



Region 1
Address: 18500 E. Colfax Ave.
Aurora, CO 80011
Phone: (303) 757-9744 FAX: (303) 757-9746

Survey Unit: Joseph P. Conway, PLS

Sheet Revisions

Parker Road (MP 54.00 TO MP 60.00)
Located in Sections 27 & 34 T. 6 S., R. 66 W. and
Section 10, T. 7 S., R. 66 W. of the 6th P.M.
Douglas County, Colorado

Project Survey Control Diagram

Title Sheet

Project Number: SHE 0831-102				
Project Location: Parker Road (MP 54.00 to MP 60.00)				
Project Location: Parker - Douglas County				
Project Code:	Last Mod. Date	Subset Sheets	Sheet No.	Total No. of Sheets
15544	October 11, 2006	1 of 6	3	6

CONSTRUCTION SURVEYING AND MONUMENTATION REQUIREMENTS:

- 1). This Project Survey Control 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.
- 2). 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.
- 3). 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 access cover shall be positively secured to the PVC pipe with screws or glue. The access cover shall be caulked with asphalt caulking between the cover and the edges of the roadway surface to provide a positive moisture barrier around the access cover.
- 5). 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 monthly basis.
- 7). 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.
- 8). 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.

BASIS OF BEARINGS: Bearings used in the calculation of coordinates are based on a grid bearing of N10°09'16"W (474.52') from CDOT Parker Road CM-MP 57.50 to Parker Road CM-MP 57.60 as obtained from a Global Positioning System (GPS) survey based on the Colorado High Accuracy Reference Network (CHARN). Said grid bearing is NAD '83 (1992) Colorado State Plane (Central Zone).

BASIS OF ELEVATIONS: Vertical control for this project was established by differential leveling. Points 5555, 5575 and 5863 are the Project Bench Marks and are monumented as shown hereon. The orthometric heights of points 5555, 5575 and 5863 were established by GPS static observations and the GPS derived heights for these points are based on GEOID 03 as published by the National Geodetic Survey (NGS) used in conjunction with ties to "D 54" PID KK0252 and "C 54" PID KK0251, both being National Geodetic Survey (NGS) Posted Bench Marks. The vertical datum for this project is NAVD 88.

COORDINATE DATUM: Coordinates on this project are for the exclusive use of the CDOT for the construction of this project and are considered Project Coordinates only.

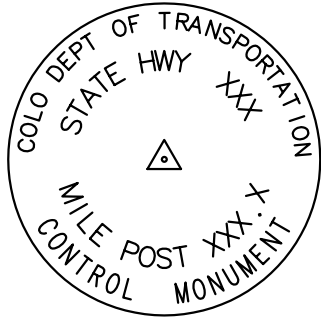
NOTE: This Project Survey Control Diagram is for the use of the Colorado Department of Transportation personnel. The survey is not a complete Boundary Survey. Title Policy, Title Commitment, and Title Research were not part of this Project Survey Control Diagram, therefore, easements, rights, and restrictions 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: In accordance with C.R.S. 13-80-105:
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.

SURVEYOR'S STATEMENT: I, Geoffrey F. Stephenson, a professional land surveyor licensed in the State of Colorado, do hereby state to the Colorado Department of Transportation this Project Survey Control Diagram was prepared and the field survey it represents was performed under my responsible charge and, based upon my knowledge, information and belief is in accordance with applicable standards of practice defined by Colorado Department of Transportation publications. This statement is not a guaranty or warranty, either expressed or implied.

Geoffrey F. Stephenson PLS No. 23521

Date _____



Typical Control Monument Cap
Not to Scale

▲ CM - Control Point Monuments were found or set by Lund Partnership. All found Control Point Monuments 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 (unless otherwise noted).



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Project Survey Control Diagram

Tabulation of Project Control

Project Number: SHE 0831-102				
Project Location: Parker Road (MP 54.00 to MP 60.00)				
Project Location: Parker - Douglas County				
Project Code:	Last Mod. Date	Subset Sheets	Sheet No.	Total No. of Sheets
15544	October 11, 2006	2 of 6	3A	6

