

Colorado Department of Transportation



18500 East Colfax Avenue  
Aurora, CO 80011  
Phone: 303-365-7409 FAX: 303-365-7350

Region 1

David A. Stewart

Sheet Revisions

Date	Description	Initials
mm/dd/yy	XXXXXXXX	XXX

Interstate 70 MP 195- MP 196.4  
Section 20  
Township 6 South, Range 78 West of  
the 6th Principle Meridian, County of Summit  
State of Colorado

Project Control Diagram

Plan Sheet

Project Number: ESI 0702-283			
Project Location: I-70 at MP 195			
Copper Mountain Interchange			
Project Code:	Last Mod. Date	Subset	Sheet No.
16869	3/02/09	3.01 of 3.06	3.01

Basis of Bearings: Bearings used in the calculations of coordinates are based on a grid bearing of N16°26'38"W from CPPR and CM-MP 196.0. Both monuments are CDDT Type II, marked appropriately for their milepost location and control position. The survey data was obtained from a Global Positioning System (GPS) survey base on the Colorado High Accuracy Reference Network (CHARN).

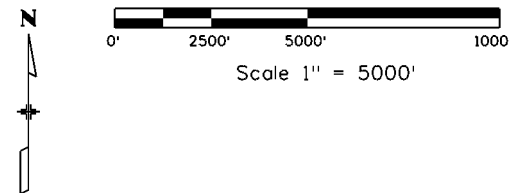
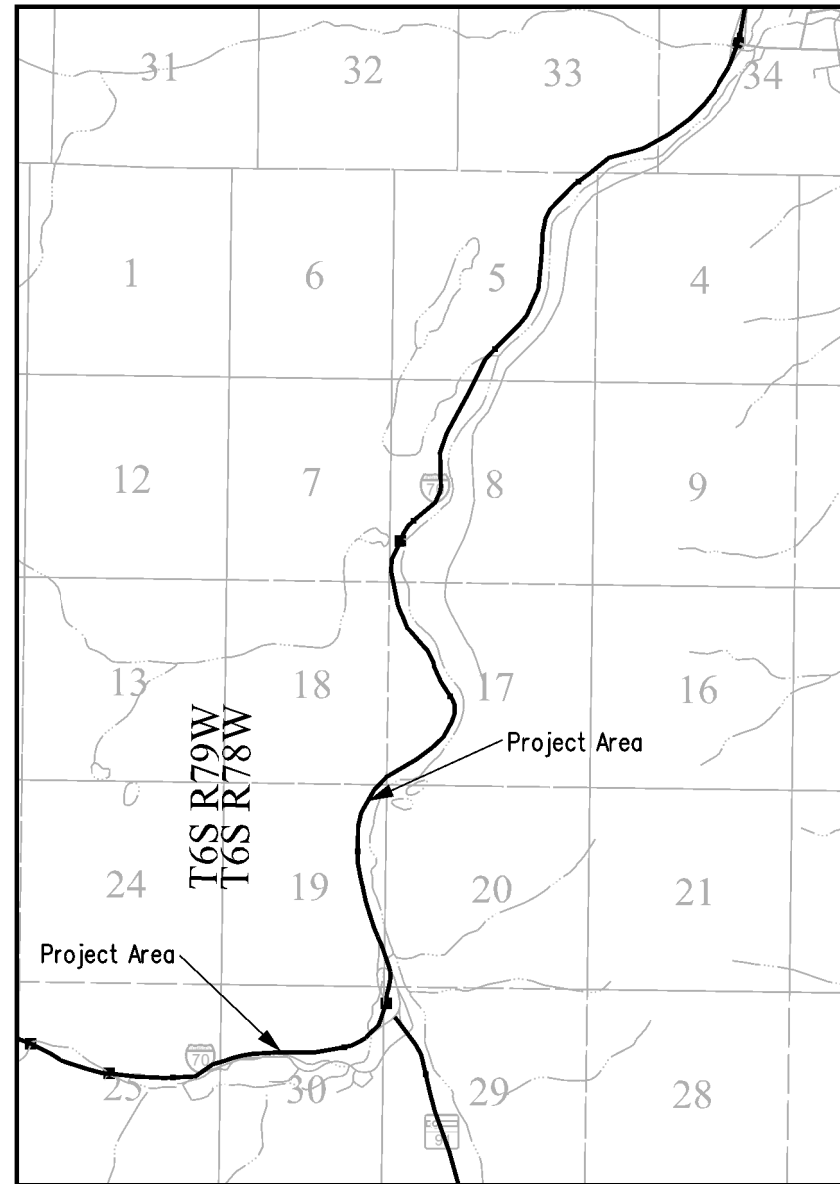
Basis of Elevations: Project elevations are based on Bench Mark R 488, PID: DF5562, a standard bench mark disk set on top of a concrete bridge, with a NAVD elevation of 9680.55ft. R 488 is a first order benchmark.

