



Region 1  
Address: 18500 East Cofax Avenue  
Aurora, CO 80011  
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Survey Unit: Joseph P. Conway

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Located in  
Sections 15 & 16, Township 9 South,  
Range 56 West of the 6th Principal Meridian  
County of Lincoln,  
State of Colorado

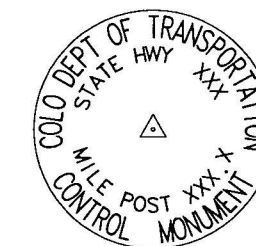


Title Sheet				
Project Number: BR 0243-063				
Project Location: US 24, Kyle RR Bridge				
Project Location:				
Project Code	Last Mod. Date	Subset Sheets	Sheet No.	Total No. of Sheets
13496	00-00-00	1 of 2		

# PROJECT CONTROL DIAGRAM

## GEODETTIC COORDINATE SUMMARY TABLE (ADJUSTED FIELD DATA)

POINT NAME	GEODETTIC COORDINATES NAD-83(92) (CHARN)		ELLIP. HEIGHT	ELEV. (NAVD '88)m	MAPPING ANGLE	SCALE	NAD 83(92) ZONE 0502	
	LATITUDE(N)	LONGITUDE(W)					NORTHING (m)	EASTING (m)
CHARN 'E25'	39° 12' 52.58968"	103° 36' 07.51958"	1579.646	1599.645	1° 11' 49.17404"	0.999937868	459844.573	1078291.135
LIMD	39° 16' 06.25852"	103° 39' 50.67956"	1610.169	1629.914	1° 09' 28.42937"	0.999940163	465705.522	1072818.299
CHARN 'HOWDY'	39° 15' 57.17660"	103° 35' 49.10871"	1641.678	1661.593	1° 12' 00.78558"	0.999940036	465544.674	1078613.460
US HWY. 24 CM-MP 380.00	39° 16' 03.91762"	103° 39' 14.42254"	1614.024	1633.791	1° 09' 51.29629"	0.999940130	465650.961	1073688.679
US HWY. 24 CM-MP 380.21	39° 15' 57.22607"	103° 39' 01.56068"	1625.500	1645.279	1° 09' 59.40814"	0.999940037	465450.925	1074001.121
INTERSTATE 70 CM-MP 362.90	39° 15' 50.50271"	103° 38' 58.23054"	1625.923	1645.714	1° 10' 01.50842"	0.999939944	465245.264	1074085.155
US HWY. 24 CM-MP 380.30	39° 15' 54.79347"	103° 38' 56.39252"	1625.119	1644.906	1° 10' 02.66764"	0.999940003	465378.449	1074126.510
US HWY. 24 CM-MP 380.20	39° 15' 58.73880"	103° 39' 00.88103"	1628.296	1648.072	1° 09' 59.83678"	0.999940058	465497.895	1074016.460
US HWY. 24 CM-MP 386.50	39° 15' 24.30060"	103° 38' 25.02275"	1607.170	1626.993	1° 10' 22.45222"	0.999939591	464453.689	1074897.577
SE CORNER S15, T9S, R56W	39° 15' 30.08985"	103° 38' 24.30772"	1609.387	1629.208	1° 10' 22.90318"	0.999939668	464632.526	1074911.061
NW CORNER S15, T9S, R56W	39° 16' 22.30116"	103° 39' 30.23845"	1614.287	1634.040	1° 09' 41.32136"	0.999940393	465210.047	1073298.150
US HWY. 24 CM-MP 379.70	39° 16' 01.51388"	103° 39' 33.86505"	1610.742	1630.500	1° 09' 39.03411"	0.999940097	465567.396	1073224.230
US HWY. 24 CM-MP 379.60	39° 16' 01.37633"	103° 39' 42.69876"	1609.768	1629.531	1° 09' 33.46277"	0.999940095	465558.868	1073012.608



Typical Control Monument Cap Not to Scale

▲ CM-MP - Control Point Monuments set by CDOT. They are CDOT type 2 monuments, a 3-1/4" dia. aluminum control monument cap (as shown) on a 3" X 3/4" dia. finned aluminum security rod on a 3" X 3/4" dia. smooth aluminum rod.

BASIS OF BEARINGS: Bearings used in the calculation of coordinates are based on a grid bearing of N 87° 41' 33" E from US 24 CM 379.60 to US 24 CM 379.70, as obtained from a Global Positioning System (GPS) survey based on the Colorado High Accuracy Reference Network (CHARN).

BASIS OF ELEVATIONS: Project is based on 'Z 58" a Coast and Geodetic Survey Bench Mark, a found brass cap in the face of the southwest pillar of the US HWY. 24 bridge over the Kyle R&R. Said point having a NAVD '88 elevation of 1638.783 meters or 5376.57 feet.

