

IM 0702-257
15195
I-70 EJMT Resurfacing

DATE: February 09, 2006

TO: All Holders of Plans for Project No. IM 0702-257

~~AMENDMENT~~ SET

SUBJECT: Revision No. 1 (to be acknowledged in all bid proposals)

Bid Proposal:

Prospective Bidders not using EBS must submit their bids on the revised schedule dated February 09, 2006 or the bid will be rejected. For EBS use the Amendment posted on the CDOT web site.

Project Special Provisions:

Page 1a – Revised Index
Page 3a – Changed Minimum Wage Mod 12
Page 48a – Edited Construction Requirements
Page 74a – Edited Special Construction Requirement 1.

Standard Special Provisions:

Revised US Department of Labor General Decision Numbers CO030014 & CO030015, MOD 12, Highway Construction, Statewide (February 3, 2006)

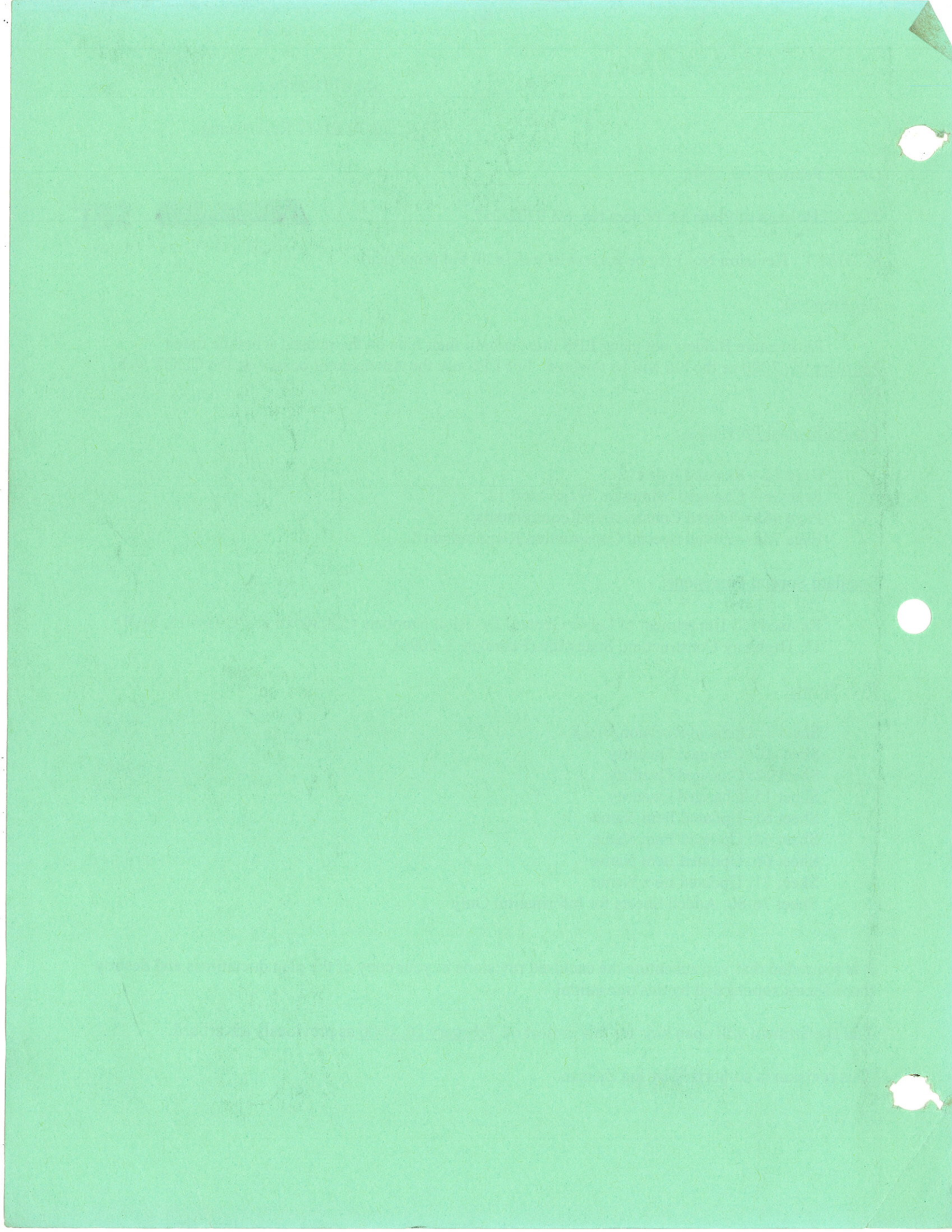
Plan Sheets:

Sheet 1: Updated Revision Block
Sheet 10: Changed Quantity
Sheet 12: Changed Quantity
Sheet 15: Changed Quantity
Sheet 61: Updated Item Name
Sheet 64: Updated Item Name
Sheet 66: Updated Item Name
Sheet 71: Updated Item Name
Sheet 76-80: Added Sheets for Information Only

It is requested that you substitute the enclosed revisions in your copy of the plan documents and destroy those sheets superseded by this transmittal.

The Department will open bids for this project on February 16, 2006 as previously advertised.

This revision is authorized by Ina Zisman.



**COLORADO
DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISIONS
COLORADO PROJECT NO. IM 0702-257
I-70 EJMT RESURFACING**

The 2005 Standard Specifications for Road and Bridge Construction controls construction of this project. The following special provisions supplement or modify the Standard Specifications and take precedence over the Standard Specifications and plans.

PROJECT SPECIAL PROVISIONS

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**COLORADO
DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISIONS
COLORADO PROJECT NO. IM 0702-257
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PROJECT SPECIAL PROVISIONS

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COLORADO
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Revision of Section 107 – Responsibility for Damage Claims, Insurance Types and Coverage Limits	(August 1, 2005)	2
Revision of Section 109 – Fuel Cost Adjustments	(Nov. 14, 2005)	1
Revision of Section 109 – Measurement of Quantities	(August 1, 2005)	1
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Revision of Section 401 – Plant Mix Pavements	(August 1, 2005)	1
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Revision of Section 620 – Field Laboratories with Forced Air Convection Oven	(August 1, 2005)	2
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NOTICE TO BIDDERS

The proposal guaranty shall be a certified check, cashier's check, or bid bond in the amount of 5 percent of the Contractor's total bid.

Pursuant to subsections 102.04 and 102.05, each bidder submitting a proposal for this project shall schedule and attend a mandatory pre-bid on-site job showing with the Resident Engineer. After this meeting, the prospective bidder's name will be added to the Attendees List. Only bids submitted by prequalified bidders whose name appears on the Attendees List will be accepted for this project. Prospective bidders shall contact one of the following listed authorized Department representatives a minimum 24 hours in advance of the time they wish to visit the project site.

Program Engineer -	Brian Pinkerton, P.E. Office Phone:	(303) 757-9074
Resident Engineer -	Inessa Zisman, P.E. Office Phone: Cell Phone:	(303) 512-5750 (303) 884-8827
Project Engineer -	As determined by the Resident Engineer Office Phone:	

The above referenced individuals are the only representatives of the Department with authority to provide any information, clarification, or interpretation regarding the plans, specifications, and any other contract documents or requirements.

**REVISION OF SECTION 604
MANHOLE SPECIAL**

Section 604.01 of the Standard Specifications is hereby revised for this project as follows:

Subsection 604.04 shall include the following:

Manhole special shall be water tight constructed in accordance with Standard Plan M-606-20 and installed as shown in the plans. All 3-inch pipe, thermal insulation, valves, fittings and Wye strainer shall be installed as shown in the Contract. No disturbance will be allowed to the existing Straight Creek filtration ponds and perforated collection pipe. Prior to construction and ordering new material, the Contractor shall field verify the location and depth of the existing 3-inch pipe and shall field verify the proposed manhole depth.

Section 604.06 shall include the following:

Payment will be made under:

Pay Item	Pay Unit
Manhole Special	Each

Payment for Manhole Special shall be full compensation for structure excavation, backfill, all necessary labor, equipment and materials, including pipe, valves, Wye strainer, fittings and thermal insulation.

**REVISION OF SECTION 606
TENSIONED CABLE BARRIER**

Section 606 of the Standard Specifications is hereby revised to include the following:

DESCRIPTION

This work consists of furnishing and installing tensioned cable barrier at locations as shown on the plans.

MATERIALS

Tensioned cable barrier and end anchorage shall meet NCHRP 350 TL-4 crash testing requirements, and shall be one of the following:

- (1) Brifen Wire Rope Safety Fence as supplied by Midstate Traffic Control, Inc., 9215 S. Shields Blvd., Oklahoma City, OK 73160, Phone: (405) 799-0313, Fax: (405) 799-3808.
- (2) Cable Safety System (CASS) as supplied by Trinity Industries, Inc., 2525 Stemmons Freeway, Dallas, TX 76707, Phone: (214) 631-4420, Fax: (214) 589-8501.

If the Brifen system is selected, only the 4-strand cable barrier will be permitted.

The cable barrier system shall be installed using a socketed post method.

CONSTRUCTION REQUIREMENTS

Tensioned cable barrier shall be installed in accordance with the details shown in the plans and in accordance with manufacturer's recommendations. A qualified manufacturer's representative shall be on-site to ensure proper installation.

Unless otherwise approved, post spacing and post depths shall be as shown in the plans.

METHOD OF MEASUREMENT

Tensioned cable barrier will be measured by the actual number of linear feet that is installed and accepted, excluding end anchorage.

End anchorage for cable barrier will be measured by the actual number of anchorages that are installed and accepted.

BASIS OF PAYMENT

Payment will be under:

Pay Item

Pay Unit

Tensioned Cable Barrier	Linear Foot
End Anchorage (Tensioned Cable Barrier)	Each

Payment will be full compensation for all labor, materials and equipment required to complete the work, including screws, rings, threaded terminals, and the removal and replacement of embankment or pavement.

Concrete foundations and deflection posts will not be measured and paid for separately, but shall be included in the work.

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**REVISION OF SECTION 716
WATERLINE MATERIALS**

and also for its removal from the main valve while the main valve is under pressure. The pilot control system shall be cast bronzed ASTM B62 with 303 stainless steel trim. The needle valve shall be all bronze and included with the main valve to control the speed of piston travel.

In-Line Strainer

The in-line strainer shall be Keckley, Style A-125, 125# flange wye strainer or approved equal. The body shall be cast iron construction with a solid end cover plate. The strainer basket shall be a perforated 0.094 inch diameter stainless steel screen with 3/32 inch openings. The cover plate shall be furnished with a 1 inch diameter threader hole and plug to allow for draining of the strainer.

All fittings shall be carefully examined for cracks and other defects immediately before installation. Defective fittings shall be removed from the job site within 24 hours of notification by the Engineer.

SPECIAL CONSTRUCTION REQUIREMENTS

1. The work for the water line work, manhole and etc. from the water intake pond to the reservoir will be started after low flow in Straight Creek and the ground water subsides. It is anticipated that the low flow will be after August 20, 2006. The waterline work inside the Eisenhower Tunnel must be completed by June 15, 2006.
2. It is anticipated that night work will be required. Additional requirements to work at night will not be paid for separately but included in the work.
3. Any change or damage done to the roadway will be the responsibility of the Contractor to repair at no cost to the project.
4. The Contractor shall provide the Engineer with documentation regarding off-site waste disposal areas for the excess excavated material and all applicable permits as required.
5. The Contractor will not be allowed to disturb areas beyond the proposed cut and fill slopes, unless approved by the Engineer.
6. The Contractor shall submit a detailed, comprehensive, proposed Construction Staging Plan to the Engineer for acceptance two weeks prior to beginning work.
7. Any temporary shoring, excavation supports, or retaining walls required to construct the project are the Contractor's responsibility to identify, locate, design, construct, and maintain, at no additional cost to CDOT. The Contractor is responsible for reviewing the plans, determining the need for these structures, and including the cost for them in their original bid.
8. Access Pits shall be closed and backfilled or covered with a suitable cover capable of handling traffic when not in use. Method of cover shall be submitted to the engineer for approval 1 month before use.
9. The Contractor shall construct all longitudinal pavement joints so that the top pavement joint is offset six inches from the centerline of roadway.
10. Contractor shall maintain drainage, roadway ditches, and cross culverts at all times.
11. The Contractor shall abide by the Tunnel Safety Rules. These rules are available by request at the Resident Engineer's office.
12. No storage will be allowed within the tunnel facilities. Two staging areas will be available to the Contractor as directed by the Engineer:
 - A. West Portal staging area (30'x180') in the South Parking Lot.
 - B. East Portal staging area (50'x180') in the North Parking Lot.
13. The staging areas shall be defined with eight-foot high chain link fence to be provided by the Contractor. Cost for fence shall not be a separate pay item, but included in the work. Locking gates shall be provided for access. Temporary lighting shall be provided and guaranteed by the Contractor. Staging areas shall be cleaned and fencing shall be removed at the West Portal area for the winter shutdown.

Decision Nos. CO030014 and CO030015 dated June 13, 2003 supersedes Decision Nos. CO020014 and CO020015 dated March 12, 2002.	Modifications		ID	
	MOD 1	08-15-03	Pages 1, 5	1
When work within a project is located in two or more counties, and the minimum wages and fringe benefits are different for one or more job classifications, the higher minimum wages and fringe benefits shall apply throughout the project.	MOD 2	09-19-03	Pages 1,2,5,6	2
	MOD 3	01-16-04	Pages 1, 5	3
	MOD 4	03-05-04	Pages 1, 5	4
	MOD 5	05-14-04	Pages 1, 5	5
	MOD 6	06-18-04	Pages 1, 2, 5, 6	6
	MOD 7	08-20-04	Pages 1, 4, 5	7
	MOD 8	09-17-04	Pages 1, 5	8
	MOD 9	03-04-05	Pages 1, 5	9
	MOD 10	04-04-05	Pages 1, 5	10
	MOD 11	05-06-05	Pages 1, 2, 5, 6	11
	MOD 12	02-03-06	Pages 1, 5	12

General Decision No. CO030014 applies to the following counties: Adams, Arapahoe, Boulder, Denver, Douglas, El Paso, Jefferson, Larimer, Mesa, Pueblo, and Weld counties.

General Decision No. CO030014

The wage and fringe benefits listed below reflect collectively bargained rates.

Code	Classification	Basic Hourly Rate	Fringe Benefits	Last Mod
	ELECTRICIANS: (Excluding traffic signal installation)			
1200	Electrical work \$150,000 or less (Pueblo county)	21.64	8.85 + 3%	12
1201	Electrical work over \$150,000 (Pueblo county)	25.29	8.85 + 3%	12
1202	Electricians (Adams, Arapahoe, Boulder, Denver, Douglas, Jefferson, Larimer, and Weld counties)	28.91	10.19	10
1203	Electricians (El Paso county)	24.54	11.20 + 3%	3
1204	Electricians (Mesa county)	18.40	7.20	4
1205	Traffic Signal Installer (Zone 1)	22.91	1.75 + 13%	7
1206	Traffic Signal Installer (Zone 2)	25.91	1.75 + 13%	7
	<u>Traffic Installer Zone Definitions</u> Zone 1 – Within a 35 mile radius measured from the addresses of the following cities: Colorado Springs - Nevada & Bijou Denver - Ellsworth Avenue & Broadway Ft. Collins - Prospect & College Grand Junction - 12th & North Avenue Pueblo - I-25 & Highway 50 Zone 2 - All work outside these areas.			
	POWER EQUIPMENT OPERATORS:			
1300	Asphalt Screed	20.47	7.22	11
1301	Bituminous or Asphalt Spreader/Laydown Machine	20.47	7.22	11
1302	Bulldozer	20.47	7.22	11
	Crane:			
1305	50 tons and under	20.62	7.22	11
1306	51 to 90 tons	20.77	7.22	11
1307	91 to 140 tons	20.92	7.22	11
1308	141 tons and over	21.68	7.22	11

General Decision No. CO030014				
The wage and fringe benefits listed below reflect collectively bargained rates.				
Code	Classification	Basic Hourly Rate	Fringe Benefits	Last Mod
	POWER EQUIPMENT OPERATORS (cont.):			
	Drill Operator:			
1309	William MF/Watson 2500 only	20.77	7.22	11
	Grader/Blade:			
1310	Rough	20.47	7.22	11
1311	Finish	20.77	7.22	11
	Loader:		7.22	11
1312	Barber Green, etc., 6 cubic yards and under	20.47	7.22	11
1313	Over 6 cubic yards	20.62	7.22	11
	Mechanic and/or Welder (Includes heavy duty and combination mechanic and welder):		7.22	11
1314	Mechanic and/or Welder	20.62	7.22	11
1315	Mechanic/Welder (Heavy duty)	20.77	7.22	11
1316	Oiler	19.77	7.22	11
	Power Broom:		7.22	11
1317	Under 70 HP	19.77	7.22	11
1318	70 HP and over	20.47	7.22	11
	Roller:		7.22	11
1319	Self-propelled, rubber tires under 5 tons	20.12	7.22	11
1320	Self-propelled, all types over 5 tons	20.47	7.22	11
	Scraper:		7.22	11
1321	Single bowl under 40 cubic yards	20.62	7.22	11
1322	Single bowl including pups 40 cubic yards and tandem bowls and over	20.77	7.22	11
1323	Trackhoe	20.62	7.22	11
1324	Water Truck	20.62	7.22	11
	Laborers:			
1400	Asphalt Laborer/Raker, Common Laborer, and Concrete Laborer/Mason Tender	16.29	4.25	

General Decision No. CO030014				
The wage and fringe benefits listed below do not reflect collectively bargained rates.				
Code	Classification	Basic Hourly Rate	Fringe Benefits	Last Mod
1500	Bricklayers	15.55	2.85	
	Carpenters:			
1600	Form Work (Excluding curbs and gutters)	16.54	3.90	
1601	All other work	16.61	3.88	
1700	Concrete Finishers/Cement Masons	16.05	3.00	
	Ironworkers:			
1900	Reinforcing	16.69	5.45	
1901	Bridge Rail (Excludes guardrail)	18.22	6.01	
	Laborers:			
2001	Fence Erector (Includes fencing on bridges)	13.02	3.20	
2002	Form Work (Curbs and gutters only)	11.85	3.45	
2003	Guardrail Erector (Excludes bridgerail)	12.89	3.20	
2004	Landscape and Irrigation Laborer	12.26	3.16	
2005	Pipelayer	13.55	2.41	
2006	Striping Laborer (Pre-form layout and removal of pavement markings)	12.62	3.21	
2007	Traffic Director/Flagger	9.55	3.05	
2008	Traffic and Sign Laborer (Sets up barricades and cones, and installs permanent signs)	12.43	3.22	
	PAINTERS			
2100	Brush	16.94	2.10	
2101	Spray	16.99	2.87	
	POWER EQUIPMENT OPERATORS:			
2200	Backhoes	16.54	4.24	
2201	Bobcat/Skid Loader	15.37	4.28	
2202	Concrete Pump Operator	16.52	4.30	

General Decision No. CO030014				
The wage and fringe benefits listed below do not reflect collectively bargained rates.				
Code	Classification	Basic Hourly Rate	Fringe Benefits	Last Mod
POWER EQUIPMENT OPERATORS (cont.):				
Drill Operator:				
2203	All except William MF/Watson 2500	16.74	2.66	
2204	Forklift	15.91	4.09	
2205	Rotomill Operator	16.22	4.41	
2206	Post Driver/Punch Machine	16.07	4.41	
2207	Tractor	13.13	2.95	
2208	Compactor	16.70	3.30	
2301	Groundman (Traffic signalization)	11.44	3.25	
Truck Drivers:				
2400	Floats-Semi Truck	14.86	3.08	
2401	Multipurpose Truck – Specialty & Hoisting	14.35	3.49	
2402	Truck Mechanic	16.91	3.01	
2403	Pickup Truck (Includes Pilot and Sign/Barricade Truck)	13.93	3.68	
2405	Single Axle Truck	14.24	3.77	
2406	Distributor Truck	15.80	5.27	
2407	Dump Truck:			
2408	14 cubic yards and under	14.93	5.27	
2409	15 to 29 cubic yards	15.27	5.27	
2410	30 to 79 cubic yards	15.80	5.27	
2411	80 cubic yards and over	16.45	5.27	
2412	Low Boy Truck	17.25	5.27	

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses [29 CFR 5.5(a)(1)(ii)].

END OF GENERAL DECISION NUMBER CO030014.

General Decision No. CO030015 applies to the following counties: Alamosa, Archuleta, Baca, Bent, Chaffee, Cheyenne, Clear Creek, Conejos, Costilla, Crowley, Custer, Delta, Dolores, Eagle, Elbert, Fremont, Garfield, Gilpin, Grand, Gunnison, Hinsdale, Huerfano, Jackson, Kiowa, Kit Carson, La Plata, Lake, Las Animas, Lincoln, Logan, Mineral, Moffat, Montezuma, Montrose, Morgan, Otero, Ouray, Park, Phillips, Pitkin, Prowers, Rio Blanco, Rio Grande, Routt, Saguache, San Juan, San Miguel, Sedgwick, Summit, Teller, Washington, and Yuma counties.

When work within a project is located in two or more counties, and the minimum wages and fringe benefits are different for one or more job classifications, the higher minimum wages and fringe benefits shall apply throughout the project.

General Decision No. CO030015

The wage and fringe benefits listed below reflect collectively bargained rates.

Code	Classification	Basic Hourly Rate	Fringe Benefits	Last Mod
	ELECTRICIANS: (Including traffic signal installation)			
3200	Electrical work \$150,000 or less (Alamosa, Archuleta, Baca, Bent, Chaffee, Conejos, Costilla, Crowley, Custer, Fremont, Huerfano, Kiowa, Las Animas, Mineral, Otero, Prowers, Rio Grande, and Saguache counties)	21.64	8.85 + 3%	12
3201	Electrical work over \$150,000 (Alamosa, Archuleta, Baca, Bent, Chaffee, Conejos, Costilla, Crowley, Custer, Fremont, Huerfano, Kiowa, Las Animas, Mineral, Otero, Prowers, Rio Grande, and Saguache counties)	25.29	8.85 + 3%	12
3202	Electricians (Clear Creek, Eagle, Gilpin, Grand, Jackson, Lake, Logan, Morgan, Phillips, Sedgwick, Summit, Washington, and Yuma counties)	28.91	10.19	10
3203	Electricians (Cheyenne, Elbert, Kit Carson, Lincoln, Park, and Teller counties)	24.54	11.20+ 3%	3
3204	Electricians (Dolores, Garfield, Gunnison, Hinsdale, La Plata, Moffat, Montezuma, Ouray, Pitkin, Rio Blanco, Routt, San Juan, and San Miguel counties)	25.75	7.32	5
3205	Electricians (Delta and Montrose counties)	18.40	7.20	4
3206	Traffic Signal Installer (Zone 1)	22.91	1.75 + 13%	7
3207	Traffic Signal Installer (Zone 2)	25.91	1.75 + 13%	7
	<u>Traffic Installer Zone Definitions</u> Zone 1 – Within a 35 mile radius measured from the addresses of the following cities: Colorado Springs - Nevada & Bijou Denver - Ellsworth Avenue & Broadway Ft. Collins - Prospect & College Grand Junction - 12th & North Avenue Pueblo - I-25 & Highway 50 Zone 2 - All work outside these areas.			

General Decision No. CO030015

The wage and fringe benefits listed below reflect collectively bargained rates.

Code	Classification	Basic Hourly Rate	Fringe Benefits	Last Mod
POWER EQUIPMENT OPERATORS:				
3300	Bituminous or Asphalt Spreader/Laydown Machine	20.47	7.22	11
3301	Bulldozer	20.47	7.22	11
Crane:				
3302	50 tons and under	20.62	7.22	11
3303	51 to 90 tons	20.77	7.22	11
3304	91 to 140 tons	20.92	7.22	11
3305	141 tons and over	21.68	7.22	11
3306	Grade Checker	20.62	7.22	11
Loader:				
3307	Barber Green, etc., 6 cubic yards and under	20.47	7.22	11
3308	Over 6 cubic yards	20.62	7.22	11
Roller:				
3309	Self-propelled, rubber tires under 5 tons	20.12	7.22	11
3310	Self-propelled, all types over 5 tons	20.47	7.22	11
3311	Trackhoe	20.62	7.22	11
3312	Oiler	19.77	7.22	11
3313	Water Wagon	20.62	7.22	11

General Decision No. CO030015

The wage and fringe benefits listed below do not reflect collectively bargained rates.

Carpenters:				
3600	Form Building and Setting (Excluding curbs and gutters)	15.92	5.38	
3601	All other work	16.30	3.71	
3700	Concrete Finishers/Cement Masons	15.55	2.85	
3800	Groundman (Traffic signalization)	11.57	3.50	
Ironworkers:				
3900	Reinforcing	16.94	6.77	
3901	Bridge Rail (Excluding guardrail)	16.76	6.01	

General Decision No. CO030015

The wage and fringe benefits listed below do not reflect collectively bargained rates.

Code	Classification	Basic Hourly Rate	Fringe Benefits	Last Mod
Laborers:				
4000	Asphalt Laborer/Raker	12.40	2.92	
4001	Common	12.44	3.53	
4002	Concrete Laborer/Mason Tender	12.44	3.10	
4003	Striping-Paint Laborer (Pre-form layout and removal of pavement markings)	12.90	3.07	
4004	Traffic Director/Flagger	9.42	3.21	
4005	Traffic/Sign Laborer (Sets up barricades and cones, and installs permanent signs)	12.39	3.20	
4007	Guardrail (Excludes bridgerail)	12.78	3.31	
4008	Formwork (Curbs and gutters only)	12.92	4.54	
4009	Landscape Laborer (Including irrigation work)	12.21	3.16	
Painters:				
4100	Spray	17.54	3.52	
POWER EQUIPMENT OPERATORS:				
4200	Asphalt Plant	17.23	1.20	
4201	Asphalt Screed	16.21	3.76	
4202	Backhoe	16.42	4.42	
4203	Compactor	16.52	3.13	
4204	Grader/Blade	16.39	4.20	
4205	Mechanic and or Welder (Includes heavy duty and combination mechanic welder)	16.74	4.20	
4206	Post Driver/Punch Machine	16.07	4.41	
4207	Rotomill Operator	16.28	4.41	
4209	Scraper	17.62	3.16	

General Decision No. CO030015

The wage and fringe benefits listed below do not reflect collectively bargained rates.

Code	Classification	Basic Hourly Rate	Fringe Benefits	Last Mod
Truck Drivers:				
4400	Dump	14.15	3.83	
4401	Low Boy	15.07	4.56	
4402	Truck Mechanic	15.97	4.61	
4403	Multipurpose Truck-Specialty and Hoisting	14.60	3.49	
4404	Pickup (Including pilot car)	14.04	3.49	
4405	Water Truck	14.88	2.07	
4406	Distributor	15.80	5.27	

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses [29 CFR 5.5(a)(1)(ii)].

END OF GENERAL DECISION NUMBER CO030015.

U.S. DEPT. OF LABOR, DAVIS BACON MINIMUM WAGES, COLORADO
GENERAL DECISION NUMBERS CO030014 AND CO030015, HIGHWAY CONSTRUCTION
WAGE DETERMINATION APPEALS PROCESS

DATE 02-03-06

1.) Has there been an initial decision in the matter? This can be:

- ◆ an existing published wage determination
- ◆ a survey underlying a wage determination
- ◆ a Wage and Hour Division letter setting forth a position on a wage determination matter
- ◆ a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of construction wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, D.C. 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, D.C. 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, D.C. 20210

4.) All Decisions of the Administrative review board are final.

**COLORADO
 DEPARTMENT OF TRANSPORTATION
 SPECIAL PROVISIONS
 COLORADO PROJECT NO. IM 0702-257
 I-70 EJMT RESURFACING**



The 2005 Standard Specifications for Road and Bridge Construction controls construction of this project. The following special provisions supplement or modify the Standard Specifications and take precedence over the Standard Specifications and plans.

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**COLORADO
DEPARTMENT OF TRANSPORTATION
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DEPARTMENT OF TRANSPORTATION
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COLORADO PROJECT NO. IM 0702-257
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NOTICE TO BIDDERS

The proposal guaranty shall be a certified check, cashier's check, or bid bond in the amount of 5 percent of the Contractor's total bid.

Pursuant to subsections 102.04 and 102.05, each bidder submitting a proposal for this project shall schedule and attend a mandatory pre-bid on-site job showing with the Resident Engineer. After this meeting, the prospective bidder's name will be added to the Attendees List. Only bids submitted by prequalified bidders whose name appears on the Attendees List will be accepted for this project. Prospective bidders shall contact one of the following listed authorized Department representatives a minimum 24 hours in advance of the time they wish to visit the project site.

Program Engineer -	Brian Pinkerton, P.E. Office Phone:	(303) 757-9074
Resident Engineer -	Inessa Zisman, P.E. Office Phone: Cell Phone:	(303) 512-5750 (303) 884-8827
Project Engineer -	As determined by the Resident Engineer Office Phone:	

The above referenced individuals are the only representatives of the Department with authority to provide any information, clarification, or interpretation regarding the plans, specifications, and any other contract documents or requirements.

See Revised Sheet

COMMENCEMENT AND COMPLETION OF WORK

The Contractor shall select the date that work begins for this project. The Contractor shall notify the Engineer, in writing, at least 20 days before the proposed beginning date. The date that work begins shall be subject to the Resident Engineer's approval. A different date may be authorized in writing by the Chief Engineer in the "Notice to Proceed."

If the Contractor uses the available batch plant site at Loveland Basin, all equipment shall be removed, clean up accomplished, and the site restored to its original or better condition by October 10, 2006.

The Contractor shall complete all work by October 15, 2006 in accordance with the "Notice to Proceed."

Stockpiling of materials before the beginning date is subject to the Engineer's approval. If such approval is given, stockpiled material will be paid for in accordance with Sections 109 and 626.

Salient features to be shown on the Contractor's progress schedule are:

- (1) 8 inch Polyester Felt Liner Cured-in-Place Pipe
- (2) 3 inch Polyester Felt Liner
- (3) Eastbound Modify/Adjust Manhole
- (4) Westbound Modify/Adjust Manhole
- (5) Eastbound Rotomilling
- (6) Eastbound Concrete Removal
- (7) Eastbound Paving
- (8) Eastbound Loop Detectors
- (9) Westbound Rotomilling
- (10) Westbound Concrete Removal
- (11) Westbound Paving
- (12) Westbound Loop Detectors
- (13) Tensioned Cable Barrier
- (14) Surveying
- (15) Inlaid Pavement Markings

Section 108 of the Standard Specifications is hereby revised for this project as follows:

Subsection 108.03 shall include the following:

The Contractor's progress schedule shall be a Critical Path Method Schedule.

CONTRACT GOAL (COMBINED)

The Department has determined that Underutilized Disadvantaged Business Enterprises (UDBEs) will participate by contracting for a part of the work of this Contract. The contract goal for participation in this Contract by certified DBEs who have been determined to be underutilized has been established as follows:

UDBE* 3 Percent

The percentage will be calculated from proposals received for this project according to the following formula:

$$\text{Percentage} = 100 \times \frac{\text{**Dollar amount of work to be contracted to underutilized DBEs (UDBEs)}}{\text{Total dollar amount of the original Contract}}$$

* All DBEs will be considered to be UDBEs.

** Based on DBE contract unit prices rather than prime contract unit prices.

NOTE: Specific Good Faith Efforts required to meet the Contract Goal specified above are defined in the Standard Special Provisions. In addition, the Transportation Commission has determined an overall 12.69 percent annual goal for the participation of all DBEs.

ON THE JOB (OTJ) TRAINING CONTRACT GOAL

The Department has determined that On the Job Training shall be provided to trainees with the goal of developing full journey workers in the types of trade or classification involved. The contract goal for On the Job Trainees working in an approved training plan in this Contract has been established as follows:

Minimum number of total On the Job Training required 320 hours

**REVISION OF SECTION 102
PROJECT PLANS AND OTHER DATA**

Section 102 of the Standard Specifications is hereby revised for this project as follows:

Subsection 102.05 shall include the following:

After the proposals have been opened, the low responsible bidder may obtain from CDOT's Printing and Visual Communications Center, 4201 East Arkansas Avenue, Denver, Colorado 80222, at no cost: 10 sets of plans and special provisions; and if available for the project, one set of full-size cross sections, one set of full-size major structure plan sheets, and one set of computer output data. If the low bidder has not picked up the plans and other available data by 4:30 p.m. on the second Friday after bid opening, they will be sent to the Resident Engineer in charge of the project. Additional sets of plans and other available data may be purchased on a cash sale basis from CDOT's Visual Communication Center at current reproduction prices. Subcontractors and suppliers may obtain plans and other data from the successful bidder or they may purchase copies on a cash sale basis from the Visual Communication Center at current reproduction prices.

The following will be available at the Resident Engineer's office:

- Required Tunnel Safety Rules
- USFS special use permit and requirements for use of the available Batch Plant set up at Loveland Basin
- Daily temperature logs at the tunnel portal for 2004 and 2005 for the months of April through October.

**REVISION OF SECTION 104
LANE RENTAL FEE**

Section 104 of the Standard Specifications is hereby revised for this project as follows:

Subsection 104.04 shall include the following:

- (e) *Lane Rental Fee.* The Contractor will be assessed a lane rental fee for lane closures on I-70 during construction. This fee will be assessed for each hour or portion thereof that traffic on I-70 is limited to less than two through lanes in each direction outside of what is described in 104.04 (f).. The Engineer may waive the fee will for lane closures for additional work not covered in the scope of the project; or for any work stoppage or extenuating circumstances, excluding weather.

During the placement of the Tensioned Cable Barrier east of the tunnel, the Contractor may close one lane of traffic in each direction from April 15, 2006 through May 25, 2006 on the week days starting at 10:00 PM on Sundays through 10:00 AM on Fridays. Two lanes of traffic shall be maintained from 10:00 AM Friday through 10:00 PM on Sunday unless otherwise approved in writing. After May 29, 2006, the contractor shall be limited to closing one lane of traffic in the West Bound direction from 9:00 PM to 9:00 AM and in the East Bound direction from 11:00 PM to 9:00 AM Sunday night through Thursday night. Unless otherwise approved in writing, a lane rental fee will be assessed for each lane closure during all other hours.

For the water line relining and other miscellaneous work the Contractor may close one lane of the Eisenhower/Johnson Memorial Tunnels west and east bound April 15, 2006 through May 25, 2006 on the week days starting at 10:00 PM on Sundays through 10:00 AM on Fridays. After May 29, 2006, the Contractor may close one lane of traffic (daily) in the west bound direction from 9:00 PM to 9:00 AM and in the east bound direction from 11:00 PM to 10:00 AM Sunday night through Thursday night. Unless otherwise approved in writing, a lane rental fee will be assessed for each lane closure during all other hours.

During the asphalt removal, concrete removal, resurfacing, and other associated work in the Eisenhower/Johnson Memorial Tunnels the contractor will be allowed to close both lanes of the East Bound Tunnel from 10:00 PM Sunday September 10, 2006 through 10:00 AM Friday September 15, 2006; and the West Bound Tunnel from 9:00 PM Sunday September 17, 2006 through 9:00 AM Friday September 22, 2006 and from 9:00 PM Sunday September 24, 2006 through 9:00 AM Friday September 29, 2006. Unless otherwise approved by the Engineer in writing a lane rental fee will be assessed for each lane closure for all other hours.

The lane rental fee will be deducted from any monies due the Contractor for work performed. The deduction will be based on the applicable rate for any and all closures, whether work is performed or not. This deduction will be reflected in each progress payment. This deduction is not a penalty, but is a rental fee per lane based upon road user costs to occupy I-70.

The lane rental fee for closures on I-70 shall be as follows per hour per lane in each direction.

- (1) \$400 for the first hour or any portion thereof
- (2) \$800 for the second hour or portion thereof
- (3) \$1600 for the third hour or portion thereof
- (4) \$3200 for the fourth hour or portion thereof
- (5) \$3200 for every subsequent hour thereafter

**REVISION OF SECTIONS 105, 401, 405, 406, 412, AND 601
ROADWAY SMOOTHNESS (HIGH SPEED PROFILER)**

Sections 105, 202, 401, 406 and 601 of the Standard Specifications are hereby revised for this project as follows:

Delete section 105.07 and replace with the following:

105.07 Conformity to Roadway Smoothness Criteria. Roadway smoothness testing and corrective work shall be performed as described below. Contractor quality control, corrective work and the associated traffic control as described below will not be measured and paid for separately, but shall be included in the work.

- (a) *Contractor Quality Control.* The Contractor shall perform quality control for roadway smoothness. The Contractor shall profile each layer of HMA placed. A profile shall be taken on the first 2,000 tons of each layer and again after completion of each layer. The 2,000 ton section shall be profiled and test results shall be submitted to the Project Engineer within 48 hours of completion. The contractor shall profile the first mile of concrete placed in each lane and again after completion of each lane. The contractor shall not profile the concrete pavement until it has attained a strength of 1,000 psi if a light weight profiler is used or 2,000 psi if a high speed profiler is used. The one mile section shall be profiled and test results shall be submitted to the Engineer within 48 hours after the concrete has attained the proper strength for profiling.

When the Contract specifies Half-Car Roughness Index (HRI), quality control results shall be in the form of HRI. Quality control shall be performed for both the final surface and the next lower pavement layer when constructed by the project.

When the Contract specifies HRI Percent Improvement, Quality control results shall be in the form of HRI Percent Improvement.

Quality control testing shall be performed using the Contractor's inertial profiler, with similar methods as the acceptance testing performed by the Department described in subsection 105.07(c) and in accordance with the Manufacturer's instructions. The Department will not assist with this testing.

Production shall be suspended if testing indicates that corrective work is required on any pavement layer. Corrective work shall be completed on each layer profiled unless the layer is a leveling course with a thickness of 1.5 inches or less. Production will remain suspended until the problem is identified and corrected. Each time production is suspended, corrective actions shall be proposed in writing by the Contractor. Corrective work shall not be performed until written approval is provided by the Engineer.

When production resumes, the Contractor shall profile the first 2,000 tons of HBP or first mile of PCCP. The conditions above for suspension of work will apply.

The finished transverse surface elevation of the pavement shall be measured using a 10 foot straightedge. The Contractor shall furnish an approved 10 foot straightedge and depth gauge and provide an operator to aid the Engineer in testing the finished pavement surface. Areas to be measured shall be as directed by the Engineer. Areas showing high spots of more than 3/16 inch in 10 feet shall be marked and diamond ground until the high spot does not exceed 3/16 inch in 10 feet.

The Contractor shall perform all required corrective work prior to requesting pavement smoothness testing for acceptance from the Department. The Contractor may perform elective corrective work to reduce disincentive, improve incentive, or both.

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**REVISION OF SECTIONS 105, 401, 405, 406, 412, AND 601
 ROADWAY SMOOTHNESS (HIGH SPEED PROFILER)**

(b) *Corrective Work.*

1. Half-Car Roughness Index Corrective Work. The criteria for determining if a 0.1 mile section requires corrective work is specified in Table 105-7 or Table 105-8. In addition to determining if a 0.1 mile section requires corrective work, the profiles shall be analyzed for localized areas of roughness.

Localized Roughness. The profiles shall be analyzed to determine where areas of localized roughness occur. The third run of each lane shall be used in this analysis. The profile shall be summarized using the continuous HRI reporting system using an averaging length of 25 feet. The latest release of the FHWA's ProVal software shall be used to generate the continuous HRI report. ProVal can be downloaded at <http://www.roadprofile.com>. Areas where the continuous HRI report exceeds the values in Table 105-6 that area shall be considered deficient and shall require corrective work.

When the corrective work is complete, the Contractor shall reprofile the corrective work area and determine a HRI for each 0.1 mile section. Additional corrective work in accordance with this specification will be required if the HRI for a 0.1 mile section exceeds the specified limit shown in Table 105-7 or 105-8 or if areas of localized roughness are found.

**Table 105-6
 CONTINUOUS HRI USING 25 FOOT AVERAGING FOR
 LOCALIZED ROUGHNESS CORRECTIVE WORK**

PAVEMENT SMOOTHNESS CATEGORY	Asphalt HRI In/mile	Concrete HRI In/mile
I	135.0	155.0
II	125.0	170.0
III	120.0	N/A

2. Half Car Roughness Index Percent Improvement Corrective Work. The criteria for determining if corrective work is required for a 0.05 mile section is specified in Table 105-9 or 105-10

When the corrective work is complete, the Contractor shall reprofile the corrective work area and determine a HRI Percent Improvement for each 0.05 mile section. Additional corrective work in accordance with this specification will be required if the HRI Percent Improvement for a 0.05 mile section exceeds the specified limit shown in Table 105-9 or 105-10.

If corrective work is required, the Contractor shall submit a written corrective work proposal to the Engineer, which shall include the methods and procedures that will be used. The Contractor shall not commence corrective work until the methods and procedures have been approved in writing by the Engineer.

The Engineer's approval shall not relieve the Contractor of the responsibility of producing work in conformity with the Contract.

Corrective work on concrete pavements shall consist of diamond grinding.

When longitudinal tining is required on concrete pavement, the pavement shall be grooved to restore the longitudinal texture as shown in the plans and specifications.

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**REVISION OF SECTIONS 105, 401, 405, 406, 412, AND 601
ROADWAY SMOOTHNESS (HIGH SPEED PROFILER)**

When any grinding on concrete pavement occurs where a core for determining pavement thickness has been previously taken, another core shall be taken after the grinding has been completed and shall replace the original core in the calculation of pavement thickness incentive and disincentive. Joint sealant that has been damaged by grinding on concrete pavement shall be repaired or replaced at the Contractor's expense in accordance with Standard Plan M-412-1 and subsection 412.18.

Corrective work on asphalt pavements shall consist of diamond grinding, an approved overlay or removal and replacement.

Corrective work on asphalt pavements shall conform to the following conditions:

- (1) **Removal and Replacement.** The pavement in areas requiring corrective work shall be removed the full width of the lane and the full thickness of the layer in accordance with subsection 202.09.

The removal area shall begin and end with a transverse butt joint, which shall be constructed with a transverse saw cut perpendicular to centerline. Replacement material shall be placed in sufficient quantity so the finished surface conforms to grade and smoothness requirements. Sections requiring removal and replacement shall not be less than 0.2 miles in length.

- (2) **Overlay.** The overlay shall cover the full width of the pavement including shoulders. The area overlaid shall begin and end with a transverse butt joint, which shall be constructed with a transverse saw cut and asphalt removal. All material shall be approved hot bituminous mixtures that meet all contract requirements. The overlay shall be placed so that the finished surface conforms to grade and smoothness requirements. The overlaid area shall be compacted to the specified density. The overlay thickness shall be equivalent to that of the final pass made in accordance with the Contract. Sections overlaid shall not be less than 0.2 miles in length. An overlay shall not be utilized as corrective work for lower layers requiring corrective work.

- (3) **Diamond Grinding.** On asphalt pavements, grinding shall not reduce planned pavement thickness by more than 0.3 inches. The entire ground area of the final pavement surface shall be covered with a Tack Coat conforming to Section 407 (CSS-1h at 0.1 Gallons/SqYd of diluted emulsion; the emulsion shall be diluted with water at the rate of 50 percent water and 50 percent emulsion) when grinding is complete.

- (c) **Department Quality Assurance.** The Department's smoothness testing results will be used for acceptance and calculation of incentive and disincentive payments. All traffic control costs associated with Department quality assurance will be paid for by the Department utilizing existing pay items where possible and only for devices not previously measured and paid for. If a re-test is required, the Contractor shall be responsible for all traffic control costs associated with the re-test.

1. **Longitudinal Pavement Surface Smoothness Acceptance.** Pavement surfaces shall be tested and accepted for longitudinal smoothness as described herein.

- A. **Testing Procedure (General).** The longitudinal surface smoothness of the final pavement surface will be tested and evaluated by the Department in accordance with CP-74 and using the Department's high-speed profiler (HSP).

The HSP instrumentation will be verified in accordance with CP-74 prior to measurements. The Contractor shall lay out a distance calibration site. The distance calibration site shall be at least

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**REVISION OF SECTIONS 105, 401, 405, 406, 412, AND 601
ROADWAY SMOOTHNESS (HIGH SPEED PROFILER)**

1056 feet long and shall be on a relatively flat, straight section of pavement as approved by the Engineer. The site shall allow the HSP to operate at the testing speed without interruption. The limits of the site shall be clearly marked and the distance shall be measured to an accuracy of +/- 3 inches. The Contractor shall provide the measured distance of the site to the Engineer. The cost of the distance calibration site will not be measured and paid for separately, but shall be included in the work.

The Contractor shall notify the Engineer at least 14 days in advance to schedule pavement smoothness Quality Assurance testing. The Contractor shall notify the Department at least 48 hours prior to the scheduled date when the smoothness testing needs to be cancelled for any reason. The Contractor shall be charged \$500, when the lack of required notification or necessary preparation causes the Department to remobilize for testing except when caused by adverse weather.

If corrective work areas are found to exist when the Quality Assurance smoothness testing is performed, the Contractor shall perform the required corrective work and re-schedule acceptance testing with the Engineer at least 14 days in advance. The Contractor shall be charged \$500 for each retest required.

The entire length of each through lane, climbing lane and passing lane including bridge approaches, bridge decks and intersections from the beginning to the end of the project will be profiled. Shoulders, ramps, tapers, turn slots, acceleration lanes, deceleration lanes, and medians will not be profiled and will not be subject to incentive/disincentive adjustments. The profile of the entire length of a lane will be taken at one time. However, the Department may break a project into sections to accommodate varying conditions.

A sufficient distance will be deleted from the profile to allow the profiler a 300 foot distance to stop and start when required. Incentive/disincentive payments will not be made for this area. Areas deleted from the profile showing high spots of more than 3/16 inch in 10 feet shall be marked and diamond ground until the high spot does not exceed 3/16 inch in 10 feet.

- (1) When the contract specifies HRI, the profile will include transverse joints when pavement is placed by the project on both sides of the joint. When pavement is placed on only one side of the joint, the area 5 feet from the joint will be deleted from the profile before the HRI is determined. Incentive/disincentive payments will not be made for this area. Pavement within the area 5 feet on the newly constructed side of the joint showing high spots of more than 3/16 inch in 10 feet shall be marked and diamond ground until the high spot does not exceed 3/16 inch in 10 feet.

The profile of the area 5 feet each side of every railroad crossing, cattle guard, bus pad, manhole, valve box, gutter pan and intersection (when and at the location of where there is a planned breakpoint in the profile grade line in the direction of testing) will be deleted from the profile before the HRI is determined. Incentive/disincentive payments will not be made for these areas. Areas deleted from the profile showing high spots of more than 3/16 inch in 10 feet shall be marked and diamond ground until the high spot does not exceed 3/16 inch in 10 feet.

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**REVISION OF SECTIONS 105, 401, 405, 406, 412, AND 601
ROADWAY SMOOTHNESS (HIGH SPEED PROFILER)**

When both new pavement and a new bridge or new bridge pavement are being constructed in a project, the profile of the area 5 feet each side of every bridge expansion device (joint) shall be deleted from the profile before the HRI is determined. Incentive/disincentive payments will not be made for this area. Areas deleted from the profile showing high spots of more than 3/16 inch in 10 feet shall be marked and diamond ground until the high spot does not exceed 3/16 inch in 10 feet. Diamond grinding will not be measured and paid for separately, but shall be included in the work. For all other projects, the profile of the area 5 feet each side of every bridge expansion device (joint) shall be deleted from the profile before the HRI is determined. Incentive/disincentive payments will not be made for this area. If the Engineer determines that corrective work is required in this area, payment will be made in accordance with subsection 109.04.

- (2) When the Contract specifies HRI Percent Improvement, the profile will include an additional 25 feet of pavement outside the project paving limits.

Shoulders, ramps, tapers, turn slots, acceleration lanes, deceleration lanes, and medians will be measured using a 10 foot straightedge. The Contractor shall furnish an approved 10 foot straightedge and depth gauge and provide an operator to aid the Engineer in testing the finished pavement surface. Areas to be measured shall be as directed by the Engineer. Areas showing high spots of more than 3/16 inch in ten feet shall be marked and diamond ground until the high spot does not exceed 3/16 inch in ten feet.

- B. Smoothness Testing Procedures. The Contractor shall mark the project limits, climbing lane limits and passing lane limits. When the contract specifies HRI the Contractor shall mark 5 feet from each bridge approach slab, railroad crossing, cattle guard, bus pad, manhole, valve box, gutter pan and intersection (when and at the location where there is a planned breakpoint in the profile grade line in the direction of testing). When the Contract specifies HRI Percent Improvement, the markings shall be located in a location that will not be disturbed, so that the section start and stop locations will be identical for the initial and final pavement surface. The Engineer will verify that the Contractor's marks are located properly. The Department will setup traffic cones with reflective tape at the beginning and end of each lane for triggering the start and stop locations on the profiler and at any other location, where portions of the profile are being deleted. If project or traffic conditions do not allow the use of traffic cones, the Department will place reflective tape on the pavement. The Contractor shall provide sufficient traffic control for the Department to safely place the traffic cones or reflective tape.

The Contractor shall clear the lanes to be tested of all debris before profiling. The Contractor shall provide sufficient traffic control, to allow the profiler to run the entire length of the project uninterrupted.

Each lane will be profiled three times at a constant speed with a minimum speed of 25 mph and a maximum speed of 70 mph. The profile will be taken in the intended direction of travel. The left and right wheel paths will be profiled simultaneously. The collected profiles will be analyzed using CP-74.

- (1) When the contract specifies HRI, the Department will determine a HRI for each 0.1 mile section of completed pavement. The HRI consists of the average of the left and right wheel path's profile passed through the International Roughness Index (IRI) filter.

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**REVISION OF SECTIONS 105, 401, 405, 406, 412, AND 601
ROADWAY SMOOTHNESS (HIGH SPEED PROFILER)**

Corrective Work. The criteria for determining if a 0.1 mile section requires corrective work is specified in Table 105-7 or Table 105-8. In addition to determining if a 0.1 mile section requires corrective work, the profiles will be analyzed for localized areas of roughness.

Localized Roughness. The profiles will be analyzed to determine where areas of localized roughness occur. The third run of each lane will be used in this analysis. The profile will be summarized using the continuous HRI reporting system using an averaging length of 25 feet. The latest release of the FHWA's ProVal software will be used to generate the continuous HRI report. ProVal can be downloaded at <http://www.roadprofile.com>. When the values from the continuous HRI report exceed the values in Table 105-6, the corresponding areas will be considered deficient and shall require corrective work.

Within five working days of any Department Quality Assurance Roadway Smoothness testing, the Engineer will give the Contractor a report that will include profile data, the lane profiled, IRI for the left and right wheel paths, the HRI in 0.10 mile increments and a summary of areas of localized roughness. The report will be distributed to the Contractor. The Engineer may at his discretion, determine that it is necessary to reprofile a lane.

- (2) When the contract specifies HRI Percent Improvement, the Department will determine an HRI for each 0.05 mile section of pavement. The HRI consists of the average of the left and right wheel path's profile passed through the IRI filter.

Within five working days of any Department Quality Assurance Roadway Smoothness testing, the Engineer will give the Contractor a report that will include profile data, the lane profiled, IRI for the left and right wheel paths, and the HRI in 0.05 mile increments. The report will be distributed to the Contractor. The Engineer may determine that it is necessary to reprofile a lane.

- C. When the Contract specifies HRI, final acceptance and incentive/disincentive payments for pavement smoothness will be made on a square yard basis after all corrective work for the final riding surface has been performed in accordance with the following:

Incentive and Disincentive payments will be based on the HRI for each 0.1 mile section or fraction thereof.

Incentive/Disincentive payments for Pavement Smoothness will be made in accordance with Table 105-7 and Table 105-8.

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REVISION OF SECTIONS 105, 401, 405, 406, 412, AND 601
 ROADWAY SMOOTHNESS (HIGH SPEED PROFILER)

Table 105-7
 ASPHALT PAVEMENT SMOOTHNESS (INCHES/MILE)
 Half-Car Roughness Index

Pavement Smoothness Category ^{1,2}	Incentive Payments ³		Disincentive Payments ³		Corrective Work Required ⁴
	HRI (in\mi)	Asphalt \$/SqYd	HRI (in\mi)	Asphalt \$/SqYd	HRI (in\mi)
I One layer of asphalt pavement placed over an intermediate treatment	50.0 or less	\$0.32	85.1 - 90.0	-\$0.32	90.1
	50.1 - 55.0	\$0.24	80.1 - 85.0	-\$0.24	and more
	55.1 - 60.0	\$0.16	75.1 - 80.0	-\$0.16	
	60.1 - 63.0	\$0.08	72.1 - 75.0	-\$0.08	
	63.1 - 72.0	\$0.00			
II Two layers of asphalt pavement	45.0 or less	\$0.32	80.1 - 85.0	-\$0.32	85.1
	45.1 - 50.0	\$0.24	75.1 - 80.0	-\$0.24	and more
	50.1 - 55.0	\$0.16	70.1 - 75.0	-\$0.16	
	55.1 - 58.0	\$0.08	67.1 - 70.0	-\$0.08	
	58.1 - 67.0	\$0.00			
III Three or more layers of asphalt pavement	40.0 or less	\$0.32	75.1 - 80.0	-\$0.32	80.1
	40.1 - 45.0	\$0.24	70.1 - 75.0	-\$0.24	and more
	45.1 - 50.0	\$0.16	65.1 - 70.0	-\$0.16	
	50.1 - 53.0	\$0.08	62.1 - 65.0	-\$0.08	
	53.1 - 62.0	\$0.00			

1. The pavement smoothness category will be shown on the plans.
2. An intermediate treatment includes Removal of Asphalt Mat (Planing), Full Depth Reclamation, Cold Bituminous Pavement Recycle, Heating and Repaving, and Heater Remixing or a leveling course with a thickness of 1.5 inches or less
3. Incentive and Disincentive Payments will be based on the HRI for each 0.1-mile section as determined by the acceptance testing performed by the Department.
4. All corrective work shall be completed prior to acceptance testing.

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REVISION OF SECTIONS 105, 401, 405, 406, 412, AND 601
 ROADWAY SMOOTHNESS (HIGH SPEED PROFILER)

Table 105- 8
 CONCRETE PAVEMENT SMOOTHNESS
 (INCHES/MILE)
 Half-Car Roughness Index

Pavement Smoothness Category ¹	Incentive Payments ²		Disincentive Payments ²		Corrective Work Required ³
	HRI (in/mi)	Concrete \$/SqYd	HRI (in/mi)	Concrete \$/SqYd	
I All Rural and Interstate Highways	65.0 or less	\$1.40	100.1 - 105.0	-\$1.40	105.1
	65.1 - 70.0	\$1.05	95.1 - 100.0	-\$1.05	and more
	70.1 - 75.0	\$0.70	90.1 - 95.0	-\$0.70	
	75.1 - 78.0	\$0.35	87.1 - 90.0	-\$0.35	
	78.1 - 87.0	\$0.00			
II All Urban Highways	75.0 or less	\$1.40	110.1 - 115.0	-\$1.40	115.1
	75.1 - 80.0	\$1.05	105.1 - 110.0	-\$1.05	and more
	80.1 - 85.0	\$0.70	100.1 - 105.0	-\$0.70	
	85.1 - 88.0	\$0.35	97.1 - 100.0	-\$0.35	
	88.1 - 97.0	\$0.00			

¹ The pavement smoothness category will be shown on the plans.

² Incentive and Disincentive Payments will be based on the HRI for each 0.1-mile section as determined by the acceptance testing performed by the Department.

³ All corrective work shall be completed prior to acceptance testing.

D. When the contract specifies HRI Percent Improvement, final acceptance and incentive/disincentive payments for pavement smoothness will be made on a square yard basis after all corrective work for the final riding surface has been performed in accordance with the following:

The pavement is subject to an Incentive/Disincentive payment for pavement smoothness based on the Percentage of Improvement (%I). The following applies:

The Engineer will produce a report of the original surface that will include the lane profiled, IRI for the left and right wheel paths, and the HRI in 0.05 mile increments. The report will be distributed to the Contractor.

Incentive and Disincentive payments will be based on the %I of the HRI for each 0.05 mile section on the final paved surface compared to the HRI for each 0.05 mile section of the original surface.

The %I will be calculated as follows:

$$\%I = \frac{(\text{HRI OF ORIGINAL SURFACE} - \text{HRI OF FINAL SURFACE}) \times 100}{\text{HRI OF ORIGINAL SURFACE}}$$

Incentive/disincentive payments for Pavement Smoothness will be made in accordance with Table 105-9 or 105-10.

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REVISION OF SECTIONS 105, 401, 405, 406, 412, AND 601
 ROADWAY SMOOTHNESS (HIGH SPEED PROFILER)

Table 105-9
 PAVEMENT SMOOTHNESS
 RURAL CONSTRUCTION
 PERCENT IMPROVEMENT (%I)
 Half Car Roughness Index

INCENTIVE PAYMENTS ¹		DISINCENTIVE PAYMENTS ^{1,3}		CORRECTIVE WORK REQUIRED ^{2,3}
%I	\$/Sq.Yd.	%I	\$/Sq.Yd.	%I
MORE THAN 60.1	\$0.32	20.1 to 25.1	-\$0.32	20.0 OR LESS
55.1 to 60.0	\$0.24	25.1 to 30.0	-\$0.24	
50.1 to 55.0	\$0.16	30.1 to 35.0	-\$0.16	
45.1 to 50.0	\$0.08	35.1 to 40.0	-\$0.08	
40.1 to 45.0	\$0.00			

- ¹ Incentive and Disincentive Payments will be based on the HRI for each 0.05 mile section as determined by the acceptance testing performed by the Department.
² All corrective work shall be completed prior to acceptance testing.
³ Disincentives will not be assessed and corrective work will not be required for a 0.05 mile section if the HRI is equal to or less than 80.0 in/mi

Table 105-10
 PAVEMENT SMOOTHNESS
 URBAN CONSTRUCTION
 PERCENT IMPROVEMENT (%I)
 Half Car Roughness Index

INCENTIVE PAYMENTS ¹		DISINCENTIVE PAYMENTS ^{1,3}		CORRECTIVE WORK REQUIRED ^{2,3}
%I	\$/Sq.Yd.	%I	\$/Sq.Yd.	%I
MORE THAN 50.1	\$0.32	-20.1 to -25.0	-\$0.32	-25.1 OR LESS
35.1 to 50.0	\$0.24	-15.1 to -20.0	-\$0.24	
20.1 to 35.0	\$0.16	-10.1 to -15.0	-\$0.16	
5.1 to 20.0	\$0.08	-5.1 to -10.0	\$0.08	
5.0 to -5.0	\$0.00			

- ¹ Incentive and Disincentive Payments will be based on the HRI for each 0.05 mile section as determined by the acceptance testing performed by the Department.
² All corrective work shall be completed prior to acceptance testing.
³ Disincentives will not be assessed and corrective work will not be required for a 0.05 mile section if the HRI is equal to or less than 80.0 in/mi

In subsection 202.09 delete the last paragraph

Delete subsection 401.20 and replace with the following:

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**REVISION OF SECTIONS 105, 401, 405, 406, 412, AND 601
ROADWAY SMOOTHNESS (HIGH SPEED PROFILER)**

401.20 Surface Smoothness. The roadway surface smoothness shall be tested in accordance with subsection 105.07.

Delete Subsection 406.11 and replace with the following:

406.11 Smoothness. The longitudinal surface smoothness of the roadway prior to and after cold recycling shall be tested in accordance with subsection 105.07 by the Contractor.

Testing procedures. An HRI for each 0.1 mile section shall be determined on the original pavement surface prior to beginning the work.

A HRI for each 0.1 mile section shall be determined on the pavement surface after the work is complete.

Final pavement smoothness acceptance will be made as follows:

When a 0.1 mile section has a final HRI greater than 80.0 in/mile and the final HRI is greater than the HRI prior to performing the work, that 0.1 mile section shall be corrected by a method approved in writing by the Engineer. Corrective work shall be such that the resulting final HRI is equal to or less than the initial HRI or 80.0 in/mile, whichever is greater. All cost associated with corrective work shall be at the contractors expense, including but not limited to traffic control, additional hot bituminous pavement, grinding and milling.

Delete subsection 601.15 (f) 2. and Table 601-2

**REVISION OF SECTION 202
REMOVAL OF ASPHALT MAT (PLANING)**

Section 202 of the Standard Specifications is hereby revised for this project as follows:

Delete Section 202.09, and replace with the following:

The existing pavement shall be milled to the cross-slope as shown in the plans, and shall have a surface finish that does not vary longitudinally or transversely more than 3/8 inch from a 10 foot straightedge. A 10 foot straightedge shall be supplied by the Contractor.

All milled surfaces shall be broomed with a pick up broom, unless otherwise specified, before being opened to traffic. A sufficient number of brooms shall be used immediately after planing to remove all milled material remaining in the roadway.

If the Contractor fails to adequately clean the roadway, work shall cease until the Engineer has approved the Contractor's revised written proposal to adequately clean the roadway.

The milled surface shall have a macrotexture equal to or less than 0.170 inches for single lift overlays and 0.215 inches for multiple lift overlays as tested in accordance with CP 77. CP 77 is available from the Engineer. Milled surfaces that do not meet these criteria shall require corrective action in accordance with the Contractor's quality control plan (QCP). The Contractor shall be responsible for testing the macrotexture of the milled surface at the location directed by the Engineer in accordance with CP 77 at a stratified random frequency of one test per 10,000 SY or a minimum of once per work day.

At the completion of each days work longitudinal vertical edges greater than 1 inch shall be tapered. No transverse vertical edges will be allowed. Longitudinal milled surface tie-ins to existing pavement shall be tapered to not less than a 3:1 slope, transverse milled surface tie-ins to existing pavement shall be tapered to not less than a 50:1 slope. Transverse tapered joints may be tapered with the planing machine, with a temporary asphalt ramp, or other approved method by the Engineer. No longitudinal joint between milled surface and existing surface shall fall between 1 to 5 feet of any lane line.

If the transverse joint is tapered with a temporary asphalt ramp, the milled surface at the joint shall be constructed as a butt joint the full depth of the lift of asphalt to be placed on the milled surface. The Contractor shall be responsible for maintaining this asphalt ramp until HMA is placed. All work associated with this joint shall not be paid for separately, but shall be included in the cost of planing.

If the transverse joint is tapered with a planing machine, a butt joint shall be cut into the taper the full depth of the lift of asphalt to be placed on the milled surface prior to commencement of resurfacing. All work associated with this joint shall not be paid for separately, but shall be included in the cost of planing.

Other approved transverse joint tapers shall be maintained at the expense of the contractor, and at a minimum shall incorporate a butt joint the full depth of the lift of asphalt to be placed on the milled surface prior to the commencement of resurfacing.

All distressed or irregular areas identified in the planed surface by the Engineer shall be patched.

The roadway shall be left in a safe and usable condition at the end of each work day. The Contractor shall take appropriate measures so that the milled surface does not trap or hold water. All required pavement markings, removed by the planing, shall be restored before the roadway is opened to traffic.

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**REVISION OF SECTION 202
REMOVAL OF ASPHALT MAT (PLANING)**

All milled surfaces to be overlaid with HMA shall be covered with new asphalt within 4 working days or as required by the schedule. Any area(s) on this project not covered within the specified working days shall be assessed a lane rental fee per occurrence for each day or fraction thereof and any required surface repairs will be paid for by the Contractor.

All planing shall be completed full width and parallel to the travel lanes before resurfacing commences unless otherwise directed by the Engineer.

All material generated by the planing operation shall remain the property of the Contractor unless otherwise noted in the plans or special provisions.

The Contractor shall not start the planing operation until the hot mix asphalt (HMA) mix design has been approved and a Form #43 has been signed by the Engineer.

Prior to beginning planing operations, the Contractor shall submit a planing plan/method statement and a quality control plan (QCP) for approval by the Engineer. The planing plan/method statement shall include at a minimum:

1. The number, type(s) and size(s) of planers to be used.
2. The width and location of each planing pass.
3. The number and types of brooms to be used and their locations with respect to the planers.
4. The plan for planing and wedging around existing structures such as manholes, valve boxes, and inlets.
5. The longitudinal and transverse typical sections for tie-ins at the end of the day.
6. At the request of the Engineer a plan sheet showing the milling passes.

The QCP shall include as a minimum:

1. The schedule for replacing the cutting teeth.
2. The daily preventive maintenance schedule and checklist.
3. Proposed use of automatic grade controls.
4. The surface testing schedule for smoothness.
5. The process for filling distressed areas.
6. The schedule for testing macrotexture of the milled surface.
7. Corrective action procedures if the milled surface does not meet the minimum macrotexture specification.
8. Corrective action procedures if the milled surface does not meet the minimum transverse or longitudinal surface finish with a 10 foot straight edge.

202.091 Equipment

Each planer shall conform to the following:

The planer shall have sufficient power, traction and stability to maintain an accurate depth of cut. The propulsion and guidance system of the planer shall be maintained in such condition that the planer may be operated to straight and true lines.

The planer shall be capable of operating with automatic grade controls on both sides of the machine using a 30 foot ski or other approved grade control systems. The use of such controls shall be described in the Contractor's QCP.

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**REVISION OF SECTION 202
REMOVAL OF ASPHALT MAT (PLANING)**

The planer shall be capable of picking up the removed material in a single operation. A self loading conveyor shall be an integral part of the planer. Windrows will not be allowed.

Subsection 202.12 shall include the following:

202.12 The accepted quantities of planing will be paid for at the contract unit price per square yard as shown in the bid schedule.

Payment will be made under:

Pay Item	Pay Unit
Removal of Asphalt Mat (Planing)	Square Yard

Macrotexture testing, macrotexture corrective actions, planers, brooms and all other work necessary to complete the item will not be measured and paid for separately, but shall be included in the work.

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**REVISION OF SECTION 202
REMOVAL OF ASPHALT MAT (PLANING)**

**Colorado Procedure 77
Standard Procedure for**

**DETERMINATION OF MACROTEXTURE OF PLANED
HOT MIX ASPHALT PAVEMENT**

1.0 SCOPE.

1.1 This test method describes the means to evaluate the macrotexture of a planed pavement surface.

1.2 This CP may involve hazardous materials, operations, and equipment. This CP does not purport to address all of the safety problems associated with the CP's use. The CP user's responsibility is to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

2.0 REFERENCE.

2.1 AASHTO Standards.

M 247-02, Type I Glass Beads Used In Traffic Paints

2.2 ASTM Standards.

E 1094-04 Pharmaceutical Glass Graduates or ISO Standard 6706 Plastic Laboratory Ware - Graduated Measuring Cylinders

2.3 CP Standards.

Appendix L Random Sampling

3.0 TERMINOLOGY. Terms and abbreviations shall be in accordance with the Department's Standard Specifications, and Field Materials Manual.

4.0 SIGNIFICANCE AND USE. This CP is used to evaluate the macrotexture of a milled pavement surface.

5.0 APPARATUS.

5.1 Filler: Type 1 glass beads in accordance with AASHTO M 247-02.

5.2 Spreader: A flat, stiff hard disk made from methyl methacrylate (Plexiglas) with a thickness of 0.5 ± 0.1 in., diameter of 8 ± 2 in. and a round handle affixed in the center used to spread the filler.

5.3 A conical or cylindrical shape graduate, Type 1, Class B or better, 250 ml capacity conforming to the volume and accuracy requirements of ASTM E 1094-04 or ISO Standard 6706 used to measure the volume of filler for the test.

5.4 Brushes: A stiff wire brush and a soft bristle brush used to clean the pavement.

5.5 Container: A small container with a secure and easily removable cover used to store 200 ml of filler.

5.6 Screen: A shield used to protect the test area from air turbulence created from wind or traffic.

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**REVISION OF SECTION 202
REMOVAL OF ASPHALT MAT (PLANING)**

6.0 LABORATORY PREPARATION.

6.1 Prepare one container for each sample location.

6.2 Fill the graduate with 200 ± 2 ml of filler.

6.3 Gently tap the side of the graduate to level the surface of the filler.

6.4 Place the measured volume of filler in the container.

6.5 Label the container with type and quantity of filler.

7.0 PROCEDURE.

7.1 Randomly determine a sample location on the milled pavement surface in accordance with Appendix L, to test the macrotexture.

7.2 Inspect the sample location and ensure it is a dry, homogeneous site, free of unique or localized features such as cracks, joints, stripping and patching.

7.3 If localized features are present, move up-station at the same transverse offset until a suitable site is found.

7.4 Gently clean an area of about 1 foot by 1 foot for the sample location using the stiff wire brush to remove any residue, debris or loosely bonded material. Be careful not to dislodge bonded material. After using the stiff wire brush, gently brush the sample location with the soft bristle brush to remove any remaining debris.

7.5 Place the screen on the milled pavement surface to protect the sample location from air turbulence.

7.6 Hold the container with filler above the pavement at the sample location at a height not greater than 4in.

7.7 Pour the measured volume of filler from the container onto the milled pavement surface into a conical pile.

7.8 Place the spreader lightly on top of the conical pile of filler being careful not to compact the filler.

7.9 Move the spreader in a slow, circular motion to disperse the filler in a circular area and to create a defined crest around the perimeter.

7.10 Continue spreading the filler until it is well dispersed and the spreader rides on top of the high points of the milled pavement surface.

7.11 Measure and record the diameter of the circular area four times, at intervals of 45° and to the nearest 0.1 in., as shown below.

7.12 Measure the diameter of the circular area from the top (crest) of the slope on one side, through the center, and to the top (crest) of the slope on the other side of the circular area.

7.13 Calculate the average diameter of the circular area covered by the filler.

7.14 Determine the macrotexture thickness of the milled pavement surface by using the cross reference table on the bottom of the Macro-Texture Report form. Report the result to three decimal places.

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**REVISION OF SECTION 202
 REMOVAL OF ASPHALT MAT (PLANING)**

7.15 Remove the filler material from the location using the soft bristle brush and repeat steps 7.5 through 7.14.

7.16 Determine the average macrotexture thickness by adding the two results determined in the previous step 7.14 and dividing by 2. Report the result to three decimal places.

8.0 CALCULATIONS. Calculate the average diameter of the circular area covered by the filler.

$$D_a = (D_1 + D_2 + D_3 + D_4) / 4$$

Where:

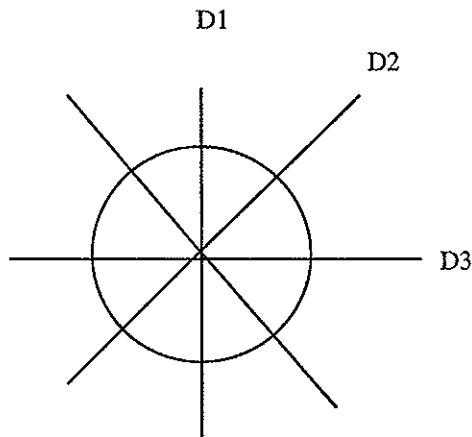
D_a = Average diameter of the filler area, in

D_1, D_2, D_3, D_4 = Diameters of the filler area, in

Macrotexture Thickness:

1 in. = 2.54 cm; 1 in.³ = 16.387 cm³ (cc) (ml)

Thus: 200 ml → ((200 ml)/(16.387 ml/in.³)) = 12.20 in.³



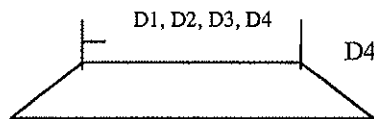
Thickness: Volume/Area

Example:

$D_a = 8$ in.

Area = $\pi r^2 \rightarrow \pi (8/2)^2 = 50.265$ in.²

Thickness = $12.20 \text{ in.}^3 / 50.265 \text{ in.}^2 = 0.243$ in.



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REVISION OF SECTION 202
 REMOVAL OF ASPHALT MAT (PLANING)

MACROTEXTURE THICKNESS BASED ON 200 ML OF FILLER AND AVERAGE DIAMETER

Average Diameter (inches)	Macrotexture Thickness (inches)	Average Diameter (inches)	Macrotexture Thickness (inches)	Average Diameter (inches)	Macrotexture Thickness (inches)
7.1	0.308	8.8	0.201	10.5	0.141
7.2	0.300	8.9	0.196	10.6	0.138
7.3	0.292	9.0	0.192	10.7	0.136
7.4	0.284	9.1	0.188	10.8	0.133
7.5	0.276	9.2	0.184	10.9	0.131
7.6	0.269	9.3	0.180	11.0	0.128
7.7	0.262	9.4	0.176	11.1	0.126
7.8	0.255	9.5	0.172	11.2	0.124
7.9	0.249	9.6	0.169	11.3	0.122
8.0	0.243	9.7	0.165	11.4	0.120
8.1	0.237	9.8	0.162	11.5	0.117
8.2	0.231	9.9	0.159	11.6	0.115
8.3	0.226	10.0	0.155	11.7	0.113
8.4	0.220	10.1	0.152	11.8	0.112
8.5	0.215	10.2	0.149	11.9	0.110
8.6	0.210	10.3	0.146	12.0	0.108
8.7	0.205	10.4	0.144	12.1	0.106

**REVISION OF SECTION 203
COMBINATION LOADER**

Section 203 of the Standard Specification is hereby revised for this project as follows:

Subsection 203.01 shall include the following:

This work consists of furnishing combination loaders, with operators, to be used for their intended purpose as directed by the Engineer.

Subsection 203.04 shall include the following:

Combination Loader – A combination loader with a standard loader bucket S.A.E. rated 1 cu. Yd. and a backhoe up to a ¼ cu. yd., 4 wheel industrial, utility, or general purpose, with loader and backhoe, in the 75-125 HP range, either gasoline or diesel engine, or an acceptable equivalent.

The combination loader shall be furnished and maintained in good operating condition. Equipment which, in the opinion of the Engineer, is inadequate to produce the required results, shall not be used. All equipment shall be operated by experienced operators, approved apprentices or approved competent trainees. The equipment shall be used as directed by the Engineer.

Subsection 203.12 shall include the following:

Combination Loader will be measured by the number of hours that it is actually used as ordered. Time involved in moving onto or off the project will not be paid for under this item. Time will be paid for moving combination loader from one location on the project to another, if directed; but time will not be allowed for moving combination loader considered to be idle or for moves which are made for the convenience of the Contractor.

Subsection 203.13 shall include the following:

The accepted quantities will be paid for at the contract price for the pay item listed below.
Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Combination Loader	Hour

**REVISION OF SECTION 203
LABORER**

Section 203 of the Standard Specification is hereby revised for this project as follows:

Subsection 203.01 shall include the following:

This work consists of providing hand labor for hand excavation, hand grading, and other miscellaneous labor as directed by the Engineer.

Subsection 203.04 shall include the following:

The Contractor shall provide a crew of up to three laborers, including appropriate hand tools and all other necessary tools, supplies and supervision, to adequately perform the work as directed by the Engineer.

The Engineer shall approve the Contractor's work plan and estimated hours necessary to complete the required tasks prior to beginning the work.

Subsection 203.12 shall include the following:

Laborer will be measured by the actual number of man-hours completed and accepted.

Subsection 203.13 shall include the following:

The accepted quantities will be paid for at the contract price for the pay item listed below.
Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Laborer	Hour

**REVISION OF SECTIONS 208 AND 107
ASPHALT BATCH PLANT**

CDOT has obtained a Special Use Permit from the USFS for the construction and operation of a hot asphalt batch plant on its property at the Loveland Ski Area for the EJMT Resurfacing project. The project area is habitat for three federally listed or candidate species; the greenback cutthroat trout, the boreal toad, and Canada Lynx. The following conditions are requirements of the USFS Special Use Permit.

ASPHALT BATCH PLANT

In order to minimize impacts to the environment due to the temporary hot asphalt batch plant to be used for the tunnel resurfacing, the following measures will be taken:

1. Parking Lot "D" shall be used only for equipment staging and aggregate storage. Parking Lot "E" can be used for any activity related to the overlay. This includes, but is not limited to aggregate storage, equipment staging, asphalt batch plant operation, and equipment fueling.
2. Equipment maintenance that may involve the loss of fluids should be taken off site, if possible, or done at parking Lot "E".
3. Silt fence shall be installed around parking lots "D" and "E".
4. Equipment staging and storage will occur no closer than 50' from Clear Creek, or its tributaries.
5. A tracking pad shall be installed as per CDOT specification where trucks are fueling, loading and/or unloading material at the ingress and egress of the site.
6. A berm, at least 18 inch in height, placed inside the silt fence shall be installed along the creek side of the Parking Lot "D" to prevent contaminated runoff from entering the water.
7. The contractor shall control all potential spills from reaching Clear Creek or the ground water. The method of containing any potential spills shall be presented to the engineer for approval 4 weeks prior to commencing with any work.
8. A trench shall be dug around fueling stations and lined with an impervious material, such as rubber, to capture any fluids that may escape.
9. All gravel, liners and any soils that have been contaminated as a result of the project will be hauled away and disposed of properly in accordance with Section 107.25.
10. Once the project is complete and the disturbed areas are restored to these specifications and approved by the Engineer, all temporary BMPs will be removed and the area restored to its present condition by October 10, 2006.
11. Special Use Permit requirements for the use of this site are available at the Resident Engineer's office.
12. The contractor shall notify the Engineer in writing at the preconstruction conference if he intends to use the site.
13. All costs to use this site are the responsibility of the contractor, will be included in the work and not paid for separately.

**REVISION OF SECTIONS 208 AND 107
WATERLINE REPAIR AND TENSIONED CABLE BARRIER INSTALLATION**

The project area is habitat for three federally listed or candidate species; the greenback cutthroat trout, the boreal toad, and Canada Lynx.

WATERLINE REPAIR

1. The alpine and sub-alpine environment at the waterline is sensitive and requires careful worksite preparation and work approaches to avoid long term impacts. In order to minimize impacts to the environment due to the waterline pipe repair, the following measures will be taken:
2. Temporary BPMs shall be installed to prevent sediments from entering Straight Creek during all excavation phases.
3. To the greatest extent practicable, all equipment will remain on existing roads and will comply with Section 107.25(b)16.
4. Equipment access to and from the service road to the manhole work site at the filtering ponds will be defined and controlled with orange fence.
5. A dewatering permit shall be obtained by the contractor and adhered to in accordance with Section 107.25 (b)6 and (b)11.
6. All work will occur in daylight hours.

TENSIONED CABLE BARRIER INSTALLATION

The project area is habitat for the Canada Lynx, which is active from dusk to dawn. In order to minimize impacts to the environment due to the Tensioned Cable Barrier installation, the following measures will be taken:

1. All work done from dusk to dawn shall be a moving operation limited to a maximum length of 1,000 feet.
2. All inlets will be protected with straw bales to prevent debris and contaminants from entering the inlets.
3. All work shall be done in accordance with CDOT Standard Specifications 208 and 107 as appropriate to the work in accordance with all federal, state, and local laws and regulations.

**REVISION OF SECTION 210
ADJUST MANHOLE**

Section 210 of the Standard Specifications is hereby revised for this project as follows:

Subsection 210.01 shall include the following:

Adjust manholes consists of lowering existing manhole rings and covers to three inches below the proposed pavement surface as shown in the Contract.

Subsection 210.10 shall include the following:

Adjust manholes shall be complete prior to the overlay.

Subsection 210.12 shall include the following:

Adjust manholes will be measured by the actual number adjusted which shall include all work required to: remove manhole rings to the required height, reset the manhole cover and patch with HMA (Patching) (asphalt) to the finished grade. If the manhole rings and covers are destroyed or in the opinion of the Engineer cannot be reused, new manhole rings and covers shall be provided.

Subsection 210.13 shall include the following:

Payment will be made under:

Pay Item	Pay Unit
Adjust Manhole	Each

Structure excavation and structure backfill required for Adjust Manhole will not be measured and paid for separately but shall be included in the work. Manhole rings and covers, removal of asphalt, removal of concrete, concrete patching, and asphalt patching, as well as all other materials required to complete the item shall be included in the work.

**REVISION OF SECTION 210
MODIFY MANHOLE**

Section 210 of the Standard Specifications is hereby revised for this project as follows:

Subsection 210.01 shall include the following:

Modify manholes consists of lowering existing manholes to three inches below the proposed pavement surface.

Subsection 210.02 shall include the following:

Modification of manholes must be complete prior to the overlay and shall be done in accordance with the details included in the plans and in conformance with Standard Plan M 604-20.

Subsection 210.12 shall include the following:

Modify manholes will be measured by the actual number modified which shall include all work required to: remove portion of existing manholes to the required height, build new eccentric cones to the required height, reset the manhole cover and patch with HMA (Patching) (Asphalt) to the finished grade. If the covers are destroyed, or if the Engineer determines that they cannot be reused, new manhole covers shall be provided.

Subsection 210.13 shall include the following:

Payment will be made under:

Pay Item	Pay Unit
Modify Manhole	Each

Structure excavation and structure backfill required for "Modify Manhole" will not be measured and paid for separately but shall be included in the work. Reinforcing steel, structural concrete, new manhole covers, removal of asphalt, removal of concrete, concrete patching, and asphalt patching, as well as all other materials required to complete the item will not be measured and paid for separately, but shall be included in the work.

**REVISION OF SECTION 210
RESET FIRE HYDRANT**

Section 210 of the Standard Specifications is hereby revised as follows:

This work consists of Removing existing fire hydrant assemblies (including valves, 4-inch Ductile Iron Pipe (DIP), hydrant bodies and concrete blocks) at the access pits locations shown on the plans for each segment to be lined prior to beginning CIPP relining operations.

New 8 inch x 4 inch tees, 4 inch DIP and gate valves shall not be installed until after the CIPP liner is installed and tested. The fire hydrant shall then be reset and connected to the water main.

Add subsection 210.111 after subsection 210.11 as follows:

210.111 Fire Hydrants.

Just prior to resetting a hydrant, the Contractor shall perform the following:

- (1) Each hydrant shall be thoroughly inspected for any defects or damage that may have been caused during removal. If any defects or damage are discovered, the Engineer shall be informed. All hydrants, not damaged by the Contractor's operation, that the Engineer deems are not appropriate for reuse shall be replaced, at CDOT's expense, with new hydrants that are type and model as approved. All hydrants that are damaged by Contractor operations shall be repaired or replaced at the Contractor's expense.
- (2) The interior of the hydrant shall be thoroughly cleaned.
- (3) The Contractor shall allow the hydrant to be opened and closed by CDOT personnel as many times as necessary to determine that all parts are in proper working order, that valves are seating properly and that the drain valve is operating freely.

Hydrants shall be set plumb. Each hydrant shall be set on a concrete foundation at least 18 inches by 18-inches and 6 inches thick. Each hydrant shall be blocked against the end of the trench with a concrete thrust block. Hydrant gate valves shall have a restrained connection directly to the tee at the main. Reset hydrants, fittings and 4-inch DIP shall be double wrapped with an 8-mil minimum thickness polyethylene material per AWWA Standard C105 (MS-3).

Reset fire hydrant assemblies including tees, valves and DIP shall be encased in a thermal insulation and protection material. The primary components of this material shall be calcium carbonate, and shall be installed according to the manufacturer's instructions. The quantity of material used shall be consistent with envelope dimensions rated for operating temperatures in the range 35° F to 100 °F. The Contractor shall submit design calculations to the Engineer prior to placement of the thermal insulation material.

Subsection 210.12 shall include the following:

Fire hydrant resets will be measured by the actual number reset complete in place and accepted.

Subsection 210.13 shall include the following:

Payment will be made under:

Pay Item	Pay Unit
Reset Fire Hydrant	Each

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**REVISION OF SECTION 210
RESET FIRE HYDRANT**

Payment for resetting Fire Hydrants shall be full compensation for all necessary labor, equipment, and materials, including but not limited to 8 inch x 4 inch tees, 4 inch DIP, gate valves, thrust blocks, concrete pads, thermal insulation material, and backfill for the complete installation of the hydrant and reconnection to the relined water main.

**REVISION OF SECTION 304
AGGREGATE BASE COURSE (SPECIAL)**

Section 304 of the Standard Specifications is revised for this project as follows:

Subsection 304.02 shall include the following:

Materials for Aggregate Base Course (Special) shall be Aggregate Base Course (Class 6) as shown in subsection 703.03, or the well-broken product of an asphalt milling machine, or the well-broken product of recycled concrete.

If asphalt millings or recycled concrete is used, the Engineer will determine acceptability based on an actual sample submitted by the Contractor. The asphalt millings or the recycled concrete shall be compacted until the density of not less than 95 percent of the maximum dry density determined in accordance with AASHTO T180 has been achieved. The asphalt millings or the recycled concrete shall not contain clay balls, vegetable matter, or other deleterious substances. The Engineer must approve the locations of the stockpiled material.

If Aggregate Base Course (Class 6) is used, it must have a resistance value of at least 60 when tested by the Hveem Stabilometer method.

Subsection 304.07 shall include the following:

Aggregate Base Course (Special) will be measured by the cubic yard. Measurement for final pay quantities will be based upon the actual depth and width placed in the field.

**REVISION OF SECTIONS 401 AND 703
STONE MATRIX ASPHALT PAVEMENT**

Sections 401 and 703 of the Standard Specifications are hereby revised for this project as follows:

Subsection 401.02 shall include the following:

Recycled Asphalt Pavement (RAP) shall not be used in Stone Matrix Asphalt (SMA) mix.

Subsection 401.09 shall include the following:

Each SMA load shall be completely covered and securely fastened with a full tarp.

Subsection 401.16 shall include the following:

The SMA mixture shall be transported and placed on the roadway without drain-down or flushing or segregation. All flushed or segregated areas behind the paver shall be removed immediately upon discovery. If more than 50 square feet of flushed or segregated SMA pavement is ordered removed and replaced in any continuous 500 linear feet of paver width laydown, operations shall be discontinued until the source of the flushing or segregation has been found and corrected. The contractor is responsible for all expenses associated with removal and replacement of all flushed or segregated areas. The Engineer shall designate the depth and area of all flushed or segregated areas requiring removal and replacement.

Subsection 401.17 shall include the following:

Rollers shall not be used in a vibratory mode on SMA unless they are first used successfully in the demonstration control strip specified in subsection 403.03. Pneumatic wheel rollers shall not be used on SMA mix.

Stone Matrix Asphalt Pavement shall be placed and compacted at the ambient temperatures within the tunnel. Daily temperatures at the tunnel portal for 2004 and 2005 for the months of April through October are available from the Engineer.

The relative compaction for all SMA mixtures will be measured from roadway cores in accordance with CP 44, Method B, unless the SMA mixture is being placed on a structure (bridge deck) in which case the Engineer may specify that nuclear gauge measurements be used.

When cores are used, the Contractor shall provide all labor and equipment for the coring operation and filling the core holes. When nuclear density gauges are used, the tests will be performed in accordance with CP 81 and CP 82.

In-place density for SMA shall be 93 to 97 percent of the SMA mix maximum specific gravity as measured according to CP 51.

Subsection 401.22 shall include the following:

Acceptance, testing, and pay factors for SMA shall be in accordance with subsections 105.03 and 106.03 as revised for this project for Hot Bituminous Pavement.

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**REVISION OF SECTIONS 401 AND 703
STONE MATRIX ASPHALT PAVEMENT**

Subsection 703.06 shall include the following:

Mineral filler for the Stone Matrix Asphalt pavement shall be limestone dust and shall meet the requirements of this subsection and the following:

Plasticity Index (AASHTO T90) 4% Maximum

The Contractor shall submit hydrometer analysis (AASHTO T88) for the mineral filler used in the SMA mix.

**REVISION OF SECTION 403
 STONE MATRIX ASPHALT PAVEMENT**

Section 403 of the Standard Specifications is hereby revised for this project as follows:

Subsection 403.01 shall include the following:

This work includes placing a Stone Matrix Asphalt (SMA) pavement as shown on the plans.

Subsection 403.02 shall include the following:

The SMA mixture shall be 19 mm (3/4 inch) nominal and shall conform to Section 703.

Mixture design and field control testing of SMA shall be performed using either the SuperPave (CPL 5115, 100 Gyration) or the Marshall Method (AASHTO T245, 50 Blow).

A minimum of two weeks prior to the proposed use of any Stone Matrix Asphalt pavement on the project, a pre-paving conference will be conducted. At that time, the contractor shall have submitted and received approval from the Engineer, a mix design meeting the appropriate specification requirements for one of the following:

The SuperPave SMA mix design shall conform to the requirements of Table 403-1a:

TABLE 403-1a

Property	Test Method	Value for SMA
Air Voids, percent at: N(Design)	CPL 5115	3.0 – 4.0
Lab compaction (Revolutions) N(Design)	CPL 5115	100
Accelerated Moisture Susceptibility, tensile strength Ratio, (Lottman), minimum	CPL 5109, Method B	70
Minimum Dry Split Tensile Strength, psi	CPL 5109, Method B	30
Grade of Asphalt Cement		PG 64-28
Voids in the Mineral Aggregate (VMA) %, minimum	CP 48	17
Draindown at Production Temperature	AASHTO T305	0.3 maximum
% VCA ¹ _{MIX}	AASHTO PP41-02	Less than VCA _{DRC} ²
Note: The current version of CPL 5115 is available from the Region Materials Engineer		
Note: Copies of AASHTO PP41-02 and MP8-02 can be obtained from the Region Materials Engineer		
Note: ¹ Voids in the Coarse Aggregate		
Note: ² Dry-rodged condition		

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**REVISION OF SECTION 403
 STONE MATRIX ASPHALT PAVEMENT**

Delete Table 1 of CPL 5115 and replace with the following:

CPL 5115 TABLE 1

Superpave Binder Grade	Laboratory Mixing Temperature, °F	Laboratory Compaction Temperature, °F
PG 58-28	310	280
PG 58-22	310	280
PG 58-34	310	280
PG 64-22	325	300
PG 64-28	325	300
PG 70-28	325	300
PG 76-28	325	300

The Marshall SMA mix design shall conform to the following:

Mix Properties	Value
Stability, Marshall Compactor	1400 lbs., min
% Voids in Total Mix	3 – 4%
VMA (% Voids in the Mineral Aggregate)	17 min.
Lottman, CPL 5109, Method B	70% min
Dry Tensile Strength, (CPL 5109)	30 psi, min.

Regardless of mix design method, a minimum of 1 percent hydrated lime by weight of the combined aggregate shall be added to the aggregate for all Stone Matrix Asphalt.

The SMA mix design must be approved by the Engineer before any pavement is placed on the project. Form 43 will establish construction targets for Asphalt Cement and all mix properties at Air Voids up to 1.0 percent below the mix design optimum.

The Contractor shall provide field control testing during production of the SMA mix and for the demonstration control strip. The Contractor shall perform the following tests and provide the results to the Engineer during production:

If a SuperPave SMA mix design is used, the Contractor shall perform the following tests and provide the results to the Engineer during production:

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REVISION OF SECTION 403
STONE MATRIX ASPHALT PAVEMENT

Superpave Mix Property	Frequency
Draindown (AASHTO T 305)	1/1000 tons or fraction thereof
Percent Voids in the total mix @ $N_{(design)}$	1/1000 tons or fraction thereof
VMA (Percent Voids in the Mineral Aggregate) @ $N_{(design)}$	1/1000 tons or fraction thereof
Lottman, CPL 5109, Method B	1/5000 tons or fraction thereof
Dry Tensile Strength, CPL 5109	1/5000 tons or fraction thereof
Percent AC & Aggregate Gradation CP 5120	1/1000 tons or fraction thereof
Cold Feed Gradation CP 31	1/Day
Aggregate Percent Moisture	1/Day
Percent Lime	1/Day

If a Marshall SMA mix design is used, the Contractor shall perform the following tests and provide the results to the Engineer during production:

Marshall Mix Property	Frequency
Draindown (AASHTO T 305)	1/1000 tons or fraction thereof
Stability (Marshall)	1/1000 tons or fraction thereof
Percent Voids in the total mix	1/1000 tons or fraction thereof
VMA (Percent Voids in the Mineral Aggregate)	1/1000 tons or fraction thereof
Lottman, CPL 5109, Method B	1/5000 tons or fraction thereof
Dry Tensile Strength, CPL 5109	1/5000 tons or fraction thereof
Percent AC & Aggregate Gradation CP 5120	1/1000 tons or fraction thereof
Cold Feed Gradation CP 31	1/Day
Aggregate Percent Moisture	1/Day
Percent Lime	1/Day

Subsection 403.03 shall include the following:

The mineral filler for SMA shall be stored in a separate silo and added automatically in the correct proportion. The mineral filler addition equipment shall be electronically or mechanically interlocked to the aggregate feed sensors so that the proper amount of mineral filler is added whenever SMA is produced.

The SMA mineral filler shall be added at the same point the asphalt cement is added to the aggregate.

The minimum amount of mineral filler in the mix design shall be 3% by weight unless otherwise approved by the Region Materials Engineer.

Tack coat between the existing pavement and Stone Matrix Asphalt pavement shall be placed at a rate between 0.03 and 0.05 gallons per square yard.

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**REVISION OF SECTION 403
STONE MATRIX ASPHALT PAVEMENT**

Before proceeding with SMA placement, the Contractor shall demonstrate the ability to produce and place a satisfactory mix. The actual work may proceed when a full lane width demonstration control strip, having a minimum length of 1000 feet has been successfully placed. The Contractor may substitute SMA for HMA in the parking area at no additional cost. The Contractor shall determine properties (VMA, Voids, in-place density, and Marshall Stability, if required) of the project produced mix that is used in the demonstration control strip and provide the results to the Engineer. No other SMA production or placement will be allowed until densities are determined. If the material in the demonstration control strip is not in close conformity with the specifications, the demonstration control strip will be removed and replaced at the Contractors expense. The Engineer will designate the location of the control strip.

Subsection 403.04 shall include the following:

Stone Matrix Asphalt (SMA) will be measured by the Ton of work completed and accepted.

Subsection 403.05 shall include the following:

Pay Item	Pay Unit
Stone Matrix Asphalt (SMA)	Ton

Mix design, furnishing, hauling, preparing, and placing all materials, including aggregates, limestone dust, hydrated lime, tack coat, and approved demonstration control strip; labor, equipment tools, setting of lines and guides where specified, and all other work necessary to complete the item will not be paid for separately but shall be included in the work.

Asphalt Cement will be measured and paid for in accordance with Section 411.

**REVISION OF SECTION 403
 HOT MIX ASPHALT**

Section 403 of the Standard Specifications is hereby revised for this project as follows:

Subsection 403.02 shall include the following:

The design mix for hot mix asphalt shall conform to the following:

TABLE 403-1

Property	Test Method	Value For Grading	
		SX (58-28)	Patching
Air Voids, percent at: N (initial) [for information only] N (design)	CPL 5115	3.5 – 4.5	3.5 – 4.5
Lab Compaction (Revolutions): N (initial) [for information only] N (design)	CPL 5115	7 75	7 75
Stability, minimum	CPL 5106	28	28
Aggregate Retained on the 4.75 mm (No. 4) Sieve with at least 2 Mechanically Induced fractured faces, % minimum	CP 45	70	70
Accelerated Moisture Sus-ceptibility Tensile Strength Ratio (Lottman), minimum	CPL 5109 Method B	80	80
Minimum Dry Split Tensile Strength, kPa (psi)	CPL 5109 Method B	30	30
Grade of Asphalt Cement (All Layers)		PG 58-28	PG 58-34
Voids in the Mineral Aggregate (VMA) % minimum	CP 48	See Table 403-2	See Table 403-2
Voids Filled with Asphalt (VFA), %	AI MS-2	65-80	65-80
Dust to Asphalt Ratio Fine Gradation Coarse Gradation	CP 50	0.6– 1.2 0.8 – 1.6	0.6– 1.2 0.8 – 1.6
<p>Note: AI MS-2 = Asphalt Institute Manual Series 2</p> <p>Note: The current version of CPL 5115 is available from the Region Materials Engineer.</p> <p>Note: Mixes with gradations having less than 40% passing the 4.75 mm (No. 4) sieve shall be approached with caution because of constructability problems.</p> <p>Note: Gradations for mixes with a nominal maximum aggregate size of one-inch or larger are considered a coarse gradation if they pass below the maximum density line at the #4 screen. Gradations for mixes with a nominal maximum aggregate size of ¾ inch or smaller are considered a coarse gradation if they pass below the maximum density line at the #8 screen.</p>			

All mix designs shall be run with a gyratory compaction angle of 1.25 degrees and properties must satisfy Table 403-1. Form 43 will establish construction targets for Asphalt Cement and all mix properties at Air Voids up to 1.0 percent below the mix design optimum.

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 REVISION OF SECTION 403
 HOT MIX ASPHALT

TABLE 403-2

Minimum Voids in the Mineral Aggregate (VMA)			
Nominal Maximum Size*, mm (inches)	***Design Air Voids **		
	3.5%	4.0%	4.5%
37.5 (1½)	11.6	11.7	11.8
25.0 (1)	12.6	12.7	12.8
19.0 (¾)	13.6	13.7	13.8
12.5 (½)	14.6	14.7	14.8
9.5 (¾)	15.6	15.7	15.8
* The Nominal Maximum Size is defined as one sieve larger than the first sieve to retain more than 10%. ** Interpolate specified VMA values for design air voids between those listed. *** Extrapolate specified VMA values for production air voids beyond those listed.			

The Contractor shall prepare a quality control plan outlining the steps taken to minimize segregation of HMA. This plan shall be submitted to the Engineer and approved prior to beginning the paving operations. When the Engineer determines that segregation is unacceptable, the paving shall stop and the cause of segregation shall be corrected before paving operations will be allowed to resume.

The hot mix asphalt shall not contain any reclaimed asphalt pavement.

Hot mix asphalt for patching shall conform to the gradation requirements for Hot Mix Asphalt (Grading SX).

A minimum of 1 percent hydrated lime by weight of the combined aggregate shall be added to the aggregate for all hot mix asphalt.

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**REVISION OF SECTION 403
HOT MIX ASPHALT**

Delete subsection 403.05 and replace with the following:

403.05 The accepted quantities of hot mix asphalt will be paid for in accordance with subsection 401.22, at the contract unit price per ton for the bituminous mixture.

Payment will be made under:

Pay Item	Pay Unit
Hot Mix Asphalt SX (75) PG (58-28)	Ton
Hot Mix Asphalt (Patching) (Asphalt)	Ton

Aggregate, asphalt recycling agent, additives, hydrated lime, and all other work necessary to complete each hot mix asphalt item will not be paid for separately, but shall be included in the unit price bid. When the pay item includes the PG binder grade, the asphalt cement will not be measured and paid for separately, but shall be included in the work. When the pay item does not include the PG binder grade, asphalt cement will be measured and paid for in accordance with Section 411. Asphalt cement used in Hot Mix Asphalt (Patching) will not be measured and paid for separately, but shall be included in the work.

Excavation, preparation, and tack coat of areas to be patched will not be measured and paid for separately, but shall be included in the work.

**REVISION OF SECTION 403
HOT MIX ASPHALT TICKET COLLECTION**

Section 403 of the Standard Specifications is hereby revised for this project as follows:

Subsection 403.05 shall include the following:

The Contractor shall collect the scale ticket on each load when it is delivered to the project site, and ensure that the information required in subsection 109.01 is shown on each ticket.

The scale tickets shall be available on site for CDOT personnel to inspect.

Each day the Contractor shall provide to the Engineer envelopes which contain the previous day's signed tickets and the following:

1. On each envelope: Project number, date of paving, type of material, daily total and cumulative total.
2. One of the following:
 - A. Two adding machine tape tabulations of the weight tickets with corresponding totals run and signed by different persons,
 - B. One signed adding machine tape tabulation of the weight tickets that has been checked and signed by a second person,
 - C. Signed check tape of computer scale tickets that have a cumulative total. These scale tickets must be consecutive and without voids adjustments.
3. A listing of any overweight loads on the envelope, including ticket numbers and amount over legal limit.
4. A comparison of the actual yield for each day's placement to the theoretical yield. Theoretical yield shall be based on the actual area paved, the planned thickness, and the actual density of the mixture being placed. Any variance greater than +2.5% shall be indicated on the envelope and a written explanation included.

The Contractor shall provide a vehicle identification sheet that contains the following information for each vehicle:

- (1) Vehicle number
- (2) Length
- (3) Tare weight
- (4) Number of axles
- (5) Distance between extreme axles
- (6) All other information required to determine legal weight.
- (7) Legal weight limit.

**REVISION OF SECTION 604
MANHOLE SPECIAL**

Section 604.01 of the Standard Specifications is hereby revised for this project as follows:

Subsection 604.04 shall include the following:

Manhole special shall be water tight constructed in accordance with Standard Plan M-606-20 and installed as shown in the plans. All 3-inch pipe, thermal insulation, valves, fittings and Wye strainer shall be installed as shown in the Contract. No disturbance will be allowed to the existing Straight Creek filtration ponds and perforated collection pipe. Prior to construction and ordering new material, the Contractor shall field verify the location and depth of the existing 3-inch pipe and shall field verify the proposed manhole depth.

Section 604.06 shall include the following:

Payment will be made under:

Pay Item	Pay Unit
Manhole Special	Each

Payment for Manhole Special shall be full compensation for structure excavation, backfill, all necessary labor, equipment and materials, including pipe, valves, Wye strainer, fittings and thermal insulation.

**REVISION OF SECTION 606
TENSIONED CABLE BARRIER**

Section 606 of the Standard Specifications is hereby revised to include the following:

DESCRIPTION

This work consists of furnishing and installing tensioned cable barrier at locations as shown on the plans.

MATERIALS

Tensioned cable barrier and end anchorage shall meet NCHRP 350 TL-4 crash testing requirements, and shall be one of the following:

- (1) Brifen Wire Rope Safety Fence as supplied by Midstate Traffic Control, Inc., 9215 S. Shields Blvd., Oklahoma City, OK 73160, Phone: (405) 799-0313, Fax: (405) 799-3808.
- (2) Cable Safety System (CASS) as supplied by Trinity Industries, Inc., 2525 Stemmons Freeway, Dallas, TX 76707, Phone: (214) 631-4420, Fax: (214) 589-8501.

If the Brifen system is selected, only the 4-strand cable barrier will be permitted.

The cable barrier system shall be installed using a socketed post method.

CONSTRUCTION REQUIREMENTS

Tensioned cable barrier shall be installed in accordance with the details shown in the plans and in accordance with manufacturer's recommendations. A qualified manufacturer's representative shall be on-site to ensure proper installation.

Unless otherwise approved, post spacing and post depths shall be as shown in the plans.

METHOD OF MEASUREMENT

Tensioned cable barrier will be measured by the actual number of linear feet that is installed and accepted, excluding end anchorage.

End anchorage for cable barrier will be measured by the actual number of anchorages that are installed and accepted.

BASIS OF PAYMENT

Payment will be under:

Pay Item

Pay Unit

Pay Item	Pay Unit
Tensioned Cable Barrier	Linear Foot
End Anchorage (Tensioned Cable Barrier)	Each

Payment will be full compensation for all labor, materials and equipment required to complete the work, including screws, rings, threaded terminals, and the removal and replacement of embankment or pavement.

Concrete foundations and deflection posts will not be measured and paid for separately, but shall be included in the work.

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**REVISION OF SECTION 606
TENSIONED CABLE BARRIER**

Anchor blocks all associated hardware for cable barrier end anchorage will not be measured and paid for separately, but shall be included in the work.

All costs associated with the manufacturer's representative will not be measured and paid for separately, but shall be included in the work.

**REVISION OF SECTION 614
VEHICLE LOOP DETECTORS**

Section 614 of the Standard Specifications is hereby revised for this project as follows:

In subsection 614.08 (k), the eighth paragraph shall be deleted and replaced with the following:

Loop Detector Wire (Prefab) (Special) shall be Never-Fail Loop Systems or an approved equivalent.

The loop shall consist of four turns of insulated No. 16 wire. The wires shall be encased in 3/8 inch polypropylene conduit in the head of the loop with sealed expansion / contraction joints. The conduit shall be injected with hot rubber-asphalt sealant to prevent the entrance of water and movement of wires within the conduit.

The loop wires from the preformed loop to the pullbox special shall be twisted together into a pair (at least two turns per foot) and encased in 250 psi hydraulic hose injected with hot rubber-asphalt sealant. Field splices will not be allowed between the preformed loops and the pullbox.

Installation of preformed loops shall be in accordance with the manufacturer's recommendations. Prior to installation, the Contractor shall supply the Engineer with a copy of the installation procedures.

The preformed loops shall be manufactured to the dimensions shown on the plans and designed to be laid in place immediately prior to paving operations.

The Contractor shall determine the length of loop wires required from the preformed loop to the pullbox and shall furnish a copy of the lengths to the Engineer.

The loops shall be delivered to the project at least 7 days prior to paving.

The Contractor shall check the continuity of the loops upon delivery to the project, once set on grade immediately prior to the paving operation, and after the paving operation while the pavement over the loop is still in the plastic state. The Contractor shall check both continuity and resistance to ground the following day or as directed by the Engineer.

A licensed electrician shall be available on the project at all times when preformed loops are being installed and tested.

Subsection 614.13 shall include the following:

The preformed loop systems shall be measured and paid for based on the linear feet of conduit used in the loop system and shall include loop wire, preformed loop conduit, lead-in conduit, hydraulic hose, excavation, backfill, and all other work necessary to complete the item.

Subsection 614.14 shall include the following:

<u>Pay Item</u>	<u>Pay Unit</u>
Loop Detector Wire (Prefab)(Special)	Linear Foot

**REVISION OF SECTION 619
WATERLINES**

Section 619 of the Standard Specifications is hereby revised for this project to include the following:

Section 619.01 shall be revised to include the following:

DESCRIPTION

This work consists of the relining of approximately 2,900 feet of existing 8 inch ductile iron pipe (DIP) located within the north bore of the Eisenhower Memorial Tunnel and the relining of approximately 450 feet of 3 inch cast iron pipe from Straight Creek to the existing water storage tank located on the hillside above the tunnel with Cured-in-Place Pipe (CIPP). Also included in the work are the removal and resetting of existing fire hydrants, replacement of gate valves and pressure reducing valves, connection of the relined section of 8 inch DIP to the existing watermain with gate valves and the construction of a manhole at the Straight Creek interception pond. The work shall be performed in accordance with these specifications, the latest revision of the American Water Works Association Standards and in conformity with the lines and grades shown on the plans or established.

MATERIALS

Structural Lining/CIPP. The material used for the structural lining system will consist of a woven fiberglass and polyester mesh tube, or polyester-reinforced polyethylene tube impregnated with a thermosetting epoxy resin.

Materials shall meet the requirements specified in the revision of section 716.

Contractor Submittals. Prior to start of work, the Contractor shall submit the following for approval:

1. Satisfactory written guarantee: The Contractor shall provide a satisfactory written guarantee of his compliance with the liner manufacturer's standards for all materials and techniques being used in the lining process.
2. Liner Design: A design, using the equations contained in ASTM F-1216, using the documented physical properties of the proposed CIPP, and using a minimum safety factor of 1.85, indicating the required liner pipe wall thickness for each section to be lined. The calculations shall not consider any strength of the host pipe, signed by an engineer, and shall be provided to the Engineer for review 2 weeks prior to the start of relining operations.
3. Testing: Documentation by third party testing as to the long term Modulus of Elasticity, as a percentage of the initial, shall be attached to the design. The approved designed wall thickness shall be installed unless the Engineer has specifically noted a liner pipe wall thickness in the bid documents. In either event, the wall thickness specified will be the minimum furnished thickness that is acceptable.
4. Report: A report of Field Sample Test Results listing the physical properties of liner pipes of the same type, which have been installed by the Contractor for previous projects.

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**REVISION OF SECTION 619
WATERLINES**

Qualifications. The Contractor's personnel shall possess the following minimum qualifications and/or experience:

Field Supervisor/Foreman: Minimum three years as a foreman/superintendent for a cured-in-place pipe lining crew on projects of similar size and complexity. The contractor shall provide documentation of these qualifications, including a list of past projects, industry certification and a list of references for approval to CDOT, a minimum of two weeks prior to the start of work.

CONSTRUCTION REQUIREMENTS

The existing 8 inch concrete lined ductile iron pipe (DIP) located within the north bore of the tunnel shall be lined in sections via the access pits approved by CDOT shown on the plans. The work shall include installation and curing of the CIPP, cleaning, videotaping, testing and clean up and disposal of cleaning water and debris.

The existing 3 inch cast iron pipe (CIP) shall be relined from the location of the manhole special shown on the plans to the point of entry at the existing concrete water tank located on the hillside above the tunnel. In addition to the items mentioned above, the work shall include all excavation, dewatering and restoration required to facilitate the CIPP installation and curing process.

Inspection of pipelines. Inspection of pipelines shall be performed by experienced personnel trained in locating breaks and obstacles by closed circuit television. The interior of the pipeline shall be carefully inspected to determine the locations and extents of any structural failures. The location of any conditions which may prevent proper installation of the CIPP liner into the pipelines shall be noted so that these conditions can be corrected.

- (1) Prior to commencing cleaning and lining of the waterline, the Contractor shall televise and video record the entire section of the water main to be lined. The preliminary video recordings of the host pipe shall be reviewed and approved by the Engineer. During this review the Contractor and Engineer will agree on the condition of the pipe, and relining may be commenced if it is mutually determined that the host pipe requires no point repairs in preparation for lining. If during this review, it is determined that point repairs are required, the Contractor shall provide a repair plan to the Engineer for approval prior to construction.
- (2) The recorded video and logs shall be given to the Colorado Department of Transportation (CDOT) Mountain Residency at the completion of the work, and shall contain both the preliminary and post construction versions. The recording shall be made on DVD and shall be adequately labeled to ensure easy reference of location. All video shall be of high quality and clarity, and shall show the complete footage of each line to the satisfaction of the Engineer, and in a format acceptable to the Tunnel Maintenance Division.
- (3) All television inspections of the existing watermain and the lined watermain completed by the Contractor shall be recorded on a DVD which is compatible with equipment currently used by the CDOT to view such DVDs.
- (4) The contractor shall provide 2 copies of the DVDs.

The following installation procedures shall be adhered to unless otherwise approved by the Engineer:

- (1) **Safety:** The Contractor shall carry out his operations in strict accordance with all OSHA and manufacturer's safety requirements. Particular attention is drawn to those safety requirements involving

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**REVISION OF SECTION 619
WATERLINES**

working in excavations and entering confined spaces. The contractor shall comply with CDOT's tunnel safety rules.

- (2) **Cleaning of Watermains:** Prior to installation, the contractor shall clean the line that is to receive the liner using accepted cleaning techniques to remove all tuberculation, deposits, and loose or deteriorated remains of any original coating and other foreign materials from inside the pipe. Both drag scraping and rack boring are approved cleaning methods. Both methods shall be carried out against a full flow of water and not against a capped off watermain. Scraping should pass through the pipe a minimum of two (2) times, once in each direction, to ensure that all nodules and tuberculation are removed. Pressure jetting will be an acceptable alternative for this process. Any other cleaning methods shall be submitted to the Engineer for approval.
- (3) **Cleaning Water & Debris:** Disposal of any water or excess debris generated from the cleaning process shall be in compliance with all relevant by-laws and the Colorado Department of Public Health And Environment (CDPHE) requirements and regulations. The Contractor shall submit his disposal plans to the Engineer for approval prior to commencing cleaning operations.
- (4) **Line Obstructions:** It shall be the responsibility of the Contractor to clear the line of obstructions such as solids that will prevent the insertion of the liner. Obstructions which cannot be removed by conventional cleaning methods shall be repaired prior to insertion of the liner. These repairs will not be an additional pay item, but will be considered as incidental to the other contract pay items of work.
- (5) **Bypassing Flow:** If the relining operation of the 3 inch CIP takes more than two (2) days, the Contractor shall provide for the transfer of flow around that pipeline. The proposed bypassing system shall be as approved in advance by the Engineer. The approval of the bypassing system in advance by the Engineer shall in no way relieve the Contractor of his responsibility and/or public liability.
- (6) **Storage of Liner:** The Contractor shall designate a location where the uncured resin in the original containers and the un-impregnated liner will be stored at the temperatures, and under the conditions specified by the manufacturer. The Contractor shall allow the Engineer to inspect the materials storage area.

Installation of Liner. The liner shall be installed in accordance with the following:

- (1) **Material Handling:** The Contractor shall designate a location where the uncured resin in the original containers and the un-impregnated liner will be stored and where the liner will be impregnated prior to installation. The liner and resin shall be stored at the temperatures and under the conditions recommended by the manufacturers. The Contractor shall allow the Engineer to inspect the materials and "wet out" procedure.
- (2) **Resin Impregnation:** A resin and catalyst system compatible with the requirement of this method shall be used. The quantity of the liquid thermosetting resin materials shall be per ASTM and manufacturer's standards to provide the required design lining thickness and shall be sufficient to fill the volume of air voids in the tube with additional allowances for polymerization shrinkage and the loss of resin through cracks and irregularities in the original pipe wall. A roller system or vacuum impregnation process shall be used to uniformly distribute the resin throughout the tube. If a vacuum impregnation process is used, the point of vacuum shall be no further than 25-feet from the point of initial resin introduction. After vacuum in the tube is established, a vacuum point shall be no further than 75-feet from the leading edge of the resin.

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**REVISION OF SECTION 619
WATERLINES**

- (3) **Liner Insertion:** The "wet out" liner material shall be inserted in the host pipe at the approved access pits shown on the plans or other approved access points by means of an inversion or pull-in methods. The impregnated liner materials shall be inserted into the host pipe with the impermeable plastic membrane side in. Care shall be taken during the insertion process to avoid overstressing of the fabric materials. Use of a lubricant during the insertion is allowed in accordance with the manufacturer's recommendations to reduce friction. The lubricant shall be nontoxic, unable to support bacterial growth, and shall not adversely affect the fluid to be transported. Following insertion, the liner shall be expanded to completely contact the inner circumference of the pipe to be lined in accordance with the manufacturer's recommended installation procedure. The liner manufacturer's standards shall be closely followed during the elevated curing temperature so as not to overstress the felt fiber and cause damage or failure of the liner prior to cure.
- (4) **Liner Curing:** After installation of the liner is completed and a temperature calibration mechanism is inserted, the Contractor shall cure the liner in strict accordance with ASTM standards and the manufacturer's recommendations. In the case of hot water curing, the Contractor shall supply a suitable heat source and water re-circulation equipment. The equipment shall be capable of delivering hot water through the entire length of the liner per the manufacturer's recommendations, to uniformly raise the water temperature in the entire liner above the temperature required to affect a cure of the resin. This temperature shall be determined by the resin/catalyst system employed. In the case of steam curing, the Contractor shall supply suitable steam generating equipment capable of delivering steam through the entire length of the liner per the manufacturer's recommendations to affect a cure of the resin.
- (5) **Heating Equipment:** The heat source and/or water re-circulation equipment shall be fitted with suitable monitors to gauge the temperature of the incoming and outgoing heat exchanger circulating water. Water temperature in the line during the cure period shall not be less than 125°F or more than 200°F as measured at the heat exchanger return line. Water utilized in the curing process shall be obtained from a potable water source.
- (6) **Initial cure:** Initial cure shall be deemed to be completed when inspection reveals the exposed portions of the cured-in-place pipe to be hard and sound, and the thermocouples indicate that an exothermic reaction has occurred. The cure and post-cure period and temperature shall be as recommended by the resin manufacturer and modified for the cured-in-place process being used, during which time the re-circulation of the water and cycling of the heat exchanger to maintain the temperature in the liner continues. The curing process shall take into account the existing pipe material, the resin system, and ground conditions (temperature, moisture content, thermal conductivity, etc.).
- (7) **Cool-down:** The Contractor shall cool the finished cured-in-place pipe to a specified temperature in strict accordance with ASTM and manufacturer's recommendations before relieving the internal pressure in the cured-in-place pipe. Cool-down may be accomplished by the introduction of cool water into the tube to replace water being drained from a small hole made in the end of the liner at the far end. Care shall be taken in the release of the static head such that a vacuum will not be developed that could damage the newly installed liner.
- (8) **Finish:** The finished lining shall be continuous over the entire length of an insertion run and be as free as commercially practicable from visual defects such as foreign inclusions, dry spots, pinholes and delamination. The lining shall be impervious and free of any leakage from the pipe to the surrounding ground or from the ground to the inside of the lined pipe. Any defects which will affect the integrity or

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**REVISION OF SECTION 619
WATERLINES**

strength of the lining shall be repaired at the Contractor's expense, in a manner mutually agreed by the Engineer and the Contractor.

- (9) Sealing Liner at Ends: If, due to broken or misaligned pipe at the access points, the lining fails to make a tight seal, the Contractor shall apply a seal at that point. The seal shall be of a resin mixture compatible with the liner.

Access Pits.

Access pits shall be excavated at all fire hydrant locations as shown on the plans. The standard dimensions of each access pit are 10' x 6', (measured longitudinally and transversely to the waterline respectively). The Engineer shall be notified if site conditions require access pits of larger dimensions.

Fittings.

All fittings shall be carefully examined for cracks and other defects by CDOT immediately before installation. Defective fittings shall be removed from the job site within 24 hours of notification by the Engineer.

Every precaution shall be taken to prevent foreign material and trench water from entering the pipe and fittings. During construction, the Contractor shall provide and maintain adequate equipment to properly remove and dispose of all water entering the trench and any other part of the work.

All ductile iron pipe fittings and appurtenances shall be double wrapped with minimum 8 mil polyethylene film wrap. Miscellaneous steel or other ferrous pipe for temporary blow-offs, etc., shall be similarly protected.

All bolts and nuts used in conjunction with valves shall be stainless steel and shall be tightened in accordance with the manufacturer's specifications. All gate valves shall be installed with a valve box.

Heat Trace Cable

The existing heat trace cable in the waterline shall be removed, and a parallel resistance, constant watt heating cable shall be installed within the lined pipe. This heat trace cable shall be a Constant Watt Heating Cable, rated for a supply voltage of 240/277 V with a Watt Density of 5 W/ft. The heat trace cable shall run the entire length of the waterline segment and shall be installed per manufacturer's specifications. The heat trace cable may be installed within the CIPP liner. The heat trace cable shall exit the top of the relined waterline via appropriate watertight fittings at water valve locations and at points necessary for electrical connections. The Contractor shall submit information regarding the installation method to be used for approval by the Engineer prior to installation of the cable. The cable shall be attached to the exterior of valves and other appurtenances per manufacturer's installation instructions. Electrical connections for the heat trace cable shall be made at the existing supply points and shall be in accordance with the manufacturer's specifications. Heat trace cable shall be installed in such a way that it can be easily replaced should it fail. Details shall be submitted to the engineer for approval prior to placing.

Discharge Permit

The water quality control division of the Colorado Department of Public Health And Environment (CDPHE) requires all water line contractors to possess a current Discharge Permit for discharges of chlorinated and process

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**REVISION OF SECTION 619
WATERLINES**

waters associated with the installation of new mains or conduits. Contact CDPHE water quality control division at (303) 692-3539 for information regarding obtaining the required permit.

Interruption of Service

CDOT tunnel maintenance staff will operate all existing valves and hydrants during the installation of the CIPP liner. No valve or other control device on the existing system will be operated for any purpose by anyone other than CDOT staff without prior written authorization. Twenty-four hours prior to the interruption of service, the Contractor shall notify CDOT staff.

Valve and Valve Box Installation

Valves and valve boxes shall be installed where shown on the approved plans or as directed by the Engineer. Valve boxes shall be firmly supported, centered, and plumbed over the wrench nut of the valve with the box cover at the elevation shown on the plans or as directed by the Engineer. Structure backfill or HMA shall be carefully tamped around each valve box to the undisturbed trench face. Valves shall have the interiors cleaned of all foreign matter before and after installation. Gear cases shall be tightened and the valve shall be inspected by CDOT in opened and closed positions to ensure that all parts are in working condition prior to installation. The cases shall be supported by bricks or other means to prevent any shock or stress being transmitted to the valve.

Anchorage and Blocking

Provide concrete thrust blocks and anchors for preventing pipe movement at push-on or mechanical joint tees and valves. Thrust block shall be sized and installed according to the detail provided in the construction drawings. After the concrete has been placed and has set, the contractor shall remove all forming materials prior to backfilling around the thrust block. Concrete for the thrust blocks shall be Class B in accordance with Section 601.

1. Provide a concrete thrust block under flanged valves that have valve boxes and at fire hydrants as shown on the plans.
2. Extend concrete from the fitting or valve to solid, undisturbed earth. Construct so joints and drain holes are clear and accessible.

The blocking shall be placed so that the pipe and fitting joints will be accessible for repair. A bond breaker shall be placed between the fittings and the thrust block. Backfill may be placed over the thrust blocks once the surface has set sufficiently to resist the weight of the backfill. However, no tamping or compacting shall be allowed above the thrust block for a minimum of 24 hours after placement. Concrete must set a minimum of 48 hours prior to the initial filling of the line.

Testing and Acceptance. Final acceptance of this work will be based on the following:

1. **Liner Testing:** The water-tightness of the liner shall be gauged while the liner is curing and under a positive head. After the work is completed, the Contractor will provide the Engineer with a video tape showing both the 'before-lined' and 'after-lined' conditions.
2. **Physical Properties Testing:** A sample section from each insertion run shall be saved. The Engineer may randomly select samples to be tested for the Modulus of Elasticity (initial), in accordance with ASTM D-790, by an approved independent testing laboratory. The long term Modulus of Elasticity of

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REVISION OF SECTION 619 WATERLINES

the pipe will be calculated from the data on the approved design submittal. The sample section shall be made by inverting through cylindrical form placed in the manhole invert. The test report shall be approved by the Engineer prior to the final contract payment. The costs of the tests shall be incidental to the other contract pay items of work.

3. Clean-up: Upon completion of the installation work and after required testing indicates the lining is acceptable the Contractor shall clean up the project area affected by the work. Any damage by the Contractor to public or private property shall be restored to original or better condition as determined by the Engineer.
4. Video Tape: After all work is completed, the Contractor shall provide CDOT with a videotape showing both the pre- and post-installation conditions. All defects discovered during the post-installation television inspection shall be corrected by the Contractor at his expense. After the defects, if any, are corrected, the affected waterline segment(s) shall be videotaped again. The post-installation television inspection tape shall be submitted to the Engineer in sufficient time to allow the Engineer to review the videotape prior to Acceptance of the Project.

Pressure and Leakage Testing of Lined Sections

Each section of lined pipe shall be pressure tested before any valves and other fittings are installed. The relined pipe section shall be tested to the lesser of one and one half (1½) times the working pressure (measured at the lowest elevation of the test section), or 150 psi. The hydrostatic pressure shall be maintained within plus or minus five (±5) psi of the test pressure for at least two (2) hours with no loss of pressure or water to ensure that the section is leak free and watertight. The operating pressure will be identified by the Engineer. Repeat tests until the leakage is within the permitted allowance. All tests shall be made by the Contractor in the presence of CDOT personnel, and the test results shall be certified by an independent testing agency. The Contractor shall pay the costs for all tests and certifications.

Pressure Testing of Waterline

The entire length of lined watermain shall be pressure tested after the reinstatement of all hydrants, fittings, heat trace cable and other appurtenances. The relined pipe shall be tested to the lesser of one and one half (1½) times the working pressure (measured at the lowest elevation of the test section), or 150 psi. The hydrostatic pressure shall be maintained within ±5 pounds per square inch of the test pressure for at least two (2) hours with no loss of pressure or water to ensure that the section is leak free and watertight. The operating pressure will be identified by the Engineer. Repeat tests until no leakage or loss of pressure is detected. All tests shall be made by the Contractor in the presence of CDOT personnel, and the test results shall be certified by an independent testing agency. The Contractor shall pay the costs for all tests and certifications.

METHOD OF MEASUREMENT

Polyester Felt Liner Cured-in-Place Pipe will be measured by the number of linear feet of each diameter installed and accepted. Measurement will be made from one sealed end of the cured-in-place pipe installation to the other, and shall include all bypass pumping, cleaning, pre- and post-construction televising, labor, equipment, material, installation, safety, dust/erosion control, testing, restoration and all other work specified or not which is reasonably required to provide a completed installation.

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**REVISION OF SECTION 619
WATERLINES**

Heat trace cable shall be measured as the linear feet in place and shall include all fittings.

Access pits shall be the actual number used as approved by the engineer.

Connections to existing waterline shall be paid for by the actual number of connections made and shall include all mechanical joints, fittings and thrust blocks necessary to make the connection.

6 Inch pressure reducing valves shall be paid for by the actual number installed.

3 Inch pressure reducing valves shall be paid for by the actual number installed.

8 Inch gate valves shall be paid for by the actual number installed.

Section 619.05 shall include the following:

Payment will be made under:

Pay Item	Pay Unit
8 Inch Polyester Felt Liner Cured-in-Place Pipe	Linear Foot
3 Inch Polyester Felt Liner Cured-in-Place Pipe	Linear Foot
Connect to Existing Waterline	Each
6 Inch Pressure Reducing Valve	Each
3 Inch Pressure Reducing Valve	Each
8 Inch Gate Valve	Each

Payment for Polyester Felt Liner CIPP shall be full compensation for all necessary labor, equipment, and materials necessary for the cleaning and lining of the existing watermain.

Access Pits will be paid as "Item 203 Access Pit - Each" and shall be full compensation for all necessary labor, equipment, and materials necessary for excavation of access pits including saw-cutting of existing pavement, disposal of excavated materials, temporary traffic provisions, backfill and asphalt patching.

Payment for Pressure Reducing Valves shall be full compensation for all necessary labor, equipment, and materials, including valves, fittings, thermal insulation, pipe and removal of the existing pressure reducing valve and associated piping.