COORDINATE DATUM: Project coordinates are modified Colorado State Plane Central Zone NAD '83/(07) coordinates. The combined elevation/scale factor used to modify the coordinates from state plane to project coordinates was 1.00050255043. The CHARN is based on the NAD '83(07) datum.  
Project Coordinates Northing = State Plane Coordinate Northing \* 1.00050255043 \* (3937/1200).  
Project Coordinates Easting = State Plane Coordinate Easting \* 1.00050255043 \* (3937/1200).

Project Narrative: The survey for this Project Control Diagram was done to verify the coordinates values and elevations on the existing control points. The geodetic data previously surveyed by Tri-Consultants for CDDT in 1990 was held and have been reported hereon. Horizontal coordinates values were verified using GPS RTK. Vertical values were verified by differential leveling from project bench mark R 488. The positions of CM Heid and Q 488 were verified using only GPS RTK.

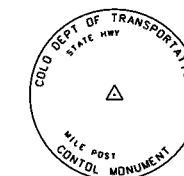
MONUMENTATION REQUIREMENTS:

- 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 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 within 2 (two) feet and facing all Type 1 and Type 2 monuments, or as approved 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 overnight.
- 4). 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.



General Notes:

1. This Project Control Diagram is not a boundary survey of the adjoining property and is prepared for the Colorado Department of Transportation purposes only.
2. Title policy, title commitment, and title research are not part of this survey, therefore easements, rights, and restrictions of record were not researched and are not shown on this diagram. The verification of the physical evidence with relation to easements, rights of ways, property boundaries, and restrictions, as described in the instruments of record, were not included in this control survey.
2. Refer to the M-629-1 Survey Monuments of the Standard Plans dated July, 2006, found in The Colorado Department of Transportation, M & S Standards for survey monument descriptions.
3. This plan set is subject to change and the information contained on the attached drawing is not valid unless this copy bears an original signature of the Professional Land Surveyor hereon named.



Typical Control Monument Cap  
Not to Scale



CM-MP - Control Point Monuments set by CDDT. They are CDDT Type 2 monuments, a 3/4" dia. aluminum control monument cap (as shown) on a 3' x 3/4" dia. aluminum security rod on a 3' x 3/4" dia. smooth aluminum rod.

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 certification shown hereon.

SURVEYOR STATEMENT (PROJECT CONTROL DIAGRAM)

I, Justin K Stadler, a professional land surveyor licensed in the State of Colorado, do hereby state to the Colorado Department of Transportation this Project 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.

PLS No. 38097



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## Geodetic Summary

Point Name	Geodetic Coordinates NAD-83(92)		Ellipsoid Height (m)	Convergence	Scale	Colorado Central 0502		NAVD 88 Elevation (m)	Description
	Latitude	Longitude				Northing (m)	Easting (m)		
CM-MP 196.0	39°31'00.40255"N	106°08'47.44771"W	2936.010	-0°24'27.89696"	0.999962180	491876.315	858808.958	2948.544	Found CDOT type II
CM-MP 196.4	39°31'19.81088"N	106°08'38.87391"W	2933.636	-0°24'22.48955"	0.999962870	492473.383	859017.990	2946.170	Found CDOT type II
CPPR	39°30'25.12607"N	106°08'33.65394"W	2944.824	-0°24'19.19737"	0.999960960	490786.107	859130.731	2957.355	Found CDOT type II
HEID	39°30'06.31578"N	106°08'25.72692"W	2951.212	-0°24'14.19789"	0.999960320	490204.692	859316.007	2963.744	Found 3/4" metal rod
Q448	39°30'09.87897"N	106°09'10.47344"W	2956.268	-0°24'42.41905"	0.999960440	490322.185	858247.782	2968.785	Found 3.5" Brass monument
R448	39°30'36.41211"N	106°08'30.93026"W	2938.092	-0°24'17.47958"	0.999961350	491133.690	859198.256	2950.638	Found 3.5" Brass monument

