 8, TOWNSHIP 12 SOUTH, RANGE 75 WEST
PARK COUNTY

Control Survey Diagram

Project Number: BR 0242-035
Project Location: State Highway 24
SOUTH FORK SOUTH PLATTE RIVER

DEPARTMENT OF TRANSPORTATION - STATE OF COLORADO

CONTROL SURVEY DIAGRAM

Name	Latitude	WGS 84 Longitude	Ellipsoid Height	Grid Scale Factor	Elevation Scale Factor	Combined Scale Factor	Mapping Angle	Name	NAD83 SPC Northing (m)	ZONE 502 Easting (m)	NAVD 88 GEOID 99 Elev. (m)	Description
2386	39°01'20.58086"N	105°48'26.07371"W	2695.060	0.99993684727	0.99957818834	0.99951506225	-0°11'38"	2386	436838.564	887796.618	2708.782	Type II CDOT Control Monument
2387	39°01'17.82371"N	105°48'13.49002"W	2694.979	0.99993686562	0.99957820093	0.99951509317	-0°11'30"	2387	436752.527	888099.017	2708.703	Type II CDOT Control Monument
2388	39°01'08.78278"N	105°48'11.77778"W	2693.211	0.99993692703	0.99957847749	0.99951543111	-0°11'29"	2388	436473.607	888139.273	2706.939	Type II CDOT Control Monument
2389	39°01'15.70125"N	105°48'04.28808"W	2693.878	0.99993687986	0.99957837321	0.99951527968	-0°11'24"	2389	436686.343	888320.143	2707.604	Type II CDOT Control Monument
70G	39°01'18.51077"N	105°47'44.96539"W	2689.406	0.99993686103	0.99957907353	0.99951596114	-0°11'12"	70G	436771.449	888785.215	2703.129	USGS Brass Disc set in concrete
71G	39°01'29.54710"N	105°48'41.78214"W	2697.912	0.99993678883	0.99957774290	0.99951455842	-0°11'47"	71G	437116.330	887419.721	2711.624	USGS Brass Disc set in boulder
P302	39°13'57.62520"N	105°59'09.52753"W	3008.150	0.99993854073	0.99952921617	0.99946778583	-0°18'23"	P302	460250.288	872444.147	3021.202	USC&GS Brass Disc in concrete
V288	38°51'11.19790"N	105°39'08.58540"W	2803.970	0.99994522072	0.99956114327	0.99950638803	-0°05'46"	V288	418014.062	901174.759	2817.934	USC&GS Brass Disc in rock
V176	39°01'50.35114"N	105°29'26.88512"W	2755.120	0.99993666048	0.99956879253	0.99950548032	0°00'21"	V176	437711.606	915198.274		USC&GS Brass Disc set in concrete

MIN	0.999936788829	0.999577742902	0.999514558422	436473.607	887419.721	2703.129
MAX	0.999936927026	0.999579073533	0.999515961136	437116.330	888785.215	2711.624
DIFF	0.000000138197	0.000001330631	0.000001402714	642.723	1365.494	8.495
AVERAGE	0.999936861604	0.999578342734	0.999515230961	436773.137	888093.331	2707.797
STD DEV	0.000000044204	0.000000437597	0.000000463998	209.638	463.482	2.793
Average combined Scale Factor= 1.000485004154						

Project Northing= SPC (m)*1.0004850041548(3937\1200)
Project Easting= SPC (m)*1.0004850041548(3937\1200)

BASIS OF BEARINGS: Bearing used in the calculation of coordinates are based on a bearing of S 74°07'05" E from 2386 to 2387.

BASIS OF ELEVATIONS: Project is based on a 3 7/8" USGS Brass Disc set in 6" square concrete monument, stamped 70 G 1930. 70 G has an NAVD88/project elevation of 8868.52 feet.

COORDINATE DATUM: Project coordinates are modified Colorado State Plane Coordinate Zone 502 NAD 83 coordinates. The combined scale correction factor used to modify the coordinates was (m)1.0004850041548(3937\1200).

NOTE: Refer to M-629-1 SURVEY MONUMENTS of the STANDARD PLANS, COLORADO DEPARTMENT OF TRANSPORTATION, M & S STANDARDS OCTOBER 2000 for survey monument descriptions. Refer to M-100-1 STANDARD SYMBOLS of the COLORADO DEPARTMENT OF TRANSPORTATION, M & S STANDARDS OCTOBER 2000 for standard symbol definitions.

NOTE: This control survey is for the use of Colorado Department of Transportation personnel. The survey is not a complete boundary survey. Title policy, title commitment, and the title research were not part of this survey, therefore, easements, rights, and restrictions of record are not shown. The verification of the physical evidence with relationship to easements, rights-of-way, property boundaries, and restrictions, as described in the instruments of record, was not included in this control survey.

NOTE: According to Colorado law you must commence any legal action based upon any defect in this survey within three years after you first discover such defect. In no event may any action based upon any defect in this survey be commenced more than ten years from the date of the statement shown.