Heat trace cable will be paid as "Item 613 Heat Trace Cable – Linear Foot" and shall be full compensation for all necessary labor, equipment and materials, including parallel constant watt cable, connection to existing electrical supply system, saddle fittings necessary for the complete installation of the freeze protection cable.

Payment for connection to existing waterline shall be full compensation for all necessary labor, equipment and materials, to sever the existing waterline, install the required fittings and reconnect the relined section of pipe to the existing.

Payment for 8 inch gate valves shall be full compensation for all labor, equipment, and materials, including excavation, backfill and thrust blocking, required for the installation of the valve on the existing or relined watermain.

Any item not specified in the above work shall be considered incidental to the work and not paid for separately.

**REVISION OF SECTION 625
CONSTRUCTION SURVEYING (HOURLY)**

Section 625 of the Standard Specifications and Supplemental Specifications is hereby revised for this project as follows:

Subsection 625.01 shall include the following:

The Contractor shall also perform Construction Surveying (Hourly) as required by the Engineer. This item will not be used for work as defined in Item 625 Construction Surveying and as indicated on the Survey Tabulation Sheet.

Subsection 625.12 shall include the following:

The method of measurement for the work described as Construction Surveying (Hourly) shall be measured on an hourly basis to replace staking damaged by causes outside of the control of the Contractor and without fault of the Contractor. The number of hours paid will be the actual crew time as determined by the Engineer. Office support hours for calculations and other associated work will be paid at one half -hour of crew time per one hour of office work as determined by the Engineer.

In Subsection 625.13, delete the second paragraph and replace with the following:

Payment for the work described as Construction Surveying (Hourly) shall be paid at the hourly rate bid and will be full compensation for the work necessary to complete the work. The payment will be made when the work is complete.

Payment will be made under:

Pay Item	Pay Unit
Construction Surveying (Hourly)	Hour

**REVISION OF SECTIONS 627 AND 708
PAVEMENT MARKING WITH WATERBORNE PAINT
AND LOW VOC SOLVENT BASE PAINT**

Sections 627 and 708 of the Standard Specifications are hereby revised for this project as follows:

Delete subsection 627.04 and replace with the following:

627.04 Pavement Marking with Waterborne and Low VOC Solvent Base Paint. Striping shall be done when the air and pavement temperatures are at least 7 °C (45 °F) and rising for waterborne paint and 4 °C (40 °F) and rising for low VOC solvent base paint. The pavement surface and weather conditions shall be conducive to satisfactory results.

Equipment shall be capable of painting a reasonably clean-edged stripe of the designated width (± 6 mm) ($\pm 1/4$ inch) and shall have a bead dispenser directly behind, synchronized with the paint applicator. Machines shall have multiple applicators. Each applicator shall have individual control and automatic skip control that will paint a stripe with a gap as shown on the plans. In areas where machines are not practical, suitable hand-operated equipment shall be used. Stripes shall be protected until dry.

Paint and beads shall be applied within the following limits:

	Application Rate or Coverage Per Liter (Gallon) of Paint	
	MINIMUM	MAXIMUM
Paint:	2.5 m ² (100 sq. ft.)	2.7 m ² (110 sq. ft.)
Beads:	700 g (5 lbs. 13 oz.)	740 g (6 lbs. 3 oz.)

Subsection 627.13 shall include the following:

Pay Item

Pavement Marking Paint (Low VOC Solvent Base)

Pay Unit

Liter(Gallon)

Delete subsection 708.01 and replace with the following:

708.01 General. This specification covers ready-mixed paints and coatings. Paints and coatings shall be manufactured eight weeks or less prior to delivery to the project. The date of manufacture shall be stenciled clearly on all containers. Paints shall be free of foreign material that is capable of clogging screens, valves, pumps, and other parts of the application equipment. Paints shall not form a surface skin within 48 hours in three-quarter filled, tightly closed containers. Paint and coating pigments shall be lead free, and shall not thicken, become granular, or curdle in their containers.

Paints and coatings shall not contain benzene, chlorinated solvents, ethylene glycol ethers and ethylene glycol acetates. Hexavalent chromium compounds shall be excluded from all coating formulations.

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**REVISION OF SECTIONS 627 AND 708
PAVEMENT MARKING WITH WATERBORNE PAINT
AND LOW VOC SOLVENT BASE PAINT**

Volatile Organic Compound (VOC) levels for paints and coatings shall comply with the most current EPA regulations. All product compositional proportions are specified by mass (weight). Material Safety Data Sheets, and manufacturer's recommended application instruction sheets representing each paint and coating shall be supplied to the Engineer prior to use.

Federal Standard 595B, shall be used to designate colors. ASTM E 308 shall be used to quantitatively define colors.

Delete subsection 708.05 and replace with the following:

708.05 Pavement Marking Materials. Pavement marking materials shall conform to the requirements listed below. Pigment and vehicle compositions shall not vary by more than 1.0 percent of each amount specified. The manufacturer shall certify that the product does not contain mercury, lead, hexavalent chromium, chlorinated solvents, hydrolyzable chlorine derivatives, glycol ethers and their acetates, and carcinogens as defined in 29 CFR 1910.1200.

After drying, yellow paint shall visually match Federal Standard 595B color chip number 33538, or be within 2% of green and red tolerance limits when compared on the U.S. Department of Commerce, "Highway Yellow Color Tolerance Chart", using the following C.I.E. chromaticity coordinates:

X	Y	X	Y	X	Y	X	Y
0.4883	0.4468	0.4748	0.4452	0.4848	0.4327	0.4739	0.4377

- (a) Low VOC Solvent Base Paint. Ready mixed, low VOC compliant traffic marking paint to be applied to Asphalt or Portland Cement Concrete Pavements shall be defined herein. The exact formulation of the paint shall be decided by the manufacturer, and shall conform to the general requirements listed below.

Vehicle Composition: (white and yellow paint) The vehicle shall be one of the following:

- (1) 100% Acrylic Copolymer Resin Solution : Poly(Methyl-Methacrylate/N-butyl Methacrylate/Methacrylic acid) Copolymer resins or Isobutyl Methacrylate-Diethyl-Aminoethyl Methacrylate Copolymer resins, 17.5% minimum ASTM D3168
- (2) 100% Alkyd Resin Solution (AASHTO M248, Type F), modified for VOC Compliance, VM & P Naphtha, Federal Spec. TT-N-95, Type I, modified for VOC compliance

Driers, ASTM D600 class B

Anti-skinning agents

Finished Paint Total Pigment : 52.0% minimum ASTM D 2371

Pigment Composition: (white paint)

Titanium Dioxide, ASTM D476, Type III

Calcium Carbonate, ASTM D1199, Type GC-II

Magnesium Silicate, ASTM D605

Zinc Oxide, ASTM D79,

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**REVISION OF SECTIONS 627 AND 708
PAVEMENT MARKING WITH WATERBORNE PAINT
AND LOW VOC SOLVENT BASE PAINT**

Pigment Suspending Agents

Pigment Composition: (yellow paint)

Titanium Dioxide, ASTM D476, Type III

Organic Yellow Pigment 65

Calcium Carbonate, ASTM D1199, Type GC-II

Magnesium Silicate, ASTM D605

Aluminum Silicate, ASTM D603

Silica (diatomaceous) ASTM D604

Pigment Suspending Agents

Solvents:

Acetone ASTM D329

Xylene ASTM D846 less than 1.0%

Methanol ASTM D1152,

Toluene ASTM D 5580 less than 6.0%

VOC exempt solvents

Anti-skinning, Anti-settling agents

Properties of the Finished Paint: (white and yellow)

Total Solids by mass (weight) ASTM D 1644 70.0% minimum

Viscosity, in Krebs-Stormer Units

@ 25 °C (77 °F) ASTM D 562 75-80 ,+/-0.5 KU's

Weight per gallon ASTM D 1475 1.38 kg/liter (11.5 lbs/gal) minimum

Non-volatile vehicle 35.0% minimum

VOC ASTM D 3960 150gms/liter (1.25lbs/gal) maximum

Color (Federal Standard 595) see subsection 708.05 paragraph 2

Laboratory dry time ASTM D 711, 10 minutes maximum

Field dry time , Actual No Tracking

@ 25 °C (77 °F), 0.38 mm(15mils) 5 minutes maximum

Fineness of Grind ASTM D 1210 3 minimum

Reflectance (0.015), @ 0.38 mm (15 mil) wet film

applied to a Leneta Chart 83% minimum for white

50% minimum for yellow

Dry Opacity (contrast ratio) @ 0.38 mm (15 mils) wet ASTM D 2805 0.98 minimum

Freeze Thaw resistance ASTM D 2243 5 cycles minimum

- (b) Acrylic Waterborne Paint. The exact manufacturing formulation for the paint shall be left to the discretion of the manufacturer, provided that a lead-free, 100% Acrylic resin polymer waterborne product is produced that meets the requirements listed in the table below. The finished product shall maintain its consistency during application at temperatures compatible with conventional equipment.

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REVISION OF SECTIONS 627 AND 708
 PAVEMENT MARKING WITH WATERBORNE PAINT
 AND LOW VOC SOLVENT BASE PAINT

ACRYLIC WATERBORNE PAINT

Property	Minimum	Maximum	Test Method
Composition Requirements			
Nonvolatile portion of vehicle (white and yellow), %	42.5		
Pigment Composition			
(white and yellow), % by mass (weight)	58.0	62.0	ASTM D 4451 ASTM D 3723
White Paint			
Titanium Dioxide		10.0%; 120 g/L (1.0 lb/gal)	ASTM D 476, Type III
Calcium Carbonate, %		92.0	ASTM D 1199, Type GC-II
Yellow Paint			
Titanium Dioxide		5.0%; 24 g/L (0.2 lb/gal)	ASTM D 476, Type III
Calcium Carbonate		93.0	ASTM D 1199, Type GC-II
Organic Yellow Pigments, %	5.0		
Yellow Iron Oxide		0.063%; 3 g/L (0.025 lb/gal)	ASTM D 768
Vehicle Composition, 100% acrylic polymers, (white and yellow), %			
		43.0	FTMS 141C - Method 4031 or Method 4053.1
Properties of the Finished Paint			
Total Non-volatiles, (solids) % by weight (mass)			
White Paint, %	77.0		FTMS 141C - Method 4053.1, ASTM D 2369, or
Yellow Paint, %	76.0		ASTM D 4758
Density, kg/L (lbs/gal) ¹			
White and Yellow Paint	1.68 (14.0)		ASTM D 1475 using mass per liter (U.S. Standard weight per gallon) cup as defined in U.S. Military Standard 4566A
Consistency (Viscosity) White and Yellow, Krebs-Stormer Units			
	85	95	ASTM D 562
Freeze Thaw Stability			
	Shall complete 5 or more test cycles successfully		ASTM D 2243
Fineness of Grind, Visual Standard Rating B			
	3		ASTM D 1210
Hydrogen ion content: pH			
	9.6		ASTM E 70
Directional Reflectance: [0.38 mm (15 mil) Wet Film]			
White, dried	85		ASTM E 1347
Yellow, dried	50		
Dry Opacity (Contrast Ratio): [0.38 mm (15 mil) Wet Film]			
White Paint	0.95		ASTM D 2805
Yellow Paint	0.88		

¹Density shall not vary more than 0.3 lbs/gal (36 g/L) between batches.

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**REVISION OF SECTIONS 627 AND 708
PAVEMENT MARKING WITH WATERBORNE PAINT
AND LOW VOC SOLVENT BASE PAINT**

Performance Requirements: The paint shall be water resistant and shall show no softening, blistering or loss in gloss when tested according to FTM 141C, Method 6011.

The paint shall dry to a no tracking condition in a maximum of 75 seconds. The no tracking condition shall be determined by actual application on the pavement at a wet film thickness of 0.38 mm (15 mils) with white or yellow paint, covered with glass beads at a rate of 720 grams per liter (6 pounds per gallon).

A 0.30 to 0.38 mm (twelve to fifteen mil) wet film of the candidate paint placed immediately after application in a humidity chamber maintained at 22.5 ± 1.4 °C (72.5 ± 2.5 ° F) and 90% relative humidity shall have a "dry-through" time less than, equal to, or up to 15 minutes longer than the manufacturer's laboratory reference paint film when tested at or close to the same time according to ASTM D 1640. The pressure exerted shall be the minimum needed to maintain contact between the thumb and film.

**REVISION OF SECTION 630
CHANNELIZING DEVICE (SPECIAL)**

Section 630 of the Standard Specifications is hereby revised for this project as follows:

Subsection 630.01 shall include the following:

This work shall consist of installing, maintaining and removing state furnished vertical panels as shown on the plans.

Subsection 630.14

Channelizing Device (Special) will be measured by the actual number placed, maintained and removed.

Subsection 630.115 shall include the following.

Pay Item	Pay Unit
Channelizing Device (Special)	Each

**REVISION OF SECTION 630
IMPACT ATTENUATOR (TEMPORARY)**

Section 630 of the Standard Specifications is hereby revised for this project to include the following:

DESCRIPTION

This work consists of furnishing, installing, certifying, moving, maintaining, and removing temporary impact attenuators in accordance with these specifications and in conformity with the lines and details shown on the plans or established.

MATERIALS

Each impact attenuator shall be either the TRACC or ADIEM system as manufactured by the SYRO Steel Company, Centerville, Utah (Telephone: 801-292-4461), the QUADGUARD CZ system as manufactured by Energy Absorption Systems, Inc., Chicago, IL (312-467-6750, 303-733-8447 in Denver), or an approved equal. Impact attenuators shall conform to the requirements of the manufacturer and be capable of bi-directional shielding of the objects detailed and located on the plans. Filler materials shall be treated according to the manufacturer's recommendations to prevent freezing to a temperature of -50 °F.

The design impact speed of the impact attenuators shall be 50 mph.

CONSTRUCTION REQUIREMENTS

The site shall be prepared to receive the impact attenuator by filling, excavating, smoothing, constructing the paved foundation pad, installing approved transition and anchoring, and all other work necessary for the proper installation of the attenuator.

The impact attenuator shall be fabricated and installed in accordance with the manufacturer's recommendations. The Contractor shall provide a copy of the manufacturer's installation instructions and parts lists to the Engineer prior to installation of the device.

Each installation shall be supervised and certified as correct upon completion by a representative of the device manufacturer or by an employee of the Contractor who is a certified installer. The certified installer shall have completed device training and shall be registered with the manufacturer as a certified installer.

METHOD OF MEASUREMENT

Impact Attenuator (Temporary) will be measured by the number of attenuators shown on the plans, installed, certified, and accepted.

BASIS OF PAYMENT

The accepted quantities will be paid for at the contract unit price for the pay item listed below:

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**REVISION OF SECTION 630
IMPACT ATTENUATOR (TEMPORARY)**

Payment will be made under:

Pay Item	Pay Unit
Impact Attenuator (Temporary)	Each

Payment will be full compensation for all work and materials required to furnish, install, certify, move, maintain, and remove the impact attenuator. Site preparation, pavement pad, epoxy painting, and all necessary hardware including anchors and transitions will not be paid for separately, but shall be included in the work.

**REVISION OF SECTION 630
PORTABLE MESSAGE SIGN PANEL**

Section 630 of the Standard Specifications is hereby revised for this project as follows:

Subsection 630.01 shall include the following:

This work shall consist of furnishing, operating, and maintaining a portable message sign panel, to be on the project site at least 2 weeks prior to the start of active roadway construction.

Subsection 630.031 is added following subsection 630.03 as follows:

630.031 Portable Message Sign Panel. Portable message sign panel shall be furnished as a device fully self contained on a portable trailer, capable of being licensed for normal highway travel, and shall include leveling and stabilization jacks. The panel shall display a minimum of three - eight character lines. The panel shall be a dot-matrix type with either fluorescent yellow flip-disks legend and/or LED legend on a flat black background. LED signs shall have a pre-default message that activates before a power failure. The sign shall have its own separate power source with independent back-up battery powered source. The sign shall be capable of 360 degrees rotation and be able to be elevated to a height of at least five feet above the ground to the bottom of the sign. The sign should be visible from one-half mile under both day and night conditions. The message should be legible from a minimum of 650 feet. The sign shall automatically adjust its light source to meet the legibility requirements during the hours of darkness. The sign enclosure shall be weather tight and provide a clear polycarbonate front cover.

Message signs that are diesel generator powered shall be provided with a 20 gallon minimum capacity fuel tank. Solar powered message signs shall be capable of operating continuously for 10 days without any sun. All instrumentation and controls shall be contained in a lockable enclosure. The sign shall be capable of changing and displaying sign messages and other sign features such as flash rates, moving arrows, etc.

Each sign shall also conform to the following:

1. Flip-disks legend signs shall have fluorescent ultraviolet blacklight bulbs.
2. In addition to the onboard solar/generator power operation with battery back-up, each sign shall be capable of operating on a hard wire, 100-110 VAC, external power source.
3. All electrical wiring, including connectors and switch controls necessary to allow all sign functions required by the specification shall be provided with each sign.
4. Each sign shall include an operating and parts manual, wiring diagrams, and trouble-shooting guide.
5. The portable message sign shall be capable of maintaining all required operations under Colorado mountain-winter weather conditions.
6. Each sign shall be furnished with an attached license plate and mounting bracket.
7. Each sign shall be wired with a 7-prong male electric plug for the brake light wiring system.

Subsection 630.12 shall include the following:

Maintenance, storage, operation, relocation to different sites during the project, and all repairs of portable message sign panels shall be the responsibility of the Contractor.

Subsection 630.14 shall include the following:

Portable message sign panels shall be measured by the Day. The Contractor will be paid for each day of sign operation as approved by the Engineer.

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**REVISION OF SECTION 630
PORTABLE MESSAGE SIGN PANEL**

Subsection 614.15 shall include the following:

Pay Item	Pay Unit
Portable Message Sign Panel	Day

**REVISION OF SECTION 703
AGGREGATE FOR PLANT MIX PAVEMENTS**

Section 703 of the Standard Specifications is hereby revised for this project as follows:

Subsection 703.04 shall include the following:

The aggregate for stone mastic asphalt (SMA) shall meet the requirements of Table 703-3C when tested in accordance with CP-L 4211 Resistance of Coarse Aggregate to Degradation by Abrasion in the Micro-Deval Apparatus. The aggregate shall also be tested for LA Abrasion loss. The Contractor shall be assessed a price reduction of \$1000 for each production sample of the combined aggregate with a Micro Deval loss value greater than 11 according to CP-L 4211 or with an LA Abrasion loss value greater than 30.

TABLE 703-3C

Aggregate Degradation by Abrasion in the Micro-Deval CP-L 4211

	Not to exceed
Each Fine Aggregate Stockpile (Mix Design)	35
Each Coarse Aggregate Stockpile (Mix Design)	25
Combined Aggregate (Mix Design)	11
<i>Combined Aggregate (1/1,000 tons, minimum of 5 per project during production)</i>	11
<i>LA Abrasion loss in accordance with AASHTO T96 (1/1,000 tons, minimum of 5 per project during production)</i>	30

**REVISION OF SECTION 716
WATERLINE MATERIALS**

Section 716 of the Standard Specifications is hereby revised for this project as follows:

Section 716 shall include the following:

THERMOSETTING RESIN POLYESTER FELT LINER PIPE (CURED-IN-PLACE PIPE)

Materials

Structural Lining/CIPP

The material used for the structural lining system will consist of a woven fiberglass and polyester mesh tube, or polyester-reinforced polyethylene tube impregnated with a thermosetting epoxy resin. In addition to the above, an outer membrane is required as a containment system. The thermosetting epoxy resin must be delivered on site in appropriate containers that clearly show that the product has NSF Standard 61 approval. The Contractor shall supply the documentary evidence of approval by the above organization prior to the start of the project.

Reference Specifications and Manufacturer's Standards

This specification references American Society for Testing and Materials (ASTM) Standard Specifications F1216 (Rehabilitation of Existing Pipelines and Conduits by the Inversion and Curing of a Resin-Impregnated Tube), and F1743 (Rehabilitation of Existing Pipelines and Conduits by Pulled-in-Place Installation of Cured-in-Place Thermosetting Resin Pipe (CIPP)), and their reference standards, which are made a part hereof by such reference and shall be the latest edition and revision thereof.

This specification also references American National Standards Institute (ANSI) and National Sanitation Foundation (NSF) Standard Specification ANSI/NSF 61 and their reference standards, which are a part hereof by such reference and shall be the latest edition and revision thereof. All work shall comply with the reference standards unless specifically stated otherwise in this Specification.

The polyester felt tubing, including the polyurethane or polyethylene coated felt and the thermosetting resin shall meet the liner manufacturer's standards. The lining material shall be a polyester fiber felt tubing, lined on one side with polyurethane or polyethylene and fully impregnated with a liquid thermosetting resin as specified. The lining material shall be suitable for potable water and shall meet the requirements of ANSI/NSF 61, "Drinking Water System Components - Health Effects".

The cured lining material shall conform to the minimum structural standards listed below:

CURED LINER STANDARD RESULTS

Flexural Stress ASTM D-790	4,500 psi
Modulus of Elasticity ASTM D-790	250,000 psi

Design Parameters: The structural lining system will be designed using the ASTM F1216 Standard, "Standard Practice for Rehabilitation of Existing Pipelines and Conduits by the Inversion and Curing of a Resin-Impregnated Tube". The design considerations for this project will be for a completely deteriorated pipe per section X1.1.2 in the Appendices section of ASTM F1216. The Contractor must submit all calculations, approved by a licensed Colorado Engineer, prior to the beginning of the project. The Contractor must demonstrate

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REVISION OF SECTION 716 WATERLINE MATERIALS

possession of all equipment necessary to perform the "wet out" (resin impregnation procedure) in a controlled and suitable environment. If the "wet out" procedure is carried out on the job site, the Contractor must have all the appropriate equipment in a self contained refrigerated truck. The Contractor must also possess all the necessary equipment for the curing process, such as the boiler truck and the appropriate accessories for the proper curing of the structural liner.

Liner Sizing and Liner Length

1. The liner shall be fabricated to a size that when installed, shall neatly and tightly fit the internal circumference of the pipe being rehabilitated as specified. Allowance for circumferential and longitudinal stretching during insertion shall be made per manufacturer's standards.
2. The length of the liner shall be that deemed necessary by the Contractor to effectively carry out the insertion and seal the liner at the inlet and outlet points. It will not be permissible to terminate the liner within the pipe. The Contractor shall verify the lengths in the field before cutting the liner to length. Individual insertion runs can be made over one or more access points as determined in the field by the Contractor and approved by the Engineer.

8 inch Waterline

Fittings

All fittings for 4 inch and 8 inch waterlines shall be made from gray-iron or ductile iron and furnished with mechanical joint ends. All fittings shall have a pressure rating of 250 psi and shall be double wrapped with an 8-mil minimum thickness polyethylene material per AWWA Standard C105 (MS-3).

Water valves for 4 inch and 8 inch DIP shall be Mueller A-2480-20 gate valves with non-rising stems and mechanical joint ends. The valves shall be fitted with 2 inch operating wrench nuts.

All fittings for 2 inch and 3 inch waterlines shall be made from gray-iron or ductile iron and furnished with flanged ends. All fittings shall have a pressure rating of 125 psi. Water valves for 2 inch and 3 inch waterlines shall be cast iron gate valves. The valves shall have flanged end connections and shall have outside stems and yokes, bronze mountings, bolted bonnet and solid disc wedge. The valves shall conform to AWWA specifications C505 or C51

Pressure Reducing Valves

The 6 inch and 3 inch pressure reducing valves shall be Ross Valve Model Number 40WR and Model Number 23WR respectively or approved equals, and shall be installed as show in the plans. The valves shall be designed to reduce a high upstream pressure to a constant downstream pressure by way of a pilot control system. The pilot system shall control the main valve which shall be single seated, hydraulically operated, diaphragm, globe valve type. The valve seats shall be bronze. An indicator rod or flow tube shall be furnished as an integral part of the valves to show the position of the valves. The valve body shall be cast iron or ductile iron. Flanges and covers shall conform to ASTM standard designation A50. Bronze castings or parts of internal trim shall conform to ASTM Standard B61. All valves shall be furnished with flanged ends and drilled in accordance with ANSI B16.1 Class 125 specifications. Flanges shall be machined to a flat surface with a serrated finish in accordance with AWWA Standard C115. The pilot valve for controlling operation of the main valve shall be single seated, diaphragm operated, and spring loaded type. The pilot valve shall be attached to the main valve with piping and isolation valves arranged for easy access for making adjustments

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**REVISION OF SECTION 716
WATERLINE MATERIALS**

and also for its removal from the main valve while the main valve is under pressure. The pilot control system shall be cast bronzed ASTM B62 with 303 stainless steel trim. The needle valve shall be all bronze and included with the main valve to control the speed of piston travel.

In-Line Strainer

The in-line strainer shall be Keckley, Style A-125, 125# flange wye strainer or approved equal. The body shall be cast iron construction with a solid end cover plate. The strainer basket shall be a perforated 0.094 inch diameter stainless steel screen with 3/32 inch openings. The cover plate shall be furnished with a 1 inch diameter threader hole and plug to allow for draining of the strainer.

All fittings shall be carefully examined for cracks and other defects immediately before installation. Defective fittings shall be removed from the job site within 24 hours of notification by the Engineer.

SPECIAL CONSTRUCTION REQUIREMENTS

See Revised Page

1. The work for the water line work, manhole and etc. from the water intake pond to the reservoir will be started after low flow in Straight Creek and the ground water subsides. It is anticipated that the low flow will be after August 20, 2006.
2. It is anticipated that night work will be required. Additional requirements to work at night will not be paid for separately but included in the work.
3. Any change or damage done to the roadway will be the responsibility of the Contractor to repair at no cost to the project.
4. The Contractor shall provide the Engineer with documentation regarding off-site waste disposal areas for the excess excavated material and all applicable permits as required.
5. The Contractor will not be allowed to disturb areas beyond the proposed cut and fill slopes, unless approved by the Engineer.
6. The Contractor shall submit a detailed, comprehensive, proposed Construction Staging Plan to the Engineer for acceptance two weeks prior to beginning work.
7. Any temporary shoring, excavation supports, or retaining walls required to construct the project are the Contractor's responsibility to identify, locate, design, construct, and maintain, at no additional cost to CDOT. The Contractor is responsible for reviewing the plans, determining the need for these structures, and including the cost for them in their original bid.
8. Access Pits shall be closed and backfilled or covered with a suitable cover capable of handling traffic when not in use. Method of cover shall be submitted to the engineer for approval 1 month before use.
9. The Contractor shall construct all longitudinal pavement joints so that the top pavement joint is offset six inches from the centerline of roadway.
10. Contractor shall maintain drainage, roadway ditches, and cross culverts at all times.
11. The Contractor shall abide by the Tunnel Safety Rules. These rules are available by request at the Resident Engineer's office.
12. No storage will be allowed within the tunnel facilities. Two staging areas will be available to the Contractor as directed by the Engineer:
 - A. West Portal staging area (30'x180') in the South Parking Lot.
 - B. East Portal staging area (50'x180') in the North Parking Lot.
13. The staging areas shall be defined with eight-foot high chain link fence to be provided by the Contractor. Cost for fence shall not be a separate pay item, but included in the work. Locking gates shall be provided for access. Temporary lighting shall be provided and guaranteed by the Contractor. Staging areas shall be cleaned and fencing shall be removed at the West Portal area for the winter shutdown.

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SPECIAL CONSTRUCTION REQUIREMENTS

14. Contractor is responsible for providing generated power for all work areas during the working hours. No apparatus shall be left operating unattended during non-work hours. The contractor is responsible for containment and clean-up of any spillage.
15. All work shall be completed such that it minimizes interruption to tunnel operations. Tunnel personnel will be sole judge of acceptability.
16. The roadway surface shall be free of all debris and will be inspected by CDOT to determine that it is free of all safety hazards prior to being reopened to traffic. As required, the contractor shall machine-sweep the roadway prior to opening the roadway to traffic.
17. The CDOT reserves the right to direct the Contractor to leave the tunnel at any time due to emergencies or unforeseen circumstance, as they may occur. The Engineer shall have the full authority to make this determination and direct the Contractor accordingly. To comply with tunnel emergency procedures, cell phones will be on site with supervisor as well as a two-way tunnel frequency radio at all times.
18. No valve or other control device on the existing system will be operated for any purpose by anyone other than cdot staff without prior written authorization
19. Some operations may require more than one traffic control supervisor.
20. Contractors shall conduct basic background checks with finger printing on their employees and provide verification of such to the Department before granting access to the project site. Such background checks can be obtained through CBI at #710 Kipling in Lakewood by employers. Citizenship or immigration status should also be verified in similar fashion.
21. The US Forrest Service has agreed to a special use permit for an Asphalt Batch Plant to be set up at Loveland Basin. Details are available at the Resident Engineer's office.
22. All Tensioned Cable Barrier Installation work done from dusk to dawn shall be a moving operation limited to a maximum length of 1,000 feet.
23. All costs associated with the foregoing requirements will not be paid for separately, but it will be include in the cost of doing the work.

FORCE ACCOUNT ITEMS

DESCRIPTION

This special provision contains the Department's estimate for force account items included in the Contract. The estimated amounts marked with an asterisk will be added to the total bid to determine the amount of the performance and payment bonds. Force Account work shall be performed as directed by the Engineer.

BASIS OF PAYMENT

Payment will be made in accordance with subsection 109.04. Payment will constitute full compensation for all work necessary to complete the item.

Force account work valued at \$5,000 or less, that must be performed by a licensed journeyman in order to comply with federal, state, or local codes, may be paid for after receipt of an itemized statement endorsed by the Contractor.

<u>Force Account Item</u>	<u>Estimated Quantity</u>	<u>Amount</u>
F/A Minor Contract Revisions	F.A.	\$ 150,000 *
F/A Partnering	F.A.	\$ 5,000
F/A Fuel Cost Adjustment	F.A.	\$ 18,800
F/A Roadway Smoothness Incentive	F.A.	\$ 8,000
F/A OJT Colorado Training Program	F.A.	\$ 1,400
F/A Quality Incentive Payment	F.A.	\$ 55,000
F/A ESB Program	F.A.	\$ 7,500
F/A Modify Manhole	F.A.	\$ 2,000
F/A Erosion Control	F.A.	\$ 5,000
F/A Third Party Force Account	F.A.	\$ 5,000
F/A Interim HMA Surface Repair	F.A.	\$ 25,000

F/A Erosion Control – This work will include MP 215.7 sediment basin repair as directed by Engineer.

F/A Third Party Force Account – To assist with traffic control, the use of Uniform Traffic Control, (Colorado State Patrol), is included in the project. Uniformed Traffic control will be provided by CDOT task order. The contact phone number for UTC is the Frisco Office at (970-668-3133).

F/A Interim HMA Surface Repair - If the Contractor has met all the specification requirements for the Revision of Section 202, Removal of Asphalt Mat (Planing), and the irregularities such as, but not limited to, delamination and raveling exceed 10 percent within any ½ mile segment, this work consists of placing and compacting a machine scratch course in these isolated locations as directed by the Engineer.

TRAFFIC CONTROL PLAN - GENERAL

The key elements of the Contractor's method of handling traffic (MHT) are outlined in subsection 630.09.

The components of the TCP for this project are included in the following:

- (1) Subsection 104.04 and Section 630 of the specifications.
- (2) Schedule of Construction Traffic Control Devices.
- (3) Standard Plan S-630-1, Traffic Controls for Highway Construction,
- (4) Standard Plan S-630-2, Barricades, Drums, Concrete Barriers (Temp) and Vertical Panels.
- (5) Manual on Uniform Traffic Control Devices (MUTCD).
- (5) Signing Plans
- (6) Construction phasing details.
- (7) Detour Details: Sheets.

Special Traffic Control Plan requirements for this project are as follows:

During the construction of this project, traffic shall use the present traveled roadway.

The Contractor shall not have construction equipment or materials in the lanes open to traffic at any time.

During the placement of the Tensioned Cable Barrier the contractor may close one lane of traffic in each direction from April 15, 2006 through May, 25, 2006 on the week days starting at 10:00 PM on Sundays through 10:00 AM on Fridays. Two lanes of traffic will be maintained from 10:00 AM Friday through 10:00 PM on Sunday unless otherwise authorized in writing by the Engineer. After May 29, 2006 the contractor may close one lane of traffic (daily) in the West Bound direction from 9:00 PM to 9:00 AM and in the East bound direction from 11:00 PM to 9:00 AM Sunday night through Thursday night. At all other times two lanes of traffic will be maintained in each direction unless otherwise approved by the Engineer in writing. The contractor may use these lanes during other times in accordance with the project special provision "Revision of Section 104 Lane Rental Fee"

For all work in the tunnel with the exception of asphalt planing, paving and concrete removal the contractor may close one lane of the Eisenhower/Johnson Memorial Tunnels west and east bound April 15, 2006 through May, 25, 2006 on the week days starting at 10:00 PM on Sundays through 10:00 AM on Fridays. After May 29, 2006 the contractor may close one lane of traffic (daily) in the west bound direction from 9:00 PM to 9:00 AM and in the east bound direction from 10:00 PM to 10:00 AM Sunday night through Thursday night. One 15-minute Tunnel closures per hour will be permitted as pre-approved by the Engineer between 9:00 PM and 9:00 AM eastbound and 10:00 AM and 9:00 PM westbound. Contractor may propose an alternate method to the Engineer for approval. At all other times two lanes of traffic will be maintained in each direction unless otherwise approved by the Engineer in writing. The contractor may use these lanes during other times in accordance with the project special provision "Revision of Section 104 Lane Rental Fee" All closures will be coordinated with Tunnel control through the project Engineer in writing 72 hours in advance of planned work. CDOT will provide a "Request for Closure" form that will be used.

During the resurfacing work in the Eisenhower/Johnson Memorial Tunnels the contractor will be allowed to close the East Bound Tunnel from 10:00 PM Sunday night September 10, 2006 through 10:00 AM Friday September 15, 2006; and the West Bound Tunnel from 9:00 PM Sunday night September 17, 2006 through 9:00 AM Friday September 22, 2006, and from 9:00 PM Sunday September 24, 2006 through 9:00 AM Friday September 29, 2006. Two way traffic shall be maintained in the open tunnel in accordance with the plans. For more details about the closure see "REVISION OF SECTION 104 LANE RENTAL FEE". All work in the Tunnel will be coordinated with Tunnel Control through the project Engineer in writing 72 hours in advance of planned work. CDOT will provide a "Request for Closure" form that will be used.

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TRAFFIC CONTROL PLAN - GENERAL

The contractor shall not work on the roadway or have a lane closure on: Memorial Day Weekend from Thursday, May 25, 2006 4:00 PM through Monday, May 29, 2006 10:00 PM; 4th of July weekend from Thursday, June 29, 2006 5:00 AM through Wednesday, July 5, 2006 10:00 PM; and Labor Day weekend from Thursday, August 31, 2006 12:00 Noon through Monday, September 4, 2006 10:00 PM.

All traffic operations, detours, and associated MHTs shall be submitted to the Engineer for review and approval. The Contractor shall schedule and coordinate all traffic closures and MHTs at least seven days prior to the closure or MHT taking effect.

The Contractor may elect to work multiple shifts in order to meet the time constraints required for this project.

All flagging stations used at night shall be adequately illuminated in accordance with the MUTCD. Adequate illumination of flagging stations shall include the use of light plants whenever other sources of adequate lighting are not available. Adequate illumination shall be as approved or determined by the Engineer. The Contractor shall provide necessary lighting during night construction.

For installation of the Tensioned Cable Barrier and associated work the traffic shall not be delayed for more than 10 minutes unless approved by the Engineer. The Contractor shall organize the work such that there will be no hazards within the Clear Zone at the completion of each day's work.

The Contractor shall submit construction sequencing, traffic sequencing proposal, and methods of construction to the Engineer for approval.

Employee vehicle parking is prohibited where it conflicts with safety, access or flow of traffic. No employee parking will be allowed within the clear zone unless approved by the Engineer.

The Contractor shall provide all construction vehicles with flashing amber lights.

Sufficient Traffic Control Devices are included in the plans to cover expected construction activities. Should the Contractor elect to utilize additional devices to enhance the operation, the additional devices will not be paid for but shall be provided.

A minimum of 20 days prior to starting construction, the Contractor shall notify the Project Engineer of the date the Contractor intends to start construction.

CDOT will provide a request for lane closure form that shall be used.

The Contractor shall supply, as part of the work, six (6) each hand held portable radios. These radios shall be 16 channel / scanning, 5 watt hand held, capable of being programmed for selected frequencies in the vicinity of 453.200 MHz. Radios will be in good working order. The Contractor, at no additional cost to the Department, will replace any radios that are not in good condition. They shall include a desk charging unit, spare battery, belt clip and a remote speaker / microphone. These radios shall be capable of operation remotely or from a vehicle using a cigarette lighter power cord and external magnetic mount antenna. The Motorola Radio HT 1000 VHF version model # H01KDC9AA3-N with required attachments is known to meet these requirements. Prior to ordering, The Contractor shall submit trade numbers and specification of radios to the Engineer for approval. The necessary VHF frequencies will be furnished by the Engineer. These radios will be located throughout the project as directed by the Engineer. These radios shall become the property of the Department at the completion of the project.

All costs incidental to the foregoing requirements shall be included in the original contract prices for the project.

UTILITIES

Known utilities within the limits of this project (and/or the contact person) are as follows:

Xcel Energy (Gas & Electric)	Allan Schnabel	970-262-4022 allan.schnabel@xcelenergy.com
Xcel Energy (Gas & Electric)	Loren Vawser	970-262-4034 loren.vawser@xcelenergy.com
Xcel Energy (Gas & Electric)	Dan Voyles	970-262-4023 dan.voyles@xcelenergy.com
Qwest Communications (local)	Samuel Tooley	970-468-6860 samuel.tooley@qwest.com
CDOT/Adesta (fiber)	Bill Kascek	303-564-5549 william.kascek@dot.state.co.us
CDOT Eisenhower Tunnel	Ken Martinez	303-512-5733 kenny.martinez@dot.state.co.us
CDOT Utilities	Asif Samuel/Engineer	303-757-9127 asif.samuel@dot.state.co.us
CDOT Inspector	Dan Kimzey	303-757-9157 charles.kimzey@dot.state.co.us
CDOT Traffic Signals	Steve Smith	970-668-0253 steve.smith@dot.state.co.us

The work described in the plans and specifications may require coordination between the Contractor and the utility companies in accordance with Subsection 105.06 in conducting their respective operations as necessary.

Utility conflicts may be encountered on this project.

The Contractor is responsible for all utility locates. Confirmation of utility locations shall be required of the Contractor. The Contractor shall keep the utility companies advised of any work being done to their facilities, so that the utility companies can coordinate their inspections for final acceptance of the work with the Engineer. The Contractor will be required to provide written notice to each utility company and the Engineer prior to any utility work expected.

XCEL Energy Electrical and Gas

The Contractor is to coordinate the field location of the Gas, Water and Electric lines impacted by this project.

Qwest Communications

The Contractor is to coordinate the field location of the Qwest lines impacted by this project.

CDOT Utilities

The contractor will coordinate with CDOT for the field locations of the CDOT utilities impacted. The contractor shall perform the utility modifications in accordance with the plans and specifications, and as directed by the Engineer.

GENERAL:

The work described in these plans and specifications requires coordination between the Contractor and the utility companies in accordance with subsection 105.10 in conducting their respective operations as necessary to complete the utility work with minimum delay to the project.

The Contractor shall comply with Article 1.5 of Title 9, CRS ("Excavation Requirements") when excavation or grading is planned in the area of underground utility facilities. The Contractor shall notify all affected utilities at least two (2) business days, not including the day of notification, prior to commencing such operations. The Contractor shall contact the Utility Notification Center of Colorado (UNCC) at 1-800-922-1987 to have locations of UNCC registered lines marked by member companies. All other underground facilities shall be located by contacting the respective company. Utility service laterals shall also be located prior to beginning excavating or grading.

-2-
UTILITIES

The location of utility facilities as shown on the plan and profile sheets, and herein described, were obtained from the best available information.

If additional utilities are encountered that must be temporarily or permanently moved, the Engineer shall be notified before work affected by these utilities is undertaken.

All costs incidental to the foregoing requirements will not be paid for separately but shall be included in the work.

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REVISION OF SECTION 104
VALUE ENGINEERING CHANGE PROPOSALS

Section 104 of the Standard Specifications is hereby revised for this project as follows:

Delete subsection 104.07 and replace with the following:

104.07 Value Engineering Change Proposals by the Contractor. The Contractor is encouraged to develop and offer proposals for improved construction techniques, alternative materials and other innovations. Proposals must provide a project comparable to the CDOT's original design either at lower cost or improved quality, or both. No proposals will be accepted that lowers the quality of the intended project. Bid prices shall not be based on the anticipated approval of a Value Engineering Change Proposal (VECP). Proposals shall be submitted only by the successful bidder after contract award. If a VECP is rejected, the work shall be completed in accordance with the Contract at contract bid prices. Any delay to the project due to a VECP submittal and review shall be considered within the Contractor's control and will be non-excusable with the exception of those delays that are approved as part of the VECP.

Proposals shall be categorized as VECP (Category A) or VECP (Category B).

VECP (Category A)s will be all proposals that involve the design and construction of a structure including but not limited to a bridge, retaining wall, concrete box culvert, or building. A VECP (Category A) will also include any proposal that would result in a change of original bid items that totals over \$250,000. Alternatives investigated and not selected in the project Structural Selection Reports may be presented in a VECP, if significant benefits can be demonstrated to the Engineer. In addition, any design criteria and constraints listed in the Structural Selection Report can not be modified or relaxed as part of a VECP unless significant and previously unknown benefits can be proven to the Engineer. Experimental or demonstration-type design concepts, products, structures, or elements that have not been pre-approved by CDOT, in writing, for general use will be considered a VECP (Category A). Category A proposals will also result in a realized and shared cost savings to CDOT. Cost savings generated to the Contract as a result of VECP offered by the Contractor and accepted by the CDOT shall be shared between the Contractor and the CDOT.

All other VECPs that do not meet the previous requirements will be classified as a VECP (Category B).

Net cost savings on VECPs that are less than \$25,000 can be kept by the Contractor. Net cost savings greater than \$25,000 shall be split equally between the Contractor and CDOT as defined in the Basis of Payment section of this specification.

Both VECP (Category A) and VECP (Category B) will produce savings to the CDOT or provide improved project quality without impairing essential functions and characteristics of the facility. Essential functions include but are not limited to: service life, requirements for planned future development, prior commitments to governmental agencies or the public, corridor requirements, economy of operation, ease of maintenance, desired appearance, safety, and impacts to the traveling public or to the environment during and after construction.

The Contractor may submit either a full VECP or a preliminary Conceptual VECP, followed by a full proposal. These proposals are subject to rejection at any time if they do not meet the criteria outlined in this subsection.

(a) *Submittal of Conceptual Proposal.* For a VECP (Category A) that requires a significant amount of design or other development resources, the Contractor may submit an abbreviated Conceptual Proposal for preliminary evaluation. The Engineer will evaluate the information provided. The Contractor will then be advised in writing if any conditions or parameters of the Conceptual Proposal are found to be grounds for rejection. Preliminary review of a conceptual proposal reduces the Contractor's risk of subsequent rejection but does not commit the CDOT to eventual approval of the full VECP. The following information shall be submitted for each Conceptual Proposal:

REVISION OF SECTION 104
VALUE ENGINEERING CHANGE PROPOSALS

- (1) Statement that the proposal is submitted as a Conceptual VECP
 - (2) General description of the difference between the existing Contract and the proposed change, and the advantages and disadvantages of each, including effects on service life, requirements for planned future development, prior commitments to governmental agencies or the public, corridor requirements, economy of operation, ease of maintenance, desired appearance, safety, and impacts to the traveling public or to the environment during and after construction. The Contractor shall request in writing the necessary information from the Engineer.
 - (3) One set of conceptual plans and a description of proposed changes to the Contract specifications
 - (4) Estimate of the anticipated cost savings or increase
 - (5) Statement specifying the following:
 - (i) when a response to the conceptual proposal from the CDOT is required to avoid delays to the existing contract prosecution
 - (ii) the amount of time necessary to develop the full Proposal
 - (iii) the date by which a Contract Modification Order must be executed to obtain maximum benefit from the Proposal
 - (iv) the Proposal's impact on time for completing the Contract
- (b) *Submittal of Full Value Engineering Change Proposal.* The following materials and information shall be submitted for both a Category A and VECP (Category B):
- (1) A statement that the proposal is submitted as a VECP:
 - (2) A description of the difference between the existing Contract and the proposed change, and the advantages and disadvantages of each, including effects on service life, requirements for planned future development, prior commitments to governmental agencies or the public, corridor requirements, economy of operation, ease and cost of maintenance, desired appearance, safety, and impacts to the traveling public or to the environment during and after construction. . The Contractor shall request in writing the necessary information from the Engineer.
 - (3) A complete set of plans and specifications showing the proposed revisions relative to the original Contract. This portion of the submittal shall include design notes and construction details. The proposed plans and specifications shall be signed and sealed by the Contractor's Engineer.
 - (4) A cost comparison, summarizing all of the items that the proposed VECP replaces, reduces, eliminates, adds, or otherwise changes from the original Contract work, including all impacts to traffic control, detours and all other changes. The cost comparison shall not include cost savings resulting from purportedly decreased inspection or testing requirements, or CDOT overhead; All costs and proposed unit prices shall be documented by the Contractor.
 - (5) A statement specifying the date by which a Contract Modification Order must be executed to obtain the maximum cost reduction during the remainder of the Contract and the date when a response from the CDOT is required to avoid delays to the prosecution of the Contract.

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REVISION OF SECTION 104
VALUE ENGINEERING CHANGE PROPOSALS

- (6) A statement detailing the effect the Proposal will have on the time for completing the Contract.
- (7) A description of any previous use or testing of the proposed changes and the conditions and results. If the Proposal was previously submitted on another CDOT project, the proposal shall indicate the date, Contract number, and the action taken by the CDOT.
- (8) An estimate of any effects the VECP will have on other costs to the CDOT.
- (9) A statement of life cycle costs, when appropriate. Life cycle costs will not be considered as part of cost savings but shall be calculated for additional support of the Proposal. A discount rate of four percent shall be used for life cycle calculations.

(c) *Evaluation.* VECP will be evaluated by CDOT in accordance with the CDOT Construction Manual.

Additional information needed to evaluate Proposals shall be provided in a timely manner. Untimely submittal of additional information will result in rejection of the Proposal. Where design changes are proposed, the additional information shall include results of field investigations and surveys, design and computations, and changed plan sheets required to develop the design changes.

- 1. The Engineer will determine if a Proposal qualifies for consideration and evaluation. The Engineer may reject any Proposal that requires excessive time or costs for review, evaluation, or investigation. The Engineer may reject proposals that are not consistent with the CDOT's design and criteria for the project.
- 2. VECP, whether or not approved by the CDOT, apply only to the ongoing Contracts referenced in the Proposal and become the property of the CDOT. Proposals shall contain no restrictions imposed by the Contractor on their use or disclosure. The CDOT has the right to use, duplicate and disclose in whole or in part any data necessary for the utilization of the Proposal. The CDOT retains the right to utilize any accepted Proposal or part thereof on other projects without obligation to the Contractor. This provision is subject to rights provided by law with respect to patented materials or processes.
- 3. If the CDOT is already considering revisions to the Contract or has approved changes in the Contract that are subsequently proposed in a VECP, the Engineer will reject the Proposal and may proceed to implement these changes without obligation to the Contractor.
- 4. The Contractor shall have no claim against the CDOT for additional costs or delays resulting from the rejection or untimely acceptance of a VECP. These costs include but are not limited to: development costs, loss of anticipated profits, increased material or labor costs, or untimely response.
- 5. Proposals will be rejected if equivalent options are already provided in the Contract.
- 6. Proposals that only reduce or eliminate contract pay items will be rejected.
- 7. The cost savings and other benefits generated by the Proposal must be sufficient to warrant review and processing, as determined by the Engineer.
- 8. A proposal changing the type or thickness of the pavement structure will be rejected.
- 9. No VECP proposal can be used to alter incentive and disincentive rates and maximums on A+B projects.

REVISION OF SECTION 104
VALUE ENGINEERING CHANGE PROPOSALS

10. Right of Way cannot be bought as part of a VECP to eliminate phasing on a project.
11. A VECP changing the design of a structure may be considered by the CDOT, if the design meets the following conditions:
 - (1) The design shall not involve detouring of traffic onto local roads or streets to an extent greater than the original plans, unless previously approved by the affected local agencies
 - (2) The design has the same roadway typical section as the original plans
 - (3) The design meets or exceeds the benefits of the construction-handling or traffic phasing scheme shown in the original plans
 - (4) The design meets or exceeds all environmental commitments and permit requirements of the original Contract.
 - (5) The design shall not increase environmental impacts beyond those of the original Contract.
 - (6) The design meets or exceeds the vertical and horizontal clearances and hydraulic requirements shown in the original plans
 - (7) The design has the same or greater flexibility as the original design to accommodate future widening
 - (8) The design shall not change the location of the centerline of the substructure elements, without demonstrating substantial benefits over the original plans
 - (9) The design shall not change the grade or elevation of the final riding surface, without demonstrating substantial benefits over the original plans
 - (10) The design shall match corridor future development plans, architectural, aesthetic and pavement requirements, if applicable
 - (11) The design shall not adversely impact the CDOT's Bridge Inspection, maintenance or other long-term costs or operations.
 - (12) The design shall meet all CDOT design standards and policies
 - (13) The design shall include all additional costs and coordination necessary to relocate utilities
 - (14) Major structure designs provided by the Contractor shall include an independent plan review and design check by a Professional Engineer registered in the State of Colorado and employed by a firm other than the engineer-of-record. This design review will be performed at no additional cost to CDOT and shall be included in the Contractor's engineering costs.
 - (15) The Contractor shall provide CDOT with all design calculations, independent design check calculations, a rating package for each bridge prepared in accordance with the current CDOT Bridge Rating Manual, and a record set of quantity calculations for each structure.
12. The Engineer will reject all or any portion of the design or construction work performed under an approved VECP if unsatisfactory results are obtained. The Engineer will direct the removal of such rejected work and require construction to proceed under the original Contract requirements without reimbursement for work performed under the proposal, or for its removal.

If a structure design VECP meets these and all other requirements, the CDOT may, at its sole option, accept or reject the proposal.

- (d) *Basis of Payment.* If the VECP is accepted, a Contract Modification Order will authorize the changes and payment. Reimbursement will be made as follows:

REVISION OF SECTION 104
VALUE ENGINEERING CHANGE PROPOSALS

1. The changes will be incorporated into the Contract by changes in quantities of unit bid items, new agreed unit price items, lump sum or any combination, as appropriate, under the Contract. Unless there is a differing site condition as described in subsection 104.02, the Contractor shall not receive additional compensation for quantity overruns, design errors, supplemental surveys, geotechnical investigations, additional items or other increases in cost that were not foreseen in the accepted VECP, unless otherwise approved by the Engineer.

2. For all VECPs, the incentive payment shall be calculated as follows:

(gross cost of deleted work) - (gross cost of added work) = (gross savings)

(gross savings) - (Contractor's engineering costs) - (CDOT's engineering costs) = (net savings)

Any net savings less than \$25,000 can be kept by the contractor.

If the net savings are greater than \$25,000 then the amount over \$25,000 will be shared equally with CDOT and calculated as follows:

(net savings) - \$25,000 = shared savings

Contractor's total incentive = (shared savings) / 2 + \$25,000

The Contractor's engineering costs will be reimbursable only for outside consultant costs that are verified by certified billings. CDOT's engineering costs shall be actual consultant costs billed to CDOT and extraordinary in-house personnel labor costs. These labor costs will be calculated at the fixed amount of \$50.00 per hour per employee. Project personnel assigned to the field office or who work on the project on a regular basis shall not be included in CDOT's portion of the cost.

3. At the completion of the VECP design work, the Contractor shall furnish the CDOT any additional documentation such as surveys, geotechnical reports, documentation or calculations and shop drawings required to complete the work.

At the completion of the project, the Contractor shall furnish the CDOT with PE-stamped Record sets, and As-Constructed plans showing the VECP work.

- (e) *Contractor Appeal Process.* Appeals can only be made on VECP (Category A)s. The Prime Contractor submitting the VECP may file a one-time appeal to the Region Transportation Director (RTD) on the denial of any VECP (Category A). The Contractor must have a valid reason for the appeal and the decision of the Region Transportation Director will be final.

REVISION OF SECTION 105
CONFORMITY TO THE CONTRACT

Section 105 of the Standard Specifications is hereby revised for this project as follows:

In subsection 105.03 delete the Table of Price Reduction Factors and replace with the following:

**TABLE OF PRICE REDUCTION
FACTORS**

Element	Factor "F"
100 percent size sieve	1
12.5 mm (1/2") sieve and larger	1
150 μ m (No. 100) sieve to 9.5 mm (3/8") sieve inclusive (except 100 percent size sieve)	3
75 μ m (No. 200) sieve	6
75 μ m (No. 200) sieve (cover coat material)	25
Compaction, bituminous mixtures (Sections 301 and 403)	7
Liquid Limit	3
Plasticity Index	10
Asphalt content, (all asphalt- aggregate mixtures)	20
Asphalt penetration	1
Asphalt residue	3
Portland Cement Concrete Pavement Fine Aggregate Sand Equivalent	0.3
Hydrated Lime Gradation	0.3
Toughness, inch-pounds, minimum	0.8
Tenacity, inch-pounds, minimum	0.8
Elastic Recovery, 25°C, percent minimum	1.25
Ductility, 4°C (5cm/min) cm, minimum	1.25
Emulsified Asphalt Viscosity	0.5
Emulsified Asphalt Float	0.05
Emulsified Asphalt % Residue	3.0
Emulsified Asphalt Ductility	2.0
Emulsified Asphalt Penetration	1.0
Emulsified Asphalt Elastic Recovery	1.0

REVISION OF SECTION 105
CONFORMITY TO ROADWAY SMOOTHNESS CRITERIA

Section 105 of the Standard Specifications is hereby revised for this project as follows:

In subsection 105.07 delete Table 105-8 and replace with the following:

**TABLE 105-8
PI FOR NO DISINCENTIVE OR CORRECTIVE WORK
FOR % IMPROVEMENT (%I)**

PAVEMENT SMOOTHNESS CATEGORY	DESCRIPTION	PI
I	Rural Interstate	16 inches/mile
II	All other highways with speed limits greater than or equal to 45 MPH	18 inches/mile
III	All highways with speed limits less than 45 MPH	20 inches/mile

Delete 105.07 (c) and replace with the following

(c) Smoothness Requirements for the work items: Removal of Asphalt Mat (Planing), Heating and Scarifying, Cold Bituminous Pavement Recycle, Heating and Repaving, and Heater Remixing.

1. Testing procedures. A Profile Index (PI) for each 0.1 mile section shall be determined on the original pavement surface prior to beginning the work, using a 0.1 inch blanking band in accordance with CP 70.

A Profile Index (PI) for each 0.1 mile section shall be determined on the pavement surface after the work is complete using a 0.1 inch blanking band.

2. Final pavement smoothness acceptance will be made as follows:

When 0.1 mile section has a final Profile Index (PI) greater than 18 in/mile and the final PI is greater than the PI prior to performing the work, that 0.1 mile section shall be corrected by a method approved in writing by the Engineer. Corrective work shall be such that the resulting final PI is equal to or less than the initial PI or 18 in/mile. All corrective work shall be at the Contractor's expense, and shall include traffic control, and all additional hot mix asphalt required.

August 1, 2005

**REVISION OF SECTION 105
CONTRACTOR SUBMITTALS
VARIABLE MESSAGE SIGN**

Section 105 of the Standard Specifications is hereby revised for this project as follows:

In subsection 105.02, Table 105-1, add the following:

Section No.	Description	Type	Contractor P.E. Seal Required?
614	Variable Message Signs (Cabinet and tilting bracket)	Working Drawing	Yes

August 1 2005

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REVISION OF SECTION 105
DISPUTES AND CLAIMS FOR CONTRACT ADJUSTMENTS

Section 105 of the Standard Specifications is hereby revised for this project as follows:

Subsection 105.21(i)2., second paragraph shall include the following:

The CDOT modified version of AAA's Construction Industry Arbitration Rules shall be as follows:

REVISION OF SECTION 105
DISPUTES AND CLAIMS FOR CONTRACT ADJUSTMENTS

CONSTRUCTION INDUSTRY ARBITRATION RULES of the AMERICAN ARBITRATION ASSOCIATION

AS MODIFIED FOR USE WITH CDOT SPECIFICATION SUBSECTION 105.21

April 27, 1997

Regular Track

R-1 Agreement of Parties

The parties shall have been deemed to have made these rules a part of their arbitration agreement whenever they have provided for arbitration by the American Arbitration Association (hereinafter AAA) or under its Construction Industry Arbitration Rules. These rules and any amendment of them shall apply in the form obtaining at the time the demand for arbitration or submission agreement is received by the AAA.

R-2 Name of Tribunal

Any tribunal constituted by the parties for the settlement of their dispute under these rules shall be called the Construction Industry Arbitration Tribunal.

R-3 Administrator and Delegation of Duties

When parties agree to arbitrate under these rules, or when they provide for arbitration by the AAA and an arbitration is initiated under these rules, they thereby authorize the AAA to administer the Arbitration. The authority and duties of the AAA are prescribed in the agreement of the parties and in these rules, and may be carried out through such of the AAA's representatives as it may direct.

R-4 National Roster of Neutrals

In cooperation with the National Construction Dispute Resolution Committee, the AAA shall establish and maintain a National Roster of Construction Neutrals and shall appoint arbitrators as provided in these rules.

R-5 Regional Offices

The AAA may, in its discretion, assign the administration of an arbitration to any of its regional offices.

R-6 Initiation under an Arbitration Provision in a Contract

Arbitration under an arbitration provision in a contract shall be initiated in the following manner:

The initiating party (hereinafter claimant) shall, within the time period specified in the contract(s), give written notice to the other party (hereinafter respondent) of its intention to arbitrate (demand), which notice shall contain a statement setting forth the nature of the dispute, the amount involved, if any, the remedy sought, and the hearing locale requested.

R-9 Preliminary Matters

Administrative Conference

At the request of any party or at the discretion of the AAA, an administrative conference with the AAA and the parties and/or their representatives will be scheduled in appropriate cases to expedite the arbitration proceedings.

Preliminary Hearing

At the request of any party or at the discretion of the arbitrator or the AAA, a preliminary hearing with the parties and/or their representatives and the arbitrator may be scheduled by the arbitrator to specify the issues to be resolved, to stipulate to uncontested facts, to establish a schedule for hearings, and to consider any other matters that will expedite the arbitration proceedings.

With the consent of the parties, the AAA at any stage of the proceeding may arrange a mediation conference under the Construction Industry Mediation Rules. The mediation shall proceed in advance of the arbitration unless the parties agree otherwise. The mediator

REVISION OF SECTION 105
DISPUTES AND CLAIMS FOR CONTRACT ADJUSTMENTS

shall not be an arbitrator appointed to the case, unless otherwise agreed by the parties. Where the parties to a pending arbitration agree to mediate under AAA's rules, no additional administrative fee is required to initiate the mediation.

R-10 Exchange of Information

Consistent with the expedited nature of arbitration, the arbitrator may direct (i) the production of documents and other information, and (ii) the identification of any witnesses to be called. At least two business days prior to the hearing, the parties shall exchange copies of all exhibits they intend to submit at the hearing. The arbitrator is authorized to resolve any disputes concerning the exchange of information.

R-12 Qualification of an Arbitrator

Any arbitrator appointed pursuant to Section R-13, or selected by mutual choice of the parties or their appointees, shall be subject to disqualification for the reasons specified in Section R-19. If the parties specifically so agree in writing the arbitrator shall not be subject to disqualification for those reasons.

The term "arbitrator" in these rules refers to the arbitration Roster of Neutrals, whether composed of one or more arbitrators and whether the arbitrators are neutral or party appointed.

R-13 Appointment from Roster

If the parties have not appointed an arbitrator and have not provided any other method of appointment, the arbitrator shall be appointed in the following manner: immediately after the filing of the submission, the AAA shall send simultaneously to each party to the dispute an identical list of names of persons chosen from the Roster of Neutrals.

Each party to the dispute shall have ten days from the transmittal date in which to strike names objected to, number the remaining names in order of preference, and return the list to the AAA. In a single-arbitrator case, each party may strike three names on a peremptory basis. In a multi-arbitrator case, each party may strike five names on a peremptory basis. If a party does not return the list within the time specified, all persons named therein shall be deemed acceptable. From among the persons who have been approved on both lists, and in accordance with the designated order of mutual preference, the AAA shall invite the acceptance of an arbitrator to serve. If the parties fail to agree on any of the persons named, or if acceptable arbitrators are unable to act, or if for any other reason the appointment cannot be made from the submitted lists, the AAA shall have the power to make the appointment from among other members of the Roster of Neutrals without the submission of additional lists.

R-18 Notice to Arbitrator of Appointment

Notice of the appointment of the arbitrator, whether appointed mutually by the parties, or by the AAA, shall be sent to the arbitrator by the AAA, together with a copy of these rules, and the signed acceptance of the arbitrator shall be filed with the AAA prior to the opening of the first hearing.

R-19 Disclosure and Challenge Procedure

Any person appointed as arbitrator shall disclose to the AAA any circumstance likely to affect impartiality, including any bias or any financial or personal interest in the result of the arbitration or any past or present relationship with the parties or their representatives. Upon receipt of such information from the arbitrator or another source, the AAA shall communicate the information to the parties and, if it deems it appropriate to do so, to the arbitrator and others. Upon objection of a party to the continued service of an arbitrator, the AAA shall determine whether the arbitrator should be disqualified and shall inform the parties of its decision, which shall be conclusive.

R-20 Vacancies

If for any reason an arbitrator is unable to perform the duties of the office, the AAA may, on proof satisfactory to it, declare the office vacant. Vacancies shall be filled in accordance with the applicable provisions of these rules.

In the event of a vacancy in a panel of arbitrators after the hearings have commenced, the remaining arbitrator or arbitrators may continue with the hearing, unless the parties agree otherwise.

REVISION OF SECTION 105
DISPUTES AND CLAIMS FOR CONTRACT ADJUSTMENTS

R-21 Date, Time, and Place of Hearing

The arbitrator shall set the date, time, and place for each hearing. The AAA shall send a notice of hearing to the parties at least ten days in advance of the hearing date, unless otherwise agreed by the parties.

R-24 Interpreters

Any party wishing an interpreter shall make all arrangements directly with the interpreter and shall assume the costs of the service

R-25 Attendance at Hearings

The arbitrator shall maintain the privacy of the hearings unless the law provides to the contrary. Any person having a direct interest in the arbitration is entitled to attend hearings. The arbitrator shall otherwise have the power to require the exclusion of any witness, other than a party or other essential person, during the testimony of any other witness. It shall be discretionary with the arbitrator to determine the propriety of the attendance of any other person.

R-26 Postponements

The arbitrator for good cause shown may postpone any hearing upon the request of a party or upon the agreements of all parties, or upon the arbitrator's own initiative.

R-27 Oaths

Before proceeding with the first hearing, each arbitrator may take an oath of office and, if required by law, shall do so. The arbitrator may require witnesses to testify under oath administered by any duly qualified person and, if it is required by law or requested by any party, shall do so.

R-28 Majority Decision

All decisions of the arbitrators must be by a majority. The recommendation must be made by a majority unless the concurrence of all is expressly required by the arbitration agreement or by law.

R-29 Order of Proceedings and Communications with Arbitrator

A hearing shall be opened by the filing of the oath of the arbitrator.

The Claimant shall first present evidence to support its claim. The Respondent party shall then present evidence supporting its defense. Witnesses shall submit to questions or other examination. The arbitrator has the discretion to vary this procedure and shall afford a full and equal opportunity to all parties to be heard. Exhibits, when offered by either party, may be received in evidence by the arbitrator.

The arbitrator shall control the proceedings with a view to expediting the resolution of the dispute. In order to expedite the proceedings the arbitrator may control the order of proof, bifurcate proceedings, exclude cumulative or irrelevant testimony or evidence, and direct the parties to focus the presentation of evidence on decisive issues. The arbitrator shall entertain motions, including motions that dispose of all or part of a claim, or that may expedite the proceedings.

There shall be no direct communication between the parties and an arbitrator other than at the hearing, unless the parties and the arbitrator agree otherwise. Any other oral or written communication from the parties to the arbitrator shall be directed to the AAA for transmittal to the arbitrator.

R-30 Arbitration in the Absence of a Party or Representative

Unless the law provides to the contrary, the arbitration may proceed in the absence of any party or representative who, after due notice, fails to be present or fails to obtain a postponement. A recommendation shall not be made solely on the default of a party. The arbitrator shall require the party who is present to submit such evidence as the arbitrator may require for the making of a recommendation.

REVISION OF SECTION 105
DISPUTES AND CLAIMS FOR CONTRACT ADJUSTMENTS

R-31 Evidence and Claim Record

CDOT will provide one copy of the claim record for each arbitrator and one copy for the AAA administrative staff.

The parties may offer such evidence as is relevant and material to the dispute and shall produce such evidence as the arbitrator may deem necessary to an understanding of the dispute and recommendation.

The arbitrator shall be the judge of the relevance and materiality of the evidence offered, and conformity to legal rules of evidence shall not be necessary. The arbitrator may request offers of proof, and may reject evidence deemed by the arbitrator to be cumulative, unreliable, unnecessary, or of slight value compared to the time and expense involved. All evidence shall be taken in the presence of all of the arbitrators and all of the parties, except where:

- 1) any of the parties is absent, in default, or has waived the right to be present, or
- 2) the parties and the arbitrators agree otherwise

R-32 Evidence by Affidavit

The arbitrator may receive and consider the evidence of witnesses by affidavit, but shall give it only such weight as the arbitrator deems it is entitled to after consideration of any objection made to its admission.

R-33 Inspection or Investigation

An arbitrator finding it necessary to make an inspection or investigation in connection with the arbitration shall advise the parties by notice transmitted at the hearing or through the AAA of the date and time. Any party who so desires may be present at such an inspection or investigation.

R-35 Closing of a Hearing

When satisfied that the presentation of the parties is complete, the arbitrator shall declare the hearing closed.

R-37 Waiver of Oral Hearing

The parties may provide, by written agreement, for the waiver of oral hearings. If the parties agree to waive oral hearings after the appointment of the arbitrator, the consent of the arbitrator must be obtained.

R-38 Waiver of Rules

Any party who proceeds with the arbitration after knowledge that any provision or requirement of these rules has not been complied with and who fails to state an objection in writing shall be deemed to have waived the right to object.

R-39 Extensions of Time

The parties may modify any period of time by mutual agreement. The AAA or the arbitrator may, for good cause, extend any period of time established by these rules, except the time for making the recommendation. The AAA shall notify the parties of any extension.

R-41 Time of Recommendation

The recommendation shall be made promptly by the arbitrator and, unless otherwise agreed by the parties or specified by law, no later than 30 days from the date of closing the hearing, or, if oral hearings have been waived, from the date of the AAA's transmittal of the final statements and proofs to the arbitrator.

R-42 Form of Recommendation

The recommendation shall be in writing and shall be signed by a majority of the arbitrators. The arbitrators shall provide a concise, written breakdown and explanation of the recommendation. If the arbitrators do not agree, the dissenting arbitrator shall also submit a written recommendation.

REVISION OF SECTION 105
DISPUTES AND CLAIMS FOR CONTRACT ADJUSTMENTS

R-44 Modification of Recommendation

Within twenty (20) days after the transmittal of a recommendation, any party, upon notice to the other parties, may request the arbitrator to correct any clerical, typographical, technical or computational errors in the recommendation. The arbitrator is not empowered to re-determine the merits of any claim already decided.

The other parties shall be given ten (10) days to respond to the request. The arbitrator shall dispose of the request within twenty (20) days after transmittal by the AAA to the arbitrator of the request and any response thereto.

If applicable law provides a different procedural time frame, that procedure shall be followed.

R-46 Delivery of Recommendation to Parties

Parties shall accept as legal delivery of the recommendation the placing of the recommendation or a true copy thereof in the mail addressed to a party or its representative at the last known address, personal service of the recommendation, or filing of the recommendation in any other manner that is permitted by law.

R-47 Release of Documents for Judicial Proceedings

The AAA shall, upon written request of a party, furnish to the party, at its expense, certified copies of any papers in the AAA's possession that may be required in judicial proceedings related to the arbitration.

R-48 Applications to Court and Exclusion of Liability

(a) No judicial proceeding by a party relating to the subject matter of the arbitration shall be deemed a waiver of the party's right to arbitrate.

(b) Neither the AAA nor any arbitrator in a proceeding under these rules is a necessary party in judicial proceedings relating to the arbitration.

(c) Neither the AAA nor any arbitrator shall be liable to any party for any act or omission in connection with any arbitration conducted under these rules.

R-49 Administrative Fees

As a not-for-profit organization, the AAA shall prescribe filing and other administrative fees and service charges to compensate it for the cost of providing administrative services. The fees in effect when the fee or charge is incurred shall be applicable.

R-50 Expenses

The expenses of witnesses for either side shall be paid by the party producing such witnesses. All other expenses of the arbitration, including required travel and other expenses of the arbitrator, AAA representatives, and any witness and the cost of any proof produced at the direct request of the arbitrator, shall be borne equally by the parties, unless they agree otherwise.

R-51 Neutral Arbitrator's Compensation

Arbitrators shall charge a rate consistent with the arbitrator's stated rate of compensation, beginning with the first day of hearing.

If there is a disagreement concerning the terms of compensation, an appropriate rate will be established with the arbitrator by the Association and confirmed to the parties.

Any arrangement for the compensation of a arbitrator shall be made through the AAA and not directly between the parties and the arbitrator.

REVISION OF SECTION 105
DISPUTES AND CLAIMS FOR CONTRACT ADJUSTMENTS

R-52 Deposits

The AAA may require the parties to deposit in advance of any hearings such sums of money as it deems necessary to cover the expense of the arbitration, including the arbitrator's fee, if any, and shall render an accounting to the parties and return any unexpected balance at the conclusion of the case.

R-53 Interpretation and Application of Rules

The arbitrator shall interpret and apply these rules insofar as they relate to the arbitrator's powers and duties. When there is more than one arbitrator and a difference arises among them concerning the meaning or application of these rules, it shall be decided by a majority vote. If that is not possible, either an arbitrator or a party may refer the question to the AAA for final decision. All other rules shall be interpreted and applied by AAA.

Administrative Fee Schedule

The administrative fees of the AAA are based on the amount of the claim. Arbitrator compensation is not included in this schedule.

Filing Fee

A nonrefundable filing fee is payable in full when a claim is filed. The fee will be paid by CDOT and one half will be charged to the contractor by them. The filing fee rate schedule is as follows:

Amount of Claim	Filing Fee	Hearing Fee	Postponement Fee
\$20,000 to \$50,000	\$750	\$150	\$150
Above \$50,000 to \$100,000	\$1,250	\$150	\$150
Above \$100,000 to \$250,000	\$2,000	\$150	\$150
Above \$250,000 to \$500,000	\$3,500	\$250	\$250
Above \$500,000 to \$1,000,000	\$5,000	\$250	\$250
Above \$1,000,000 to \$5,000,000	\$7,000	\$250	\$250

As indicated above, when no amount can be stated at the time of filing, the minimum filing fee is \$2,000, subject to change when the claim is disclosed.

For any case having three or more arbitrator's, the minimum filing fee is \$2,000, the hearing fee is \$250 per party, and postponement fee is \$250.

The administrative fee for claims in excess of \$5,000,000 will be negotiated.

When a claim is not for a monetary amount, an appropriate filing fee will be determined by the AAA.

Postponement/Cancellation Fees

The postponement fees indicated above are payable by the party causing a postponement or cancellation of any schedule hearing.

Hearing Room Rental

The Hearing Fees described above do not cover the rental of hearing rooms, which are available on a rental basis. Check with the administrator for availability and rates.

1
 REVISION OF SECTION 106
 HOT MIX ASPHALT - VERIFICATION TESTING

Section 106 of the Standard Specifications are hereby revised for this project as follows:

Delete subsection 106.05 (e) and replace with the following:

(e) *Mix Verification Testing.* After the mix design has been approved and production commences, the Department will perform a minimum of three volumetric verification tests for each of the following elements to verify that the field produced Hot mix asphalt conforms to the approved mix design:

- (1) Air Voids
- (2) Voids in Mineral Aggregate (VMA)
- (3) Asphalt Content (AC).

The test frequency shall be one per day unless altered by the Engineer.

The test results will be evaluated and the Contractor shall make adjustments if required in accordance with the following:

1. **Target Values.** The target value for VMA will be the average of the first three volumetric field test results on project produced hot mix asphalt or the target value specified in Table 403-1 and Table 403-2 of the specifications, whichever is higher. The target value for VMA will be set no lower than 0.5 percent below the VMA target on Form 43 prior to production. The target values for the test element of air voids and AC shall be the mix design air voids and mix design AC as shown on Form 43.

2. **Tolerance Limits.** The tolerance limits for each test element shall be:

AC	± 0.3 percent
Air Voids	± 1.2 percent
VMA	± 1.2 percent

3. **Quality Levels.** Calculate an individual QL for each of the elements using the volumetric field verification test results. If the QL for VMA or AC is less than 65 or if the QL for air voids is less than 70, the production shall be halted and the Contractor shall submit a written proposal for a mix design revision to the Engineer. Production shall only commence upon receipt of written approval from the Engineer of the proposed mix design revision.

After a new or revised mix design is approved, three additional volumetric field verification tests will be performed on asphalt produced with the new or revised mix design. The test frequency shall be one per day unless altered by the Engineer.

If the QL for VMA or AC is less than 65 or the QL for the test element of air voids is less than 70, then production shall be halted until a new mix design has been completed in accordance with CP 52 or CP 54, a new Form 43 issued, and the Contractor demonstrates that he is capable of producing a mixture meeting the verification requirements in accordance with A or B below:

- A. The Contractor shall produce test material at a site other than a CDOT project. The Contractor shall notify the Engineer a minimum of 48 hours notice prior to the requested test. The location and time of the test are subject to the approval of the Engineer, prior to placement. Three samples will be tested for volumetric properties. If the QL for VMA or AC is equal or greater than 65 and the QL for the element of air voids is equal or greater than 70, full production may resume or;
- B. The Contractor may construct a 500 ton test strip on the project. Three samples in the last 200 tons will be tested for volumetric properties. After construction of the test section, production shall be halted until the testing is complete and element QLs are calculated. If the QL for VMA or AC is equal or greater than 65 or the QL for the element of air voids is equal or greater than 70, full production may resume. If the QL for VMA or AC is less than 65 or the QL for the element of air voids is less than 70, the material shall be removed and replaced at no cost to the Department. The time count

REVISION OF SECTION 106
HOT MIX ASPHALT - VERIFICATION TESTING

will continue, and any delay to the project will be considered to have been caused by the Contractor and will not be compensable.

The costs associated with mix designs shall be solely at the Contractor's expense.

If the Contractor fails to verify the new mix design in accordance with A or B, then production shall be halted until a new mix design has been completed in accordance with CP 52 or CP 54, a new Form 43 issued, and the Contractor demonstrates they are capable of producing a mixture meeting the verification requirements in accordance with A or B.

4. New or Revised Mix Design. Whenever a new or revised mix design is used and production resumes, three additional volumetric field verification tests shall be performed and the test results evaluated in accordance with the above requirements. The test frequency shall be one per day unless altered by the Engineer.
5. Field Verification Process Complete. When the field verification process described above is complete and production continues, the sample frequency will revert back to a minimum of 1/10,000 tons. The Engineer has the discretion to conduct additional verification tests at any time.

REVISION OF SECTION 107
PROJECT SAFETY PLANNING

Section 107 of the Standard Specifications is hereby revised for this project as follows:

Delete subsection 107.06 and replace with the following:

107.06. Safety, Health, and Sanitation Provisions.

- (a) *Contractor Responsibilities.* The Contractor shall ensure compliance with applicable Federal, State, and local laws, rules, regulations, and guidelines governing safety, health and sanitation, including but not limited to the Project Safety Management Plan (Plan) described below, the Occupational Safety and Health Act, 29 CFR 1910, 29 CFR 1926, Mine Safety and Health Administration (MSHA), Title 30 CFR, the "Colorado Work Zone Best Practices Safety Guide", national consensus standards, and the Drug-Free Workplace Act (Public Law 100-690 Title V, subtitle D, 41 USC 701 et seq.). The Contractor shall provide all safeguards, safety devices, and protective equipment, and shall take all other actions necessary to protect the life, safety and health of persons working at or visiting the project site, and of the public and property in connection with the performance of the work covered by the Contract. In the case of conflicting requirements, the more stringent of the requirements shall apply. The Contractor shall require that all operations and work practices by Contractor, subcontractors, suppliers, and Department personnel comply with the provisions of the Plan.
- (b) *Safety Officer.* Prior to the start of construction, the Contractor shall designate a Safety Officer and an *alternate*, who shall be responsible for the coordination of safety activities, and preparation and implementation of the Plan.
- (c) *Competent Persons.* Prior to the start of construction, the Contractor shall designate at least one competent person for each of the construction activities being completed. Construction activities and safety considerations that must be addressed shall include, but are not limited to: lead abatement, hearing protection, respiratory protection, rigging, assured grounding, scaffolding, fall protection, cranes, trenching and excavating, steel erection, underground construction (including caissons and cofferdams), demolition, blasting and the use of explosives, stairways and ladders, asbestos, and confined space. The appropriate competent persons shall be present on the project site at all times during construction activities. A competent person is an individual who, by way of training, experience, or combination thereof, is knowledgeable of applicable standards, is capable of identifying existing and predictable workplace hazards relating to a specific construction activity, is designated by the employer, and has authority to take appropriate actions.
- (d) *Project Safety Management Plan.* Prior to the start of construction, the Contractor shall prepare a written Project Safety Management Plan (Plan) which shall be specific to the project. The Plan shall include:
 - (1) Designation of a Safety Officer and an alternate, and competent persons for each construction activity as described above.
 - (2) A list of all significant and/or high-risk construction activities and safety considerations as described above, and a hazard assessment for each.
 - (3) Direction as to whether engineering, administrative, personal protection measures, training, or a combination thereof, shall be implemented to address the hazards identified in (2) above.
 - (4) Provisions for field safety meetings. The Contractor shall conduct field safety meetings at the frequency specified in the Plan, once per week at a minimum. The Contractor shall encourage participation by all persons working at the project site. Participants at these meetings shall discuss specific construction activities for that work period, results from safety inspections, required personal protective equipment, and all other necessary safety precautions.
 - (5) Provisions for project safety meetings. The Contractor shall conduct project safety meetings to discuss accidents, incidents, safety goals, near misses, and results of safety inspections. The Contractor shall notify the Engineer of the time, date, and location of these meetings, shall require participation by all persons (including Department personnel) working at the project site, and shall track attendance through sign-up lists.
 - (6) Procedures for assuring compliance by subcontractors, suppliers, and authorized visitors to the project. In addition, the Plan shall specify the measures that will be taken to discourage unauthorized personnel from entering the site.

REVISION OF SECTION 107
PROJECT SAFETY PLANNING

- (7) Procedures to be followed in cases where workers are suspected of drug or alcohol impairment.
- (8) Provisions for project safety inspections. The Contractor shall conduct regular project safety inspections at the frequency specified in the Plan, once per month at a minimum. The Contractor shall maintain documentation on the project site, including the date of these inspections, the findings, and the corrective measures taken to address the findings.
- (9) Procedures to be followed to correct violations of the Plan by any personnel.
- (10) The notification, investigation, and implementation procedures that the Contractor shall follow in the case of a safety stand down.
- (11) The Contractor's certification as follows:

By authorized signature below, (Contractor name), hereinafter referred to as 'the Contractor', hereby certifies that this Project Safety Management Plan (Plan) complies with and meets applicable Federal, State, and local laws, rules, regulations and guidelines governing safety, health and sanitation, including but not limited to the Occupational Safety and Health Act, 29 CFR 1910, 29 CFR 1926, Mine Safety and Health Administration (MSHA), Title 30 CFR, the "Colorado Work Zone Best Practices Safety Guide", national consensus standards, and the Drug-Free Workplace Act (Public Law 100-690 Title V, subtitle D, 41 USC 701 et seq.). All operations and work practices of the Contractor will comply with this Plan. The Contractor requires that all subcontractors, suppliers and Department personnel comply with this Plan.

(Signature of Contractor's Safety Officer or alternate)

Title

Date

The Contractor shall submit the Plan to the Engineer for the project records, and shall provide updates to the Plan as necessary. An up-to-date copy of the Plan shall be on the project site in the Contractor's possession at all times.

- (e) *Project Safety & Health Requirements.* All personnel on the project site shall wear the following personal protective equipment (PPE) at all times when in the State Highway Right of Way, except when in their vehicles:
 - (1) Head protection and high visibility apparel, reflectorized for night use, and footwear, all of which shall comply with the latest appropriate national consensus standards.
 - (2) All other PPE that is stipulated by the Plan. All PPE shall comply with the latest appropriate national consensus standards.
- (f) *Safety Stand-Down.* The Engineer may immediately suspend all or part of any work in the case of an accident (including property damage), or catastrophe (three or more persons hospitalized in a single incident), or other situation presenting an imminent danger to life or health, such as a near miss, violation of the Plan, and/or presence of a hazardous situation. In the case of a worksite fatality directly related to the Contractor's or any subcontractor's work operations, the safety stand-down shall be mandatory. In the case of a traffic fatality unrelated to a work-zone incident in the opinion of the Engineer, the safety stand-down will not be mandatory. During any mandatory safety stand-down due to a fatality, all work on the project shall cease, except that work deemed necessary by the Engineer to immediately correct unsafe conditions. The Contractor shall be allowed to resume operations only after providing documentation, certified by the Safety Officer or alternate, regarding the corrective actions taken to prevent recurrence. The Contractor may be granted a non-compensable, excusable delay, up to three days, for the period of time during which no work was pursued due to each safety stand-down.

August 1, 2005

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REVISION OF SECTION 107
PROJECT SAFETY PLANNING

(g) *Regulatory Enforcement Actions.* The Contractor shall provide written notifications of all Regulatory agency actions relating to safety to the Engineer.

All costs associated with the preparation and implementation of the Plan, and complying with all safety, health, and sanitation provisions and requirements will not be measured and paid for separately, but shall be included in the work.

1
 REVISION OF SECTION 107
 RESPONSIBILITY FOR DAMAGE CLAIMS,
 INSURANCE TYPES AND COVERAGE LIMITS

Section 107 of the Standard Specifications is hereby revised for this project as follows:

Delete subsection 107.15 and replace with the following:

107.15 Responsibility for Damage Claims, Insurance Types and Coverage Limits. The Contractor shall indemnify and save harmless the Department, its officers, and employees, from suits, actions, or claims of any type or character brought because of any and all injuries or damage received or sustained by any person, persons, or property on account of the operations of the Contractor; or failure to comply with the provisions of the Contract; or on account of or in consequence of neglect of the Contractor in safeguarding the work; or through use of unacceptable materials in constructing the work; or because of any act or omission, neglect, or misconduct of the Contractor; or because of any claims or amounts recovered from any infringements of patent, trademark, or copyright, unless the design, device, material or process involved is specifically required by the Contract; or from any claims or amounts arising or recovered under the Worker's Compensation Act, or other law, ordinance, order, or decree. The Department may retain as much of any moneys due the Contractor under any Contract as may be determined by the Department to be in the public interest.

(a) The Contractor shall obtain, and maintain at all times during the term of this Contract, insurance in the following kinds and amounts:

- (1) Workers' Compensation Insurance as required by state statute, and Employer's Liability Insurance covering all of Contractor's employees acting within the course and scope of their employment.
- (2) Commercial General Liability Insurance written on ISO occurrence form CG 00 01 10/93 or equivalent, covering premises operations, fire damage, independent Contractors, products and completed operations, blanket contractual liability, personal injury, and advertising liability with minimum limits as follows:
 - (i) \$1,000,000 each occurrence;
 - (ii) \$2,000,000 general aggregate;
 - (iii) \$2,000,000 products and completed operations aggregate; and
 - (iv) \$50,000 any one fire.
 - (v) Completed Operations coverage shall be provided for a minimum period of one year following final acceptance of work.

If any aggregate limit is reduced below \$1,000,000 because of claims made or paid, the Contractor shall immediately obtain additional insurance to restore the full aggregate limit and furnish to CDOT a certificate or other document satisfactory to CDOT showing compliance with this provision.

- (3) Automobile Liability Insurance covering any auto (including owned, hired and non-owned autos) with a minimum limit as follows: \$1,000,000 each accident combined single limit.
- (4) Professional liability insurance with minimum limits of liability of not less than \$1,000,000 Each Claim and \$1,000,000 Annual Aggregate for both the Contractor or any subcontractors when:
 - (i) Contract items 625, 629, or both are included in the Contract
 - (ii) Plans, specifications, and submittals are required to be signed and sealed by the Contractor's Professional Engineer, including but not limited to:
 - (A) Shop drawings and working drawings as described in subsection 105.02
 - (B) Mix Designs

REVISION OF SECTION 107
RESPONSIBILITY FOR DAMAGE CLAIMS,
INSURANCE TYPES AND COVERAGE LIMITS

- (C) Contractor performed design work as required by the plans and specifications
- (D) Change Orders
- (E) Approved Value Engineering Change Proposals

(iii) The Contractor and any included subcontractor shall renew and maintain Professional Liability Insurance as outlined above for a minimum of one year following final acceptance of work.

(5) Umbrella or Excess Liability Insurance with minimum limits of \$1,000,000. This policy shall become primary (drop down) in the event the primary Liability Policy limits are impaired or exhausted. The Policy shall be written on an Occurrence form and shall be following form of the primary. The following form Excess Liability shall include CDOT as an additional insured.

- (b) CDOT shall be named as additional insured on the Commercial General Liability and Automobile Liability Insurance policies. Completed operations additional insured coverage shall be on endorsements CG 2010 11/85, CG 2037, or equivalent. Coverage required of the contract will be primary over any insurance or self-insurance program carried by the State of Colorado.
- (c) The Insurance shall include provisions preventing cancellation or non-renewal without at least 30 days prior notice to CDOT by certified mail.
- (d) The Contractor will require all insurance policies in any way related to the contract and secured and maintained by the Contractor to include clauses stating that each carrier will waive all rights of recovery, under subrogation or otherwise, against CDOT, its agencies, institutions, organizations, officers, agents, employees and volunteers.
- (e) All policies evidencing the insurance coverages required hereunder shall be issued by insurance companies satisfactory to CDOT.
- (f) The Contractor shall provide certificates showing insurance coverage required by this contract to CDOT prior to execution of the contract. No later than 15 days prior to the expiration date of any such coverage, the Contractor shall deliver CDOT certificates of insurance evidencing renewals thereof. At any time during the term of this contract, CDOT may request in writing, and the Contractor shall thereupon within ten days supply to CDOT, evidence satisfactory to CDOT of compliance with the provisions of this section.
- (g) Notwithstanding subsection 107.15(a), if the Contractor is a "public entity" within the meaning of the Colorado Governmental Immunity Act CRS 24-10-101, et seq., as amended ("Act"), the Contractor shall at all times during the term of this contract maintain only such liability insurance, by commercial policy or self-insurance, as is necessary to meet its liabilities under the Act. Upon request by CDOT, the Contractor shall show proof of such insurance satisfactory to CDOT. Public entity Contractors are not required to name CDOT as an Additional Insured.
- (h) When the Contractor requires a subcontractor to obtain insurance coverage, the types and minimum limits of this coverage may be different than those required, as stated above, for the Contractor, except for the Commercial General Liability Additional Insured endorsement and those that qualify as needing Professional Liability Insurance.

REVISION OF SECTION 109
FUEL COST ADJUSTMENT

Section 109 of the Standard Specifications is hereby revised for this project as follows:

Subsection 109.06 shall include the following:

(h) *Fuel Cost Adjustments.* Contract price adjustments will be made to reflect increases or decreases in the prices of gasoline and diesel fuels from those in effect during the month in which bids were received for the Contract. The Contractor shall specify at the time they submit their bid, on the Form 85, whether the price adjustment will apply to the Contract or not. After bids are submitted, the Contractor will not be given any other opportunity to accept or reject this adjustment. If the Contractor fails to indicate a choice on the Form 85, the price adjustment will not apply to the Contract. If the fuel cost adjustment is accepted by the Contractor, the adjustment will be made in accordance with the following criteria:

1. Price adjustments will be based on the fuel price index established by the Department on the first working day of each month. The index will be the spot price per barrel of West Texas Intermediate (WTI) crude oil on the first working day of the month, using postings from the commodities and futures section of the Wall Street Journal. A conversion factor of 42 gallons per barrel will be used to calculate the price per gallon.
2. Price adjustments will be paid on a monthly basis with the following conditions:
 - A. Payment will be based on the pay quantities on the monthly partial pay estimate for the following pay items for which fuel factors have been established:

Item	Fuel Factor (FF)
Excavation (rock, muck, unclassified), Embankment, Borrow, Aggregate Base Course (all Classes) (if ABC paid by CY) (if ABC paid by ton, convert to CY by multiplying ton quantity by 0.557)	0.29 Gal/CY
Hot Mix Asphalt (HMA)	1.06 Gal/ton
Concrete Pavement	0.03 Gal/SY/inch thickness

- B. A price adjustment will be made only when the current fuel price index varies by more than 10 percent from the price index at the time of bid, and only for that portion of the variance in excess of 10 percent. Price adjustments may be either positive or negative dollar amounts.
- C. No fuel price adjustments will be made for any partial estimate falling wholly after the expiration of contract time.
- D. Adjustment formula:

EP greater than BP:

$$FA = [(EP/42) - (1.1 BP/42)](Q)(FF)$$

EP less than BP:

$$FA = [(EP/42) - (0.9 BP/42)](Q)(FF)$$

Where:

- BP = Oil price index for the month in which bids are opened
- EP = Oil price index for the month in which the partial estimate pay period ends
- FA = Adjustment for fuel costs in dollars
- FF = Fuel usage factor for the pay item
- Q = Increased pay quantity for the pay item on the monthly partial pay estimate

- E. No adjustment will be allowed for the quantity of any item that is left in place at no pay.

The fuel cost adjustment will be the sum of the individual adjustments for each of the pay items shown. No adjustment will be made for fuel costs on items other than those shown.

REVISION OF SECTION 109
MEASUREMENT OF QUANTITIES

Section 109 of the Standard Specifications is hereby revised for this project as follows:

In subsection 109.01, following paragraph 15, add the following:

The Engineer will randomly verify the accuracy of the certified weigher on every project where the weights are manually entered on the scale ticket. This verification will consist of at least one comparison check on the project. Additional verification checks may be required as determined by the Engineer. The Engineer will randomly select a loaded truck after the truck has been issued a scale ticket by the certified weigher. The loaded truck will then be reweighed, in the presence of the Engineer, on the same scale and the weight compared with the weight on the scale ticket. Reweighed loads shall be within the tolerance of 200 pounds plus or minus.

The Engineer will also verify the accuracy of computerized scales. Computerized scales are scales that automatically print weights on the scale ticket. This verification will consist of at least one comparison check when the project requires more than 2500 tons of material to be weighed. This comparison check shall be made by reweighing a loaded vehicle. The Contractor shall either provide a second certified scale or select a second certified scale in the vicinity to be used for the comparison check. Comparison checks shall be performed using the following procedures:

- (1) Hopper Scale. A loaded truck will be randomly selected by the Engineer. The loaded truck shall be weighed on a certified platform scale to record the gross weight. The truck shall be unloaded and weighed again on the same scale to record the tare weight. The tare weight shall be subtracted from the gross weight and compared against the net weight recorded on the scale ticket.
- (2) Platform Scales. A loaded truck will be randomly selected by the Engineer. The loaded truck shall be reweighed on a second certified scale and the gross weight shall be compared against the gross weight on the first scale ticket.

Should a comparison check reveal a weight difference of more than one percent, a second comparison check shall be performed immediately. If the weight differences of both comparison checks exceed the one percent limit, the Contractor shall immediately stop weighing and the scale shall be recertified and resealed at the Contractor's expense. The necessary adjustments as indicated by the recertification will be made to all scale tickets issued since the last certification or on the entire project, whichever occurred later, unless the Contractor demonstrates to the satisfaction of the Engineer that the defect in the scale was present for a lesser period of time.

If it is necessary to recertify a scale, and more than 2500 tons of material remain to be weighed, another scale comparison check shall be made.

All comparison checks shall be made at the Contractor's expense.

October 13, 2005

REVISION OF SECTION 401
LONGITUDINAL JOINTS

Section 401 of the Standard Specifications is hereby revised for this project as follows:

In subsection 401.17, delete the fifth paragraph and replace with the following:

The Contractor shall obtain one 6-inch diameter core at a random location within each longitudinal joint sampling section for determination of the joint density. The Contractor shall mark and drill the cores at the location directed by the Engineer and in the presence of the Engineer. The Engineer will take possession of the cores for testing. The Contractor may take additional cores at the expense of the Contractor. Coring locations shall be centered on the visible line where the joint between the two adjacent lifts abut at the surface. The center of all joint cores shall be within ± 1 inch of this visible joint line. Core holes shall be repaired by the Contractor using materials and methods approved by the Engineer. QC and QA joint coring shall be completed within five calendar days of joint construction.

Longitudinal joint coring applies to all pavement lifts. When constructing joints in an echelon paving process, the joints shall be clearly marked to ensure consistent coring location. In small areas, such as intersections, where the Engineer prescribes paving and phasing methods, the Engineer may temporarily waive the requirement for joint density testing.

August 1, 2005

REVISION OF SECTION 401
PLANT MIX PAVEMENTS

Section 401 of the Standard Specifications is hereby revised for this project as follows:

Subsection 401.02(b) shall include the following:

After the Form 43 is executed, and all ingredients are available on the project, the Contractor shall notify the Engineer a minimum of one working day in advance of beginning production of the hot mix asphalt. Any changes in the Form 43 will require the same notification unless otherwise approved by the Engineer.

REVISION OF SECTIONS 614 AND 630
FLASHING BEACON

Sections 614 and 630 of the Standard Specifications are hereby revised for this project as follows:

Subsection 614.06 shall include the following:

614.06 Flashing Beacon. Flashing beacon shall be as shown on the plans. If solar power is called for on the plans, or if the Engineer approves the use of solar power, then the beacon head shall be 12V LED type operated at 24 watts. The solar power system shall be capable of operating the flashing beacon continuously for ten days without any sunlight. The solar panel and battery power system shall be augmented to protect it from vandalism or theft. The solar power system shall be complete including all elements required for an operational installation.

Subsection 614.09 shall include the following:

The flashing beacon shall be installed as shown on the plans. The solar power system shall be placed outside the clear zone of the roadway or behind guardrail. Batteries shall be placed in a lockable container attached to a supplemental pole supporting the solar panels that is installed outside the clear zone, or behind guardrail.

Subsection 614.13, twelfth paragraph, shall include the following:

Solar power system for flashing beacons, poles, and lockable container will not be measured and paid for separately, but shall be included in the work.

Subsection 630.08, third paragraph, shall include the following:

The flashing beacon shall be in accordance with subsection 614.06.

Subsection 630.12 shall include the following:

The flashing beacon shall be installed in accordance with subsection 614.09. For solar powered flashing beacons, batteries may be placed in a lockable container attached to a supplemental pole supporting the solar panels that is installed outside the clear zone, or behind guardrail. If it is not possible to place this assembly outside the clear zone or behind guardrail, the batteries shall be placed in a lockable pull box and buried at the base of the pole. Other installations shall be as approved.

The Contractor shall ensure the proper operation of the flashing beacon throughout the duration of the project. If the beacon fails to operate properly, it shall be repaired or replaced at the Contractor's expense. The Contractor may propose an alternate method by submitting a revised MHT in accordance with subsection 630.09 for approval by the Engineer. All additional traffic control devices required during the time that the beacon is being repaired or the MHT is being prepared and reviewed shall be at the Contractor's expense.

Subsection 630.14, fourth paragraph, shall include the following:

Solar power system for Flashing Beacon (Portable), poles, and lockable container will not be measured and paid for separately, but shall be included in the work.

REVISION OF SECTIONS 614 AND 630
RETROREFLECTIVE SIGN SHEETING

Sections 614 and 630 of the Standard Specifications are hereby revised for this project as follows:

In subsection 614.04, first paragraph, delete the second sentence and replace with the following:

Retroreflective sheeting shall be Type III as defined in the *CDOT Retroreflective Sheeting Materials Guide*, and shall conform to subsections 713.04 and 713.06 when applicable.

In subsection 614.04, delete the second paragraph and replace with the following:

Retroreflective sheeting for all signs requiring a yellow background shall be Type Fluorescent.

In subsection 630.02, delete the third and fourth paragraphs, including Table 630-1, and replace with the following:

Retroreflective sign sheeting types shall be as defined in the *CDOT Retroreflective Sheeting Materials Guide*.

Retroreflective sheeting shall be one of the types specified for the particular application in Table 630-1.

Retroreflective sheeting for all signs requiring an orange or yellow background shall be Type Fluorescent.

**Table 630-1
RETROREFLECTIVE SHEETING TYPES**

Sheeting Application	Type III Work Zone	Type Fluorescent ¹ Work Zone
All Orange Construction Signs		X
Barricades (Temporary)	X	
Vertical Panels	X	
Flaggers Stop/Slow Paddle	X	X
Drums ²	X	
Non-orange Fixed Support signs with prefix "W"	X	
Special Warning Signs		X
STOP sign (R1-1) YIELD sign (R1-2) WRONG WAY sign (R5-1a) DO NOT ENTER sign (R5-1) EXIT sign (E5-1a)	X	
DETOUR sign (M4-9) or (M4-10)		X
All other fixed support signs ³	X	X
All other signs used only during working hours	X	X
<p>1 Fluorescent Sheeting shall be of a brand that is on the CDOT Approved Products List.</p> <p>2 Drum Sheeting shall be manufactured for flexible devices.</p> <p>3 Fixed support signs are defined as all signs that must remain in use outside of working hours. They shall be mounted in accordance with Standard Plan S-630-1.</p>		

REVISION OF SECTION 620
FIELD LABORATORIES WITH FORCED AIR CONVECTION OVEN

Section 620 of the Standard Specifications is hereby revised for this project as follows:

Subsection 620.03 shall include the following:

In Standard Plans M-620-1 and M-620-2, replace the range with the following:

Forced air convection oven: the oven shall be rated to at least 1500 watts including:

1. At least one blower to circulate air inside without disturbing fine grained soils placed in the oven.
2. A minimum interior capacity of 4.8 cubic feet.
3. An exhaust chamber adapter to connect to a 3 inch pipe which shall be vented to the outside.
4. At least two adjustable shelves.
5. An over-temperature protection device.
6. An electronic control system with digital temperature read-out and digital temperature set points to precisely read and set the oven temperature.

The oven shall have a temperature range from 104 °F to 464 °F and have a uniform temperature of ± 3 °F at 230 °F.

The oven shall be capable of maintaining a constant temperature, ± 5 °F, throughout its temperature range.

The oven heating elements shall not be allowed to operate without the blower.

The field laboratory shall be equipped with a separate electrical circuit to supply power to the forced convection oven.

In addition to the above forced air convection oven, a hot plate conforming to the following shall be provided:

1. Two burner, portable, electrical "Cal-rod" or "Rangette" type.
2. At least one burner shall be rated a minimum of 800 watts.
3. Each hot plate shall be equipped with an on-off indicator light.

In Standard Plans M-620-1 and M-620-2, replace the sieve shaker with the following

Sieve Shaker: One motor driven standard portable shaker including:

1. A safety shield on drive belt
2. An adjustable, timed - on/off switch located near the shaker.
3. Adapters to handle either 8 inch or 12 inch sieves.

The shaker shall be capable of shaking a full set of 8 inch sieves as well as 12 inch sieves, and shall be mounted 24 inches above the floor in a sound proof, insulated enclosure, having hinged openings.

The Sieve Shaker shall be a Ro-Tap, Endocott from Soiltest, SS-12R from Gilson or approved equal.

In Standard Plans M-620-1 and M-620-2, replace the balance with the following:

Electronic Balance: The balance shall comply with AASHTO Designation M-231 for General Purpose, class G2 Balances and the following:

- (1) Power: 115 VAC
- (2) Model: Top Loading
- (3) Capacity: Minimum of 35 lbs.
- (4) Readability and Sensitivity: 0.1 g (0.0005 lbs.)
- (5) Accuracy: 0.2 g (0.001 lbs.) or 0.1 percent

REVISION OF SECTION 620
FIELD LABORATORIES WITH FORCED AIR CONVECTION OVEN

- (6) Display Panel: Shall be equipped with the following: LED display, ON/OFF key, Print key, RE-Zero key, Weighing Mode key, Sample % key, serial RS-232C I/O port, and a calibration switch.
- (7) Weighing Modes: Grams, Pounds, and Percent of target weight.
- (8) Weighing surface dimension: Minimum of 9 inches wide by 12 inches deep.
- (9) Base: Shall have adjustable leveling feet and a level vial attached.

In addition to these requirements, the balance shall be equipped with an underhook weighing device and one copy of the owner's manual.

In Standard Plan M-620-2, replace the recording thermometer for each curing tank with the following:

Recording Thermometer: Recording thermometer for curing tanks shall be either of electrical or mechanical type:

(a) The electrical recording thermometer shall be equipped with the following:

- (1) 120 VAC/60 Hz with a minimum 3 foot long power cord.
- (2) Minimum 6 inch diameter circular paper chart with a box of blank charts.
- (3) A selectable temperature scale with one scale that has a range from 50 °F to 120 °F.
- (4) A selectable chart speed with one speed of 24 hours and one speed of 7 days. The speed accuracy shall be ± 1.5 percent.
- (5) The display shall be a minimum 3 digit LED with a minimum digit size of 0.5 inches.
- (6) The temperature accuracy of the monitor shall be $\pm 1^\circ\text{F}$.
- (7) The monitor shall have a chart advance button, a time pointer, a pen adjust button, and a temperature adjust knob.

The recording pen shall be an ink type with a spare pen included.

The temperature probe shall be submersible type J thermocouple with a 15 foot minimum cord length.

(b) The mechanical spring wound recording thermometer shall be equipped with the following:

- (1) Minimum 3 inch diameter pressure sensitive paper chart with a box of blank charts.
- (2) The stem of the thermometer shall be a minimum of 12 inches long.
- (3) The thermometer shall be a key type, winding model capable of 7 day, 24 hour recording.
- (4) The drive mechanism shall be capable of operating beyond its full recording range by a minimum of 20 percent.
- (5) The thermometer shall be capable of operating from 0 °F to 200 °F.
- (6) The clock mechanism accuracy shall be a minimum of 2 percent of the full-scale range being used.
- (7) The recording range shall be a minimum of 20 °F to 220 °F.

The recording thermometer shall be mounted in such a way that a minimum 8 inches of the stem is immersed in the curing tanks and is easily accessible to change the recording temperature charts.

REVISION OF SECTIONS 627 AND 713
PREFORMED PLASTIC PAVEMENT MARKING

Sections 627 and 713 of the Standard Specifications are hereby revised for this project as follows:

Subsection 627.08 shall include the following:

The preformed plastic pavement marking shall be Type I, Type II, or Type III as shown on the plans.

Prior to beginning installation operations, the Contractor shall submit to the Engineer instructions from the performed plastic pavement manufacturer detailing surface preparation, grooving requirements and material application. The instructions shall include the following:

- (1) Equipment Requirements
- (2) Approved Work Methods and Procedures
- (3) Material Application Temperature Requirements
- (4) Ambient Air and Surface temperature Requirements
- (5) Weather Limitations
- (6) Special Precautions
- (7) Any other requirements necessary for successful installation and satisfactory performance of the material.

The Contractor shall secure from the manufacturer all warranties and guarantees with respect to materials, workmanship, performance, or combination thereof, and shall include these warranties and guarantees with the Certification of Compliance.

Materials supplied without installation instructions or with incomplete instructions will not be accepted for use.

Unless otherwise shown on the plans, typical pavement markings shall conform to the shapes and sizes as shown on Standard Plan S-627-1.

The Contractor shall make all arrangements to have a manufacturer-trained installer of the manufacturer's products on-site during the placement of preformed plastic pavement marking to ensure proper installation. A minimum of two weeks prior to the placement of the preformed plastic pavement marking, the Contractor shall submit written documentation of the installer's qualifications and training in the installation of preformed plastic pavement marking. Upon completion of the work, the Contractor shall obtain and submit to the Engineer written documentation from the manufacturer-trained installer certifying that the product was installed in full compliance with this specification and manufacturer's recommendations.

The preformed plastic pavement marking shall be inlaid or placed on new and existing pavements as shown in the Contract. The material shall be capable of use for patching worn areas of the same type according to the manufacturer's recommendations.

The preformed plastic pavement marking shall conform to pavement contours by the action of traffic, and shall be capable of application on new, dense, and open graded asphalt wearing courses during the paving operations according to the manufacturer's recommendations. After application, the markings shall be immediately ready for traffic.

- (a) *Inlaid Preformed Plastic Pavement Marking.* The grooved width for inlaid preformed plastic pavement marking is called for in the Contract, grooved width shall be the pavement marking width plus 1 inch, with a tolerance of $\pm \frac{1}{4}$ inch. The depth of the grooves shall be 120 mils \pm 10 mils. Groove position shall be a minimum of 2 inches from the edge of the pavement marking to the longitudinal pavement joint.

The bottom of the groove shall have a smooth, flat finished surface. The spacers between blade cuts shall be such that there will be less than a 10 mil rise in the finished groove between the blades.

Grooves shall be clean, dry and free of laitance, oil, dirt, grease, paint or other foreign contaminants. The Contractor shall prevent traffic from traversing the grooves, and re-clean grooves, as necessary, prior to application of the preformed plastic pavement markings.

2
REVISION OF SECTIONS 627 AND 713
PREFORMED PLASTIC PAVEMENT MARKING

Subsection 627.13 shall include the following:

Payment will be made under:

Pay Item	Pay Unit
Preformed Plastic Pavement Marking (Type ___)	Square Foot
Preformed Plastic Pavement Marking (Type ___) (Inlaid)	Square Foot
Preformed Plastic Pavement Marking (Word - Symbol) (Type ___)	Square Foot
Preformed Plastic Pavement Marking (Xwalk - Stop Line) (Type ___)	Square Foot

All costs associated with having the manufacturer-trained installer on-site and providing the documentation will not be measured and paid for separately, but shall be included in the work.

Delete subsection 713.13 and replace with the following:

713.13 Preformed Plastic Material. Preformed plastic pavement marking material shall conform to ASTM D 4505 for one of the following requirements:

- (1) Class 1 tape will not be permitted.
- (2) Class 2: for lane lines, crosswalks, stop lines and edge lines
- (3) Class 3: for legends and symbols

Preformed plastic pavement marking color shall conform to the requirements of ASTM D 6628.

Preformed plastic pavement markings shall meet the dimensional requirements of ASTM D 4505.

Skid resistance will not be considered a factor for acceptance.

The edges of the preformed plastic pavement marking shall be straight and uniform, and consistently adhere to the pavement.

Unless otherwise stated in the Contract, preformed plastic pavement marking shall conform to the following material requirements for the Type shown on the plans:

REVISION OF SECTIONS 627 AND 713
 PREFORMED PLASTIC PAVEMENT MARKING

Property	Type I	Type II [‡]	Type III
Minimum thickness (mils)	75	75	60
Minimum Width (in)	4	7	4
Initial Retroreflectivity	Retroreflectivity level I in accordance to ASTM D 4505	Retroreflectivity level I in accordance to ASTM D 4505	Retroreflectivity level II in accordance to ASTM D 4505
Adhesion (°F)*	Roadway surface temperature range of 50 °F - 115 °F** in accordance with ASTM Test Method 1000	Roadway surface temperature range of 50 °F - 115 °F** in accordance with ASTM Test Method 1000	Roadway surface temperature range of 50 °F - 115 °F in accordance with ASTM Test Method 1000
Beads	Ceramic or combination of glass and ceramic	Ceramic or combination of glass and ceramic	Glass
Minimum refractive index	1.7	1.7	1.5
Surface pattern	Minimum of 31 mils and in accordance with ASTM D 4505	Minimum of 31 mils and in accordance with ASTM D 4505	N/A
* The adhesion temperature is identical to both the application and test temperatures. **Application at a lower temperature may be permitted as approved by the Engineer. ‡ Contrast pavement marking to be used for skip lines, lane lines and gore markings.			

August 1, 2005

REVISION OF SECTION 630
CONSTRUCTION ZONE TRAFFIC CONTROL

Section 630 of the Standard Specifications is hereby revised for this project as follows:

Subsection 630.10 shall include the following after the first paragraph:

The Contractor's Superintendent and all others serving in a similar supervisory capacity shall have completed a CDOT-approved two-day Traffic Control Supervisor training as offered by the CCA. The one-day CCA Traffic Control Technician (TCT) training along with the two-day ATSSA Traffic Control Supervisor training will serve as an alternate. If the alternate is chosen, the Contractor shall provide written evidence that at least an 80 percent score was achieved in both of the two training classes. The certifications of completion or certifications of achievement for all appropriate staff shall be submitted to the Engineer at the preconstruction conference.

In subsection 630.15 delete the fifth paragraph and replace with the following:

The Contractor shall agree to quantities for the following items on a weekly basis when signing the Form 7:

Traffic Control Management	Day
Traffic Control Inspection	Day
Flagging	Hour
Pilot Car Operation	Hour

January 5, 2006

REVISION OF SECTION 630
NCHRP 350 REQUIREMENTS

Section 630 of the Standard Specifications is hereby revised for this project as follows:

Subsection 630.08 shall include the following:

The Contractor shall obtain and present to the Engineer the manufacturer's written NCHRP 350 certification for each work zone device before it is first used on the project.

August 1, 2005

REVISION OF SECTION 630
PORTABLE SIGN STORAGE

Section 630 of the Standard Specifications is hereby revised for this project as follows:

In subsection 630.12, first paragraph, delete the fifth sentence and replace with the following:

When storing portable signs or supports within the project they shall be removed beyond the clear zone and shall not be visible to traffic. All storage areas shall be approved. The minimum clear zone distance shall be 18 feet, measured from the edge of traveled way. If the signs cannot be stored at least 18 feet from the traveled way, they shall be removed. Signs shall not be stored on the paved surface.

1
 REVISION OF SECTION 702
 ASPHALT EMULSIONS

Section 702 of the Standard Specifications is hereby revised for this project as follows:

Delete subsection 702.03 (a), including Table 702-3, and replace with the following:

- (a) Polymerized emulsions for seal coat shall conform to the requirements listed in Table 702-3. Emulsion for seal coat shall be an emulsified blend of polymerized asphalt, water, and emulsifiers. The asphalt cement shall be polymerized prior to emulsification and shall contain a minimum of 3.0 percent polymer by weight of asphalt cement. The emulsion standing undisturbed for a minimum of 24 hours shall show no white, milky separation but shall be smooth and homogeneous throughout. The emulsion shall be pumpable and suitable for application through a distributor.

Table 702-3

Property	CRS-2P	CMS-2P	HFRS-2P	HFMS-2P	AASHTO Test No.
Tests on Emulsion:					
Viscosity, at 50 °C, Sabolt-Furol, s	min	50	50	50	T 59
	max	450	450	450	
Storage stability, 24 hr, % max	1.0	1.0	1.0	1.0	T 59
Particle charge test	Positive	Positive			T 59
Sieve test, % max	0.10	0.10	0.10	0.10	T 59
Demulsibility, % min	40		40		T 59
Oil Distillate by volume, % max or range	3.0	3.0	3.0	3.0	T-59
Residue by distillation/ evaporation ² , % min	65 ²	65 ²	65 ²	65 ²	T 59/ CP-L 2212 ¹
Tests on residue:					
Penetration, 25 °C, 100g, 5s, min	70	70	70	70	T 49
Penetration, 25 °C, 100g, 5s, max	150	150	150	150	
Ductility, 25 °C, 5 cm/min, cm, min			75	75	T 51
Solubility, in trichloroethylene% min	97.5	97.5	97.5	97.5	T 44
Elastic Recovery, 25 °C min			58	58	CP-L 2211
Float Test, 60 °C, s min			1200	1200	T 50
Toughness, in-lbs, min	70	70			CP-L 2210
Tenacity, in-lbs, min	45	45			CP-L 2210
¹ CP-L 2212 is a rapid evaporation test for determining percent residue of an emulsion and providing material for tests on residue. CP-L 2212 is for acceptance only. If the percent residue or any test on the residue fails to meet specifications, the tests will be repeated using the distillation test in accordance with AASHTO T-59 to determine acceptability.					
² For polymerized emulsions the distillation and evaporation tests will in be in accordance with AASHTO T-59 or CP-L 2212 respectively with modifications to include 205 ± 5°C (400 ± 10°F) maximum temperature to be held for 15 minutes.					

2
 REVISION OF SECTION 702
 ASPHALT EMULSIONS

In subsection 702.04 delete the second and third paragraphs, including Table 702-8A and replace with the following:

For hot-in-place recycling ARA 1P is an acceptable alternative to ARA. ARA-1P shall meet the requirements below:

Emulsified Polymer Modified Asphalt Rejuvenating Agent (ARA-1P) for use in hot-in-place recycling of bituminous pavements shall be modified with a minimum of 1.5 percent styrene-butadiene solution polymer and shall not contain any used oils that have not been re-refined or reprocessed. In addition, no modifiers shall be added that do not comply with environmental rules and regulations including 40 CFR Part 261.6(a)(3)(v), and part 266/Subpart C. Modifiers shall not be carcinogenic. The finished product shall conform to the physical requirements listed in Table 702-8A below.

Table 702-8A
ARA-1P

Property	Test Method	Min	Max
Test on Emulsion			
Viscosity, Saybolt-Furol @ 77 °F, s	ASTM D 244	15	100
Residue @ 350 °F, %	ASTM D244 Mod	60	
Sieve Test, %	ASTM D244		0.10
Oil distillate, %	ASTM D244		2.0
Test on Residue			
Penetration @ 39.2 °F, 100g, 5s	Residue from D244 Mod ASTM D-5 Modified	150	250
Asphaltenes, %	ASTM D4124		15

August 1, 2005

REVISION OF SECTION 702
SUPERPAVE PG BINDERS

Section 702 of the Standard Specifications is hereby revised for this project as follows:

Subsection 702.01(a) shall include the following:

Asphalt cement shall not be acid modified or alkaline modified.

Asphalt cement shall not contain any used oils that have not been re-refined for resale. In addition, no modifiers shall be added that do not comply with environmental rules and regulations including 40 CFR Part 261.6(a) (3) (v), and part 266/Subpart C. Modifiers shall not be carcinogenic.

The supplier of the PG binder shall be certified in accordance with CP 11

REVISION OF SECTION 703
AGGREGATE FOR STONE MATRIX ASPHALT

Section 703 of the Standard Specifications is hereby revised for this project as follows:

In subsection 703.04, delete Table 703-5 and replace with the following:

**Table 703-5
MASTER RANGE TABLE FOR STONE MATRIX ASPHALT**

Sieve Size	Percent by Weight Passing Square Mesh Sieves			
	4.75 mm (#4) nominal	9.5 mm (3/8") nominal	12.5 mm (1/2") nominal	19.0 mm (3/4") nominal
25 mm (1")				100
19.0 mm (3/4")			100	90-100
12.5 mm (1/2")	100	100	90-100	50-88
9.5 mm (3/8")	100	90-100	50-80	25-60
4.75 mm (#4)	90-100	26-60	20-35	20-28
2.36 mm (#8)	28-65	20-28	16-24	16-24
1.18mm (#16)	22-36			
600 µm (#30)	18-28	12-18	12-18	12-18
300 µm (#50)	15-22	10-15		
150 µm (#100)				
75 µm (#200)	12-15	8-12	8-11	8-11

AFFIRMATIVE ACTION REQUIREMENTS
EQUAL EMPLOYMENT OPPORTUNITY

A. AFFIRMATIVE ACTION REQUIREMENTS

Notice of Requirement for Affirmative Action to Ensure Equal Employment Opportunity (Executive Order 11246)

1. The Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.
2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area are as follows:

Goals and Timetable for Minority Utilization

Timetable - Until Further Notice			
Economic Area	Standard Metropolitan Statistical Area (SMSA)	Counties Involved	Goal
157 (Denver)	2080 Denver-Boulder	Adams, Arapahoe, Boulder, Denver, Douglas, Gilpin, Jefferson.....	13.8%
	2670 Fort Collins	Larimer.....	6.9%
	3060 Greeley	Weld.....	13.1%
	Non SMSA Counties	Cheyenne, Clear Creek, Elbert, Grand, Kit Carson, Logan, Morgan, Park, Phillips, Sedgwick, Summit, Washington & Yuma.....	12.8%
158 (Colo. Spgs. - Pueblo)	1720 Colorado Springs	El Paso, Teller.....	10.9%
	6560 Pueblo	Pueblo.....	27.5%
	Non SMSA Counties	Alamosa, Baca, Bent, Chaffee, Conejos, Costilla, Crowley, Custer, Fremont, Huerfano, Kiowa, Lake, Las Animas, Lincoln, Mineral, Otero, Prowers, Rio Grande, Saguache.....	19.0%
159 (Grand Junction)	Non SMSA	Archuleta, Delta, Dolores, Eagle, Garfield, Gunnison, Hinsdale, La Plata, Mesa, Moffat, Montezuma, Montrose, Ouray, Pitkin, Rio Blanco, Routt, San Juan, San Miguel	10.2%
156 (Cheyenne - Casper WY)	Non SMSA	Jackson County, Colorado.....	7.5%
GOALS AND TIMETABLES FOR FEMALE UTILIZATION			
Until Further Notice.....6.9% -- Statewide			

AFFIRMATIVE ACTION REQUIREMENTS
EQUAL EMPLOYMENT OPPORTUNITY

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the Contractor also is subject to the goals for both its federally involved and non-federally involved construction.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts meet the goals established for the geographical area where the contract resulting from this solicitation is to be performed. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Par 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any construction subcontract in excess of \$10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor; employer identification number; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the contract is to be performed.
4. As used in this specification, and in the contract resulting from this solicitation, the "covered area" is the county or counties shown on the Invitation for Bids and on the plans. In cases where the work is in two or more counties covered by differing percentage goals, the highest percentage will govern.

AFFIRMATIVE ACTION REQUIREMENTS
EQUAL EMPLOYMENT OPPORTUNITY

B. STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS

Standard Federal Equal Employment Opportunity Construction Contract Specifications (Executive Order 11246)

1. As used in these Specifications:
 - a. "Covered area" means the geographical area described in the solicitation from which this contract resulted;
 - b. "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;
 - c. "Employer identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.
 - d. "Minority" includes;
 - (i) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);
 - (ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);
 - (iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and
 - (iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).
2. Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of \$10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.
3. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractor toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.
4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7a through p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered Construction contractors performing construction work in geographical areas where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any office of Federal Contract Compliance Programs Office or from Federal procurement contracting officers. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

AFFIRMATIVE ACTION REQUIREMENTS
EQUAL EMPLOYMENT OPPORTUNITY

5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.
6. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.
7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following;
 - a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.
 - b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its union have employment opportunities available, and maintain a record of the organization's responses.
 - c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source of community organization and of what action was taken with respect to each individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the Contractor may have taken.
 - d. Provide immediate written notification to the Director when the union with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.
 - e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under 7b above.
 - f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc., by specific review of the policy with all management personnel and with all minority and female employees at least once a year, and by posting the Contractor's EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

AFFIRMATIVE ACTION REQUIREMENTS
EQUAL EMPLOYMENT OPPORTUNITY

- g. Review, at least annually, the Contractor's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with onsite supervisory personnel such as Superintendents, General Foreman, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.
- h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractors and Subcontractors with whom the Contractor does or anticipates doing business.
- i. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.
- j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's workforce.
- k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.
- l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc. such opportunities.
- m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.
- n. Ensure that all facilities and Contractor's activities are nonsegregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.
- o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.
- p. Conduct a review, at least annually, of all supervisor's adherence to and performance under the Contractor's EEO policies and affirmative action obligation.

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8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through p). The efforts of a contractor association, joint contractor-union contractor-community, or other similar group of which the Contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7a through p of these specifications provided that the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goal and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.
9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).
10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.
11. The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.
12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.
13. The Contractor in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.
14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form, however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.
15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

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EQUAL EMPLOYMENT OPPORTUNITY**C. SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES.**1. *General.*

- a. Equal employment opportunity requirements not to discriminate and to take affirmative action to assure equal employment opportunity as required by Executive Order 11246 and Executive Order 11375 are set forth in Required Contract. Provisions (Form FHWA 1273 or 1316, as appropriate) and these Special Provisions which are imposed pursuant to Section 140 of Title 23, U.S.C., as established by Section 22 of the Federal-Aid highway Act of 1968. The requirements set forth in these Special Provisions shall constitute the specific affirmative action requirements for project activities under this contract and supplement the equal employment opportunity requirements set forth in the Required Contract provisions.
- b. The Contractor will work with the State highway agencies and the Federal Government in carrying out equal employment opportunity obligations and in their review of his/her activities under the contract.
- c. The Contractor and all his/her subcontractors holding subcontracts not including material suppliers, of \$10,000 or more, will comply with the following minimum specific requirement activities of equal employment opportunity: (The equal employment opportunity requirements of Executive Order 11246, as set forth in Volume 6, Chapter 4, Section 1, Subsection 1 of the Federal-Aid Highway Program Manual, are applicable to material suppliers as well as contractors and subcontractors.) The Contractor will include these requirements in every subcontract of \$10,000 or more with such modification of language as is necessary to make them binding on the subcontractor.

2. *Equal Employment Opportunity Policy.* The Contractor will accept as his operating policy the following statement which is designed to further the provision of equal employment opportunity to all persons without regard to their race, color, religion, sex, or national origin, and to promote the full realization of equal employment opportunity through a positive continuing program;

It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, or national origin. Such action shall include; employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, preapprenticeship, and/or on-the-job training.

3. *Equal Employment Opportunity Officer.* The Contractor will designate and make known to the State highway agency contracting officers and equal employment opportunity officer (herein after referred to as the EEO Officer) who will have the responsibility for an must be capable of effectively administering and promoting an active contractor program of equal employment opportunity and who must be assigned adequate authority and responsibility to do so.4. *Dissemination of Policy.*

- a. All members of the Contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the Contractor's equal employment opportunity policy and contractual responsibilities to provide equal employment opportunity in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum;

- (1) Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the Contractor's equal employment opportunity policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer or other knowledgeable company official.

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- (2) All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer or other knowledgeable company official, covering all major aspects of the Contractor's equal employment opportunity obligations within thirty days following their reporting for duty with the Contractor.
 - (3) All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer or appropriate company official in the Contractor's procedures for locating and hiring minority group employees.
- b. In order to make the Contractor's equal employment opportunity policy known to all employees, prospective employees and potential sources of employees, i.e., schools, employment agencies, labor unions (where appropriate), college placement officers, etc., the Contractor will take the following actions:
- (1) Notices and posters setting forth the Contractor's equal employment opportunity policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.
 - (2) The Contractor's equal employment opportunity policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

5. *Recruitment.*

- a. When advertising for employees, the Contractor will include in all advertisements for employees the notation; "An Equal Opportunity Employer." All such advertisements will be published in newspapers or other publications having a large circulation among minority groups in the area from which the project work force would normally be derived.
- b. The Contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minority group applicants, including, but not limited to, State employment agencies, schools, colleges and minority group organizations. To meet this requirement, the Contractor will, through his EEO Officer, identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority group applicants may be referred to the Contractor for employment consideration.

In the event the Contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, he is expected to observe the provisions of that agreement to the extent that the system permits the Contractor's compliance with equal employment opportunity contract provisions. (The U.S. Department of Labor has held that where implementation of such agreements have the effect of discriminating against minorities or women, or obligates the Contractor to do the same, such implementation violates Executive Order 11246, as amended.)

- c. The Contractor will encourage his present employees to refer minority group applicants for employment by posting appropriate notices or bulletins in areas accessible to all such employees. In addition, information and procedures with regard to referring minority group applicants will be discussed with employees.

6. *Personnel Actions.* Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, or national origin. The following procedures shall be followed;

- a. The Contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

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- b. The Contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.
- c. The Contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the Contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.
- d. The Contractor will promptly investigate all complaints of alleged discrimination made to the Contractor in connection with his obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the Contractor will inform every complainant of all of his avenues of appeal.

7. *Training and Promotion.*

- a. The Contractor will assist in locating, qualifying, and increasing the skills of minority group and women employees, and applicants for employment.
- b. Consistent with the Contractor's work force requirements and as permissible under Federal and State regulations, the Contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training.
- c. The Contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.
- d. The Contractor will periodically review the training and promotion potential of minority group and women employees and will encourage eligible employees to apply for such training and promotion.

8. *Unions.* If the Contractor relies in whole or in part upon unions as a source of employees, the Contractor will use his/her best efforts to obtain the cooperation of such unions to increase opportunities for minority groups and women with the unions, and to effect referrals by such unions of minority and female employees. Actions by the Contractor either directly or through a contractor's association acting as agent will include the procedures set forth below:

- a. The Contractor will use best efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minority group members and women for membership in the unions and increasing the skills of minority group employees and women so that they may qualify for higher paying employment.
- b. The Contractor will use best efforts to incorporate an equal employment opportunity clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, or national origin.
- c. The Contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the Contractor, the Contractor shall so certify to the State highway department and shall set forth what efforts have been made to obtain such information.

