Aurora, Colorodo 80022 Phone: (303) 757-9744 FAX: (303) 757-9746

Survey Unit: Joesph P. Conway

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 XXXXX	XXX				

et Revisions

85 MP 187.50 to MP 189.05

Located in the

North 1/2 of Sections 19 & 20,

Township 7 South, Ronge 67 West
of the 6th Principal Meridian

Douglass County

Colorado



Survey Control Diagram

Title Sheet

Project Number: STA R100-0702

Project Location: Highway 85 © Daniels Park Road

Project Location: Highway 85 MP 187.5 - 189.05

Project Code: Last Mod. Date Subset Sheet No. Total No. of 13175 00-00-00 XXX of XXX XXX XXX

GEODETIC COORDINATE SUMMARY TABLE (ADJUSTED FIELD DATA)

DOWN NAME	GEODETIC COORDINATE	ORRHO) CSENER-DAK Z	ELLIP.	ELEV.	MAPPING	SCAL E	NAB 83(92)	ZOME 0502
POINT NAME	LATITUDE(N)	LONGITUDE(W)	HEIGHT	CHAVD 1883m	ANGLE	SCALE	NORTHING (n)	EASTING (A)
CM-MP 188.10	39° 25′ 49.62578° N	104° 55′ 13.74932° W	1799.829	1816.458	0° 21′ 55.77651	0.99967068	482253.644	964294.743
CM-MP 187.80	39° 25′ 46.56785° N	104° 54′ 52.95387″ ₩	1801.850	1818.501	0° 22' 08.89199"	0.99967028	482162.532	964792.669
CM-MP 188.45	39° 25' 53.22118" N	104° 55' 37.78451" V	1793.408	1810.003	0° 21′ 40.61777°	0.99967179	482360.873	963719.248
CM-MP 189.05	39° 25' 59.39458° N	104° 56′ 07.43629″ W	1786.597	1803.167	0° 21′ 21.91670′	0.99967303	482546.808	963008.958
CM-MP 187.65	39° 25′ 45.19749° N	104° 54′ 44.12362″ ¥	1807.484	1824.138	0° 22' 14.46114"	0.99966936	482121.637	965004.119
K23	39° 25' 41.15066' N	104° 54' 30.69573" V	1807.516	1824.181	0° 22' 22.92996"	0.99966925	481998.926	965326.062
CM-MP 187.45	39° 25' 42.70028" N	104° 54' 32.57185" ₩	1809.067	1825.729	0" 22" 21.74671"	0.99966905	482046.421	965280.883
CM-MP 187.95	39° 25′ 49.56932° N	104° 55' 03.23604' V	1802.103	1818.739	0* 22* 02.40713*	0.99967033	482253.511	964546.177
A397	39° 25' 58.52783' N	104° 56' 02.94639" V	1787.606	1804.178	0° 21' 24.74843"	0.99967285	482520.747	963116.495
MITCHELL	39° 26' 40.42867" N	104° 58' 30.41385" V			0" 19" 51.74225"	0.99967828	483791.715	959582.493
CM-MP 187.50	39° 25' 43.23901" N	104° 54′ 35.24353′ ₩	1808.832	1825.492	0° 22' 20.06171"	0.99966910	482062.619	965216.880
CH-MP 188-25	39° 25' 50.25600' N	104° 55' 24.81198" V	1796.211	1812.831	0° 21' 48.79941"	0.99967127	482271.395	964930.059
CM-MP 188.85	39° 25' 58.45884' N	104° 56' 03.66467° V	1787.561	1804.140	0° 21' 24.29542"	0.99967285	482518.513	963099.332
CHASE	39° 24' 45.78867" N	104° 57' 11.71232" ¥			0° 20' 41.37848"	0.99967380	480267.560	961485.528
CM-MP 188.75	39° 25' 57.07662° N	104° 55' 54.67369° W	1787.720	1804.304	0° 21' 29.96594"	0.99967279	482477.230_	963314.608

PROJECT COORDINATE SUMMARY TABLE (ADJUSTED FIELD DATA IN METERS)