GEODETIC COORDINATE SUMMARY TABLE
(ADJUSTED FIELD DATA) – US FEET

POINT NAME	GEODETIC COORDINATES NAD-83(92) (CHARN)		NAD 83/92 ZONE 0502		ELLIP. HEIGHT	ELEV. (NAVD 88)	MAPPING ANGLE	GRID SCALE	DESCRIPTION
	LATITUDE	LONGITUDE	NORTHING (sft)	EASTING (sft)					
5525	39° 27' 14.45777" N	104° 45' 31.96933" W	1591108.31	3209266.74	5948.68	6005.00	0° 28' 02.7"	0.99995484	CM-MP 55.25
5545	39° 27' 25.14911" N	104° 45' 33.97410" W	1592188.70	3209100.68	5944.29	6000.63	0° 28' 01.4"	0.99995516	CM-MP 55.45
5555	39° 27' 30.87820" N	104° 45' 31.63459" W	1592769.83	3209279.44	5946.53	6002.83	0° 28' 02.9"	0.99995534	CM-MP 55.55
5750	39° 29' 09.83037" N	104° 45' 30.40403" W	1602781.96	3209294.23	5897.51	5954.08	0° 28' 03.7"	0.99995844	CM-MP 57.50
5755	39° 29' 12.35078" N	104° 45' 33.08346" W	1603035.25	3209082.09	5888.30	5944.86	0° 28' 02.0"	0.99995852	CM-MP 57.55
5760	39° 29' 14.45200" N	104° 45' 31.42209" W	1603248.90	3209210.60	5887.72	5944.35	0° 28' 03.0"	0.99995859	CM-MP 57.60
5852	39° 30' 01.88339" N	104° 45' 43.71577" W	1608039.89	3208207.85	5810.09	5866.76	0° 27' 55.3"	0.99996017	CM-MP 58.52
5863	39° 30' 07.34254" N	104° 45' 44.50761" W	1608591.72	3208141.30	5808.18	5864.83	0° 27' 54.8"	0.99996035	CM-MP 58.63
5875	39° 30' 13.70788" N	104° 45' 46.51616" W	1609234.45	3207978.64	5813.27	5869.80	0° 27' 53.5"	0.99996057	CM-MP 58.75
C 54	39° 28' 26.17399" N	104° 42' 27.30559" W	1598486.29	3223687.18	6316.49	6373.13	0° 29' 59.2"	0.99995704	KK0251
D 54	39° 29' 25.92410" N	104° 44' 08.58633" W	1604463.39	3215694.82	6089.48	6146.25	0° 28' 55.3"	0.99995897	KK0252
JAEGER	39° 28' 59.21623" N	104° 48' 58.18120" W	1601580.29	3193013.07	6185.13	6241.24	0° 25' 52.6"	0.99995810	DH4395
TT 15A	39° 28' 42.93032" N	104° 45' 26.73465" W	1600062.73	3209604.15	5913.92	5970.35	0° 28' 06.0"	0.99995757	USGS 1934 BM

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

POINT NAME	PROJECT COORDINATES		ELEV. (NAVD 88)	DESCRIPTION
	NORTHING	EASTING		
5525	591624.87	210308.66	6005.00	CM-MP 55.25
5545	592705.62	210142.55	6000.63	CM-MP 55.45
5555	593286.93	210321.36	6002.83	CM-MP 55.55
5750	603302.32	210336.16	5954.08	CM-MP 57.50
5755	603555.69	210123.95	5944.86	CM-MP 57.55
5760	603769.41	210252.50	5944.35	CM-MP 57.60
5852	608561.96	209249.42	5866.76	CM-MP 58.52
5863	609113.96	209182.85	5864.83	CM-MP 58.63
5875	609756.90	209020.14	5869.80	CM-MP 58.75
C 54	599005.26	224733.78	6373.13	KK0251
D 54	604984.30	216738.83	6146.25	KK0252
JAEGER	602100.26	194049.71	6241.24	DH4395
TT 15A	600582.21	210646.17	5970.35	USGS 1934 BM

NOTE: National Geodetic Survey B
Order Horizontal Control Station
held fixed in the final fully
constrained least squares
adjustment of the GPS data are
as follows:

Designation: JAEGER
PID: DH4395
NAD 83(1992) CHARN
Latitude 39° 28' 59.21623 (N)
Longitude 104° 48' 58.18120 (W)
Ellip. Height 1885.23 (meters)

NOTE: National Geodetic Survey
First Order Horizontal Control
Station held fixed in the final fully
constrained least squares
adjustment of the GPS data are
as follows:

Designation: C 54
PID: KK0251
NAD 83(1992) CHARN
Latitude 39° 28' 26.17399 (N)
Longitude 104° 42' 27.30559 (W)
Ellip. Height 1925.27 (meters)

Conversion Example of State Plane Coordinates
to Project Coordinates:

State Plane Northing x 1.000324659 - 1,000,000 (sft) = Project Northing (sft)
State Plane Easting x 1.000324659 - 3,000,000 (sft) = Project Easting (sft)

Project Coordinate Parameters:

Geodetic coordinates are based on NAD 83(1992)
Orthometric Heights are shown in NAVD 88
State Plane coordinates are Colorado Central Zone (502)
Units are in US Survey Feet (sft)
Project (Ground) coordinates are Modified State Plane
Combined Project factor = 0.999675446
Combined Project Factor Reciprocal = 1.000324659
Truncation applied to State Plane Coordinates:
Northing Reduction 1,000,000 sft
Easting Reduction 3,000,000 sft



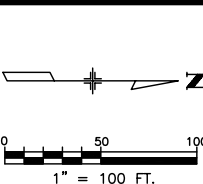
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Sheet Revisions

Rev.	Description

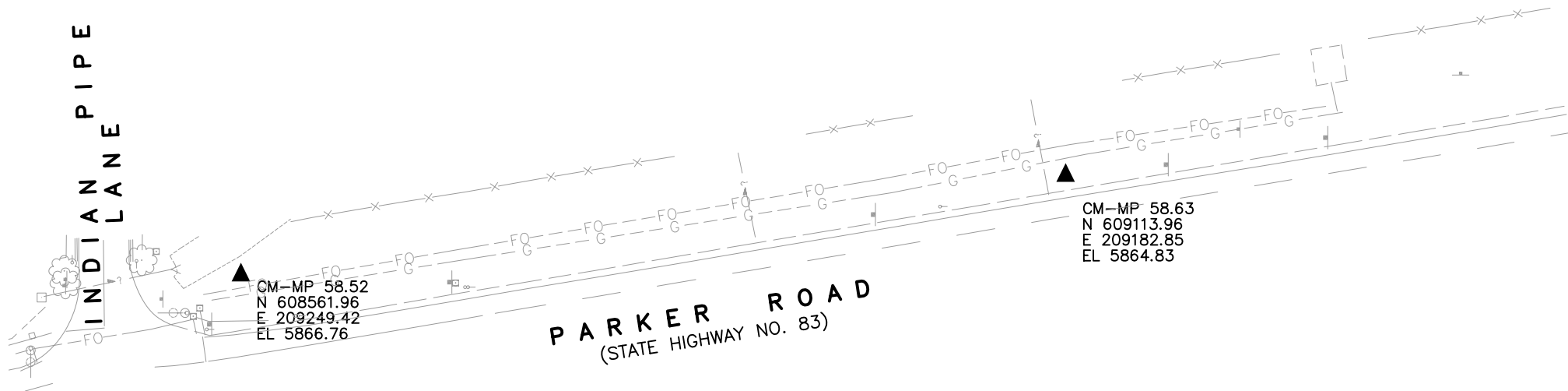
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PLAN SHEET

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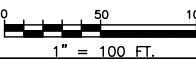

