TOWN OF MOUNTAIN VILLAGE
23710 MTN VILLAGE BIKE & PED SAFETY PROJECT

BIDDING DOCUMENTS INCLUDING:

CONTRACT DOCUMENTS
&
SPECIFICATIONS

Date: November 21, 2022

David Ballode P.E.
Uncompahgre Engineering
Mailing: P.O. BOX 3945, Telluride, CO, 81335
Ph: 970.729.0683

Steve Pavlick P.E.
PST Engineering
Mailing: 3520 Bennett St. Durango, CO, 81301
Ph: 970.903.3706

Table of Contents

Town of Mountain Village
INVITATION FOR BID (IFB)

Solicitation Number: 23710

DATED: November 21, 2022

23710 MTN VILLAGE BIKE & PED SAFETY PROJECT

FOR

Town of Mountain Village (TMV)

BIDS DUE- EMAIL ONLY:

12:00 PM, Friday, January 6, 2023
Town of Mountain Village
ATTN: Finn Kjome
fkjome@mtnvillage.org

OPENING OF BIDS:

12:00 PM, Friday, January 6, 2023
Town of Mountain Village
411 Mountain Village Blvd., 2nd Floor
Mountain Village, CO 81435

Project Managers
Finn Kjome / Jim Loebe
Mountain Village, CO 81435
PHONE (970) 369-8206 / (970) 729-3434
EMAIL fkjome@mtnvillage.org / jloebe@mtnvillage.org

SCHEDULE A

INSTRUCTIONS TO BIDDER

TOWN OF MOUNTAIN VILLAGE
23710 Mtn Village Bike & Ped Safety Project

A.1 Submission of Bids

A.1.1 Bids are to be submitted via email to Finn Kjome – fkjome@mtnvillage.org

A.1.2 Date/Time: Bids shall be received on or before: **12:00 PM, Friday, January 6, 2023**

********** LATE BIDS WILL NOT BE ACCEPTED**********

A.2 Mandatory Pre-Bid Site Walk.

Attendance is Required in order to submit a bid. Bidders who do not have a representative at the pre bid site walk shall have their bids rejected without opening or considering such bids.
Date and time of **mandatory pre-bid site walk: 10:00 AM, Thursday, December 8, 2022.**
Location: 411 Mountain Village Blvd., Second Floor, Mountain Village, CO 81435

A.3 Late Bids/Late Modifications of Bids

A.3.1 Bids received to the email address designated in A.1.1 above, after the exact time set for opening are considered "late bids", and will not be accepted by the Bid Opening Official. Bidders are solely responsible for ensuring their bids arrive on time and to the correct location specified in the IFB.

A.3.2 The TMV will not consider a late bid or late modification of bid unless received prior to contract award, except as follows;

(1) There is conclusive evidence that the bid was submitted to the email address designated in A.1.1 above, on time and was mishandled by the TMV (i.e. lost or misplaced) personnel responsible for handling/receiving bids or;

(2) It was the only bid received.

A.4 Mistakes in Bids - Confirmation of Bid

When it appears from a review of the bid that a mistake has been made, the bidder may be requested to confirm their bid. Situations in which the confirmation may be requested include obvious, apparent errors on the face of the bid or a bid unreasonably lower than the other bids submitted. Obvious mistakes in bids may be allowed to be corrected upon a determination by the Town Manager that the bidder unintentionally made a mistake that can be quickly corrected and does not impair the competitive and sealed nature of the bid process**.**

A.5 Minor Informalities/Irregularities in Bids

A.5.1 A minor informality or irregularity is one that is merely a matter of form and not of substance. It also pertains to some immaterial defect in a bid or variation of a bid from the exact requirements of the invitation that can be corrected or waived without being prejudicial to other bidders. The defect or variation is considered immaterial when the effect on price, quantity, quality, or delivery is negligible when contrasted with the total cost or scope of the services being acquired.

A.5.2 If the Director of Public Works or Transit Director (Directors) determines that the bid submitted contains a minor informality or irregularity as defined above, then the Project

Manager shall give the bidder an opportunity to resolve any deficiency resulting from a minor informality or irregularity in a bid, or waive the deficiency, whichever is to the advantage of the TMV. In no event will the bidder be allowed to change the bid amount: however, the Project Manager may request a clarification or further breakdown of the bid amount.

A.6 Rejection of Bids

Any bid that fails to conform to the essential requirements of the invitation for bids will be rejected.

A.6.1 Any bid that does not conform to the applicable specifications shall be rejected unless the invitation authorizes the submission of alternate bids and the items or services offered as alternates meet the requirements specified in the invitation for bids.

A.7 Estimated Quantities

If the specifications contain estimated quantities this provision is applicable. The quantities listed for each of the items in the specifications are only estimated quantities. Contractors are required to bid a firm unit price for each item specified. The actual quantities ordered may fluctuate up or down. The unit prices proposed by each bidder will remain firm and will not be re-negotiated if the estimated quantities are not met or are exceeded. For bidding purposes, if there is a conflict between the extended total of an item and the unit price, the unit price shall prevail and be considered as the amount of the bid.

A.8 Format

Bidder shall submit via email with attached proposal in PDF format..

A.9 Identification of Bid

Bids must be emailed with the subject line "**23710 BIKE & PED SAFETY IFB"**

Project Name: 23710 Mtn Village Bike & Ped Safety Project

Solicitation Identification: 23710

Due Date & Time: **12:00 PM, Friday, January 6, 2023**

Any offer that is submitted without being properly marked may be opened for identification prior to the deadline for receipt of offers and then resealed.

A.10 Sales Tax

Contractor shall pay all sales, consumer, use and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the work.

This is a government funded project and the Contractor shall apply to the Colorado Department of Revenue for a tax-exempt certificate for this project. The Contractor shall utilize the tax-exempt certificate and tax-exempt project number when purchasing all equipment, materials and supplies to be incorporated in this project. Contractors shall reflect this cost savings in their bid.

A.11 Preparation of Bid Offer

A.11.1 Bidders are expected to examine the drawings, specifications, bid documents, proposed contract forms, terms and conditions, and all other instructions and solicitation documents. Bidders are required to attend the mandatory pre-bid conference and site visit to determine all requirements and conditions that will affect the work. Failure to do so will result in the bid not being considered or accepted.

A.11.2 The bidder certifies that it has checked all of its figures, and understands that the owner

will not be responsible for any errors or omissions on the part of the bidders in preparing its bid.

A11.3 All items, (unless the invitation specifically states otherwise) including any additive or deductive alternates on the bid, **must** be completely filled out or the bid will be determined non-responsive and ineligible for consideration for award.

A.11.4 The bidder declares that the person or persons signing this bid is/are authorized to sign on behalf of the firm listed and to fully bind the bidder to all the requirements of the solicitation.

A.11.5 The bidder certifies that no person or firm other than the bidder or as otherwise indicated has any interest whatsoever in this bid/offer or the Contract that may be entered into as a result of this bid/offer and that in all respects the offer is legal and firm, submitted in good faith without collusion or fraud.

A.11.6 By submitting a bid the bidder certifies that it has complied and will comply with all requirements of local, state, and federal laws, and that no legal requirements have been or will be violated in making or accepting this bid.

A.11.7 If there is a discrepancy between the unit price and the total price, the unit price shall be used to determine the applicable total price.

A.12 Basis of Award

The TMV generally awards a Contract for the lowest responsible and responsive bidder, unless the Town Manager determines that a bid other than the lowest responsible and responsive bidder is to be awarded based on such bid having the best value and being in the best interest of the Town despite not being the lowest dollar amount.

A.12.1 In addition to other factors, bid/offers will be evaluated on the basis of advantages and disadvantages to the TMV that might result from offers received.

A.12.2 The TMV reserves the right to reject any or all proposals and to waive informalities and/or irregularities in the bid offer.

A.13 Period of Acceptance

The bidder agrees that its bid offer shall remain open for acceptance by the TMV for a period of forty-five days calendar days from the date specified in the solicitation for receipt of bids.

A.14 Contract Award

The signature of the bidder indicates that within ten (10) calendar days from acceptance of its bid offer it will execute a Contract with the TMV, furnish a project specific certificate of insurance naming the additional insured, furnish a performance bond and any other documents required by these instructions, the specifications or Contract Documents.

A.15 Notice to Proceed

Work may not start under any awarded Contract until a written notice to proceed is issued by the TMV. The TMV may issue the notice to proceed any time after the contract is signed and, if required, insurance and bonds have been provided in accordance with A.20 below. In the event the notice to proceed has not been issued by TMV within sixty days of the execution of the awarded Contract, the Contractor may be released from the Contract.

A.16 Amendments to the Solicitation

Amendments are also referred to as addendum or addenda; and these terms shall be considered synonymous. The TMV will provide all bidders with copies of any amendments to the solicitation documents by e-mail.

A.16.1 If this solicitation is amended, then all specifications, terms and conditions, which are not amended, remain unchanged.

A.16.2 Bidders shall acknowledge receipt of any amendment to this solicitation by e-mail.

A.16.3 Acknowledged amendments must be received prior to bid opening. Bidders are encouraged to include signed amendments or initialed acknowledgment with returned bids.

A.17 Explanations to Prospective Bidder

Any prospective bidder desiring an explanation or interpretation of the solicitation documents, drawings, specifications, etc., must request it in writing, via email, soon enough to allow a reply to reach all prospective bidders before the time for submission of offers. Oral explanations or instructions given before the opening of bids will not be binding. Any information provided to a prospective bidder during the bid preparation stage will be promptly furnished to all other prospective bidders as an amendment to the solicitation if that information is necessary in submitting bid offers or if the lack of it would be prejudicial to other prospective bidders.

A.18 Questions and Other Requests for Information

All questions or requests for information shall be submitted as specified below on or before December 13, 2022 at 12:00 p.m. All questions, requests for information and responses shall be sent to all potential bidders via email on December 16, 2022 by 5:00 p.m.

For all **technical questions, please** direct all questions in writing to:	**Finn Kjome: fkjome@mtnvillage.org or** **Jim Loebe: jloebe@mtnvillage.org** **AND** **David Ballode: dballode@msn.com**
For all **contractual questions, please** direct all questions in writing to:	**Finn Kjome: fkjome@mtnvillage.org or** **Jim Loebe: jloebe@mtnvillage.org** **AND** **David Ballode: dballode@msn.com**

A.19 Specifications and Drawings

A.19.1 No Deposit solicitations: All interested bidders may upon written request obtain one copy of the project specifications and a set of the project drawings (if applicable) at a cost of $.50 per page.

A.19.2 Upon award of the contract, the TMV will be responsible for furnishing the selected Contractor a minimum of three (3) sets of both the specifications and drawings (if applicable). The TMV will also provide any returned sets that may be available. However, in no event shall the TMV be required to pay for the reproduction of more than 3 sets of each.

A.19.3 Scope of Services/Plans & Specifications: Included in this solicitation.

A.20 Type of Contract

It is the intent of this IFB to award a unit price Contract based on the prices offered by the successful bidder. Contract prices shall remain firm and fixed throughout the contract performance period. The contract included herein is an example contract only and the terms and conditions may be modified by the TMV prior to the execution of such contract by the successful bidder.

A.21 F.O.B. Destination

Unless otherwise specified in the IFB, all goods, materials, supplies, equipment or services covered by this solicitation shall be delivered F.O.B. destination, all freight charges prepaid and allowed, within the town limits of the TMV, Colorado, at the location indicated in the awarded contract.

A.22 Bid Results

The TMV will e-mail results or tabulations only upon request. To request a copy of the bid tabulation, call Jenny Bates at (970) 369-8201.

A.23 Terms, Conditions and Special Provisions

Bidders are advised to pay special attention to Exhibits 1 and Schedules A through C attached hereto. These Exhibits may contain requirements that will have an impact on all potential bidders, such as liquidated damages, indemnification, type of contract, and delivery schedule.

A.24 Project Specifications

Bidders are advised this project is partially funded by the State of Colorado. Therefore, project specifications are the 2022 CDOT Standard Specifications for Road and Bridge Construction as amended by the CDOT Standard Special Provisions and the Project Special Provisions that accompany these bid documents. Material testing and construction documentation will also follow CDOT specifications. If there are any discrepancies between these instructions and the 2022 CDOT Specifications, the more stringent shall apply.

A.25 CDOT Forms Required with Bids

The following forms shall be completed and included with all bids:

- CDOT Form 604 – Statement of Residency for Bid Preference
- CDOT Form 606 – Anti-Collusion Affidavit

A.25 CDOT Forms Required by Apparent Low Bidder

The apparent low bidder must submit the following forms by 4:30pm on the fifth calendar day after the bid opening:

- CDOT Form 605 – Contractor Performance Capability Statement
- CDOT Form 621 – Assignment of Anti-Trust Claims

SCHEDULE B

BID FORM FOR SOLICITATION NO: 23710
23710 Mtn Village Bike & Ped Safety Project

Read & Complete Carefully

Description: Construct improvements as per Plans and Specifications, 23710 Mtn Village Bike & Ped Safety Project, Job No. 23710

Term of Contract: Date of Award through Substantial Completion as defined in these bid documents.

Important: **ALL pages of this form, Sections 1 through 3 must be completed, signed and returned by the bidder as part of the bid package. Failure to submit all pages of this form constitutes grounds for rejection of your bid.**

<table>
<tr><th colspan="4">Section 1 of 3 - Bidder Information</th></tr>
<tr><td colspan="2">Complete Bidder Legal Business Name</td><td colspan="2">Taxpayer ID# (TIN): • SSN • FEIN

Write/Type SSN/FEIN Number Above</td></tr>
<tr><td colspan="4">Business Name, Trade Name, Doing Business As (If Different From Above)</td></tr>
<tr><td colspan="4">Business Entity: • Corporation • LLC Corporation • LLC Partnership • LLC Single Member Entity</td></tr>
<tr><td colspan="4">NOTE: If Individual /Sole Proprietor, Individual's Name (As Owner) Must Appear In The Legal Business Name Block Above</td></tr>
<tr><td colspan="4">NOTE: If Your Business is a Partnership You MUST Attach The Names And Titles Of All Partners to Your Bid Submission</td></tr>
<tr><td colspan="4">NOTE: If Your Business is a Corporation, In Which State Are You Incorporated?</td></tr>
<tr><td>Bidder Address:</td><td colspan="3">Street</td></tr>
<tr><td>City</td><td colspan="2">State</td><td>Zip Code</td></tr>
<tr><td colspan="2">Bidder E-Mail Address</td><td colspan="2">Bidder Web Site (If Applicable)</td></tr>
<tr><td colspan="4">Remittance Information: Indicate Below The Remittance Address Of Your Business: • Same As Bidder Address Above</td></tr>
<tr><td colspan="4">Does your business currently qualify as a Disadvantaged Business Enterprise(s)? • YES • NO</td></tr>
<tr><td colspan="2">Length of time in Business:
_____Years ____Months</td><td colspan="2">Annual Gross Receipts of Business:
$_____.</td></tr>
</table>

Section 1 of 3 – Bidder Information (Continued)	
Name (Type or Print):	
Business Phone: Ext:	Home Phone:
Fax Number:	Cellular:
Please Select Preferred Distribution Method: 1) Check Only One Box Below • E-Mail • Fax • USPS Mail	

Signature of Person Authorized to Sign bids on Behalf of The Above Named Bidder Ü SIGN HERE	Date Executed

Section 2 of 3 - Important Information For Bidders

Affirmation of Bidder: The above-signed bidder affirms and declares:

1. Bidder declares that it has carefully examined the bid information and complete solicitation (the term Solicitation means the complete IFB) in submitting a bid for "23710 Mtn Village Bike & Ped Safety Project". The bidder's signature will be considered the bidder's acknowledgment of understanding and ability to comply with all items in this solicitation. If a bidder makes any changes or corrections to the bid documents (such as white out, or writing over a figure, etc.) such changes or corrections must be initialed and dated by the person signing the offer prior to its submittal.

2. **Total bid will be on the basis of a line item, unit price bid and** will be evaluated and awarded as follows:

   The TMV generally awards a Contract for the lowest responsible and responsive bidder, unless the Town Manager determines that a bid other than the lowest responsible and responsive bidder is to be awarded based on such bid having the best value and being in the best interest of the Town despite not being the lowest dollar amount. Failure to provide pricing in all areas of the bid schedule will result in the determination that your bid is non-responsive.

3. Bidder hereby proposes and agrees that he will enter into and perform as indicated in a form of agreement similar to that of the Contractor's Agreement attached hereto within Exhibit 1 and of which this proposal forms a part, and will do the construction work therein described under the terms and conditions therein set forth, and will furnish all the labor, materials, tools, equipment, transportation and services for said construction in strict conformity with the drawings and specifications and other documents forming a part of the Contract Documents, which the bidder proposed to execute at the price set on the attached bid.

4. Bidders will be considered only for all of the items included in the "23710 Mtn Village Bike & Ped Safety Project". TMV reserves the right to reject any or all bids. Bidders must qualify for required licenses before commencing work.

ENTER BID TOTAL HERE _____

SCOPE OF WORK
23710 Mtn Village Bike & Ped Safety Project

General Notes

1. All work will be performed as per Plans and Specifications, 23710 Mtn Village Bike & Ped Safety Project Job No. 23710. See attached copy. Full sized copies are available at 411 Mountain Village Blvd, Second Floor, Mountain Village CO or at the mandatory site walk.

2. Work hours to follow the TMV construction code 7:00 am- 6:00 pm Mon. thru Sat.

3. The bidder awarded this contract must have a 2022 TMV business license and proof of insurance prior to start of construction.

4. All surveying for the project shall be the responsibility of the successful bidder.

5. All staging for the project shall be on site.

6. All water for the construction to be provided by the Town.

7. All excess materials to be removed by the contractor.

8. The construction scheduled shall be substantially completed as noted in the Revision of Section 108 specification.

9. Liquidated damages shall be applied per CDOT Specification Section 108.09.

SIGNATURE OF AUTHORIZED PERSON IN SECTION 1 CONSTITUTES AGREEMENT WITH ALL PROCEDURES CONTAINED WITHIN THIS SOLICITATION PACKET.

Mt Village Bike and Ped Safety Project
Project #: MTF M918-C19, Code: 23710
BID TAB - Advertisement Set
November 21, 2022

Item No.	Contract Item	Unit	Quantity	Unit Cost	Total Cost
201-00000	Clearing and Grubbing	LS	1		
202-00019	Removal of Inlet	EACH	4		
202-00035	Removal of Pipe	LF	63		
202-00200	Removal of Sidewalk	SY	56		
202-00203	Removal of Curb and Gutter	LF	599		
202-00210	Removal of Concrete Pavement	SY	127		
202-00220	Removal of Asphalt Mat	SY	6026		
202-00250	Removal of Pavement Markings	SF	155		
202-01130	Removal of Guardrail Type 3	LF	423		
202-04002	Clean Culvert	EACH	1		
202-90000	Remove and Palletize Brick Pavers (Special)	SY	266		
202-90001	Removal of ADA Entry Ramp (Conf Center) (Special)	LS	1		
202-90002	Removal of Sign (Special)	LS	1		
203-00010	Unclassified Excavation (Complete in Place)	CY	1495		
203-00050	Unsuitable Material	CY	100		
203-01100	Proof Rolling	HOUR	12		
203-01592	Combination Loader	HOUR	50		
203-01597	Potholing	HOUR	40		
203-02330	Laborer	HOUR	100		
207-00702	Topsoil (Offsite)	CY	120		
207-00704	Subgrade Soil Preparation	SY	720		
208-00002	Erosion Control Log Type 1 (12 inch)	LF	465		
208-00035	Aggregate Bag	LF	38		
208-00046	Pre-Fabricated Concrete Washout Structure (Type 1)	EACH	1		
208-00054	Storm Drain Inlet Protection (Type II)	EACH	9		
208-00075	Pre-fabricated Vehicle Tracking Pad	EACH	1		
208-00103	Removal and Disposal of Sediment (Labor)	HOUR	20		
208-00105	Removal and Disposal of Sediment (Equipment)	HOUR	20		
208-00106	Sweeping (Sediment Removal)	HOUR	32		
208-00207	Erosion Control Management	DAY	13		
210-00050	Reset Fire Hydrant	EACH	1		
210-00810	Reset Ground Sign	EACH	7		
210-04010	Adjust Manhole	EACH	8		
210-04050	Adjust Valve Box	EACH	4		
212-00050	Sod	SF	880		
212-00708	Seeding (Native) Broadcast	ACRE	0.55		
213-00012	Spray-on Mulch Blanket	ACRE	0.45		
213-90000	Stone Landscape Edging (Special)	SF	137		
213-90001	Boulder Wall (Special)	SF	1200		
216-00211	Soil Reten Blanket (Exc)(BioD CL 1)	SY	412		
240-00000	Wildlife Biologist	HR	10		
304-02000	Aggregate Base Course (Class 2)	TON	1640		
304-06000	Aggregate Base Course (Class 6)	TON	1554		
403-00720	Hot Mix Asphalt(Patching)(Asphalt)	TON	1711		
403-00721	Hot Mix Asphalt(Patching)(Asphalt)	SY	290		

412-00815	Concrete Pavement (8 inch)(Reinforced)	SY	241		
504-90000	Wire Mesh Retaining Wall (Special)	SF	4560		
602-00000	Reinforcing Steel	LB	3967		
603-90000	18 Inch Corrugated Steel Pipe (Special)	LF	26		
603-90001	24 Inch Corrugated Steel Pipe (Special)	LF	6		
603-90002	18 Inch Steel End Section (Special)	EACH	1		
604-00304	Inlet Type C (4 Foot)	EACH	1		
604-90000	Curb Inlet (3 Foot) (Special)(Durango Standard Detail)	EACH	1		
604-90001	Small Area Inlet #1 (2 Foot) (Special)	EACH	1		
604-90002	Small Area Inlet #2 (2 Foot) (Special)	EACH	1		
606-90000	Guardrail Type 3 (31 Inch Midwest Guardrail System)(Special)	LF	434		
606-91390	End Anchorage Type 3K (Special)	EACH	2		
607-11525	Fence (Plastic)	LF	161		
608-00000	Concrete Sidewalk (4 inch)	SY	241		
608-90000	Concrete Sidewalk (6 inch)	SY	16		
608-00010	Concrete Curb Ramp	SY	145		
608-90001	Sidewalk Chase (Special)	LF	7		
608-90001	ADA Entry Ramp (Conf Center) (Special)	LS	1		
609-21023	Curb and Gutter Type 2 (Section II-B) (Special)	LF	372		
625-00000	Construction Surveying	LS	1		
626-00000	Mobilization	LS	1		
627-00011	Pavement Marking Paint (Waterborne)	GALLON	43		
630-00000	Flagging	HOUR	2760		
630-00007	Traffic Control Inspection	DAY	22		
630-00012	Traffic Control Management	DAY	55		
630-80336	Barricade (Type 3 M-B)(Temporary)	EACH	2		
630-80340	Pedestrian Barricade (ADA)	LF	32		
630-80341	Construction Traffic Sign (Panel Size A)	EACH	43		
630-80342	Construction Traffic Sign (Panel Size B)	EACH	2		
630-80344	Construction Traffic Sign (Special)	SF	12		
630-80360	Drum Channelizing Device	EACH	24		
630-80372	Concrete Barrier (Temp) (Furnish and Install)	LF	560		
630-80380	Traffic Cone	EACH	27		
Force Account Items					
700-70010	F/A Minor Contract Revisions	FA	1	$180,000.00	$ 180,000.00
700-70380	F/A Erosion Control	FA	1	$ 1,500.00	$ 1,500.00
				TOTAL COST	

SCHEDULE C

EXHIBIT 1

TOWN OF MOUNTAIN VILLAGE
23710 Mtn Village Bike & Ped Safety Project

List of Exhibits

This section includes Exhibits to the solicitation packet and by inclusion herein are incorporated into and made part of the solicitation packet:

Contractor Agreement (Pages. 1 to 8, inclusive)
Bidder's Qualification Statement (Pages. 1 to 4, inclusive)
Notice of Intent to Award (Pages. 1 to 1, inclusive)
Performance and Payment Bond (Pages. 1 to 2, inclusive)
Notice to Proceed (Pages. 1 to 1, inclusive)
Application For Payment (Pages. 1 to 2, inclusive)
Lien Release Forms (Pages. 1 to 1, inclusive)
Change Order Form (Pages 1 to 1, inclusive)
CDOT Forms to Accompany Bids (Pages 1 to 2, inclusive)
CDOT Forms for Apparent Low Bidder (Pages 1 to 2, inclusive)
Project Special Provisions (Pages 1 to 37, inclusive)
CDOT Standard Special Provisions– (Pages. 1 to 38, inclusive)
Drawings (Pages 1 to 58, inclusive)
Applicable CDOT M Standards (Pages 1 to 99, inclusive)

CONTRACTOR AGREEMENT

This Agreement is made and entered into this __ day of _____ 2023, by and between the Town of Mountain Village, a political subdivision of the state of Colorado, (the "Owner") and, (the "Contractor").

RECITALS

A. The Owner owns and operates a roadway and sidewalk system within the Town of Mountain Village.

B. The Owner desires to have the Contractor perform general renovations and improvements for the Town of Mountain Village roads and sidewalks.

C. The Contractor has the expertise and knowledge to perform the work described in the IFB and Scope of Work

Now, therefore, in consideration of the mutual promises and conditions set forth herein, the parties agree as follows:

1. Contract Documents. The Contract Documents are defined as:
   - **a. Standard Contract Forms**
     - i) Instructions to Bidder
     - ii) Bid Form (Pages. 1 to 3, inclusive)
     - iii) Bid Schedule
     - iv) Bidder's Qualification Statement (Pages. 1 to 4, inclusive)
     - v) Notice of Intent to Award (Pages. 1 to 1, inclusive)
     - vi) Contractor Agreement (This document)
     - vii) Performance and Payment Bond (Pages. 1 to 2, inclusive)
     - viii) Notice to Proceed (Pages. 1 to 1, inclusive)
     - ix) Application For Payment (Pages. 1 to 2, inclusive)
     - x) Lien Release Forms (Pages. 1 to 1, inclusive)
     - xi) Change Order Form (Pages. 1 to 1, inclusive)
     - xii) CDOT Forms to Accompany Bids (Pages 1 to 2, inclusive)
     - xiii) CDOT Forms for Apparent Low Bidder (Pages 1 to2, inclusive)
   - **b. Specifications**
   - **c.** Drawings

   The Contractor acknowledges that it is fully familiar with all the terms of the Contract Documents, as defined herein, the location of the job site, and the conditions under which the contract work is to be performed. The Contract Documents are incorporated into this Agreement.

2. Work. The Contractor agrees to perform the work in a good and workmanlike manner as set forth in the Contract Documents. Contractor agrees to furnish all labor, materials (not including the materials provided by the Owner as outlined in the IFB), equipment, tools and other facilities required for the prompt and efficient execution of the work described herein

and to perform the work necessary or normally performed by the Contractor's trade or incidental to complete the work as described in the Contract Documents (the "Project").

3. Contract Price. The Owner shall pay the Contractor the lump sum of **($) Dollars** which includes the Contractor's Base Bid and the selected add alternates, for the completion of the Project (the "Contract Price") subject to Change Orders as directed by the Owner in accordance with section 8 of this Agreement.

4. Progress Payments. The Contractor shall submit requests for payment to Owner on a monthly basis by the 10th calendar day of each month for progress payments in accordance with the percentage of work completed. The Owner shall review the request for payment and either make payment or notify the Contractor of the rejection of the request for payment within twenty (20) days of receipt of the request for payment. Rejection of a request for payment shall not constitute a default of this Agreement, nor shall it constitute a reason to suspend work on the Project. Retainage shall be per CDOT Specification Section 109.06.

5. Final Payment. Upon substantial completion of the Project, Contractor shall submit a final request for payment. Upon submission of the final request for payment by the Contractor, Owner shall conduct a thorough inspection of the Project (the "Final Inspection"). Upon completion of the Final Inspection, Owner shall prepare a punch list (the "Punch List") of items to be completed by Contractor. After completion of the Punch List items, Owner shall publish a notice of final payment in accordance with C.R.S. 38-26-107 and make final payment in accordance with the procedures set forth in C.R.S. 38-26-107.

6. Time of Completion. The commencement date of the Project and the completion date of the Project shall be as stipulated in the Notice to Proceed**.** Work hours shall be from 7:00 a.m. to 6:00 p.m. Monday through Saturday. No work shall be allowed during other hours and is prohibited on holidays as set forth in the Town's Community Development Code. Time is of the essence of all obligations of Owner and Contractor hereunder. Failure to complete the Project within the allotted working days as noted in the Revision of Section 108 Specification shall result in liquidated damages being applied per CDOT specification Section 108.09. Contractor shall submit to Owner, prior to commencement of the Project, a schedule of completion.

7. Delay. Per CDOT Specification Section 108.08.

8. Change Orders. Contractor may be requested in writing by Owner, without invalidating this Agreement, to make changes to the Project within the general scope of this Agreement consisting of additions, deletions or other revisions (Change Order). Contractor's written response for each Change Order shall indicate the adjustments which it will make to the Contract Price to be made for the Change Order and the Time of Completion. Contractor will undertake no additions, deletions or other revisions to the Project, which is not provided

for in this Agreement unless requested by Owner with a Change Order and written approval of any adjustments in the Contract Price and Time of Completion

9. Contractor's Default. If Contractor should default in performance of its work or should otherwise commit any act which causes delay to the Project, Contractor shall be liable for all losses, costs, expenses, liabilities and damages, including consequential damages and liquidated damages, sustained by the Owner or for which Contractor may be liable to any other party because of Contractor's default.

10. Bonding. Concurrently with the execution of this Agreement, Contractor shall execute a bid bond in an amount equal to five percent (5%) of the Contractor's Bid and a performance bond in an amount equal to fifty percent (100%) of the Contract Price. The bond required by this Agreement shall be executed by a corporate surety acceptable to Owner and shall be in a form satisfactory to Owner. Contractor shall pay the premium on said bond unless otherwise provided herein. No change, alteration, or modification to or deviation from this Agreement whether made in the manner provided in this Agreement or not, shall release or exonerate, in whole or in part, any bond or any surety on any bond given in connection with this Agreement, and no notice is required to be given to such surety of any such change, alteration, modification, or deviation.

11. Liens. Contractor shall promptly pay all bills for labor and material performed and furnished by others in connection with the construction, furnishing and equipping of the improvements and performance of the work. Provided that Contractor has been paid by Owner all sums (or the applicable portion thereof) due to Contractor pursuant to this Agreement. Colorado Statutes do not provide for any right of liens against public entities and structures. In lieu thereof, C.R.S. 38-26-107 provides for adequate relief for any claimant.

12. Conformance of Work. The Contractor agrees that the Owner will have the authority to supervise, inspect and approve or reject the Contractor's work, which does not conform to this Agreement and/or any Change Orders issued by the Owner. Contractor represents, warrants and agrees, for the benefit of Owner, it will promptly repair or replace, whichever is necessary as reasonably determined by Owner, (i) any rejected Contractor's work, (ii) any defect in Contractor's work, including defects in materials and workmanship, and (iii) any Contractor's work that does not meet the Governmental Requirements, first-class workmanship, and the applicable warranty specifications, with which Contractor hereby represents that it is familiar.

13. Notice to Cure. If Contractor at any time refuses or neglects to supply enough properly skilled workers and proper materials, or fails to correct non-conforming work or defects in the work, or fails to properly and diligently prosecute the work covered by this Agreement, or fails to make prompt payment to its workers, subcontractors or suppliers or is otherwise guilty of a material breach of a provision of this Agreement, and fails within five (5) business

days after receipt of written notice to commence and continue satisfactory correction of such default with diligence and promptness, then Owner, without prejudice to any rights or remedies, shall have the right to declare a default of this Agreement by Contract and proceed with any remedy available to the Owner including contracting with another entity to perform the work.

14. Termination. If Contractor fails to commence and satisfactorily continue correction of a default within five (5) business days after receipt by Contractor of the notice issued under section 13, then Owner may terminate Contractor's right to perform under this Agreement and use any materials, implements, equipment, appliances or tools furnished by or belonging to Owner or complete Contractor's work without any further compensation to Contractor for such use. In such case, Contractor shall be entitled to no further payment until the balance of Contractor's work has been completed. At that time, all of the costs incurred by Owner in performing Subcontractor's work, including a markup of fifteen percent (15%) for overhead and profit on such expense, plus actual attorneys' fees, shall be deducted from any monies due or to become due to Contractor. Contractor shall be liable for the payment of any amount by which such expenses may exceed the unpaid balance of the Contract Price.

15. Termination for Convenience. Owner may at any time and for any reason terminate Contractor's services and work at Owner's convenience. Cancellation shall be by service of written notice to Contractor's place of business. Upon receipt of such notice, Contractor shall, unless the notice directs otherwise, immediately discontinue the work and placing of orders for materials, facilities and supplies in connection with the performance of this Agreement, and shall, if requested, make every reasonable effort to procure cancellation of all existing orders or contracts upon terms satisfactory to Owner or, at the option of Owner, give Owner the right to assume those obligations directly, including all benefits to be derived therefrom. Contractor shall thereafter do only such work as may be necessary to preserve and protect the work already in progress and to protect material and equipment on the job site or in transit thereto. Upon such termination, Contractor shall be entitled to payment only as follows: (1) the actual cost of the work completed in conformity with this Agreement, plus (2) such other costs actually incurred by Contractor and approved by Owner. There shall be deducted from such sums as provided in this subparagraph the amount of any payments made to Contractor prior to the date of the termination of this Agreement. In no event shall payment due hereunder exceed the amount due in relation to the percentage of completion of the Project.

16. Grounds for Withholding Payment. Owner may withhold or, on account of subsequently discovered evidence, nullify the whole or part of any payment to the extent necessary to protect Owner from loss, including costs and actual attorneys' fees, on account of (1) defective work not remedied; (2) claims filed or reasonable evidence indicating probable filing of claims by third parties; (3) failure of Contractor to make payments properly to its subcontractors or for material, labor or fringe benefits; (4) a reasonable doubt that this

Agreement can be completed for the balance then unpaid; (5) damage to Owner; (6) penalties assessed against Contractor or Owner for failure of Contractor to comply with state, federal or local laws and regulations; or (7) any other ground for withholding payment allowed by state or federal law, or as otherwise provided in this Agreement. When the above matters are rectified, such amounts as then due and owing shall be paid or credited to Contractor.

17. Bankruptcy. In the event that Contractor declares bankruptcy, or any similar event such as the appointment of a receiver for Contractor or upon Contractor making an assignment for the benefit of creditors, or if Contractor seeks protection under the Bankruptcy Code or commits any other act of insolvency, Owner may, absent any applicable legal limitation, terminate this Agreement upon giving two (2) business days written notice, by certified mail, to Contractor, its trustee, and its surety, if any.

18. Indemnification. The Contractor agrees to indemnify, defend and hold harmless, the Owner, Telluride Ski Ranches Association, CDOT, their partners, subsidiaries and affiliates, their respective agents, officers, directors, servants, employees, owners, successor and assigns of and from any and all liability, claims, liens, demands, actions and causes of action whatsoever and including reasonable attorney's fees and costs arising out of or related to any loss, cost damage or injury, including death of any person or damage to property of any kind caused by the Contractor, its employees, agents suppliers or subcontractors, while engaged in any activity associated with the Project whether contractual or otherwise.

19. Risk of Loss. All work on the Project covered by this Agreement done on site or in preparing or delivering materials, excluding materials supplied by Owner under this Agreement, or equipment, or any or all of them, to the site shall be at the risk of Contractor until the completed work is accepted by the Owner.

20. Insurance. Before any Work at the site is started, Contractor shall deliver to TMV certificates of insurance (and other evidence of insurance or any additional insured TMV may reasonably request) which Contractor is required to purchase and maintain as set forth in CDOT Specification Section 107.15. Contractor must include as additional insureds TMV, CDOT, and Telluride Ski & Golf their agents, employees and assigns.

"Policies are primary and non-contributory for all claims arising from Contractor's work

21. Compliance. The Contractor shall comply with all applicable safety precautions used in the industry or imposed by applicable laws and regulations in order to adequately protect the Project and avoid injury and damage to persons or property. The Contractor shall be solely responsible for any damage to persons or property resulting from Contractor's failure to exercise safety precautions, negligence or misconduct of Contractor or Contractor's employees, agents, subcontractors and suppliers. Contractor shall notify Owner within twenty-four (24) hours of the occurrence of any injury or property which may occur on the

Project. Contractor accepts sole responsibility for providing a safe place to work for its employees, for adequacy of and required use of all safety equipment and for full compliance with any applicable laws and regulations.

22. Hazardous Materials. Contractor shall not cause or permit "Hazardous Materials" (as defined herein) to be brought, kept or used in or about the Project except to the extent such Hazardous Materials: (i) are necessary for prosecution of the Work; (ii) are required by this Agreement; and (iii) have been approved in writing by Contractor. Hazardous Materials allowed on the Project shall be used, stored and disposed of in compliance with all laws relating to such Hazardous Materials. Unused or surplus Hazardous Materials, as well as other Hazardous Materials placed, released or discharged on the Project by Contractor or its employees, agents, suppliers or subcontractors, shall be removed from the Project at the earlier of: (i) completion of the Work requiring the use of Hazardous Materials; (ii) completion of the Work as a whole or (iii) within twenty-four (24) hours of Contractor's demand for removal. The removal shall be undertaken by Contractor at its sole cost and expense and shall be performed in accordance with all laws.

    Damage to the Project or any adjacent property resulting from improper use, or any discharge or release of Hazardous Materials shall be remedied by Contractor at its sole cost and expense, and in compliance with all laws. Contractor shall indemnify Owner for any and all damage, without limitation arising from the use, or misuse of Hazardous Materials. Contractor shall immediately notify Contractor of any release or discharge of Hazardous Materials on the Project.

    The term “Hazardous Materials" means any hazardous or toxic substances, materials and wastes listed in the United States Department of Transportation Hazardous Materials Table (19 CFR 172.101) or listed by the Environmental Protection Agency as hazardous substances (40 CFR part 302) and any amendments thereto, and any substances, materials or wastes that are or become regulated under federal, state or local law, including but not limited to petroleum asbestos and PCB's.

23. Warranty. Contractor warrants to Owner that all materials (excepting the materials provided by Owner) and equipment furnished shall be new unless otherwise specified and that all work under this Agreement shall be performed in a good and workmanlike manner, shall be of good quality, free from faults and defects, and shall be in conformance with this Agreement. All work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective.

24. Assignment/Subletting. Per CDOT Specification Section 108.01.

25. Independent Contractor. Both parties expressly agree and acknowledge that Contractor is an independent contractor and this Agreement shall not be construed in any way to create any type of employee/employer relationship, master/servant relationship, partnership or joint venture.

26. Clean Job Site. At all times during the course of work on the Project, Contractor shall maintain the site in a clean, safe and orderly condition. Upon completion of the work, Contractor shall remove from the site all hazardous materials, temporary structures, debris and waste incident to its operation to the condition existing prior to the start of work, relative to the performance of this Agreement.

27. Costs and Attorney's Fees. In the event of any dispute, including but not limited to litigation, arbitration or mediation, the prevailing party shall be entitled to receive all reasonable costs, including reasonable attorney's fees.

28. Amendment. This Agreement shall only be amended by a writing signed by both parties. Verbal amendments shall not be valid under any circumstances.

29. Binding. This Agreement shall be binding upon and inure to the benefit of both parties' successors and assigns.

30. Venue and Choice of Law. This Agreement shall be construed and interpreted according to the laws of the State of Colorado. The parties hereby consent to venue lying exclusively with the courts of San Miguel County, Colorado.

Executed the date first written above:

OWNER:
TOWN OF MOUNTAIN VILLAGE, a home-rule municipality and political subdivision of the state of Colorado.
By: _____
Date: _____

CONTRACTOR:

_____

By: _____
Date: _____

BIDDER'S QUALIFICATION STATEMENT
Town of Mountain Village,
23710 Mtn Village Bike & Ped Safety Project

THIS DOCUMENT HAS IMPORTANT LEGAL CONSEQUENCES: CONSULTATION WITH AN ATTORNEY IS ENCOURAGED WITH RESPECT TO ITS COMPLETION OR MODIFICATION.

The Undersigned certifies under oath that the information provided herein is true and sufficiently complete so as not to be misleading.

SUBMITTED TO: Finn Kjome, Public Works Director

ADDRESS: **411 Mountain Village Blvd., 2ND Floor**
Mountain Village, CO 81435

SUBMITTED BY:

NAME:

ADDRESS:

PRINCIPAL OFFICE:

NAME OF PROJECT (if applicable):

TYPE OF WORK (file separate form for each Classification of Work):

[ ] General Construction	**[ ] Paving**
[ ] Earthwork/Mass Grading	**[ ] Concrete (Curb/Gutter, Flatwork)**
[ ] Dry Utilities (Power/Gas/Cable/Fiber)	**[ ] Landscaping**
[ ] Wet Utilities (Water/Sewer lines & related)	**[ ] Fencing**
[ ] Drainage (storm sewer, culverts & related)	**[ ] Other (describe)**

ORGANIZATION

1.1 How many years has your organization been in business as a Contractor?

1.2 How many years has your organization been in business under its present business name?

1.2.1 Under what other or former names has your organization operated?

1.3 If your organization is a corporation, answer the following:

1.3.1 Date of incorporation:
4 **1.3.2** State of incorporation:
5 **1.3.3** President's name:
6 **1.3.4** Vice-president's name(s):
7 **1.3.5** Secretary's name:
8 **1.3.6** Treasurer s name:

1.4 If your organization is a partnership, answer the following:

9 **1.4.1** Date of organization:
10 **1.4.2** Type of partnership (if applicable):
11 **1.4.3** Name(s) of general partner(s):

1.5 If your organization is individually owned, answer the following:

12 **1.5.1** Date of organization:
13 **1.5.2** Name of owner:

1.6 If the form of your organization is other than those listed above, describe it and name the principals:

2. LICENSING

2.1 List jurisdictions and trade categories in which your organization is legally qualified to do business, and indicate registration or license numbers, if applicable.

2.2 List jurisdictions in which your organization's partnership or trade name is filed.

3. EXPERIENCE

3.1 List the categories of work that your organization normally performs with its own employees and equipment.

3.2 Claims and Suits. (If the answer to any of the questions below is yes, please attach

details.)

3.2.1 Has your organization ever failed to complete any work awarded to it?

3.2.2 Are there any judgments, claims, arbitration proceedings or suits pending or outstanding against your organization or its officers?

3.2.3 Has your organization filed any lawsuits or requested arbitration with regard to construction contracts within the last five years?

3.3 Within the last five years, has any officer or principal of your organization ever been an officer or principal of another organization when it failed to complete a construction contract? (If the answer is yes, please attach details.)

3.4 On a separate sheet, list major construction projects your organization has in progress, giving the name of project, owner, architect, contract amount, percent complete and scheduled completion date.

3.4.1 State total worth of work in progress and under contract:

3.5 On a separate sheet, list the major projects your organization has completed in the past five years; giving the name of project; owner, architect, contract amount, date of completion and percentage of the cost of the work performed with your own employees and equipment.

3.5.1 State average annual amount of construction work performed during the past five years:

3.6 On a separate sheet, list the construction experience relating specifically to areas within the scope of this project and present commitments of the key individuals of your organization.

4. REFERENCES

4.1 Trade References:

4.2 Bank References

4.3 Surety:

4.3.1 Name of bonding company:

17.3.2 Name, address and telephone number of agent:

17.3.3 Maximum available bonding capacity as of this date

5. SIGNATURE

5.1 Dated this _____ day of _____

Name of Organization:

By: _____

Title:

5.2

_____being duly sworn deposes and says that the information provided herein is true and sufficiently complete so as not to be misleading.

Subscribed and sworn before me this ____ day of _____

Notary Public: _____

My Commission Expires: _____

NOTICE OF INTENT TO AWARD
Town of Mountain Village,
23710 Mtn Village Bike & Ped Safety Project

Date:

TO:

The Owner, having duly considered the Bid submitted on DATE for the work covered by the Bidding Documents titled **Town of Mountain Village, 23710 Mtn Bike & Ped Safety Project** in the amount of $**xxx**, for the completion of the Project, and it appearing that the Price and other information in your Bid Form is fair, equitable and to the best interest of the Owner, the offer in your Bid Form is hereby accepted.

In accordance with the terms of the Bidding Documents, you are required to execute the Agreement and Performance and Payment Bond in three counterparts within ten (10) calendar days from and including the date of this Notice of Award.

In addition, you are required to furnish at the said time Certificates of Insurance evidencing compliance with the requirements for insurance as stated in the Bidding Documents.

The Bid Security submitted with your Bid will be returned upon execution of the Agreement, furnishing of the required Performance and Payment Bond and Certificates of Insurance within the time limit specified. In the event that you should fail to execute the Agreement and Performance and Payment Bond within the time limit specified, said Security will be retained by the Owner as liquidated damages and not as a penalty for the delay and extra work caused thereby.

Sincerely,
Town of Mountain Village.

ACCEPTANCE OF NOTICE OF INTENT TO AWARD

Receipt of the Notice of Intent to Award is hereby acknowledged on this _____day of _____, 2023.

By _____

Title _____

Company _____

Please complete and return this form with the Agreement, Certificates of Insurance, bonds, and completed W-9 in one envelope to offices of the Town of Mountain Village within ten (10) calendar days.

PERFORMANCE AND PAYMENT BOND
Town of Mountain Village, 23710 Mtn Village Bike & Ped Safety Project

THE STATE OF)
) ss. KNOW ALL MEN BY THESE PRESENTS:
COUNTY OF)

That we _____, of the City of _____, County of _____, and State of _____ (hereinafter called "Principal") as Principal, and _____(hereinafter called "Surety") as Surety, authorized under the laws of the State of Colorado to act as surety on bonds for principals, are held and firmly bound unto the Town of Mountain Village, (hereinafter called "Owner") as oblige, in the penal sum of _____ ($_____) in lawful money of the United States for payment by Principal and Surety, and bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally and firmly by these presents.

WHEREAS Principal has, on _____, 20_____, entered into a written Agreement with Owner for construction of the Project as defined in said Agreement, which Agreement is by reference made a part hereof and is hereinafter referred to as the Agreement.

NOW, THEREFORE, the conditions of this obligation are that if the Principal shall: (1) faithfully perform said Agreement on Principal's part and satisfy all claims and demands incurred for the same; (2) fully indemnify and save harmless the Owner from all costs and damages which said Owner may suffer by reason of Principal's failure so to do; (3) fully reimburse and repay said Owner all outlay and expenses which said Owner may incur in making good any default; (4) pay all persons, firms and corporations all just claims due them for the payment of all laborers and mechanics for labor performed, for all materials and equipment furnished, and for all materials and equipment used or rented in the performance of Principal's Agreement; and (5) keep the Work constructed under this Agreement in good repair for a period of one year from date of final acceptance by said Owner, then this obligation is null and void; otherwise it shall remain in full force and effect

The Principal shall protect, defend, indemnify and save harmless the Owner, the Engineer, and their officers, agents, servants and employees, from and against suits, actions, claims, losses, liability or damage of any character, and from and against costs and expenses including, in part, attorney fees incidental to the defense of such suits, actions, claims, losses, damages or liability on account of injury, disease, sickness, and death to any person or damage to property, including in part the loss of use resulting therefrom, based upon or allegedly based upon any act, omission or occurrence of the Principal, or his employees, servants, agents, subcontractors or suppliers, or anyone else under the Principal's direction and control, and arising out of, occurring in connection with, resulting from, or caused by the performance or failure of performance of any work or services called for by the Agreement, or from conditions created by the performance or non-performance of said work or services.

PERFORMANCE AND PAYMENT BOND

This indemnity shall not extend to liability arising out of the preparation by the Engineer of the design or specifications for the Owner or the giving of written directions or instruction by the Engineer as may be required by the Bidding Documents, provided the giving of such written instructions or directions is the proximate cause of the injury or damage should it occur.

Whenever Principal shall be, and is declared by Owner to be, in default under the Agreement, the Owner having performed Owner's obligations thereunder, the Owner may avail itself of the provisions of the General Conditions which are incorporated by reference in the Agreement and the Surety shall promptly pay the amounts, if any, due Owner by Principal.

Any suit under this Bond must be instituted before the expiration of one year from the date on which final payment under the Agreement falls due. In the event of a dispute as to the terms and conditions of the Bidding Documents, the prevailing party in any such action shall collect all reasonable costs and expenses incurred in such action, including, but not limited to, reasonable attorney's fees.

No right of action shall accrue on this Bond to or for the use of any person or corporation other than the Owner named herein or the successors and assigns of Owner and to all persons, firms and corporations for all just claims due them for the payment of all laborers and mechanics for labor performed, for all materials and equipment furnished, and for all materials and equipment used or rented in the performance of Principal's Agreement.

The Surety hereby waives the right to special notification of any notification of or alterations, omissions or reductions, extra or additional work, extensions of time, Change Orders, Field Orders or any other act or acts of Owner or its authorized agents under the terms of the Agreement; and failure to notify Surety of such shall in no way relieve Surety of its obligations.

Signed and sealed this _____ day of _____, 20_____.

PRINCIPAL: _____

Witness By: _____

(Address)

SURETY: _____

Witness By: _____

(Address)

NOTICE TO PROCEED

Date:

Re: **Town of Mountain Village, 23710 Mtn Village Bike & Ped Safety Project**

Dear XXX,

The date of Notice to Proceed for the above project is XX/XX/XXXX.

In accordance with the specification Revision of Section 108 – Commencement and Completion of Work, you are to select a date that the contract time begins and notify the Engineer in writing. This notification must occur with seven (7) calendar days of receipt of this Notice to Proceed.

You are to complete the work within 70 working days of this Notice to Proceed.

Cordially,

Town of Mountain Village

ACCEPTANCE OF NOTICE TO PROCEED

Receipt of the Notice to Proceed is hereby acknowledged on this _____day of _____, 2023.

By _____

Title _____

Company _____

Please complete and return this form within ten days to:

Finn Kjome
Public Works Director
Town of Mountain Village
411 Mountain Village Blvd., 2nd Floor
Mountain Village, CO 81435
fkjome@mtnvillage.org

APPLICATION FOR PAYMENT NO. _____

Town of Mountain Village, 23710 Mtn Village Bike & Ped Safety Project

To: _____ (OWNER)
From: _____(CONTRACTOR)
Contract: _____
Project: _____
OWNER's Contract No._____. ENGINEER's Project No.
For Work accomplished through the date of:_____.

1.	Original Contract Price:	$_____
2.	Net change by Change Orders and Written Amendments (+ or -):	$_____
3.	Current Contract Price (1 plus 2):	$_____
4.	Total completed and stored to date:	$_____
5.	Retainage (per Agreement):	
	____% of completed Work: $_____	
	____% of stored material: $_____	
	Total Retainage:	$_____
6.	Total completed and stored to date less retainage (4 minus 5):	$_____
7.	Less previous Application for Payments:	$_____
8.	**DUE THIS APPLICATION (6 MINUS 7):**	$_____

Accompanying Documentation:

CONTRACTOR'S Certification:
The undersigned CONTRACTOR certifies that (1) all previous progress payments received from OWNER on account of Work done under the Contract referred to above have been applied on account to discharge CONTRACTOR's legitimate obligations incurred in connection with Work covered by prior Applications for Payment numbered 1 through _____ inclusive; (2) title of all Work, materials and equipment incorporated in said Work or otherwise listed in or covered by this Application for Payment will pass to OWNER at time of payment free and clear of all Liens, security interests and encumbrances (except such as are covered by a Bond acceptable to OWNER indemnifying OWNER against any such Lien, security interest or encumbrance); and (3) all Work covered by this Application for Payment is in accordance with the Bidding Documents and not defective.

Dated _____ _____
CONTRACTOR
By:

State of _____
County of _____
Subscribed and sworn to before me this _____
day of _____, _____

_____
Notary Public
My Commission expires: _____
Payment of the above AMOUNT DUE THIS APPLICATION is recommended.

Dated _____ _____
ENGINEER
By:

EJCDC No. 1910-8-E (1996 Edition)

INSTRUCTIONS

A. GENERAL INFORMATION

The sample form of Pay Request is intended as a guide only and shown below. Many projects require a more extensive form with space for numerous items, descriptions of Change Orders, identification of variable quantity adjustments, summary of materials and equipment stored at the site and other information. It is expected that a separate form will be developed by Engineer and Contractor at the time Contractor's Pay Request Form is finalized. Note also that the format for retainage must be changed if the Contract permits (or the law provides), and Contractor elects to deposit securities in lieu of retainage. Refer to Article 14 of the General Conditions for provisions concerning payments to Contractor.

Pay Request #1, Town of Mountain Village, 2022 Bike & Ped Safety Improvements - 23710											
Date:											
		CONTRACT				PREVIOUS PAYMENTS		TOTAL TO DATE		DUE THIS PERIOD	
ITEM#	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST	AMOUNT	TOTAL AMT	AMOUNT	TOTAL AMT	AMOUNT	TOTAL AMT
Change Order #1											
Change Order #2											
				Total		**Total**					

Note: Total Pay Request Form Amount should equal the current Contract Price.

B. COMPLETING THE FORM

The Pay Request Form, submitted and approved as provided in paragraphs 2.05.B.3 and 2.07 of the General Conditions, should be reproduced as appropriate in the space indicated on the Application for Payment form. Note that the cost of materials and equipment is often listed separately from the cost of installation. Also, note that each Unit Price is deemed to include Contractor's overhead and profit.

All Change Orders affecting the Contract Price should be identified and included in the Schedule of Values as required for progress payments.

The form is suitable for use in the Final Application for Payment as well as for Progress Payments; however, the required accompanying documentation is usually more extensive for final payment. All accompanying documentation should be identified in the space provided on the form.

C. LEGAL REVIEW

All accompanying documentation of a legal nature, such as Lien waivers, should be reviewed by an attorney, and Engineer should so advise Owner.

CONTRACTOR'S AFFIDAVIT AND PARTIAL RELEASE OF LIENS
Town of Mountain Village, 23710 Mtn Village Bike & Ped Safety Project

OWNER: Town of Mountain Village

CONTRACTOR: _____

1. Affiant is duly authorized to make this affidavit agreement on behalf of Contractor and is fully and personally cognizant of all facts and matters herein stated.

2. Pursuant to that certain Construction Contract between ("Owner") and Contractor dated _____, materials, services and supplies for use in connection with the **Town of Mountain Village, 23710 Mtn Village Bike & Ped Safety Project.** AT the property ("Property") located in San Miguel County, Colorado.

3. All bills, debts, claims or accounts now due which Contractor has incurred to any person, firm or corporation for work or labor performed for equipment rental, or for materials, specially fabricated materials, services or supplies furnished in connection with work under such Contract thru **_____,** (which date is the last day covered by the Affidavit and Release and is herein called the "payment date") have been paid, settled or discharged in full or are included in the amount requested in Contractor's current payment application, and no basis exists for affixation of liens against the above-described Property and improvements thereon by virtue of any work performed under such Contract to and including the payment date, except for retainage. Contractor has not received any notice or communication that any subcontractor, material man, laborer or other party has not been fully paid for all labor performed or materials heretofore furnished in connection with work performed under such Contract to and including the payment date, except for retainage.

4. This agreement constitutes a partial release and waiver of all liens to which Contractor may be entitled against the above described Property, all improvements thereon and any fixtures, chattels or other property of Owner, thereon on account of all work performed and all materials furnished under such Contract to and including the payment date.

5. Affiant understands that this affidavit is made for the purpose of inducing Owner to make payments under the Contract and that, in making any such advance. Owner will rely upon the accuracy of the matters stated in this affidavit. Contractor therefore agrees to indemnify and hold Owner and Owner's lender, and their respective successors and assigns, harmless from any loss, cost or expense incurred by virtue of any claims made against them on account of any unpaid bills for labor heretofore performed or for materials, specially fabricated materials, services or other supplies furnished under such Contract to and including the payment date.

EXECUTED THIS _____ day of _____, 20____.

_____

By: _____
Name:_____
Title:_____

COLORADO DEPARTMENT OF TRANSPORTATION

CONTRACT MODIFICATION ORDER

Project No.		Project code
Location		
Date		Project order No.
Contractor	Estimated cost to project ☐ Increase ☐ Decrease $	
Complete address	Total additional days allowed to complete work	FHWA PoDI ☐ yes ☐ no
Modification title		

I accept this order, for work to be performed and prices on which payment is to be based.

REQUIRED IN ACCORDANCE WITH INSTRUCTIONS IN CDOT"S CONSTRUCTION MANUAL

Approved by FHWA Operations Engineer: Date

OPTIONAL

Approved by Region Transportation Director: Date

REQUIRED FOR ALL CHANGE ORDERS

Authorized by Project Engineer: Date

Contractor representative: Date

Approved by Resident Engineer: Date

☐ Participating ☐ Non-participating ☐ Participation as noted

Approved funding by Region Program Engineer: Date

COLORADO DEPARTMENT OF TRANSPORTATION

STATEMENT OF RESIDENCY FOR BID PREFERENCE

Project #

As a precondition to the award of a contract by the Colorado Department of Transportation for the construction of the above listed project, I do here certify that the firm named below is a:

Check one:

☐ Resident Bidder

1. A person, partnership, corporation, or joint venture which is authorized to transact business in Colorado and which maintains its principal place of business in Colorado; or

2. A person, partnership, corporation, or joint venture which is authorized to transact business in Colorado, which maintains a place of business in Colorado, and which has paid Colorado unemployment compensation in at least seventy-five percent of the eight quarters immediately prior to bidding on a construction contract for a public project.

☐ Nonresident Bidder

1. Name the state or foreign country of residency: _____

2. Does this state or foreign country have a bidding preference for resident bidders on public projects?

   ❑ Yes ❑ No If yes, state the percentage preference: _____%.

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.

Firm name:	Check one: ❑ individual owner ❑ partner ❑ officer ❑ person delegated to sign this form
Signature:	Title:
2nd firm name if joint venture:	Check one: ❑ individual owner ❑ partner ❑ officer ❑ person delegated to sign this form
Signature:	Title:

CDOT Form #604 3/92

COLORADO DEPARTMENT OF TRANSPORTATION

ANTI-COLLUSION AFFIDAVIT

PROJECT NO.
LOCATION

I hereby attest that I am the person responsible within my firm for the final decision as to the price(s) and amount of this bid or, if not, that I have written authorization, enclosed herewith, from that person to make the statements set out below on his or her behalf and on behalf of my firm.

I further attest that:

1. The price(s) and amount of this bid have been arrived at independently, without consultation, communication or agreement for the purpose or with the effect of restricting competition with any other firm or person who is a bidder or potential prime bidder.

2A. Neither the price(s) nor the amount of this bid have been disclosed to any other firm or person who is a bidder or potential prime bidder on this project, and will not be so disclosed prior to bid opening.

2B. Neither the prices nor the amount of the bid of any other firm or person who is a bidder or potential prime bidder on this project have been disclosed to me or my firm.

3A. No attempt has been made to solicit, cause or induce any firm or person who is a bidder or potential prime bidder to refrain from bidding on this project, or to submit a bid higher than the bid of this firm, or any intentionally high or non-competitive bid or other form of complementary bid.

3B. No agreement has been promised or solicited for any other firm or person who is a bidder or potential prime bidder on this project to submit an intentionally high, noncompetitive or other form of complementary bid on this project.

4. The bid of my firm is made in good faith and not pursuant to any consultation, communication, agreement or discussion with, or inducement or solicitation by or from any firm or person to submit any intentionally high, noncompetitive or other form of complementary bid.

5. My firm has not offered or entered into a subcontract or agreement regarding the purchase or sale of materials or services from any firm or person, or offered, promised or paid cash or anything of value to any firm or person, whether in connection with this or any other project, in consideration for an agreement or promise by any firm or person to refrain from bidding or to submit any intentionally high, noncompetitive or other form of complementary bid or agreeing or promising to do so on this project.

6. My firm has not accepted or been promised any subcontract or agreement regarding the sale of materials or services to any firm or person, and has not been promised or paid cash or anything of value by any firm or person, whether in connection with this or any other project, in consideration for my firm's submitting any intentionally high, noncompetitive or other form of complementary bid, or agreeing or promising to do so, on this project.

7. I have made a diligent inquiry of all members, officers, employees, and agents of my firm with responsibilities relating to the preparation, approval or submission of my firm's bid on this project and have been advised by each of them that he or she has not participated in any communication, consultation, discussion, agreement, collusion, or other conduct inconsistent with any of the statements and representations made in this affidavit.

8. I understand and my firm understands that any misstatement in this affidavit is and shall be treated as a fraudulent concealment from the Colorado Department of Transportation, of the true facts relating to submission of bids for this contract.

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's firm or company name	By	Date
	Title	
2nd contractor's firm or company name. (If joint venture.)	By	Date
	Title	

Sworn to before me this day of, 20

Notary Public	
My commission expires	

NOTE: This document must be signed in ink.

COLORADO DEPARTMENT OF TRANSPORTATION

CONTRACTORS PERFORMANCE CAPABILITY STATEMENT

Project #

1. List names of partnerships or joint ventures ☐ none

_____

_____

_____

2. List decreases in the contractors fiscal or workmanship qualifications compared to the last prequalification statement submitted to CDOT. (Attach additional sheets if necessary.)

a. Key personnel changes ☐ none

_____

_____

_____

b. Key equipment changes ☐ none

_____

_____

_____

c. Fiscal capability changes (legal actions, etc.) ☐ none

_____

_____

_____

d. Other changes that may effect the contractors ability to perform work. ☐ none

_____

_____

_____

_____

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 CORRECT TO THE BEST OF MY KNOWLEDGE

Contractor's firm or company name	By	Date
	Title	

2nd Contractor's firm or company name (if joint venture)	By	Date
	Title	

COLORADO DEPARTMENT OF TRANSPORTATION

ASSIGNMENT OF ANTITRUST CLAIMS

PROJECT NO.

Contractor and Colorado Department of Transportation (CDOT) recognize that in actual economic practice antitrust violations ultimately impact on CDOT. Therefore, for good cause and as consideration for executing this contract and for receiving payments hereunder:

1. Contractor hereby irrevocably assigns to CDOT any and all claims it may now have or which may hereafter accrue to it under federal or state antitrust laws in connection with the particular project, goods or services purchased or acquired by CDOT pursuant to this contract.

2. Contractor hereby expressly agrees:

   a. That, upon becoming aware that a third party has commenced a civil action asserting on Contractor's behalf an antitrust claim which has been assigned to CDOT hereunder, Contractor shall immediately advise in writing:
      (1) Such third party that the antitrust claim has been assigned to CDOT, and
      (2) CDOT that such civil action is pending and of the date on which, in accordance with subparagraph a. (1) above, Contractor notified such third party that the antitrust claim had been assigned to CDOT;
   b. To take no action which will in any way diminish the value of the claims or rights assigned or dedicated to CDOT hereunder; and
   c. Promptly to pay over to CDOT its proper share of any payment under an antitrust claim brought on Contractor's behalf by any third party and which claim has been assigned to CDOT hereunder.

3. Further, Contractor agrees that in the event it hires one or more subcontractors to perform any of its duties under the contract, Contractor shall require that each such subcontractor:

   a. Irrevocably assign to CDOT (as a third party beneficiary) any and all claims that such subcontractor may have or which may thereafter accrue to the subcontractor under federal or state antitrust laws in connection with any goods or services provided by the subcontractor in carrying out the subcontractor's obligations to Contractor;
   b. Upon becoming aware that a third party has commenced a civil action on the subcontractor's behalf asserting an antitrust claim which has been assigned to CDOT hereunder, shall immediately advise in writing:
      (1) Such third party that the antitrust claim has been assigned to CDOT, and
      (2) Contractor and CDOT that such civil action is pending and of the date on which, in accordance with subparagraph b. (1) above, the subcontractor notified such third party that the antitrust claim had been assigned to CDOT;
   c. Take no action which will in any way diminish the value of the claims or rights assigned or dedicated to CDOT hereunder; and
   d. Promptly pay over to CDOT its proper share of any payment under an antitrust claim brought on the subcontractor's behalf by any third party and which claim has been assigned or dedicated to CDOT pursuant hereto.

I, acting in my capacity as officer of a bidder (bidders if a joint venture) do agree to the above assignment of antitrust claims.

Contractor's firm or company name	By	Date
	Title	
2nd contractor's firm or company name. (If joint venture.)	By	Date
	Title	

COLORADO
DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISIONS
Mt Village Bike and Ped Safety
Project# MTF M918-019
Project Code: 23710

The 2022 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

REVISION OF SECTION 101
Definitions and Terms

Section 101 of the Standard Specifications is hereby revised for this project as follows:

Technical Specifications related to construction materials and methods for the work embraced under this Contract shall consist of the Colorado Department of Transportation, *Standard Specifications for Road and Bridge Construction,* dated 2022.

In some instances, certain terms utilized in the Specifications referred to in the paragraph above shall be interpreted to have different meanings within the scope of the Contract. A summary of redefinitions, where applicable, is as follows:

CDOT Resident Engineer shall be defined as the Town's Professional Engineer that is in responsible charge of the Project

Department shall be replaced with the Town of Mountain Village.

Engineer shall be defined as Town of Mountain Village Engineer acting directly or through an authorized representative, who is responsible for engineering and administrative supervision of the project. The terms Engineer (101.29), Project Engineer (101.51), Chief Engineer and Project Manager shall be interchangeable in this contract.

Laboratory shall be defined as the testing laboratory of the Town of Mountain Village or another laboratory designated by the Town of Mountain Village.

Region Transportation Director shall be defined as the Town of Mountain Village Engineer.

State shall mean Town of Mountain Village, Colorado (where applicable).

In addition, the following definitions shall be added:

Colorado Department of transportation (CDOT) shall be defined as the Town of Mountain Village

State of Colorado – When used in terms of the contract authority, shall be defined as the Town of Mountain Village

CDOT 2022 SSRBC – abbreviation used for the Colorado Department of Transportation's 2022 Standard Specifications for Road and Bridge Construction.

Holidays. Shall be as defined in 17.7.20 B of Title 17 of Town of Mountain Village Municipal Code (Community Development Code).

REVISION OF SECTION 108
COMMENCEMENT AND COMPLETION OF WORK
(FLOATING START DATE)

The Contractor shall select the date that contract time begins for this project, subject to the following conditions:

(a) The earliest date shall be April 17, 2023.

(b) The latest date shall be May 1, 2023.

(c) The Contractor shall notify the Engineer, in writing, at least 30 days before the proposed beginning date. If the earlier date, as stated above, follows the award date by less than 30 days, the Contractor's written notice to the Engineer shall be at least l0 days before the proposed beginning date.

(d) The date that contract time begins shall be subject to the Town of Mountain Village Public Works Director's approval.

The Contractor shall complete all work within 70 working days in accordance with the "Notice to Proceed."

If materials stockpiling begins before the beginning date, contract time will not be charged for the stockpiling effort. 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 l09 and 626.

REVISION OF SECTION 202
REMOVAL OF ASPHALT MAT

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

Subsection 202.01 shall include the following:

This work includes removal and disposal of existing asphalt mat within the project limits as shown on the plans or at locations directed by the Engineer.

In subsection 202.02 delete the seventh paragraph and replace with the following:

The existing asphalt mat shall be removed in a manner that minimizes contamination of the removed mat with underlying material. The removed mat shall become the property of the Contractor and shall be either disposed of outside the project site, or used in one or more of the following ways:

1. Used in embankment construction in accordance with section 203.
2. Placed in bottom of fills as approved by the Engineer.
3. Placed in the subgrade soft spots as directed by the Engineer.

Subsection 202.11 shall include the following:

The removal of the existing asphalt mat will be measured by the square yard of mat removed to the required depth and accepted.

Subsection 202.12 shall include the following:

Payment will be made under:

Pay Item	**Pay Unit**
Removal of Asphalt Mat	Square Yard

Unless otherwise specified in the Contract, the disposal of the asphalt mat or its use in other locations on the project will not be measured and paid for separately, but shall be included in the work.

Sawcutting of asphalt will not be measured and paid for separately, but shall be included in the work.

REVISION OF SECTION 202
REMOVE AND PALLETIZE BRICK PAVERS

DESCRIPTION

This work consists of removal of brick pavers from the areas specified on the plans and neatly stacking these pavers on a pallet to be picked up by the Town of Mountain Village.

MATERIALS

Pallets can be wooden or plastic and must be sturdy enough to support the weight of the pavers when the pallet is picked up for transport.

CONSTRUCTION REQUIREMENTS

Prior to the start of removal operations, the Project Engineer and the Contractor shall take inventory of the in-place pavers that are damaged, the Project Engineer shall document the results, and the documentation shall be shared with the Contractor. Contractor will then carefully remove pavers to avoid additional damage by the means and methods determined most appropriate by the Contractor. Following removal, the pavers shall be neatly stacked on a pallet (or pallets) in an interlocking pattern to allow for loading, unloading, and transportation of the pallet(s).

METHOD OF MEASUREMENT AND PAYMENT

The quantity will be measured by the actual number of square yards removed and palletized.

BASIS OF PAYMENT

Pay Item	**Pay Unit**
Remove and Palletize Brick Pavers (Special)	Square Yard

REVISION OF SECTION 202
CLEAN CULVERT

Revise Section 202 of the Standard Specifications for this project as follows:

Subsection 202.01 shall include the following:

This work consists of cleaning, removing, and disposing of sediment and other debris in the storm drain inlets and culverts at locations shown on the plans.

Subsection 202.10 shall include the following:

Before cleaning operations, remove and store all grates and other appurtenances from the inlet or culvert pipe.

Perform culvert cleaning using a vacuum truck method as approved. Use a high-pressure washer to strip off all soil sediment and other debris accumulated on the structure's walls. Suction the mix of water and debris out of the structure and into the vacuum truck. Dispose of removed material at a suitable facility located off the project site per applicable regulations and guidelines. The remaining material left in the structure after cleaning shall be removed at the Contractor's expense. Document and provide in writing the total amount of material removed.

Replace all damaged or missing bolts for the grates and other appurtenances. Upon completing cleaning, treat existing and new bolts required for the grates and other appurtenances with anti-seize compound. Then, reinstall the grate and appurtenances using the treated bolts.

If debris accumulates in clean structures during construction, reclean structures at the Contractor's expense.

Subsection 202.11 shall include the following:

Measure Clean Culvert by the actual number of existing culvert pipes and inlets that are cleaned and accepted. Cleaning of drainage pipe between inlets, barrier drain holes, and flaps, when required, will not be measured or paid for separately; include it in the work price.

Subsection 202.12 shall include the following:

Pay under:

Pay Item	**Pay Unit**
Clean Culvert	Each

Payment will consist of full compensation for all labor, materials, and equipment required to clean, maintain, remove, and dispose of sediment and other debris from storm drain inlets and culverts prior to construction.

The amount of anti-seize compound and new bolts required will not be measured and paid for separately; include it in the work price.

The quantity of debris and water disposal will not be measured and paid for separately; include it in the work price.

The amount of water required for pressure washing will not be measured and paid for separately; include it in the work price.

REVISION OF SECTION 202
REMOVAL OF ADA ENTRY RAMP (CONF CENTER)

DESCRIPTION

This work consists of demolition and removal of the existing ADA entry ramp to the Mt Village Conference Center to the limits shown on the plans.

MATERIALS

Not applicable.

CONSTRUCTION REQUIREMENTS

Contractor shall submit a written plan including means and methods and a schedule for completion of this work. The Project Engineer will have 5 days to review and comment or approve the work plan. Once the plan is approved, the Contractor shall schedule and execute the work.

METHOD OF MEASUREMENT AND PAYMENT

This item will not be measured, but will be paid for as lump sum.

BASIS OF PAYMENT

Pay Item	**Pay Unit**
Removal of ADA Entry Ramp (Conf Center) (Special)	Lump Sum

REVISION OF SECTION 207
TOPSOIL

Section 207 of the Standard Specifications is hereby deleted for this project and replaced with the following:

DESCRIPTION

207.01 This work consists of salvaging topsoil from onsite locations, stockpiling, maintaining, and preparing the subsoils for the placement of the topsoil at locations shown on the plans. It also includes creating seeding media by amending subsoils, and importing offsite topsoil when shown on the plans.

Substitutions from this specification will not be allowed unless submitted in writing to the Engineer and approved by the Region or Headquarters Landscape Architect.

MATERIALS

207.02 General. Topsoil shall be salvaged onsite, imported, or produced as shown on the plans. Topsoil shall be free of refuse and litter along with noxious weed seed and reproductive plant parts, as listed in current State of Colorado A and B Noxious Weed List and local agency weed lists. Topsoil shall not include heavy clay, hard clods, toxic substances, pathogens, or other material, which would be detrimental to growing native vegetation. All required amendments shall be thoroughly incorporated to parent material, onsite. All amendments shall conform to Section 212. Topsoil and parent material shall be free of clods, sticks, stones, debris, concrete, and asphalt in excess of 4 inches in any dimension for all material used within the designed clear zone for the project. Topsoil outside of the clear zone may contain rock larger than 4 inches in any dimension. For slopes with no structures being used to protect areas from falling rocks the Contractor shall remove or secure any rocks deemed unstable and could pose a safety hazard.

Topsoil shall be generated from one or more of the following as shown on the plans:

(a) *Topsoil (Onsite).* Topsoil shall consist of the upper 6-inch layer of the A horizon, as defined by the Soil Science Society of America, or at the depths and locations shown on the Stormwater Management Plan (SWMP). It shall consist of loose friable soil, salvaged from onsite and stockpiled or windrowed. Litter and duff (layer of partially decomposed plant material) shall be collected as part of the salvaging of topsoil unless specified to be removed and hauled offsite on the plans.

(b) *Topsoil (Wetland).* Wetland topsoil shall consist of moist, organic soil obtained from delineated wetlands, including any existing wetland vegetation and seeds. Wetland topsoil shall be extracted from the project site at locations shown on the plans or as directed, to a minimum depth of 12 inches or at the depths as shown on the plans.

(c) *Seeding Media.* Seeding Media shall consist of one or all of the following approved materials: sub-soil, overburden, or material generated from rock. Contractor shall select onsite or offsite locations to generate material that meet the requirements of Table 207-1. The Contractor shall provide a Certified Test Report (CTR) in accordance with subsection 106.13, excluding lot, heat, and batch confirming that the excavated material conforms to Table 207-1.

(d) *Topsoil (Offsite).* The Contractor shall submit a CTR for Topsoil (Offsite) for approval a minimum of 60 days prior to import in accordance with subsection 106.13. The Contractor shall include with the CTR a complete Soil Nutrient Analysis for the properties listed in Table 207-2 from an independent laboratory that

participates in the National Association for Proficiency Testing (NAPT). If topsoil nutrient analysis is deficient, an Amendment Protocol shall be submitted by the Contractor for approval. The Amendment Protocol shall contain a complete list of amendments and associated quantities to produce topsoil that conforms to Table 207-2.

The Contractor shall submit a Certificate of Compliance (COC) for Topsoil (Offsite) for approval a minimum of 60 days prior to import that the source has controlled noxious weeds in accordance with the State of Colorado Noxious Weed Act 35-5.5-115.

Table 207-1
PHYSICAL PROPERTIES OF SEEDING MEDIA

Property	Range	Test
Soil pH (s.u.)	5.6 – 7.5	ASA Mono. #9, Part 2, Method 10-3.2 or TMECC 04.11-A
Soil Electrical Conductivity (EC) (mmhos/cm or ds/m)	< 5.0	ASA Mono. #9, Part 2, Method 10-3.3
Soil SAR (s.u.)	0 - 10	ASA Mono. #9, Part 2, Method 10-3.4
Rock Content (%)	≤ 25	USDA NRCS Rock Fragment Modifier Usage
Trace Contaminants (Arsenic, Cadmium, Copper, Mercury, Selenium, Zinc, Nickel, and Lead)	Meets US EPA, 40 CFR 503 Regulations	TMECC 04.06 or EPA6020/ASA (American Society of Agronomy)
Rock Content (%) greater than 3” diameter	≤ 25	USDA NRCS Rock Fragment Modifier Usage
USDA Soil Texture	No more than 70% clay, silt, and sand by percentage volume of topsoil.	ASA Monograph #9, Part 1, Method 15-4 or ASA 1 43-5
All Particle Sizes	< 6 Inches	
Physical contaminants (man-made inerts) (%)	< 1	TMECC 03.08-C
C:N ratio	<20	TMECC 05.02-A
* Fines % when manufacturing material from rock	>25% material passing through #4 sieve	ASTM D6913

Amendments to the base imported material shall have the quantities of material verified onsite prior to incorporation into parent material, either at the stockpiles or after placement of parent material. Topsoil amended at the stockpiles shall be distributed to the site within seven days. * Substitute this requirement for USDA Soil Texture requirement when project are approved to use material manufactured from native rock material on site.

Table 207-2
TOPSOIL (OFFSITE) PROPERTIES

Property	Range	Test Methods
Soil pH (s.u)	5.6 – 7.5	ASA Mono. #9, Part 2, Method 10-3.2 or TMECC 04.11-A
Salt by Electrical Conductivity (EC) (mmhos/cm or ds/m)	< 2.0	ASA Mono. #9, Part 2, Method 10-3.3
Soil SAR (s.u.)	0 – 10	ASA Mono. #9, Part 2, Method 10-3.4
Soil OM (%)	3 – 5	Methods of Soil Analysis, Part 3, Method 34
Soil N (NO_3-n, ppm)	≥ 20.0	Methods of Soil Analysis, Part 3. Chemical Methods. Ch. 38 Nitrogen – Inorganic Forms
Soil P (ppm)	≥ 13.0	ASA Mono. #9, Part 2, Method 24-5.4 or others as required based on soil pH
Soil K (ppm)	≥ 80	ASA Mono. #9, Part 2, Method 13-3.5
Rock Content (%) greater than 3” diameter	≤ 25	USDA NRCS Rock Fragment Modifier Usage
Bioassay (seedling emergence and relative vigor)	> 80% of control	TMECC 05.05-A or Approved Germination Test
Soil Texture	No more than 70% clay, silt and sand by percentage volume of topsoil	ASA Mono. #9, Part 1, Method 15-4
Physical contaminants (man-made inerts) (%)	< 1	TMECC 03.08-C
Trace Contaminants (Arsenic, Cadmium, Copper, Mercury, Selenium, Zinc, Nickel, and Lead)	Meets US EPA, 40 CFR 503 Regulations	TMECC 04.06 or EPA6020/ASA (American Society of Agronomy)
All Particle Sizes	< 6 Inches	
C:N ratio	<20	TMECC 05.02-A

CONSTRUCTION REQUIREMENTS

207.03 Site Pre-vegetation Conference. Prior to the start of the initial Subgrade Soil Preparation for the project, the Contractor shall request a Site Pre-vegetation Conference. The Engineer will set up the conference and will include: the Engineer or designated representative, the Superintendent or designated representative, the sub-contractor(s) performing the subgrade soil preparation and soil amendments, and the CDOT Landscape Architect representing the Region. Only one meeting is required for the project unless a new sub-contractor is brought on that did not attend the previous meeting.

The Agenda of the Pre-vegetation Conference can be found in Appendix A of the Construction Manual and includes the following:

(1) Final review of the Topsoil (Offsite) Amendment Protocol

(2) Review of the Method Statement detailing the equipment/techniques which will be used for the subgrade soil preparation operations

(3) Permanent Stabilization Phasing Plan (identify strategies and site management measures to protect de-compacted, topsoil amended, seeded, and blanketed areas from foot, vehicle loads, and other disturbances).

(4) Seeding. See subsection 212.03 for submittal requirements.

(5) Meeting attendee sign-in log

207.04 Topsoil Stockpiling. Stockpiles of topsoil shall be created as shown on the plans or as approved by the Engineer. All Stockpiles of topsoil which are scheduled to remain in place for 14 days or more shall receive interim stabilization in accordance with subsection 208.04. All topsoil stockpiles shall be identified using white pin flags with "TOPSOIL" printed in black letters and shall have their locations shown on the SWMP Plans. Each individual stockpile shall require at least one flag, and one additional flag for each 10 cubic yards of salvaged topsoil. The contractor shall provide only perimeter flags for stockpile larger than 100 cubic yards with a minimum spacing of 25 feet.

Topsoil may be placed in stockpiles or windrowed at the edge of the disturbance. Windrowed topsoil shall not be used as perimeter erosion control or extensively compacted. When topsoil is windrowed, all stockpile requirements still apply.

(1) Upland Topsoil. If included on the plans, stockpiles shall be treated with herbicide, in accordance with Section 217, or as directed.

(2) Wetland Topsoil. Wetland stockpiles shall not be treated with herbicide. Weeds shall be hand pulled. Wetland topsoil shall be placed within 24 hours from excavation, unless otherwise approved by the Engineer. Wetland topsoil shall not be stockpiled for more than six months.

207.05 Subgrade Soil Preparation. Before placement of topsoil, the subgrade shall be ripped to a minimum depth of 6-8 inches. Subgrade shall be mostly dry and friable. Subgrade shall crumble without sticking together, yet not be so dry and hard that it does not break apart easily.

Underground utilities shall be located prior to soil preparation.

As most of the areas to receive topsoil on this project are narrow strips of roadway sideslopes with limited access, these site constraints will not allow for the use of large scale equipment. Therefore, the Contractor shall de-compact the subgrade using small handheld/walk-behind equipment and/or hand tools such as a roto-tillers or other appropriate equipment depending on subgrade soil conditions. Without the use of large scale equipment, the required depths have been reduced.

Existing subgrade shall be de-compacted to a depth of 6-8inches. Following ripping, the Contractor shall remove all sticks, stones, debris, clods, and all other substances greater than 6 inches in diameter. The Contractor shall restrict motorized vehicle and foot traffic from passing over the ripped area since this would recompact the areas that received subgrade soil preparation.

If the project is going to use aggregate base course or recycled asphalt as a shouldering technique, those areas will not require subgrade soil preparation.

Following subgrade soil preparation, Contractor shall contact the Project Engineer to verify adequate

decompaction of the entire area to have topsoil placed. Verification will consist of the Contractor digging shallow test pits with a hand shovel at a minimum of 2 random locations per each area to receive topsoil. These random locations will be selected by the Engineer. If the decompacted depth in any areas are found to be less than the minimum 6 inch required depth, the Contractor shall re-rip the area at no additional cost to the Town.

207.06 Placement of Topsoil and Seeding Media. Topsoil and Seeding Media shall be hauled and placed at the locations disturbed and will be re-vegetated as shown on the plans. The contractor shall place a minimum thickness of 6 inches and should only be handled when it is dry enough to work without damaging soil structure. Topsoil and Seeding Media shall be placed a minimum depth of twelve (12) inches when placed over riprap as required on the plans. No Topsoil or Seeding Media shall be placed below ordinary high water mark except as otherwise specified in bio-stabilization bank treatments.

Salvaged topsoil placement deeper than 6 inches is allowed if additional approved material is on-site.

Contractor shall place topsoil in a method that does not re-compact subgrade material using low ground-contact pressure equipment, or by excavators and/or backhoes operating adjacent to it.

The final grade shall be free of all materials greater than 4 inches in diameter within the designed clear zone for the project. Equipment not required for revegetation work will not be permitted in the areas of placed topsoil.

Soil amendments, seedbed preparation, and permanent stabilization mulching shall be accomplished within four working days of placing the topsoil on the de-compacted civil subgrades. If placed topsoil is not mulched with permanent stabilization mulch within four working days, the Contractor shall complete interim stabilization methods in accordance with subsection 208.04(e), at no additional cost to the Department. Time to perform the work may be extended for delays due to weather.

METHOD OF MEASUREMENT

207.07 Topsoil material will be measured by the actual number of cubic yards of topsoil placed and accepted. Subgrade soil preparation will be measured by the square yards of subgrade which is ripped and accepted for adequate de-compaction.

BASIS OF PAYMENT

207.08 The accepted quantities measured will be paid for at the Contract unit price for each of the pay items listed below that appear in the bid schedule.

Payment will be made under:

Pay Item	Pay Unit
Topsoil (Onsite)	Cubic Yard
Seeding Media	Cubic Yard
Topsoil (Offsite)	Cubic Yard
Topsoil (Wetland)	Cubic Yard
Subgrade Soil Preparation	Square Yard

Amendments for Topsoil (Onsite) and Seeding Media will be measured and paid for in accordance with Section 212.

Amendments for Topsoil (Offsite) will not be measured and paid for separately, but shall be included in the work.

Noxious Weed Management will be measured and paid for in accordance with Section 217.

Stockpiling or windrowing of topsoil will not be measured and paid for separately, but shall be included in the work.

Testing of Seeding Medial and Topsoil (Offsite) will not be measured and paid for separately but shall be included in the work.

Rod penetrometer and associated verification testing of random locations will not be measured and paid for separately, but shall be included in the work.

The Site Pre-vegetation Conference will not be paid for separately, but shall be included in the work.

Additional passes with the ripping equipment to achieve the desired de-compaction will not be measured and paid for separately, but shall be included in the work.

Removing of clods, sticks, stones, debris, concrete, and asphalt in excess of 4 inches in any dimension for all topsoil and Seeding Media used within the designed clear zone for the project will not be measured and paid for separely, but shall be included in the work.

REVISION OF SECTION 210
RESET FIRE HYDRANT

DESCRIPTION

This work consists of removing and resetting a fire hydrant assembly. All designated items shall be carefully removed, and stored and reinstalled, in a manner that will avoid loss or damage. This pay item includes all work and materials associated with the removal and relocation including but not limited to extension pipes, fittings, thrust blocks, concrete bases, valves, joint restraints/harnesses, gravel drain field, and accessories, connections to other piping and structures, excavation and backfill, disinfection, and testing of the reset assembly.

MATERIALS

Water line pipe shall be ductile iron pipe, Class 52 (AWWA C-151) cement lined (AWWA C-104).

All valves and fittings on fire hydrant water line shall be installed with mega-lug mechanical joint restraints by EBAA Iron Sales.

Hydrant components will be per the manufacturer's recommendations.

CONSTRUCTION REQUIREMENTS

The maximum duration of time the hydrant can be out of service is two days.

Except in areas to be excavated, all holes resulting from the removal of structures shall be neatly backfilled. Methods shall conform to those required in the specifications for the various types of construction involved.

Prior to the start of removal operations, the Project Engineer and the Contractor shall examine the above ground hydrant components for existing damage, the Project Engineer shall document the findings, and the documentation shall be shared with the Contractor. Contractor shall coordinate with the Town of Mountain Village on closure of the water valve(s) necessary to allow for the safe removal of the hydrant.

Contractor shall carefully excavate and expose underground hydrant components. The Project Engineer and the Contractor shall examine the below ground hydrant components for existing damage, the Project Engineer shall document the findings, and the documentation shall be shared with the Contractor. At this point, the Contractor shall continue with the removal.

Materials in good condition from removed structures may be re-used. Unserviceable material, as determined by the Engineer, shall be replaced with new material compatible with the salvaged components, and the material costs will be paid for in accordance with subsection 109.04(b) of the CDOT 2022 SSRBC, except as otherwise provided in this section. All new materials and replacement parts shall conform to the requirements of the Contract for the appropriate items. Alternatively, the replacement materials may be provided by the Town of Mountain Village at no cost to the Contractor.

Hydrant assembly and extension pipe shall be installed per the details on the approved drawings and in accordance with the manufacturer's recommendations.

METHOD OF MEASUREMENT AND PAYMENT

The quantity to be measured shall be the actual number of those items restored for service at the new location, completed and accepted.

BASIS OF PAYMENT

Pay Item	Pay Unit
Reset Fire Hydrant	Each

REVISION OF SECTION 213
STONE LANDSCAPE EDGING

Section 213 of the Standard Specifications is hereby revised for this project as follows:

Subsection 213.01 Description shall include the following:

This work consists of furnishing landscape stones and constructing a mortared stone landscape edge (maximum height of two feet) in accordance with these specifications and in conformity with the detail shown on the plans, or as directed.

Subsection 213.02 materials shall include the following:

Landscape Stones – as noted on the Stone Landscape Edging Detail
Mortar – per Section 704.04 of CDOT 2022 SSRBC

Subsection 213.03 shall include the following:

During sidewalk excavation operations, contractor shall excavate an additional 10” to 12” (or as necessary) behind the sidewalk to allow for placement of the stone landscape edging at locations shown on the contract drawings. The over-excavated areas shall have a slight batter (three inches horizontal per one foot of height) to ensure the stability of the edging. Install edging per the detail on the approved drawings.

Subsection 213.04 shall include the following:

The pay item “Stone Landscape Edging (Special)” will be measured by the square footage above finished grade completed and accepted.

Subsection 213.05 shall include the following:

Pay Item	**Pay Unit**
Stone Landscape Edging (Special)	Square Foot

REVISION OF SECTION 213
BOULDER WALL

DESCRIPTION

This work consists of constructing boulder walls at the locations and to the dimensions shown on the plans. Boulder walls are formed of interlocking, dry-stacked boulders without reinforcing steel, mortar, or concrete.

MATERIALS

Boulders – as noted on the Boulder Wall detail in the approved plans.

CONSTRUCTION REQUIREMENTS

Boulder Wall Construction:

(a) Excavation. Excavate a foundation trench to the dimensions shown on the detail in the approved plans. Scarify the subgrade to a depth of 12 inches and a recompact to 95% of max dry density per standard proctor. With prior approval of the Project Engineer, Excavate any soft or otherwise unsuitable material present at subgrade and replace with Class 6 aggregate base course compacted to 95% of maximum dry density per AASHTO T-180 (modified proctor).

Exercise care during excavation of the back cut. Stability of temporary cut slopes is the responsibility of the Contractor.

(b) Boulder Placement. Per the detail included in the approved plans.

(c) Voids. Where voids with a minimum dimension of 6 inches or greater exist in the face of the rockery, chink the voids with smaller rock.

(1) If there is no rock contact within the rockery thickness, chink the void with a smaller piece of rock.
(2) Chinking rocks do not provide primary structural support for the overlying rock.
(3) Chinking rocks cannot be moved or removed by hand after rockery is complete. Reset loose chinking rocks until securely placed or grouted in place. Do not allow grout to be readily visible from the face of rockery.

METHOD OF MEASUREMENT AND PAYMENT

Measure walls by the square foot of exposed wall face as illustrated in the detail provided on the plans.

Over-excavation, subgrade re-conditioning, and chinking will not be measured for payment and are considered incidental to the rockeries.

Class 6 Aggregate Base Course used to stabilize soft spots will be paid for under pay item 304-06000.

BASIS OF PAYMENT

Pay Item	Pay Unit
Boulder Wall (Special)	SF

SECTION 240
PROTECTION OF MIGRATORY BIRDS
BIOLOGICAL WORK PERFORMED BY THE CONTRACTOR'S BIOLOGIST

Section 240 is hereby added to the Standard Specifications for this project as follows:

DESCRIPTION

240.01 This work consists of protecting migratory birds during construction.

MATERIALS AND CONSTRUCTION REQUIREMENTS

240.02 The Contractor shall schedule clearing and grubbing operations and work on structures to avoid taking (pursue, hunt, take, capture or kill; attempt to take, capture, kill or possess) migratory birds protected by the Migratory Bird Treaty Act (MBTA). The Contractor shall retain a qualified wildlife biologist for this project. The wildlife biologist shall have a minimum of three years experience conducting migratory bird surveys and implementing the requirements of the MBTA. The Contractor shall submit documentation of the biologist's education and experience to the Engineer for acceptance. A biologist with less experience may be used by the Contractor subject to the approval of the Engineer based on review of the biologist's qualifications.
The wildlife biologist shall record the location of each protected nest, bird species, the protection method used, and the date installed. A copy of these records shall be submitted to the Engineer.

(a) *Vegetation Removal.* When possible, vegetation shall be cleared prior to the time when active nests are present. Vegetation removal activities shall be timed to avoid the migratory bird breeding season which begins on April 1 and runs to August 31. All areas scheduled for clearing and grubbing between April 1 and August 31 shall first be surveyed within the work limits for active migratory bird nests. The Contractor's wildlife biologist shall also survey for active migratory bird nests within 50 feet outside work limits. Contractor personnel shall enter areas outside CDOT right of way only if a written, signed document granting permission to enter the property has been obtained from the property owner. The Contractor shall document all denials of permission to enter property. The Contractor shall avoid all active migratory bird nests. The Contractor shall avoid the area within 50 feet of the active nests or the area within the distance recommended by the biologist until all nests within that area have become inactive. Necessary measures shall be incorporated into the work as follows:

1. *Tree and Shrub Removal or Trimming.* Tree and shrub removal or trimming shall occur before April 1 or after August 31 if possible. If tree and shrub removal or trimming will occur between April 1 and August 31, a survey for active nests shall be conducted by the wildlife biologist within the seven days immediately prior to the beginning of work in each area of tree and shrub removal or trimming. The survey shall be conducted for each phase of tree and shrub removal or trimming.

   If an active nest containing eggs or young birds is found, the tree or shrub containing the active nest shall remain undisturbed and protected until the nest becomes inactive. The nest shall be protected by placing fence (plastic) a minimum distance of 50 feet from each nest to be undisturbed. This buffer dimension may be changed if determined appropriate by the wildlife biologist and approved by the Engineer. Work shall not proceed within the fenced buffer area until the young have fledged or the nests have become inactive.

   If the fence is knocked down or destroyed by the Contractor, the Engineer will suspend the work, wholly or in part, until the fence is satisfactorily repaired at the Contractor’s expense. Time lost due to such suspension will not be considered a basis for adjustment of time charges, but will be charged as contract time.

2. *Grasses and Other Vegetation Management.* Due to the potential for encountering ground nesting birds' habitat, if work occurs between April 1 and August 31, the area shall be surveyed by a wildlife biologist within the seven days immediately prior to ground disturbing activities. The undisturbed ground cover to 50 feet beyond the planned disturbance, or to the right of way line, whichever is less, shall be maintained at a height of 6 inches or less beginning April 1 and continuing until August 31 or until the end of ground disturbance work, whichever comes first.

   If birds establish a nest within the survey area, an appropriate buffer of 50 feet will be established around the nest by the CDOT biologist. This buffer dimension may be changed if determined appropriate by the CDOT biologist and approved by the Engineer. The Contractor shall install fence (plastic) at the perimeter of the buffer. Work shall not proceed within the buffer until the young have fledged or the nests have become inactive.

   If the fence is knocked down or destroyed by the Contractor, the Engineer will suspend the work, wholly or in part, until the fence is satisfactorily repaired at the Contractor's expense. Time lost due to such suspension will not be considered a basis for adjustment of time charges, but will be charged as contract time.

(b) *Raptor Nesting.* The wildlife biologist shall conduct raptor nest surveys of the terrain within 0.5 mile of the construction site prior to a start of construction between February 15 and July 15. This survey can be done with binoculars. If construction activities are located within the Colorado Parks and Wildlife (CPW) recommended buffer zone for specific raptors, "NO WORK" zones shall be established around active sites during construction according to the CPW standards or as recommended by the wildlife biologist in consultation with the CPW. The "NO WORK" zone shall be marked with either fencing or signing. Work shall not proceed within a "NO WORK" zone until the wildlife biologist has determined that the young have fledged or the nest is unoccupied.

(c) *Taking of a Migratory Bird.* The taking of a migratory bird shall be reported to the Engineer. The Contractor shall be responsible for all penalties levied by the U. S. Fish and Wildlife Service (USFWS) for the taking of a migratory bird.

METHOD OF MEASUREMENT

240.03 Wildlife Biologist will be measured by the actual authorized number of hours a wildlife biologist is on site performing the required tasks.

BASIS OF PAYMENT

240.04 The accepted quantities measured as provided above will be paid for at the contract unit price for each of the pay items listed below that appear in the bid schedule.

Payment will be made under:

Pay Item	Pay Unit
Wildlife Biologist	Hour

Payment for Wildlife Biologist will be full compensation for all work and materials required to complete the item, including wildlife biologist, wildlife survey, and documentation (record of nest location and protection method)

Clearing and grubbing will be measured and paid for in accordance with Section 201. Mowing will not be measured and paid for separately, but shall be included in the work.

Removal and trimming of trees will be measured and paid for in accordance with Section 202.

Fence (Plastic) will be measured and paid for in accordance with Section 607

REVISION OF SECTION 304
AGGREGATE BASE COURSE

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

Subsection 304.02 shall include the following:

Materials for the subbase shall be Aggregate Base Course (Class 2) as shown in subsection 703.03.

Materials for the base course shall be Aggregate Base Course (Class 6) as shown in subsection 703.03

The aggregate base course (Class 2) and (Class 6) must meet the gradation requirements and have a resistance value of at least 70 and 78 respectively when tested per AASHTO T-190.

REVISION OF SECTIONS 401 AND 403
HOT MIX ASPHALT (PATCHING) (ASPHALT)

Sections 401 and 403 of the Standard Specifications are hereby revised for this project as follows:

Delete subsection 401.02(a) Mix Design and replace with the following:

A pre-approved CDOT mix design (Form 43) issued within the last 24 months shall be submitted to the Engineer for the Hot Mix Asphalt (HMA). The submitted mix must be approved in writing by the Engineer prior to use on the project. The mix design asphalt cement binder grade shall be PG 58-28 or PG 58-34. The HMA mix design shall conform to the gradation requirements for Hot Mix Asphalt (Grading SX).

The HMA may contain reclaimed asphalt pavement, per the aforementioned pre-approved CDOT mix design.

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

Subsection 401.02(b) shall include the following:

HMA samples shall be taken at the location specified in Method B of CP-41. Sampling must be coordinated by the Contractor with the Project Engineer and Region Materials Staff two weeks prior to the beginning of paving operations. The HMA delivered and placed on the project will be sampled and tested per subsection 106.05(f) and evaluated per subsections 105.05 for acceptance except that maximum Pay Factor (PF) for any element shall be no greater than 1.000.

Subsection 401.16 shall include the following:

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.

Delete subsection 403.01 paragraph three.

Delete subsection 403.03 paragraph two.

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 (Patching) (Asphalt)	Ton
Hot Mix Asphalt (Patching) (Asphalt)	SY

Aggregate, Reclaimed Asphalt Pavement, 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. Asphalt cement used in Hot Mix Asphalt (Patching) (Asphalt) will not be measured and paid for separately, but shall be included in the work.

Sawing, 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 504
WIRE MESH RETAINING WALLS

1 General

1.1 Description

These specifications shall encompass the Wire Mesh Walls constructed by the Owner's Contractor. This work shall include the construction of Wire Mesh Wall in accordance with these specifications, Project Specifications/Special Provisions, CDOT Specifications and in reasonably close conformity with the lines, grades, design and dimensions shown on the Wire Mesh Wall Project Plans or as otherwise established by the Design Engineer (Gordon Geotechnical Engineering Inc., Salt Lake City, Utah, 801/327-9600). Where conflicts are noted between these specifications and project specifications, the more stringent of the two specifications shall be used.

This specification applies to "Wire Mesh Wall, San Joaquin Roadway Improvements, Mountain Village, Colorado."

2 Wall Materials

2.1 Wire Reinforcement and Cap Mesh

Wire mesh reinforcing shall be formed by a 90-degree bend of the wire reinforcement mesh and a prong to interlock with the soil reinforcing mesh above. In accordance with ASTM A-1064/A1064M–10, the reinforcing mesh shall be shop fabricated of cold drawn steel wire and welded into the finished mesh fabric. Welded Wire Fabric shall consist of hot-dipped galvanized welded wire mesh in accordance with ASTM A-123 (minimum 2 oz/sf) with sizing and spacing indicated on the Wire Mesh Wall Project Plans.

2.2 Backing Materials

As shown on the plans, steel backing mat shall be W 5.0 x W 2.5 welded wire fabric meeting ASTM A-1064/A1064M-10 and shall be hot-dipped galvanized in accordance with ASTM A-123 (minimum 2 oz/sf).

2.3 Hardware Cloth

As shown on the plans, Hardware Cloth shall be 23-gauge 1/4" x 1/4". The hardware cloth is to be placed between the backfill and the steel backing mat to retain the soil. The hardware cloth to utilize brown or green PVC coating.

2.4 Geotextile

As shown on the plans, a non-woven geotextile consisting of AASHTO M288-06 Class II. Geotextile shall be used at the interface of the wall backfill and gravel facing and as required at other locations indicated on the project plans. Geotextile to be provided by others. The geotextile between the gravel facing and wall backfill may be eliminated by the engineer based upon relative gradations of the materials.

3 Granular Backfill

3.1 Wall Backfill

Wall backfill material to be used within the reinforced soil mass shall meet the Project Special Provisions for Structure Backfill Class I as partially reproduced below:

Sieve Designation	Percent Passing Sieve
2 inch	100
No. 4	30 – 100
No. 50	10 - 60
No. 200	5 - 20

The backfill material shall be free of all organic matter, trash, rubble, and other deleterious material. Durable, angular rock that is not fractured or friable shall be used. The material shall have an LA abrasion value of 70 percent or greater (wear factor of 30 percent or less). In addition, the backfill shall have a magnesium sulfate loss of less than 30 percent after 4 cycles or a sodium sulfate loss less than 15% after 5 cycles (AASHTO T-104). The plasticity index (PI) shall not exceed 6.

The backfill material shall meet the following electrochemical properties:

Property	Criteria	Test Method
Resistivity	greater than 3000 ohm-cm	AASHTO T-288
pH	between 4.5 and 9.5	AASHTO T-289
Chlorides	less than 100 ppm	AASHTO T-291
Sulfates	less than 200 ppm	AASHTO T-290
Organic Content	1% Max.	AASHTO T-267

Backfill not conforming to these specifications shall not be used without the express, written permission of the Design Engineer.

Wall backfill shall be placed according to all Project Special Provisions. These include but not limited to 8-inch maximum loose lifts compacted to a minimum of 95 percent of the maximum dry density as determined by AASHTO T-180 (this is a minimum compaction requirement for the wall and may exceed Project Specifications). Only hand operated, walk behind vibratory compactors shall be used within 3 feet of the wall face.

3.2 Facing Gravel

Gravel facing used at the face of the wire mesh walls shall meet all Project Specifications/Special Provisions and shall consist of a 2-inch minus gravel with no more than 5 percent passing the 1/4-inch sieve. The material shall consist of durable, angular rock and shall meet the durability, soundness and electrochemical properties noted above for Wall Backfill (Section 3.1 of this specification).

Facing Gravel shall be placed in 8 to 12-inch loose lifts and be hand rodded or machine compacted. Lifts may be reduced as required to achieve proper level of compaction. The minimum horizontal thickness of facing gravel is as specified in the Wire Mesh Wall.

3.3 Random Backfill

Random backfill shall be used in the zone behind the wire mesh reinforcing extending to the excavation face. Random Backfill shall meet Project Specifications. As a minimum, random backfill should be granular and consist of sand, gravel or a combination sand and gravel with occasional cobble material with no more than 25 percent by weight passing the No. 200 as determined by ASTM D-422. Maximum particle size shall be limited to 8 inches. The backfill material shall be free of all organic matter, trash, rubble, and other deleterious material. The plasticity index shall be less than 20 percent.

Only durable rock that is not fractured or friable shall be used. The material shall have an LA abrasion value of 70 percent or greater (wear factor of 30 percent or less). In addition, the backfill shall have a sodium sulfate loss less than 30% after 5 cycles (ASTM C-88)

Random backfill shall be placed in 12-inch maximum loose lifts and compacted to 95 percent of the maximum dry density as determined by the ASTM D-1557 (AASHTO T-180) method of compaction minimum or as required by Project Specifications.

4 Wire Mesh Wall Construction

4.1 Excavation

Excavation for the wall construction shall be made to the lines and grades indicated on the Project Plans and in accordance with Project Special Provisions.

4.2 Foundation Preparation

There is no site-specific geotechnical information for the site. It is anticipated that the wall will be established within the existing fill materials from the original roadway construction. Based upon the native soils in the area, it is anticipated that the embankment fills will be granular materials. However, given the age, there is likely little available documentation about placement, compaction, properties, etc. When the wall excavation begins and access to the site is readily available, the project geotechnical engineer will review the subgrade soils and determine what if any remedial subgrade preparation is required. We would expect partial removal, heavy proof rolling with a large vibratory roller (minimum 4 continuous passes with a large 10-ton vibratory roller) and replacement of granular structure fill meeting the material and density requirements outlined in Section 3.1, Wall Backfill, and be graded level for subsequent wall construction.

4.3 Wall Construction

Wire mats and applicable backing materials shall be placed in successive horizontal lifts in the sequence shown on the plans, as backfill placement proceeds.

The walls shall be constructed with a vertical face over their entire height. Variance from vertical alignment shall meet the requirements shall not exceed 1 inch, when measured at the junction of the wire facing and soil reinforcement along a 10-feet straight edge. Horizontal alignment tolerances along the wall line for facing are to be within 2 inches at any points along the wall when measured with a 10-foot straight edge.

4.4 Backfill Placement

Backfill placement shall closely follow placement of each course of reinforcement mats. Backfill shall be placed so as to avoid any damage or disturbance to the wall materials or any misalignment of the wall

components. Damaged or disturbed elements shall be repaired or replaced by the Contractor at no cost to the Owner.

Backfill shall be placed as outlined above in Sections 3.1. Where necessary, lift thicknesses shall be reduced to obtain the required density.

Wall Backfill compaction within 3-feet of the wall face shall be achieved utilizing lightweight, hand operated, walk behind compaction equipment. Alternatively, within 3 feet of the wall face, the backfill may be compacted by hand rodding "to refusal".

At the end of each day's construction, the Contractor shall slope the surface of the fill away from the wall face. The Contractor shall not allow surface run-off from any other portions of the site to flow onto the site of the wall construction.

Finished grade at the top of the wall shall be as shown on the project plans.

5 Method of Measurement

Wire Mesh Retaining Walls will be measured by the actual square footage installed and accepted.

6 Basis of Payment

Pay Item	**Pay Unit**
Wire Mesh Retaining Wall	Square Foot

Payment for Wire Mesh Retaining Wall will be full compensation for all work and materials required to complete the item, including but not limited to excavation, excess material export, structural backfill, geotextile, gravel, geomembrane, subdrains, strip drains, and welded wire mats.

REVISION OF SECTION 603
CORRUGATED STEEL PIPE
STEEL END SECTION

BASIS OF PAYMENT

Section 603 of the Standard Specifications is hereby revised for this project as follows:

The third paragraph of Subsection 603.13 shall be revised as follows:

Structure Excavation, bedding, structure backfill, and disposal of excess excavated material will not be measured or paid for separately, but will be included in the work.

REVISION OF SECTION 606
GUARDRAIL

Section 606 of the Standard Specifications is hereby revised for this project as follows:

Replace subsection 606.02 with the following:

606.02 Materials shall meet the following requirements:

"W" Beam Rail. The rail elements shall be corrugated sheet steel beams conforming to the requirements of AASHTO M 180, Type IV, Class B. The beams shall be weathering steel (sometimes called Corten steel) conforming to the requirements of ASTM A588. The same requirements shall apply to metal offset devices.

All weathering steel parts shall be handled with care to avoid gouges, scratches, or dents. Care shall be exercised to keep foreign material such as paint, grease, oil, or crayon, from contact with the surface. Steel parts either damaged physically or by contact with foreign substances, will not be accepted.

During shipment or site storage, steel parts must be positioned to allow free drainage and air circulation on the surfaces.

The Contractor shall furnish three copies of a certified mill test report to the Engineer. This report shall show the results of physical and chemical tests of the metal.

Guardrail Hardware. Splices, end connections, end anchor rods, and accessories shall be as specified or as shown in the Contract.

Bolts, nuts, and washers shall be galvanized in accordance with AASHTO M 232, Class C, or AASHTO M 298, Class 50, Type 1. All other fittings shall be galvanized in accordance with AASHTO M 111. Bolts, nuts, and washers for corrosion resistant guardrail shall be of corrosion resistant material and conform to or exceed the requirements of ASTM A307. Where high strength bolts are required, they shall conform to the requirements of ASTM A325.

Guardrail Posts. Posts shall be steel. Except for the break-away posts at the terminus of the guardrail.