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- d. In the event the union is unable to provide the Contractor with a reasonable flow of minority and women referrals within the time limit set forth in the collective bargaining agreement, the Contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex or national origin; making full efforts to obtain qualified and/or qualifiable minority group persons and women. (The U.S. Department of Labor has held that it shall be no excuse that the union with which the Contractor has a collective bargaining agreement providing for exclusive referral failed to refer minority employees.) In the event the union referral practice prevents the Contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such Contractor shall immediately notify the State highway agency.

9. *Subcontracting.*

- a. The Contractor will use his best efforts to solicit bids from and to utilize minority group subcontractors or subcontractors with meaningful minority group and female representation among their employees. Contractors shall obtain lists of minority-owned construction firms from State highway agency personnel.
- b. The Contractor will use his best efforts to ensure subcontractor compliance with their equal employment opportunity obligations.

10. *Records and Reports.*

- a. The Contractor will keep such records as are necessary to determine compliance with the Contractor's equal employment opportunity obligations. The records kept by the Contractor will be designed to indicate:
 - (1) The number of minority and nonminority group members and women employed in each work classification on the project.
 - (2) The Progress and efforts being made in cooperation with unions to increase employment opportunities for minorities and women (applicable only to contractors who rely in whole or in part on unions as a source of their work force).
 - (3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minority and female employees, and
 - (4) The progress and efforts being made in securing the services of minority group subcontractors or subcontractors with meaningful minority and female representation among their employees.
- b. All such records must be retained for a period of three years following completion of the contract work and shall be available at reasonable times and places for inspection by authorized representatives of the State highway agency and the Federal Highway Administration.
- c. The Contractors will submit an annual report to the State highway agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form PR 1391.

DISADVANTAGED BUSINESS ENTERPRISE
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(a) *Definitions and Procedures*

For this project, the following terms are defined:

1. Disadvantaged Business Enterprise (DBE). A small business concern that is certified as being:
 - A. At least 51 percent owned by one or more socially and economically disadvantaged individuals or, in the case of any publicly owned business, at least 51 percent of the stock of which is owned by one or more socially and economically disadvantaged individuals; and
 - B. Whose management and daily business operations are controlled by one or more of the socially and economically disadvantaged individuals who own it.
 - C. Socially and economically disadvantaged individual means any individual who is a citizen (or lawfully admitted permanent resident) of the United States and who is:
 - (1) Any individual whom the Colorado Department of Transportation Office of Certification or the City and County of Denver Division of Small Business Opportunity (DSBO) finds to be a socially and economically disadvantaged individual.
 - (2) Any individual in the following groups, members of which are rebuttably presumed to be socially and economically disadvantaged:
 - a. "Black Americans," which includes persons having origins in any of the Black racial groups of Africa;
 - b. "Hispanic Americans," which includes persons of Mexican, Puerto Rican, Cuban, Dominican, Central or South American, or other Spanish or Portuguese culture or origin, regardless of race;
 - c. "Native Americans," which includes persons who are American Indians, Eskimos, Aleuts, or Native Hawaiians;
 - d. "Asian-Pacific Americans," which includes persons whose origins are from Japan, China, Taiwan, Korea, Burma (Myanmar), Vietnam, Laos, Cambodia (Kampuchea), Thailand, Malaysia, Indonesia, the Philippines, Brunei, Samoa, Guam, the U.S. Trust Territories of the Pacific Islands (Republic of Palau), the Commonwealth of the Northern Marianas Islands, Macao, Fiji, Tonga, Kiribati, Juvalu, Nauru, Federated States of Micronesia, or Hong Kong;
 - e. "Subcontinent Asian Americans," which includes persons whose origins are from India, Pakistan, Bangladesh, Bhutan, the Maldives Islands, Nepal or Sri Lanka;
 - f. "Women", which means females of any ethnicity;
 - g. "Other," which means any additional groups whose members are designated as socially and economically disadvantaged by the Small Business Administration (SBA), at such time as the SBA designation becomes effective and/or individuals who have been determined to be socially and economically disadvantaged based on the criteria for social and economic disadvantage.
2. Underutilized DBE (UDBE). A firm which meets the definition of DBE above and is eligible to meet the contract goal as defined in the project special provision titled "Contract Goal."
3. DBE Joint Venture. Joint venture means an association of a DBE firm and one or more other firms to carry out a single, for-profit business enterprise, for which the parties combine their property, capital, efforts, skills and knowledge, and in which the DBE is responsible for a distinct, clearly defined portion of the work of the contract and whose share in the capital contribution, control, management, risks, and profits of the joint venture are commensurate with its ownership interest.

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A DBE joint venture must be certified as a joint venture by the Business Programs Office at CDOT.

- A. For those projects set-aside for bidding by UDBEs only; all of the partners in a joint venture must be UDBEs and certification of the joint venture will not be required.
 - B. For all projects other than the set-aside projects discussed in A. above; one of the partners in a joint venture must be a DBE. The DBE percentage of the joint venture will be determined at the time of certification.
4. **Contract Goal.** The goal for UDBE participation that the Department determines should appropriately be met by the successful bidder. Contract goal will be the percentage stated in the invitation for bids and in the project special provisions. Successful bidders that are awarded a Contract based on good faith efforts shall continue to make good faith efforts through the period of time that work on the project is in process, to provide for additional UDBE participation toward meeting the goal.
 5. **Good Faith Efforts.** It is the obligation of the bidder to make good faith efforts to meet the contract goal prior to the bid opening. The bidder can demonstrate that it has done so either by meeting the contract goal or by documenting good faith efforts made. CDOT will evaluate only the good faith efforts made by the contractor prior to the bid opening. Any UDBE Participation submitted on Form 715 that exceeds the participation submitted on Form 714 will be accepted as additional UDBE participation, but will not be counted as Good Faith Efforts and will not exempt a contractor from fulfilling the Good Faith Efforts requirements. The apparent low bidder shall report all efforts made including but not limited to the efforts required on Form 718. The efforts employed by the bidder should be those that one could reasonably expect a bidder to take if the bidder were actively and aggressively trying to obtain UDBE participation sufficient to meet the DBE contract goal. In determining whether a bidder has made good faith efforts, CDOT may take into account the performance of other bidders in meeting the contract. For example, when the apparent successful bidder fails to meet the contract goal, but others meet it, CDOT may reasonably raise the question of whether, with additional reasonable efforts, the apparent successful bidder could have met the goal. If the apparent successful bidder fails to meet the goal, but meets or exceeds the average UDBE participation obtained by other bidders, CDOT may view this, in conjunction with other factors, as evidence of the apparent successful bidder having made good faith efforts.

The Business Programs Office, with the DBE Liaison's Approval, will notify the apparent low bidder by fax regarding any deficiencies in the documentation and effort demonstrated by the bidder. This fax will include the Business Programs Office's recommendation to the DBE Liaison Officer regarding whether the good faith effort demonstrated was sufficient for the bidder to be regarded as responsible. If the bidder may be regarded as responsible but with minor deficiencies in its good faith effort, the bidder will be expected to correct any deficiencies noted prior to bidding on other CDOT projects.

Within five working days of being informed by the Business Programs Office that it is not a responsible bidder because it has not documented sufficient good faith efforts, a bidder may request administrative reconsideration from the Good Faith Efforts (GFE) Committee, which will not have played any role in the original determination that the bidder did not document sufficient good faith efforts. The bidder should make this request to:

Good Faith Efforts Committee
Fax: 303-757-9019
Phone: 303-757-9234

As part of this reconsideration, the bidder will have the opportunity to provide written documentation or argument concerning the issue of whether it met the goal or made adequate good faith efforts prior to the bid opening to do so. The bidder will also have the opportunity to meet in person with CDOT's GFE Committee to discuss the issue of whether it met the goal or made adequate good faith efforts prior to the bid opening to do so. The Business Programs Office, with the DBE Liaison's Approval, will send the bidder a written decision on reconsideration, explaining the basis for finding that the bidder did or did not meet the goal or make adequate good faith efforts prior to the bid opening to do so.

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The GFE Review Committee will make a recommendation to the DBE Liaison Officer. The DBE Liaison Officer will review the good faith efforts documentation and the recommendation of the GFE Review Committee, determine whether the required efforts are sufficient for award and notify the Chief Engineer of this finding. The Chief Engineer will make the final decision regarding award. There will be no administrative appeal of the Chief Engineer's decision.

If award of the Contract is made based on the Contractor's good faith efforts, the goal will not be waived. The Contractor will be expected to continue to make good faith efforts as described below throughout the duration of the Contract.

To demonstrate Good Faith Efforts to meet the contract goal throughout the performance of the Contract, the Contractor shall document to the CDOT Region Civil Rights Professional the steps taken on Form 205. For each subcontract item not identified for DBE participation on Form 718, steps the Contractor must take include but are not limited to the following:

- A. Seek out and consider UDBEs as potential subcontractors.
 - (1) Contact all UDBEs for each category of work that is being subcontracted.
 - (2) Affirmatively solicit their interest, capability, and price quotations.
 - (3) Provide equal time for all prospective subcontractors to prepare their proposals.
 - (4) Provide at least as much time to UDBEs in assisting them to prepare their bids for subcontract work as to non UDBE subcontractors.
 - (5) Award subcontracts to UDBEs where their quotations are reasonably competitive with other quotations received.

- B. Maintain documentation of UDBEs contacted and their responses.
 - (1) Maintain a list of UDBEs contacted as prospective subcontractors.
 - (2) Maintain thorough documentation of criteria used to select each subcontractor.
 - (3) Where a UDBE expressed an interest in a subcontract and made a quotation, and where the work was not awarded to a UDBE, furnish a detailed letter explaining the reasons.

(b) Certification as a DBE by the Department

1. Any contractor may apply to the Colorado Department of Transportation Office of Certification or the City and County of Denver Division of Small Business Opportunity (DSBO) for status as a DBE. Application shall be made on the USDOT's Uniform Certification Application Form as provided by these agencies for certification of DBEs. Application need not be made in connection with a particular bid. Only work contracted to UDBE contractors or subcontracted to UDBEs and independently performed by UDBEs shall be considered toward contract goals as established elsewhere in these specifications.
2. It shall be the Contractor's responsibility to submit applications so that the certifying agency has sufficient time to render decisions. The certifying agency will review applications in a timely manner but is not committed to render decisions about a firm's DBE status within any given period of time.
3. The Department will publish an online directory of DBE contractors, vendors and suppliers for the purpose of providing a reference source to assist any bidder in identifying DBEs and UDBEs. Bidders will be solely responsible for verifying the Certification of DBEs they intend to use prior to submitting a proposal. The directory is updated daily by the certifying agencies and is accessible online at http://www.dot.state.co.us/app_ucp/.
4. Bidders shall exercise their own judgments in selecting any subcontractor to perform any portion of the work.
5. Permission for a DBE/non-DBE joint venture to bid on a specific project may be obtained from the Business Programs Office based on information provided by the proposed joint venture on Form 893, "Information For Determining DBE Participation When A Joint Venture Includes A DBE". Joint applications should be submitted well in advance of bid openings.

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(c) *Bidding Requirements*

1. All bidders shall submit with their proposals a fully executed Form 714 including a list of the names of their UDBE subcontractors to meet the contract goal. The apparent low bidder shall submit a fully executed Form 715 for each UDBE used to meet the contract goal (sample attached) no later than 4:00 p.m. on the third work day after the date of bid opening to the Business Programs Office in the Center for Equal Opportunity. Form 715 may be submitted by FAX, at Fax number (303)757-9019, with an original copy to follow. If the contract goal is not met, the apparent low bidder shall submit a completed Form 718 and corresponding evidence of good faith efforts no later than 4:00 on the day following the bid opening to the Business Programs Office in the Center for Equal Opportunity. CDOT Form No. 718 may be submitted by FAX, at Fax number (303)757-9019, with an original copy to follow. A copy of Form 718 is incorporated into this specification.
2. The award of Contract, if awarded, will be made to the lowest responsible bidder that will meet or exceed the contract goal or, if the goal will not be met, is able to demonstrate that good faith efforts were made to meet the goal. Good faith efforts are explained in (a) of this special provision.
3. The use of the UDBE firms named on Form 714 or on a Form 715, for the items of work described, is a condition of award. The replacement of a named UDBE firm will be allowed only as provided for in (e) of this special provision. Failure to comply will constitute grounds for default and termination of the Contract.
4. Contractor's DBE Obligation. The prime Contractor bidding on construction projects advertised by the Department agrees to ensure that Disadvantaged Business Enterprises (DBEs), as defined in this special provision, have equal opportunity to participate in the performance of contracts or subcontracts financed in whole or in part with Federal or State funds. The prime Contractor shall not discriminate on the basis of race, color, national origin, or sex in the bidding process or the performance of contracts.

To ensure that UDBEs are offered equal opportunity to participate in the performance of contracts, it is the responsibility of the prime Contractor to offer and to provide assistance to UDBEs related to the UDBE performance of the subcontract. However, the UDBE must independently perform a commercially useful function on the project.

(d) *Counting DBE Participation Toward Contract Goals and CDOT's annual DBE goal*

1. Once a firm has been certified as a DBE the total dollar amount of the contract awarded to the firm shall be counted toward CDOT's annual DBE goal and the contract goal as explained below, and as modified for the project in the project special provisions titled "Contract Goal."
2. The actual dollar total of a proposed subcontract, supply or service contract with any DBE firm shall be reported to the Department using Form 713. A Form 713 for subcontracts is to be submitted with the Form 205 and receipt will be a condition of approval. The eligibility of a proposed DBE subcontractor will be finally established based on the firm's status at the time of Form 205 approval.

A Form 713 for a supply or service contract is to be submitted once a contract has been fully executed so the Department will be able to report the DBE participation in a timely manner. The eligibility of a DBE supplier or service firm will be finally established as of the date the Form 713 is received by the Department. A Form 205 is not required for a supply or service contract.

If a firm becomes certified as a DBE during performance under a fully executed contract with CDOT but prior to the DBE performing any work, then 100 percent of the work performed by the firm under that contract may be claimed as eligible work.

3. The Contractor may count toward its contract goal the percentage of the total dollar amount of a contract with a Department certified joint venture that equals the percentage of the ownership and control of the UDBE partner in a joint venture.

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4. A. The Contractor may count toward its contract goal only that percentage of expenditures to UDBEs which independently perform a commercially useful function in the work of a contract. A DBE is considered to be performing a commercially useful function by actually performing, managing, and supervising the work involved. To determine whether a DBE is performing a commercially useful function, the Department will evaluate the amount of work subcontracted, work performed solely by the DBE, industry practices, and other relevant factors.

B. A DBE may enter into subcontracts consistent with normal industry practices. If a DBE does not perform or exercise responsibility for at least 30 percent of the total cost of its contract with its own work force, or the DBE subcontracts a greater portion of the work of a contract than would be expected on the basis of normal industry practice for the type of work involved, the DBE shall be presumed not to be performing a commercially useful function. The DBE may present evidence to rebut this presumption to the Department.
5. The Contractor may count toward its contract goal the percentage of expenditures for transportation services obtained from UDBE trucking firms, provided the UDBE controls the trucking operations for which it seeks credit. A UDBE trucking firm must have at least one truck and driver of its own, but it can lease trucks owned by others, both DBEs and non-DBEs, including owner-operators. For work done with its own trucks and drivers, and for work done with DBE lessees, the UDBE trucking firm receives credit for all transportation services provided. For work done with non-DBE lessees, the UDBE trucking firm gets credit only for the fees or commissions it receives for arranging the transportation services, because the services themselves are being performed by non-DBEs.
6. The Contractor may count toward its contract goal the percentage of expenditures for materials and supplies obtained from UDBE suppliers (regular dealers) and manufacturers, provided that the UDBEs assume the actual and contractual responsibility for and actually provide the materials and supplies.
 - A. The Contractor may count 100 percent of its expenditures to a UDBE manufacturer. A DBE manufacturer is a certified firm that operates or maintains a factory or establishment that produces on the premises the materials or supplies obtained by the Contractor.
 - B. The Contractor may count 60 percent of its expenditures to UDBE suppliers (regular dealers) that are not manufacturers, provided that the DBE supplier performs a commercially useful function in the supply process. A DBE supplier (regular dealer) is a certified firm that owns, operates, or maintains a store, warehouse, or other establishment in which the materials or supplies required for the performance of the Contract are bought, kept in stock, and regularly sold to the public in the usual course of business. To be a supplier (regular dealer) the firm must engage in, as its principal business and in its own name, the purchase and sale of the products in question. A supplier in such bulk items as steel, cement, gravel, stone, and petroleum products need not keep such products in stock, if it owns or operates distribution equipment. Brokers and packagers shall not be regarded as manufacturers or suppliers within the meaning of this section.
 - C. The Contractor may count toward its contract goal the following expenditures to UDBE firms that are not manufacturers or suppliers (regular dealers):
 - (1) The fees or commissions charged for providing a bona fide service, such as professional, technical, consultant or managerial services and assistance in the procurement of essential personnel, facilities, equipment, materials or supplies required for performance of the Contract, provided that the fee or commission is determined by the Department to be reasonable and not excessive as compared with fees customarily allowed for similar services.
 - (2) The fees charged for delivery of materials and supplies required to a job site (but not the cost of the materials and supplies themselves) when the hauler, trucker, or delivery service is not also the manufacturer of or a supplier of the materials and supplies, provided that the fee is determined by the Department to be reasonable and not excessive as compared with fees customarily allowed for similar services.

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- (3) The fees or commissions charged for providing any bonds or insurance specifically required for the performance of the Contract, provided that the fee or commission is determined by the Department to be reasonable and not excessive as compared with fees customarily allowed for similar services.
7. To determine the goals achieved under this Contract the participation as described in (d) of this special provision shall be divided by the original prime Contract amount and multiplied by 100 to determine the percentage of performance. The Contractor shall maintain records of payment that show amounts paid to all DBEs. Upon completion of the project, the Contractor shall submit a Form 17 listing all DBEs that participated in this Contract, the subcontract tier number of each, and the dollar amount paid to each. This dollar amount shall include payments made by nonDBE subcontractors to DBE subcontractors. The Contractor shall certify the amount paid, which may be audited by the Department. When there is no participation by DBEs, the Contractor shall submit a Form 17 that indicates no participation and gives reasons why there was no participation. CDOT will not count the participation of a DBE subcontractor toward the prime contractor's UDBE achievements or CDOT's overall DBE goal until the amount being counted toward the goal has been paid to the DBE.

(e) Replacement of UDBE Subcontractors used to meet the contract goal

Based upon a showing of good cause the Contractor may request that a UDBE named on Form 714 or on a Form 715 be replaced with another UDBE pursuant to the terms and conditions of this special provision. In the event that the Contractor is able to both document the need and to offer a replacement UDBE who can perform the work at a reasonable cost, the CDOT Region Civil Rights Professional will approve the replacement at no additional cost to the Department. Replacements will be allowed only with prior written approval of the Region Civil Rights Professional.

1. If a replacement is to be requested prior to the time that the named UDBE has begun to effectively prosecute the work under a fully executed subcontract, the Contractor shall furnish to the Region Civil Rights Professional the following:
 - A. Written permission of the named UDBE. Written permission may be waived only if such permission cannot be obtained for reasons beyond the control of the Contractor.
 - B. A full written disclosure of the circumstances making it impossible for the Contractor to comply with the condition of award.
 - C. Documentation of the Contractor's assistance to the UDBE named on Form 714 or on Form 715.
 - D. Copies of any pertinent correspondence and documented verbal communications between the Contractor and the named UDBE.
 - E. Documentation of the Good Faith Efforts in finding a replacement UDBE subcontractor and the results of the efforts. It is within the control of the Contractor to locate, prior to award, DBEs that offer reasonable prices and that could reasonably be expected to perform the work. For this reason, increased cost shall not, by itself, be considered sufficient reason for not providing an in-kind replacement.
2. In the event a UDBE subcontractor begins to prosecute the work and is unable to satisfactorily complete performance of the work, the Contractor shall furnish to the Region Civil Rights Professional the following:
 - A. Documentation that the subject UDBE subcontractor did not perform in a satisfactory manner.
 - B. Documentation of the Contractor's assistance to the UDBE subcontractor prior to finding the UDBE subcontractor in default.
 - C. A copy of the certified letter finding the UDBE to be in default or a letter from the UDBE stating that it cannot complete the work and it is turning the work back to the Contractor.

DISADVANTAGED BUSINESS ENTERPRISE
DEFINITIONS AND REQUIREMENTS

- D. Copy of the contract between the Contractor and the UDBE subcontractor, plus any modifications thereto.
- E. Documentation of the Good Faith Efforts in finding a replacement UDBE subcontractor and the results of the efforts.

In the event the Contractor is able to locate a replacement UDBE who can perform work at a reasonable cost to the Contractor, and also demonstrates to the satisfaction of the Department that prior to bid it had reason to believe that the named UDBE firm was responsible and not expected to default, the Department may modify or renegotiate the Contract to compensate the Contractor for any reasonable extra costs, because of a higher price in the proposal of the replacement UDBE subcontractor than that of the original UDBE subcontractor who failed to perform.

Provided, however, that the Department will not be obligated to participate in any increased cost to the Contractor if the UDBE that fails to perform has a recent history of performance failure or default that was either known, or should have been known, to the Contractor prior to award.

- 3. If the Contractor is unable to locate a UDBE replacement that is both interested in and capable of performing the work at a reasonable cost, the Department may waive the requirement that the work be performed by a UDBE and the Contractor shall provide for the satisfactory completion of the work at no additional cost to the Department.

(f) Sanctions.

It is the obligation of the Contractor to provide DBE firms with equal opportunity to participate in the performance of the work.

It is the responsibility of DBE firms to perform their work in a responsible manner fully consistent with the intent of the DBE program, and in substantial compliance with the terms and conditions of these DBE definitions and requirements.

DBE firms which fail to perform a commercially useful function as described in subsection (d) of these DBE definitions and requirements or operate in a manner which is not consistent with the intent of the DBE program may be subject to revocation of certification.

A finding by the Department that the Contractor has failed to comply with the terms and conditions of these DBE definitions and requirements shall constitute sufficient grounds for default and termination of the Contract in accordance with subsection 108.09 of the specifications.

Attachments:

- Form 714
- Form 715
- Form 718

COLORADO DEPARTMENT OF TRANSPORTATION UNDERUTILIZED DBE (UDBE) BID CONDITIONS ASSURANCE	Project No.:
	Location:

Instructions: Contractor – Complete and submit this form with your bid. Report only Underutilized DBE (UDBE) participation percentages which qualify under the contract goal specification for this project. It is important to review CDOT Form #715 instructions before completing this form.

POLICY
 It is the policy of the Colorado Department of Transportation that underutilized disadvantaged business enterprises have equal opportunity to participate in the performance of contracts financed with federal, state or local entity funds.

UNDERUTILIZED DBE PARTICIPATION COMMITMENT

1) Will your company's Underutilized DBE (UDBE) participation commitment meet contract goals? Yes No

2) Total eligible Underutilized DBE (UDBE) percentage amount from **Box A** below: . %

3) List the UDBE firms, committed work items, and eligible UDBE percent of your bid that you are committing to each

UDBE FIRM NAME	CERTIFICATION EXP. DATE	COMMITTED WORK ITEM(S)	SUBCONTRACT CATEGORY	ELIGIBLE UDBE % * <small>See Form #715</small>
1.	/ /		<input type="checkbox"/> Trucker <input type="checkbox"/> Subcontractor <input type="checkbox"/> Supplier <input type="checkbox"/> Broker	. %
2.	/ /		<input type="checkbox"/> Trucker <input type="checkbox"/> Subcontractor <input type="checkbox"/> Supplier <input type="checkbox"/> Broker	. %
3.	/ /		<input type="checkbox"/> Trucker <input type="checkbox"/> Subcontractor <input type="checkbox"/> Supplier <input type="checkbox"/> Broker	. %
4.	/ /		<input type="checkbox"/> Trucker <input type="checkbox"/> Subcontractor <input type="checkbox"/> Supplier <input type="checkbox"/> Broker	. %
5.	/ /		<input type="checkbox"/> Trucker <input type="checkbox"/> Subcontractor <input type="checkbox"/> Supplier <input type="checkbox"/> Broker	. %
BOX A: TOTAL ELIGIBLE UDBE PERCENTAGE AMOUNT: (Round percentage amounts to the nearest hundredth)				. %

* Additional instructions on how to calculate the actual eligible amounts and percentages for the trucker, subcontractor, supplier, and broker categories are available on the CDOT Form #715 and in the "Counting DBE Participation Toward Contract Goals and CDOT's annual DBE goal" section of the "DBE – Definitions and Requirements" in the *Standard Special Provisions*.

I understand that, if my company is determined to be the low bidder for the contract on this project, I must submit a completed CDOT Form #715 CERTIFICATION OF UNDERUTILIZED DBE PARTICIPATION for each firm listed on this form to the Transportation Department by 4:00 pm on the **third** work day after the day bids are opened. **The actual amounts submitted on each CDOT Form #715 must equal or exceed the percentage commitments documented on this form. In addition, if my company does not meet the DBE/UDBE goal for this project, I must submit a completed CDOT Form #718 DBE GOOD FAITH EFFORT DOCUMENTATION before 4:00 pm on the day after bids are opened. CDOT Form #715s submitted for firms not included on this form, OR for amounts exceeding those listed on this form, will be accepted but NOT counted as Good Faith Efforts. Only the efforts the contractor made prior to the bid opening will count as Good Faith Efforts.**

I understand my obligation to abide by the policy stated above. I shall not discriminate on the basis of race, color, age, sex, national origin, or handicap in the bidding process or the performance of contracts.

I DECLARE UNDER PENALTY OF PERJURY IN THE SECOND DEGREE, AND ANY OTHER APPLICABLE STATE OR FEDERAL LAWS, THAT THE STATEMENTS MADE IN THIS DOCUMENT ARE TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

Company Name:	Date: / /
Company Officer Signature:	Title:

COLORADO DEPARTMENT OF TRANSPORTATION CERTIFICATE OF PROPOSED UNDERUTILIZED DBE (UDBE) PARTICIPATION	Project No.:	
	Project Code (SA#):	
	Location:	Form #: of

Prime Contractor – Send completed/signed form to the Business Programs Office (instructions on second page). The "Eligible UDBE Amounts" submitted on this form must equal or exceed the commitment(s) documented on the **CDOT Form 714** you submitted with your bid. For the complete list of certified DBE/UDBE firms and their DBE work codes go to http://www.dot.state.co.us/app_ucp/

NOTE: See 49 CFR part 26.55, and the "DBE - Definitions and Requirements" in the *Standard Special Provisions*, for further information concerning counting DBE participation of truckers, subcontractors, suppliers and service providers toward the project's UDBE goal.

PART 1a – TRUCKING CONTRACT

If the UDBE is being used as a trucker for one or more "trucking" DBE work codes (25500, 25505 etc.) then:

- **ACTUAL UDBE AMOUNT** = Actual contract amount for the transportation services provided by the UDBE firm and any UDBE lessees.
- **ELIGIBLE UDBE TRUCKING AMOUNT** = [(ACTUAL UDBE AMOUNT) – (Any non-UDBE lessee amounts in this contract)*]

* For work done on this UDBE contract with non-UDBE lessees, credit toward the project UDBE goal is given only for the broker fees or commissions the UDBE trucker receives for arranging the transportations services, because the services themselves are being performed by non-UDBEs.

NAME OF UDBE FIRM	CERTIFICATION #	EXPIRATION DATE	ELIGIBLE UDBE TRUCKING AMOUNT
		/ /	\$
DBE WORK CODE NUMBER(S) THIS UDBE IS BEING USED FOR : <i>Complete list of work codes is at http://www.dot.state.co.us/app_ucp/</i>			

PART 1b – SUBCONTRACT

- **ELIGIBLE UDBE SUBCONTRACT AMOUNT** = [(Actual UDBE contract amount) – (Any non-UDBE lower tier amounts in this contract)*]

* Work that a UDBE subcontracts to a lower tier non-UDBE firm does not count toward the project UDBE goal.

NAME OF UDBE FIRM	CERTIFICATION #	EXPIRATION DATE	ELIGIBLE UDBE SUBCONTRACT AMOUNT
		/ /	\$
DBE WORK CODE NUMBER(S) THIS UDBE IS BEING USED FOR : <i>Complete list of work codes is at http://www.dot.state.co.us/app_ucp/</i>			

PART 1c – SUPPLY CONTRACT

If the supplier is a UDBE with a "Type" field of "**Manufacturer**" for the item(s):

- **ELIGIBLE UDBE SUPPLY AMOUNT** = [(Actual UDBE contract amount) X 100%]

If the supplier is a UDBE with a "Type" field of "**Regular Dealer**" for the item(s):

- **ELIGIBLE UDBE SUPPLY AMOUNT** = [(Actual UDBE contract amount) X 60%]

NOTE: If the supplier is a UDBE with a "Type" field of "**Broker**" for the item(s) use **PART 1d – BROKER / SERVICE CONTRACT**.

NAME OF UDBE FIRM	CERTIFICATION #	EXPIRATION DATE	ELIGIBLE UDBE SUPPLY AMOUNT
		/ /	\$
DBE WORK CODE NUMBER(S) THIS UDBE IS BEING USED FOR : <i>Complete list of work codes is at http://www.dot.state.co.us/app_ucp/</i>			

PART 1d – BROKER / SERVICE CONTRACT

If purchasing materials or supplies through a UDBE with a "Type" field of "**Broker**", count **only** the amount of brokerage commission and/or delivery service fees included in the contract. Other examples of services to include in this section are bonding, brokering, consulting, security guards, and insurance etc.

- **ELIGIBLE UDBE SERVICE FEE AMOUNT** = Actual compensation retained by the UDBE broker/agent for services rendered*

* The amounts that count toward UDBE goals are limited to the compensation retained by the UDBE broker/agent for services rendered, provided the fee/commission is determined by CDOT to be reasonable and not excessive as compared with fees customarily charged for similar services.

NAME OF UDBE FIRM	CERTIFICATION #	EXPIRATION DATE	ELIGIBLE UDBE SERVICE FEE AMOUNT
		/ /	\$
DBE WORK CODE NUMBER(S) THIS UDBE IS BEING USED FOR : <i>Complete list of work codes is at http://www.dot.state.co.us/app_ucp/</i>			

PART 2 – UDBE PARTICIPATION SUMMARY

<p>A) What is the total dollar value of this proposed trucking, subcontract, supply, OR broker/service contract that is eligible for counting toward contract goals?</p> <p>A = [TOTAL FROM "ELIGIBLE" COLUMNS IN PART 1]</p> <p>NOTE: Provide in actual subcontractor dollars and not prime contract prices.</p>	A > \$
<p>B) What is the total dollar value of proposed subcontracts that are eligible for counting towards contract goals from prior sheets/forms?</p>	B > \$
<p>C) What is the accumulative value of proposed subcontracts that are eligible for counting towards contract goals?</p> <p>C = [A + B]</p>	C > \$
<p>D) What is the original contract bid total?</p>	D > \$
<p>E) What is the accumulative percent of contract bid total subcontracted to all underutilized DBEs?</p> <p>E = [(C ÷ D) X 100]</p>	E > %

PART 3 – UDBE CONFIRMATION

<p>I confirm that my company is participating in this contract as documented in the Prime Contractor's commitment(s) in PART 1 of this form. Only the value of the work that my company is <u>actually performing</u> is being counted on this form.</p>	
<p>UDBE Firm Name:</p>	<p>Date: / /</p>
<p>UDBE Representative Signature and Title:</p>	

PART 4 – PRIME CONTRACTOR CERTIFICATION

<p>I certify that:</p> <ul style="list-style-type: none"> my company has met the contracted UDBE goals or has submitted a completed CDOT Form #718. my company has accepted a proposal from the UDBE named above. my company has notified the proposed UDBE of the contracted UDBE commitment. my company has ensured that the proposed UDBE has signed PART 3 of this form. my company's use of the proposed UDBE for the items of work listed above is a condition of the contract award. my company will invite the proposed UDBE to attend the preconstruction conference. my company will not use a substitute UDBE for the proposed UDBE's failure to perform under a fully executed subcontract, unless my company complies with the definitions and requirements section of the DBE Special Provisions. I understand that failure to comply with the information shown on this form will be considered grounds for contract termination. <p>I declare under penalty of perjury in the second degree, and any other applicable state or federal laws, that the statements made on this document are true and complete to the best of my knowledge.</p>	
<p>Prime Contractor Name:</p>	<p>Date: / /</p>
<p>Officer Signature and Title:</p>	

FORM INSTRUCTIONS

<p>Prime Contractor:</p> <ol style="list-style-type: none"> An officer of the contractor(s) must complete this form. Include only DBE firms which meet the underutilized criteria in the contract goal specification for this project (i.e., UDBE firms). Complete only relevant section(s) for PART 1. Ensure that the proposed UDBE has signed PART 3 of this form. Complete ALL sections of PART 2 and PART 4. Submit a separate CDOT Form #715 for EACH proposed UDBE. 	<ol style="list-style-type: none"> Retain a photocopy for your records. Send original to: Colorado Department of Transportation Business Programs Office 4201 E. Arkansas Ave. Denver, Colorado 80222 FAX: (303) 757-9019
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COLORADO DEPARTMENT OF TRANSPORTATION UNDERUTILIZED DBE (UDBE) GOOD FAITH EFFORT DOCUMENTATION

Project No.:	Project Code (SA#):
Location:	
Date:	No. Of Sheets Attached To Form:

The Contractor who is the apparent low bidder on a CDOT construction project, and has failed to meet the Underutilized DBE (UDBE) contract goal, shall use this form to document all good faith efforts that were made prior to bid opening by said Contractor to meet the goal. **FAILURE TO FULLY / CLEARLY COMPLETE THIS FORM MAY RESULT IN REJECTION OF THE BID.**

Each portion of this form is to be addressed in the space provided, or on supplemental sheets that follow the same tabular structure and format outlined below. Attach supporting documentation as required by CDOT. This completed form and required attachments are to be submitted to the Business Programs Office in the Center for Equal Opportunity prior to 4:00 p.m. on the day after the day bids are opened. This form may be submitted by FAX (303-757-9019) with an original copy to follow. An extension may be granted by the DBE Liaison. Only the efforts the Contractor made prior to bid opening will count as Good Faith Efforts consistent with the instructions on CDOT Form #714.

I. Complete the following table to document sufficient bid items identified as subcontract work to be performed by UDBEs to achieve the contract goal. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate DBE participation, even when the Contractor might otherwise prefer to perform these work items with its own forces. The total percentage of subcontract items identified for UDBE participation must equal or exceed the percentage UDBE goal set by CDOT.

DBE Work Code From DBE Directory	DBE Work Code Description	Closest Matching CDOT Bid Item #	Actual % Amount Of Final Contract
UDBE CONTRACT GOAL %: _____			TOTAL CONTRACT %: _____

DBE DIRECTORY WORK CODES

The DBE Directory can be found online at:
http://www.dot.state.co.us/app_ucpl/

- DBE work codes are 5 digit numbers where the 1st digit corresponds to the overall section the code belongs to
- The 1st 3 digits of a DBE work code identify its category
- DBE work codes ending in "00" represent certification for the entire work code category
- DBE work codes NOT ending in "00" represent certification in a specific sub-category only

II. Complete the following table to summarize all outreach efforts made to UDBE firms. For each subcontract item identified, contact by mail, fax, phone and/or email 100% of the Colorado certified UDBEs whose DBE work codes match the type of work being solicited and who are marked as "**CDOT GFE Eligible**" on the DBE Directory. The Contractor shall ensure that initial solicitations allow UDBEs at least 10 calendar days to participate effectively in the bidding process. In order to determine with certainty which UDBEs are interested, the Contractor is also required to take appropriate steps to follow-up initial solicitations (e.g., regional follow-up phone calls etc.). If soliciting by telephone, attach a summary telephone log of calls, including topic of discussion, date, time, name of person contacted, and the response received. If soliciting by mail, fax, and/or email, attach one example copy of the letter, fax, and/or email sent to UDBEs along with a summary log that documents all dates and responses received. Letters, faxes and/or emails must specifically identify the project, the items to be subcontracted, and the bid date. Letters, faxes and/or emails must also provide an address and phone number where specific quantities or details will be available to bidders.

DBE Work Code From DBE Directory	DBE Work Code Description	# Of UDBEs Contacted	% Of UDBEs "Eligible" Contacted

DBE DIRECTORY UPDATES

Go to http://www.dot.state.co.us/app_ucpl/ and use the "Directory Updates" button on the DBE Directory to submit any of the following documented updates on UDBE firms:

- Contact information changes (e.g., phone and address etc.)
- "CDOT GFE Eligibility" status changes (e.g., UDBE firm says they don't want to be contacted via GFE solicitations etc.)

Note: In order to verify all updates submitted, CDOT may request additional information from contractors and/or UDBE firms before posting requested changes to the Directory.

III. Complete the following table to show all subcontract bids received (non-UDBE and UDBE), bid dollar amounts for each bid item, and the name of the successful bidder. Where bundled subcontract bids were received, break out quotes per bid item number. If the UDBE bids were rejected, give reasons for each case. If the work is to be counted as a potential UDBE subcontract item, the Contractor cannot elect to perform that work itself when a UDBE bid is competitive or only UDBE bids are received. Cost alone may not be adequate justification for failure to use a non-UDBE bid is significantly lower than a UDBE bid, the Contractor may choose to perform the item itself. CDOT will determine whether a subcontractor's bid is "competitive" based on factors such as the percentage and dollar difference between quote(s), and/or the percentage the quote(s) represents of the overall contract.

CDOT Bid Item # (Break Out Bundled Quotes)	Closest DBE Work Code	Bid Item Description	Subcontractor Name (Place an * next to firm being used)	Actual Bid Item Quote Price	UDBE Firm?	% Difference On Items That UDBE Firms Bid
					<input type="checkbox"/>	
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					<input type="checkbox"/>	
					<input type="checkbox"/>	
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IV. The efforts required herein are not exhaustive or exclusive. Other factors or types of efforts may be relevant in appropriate cases. In determining whether Good Faith Efforts have been made, the quantity and quality of the efforts made as well as kinds of efforts made may be considered. List any additional efforts to increase UDBE contract participation, such as assisting UDBEs in obtaining bonding/insurance/lines of credit, effectively using the services of community organizations/publications, and/or requesting subcontractors to assist with providing UDBE participation. Report the results of such efforts. Note: Advertising in a publication with low UDBE subscription rates will not be considered as quality efforts by CDOT.

THE CONTRACTOR UNDERSTANDS THAT DEMONSTRATION OF GOOD FAITH EFFORTS IN ACHIEVING THE UDBE GOALS ESTABLISHED BY CDOT IS REQUIRED THROUGHOUT THE PERFORMANCE OF THE CONTRACT.

Company Name: _____ Phone: _____ Fax: _____
 Title: _____ Printed Name: _____ Signature: _____

EMERGING SMALL BUSINESS PROGRAM

DESCRIPTION

This standard special provision describes the Emerging Small Business (ESB) Program that is included in the Contract. The program is further described by the ESB Program Rules. Anyone who has questions about the Program should contact the ESB Program Manager at (303) 757-9162 or 1-800-925-3427. Mail should be directed to the ESB Program Manager at the Colorado Department of Transportation (CDOT), Business Programs Office, 4201 East Arkansas Avenue, Denver CO 80222. ESB information is also available on CDOT's website: www.dot.state.co.us/EEO/ESBProgramPage.htm

GENERAL REQUIREMENTS - CONSTRUCTION CONTRACT OBLIGATIONS

(a) **Definition and Eligibility.** An Emerging Small Business (ESB) is a business which the Colorado Department of Transportation has determined meets the eligibility criteria and requirements of the ESB Rules, as follows:

1. **Eligibility Requirements.** The business must submit to CDOT, in its application, proof of either:

- A. Completion, by a principal of the business, of a minimum of 6 hours of class or seminar instruction within the last two years on subjects applicable to a small business, including topics such as planning, marketing, and finance; or
- B. Completion, by a principal of the business, of the U. S. Small Business Administration "Small Business Workshop" training course, or of any similar course that has been previously identified by the ESB Program Manager as equivalent thereto and that is available from a local source.

There is no minimum time the business must have been in operation before applying for ESB status.

The business must have all necessary licenses, permits and registrations to do business in the State of Colorado.

The business must be an independent business.

A construction business must not have exceeded a total gross annual income of \$4,500,000 averaged over the past three fiscal years. A consultant business must not have exceeded a total gross annual income of \$2,000,000 averaged over the past three fiscal years.

The business must commit in writing to complete a Business Development Plan during each year of ESB eligibility.

Each business in the ESB Program shall file an application with CDOT to renew its eligibility annually. The maximum term of the eligibility of a business in the ESB Program is a period of twelve active eligible years.

2. **Determination of Eligibility as ESB by CDOT.** Any contractor may apply to the ESB Program Manager for status as an ESB. Application need not be made in connection with a particular bid.

It shall be the business' responsibility to submit applications so that the ESB Program Manager has sufficient time to render decisions. The ESB Program Manager will review applications in a timely manner but is not committed to render decisions about a business' ESB status within any given period of time. Applications can be obtained from CDOT's website or by contacting the ESB Program Manager. The ESB Program Manager will maintain and make available a Directory of eligible ESB contractors and consultants. Bidders will be solely responsible for verifying the eligibility of ESBs they intend to use prior to submitting a proposal. Verification can be made by calling the ESB Program Manager.

EMERGING SMALL BUSINESS PROGRAM

(b) Reimbursement Payments. Only one of the following two types of reimbursement payments may be made to the Contractor per ESB subcontractor.

1. **First-Time Reimbursement Payment.** The ESB Program Manager will authorize reimbursement payment to the Contractor if a retained ESB has never before had a contract or a subcontract on a CDOT project. Payment is earned only one time per project, regardless of how many ESBs are retained as subcontractors on the project. Payment will be 10 percent of the dollar value of work performed by the ESB subcontractor on the project. Payment shall not exceed a maximum amount of \$5,000.

CDOT Form No. 977 (copy attached) describes the terms and conditions for receiving this payment. This form must be submitted with CDOT Form No. 205 to the Project Engineer.

CDOT Form No. 980 (copy attached) evaluating the ESB firm's performance shall be submitted to the project engineer upon completion of the subcontract work or every six months that the ESB is actively working on the project, if subcontract exceeds 6 months. Request for payment may be submitted when the subcontractor has completed work on the project and payment will be based on the final subcontract amounts. Request for payment shall be submitted with CDOT Form No. 981 (copy attached) directly to the ESB Program Manager.

2. **Hourly Reimbursement Payment.** The Department will provide hourly reimbursement to the Contractor if it retains one or more ESBs as subcontractors on the project. Payment is based upon the number of hours spent by the Contractor providing work-related services to the ESBs on the project, multiplied by the rate of pay listed below. Payment for each ESB assisted shall not exceed 10% of the ESB's subcontract, and the total shall not exceed \$7,500 per project. The Contractor shall submit a completed CDOT Form No. 978 (copy attached), which documents the specific assistance that was provided to the ESB subcontractor, with the CDOT Form 980 (copy attached) and a signed invoice which documents the number of hours of work-related services provided to the ESB to the Project Engineer for inclusion with the monthly pay estimate. The following wages will be paid per hour:

● Project Superintendent	\$34.90
● Foreman	\$23.95
● General office help	\$18.40
● Estimator or Project Scheduler	\$28.45

Loading and fringe benefits are included in these rates

(c) Assistance with Bonding. Bonding assistance shall not exceed the maximum amount of \$5,000 per duration of time in the program for ESB prime contract awards and \$5,000 per duration of time in the program for ESB subcontract awards where bonding is required by CDOT or the prime contractor.

1. Where the ESB is the Prime Contractor, CDOT will pay a certain percentage of the cost of the bond obtained by the ESB Prime Contractor as specified in the ESB's Business Development Plan negotiated with ESB Program Manager. The total amount paid to any specific ESB for this purpose on all CDOT projects shall not exceed \$5,000 per duration of time the ESB is in the program.. The ESB Prime Contractor shall submit a billing requesting payment and proof that the bond has been paid to the ESB Program Manager. If the ESB has never had a CDOT contract, a W-9 (Request for Taxpayer Identification Number (TIN) Verification), shall be submitted to the ESB Program Manager. An ESB Prime Contractor may only apply for one type of reimbursement payment per project.

EMERGING SMALL BUSINESS PROGRAM

2. If an ESB subcontractor is able to obtain bonding required by the Contractor, CDOT will pay a certain percentage of the cost of the bond obtained by the ESB subcontractor, as defined in the ESB's Business Development Plan negotiated with ESB Program Manager, provided that the total amount paid to any specific ESB for this purpose on all CDOT projects shall not exceed \$5,000 per duration of time the ESB is in the program. The Prime Contractor shall submit CDOT Form No. 979 (copy attached) to the ESB Program Manager. The ESB subcontractor must submit proof that bonding was required and proof that the bond has been paid to the ESB Program Manager. The Prime Contractor and the ESB subcontractor shall each submit a W-9, to the ESB Program Manager.

3. If an ESB subcontractor is unable to obtain bonding required by the Contractor and if the Contractor agrees to waive its bonding requirements for the ESB subcontractor, CDOT will provide assistance to the ESB subcontractor by reimbursing the prime contractor up to 5 percent of the ESB's subcontractor award to a maximum of \$5,000 for costs incurred which result from the ESB subcontractor's failure to perform.

Attachments:

Form 977
Form 978
Form 979
Form 980
Form 981

COLORADO DEPARTMENT OF TRANSPORTATION

EMERGING SMALL BUSINESS CONTRACTOR REIMBURSEMENT AGREEMENT

(First time payment)

Project code #	Project #	Subcontract start date	Subcontract finish date
Contractor		ESB subcontractor	ESB expiration date
Project Engineer name & phone #		Location	

In order to encourage ESB participation on projects, the Colorado Department of Transportation agrees to provide a reimbursement payment to the Contractor for retaining a first time ESB. The reimbursement payment will be 10% of the dollar value of the work subcontracted to and completed by the ESB, not to exceed \$5,000. This form must be submitted with a copy of CDOT Form #205 to the Project Engineer. CDOT Form #980 must be submitted to the Project Engineer. The Project Engineer will forward these forms to the ESB Program Manager for approval. When the subcontractor has completed work on the project the Contractor must submit a billing requesting payment and CDOT Form #981 to the ESB Program Manager and payment will be based on the final amount paid to the subcontractor. Fill in the amount below:

_____ x 10% = _____
 committed subcontract amount reimbursement amount

In exchange, the Contractor agrees to:

- retain the "first time" ESB subcontractor named above who has never had a contract on a CDOT project.
- provide work-related services to the ESB in the performance of the work. The work related services may include, but are not limited to :
 - instructions in scheduling
 - accounting, billing, purchasing, payroll and project superintendence
 - specific services the Contractor agrees to provide are:

- submit a written evaluation of the ESB's performance using CDOT Form #980 to the Project Engineer upon completion of the subcontract work or every six months that the ESB is actively working on the project, if subcontract exceeds 6 months. Project Engineer will forward all forms to the ESB Program Manager for approval.
- submit a completed CDOT Form #981 with a billing requesting payment to the ESB Program Manager when the subcontractor has completed work on the project.

Both parties agree and understand this reimbursement payment may be earned only one time per project regardless of how many ESBs are retained as subcontractors on the project. This reimbursement payment may not be used in conjunction with any other reimbursement payment for this ESB on this project. The reimbursement payment shall not exceed \$5,000.

CDOT may terminate this agreement any time the Contractor does not comply with the terms and conditions listed in this agreement.

Contractor representative signature and title	Date
CDOT ESB representative approval	Date

COLORADO DEPARTMENT OF TRANSPORTATION

EMERGING SMALL BUSINESS CONTRACTOR REIMBURSEMENT AGREEMENT

(Hourly payment)

Project code #	Project #	Subcontract start date	Subcontract finish date
Contractor			
Project Engineer name & phone #		Location	

CDOT and the Contractor agree:

- This reimbursement will be based upon the number of hours the Contractor provides work related services to the ESB(s), multiplied by rate of pay per hour, according to the project specification.
- The reimbursement amount will not exceed \$7,500 per project regardless of the number of ESBs the Contractor provides work-related services to on the project.
- The Contractor will submit the following to the Project Engineer: CDOT Form #980, this agreement, and a signed monthly invoice that provides information as shown in the sample invoice format below, for each ESB. The Project Engineer will forward these forms to the ESB Program Manager for approval. Once approved, the ESB Program Manager will forward approved copies to the Project Engineer who will enter the reimbursement payment on the next progress estimate.

SAMPLE INVOICE FORMAT

(A x B = C) Classification & name of worker providing training	Beginning date	Ending date	A hours spent	B rate per hour	C total amount due	*Describe type of assistance provided	ESB(s) provided with assistance

GRAND TOTAL AMOUNT DUE:

- The Contractor will provide the following statement on the invoice:
I declare under penalty of perjury in the second degree and any other applicable state or federal laws that the statements made on this document are true and complete to the best of my knowledge.

Contractor signature _____ Date _____

- This reimbursement may not be used in conjunction with any other reimbursement payment for this ESB on this project.
- * The Contractor may provide any or all of the following work-related services to the ESB:

a. assistance in scope	g. getting appropriate permits, licenses and insurance
b. control of work	h. payroll checking
c. materials supply and control	i. final project records
d. prosecution and progress of the work	j. other (describe) _____
e. contract specifications	_____
f. documentation requirements	_____

- List the ESB subcontractors used in this project who qualify the Contractor for this payment.

name	address

CDOT may terminate this agreement any time the Contractor does not comply with the terms and conditions listed in this agreement.

Contractor representative signature and title	Date
CDOT ESB representative approval	Date

COLORADO DEPARTMENT OF TRANSPORTATION

EMERGING SMALL BUSINESS JOINT PAYEE AGREEMENT

(Bonding Assistance)

Location	Project #	Project code #
Prime contractor	ESB Subcontractor	ESB expiration date

Prime Contractor: Complete this form and a W-9 (Request for Taxpayer Identification). Submit both forms to the ESB Program Manager. **Subcontractor:** Complete a W-9 and submit it with a proof of bonding payment and a bonding payment reimbursement invoice to the ESB Program Manager.

The Colorado Department of Transportation (CDOT) and _____
 (prime contractor) executed a contract dated _____ for the construction project mentioned above.

Under the construction contract terms, the prime contractor has executed a subcontract with _____
 _____, an eligible Emerging Small Business (ESB) subcontractor under CDOT's ESB Program. The ESB has secured bonding for the work to be performed pursuant to the subcontract, submitted proof of bonding payment and issued an invoice for bonding payment reimbursement. CDOT will prepare a Voucher Request to authorize bonding payment reimbursement and will issue the reimbursement to the prime contractor and the ESB subcontractor as joint payees.

I agree to accept a check made payable to both the prime contractor and the ESB subcontractor

Prime contractor representative's signature	Title	Date
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- Original - Business Programs
- Central Files
- cc - Project leader/engineer
- cc - Accounting
- cc - Prime Contractor
- cc - Subcontractor

COLORADO DEPARTMENT OF TRANSPORTATION
CONTRACTOR PERFORMANCE EVALUATION OF AN
EMERGING SMALL BUSINESS

Project code#	Project #	Subcontract start date	Subcontract finish date
Contractor		ESB subcontractor	ESB expiration date
Project Engineer name & phone #		Location	

Prior to payment, a Contractor must provide CDOT with a written evaluation of the ESB's performance of the subcontract work.

We are interested in your opinion of the ESB's job performance. This is your chance to "fill us in." Please complete this evaluation, and submit it to the Project Engineer upon completion of the subcontract work or every six months that the ESB is actively working on the project, if subcontract exceeds 6 months.

1. Please rate the ESB in each of the following work-related areas:

Category	Excellent	Above avg.	Average	Below avg.	Poor
Performance of work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reputation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ability to survive in business	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Competitive performance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reliability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Financial stability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ability to perform independently according to specifications	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Judgement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. Give your opinion regarding the ESB's knowledge, experience and resources used to participate in the contract process.

3. If the ESB is rated below average or poor in any category, what specific measures do you recommend to improve the ESB's performance? Please explain.

Contractor representative signature and title	Date
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**COLORADO DEPARTMENT OF TRANSPORTATION
 CONTRACTOR CERTIFICATION OF ACTUAL PAYMENT TO A FIRST TIME
 EMERGING SMALL BUSINESS**

Project code#	Project #	Subcontract start date	Subcontract finish date
Project Engineer name & phone #		Location	

CONTRACTOR (You are required to complete this form when the ESB subcontractor has completed work on the project.)

- List the ESB subcontractor and the amount you have paid or will pay the business for work performed and materials used on the project.
- Return this form to the Project Engineer with CDOT Form #980 and a billing requesting reimbursement payment.
- Retain supporting documentation for a minimum of seven years from the project acceptance date.

ESB name	Amount paid

x10%

TOTAL ELIGIBLE REIMBURSEMENT AMOUNT:

=	_____
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(NOTE: If the Total Eligible Reimbursement Amount is greater than \$5,000, Contractor will be reimbursed \$5,000 per Chapter 4 Section II (3) (a) in the ESB Rules.)

I declare under penalty of perjury in the second degree, and any other applicable state or federal laws, that the statements made in this document are true and complete to the best of my knowledge.

Contractor name	Date
Authorized Contractor representative signature and title	Date

I certify this Contractor has met the contract requirements and is eligible for payment.

Authorized CDOT representative signature and title	Date
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August 1, 2005

MATERIALS AND LABOR USED, Form FHWA-47

This project is on the National Highway System. Form FHWA-47 shall be submitted to the Engineer for each Federal-Aid Project on the National Highway System involving construction performed under contract awarded by competitive bidding, except for the following cases:

- (1) Projects for which the total final construction costs for roadway are less than \$1,000,000.
- (2) Projects consisting primarily of the installation of protective devices at railroad grade crossings.
- (3) Projects consisting primarily of highway beautification.

The report will include data for all subcontractors, which may be combined by the prime Contractor into one report.

Forms are available from the Resident Engineer. Preparation instructions on the back of the form should be followed.

U.S. DEPT. OF LABOR, DAVIS BACON MINIMUM WAGES, COLORADO
 GENERAL DECISION NUMBERS CO030014 AND CO030015, HIGHWAY CONSTRUCTION

DATE 05-06-05

Decision Nos. CO030014 and CO030015 dated June 13, 2003 supersedes Decision Nos. CO020014 and CO020015 dated March 12, 2002. When work within a project is located in two or more counties, and the minimum wages and fringe benefits are different for one or more job classifications, the higher minimum wages and fringe benefits shall apply throughout the project.	Modifications			ID
	MOD 1	08-15-03	Pages 1, 5	1
	MOD 2	09-19-03	Pages 1,2,5,6	2
	MOD 3	01-16-04	Pages 1, 5	3
	MOD 4	03-05-04	Pages 1, 5	4
	MOD 5	05-14-04	Pages 1, 5	5
	MOD 6	06-18-04	Pages 1,2,5,6	6
	MOD 7	08-20-04	Pages 1,4,5	7
	MOD 8	09-17-04	Pages 1, 5	8
	MOD 9	03-04-05	Pages 1, 5	9
	MOD 10	04-04-05	Pages 1, 5	10
MOD 11	05-06-05	Pages 1,2,5,6	11	

General Decision No. CO030014 applies to the following counties: Adams, Arapahoe, Boulder, Denver, Douglas, El Paso, Jefferson, Larimer, Mesa, Pueblo, and Weld counties.

General Decision No. CO030014

The wage and fringe benefits listed below reflect collectively bargained rates.

Code	Classification	Basic Hourly Rate	Fringe Benefits	Last Mod
	ELECTRICIANS: (Excluding traffic signal installation)			
1200	Electrical work \$150,000 or less (Pueblo county)	20.84	8.85 + 3%	11
1201	Electrical work over \$150,000 (Pueblo county)	24.49	8.85 + 3%	11
1202	Electricians (Adams, Arapahoe, Boulder, Denver, Douglas, Jefferson, Larimer, and Weld counties)	28.91	10.19	10
1203	Electricians (El Paso county)	24.54	11.20 + 3%	3
1204	Electricians (Mesa county)	18.40	7.20	4
1205	Traffic Signal Installer (Zone 1)	22.91	1.75 + 13%	7
1206	Traffic Signal Installer (Zone 2)	25.91	1.75 + 13%	7
	<u>Traffic Installer Zone Definitions</u>			
	Zone 1 – Within a 35 mile radius measured from the addresses of the following cities: Colorado Springs - Nevada & Bijou Denver - Ellsworth Avenue & Broadway Ft. Collins - Prospect & College Grand Junction - 12th & North Avenue Pueblo - I-25 & Highway 50 Zone 2 - All work outside these areas.			
	POWER EQUIPMENT OPERATORS:			
1300	Asphalt Screed	20.47	7.22	11
1301	Bituminous or Asphalt Spreader/Laydown Machine	20.47	7.22	11
1302	Bulldozer	20.47	7.22	11
	Crane:			
1305	50 tons and under	20.62	7.22	11
1306	51 to 90 tons	20.77	7.22	11
1307	91 to 140 tons	20.92	7.22	11
1308	141 tons and over	21.68	7.22	11

See Revised Pages

General Decision No. CO030014				
The wage and fringe benefits listed below reflect collectively bargained rates.				
Code	Classification	Basic Hourly Rate	Fringe Benefits	Last Mod
POWER EQUIPMENT OPERATORS (cont.):				
Drill Operator:				
1309	William MF/Watson 2500 only	20.77	7.22	11
Grader/Blade:				
1310	Rough	20.47	7.22	11
1311	Finish	20.77	7.22	11
Loader:				
1312	Barber Green, etc., 6 cubic yards and under	20.47	7.22	11
1313	Over 6 cubic yards	20.62	7.22	11
Mechanic and/or Welder (Includes heavy duty and combination mechanic and welder):				
1314	Mechanic and/or Welder	20.62	7.22	11
1315	Mechanic/Welder (Heavy duty)	20.77	7.22	11
1316	Oiler	19.77	7.22	11
Power Broom:				
1317	Under 70 HP	19.77	7.22	11
1318	70 HP and over	20.47	7.22	11
Roller:				
1319	Self-propelled, rubber tires under 5 tons	20.12	7.22	11
1320	Self-propelled, all types over 5 tons	20.47	7.22	11
Scraper:				
1321	Single bowl under 40 cubic yards	20.62	7.22	11
1322	Single bowl including pups 40 cubic yards and tandem bowls and over	20.77	7.22	11
1323	Trackhoe	20.62	7.22	11
1324	Water Truck	20.62	7.22	11
Laborers:				
1400	Asphalt Laborer/Raker, Common Laborer, and Concrete Laborer/Mason Tender	16.29	4.25	

See Revised Pages

General Decision No. CO030014				
The wage and fringe benefits listed below do not reflect collectively bargained rates.				
Code	Classification	Basic Hourly Rate	Fringe Benefits	Last Mod
1500	Bricklayers	15.55	2.85	
	Carpenters:			
1600	Form Work (Excluding curbs and gutters)	16.54	3.90	
1601	All other work	16.61	3.88	
1700	Concrete Finishers/Cement Masons	16.05	3.00	
	Ironworkers:			
1900	Reinforcing	16.69	5.45	
1901	Bridge Rail (Excludes guardrail)	18.22	6.01	
	Laborers:			
2001	Fence Erector (Includes fencing on bridges)	13.02	3.20	
2002	Form Work (Curbs and gutters only)	11.85	3.45	
2003	Guardrail Erector (Excludes bridgerail)	12.89	3.20	
2004	Landscape and Irrigation Laborer	12.26	3.16	
2005	Pipelayer	13.55	2.41	
2006	Striping Laborer (Pre-form layout and removal of pavement markings)	12.62	3.21	
2007	Traffic Director/Flagger	9.55	3.05	
2008	Traffic and Sign Laborer (Sets up barricades and cones, and installs permanent signs)	12.43	3.22	
	PAINTERS			
2100	Brush	16.94	2.10	
2101	Spray	16.99	2.87	
	POWER EQUIPMENT OPERATORS:			
2200	Backhoes	16.54	4.24	
2201	Bobcat/Skid Loader	15.37	4.28	
2202	Concrete Pump Operator	16.52	4.30	

*SEE
REVISED
PAGES*

General Decision No. CO030014

The wage and fringe benefits listed below do not reflect collectively bargained rates.

Code	Classification	Basic Hourly Rate	Fringe Benefits	Last Mod
	POWER EQUIPMENT OPERATORS (cont.):			
	Drill Operator:			
2203	All except William MF/Watson 2500	16.74	2.66	
2204	Forklift	15.91	4.09	
2205	Rotomill Operator	16.22	4.41	
2206	Post Driver/Punch Machine	16.07	4.41	
2207	Tractor	13.13	2.95	
2208	Compactor	16.70	3.30	
2301	Groundman (Traffic signalization)	11.44	3.25	
	Truck Drivers:			
2400	Floater-Semi Truck	14.86	3.08	
2401	Multipurpose Truck – Specialty & Hoisting	14.35	3.49	
2402	Truck Mechanic	16.91	3.01	
2403	Pickup Truck (Includes Pilot and Sign/Barricade Truck)	13.93	3.68	
2405	Single Axle Truck	14.24	3.77	
2406	Distributor Truck	15.80	5.27	
2407	Dump Truck:			
2408	14 cubic yards and under	14.93	5.27	
2409	15 to 29 cubic yards	15.27	5.27	
2410	30 to 79 cubic yards	15.80	5.27	
2411	80 cubic yards and over	16.45	5.27	
2412	Low Boy Truck	17.25	5.27	

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses [29 CFR 5.5(a)(1)(ii)].

END OF GENERAL DECISION NUMBER CO030014.

U.S. DEPT. OF LABOR, DAVIS BACON MINIMUM WAGES, COLORADO
 GENERAL DECISION NUMBERS CO030014 AND CO030015, HIGHWAY CONSTRUCTION

DATE 05-06-05

General Decision No. CO030015 applies to the following counties: Alamosa, Archuleta, Baca, Bent, Chaffee, Cheyenne, Clear Creek, Conejos, Costilla, Crowley, Custer, Delta, Dolores, Eagle, Elbert, Fremont, Garfield, Gilpin, Grand, Gunnison, Hinsdale, Huerfano, Jackson, Kiowa, Kit Carson, La Plata, Lake, Las Animas, Lincoln, Logan, Mineral, Moffat, Montezuma, Montrose, Morgan, Otero, Ouray, Park, Phillips, Pitkin, Prowers, Rio Blanco, Rio Grande, Routt, Saguache, San Juan, San Miguel, Sedgwick, Summit, Teller, Washington, and Yuma counties.

When work within a project is located in two or more counties, and the minimum wages and fringe benefits are different for one or more job classifications, the higher minimum wages and fringe benefits shall apply throughout the project.

General Decision No. CO030015

The wage and fringe benefits listed below reflect collectively bargained rates.

Code	Classification	Basic Hourly Rate	Fringe Benefits	Last Mod
	ELECTRICIANS: (Including traffic signal installation)			
3200	Electrical work \$150,000 or less (Alamosa, Archuleta, Baca, Bent, Chaffee, Conejos, Costilla, Crowley, Custer, Fremont, Huerfano, Kiowa, Las Animas, Mineral, Otero, Prowers, Rio Grande, and Saguache counties)	20.84	8.85 + 3%	11
3201	Electrical work over \$150,000 (Alamosa, Archuleta, Baca, Bent, Chaffee, Conejos, Costilla, Crowley, Custer, Fremont, Huerfano, Kiowa, Las Animas, Mineral, Otero, Prowers, Rio Grande, and Saguache counties)	24.49	8.85 + 3%	11
3202	Electricians (Clear Creek, Eagle, Gilpin, Grand, Jackson, Lake, Logan, Morgan, Phillips, Sedgwick, Summit, Washington, and Yuma counties)	28.91	10.19	10
3203	Electricians (Cheyenne, Elbert, Kit Carson, Lincoln, Park, and Teller counties)	24.54	11.20+ 3%	3
3204	Electricians (Dolores, Garfield, Gunnison, Hinsdale, La Plata, Moffat, Montezuma, Ouray, Pitkin, Rio Blanco, Routt, San Juan, and San Miguel counties)	25.75	7.32	5
3205	Electricians (Delta and Montrose counties)	18.40	7.20	4
3206	Traffic Signal Installer (Zone 1)	22.91	1.75 + 13%	7
3207	Traffic Signal Installer (Zone 2)	25.91	1.75 + 13%	7
	<u>Traffic Installer Zone Definitions</u>			
	Zone 1 – Within a 35 mile radius measured from the addresses of the following cities: Colorado Springs - Nevada & Bijou Denver - Ellsworth Avenue & Broadway Ft. Collins - Prospect & College Grand Junction - 12th & North Avenue Pueblo - I-25 & Highway 50 Zone 2 - All work outside these areas.			

See Revised Rates

General Decision No. CO030015				
The wage and fringe benefits listed below reflect collectively bargained rates.				
Code	Classification	Basic Hourly Rate	Fringe Benefits	Last Mod
POWER EQUIPMENT OPERATORS:				
3300	Bituminous or Asphalt Spreader/Laydown Machine	20.47	7.22	11
3301	Bulldozer	20.47	7.22	11
Crane:				
3302	50 tons and under	20.62	7.22	11
3303	51 to 90 tons	20.77	7.22	11
3304	91 to 140 tons	20.92	7.22	11
3305	141 tons and over	21.68	7.22	11
3306	Grade Checker	20.62	7.22	11
Loader:				
3307	Barber Green, etc., 6 cubic yards and under	20.47	7.22	11
3308	Over 6 cubic yards	20.62	7.22	11
Roller:				
3309	Self-propelled, rubber tires under 5 tons	20.12	7.22	11
3310	Self-propelled, all types over 5 tons	20.47	7.22	11
3311	Trackhoe	20.62	7.22	11
3312	Oiler	19.77	7.22	11
3313	Water Wagon	20.62	7.22	11
General Decision No. CO030015				
The wage and fringe benefits listed below do not reflect collectively bargained rates.				
Carpenters:				
3600	Form Building and Setting (Excluding curbs and gutters)	15.92	5.38	
3601	All other work	16.30	3.71	
3700	Concrete Finishers/Cement Masons	15.55	2.85	
3800	Groundman (Traffic signalization)	11.57	3.50	
Ironworkers:				
3900	Reinforcing	16.94	6.77	
3901	Bridge Rail (Excluding guardrail)	16.76	6.01	

General Decision No. CO030015

The wage and fringe benefits listed below do not reflect collectively bargained rates.

Code	Classification	Basic Hourly Rate	Fringe Benefits	Last Mod
Laborers:				
4000	Asphalt Laborer/Raker	12.40	2.92	
4001	Common	12.44	3.53	
4002	Concrete Laborer/Mason Tender	12.44	3.10	
4003	Striping-Paint Laborer (Pre-form layout and removal of pavement markings)	12.90	3.07	
4004	Traffic Director/Flagger	9.42	3.21	
4005	Traffic/Sign Laborer (Sets up barricades and cones, and installs permanent signs)	12.39	3.20	
4007	Guardrail (Excludes bridgerail)	12.78	3.31	
4008	Formwork (Curbs and gutters only)	12.92	4.54	
4009	Landscape Laborer (Including irrigation work)	12.21	3.16	
Painters:				
4100	Spray	17.54	3.52	
POWER EQUIPMENT OPERATORS:				
4200	Asphalt Plant	17.23	1.20	
4201	Asphalt Screed	16.21	3.76	
4202	Backhoe	16.42	4.42	
4203	Compactor	16.52	3.13	
4204	Grader/Blade	16.39	4.20	
4205	Mechanic and or Welder (Includes heavy duty and combination mechanic welder)	16.74	4.20	
4206	Post Driver/Punch Machine	16.07	4.41	
4207	Rotomill Operator	16.28	4.41	
4209	Scraper	17.62	3.16	

See Revised Pages

General Decision No. CO030015

The wage and fringe benefits listed below do not reflect collectively bargained rates.

Code	Classification	Basic Hourly Rate	Fringe Benefits	Last Mod
	Truck Drivers:			
4400	Dump	14.15	3.83	
4401	Low Boy	15.07	4.56	
4402	Truck Mechanic	15.97	4.61	
4403	Multipurpose Truck-Specialty and Hoisting	14.60	3.49	
4404	Pickup (Including pilot car)	14.04	3.49	
4405	Water Truck	14.88	2.07	
4406	Distributor	15.80	5.27	

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses [29 CFR 5.5(a)(1)(ii)].

END OF GENERAL DECISION NUMBER CO030015.

*See Revised
Page 29*

U.S. DEPT. OF LABOR, DAVIS BACON MINIMUM WAGES, COLORADO
GENERAL DECISION NUMBERS CO030014 AND CO030015, HIGHWAY CONSTRUCTION
WAGE DETERMINATION APPEALS PROCESS

DATE 05-06-05

- 1.) Has there been an initial decision in the matter? This can be:
 - ◆ an existing published wage determination
 - ◆ a survey underlying a wage determination
 - ◆ a Wage and Hour Division letter setting forth a position on a wage determination matter
 - ◆ a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of construction wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, D.C. 20210

See Revised pages

- 2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, D.C. 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

- 3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, D.C. 20210

- 4.) All Decisions of the Administrative review board are final.

ON THE JOB TRAINING

This training special provision supplements subparagraph 6 of paragraph B and supersedes subparagraph 7b of paragraph C of the Special Provision entitled "Affirmative Action Requirements, Equal Employment Opportunity" and is an implementation of 23 U.S.C. 140 (a). As part of the Contractor's Equal Employment Opportunity Affirmative Action Program, training shall be provided as follows:

(a) General Requirements

1. The Contractor shall provide on the job training aimed at developing full journey workers in the type of trade or classification involved.
2. Training and upgrading of minorities and women toward journey worker status are a primary objective of this training special provision. Accordingly, the Contractor shall make every reasonable effort to enroll minority trainees and women (e.g., by conducting systematic and direct recruitment through public and private sources likely to yield minority and women trainees) to the extent that such persons are available within a reasonable area of recruitment. The Contractor shall be responsible for demonstrating the steps that were taken in pursuance thereof, prior to a determination as to whether the Contractor is in compliance with this training special provision. This training commitment shall not be used to discriminate against any applicant for training whether a member of a protected class or not.
3. An employee shall not be employed as a trainee in any classification in which the employee has successfully completed a training course leading to journey worker status or in which the employee has been employed as a journey worker. The Contractor shall satisfy this requirement by including appropriate questions (i.e. Have you ever worked as a journeyman in the highway construction industry?) in the employee application or by other suitable means. Regardless of the method used, the Contractor's records shall document the findings in each case.
4. The minimum length and type of training for each classification shall be as established in the training program selected by the Contractor and approved by the Department and the Colorado Division of the Federal Highway Administration (FHWA), or the U. S Department of Labor, Bureau of Apprenticeship and Training (DOL). The Department and the FHWA will approve a program if it is reasonably calculated to meet the Equal Employment obligations of the Contractor and to qualify the average trainee for journey worker status in the classification concerned by the end of the training period. Apprenticeship and training programs will be accepted if registered with the U.S. Dept. of Labor, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau. To obtain FHWA approval, the Contractor's training program must be reviewed by the CDOT Business Programs Office OJT Program Manager and approved by the Colorado Division of the FHWA. The Contractor shall allow up to 30 days for FHWA review. The proposed training program shall be submitted by the Contractor to:

OJT Program Manager
Business Programs Office
4201 East Arkansas Avenue
Denver, CO 80222
5. Approved training programs shall provide the trainee with a minimum of 2000 hours of training which includes a minimum of 40 hours of classroom training. Credit for prior classroom or other training may be allowed if such training is relevant to the trainees' current training program requirements.
6. Training is to be provided in the construction crafts rather than clerk-typists or secretarial-type positions. Training is permissible in lower level management positions such as office engineers, estimators, time-keepers, etc., where the training is oriented toward construction applications. Training in the laborer classification may be permitted when significant and meaningful training is provided and it is approved by the FHWA Division office. There will be no reimbursement for offsite training.

ON THE JOB TRAINING

7. The Contractor shall pay the training program wage rates and the correct fringe benefits to each registered trainee employed on the contract work and currently enrolled in an approved program. The minimum trainee wage shall be the full laborer wage (group 2, outside labor, above ground) on all Davis-Bacon projects.
8. All apprentices or trainees for which the Contractor expects to receive reimbursement must first be registered on the project by submitting a completed CDOT Form 838. This form must then be reviewed and approved by the CDOT Region Equal Employment Opportunity (EEO)/Civil Rights Specialist before reimbursement will be made. Requests for registration shall be submitted in writing to the Engineer and will be granted when the following information is provided and approved:
 - a. A completed CDOT Form No. 838 for each trainee or apprentice
 - b. Evidence of the approval of the applicable trainee program.
 - c. Evidence of the registration of the trainee into the approved trainee program
 - d. A copy of the current applicable approved training program.
9. Within the first 100 hours of training time completed, the Contractor shall provide each trainee with a review of the training program, pay scale, pension and retirement benefits, health and disability benefits, promotional opportunities, company policies and complaint procedure. The Contractor shall also furnish the trainee a copy of the training program.
10. On a monthly basis, the Contractor shall provide to the Engineer a completed On The Job Training Progress Report (CDOT Form No. 832) for each approved trainee or apprentice on the project. The CDOT Form No. 832 must be reviewed and approved by the CDOT Region Equal Employment Opportunity (EEO)/Civil Rights Specialist before reimbursement will be made. The Contractor will be reimbursed for each approved apprentice or trainee required by the Department and documented on CDOT Form 832, but not more than the OJT Force Account budget unless approved by the Engineer. Upon completion of training, transfer to another project, termination of the trainee or notification of final acceptance of the project, the Contractor shall submit to the Engineer a "final" completed CDOT Form No. 832 for each approved apprentice or trainee.
11. All forms referred to are available from the Business Programs Office of the Department of Transportation, through the CDOT Region Equal Employment Opportunity (EEO) /Civil Rights Specialist, or on CDOT's website at <http://www.dot.state.co.us/Bidding/BidForms.htm>
12. The Engineer will provide reimbursement to the Contractor. Payment is based on the number of hours of on-the-job training the Contractor provides to the trainee under this Contract and the applicable reimbursement rate. Submission of the CDOT Form No. 832 will document the training hours provided during the month, and will be considered a request for payment. Where applicable, the Contractor shall note and explain discrepancies between the hours documented on CDOT Form No. 832 and the corresponding certified payrolls. To receive payment the CDOT Forms 838 and 832 must be completed in full and the Contractor must be in compliance with all requirements of this specification.

(b) Standard Training Program

If the Contractor is not participating in the Department's Colorado Training Program, the training shall be provided according to the following:

1. The number of training hours for the trainees to be employed on the project shall be as shown in the Contract. The trainees or apprentices employed under the Contract shall be registered with the Department using CDOT Form No 838.
2. Subcontractor trainees who are enrolled in an approved Program may be used by the Contractor to satisfy the requirements of this special provision.

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ON THE JOB TRAINING

3. At least ten working days prior to the first progress payment to be made after work has begun, the Contractor shall submit to the Engineer documentation showing DOL or FHWA approval of the Contractor's training program, a plan that identifies each proposed trainee, total training hours for each trainee, and the construction phase for training each of the proposed trainees, including the duration, for this specific project.

Progress payments may be withheld until this plan is submitted and approved and may be withheld if the approved plan is not followed.

4. A trainee shall begin work on the project as soon as possible utilizing the skill involved and remain on the project as long as meaningful training opportunities exist. It is not required that all trainees be employed on the project for the entire length of the Contract.
5. The Contractor will be reimbursed 80 cents per hour for each approved apprentice or trainee required by the Department.
6. In order to receive reimbursement, the Contractor shall provide the number of training hours specified in the OJT goal assigned to the project.
7. The OJT goal for the project will be included in the Project Special Provisions and will be determined by the CDOT Region Equal Employment Opportunity (EEO) /Civil Rights Specialist after considering:
- a. Availability of minorities, women, and disadvantaged for training;
 - b. The potential for effective training;
 - c. Duration of the contract;
 - d. Dollar value of the contract;
 - e. Total normal work force that the average bidder could be expected to use;
 - f. Geographic location;
 - g. Type of work; and
 - h. The need for additional journey workers in the area;
8. The guidelines for contract dollar value, minimum total training hours, and maximum reimbursement are as follows:

Category	Contract dollar value	Minimum total training hours to be provided on the project	Maximum reimbursement allowed
A	Up to 1 million	0	0
B	>1 - 2 million	320	\$600
C	>2 - 4 million	640	\$800
D	>4 - 6 million	1280	\$1400
E	>6 - 8 million	1600	\$1700
F	>8 - 12 million	1920	\$2000
G	>12 - 16 million	2240	\$2,4000
H	>16 - 20 million	2560	\$2,600
I	For each increment of \$5 million, over \$20 million	1280	\$1400

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ON THE JOB TRAINING

9. The Contractor shall have fulfilled its responsibilities under this training special provision if the CDOT Regional Civil Rights Equal Employment Opportunity (EEO)/Civil Rights Specialist has determined that it has provided acceptable number of training hours specified in the Contract in accordance with this special provision.

(c) Colorado Training Program.

If the Contractor has a current approved Colorado Training Program plan, the training shall be provided according to the following:

1. The Contractor shall comply with the requirements of the Department's procedures as defined in the Colorado Training Program Manual.
2. If the Contractor has an approved Colorado Training Program plan, then they shall be exempted from the contract OJT goal.
3. Each trainee enrolled in the Colorado Training Program will receive a minimum of 1200 hours per year of on-the-job training. Up to 200 hours of offsite classroom training can be included in the 1200 hours minimum. The trainee's hours per year may be on CDOT or non-CDOT projects.
4. At least ten working days prior to the first progress payment to be made after work has begun, the Contractor shall submit to the Engineer documentation showing DOL or FHWA approval of the Contractor's training program and proof of good standing in the Colorado Training Program.
5. The Contractor will be reimbursed \$4.80 per hour for each approved trainee who is working on the Contract . Of the \$4.80 per hour reimbursed to the Contractor, any amount over \$.80 per hour must be forwarded by the Contractor to the trade or labor organization(s) through which the Contractor obtains their trainees or apprentices (sponsor) and spent for training and recruitment. The Department will not reimburse for classroom training or training provided on non-CDOT projects.
6. Contractors who are in good standing in the Colorado Training Program will receive hours credit for their trainees whether they work on a CDOT or a non-CDOT project. Contractors will be reimbursed by CDOT only for hours worked on CDOT projects.
7. The Contractor will be considered in compliance with the requirements of the Colorado Training Program when the Contractor demonstrates to the Department that it has met the requirements described in this special provision and the Contractor's approved Colorado Training Program Training Plan.
8. The Contractor shall comply with the affirmative action requirements in their approved Colorado Training Program Training Plan.
9. Contractors must have an approved Training Plan for the calendar year to be able to use this option. Contractors who do not have an approved Colorado Training Program Training Plan must comply with the requirements of Part (b) of this special provision.
10. The minimum required number of trainees to be employed by the Contractor shall be as shown in the Contractor's approved Colorado Training Program Training Plan.
11. The Contractor shall have fulfilled its responsibilities described in this special provision if it has remained in good standing in the Colorado Training Program during the life of the Contract.

PARTNERING PROGRAM

This project qualifies for the Colorado Department of Transportation (CDOT) Partnering Program. The following information summarizes the Program. More information is available through the Resident Engineer listed in the project special provisions. This Program is available on a voluntary basis. The Contractor is not contractually obligated to participate.

CDOT encourages the foundation of a cohesive partnership with the Contractor and its subcontractors. This partnership will be structured to draw on the strengths of each organization to identify and achieve mutual goals. The objectives are effective and efficient Contract performance with reciprocal cooperation, and completion within budget, on schedule, and in accordance with the Contract.

This partnership will be bilateral in make-up and any costs associated with effectuating this partnership will be agreed to by both parties and will be shared equally.

To implement this partnership initiative the Contractor shall notify the Resident Engineer within ten days after the award conference. The Contractor's on-site project manager and CDOT's Resident Engineer will then meet and plan a partnering development and team building workshop. At this planning session, arrangements will be made to determine the facilitator and the workshop, attendees, agenda, duration, and location.

The workshop should be held prior to the commencement of any major work item and preferably before the preconstruction conference. The following persons will be required to attend the workshop: CDOT's Resident Engineer, Project Engineer, and key project personnel; the Contractor's on-site project manager and key project supervision personnel; and the subcontractors' key project supervision personnel. The following personnel should also be invited to attend as needed: project design engineer, key local government personnel, suppliers, design consultants, CDOT maintenance foreman and environmental manager, key railroad personnel, and key utility personnel.

Follow-up workshops may be held periodically throughout the duration of the Contract as agreed by the Contractor and the Engineer at the initial workshop.

The establishment of a partnership charter, which identifies the workshop participants' mutual goals on the project, will not change the legal relationship of the parties to the Contract nor relieve either party from any terms of the Contract.

August 1, 2005

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REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS

Attached is Form FHWA 1273 titled *Required Contract Provisions Federal-Aid Construction Contracts*. As described in Section I. General, the provisions of Form FHWA 1273 apply to all work performed under the Contract and are to be included in all subcontracts.

REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS

FHWA-1273 Electronic version -- March 10, 1994

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FEDERAL-AID CONSTRUCTION CONTRACTS

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ATTACHMENTS

A. Employment Preference for Appalachian Contracts
(included in Appalachian contracts only)

I. GENERAL

1. These contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

2. Except as otherwise provided for in each section, the contractor shall insert in each subcontract all of the stipulations contained in these Required Contract Provisions, and further require their inclusion in any lower tier subcontract or purchase order that may in turn be made. The Required Contract Provisions shall not be incorporated by reference in any case. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with these Required Contract Provisions.

3. A breach of any of the stipulations contained in these Required Contract Provisions shall be sufficient grounds for termination of the contract.

4. A breach of the following clauses of the Required Contract Provisions may also be grounds for debarment as provided in 29 CFR 5.12:

- Section I, paragraph 2;
- Section IV, paragraphs 1, 2, 3, 4, and 7;
- Section V, paragraphs 1 and 2a through 2g.

5. Disputes arising out of the labor standards provisions of Section IV (except paragraph 5) and Section V of these Required Contract Provisions shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the U.S. Department of Labor (DOL) as set forth in 29 CFR 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the DOL, or the contractor's employees or their representatives.

6. **Selection of Labor:** During the performance of this contract, the contractor shall not:

a. discriminate against labor from any other State, possession, or territory of the United States (except for employment preference for Appalachian contracts, when applicable, as specified in Attachment A), or

b. employ convict labor for any purpose within the limits of the project unless it is labor performed by convicts who are on parole, supervised release, or probation.

II. NONDISCRIMINATION

(Applicable to all Federal-aid construction contracts and to all related subcontracts of \$10,000 or more.)

1. **Equal Employment Opportunity:** Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630 and 41 CFR 60) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The Equal Opportunity Construction Contract Specifications set forth under 41 CFR 60-4.3 and the provisions of the American Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the State highway agency (SHA) and the Federal Government in carrying out EEO obligations and in their review of his/her activities under the contract.

b. The contractor will accept as his operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, preapprenticeship, and/or on-the-job training."

2. **EEO Officer:** The contractor will designate and make known to the SHA contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active contractor program of EEO and who must be assigned adequate authority and responsibility to do so.

3. **Dissemination of Policy:** All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting to duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minority group employees.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minority groups in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minority group applicants. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority group applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, he is expected to observe the provisions of that agreement to the extent that the system permits the contractor's compliance with EEO contract provisions. (The DOL has held that where implementation of such agreements have the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Executive Order 11246, as amended.)

c. The contractor will encourage his present employees to refer minority group applicants for employment. Information and procedures with regard to referring minority group applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with his obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of his avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minority group and women employees, and applicants for employment.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision.

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of minority group and women employees and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use his/her best efforts to obtain the cooperation of such unions to increase opportunities for minority groups and women within the unions, and to effect referrals by such unions of minority and female employees. Actions by the contractor either directly or through a contractor's association acting as agent will include the procedures set forth below:

a. The contractor will use best efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minority group members and women for membership in the unions and increasing the skills of minority group employees and women so that they may qualify for higher paying employment.

b. The contractor will use best efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the SHA and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of minority and women referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minority group persons and women. (The DOL has held that it shall be no excuse that the union with which the contractor has a collective bargaining agreement providing for exclusive referral failed to refer minority employees.) In the

REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS

event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the SHA.

8. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment: The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment.

a. The contractor shall notify all potential subcontractors and suppliers of his/her EEO obligations under this contract.

b. Disadvantaged business enterprises (DBE), as defined in 49 CFR 23, shall have equal opportunity to compete for and perform subcontracts which the contractor enters into pursuant to this contract. The contractor will use his best efforts to solicit bids from and to utilize DBE subcontractors or subcontractors with meaningful minority group and female representation among their employees. Contractors shall obtain lists of DBE construction firms from SHA personnel.

c. The contractor will use his best efforts to ensure subcontractor compliance with their EEO obligations.

9. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following completion of the contract work and shall be available at reasonable times and places for inspection by authorized representatives of the SHA and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women;

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minority and female employees; and

(4) The progress and efforts being made in securing the services of DBE subcontractors or subcontractors with meaningful minority and female representation among their employees.

b. The contractors will submit an annual report to the SHA each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data.

III. NONSEGREGATED FACILITIES

(Applicable to all Federal-aid construction contracts and to all related subcontracts of \$10,000 or more.)

a. By submission of this bid, the execution of this contract or subcontract, or the consummation of this material supply agreement or purchase order, as appropriate, the bidder, Federal-aid construction contractor, subcontractor, material supplier, or vendor, as appropriate, certifies that the firm does not maintain or provide for its employees any segregated facilities at any of its establishments, and that the firm does not permit its employees to perform their services at any location, under its control, where segregated

facilities are maintained. The firm agrees that a breach of this certification is a violation of the EEO provisions of this contract. The firm further certifies that no employee will be denied access to adequate facilities on the basis of sex or disability.

b. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms and washrooms, restaurants and other eating areas, timeclocks, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive, or are, in fact, segregated on the basis of race, color, religion, national origin, age or disability, because of habit, local custom, or otherwise. The only exception will be for the disabled when the demands for accessibility override (e.g. disabled parking).

c. The contractor agrees that it has obtained or will obtain identical certification from proposed subcontractors or material suppliers prior to award of subcontracts or consummation of material supply agreements of \$10,000 or more and that it will retain such certifications in its files.

IV. PAYMENT OF PREDETERMINED MINIMUM WAGE

(Applicable to all Federal-aid construction contracts exceeding \$2,000 and to all related subcontracts, except for projects located on roadways classified as local roads or rural minor collectors, which are exempt.)

1. General:

a. All mechanics and laborers employed or working upon the site of the work will be paid unconditionally and not less often than once a week and without subsequent deduction or rebate on any account [except such payroll deductions as are permitted by regulations (29 CFR 3) issued by the Secretary of Labor under the Copeland Act (40 U.S.C. 276c)] the full amounts of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment. The payment shall be computed at wage rates not less than those contained in the wage determination of the Secretary of Labor (hereinafter "the wage determination") which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor or its subcontractors and such laborers and mechanics. The wage determination (including any additional classifications and wage rates conformed under paragraph 2 of this Section IV and the DOL poster (WH-1321) or Form FHWA-1495) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers. For the purpose of this Section, contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act (40 U.S.C. 276a) on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of Section IV, paragraph 3b, hereof. Also, for the purpose of this Section, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in paragraphs 4 and 5 of this Section IV.

b. Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein, provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed.

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c. All rulings and interpretations of the Davis-Bacon Act and related acts contained in 29 CFR 1, 3, and 5 are herein incorporated by reference in this contract.

2. Classification:

a. The SHA contracting officer shall require that any class of laborers or mechanics employed under the contract, which is not listed in the wage determination, shall be classified in conformance with the wage determination.

b. The contracting officer shall approve an additional classification, wage rate and fringe benefits only when the following criteria have been met:

(1) the work to be performed by the additional classification requested is not performed by a classification in the wage determination;

(2) the additional classification is utilized in the area by the construction industry;

(3) the proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination; and

(4) with respect to helpers, when such a classification prevails in the area in which the work is performed.

c. If the contractor or subcontractors, as appropriate, the laborers and mechanics (if known) to be employed in the additional classification or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the DOL, Administrator of the Wage and Hour Division, Employment Standards Administration, Washington, D.C. 20210. The Wage and Hour Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

d. In the event the contractor or subcontractors, as appropriate, the laborers or mechanics to be employed in the additional classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. Said Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

e. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraph 2c or 2d of this Section IV shall be paid to all workers performing work in the additional classification from the first day on which work is performed in the classification.

3. Payment of Fringe Benefits:

a. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor or subcontractors, as appropriate, shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly case equivalent thereof.

b. If the contractor or subcontractor, as appropriate, does not make payments to a trustee or other third person, he/she may consider as a part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, provided, that the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

4. Apprentices and Trainees (Programs of the U.S. DOL) and Helpers:

a. Apprentices:

(1) Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the DOL, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau, or if a person is employed in his/her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State apprenticeship agency (where appropriate) to be eligible for probationary employment as an apprentice.

(2) The allowable ratio of apprentices to journeyman-level employees on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any employee listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate listed in the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor or subcontractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman-level hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

(3) Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeyman-level hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator for the Wage and Hour Division determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

(4) In the event the Bureau of Apprenticeship and Training, or a State apprenticeship agency recognized by the Bureau, withdraws approval of an apprenticeship program, the contractor or subcontractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the comparable work performed by regular employees until an acceptable program is approved.

b. Trainees:

(1) Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the

REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS

work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the DOL, Employment and Training Administration.

(2) The ratio of trainees to journeyman-level employees on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

(3) Every trainee must be paid at not less than the rate specified in the approved program for his/her level of progress, expressed as a percentage of the journeyman-level hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman-level wage rate on the wage determination which provides for less than full fringe benefits for apprentices, in which case such trainees shall receive the same fringe benefits as apprentices.

(4) In the event the Employment and Training Administration withdraws approval of a training program, the contractor or subcontractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Helpers:

Helpers will be permitted to work on a project if the helper classification is specified and defined on the applicable wage determination or is approved pursuant to the conformance procedure set forth in Section IV.2. Any worker listed on a payroll at a helper wage rate, who is not a helper under an approved definition, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed.

5. Apprentices and Trainees (Programs of the U.S. DOT):

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

6. Withholding:

The SHA shall upon its own action or upon written request of an authorized representative of the DOL withhold, or cause to be withheld, from the contractor or subcontractor under this contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements which is held by the same prime contractor, as much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the

event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the SHA contracting officer may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

7. Overtime Requirements:

No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers, mechanics, watchmen, or guards (including apprentices, trainees, and helpers described in paragraphs 4 and 5 above) shall require or permit any laborer, mechanic, watchman, or guard in any workweek in which he/she is employed on such work, to work in excess of 40 hours in such workweek unless such laborer, mechanic, watchman, or guard receives compensation at a rate not less than one-and-one-half times his/her basic rate of pay for all hours worked in excess of 40 hours in such workweek.

8. Violation:

Liability for Unpaid Wages; Liquidated Damages: In the event of any violation of the clause set forth in paragraph 7 above, the contractor and any subcontractor responsible thereof shall be liable to the affected employee for his/her unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory) for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer, mechanic, watchman, or guard employed in violation of the clause set forth in paragraph 7, in the sum of \$10 for each calendar day on which such employee was required or permitted to work in excess of the standard work week of 40 hours without payment of the overtime wages required by the clause set forth in paragraph 7.

9. Withholding for Unpaid Wages and Liquidated Damages:

The SHA shall upon its own action or upon written request of any authorized representative of the DOL withhold, or cause to be withheld, from any monies payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph 8 above.

V. STATEMENTS AND PAYROLLS

(Applicable to all Federal-aid construction contracts exceeding \$2,000 and to all related subcontracts, except for projects located on roadways classified as local roads or rural collectors, which are exempt.)

1. Compliance with Copeland Regulations (29 CFR 3):

The contractor shall comply with the Copeland Regulations of the Secretary of Labor which are herein incorporated by reference.

2. Payrolls and Payroll Records:

a. Payrolls and basic records relating thereto shall be maintained by the contractor and each subcontractor during the course of the work and preserved for a period of 3 years from the date of completion of the contract for all laborers, mechanics, apprentices, trainees, watchmen, helpers, and guards working at the site of the work.

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b. The payroll records shall contain the name, social security number, and address of each such employee; his or her correct classification; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalent thereof the types described in Section 1(b)(2)(B) of the Davis Bacon Act); daily and weekly number of hours worked; deductions made; and actual wages paid. In addition, for Appalachian contracts, the payroll records shall contain a notation indicating whether the employee does, or does not, normally reside in the labor area as defined in Attachment A, paragraph 1. Whenever the Secretary of Labor, pursuant to Section IV, paragraph 3b, has found that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section 1(b)(2)(B) of the Davis Bacon Act, the contractor and each subcontractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, that the plan or program has been communicated in writing to the laborers or mechanics affected, and show the cost anticipated or the actual cost incurred in providing benefits. Contractors or subcontractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprentices and trainees, and ratios and wage rates prescribed in the applicable programs.

c. Each contractor and subcontractor shall furnish, each week in which any contract work is performed, to the SHA resident engineer a payroll of wages paid each of its employees (including apprentices, trainees, and helpers, described in Section IV, paragraphs 4 and 5, and watchmen and guards engaged on work during the preceding weekly payroll period). The payroll submitted shall set out accurately and completely all of the information required to be maintained under paragraph 2b of this Section V. This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal stock number 029-005-0014-1), U.S. Government Printing Office, Washington, D.C. 20402. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors.

d. Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his/her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) that the payroll for the payroll period contains the information required to be maintained under paragraph 2b of this Section V and that such information is correct and complete;

(2) that such laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in the Regulations, 29 CFR 3;

(3) that each laborer or mechanic has been paid not less than the applicable wage rate and fringe benefits or cash equivalent for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

e. The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 2d of this Section V.

f. The falsification of any of the above certifications may subject the contractor to civil or criminal prosecution under 18 U.S.C. 1001 and 31 U.S.C. 231.

g. The contractor or subcontractor shall make the records required under paragraph 2b of this Section V available for inspection, copying, or transcription by authorized representatives of the SHA, the FHWA, or the DOL, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the SHA, the FHWA, the DOL, or all may, after written notice to the contractor, sponsor, applicant, or owner, take such actions as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

VI. RECORD OF MATERIALS, SUPPLIES, AND LABOR

1. On all Federal-aid contracts on the National Highway System, except those which provide solely for the installation of protective devices at railroad grade crossings, those which are constructed on a force account or direct labor basis, highway beautification contracts, and contracts for which the total final construction cost for roadway and bridge is less than \$1,000,000 (23 CFR 635) the contractor shall:

a. Become familiar with the list of specific materials and supplies contained in Form FHWA-47, "Statement of Materials and Labor Used by Contractor of Highway Construction Involving Federal Funds," prior to the commencement of work under this contract.

b. Maintain a record of the total cost of all materials and supplies purchased for and incorporated in the work, and also of the quantities of those specific materials and supplies listed on Form FHWA-47, and in the units shown on Form FHWA-47.

c. Furnish, upon the completion of the contract, to the SHA resident engineer on Form FHWA-47 together with the data required in paragraph 1b relative to materials and supplies, a final labor summary of all contract work indicating the total hours worked and the total amount earned.

2. At the prime contractor's option, either a single report covering all contract work or separate reports for the contractor and for each subcontract shall be submitted.

VII. SUBLETTING OR ASSIGNING THE CONTRACT

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the State. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635).

a. "Its own organization" shall be construed to include only workers employed and paid directly by the prime contractor and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor, assignee, or agent of the prime contractor.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid on the contract as a whole and in general are to be limited to minor components of the overall contract.

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2. The contract amount upon which the requirements set forth in paragraph 1 of Section VII is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the SHA contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the SHA contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the SHA has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

VIII. SAFETY: ACCIDENT PREVENTION

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the SHA contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 333).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 333).

IX. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, the following notice shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

**NOTICE TO ALL PERSONNEL ENGAGED ON FEDERAL-AID
HIGHWAY PROJECTS**

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 21, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined not more than \$10,000 or imprisoned not more than 5 years or both."

**X. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL
WATER POLLUTION CONTROL ACT**

(Applicable to all Federal-aid construction contracts and to all related subcontracts of \$100,000 or more.)

By submission of this bid or the execution of this contract, or subcontract, as appropriate, the bidder, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any facility that is or will be utilized in the performance of this contract, unless such contract is exempt under the Clean Air Act, as amended (42 U.S.C. 1857 *et seq.*, as amended by Pub.L. 91-604), and under the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 *et seq.*, as amended by Pub.L. 92-500), Executive Order 11738, and regulations in implementation thereof (40 CFR 15) is not listed, on the date of contract award, on the U.S. Environmental Protection Agency (EPA) List of Violating Facilities pursuant to 40 CFR 15.20.

2. That the firm agrees to comply and remain in compliance with all the requirements of Section 114 of the Clean Air Act and Section 308 of the Federal Water Pollution Control Act and all regulations and guidelines listed thereunder.

3. That the firm shall promptly notify the SHA of the receipt of any communication from the Director, Office of Federal Activities, EPA, indicating that a facility that is or will be utilized for the contract is under consideration to be listed on the EPA List of Violating Facilities.

4. That the firm agrees to include or cause to be included the requirements of paragraph 1 through 4 of this Section X in every nonexempt subcontract, and further agrees to take such action as the government may direct as a means of enforcing such requirements.

**XI. CERTIFICATION REGARDING DEBARMENT, SUSPENSION,
INELIGIBILITY AND VOLUNTARY EXCLUSION**

**REQUIRED CONTRACT PROVISIONS
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1. Instructions for Certification - Primary Covered Transactions:

(Applicable to all Federal-aid contracts - 49 CFR 29)

a. By signing and submitting this proposal, the prospective primary participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective primary participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the department or agency determined to enter into this transaction. If it is later determined that the prospective primary participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause of default.

d. The prospective primary participant shall provide immediate written notice to the department or agency to whom this proposal is submitted if any time the prospective primary participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "person," "primary covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the department or agency to which this proposal is submitted for assistance in obtaining a copy of those regulations.

f. The prospective primary participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

g. The prospective primary participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," provided by the department or agency entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the nonprocurement portion of the "Lists of Parties Excluded From Federal Procurement or Nonprocurement Programs" (Nonprocurement List) which is compiled by the General Services Administration.

i. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which

is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph f of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Primary Covered Transactions

1. The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:

a. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;

b. Have not within a 3-year period preceding this proposal been convicted of or had a civil judgement rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

c. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph 1b of this certification; and

d. Have not within a 3-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

2. Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

2. Instructions for Certification - Lower Tier Covered Transactions:

(Applicable to all subcontracts, purchase orders and other lower tier transactions of \$25,000 or more - 49 CFR 29)

a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns

**REQUIRED CONTRACT PROVISIONS
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that its certification was erroneous by reason of changed circumstances.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "primary covered transaction," "participant," "person," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations.

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the Nonprocurement List.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Covered Transactions:

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently

debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

XII. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

(Applicable to all Federal-aid construction contracts and to all related subcontracts which exceed \$100,000 - 49 CFR 20)

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

3. The prospective participant also agrees by submitting his or her bid or proposal that he or she shall require that the language of this certification be included in all lower tier subcontracts, which exceed \$100,000 and that all such recipients shall certify and disclose accordingly.


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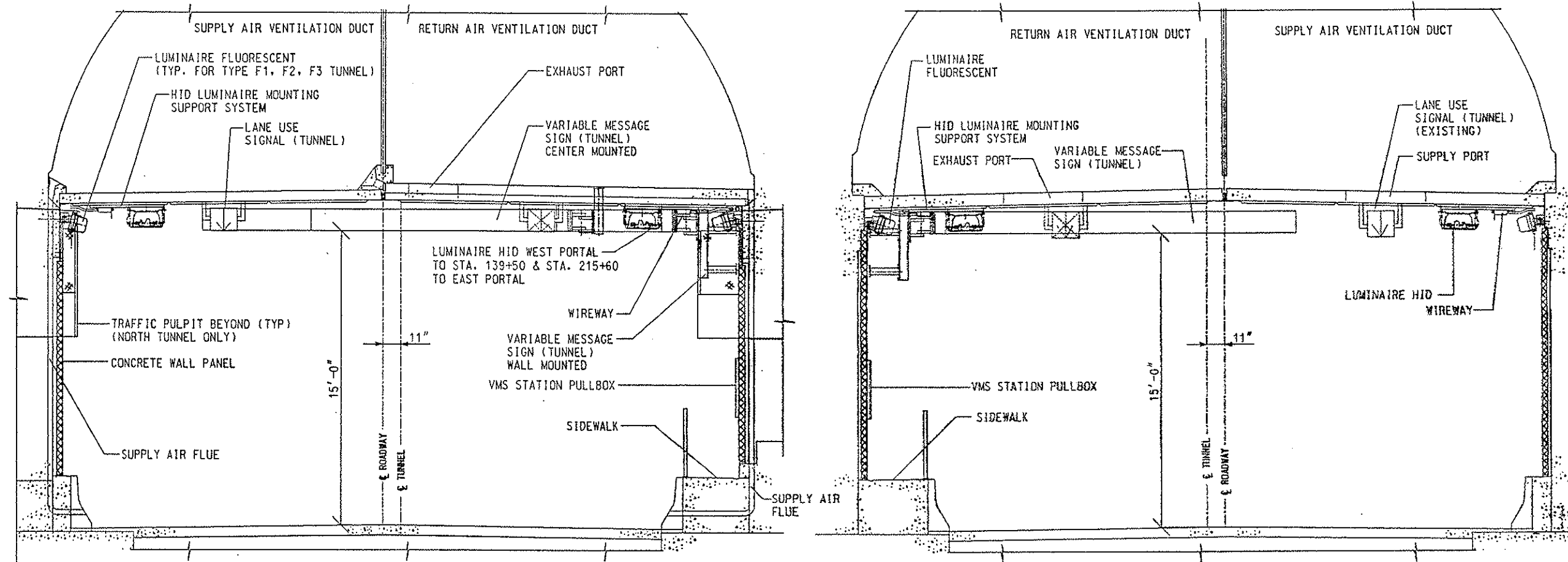
PLAN NUMBER	NEW OR REVISED	M STANDARD TITLE	PAGE NUMBER	PLAN NUMBER	NEW OR REVISED	M STANDARD TITLE	PAGE NUMBER	PLAN NUMBER	NEW OR REVISED	M STANDARD TITLE	PAGE NUMBER
<input checked="" type="checkbox"/> M-100-1		STANDARD SYMBOLS	1	M-607-1	<input type="checkbox"/>	WIRE FENCES AND GATES (Revised 01/16/04)	78-80	S-612-1	<input type="checkbox"/>	TYPICAL DELINEATOR INSTALLATIONS (Revised 10/04)	109-113
<input type="checkbox"/> M-203-1		APPROACH ROADS	2	<input type="checkbox"/> M-607-2		CHAIN LINK FENCE	81-83	S-614-1	<input checked="" type="checkbox"/>	TYPICAL GROUND SIGN PLACEMENT (Revised 06/04)	114
<input type="checkbox"/> M-203-2		DITCH TYPES	3	<input type="checkbox"/> M-607-3		BARRIER FENCE	84	S-614-2	<input type="checkbox"/>	CLASS I GROUND SIGN INSTALLATIONS (Revised 06/05)	115
M-203-10	<input type="checkbox"/>	SUPERELEVATION CROWNED HIGHWAYS (Revised 06/24/04)	4	<input type="checkbox"/> M-607-4		DEER FENCE AND GATES	85-86	S-614-3	<input type="checkbox"/>	CLASS II GROUND SIGN INSTALLATIONS (Revised 06/05)	116
M-203-11	<input type="checkbox"/>	SUPERELEVATION DIVIDED HIGHWAYS SHOULDER PIVOT (Rev. 6/24/04)	5	<input type="checkbox"/> M-607-10		PICKET SNOW FENCE	87	S-614-4	<input type="checkbox"/>	CLASS III SIGNS, SHEET ALUMINUM PANELS (Revised 06/05)	117-119
M-203-12	<input type="checkbox"/>	SUPERELEVATION STREETS (Revised 06/24/04)	6	M-607-15	<input type="checkbox"/>	ROAD CLOSURE GATE DROP GATE DETAILS (Issued 06/20/02)	NA	<input type="checkbox"/> S-614-5		BREAK-AWAY SIGN SUPPORT DETAILS FOR GROUND SIGNS	120-121
M-203-13	<input type="checkbox"/>	SUPERELEVATION DIVIDED HIGHWAYS CENTER PIVOT (Revised 06/24/04)	7	M-608-1	<input type="checkbox"/>	CURB RAMPS (Revised 10/29/03)	88	<input type="checkbox"/> S-614-6		CONCRETE FOOTINGS AND SIGN ISLANDS FOR CLASS III SIGNS	122-123
<input checked="" type="checkbox"/> M-206-1		EXCAVATION AND BACKFILL FOR STRUCTURES	8-9	M-609-1	<input type="checkbox"/>	CURBS, GUTTERS, AND SIDEWALKS (Revised 10/29/03)	89-90	S-614-8	<input type="checkbox"/>	TUBULAR STEEL SIGN SUPPORT (Issued 06/05)	NA
<input type="checkbox"/> M-206-2		EXCAVATION AND BACKFILL FOR BRIDGES	10-11	M-611-1	<input type="checkbox"/>	CATTLE GUARD (Revised 10/14/03)	91-92	S-614-10	<input type="checkbox"/>	TYPICAL MARKER ASSEMBLY INSTALLATIONS (Revised 10/03)	124
<input checked="" type="checkbox"/> M-208-1		TEMPORARY EROSION CONTROL	12-18	<input type="checkbox"/> M-613-1		CONVENTIONAL HIGHWAY LIGHTING	93-95	<input type="checkbox"/> S-614-11		MILEPOST SIGN AND INSTALLATION	125
<input type="checkbox"/> M-210-1		MAILBOX SUPPORTS	19-20	<input type="checkbox"/> M-613-2		HIGH MAST LIGHTING	96-97	S-614-12	<input type="checkbox"/>	STRUCTURE NUMBER INSTALLATION (Revised 01/05)	126
<input type="checkbox"/> M-214-1		PLANTING DETAILS	21	M-614-1	<input type="checkbox"/>	RUMBLE STRIPS (Revised 12/20/02)	98-99	S-614-14	<input type="checkbox"/>	FLASHING BEACON AND SIGN INSTALLATION (Revised 07/04)	127-128
M-412-1	<input checked="" type="checkbox"/>	CONCRETE PAVEMENT JOINTS (Revised 12/20/02)	22-24	<input type="checkbox"/> M-615-1		EMBANKMENT PROTECTOR, TYPE 3	100	S-614-20	<input type="checkbox"/>	TYPICAL POLE MOUNT SIGN INSTALLATION	129
<input type="checkbox"/> M-506-1		GABIONS AND SLOPE MATTRESS	25	<input type="checkbox"/> M-615-2		EMBANKMENT PROTECTOR, TYPE 5	101	<input type="checkbox"/> S-614-21		CONCRETE BARRIER SIGN POST INSTALLATIONS	130
<input type="checkbox"/> M-510-1		STRUCTURAL PLATE CULVERT PIPE H-20 LOADING	26	<input type="checkbox"/> M-616-1		INVERTED SIPHON	102	<input type="checkbox"/> S-614-22		TYPICAL MULTI-SIGN INSTALLATIONS	131
<input type="checkbox"/> M-601-1		SINGLE CONCRETE BOX CULVERT	27-28	<input type="checkbox"/> M-620-1		FIELD LABORATORY, CLASS 1	103	S-614-40	<input type="checkbox"/>	TYPICAL TRAFFIC SIGNAL INSTALLATION DETAILS (Rev. 10/03)	132-136
<input type="checkbox"/> M-601-2		DOUBLE CONCRETE BOX CULVERT	29-30	<input checked="" type="checkbox"/> M-620-2		FIELD LABORATORY, CLASS 2	104	S-614-50	<input type="checkbox"/>	OVERHEAD SIGNS MONOTUBE (Revised 06/02)	137-148
<input type="checkbox"/> M-601-3		TRIPLE CONCRETE BOX CULVERT	31-32	<input type="checkbox"/> M-620-11		FIELD OFFICE, CLASS 1	105	S-627-1	<input checked="" type="checkbox"/>	TYPICAL PAVEMENT MARKINGS (Revised 09/05)	149-153
<input type="checkbox"/> M-601-10		HEADWALL FOR PIPE CULVERTS	33	<input type="checkbox"/> M-620-12		FIELD OFFICE, CLASS 2	106	S-630-1	<input checked="" type="checkbox"/>	TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION (Revised 06/05)	154-163
<input type="checkbox"/> M-601-11		TYPE "S" SADDLE HEADWALL FOR PIPE CULVERTS	34	M-629-1	<input type="checkbox"/>	SURVEY MONUMENTS (Revised 09/23/04)	107-108	<input checked="" type="checkbox"/> S-630-2		BARRICADES, DRUMS, CONCRETE BARRIERS (TEMP) & VERTICAL PANELS	164
<input type="checkbox"/> M-601-12		HEADWALLS AND CULVERT OUTLET PAVING	35					S-630-3	<input checked="" type="checkbox"/>	FLASHING BEACON (PORTABLE) DETAILS (Revised 03/05)	165
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<input type="checkbox"/> M-603-2		REINFORCED CONCRETE PIPE	39								
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<input type="checkbox"/> M-606-13		GUARDRAIL, TYPE 7, F-SHAPE BARRIER	74-77								
M-606-14	<input checked="" type="checkbox"/>	PRECAST TYPE 7 CONCRETE BARRIER (Issued 07/02/02)	NA								

ALL OF THE M&S STANDARD PLANS, AS SUPPLEMENTED AND REVISED, APPLY TO THIS PROJECT WHEN USED BY DESIGNATED PAY ITEM OR SUBSIDIARY ITEM.

COLORADO
 DEPARTMENT OF TRANSPORTATION
 STANDARD PLANS LIST
 M&S STANDARDS
 OCTOBER 1, 2000

Computer File Information		Sheet Revisions		Colorado Department of Transportation		As Constructed		STANDARD PLANS LIST		Project No./Code	
Creation Date:	07/13/05 Initials: MSJ			 P.O. Box 399 Denver, CO 80436 Phone: (303) 512-5750 Fax: (303) 512-5775		No Revisions: 7/2/2007				IM 0702-257	
Last Modification Date:	Initials:					Revised:				Designer: MSJ	
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Drawing File Name:	gesp01.dgn							Sheet Subset:		Sheet Subset: of	
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NOTES:
 A. ALL CLEARANCES ARE BASED ON PHYSICAL DESIGN DIMENSIONS AS INDICATED ON DESIGN DRAWINGS. ACTUAL DIMENSIONS MAY VARY.
 B. ALL VERTICAL DIMENSIONS ARE TAKEN FROM THE HIGHPOINT OF THE ROADWAY.
 C. LANE USE SIGNALS AND LUMINAIRES (HID) ARE REMOVABLE WHEN REQUIRED.

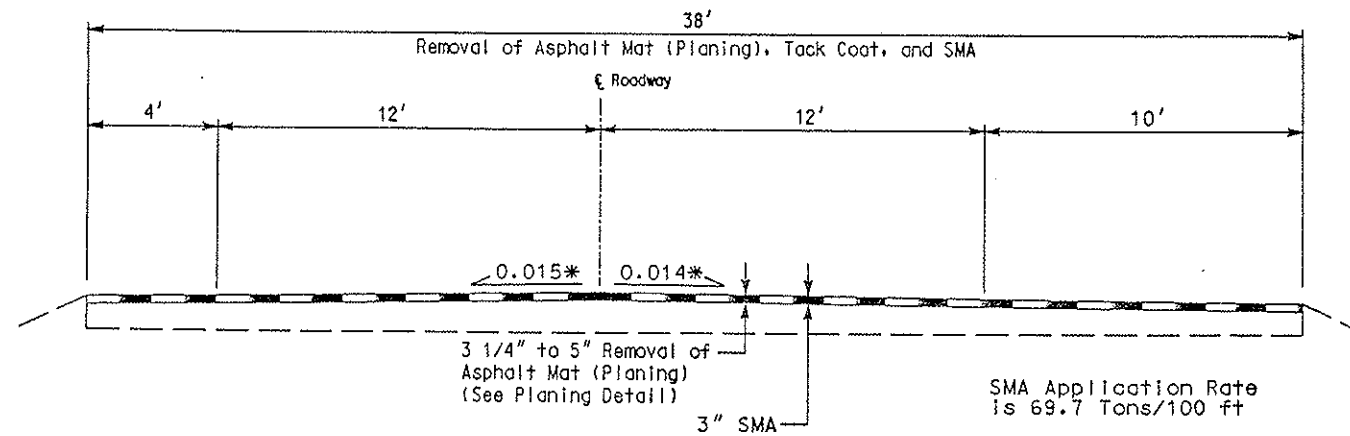


NORTH TUNNEL CLEARANCE
 TYPICAL SECTION LOOKING EAST
 (AGAINST TRAFFIC)

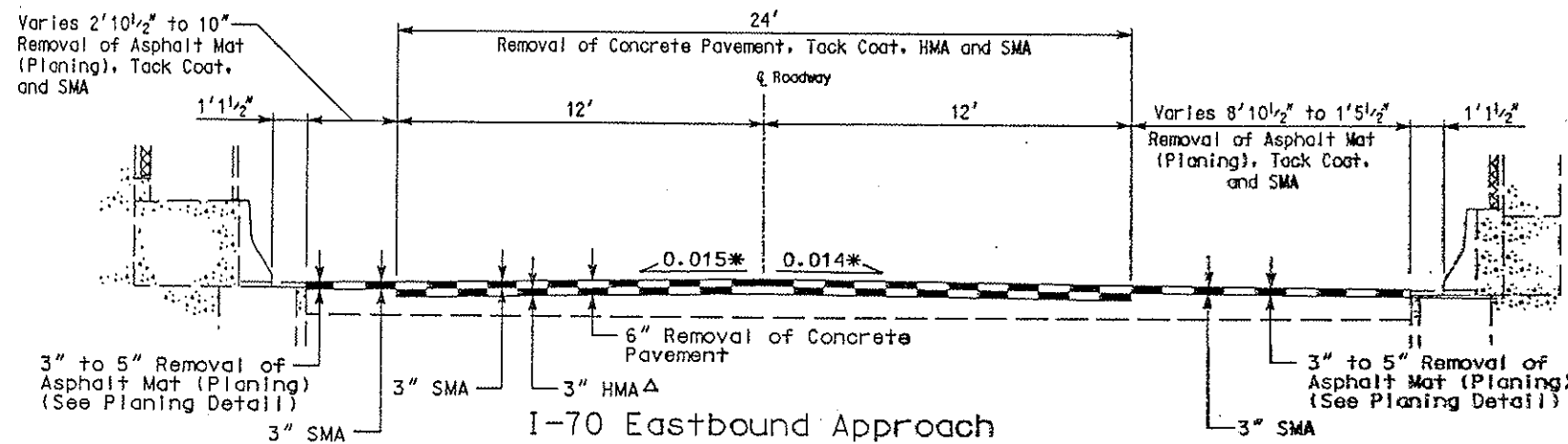
SOUTH TUNNEL CLEARANCE
 TYPICAL SECTION LOOKING EAST
 (WITH TRAFFIC)

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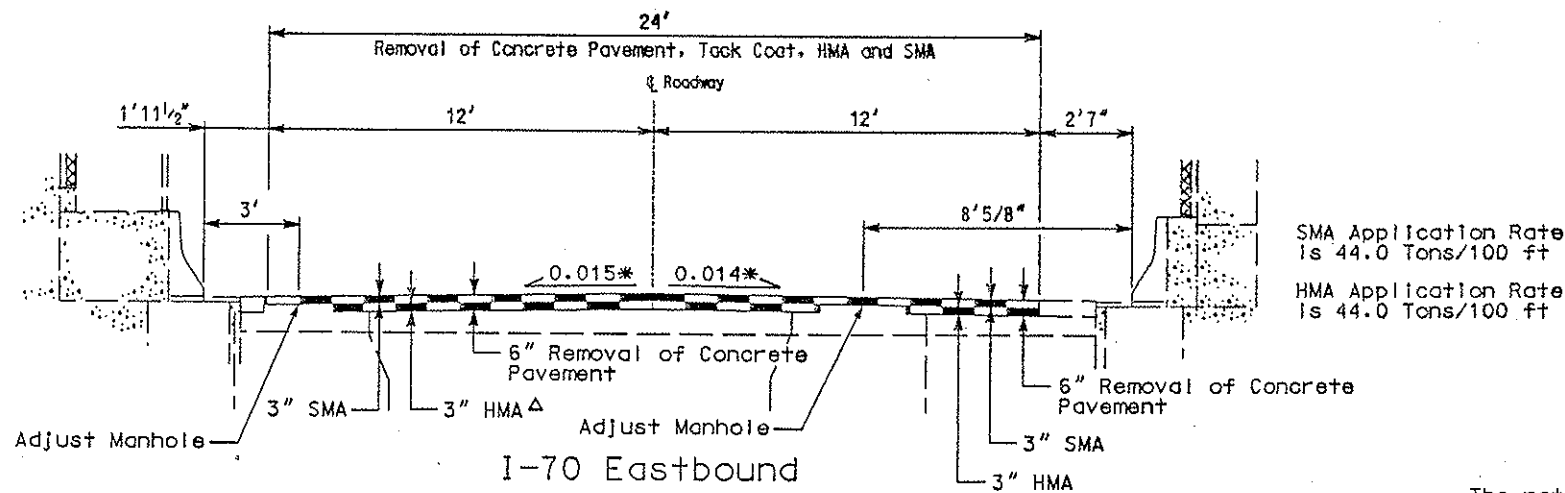
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Creation Date:	05/23/05 Initials: MSJ			 P.O. Box 399 Dumont, CO 80438 Phone: (303) 512-5750 Fax: (303) 512-5775  4601 DTC Boulevard Suite 700 Denver, Colorado 80237 Phone: 303-221-7275 Fax: 303-221-7276		No Revisions: 7/2/2007		IM 0702-257		15195	
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I-70 Eastbound
Sta 32+98 to Sta 35+98
Sta 125+57 to Sta 128+57



I-70 Eastbound Approach
Sta 35+98 to Sta 36+46





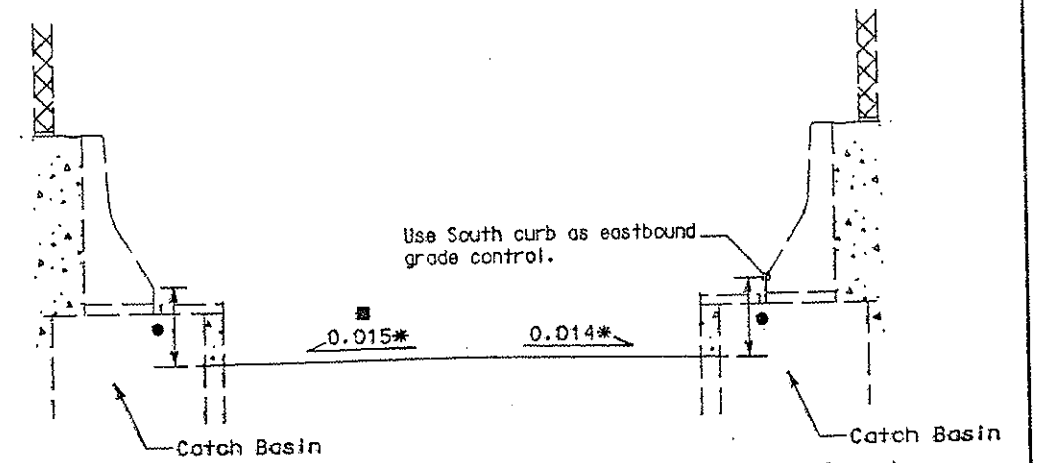
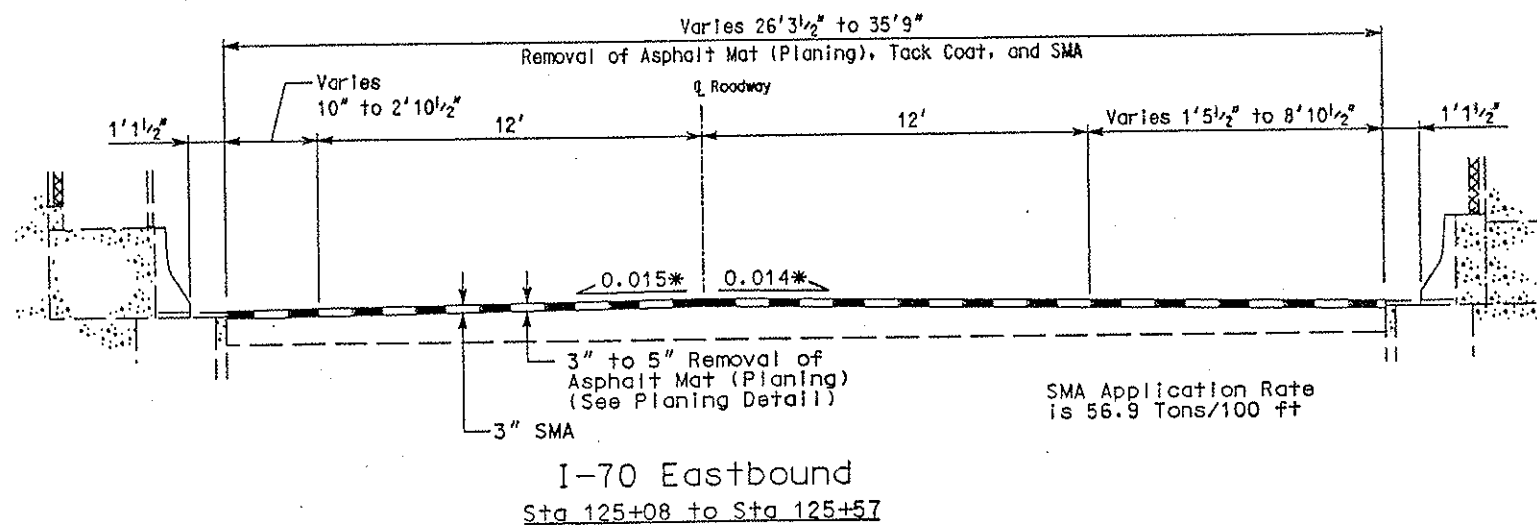
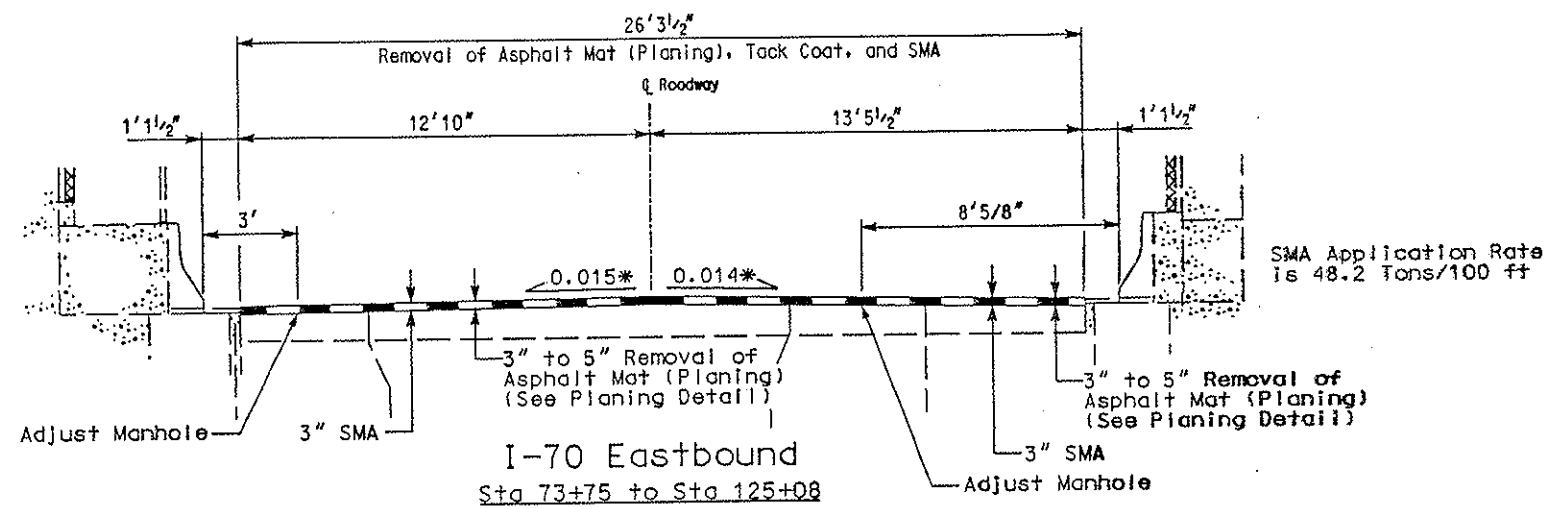
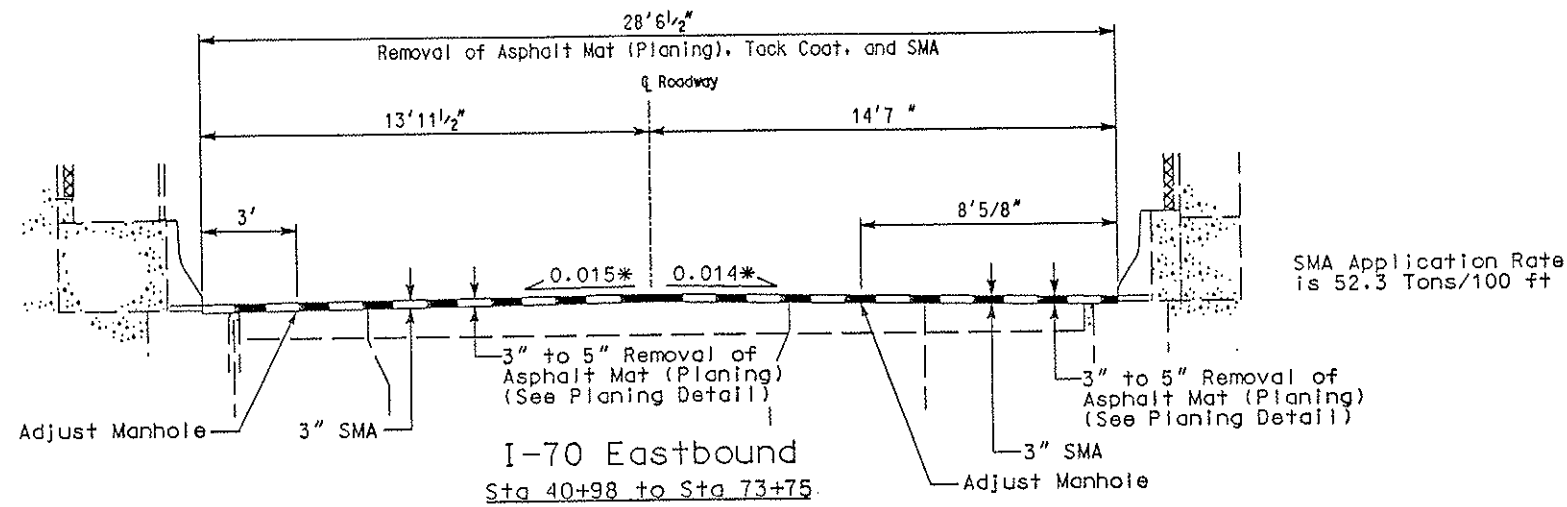
I-70 Eastbound
Sta 36+46 to Sta 40+98

* Match existing slope in superelevation only.
Δ Approximate thickness may vary to meet finished grade.