## Project Coordinates

Point Name	Project Coordinates		NAVD 88 Elevation (ft)	Description
	Northing (ft)	Easting (ft)		
CM-MP 196.0	1614575.21	2819025.05	9673.68	Found CDOT type II
CM-MP 196.4	1616535.07	2819711.19	9665.89	Found CDOT type II
CPPR	1610996.62	2820081.26	9702.59	Found CDOT type II
HEID	1609088.14	2820689.43	9723.55 *	Found 3/4" metal rod
Q448	1609473.80	2817183.00	9740.09 *	Found 3.5" Brass monument
R448	1612137.56	2820302.91	9680.55	Found 3.5" Brass monument

\* = Denotes elevations verified by GPS RTK methods only.

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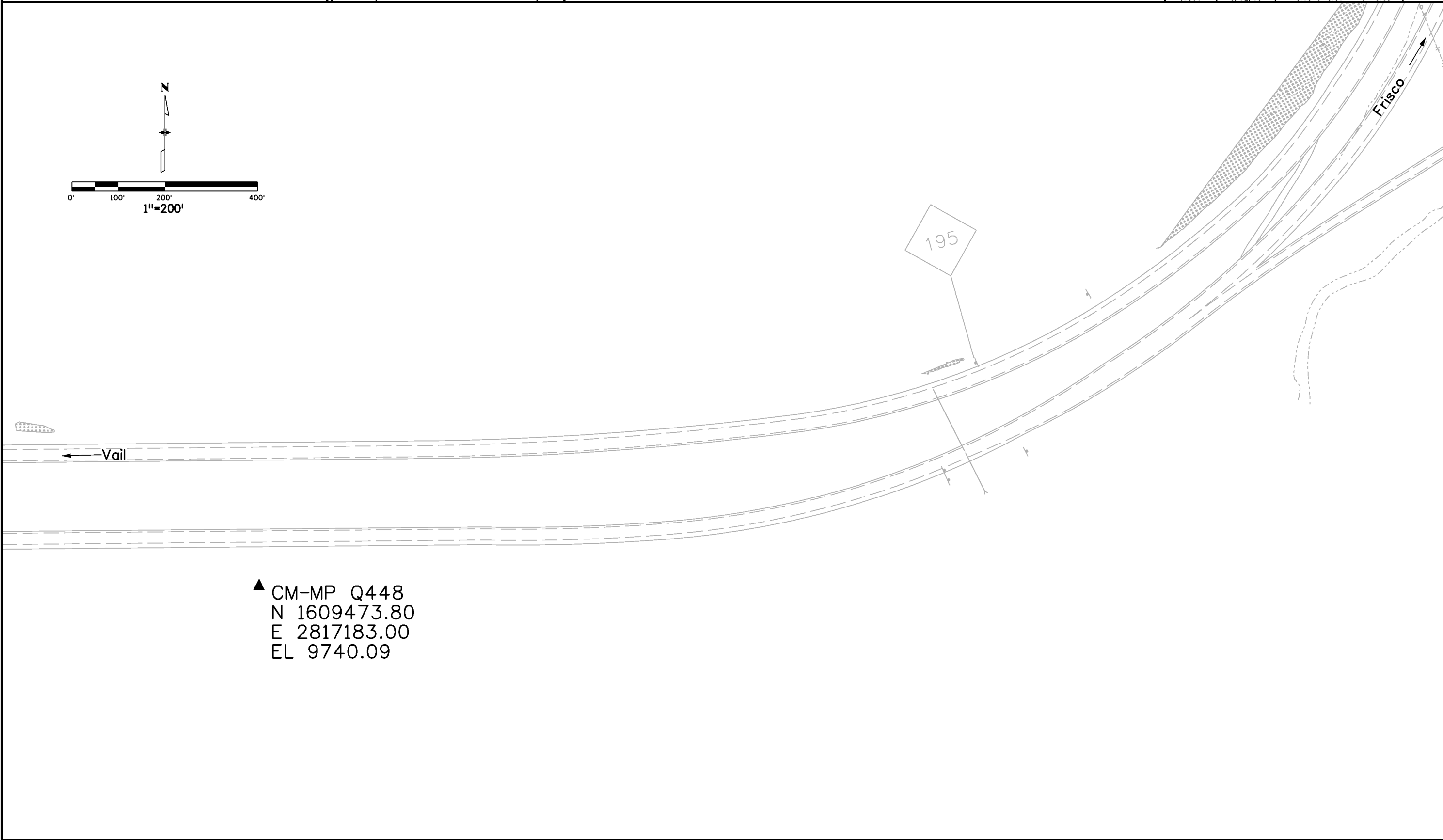
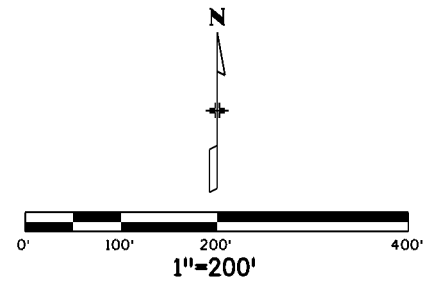
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Copper Mountain Interchange