(a) Wood posts shall be fabricated from an approved or specified timber species and shall be of the quality, diameter or section, and length as specified or as shown in the Contract. Treated posts shall be fabricated or framed before treatment, and shall conform to the requirements of AASHTO M 133 or AWPA Standards.

(b) Steel posts shall be of the section and length as specified or as shown in the Contract. Steel shall conform to the requirements of AASHTO M 183 for the grade specified. shall be weathering steel (sometimes called Corten steel) conforming to the requirements of ASTM A588.

(c) Concrete deadmen for end anchorages shall be as specified or as shown in the Contract.

REVISION OF SECTION 608
DETECTABLE WARNINGS

Section 608 of the Standard Specifications is hereby revised for this project as follows:

Subsection 608.01 shall include the following:

This work includes the installation of detectable warnings on concrete curb ramps as shown on the plans.

Subsection 608.02 shall include the following:

Detectable warnings on curb ramps shall be truncated domes meeting the requirements of M-608-1.

Plates shall meet all Americans with Disabilities Act (ADA) requirements for truncated domes, and when installed, shall be capable of producing the pattern of domes shown on the plans.

Plates used shall be one of the un-coated Cast Iron products approved for use as detectable warnings listed on CDOT's Approved Products List.

Prior to the start of work, the Contractor shall submit appropriate documentation from the manufacturer verifying that the contrast has been met, along with a sample plate, to the Engineer for approval.

Subsection 608.03 shall include the following:

(g) **Detectable Warnings for curbs ramps.**

Prior to installation of the plates, concrete conforming to subsection 608.02 shall be installed and consolidated as a base for the plates. The concrete shall be placed to a thickness that will allow the base surface of the plates to be at the same elevation as the adjacent concrete. The plates shall be embedded into the plastic concrete in accordance with the manufacturer's specifications.

Cast iron plates shall be radius plates or straight plates as shown on the plans.

Subsection 608.05 shall include the following:

Detectable warnings on curb ramps, including plates, and all other work and materials necessary for fabrication, transport, and installation will not be measured and paid for separately, but shall be included in the curb ramp pay item.

REVISION OF SECTION 608
SIDEWALK CHASE

DESCRIPTION

This work consists of construction of a sidewalk chase in accordance with these specifications and in conformity to the lines and grades shown on the plans or established.

MATERIALS

Tread Plate – 3/16" diamond plate steel (non-slip)
PVC Pipe –per Section 712.13 of CDOT 2022 SSRBC

CONSTRUCTION REQUIREMENTS

Sidewalk chases will be constructed per the detail included on the approved construction drawings.

METHOD OF MEASUREMENT AND PAYMENT

Sidewalk chases will be measured by the linear foot completed and accepted.

BASIS OF PAYMENT

Pay Item	**Pay Unit**
Sidewalk Chase (Special)	LF

REVISION OF SECTION 608
ADA ENTRY RAMP (CONF CENTER)

DESCRIPTION

This work consists of construction of an ADA compliant entry ramp into an existing building in accordance with these specifications and in conformity to the lines and grades shown on the details included on the approved plans.

MATERIALS

Concrete – Class B or D per Section 601

Reinforcement – Section 602

Structure Backfill – Class 2 per Section 703.08

4" Stone Veneer & Stone Cap – Veneer shall generally match the color and texture of the existing veneer on the Conference Center exterior. Contractor shall submit a sample to the Town for approval prior to ordering the material.

Handrail – Color and style shall generally match the railing on adjacent areas of the conference center. Contractor shall submit a shop drawing and color samples to the Town for approval prior to ordering the materials.

CONSTRUCTION REQUIREMENTS

Entry ramp shall be constructed per the detail included on the approved construction drawings. Concrete shall be constructed per Section 601 of CDOT 2022 SSRBC. Structural Backfill shall be installed per Section 206 of CDOT 2022 SSRBC.

METHOD OF MEASUREMENT AND PAYMENT

This item will not be measured, but will be paid for as lump sum.

BASIS OF PAYMENT

Pay Item	**Pay Unit**
ADA Entry Ramp (Conf Center) (Special)	Lump Sum

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.

Force Account Item	Estimated Quantity	Amount
F/A Minor Contract Revisions	F.A.	$ 180,000.00
F/A Erosion Control	F.A.	$ 1,500.00

UTILITIES

Known utilities within the limits of this project include:

UTILITY	CONTACT/EMAIL	PHONE/FAX/CELL
Black Hills Energy 580 E. Hwy 92 Delta CO 81416	Paul Ficklin Paul.ficklin@blackhillscorp.com Scott Hunter Charles.hunter@blackhillscorp.com	(970) 596-1122 (cell) (970) 596-1924 (cell)
Lumen 1035 E 2nd Ave Durango CO 81301	Kirby Bryant Kirby.bryant@lumen.com Mike Gardner Mike.gardner@lumen.com	(970) 426-8630 (cell) (970) 382-1365 (cell)
San Miguel Power Association 720 N. Railroad St. Ridgway CO 81432	Jeremy Fox Jeremy@SMPA.com	(970) 726-5549 (970) 729-1547 (cell)
Town of Mountain Village	Finn Kjome fkjome@mtnvillage.org Jim Loebe jloebe@mtnvillage.org	(970) 729-3441 (970) 729-3434

The work described in these plans and specifications requires coordination between the Contractor and the utility companies in accordance with subsection 105.11 in conducting their respective operations as necessary.

The work listed below shall be performed by the Contractor in accordance with the plans and specifications, and as directed by the Engineer. The Contractor shall keep each utility company advised of any work being done to its facility, so that the utility company can coordinate its inspections for final acceptance of the work with the Engineer.

FOR:

All Utility Companies

The Contractor will contact each utility company a minimum of two (2) business days, unless otherwise noted, prior to working in the utility company's area so that the utility company can provide an inspector and/or complete any necessary adjustments or relocations.

If a need for utility work by either the Contractor or a Utility Company arises, the following shall apply:

The Contractor shall be responsible for coordinating the adjustment of utilities on this project. The Contractor shall keep each utility company advised of any work being performed in the vicinity of their facilities so that each utility company can coordinate any needed locates, adjustments or inspections. The Contractor shall provide the appropriate utility company ample notice, but not less than two (2) working days, prior to commencing activities in the vicinity of their facilities. If needed, or as directed by the Project Engineer, the Contractor shall provide traffic control for utility work to be coordinated with the project's construction, in accordance with an approved

Method of Handling Traffic (MHT). Any additional work performed by the Contractor on behalf of the impacted utility company shall not be paid for by the Town, but shall be paid by the utility company requiring the work, unless otherwise provided herein, or agreed to in writing by the Project Engineer.

This project will require coordination with utilities as part of the work. It is the intent of this project to protect the existing buried utilities in place during construction operations unless otherwise specified herein. The Contractor shall be responsible for potholing and verifying the location of all utilities in close proximity to any required work in advance for the purpose of identifying conflicts not otherwise addressed in the plans and specifications as well as for the purpose of determining the extent of the conflict, and whether relocation or adjustment is required. This work will be paid for by contract bid item – Potholing. The Contractor shall share its potholing information with the impacted utilities in advance so that the utilities can coordinate the relocation work and accommodate the Contractor's work schedule. To the extent practicable, the Contractor shall be required to work around and protect existing utilities in place for the purpose of maintaining service. Close coordination with the utility owners will be required in making a determination of whether or not existing facilities can be protected in place. Damage to existing utilities resulting from construction operations wherein the utility has elected to leave its facility in place and the Contractor has expressed concern over protecting the same in place shall be the utility owners responsibility. The Contractor shall be responsible for coordinating the relocation work with the impacted utility. Any required relocation work will be performed by the impacted utility at no cost to the project unless otherwise specified herein or directed by the Project Engineer.

The work listed below will be performed by the utility owners or their agents in accordance with the plans and specifications, and as directed by the Engineer. The Contractor shall keep the utility company(s) advised of any work being done to their facility, so that the utility company(s) can coordinate their inspections for final acceptance of the work with the Engineer.

Black Hills Energy (BHE):

The Contractor shall take the necessary precautions while working around existing BHE facilities and shall mark these locations as necessary so as to prevent accidental contact during construction operations. The Contractor shall be responsilble for verifying the location and depth of BHE's facilities in close proximity to the projects anticipated excavation work. This work will be paid for by contract bid item – Potholing. In the event a conflict arises which cannot be avoided, the Contactor shall be required to coordinate with BHE to either relocate or adjust its facility as required for the project work. This work will be performed by BHE's forces at no cost to the proejct unless otherwise agreed to by the project engineer. The Contractor shall be responsible for coordinating this work.

Lumen:

The Contractor shall be responsilble for verifying the location and depth of Lumen's facilities in close proximity to the projects anticipated excavation work. This work will be paid for by contract bid item – Potholing. In the event a conflict arises which cannot be avoided, the Contactor shall be required to coordinate with Lumen to either relocate or adjust its facility as required for the project work. This work will be performed by Lumen's forces at no cost to the proejct unless otherwise agreed to by the project engineer. The Contractor shall be responsible for coordinating this work.

San Miguel Power Association (SMPA):

The Contractor shall take the necessary precautions while working around existing SMPA facilities and shall mark these locations as necessary so as to prevent accidental contact during construction operations. The Contractor shall be responsilble for verifying the location and depth of SMPA's facilities in close proximity to the projects anticipated excavation work. This work will be paid for by contract bid item – Potholing. In the event a conflict arises which cannot be avoided, the Contactor shall be required to coordinate with SMPA to either relocate or

adjust its facility as required for the project work. This work will be performed by SMPA's forces at no cost to the proejct unless otherwise agreed to by the project engineer. The Contractor shall be responsible for coordinating this work.

Town of Mountain Village:

The Contractor will be required to adjust approximately **4 valve boxes, 8 manholes,** and replace/modify **4 storm drain inlets** to finished grade as shown in the plans or otherwise directed by the project engineer. Payment for this work will be by contract bid items. The Contractor shall be responsible for completing this work.

The work listed below will be performed by the utility owners or their agents in accordance with the plans and specifications, and as directed by the Engineer. The Contractor shall keep the utility company(s) advised of any work being done to their facility, so that the utility company(s) can coordinate their inspections for final acceptance of the work with the Engineer.

Lumen:

Lumen will be required to adjust its communications vault cover to finished grade as shown in the plans or otherwise directed by the project engineer. This work shall be performed by Lumen forces at no cost to the project. The Contractor shall be responsible for coordinating this work.

No other utility relocation or construction conflicts are anticipated for the completion of this project. The Contractor shall be responsilble for verifying the location and depth of any utility facility in close proximity to the required project work. This work will be paid for by contract bid item – Potholing. In the event a conflict arises which cannot be avoided, the Contactor shall be required to coordinate with the impacted utility to relocate its facility as required by the project. This work will be performed by the impacted utility at no cost to the proejct unless otherwise specified herein or agreed to by the project engineer.

GENERAL:

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 (8-1-1) or 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.

In accordance with Article 9-1.5-103(c), Colorado Revised Statutes, as amended, The Town of Mountain Village certifies that it has not performed QL B subsurface utility engineering work for this project as existing utility facilities will be protected in place during construction operations and/or specific design measures have been taken to mitigate for known utility conflicts (e.g. relocation to be included with project work and/or mitigation measures in place to ensure protection of utilities during construction operations) Quality level C and D information has been depicted in the plans as part of the design for this project by surveying and plotting visible above-ground utility features and by using professional judgment in correlating this information from QL D information. Information relating to the work to be performed by the owner and/or the contractor, how the work is to be paid for and the estimated amount of time to complete the relocation work has been provided, if applicable.

The contractor shall cooperate with the utility owners in their relocation operations as provided in subsection 105.11 of the Standard Specifications for Road and Bridge Construction. No guarantee is made that utility conflicts will be resolved prior to construction activities and any delays resulting from utility relocation work

shall be dealt with in accordance with subsection 108.08 of the Standard Specifications for Road and Bridge Construction as amended.

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

SSP Index 11-01-2022
[For 2022 Spec Book]

COLORADO
DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISIONS
Mt Village Bike and Ped Safety
STANDARD SPECIAL PROVISIONS

Name	Date	No. of Pages
Revision of Section 103 – Colorado Resident Bid Preference	(October 1, 2022)	1
Revision of Section 105 – Control of Work	(October 1, 2022)	1
Revision of Section 106 – Buy America Requirements - Non-Federal Aid Highway (FHWA)	(Oct. 1, 2022)	1
Revision of Section 106 – Country of Origin	(October 1, 2022)	1
Revision of Section 212 – Soil Amendments, Seeding, and Sodding	(October 1, 2022)	18
Revision of Section 401 – Reclaimed Asphalt Pavement	(October 1, 2022)	2
Revision of Section 601 – Concrete Mix Designs	(October 1, 2022)	1
Revision of Section 630 – Traffic Control Management	(October 1, 2022)	1
Affirmative Action Requirements Equal Employment Opportunity	(October 1, 2022)	11

REVISION OF SECTION 103
COLORADO RESIDENT BID PREFERENCE

Section 103 of the Standard Specifications is hereby revised for this project as follows:

Subsection 103.01 shall include the following:

(a) *Colorado Resident Bid Preference.* A resident bidder shall be allowed a preference against a nonresident bidder from a state or foreign country equal to the preference given or required by the state or foreign country in which the nonresident bidder is a resident.

Resident bidder means:

(1) A person, partnership, corporation, or joint venture which is authorized to transact business in Colorado and which maintains its principal place of business in Colorado: or,

(2) A person, partnership, corporation, or joint venture which is authorized to transact business in Colorado, which maintains a place of business in Colorado, and which has paid Colorado unemployment compensation taxes in at least seventy-five percent of the eight quarters immediately prior to bidding on a construction contract for a public project.

To determine the resident bid preference status of a bidder, the bidder shall submit a completed Form 604 with the proposal. Failure to submit the residency Form with the proposal will be justification for and may result in the rejection of the proposal and forfeiture of the proposal guaranty.

The proposals will be treated as follows:

(1) All proposals will be checked for accuracy by the Department.

(2) The dollar amount of the checked proposal from nonresident bidders will be adjusted by a percentage equal to the percentage preference given or required by the state or foreign country of the bidder's residency. If the state or foreign country does not give or require a residency preference, no adjustment in the proposal dollar amount will be made.

(3) Adjusted proposals from nonresident bidders will then be compared to proposals from resident bidders, and the bidder with the lowest total will be considered the apparent low bidder.

(4) Should a nonresident bidder be the apparent low bidder, in accordance with paragraph (3) above, an award will be made on the basis of the original proposal, not the adjusted proposal.

(5) The Department will proceed with its normal award procedure.

October 1, 2022

1

REVISION OF SECTION 105
CONTROL OF WORK

Revise Section 105 of the Standard Specifications as follows:

Revise Paragraphs 4, 5 and 6 of Subsection 105.20 as follows:

If damage occurs to an existing structure through improper maintenance per 105.19, the Contractor shall submit a repair procedure to the Engineer to repair the defect(s).

The repair categories and requirements are defined as follows:

a) *"In-kind" repairs*. In-kind repairs are repairs where the As-Built or Advertised plans are utilized to replace or repair damaged components with identical dimensions and materials used plans and where no plan modifications are made. In-kind repair procedures shall be reviewed and accepted by the Engineer before any repair. The use of approved repair grouts or doweled reinforcing with epoxy adhesive is permitted in in-kind repairs. Doweled reinforcing shall meet or exceed the strength requirements of the original design.

a) "*Modified repairs*". Modified repairs are those which deviate in dimensions and/or materials from the As-Built or Advertised plans or where plans are not available. Modified repair procedure submittals shall include calculations, independent design calculations, shop drawings, and/or working drawings per 105.02, and any other applicable section of the specifications for the needed repair. The Contractor's Engineer shall electronically seal Modified repair submittals.

Damage to new structures or modified structures, shall be repaired per the contract documents. The Engineer of Record shall be notified and review all corresponding submittals before any repairs.

October 1, 2022

1

REVISION OF SECTION 106
BUY AMERICA REQUIREMENTS
NON-FEDERAL AID HIGHWAY (FHWA)

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

Delete subsection 106.11(a) and replace it with the following:

(a) Federal *Buy America* requirements for iron and steel do not apply to this project.

REVISION OF SECTION 106
COUNTRY OF ORIGIN

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

Subsection 106.11 shall include the following:

(c) *United States of America and Foreign Item Reporting.* The Contractor shall make a good faith effort to provide a list of the five costliest items incorporated into the project that consist of 50 percent or more steel or iron when delivered to the construction site. This list shall include the item name, the cost, and the country of origin of the item. The following shall be used to establish the country of origin of the item:

(1) If the item is completely iron or steel, it will be considered to have been manufactured in the United States if all of the manufacturing processes for the final product took place in the United States.

(2) If the product is only partially made of steel or iron, it shall be considered to have been manufactured in the United States if all of the manufacturing processes for the final product took place in the United States, irrespective of the country of origin of the item's subcomponents.

The list of items shall be submitted within 15 days of the final acceptance date.

REVISION OF SECTION 212
SOIL AMENDMENTS, SEEDING, AND SODDING

Section 212 of the Standard Specifications is hereby deleted for this project and replaced with the following:

DESCRIPTION

212.01 This work consists of application of fertilizer, soil amendments, seedbed preparation, and placing seed and sod.

Substitutions from this specification will not be allowed unless submitted in writing to the Engineer and approved by the Region or Headquarters Landscape Architect.

MATERIALS

212.02 Seed, Fertilizers, Soil Conditioners, Mycorrhizae, Elemental Sulfur, and Sod.

(a) *Seed.* Seed shall be delivered to the project site in sealed bags tagged by a registered seed supplier conforming to the requirements of the Colorado Seed Act, CRS 35-27-111(1). Seed used on the project shall not be in the Contractor's possession for more than 30 days from the date of pickup or delivery on the seed vendors packing slip. Bags which have been opened or damaged prior to Engineer inspection will be rejected. The State required legal tags shall remain on the bag until opened and the seed is placed in either the drill or hydraulic seeders in the presence of the Engineer. The Engineer shall remove all tags after seed has been planted. Each seed tag shall clearly show the following:

(1) Name and address of the supplier

(2) Botanical and common name for each species

(3) Lot numbers

(4) Percent by weight of inert ingredients

(5) Guaranteed percentage of purity and germination

(6) Pounds of Pure Live Seed (PLS) of each seed species

(7) Total net weight in pounds of PLS in the sealed bag

(8) Calendar month and year of test date

Seeds shall be free from all noxious weed seeds in accordance with Colorado Seed Act (CRS 35-17) prohibited noxious weed seed list.

Weed seed content shall not exceed the requirements in part 7.2 of the Colorado Department of Agriculture's Seed Act Rules and Regulations.

Seed which has become wet, moldy, or damaged in transit or in storage will not be accepted.

Seed and seed labels shall conform to all current State regulations and to the testing provisions of the Association of Official Seed Analysis. Computations for quantity of seed required on the project shall include the percent of purity and percent of germination.

The Contractor shall store seed under dry conditions, at temperatures between 35 °F to 90 °F, under low humidity and out of direct sunlight. The Contractor shall provide the location of where seed is stored and access to stored seed locations to the Engineer. Seed stored by the Contractor for longer than 30 days will be rejected.

(b) *Organic Fertilizer*. Fertilizer derived directly from plant or animal sources shall conform to Colorado Revised Fertilizer Rules 8 CCR 1202-4. Fertilizer shall be uniform in composition and shall be delivered to the site in the original, unopened containers, each bearing the manufacturer's name, address, and nutrient analysis. Fertilizer bags (containers) which arrive at the project site opened, damaged, or lacking a label will be rejected. The Contractor shall only use bulk shipments such as tote bags or super sacks that have a manufacturer's original label and sealed at the manufacturing facility. Fertilizer which becomes caked or damaged will not be accepted. Fertilizer shall be stored according to manufacturer's recommendations in a dry area where the fertilizer will not be damaged.

Organic fertilizer formulation being submitted for use must be registered with the Colorado Department of Agriculture.

Verification tests may be conducted by CDOT on grab samples of organic fertilizer delivered to the site to determine the reliability of bag label analysis and for ingredients which are injurious to plants. If a product of any supplier is found to consistently deviate from the bag level analysis, the acceptance of that product will be discontinued. Copies of the failing test reports will be furnished to the Colorado State Board of Agriculture for appropriate action under the "Colorado Fertilizer Law".

Fertilizer shall be supplied in one of the following physical forms:

(1) A dry free-flowing granular fertilizer, suitable for application by agricultural fertilizer spreader.

(2) A homogeneous pellet, suitable for application by agricultural fertilizer spreader. Pellet size shall be 2-3 mm. Smaller may be allowed when Seeding (Native) Hydraulic is shown on the plans.

(3) A soluble form that will permit complete suspension of insoluble particles in water, suitable for application by power sprayer.

The application rate of the organic fertilizer shall be either as high or low nitrogen (N) fertilizer as shown on the plans.

High N organic fertilizer chemical analysis shall conform to Table 212-1.

Table 212-1
Chemical Analysis for High N Fertilizer

Ingredient	Range	Test Method
Nitrogen (N) (%)	6 - 10	AOAC Official Method 993.13 Nitrogen (Total) in Fertilizers Combustion Method
Phosphorus (P) (%)	1 - 8	AOAC Official Method 960.03 Phosphorus (Available) in Fertilizers
Potassium (K) (%)	1 - 8	AOAC Official Method 983.02 Potassium in Fertilizers

Low N organic fertilizer chemical analysis shall conform to Table 212-2.

Table 212-2
Chemical Analysis for Low N Fertilizer

Ingredient	Range	Test Method
Nitrogen (N) (%)	2 -5	AOAC Official Method 993.13 Nitrogen (Total) in Fertilizers Combustion Method
Phosphorus (P) (%)	3 - 8	AOAC Official Method 960.03 Phosphorus (Available) in Fertilizers
Potassium (K) (%)	1 - 8	AOAC Official Method 983.02 Potassium in Fertilizers

Organic fertilizers shall conform to Table 212-3.

Table 212-3
Organic Fertilizer Properties

Criteria	Range
Moisture content by weight	< 6%

(c) *Compost (Mechanically Applied).* Compost shall be suitable for use in Erosion Log (Type 2) and permanent seeding applications. Compost shall not contain visible refuse, other physical contaminants, or substances considered harmful to plant growth. Compost shall be used in accordance with all applicable EPA 40 CFR 503 standards for Class A biosolids including the time and temperature standards. Materials that have been treated with chemical preservatives as a compost feedstock will not be permitted.

The Contractor shall provide material that has been aerobically composted in a commercial facility. Compost shall be from a producer that participates in the United States Composting Council's (USCC) Seal of Testing Assurance (STA) program. The Department will only accept STA approved compost that is tested in accordance with the USCC Test Methods for Examining of Composting and Compost (TMECC) manual.

Verification tests may be conducted by CDOT on grab samples of compost delivered to the site to determine the gradation and physical properties. Testing may be done for indication of ingredients which are injurious to plants. Sampling procedures will follow the STA 02.01 Field Sampling of Compost Materials and 02.01-B Selection of Sampling Locations for Windrows and Piles. If a product is found to consistently deviate from the gradation and property analysis, the acceptance of that product will be discontinued. Copies of the failing test reports will be furnished to the USCC.

1. Compost for permanent seeding soil conditioner locations onsite and application rates shall be as shown on the plans.

   Organic matter in compost shall be no more than 2 inches in length.

   Compost (Mechanically Applied) for permanent seeding shall meet the gradation and physical properties as shown in Table 212-4 and Table 212-5. The Contractor shall provide a written explanation for compost tested parameters not within the acceptable requirements for review and consideration.

   The Contractor shall provide documentation from the composting facility confirming that the material has been tested in accordance with USCC TMECC.

Table 212-4
Gradation for Permanent Seeding Compost

Sieve Size	Percent Passing		
	Minimum	Maximum	Test Method
25.0 mm (1")	100		TMECC 02.02-B, "Sample Sieving for Aggregate Size Classification"
19.0 mm (3/4")	90	100	
6.25 mm (1/4")	70	100	

Note: Compost shall be from a producer that participates in the USCC STA program.

Table 212-5
Properties for Permanent Seeding Compost

Compost Parameters	Reported as	Requirements	Test Method
pH	pH units	6.0 - 8.5	TMECC 04.11-A
Soluble Salts (Electrical Conductivity)	dS/m (mmhos/cm)	< 5.0	TMECC 04.10-A
Moisture Content	%, wet weight basis	25% - 50%	TMECC 03.09-A
Organic Matter Content	%, dry weight basis pounds per cubic yard	20% - 50% >240	TMECC 05.07-A
Carbon to Nitrogen Ratio (C:N)		< 15:1	
Man-made Inert Contamination (plastic, concrete, ceramics, metal, etc.)	%, dry weight basis	< 1%	TMECC 03.08-A
Stability (respirometry)	mg CO_2-C per g TS per day mg CO_2-C per g OM per day	8 or below	TMECC 05.08-B
Select Pathogens and weed free	(PASS/FAIL) Limits: Salmonella < 3 MPN/4 grams of TS, or Coliform Bacteria < 1000 MPN/gram	Pass	TMECC 07.01-B Fecal Coliforms, or 07.02 Salmonella
Trace Metals	(PASS/FAIL) Limits (mg $kg^{-1,}$ dw basis): Arsenic (As) 41, Cadmium (Cd) 39, Copper (Cu)1500, Lead (Pb) 300, Mercury (Hg) 17, Nickel (Ni) 420, Selenium (Se) 100, Zinc (Zn) 2800	Pass	TMECC 04.06
Maturity (Bioassay) Percent Emergence Relative Seedling Vigor	 %, (average) %, (average)	 > 80% > 80%	TMECC 05.05-A
Use the STA Lab bulk density lb/cu ft as received, multiplied by organic matter % as received, multiplied by 27 to calculate pounds per cubic yard of organic matter.			

2. Compost for Erosion Log (Type 2) shall meet the gradation and physical properties as shown in Table 212-6 and Table 212-7.

Table 212-6
Gradation for Erosion Log (Type 2) Compost

Sieve Size	Percent Passing		
	Minimum	Maximum	Test Method
75.0 mm (3")	100		TMECC 02.02-B, "Sample Sieving for Aggregate Size Classification"
25.0 mm (1")	90	100	
9.5 mm (3/8")	10	50	

Note: Organic matter for erosion log compost shall be no more than 4 inches in length. Compost shall be from a producer that participates in the USCC STA program.

Table 212-7
Properties for Erosion Log (Type 2) Compost

Compost Parameters	Reported as	Requirements	Test Method
pH	pH units	6.0 - 8.5	TMECC 04.11-A
Soluble Salts (Electrical Conductivity)	dS/m (mmhos/cm)	< 5.0	TMECC 04.10-A
Moisture Content	%, wet weight basis	< 60%	TMECC 03.09-A
Organic Matter Content	%, dry weight basis	25% - 100%	TMECC 05.07-A
Man-made Inert Contamination (plastic, concrete, ceramics, metal, etc.)	%, dry weight basis	< 0.5%	TMECC 03.08-A
Stability (respirometry)	mg CO_2-C per g TS per day mg CO_2-C per g OM per day	N/A	TMECC 05.08-B
Select Pathogens and weed free	(PASS/FAIL) Limits: Salmonella < 3 MPN/4 grams of TS, or Coliform Bacteria < 1000 MPN/gram	Pass	TMECC 07.01-B Fecal Coliforms, or 07.02 Salmonella
Trace Metals	(PASS/FAIL) Limits (mg $kg^{-1,}$ dw basis): Arsenic (As) 41, Cadmium (Cd) 39, Copper (Cu)1500, Lead (Pb) 300, Mercury (Hg) 17, Nickel (Ni) 420, Selenium (Se) 100, Zinc (Zn) 2800	Pass	TMECC 04.06
Maturity (Bioassay) Percent Emergence Relative Seedling Vigor	 %, (average) %, (average)	 N/A N/A	TMECC 05.05-A

(d) *Biotic Soil Amendments (Hydraulically Applied*). Soil amendments shall be a combination of natural fibers, growth stimulants, and other biologically active material designed to improve seed germination and vegetation establishment as shown in Table 212-8. Biotic soil amendments shall be pre-packaged in ultraviolet and weather resistant packaging and labeled from the manufacturer. Bags (containers) which arrive at the project site opened, damaged, or lacking a label will be rejected. Bulk shipments such as tote

bags will be rejected. Biotic soil amendments shall be stored in locations not exceeding 80 °F. Acceptance of material shall be subject to the requirements of the Department's Approved Product List (APL).

The application rate of the biotic soil amendments shall be in accordance with the rates shown on the plans. Use of mulch tackifier (Plantago Insularis or pre-gelatinized corn starch polymer) shall be in accordance with Section 213. It shall be used as a wetting agent at a rate of 30 pounds per acre. Biotic soil amendments shall provide a continuous and uniform cover and shall consist of one of the components in Table 212-8 and all of the performance and physical properties in Table 212-9.

Table 212-8
Required Percentage Ranges of Biotic Soil Amendments

Components	Units	Requirement
Professional grade sphagnum peat moss, professional grade reed sedge peat moss or compost that meets the Seal of Testing Assurance Program of the US Composting Council	%, dry weight basis	> 41%
Mechanically processed straw consisting of weed free agricultural straw, flexible flax fiber or rice hulls	%, dry weight basis	< 57%

Table 212-9
Performance and Physical Requirements of Biotic Soil Amendments

Parameters	Reported as	Requirement	Test Method
pH	pH units	5.0 – 7.5	ASTM D1293
Moisture content	%, wet weight basis	10% - 50%	ASTM D 2974
Organic matter content	%, dry weight basis	> 85%	ASTM D586
Carbon Nitrogen Ratio	Ratio C:N	< 38:1	ASTM E1508
Man-made inert contamination	%, dry weight basis	< 1.0%	
Acute Toxicity	(Pass/Fail)	Pass (non-toxic)	ASTM E729-96(2014) or EPA Method 2021.0 or EPA Method 2002.0
Vegetative Minimum		> 400%	ASTM 7322
The Contractor shall provide a CTR with independent laboratory analysis for the required parameters in accordance with subsection 106.13.			

(e) *Humate*. The Contractor shall provide a screened dry granular form of organic humic and fulvic acid substance. Humate shall be pre-packaged and labeled from the manufacturer. Bags (containers) which arrive at the project site opened, damaged, or lacking label will be rejected. The Contractor shall only use bulk shipments such as tote bags or super sacks that have a manufacture's original label and sealed at the manufacturing facility. Humate shall be stored in locations not exceeding 80 °F. Humate shall be provided in accordance with the rates shown on the plans. Product shall conform to the parameters in Table 212-10 and Table 212-11.

Table 212-10
Screened Size Requirements for Humate

Seeding Method	Reported as	Requirement
Seeding (Native) Drill, Hydraulic and Broadcast	inches	< 1/4

Table 212-11
Performance and Physical Requirements of Humate

Parameters	Reported as	Requirement	Test Method
Organic Matter	%, dry weight basis	>70%	
Fines (material that is finer than the No. 200 (75-µm) sieve)	%, dry weight basis	<2%	ASTM D7928
pH	pH units	3.0 - 4.5	ASTM D1293
Acute Toxicity	Pass / Fail	Non Toxic	ASTM 7101 or EPA Method 2021 or 2002
Humic and Fulvic Acids	%, dry weight basis	> 70%	A & L Western method; total alkali extractable
Carbon Content	%, dry weight basis	40% - 50%	
Moisture Content	%, dry weight basis	< 20%	
Heavy Metal / Ash Content	%, dry weight basis	< 15%	
The Contractor shall provide a CTR with independent laboratory analysis for the required parameters in accordance with subsection 106.13.			

(f) *Mycorrhizae*. Mycorrhizae shall arrive onsite in original and undamaged packaging. Handling of this material shall follow manufacturer's safety recommendations. Mycorrhizae shall be stored onsite in such a way as to avoid exposure to direct sunlight for more than four hours and to prevent package temperatures to rise above 85 °F. The endo mycorrhizal inoculum shall provide at least 60,000 propagules per pound and shall contain all of the following species and conform to the parameters in Table 212-12:

(1) Glomus intraradices (a.k.a. Rhizophagus intraradices)

(2) Glomus mosseae (a.k.a. Funneliformis mosseae)

(3) Glomus aggregatum (a.k.a. rhizophagus aggregatus)

(4) Glomus etunicatum (a.k.a. Claroideoglomus etunicatum)

Table 212-12
Physical Requirements of Endo Mycorrhizae

Parameters	Reported as	Requirement	Test Method
Acute Toxicity	Pass or Fail	Non Toxic	ASTM 7101 or EPA Method 2021 or 2002
The Contractor shall provide a CTR with independent laboratory analysis has been done on the product for the required parameters in accordance with subsection 106.13.			

The following rates shall be used for Seeding Methods:

(1) For Seeding (Native) Drill, the mycorrhizae product shall be provided as a dry free-flowing granular material, suitable for application by agricultural drill seeder. Application rate shall be 8 pounds per acre.

(2) For Seeding (Native) Hydraulic, the mycorrhizae product shall be provided as a fine granular (< 2 mm) or powdered form (particle size less than 300 microns) that will permit complete suspension and used with hydro-seeder equipment. Application rate shall be 20 pounds per acre.

(3) For Seeding (Native) Broadcast, the mycorrhizae product shall be provided as a dry free-flowing granular material, suitable for application by fertilizer spreader. Application rate shall be 20 pounds per acre.

(g) *Elemental Sulfur.* The Contractor shall provide a free-flowing granular material consistent in size suitable for application by agricultural spreader and conform to the parameters in Table 212-13. Elemental sulfur shall arrive onsite in original and undamaged packaging.

Table 212-13
Physical Requirements of Elemental Sulfur

Parameters	Reported as	Requirement
Guaranteed Analysis of Elemental Sulfur (S)	%	> 90
Bulk Density	Lbs per cu. ft.	> 75

(h) *Sod.* Sod shall be nursery grown and 99 percent weed free. Species shall be as shown on the plans. The 1 percent allowable weeds shall not include undesirable perennial or annual grasses or plants defined as noxious by current State statute or county noxious weed list. Soil thickness of sod cuts shall not be less than ¾ inch or more than 1 inch. Sod shall be cut in uniform strips with minimum dimensions of 18 inches in width and 48 inches in length. The Contractor shall submit a sample of the sod proposed for use, which shall serve as a standard if approved. Sod furnished, whether in place or not, that is not up to the standard of the sample will be rejected. CDOT will reject all sod that was cut more than 72 hours prior to installation.

Each load of sod shall be accompanied by a certificate from the grower stating the type of sod and the date and time of cutting. The Contractor shall submit the certificate to the Engineer prior to application of the sod. Only sod that is accompanied by the certificate from the grower will be accepted and paid for.

CONSTRUCTION REQUIREMENTS

212.03 Submittals. The Contractor shall provide the name and contact information of the seeding contractor 30 days prior to start of seeding work. The Contractor shall provide two copies of items (1) - (14) listed below to the Pre-vegetation Conference in accordance with Section 207. When the Contractor provides resubmittals to meet Contract requirements, the Region or Headquarters Landscape Architect shall be copied on all correspondence.

(1) Written confirmation from the registered seed supplier, on the Contractor's letterhead, that the Contract specified seed has been secured. No substitutions of the contract specified seed will be permitted unless evidence is submitted, from one of the registered seed suppliers that the Contract specified seed is not available and will not become available during the anticipated construction period.

(2) Seed vendor's "seed dealer" endorsement.

(3) A copy of each seed species germination report of analysis that verifies the lot has been tested by a recognized laboratory for seed testing within 13 months prior to the date of seeding.

(4) A copy of each seed species purity laboratory report of analysis that verifies that the lot has been tested by a recognized laboratory for seed testing. The report shall list all identified species, seed count, and date of test.

(5) Manufacturer's documentation stating that the fertilizer meets the Contract requirements.

(6) Organic fertilizer documentation showing manufacturer and chemical analysis.

(7) Permit issued from CDPHE confirming that the vendor can produce or sell compost in accordance with House Bill (HB) 1181.

(8) Documentation from the compost manufacturer that it is a participating member of in the U.S. Composting Council's Seal of Testing Assurance Program (STA).

(9) Results of compost testing on an STA Compost Technical Data Sheet confirming all required test methods are met using the STA Program.

(10) Sample of physical compost (at least one cubic foot of material).

(11) Manufacturer's documentation confirming that biotic soil amendment meets the required physical and performance criteria based on independent testing by the manufacturer.

(12) Manufacturer's documentation confirming that humate meets the required physical and performance criteria based on independent testing by the manufacture.

(13) Manufacturer's documentation confirming that mycorrhizae meets the physical criteria based on independent testing and that the minimum required species is provided.

(14) Pictures and descriptions of seeding equipment proposed to be used on the project. Based on the seeding methods required at a minimum this should include the drill seeder, hydraulic seeder, cultipacker or seed bed roller implements.

(15) Instructions and documentation on how seeders will be calibrated onsite, in accordance with subsection 212.05(a).

10
REVISION OF SECTION 212
SOIL AMENDMENTS, SEEDING, AND SODDING

212.04 Seeding Seasons. Seeding in areas that are unirrigated shall be restricted according to the parameters in Table 212-14.

Table 212-14
Seeding Seasons

Zone	Spring Seeding	Fall Seeding
Areas other than the Western Slope		
Below 6000’	Spring thaw to June 1	September 15 until consistent ground freeze
6000’ - 7000’	Spring thaw to June 1	September 1 until consistent ground freeze
7000’ - 8000’	Spring thaw to July 15	August 1 until consistent ground freeze
Above 8000’	Spring thaw to consistent ground freeze	
Western Slope		
Below 6000’	Spring thaw to May 1	August 1 until consistent ground freeze
6000’ - 7000’	Spring thaw to June 15	September 1 until consistent ground freeze
Above 7000’	Spring thaw to consistent ground freeze	

(1) "Spring thaw" is the earliest date in a new calendar year in which seed can be buried ½ inch into the surface soil (topsoil) through normal drill seeding methods.

(2) "Consistent ground freeze" is the time during the fall months in which the surface soil (topsoil), due to freeze conditions, prevents burying the seed ½ inch through normal drill seeding operations. Seed shall not be sown, drilled, or planted when the surface soil or topsoil is in a frozen or crusted state.

Seeding accomplished outside the time periods listed above will be allowed only when the Contractor's request is approved by the Engineer in writing, with coordination from the Region Landscape Architect. If requested by the Contractor, the Contractor must agree to perform the following work at no cost to the Department: reseed, remulch, and repair areas which fail to produce species indicated in the Contract.

If seeding is ordered by the Engineer outside the time periods listed above, the cost to repair areas that fail to produce species will be paid for by the Department.

212.05 Native Seeding Methods. Areas to be seeded shall be installed in accordance with SWMP Permanent Stabilization Plan.

All amendments and seeding shall be applied based on the seeding method and rates specified on the plans.

The Contractor shall complete the Amendments Verification Prerequisite for each of the seeding methods described herein. This shall be done by completing a Seed and Amendment Quantities Worksheet for each work area. This worksheet shall have a list of all amendments and the seed labels for each of the areas to be worked on. The State required legal tags shall remain on the bag until opened and the seed placed in either the drill or hydraulic seeders in the presence of the Engineer. Seeding work shall not begin until written approval of the worksheet has been received from the Engineer.

In determining the weight of seed required for each work area, the Contractor shall use the Pure Live Seed (PLS) weight shown on each bag of seed. Calculations based on net weight will not be accepted.

The Contractor shall submit a proposed Permanent Stabilization Phasing Plan to the Engineer prior to the Pre-revegetation Conference for approval showing how the SWMP Permanent Stabilization Plans will be implemented to minimize traffic loading damage to subgrade soil prepared and seeded areas. The proposed

sequencing shall consider and identify strategies and site management control measures to protect seeded areas from foot, vehicle, and other disturbances. The strategic planning of the permanent seeding and mulch shall consider all other phasing of construction activities including traffic management and utility work. Areas damaged due to the Contractor's failing to protect the seeded areas shall be repaired at no cost to the Department. Seeded areas damaged due to circumstances beyond the Contractor's control shall be repaired and reseeded as ordered. Payment for corrective work, when ordered, shall be at the Contract prices shown and in accordance with subsection 109.04.

The following seeding application methods shall not be implemented during winds which are consistently higher than 20 MPH, or when the ground is frozen, excessively wet, or otherwise untillable. The Engineer may test to see if the moisture level in the soil is acceptable to work the soil by performing a Soil Plasticity Test as described in the Construction Manual. Multiple seeding operations shall be anticipated, based on acceptable seeding conditions. The seeding methods to be implemented shall be one or more of the following, as shown on the plans:

(a) *Seeding (Native) Drill.*

(i) *Fertilizer, Compost, Humates and Elemental Sulfur.* The Contractor shall uniformly apply compost and elemental sulfur on the surface of the topsoil using an agricultural spreader at the rate of application specified on the plans. All competitive, non-native vegetation shall be uprooted and hauled offsite prior to spreading amendments. Prior to starting incorporation of compost and elemental sulfur, the Contractor shall receive written acceptance from the Engineer on the Seed and Amendment Quantities Worksheet. Verification Prerequisite for this method also requires documentation on the Permanent Stabilization SWMP Site Maps with the approved areas outlined, signed, and dated by the Engineer to track progress. If SWMP Site Maps are not included in the Contract, the Contractor shall use the Contract grading or roadway plan sheets.

Once the Quantities Verification Prerequisite is completed for an area, the Contractor shall homogenously incorporate the compost and elemental sulfur into the top 6 inches of topsoil. Tillage of the amendments shall be completed using a disc and harrow, field cultivator, vibra-shank, or other method suitable to site conditions. For small areas tillage shall be completed using rotary tillers. No measurable depth of organic amendment shall be present on the surface.

The shanks on the back of a grader or dozer shall not be used for tillage. Tillage may take multiple passes to achieve the desired harmonious incorporation. If multiple passes are required, the Contractor shall cross till the soil with the second pass occurring at a 30-degree angle to the first pass. On slope areas, all tillage shall be parallel to the contour. For project that will utilize aggregate or recycled asphalt shouldering material amendments, tillage is not required under shouldering material. Projects seeding up to the edge of pavement, tillage is not required for first 12" from the edge of pavement.

Once incorporation of compost and elemental sulfur is approved, the Contractor shall uniformly apply fertilizer and humates on the surface of the topsoil using an agricultural spreader, as shown in the Contract documents.

(ii) *Seedbed Preparation.* Amended topsoil shall be cultivated to a firm but friable seedbed using cultipacker or seed bed roller implements. Crusted hard soils shall be broken up and all areas shall be free of clods, sticks, stones, debris, concrete, and asphalt in excess of 4 inches in any dimension in accordance with Section 207. Areas shall be left in a rough and uncompacted condition with a surface variance of 2 to 4 inches.

(iii) *Seed and Mycorrhizae.* Prior to seeding, the finished grade of the soil shall be 1 inch below the top of all curbs, junction and valve boxes, walks, drives and other structures. Seeding shall be done within two

days of seedbed preparation efforts (tilling or scarifying). If a rain event occurs that compacts or erodes the seedbed prior to performing seeding, the seedbed shall be re-prepared as directed by the Engineer.

Areas shall be seeded by mechanical power drawn drills suitable for area soils, topography, and size followed by packer wheels. Mechanical power drawn drills shall have furrow openers and depth bands set to maintain a planting depth of at least ¼ inch and not more than ½ inch and shall be set to space the rows not more than 8 inches apart. Seeding equipment shall have a double disk opener, seed box agitator, and seed metering device.

The seeder shall be calibrated by collecting seed from a single drop tube in the presence of the Engineer based on the following procedure. The Contractor shall provide the tape measure, scale, collection cup, and seed bag with complete label from the supplier. The Contractor may submit an alternative method for approval at the site Pre-vegetation Conference.

(1) Measure the total width (W) of the drill seeder in feet.

(2) Count the number of drill rows (N) on the seeder.

(3) On drill seeders that the tire drives the seeding mechanism, measure the tire circumference (C) in feet.

(4) Calculate the number of rotations the tire will complete per acre using the following equation:

A = one acre or 43,560 square feet (SF)

A /W = feet (F) the drill seeder needs to travel for each acre

F/C = number of rotations (R) of the tire per acre

(5) Reduce the amount of tire rotations by one tenth.

.90R = # Tire rotations to calibrate seeder (RCS)

(6) Find the seeding rate (LBS PLS / Acre) on the Stormwater Management Plan.

(7) Using the information from the seed tag, convert the PLS seed rate to a bulk seeding rate using the following equations:

% PLS = (% purity (in decimal form) from seed label) x (% germination (in decimal form) from seed label)

(LBS PLS / Acre) from the SWMP / % PLS = Required bulk seed per acre in LBS

(8) Reduce the required bulk seed per acre based on the number of seeder tubes.

Required bulk seed per acre / N = Weight in LBS of bulk seed from one tube

(9) Reduce the required bulk seed rate from the tube by one tenth.

0.90 x Weight of bulk seed from one tube = Collected bulk seed weight (CBS) in LBS

(10) Set the drill seeder to the correct seeding rate using the manufacturer’s recommendation.

(11) With the collection cup under one tube and the driving wheel jacked up, rotate the tire the RCS amount of times. Use the value stem to count the rotations.

(12) Using the scale, weigh the seed in the collection cup.

(13) Adjust the drill calibration until the weight of bulk seed in the collection cup equals the CBS in LBS.

Drill seeders shall be recalibrated every time the drill is mobilized onsite. The Contractor shall submit a written statement that the equipment is calibrated, and shall provide the correct depth based on conditions before seeding actions are initiated. The Contractor shall continuously monitor equipment to ensure that it is providing a uniform seed application.

If mycorrhizae is called for on the plans, the granules shall be included with the seed in the drill seeder such that the mycorrhizae is placed at or below the seed.

The distance between furrows produced using the drill shall not be more than 8 inches. If rows on the drill exceed 8 inches, the Contractor shall drill the areas twice (if achievable at 30-degree angles to each other) at no additional cost to the Department.

After seeding, the furrows that were created by the drill shall be maintained in place. Construction traffic, other than what is needed to mulch the areas, shall not be permitted on the areas completed.

Permanent stabilization mulching shall be accomplished within 24 hours of drill seeding.

(b) *Seeding (Native) Hydraulic.*

This method utilizes water as the carrying agent and mixes biotic soil amendments, seed, organic fertilizer, humates, mycorrhizae and elemental sulfur into a single slurry for hydraulic application. The Contractor shall furnish and place combined slurry with a hydro-seeder that will maintain a continuous agitation and apply homogenous mixture through a spray nozzle. The pump shall produce enough pressure to maintain a continuous, non-fluctuating spray that will reach the extremities of the seeding area. Water tanks shall have a means of measuring volume in the tank. Seed shall be added to the slurry onsite, no more than 60 minutes before starting application. Slurry shall be applied from a minimum of two opposing directions to achieve complete soil coverage.

The application of the single slurry shall be applied within four hours of adding Mycorrhizae.

The Contractor shall prevent seed, fertilizer, and mulch from falling or drifting onto areas occupied by rock base, rock shoulders, plant beds, or other areas where grass is detrimental. The Contractor shall remove material that falls on plants, roadways, gravel shoulders, structures, and other surfaces where material is not specified.

(i) *Seedbed Preparation*. All areas shall be loosened to at least 6 inches, leaving the surface in rough condition with a surface variance of 6 to 8 inches. On steep slopes, tillage shall be accomplished with appropriate equipment as the slope is constructed. Soil areas shall be tilled to produce loose and friable surfaces with crusted hard soils broken up. All slopes shall be free of clods, sticks, stones, debris, concrete, asphalt and all other materials in excess of 4 inches in any dimension. All competitive, non-native vegetation shall be uprooted and hauled offsite prior to spreading amendments. Under no circumstances shall the ground surface be smooth and compacted.

(ii) *Biotic Soil Amendment, Fertilizer, Humate, Mycorrhizae and Seed*. The Contractor shall assemble all materials for proposed areas to hydro-seed and review quantities with area of coverage with the Engineer as the Quantities Verification Prerequisite for this method. Prior to mixing in the tank, the Contractor shall receive written acceptance from the Engineer on the Seed and Amendment Quantities Worksheet that the correct quantities are onsite. This quantities verification prerequisite also requires documentation on the Permanent Stabilization SWMP Site Maps with the approved areas outlined, signed, and dated by the Engineer to track progress. If SWMP Site Maps were not included in the Contract, grading or roadway plan sheets shall be used. For the verification process, the Contractor shall provide the Engineer

with all documentation for materials in unopened packaging.

After the Quantities Verification Prerequisite has been approved, the hydro-seeder shall be filled with water to 1/3 of its required volume. Following this, water and biotic soil amendments shall be added to the hydro-seeder at a consistent rate. The ratio of water to Biotic Soil Amendments shall be in accordance with manufacturer's recommendations. Fertilizer, humates and mycorrhizae shall then be added until the tank has reached 3/4 of its required volume. The tank shall then be filled with water to the required volume. Uniform slurries shall be agitated or mixed for a minimum of ten minutes after all water and materials are in the tank.

Hydraulic seeding equipment shall include a pump capable of being operated at 100 gallons per minute and at 100 pounds per square inch pressure. The equipment shall have a nozzle adaptable to hydraulic seeding requirements. Storage tanks shall have a means of estimating the volume used or remaining in the tank.

Seed shall be added to the slurry onsite no more than 60 minutes before starting application. The Contractor shall increase the Seed Plan rates (LBS PLS / Acre) as shown on the plans by 1.5 times at no additional cost to the Department. The Contractor may be required to apply slurry using multiple hoses to ensure uniform application to all areas of the site. Coverage rates shall be based on the volume of material in the tank, as verified by the Engineer. Areas of lighter applications (covering more area than what is calculated) will require additional application, as directed.

An appropriate curing period shall be in accordance with manufacturer's recommendations, and shall consider forecasted weather conditions.

Permanent stabilization mulching shall be accomplished within 24 hours of hydraulic application of native seed.

(c) *Seeding (Native) Broadcast.*

This method utilizes hand equipment to broadcast spread amendments and seed over prepared seedbeds.

(i) *Fertilizing, Compost, Humate and Elemental Sulfur*. The Contractor shall uniformly apply compost and elemental sulfur on the surface of the placed topsoil using an agricultural spreader at the rate of application specified on the plans. All competitive non-native vegetation shall be uprooted and hauled offsite prior to spreading amendments. Prior to starting incorporation, the Contractor shall receive written acceptance from the Engineer on the Seed and Amendment Quantities Worksheet that the correct quantities will be applied. The Quantities Verification Prerequisite for this method also requires documentation on the Permanent Stabilization SWMP Site Maps with the approved areas outlined, signed, and dated by the Engineer to track progress. If SWMP Site Maps are not included in the Contract, the grading or roadway plan sheets shall be used.

Once the Quantities Verification Prerequisite is completed for an area, the Contractor shall homogenously incorporate the Compost into the top 6 inches of soil. Tillage of the amendments shall be completed using appropriate tools depending on the size of the area to be worked. Contractor shall use hand tillers or approved small space implements.

Once incorporation of compost and elemental sulfur is approved, the Contractor shall uniformly apply organic fertilizer and humates on the surface of the topsoil using an agricultural spreader.

(ii) *Seedbed Preparation.* Amended topsoil shall be cultivated to a firm but friable seedbed using tractor implements. Crusted hard soils shall be broken up and all areas shall be free of clods, sticks, stones, debris, concrete, and asphalt in excess of 4 inches in any dimension in accordance with Section 207. Areas shall be left in a rough condition with a surface variance of 2 to 4 inches. Under no circumstances shall the ground surface be smooth and compacted.

(iii) *Seed and Mycorrhizae.* Prior to seeding, the finished grade of the soil shall be 1 inch below the top of all curbs, junction and valve boxes, walks, drives and other structures. Seeding shall be accomplished within two days of seedbed preparation efforts (tilling or scarifying) to make additional seedbed preparation unnecessary. If a rain event occurs that compacts or erodes the seedbed prior to performing seeding, the seedbed shall be re-prepared as directed.

Areas shall be seeded by broadcast-type seeders (cyclone or approved mechanical seeders). The Contractor shall increase the Seed Plan rates (LBS PLS / Acre) as shown on the plans by 1.5 times at no additional cost to the Department.

After seeding, mycorrhizae shall be evenly hand-distributed across the area. Seed and mycorrhizae shall be covered by hand raking and covering with ¼ to ½ inch of topsoil. To ensure seeds have a firm contact with the soil the Contractor shall use a heavy roller as approved in the Site Pre-vegetation Conference. Mycorrhizae shall not be exposed to sunlight for more than four hours. Using equipment with continuous cleat tracks (cat-tracking) to cover seed is not permitted.

Permanent stabilization mulching shall be accomplished within 24 hours of broadcast seed application of native seed.

212.06 Seeding (Temporary). Areas of topsoil shall be seeded with annual grasses in accordance with SWMP Interim Site Maps or as directed by the Engineer.

Seeding may take place at any time during the year as long as the ground is not covered in snow and topsoil is not frozen. Topsoil may be placed in a stockpile or distributed on-grade after receiving subgrade soil preparation.

Interim stabilization for areas that receive temporary seeding shall be in accordance with subsection 208.04(e)2. Seed shall not be included with interim hydraulic mulch applications.

The Contractor shall wait to amend topsoil until the area is ready for permanent seeding with native seed mix shown on the SWMP. The Contractor shall use either the drill, hydraulic, or broadcast method of seeding. Seeding rates (LBS PLS / Acre) shall be increased by 1.5 times for hydraulic and broadcast methods at no additional cost to the Department.

Seed shall meet the requirements of 212.02(a) and shall be selected from Table 212-1 based on the application time.

Table 212-1
Temporary Seed Mixes

Common Name	Botanical Name	Application Time	Seeding Rates (LBS PLS / Acre)	Planting Depth (inches)
Oats	Avena sativa	October 1 - May 1	35	1 - 2
Foxtail Millet	Setaria italica	May 2 - September 30	30	1/2 - 3/4

The Contractor shall restrict motorized vehicle and foot traffic from areas that have received temporary seeding.

212.07 Seeding (Lawn). Lawn grass seeding shall be accomplished in the seeding seasons in accordance with subsection 212.03.

(a) *Fertilizing and Soil Conditioning.* The first application of fertilizer, soil conditioner, or both shall be incorporated into the soil immediately prior to seeding, and shall consist of a soil conditioner, commercial fertilizer, or both as designated in the Contract. Fertilizer called for on the plans shall be worked into the top 4 inches of soil at the rate specified in the Contract. Biological nutrient, culture, or humate based material called for on the plans shall be applied in a uniform application onto the soil service. Organic amendments shall be applied uniformly over the soil surface and incorporated into the top 6 inches of soil.

The second application of fertilizer shall consist of a fertilizer having an available nutrient analysis of 20-10-5 applied at the rate of 100 pounds per acre. It shall be uniformly broadcast over the seeded area three weeks after germination or emergence. The area shall then be thoroughly soaked with water to a depth of 1 inch.

Fertilizer shall not be applied when the application will damage the new lawn.

(b) *Seedbed Preparation.* In preparation of seeding lawn grass, irregularities in the ground surface, except the saucers for trees and shrubs, shall be removed. Measures shall be taken to prevent the formation of low places and pockets where water will stand.

Immediately prior to seeding, the ground surface shall be tilled or hand worked into an even and loose seedbed to a depth of 6 inches, free of clods, sticks, stones, debris, concrete, and asphalt in excess of 2 inches in any dimension, and brought to the desired line and grade.

(c) *Seeding.* Seed shall be drilled with mechanical landscape type drills. Broadcast type seeders or hydraulic seeding will be permitted only on small areas not accessible to drills. Seed shall not be drilled or broadcast during windy weather or when the ground is frozen or untillable.

212.08 Sodding.

(a) *Fertilizing and Soil Conditioning.* Prior to laying sod, the 4 inches of subsoil underlying the sod shall be treated by tilling in fertilizer, compost, or humates as specified on the plans. Amendments shall be applied uniformly over the soil surface and incorporated into the top 6 inches of soil.

After laying the sod, it shall be fertilized with a fertilizer having a nutrient analysis of 20-10-5 at the rate of 200 pounds per acre. Fertilizer shall not be applied when the application will damage the sod.

(b) *Soil Preparation.* Prior to sodding, the ground shall be tilled or hand worked into an even and loose sod bed to a depth of 6 inches, and irregularities in the ground surface shall be removed. Sticks, stones, debris, clods, asphalt, concrete, and other material more than 2 inches in any dimension shall be removed. Depressions or variances from a smooth grade shall be corrected. Areas to be sodded shall be smooth before sodding occurs.

(c) *Sodding.* Sod shall be placed by staggering joints with all edges touching. On slopes, the sod shall run approximately parallel to the slope contours. Where the sod abuts a drop inlet, the subgrade shall be adjusted so that the sod shall be 1-½ inches below the top of the inlet.

Within one hour after the sod is placed and fertilized it shall be watered. After watering, the sod shall be permitted to dry to the point where it is still wet enough for effective rolling. The Contractor shall roll the sod in two directions with a lawn roller capable of applying between 50 - 80 pounds per square inch of surface pressure to eliminate air pockets.

17
REVISION OF SECTION 212
SOIL AMENDMENTS, SEEDING, AND SODDING

METHOD OF MEASUREMENT

212.09 The quantities of lawn seeding and the three native seeding types will not be measured but shall be the quantities designated in the Contract, except that measurements will be made for revisions requested by the Engineer, or for discrepancies of plus or minus five percent of the total quantity designated in the Contract.

The quantity of sod will be by the actual number of square feet, including soil preparation, water, fertilizer, and sod, completed and accepted.

Organic Fertilizer, Compost (Mechanically Applied), Humates, Mycorrhizae soil amendments for Seeding (Native) methods drill, hydraulic, and broadcast will be measured by the actual quantity of material applied and accepted.

Measurement for acres will be by slope distances.

BASIS OF PAYMENT

212.10 The accepted quantities of lawn seeding, native seeding, soil conditioning, and sod will be paid for at the contract unit price for each of the pay items listed below that appear in the bid schedule. Rejected seed that has been stored longer than 30 days shall be re-ordered at the expense of the Contractor.

Payment will be made under:

Pay Item	Pay Unit
Organic Fertilizer	Pound
Compost (Mechanically Applied)	Cubic Yard
Biotic Soil Amendments (Hydraulic Applied)	Pound
Humate	Pound
Mycorrhizae	Pound
Elemental Sulfur	Pound
Seeding (Native) Drill	Acre
Seeding (Native) Hydraulic	Acre
Seeding (Native) Broadcast	Acre
Seeding (Wetland) Drill	Acre
Seeding (Wetland) Hydraulic	Acre
Seeding (Wetland) Broadcast	Acre
Seeding (Temporary)	Acre
Seeding (Lawn)	Acre
Sod	Square Foot

Topsoil preparation including incorporating and applying amendments, seedbed preparation, water, and seed mix (LBS PLS / Acre) will not be measured and paid for separately but shall be included in the work.

Calibrating, adjusting, or readjusting seeding or fertilizing equipment will not be measured and paid for separately but shall be included in the work.

No additional cost will be accepted for approved substitution of specified seed mix.

No payment will be made for areas seeded using one of the seeding methods without receiving signed Seed and Amendment Quantities Worksheet from the Engineer.

18
REVISION OF SECTION 212
SOIL AMENDMENTS, SEEDING, AND SODDING

Additional seedbed preparation prior to seeding to correct compaction or erosion from storm events will not be measured and paid for separately but shall be included in the work.

Additional mobilizations as needed to complete seeding within allowed seeding seasons will not be measured and paid for separately but shall be included in the work.

Removal of all competitive, non-native vegetation prior to spreading amendments will not be measured and paid for separately but shall be included in the work.

REVISION OF SECTION 401
RECLAIMED ASPHALT PAVEMENT

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

Subsection 401.02(b) shall include the following:

Reclaimed Asphalt Pavement (RAP) is allowed in hot mix asphalt (HMA) up to a maximum binder replacement of 23 percent for all lifts, provided all specifications for HMA are met. Fine Aggregate Angularity requirements shall apply only to the virgin fraction of the fine aggregate. The RAP shall not contain clay balls, vegetable matter, or other deleterious substances, and must meet the uniformity requirements as outlined below.

HMA Project Verification Testing for asphalt content and gradation will be performed at the frequencies listed in the Field Materials Manual in accordance with CP-L 5120.

The Contractor shall have an approved mix design for the amount of RAP to be used. The AC content of the RAP utilized in the Contractor RAP mix design shall be the average AC content determined in accordance with 1B or 1C, below, or alternatively, a minimum of five samples of the Contractors RAP stockpile may be sampled and the average AC content of the RAP be determined using AASHTO T-164, Method A or B, or in accordance with 1C below. The Contractor shall determine the total binder replaced by the binder in the RAP pursuant to the following equation:

Total Binder Replaced = (A x B) x 100/E

Where:

A = RAP % Binder Content *

B = RAP % in Mix *

E = Total Effective Binder Content *

* in decimal format (i.e. 2% is 0.02)

The Total Binder Replaced by the binder in the RAP shall not exceed 23 percent of the effective binder content of either the mix design or the produced mix.

The use of RAP shall be controlled in accordance with subsections 105.05 and 106.05. If the Contractor elects to use RAP, the following additional conditions shall apply:

1. The Contractor shall have an approved Process Control (PC) Plan that details how the RAP will be processed and controlled. The PC plan shall address the following:

   A. RAP Processing Techniques. This requires a schematic diagram and narrative that explains the processing (crushing, screening, and rejecting) and stockpile operation for this specific project.

   B. Control of RAP Asphalt Binder Content (AASHTO T-164, Method A or B). RAP Asphalt Binder Content may also be determined in accordance with CP-L 5120, provided a RAP AC content correction factor is determined through correlation testing with AASHTO T-164, Method A or B. The correction factor shall be determined by performing correlation testing on the first five samples of the RAP AC content, then at a frequency of one for every five AC content tests thereafter. The correction factor shall be determined by calculating the average difference in AC content between CP-L 5120 and AASHTO T-164, Method A or B, and applying the correction to the AC content determined in accordance with CP-L 5120 :

      Frequency: 1/1000 tons of processed RAP material (minimum five tests)

   C. Alternative Control of RAP Binder Content. The Contractor may propose a RAP asphalt content correction factor to be used in conjunction with CP-L 5120. The proposed CP-L 5120 RAP asphalt content correction factor shall be used with all RAP asphalt contents tested for the mixture design and quality control sampling and testing. The methodology of the proposed CP-L 5120 RAP asphalt content correction factor shall be outlined in detail in the approved RAP PC Plan. At a minimum, the proposed CP-L 5120 correction factor shall identify the principal source locations of the RAP aggregate, gradation of the material tested, and specific ignition oven serial number used in all the RAP asphalt content

testing. The RAP source locations, material gradation, and specific equipment used shall substantiate the CP-L 5120 asphalt content correction factor used for the testing. The substantiation must be from data gathered from historical information or specific asphalt content correction data obtained from tests performed on similar virgin aggregate sources, virgin material gradations, and the specific equipment used.

D. Control of RAP Gradation (CP31 or AASHTO T-30):

Frequency: 1/1000 tons of processed RAP material (minimum three tests)

E. Process Control Charts shall be maintained for binder content and each screen listed in subsection 401.02(b), during addition of any RAP material to the stockpile. The Contractor shall maintain separate control charts for each RAP stockpile. The control charts shall be displayed and shall be made available, along with RAP AC extraction testing laboratory reports, to the Engineer upon request.

2. The processed RAP must be 100 percent passing the 31.5 mm (1¼ inch) sieve. The aggregate obtained from the processed RAP shall be 100 percent passing the 25.0 mm (1 inch) sieve. The aggregate and binder obtained from the processed RAP shall be uniform in all the measured parameters in accordance with the following:

UNIFORMITY*

Parameter	Standard Deviation
Binder Content	0.5
Percent Passing 19 mm (¾")	4.0
Percent Passing 12.5 mm (½")	4.0
Percent Passing 9.5 mm (⅜")	4.0
Percent Passing 4.75 mm (#4)	4.0
Percent Passing 2.36 mm (#8)	4.0
Percent Passing 600 ㎜ (#30)	3.0
Percent Passing 75 ㎜ (#200)	1.5
***Uniformity is the Maximum allowable Standard Deviation of test results of processed RAP.	

3. If RAP millings generated are incorporated in the same project, in accordance with CPL 5145 the Contractor shall pave with a virgin mix design until sufficient amount of processed RAP has been stockpiled and tested to allow full production of a RAP HMA mix.

October 1, 2022

1
REVISION OF SECTION 601
CONCRETE MIX DESIGNS

Revise Section 601 of the Standard Specifications for this project as follows:

Revise Subsection 601.05, second paragraph as follows:

(11) For air entrained concrete, report the SAM number according to AASHTO TP118 Characterization of the Air-Void System of Freshly Mixed Concrete by the Sequential Pressure Method (Super Air Meter). The SAM meter readings for each step shall be included. Perform a SAM leak test prior to the SAM testing. Results of the leak test shall be included in the SAM data.

REVISION OF SECTION 630
TRAFFIC CONTROL MANAGEMENT

Revise Section 630 of the Standard Specifications as follows:

Add the following to Subsection 630.11:

The traffic control diary requires a signature of the Traffic Control Supervisor.

Traffic Control Supervisors are required to always have in-use Methods of Handling Traffic available on a project.
630.11 (5, iv)

630.11 (5, iv)

Traffic Control Supervisor's name

630.11 (8)
Overseeing all requirements covered by the Contract that contribute to the convenience, safety and orderly movement of traffic. Have an up-to-date copy of the MUTCD and applicable standards and specifications available at all times on the project.

Traffic Control Supervisor's name and signature

630.11 (8)

Overseeing all requirements covered by the Contract that contribute to the convenience, safety and orderly movement of traffic. Have an up-to-date copy of the MUTCD, in-use MHTs, and applicable standards and specifications available at all times on the project.

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			

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 form 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.

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.

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 he 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.

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.

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 thought 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).

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.

(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.

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 Contract 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 thorough 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.

d. In the event the union is unable to provide the Contractor with a reasonable flow of minority and women referrals within he 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.

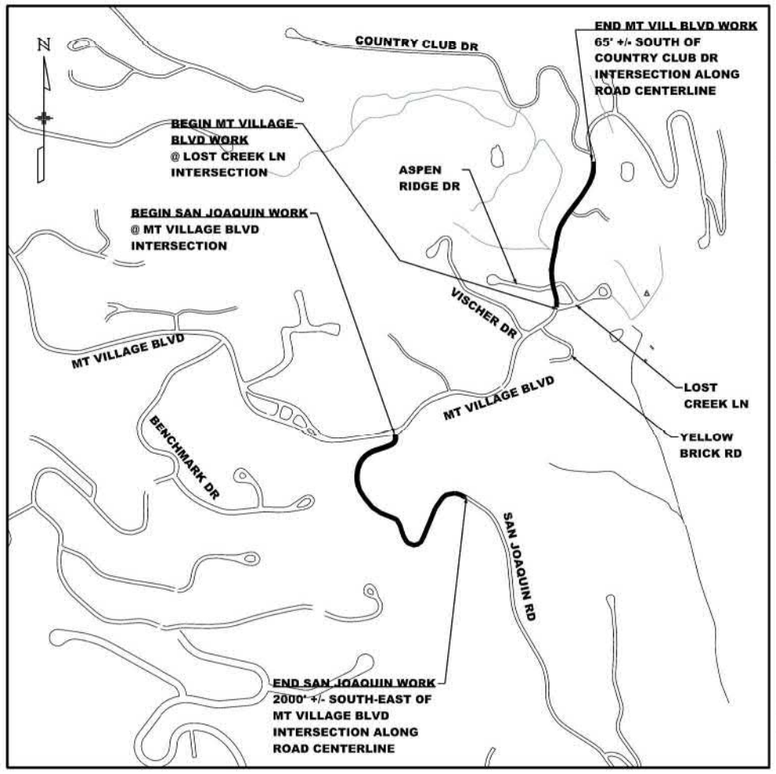
MTN VILLAGE BIKE& PED SAFETY PROJECT
MOUNTAIN VILLAGE, CO
PROJECT #: MTF M918-019
PROJECT CODE: 23710
T43N, R9W, N.M.P.M.

TABULATION OF LENGTH & DESIGN DATA

STATION	FEET ROADWAY		
	SAN JOAQUIN DR	MT VILLAGE SOUTH CORE	MT VILLAGE NORTH CORE
SAN JOAQUIN			
WESTERN END OF PROJECT 23710 =			
STA. 1+00			
EASTERN END OF PROJECT 23710 =	2000		
STA. 21+00			
MT VILLAGE BLVD SOUTH CORE			
WESTERN END OF PROJECT 23710 =			
STA. 1+59			
EASTERN END OF PROJECT 23710 =		335	
STA. 4+94			
MT VILLAGE BLVD NORTH CORE			
WESTERN END OF PROJECT 23710 =			
STA. 12+15			
EASTERN END OF PROJECT 23710 =			
STA. 15+02			287
TOTAL	2000	335	287
SUMMARY OF PROJECT LENGTH	FEET		MILES
PROJECT GROSS LENGTH	2622		0.497

DESIGN DATA	SAN JOAQUIN DR	MT VILLAGE SOUTH CORE	MT VILLAGE NORTH CORE
MINIMUM RADIUS OF CURVE	Existing	Existing	Existing
MAXIMUM GRADE	Existing	Existing	Existing
MINIMUM S.S.D. HORIZONTAL	Existing	Existing	Existing
MINIMUM S.S.D. VERTICAL	Existing	Existing	Existing
MAXIMUM DESIGN SPEED	25 MPH	20 MPH	20 MPH
CLEAR ZONE DISTANCE (25 MPH TANGENT)	12 FT.	# 2 FT.	# 2 FT.
CLEAR ZONE DISTANCE (200' RADIUS)	12 FT.	# 2 FT.	# 2 FT.
CONSTRUCTION CLEAR ZONE (MIN 18')	18 FT.	# 2 FT.	# 2 FT.
AADT	UNKNOWN	UNKNOWN	UNKNOWN

2 FT FROM FACE OF CURB



PROJECT LOCATION MAP

GRAPHIC SCALE
300 0 150 300 600 1200
(IN FEET)

SHEET NO.	INDEX OF SHEETS
1	TITLE SHEET
2	STANDARD PLANS LIST
3	TYPICAL SECTIONS
4-6	SUMMARY OF APPROXIMATE QUANTITIES
7	SURVEY TABULATION SHEET
8-10	SURVEY CONTROL & R-O-W DIAGRAM
11	PROJECT NOTES & EARTHWORK SUMMARY
12-19	STORMWATER MANAGEMENT PLAN
20-31	EROSION CONTROL PLAN
32-35	PLAN AND PROFILE SHEETS
36-38	DETAILS
39-40	SIGNING AND STRIPING PLAN
41-49	TRAFFIC CONTROL PLAN
50	TABULATION OF REMOVALS
51	TABULATION OF SURFACING
52	TABULATION OF DRAINAGE, GUARDRAIL, AND WALL
53	TABULATION OF ADJ-MNTS, MODS, AND MISC
54	TABULATION OF SIDEWALK, C & G, AND MISC
55	EARTHWORK SUMMARY
SUPPLEMENTAL PLANS	
1-3	WELDED WIRE RETAINING WALL PLANS

ADVERTISEMENT SET

Uncompahgre Engineering, LLC

P.O. Box 3945
Telluride, CO 81435
970-729-0683

PROJECT NAME:
MTN VILLAGE
BIKE & PED SAFETY
PROJECT #: MTF M918-019
PROJECT CODE: 23710

TITLE SHEET

NOT FOR CONSTRUCTION

CONTRACTOR TO REVIEW AND COMPARE ALL CHAPTERS AND INTERDISCIPLINARY DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO ANY FIELD WORK BEING DONE IN ACCORDANCE WITH AIA DOCUMENT A201

AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

DATE: 11-21-22

File Path: ..._Cover & Std Plans List.dgn

PLAN NUMBER	M STANDARD TITLE	PAGE NUMBER
☐ M-100-1	STANDARD SYMBOLS (3 SHEETS)	1-3
☐ M-100-2	ACRONYMS AND ABBREVIATIONS (4 SHEETS)	4-7
☐ M-203-1	APPROACH ROADS	8
☐ M-203-2	DITCH TYPES	9
☐ M-203-11	SUPERELEVATION CROWNED AND DIVIDED HIGHWAYS (3 SHEETS)	10-12
☐ M-203-12	SUPERELEVATION STREETS (2 SHEETS)	13-14
■ M-206-1	EXCAVATION AND BACKFILL FOR STRUCTURES (2 SHEETS)	15-16
☐ M-206-2	EXCAVATION AND BACKFILL FOR BRIDGES (2 SHEETS)	17-18
■ M-208-1	TEMPORARY EROSION CONTROL (11 SHEETS)	19-29
☐ M-210-1	MAILBOX SUPPORTS (2 SHEETS)	30-31
☐ M-214-1	NURSERY STOCK DETAILS	32
■ M-216-1	SOIL RETENTION COVERING (2 SHEETS)	33-34
☐ M-412-1	CONCRETE PAVEMENT JOINTS (9 SHEETS) ~~35-39~~ *(REVISED ON JANUARY 31, 2022)*	
☐ M-412-2	CONCRETE PAVEMENT CRACK REPAIR (6 SHEETS) *(REVISED ON SEPTEMBER 6, 2022)*	
☐ M-510-1	STRUCTURAL PLATE PIPE H-20 LOADING	40
☐ M-601-1	SINGLE CONCRETE BOX CULVERT (CAST-IN-PLACE) (2 SHEETS)	41-42
☐ M-601-2	DOUBLE CONCRETE BOX CULVERT (CAST-IN-PLACE) (2 SHEETS)	43-44
☐ M-601-3	TRIPLE CONCRETE BOX CULVERT (CAST-IN-PLACE) (2 SHEETS)	45-46
☐ M-601-10	HEADWALL FOR PIPES	47
☐ M-601-11	TYPE "S" SADDLE HEADWALLS FOR PIPE	48
☐ M-601-12	HEADWALLS AND PIPE OUTLET PAVING	49
☐ M-601-20	WINGWALLS FOR PIPE OR BOX CULVERTS (2 SHEETS)	50-51
■ M-603-1	METAL PIPE (4 SHEETS)	52-55
☐ M-603-2	REINFORCED CONCRETE PIPE	56
☐ M-603-3	PRECAST CONCRETE BOX CULVERT ~~57~~ *(REVISED ON SEPTEMBER 10, 2020)*	
☐ M-603-4	CORRUGATED POLYETHYLENE PIPE (AASHTO M294) AND CORRUGATED POLYPROPYLENE PIPE (AASHTO M330) (2 sheets) ~~58~~ *(REVISED ON MARCH 7, 2022)*	
☐ M-603-5	POLYVINYL CHLORIDE (PVC) PIPE (AASHTO M304)	59
☐ M-603-6	STEEL REINFORCED POLYETHYLENE RIBBED PIPE (AASHTO MP 20)	60
■ M-603-10	CONCRETE AND METAL END SECTIONS	61
☐ M-603-12	TRAVERSABLE END SECTIONS AND SAFETY GRATES (3 SHEETS)	62-64
■ M-604-10	INLET, TYPE C	65
☐ M-604-11	INLET, TYPE D	66
☐ M-604-12	CURB INLET TYPE R (2 SHEETS)	67-68
☐ M-604-13	CONCRETE INLET TYPE 13	69
☐ M-604-20	MANHOLES (3 SHEETS)	70-72
☐ M-604-25	VANE GRATE INLET (5 SHEETS)	73-77
☐ M-605-1	SUBSURFACE DRAINS	78
■ M-606-1	MIDWEST GUARDRAIL SYSTEM TYPE 3 W-BEAM 31 INCHES (19 SHEETS) ~~79-97~~ *(REVISED ON MARCH 5, 2020)*	
☐ M-606-13	GUARDRAIL TYPE 7 F-SHAPE BARRIER (4 SHEETS)	98-101
☐ M-606-14	PRECAST TYPE 7 CONCRETE BARRIER (4 SHEETS) ~~102-104~~ *(REVISED ON AUGUST 21, 2020)*	
☐ M-606-15	GUARDRAIL TYPE 9 SINGLE SLOPE BARRIER (11 SHEETS) ~~105-115~~ *(REVISED ON MARCH 5, 2020)*	
☐ M-607-1	WIRE FENCES AND GATES (3 SHEETS)	116-118
☐ M-607-2	CHAIN LINK FENCE (3 SHEETS)	119-121
☐ M-607-3	BARRIER FENCE	122
☐ M-607-4	DEER FENCE, GATES, AND GAME RAMPS (7 SHEETS) ~~123-127~~ *(REVISED ON JULY 13, 2020)*	
☐ M-607-10	PICKET SNOW FENCE	128
☐ M-607-15	ROAD CLOSURE GATE (9 SHEETS)	129-137
■ M-608-1	CURB RAMPS (10 SHEETS)	138-147
■ M-609-1	CURBS, GUTTERS, AND SIDEWALKS (4 SHEETS)	148-151
☐ M-611-1	CATTLE GUARD (2 SHEETS)	152-153
☐ M-611-2	DEER GUARD (2 SHEETS)	154-155
☐ M-614-1	RUMBLE STRIPS (3 SHEETS)	156-158
☐ M-614-2	SAND BARREL ARRAYS (2 SHEETS)	159-160
☐ M-615-1	EMBANKMENT PROTECTOR TYPE 3	161
☐ M-615-2	EMBANKMENT PROTECTOR TYPE 5	162
☐ M-616-1	INVERTED SIPHON	163
☐ M-620-1	FIELD LABORATORY CLASS 1	164
☐ M-620-2	FIELD LABORATORY CLASS 2 (2 SHEETS)	165-166
☐ M-620-11	FIELD OFFICE CLASS 1	167
☐ M-620-12	FIELD OFFICE CLASS 2	168
■ M-629-1	SURVEY MONUMENTS (2 SHEETS)	169-170

COLORADO
DEPARTMENT OF TRANSPORTATION

M&S STANDARDS PLANS LIST

July 31, 2019

Revised on September 6, 2022

ALL OF THE M&S STANDARD PLANS, AS SUPPLEMENTED AND REVISED, APPLY TO THIS PROJECT WHEN USED BY DESIGNATED PAY ITEM OR SUBSIDIARY ITEM.

THE M&S STANDARD PLANS USED TO DESIGN THIS PROJECT ARE INDICATED BY A MARKED BOX ■, AND WILL BE ATTACHED TO THE PLANS. ALL THE OTHER M&S STANDARD PLANS ARE STILL ELIGIBLE FOR CONSTRUCTION IF APPROVED BY AN APPROPRIATE CDOT ENGINEER.

PLAN NUMBER	S STANDARD TITLE	PAGE NUMBER
☐ S-612-1	DELINEATOR INSTALLATIONS (8 SHEETS)	171-178
☐ S-613-1	ROADWAY LIGHTING (6 SHEETS) ~~179-186~~ *(REVISED ON SEPTEMBER 30, 2020)*	
☐ S-613-2	ALTERNATIVE ROADWAY LIGHTING (4 SHEETS) *(NEW, ISSUED ON SEPTEMBER 30, 2020)*	
■ S-614-1	GROUND SIGN PLACEMENT (2 SHEETS)	187-188
☐ S-614-2	CLASS I SIGNS	189
☐ S-614-3	CLASS II SIGNS	190
☐ S-614-4	CLASS III SIGNS (3 SHEETS)	191-193
☐ S-614-5	BREAK-AWAY SIGN SUPPORT DETAILS FOR CLASS III SIGNS (2 SHEETS)	194-195
☐ S-614-6	CONCRETE FOOTINGS AND SIGN ISLANDS FOR CLASS III SIGNS (2 SHEETS)	196-197
■ S-614-8	TUBULAR STEEL SIGN SUPPORT DETAILS (7 SHEETS) *(REVISED ON DECEMBER 31, 2020)*	198-204
~~S-614-9~~	~~PEDESTRIAN PUSH BUTTON POST ASSEMBLY (2 SHEETS)~~ ~~205-206~~ *(SUPERSEDED ON JANUARY 23, 2020 BY S-614-45)*	
☐ S-614-10	MARKER ASSEMBLY INSTALLATIONS	207
☐ S-614-11	MILEPOST SIGN DETAIL FOR HIGH SNOW AREAS	208
☐ S-614-12	STRUCTURE NUMBER INSTALLATION (2 SHEETS)	209-210
☐ S-614-14	FLASHING BEACON AND SIGN INSTALLATIONS (4 SHEETS)	211-214
☐ S-614-20	TYPICAL POLE MOUNT SIGN INSTALLATIONS	215
☐ S-614-21	CONCRETE BARRIER SIGN POST INSTALLATIONS (2 SHEETS) *(REVISED ON SEPTEMBER 21, 2020)*	216-217
☐ S-614-22	TYPICAL MULTI-SIGN INSTALLATIONS	218
☐ S-614-40	TYPICAL TRAFFIC SIGNAL 30'-75' DOUBLE MAST ARMS 65'-75' SINGLE MAST ARMS (5 SHEETS) *(REVISED ON JULY 22, 2022)*	219-223
☐ S-614-40A	ALTERNATIVE TRAFFIC SIGNAL 25'-55' SINGLE MAST ARMS (4 SHEETS) *(REVISED ON JULY 22, 2022)*	224-227
☐ S-614-41	TEMPORARY SPAN WIRE SIGNALS (13 SHEETS)	228-240
☐ S-614-42	CABINET FOUNDATION DETAIL (4 SHEETS)	241-244
☐ S-614-43	TRAFFIC LOOP AND MISCELLANEOUS SIGNAL DETAILS (8 SHEETS)	245-252
☐ S-614-44	PEDESTAL POLE SIGNALS (2 SHEETS)	253-254
☐ S-614-45	PEDESTRIAN PUSH BUTTON POST ASSEMBLY DETAILS (6 SHEETS) *(REVISED ON DECEMBER 3, 2020)*	
☐ S-614-50	STATIC SIGN MONOTUBE STRUCTURES (12 SHEETS)	255-266
☐ S-614-60	DYNAMIC SIGN MONOTUBE STRUCTURES (14 SHEETS)	267-280
■ S-627-1	PAVEMENT MARKINGS (9 SHEETS) *(REVISED ON JULY 22, 2022)*	281-289
■ S-630-1	TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION (24 SHEETS)	290-313
■ S-630-2	BARRICADES, DRUMS, CONCRETE BARRIERS (TEMP) AND VERTICAL PANELS	314
☐ S-630-3	FLASHING BEACON (PORTABLE) DETAILS	315
☐ S-630-4	STEEL SIGN SUPPORT (TEMPORARY) INSTALLATION DETAILS (2 SHEETS)	316-317
☐ S-630-5	PORTABLE RUMBLE STRIPS (TEMPORARY) (2 SHEETS)	318-319
☐ S-630-6	EMERGENCY PULL-OFF AREA (TEMPORARY)	320
☐ S-630-7	ROLLING ROADBLOCKS FOR TRAFFIC CONTROL (3 SHEETS)	321-323

ADVERTISEMENT SET

Uncompahgre Engineering, LLC

P.O. Box 3945
Telluride, CO 81435
970-729-0683

PROJECT NAME:
MTN VILLAGE
BIKE & PED SAFETY
PROJECT #: MTF M918-019
PROJECT CODE: 23710

STANDARD PLAN LIST

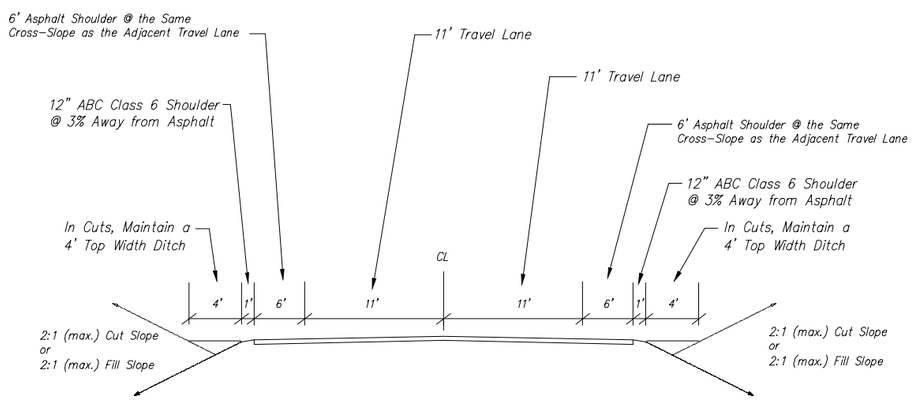
NOT FOR CONSTRUCTION

CONTRACTOR TO REVIEW AND COMPARE ALL CHAPTERS AND INTERDISCIPLINARY DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO ANY FIELD WORK BEING DONE IN ACCORDANCE WITH AIA DOCUMENT A201

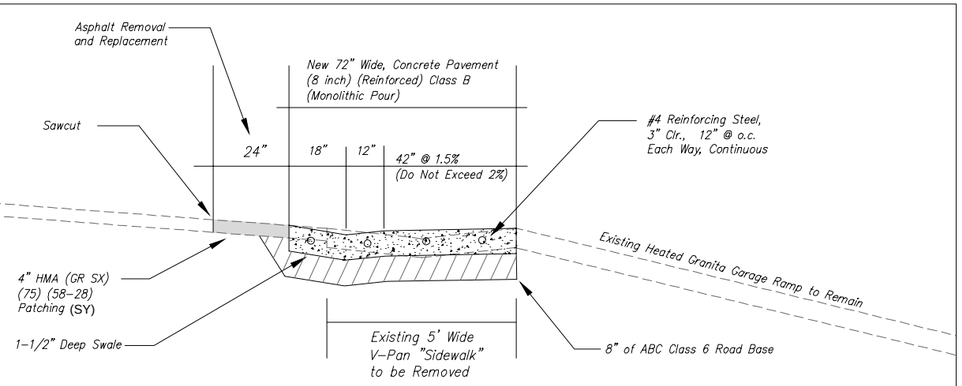
AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

DATE: 11-21-22

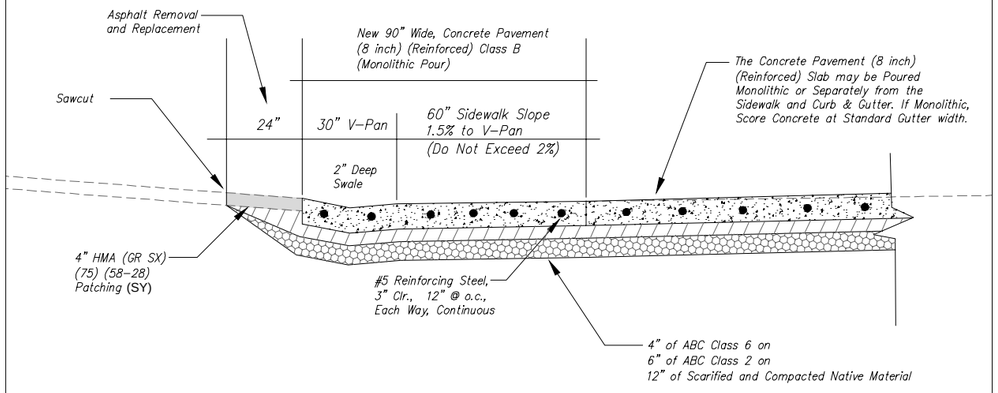
File Path: ..._Cover & Std Plans List.dgn



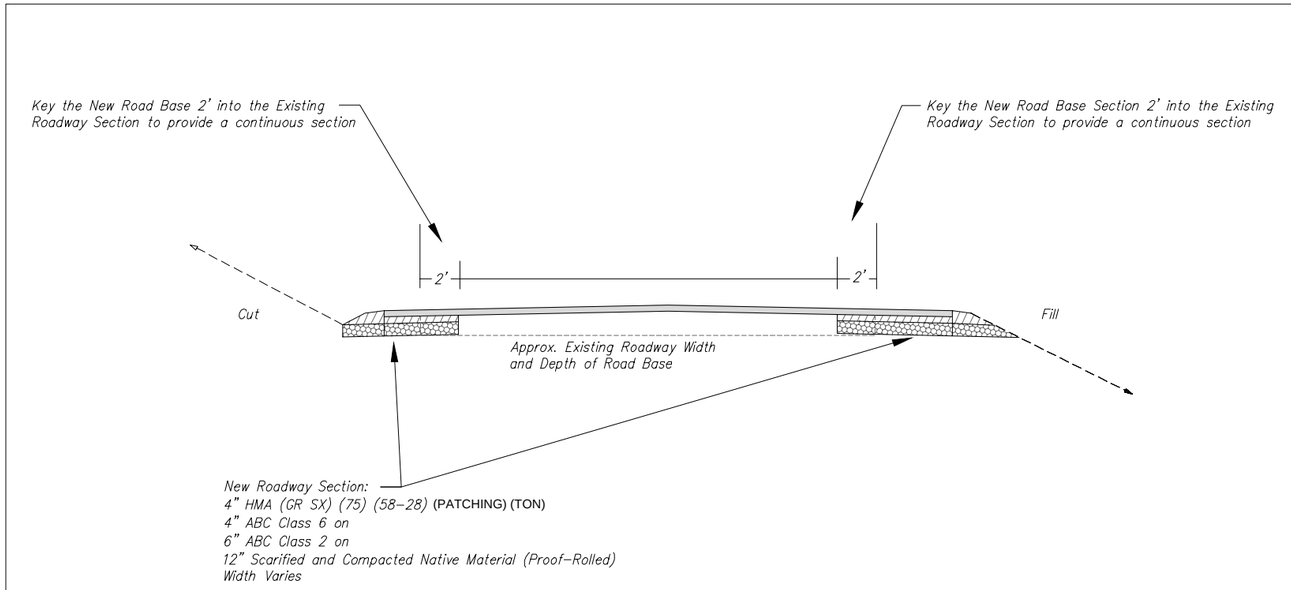
SAN JOAQUIN – TYPICAL WIDTH



GRANITA RAMP SIDEWALK
Not to Scale



BUS STOP – SLAB TO REPLACE PAVERS
Not to Scale



San Joaquin Road Construction Notes:

1. San Joaquin Road is an existing paved road.
2. The new asphalt width is approximately 10' wider.
3. This new asphalt will need a full-depth base section under it, but the existing San Joaquin road is satisfactory.
4. The base under the new asphalt must be keyed into the existing base to provide a full depth section across the entire width.
5. The new centerline alignment does not match the new centerline, so the new road base section may be wider on one side of the existing road than the other.
6. The new road geometry has been designed to match the existing grades at the side driveways or to be slightly higher. The intent is to only increase the base depth, not lessen it.
7. The existing asphalt will be removed from the site and it is the responsibility of the Contractor to dispose of it.
8. The typical cross-sections listed on this sheet are a best-fit match to the existing pavement cross slopes. The Contractor shall smoothly transition the final surface between these typical sections. Actual stationing may change slightly due to field conditions. The Contractor shall contact the Engineer if a change is being proposed. No changes will be made without the written acknowledgement from the Engineer.

CL Crown Section
STA 1+05 to STA 3+42
STA 8+70 to STA 10+80
STA 12+54 to STA 12+94
STA 15+46 to STA 17+86

Cross-Slope 3% to Left
STA 8+15 to STA 8+60

Cross Slope 4% to Left
STA 13+05 to STA 15+40

Cross-Slope 4% to Left with MSE Wall
STA 3+70 to STA 8+15

Cross Slope 4% to Right
STA 10+90 to STA 12+40
STA 18+10 to STA 20+93

Scale: 1" = 20'

0 10 20 40

Road Assemblies

Uncompahgre Engineering, LLC

P.O. Box 3945
Telluride, CO 81435
970-729-0683

PROJECT NAME:
MTN VILLAGE
BIKE & PED SAFETY
PROJECT #: MTF M918-019
PROJECT CODE: 23710

SAN JOAQUIN
Typical Sections

NOT FOR CONSTRUCTION

CONTRACTOR TO REVIEW AND COMPARE ALL CHAPTERS AND INTERDISCIPLINARY DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO ANY FIELD WORK BEING DONE IN ACCORDANCE WITH AIA DOCUMENT A201

AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

DATE: 11-21-22

File Path: $FILEA$

INDEX			CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	ROADWAY												PROJECT TOTALS	
BOOK	PAGE	SHEET				PLAN	AS CONST.											PLAN	AS CONST.
			201-00000	CLEARING AND GRUBBING	LS	1												1	
			202-00019	REMOVAL OF INLET	EA	4												4	
			202-00035	REMOVAL OF PIPE	LF	63												63	
			202-00200	REMOVAL OF SIDEWALK	SY	56												56	
			202-00203	REMOVAL OF CURB AND GUTTER	LF	599												599	
			202-00210	REMOVAL OF CONCRETE PAVEMENT	SY	127												127	
			202-00220	REMOVAL OF ASPHALT MAT	SY	6026												6026	
			202-00250	REMOVAL OF PAVEMENT MARKINGS	SF	155												155	
			202-01130	REMOVAL OF GUARDRAIL TYPE 3	LF	423												423	
			202-04002	CLEAN CULVERT	EA	1												1	
			202-90000	REMOVE AND PALLETIZE BRICK PAVERS (SPECIAL)	SY	266												266	
			202-90001	REMOVAL OF ADA ENTRY RAMP (CONF CENTER)(SPECIAL)	LS	1												1	
			202-90002	REMOVAL OF SIGN (SPECIAL)	LS	1												1	
			203-00010	UNCLASSIFIED EXCAVATION (COMPLETE IN PLACE)	CY	1495												1495	
			203-00050	UNSUITABLE MATERIALS	CY	100												100	
			203-01100	PROOF ROLLING	HOUR	12												12	
			203-01592	COMBINATION LOADER	HOUR	50												50	
			203-01597	POTHOLING	HOUR	40												40	
			203-02330	LABORER	HOUR	100												100	
			207-00702	TOPSOIL (OFF-SITE)	CY	120												120	
			207-00704	SUBGRADE SOIL PREPARATION	SY	720												720	
			208-00002	EROSION CONTROL LOG TYPE 1 (12 INCH)	LF	465												465	
			208-00035	AGGREGATE BAG	LF	38												38	
			208-00046	PRE-FABRICATED CONCRETE WASHOUT STRUCTURE (TYPE 1)	EACH	1												1	
			208-00054	STORM DRAIN INLET PROTECTION (TYPE II)	EACH	9												9	
			208-00075	PRE-FABRICATED VEHICLE TRACKING PAD	EACH	1												1	
			208-00103	REMOVAL AND DISPOSAL OF SEDIMENT (LABOR)	HOUR	20												20	
			208-00105	REMOVAL AND DISPOSAL OF SEDIMENT (EQUIPMENT)	HOUR	20												20	
			208-00106	SWEEPING (SEDIMENT REMOVAL)	HOUR	32												32	
			208-00207	EROSION CONTROL MANAGEMENT	DAY	13												13	
			210-00050	RESET FIRE HYDRANT	EACH	1												1	
			210-00810	RESET GROUND SIGN	EACH	7												7	
			210-04010	ADJUST MANHOLE	EACH	8												8	

Uncompahgre Engineering, LLC

P.O. Box 3945
Telluride, CO 81435
970-729-0683

PROJECT NAME:
MTN VILLAGE
BIKE & PED SAFETY
PROJECT #: MTF M918-019
PROJECT CODE: 23710

SUMMARY OF APPROXIMATE QUANTITIES

NOT FOR CONSTRUCTION

CONTRACTOR TO REVIEW AND COMPARE ALL CHAPTERS AND INTERDISCIPLINARY DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO ANY FIELD WORK BEING DONE IN ACCORDANCE WITH AIA DOCUMENT A201

AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

DATE: 11-21-22

ADVERTISEMENT SET

File Path: ..._Cover & Std Plans List.dgn

INDEX			CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	ROADWAY												PROJECT TOTALS	
BOOK	PAGE	SHEET				PLAN	AS CONST.											PLAN	AS CONST.
			210-04050	ADJUST VALVE BOX	EACH	4												4	
			212-00050	SOD	SF	880												880	
			212-00708	SEEDING (NATIVE) BROADCAST	ACRE	0.55												0.55	
			213-00012	SPRAY-ON MULCH BLANKET	ACRE	0.45												0.45	
			213-90000	STONE LANDSCAPE EDGING (SPECIAL)	SF	137												137	
			213-90001	BOULDER WALL (SPECIAL)	SF	1200												1200	
			216-00211	SOIL RETENTION BLANKET (EXCELSIOR)(BIODEGRADABLE CLASS 1)	SY	412												412	
			240-00000	WILDLIFE BIOLOGIST	HOUR	10												10	
			304-02000	AGGREGATE BASE COURSE (CLASS 2)	TON	1640												1640	
			304-06000	AGGREGATE BASE COURSE (CLASS 6)	TON	1554												1554	
			403-00720	HOT MIX ASPHALT (PATCHING) (ASPHALT)	TON	1711												1711	
			403-00721	HOT MIX ASPHALT (PATCHING) (ASPHALT)	SY	290												290	
			412-00815	CONCRETE PAVEMENT (8 INCH) (REINFORCED)	SY	241												241	
			504-90000	WIRE MESH RETAINING WALL (SPECIAL)	SF	4560												4560	
			602-00000	REINFORCING STEEL	LB	3967												3967	
			603-90000	18 INCH CORRUGATED STEEL PIPE (SPECIAL)	LF	26												26	
			603-90001	24 INCH CORRUGATED STEEL PIPE (SPECIAL)	LF	6												6	
			603-90002	18 INCH STEEL END SECTION (SPECIAL)	EACH	1												1	
			604-00304	INLET TYPE C (4 FOOT)	EACH	1												1	
			604-90000	CURB INLET (3 FOOT) (SPECIAL)(DURANGO STD DETAIL)	EACH	1												1	
			604-90001	SMALL AREA INLET #1 (2 FOOT) (SPECIAL)	EACH	1												1	
			604-90002	SMALL AREA INLET #2 (2 FOOT) (SPECIAL)	EACH	1												1	
			606-90000	GUARDRAIL TYPE 3 (31 INCH MIDWEST GUARDRAIL SYSTEM)(SPECIAL)	LF	434												434	
			606-91390	END ANCHORAGE TYPE 3K (SPECIAL)	EACH	2												2	
			607-11525	FENCE (PLASTIC)	LF	161												161	
			608-00000	CONCRETE SIDEWALK (4 INCH)	SY	241												241	
			608-90000	CONCRETE SIDEWALK (6 INCH)	SY	16												16	
			608-00010	CONCRETE CURB RAMP	SY	145												145	
			608-90001	SIDEWALK CHASE (SPECIAL)	LF	7												7	
			608-90001	ADA ENTRY RAMP (CONF CENTER) (SPECIAL)	LS	1												1	
			609-21023	CURB AND GUTTER TYPE 2 (SECTION II-B) (SPECIAL)	LF	372												372	

ADVERTISEMENT SET

Uncompahgre Engineering, LLC

P.O. Box 3945
Telluride, CO 81435
970-729-0683

PROJECT NAME:
MTN VILLAGE
BIKE & PED SAFETY
PROJECT #: MTF M918-019
PROJECT CODE: 23710

SUMMARY OF APPROXIMATE QUANTITIES

NOT FOR CONSTRUCTION

CONTRACTOR TO REVIEW AND COMPARE ALL CHAPTERS AND INTERDISCIPLINARY DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO ANY FIELD WORK BEING DONE IN ACCORDANCE WITH AIA DOCUMENT A201

AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

DATE: 11-21-22

File Path: ...\Cover & Std Plans List.dgn

INDEX			CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	ROADWAY												PROJECT TOTALS	
BOOK	PAGE	SHEET				PLAN	AS CONST.											PLAN	AS CONST.
			625-00000	CONSTRUCTION SURVEYING	LS	1												1	
			626-00000	MOBILIZATION	LS	1												1	
			627-00011	PAVEMENT MARKING PAINT (WATERBORNE)	GAL	43												43	
			630-00000	FLAGGING	HOUR	2760												2760	
			630-00007	TRAFFIC CONTROL INSPECTION	DAY	22												22	
			630-00012	TRAFFIC CONTROL MANAGEMENT	DAY	55												55	
			630-80336	BARRICADE (TYPE 3 M-B) (TEMPORARY)	EA	2												2	
			630-80340	PEDESTRIAN BARRICADE (ADA)	LF	32												32	
			630-80341	CONSTRUCTION TRAFFIC SIGN (PANEL SIZE A)	EA	43												43	
			630-80342	CONSTRUCTION TRAFFIC SIGN (PANEL SIZE B)	EA	2												2	
			630-80344	CONSTRUCTION TRAFFIC SIGN (SPECIAL)	SF	12												12	
			630-80360	DRUM CHANNELIZING DEVICE	EA	24												24	
			630-80372	CONCRETE BARRIER (TEMP)(FURNISH AND INSTALL)	LF	560												560	
			630-80380	TRAFFIC CONE	EA	27												27	
				FORCE ACCOUNT															
			700-70010	F/A MINOR CONTRACT REVISIONS	FA	1												1	
			700-70380	F/A EROSION CONTROL	FA	1												1	

ADVERTISEMENT SET

Uncompahgre Engineering, LLC

P.O. Box 3945
Telluride, CO 81435
970-729-0683

PROJECT NAME:
MTN VILLAGE
BIKE & PED SAFETY
PROJECT #: MTF M918-019
PROJECT CODE: 23710

SUMMARY OF APPROXIMATE QUANTITIES

NOT FOR CONSTRUCTION

CONTRACTOR TO REVIEW AND COMPARE ALL CHAPTERS AND INTERDISCIPLINARY DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO ANY FIELD WORK BEING DONE IN ACCORDANCE WITH AIA DOCUMENT A201.

AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

DATE: 11-21-22

File Path: ..._Cover & Std Plans List.dgn

TO ESTABLISH GEOMETRIC CONTROL FOR THE CONSTRUCTION OF THIS PROJECT, THE DEPARTMENT HAS PROVIDED THE FOLLOWING INFORMATION:

	Format *
☐ 3D Design Modeling Electronic Files	
■ Horizontal Control	PLAN SHEET
■ Vertical Control	PLAN SHEET
■ Roadway Alignment	PLAN SHEET, ELECTRONIC FILES
■ Original Terrain Data	PLAN SHEET, ELECTRONIC FILES
■ Other:	ELECTRONIC R-O-W LINE AVAILABLE

* Specify the information format, ie., 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: _____

SURVEY WORK TO BE PERFORMED BY OTHERS: _____

WORK PERFORMED BY THE CONTRACTOR'S SURVEYOR UNDER SECTION 625:

- ☐ A complete passing Base Line report (completed within 6 months prior to the start of the project)
- ■ An instrument calibration Certification (completed within 6 months prior to the start of the project)
- ■ 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 (Section 201)
- ■ Removal Limits (Section 202)
- ■ Reset Items (Section 210)
- ■ Excavation and Embankment (Section 203)
  - ☐ Excavation
    - ■ Unclassified
    - ☐ Stripping
    - ☐ Muck
    - ☐ Rock
    - ☐ Borrow
    - ☐ Other: _____
    - ■ Potholing
  - ■ Embankment
  - ■ Site Grading
  - ☐ Erosion Control (Perm)
  - ☐ Other: _____
  - ☐ As Staked Earthwork Quantities (See General Notes)

	Slope Staking (Y/N)	Grid (Y/N)	Grade (Y/N)	Special Interval
Excavation	-	-	-	-
	-	-	-	-
	-	-	-	-
	-	-	-	-
	-	-	-	-
Embankment	-	-	-	-
	-	-	-	-
	-	-	-	-
	-	-	-	-

- ☐ Landscaping
  - ☐ Top Soil (Section 207)
  - ☐ Seeding (Section 212)
  - ☐ Mulching (Section 213)
  - ☐ Planting (Section 214)
  - ☐ Herbicide (Section 217)
  - ☐ Other: _____
- ☐ Erosion Control (Section 208)
  - ☐ Seeding (Temp)
  - ☐ Silt Fence
  - ☐ Erosion Bales
  - ☐ Erosion Logs
  - ☐ Riprap (Temp)
  - ☐ Other: _____
- ☐ Roadway Bases
  - ■ Untreated Subgrade
  - ☐ Treated Subgrade
  - ■ Aggregate Base Course (Section 304)
  - ☐ Reconditioning
  - ☐ PMBB - Plant Mix Bituminous Base
  - ☐ Other: _____

	Grid (Y/N)	Grade (Y/N)	Special Interval	Special Offset
Roadway Bases	-	-	-	-
	-	-	-	-
	-	-	-	-
	-	-	-	-
	-	-	-	-
	-	-	-	-

- ■ Pavements
  - ■ HMA - Hot Mix Asphalt (Section 403)
  - ■ Concrete (Section 412)
  - ☐ Heating & Scarifying Treatment
  - ☐ Prime Coat, Tack Coat & Rejuvenating Agent (Section 407)
  - ☐ Seal Coat or Chip Seal (Section 409)
  - ☐ Other: _____
- ■ Roadway Elements
  - ■ Curb and Gutter (Section 609)
  - ■ Drop inlets - alignment and grades (Section 604)
  - ■ Retaining Walls
  - ■ Guard Rail (Section 606)
  - ■ Sidewalk (Section 608)
  - ☐ Overlay Stationing
  - ☐ Other: _____
- ☐ Riprap (Perm) (Section 506)
- ☐ Slope and Ditch Paving (Section 507)
- ■ Minor Structures
  - ■ Structure Excavation limits (Section 206)
  - ■ Culverts (Section 603)
  - ☐ Culverts w/ Headwalls and Wingwalls (Section 601)
  - ☐ Concrete Box Culverts w/ Headwalls and Wingwalls
  - ■ Pipes (Section 603)
    - ☐ Sanitary Sewer
    - ■ Storm Sewer
    - ■ Water
    - ☐ Irrigation
    - ☐ Miscellaneous
  - ☐ Manholes (Section 604)
  - ☐ Inlets (Section 604)
  - ☐ Permanent Water Quality BMP (Section 208)
  - ☐ Other: _____
- ■ Major Structures - Overhead Signs (Section 614), Concrete Box Culverts, Bridges - and all other structures assigned a structure number
  - ☐ Structure Excavation limits (Section 206)
  - ☐ Concrete Box Culverts (Section 603) w/ Headwalls and Wingwalls (Section 601)
  - ☐ Piling locations and cut off elevations (Section 502)
  - ☐ Caisson locations and elevations (Section 503)
  - ☐ Footing locations, alignment, and elevations
  - ☐ Abutment/Pier locations, alignment, and elevations
  - ☐ Wingwall skew angles/offsets
  - ☐ Structural concrete form locations
  - ☐ Substructure As-constructed survey required for Bridges (Subsection 601 .12) and Overhead signs (S-614-50)
  - ☐ 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 (Section 507)
  - ■ Other: **STEPS IN BOTTOM BASKETS TO BE STAKED**
- ☐ Fencing (Section 607)
  - ☐ Temporary
  - ☐ Permanent
  - ☐ Sound Barrier
  - ☐ Other: _____
- ☐ Delineators (Section 612)
  - ☐ Temporary
  - ☐ Permanent
- ■ Lighting (Section 613) and Traffic Control Devices (Permanent) (Section 614)
  - ☐ Signal pole locations and elevations
  - ■ Light pole locations and elevations
  - ■ Sign locations
  - ☐ Field verify sign post locations, elevations, and lengths before fabrication.
  - ☐ Other: _____

	Grid (Y/N)	Special Interval	Special Offset
Pavements	-	-	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-

	Tangent Interval	Curve Interval	Special Offset
Curb & Gutter	-	-	-

	Left Interval	Center Interval	Right Interval
Stationing	-	-	-

- ■ Pavement Marking (Section 627)
  - ☐ Striping (Temp)
  - ■ Striping (Perm)
  - ■ Symbols
  - ☐ Other: _____
- ☐ Temporary Lighting and Construction Traffic Control Devices (Section 630)
  - ☐ Signal pole locations and elevations (Temp)
  - ☐ Light pole locations and elevations (Temp)
  - ☐ Sign Locations (Temp)
  - ☐ Other: _____
- ☐ All Easements (Temp Staking by P.L.S. Only)
- ■ Right of Way (Temp Staking by P.L.S. Only)

WORK PERFORMED BY THE CONTRACTOR'S SURVEYOR UNDER SECTION 629:

- ☐ Monumentation (Section 629)
  - ☐ Control
  - ☐ Right of Way
  - ☐ Land corners, Aliquot corners
  - ☐ Easements
  - ☐ Reference the specified existing monuments: ** _____
  - ☐ Replace the specified existing monuments: ** _____
  - ☐ Locate monuments. It is estimated__ hours are required.