The rates shown have been determined from information available at the time of design. Rates should be adjusted during construction to obtain the required approximate thickness.

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Computer File Information		Sheet Revisions		Colorado Department of Transportation		As Constructed		I-70 SOUTH BORE TYPICAL SECTION		Project No./Code			
Creation Date:	05/23/05 Initials: MSJ			 P.O. Box 399 Durango, CO 80436 Phone: (303) 512-5750 Fax: (303) 512-5775		 4601 DTC Boulevard Suite 700 Denver, Colorado 80237 Phone: 303-221-7275 Fax: 303-221-7276		No Revisions: 7/2/2007 Revised: Void:		Designer: MSJ Detailer: MSJ Sheet Subset:		IM 0702-257 15195 Sheet Number: 4	
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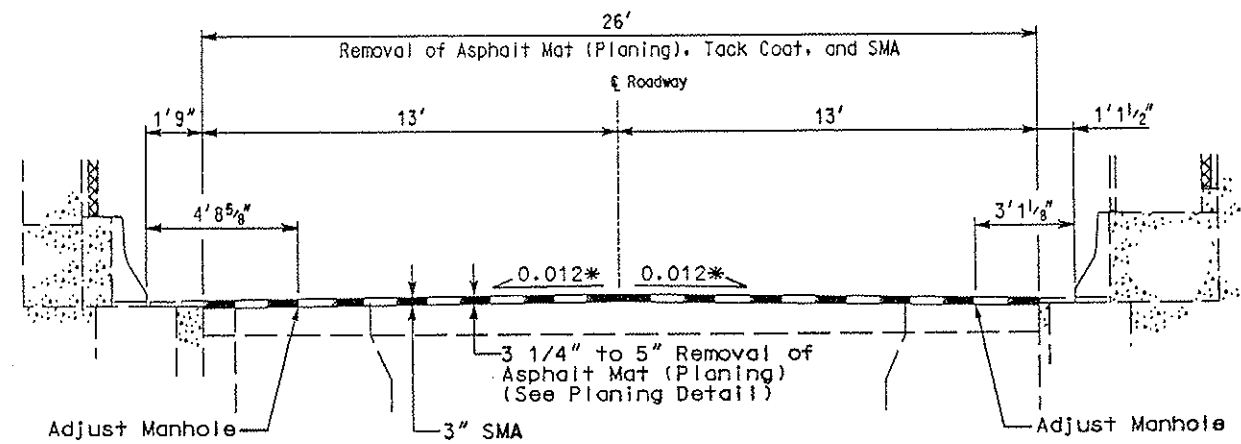
Eastbound Planing Detail for Grade Control

- * Match existing slope in superelevation only.
- 6" for Removal of Asphalt Mat (Planing)
- 9" for Removal of Concrete Pavement
- May vary to match North curb

The rates shown have been determined from information available at the time of design. Rates should be adjusted during construction to obtain the required approximate thickness.

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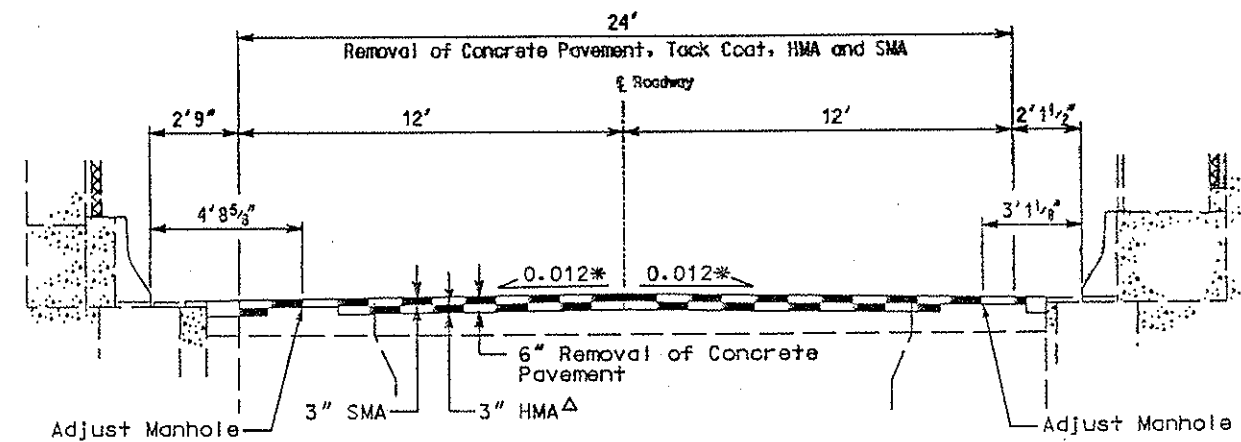
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Units:	ENGLISH										



SMA Application Rate is 47.7 Tons/100 ft

I-70 Westbound
Sta 39+98 to Sta 105+39

* Match existing slope in superelevation only.



SMA Application Rate is 44.0 Tons/100 ft

HMA Application Rate is 44.0 Tons/100 ft



I-70 Westbound
Sta 105+39 to Sta 124+91

* Match existing slope in superelevation only.

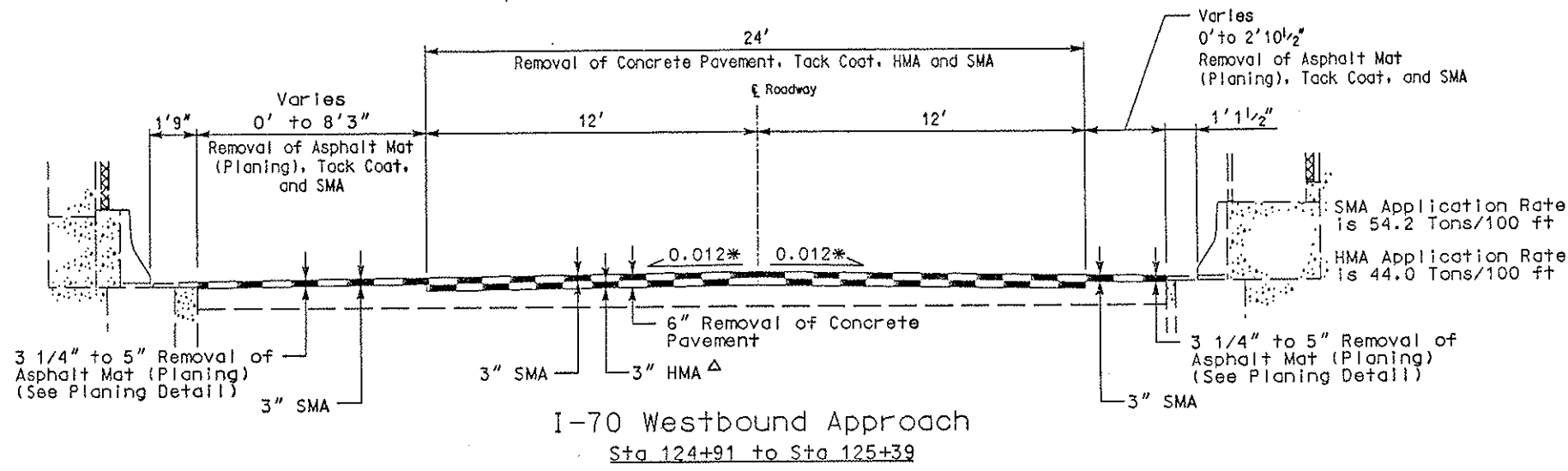
△ Approximate thickness may vary to meet finished grade.

The rates shown have been determined from information available at the time of design. Rates should be adjusted during construction to obtain the required approximate thickness.

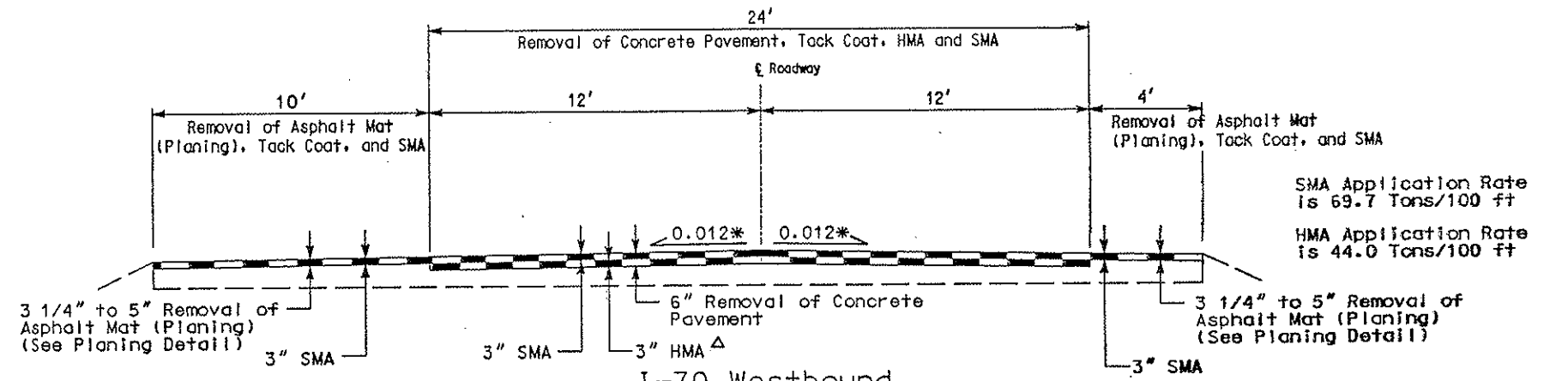
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Creation Date:	05/23/05 Initials: MSJ	<input type="checkbox"/>		 P.O. Box 399 Denver, CO 80436 Phone: (303) 512-5750 Fax: (303) 512-5775	 46010TC Boulevard Suite 700 Denver, Colorado 80237 Phone: 303-221-7275 Fax: 303-221-7276	No Revisions: 7 2 2007		IM 0702-257		IM 0702-257	
Last Modification Date:	09/15/05 Initials: MSJ	<input type="checkbox"/>				Revised:		Designer: MSJ Structure: F-13-Y		15195	
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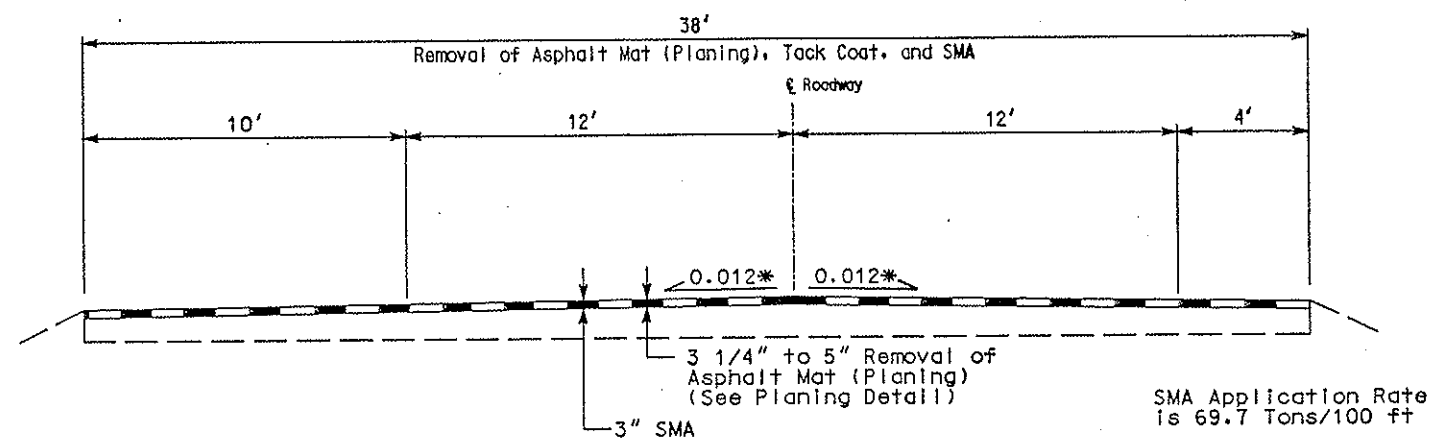
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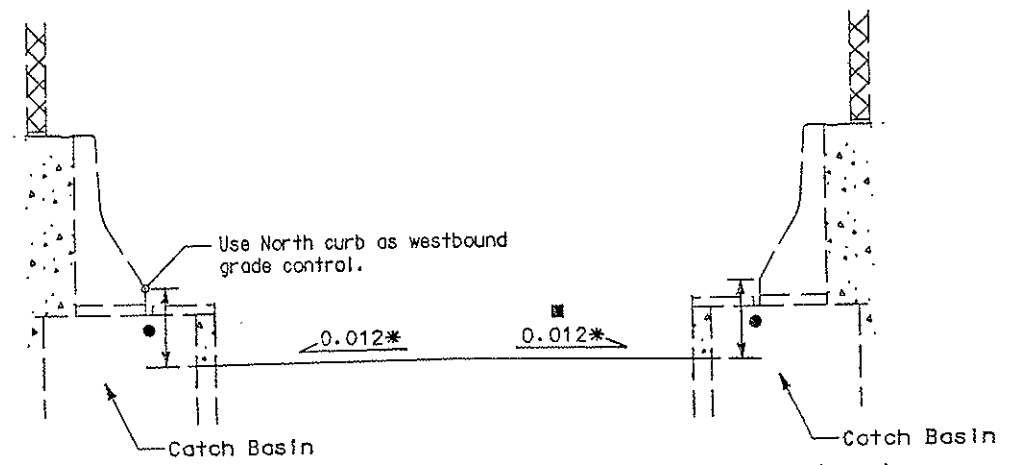
I-70 Westbound Approach
Sta 124+91 to Sta 125+39



I-70 Westbound
Sta 125+39 to Sta 126+39



I-70 Westbound
Sta 126+39 to Sta 128+39

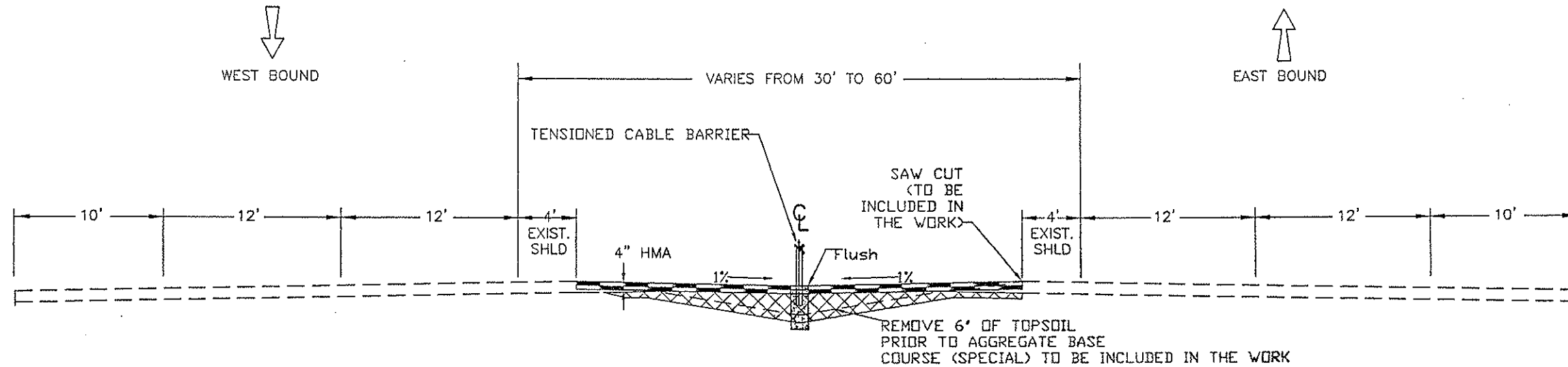


Westbound Planing Detail for Grade Control

- * Match existing slope in superelevation only.
- 6 1/4" for Removal of Asphalt Mat (Planing)
- 9 1/4" for Removal of Concrete Pavement
- May vary to match South curb
- △ Approximate thickness may vary to meet finished grade.

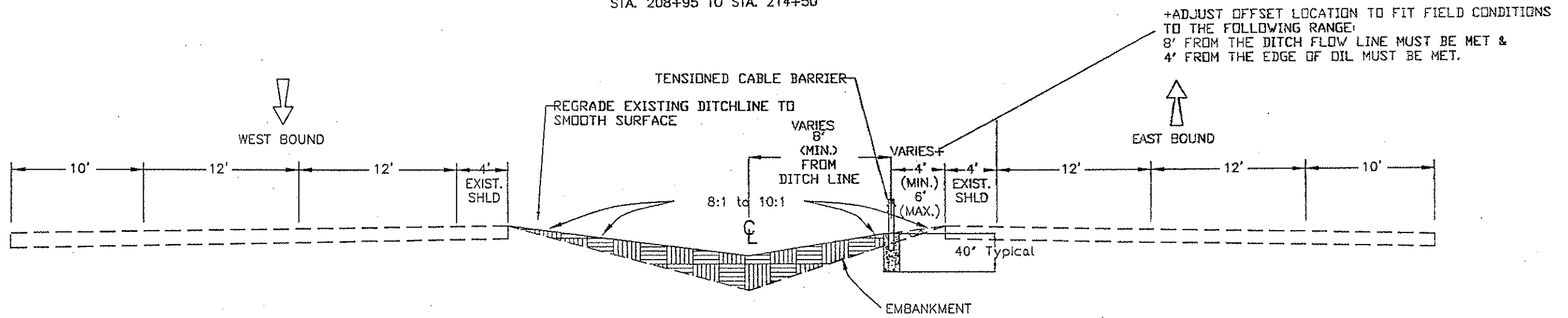
The rates shown have been determined from information available at the time of design. Rates should be adjusted during construction to obtain the required approximate thickness.

Computer File Information		Sheet Revisions		Colorado Department of Transportation		As Constructed		I-70 NORTH BORE TYPICAL SECTION		Project No./Code			
Creation Date:	08/15/05 Initials: MSJ			P.O. Box 399 Durant, CO 80436 Phone: (303) 512-5750 Fax: (303) 512-5775		4601TC Boulevard Suite 700 Denver, Colorado 80237 Phone: 303-221-7275 Fax: 303-221-7276		No Revisions: 7 2 2007		Designer: MSJ Structure: F-13-Y Detailer: MSJ Sheet Subset: of		IM 0702-257 15195 Sheet Number: 7	
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TYPICAL SECTION - 170 CROSS-OVER

STA. 105+08 TO STA. 110+45
 STA. 208+95 TO STA. 214+50



WHERE EXISTING MEDIAN SLOPES IS STEEPER THAN 8:1

TYPICAL SECTION - 170

(MP 216.67 to MP 221.2)

Computer File Information		Index of Revisions		Colorado Department of Transportation		As Constructed		TYPICAL SECTIONS		Project No./Code	
Creation Date:	9/22/04	Initials:	WCD							IM 0702-257	
Last Modification Date:	12/27/05	Initials:	TPW							15195	
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				Po Box 399 Dumont CO 80436 Phone: (303) 512-5750 FAX: (303) 512-5775		No Revisions: 7/2/2007		Designer: TW Detailer: BRL Sheet Subset:		Structure Numbers of	

GENERAL NOTES

1. ANY LAYER OF BITUMINOUS PAVEMENT THAT IS TO HAVE A SUCCEEDING LAYER PLACED THEREON SHALL BE COMPLETED FULL WIDTH BEFORE THE SUCCEEDING LAYER IS PLACED.
2. FOR PRELIMINARY PLAN QUANTITIES OF BITUMINOUS MATERIALS, THE FOLLOWING RATES OF APPLICATION WERE USED.



EMULSIFIED ASPHALT (CSS-1H) AT	0.10 GAL PER SQ. YD. (DILUTED)	(SLOW-SETTING)
HMA AND SMA PAVEMENT AT	110 LBS. PER SQ. YD. PER INCH OF THICKNESS	
3. DILUTED EMULSIFIED ASPHALT FOR TACK COAT SHALL CONSIST OF 1 PART EMULSIFIED ASPHALT AND 1 PART WATER. RATES OF APPLICATION SHALL BE AS DETERMINED BY THE ENGINEER AT THE TIME OF APPLICATION.
4. A TACK COAT IS REQUIRED PRIOR TO THE PLACEMENT OF SUBSEQUENT LIFTS OF HMA OR SMA.
5. BEFORE PLACEMENT OF THE TACK COAT, THE CONTRACTOR SHALL CLEAN THE ROADWAY AS APPROVED BY THE ENGINEER. CLEANING SHALL NOT BE PAID FOR SEPARATELY BUT SHALL BE CONSIDERED AS INCIDENTAL TO THE HBP.
6. EXISTING ASPHALT AND CONCRETE PAVEMENT SHALL BE REMOVED IN THOSE AREAS DESIGNATED IN THE PLANS OR DESIGNATED BY THE ENGINEER. EXISTING PAVEMENT THAT IS TO REMAIN IN PLACE SHALL BE SAWCUT TO A NEAT VERTICAL LINE WITH A CONCRETE PAVEMENT SAW OR OTHER METHOD AS APPROVED BY THE ENGINEER. REMOVED CONCRETE PAVEMENT SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF OFF-SITE. REMOVED ASPHALT PAVEMENT PLANING SHALL BECOME THE PROPERTY OF CDOT AND SHALL BE STOCKPILED AT SILVERTHORNE. ANY AND ALL WORK ASSOCIATED WITH ASPHALT AND CONCRETE PAVEMENT SAWING, PULVERIZING AND/OR DISPOSAL SHALL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCIDENTAL TO THE ITEM OF WORK. WHERE EXISTING BITUMINOUS PAVEMENT IS SAWCUT TO ABUT NEW BITUMINOUS PAVEMENT, THE SAWCUT VERTICAL EDGE SHALL BE PAINTED WITH EMULSIFIED ASPHALT (CSS-1H). THE RATE OF APPLICATIONS SHALL BE DETERMINED BY THE ENGINEER AT THE TIME OF APPLICATION.
7. WATER SHALL BE USED AS A DUST PALLIATIVE WHERE REQUIRED. LOCATIONS SHALL BE AS DIRECTED BY THE ENGINEER, COST FOR DUST PALLIATIVE SHALL NOT BE MEASURED AND PAID FOR SEPARATELY, BUT SHALL BE CONSIDERED INCIDENTAL TO THE WORK.
8. THE CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITIES TO THOSE AREAS WITHIN THE LIMITS OF DISTURBANCE AND/OR TOES OF SLOPE AS SHOWN ON THE PLANS AND CROSS SECTIONS. ANY DISTURBANCE BEYOND THESE LIMITS SHALL BE RESTORED TO ORIGINAL CONDITIONS BY THE CONTRACTOR AT HIS/HER OWN EXPENSE. CONSTRUCTION ACTIVITIES, IN ADDITION TO NORMAL CONSTRUCTION PROCEDURES SHALL INCLUDE THE PARKING OF VEHICLE OR EQUIPMENT, DISPOSAL OF LITTER AND ANY OTHER ACTION WHICH WOULD ALTER EXISTING CONDITIONS. DURING ALL CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL KEEP ALL EQUIPMENT AND MATERIALS WITHIN THE EASEMENT OR RIGHT-OF-WAY LIMITS.
9. THE CONTRACTOR SHALL NOT STOCKPILE MATERIAL WITHIN 35 FEET OF THE EDGE OF EXISTING TRAVELED WAYS.
10. THE CONTRACTOR SHALL PROVIDE LOCAL DRAINAGE DURING EACH PHASE OF CONSTRUCTION. THIS SHALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE CONSIDERED INCIDENTAL TO THE WORK.
11. THE CONTRACTOR SHALL HAVE ONE COPY OF THE PLANS APPROVED BY THE COLORADO DEPARTMENT OF TRANSPORTATION, ONE COPY OF THE APPROPRIATE STANDARDS AND SPECIFICATIONS, AND ONE COPY OF ALL NECESSARY PERMITS AT THE JOB SITE AND AVAILABLE AT ALL TIMES.
12. ALL SWEEPING OPERATIONS SHALL BE DONE BY A PICK-UP TYPE BROOM AND SHALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE CONSIDERED INCIDENTAL TO THE WORK.
13. ALL PAVEMENT MARKING REMOVALS ON PERMANENT PAVEMENT SHALL BE REMOVED BY HYDROBLASTING OR SANDBLASTING.
14. THE TUNNEL POWER, WATER AND SANITARY FACILITIES WILL NOT BE AVAILABLE TO THE CONTRACTOR.

15. IT IS ESTIMATED THAT ^{25.5}~~40~~ HOURS OF COMBINATION LOADER (ITEM 203) WILL BE REQUIRED FOR THE PROJECT.
16. IT IS ESTIMATED THAT ⁵²~~40~~ HOURS OF LABORER (ITEM 203) WILL BE REQUIRED FOR THE PROJECT.
17. IT IS ESTIMATED THAT 1 FIELD LABORATORY (CLASS 2) (ITEM 620) WILL BE REQUIRED FOR THE PROJECT.
18. IT IS ESTIMATED THAT 1 LUMP SUM OF CONSTRUCTION SURVEYING (ITEM 625) WILL BE REQUIRED FOR THE PROJECT.
19. IT IS ESTIMATED THAT ⁸⁸~~40~~ CONSTRUCTION SURVEYING (HOURLY) HOURS (2 MEN) OF SPECIAL STAKING SURVEYING WILL BE REQUIRED AS DIRECTED BY THE ENGINEER. THIS IS SEPARATE FROM THE LUMP SUM SURVEYING WHICH IS DETAILED IN THE SURVEY TABULATION. THIS SPECIAL STAKING WILL BE PAID FOR AS CONSTRUCTION SURVEYING (HOURLY) (ITEM 625).
20. IT IS ESTIMATED THAT 1 LUMP SUM FOR MOBILIZATION (ITEM 626) WILL BE REQUIRED FOR THE PROJECT.
21. WIRING FOR THE PROJECT WILL BE PAID AS ITEM 613 WIRING L.S.

22. Change Order #4 for this project changed the 3" waterline cured in place lining to an 8" HDPE pipe liner. Installed was an 8" HDPE "Treliner" see CO#4 for material data.

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1/15/2006

Computer File Information		Sheet Revisions		Colorado Department of Transportation		As Constructed		GENERAL NOTES		Project No./Code	
Creation Date:	07/09/05 Initials: MSJ			 P.O. Box 399 Durmont, CO 80436 Phone: (303) 512-5750 Fax: (303) 512-5775	 4601 DTC Boulevard Suite 700 Denver, Colorado 80237 Phone: 303-221-7275 Fax: 303-221-7276	No Revisions:		Designer: MSJ Structure F-13-Y Detailer: MSJ Numbers F-13-X		IM 0702-257	
Last Modification Date:	09/15/05 Initials: MSJ					Revised: 7/2/2007				Sheet Subset: Sheet Subset of	
Full Path:	S:\Tranproj\246202-06\HwyDes\Plans\					Void:		Sheet Subset: Sheet Subset of			
Drawing File Name:	geno01.dgn					REGION I MTN RESIDENCY INZ				Scale: Units: ENGLISH	


INDEX			CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	ROADWAY														PROJECT TOTALS	
						PLAN	AS CONST.														
BOOK	PAGE	SHEET																			
			202-00210	Removal of Concrete Pavement	SY	6,933	6933													6,933	6933
			202-00240	Removal of Asphalt Mat (Planing)	SY	49,263	53622													49,263	53622
			202-00250	Removal of Pavement Marking	SF	3,660	303													3,660	303
			203-00000	Unclassified Excavation	CY	526	799													526	799
			203-00060	Embankment Material (Complete In Place)	CY	6,583	1759													6,583	1759
			203-00705	Access Pit	EACH	14	14													14	14
			203-01594	Combination Loader	HOUR	40	25.50													40	25.50
			203-02330	Laborer	HOUR	40	52													40	52
			208-00002	Erosion Log (12 Inch)	LF	40	40													40	40
			208-00011	Erosion Bales (Weed Free)	EACH	153	244													153	244
			208-00045	Concrete Washout Structure	EACH	2	1													2	1
			208-00200	Erosion Control Supervisor	L S	+	.95													+	.95
			210-00050	Reset Fire Hydrant	EACH	13	13													13	13
			210-04010	Adjust Manhole	EACH	45	(R-1) 90													45	(R-1) 90
			210-04015	Modify Manhole	EACH	45	(R-1) 1													45	(R-1) 1
			210-04050	Adjust Valve Box	EACH	27	27													27	27
			212-00006	Seeding (Native)	ACRE	17	16.5													17	16.5
			212-00032	Soil Conditioning	ACRE	17	16.5													17	16.5
			213-00002	Mulching (Weed Free Hay)	ACRE	17	16													17	16
			213-00061	Mulch Tackifier	LB	3,400	3300													3,400	3300
			304-09000	Aggregate Base Course (Special)	CY	1,454	1454													1,454	1454
			306-01000	Reconditioning	SY	32,522	32522													32,522	32522
			403-00720	Hot Mix Asphalt (Patching) (Asphalt)	TON	500	685.59													500	685.59
			403-09210	Stone Matrix Asphalt	TON	8,471	8661.74													8,471	8661.74
			403-34701	Hot Mix Asphalt (Grading SX) (75)	TON	4,172	3952.23													4,172	3952.23
			411-03342	Asphalt Cement Performance Grade (PG 64-28)	TON	616	636.98													616	636.98
			411-03352	Asphalt Cement Performance Grade (PG 58-28)	TON	250	248.79													250	248.79
			411-10253	Emulsified Asphalt (CSS-1H)	GAL	3,743	4295													3,743	4295
			601-06100	Concrete (Patching)	CY	7.1	7.1													7.1	7.1
			604-39010	Manhole Special (10 Foot)	EACH	1	1													1	1
			606-20010	Tensioned Cable Barrier	LF	22,823	22823													22,823	22823
			606-21010	End Anchorage (Tensioned Cable Barrier)	EACH	20	20													20	20
			607-11525	Fence (Plastic)	LF	250	250													250	250

Computer File Information		Sheet Revisions		Colorado Department of Transportation		As Constructed		SUMMARY OF APPROXIMATE QUANTITIES			Project No./Code	
Creation Date: 18-Jan-2006	Initials: (R-1)	02-09-06	Changed Quantities	TPW	MOUNTAIN RESIDENCY P.O. BOX 399 DUMONT, CO 80436 Phone: 303-512-5750 Fax: 303-512-5775		No Revisions:			IM 0702-257		
Last Modification Date:	Initials:				Region 1		Revised: 7/2/2007	Designer:	Structure	15195		
Full Path: S:\Tranproj\246202-06\HwyDes\Plans\					INZ		Void:	Detailer:	Numbers	Sheet Number: 10		
Drawing File Name: 15195_Sheet10								Sheet Subset:	Subset Sheets:			
AutoCAD by Autodesk												

INDEX			CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	ROADWAY														PROJECT TOTALS	
BOOK	PAGE	SHEET				PLAN	AS CONST.														
			630-80390	Channelizing Device (Special)	EACH	240	0													240	0
			630-85010	Impact Attenuator (Temporary)	EACH	2	0													2	0
				FORCE ACCOUNT =====																	
			700-70010	F/A Minor Contract Revisions	F A	+	0													+	0
			700-70011	F/A Partnering	F A	+	0													+	0
			700-70016	F/A Fuel Cost Adjustment	F A	+	0													+	0
			700-70018	F/A Roadway Smoothness Incentive	F A	+	0													+	0
			700-70021	F/A On-the-Job Trainee	HOUR	320	0													320	0
			700-70025	F/A Quality Incentive Payment	F A	+	-19,020.26													+	19,020.26
			700-70028	F/A ESB Program	F A	+	0													+	0
			700-70031	F/A INTERIM SURFACE REPAIR	F A	+	0													+	0
			700-70290	F/A Manhole	F A	+	0													+	0
			700-70380	F/A Erosion Control	F A	+	17,231.85													+	17,231.85
			700-73351	F/A Third Party Traffic Control	F A	+	0													+	0
			403-00720	Hot Mix ASPHALT (PATCHING/ASPHALT) (CO 03)	TON		727.12														727.12
			626-00100	Mobilization (Without Autopay) (CO 03)	L.S.		2														2
			627-00001	PAVEMENT MARKING PAINT (CO 03)	GAL		35														35
			619-50641	8 inch Plastic Pipe (Install Only) (CO 04)	LF		3002														3002
			900-00007	Added Item (Each) / 20 inch Aluminum Lettering (MR 05)	EACH		74														74
			900-00007	Added Item (Each) Resilient Seated Gate Valve (MR 06)	EACH		4														4
			900-00005	Added Item (Day) / Courtesy Patrol Tow Truck (MR 07)	DAY		15														15
			900-00014	Added Item (Lump Sum) / Fabricate New Double Flues Signing per Construction Bulletin (MR 08)	LS	1	1													1	1
			900-00007	Added Item (each) JCM Saddles (coil)	EACH	7	7													7	7
			900-00006	Added Item (Dollar) Straight Creek Diversion Channel move and restore (CO 11)	Dollar	1308.36	1308.36													1308.36	1308.36
			900-00014	Added Item (Lumpsum) Gate Valves and Assoc. Plumbing Hardware and Install (CO 11)	LS	1	1													1	1
			900-00006	Added Item (Dollar) Heat Trace Tape Material for 8 inch Waterline (CO 11)	Dollar	6105.00	6105.00													6105.00	6105.00
			900-00006	Added Item (Dollar) Shoulder Removal in Tunnel Not Included in Bid Plans (CO 11)	Dollar	4391.09	4391.09													4391.09	4391.09
			900-00006	Added Item (Dollar) Electrical Repair of Damaged Conduit in Tunnel (CO 11)	Dollar	2565.47	2565.47													2565.47	2565.47

Computer File Information		Sheet Revisions		Colorado Department of Transportation		As Constructed		SUMMARY OF APPROXIMATE QUANTITIES		Project No./Code	
Creation Date: 18-Jan-2006	Initials:			 MOUNTAIN RESIDENCY P.O. BOX 399 DUMONT, CO 80436 Phone: 303-512-5750 Fax: 303-512-5775		No Revisions:		Designer: Detailer: Sheet Subset:		IM 0702-257	
Last Modification Date:	Initials:					Revised: 7/2/2007				Structure Numbers:	
Full Path: \\tsclient\C\TYLER WELDON FOLDER\EJMT Tunnel Resur(acing)...				Region 1		Void:		Subset Sheets:		Sheet Number: 12	
Drawing File Name: 15195_Sheet12				INZ							
AutoCAD by Autodesk											

INDEX	CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	Roadway															PROJECT TOTALS	
				PLAN	AS CONST.														PLAN	AS CONST.
BOOK	PAGE	SHEET																		
			900-00006	Added Item (Dollar) CASS Cable Spare Parts Kit (CO 11)	Dollar	2175.00	2175.00												2175.00	2175.00
			900-00007	Added Item (Each) Replace Fire Hydrant (CO 11)	Each	1	1												1	1
			900-00014	Added Item (Lump Sum) Reimbursement for Added 3 Inch Waterline Work (CO 13)	LS	1	1												1	1

Print Date: 12/14/2007	Drawing File Name: ApproximateQuantities.dgn	Horiz. Scale: 1:200	Vert. Scale: As Noted	Unit Information	Unit Leader Initials	Sheet Revisions			 Colorado Department of Transportation Mountain Residency P.O. Box 399 Dumont, CO 80436 Phone: 303-512-5750 FAX: 303-512-5775 Region 1 INZ	As Constructed		SUMMARY OF APPROXIMATE QUANTITIES			Project No./Code									
						Date:	Comments:	Init.		No Revisions:	Revised: 7/2/2007						Void:	Designer:	Detailer:	Structure Numbers:	Sheet Subset: SOAQ	Subset Sheets:		

Project No./Code
IM 0702-257
15195
Sheet Number 12a 11

TO ESTABLISH GEOMETRIC CONTROL FOR THE CONSTRUCTION OF THIS PROJECT, THE DEPARTMENT HAS PROVIDED THE FOLLOWING INFORMATION:

- Horizontal Control
- Vertical Control
- Roadway Alignment
- Original Terrain Data
- Other: _____



*Specify the information format, i.e., plan sheet, computer disk, computer printout, or other. The information marked is either contained on the plans or is available from the Engineer.

TYPE OF PROJECT

- Landscaping
- Signalization
- Safety Improvement
- Asphalt Overlay
- Concrete Overlay
- Minor Widening
- Major Reconstruction
- New Roadway Construction
- Bridge Replacement
- Bridge Widening
- New Bridge
- Other: CIPP Relining

SURVEY WORK TO BE PERFORMED BY OTHERS: _____

WORK PERFORMED BY THE CONTRACTOR'S SURVEYOR UNDER ITEM 625:

- Establish and Maintain Project Centerline or Engineer Approved Offset Line(s)
- Verification and Maintenance of Horizontal and Vertical Control
- Verify or Determine existing grades and alignments
- Verify or Determine existing topography
- Clearing and Grubbing Limits
- Removal Limits
- Reset Items
- Excavation and Embankment
 - Excavation
 - Unclassified
 - Stripping
 - Muck
 - Rock
 - Borrow
 - Other: Crossovers
 - Embankment
 - Site Grading
 - Erosion Control (Perm)
 - Other: Guardrail
 - As Staked Earthwork Quantities (See General Notes)
- Landscaping
 - Top Soil
 - Seeding
 - Mulching
 - Planting
 - Herbicide
 - Other: _____
- Erosion Control
 - Seeding (Temp)
 - Silt Fences
 - Straw Bales
 - Temporary Berm
 - Riprap (Temp)
 - Other (Temp Diversion, Temp Slope Drain, Brush Barrier, Check Dam, Other: _____)

	SLOPE STAKING (Y/N)	GRID (Y/N)	GRADE STAKES	SPECIAL INTERVAL
Excavation	-	-	-	-
Embankment	-	-	100'	-

- 3" Waterline and Manhole: Use control coordinates shown on plan sheets.
- Tunnel Vertical: Match existing curb line.
- Tunnel Horizontal: Use matchline on West Portal.
- Tensioned Cable Barrier and Earthwork Vertical: Match existing roadway.
- Tensioned Cable Barrier and Earthwork Horizontal: Use Hub at station 0+00, and existing edge of roadway or as directed by the Engineer.

- Roadway Bases
 - Untreated Subgrade
 - Treated Subgrade
 - Aggregate Base Course
 - Reconditioning
 - PMBB - Plant Mix Bituminous Base
 - Other: _____
- Pavements
 - HBP - Hot Bituminous Pavement
 - Concrete
 - Overlay
 - Heating & Scarifying Treatment
 - Prime Coat, Tack Coat & Rejuvenating Agent
 - Seal Coat or Chip Seal
 - Other: Milling
- Roadway Elements
 - Curb and Gutter
 - Drop inlets - alignment and grades
 - Retaining Walls
 - Guard Rail
 - Sidewalk
 - Other: _____
- Riprap (Perm)
- Slope and Ditch Paving
- Minor Structures
 - Structure Excavation limits
 - Culverts
 - Culverts w/ Headwalls and Wingwalls
 - Concrete Box Culverts w/ Headwalls and Wingwalls
 - Pipes
 - Sanitary Sewer
 - Storm Sewer
 - Water
 - Irrigation
 - Miscellaneous
 - Manholes
 - Inlets
 - Other: _____
- Major Structures - Overhead Signs, Concrete Box Culverts, Bridges - and all other structures assigned a structure number
 - Structure Excavation limits
 - Concrete Box Culverts w/ Headwalls and Wingwalls
 - Piling locations and cut off elevations
 - Caisson locations and elevations
 - Footing locations, alignment, and elevations
 - Abutment/Pier locations, alignment, and elevations
 - Wingwall skew angles/offsets
 - Structural concrete form locations
 - Substructure As-constructed survey (Required by Subsection 601 .12 for Bridges and S-614-50 for Overhead signs)
 - Bridge expansion joint(s) alignment and grade (longitudinal and transverse)
 - Deck grades at Girder 10th or "n" th point locations and elevations
 - Slope and Ditch Paving
 - Other: _____
- Fencing
 - Temporary
 - Permanent
 - Sound Barriers
 - Other: _____
- Delineators
 - Temporary
 - Permanent
- Lighting and Traffic Control Devices (Perm)
 - Signal pole locations and elevations
 - Light pole locations and elevations
 - Signs
 - Field verify sign post locations, elevations, and lengths before fabrication.
 - Other: Loop Detectors
- Pavement Marking
 - Striping (Temp)
 - Striping (Perm)
 - Symbols
 - Other: _____

	GRID (Y/N)	SPECIAL INTERVAL	SPECIAL OFFSET
Roadway Bases	-	-	-
Pavements	Y	25'	-
Curb & Gutter	-	-	-
	Y	25'	-

The contractor's surveyor will be required to field verify the depth of the top of manhole barrel.

The contractor's surveyor will be required to layout his staking to match the existing roadway. This includes all calculations necessary to construct the project and includes the grades for Concrete Removal, Planing, Embankment, HMA, SMA, Manholes, and Tensioned Cable Barrier. The layout shall be from the existing edge of pavement or Tunnel curb line as shown on Typical.

- Temporary Lighting and Construction Traffic Control Devices
- Signal pole locations and elevations (Temp)
- Light pole locations and elevations (Temp)
- Signs (Temp)
- Other: Concrete Barrier Temp.
- Easement (Temp)(Staking)(P.L.S. Only)
- Right of Way (Temp) (Staking)(P.L.S. Only)

WORK PERFORMED BY THE CONTRACTOR'S SURVEYOR UNDER ITEM 629:

- Monumentation
 - Control
 - Right of Way
 - Land corners, Aliquot corners
 - Easement (Perm)
 - Reference the specified existing monuments: ** _____
 - Relocate the specified existing monuments: ** _____
 - Locate monuments. It is estimated _____ hours are required.
- ** A Tabulation of Survey Monuments may be provided on the plans.

GENERAL NOTES:

Unless indicated otherwise on this Survey Tabulation Sheet, all survey work and staking intervals shall be done in accordance with the latest edition of the entire CDOT Survey Manual.

Adequate information for establishing lines, grades, and locations for all work items have been specified on the plans. Any additional information required to stake the item or element shall be generated by the Contractor's surveyor.

The Contractor's surveyor shall provide an estimate of the man-hours necessary to complete the work items indicated on this sheet. A copy of this sheet, with the estimated man-hours written on the blank line to the left of the specified items, shall be submitted with the Survey Schedule to the Engineer 3 days prior to Presurvey Conference - Construction Survey.

Stakes and Monuments which are damaged or destroyed by the progress of construction shall be replaced by the Contractor at no additional cost to the Department.

The Contractor shall furnish an As Staked earthwork quantity to the Engineer prior to completion of twenty percent (20%) of the planned earthwork in any phase as per the CDOT Survey Manual. A printed copy of the As Staked earthwork data and a computer disk in the specified format shall be submitted to the Engineer. The Contractor shall field verify original ground cross sections at a maximum 500 feet intervals.

Prior to beginning work on any subsequent operation, such as placing base course or paving, the Contractor shall certify in writing to the Engineer that the final grade is within specified tolerance.

The Contractor's surveyor shall perform all field surveying and calculations necessary to tie plan grades into field grades.

The Contractor shall coordinate construction staking on the project with any utility work.

The Contractor's surveyor shall submit the following fieldbooks to the Engineer:

- Horizontal Control (Primary & Secondary)
- Vertical Control (i.e. Benchmarks)
- Property Pin Ties
- Horizontal Alignment
- Grading
- Slope Staking
- Minor Structures
- Major Structures
- One fieldbook for each work category shown on this sheet
- Other Fieldbook(s): _____

The Surveyor shall provide the final embankment quantities for the guardrail to the engineer for approval. See Tabulation of Guardrail for details.

Colorado Department of Transportation



Street Address
P.O. Box 399
Dumont, CO 80436
Phone: 303-512-5750 FAX: 303-512-5775

REGION 1 MTN RESIDENCY INZ

Computer File Information

Creation Date: 07/13/05	Initials: MSJ
Last Modification Date:	Initials:
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Drawing File Name: suta01.dwg	
Acad Ver. 2004	Scale: NTS Units: ENGLISH

Sheet Revisions

As Constructed

No Revisions: 7/2/2007
Revised:
Void:

Survey Tabulation Sheet

Designer: MSJ	Structure Numbers
Detailer: MSJ	
Sheet Subset:	Subset Sheets:

Project No./Code

IM 0702-257
15195
Sheet Number 13

TABULATION OF BITUMINOUS SURFACING

LOCATION	SMA		HMA (GR SX) (75)		EMULSIFIED ASPHALT (CSS-1H)		REMOVAL OF ASPHALT MAT (PLANING)		REMOVAL OF CONCRETE PAVEMENT		HMA PATCHING		REMARKS
	3 IN TOP LAYER		3 IN BOTTOM LAYER		GAL	SY	SY	TON					
	TON		TON										
I-70 WESTBOUND													
39+98	TO	105+39	3,118		945		18,896				170		
105+39	TO	124+91	859	859	260			5,205			47		
124+91	TO	125+39	26	21	8		30		128		1		
125+39	TO	126+39	70	44	21		156		267		4		
126+39	TO	128+39	139		42		844				8		
I-70 EASTBOUND													
32+98	TO	35+98	209		63		1,267				12		
35+98	TO	36+46	27	21	8		37		128		2		
36+46	TO	40+98	199	199	60			1,205			11		
40+98	TO	73+75	1,715		520		10,392				95		
73+75	TO	125+08	2,474		750		14,995				136		
125+08	TO	125+57	28		8		169				2		
125+57	TO	128+57	209		63		1,267				12		
EAST PARKING AREA					2,123		965						
5% FOR IRREGULARITIES			398	167									
PAVED MEDIAN													
132+00	TO	138+00					1,200						AS DIRECTED BY THE ENGINEER
MEDIAN (MP216.67 TO MP 221.20)					738								CARRIED FORWARD FROM GUARDRAIL TAB
PROJECT TOTALS FINAL			9,471	8,661.74	4,172	39,522.23	3,710	49,253	3,713	6,933	500	673.34	
FINAL ASPH CEM (PG 64-28)			810	636.98									
FINAL ASPH CEM (PG 58-28)				250	248.79								



NOTES:

1. THE PAVEMENT SMOOTHNESS CATEGORY IS HALF-CAR ROUGHNESS INDEX, CATEGORY I FOR ALL LANES.
2. PAVEMENT SMOOTHNESS SHALL BE CHECKED AND CORRECTED PRIOR TO FINAL STRIPING.
3. PATCHING WHERE REQUIRED AND AS DIRECTED BY THE ENGINEER.
4. THE CONTRACTOR SHALL PROTECT MANHOLES, CATCH BASINS AND VALVE BOXES FROM DAMAGE.

HBP Overlay Design Data (AC Overlay of AC Pavement)

10-yr. flexible 18K ESALs	4,500,000
Initial Serviceability	4.5
Terminal Serviceability	2.5
Reliability	98%
Overall Deviation	0.44
Roadbed Soil Resilient Modulus	23,317 psi
Effective Structural Number (after milling)	4.00
Required Structural Number	3.18
Required Overlay Structural Number	0.00 (No additional structural capacity required)
Minimum HMA thickness	Use 3"

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Computer File Information		Sheet Revisions		Colorado Department of Transportation		As Constructed		TABULATION OF BITUMINOUS SURFACING		Project No./Code			
Creation Date:	09/08/05 Initials: MSJ			 P.O. Box 399 Denver, CO 80436 Phone: (303) 512-5750 Fax: (303) 512-5775		 4601 DTC Boulevard Suite 700 Denver, Colorado 80237 Phone: 303-221-7275 Fax: 303-221-7276		No Revisions: Revised: 7/2/2007 Void:		Designer: MSJ Detailer: MSJ Sheet Subset: of		IM 0702-257 15195 Sheet Number: 14	
Last Modification Date:	09/15/05 Initials: MSJ												
Full Path:	S:\Tranproj\246202-06\HwyDes\Plans\												
Drawing File Name:	sfta01.dgn												
Scale:	Units: ENGLISH			REGION I MTN RESIDENCY INZ									

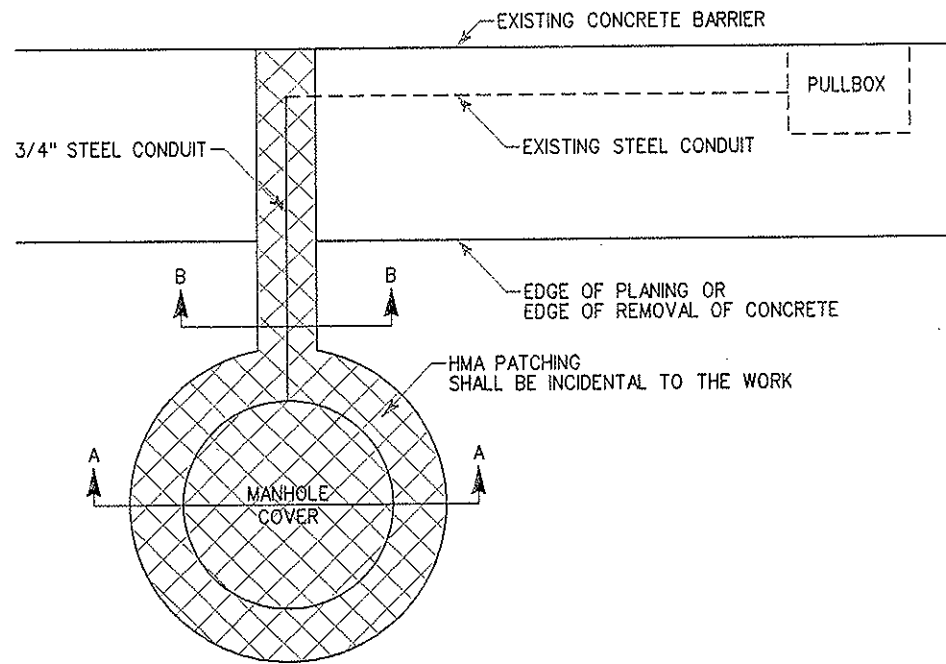
TABULATION OF MANHOLES

NORTH BORE (F-13-Y)				SOUTH BORE (F-13-X)			
STATION	SIDE	3/4 INCH ELECTRICAL CONDUIT	ADJUST/MODIFY MANHOLE	STATION	SIDE	3/4 INCH ELECTRICAL CONDUIT	ADJUST/MODIFY MANHOLE
35+96	RIGHT			36+45	RIGHT		1
35+96	LEFT			37+15	LEFT		1
37+55	RIGHT			39+73	RIGHT		1
37+55	LEFT			42+66	LEFT		1
39+05	RIGHT			42+74	RIGHT		1
42+06	RIGHT		1	45+76	RIGHT		1
42+07	LEFT	5	1	48+70	LEFT		1
45+07	RIGHT		1	48+77	RIGHT		1
48+09	RIGHT		1	51+79	RIGHT		1
48+10	LEFT	5	1	54+73	LEFT		1
51+10	RIGHT		1	54+80	RIGHT		1
54+12	RIGHT		1	57+82	RIGHT		1
54+13	LEFT	5	1	60+83	RIGHT		1
57+13	RIGHT		1	63+85	RIGHT		1
60+15	RIGHT		1	66+79	LEFT		1
60+16	LEFT	5	1	66+86	RIGHT		1
63+16	RIGHT		1	69+88	RIGHT		1
66+18	RIGHT		1	72+81	LEFT		1
66+19	LEFT	5	1	72+89	RIGHT		1
69+19	RIGHT		1	75+91	RIGHT		1
72+21	RIGHT		1	78+84	LEFT		1
72+22	LEFT	5	1	78+93	RIGHT		1
75+22	RIGHT		1	81+93	RIGHT		1
78+15	LEFT	5	1	84+88	LEFT		1
78+24	RIGHT		1	84+95	RIGHT		1
81+26	RIGHT		1	87+97	RIGHT		1
84+26	RIGHT		1	90+93	LEFT		1
84+27	LEFT	5	1	90+93	RIGHT		1
87+27	RIGHT		1	94+03	RIGHT		1
90+25	LEFT	5	1	96+94	LEFT		1
90+29	RIGHT		1	97+01	RIGHT		1
93+30	RIGHT		1	100+03	RIGHT		1
96+32	RIGHT		1	102+97	LEFT		1
96+33	LEFT	5	1	103+04	RIGHT		1
99+33	RIGHT		1	106+06	RIGHT		1
102+31	LEFT	5	1	109+00	LEFT		1
102+35	RIGHT		1	109+07	RIGHT		1
105+36	RIGHT		1	112+09	RIGHT		1
108+38	RIGHT		1	115+02	LEFT		1
108+39	LEFT	5	1	115+10	RIGHT		1
111+39	RIGHT		1	118+12	RIGHT		1
114+36	LEFT	5	1	121+06	LEFT		1
114+40	RIGHT		1	121+14	RIGHT		1
117+42	RIGHT		1	124+39	LEFT		1
119+59	RIGHT		1	125+17	RIGHT		1
119+60	LEFT	5	1				
122+62	RIGHT		1				
123+22	RIGHT		1				
123+29	RIGHT		1				
124+08	RIGHT		1				
126+30	MEDIAN						1
FINAL NORTH BORE TOTAL		70	143	FINAL SOUTH BORE TOTAL		0	45
FINAL ADJUST/MODIFY MANHOLE TOTAL =		90		FINAL ADJUST/MODIFY MANHOLE TOTAL =		45	
FINAL ADJUST MANHOLE =		1		FINAL ADJUST MANHOLE =		1	
FINAL 3/4 INCH ELECTRICAL CONDUIT =		143		FINAL 3/4 INCH ELECTRICAL CONDUIT =		143	

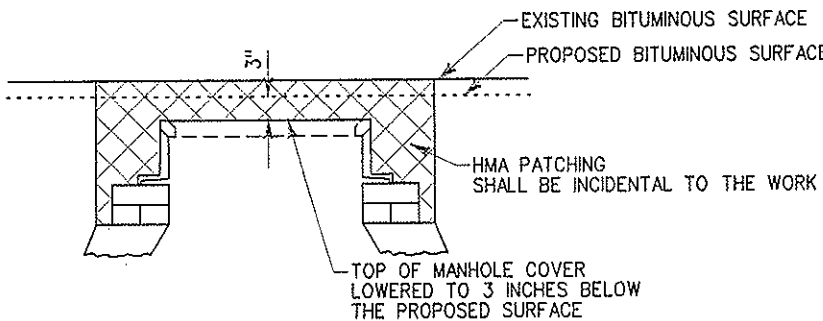
NOTE:
THE DEPTH OF THE TOP OF MANHOLE BARREL IS UNKNOWN. THE CONTRACTOR SHALL FIELD VERIFY BEFORE WORK BEGINS.
FINAL QUANTITY OF MODIFY MANHOLE AND ADJUST MANHOLE WILL BE DETERMINED BY FIELD CONDITIONS.

THE PROPOSED HEAT TRACE FEEDER WIRE SHALL BE CONNECTED DURING ADJUST/MODIFY MANHOLE AND WILL BE PAID FOR AS WIRING LUMP SUM (ITEM 613).

IT IS ESTIMATED THAT 50 FEET OF #12 XHHW WIRE PER LOCATION SHALL BE INCLUDED IN WIRING (LS).



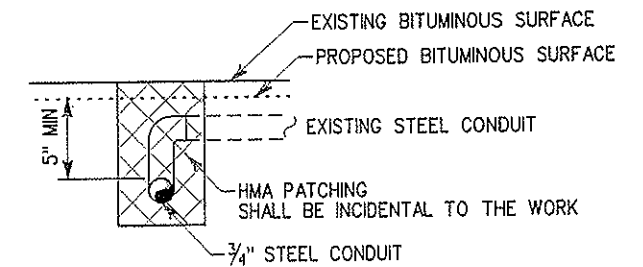
PLAN
HEAT TRACE FEEDER WIRE DETAIL



A-A
ADJUST/MODIFY MANHOLE DETAIL

TABULATION OF ADJUST VALVE BOXES

NORTH BORE (F-13-Y)			
STATION	ADJUST VALVE BOX	STATION	ADJUST VALVE BOX
37+48		81+60	1
38+89		84+11	1
41+40	1	86+62	1
43+91	1	89+14	1
46+44	1	91+05	1
48+95	1	94+16	
51+45	1	96+68	
53+97	1	99+19	
56+49	1	101+70	
59+00	1	104+21	
61+51	1	106+72	
64+02	1	109+25	
66+55	1	111+75	
69+04	1	114+26	
71+64	1	116+77	
74+10	1	118+43	
76+58	1	120+95	
79+10	1	122+50	
FINAL TOTAL = 27			



B-B
3/4\"/>

(RT) MANHOLES THAT REQUIRE THE GAS TIGHT SEWER LIDS TO BE ADJUSTED, WILL BE PAID AS MODIFY MANHOLES.

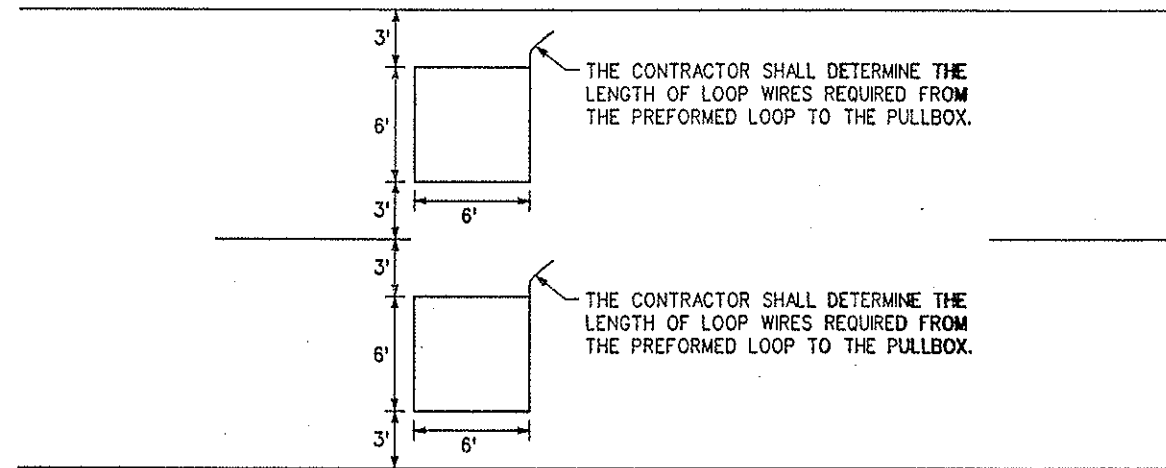
S:\Tranproj\246202-06\HwyDes\Plans\mhta01.dgn 2:49:49 AM 2/8/2006

Computer File Information		Sheet Revisions		Colorado Department of Transportation		As Constructed		TABULATION OF MANHOLES AND ADJUST VALVE BOXES		Project No./Code	
Creation Date:	09/08/05 Initials: MSJ	(RT)	02/07/06 NOTE/INCREASE MODIFY MANHOLES MSJ	P.O. Box 399 Durant, CO 80436 Phone: (303) 512-5750 Fax: (303) 512-5775		No Revisions:		IM 0702-257		15195	
Last Modification Date:	02/07/06 Initials: MSJ			4601 DTC Boulevard Suite 700 Denver, Colorado 80237 Phone: 303-221-7275 Fax: 303-221-7276		Revised: 7/2/2007		Designer: MSJ		Structure Numbers: F-13-Y	
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Drawing File Name:	mhta01.dgn			REGION I MTN RESIDENCY INZ				Sheet Subset: of		Sheet Number: 15	
Scale:	Units: ENGLISH										

TABULATION OF VEHICLE LOOP DETECTORS



NORTH BORE (F-13-Y)			SOUTH BORE (F-13-X)		
STATION	LANE	LENGTH (LF)	STATION	LANE	LENGTH (LF)
124+24	RIGHT	50	36+16	RIGHT	50
124+24	LEFT	50	36+16	LEFT	50
124+40	RIGHT	50	36+32	RIGHT	50
124+40	LEFT	50	36+32	LEFT	50
124+71	RIGHT	50	36+90	RIGHT	50
124+71	LEFT	50	36+90	LEFT	50
124+87	RIGHT	50	37+06	RIGHT	50
124+87	LEFT	50	37+06	LEFT	50
125+03	RIGHT	50	124+60	RIGHT	50
125+03	LEFT	50	124+60	LEFT	50
125+19	RIGHT	50	124+76	RIGHT	50
125+19	LEFT	50	124+76	LEFT	50
			124+92	RIGHT	50
			124+92	LEFT	50
			125+19	RIGHT	50
			125+19	LEFT	50
			125+35	RIGHT	50
			125+35	LEFT	50
			125+51	RIGHT	50
			125+51	LEFT	50

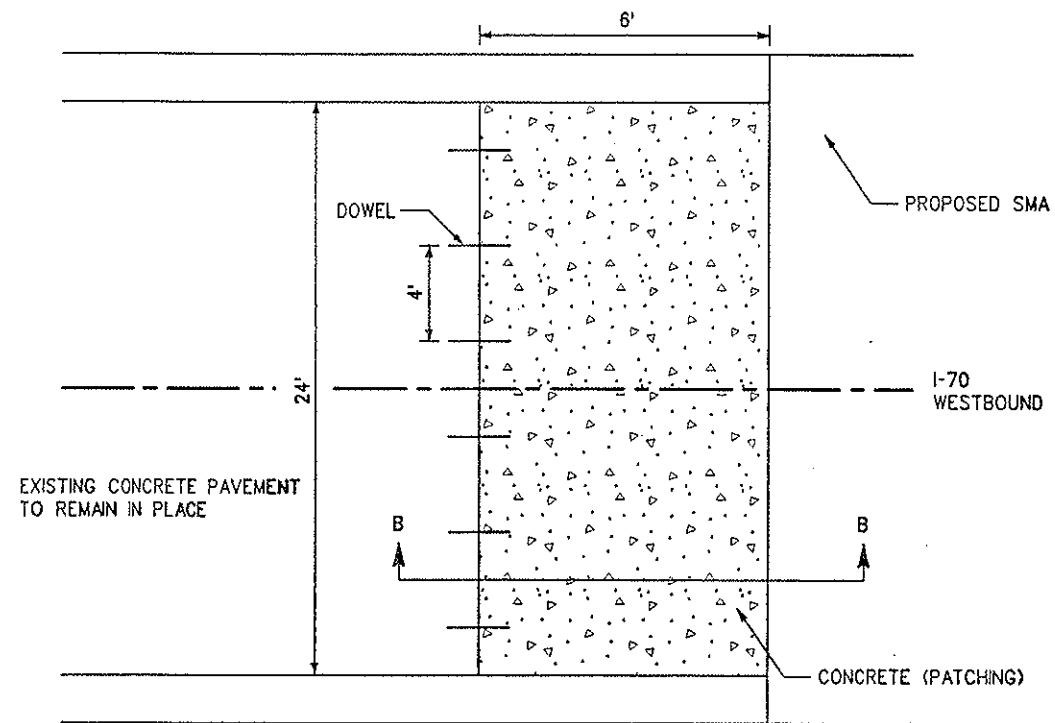
FINAL TOTAL	612 600	TOTAL	1288 1000
FINAL TOTAL = 1600 1900			



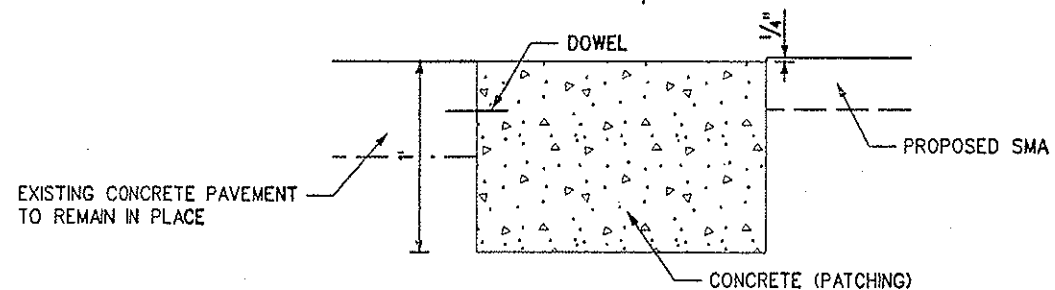
VEHICLE LOOP DETECTOR WIRE DETAIL

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Computer File Information		Sheet Revisions		Colorado Department of Transportation		As Constructed		TABULATION OF VEHICLE LOOP DETECTORS		Project No./Code			
Creation Date:	09/08/05 Initials: MSJ			 P.O. Box 399 Dumont, CO 80436 Phone: (303) 512-5750 Fax: (303) 512-5775		 4601 DTC Boulevard Suite 700 Denver, Colorado 80237 Phone: 303-721-7275 Fax: 303-721-7276		No Revisions: Revised: 7/2/2007 Void:		Designer: MSJ Structure F-13-Y Detailer: MSJ Numbers F-13-X Sheet Subset: of		IM 0702-257 15195 Sheet Number: 16	
Last Modification Date:	09/15/05 Initials: MSJ												
Full Path:	S:\Tranproj\246202-06\HwyDes\Plans\												
Drawing File Name:	ldta01.dgn												
Scale:	Units: ENGLISH			REGION I MTN RESIDENCY INZ									



PLAN
CONCRETE (PATCHING) SLAB REPAIR

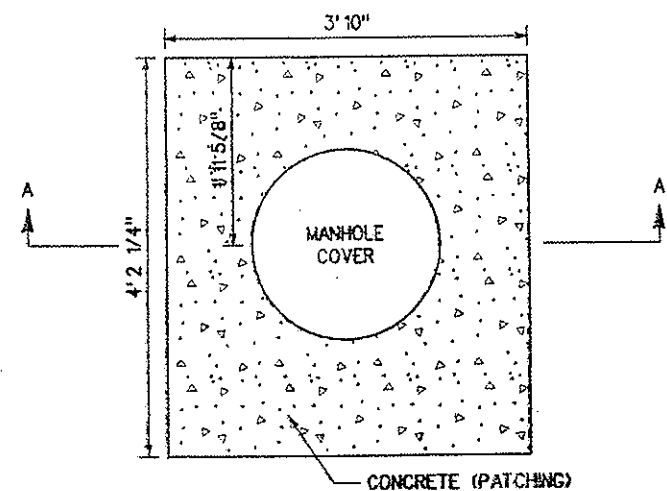


B-B
CONCRETE (PATCHING) SLAB REPAIR

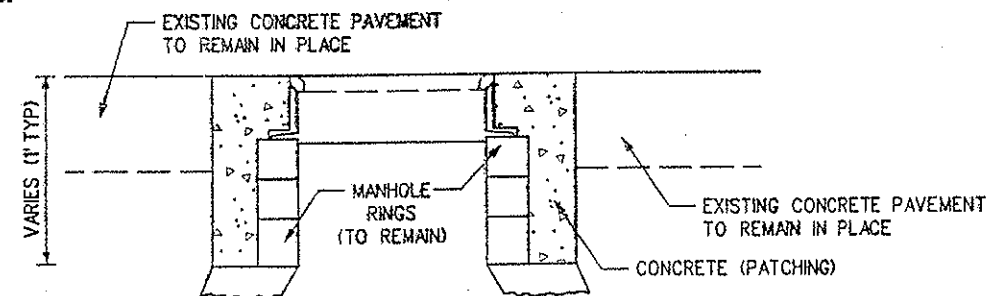
TABULATION OF CONCRETE PATCHING

NORTH BORE (F-13-Y)			
STATION	AREA (SY)	DEPTH (IN)	VOLUME (CY)
35+96	2	12	1
35+96	2	12	1
37+55	2	12	1
37+55	2	12	1
39+05	2	12	1
39+02 TO 39+9	16	12	6
FINAL TOTAL			71

NOTE:
ALL CONCRETE FOR CONCRETE (PATCHING) SHALL BE CLASS P.
EDGES SHALL BE SAW CUT AND INCIDENTAL TO CONCRETE PATCHING.
ALL CONCRETE JOINTS SHALL CONFORM TO STANDARD PLAN M-412-1.
THE CONTRACTOR SHALL DOWEL INTO THE EXISTING CONCRETE AT 4 FT ON CENTER. THIS SHALL BE INCIDENTAL TO CONCRETE PATCHING.



PLAN
CONCRETE (PATCHING) AT MANHOLES



A-A
CONCRETE (PATCHING) AT MANHOLES



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Computer File Information		Sheet Revisions		Colorado Department of Transportation		As Constructed		TABULATION OF CONCRETE PATCHING		Project No./Code	
Creation Date:	09/08/05 Initials: MSJ			P.O. Box 399 Durant, CO 80436 Phone: (303) 512-5750 Fax: (303) 512-5775		No Revisions:		Designer: MSJ Structure: F-13-Y		IM 0702-257	
Last Modification Date:	09/15/05 Initials: MSJ			4601 DTC Boulevard Suite 700 Denver, Colorado 80237 Phone: 303-221-7275 Fax: 303-221-7276		Revised: 7/2/2007		Detailer: MSJ Numbers:		15195	
Full Path:	S:\Tranproj\246202-06\HwyDes\Plans\			REGION I MTN RESIDENCY INZ		Void:		Sheet Subset: of		Sheet Number: 17	
Drawing File Name:	cpta01.dgn										
Scale:	Units: ENGLISH										

APPROXIMATE LOCATIONS OF CATCH BASINS
(FOR INFORMATION ONLY)

NORTH BORE (F-13-Y)				SOUTH BORE (F-13-X)			
STATION	SIDE	STATION	SIDE	STATION	SIDE	STATION	SIDE
37+75	RIGHT	81+34	RIGHT	36+71	RIGHT	80+43	RIGHT
37+75	LEFT	81+34	LEFT	38+22	RIGHT	80+43	LEFT
39+10	RIGHT	82+85	RIGHT	39+73	RIGHT	81+93	RIGHT
39+10	LEFT	82+85	LEFT	39+73	LEFT	81+93	LEFT
40+60	RIGHT	84+36	RIGHT	41+24	RIGHT	83+44	RIGHT
40+60	LEFT	84+36	LEFT	41+24	LEFT	83+44	LEFT
42+10	RIGHT	85+87	RIGHT	42+74	RIGHT	84+95	RIGHT
42+10	LEFT	85+87	LEFT	42+74	LEFT	84+95	LEFT
43+60	RIGHT	87+37	RIGHT	44+25	RIGHT	86+46	RIGHT
43+60	LEFT	87+37	LEFT	44+25	LEFT	86+46	LEFT
45+14	RIGHT	88+87	RIGHT	45+76	RIGHT	87+97	RIGHT
45+14	LEFT	88+87	LEFT	45+76	LEFT	87+97	LEFT
46+65	RIGHT	90+39	RIGHT	47+27	RIGHT	89+48	RIGHT
46+65	LEFT	90+39	LEFT	47+27	LEFT	89+48	LEFT
48+18	RIGHT	91+90	RIGHT	48+77	RIGHT	90+98	RIGHT
48+18	LEFT	91+90	LEFT	48+77	LEFT	90+98	LEFT
49+70	RIGHT	93+40	RIGHT	50+28	RIGHT	92+49	RIGHT
49+70	LEFT	93+40	LEFT	50+28	LEFT	92+49	LEFT
51+18	RIGHT	94+90	RIGHT	51+79	RIGHT	94+00	RIGHT
51+18	LEFT	94+90	LEFT	51+79	LEFT	94+00	LEFT
52+70	RIGHT	96+41	RIGHT	53+30	RIGHT	95+51	RIGHT
52+70	LEFT	96+41	LEFT	53+30	LEFT	95+51	LEFT
54+20	RIGHT	97+93	RIGHT	54+80	RIGHT	97+01	RIGHT
54+20	LEFT	97+93	LEFT	54+80	LEFT	97+01	LEFT
55+71	RIGHT	99+43	RIGHT	56+31	RIGHT	98+52	RIGHT
55+71	LEFT	99+43	LEFT	56+31	LEFT	98+52	LEFT
57+22	RIGHT	100+94	RIGHT	57+82	RIGHT	100+83	RIGHT
57+22	LEFT	100+94	LEFT	57+82	LEFT	100+83	LEFT
58+73	RIGHT	102+45	RIGHT	59+33	RIGHT	101+54	RIGHT
58+73	LEFT	102+45	LEFT	59+33	LEFT	101+54	LEFT
60+24	RIGHT	103+96	RIGHT	60+83	RIGHT	103+04	RIGHT
60+24	LEFT	103+96	LEFT	60+83	LEFT	103+04	LEFT
61+75	RIGHT	105+46	RIGHT	62+34	RIGHT	104+55	RIGHT
61+75	LEFT	105+46	LEFT	62+34	LEFT	104+55	LEFT
63+25	RIGHT	106+97	RIGHT	63+85	RIGHT	106+06	RIGHT
63+25	LEFT	106+97	LEFT	63+85	LEFT	106+06	LEFT
64+76	RIGHT	108+48	RIGHT	65+36	RIGHT	107+57	RIGHT
64+76	LEFT	108+48	LEFT	65+36	LEFT	107+57	LEFT
66+27	RIGHT	109+99	RIGHT	66+86	RIGHT	109+07	RIGHT
66+27	LEFT	109+99	LEFT	66+86	LEFT	109+07	LEFT
67+78	RIGHT	111+50	RIGHT	68+37	RIGHT	110+58	RIGHT
67+78	LEFT	111+50	LEFT	68+37	LEFT	110+58	LEFT
69+28	RIGHT	113+00	RIGHT	69+88	RIGHT	112+09	RIGHT
69+28	LEFT	113+00	LEFT	69+88	LEFT	112+09	LEFT
70+79	RIGHT	114+50	RIGHT	71+39	RIGHT	113+60	RIGHT
70+79	LEFT	114+50	LEFT	71+39	LEFT	113+60	LEFT
72+30	RIGHT	116+00	RIGHT	72+89	RIGHT	115+10	RIGHT
72+30	LEFT	116+00	LEFT	72+89	LEFT	115+10	LEFT
73+80	RIGHT	117+51	RIGHT	74+40	RIGHT	116+61	RIGHT
73+80	LEFT	117+51	LEFT	74+40	LEFT	116+61	LEFT
75+30	RIGHT	118+18	RIGHT	75+91	RIGHT	118+12	RIGHT
75+30	LEFT	118+18	LEFT	75+91	LEFT	118+12	LEFT
76+82	RIGHT	119+68	RIGHT	77+42	RIGHT	119+63	RIGHT
76+82	LEFT	119+68	LEFT	77+42	LEFT	119+63	LEFT
78+33	RIGHT	121+19	RIGHT	78+92	RIGHT	121+13	RIGHT
78+33	LEFT	121+19	LEFT	78+92	LEFT	121+13	LEFT
79+84	RIGHT	124+65	RIGHT			124+19	RIGHT
79+84	LEFT	124+65	LEFT			124+19	LEFT

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Computer File Information		Sheet Revisions		Colorado Department of Transportation		As Constructed		APPROXIMATE LOCATION OF CATCH BASINS		Project No./Code	
Creation Date:	09/08/05 Initials: MSJ	<input type="checkbox"/>		 P.O. Box 399 Dumont, CO 80436 Phone: (303) 512-5750 Fax: (303) 512-5775	 4601 DTC Boulevard Suite 700 Denver, Colorado 80237 Phone: 303-221-7275 Fax: 303-221-7276	No Revisions: 7/2/2007		Designer: MSJ		IM 0702-257	
Last Modification Date:	09/15/05 Initials: MSJ	<input type="checkbox"/>				Revised:		Structure Numbers		15195	
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Drawing File Name:	cbta01.dgn	<input type="checkbox"/>						Sheet Subset:		Sheet Subset: of	
Scale:	Units: ENGLISH	<input type="checkbox"/>		REGION I MTN RESIDENCY INZ						Sheet Number: 18	


LOCATION	OFFSET	TENSIONED CABLE BARRIER	END ANCHORAGE (TENSIONED CABLE BARRIER)	UNCLASSIFIED ^Δ EXCAVATION	EMBANKMENT (CIP)	AGGREGATE BASE COURSE (SPECIAL)	RECONDITIONING	*HMA SX 75	DESCRIPTION
		LF	EACH		CY	CY	SY	TON	
I-70 (M.P.: 216.67 to M.P.: 221.20)									
STA. 0+00 to STA. 42+69	MED RT	4,269	2				17,217		
STA. 43+23 to STA. 48+24	MED LT	501	2						
STA. 43+23 to STA. 83+40	MED RT	4,017	2				11,753		
STA. 92+18 to STA. 104+75	MED RT	1,257	2				3,552		
STA. 105+22 to STA. 110+44	MED CENTER	522	2	246		644		357	
STA. 109+57 to STA. 141+09	MED RT	3,152	2		1688				
STA. 141+68 to STA. 146+69	MED LT	501	2						
STA. 141+68 to STA. 208+60	MED RT	6,692	2		3568				
STA. 209+10 to STA. 214+52	MED CENTER	542	2	280		810		381	
STA. 213+66 to STA. 238+50	MED RT	2,484	2		1327				
FINAL TOTAL		22,823 23,937	20	799 526	1759 6,583	1,454	32,522	738	

* CARRIED FORWARD TO RESURFACING TAB

NOTES

1. DELINEATOR REFLECTORS SHALL BE PLACED EVERY 5TH POST.
2. RESET DELINEATORS SHALL BE INCLUDED IN THE WORK.
3. CONTRACTOR SHALL INVENTORY SIGNS SHALL BE SUBMITTED TO THE ENGINEER PRIOR TO THE START OF WORK. RESET SIGNS SHALL BE INCLUDED IN THE WORK.
4. TRANSITION GRADES AT MEDIAN INLETS AS DIRECTED BY THE ENGINEER.
5. SURVEYING X-SECTIONS FROM STA. 0+00 TO STA. 239+17 SHALL BE REQUIRED AT 100' STATIONS. THIS WORK WILL BE DONE PRIOR TO ANY REGRADING WORK. THIS WORK WILL BE REQUIRED AFTER EMBANKMENT MATERIAL IS PLACED TO VERIFY REQUIRED GRADES AND EARTHWORK QUANTITIES. THE SURVEYOR SHALL SUBMIT AN ELECTRONIC TOPOGRAPHIC FILE TO THE ENGINEER WITH FINAL QUANTITIES.
6. IT IS ESTIMATED THAT FROM STA. 0+00 TO STA. 105+00 RECONDITIONING OF THE EXISTING MEDIAN DITCH WILL BE REQUIRED.
7. IT IS ESTIMATED THAT FROM STA. 105+00 TO 239+17 EMBANKMENT MATERIAL THE MEDIAN DITCH WILL BE REQUIRED.
8. APPROXIMATELY 1000 CY OF SUITABLE EMBANKMENT MATERIAL IS AVAILABLE AT THE HERMAN'S GULCH STORAGE LOCATED AT EXIT 218.
9. FOUNDATIONS FOR POST SHALL BE CONCRETE SOCKETED TYPE 40" DEEP.
10. DESIGN DEFLECTION OF THE TENSIONED CABLE BARRIER SHALL NOT EXCEED 7.7 FT.
11. COMPACTION AROUND CONCRETE SOCKETED FOUNDATIONS SHALL BE IN ACCORDANCE WITH SECTION 606 OF THE SPECIFICATIONS.

^Δ MAY NOT BE SUITABLE FOR EMBANKMENT AND WILL BECOME PROPERTY OF THE CONTRACTOR.

Computer File Information		Index of Revisions		Colorado Department of Transportation		As Constructed		Tabulation of Guardrail		Project No./Code			
Creation Date:	9/24/04	Initials:	WCD	 PO BOX 399 Dumont, CO 80438 Phone: (303) 512-5750 FAX: (303) 512-5775 Region 1 - MTN Residency INZ		No Revisions:		Designer: TW Detaller: BRL Sheet Subset:		IM 0702-257			
Last Modification Date:	12/27/05	Initials:	BRL			Revised: 7/2/2007				Structure Numbers		15195	
Full Path:	EJMT Tunnel Resurfacing\Cable rail design					Void:				Subset Sheet Number:		Sheet Number 19	
Drawing File Name:	15195_GuardTab.dwg												
Acad Ver:	2004	Scale:	1 IN = 100 FT Units: English										

TABULATION OF WATERLINE

LOCATION			3 IN PRESSURE REDUCING VALVE	6 IN PRESSURE REDUCING VALVE	ACCESS PIT	3' CIPP LINER	8' CIPP LINER	MANHOLE SPECIAL (10 FT)	RESET FIRE HYDRANT	4 INCH GATE VALVE*	8 INCH GATE VALVE	8" X 8" X 4" TEES*	8" - 90° BEND*	HEAT TRACE CABLE	CONNECT TO EXISTING WATERLINE	REMARKS	
			EA	EA	EA	LF	LF	EA	EA	EA	EA	EA	EA	EA	EA		
On Station	From Station	To Station															
NORTH TUNNEL BORE																	
78+15			1	1													
94+16					1				1	1	1	1			1		
	94+16	96+68									252				252		
96+68					1				1	1		1			251		
	96+68	99+19									251				251		
99+19					1				1	1		1			251		
	99+19	101+70									251				251		
101+70					1				1	1		1			251		
	101+70	104+21									251				251		
104+21					1				1	1		1			251		
	104+21	106+72									251				251		
106+72					1				1	1		1			253		
	106+72	109+25									253				253		
109+25					1				1	1		1			250		
	109+25	111+75									250				250		
111+75					1				1	1		1			251		
	111+75	114+26									251				251		
114+26					1				1	1		1			251		
	114+26	116+77									251				251		
116+77					1				1	1		1			166		
	116+77	118+43									166				166		
118+43					1				1	1		1			252		
	118+43	120+95									252				252		
120+95					1				1	1		1			155		
	120+95	122+50									155				155		
122+50					1				1	1		1			83		
	122+50	123+33									83				83		
123+33					1							1				1	
SOUTH TUNNEL BORE																	
54+75			1	1													



FINAL TOTAL - TUNNEL BORES	2	2	14			2,917 0			13	6	13	1		2,917	2	
-----------------------------------	---	---	----	--	--	--------------------	--	--	----	---	----	---	--	------------------	---	--

STRAIGHT CREEK SUPPLY LINE																	
0+00																	
	0+00	4+40				440											H = 10 FT
4+40								1									
FINAL TOTAL - STRAIGHT CREEK SUPPLY LINE						440		1									

FINAL PROJECT TOTALS	2	2	14			440		1	13	6	13	1		2,917	2	
-----------------------------	---	---	----	--	--	-----	--	---	----	---	----	---	--	-------	---	--

NOTE: ALL VALVES, TEES, BENDS, WYE STRAINER, REQUIRED QUANTITIES OF 2' & 3' PIPE AND OTHER FITTINGS SHALL BE INCLUDED IN THE COST OF THE MANHOLE SPECIAL (10 FT).
 * FOR INFORMATION ONLY

7/15/2006 7:08:15 PM S:\Tranproj\246202-06\HwyDes\Plans\wlt01.dgn

Computer File Information Creation Date: 09/08/05 Initials: MSJ Last Modification Date: 09/15/05 Initials: MSJ Full Path: S:\Tranproj\246202-06\HwyDes\Plans\wlt01.dgn Drawing File Name: wlt01.dgn Scale: Units: ENGLISH		Sheet Revisions [Empty]		Colorado Department of Transportation  P.O. Box 399 Dumont, CO 80436 Phone: (303) 512-5750 Fax: (303) 512-5775		As Constructed No Revisions: Revised: 7/2/2007 Void:		TABULATION OF WATERLINES Designer: MSJ Detailer: MSJ Sheet Subset: of			Project No./Code IM 0702-257 15195 Sheet Number: 20	
				 4601 DTC Boulevard Suite 700 Denver, Colorado 80237 Phone: 303-221-7275 Fax: 303-221-7276								
				REGION I MTN RESIDENCY INZ								

STORMWATER MANAGEMENT PLAN – ADDITIONAL INFORMATION FOR PERMITTED PROJECT (To be used when a CDPEs permit is used)

1. PROJECT SITE DESCRIPTION:

This is a resurfacing project for the Eisenhower Tunnel. Project activities inside the tunnel include rehabilitating the 8" tunnel water line, adjusting manholes, removing concrete pavement, asphalt planning and paving. Project activities outside the tunnel include repairing a 3" waterline on the west side of the tunnel, installing 4 miles of tensioned cable barrier on the east side of the tunnel, a temporary batch plant at the Loveland ski area. Pipe line work will involve temporarily diverting the water around the lower detention pond into the original creek channel via an existing headgate installed for this purpose. Grading activities include reconditioning and embankment material in the median from MP 216.5 to MP 221 prior to cable rail installation. The sequence of events will be adjusting manholes, repairing waterlines, grading for cable barrier, installing cable barrier, removing concrete and paving.

2. MS4 phase I. phase II. not applicable x

3. RECEIVING WATER NAME

- Clear Creek on the east side of the tunnel.
- Straight Creek on the west side of the tunnel.

a. Includes the location and description of any anticipated non-stormwater components of the discharge such as a spring and landscape irrigation return flow. How will it be handled? Not applicable

b. Include the size, type and location of outfalls or, if the discharge is to a municipal separate storm sewer, the name of that system, the location of the storm sewer discharge and the ultimate receiving water.

- Tunnel waterline work will include minimal discharge during pipe lining operations.
- Existing inlets on Cable rail portion of project (see plan sheets).

WETLAND IMPACTS: NO

STREAM IMPACTS: NO

THREATENED AND ENDANGERED SPECIES: Project "may affect but not likely to adversely affect" the green back trout, lynx and boreal toad.

4. ESTIMATED RUNOFF COEFFICIENT

Pre: 0.56 Post construction: 0.56

5. EXISTING SOIL DATA: (Includes describing soil, soil erosion potential or the quality of any discharge from the site.) Median areas – made up of roadway sands/loam. Water line area alpine loam soils.

6. ACRES OF DISTURBANCE: (includes clearing, grading, excavation activities, areas receiving overburden (e.g. stockpiles), demolition areas and areas with heavy equipment/vehicle traffic and storage that will disturb existing vegetative cover.)

Total area of construction site: 96 Acre

Total area of disturbance: 17 acres for regrading of median from 216.5 to 221. Excavation on the west side of the tunnel is 0.04 acres. Batch plant is ~5 acres but is on an existing parking lot.

Acreage of seeding: 17.04

7. EXISTING VEGETATION, INCLUDING PERCENT COVER : Native grasses and forbs. Median is 50% vegetated.

8. POTENTIAL POLLUTANTS/MATERIALS HANDLING AND SPILL PREVENTION: (Location and description of any other potential pollution sources or activities that may have an effect on stormwater, such as vehicle fueling, equipment or vehicle washing, storage of fertilizers or chemicals or other materials storage; haul roads; off site vehicle tracking; loading/unloading areas, etc. Review Section 107.25 Water Quality.)

Impacts from materials

- a. Temporary batch plant at the Loveland Ski Area parking lots
 - i. Fueling
 - ii. Hauling
 - iii. Making asphalt
- b. Temporary stockpiles from milling the existing tunnel asphalt
- c. Concrete washouts for cable rail installation.

9. OTHER NON-STORMWATER DISCHARGES: (the location and description of any anticipated non-stormwater components of the discharge, such as springs and landscape irrigation return flow. How will it be handled?)

10. OTHER DRAINAGE AREAS NOT ON THE SWMP: (state any applicable hydraulic documents)

SITE MAP COMPONENTS:

Pre-construction (to be shown at time of design)

1. Construction site boundaries: Review project title sheet
2. All areas of soil disturbance and areas of cut and fill: see SWMP sheets, plan and profile sheets, roadway cross-sections and documents submitted by the Contractor at the the preconstruction conference.
3. Areas used for storage of building materials, soils or wastes: if known at design or add during construction. As submitted by the Contractor. Lot D shall be used for aggregate and equipment storage. See SWMP plan.
4. Location of any dedicated asphalt or concrete batch plants: if known at design or add during construction. If needed, Lot E at Loveland Ski Area, see SWMP plans.
5. Location of any major erosion control facilities or structures: review SWMP, plan and profile sheets and documents submitted by the Contractor.
6. Springs, streams, wetlands and other surface water: review project title sheet, SWMP and plan and profile sheets.
7. Boundaries of 100 year flood plains, if determined: not applicable.

During construction: (to be added onto the SWMP by the Erosion Control Supervisor and Engineer)

1. Areas used for storage of building materials, soils or wastes: Review documents submitted by the Contractor.
2. Location of any dedicated asphalt or concrete batch plants: Review documents submitted by the Contractor.
3. Location of access routes during construction: Review documents submitted by the Contractor.
4. Location of borrow and waste locations: Review documents submitted by the Contractor.

REFERENCES TO SPECIFICATIONS, DETAILS AND NOTES

The Engineer, Contractor and Erosion Control Supervisor shall refer to all specifications, details and notes pertaining to this project to ensure adherence to the NPDES permit. Items that will be available at the project trailer include:
 - 107.25, 208, 212, 213, and 215 Standard, Standard Specials and Project Special Provisions
 - M&S Standards
 - CDOT Erosion Control and Stormwater Quality Guide
 - Copy of Biological Opinion, if applicable

The project title sheet and drainage/hydraulic sheets shall be copied and attached to the SWMP package.

Contractor spill prevention plan and response procedures shall be copied and attached to the SWMP package.

INTENT OF STORMWATER MANAGEMENT PLAN

The intent of this SWMP is to prevent sediment from reaching Straight and Clear Creek. If the Contractor determines aggregate/equipment storage and a batch plant is required on the project, they will be placed at Lots D and E at the Loveland Ski Area as shown in the plans and as required in the Biological Opinion. All erosion control associated with these areas is shown in the plans. Sediment, erosion control shall be at the Contractor's expense.

- An on-site preconstruction conference with the Engineer, Contractor, ECS, Region Environmental, CDOT Landscape Architect and CDOT Hydraulics in attendance is required prior to construction commencing. At this meeting the intent of the stormwater management plan, sensitive habitats on site, wetlands and other vegetation to be protected will be discussed.
- Due to the projects close proximity to state waters work shall be performed to minimize water pollution during construction. Refer to the 107.25 and 208 Standard Specifications.
- Required permits 404, NPDES, SB40. If dewatering along with those that may be required such as acquiring a dewatering permit from the Department of Health.
- The Erosion Control Supervisor (ECS) shall be a person other than the Project Superintendent. The ECS shall read and be familiar with CDOT's, "Erosion and Stormwater Quality Guide".
- The SWMP shall be implemented in a minimum of three phases: preconstruction, during construction and post construction.


FAILURE TO PERFORM

Section 208.06 states - "The Contractor will be subject to liquidated damages for incidents of failure to perform erosion control as required by the Contractor." Incidents to which liquidated damages may be applied are defined in Section 208.06. Review Section 107.25 and 208 for more information.

Failure to comply with the CDPE permit requirements will constitute a violation by the Contractor. Civil penalties for violations can be up to \$10,000 per day, and a criminal pollution of state water* is punishable by fines of up to \$25,000 per day. Review section 107.25 for information about Contractor liabilities for fines on CDOT projects. For additional information, review the permit on file or go on-line to the CDPE web site at <http://www.cdpe.state.co.us/wq/permitsunit/wqcdpmt.html>.

Failure to implement SWMP puts the project in automatic violation of the stormwater construction permit.

* See Standard Specification 107.25 for definition of state waters.

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Creation Date:	12/05 Initials: CVC										IM 0702-257
Last Modification Date:	1/06 Initials:										15195
Full Path:	Region 1										Sheet Number 21
Drawing File Name:	15195sd1rev3										
Acad Ver.	2004 Scale: Units: English										
				 P.O. Box 399 Dumont, CO 80436 Phone: 303-512-5750 FAX: 303-512-5775 Region 1 Mountain Residency I.N.Z.		No Revisions: Revised: Void: 7/2/07		Designer: CVC Detailer: CVC Sheet Subset:		Structure Numbers: Subset Sheets: 1 of 6	

FOR INFORMATION ONLY - TO FULFILL CDPS PERMIT REQUIREMENTS

STORMWATER MANAGEMENT PLAN - ADDITIONAL INFORMATION FOR PERMITTED PROJECT

1. PROJECT SITE DESCRIPTION:

This is a resurfacing project for the Eisenhower Tunnel. Project activities inside the tunnel include rehabilitating the 8" tunnel water line, adjusting manholes, removing concrete pavement, asphalt planning and paving. Project activities outside the tunnel include repairing a 3" waterline on the west side of the tunnel, installing 4 miles of wire rope safety guardrail on the east side of the tunnel, a temporary batch plant at the Loveland ski area. Pipe line work will involve temporarily diverting the water around the lower detention pond into the original creek channel via an existing headgate installed for this purpose. Grading activities include reconditioning and embankment material in the median from MP 216.5 to MP 221 prior to cable rail installation. The sequence of events will be adjusting manholes, repairing waterlines, grading for cable rail, installing cable rail, removing concrete and paving.

2. MS4 phase I . phase II . not applicable x

3. RECEIVING WATER NAME

- Clear Creek on the east side of the tunnel.
- Straight Creek on the west side of the tunnel.
- Tunnel waterline work will include minimal discharge during pipe lining operations.
- Existing inlets on Cable rail portion of project (see plan sheets).

Outfall locations:

All locations approx. See Guardrail layout for exact locations

- STA 7+80 24" CMP
- STA 16+30 24" CMP
- STA 31+30 24" CMP
- STA 42+80 24" CMP
- STA 68+30 24" CMP
- STA 78+80 24" CMP
- STA 104+40 24" CMP
- STA 104+80 24" CMP
- STA 116+80 24" CMP
- STA 123+30 24" CMP
- STA 141+20 24" CMP
- STA 160+60 24" CMP
- STA 166+50 24" CMP
- STA 180+10 24" CMP
- STA 190+00 24" CMP
- STA 202+60 24" CMP
- STA 208+60 24" CMP
- STA 219+80 24" CMP
- STA 225+80 24" CMP

WETLAND IMPACTS: NO

STREAM IMPACTS: NO

THREATENED AND ENDANGERED SPECIES: Project "may affect but not likely to adversely affect" the green back trout, lynx and boreal toad.

4. ESTIMATED RUNOFF COEFFICIENT

Pre: 0.56 Post construction: 0.56

5. EXISTING SOIL DATA: Median areas - made up of roadway sands/loam. Water line area alpine loam soils.

6. ACRES OF DISTURBANCE:

Total area of construction site: 96 Acre
 Total area of disturbance: 17 acres for regrading of median from 216.5 to 221. Excavation on the west side of the tunnel is 0.04 acres. Batch plant is ~5 acres but is on an existing parking lot.
 Acreage of seeding: 17.04

7. EXISTING VEGETATION, INCLUDING PERCENT COVER : Native grasses and forbs. Median is 50 % vegetated.

8. POTENTIAL POLLUTANTS/MATERIALS HANDLING AND SPILL PREVENTION:

Impacts from materials

- a. Temporary batch plant at the Loveland Ski Area parking lots
 - i. Fueling
 - ii. Hauling
 - iii. Making asphalt
- b. Temporary stockpiles from milling the existing tunnel asphalt
- c. Concrete washouts for cable rail installation.

9. OTHER NON-STORMWATER DISCHARGES:

10. OTHER DRAINAGE AREAS NOT ON THE SWMP:

SITE MAP COMPONENTS:

Pre-construction Pre-construction (to be shown at time of design)

1. Construction site boundaries: Review project title sheet
2. All areas of soil disturbance and areas of cut and fill: see SWMP sheets, plan and profile sheets, roadway cross-sections and documents submitted by the Contractor at the the preconstruction conference.
3. Areas used for storage of building materials, soils or wastes: if known at design or add during construction. See First Construction Activities. Lot D shall be used for aggregate and equipment storage. See SWMP plan.
4. Location of any dedicated asphalt or concrete batch plants: if known at design or add during construction. If needed, Lot E at Loveland Ski Area, see SWMP plans.
5. Location of any major erosion control facilities or structures: review SWMP, plan and profile sheets.
6. Springs, streams, wetlands and other surface water: review project title sheet, SWMP and plan and profile sheets.
7. Boundaries of 100 year flood plains, if determined: not applicable.
8. Location of any fisheries, spawning areas or threatened and endangered species habitat: See SWMP and Biological Opinion
9. Unique landscape and cultural sites to be protected: Not applicable
10. Locations of protected trees, shrubs and wetlands: See SWMP

REFERENCES TO SPECIFICATIONS, DETAILS AND NOTES

The Contractor and Erosion Control Supervisor shall refer to all specifications, details and notes pertaining to this project to ensure adherence to the CDPS permit. Items that will be available at the project trailer include:

- 107.25, 208, 212, 213, and 216 of the Standard Specifications, Standard Special Provisions and Project Special Provisions
- M&S Standard Plans
- CDOT Erosion Control and Stormwater Quality Guide
- Copy of Biological Opinion, if applicable

The project title sheet and drainage/hydraulic sheets shall be copied and attached to the SWMP package.

Contractor spill contingency prevention plan and response procedures shall be copied and attached to the SWMP package.

INTENT OF STORMWATER MANAGEMENT PLAN

1.) The intent of this SWMP is to prevent sediment from reaching Straight and Clear Creek. If the Contractor determines aggregate/equipment storage and a batch plant is required on the project, they will be placed at Lots D and E at the Loveland Ski Area as shown in the plans and as required in the Biological Opinion. All erosion control associated with these areas is shown in the plans. Sediment, erosion control shall be at the Contractor's expense.

- An on-site preconstruction conference with the Engineer, Contractor, ECS, Region Environmental, CDOT Landscape Architect and CDOT Hydraulics in attendance is required prior to construction commencing. At this meeting the intent of the stormwater management plan, sensitive habitats on site, wetlands and other vegetation to be protected will be discussed.


- Required permits 404, NPDES, SB40. If dewatering along with those that may be required such as acquiring a dewatering permit from the Department of Health.

- The Erosion Control Supervisor (ECS) shall be a person other than the Project Superintendent. The ECS shall read and be familiar with CDOT's, "Erosion and Stormwater Quality Guide".

- The SWMP shall be implemented in a minimum of three phases: first construction activity, during construction and prior to final acceptance.

FAILURE TO PERFORM

Failure to implement SWMP puts the project in automatic violation of the stormwater construction permit.

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Creation Date:	1/06 Initials:	<input type="checkbox"/>			P.O. Box 399 Dumont, CO 80436	No Revisions:	7/2/2007			IM 0702-257	
Last Modification Date:	3/06 Initials: CVC	<input type="checkbox"/>		Region 1 INZ	Phone: 303-512-5750 FAX: 303-612-5775	Revised:		Designer:	Structure	15195	
Full Path:	Region 1	<input type="checkbox"/>				Void:		Detailer:	Numbers		
Drawing File Name:	15195sdfinal	<input type="checkbox"/>						Sheet Subset:	Subset Sheets:	1 of 4	Sheet Number
Acad Ver.	2004 Scale:	Units:	English							21A	

FIRST CONSTRUCTION ACTIVITIES
THE CONTRACTOR SHALL PERFORM THE FOLLOWING:

SITE MAP COMPONENTS:

During construction items shall be added by the Erosion Control Supervisor:

1. Areas used for storage of building materials, soils or wastes - per potential pollution source report, see Standard Specification 107.25 (b)5.
2. Location of any dedicated asphalt or concrete batch plants - per potential pollution source report, see Standard Specification 107.25 (b)5.
3. Location of work access routes during construction:
4. Location of borrow and waste locations:

PRIOR TO WORK COMMENCING:

- 1.) Erosion control measures shall be implemented in accordance with the approved schedule prior to any construction.
- 2.) Perimeter control shall be established as the first item on the SWMP.
- 3.) Identify and implement BMPs for other pollutants listed in spill contingency prevention plan, equipment maintenance and vehicle washing. Add BMP locations to the SWMP.

OFFSITE DRAINAGE:

- 1.) Project site shall be evaluated by the Erosion Control Supervisor for all water draining into or through the project site. Revise the SWMP accordingly.

INLET PROTECTION:

- 1.) The ECS shall review existing inlets and culverts to determine if inlet protection is needed due to water flow patterns. Prior to construction commencing, inlets needing protection, shall be evaluated and SWMP revised accordingly.

STABILIZED CONSTRUCTION ENTRANCE:

- 1.) It is estimated that 1 stabilized construction entrance will be required as directed.

DURING CONSTRUCTION

DURING CONSTRUCTION - The Contractor shall monitor and evaluate potential pollutant sources throughout the term of the Contract.

- 1.) Construction equipment shall be cleaned prior to site arrival. Vehicles shall be free of soil and debris capable of transporting noxious weed seeds or roots onto the site.
- 2.) Vehicle cleaning may occur on site, in approved areas, where wash water can be contained.

GRADING AND SLOPE STABILIZATION:

- 1.) Pursue and stabilize all disturbances to completion.
- 2.) Disturbed surfaces shall be left in a roughened condition at all times by equipment tracking, scarifying or disking the surface on contour with a 2 to 4 inch minimum variation in soil surface.
- 3.) Placement of topsoil or soil conditioner, seed, mulch and mulch tackifier (or blankets) will not to be done in a single operation, but shall be completed:
 - a.) when areas have been completed, permanent stabilization shall occur within 7 days,
 - b.) when disturbed areas where work is temporarily halted shall be temporarily stabilized within 7 days after activity has ceased unless work is to be resumed within 30 calendar days after the activity ceased as authorized by the Engineer.
- 4.) When disturbed areas exceed limits referenced in Standard Specification 208 or during the summer and winter when seeding is not allowed, temporary stabilization shall occur. Temporary stabilization shall not be paid for the convenience of the Contractor. Temporary stabilization shall consist of:
 - a.) 1.5 tons certified weed free forage per acre, mechanically crimped into the soil in combination with an organic mulch tackifier. Mulch and mulch tackifier will not be paid for separately.

DURING CONSTRUCTION

GRADING AND SLOPE STABILIZATION: continued

- 5.) It is estimated that 4 or more mobilizations shall be required and will be included in the price of the work.
- 6.) The Contractor shall limit construction activities to those areas within the limits of disturbance to toe of slope shown on the plans and cross-section. Construction activities in addition to normal construction procedures shall include the on-site parking of vehicles or equipment, on-site staging, on-site batch plants, haul roads or work access and any other action which would disturb existing conditions. Off road staging areas or stockpiles must be pre approved by the Engineer. Disturbances beyond these limits shall be restored to the original condition by the Contractor at the Contractor's expense.
- 7.) The Erosion Control Supervisor shall tabulate additional disturbances not identified in the SWMP and documented in the permit. Indicate locations and quantities on the SWMP.

CONCRETE WASHOUT:

- 1.) It is estimated that ~~2~~¹ concrete washout structures shall be required on the project.
- 2.) Washout areas shall be checked by the ECS and maintained as required.
- 3.) When approved by the Engineer an "urban" concrete washout structure may be used. Urban concrete washout examples are rigid plastic baby-pools, wooden boxes lined with heavy duty plastic or waterproof 55 gallon drums. Baby pools may be used a maximum of three times, if not damaged. After use structure must be removed from the project site.

SAW CUTTING:

- 1.) The Contractor shall protect all storm drain facilities adjacent to locations where pavement cutting operations involving wheel cutting, saw cutting, wand blasting or abrasive water jet cutting are to take place.

INLET PROTECTION:


- 1.) Newly constructed inlets and culverts shall be protected continually throughout construction and immediately upon completion of construction. The Contractor shall remove sediment, milling, debris and other pollutants generated from the system, prior to use, at no additional cost to the project.
- 2.) When riprap is called for at the outlet of a culvert, it shall be installed within 24 hours upon completion of each pipe.

UNFORESEEN ADDITIONAL BMPs:

Additional BMP's may include, but are not limited to:

DITCH CHECKS

- 1.) Checks are required on ditches/swales steeper than 1%, spacing shall be per Standard Plan M-208-1. CDOT Landscape Architect or Hydraulic Engineer shall be contacted by the Engineer for check recommendations.

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Last Modification Date: 3/06	Initials: CVC				Revised: 7/2/2007	Designer:	Structure Numbers			15195		
Full Path: Region 1					Void:	Detailer:					Sheet Number 22A	
Drawing File Name: 15195sdfinal							Sheet Subset:	Subset Sheets:	2 of 4			
Acad Ver. 2004 Scale:	Units: English											

DURING CONSTRUCTION

MATERIALS HANDLING: Review Sections 107.25 and 208 for more information

- 1.) Material stockpile locations for projects in sensitive areas. Any material stockpiles shall be located away from sensitive areas and confined so that no material or their run-off will enter state waters. Locations shall be approved by the Engineer and Region Environmental. See SWMP plans for information only on aggregate/equipment storage and batch plant operation, loading, fueling locations.
- 2.) Silt fence, berms or other sediment control devised shall be placed at the toe (or just beyond toe) of all stockpiles (including topsoil). Sediment control for stockpiles will not be paid for separately.
- 3.) There will be no stockpiling or side casting of waste materials including but not limited to paint chips, asphalt, and concrete adjacent to any state waters that could potentially result from project activities.
- 4.) Containment and cleanup of equipment fuel, oil and lubricant leaks

Contractor shall inspect equipment and vehicles daily to ensure petroleum, oils, and lubricants (POL) are not leaking onto the soil or pavement. Absorbent material or containers approved by the Engineer shall be used to prevent leaking POL from reaching the soil or pavement. Contractor shall have ready approved absorbent material or containers of sufficient capacity to contain any leak POL that can reasonable be foreseen. All materials resulting from POL leakage control and cleanup shall be property of the Contractor and removed from the site. The cost for control and cleanup of POL leaks shall not be paid for separately, but shall be included in the cost of the work.

STREET SWEEPING: Review Sections 107.25 and 208 for more information.

- 1.) Whenever sediment is transported onto the highway, the road shall be cleaned as needed. Sediment shall be removed from the roadway by shoveling, vacuuming or sweeping. Removed sediment shall be transported to a controlled sediment disposal site approved by the Engineer. Street washing will not be allowed. Storm drain inlet protection shall be in place prior to shoveling or sweeping. Street sweeping, vacuuming and sediment removal will not be paid for separately.

GENERAL HOUSEKEEPING:

- 1.) Contractor shall be responsible for collecting and disposing of all refuse (solid waste) from the project at the completion of each construction day.

MAINTENANCE OF EROSION CONTROL DEVICES: Review Sections 107.25 and 208 for more information

- 1.) Inspections shall be frequent and repairs or replacements of erosion control measures shall be made within 2 days or as directed by the Engineer. All erosion bales, silt fence, erosion logs, shall be inspected following each occurrence of precipitation or snow melt event that may cause erosion. Any sediment shall be cleaned out when silt depth is 50% or greater the erosion control device. Sediment removal and disposal shall be paid for as:
 - Shall not paid for separately, cost of cleaning is included in the erosion control device.

INSPECTIONS: Review Sections 107.25 and 208 for more information

- 1.) The project is subject to inspections by CDPHE, COE, EPA and Colorado Department of Transportation RECAT team at any time.
- 2.) Inspection of the stormwater management system shall be performed at least every 14 calendar days and after the occurrence of any precipitation or snow melt event that may cause erosion. Any time span greater than 14 days is a violation of the CDPS permit.

RECORD KEEPING

Review Sections 107.25, 107.03 and 208 for more information.

- 1.) Keeping accurate and complete records is a requirement of the Stormwater Construction Permit; any enforcement action, including fines could result if records are not adequate.
- 2.) The SWMP should be considered a "living document" that is continuously reviewed and modified. Any changes to the SWMP, including but not limited to: additions, deletions, changing locations of BMP's shall be marked in the plans, dated and signed at time of occurrence.
- 3.) All inspection and maintenance activities or other repairs are to be documented by the ECS and kept on the project site.
- 4.) Additional records of spill, leaks or overflows that result in the discharge of pollutants must be documented and maintained. Information that should be recorded for all occurrences include the time and date, weather conditions, reasons for spill, etc. Some spills may need to be reported to the Water Quality Control Division immediately.
- 5.) At 14 day inspections any incidents of noncompliance, such as uncontrolled releases of pollutants including mud, muddy water or measurable quantities of sediment found off-site shall be noted, along with a brief explanation as to measures taken to prevent future violations and any measures taken to clean up sediment that has left the site.
- 6.) After measures have been taken to correct any problems and recorded, or where a report does not identify any incidents of noncompliance, the report must contain a signed certification* indicating the site is in compliance.


* Signing certificate is certifying:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that a qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

POST CONSTRUCTION

Review Sections 107.25 and 208 for more information

- 1.) After all concrete operations are complete these areas shall be restored by the Contractor at no additional cost to the project.
- 2.) Prior to project closure of the project a final walk through of the project shall occur with the CDOT Landscape Architect, Engineer, Region Environmental, Hydraulics and Maintenance in attendance. At this time BMP's shall be inspected for cleaning, maintenance or removal. Areas will be inspected for any additional BMP's that may be required.
- 3.) BMP's shall be removed when 70% of preexisting cover has been established within the disturbed project limits. BMP's subject to removal shall be determined at the final walk through of the project. The Contractor shall remove approved BMP's; cost of BMP removal will be included in the BMP.
- 4.) Upon completion of work required by walk through the ECS will modify the SWMP to an accurate depiction of what remains on the project site.

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Drawing File Name:	15195sd3rev3	<input type="checkbox"/>				Sheet Subset:		Subset Sheets:	3 of 6	Sheet Number	23
Acad Ver.	2004 Scale: Units: English	<input type="checkbox"/>									

DURING CONSTRUCTION

MATERIALS HANDLING:

- 1.) Material stockpile locations for projects in sensitive areas. Any material stockpiles shall be located away from sensitive areas and confined so that no material or their run-off will enter state waters. Locations shall be approved by the Engineer in consultation with Region Environmental.
- 2.) Silt fence, berms or other sediment control devices shall be placed at the toe (or just beyond toe) of all stockpiles (including topsoil). Sediment control for stockpiles will not be paid for separately.
- 3.) There shall be no stockpiling or side casting of waste materials including but not limited to paint chips, asphalt, and concrete adjacent to any state waters that could potentially result from project activities.
- 4.) Containment and cleanup of equipment fuel, oil and lubricant leaks

Contractor shall inspect equipment and vehicles daily to ensure petroleum, oils, and lubricants (POL) are not leaking onto the soil or pavement. Absorbent material or containers approved by the Engineer shall be used to prevent leaking POL from reaching the soil or pavement. Contractor shall have ready approved absorbent material or containers of sufficient capacity to contain any leak POL that can reasonably be foreseen. All materials resulting from POL leakage control and cleanup shall be property of the Contractor and removed from the site. The cost for control and cleanup of POL leaks shall not be paid for separately, but shall be included in the cost of the work.

STREET CLEANING:

- 1.) Whenever sediment is transported onto the highway, the road shall be cleaned as needed. Street washing will not be allowed. Storm drain inlet protection shall be in place prior to shoveling or sweeping. Street cleaning will not be paid for separately.

GENERAL SITE CONDITIONS:

- 1.) At the end of each day the Contractor shall be responsible for collecting all trash and disposing it in appropriate containers. Containers shall be emptied as needed.

MAINTENANCE OF EROSION CONTROL DEVICES:

- 1.) Inspections shall be continuous and repairs or replacements of erosion control measures shall be made within 2 days or as directed by the Engineer. Erosion bales, silt fence, erosion logs, storm drain inlet protection devices shall be inspected following each occurrence of precipitation or snow melt event that may cause erosion. Sediment shall be cleaned out when silt depth is 50% or greater than erosion control device. Sediment removal and disposal shall be paid for as:

- Shall not paid for separately, cost of cleaning is included in the erosion control device.

INSPECTIONS:

- 1.) The project is subject to inspections by CDPHE, COE, EPA and Colorado Department of Transportation at any time.
- 2.) Inspection of the stormwater management system shall be performed at least every 14 calendar days and after the occurrence of precipitation or snow melt event that may cause erosion or run-off. Time span greater than 14 calendar days is a violation of the CDPS permit.

RECORD KEEPING


THE FOLLOWING ARE REQUIREMENTS OF FORM 1176
In accordance with Standard Specification 208.03(c).

- 1.) Keeping accurate and complete records is a requirement of the Stormwater Construction Permit; enforcement action, including fines could result if records are not adequate.
- 2.) The SWMP should be considered a "living document" that is continuously reviewed and modified. Changes to the SWMP, including but not limited to: additions, deletions, changing locations of BMP's shall be marked in the plans, dated and signed at time of occurrence.
- 3.) All inspection and maintenance activities or other repairs shall be documented by the ECS and kept on the project site.
- 4.) Records of spill, leaks or overflows that result in the discharge of pollutants must be documented and maintained. Information that should be recorded for all occurrences include the time and date, weather conditions, reasons for spill, etc. Some spills may need to be reported to the Water Quality Control Division immediately. Specifically, a release of any chemical, oil, petroleum product, sewage, etc., which may enter state waters must be reported.
- 5.) At 14 day inspections incidents of noncompliance, such as uncontrolled releases of pollutants including mud, muddy water or measurable quantities of sediment found off-site shall be noted, along with a brief explanation as to measures taken to prevent future violations and measures taken to clean up sediment that has left the site.
- 6.) After measures have been taken to correct any problems and recorded, or where a report does not identify incidents of noncompliance, the report shall contain a signed certification* indicating the site is in compliance.

* By signing the certificate the signer certifies:
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that a qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

PRIOR TO FINAL ACCEPTANCE

- 1.) After all concrete operations are complete, areas affected by these operations (including washout areas) shall be restored by the Contractor at no additional cost to the project.
- 2.) Prior to final acceptance, a final walk through of the project shall occur with the CDOT Landscape Architect, Engineer, Region Environmental, Hydraulics and Maintenance in attendance. At this time BMPs shall be inspected for cleaning, maintenance or removal. Areas will be inspected for any additional BMP's that may be required.
- 3.) BMP's shall be removed when 70% of preexisting cover has been established within the disturbed project limits. BMP's subject to removal shall be determined at the final walk through of the project. The Contractor shall remove approved BMP's; cost of BMP removal will be included in the BMP.
- 4.) Upon completion of work required by walk through the ECS will modify the SWMP to an accurate depiction of what remains on the project site.

Computer File Information		Index of Revisions		 Colorado Department of Transportation P.O. Box 399 Dumont, CO 80436 Phone: 303-512-5750 FAX: 303-512-5775 Region 1 INZ	As Constructed	Stormwater Management Plan		Project No./Code
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Last Modification Date: 3/06	Initials: CVC				Revised:	Designer:	Structure Numbers:	15195
Full Path: Region 1					Void:	Sheet Subset:	Subset Sheets: 3 of 4	Sheet Number 23 A
Drawing File Name: 15195sdfinal								
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RESEEDING OPERATIONS/CORRECTIVE STABILIZATION

1.) Seeded areas shall be reviewed at 14 day inspections by the Erosion Control Supervisor and Engineer for bare soils caused by surface or wind erosion. Bare areas caused by surface or gully erosion, blown away mulch, etc. shall be regraded, seeded, mulched and have mulch tackifier (or blanket) applied as necessary, at no additional cost to the project.

CABLE RAIL INSTALLATION

All inlets shall be protected with erosion bales (weed free); bales shall be placed prior to work commencing as shown in the plans and as directed.

It is estimated that 16.5 acres of seeding will be required.

SEEDING PLAN

Soil preparation, seeding, mulching and mulch tackifier will be required for an estimated 17 acres of disturbed area within the right-of-way limits which are not surfaced. The following types and rates shall be used:

COMMON NAME	BOTANICAL NAME	POUNDS PCS/ACRE
Slender wheatgrass	Elymus trachycaulis ssp. trachycaulis "Pryor"	10.0
Tufted hairgrass	Deschampsia caespitosa	1.0
Western wheatgrass	Pascopyrum smithii "Rosanna"	10.0
Mountain brome	Bromus marginatus "Bromar"	9.0
Prairie junegrass	Koeleria macrantha	0.5
*Alpine bluegrass	Poa alpinum	2.0
*Alpine timothy	Phleum alpinum	2.0
Idaho fescue	Festuca idahoensis	3.0
Canby bluegrass	Poa canbyi	2.5
Rocky Min. Penstemon	Penstemon strictus	1.0
Spike trisetum	Trisetum spicatum	1.0
Mountain lupine	Lupinus alpestris	1.5
Yarrow	Achillea millefolium var. occidentalis	0.1
Rocky Mountain fescue	Festuca saximontana	1.0
Showy Goldeneye (scarified)	Viguiera multiflora	0.5
Englemann aster	Eucephalus englemanni	0.1
Sulfur flower	Eriogonum umbellatum	1.0
Fireweed	Epilobium angustifolium	0.2
Aspen daisy	Erigeron speciosus	0.2
TOTAL		46.6

*Seed shall be source identified, information shall include the elevation, county and state where collection was made. Source shall be +/- 1000 feet in elevation of the project site and collected within Colorado, Utah or Wyoming.

SEEDING APPLICATION: Drill seed 0.25" to 0.5" into the soil. In small areas not accessible to a drill, hand broadcast and rake 0.25" to 0.5" into the soil.

MULCHING APPLICATION: Apply 2 tons of certified weed free hay per acre in combination with an organic mulch tackifier per standard provision 213.

SOIL CONDITIONING AND FERTILIZER REQUIREMENTS: Refer to Section 212

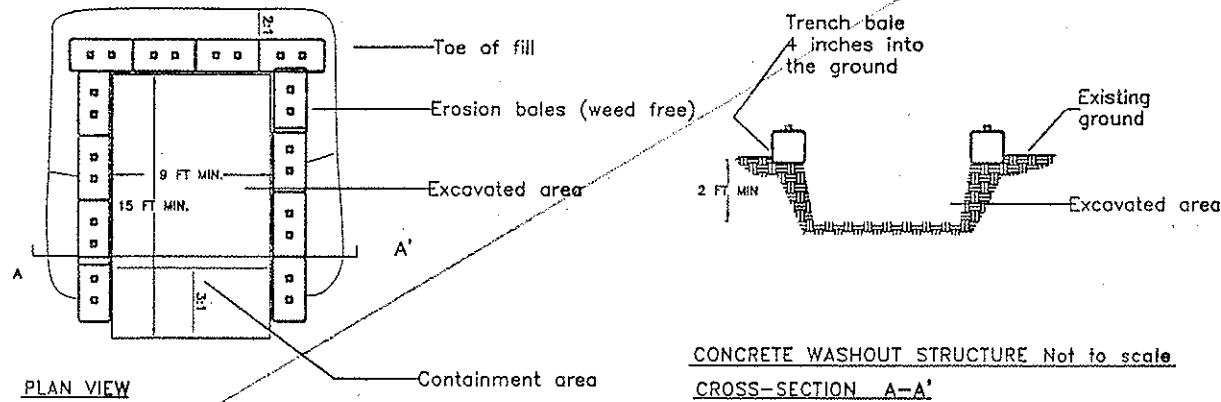
Humates shall be applied at the rate of 1000 pounds per acre and biosol shall be applied at the rate of 2000 pounds per acre, see standard provision 212. Fertilizer shall consist of 90% fungal biomass (mycelium) and 10% potassium-magnesia with a grade of 6-1-3 or approved equal.

60 pounds potassium shall be incorporated as part of soil preparation. Potassium shall be included in the price of the work.

PROJECT TOTALS

Pay Item	Description	Quantity	Quantity* Lot D/E	Unit
208	CONCRETE WASHOUT AREA	2	----	EACH
208	STABILIZED CONSTRUCTION ENTRANCE	----	1	EACH
208	SILT FENCE	----	850	LF
208	EROSION LOG (12 INCH)	100	----	LF
208	EROSION CONTROL SUPERVISOR	1	----	LS
208	EROSION BALES (WEED FREE)	153	----	EACH
208	TEMPORARY BERMS	----	420	LF
212	SOIL CONDITIONING	17.0	----	ACRE
212	SEEDING (NATIVE)	17.0	----	ACRE
213	MULCHING (WEED FREE HAY)	17.0	----	ACRE
213	MULCH TACKIFIER	3400	----	LBS
607	FENCE (PLASTIC)	200	----	LF
700	EROSION CONTROL	1	----	FA

* Quantities for lots D and E are for information only. If the Contractor uses these areas they will be responsible for costs associated with erosion/sediment control.



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Region 1 Mountain Residency I.N.Z.

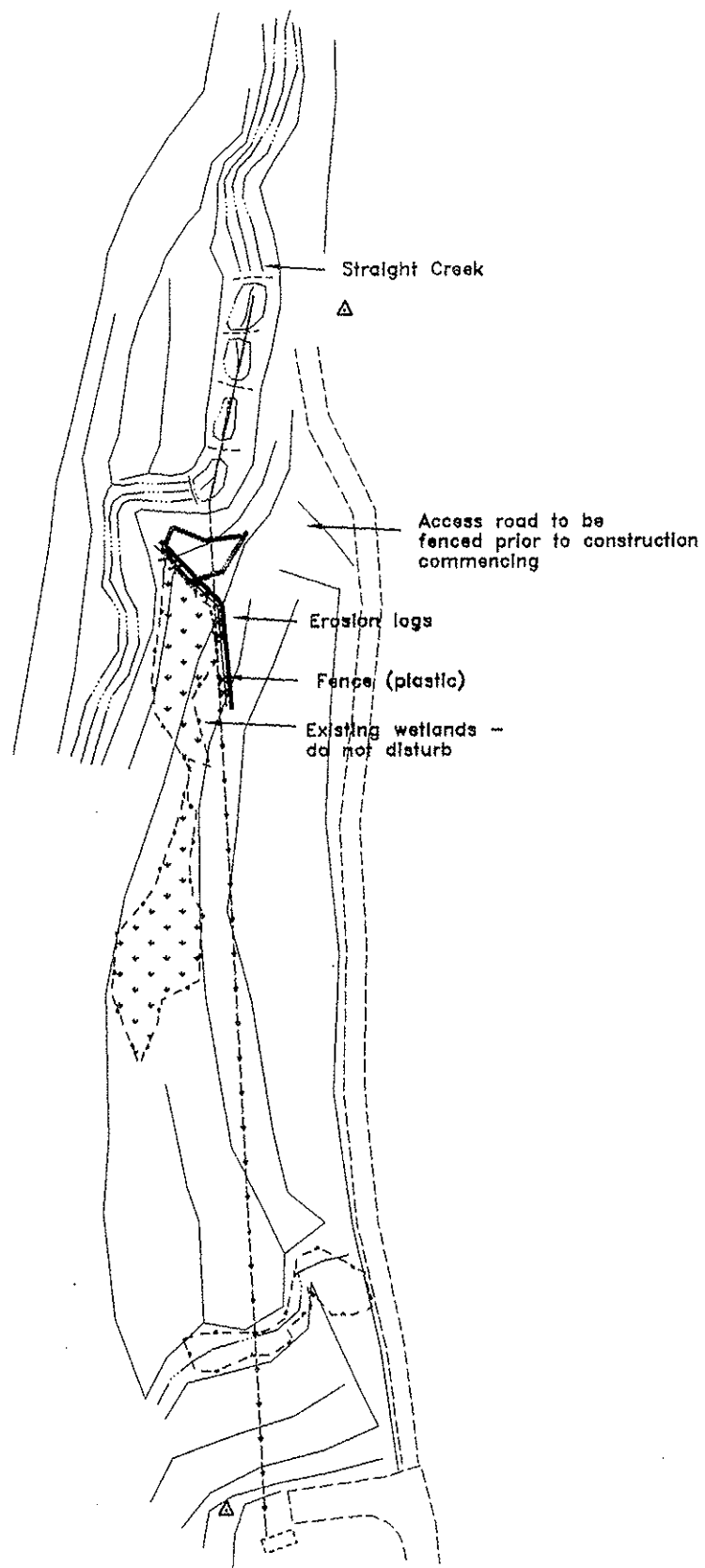
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No Revisions:
Revised:
Void: 7/2/2007

**STORMWATER
MANAGEMENT PLAN**

Designer:	CVC	Structure Numbers:	
Detailer:	CVC	Sheet Subset:	
		Subset Sheets:	4 of 6

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PIPELINE REPAIR

Prior to construction commencing a meeting shall take place to flag access into the site and to protect existing wetlands. Access and wetlands shall be fenced with fence (plastic) prior to work commencing. To the greatest extent possible equipment shall remain on the existing roads.