POINT NAME	PROJECT COORDONATES		5. 5. 44 .	DCCCDIOTION		
	MORTH W	EAST W	ELEV(m)	DESCRIPTION		
CM-MP 187.80	432323.639	65115.039	1818.501	CDDT Type II Control Monument		
CH-MP 187.95	432414.648	64868.465	1818.739	CDOT Type II Control Honument		
CM-MP 188.10	432414.781	64616.947	1816.458	CDOT Type II Control Monument		
CM-MP 187.65	432282.730	65326.559	1824.138	CDOT Type II Control Monument		
K23	432159.978	65648.610	1824.181	3.25" USCAGS Brs. cap in conc. pst		
CH-HP 187.45	432207.488	65603.415	1825,729	CDDT Type 11 Control Monument		
CM-MP 187.50	432223.692	65539.392	1825.492	CDOT Type 11 Control Monument		
CM-MP 188.25	432432.538	64352.174	1812.831	CDOT Type 11 Control Monument		
A397	432681.974	63438.305	1804.178	NGS Stainless steel rod		
CM-MP 189.05	432708.043	63330.732	1803.167	CDDT Type 11 Control Monument		
MITCHELL	433953.366	59903.121		NGS Stainless steel rod		
CM-MP 188.85	432679.738	63421.136	1804.140	CDOT Type 11 Control Monument		
CH-MP 188.45	432522.046	64041.259	1810.003	CDOT Type II Control Monument		
CH-MP 188.75	432638.442	63636.484	1804.304	CDOT Type 11 Control Monument		
CHASE	430428.033	61806.793		3.25° Brs. cap in concrete post		



Typical Control Mounment Cap Not to Scale

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

POINT NAME	PROJECT COORDINATES		E1 E1/4641	DECEDIOTION		
	NORTH (FL)	EAST (Ft)	ELEV(ft)	DESCRIPTION		
CM-MP 187.80	1418381.81	213631.59	5966.20	CDQT Type II Control Monument		
CH-HP 187.95	1418680.39	212822.62	5966.98	CDOT Type II Control Monument		
CM-MP 188.10	1418680.83	211997.43	5959.50	CDDT Type II Control Monument		
CH-HP 187.65	1418247.59	214325.55	5984.69	CDDT Type II Control Monument		
CH-MP 187.45	1418000.73	215233.87	5989.91	CDOT Type II Control Monument		
CH-MP 187.50	1418053.90	215023.82	5989.14	CDDT Type II Control Monument		
CH-HP 188.25	1418739.09	211128.76	5947.60	CDDT Type 11 Control Monument		
CH-MP 189.05	1419642.97	207777.58	5915.89	CDOT Type II Control Monument		
CH-MP 188.85	1419550.11	208074.18	5919.08	CDOT Type II Control Monument		
CH-HP 188.45	1419032.74	210108.70	5938.32	CDOT Type II Control Monument		
CH-MP 188.75	1419414.62	208780.70	5919.62	CDDT Type II Control Monument		
K23	1417844.86	215382.15	5984.83	3.25" USCEGS Brs. cap in conc. ps		
A 397	1419557.44	208130.51	5919.21	NGS Stainless steel rod		
MITCHELL	1423728.67	196532.16		NGS Stainless steel rod		
CHASE	1412162.64	202777.79		3.25° Brs. cap in conc. post		

CONSTRUCTION SURVEYING AND MONUMENTATION REQUIREMENTS:

- 1). 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 nonuments listed have been disturbed or obliterated. It is the Contractor's responsibility to verify the existence and stability of the control nonuments before submitting a bid price.
- 2). All Type 1 and Type 2 nonunents shall be set flush with the ground. Vitness 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.
- 4). When installing Type 3-A monuments, the aluminum nonument 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 noisture barrier around the nonument box.
- Control survey procedures, statistical analysis, and accuracy obtained for horizontal and vertical control shall be documented in the field book.
- 6). Legible copies of the field books shall be submitted to the Project Engineer for review on a nonthly basis.
- 7). It is ultimately the prime Contractors responsibility to insure that these requirements, as well as any contained in the COOT specifications, project special provisions, and COOT Survey Manual are fulfilled under this contract.
- 8). The minimum staking intervals for each item are described on the plans or in the CDDT 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.

BASIS OF BEARINGS: Bearings used in the calculation of coordinates are based on a grid bearing of N 74*29'48" W from CM-MP 187.50 to CM-MP 187.65, 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 a elevation of 1824.181m on USC&GS point "K23", a 3 1/4" Brass cap in a concrete post.

COORDINATE DATUM: Project coordinates are modified Colorado State Plane Central Zone NAD '83 (92) coordinates. State Plane Coordinates are modified to a mean project elevation of 1824.181m. Project Latitude is 39°25'41.1507'. Multiply state plane coordinates by a combined sc factor of 1.00033413364 to convert to project coordinates. Project coordinates are truncate by 50,000m in the Northing and 900,000m in the Easting. Project Coordinates in feet are in US Survey Feet. The CHARN is based on the NAD '83 (92) datum.



CP - Control Point Monuments set by CDDT. They were CDDT type 2 monuments, a $3-1/4^{\prime}$ dia. aluminum control monument cap (as shown) on a 3^{\prime} X $3/4^{\prime}$ dia. finned aluminum security rod on a 3^{\prime} X $3/4^{\prime}$ dia. smooth aluminum rod.