NOTE: All 629 items shall include adequate research, calculations, and evaluations of evidence for monuments to be set.

** A Tabulation of Survey Monuments may be provided on the plans.

GENERAL NOTES:

1. 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 CDOT Survey Manual.
2. 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.
3. 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 the Presurvey Conference - Construction Survey.
4. 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.
5. The Contractor shall furnish an As Staked (or 3D Design Modeling Electronic Files) Earthwork Quantity report 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 (or 3D Design Modeling Electronic Files) Earthwork data report and a computer disk with that information on it, 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.
6. 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.
7. The Contractor's surveyor shall perform all field surveying and calculations necessary to tie plan grades into field grades.
8. The Contractor shall coordinate construction staking on the project with any utility work.
9. Fieldbooks shall contain daily records of points set and or measurements observed. The information recorded shall contain: date, crew members' names, point no., description, staking information, and sketches. If the survey information is collected electronically, information recorded shall be provided to the Project Engineer in a hard copy format that is intuitive, clear and related to the supplemental information recorded in the field books. All linear surveys, such as slope stakes and blue tops, shall have the station and offset information related to the measured information. Non-linear surveys such as structures staking shall have sketches relating electronic information, such as point numbers, to the sketch.
10. 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): _____
11. The Contractor's surveyor shall submit the following (prior to surveying on the project) to the Engineer:
    - ☐ All required Instrument Calibrations

ADVERTISEMENT SET

Uncompahgre Engineering, LLC
P.O. Box 3945
Telluride, CO 81435
970-729-0683

PROJECT NAME: MTN VILLAGE BIKE & PED SAFETY
PROJECT #: MTF M918-019
PROJECT CODE: 23710

SURVEY TABULATION SHEET

NOT FOR CONSTRUCTION

CONTRACTOR TO REVIEW AND COMPARE ALL CHAPTERS AND INTERDISCIPLINARY DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO ANY FIELD WORK BEING DONE IN ACCORDANCE WITH AIA DOCUMENT A201

AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

DATE: 11-21-22

File Path: ..._Cover & Std Plans List.dgn

PROJECT CONTROL/LAND SURVEY DIAGRAM

MTN VILLAGE BIKE & PEDESTRIAN SAFETY PROJECT

Town of Mountain Village

County of San Miguel

State of Colorado

Sheet 1 Revisions		
Date	Description	Initials
12152021	SEILER REDLINES	DB

Sheet 2 Revisions		
Date	Description	Initials
12152021	SEILER REDLINES	DB
02072022	ADDED TSG USE AGREEMENT	DB

Sheet 3 Revisions		
Date	Description	Initials
12152021	SEILER REDLINES	DB

Land Survey/Project Control Diagram

Monument Coordinate Tables

Project Number: MFT M918-019

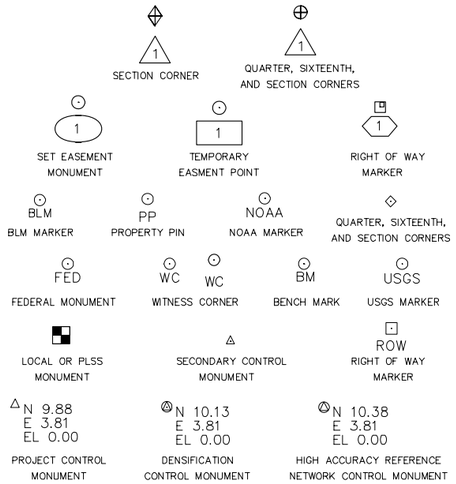
Project Location: Mountain Village, Colorado

Project Code:	Last Mod. Date	Subset	Sheet No.
23710	12-15-21		1 of 3

DEPARTMENT OF TRANSPORTATION STATE OF COLORADO

PROJECT CONTROL / LAND SURVEY DIAGRAM

MTN VILLAGE BIKE & PEDESTRIAN SAFETY PROJECT
Section 3 Township 42 North, Range 9 West, of the New Mexico Principal Meridian, Town of Mountain Village, County of San Miguel, State of Colorado

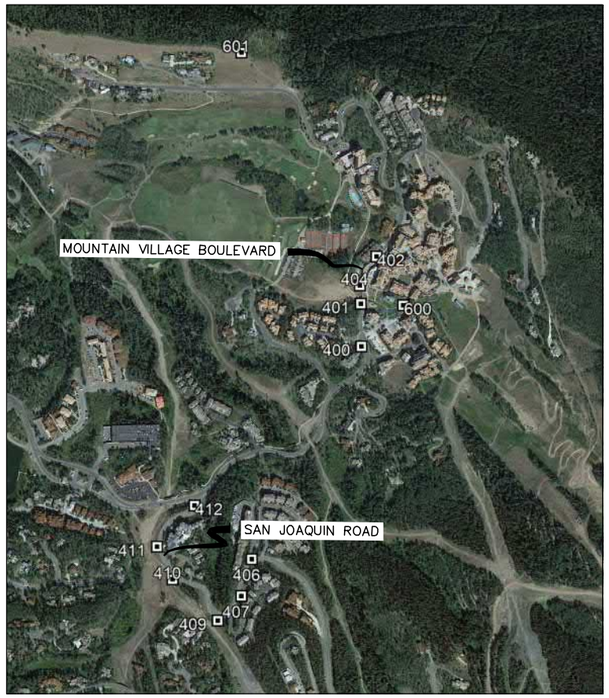


General Notes:

1. This Project Control Diagram is not a boundary survey of the adjoining property and is prepared for the Colorado Department of Transporation
2. Refer to the M-629-1 Survey Monuments of the Standard Plans dated July 2019 found in the Colorado Department of Transportation, M&S Standards for typical survey monument descriptions
3. Lineal Units : Grid Coordinates and distances shown hereon are represented in US Survey Feet or decimal portion thereof.
4. NOTICE : According to Colorado law you must commence any legal action based upon any defect in this survey within three years after you first discover such defect. In no event may any action based upon any defect in this survey be commenced more than ten years from the date of the certification shown hereon.

Property Pins

ID	Latitude (Global)	Longitude (Global)	Northing(US survey foot)	Easting(US survey foot)	Feature Code
100	N37°56'17.98208"	W107°50'48.82680"	471742.061	324013.994	AC 1.5" LS25954
101	N37°56'16.32751"	W107°50'48.88418"	471574.788	324005.141	AC 1.5" LS37662
102	N37°56'13.51324"	W107°50'51.04917"	471294.484	323824.436	BT 0.5" LS37662
103	N37°56'13.40672"	W107°50'51.22163"	471284.058	323810.344	BT 0.5" LS37662
104	N37°56'12.04068"	W107°50'52.40966"	471148.279	323711.639	BT 0.5" LS37662
105	N37°56'11.42002"	W107°50'52.23134"	471085.124	323724.331	BT 0.5" LS37662
106	N37°56'09.46917"	W107°50'53.42863"	470890.200	323623.379	AC 1.5" LS24954
107	N37°56'07.88772"	W107°50'53.30799"	470729.962	323628.977	AC 1.5" LS24954
108	N37°55'54.45795"	W107°51'08.13684"	469401.543	322406.187	AC 1.5" LS36577
109	N37°55'53.90538"	W107°51'09.97418"	469349.391	322257.536	AC 1.5" LS24954
110	N37°55'51.01392"	W107°51'11.30706"	469059.590	322143.278	AC 1.5" LS36577
111	N37°55'49.68902"	W107°51'09.85131"	468922.580	322256.514	AC 1.5" LS37970
112	N37°55'49.30641"	W107°51'08.95741"	468882.048	322327.156	AC 1.5" LS37970
113	N37°55'49.25117"	W107°51'08.49342"	468875.512	322364.194	AC 1.5" LS28652
114	N37°55'48.71912"	W107°51'07.40726"	468819.468	322449.859	AC 1.5" LS24954
115	N37°55'47.22619"	W107°51'04.66685"	468662.839	322665.607	AC 1.5" LS20632
116	N37°55'49.85120"	W107°51'04.36469"	468927.789	322696.582	AC 1.5" LS28652
117	N37°55'49.85978"	W107°51'03.57314"	468927.042	322760.032	AC 1.5" LS20632
118	N37°55'50.97279"	W107°51'00.91229"	469034.215	322976.116	AC 1.5" LS31155



PROJECT LOCATION MAP

NOT TO SCALE

SHEET NO. INDEX OF SHEETS

1	(1) Title Sheet
2	(1) San Joaquin Road
3	(1) Mountain Village Boulevard
	(3) Total Sheets

Basis of Bearings: Bearings used in the caluculations of coordinates are based in a grid bearing of N 31°16'24" W between CP OVERPASS (3" Aluminum Cap on #6 rebar stamped "CP OVERPASS") to CP RIM (3" Aluminum Cap on #6 rebar "CP RIM") . The survey data was obtained from a Global Positioning System (GPS) survey based on the Colorado High Accurancy Reference Network (CHARN)

Basis of Elevations: Project Elevations are based in an historic Town of Mountain Village project elevation of 9533.81 feet for CM-MESA, a 3.25" Aluminum Cap on 2" pipe stamped "CP MESA"

COORDINATE DATUM: Project coordinates are modified Colorado State Plane South Zone NAD '83/(2011) coordinates. The combined elevation/scale factor used to modify the coordinates from state plane to project coordinates is 1.0004554235 with a convergence angle of 1°28'40.90824". The project location is 37°56'10.04443 North Latitude and 107°50'48.87263 West Longitude. The Project Height is 9544.84. The project location is theoretical and has not been monumented

Note: For a complete listing of symbology used within this set of plans, please refer to the M-100-1 Standard Symbols of the Colorado Department of Transportation M&S Standards Publication dated July 2019. Existing features are shown as screened weight (gray scale). Proposed or new features are shown as full weight without screening.

Project Survey Control Points

ID	Latitude (Global)	Longitude (Global)	Northing(US survey foot)	Easting(US survey foot)	Elevation(US survey foot)	Feature Code	Additional Description
400	N37°56'06.96836"	W107°50'52.85272"	470636.025	323663.090	9533.810 ft	CP MESA	found existing 3.25" aluminum cap on 2"pipe stamped "CP MESA"
401	N37°56'10.16400"	W107°50'52.91244"	470959.444	323666.526	9534.090 ft	5\8 RBR SET	set 18" long #5 rebar with "X" chiseled in top
402	N37°56'13.70385"	W107°50'51.41551"	471314.513	323795.574	9515.795 ft	5/8 RBR SET	set 18" long #5 rebar with "X" chiseled in top
404	N37°56'11.53819"	W107°50'52.99904"	471098.644	323663.123	9529.236 ft	5/8 RBR SET	set 18" long #5 rebar with "X" chiseled in top
406	N37°55'51.02436"	W107°51'03.26815"	469044.239	322787.471	9632.595 ft	5\8 RBR SET	set 18" long #5 rebar with "X" chiseled in top
407	N37°55'48.26351"	W107°51'04.26462"	468766.962	322700.511	9646.145 ft	5\8 RBR SET	set 18" long #5 rebar with "X" chiseled in top
409	N37°55'46.42331"	W107°51'06.50022"	468585.355	322516.626	9648.764 ft	5/8 RBR SET	set 18" long #5 rebar with "X" chiseled in top
410	N37°55'49.51867"	W107°51'10.79939"	468907.283	322180.103	9608.481 ft	5/8 RBR SET	set 18" long #5 rebar with "X" chiseled in top
411	N37°55'51.96153"	W107°51'12.28190"	469157.449	322067.606	9581.512 ft	5/8 RBR SET	set 18" long #5 rebar with "X" chiseled in top
412	N37°55'55.04773"	W107°51'08.71410"	469462.388	322361.451	9537.515 ft	5/8 RBR SET	set 18" long #5 rebar with "X" chiseled in top
600	N37°56'10.04943"	W107°50'48.87263"	470939.623	323989.923	9544.829 ft	CP OVERPASS	found existing 3.25" aluminum cap on 2"pipe stamped "CP OVERPASS"
601	N37°56'28.99878"	W107°51'04.25138"	472888.040	322806.510	9464.630 ft	CP RIM	found existing 3.25" aluminum cap on 2"pipe stamped "CP RIM"

SURVEYOR STATEMENT (LAND SURVEY CONTROL DIAGRAM)

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

PLS No. 37662

ADVERTISEMENT SET

PROJECT CONTROL/LAND SURVEY DIAGRAM

MTN VILLAGE BIKE & PEDESTRIAN SAFETY PROJECT

Town of Mountain Village

County of San Miguel

State of Colorado

Sheet 1 Revisions

Date	Description	Initials
12152021	SEILER REDLINES	DB

Sheet 2 Revisions

Date	Description	Initials
12152021	SEILER REDLINES	DB

Sheet 3 Revisions

Date	Description	Initials
12152021	SEILER REDLINES	DB

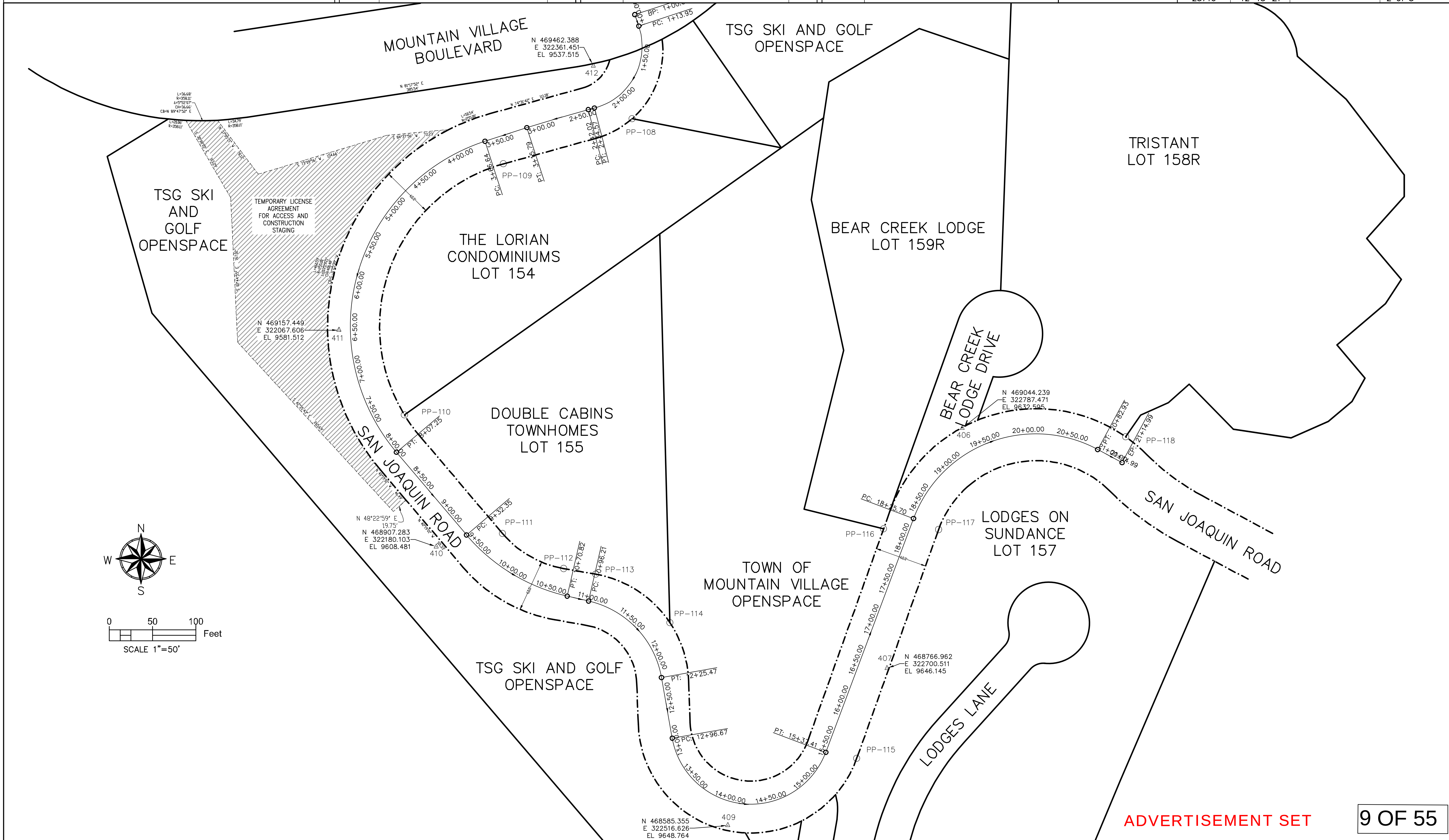
Land Survey/Project Control Diagram

Monument Coordinate Tables

Project Number: MFT M918-019

Project Location: Mountain Village, Colorado

Project Code:	Last Mod. Date	Subset	Sheet No.
23710	12-15-21		2 of 3



MOUNTAIN VILLAGE BOULEVARD
N 469462.388
E 322361.451
EL 9537.515
412
TSG SKI AND GOLF OPENSPACE
TRISTANT LOT 158R
TSG SKI AND GOLF OPENSPACE
TEMPORARY LICENSE AGREEMENT FOR ACCESS AND CONSTRUCTION STAGING
THE LORIAN CONDOMINIUMS LOT 154
BEAR CREEK LODGE LOT 159R
N 469157.449
E 322067.606
EL 9581.512
411
PP-108
PP-109
PP-110
PP-111
PP-112
PP-113
PP-114
PP-115
PP-116
PP-117
PP-118
DOUBLE CABINS TOWNHOMES LOT 155
BEAR CREEK LODGE DRIVE
N 469044.239
E 322787.471
EL 9632.595
406
SAN JOAQUIN ROAD
N 468907.283
E 322180.103
EL 9608.481
410
TOWN OF MOUNTAIN VILLAGE OPENSPACE
LODGES ON SUNDANCE LOT 157
TSG SKI AND GOLF OPENSPACE
407
N 468766.962
E 322700.511
EL 9646.145
LODGES LANE
N 468585.355
E 322516.626
EL 9648.764
409
N
W
E
S
0
50
100
Feet
SCALE 1"=50'

ADVERTISEMENT SET

PROJECT CONTROL/LAND SURVEY DIAGRAM

MTN VILLAGE BIKE & PEDESTRIAN SAFETY PROJECT

Town of Mountain Village

County of San Miguel

State of Colorado

Sheet 1 Revisions		
Date	Description	Initials
12152021	SEILER REDLINES	DB

Sheet 2 Revisions		
Date	Description	Initials
12152021	SEILER REDLINES	DB

Sheet 3 Revisions		
Date	Description	Initials
12152021	SEILER REDLINES	DB

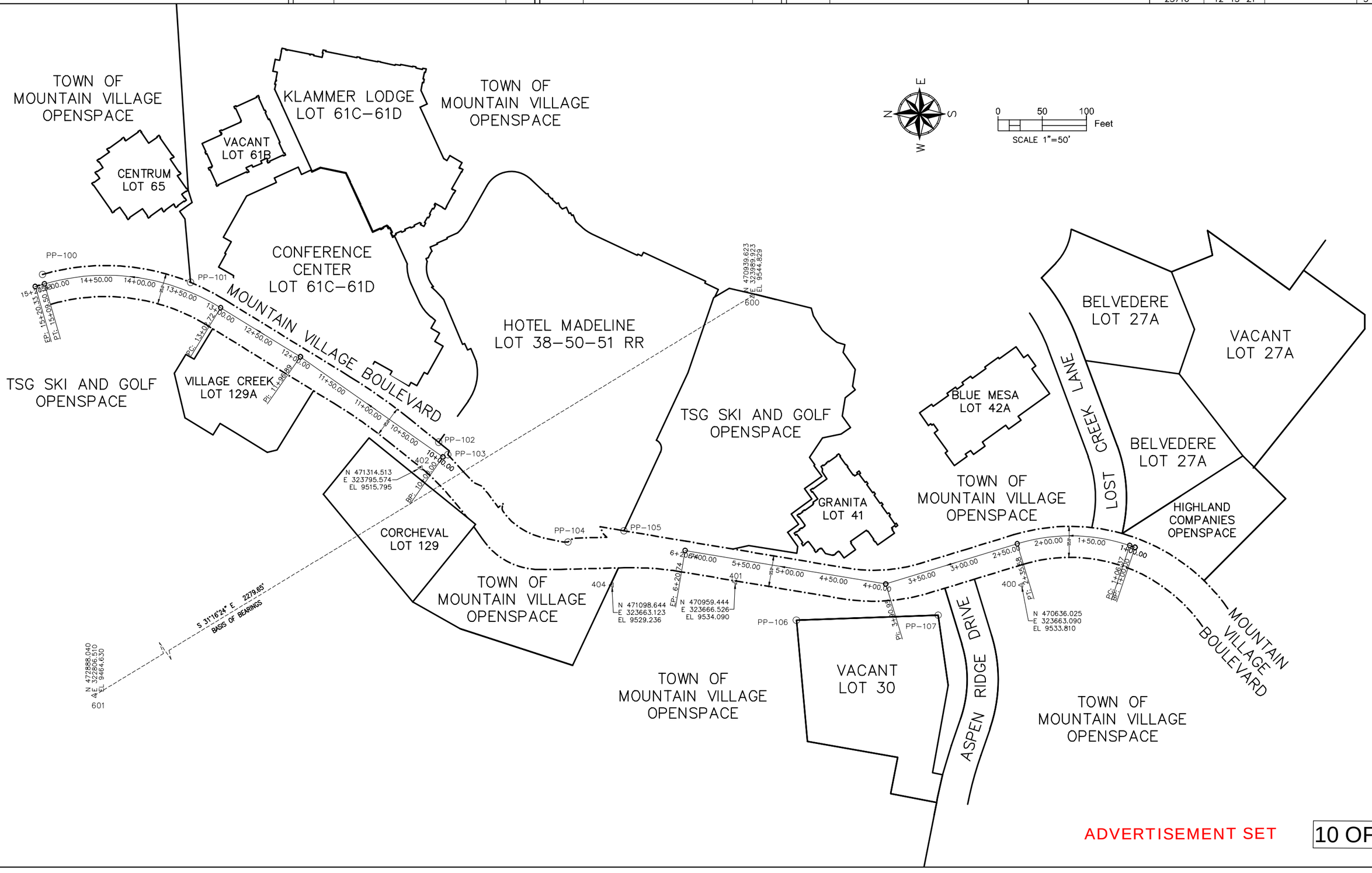
Land Survey/Project Control Diagram

Monument Coordinate Tables

Project Number: MFT M918–019

Project Location: Mountain Village, Colorado

Project Code:	Last Mod. Date	Subset	Sheet No.
23710	12–15–21		3 of 3



ADVERTISEMENT SET

10 OF 55

GENERAL NOTES

1. ALL ITEMS LISTED IN THESE NOTES ARE INCIDENTAL TO THE PROJECT AND WILL NOT BE PAID FOR SEPARATELY UNLESS OTHERWISE APPROVED BY THE PROJECT ENGINEER.
2. THE CONTRACTOR SHALL HAVE IN HIS POSSESSION AT ALL TIMES ONE (1) SIGNED COPY OF PLANS AND SPECIFICATIONS WHICH HAVE BEEN APPROVED BY THE APPROPRIATE AGENCIES.
3. ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE APPLICABLE STANDARDS (SEE LIST BELOW). THE CONTRACTOR MUST HAVE A COPY OF THESE DOCUMENTS ON SITE AT ALL TIMES. WHEN REQUIREMENTS IN THE DRAWINGS AND THE APPLICABLE STANDARDS CONFLICT THE MORE STRINGENT REQUIREMENT SHALL APPLY.
4. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL REQUIRED PERMITS PRIOR TO THE COMMENCEMENT OF ANY WORK ON THE PROJECT AND/OR WORK IN THE PUBLIC RIGHT-OF-WAY OR PUBLIC EASEMENTS.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE OWNER/DEVELOPER OF ANY PROBLEMS IN CONFORMING TO THE APPROVED PLANS FOR ANY ELEMENT OF THE PROPOSED IMPROVEMENTS PRIOR TO ITS CONSTRUCTION.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREPARING PROJECT "RECORD DRAWINGS"PER THE APPLICABLE STANDARDS (SEE LIST BELOW). THE CONTRACTOR SHALL ALSO PROVIDE ONE (1) COPY EACH TO THE OWNER, ENGINEER, AND ANY OTHER APPROPRIATE AGENCIES PRIOR TO FINAL ACCEPTANCE OF THE WORK.
7. THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS AT AND ADJACENT TO THE JOB SITE INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.
8. SURVEY INFORMATION IS PROVIDED BY BULSON SURVEYING.

INCIDENTAL DAMAGE

9. THE CONTRACTOR SHALL TAKE THE NECESSARY PRECAUTIONS TO PROTECT ALL PUBLIC AND PRIVATE IMPROVEMENTS (IN PLACE) DURING CONSTRUCTION OPERATIONS (E.G. RESIDENTIAL SERVICES SIGNS, WATER LINES, SEWER LINES, STORM DRAINS, FENCES, IRRIGATION). DAMAGE TO SAID IMPROVEMENTS AS A RESULT OF CONSTRUCTION OPERATIONS WILL NOT BE MEASURED AND PAID FOR SEPARATELY, BUT SHALL BE THE CONTRACTOR'S RESPONSIBILITY, UNLESS OTHERWISE APPROVED BY THE PROJECT ENGINEER.
10. THE CONTRACTOR SHALL REPAIR OR REPLACE EXISTING LANDSCAPING, IN KIND, THAT WAS REMOVED OR DAMAGED DURING CONSTRUCTION.
11. THE CONTRACTOR SHALL PROTECT ALL EXISTING SURVEY MONUMENTATION DESIGNATED AS "PROTECT SURVEY MONUMENT" ON THE PLAN SHEETS. ANY MONUMENTS WITH THAT DESIGNATION THAT ARE DISTURBED SHALL BE RESET AT THE CONTRACTOR'S EXPENSE. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE PROJECT ENGINEER IF SURVEY MONUMENTS ARE ENCOUNTERED THAT ARE NOT SHOWN ON THE PLAN SHEETS. SAID MONUMENTS SHALL BE PROTECTED FROM CONSTRUCTION ACTIVITIES UNTIL THE ENGINEER IS NOTIFIED.
12. ANY CONSTRUCTION DEBRIS OR MUD TRACKING IN THE PUBLIC RIGHT-OF-WAY SHALL BE REMOVED IMMEDIATELY BY THE CONTRACTOR.
13. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL WALK THE PROJECT SITE AND RECORD PHOTO OR VIDEO DOCUMENTATION OF ANY PRE-EXISTING DAMAGE.
14. DURING CONSTRUCTION, THE CONTRACTOR SHALL IMMEDIATELY FIX ANY DAMAGE OR EXCESSIVE PAVEMENT FAILURES OUTSIDE OF THE PROJECT LIMITS CAUSED BY PROJECT CONSTRUCTION AND SHALL PROPERLY BARRICADE THE AFFECTED AREA UNTIL NECESSARY REPAIRS ARE COMPLETE. FAILURE BY THE CONTRACTOR TO CORRECT ANY OF THE ABOVE CONDITIONS WITHIN PUBLIC RIGHT-OF-WAY WITHIN 48 HOURS OF WRITTEN NOTICE BY THE INSPECTING AGENCY SHALL CAUSE THE INSPECTING AGENCY TO ISSUE A STOP WORK ORDER. AT THIS TIME, THE AGENCY MAY PERFORM THE CORRECTIVE WORK AND MAKE A CLAIM AGAINST THE ESCROW BOND OR LETTER OF CREDIT FOR ANY COST INCURRED BY THE AGENCY.
15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION OF ALL EXISTING ASPHALT FROM CONSTRUCTION EQUIPMENT. DAMAGED ASPHALT SHALL BE REPLACED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE.

INSPECTIONS AND MATERIAL TESTING

16. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH THE APPROVING AGENCIES, AGENCY INSPECTORS, AND OWNER'S REPRESENTATIVE REGARDING MATERIAL TESTING AND INSPECTION PROCEDURES. ANY REQUIRED RE-TESTING, RE-WORK, OR DELAYS RESULTING FROM THE FAILURE OF THE CONTRACTOR TO FOLLOW THE APPROPRIATE PROCEDURES SHALL BE AT THE CONTRACTORS EXPENSE.
17. THE DUTY OF THE AGENCY REPRESENTATIVES, OWNER, OR OWNER'S REPRESENTATIVES TO CONDUCT CONSTRUCTION REVIEW OF THE CONTRACTOR'S PERFORMANCE IS NOT INTENDED TO INCLUDE REVIEW OF THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES IN, ON, OR NEAR THE CONSTRUCTION SITE.
18. THE TOWN OF MT. VILLAGE WILL PROVIDE QUALITY ASSURANCE MATERIAL TESTING.

TRENCHING AND BACKFILL

19. TRENCH WIDTH AT THE TOP OF THE BELL SHALL NOT EXCEED 16 INCHES PLUS PIPE WIDTH.

TRAFFIC CONTROL

20. THE CONTRACTOR SHALL PROVIDE ALL LIGHTS, SIGNS, BARRICADES, FLAGMEN OR OTHER DEVICES NECESSARY TO PROVIDE FOR PUBLIC SAFETY IN ACCORDANCE WITH THE CURRENT MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. FOR EACH TEMPORARY TRAFFIC CONTROL SCENARIO THE CONTRACTOR MUST PREPARE AND SUBMIT AN METHOD OF HANDLING TRAFFIC (MHT), TO THE MT. VILLAGE PUBLIC WORKS DEPARTMENT FOR REVIEW AND APPROVAL BEFORE COMMENCING ANY WORK IN THE TOWN RIGHT-OF-WAY OR EASEMENTS. THE CONTRACTOR SHALL EMPLOY A CERTIFIED TRAFFIC CONTROL SUPERVISOR (CTCS) TO BE RESPONSIBLE FOR ALL METHODS OF HANDLING TRAFFIC (MHT'S).

CONCRETE

21. CLASS B CONCRETE SHALL BE USED FOR SIDEWALKS, CURB AND GUTTER, HANDICAP RAMPS, AND INLETS. PER 601.02 CLASS D OR CLASS P CONCRETE MAY BE USED IN PLACE OF CLASS B CONCRETE AT THE CONTRACTOR'S OPTION.
22. CLASS P CONCRETE IS USED FOR CONCRETE PAVING. FOR THIS PROJECT CLASS D CONCRETE MAYBE USED IN PLACE OF CLASS P CONCRETE AT THE CONTRACTOR'S OPTION. ACCEPTANCE FOR CLASS P CONCRETE SHALL BE BASED ON COMPRESSIVE STRENGTH AND NOT FLEXURAL STRENGTH.
23. PRIOR TO THE START OF ANY CONCRETE WORK, THE CONTRACTOR SHALL PROVIDE CURRENT, CDOT APPROVED MIX DESIGNS FOR EACH TYPE OF CONCRETE PROPOSED FOR USE ON THE PROJECT. THESE MIX DESIGNS MUST MEET THE REQUIREMENTS FOR A CLASS 2 SULFATE EXPOSURE LEVEL.

GRADING AND DRAINAGE

24. A WATER TRUCK, IF CALLED FOR BY AN AGENCY INSPECTOR OR OWNER'S REPRESENTATIVE, WILL BE PROVIDED TO KEEP WIND EROSION IN CHECK.
25. ANY SETTLEMENT OR SOIL ACCUMULATIONS BEYOND THE PROPERTY LIMITS DUE TO GRADING OR EROSION SHALL BE REPAIRED IMMEDIATELY BY THE CONTRACTOR.

UTILITIES

26. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH UTILITY PROVIDERS AND APPROVING AGENCIES FOR ANY PLANNED INTERRUPTION OF UTILITY SERVICES SUCH AS ELECTRICAL, TELEPHONE, WATER, SEWER, GAS, ETC.
27. THE CONTRACTOR SHALL COMPLY WITH ARTICLE 1.5 OF TITLE 9, C.R.S. "EXCAVATION REQUIREMENTS" WHEN EXCAVATING 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 ACTUAL DAY OF NOTICE, PRIOR TO COMMENCING SUCH OPERATIONS. THE CONTRACTOR SHALL CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO (UNCC) AT 811 OR 1-800-922-1987, TO HAVE LOCATION OF UNCC REGISTERED LINES MARKED. ALL OTHER UNDERGROUND FACILITIES SHALL BE LOCATED BY CONTACTING THE RESPECTIVE OWNER. UTILITY SERVICE LATERALS SHALL ALSO BE LOCATED PRIOR TO BEGINNING EXCAVATION OR GRADING.
28. IN ACCORDANCE WITH ARTICLE 1.5 OF TITLE 9, SECTION 103, C.R.S., EXISTING UTILITY FACILITIES ARE DEPICTED IN THE PLANS SHEETS AS REFERENCED BY THE QUALITY LEVEL NOTED THEREIN PURSUANT TO THE ASCE STANDARD GUIDELINE FOR THE COLLECTION AND DEPICTION OF EXISTING SUBGRADE UTILITY DATA (CI/ASCE 38-02). THE CONTRACTOR SHALL NOT BE RELIEVED OF ITS RESPONSIBILITY TO COMPLY WITH THE REQUIREMENTS SET FORTH THEREIN AND SHALL NOT REPLY SOLELY ON THE PLANS AND SPECIFICATIONS WHEN COMPLETING ITS WORK WITH RESPECT TO EXISTING BURIED UTILITIES.
29. CONTRACTOR SHALL CONSULT THE UTILITY PROJECT SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION RELATED TO UTILITIES AND WORK TO BE PERFORMED AS PART OF THIS PROJECT.

WORK IN PAVEMENT

30. WHERE CONSTRUCTION OCCURS IN OR ACROSS ASPHALT OR CONCRETE PAVEMENT, THE CONTRACTOR SHALL SAW CUT THE PAVEMENT FOR A CLEAN STRAIGHT EDGE 6" OUTSIDE OF THE TRENCH LIMITS TO ALLOW CLEAN REMOVAL AND A GOOD SURFACE FOR PROPER PATCHING.
31. ALL PAVEMENT SAW CUTS SHALL BE 90° TO ONE ANOTHER, UNLESS SHOWN OTHERWISE.
32. IMMEDIATELY PRIOR TO ASPHALT PATCHBACK, THE CONTRACTOR SHALL REMOVE THE TOP 5 INCHES OF CLASS 6 ABC ON THE TRENCH AND RECONDITION THE BACKFILL AS NECESSARY TO MEET THE TOWN PAVING STANDARDS. COMPACTION TESTS SHALL BE TAKEN BY THE GEOTECHNICAL TESTING LABORATORY AND SUBMITTED TO THE ENGINEER. ALL DAMAGED EDGES OF PAVEMENT OR SOFT SHOULDERS SHALL BE SAW CUT AND REMOVED AND THE BASE COMPACTED.
33. ALL ASPHALT PATCHBACK SHALL BE 4 INCHES THICK PLACED IN ONE LIFT.
34. WITH NOTIFICATION OF THE AGENCY INSPECTOR, CONTRACTOR SHALL ADJUST RIMS OF ALL CLEANOUTS, MANHOLES, VALVE COVERS, AND SURVEY MONUMENTS (BY A LICENSED PLS) TO FINISHED GRADE PRIOR TO FINAL MATERIAL PLACEMENT.

PHASING/PEDESTRIAN ACCESS

35. CONTRACTOR SHALL SUBMIT A PHASING PLAN INCLUDING PEDESTRIAN DETOURS FOR REVIEW AND APPROVAL BY THE PROJECT ENGINEER.
36. THE PROSPECT TRAIL RUNS THROUGH A PORTION OF TSG PROPERTY THAT WILL BE UTILIZED FOR CONSTRUCTION ACCESS AND STAGING. THE TRAIL SHALL REMAIN OPEN TO THE PUBLIC DURING CONSTRUCTION, OTHERWISE SIGNAGE AND A DETOUR WILL BE PROVIDED. THE TOWN AND TSG SHALL WORK COOPERATIVELY TOGETHER TO ENSURE APPROPRIATE SIGNAGE IS IN PLACE AND THE PUBLIC IS TIMELY NOTIFIED OF ANY DETOUR.

RIGHT-OF-WAY PRECAUTIONS

37. PRIOR TO THE START OF CONSTRUCTION, THE ROW LIMITS MUST BE PHYSICALLY DELINEATED BY A PROFESSIONAL LAND SURVEYOR. AS THE LIMITS OF WORK ARE VERY CLOSE TO PRIVATE PROPERTY BOUNDARIES, THE CONTRACTOR MUST BE PREPARED AND CAPABLE OF BUILDING THE PROJECT EXCLUSIVELY ON PUBLIC ROW. THE USE OF SPECIALIZED CONSTRUCTION TECHNIQUES, INCLUDING THE USE OF HAND TOOLS, IS LIKELY REQUIRED TO CONSTRUCT PORTIONS OF THE PROJECT.

ENVIRONMENTAL

38. THIS PROJECT MAY REQUIRE DEWATERING OF SURFACE OR SUBSURFACE WATER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACCEPTANCE AND CONTROL OF THIS DRAINAGE IN OR ENTERING THE PROJECT AREA. A CDPHE DEWATERING PERMIT MAY BE REQUIRED FOR THIS PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE PERMIT AND FOR ADHERING TO ALL TERMS AND CONDITIONS OF THE PERMIT INCLUDING FEES, SAMPLING, TESTING, AND REPORTING. ADDITIONALLY, COPIES OF ANY LAB RESULTS AND REPORTS SHALL BE PROVIDED TO THE CDOT PROJECT ENGINEER.
39. THIS PROJECT REQUIRES A STORMWATER CONSTRUCTION PERMIT (CDPS-SCP). THE CONTRACTOR MUST COMPLETE ALL PORTIONS OF THE PERMIT APPLICATION AND SUBMIT TO CDPHE AT LEAST 10 BUSINESS DAYS PRIOR TO THE START OF WORK. THE CONTRACTOR SHALL NOT COMMENCE PERMIT-RELATED WORK UNTIL THE PERMIT IS RECEIVED AND SHALL COMPLY WITH ALL TERMS AND REPORTING REQUIRED BY THE PERMIT.
40. THE CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITIES TO THOSE AREAS WITHIN THE LIMITS OF DISTURBANCE AND/OR TOES OF SLOPES SHOWN ON PLANS. ANY DISTURBANCE BEYOND THESE LIMITS SHALL BE RESTORED TO ORIGINAL CONDITION BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE. CONSTRUCTION ACTIVITIES IN ADDITION TO NORMAL CONSTRUCTION PROCEDURE SHALL INCLUDE THE PARKING OF VEHICLES OR EQUIPMENT, DISPOSAL OF LITTER, AND ANY OTHER ACTION WHICH WOULD ALTER EXISTING CONDITIONS.
41. TO THE EXTENT PRACTICAL, ALL VEGETATION REMOVAL AND WORK ON STRUCTURES NECESSARY TO COMPLETE THE PROJECT SHALL BE CONDUCTED OUTSIDE OF THE NESTING SEASON FOR MIGRATORY BIRDS (APRIL 1 TO AUGUST 31). A SURVEY OF THE PROJECT AREA FOR NESTING MIGRATORY BIRDS SHALL BE COMPLETED BY THE CONTRACTOR'S BIOLOGIST PRIOR TO ANY VEGETATION REMOVAL DURING THE NEST SEASON. IF ACTIVE NESTS ARE LOCATED, 50 FT. WORK ZONE BUFFERS MUST BE PROVIDED AROUND ACTIVE NESTS. THESE SURVEY AND BUFFER REQUIREMENTS FOR MIGRATORY BIRD NESTS DO NOT APPLY IF THE VEGETATION REMOVAL OR WORK ON STRUCTURES IS CONDUCTED OUTSIDE OF THE APRIL 1 TO AUGUST 31 MIGRATORY BIRD NEST SEASON. 10 HOURS PAY ITEM 240-00000 WILDLIFE BIOLOGIST SHALL BE INCLUDED IN THE PLAN SET SAQ TO PROVIDE COMPENSATION FOR NESTING MIGRATORY BIRD SURVEYS, IF NEEDED. ANY COSTS OR DELAYS ASSOCIATED WITH WORK BUFFER RESTRICTIONS SHALL NOT BE COMPENSATED SEPARATELY.
42. BEST MANAGEMENT PRACTICES. STANDARD BEST MANAGEMENT PRACTICES (BMPS) WILL BE IMPLEMENTED ON-SITE TO AVOID IMPACTS TO AQUATIC RESOURCES (WETLANDS AND OTHER WATERS OF THE U.S.) DURING CONSTRUCTION.
43. VEHICLE MAINTENANCE. THE CONTRACTOR SHALL NOT PERFORM EQUIPMENT FUELING OR LUBRICATION WITHIN 100 FT OF CANALS, PERENNIAL WATERWAYS, WETLANDS, OR OTHER OPEN WATER.
44. IN ORDER TO FACILITATE COMPLIANCE WITH THE BALD AND GOLDEN EAGLE PROTECTION ACT AND THE CPW *RECOMMENDED BUFFER ZONES AND SEASONAL RESTRICTIONS FOR COLORADO RAPTORS*, THE CONTRACTOR'S BIOLOGIST SHALL CONDUCT A RAPTOR SURVEY(S) PRIOR TO THE START OF CONSTRUCTION. SURVEYS WILL BE CONDUCTED FROM FEBRUARY 15 TO JULY 15 AND SHALL BE PERFORMED NO MORE THAN 7 DAYS PRIOR TO CONSTRUCTION PER THE PROJECT SPECIAL PROVISION SECTION 240 PROTECTION OF MIGRATORY BIRDS BIOLOGICAL WORK BY CONTRACTOR'S BIOLOGIST. IF AN ACTIVE RAPTOR NEST IS OBSERVED BY THE CONTRACTOR'S BIOLOGIST WITHIN 0.5 MILE OF THE PROJECT AREA, THE PROJECT ENGINEER WILL BE NOTIFIED TO COMMUNICATE FINDINGS TO CDOT REGION BIOLOGIST WHO WILL COORDINATE WITH THE CPW AND SUBSEQUENTLY PROVIDE GUIDANCE TO THE PROJECT ENGINEER AS TO WHETHER ACTIVITIES NEED TO BE MODIFIED OR LIMITED IN CERTAIN AREAS OF THE PROJECT IN ORDER TO COMPLY WITH THE CPW *RECOMMENDED BUFFER ZONES AND SEASONAL RESTRICTIONS FOR COLORADO RAPTORS* GUIDANCE.
45. IT IS ESTIMATED THAT THE PROJECT WILL REQUIRE **10 HOURS PAY ITEM 240-00000 WILDLIFE BIOLOGIST** TO PERFORM REQUISITE BIOLOGICAL TASKS.
46. CONSTRUCTION ACTIVITIES WILL BE LIMITED TO DAYLIGHT HOURS. NO NIGHTTIME WORK OR ARTIFICIAL LIGHTING OF THE PROJECT AREA WILL BE ALLOWED IN ORDER TO MINIMIZE IMPACTS TO WILDLIFE MOVEMENT.
47. ALL AQUATIC RESOURCES WILL BE AVOIDED FOR THIS PROJECT AND, THEREFORE, NO IMPACTS TO AQUATIC RESOURCES ARE ANTICIPATED (TEMPORARY OR PERMANENT). AS SUCH, A CLEAN WATER ACT SECTION 404 PERMIT AUTHORIZATION FROM THE U.S. ARMY CORPS OF ENGINEERS (USACE) IS NOT REQUIRED. IF IMPACTS TO AQUATIC RESOURCES CANNOT BE AVOIDED, THE CONTRACTOR SHALL OBTAIN THE APPROPRIATE PERMITS FROM THE U.S. ARMY CORPS OF ENGINEERS AND CLEARANCES FROM CDOT.

ADA

48. THERE SHALL BE NO "LIP" BETWEEN THE CURB AND GUTTER ON PROWAG COMPLIANT RAMPS.
49. DETECTABLE WARNINGS ARE INCIDENTAL TO "CURB RAMP" PAY ITEMS AND MUST BE AN UN-COATED CAST IRON TYPE FOUND ON THE CDOT APPROVED PRODUCTS LIST.

MEETINGS

50. THE CONTRACTOR IS RESPONSIBLE FOR SCHEDULING A PRE-CONSTRUCTION MEETING AT LEAST 7-DAYS PRIOR TO CONSTRUCTION WITH ALL SUBCONTRACTORS AND TOWN AND CDOT REPRESENTATIVES.
51. THE CONTRACTOR IS RESPONSIBLE FOR SCHEDULING A PRE-CONSTRUCTION SURVEY MEETING AT LEAST 7-DAYS PRIOR TO CONSTRUCTION WITH THE PROJECT SUPER INTENDANT, THE CONTRACT SURVEYOR, AND TOWN AND CDOT REPRESENTATIVES.
52. THE CONTRACTOR IS RESPONSIBLE FOR SCHEDULING A PRE-CONCRETE PLACEMENT MEETING 7 DAYS PRIOR TO THE PLACEMENT OF ANY PROJECT CONCRETE.

PAY ITEM NOTES (IN LIEU OF A PROJECT SPECIAL PROVISION, THESE NOTES ARE PROVIDED FOR THE CONTRACTOR'S INFORMATION)

53. CURB AND GUTTER TYPE 2 GEOMETRY SHALL BE PER THE TOWN OF TELLURIDE DETAILS. ALL OTHER ASPECTS OF CONCRETE PAN AND CURB AND GUTTER CONSTRUCTION SHALL FOLLOW CDOT SPECIFICATION 609 "CURB AND GUTTER".
54. SOD MAY BE SALVAGED FROM DISTURBED AREAS OF THE SITE AND RE-USED IN AREAS TO BE SODDED IN LIEU OF IMPORTING NEW SOD IF THE SOD CAN BE KEPT HEALTHY AND ALIVE FROM THE TIME IT IS REMOVED UNTIL THE TIME IT IS INSTALLED, AS DETERMINED BY THE PROJECT ENGINEER. BOTH IMPORTED SOD AND SALVAGED/RE-USED SOD WILL BE PAID FOR UNDER ITEM 212-00050 BY THE SQUARE FOOT INSTALLED AND ACCEPTED.
55. SAWCUTTING OF ASHPALT AND CONCRETE IS INCLUDED IT THE REMOVAL PAY ITEMS AND WILL NOT BE PAID FOR SEPERATELY.
56. SMALL AREA INLET (SPECIAL) ITEMS SHALL CONSTRUCTED IN ACCORDANCE WITH CDOT SPECIFICATION 604. THESE INLETS DO NOT APPEAR TO BE STANDARD INLETS. THEREFORE, IT IS LIKELY THESE INLETS WILL NEED TO BE CAST-IN-PLACE. IF THE CONTRACTOR DECIDES TO CAST THESE INLETS IN PLACE, THE CONTRACTOR WILL BE REQUIRED TO SUBMIT A SHOP DRAWING FOR APPROVAL PRIOR TO DEMOLITION OF THE EXISTING INLETS. THE SHOP DRAWING PROCESS WILL NOT BE PAID FOR SEPARATELY, BUT WILL BE INCLUDED IN THE WORK. EXCAVATION AND BACKFILL WILL NOT BE PAID FOR SEPERATELY, BUT ARE INCLUDED IN THE INLET PAY ITEMS.
57. CURB INLET (3 FOOT) (SPECIAL) DIMENSIONS AND MATERIALS SHALL BE PER THE DETAILS INCLUDED IN THIS PLAN SET. INSTALLATION SHALL BE PER SECTION 604 OF CDOT SPECIFICATIONS. EXCAVATION AND BACKFILL WILL NOT BE PAID FOR SEPERATELY, BUT ARE INCLUDED IN THE INLET PAY ITEMS.
58. THE COMBINATION LOADER AND LABORER PAY ITEMS HAVE BEEN INCLUDED IN THE EVENT UTILITY ADJUSTMENTS ARE NECESSARY. CONTRACTOR BILLING OF THESE TWO PAY ITEMS MUST BE APPROVED IN WRITING BY THE PROJECT ENGINEER PRIOR TO COMMENCEMENT OF ANY UTILITY ADJUSTMENT WORK.
59. CONCRETE SIDEWALK, CURB AND GUTTER, AND CURB RAMPS SHALL BE PLACED ON 4 INCHES OF CLASS 6 AGGREGEGATE BASE COURSE COMPACTED TO 95% MAX DRY DENSITY PER AASHTO T-180.
60. REMOVAL OF SIGN (SPECIAL) INCLUDES REMOVAL AND DISPOSAL OF THE EXISTING SIGN AND FOUNDATION, BACKFILLING OF THE VOID LEFT FROM FOUNDATION REMOVAL, AND PLACEMENT OF CONCRETE AND/OR PAVERS (PROVIDED BY THE TOWN).
61. CONCRETE SIDEWALK (6 INCH) SPECIAL SHALL HAVE 6 INCH CONCRETE THICKNESS. ALL OTHER ASPECTS OF SIDEWALK CONSTRUCTION SHALL BE PER SECTION 608 OF CDOT SPECIFICATIONS.

APPROVING AGENCIES:	TOWN OF MT VILLAGE & CDOT
APPLICABLE STANDARDS:	CDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION 2022
INSPECTING AGENCIES:	TOWN OF MT VILLAGE & CDOT
REQUIRED PERMITS*:	COLORADO DISCHARGE PERMIT SYSTEM STORMWATER CONSTRUCTION PERMIT (CDPS -SCP) CDPHE WCCD DEWATERING PERMIT (IF NEEDED)

* THIS LIST IS NOT MEANT TO BE ALL INCLUSIVE. IT IS THE CONTRACTOR'S RESPOSIBILITY TO IDENTIFY AND OBTAIN ALL NECESSARY PERMITS.

ADVERTISEMENT SET

Uncompahgre Engineering, LLC

P.O. Box 3945
Telluride, CO 81435
970-729-0683

PROJECT NAME:
MTN VILLAGE
BIKE & PED SAFETY
PROJECT #: MTF M918-019
PROJECT CODE: 23710

PROJECT NOTES & EARTHWORK SUMMARY

NOT FOR CONSTRUCTION

CONTRACTOR TO REVIEW AND COMPARE ALL CHAPTERS AND INTERDISCIPLINARY DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO ANY FIELD WORK BEING DONE IN ACCORDANCE WITH AIA DOCUMENT A201

AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

DATE: 11-21-22

File Path: ..._Cover & Std Plans List.dgn

SWMP TEMPLATE (PLAN SHEETS) FOR PROJECTS WITH 1 ACRE OR MORE OF DISTURBANCE 2/25/2022 UPDATE

1. SITE DESCRIPTION

The Contractor shall comply with all CDOT contractual requirements, and all requirements associated with the CDPS-SCP on this project. The SWMP Administrator for Construction shall update the SWMP to reflect current project site conditions.

A. PROJECT SITE LOCATION:
This project has two separate parts. One part of the project is work on San Joaquin Road from the intersection with Mt Village Blvd to a point approximately 2000' +/- southeast. The second part of the project is work along Mt Village Blvd from the intersection with Lost Creek Lane to the intersection of County Club Drive.

Location or address of construction office: **TBD BY CONTRACTOR**

B. PROJECT SITE DESCRIPTION: The work along San Joaquin Road consists of full depth reconstruction, minor regrading, and shoulder widening of approximately 2000' +/- of roadway, including a substantial amount of retaining wall construction. The portion of work along Mt Village Blvd consists of pedestrian/ADA improvements including new sidewalk and ADA ramps.

C. PROPOSED SCHEDULE FOR SEQUENCE FOR MAJOR CONSTRUCTION ACTIVITIES:
Stabilize all areas that are not paved or landscaped through establishment of vegetation cover.

1. Contractor Mobilization and Staging.
2. Installation of BMPs as outlined in the Erosion Control Plan.
3. Demolition of existing curb and gutter, sidewalk, and asphalt in phases as approved by the Town of Mt Village.
4. Construction of new curb and gutter, sidewalk, asphalt, ADA ramps, and retaining walls in phases approved by the Town of Mt Village.
5. Steps 2-4 will be repeated for each phase throughout the duration of the project until project completion.
6. Once the site is stabilized (all hardscape, seeding/mulching in place), the contactor shall remove all temporary BMPs.
7. Contractor demobilization from the site.
8. Contractor to stabilize the staging area per the Erosion Control Plan.

D. ACRES OF DISTURBANCE:
1. Total area of construction site (LOC (PERMITTED AREA)): **2.72** acres
2. Total area of proposed disturbance (LDA): **2.58** acres
3. Total area of seeding: **0.50** acres
4. Total area of pre-project impervious surface: **60,303** sq. ft.
5. Total area of final impervious surface: **77,697** sq. ft.

E. EXISTING SOIL DATA:
The soils along San Joaquin Road are Scout Family, 10 to 60 percent slopes, extremely stony and Seitz-Needleton complex, 25 to 65 percent slopes. The erodibility factor (K) was not available for either of these soil types. The soils along the project portion of Mt Village are Washboard-Rock Outcrop Complex, 20 to 90 percent slopes, very stony. The erodibility factor (K) was not available for this soil type.

Data Source(s): NRCS Web Soil Survey

F. EXISTING VEGETATION, INCLUDING PERCENT OF VEGETATIVE COVER:
During design, the SWMP Administrator for Design in consultation with the Engineer will determine if the SWMP Administrator for Design or the SWMP Administrator for Construction will conduct the Vegetation Transects. If the site is disturbed, an Adequate Reference Site(s) may be utilized, refer to the permit.

The only areas to receive seeding are the side slopes of the widened San Joaquin Road. The SWMP Administrator for Construction shall conduct the Vegetation Transects prior to disturbance of this area.

Pre-Construction Date of survey: _____ Percent Existing Vegetative Cover: _____
Description of existing vegetation: _____
Method for determining percent vegetative cover: CDOT Vegetative Transect Procedure

Include a map or table showing transect locations, photos documenting pre-Construction vegetative cover, and methodology used to determine existing vegetative cover to SWMP tab 17:

Post-Construction Date of survey: _____ Percent Vegetative Cover: _____
Description of vegetation: _____
The method used to determine pre-construction percent cover shall be used to determine post construction percent cover.

Include map or table showing transect locations, photos documenting post-Construction vegetative cover, and methodology used to determine existing vegetative cover to SWMP tab 17:

G. POTENTIAL POLLUTANTS SOURCES:
Refer to Potential Pollutant Sources in SWMP Section 4A. The SWMP Administrator for Construction shall prepare a list of all potential pollutants and their locations in accordance with subsection 107.25.

H. DRAINAGE PATTERNS AND RECEIVING WATER(S):
1. Description of drainage patterns from the Site:
Town of Mt Village Roadside Ditches and storm drain system to Prospect Creek to San Miguel River. Five outfall locations are identified on the Erosion Control Plans.
2. Names of immediate and ultimate receiving water(s) on site:
Immediate discharge to the Town of Mt Village Roadside Ditches and storm drain system, then on to Prospect Creek, then ultimate discharge to the San Miguel River (listed as TMDL on CDPHE GIS Website)
3. Description of all stream crossings located within the Construction Site Boundary: Not Applicable.

Location	Stream Name	Description Of Any Disturbed Upland Areas

I. ALLOWABLE NON-STORMWATER DISCHARGES:

Discharge Description	Site Map #	Method Statement (Location)
Uncontaminated Springs		
Concrete Washout Water (in-ground washout structure)#	NA (USING PRE-FAB)	
Landscape Irrigation Return Flows		
Discharges from Diversions of State Waters		
Emergency Fire Fighting		

#Concrete washout water associated with the washing of concrete tools and concrete mixer chutes can be discharged to the ground if site is managed accordingly to prevent the water from leaving the site as surface runoff or reaching receiving waters.

J. DIVERSION CRITERIA:
1. Is a diversion planned for the Site? Yes _____ No _____.
2. If yes, complete information below:
   a. What is the 2-year peak flow for the waterway being diverted (cubic feet per second)?
   b. What are the monthly averages if available? (provide averages for Jan- Dec if available)
   c. What is the upstream contributing drainage area and imperviousness?
   d. A method statement must be prepared by the Contractor and approved by CDOT for each diversion. Diversion structures must minimize soil transport and erosion within the entire diversion, minimize erosion during discharge, and minimize run-on into the diversion and meet the conditions in the SCP.
   e. If the conditions in the SCP cannot be met and an alternative is required, CDOT must approve the alternative and then it must be submitted and approved by CDPHE's Water Quality Control Division prior to implementation.

K. ALTERNATIVE TEMPORARY STABILIZATION SCHEDULE:
[If applicable, provide a description of the alternative temporary stabilization schedule. If temporary stabilization exceeds the 14-day schedule, then the SWMP must document the constraints necessitating the alternative schedule, provide the alternative

Template Revised: 2.25.2022

ADVERTISEMENT SET

Uncompahgre Engineering, LLC
P.O. Box 3945
Telluride, CO 81435
970-729-0683

PROJECT NAME:
MTN VILLAGE
BIKE & PED SAFETY
PROJECT #: MTF M918-019
PROJECT CODE: 23710

STORMWATER MANAGEMENT PLAN #1

NOT FOR CONSTRUCTION

CONTRACTOR TO REVIEW AND COMPARE ALL CHAPTERS AND INTERDISCIPLINARY DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO ANY FIELD WORK BEING DONE IN ACCORDANCE WITH AIA DOCUMENT A201

AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

DATE: 11-21-22

File Path: ...\CAD_Erosion Control.dgn

schedule, and identify all the locations where the alternative schedule is applicable on the site map. Alternative temporary stabilization schedules must be approved by CDOT prior to implementation]

2. SITE MAP COMPONENTS:

Pre-construction

A. PROJECT CONSTRUCTION POTENTIAL SITE BOUNDARIES: See SWMP Site Maps #1 - #4 (FOR INITIAL, INTERIM, AND FINAL STABILIZATION PHASES).

B. FLOW ARROWS THAT DEPICT STORMWATER FLOW DIRECTIONS ON-SITE, RUN-ON AND RUNOFF DIRECTION: See SWMP Site Maps #1 - #4 (FOR INITIAL, INTERIM, AND FINAL STABILIZATION PHASES).

C. ALL AREAS OF GROUND SURFACE DISTURBANCE: See SWMP Site Maps #1 - #4 (FOR INITIAL, INTERIM, AND FINAL STABILIZATION PHASES) for Limit of Disturbance Lines.

D. AREAS OF CUT AND FILL: See SWMP Site Maps #1 - #4 (FOR INITIAL, INTERIM, AND FINAL STABILIZATION PHASES) for proposed contours.

E. AREAS USED FOR STORING AND STOCKPILING OF MATERIALS, STAGING AREAS (field trailer, fueling, etc.) and LOCATIONS OF ALL WASTE ACCUMULATION and BATCH PLANTS INCLUDING MASONRY MIXING STATIONS: **TBD BY CONTRACTOR**

F. LOCATION OF ALL STRUCTURAL CONTROL MEASURES IDENTIFIED IN THE SWMP:
See SWMP Site Maps #1 - #4 (FOR INITIAL, INTERIM, AND FINAL STABILIZATION PHASES).

G. LOCATION OF NON-STRUCTURAL CONTROL MEASURES AS APPLICABLE IN THE SWMP:
See SWMP Site Maps #1 - #4 (FOR INITIAL, INTERIM, AND FINAL STABILIZATION PHASES).

H. SPRINGS, STREAMS, WETLANDS, DIVERSIONS, AND OTHER STATE WATERS, INCLUDING AREAS THAT REQUIRE PRE-EXISTING VEGETATION BE MAINTAINED WITHIN 50 FEET OF A RECEIVING WATER:
See SWMP Site Maps #1, #2, & #4 (FOR INITIAL, INTERIM, AND FINAL STABILIZATION PHASES) for existing wetland locations.

I. LOCATIONS OF ALL STREAM CROSSING LOCATED WITHIN THE CONSTRUCTION SITE BOUNDARY:
None present.

J. PROTECTION OF TREES, SHRUBS, SENSITIVE HABITAT, AND CULTURAL RESOURCES:
See SWMP Site Maps #1, #2, & #4 (FOR INITIAL, INTERIM, AND FINAL STABILIZATION PHASES) for protection of existing wetlands.

K. LOCATIONS WHERE ALTERNATIVE TEMPORARY STABILIZATION SCHEDULES APPLY: Not Applicable.

3. QUALIFIED STORMWATER MANAGERS:

A. SWMP ADMINISTRATOR FOR DESIGN:
CDOT Certified Individual responsible for developing SWMP Plan Sheets and SWMP Site Maps during the design phase.

Name/Title	Contact Information	Certification #
Steve Pavlick – LA Engineer	970-903-3706 stevep@psteng.net	2D17ED61

B. SWMP ADMINISTRATOR FOR CONSTRUCTION: (As defined in Section 208) The Contractor shall designate a SWMP Administrator for Construction upon accepting co-permittee of the permit. The SWMP Administrator for Construction shall become the operator for the SWMP and assume responsibility for all design changes to the SWMP implementation and maintenance in accordance to 208.03, the SWMP shall remain the property of CDOT. The SWMP Administrator for Construction shall be responsible for implementing, maintaining and revising SWMP, including the title and contact information. The activities and responsibilities of the SWMP Administrator for Construction shall address all aspects of the project's SWMP. (Update the information below for each new SWMP Administrator for Construction) (A copy of TECS Certification must be included in the SWMP.)

Name/Title	Contact Information (phone & email)	Certification #	Start Date	Engineer Approval
TBD				

C. EROSION CONTROL INSPECTOR: (As defined in Section 208) The Contractor may designate an Erosion Control Inspector. The Erosion Control Inspector shall complete duties in accordance with subsection 208.03 (c) (Copy of TECS Certification must also be included in the SWMP.)

Name/Title	Contact Information (phone & email)	TECS Certification #	Start Date	Engineer Approval
TBD				

D. PERMANENT STABILIZATION SUBJECT MATTER EXPERT: This qualified individual will be either a Regional Environmental Staff member, or an Independent Contractor Controller (Independent Assurance Program). This expert is a project team leader responsible for ensuring project adherence to requirements of the 207 and 212 Project Special Provisions as follows and will be available for questions regarding permanent stabilization requirements.

1. Review the Topsoil Management Plan and the Permanent Stabilization Site Maps.
2. Attend the Environmental Pre-Construction Conference.
3. Coordinate the Site Pre-Vegetation Conference.
4. Review and recommend approval of products.
5. Review and recommend approval of the Quantities Verification Prerequisite.
6. Attend the Partial Landscape Completion Walkthrough.
7. Attend the Final Landscape Completion Walkthrough.

Name/Title	Contact Information
Danielle Wilkinson – Water Quality Specialist – Region 5	970-385-1425 danielle.wilkinson@state.co.us

4. STORMWATER MANAGEMENT CONTROLS FOR FIRST CONSTRUCTION ACTIVITIES

THE CONTRACTOR SHALL PERFORM THE FOLLOWING:

A. POTENTIAL POLLUTANT SOURCES:
Evaluate, identify, locate and describe all potential sources of pollutants at the site in accordance with subsection 107.25, CDPS-SCP and place in the SWMP. All control measures related to potential pollutants shall be shown on the SWMP Site Map by the Contractor's SWMP Administrator for Construction.

B. OFFSITE DRAINAGE (RUN ON WATER):
Describe and record control measures on the SWMP Site Map that have been implemented to address off site run-on water in accordance with subsection 208.03.

C. VEHICLE TRACKING CONTROL:
Control measures shall be implemented in accordance with subsection 208.04.

D. PERIMETER CONTROL:
1. Perimeter control shall be established as the first item on the SWMP to prevent the potential for pollutants leaving the construction site boundaries, entering the stormwater drainage system, or discharging to state waters. Perimeter control shall be in accordance with subsection 208.04
2. Perimeter control may consist of berms, silt fence, erosion logs, existing landforms, or other control measures as approved.

5. DURING CONSTRUCTION

RESPONSIBILITIES OF THE SWMP ADMINISTRATOR FOR CONSTRUCTION: Considered a "living document", the SWMP is continuously reviewed and modified throughout the construction phases. During construction, SWMP Administrator

Template Revised: 2.25.2022

ADVERTISEMENT SET

Uncompahgre Engineering, LLC
P.O. Box 3945
Telluride, CO 81435
970-729-0683

PROJECT NAME:
MTN VILLAGE
BIKE & PED SAFETY
PROJECT #: MTF M918-019
PROJECT CODE: 23710

STORMWATER MANAGEMENT PLAN #2

NOT FOR CONSTRUCTION

CONTRACTOR TO REVIEW AND COMPARE ALL CHAPTERS AND INTERDISCIPLINARY DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO ANY FIELD WORK BEING DONE IN ACCORDANCE WITH AIA DOCUMENT A201

AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

DATE: 11-21-22

File Path: ...\CAD_Erosion Control.dgn

for Construction shall add, update, or amend the items A-G below as needed in accordance with subsection 208.03.

During construction, indicate how items that were not addressed during design are being handled in construction. If items are covered in other sections of the SWMP, indicate below what section the discussion takes place.

A. MATERIALS HANDLING AND SPILL PREVENTION AND RESPONSE PLAN: Prior to construction commencing the Contractor shall submit a Spill Response Plan. Materials handling and Spill Response Plan shall be in accordance with subsection 208.06.

B. OTHER CDPS PERMITS: List applicable CDPS permits associated with the permitted site and activities.

C. STOCKPILE MANAGEMENT: Shall be done in accordance with subsections 107.25 and 208.07.

D. CONCRETE WASHOUT: Concrete washout water or waste from field laboratories and paving equipment shall be contained in accordance with subsection 208.05.

E. SAW CUTTING: Shall be done in accordance with subsections 107.25, 208.04, 208.05

F. STREET SWEEPING: Shall be done in accordance with subsection 208.04.

6. INSPECTIONS

A. Water Quality Inspections shall be in accordance with subsection 208.03(c).

B. Permanent Stabilization Inspections shall be in accordance with subsections 208.04(e)4 and 208.10.

7. CONTROL MEASURE MAINTENANCE

Maintenance shall be in accordance with subsection 208.04(f).

8. RECORD KEEPING

Records shall be kept in accordance with subsection 208.03(d).

9. INTERIM, PERMANENT STABILIZATION and LONG-TERM STORMWATER MANAGEMENT

The Contractor shall comply with all interim stabilization and permanent stabilization requirements in accordance with subsection 208.04(e).

A. SEEDING PLAN:
The following seed mix(es) and rates are for drill seeding method as shown on the Permanent Stabilization Site Maps shall be used:

COMMON NAME	BOTANICAL NAME	LBS. PLS PER ACRE
WESTERN YARROW (5%)		1.6
TALL FESCUE (10%)		3.3
ARIZONA FESCUE (5%)		1.6
HARD FESCUE (5%)		1.6
CREEPING RED FESCUE (10%)		3.3
ALPINE BLUEGRASS (15%)		4.9
CANADA BLUEGRASS (10%)		3.3
PERENNIAL RYEGRASS (15%)		4.9
SLENDER WHEATGRASS (10%)		3.3
MOUNTAIN BROME (15%)		4.9
	Total	32.7

B. SEEDING APPLICATION METHOD:
The following seeding methods shall be used for all areas shown on the Permanent Stabilization Site Maps. Soil compaction shall be minimized for areas where permanent stabilization will be achieved through vegetative cover.

Pay Item	Seeding Method (subsection 212.05)	Acre
212-00706	Seeding (Native) Drill	
212-00707	Seeding (Native) Hydraulic	
212-00708	Seeding (Native) Broadcast	0.50
	Total	0.50

C. SOIL STABILIZATION METHODS:
Minimum soil stabilization methods (attached mulch) for all disturbances to receive seeding.
1. Apply Spray-on Mulch Blanket hydraulically in accordance with Section 213.
2. Install Soil Retention Blankets in accordance with Standard Plan M-216-1 and Section 216.

D. SPECIAL REQUIREMENTS:
1. Soil amendments, seedbed preparation, and permanent stabilization mulching shall be accomplished within four working days of placing the topsoil on the de-compacted civil subgrades. If placed topsoil is not mulched with permanent stabilization mulch within four working days, the Contractor shall complete interim stabilization methods in accordance with subsection 208.04(e) at no additional cost to the Department.
2. Complete permanent stabilization mulching within 24 hours of hydraulic application of native seed.
3. The Contractor shall submit a proposed Permanent Stabilization Phasing Plan to the Engineer for approval showing how implementation of SWMP Permanent Stabilization Plans will minimize damage to seeded areas.

E. SOIL AMENDMENT REQUIREMENTS: Minimum amendment material requirements for all disturbances to receive seeding.
For Topsoil (Off-site) the minimum amendment requirements are based on nutrient testing (see Topsoil Project Special Provision)

0.50 Total Acres of Seeding (Native) Broadcast With Topsoil Generated From Topsoil (Offsite)

F. Permanent Stabilization Application Under Structures:
Under structures shade patterns should be considered and the use of Median Cover Material (Stone) or other stabilized options with an approved Project Special Provision should be used. See SWMP Site Map for locations.
Not Applicable.

G. RESEEDING OPERATIONS/CORRECTIVE STABILIZATION:
Prior to stormwater construction work partial acceptance.
1. All seeded areas shall be reviewed by the SWMP Administrator for Construction and or Erosion Control Inspector for bare soils caused by surface or wind erosion. Bare areas caused by surface or gully erosion, blown away mulch, etc. shall be re-graded, seeded, and have the designated mulching applied as necessary, at no additional cost to the project.
2. The Contractor shall maintain seeding/mulch/tackifier/blanket/TRM, mow to control weeds or apply herbicide to control weeds in the seeded areas, at no additional cost to the project.

H. LOCATION AND DESCRIPTION OF PLANNED PERMANENT CONTROL MEASURES: Is Permanent Water Quality Required. Yes_____No_____.

10. PRIOR TO PROJECT FINAL ACCEPTANCE

A. When directed by the Engineer, removal and disposal of temporary control measures shall be included in the cost of work.

B. At the end of the project, all ditch checks shall consist of either temporary erosion logs (or equivalent) or permanent riprap.

C. All storm drains shall be cleaned prior to the Final Acceptance of the project. If required, include work in 202-04002 Clean Culvert. [**Check with Region Water Quality staff to see if CLEAN CULVERT PSP is needed and what Pay Item to use.**]

D. Refer to subsection 208.10 for Items to be completed prior to requesting partial acceptance of water quality work.

Template Revised: 2.25.2022

ADVERTISEMENT SET

Uncompahgre Engineering, LLC
P.O. Box 3945
Telluride, CO 81435
970-729-0683

PROJECT NAME:
MTN VILLAGE
BIKE & PED SAFETY
PROJECT #: MTF M918-019
PROJECT CODE: 23710

STORMWATER MANAGEMENT PLAN #3

NOT FOR CONSTRUCTION

CONTRACTOR TO REVIEW AND COMPARE ALL CHAPTERS AND INTERDISCIPLINARY DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO ANY FIELD WORK BEING DONE IN ACCORDANCE WITH AIA DOCUMENT A201

AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

DATE: 11-21-22

File Path: ...\CAD_Erosion Control.dgn

11. NARRATIVES

Control Measure Matrixes During Construction:

1. Control measure narratives have been included for the CDOT Standard Specifications and Standard Plan M-208 and M-216 along with any non-standard control measures approved during the design process. If a Non-Standard Control Measure not included in the SWMP is proposed and approved by the Engineer the SWMP Administrator for Construction shall do the following: Place an "X" in the column for non-standard and complete a Non-Standard Control Measure Specification and Narrative covering the what, when, where and why the control measure is being used shall be add to the SWMP. The appropriate "X" shall also be added to the implementation phase(s).
2. The SWMP Administrator for Construction shall place an "X" in the column In Use On Site when the control measure has been installed.
3. A "B" in the Initial Activities Column indicates that the control measure shall be installed **before** construction activity starts. Locations and quantities will be discussed during the Environmental Pre-Construction Conference with the Regional Water Pollution Control Manager.

STRUCTURAL Control Measures that may be potentially used on the project for erosion and sediment control; practices may include, but are not limited to the following:

APPLICATION, CONTROL MEASURE	NARRATIVE	M- 208 STANDARD or "X" for NON-STANDARD	IN USE ON SITE	CONTROL MEASURE IMPLEMENTATION PHASE		
				INITIAL ACTIVITIES	INTERIM ACTIVITIES	PERMANENT STABILIZATION
PROTECTION OF EXISTING WETLANDS *Fence (plastic) and erosion logs*	Fence (plastic) shall be placed in combination with erosion logs to prevent encroachment of construction traffic and sediment into state waters prior to start of construction disturbances. Fence (plastic) shall be placed adjacent to the wetlands; erosion logs shall be placed between the plastic fence and disturbance area. Logs shall be placed to direct flows away from or filter water running into wetlands from disturbance areas.			B	X	X
PROTECTION OF EXISTING TREES/LANDSCAPING *Fence (plastic)*	Fence (plastic) shall be used in areas indicated in the plans to prevent encroachment of construction traffic and sediment for the protection of sensitive habitat, mature trees and/or existing landscaping prior to start of construction disturbances.					
CHECK DAM/DITCH CHECK *Erosion log, silt berm, silt dike, rock check dam*	Placed in ditches immediately upon completion of ditch grading to reduce velocity of runoff in ditch. For existing ditches, place prior to start of construction disturbances.	M-208			X	X
Storm Drain Inlet Protection In Paved Roadways (Type 1, 2 and 3 as shown on M-208-1, sheet 5 of 11)	Manufactured storm drain inlet protection placed prior to construction disturbances as detailed in M-208-1, to protect existing inlets or immediately upon completion of new inlets to prevent sediment from entering the inlet throughout construction.	M-208		B	X	X
Storm Drain Inlet Protection In Native Seed Areas (M-604 Standard Inlets Type C and D)	Erosion logs or aggregate bags placed around inlet grate to prevent sediment from entering inlet. Place prior to construction disturbances to protect existing inlets or immediately upon completion of new inlets.	M-208				
CULVERT INLET/OUTLET PROTECTION *Erosion logs, aggregate bags*	Placed at mouth of culvert inlets and over top of culvert at inlet and outlet where disturbance may be occurring adjacent to pipe to prevent sediment laden water from entering pipe or drainage. Place prior to the start of construction disturbances.	M-208		B	X	X
TYPE C, TYPE D AND TYPE 13 PROTECTION *Erosion logs, aggregate bags, erosion bales*	Placed around inlet grate or slope and ditch paving to prevent sediment from entering inlet. Place prior to the start of construction disturbances.	M-208				
STOCKPILE PROTECTION *Temporary berm, erosion logs, aggregate bags**	Placed within specified distance, in accordance with subsection 208.06, from toe to contain sediment around stockpile. *Aggregate bags are easily moved and replaced for access during the work day. Place prior to start of stockpiling, increase control as the stockpile increases size.	M-208			X	
TOE OF FILL PROTECTION *Erosion logs, temporary berm, silt fence, topsoil windrow**	Place prior to slope/embankment work to capture sediment and protect and delineate undisturbed areas. *Can be used to stockpile topsoil for salvage.	M-208				
PERIMETER CONTROL *Erosion logs, silt fence, temporary berm, topsoil windrow**	Placed prior to construction commencing to address potential run-on water from off site, and to divert around disturbed area. *Can be used to stockpile topsoil for salvage.	M-208				
SLOPE CONTROL *Silt fence, erosion logs*	Placed on the contour of a slope to contain and slow down construction runoff. Place prior to the start of construction disturbances.	M-208				
TEMPORARY SEDIMENT TRAP	Used to capture sediment laden runoff from disturbed areas < 5 acres during construction. Place prior to the start of construction disturbances. Outlets that withdraw water from or near the surface may be installed when discharging from basins and impoundments.	M-208				
TEMPORARY SLOPE DRAIN	Placed as a conduit or chute to drain runoff down slope and to prevent erosion of slope.	M-208				
OUTLET PROTECTION *Riprap, or approved other*	Material placed as an energy dissipater to prevent erosion at outlet structure.	M-601-12				
CONCRETE WASHOUT *In-ground or fabricated*	Construction control, used for waste management of concrete and concrete equipment cleaning. Place prior to the start of concrete activities.	M-208			X	

Template Revised: 2.25.2022

ADVERTISEMENT SET

Uncompahgre Engineering, LLC

P.O. Box 3945
Telluride, CO 81435
970-729-0683

PROJECT NAME:
MTN VILLAGE
BIKE & PED SAFETY
PROJECT #: MTF M918-019
PROJECT CODE: 23710

STORMWATER MANAGEMENT PLAN #4

NOT FOR CONSTRUCTION

CONTRACTOR TO REVIEW AND COMPARE ALL CHAPTERS AND INTERDISCIPLINARY DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO ANY FIELD WORK BEING DONE IN ACCORDANCE WITH AIA DOCUMENT A201

AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

DATE: 11-21-22

File Path: ...\CAD_Erosion Control.dgn

APPLICATION, CONTROL MEASURE	NARRATIVE	M- 208 STANDARD or "X" for NON-STANDARD	IN USE ON SITE	CONTROL MEASURE IMPLEMENTATION PHASE		
				INITIAL ACTIVITIES	INTERIM ACTIVITIES	PERMANENT STABILIZATION
VEHICLE TRACKING PAD	Source control, placed to prevent tracking of sediment from disturbed area to offsite surface. Place prior to the start of construction disturbances.	M-208		B	X	
Engineered SEDIMENT BASIN	Constructed early in the project, prior to storm sewer/ditches and in accordance with 208.05(p) to capture storm flow. Outlet structure and/or outfall shall be modified for temporary sediment control using an approved non-standard detail. Outlets that withdraw water from or near the surface shall be installed when discharging from basins and impoundments, unless infeasible					
DEWATERING *(Contractor is responsible for obtaining a permit from Colorado Department of Health and Environment.)*	Shall be done in such a manner to prevent potential pollutants from entering state waters.					
TEMPORARY STREAM CROSSING	Constructed over stream or drainage to prevent discharge of pollutants from construction equipment into water.					
CLEAN WATER DIVERSION	Placed to divert clean surface or groundwater around the disturbance area to prevent it from mixing with construction runoff.					
OTHER						

Uncompahgre Engineering, LLC

P.O. Box 3945
Telluride, CO 81435
970-729-0683

PROJECT NAME:
MTN VILLAGE
BIKE & PED SAFETY
PROJECT #: MTF M918-019
PROJECT CODE: 23710

STORMWATER MANAGEMENT PLAN #5

NOT FOR CONSTRUCTION

CONTRACTOR TO REVIEW AND COMPARE ALL CHAPTERS AND INTERDISCIPLINARY DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO ANY FIELD WORK BEING DONE IN ACCORDANCE WITH AIA DOCUMENT A201

AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

DATE: 11-21-22

Template Revised: 2.25.2022

ADVERTISEMENT SET

File Path: ...\CAD_Erosion Control.dgn

NON-STRUCTURAL Control Measures that may be potentially used on the project for erosion and sediment control; practices may include, but are not limited to:
Erosion control devices are used to limit the amount of soil loss on site. Sediment control devices are designed to capture sediment on the project site. Construction controls are control measures related to construction access and staging. Control Measure locations are indicated on the SWMP Site Map.

* **Use of vegetative buffer strip requirements.** The CDPHE Water Quality Control Division Technical Memorandum dated August 27, 2015 clarifies the requirements for utilization of existing vegetation as a buffer type of sediment control measure, while maintaining compliance with the CDPS permit for Stormwater Discharges Associated with Construction Activity – CDPS Permit No. COR4000000. In general, the division does not recommend that vegetated buffers be implemented as a sediment removal control measure for runoff from disturbed areas at construction sites, unless implemented as a "finishing" component of a treatment train comprised of additional, adequate up-gradient Control Measures. The entire memorandum can be found at: https://www.colorado.gov/pacific/sites/default/files/Vegetative%20Buffer%20Memo.pdf

APPLICATION, CONTROL MEASURE	NARRATIVE	M-STANDARD or "For NON-STANDARD	IN USE ON SITE	CONTROL MEASURE IMPLEMENTATION PHASE		
				INITIAL ACTIVITY	INTERIM ACTIVITIES	PERMANENT STABILIZATION
** VEGETATIVE BUFFER STRIP*	Finishing component for filtering sediment-laden runoff from disturbance area. Area within CDOT ROW or temporary easement to be identified on SWMP prior to construction starting.					
GRADING APPLICATIONS (LANDFORM)	Existing or created landforms may be used as a control measure if they prevent sediment from entering or leaving the disturbance area. If a landform directs flow of water to a concentrated outfall point, the outfall point shall be protected to prevent erosion. Area to be identified on SWMP prior to construction starting.	M-208				
TOPSOIL MANAGEMENT STOCKPILE/SALVAGE Stockpile	Prior to any site disturbance work commencing, existing topsoil shall be scraped to a depth six inches or as specified, and placed in stockpiles or windrows. Upon completion of final grading, topsoil shall be evenly distributed over embankment to a depth of six inches or as specified.	M-208		X	X	X
SURFACE ROUGHENING / GRADING TECHNIQUES	Temporary stabilization of disturbance and to minimize wind and erosion.				X	
SEEDING (TEMPORARY)	Temporary stabilization used for over wintering of disturbance or used to control erosion for areas scheduled for future construction.					
BONDED FIBER MATRIX or MULCHING (HYDRAULIC)	Not to be used in areas of concentrated flows, i.e. ditch lines. To be for either Interim or Permanent Stabilization placed as a surface cover for erosion control. May be used as surface cover when work is temporarily halted and as approved by the Engineer for stockpiles.					
Straw or Hay MULCH/MULCH TACKIFIER	Interim or Permanent Stabilization placed as a surface cover for erosion control and or seeding establishment. To be installed as Interim Stabilization as a surface cover when work is temporarily halted and as approved by the Engineer					
SPRAY-ON MULCH BLANKET (Not to be used in areas of concentrated flows, i.e. ditch lines.)	Interim or Permanent Stabilization placed as a surface cover for erosion control and or seeding establishment. To be installed as temporary surface cover when work is temporarily halted and as approved by the Engineer					X
SEEDING PERMANENT (NATIVE PERENNIAL)	Permanent Stabilization of disturbance and to reduce runoff and control erosion on disturbed areas.					X
SOIL RETENTION BLANKET (SRB)	Permanent Stabilization of disturbance and to reduce runoff and control erosion on disturbed areas.	M-216				X
TURF REINFORCEMENT MAT (TRM)	Permanent Stabilization of disturbance and to reduce runoff and control erosion on disturbed areas. Placed in channels or on slopes for erosion control, channel liner and seeding establishment.	M-216				
Sweeping	Source control, used to remove sediment tracked onto paved surfaces and to prevent sediment from entering drainage system. Sweep daily and at the end of the construction shift as needed. Kick brooms shall not be permitted.			X	X	X
OTHER						

Template Revised: 2.25.2022

ADVERTISEMENT SET

Uncompahgre Engineering, LLC

P.O. Box 3945
Telluride, CO 81435
970-729-0683

PROJECT NAME:
MTN VILLAGE
BIKE & PED SAFETY
PROJECT #: MTF M918-019
PROJECT CODE: 23710

STORMWATER MANAGEMENT PLAN #6

NOT FOR CONSTRUCTION

CONTRACTOR TO REVIEW AND COMPARE ALL CHAPTERS AND INTERDISCIPLINARY DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO ANY FIELD WORK BEING DONE IN ACCORDANCE WITH AIA DOCUMENT A201

AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

DATE: 11-21-22

File Path: ...\CAD_Erosion Control.dgn

12. TABULATION OF STORMWATER QUANTITIES

A. Control Measure sediment removal and disposal shall be paid for as: 208 Removal and Disposal of Sediment (Equipment) and 208 Removal and Disposal of Sediment (Labor). All other control measure maintenance shall be included in the cost of the control measure.

B. After final project acceptance, the Town of Mountain Village will assume responsibility for extended landscape maintenance of areas that have been seeded, mulched, or sodded.

PSP Spec.	Pay Item	Description	Pay Unit	Initial Const	Interim Const.	Permanent Stabilization	*Total Quantity
X	202-04002	Clean Culvert	Each	1			1
x	207-00702	Topsoil (Off-site)	CY			120	120
x	207-00704	Subgrade Soil Preparation	SY			720	720
	208-00002	Erosion Log Type 1 (12 Inch)	LF	187	278		465
	208-00035	Aggregate Bag	LF	5	33		38
	208-00046	Pre-fabricated Concrete Washout Structure (Type 1)	Each		1		1
	208-00054	Storm Drain Inlet Protection (Type II)	Each	5	4		9
	208-00075	Pre-fabricated Vehicle Tracking Pad	Each	1	1		1
	208-00103	Removal and Disposal of Sediment (Labor)	Hour		20		20
	208-00105	Removal and Disposal of Sediment (Equipment)	Hour		20		20
	208-00106	Sweeping (Sediment Removal)	Hour	4	24	4	32
	208-00207	Erosion Control Management (ECM)	Day	2	9	2	13
	212-00050	Sod	SF			880	880
	212-00708	Seeding (Native) Broadcast	Acre			0.55	0.55
	213-00012	Spray-on Mulch Blanket	Acre			0.45	0.45
	216-00211	Soil Reten Blanket (Exc)(BioD Cl 1)	SY			412	412
	607-11525	Fence (Plastic)	LF	161			161
X	700-70380	F/A Erosion Control	FA				

*It is anticipated that additional control measures and control measure quantities not shown on the SWMP Site Maps shall be required on the project for unforeseen conditions and replacement of items that are beyond their useful service life, see subsections 208.03 and 208.04. **Quantities for all control measures shown above are estimated and have been increased for unforeseen conditions and normal control measure life expectancy.** Quantities shall be adjusted according to the conditions encountered in the field as directed and approved by the Engineer. Payment shall be for the actual work completed and material used.
**Pay Item 208-00071 is included for anticipated maintenance of vehicle tracking pads based on the service life of the control measure in the field. The use of the material shall be directed and approved by the Engineer.
*** F/A refers to CDOT's Force Account Pay Items.

Template Revised: 2.25.2022

ADVERTISEMENT SET

Uncompahgre Engineering, LLC

P.O. Box 3945
Telluride, CO 81435
970-729-0683

PROJECT NAME:
MTN VILLAGE
BIKE & PED SAFETY
PROJECT #: MTF M918-019
PROJECT CODE: 23710

STORMWATER MANAGEMENT PLAN #7

NOT FOR CONSTRUCTION

CONTRACTOR TO REVIEW AND COMPARE ALL CHAPTERS AND INTERDISCIPLINARY DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO ANY FIELD WORK BEING DONE IN ACCORDANCE WITH AIA DOCUMENT A201

AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

DATE: 11-21-22

File Path: ...\CAD_Erosion Control.dgn

13. BIOLOGICAL IMPACTS and DEWATERING

A. ENVIRONMENTAL IMPACTS:

1. Wetland Impacts: NO
2. Stream Impacts: NO
3. Threatened and Endangered Species: No species are anticipated to be impacted by the project.

B. DEWATERING:

(Not covered under the CDPHE guidance document Low Risk Discharge Guidance Discharges of Uncontaminated Groundwater to Land):
https://www.colorado.gov/pacific/sites/default/files/WQ%20LOW%20RISK%20GW.pdf

1. Dewatering: Refer to other environmental permits in accordance with subsection 107.02 and the permits contained in Tab 16 of the SWMP.
2. If groundwater does not meet water quality standards for receiving water a separate CDPS Dewatering Permit shall be obtained by the Contractor from CDPHE in accordance with subsections 107.02 and 107.25.

14. NOTES

Template Revised: 2.25.2022

ADVERTISEMENT SET

Uncompahgre Engineering, LLC

P.O. Box 3945
Telluride, CO 81435
970-729-0683

PROJECT NAME:
MTN VILLAGE
BIKE & PED SAFETY
PROJECT #: MTF M918-019
PROJECT CODE: 23710

STORMWATER MANAGEMENT PLAN #8

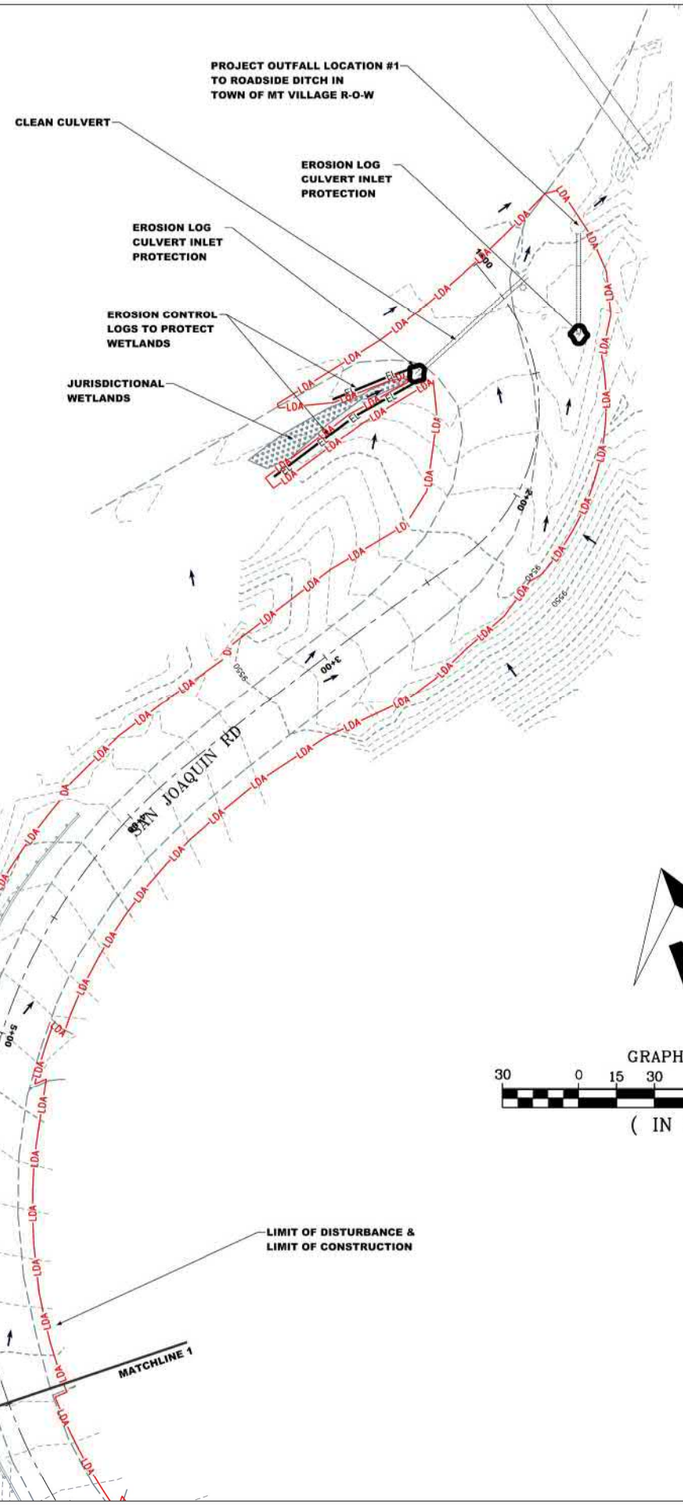
NOT FOR CONSTRUCTION

CONTRACTOR TO REVIEW AND COMPARE ALL CHAPTERS AND INTERDISCIPLINARY DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO ANY FIELD WORK BEING DONE IN ACCORDANCE WITH AIA DOCUMENT A201

AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

DATE: 11-21-22

File Path: ...\CAD_Erosion Control.dgn



LEGEND

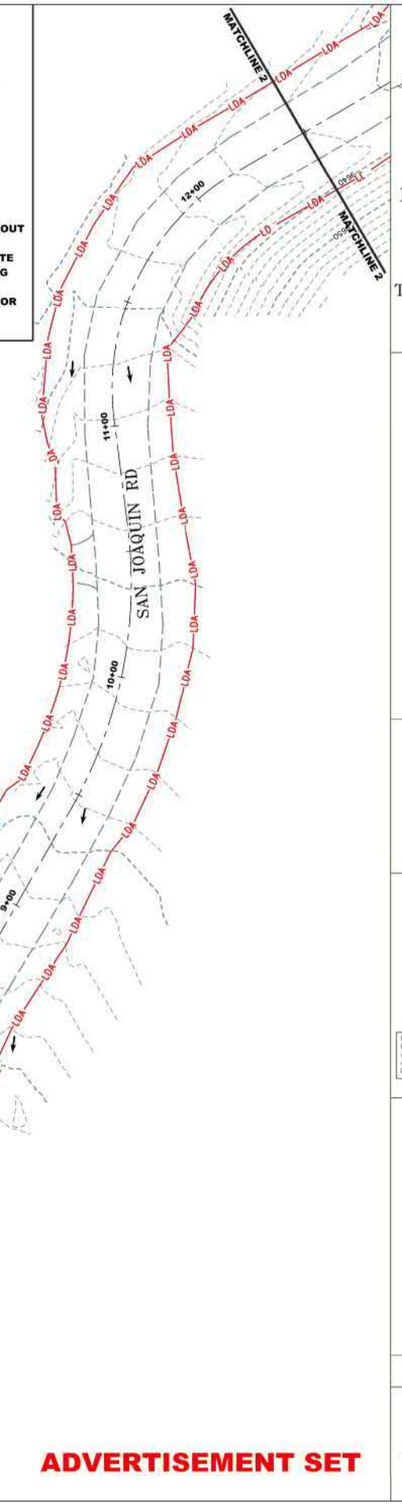
- LDA — LIMIT OF DISTURBANCE
- LIMIT OF CONSTRUCTION
- STORM DRAIN INLET PROTECTION (TYPE II)
- AGGREGATE BACK CURB CHECK
- EL — EROSION LOG (12 INCH) & FENCE (PLASTIC)
- FLOW ARROW
- CHECK DAM EROSION LOG (12 INCH)

NOTES:

1. STAGING AREA(S) TO BE DETERMINED BY CONTRACTOR AND TOWN OF MT VILLAGE.
2. IF ADDITIONAL STAGING AREAS OUTSIDE OF PUBLIC ROW ARE REQUIRED, THE CONTRACTOR WILL BE FULLY RESPONSIBLE FOR SECURING AND EXECUTING THE NECESSARY PROPERTY OWNER AGREEMENTS.
3. NO ASPHALT OR CONCRETE BATCH PLANTS ARE ANTICIPATED ON-SITE.
4. STREET SWEEPING SHALL BE CONDUCTED THROUGHOUT THE PROJECT AS NECESSARY.
5. KNOWN SURFACE WATERS (SPRINGS, STREAMS, WETLANDS, OR OTHER) WITHIN THE PROJECT LIMITS ARE SHOWN ON THE PLAN SHEETS.
6. DURING CONSTRUCTION, THE SWMP MUST BE UPDATED AND REFLECTIVE OF CURRENT SITE CONDITIONS.
7. TWO PRE-FAB VEHICLE TRACKING PADS AND A PRE-FAB CONCRETE WASHOUT STRUCTURE HAVE BEEN SPECIFIED FOR THIS PROJECT. PLACEMENT LOCATIONS FOR THESE CONTROL MEASURES ARE NOT SHOWN ON THE SITE MAPS AS THESE LOCATIONS WILL VARY DEPENDING ON PROJECT PHASING AS DETERMINED BY THE CONTRACTOR.
8. VEGETATIVE TRANSECTS TO BE COMPLETED BY THE SWMP ADMINISTRATOR FOR CONSTRUCTION PRIOR TO THE START OF WORK.

GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)

GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)



ADVERTISEMENT SET

Uncompahgre Engineering, LLC

P.O. Box 3945
Telluride, CO 81435
970-729-0683

PROJECT NAME:
MTN VILLAGE
BIKE & PED SAFETY
PROJECT #: MTF M918-019
PROJECT CODE: 23710

EROSION CONTROL INITIAL PLAN #1

NOT FOR CONSTRUCTION

CONTRACTOR TO REVIEW AND COMPARE ALL CHAPTERS AND INTERDISCIPLINARY DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO ANY FIELD WORK BEING DONE IN ACCORDANCE WITH AIA DOCUMENT A201

AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

DATE: 11-21-22

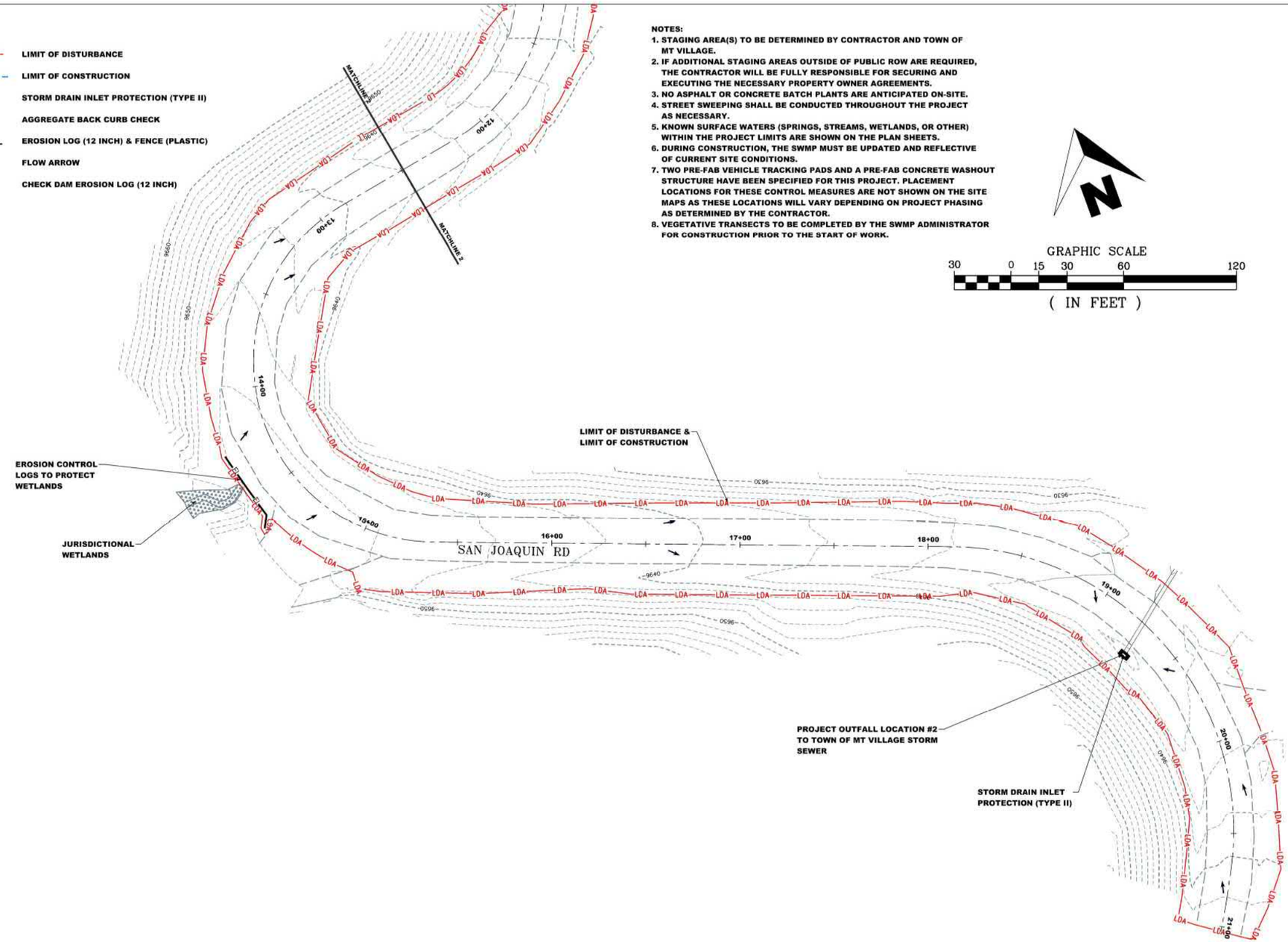
File Path: ...\CAD_Erosion Control.dgn

LEGEND

- LDA — LIMIT OF DISTURBANCE
- LIMIT OF CONSTRUCTION
- STORM DRAIN INLET PROTECTION (TYPE II)
- AGGREGATE BACK CURB CHECK
- EL — EROSION LOG (12 INCH) & FENCE (PLASTIC)
- FLOW ARROW
- CHECK DAM EROSION LOG (12 INCH)

NOTES:

1. STAGING AREA(S) TO BE DETERMINED BY CONTRACTOR AND TOWN OF MT VILLAGE.
2. IF ADDITIONAL STAGING AREAS OUTSIDE OF PUBLIC ROW ARE REQUIRED, THE CONTRACTOR WILL BE FULLY RESPONSIBLE FOR SECURING AND EXECUTING THE NECESSARY PROPERTY OWNER AGREEMENTS.
3. NO ASPHALT OR CONCRETE BATCH PLANTS ARE ANTICIPATED ON-SITE.
4. STREET SWEEPING SHALL BE CONDUCTED THROUGHOUT THE PROJECT AS NECESSARY.
5. KNOWN SURFACE WATERS (SPRINGS, STREAMS, WETLANDS, OR OTHER) WITHIN THE PROJECT LIMITS ARE SHOWN ON THE PLAN SHEETS.
6. DURING CONSTRUCTION, THE SWMP MUST BE UPDATED AND REFLECTIVE OF CURRENT SITE CONDITIONS.
7. TWO PRE-FAB VEHICLE TRACKING PADS AND A PRE-FAB CONCRETE WASHOUT STRUCTURE HAVE BEEN SPECIFIED FOR THIS PROJECT. PLACEMENT LOCATIONS FOR THESE CONTROL MEASURES ARE NOT SHOWN ON THE SITE MAPS AS THESE LOCATIONS WILL VARY DEPENDING ON PROJECT PHASING AS DETERMINED BY THE CONTRACTOR.
8. VEGETATIVE TRANSECTS TO BE COMPLETED BY THE SWMP ADMINISTRATOR FOR CONSTRUCTION PRIOR TO THE START OF WORK.



GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)

NOTE:
AT THE TIME THIS PLAN WAS CREATED, WE WERE WAITING ON ADDITIONAL TOPOGRAPHIC SURVEY. ONCE INCORPORATED INTO THE DRAWINGS, THE LIMITS OF DISTURBANCE WILL LIKELY CHANGE AND ADDITIONAL BMPS MAY BE NECESSARY.

ADVERTISEMENT SET

Uncompahgre Engineering, LLC

P.O. Box 3945
Telluride, CO 81435
970-729-0683

PROJECT NAME:
MTN VILLAGE
BIKE & PED SAFETY
PROJECT #: MTF M918-019
PROJECT CODE: 23710

EROSION CONTROL INITIAL PLAN #2

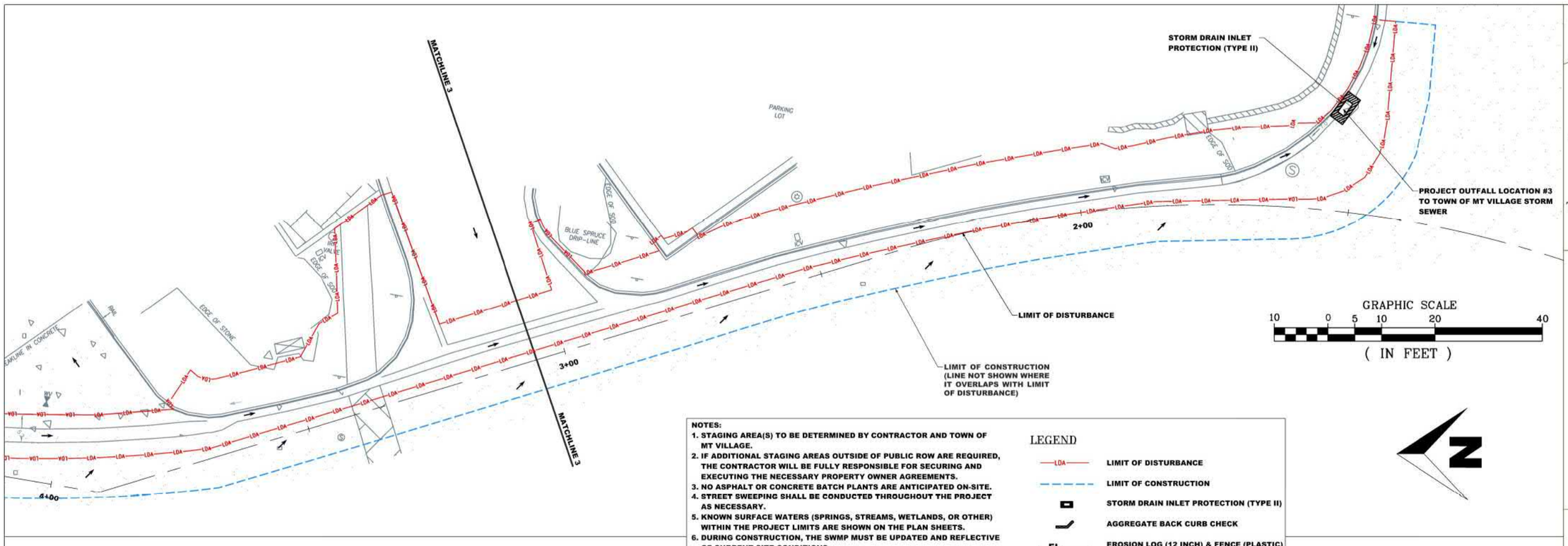
NOT FOR CONSTRUCTION

CONTRACTOR TO REVIEW AND COMPARE ALL CHAPTERS AND INTERDISCIPLINARY DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO ANY FIELD WORK BEING DONE IN ACCORDANCE WITH AIA DOCUMENT A201

AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

DATE: 11-21-22

File Path: ...\CAD_Erosion Control.dgn

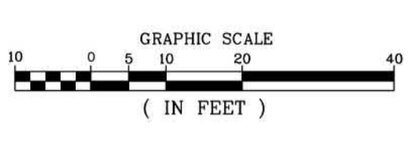


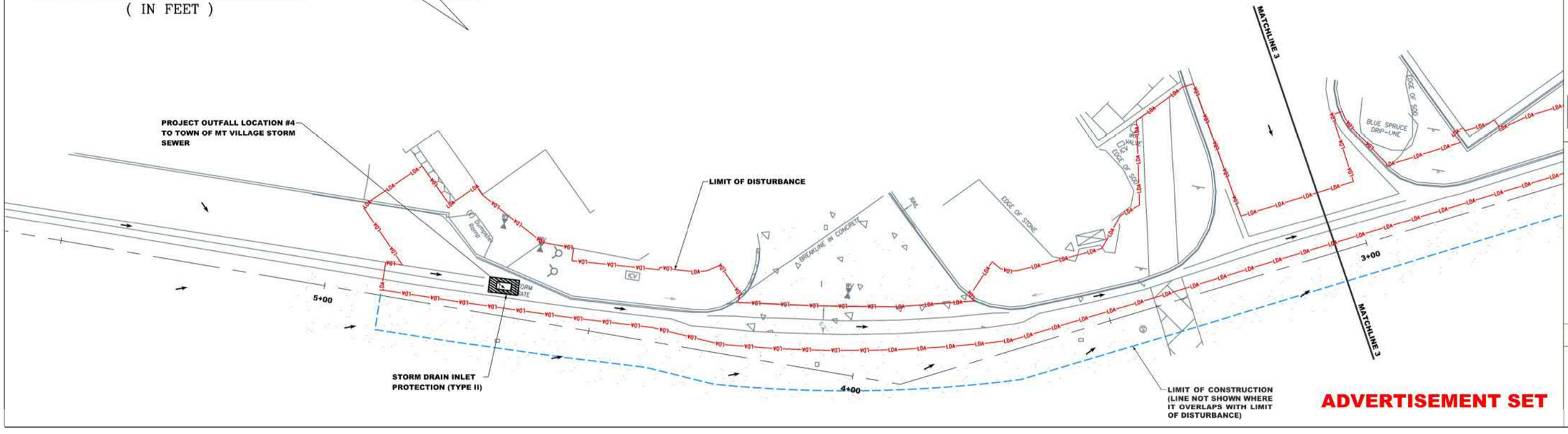
NOTES:

1. STAGING AREA(S) TO BE DETERMINED BY CONTRACTOR AND TOWN OF MT VILLAGE.
2. IF ADDITIONAL STAGING AREAS OUTSIDE OF PUBLIC ROW ARE REQUIRED, THE CONTRACTOR WILL BE FULLY RESPONSIBLE FOR SECURING AND EXECUTING THE NECESSARY PROPERTY OWNER AGREEMENTS.
3. NO ASPHALT OR CONCRETE BATCH PLANTS ARE ANTICIPATED ON-SITE.
4. STREET SWEEPING SHALL BE CONDUCTED THROUGHOUT THE PROJECT AS NECESSARY.
5. KNOWN SURFACE WATERS (SPRINGS, STREAMS, WETLANDS, OR OTHER) WITHIN THE PROJECT LIMITS ARE SHOWN ON THE PLAN SHEETS.
6. DURING CONSTRUCTION, THE SWMP MUST BE UPDATED AND REFLECTIVE OF CURRENT SITE CONDITIONS.
7. TWO PRE-FAB VEHICLE TRACKING PADS AND A PRE-FAB CONCRETE WASHOUT STRUCTURE HAVE BEEN SPECIFIED FOR THIS PROJECT. PLACEMENT LOCATIONS FOR THESE CONTROL MEASURES ARE NOT SHOWN ON THE SITE MAPS AS THESE LOCATIONS WILL VARY DEPENDING ON PROJECT PHASING AS DETERMINED BY THE CONTRACTOR.
8. VEGETATIVE TRANSECTS TO BE COMPLETED BY THE SWMP ADMINISTRATOR FOR CONSTRUCTION PRIOR TO THE START OF WORK.