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16869	3/02/09	3.03 of 3.06	3.03



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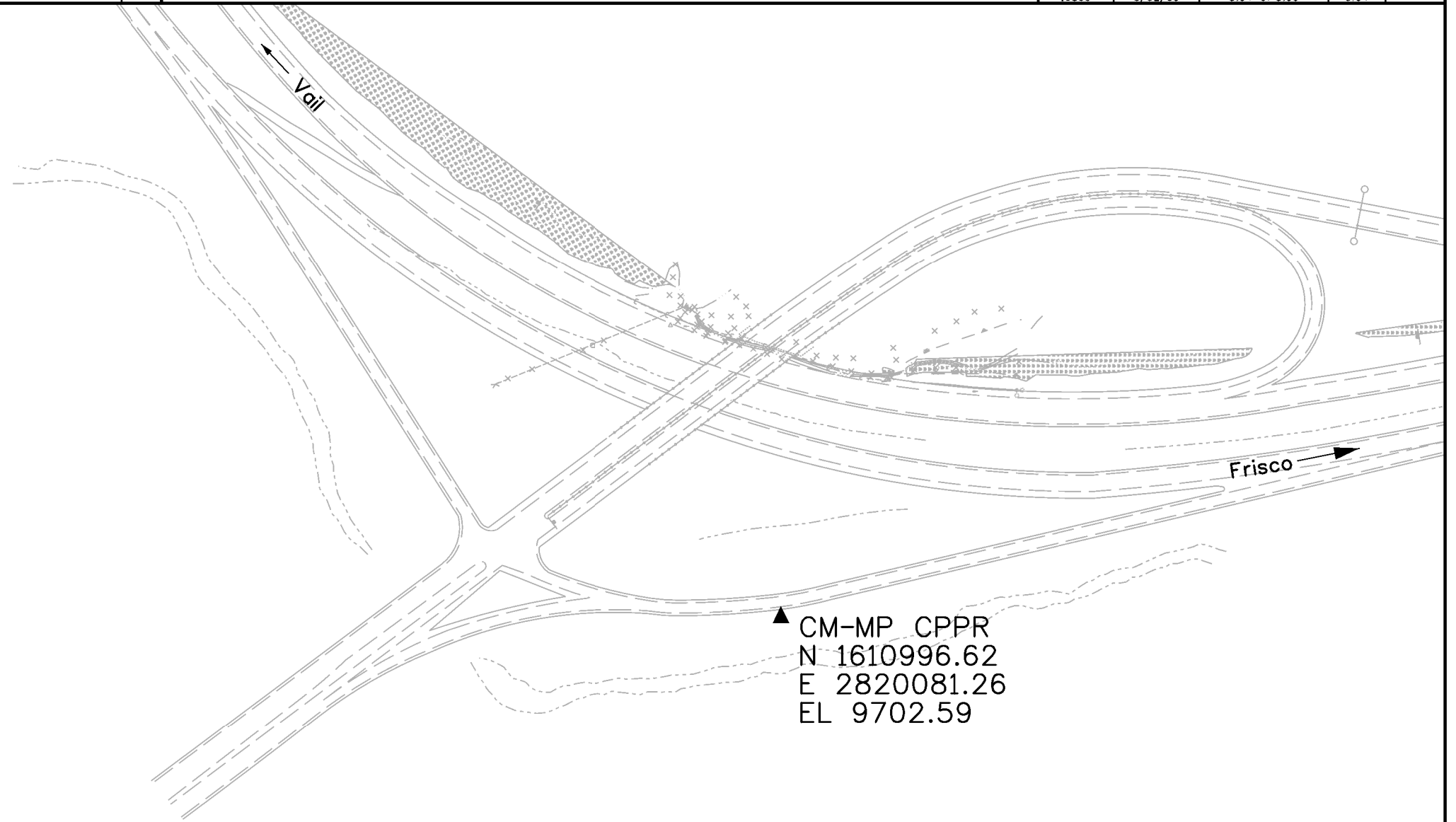
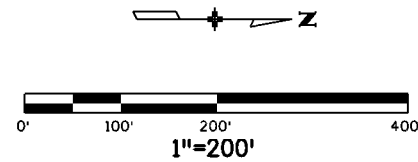
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16869	3/02/09	3.04 of 3.06	3.04