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

NOTE: This control survey is for the use of the Colorado Department of Transportation personnel. The survey is not a complete Boundary Survey. 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: 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.

NITE: No guarantee as to the accuracy of the information contained on the attached drawing is either stated or implied unless this copy bears an original signature of the professional land surveyor hereon named.

SURVEYORS STATEMENT: I, David A. Stewart, a Professional Land Surveyor in the State of Colorado, hereby state that this Control Survey Diagram was prepared under my direct supervision this 7th day of November 2000, from a field survey performed from 08/20/2000 to 10/03/2000 under my supervision and checking 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 Type B Survey and this topographic survey, as shown, meet the minimum horizontal control tolerances of a Type D Survey as listed in the Colorado Department of Transportation Survey Manual Chapter Three (Revised 4/29/92).

David A. Stewart, CO PLS 28664

Date

COLORADO DEPARTMEN. JF TRANSPORTATION

Region 1
18500 East Colfax Avenue
Aurora, Colorado 80022
Phone: (303) 757-9744 FAX: (303) 757-9746

Survey Unit: Joesph P. Conway

et Revisions

85 MP 187.50 to MP 189.05

Located in the

North 1/2 of Sections 19 & 20,

Township 7 South, Range 67 West

of the 6th Principal Meridian

Douglass Caunty

Colarado



Survey Control Diagram

Plon Sheet

Project Number: STA R100-0702

Project Location: Highway 85 © Daniels Pork Road

Project Location: Highway 85 © Daniels Pork Road

Project Location: Highway 85 MP 187.5 - 189.05

Project Code: Last Wod. Date Subset Sheet No. Total No. of S

13175 00-00-00 XXX of XXX XXX XXX

FOUND: URS US 85 CM-MP 188.85 URS PROJECT STATION GPS PROJECT STATION N: 1419550.11 N: 1419550.11 E: 208074.18 E: 5919.08

LITTLETON

SET: 189.05
US 85 CM-MP 189.05
US 85 CM-MP 189.05
US 85 CM-MP 189.05
GPS PROJECT STATION
GPS PROJECT STATION
FOU
N: 1419642.97
N: 207777.58
E: 207777.58
GPS
EL:5915.89
N:

FOUND: MARK "A 397"
NGS BENCH MARK "A 397"
NGS PROJECT STATION
GPS PROJECT STATION
1419557.44
N: 1419557.44
E: 208130.51
E: 208130.51
EL:5919.21

SET: US 85 CM-MP 188.75 US 85 PROJECT STATION GPS PROJECT STATION 1419414.62 N: 1419414.62 N: 208780.70 E: 208780.70 EL:5919.62

SET: 85 CM-MP 188.45 US 85 CM-MP STATION GPS PROJECT STATION N: 1419032.74 N: 210108.70 E: 210108.70 EL:5938.32 85

/ NOV 2000 09:33:18:3 PLOT/EDIT BY

COLORADO DEPARTMENT OF TRANSPORTATION eet Revisions 85 MP 187.50 to MP 189.05 Survey Control Diagram Located in the
North 1/2 of Sections 19 & 20,
Township 7 South, Ronge 67 West
of the 6th Principal Meridian
Douglass County
Colarado Plan Sheet POT | Region | 1 | 18500 | East Colfax Avenue | Aurora, Colorada | 80022 | Phone: (303) | 757-9744 | FAX: (303) | 757-9746 Project Number: STA R100-0702 Project Location: Highway 85 • Daniels Park Road
 Project Location: Highway 85 MP 187.5 - 189.05

 Project Code:
 Last Mod. Date
 Subset Sheets
 Sheet No.
 Total No. of S

 13175
 00-00-00
 XXX
 of XXX
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 XXX
 Survey Unit: Joesph P. Conway FOUND NO. 4 REBAR 1 1/4" AL. CAI TST LS 12046 LATHE W/PARCEL "C N:1418713. E: 213681. FOUND: NO. 5 REBAR 1 1/2" AL. CAP TST 23512 N: 1418696.09 E: 212718.39 FOUND: NO. 5 REBAR 1 1/2" AL. CAP TST 23512 FOUND: URS CM-MP 187.3 N: 1418557.29 E: 213260.87 N: 1418662.85 E: 212918.56 FOUND: US 85 CM-MP 187.95 GPS PROJECT STATION NO. 5 REBAR 1 1/2" AL. CAP TST 23512 US 85 CM-MP 188.10 SET: US 85 CM-MP 188.25 GPS PROJECT STATION GPS PROJECT STATION N: 1418682.36 E: 212812.40 N: 1418680.39 N: 1418680.83 E: 212822.62 N: 1418739.09 E: 211997.43 EL:5959.50 N: 1410/39.09 E: 211128.756 EL:5947.60 EL:5966.98 FOUND: NO. 4 1 1/4" AL. LS 23512 N: 1418474.63 E: 213550.18