LEGEND

- LDA — LIMIT OF DISTURBANCE
- LIMIT OF CONSTRUCTION
- STORM DRAIN INLET PROTECTION (TYPE II)
- AGGREGATE BACK CURB CHECK
- EL — EROSION LOG (12 INCH) & FENCE (PLASTIC)
- FLOW ARROW
- CHECK DAM EROSION LOG (12 INCH)





ADVERTISEMENT SET

Uncompahgre Engineering, LLC

P.O. Box 3945
Telluride, CO 81435
970-729-0683

PROJECT NAME:
MTN VILLAGE
BIKE & PED SAFETY
PROJECT #: MTF M918-019
PROJECT CODE: 23710

EROSION CONTROL INITIAL PLAN #3

NOT FOR CONSTRUCTION

CONTRACTOR TO REVIEW AND COMPARE ALL CHAPTERS AND INTERDISCIPLINARY DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO ANY FIELD WORK BEING DONE IN ACCORDANCE WITH AIA DOCUMENT A201

AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

DATE: 11-21-22

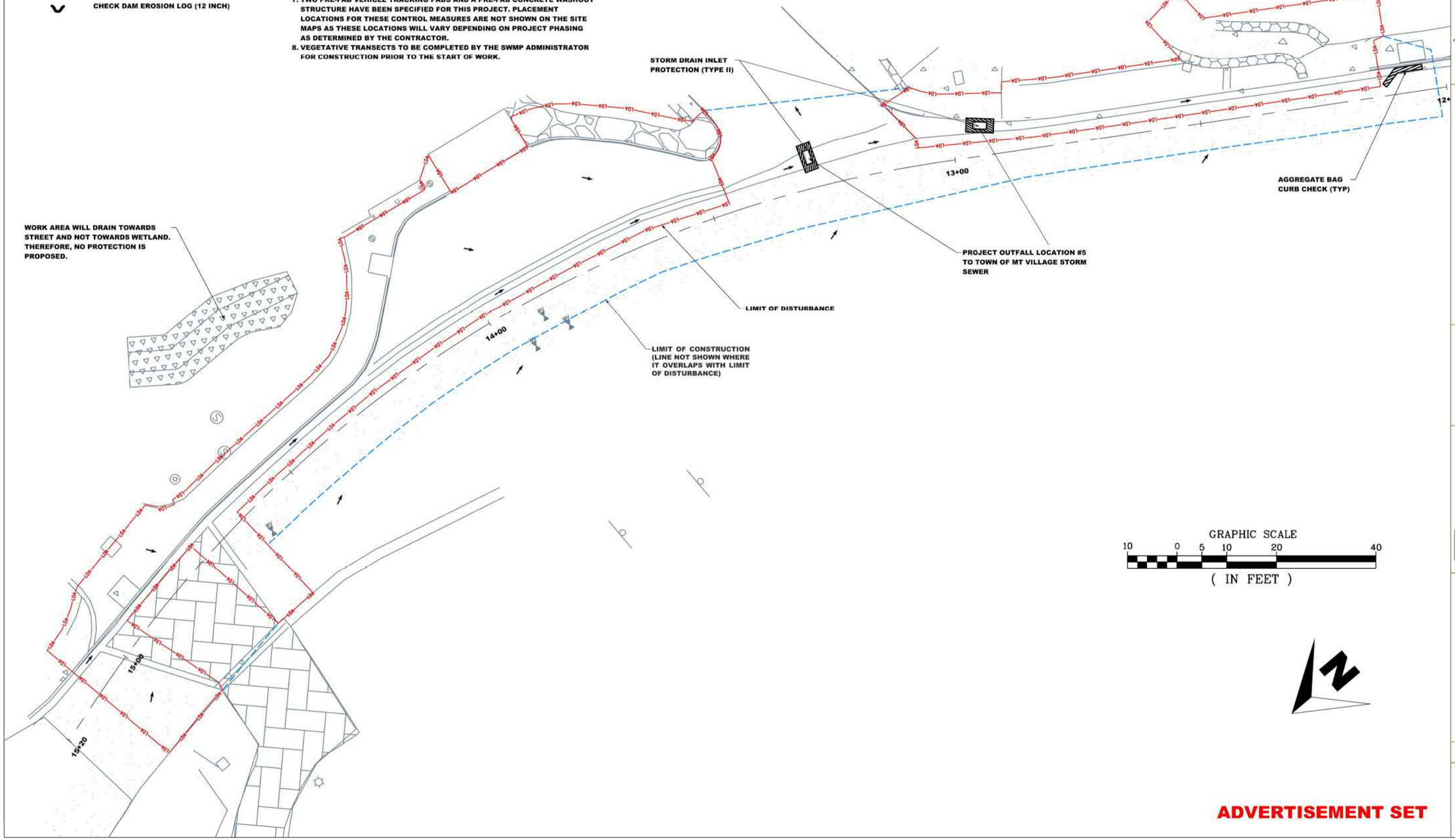
File Path: ...\CADL_Erosion Control.dgn

LEGEND

- LOA — LIMIT OF DISTURBANCE
- LIMIT OF CONSTRUCTION
- STORM DRAIN INLET PROTECTION (TYPE II)
- AGGREGATE BACK CURB CHECK
- EL — EROSION LOG (12 INCH) & FENCE (PLASTIC)
- FLOW ARROW
- CHECK DAM EROSION LOG (12 INCH)

NOTES:

1. STAGING AREA(S) TO BE DETERMINED BY CONTRACTOR AND TOWN OF MT VILLAGE.
2. IF ADDITIONAL STAGING AREAS OUTSIDE OF PUBLIC ROW ARE REQUIRED, THE CONTRACTOR WILL BE FULLY RESPONSIBLE FOR SECURING AND EXECUTING THE NECESSARY PROPERTY OWNER AGREEMENTS.
3. NO ASPHALT OR CONCRETE BATCH PLANTS ARE ANTICIPATED ON-SITE.
4. STREET SWEEPING SHALL BE CONDUCTED THROUGHOUT THE PROJECT AS NECESSARY.
5. KNOWN SURFACE WATERS (SPRINGS, STREAMS, WETLANDS, OR OTHER) WITHIN THE PROJECT LIMITS ARE SHOWN ON THE PLAN SHEETS.
6. DURING CONSTRUCTION, THE SWMP MUST BE UPDATED AND REFLECTIVE OF CURRENT SITE CONDITIONS.
7. TWO PRE-FAB VEHICLE TRACKING PADS AND A PRE-FAB CONCRETE WASHOUT STRUCTURE HAVE BEEN SPECIFIED FOR THIS PROJECT. PLACEMENT LOCATIONS FOR THESE CONTROL MEASURES ARE NOT SHOWN ON THE SITE MAPS AS THESE LOCATIONS WILL VARY DEPENDING ON PROJECT PHASING AS DETERMINED BY THE CONTRACTOR.
8. VEGETATIVE TRANSECTS TO BE COMPLETED BY THE SWMP ADMINISTRATOR FOR CONSTRUCTION PRIOR TO THE START OF WORK.



GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)

ADVERTISEMENT SET

Uncompahgre Engineering, LLC

P.O. Box 3945
Telluride, CO 81435
970-729-0683

PROJECT NAME:
MTN VILLAGE
BIKE & PED SAFETY
PROJECT #: MTF M918-019
PROJECT CODE: 23710

EROSION CONTROL INITIAL PLAN #4

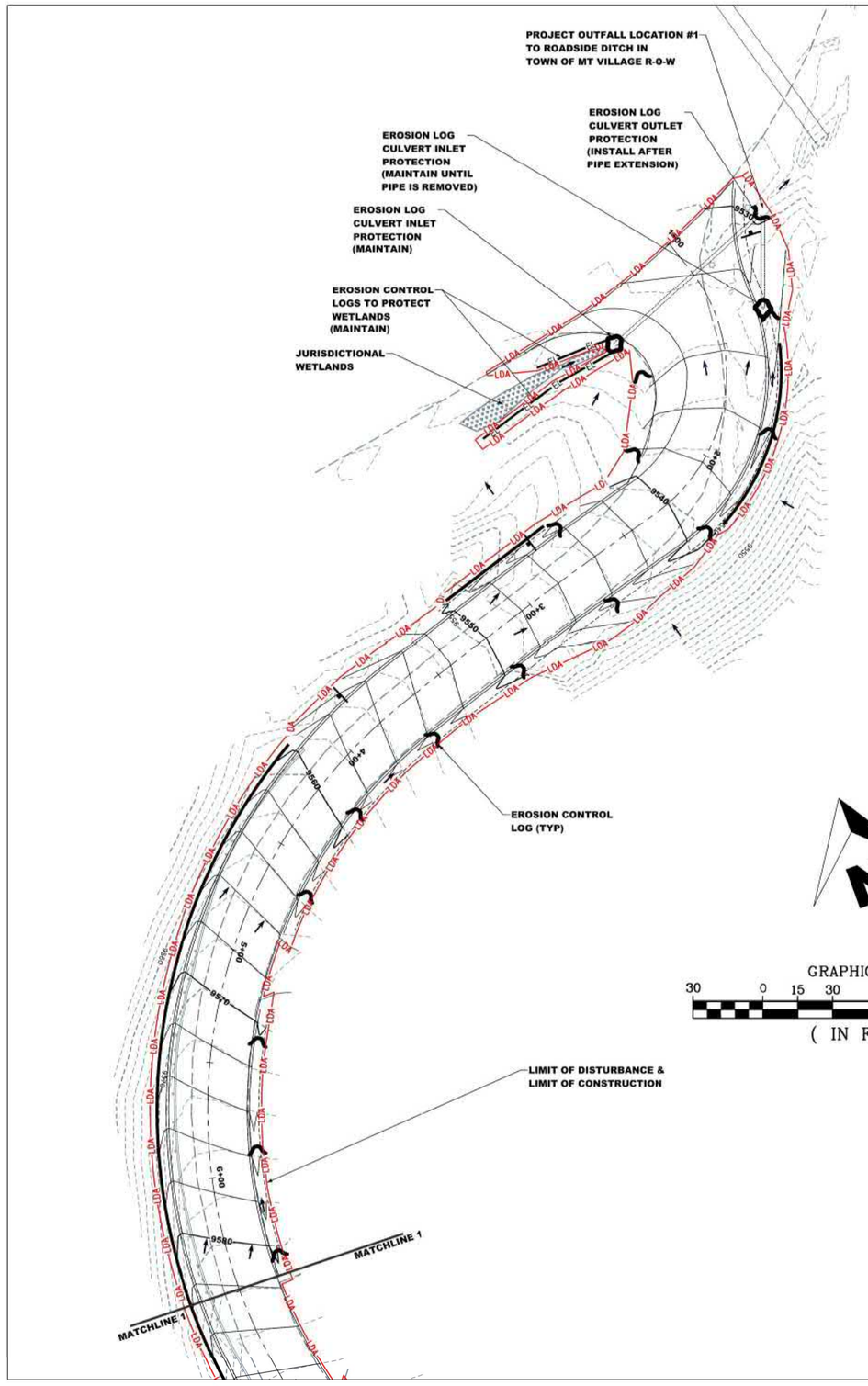
NOT FOR CONSTRUCTION

CONTRACTOR TO REVIEW AND COMPARE ALL CHAPTERS AND INTERDISCIPLINARY DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO ANY FIELD WORK BEING DONE IN ACCORDANCE WITH AIA DOCUMENT A201

AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

DATE: 11-21-22

File Path: ...\CAD_Erosion Control.dgn



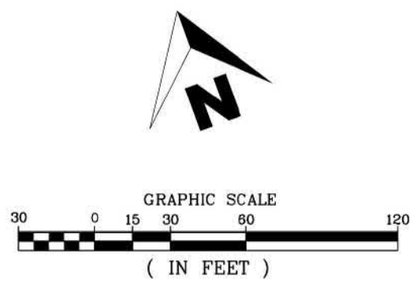
LEGEND

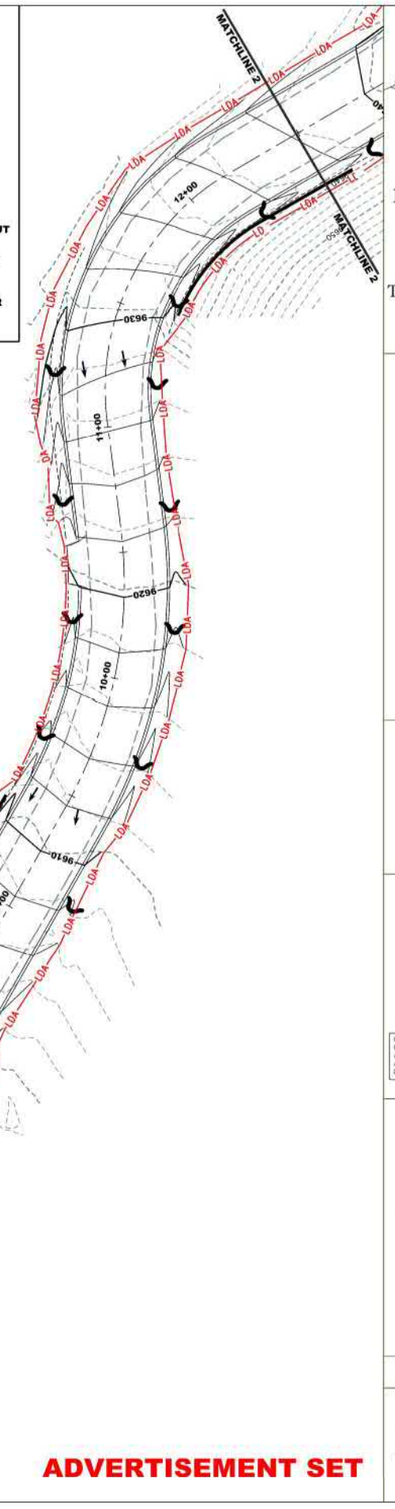
- LDA — LIMIT OF DISTURBANCE
- LIMIT OF CONSTRUCTION
- STORM DRAIN INLET PROTECTION (TYPE II)
- AGGREGATE BACK CURB CHECK
- EL — EROSION LOG (12 INCH) & FENCE (PLASTIC)
- FLOW ARROW
- CHECK DAM EROSION LOG (12 INCH)

NOTES:

1. STAGING AREA(S) TO BE DETERMINED BY CONTRACTOR AND TOWN OF MT VILLAGE.
2. IF ADDITIONAL STAGING AREAS OUTSIDE OF PUBLIC ROW ARE REQUIRED, THE CONTRACTOR WILL BE FULLY RESPONSIBLE FOR SECURING AND EXECUTING THE NECESSARY PROPERTY OWNER AGREEMENTS.
3. NO ASPHALT OR CONCRETE BATCH PLANTS ARE ANTICIPATED ON-SITE.
4. STREET SWEEPING SHALL BE CONDUCTED THROUGHOUT THE PROJECT AS NECESSARY.
5. KNOWN SURFACE WATERS (SPRINGS, STREAMS, WETLANDS, OR OTHER) WITHIN THE PROJECT LIMITS ARE SHOWN ON THE PLAN SHEETS.
6. DURING CONSTRUCTION, THE SWMP MUST BE UPDATED AND REFLECTIVE OF CURRENT SITE CONDITIONS.
7. TWO PRE-FAB VEHICLE TRACKING PADS AND A PRE-FAB CONCRETE WASHOUT STRUCTURE HAVE BEEN SPECIFIED FOR THIS PROJECT. PLACEMENT LOCATIONS FOR THESE CONTROL MEASURES ARE NOT SHOWN ON THE SITE MAPS AS THESE LOCATIONS WILL VARY DEPENDING ON PROJECT PHASING AS DETERMINED BY THE CONTRACTOR.
8. VEGETATIVE TRANSECTS TO BE COMPLETED BY THE SWMP ADMINISTRATOR FOR CONSTRUCTION PRIOR TO THE START OF WORK.

GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)





ADVERTISEMENT SET

Uncompahgre
Engineering, LLC

P.O. Box 3945
Telluride, CO 81435
970-729-0683

PROJECT NAME:
MTN VILLAGE
BIKE & PED SAFETY
PROJECT #: MTF M918-019
PROJECT CODE: 23710

EROSION
CONTROL
INTERIM
PLAN #1

NOT FOR CONSTRUCTION

CONTRACTOR TO REVIEW AND COMPARE ALL CHAPTERS AND INTERDISCIPLINARY DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO ANY FIELD WORK BEING DONE IN ACCORDANCE WITH AIA DOCUMENT A201

AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

DATE: 11-21-22

File Path: ...\CAD_Erosion Control.dgn

LEGEND

- LDA — LIMIT OF DISTURBANCE
- LIMIT OF CONSTRUCTION
- STORM DRAIN INLET PROTECTION (TYPE II)
- AGGREGATE BACK CURB CHECK
- EL — EROSION LOG (12 INCH) & FENCE (PLASTIC)
- FLOW ARROW
- CHECK DAM EROSION LOG (12 INCH)

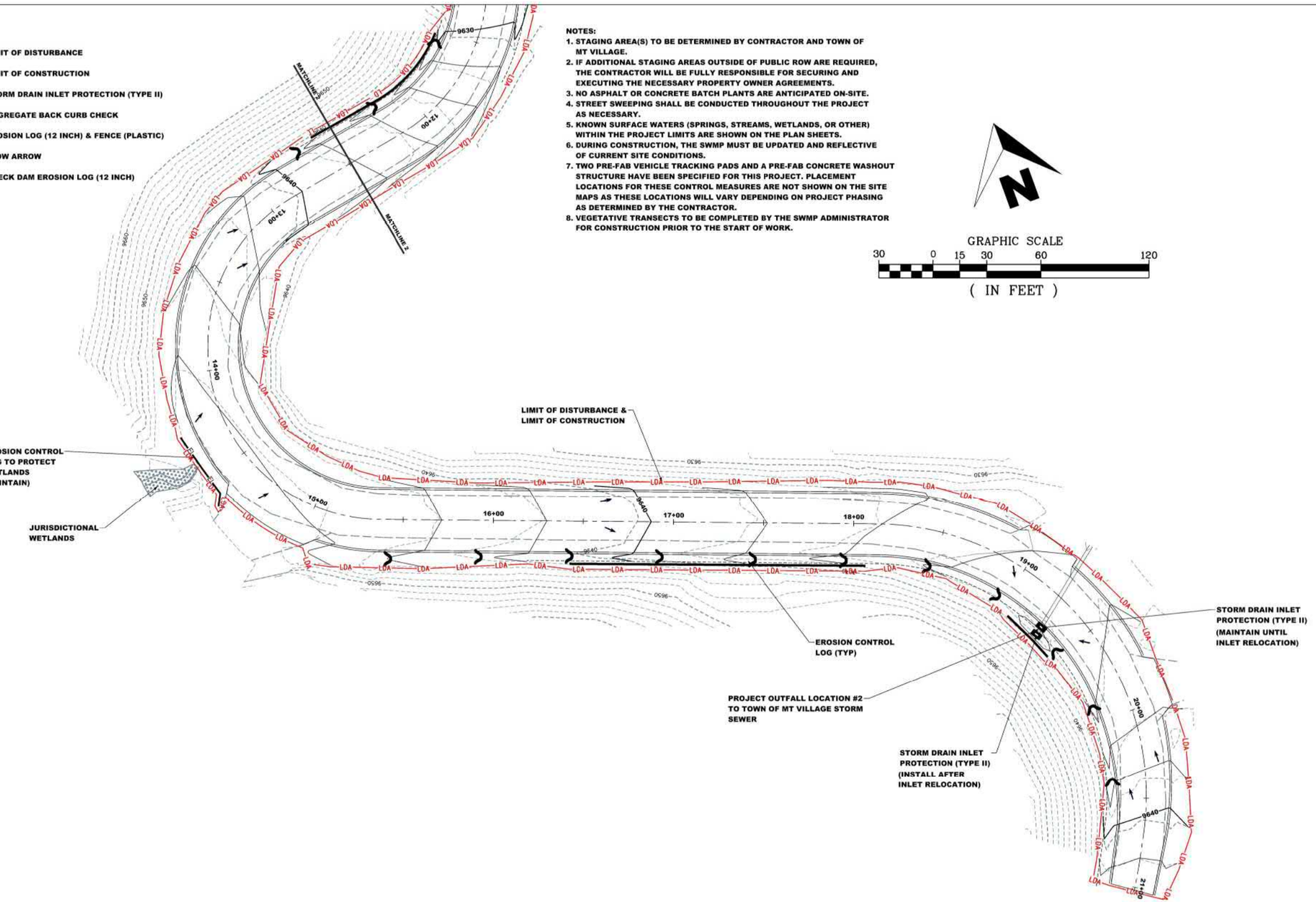
NOTES:

1. STAGING AREA(S) TO BE DETERMINED BY CONTRACTOR AND TOWN OF MT VILLAGE.
2. IF ADDITIONAL STAGING AREAS OUTSIDE OF PUBLIC ROW ARE REQUIRED, THE CONTRACTOR WILL BE FULLY RESPONSIBLE FOR SECURING AND EXECUTING THE NECESSARY PROPERTY OWNER AGREEMENTS.
3. NO ASPHALT OR CONCRETE BATCH PLANTS ARE ANTICIPATED ON-SITE.
4. STREET SWEEPING SHALL BE CONDUCTED THROUGHOUT THE PROJECT AS NECESSARY.
5. KNOWN SURFACE WATERS (SPRINGS, STREAMS, WETLANDS, OR OTHER) WITHIN THE PROJECT LIMITS ARE SHOWN ON THE PLAN SHEETS.
6. DURING CONSTRUCTION, THE SWMP MUST BE UPDATED AND REFLECTIVE OF CURRENT SITE CONDITIONS.
7. TWO PRE-FAB VEHICLE TRACKING PADS AND A PRE-FAB CONCRETE WASHOUT STRUCTURE HAVE BEEN SPECIFIED FOR THIS PROJECT. PLACEMENT LOCATIONS FOR THESE CONTROL MEASURES ARE NOT SHOWN ON THE SITE MAPS AS THESE LOCATIONS WILL VARY DEPENDING ON PROJECT PHASING AS DETERMINED BY THE CONTRACTOR.
8. VEGETATIVE TRANSECTS TO BE COMPLETED BY THE SWMP ADMINISTRATOR FOR CONSTRUCTION PRIOR TO THE START OF WORK.

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)



ADVERTISEMENT SET

Uncompahgre Engineering, LLC

P.O. Box 3945
Telluride, CO 81435
970-729-0683

PROJECT NAME:
MTN VILLAGE
BIKE & PED SAFETY
PROJECT #: MTF M918-019
PROJECT CODE: 23710

EROSION CONTROL INTERIM PLAN #2

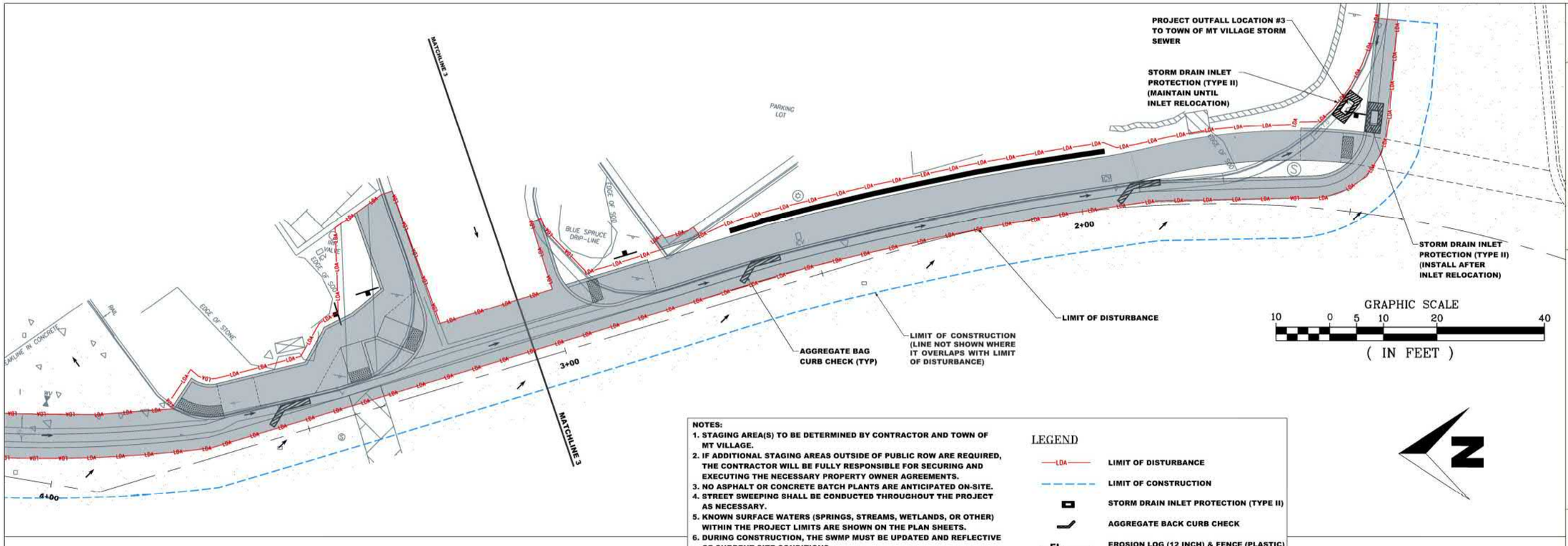
NOT FOR CONSTRUCTION

CONTRACTOR TO REVIEW AND COMPARE ALL CHAPTERS AND INTERDISCIPLINARY DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO ANY FIELD WORK BEING DONE IN ACCORDANCE WITH AIA DOCUMENT A201

AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

DATE: 11-21-22

File Path: ...\CAD_Erosion Control.dgn

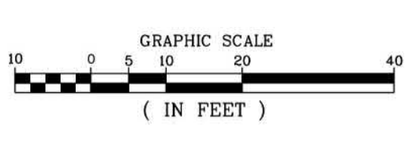


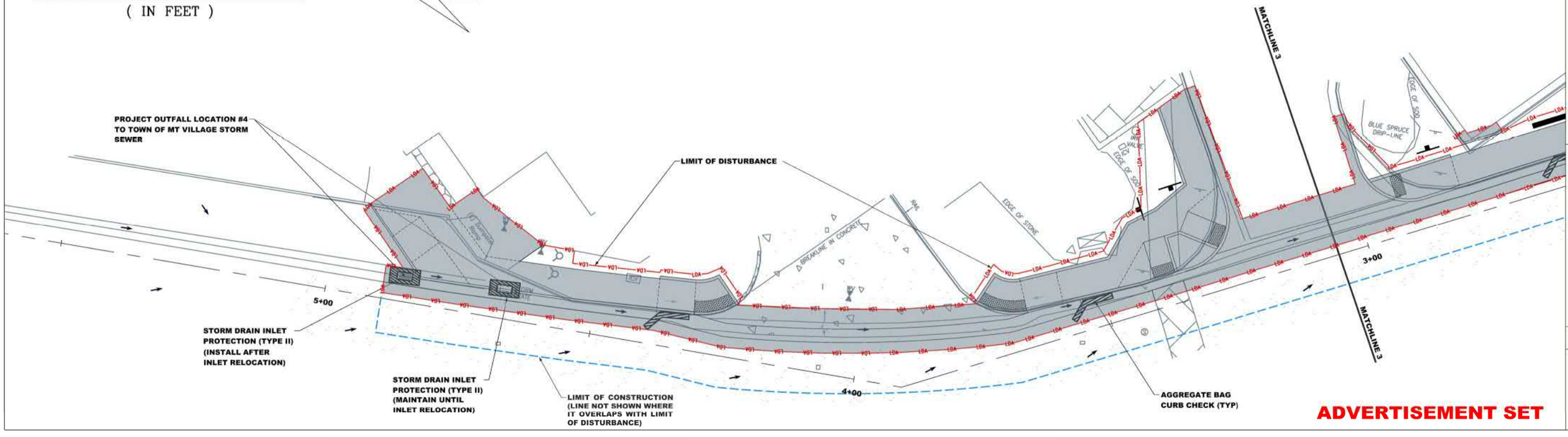
NOTES:

1. STAGING AREA(S) TO BE DETERMINED BY CONTRACTOR AND TOWN OF MT VILLAGE.
2. IF ADDITIONAL STAGING AREAS OUTSIDE OF PUBLIC ROW ARE REQUIRED, THE CONTRACTOR WILL BE FULLY RESPONSIBLE FOR SECURING AND EXECUTING THE NECESSARY PROPERTY OWNER AGREEMENTS.
3. NO ASPHALT OR CONCRETE BATCH PLANTS ARE ANTICIPATED ON-SITE.
4. STREET SWEEPING SHALL BE CONDUCTED THROUGHOUT THE PROJECT AS NECESSARY.
5. KNOWN SURFACE WATERS (SPRINGS, STREAMS, WETLANDS, OR OTHER) WITHIN THE PROJECT LIMITS ARE SHOWN ON THE PLAN SHEETS.
6. DURING CONSTRUCTION, THE SWMP MUST BE UPDATED AND REFLECTIVE OF CURRENT SITE CONDITIONS.
7. TWO PRE-FAB VEHICLE TRACKING PADS AND A PRE-FAB CONCRETE WASHOUT STRUCTURE HAVE BEEN SPECIFIED FOR THIS PROJECT. PLACEMENT LOCATIONS FOR THESE CONTROL MEASURES ARE NOT SHOWN ON THE SITE MAPS AS THESE LOCATIONS WILL VARY DEPENDING ON PROJECT PHASING AS DETERMINED BY THE CONTRACTOR.
8. VEGETATIVE TRANSECTS TO BE COMPLETED BY THE SWMP ADMINISTRATOR FOR CONSTRUCTION PRIOR TO THE START OF WORK.

LEGEND

- LDA — LIMIT OF DISTURBANCE
- LIMIT OF CONSTRUCTION
- STORM DRAIN INLET PROTECTION (TYPE II)
- AGGREGATE BACK CURB CHECK
- EL — EROSION LOG (12 INCH) & FENCE (PLASTIC)
- FLOW ARROW
- CHECK DAM EROSION LOG (12 INCH)





ADVERTISEMENT SET

Uncompahgre Engineering, LLC

P.O. Box 3945
Telluride, CO 81435
970-729-0683

PROJECT NAME:
MTN VILLAGE
BIKE & PED SAFETY
PROJECT #: MTF M918-019
PROJECT CODE: 23710

EROSION CONTROL INTERIM PLAN #3

NOT FOR CONSTRUCTION

CONTRACTOR TO REVIEW AND COMPARE ALL CHAPTERS AND INTERDISCIPLINARY DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO ANY FIELD WORK BEING DONE IN ACCORDANCE WITH AIA DOCUMENT A201

AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

DATE: 11-21-22

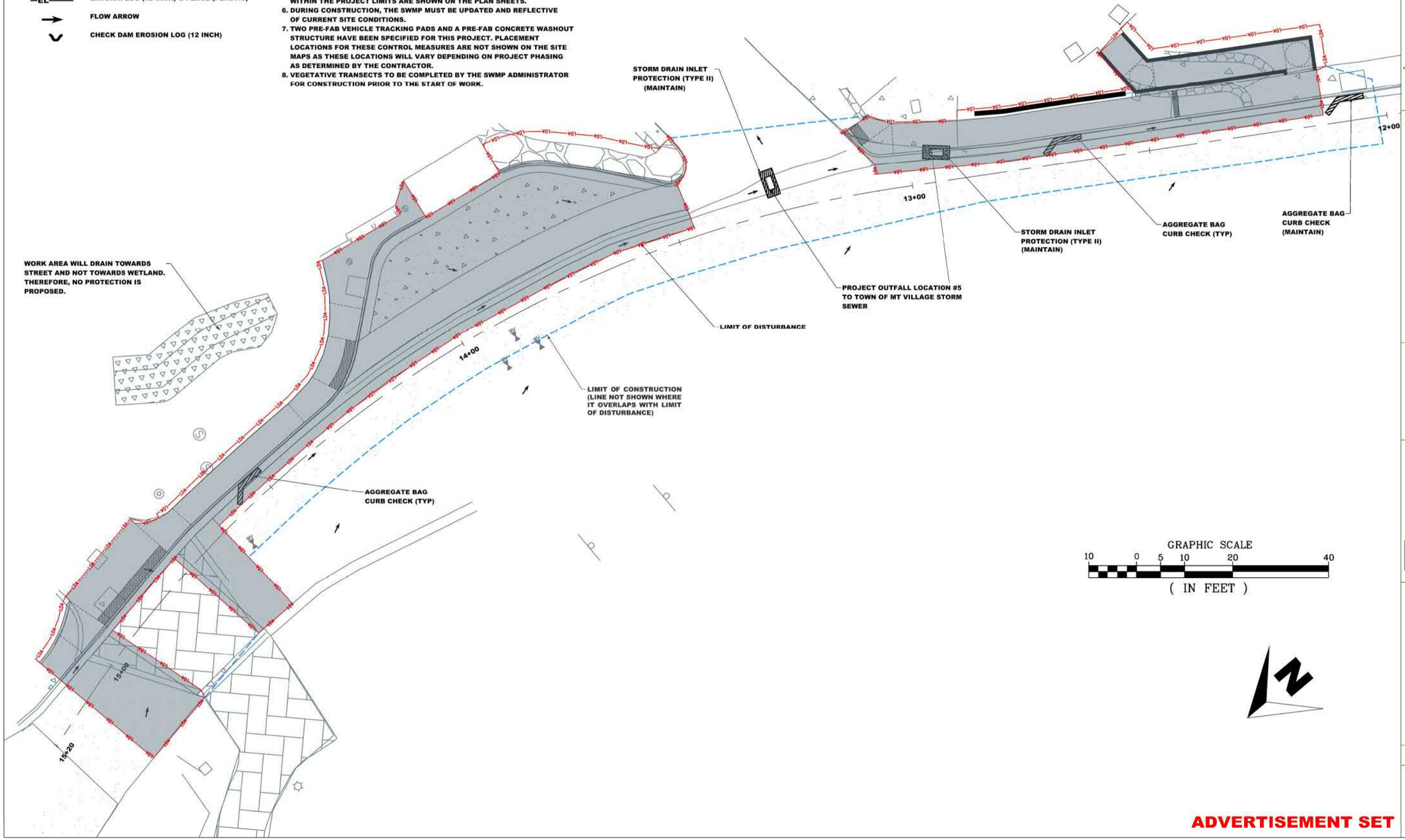
File Path: ...\CAD_Erosion Control.dgn

LEGEND

- LOA — LIMIT OF DISTURBANCE
- LIMIT OF CONSTRUCTION
- STORM DRAIN INLET PROTECTION (TYPE II)
- AGGREGATE BACK CURB CHECK
- EL — EROSION LOG (12 INCH) & FENCE (PLASTIC)
- FLOW ARROW
- CHECK DAM EROSION LOG (12 INCH)

NOTES:

1. STAGING AREA(S) TO BE DETERMINED BY CONTRACTOR AND TOWN OF MT VILLAGE.
2. IF ADDITIONAL STAGING AREAS OUTSIDE OF PUBLIC ROW ARE REQUIRED, THE CONTRACTOR WILL BE FULLY RESPONSIBLE FOR SECURING AND EXECUTING THE NECESSARY PROPERTY OWNER AGREEMENTS.
3. NO ASPHALT OR CONCRETE BATCH PLANTS ARE ANTICIPATED ON-SITE.
4. STREET SWEEPING SHALL BE CONDUCTED THROUGHOUT THE PROJECT AS NECESSARY.
5. KNOWN SURFACE WATERS (SPRINGS, STREAMS, WETLANDS, OR OTHER) WITHIN THE PROJECT LIMITS ARE SHOWN ON THE PLAN SHEETS.
6. DURING CONSTRUCTION, THE SWMP MUST BE UPDATED AND REFLECTIVE OF CURRENT SITE CONDITIONS.
7. TWO PRE-FAB VEHICLE TRACKING PADS AND A PRE-FAB CONCRETE WASHOUT STRUCTURE HAVE BEEN SPECIFIED FOR THIS PROJECT. PLACEMENT LOCATIONS FOR THESE CONTROL MEASURES ARE NOT SHOWN ON THE SITE MAPS AS THESE LOCATIONS WILL VARY DEPENDING ON PROJECT PHASING AS DETERMINED BY THE CONTRACTOR.
8. VEGETATIVE TRANSECTS TO BE COMPLETED BY THE SWMP ADMINISTRATOR FOR CONSTRUCTION PRIOR TO THE START OF WORK.



GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)

ADVERTISEMENT SET

Uncompahgre Engineering, LLC

P.O. Box 3945
Telluride, CO 81435
970-729-0683

PROJECT NAME:
MTN VILLAGE
BIKE & PED SAFETY
PROJECT #: MTF M918-019
PROJECT CODE: 23710

EROSION CONTROL INTERIM PLAN #4

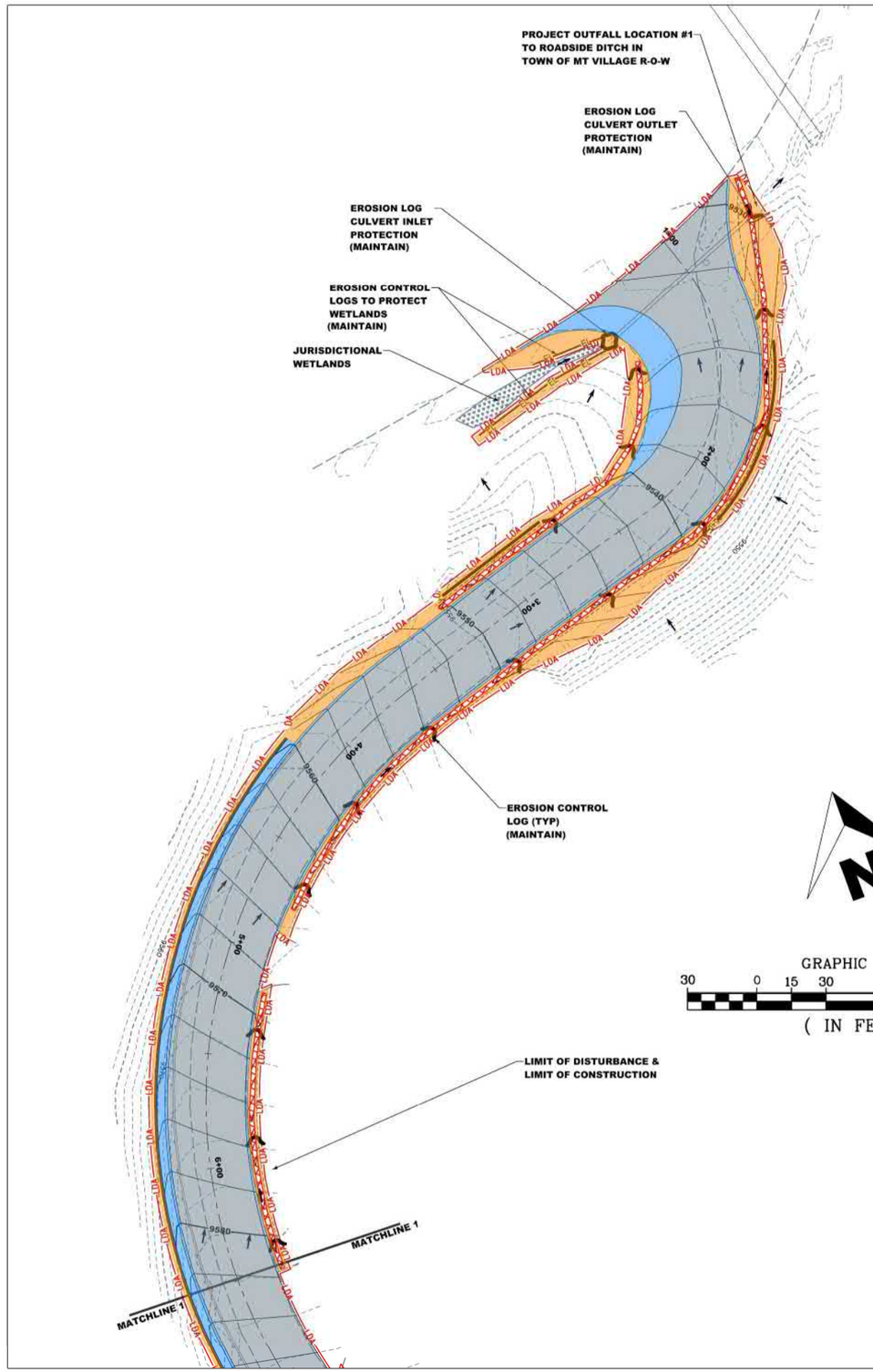
NOT FOR CONSTRUCTION

CONTRACTOR TO REVIEW AND COMPARE ALL CHAPTERS AND INTERDISCIPLINARY DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO ANY FIELD WORK BEING DONE IN ACCORDANCE WITH AIA DOCUMENT A201

AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

DATE: 11-21-22

File Path: ...\CAD_Erosion Control.dgn



LEGEND

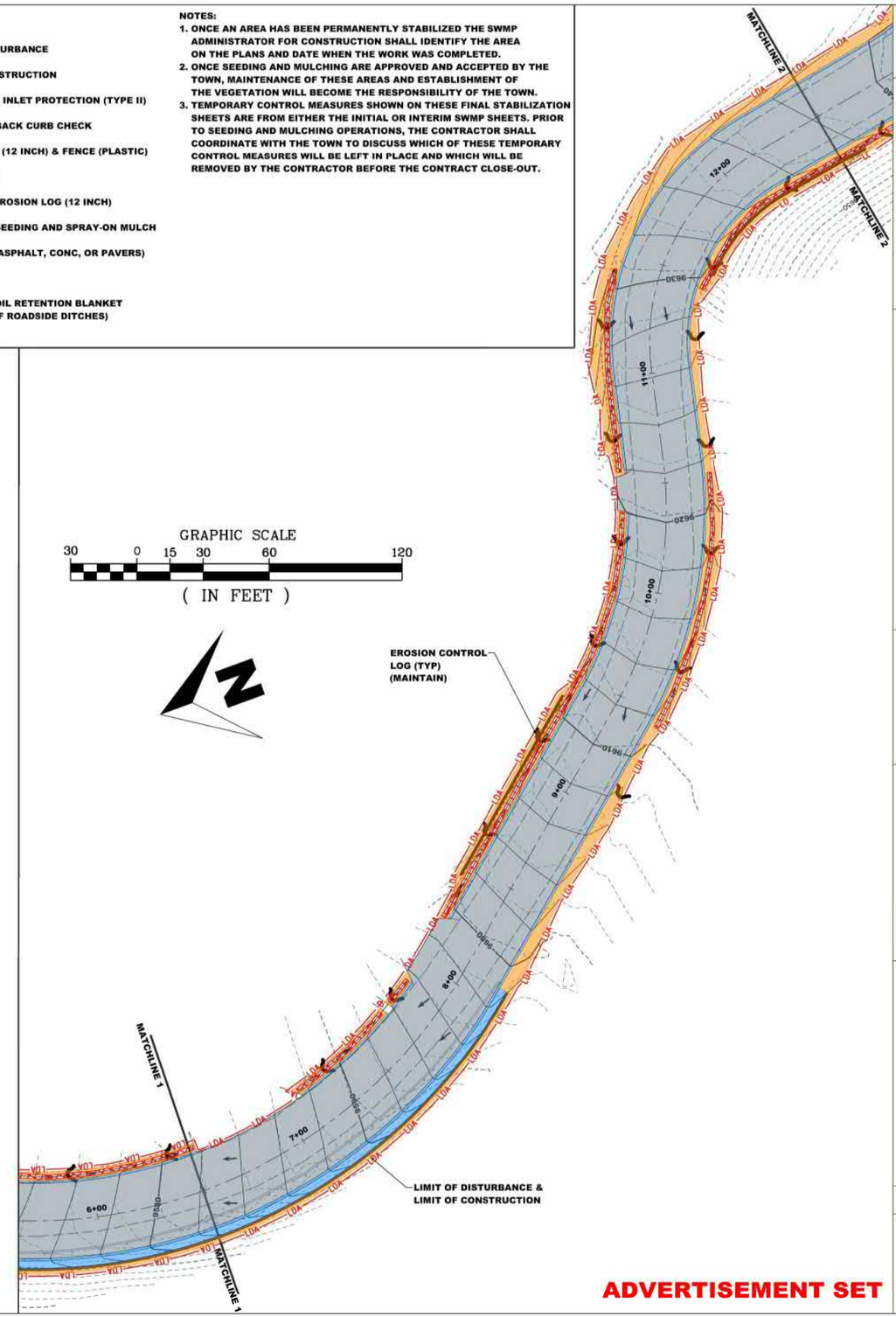
- LDA — LIMIT OF DISTURBANCE
- LIMIT OF CONSTRUCTION
- STORM DRAIN INLET PROTECTION (TYPE II)
- AGGREGATE BACK CURB CHECK
- EL — EROSION LOG (12 INCH) & FENCE (PLASTIC)
- FLOW ARROW
- CHECK DAM EROSION LOG (12 INCH)
- BROADCAST SEEDING AND SPRAY-ON MULCH
- HARDSCAPE (ASPHALT, CONC, OR PAVERS)
- GRAVEL
- SEEDING & SOIL RETENTION BLANKET (BOTTOM 2' OF ROADSIDE DITCHES)

NOTES:

1. ONCE AN AREA HAS BEEN PERMANENTLY STABILIZED THE SWMP ADMINISTRATOR FOR CONSTRUCTION SHALL IDENTIFY THE AREA ON THE PLANS AND DATE WHEN THE WORK WAS COMPLETED.
2. ONCE SEEDING AND MULCHING ARE APPROVED AND ACCEPTED BY THE TOWN, MAINTENANCE OF THESE AREAS AND ESTABLISHMENT OF THE VEGETATION WILL BECOME THE RESPONSIBILITY OF THE TOWN.
3. TEMPORARY CONTROL MEASURES SHOWN ON THESE FINAL STABILIZATION SHEETS ARE FROM EITHER THE INITIAL OR INTERIM SWMP SHEETS. PRIOR TO SEEDING AND MULCHING OPERATIONS, THE CONTRACTOR SHALL COORDINATE WITH THE TOWN TO DISCUSS WHICH OF THESE TEMPORARY CONTROL MEASURES WILL BE LEFT IN PLACE AND WHICH WILL BE REMOVED BY THE CONTRACTOR BEFORE THE CONTRACT CLOSE-OUT.

GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)

GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)



Uncompahgre
Engineering, LLC

P.O. Box 3945
Telluride, CO 81435
970-729-0683

PROJECT NAME:
MTN VILLAGE
BIKE & PED SAFETY
PROJECT #: MTF M918-019
PROJECT CODE: 23710

EROSION CONTROL PERMANENT STABILIZATION PLAN #1

NOT FOR CONSTRUCTION

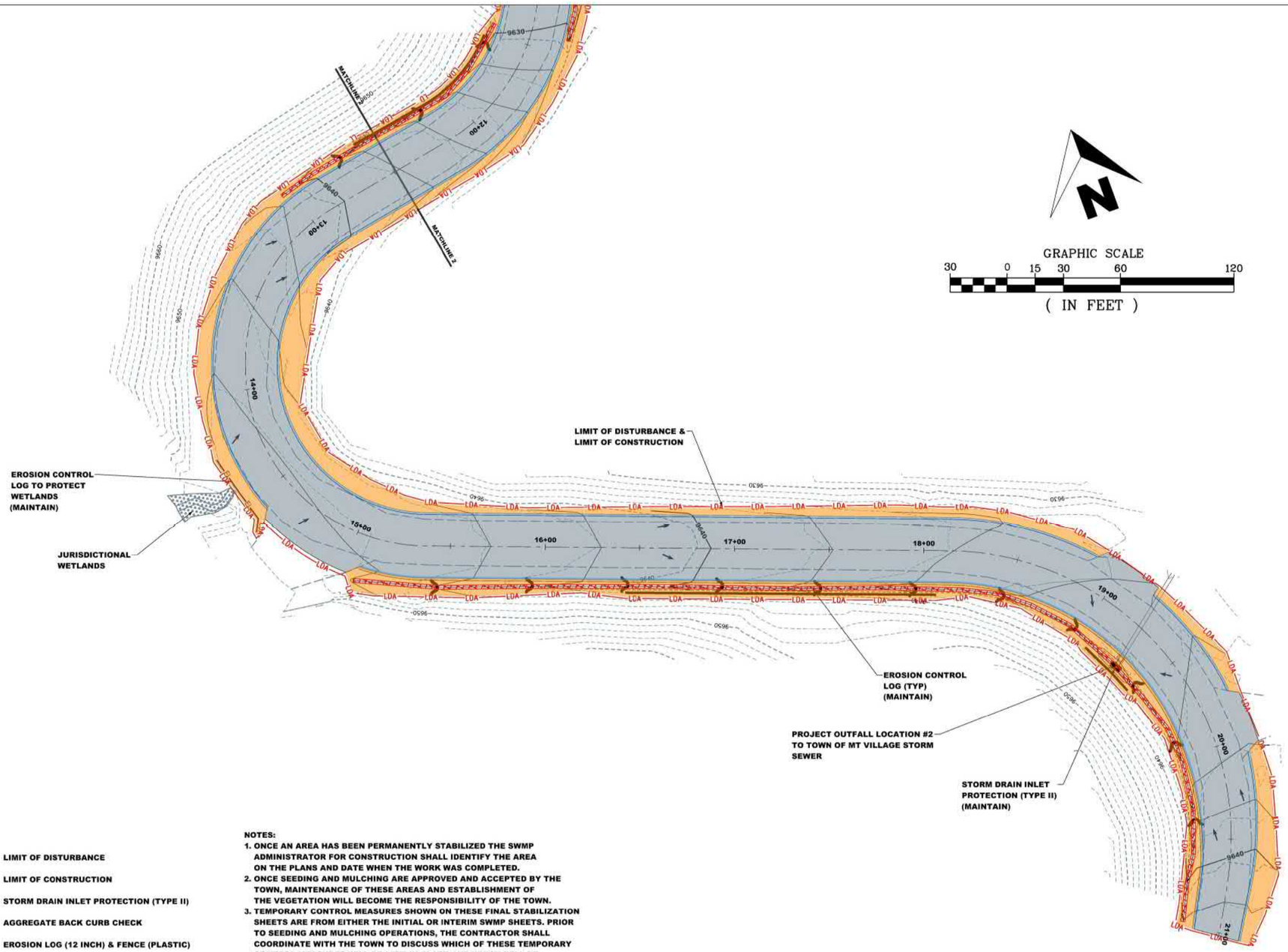
CONTRACTOR TO REVIEW AND COMPARE ALL CHAPTERS AND INTERDISCIPLINARY DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO ANY FIELD WORK BEING DONE IN ACCORDANCE WITH AIA DOCUMENT A201

AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

DATE: 11-21-22

ADVERTISEMENT SET

File Path: ...\CAD_Erosion Control.dgn



GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)

LEGEND

- LDA — LIMIT OF DISTURBANCE
- LIMIT OF CONSTRUCTION
- STORM DRAIN INLET PROTECTION (TYPE II)
- AGGREGATE BACK CURB CHECK
- EL — EROSION LOG (12 INCH) & FENCE (PLASTIC)
- FLOW ARROW
- CHECK DAM EROSION LOG (12 INCH)
- BROADCAST SEEDING AND SPRAY-ON MULCH
- HARDSCAPE (ASPHALT, CONC, OR PAVERS)
- GRAVEL
- SEEDING & SOIL RETENTION BLANKET (BOTTOM 2' OF ROADSIDE DITCHES)

NOTES:

1. ONCE AN AREA HAS BEEN PERMANENTLY STABILIZED THE SWMP ADMINISTRATOR FOR CONSTRUCTION SHALL IDENTIFY THE AREA ON THE PLANS AND DATE WHEN THE WORK WAS COMPLETED.
2. ONCE SEEDING AND MULCHING ARE APPROVED AND ACCEPTED BY THE TOWN, MAINTENANCE OF THESE AREAS AND ESTABLISHMENT OF THE VEGETATION WILL BECOME THE RESPONSIBILITY OF THE TOWN.
3. TEMPORARY CONTROL MEASURES SHOWN ON THESE FINAL STABILIZATION SHEETS ARE FROM EITHER THE INITIAL OR INTERIM SWMP SHEETS. PRIOR TO SEEDING AND MULCHING OPERATIONS, THE CONTRACTOR SHALL COORDINATE WITH THE TOWN TO DISCUSS WHICH OF THESE TEMPORARY CONTROL MEASURES WILL BE LEFT IN PLACE AND WHICH WILL BE REMOVED BY THE CONTRACTOR BEFORE THE CONTRACT CLOSE-OUT.

ADVERTISEMENT SET

Uncompahgre Engineering, LLC

P.O. Box 3945
Telluride, CO 81435
970-729-0683

PROJECT NAME:
MTN VILLAGE
BIKE & PED SAFETY
PROJECT #: MTF M918-019
PROJECT CODE: 23710

EROSION CONTROL PERMANENT STABILIZATION PLAN #2

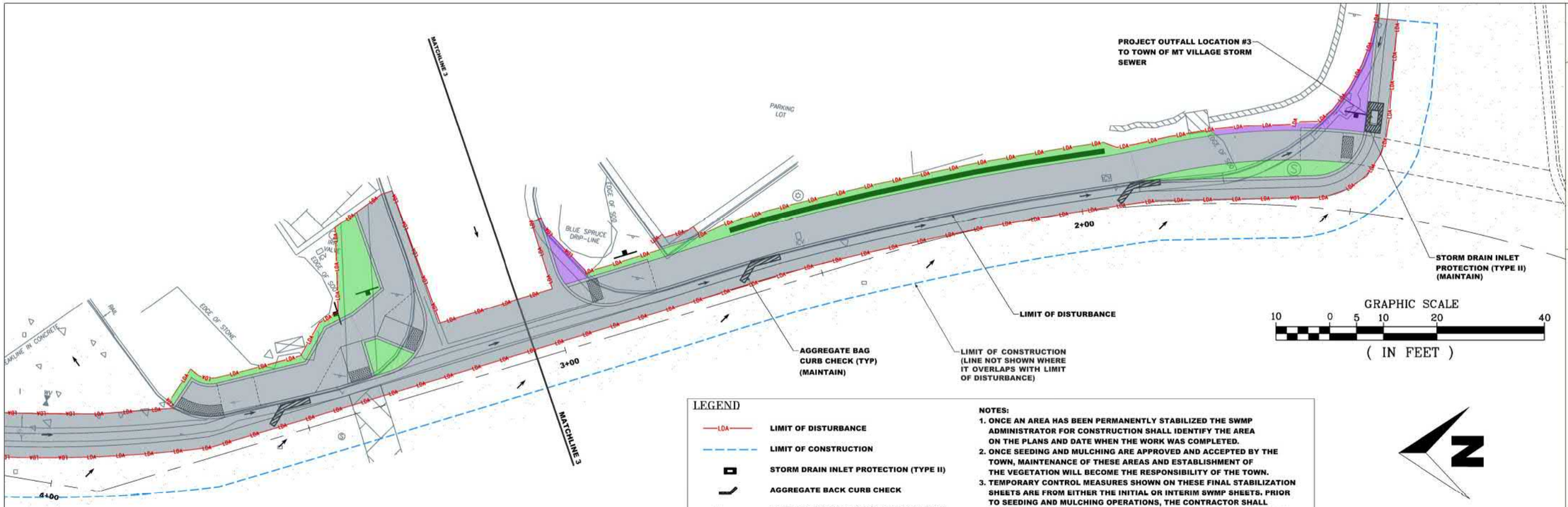
NOT FOR CONSTRUCTION

CONTRACTOR TO REVIEW AND COMPARE ALL CHAPTERS AND INTERDISCIPLINARY DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO ANY FIELD WORK BEING DONE IN ACCORDANCE WITH AIA DOCUMENT A201

AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

DATE: 11-21-22

File Path: ...\CAD_Erosion Control.dgn



GRAPHIC SCALE

10 0 5 10 20 40

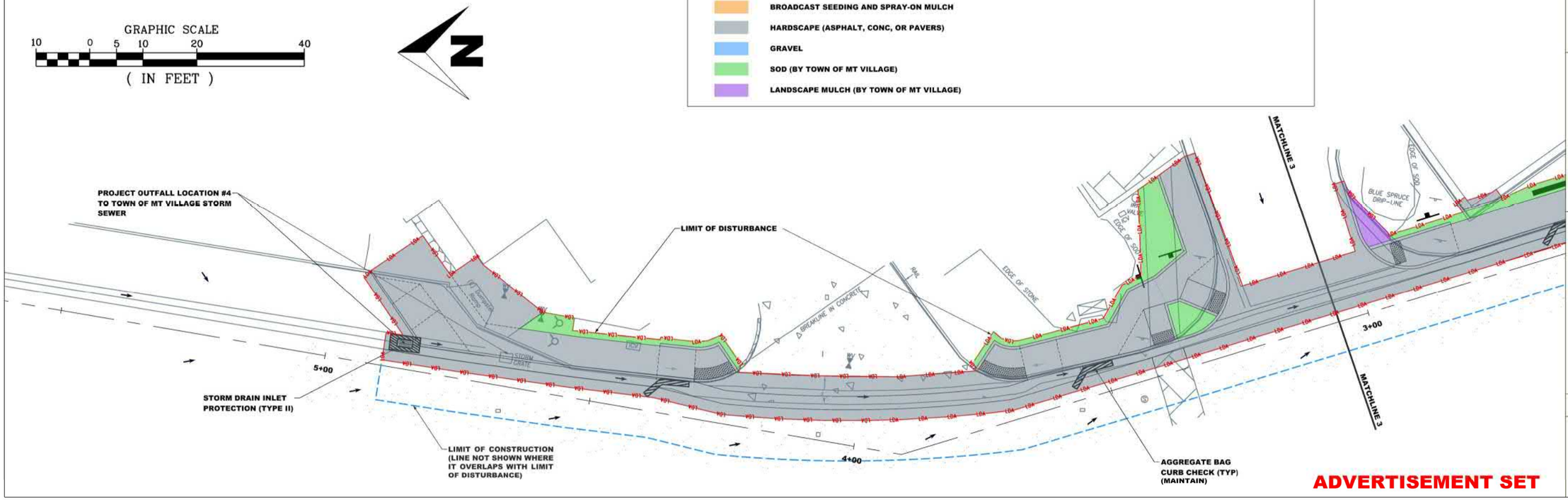
(IN FEET)

LEGEND

- LDA — LIMIT OF DISTURBANCE
- LIMIT OF CONSTRUCTION
- STORM DRAIN INLET PROTECTION (TYPE II)
- AGGREGATE BACK CURB CHECK
- EL — EROSION LOG (12 INCH) & FENCE (PLASTIC)
- FLOW ARROW
- CHECK DAM EROSION LOG (12 INCH)
- BROADCAST SEEDING AND SPRAY-ON MULCH
- HARDSCAPE (ASPHALT, CONC, OR PAVERS)
- GRAVEL
- SOD (BY TOWN OF MT VILLAGE)
- LANDSCAPE MULCH (BY TOWN OF MT VILLAGE)

NOTES:

1. ONCE AN AREA HAS BEEN PERMANENTLY STABILIZED THE SWMP ADMINISTRATOR FOR CONSTRUCTION SHALL IDENTIFY THE AREA ON THE PLANS AND DATE WHEN THE WORK WAS COMPLETED.
2. ONCE SEEDING AND MULCHING ARE APPROVED AND ACCEPTED BY THE TOWN, MAINTENANCE OF THESE AREAS AND ESTABLISHMENT OF THE VEGETATION WILL BECOME THE RESPONSIBILITY OF THE TOWN.
3. TEMPORARY CONTROL MEASURES SHOWN ON THESE FINAL STABILIZATION SHEETS ARE FROM EITHER THE INITIAL OR INTERIM SWMP SHEETS. PRIOR TO SEEDING AND MULCHING OPERATIONS, THE CONTRACTOR SHALL COORDINATE WITH THE TOWN TO DISCUSS WHICH OF THESE TEMPORARY CONTROL MEASURES WILL BE LEFT IN PLACE AND WHICH WILL BE REMOVED BY THE CONTRACTOR BEFORE THE CONTRACT CLOSE-OUT.



GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)

ADVERTISEMENT SET

Uncompahgre
Engineering, LLC

P.O. Box 3945
Telluride, CO 81435
970-729-0683

PROJECT NAME:
MTN VILLAGE
BIKE & PED SAFETY
PROJECT #: MTF M918-019
PROJECT CODE: 23710

EROSION
CONTROL
FINAL
PLAN #3

NOT FOR CONSTRUCTION

CONTRACTOR TO REVIEW AND COMPARE ALL CHAPTERS AND INTERDISCIPLINARY DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO ANY FIELD WORK BEING DONE IN ACCORDANCE WITH AIA DOCUMENT A201

AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

DATE: 11-21-22

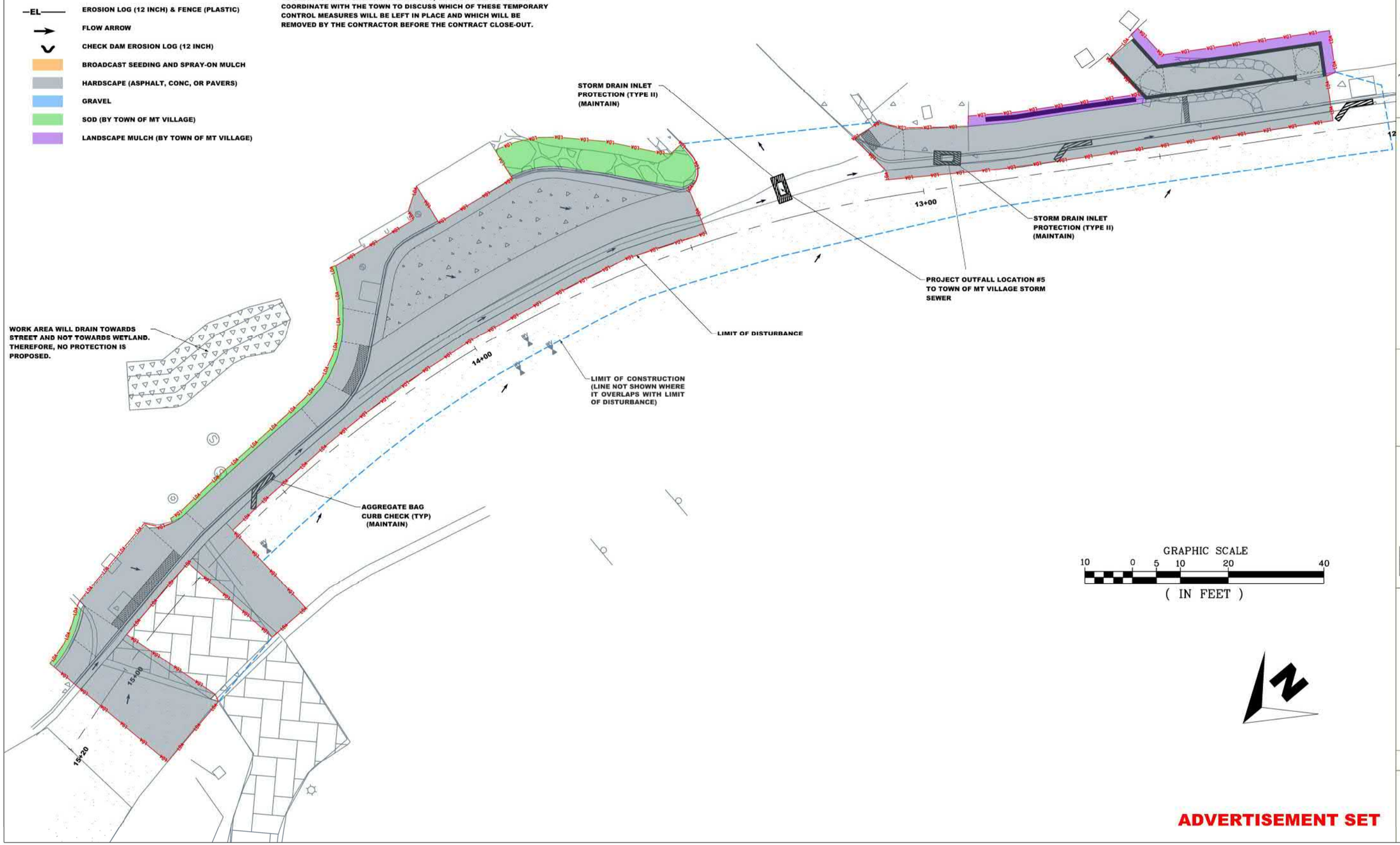
File Path: ...\CAD_Erosion Control.dgn

LEGEND

- LOA — LIMIT OF DISTURBANCE
- LIMIT OF CONSTRUCTION
- STORM DRAIN INLET PROTECTION (TYPE II)
- AGGREGATE BACK CURB CHECK
- EL — EROSION LOG (12 INCH) & FENCE (PLASTIC)
- FLOW ARROW
- CHECK DAM EROSION LOG (12 INCH)
- BROADCAST SEEDING AND SPRAY-ON MULCH
- HARDSCAPE (ASPHALT, CONC, OR PAVERS)
- GRAVEL
- SOD (BY TOWN OF MT VILLAGE)
- LANDSCAPE MULCH (BY TOWN OF MT VILLAGE)

NOTES:

1. ONCE AN AREA HAS BEEN PERMANENTLY STABILIZED THE SWMP ADMINISTRATOR FOR CONSTRUCTION SHALL IDENTIFY THE AREA ON THE PLANS AND DATE WHEN THE WORK WAS COMPLETED.
2. ONCE SEEDING AND MULCHING ARE APPROVED AND ACCEPTED BY THE TOWN, MAINTENANCE OF THESE AREAS AND ESTABLISHMENT OF THE VEGETATION WILL BECOME THE RESPONSIBILITY OF THE TOWN.
3. TEMPORARY CONTROL MEASURES SHOWN ON THESE FINAL STABILIZATION SHEETS ARE FROM EITHER THE INITIAL OR INTERIM SWMP SHEETS. PRIOR TO SEEDING AND MULCHING OPERATIONS, THE CONTRACTOR SHALL COORDINATE WITH THE TOWN TO DISCUSS WHICH OF THESE TEMPORARY CONTROL MEASURES WILL BE LEFT IN PLACE AND WHICH WILL BE REMOVED BY THE CONTRACTOR BEFORE THE CONTRACT CLOSE-OUT.



GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)

ADVERTISEMENT SET

Uncompahgre Engineering, LLC

P.O. Box 3945
Telluride, CO 81435
970-729-0683

PROJECT NAME:
MTN VILLAGE
BIKE & PED SAFETY
PROJECT #: MTF M918-019
PROJECT CODE: 23710

EROSION CONTROL FINAL PLAN #4

NOT FOR CONSTRUCTION

CONTRACTOR TO REVIEW AND COMPARE ALL CHAPTERS AND INTERDISCIPLINARY DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO ANY FIELD WORK BEING DONE IN ACCORDANCE WITH AIA DOCUMENT A201

AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

DATE: 11-21-22

File Path: ...\CAD_Erosion Control.dgn

ROAD STRIPING:
For Clarity, only the (white) 6" Shoulder Stripes are shown.
The Centerline shall also be striped with a Double Yellow line.
Refer to the Striping Plan for Details.

NOTE TO CONTRACTOR: EXISTING UTILITY LOCATIONS
The Quality of the Utility Locates has been Designated as Level C. The Contractor shall be Responsible for calling in their own Locates prior to Construction.

Extend Existing 18" CMP Culvert 25 LF (Field-Verify Diameter)

Existing Culvert to Remain

Sawcut Existing Asphalt, Remove and Replace from STA 1+00 to STA 21+02.56

Light Pole Re-Set by Others to 36' LT, STA 1+09 Prior to Construction

Remove Existing Asphalt, Re-Grade and Use the Limits of the Existing Shoulder to Provide a Wide Gravel Shoulder for Truck Turning

BP: 1+00.00
PC: 1+13.95

Remove Existing 18" CMP Culvert.

Existing Power in Existing Ditchline. Protect in Place (Typ.).

Wetland Delineation by SME. DO NOT DISTURB.

OS FT2 (TMV)

Boulder Wall to Provide 4' Wide Roadside Ditch. Approx. H=3' x 85 LF

Edge of Shoulder

Boulder Wall to Provide 4' Wide Roadside Ditch. Approx. H=3' x 50 LF

Install End Anchorage Type 3K Per CDOT M-606-1

PT: 2+34.57
PC: 2+42.02

Begin MSE Wall at STA 3+70. Refer to the Wall design by Gordon Geotech.

Match Left Shoulder

Junction Cabinet

Remove Existing Guardrail, approx. STA 3+60 to 8+20. Re-Install New Guardrail for the Length of the New Wall as shown on the Wall Plans..

PT: 3+15.79
PC: 3+66.64

Maintain 4'-Wide Roadside Ditch

Edge of Existing Asphalt

Shoulder

111 SAN JOAQUIN RD

Conform at Existing Heated Driveway (Lower Lorian). Do Not Cut Concrete

Lot TSG FT-1

Existing Sanitary Sewer Manhole. Adjust with Grade Rings, if Necessary.

Maintain 4'-Wide Roadside Ditch

Boundary of Temporary License Agreement for Access and Construction Staging

Conform at Existing Heated Driveway (Upper Lorian). Do Not Cut Concrete.

Property Line/Road R.O.W.

Sawcut Existing Driveway at 22' Left of CL. Conform to Existing Grades and Width and Replace the Asphalt.

Boulder Wall to Provide 4' Wide Roadside Ditch. Approx. H=2.5' x 90 LF

Water Valve Box. Adjust to Grade, if Necessary

Existing Power/Phone/CATV and Gas near Existing Ditchline. Pothole and Protect in Place.

Scale: 1" = 50'

0 50 100

PT: 8+07.25

End MSE Wall STA 8+15

TSG OS-10

Install End Anchorage Type 3K Per CDOT M-606-1

Shoulder

PC: 9+43.95

Sawcut Existing Driveway at 22' Left of CL. Conform to Existing Grades and Width and Replace the Asphalt.

Maintain 4'-Wide Roadside Ditch

Existing Sanitary Sewer Manhole. Adjust with Grade Rings, if Necessary.

PT: 10+80.03

PT: 12+18.47

PT: 15+36.94

PC: 11+02.37

PC: 12+85.98

Existing Sanitary Sewer Manhole. Adjust with Grade Rings, if Necessary.

Boulder Wall to Provide 4' Wide Roadside Ditch. Approx. H=2.5' x 90 LF

Edge of Existing Asphalt

Existing Sanitary Sewer Manhole. Adjust with Grade Rings, if Necessary.

TOWN OF MOUNTAIN VILLAGE

135 SAN JOAQUIN RD

110 TRISTANT DR

TRISTANT DRIVE

Sawcut Existing Driveway at 22' Left of CL. Conform to Existing Grades and Width and Replace the Asphalt.

PT: 20+70.41
PI: 20+88.17
EP: 21+02.56

Conform to Existing Edge of Asphalt and to Shoulder Striping, STA 21+02.56

At STA 19+65 (Entrance to Tristant) the 6' Outside Lane Stripes and asphalt width shall begin transitioning to match at STA 21+22 (End of Project)

Boulder Wall to Provide 4'-Wide Roadside Ditch at Culvert Entrance, Approx. H=2.5' x 30 LF

Extend Existing 24" CMP Culvert Approx. 5 LF and Install New CDOT Type C Inlet with Standard Inlet Grate. Invert and Rim Elevations shall be Field-Determined.

121 LODGES LN

Boulder Wall to Provide 4' Wide Roadside Ditch. Approx. H=2.5' x 160 LF

PC: 18+13.18

Edge of Existing Asphalt

Existing Power/Phone/CATV near Existing Ditchline. Pothole and Protect in Place.

1' Shoulder

Existing Gas Line near Existing Shoulder. Pothole and Protect in Place.

115 LODGES LN

Shoulder

Existing Sanitary Sewer Manhole. Adjust with Grade Rings, if Necessary.

TOWN OF MOUNTAIN VILLAGE

Sawcut Existing Driveway at 22' Right of CL. Conform to Existing Grades and Width and Replace the Asphalt.

Wetland Delineation by SME. DO NOT DISTURB.

LEGEND

- New Guardrail
- Existing Water Main
- Existing Sewer Main
- Existing Underground Electric
- Existing Underground CATV or Phone
- Existing Manhole
- Existing Natural Gas
- 4' Ditch Line
- Boulder Wall
- Asphalt

Uncompahgre Engineering, LLC

P.O. Box 3945
Telluride, CO 81435
970-729-0683

PROJECT NAME:
MTN VILLAGE
BIKE & PED SAFETY
PROJECT #: MTF M918-019
PROJECT CODE: 23710

SITE PLAN
SAN JOAQUIN

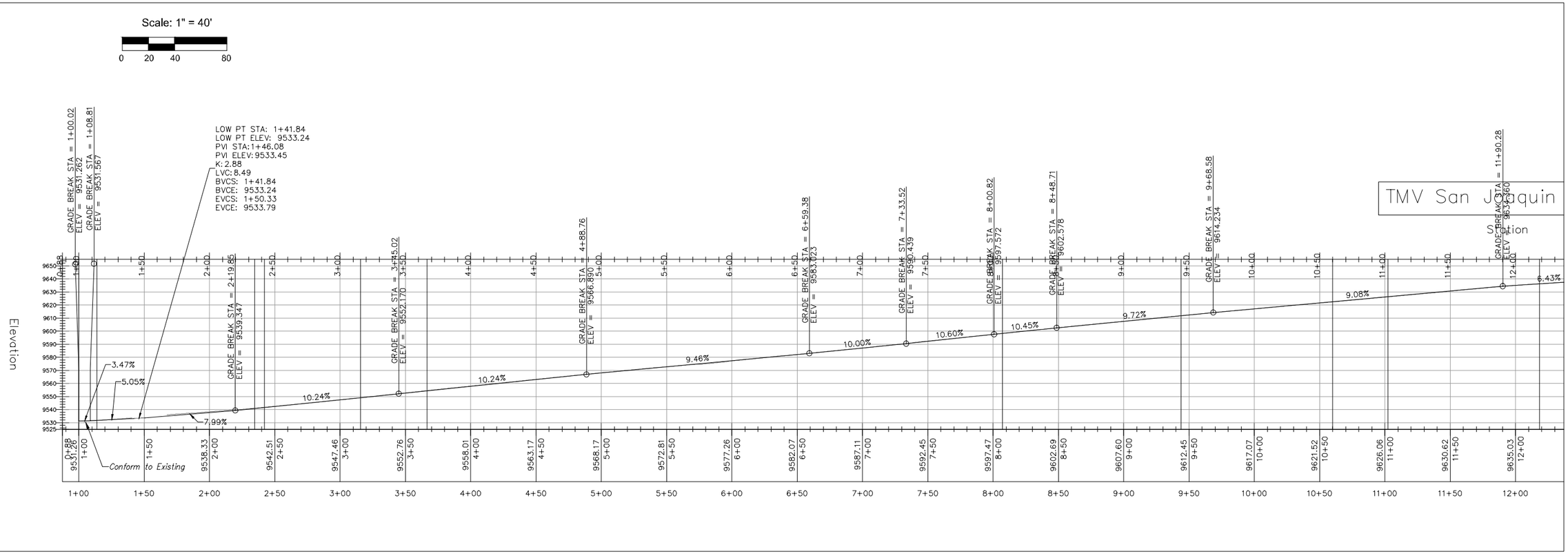
NOT FOR CONSTRUCTION

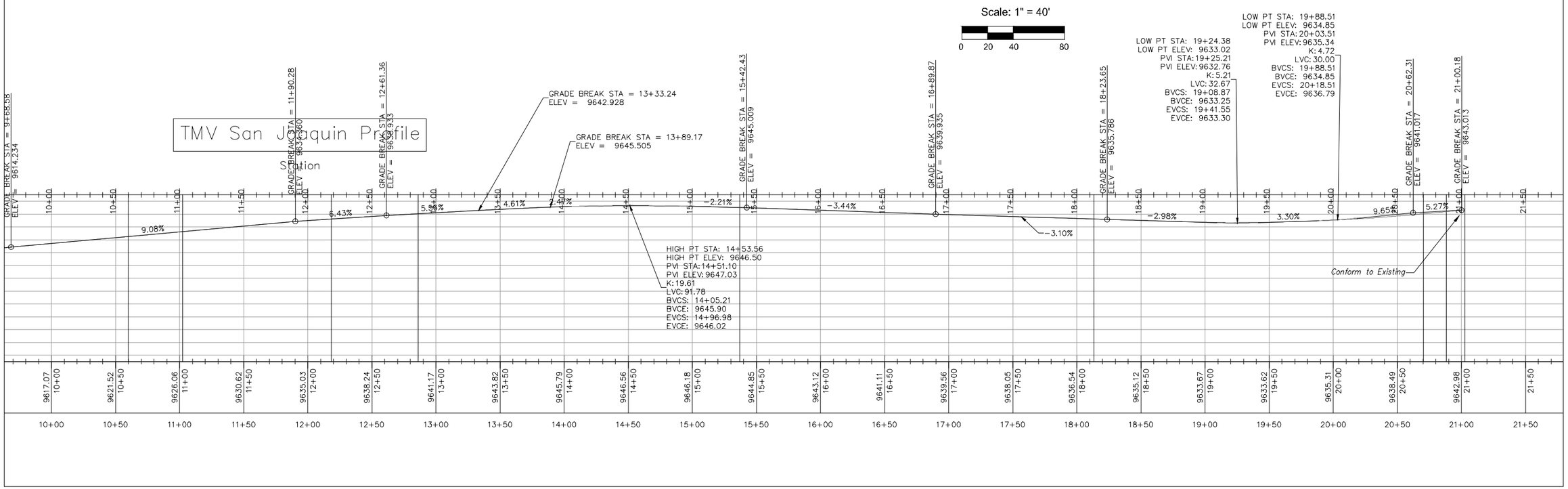
CONTRACTOR TO REVIEW AND COMPARE ALL CHAPTERS AND INTERDISCIPLINARY DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO ANY FIELD WORK BEING DONE IN ACCORDANCE WITH AIA DOCUMENT A201

AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

DATE: 11-21-22

File Path: $FILE$





Uncompahgre Engineering, LLC

P.O. Box 3945
Telluride, CO 81435
970-729-0683

PROJECT NAME:
MTN VILLAGE
BIKE & PED SAFETY
PROJECT #: MTF M918-019
PROJECT CODE: 23710

SAN JOAQUIN
Centerline Profile

NOT FOR CONSTRUCTION

CONTRACTOR TO REVIEW AND COMPARE ALL CHAPTERS AND INTERDISCIPLINARY DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO ANY FIELD WORK BEING DONE IN ACCORDANCE WITH AIA DOCUMENT A201

AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

DATE: 11-21-22

File Path: $FILE$

NOTE TO CONTRACTOR CONCERNING MAXIMUM ALLOWABLE SLOPES ON ADA RAMPS:

ADA RAMPS CANNOT EXCEED 2.0% SIDE SLOPES OR 8.33% LONGITUDINAL SLOPES. IF THESE SLOPES ARE EXCEEDED DURING CONSTRUCTION, THEN THE RAMP WILL BE REMOVED AND RE-POURED AT THE CONTRACTOR'S SOLE EXPENSE.

FOR THIS REASON, IT IS HIGHLY ENCOURAGED TO POUR USING A 1.5% SIDE SLOPE AND A 7.5% LONGITUDINAL SLOPE SO THAT ANY ERROR IN CONSTRUCTION WILL NOT EXCEED THE MAXIMUM ALLOWABLE SLOPES.

LEGEND

Truncated Dome Detectable Warning Surface (DWS). The DWS are Incidental to the Curb Ramps and are not a Separate Pay Item.

New Asphalt

Blue Mesa Parking Lot

Existing Landscape Wall

Property Line

Lost Creek Lane

Conform to Existing Curb & Gutter, SAT 1+47.80, 36.44 Rt

Remove and Replace Existing Curb Inlet with new City of Grand Junction Curb Inlet. See Detail on Sheet 36. The Existing Alignment of the Existing Culvert will be the Sag Point in the Curb & Gutter (Field Fit)

Type 2 Directional Ramp with DWS

R=10' to Curb Face

6" Curb Wall to Retain the Landscaping

Existing Culvert

Ramp

7.5'

Remove Approximately 5.5 LF of Existing Culvert

Highland Companies

Type 2 Directional Ramp with DWS

Mountain Village Boulevard

Mid: 1+70.98

1+50

PC: 1+06.37

BP: 1+00.00

Adjust the Curb Alignment, as Necessary, to allow for the Communications Manhole to be located within the Sod area and not in the Sidewalk or Curb. Adjust Lid with Grade Rings, as Necessary

The Proposed Sidewalk is Designed to Link to the Dashed Sidewalk Shown. The Dashed (South Side of Lost Creek Lane) is not Included in this Project. Future Improvements are shown for Information, only.

Stone Landscape Edging, 12"-18" High, as Necessary, to Retain the Landscaping.

New Sod

Re-Locate Irrigation Valve (by Others)

New Sidewalk to Match Existing Top Back of Curb

Sawcut, Remove, and Replace Curb & Gutter Parallel to the Sidewalk

Conform to Existing Curb & Gutter, STA 2+99.20, 24.90 Rt

Blue Mesa Parking Lot

Conform to Existing Curb & Gutter, STA 3+22.39, 37.96 Rt

Type 2 Directional Ramp with DWS

R=10' to Curb Face

Re-Locate Irrigation Valve (by Others)

2+50

3+00

Sawcut Existing Asphalt 2' from All Longitudinal Gutters and Pans that are being Replaced. Replace Asphalt with ½" reveal above concrete.

Hinge Line (End of Ramp)

2'x4' DWS

Ramp

10.0'

3.6'

5.5'

1.5'

Form 2" Deep Flowline 18" From West Edge Integrally Into the Concrete Pavement (8 inch, Class B, #4 Reinforcing Steel, 18" O.C. and similar to Granite Ramp Sidewalk, Sheet 3.) Score Concrete at 36" to Distinguish Pan from Sidewalk.

Re-Grade and Install Sod, Irrigation by Others.

Type 1 Ramps

Center the Detectable Warning Surface with Existing Crosswalk

Variable Width Gutter to Match Granita Ramp

Sawcut Existing Asphalt

Remove Existing Unheated Concrete Pan

Angle Point in Curb 12" beyond Crosswalk

PC: 3+45.62

Remove Existing Sidewalk, Re-Grade, and Replace with Sod, Irrigation by Others.

Continuous Curb (Incidental to Adjacent Sidewalk or Curb Ramp)

4' (min.) Sidewalk at 2% max. Bypassing Ramps

R=10' to Curb Face

(E) EDGE OF STONE

4.0'

7.5'

1.0'

5.5'

7.0'

R=12' to Curb Face

(TMV)

OS 3V (TMV)

IRR. VALVE

ICV

One Way Traffic

R=243.5 to West Edge of Pan

Scale: 1" = 10'

0 5 10 20

NOTE CONCERNING EXISTING SHALLOW UTILITIES: Existing Shallow Utilities (Power, Phone, CATV, and Gas) are not Expected to be in Conflict with any New Construction and were not Located or Displayed.

Mid: 3+90.14

Scale: 1" = 10'

0 5 10 20

** Standard Fire Hydrant Details are shown on Sheet 36. It is unknown exactly what the existing conditions will be. Contractor shall coordinate with the Town of Mtn. Village, have the water to the Hydrant turned off, expose the supply pipe, and determine the best course of action. Standard AWWA methods shall apply. All work must be inspected by the Town of Mtn. Village prior to backfill.

Granita Building

Blue Mesa Parking Lot

Dowel 6" #4 Rebar @ 18" O.C. into Existing Concrete to Prevent Differential Settlement. Dowels are Incidental to Work.

Remove Existing Dumpster Ramp

Score Concrete At 5.6'

Thicken Slab (Sidewalk) to 6" in Hatched Area (where the Dumpster will Roll). Field Verify Limits with Engineer prior to Pouring.

Adjust Valve Box to FG prior to Pouring Concrete

Re-Locate Fire Hydrant ** 12" (min.) Clear of Sidewalk. Re-Locate Valve, if Necessary.

Remove Existing Curb and Gutter

OS3 CRR (Telski)

OS 3V (TMV)

Corner of Property Line

(E) Dumpster Ramp

End Pedestrian Curb at Top of Ramp

Install New 6' Wide Combination Dumpster/ADA Type 1 Perpendicular Ramp (No Detectable Warning Surface due to Roll-Out Dumpsters)

Remove and Replace Existing Box with Similar (Salvage Grate). Contractor shall Submit Shop Drawing for approval. Existing 8" Outfall Pipe drains to the North. The Re-Located Box must connect to the same Pipe (Field Locate). Paid for as Item 604-90001 Small Inlet #1 (Special).

Re-Locate Irrigation Valve (by Others)

Sawcut Existing Asphalt 2' from All Longitudinal Gutters and Pans that are being Replaced. Replace Asphalt with ½" reveal above concrete.

From Integral 30" Pan with 2" Deep Flowline - offset at 18" from West Edge (not in Center). Score Concrete at 30" to Distinguish Pan from Sidewalk. See Granita Ramp Typical Section on Sheet 3.

PT: 4+34.65

Note: Existing Asphalt is 26' wide in front of Ramp

Mid: 3+90.14

Type 2 Parallel Ramp (Sidewalk Ends) with Radial DWS. End at Ramp Joint.

Type 2 Parallel Ramp (Sidewalk Ends) with Radial DWS

Existing Joint in Ramp

Form Integral 42" (min.) Sidewalk from Existing Joint

Existing Heated Concrete Ramp

Sawcut Existing Tall Curb at the Joint of the Existing Ramp as Shown (Inside Edge of Tall Curb = Joint on Ramp).

R=12' to Curb Face

R=212' to Curb Face

(E)STORM GRATE

ICV

Ramp

7.0'

5.0'

3+00

4+00

4+50

Variable Width Gutter to Match Granita Ramp

Sawcut Existing Asphalt

Remove Existing Unheated Concrete Pan

Angle Point in Curb 12" beyond Crosswalk

PC: 3+45.62

Remove Existing Sidewalk, Re-Grade, and Replace with Sod, Irrigation by Others.

Continuous Curb (Incidental to Adjacent Sidewalk or Curb Ramp)

4' (min.) Sidewalk at 2% max. Bypassing Ramps

R=10' to Curb Face

(E) EDGE OF STONE

4.0'

7.5'

1.0'

5.5'

7.0'

R=12' to Curb Face

OS3V (TMV)

IRR. VALVE

ICV

One Way Traffic

R=243.5' to West Edge of Pan

R=243.5' to West Edge of Pan

Re-Grade and Install Sod, Irrigation by Others.

Type 1 Ramps

Center the Detectable Warning Surface with Existing Crosswalk

Form 2" Deep Flowline 18" From West Edge Integrally Into the Concrete Pavement (8 inch, Class B, #4 Reinforcing Steel, 18" O.C. and similar to Granita Ramp Sidewalk, Sheet 3.) Score Concrete at 36" to Distinguish Pan from Sidewalk.

Sawcut Existing Asphalt 2' from All Longitudinal Gutters and Pans that are being Replaced. Replace Asphalt with ½" reveal above concrete.

Hinge Line (End of Ramp)

2'x4' DWS

Ramp

10.0'

3.6'

5.5'

1.5'

Re-Locate Irrigation Valve (by Others)

2+50

3+00

Type 2 Directional Ramp with DWS

R=10' to Curb Face

Sawcut, Remove, and Replace Curb & Gutter Parallel to the Sidewalk

NOTE CONCERNING EXISTING SHALLOW UTILITIES: Existing Shallow Utilities (Power, Phone, CATV, and Gas) are not Expected to be in Conflict with any New Construction and were not Located or Displayed.

Uncompahgre Engineering, LLC

P.O. Box 3945
Telluride, CO 81435
970-729-0683

PROJECT NAME:
MTN VILLAGE
BIKE & PED SAFETY
PROJECT #: MTF M918-019
PROJECT CODE: 23710

SITE PLAN
MV Core - South

NOT FOR CONSTRUCTION

CONTRACTOR TO REVIEW AND COMPARE ALL CHAPTERS AND INTERDISCIPLINARY DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO ANY FIELD WORK BEING DONE IN ACCORDANCE WITH AIA DOCUMENT A201

AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

DATE: 11-21-22

File Path: SFILEAS

The Centrum

Conference Center

TRACT OS-1A-R1

LOT 129A2

All Concrete within the Turn-Around shall be Concrete Pavement, 8" Thick. Gutter, Sidewalk, and V-Pan shall be Scored to appear as a Continuous Sidewalk and Pan. If Gutter and Sidewalk are poured first, Dowel #4 Rebar into New Concrete (6" at 18" O.C.) or provide continuous Rebar Grid to prevent differential settlement between the different Pours. Gutter, Replacement Slab, Sidewalk, and V-Pan to be paid for as Concrete Slab (8 inch) (Reinforced) and Reinforcing Steel.

Concrete Finish (Broom, etc.) must be Approved by Owner prior to Pouring Slab.

Remove Flagstone Sidewalk and Replace with Sod. Irrigation by Others.

Existing Bus Stop Shelter to Remain

Remove Pavers, Rebuild per Detail Sheet 3. 8" Thick Concrete Slab to Replace Pavers

Curb adjacent to 8" Replacement Slab will not be paid for separately, but the Curb Area will be included in the Area for the Concrete Pavement (8 inch) (Reinforced) Pay Item.

Remove Existing Curb Ramp. Pour Full Height Curb & Gutter. Replace Paving-Stone Sidewalk with Concrete Sidewalk.

Wetlands Delineation by SME

Remove/Cut Pavers to Match Hinge Lines

Entire Area to be Paid as Concrete Curb Ramp

Re-Locate Surface Sign, Location TBD. Install Pavers in Void Space left by Sign.

Sawcut Existing Ribbon Curb

End Sidewalk Improvements STA 15+08.6, 5.3' Right

PT: 15+09.51

EP: 15+20.33

Ramp

7.5' Ramp

7.5' Ramp

7.5' Ramp

7.5'

19.8'

16.9'

R=5' to Curb Face

R=5' to Curb Face

R=5' to Curb Face

Conform to Existing Curb

Install a 6.0' Wide Concrete Sidewalk with Adjacent 30" Wide Concrete V-Pan (Monolithically Poured). Sidewalk shall drain 2% (max.) to the Pan. Construct Score Joints at these Widths to Distinguish Sidewalk from Pan.

Remove Existing 30" Wide Concrete V-Pan. See above note (monolithic pour).

Split Gutter, Paver Replacement Slab, and Sidewalk shall all continuously sheet flow to the V-Pan

Mid: 14+06.11

Type 2 Parallel Curb Ramp with Radial DWS

DWS shall Terminate at Edges of the 6' Sidewalk

Sawcut Existing Asphalt 2" from All Longitudinal Gutters and Pans that are being Replaced. Replace Asphalt with ½" reveal above concrete.

Remove Existing Concrete Paver Edging and Replace with New 16" Wide Concrete Edging that Lines up with Pedestrian Path to the East. See Detail on Sheet 36.

Sawcut and Remove Existing Asphalt to Limits Shown. Replace with 4" HMA and Blend Asphalt to New Concrete Edging with ½" Reveal above the Concrete.

Sawcut Existing Pavers as Necessary. Remove and Dispose of Existing Pavers.

OS3 XRR (Town)

OS3 BR2 (Town)

Bottom Step of Existing Concrete Stairs

Existing Wall

Hinge Line to Corner of Existing Wall

Sawcut Concrete

Type 2 Parallel Ramp (Sidewalk Ends) with Radial DWS

(E)7.72

(E)7.77

(E)7.74

(E)7.69

(E)7.40

(E)7.39

6.8

13+00

PC: 13+02.72

Existing Top Back of Curb

Existing Concrete to Remain

Install Stone Landscape Edging approx. 18" High

Sawcut and Removal Limits

Top of Ramp shall Conform to Existing Landing Concrete Joint

Column

(E)9511.4

(E)9511.40

6.9 LF @ 7.5%

27.5 LF @ 7.5%

10.88

10.88

10.88

Landing

10.79

New 8" Wide Wall, 6" above Sidewalk

Concrete Center ADA Ramp

6.79

8.84

Landing

8.89

8.74

9508.79

9508.53

9508.4

(E)9508.59

(E)9508.69

9508.38

9508.42

(E) Light Pole to Remain

(E) Natural Gas Risers – Pothole and Protect in Place. Gas line was not located. Re-route if necessary to avoid wall.

New 6" Thick Wall with 4" Stone Veneer

60" Turning Diameter

Edge of Wall at STA 12+30.0, 11.53' Right

Sawcut 24" Transition to Narrow the Existing Sidewalk down to the New Sidewalk Width.

Existing Ramp to Remain

5.5' x 5.5' ADA Landing

12+00

PI: 11+96.90

Remove Existing Wall and Ramp

Remove and Re-Locate Sign by Others. Location TBD.

Sidewalk Chase for Existing Downspout Outfall. Extend Pipe through Curb Face. See Detail.

Remove and Replace Existing Box with Similar (Salvage Grate). Contractor shall Submit Shop Drawing for approval. Existing 8" Outfall Pipe drains to the North. The Re-Located Box must connect to the same Pipe (Field Locate). Paid for as Item 604-90001 Small Inlet #2 (Special).

Sawcut Existing Asphalt 2" from All Longitudinal Gutters and Pans that are being Replaced. Replace Asphalt with ½" reveal above concrete.

NOTE TO CONTRACTOR CONCERNING MAXIMUM ALLOWABLE SLOPES ON ADA RAMPS:

ADA RAMPS CANNOT EXCEED 2.0% SIDE SLOPES OR 8.33% LONGITUDINAL SLOPES. IF THESE SLOPES ARE EXCEEDED DURING CONSTRUCTION, THEN THE RAMP WILL BE REMOVED AND RE-POURED AT THE CONTRACTOR'S SOLE EXPENSE.

FOR THIS REASON, IT IS HIGHLY ENCOURAGED TO POUR USING A 1.5% SIDE SLOPE AND A 7.5% LONGITUDINAL SLOPE SO THAT ANY ERROR IN CONSTRUCTION WILL NOT EXCEED THE MAXIMUM ALLOWABLE SLOPES.

NOTE CONCERNING EXISTING SHALLOW UTILITIES: Existing Shallow Utilities (Power, Phone, CATV, and Gas) are not Expected to be in Conflict with any New Construction and were not Located or Displayed.

Scale: 1" = 10'

0 5 10 20

Uncompahgre Engineering, LLC

P.O. Box 3945
Telluride, CO 81435
970-729-0683

PROJECT NAME:
MTN VILLAGE
BIKE & PED SAFETY
PROJECT #: MTF M918-019
PROJECT CODE: 23710

SITE PLAN
MV Core - North

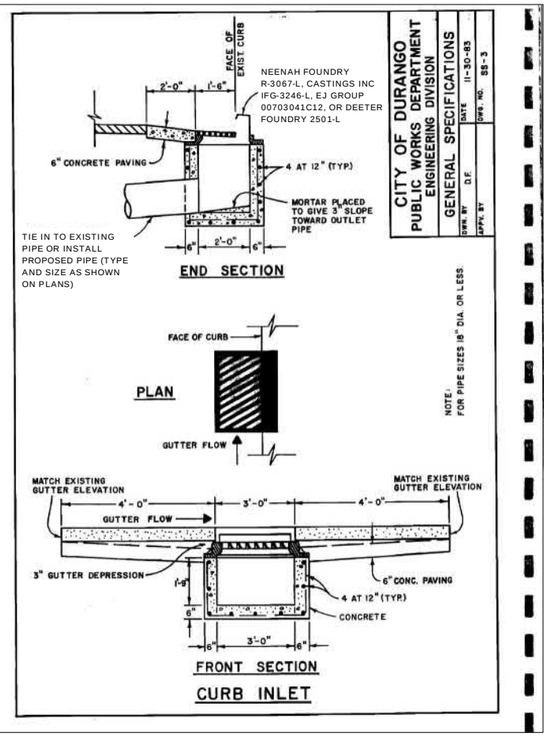
NOT FOR CONSTRUCTION

CONTRACTOR TO REVIEW AND COMPARE ALL CHAPTERS AND INTERDISCIPLINARY DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO ANY FIELD WORK BEING DONE IN ACCORDANCE WITH AIA DOCUMENT A201

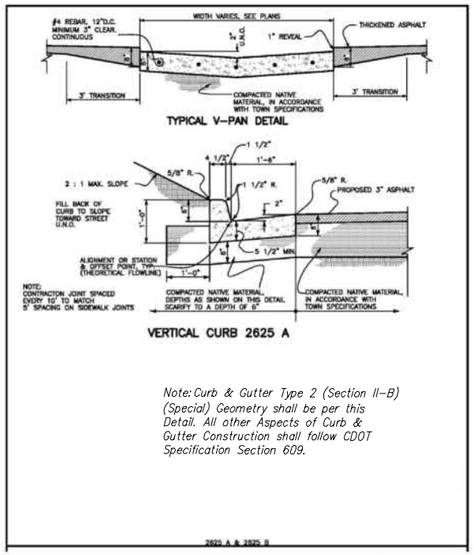
AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

DATE: 11-21-22

File Path: SFILEAS



Note: Paid for as Concrete Pavement (8 inch) Reinforced) and Reinforcing Steel.

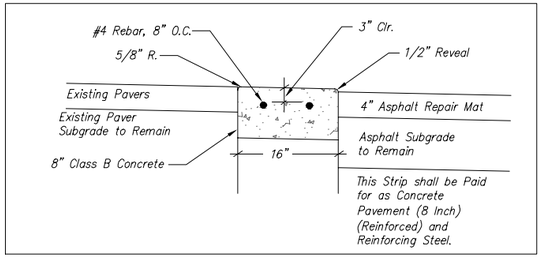


Note: Curb & Gutter Type 2 (Section II-B) (Special) Geometry shall be per this Detail. All other Aspects of Curb & Gutter Construction shall follow CDOT Specification Section 609.

REVISIONS		
MARK	DATE	DESCRIPTION

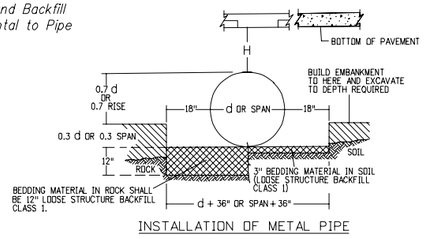
CURB & GUTTER DETAILS
Standard No. 2625A & 2625B
Sheet 1 of 1

Town of Telluride, Colorado

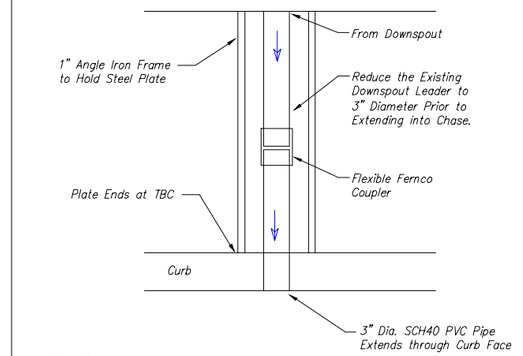


16" Wide Paver Edging Strip
at The Peaks Crosswalk

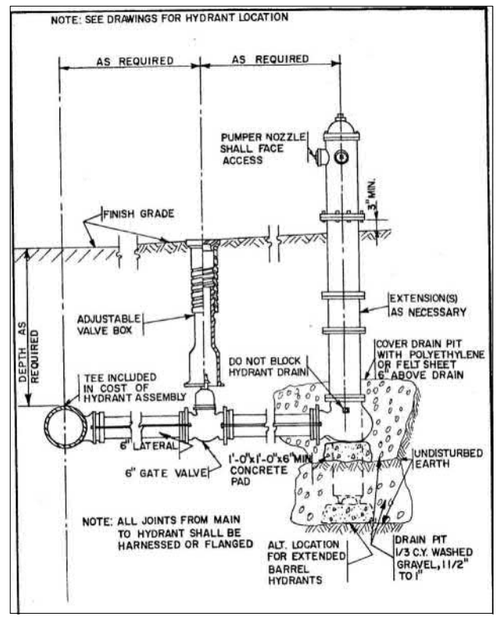
Note: Excavation, Bedding, and Backfill are Incidental to Pipe Pay Items.



Culvert Installation - Trench Detail



Sidewalk Chase for Downspout Leader
Not to Scale



REVISIONS		
MARK	DATE	DESCRIPTION
	FEB 1976	CHANGE NUMBER

FIRE HYDRANT ASSEMBLY
Standard No. 2550J
Sheet 1 of 1

Town of Telluride, Colorado

TABLE OF BEARING AREAS IN SQ. FT. FOR CONCRETE THRUST BLOCKING

FOR 100 P.S.I. INTERNAL STATIC PRESSURE AND 1000 LBS. PER SQ. FT. SOIL BEARING CAPACITY.

SIZE	BENDS 90°	45°	22 1/2°	11 1/4°	TEES *	GATE VALVES	DEAD ENDS	CROSS W/ 1 BRANCH PLUGGED	CROSS W/ 2 BRAN. PLUGGED
3	1.0	0.6	0.3	0	0.7	0.5	0.7	0.7	0.7
4	1.8	1.0	0.5	0	1.3	0.5	1.3	1.3	1.3
6	4.0	2.2	1.1	0	2.8	0.7	2.8	2.8	2.8
8	7.1	3.8	2.0	1.0	5.0	2.4	5.0	5.0	5.0
10	11.1	6.0	3.0	1.5	7.8	4.5	7.8	7.8	7.8
12	16.0	8.6	4.4	2.2	11.3	7.3	11.3	11.3	11.3
14	21.7	11.8	6.0	3.0	15.4	11.0	15.4	15.4	15.4
15	25.0	13.5	7.0	3.5	17.6	DESIGN	17.6	17.6	17.6
16	28.4	15.3	8.0	4.0	20.0	DESIGN	20.0	20.0	20.0
18	36.0	19.4	10.0	5.0	25.4	DESIGN	25.4	25.4	25.4
20	44.2	24.0	12.2	6.1	31.4	DESIGN	31.4	31.4	31.4
21	49.0	26.5	13.5	6.8	34.6	DESIGN	34.6	34.6	34.6
22	54.0	29.0	14.8	7.4	38.0	DESIGN	38.0	38.0	38.0
24	64.0	34.5	17.7	8.8	45.0	DESIGN	45.0	45.0	45.0
30	100.0	54.0	27.6	13.8	71.0	DESIGN	71.0	71.0	71.0
36	144.0	78.0	40.0	20.0	102.0	DESIGN	102.0	102.0	102.0

* SIZE IS BRANCH SIZE.

AREAS GIVEN IN TABLE ARE BASED UPON AN INTERNAL STATIC PRESSURE OF 100 P.S.I. AND A SOIL BEARING CAPACITY OF 1000 LBS. PER SQ. FT. BEARING AREAS FOR ANY PRESSURE AND SOIL BEARING CAPACITY MAY BE OBTAINED BY MULTIPLYING THE TABULATED VALUES BY A CORRECTION FACTOR "F".

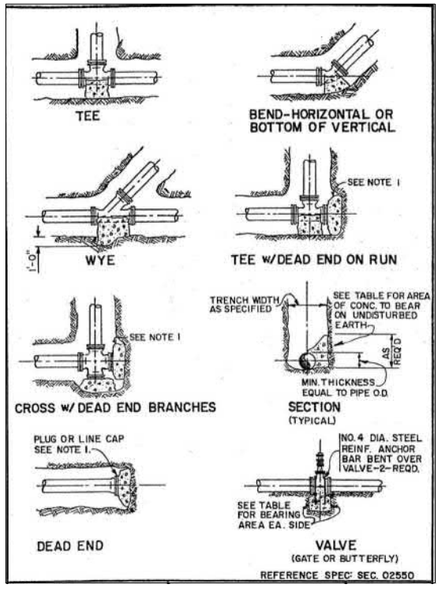
$$F = \frac{\text{ACTUAL SPECIFIED TEST PRESSURE IN HUNDREDS OF LBS/SQ.IN.}}{\text{ACTUAL SOIL BEARING CAPACITY IN THOUSANDS OF LBS.}}$$

EXAMPLE: TO FIND BEARING AREA FOR 8"-90° BEND WITH A STATIC INTERNAL PRESSURE OF 150 P.S.I. AND WITH A SOIL BEARING CAPACITY OF 3000 LBS. PER SQ. FT.
F= 1.5 ÷ 3 = 0.5 TABULATED VALUE = 7.1 SQ. FT.
0.5 X 7.1 = 3.56 SAY 4 SQ. FT. OR 2 FT. LONG BY 2 FT. HIGH.

REVISIONS		
MARK	DATE	DESCRIPTION
	FEB 1976	CHANGE NUMBER

THRUST BLOCKS
Standard No. 2550C
Sheet 2 of 3

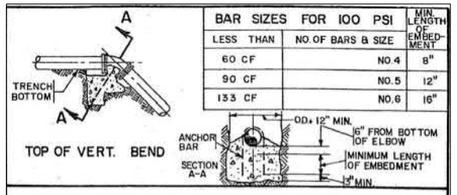
Town of Telluride, Colorado



REVISIONS		
MARK	DATE	DESCRIPTION
	FEB 1976	CHANGE NUMBER

THRUST BLOCKS
Standard No. 2550C
Sheet 1 of 3

Town of Telluride, Colorado



BAR SIZES FOR 100 PSI		MIN. LENGTH OF EMBEDMENT
LESS THAN	NO. OF BARS & SIZE	
60 CF	NO. 4	8"
90 CF	NO. 5	12"
133 CF	NO. 6	16"

TABLE OF VOLUMES OF CONCRETE (IN CU. FT.)