- Erosion logs shall be placed to prevent sediment from entering Straight Creek. Prior to leaving the site all temporary BMPs shall be removed and the site seeded as necessary.
- See Special provision 208, Standard provision 107.25 and 208 and Biological Evaluation for additional information.

Devices used were shown on working sheets in project records. Not depicted here for clarity reasons.

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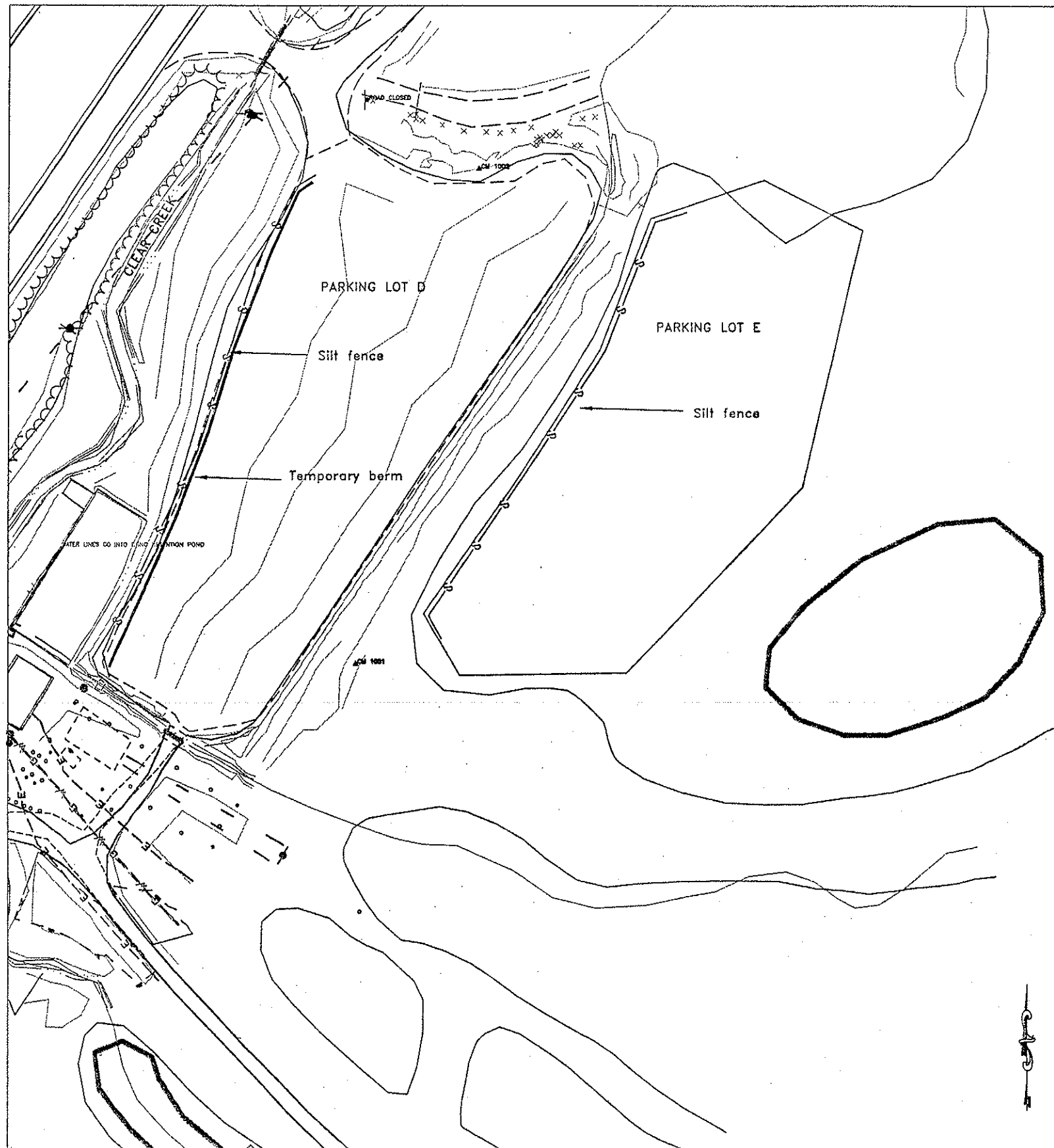
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Region 1 Mountain Residency I.N.Z.

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Revised: 7/2/2007
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STORMWATER MANAGEMENT PLAN	
Designer:	CVC
Detailer:	CVC
Structure Numbers:	
Sheet Subset:	
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15195
Sheet Number 25A



LOVELAND SKI AREA PARKING LOTS D AND E - For information only. Any sediment/erosion shown and listed are required at this site. Cost for items would be at the Contractor's expense.

If the contractor uses Lot D for aggregate and equipment storage and Lot E for batch plant operation, loading, fueling and other operations the following protection and erosion control items are required:

Lot D


- Silt fence shall be placed as shown in the plans and as directed to prevent sediment from entering Clear Creek.
- Berm, 18" in height, shall be placed as shown in the plans to prevent sediment from entering Clear Creek. Berm material shall be hauled from the site, or used in parking lot if approved by the engineer.
- Stabilized construction entrance is required at entrance/exit of the site.
- See Special provision 208, Standard provisions 107.25 and 208 and Biological Opinion for additional information.

Lot E

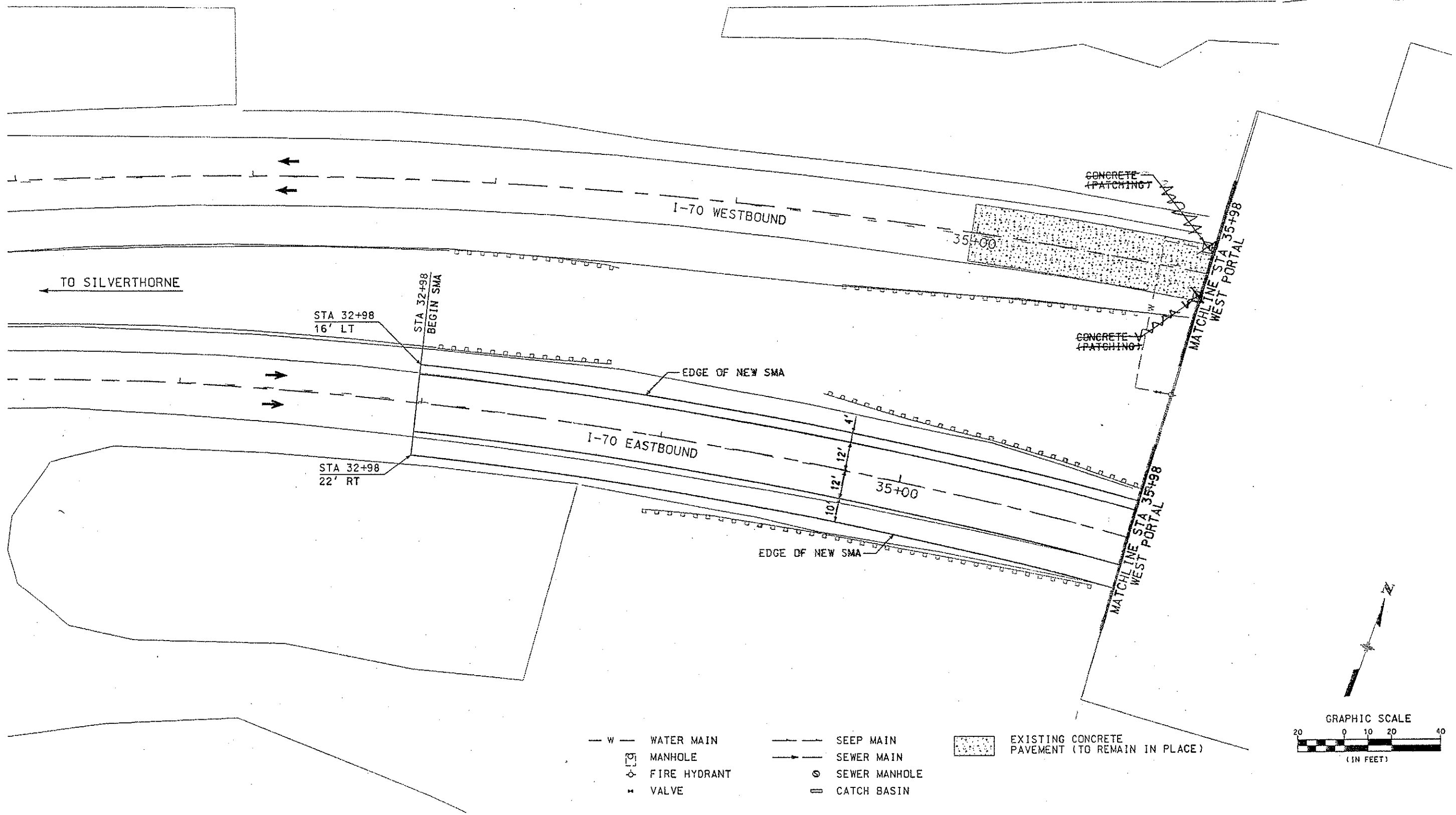
- Silt fence shall be placed as shown in the plans as directed to prevent sediment from leaving the lot.
- See Special provision 208, Standard provisions 107.25 and 208 for spill prevention, containment, fueling, waste management, etc. See Biological Opinion for additional information.

This site was not used for hot plant setup. HMA was obtained from a permanent commercial plant. Therefore no erosion control was necessary at this site

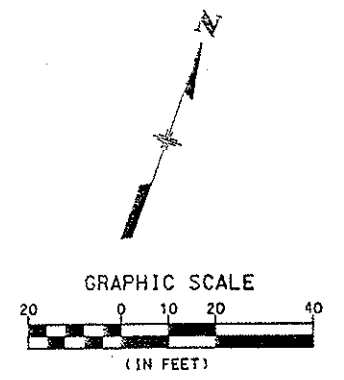


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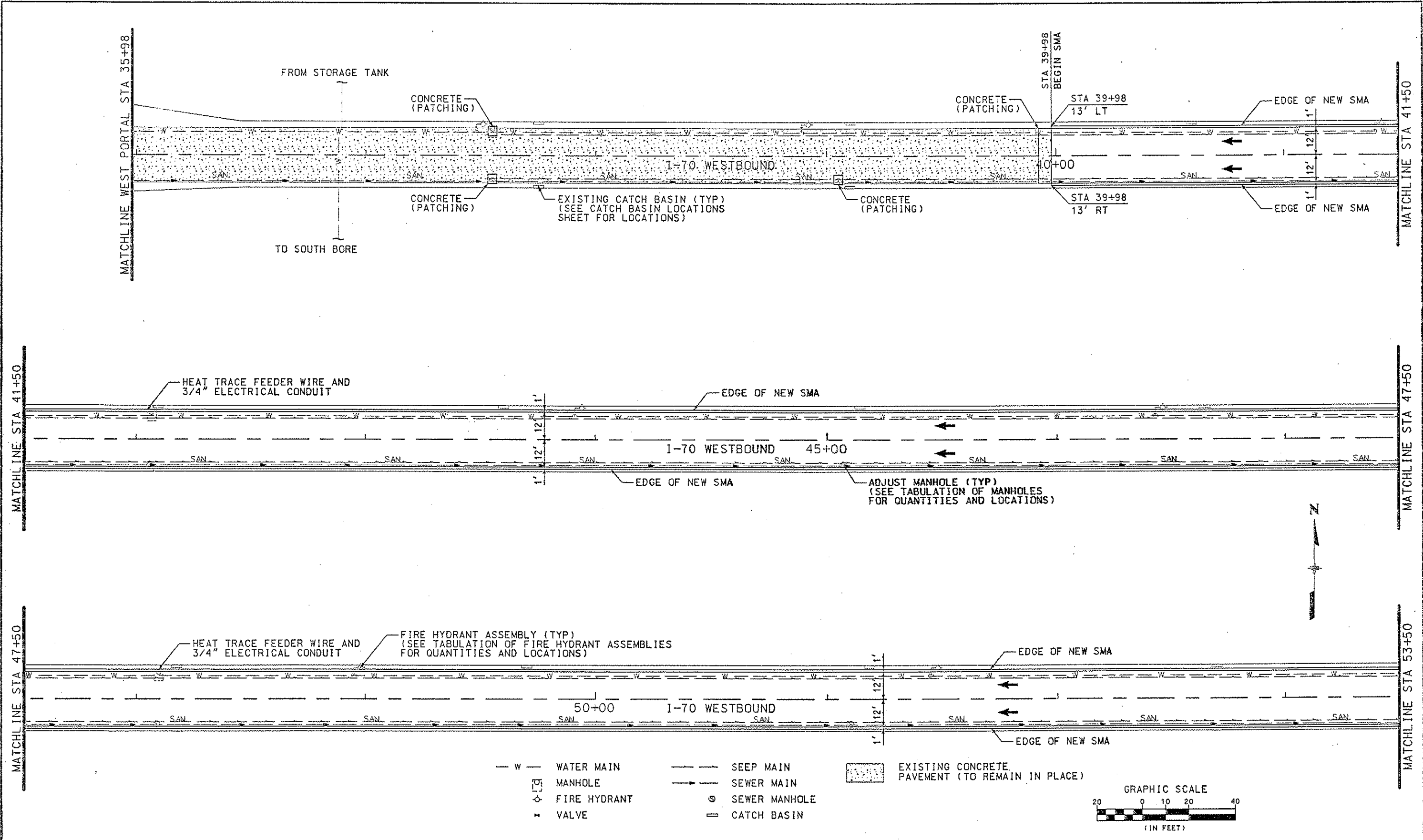


- W — WATER MAIN
- S — SEEP MAIN
- S — SEWER MAIN
- S — SEWER MANHOLE
- C — CATCH BASIN
- ⊕ MANHOLE
- ⊕ FIRE HYDRANT
- ⊕ VALVE
- ▨ EXISTING CONCRETE PAVEMENT (TO REMAIN IN PLACE)

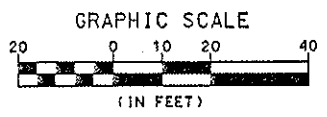


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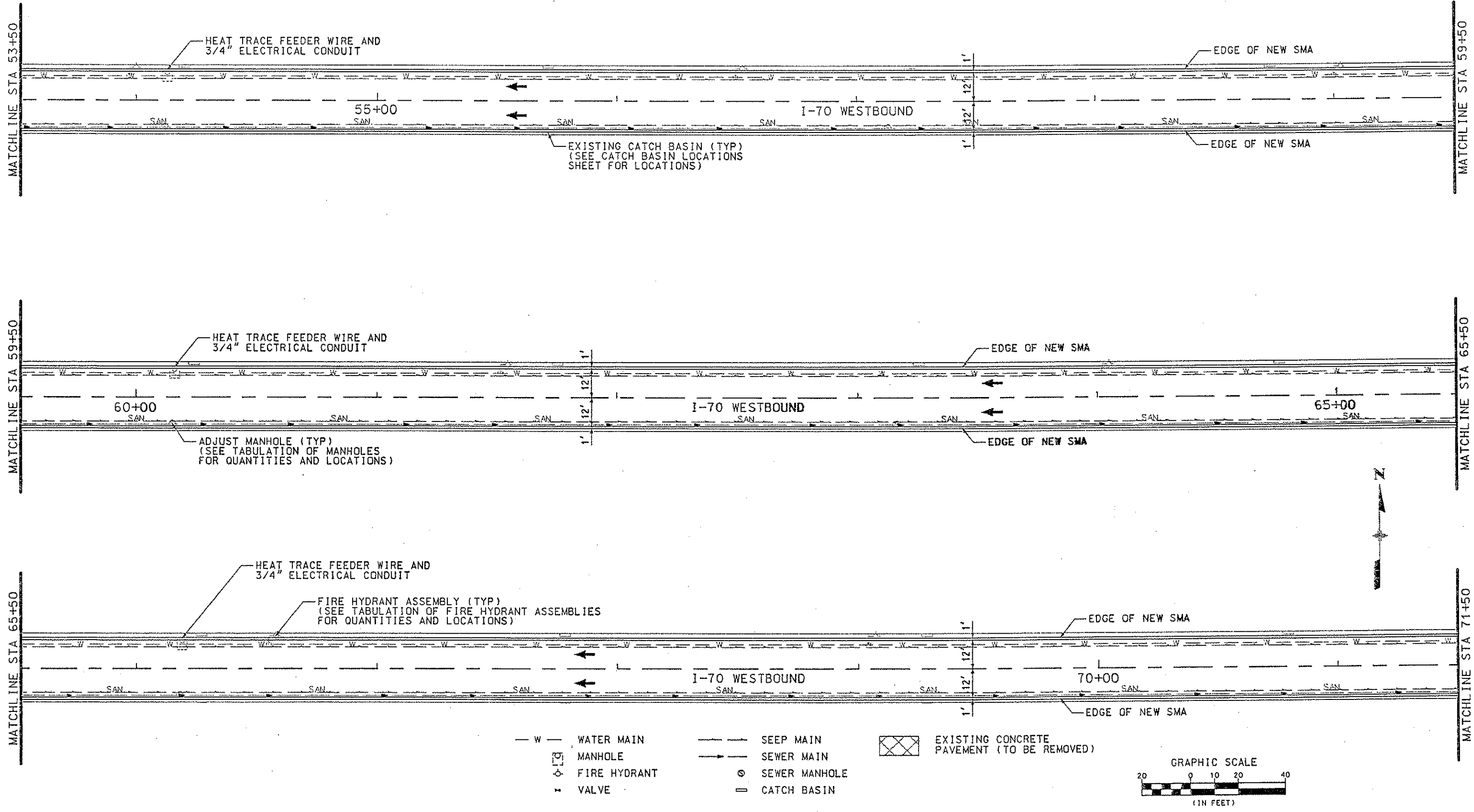


- W — WATER MAIN
- — — SEEP MAIN
- MANHOLE
- — — SEWER MAIN
- ◇ FIRE HYDRANT
- ⊙ SEWER MANHOLE
- ⊠ VALVE
- ▭ CATCH BASIN
- ▨ EXISTING CONCRETE, PAVEMENT (TO REMAIN IN PLACE)

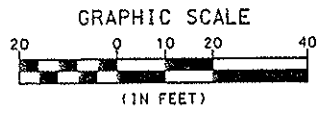


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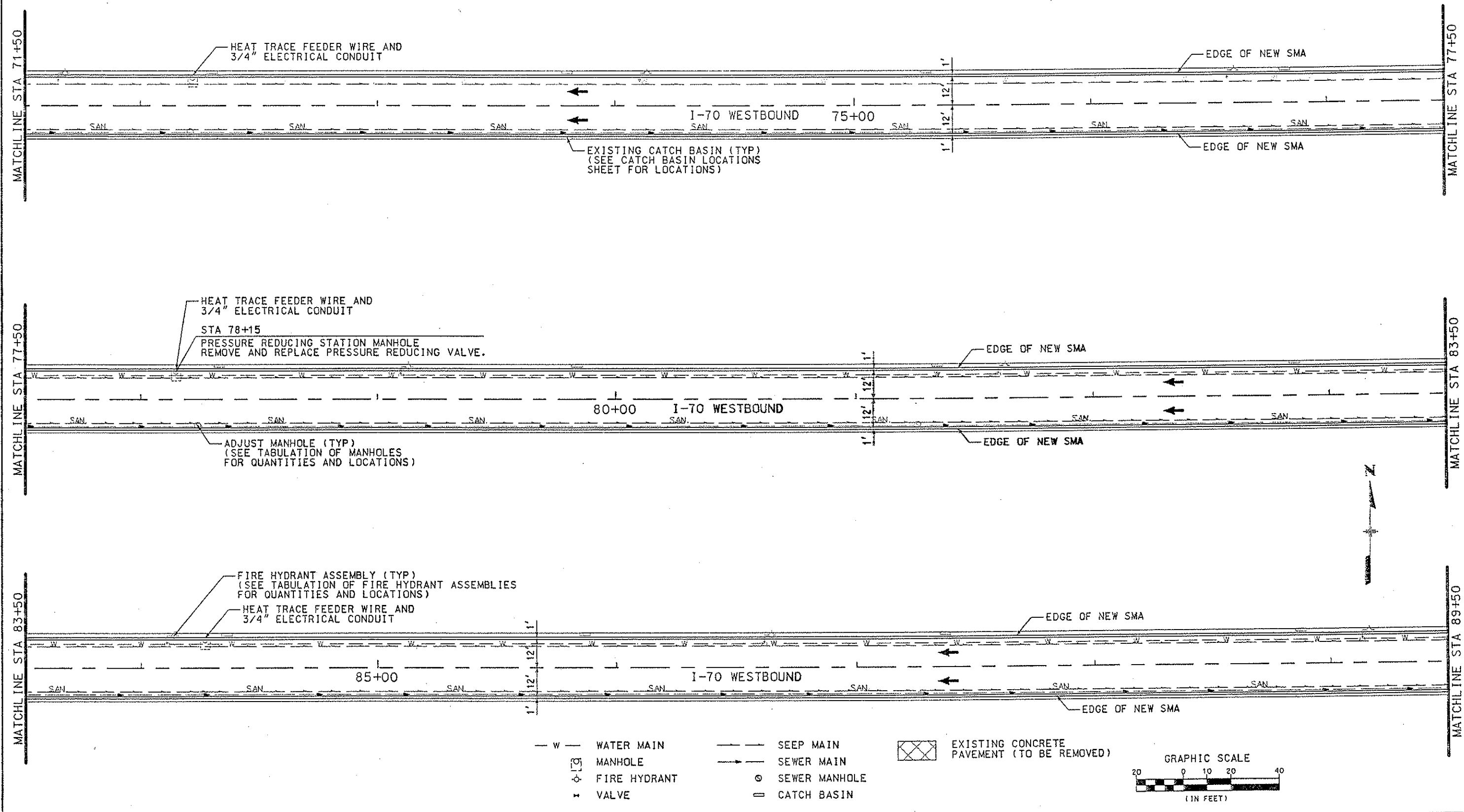


- W — WATER MAIN
- — — SEEP MAIN
- MANHOLE
- ⊕ FIRE HYDRANT
- VALVE
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- ⊙ SEWER MANHOLE
- ▭ CATCH BASIN
- ▨ EXISTING CONCRETE PAVEMENT (TO BE REMOVED)

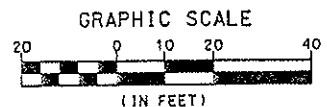


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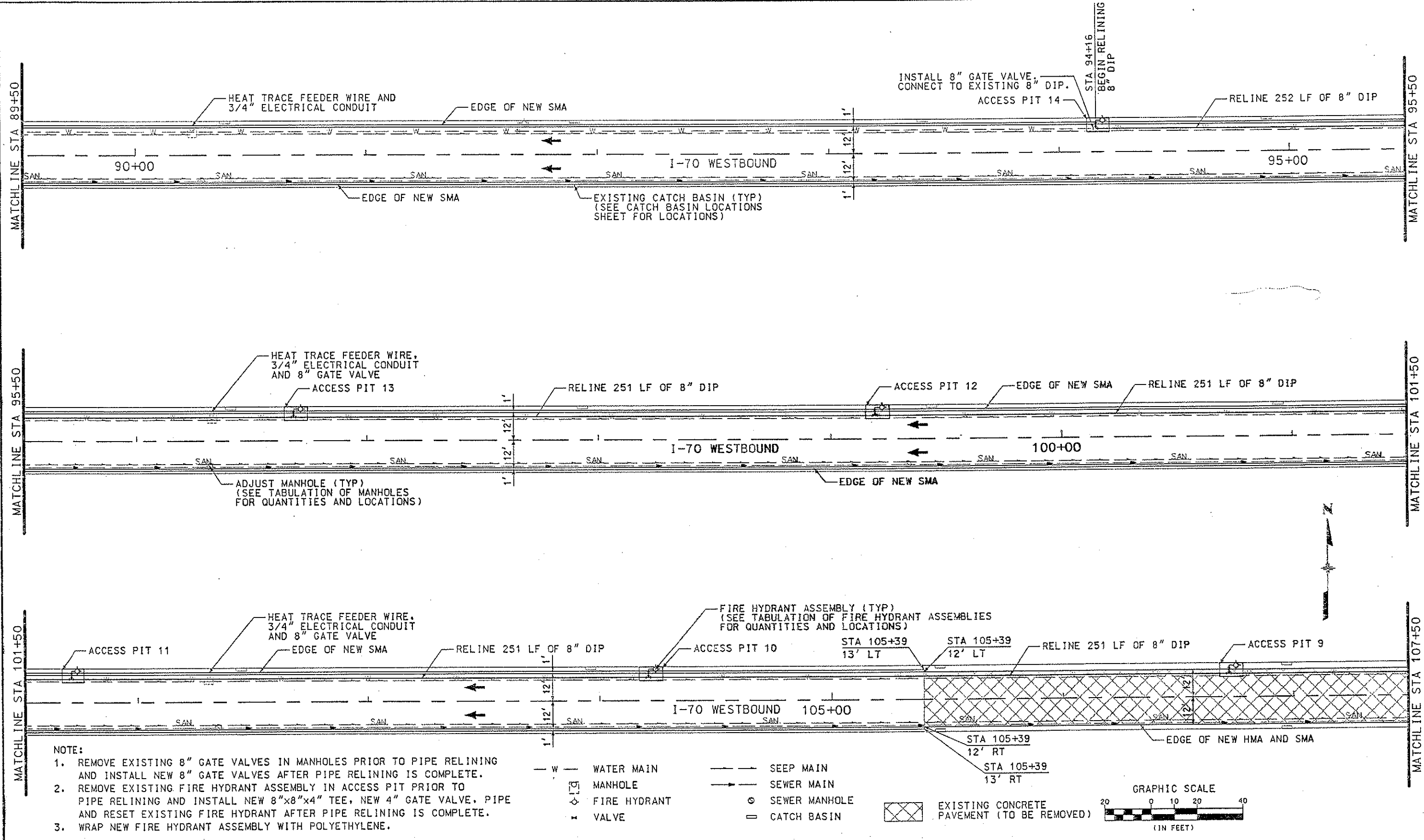


- w — WATER MAIN
- — — SEEP MAIN
- ⊙ MANHOLE
- — — SEWER MAIN
- ⊙ FIRE HYDRANT
- ⊙ SEWER MANHOLE
- ⊙ VALVE
- ⊙ CATCH BASIN
- ⊗ EXISTING CONCRETE PAVEMENT (TO BE REMOVED)



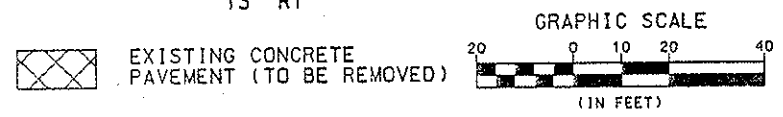
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- NOTE:**
- REMOVE EXISTING 8" GATE VALVES IN MANHOLES PRIOR TO PIPE RELINING AND INSTALL NEW 8" GATE VALVES AFTER PIPE RELINING IS COMPLETE.
 - REMOVE EXISTING FIRE HYDRANT ASSEMBLY IN ACCESS PIT PRIOR TO PIPE RELINING AND INSTALL NEW 8"x8"x4" TEE, NEW 4" GATE VALVE, PIPE AND RESET EXISTING FIRE HYDRANT AFTER PIPE RELINING IS COMPLETE.
 - WRAP NEW FIRE HYDRANT ASSEMBLY WITH POLYETHYLENE.

- W - WATER MAIN
- SAN - SANITARY SEWER MAIN
- [M] - MANHOLE
- [FH] - FIRE HYDRANT
- [V] - VALVE
- SEEP MAIN
- SEWER MAIN
- [SM] - SEWER MANHOLE
- [CB] - CATCH BASIN



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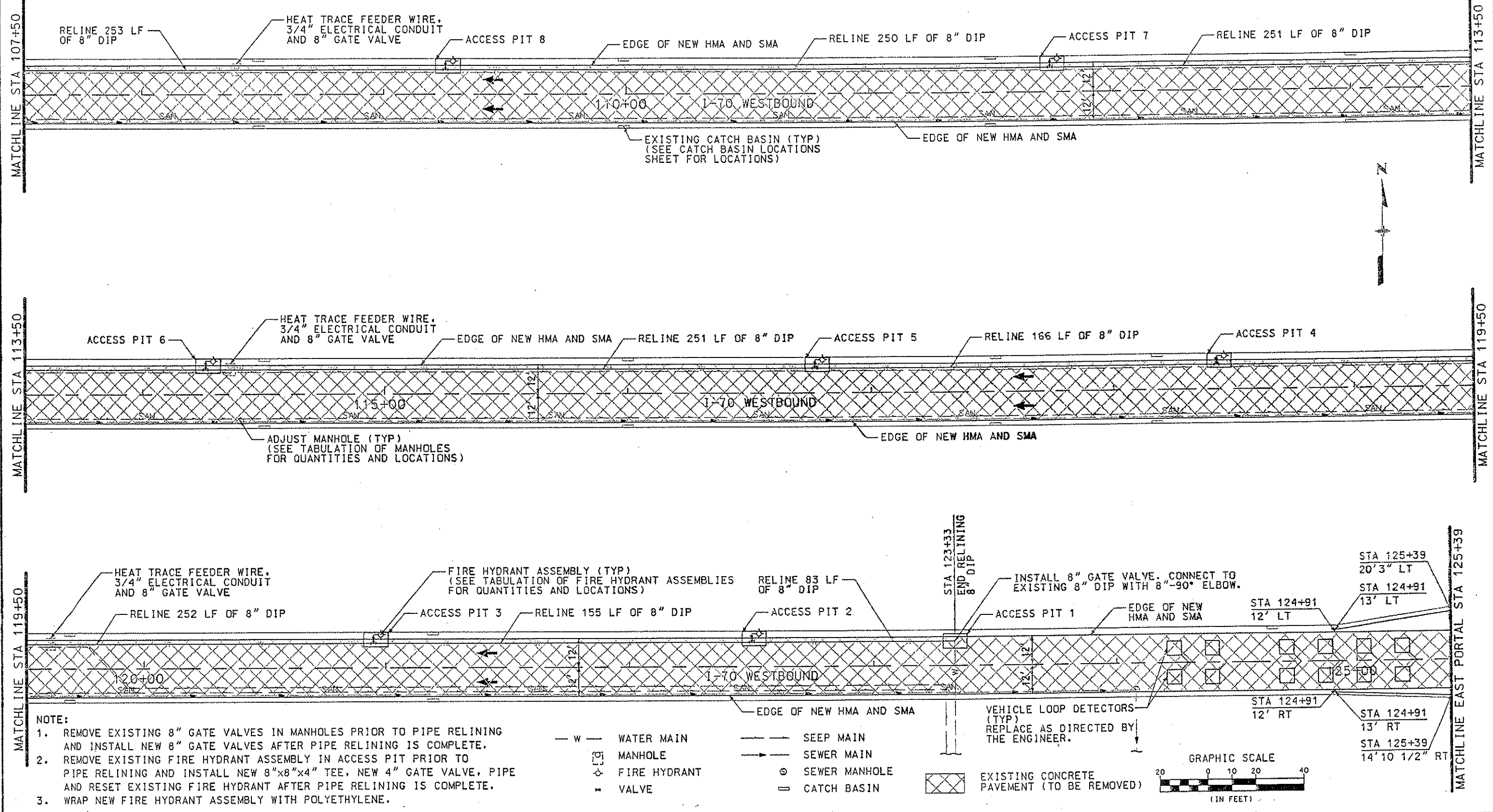
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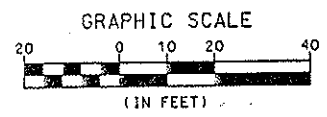
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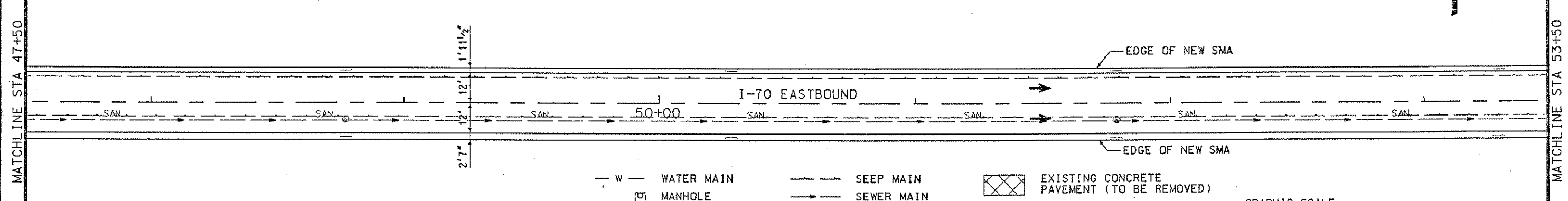
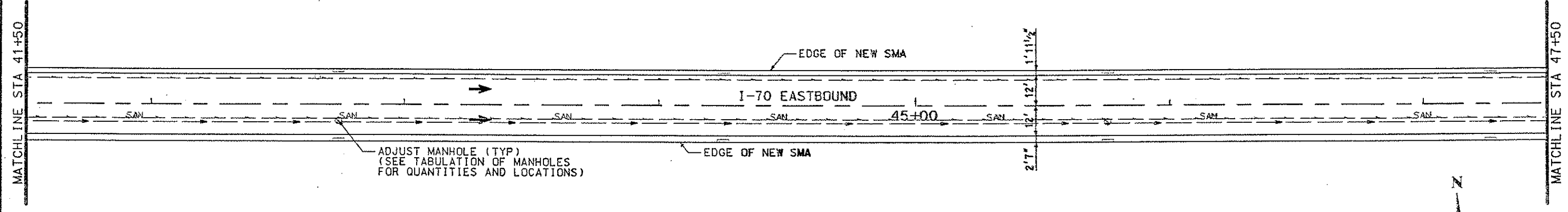
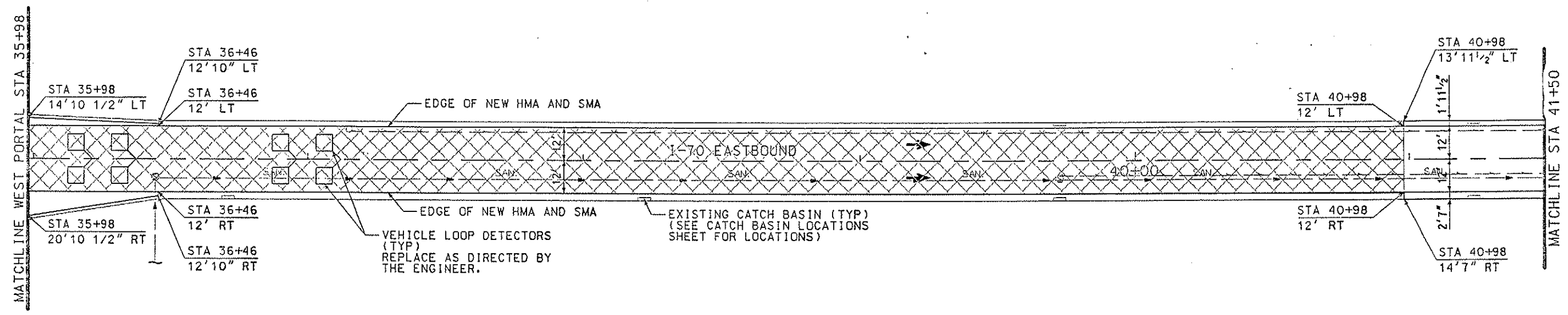
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 2. REMOVE EXISTING FIRE HYDRANT ASSEMBLY IN ACCESS PIT PRIOR TO PIPE RELINING AND INSTALL NEW 8"x8"x4" TEE, NEW 4" GATE VALVE, PIPE AND RESET EXISTING FIRE HYDRANT AFTER PIPE RELINING IS COMPLETE.
 3. WRAP NEW FIRE HYDRANT ASSEMBLY WITH POLYETHYLENE.

- W - WATER MAIN
- S - SEEP MAIN
- FH - FIRE HYDRANT
- V - VALVE
- S - SEWER MAIN
- SM - SEWER MANHOLE
- CB - CATCH BASIN

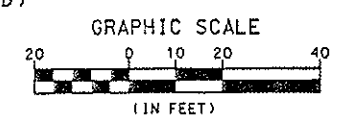


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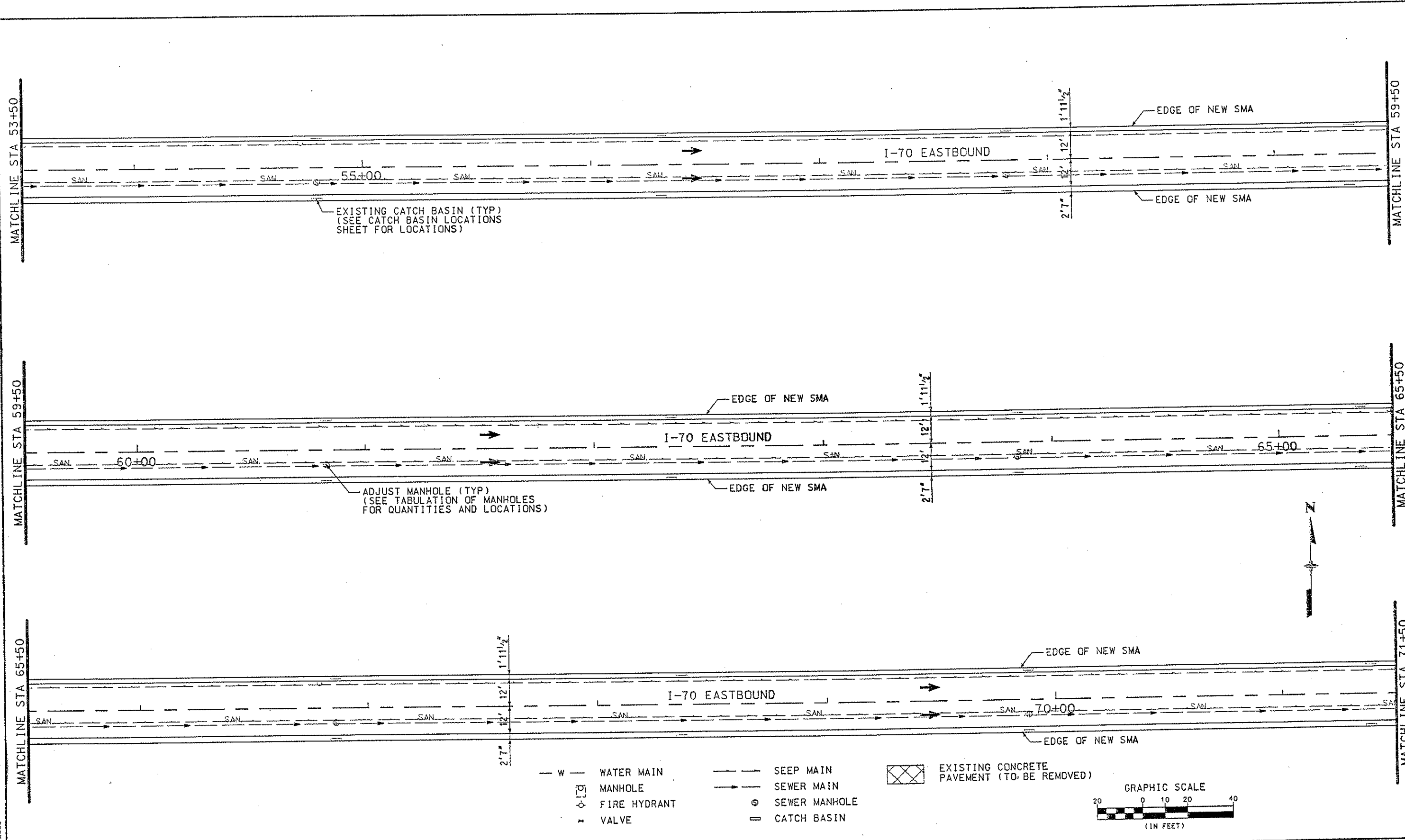


- w — WATER MAIN
- s — SEEP MAIN
- m — MANHOLE
- s — SEWER MAIN
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- s — SEWER MANHOLE
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- c — CATCH BASIN
- EXISTING CONCRETE PAVEMENT (TO BE REMOVED)

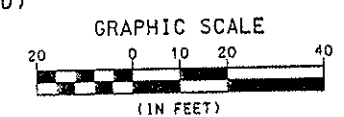


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- W — WATER MAIN
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- ⊕ MANHOLE
- ⊕ SEWER MAIN
- ⊕ FIRE HYDRANT
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- ⊕ VALVE
- ⊕ CATCH BASIN
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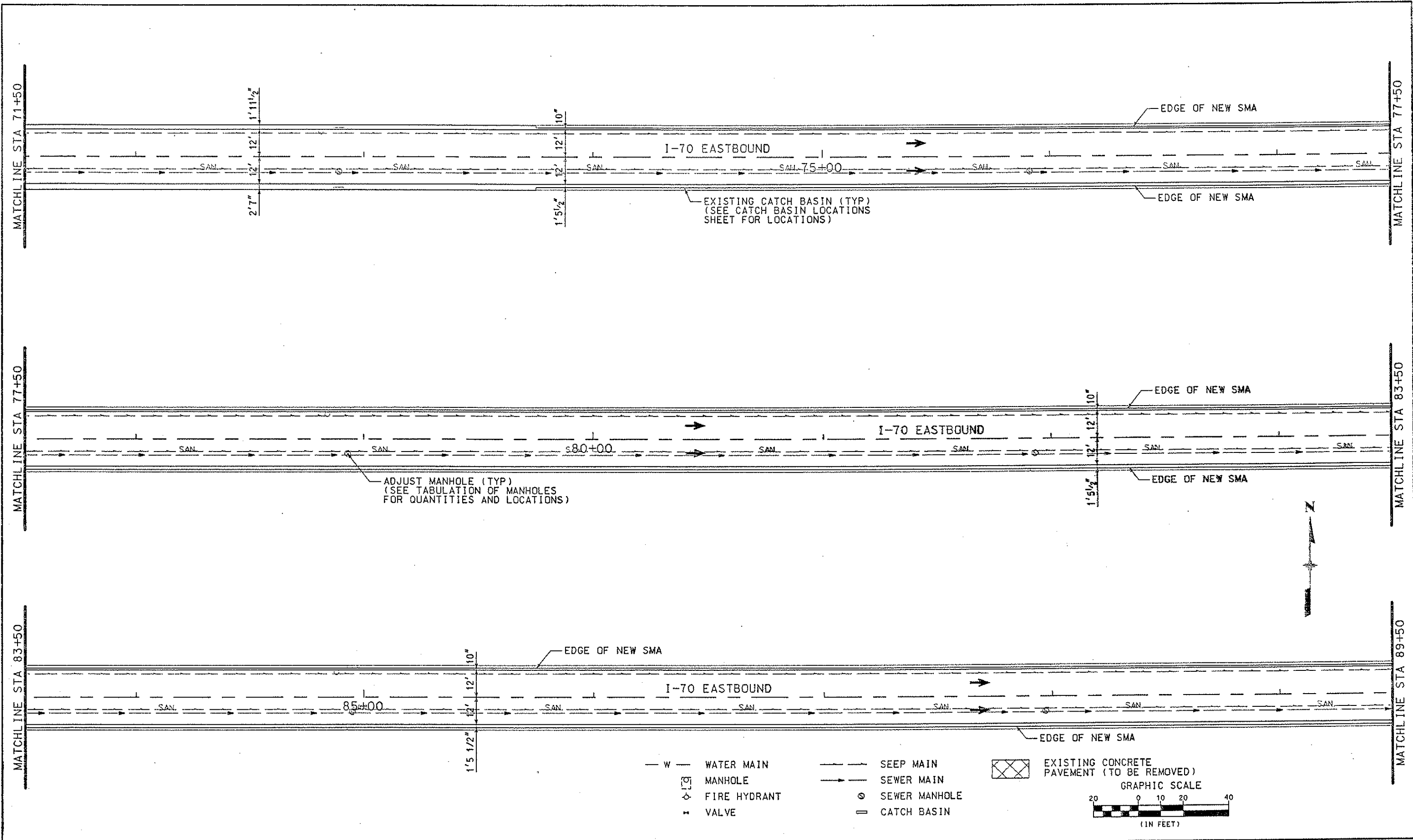


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Denver, Colorado 80237
Phone: 303-221-7275
Fax: 303-221-7276

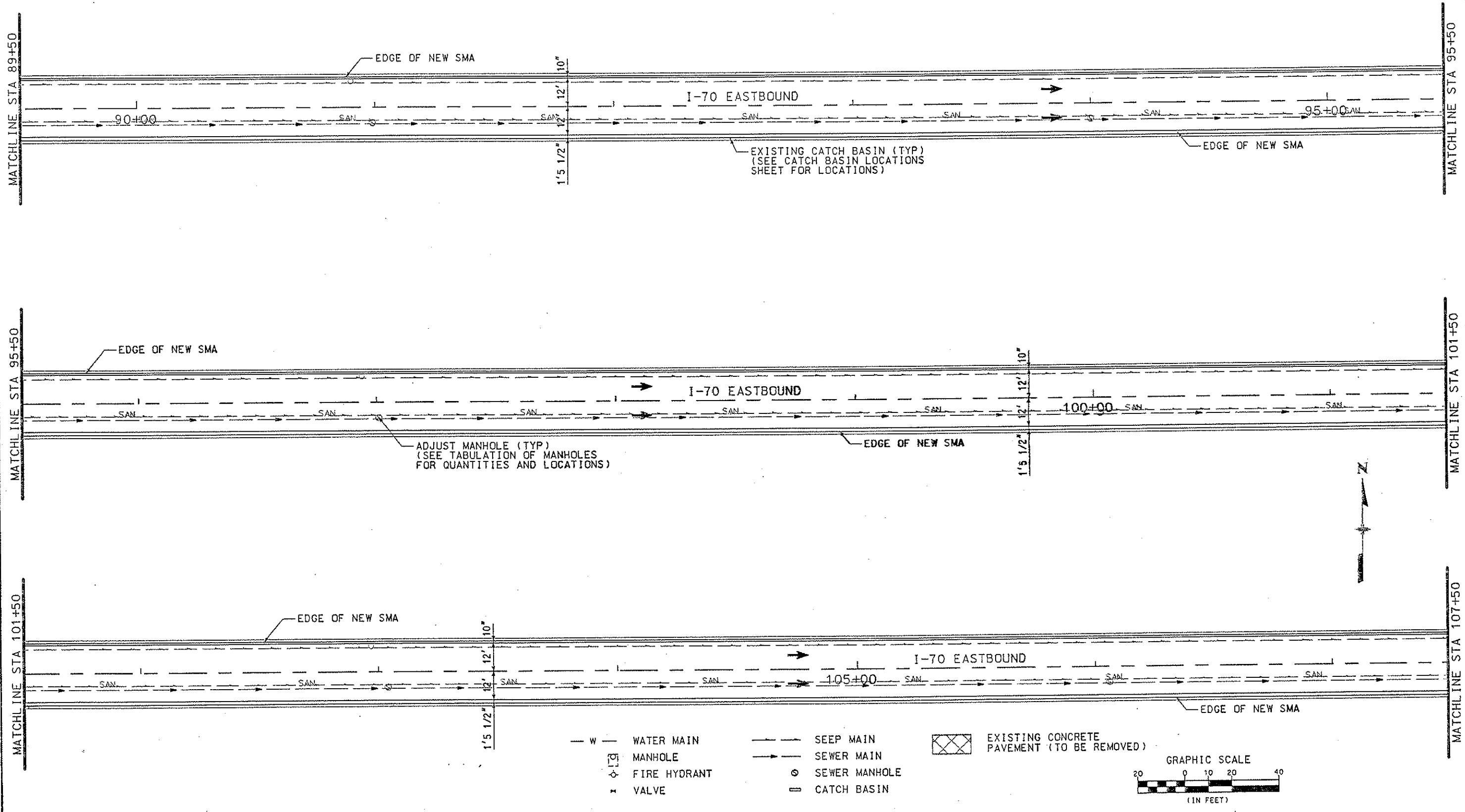
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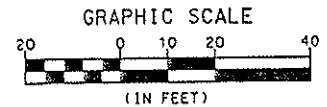
— W —	WATER MAIN	— — —	SEEP MAIN		EXISTING CONCRETE PAVEMENT (TO BE REMOVED)
	MANHOLE	— — —	SEWER MAIN		GRAPHIC SCALE
	FIRE HYDRANT		SEWER MANHOLE	20	0
	VALVE		CATCH BASIN	10	20
				40	
				(IN FEET)	

Computer File Information		Sheet Revisions		Colorado Department of Transportation		As Constructed		SOUTH BORE I-70 PLAN		Project No./Code	
Creation Date:	05/09/05	Initials:	MSJ					No Revisions: 7/2/2007		IM 0702-257	
Last Modification Date:	09/15/05	Initials:	MSJ					Designer:	MSJ	Structure Numbers:	F-13-X
Full Path:	S:\Tranpro\246202-06\HwyDes\Plans\							Revised:		Sheet Subset:	
Drawing File Name:	rdp109.dgn							Void:		Sheet Subset:	of
Scale: GRAPHIC		Units: ENGLISH		P.O. Box 399 Dumont, CO 80436 Phone: (303) 512-5750 Fax: (303) 512-5775		4601 DTC Boulevard Suite 700 Denver, Colorado 80237 Phone: 303-221-7275 Fax: 303-221-7276		REGION I MTN RESIDENCY		INZ	
Sheet Number: 35											

11:25:33 PM C:\Tranproj\246202-06\HwyDes\Plans\rdpl10.dgn 1/8/2006



- W — WATER MAIN
- SEEP MAIN
- MANHOLE
- SEWER MAIN
- ⊕ FIRE HYDRANT
- ⊙ SEWER MANHOLE
- ⊞ VALVE
- ▭ CATCH BASIN
- ▨ EXISTING CONCRETE PAVEMENT (TO BE REMOVED)

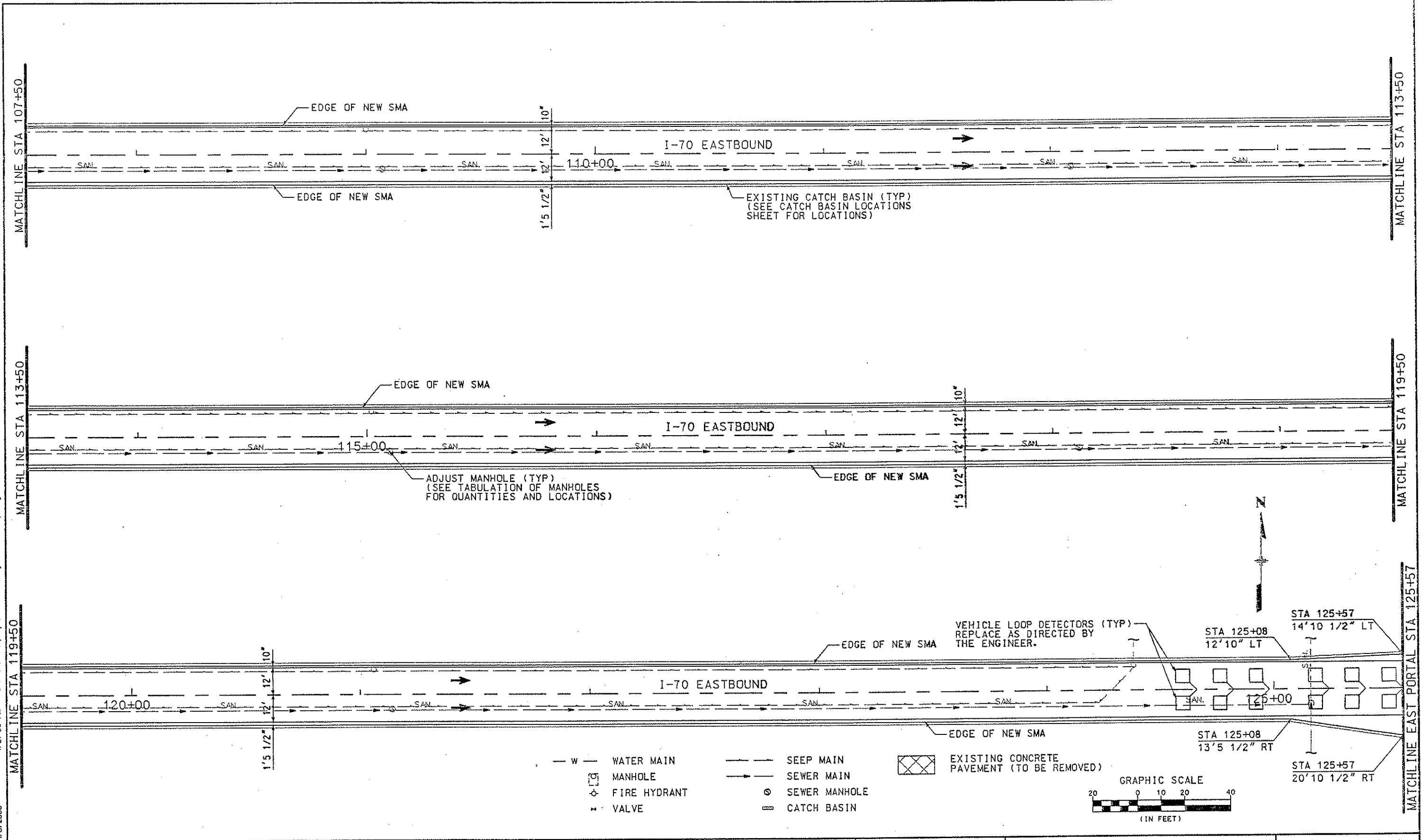


Computer File Information		Sheet Revisions		Colorado Department of Transportation		As Constructed		SOUTH BORE I-70 PLAN		Project No./Code	
Creation Date:	05/09/05	Initials:	MSJ				No Revisions:	7/2/2007		IM 0702-257	
Last Modification Date:	09/15/05	Initials:	MSJ				Revised:	Designer:	MSJ	Structure Numbers:	15195
Full Path:	S:\Tranproj\ 246202-06\HwyDes\Plans\						Void:	Detailer:	MSJ	Sheet Subset:	F-13-X
Drawing File Name:	rdpl10.dgn							Sheet Subset:		Sheet Subset:	of
Scale: GRAPHIC		Units: ENGLISH		REGION I MTN RESIDENCY		INZ				Sheet Number: 36	

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Phone: 303-221-7275
Fax: 303-221-7276

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Computer File Information	
Creation Date:	05/09/05 Initials: MSJ
Last Modification Date:	09/15/05 Initials: MSJ
Full Path:	S:\Tranproj\ 246202-06\HwyDes\Plans\
Drawing File Name:	rdpi11.dgn
Scale:	GRAPHIC Units: ENGLISH

Sheet Revisions	

Colorado Department of Transportation

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 Fax: (303) 512-5775

PBS&J 4601 DTC Boulevard
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 Phone: 303-221-7275
 Fax: 303-221-7276

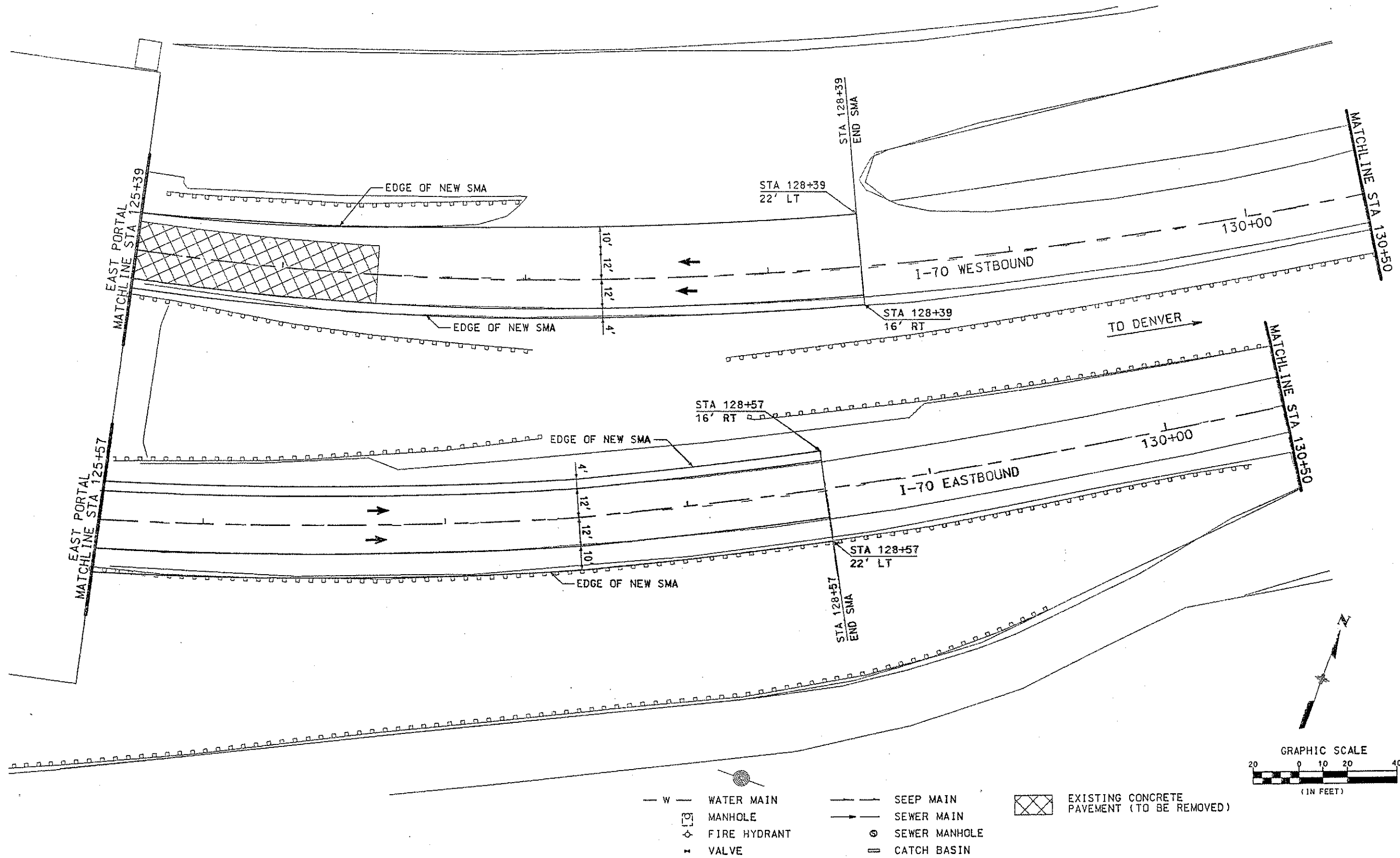
REGION I MTN RESIDENCY INZ

As Constructed	
No Revisions:	7/2/2007
Revised:	
Void:	

SOUTH BORE I-70 PLAN			
Designer:	MSJ	Structure Numbers:	F-13-X
Detailer:	MSJ	Sheet Subset:	
		Sheet Subset:	of

Project No./Code	
	IM 0702-257
	15195
Sheet Number:	37

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 1/15/2006

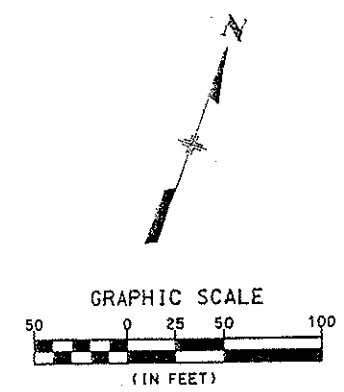
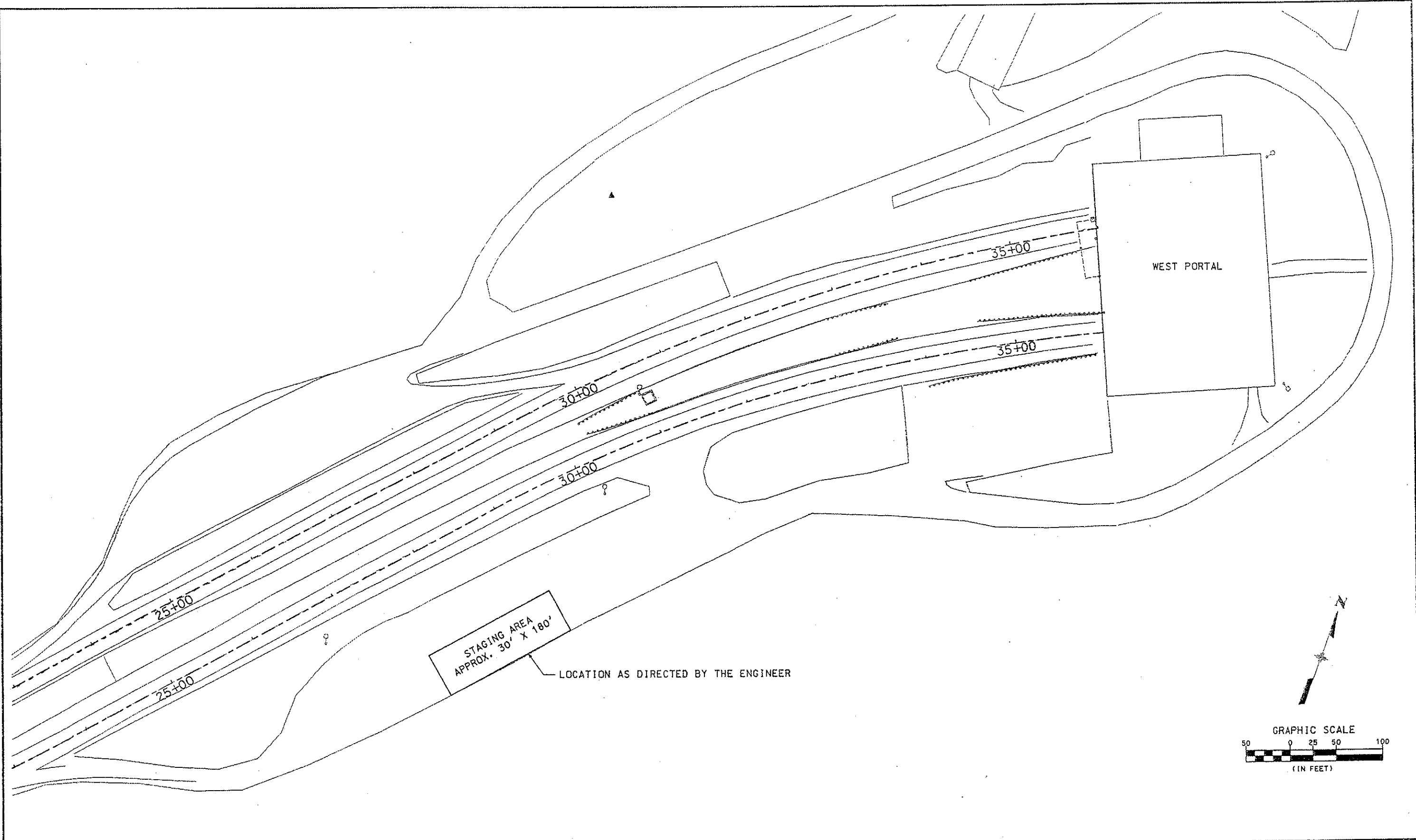


- W — WATER MAIN
- S — SEEP MAIN
- MANHOLE
- ◇ FIRE HYDRANT
- V VALVE
- S — SEWER MAIN
- SEWER MANHOLE
- ▭ CATCH BASIN
- ▨ EXISTING CONCRETE PAVEMENT (TO BE REMOVED)

Computer File Information		Sheet Revisions		Colorado Department of Transportation		As Constructed		APPROACH TO EAST PORTAL		Project No./Code			
Creation Date:	05/09/05 Initials: MSJ			P.O. Box 399 Durant, CO 80436 Phone: (303) 512-5750 Fax: (303) 512-5775		No Revisions: 7/2/2007		I-70 PLAN		IM 0702-257			
Last Modification Date:	09/15/05 Initials: MSJ					Revised:		Designer: MSJ		Structure Numbers		15195	
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1/8/2006

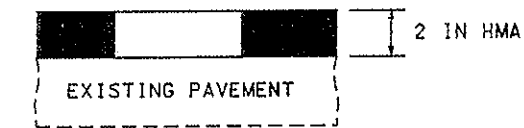
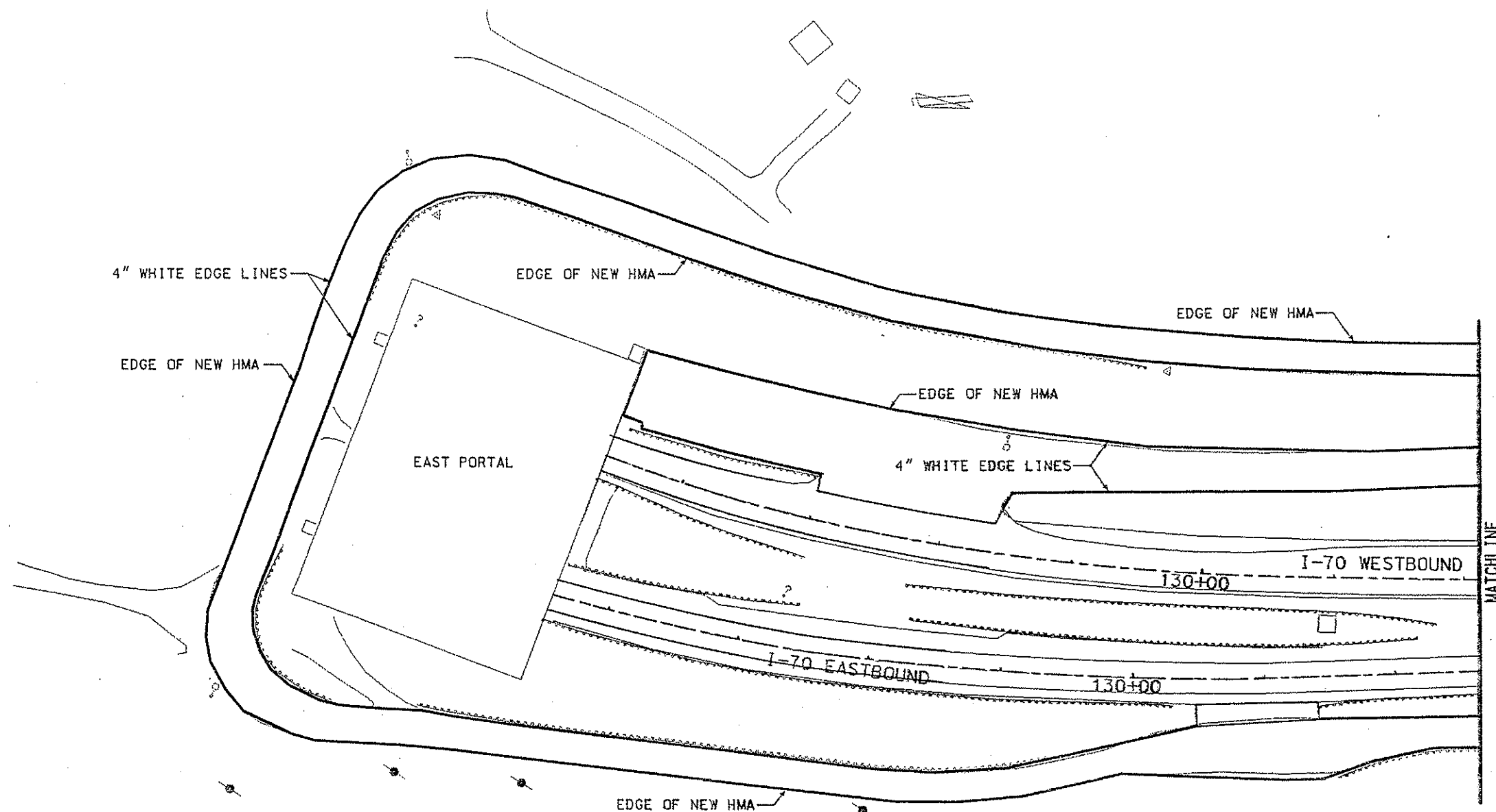


Computer File Information		Sheet Revisions		Colorado Department of Transportation		As Constructed		WEST PARKING AREA PLAN		Project No./Code	
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Last Modification Date:		Initials:					Revised:		Designer:	MSJ	Structure Numbers:
Full Path:	S:\Tranproj\246202-06\HwyDes\Plans\								Detailer:	MSJ	
Drawing File Name:	rdpl14.dgn								Sheet Subset:		Sheet Subset: of
Scale:	GRAPHIC										Sheet Number: 40
				P.O. Box 399 Durango, CO 80436 Phone: (303) 512-5750 Fax: (303) 512-5775		4601 DTC Boulevard Suite 700 Denver, Colorado 80237 Phone: 303-221-7275 Fax: 303-221-7276		REGION I MTN RESIDENCY INZ			

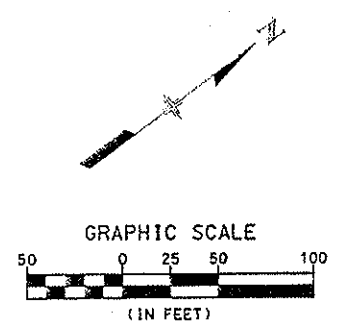
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1/8/2006

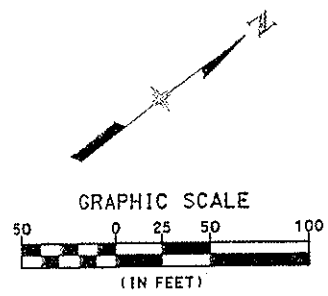
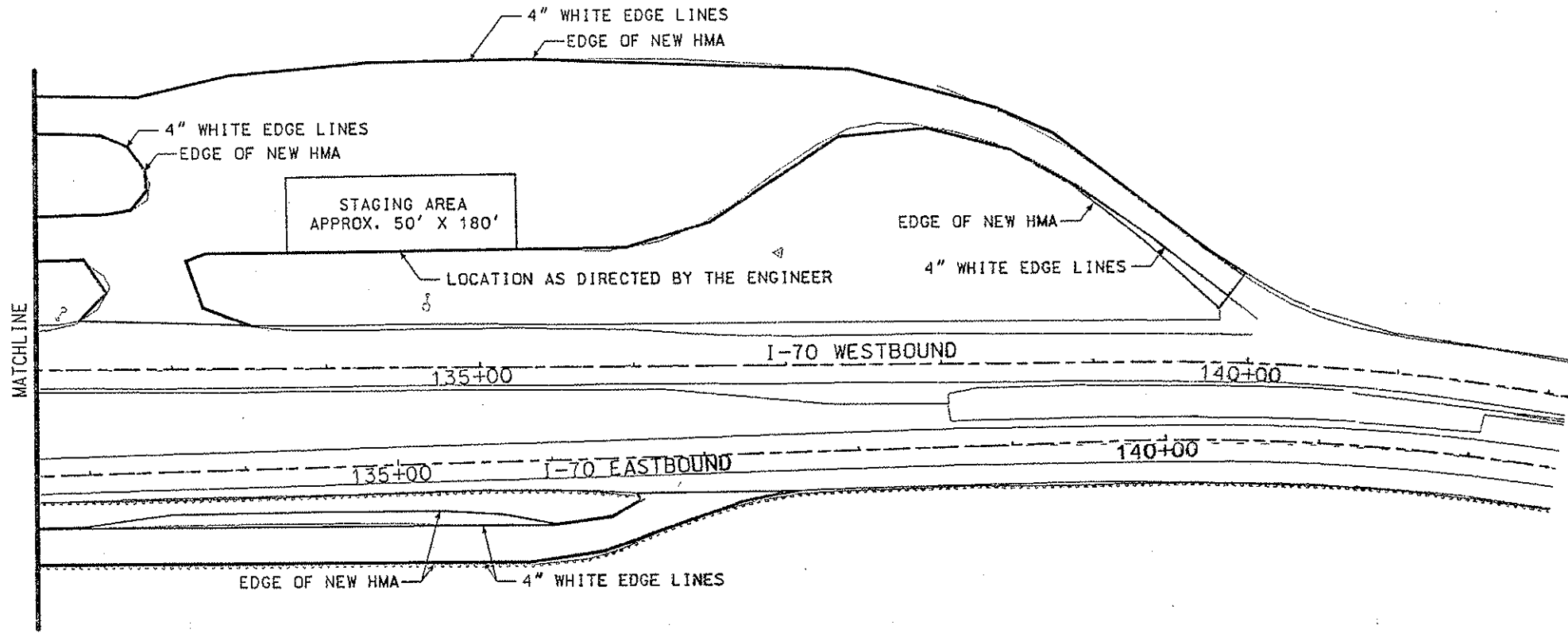


PARKING AREA
PAVEMENT SECTION




Computer File Information		Sheet Revisions		Colorado Department of Transportation		As Constructed		EAST PARKING AREA PLAN		Project No./Code	
Creation Date:	09/18/05 Initials: MSJ			 P.O. Box 399 Canon, CO 80436 Phone: (303) 512-5750 Fax: (303) 512-5775	 4601 DTC Boulevard Suite 700 Denver, Colorado 80237 Phone: 303-221-7275 Fax: 303-221-7276	No Revisions: 7/2/2007		Designer: MSJ		IM 0702-257	
Last Modification Date:	Initials:					Revised:		Detailer: MSJ		15195	
Full Path:	S:\Tranpro\246202-06\HwyDes\Plans\					Void:		Sheet Subset:		Sheet Number: 41	
Drawing File Name:	rdpl15.dgn					REGION I MTN RESIDENCY INZ		Sheet Subset: of			
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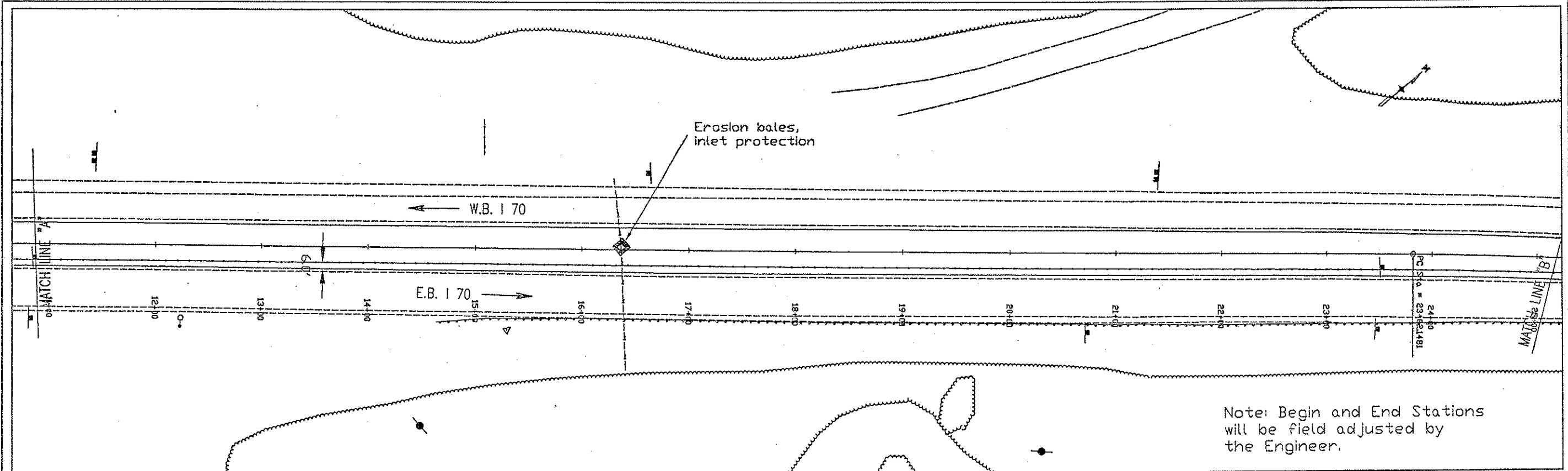
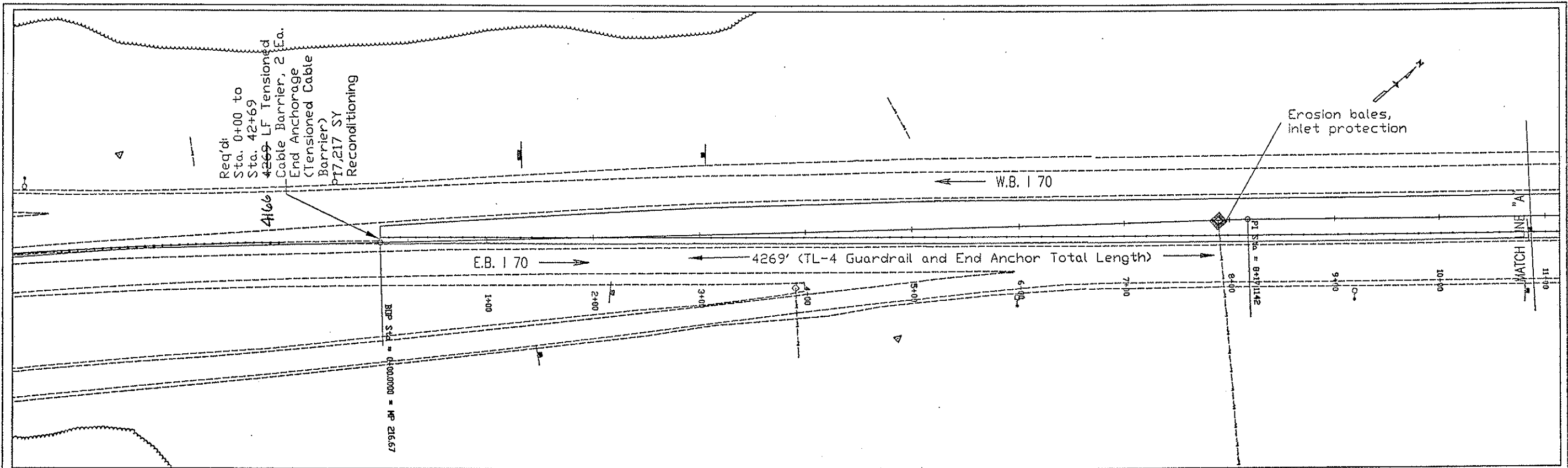


EXISTING PAVEMENT 2 IN HMA
PARKING AREA PAVEMENT SECTION

Computer File Information		Sheet Revisions		Colorado Department of Transportation		As Constructed		EAST PARKING AREA PLAN		Project No./Code	
Creation Date:	09/18/05	Initials:	MSJ				No Revisions:	7/21/2007			IM 0702-257
Last Modification Date:		Initials:					Revised:		Designer:	MSJ	Structure Numbers
Full Path:	S:\Tranproj\ 246202-06\HwyDes\Plans\								Detailer:	MSJ	
Drawing File Name:	rdpl16.dgn								Sheet Subset:		Sheet Subset: of
Scale: GRAPHIC		Units: ENGLISH		REGION I MTN RESIDENCY INZ		Void:				Sheet Number: 42	

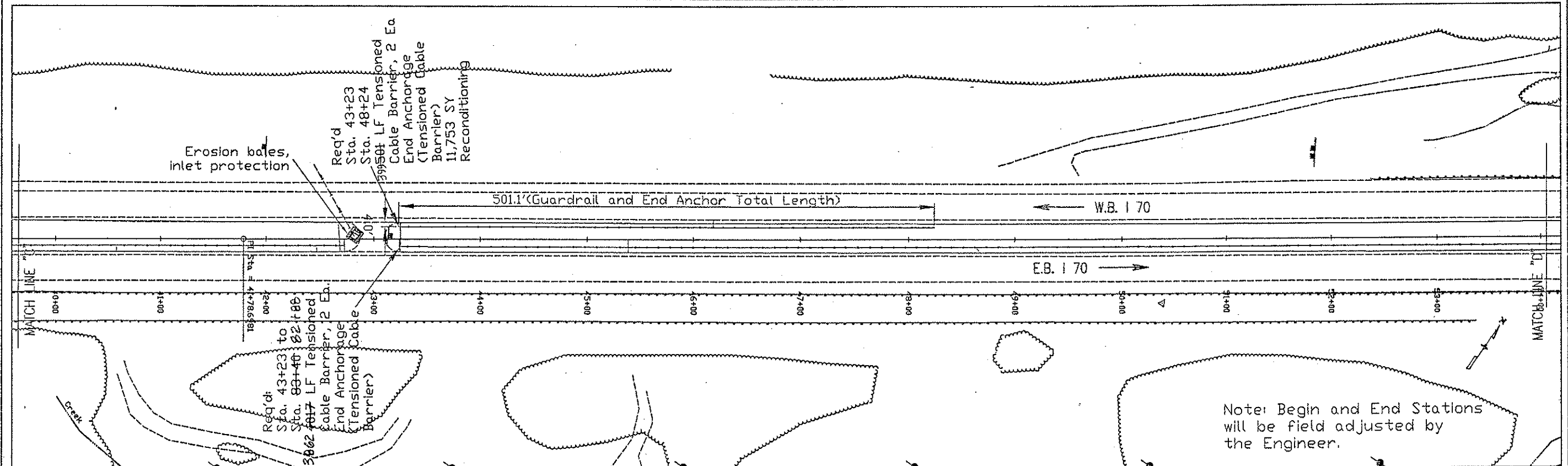
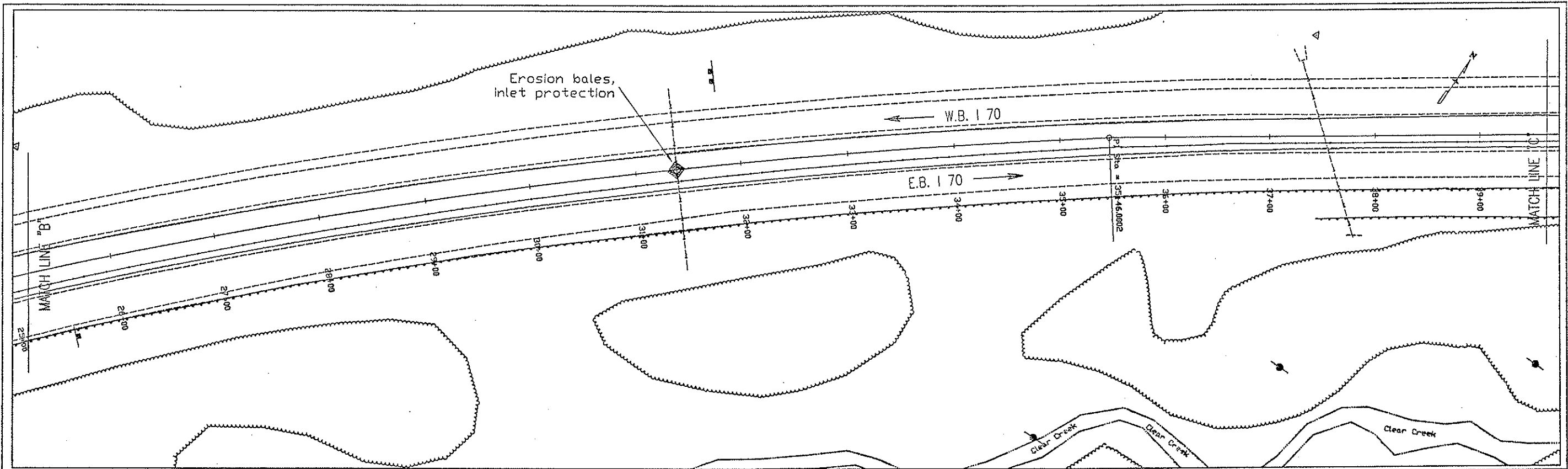

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 Suite 700
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 Fax: 303-221-7276



Note: Begin and End Stations will be field adjusted by the Engineer.


Computer File Information		Sheet Revisions		Colorado Department of Transportation		As Constructed		Project No./Code	
Creation Date:	08/30/05	Initials:	TW					IM 0702-257	
Last Modification Date:	12/27/05	Initials:	TPW					15195	
Full Path:	\\EJMT Tunnel Resurfacing\Cablerail design							Sheet Number 43	
Drawing File Name:	Roadway plansheets								
Acad Ver.	2004	Scale:	1:100	Units:	English				
				Region 1 - Mountain Residency INZ		Revised: 7/2/2007		GUARDRAIL LAYOUT	
				PO Box 399 Dumont, CO 80498 Phone: (303) 512-5750 FAX: (303) 512-5775		No Revisions:		Designer: TW	
				Region 1 - Mountain Residency INZ		Void:		Detailer: BRL	
								Structure Numbers	
								Sheet Subset: Roadway	
								Subset Sheets: 1 of 9	



Computer File Information	
Creation Date:	08/30/05 Initials: TW
Last Modification Date:	12/27/05 Initials: TPW
Full Path:	\\EJMT Tunnel Resurfacing\Cablerail design
Drawing File Name:	Roadway plansheets.dwg
Acad Ver.	2004 Scale: 1:100 Units: English

Sheet Revisions	

Colorado Department of Transportation



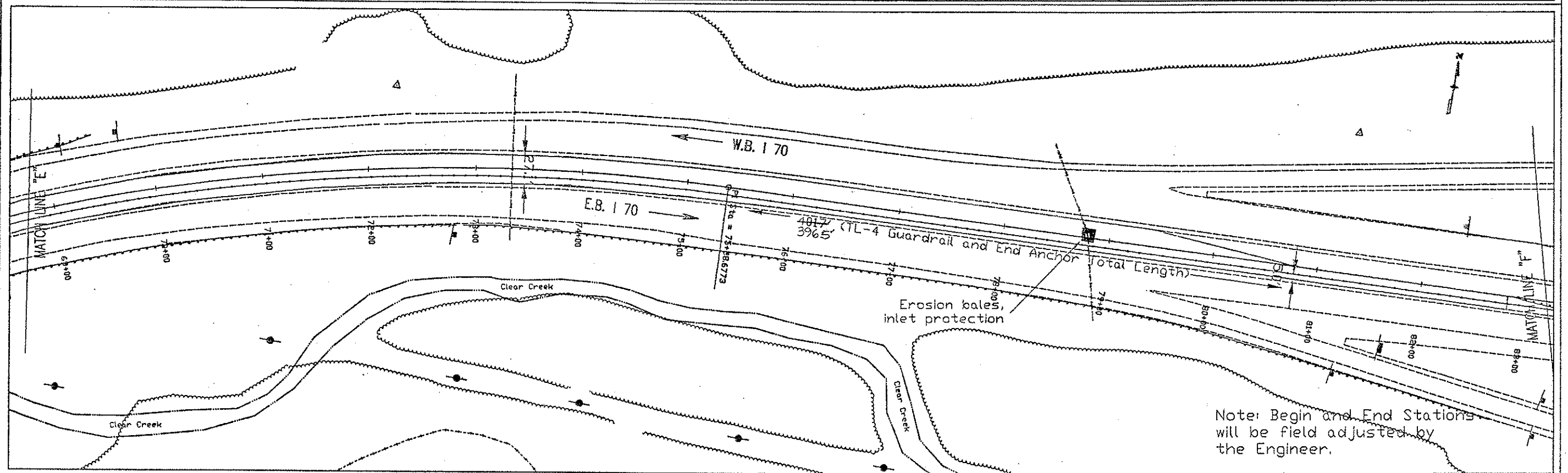
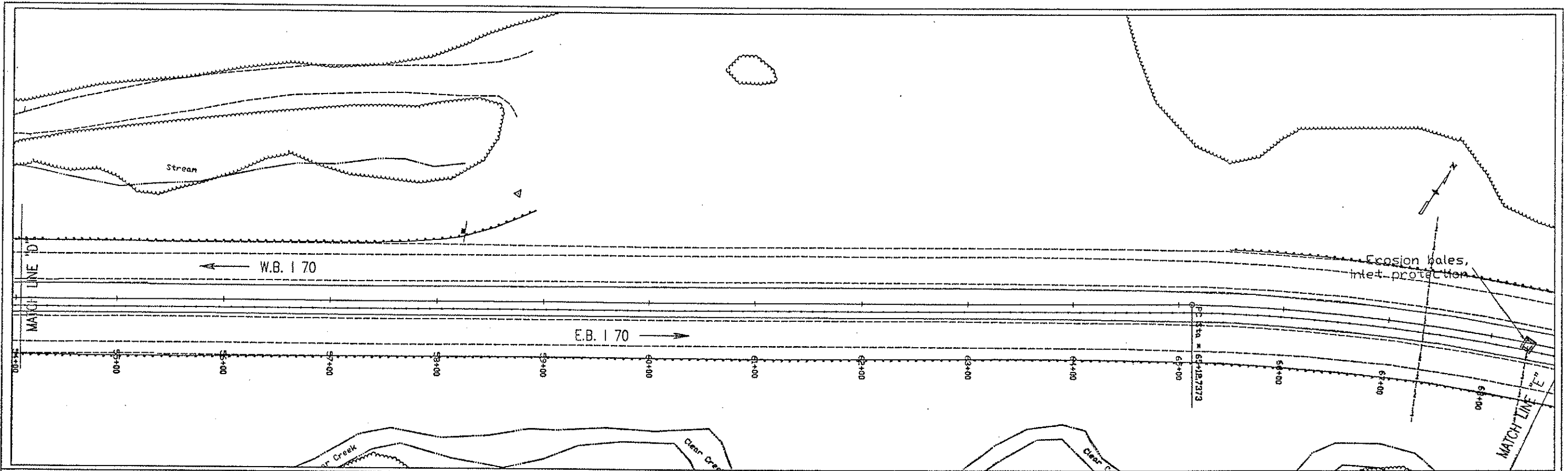
PO Box 399
Dumont, CO 80436
Phone: (303) 512-5750 FAX: (303) 512-5775

Region 1 - Mountain Residency INZ


As Constructed
No Revisions:
Revised: 7/2/2007
Void:

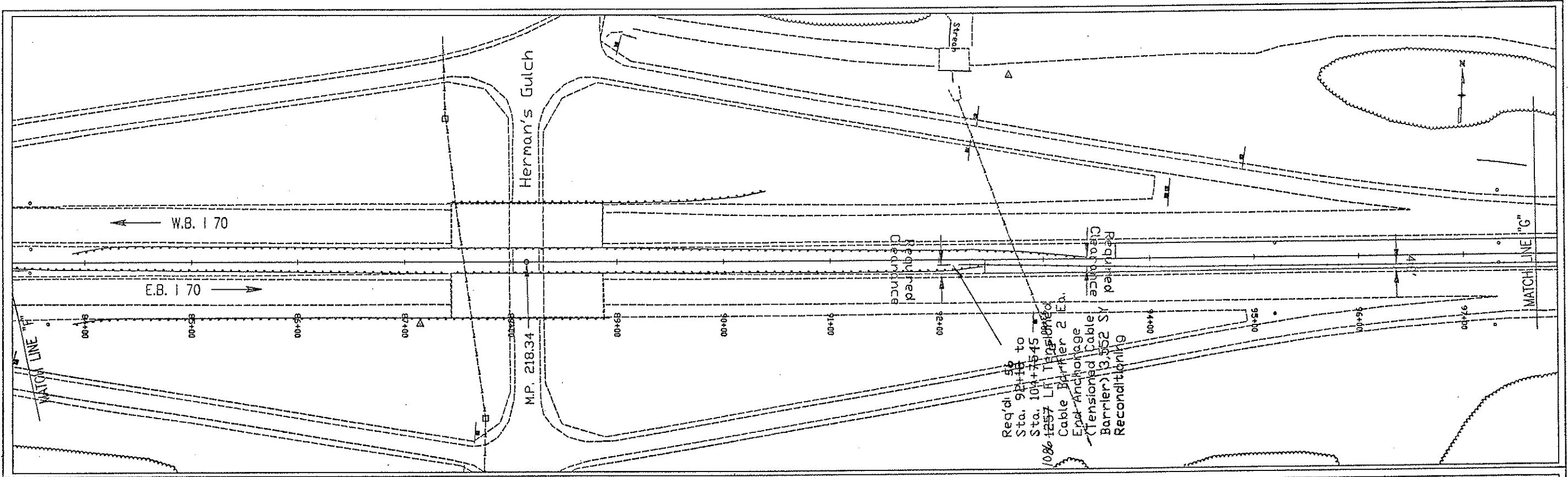
GUARDRAIL LAYOUT	
Designer: TW	Structure Numbers
Detailer: BRL	
Sheet Subset: Roadway	Subset Sheets: 2 of 9

Project No./Code	
IM 0702-257	
15195	
Sheet Number	44

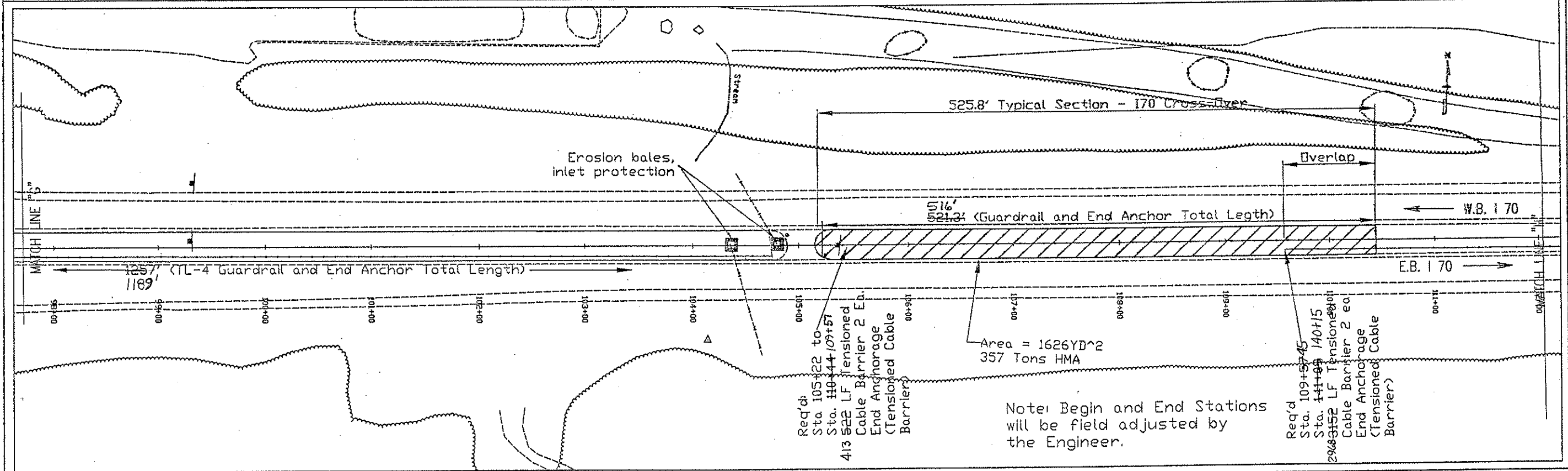


Note: Begin and End Stations will be field adjusted by the Engineer.

Computer File Information Creation Date: 08/30/05 Initials: TW Last Modification Date: 12/27/05 Initials: TPW Full Path: \\EJMT Tunnel Resurfacing\Cable rail design Drawing File Name: Roadway plansheets.dwg Acad Ver. 2004 Scale: 1:100 Units: English		Sheet Revisions <table border="1"> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </table>														Colorado Department of Transportation  Po Box 399 Dumont, CO 80436 Phone: (303) 512-5750 FAX: (303) 512-5775 Region 1 - Mountain Residency INZ		As Constructed No Revisions: Revised: 7/2/2007 Void:		GUARDRAIL LAYOUT Designer: TW Detailer: BRL Sheet Subset: Roadway Structure Numbers: Subset Sheets: 3 of 9		Project No./Code IM 0702-257 15195 Sheet Number 45	



Req'd
Sta. 92+16 to
Sta. 104+75.45
10% LF Tensioned
Cable Barrier 2 Ea.
End Anchorage
(Tensioned Cable
Barrier) 3,552 SY
Reconditioning



Req'd
Sta. 105+22 to
Sta. 110+44.05+57
413 522 LF Tensioned
Cable Barrier 2 Ea.
End Anchorage
(Tensioned Cable
Barrier)

Area = 1626YD²
357 Tons HMA


Note: Begin and End Stations
will be field adjusted by
the Engineer.

Req'd
Sta. 109+57.45
Sta. 111+05.140+15
2968 5152 LF Tensioned
Cable Barrier 2 ea
End Anchorage
(Tensioned Cable
Barrier)

Computer File Information	
Creation Date:	08/30/05 Initials: TW
Last Modification Date:	12/27/05 Initials: TPW
Full Path:	\\EJMT Tunnel Resurfacing\Cable rail design
Drawing File Name:	Roadway plansheets.dwg
Acad Ver.	2004 Scale: 1:100 Units: English

Sheet Revisions	

Colorado Department of Transportation



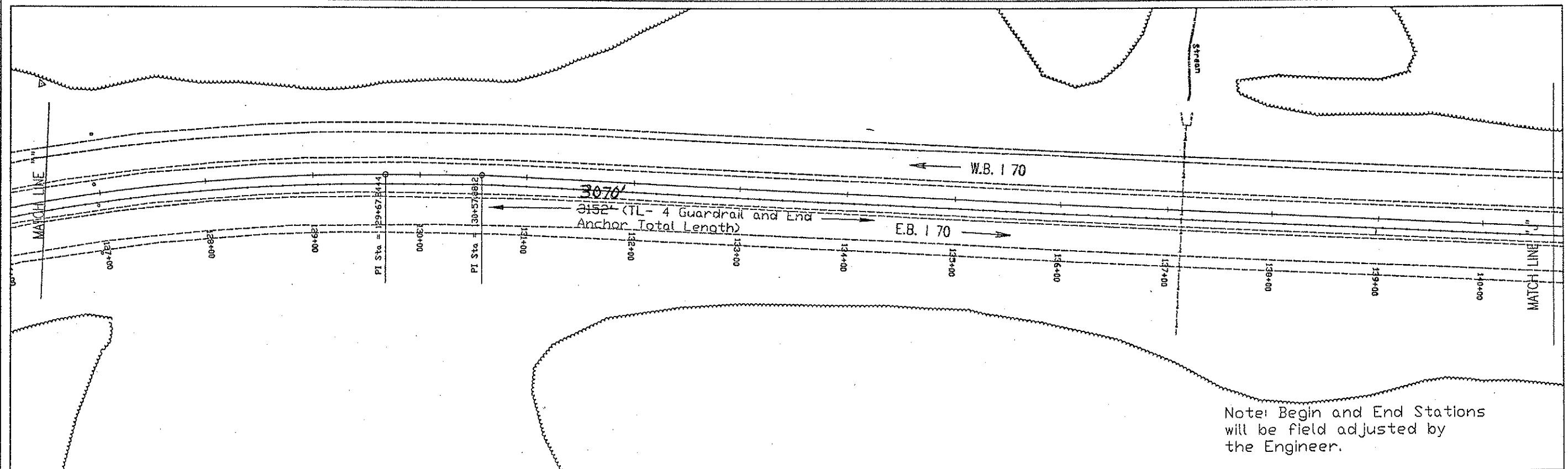
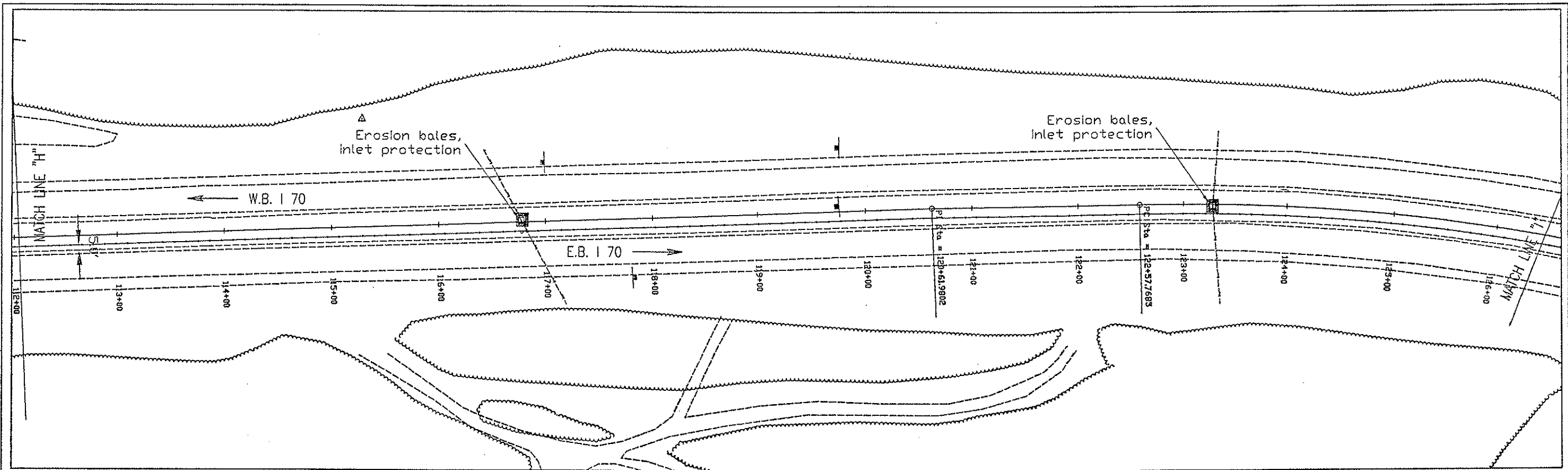
PO Box 399
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Region 1 - Mountain Residency INZ

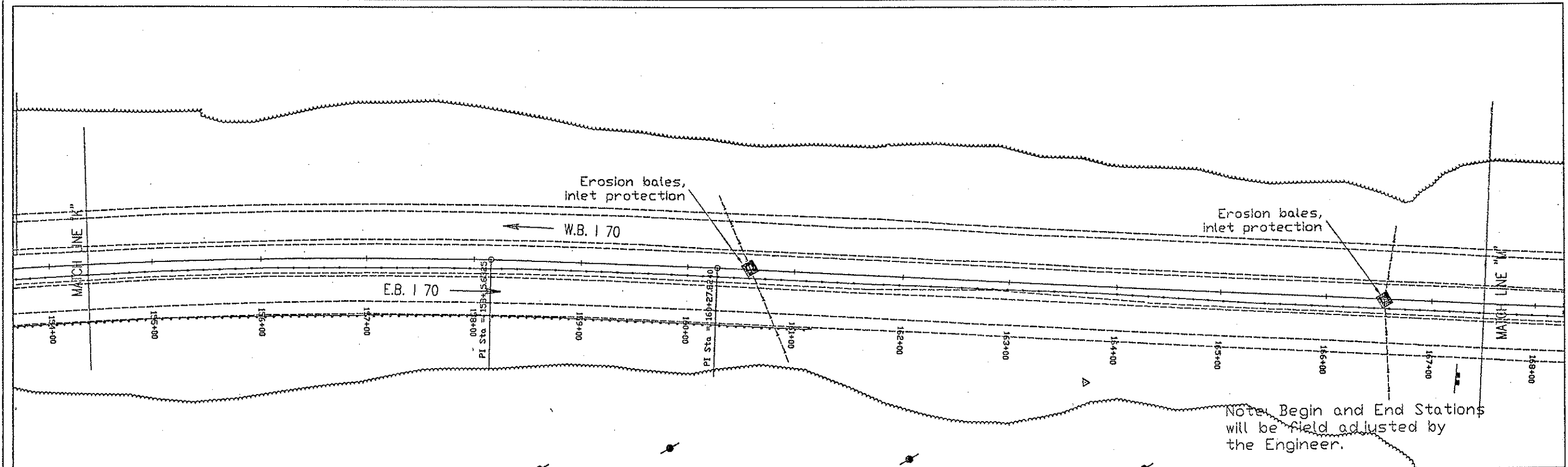
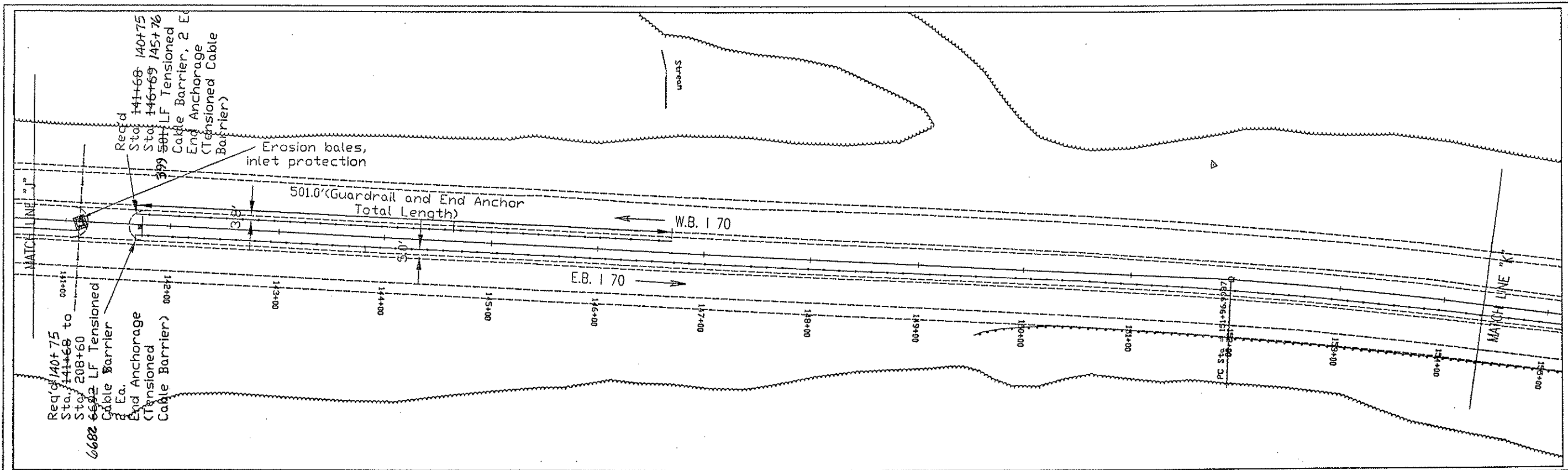
As Constructed
No Revisions:
Revised: 7/2/2007
Void:

GUARDRAIL LAYOUT		
Designer: TW	Structure Numbers:	
Detailer: BRL		
Sheet Subset: Roadway	Subset Sheets: 4 of 9	

Project No./Code	
IM 0702-257	
15195	
Sheet Number	46




Computer File Information Creation Date: 08/30/05 Initials: TW Last Modification Date: 12/27/05 Initials: TPW Full Path: \\EJMT Tunnel Resurfacing\Cable rail design Drawing File Name: Roadway plansheets.dwg Acad Ver. 2004 Scale: 1:100 Units: English		Sheet Revisions <table border="1"> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </table>										Colorado Department of Transportation  PO Box 399 Dumont, CO 80436 Phone: (303) 512-5750 FAX: (303) 512-5775 Region 1 - Mountain Residency INZ		As Constructed No Revisions: Revised: 7/2/2007 Void:		GUARDRAIL LAYOUT Designer: TW Detailer: BRL Sheet Subset: Roadway Structure Numbers: Subset Sheets: 5 of 9		Project No./Code IM 0702-257 15195 Sheet Number 47	



Note: Begin and End Stations will be field adjusted by the Engineer.

Computer File Information	
Creation Date:	08/30/05 Initials: TPW
Last Modification Date:	12/27/05 Initials: TPW
Full Path:	\\EJMT Tunnel Resurfacing\Cable rail design
Drawing File Name:	Roadway plansheets
Acad Ver.	2004 Scale: 1:100 Units: English

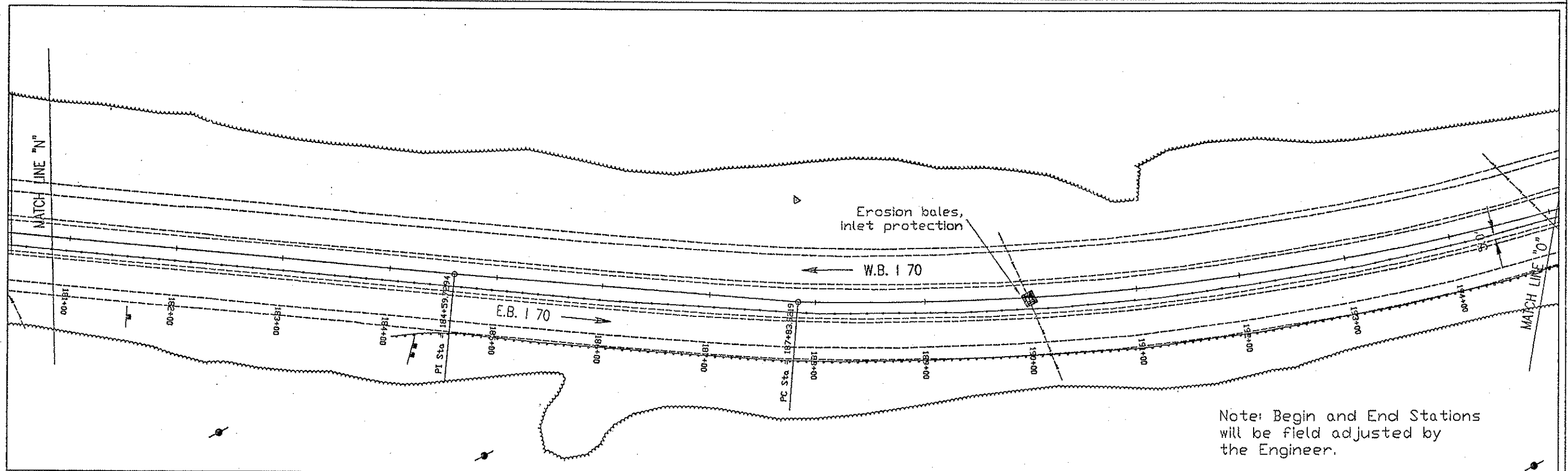
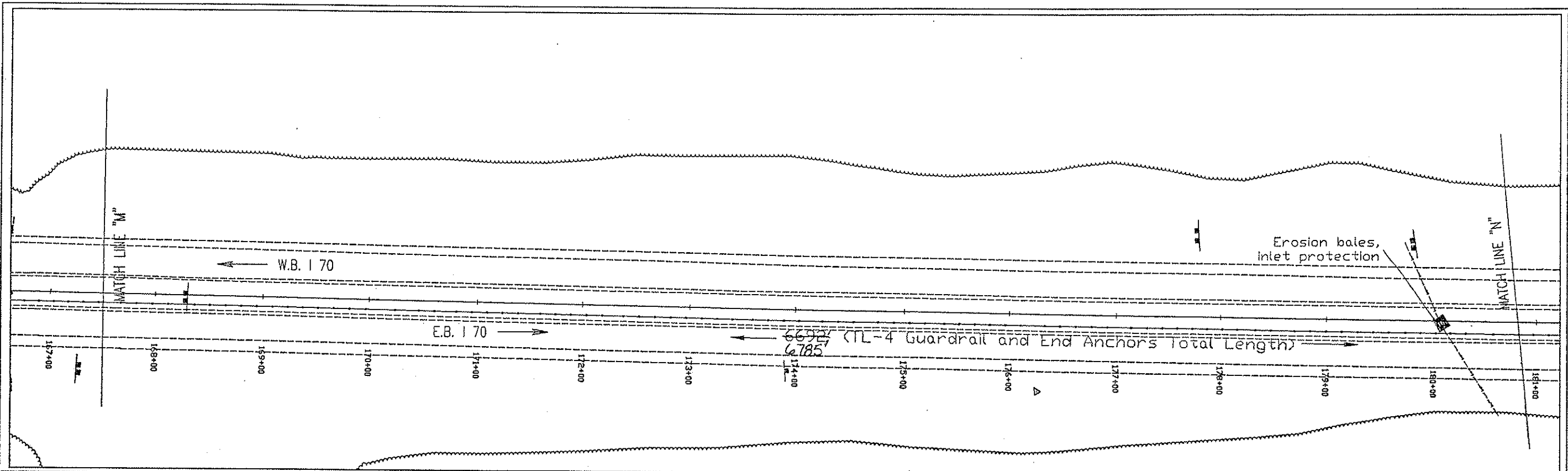
Sheet Revisions	


Colorado Department of Transportation

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 Phone: (303) 512-5750 FAX: (303) 512-5775
 Region 1 - Mountain Residency INZ

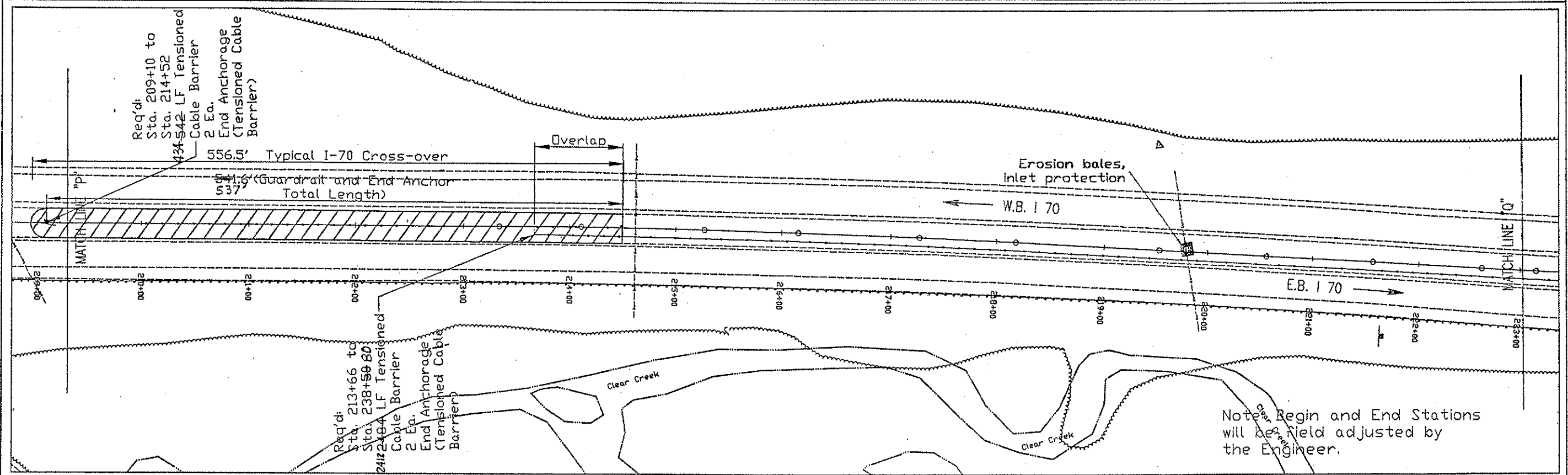
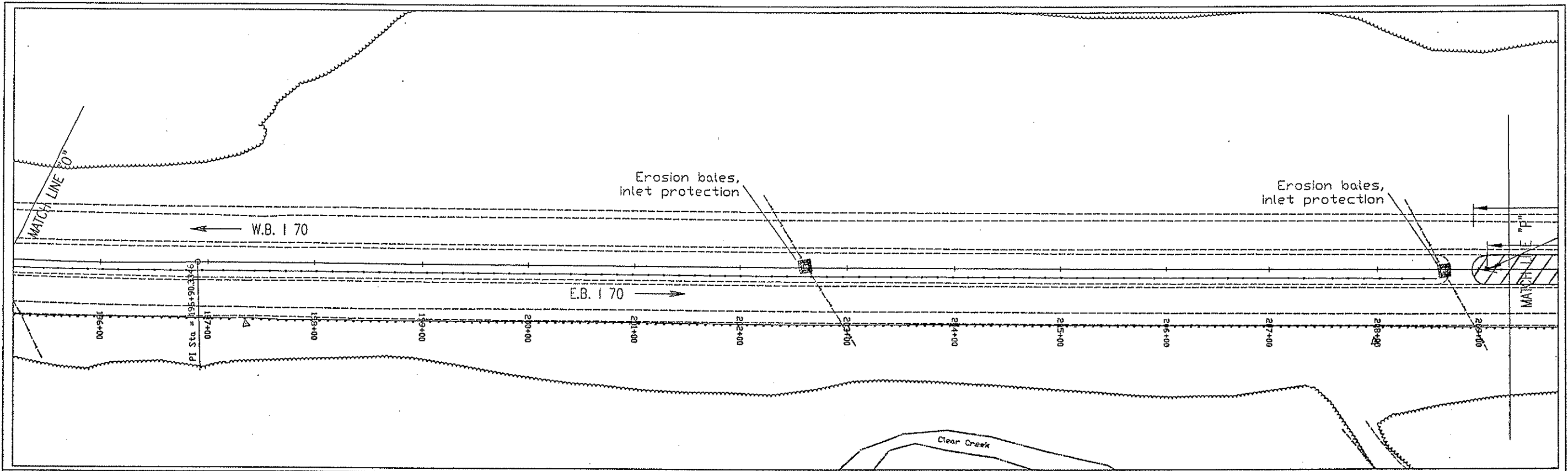
As Constructed
No Revisions:
Revised: 7/2/2007
Void:

GUARDRAIL LAYOUT	
Designer: TW	Structure Numbers
Detailer: BRL	
Sheet Subset: Roadway	Subset Sheets: 6 of 9

Project No./Code
IM 0702-257
15195
Sheet Number 48



Computer File Information Creation Date: 08/30/05 Initials: TW Last Modification Date: 12/27/05 Initials: TPW Full Path: \\EJMT Tunnel Resurfacing\Cable rail design Drawing File Name: Roadway plansheets Acad Ver. 2004 Scale: 1:100 Units: English		Sheet Revisions <table border="1"> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </table>										Colorado Department of Transportation  PO Box 399 Dumont, CO 80438 Phone: (303) 512-5750 FAX: (303) 512-5775 Region 1 - Mountain Residency INZ		As Constructed No Revisions: Revised: 7/2/2007 Void:		GUARDRAIL LAYOUT Designer: TW Detailer: BRL Sheet Subset: Roadway Structure Numbers: Subset Sheets: 7 of 9		Project No./Code IM 0702-257 15195 Sheet Number 49	



Req'd:
Sta. 209+10 to
Sta. 214+52
434' LF Tensioned
Cable Barrier
2 Ea.
End Anchorage
(Tensioned Cable
Barrier)

556.5' Typical I-70 Cross-over
541.6' (Guardrail and End Anchor
Total Length)
537'

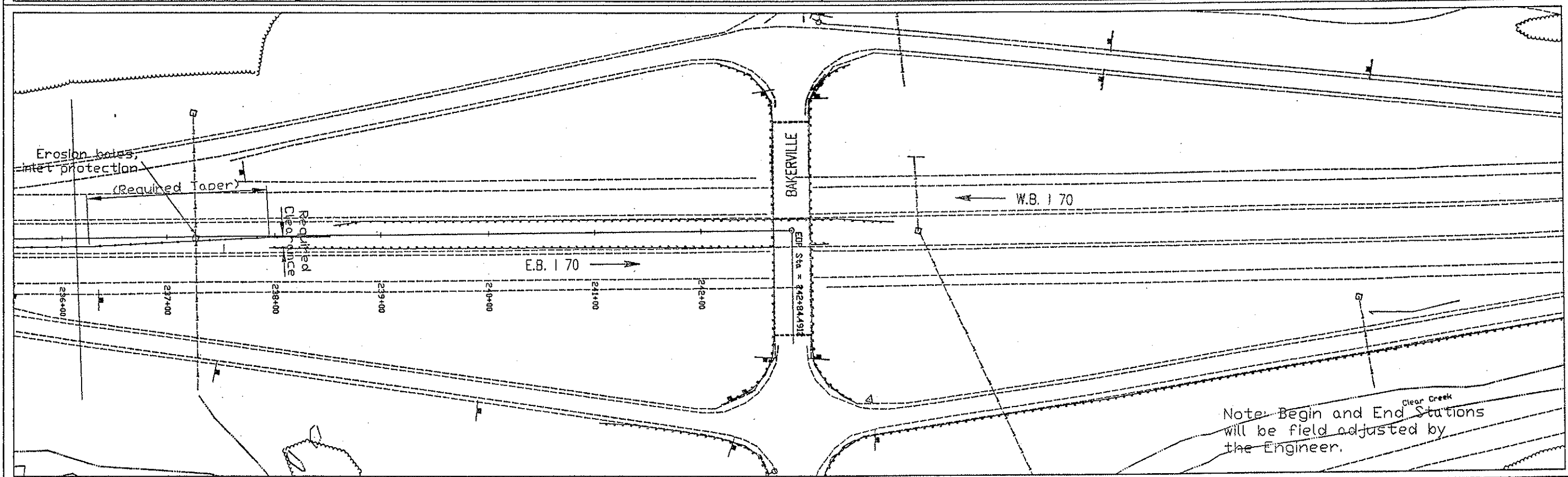
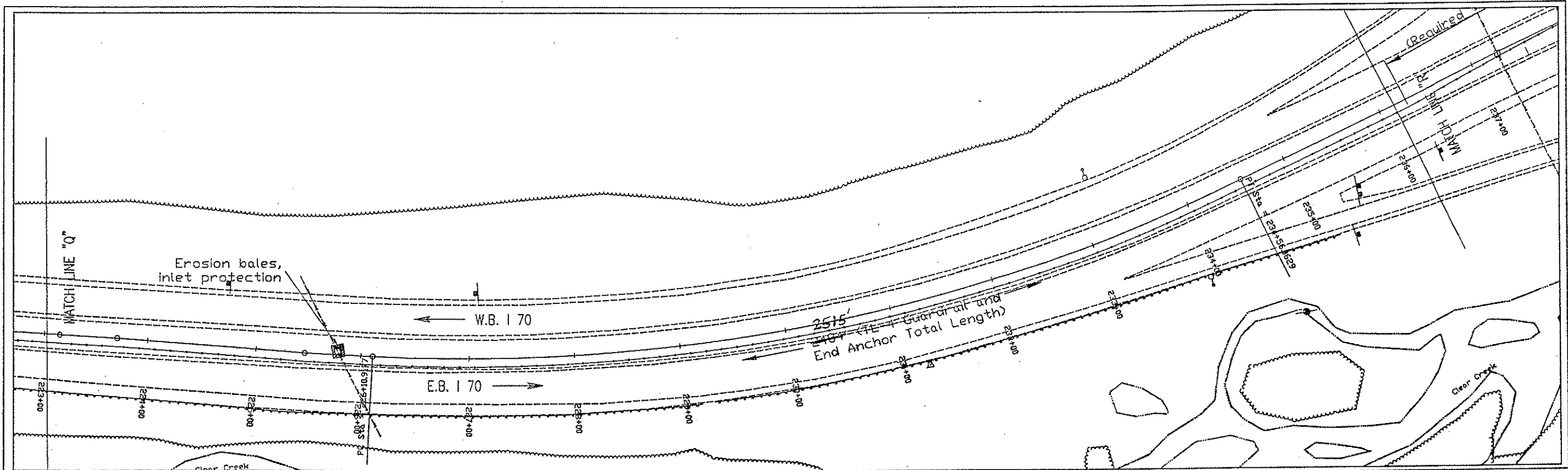
Req'd:
Sta. 213+66 to
Sta. 238+50
2412' LF Tensioned
Cable Barrier
2 Ea.
End Anchorage
(Tensioned Cable
Barrier)


Note: Begin and End Stations
will be field adjusted by
the Engineer.