## PROJECT COORDINATE SUMMARY TABLE (ADJUSTED FIELD DATA IN US FEET)

POINT NAME	PROJECT COORDINATES		ELEV(FEET)	DESCRIPTION
	NORTH (US FEET)	EAST (US FEET)		
CHARN 'HOWDY'	215524.99	259038.67	5451.41	NGS DEEP ROD
US HWY. 24 CM-MP 380.30	214979.47	244313.07	5396.66	CDOT Type 2 Control Monument
INTERSTATE 70 CM-MP 362.90	214542.37	244177.35	5399.31	CDOT Type 2 Control Monument
SE CORNER S15, T9S, R56W	212531.44	246887.87	5345.16	FND. 3 1/4" ALUM.CAP L.S. 25618
CHARN 'E25'	196817.99	257980.84	5248.17	CGS BRASS DISK IN CONC. POST
US HWY. 24 CM-MP 386.50	211944.52	246843.62	5337.89	CDOT Type 2 Control Monument
US HWY. 24 CM-MP 380.20	215371.47	243951.90	5407.05	CDOT Type 2 Control Monument
US HWY. 24 CM-MP 380.00	215873.81	242876.17	5360.20	CDOT Type 2 Control Monument
NW CORNER S15, T9S, R56W	217708.67	241594.50	5361.01	FND. 1 1/2" METAL PIPE
CHARN 'LIMD CBL 0'	216052.88	240019.69	5347.48	NGS BRASS DISK IN CONC. POST
US HWY. 24 CM-MP 379.70	215599.56	241351.90	5349.40	CDOT Type 2 Control Monument
US HWY. 24 CM-MP 380.21	215217.32	243901.56	5397.89	CDOT Type 2 Control Monument
US HWY. 24 CM-MP 379.60	215571.58	240657.39	5346.22	CDOT Type 2 Control Monument

## PROJECT COORDINATE SUMMARY TABLE (ADJUSTED FIELD DATA IN METERS)

POINT NAME	PROJECT COORDINATES		ELEV(m)	DESCRIPTION
	NORTH (m)	EAST (m)		
CHARN 'HOWDY'	65692.150	78955.145	1661.593	NGS DEEP ROD
US HWY. 24 CM-MP 380.30	65525.872	74466.774	1644.906	CDOT Type 2 Control Monument
INTERSTATE 70 CM-MP 362.90	65392.645	74425.405	1645.714	CDOT Type 2 Control Monument
SE CORNER S15, T9S, R56W	64779.713	75251.573	1629.208	FND. 3 1/4" ALUM.CAP L.S. 25618
CHARN 'E25'	59990.243	78632.718	1599.645	CGS BRASS DISK IN CONC. POST
US HWY. 24 CM-MP 386.50	64600.819	75238.085	1626.993	CDOT Type 2 Control Monument
US HWY. 24 CM-MP 380.20	65645.356	74356.689	1648.072	CDOT Type 2 Control Monument
US HWY. 24 CM-MP 380.00	65798.470	74028.804	1633.791	CDOT Type 2 Control Monument
NW CORNER S15, T9S, R56W	66357.734	73638.152	1634.040	FND. 1 1/2" METAL PIPE
CHARN 'LIMD CBL 0'	65853.049	73158.149	1629.914	NGS BRASS DISK IN CONC. POST
US HWY. 24 CM-MP 379.70	65714.879	73564.207	1630.500	CDOT Type 2 Control Monument
US HWY. 24 CM-MP 380.21	65598.371	74341.345	1645.279	CDOT Type 2 Control Monument
US HWY. 24 CM-MP 379.60	65706.348	73352.519	1629.531	CDOT Type 2 Control Monument

COORDINATE DATUM: Project coordinates are modified Colorado State Plane Central Zone NAD '83(92) coordinates. State plane coordinates were modified to a mean project elevation of 1636.1771 meters. The combined elevation/scale factor used to modify the coordinates from state plane to project coordinates was 1.00031678172. Project coordinates were truncated by 400,000m in the Northing and by 1,000,000m in the Easting after converting from state plane coordinates to project coordinates. The CHARN is based on the NAD '83(92) datum.

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

NOTE: Refer to M-629-1 Survey Monuments of the Standard Plans, Colorado Department of Transportation, M & S Standards November 1992 for survey monument descriptions. Refer to M-100-1 Standard Symbols of the Standard Plans, Colorado Department of Transportation, M & S Standards November 1992 for standard symbol definitions.

NOTICE: 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 hereon.

SURVEYORS STATEMENT: I, David A. Stewart, a Professional Land Surveyor in the State of Colorado, hereby state that this Project Control Diagram was prepared under my direct supervision this 23rd day of October, 2002, from a field survey performed under my supervision and checking from August 12, 2002 to October 22, 2002 for and on behalf of the Department of Transportation, State of Colorado, and is not a Land Survey Plat or Right-of-Way Survey Plat and to the best of my knowledge and belief this control survey, as shown, meets the minimum horizontal control tolerances of a CDOT Type B Survey, as listed in Chapter Three of the Colorado Department of Transportation 1992 Survey Manual.

### CONSTRUCTION SURVEYING AND MONUMENTATION REQUIREMENTS:

- This Control Survey Diagram represents the horizontal and vertical control for the project established by the Division. It is possible that some of the survey control monuments listed have been disturbed or obliterated. It is the Contractor's responsibility to verify the existence and stability of the control monuments before submitting a bid price.
- All Type 1 and Type 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 monument box shall be positively secured in the roadway surface. The monument box shall be caulked with asphalt caulking between the monument box and the edges of the roadway surface to provide a positive moisture barrier around the monument box.
- Control survey procedures, statistical analysis, and accuracy obtained 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 Contractor's 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 wishes to reduce the minimum intervals, a Contract Modification Order must be negotiated and the cost of the item reduced accordingly.

David A. Stewart  
Colorado PLS No. 28664

Date

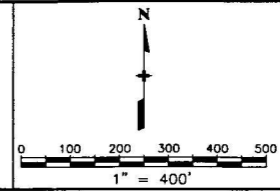


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Sheet Revisions		
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Plan Sheet				
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Project Code	Last Mod. Date	Subset Sheets	Sheet No.	Total No. of Sheets
13496	00-00-00	2 of 2		