REQ'D FOR VERT. BEND ANCHOR BLOCKS FOR 100 P.S.I. PRESSURE ADJUST VOLUMES BY MULTIPLYING TABULATED VALUES BY A CORRECTION FACTOR "F". F= ACTUAL SPECIFIED TEST PRESSURE ÷ 100

SIZE	BENDS 45°	22 1/2°	11 1/2°
3	3.7	1.9	1.4
4	6.5	3.3	1.7
6	14.6	7.5	3.7
8	26.0	13.2	6.6
10	40.5	20.7	10.3
12	58.5	30.0	14.8
14	79.5	40.7	20.2
15	91.0	46.6	23.2
16	104.0	53.0	26.5
18		67.3	33.4
20		83.0	41.0
21			45.5
22	SPECIAL DESIGN REQD.		50.0
24			59.5
30			
36			

NOTES FOR DRAWINGS

1. AT DEAD ENDS, WRAP FITTINGS WITH TAR PAPER, FELT, OR HEAVY KRAFT PAPER TO PROVIDE BOND BREAK BETWEEN CONCRETE AND FITTINGS.
2. ALL THRUST BLOCKING SHALL BE CAST-IN-PLACE CONCRETE HAVING A MINIMUM YIELD STRENGTH OF 2000 P.S.I.
3. THRUST BLOCKING SHALL BE CAST AGAINST UNDISTURBED EARTH. FORMS SHALL BE USED AS REQD. TO OBTAIN ADEQUATE BEARING AREA AND TO CONFINE THE CONCRETE. THRUST BLOCKING SHALL BEAR ON THE FITTING OR END CAP ONLY AND SHOULD NOT BE ALLOWED TO SPILL OVER THE JOINT OR AGAINST THE PIPE.

REVISIONS		
MARK	DATE	DESCRIPTION
	FEB 1976	CHANGE NUMBER

THRUST BLOCKS
Standard No. 2550C
Sheet 3 of 3

Town of Telluride, Colorado

Standard Fire Hydrant Details are shown, although it is unknown exactly what the existing conditions will be. The Contractor shall coordinate with the Town of Mtn. Village to have the water to the Hydrant turned off, expose the supply pipe, and determine the best course of action. Standard AWWA methods will apply. All work must be inspected by the Town of Mtn. Village prior to backfill.

Uncompahgre Engineering, LLC

P.O. Box 3945
Telluride, CO 81435
970-729-0683

PROJECT NAME:
MTN VILLAGE
BIKE & PED SAFETY
PROJECT #: MTF M918-019
PROJECT CODE: 23710

Details

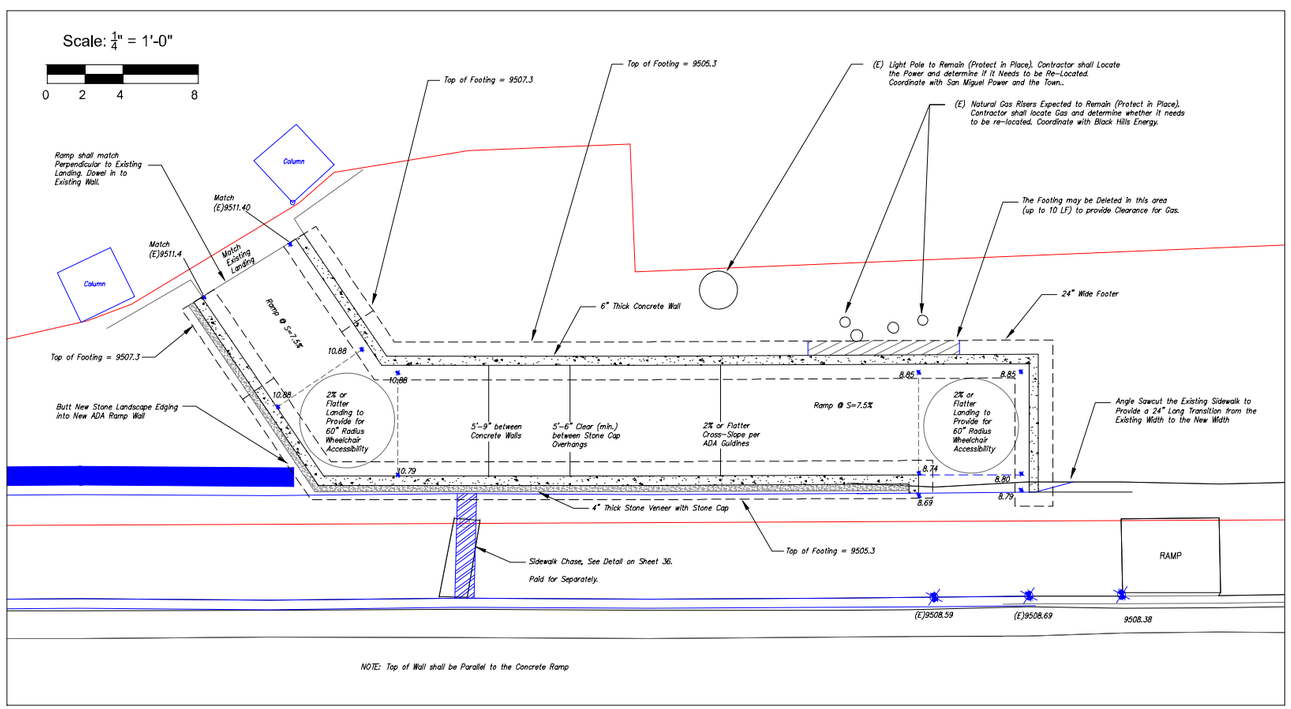
NOT FOR CONSTRUCTION

CONTRACTOR TO REVIEW AND COMPARE ALL CHAPTERS AND INTERDISCIPLINARY DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO ANY FIELD WORK BEING DONE IN ACCORDANCE WITH AIA DOCUMENT A201

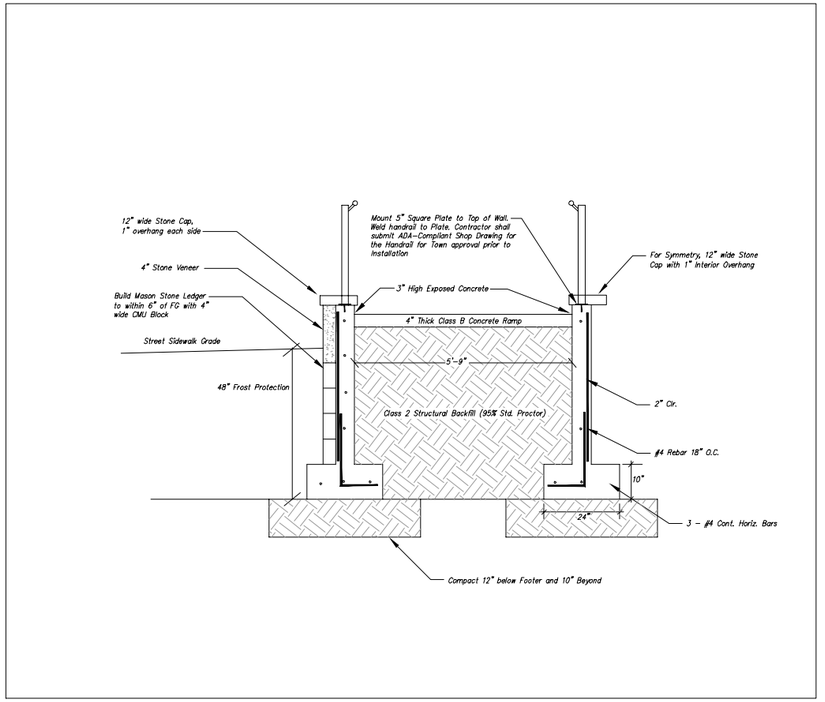
AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

DATE: 11-21-22

File Path: $FILEA$



ADA Access Ramp
(at the Conference Center)



ADA Access Ramp
Section

Uncompahgre
Engineering, LLC

P.O. Box 3945
Telluride, CO 81435
970-729-0683

PROJECT NAME:
MTN VILLAGE
BIKE & PED SAFETY
PROJECT #: MTF M918-019
PROJECT CODE: 23710

Details

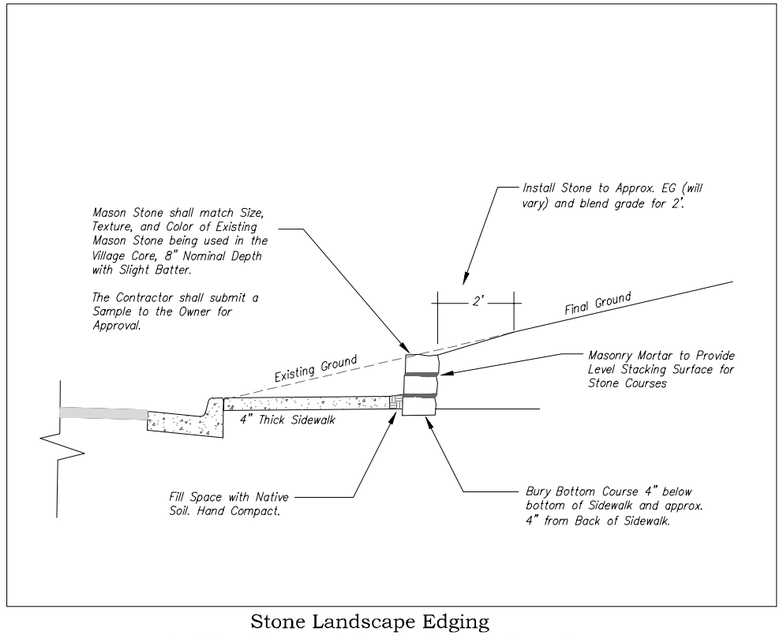
NOT FOR CONSTRUCTION

CONTRACTOR TO REVIEW AND COMPARE ALL CHAPTERS AND INTERDISCIPLINARY DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO ANY FIELD WORK BEING DONE IN ACCORDANCE WITH AIA DOCUMENT A201

AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

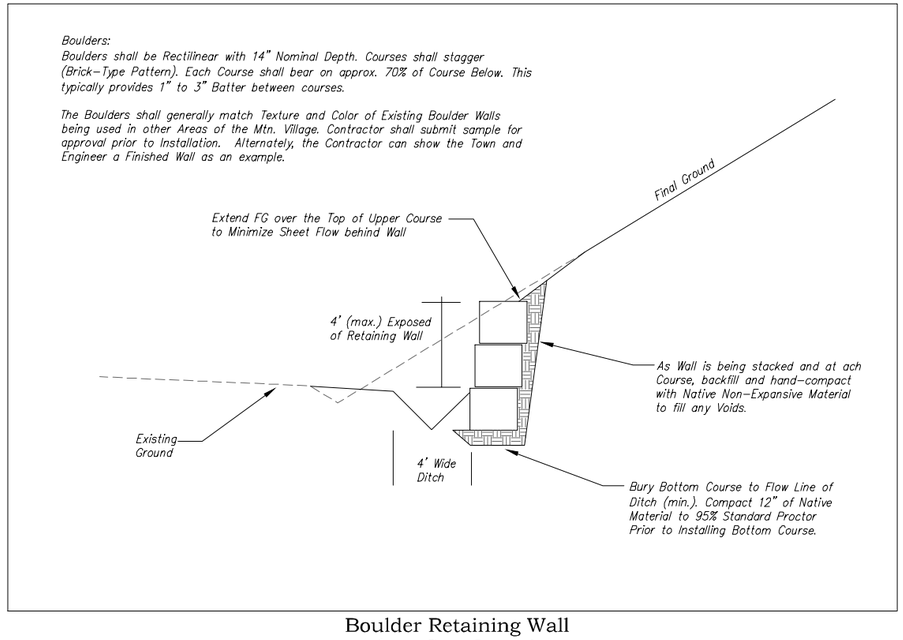
DATE: 11-21-22

File Path: $FILEA$



Stone Landscape Edging
(at Blue Mesa and the Conference Center)

Not to Scale



Boulder Retaining Wall
(along San Joaquin)

Not to Scale

Uncompahgre
Engineering, LLC

P.O. Box 3945
Telluride, CO 81435
970-729-0683

PROJECT NAME:
MTN VILLAGE
BIKE & PED SAFETY
PROJECT #: MTF M918-019
PROJECT CODE: 23710

Details

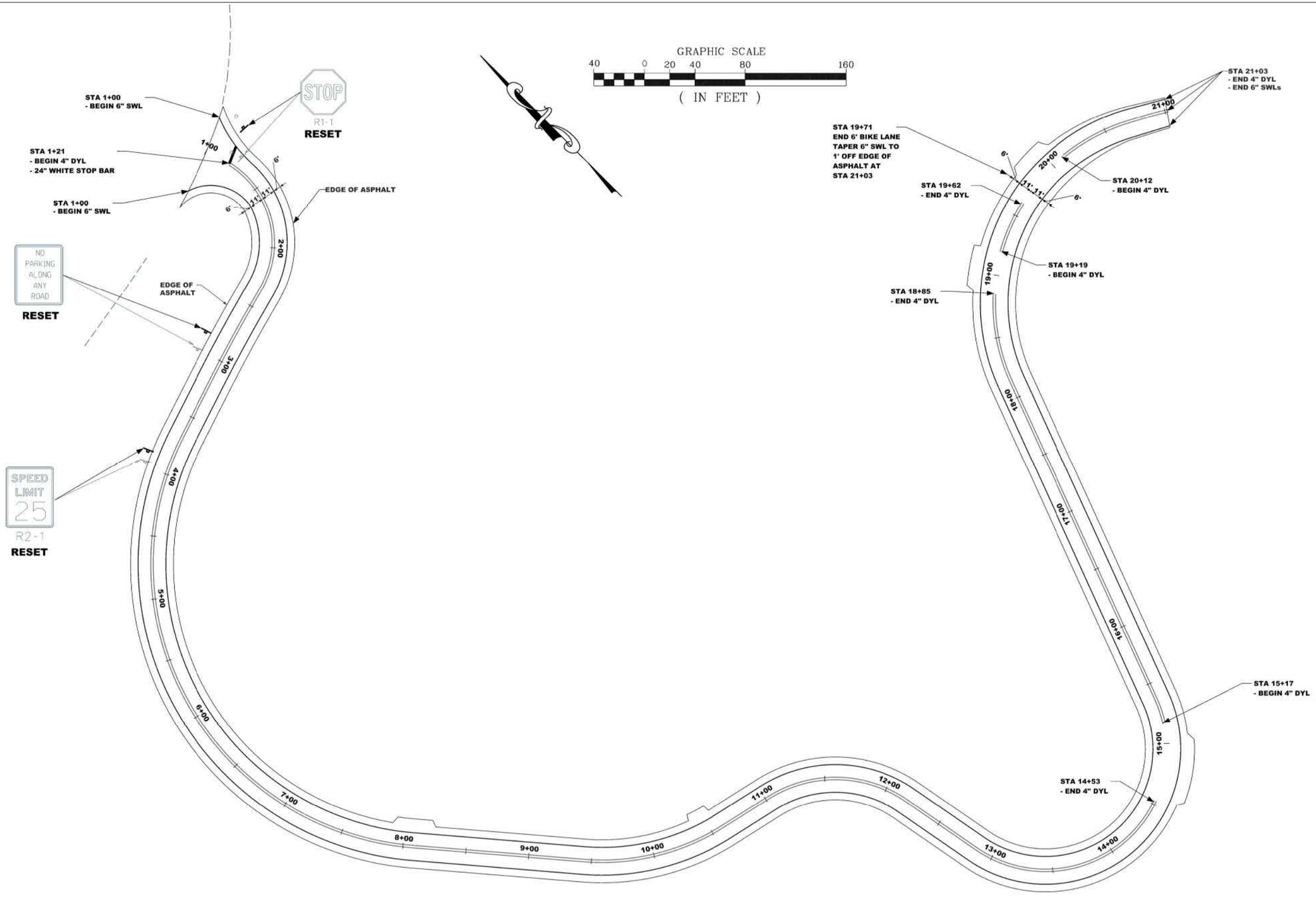
NOT FOR CONSTRUCTION

CONTRACTOR TO REVIEW AND COMPARE ALL CHAPTERS AND INTERDISCIPLINARY DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO ANY FIELD WORK BEING DONE IN ACCORDANCE WITH AIA DOCUMENT A201

AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

DATE: 11-21-22

File Path: SFILEAS



ADVERTISEMENT SET

Uncompahgre Engineering, LLC

P.O. Box 3945
Telluride, CO 81435
970-729-0683

PROJECT NAME:
MTN VILLAGE
BIKE & PED SAFETY
PROJECT #: MTF M918-019
PROJECT CODE: 23710

SIGNING AND STRIPING PLAN #1
SAN JOAQUIN DR

NOT FOR CONSTRUCTION

CONTRACTOR TO REVIEW AND COMPARE ALL CHAPTERS AND INTERDISCIPLINARY DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO ANY FIELD WORK BEING DONE IN ACCORDANCE WITH AIA DOCUMENT A201

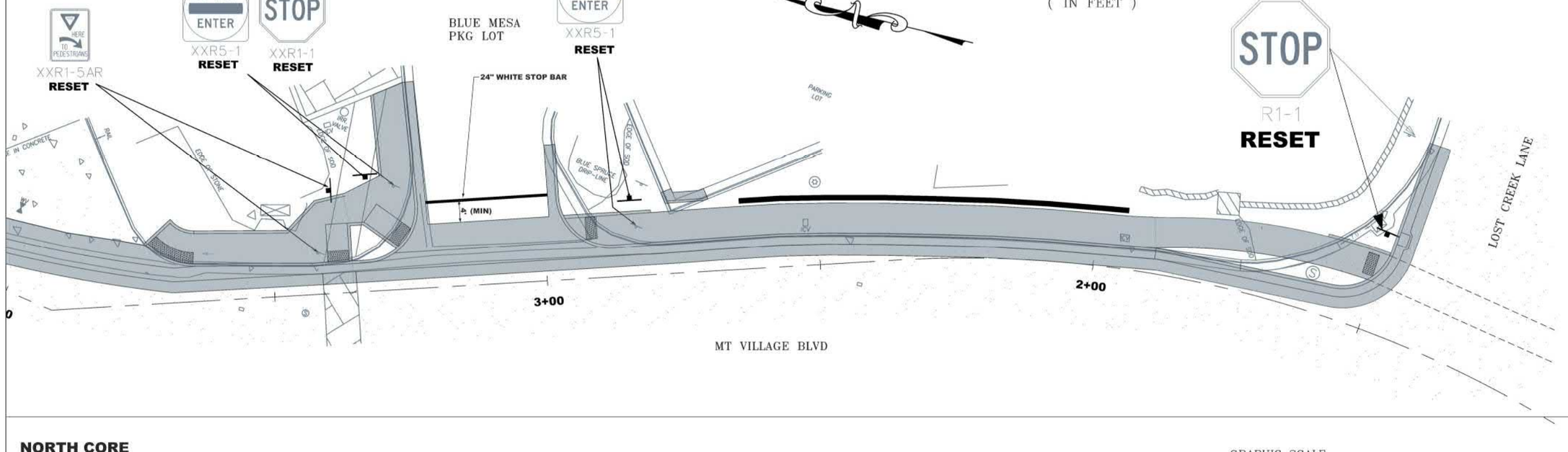
AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

DATE: 11-21-22

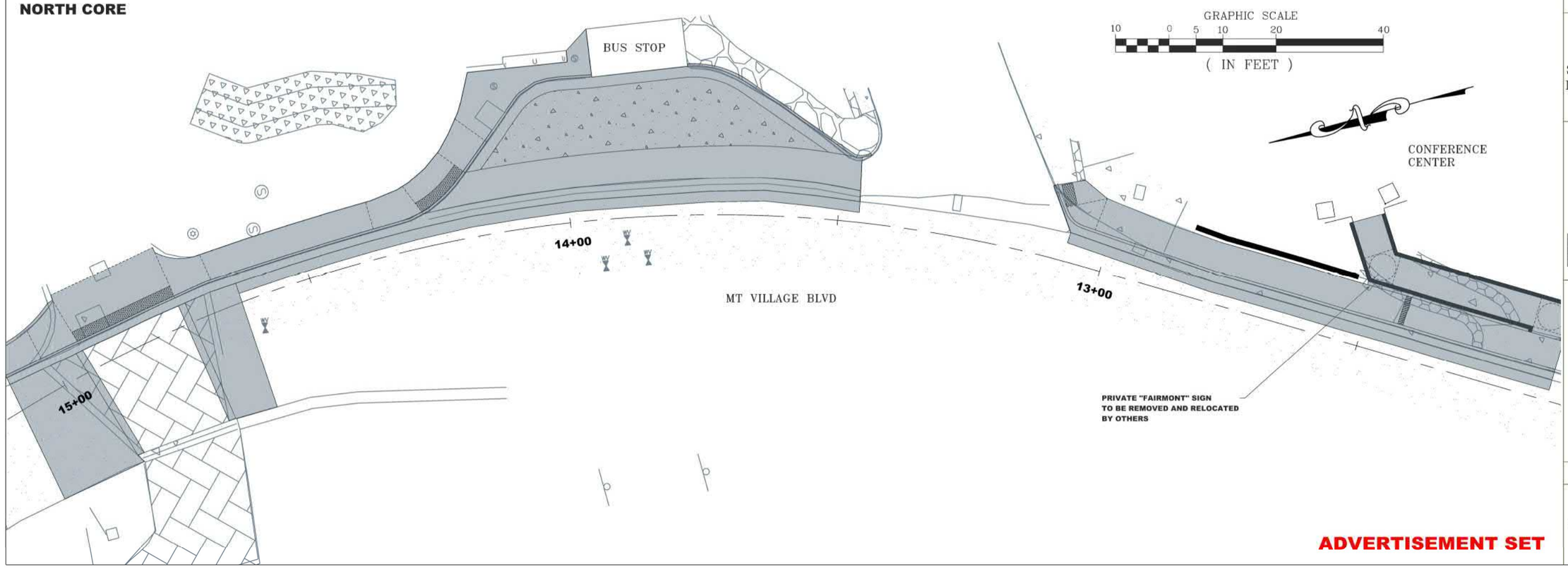
File Path: ...\CAD_Sign and Stripe.dgn

SOUTH CORE

MOUNTED BACK TO BACK ON A SINGLE POST



NORTH CORE



ADVERTISEMENT SET

Uncompahgre Engineering, LLC

P.O. Box 3945
Telluride, CO 81435
970-729-0683

PROJECT NAME:
MTN VILLAGE
BIKE & PED SAFETY
PROJECT #: MTF M918-019
PROJECT CODE: 23710

SIGNING AND STRIPING PLAN #2
MT VILLAGE BLVD

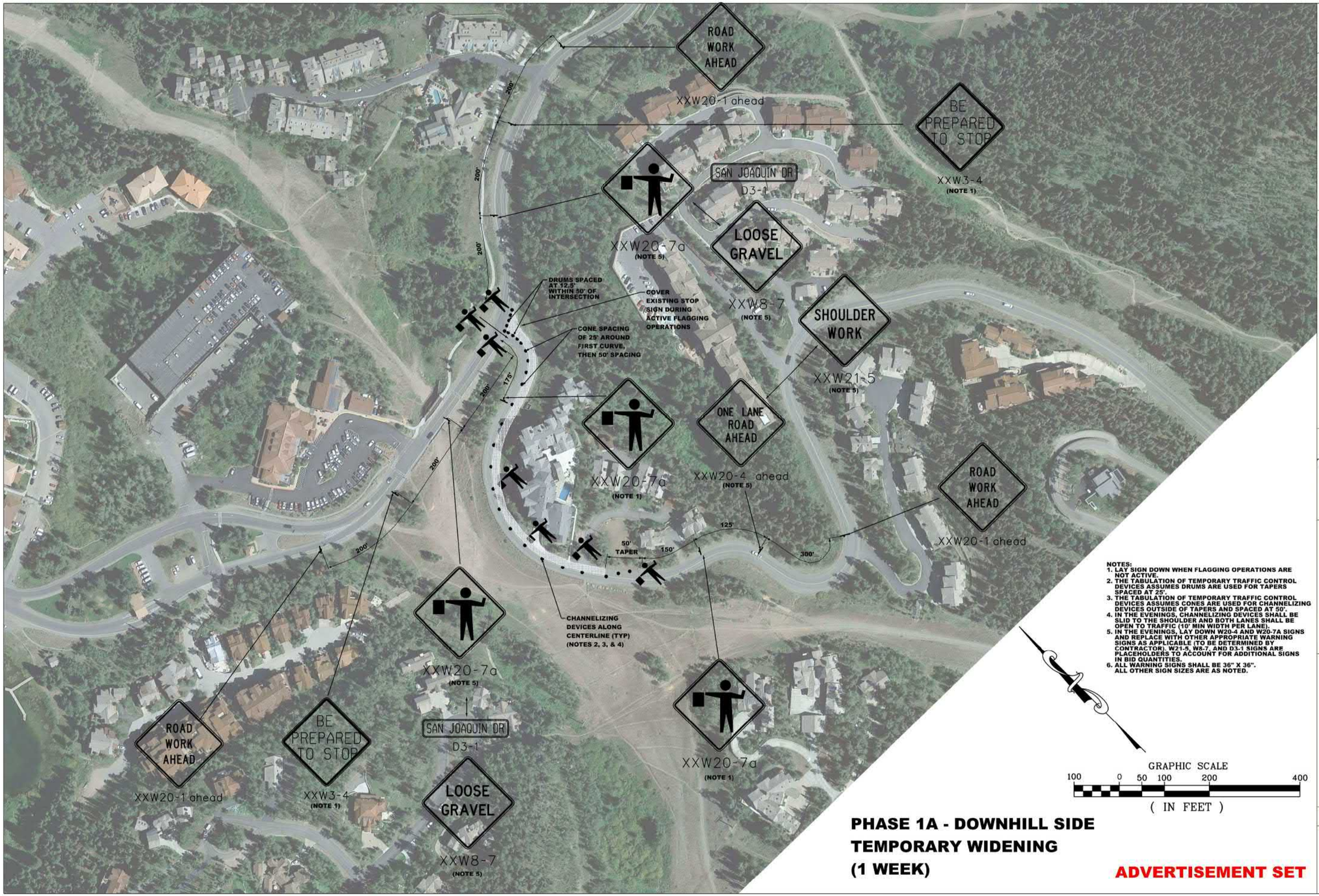
NOT FOR CONSTRUCTION

CONTRACTOR TO REVIEW AND COMPARE ALL CHAPTERS AND INTERDISCIPLINARY DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO ANY FIELD WORK BEING DONE IN ACCORDANCE WITH AIA DOCUMENT A201

AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

DATE: 11-21-22

File Path: ...\CAD_Sign and Stripe.dgn



NOTES:
1. LAY SIGN DOWN WHEN FLAGGING OPERATIONS ARE NOT ACTIVE.
2. THE TABULATION OF TEMPORARY TRAFFIC CONTROL DEVICES ASSUMES DRUMS ARE USED FOR TAPERS SPACED AT 25'.
3. THE TABULATION OF TEMPORARY TRAFFIC CONTROL DEVICES ASSUMES CONES ARE USED FOR CHANNELIZING DEVICES OUTSIDE OF TAPERS AND SPACED AT 50'.
4. IN THE EVENINGS, CHANNELIZING DEVICES SHALL BE SLID TO THE SHOULDER AND BOTH LANES SHALL BE OPEN TO TRAFFIC (10' MIN WIDTH PER LANE).
5. IN THE EVENINGS, LAY DOWN W20-4 AND W20-7A SIGNS AND REPLACE WITH OTHER APPROPRIATE WARNING SIGNS AS APPLICABLE (TO BE DETERMINED BY CONTRACTOR). W21-5, W8-7, AND D3-1 SIGNS ARE PLACEHOLDERS TO ACCOUNT FOR ADDITIONAL SIGNS IN BID QUANTITIES.
6. ALL WARNING SIGNS SHALL BE 36" X 36". ALL OTHER SIGN SIZES ARE AS NOTED.

GRAPHIC SCALE
100 0 50 100 200 400
(IN FEET)

PHASE 1A - DOWNHILL SIDE TEMPORARY WIDENING (1 WEEK)

ADVERTISEMENT SET

Uncompahgre Engineering, LLC

P.O. Box 3945
Telluride, CO 81435
970-729-0683

PROJECT NAME:
MTN VILLAGE
BIKE & PED SAFETY
PROJECT #: MTF M918-019
PROJECT CODE: 23710

TRAFFIC CONTROL PLAN #1A
SAN JOAQUIN DR

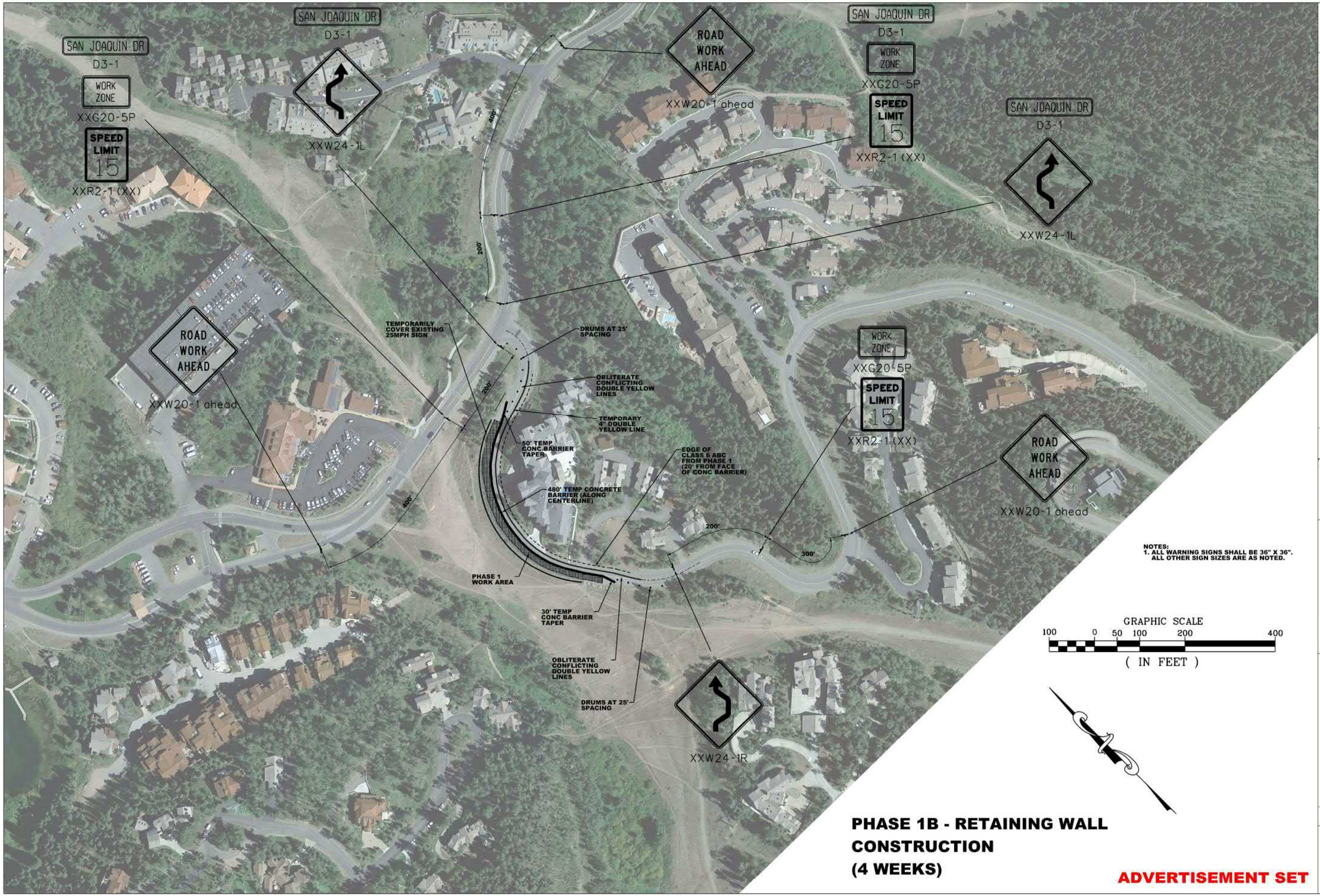
NOT FOR CONSTRUCTION

CONTRACTOR TO REVIEW AND COMPARE ALL CHAPTERS AND INTERDISCIPLINARY DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO ANY FIELD WORK BEING DONE IN ACCORDANCE WITH AIA DOCUMENT A201

AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

DATE: 11-21-22

File Path: ...\2021 Mt Village\CAD_WZTCP.dgn



NOTES:
1. ALL WARNING SIGNS SHALL BE 36" X 36". ALL OTHER SIGN SIZES ARE AS NOTED.

GRAPHIC SCALE
100 0 50 100 200 400
(IN FEET)

PHASE 1B - RETAINING WALL CONSTRUCTION
(4 WEEKS)

ADVERTISEMENT SET

Uncompahgre Engineering, LLC

P.O. Box 3945
Telluride, CO 81435
970-729-0683

PROJECT NAME:
MTN VILLAGE
BIKE & PED SAFETY
PROJECT #: MTF M918-019
PROJECT CODE: 23710

TRAFFIC CONTROL PLAN #1B
SAN JOAQUIN DR

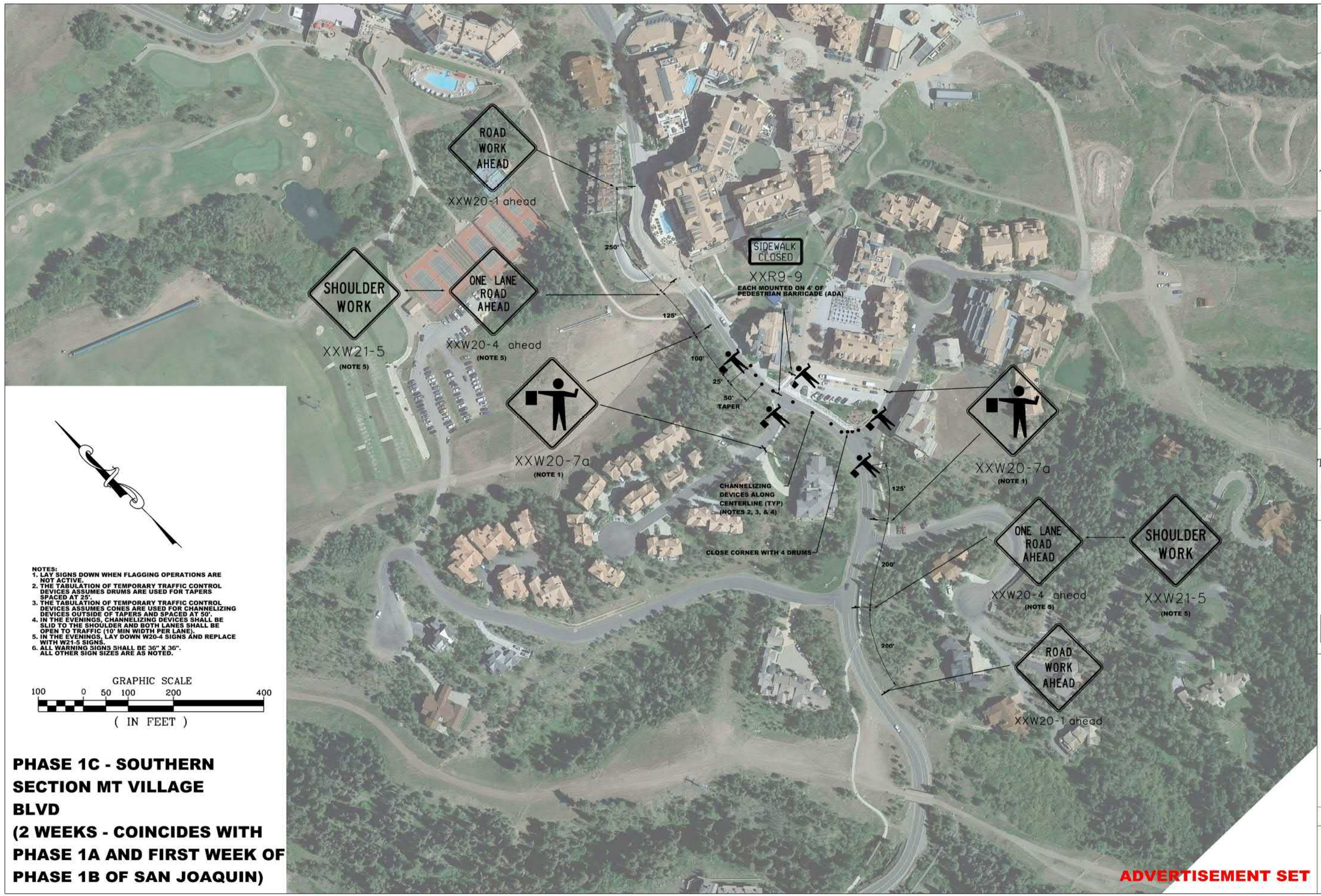
NOT FOR CONSTRUCTION

CONTRACTOR TO REVIEW AND COMPARE ALL CHAPTERS AND INTERDISCIPLINARY DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO ANY FIELD WORK BEING DONE IN ACCORDANCE WITH AIA DOCUMENT A201

AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

DATE: 11-21-22

File Path: ...\2021 Mt Village\CAD_WZTCP.dgn



NOTES:
1. LAY SIGNS DOWN WHEN FLAGGING OPERATIONS ARE NOT ACTIVE.
2. THE TABULATION OF TEMPORARY TRAFFIC CONTROL DEVICES ASSUMES DRUMS ARE USED FOR TAPERS SPACED AT 25'.
3. THE TABULATION OF TEMPORARY TRAFFIC CONTROL DEVICES ASSUMES CONES ARE USED FOR CHANNELIZING DEVICES OUTSIDE OF TAPERS AND SPACED AT 50'.
4. IN THE EVENINGS, CHANNELIZING DEVICES SHALL BE SLID TO THE SHOULDER AND BOTH LANES SHALL BE OPEN TO TRAFFIC (10' MIN WIDTH PER LANE).
5. IN THE EVENINGS, LAY DOWN W20-4 SIGNS AND REPLACE WITH W21-5 SIGNS.
6. ALL WARNING SIGNS SHALL BE 36" X 36". ALL OTHER SIGN SIZES ARE AS NOTED.

GRAPHIC SCALE
100 0 50 100 200 400
(IN FEET)

PHASE 1C - SOUTHERN SECTION MT VILLAGE BLVD
(2 WEEKS - COINCIDES WITH PHASE 1A AND FIRST WEEK OF PHASE 1B OF SAN JOAQUIN)

Uncompahgre Engineering, LLC

P.O. Box 3945
Telluride, CO 81435
970-729-0683

PROJECT NAME:
MTN VILLAGE
BIKE & PED SAFETY
PROJECT #: MTF M918-019
PROJECT CODE: 23710

TRAFFIC CONTROL PLAN #1C
SAN JOAQUIN DR

NOT FOR CONSTRUCTION

CONTRACTOR TO REVIEW AND COMPARE ALL CHAPTERS AND INTERDISCIPLINARY DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO ANY FIELD WORK BEING DONE IN ACCORDANCE WITH AIA DOCUMENT A201

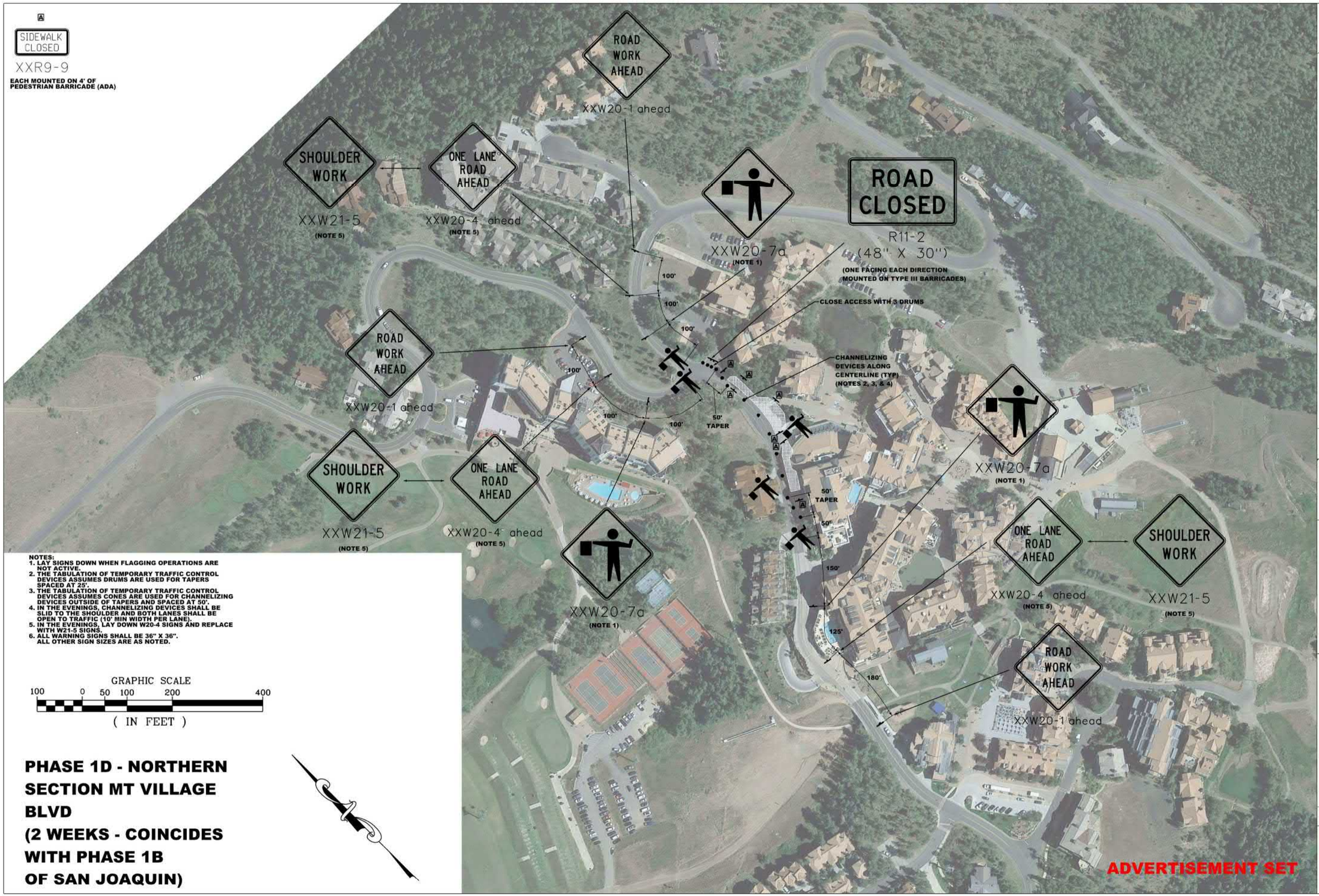
AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

DATE: 11-21-22

ADVERTISEMENT SET

File Path: ...\2021 Mt Village\CAD_WZTCP.dgn

[A] SIDEWALK CLOSED
XXR9-9
EACH MOUNTED ON 4' OF PEDESTRIAN BARRICADE (ADA)



NOTES:
1. LAY SIGNS DOWN WHEN FLAGGING OPERATIONS ARE NOT ACTIVE.
2. THE TABULATION OF TEMPORARY TRAFFIC CONTROL DEVICES ASSUMES DRUMS ARE USED FOR TAPERS SPACED AT 25'.
3. THE TABULATION OF TEMPORARY TRAFFIC CONTROL DEVICES ASSUMES CONES ARE USED FOR CHANNELIZING DEVICES OUTSIDE OF TAPERS AND SPACED AT 50'.
4. IN THE EVENINGS, CHANNELIZING DEVICES SHALL BE SLID TO THE SHOULDER AND BOTH LANES SHALL BE OPEN TO TRAFFIC (10' MIN WIDTH PER LANE).
5. IN THE EVENINGS, LAY DOWN W20-4 SIGNS AND REPLACE WITH W21-5 SIGNS.
6. ALL WARNING SIGNS SHALL BE 36" X 36". ALL OTHER SIGN SIZES ARE AS NOTED.

GRAPHIC SCALE
100 0 50 100 200 400
(IN FEET)

PHASE 1D - NORTHERN SECTION MT VILLAGE BLVD (2 WEEKS - COINCIDES WITH PHASE 1B OF SAN JOAQUIN)

Uncompahgre Engineering, LLC
P.O. Box 3945
Telluride, CO 81435
970-729-0683

PROJECT NAME:
MTN VILLAGE
BIKE & PED SAFETY
PROJECT #: MTF M918-019
PROJECT CODE: 23710

TRAFFIC CONTROL PLAN #1D
SAN JOAQUIN DR

NOT FOR CONSTRUCTION

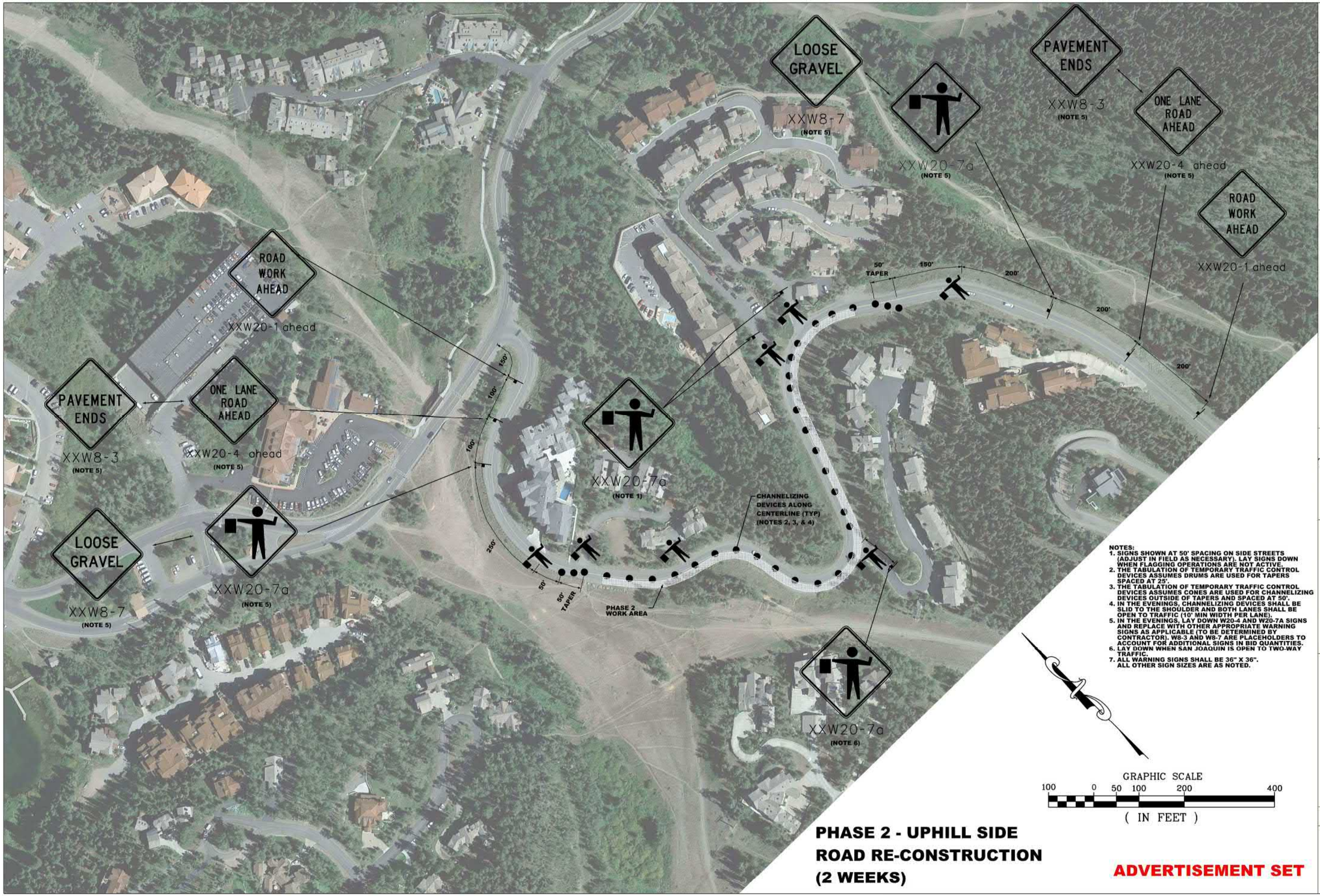
CONTRACTOR TO REVIEW AND COMPARE ALL CHAPTERS AND INTERDISCIPLINARY DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO ANY FIELD WORK BEING DONE IN ACCORDANCE WITH AIA DOCUMENT A201

AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

DATE: 11-21-22

ADVERTISEMENT SET

File Path: ...\2021 Mt Village\CAD_WZTCP.dgn



NOTES:
1. SIGNS SHOWN AT 50' SPACING ON SIDE STREETS (ADJUST IN FIELD AS NECESSARY). LAY SIGNS DOWN WHEN FLAGGING OPERATIONS ARE NOT ACTIVE.
2. THE TABULATION OF TEMPORARY TRAFFIC CONTROL DEVICES ASSUMES DRUMS ARE USED FOR TAPERS SPACED AT 25'.
3. THE TABULATION OF TEMPORARY TRAFFIC CONTROL DEVICES ASSUMES CONES ARE USED FOR CHANNELIZING DEVICES OUTSIDE OF TAPERS AND SPACED AT 50'.
4. IN THE EVENINGS, CHANNELIZING DEVICES SHALL BE SLID TO THE SHOULDER AND BOTH LANES SHALL BE OPEN TO TRAFFIC (10' MIN WIDTH PER LANE).
5. IN THE EVENINGS, LAY DOWN W20-4 AND W20-7A SIGNS AND REPLACE WITH OTHER APPROPRIATE WARNING SIGNS AS APPLICABLE (TO BE DETERMINED BY CONTRACTOR). W8-3 AND W8-7 ARE PLACEHOLDERS TO ACCOUNT FOR ADDITIONAL SIGNS IN BID QUANTITIES.
6. LAY DOWN WHEN SAN JOAQUIN IS OPEN TO TWO-WAY TRAFFIC.
7. ALL WARNING SIGNS SHALL BE 36" X 36". ALL OTHER SIGN SIZES ARE AS NOTED.

GRAPHIC SCALE
100 0 50 100 200 400
(IN FEET)

PHASE 2 - UPHILL SIDE ROAD RE-CONSTRUCTION (2 WEEKS)

ADVERTISEMENT SET

Uncompahgre Engineering, LLC

P.O. Box 3945
Telluride, CO 81435
970-729-0683

PROJECT NAME:
MTN VILLAGE
BIKE & PED SAFETY
PROJECT #: MTF M918-019
PROJECT CODE: 23710

TRAFFIC CONTROL PLAN #2
SAN JOAQUIN DR

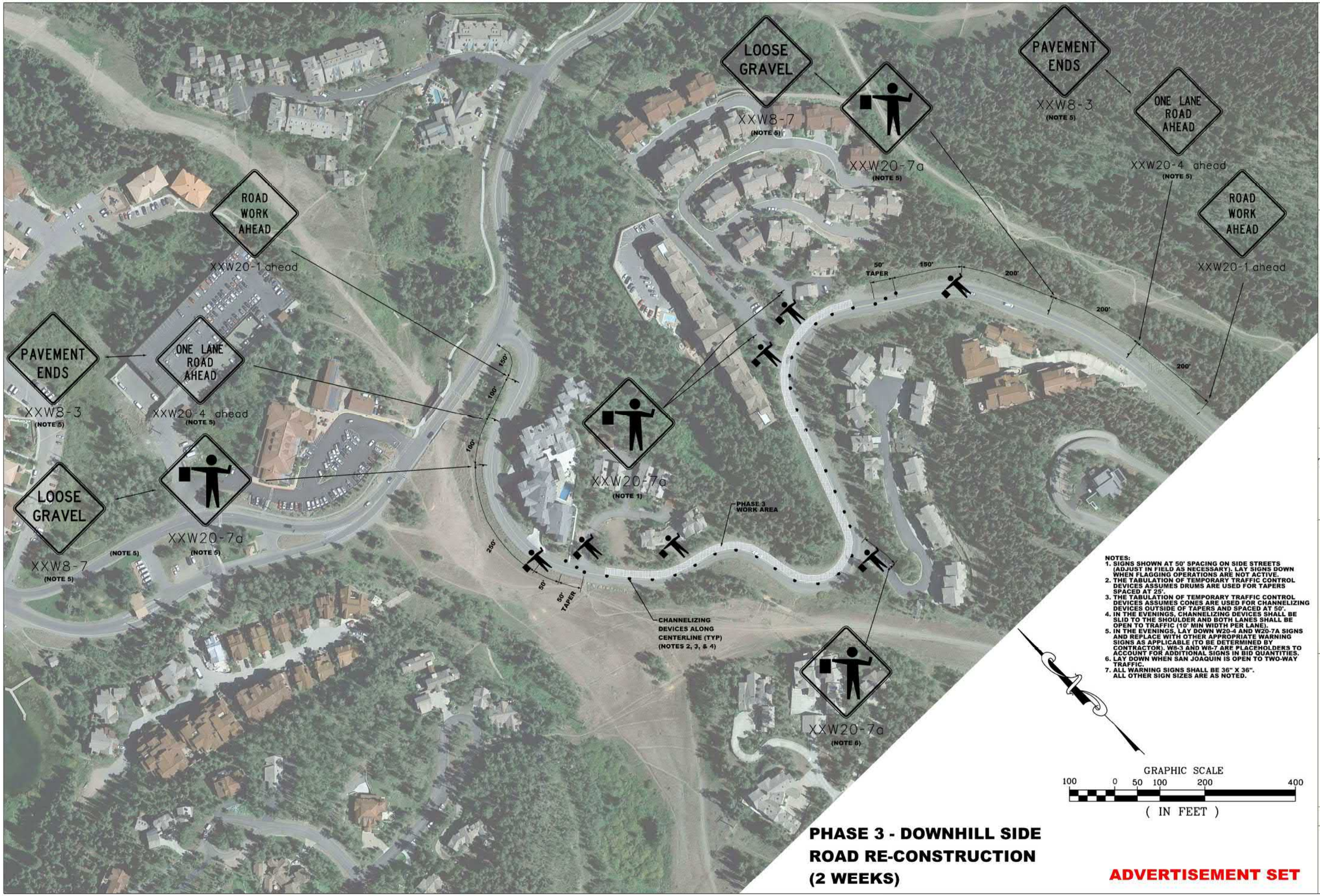
NOT FOR CONSTRUCTION

CONTRACTOR TO REVIEW AND COMPARE ALL CHAPTERS AND INTERDISCIPLINARY DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO ANY FIELD WORK BEING DONE IN ACCORDANCE WITH AIA DOCUMENT A201

AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

DATE: 11-21-22

File Path: ...\2021 Mt Village\CAD_WZTCP.dgn



NOTES:
1. SIGNS SHOWN AT 50' SPACING ON SIDE STREETS (ADJUST IN FIELD AS NECESSARY). LAY SIGNS DOWN WHEN FLAGGING OPERATIONS ARE NOT ACTIVE.
2. THE TABULATION OF TEMPORARY TRAFFIC CONTROL DEVICES ASSUMES DRUMS ARE USED FOR TAPERS SPACED AT 25'.
3. THE TABULATION OF TEMPORARY TRAFFIC CONTROL DEVICES ASSUMES CONES ARE USED FOR CHANNELIZING DEVICES OUTSIDE OF TAPERS AND SPACED AT 50'.
4. IN THE EVENINGS, CHANNELIZING DEVICES SHALL BE SLID TO THE SHOULDER AND BOTH LANES SHALL BE OPEN TO TRAFFIC (10' MIN WIDTH PER LANE).
5. IN THE EVENINGS, LAY DOWN W20-4 AND W20-7A SIGNS AND REPLACE WITH OTHER APPROPRIATE WARNING SIGNS AS APPLICABLE (TO BE DETERMINED BY CONTRACTOR). W8-3 AND W8-7 ARE PLACEHOLDERS TO ACCOUNT FOR ADDITIONAL SIGNS IN BID QUANTITIES.
6. LAY DOWN WHEN SAN JOAQUIN IS OPEN TO TWO-WAY TRAFFIC.
7. ALL WARNING SIGNS SHALL BE 36" X 36". ALL OTHER SIGN SIZES ARE AS NOTED.

GRAPHIC SCALE
100 0 50 100 200 400
(IN FEET)

PHASE 3 - DOWNHILL SIDE ROAD RE-CONSTRUCTION (2 WEEKS)

ADVERTISEMENT SET

Uncompahgre Engineering, LLC

P.O. Box 3945
Telluride, CO 81435
970-729-0683

PROJECT NAME:
MTN VILLAGE
BIKE & PED SAFETY
PROJECT #: MTF M918-019
PROJECT CODE: 23710

TRAFFIC CONTROL PLAN #3
SAN JOAQUIN DR

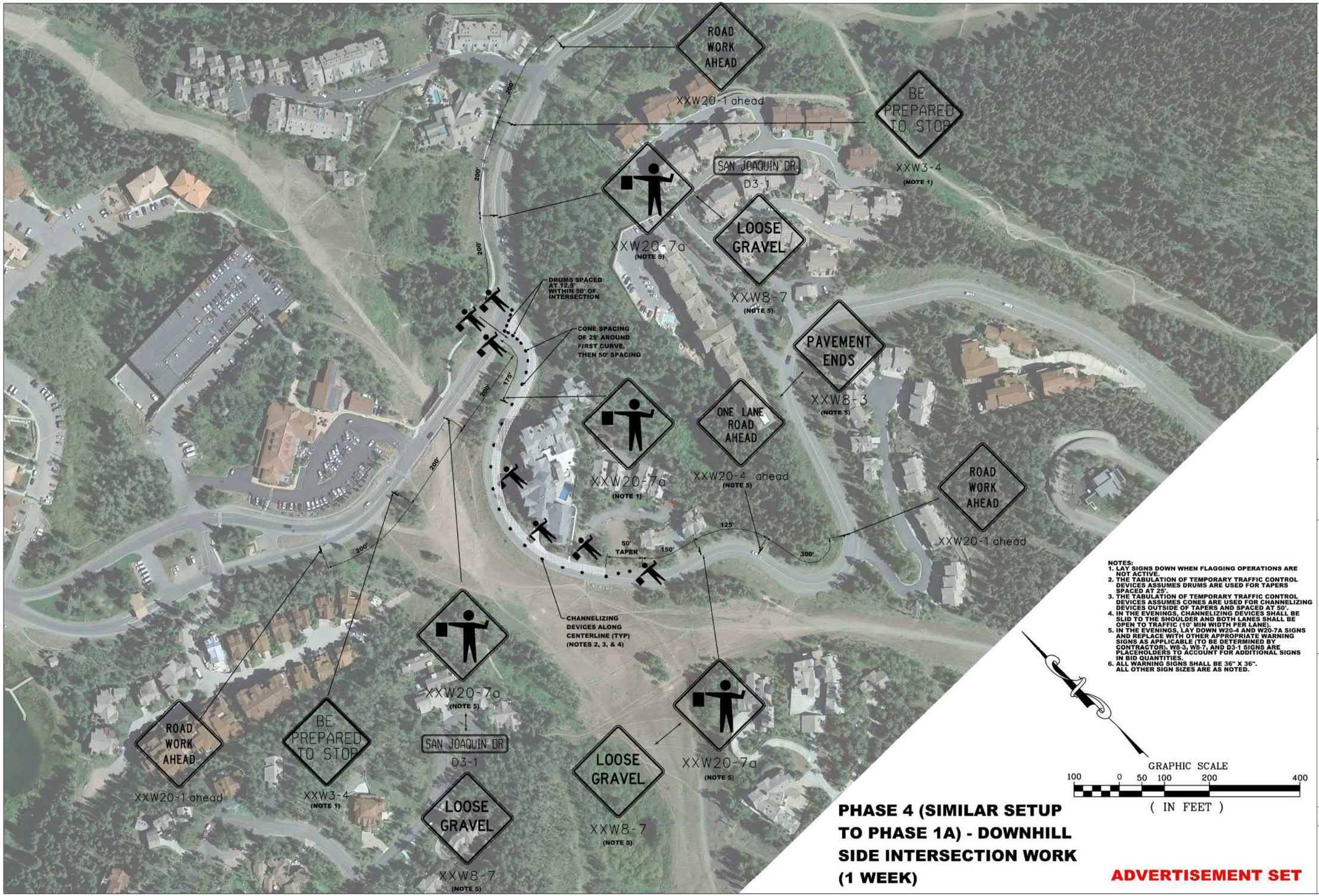
NOT FOR CONSTRUCTION

CONTRACTOR TO REVIEW AND COMPARE ALL CHAPTERS AND INTERDISCIPLINARY DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO ANY FIELD WORK BEING DONE IN ACCORDANCE WITH AIA DOCUMENT A201

AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

DATE: 11-21-22

File Path: ...\2021 Mt Village\CAD_WZTCP.dgn



NOTES:
1. LAY SIGNS DOWN WHEN FLAGGING OPERATIONS ARE NOT ACTIVE.
2. THE TABULATION OF TEMPORARY TRAFFIC CONTROL DEVICES ASSUMES DRUMS ARE USED FOR TAPERS SPACED AT 25'.
3. THE TABULATION OF TEMPORARY TRAFFIC CONTROL DEVICES ASSUMES CONES ARE USED FOR CHANNELIZING DEVICES OUTSIDE OF TAPERS AND SPACED AT 50'.
4. IN THE EVENINGS, CHANNELIZING DEVICES SHALL BE SLID TO THE SHOULDER AND BOTH LANES SHALL BE OPEN TO TRAFFIC (10' MIN WIDTH PER LANE).
5. IN THE EVENINGS, LAY DOWN W20-4 AND W20-7A SIGNS AND REPLACE WITH OTHER APPROPRIATE WARNING SIGNS AS APPLICABLE (TO BE DETERMINED BY CONTRACTOR). W8-3, W8-7, AND D3-1 SIGNS ARE PLACEHOLDERS TO ACCOUNT FOR ADDITIONAL SIGNS IN BID QUANTITIES.
6. ALL WARNING SIGNS SHALL BE 36" X 36". ALL OTHER SIGN SIZES ARE AS NOTED.

GRAPHIC SCALE
100 0 50 100 200 400
(IN FEET)

PHASE 4 (SIMILAR SETUP TO PHASE 1A) - DOWNHILL SIDE INTERSECTION WORK (1 WEEK)

ADVERTISEMENT SET

Uncompahgre Engineering, LLC

P.O. Box 3945
Telluride, CO 81435
970-729-0683

PROJECT NAME:
MTN VILLAGE
BIKE & PED SAFETY
PROJECT #: MTF M918-019
PROJECT CODE: 23710

TRAFFIC CONTROL PLAN #4
SAN JOAQUIN DR

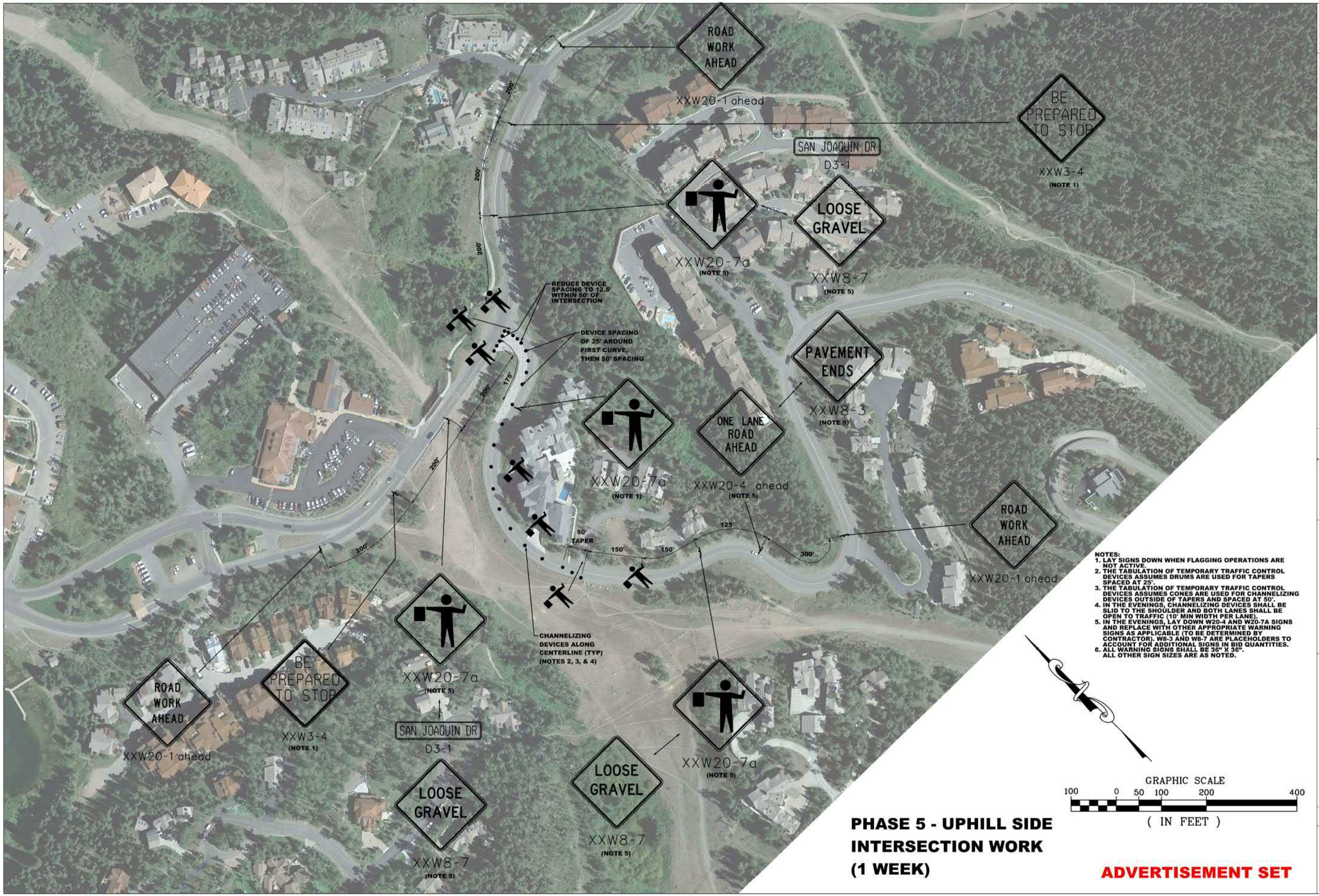
NOT FOR CONSTRUCTION

CONTRACTOR TO REVIEW AND COMPARE ALL CHAPTERS AND INTERDISCIPLINARY DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO ANY FIELD WORK BEING DONE IN ACCORDANCE WITH AIA DOCUMENT A201

AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

DATE: 11-21-22

File Path: ...\2021 Mt Village\CAD_WZTCP.dgn



NOTES:
1. LAY SIGNS DOWN WHEN FLAGGING OPERATIONS ARE NOT ACTIVE.
2. THE TABULATION OF TEMPORARY TRAFFIC CONTROL DEVICES ASSUMES DRUMS ARE USED FOR TAPERS SPACED AT 25'.
3. THE TABULATION OF TEMPORARY TRAFFIC CONTROL DEVICES ASSUMES CONES ARE USED FOR CHANNELIZING DEVICES OUTSIDE OF TAPERS AND SPACED AT 50'.
4. IN THE EVENINGS, CHANNELIZING DEVICES SHALL BE SLID TO THE SHOULDER AND BOTH LANES SHALL BE OPEN TO TRAFFIC (10' MIN WIDTH PER LANE).
5. IN THE EVENINGS, LAY DOWN W20-4 AND W20-7A SIGNS AND REPLACE WITH OTHER APPROPRIATE WARNING SIGNS AS APPLICABLE (TO BE DETERMINED BY CONTRACTOR). W8-3 AND W8-7 ARE PLACEHOLDERS TO ACCOUNT FOR ADDITIONAL SIGNS IN BID QUANTITIES.
6. ALL WARNING SIGNS SHALL BE 36" X 36". ALL OTHER SIGN SIZES ARE AS NOTED.

GRAPHIC SCALE
100 0 50 100 200 400
(IN FEET)

PHASE 5 - UPHILL SIDE INTERSECTION WORK (1 WEEK)

ADVERTISEMENT SET

Uncompahgre Engineering, LLC

P.O. Box 3945
Telluride, CO 81435
970-729-0683

PROJECT NAME:
MTN VILLAGE
BIKE & PED SAFETY
PROJECT #: MTF M918-019
PROJECT CODE: 23710

TRAFFIC CONTROL PLAN #5
SAN JOAQUIN DR

NOT FOR CONSTRUCTION

CONTRACTOR TO REVIEW AND COMPARE ALL CHAPTERS AND INTERDISCIPLINARY DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO ANY FIELD WORK BEING DONE IN ACCORDANCE WITH AIA DOCUMENT A201

AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

DATE: 11-21-22

File Path: ...\2021 Mt Village\CAD_WZTCP.dgn

TABULATION OF TEMPORARY SIGNS

SIGN CODE	LEGEND	SIGN PANEL SIZE W"	SIGN PANEL SIZE H"	AREA SF	CONSTRUCTION TRAFFIC SIGN PANEL SIZE A EA	PANEL SIZE B EA	PANEL SIZE C EA	SPECIAL EA	SPECIAL SF
R2-1	SPEED LIMIT 15 MPH				3				
R9-9	SIDEWALK CLOSED	24	12	2	7				
R11-2	ROAD CLOSED	48	30	10		2			
W3-4	BE PREPARED TO STOP	36	36	9	2				
W8-3	PAVEMENT ENDS	36	36	9	2				
W8-7	LOOSE GRAVEL	36	36	9	3				
W20-1	ROAD WORK AHEAD	36	36	9	6				
W20-4	ONE LANE ROAD AHEAD	36	36	9	3				
W20-7A	FLAGGER AHEAD (SYMBOL)	36	36	9	8				
W21-5	SHOULDER WORK	36	36	9	3				
W24-1L	DOUBLE REVERSE CURVE (1 LANE)	36	36	9	3				
SUPPLEMENTAL PLAQUES									
D3-1	SAN JOAQUIN DR	36	12	3					12
G20-5P	WORK ZONE	24	18		3				
TOTAL					**43**	**2**	**0**	**0**	**12**

TABULATION OF TEMPORARY TRAFFIC CONTROL

Phase	Flagging (8hrs/day) HR	Traffic Control Inspection DAY	Traffic Control Management DAY	Barricade (Type3 M-B) (Temporary) EACH	Pedestrian Barricade (ADA) FL	Construction Traffic Sign (Panel Size A) EACH	Construction Traffic Sign (Panel Size B) EACH	Construction Traffic Sign (Special) SF	Drum Channelizing Device EACH	Conc Barrier (Temporary) LF	Traffic Cone EACH	Unclassified Excavation (CIP) CY	Aggregate Base Course (Class 6) Ton	Removal of Pavement Markings SF	Pavement Marking Paint (Waterborne) GAL
1A	280			0		13	0	6	12	0	15	175	80		
1B	0			0		12	0	12	15	560	0			155	5
1C	400			0	8	12	0	0	7	0	4				
1D	400			2	32	19	2	0	9	0	5				
1A + 1C		2	5	0		25	0	6	19	0	19				
1B + 1C		4	10	0		24	0	12	22	560	4				
1B + 1D		4	10	2		31	2	12	24	560	5				
2	560	4	10	0		13	0	0	6	0	27				
3	560	4	10	0		13	0	0	6	0	27				
4	280	2	5	0		14	0	6	12	0	15				
5	280	2	5	0		14	0	6	12	0	13				
Total	**2760**	**22**	**55**	**2**	**32**	**43**	**2**	**12**	**24**	**560**	**27**	**175**	**80**	**155**	**5**

ADVERTISEMENT SET

Uncompahgre Engineering, LLC

P.O. Box 3945
Telluride, CO 81435
970-729-0683

PROJECT NAME:
MTN VILLAGE
BIKE & PED SAFETY
PROJECT #: MTF M918-019
PROJECT CODE: 23710

TRAFFIC CONTROL
PLAN #6
SAN JOAQUIN DR

NOT FOR CONSTRUCTION

CONTRACTOR TO REVIEW AND COMPARE ALL CHAPTERS AND INTERDISCIPLINARY DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO ANY FIELD WORK BEING DONE IN ACCORDANCE WITH AIA DOCUMENT A201

AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

DATE: 11-21-22

File Path: ...\2021 Mt Village\CAD_WZTCP.dgn

Tabulation of Removals

Location	Station		Side	REMOVAL OF INLET	REMOVAL OF PIPE	REMOVAL OF SIDEWALK	REMOVAL OF CURB AND GUTTER	REMOVAL OF CONCRETE PAVEMENT	REMOVAL OF ASPHALT MAT	REMOVAL OF GUARDRAIL TYPE 3	REMOVE AND PALLETIZE BRICK PAVERS (SPECIAL)	REMOVAL OF ADA ENTRY RAMP (CONF CENTER) (SPECIAL)	REMOVAL OF SIGN (SPECIAL)	Notes
	From	To		EA	LF	SY	LF	SY	SY	LF	SY	LS	LS	
SAN JOAQUIN DRIVE														
LOWER HALF	1+00	11+00	LT		40.0				1509.4					
LOWER HALF	1+00	11+00	RT						1342.9	423.0				
UPPER HALF	11+00	21+03	LT						1500.9					
UPPER HALF	11+00	21+03	RT	1					1462.6					
MT VILLAGE BLVD SOUTH CORE														
LOST CREEK LANE TO ASPEN RIDGE DR X-WALK	1+45	3+10	RT	1	6.0	40.1	179.6	21.4	68.3					
ASPEN RIDGE DR X-WALK TO NORTH END OF GRANITA BLDG	3+10	4+95	RT	1	17.0		151.6	73.7	47.0					
MT VILLAGE BLVD NORTH CORE														
CONFERENCE CENTER ADA RAMP TO FAIRMONT PARKING GARAGE DRIVEWAY	12+13	13+12	RT	1		11.9	101.0	3.0	20.9			1		
FAIRMONT PARKING GARAGE DRIVEWAY TO WELLS FARGO PED ENTRANCE	13+46	15+11	RT			4.2	166.7	28.9	74.2		265.8		1	
PROJECT TOTALS				4	63.0	56.2	598.9	127.0	6026.2	423.0	265.8	1	1	

ADVERTISEMENT SET

Uncompahgre Engineering, LLC

P.O. Box 3945
Telluride, CO 81435
970-729-0683

PROJECT NAME:
MTN VILLAGE
BIKE & PED SAFETY
PROJECT #: MTF M918-019
PROJECT CODE: 23710

TABULATION OF REMOVALS

NOT FOR CONSTRUCTION

CONTRACTOR TO REVIEW AND COMPARE ALL CHAPTERS AND INTERDISCIPLINARY DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO ANY FIELD WORK BEING DONE IN ACCORDANCE WITH AIA DOCUMENT A201

AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

DATE: 11-21-22

File Path: $FILEA$

Tabulation of Surfacing

Location	Station		Side			AGGREGATE BASE COURSE (CLASS 2)	AGGREGATE BASE COURSE (CLASS 6)		HOT MIX ASPHALT (PATCHING) (ASPHALT)	HOT MIX ASPHALT (PATCHING) (ASPHALT)	CONCRETE PAVEMENT (8 INCH) (REINFORCED)		REINFORCING STEEL	Notes
						TON	TON		TON	SY	SY		LBS	
	From	To												
SAN JOAQUIN DRIVE														
LOWER HALF	1+00	11+00	LT			381.7	292.1		430.6	26.6				
LOWER HALF	1+00	11+00	RT			470.0	445.3		441.2	0.0				
UPPER HALF	11+00	21+03	LT			353.5	268.7		416.9	40.4				
UPPER HALF	11+00	21+03	RT			378.8	290.0		422.4	31.0				
MT VILLAGE BLVD SOUTH CORE														
LOST CREEK LANE TO ASPEN RIDGE DR X-WALK	1+45	3+10	RT			0.0	37.4			43.0	15.1		173.0	
ASPEN RIDGE DR X-WALK TO NORTH END OF GRANITA BLDG	3+10	4+95	RT			0.0	59.5			38.1	53.9		634.6	
MT VILLAGE BLVD NORTH CORE														
CONFERENCE CENTER ADA RAMP TO FAIRMONT PARKING GARAGE DRIVEWAY	12+13	13+12	RT			0.0	18.7			20.8	0.0		0.0	
FAIRMONT PARKING GARAGE DRIVEWAY TO WELLS FARGO PED ENTRANCE	13+46	15+11	RT			56.0	62.5			90.0	172.2		3159.2	
Project Totals						**1640.0**	**1474.2**		**1711.1**	**290.0**	**241.2**	**0.0**	**3966.8**	

ADVERTISEMENT SET

Uncompahgre Engineering, LLC

P.O. Box 3945
Telluride, CO 81435
970-729-0683

PROJECT NAME:
MTN VILLAGE
BIKE & PED SAFETY
PROJECT #: MTF M918-019
PROJECT CODE: 23710

TABULATION OF SURFACING

NOT FOR CONSTRUCTION

CONTRACTOR TO REVIEW AND COMPARE ALL CHAPTERS AND INTERDISCIPLINARY DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO ANY FIELD WORK BEING DONE IN ACCORDANCE WITH AIA DOCUMENT A201

AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

DATE: 11-21-22

File Path: ..._Cover & Std Plans List.dgn

Tabulation of Landscaping, Drainage and Wall Items

Location	Station		Side	STONE LANDSCAPE EDGING (SPECIAL)	BOULDER WALL (SPECIAL)	WIRE MESH RETAINING WALL (SPECIAL)	18 INCH CORRUGATED STEEL PIPE (SPECIAL)	24 INCH CORRUGATED STEEL PIPE (SPECIAL)	18 INCH STEEL END SECTION (SPECIAL)	INLET TYPE C (FOOT)	CURB INLET (3 FOOT) (SPECIAL)	SMALL AREA INLET #1 (2 FOOT) (SPECIAL)	SMALL AREA INLET #2 (2 FOOT) (SPECIAL)	Notes
	From	To		SF	SF	SF	LF	LF	EA	EA	EA	EA	EA	
SAN JOAQUIN DRIVE														
LOWER HALF	1+00	11+00	LT		350.0		26.0		1					
LOWER HALF	1+00	11+00	RT		150.0	4560.0								
UPPER HALF	11+00	21+03	LT											
UPPER HALF	11+00	21+03	RT		700.0			6.0		1				
MT VILLAGE BLVD SOUTH CORE														
LOST CREEK LANE TO ASPEN RIDGE DR X-WALK	1+45	3+10	RT	89.0							1			
ASPEN RIDGE DR X-WALK TO NORTH END OF GRANITA BLDG	3+10	4+95	RT									1		
MT VILLAGE BLVD NORTH CORE														
CONFERENCE CENTER ADA RAMP TO FAIRMONT PARKING GARAGE DRIVEWAY	12+13	13+12	RT	48.0									1	
FAIRMONT PARKING GARAGE DRIVEWAY TO WELLS FARGO PED ENTRANCE	13+46	15+11	RT											
PROJECT TOTALS				137.0	1200.0	4560.0	26.0	6.0	1	1	1	1	1	

ADVERTISEMENT SET

Uncompahgre Engineering, LLC

P.O. Box 3945
Telluride, CO 81435
970-729-0683

PROJECT NAME:
MTN VILLAGE
BIKE & PED SAFETY
PROJECT #: MTF M918-019
PROJECT CODE: 23710

TABULATION OF LANDSCAPING, DRAINAGE, & WALL ITEMS

NOT FOR CONSTRUCTION

CONTRACTOR TO REVIEW AND COMPARE ALL CHAPTERS AND INTERDISCIPLINARY DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO ANY FIELD WORK BEING DONE IN ACCORDANCE WITH AIA DOCUMENT A201

AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

DATE: 11-21-22

File Path: $FILEAS

Tabulation of Adjustments, Modifications, and Guardrail Pay Items

Location	Station		Side	RESET FIRE HYDRANT			RESET GROUND SIGN	ADJUST MANHOLE		ADJUST VALVE BOX	GUARDRAIL TYPE 3 (31 INCH MIDWEST GUARDRAIL SYSTEM)(SPECIAL)	END ANCHORAGE TYPE 3K		Notes
	From	To		EA			EA	EA		EA	LF	EACH		
SAN JOAQUIN DRIVE														
LOWER HALF	1+00	11+00	LT				1	1		0				
LOWER HALF	1+00	11+00	RT				2	1		0	434.0	2		
UPPER HALF	11+00	21+03	LT					3		0				
UPPER HALF	11+00	21+03	RT					2		2				
MT VILLAGE BLVD SOUTH CORE														
LOST CREEK LANE TO ASPEN RIDGE DR X-WALK	1+45	3+10	RT				2	1						
ASPEN RIDGE DR X-WALK TO NORTH END OF GRANITA BLDG	3+10	4+95	RT	1			2			2				
MT VILLAGE BLVD NORTH CORE														
CONFERENCE CENTER ADA RAMP TO FAIRMONT PARKING GARAGE DRIVEWAY	12+13	13+12	RT											
FAIRMONT PARKING GARAGE DRIVEWAY TO WELLS FARGO PED ENTRANCE	13+46	15+11	RT											
PROJECT TOTALS				1			7	8		4	434.0	2		

ADVERTISEMENT SET

Uncompahgre Engineering, LLC

P.O. Box 3945
Telluride, CO 81435
970-729-0683

PROJECT NAME:
MTN VILLAGE
BIKE & PED SAFETY
PROJECT #: MTF M918-019
PROJECT CODE: 23710

TABULATION OF ADJUSTMENTS, MODIFICATIONS, AND GUARDRAIL

NOT FOR CONSTRUCTION

CONTRACTOR TO REVIEW AND COMPARE ALL CHAPTERS AND INTERDISCIPLINARY DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO ANY FIELD WORK BEING DONE IN ACCORDANCE WITH AIA DOCUMENT A201

AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

DATE: 11-21-22

File Path: ..._Cover & Std Plans List.dgn

Tabulation of Sidewalk, Curb and Gutter, and Miscellaneous Items

Location	Station		Side	CONCRETE SIDEWALK (4 INCH)	CONCRETE SIDEWALK (6 INCH)	CONCRETE CURB RAMP	ADA ENTRY RAMP (CONF CENTER) (SPECIAL)		CURB AND GUTTER TYPE 2 (SECTION II-B) (SPECIAL)		SIDEWALK CHASE (SPECIAL)			Notes
				SY	SY	SY	LS		LF		LF			
	From	To												
SAN JOAQUIN DRIVE														
LOWER HALF	1+00	11+00	LT											
LOWER HALF	1+00	11+00	RT											
UPPER HALF	11+00	21+03	LT											
UPPER HALF	11+00	21+03	RT											
MT VILLAGE BLVD SOUTH CORE														
LOST CREEK LANE TO ASPEN RIDGE DR X-WALK	1+45	3+10	RT	75.9		19.9			177.0					
ASPEN RIDGE DR X-WALK TO NORTH END OF GRANITA BLDG	3+10	4+95	RT	68.6	15.6	56.2			66.0					
MT VILLAGE BLVD NORTH CORE														
CONFERENCE CENTER ADA RAMP TO FAIRMONT PARKING GARAGE DRIVEWAY	12+13	13+12	RT	55.3		7.6	1		90.0		7.0			
FAIRMONT PARKING GARAGE DRIVEWAY TO WELLS FARGO PED ENTRANCE	13+46	15+11	RT	41.3		61.0			39.0					
Project Totals				**241.1**	**15.6**	**144.7**	**1**		**372.0**		**7.0**			

ADVERTISEMENT SET

Uncompahgre Engineering, LLC

P.O. Box 3945
Telluride, CO 81435
970-729-0683

PROJECT NAME:
MTN VILLAGE
BIKE & PED SAFETY
PROJECT #: MTF M918-019
PROJECT CODE: 23710

TABULATION OF SIDEWALK, CURB & GUTTER, AND MISCELLANEOUS

NOT FOR CONSTRUCTION

CONTRACTOR TO REVIEW AND COMPARE ALL CHAPTERS AND INTERDISCIPLINARY DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO ANY FIELD WORK BEING DONE IN ACCORDANCE WITH AIA DOCUMENT A201

AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

DATE: 11-21-22

File Path: ..._Cover & Std Plans List.dgn

SUMMARY OF EARTHWORK QUANTITIES

PAY QUANTITIES:		
UNCLASSIFIED EXCAVATION (COMPLETE IN PLACE)		**CUBIC YARDS**
	ROADWAY REGULAR UNCLASSIFIED EXCAVATION QUANTITY	1,720
	ADJUSTMENT FOR HARDSCAPE REMOVAL	520
	ADDITIONAL UNCLASSIFIED EXCAVATION QUANTITY FOR FINAL TOPSOIL PLACEMENT (ASSUMED 6" FINAL TOPSOIL DEPTH)	120
	ADDITIONAL UNCLASSIFIED EXCAVATION QUANTITY FOR DETOUR(S)	175
	ADDITIONAL UNCLASSIFIED EXCAVATION FROM STRUCTURE QUANTITIES-NOT INCLUDING PIPE WORK (ALL EXCAVATION AND HAUL OFF ASSOCIATED WITH THE WIRE MESH RETAINING WALL IS INCIDENTAL TO THE WALL PAY ITEM)	0
	TOTAL QUANTITY FOR UNCLASSIFIED EXCAVATION MATERIAL (COMPLETE IN PLACE) PAY QUANTITY	1,495
ROCK EXCAVATION		**CUBIC YARDS**
	NOT ANTICIPATED	0
	TOTAL ROCK EXCAVATION PAY QUANTITY	0
REMOVAL OF UNSUITABLE MATERIAL		**CUBIC YARDS**
	STATION 1+00 TO 21+03	100
	TOTAL FOR UNSUITABLE MATERIAL PAY QUANTITY	100
TOPSOIL		**CUBIC YARDS**
	TOTAL TOPSOIL PAY QUANTITY	120
FOR INFORMATION ONLY:		
EMBANKMENT MATERIAL (COMPLETE IN PLACE)		**CUBIC YARDS**
	ROADWAY REGULAR EMBANKMENT QUANTITY (SEE NOTE 4)	100
	TOTAL FOR EMBANKMENT MATERIAL (COMPLETE IN PLACE)	**100**
	FOR INFORMATION ONLY - EARTHWORK BALANCE	
	UNCLASSIFIED EXCAVATION (COMPLETE IN PLACE) (CUT)	**CUBIC YARDS**
	TOTAL UNCLASSIFIED EXCAVATION	1,495
	STRUCTURE EXCAVATION (INCIDENTAL TO WALL PAY ITEM/VALUE NOT INCLUDED HERE)	0
	ROCK EXCAVATION	0
	TOTAL MATERIAL AVAILABLE FROM EXCAVATION	**1,495**
	EMBANKMENT MATERIAL (COMPLETE IN PLACE) (FILL)	**CUBIC YARDS**
	EMBANKMENT MATERIAL	100
	CLASS X STRUCTURE FILL (INCIDENTAL TO WALL PAY ITEM/VALUE NOT INCLUDED HERE)	0
	TOTAL MATERIAL NEEDED FOR EMBANKMENTS	**100**
EMBANKMENT MATERIAL EXPANDED		
	TOTAL EMBANKMENT MULTIPLIED BY COMPACTION FACTOR (EMBANKMENT COMPACTION FACTOR= 1.15 (ASSUMED))	115
	BALANCE	
TOTAL EXCESS MATERIAL		
	TOTAL MATERIAL AVAILABLE FROM EXCAVATIONS LESS TOTAL MATERIAL NEEDED FOR EMBANKMENT	**1,380**

ADVERTISEMENT SET

Uncompahgre Engineering, LLC

P.O. Box 3945
Telluride, CO 81435
970-729-0683

PROJECT NAME:
MTN VILLAGE
BIKE & PED SAFETY
PROJECT #: MTF M918-019
PROJECT CODE: 23710

EARTHWORK SUMMARY TABULATION

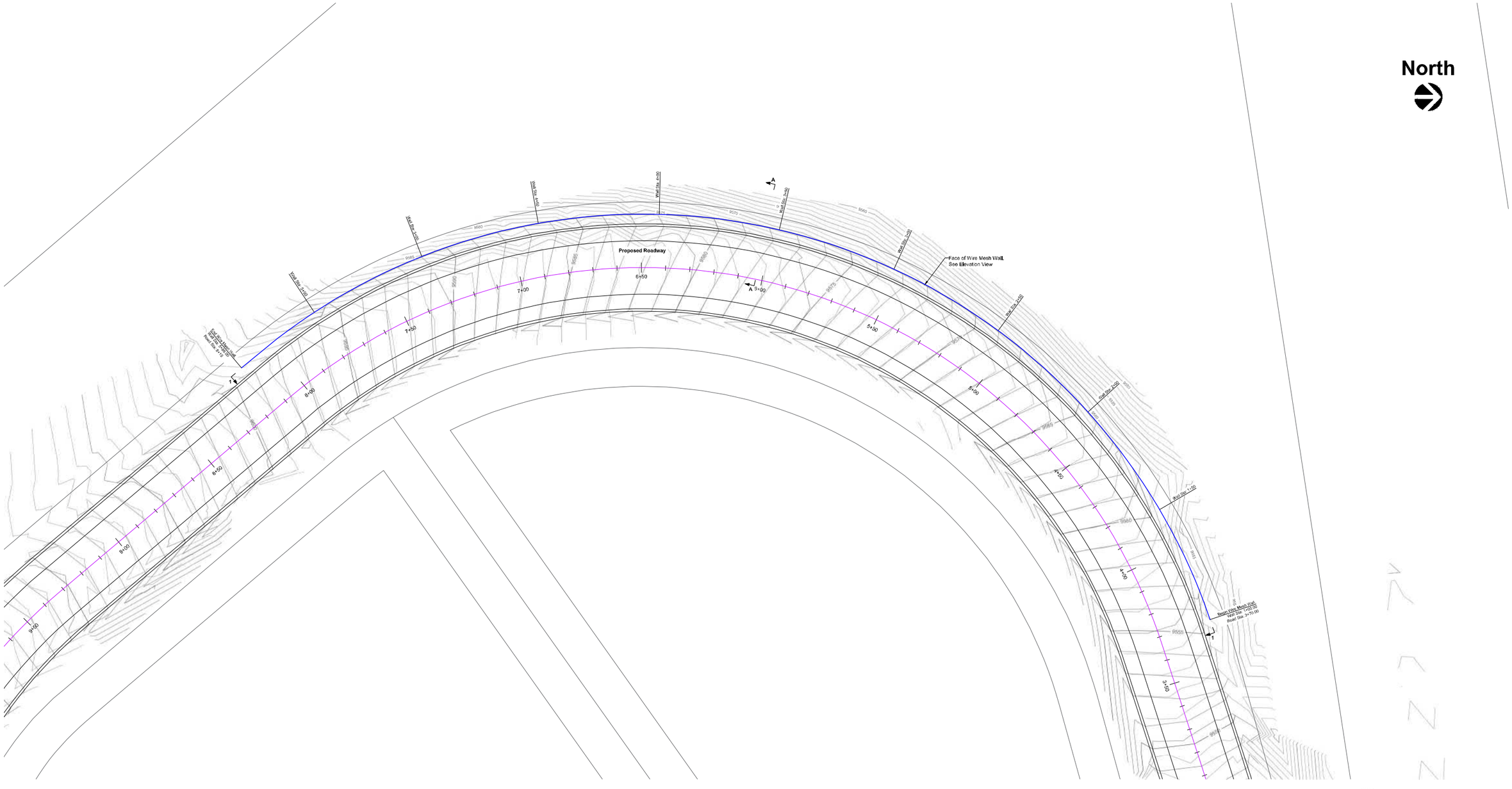
NOT FOR CONSTRUCTION

CONTRACTOR TO REVIEW AND COMPARE ALL CHAPTERS AND INTERDISCIPLINARY DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO ANY FIELD WORK BEING DONE IN ACCORDANCE WITH AIA DOCUMENT A201

AS CONSTRUCTED
NO REVISIONS:
REVISED:
VOID:

DATE: 11-21-22

File Path: ..._Cover & Std Plans List.dgn



COLORADO LICENSED
48709
PROFESSIONAL ENGINEER

Bret DeBernardi
2022.02.09 14:29:33 -07'00'

REFERENCE:
Uncompahgre Engineering, LLC, San Joaquin Improvements, Lane Layout With Final Grades Sheet C2.11, Not Dated

AutoCAD Drawing Provided by Uncompahgre Engineering, LLC entitled "UE TMV Improvements 2021-06-22", Date Provided 06/23/2021

DATE	DESCRIPTION
08.03.21	Submitted for Review
02.09.22	1 Rev. #1 Revised to generic Wire Mesh Wall

DESIGNED FOR:
Uncompahgre Engineering, LLC
P.O. Box 3945 Telluride, CO. 81435, 970-729-0683

DESIGNED BY:
GORDON GEOTECHNICAL ENGINEERING, INC.
4426 South Century Drive, Ste 100, Salt Lake City, UT 84123
801-327-9600

San Joaquin Roadway Improvements
Mountain Village, Colorado

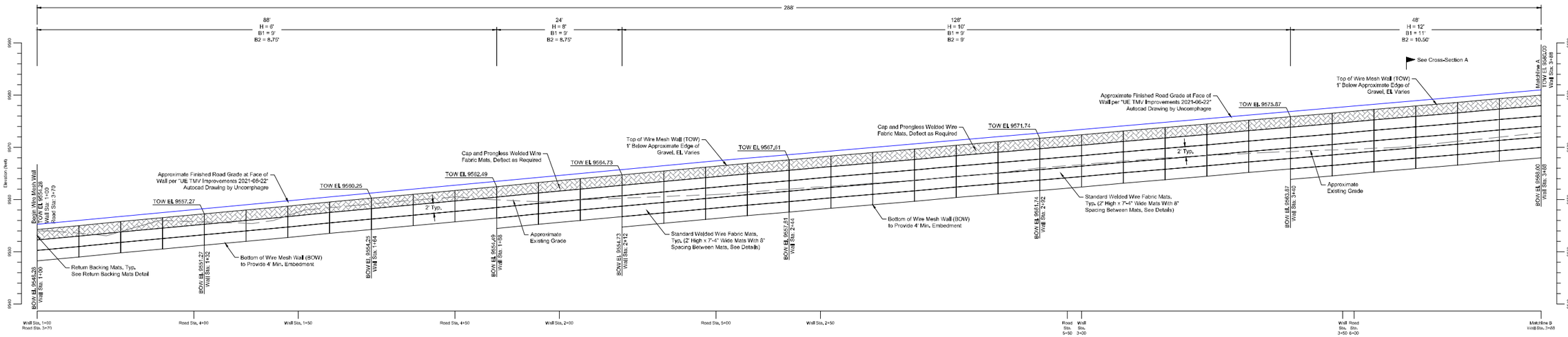
DESIGN BY: **BD** DRAWN BY: **TT** CHECKED BY: **BD** APPROVED BY: **BD**

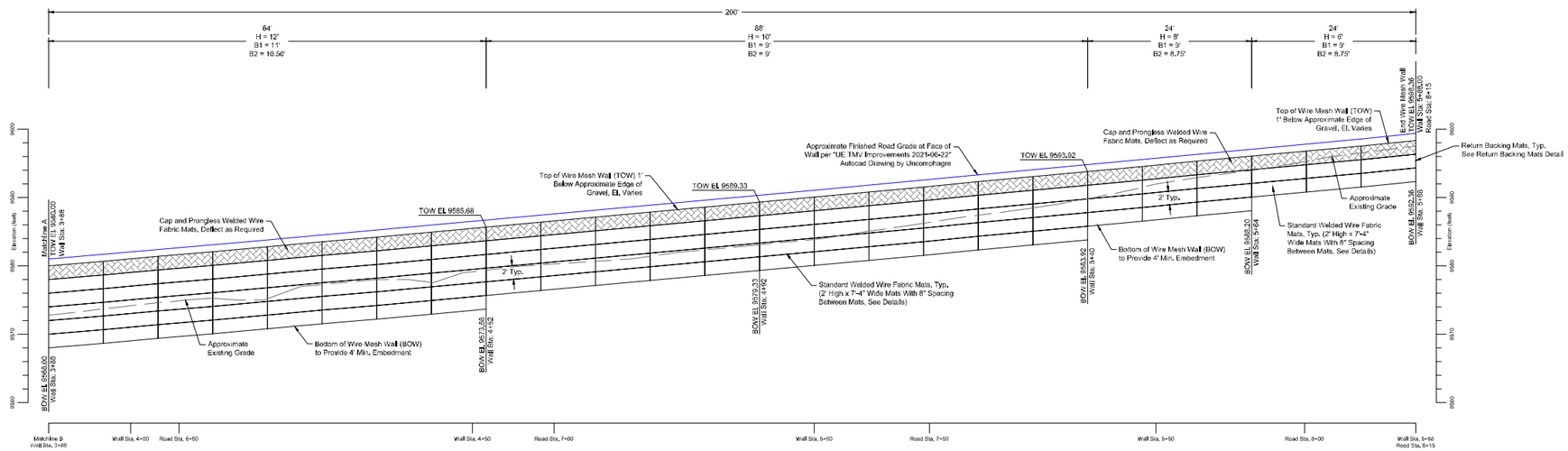
Wire Mesh Retaining Wall

Plan View

G² PROJECT NO.:
274-009-21

SHEET NO.:
1 of 3





Key	
H	Total height of wall at each segment.
B1	Base length of cap and prongless mat.
B2	Base length standard reinforcing mats.
	W7.0 x W3.5 WWF (8" x 12" Wire Spacing). Cap mat and prongless mats. See B1 for mat length.
	W7.0 x W3.5 WWF (8" x 10.5" Wire Spacing). Standard mats. See B2 for mat length.

Elevation View 1

0 10 20

Scale: 1" = 10'

Approximately 4,560 total square face feet of Wire Mesh Wall installed

COLORADO LICENSED
BRET A. DEBERNARDI
48709
PROFESSIONAL ENGINEER

Bret DeBernardi
2022.02.09
14:30:08 -07'00'

REFERENCE:

DATE	DESCRIPTION
08.03.21	Submitted for Review
02.09.22	1 Rev. #1 Revised to generic Wire Mesh Wall

DESIGNED FOR:

Uncompahgre Engineering, LLC
P.O. Box 3945 Telluride, CO. 81435, 970-729-0683

DESIGNED BY:

GORDON GEOTECHNICAL ENGINEERING, INC.
4426 South Century Drive, Ste 100, Salt Lake City, UT 84123
801-327-9500

San Joaquin Roadway Improvements
Mountain Village, Colorado

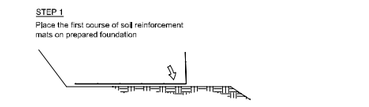
DESIGN BY: **BD** DRAWN BY: **TT** CHECKED BY: **BD** APPROVED BY: **BD**

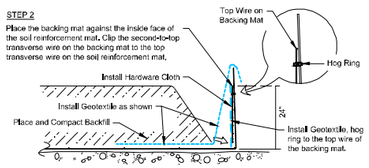
Wire Mesh Retaining Wall

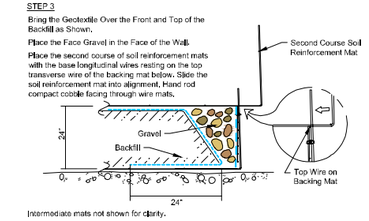
Elevation View 1

G² PROJECT NO.:
274-009-21

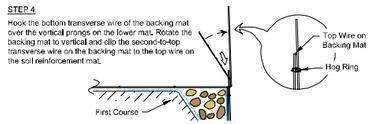
SHEET NO.:
2 of 3

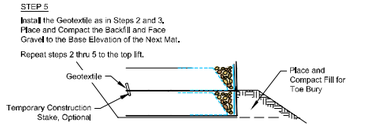


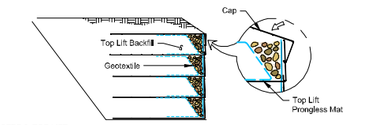




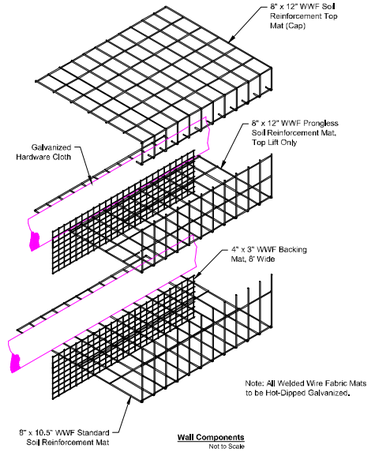
Wire Mesh Wall Construction Sequence
Not to Scale



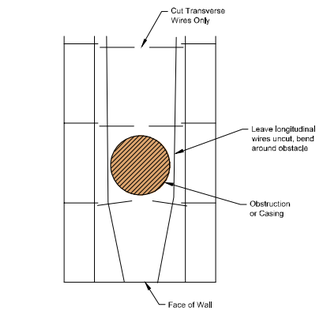




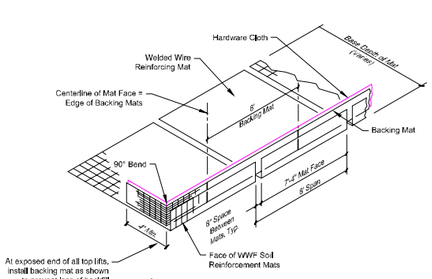
STEP 6: TOP LIFT
Place the top lift prongless mat, backing mat, and hardware cloth.
Place and compact backfill and gravel face in top lift.
Hook the cap over the middle transverse wire on the prongless mat, and rotate into place.
Install Geomembrane as Required.
Place and compact cover. Construct Pavements as Required.



Wall Components
Not to Scale

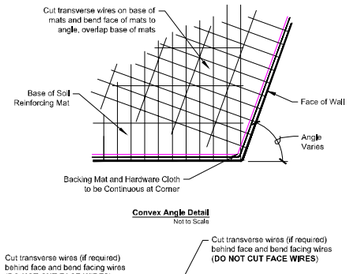


Fitting Mats to Vertical Obstructions
Not to Scale

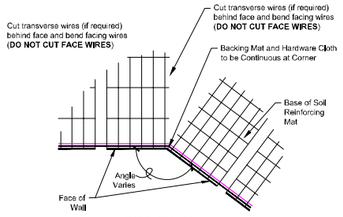


Isometric View

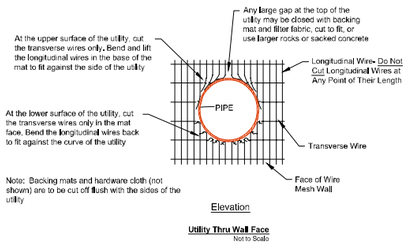
Wire Mesh Wall Components With Return Backing Mat
Not to Scale



Convex Angle Detail
Not to Scale

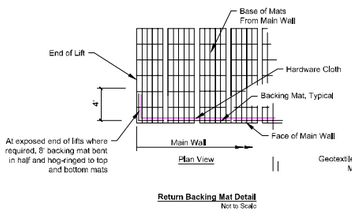


Concave Angle Detail
Not to Scale



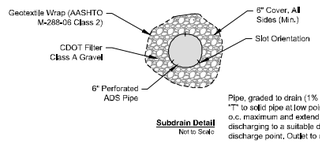
Elevation

Utility Thru Wall Face
Not to Scale



Plan View

Return Backing Mat Detail
Not to Scale



Subdrain Detail
Not to Scale

Pipe, graded to drain (1% minimum), Pipe to "T" to solid pipe at low points in wall or 100' o.c. maximum and extend through wall face discharging to a suitable down-gradient discharge point. Outlet to utilize rip-rap.

General Notes

Introduction

1. The scope of work outlined by these General Notes and Wire Mesh Wall Specifications (separate document) include design and installation specifications for the Wire Mesh Wall as shown on these plans.
2. Grades shown herein as well as Wire Mesh Wall layout and beginning and ending stations are approximate. Field conditions (both topography and geotechnical conditions exposed during construction) must be considered in determining final design configurations for construction. Conflicts between these plans and other project plans shall be resolved by Gordon Geotechnical Engineering Inc. (G²). whose decision shall be final. Geometry and layout are in general accordance with Project Plans entitled "San Joaquin Improvements," Uncompahgre Engineering, Inc., dated July 1, 2021.
3. Existing and proposed facilities and utilities to be verified in field by the General Contractor. Conflicts that arise shall be resolved by Gordon Geotechnical Engineering Inc. of Salt Lake City, Utah, whose decision shall be final.

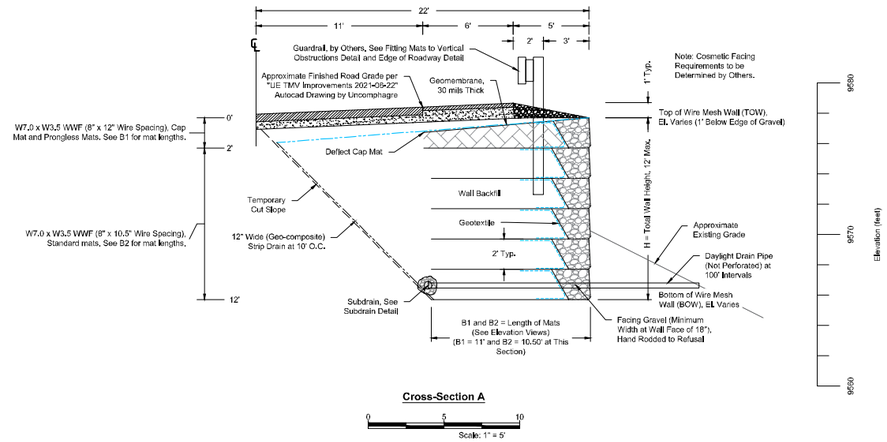
Wire Mesh Walls

1. The work for this portion of the project shall consist of the construction of Wire Mesh Walls to the lines, grades, details, and dimensions shown in these project plans and with the specifications provided for the project, as well as in conformance with all other project plans and specifications/special provisions. Conflicts that arise shall be resolved by Gordon Geotechnical Engineering Inc. of Salt Lake City, Utah, whose decision shall be final.
2. Wire mesh reinforcing and backing mats shall be constructed of hot-dipped galvanized wire in accordance with ASTM A 123 (2 oz/sf).
3. All wire mesh wall installation shall be in accordance with Wire Mesh Wall Specifications, Project Specifications, CDOT Specifications, and these plans. Conflicts that arise shall be resolved by Gordon Geotechnical Engineering Inc. whose decision shall be final. No warranty is expressed or implied, only that the design was prepared in general accordance with the design principles and practices in use at the time this work was performed. Changes to the design or layout shall only be made with express written permission of Gordon Geotechnical Engineering Inc.
4. Contractor is responsible for determining exact location of Wire Mesh Walls in accordance with the intent of these plans and the overall project objectives.
5. Soils used as Wall Backfill shall be a well graded, non-organic, granular soil meeting all Wire Mesh Wall Specifications, Project Special Provisions/Specifications for "Structure Backfill Class 1" and having the following gradation:

Sieve Designation	Percent Passing Sieve
2 inch	100
No. 4	30 - 100
No. 50	10-60
No. 200	5 – 20

The material shall have a Plasticity Index less than 6 and meet electrochemical properties and other properties (LA Abrasion, soundness, etc.) indicated in Wire Mesh Wall Specifications and CDOT Standard Specifications. Gradations and material properties of candidate backfill materials proposed for use may be submitted to Gordon Geotechnical Engineering Inc. for review and approval. Backfill not conforming to these specifications shall not be used without express, written permission of Gordon Geotechnical Engineering. Wall Backfill shall be compacted in accordance with Project Specifications to 95% of the maximum dry density as determined by AASHTO T-180 as a minimum (this may exceed Project Specifications). Maximum lift thickness shall be 8 inches and shall be reduced, if necessary, to obtain specified density. Refer to Wire Mesh Wall specifications and project specifications.