Computer File Information		Sheet Revisions		Colorado Department of Transportation		As Constructed		GUARDRAIL LAYOUT		Project No./Code	
Creation Date:	08/30/05	Initials:	TW				No Revisions:				IM 0702-257
Last Modification Date:	12/27/05	Initials:	TPW				Revised:	7/2/2007	Designer:	TW	Structure
Full Path:	\\EJMT Tunnel Resurfacing\Cable rail design						Void:		Detailer:	BRL	Numbers
Drawing File Name:	Roadway plansheets								Sheet Subset:	Roadway	Subset Sheets:
Acad Ver.	2004	Scale:	1:100	Units:	English						8 of 9
						Region 1 - Mountain Residency	INZ				Sheet Number
											50

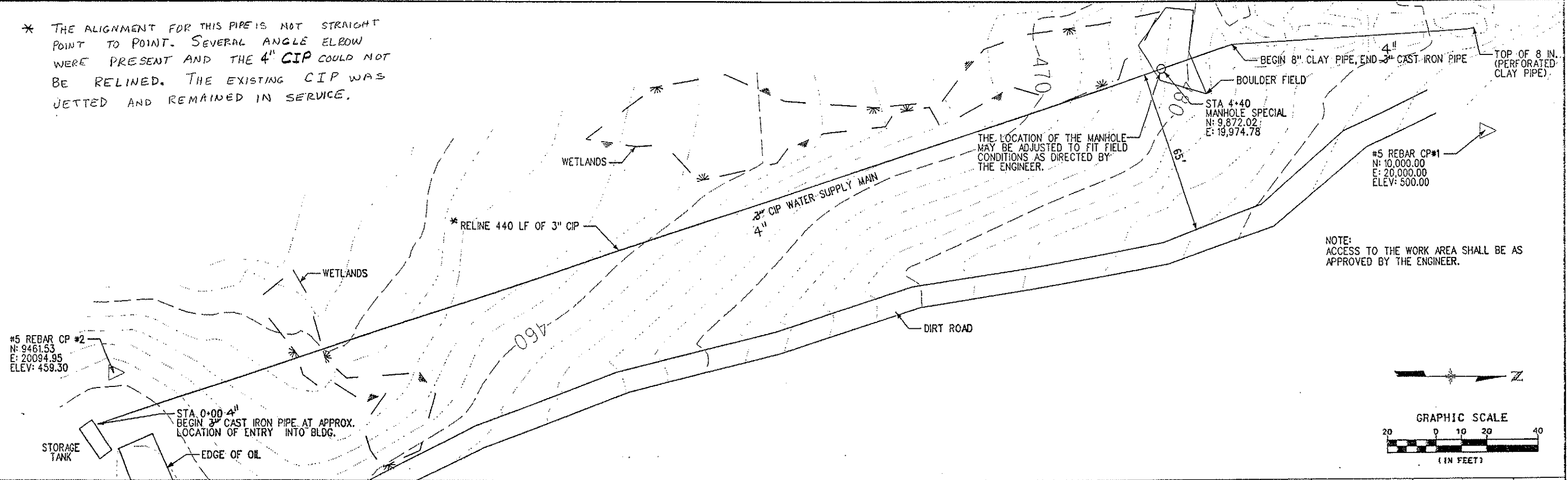


PO Box 399
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Phone: (303) 512-5750 FAX: (303) 512-5775

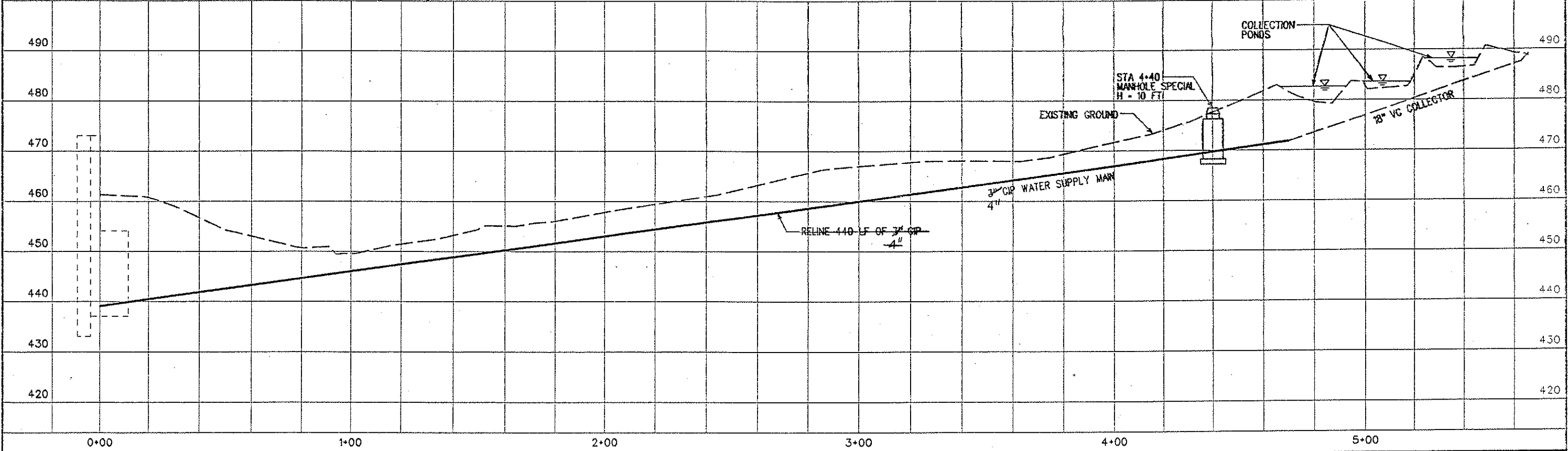


Computer File Information Creation Date: 08/30/05 Initials: TW Last Modification Date: 12/27/05 Initials: TPW Full Path: \\EJMT Tunnel Resurfacing\Cable rail design Drawing File Name: Roadway plansheets Acad Ver. 2004 Scale: 1:100 Units: English		Sheet Revisions <table border="1"> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </table>										Colorado Department of Transportation  PO BOX 399 Dumont, CO 80436 Phone: (303) 512-5750 FAX: (303) 512-5775 Region 1 - Mountain Residency INZ		As Constructed No Revisions: Revised: 7/2/2007 Void:		GUARDRAIL LAYOUT Designer: TW Detailer: BRL Sheet Subset: Roadway Structure Numbers: Subset Sheets: 9 of 9		Project No./Code IM 0702-257 15195 Sheet Number 51	

* THE ALIGNMENT FOR THIS PIPE IS NOT STRAIGHT POINT TO POINT. SEVERAL ANGLE ELBOW WERE PRESENT AND THE 4" CIP COULD NOT BE RELINED. THE EXISTING CIP WAS JETTED AND REMAINED IN SERVICE.

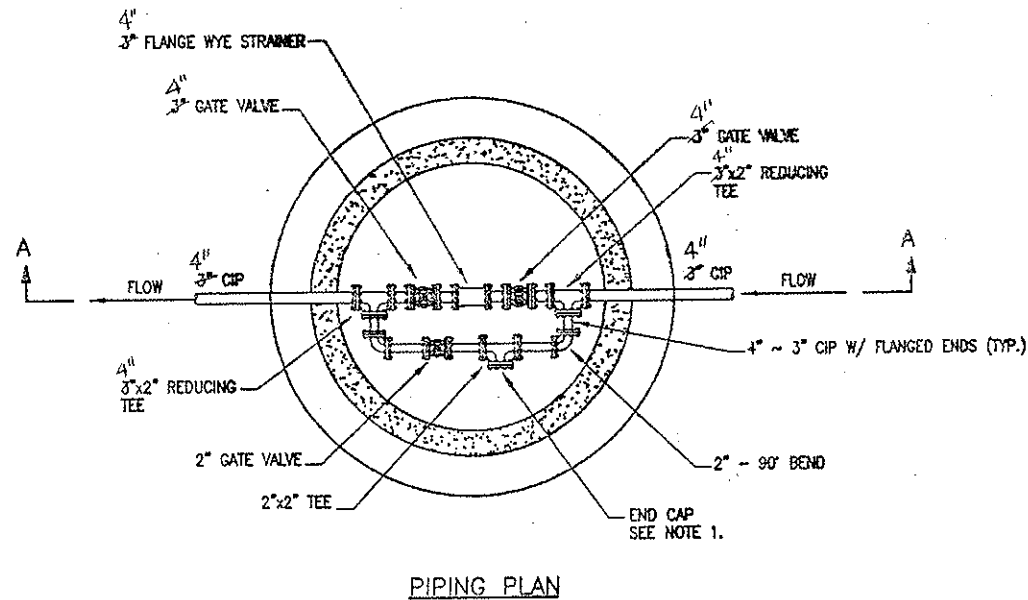
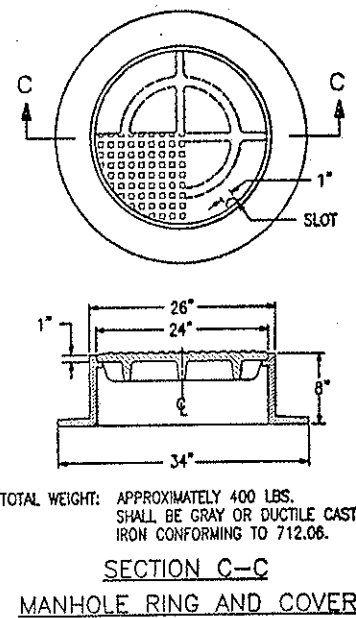
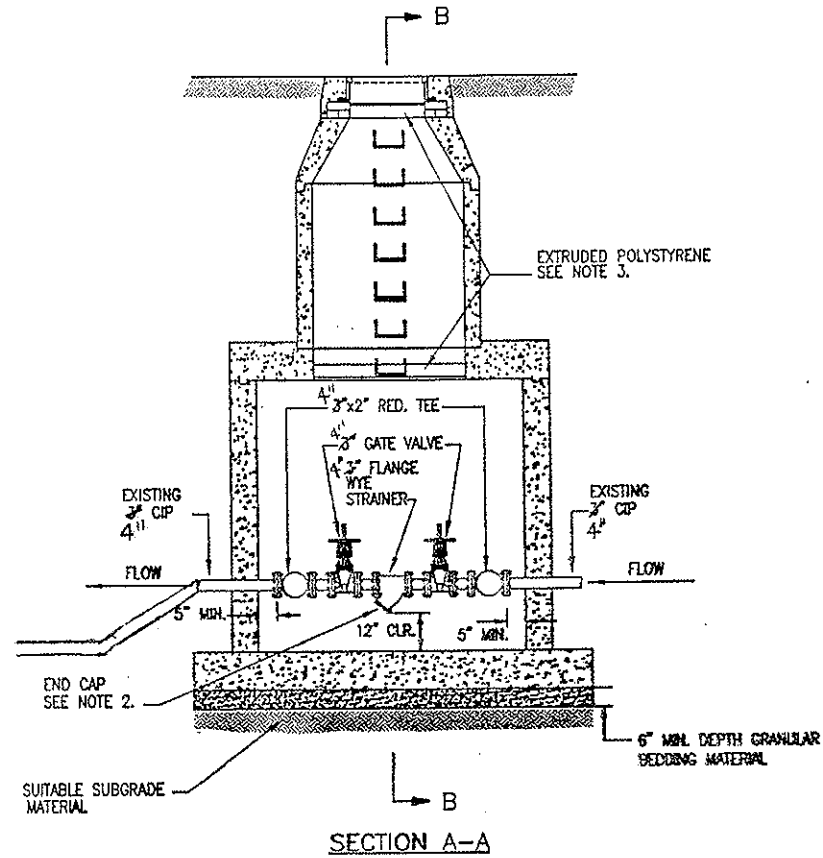
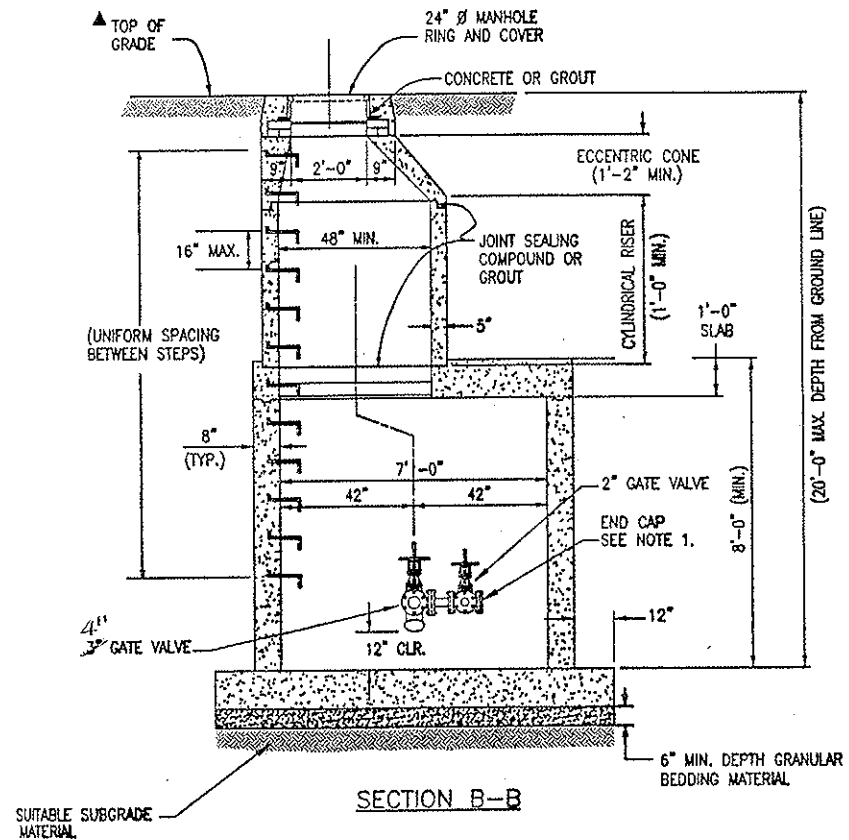


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Computer File Information Creation Date: 05/09/05 Initials: MSJ Last Modification Date: 07/26/05 Initials: MSJ Full Path: S:\Tranpro\246202-06\HwyDes\Plans\wpp01.dgn Drawing File Name: wpp01.dgn Scale: GRAPHIC Units: ENGLISH		Sheet Revisions <table border="1"> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </table>										Colorado Department of Transportation P.O. Box 399 Dumont, CO 80436 Phone: (303) 512-5750 Fax: (303) 512-5775 REGION I MTN RESIDENCY INZ		As Constructed No Revisions: Revised: 7/2/2007 Void:		3 INCH WATER SUPPLY PLAN AND PROFILE Designer: MSJ Detailer: MSJ Sheet Subset: of		Project No./Code IM 0702-257 15195 Sheet Number: 52	

1/9/2006 4:19:55 AM S:\Tranpro\246202-06\HwyDes\Plans\wpp01.dgn




NOTES:


1. PROVIDE QUICK CONNECT FOR COMPRESSED AIR HOOK-UP WITH CHECK VALVE.
2. PROVIDE 1 INCH DIAMETER THREADED NIPPLE AND 1 INCH BALL VALVE FOR DRAINING THE STRAINER.
3. EXTRUDED POLYSTYRENE SHALL BE INSTALLED WHERE SHOWN TO PROVIDE THERMAL INSULATION. CONTRACTOR SHALL PROVIDE A METHOD OF REMOVAL FOR TESTING AND MAINTENANCE.

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1/9/2006

Computer File Information		Sheet Revisions		Colorado Department of Transportation		As Constructed		MANHOLE SPECIAL DETAIL		Project No./Code	
Creation Date:	05/09/05 Initials: MSJ						No Revisions:			IM 0702-257	
Last Modification Date:	Initials:						Revised: 7/2/2007	Designer: MSJ	Structure:	15195	
Full Path:	S:\Tranproj\ 246202-06\HwyDes\Plans\							Detailer: MSJ	Numbers:	Sheet Number: 53	
Drawing File Name:	wldt01.dgn						Void:	Sheet Subset:	of		
Scale:	NTS										
	Units: ENGLISH										


 P.O. Box 399
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 Phone: (303) 512-5750
 Fax: (303) 512-5775


 4601 DTC Boulevard
 Suite 700
 Denver, Colorado 80237
 Phone: 303-221-7275
 Fax: 303-221-7276

REGION I MTN RESIDENCY INZ

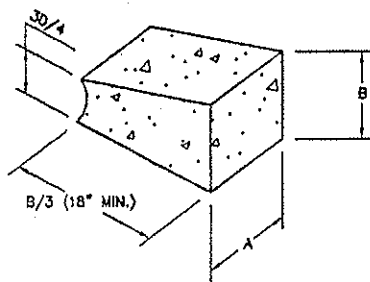
MINIMUM DIMENSIONS FOR THRUST BLOCKS

FITTING SIZE	TEES & PLUGS		90° BEND		45° BENDS & WYES	
	A	B	A	B	A	B
4"	1'-7"	1'-2"	1'-9"	1'-6"	1'-8"	0'-10"
6"	2'-0"	1'-11"	2'-5"	2'-2"	1'-10"	1'-7"
8"	2'-8"	2'-6"	3'-2"	3'-0"	2'-5"	2'-1"
10"	3'-4"	3'-3"	4'-0"	3'-10"	3'-0"	2'-9"
12"	4'-0"	3'-10"	4'-8"	4'-8"	3'-8"	3'-3"
14"	5'-5"	3'-10"	6'-6"	4'-11"	4'-9"	3'-5"
20"	5'-0"	5'-0"	6'-0"	6'-0"	5'-0"	4'-0"
24"	6'-0"	6'-0"	7'-0"	7'-0"	5'-0"	5'-0"
30"	7'-6"	7'-6"	8'-0"	8'-0"	6'-3"	6'-3"

FITTING SIZE	REDUCERS & 22 1/2° BENDS		11 1/4° BENDS	
	A	B	A	B
4"	1'-7"	0'-6"	0'-6"	0'-6"
6"	1'-9"	0'-10"	1'-0"	0'-6"
8"	1'-9"	1'-6"	1'-0"	1'-0"
10"	2'-2"	1'-11"	1'-6"	1'-0"
12"	2'-7"	2'-3"	2'-0"	1'-0"
14"	3'-5"	2'-5"	2'-0"	1'-6"
20"	3'-6"	3'-0"	3'-0"	2'-0"
24"	4'-6"	3'-0"	3'-0"	3'-0"
30"	4'-9"	4'-6"	3'-3"	3'-3"

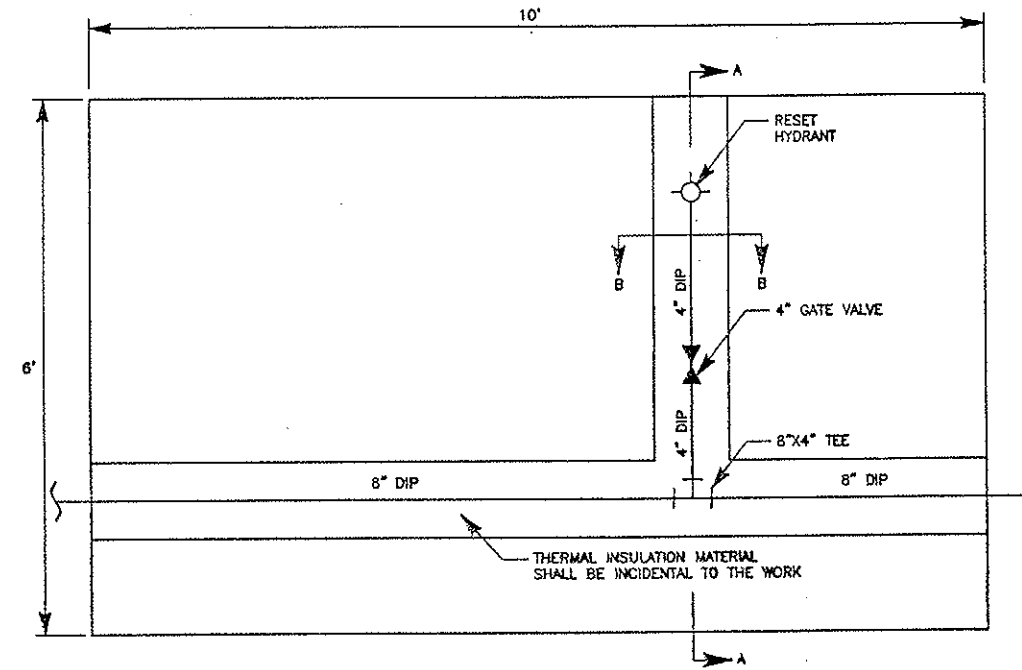
GENERAL NOTES:

1. BEARING SURFACE AREAS SHOWN IN CHART ARE MINIMUM.
2. BASED ON 150 P.S.I. INTERNAL PIPE PRESSURE.
3. SOIL BEARING CAPACITY = 2000 LB./SQ. FT.
4. ALL FITTINGS TO BE WRAPPED WITH POLYETHYLENE (MINIMUM 8 MIL).
5. ALL CONCRETE FOR THRUST BLOCKS AND CONCRETE BLOCK HYDRANT SUPPORTS SHALL BE CLASS B.

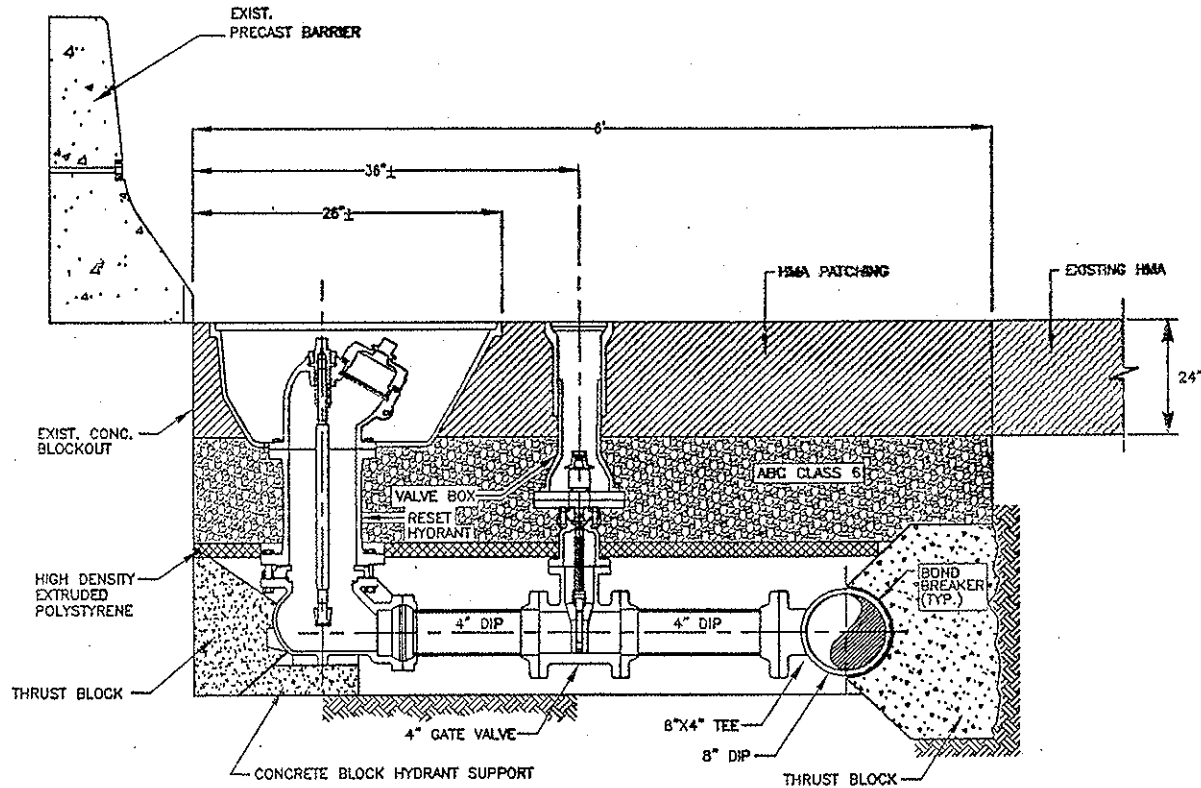


NOT TO SCALE

THRUST BLOCK DETAIL

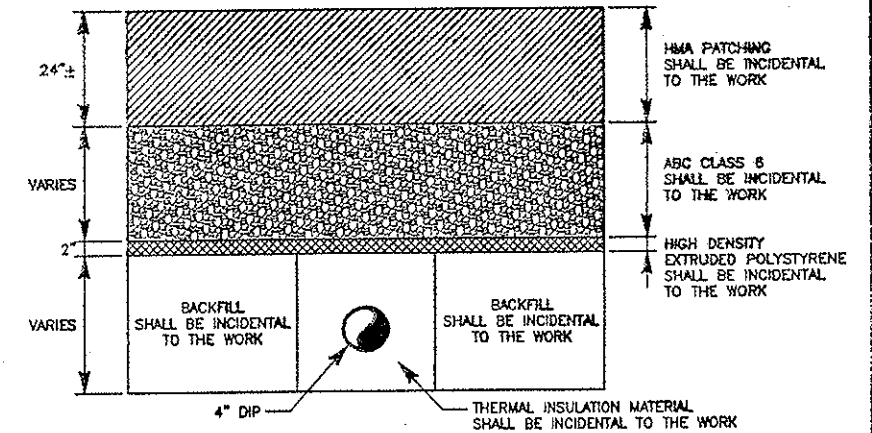


PLAN FIRE HYDRANT ACCESS PIT



A-A RESET FIRE HYDRANT DETAIL

FIRE HYDRANT ASSEMBLIES INCLUDING TEES, VALVES AND DIP SHALL BE ENCASED IN THERMAL INSULATION MATERIAL.

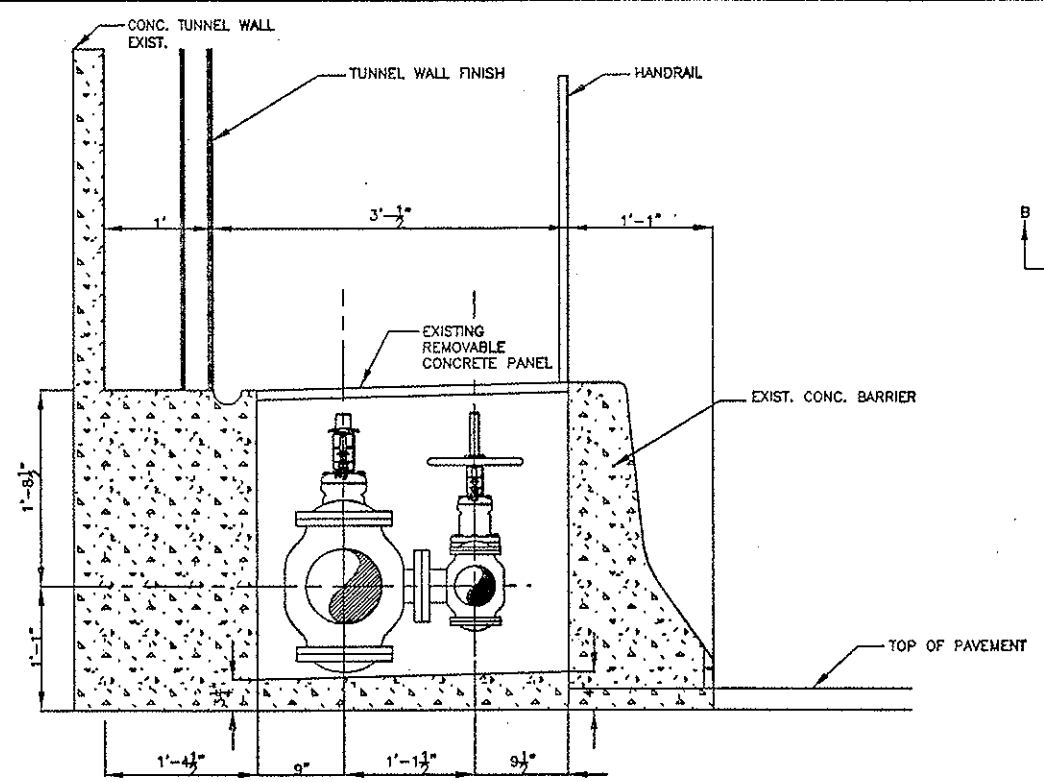


B-B FIRE HYDRANT ACCESS PIT SECTION

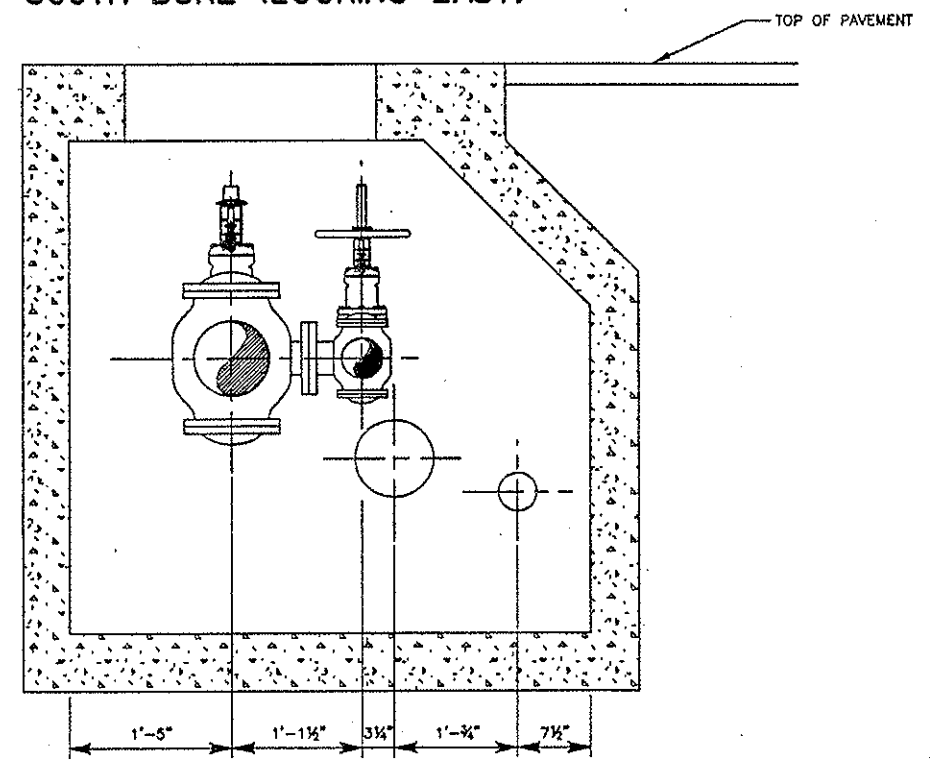
4:22:25 AM S:\Tranproje\246202-06\HwyDes\Plans\wldt02.dgn

1/9/2006

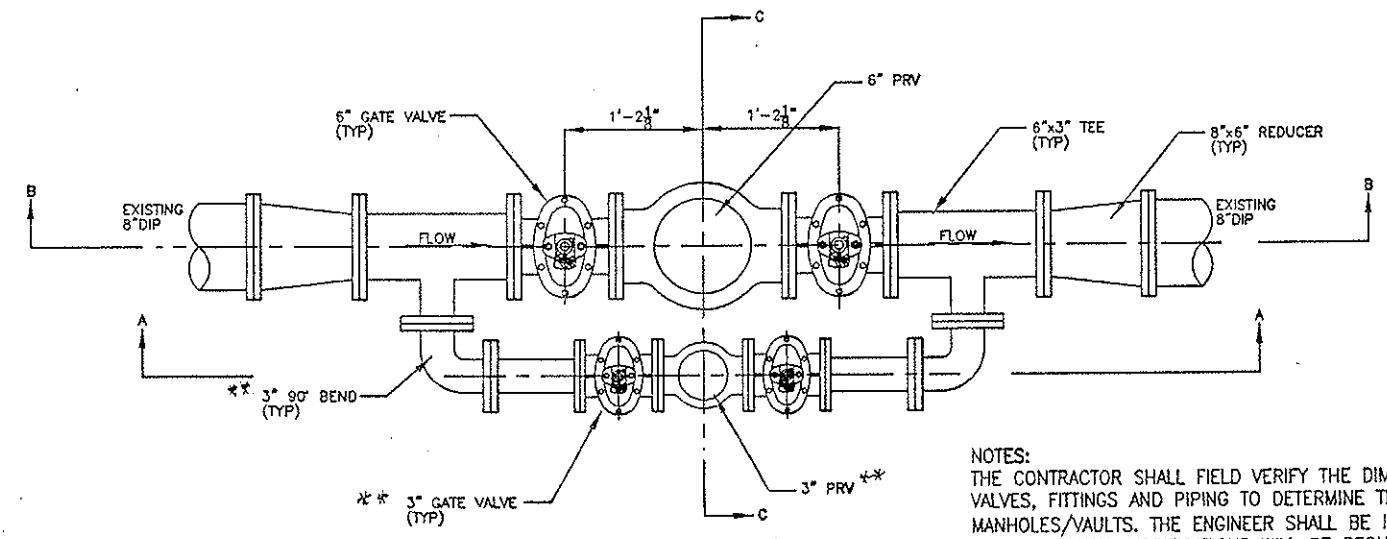
Computer File Information		Sheet Revisions		Colorado Department of Transportation		As Constructed		THRUST BLOCK AND FIRE HYDRANT DETAILS		Project No./Code			
Creation Date:	05/09/05 Initials: MSJ			P.O. Box 399 Durant, CO 80436 Phone: (303) 512-5750 Fax: (303) 512-5775		4601 DTC Boulevard Suite 700 Denver, Colorado 80237 Phone: 303-221-7275 Fax: 303-221-7276		No Revisions: 7/2/2007 Revised: Void:		Designer: DD Detailer: DD Sheet Subset: of		IM 0702-257	
Last Modification Date:	Initials:											15195	
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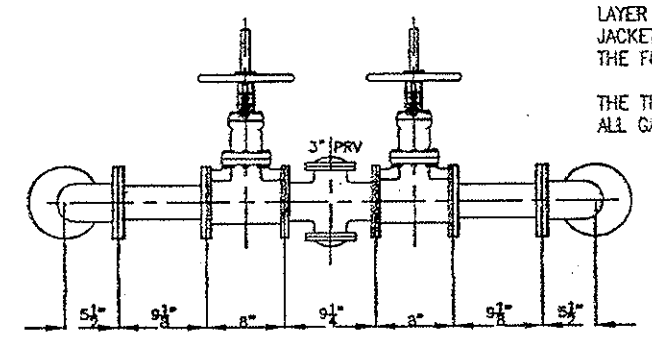
C-C
SOUTH BORE (LOOKING EAST)



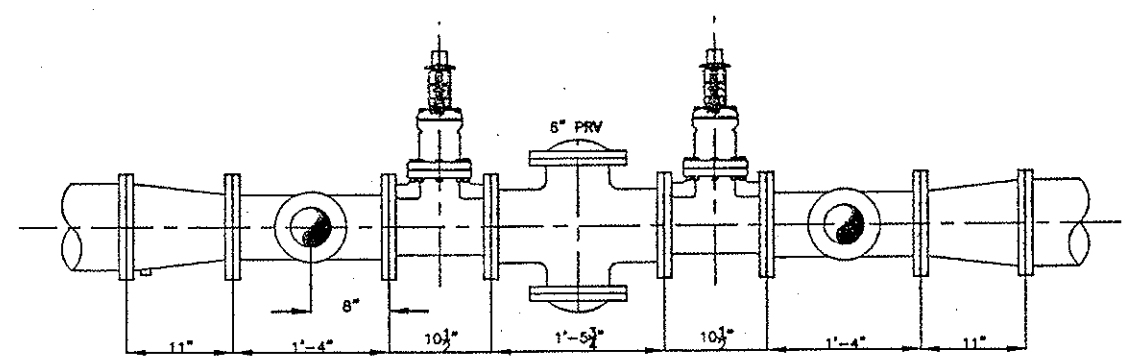
C-C
NORTH BORE (LOOKING EAST)



PLAN
PIPING DETAIL



A-A
PIPING DETAIL



B-B
PIPING DETAIL

** NORTH BORE BYPASS IS A 2" LINE
SOUTH BORE BYPASS IS A 3" LINE

NOTES:
THE CONTRACTOR SHALL FIELD VERIFY THE DIMENSIONS OF THE EXISTING PRV STATIONS, INCLUDING VALVES, FITTINGS AND PIPING TO DETERMINE THAT THE NEW EQUIPMENT WILL FIT INTO THE EXISTING MANHOLES/VULTS. THE ENGINEER SHALL BE INFORMED IMMEDIATELY IF THIS FIELD VERIFICATION REVEALS THAT ADDITIONAL MODIFICATIONS WILL BE REQUIRED TO ALLOW INSTALLATION OF THE NEW EQUIPMENT.

THE CONTRACTOR SHALL REMOVE AND DISPOSE OF THE EXISTING THERMAL INSULATION AND JACKETING AROUND THE EXISTING PRV'S AND PIPING. AFTER INSTALLATION OF THE NEW PRESSURE REDUCING VALVES, FITTINGS AND PIPING, THE COMPLETE ASSEMBLIES SHALL BE ENCASED IN A 2.5" THICK LAYER OF "FOAMGLAS" CELLULAR GLASS THERMAL INSULATION. THE INSULATION SHALL THEN BE WRAPPED IN ONE LAYER OF BITUMINOUS OR ELASTOMERIC JACKETING, AND SURROUNDED BY A METAL JACKET. ALL JACKETING MATERIALS AND ASSOCIATED ITEMS, INCLUDING BANDS, TAPE, ETC. SHALL BE COMPATIBLE WITH THE FOAMGLAS MATERIAL.

THE THERMAL INSULATION AND JACKETING SHALL BE INSTALLED IN SUCH A MANNER AS TO ENSURE THAT ALL GATE VALVES AND PRESSURE REDUCING VALVES REMAIN EASILY ACCESSIBLE.

4:23:35 AM S:\Tranproj\246202-06 HwyDes\Plans\widt03.dgn 1/9/2006

Computer File Information		Sheet Revisions		Colorado Department of Transportation		As Constructed		PRESSURE REDUCING VALVE STATION DETAILS		Project No./Code	
Creation Date:	05/09/05 Initials: MSJ			P.O. Box 399 Durant, CO 80436 Phone: (303) 512-5750 Fax: (303) 512-5775 4601 DTC Boulevard Suite 700 Denver, Colorado 80237 Phone: 303-221-7275 Fax: 303-221-7276		No Revisions:		Designer: DD Structure: DD Detailer: DD Sheet Subset: of		IM 0702-257	
Last Modification Date:	Initials:					Revised: 7/2/2007				15195	
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Drawing File Name:	widt03.dgn					REGION I MTN RESIDENCY INZ					
Scale:	NTS										

TABULATION OF PAVEMENT MARKINGS



LOCATION	PAVEMENT MARKING LINES					
	EDGE		EDGE		LANE	LANE
	WHITE SOLID 4 INCH	YELLOW SOLID 4 INCH	WHITE SOLID 4 INCH	YELLOW SOLID 4 INCH	WHITE BROKEN 4 INCH	WHITE BROKEN 4 INCH
I-70 WESTBOUND						
39+98 - 128+39	8841	8841				8841
I-70 EASTBOUND						
32+98 - 128+57	9559	9559				9559
EAST PARKING AREA	8385					
PHASE 1			2440	1860	9559	
PHASE 2			1960	2340	8841	
*		1600				3090
TOTALS						
GROSS LENGTH (LF)	26785	20000	4400	4200	18400	21400
NET SQUARE FEET	8922	6667	1467	1400	1534	1790
EPOXY PAINT (GAL)	90	67				
PAVEMENT MARKING PAINT (GAL)			15	14	16	
PREFORMED PLASTIC						1790

* TO REPLACE PAVEMENT MARKINGS REMOVED FOR CONSTRUCTION TRAFFIC CONTROL.

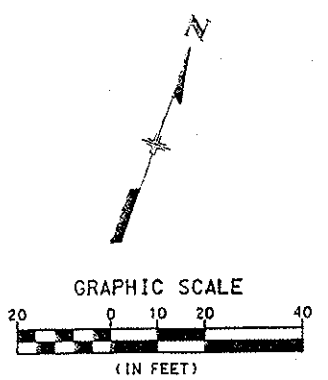
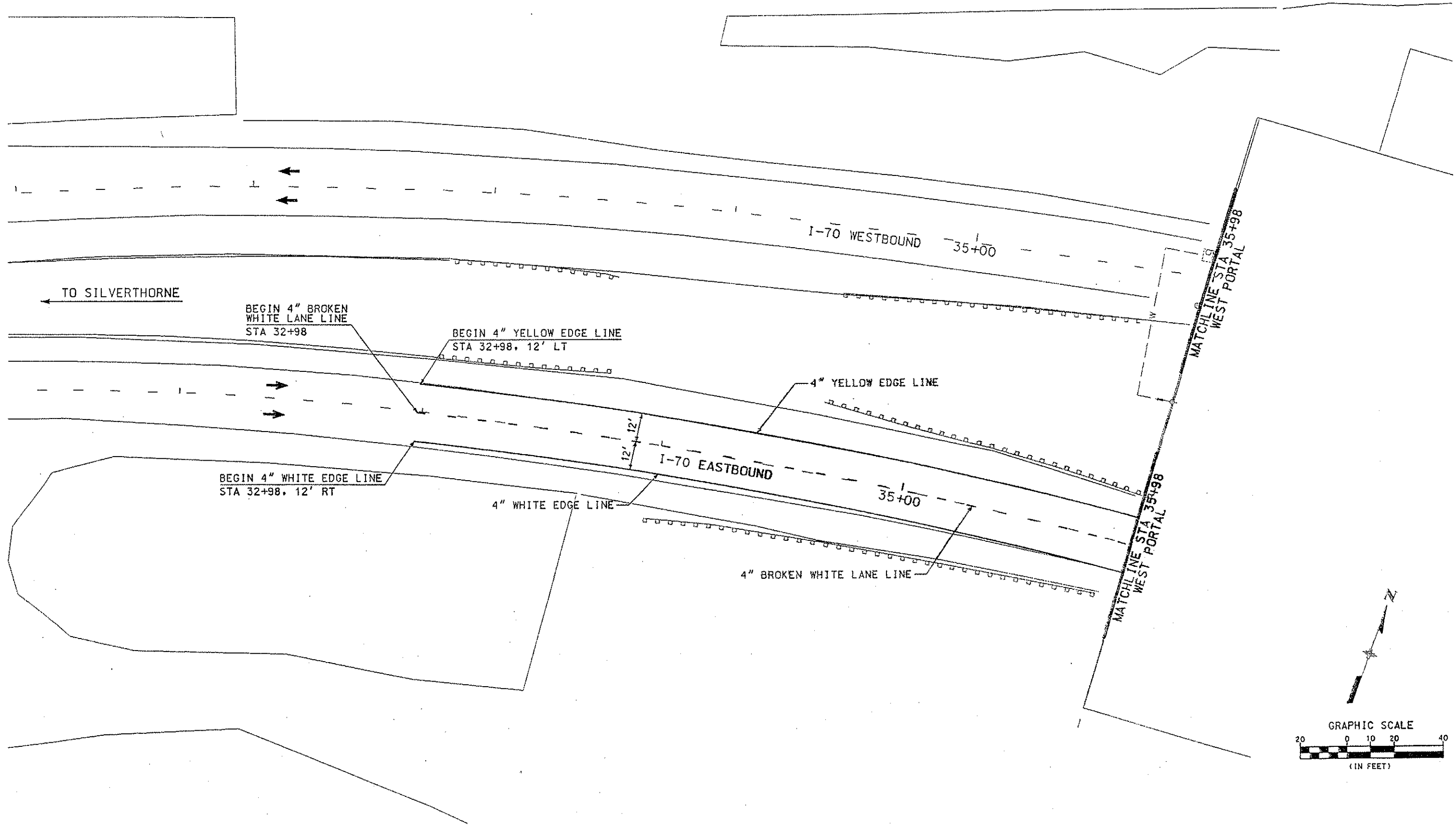
FINAL SUMMARY OF PAVEMENT MARKING QUANTITIES			
COLOR	EPOXY (GAL)	PAVEMENT MARKING PAINT (LOW VOC SOLVENT BASE) (GAL)	PREFORMED PLASTIC (TYPE I) (INLAID) (SF)
YELLOW	67	14	
WHITE	90	31	1790
TOTAL	172	83	1790



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1/9/2006

Computer File Information		Sheet Revisions		Colorado Department of Transportation		As Constructed		TABULATION OF PAVEMENT MARKINGS		Project No./Code			
Creation Date:	09/08/05 Initials: MSJ			 P.O. Box 399 Dumont, CO 80436 Phone: (303) 512-5750 Fax: (303) 512-5775		 4601 DTC Boulevard Suite 700 Denver, Colorado 80237 Phone: 303-221-7275 Fax: 303-221-7276		No Revisions: Revised: 7/2/2007 Void:		Designer: MSJ Structure Numbers F-13-Y Detailer: MSJ Structure Numbers F-13-X Sheet Subset: of		IM 0702-257	
Last Modification Date:	09/15/05 Initials: MSJ											15195	
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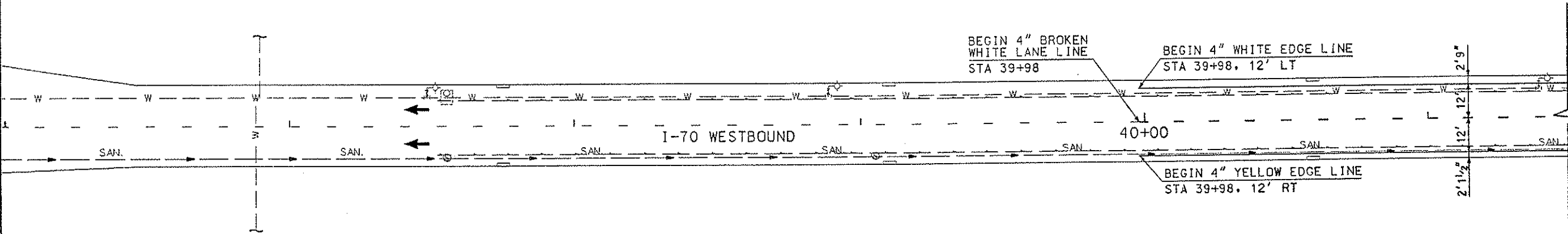


Computer File Information		Sheet Revisions		Colorado Department of Transportation		As Constructed		PAVEMENT MARKING PLAN		Project No./Code	
Creation Date:	05/09/05 Initials: MSJ			 P.O. Box 399 Durand, CO 80436 Phone: (303) 512-5750 Fax: (303) 512-5775	 4601 DTC Boulevard Suite 700 Denver, Colorado 80237 Phone: 303-221-7275 Fax: 303-221-7276	No Revisions: 7/2/2007		Designer: MSJ		IM 0702-257	
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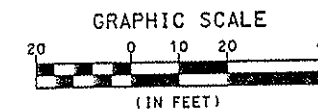
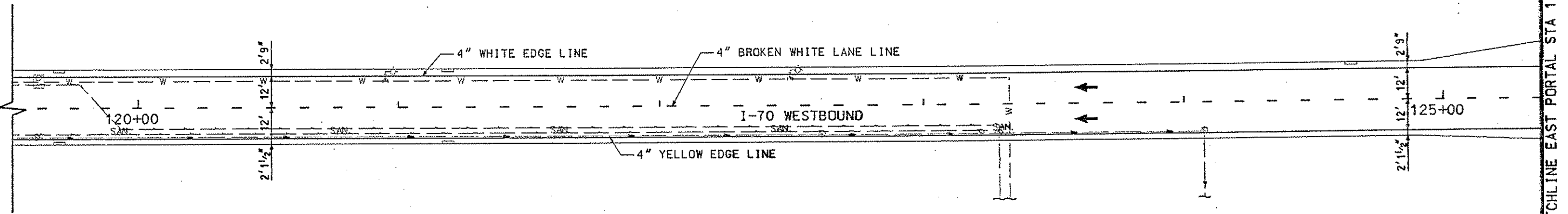
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1/9/2006

MATCHLINE WEST PORTAL STA 35+98

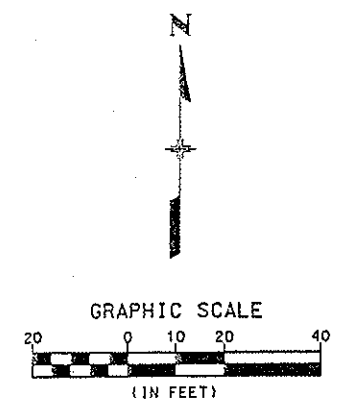
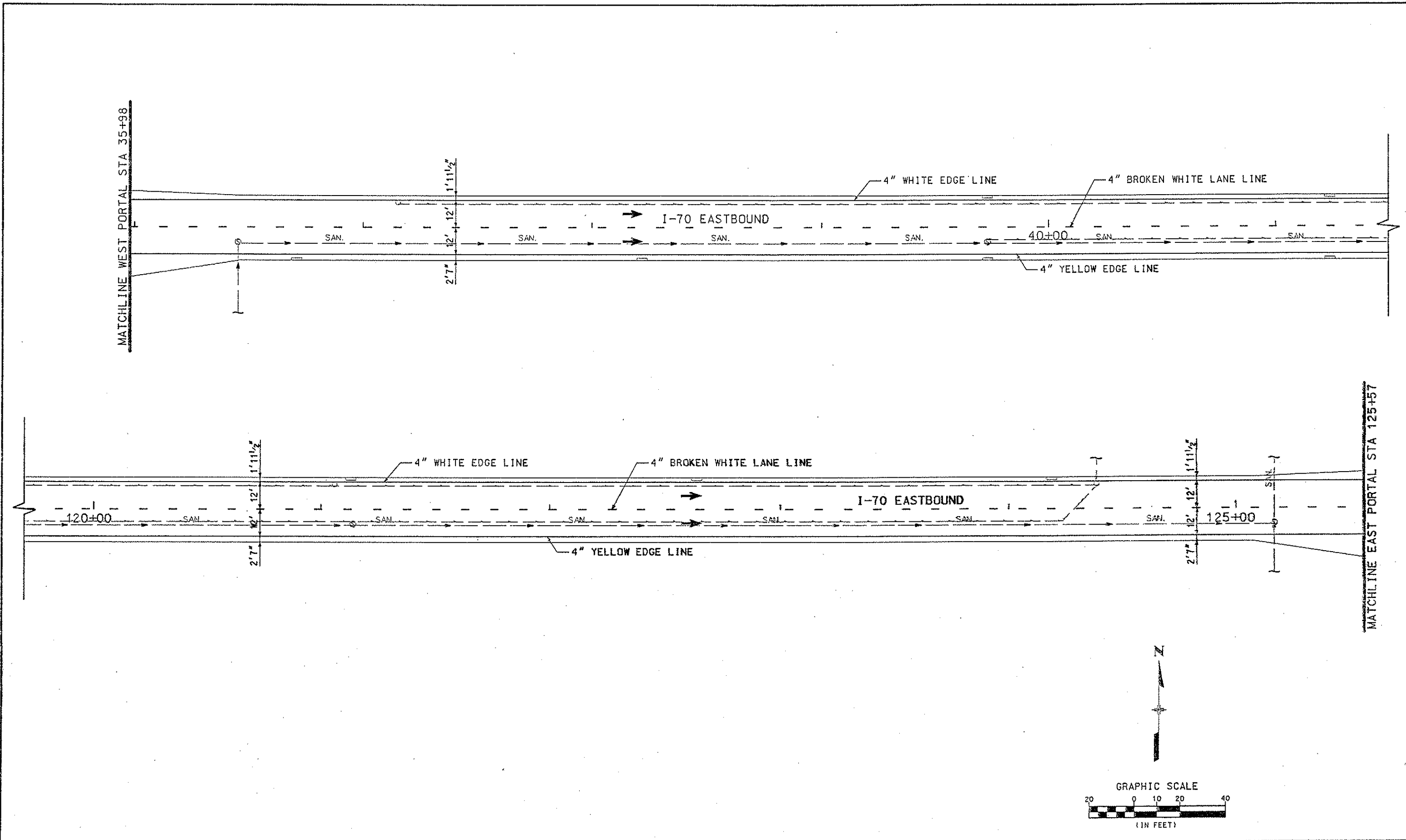




MATCHLINE EAST PORTAL STA 125+39



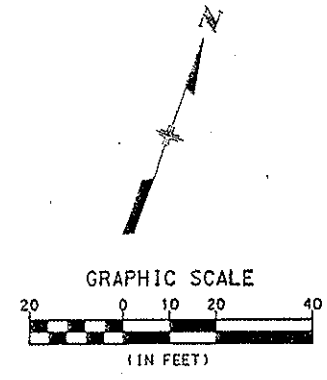
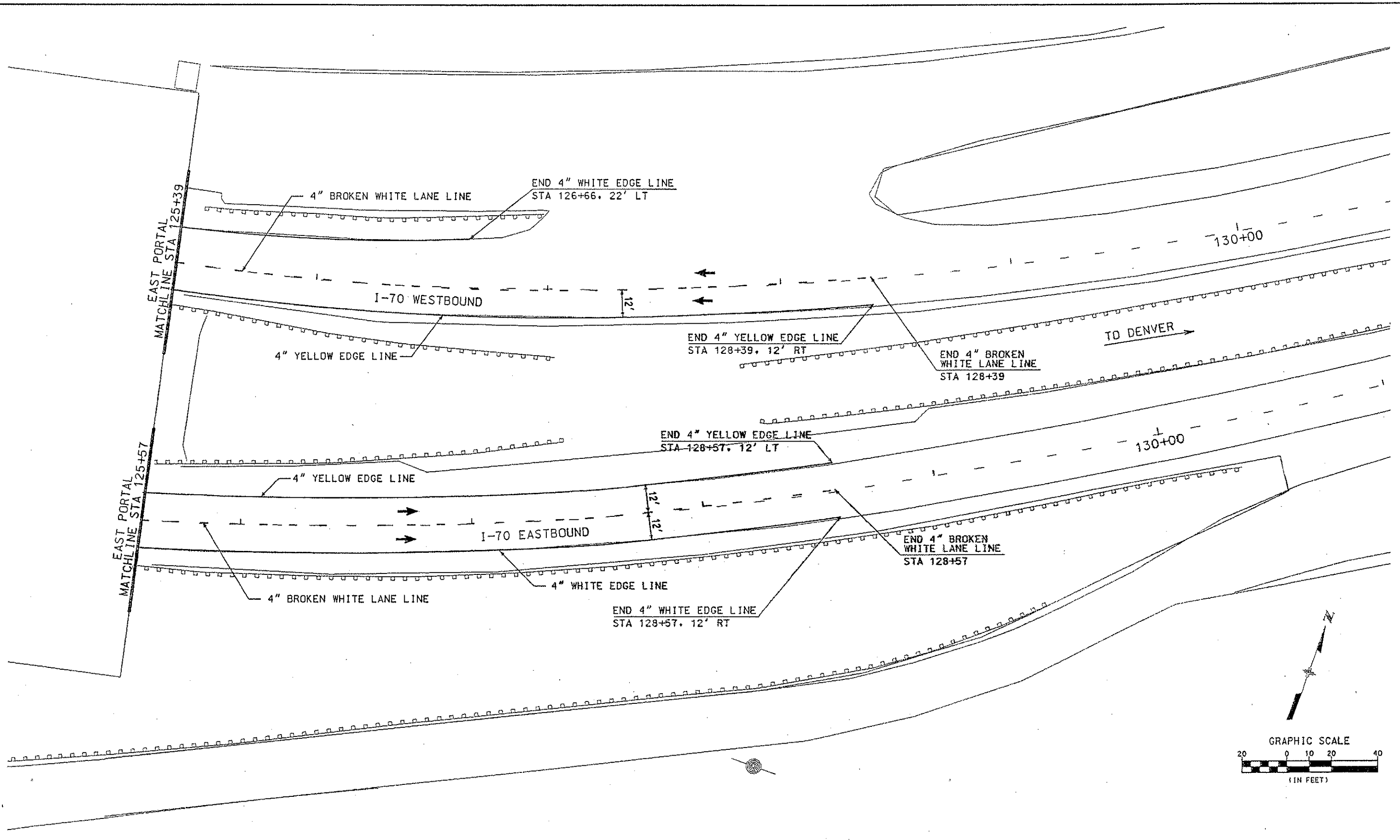
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Computer File Information Creation Date: 05/09/05 Initials: MSJ Last Modification Date: Initials: Full Path: S:\Tranproj\ 246202-06\HwyDes\Plans\ Drawing File Name: snpl03.dgn Scale: GRAPHIC Units: ENGLISH		Sheet Revisions <table border="1"> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </table>										Colorado Department of Transportation  P.O. Box 399 Durant, CO 80436 Phone: (303) 512-5750 Fax: (303) 512-5775  4601 DTC Boulevard Suite 700 Denver, Colorado 80237 Phone: 303-221-7275 Fax: 303-221-7276 REGION I MTN RESIDENCY INZ		As Constructed No Revisions: 7/2/2007 Revised: Void:		PAVEMENT MARKING PLAN Designer: MSJ Detailer: MSJ Sheet Subset:		Structure Numbers: F-13-X Sheet Subset: of		Project No./Code IM 0702-257 15195 Sheet Number: 59	

1/9/2005 4:27:37 AM S:\Tranproj\246202-06\HwyDes\Plans\snpl04.dgn



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REGION I MTN RESIDENCY INZ				Sheet Subset: of		Sheet Number: 60														

SCHEDULE OF TRAFFIC CONTROL DEVICES



SIGN CODE	LEGEND	SIGN PANEL SIZE	PANEL SIZE			SPECIAL	ITEM	UNITS	FINAL QUANTITY
			A	B	C				
G20-10	XYZ/CONSTRUCTION/THANKS YOU/(XXX) XXX-XXXX	48' x 48'		4			DRUM CHANNELIZING DEVICE	EA	270 171
M4-10L	LEFT DETOUR ARROW	48' x 24'	2				DRUM CHANNELIZING DEVICE (WITH LIGHT) (FLASHING)	EA	10
R11-2	ROAD/CLOSED	48' x 30'		8					
R2-1(40)	SPEED/LIMIT/40	48' x 60'			8		GUARDRAIL TYPE 7 (TEMP) (R1)	LF	475 0
R2-1(50)	SPEED/LIMIT/50	48' x 60'			4		IMPACT ATTENUATOR (TEMP)(50)	EA	2 0
R2-1(60)	SPEED/LIMIT/60	48' x 60'			4		FLASHING BEACON (PORTABLE)	EA	8
R2-1(65)	SPEED/LIMIT/65	48' x 60'			2		FLASHING ARROW PANEL	EA	3
R4-1	DO NOT/PASS	48' x 60'			4		BARRICADE (3 M-A) (TEMP)	EA	13
R4-2	PASS/WITH CARE	48' x 60'			4		CHANNELIZING DEVICE (SPECIAL)	EA	240 0
R4-7	KEEP RIGHT SYMBOL	48' x 60'			2		PORTABLE MESSAGE SIGN PANEL	DAY	65 68
R5-1	DO NOT/ENTER	48' x 48'		2			TRAFFIC CONES (36")	EA	250
R5-1a	WRONG/WAY	42' x 30'	4				FLAGGING	HR	2500
W1-4L	LEFT REVERSE CURVE ARROW	48' x 48'		2			TRAFFIC CONTROL MANAGEMENT	DAY	100
W1-4R	RIGHT REVERSE CURVE ARROW	48' x 48'		1			TRAFFIC CONTROL INSPECTION	DAY	50
W1-8	CHEVRON	36' x 48'		6					
W20-1	ROAD/WORK/NEXT XX MILES	48' x 48'		4					
W20-1	ROAD/WORK/1 MILE	48' x 48'		4					
W20-1	ROAD/WORK/1/2 MILE	48' x 48'		4					
W20-5a	RIGHT LANE/CLOSED/AHEAD	48' x 48'		2					
W20-5L	LEFT LANE CLOSED AHEAD	48' x 48'		2					
W20-52	GROOVED/PAVEMENT/AHEAD	48' x 48'		4					
W20-7a	FLAGGER SYMBOL	48' x 48'		6					
W21-5	SHOULDER CLOSED	48' x 48'		4					
W3-5a(40)	40MPH/SPEED ZONE/AHEAD	48' x 48'		4					
W4-2L	LEFT LANE TRANSITION SYMBOL	48' x 48'		2					
W4-2R	RIGHT LANE TRANSITION SYMBOL	48' x 48'		4					
W6-3	TWO-WAY TRAFFIC SYMBOL	48' x 48'		4					
W8-1	BUMP	48' x 48'		4					
SPECIAL	ROAD CONSTRUCTION AHEAD/WIDE LOADS RESTRICTED/USE EXIT 205(216)/US 6 LOVELAND PASS	120' x 60'				250			
FINAL PROJECT TOTALS			6	797	4528	250			

3220
104.5
79

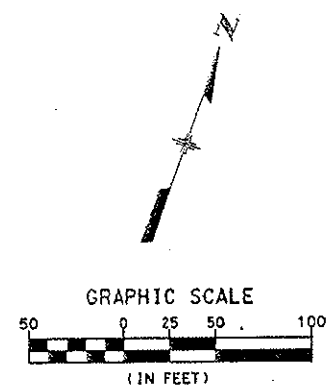
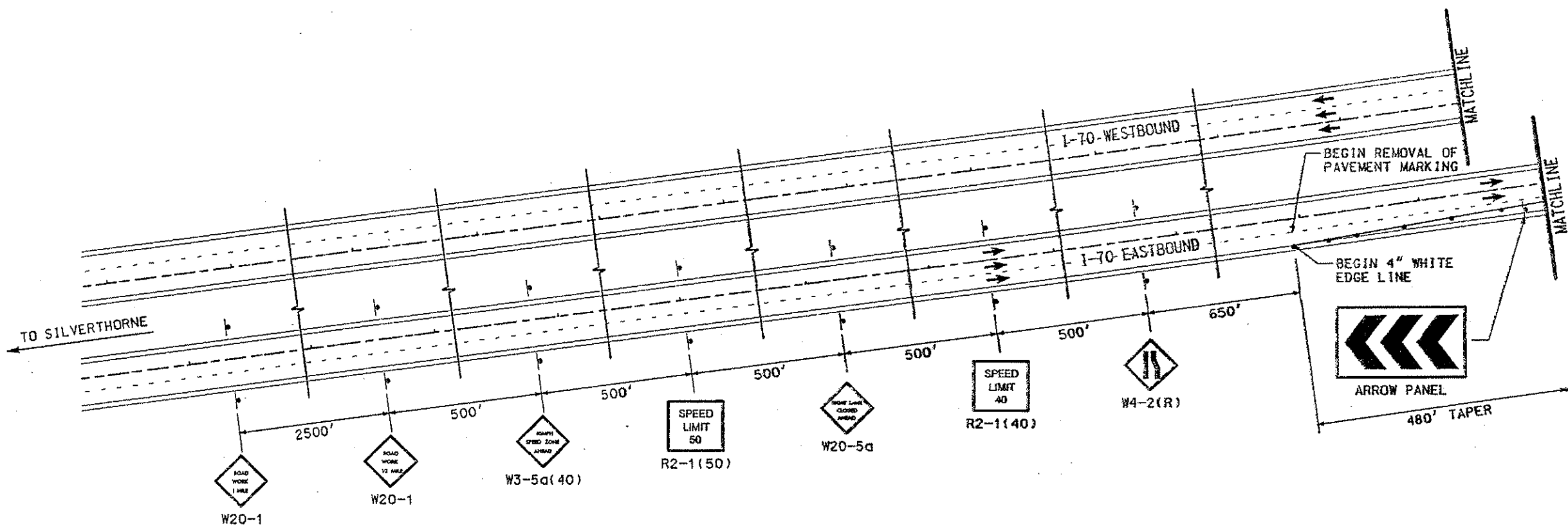
IT IS ESTIMATED THAT 3,660 SF OF REMOVAL OF PAVEMENT MARKINGS (ITEM 202) WILL BE REQUIRED FOR THE PROJECT.

S:\Tranproj\246202-06\HwyDes\Plans\phta01.dgn 2:56:48 AM

2/8/2006



Computer File Information		Sheet Revisions		Colorado Department of Transportation		As Constructed		SCHEDULE OF TRAFFIC CONTROL DEVICES		Project No./Code	
Creation Date:	09/08/05 Initials: MSJ	02/07/06	CHANGE ITEM NAME	MSJ	 P.O. Box 399 Durango, CO 80436 Phone: (303) 512-5750 Fax: (303) 512-5775		No Revisions: Revised: 7/2/2007 Void:		Designer: MSJ Detailer: MSJ Sheet Subset:		IM 0702-257
Last Modification Date:	02/07/06 Initials: MSJ				 4601 DTC Boulevard Suite 700 Denver, Colorado 80237 Phone: 303-221-7275 Fax: 303-221-7276				Structure Numbers:		15195
Full Path:	S:\Tranproj\246202-06\HwyDes\Plans\				REGION I MTN RESIDENCY INZ				Sheet Subset:		Sheet Number: 61
Drawing File Name:	phta01.dgn								Sheet Subset: of		
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DRUM SPACING = 40'
TAPER LENGTH = 480'

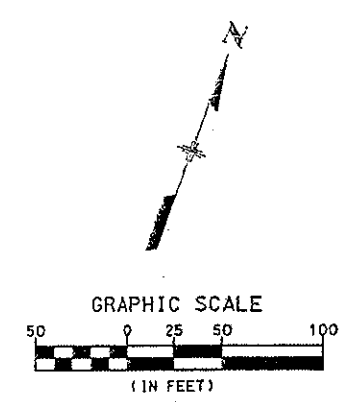
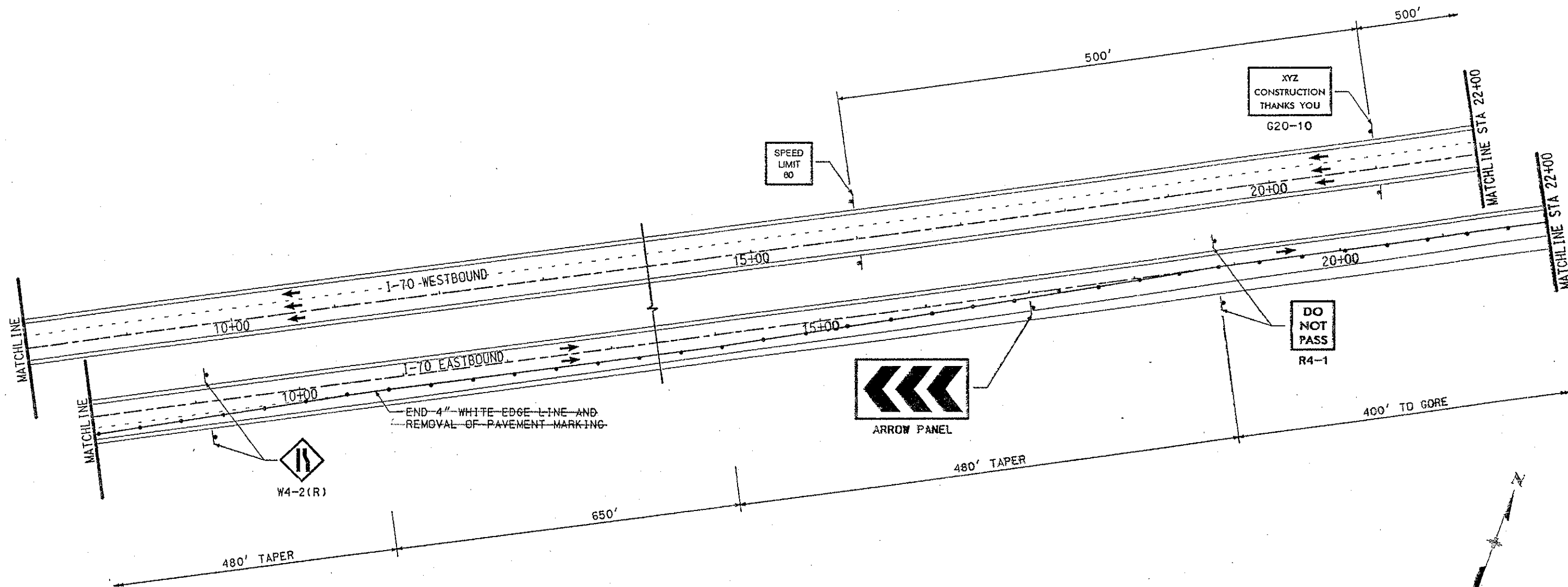


4:50:53 AM S:\Tranproj\246202-06\HwyDes\Plans\ph1p101.dgn

1/9/2006

Computer File Information		Sheet Revisions		Colorado Department of Transportation		As Constructed		I-70 TCP PHASE 1		Project No./Code			
Creation Date:	07/13/05 Initials: MSJ			 P.O. Box 399 Durmont, CO 80436 Phone: (303) 512-5750 Fax: (303) 512-5775	 4601 DTC Boulevard Suite 700 Denver, Colorado 80237 Phone: 303-221-7275 Fax: 303-221-7276	No Revisions:	7/2/2007	Designer:	MSJ	Structure Numbers:		IM 0702-257	
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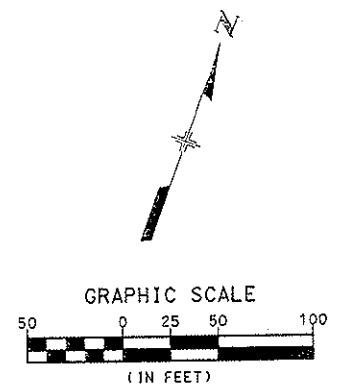
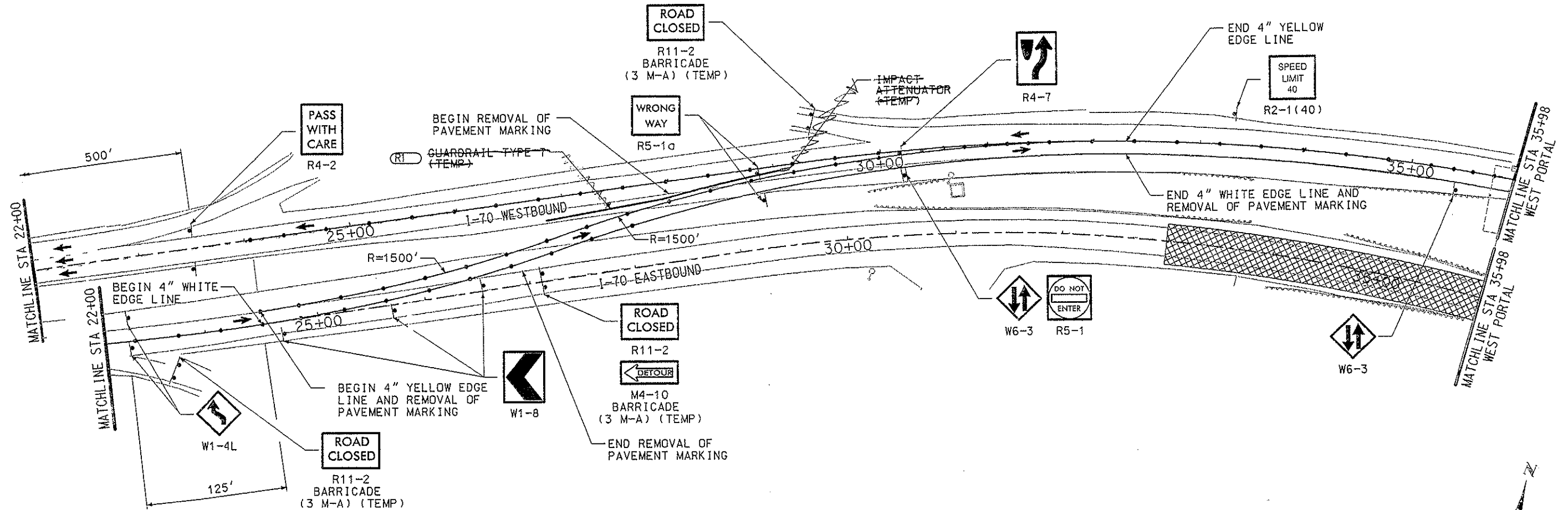
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TAPER LENGTH = 480'



1/9/2006 4:51:20 AM S:\Tranproj\246202-06\HwyDes\Plans\ph1p102.dgn

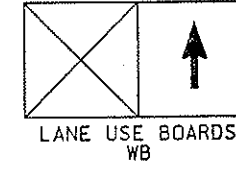
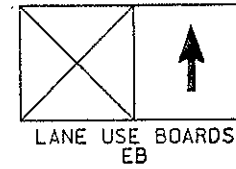
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Creation Date:	07/13/05 Initials: MSJ			P.O. Box 399 Durango, CO 80436 Phone: (303) 512-5750 Fax: (303) 512-5775	4601 DTC Boulevard Suite 700 Denver, Colorado 80237 Phone: 303-221-7275 Fax: 303-221-7276	No Revisions:				IM 0702-257		
Last Modification Date:	Initials:					Revised: 7/2/2007		Designer:	MSJ	Structure Numbers	15195	
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DRUM SPACING = 40'
 TAPER LENGTH = 480'
 CONSTRUCTION AREA

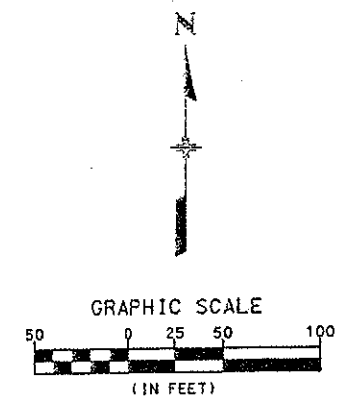
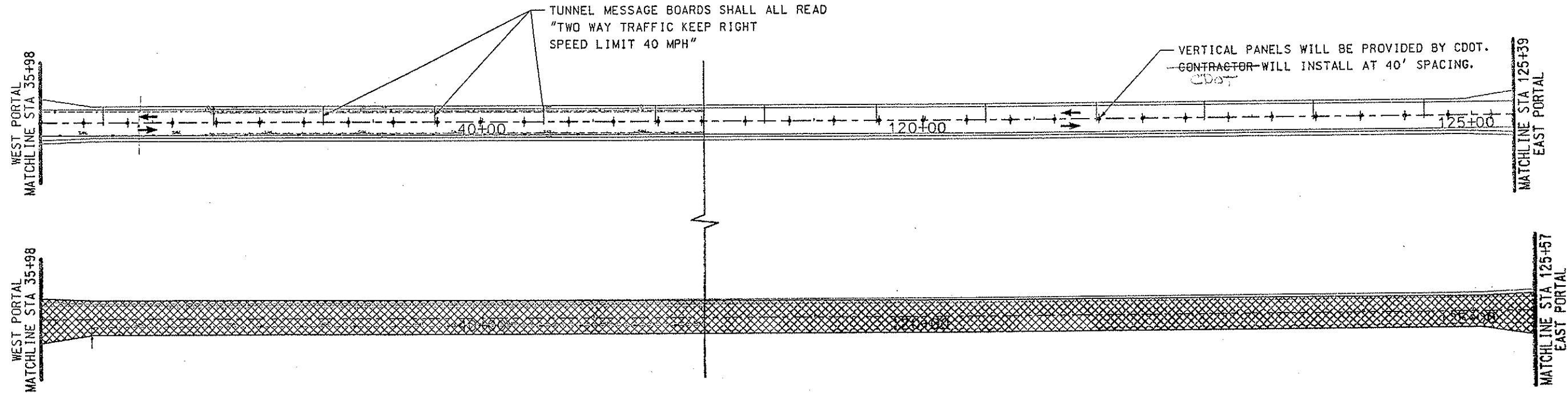


2/8/2006 3:29:27 AM S:\Tranproj\246202-06\HwyDes\Plans\ph1p103.dgn



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↓ PANEL SPACING = 40'
TAPER LENGTH = 480'
 CONSTRUCTION AREA



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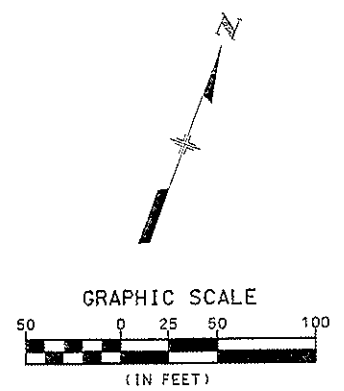
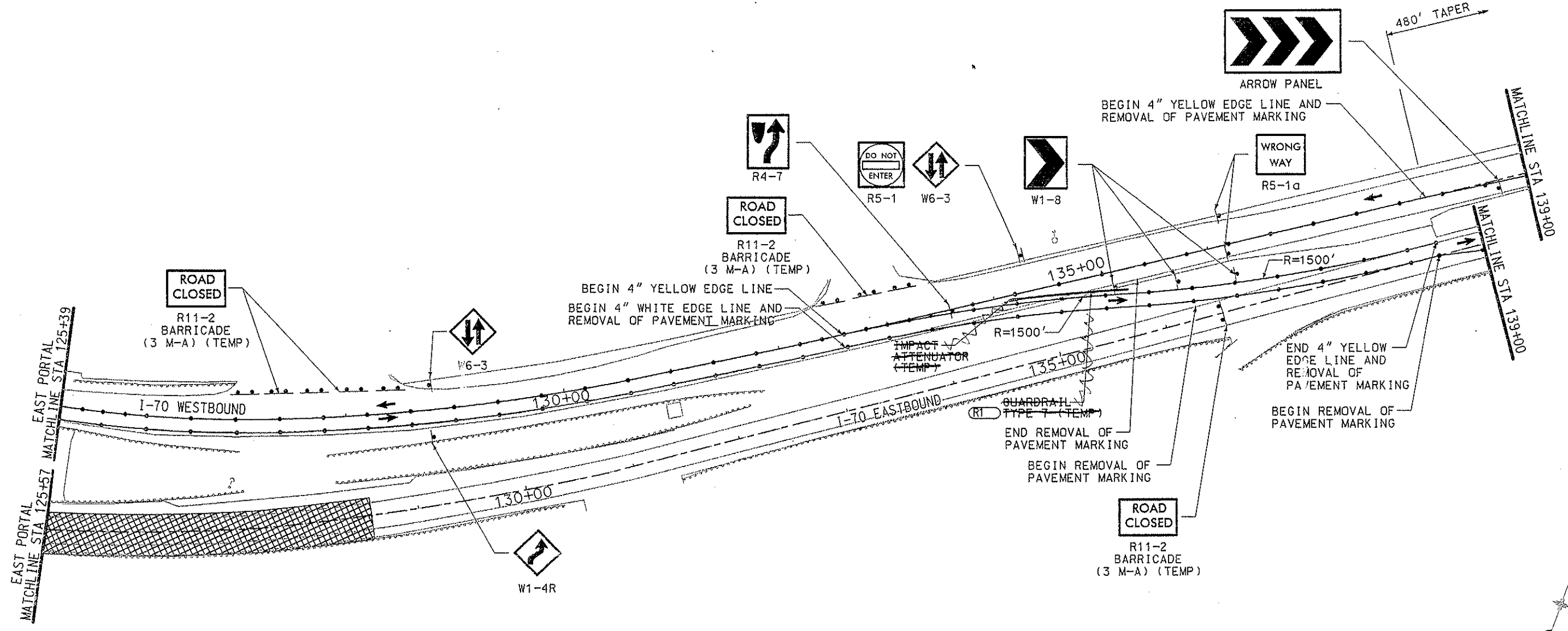
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DRUM SPACING = 40'

TAPER LENGTH = 480'



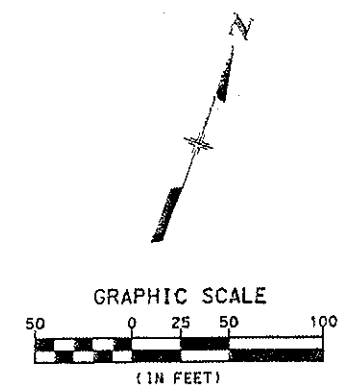
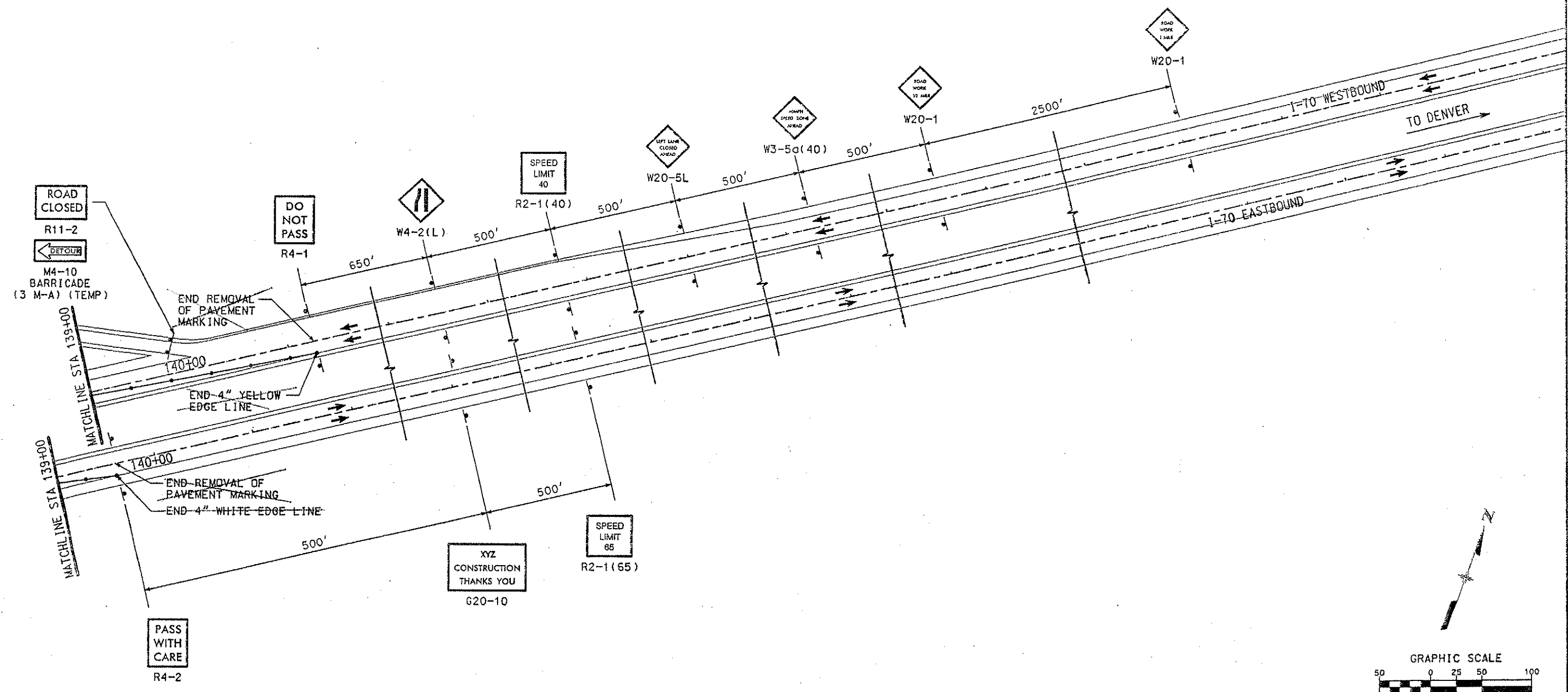
CONSTRUCTION AREA





S:\Tranproj\246202-06\HwyDes\Plans\ph1pl05.dgn 3:39:36 AM 2/8/2006

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Last Modification Date:	02/07/06 Initials: MSJ				P.O. Box 399 Denver, CO 80436 Phone: (303) 512-5750 Fax: (303) 512-5775		Revised: 7/2/2007	Designer: MSJ	Structure:	Sheet Number: 66	
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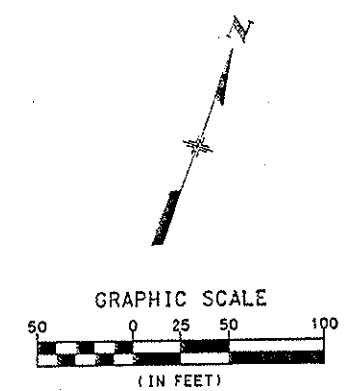
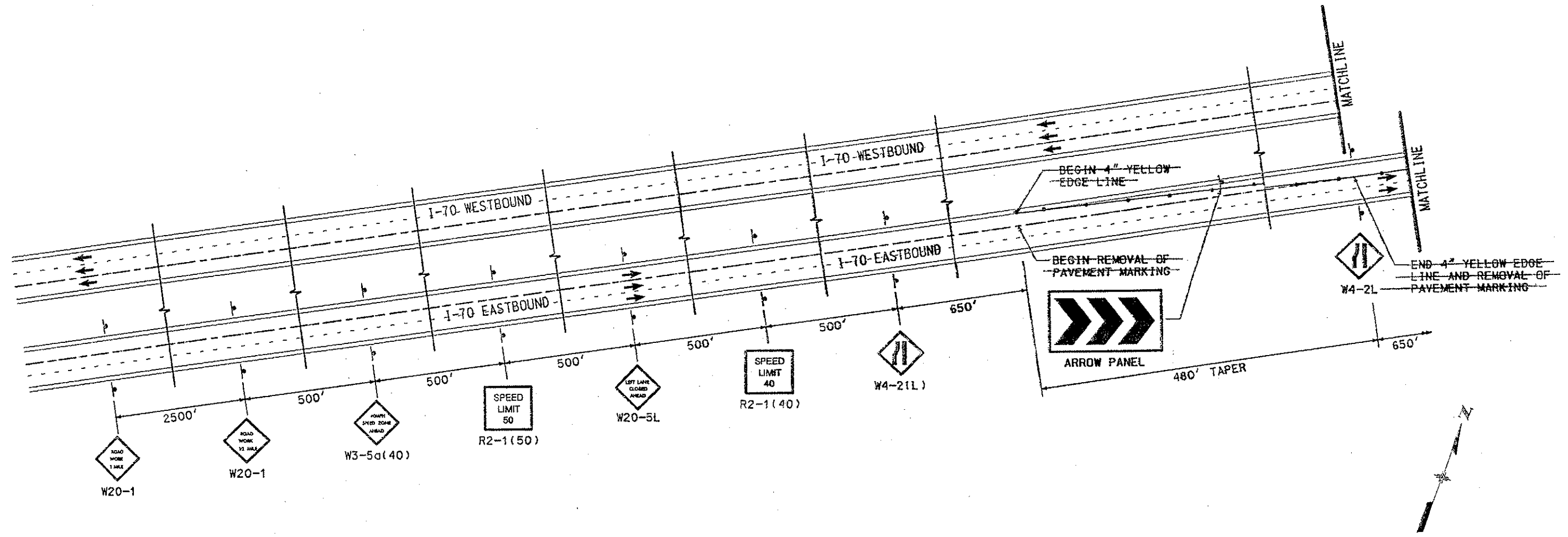
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TAPER LENGTH = 480'



1/9/2006 4:55:52 AM S:\Tranproj\246202-06\HwyDes\Plans\ph1p106.dgn

Computer File Information		Sheet Revisions		Colorado Department of Transportation		As Constructed		I-70 TCP PHASE 1		Project No./Code	
Creation Date:	07/13/05 Initials: MSJ			 P.O. Box 399 Denver, CO 80436 Phone: (303) 512-5750 Fax: (303) 512-5775	 4601 DTC Boulevard Suite 700 Denver, Colorado 80237 Phone: 303-221-7275 Fax: 303-221-7276	No Revisions:		Designer: MSJ		IM 0702-257	
Last Modification Date:	Initials:					Revised: 7/2/2007		Detailer: MSJ		15195	
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Scale: GRAPHIC Units: ENGLISH											

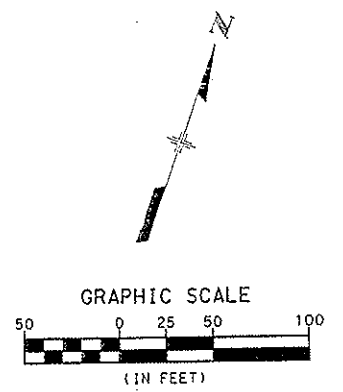
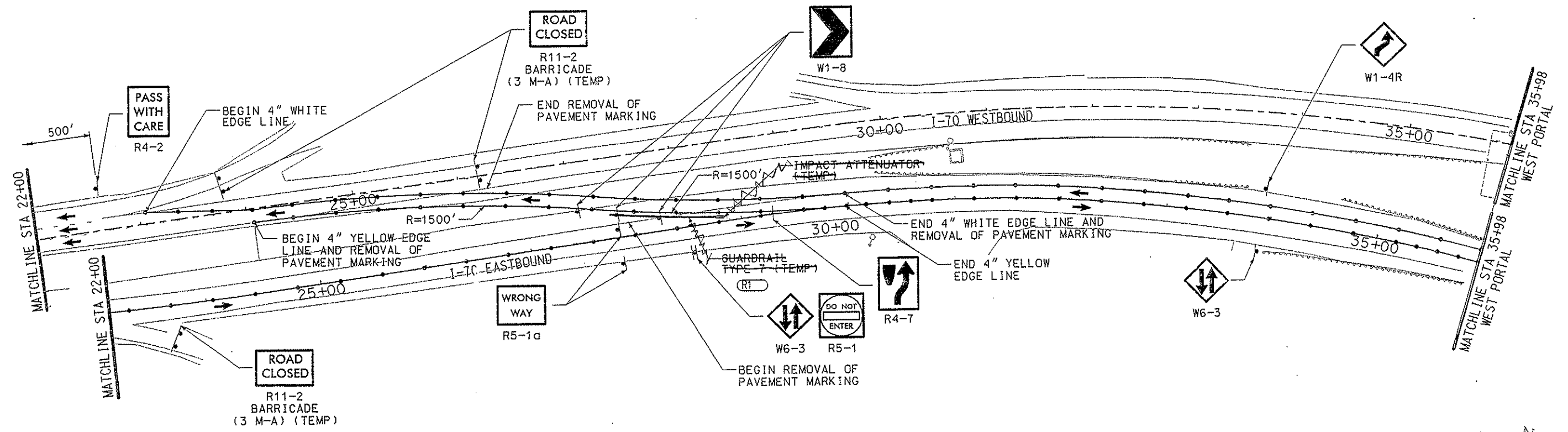
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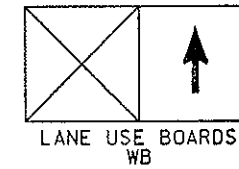
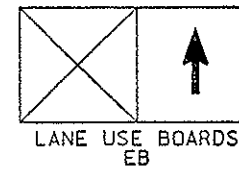
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				P.O. Box 399 Durant, CO 80436 Phone: (303) 512-5750 Fax: (303) 512-5775		4601 DTC Boulevard Suite 700 Denver, Colorado 80237 Phone: 303-221-7275 Fax: 303-221-7276					
				REGION I MTN RESIDENCY		INZ					

DRUM SPACING = 40'
 TAPER LENGTH = 480'
 CONSTRUCTION AREA

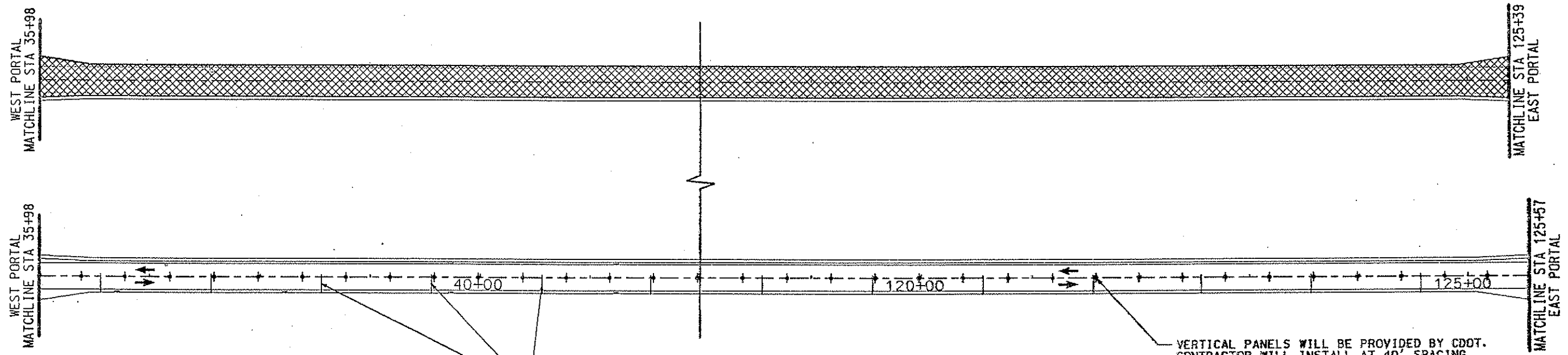


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RT	02/07/06	UPDATE ITEM NAME	MSJ																								

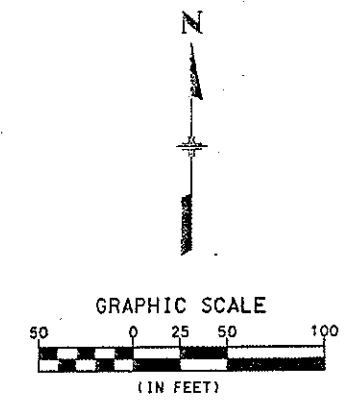


↑ PANEL SPACING = 40'
TAPER LENGTH = 480'
CONSTRUCTION AREA



TUNNEL MESSAGE BOARDS SHALL ALL READ
"TWO WAY TRAFFIC KEEP RIGHT
SPEED LIMIT 40 MPH"

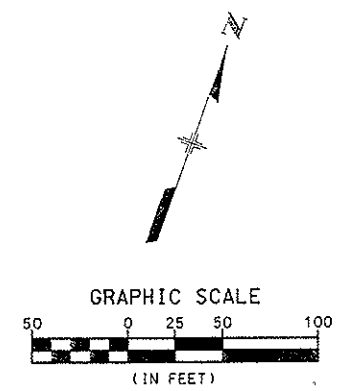
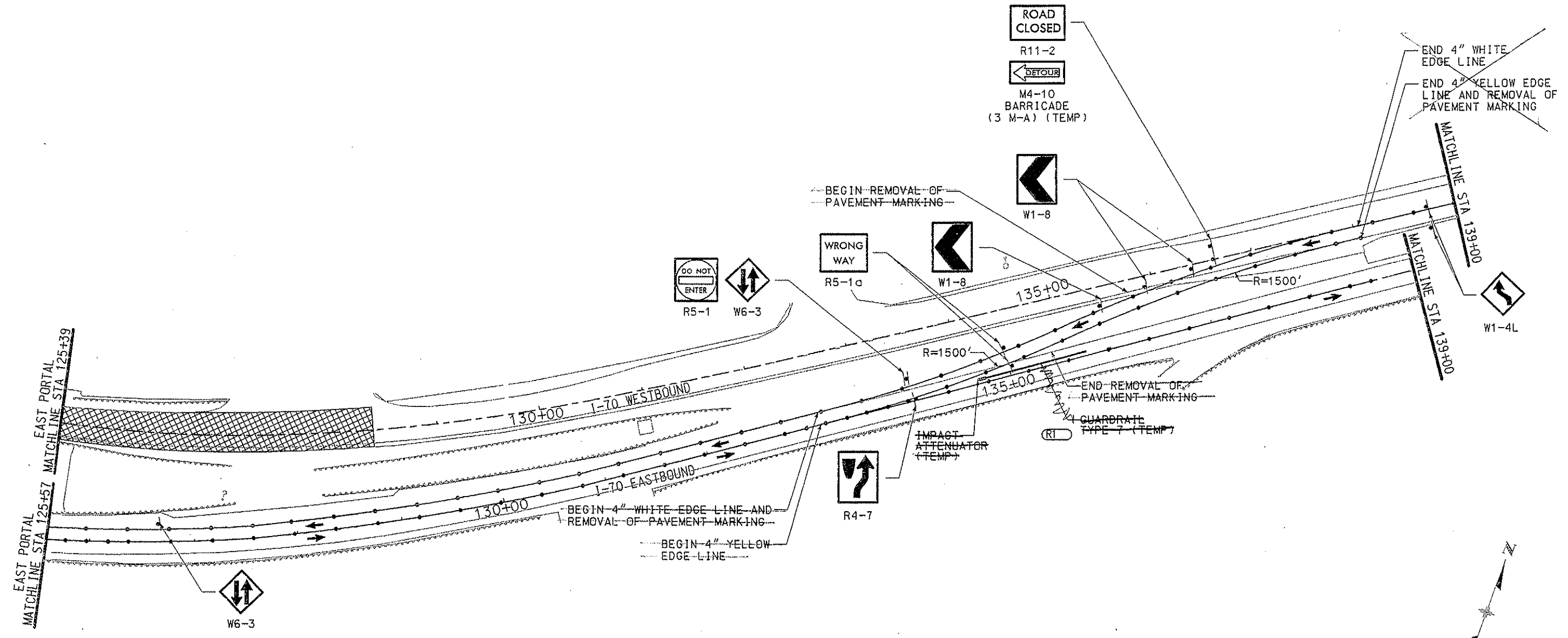
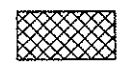
VERTICAL PANELS WILL BE PROVIDED BY CDOT.
CONTRACTOR WILL INSTALL AT 40' SPACING.
CDOT



1/9/2006 4:58:14 AM S:\Tranproj\246202-06\HwyDes\Plans\ph2pl05.dgn

Computer File Information		Sheet Revisions		Colorado Department of Transportation		As Constructed		I-70 TCP PHASE 2		Project No./Code		
Creation Date:	07/13/05 Initials: MSJ			 P.O. Box 399 Durant, CO 80436 Phone: (303) 512-5750 Fax: (303) 512-5775	 4601 DTC Boulevard Suite 700 Denver, Colorado 80237 Phone: 303-221-7275 Fax: 303-221-7276	No Revisions:		Designer:	MSJ	Structure		
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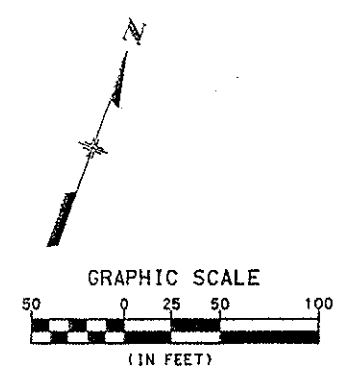
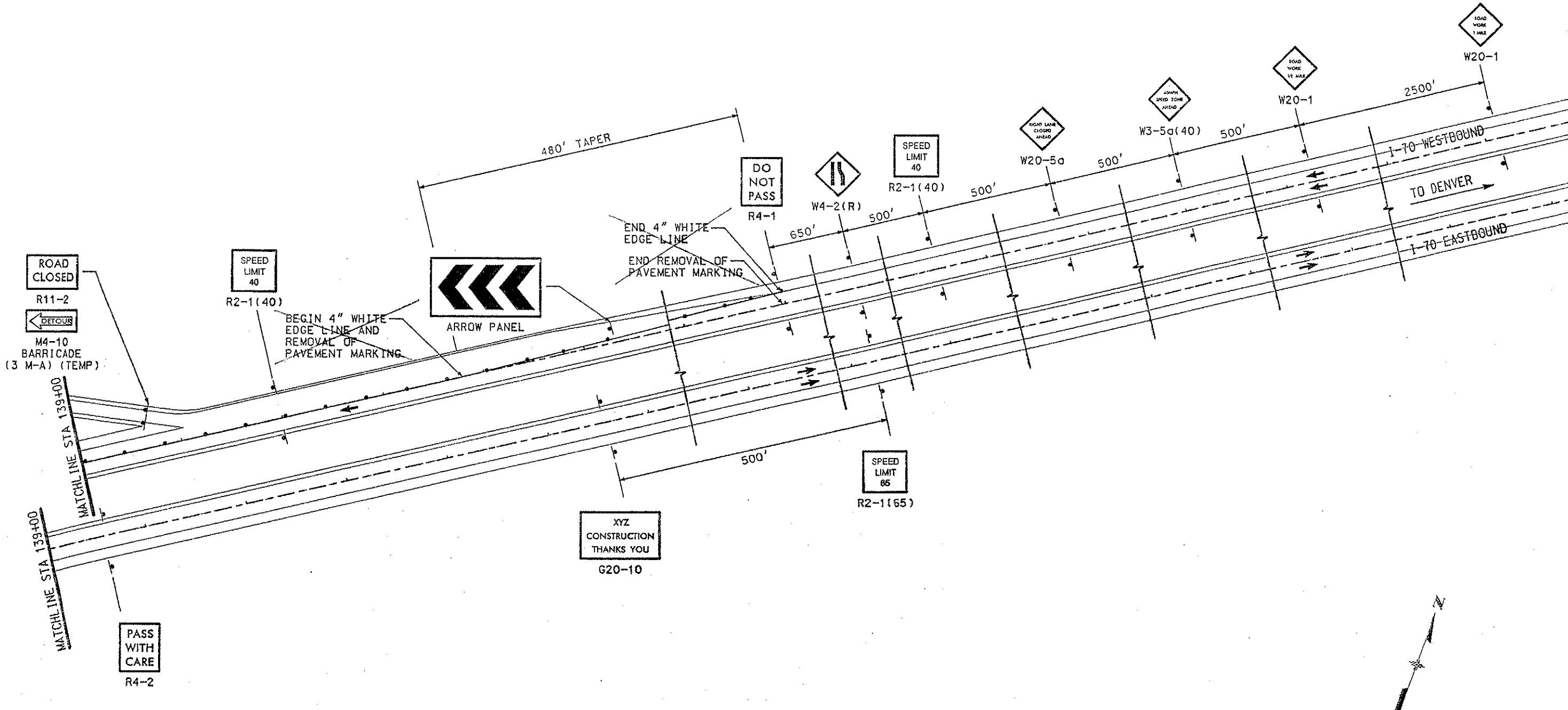
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 CONSTRUCTION AREA



4:32:49 AM
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 2/8/2006

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TAPER LENGTH = 480'

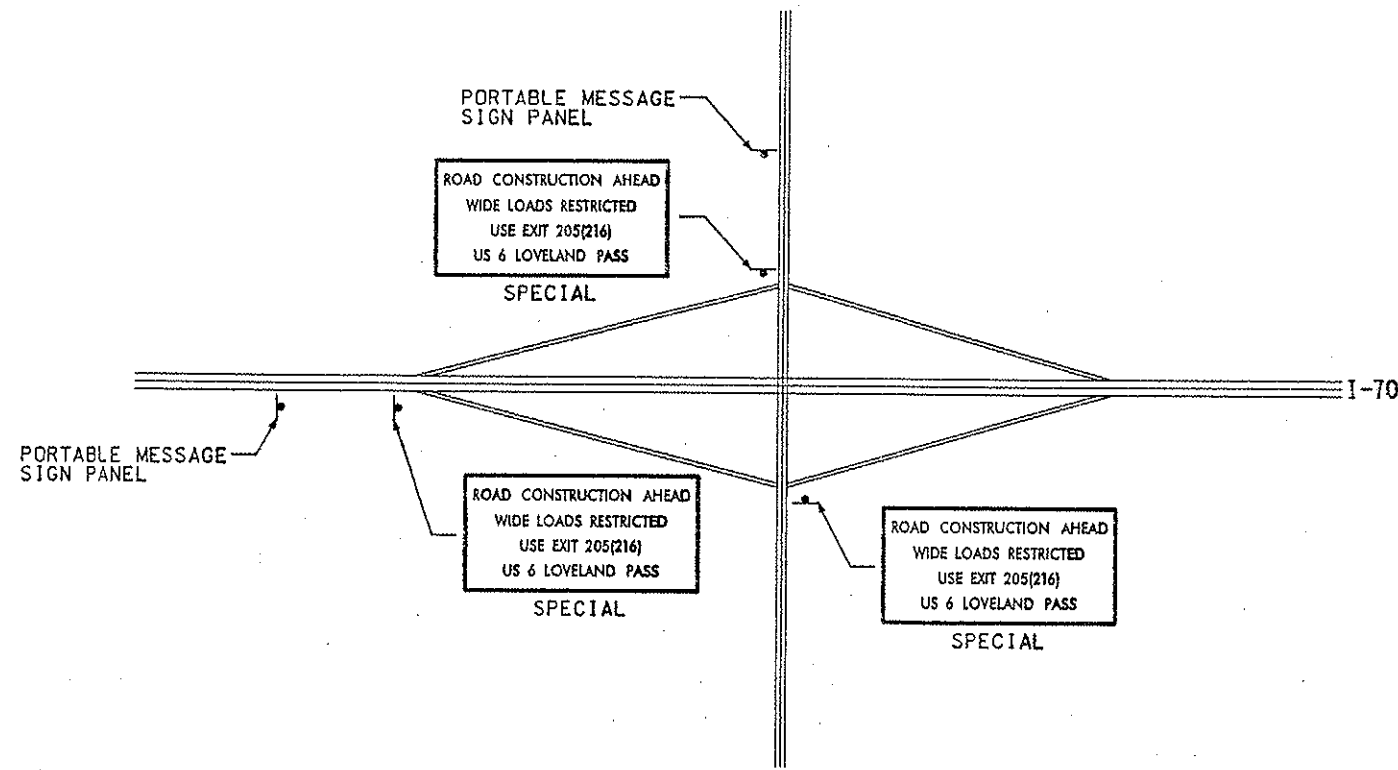


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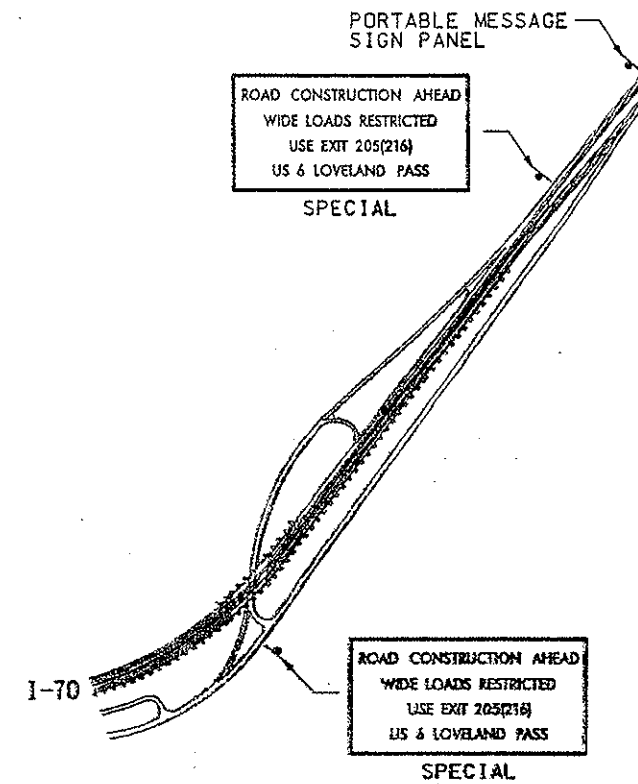
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5:04:13 AM

1/9/2006




SILVERTHORNE INTERCHANGE (M.P. 205)




US 6 INTERCHANGE (M.P. 216)

Computer File Information		Sheet Revisions		Colorado Department of Transportation		As Constructed		I-70 TCP WIDE LOAD DETOUR		Project No./Code	
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Scale:	NTS										Sheet Number: 75
Units:	ENGLISH										


 P.O. Box 399
 Denver, CO 80436
 Phone: (303) 512-5750
 Fax: (303) 512-5775

4601 DTC Boulevard
 Suite 700
 Denver, Colorado 80237
 Phone: 303-221-7275
 Fax: 303-221-7276

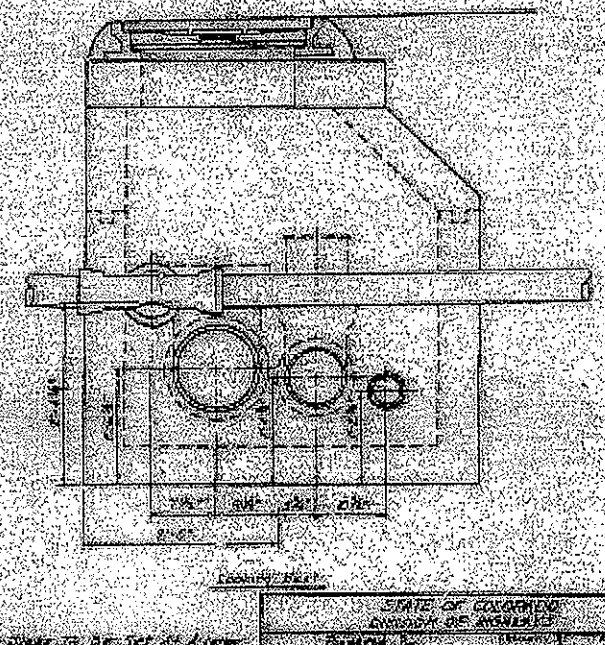
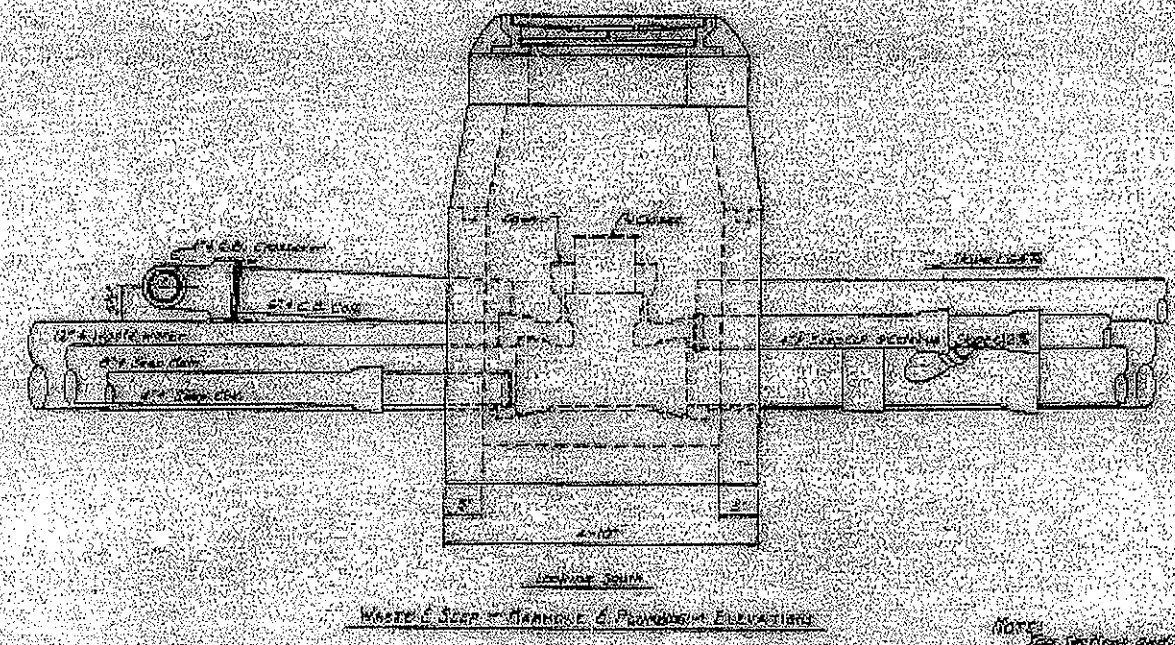
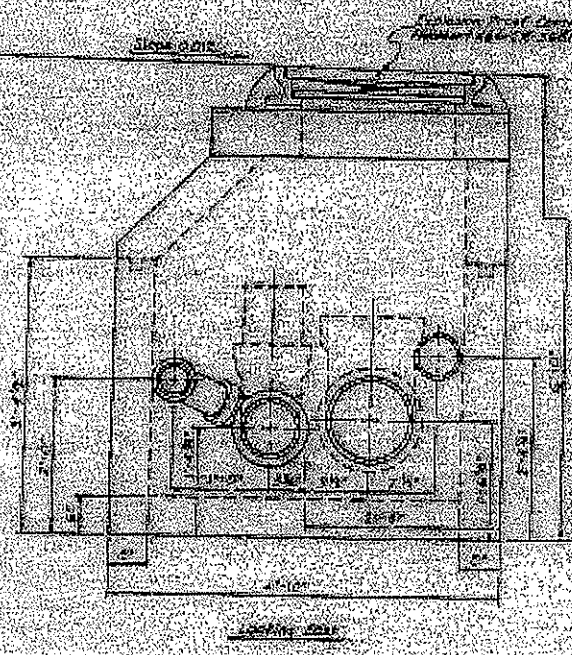
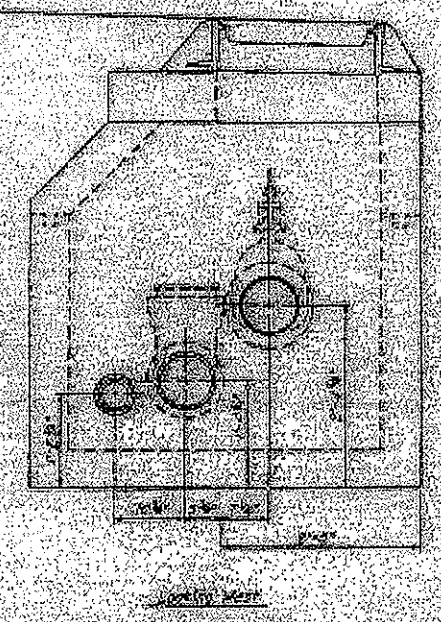
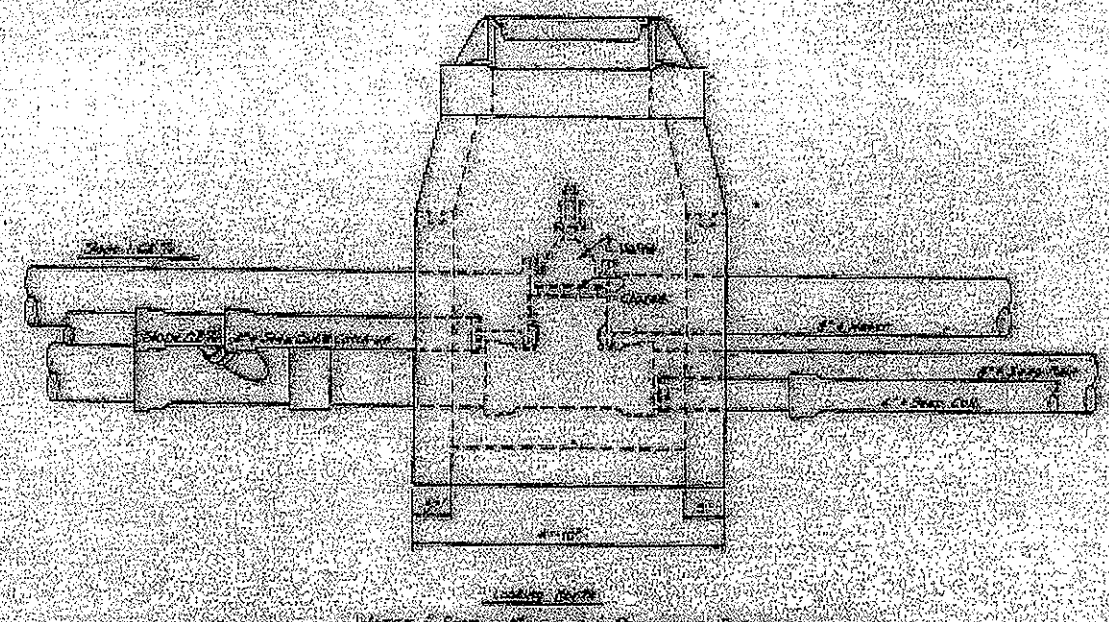
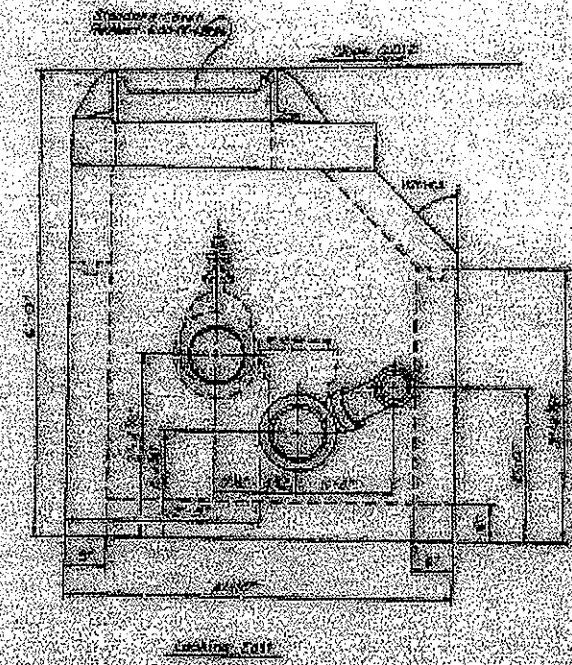


 REGION I MTN RESIDENCY INZ

DESIGNER	DATE	PROJECT NO.	REV.	DATE
MSJ	02/07/06	70-1514(27)	001X	500

NOTE:
THIS SHEET HAS BEEN COPIED FROM THE "AS
CONSTRUCTED PLANS" AND IS PROVIDED FOR
INFORMATION ONLY. THE CONTRACTOR IS
RESPONSIBLE FOR VERIFYING ALL PERTINENT
INFORMATION IN THE FIELD.

AS CONSTRUCTED
REVISED DATE
02/24/1973



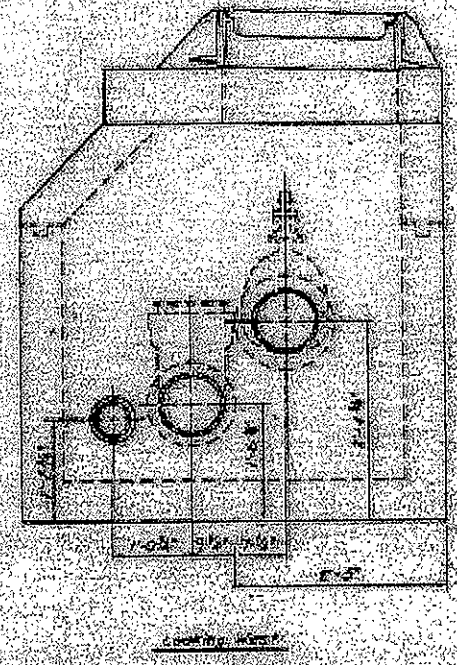
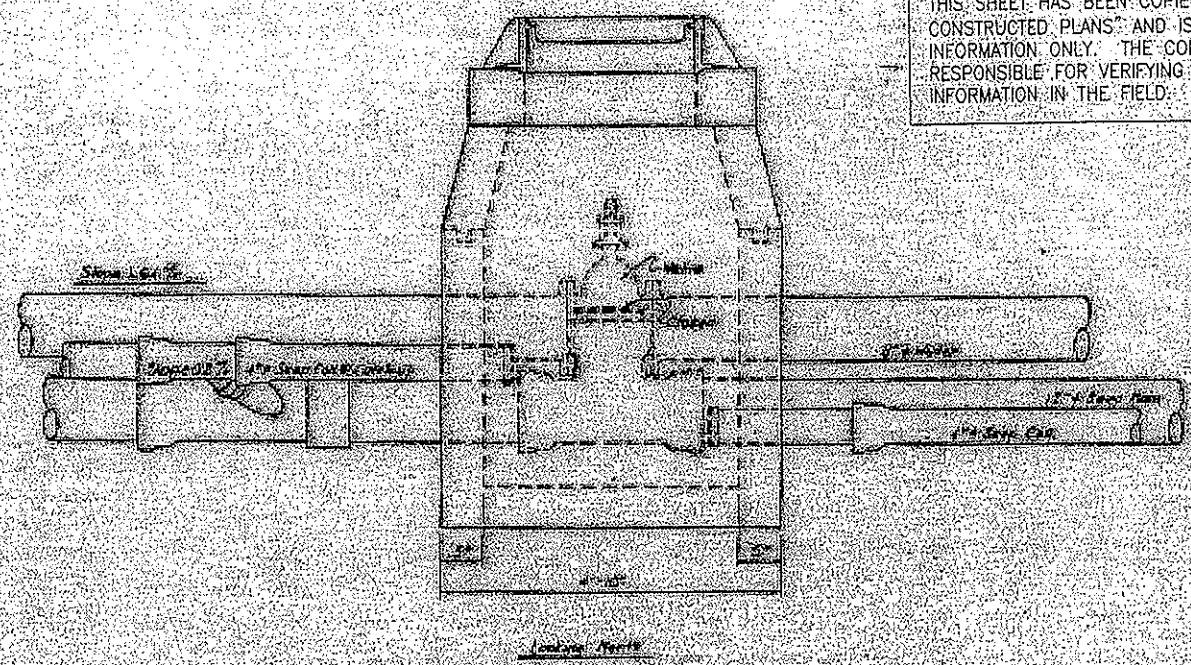
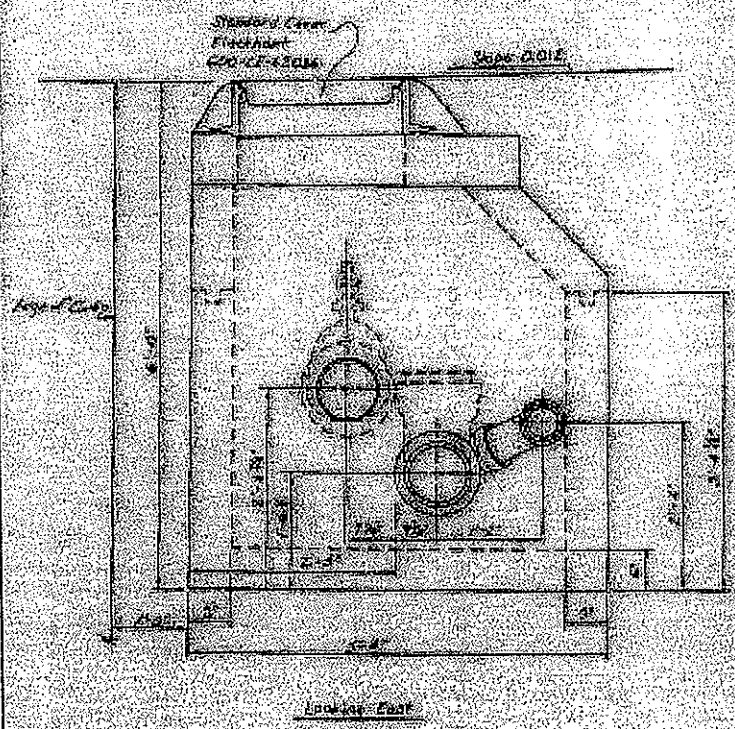
NOTE:
FOR THE RECORD AND TO BE USED AS A GUIDE TO THE FIELD, THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL PERTINENT INFORMATION IN THE FIELD.

STATE OF COLORADO	
DIVISION OF HIGHWAYS	
DESIGNED BY	MSJ
CHECKED BY	MSJ
DATE	02/07/06
PROJECT NO. 70-1514(27)	
SHEET NO. 77	

2/9/2006 2:41:36 AM S:\Trenproj\246202-06\HwyDes\Plans\Fiodt02.dgn

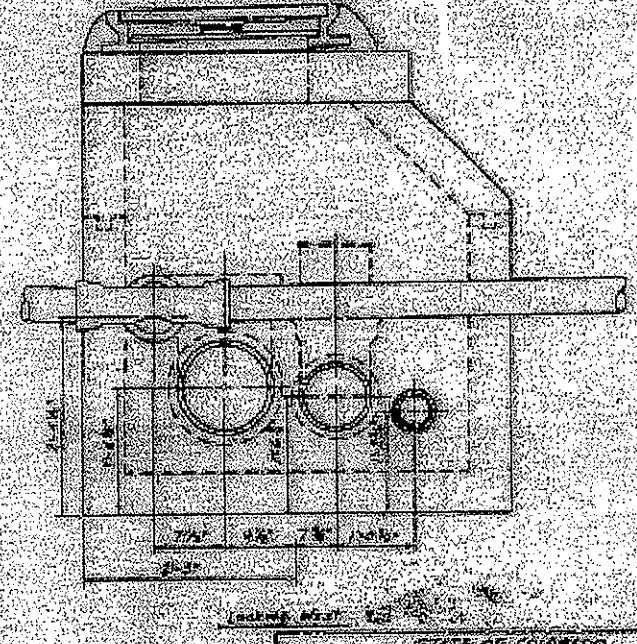
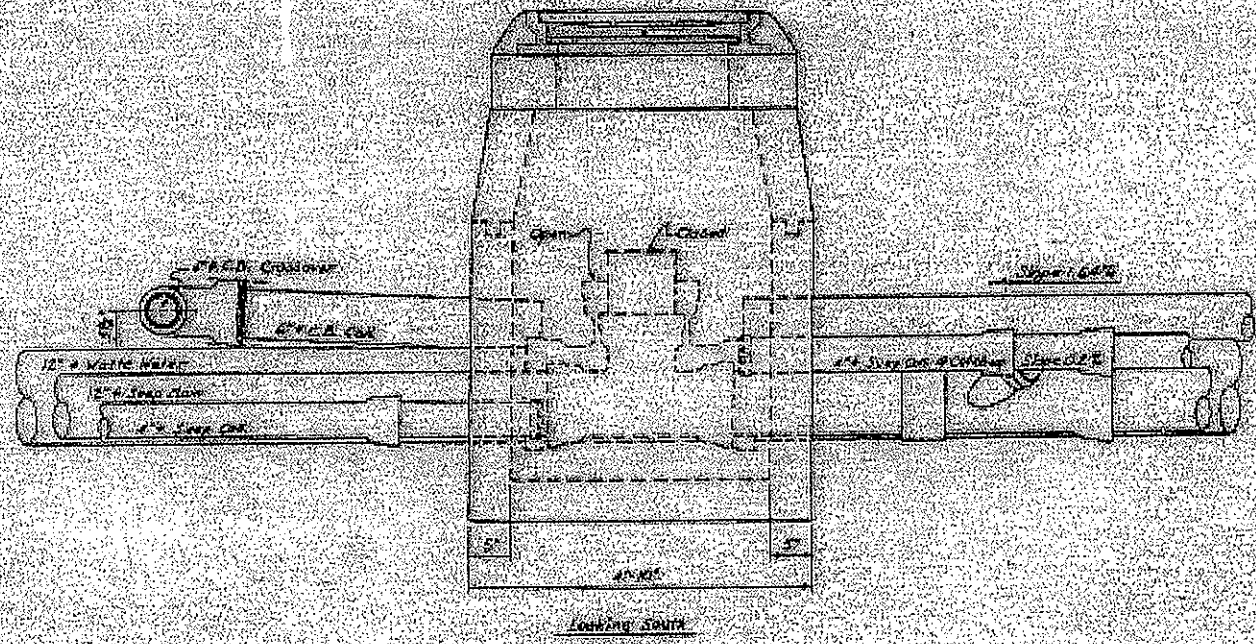
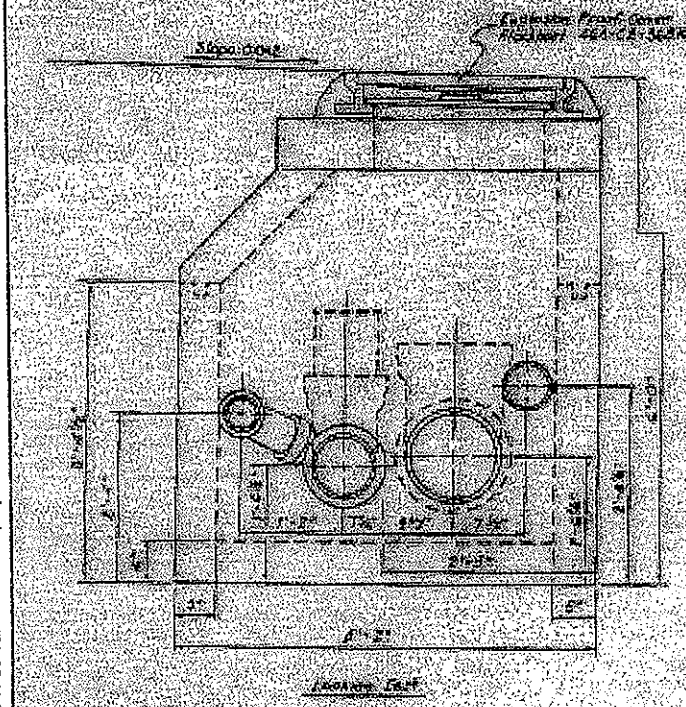
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Last Modification Date:	02/07/06 Initials: MSJ			4601 DTC Boulevard Suite 700 Denver, Colorado 80237 Phone: 303-221-7275 Fax: 303-221-7276		Revised:		Detailer: MSJ		15195	
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CONSTRUCTED PLANS" AND IS PROVIDED FOR
INFORMATION ONLY. THE CONTRACTOR IS
RESPONSIBLE FOR VERIFYING ALL PERTINENT
INFORMATION IN THE FIELD.