SURVEYORS STATEMENT: I, Robert Buckley, Jr., a Professional Land Surveyor in the State of Colorado, hereby state that this Control Survey Diagram was prepared under my supervision this 3 day of April, 2001, from a field survey performed under my supervision from January 22 to January 24, 2001, and checking for and behalf of Western States Surveying, Inc., and is not a Land Survey Plat or Right-of-Way Plat and to the best of my knowledge and belief this control survey, as shown, meets the minimum horizontal control tolerance of a Type B Survey and this topographic survey, as shown, meets the minimum horizontal control tolerance of a Type D Survey as listed in the Colorado Department of Transportation Survey Manual Chapter Three (Revised 2/7/96).

Robert Buckley P.L.S. 22088

Name	PROJECT Northing US Feet	Easting US Feet	NAVD88 USFT Differential Elevation	NAVD88 US METERS Differential Elevation	Description
2386	1433889.627	2914125.415	8887.04	2708.770	Type II CDOT Control Monument
2387	1433607.217	2915118.017	8886.81	2708.700	Type II CDOT Control Monument
2388	1432691.684	2915250.155	8881.01	2706.932	Type II CDOT Control Monument
2389	1433389.973	2915843.847	8883.21	2707.602	Type II CDOT Control Monument
70G	1433669.327	2917370.410	8868.52	2703.125	USGS Brass Disc set in concrete
71G	1434801.373	2912888.279	8896.39	2711.620	USGS Brass Disc set in boulder



PT NO	NORTH	EAST	ELEV	CODE	DESCRIPTION
1	1433502.045	2915050.039	8878.308	0575	#5 REBAR W/ 1 1/2" ALUM. CAP W/ 1 3/4" WASHER STAMPED COLO. DIV. HWYS. ROW STA 1344+00
2	1433451.734	2915227.277	8878.255	0575	#5 REBAR W/ 1 1/2" ALUM. CAP W/ 1 3/4" WASHER STAMPED COLO. DIV. HWYS. ROW STA 1345+82.5
3	1433637.918	2915192.736	8879.125	0575	#5 REBAR W/ 1 1/2" ALUM. CAP W/ 1 3/4" WASHER STAMPED COLO. DIV. HWYS. ROW STA 1345+00
4	1433615.296	2915273.715	8878.181	0575	#5 REBAR W/ 1 1/2" ALUM. CAP W/ 1 3/4" WASHER STAMPED COLO. DIV. HWYS. ROW STA 1345+82.5
5	1433632.957	2915285.067	8878.580	0575	3 1/4" BRASS CAP IN 6" CONCRETE MONUMENT STAMPED STATE HIGHWAY DEPT. ROW MARKER STA 1345+90
6	1433555.707	2915526.856	8892.992	0575	#5 REBAR W/ 1 1/2" ALUM. CAP W/ 1 3/4" WASHER STAMPED COLO. DIV. HWYS. ROW STA 1348+50
7	1433550.995	2915693.797	8906.707	0575	3 1/4" BRASS CAP IN 6" CONCRETE MONUMENT STAMPED STATE HIGHWAY DEPT. ROW MARKER STA 1350+21
8	1433547.995	2915708.446	8908.063	1080	#5 REBAR W/ 1 1/2" ALUM. CAP STAMPED T. L. BURNETT LS 11944
9	1433486.001	2916266.835	8879.890	0575	3 1/4" BRASS CAP IN 6" CONCRETE MONUMENT STAMPED STATE HIGHWAY DEPT. ROW MARKER STA 1356+10
10	1433393.166	2916263.788	8875.340	0575	3 1/4" BRASS CAP IN 6" CONCRETE MONUMENT STAMPED STATE HIGHWAY DEPT. ROW MARKER STA 1356+05
11	1433383.300	2916264.022	8874.169	0575	3 1/4" BRASS CAP IN 6" CONCRETE MONUMENT STAMPED STATE HIGHWAY DEPT. ROW MARKER STA 1356+05
12	1433402.010	2915646.853	8900.822	0575	3 1/4" BRASS CAP IN 6" CONCRETE MONUMENT STAMPED STATE HIGHWAY DEPT. ROW MARKER STA 1349+96

CONSTRUCTION SURVEYING AND MONUMENTATION REQUIREMENTS:

- This Control Survey Diagram represents the horizontal and vertical control for the project established by Western States Surveying, Inc. It is possible that some of the survey control monuments listed have been disturbed or obliterated.
- All Type 1 and 2 monuments shall be set flush with the ground. Witness posts shall be installed 1 foot from and facing all Type 1 and Type 2 monuments, or as directed by the Project Engineer.
- Installation of Type 3 and Type 3-a monuments shall be completed in the same day that installation is commenced. Under no circumstances shall holes in the roadway be left open overnight.
- When installing Type 3-A monuments, the aluminum access cover shall be positively secure to the PVC. The access cover shall be caulked with asphalt caulking edges of the roadway surface to provide a positive moisture barrier around the access cover.
- Control survey procedures, statistical analysis, and accuracy for horizontal and vertical control shall be documented in the field book.
- Legible copies of the field books shall be submitted to the Project Engineer for review on a monthly basis.
- It is ultimately the prime Contractors responsibility to insure that these requirements, as well as any contained in the CDOT specifications, project special provisions, and CDOT Survey Manual are fulfilled under this contract.
- The minimum staking intervals for each item are described on the plans or in the CDOT Survey Manual. If the contractor wished to reduce the minimum intervals, a Contract Modification Order must be negotiated and the cost of each item reduced accordingly.