CM-MP 58.52
N 608561.96
E 209249.42
EL 5866.76

CM-MP 58.63
N 609113.96
E 209182.85
EL 5864.83

▲ CM-MP 58.75
N 609756.90
E 209020.14
EL 5869.80

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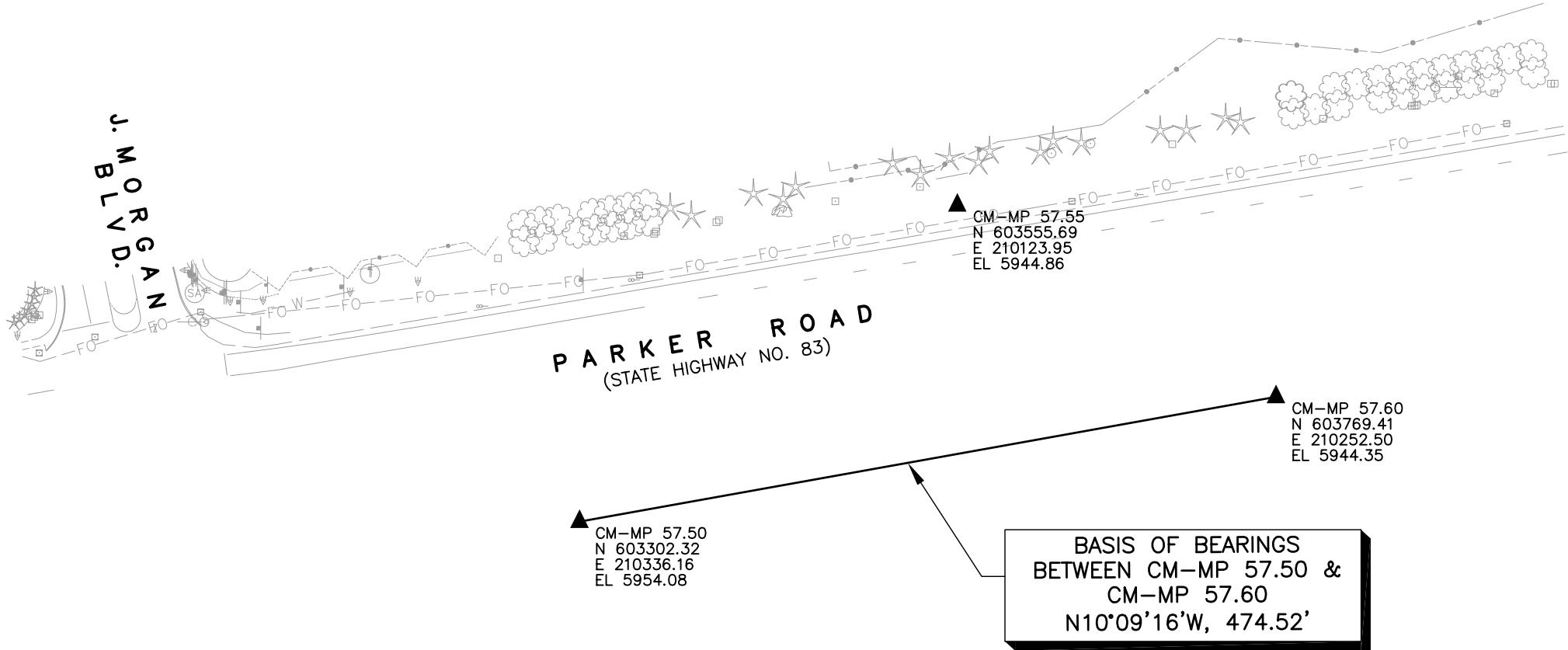
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15544	October 11, 2006	4 of 6	3C	6



LEGEND

▲ INDICATES CDOT TYPE 2 SURVEY CONTROL MONUMENT

COLORADO DEPARTMENT OF TRANSPORTATION

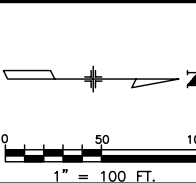


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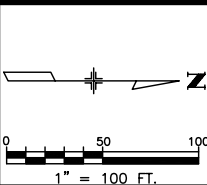


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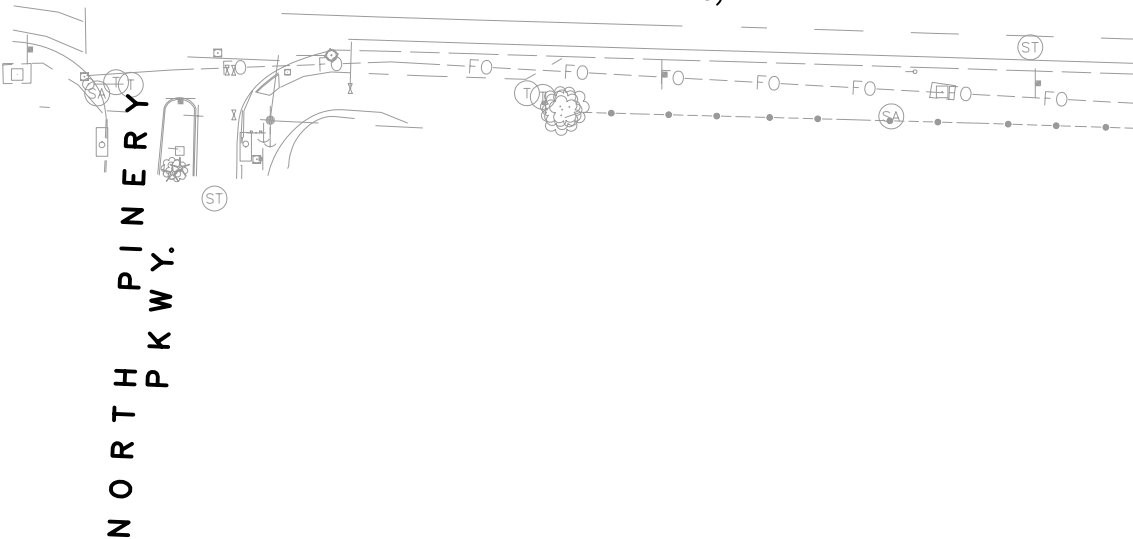
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▲ CM-MP 55.25
N 591624.87
E 210308.66
EL 6005.00

▲ CM-MP 55.45
N 592705.62
E 210142.54
EL 6000.63

P A R K E R R O A D
(STATE HIGHWAY NO. 83)



LEGEND

▲ INDICATES CDOT TYPE 2 SURVEY CONTROL MONUMENT