▲ CM-MP HEID  
N 1609088.14  
E 2820689.43  
EL 9723.55

Leadville

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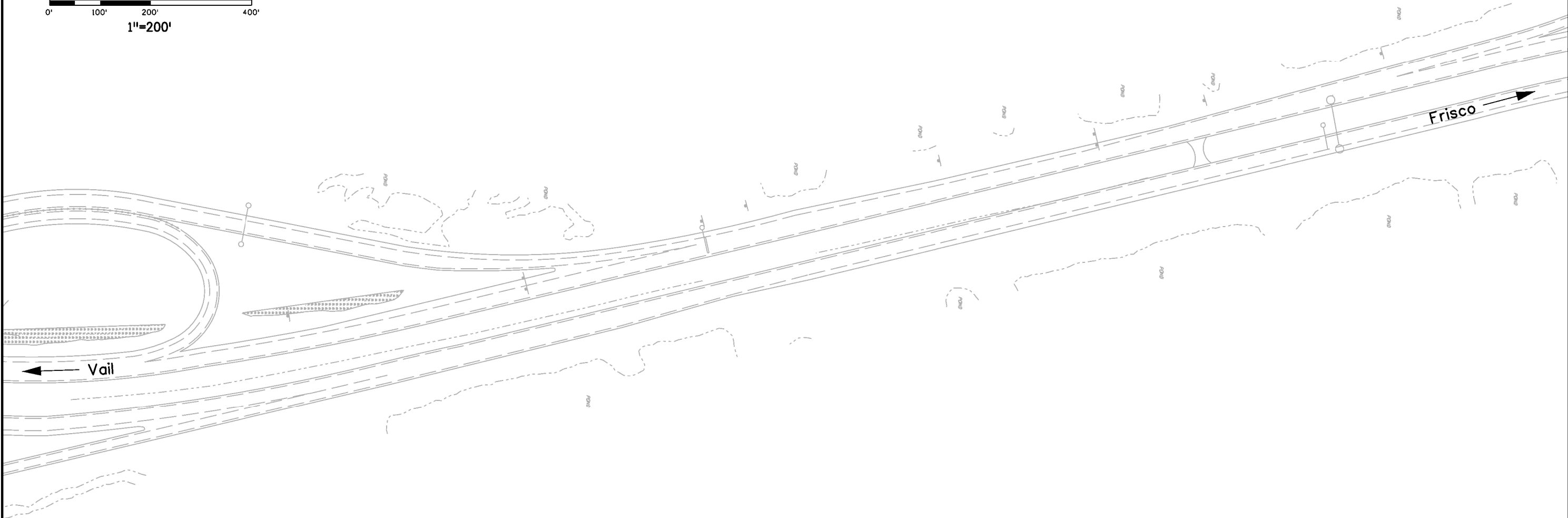
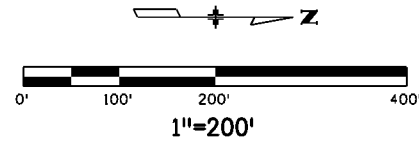
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▲ CM-MP R 448  
 N 1612137.56  
 E 2820302.91  
 EL 9680.55