Looking North
WATER & SEWER MANHOLE & PIPING - ELEVATIONS

NOT TO SCALE
Indicates Position Only



Looking South
WATER & SEWER MANHOLE & PIPING - ELEVATIONS

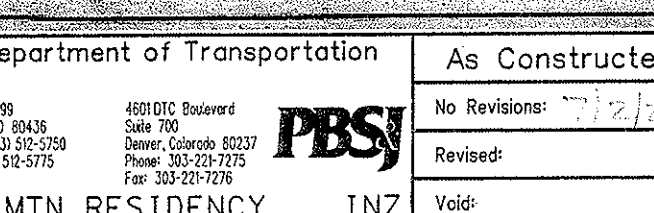
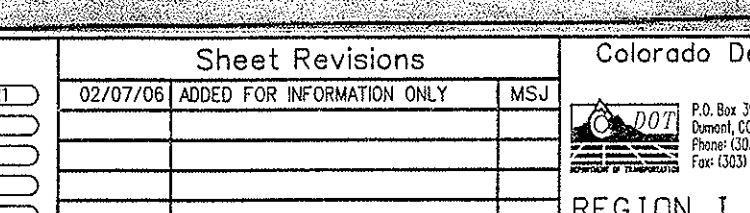
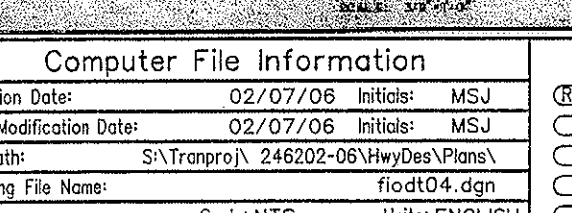
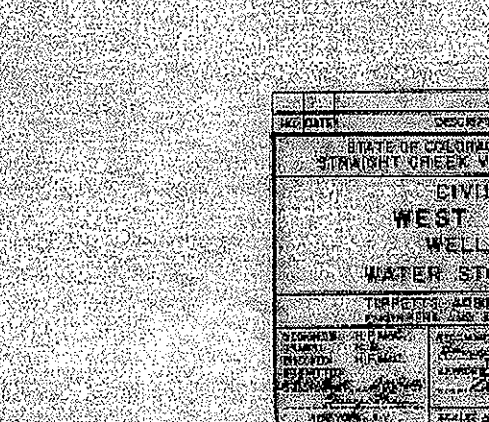
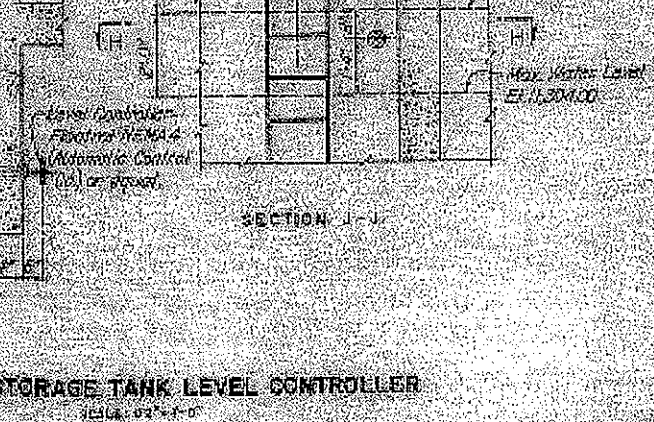
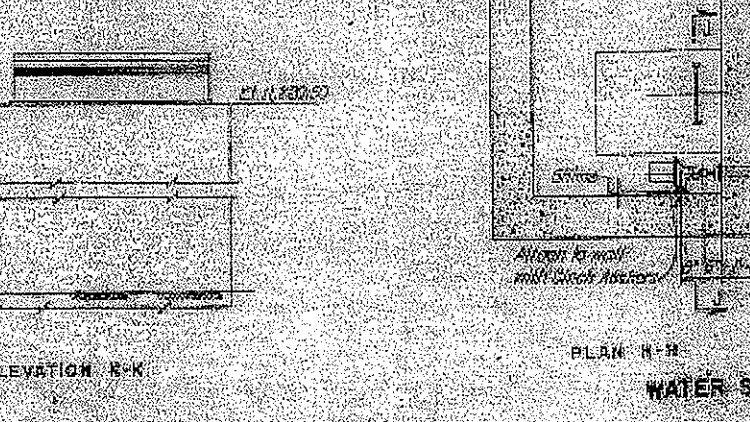
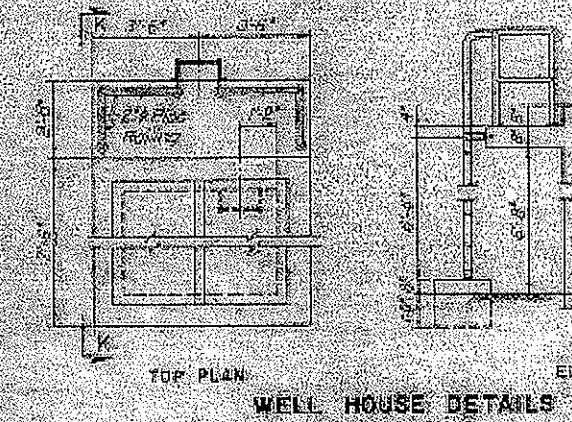
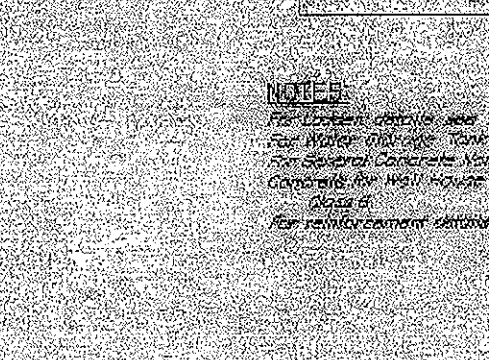
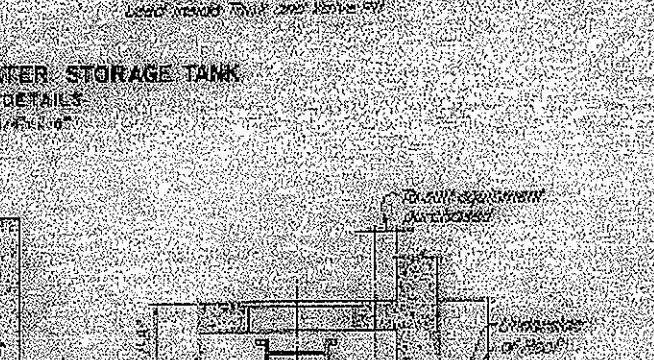
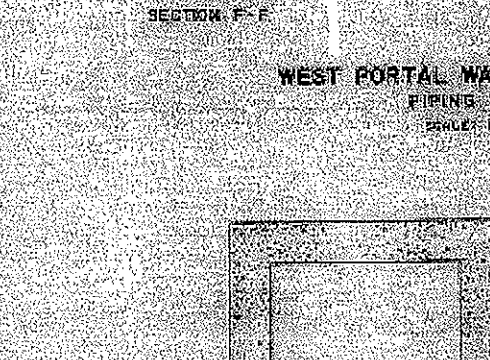
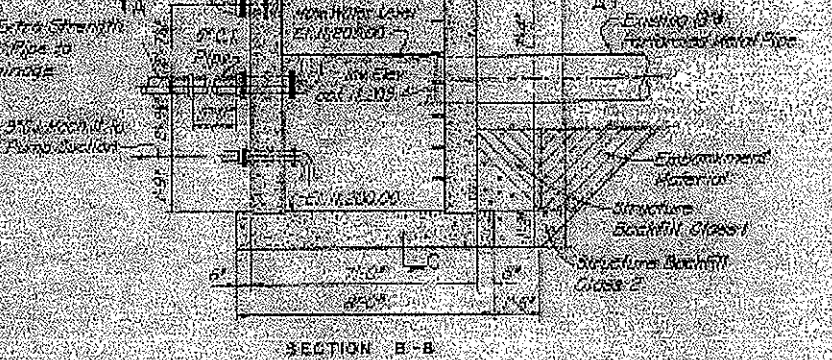
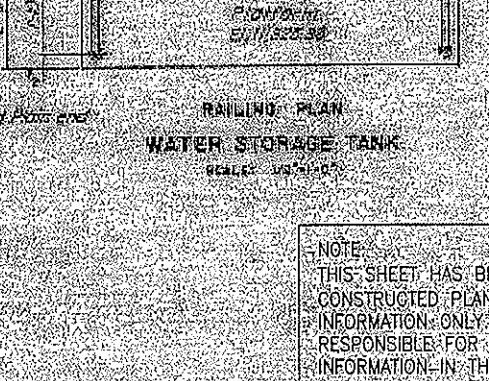
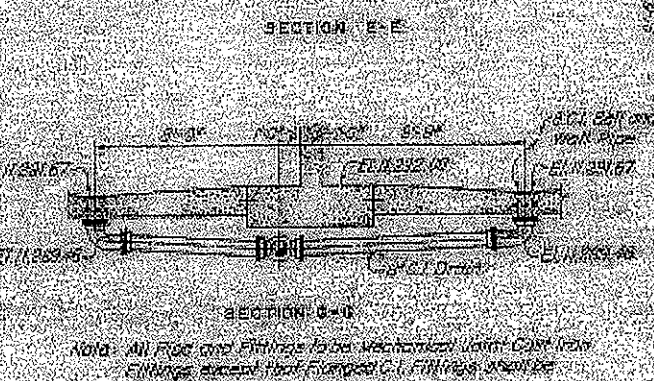
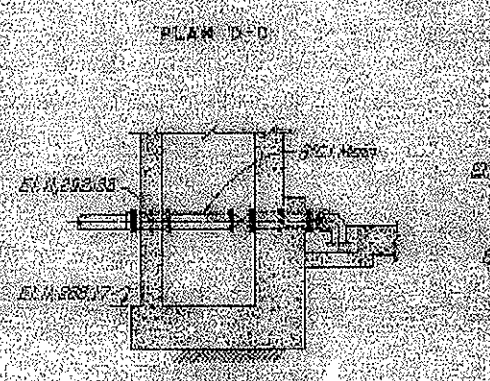
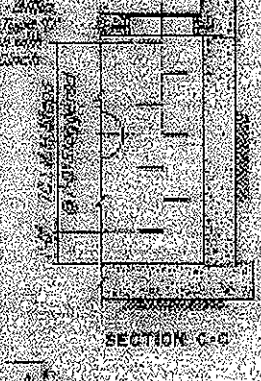
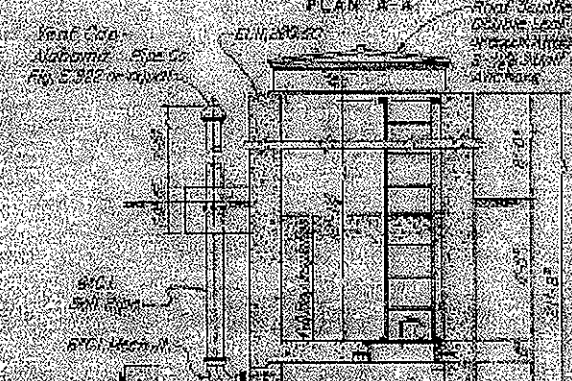
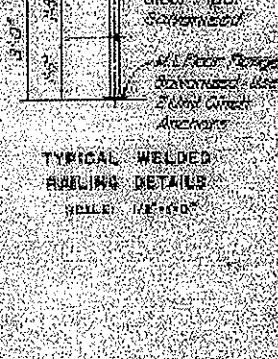
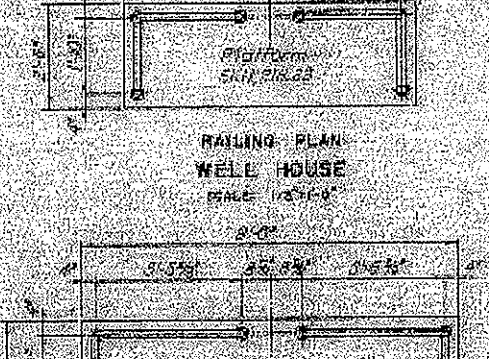
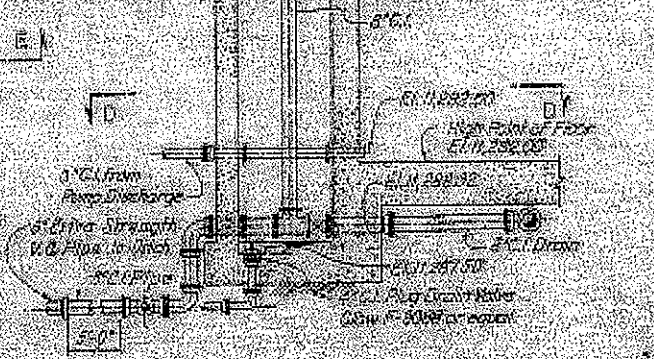
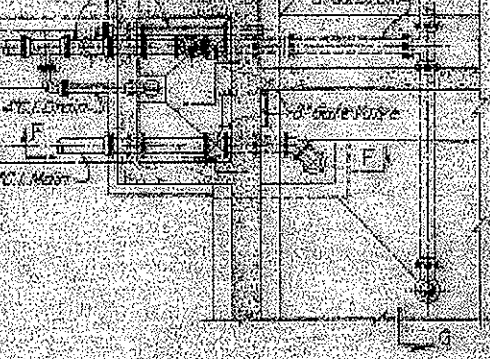
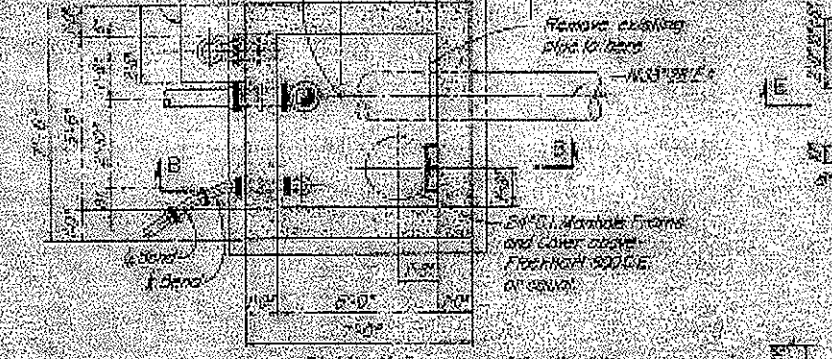
STATE OF COLORADO		BUREAU OF HIGHWAYS	
Project No.	15195	Revision	01
Drawn By	MSJ	Checked By	MSJ
Piping Details - Manhole & Manholes (12\"/>			

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Creation Date:	02/07/06 Initials: MSJ	02/07/06	ADDED FOR INFORMATION ONLY	P.O. Box 399 Durant, CO 80436 Phone: (303) 512-5750 Fax: (303) 512-5775		No Revisions: 7/2/2007		Designer:		IM 0702-257	
Last Modification Date:	02/07/06 Initials: MSJ			4601 DTC Boulevard Suite 700 Denver, Colorado 80237 Phone: 303-221-7275 Fax: 303-221-7276		Revised:		Detailer: MSJ		15195	
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Units:	ENGLISH										

PROJECT NO.	DATE	BY	CHKD
1-70-154-200	24		

2" = 1'-0" in existing
 3" = 1'-0" in proposed
 Notes:
 1. ALL DIMENSIONS ARE IN FEET AND INCHES.
 2. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE NOTED.
 3. ALL DIMENSIONS ARE TO CENTERLINE UNLESS OTHERWISE NOTED.
 4. ALL DIMENSIONS ARE TO CENTERLINE UNLESS OTHERWISE NOTED.
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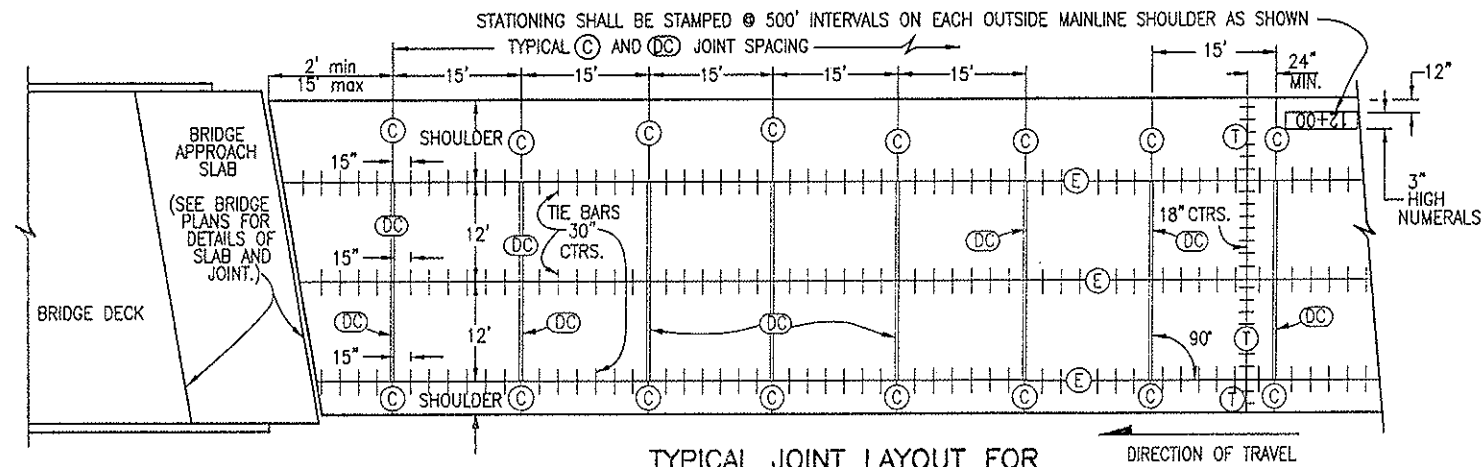
NOTE:
 THIS SHEET HAS BEEN COPIED FROM THE "AS CONSTRUCTED PLANS" AND IS PROVIDED FOR INFORMATION ONLY. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL PERTINENT INFORMATION IN THE FIELD.

NOTES:
 For Water Storage Tank details see DWG 02-257
 For Water Storage Tank details see DWG 02-258
 For Structural Concrete Notes see DWG 02-111
 For Railing Details see DWG 02-111
 For reinforcement details of Well House see DWG 02-256

NO. DATE	DESCRIPTION OF REVISION	BY	CHKD
	STATE OF COLORADO - DEPARTMENT OF HIGHWAYS STRAIGHT CREEK VERMILION TUNNEL PROJECT		
CIVIL - GENERAL WEST PORTAL AREA WELL HOUSE AND WATER STORAGE TANK PIPING			
THURSTON, LOBBETT, McARTHUR, STRATTON ENGINEERS, ARCHITECTS, AND PLANNERS NEW YORK, N.Y.			
DESIGNED BY	Checked By	DATE	SCALE
MSJ	MSJ	02/07/06	AS SHOWN
DRAWN BY	Checked By	DATE	SCALE
MSJ	MSJ	02/07/06	AS SHOWN
PROJECT NO.	SHEET NO.		
IM 0702-257	63-3		

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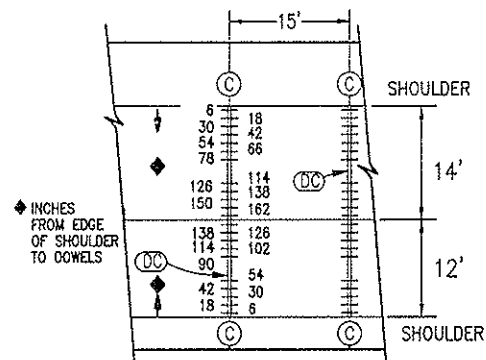
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Last Modification Date:	02/07/06	Initials:	MSJ				Revised:	Designer:		15195	
Full Path:	S:\Tranproj\246202-06\HwyDes\Plans\			P.O. Box 399 Dumont, CO 80436 Phone: (303) 512-5750 Fax: (303) 512-5775		4601 DTC Boulevard Suite 700 Denver, Colorado 80237 Phone: 303-221-7275 Fax: 303-221-7276		Detailer:		Sheet Number:	
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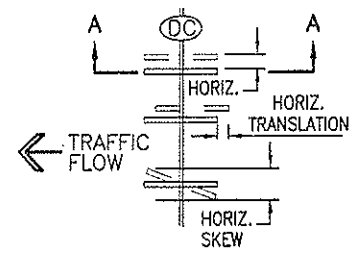
TYPICAL JOINT LAYOUT FOR CONCRETE ROADWAY WITH CONCRETE SHOULDERS

GENERAL NOTES

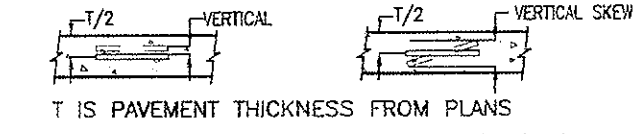
1. THIS STANDARD PLAN DOES NOT APPLY TO THIN CONCRETE OVERLAYS (WHITETOPPING).
2. LOCATE (T) JOINT AT A (C) JOINT OR A MINIMUM OF 2 FEET FROM A (C) JOINT.
3. THIS JOINT LAYOUT IS INTENDED TO BE USED AS A STANDARD FOR THE JOINT LAYOUT FOR THE PROJECT. IF THE CONTRACTOR PROPOSES VARIATIONS FROM THIS STANDARD OR THE PROJECT HAS UNUSUAL OR IRREGULAR CONDITIONS NOT COVERED HEREIN, THE CONTRACTOR SHALL PREPARE A PAVEMENT JOINT LAYOUT FOR APPROVAL BY THE ENGINEER. 14 FOOT SLABS SHALL BE CONSTRUCTED ONLY WHERE DESIGNATED ON THE PLANS.
4. WHEN A CONTINUOUS WIDTH OF PAVEMENT IS POURED WIDER THAN 40 FEET, THE JOINT NEAREST THE CENTERLINE SHALL BE AN UNTIED (D) JOINT.
5. ON 4 LANE DIVIDED HIGHWAYS, THE 2 LANE DIRECTIONAL PAVEMENT AND BOTH SHOULDERS SHALL BE PLACED WITH (E) LONGITUDINAL SAWED CONTRACTION JOINTS.
6. ON VARIABLE WIDTH SLABS, THE 2 FOOT OR 4 FOOT END OF SLAB WIDTH DIMENSION MAY VARY ±6 INCHES.
7. (L) TO BE USED WHEN TRAFFIC LANE IS ADDED SEPARATELY OR FOR TAPERS OR SPEED CHANGE LANES. ALTERNATIVE LONGITUDINAL JOINT LOCATIONS AT SPEED CHANGE LANE MAY BE USED IF APPROVED.



DOWEL BAR DETAIL FOR (DC) JOINT WITH 14 ft. AND 12 ft. LANES

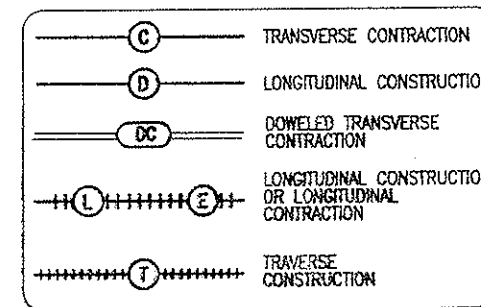


PLAN VIEW SHOWING HORIZ. TRANSLATION, AND HORIZ. SKEW TOLERANCES

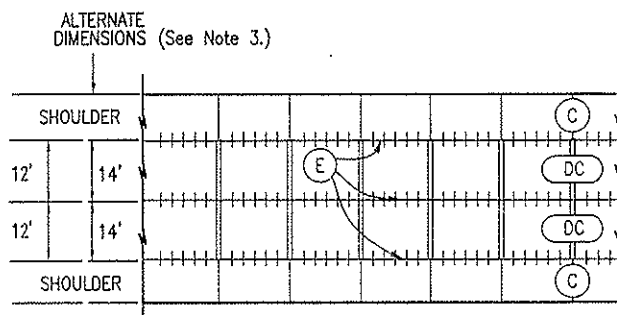


SECTION A-A SHOWING VERTICAL TOLERANCE SECTION A-A SHOWING VERTICAL SKEW TOLERANCE

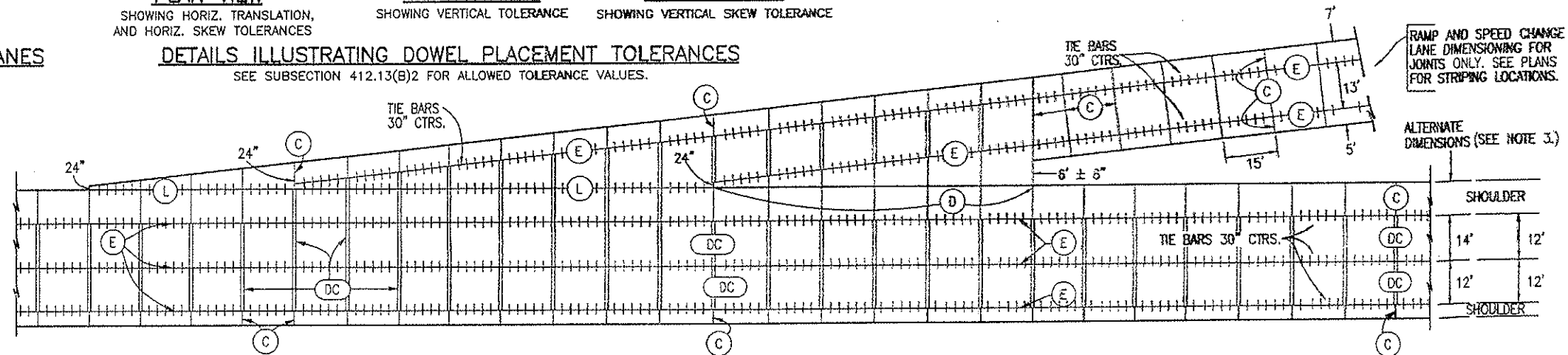
JOINT LEGEND



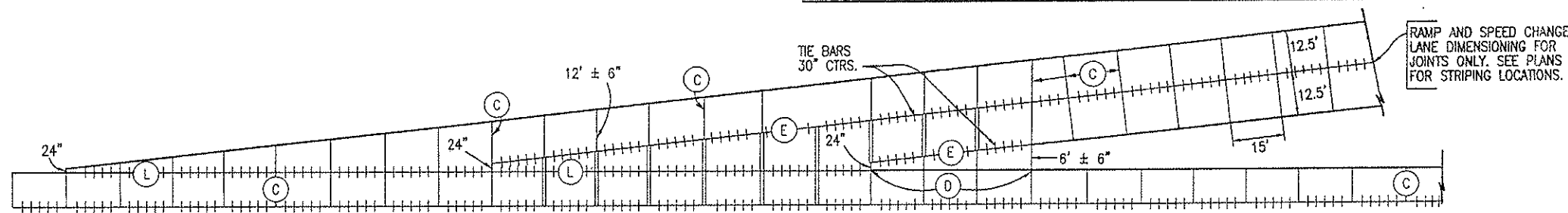
DETAILS ILLUSTRATING DOWEL PLACEMENT TOLERANCES SEE SUBSECTION 412.13(B)2 FOR ALLOWED TOLERANCE VALUES.



RURAL TWO-LANE



MULTI-LANE WITH SPEED CHANGE LANE AND CONCRETE SHOULDERS



OPTIONAL LONGITUDINAL JOINT IN CENTER FOR SINGLE LANE SPEED CHANGE LANE

Colorado Department of Transportation

4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9083 FAX: (303) 757-9820

Project Development Branch

SRJ

Computer File Information

Path: www.dot.state.co.us/DevelopProjects/DesignSupport/MStandards/

Drawing File Name: 412010105.dwg

Acad Version: R14 Scale: NA Units: English

Standard Plan Revised

Date: 12/20/02
Comments: Added Accel/Decel Detail Sheet, Multi-lane Intersection Sheet, and Joint Details.

CONCRETE PAVEMENT JOINTS

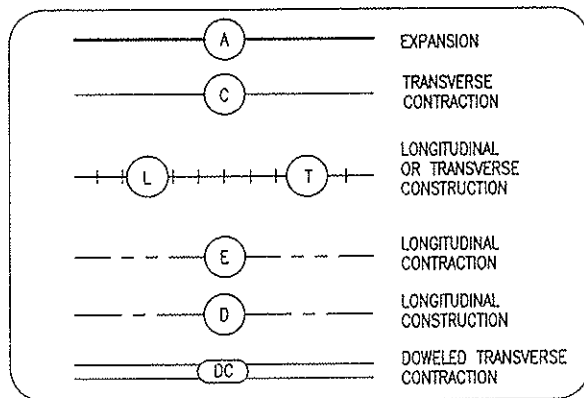
Issued By: Project Development Branch October 1, 2000

STANDARD PLAN NO.

M-412-1

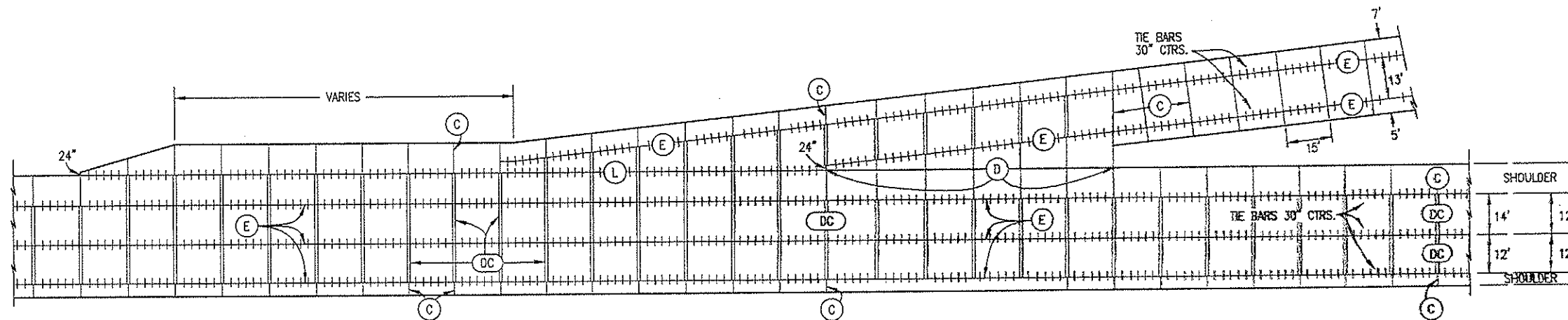
Sheet No. 1 of 5

JOINT LEGEND

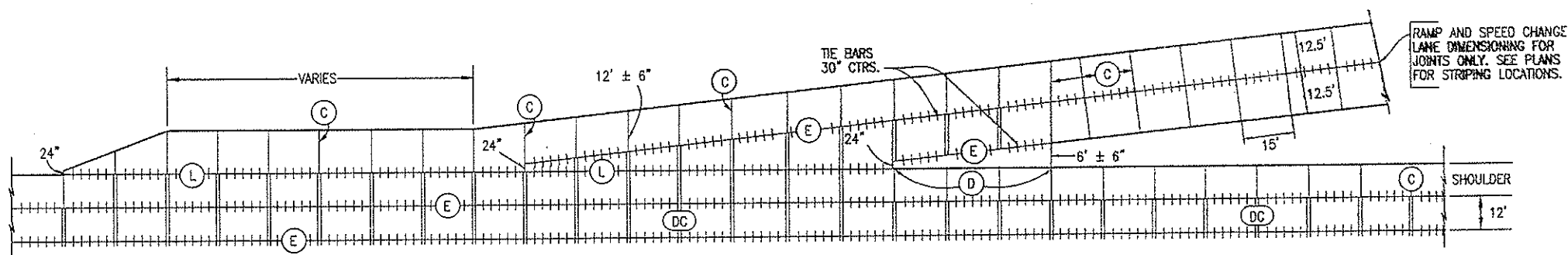


GENERAL NOTES

1. THIS STANDARD PLAN DOES NOT APPLY TO THIN CONCRETE OVERLAYS (WHITETOPPING).
2. LOCATE (T) JOINT AT A (C) JOINT OR A MINIMUM OF 2 FEET FROM A (C) JOINT.
3. THIS JOINT LAYOUT IS INTENDED TO BE USED AS A STANDARD FOR THE JOINT LAYOUT FOR THE PROJECT. IF THE CONTRACTOR PROPOSES VARIATIONS FROM THIS STANDARD OR THE PROJECT HAS UNUSUAL OR IRREGULAR CONDITIONS NOT COVERED HEREIN, THE CONTRACTOR SHALL PREPARE A PAVEMENT JOINT LAYOUT FOR APPROVAL BY THE ENGINEER. 14 FOOT SLABS SHALL BE CONSTRUCTED ONLY WHERE DESIGNATED ON THE PLANS.
4. WHEN A CONTINUOUS WIDTH OF PAVEMENT IS POURED WIDER THAN 40 FEET, THE JOINT NEAREST THE CENTERLINE SHALL BE AN UNTIED (D) JOINT.
5. ON 4 LANE DIVIDED HIGHWAYS, THE 2 LANE DIRECTIONAL PAVEMENT AND BOTH SHOULDERS SHALL BE PLACED WITH (E) LONGITUDINAL SAWED CONTRACTION JOINTS.
6. ON VARIABLE WIDTH SLABS, THE 2 FOOT OR 4 FOOT END OF SLAB WIDTH DIMENSION MAY VARY ±6 INCHES.
7. (L) TO BE USED WHEN TRAFFIC LANE IS ADDED SEPARATELY OR FOR TAPERS OR SPEED CHANGE LANES. ALTERNATIVE LONGITUDINAL JOINT LOCATIONS AT SPEED CHANGE LANE MAY BE USED IF APPROVED.




MULTI-LANE WITH ACCELERATION AND DECELERATION LANES AND CONCRETE SHOULDERS



OPTIONAL LONGITUDINAL JOINT IN CENTER FOR SINGLE LANE ACCELERATION AND DECELERATION LANE

RAMP AND SPEED CHANGE LANE DIMENSIONING FOR JOINTS ONLY. SEE PLANS FOR STRIPING LOCATIONS.

Colorado Department of Transportation


 4201 East Arkansas Avenue
 Denver, Colorado 80222
 Phone: (303) 757-9083 FAX: (303) 757-9820

Project Development Branch SRJ

Computer File Information

Path: www.dot.state.co.us/DevelopProjects/DesignSupport/MStandards/

Drawing File Name: 412010205.dwg

Acad Version: R14 Scale: NA Units: English

Standard Plan Revised

Date: 12/20/02
 Comments: Added Accel/Decel Detail Sheet, Multi-lane Intersection Sheet, and Joint Details.

CONCRETE PAVEMENT JOINTS

Issued By: Project Development Branch December 20, 2002

STANDARD PLAN NO.

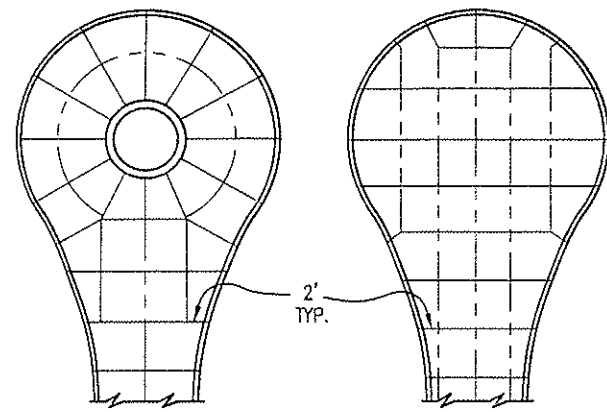
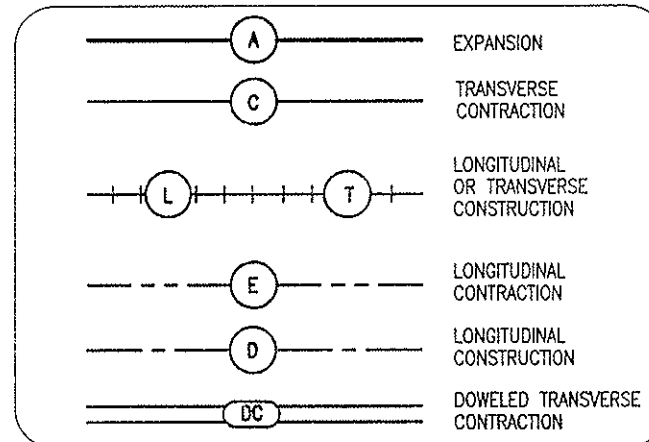
M-412-1

Sheet No. 2 of 5

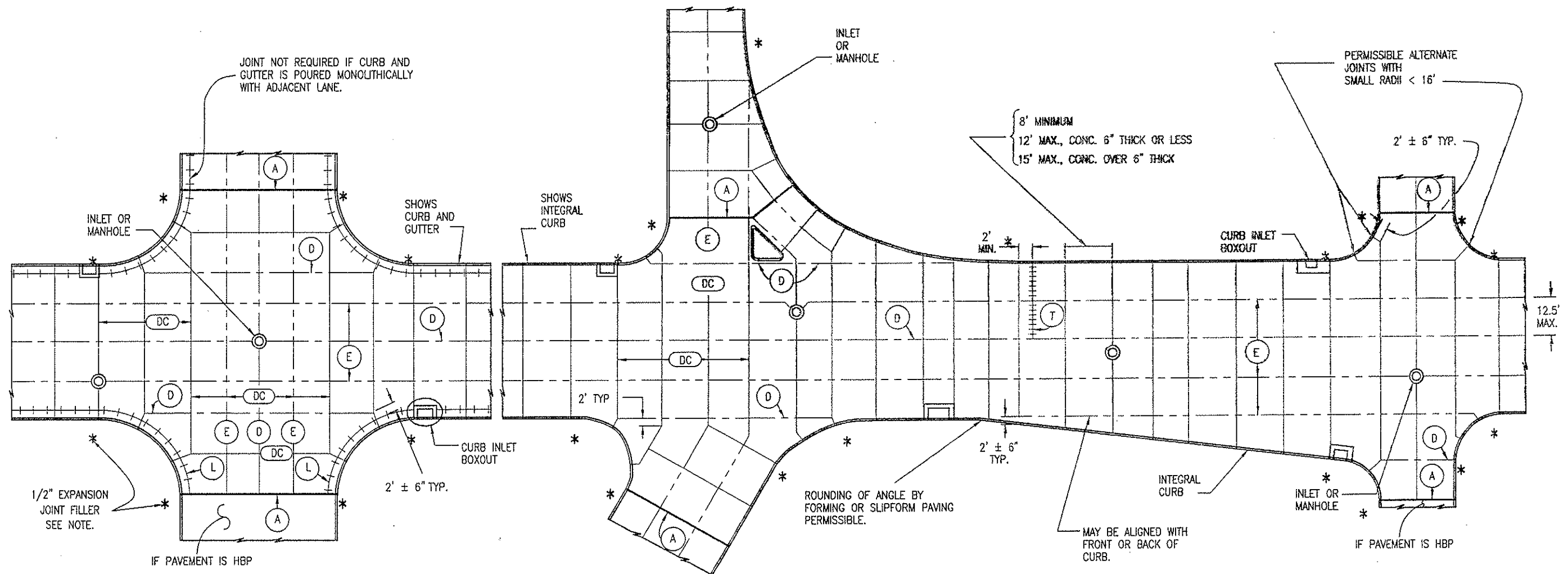
GENERAL NOTES

1. THIS STANDARD DOES NOT APPLY TO THIN CONCRETE OVERLAYS (WHITETOPPING).
2. THIS TYPICAL JOINT LAYOUT IS INTENDED TO BE USED AS A STANDARD FOR THE JOINT LAYOUT FOR THE PROJECT. IF THE CONTRACTOR PROPOSES VARIATIONS FROM THIS STANDARD OR THE PROJECT HAS UNUSUAL OR IRREGULAR CONDITIONS NOT COVERED HEREIN, THE CONTRACTOR SHALL PREPARE A PAVEMENT JOINT LAYOUT FOR APPROVAL BY THE ENGINEER.
3. LONGITUDINAL JOINTS SHALL COINCIDE WITH LANE MARKINGS WHEN POSSIBLE, AND HAVE MAXIMUM SPACING OF 12.5 FT. (15 FT. PERMITTED WITH MONOLITHIC CURB AND GUTTER).
4. CONSTRUCT TRANSVERSE JOINTS PERPENDICULAR TO THE CENTERLINE OF PAVEMENT AND EXTEND THROUGH THE CURB OR CURB AND GUTTER.
- * 5. PLACE 1/2 IN. MIN. EXPANSION JOINT FILLER IN TOP 6 IN. OF CURB JOINT AT INTERSECTION RETURN RADIUS POINTS.
6. THE CONTRACTOR SHALL, UNLESS OTHERWISE SHOWN ON THE PLANS, SELECT AND USE A BOND BREAKER AT INLETS, MANHOLES AND SIMILAR SIZE STRUCTURES. SMALLER STRUCTURES SUCH AS VALVE AND MONUMENT BOXES SHALL NOT REQUIRE A BOND BREAKER.
7. TRANSVERSE JOINTS SHALL BE LOCATED AT THE CENTER OF CIRCULAR MANHOLES AND INLETS. NO TRANSVERSE JOINT SHALL PASS WITHIN 4 FT. OF A MANHOLE.
8. WHERE A LONGITUDINAL JOINT WOULD PASS LESS THAN 1 FT. FROM A CAST-IN PAVEMENT MANHOLE OR SIMILAR SIZE STRUCTURE, A TYPICAL 2 FT. RADIAL JOINT, AS SHOWN IN THE DETAILS, SHALL BE USED.
9. LOCATE (T) JOINT AT (C) JOINT OR 2 FT. MIN FROM (C)
10. WHEN A CONTINUOUS WIDTH AT PAVEMENT IS POURED WIDER THAN 40 FT., THE JOINT NEAREST THE CENTERLINE SHALL BE AN UNTIED (D) JOINT.

JOINT LEGEND



CUL-DE-SAC



TYPICAL CURBED PAVEMENT JOINT LAYOUT

Colorado Department of Transportation



4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9083 FAX: (303) 757-9820

Project Development Branch

SRJ

Computer File Information

Path: www.dot.state.co.us/DevelopProjects/DesignSupport/MStandards/

Drawing File Name: 412010305.dwg

Acad Version: R14 Scale: NA Units: English

Standard Plan Revised

Date: 12/20/02
Comments: Added Accel/Decel Detail Sheet, Multi-lane Intersection Sheet, and Joint Details.

CONCRETE PAVEMENT JOINTS

Issued By: Project Development Branch October 1, 2000

STANDARD PLAN NO.

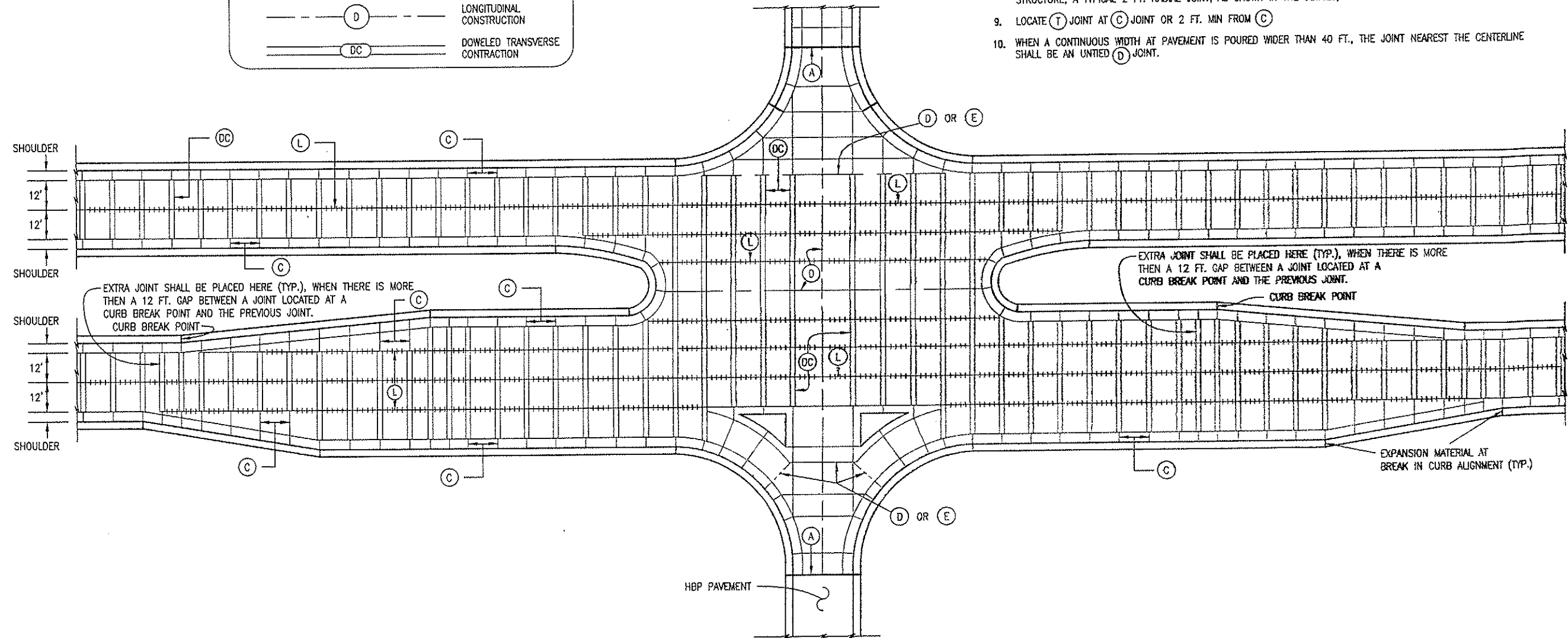
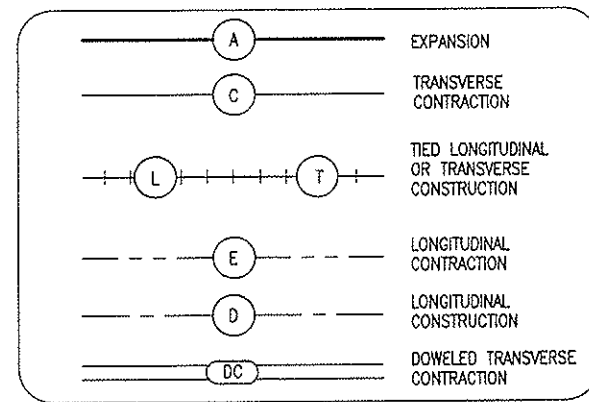
M-412-1

Sheet No. 3 of 5

GENERAL NOTES


1. THIS STANDARD DOES NOT APPLY TO CONCRETE OVERLAYS LESS THAN 6 FT. THICK (WHITETOPPING).
2. THIS TYPICAL JOINT LAYOUT IS INTENDED TO BE USED AS A STANDARD FOR THE JOINT LAYOUT FOR THE PROJECT. IF THE CONTRACTOR PROPOSES VARIATIONS FROM THIS STANDARD OR THE PROJECT HAS UNUSUAL OR IRREGULAR CONDITIONS NOT COVERED HEREIN, THE CONTRACTOR SHALL PREPARE A PAVEMENT JOINT LAYOUT FOR APPROVAL BY THE ENGINEER.
3. LONGITUDINAL JOINTS SHALL COINCIDE WITH LANE MARKINGS WHEN POSSIBLE, AND HAVE MAXIMUM SPACING OF 12.5 FT. (15 FT. PERMITTED WITH MONOLITHIC CURB AND GUTTER).
4. CONSTRUCT TRANSVERSE JOINTS PERPENDICULAR TO THE CENTERLINE OF PAVEMENT AND EXTEND THROUGH THE CURB OR CURB AND GUTTER.
5. PLACE 1/2 IN. MIN. EXPANSION JOINT FILLER IN TOP 6 IN. OF CURB JOINT AT INTERSECTION RETURN RADIUS POINTS.
6. THE CONTRACTOR SHALL, UNLESS OTHERWISE SHOWN ON THE PLANS, SELECT AND USE A BOND BREAKER AT INLETS, MANHOLES AND SIMILAR SIZE STRUCTURES. SMALLER STRUCTURES SUCH AS VALVE AND MONUMENT BOXES SHALL NOT REQUIRE A BOND BREAKER.
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8. WHERE A LONGITUDINAL JOINT WOULD PASS LESS THAN 1 FT. FROM A CAST-IN PAVEMENT MANHOLE OR SIMILAR SIZE STRUCTURE, A TYPICAL 2 FT. RADIAL JOINT, AS SHOWN IN THE DETAILS, SHALL BE USED.
9. LOCATE (T) JOINT AT (C) JOINT OR 2 FT. MIN FROM (C)
10. WHEN A CONTINUOUS WIDTH AT PAVEMENT IS POURED WIDER THAN 40 FT., THE JOINT NEAREST THE CENTERLINE SHALL BE AN UNTIED (D) JOINT.

JOINT LEGEND



MULTI-LANE INTERSECTION WITH SPEED CHANGE LANE AND CONCRETE SHOULDERS

Colorado Department of Transportation


 4201 East Arkansas Avenue
 Denver, Colorado 80222
 Phone: (303) 757-9083 FAX: (303) 757-9820

Project Development Branch

SRJ

Computer File Information

Path: www.dot.state.co.us/DevelopProjects/DesignSupport/MStandards/

Drawing File Name: 412010405.dwg

Acad Version: R14 Scale: NA Units: English

Standard Plan Revised

Date: 12/20/02
 Comments: Added Accel/Decel Detail Sheet, Multi-lane Intersection Sheet, and Joint Details.

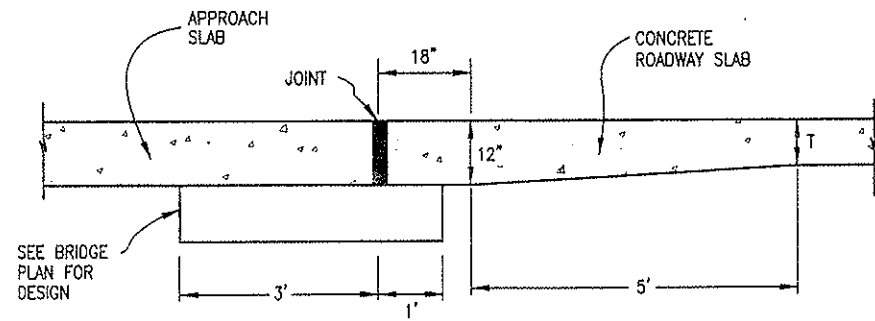
CONCRETE PAVEMENT JOINTS

Issued By: Project Development Branch December 20, 2002

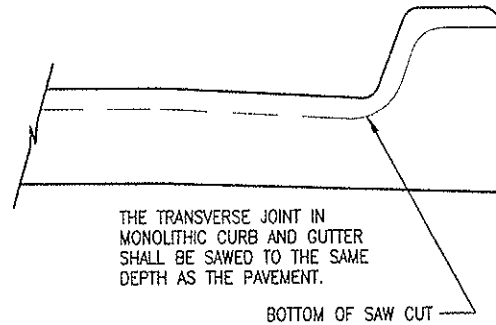
STANDARD PLAN NO.

M-412-1

Sheet No. 4 of 5



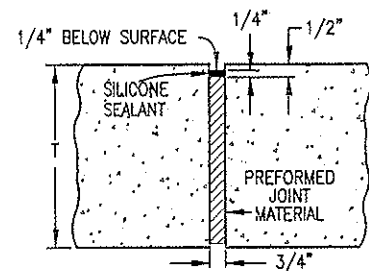
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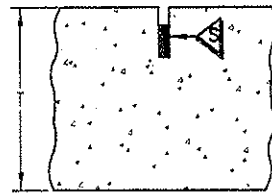
GENERAL NOTES

1. PAVEMENT THICKNESS (T), SHALL BE AS CALLED FOR IN THE PLANS.

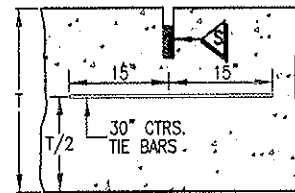
PAVEMENT THICKNESS (T)	TIE BAR SIZE	DOWELL BAR DIAMETER
T < 8 IN.	No. 4	1 IN.
8 IN. ≥ T ≤ 10 IN.	No. 5	1.25 IN.
10 IN. > T ≤ 15 IN.	No. 6	1.50 IN.



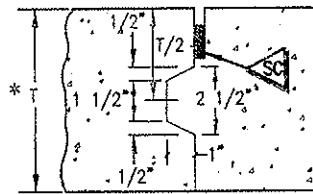
EXPANSION JOINT



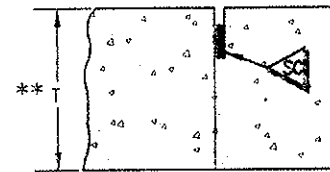
TRANSVERSE CONTRACTION JOINT
(TRANSVERSE WEAKENED PLANE JOINT)



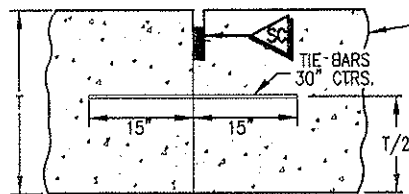
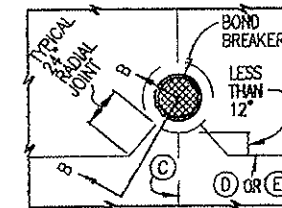
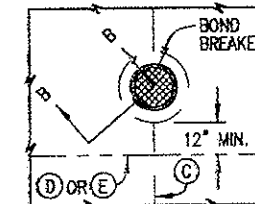
LONGITUDINAL CONTRACTION JOINT
(LONGITUDINAL WEAKENED PLANE JOINT)



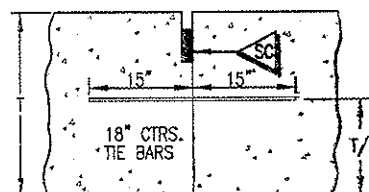
LONGITUDINAL CONSTRUCTION JOINT
* TO BE USED ONLY IF T ≥ 8 INCHES ONLY FEMALE KEYWAY TO BE FORMED



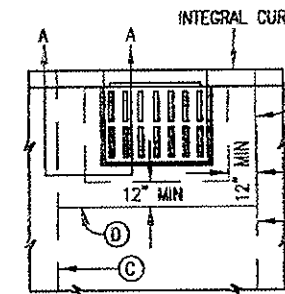
LONGITUDINAL CONSTRUCTION JOINT
** TO BE USED ONLY IF T < 8 INCHES



LONGITUDINAL CONSTRUCTION JOINT

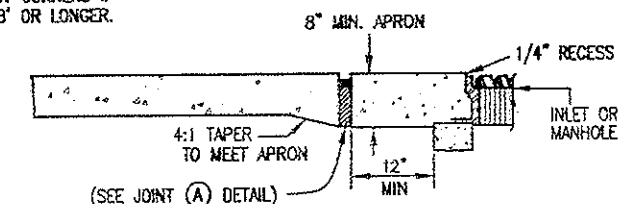


TRANSVERSE CONSTRUCTION JOINT

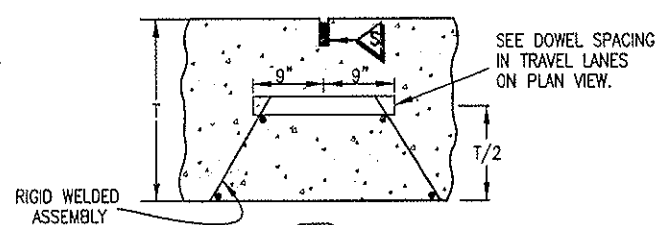


CURB INLET BOXOUT

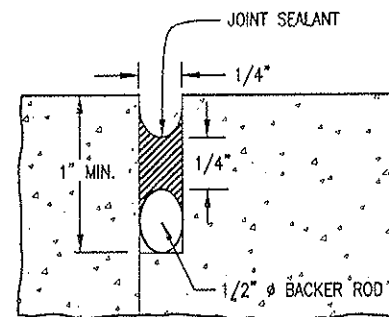
INLET OR MANHOLE CAST IN PAVEMENT



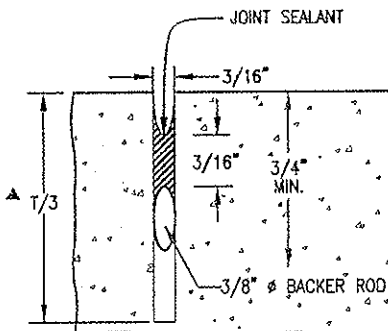
SECTION A-A



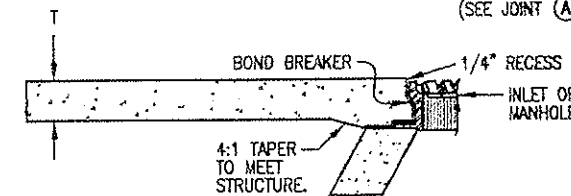
DOWELED TRANSVERSE CONTRACTION JOINT



SEAL AT CONSTRUCTION JOINT



SAWED JOINT



SECTION B-B

BOND BREAKER SHALL BE COMPOSED OF PLASTIC SHEET, BUILDING PAPER OR OTHER APPROVED MATERIAL TO PREVENT BONDING.

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Project Development Branch SRJ

Computer File Information

Path: www.dot.state.co.us/DevelopProjects/DesignSupport/MStandards/

Drawing File Name: 412010505.dwg

Acad Version: R14 Scale: NA Units: English

Standard Plan Revised

Date: 12/20/02
Comments: Added Accel/Decel Detail Sheet, Multi-lane Intersection Sheet, and Joint Details.

CONCRETE PAVEMENT JOINTS

Issued By: Project Development Branch October 1, 2000

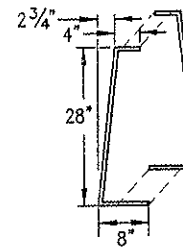
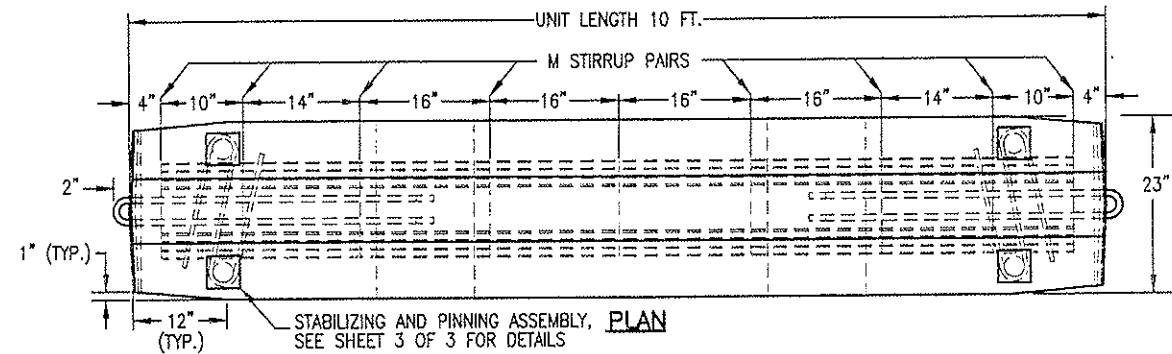
STANDARD PLAN NO.

M-412-1

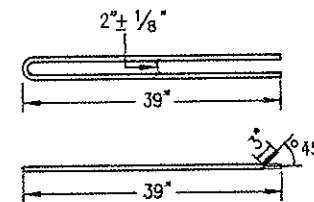
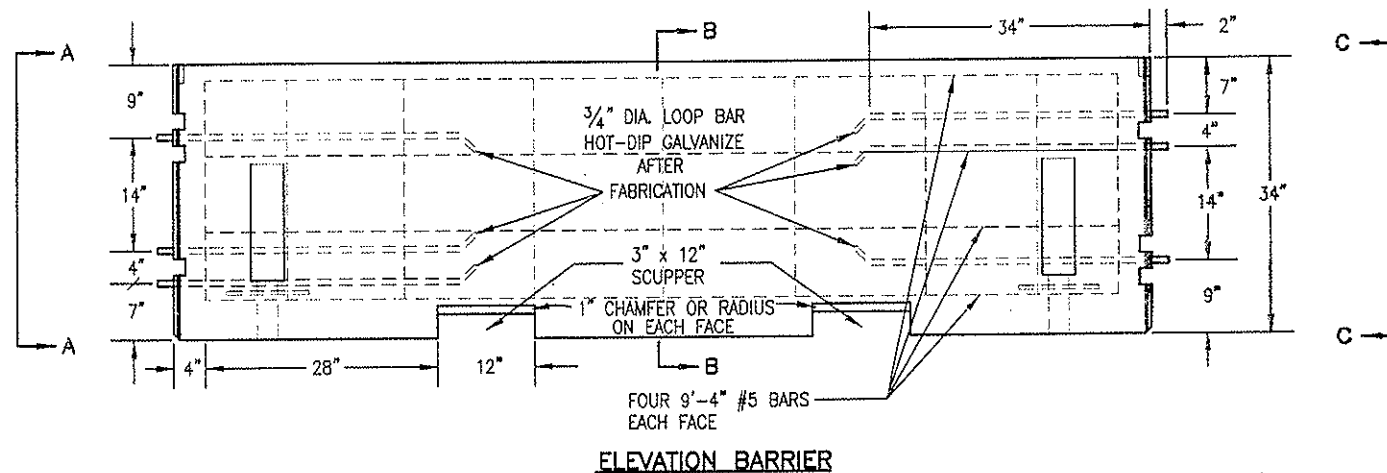
Sheet No. 5 of 5

GENERAL NOTES

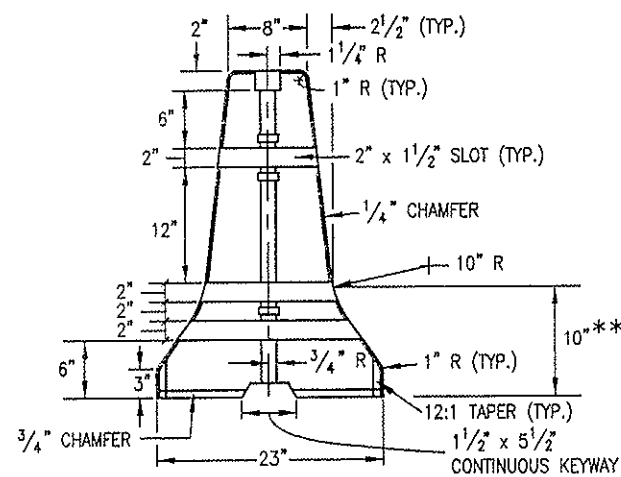
- ALL METAL REINFORCEMENT SHALL BE 2 IN. CLEAR OF NEAREST FACE OF CONCRETE UNLESS OTHERWISE SHOWN.
- CONCRETE SHALL BE CLASS B OR D.
- FOR TEMPORARY INSTALLATIONS, A MINIMUM 4 FT. DISTANCE SHALL EXIST FROM THE CENTERLINE OF THE CONCRETE BARRIER TO ANY OBSTRUCTIONS BEHIND IT. IN TEMPORARY INSTALLATIONS WITH LESS THAN A 4 FT. MINIMUM DISTANCE, STABILIZATION PINS SHALL BE USED ON EACH BARRIER UNIT ADJACENT TO, AND WITHIN 10 FT. OF BOTH SIDES OF THE OBSTRUCTION. SEE SHEET 3 OF 3 FOR STABILIZATION PINNING DETAILS.
- CLEAR ZONE DISTANCE REQUIREMENTS SHALL BE CALCULATED AS SPECIFIED IN THE LATEST EDITION OF THE "ROADSIDE DESIGN GUIDE".
- STABILIZATION PINS SHALL BE USED TO ANCHOR EACH 10 FT. UNIT IN ALL PERMANENT INSTALLATIONS. SEE SHEET 3 OF 3 FOR STABILIZATION PINNING DETAILS.
- ALL PERMANENT INSTALLATIONS REQUIRE END ANCHORAGES. SEE SHEET M-606-13, 1 OF 4 FOR ANCHORAGE DETAILS.
- THE MONTH AND YEAR THE PRECAST TYPE 7 CONCRETE BARRIER WAS MANUFACTURED SHALL BE MOLDED INTO ONE END OF EACH 10 FT. BARRIER UNIT.
- APPROVED NON-SHRINK GROUT SHALL BE USED FOR GROUTING OVER ALL PINS AND GROUTING OF SCUPPERS.
- WHEN HYDRAULIC ANALYSIS ALLOWS, SCUPPERS MAY NOT BE NEEDED ON:
 - MEDIAN INSTALLATION WITH INLET DRAINAGE.
 - SHOULDER BARRIER ON HIGH EDGE OF A SUPERELEVATED SHOULDER.
 - MEDIAN BARRIER ON A CREST VERTICAL CURVE.
 - PERMANENT BARRIER, IF SPECIFIED ON PLANS.
- ALL INCIDENTAL WORK AND MATERIALS SUCH AS CONNECTING PINS, ANCHORS BOLTS, GROUT, EXCAVATION FOR END ANCHORAGE, ETC. SHALL BE INCLUDED IN THE COST OF THE BARRIER.



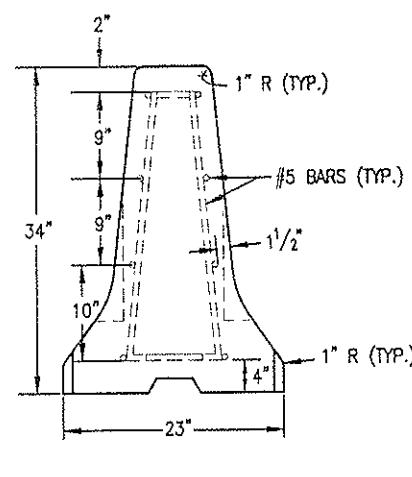
STIRRUP "M" #5 REBAR



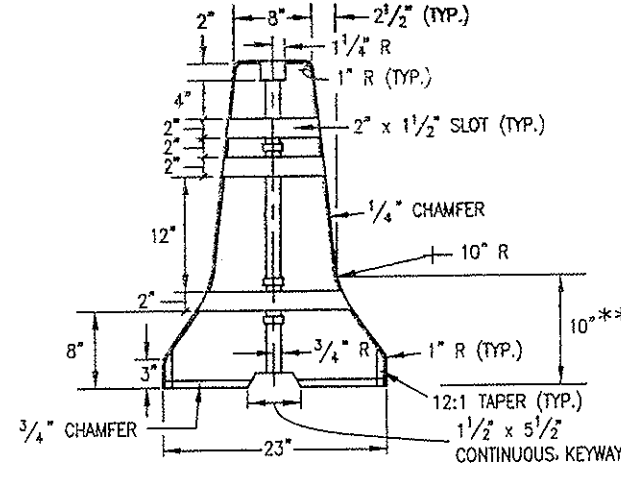
LOOP BENDING DETAIL (ASTM A36)



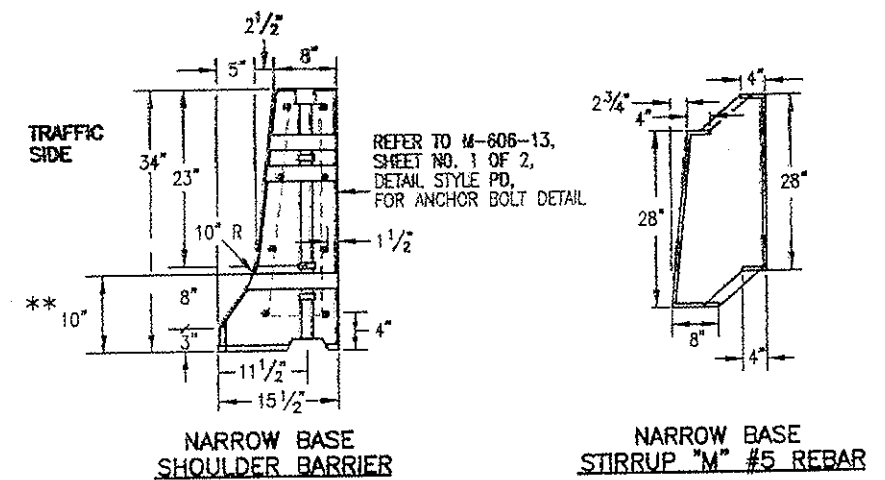
SECTION A-A



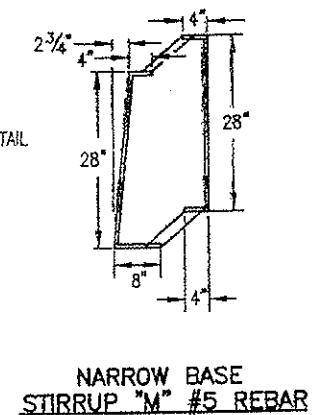
SECTION B-B



SECTION C-C



NARROW BASE SHOULDER BARRIER



NARROW BASE STIRRUP "M" #5 REBAR

** DIMENSIONS MARKED ARE TO THE INTERSECTION POINT OF THE BARRIER SLOPES. CONSTRUCT THE 10 IN. RADIUS TO PROVIDE A SMOOTH TRANSITION BETWEEN THE SLOPES.

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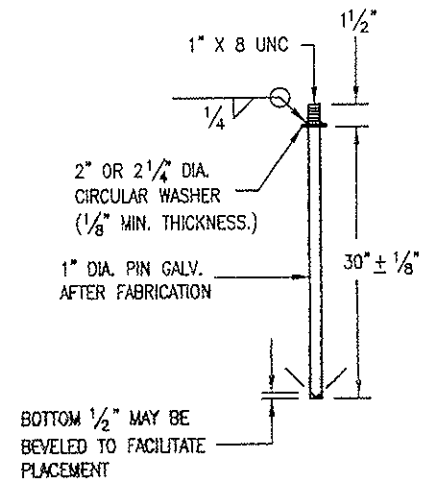
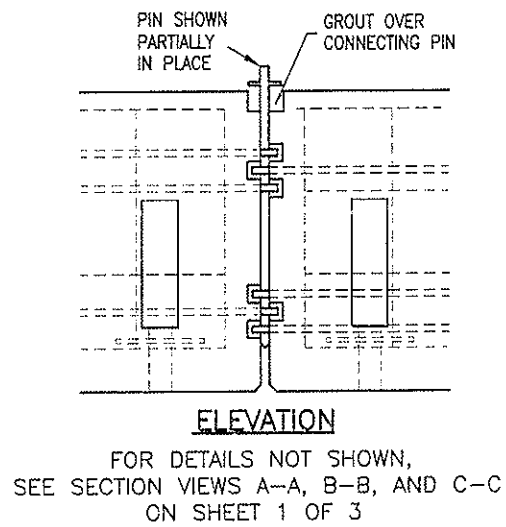
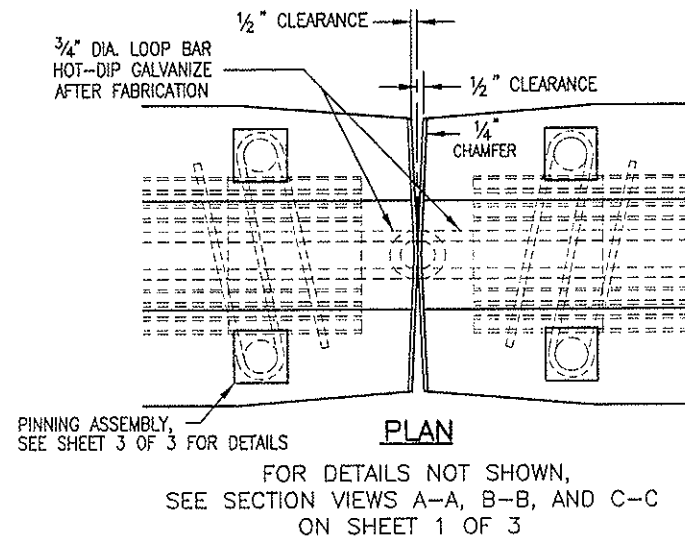
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Standard Plan Revised
 Date: _____ Comments: _____

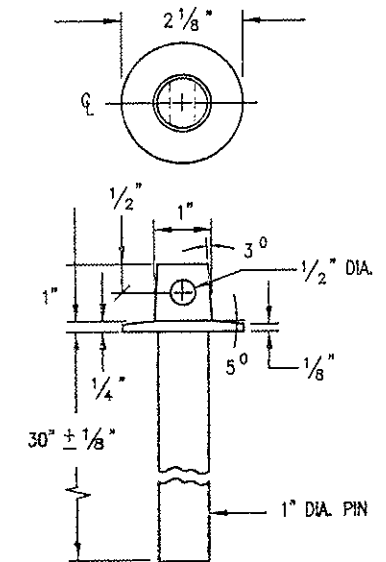
**PRECAST TYPE 7
 CONCRETE BARRIER**

Issued By: Project Development Branch July 02, 2002

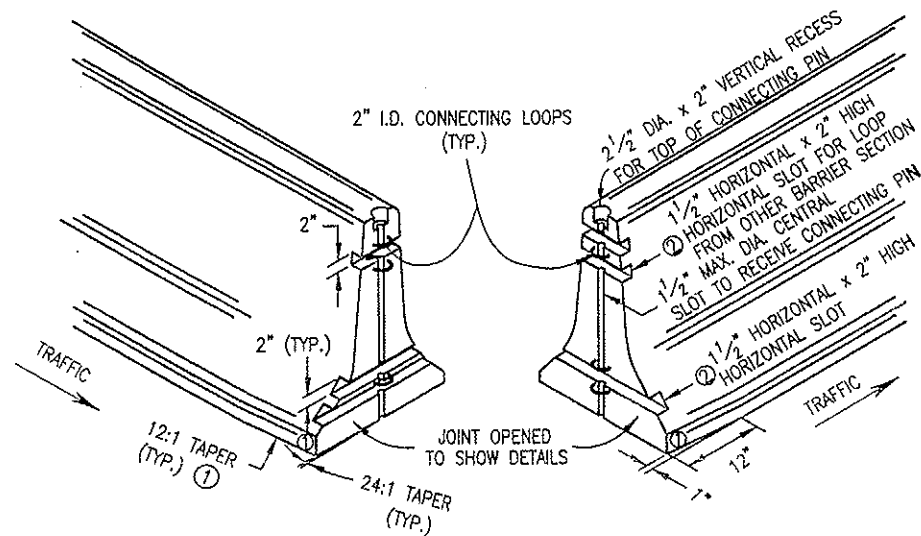
STANDARD PLAN NO.
 M-606-14
 Sheet No. 1 of 3



CONNECTING PIN DETAIL



ALTERNATE PIN DETAIL




JOINT STYLE

- ① A 1 INCH BY 12 INCH TAPER WILL BE REQUIRED AT THE BOTTOM OF ALL FOUR CORNERS OF BARRIER SECTIONS TO ELIMINATE SNAGGING OF SNOW PLOW BLADES. THE TAPER WILL BE OPTIONAL ON PERMANENT INSTALLATIONS.
- ② THE HORIZONTAL SLOTS SHALL BE 1 1/2 INCH (HORIZONTAL) AT THE CENTER OF THE BARRIER AND MAY DECREASE HORIZONTALLY AT THE EDGE OF THE BARRIER DUE TO THE (24:1) TAPER.

PIN NOTES

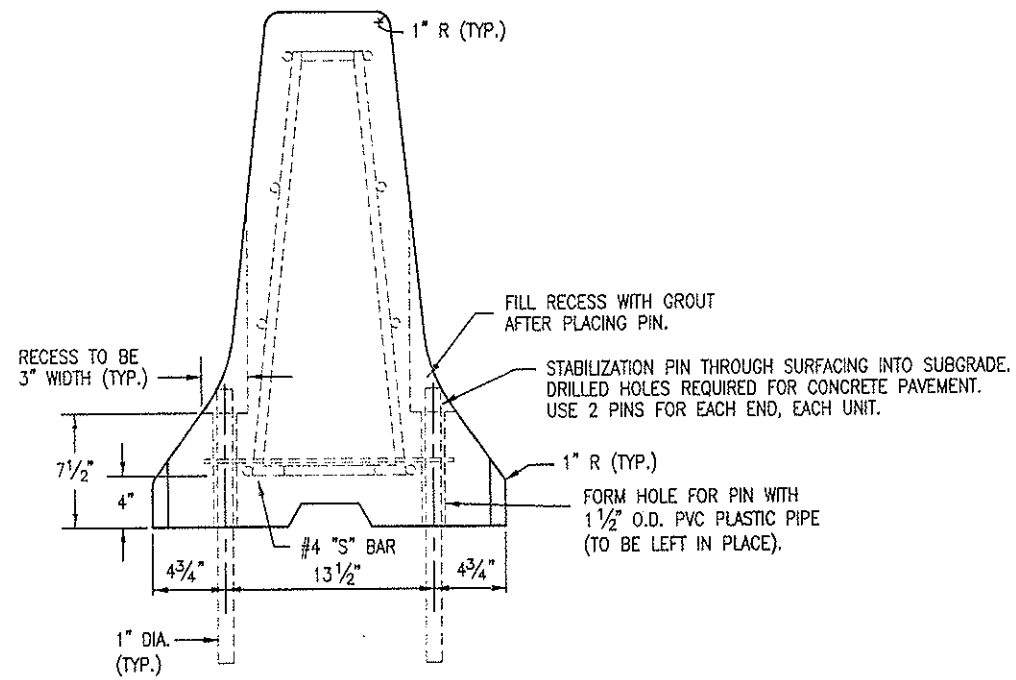
- 1. WASHERS SHALL BE FORGED AS AN INTEGRAL PART OF THE PIN, OR SHALL BE WELDED AS SHOWN.
- 2. PINS SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION.
- 3. IF AN ALTERNATIVE TOP CONFIGURATION IS USED FOR LIFTING, THE LIFTING PIN SHALL BE PROVIDED. PINS MUST CONFORM TO CRITICAL DIMENSIONS (PIN LENGTH DIAMETER).
- 4. PINS SHALL CONFORM TO ASTM A449.
- 5. APPROVED NON-SHRINK GROUT SHALL BE USED FOR GROUTING OVER ALL PINS, AND GROUTING OF SCUPPERS.
- 6. JOINTS BETWEEN CAST-IN-PLACE GUARDRAIL TYPE 7 AND PERMANENT INSTALLATION PRECAST TYPE 7 CONCRETE BARRIER, SHALL INCLUDE ALL REGRESSES AND LOOPS IN THE CAST-IN-PLACE END, ALONG WITH THE PIN TO COMPLETE THE TYPICAL PRECAST TYPE 7 CONCRETE BARRIER JOINT.

DETAILS FOR PIN AND LOOP CONNECTION

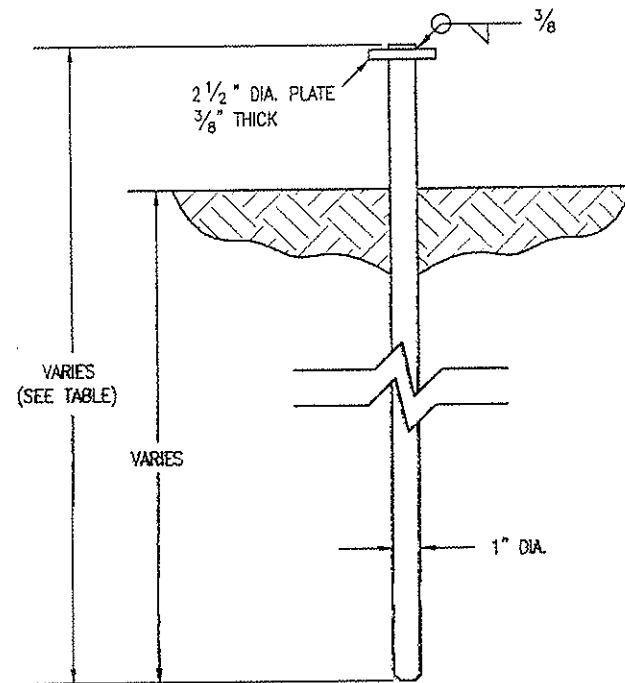
Colorado Department of Transportation  4201 East Arkansas Avenue Denver, Colorado 80222 Phone: (303) 757-9083 FAX: (303) 757-9820 Project Development Branch SRJ	Computer File Information Path: www.dot.state.co.us/DevelopProjects/DesignSupport/MSStandards/ Drawing File Name: 6060140203.dwg Acad Version: R14 Scale: NA Units: English		Standard Plan Revised Date: _____ Comments: _____		PRECAST TYPE 7 CONCRETE BARRIER Issued By: Project Development Branch July 02, 2002	STANDARD PLAN NO. M-606-14
						Sheet No. 2 of 3

GENERAL NOTES

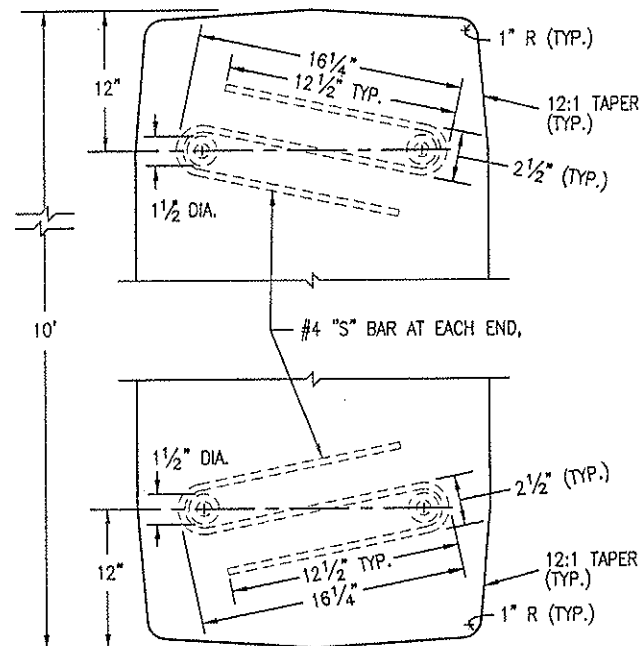
1. SEE SHEET 1 OF 3 FOR REINFORCEMENT AND OTHER DETAILS NOT SHOWN HERE.
2. PERMANENT PRECAST BARRIER USED TO REPLACE OTHER CONCRETE BARRIERS, SHALL BE IN NEW CONDITION, UNDAMAGED, WITH NO REPAIRS.
3. FOR TEMPORARY INSTALLATIONS, A MINIMUM 4 FT. CLEAR ZONE MUST EXIST FROM THE CENTERLINE OF THE CONCRETE BARRIER TO ANY OBSTRUCTIONS BEHIND IT. IN TEMPORARY INSTALLATIONS WITH LESS THEN A 4 FT. MINIMUM CLEAR ZONE, STABILIZATION PINS SHALL BE USED ON EACH BARRIER UNIT ADJACENT TO, AND WITHIN 10 FT. OF BOTH SIDES OF THE OBSTRUCTION.
4. FOR TERMINAL ANCHORING OF THE PERMANENT INSTALLATION OF PRECAST TYPE 7 CONCRETE BARRIER. SEE THE END ANCHORAGE DETAIL ON SHEET M-606-13, 1 OF 4.
5. APPROVED NON-SHRINK GROUT SHALL BE USED FOR GROUTING OVER ALL PINS AND GROUTING OF SCUPPERS.



ELEVATION VIEW WITH PINS



STABILIZATION PIN
(ASTM A 36 STEEL)

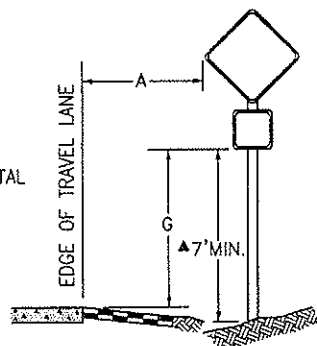
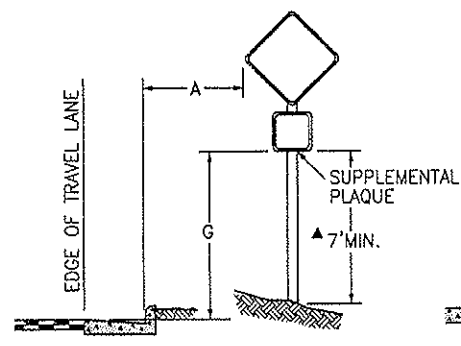
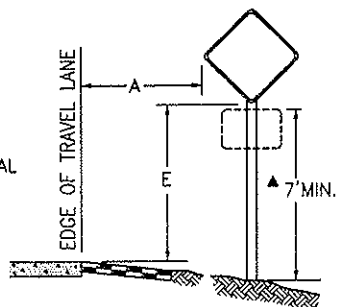
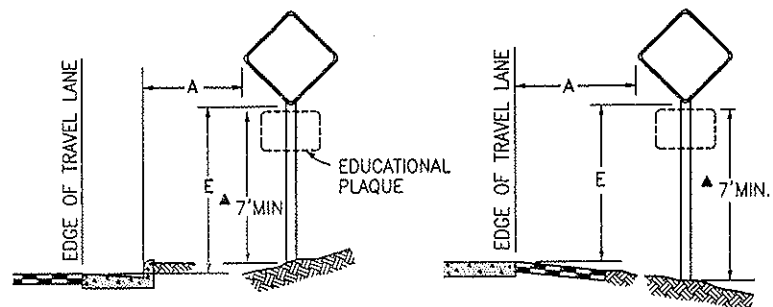


PLAN VIEW OF S BAR ENDS

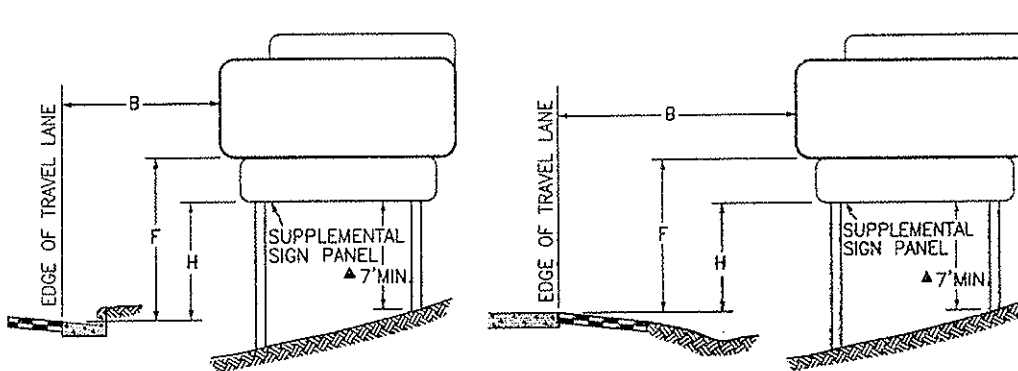
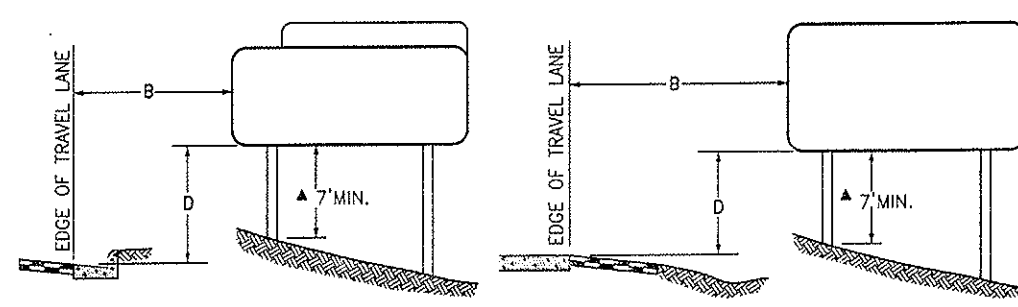
TABLE OF STABILIZATION PIN LENGTHS

ROAD SURFACE	LENGTH
CONCRETE	2 FT. - 6 IN.
HBP	3 FT.
SOIL	3 FT. - 6 IN.

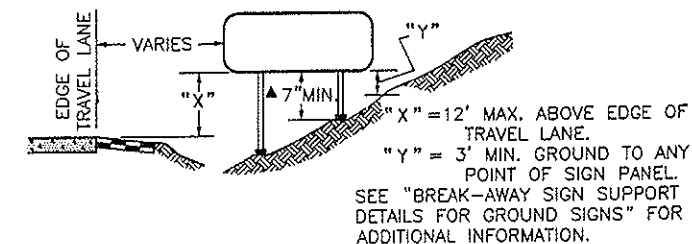
DETAILS FOR STABILIZATION OF PERMANENT OR TEMPORARY PINNED PRECAST TYPE 7 CONCRETE BARRIER



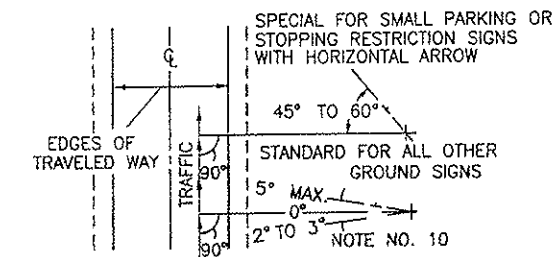
WARNING SIGN PLACEMENT



CLASS III SIGN PLACEMENT



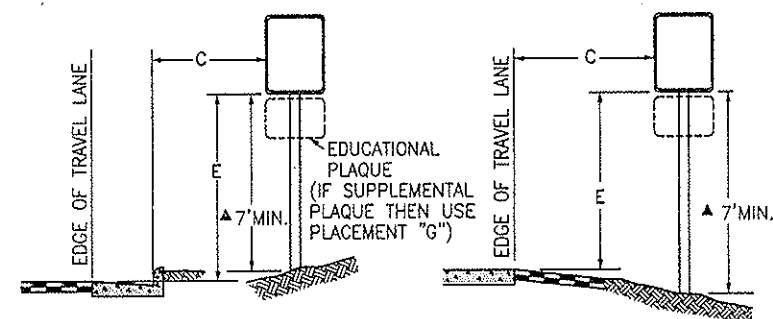
CLASS III SIGNS, PANEL GROUND CLEARANCE



ANGULAR PLACEMENT

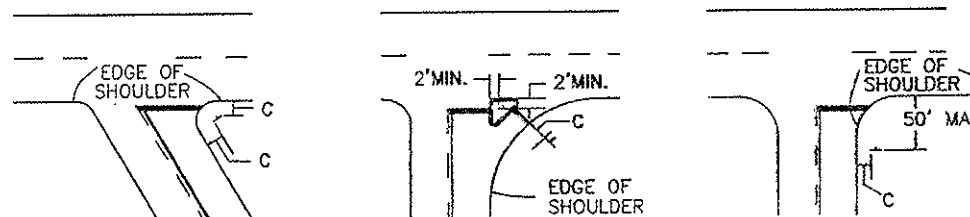
GENERAL NOTES

1. THE ENGINEER SHALL ESTABLISH GRADES AND LOCATIONS FOR ALL SIGN POSTS IN ACCORDANCE WITH DETAILS SHOWN ON THE PLANS.
2. SPECIAL CARE SHALL BE TAKEN IN SIGN LOCATION TO ENSURE AN UNOBSTRUCTED VIEW OF EACH SIGN.
3. MINIMUM POST EMBEDMENT SHALL BE 3' FOR U-2 POSTS AND 4"x4" TIMBER POSTS, AND 5' FOR 6"x6" TIMBER POSTS. FOR FOOTING DEPTH SEE THE APPLICABLE STANDARD.
4. MINIMUM LATERAL PLACEMENT IS MEASURED FROM FACE OF CURB OR FROM ANY SURFACE PREPARED FOR NORMAL OR EMERGENCY TRAVEL OF VEHICLES.
5. NORMAL LATERAL PLACEMENT IS MEASURED FROM THE EDGE OF TRAVEL LANE.
6. IN URBAN AREAS A LATERAL CLEARANCE OF 1' FROM THE CURB FACE IS PERMISSIBLE WHERE SIDEWALK WIDTH IS LIMITED OR WHERE EXISTING POLES ARE CLOSE TO THE CURB.
7. A 7' MINIMUM POST LENGTH SHALL BE MAINTAINED FROM BOTTOM OF SIGN PANEL TO THE GROUND OR THE TOP OF THE FOOTING.
8. A 9' MAXIMUM POST LENGTH SHALL BE MAINTAINED FROM THE BOTTOM OF SIGN PANEL TO THE GROUND OR TOP OF THE FOOTING UNLESS OTHERWISE INDICATED ON THE PLAN.
9. "EDUCATIONAL PLAQUES" FOR SYMBOL SIGNS WILL NOT BE CONSIDERED WHEN DETERMINING VERTICAL PLACEMENT.
10. WHEN LATERAL PLACEMENT IS 30' OR MORE FOR SIGNS WITHOUT A SUPPLEMENTAL PANEL, VERTICAL PLACEMENT D MAY BE REDUCED TO 5'. WHEN LATERAL PLACEMENT IS 30' OR MORE FOR SIGNS WITH A SUPPLEMENTAL PANEL, VERTICAL PLACEMENT E DOES NOT APPLY - USE ONLY VERTICAL PLACEMENT H.
11. NORMAL ANGULAR PLACEMENT IS 0°. SIGNS CLOSER THAN 30' SHOULD BE TURNED SLIGHTLY AWAY TO MINIMIZE SPECULAR REFLECTION. SIGNS PLACED 30' OR MORE SHOULD GENERALLY BE TURNED TOWARD THE ROAD.
12. THE EXIT PANEL IS MOUNTED ON THE RIGHT HAND SIDE FOR RIGHT HAND EXITS AND THE LEFT SIDE FOR LEFT HAND EXITS.
13. POST SHALL BE INSTALLED PLUMB, VERTICAL DEVIATION SHALL NOT EXCEED 1/2" IN 10'.

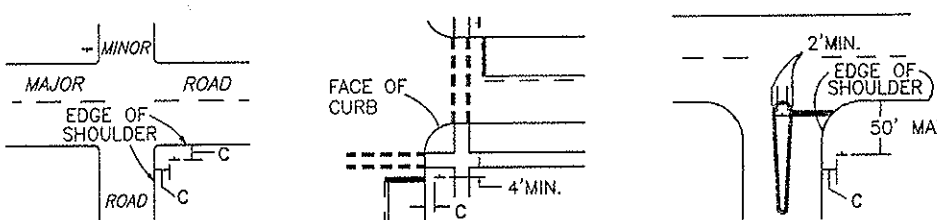


REGULATORY SIGN PLACEMENT

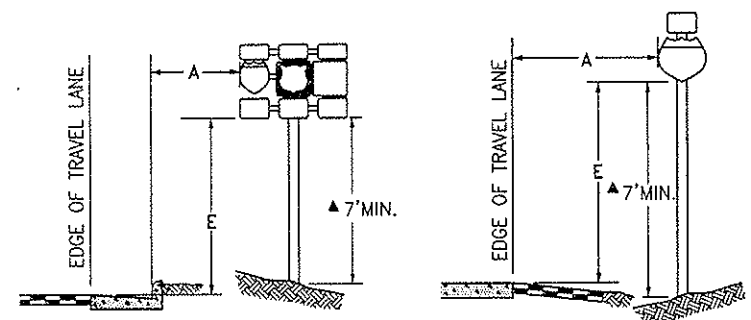
ACUTE ANGLE INTERSECTION CHANNELIZED INTERSECTION WIDE THROAT INTERSECTION



MINOR CROSSROAD URBAN INTERSECTION DIVISIONAL ISLAND



TYPICAL LOCATIONS-STOP SIGNS AND YIELD SIGNS



ROUTE MARKER ASSEMBLY PLACEMENT

PLACEMENT TABLES

LATERAL PLACEMENT		VERTICAL PLACEMENT (MINIMUM) (9' MAXIMUM)			
KEY	ALL CLASSES OF STREETS AND HIGHWAYS	KEY	FREEWAYS AND EXPRESSWAYS	CONVENTIONAL STREETS AND HIGHWAYS	
	MINIMUM		NORMAL	URBAN	RURAL
* A	2'-0" & NOTE NO.4	15'-0" PLUS CURB OR SHOULDER WIDTH	D 7'-0" OR NOTE NO. 10	7'-0"	5'-0"
* B	2'-0" & NOTE NO.4	30'-0" OR MORE INCLUDES CURB OR SHOULDER	E 6'-0"	7'-0"	5'-0"
* C	2'-0" & NOTE NO.4	6'-0" PLUS CURB OR SHOULDER WIDTH OR IF NONE 15'-0"	F 8'-0" OR NOTE NO. 10	7'-0"	5'-0"
			G 6'-0"	6'-0"	4'-0"
			H 5'-0"	6'-0"	4'-0"

* SEE NOTE NO. 6

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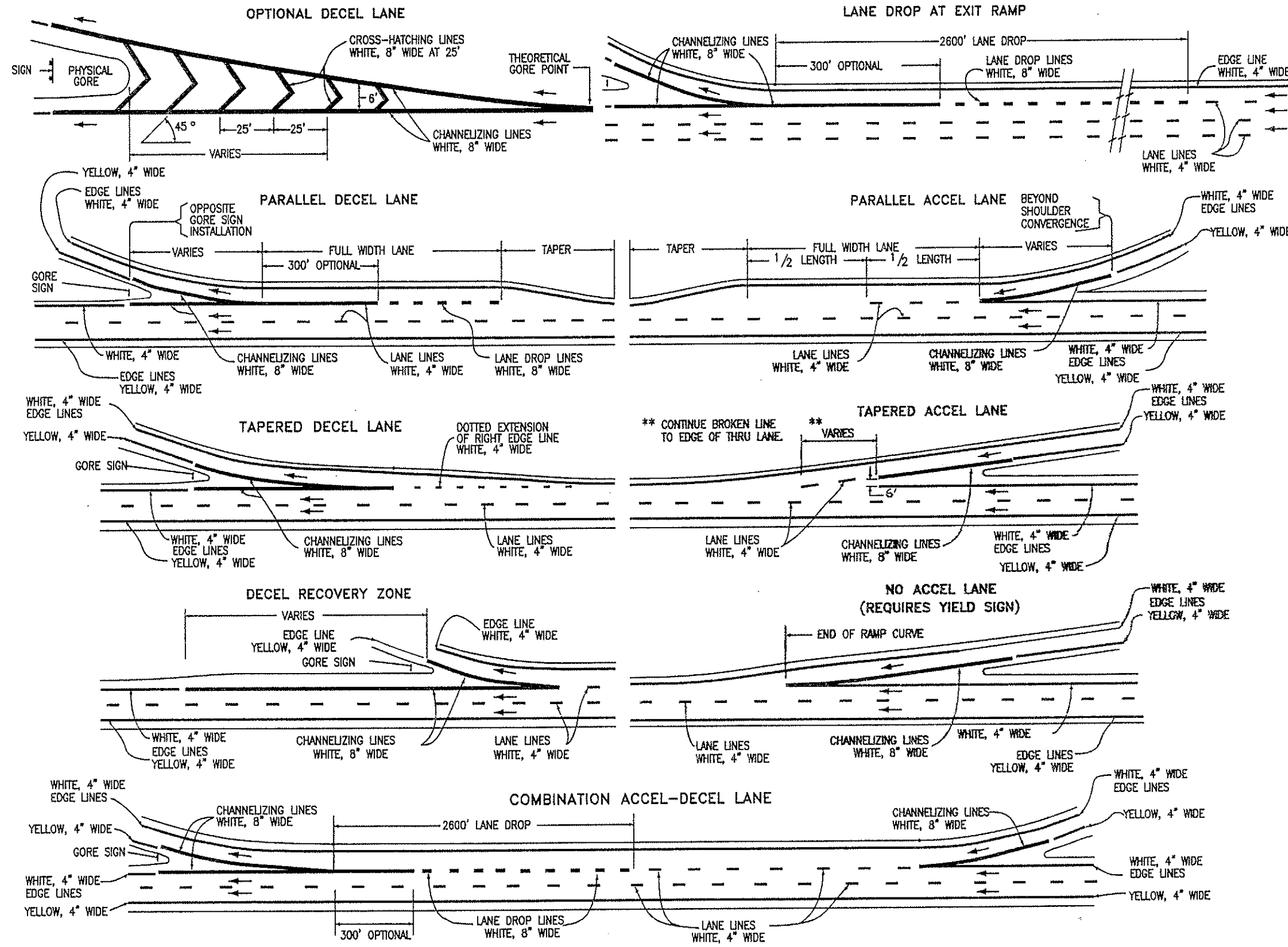
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 Acad Version: R2000 Scale: NA Units: English

Standard Plan Revised
 Date: 6/29/04
 Comments: Increased normal lateral placement distances "A" and "C" from 12' to 15'

TYPICAL GROUND SIGN PLACEMENT

Issued By: Traffic Engineering Unit October 1, 2000

STANDARD PLAN NO.
 S-614-1
 Sheet No. 1 of 1



TYPICAL ENTRANCE AND EXIT RAMP MARKINGS

GENERAL NOTES

- CENTER LINES**
- BROKEN YELLOW, 4" WIDE - 10' SEGMENTS WITH 30' GAPS.
 - SOLID YELLOW, 4" WIDE. THESE LINES SEPARATE ADJACENT-OPPOSITE DIRECTION TRAFFIC LANES. DOUBLE LINES SHALL BE SPACED 3" APART.
- LANE LINES**
- BROKEN WHITE, 4" WIDE - 10' SEGMENTS WITH 30' GAPS.
 - SOLID WHITE, 4" WIDE. THESE LINES SEPARATE ADJACENT-SAME DIRECTION TRAFFIC LANES. A SOLID LINE MAY BE USED TO DISCOURAGE LANE CHANGING, WHILE TWO PARALLEL SOLID WHITE LINES ARE REQUIRED TO PROHIBIT LANE CHANGING.
- EDGE LINES**
- SOLID WHITE OR YELLOW EDGE LINES SHALL BE 4" WIDE. YELLOW EDGE LINES SHALL BE USED ONLY FOR LEFT EDGE, IN THE DIRECTION OF TRAVEL OF DIVIDED STREETS AND HIGHWAYS (SEPARATED BY OTHER THAN A PAINTED MEDIAN) AND ONE-WAY ROADWAYS (INCLUDING RAMP). EDGE LINES ARE NOT CONTINUED THROUGH INTERSECTIONS AND ARE NOT BROKEN FOR DRIVEWAYS. CARE MUST BE TAKEN TO AVOID EDGE LINE APPEARING AS LANE LINE ALONG ROADWAYS WITH WIDE SHOULDERS AND/OR CLOSELY SPACED DRIVEWAYS.
- DOTTED LINES**
- BROKEN WHITE, WIDTH MATCHING THE LINE BEING EXTENDED-2' SEGMENTS WITH 4' GAPS. THESE LINES ARE USED TO DELINEATE THE EXTENSION OF A LINE THROUGH AN INTERSECTION OR INTERCHANGE AREA.
- CHANNELIZING LINES**
- SOLID WHITE, 8" WIDE. THESE LINES ARE USED WITH ACCELERATION-DECELERATION LANES, PAVEMENT WIDTH TRANSITIONS, AND LEFT-RIGHT TURN SLOTS OR ISLANDS.
- CROSS-HATCHING LINES**
- SOLID WHITE OR YELLOW, 8" WIDE-45 DEGREE DIAGONAL, SPACED AT 25' INTERVALS. THESE LINES ARE OPTIONAL AND MAY BE PLACED AT LOCATIONS INDICATED ON THE PLANS OR DETERMINED BY THE ENGINEER. YELLOW SHALL BE USED FOR PAINTED MEDIANS OR PAVEMENT WIDTH TRANSITIONS ONLY.
- OPTIONAL DIAGONAL SHOULDER MARKINGS SHALL BE SOLID WHITE, 8" WIDE, SPACED AT INTERVALS OF 20' MINIMUM TO 100' MAXIMUM.
- PARKING LINES**
- SOLID WHITE, 3" WIDE-DIAGONAL OR PARALLEL AS SHOWN ON THE PLANS OR DIRECTED BY THE ENGINEER.
- STOP LINES**
- SOLID WHITE, 24" WIDE-EXTEND PARALLEL TO INTERSECTED ROADWAY ACROSS ALL APPROACH LANES OR AS INDICATED AT LOCATIONS ON THE PLANS. LOCATE AT THE DESIRED STOPPING POINT, NOT MORE THAN 30', NOR LESS THAN 4' FROM THE NEAREST EDGE OF THE INTERSECTED TRAFFIC LANE.
- LANE DROP MARKINGS**
- BROKEN WHITE, 8" WIDE - 3' SEGMENTS WITH 12' GAPS. THESE LINES SHOULD BEGIN 2600' IN ADVANCE OF THE THEORETICAL GORE POINT TO DISTINGUISH THE LANE DROP FROM A CONTINUOUS LANE. THE CHANNELIZING LINE MAY BE EXTENDED APPROXIMATELY 300' UPSTREAM.

(CONTINUED ON SHEET NO. 2)

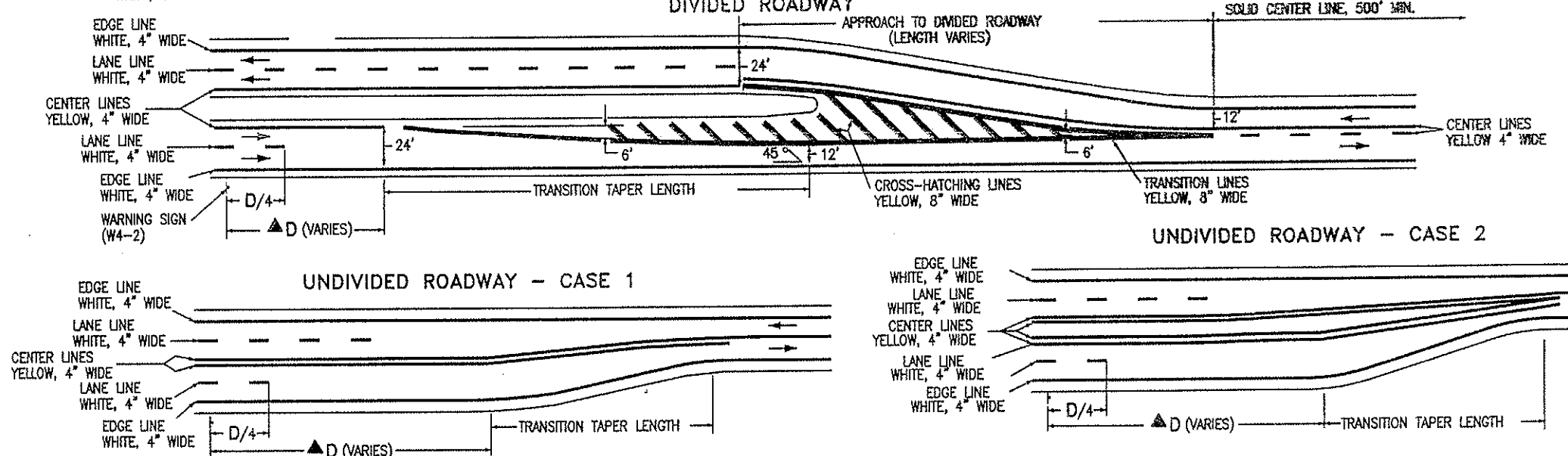
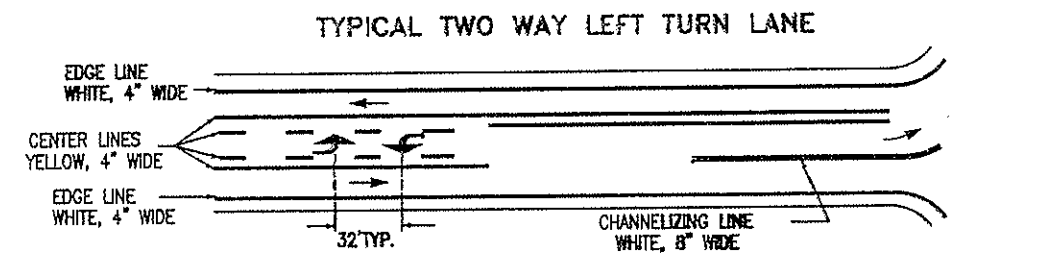
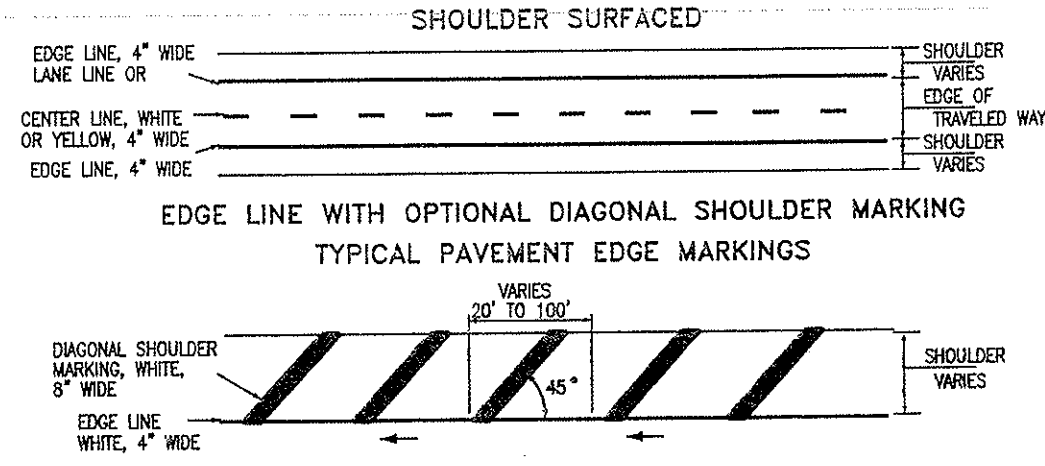
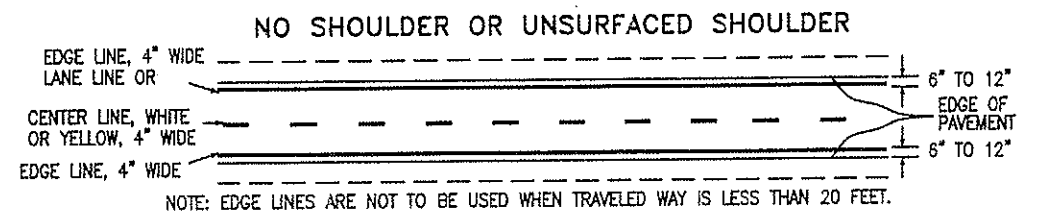
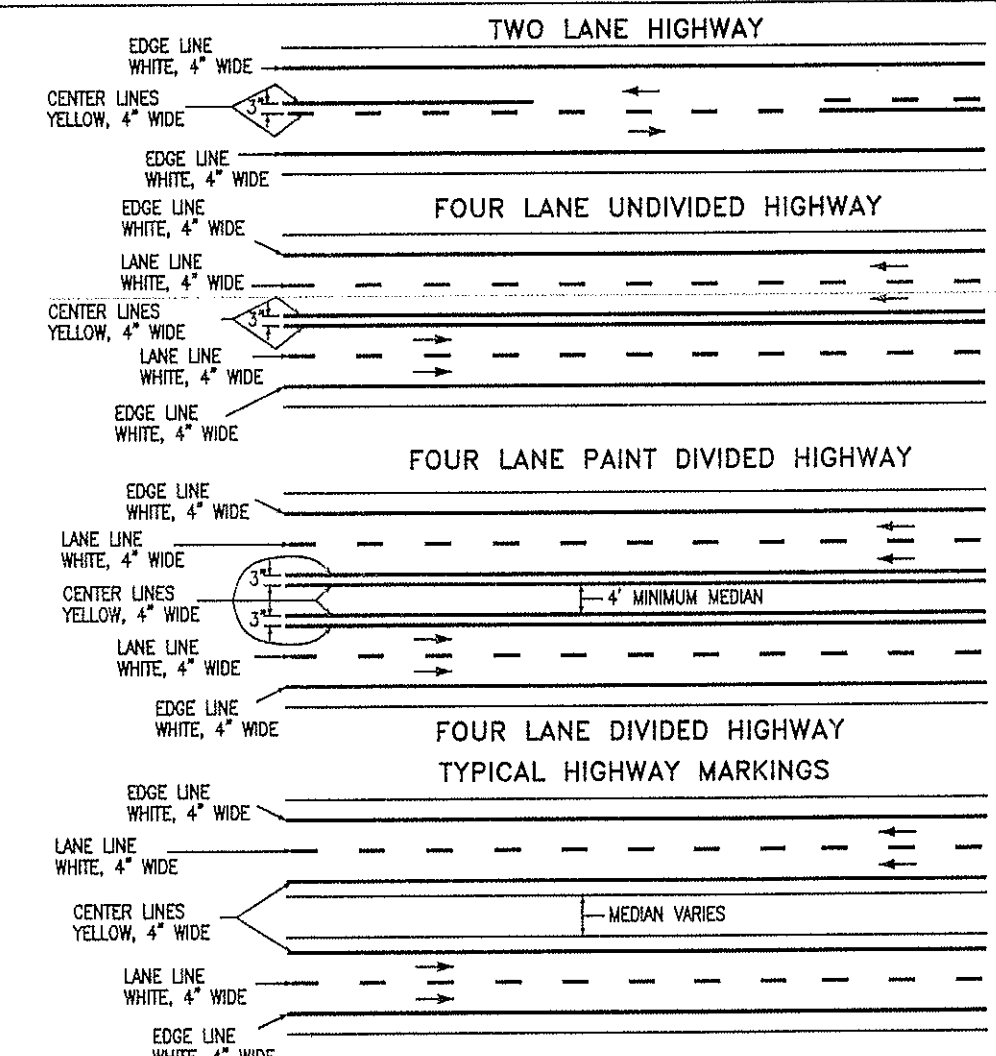
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Computer File Information	
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Drawing File Name:	S627010105.dwg
Acad Version:	R2000
Scale:	NA
Units:	English

Standard Plan Revised	
Date:	Comments:
01/26/05	Added 8" lane drop markings to combination accel/decel detail; rearranged General Notes
09/09/05	Added 8" lane drop markings to Parallel Decel Lane detail.

TYPICAL PAVEMENT MARKINGS
 Issued by: Traffic Engineering Unit October 1, 2000

STANDARD PLAN NO.
 S-627-1
 Sheet No. 1 of 5



GENERAL NOTES
(CONTINUED FROM SHEET NO.1)

CROSSWALK LINES
SOLID WHITE, 12" WIDE FOR TRANSVERSE LINE TYPE - EXTEND ACROSS ENTIRE WIDTH OF PAVEMENT. IF NO ADVANCE STOP LINE IS PROVIDED, INCREASE THE WIDTH OF THE CROSSWALK LINES TO 24". THE DISTANCE BETWEEN THE LINES IS USUALLY DETERMINED BY THE WIDTH OF THE SIDEWALKS SO CONNECTED, HOWEVER, IN NO CASE SHALL THIS BE LESS THAN 6'.

COMPLICATED AND/OR CHANNELIZED INTERSECTIONS AND MID-BLOCK CROSSWALKS SHALL BE SOLID WHITE, 12" TO 24" WIDE AND 8' TO 10' LONG FOR LONGITUDINAL LINE TYPE AS DETAILED IN THE PLANS OR AS DIRECTED BY THE ENGINEER.

WORD, ARROW AND SYMBOL MARKINGS
ALL LETTERS, ARROWS AND SYMBOLS SHALL BE IN CONFORMANCE WITH "THE STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS" ADOPTED BY THE FEDERAL HIGHWAY ADMINISTRATION.


TRANSITION TAPER LENGTH
L = MINIMUM LENGTH OF TAPER.
S = DESIGN SPEED FOR NEW CONSTRUCTION OR NUMERICAL VALUE OF THE POSTED SPEED LIMIT OF THE 85TH PERCENTILE SPEED OF EXISTING TRAFFIC.
W = WIDTH TRANSITIONED
FORMULA: FOR SPEED 45 MPH OR MORE, $L = S \times W$
FOR SPEED 40 MPH OR LESS, $L = \frac{WS^2}{60}$

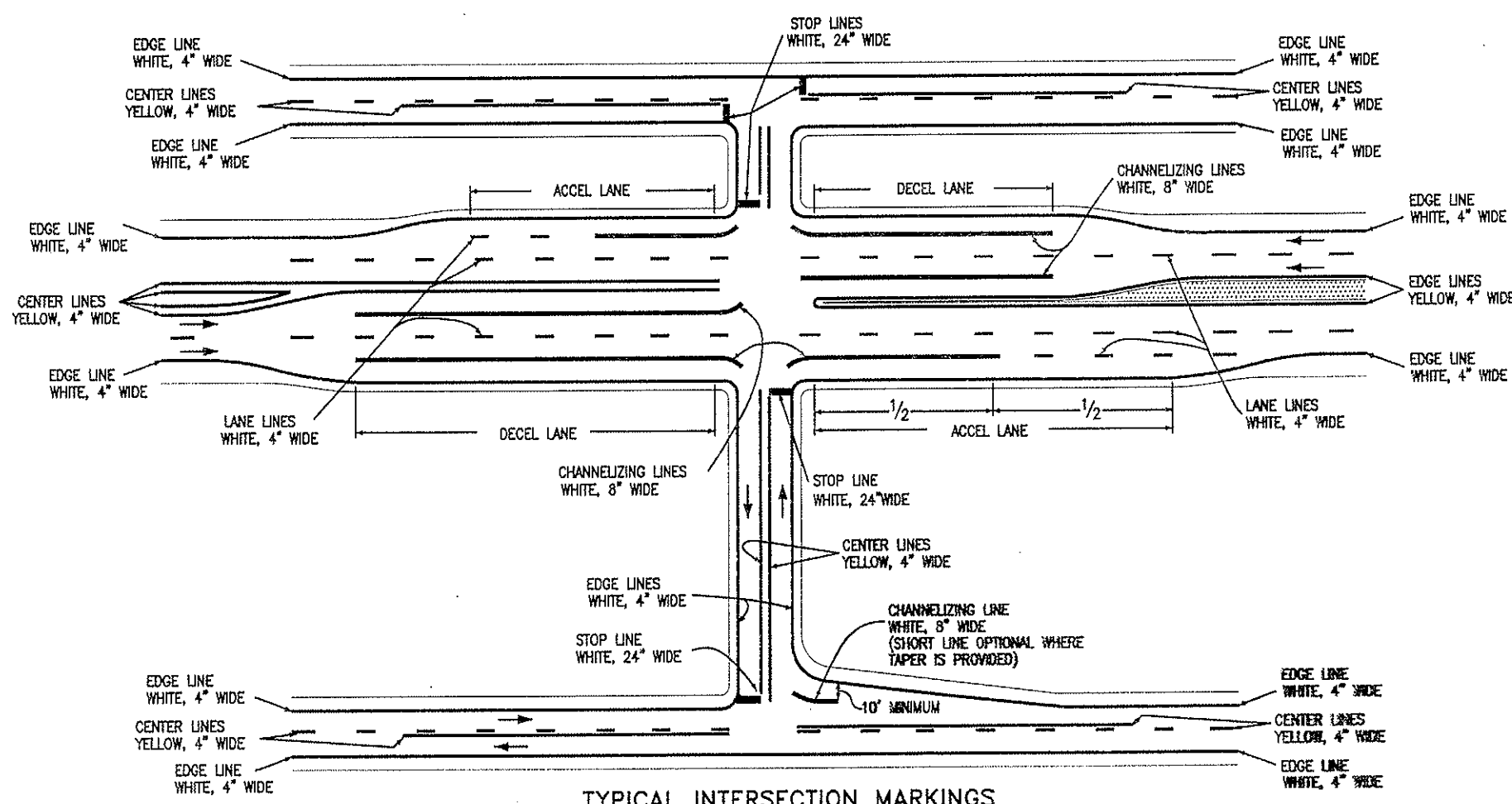
NOTE:
D = THE DISTANCE FROM THE PAVEMENT WIDTH TRANSITION SIGN (W4-2) TO THE BEGINNING OF THE TRANSITION TAPER.

TRANSITION LINES
SOLID YELLOW, 8" WIDE. THESE LINES ARE USED WHERE ADDITIONAL EMPHASIS OR VISIBILITY IS DESIRABLE AT PAVEMENT WIDTH TRANSITIONS. PLACE AT LOCATIONS INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

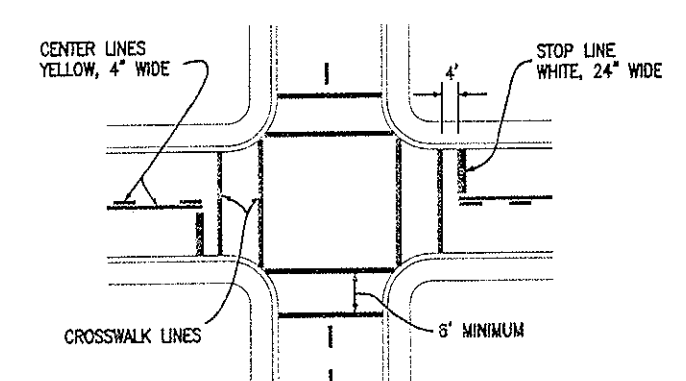
SPEED MEASURING MARKING
SOLID WHITE, 24" - EXTEND 2' ON EITHER SIDE OF CENTER LINES, EDGE LINES, LANE LINES. THEY SHOULD BE NON-REFLECTORIZED.

TYPICAL PAVEMENT WIDTH TRANSITION MARKINGS

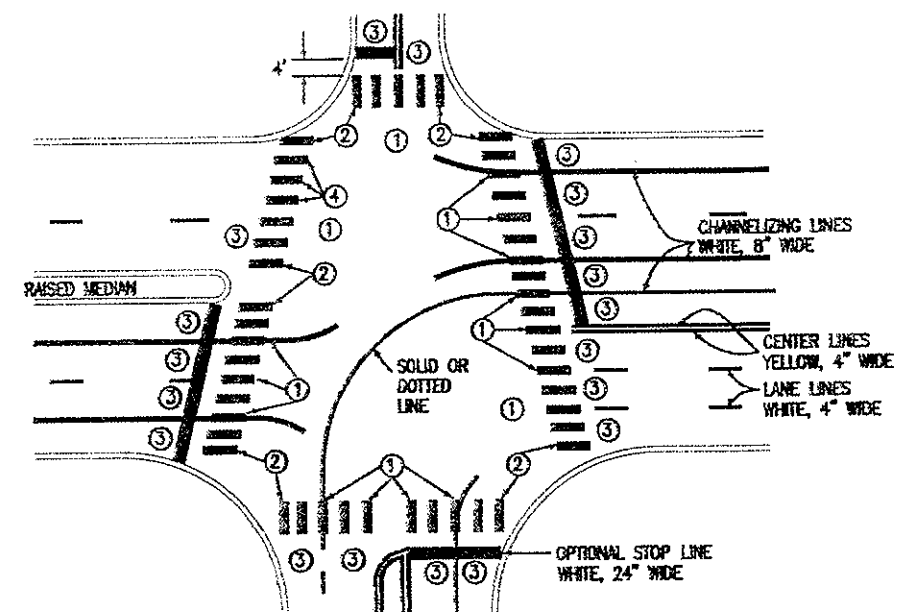
Colorado Department of Transportation  4201 East Arkansas Avenue Denver, Colorado 80222 Phone: (303) 757-9543 FAX: (303) 757-9219 Safety & Traffic Engineering Branch KM	Computer File Information		Standard Plan Revised		TYPICAL PAVEMENT MARKINGS Issued by: Traffic Engineering Unit October 1, 2000	STANDARD PLAN NO. S-627-1 Sheet No. 2 of 5
	Path: www.dot.state.co.us/DevelopProjects/DesignSupport/SSstandard		Date:	Comments:		
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	Acad Version: R2000 Scale: NA Units: English		09/09/05	No revisions to this sheet.		