6. Gravel Facing used at the face of the wall shall meet all Wire Mesh Wall Specifications and shall consist of a 2-inch minus gravel with no more than 5 percent passing the 1/4-inch sieve. The material shall consist of durable, angular rock, and shall also comply with all electrochemical requirements, durability and other requirements outlined in Wire Mesh Wall Specifications and CDOT Specifications. Friable or fractured rock shall not be used. Gravel Facing is to be hand-rodded to "refusal". Candidate materials shall have LA Abrasion test results available for approval.
7. Geotextile utilized in the subdrain system and between the wall backfill and gravel face shall consist of non-woven geotextile meeting AASHTO M-288-06 Class 2 geotextile. Note that the geotextile may be eliminated by G² based upon relative gradations of the wall backfill and gravel facing.
8. Gravel used around the subdrain pipe shall consist of Filter Material Class A.
9. Subdrain pipe (perforated and non-perforated) shall consist of ADS pipe as notes on the plans installed in accordance with manufacturers recommendation.
10. Geomembrane shall consist of a 30 mil thick PVC and shall be installed per manufacturers' recommendations.
11. The surface of all walls, during and after construction, shall be graded to drain. No ponding or uncontrolled flowing water shall be allowed on or around any walls, at any time.
12. Contractor to provide fall protection for workers and equipment during construction in compliance with OSHA and any other applicable requirements. Owner shall also provide and maintain permanent fall protection as required by applicable building codes.
13. The wall subgrade shall be observed and properly prepared in accordance with the recommendations of the Project Geotechnical Engineer. It is anticipated that the foundation of the wall will consist of old embankment fills used to construct the original roadway. The material is anticipated to be granular consistent with the cut and fill of the native granular soils in the area, however, documentation with regard to placement, characteristics, etc, is likely unavailable. Once the excavation for the wall is made, the project geotechnical should observe the subgrade and provide appropriate recommendations. Given the difficulty of complete removal of the fills, it should be anticipated that the wall established upon undocumented fills may be subject to long term total and differential settlements and may require some remedial work of the wall and facilities that it supports.
14. The following parameters have been utilized in the design of the walls:
    a. 75-year life-span.
    b. Peak Ground Acceleration of 0.1g, FPGA = 1.8.
    c. Wall Backfill: Moist unit weight = 125 pcf, friction angle = 34 degrees.
    d. Retained Backfill: Moist unit weight = 125 pcf, friction angle = 30 degrees.
    e. Foundation: Moist unit weight = 125 pcf, friction angle = 30 degrees.
    f. Vehicular Traffic = 250 psf starting 3' back from wall face.
    g. No groundwater.
15. G² is responsible for internal and local external stability. Real (unfactored) bearing pressures imposed by the wall are 2,290 psf (static) over an effective footing width of 8.6 feet and 2,410 psf (seismic) over an effective footing width of 7.9 feet.



Cross-Section A

0 5 10
Scale: 1" = 5'

COLORADO LICENSED BRET A. DEBERNARDI 48709 PROFESSIONAL ENGINEER

Bret DeBernardi 2022.02.09 14:30:42 -07'00'

REFERENCE:

DATE	DESCRIPTION
08.03.21	Submitted for Review
02.09.22	1 Rev. #1 Revised to generic Wire Mesh Wall

DESIGNED FOR:
Uncompahgre Engineering, LLC
P.O. Box 3945 Telluride, CO. 81435, 970-729-0683

DESIGNED BY:
GORDON GEOTECHNICAL ENGINEERING, INC.
4426 South Century Drive, Ste 100, Salt Lake City, UT 84123
801-327-9600

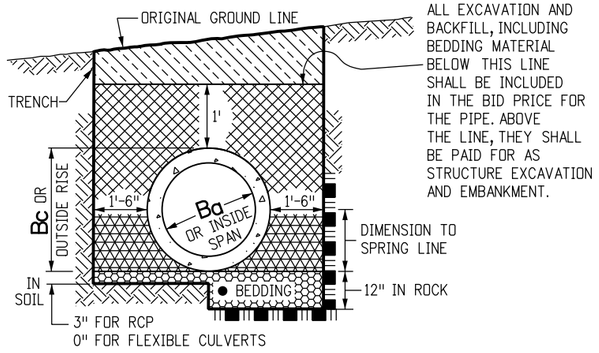
San Joaquin Roadway Improvements
Mountain Village, Colorado

DESIGN BY: **BD** DRAWN BY: **TT** CHECKED BY: **BD** APPROVED BY: **BD**

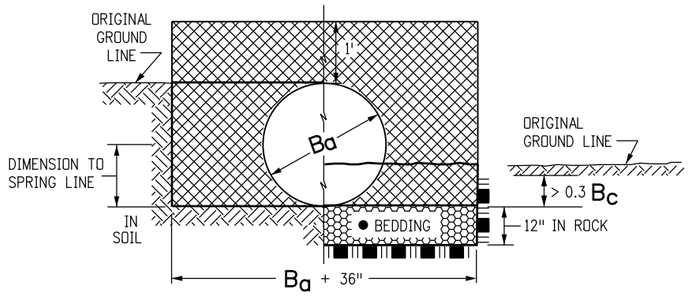
Wire Mesh Retaining Wall
Details, Cross-Section, and General Notes

G² PROJECT NO.: **274-009-21**

SHEET NO.: **3 of 3**



PIPE IN TRENCH

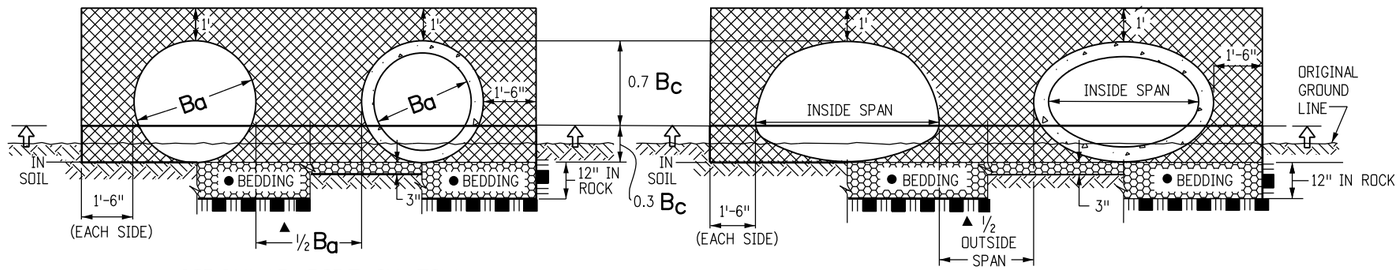


CIRCULAR PIPE

(WHERE ORIGINAL GROUND LINE IS BETWEEN 0.3 B_C AND B_C + 1 FT. ABOVE FLOWLINE)

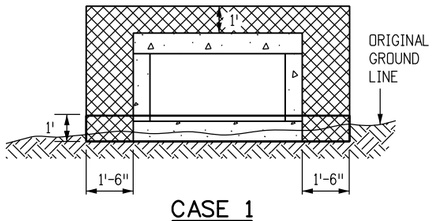
● THE BEDDING MATERIAL FOR RIGID PIPE IN SOIL SHALL BE 3 IN. OF LOOSE STRUCTURE BACKFILL (CLASS 1 OR 2). BEDDING IS NOT REQUIRED FOR FLEXIBLE PIPE IN SOIL. BEDDING MATERIAL FOR RIGID OR FLEXIBLE PIPE IN ROCK SHALL BE 12 IN. OF LOOSE STRUCTURE BACKFILL, CLASS 1.

▲ WHEN TWO OR MORE CONDUITS ARE LAID SIDE-BY-SIDE, THEY SHALL BE PLACED SO THAT THEY ARE ½ OUTSIDE DIAMETER, OR ½ OUTSIDE SPAN, OR 3 FT. APART, WHICHEVER IS LESS. HOWEVER, IF END SECTIONS ARE USED, THE MINIMUM SPACING SHALL BE 1 FT. BETWEEN END SECTIONS.



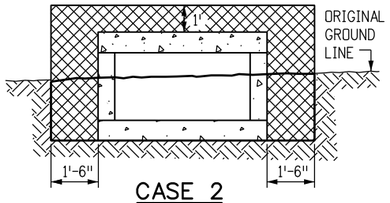
CIRCULAR PIPE IN FILL

ARCH OR ELLIPTICAL PIPE IN FILL



CASE 1

APPLIES WHEN THE ORIGINAL GROUND LINE IS LESS THEN 1 FT. ABOVE THE BOTTOM OF THE BOX CULVERT. THE EMBANKMENT SHALL BE BUILT UP TO 1 FT. ABOVE THE BOTTOM OF THE BOX CULVERT AND THEN EXCAVATED TO THE BOTTOM OF THE BOX CULVERT. THIS EMBANKMENT AND EXCAVATION WILL NOT BE MEASURED AND PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE COST OF THE WORK.

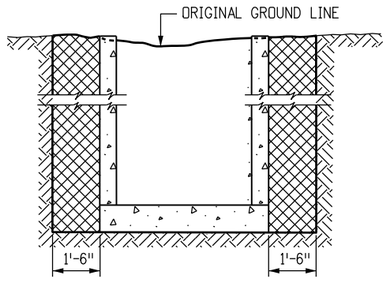


CASE 2

APPLIES WHEN THE ORIGINAL GROUND LINE IS MORE THAN 1 FT. ABOVE THE BOTTOM OF THE BOX CULVERT.

CONCRETE BOX CULVERT

IN BOTH CASES, THE TRENCH (OUTLINED BY THE THICK SOLID LINE) SHALL THEN BE EXCAVATED TO ACCOMMODATE CONSTRUCTION OF THE BOX CULVERT.

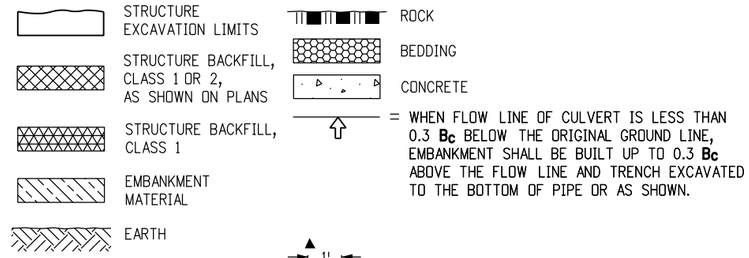


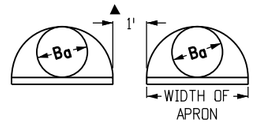
DROP INLETS AND DIVISION BOXES

GENERAL NOTES

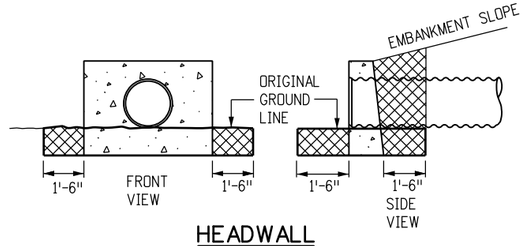
1. EXCAVATION AND BACKFILL PATTERNS DIFFERENT FROM THOSE INDICATED ON THESE SHEETS WILL BE SHOWN ELSEWHERE ON THE PLANS.
2. EXCAVATION FOR CHANNEL CHANGE OR CHANNEL IMPROVEMENT WILL BE EITHER UNCLASSIFIED EXCAVATION OR MUCK EXCAVATION AND WILL BE NOTED ON THE PLANS. EXCAVATION FROM THE CHANNEL FLOWLINE TO THE DEPTH REQUIRED FOR THE NEW STRUCTURE AND INCIDENTAL CHANNEL EXCAVATION WILL BE PAID FOR AS STRUCTURE EXCAVATION.
3. STRUCTURE FOOTINGS WHICH ARE LOCATED IN ROCK SHALL BE POURED OUT TO UNDISTURBED ROCK WITHOUT FORMING IN CONFORMANCE WITH SUBSECTION 601.09(b).
4. STRUCTURAL PLATE CULVERTS SHALL BE CONSTRUCTED AS SHOWN ON THE PLANS.
5. **B_a** EQUALS THE INSIDE DIAMETER OF A PIPE AND **B_c** EQUALS THE OUTSIDE DIAMETER OF A PIPE. FOR THIN WALLED PIPES, IT IS ASSUMED THAT **$B_a = B_c$**.
6. APPROXIMATE STRUCTURE EXCAVATION AND BACKFILL QUANTITIES, UP TO 1 FT. OVER THE PIPE WILL BE SHOWN ON THE PLANS, FOR INFORMATION ONLY.

LEGEND

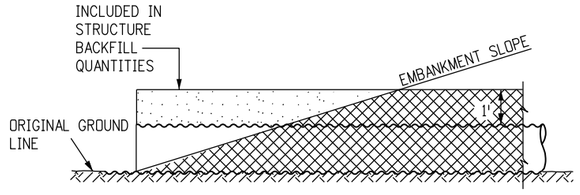




CONDUIT WITH END SECTIONS



HEADWALL



END OF PIPE

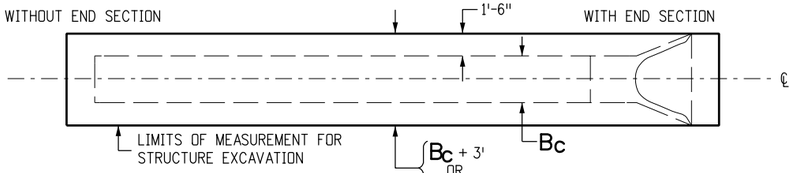
Computer File Information		Sheet Revisions	
		Date:	Comments
Creation Date: 07/31/19			
Designer Initials: JBK	(R-X)		
Last Modification Date: 07/31/19	(R-X)		
Detailer Initials: LTA	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

EXCAVATION AND BACKFILL FOR STRUCTURES

Issued by the Project Development Branch: July 31, 2019

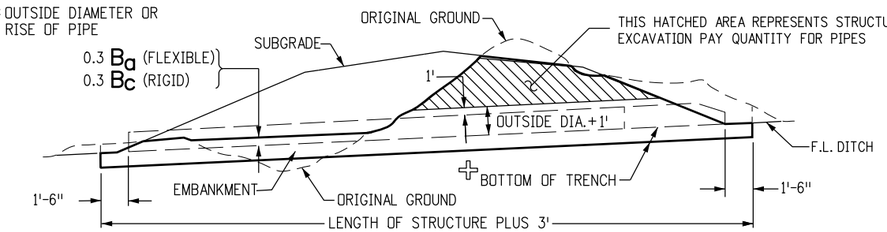
STANDARD PLAN NO.
M-206-1
Standard Sheet No. 1 of 2
Project Sheet Number:



PLAN

B_a = INSIDE DIAMETER OR INSIDE SPAN OF PIPE

B_c = OUTSIDE DIAMETER OR RISE OF PIPE

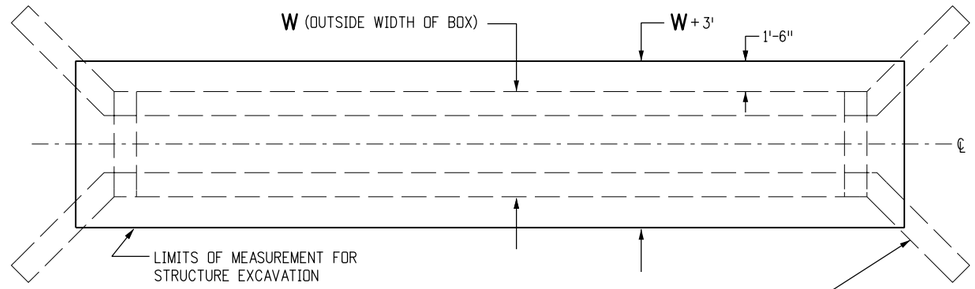


PROFILE

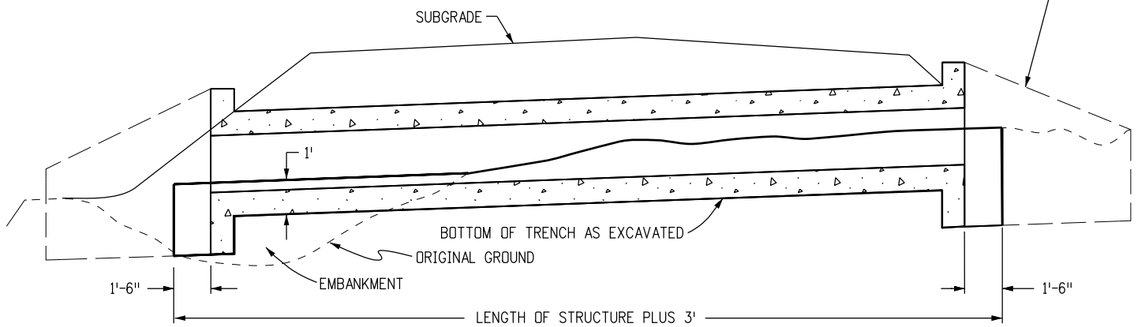
✛ FOR APPLICABLE LIMITS OF STRUCTURE EXCAVATION, SEE BEDDING DETAILS ON SHEET 1 OF THESE DETAILS.

STRUCTURE EXCAVATION UP TO 1 FT. ABOVE THE TOP OF THE PIPE SHALL BE INCLUDED IN THE BID PRICE OF THE PIPE.

STRUCTURE EXCAVATION MEASUREMENT FOR PIPE CULVERTS

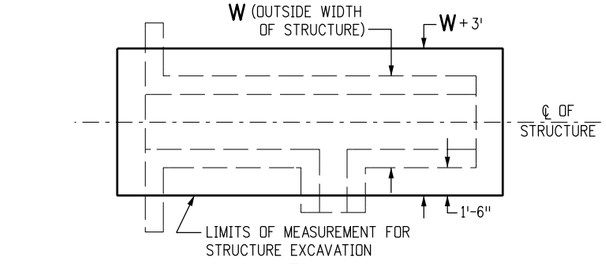


PLAN

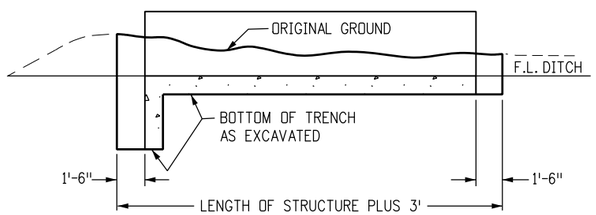


PROFILE

STRUCTURE EXCAVATION MEASUREMENT FOR CONCRETE BOX CULVERTS

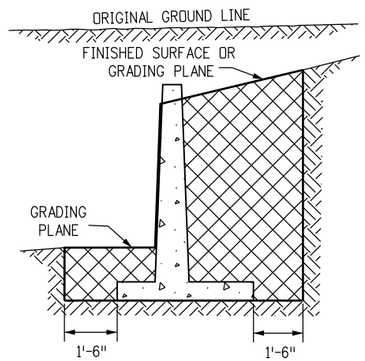


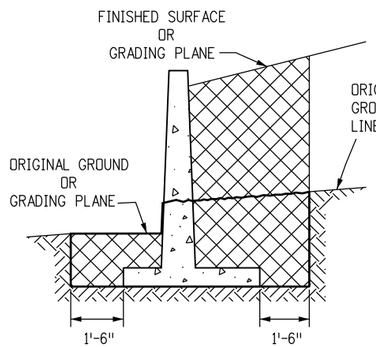
PLAN

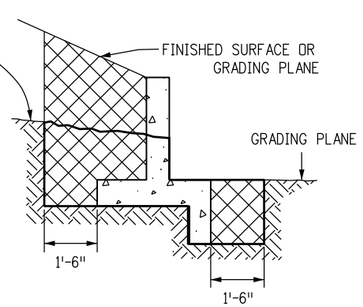


PROFILE

STRUCTURE EXCAVATION MEASUREMENT FOR DIVISION BOXES







WINGWALL

RETAINING WALL IN CUT & IN PARTIAL CUT

ANY ADDITIONAL EXCAVATION BEHIND THE LIMITS SHOWN SHALL BE FILLED WITH CLASS I BACKFILL MATERIAL. THE ADDITIONAL EXCAVATION AND BACKFILL WILL NOT BE MEASURED AND PAID FOR.

LEGEND

- STRUCTURE EXCAVATION LIMITS
- STRUCTURE BACKFILL, CLASS 1 OR 2, AS SHOWN ON PLANS
- CONCRETE

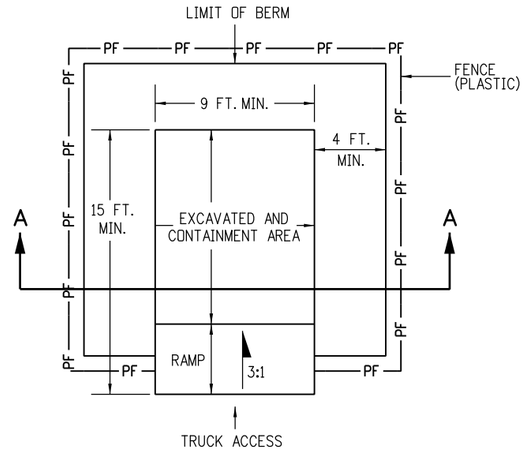
Computer File Information		Sheet Revisions	
Creation Date: 07/31/19		Date:	Comments
Designer Initials: JBK	(R-X)		
Last Modification Date: 07/31/19	(R-X)		
Detailer Initials: LTA	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

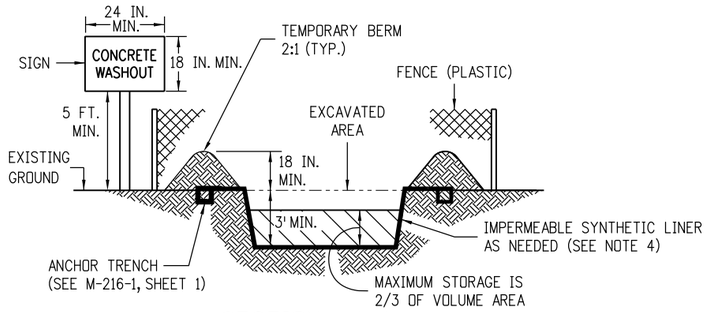
EXCAVATION AND BACKFILL FOR STRUCTURES

Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO.
M-206-1
Standard Sheet No. 2 of 2
Project Sheet Number:



PLAN VIEW

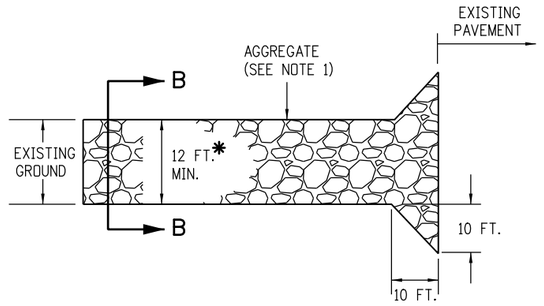


SECTION A-A

NOTES:

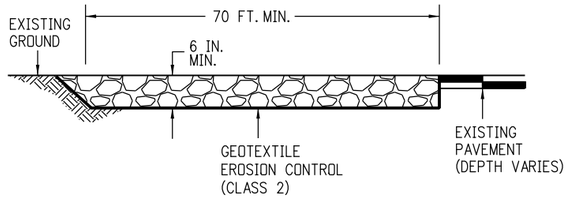
1. A FENCE (PLASTIC) CONFORMING TO SECTION 607 SHALL BE INSTALLED AROUND THE CONCRETE WASHOUT AREA, EXCEPT AT THE OPENING.
2. THE CONCRETE WASHOUT SIGN SHALL HAVE LETTERS AT LEAST 3 INCHES HIGH AND CONFORM TO SUBSECTION 630.02.
3. ALL MATERIALS AND LABOR TO COMPLETE THE CONCRETE WASHOUT STRUCTURE SHALL BE INCLUDED IN THE COST OF WORK AND NOT PAID FOR SEPARATELY.
4. THE BOTTOM OF EXCAVATION SHALL BE A MINIMUM OF FIVE FEET ABOVE GROUND WATER. IF NOT, THE BOTTOM OF EXCAVATION SHALL BE IN ACCORDANCE WITH 208.02 (j).
5. THE PAY ITEM NUMBER FOR CONCRETE WASHOUT STRUCTURE (EACH) IS 208-00045.

CONCRETE WASHOUT STRUCTURE

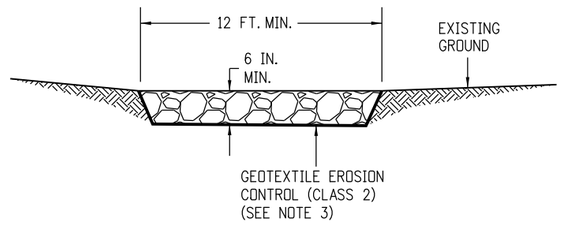


PLAN VIEW

* SHALL EXTEND FULL WIDTH OF INGRESS AND EGRESS OPERATION.



ELEVATION SECTION



SECTION B-B

NOTES:

1. AGGREGATE SHALL CONFORM TO SUBSECTION 208.02 (I).
2. THE CONTRACTOR SHALL PROTECT CURB AND GUTTER THAT CROSSES THE ENTRANCE FROM DAMAGE, WHILE NOT BLOCKING FLOW OF WATER THRU STRUCTURE. PROTECTION OF THE CURB AND GUTTER SHALL BE INCLUDED IN THE COST OF WORK AND NOT PAID FOR SEPARATELY.
3. GEOTEXTILE SHALL CONFORM TO SUBSECTION 712.08.
4. ALL MATERIALS AND LABOR TO COMPLETE THE VEHICLE TRACKING PAD SHALL BE INCLUDED IN THE COST OF WORK AND NOT PAID FOR SEPARATELY.
5. THE PAY ITEM NUMBER FOR VEHICLE TRACKING PAD (EACH) IS 208-00070.

VEHICLE TRACKING PAD

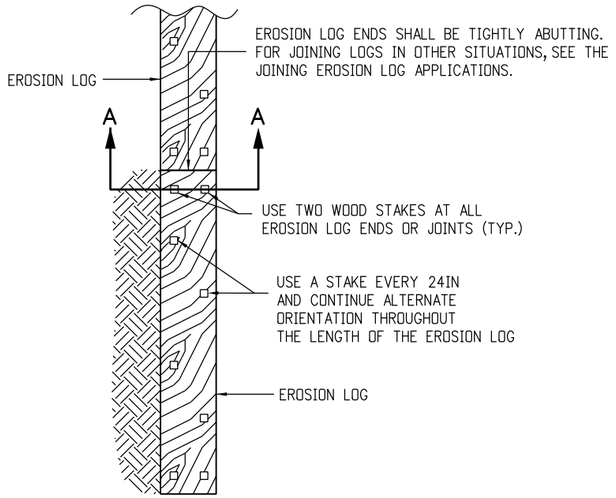
Computer File Information		Sheet Revisions	
Creation Date: 07/31/19		Date:	Comments
Designer Initials: JBK	(R-X)		
Last Modification Date: 07/31/19	(R-X)		
Detailer Initials: LTA	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

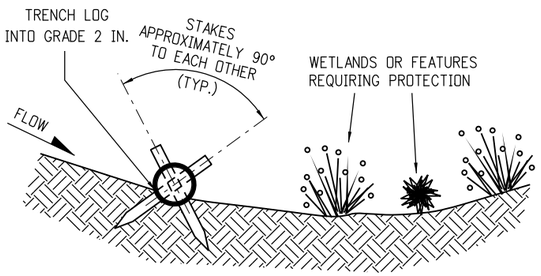
TEMPORARY EROSION CONTROL

Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO.
M-208-1
Standard Sheet No. 1 of 11
Project Sheet Number:



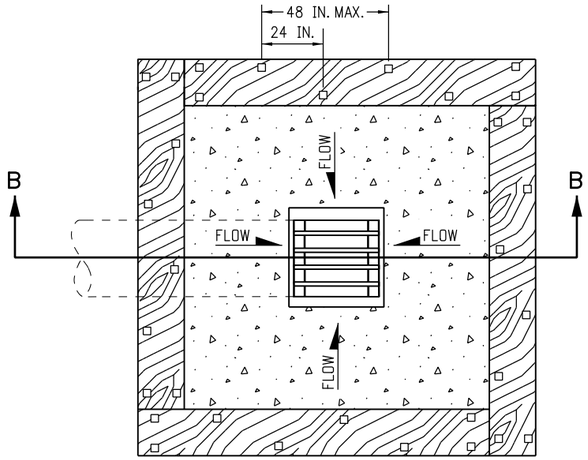
PLAN VIEW



SECTION A-A

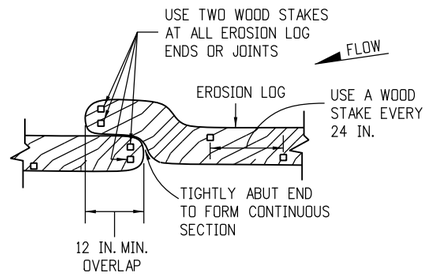
TYPICAL STAKE INSTALLATION

EROSION LOGS PAY ITEMS	
NUMBER	DESCRIPTION
208-00012	TYPE 1 (9 IN.)
208-00002	TYPE 1 (12 IN.)
208-00013	TYPE 1 (20 IN.)
208-00007	TYPE 2 (8 IN.)
208-00008	TYPE 2 (12 IN.)
208-00009	TYPE 2 (18 IN.)
208-00022	TYPE 3 (9 IN.)
208-00023	TYPE 3 (12 IN.)
208-00024	TYPE 3 (20 IN.)

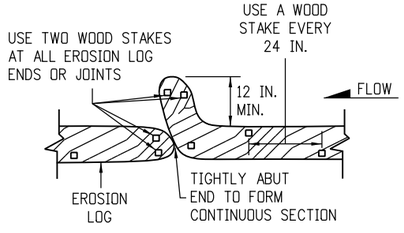


PLAN VIEW

NOTE: THE TOPS OF ALL STAKES SHALL NOT EXTEND MORE THAN 2 INCHES ABOVE THE TOPS OF EROSION LOGS.

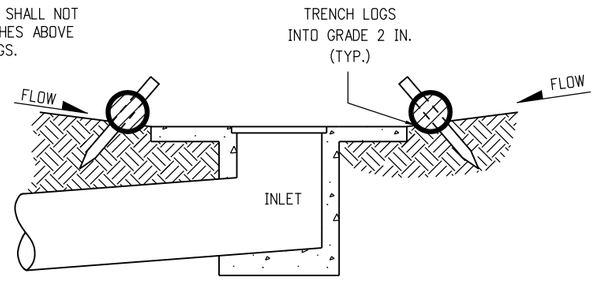


OVERLAP JOINING DETAIL



J-HOOK JOINING DETAIL

JOINING EROSION LOG APPLICATIONS



SECTION B-B

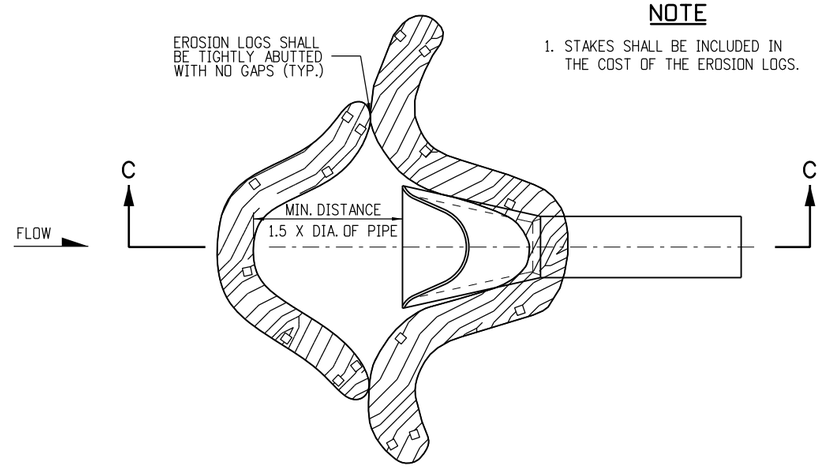
NOTE: LOCATE EROSION LOGS AT THE OUTSIDE EDGE OF THE CONCRETE APRON.

EROSION LOG FILTER AT DROP INLET

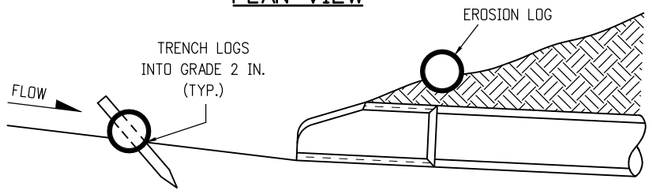
EROSION LOG APPLICATIONS

NOTE

1. STAKES SHALL BE INCLUDED IN THE COST OF THE EROSION LOGS.



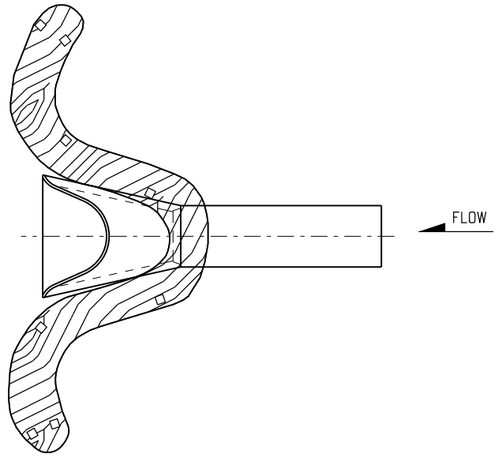
PLAN VIEW



SECTION C-C
(NOT ALL LOGS SHOWN)

NOTE: TOP OF STAKE SHALL NOT EXTEND PAST TOP OF EROSION LOG MORE THAN 2 IN.

EROSION LOG CULVERT INLET PROTECTION



EROSION LOG CULVERT OUTLET PROTECTION

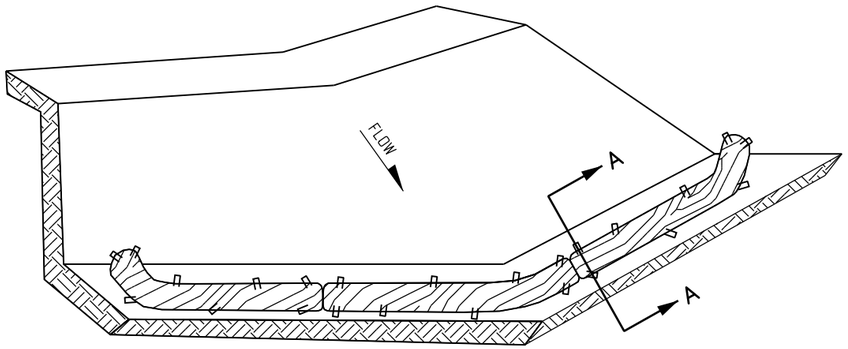
Computer File Information		Sheet Revisions	
		Date:	Comments
Creation Date: 07/31/19			
Designer Initials: JBK	(R-X)		
Last Modification Date: 07/31/19	(R-X)		
Detailer Initials: LTA	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

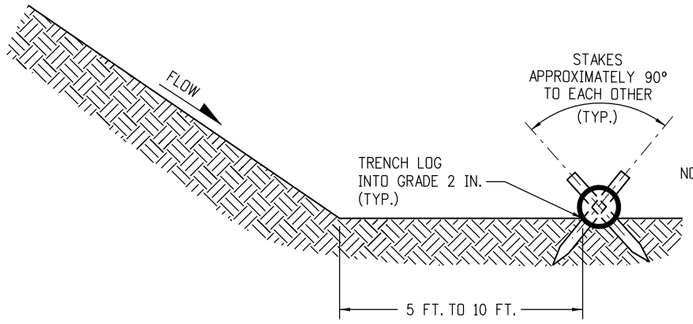
TEMPORARY EROSION CONTROL

Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO.
M-208-1
Standard Sheet No. 2 of 11
Project Sheet Number:



ISOMETRIC VIEW



NOTE: THE TOPS OF ALL STAKES SHALL NOT EXTEND MORE THAN 2 INCHES ABOVE THE TOPS OF EROSION LOGS.

SECTION A-A

NOTES:

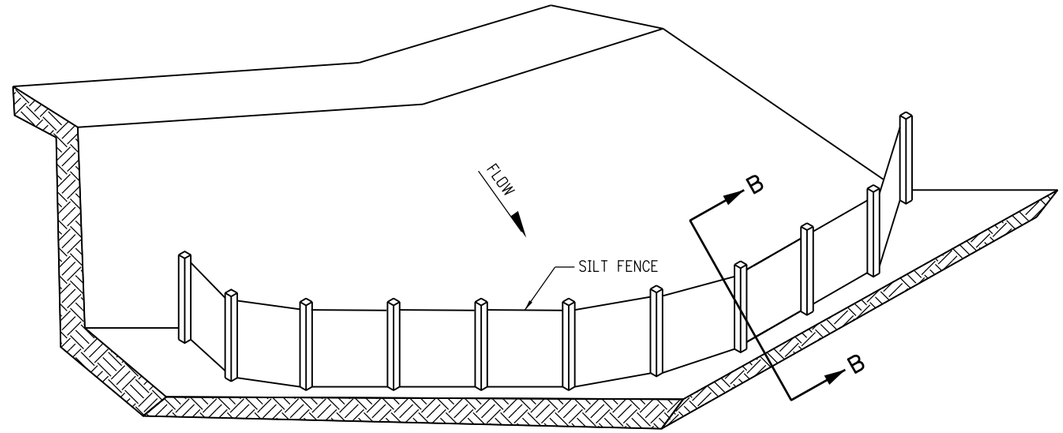
1. EROSION LOGS USED AT TOE OF SLOPE SHALL BE PLACED 5 TO 10 FEET BEYOND TOE OF SLOPE TO PROVIDE STORAGE CAPACITY.
2. EROSION LOGS SHALL BE PLACED ON THE CONTOUR WITH ENDS FLARED UP SLOPE.
3. SEE SHEET 2 OF 11 FOR JOINING LOGS DETAIL.

EROSION LOGS PAY ITEMS	
NUMBER	DESCRIPTION
208-00012	TYPE 1 (9 IN.)
208-00002	TYPE 1 (12 IN.)
208-00013	TYPE 1 (20 IN.)
208-00007	TYPE 2 (8 IN.)
208-00008	TYPE 2 (12 IN.)
208-00009	TYPE 2 (18 IN.)
208-00022	TYPE 3 (9 IN.)
208-00023	TYPE 3 (12 IN.)
208-00024	TYPE 3 (20 IN.)

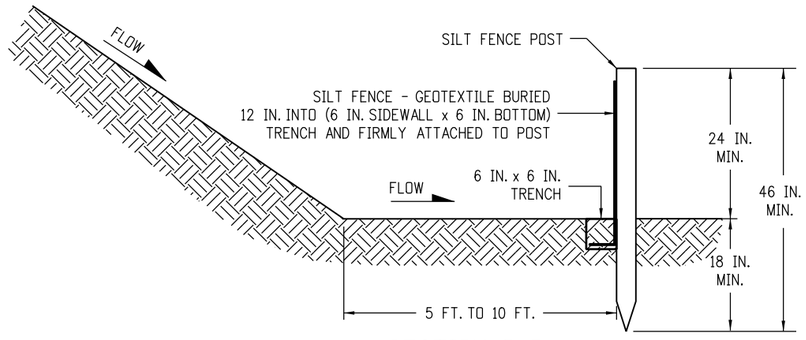
EROSION LOG TOE OF SLOPE PROTECTION

NOTES

1. SILT FENCE SHALL HAVE A MAXIMUM DRAINAGE AREA OF ONE-QUARTER ACRE PER 100 FEET OF SILT FENCE LENGTH; MAXIMUM SLOPE LENGTH BEHIND BARRIER IS 100 FEET.
2. SILT FENCE USED AT TOE OF SLOPE SHALL BE PLACED 5 TO 10 FEET BEYOND TOE OF SLOPE TO PROVIDE STORAGE CAPACITY.
3. SILT FENCE SHALL BE PLACED PARALLEL TO THE CONTOUR WITH ENDS FLARED UP SLOPE.
4. THE MAXIMUM LENGTH OF EROSION LOGS OR SILT FENCES WITHOUT A FLARED END TURNING UPSLOPE IS 150 FEET.



ISOMETRIC VIEW



SECTION B-B

SILT FENCE TOE OF SLOPE PROTECTION

NOTE: THE PAY ITEM NUMBER FOR SILT FENCE (LF) IS 208-00020.

TOE OF SLOPE PROTECTION APPLICATIONS

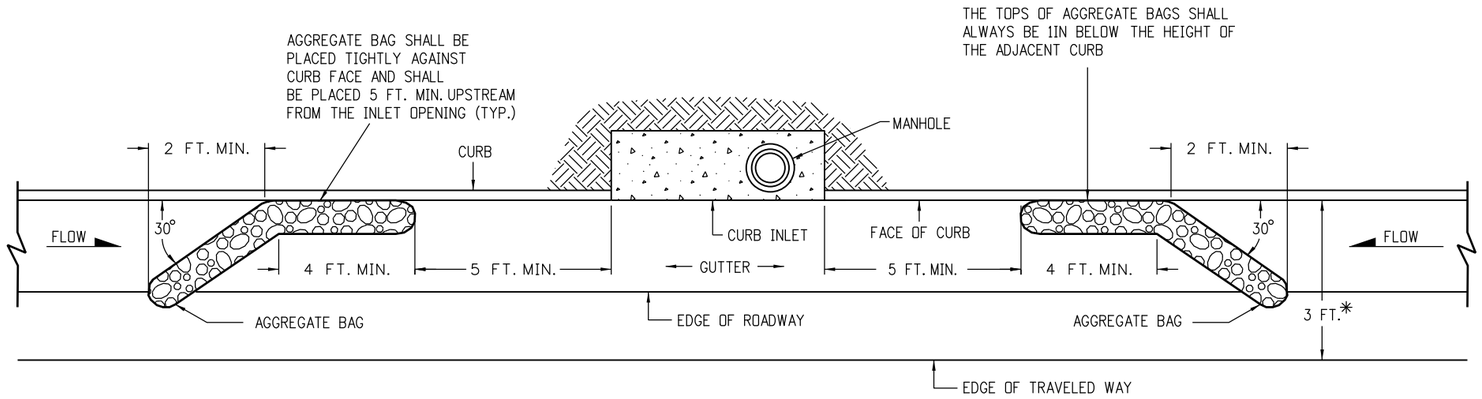
Computer File Information		Sheet Revisions	
		Date:	Comments
Creation Date: 07/31/19			
Designer Initials: JBK	(R-X)		
Last Modification Date: 07/31/19	(R-X)		
Detailer Initials: LTA	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

TEMPORARY EROSION CONTROL

Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO.
M-208-1
Standard Sheet No. 3 of 11
Project Sheet Number:

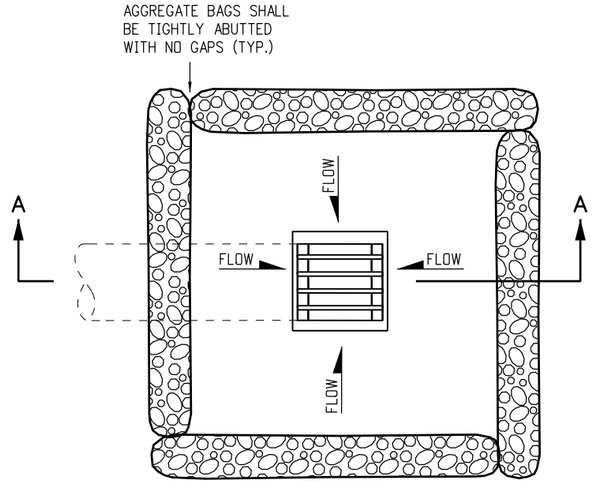


PLAN VIEW

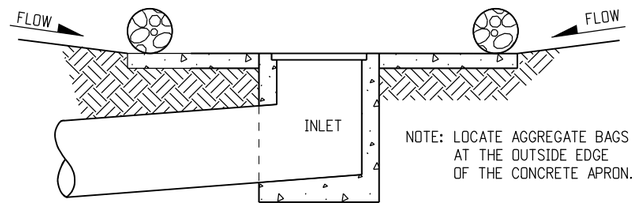
* NOTE: USE AGGREGATE BAGS ONLY WHEN THERE IS A MINIMUM CLEARANCE OF 3 FEET FROM THE EDGE OF THE TRAVELED WAY (INCLUDING CONDITIONS DURING DETOURS) TO THE FACE OF CURB.

LENGTH (L) OF INLET FT.	NUMBER OF AGGREGATE BAGS UPSTREAM OF INLET
0 - 5	1
6 - 10	2
L > 10	3

AGGREGATE BAGS AT STORM DRAIN INLET (TYPE I)



PLAN VIEW



SECTION A-A

AGGREGATE BAGS AT DROP INLET

AGGREGATE BAG APPLICATIONS

NOTE: THE PAY ITEM NUMBER FOR AGGREGATE BAG (LF) IS 208-00035

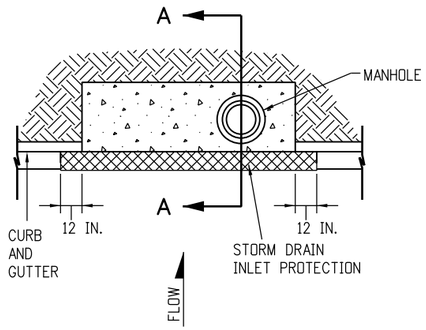
Computer File Information		Sheet Revisions	
Creation Date: 07/31/19		Date:	Comments
Designer Initials: JBK	(R-X)		
Last Modification Date: 07/31/19	(R-X)		
Detailer Initials: LTA	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

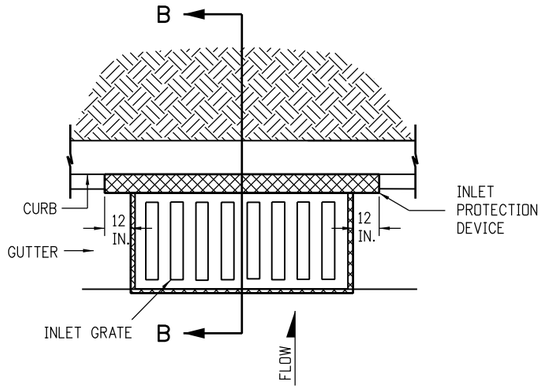
TEMPORARY EROSION CONTROL

Issued by the Project Development Branch: July 31, 2019

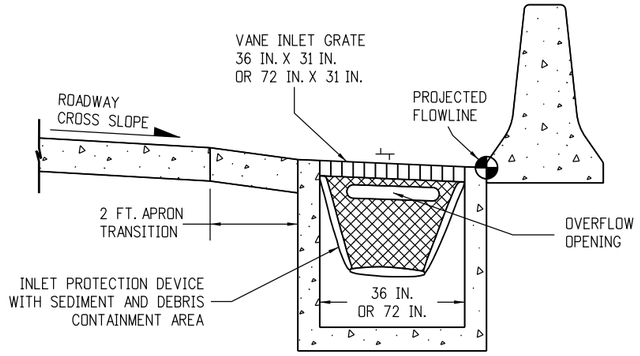
STANDARD PLAN NO.
M-208-1
Standard Sheet No. 4 of 11
Project Sheet Number:



PLAN VIEW

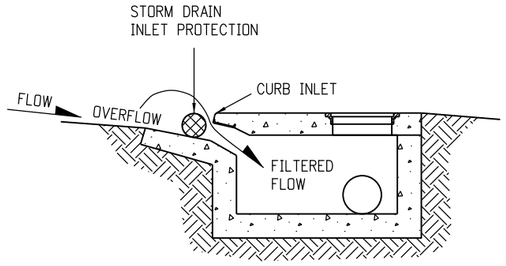


PLAN VIEW



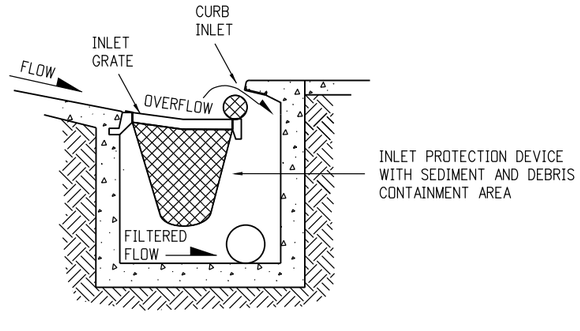
OPTION A

STORM DRAIN INLET PROTECTION (TYPE III)



SECTION A-A

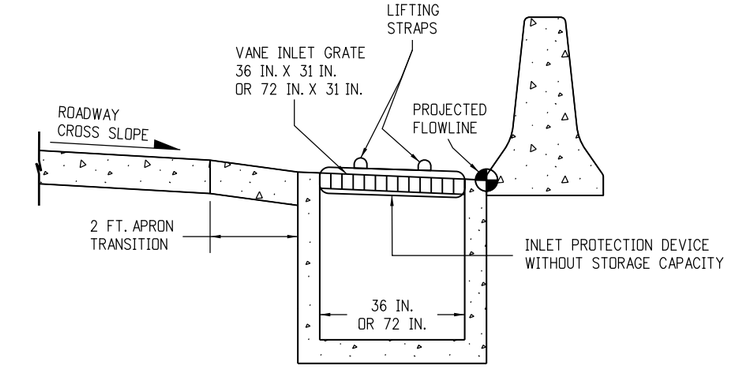
STORM DRAIN INLET PROTECTION (TYPE I)



SECTION B-B

OPTION A

STORM DRAIN INLET PROTECTION (TYPE II)



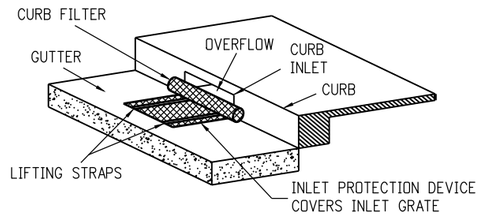
OPTION B

STORM DRAIN INLET PROTECTION (TYPE III)

NOTE: THE PAY ITEM NUMBER FOR STORM DRAIN INLET PROTECTION (TYPE III) (EACH) IS 208-00056.

NOTES:

1. INLET PROTECTION DEVICE SHALL EXTEND 12 INCHES PAST EACH END OF THE INLET.
2. THE PAY ITEM NUMBERS FOR STORM DRAIN INLET PROTECTION (TYPE I) ARE 208-00051 (LF), 208-00053 84 INCHES (EACH), 208-00057 144 INCHES (EACH), AND 208-00058 204 INCHES (EACH).
3. FOR STORM DRAIN INLET TYPES I AND II, IF THERE IS A MINIMUM CLEARANCE OF 3 FEET FROM THE EDGE OF THE TRAVELED WAY TO THE FACE OF CURB, USE THE AGGREGATE BAGS AT STORM DRAIN INLET (TYPE I) DETAIL ON SHEET 4 INSTEAD.



ISOMETRIC VIEW

OPTION B

STORM DRAIN INLET PROTECTION (TYPE II)

NOTE: THE PAY ITEM NUMBERS FOR STORM DRAIN INLET PROTECTION (TYPE II) ARE 208-00054 (EACH).

STORM DRAIN INLET PROTECTION TYPES

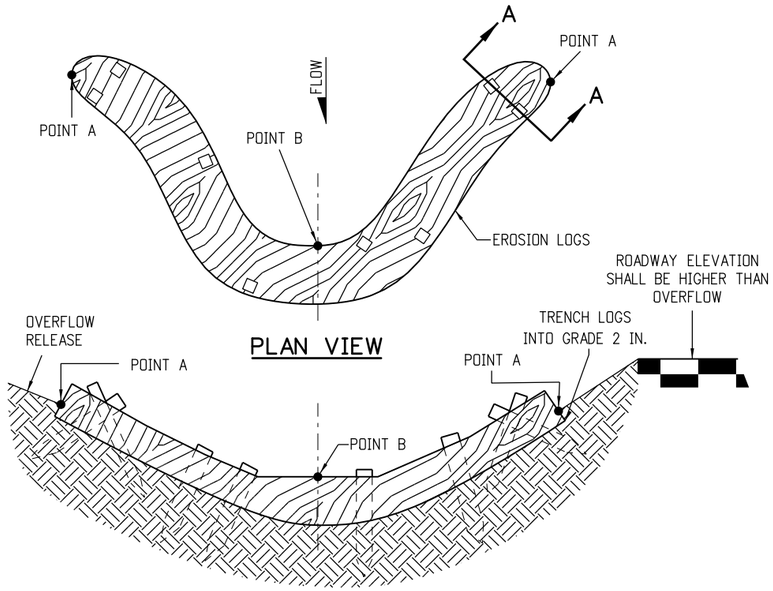
Computer File Information		Sheet Revisions	
		Date:	Comments
Creation Date: 07/31/19			
Designer Initials: JBK	(R-X)		
Last Modification Date: 07/31/19	(R-X)		
Detailer Initials: LTA	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

TEMPORARY EROSION CONTROL

Issued by the Project Development Branch: July 31, 2019

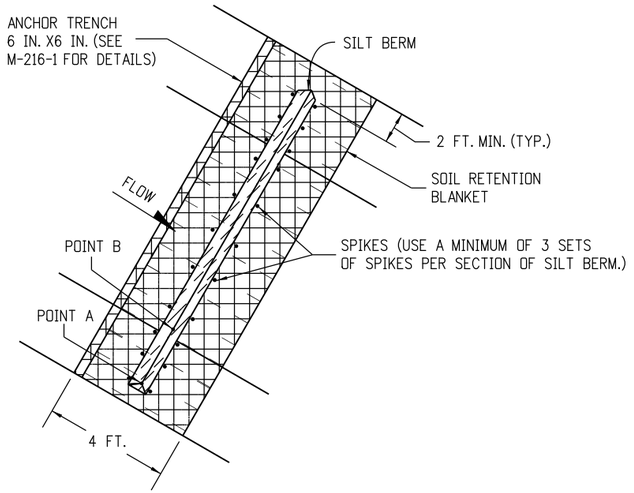
STANDARD PLAN NO.
M-208-1
Standard Sheet No. 5 of 11
Project Sheet Number:



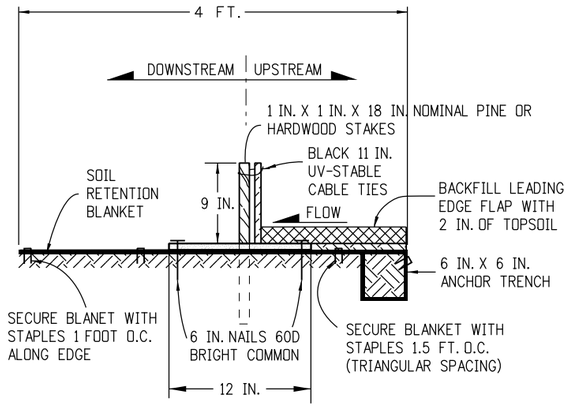
PLAN VIEW

NOTE: POINTS "A" SHALL BE A MINIMUM 4 IN. HIGHER THAN POINT "B".

ELEVATION

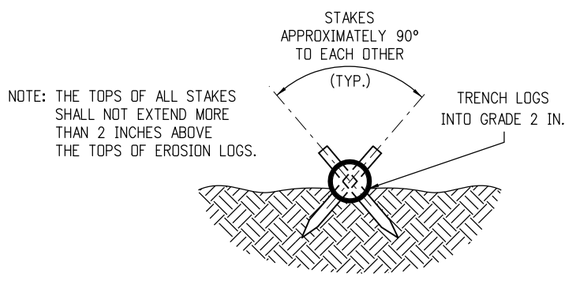


PLAN VIEW



NOTES:
1. MINIMUM 4 NAILS PER SEGMENT (UPSTREAM).
2. MINIMUM 2 NAILS PER SEGMENT (DOWNSTREAM).
3. MINIMUM 2 WOOD STAKES PER SEGMENT.

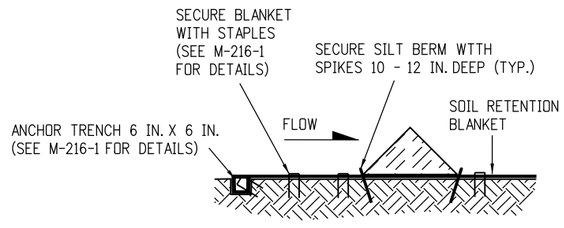
SILT BERM (2) SECTION VIEW



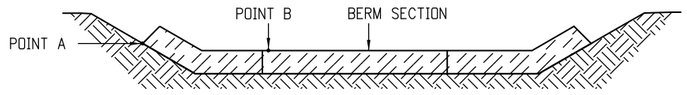
SECTION A-A

NOTES:
1. EROSION LOGS SHALL BE EMBEDDED 2 INCHES INTO THE SOIL.
2. EROSION LOGS SHALL BE TIGHTLY ABUTTED WITH NO GAPS.
3. V-SHAPED TEMPORARY DITCHES SHALL NOT BE USED. DITCHES SHAL BE GRADED IN A PARABOLIC OR TRAPEZOIDAL SHAPE.

EROSION LOG INSTALLATION



SILT BERM (1) SECTION VIEW



POINT "A" SHALL BE HIGHER THAN POINT "B" TO ENSURE THAT WATER FLOWS OVER THE BERM AND NOT AROUND THE ENDS.

FRONT VIEW

NOTES
1. ANCHOR SOIL RETENTION BLANKET INTO TRENCH WITH 8 INCHES MIN. STAPLES PLACED AT 1 FOOT INTERVALS ALONG EDGE.
2. FILL AND COMPACT TRENCH.
3. SECTIONS OF THE SILT BERM SHALL BE OVERLAPPED WITH NO GAPS.
4. FOR SLOPE AND CHANNEL SPACING SEE THE "SECTION VIEW ALONG DITCH FLOWLINE" DETAIL ON SHEET 11 OF 11.
5. SOIL RETENTION BLANKET SHALL ALWAYS BE REQUIRED.
6. THE PAY ITEM NUMBER FOR SILT BERM (LF) IS 208-00004.

SILT BERM INSTALLATION

DRAINAGE DITCH APPLICATIONS

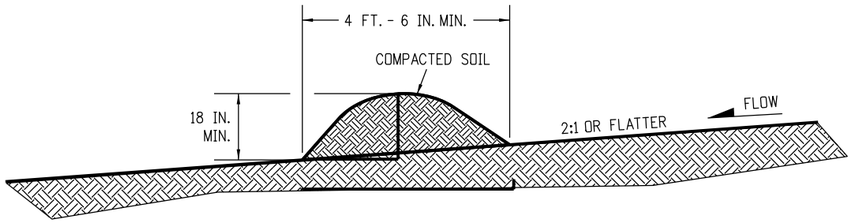
Computer File Information		Sheet Revisions	
		Date:	Comments
Creation Date: 07/31/19			
Designer Initials: JBK	(R-X)		
Last Modification Date: 07/31/19	(R-X)		
Detailer Initials: LTA	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

TEMPORARY EROSION CONTROL

Issued by the Project Development Branch: July 31, 2019

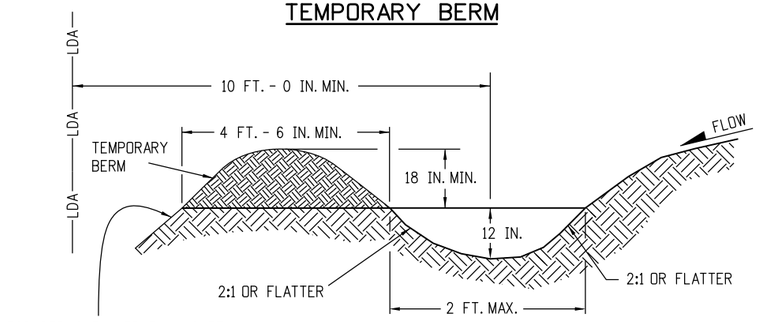
STANDARD PLAN NO.
M-208-1
Standard Sheet No. 6 of 11
Project Sheet Number:



NOTES:

1. BERMS SHALL HAVE A HEIGHT OF 18 INCHES, SIDE SLOPES OF 2:1 OR FLATTER AND A MINIMUM BASE WIDTH OF 4 FT. -6 IN.
2. BERMS SHALL BE USED TO INTERCEPT AND DIVERT DRAINAGE TO A DESIGNATED OUTLET.
3. BERMS SHALL NOT BE USED WHERE DRAINAGE AREA EXCEEDS 10 ACRES.
4. BERMS SHALL BE CONSTRUCTED OUT OF ACCEPTABLE MATERIAL THAT CAN BE COMPACTED AND RECEIVE AT A MINIMUM HEAVY EQUIPMENT WHEEL ROLLED COMPACTION.
5. TEMPORARY BERMS SHALL BE CONSTRUCTED OUT OF EMBANKMENT (SUBSOIL) AND IN NO CIRCUMSTANCE CONSTRUCTED OUT OF SALVAGED TOPSOIL.
6. THE PAY ITEM NUMBER FOR TEMPORARY BERM (LF) IS 208-00300.

TEMPORARY BERM

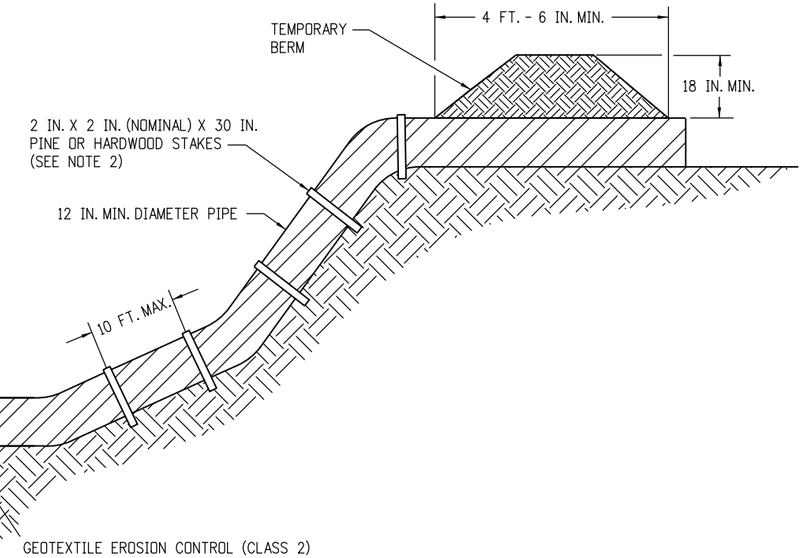


FOR BERMS TALLER THAN 2 FT.,
INSTALL TOE OF SLOPE CONTOL MEASURES.
SEE SHEET 3 OF 11 FOR DETAILS.

NOTES:

1. TEMPORARY DIVERSION DITCHES SHALL BE CONSTRUCTED ACROSS THE SLOPE TO INTERCEPT RUNOFF AND DIRECT IT TO A STABLE OUTLET OR SEDIMENT TRAP.
2. USE THE TEMPORARY DIVERSION DITCH IMMEDIATELY ABOVE A NEW CUT, FILL SLOPE, OR AROUND THE PERIMETER OF A DISTURBED AREA.
3. THE GRADIENT ALONG THE FLOW PATH SHALL HAVE A POSITIVE GRADE TO ASSURE DRAINAGE, BUT SHALL NOT BE SO STEEP AS TO RESULT IN EROSION DUE TO HIGH VELOCITY.
4. THE DIVERSION FLOWLINE SHALL ALWAYS BE LOCATED A MINIMUM 10 FEET FROM THE OUTSIDE LIMITS OF DISTURBED AREA BOUNDARY.
6. DIVERSION BERMS SHALL BE CONSTRUCTED OUT OF EMBANKMENT (SUBSOIL) AND IN NO CIRCUMSTANCE CONSTRUCTED OUT OF SALVAGED TOPSOIL.
5. THE PAY ITEM NUMBER FOR TEMPORARY DIVERSION (LF) IS 208-00301.

TEMPORARY DIVERSION



NOTES:

1. ANCHOR SIZE VARIES ACCORDING TO PIPE SIZE
2. TO SECURE THE PIPE, DRIVE STAKES INTO GROUND, THEN TIE A 12 GUAGE WIRE BETWEEN THEM ABOVE AND ACROSS THE PIPE'S WIDTH.
3. THE OUTLET SHALL BE ALIGNED WITH THE FLOW DIRECTION OF THE EXISTING GRADE. PERPENDICULAR DISCHARGE TO A CHANNEL SHALL NOT BE ACCEPTABLE.
4. THE GRADE AROUND THE INLET TO THE PIPE SHALL BE COMPACTED.
5. THE PAY ITEM NUMBER FOR TEMPORARY SLOPE DRAINS (LF) IS 208-00060.

TEMPORARY SLOPE DRAINS

GRADING APPLICATIONS

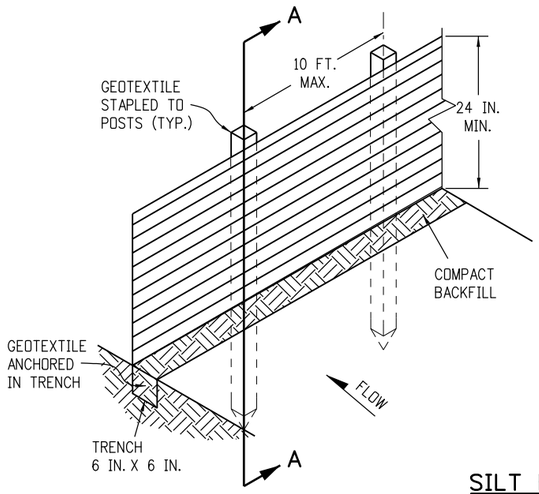
Computer File Information		Sheet Revisions	
Creation Date: 07/31/19		Date:	Comments
Designer Initials: JBK	(R-X)		
Last Modification Date: 07/31/19	(R-X)		
Detailer Initials: LTA	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

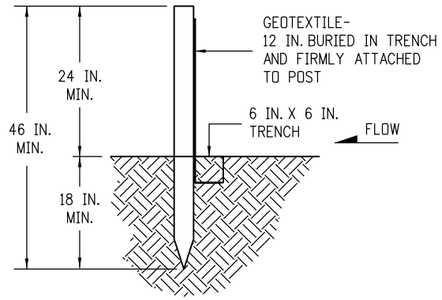
Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

TEMPORARY EROSION CONTROL

Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO.
M-208-1
Standard Sheet No. 7 of 11
Project Sheet Number:



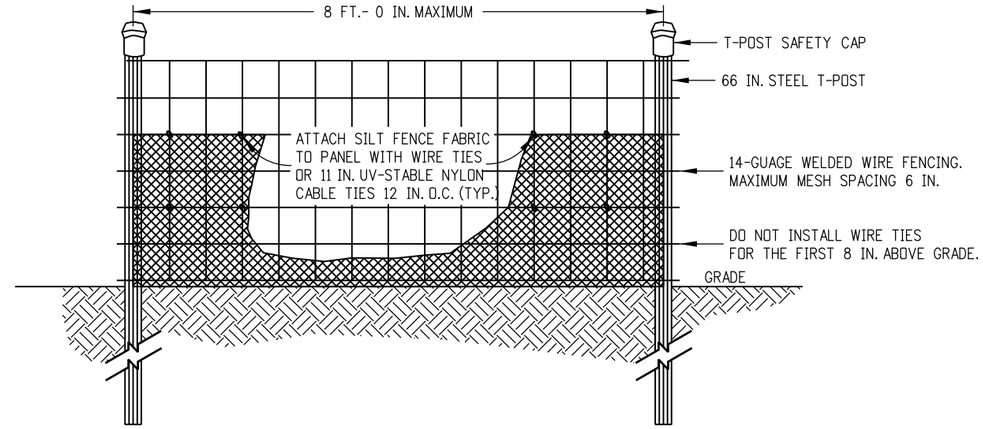


SECTION A-A

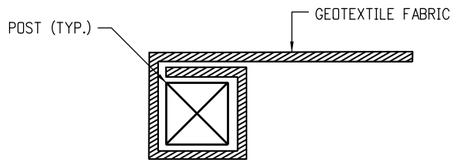
SILT FENCE

NOTES:

1. GEOTEXTILE SHALL BE ATTACHED TO WOOD POSTS WITH THREE OR MORE STAPLES PER POST. STAPLES SHALL BE HEAVY DUTY WIRE AND AT LEAST 1 INCH LONG.
2. WOOD POST SHALL BE 1 IN. X 1 IN. NOMINAL.
3. THE PAY ITEM NUMBER FOR SILT FENCE (LF) IS 208-00020.
4. THE SILT FENCE SHALL BE PLACED ON THE CONTOUR (AT THE SAME ELEVATION ±6 IN.). THE ENDS SHALL BE FLARED UP SLOPE (MINIMUM ELEVATION GAIN OF 18 IN.).



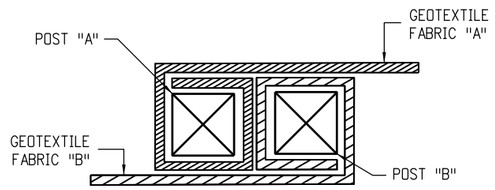
ELEVATION VIEW



END SECTION DETAIL (PLAN VIEW)

NOTE:

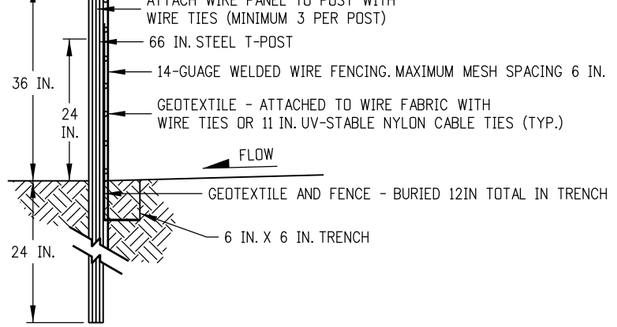
1. THE END OF THE SILT FENCE FABRIC SHALL BE WRAPPED APPROX. 6 INCHES AROUND A WOODEN POST ONE FULL TURN, THEN SECURED ALONG THE POST WITH 6 HEAVY DUTY WIRE STAPLES AT LEAST 1 INCH LONG.



JOINING SECTION DETAIL (PLAN VIEW)

NOTES:

1. THE ENDS OF THE SILT FENCE FABRIC SHALL BE JOINED TOGETHER BY WRAPPING APPROX. 6 INCHES OF EACH END AROUND A WOODEN POST ONE FULL TURN, THEN SECURED ALONG THE POST WITH 6 HEAVY DUTY WIRE STAPLES AT LEAST 1 INCH LONG.
2. POSTS SHALL BE TIGHTLY ABUTTED WITH NO GAPS TO PREVENT POTENTIAL FLOW-THROUGH OF SEDIMENT AT JOINT.



SIDE VIEW

NOTES:

1. THE ENDS OF THE SILT FENCE FABRIC SHALL BE JOINED TOGETHER BY WRAPPING APPROX. 6 INCHES OF EACH END AROUND A STEEL T-POST, THEN SECURED ALONG THE POST WITH WIRE TIES (MINIMUM 3 PER POST).
2. POSTS SHALL BE TIGHTLY ABUTTED WITH NO GAPS TO PREVENT POTENTIAL FLOW-THROUGH OF SEDIMENT AT JOINT.
3. SILT FENCES SHALL NOT BE USED FOR CHECK DAMS.
4. THE PAY ITEM NUMBER FOR SILT FENCE (REINFORCED) (LF) IS 208-00021.

SILT FENCE (REINFORCED)

SILT FENCE APPLICATIONS

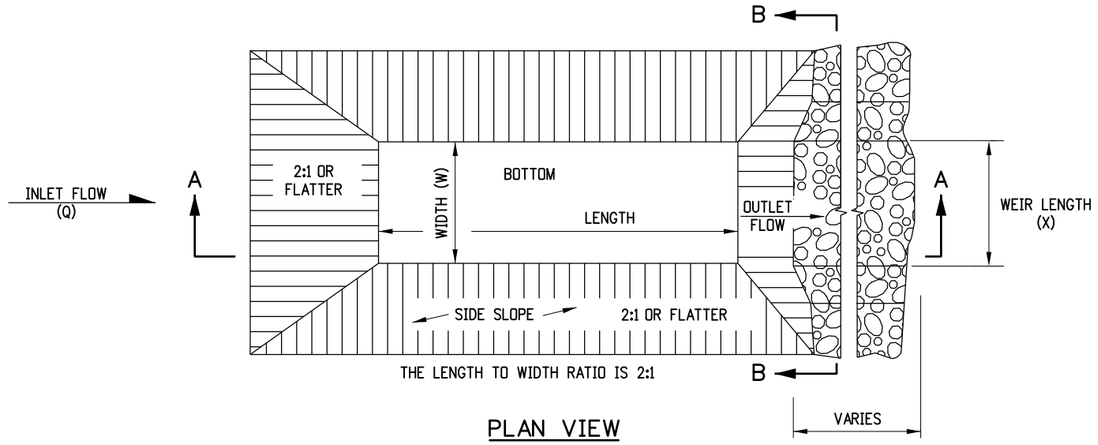
Computer File Information		Sheet Revisions	
		Date:	Comments
Creation Date: 07/31/19			
Designer Initials: JBK	(R-X)		
Last Modification Date: 07/31/19	(R-X)		
Detailer Initials: LTA	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

TEMPORARY EROSION CONTROL

Issued by the Project Development Branch: July 31, 2019

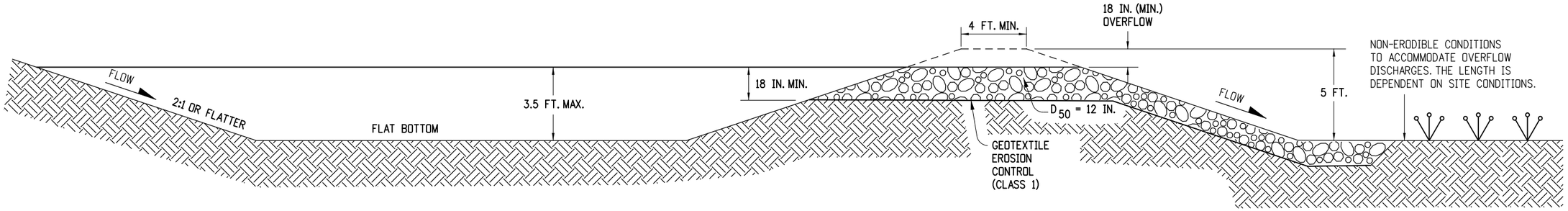
STANDARD PLAN NO.
M-208-1
Standard Sheet No. 8 of 11
Project Sheet Number:



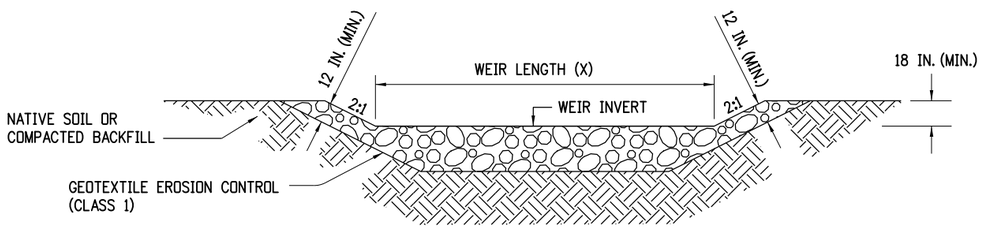
PLAN VIEW

NOTES

1. THE MAXIMUM DRAINAGE AREA IS 5 ACRES.
2. THE MAXIMUM STRUCTURE LIFE IS 2 YEARS.
3. THE STORAGE AREA IS 1800 CUBIC FEET PER ACRE.
4. THE MAXIMUM EMBANKMENT HEIGHT SHALL BE 5 FT. MEASURED ON THE DOWNSTREAM SIDE.
5. THE LENGTH/WIDTH RATIO MAY BE ADJUSTED TO MEET SITE CONDITIONS WHEN APPROVED BY THE ENGINEER.
6. WIDTH (W) OF SEDIMENT TRAP IS APPROXIMATELY EQUAL TO THE WEIR LENGTH (X).
7. SEDIMENT TRAP DESIGN SHALL BE APPROVED BY THE ENGINEER.
8. THE DOWN GRADE FROM WEIR SHALL BE STABLE AND NON-ERODIABLE.
9. THE PAY ITEM NUMBER FOR SEDIMENT TRAP (LF) IS 208-00033.



SECTION A-A



SECTION B-B

DRAINAGE AREA (ACRES)	WEIR LENGTH (FEET)
1	4
2	6
3	8
4	10
5	12

WEIR LENGTH TABLE

SEDIMENT TRAP

Computer File Information	
Creation Date: 07/31/19	
Designer Initials: JBK	(R-X)
Last Modification Date: 07/31/19	(R-X)
Detailer Initials: LTA	(R-X)
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)

Sheet Revisions	
Date:	Comments

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

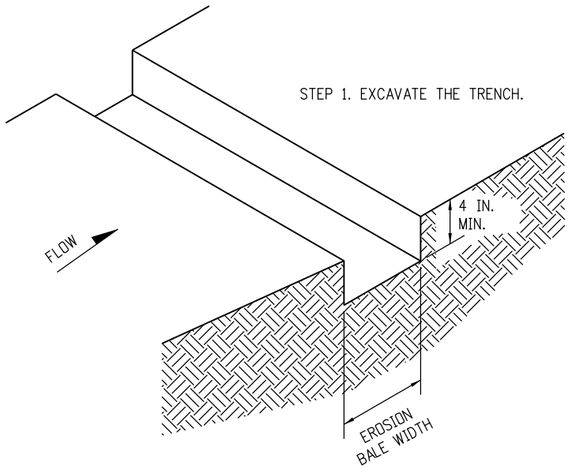
TEMPORARY EROSION CONTROL

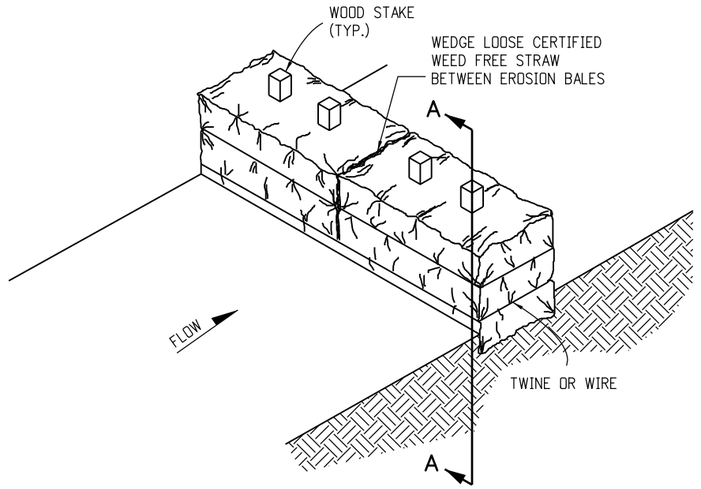
Issued by the Project Development Branch: July 31, 2019

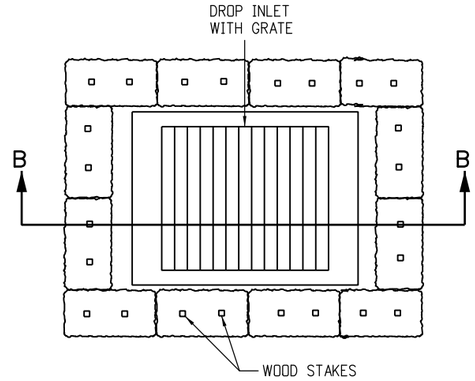
STANDARD PLAN NO.
M-208-1
Standard Sheet No. 9 of 11
Project Sheet Number:

NOTES

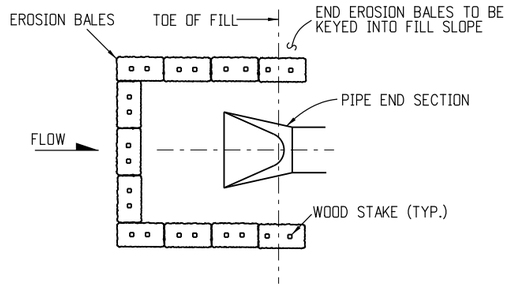
1. STAKES SHALL BE WOOD AND SHALL BE 2 IN. X 2 IN. X 30 IN. NOMINAL.
2. EROSION BALES SHALL BE 18 IN. X 18 IN. X 36 IN.
3. EROSION BALES SHALL BE ENTRENCHED 4 IN. MINIMUM INTO THE SOIL, THIGHTLY ABUTTED WITH NO GAPS, STAKED, AND BACKFILLED AROUND THE ENTIRE OUTSIDE PERIMETER.
4. EROSION BALES CANNOT BE USED FOR CHECK DAMS.
5. EROSION BALE FILTER SHALL BE LOWER THAN BERM ELEVATION OR USED IN A SUMP CONDITION.
6. THE PAY ITEM NUMBER FOR EROSION BALES (WEED FREE) (EA) IS 208-00011.





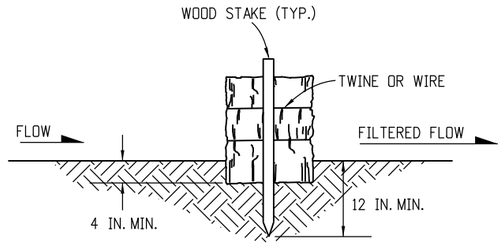


PLAN VIEW



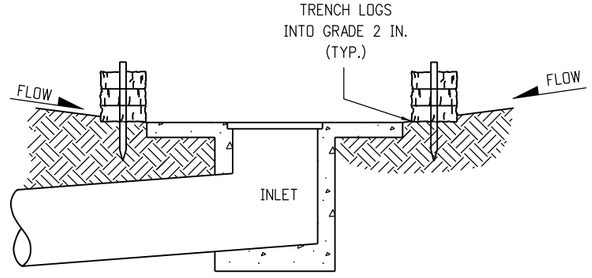
PLAN VIEW

EROSION BALE CULVERT INLET PROTECTION



SECTION A-A

EROSION BALE TRENCHING AND STAKING



SECTION B-B

NOTE: LOCATE EROSION BALES AT THE OUTSIDE EDGE OF THE CONCRETE APRON.

EROSION LOG FILTER AT DROP INLET

EROSION BALE APPLICATIONS

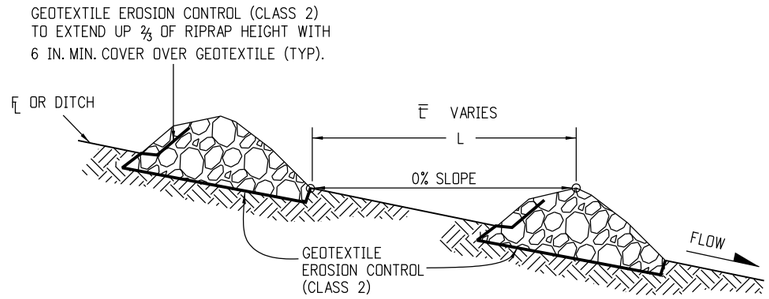
Computer File Information		Sheet Revisions	
Creation Date: 07/31/19		Date:	Comments
Designer Initials: JBK	(R-X)		
Last Modification Date: 07/31/19	(R-X)		
Detailer Initials: LTA	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

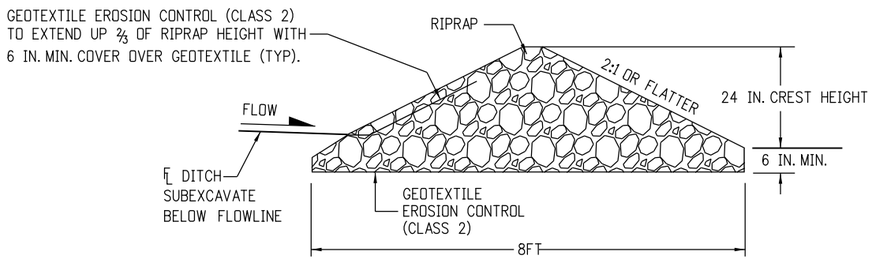
TEMPORARY EROSION CONTROL

Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO.
M-208-1
Standard Sheet No. 10 of 11
Project Sheet Number:



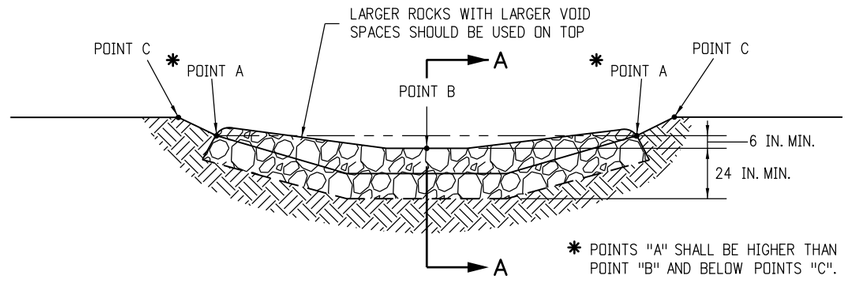
SECTION VIEW ALONG DITCH FLOWLINE



SECTION A-A

NOTES:

1. RIPRAP SIZE D_{50} = 6IN OR AS SHOWN ON THE PLANS.
2. THE GEOTEXTILE EROSION CONTROL SHALL BE CLASS 2 AND CONFORM TO THE REQUIREMENTS OF SUBSECTION 712.08.
3. THE ENDS OF RIPRAP CHECK DAM SHALL BE A MINIMUM OF 6 IN. HIGHER THAN CENTER OF CHECK DAM.
4. FOR USE AS TEMPORARY CHECK DAMS ONLY AND NOT FOR PERMANENT INSTALLATIONS.
5. THE PAY ITEM NUMBER FOR ROCK CHECK DAM (EA) IS 208-00041.



TYPICAL SECTION VIEW

NOTE: ALL MATERIALS AND LABOR TO COMPLETE THE ROCK CHECK DAM SHALL BE INCLUDED IN THE COST OF WORK.

ROCK CHECK DAM

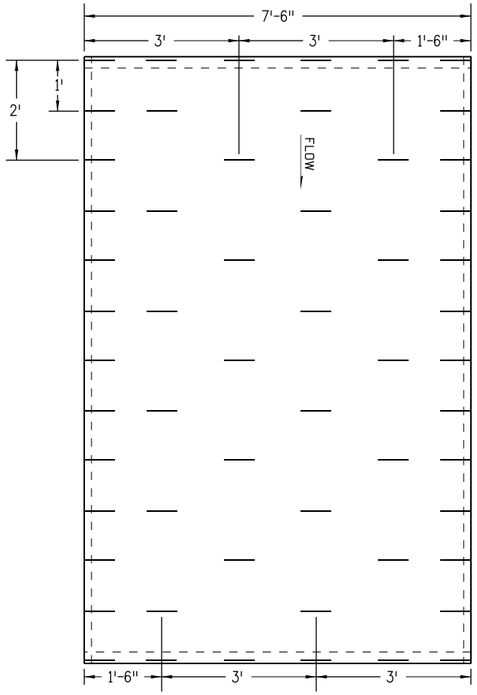
Computer File Information		Sheet Revisions	
Creation Date: 07/31/19		Date:	Comments
Designer Initials: JBK	(R-X)		
Last Modification Date: 07/31/19	(R-X)		
Detailer Initials: LTA	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

TEMPORARY EROSION CONTROL

Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO.
M-208-1
Standard Sheet No. 11 of 11
Project Sheet Number:

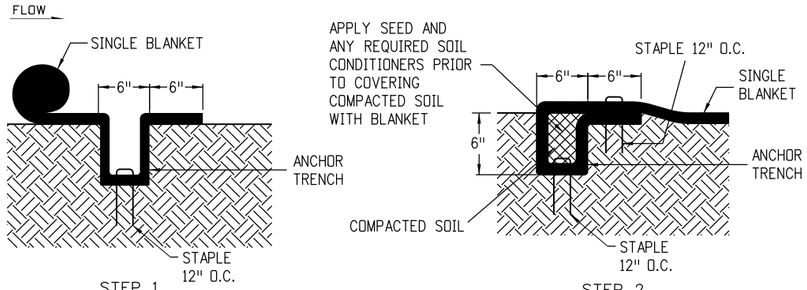


TYPICAL STAPLE PATTERN FOR CHANNEL APPLICATION

SEE SUBSECTION 216.05.

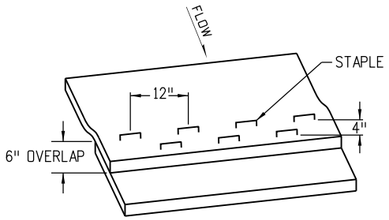
SOIL FILLED TRM APPLICATION

1. PLACE 3" TOPSOIL OR SOIL AMENDED WITH SOIL CONDITIONING.
2. APPLY HALF OF THE SPECIFIED SEED AT THE BROADCAST RATE AND RAKE IT INTO THE SOIL.
3. INSTALL TRM.
4. PLACE 1" TOPSOIL OR SOIL AMENDED WITH SOIL CONDITIONING INTO THE MATRIX TO COVER THE PRODUCT'S THICKNESS.
5. APPLY THE REMAINING HALF OF THE SPECIFIED SEED AT THE BROADCAST RATE AND RAKE IT INTO THE SOIL.
6. INSTALL SOIL RETENTION BLANKET (CLASS 1).



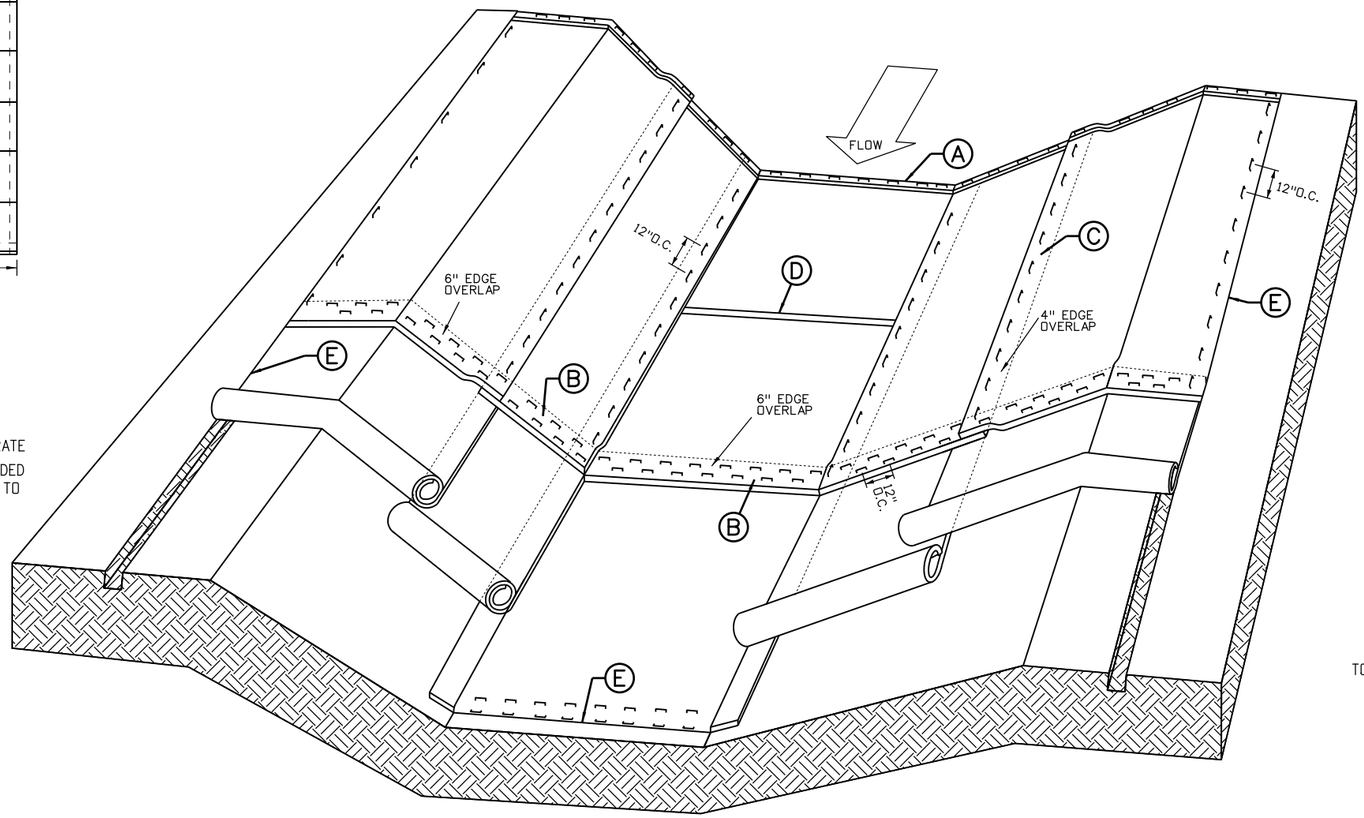
ANCHOR TRENCH (A)

TO BE USED AT THE BEGINNING AND END OF THE CHANNEL ACROSS IT'S ENTIRE WIDTH.



CONSECUTIVE ROLL OVERLAP (B)

TO BE USED WHEREVER ONE ROLL OF BLANKET ENDS AND ANOTHER BEGINS WITH UPSTREAM BLANKET PLACED ON TOP OF THE BLANKET ON THE DOWNSTREAM SIDE.

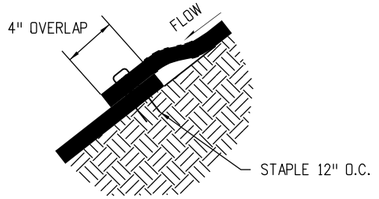


SOIL RETENTION BLANKETS/TURF REINFORCEMENT MATS (TRM) CHANNEL APPLICATION

IN ACCORDANCE WITH SECTION 216.

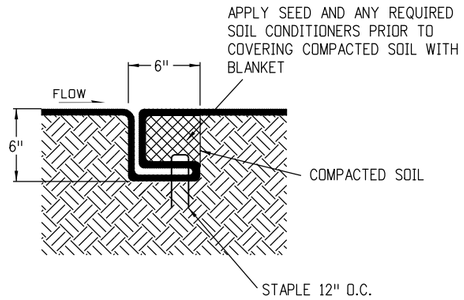
GENERAL NOTES

1. Z SHAPED FOLD TO BE USED ON SLOPE EVERY 35 FEET MAXIMUM.
2. STAPLE CHECK LOCATIONS SHOULD BE AT LEAST 15 FEET FROM THE BOTTOM OF SLOPE.



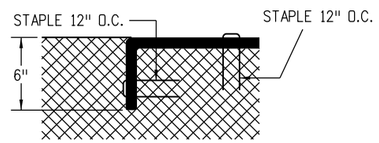
SIDE SEAM OVERLAP (C)

TO BE USED FOR OVERLAP WHEN 2 WIDTHS OF BLANKET ARE APPLIED SIDE BY SIDE WITH THE UPHILL BLANKET PLACED ON TOP OF THE BLANKET ON THE DOWNHILL SIDE.



CHANNEL CHECK SLOT (D)

TO BE USED AT 30' INTERVALS IN CHANNEL FLOWLINE.



TERMINATION OF CHANNEL (E)

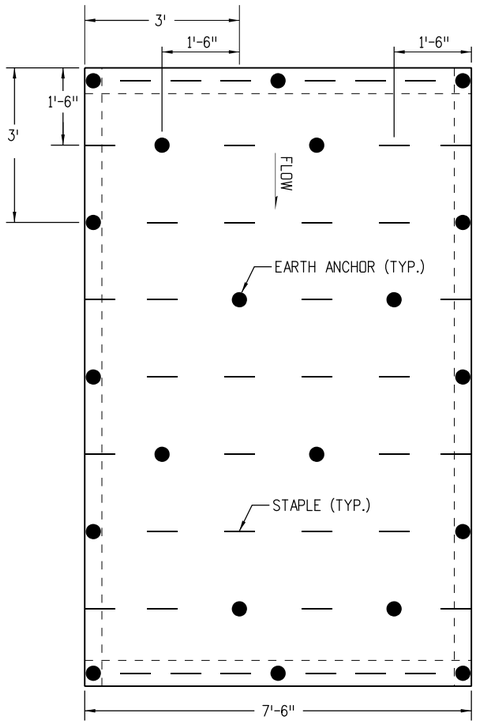
Computer File Information		Sheet Revisions	
Creation Date: 07/31/19		Date:	Comments
Designer Initials: JBK	(R-X)		
Last Modification Date: 07/31/19	(R-X)		
Detailer Initials: LTA	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

SOIL RETENTION COVERING

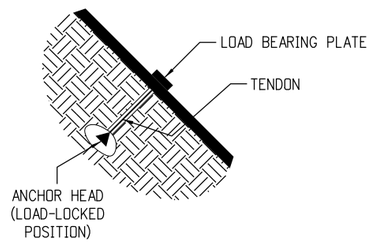
Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO.
M-216-1
Standard Sheet No. 1 of 2
Project Sheet Number:



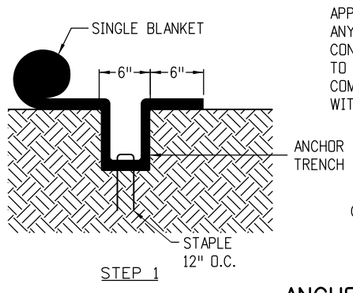
TYPICAL STAPLE OR EARTH ANCHOR PATTERN FOR SLOPE APPLICATION

IF EARTH ANCHORS ARE NOT SPECIFIED ON THE PLANS, ONLY STAPLES SHALL BE USED. SEE SUBSECTION 216.04



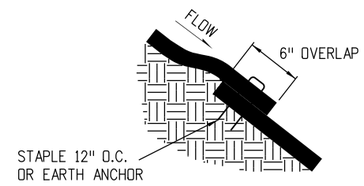
EARTH ANCHOR

NOTES:
1. EARTH ANCHORS WILL BE USED INSTEAD OF STAPLES WHEN SPECIFIED IN THE PLANS.
2. EARTH ANCHORS SHALL BE PAID FOR SEPERATLY AS SPECIFIED IN SECTION 216.



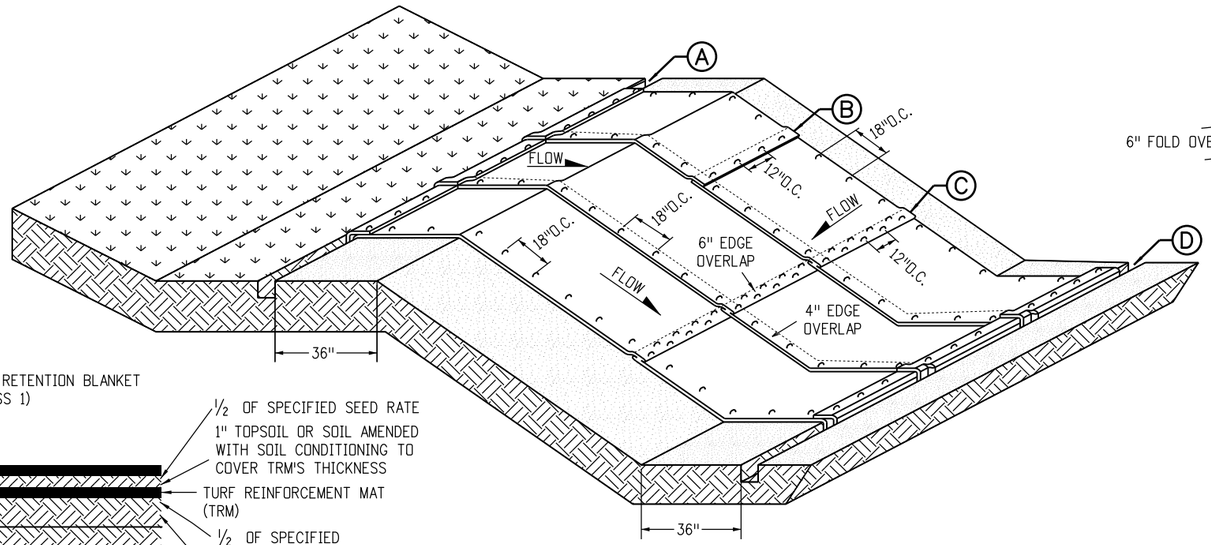
ANCHOR TRENCH (A)

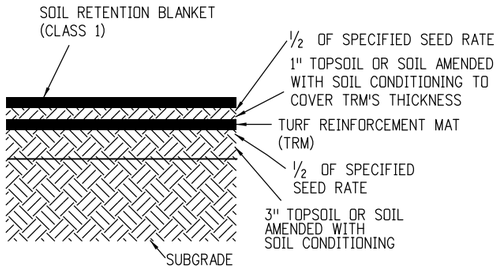
TO BE USED AT THE UPSLOPE AND DOWNSLOPE ENDS OF BLANKET ACROSS THE ENTIRE WIDTH OF SLOPE UNLESS SLOPE RUNS INTO RECEIVING WATER. (SEE DOWNSLOPE END STAPLE CHECK).



CONSECUTIVE ROLL OVERLAP (B)

TO BE USED WHEREVER ONE ROLL OF BLANKET ENDS AND ANOTHER BEGINS WITH THE UPHILL BLANKET PLACED ON TOP OF THE BLANKET ON THE DOWNHILL SIDE.



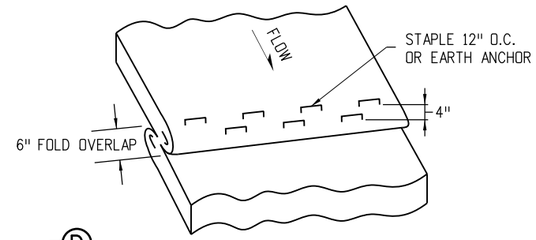


SOIL FILLED TRM APPLICATION

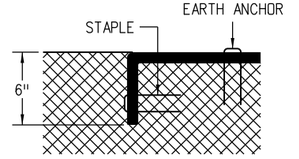
1. PLACE 3" TOPSOIL OR SOIL AMENDED WITH SOIL CONDITIONING.
2. APPLY HALF OF THE SPECIFIED SEED AT THE BROADCAST RATE AND RAKE IT INTO THE SOIL.
3. INSTALL TRM.
4. PLACE 1" TOPSOIL OR SOIL AMENDED WITH SOIL CONDITIONING INTO THE MATRIX TO COVER THE PRODUCT'S THICKNESS.
5. APPLY THE REMAINING HALF OF THE SPECIFIED SEED AT THE BROADCAST RATE AND RAKE IT INTO THE SOIL.
6. INSTALL SOIL RETENTION BLANKET (CLASS 1).

SOIL RETENTION BLANKETS/TURF REINFORCEMENT MATS (TRM) SLOPE APPLICATION

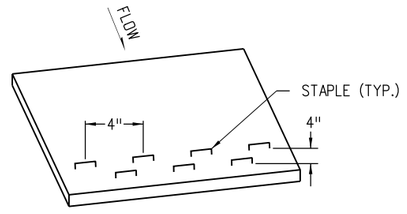
IN ACCORDANCE WITH SECTION 216.



STAPLE CHECK (C)



TERMINATION OF CHANNEL (D)



DOWNSLOPE END STAPLE CHECK

TO BE USED WHEN SLOPE RUNS INTO A RECEIVING WATER AND CANNOT BE EXTENDED 3 FEET BEYOND SLOPE.

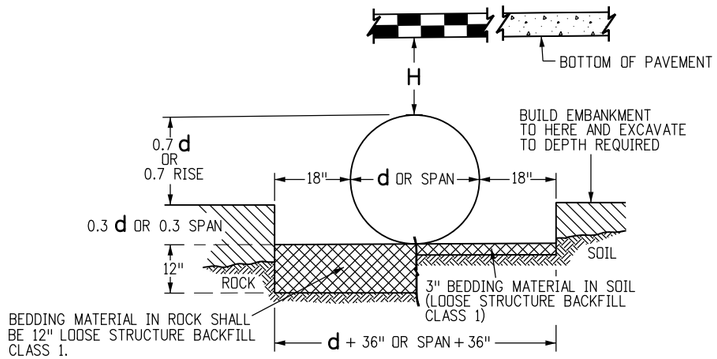
Computer File Information		Sheet Revisions	
Creation Date: 07/31/19		Date:	Comments
Designer Initials: JBK	(R-X)		
Last Modification Date: 07/31/19	(R-X)		
Detailer Initials: LTA	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

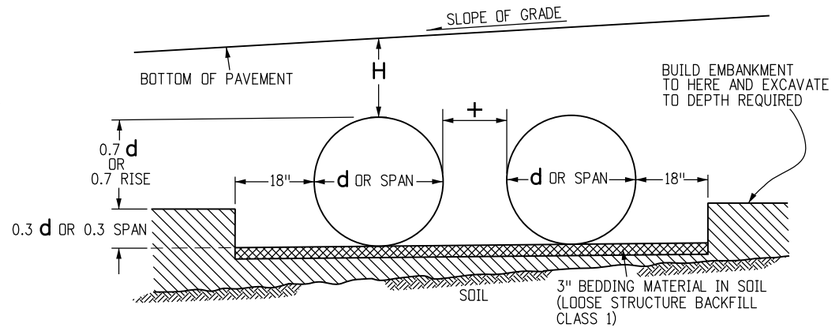
SOIL RETENTION COVERING

Issued by the Project Development Branch: July 31, 2019

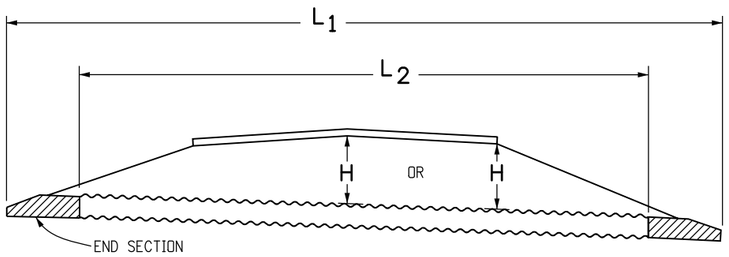
STANDARD PLAN NO.
M-216-1
Standard Sheet No. 2 of 2
Project Sheet Number:



INSTALLATION OF METAL PIPE

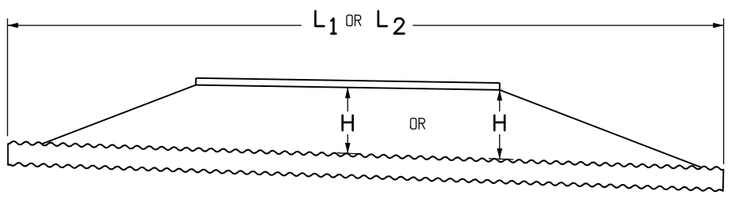


INSTALLATION OF MULTIPLE METAL PIPES



METAL PIPE WITH END SECTIONS

NOTE: USE THE H THAT IS GREATER FOR MAXIMUM ALLOWABLE FILL HEIGHT.

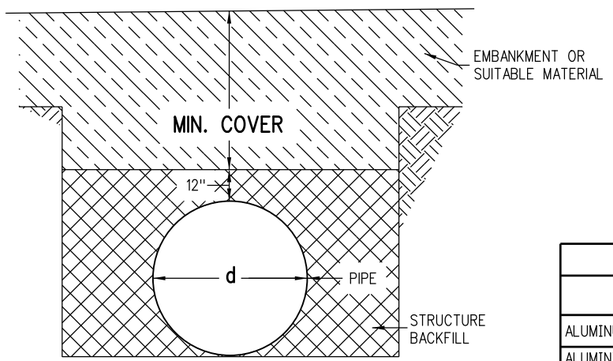


METAL PIPE WITHOUT END SECTIONS

NOTE: USE THE H THAT IS GREATER FOR MAXIMUM ALLOWABLE FILL HEIGHT.

	MINIMUM COVER (IN.) FOR INDICATED AXLE LOADS, kips			
PIPE SPAN (IN.)	18.0 - 50.0	50.0 - 75.0	75.0 - 110.0	110.0 - 150.0
12.0 - 42.0	24	30	36	36
48.0 - 72.0	36	36	42	48
78.0 - 120.0	36	42	48	48
126.0 - 144.0	42	48	54	54

MINIMUM COVER FOR CONSTRUCTION LOADS



CONSTRUCTION MINIMUM COVER FOR PIPE

GENERAL NOTES

1. STEEL PIPES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M36. ALUMINUM PIPES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M196. ALUMINIZED STEEL SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M274.
2. MINIMUM COVER SHALL BE PROVIDED DURING CONSTRUCTION TO PROTECT THE STRUCTURE FROM DAMAGE.
3. PIPE SHALL BE PLACED WITH LONGITUDINAL SEAMS AT THE SIDES OR QUARTER POINTS BUT NOT ALONG TOP OF VERTICAL AXIS.
4. STRUCTURAL PLATE PIPES OF EQUAL OR GREATER DIAMETER THAT CONFORM TO SECTION 510 MAY BE SUBSTITUTED FOR THE PIPES ON THESE SHEETS AT THE CONTRACTOR'S EXPENSE.
5. WHEN A PIPE IS TO BE EXTENDED, THE SAME PIPE MATERIAL AND SIZE AS IN THE ORIGINAL INSTALLATION SHALL BE USED.
6. EXTENSIONS FOR CMP ARCH PIPE SHALL MATCH THE CORRUGATIONS, AND THE SPAN AND RISE DIMENSIONS OF THE PIPE TO BE EXTENDED.
7. WHEN INSTALLING A GUARDRAIL OR A SIGN POST DIRECTLY ABOVE A PIPE, THE BOTTOM OF THE POST MUST BE AT LEAST 1 FOOT ABOVE THE TOP OF THE PIPE. THE HOLE FOR THE POST SHALL BE DRILLED INTO THE SOIL.
8. PIPE ARCH WITH EQUAL PERIPHERY AND WITH SPAN AND RISE DIMENSIONS APPROXIMATELY EQUAL TO THOSE SPECIFIED ON THE PLANS WILL BE PERMITTED.
9. PIPE ARCH IS INTENDED FOR USE WHERE MINIMUM COVER REQUIREMENTS FOR ROUND PIPE CANNOT BE MET. WHEN COVER EXCEEDS 11 FT. USE ROUND PIPE.
10. PIPE COVER GREATER THAN 90 FT. SHALL REQUIRE AN INVESTIGATION OF THE FOUNDATION MATERIAL.