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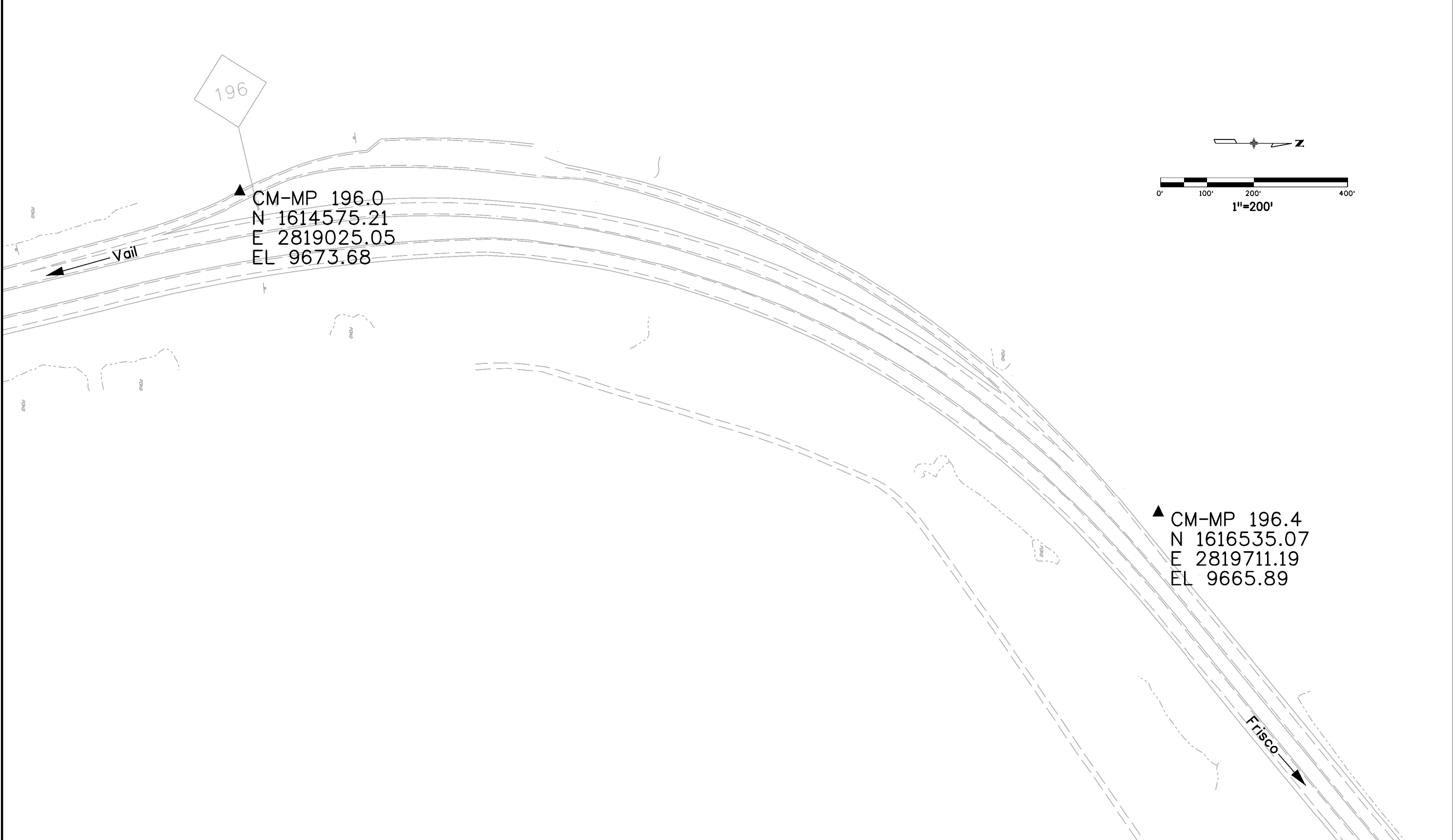
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