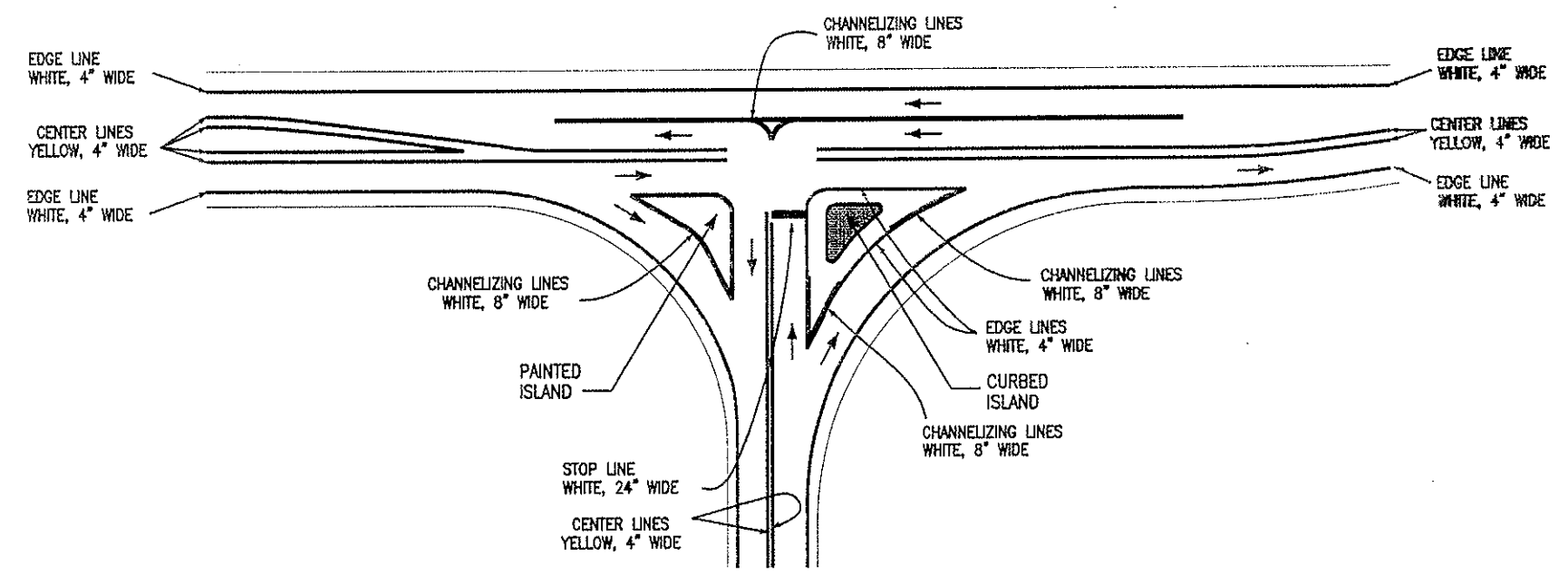
TYPICAL INTERSECTION MARKINGS



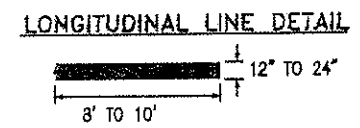
TYPICAL TRANSVERSE LINE CROSSWALK MARKINGS



TYPICAL CONTINENTAL CROSSWALK MARKINGS



TYPICAL ISLAND MARKINGS



LAYOUT NOTES

- CENTER CROSSWALKS ON HANDICAP RAMPS. IF SUCH RAMPS ARE NOT PROVIDED CENTER ON SIGNAL POLES WHEREVER PRACTICAL.
- ① CENTER ON LANE, CENTER OR CHANNELIZING LINE.
- ② CENTER OR EXTENDED FLOW LINE.
- ③ CENTER BETWEEN ADJACENT LINES.
- ④ LINES AND SPACES TO APPROXIMATE ADJACENT PATTERN.

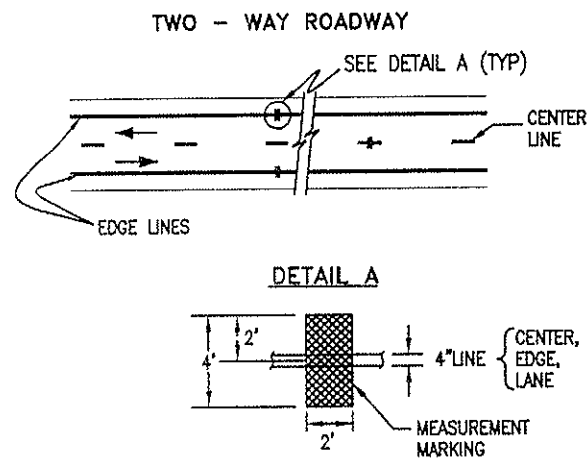
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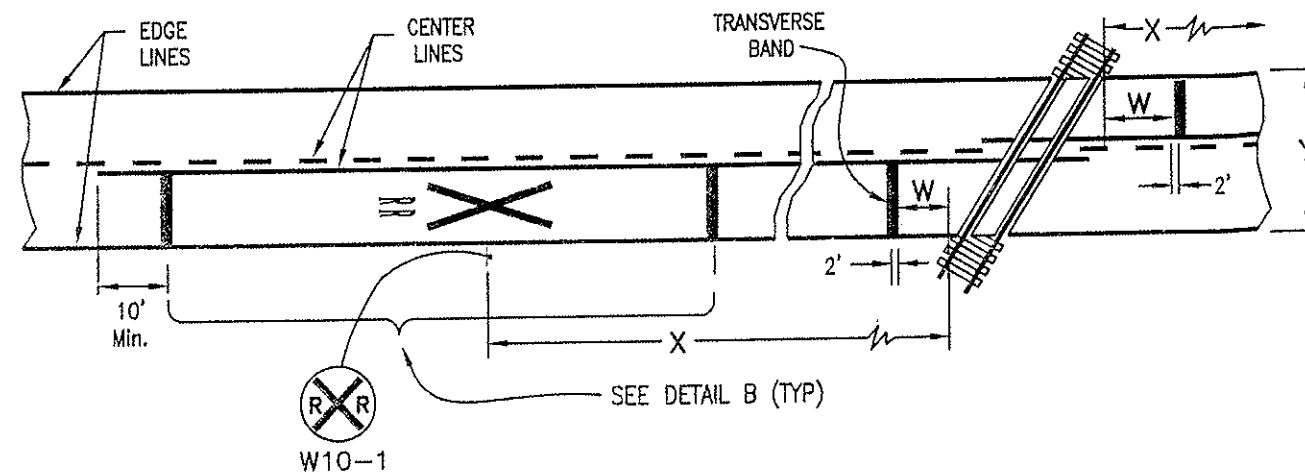
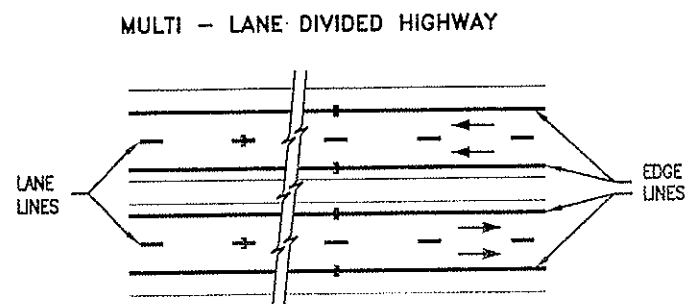
Standard Plan Revised
 Date: 01/26/05 Comments: Revised Sheets 1 and 2 only
 09/09/05 No revisions to this sheet.

TYPICAL PAVEMENT MARKINGS
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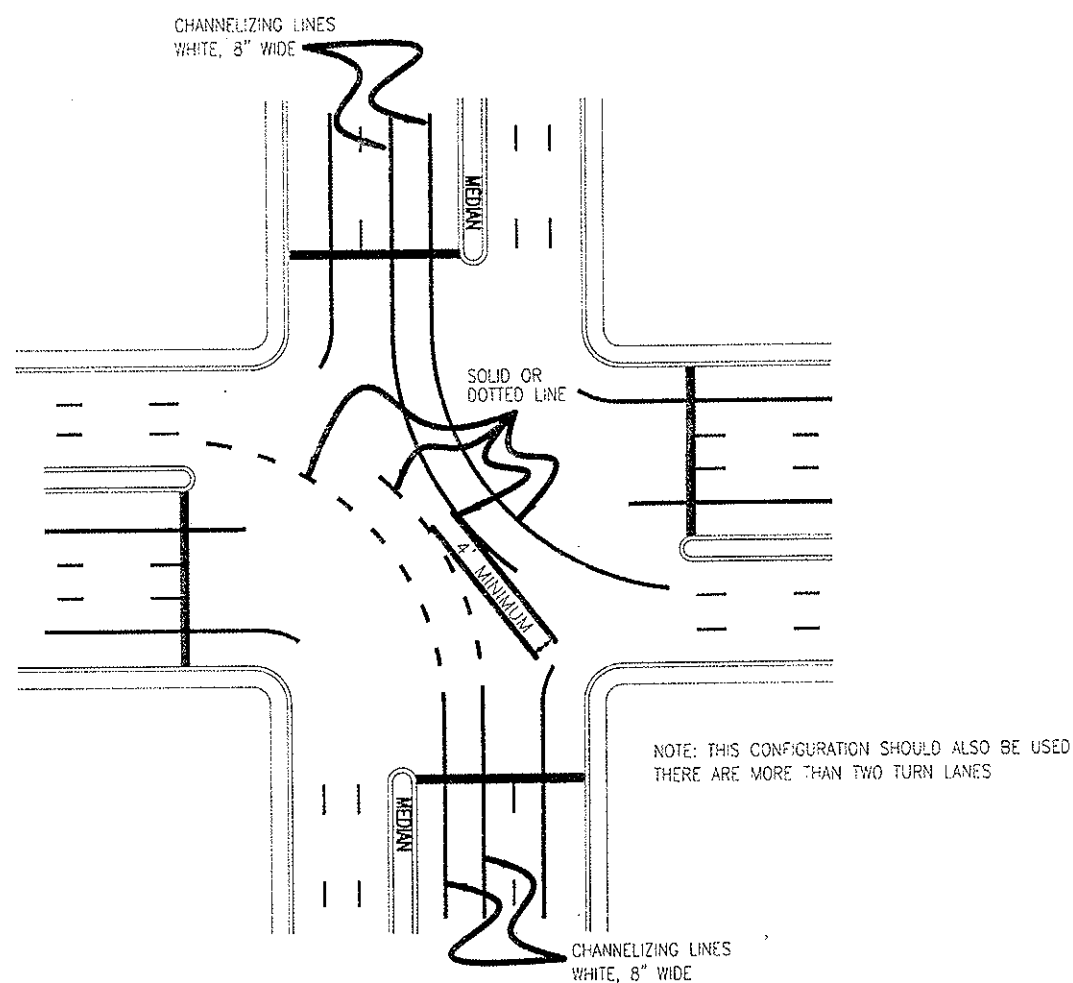
STANDARD PLAN NO.
 S-627-1
 Sheet No. 3 of 5



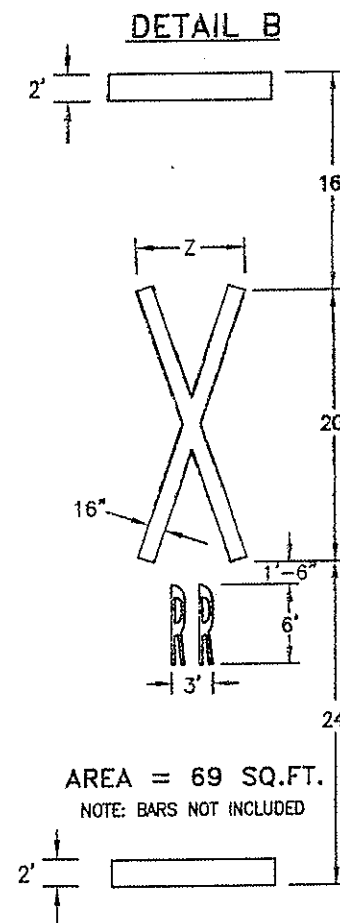
TYPICAL SPEED MEASUREMENT MARKING



TYPICAL PAVEMENT MARKING AT RAILROAD CROSSING



TYPICAL DOUBLE LEFT TURN MARKINGS



NOTES:

- W = APPROXIMATELY 15' (STOP LINE SHOULD BE 8' IN ADVANCE OF ACTIVE TRAFFIC CONTROL SYSTEMS; I.E., AUTOMATIC GATES AND/OR FLASHING SIGNALS).
 - X = THE DISTANCE FROM THE RAILROAD CROSSING MARKING TO THE NEAREST TRACK WILL VARY ACCORDING TO THE APPROACH SPEED AND THE SIGHT DISTANCE OF THE VEHICULAR TRAFFIC APPROACHING, BUT NOT LESS THAN 50' (REFERENCE NOTE 1).
 - Y = ON MULTI-LANE ROADS THE TRANSVERSE BANDS SHOULD EXTEND ACROSS ALL APPROACH LANES, AND INDIVIDUAL RR SYMBOLS SHOULD BE USED IN EACH APPROACH LANE.
 - Z = NORMALLY 8' (WIDTH MAY VARY ACCORDING TO LANE WIDTH).
1. THE WARNING SIGN SHALL BE PLACED ACCORDING TO THE WARNING SIGN PLACEMENT TABLE IN THE MUTCD. IF CONDITIONS DO NOT ALLOW PLACEMENT ACCORDING TO THE TABLE, IT SHALL BE AS APPROVED BY THE ENGINEER.
 2. REFER TO "THE STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS", ADOPTED BY THE FEDERAL HIGHWAY ADMINISTRATION, FOR RR SYMBOL DETAILS.

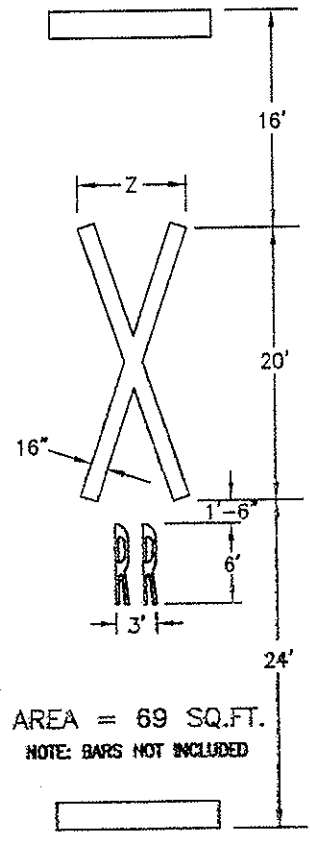
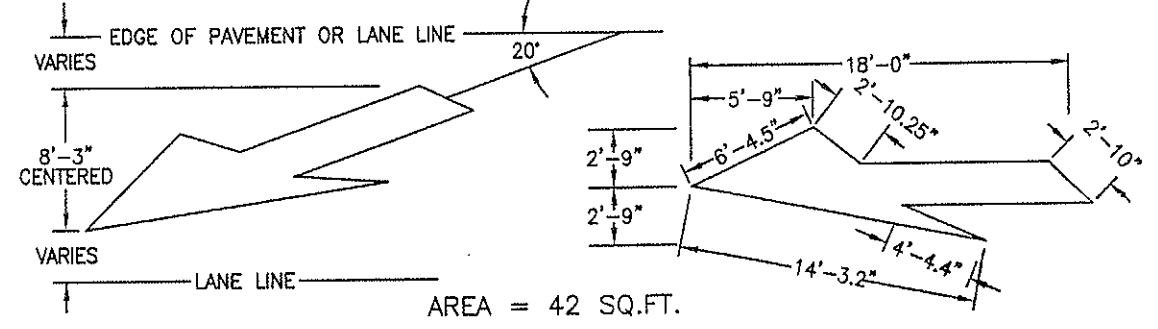
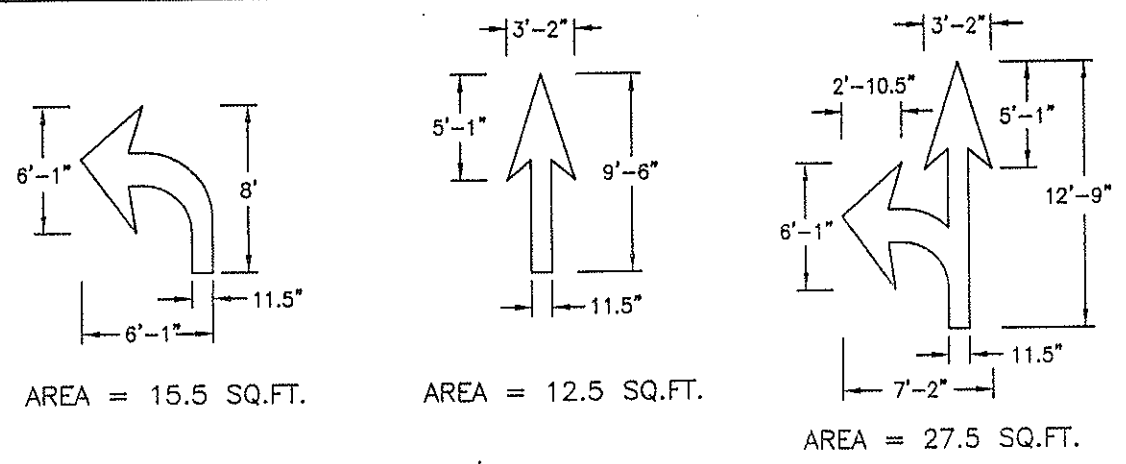
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Acad Version: R2000 Scale: NA Units: English

Standard Plan Revised	
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3/23/04	Added Double Left Turn Detail
01/26/05	Revised Sheets 1 and 2 only
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TYPICAL PAVEMENT MARKINGS
Issued by: Traffic Engineering Unit October 1, 2000

STANDARD PLAN NO.
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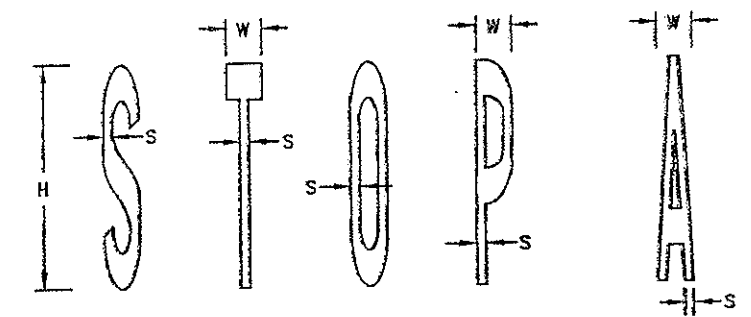


DESIGNATED PAYMENT AREAS

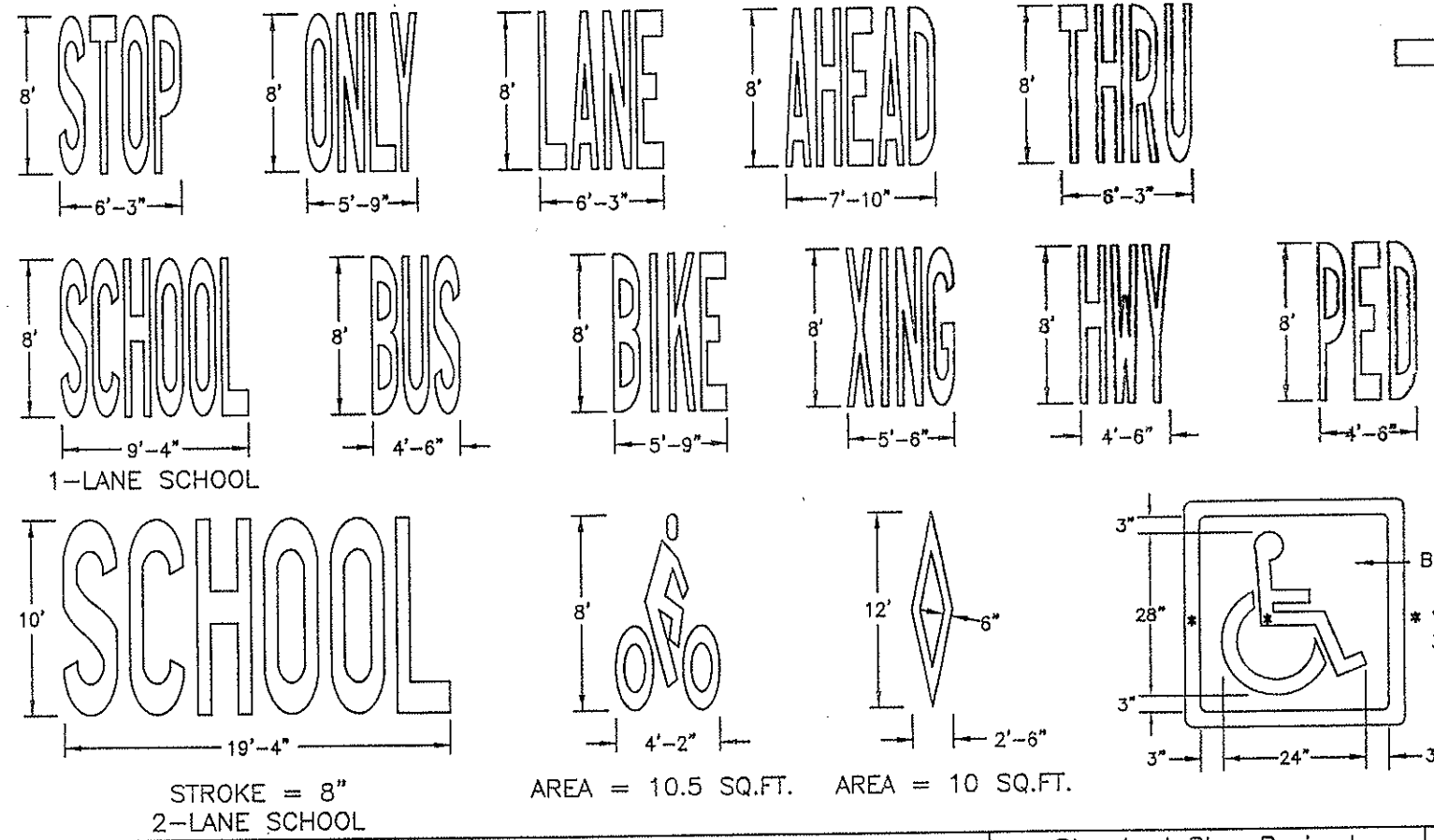
FOR THE FOLLOWING H, W, AND S DIMENSIONS PAY:

H = 4' WORDS	
BIKE - 5.5 SQ.FT.	LANE - 6.0 SQ.FT.
ONLY - 6.0 SQ.FT.	XING - 5.0 SQ.FT.
H = 8' WORDS	
STOP - 23.0 SQ.FT.	XING - 20.0 SQ.FT.
ONLY - 22.5 SQ.FT.	LANE - 22.5 SQ.FT.
AHEAD - 29.0 SQ.FT.	BIKE - 21.0 SQ.FT.
BUS - 18.5 SQ.FT.	HWY - 18.5 SQ.FT.
THRU - 22.0 SQ.FT.	SCHOOL(1L) - 33.0 SQ.FT.
PED - 17.5 SQ.FT.	SCHOOL(2L) - 85.0 SQ.FT.

TYPICAL LETTER MEASUREMENTS



H = HEIGHT	H = 8'	H = 4'
W = WIDTH	W = 1'-3.4" TO 1'-4"	W = 7.7" TO 8"
S = STROKE	S = 3.8" TO 4"	S = 1.9" TO 2"



NOTES

IF HEIGHT IS INCREASED OR DECREASED THEN ALL MEASUREMENTS CHANGE PROPORTIONATELY. EXAMPLE: "H" MEASUREMENT FOR STOP IS REDUCED TO 4' FROM 8' THEN SQUARE FEET = 5.75 (1/4 OF 23.0 SQ. FT.).

PAVEMENT WORD AND SYMBOL MARKINGS, TRANSVERSE AND LONGITUDINAL (CONTINENTAL) CROSSWALK LINES, AND STOP LINES WILL BE PAID FOR IN SQUARE FEET USING THEIR SPECIFIC BID ITEMS.

PAVEMENT MARKING WORDS AND SYMBOLS

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Drawing File Name: S627010505.dwg

Acad Version: R2000 Scale: NA Units: English

Standard Plan Revised

Date:	Comments:
01/26/05	Revised Sheets 1 and 2 only
09/09/05	No revisions to this sheet.

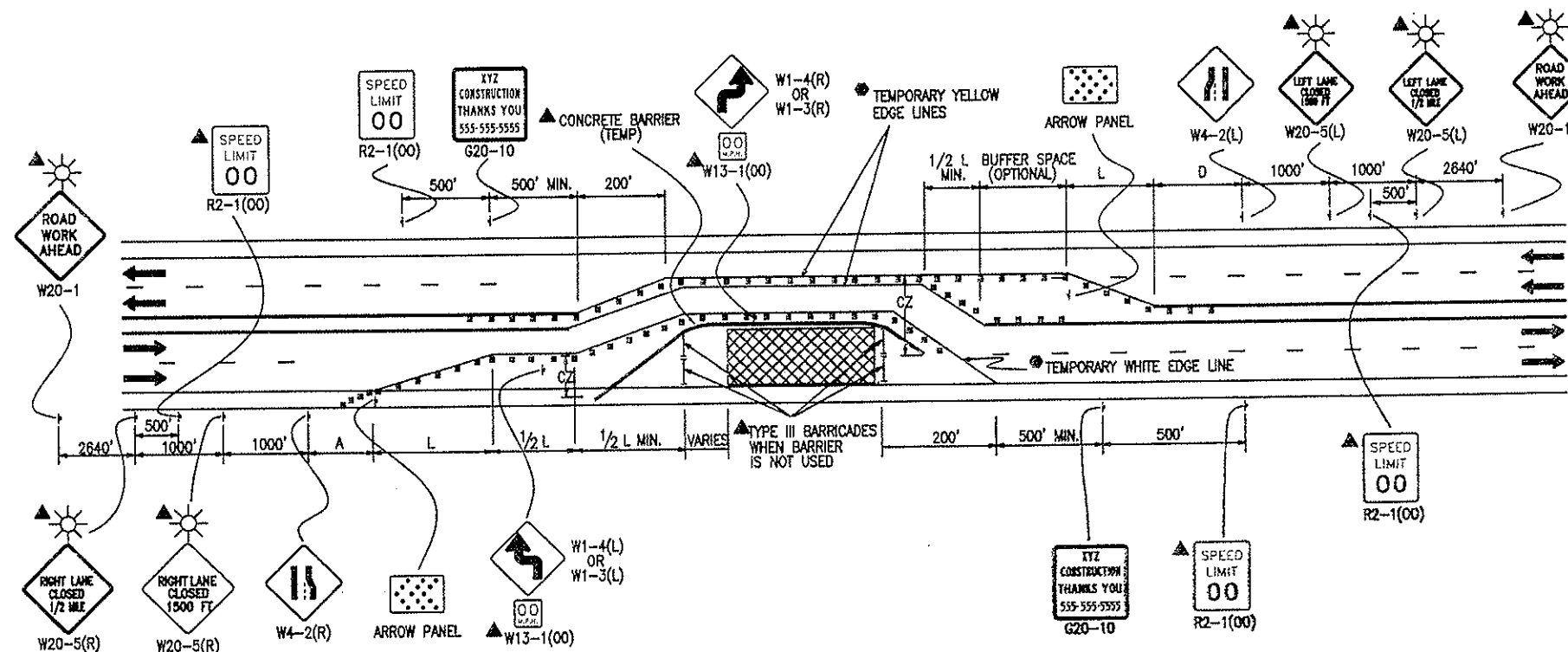
TYPICAL PAVEMENT MARKINGS

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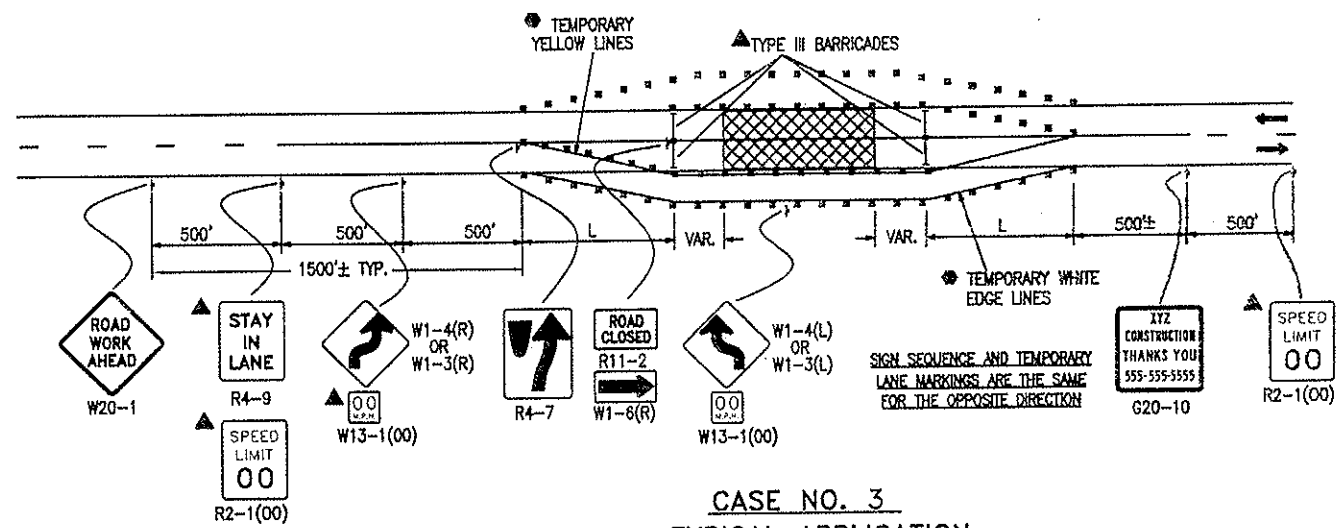
STANDARD PLAN NO.

S-627-1

Sheet No. 5 of 5



CASE NO. 2
TYPICAL APPLICATION
CLOSURE OF HALF OF 4-LANE HIGHWAY, NOT PHYSICALLY DIVIDED



CASE NO. 3
TYPICAL APPLICATION
ROAD CLOSURE, USE OF ADJACENT SHOULDERS

- LEGEND**
- CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE THE SCHEDULE OF CONSTRUCTION TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS.
 - TYPE III BARRICADE
 - CONCRETE BARRIER (TEMPORARY)
 - FLAGGER
 - ← DIRECTION OF TRAVEL
 - ▨ WORK AREA
 - L TRANSITION TAPER LENGTH:
 L = MINIMUM LENGTH OF TAPER
 SPEED 45 MPH OR MORE: $L = S \times W$
 SPEED 40 MPH OR LESS: $L = \frac{WS^2}{60}$
 S = NUMERICAL VALUE OF SPEED LIMIT OR 85 PERCENTILE SPEED
 W = WIDTH OF OFFSET
 SHOULDER TAPER = $1/3 L$
 - ▨ ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL
 - A = 100' (URBAN LOW SPEED)
 350' (URBAN HIGH SPEED)
 500' (RURAL)
 1,000' (EXPRESSWAY / FREEWAY)
 - CZ CLEAR ZONE (SEE GENERAL NOTE 16).
 - ▲ THESE DEVICES ARE OPTIONAL. THEIR NEED SHALL BE DETERMINED BY DETOUR DESIGN AND/OR SCOPE OF CONSTRUCTION ACTIVITY, AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE SCHEDULE OF CONSTRUCTION CONTROL DEVICES.
 - VARIES BUFFER SPACE (SEE GENERAL NOTE 21).
 - REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE THAN 3 DAYS.
 - ☀ FLASHING BEACON

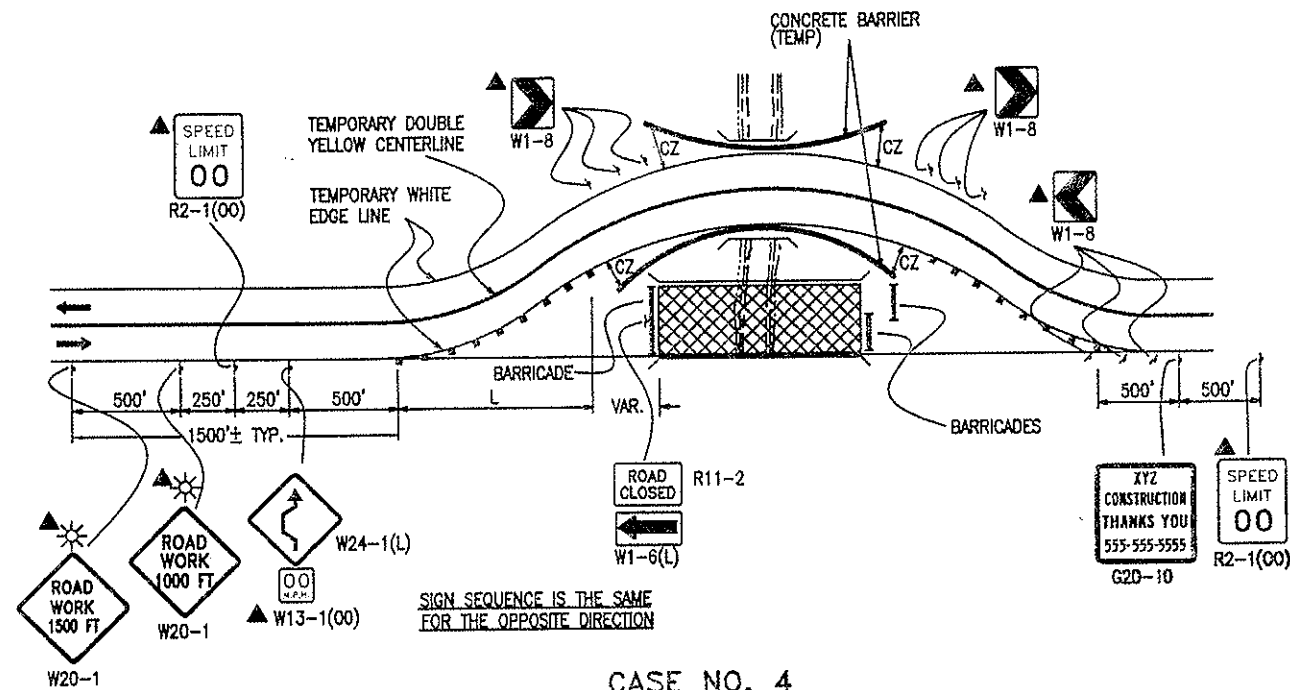
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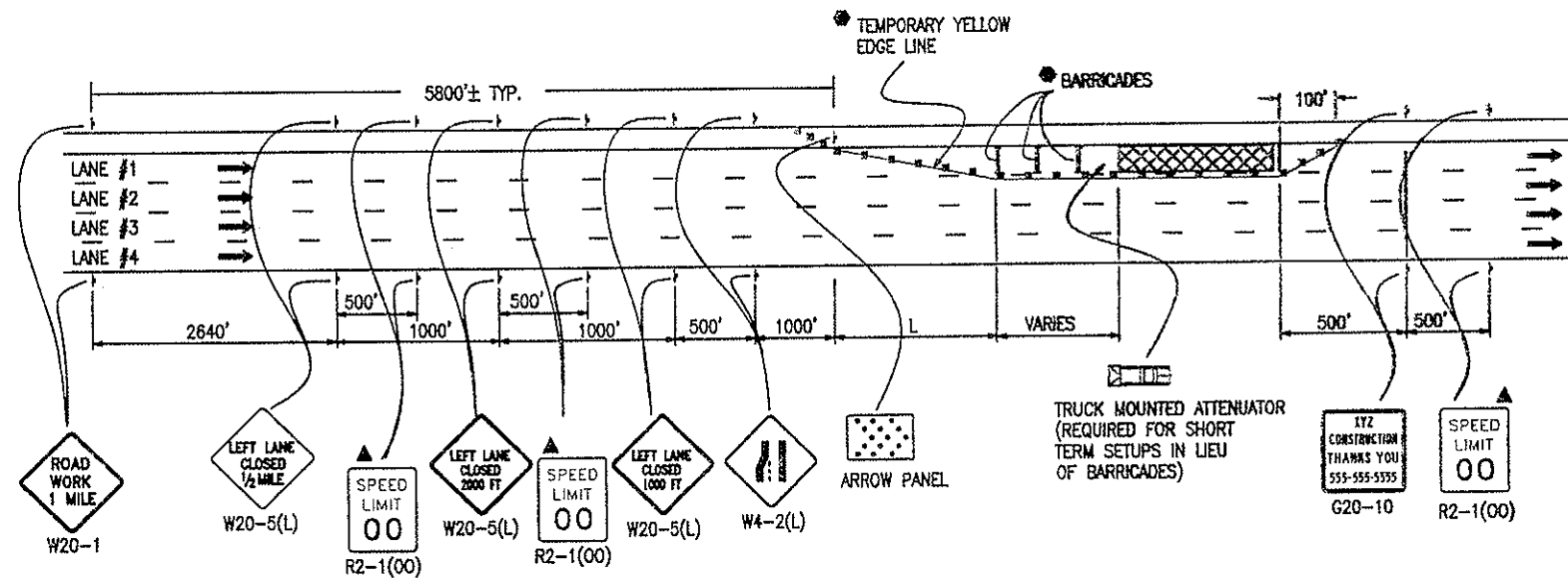
Standard Plan Revised	
Date:	Comments:
09/03/03	Updated to conform with MUTCD Millennium Ed.
11/15/04	Updated to comply with 2003 MUTCD
06/10/05	Added Sheets 9 and 10, and made various revisions throughout.

TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION
 Issued by: Traffic Engineering Unit October 1, 2000

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CASE NO. 4
TYPICAL APPLICATION
ROAD CLOSURE, BYPASS DETOUR PROVIDED



CASE NO. 5
TYPICAL APPLICATION
LANE #1 CLOSURE, MULTILANE FREEWAY

- LEGEND**
- CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE THE SCHEDULE OF CONSTRUCTION TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS.
 - TYPE III BARRICADE
 - CONCRETE BARRIER (TEMPORARY)
 - ▲ FLAGGER
 - ← DIRECTION OF TRAVEL
 - ▨ WORK AREA
- L. TRANSITION TAPER LENGTH:**
 L = MINIMUM LENGTH OF TAPER
 SPEED 45 MPH OR MORE: $L = 5 \times W$
 SPEED 40 MPH OR LESS: $L = \frac{WS^2}{80}$
 S = NUMERICAL VALUE OF SPEED LIMIT OR 85 PERCENTILE SPEED
 W = WIDTH OF OFFSET
 SHOULDER TAPER = $\frac{1}{3} L$
- ▨ ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL
 - CZ CLEAR ZONE (SEE GENERAL NOTE 16).
 - ▲ THESE DEVICES ARE OPTIONAL. THEIR NEED SHALL BE DETERMINED BY DETOUR DESIGN AND/OR SCOPE OF CONSTRUCTION ACTIVITY, AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE SCHEDULE OF CONSTRUCTION CONTROL DEVICES.
 - VARIES BUFFER SPACE (SEE GENERAL NOTE 21).
 - REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE THAN 3 DAYS.
 - ▨ TRUCK MOUNTED ATTENUATOR
 - ☀ FLASHING BEACON

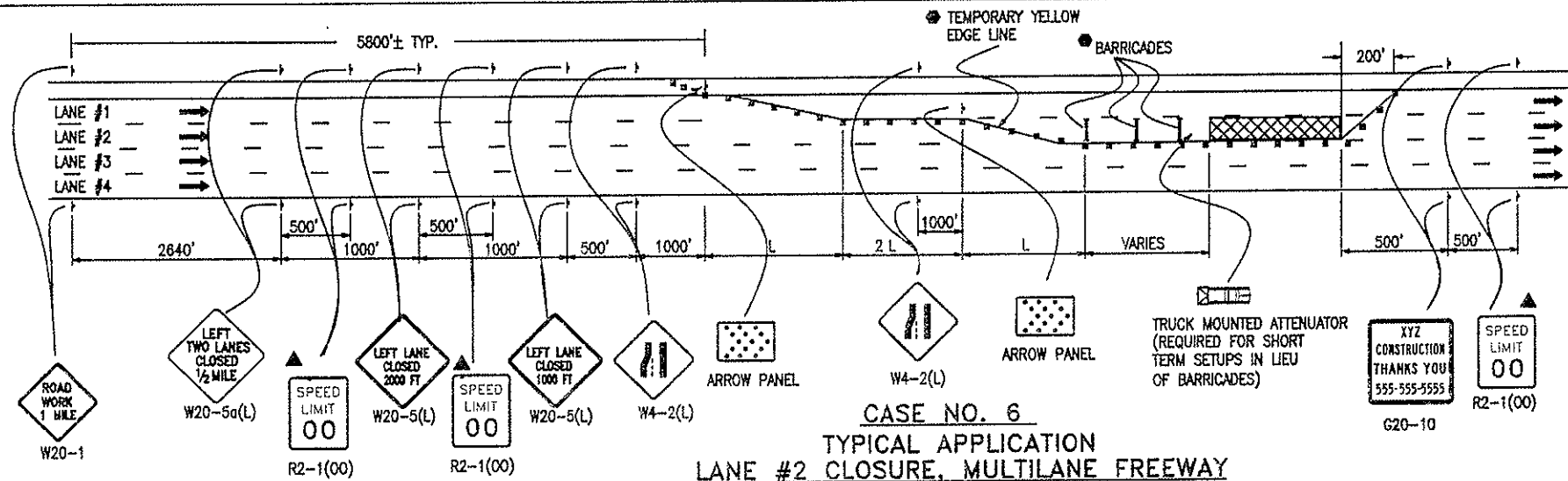
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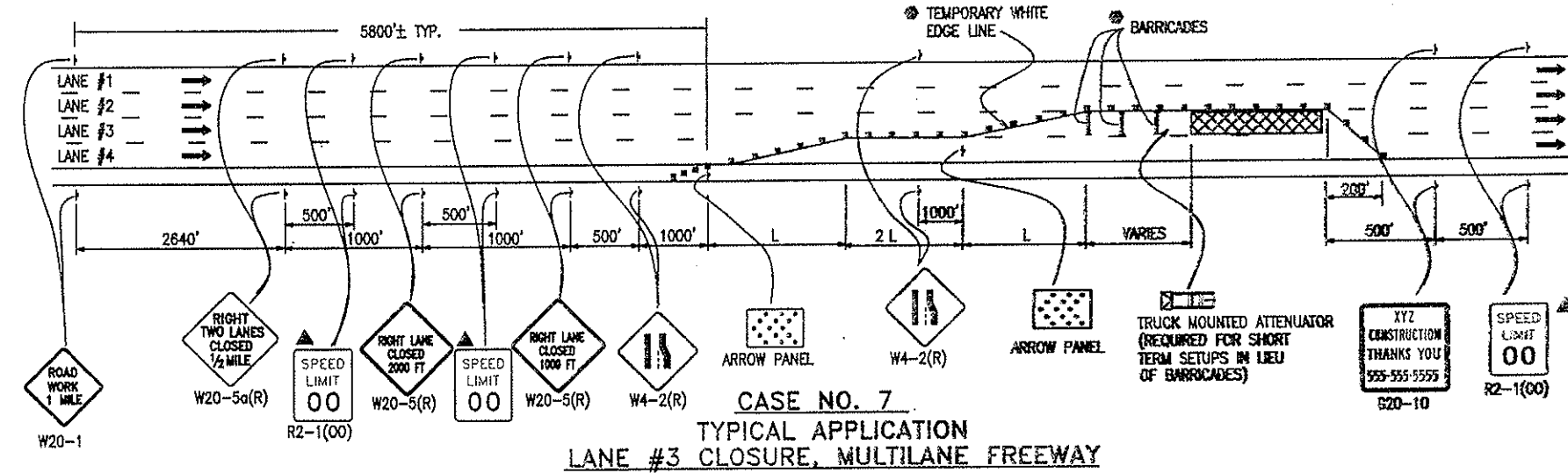
Standard Plan Revised
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 08/10/05 Added Sheets 9 and 10, and made various revisions throughout.

TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION
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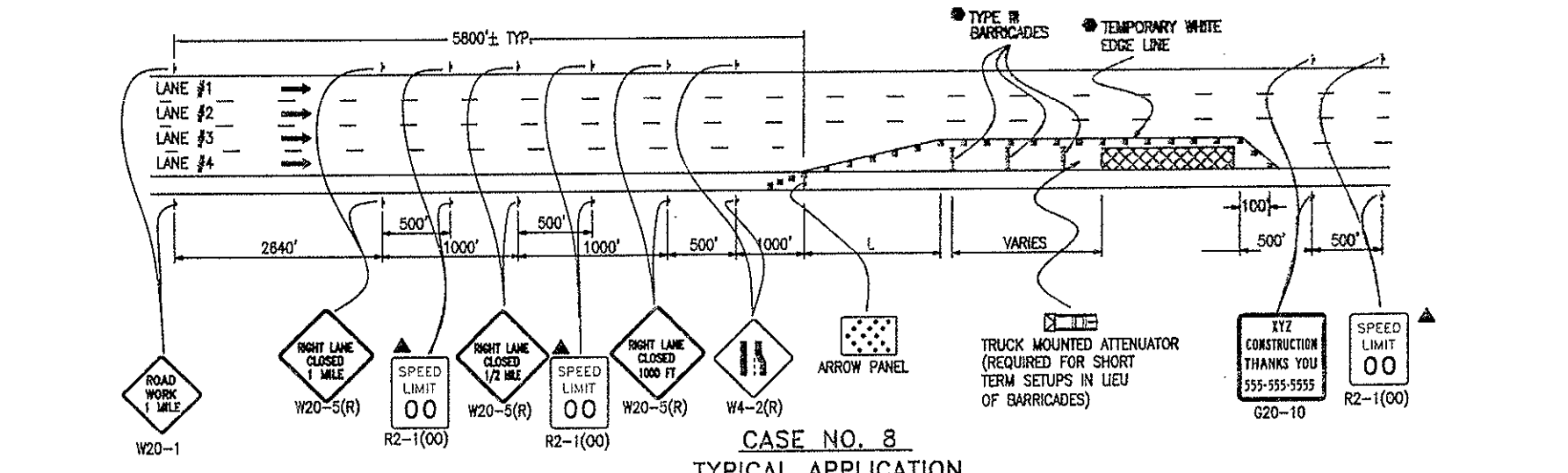
STANDARD PLAN NO.
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CASE NO. 6
TYPICAL APPLICATION
LANE #2 CLOSURE, MULTILANE FREEWAY



CASE NO. 7
TYPICAL APPLICATION
LANE #3 CLOSURE, MULTILANE FREEWAY



CASE NO. 8
TYPICAL APPLICATION
LANE #4 CLOSURE, MULTILANE FREEWAY

- LEGEND**
- CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE THE SCHEDULE OF CONSTRUCTION TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS.
 - TYPE III BARRICADE
 - CONCRETE BARRIER (TEMPORARY)
 - ⚡ FLAGGER
 - ➔ DIRECTION OF TRAVEL
 - ▨ WORK AREA
 - L TRANSITION TAPER LENGTH:
L = MINIMUM LENGTH OF TAPER
SPEED 45 MPH OR MORE: $L = S \times W$
SPEED 40 MPH OR LESS: $L = \frac{WS^2}{60}$
S = NUMERICAL VALUE OF SPEED LIMIT OR 85 PERCENTILE SPEED
W = WIDTH OF OFFSET
SHOULDER TAPER = 1/3 L
 - ▨ ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL
 - CZ CLEAR ZONE (SEE GENERAL NOTE 16).
 - ▲ THESE DEVICES ARE OPTIONAL. THEIR NEED SHALL BE DETERMINED BY DETOUR DESIGN AND/OR SCOPE OF CONSTRUCTION ACTIVITY, AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE SCHEDULE OF CONSTRUCTION CONTROL DEVICES.
 - VARIABLES BUFFER SPACE (SEE GENERAL NOTE 21).
 - REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE THAN 3 DAYS.
 - ▨ TRUCK MOUNTED ATTENUATOR

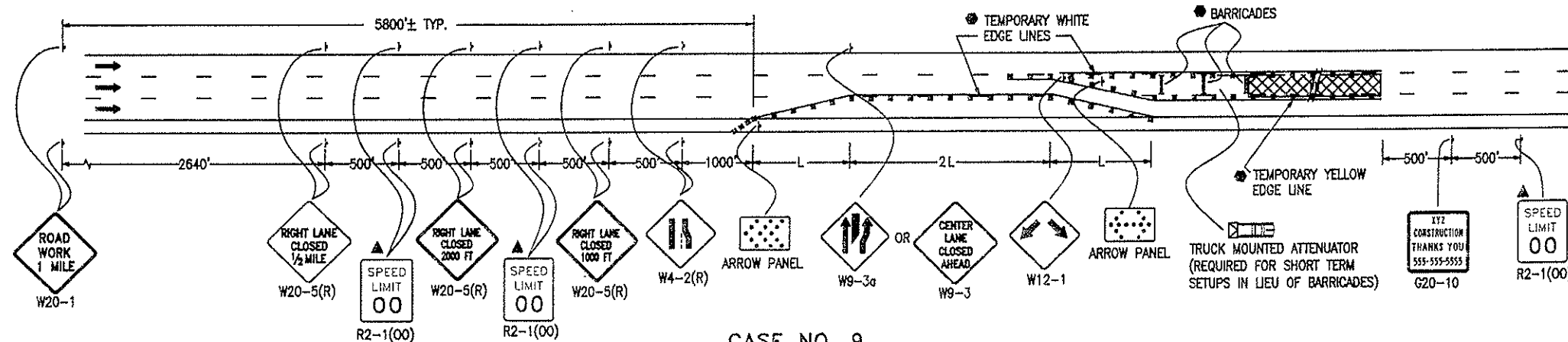
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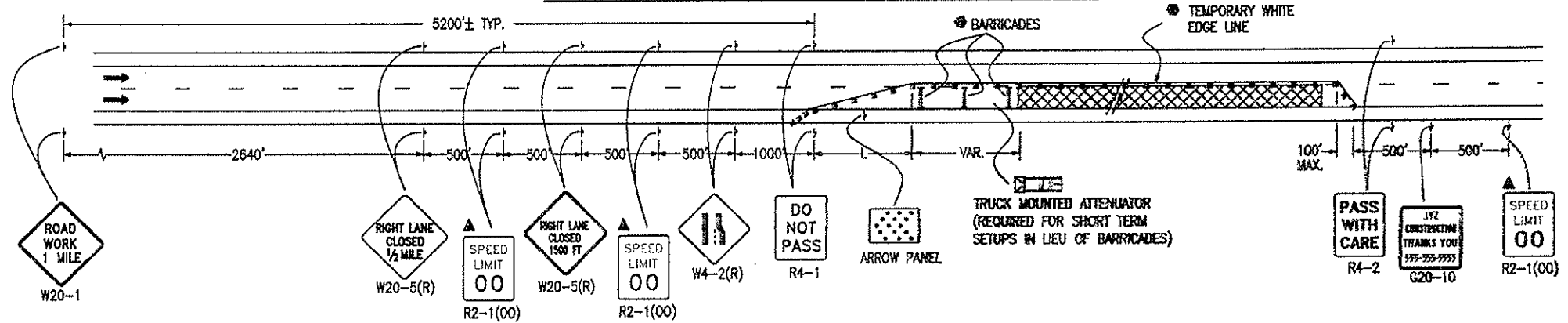
Standard Plan Revised
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 06/10/05 Added Sheets 9 and 10, and made various revisions throughout.

TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION
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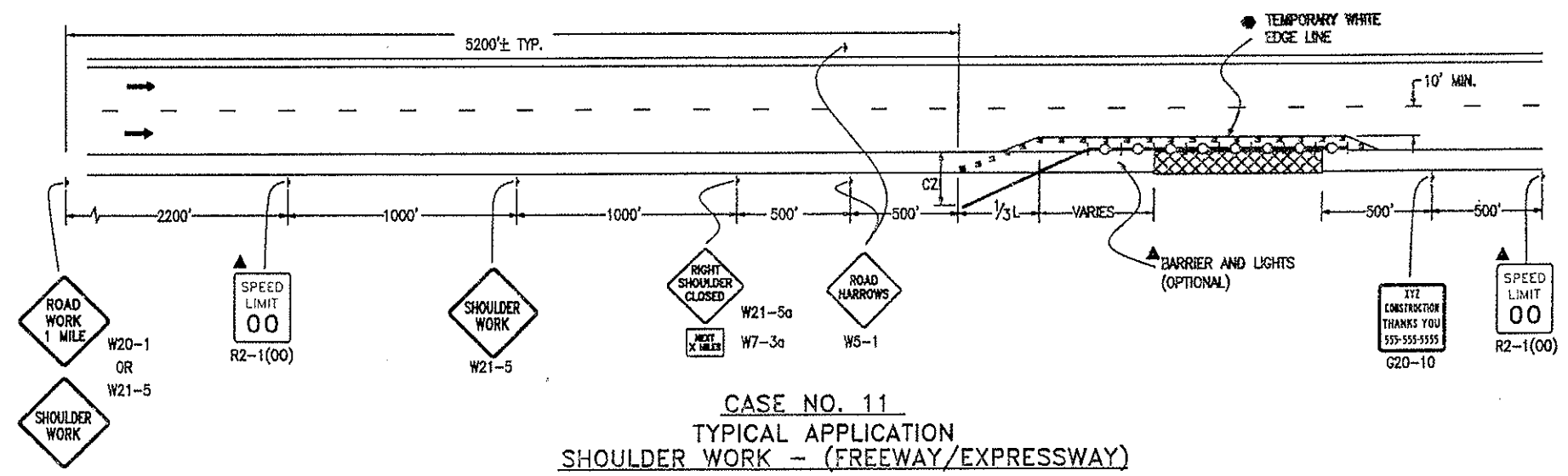
STANDARD PLAN NO.
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CASE NO. 9
TYPICAL APPLICATION
CENTER LANE CLOSURE - MULTILANE FREEWAY




CASE NO. 10
TYPICAL APPLICATION
ONE LANE CLOSED - FOUR-LANE DIVIDED HIGHWAY



CASE NO. 11
TYPICAL APPLICATION
SHOULDER WORK - (FREEWAY/EXPRESSWAY)

- LEGEND**
- CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE THE SCHEDULE OF CONSTRUCTION TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS.
 - TYPE III BARRICADE
 - CONCRETE BARRIER (TEMPORARY)
 - FLAGGER
 - ← DIRECTION OF TRAVEL
 - ▨ WORK AREA
 - L TRANSITION TAPER LENGTH:
L = MINIMUM LENGTH OF TAPER
SPEED 45 MPH OR MORE: $L = S \times W$
SPEED 40 MPH OR LESS: $L = \frac{WS^2}{60}$
S = NUMERICAL VALUE OF SPEED LIMIT OR 85 PERCENTILE SPEED
W = WIDTH OF OFFSET
SHOULDER TAPER = 1/3 L
 - ▨ ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL
 - CZ CLEAR ZONE (SEE GENERAL NOTE 16).
 - ▲ THESE DEVICES ARE OPTIONAL. THEIR NEED SHALL BE DETERMINED BY DETOUR DESIGN AND/OR SCOPE OF CONSTRUCTION ACTIVITY, AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE SCHEDULE OF CONSTRUCTION CONTROL DEVICES.
 - VARIES BUFFER SPACE (SEE GENERAL NOTE 21).
 - REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE THAN 3 DAYS.
 - ▨ TRUCK MOUNTED ATTENUATOR
 - CONCRETE BARRIER (TEMPORARY) WITH LIGHTS

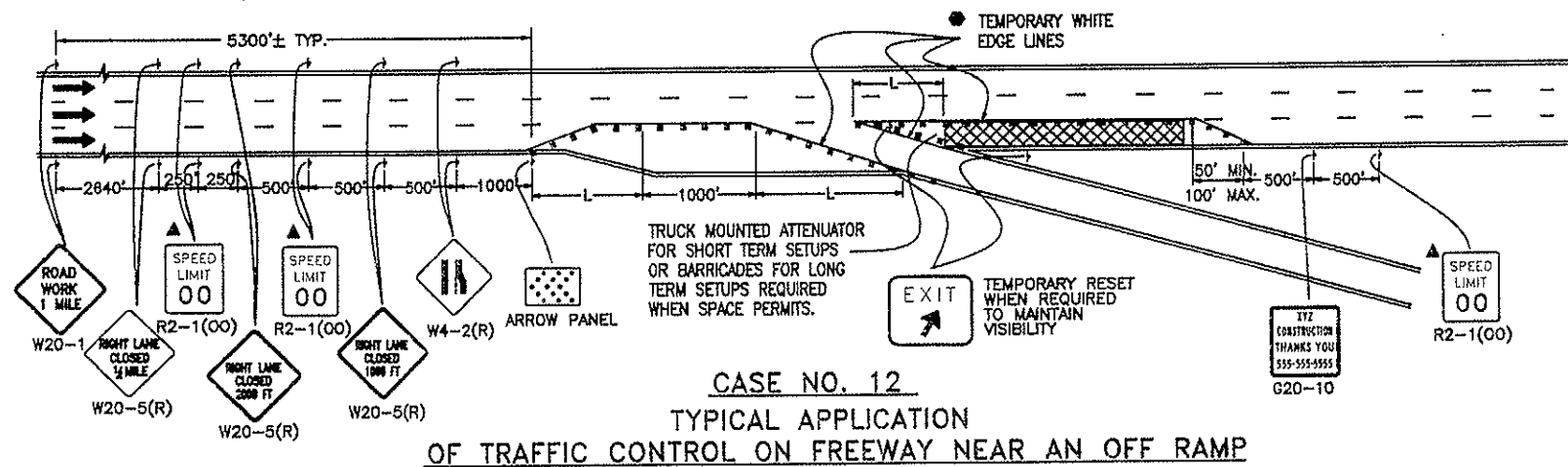
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Computer File Information	
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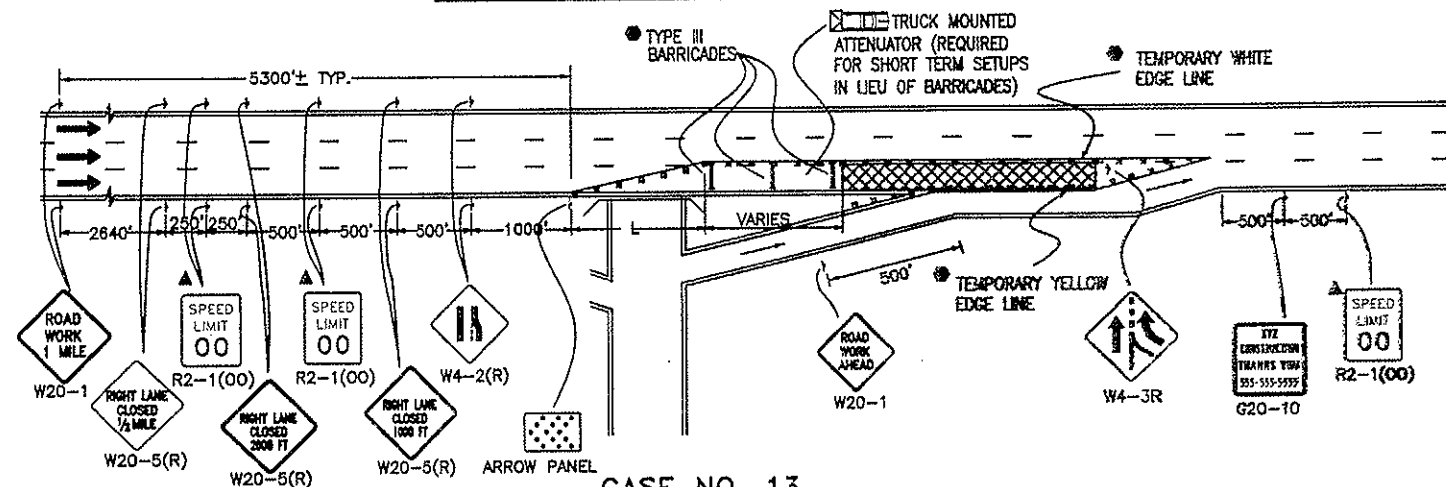
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Date:	Comments:
09/03/03	Updated to conform with MUTCD Millennium Ed.
11/15/04	Updated to conform with 2003 MUTCD
06/10/05	Added Sheets 9 and 10, and made various revisions throughout.

TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION
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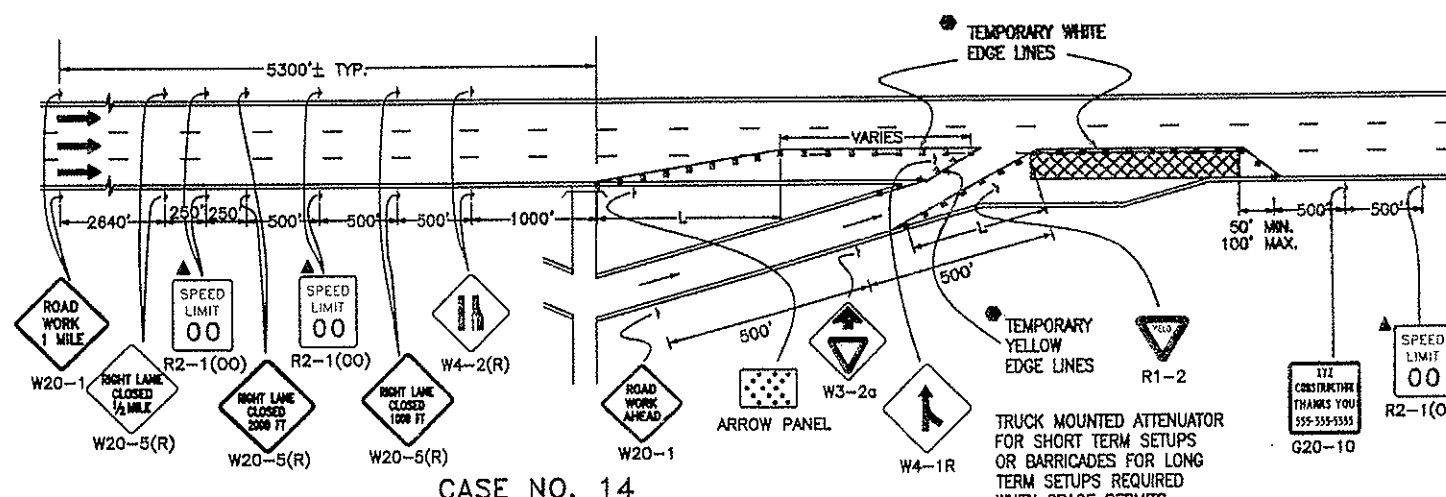
STANDARD PLAN NO.
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CASE NO. 12
TYPICAL APPLICATION
OF TRAFFIC CONTROL ON FREEWAY NEAR AN OFF RAMP




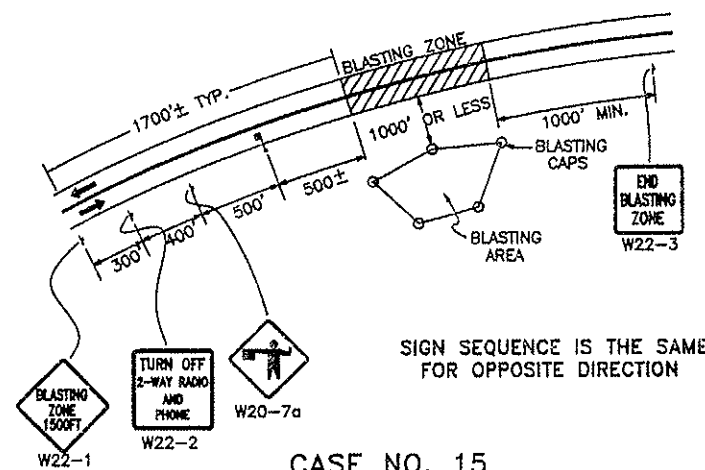
CASE NO. 13
TYPICAL APPLICATION
OF TRAFFIC CONTROL ON FREEWAY BEFORE AN ON RAMP



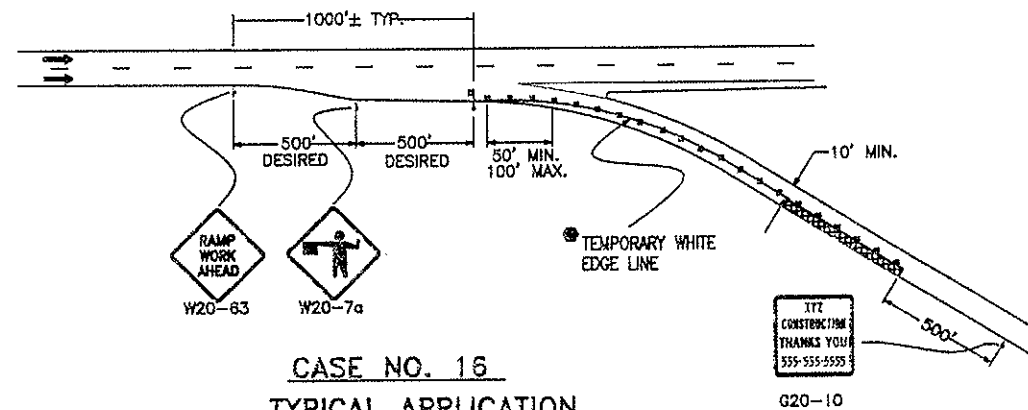
CASE NO. 14
TYPICAL APPLICATION
OF TRAFFIC CONTROL ON FREEWAY ALLOWING ACCESS FROM ON RAMP

- LEGEND**
- CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE THE SCHEDULE OF CONSTRUCTION TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS.
 - TYPE III BARRICADE
 - CONCRETE BARRIER (TEMPORARY)
 - FLAGGER
 - ← DIRECTION OF TRAVEL
 - ▨ WORK AREA
 - L TRANSITION TAPER LENGTH:
 L = MINIMUM LENGTH OF TAPER
 SPEED 45 MPH OR MORE: $L = S \times W$
 SPEED 40 MPH OR LESS: $L = \frac{WS^2}{60}$
 S = NUMERICAL VALUE OF SPEED LIMIT OR 85 PERCENTILE SPEED
 W = WIDTH OF OFFSET
 SHOULDER TAPER = 1/3 L
 - ▨ ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL
 - CZ CLEAR ZONE (SEE GENERAL NOTE 16).
 - ▲ THESE DEVICES ARE OPTIONAL. THEIR NEED SHALL BE DETERMINED BY DETOUR DESIGN AND/OR SCOPE OF CONSTRUCTION ACTIVITY, AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE SCHEDULE OF CONSTRUCTION CONTROL DEVICES.
 - VARIES BUFFER SPACE (SEE GENERAL NOTE 21).
 - ⊙ REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE THAN 3 DAYS.
 - ▨ TRUCK MOUNTED ATTENUATOR

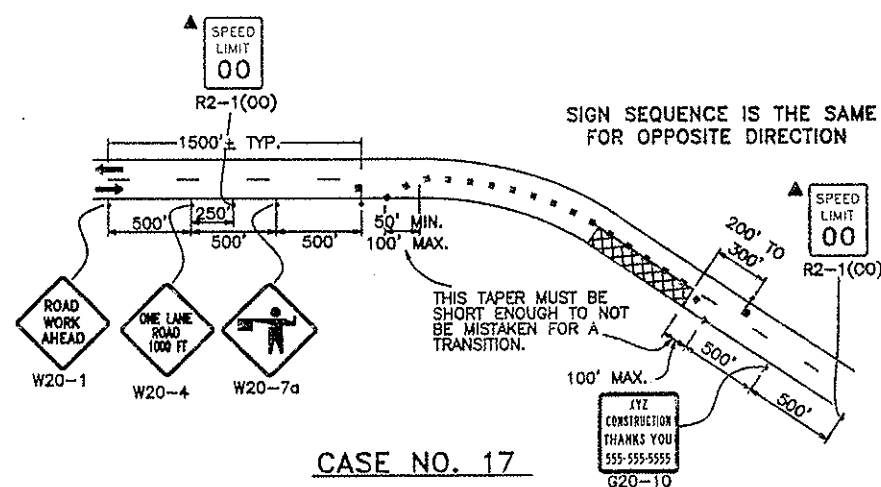
Colorado Department of Transportation  4201 East Arkansas Avenue Denver, Colorado 80222 Phone: (303) 757-9543 FAX: (303) 757-9219 Safety & Traffic Engineering Branch KM	Computer File Information		Standard Plan Revised		TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION Issued by: Traffic Engineering Unit October 1, 2000	STANDARD PLAN NO. S-630-1 Sheet No. 6 of 12
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		06/10/05	Added Sheets 9 and 10, and made various revisions throughout.			



CASE NO. 15
TYPICAL APPLICATION - FOR BLASTING




CASE NO. 16
TYPICAL APPLICATION
RAMP CONSTRUCTION WHERE PARTIAL RAMP IS CLOSED



CASE NO. 17
TYPICAL APPLICATION
LANE CLOSURE, 2-LANE HIGHWAY, AT CURVE

LEGEND

- CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE THE SCHEDULE OF CONSTRUCTION TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS.
- ▨ ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL
- CZ CLEAR ZONE (SEE GENERAL NOTE 16).
- ▲ THESE DEVICES ARE OPTIONAL. THEIR NEED SHALL BE DETERMINED BY DETOUR DESIGN AND/OR SCOPE OF CONSTRUCTION ACTIVITY, AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE SCHEDULE OF CONSTRUCTION CONTROL DEVICES.
- VARIABLES BUFFER SPACE (SEE GENERAL NOTE 21).
- REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE THAN 3 DAYS.
- TYPE 3 BARRICADE
- CONCRETE BARRIER (TEMPORARY)
- FLAGGER
- ← DIRECTION OF TRAVEL
- ▨ WORK AREA
- L TRANSITION TAPER LENGTH:
 $L = \text{MINIMUM LENGTH OF TAPER}$
 SPEED 45 MPH OR MORE: $L = S \times W$
 SPEED 40 MPH OR LESS: $L = \frac{WS^2}{60}$
 $S = \text{NUMERICAL VALUE OF SPEED LIMIT OR 65 PERCENTILE SPEED}$
 $W = \text{WIDTH OF OFFSET}$
 SHOULDER TAPER = $1/3 L$

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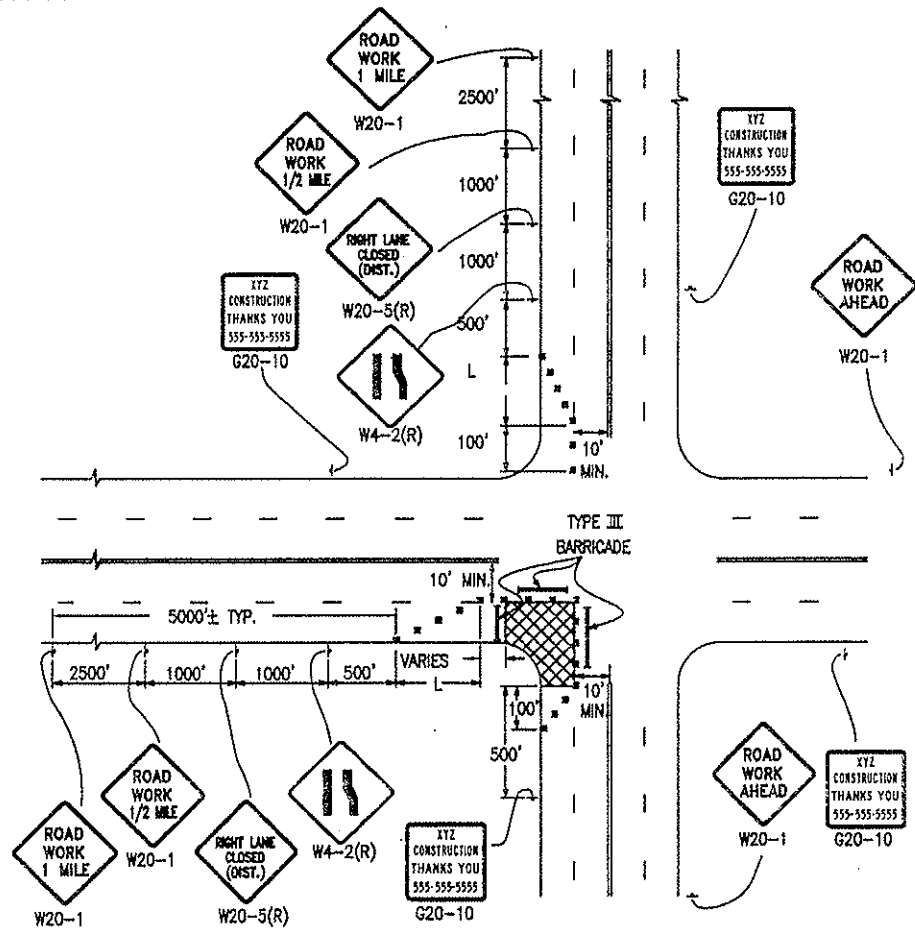
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**TRAFFIC CONTROLS
FOR HIGHWAY
CONSTRUCTION**

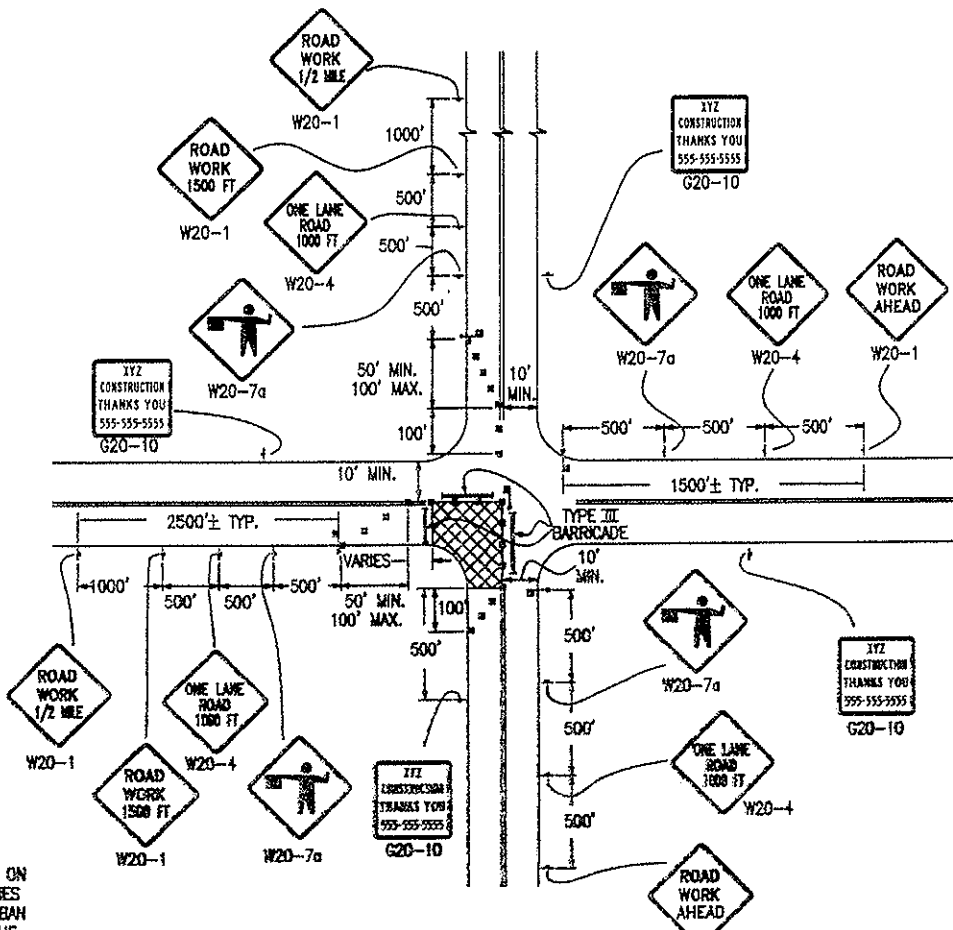
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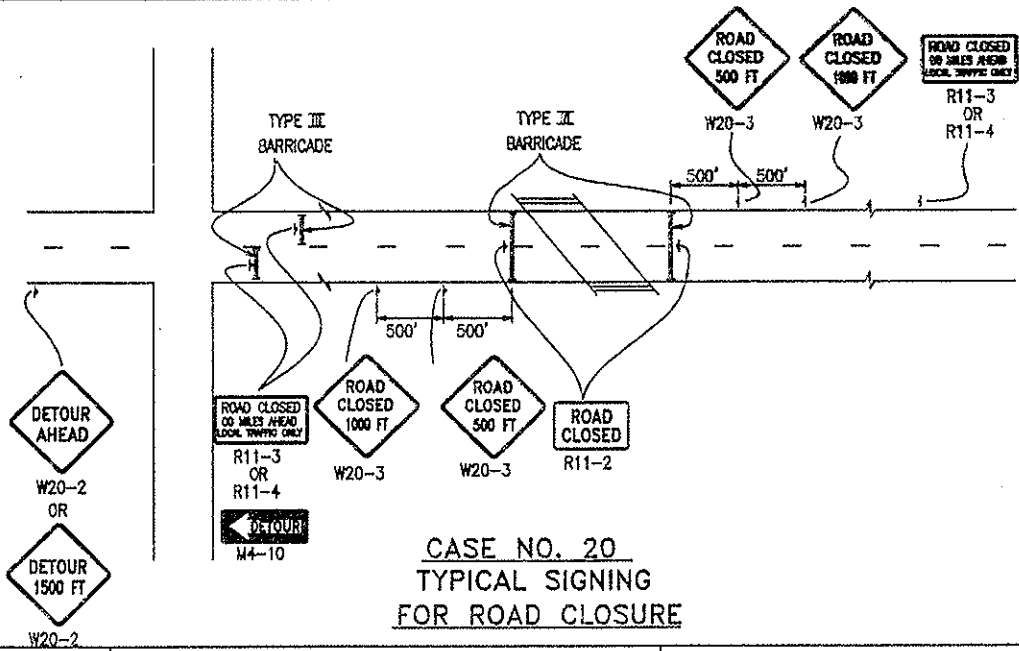
CASE NO. 18
TYPICAL APPLICATION
OF TRAFFIC CONTROL AROUND A WORK AREA
NEAR AN INTERSECTION, ONE LANE CLOSED

NOTE:
SIGN PLACEMENT SHOWN ON
CASES 18 AND 19 TYPICALS
RURAL APPLICATIONS. URBAN
APPLICATIONS REQUIRE THE
SIGNS TO BE PLACED WITHIN
ONE, OR PERHAPS TWO,
BLOCKS.




CASE NO. 19
TYPICAL APPLICATION
OF TRAFFIC CONTROL AROUND A WORK AREA
NEAR AN INTERSECTION

- LEGEND**
- CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE THE SCHEDULE OF CONSTRUCTION TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS.
 - TYPE III BARRICADE
 - CONCRETE BARRIER (TEMPORARY)
 - FLAGGER
 - DIRECTION OF TRAVEL
 - WORK AREA
 - TRANSITION TAPER LENGTH:
 - L = MINIMUM LENGTH OF TAPER
 - SPEED 45 MPH OR MORE: $L = S \times W$
 - SPEED 40 MPH OR LESS: $L = \frac{WS^2}{60}$
 - S = NUMERICAL VALUE OF SPEED LIMIT OR 85 PERCENTILE SPEED
 - W = WIDTH OF OFFSET
 - SHOULDER TAPER = 1/3 L
 - ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL
 - CLEAR ZONE (SEE GENERAL NOTE 16).
 - THESE DEVICES ARE OPTIONAL. THEIR NEED SHALL BE DETERMINED BY DETOUR DESIGN AND/OR SCOPE OF CONSTRUCTION ACTIVITY, AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE SCHEDULE OF CONSTRUCTION CONTROL DEVICES.
 - BUFFER SPACE (SEE GENERAL NOTE 21).



CASE NO. 20
TYPICAL SIGNING
FOR ROAD CLOSURE

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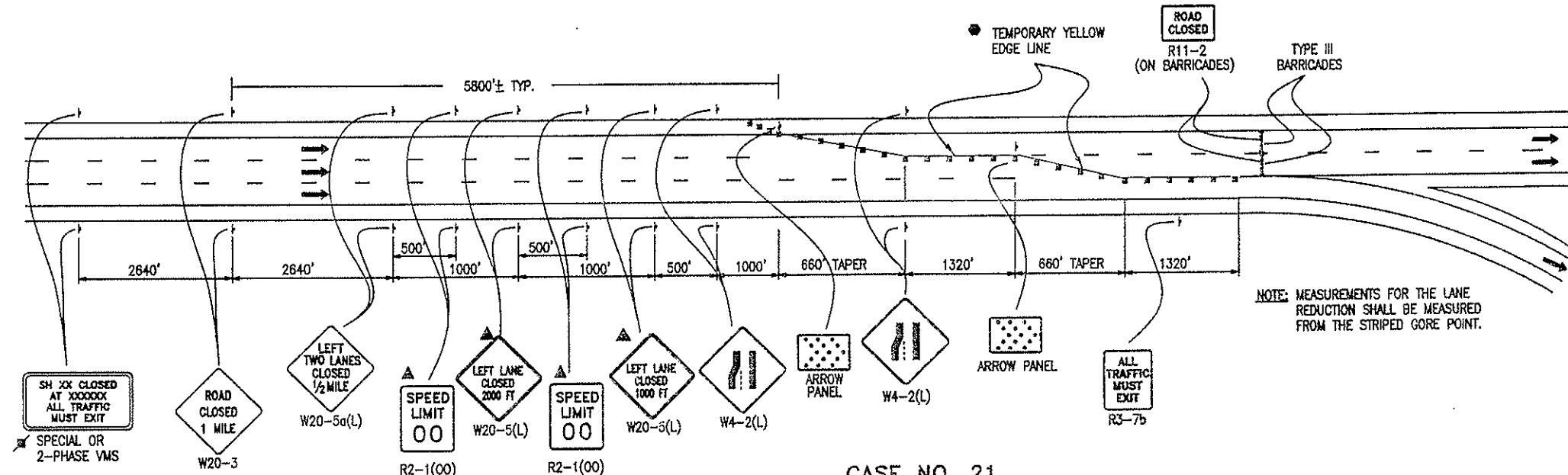
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**TRAFFIC CONTROLS
FOR HIGHWAY
CONSTRUCTION**
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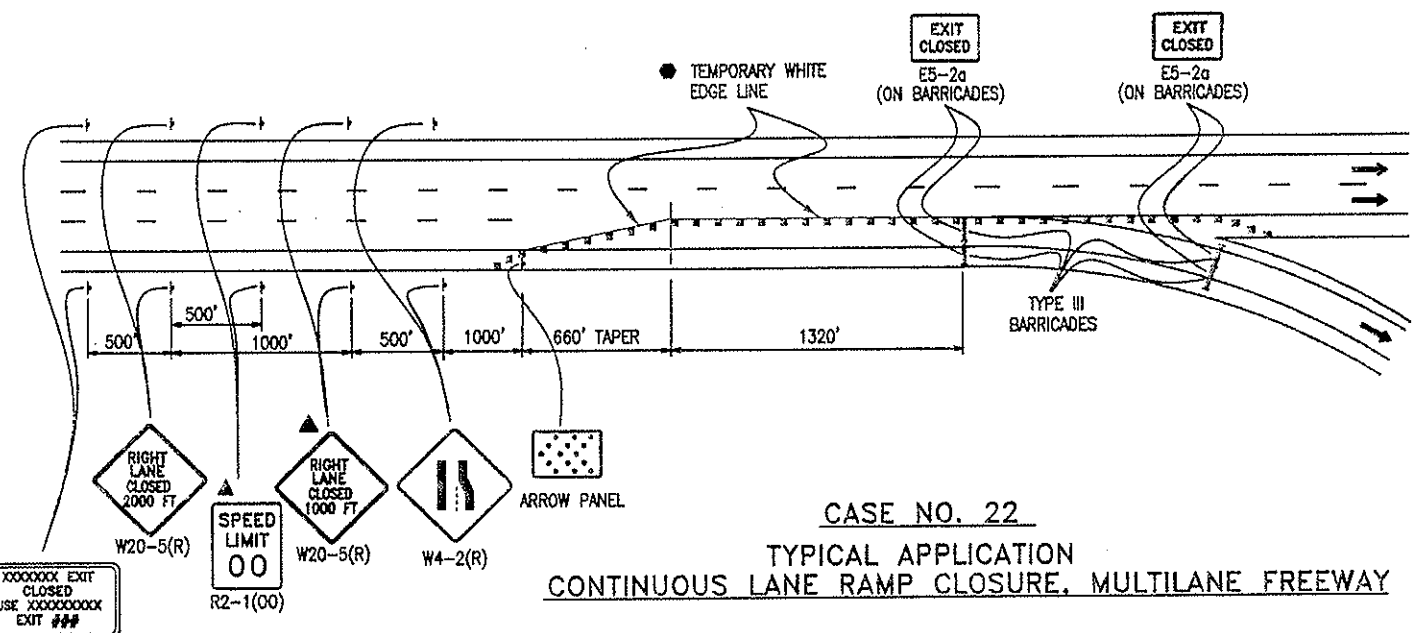
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LEGEND

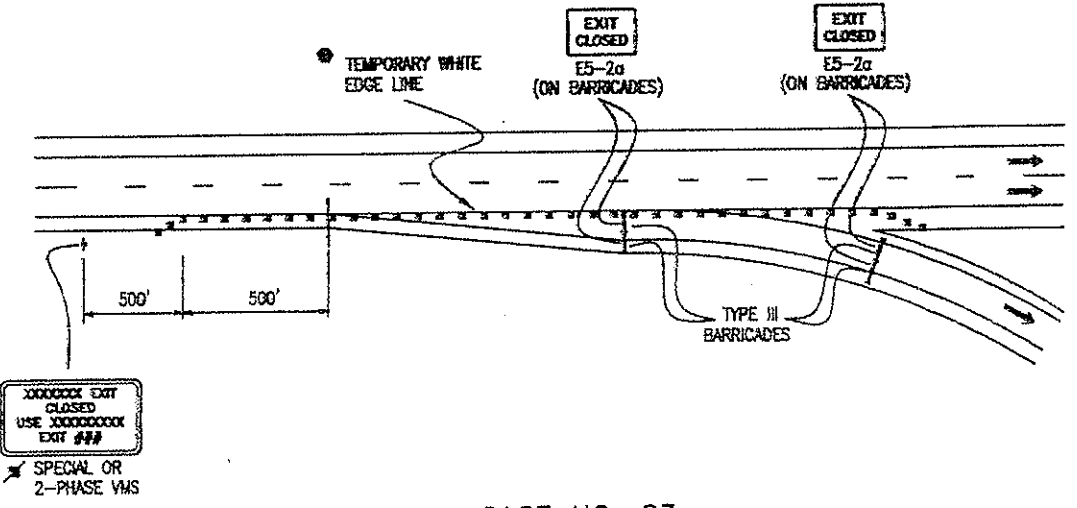
- ▣ ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL
- ▲ THESE DEVICES ARE OPTIONAL. THEIR NEED SHALL BE DETERMINED BY DETOUR DESIGN AND/OR SCOPE OF CONSTRUCTION ACTIVITY, AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE SCHEDULE OF CONSTRUCTION TRAFFIC CONTROL DEVICES.
- REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE THAN 3 DAYS.
- ▣ CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE THE SCHEDULE OF CONSTRUCTION TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS.
- TYPE III BARRICADE
- ← DIRECTION OF TRAVEL
- L. **TRANSITION TAPER LENGTH:**
 - L = MINIMUM LENGTH OF TAPER
 - SPEED 45 MPH OR MORE: $L = S \times W$
 - SPEED 40 MPH OR LESS: $L = \frac{WS^2}{80}$
 - S = NUMERICAL VALUE OF SPEED LIMIT OR 85 PERCENTILE SPEED
 - W = WIDTH OF OFFSET
 - SHOULDER TAPER = 1/3 L
- ▣ CLOSURE AND EXIT MESSAGES ON SIGN LEGEND(S) SHOULD BE MODIFIED TO FIT THE SITUATION.



CASE NO. 21
TYPICAL APPLICATION
FULL CLOSURE, MULTILANE FREEWAY




CASE NO. 22
TYPICAL APPLICATION
CONTINUOUS LANE RAMP CLOSURE, MULTILANE FREEWAY



CASE NO. 23
TYPICAL APPLICATION
SIMPLE RAMP CLOSURE, MULTILANE FREEWAY

- NOTES:**
1. NOTICE OF EXIT CLOSURE SHALL ALSO BE GIVEN IN ADVANCE OF THE PREVIOUS EXIT TO PROVIDE MOTORISTS WITH THE OPTION TO EXIT AT THAT LOCATION.
 2. ADDITIONAL SIGNING TO REDIRECT DETOURED TRAFFIC SHALL BE PROVIDED FOR IN THE PROJECT'S METHOD OF HANDLING TRAFFIC.
 3. FOR LONG TERM SETUPS, A BLACK ON ORANGE "EXIT CLOSED" (E5-2a) PANEL SHALL BE MOUNTED DIAGONALLY ACROSS ALL EXISTING GUIDE SIGNS THAT PERTAIN TO THE CLOSED EXIT.

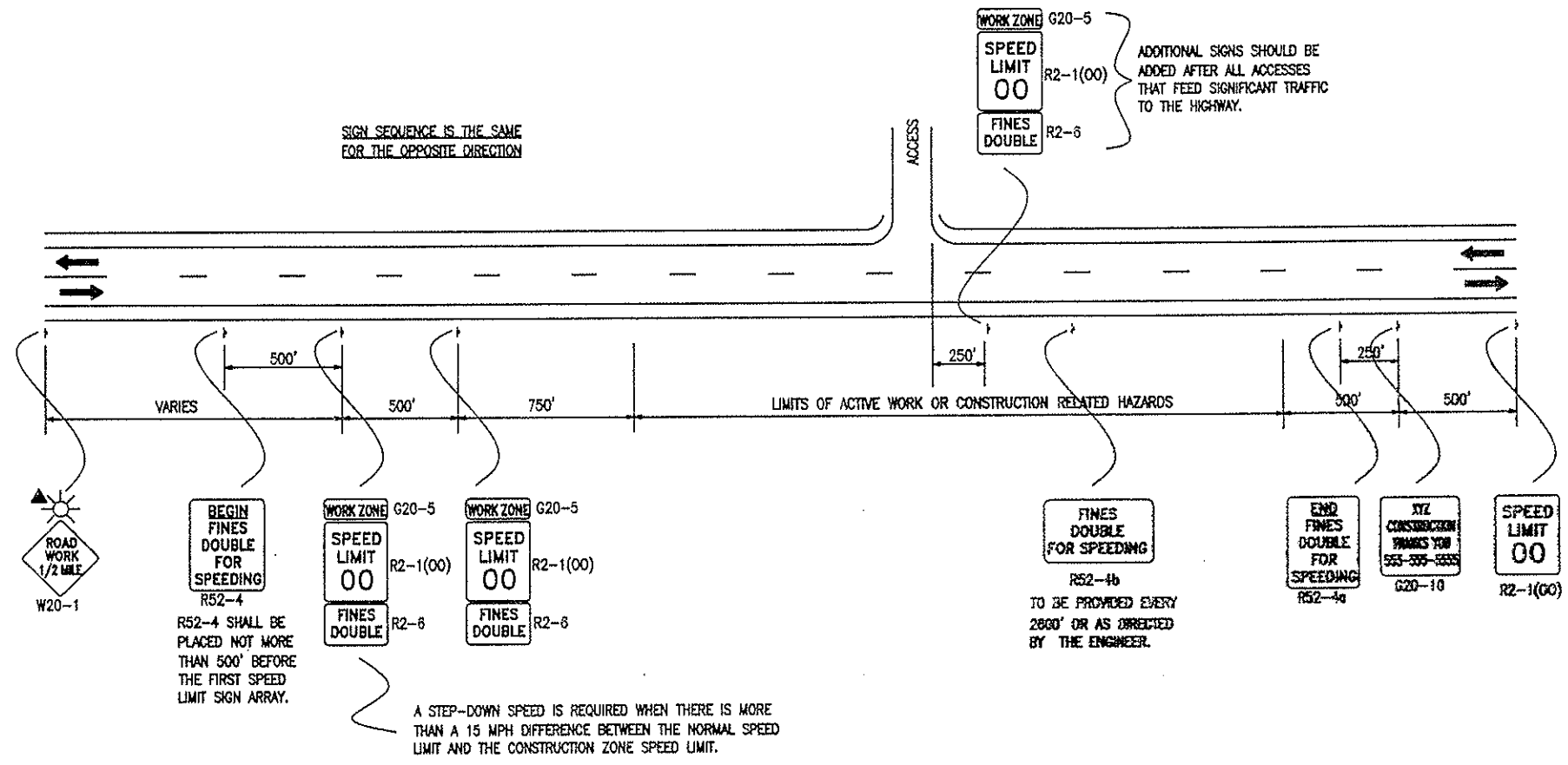
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TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION
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- LEGEND**
- ← DIRECTION OF TRAVEL
 - ▲ THESE DEVICES ARE OPTIONAL. THEIR NEED SHALL BE DETERMINED BY DETOUR DESIGN AND/OR SCOPE OF CONSTRUCTION ACTIVITY, AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE SCHEDULE OF CONSTRUCTION CONTROL DEVICES.
 - ☀ FLASHING BEACON

**CASE NO. 24
TYPICAL APPLICATION
"DOUBLE FINES FOR SPEEDING" SIGNING**

NOTES:

1. SIGNS SHALL NOT BE PLACED SOONER THAN FOUR HOURS BEFORE WORK IS TO BEGIN AND SHALL BE REMOVED AS SOON AS WORK ACTIVITIES ARE CONCLUDED, UNLESS POTENTIAL HAZARDS INTRODUCED AS A RESULT OF THE WORK ARE STILL PRESENT AT THE END OF THE WORK DAY. IF SIGNS ARE LEFT IN PLACE AFTER WORK ACTIVITIES, THE TRAFFIC CONTROL SUPERVISOR SHALL MAKE AN ENTRY IN THEIR DAILY DIARY THAT JUSTIFIES THEIR USE.

HAZARDS INCLUDE BUT ARE NOT LIMITED TO:
EDGE DROP OFFS
EQUIPMENT, WORKERS OR NON-SHIELDED OBJECTS IN THE CLEAR ZONE
ROUGH PAVEMENT
MAJOR CHANGE IN ALIGNMENT
REDUCED SHOULDER WIDTH
TEMPORARY GUARD RAIL OR BARRIER
LANE CLOSURE
2. "FINES DOUBLE" SIGNS SHALL ONLY BE PLACED WHERE WORKERS ARE PRESENT IN THE ROADWAY OR CLEAR ZONE OR ARE AT RISK, OR WHERE THERE ARE EXISTING HAZARDS IN THE TRAVELWAY, SHOULDERS OR CLEAR ZONE.
3. "FINES DOUBLE" SHOULD BE PLACED SO THAT MOTORISTS IMMEDIATELY ASSOCIATE THE SIGNS WITH PRESENT WORK ACTIVITIES. IF THE ZONE OF WORK ACTIVITY MOVES, THE SIGNS SHOULD BE MOVED ACCORDINGLY.
4. SIGNING SHOWN IS REQUIRED TO ENFORCE DOUBLE FINES FOR SPEEDING. ADDITIONAL SIGNING SHALL BE IN ACCORDANCE WITH THAT NORMALLY REQUIRED FOR THE PARTICULAR WORK ZONE. PLACEMENT OF "FINES DOUBLE" SIGNING MAY BE ADJUSTED AS NEEDED TO PROVIDE A MINIMUM 250' SPACING BETWEEN OTHER SIGNING REQUIRED FOR THE SPECIFIC WORK ZONE SETUP.

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GENERAL NOTES

1. ALL CONSTRUCTION ZONE TRAFFIC CONTROL DEVICES, INCLUDING BUT NOT LIMITED TO BARRICADES, SIGNS, ARROW PANELS, FLASHING BEACON (PORTABLE), AND CHANNELIZING DEVICES, SHALL BE FURNISHED, INSTALLED, MAINTAINED (INCLUDING WASHING), REPLACED IF DAMAGED, REMOVED WHEN TEMPORARILY NOT IN USE AND RETURNED WHEN REQUIRED, RESET AS NECESSARY DURING THE PROGRESS OF CONSTRUCTION, AND REMOVED ENTIRELY WHEN THE PROJECT IS COMPLETED.
2. WORK ON THE PROJECT SHALL NOT BE STARTED UNTIL ALL REQUIRED TRAFFIC CONTROL DEVICES ARE IN PLACE, AND APPROVED BY THE ENGINEER.
3. WHEN SPEED LIMIT REDUCTION IS REQUIRED, SUCH REDUCTION SHALL BE IN ACCORDANCE WITH CDOT FORM 568, "AUTHORIZATION AND DECLARATION OF TEMPORARY SPEED LIMITS."

WHEN A CHANGE IN AN EXISTING SPEED LIMIT IS REQUIRED, THE R2-1 SIGNS, SHOWN ON THE SCHEDULE OF CONSTRUCTION TRAFFIC CONTROL DEVICES, SHOULD BE INSTALLED AT THE LOCATIONS SHOWN ON THE TYPICAL CASES BY R2-1 (OPTIONAL) SIGNS.

AN ADVISORY SPEED PLATE (W13-1) MAY BE USED WITH A WARNING SIGN WHEN THE MAXIMUM RECOMMENDED SPEED FOR CONDITION NAMED IS LOWER THAN THE POSTED SPEED LIMIT.

THE REGULATORY OR ADVISORY SPEED REDUCTION DISPLAYED SHALL NOT EXCEED 15 MPH PER SIGN INSTALLATION.
4. ANY TRAFFIC CONTROL DEVICE THAT IS DAMAGED, WEATHERED, WORN, OR OTHERWISE DEEMED UNACCEPTABLE BY THE ENGINEER, SHALL BE REPLACED.
5. CONTRACTOR AND PERSONAL VEHICLE PARKING IS PROHIBITED WITHIN THE RIGHT-OF-WAY UNLESS DESIGNATED ON THE PLANS, OR APPROVED BY THE ENGINEER.
6. CONSTRUCTION TRAFFIC SIGNS SHALL BE MEASURED BY THE FOLLOWING SIZES AND DESCRIPTIONS:

PANEL SIZE A 0.01 TO 9.00 SQ. FT. (INCLUDING TYPE 1 AND TYPE 2 BARRICADES).
PANEL SIZE B 9.01 TO 16.00 SQ. FT.
PANEL SIZE C GREATER THAN 16 SQ. FT.

CONSTRUCTION TRAFFIC SIGN (SPECIAL), SQ. FT., MAY BE USED FOR SOME PROJECT SPECIFIC INFORMATION SIGNS.

FOR DETAILED DIMENSIONS OF SIGNS WITH SIGN CODE NUMBERS, SEE "STANDARD HIGHWAY SIGNS" AND THE "COLORADO SUPPLEMENT" THERETO. SIGN LAYOUTS FOR OTHER SIGNS WILL BE FURNISHED IN THE PLANS, TRANSMITTED TO THE ENGINEER AFTER AWARD, OR MAY BE AVAILABLE UPON REQUEST.

W20-5 WARNING SIGNS SHALL BE FURNISHED WITH EXCHANGEABLE PLAQUES READING "RIGHT", "LEFT", "CENTER", "RIGHT 2", ETC. AT NO ADDITIONAL COST.
7. ALL WARNING AND REGULATORY SIGNS SHALL BE POSTED ON BOTH SIDES OF THE ROADWAY ON DIVIDED HIGHWAYS, MULTI-LANE RAMPS, ONE-WAY STREETS, AND AS DIRECTED BY THE ENGINEER.
8. ADDITIONAL TRAFFIC CONTROL DEVICES ADDRESSING FLAGGING, SPEED REDUCTION, ETC. WILL BE NECESSARY FOR SET-UP AND TAKE-DOWN OF MOST CASE APPLICATIONS; DAILY WORK SITE ACCESS; AND PAVEMENT MARKING REMOVAL AND INSTALLATION OPERATIONS.
9. BASED ON SIGHT DISTANCE AND OTHER CONSIDERATIONS, THE FINAL LOCATIONS OF SIGNS ARE SUBJECT TO APPROVAL OF THE ENGINEER.


10. IF CONSTRUCTION RELATED TRAFFIC CONGESTION BACKS UP BEYOND THE INSTALLED ADVANCE SIGN SEQUENCE, ADDITIONAL ADVANCE SIGNING SHALL BE PLACED BEYOND THE CONGESTION.
11. ALL SIGN MATERIAL SHALL BE SOUND AND DURABLE TO THE DEGREE NECESSARY FOR MAINTAINING EFFECTIVE AND NEAT APPEARING TRAFFIC CONTROLS, AND:
 - a. SIGN PANELS MAY BE FABRICATED FROM PLYWOOD, STEEL, ALUMINUM, OR OTHER SUITABLE MATERIAL.
 - b. REFLECTIVE SHEETING SHALL CONFORM TO ASTM D4956. THE TYPE SHALL BE AS DESCRIBED IN THE STANDARD SPECIFICATIONS AND/OR AS SHOWN ON THE PLANS.
 - c. SYMBOLS AND LEGEND SHALL BE OF GOOD WORKMANSHIP (UNEVEN OR HAND LETTERING WILL NOT BE ACCEPTED).
 - d. PORTABLE OR TEMPORARY MOUNTING SHALL NOT BE CONSTRUCTED OR WEIGHTED BY ANY METHOD OR MATERIAL THAT MAKES THEM HAZARDOUS TO TRAFFIC.
 - e. CERTAIN POST SIZES AND SHAPES REQUIRE A "BREAK-AWAY" DEVICE. SEE THE APPLICABLE STANDARD PLAN. OTHER POST DESIGNS OR SYSTEMS REQUIRE THE SUBMITTAL OF AN FHWA LETTER OF ACCEPTANCE TO THE ENGINEER, AND MUST BE APPROVED BY THE ENGINEER PRIOR TO THEIR USE.
12. ALL CONSTRUCTION SIGN PLACEMENT SHALL BE IN ACCORDANCE WITH STANDARD PLAN "TYPICAL GROUND SIGN PLACEMENT" UNLESS OTHERWISE APPROVED.

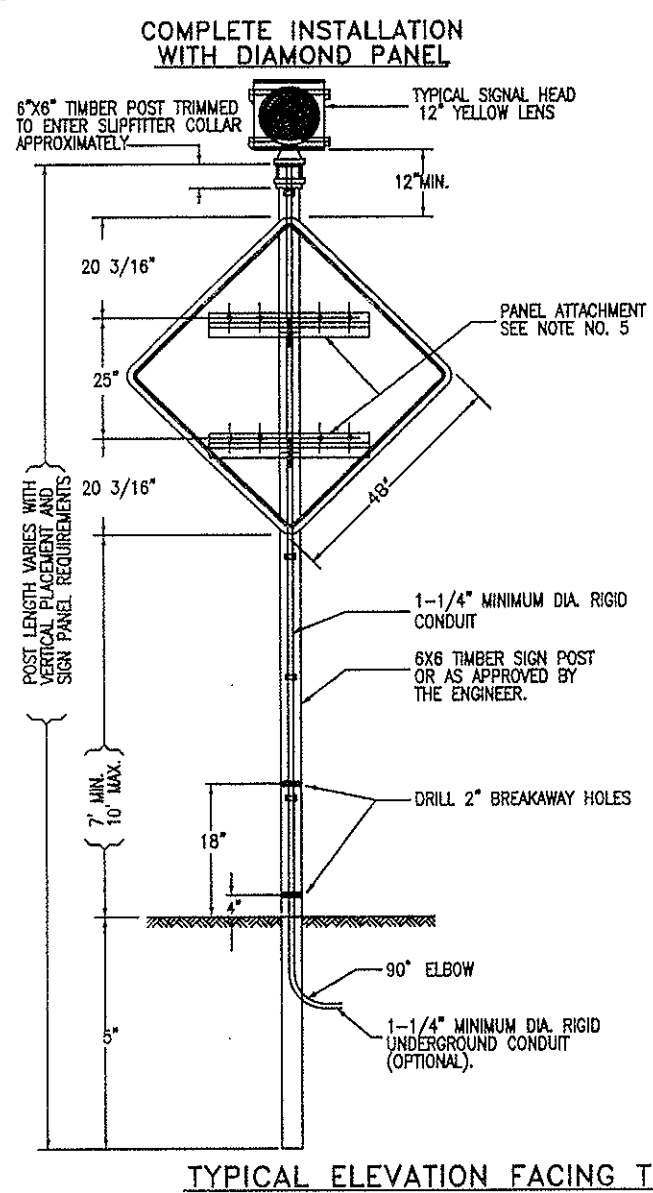
SIGNS APPROVED TO BE MOUNTED ON PORTABLE SUPPORTS, OR APPROPRIATE SIGNS MOUNTED ON BARRICADES, MAY BE AT LOWER HEIGHTS, BUT THE BOTTOM OF THE SIGNS SHALL NOT BE LESS THAN ONE FOOT ABOVE THE PAVEMENT ELEVATION.
13. SIGNS MOUNTED ON THE MEDIAN OF DIVIDED HIGHWAYS WHERE MEDIAN BARRIER IS IN PLACE MAY BE MOUNTED ON THE BARRIER WITH A SADDLE TYPE BRACKET. IF THE BRACKET ALLOWS THE SIGN PANEL TO BE TURNED PARALLEL TO THE ROADWAY, THE SIGN MAY REMAIN IN PLACE WHEN NOT APPLICABLE, BUT LAYING THE SIGN PANEL DOWN IN A HORIZONTAL POSITION IS NOT PERMITTED.
14. TRAFFIC CONES SHALL BE AT LEAST 28 INCHES IN HEIGHT. HOWEVER, THE MINIMUM SIZE SHALL BE 36 INCHES WHEN THEY ARE USED ON FREEWAYS AND EXPRESSWAYS, OR DURING NIGHT TIME WORKING HOURS. THEY SHOULD ALSO BE 36 INCHES WHEN USED ON OTHER HIGH SPEED ROADWAYS (45 MPH OR MORE) WITH AN ADT OF 6,000 OR MORE.
15. TYPE 1 BARRICADES AND VERTICAL PANELS SHALL NOT BE USED ON FREEWAYS, EXPRESSWAYS, OR OTHER HIGH SPEED ROADWAYS (45 MPH OR MORE).
16. WHEN TWO-WAY TRAFFIC IS PLACED ON ONE ROADWAY OF A NORMALLY DIVIDED HIGHWAY, OPPOSING TRAFFIC SHALL BE SEPARATED EITHER WITH CONCRETE BARRIER (TEMPORARY), OR WITH CHANNELIZING DEVICES APPROVED FOR THIS APPLICATION, THROUGHOUT THE LENGTH OF TWO-WAY OPERATION. THE TRANSITION ZONES SHALL HAVE CONCRETE BARRIER (TEMPORARY). THE BARRIER SHALL BE TIED TO AN EXISTING STRUCTURE OR GUARD RAIL, FLARED OR EXTENDED TO MEET CLEAR ZONE REQUIREMENTS, OR FITTED WITH AN IMPACT ATTENUATION DEVICE.
17. CHANNELIZING DEVICE SPACING, IN FEET, SHALL BE AS FOLLOWS:
 - a. FOR TAPERS AND TRANSITIONS, SPACING EQUALS THE NUMERICAL VALUE OF THE SPEED LIMIT.
(e.g. 45 MPH = 45 FEET)
 - b. FOR TANGENTS ALONG THE BUFFER SPACE OR WORK AREA, SPACING MAY NOT BE GREATER THAN TWO TIMES THE SPEED LIMIT. (e.g. 50 MPH = 50 FEET TO 100 FEET MAXIMUM)

18. FOR DETAILS ON BARRICADES, CONCRETE BARRIER (TEMPORARY), VERTICAL PANELS, AND FLASHING BEACON (PORTABLE), SEE THE APPLICABLE STANDARD PLANS.
19. FLOOD LIGHTS SHALL BE USED TO ILLUMINATE FLAGGER STATIONS DURING THE HOURS OF DARKNESS UNLESS OTHERWISE APPROVED. A TYPICAL LIGHT SHOULD PROVIDE THE FOLLOWING: A FULLY DIRECTIONAL SWIVEL MOUNT QUARTZ LIGHT SOURCE (500 WATT MINIMUM), SELF-SUPPORTING STAND WITH VARIABLE LIGHT HEIGHT FROM OF MINIMUM OF EIGHT FEET ABOVE THE ROADWAY, AND A POWER SOURCE. IT SHALL ILLUMINATE THE STATION AREA AND A FLAGGER ESCAPE PATH, BUT SHALL NOT PRESENT ANY GLARE TO TRAFFIC.
20. IF WORK ON THE ROADWAY IS FOR AN EXTENDED PERIOD, INAPPLICABLE PAVEMENT MARKINGS ARE TO BE REMOVED, AND FULL COMPLIANCE PAVEMENT MARKINGS ARE TO BE INSTALLED IN ACCORDANCE WITH THE APPLICABLE SPECIFICATIONS, (PAVEMENT MARKING - GENERAL), AND/OR AS DETAILED ON THE PLANS.

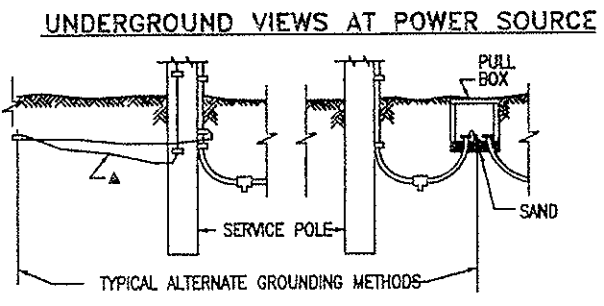
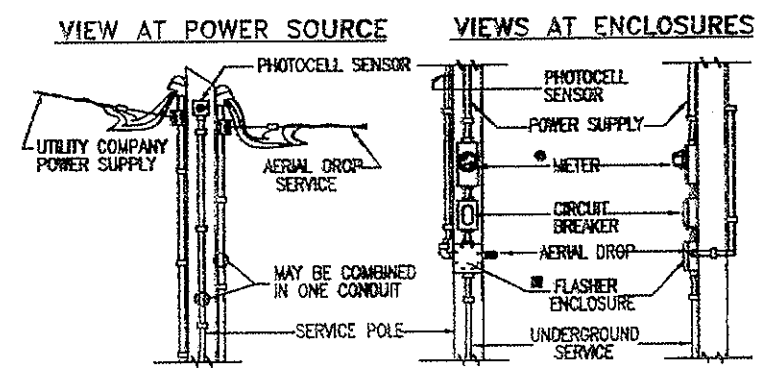
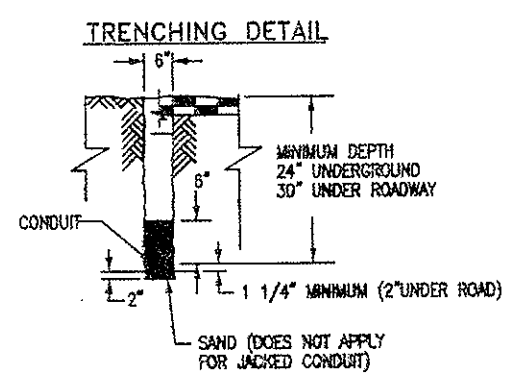
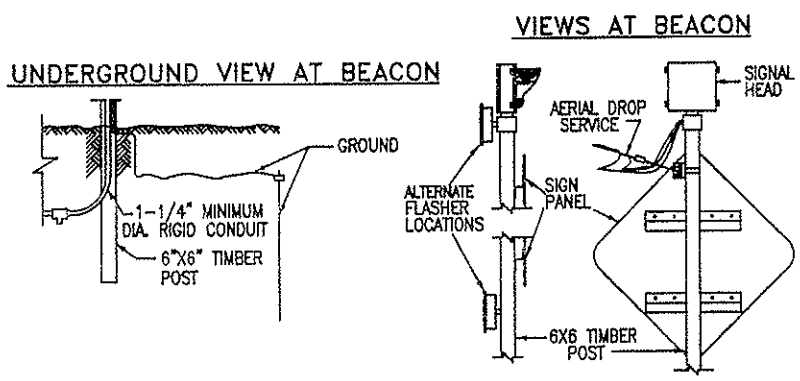
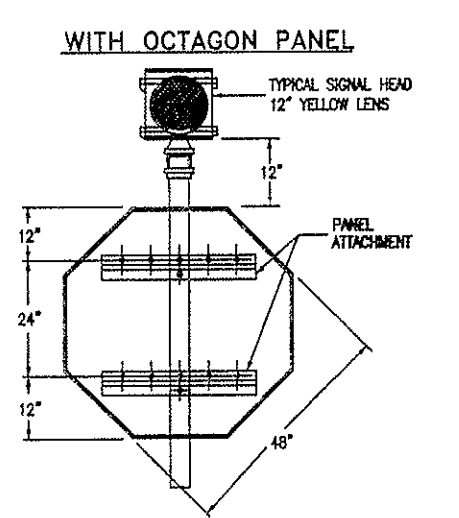
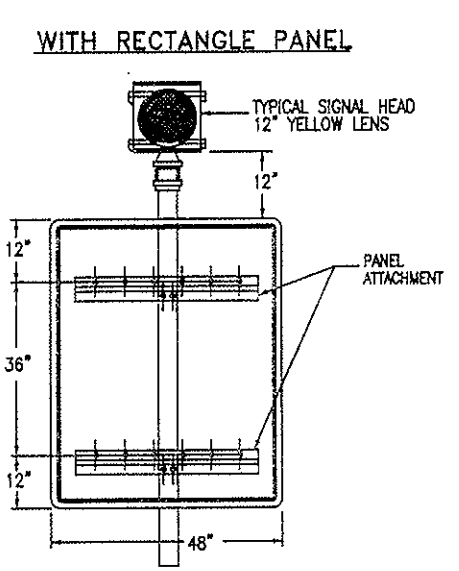
FOR ADDITIONAL PAVEMENT MARKING DETAILS, SEE STANDARD PLAN "TYPICAL PAVEMENT MARKINGS".
21. BUFFER SPACE IS OPTIONAL. NEED MUST BE DETERMINED ON A PROJECT OR SITE SPECIFIC BASIS AS DIRECTED BY THE ENGINEER. WHEN A BUFFER SPACE IS USED, DIMENSIONS AND/OR DEVICES USED ARE TO BE INCORPORATED IN THE TRAFFIC CONTROL PLAN (TCP) OR THE CONTRACTOR'S METHOD OF HANDLING TRAFFIC (MHT).
22. ADDITIONAL VMS SIGNAGE SHOULD BE CONSIDERED AT LEAST A MILE IN ADVANCE OF THE SIGNING SHOWN IN THE DETAIL FOR ANY LANE CLOSURES ON INTERSTATE AND OTHER HIGH SPEED FACILITIES ESPECIALLY WHEN THE LEVEL OF SERVICE IS SIGNIFICANTLY REDUCED AS A RESULT OF CONSTRUCTION. THE LEGENDS SHOULD BE CHANGED TO ADVISE MOTORISTS OF UPCOMING TRAFFIC CONDITIONS AND TO ALERT THEM OF UPCOMING LANE USAGE.

ADDITIONAL ADVANCE WARNING SIGNAGE IS ENCOURAGED IN ALL CASES WHERE TRAFFIC VOLUMES AND SPEEDS ARE HIGH AND/OR WHERE THERE ARE INFREQUENT EXITS.
23. RAISED PAVEMENT MARKERS MAY BE USED TO SUPPLEMENT TEMPORARY STRIPING DURING NON-SNOW PERIODS. THEIR USE IS ENCOURAGED ON HIGHER SPEED FACILITIES WHEN TRAFFIC IS BEING DIVERTED FROM ITS USUAL COURSE.
24. THE TYPICAL CASES DEPICTED IN THIS STANDARD REFLECT THE MINIMUM REQUIREMENTS, UNLESS AS OTHERWISE DIRECTED BY THE PROJECT PLANS AND SPECIFICATIONS, AND/OR THE PROJECT ENGINEER.

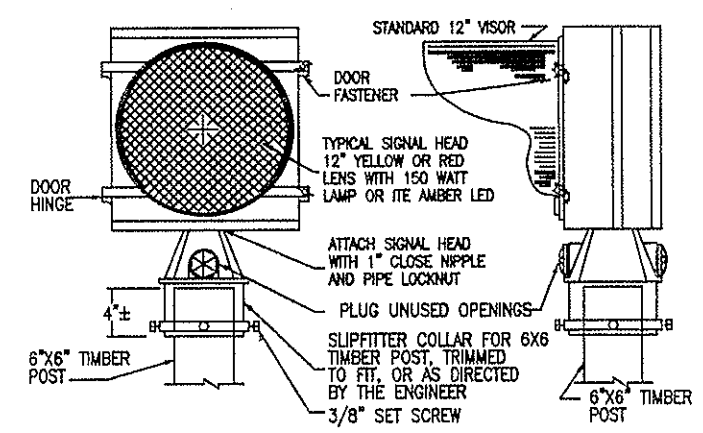
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TYPICAL ELEVATION FACING TRAFFIC



TYPICAL ELECTRICAL SERVICE DETAILS




TYPICAL SIGNAL HEAD - 12" LENS

GENERAL NOTES

- ALL ELECTRICAL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE LATEST REQUIREMENTS OF THE NEC, NEMA, UL OR EIA WHEREVER APPLICABLE; ANY STATE AND LOCAL CODES OR ORDINANCES WHICH MAY APPLY; AND THE FOLLOWING:
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 - THE "FLASHER" SHALL BE HOUSED IN A SUITABLE ENCLOSURE ON THE UTILITY POLE AT THE POWER SOURCE UNLESS THE ENGINEER DIRECTS THAT THE ENCLOSURE BE MOUNTED ON THE BEACON POST OR THAT THE DEVICE MAY BE CONTAINED WITHIN THE SIGNAL HEAD ITSELF.
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Colorado Department of Transportation

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 Safety & Traffic Engineering Branch KA

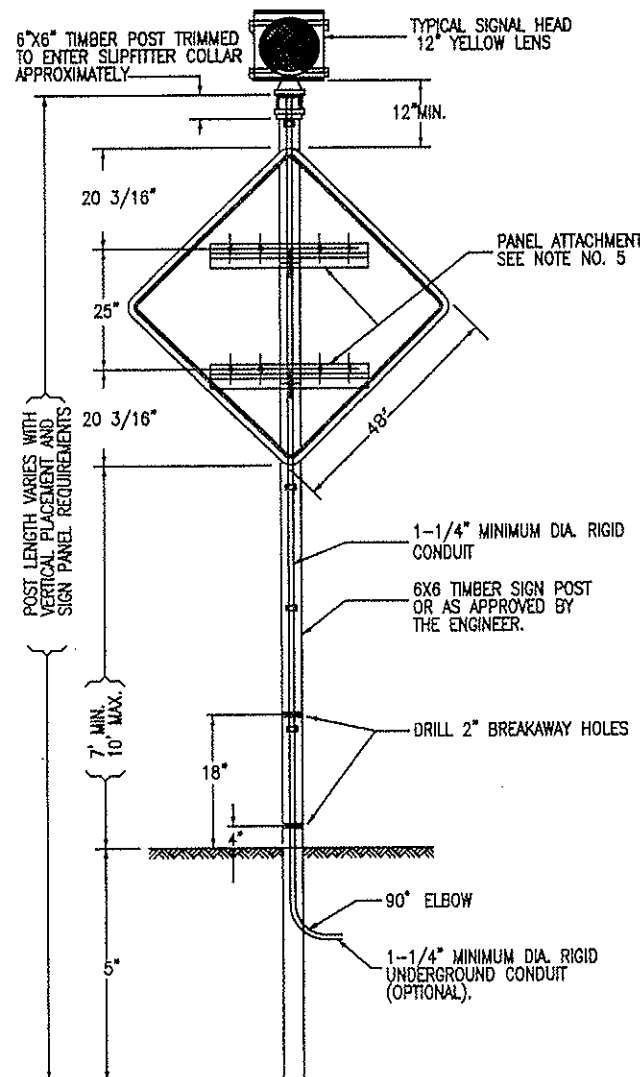
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Standard Plan Revised	
Date:	03/29/05
Comments:	Revised General Note 1(D) to allow solar power.

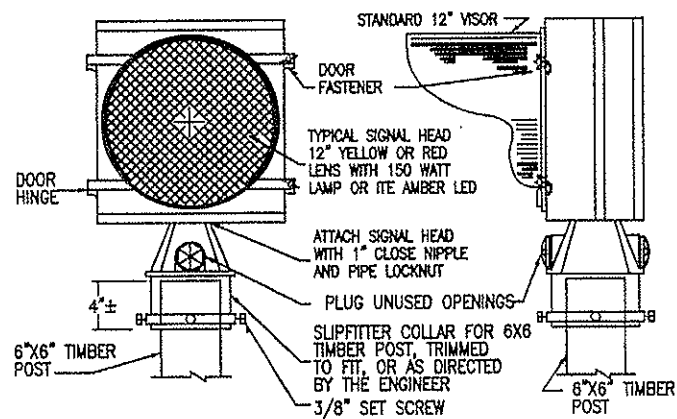
**FLASHING BEACON
(PORTABLE)
DETAILS**
 Issued by: Traffic Engineering Unit October 1, 2000

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COMPLETE INSTALLATION WITH DIAMOND PANEL

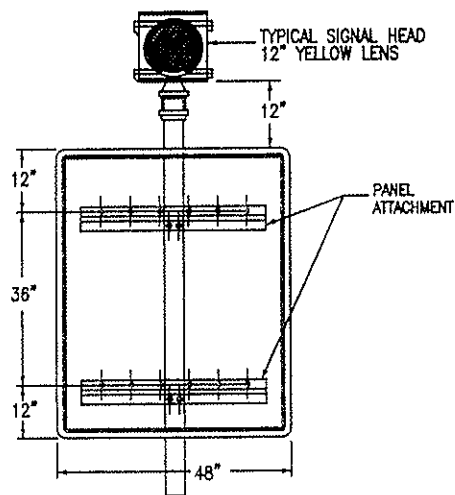


TYPICAL ELEVATION FACING TRAFFIC

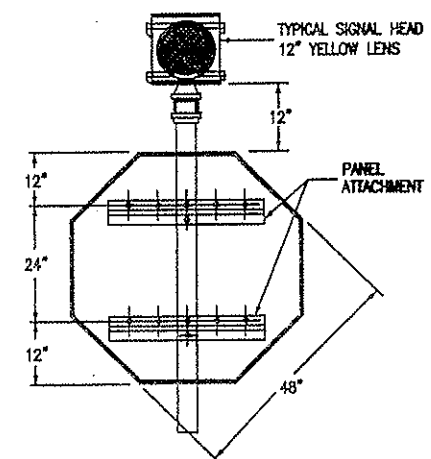


TYPICAL SIGNAL HEAD - 12" LENS

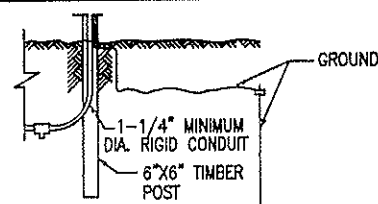
WITH RECTANGLE PANEL



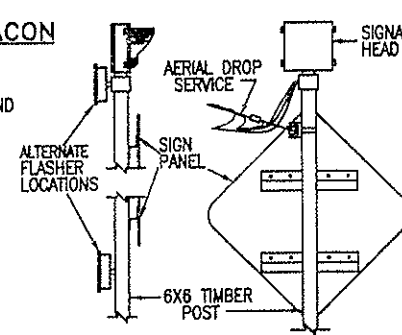
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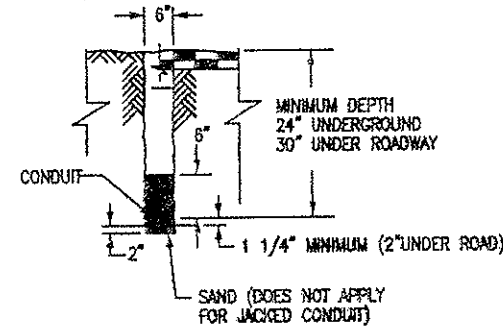
UNDERGROUND VIEW AT BEACON



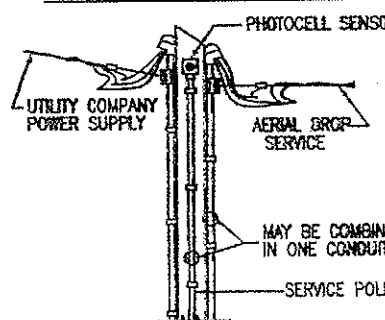
VIEWS AT BEACON



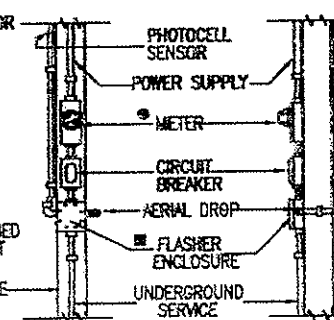
TRENCHING DETAIL



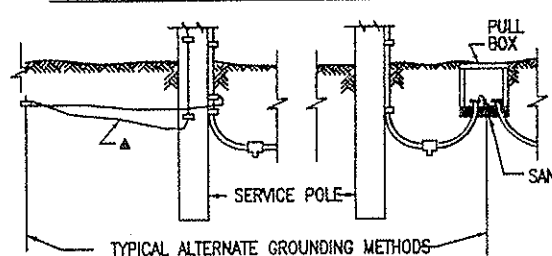
VIEW AT POWER SOURCE



VIEWS AT ENCLOSURES



UNDERGROUND VIEWS AT POWER SOURCE



TYPICAL ELECTRICAL SERVICE DETAILS

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Computer File Information

Path: www.dot.state.co.us/DevelopProjects/DesignSupport/SSstandard

Drawing File Name: S630030101.dwg

Acad Version: R2000 Scale: NA Units: English

Standard Plan Revised

Date: 03/29/05 Comments: Revised General Note 1(D) to allow solar power.

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STANDARD PLAN NO.

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Sheet No. 1 of 1