COLORADO DEPARTMENT JF TRANSPORTATION et Revisions 85 MP 187.50 to MP 189.05 Survey Control Diagram XXXXX Located in the Plan Sheet POT Region I 18500 East Colfax Avenue North 1/2 of Sections 19 & 20, Project Number: STA R100-0702 Township 7 South, Range 67 West Aurora, Colorado 80022 Project Location: Highway 85 • Daniels Pork Road of the 6th Principal Meridian Phone: (303) 757-9744 FAX: (303) 757-9746 Dougloss County Colorado Project Location: Highway 85 MP 187.5 - 189.05 Project Code: Last Mod. Date Subset Sheets Sheet No. Total No. of S 13175 00-00-00 XXX of XXX XXX XXX Survey Unit: Joesph P. Conway FOUND: NO 4 REBAR 1° PLASTIC CAP TST 22564 N: 1419217.03 E: 213701.51 NO 4 REBAR 1" PLASTIC CAP NO 4 REBAN 1 PLASIN CAP ARCHER & ASSOC. PLS 6935 N: 1418712.75 FOUND: NO. 5 REBAR 1 1/4" AL. CAP H. DONNELLY NO. 5 LS 7134 LATHE W/PARCEL "B & C" PE & LS 7134 LATHE W/PARCEL "B & C" N: 1418712.74 N: 1418712.74 FOUND: FOUND: NO. 4 REBAR 1 1/4" AL CAP NO. 4 REBAR 1 W/PARCEL C"-TST LS 12046 LATHE W/PARCEL C"-N:1418713.47 E: 213690.48 E. 213700.21 FOUND: FOUND: FOUND: FOUND: PLASTIC CAP NO. 4 REBAR 1 1/4" AL. NO 4 REBAR 1" PLASTIC CAP NO. 4 REBAR 1" PLASTIC CAP NO. 4 REBAR 1 PLASTIC CAP NO. 4 FOUND: NO. 5 REBAR 1 1/2" AL. NO. 5 REBAR 1 1/2" AL. CAP TST 23512 CAP TST 23512 (N: 1418696.09 (N: 14718.39 FOUND: 187.3 FOUND: NO. 5 REBAR 1 1/2" AL. CAP TST 23512 CAP TST 23512 /N: 1418557.29 FOUND:
NO. 4 REBAR 1 1/4" AL. CAP
NO. 4 REBAR 1 1/4" AL. CAP
TST LS 12046 LATHE W/PARCEL "B"
No. 1418 174 AL. E: 213260.87 N: 1418662.85 E: 212718.39 N: 1418490.29 FOUND: REBAR 1 1/4" AL. CAP US 85 CM-MP 187.65 E: 212918.56 E: 213565.41 NO. 4 REBAR 1 1/4" AL. CAP TST LS 12046 LATHE W/PARCEL "B" SET: US 85 CM-MP STATION FOUND:

GPS PROJECT STATION FOUND:

NO 4 REBAR PLASTIC CAP

NO 4 REBAR PLS 29039

NO 1418247.59

PR FLETCHER PLS 29039 FOUND: NO 4 REBAR 1" PLASTIC CAP NO 1 REBAR 1" PLASTIC CAP / N: 1418374.04 E: 213913.09 N: 1418337.32 N: 1418247.59 N: 1418127.63 URS US 85 CM-MP 187.45 E: 214022.59 E: 214666.68 E: 214325.55 E: 214829.96 EL:5984.69 GPS PROJECT STATION * /a US 85 CM-MP 187.95 N: 1418000.73 GPS PROJECT STATION 3 USC&GS CONC. POST *K2 1 E: 215233.87 O EL:5989.91 FOUND: N: 1418680.39 GPS PROJECT STATION CASTLE ROCK E. 212822.62 举 FOUND: 1/4" AL CAP TST US 85 CM-MP 187.50 \bigcirc \bigcirc N: 1417844.86 US 85 CM-MP 187.80 EL:5966.98 GPS PROJECT STATION E. 215382.15 LS 23512 GPS PROJECT STATION FOUND: NO 4 REBAR WITH LATH N: 1418474.63 N: 1418053.90 EL:5984.83 E: 213550.18 -N: 1418381.81 N: 1418331.41 E: 215023.82 E: 214038.96 E: 213631.59 EL:5989.14 EL:5966.20