LEGEND

H = THE MAXIMUM ALLOWABLE HEIGHTS OF FILL OVER THE TOP OF THE PIPE, EXCLUDING PAVEMENT THICKNESS, ARE SHOWN IN THE TABLES OF THIS STANDARD.

THE MINIMUM COVER SHALL BE AS SHOWN ON THESE TABLES OR CONFORM TO AASHTO REQUIREMENTS, WHICHEVER IS GREATER.

THE MINIMUM COVER FOR PIPE IS MEASURED FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE PAVEMENT: HMA OR PCCP.

THE MINIMUM COVER IS MEASURED FROM THE TOP OF THE PIPE TO THE TOP OF THE SUBGRADE FOR CONSTRUCTION LOADS.

L_1 = LENGTH OF PIPE TO BE MEASURED WHEN PLACED IN ACCORDANCE WITH SECTION 624.

L_2 = LENGTH OF PIPE TO BE MEASURED WHEN PLACED IN ACCORDANCE WITH SECTION 603.

\+ = THE MINIMUM SPACING BETWEEN THE OUTSIDE WALLS OF MULTIPLE PIPES OR END SECTIONS IS 18" OR ½ d, WHICHEVER IS GREATER, BUT NOT TO EXCEED 36".

CONVERSION OF NOMINAL GAGE TO THICKNESS					
GAGE NO.	16	14	12	10	8
ALUMINUM THICKNESS - IN.	0.060	0.075	0.105	0.135	0.164
ALUMINIZED OR GALVANIZED STEEL THICKNESS - IN.	0.064	0.079	0.109	0.138	0.168

ALLOWED WALL THICKNESS

Computer File Information		Sheet Revisions	
Creation Date: 07/31/19		Date:	Comments
Designer Initials: JBK	(R-X)		
Last Modification Date: 07/31/19	(R-X)		
Detailer Initials: LTA	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

METAL PIPE

Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO.
M-603-1
Standard Sheet No. 1 of 4
Project Sheet Number:

THESE TABLES ARE APPLICABLE FOR THE FOLLOWING LIST OF CORRUGATED STEEL PIPE:

1. GALVANIZED CORRUGATED STEEL PIPE (CSP)
2. ALUMINIZED CORRUGATED STEEL PIPE TYPE 2 (ALT2 CSP)
3. BITUMINOUS COATED CORRUGATED STEEL PIPE (BIT. CO. CSP)
4. ARAMID FIBER BONDED CORRUGATED STEEL PIPE (A.F. BO. CSP)
5. PRECOATED CORRUGATED STEEL PIPE (PCSP- BOTH SIDES)

DIAMETER (IN.)	H MINIMUM COVER (IN.)	PIPE GAGE				
		H MAXIMUM OF COVER (FT.)				
		16	14	12	10	8
12	24	207	259			
15	24	165	207			
18	24	138	172	242		
21	24	118	148	207		
24	24	103	129	181		
30	24	82	103	145		
36	24	68	86	120	155	
42	24	58	73	103	133	163
48	36	51	64	90	103	142
54	36		57	80	93	126
60	36			72	84	114
66	36				77	103
72	36					94
78	36					84
84	36					72

2-⅔" X ½" CORRUGATIONS
CORRUGATED STEEL PIPE

SPAN X RISE (IN. X IN.)	ROUND EQUIVALENT (IN.)	H MINIMUM COVER (IN.)	PIPE GAGE	H MAXIMUM COVER (FT.)
17 X 13	15	24	16	13
21 X 15	18	24	16	12
24 X 18	21	24	16	13
28 X 20	24	24	16	12
35 X 24	30	24	16	12
42 X 29	36	24	16	12
49 X 33	42	24	14	12
57 X 38	48	36	12	12
64 X 43	54	36	12	12
71 X 47	60	36	10	12
77 X 52	66	36	8	12
83 X 57	72	36	8	12

2-⅔" X ½" CORRUGATIONS *
CORRUGATED STEEL PIPE ARCH

* CORNER BEARING PRESSURE OF 2 TONS PER SQ. FT.

DIAMETER (IN.)	H MINIMUM COVER (IN.)	PIPE GAGE	
		H MAXIMUM OF COVER (FT.)	
		16	14
6	24	408	509
8	24	306	382
10	24	244	305

1-½" X ¼" CORRUGATIONS
CORRUGATED STEEL PIPE

DIAMETER (IN.)	H MINIMUM COVER (IN.)	PIPE GAGE				
		H MAXIMUM OF COVER (FT.)				
		16	14	12	10	8
48	36	59	74	104	134	164
54	36	52	65	92	119	146
60	36	47	59	83	107	131
66	36	42	53	75	97	119
72	36	39	49	69	89	109
78	36		45	63	82	101
84	36		42	59	76	93
90	36			55	71	87
96	36			51	66	81
102	36			48	62	77
108	36				59	72
114	36				56	68
120	36				53	65
126	42					62

3" X 1" CORRUGATIONS
CORRUGATED STEEL PIPE

SPAN X RISE (IN. X IN.)	ROUND EQUIVALENT (IN.)	H MINIMUM COVER (IN.)	PIPE GAGE	H MAXIMUM COVER (FT.)
53 X 41	48	36	14	12
60 X 46	54	36	14	20
66 X 51	60	36	14	20
73 X 55	66	36	14	20
81 X 59	72	36	14	17
87 X 63	78	36	14	16
95 X 67	84	36	14	16
103 X 71	90	36	12	16
112 X 75	96	36	12	16
117 X 79	102	36	12	16

3" X 1" CORRUGATIONS *
CORRUGATED STEEL PIPE ARCH

Computer File Information	
Creation Date: 07/31/19	
Designer Initials: JBK	(R-X)
Last Modification Date: 07/31/19	(R-X)
Detailer Initials: LTA	(R-X)
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)

Sheet Revisions	
Date:	Comments

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

METAL PIPE

Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO.
M-603-1
Standard Sheet No. 2 of 4
Project Sheet Number:

DIAMETER (IN.)	H MINIMUM COVER (IN.)	PIPE GAGE				
		H MAXIMUM OF COVER (FT.)				
		16	14	12	10	8
54	36	46	58	82	106	129
60	36		52	74	95	116
66	36		47	66	86	106
72	36			61	79	97
78	36			56	73	89
84	36			53	68	83
90	36				63	77
96	36				59	72
102	36				55	68
108	36					64

5" X 1" CORRUGATIONS
CORRUGATED STEEL PIPE

DIAMETER (IN.)	H MINIMUM COVER (IN.)	PIPE GAGE			
		H MAXIMUM OF COVER (FT.)			
		16	14	12	10
18	24	90	126		
21	24	77	108	181	
24	24	67	95	158	
30	24	54	75	126	
36	24	45	63	105	
42	24	38	54	90	
48	36	33	47	78	114
54	36	29	41	70	101
60	36		37	63	91
66	36		34	57	83
72	36			52	76
78	36			48	70
84	36			44	65
90	36				60
96	36				56
102	36				50

¾" X ¾ 7-½" CORRUGATIONS
CORRUGATED STEEL PIPE

THESE TABLES ARE APPLICABLE FOR THE FOLLOWING LIST OF CORRUGATED STEEL PIPE:
1. GALVANIZED CORRUGATED STEEL PIPE (CSP)
2. ALUMINIZED CORRUGATED STEEL PIPE TYPE 2 (ALT2 CSP)
3. BITUMINOUS COATED CORRUGATED STEEL PIPE (BIT. CO. CSP)
4. ARAMID FIBER BONDED CORRUGATED STEEL PIPE (A.F. BO. CSP)
5. PRECOATED CORRUGATED STEEL PIPE (PCSP- BOTH SIDES)

SPAN X RISE (IN. X IN.)	ROUND EQUIVALENT (IN.)	H MINIMUM COVER (IN.)	PIPE GAGE	H MAXIMUM COVER (FT.)
81 X 59	72	36	12	17
87 X 63	78	36	12	16
95 X 67	84	36	12	16

5" X 1" CORRUGATIONS
CORRUGATED STEEL PIPE ARCH *

* CORNER BEARING PRESSURE OF 2 TONS PER SQ. FT.

SPAN X RISE (IN. X IN.)	ROUND EQUIVALENT (IN.)	H MINIMUM COVER (IN.)	PIPE GAGE	H MAXIMUM COVER (FT.)
20 X 16	18	24	16	16
23 X 19	21	24	16	15
27 X 21	24	24	16	13
33 X 26	30	24	16	13
40 X 31	36	24	16	14
46 X 36	42	24	12	13
53 X 41	48	36	12	13
60 X 46	54	36	12	20
66 X 51	60	36	12	20

¾" X ¾ 7-½" CORRUGATIONS
CORRUGATED STEEL PIPE ARCH *

Computer File Information		Sheet Revisions	
Creation Date: 07/31/19		Date:	Comments
Designer Initials: JBK	(R-X)		
Last Modification Date: 07/31/19	(R-X)		
Detailer Initials: LTA	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

METAL PIPE

Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO.
M-603-1
Standard Sheet No. 3 of 4
Project Sheet Number:

THESE TABLES ARE APPLICABLE FOR THE FOLLOWING LIST OF CORRUGATED STEEL PIPE:

1. GALVANIZED CORRUGATED STEEL PIPE (CSP)
2. ALUMINIZED CORRUGATED STEEL PIPE TYPE 2 (ALT2 CSP)
3. BITUMINOUS COATED CORRUGATED STEEL PIPE (BIT. CO. CSP)
4. ARAMID FIBER BONDED CORRUGATED STEEL PIPE (A.F. BO. CSP)
5. PRECOATED CORRUGATED STEEL PIPE (PCSP- BOTH SIDES)

DIAMETER (IN.)	H MINIMUM COVER (IN.)	PIPE GAGE
		H MAXIMUM OF COVER (FT.)
		16
6	24	247
8	24	185
10	24	148

1-½" X ¼" CORRUGATIONS
CORRUGATED ALUMINUM PIPE

DIAMETER (IN.)	H MINIMUM COVER (IN.)	PIPE GAGE			
		H MAXIMUM OF COVER (FT.)			
		16	14	12	10
18	24	43	61		
21	24	38	52	84	
24	24	33	45	73	
30	24	26	36	58	
36	24	21	30	49	69
42	24		25	41	59
48	36			36	51
54	36			32	46
60	36			29	41
66	36				37
72	36				34

¾" X ¾" 7-½" CORRUGATIONS
CORRUGATED ALUMINUM PIPE

SPAN X RISE (IN. X IN.)	ROUND EQUIVALENT (IN.)	H MINIMUM COVER (IN.)	PIPE GAGE			
			H MAXIMUM OF COVER (FT.)			
			16	14	12	10
20 X 16	18	24	16			
23 X 19	21	24	15			
27 X 21	24	24	13	13		
33 X 26	30	24	13	13	13	
40 X 31	36	24		13	13	
46 X 36	42	24			13	13
53 X 41	48	36			13	13
60 X 46	54	36			20	20
66 X 51	60	36				20

¾" X ¾" 7-½" CORRUGATIONS
CORRUGATED ALUMINUM PIPE ARCH *

DIAMETER (IN.)	H MINIMUM COVER (IN.)	PIPE GAGE				
		H MAXIMUM OF COVER (FT.)				
		16	14	12	10	8
12	24	125	157			
15	24	100	125			
18	24	83	104			
21	24	71	89			
24	24	62	78	109		
27	24		69	97		
30	24		62	87		
36	24		51	73	94	
42	24			62	80	
48	36			54	70	85
54	36			48	62	76
60	36				52	64
66	36					52
72	36					43

2-⅔" X ½" CORRUGATIONS
CORRUGATED ALUMINUM PIPE

SPAN X RISE (IN. X IN.)	ROUND EQUIVALENT (IN.)	H MINIMUM COVER (IN.)	PIPE GAGE	H MAXIMUM COVER (FT.)
17 X 13	15	24	16	13
21 X 15	18	24	16	12
24 X 18	21	24	16	13
28 X 20	24	24	16	12
35 X 24	30	24	16	12
42 X 29	36	24	16	12
49 X 33	42	24	14	12
57 X 38	48	36	12	12
64 X 43	54	36	12	12
71 X 47	60	36	10	12

2-⅔" X ½" CORRUGATIONS
CORRUGATED ALUMINUM PIPE ARCH *

* CORNER BEARING PRESSURE OF 2 TONS PER SQ. FT.

DIAMETER (IN.)	H MINIMUM COVER (IN.)	PIPE GAGE				
		H MAXIMUM OF COVER (FT.)				
		16	14	12	10	8
30	24	57	72	101	135	159
36	24	47	60	84	112	132
42	24	40	51	72	96	113
48	36	35	44	62	84	99
54	36	31	39	55	74	88
60	36	28	35	50	67	79
66	36	25	32	45	61	72
72	36	23	29	41	56	66
78	36		27	38	51	61
84	36			35	48	56
90	36			33	44	52
96	36			31	41	49
102	36				39	46
108	36				37	43
114	36					39
120	36					36

3" X 1" CORRUGATIONS
CORRUGATED ALUMINUM PIPE

SPAN X RISE (IN. X IN.)	ROUND EQUIVALENT (IN.)	H MINIMUM COVER (IN.)	PIPE GAGE	H MAXIMUM COVER (FT.)
60 X 46	54	36	14	20
66 X 51	60	36	14	20
73 X 55	66	36	14	20
81 X 59	72	36	12	16
87 X 63	78	36	12	16
95 X 67	84	36	12	16
103 X 71	90	36	10	16
112 X 75	96	36	8	16

3" X 1" CORRUGATIONS
CORRUGATED ALUMINUM PIPE ARCH *

Computer File Information	
Creation Date: 07/31/19	
Designer Initials: JBK	(R-X)
Last Modification Date: 07/31/19	(R-X)
Detailer Initials: LTA	(R-X)
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)

Sheet Revisions	
Date:	Comments

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

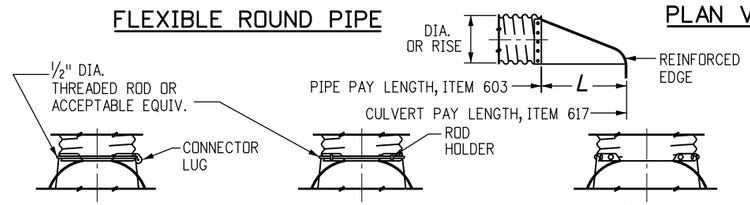
METAL PIPE

Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO.
M-603-1
Standard Sheet No. 4 of 4
Project Sheet Number:

PIPE DIA.	THICKNESS	DIMENSIONS					
		A	B	H	L	W	T
		IN.					
12	0.064	6	6	6	21	24	34
18	0.064	8	10	6	31	36	46
21	0.064	9	12	6	36	42	52
24	0.064	10	13	6	41	48	58
30	0.079	12	16	8	51	60	70
36	0.079	14	19	9	60	72	94
42	0.109	16	22	11	69	84	106
48	0.109	18	27	12	78	90	112
54	0.109	18	30	12	84	102	124
60	0.109	18	33	12	87	114	136
66	0.109	18	36	12	87	120	142
72	0.109	18	39	12	87	126	148
78	0.109	18	42	12	87	132	154
84	0.109	18	45	12	87	138	160

FLEXIBLE ROUND PIPE



TYPE 1

FOR 18 IN. THRU 24 IN. ROUND PIPE WITH ANNULAR CORRUGATIONS. NOT TO BE USED ON HELICALLY-FORMED PIPE UNLESS RECORRUGATED.

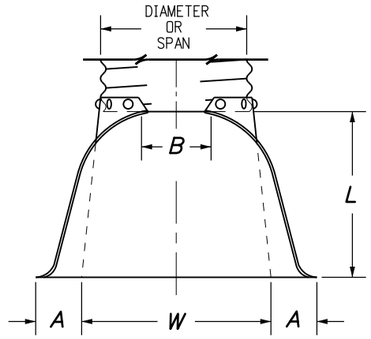
TYPE 2

FOR 30 IN. THRU 36 IN. ROUND PIPE WITH ANNULAR CORRUGATIONS. NOT TO BE USED ON HELICALLY-FORMED PIPE UNLESS RECORRUGATED.

TYPE 3

FOR 42 IN. THRU 84 IN. ROUND PIPE WITH ANNULAR CORRUGATIONS AND ALL SIZES WITH HELICAL CORRUGATIONS AND FOR ALL METAL PIPE ARCH CULVERTS. SHOP ATTACH A 24 IN. MIN. LENGTH OF ANNULAR PIPE WITH GALV. RIVETS OR BOLTS, SPOT WELDS, OR 2 IN. LONG SKIP WELDS ON 8 IN. CTRS. REPAIR BURNT GALVANIZING IN ACCORDANCE WITH SUBSECTION 707.09.

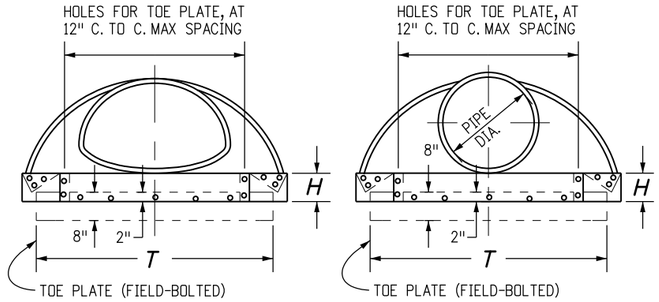
TYPICAL CONNECTIONS



PLAN VIEW

PIPE ARCH SPAN x RISE	THICK-NESS	DIMENSIONS					
		A (±1")	B (MAX.)	H (±1")	L (±1.5")	W (±2")	T
		IN.					
21 x 15	0.064	7	10	6	23	36	46
24 x 18	0.064	8	12	6	28	42	52
28 x 20	0.064	9	14	6	32	48	58
35 x 24	0.079	10	16	6	39	60	70
42 x 29	0.079	12	18	8	46	75	85
49 x 33	0.109	13	21	9	53	85	103
57 x 38	0.109	18	26	12	63	90	108
64 x 43	0.109	18	30	12	70	102	120
71 x 47	0.109	18	33	12	77	114	132

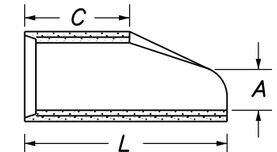
FLEXIBLE PIPE ARCH



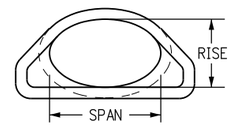
ELEVATIONS

GENERAL NOTES

1. DIMENSIONS OF END SECTIONS MAY VARY SLIGHTLY FROM THOSE SHOWN ON THE TABLES DUE TO DIFFERENT MANUFACTURERS' CONFIGURATIONS.
2. CONCRETE END SECTIONS SHALL BE FURNISHED WITH TONGUE OR GROOVE AS REQUIRED.
3. DESIGN LENGTH OF PIPE OR SIDE DRAIN IS BASED ON LENGTH OF END SECTION SHOWN IN TABLE. ANY ADDITIONAL PIPE REQUIRED TO PROVIDE THE DESIGN LENGTH SHALL BE FURNISHED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE PROJECT.
4. THE INSIDE CONFIGURATION AND THE JOINT OF CONCRETE END SECTION AND PIPE SHALL MATCH.
5. END SECTIONS FOR CMP ARCH PIPE SHALL MATCH THE DIMENSIONS OF THE PIPE SHOWN ON THE PLANS.
6. GALVANIZED TOE PLATE AS SHOWN IS REQUIRED ON END SECTIONS FOR CORRUGATED STEEL PIPE AND SHALL BE THE SAME THICKNESS AS END SECTIONS. TOE PLATE SHALL BE FIELD-BOLTED TO END SECTION WITH ⅜ IN. GALVANIZED BOLTS, NUTS AND WASHERS.
7. GALVANIZED STEEL SHALL CONFORM TO AASHTO M 111, M 218 OR M 232.
8. CONCRETE PIPE JOINT FASTENERS, WHERE SHOWN ON PLANS, SHALL BE INSTALLED SO THAT A MINIMUM OF 15 LINEAR FEET OF THE OUTLET END OF THE PIPE ARE MECHANICALLY LOCKED TOGETHER. END SECTION LENGTHS WHEN USED, SHALL BE INCLUDED IN THE 15 LF REQUIREMENT.
9. CONNECTIONS OF METAL END SECTIONS TO PLASTIC PIPE SHALL BE APPROVED BY THE ENGINEER. PLASTIC END SECTIONS SHALL NOT BE USED.
10. THE END SECTION STYLE, EITHER REGULAR OR SAFETY, SHALL BE AS SHOWN ON THE PLANS.
11. AT THE OPTION OF THE CONTRACTOR AND APPROVAL OF THE CDOT PROJECT ENGINNER, REINFORCED CONCRETE END SECTIONS MAY BE MADE WITH SYNTHETIC FIBERS INSTEAD OF STEEL FOR PIPES 36 INCHES IN DIAMETER AND SMALLER, AND CONFORM TO AASHTO M 86 AND SUBSECTION 601.03.

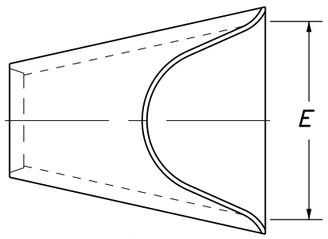


SECTION F-F



END VIEW

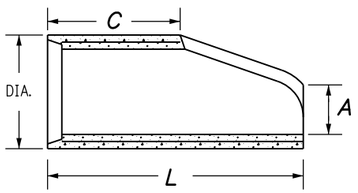
END SECTION AND CONNECTION DETAILS FOR ROUND AND ARCH METAL PIPES



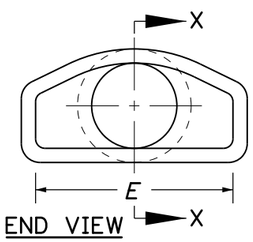
PLAN

PIPE I.D.	DIMENSIONS			
	A	C	L	E
	IN.			
18	10	48	78	36
24	10	48	78	48
30	14	36	96	60
36	18	36	96	72
42	24	36	96	78
48	28	24	96	84
54	30	36	96	90
60	36	36	96	96
72	34	20	96	108

REINFORCED CONCRETE CIRCULAR PIPE

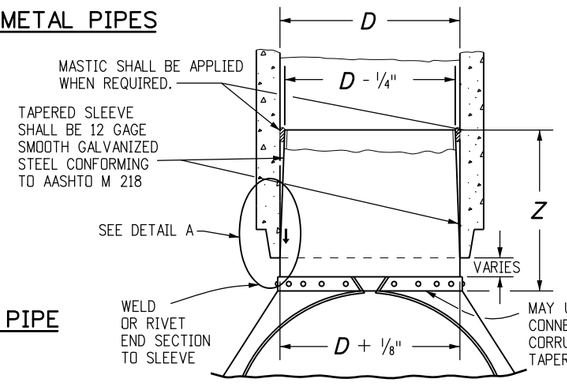


SECTION X-X



END VIEW

END SECTION FOR REINFORCED CONCRETE CIRCULAR PIPE



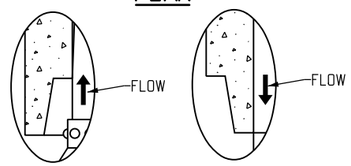
D	Z (MIN.)
IN.	
18 - 24	12
30 AND 36	16
42 AND LARGER	24

NOTE: METAL END SECTION SHALL BE FIRMLY WEDGED INTO PIPE END BEFORE BACKFILLING.

STEEL END SECTION FOR CONCRETE CIRCULAR PIPE

(ALTERNATIVE FOR CONCRETE END SECTION)

PLAN

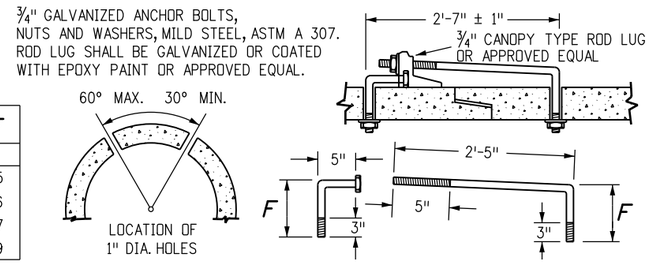


DETAIL A

PIPE DIAMETER	F
IN.	
18 - 30	5
36 - 42	6
48 - 60	7
72 - 84	9

EQUIVALENT CIRCULAR DIA.	DIMENSIONS					
	NOMINAL SPAN x RISE	A	C	L	E	
	IN.					
24	30 x 19	9	33	72	48	
30	38 x 24	10	18	72	60	
36	45 x 29	12	24	84	72	
42	53 x 34	16	36	96	78	
48	60 x 38	21	36	96	84	
54	68 x 43	26	36	96	90	
60	76 x 48	30	36	96	96	

END SECTION FOR REINFORCED CONCRETE ELLIPTICAL PIPE



CONCRETE JOINT FASTENER (TWO PER JOINT)

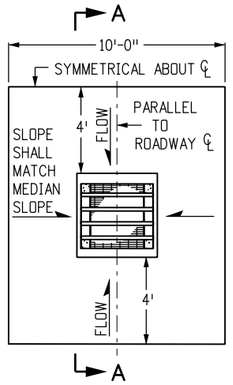
Computer File Information		Sheet Revisions	
		Date:	Comments
Creation Date: 07/31/19			
Designer Initials: JBK	(R-X)		
Last Modification Date: 07/31/19	(R-X)		
Detailer Initials: LTA	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

CONCRETE AND METAL END SECTIONS

Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO.
M-603-10
Standard Sheet No. 1 of 1
Project Sheet Number:

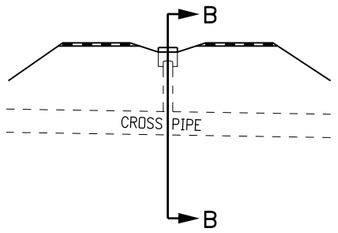


INLET WITH DITCH PAVING

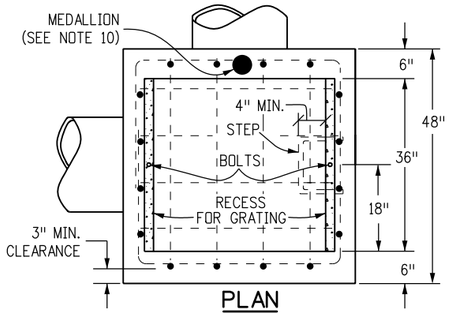
STEEL GRATE QUANTITIES

NO. PIECES	DESCRIPTION	LENGTH	LBS PER FT.	WEIGHT (LBS.)
4	S4 x 7.7 BEAM	41"	7.90	106
2	3½" x ¼" FLAT	26⅝"	2.98	13
2	3" x ¼" FLAT	26⅝"	2.55	12

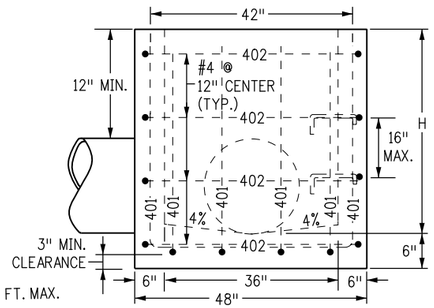
TOTAL LBS. - 131



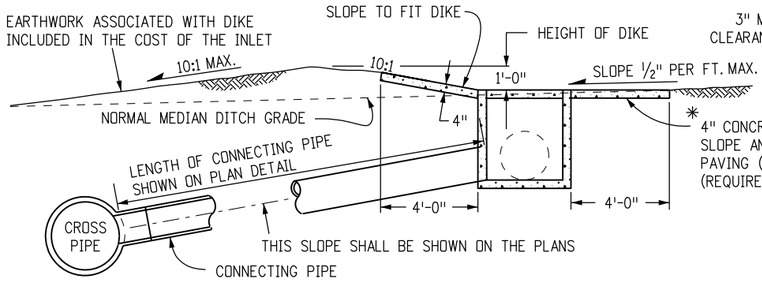
SECTION VIEW



PLAN



ELEVATION CONCRETE INLET

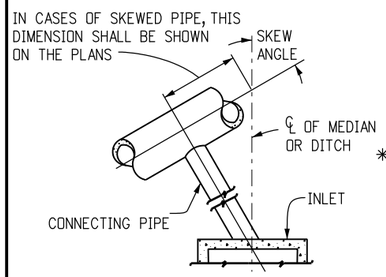


SECTION B-B

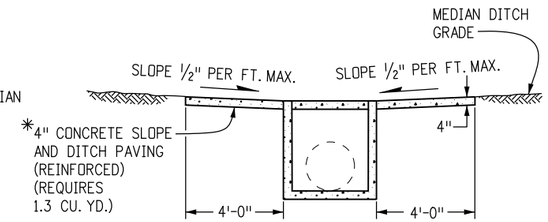
INLET CONNECTED TO A CROSS PIPE

SECTION A-A

INLET ON GRADE (FLOW FROM ONE DIRECTION)



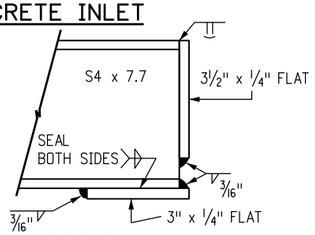
INLET CONNECTED TO A SKEWED CROSS PIPE



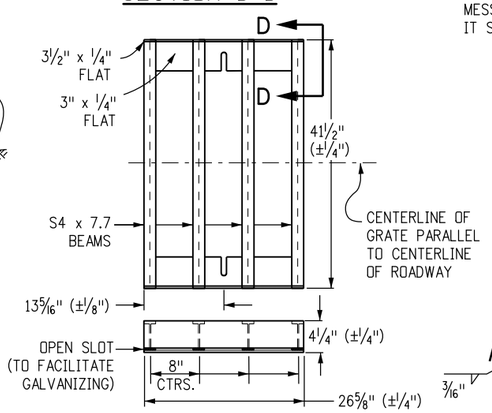
SECTION A-A

*CONCRETE SLOPE AND DITCH PAVING WILL BE REQUIRED WHEN SHOWN ON THE PLANS.

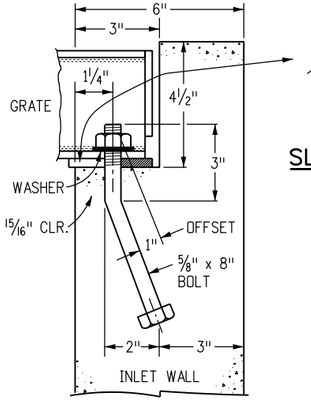
INLET AT BOTTOM OF VERTICAL CURVE (FLOW FROM TWO DIRECTIONS)



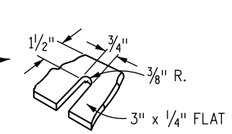
SECTION D-D



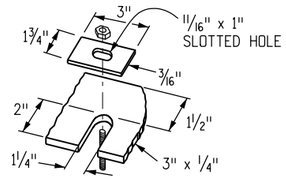
STANDARD INLET GRATE



GRATE INSTALLATION DETAIL



SLOT DETAIL



ALTERNATE SLOT AND HOLD DOWN PLATE DETAIL

GENERAL NOTES

1. INLET TYPE C IS NOT HS-20 RATED AND SHALL NOT BE PLACED IN PAVED ROADWAYS. THIS INLET SHALL BE USED ONLY OUTSIDE PAVED ROADWAYS.
2. CONCRETE SHALL BE CLASS B. INLET MAY BE CAST-IN-PLACE OR PRECAST.
3. REINFORCING BARS SHALL BE GRADE 60, EPOXY COATED, AND DEFORMED #4, AND SHALL HAVE A MIN. 2 INCH CLEARANCE. CUT OR BEND AROUND PIPES AS REQUIRED.
4. CONCRETE SLOPE AND DITCH PAVING SHALL BE IN ACCORDANCE WITH SECTION 507. REINFORCEMENT FOR CONCRETE SLOPE PAVING SHALL BE 6 X 6 - W1.4 X W1.4 OR 6 X 6 - W2.1 X W2.1.
5. STRUCTURAL STEEL FOR GRATES AND GRATE INSTALLATION HARDWARE SHALL BE GALVANIZED, AND SHALL BE IN ACCORDANCE WITH SUBSECTION 712.06.
6. THE STANDARD INLET GRATES SHALL BE USED ON ALL TYPE C INLETS UNLESS CLOSE MESH INLET GRATES ARE SPECIFIED ON THE PLANS.
7. CLOSE MESH GRATES ARE RECOMMENDED WHERE FOOT TRAFFIC OR BICYCLE ROUTES ARE IN CLOSE PROXIMITY TO GRATE. THIS GRATE IS NOT ADA COMPLIANT OR BICYCLE FRIENDLY AND SHALL NOT BE PLACED DIRECTLY IN SIDEWALKS, CROSSWALKS OR BIKE PATHS.
8. STEPS SHALL BE PROVIDED WHEN INLET DIMENSION "H" IS EQUAL TO OR GREATER THAN 3 FEET - 6 INCHES AND SHALL CONFORM TO AASHTO M 199.
9. SEE STANDARD PLAN M-604-11, FOR REINFORCEMENT AROUND THE PIPE OPENING.
10. ALL INLETS SHALL HAVE A 4 INCH DIA. METAL MEDALLION WITH A "NO DUMPING DRAINS TO STREAM" MESSAGE ON IT. THE MEDALLION SHALL HAVE A FISH SYMBOL WITH A BLUE BACKGROUND. IT SHALL BE FIRMLY ATTACHED TO THE TOP OF THE INLET WITH A PERMANENT FASTENER.

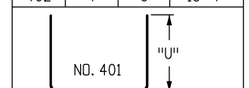
QUANTITIES FOR ONE INLET

H	CONCRETE (CU. YDS.) ▼	STEEL (LBS.) ▼	NO. STEPS REQ'D.
2'-6"	1.0	76	0
3'-0"	1.1	81	0
3'-6"	1.2	97	0
4'-0"	1.3	102	1
4'-6"	1.5	117	2
5'-0"	1.6	123	2
5'-6"	1.7	138	2
6'-0"	1.9	143	3
6'-6"	2.0	159	3
7'-0"	2.1	164	3
7'-6"	2.2	180	4
8'-0"	2.4	185	4
8'-6"	2.5	200	4
9'-0"	2.6	206	5
9'-6"	2.8	221	5
10'-0"	2.9	236	6
11'-6"	3.3	252	6

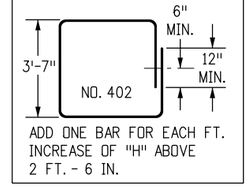
▼ PIPE INSIDE DIAMETER SHALL BE 30 IN. OR LESS. CONCRETE AND STEEL QUANTITIES ARE FOR ONE ENTIRE INLET BEFORE DEDUCTION FOR VOLUME OCCUPIED BY PIPE. WEIGHT OF STEEL INCLUDES A RING FOR THE MAXIMUM PIPE DIAMETER.

BAR LIST FOR H = 2 FT.-6 IN. AND BENDING DIAGRAM

MARK	NO. REQ'D.	HEIGHT	LENGTH
401	2	2'-2½"	8'-0"
401	6	2'-7"	8'-8"
402	4	"U"	15'-4"

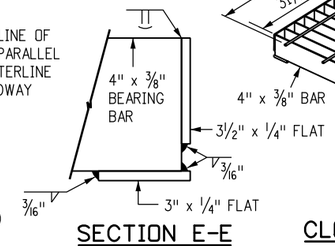


"U" INCREASE DIMENSION 6 IN. FOR EACH 6 IN. INCREASE OF "H" ABOVE 2 FT.-6 IN.

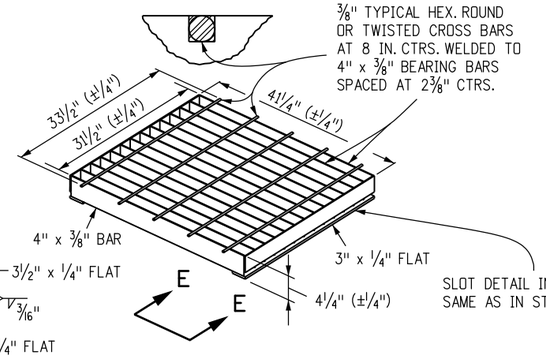


ADD ONE BAR FOR EACH FT. INCREASE OF "H" ABOVE 2 FT. - 6 IN.

402 BARS SHALL BE EQUALLY SPACED FROM EACH OTHER.



SECTION E-E



CLOSE MESH INLET GRATE

Computer File Information		Sheet Revisions	
Creation Date: 07/31/19		Date:	Comments
Designer Initials: JBK	(R-X)		
Last Modification Date: 07/31/19	(R-X)		
Detailer Initials: LTA	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

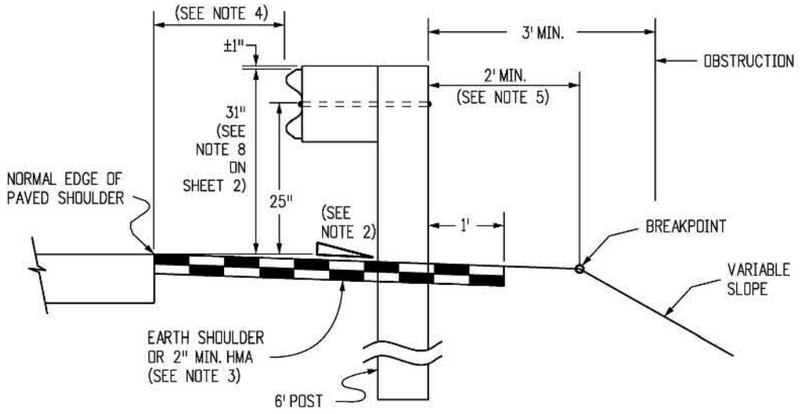
Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

INLET, TYPE C

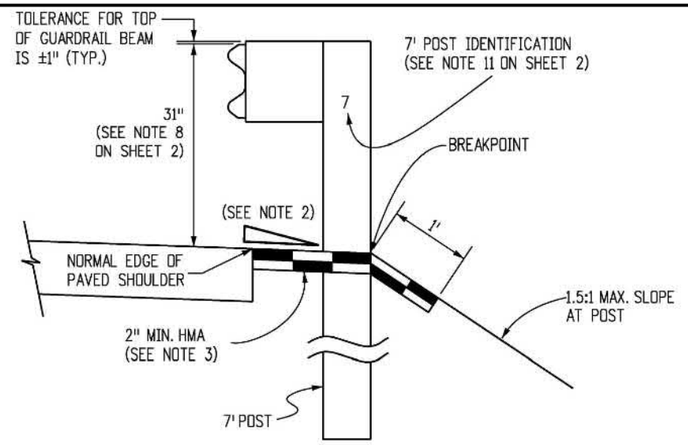
STANDARD PLAN NO.
M-604-10
Standard Sheet No. 1 of 1

Issued by the Project Development Branch: July 31, 2019

Project Sheet Number:

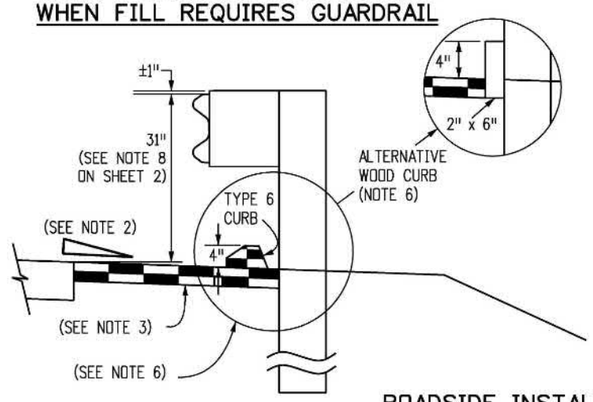


NORMAL ROADSIDE INSTALLATION WHEN FILL REQUIRES GUARDRAIL

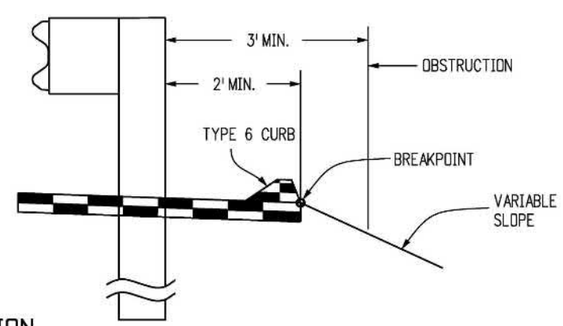


RESTRICTIVE ROADSIDE INSTALLATION WITH 7 FOOT GUARDRAIL POSTS

(SEE NOTE 5)

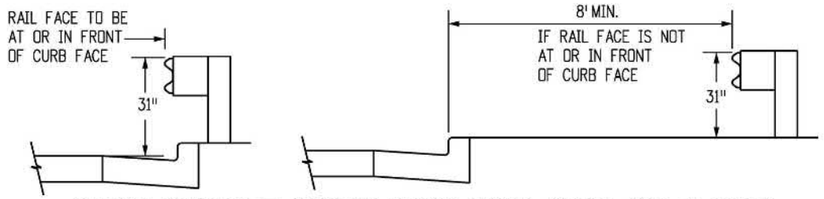


OPTION A



OPTION B (PREFERRED)

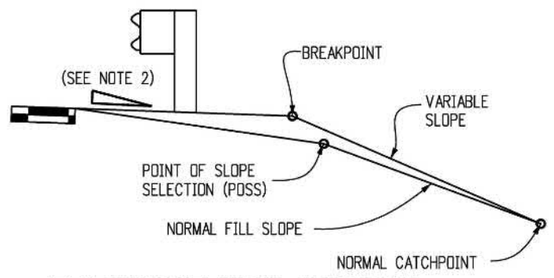
ROADSIDE INSTALLATION WITH EROSION CONTROL CURB



URBAN ROADSIDE INSTALLATION WITH CURB AND GUTTER

LOCATION	SPACING
ALL LOCATIONS EXCEPT BRIDGE RAIL LOCATIONS	6'-3"
BRIDGE OR STRUCTURE APPROACH	SEE SHEETS 11 & 19

NORMAL CENTER-TO-CENTER POST SPACING



EMBANKMENT WITH GUARDRAIL

(NOTE: THE CATCHPOINT REMAINS THE SAME AS THAT FOR "NORMAL" FILL SLOPE. FOR THE WIDER "Z" DISTANCES, THE VARIABLE SLOPE MAY "CATCH" AT THE POSS.)

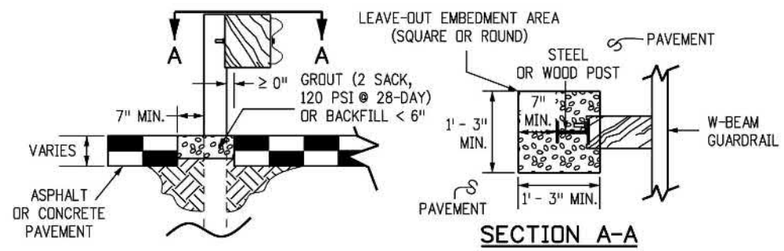
GENERAL NOTES (CONTINUE ON SHEET 2)

1. ALL GUARDRAILS SHOWN ARE MASH 2016 TL-3 COMPLIANT.
2. RATE OF SLOPE DEPENDS ON GUARDRAIL LOCATION:
   A. FOR GUARDRAIL FACE 2 FT. OR LESS FROM THE NORMAL EDGE OF PAVED SHOULDER, CONTINUE THE RATE OF SLOPE OF THE NORMAL PAVED SHOULDER TO THE BREAKPOINT.
   B. FOR GUARDRAIL FACE MORE THAN 2 FT. FROM THE NORMAL EDGE OF THE PAVED SHOULDER, THE SLOPE SHALL BE 10:1 OR FLATTER.
3. WHEN SPECIFIED ON THE PLANS, EXTEND A 2 IN. MINIMUM THICKNESS PAVED SURFACE TO 1 FT. BEHIND THE GUARDRAIL POSTS OR TO THE EROSION CONTROL CURB AS SHOWN ON PLANS. ASPHALT CUTTING & PATCHING OR OTHER APPROVED METHOD SHALL BE USED TO MINIMIZE DAMAGE TO ALL PAVED SURFACES UNDER GUARDRAIL INSTALLATIONS. ALL REPAIRS TO THE PAVED AREA WILL NOT BE MEASURED AND PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE COST OF THE WORK. A MINIMUM 3 IN. THICK FIBER REINFORCED CONCRETE PAVEMENT MAY ALSO BE USED FOR PAVING BENEATH THE GUARDRAIL. INSTALL THE POST IN A $\frac{1}{2}$ IN. OVERSIZED FORMED HOLE FOR GUARDRAIL RUNS AND TERMINALS AS DIRECTED. PAYMENT FOR THIS PAVED SURFACE WILL BE MADE UNDER A PAVEMENT OR CONCRETE PAY ITEM WITH QUANTITIES SHOWN ON THE PLANS.
4. THE MINIMUM GUARDRAIL OFFSET FROM PAVED SHOULDER EDGE SHALL BE:
   0 FT. FOR SHOULDERS 8 FT. OR WIDER
   2 FT. FOR SHOULDERS 6 FT. OR LESS

   THE GUARDRAIL OFFSET FROM PAVED INSIDE SHOULDER EDGE OF A DIVIDED HIGHWAY SHALL BE;
   0 FT. MINIMUM FOR SHOULDERS 6 FT. OR WIDER
   2 FT. DESIRABLE FOR 4 FT. SHOULDERS

   THE ABOVE 2 FT. GUARDRAIL TO SHOULDER OFFSET IS DESIRABLE BUT NOT REQUIRED FOR:
   A. FOR AN EXISTING HIGHWAY WITH A DESIGN SPEED LESS THAN 50 MPH, THE MINIMUM OFFSET IS 4 FT. FROM THE TRAVELED WAY.
   B. FOR A ONE-WAY ONE-LANE RAMP, AND WHERE ONE OR MORE OF THE FOLLOWING ARE TRUE:
      (1) THE NON-OFFSET GUARDRAIL BEGINS AT LEAST 100 FT. BEYOND RAMP NOSE.
      (2) THE NON-OFFSET GUARDRAIL IS NOT LOCATED ON THE RAMP EXIT OR ENTRANCE CURVE CONNECTION TO THE MAJOR HIGHWAY.
      (3) THE RAMP SHOULDERS ARE 4 FT. OR WIDER.

   USE OF GREATER THAN MINIMUM OFFSET DIMENSIONS IS ENCOURAGED TO MEET THE DESIRABLE GOAL OF PLACING THE GUARDRAIL AS FAR AS POSSIBLE FROM THE TRAVEL WAY, EVEN FOR SHORT DISTANCES, WHILE PROVIDING A SMOOTH CHANGE IN GUARDRAIL ALIGNMENT.
5. IF 2 FT. CANNOT BE PROVIDED BETWEEN THE BACK OF THE GUARDRAIL POST AND THE BREAKPOINT, USE 7 FT. GUARDRAIL POSTS. REFER TO THE "RESTRICTIVE ROADSIDE INSTALLATION" DETAIL.
6. WHEN SPECIFIED ON THE PLANS, INSTALL 4 IN. HIGH TYPE 6 CURB WITH ITS FACE AT OR BEHIND THE RAIL FACE. AS AN ALTERNATIVE WHEN SPECIFIED ON THE PLANS, INSTALL A 2 IN. x 6 IN. TREATED (AASHTO M 133) WOOD CURB. FASTEN WITH A 4 IN. LAG BOLT AND WASHER AT EACH WOOD POST, OR WITH A #4 IN. DIA. BOLT WITH WASHER AND NUT AT EACH STEEL POST. IF THE 2 IN. x 6 IN. WOOD CURB IS SPECIFIED, IT WILL BE INCLUDED IN THE COST OF THE GUARDRAIL. IF APPROVED BY THE ENGINEER, A 2 IN. x 4 IN. TREATED WOOD CURB MAY BE SUBSTITUTED FOR THE 2 IN. x 6 IN. CURB AND SET ON TOP OF PAVEMENT SURFACE AND ATTACHED AS DESCRIBED ABOVE. NO SPLICING SHALL BE ALLOWED IN WOOD CURBS. ADJACENT BOARDS SHALL BE BUTTED TOGETHER AND BOLTED AT A POST LOCATION. JOINTS SHALL BE LOCATED AT THE POSTS.



SECTION A-A

LEAVE-OUT AREA FOR GUARDRAIL POSTS LOCATED IN PAVEMENT

NOTE: LEAVE-OUT AREAS SHALL BE PROVIDED FOR ALL GUARDRAIL POSTS LOCATED IN PAVEMENT TO ALLOW THE POSTS TO ROTATE IN THEIR EMBEDMENT SUCH THAT VEHICLE IMPACT LOADS ARE DISTRIBUTED THROUGH THE POST INTO THE EMBEDMENT MATERIAL PRIOR TO THE POSTS BREAKING PREMATURELY.

Computer File Information		Sheet Revisions	
Creation Date: 07/31/19		Date:	Comments
Designer Initials: JBK	(R-X)	03/05/20	Revised Gen. Note 1 to show MASH compliant.
Last Modification Date: 03/05/20	(R-X)		
Detailer Initials: LTA	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

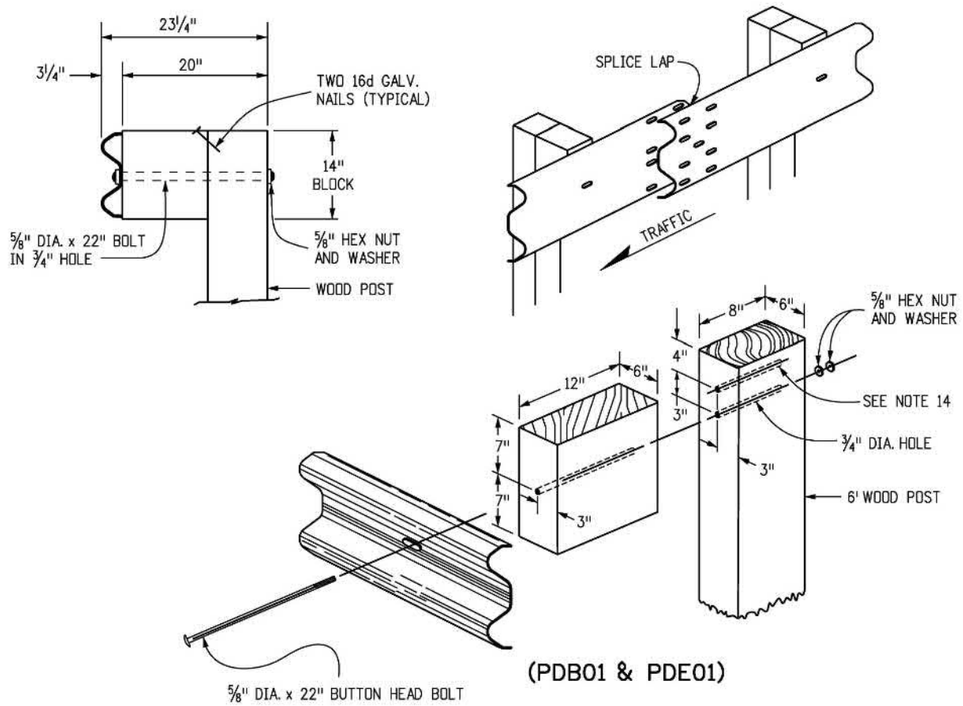
MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 3 W-BEAM 31 INCHES

Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO. M-606-1

Standard Sheet No. 1 of 19

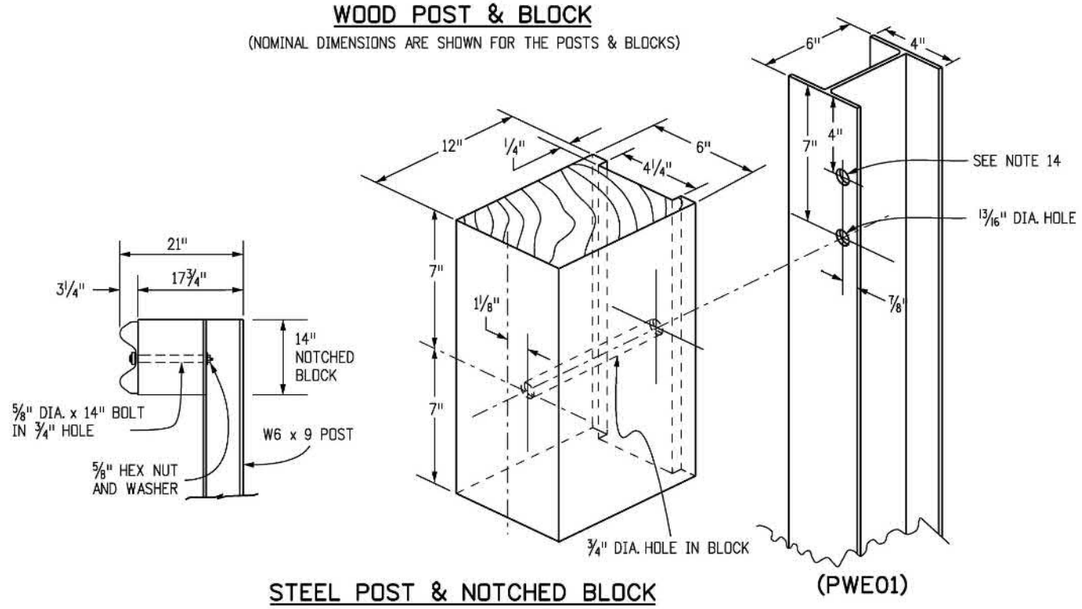
Project Sheet Number:



(PDB01 & PDE01)

WOOD POST & BLOCK

(NOMINAL DIMENSIONS ARE SHOWN FOR THE POSTS & BLOCKS)



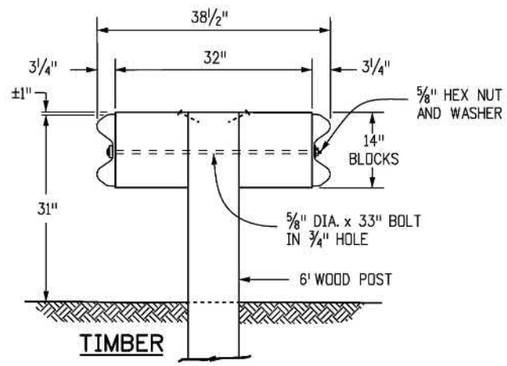
(PWE01)

STEEL POST & NOTCHED BLOCK

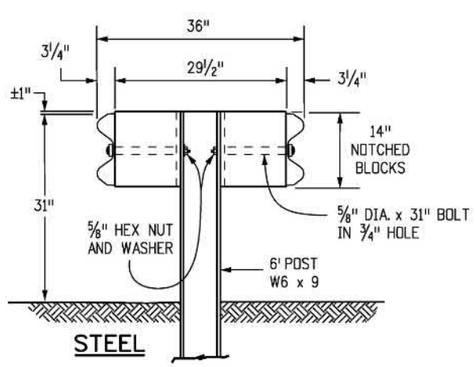
(NOMINAL DIMENSIONS ARE SHOWN FOR THE POSTS & BLOCKS)

GENERAL NOTES (CONTINUED FROM SHEET 1)

7. SEE SHEETS 7 AND 9 FOR CURB TREATMENTS AT GUARDRAIL TERMINALS.
8. IF THIS DIMENSION WILL BE LESS THAN 28 INCHES, RESET GUARDRAIL HEIGHT TO 28 INCHES OR ABOVE.
9. ALL W-BEAM SPLICES, AND SPLICES OF TERMINAL CONNECTORS TO W-BEAM SHALL BE LAPPED IN THE DIRECTION OF TRAFFIC UNLESS OTHERWISE NOTED IN THE PLANS OR BY THE MANUFACTURER.
10. MATERIAL TYPE AND SHAPE OF POSTS AND BLOCKS SHALL BE THE SAME THROUGHOUT THE PROJECT EXCEPT WHEN SPECIFIC POSTS AND BLOCKS ARE SPECIFIED, i.e. AT END ANCHORAGES AND BOX CULVERTS.
11. WHEN SPECIFIED IN THE CONTRACT, 7 FT. POSTS SHALL BE INSTALLED INSTEAD OF THE STANDARD 6 FT. POSTS. THE 7 FT. POSTS SHALL BE MARKED WITH THE NUMBER 7 TO ENSURE PERMANENT INDENTIFICATION. STEEL POSTS SHALL BE STAMPED PRIOR TO GALVANIZING. THE NUMBER 7 SHALL BE A MINIMUM 2 IN. TALL AND LOCATED AS SHOWN ON THE ELEVATION VIEW ON SHEET 1.
12. THE STANDARD 3 IN. X 1¾ IN. X 3⁄16 IN. RECTANGULAR WASHER USED UNDER POST BOLT HEADS IN THE PAST MAY REMAIN IN EXISTING INSTALLATIONS BUT SHALL NOT BE USED IN NEW CONSTRUCTION, REPAIRS, OR RESETTING OF RAIL, EXCEPT WHEN SPECIFICALLY IDENTIFIED ON THE STANDARD PLAN.
13. STANDARD GALVANIZED ROUND STEEL WASHERS SHALL BE USED UNDER ALL NUTS IN CONTACT WITH WOOD POSTS.
14. AN ADDITIONAL HOLE SHALL BE PROVIDED IN THE POSTS TO FACILITATE FUTURE RAISING OF THE RAIL ELEMENTS AND BLOCKS FOR OVERLAYS. POSTS PROVIDED MAY ALSO HAVE ADDITIONAL HOLES (UP TO 4 PER FLANGE) FOR MEDIAN GUARDRAIL APPLICATION.
15. RETROREFLECTOR TABS SHALL BE INSTALLED AT 25 FT. INTERVALS (SEE SHEETS 6 AND 8 FOR EXCEPTIONS). RETROREFLECTOR TABS WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE WORK. THE TABS SHALL BE INSTALLED ON SPLICE BOLTS, NOT ON POST BOLTS AND SHALL BE MOUNTED SO THE BOLT SLOT FACES AWAY FROM TRAFFIC, AND THE RETROREFLECTOR SURFACE FACES THE APPROACHING TRAFFIC FOR ONE-WAY ROADS. FOR TWO-WAY ROADS, BOTH SIDES OF THE TABS SHALL BE RETROREFLECTIVE, SO THAT DELINEATION IS PROVIDED FOR BOTH DIRECTIONS OF TRAVEL. THE RETROREFLECTIVE SHEETING COLOR SHALL MATCH THE COLOR OF THE ADJACENT TRAVEL WAY EDGE LINE. SEE THE RETROREFLECTOR TAB DETAIL ON SHEET 3.
16. AT THE TIME OF INSTALLATION, WOOD POSTS OR BLOCKS WITH SEASONING CHECKS GREATER THAN ¼ IN. SHALL NOT BE USED WHEN THE CHECK EXTENDS THE FULL LENGTH OF THE PIECE.
17. WOOD BLOCKS SHALL BE CUT FROM THE SAME CROSS-SECTION, SPECIES, AND GRADE, AND SHALL RECEIVE THE SAME PRESERVATIVE TREATMENT AS THE POSTS WHEN WOOD POSTS ARE USED.
18. REFERENCES SUCH AS 00PDB01", 00PDE01", AND 00PWE01" IN THIS STANDARD PLAN SPECIFY HARDWARE DETAILS FROM 00A GUIDE TO STANDARDIZED HIGHWAY BARRIER HARDWARE" PREPARED BY THE AASHTO-AGC-ARTBA JOINT COOPERATIVE COMMITTEE.
19. RAIL BLOCKS MANUFACTURED FROM SYNTHETIC MATERIAL WILL BE ACCEPTED AS ALTERNATIVES TO WOOD BLOCKS FOR USE WITH STEEL POSTS PROVIDED THAT THE BLOCKS HAVE RECEIVED FHWA APPROVAL.
20. WOOD POSTS SHALL BE MADE OF TIMBER WITH AN EXTREME FIBER STRESS IN BENDING OF 1200 PSI STRESS GRADING AND POST DIMENSIONS SHALL CONFORM WITH THE RULES OF THE WEST COAST INSPECTION BUREAU, OR THE SOUTHERN PINE BUREAU, OR THE WESTERN WOOD PRODUCTS ASSOCIATION. TIMBER FOR POSTS SHALL BE EITHER ROUGH SAWN (UNPLANED) OR S4S (SURFACED FOUR SIDES) WITH NOMINAL DIMENSIONS INDICATED. ONLY ONE TYPE OF SURFACE FINISH SHALL BE USED FOR POSTS AND BLOCKS IN ANY ONE CONTINUOUS LENGTH OF GUARDRAIL.
21. GLULAM POSTS AND BLOCKS WILL BE ACCEPTED AS ALTERNATIVES PROVIDED THAT THE SUPPLIED MATERIALS HAVE RECEIVED FHWA APPROVAL AND ARE CERTIFIED AS IDENTICAL TO THE SPECIMENS USED FOR TESTING AND APPROVAL.
22. PRESSURE TREATMENT OF POSTS AND BLOCKS SHALL CONFORM TO AASHTO M 133 EXCEPT THAT BLOCKS NEED NOT BE INCISED. PRESERVATION ASSAY RETENTION REPORTS SHALL BE SUBMITTED TO THE ENGINEER. THE CONTRACTOR SHALL CERTIFY THAT THE SPECIES AND GRADE MEET THE REQUIREMENTS OF THE CONTRACT.
23. W-BEAM AND THRIE-BEAM GUARDRAIL POSTS SHALL BE MANUFACTURED USING AASHTO M 270 (ASTM A 709) GRADE 36 STEEL UNLESS CORROSION RESISTANT STEEL IS REQUIRED, IN WHICH CASE THE POST SHALL BE MANUFACTURED FROM AASHTO M 270 (ASTM A 709) GRADE 50W STEEL. THE DIMENSIONS OF THE CROSS-SECTION SHALL CONFORM TO A W6 X 9 SECTION AS DEFINED IN AASHTO M 160 (ASTM A 6). W6 X 8.5 WIDE FLANGE STEEL POSTS ARE AN ACCEPTABLE ALTERNATIVE TO THE W6 X 9.
24. AFTER THE SECTION IS CUT AND ALL HOLES ARE DRILLED OR PUNCHED THE COMPONENT SHALL BE ZINC-COATED CONFORMING TO AASHTO M 111 (ASTM A 123) UNLESS CORROSION-RESISTANT STEEL IS USED. WHEN CORROSION-RESISTANT STEEL IS USED THE PORTION OF THE POST TO BE EMBEDDED IN SOIL SHALL BE ZINC-COATED CONFORMING TO AASHTO M 111 (ASTM A 123) AND THE PORTION ABOVE THE SOIL SHALL NOT BE ZINC-COATED, PAINTED OR OTHERWISE TREATED.
25. FIELD MODIFICATION TO RAIL ELEMENTS IS ALLOWED PER MANUFACTURER'S RECOMMENDATIONS, OR WITH THE APPROVAL OF THE STANDARDS AND SPECIFICATIONS UNIT. POSTS SHALL NOT BE MODIFIED. COMPONENTS ON WHICH THE SPELTER COATING HAS BEEN DAMAGED SHALL BE EITHER REGALVANIZED OR RECOATED IN CONFORMANCE WITH AASHTO M 36, OR PAINTED WITH ONE FULL BRUSH COAT OF ZINC RICH PAINT CONFORMING TO MILITARY SPECIFICATION DOD-P-21035A.



TIMBER



STEEL

DOUBLE BLOCK AND GUARDRAIL TYPE 3 (DOUBLE) FOR MEDIAN BARRIER

Computer File Information		Sheet Revisions	
		Date:	Comments
Creation Date: 07/31/19			
Designer Initials: JBK	(R-X)		
Last Modification Date: 03/05/20	(R-X)		
Detailer Initials: LTA	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

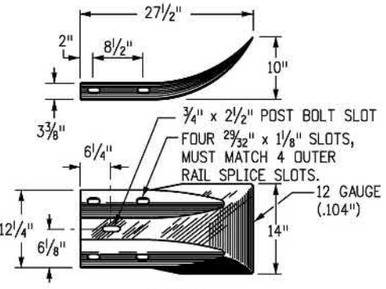
MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 3 W-BEAM 31 INCHES

Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO. M-606-1

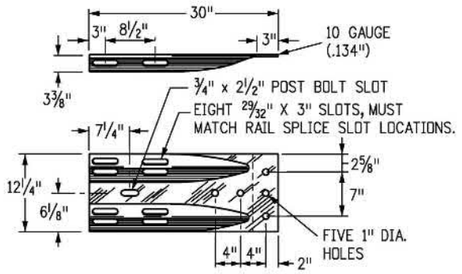
Standard Sheet No. 2 of 19

Project Sheet Number:

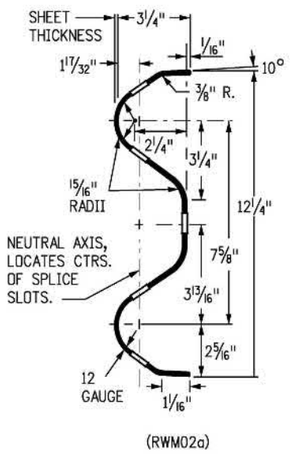


(RWE01a)

TERMINAL SECTION (FLARED)

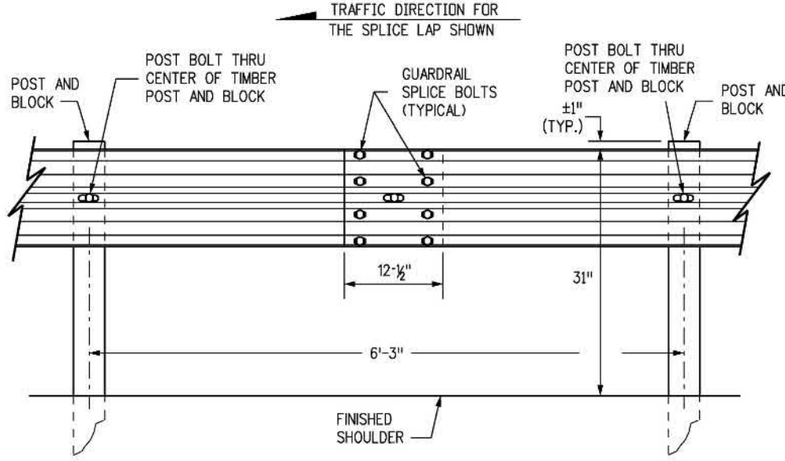


TERMINAL SECTION (CONNECTOR)



(RWM02a)

W-BEAM RAIL SECTION

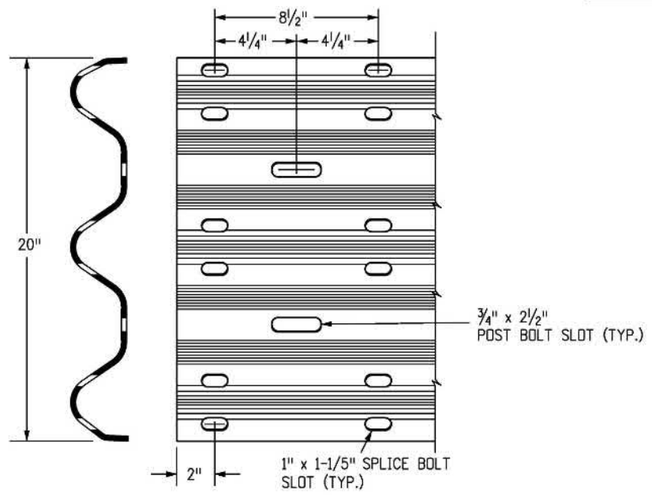


W-BEAM RAIL SPLICE

PART	MATERIAL SPEC.	GALVANIZING SPEC.	CORROSION-RESISTANT SPEC.
W-BEAM RAIL & TERMINAL SECTIONS	AASHTO M 180, CLASS A OR B	AASHTO M 180, TYPE 1 OR 2	AASHTO M 180, TYPE 4
BASE PLATE	ASTM A 36	AASHTO M 111	N.A.
NUTS, BOLTS & STUDS FOR GENERAL USE	ASTM A 307	AASHTO M 232, CLASS C OR ASTM B 695 CLASS 50 TYPE 1	
HIGH STRENGTH BOLTS & NUTS	ASTM A 325		
HIGH STRENGTH STUDS & NUTS	ASTM A 449		
ROUND STEEL WASHERS	ASTM F 436		
RECTANGULAR WASHERS	AASHTO M 180		
OTHER FITTINGS	ASTM A 36	AASHTO M 111	

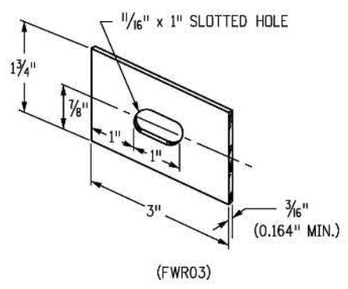
THE TABULATION OF GUARDRAIL WILL SPECIFY THE TYPE OF CORROSION PROTECTION: GALVANIZED OR CORROSION - RESISTANT STEEL.

STEEL POSTS SHALL HAVE THE SAME CORROSION PROTECTION AS SPECIFIED FOR THE METAL BEAM RAIL. PUNCHING, DRILLING, CUTTING, OR WELDING OF POSTS WILL NOT BE PERMITTED AFTER GALVANIZING.



THRIE BEAM TERMINAL SECTION (CONNECTOR)

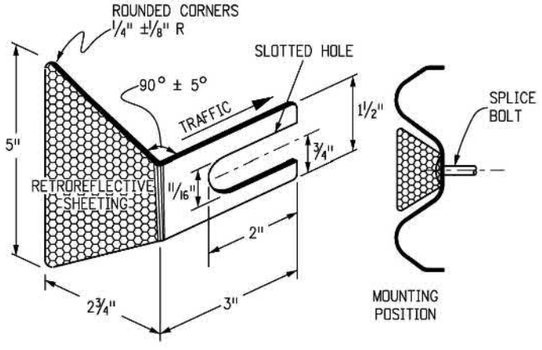
THRIE BEAM DETAIL



(FWR03)

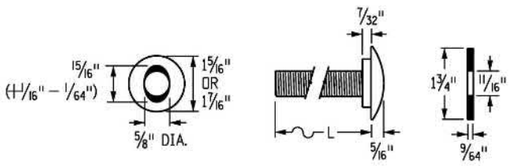
RECTANGULAR WASHER

(TO BE USED ONLY WHERE SPECIFIED.)



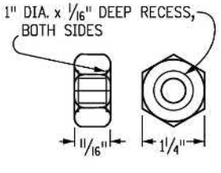
RETROREFLECTOR TAB

NOTE: RETROREFLECTOR TABS SHALL BE MANUFACTURED FROM 12 TO 14 GAUGE STEEL AND SHALL CONFORM TO THE REQUIREMENTS OF S STANDARD S-612-1.



BUTTON HEAD BOLT WITH OVAL SHOULDER

WASHER



HEX NUT

DIAMETER & TYPE (INCHES)	12" BLOCKS L = LENGTH (INCHES)	THREAD LENGTH (INCHES)	INTENDED USE	AASHTO-AGC-ARTBA STANDARD NUMBER	NO. BOLTS, NUTS & WASHERS
⅝	1¼	FULL (1 1/32)	ALL RAIL SPLICES	FBB01	8 PER SPLICE*
BUTTONHEAD OVAL SHLDR.	22	MIN. 2½	SINGLE BLOCK & POST (TIMBER)	FBB04	1 PER POST
	33	MIN. 2	DOUBLE BLOCK & POST (TIMBER)	FBB05	1 PER POST
	14	MIN. 2	FASTEN NOTCHED BLOCK TO STEEL POST	FBB03	1 PER BLOCK
WASHERS NOT USED AT RAIL SPLICES					

Computer File Information		Sheet Revisions	
		Date:	Comments
Creation Date: 07/31/19			
Designer Initials: JBK	(R-X)		
Last Modification Date: 03/05/20	(R-X)		
Detailer Initials: LTA	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

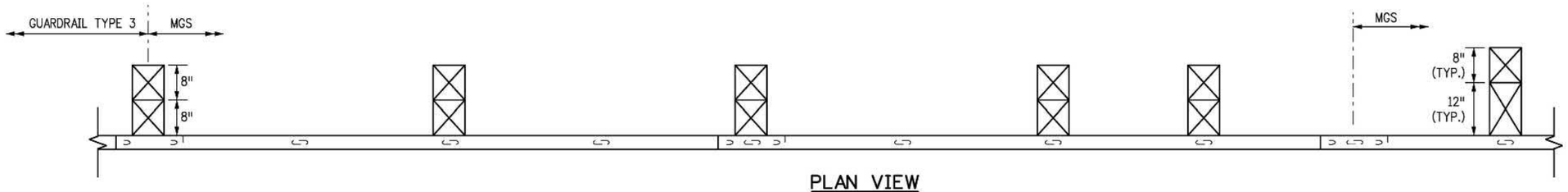
MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 3 W-BEAM 31 INCHES

Issued by the Project Development Branch: July 31, 2019

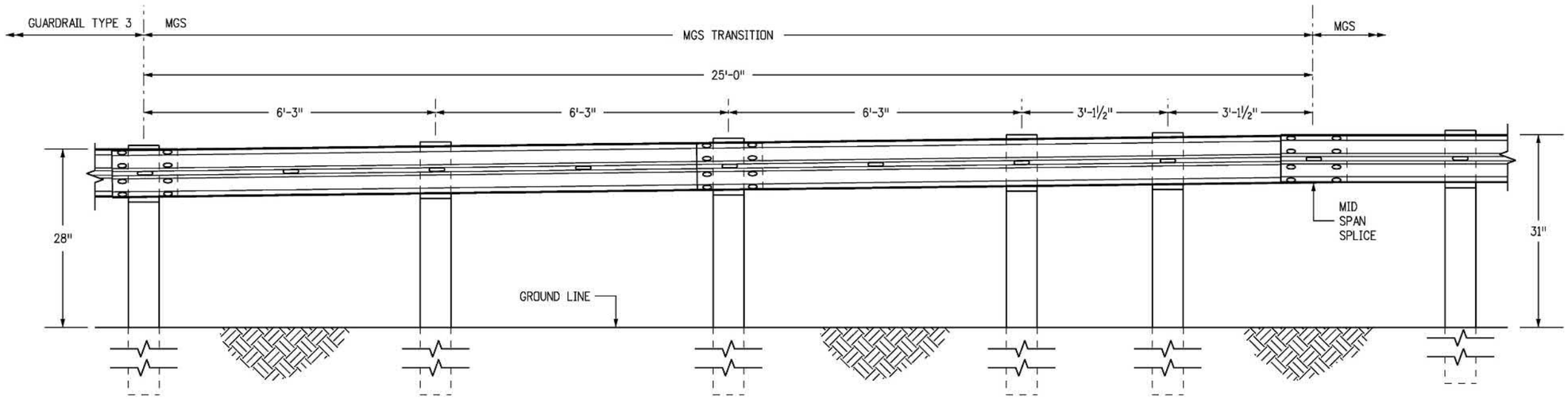
STANDARD PLAN NO.
M-606-1
Standard Sheet No. 3 of 19
Project Sheet Number:

NOTES

1. THE MGS TRANSITION FROM A TYPE 3 GUARDRAIL SHALL BE COMPLETED OUTSIDE THE MGS END ANCHORAGE LIMITS.

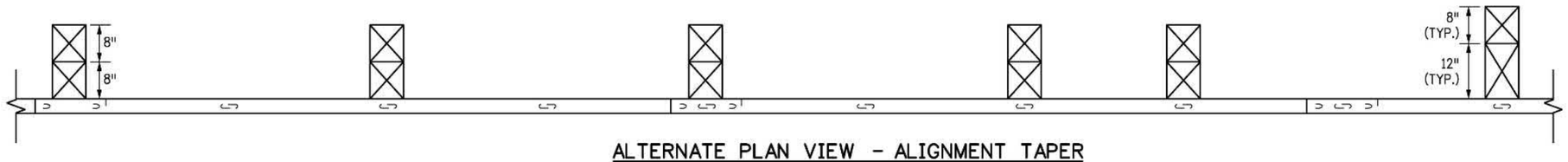


PLAN VIEW



ELEVATION VIEW

TRANSITION FROM 28 INCH GUARDRAIL TO 31 INCH MGS



ALTERNATE PLAN VIEW - ALIGNMENT TAPER

Computer File Information		Sheet Revisions	
Creation Date: 07/31/19		Date:	Comments
Designer Initials: JBK	(R-X)		
Last Modification Date: 03/05/20	(R-X)		
Detailer Initials: LTA	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

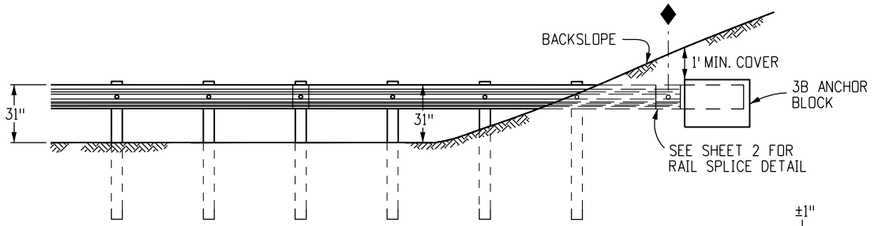
Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 3 W-BEAM 31 INCHES

Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO. M-606-1

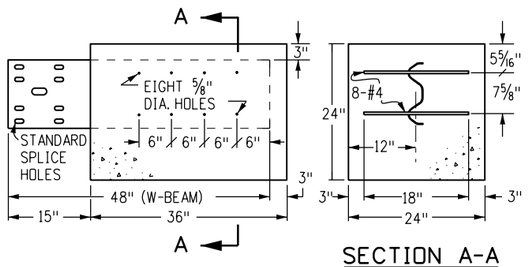
Project Sheet Number:



SEE TYPE 3B (RUB RAIL) PLAN VIEW FOR ALIGNMENT. THE 100 FT. FLARE LENGTH MAY BE SHORTENED IF THE SLOPE IS LESS THAN 8 FT. WIDE.

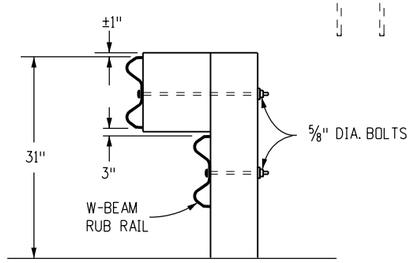
END ANCHORAGE TYPE 3B

(MAX. 10:1 AND NO ROADSIDE DITCH AT GUARDRAIL)



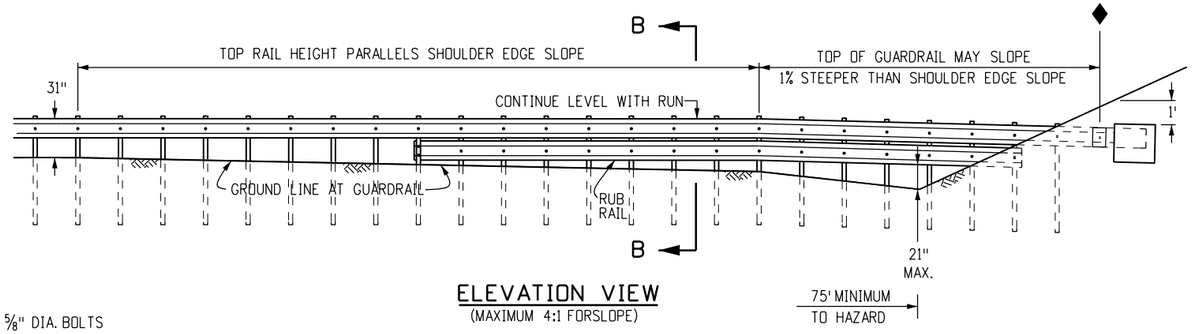
SECTION A-A

TYPE 3B ANCHOR BLOCK DETAIL



SECTION B-B

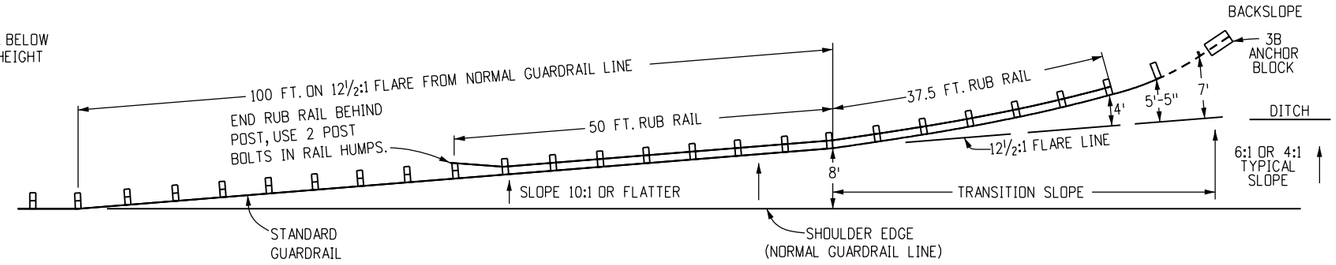
MOUNT A W-BEAM RUB RAIL 1-1/2 IN. BELOW THE TOP RAIL WHEN THE TOP RAIL HEIGHT EXCEEDS 33 IN. ABOVE THE GROUND



ELEVATION VIEW

(MAXIMUM 4:1 FORSLOPE)

TOP OF GUARDRAIL MAY SLOPE
1% STEEPER THAN SHOULDER EDGE SLOPE

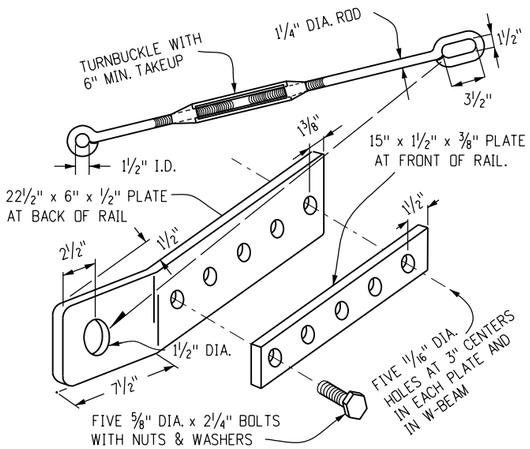


PLAN VIEW

◆ END OF GUARDRAIL PAY LENGTH

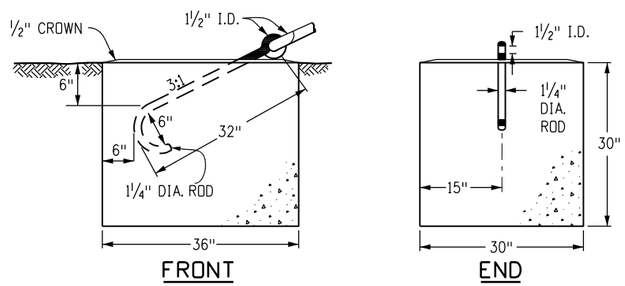
END ANCHORAGE TYPE 3B (RUB RAIL)

(WITH ROADSIDE DITCH AT GUARDRAIL)



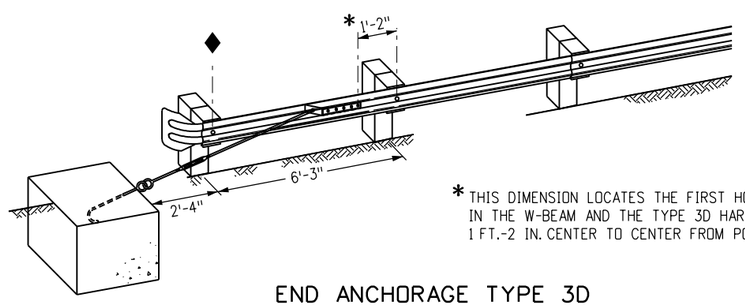
TYPE 3D HARDWARE DETAILS

NOTE: ALL PARTS SHALL BE GALVANIZED



FRONT END

TYPE 3D ANCHOR BLOCK DETAIL



* THIS DIMENSION LOCATES THE FIRST HOLE IN THE W-BEAM AND THE TYPE 3D HARDWARE. 1 FT.-2 IN. CENTER TO CENTER FROM POST BOLT HOLE.

END ANCHORAGE TYPE 3D DEPARTURE TERMINAL

Computer File Information		Sheet Revisions	
Creation Date: 07/31/19		Date:	Comments
Designer Initials: JBK	(R-X)		
Last Modification Date: 03/05/20	(R-X)		
Detailer Initials: LTA	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

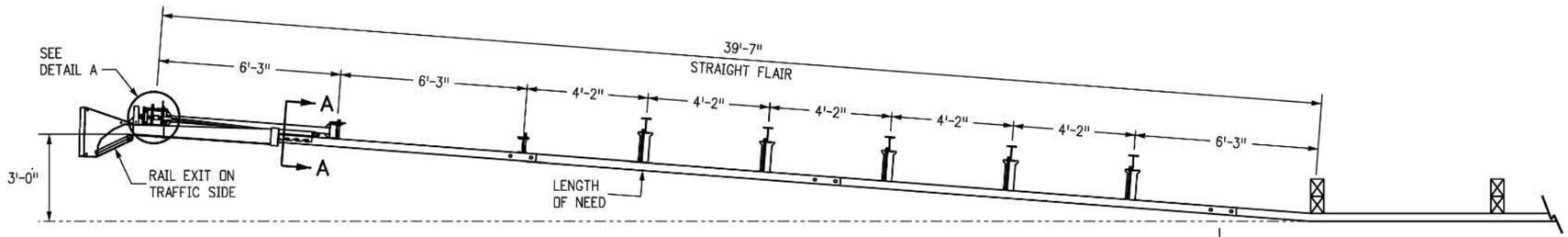
MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 3 W-BEAM 31 INCHES

Issued by the Project Development Branch: July 31, 2019

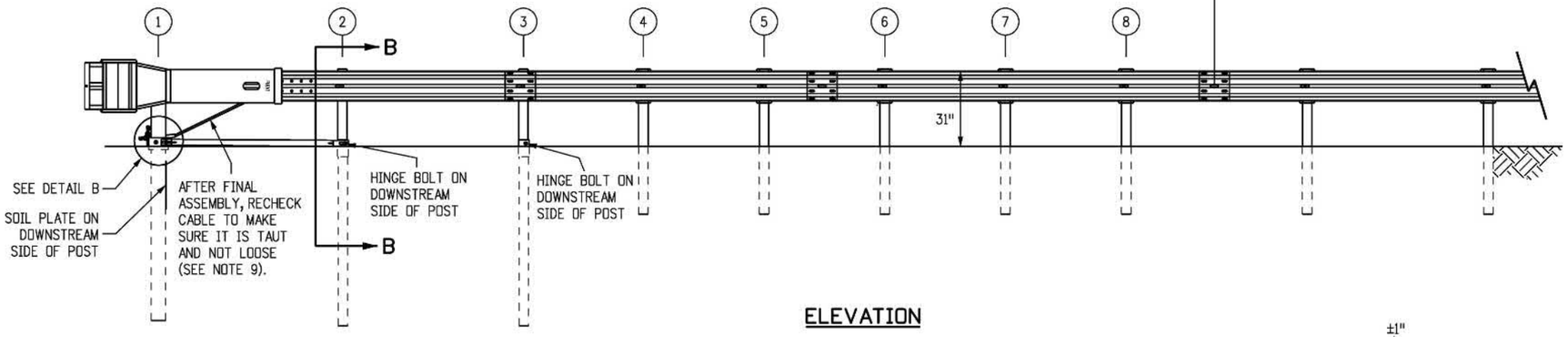
STANDARD PLAN NO.
M-606-1
Standard Sheet No. 5 of 19
Project Sheet Number:

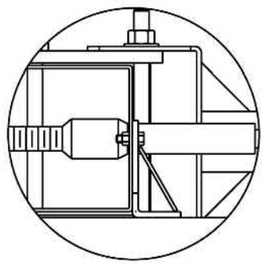
OFFSET NOTES

1. POST OFFSET DIMENSIONS ARE GIVEN TO THE CENTER OF THE TRAFFIC FACE OF POSTS.
2. THE GUARDRAIL BETWEEN POST (1) THRU (8) IS ON A STRAIGHT LINE FLARE.

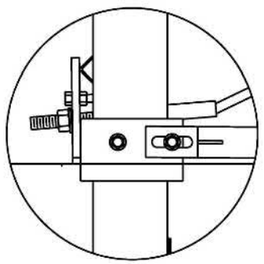


PLAN



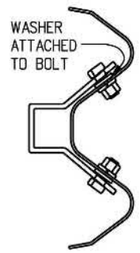


DETAIL A
IMPACT HEAD CONNETION

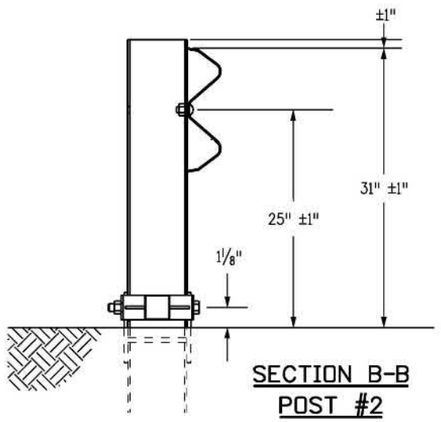


DETAIL B
POST #1 CONNECTION

ELEVATION



SECTION A-A
ANCHOR BRACKET



SECTION B-B
POST #2

NOTES

1. THE END ANCHORAGE (FLARED) SHALL BE THE MFLEAT TERMINAL, AS MANUFACTURED BY ROAD SYSTEMS INC. (TELEPHONE #: 432-263-2435). ONE END ANCHORAGE (FLARED) SHALL INCLUDE ALL POST, RAIL, AND ALL HARDWARE ITEMS REQUIRED FOR A COMPLETE UNIT. THE END ANCHORAGE (FLARED) SHALL BE INSTALLED CONFORMING TO THE MANUFACTURER'S RECOMMENDATIONS. THE CONTRACTOR SHALL PROVIDE A COPY OF THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND PARTS LIST TO THE ENGINEER PRIOR TO INSTALLATION OF THE DEVICE.
2. RETROREFLECTOR TABS SHALL NOT BE USED ON END ANCHORAGE POSTS.
3. DELINEATION SHALL BE APPLIED TO THE END PIECE, AND SHALL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE WORK.
4. AESTHETIC TREATMENT OPTIONS MAY BE AVAILABLE WITH PRIOR APPROVAL OF THE PROJECT ENGINEER. CONTACT THE MANUFACTURER FOR APPROVED AESTHETIC TREATMENT OPTIONS.
5. ALL BOLTS, NUTS, CABLE ASSEMBLIES, CABLE ANCHORS AND BEARING PLATES SHALL BE GALVANIZED.
6. THE LOWER SECTIONS OF THE POSTS 1, 2, AND 3 SHALL NOT PROTRUDE MORE THAN 4 INCHES ABOVE THE GROUND (MEASURED ALONG A 5 FOOT CORD). SITE GRADING MAY BE NECESSARY TO MEET THIS REQUIREMENT.
7. THE LOWER SECTIONS OF THE HINGED POSTS SHOULD NOT BE DRIVEN WITH THE UPPER POST ATTACHED. IF THE POST IS PLACED IN A DRILLED HOLE, THE BACKFILL MATERIAL MUST BE SATISFACTORILY COMPACTED TO PREVENT SETTLEMENT.
8. WHEN COMPETENT ROCK IS ENCOUNTERED, A 12 INCH DIA. POST HOLE, DRILLED 20 INCHES DEEP INTO THE ROCK SURFACE SHALL BE USED IF APPROVED BY THE ENGINEER FOR POSTS 1 AND/OR 2. GRANULAR MATERIAL SHALL BE PLACED IN THE BOTTOM OF THE HOLE, APPROXIMATELY 2.5 INCHES DEEP TO PROVIDE DRAINAGE. THE FIRST AND/OR SECOND POST SHALL BE FIELD CUT TO LENGTH, PLACED IN THE HOLE AND BACKFILLED WITH SUITABLE BACKFILL. THE SOIL PLATE MAY BE TRIMMED IF REQUIRED.
9. THE BREAKAWAY CABLE ASSEMBLY SHALL BE TAUT. A LOCKING DEVICE (VICE GRIPS OR CHANNEL LOCK PLIERS) SHOULD BE USED TO PREVENT THE CABLE FROM TWISTING WHEN TIGHTENING NUTS.

MFLEAT TERMINAL

(MASH CERTIFIED)

END ANCHORAGES (FLARED)

Computer File Information		Sheet Revisions	
Creation Date: 07/31/19		Date:	Comments
Designer Initials: JBK	(R-X)	03/05/20	Replaced the SRT-31 and FLEAT 350 flared terminals with the MFLEAT flared terminal to be MASH compliant.
Last Modification Date: 03/05/20	(R-X)		
Detailer Initials: LTA	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

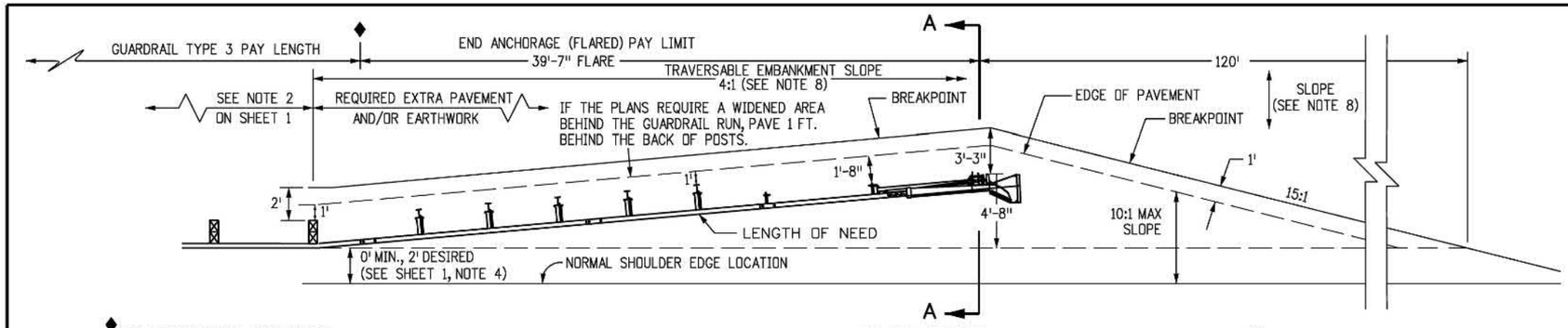
MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 3 W-BEAM 31 INCHES

Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO. M-606-1

Standard Sheet No. 6 of 19

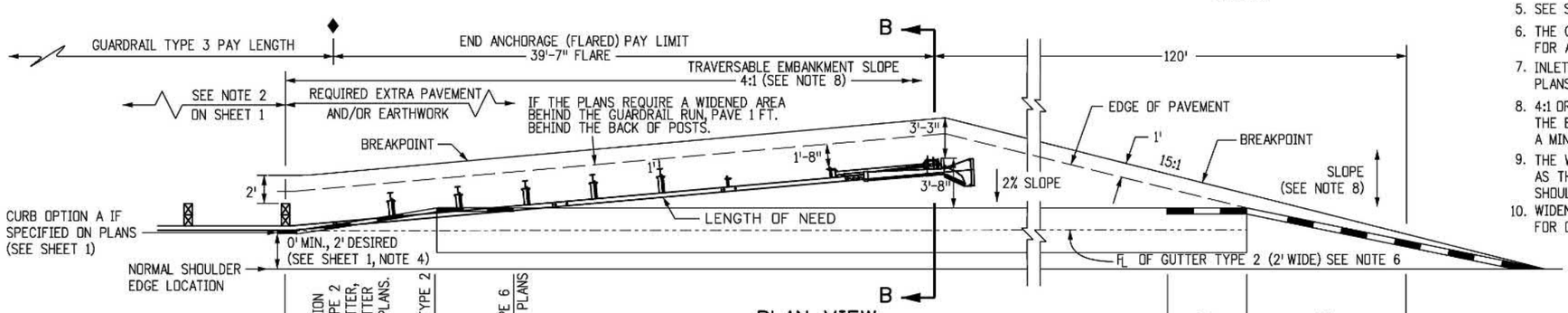
Project Sheet Number:



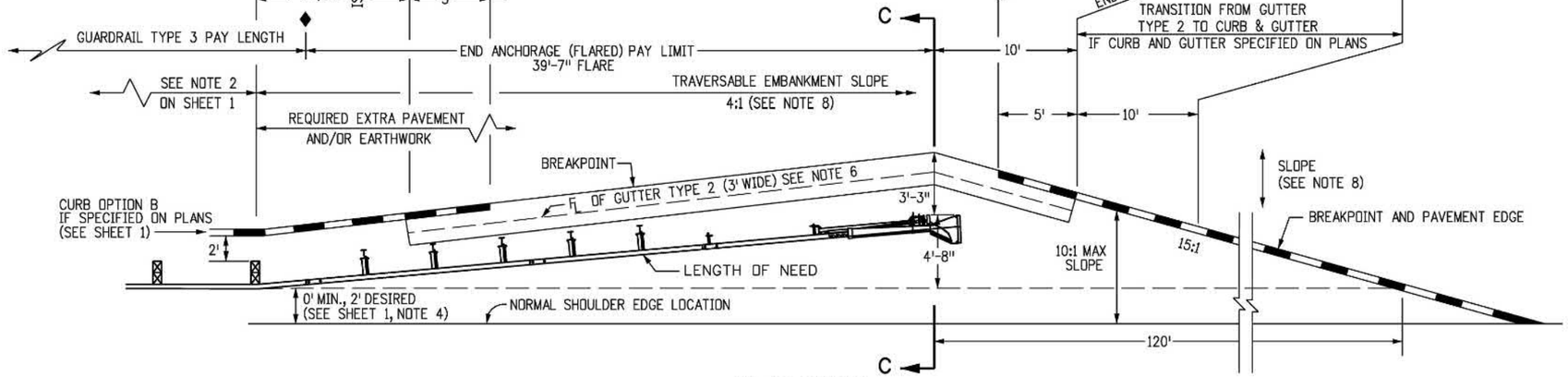
◆ END OF GUARDRAIL PAY LENGTH

PLAN VIEW
WIDENING FOR END ANCHORAGE (FLARED) *

* THIS PLAN VIEW SHOWS ONLY THE SRT-31. THE FLEAT-350 USES THE SAME WIDENING DETAILS.



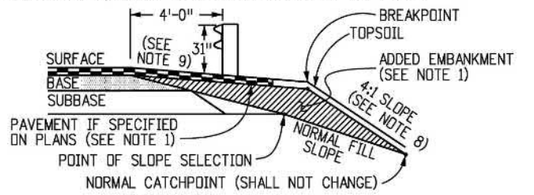
PLAN VIEW
WIDENING FOR END ANCHORAGE (FLARED) WITH CURB OPTION A*



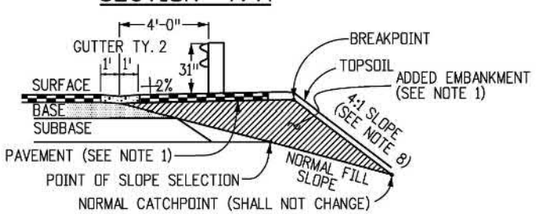
PLAN VIEW
WIDENING FOR END ANCHORAGE (FLARED) WITH CURB OPTION B *

NOTES

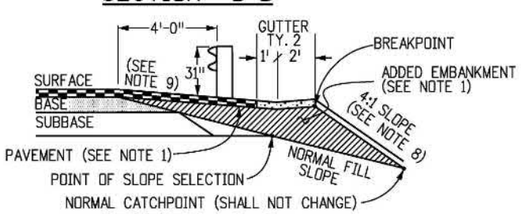
1. PAYMENT FOR THE ADDED EMBANKMENT (APPROXIMATELY 45 CU. YDS.) FOR THE FLARE SHALL BE AS FOLLOWS:
   A. UNDER PAY ITEM 203 WHEN THE CONTRACT PLAN INCLUDES PAY ITEM 203
   B. INCLUDED IN THE COST OF THE END ANCHORAGE (FLARED) WHEN THE CONTRACT PLANS DO NOT INCLUDE PAY ITEM 203. THE ADDED EMBANKMENT SHALL BE CONSTRUCTED IN ACCORDANCE WITH SUBSECTION 203.07, AASHTO T 99.
2. WHEN THE WIDENED AREA IS PAVED, PAYMENT FOR THE PAVEMENT (APPROX. 70 SQ. YDS.) SHALL BE AS FOLLOWS:
   A. UNDER PAY ITEM 403 OR 412 WHEN THE CONTRACT PLAN INCLUDES PAY ITEM 403 OR 412
   B. INCLUDED IN THE COST OF THE END ANCHORAGE (FLARED) WHEN THE CONTRACT PLAN DOES NOT INCLUDE PAY ITEM 403 OR 412 (SEE SHEET 1, NOTE 2 FOR PAVEMENT TYPES)
3. CONCRETE PAVED AREAS SHALL HAVE THEIR TAPERED ENDS SQUARED OFF AS DIRECTED BY THE ENGINEER.
4. WHEN OVERLAY PAVING, THE FINISHED SURFACE AT EACH POST SHALL NOT BE ABOVE THE TOP BREAKAWAY HOLE OR STRUT ASSEMBLY. THE WIDENED AREA AT THE FLARED END ANCHORAGE SHOULD NOT BE OVERLAYED UNLESS PAVEMENT CONDITIONS WARRANT IT BEING OVERLAYED. ANY OVERLAY PAVEMENT ABUTTING THE FLARED END ANCHORAGE SHALL BE TAPERED TO PREVENT A DROP IN THE PAVED SURFACE BELOW THE RAIL.
5. SEE SHEETS 1, 2, 3, AND 5 FOR STANDARD TYPE 3 GUARDRAIL INSTALLATION DETAILS.
6. THE COST OF THE GUTTER WILL BE PAID FOR AS "GUTTER TYPE 2 (2 FT.)" FOR A LENGTH OF 134 FT. OR "GUTTER TY. 2 (3 FT.)" FOR A LENGTH OF 40 FT.
7. INLETS OR RUNDOWNS MAY BE USED INSTEAD OF THE GUTTER IF SPECIFIED ON THE PLANS. NO ADDITIONAL CURB SHALL BE ADDED IN THE VICINITY OF THE END ANCHORAGE.
8. 4:1 OR FLATTER SLOPES IN THE TRAVERSABLE AREA SHALL BE USED BEHIND THE END ANCHORAGE, AND IN ADVANCE OF POST (1). IF THIS IS NOT POSSIBLE, A MINIMUM 3:1 SLOPE MAY BE USED IF APPROVED BY THE ENGINEER.
9. THE WIDENED AREA, EXCEPT FOR CURB OPTION A, SHALL HAVE THE SAME GRADING AS THE ADJACENT GUARDRAIL: 10:1 OR FLATTER IF MORE THAN 2 FT. FROM SHOULDER OR SLOPE EQUAL TO ROADWAY SLOPE IF 2 FT. OR LESS FROM SHOULDER.
10. WIDENING FOR END ANCHORAGES SHALL BE PAVED ON INTERSTATES AND FREEWAYS. FOR OTHER HIGHWAYS, PAVING SHALL BE AS SHOWN ON THE PLANS.



SECTION A-A



SECTION B-B



SECTION C-C

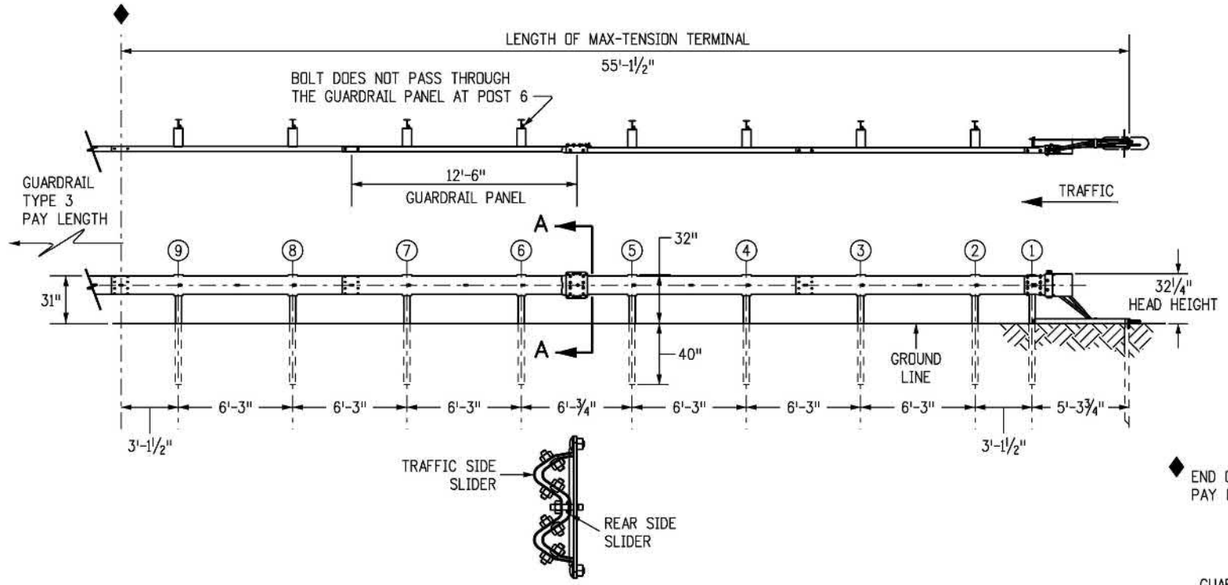
Computer File Information		Sheet Revisions	
Creation Date: 07/31/19		Date:	Comments
Designer Initials: JBK	(R-X)	03/05/20	Replaced the old end anchorage drawings with the new MELEAT end anchorage drawing.
Last Modification Date: 03/05/20	(R-X)		
Detailer Initials: LTA	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

MIDWEST
GUARDRAIL SYSTEM (MGS)
TYPE 3 W-BEAM 31 INCHES

Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO.
M-606-1
Standard Sheet No. 7 of 19
Project Sheet Number:



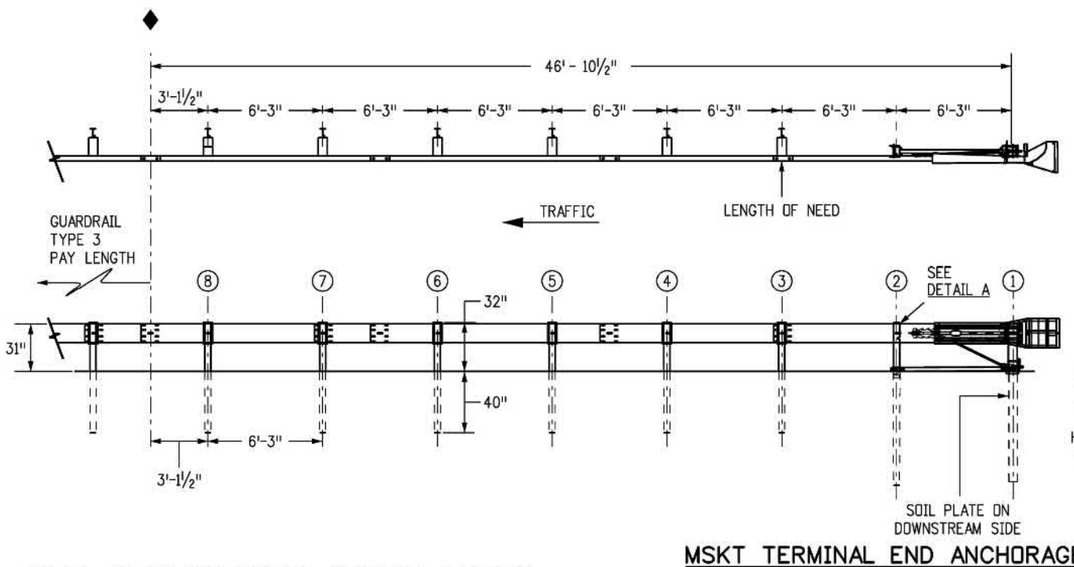
SECTION A-A

MAX-TENSION TERMINAL END ANCHORAGE (NONFLARED)

(MASH CERTIFIED)

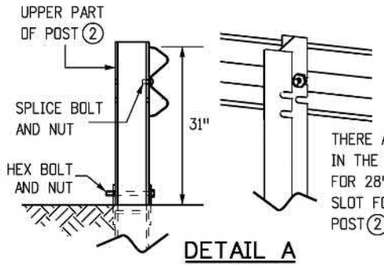
NOTES FOR NONFLARED

1. THE END ANCHORAGE (NONFLARED) SHALL EITHER BE THE SOFTSTOP AS MANUFACTURED BY TRINITY INDUSTRIES, INC. (TEL. #: 1-888-356-2363), OR THE MAX-TENSION AS MANUFACTURED BY LINDSAY TRANSPORTATION SOLUTIONS (TEL. #: 402-829-6800), OR THE MSKT AS MANUFACTURED BY ROAD SYSTEMS, INC. (TEL. #: 432-263-2435). THE END ANCHORAGE (NONFLARED) SHALL INCLUDE ALL POST, RAIL, AND HARDWARE ITEMS REQUIRED FOR A COMPLETE UNIT. THE END ANCHORAGE (NONFLARED) SHALL BE INSTALLED CONFORMING TO THE MANUFACTURER'S RECOMMENDATIONS. THE CONTRACTOR SHALL PROVIDE A COPY OF THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND PARTS LIST TO THE ENGINEER PRIOR TO THE INSTALLATION OF THE DEVICE.
2. DO NOT ATTACH THESE END ANCHORAGES DIRECTLY TO A RIGID BARRIER (EX. CONCRETE BARRIER, STEEL BARRIER, CONCRETE STRUCTURE) WITHOUT A PROPER TRANSITION.
3. CONNECTIONS TO W-BEAMS WHERE THE SPLICE IS NOT AT MID-SPAN BUT AT A POST CAN BE MADE USING A 3'-1½", 9'-4½", OR 15'-7½" W-BEAM PANEL DOWNSTREAM OF TRAFFIC.
4. FOR MSKT END ANCHORAGES (NONFLARED), USE THE MANUFACTURER'S SPECIFIED STEEL FOUNDATION TUBES FOR POSTS (1) AND (2).
5. RETROREFLECTOR TABS SHALL NOT BE USED ON END ANCHORAGE POSTS.
6. DELINEATION SHALL BE APPLIED TO THE END PIECE AND SHALL NOT BE PAID FOR SEPARATELY BUT BE INCLUDED IN THE COST OF THE WORK. SEE STANDARD PLAN S-612-1.



MSKT TERMINAL END ANCHORAGE (NONFLARED)

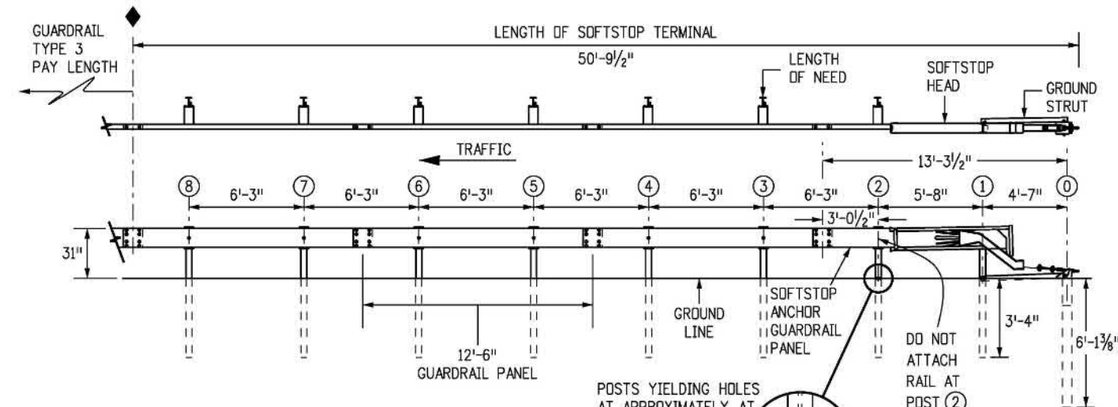
(MASH CERTIFIED)

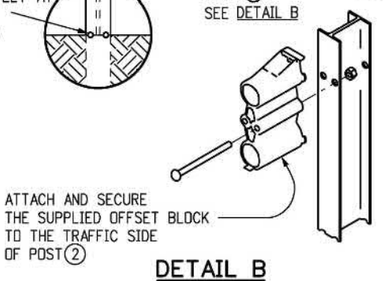


DETAIL A

THERE ARE TWO SETS OF OPEN-ENDED SLOTS IN THE UPPER PART OF POST (2). THESE ARE FOR 28" AND 31" RAIL HEIGHTS. USE THE TOP SLOT FOR THE 31" MSKT TERMINAL. INSTALL POST (2) WITH THE SLOTS FACING POST (1)

END OF GUARDRAIL PAY LENGTH





DETAIL B

SOFTSTOP TERMINAL END ANCHORAGE (NONFLARED)

(MASH CERTIFIED)

END ANCHORAGES (NONFLARED)

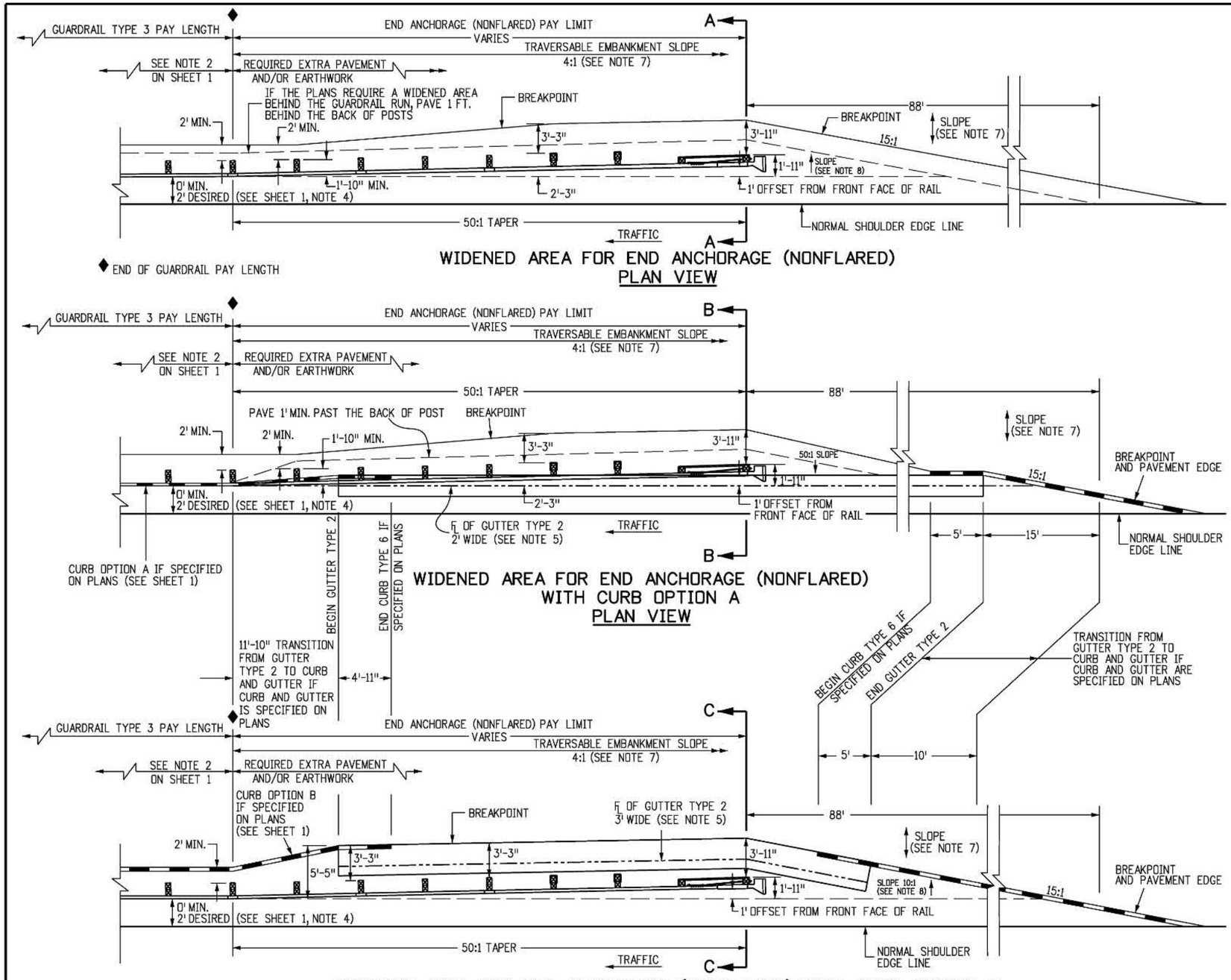
Computer File Information		Sheet Revisions	
		Date:	Comments
Creation Date: 07/31/19			
Designer Initials: JBK	(R-X)		
Last Modification Date: 03/05/20	(R-X)		
Detailer Initials: LTA	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 3 W-BEAM 31 INCHES

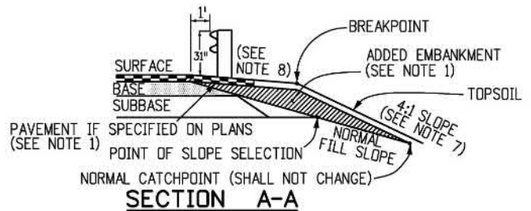
Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO.
M-606-1
Standard Sheet No. 8 of 19
Project Sheet Number:

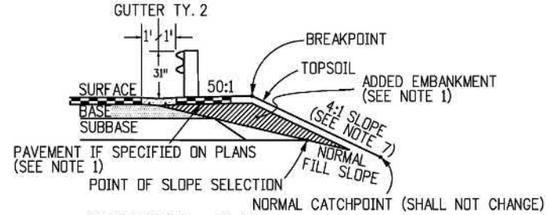


NOTES

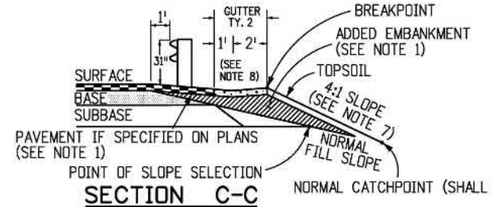
1. PAYMENT FOR THE ADDED EMBANKMENT (APPROXIMATELY 25 CU. YDS.) FOR THE FLARE SHALL BE AS FOLLOWS:
   A. UNDER PAY ITEM 203 WHEN THE CONTRACT PLAN INCLUDES PAY ITEM 203.
   B. INCLUDED IN THE COST OF THE END ANCHORAGE (NONFLARED) WHEN THE CONTRACT PLANS DOES NOT INCLUDE PAY ITEM 203. THE ADDED EMBANKMENT SHALL BE BE CONSTRUCTED IN ACCORDANCE WITH SUBSECTION 203.07, AASHTO T 99.
2. WHEN THE WIDENED AREA IS PAVED, PAYMENT FOR THE PAVEMENT (APPROX. 39 SQ. YDS.) SHALL BE AS FOLLOWS:
   A. UNDER PAY ITEM 403 OR 412 WHEN THE CONTRACT PLAN INCLUDES PAY ITEM 403 OR 412.
   B. INCLUDED IN THE COST OF THE END ANCHORAGE (NONFLARED) WHEN THE CONTRACT PLAN DOES NOT INCLUDE PAY ITEM 403 OR 412, (SEE SHEET 1, NOTE 2 FOR PAYMENT TYPES).
3. WHEN OVERLAY PAVING, THE FINISHED SURFACE AT EACH POST SHALL NOT BE ABOVE THE TOP BREAKWAY HOLE OR STRUT ASSEMBLY. THE WIDENED AREA AT THE END ANCHORAGE (NONFLARED) SHALL NOT BE OVERLAYED UNLESS PAVEMENT CONDITIONS WARRANT IT BEING OVERLAYED. ANY OVERLAY PAVEMENT ABUTTING THE END ANCHORAGE (NONFLARED) SHALL BE TAPERED TO PREVENT A DROP IN THE PAVED SURFACE BELOW THE RAIL.
4. SEE SHEETS 1, 2, 3, AND 5 FOR STANDARD TYPE 3 GUARDRAIL INSTALLATION DETAILS.
5. THE COST OF THE GUTTER WILL BE PAID FOR AS "GUTTER TYPE 2 (2 FT.)" FOR A LENGTH OF 111 FT., OR "GUTTER TY. 2 (3 FT.)" FOR A LENGTH OF 50 FT.
6. INLETS OR RUNDOWNS MAY BE USED INSTEAD OF THE GUTTER IF SPECIFIED ON THE PLANS. NO ADDITIONAL CURB SHALL BE ADDED IN THE VICINITY OF THE END TREATMENT.
7. 4:1 OR FLATTER SLOPES IN THE TRAVERSABLE AREA SHALL BE USED BEHIND THE END ANCHORAGE AREA, AND IN ADVANCE OF POST (1). IF THIS IS NOT POSSIBLE A MINIMUM 3:1 SLOPE MAY BE USED IF APPROVED BY THE ENGINEER.
8. THE WIDENED AREA, EXCEPT FOR CURB OPTION A, SHALL HAVE THE SAME GRADING AS BENEATH THE ADJACENT GUARDRAIL: 10:1 OR FLATTER IF MORE THAN 2 FT. FROM SHOULDER, OR SLOPE EQUAL TO ROADWAY SLOPE IF 2 FT. OR LESS FROM SHOULDER.
9. WIDENING FOR END ANCHORAGES SHALL BE PAVED ON INTERSTATES AND FREEWAYS. FOR OTHER HIGHWAYS, PAVING SHALL BE AS SHOWN ON THE PLANS.



SECTION A-A



SECTION B-B



SECTION C-C

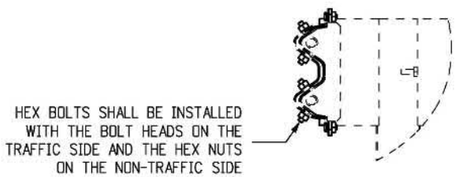
Computer File Information		Sheet Revisions	
Creation Date: 07/31/19		Date:	Comments
Designer Initials: JBK	(R-X)		
Last Modification Date: 03/05/20	(R-X)		
Detailer Initials: LTA	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

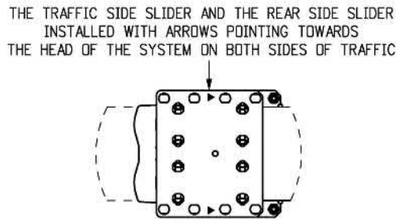
MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 3 W-BEAM 31 INCHES

Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO.
M-606-1
Standard Sheet No. 9 of 19
Project Sheet Number:



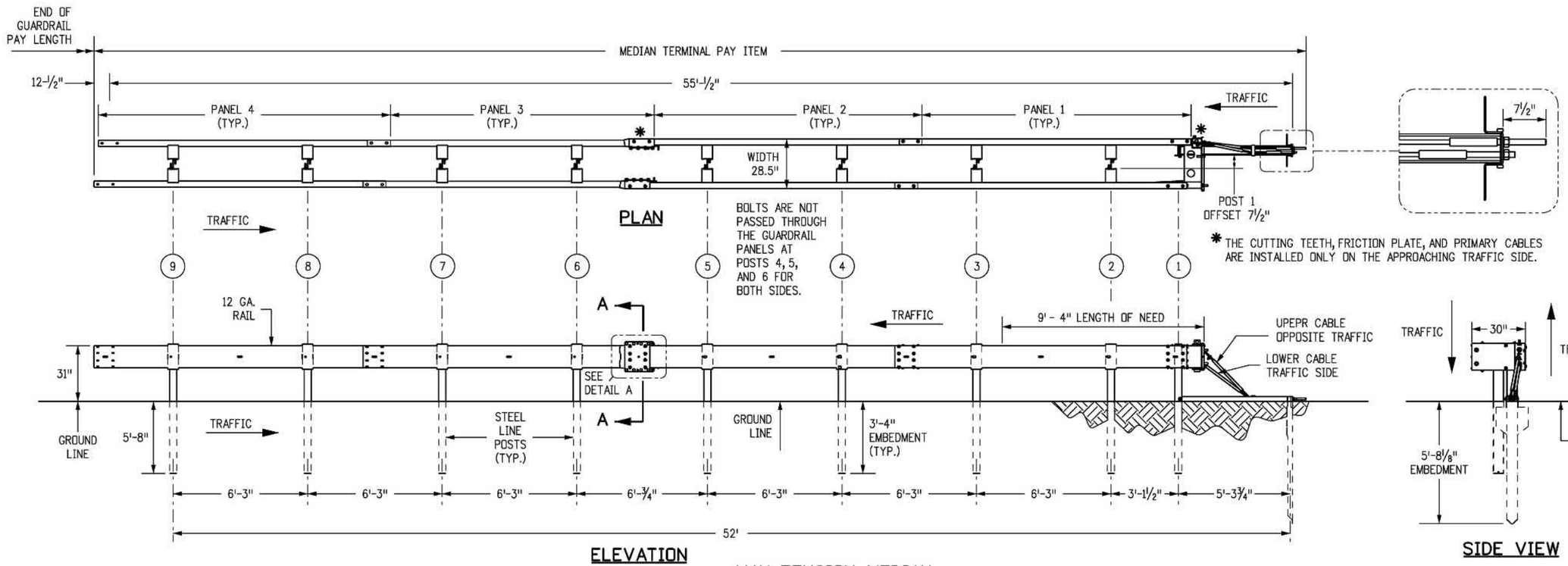
SECTION A-A



DETAIL A

MEDIAN TERMINAL NOTES

1. THE MEDIAN TERMINAL SHALL BE THE MAX-TENSION MEDIAN AS MANUFACTURED BY BY BARRIER SYSTEM BY LINDSAY (LINDSAY TRANSPORTATION SOLUTIONS) (TEL #: 888 800-3691).
2. THE MAX-TENSION SHALL BE APPLIED DIRECTLY TO W-BEAM GUARDRAIL SYSTEMS AT, OR TRANSITIONED TO, 31 INCH WITH PANELS AND POST SPACING CONFIGURED AT MID-SPAN SPLICE. TRANSITIONS TO STRONG POST W-BEAM GUARDRAIL SYSTEMS OR OTHER BARRIERS WHERE THE SPLICE IS NOT MID-SPAN SHALL BE ACCOMPLISHED USING A 3 FT. 1-1/2 INCH, 9 FT. 4-1/2 INCH OR 15 FT. 7-1/2 INCH PANELS AFTER THE MAX-TENSION SYSTEM (MIN. OF 50 FT. DOWNSTREAM OF THE FIRST POST). TRANSITIONS TO OTHER BARRIER SYSTEMS SHALL ALSO BE AT A MIN. OF 50 FT. DOWNSTREAM FROM THE FIRST POST. SEE SHEET 4.
3. THE MAX-TENSION SHALL NOT BE ATTACHED DIRECTLY TO RIGID BARRIERS SUCH AS CONCRETE BARRIERS, STEEL BARRIERS OR CONCRETE STRUCTURES WITHOUT PROPER TRANSITION. IF ROCK OR STIFF SOIL IS ENCOUNTERED, THE POSTS AND SOIL ANCHOR MAY BE INSTALLED BY AUGURING AND BACKFILLING THE HOLE.
4. EITHER 8 INCH OR 12 INCH COMPOSITE OR TIMBER BLOCKOUTS SHALL BE USED PER MANUFACTURE'S RECOMMENDATIONS.
5. EITHER 12 FT.-6 INCH OR 25 FOOT PANELS SHALL BE USED DEPENDING ON SITE CONDITIONS OR CONNECTED BARRIER SYSTEMS.
6. RAIL PANELS SHALL BE LAPPED PER MANUFACTURER'S INSTALLATION MANUAL, REGARDLESS OF AN UPSTREAM OR DOWNSTREAM END SYSTEM POSITION.
7. ALL STEEL COMPONENTS SHALL BE GALVANIZED PER ASTM A123 OR EQUIVALENT UNLESS OTHERWISE STATED.
8. ONE MEDIAN TERMINAL SHALL INCLUDE ALL POSTS, RAIL, AND HARDWARE ITEMS REQUIRED FOR A COMPLETE UNIT. THE DEVICE SHALL BE INSTALLED IN CONFORMANCE WITH THE MANUFACTURER'S INSTRUCTIONS. THE CONTRACTOR SHALL PROVIDE A COPY OF THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND PARTS LISTS TO THE ENGINEER PRIOR TO THE INSTALLATION OF THE DEVICE.
9. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE MEDIAN TERMINAL SHALL BE INSTALLED FOR BIDIRECTIONAL TRAFFIC APPLICATION.
10. 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.
11. DELINEATION, IF REQUIRED, SHALL BE APPLIED TO THE END PIECE AND WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE COST OF THE WORK. SEE STANDARD PLAN S-612-1.



MAX-TENSION MEDIAN

(MASH CERTIFIED)

Computer File Information		Sheet Revisions	
Creation Date: 07/31/19		Date:	Comments
Designer Initials: JBK	(R-X)		
Last Modification Date: 03/05/20	(R-X)		
Detailer Initials: LTA	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

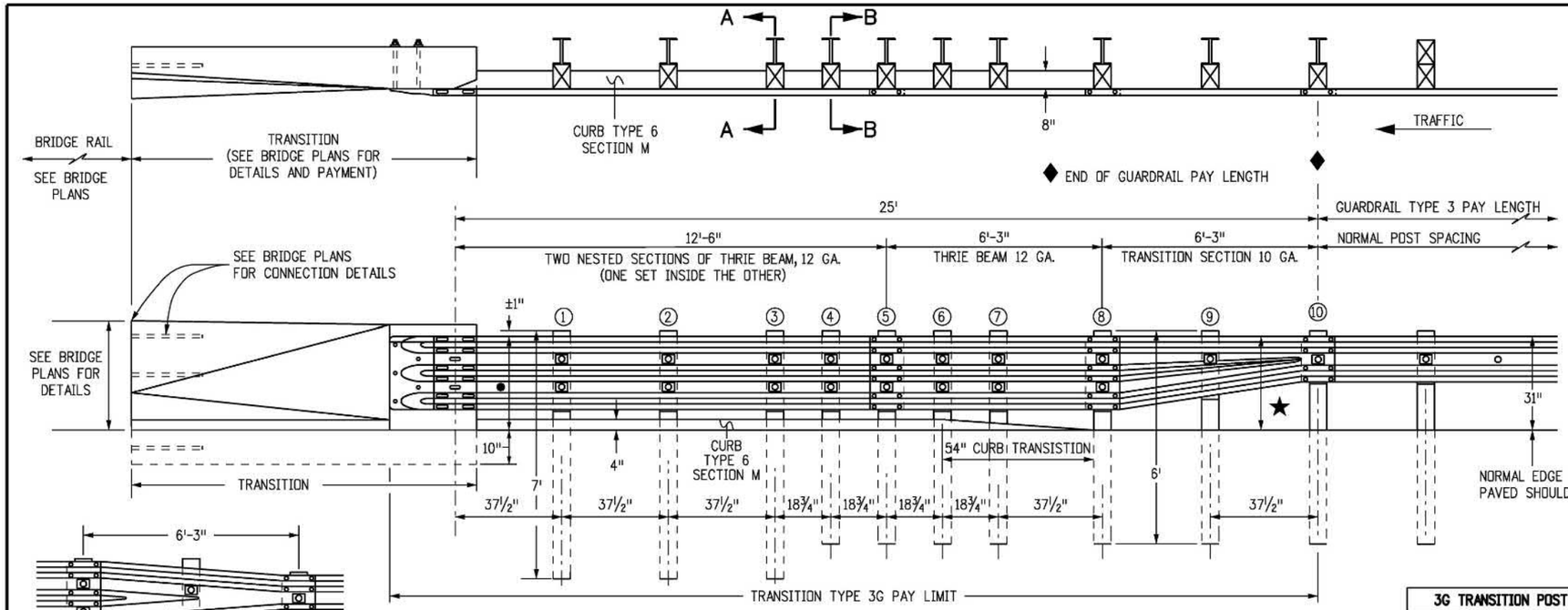
MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 3 W-BEAM 31 INCHES

Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO. M-606-1

Standard Sheet No. 10 of 19

Project Sheet Number:

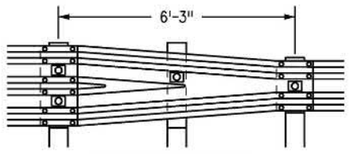


TRANSITION TYPE 3G

ALL POSTS SHALL BE STEEL

★ IF THE HEIGHT OF THE TRANSITION TYPES 3G OR 3H IS MORE THAN 31", THEN A SYMMETRICAL TRANSITION SECTION SHALL BE USED HERE.

● 31" FOR ASPHALT BRIDGE OVERLAY. 33.25" FOR POLYMER CONCRETE BRIDGE OVERLAY.

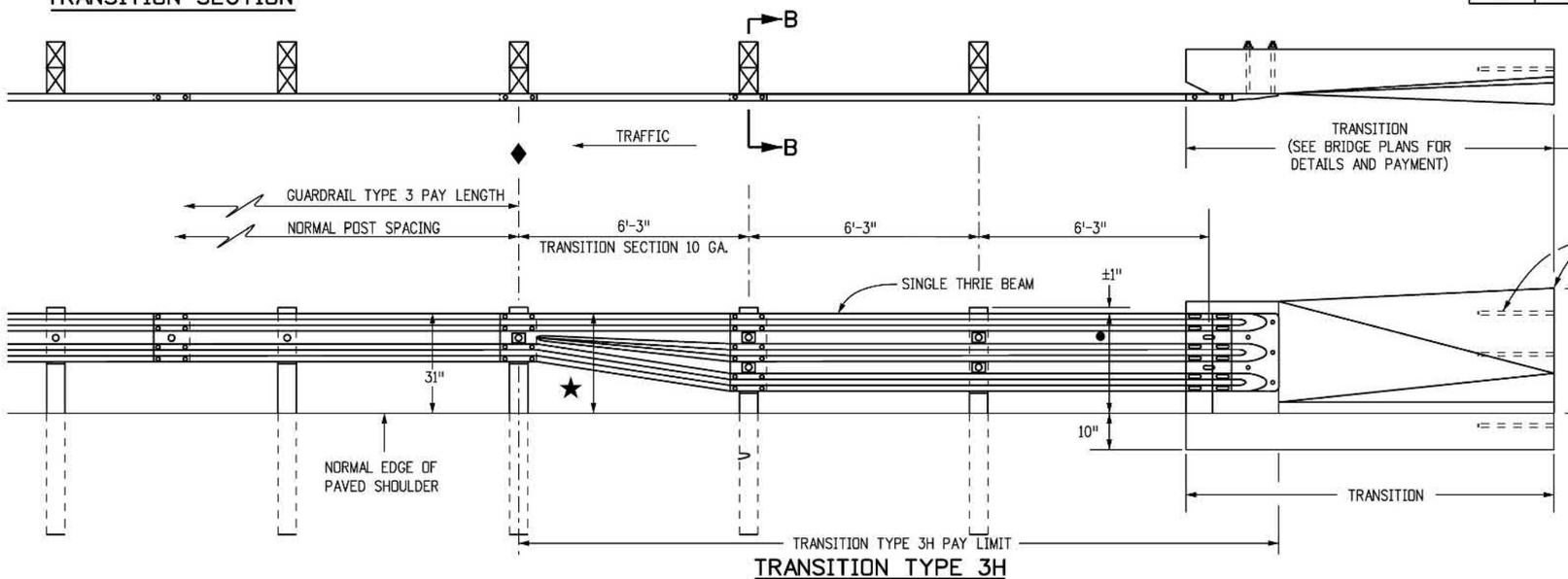


SYMMETRICAL TRANSITION SECTION

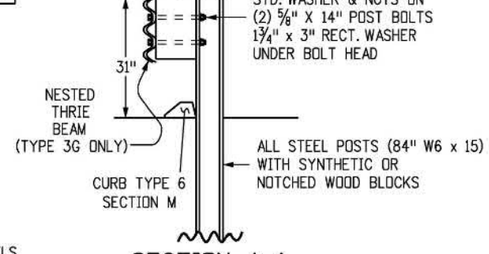
NOTES

1. TRANSITION TYPE 3G IS FOR USE AT BOTH ENDS OF BRIDGES ON TWO-WAY HIGHWAYS AND AT THE APPROACH END OF BRIDGES ON ONE-WAY HIGHWAYS.
2. TRANSITION TYPE 3H IS FOR USE AT THE TRAILING END OF BRIDGES ON ONE-WAY HIGHWAYS.
3. THE THRIE BEAM SECTION IN TRANSITION TYPES 3G AND 3H MAY BE SHOP BENT TO FIT CORRESPONDING RADIUS CURVES. HOWEVER, THE 6 FT.-3 IN. TRANSITION SECTION SHALL NOT BE BENT.
4. A TRANSITION SHALL BE REQUIRED BETWEEN TYPES 3G OR 3H AND THE BRIDGE RAILS. SEE STANDARD PLAN M-606-15 FOR THE TRANSITION TO TYPE 9 GUARDRAIL BARRIER.
5. TRANSITION TYPES 3G AND 3H ARE BOTH MASH COMPLIANT.
6. BACKUP PLATE IS NOT REQUIRED AT POSTS ON TYPE 3G AND 3H.
7. ⊙ THIS SYMBOL IN THE ELEVATION DRAWINGS SHOWS THE LOCATIONS WHERE A RECTANGULAR WASHER IS REQUIRED UNDER THE POST BOLT HEAD.
8. CURB TYPE 6 SECTION M, MAY BE ASPHALT OR CONCRETE. THE COST OF CURB IS INCLUDED IN THE WORK, UNLESS A SEPARATE PAY ITEM IS INCLUDED IN THE BID SCHEDULE.
9. FOR TYPE 3G, POSTS ① THRU ③ ARE 7 FT. LONG. ALL OTHER POSTS SHALL BE A STANDARD 6 FT. LONG UNLESS OTHERWISE SPECIFIED IN THE CONTRACT.
10. NOTCHED RAIL BLOCKS MANUFACTURED FROM SYNTHETIC MATERIAL WILL BE ACCEPTED AS ALTERNATIVES TO WOOD NOTCHED BLOCKS FOR USE WITH STEEL POSTS PROVIDED THAT THE BLOCKS HAVE RECEIVED FHWA APPROVAL AND ARE CERTIFIED AS IDENTICAL TO THE SPECIMENS USED FOR TESTING AND APPROVAL. STEEL BLOCKS ARE NOT ALLOWED.

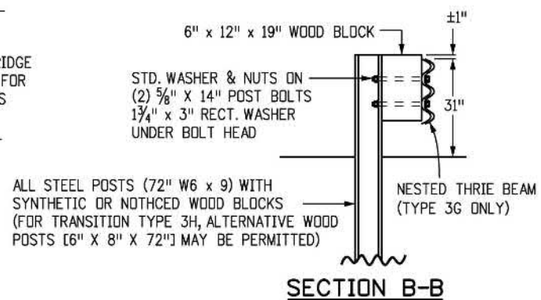
3G TRANSITION POST / BLOCK SIZING		
POST #	STEEL POST SIZE	BLOCKOUT SIZE
1 - 3	84" W6 X 15	6" X 12" X 19"
4 - 9	72" W6 X 9	6" X 12" X 19"
10	72" W6 X 9	6" X 12" X 14"



TRANSITION TYPE 3H



SECTION A-A



SECTION B-B

Computer File Information		Sheet Revisions	
Creation Date: 07/31/19		Date:	Comments
Designer Initials: JBK	(R-X)	03/05/20	Revised Gen. Notes 3 & 5. Revised transition sections notes to see the "Bridge Plans" and deleted their x-sections details. Revised the ★ note.
Last Modification Date: 03/05/20	(R-X)		
Detailer Initials: LTA	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

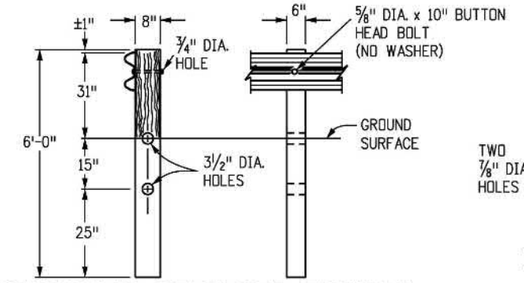
MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 3 W-BEAM 31 INCHES

Issued by the Project Development Branch: July 31, 2019

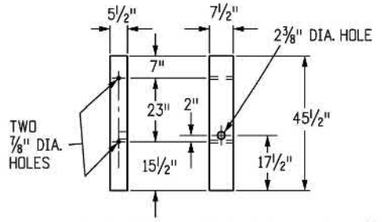
STANDARD PLAN NO. M-606-1

Standard Sheet No. 11 of 19

Project Sheet Number:



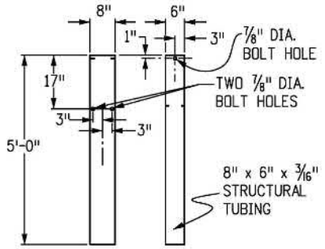
CONTROLLED RELEASING TERMINAL (CRT) POST ①



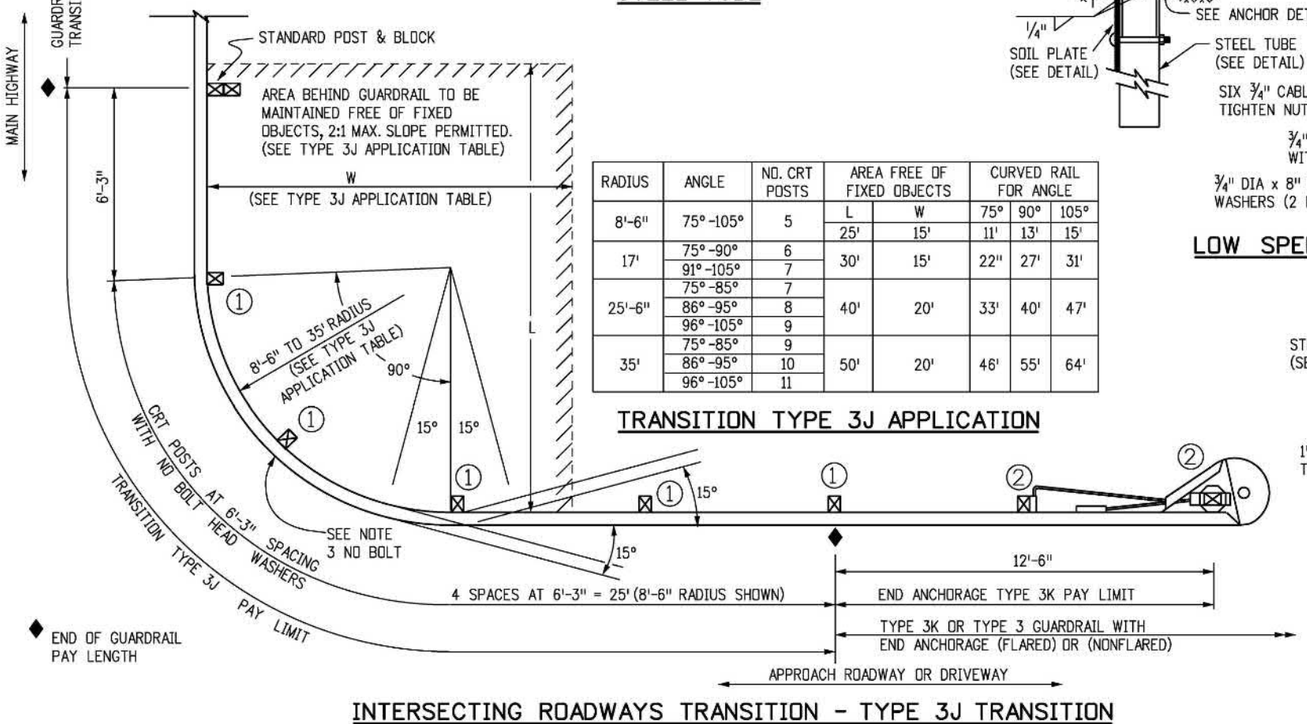
WOOD BREAKAWAY POST ②

POST	DIMENSIONS	TYPE
①	6" x 8" x 6'	CRT
②	5 1/2" x 7 1/2" x 45 1/2"	BREAKAWAY

POSTS



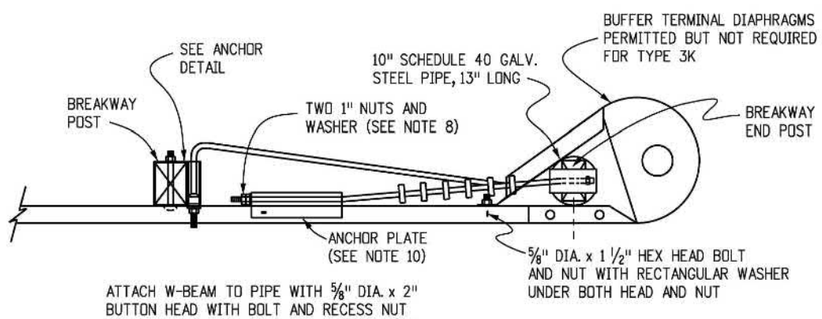
STEEL TUBE

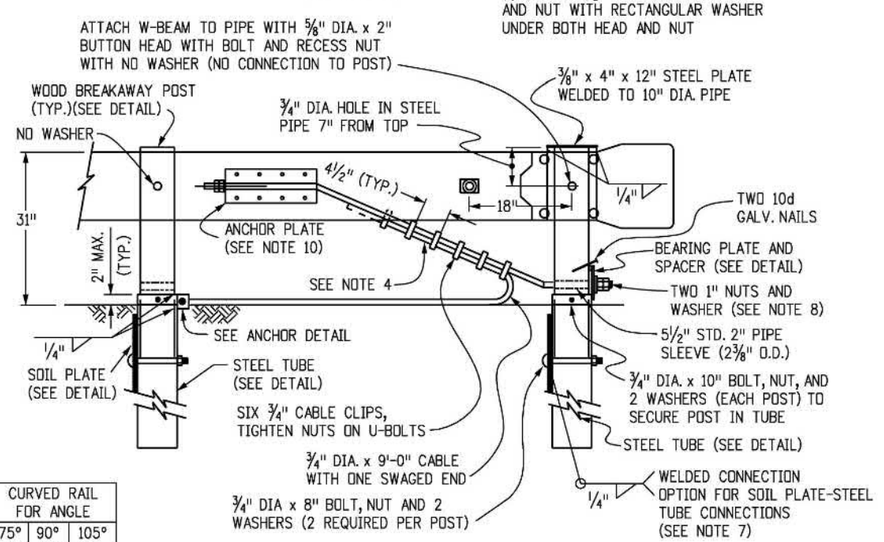


RADIUS	ANGLE	NO. CRT POSTS	AREA FREE OF FIXED OBJECTS		CURVED RAIL FOR ANGLE		
			L	W	75°	90°	105°
8'-6"	75°-105°	5	25'	15'	11'	13'	15'
17'	75°-90°	6	30'	15'	22'	27'	31'
	91°-105°	7					
25'-6"	75°-85°	7	40'	20'	33'	40'	47'
	86°-95°	8					
	96°-105°	9					
35'	75°-85°	9	50'	20'	46'	55'	64'
	86°-95°	10					
	96°-105°	11					

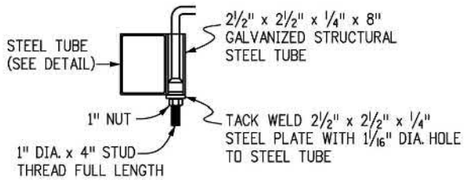
TRANSITION TYPE 3J APPLICATION

INTERSECTING ROADWAYS TRANSITION - TYPE 3J TRANSITION

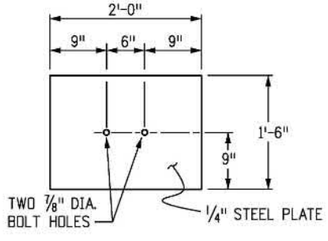




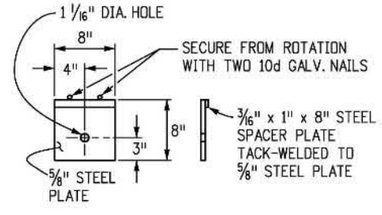
LOW SPEED END ANCHORAGE - TYPE 3K



ANCHOR DETAIL



SOIL PLATE



BEARING PLATE FOR STEEL TUBE

NOTES

1. APPLICATION: THE TRANSITION TYPE 3J MAY BE USED TO SHIELD HAZARDS AT THE INTERSECTION OF TWO ROADWAYS. TYPICAL APPLICATIONS INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:
   A. CANAL SERVICE ROADS AT BRIDGE ENDS.
   B. INTERRUPTIONS IN GUARDRAIL RUNS BY INTERSECTING ROADWAYS, ETC..

   THE LOW SPEED (<45 MPH) END ANCHORAGE TYPE 3K SHALL BE USED ONLY ON DRIVEWAYS AND LOW SPEED SERVICE ROADS. WHEN AN APPROVED CRASH-TESTED END TREATMENT IS REQUIRED USE THE END ANCHORAGE (FLARED) OR (NONFLARED) WITH 37 FT.-6 IN. LENGTH.
2. GRADING AND PAVING FOR THE 3J & 3K SHALL MATCH THE GRADING AND PAVING OF THE GUARDRAIL TO WHICH THEY ARE ATTACHED, AND SHALL BE IN ACCORDANCE WITH SHEET ONE OF THIS STANDARD. MAXIMUM FILL SLOPE SHALL BE 2:1.
3. THE RAIL IS NOT BOLTED TO THE CRT POST AT THE CENTER OF THE CURVE FOR THE 8 FT.-6 IN., 17 FT., AND 25 FT.-6 IN. RADII. PLATES SHALL CONFORM TO ASTM A 36, AND THE STRUCTURAL TUBING TO ASTM A 500.
4. THE 3/4IN. GALVANIZED WIRE ROPE (CABLE) SHALL CONFORM TO AASHTO M 30 TYPE II.
5. PLATES SHALL CONFORM TO ASTM A 36, AND STRUCTURAL TUBING TO ASTM A 500. WELDING SHALL MEET ALL REQUIREMENTS OF THE AMERICAN WELDING SOCIETY.
6. ALL STRUCTURAL STEEL SHALL BE GALVANIZED IN CONFORMANCE WITH ASTM A 123. POSTS SHALL NOT BE PUNCHED, DRILLED, CUT, OR WELDED AFTER GALVANIZING.
7. WHEN THE SOIL PLATE WELDED OPTION IS SELECTED, SOIL PLATE CONNECTION BOLT HOLES ARE NOT REQUIRED.
8. OUTSIDE NUT SHALL BE TORQUED AGAINST INSIDE NUT WITH THE CABLE INSTALLED TAUT BETWEEN THE ANCHOR PLATE AND FIRST POST.
9. ALL CURVED GUARDRAIL SHALL BE SHOP BENT.
10. SEE SHEET 5 FOR ANCHOR PLATE AND OTHER DETAILS.
11. THE STEEL TUBE MAY BE DRIVEN WITH WOOD POST INSERTED IF NO DAMAGE OCCURS TO THE POST OR BOLTS.

Computer File Information		Sheet Revisions	
Creation Date: 07/31/19		Date:	Comments
Designer Initials: JBK	(R-X)		
Last Modification Date: 03/05/20	(R-X)		
Detailer Initials: LTA	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

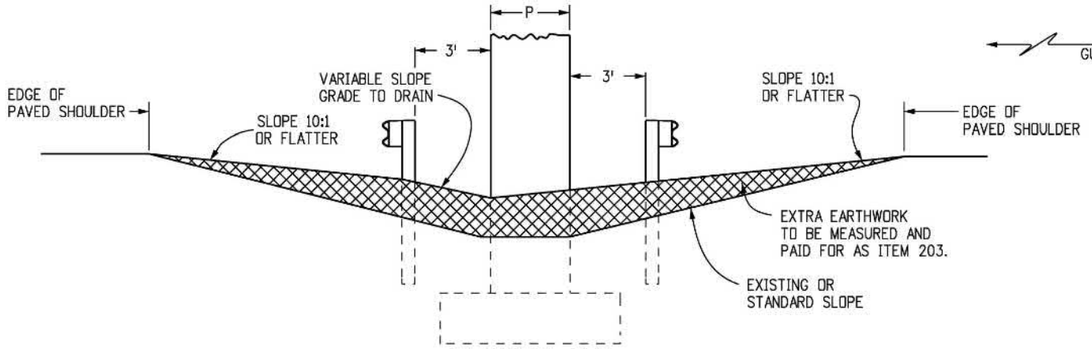
MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 3 W-BEAM 31 INCHES

Issued by the Project Development Branch: July 31, 2019

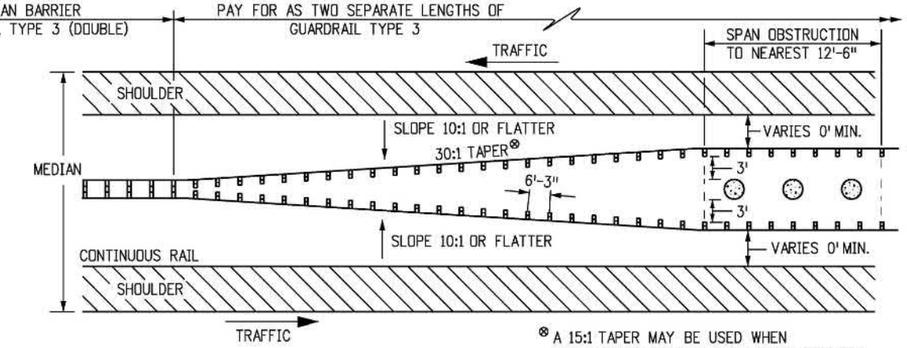
STANDARD PLAN NO. M-606-1

Standard Sheet No. 12 of 19

Project Sheet Number:

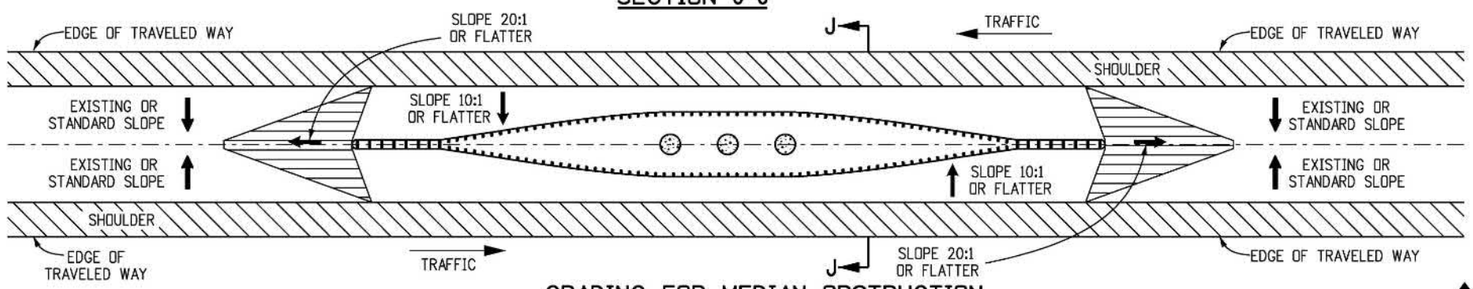


SECTION J-J

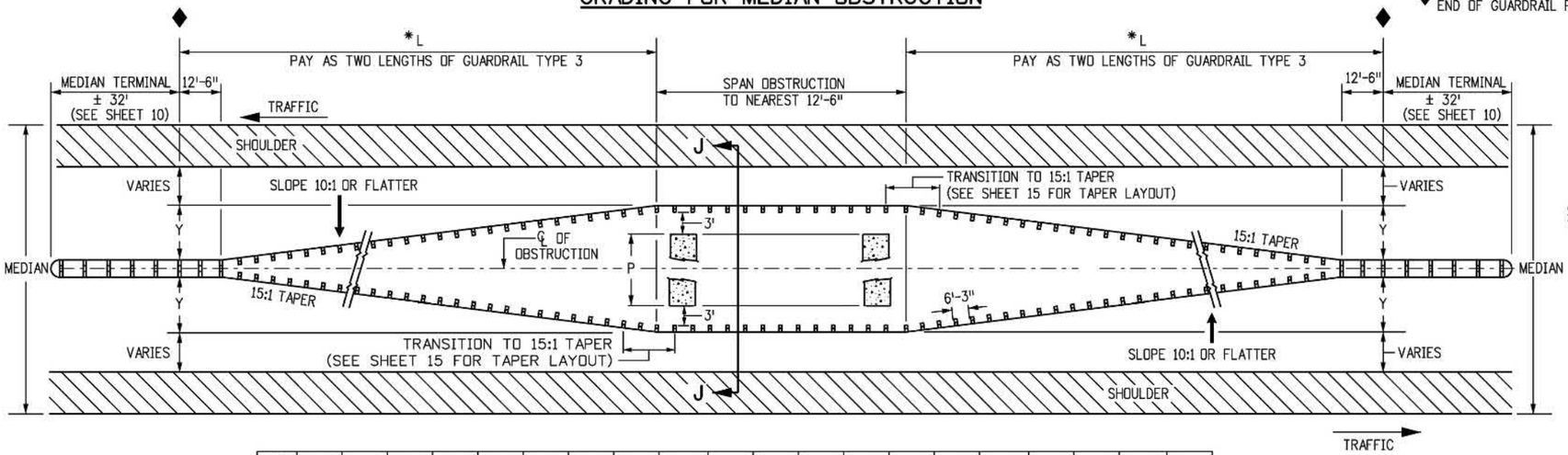


⊗ A 15:1 TAPER MAY BE USED WHEN THE BARRIER ENDS IN THE MEDIAN TERMINAL

OBSTRUCTION IN MEDIAN 30 FT. WIDE OR LESS



GRADING FOR MEDIAN OBSTRUCTION



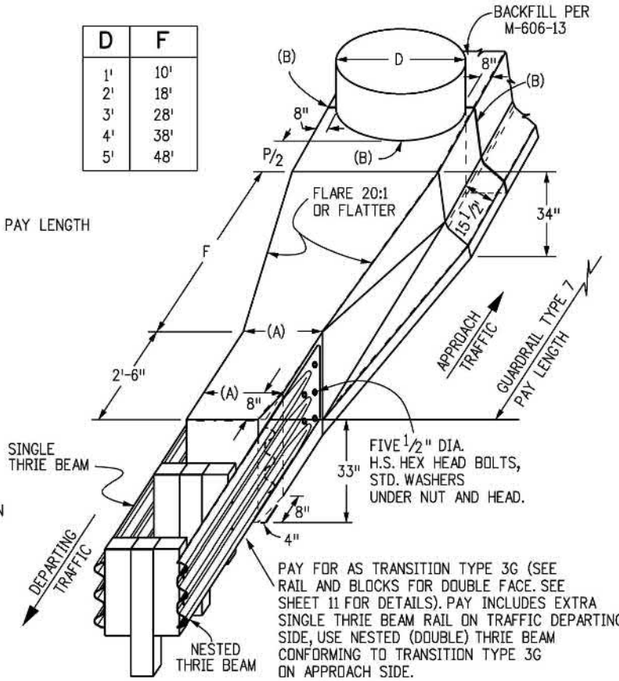
P	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'	11'	12'	13'	14'	15'	16'	17'	18'	19'	20'
Y	4'-1"	4'-7"	5'-1"	5'-7"	6'-1"	6'-7"	7'-1"	7'-7"	8'-1"	8'-7"	9'-1"	9'-7"	10'-1"	10'-7"	11'-1"	11'-7"	12'-1"	12'-7"	13'-1"	13'-7"
L	75'	87'-6"		100'	112'-6"		125'		137'-6"	150'		162'-6"		175'		187'-6"	200'		212'-6"	225'

*L IS MEASURED ALONG FACE OF GUARDRAIL

GUARDRAIL FOR OBSTRUCTION IN MEDIANS WIDER THAN 30 FT.

NOTE: FOR OBSTRUCTIONS (P) THAT ARE WIDER THAN 20 FT. IN MEDIANS USE SHEET 16.

D	F
1'	10'
2'	18'
3'	28'
4'	38'
5'	48'



PAY FOR AS TRANSITION TYPE 3G (SEE RAIL AND BLOCKS FOR DOUBLE FACE. SEE SHEET 11 FOR DETAILS). PAY INCLUDES EXTRA SINGLE THRIE BEAM RAIL ON TRAFFIC DEPARTING SIDE, USE NESTED (DOUBLE) THRIE BEAM CONFORMING TO TRANSITION TYPE 3G ON APPROACH SIDE.

(A). TIMBER POSTS 2 FT., STEEL POSTS 1 FT.-9½IN.

(B). ½ IN. PREFORMED JOINT MATERIAL

NARROW MEDIAN DETAIL

USUALLY LESS THAN 30 FT. WIDE MEDIAN WITH ALL PAVED SURFACE

OBSTRUCTIONS IN MEDIANS

Computer File Information		Sheet Revisions	
		Date:	Comments
Creation Date: 07/31/19			
Designer Initials: JBK	(R-X)		
Last Modification Date: 03/05/20	(R-X)		
Detailer Initials: LTA	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

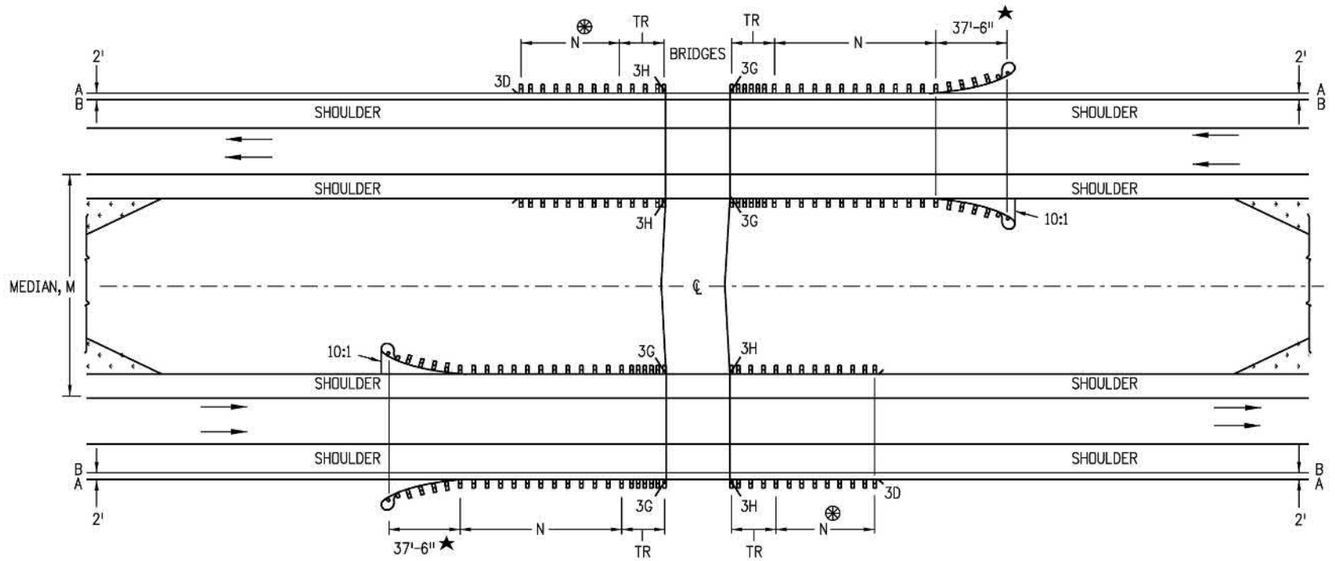
MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 3 W-BEAM 31 INCHES

Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO. M-606-1

Standard Sheet No. 13 of 19

Project Sheet Number:



MULTILANE DIVIDED HIGHWAYS FOR STEEP EMBANKMENTS IN MEDIAN

NOTES

1. MEDIAN BARRIERS TANGENT TO THE ROADWAY MAY BE USED WHERE THE SHOULDER SLOPES IN THE MEDIAN ARE STEEP.
2. BARRIER LENGTHS SHALL BE INCREASED TO ACCOUNT FOR STEEP EMBANKMENTS OR OTHER HAZARDS WITHIN CLOSE PROXIMITY OF BRIDGES.

⊛ — DO NOT CONSTRUCT THE TR AND GUARDRAIL ON THE TRAILING BRIDGE ENDS IF SITE CONDITIONS DO NOT WARRANT THE USE OF GUARDRAIL.

N — SHOWN ON PLANS. LENGTH TO SHIELD ALL HAZARDS IS BASED ON GUARDRAIL'S LENGTH OF NEED COMPUTATION. SEE AASHTO ROADWAY DESIGN GUIDE. THE MINIMUM SHALL BE 12 FT. - 6 IN., WHERE SITE CONDITIONS ALLOW. THE TOTAL LENGTH OF NEED WILL INCLUDE THE LENGTH OF TRANSITION, THE LENGTH OF RAIL (N), AND ANY REDIRECTIVE LENGTH IN THE RAIL END TREATMENT.

TR — 25 FEET FOR TRANSITION TYPES 3G AND 3H.

A — EDGE OF 8 FT. OR 10 FT. SHOULDER.

B — EDGE OF 6 FT. OR LESS SHOULDER.

★ — END ANCHORAGE CAN BE FLARED OR NONFLARED.

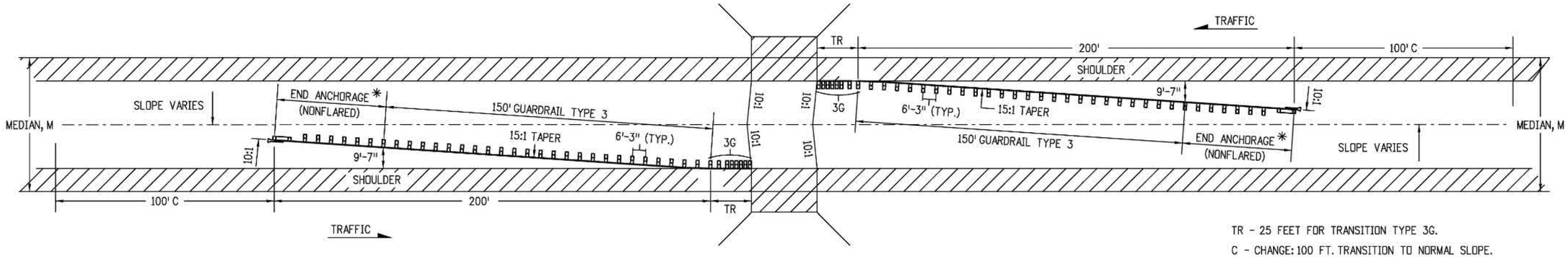
Computer File Information		Sheet Revisions	
Creation Date: 07/31/19		Date:	Comments
Designer Initials: JBK	(R-X)		
Last Modification Date: 03/05/20	(R-X)		
Detailer Initials: LTA	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 3 W-BEAM 31 INCHES

Issued by the Project Development Branch: July 31, 2019

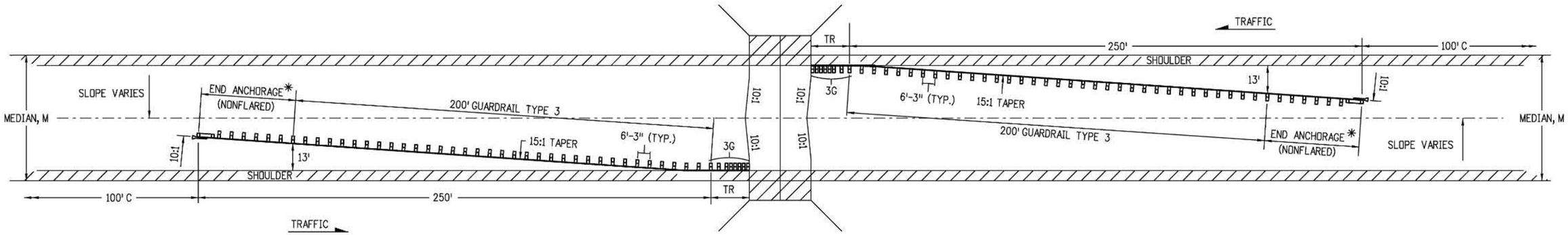
STANDARD PLAN NO.
M-606-1
Standard Sheet No. 14 of 19
Project Sheet Number:



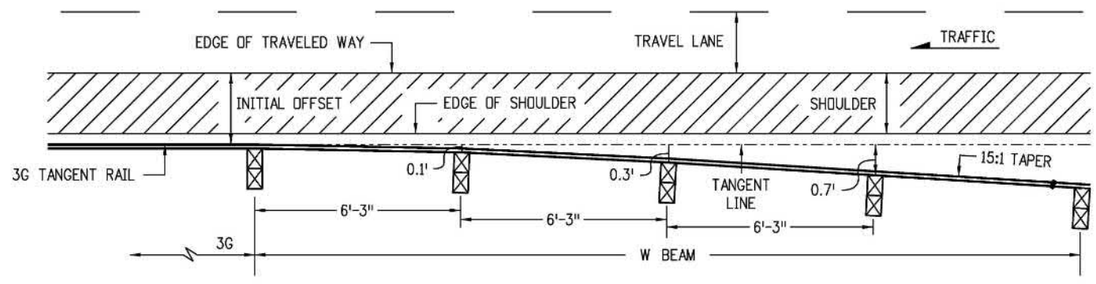
TR - 25 FEET FOR TRANSITION TYPE 3G.
C - CHANGE: 100 FT. TRANSITION TO NORMAL SLOPE.
M - WIDTH OF MEDIAN.

MEDIANS 60 FT. AND OVER WITH 10 FT. OR WIDER SHOULDERS.

* END ANCHORAGE LENGTH AND FLARE RATES VARY BY DEVICE.
SEE MANUFACTUERER/SUPPLIER FOR INSTALLATION REQUIREMENTS.



MEDIANS 60 FT. AND OVER WITH 4 to 8 FT. SHOULDERS.



TRANSITION TO TYPICAL 15:1 TAPER

NOTES

1. GUARDRAIL TRANSITIONS FROM PARALLEL TO ROADWAY SHOULDER AT 3G SEGMENT TO 15:1 TAPER WITHIN 25 FEET BASED ON POST OFFSET DIMENSIONS SHOWN.
2. SEE SHEET 14 FOR THE RIGHT SHOULDER GUARDRAIL LAYOUT.

MULTILANE DIVIDED HIGHWAYS - (DEPRESSED MEDIANS, 60 FT. AND OVER WITH OPEN HAZARDS OR OBSTRUCTIONS)

Computer File Information		Sheet Revisions	
Creation Date: 07/31/19		Date:	Comments
Designer Initials: JBK	(R-X)		
Last Modification Date: 03/05/20	(R-X)		
Detailer Initials: LTA	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 3 W-BEAM 31 INCHES

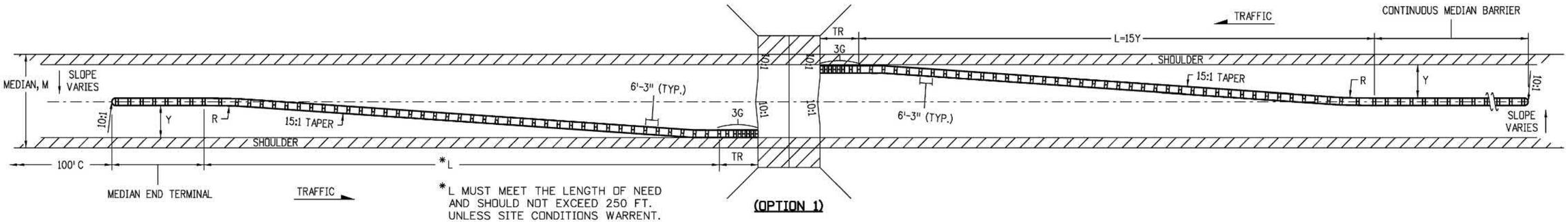
Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO. M-606-1

Project Sheet Number:

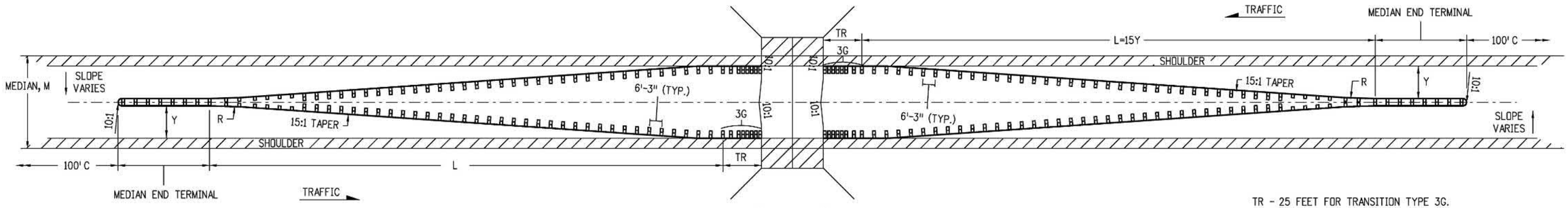
NOTES

1. GUARDRAIL TRANSITIONS FROM PARALLEL TO ROADWAY SHOULDER AT 3G SEGMENT TO 15:1 TAPER WITHIN 25 FEET BASED ON POST OFFSET DIMENSIONS SHOWN.
2. THE OPTION 1 LAYOUT SHALL BE USED WHEN "Y" EXCEEDS 16 FEET OR WHEN MEDIAN BARRIER IS CONTINUOUS.
3. THE OPTION 2 LAYOUT SHALL BE USED WHEN "Y" IS 16 FEET OR LESS.
4. SEE SHEET 14 FOR RIGHT SHOULDER GUARDRAIL LAYOUT.



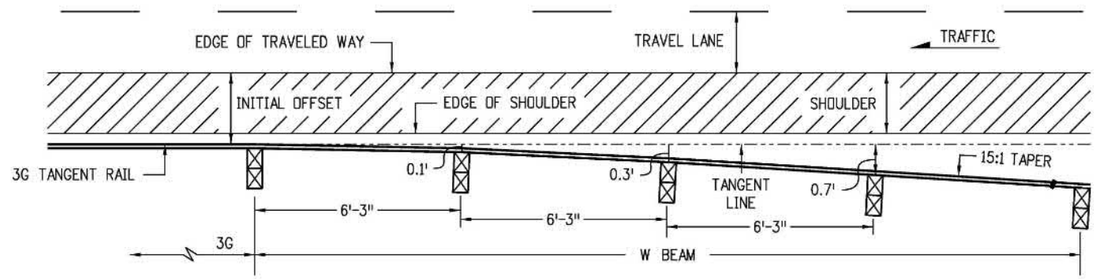
*L MUST MEET THE LENGTH OF NEED AND SHOULD NOT EXCEED 250 FT. UNLESS SITE CONDITIONS WARRENT.

(OPTION 1)



(OPTION 2)

TR - 25 FEET FOR TRANSITION TYPE 3G.
C - CHANGE: 100 FT. TRANSITION TO NORMAL SLOPE.
M - WIDTH OF MEDIAN.
L - TOTAL LENGTH PAID AS GUARDRAIL TYPE 3.
Y - FINAL OFFSET AT END.



TRANSITION TO TYPICAL 15:1 TAPER

MULTILANE DIVIDED HIGHWAYS - (DEPRESSED MEDIANS, 21 - 59 FT. WITH OPEN HAZARDS OR OBSTRUCTIONS)

Computer File Information		Sheet Revisions	
Creation Date: 07/31/19		Date:	Comments
Designer Initials: JBK	(R-X)		
Last Modification Date: 03/05/20	(R-X)		
Detailer Initials: LTA	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

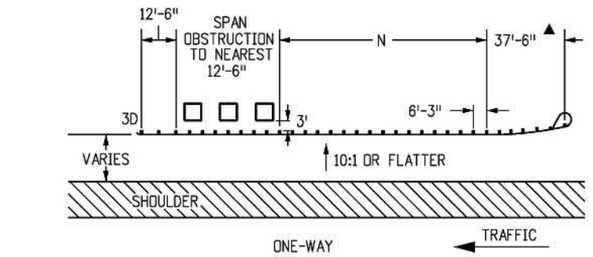
MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 3 W-BEAM 31 INCHES

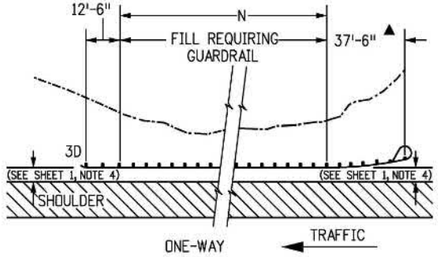
Issued by the Project Development Branch: July 31, 2019

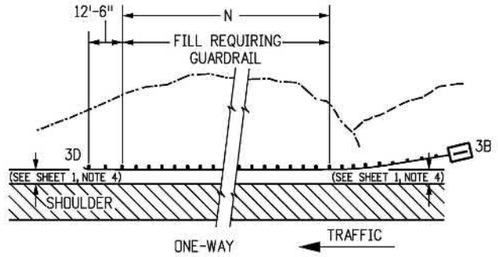
STANDARD PLAN NO. M-606-1

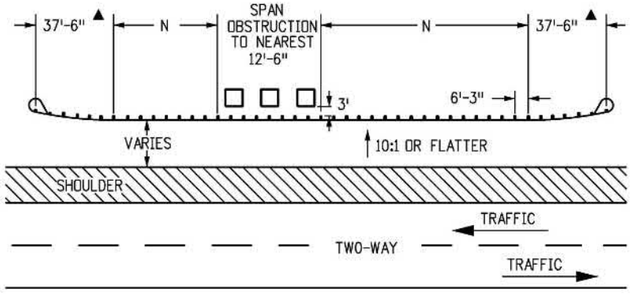
Standard Sheet No. 16 of 19

Project Sheet Number:

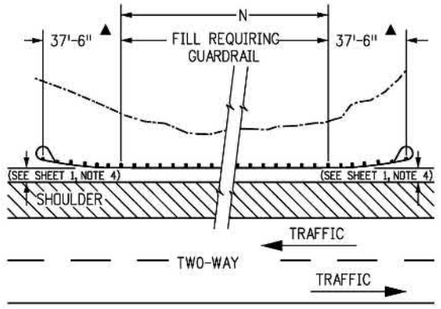




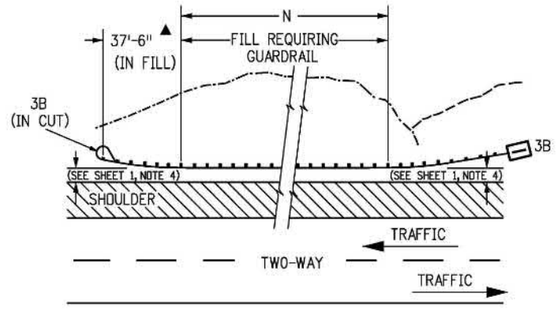




GUARDRAIL FOR ROADSIDE OBSTRUCTIONS



GUARDRAIL FOR
ROADSIDE FILL CONSTRUCTION

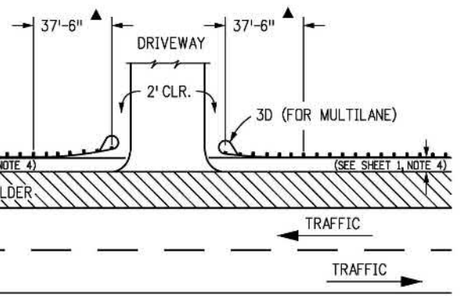


GUARDRAIL FOR
ROADSIDE CUT-TO-FILL CONDITION

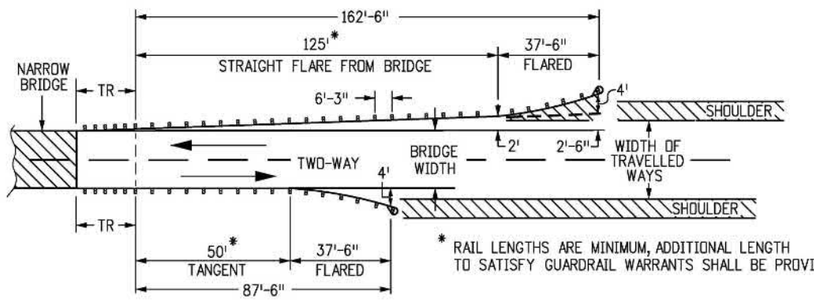
NOTES

1. A TYPE 3G OR 3H TRANSITION (SEE SHEET 11) SHALL BE USED TO CONNECT THE TYPE 3 W-BEAM TO A TYPE 9 CONCRETE BARRIER (SEE M-606-15) OR TO A TYPE 8 OR 10 BRIDGE RAIL.
2. "TR" SHALL BE 25 FEET FOR THE TRANSITION TYPES 3G AND 3H.
3. THE GUARDRAIL LENGTH DIMENSION "N" IS THE LENGTH AS DETERMINED BY THE LENGTH OF NEED COMPUTATION AND IS SHOWN ON THE PLANS. THE MINIMUM IS 12 FT.-6 IN. WHERE SITE CONDITIONS ALLOW. THE OVERALL REQUIRED LENGTH OF NEED CAN INCLUDE THE LENGTH OF TRANSITION, THE LENGTH OF RAIL (N), AND ANY REDIRECTIVE LENGTH IN THE RAIL END TREATMENT. A TRAVERSABLE SLOPE SHALL BE PROVIDED BEHIND THE TERMINAL TO DIMENSION "N" PRIOR TO THE OBSTRUCTION UNLESS OTHERWISE APPROVED BY THE ENGINEER.

▲ END ANCHORAGE CAN BE FLARED OR NONFLARED

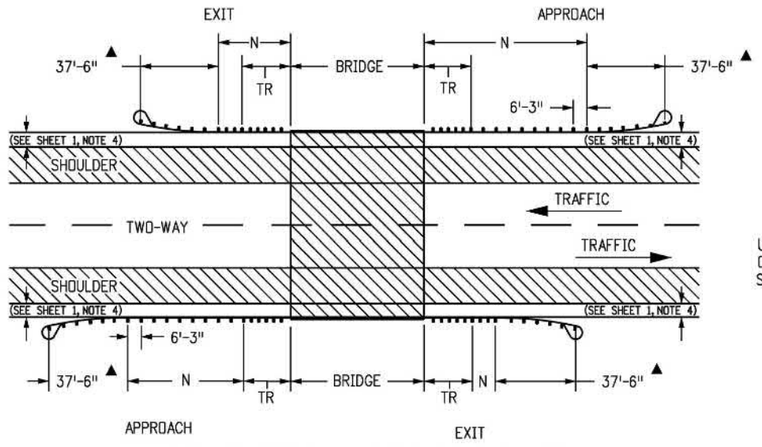


LAYOUT FOR DRIVEWAY APPROACH

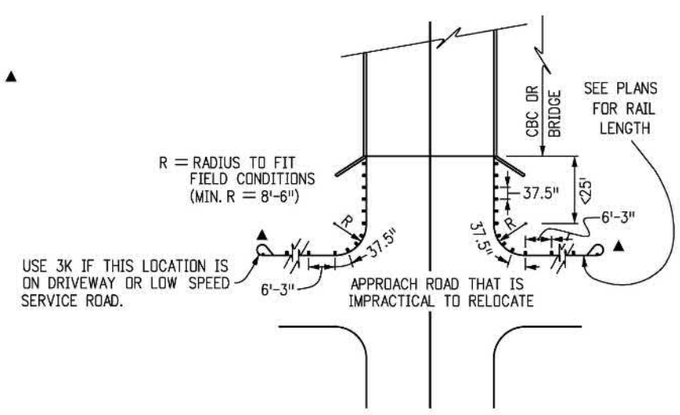


* RAIL LENGTHS ARE MINIMUM, ADDITIONAL LENGTH TO SATISFY GUARDRAIL WARRANTS SHALL BE PROVIDED

2-WAY NARROW APPLICATION



2-WAY NORMAL BRIDGE APPLICATION



GUARDRAIL TYPE 3 WITH BLOCKED OUT POSTS SPACED AT 3'-1½" FROM STRUCTURE AROUND CURVE.

INTERRUPTED
STRUCTURE APPROACH

(USE TYPE 3J ON SHEET 12 WHEN PRACTICAL)

Computer File Information		Sheet Revisions	
		Date:	Comments
Creation Date: 07/31/19			
Designer Initials: JBK	(R-X)		
Last Modification Date: 03/05/20	(R-X)		
Detailer Initials: LTA	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

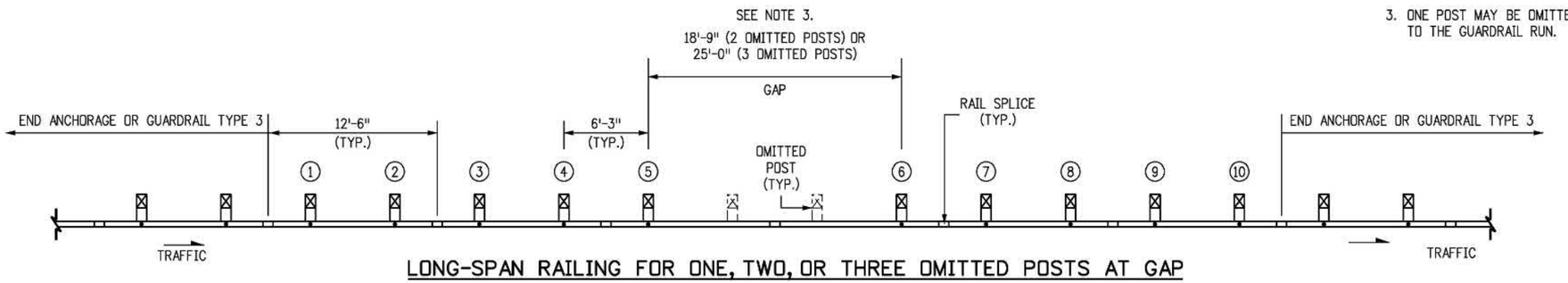
MIDWEST
GUARDRAIL SYSTEM (MGS)
TYPE 3 W-BEAM 31 INCHES

Issued by the Project Development Branch: July 31, 2019

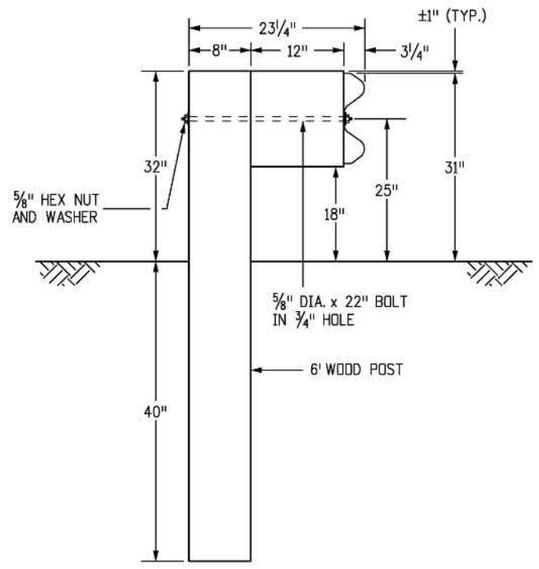
STANDARD PLAN NO.
M-606-1
Standard Sheet No. 17 of 19
Project Sheet Number:

NOTES

1. POSTS ①, ②, ⑨, and ⑩ MAY BE TIMBER OR STEEL.
2. THE NUMBER OF OMITTED POSTS IS DEPENDENT ON THE LENGTH OF THE GAP.
3. ONE POST MAY BE OMITTED WITHOUT ANY MODIFICATION TO THE GUARDRAIL RUN.

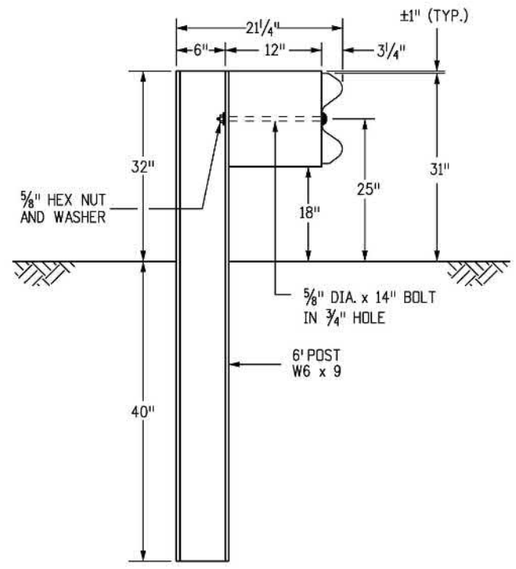


LONG-SPAN RAILING FOR ONE, TWO, OR THREE OMITTED POSTS AT GAP



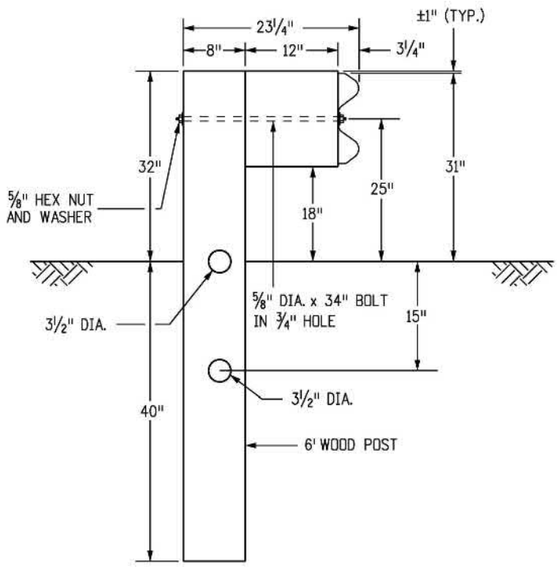
TIMBER POST

POSTS ①-② AND ⑨-⑩
(SEE NOTE 1)



STEEL POST

POSTS ①-② AND ⑨-⑩
(SEE NOTE 1)



BREAKWAY TIMBER POST

POSTS ③ - ⑧

Computer File Information		Sheet Revisions	
Creation Date: 07/31/19		Date:	Comments
Designer Initials: JBK	(R-X)		
Last Modification Date: 03/05/20	(R-X)		
Detailer Initials: LTA	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

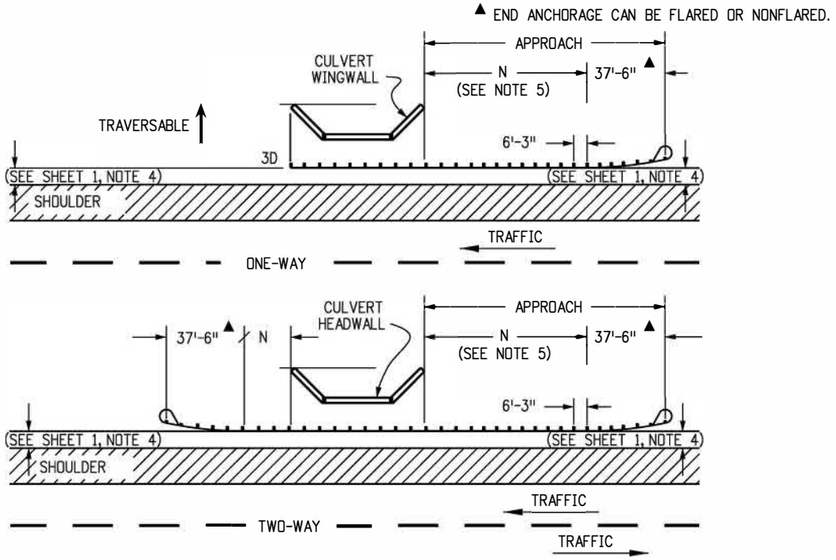
MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 3 W-BEAM 31 INCHES

Issued by the Project Development Branch: July 31, 2019

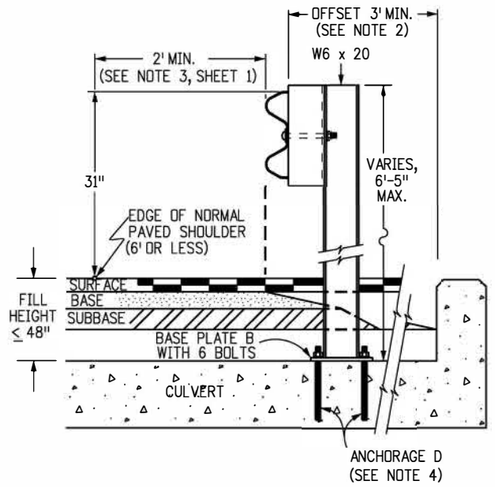
STANDARD PLAN NO. M-606-1

Standard Sheet No. 18 of 19

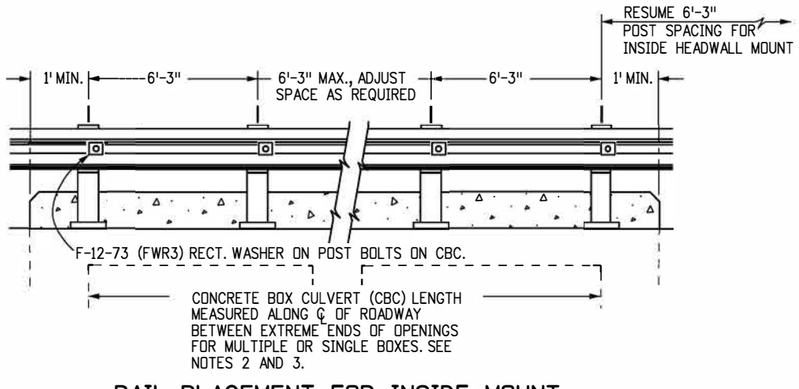
Project Sheet Number:



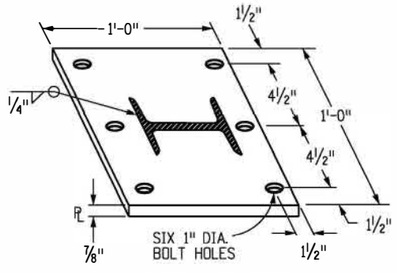
GUARDRAIL FOR CULVERTS



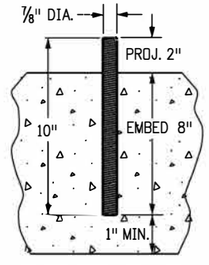
INSIDE MOUNT ON CBC



RAIL PLACEMENT FOR INSIDE MOUNT



BASE PLATE B
(FOR INSIDE MOUNT)



ANCHORAGE D
(FOR INSIDE MOUNT)

NOTES

1. LOCATION AND LENGTH OF MEDIAN GUARDRAIL APPROACHES TO CULVERTS WITH FULL HEADWALL AND WINGWALLS SHALL BE AS SHOWN FOR BRIDGES ON SHEET 15. THE GUARDRAIL TYPE 3 SHALL CONTINUE ACROSS THE CULVERT AS SHOWN ON THIS SHEET.
2. RIGHT SHOULDER BOX CULVERT TREATMENT IS SHOWN ON THIS SHEET FOR CULVERTS 20 FT. OR LESS IN LENGTH.
3. CONSTRUCTION AND PAYMENT FOR FILL HEIGHTS SHALL BE INCLUDED IN THE COST OF THE GUARDRAIL TYPE 3.
4. ANCHORAGE D: SIX BOLTS FOR BASE PLATE "B" WITH INSIDE MOUNT. THE BOLTS SHALL BE 7/8 IN. DIA X 10 IN. HIGH STRENGTH RODS THREADED FULL LENGTH AND ALL GALVANIZED. RODS SHALL BE CAST-IN-PLACE FOR NEW STRUCTURES. FOR EXISTING STRUCTURES, THE RODS SHALL BE INSTALLED IN 1-1/4 IN. DIA HOLES WITH NON-SHRINK GROUT OR EPOXY CONFORMING TO ASTM C 881. IF THE THICKNESS OF A CULVERT'S TOP PANEL REQUIRES BOLTS TO BE LESS THAN 10 IN. HIGH, THE BOLTS SHALL BE APPROVED BY THE ENGINEER.
5. THE GUARDRAIL LENGTH DIMENSION "N" IS THE LENGTH AS DETERMINED BY THE LENGTH OF NEED COMPUTATION AND IS SHOWN ON THE PLANS. THE MINIMUM IS 12 FT.-6 IN. WHERE SITE CONDITIONS ALLOW. THE OVERALL REQUIRED LENGTH OF NEED CAN INCLUDE THE LENGTH OF TRANSITION, THE LENGTH OF RAIL (N), AND ANY REDIRECTIVE LENGTH IN THE RAIL END TREATMENT.
6. ALL POSTS, BASE PLATES, AND ANCHOR BOLTS SHALL BE FABRICATED FROM ASTM A 36 STEEL. THE ABOVE MATERIAL, W-BEAM, AND ALL ANCHOR BOLTS AND MISCELLANEOUS BOLTS, NUTS,AND WASHERS SHALL BE GALVANIZED AFTER FABRICATION INACCORDANCE WITH SECTION 509. CONCRETE, REINFORCING STEEL, AND STRUCTURAL STEEL ELEMENTS SHALL BE IN ACCORDANCE WITH SECTIONS 601, 602, AND 509, RESPECTIVELY.
7. POST ANCHORS, ENCASED IN CONCRETE, SHALL BE ASTM A 36 STEEL, AND NEED NOT BE GALVANIZED.
8. PRIOR TO INSTALLATION OF GUARDRAIL ON CULVERTS, THREE SETS OF WORKING DRAWINGS WHICH COMPLY WITH THE REQUIREMENTS OF SECTION 105 SHALL BE SUBMITTED TO THE ENGINEER FOR INFORMATION ONLY.

Computer File Information		Sheet Revisions	
Creation Date: 07/31/19		Date:	Comments
Designer Initials: JBK	(R-X)		
Last Modification Date: 03/05/20	(R-X)		
Detailer Initials: LTA	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 3 W-BEAM 31 INCHES

Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO. M-606-1

Standard Sheet No. 19 of 19

Project Sheet Number:

CURB RAMP GENERAL NOTES:

1. IN NEW CONSTRUCTION OR FULL-DEPTH RECONSTRUCTION, PROVIDE A SEPARATE CURB RAMP FOR EACH MARKED OR UNMARKED PEDESTRIAN STREET CROSSING. CURB RAMPS SHALL BE CONTAINED WHOLLY WITHIN THE WIDTH OF THE PEDESTRIAN STREET CROSSING OR CROSSWALK THEY SERVE, OR AS SHOWN ON THE CONTRACT PLANS.

2. ALTERATIONS ARE DEFINED AS CHANGES TO AN EXISTING HIGHWAY THAT AFFECT PEDESTRIAN ACCESS, CIRCULATION, OR USE. ALTERATIONS INCLUDE, BUT ARE NOT LIMITED TO, RESURFACING, REHABILITATION, RECONSTRUCTION, CURB RAMP RETROFITS, HISTORIC RESTORATION, OR CHANGES OR REARRANGEMENT TO STRUCTURAL PARTS OR ELEMENTS OF A PEDESTRIAN FACILITY.

3. A WALKABLE SURFACE IS DEFINED AS A PAVED SURFACE ADJACENT TO A CURB RAMP OR TURNING SPACE, WITHOUT RAISED OBSTACLES, THAT COULD BE MISTAKENLY TRAVERSED BY A USER WHO IS VISUALLY IMPAIRED.

4. IN ALTERATIONS, WHERE AN EXISTING PHYSICAL CONSTRAINT PREVENTS PROVIDING A SEPARATE CURB RAMP FOR EACH PEDESTRIAN STREET CROSSING, A SINGLE DIAGONAL RAMP (ON THE APEX) SHALL BE PERMITTED TO SERVE BOTH PEDESTRIAN STREET CROSSINGS. THE USE OF A SINGLE DIAGONAL RAMP SHALL BE APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION. DIAGONAL RAMPS ARE NOT ACCEPTABLE IN NEW CONSTRUCTION OR FULL-DEPTH RECONSTRUCTION.

5. DETECTABLE WARNINGS SURFACES (DWS) ARE INTENDED TO INDICATE THE BOUNDARY BETWEEN A PEDESTRIAN ROUTE AND VEHICULAR ROUTE WHERE THERE IS A FLUSH RATHER THAN CURBED CONNECTION. DWS ARE NOT INTENDED TO PROVIDE WAYFINDING. DWS SHALL BE PROVIDED AT THE FOLLOWING LOCATIONS;
   1. CURB RAMPS, BLENDED TRANSITIONS, AND DEPRESSED CORNERS AT PEDESTRIAN STREET CROSSINGS;
   2. PEDESTRIAN REFUGE ISLANDS (6 FEET IN WIDTH OR GREATER);
   3. BOARDING PLATFORMS AT TRANSIT STOPS WHERE THE EDGE OF THE PLATFORM IS NOT PROTECTED TO PEDESTRIAN CROSS TRAFFIC; AND
   4. BOARDING AREAS AT SIDEWALK OR STREET LEVEL TRANSIT STOPS WHERE THE AREA IS NOT PROTECTED TO PEDESTRIAN CROSS TRAFFIC.

6. DETECTABLE WARNING SURFACES SHALL CONTRAST VISUALLY WITH THE ADJACENT GUTTER, HIGHWAY, OR PEDESTRIAN ACCESS ROUTE SURFACE, EITHER LIGHT-ON-DARK OR DARK-ON-LIGHT. FEDERAL YELLOW COLOR IS PREFERRED, HOWEVER, OTHER COLORS MAY BE USED IF APPROVED BY THE ENGINEER.

7. IN ALTERATIONS, TO AVOID CHASING GRADE INDEFINITELY ON STEEP ROADWAYS, A CURB RAMPS LENGTH IS NOT REQUIRED TO EXCEED 15 FEET REGARDLESS OF THE RESULTING RAMP RUNNING SLOPE.

8. ALL SLOPES ARE MEASURED WITH RESPECT TO A LEVEL PLANE.

9. DRAINAGE STRUCTURES, TRAFFIC SIGNAL EQUIPMENT, OR OTHER OBSTRUCTIONS SHALL NOT BE INSTALLED ON THE CURB RAMP, OR TURNING SPACE AREAS.

10. IN NEW CONSTRUCTION, PULL BOXES, METER BOXES, MAINTENANCE HOLE COVERS, VAULT LIDS, OR SIMILAR, SHALL NOT BE CONSTRUCTED WITHIN ANY PART OF CURB RAMP OR TURNING SPACE. IN ALTERATIONS, WHERE THESE ITEMS CANNOT BE RELOCATED OUTSIDE OF THE CURB RAMP OR TURNING SPACE, THEY MUST NOT CREATE A VERTICAL DISCONTINUITY GRATER THAN 1/2 INCH. ANY VERTICAL DISCONTINUITY BETWEEN 1/4 INCH AND 1/2 INCH SHALL BE BEVELED WITH A SLOPE NOT STEEPER THAN 1V:2H. THE BEVEL SHALL BE APPLIED ACROSS THE ENTIRE SURFACE DISCONTINUITY.

11. CONSTRUCTION OF ANY REQUIRED PEDESTRIAN CURB SHALL BE INCLUDED IN THE BID PRICE OF THE CONCRETE CURB RAMP AND WILL NOT BE PAID FOR SEPARATELY.

12. ALL CURB RAMP JOINTS AND GRADE BREAKS SHALL BE FLUSH (0'-1/8"). THE JOINT BETWEEN THE ROADWAY SURFACE AND THE GUTTER PAN SHALL BE FLUSH.

13. THE CONTRACTOR SHALL VERIFY REMOVAL LIMITS ARE SUFFICIENT TO PROVIDE POSITIVE DRAINAGE, MAINTAIN EXISTING DRAINAGE PATTERNS, AND AVOID PONDING IN THE FINAL CONFIGURATION.

14. FLARED SIDE SLOPES MAY EXCEED 10.0% ONLY WHERE THEY ABUT A NON-WALKABLE SURFACE, OR WHERE THE ADJACENT RAMP SURFACE IS BLOCKED TO PEDESTRIAN TRAFFIC.

15. THE CHANGE IN GRADE AT THE BOTTOM OF THE CURB RAMP SHALL NOT EXCEED AN ALGEBRAIC DIFFERENCE OF 13.33%. THE COUNTER SLOPE OF THE GUTTER AT THE FOOT OF A RAMP, TURNING SPACE, OR BLENDED TRANSITION SHALL NOT EXCEED 5.0%.

16. GRADE BREAKS AT THE TOP AND BOTTOM OF RAMP RUNS SHALL BE PERPENDICULAR TO THE DIRECTION OF THE RAMP RUN. GRADE BREAKS SHALL NOT BE PERMITTED ON THE SURFACE OF THE RAMP RUN OR TURNING SPACE. SURFACE SLOPES THAT MEET AT GRADE BREAKS SHALL BE FLUSH.

17. A BROOM FINISH, WITH SWEEPS PERPENDICULAR TO THE DIRECTION OF PEDESTRIAN TRAFFIC, SHALL BE APPLIED TO ALL RAMP AND TURNING SPACE SURFACES.

18. IN ALTERATIONS, WHERE A RAMP OR TURNING SPACE MUST TIE INTO AN EXISTING GRADE THAT CANNOT BE ALTERED, THE RAMP OR TURNING SPACE MAY BE WARPED TO TRANSITION TO THE REQUIRED CROSS SLOPE. THE TRANSITION TO THE REQUIRED CROSS SLOPE SHALL BE SPREAD EVENLY OVER THE LENGTH OF THE RAMP OR TURNING SPACE TO MINIMIZE THE DEGREE OF WARPING. THE RATE OF CHANGE ON A RAMP OR TURNING SPACE SHALL NOT EXCEED 3% PER LINEAR FOOT.

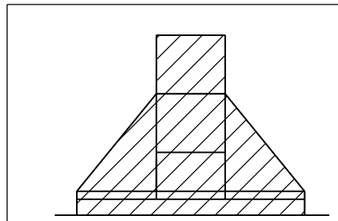
19. DESIGN AND CONSTRUCT CURB RAMPS, TURNING SPACES, AND FLARE SLOPES WITH THE FLATTEST SLOPES POSSIBLE. THE SLOPES INDICATED IN THESE DETAILS SHOW THE MAXIMUM SLOPES ALLOWABLE. PREFERRED VALUES TO BE USED DURING DESIGN, LAYOUT, AND CONSTRUCTION ARE:
   - RAMP RUNNING SLOPE 7.5%
   - RAMP CROSS SLOPE 1.5%
   - TURNING SPACE RUNNING SLOPE 1.5%
   - TURNING SPACE CROSS SLOPE 1.5%
   - FLARE SLOPE 8.0-9.0%

20. WHERE SNOW REMOVAL EQUIPMENT WILL BE USED TO CLEAR THE PEDESTRIAN ACCESS ROUTE, CONSULT THE ENGINEER PRIOR TO CONSTRUCTION TO ENSURE THE WIDTH AND THICKNESS OF CURB RAMPS IS SUFFICIENT TO ACCOMODATE SUCH EQUIPMENT.

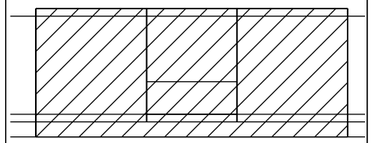
21. PROVIDE EXPANSION JOINT MATERIAL 1/2" THICK WHERE CURB RAMPS ADJOIN ANY RIGID PAVEMENT, OR STRUCTURE. THE TOP OF THE JOINT FILLER MATERIAL SHALL BE FLUSH WITH ADJOINING CONCRETE SURFACES. THE EXPANSION JOINT MATERIAL SHALL EXTEND FOR THE FULL DEPTH OF THE CONCRETE SURFACE.

22. PROVIDE TIE BAR REINFORCING BETWEEN INDEPEDENTLY POURED CONCRETE CURB RAMPS OR TURNING SPACES AND CURB AND GUTTER. DRILL AND GROUT NO. 4 12 INCH LONG REINFORCEMENT BARS (EPOXY COATED) AT 18 INCHES CENTER TO CENTER MINIMUM.

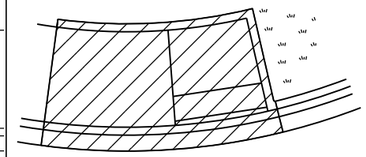
CURB RAMP PAY AREAS



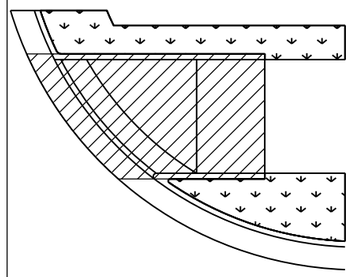
TYPE 1



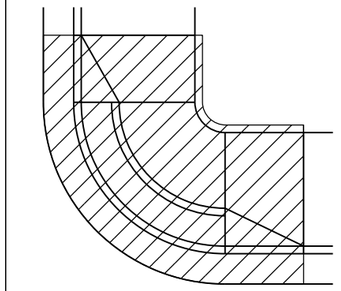
TYPE 2 - TWO RAMPS



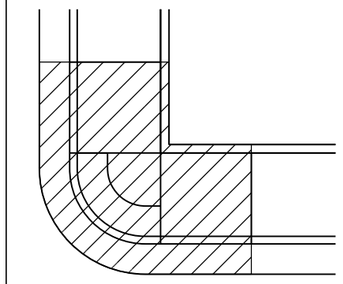
TYPE 2 - ONE RAMP



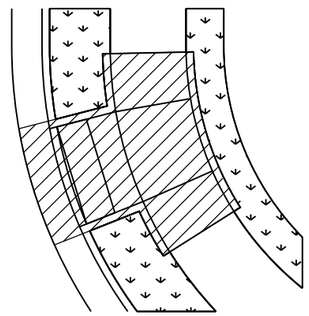
TYPE 2 - DIRECTIONAL



BLENDED TRANSITION



DEPRESSED CORNER



COMBINATION

PERCENT SLOPE	1.0%	2.0%	5.0%	7.1%	8.3%	10.0%
EQUIVALENT RUN/RISE	100:1	50:1	20:1	14:1	12:1	10:1

SLOPE TABLE

GENERAL NOTES & PAY AREAS

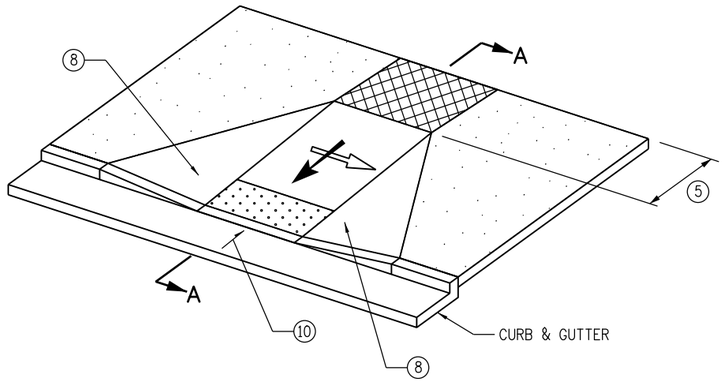
Computer File Information		Sheet Revisions	
Creation Date: 07/31/19		Date:	Comments
Designer Initials: JBK	(R-X)		
Last Modification Date: 07/31/19	(R-X)		
Detailer Initials: LTA	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

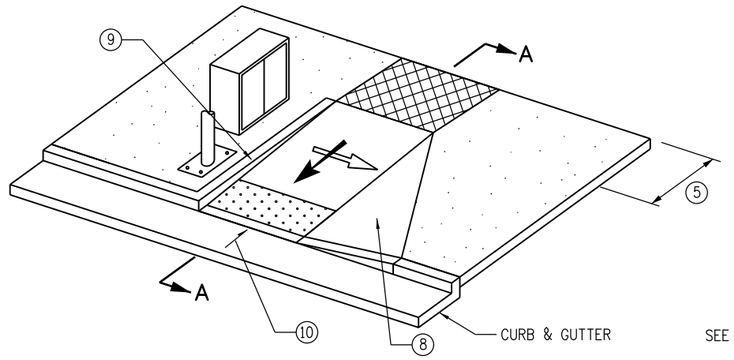
CURB RAMPS

Issued by the Project Development Branch: July 31, 2019

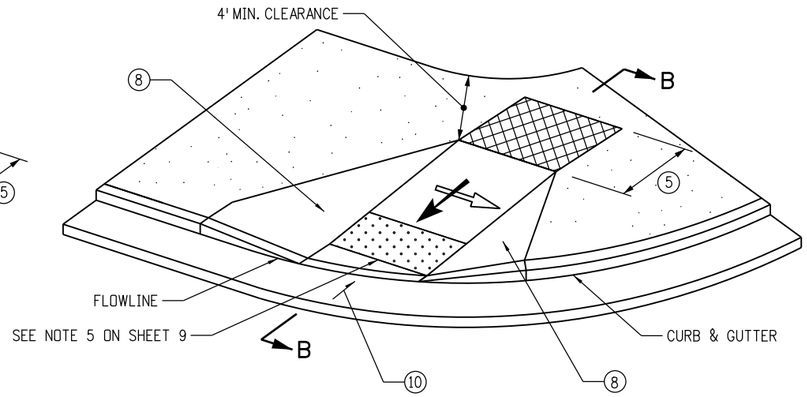
STANDARD PLAN NO.
M-608-1
Standard Sheet No. 1 of 10
Project Sheet Number:



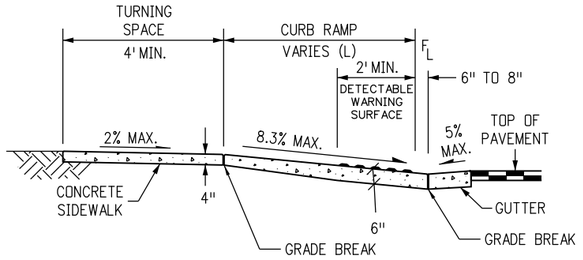
PERPENDICULAR RAMP
(TYPICAL)



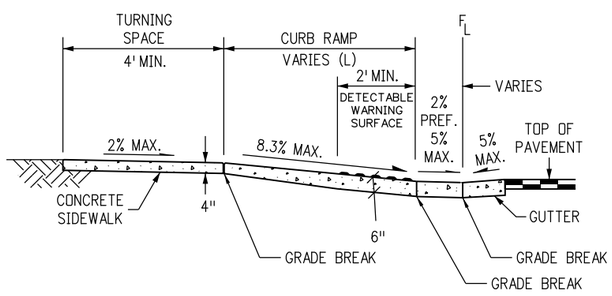
PERPENDICULAR RAMP
(WITH VERTICAL RETURN CURB)



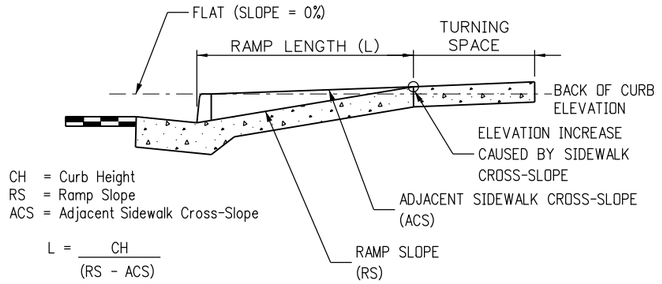
PERPENDICULAR RAMP
(DIRECTIONAL)



SECTION A-A



SECTION B-B



EXAMPLE: CH = 6" (0.5 ft.), RS = 7.5% (0.075), ACS = 1.5% (0.015)
L = 0.5/(0.075-0.015) = 8.3 ft.

DETAIL A - RAMP LENGTH

SIDEWALK

TURNING SPACE (3) (4) (5)

DETECTABLE WARNING SURFACE (DWS)

PERPENDICULAR RAMP NOTES

(1) RAMP WIDTH - PROVIDE 5 FT. OR GREATER WHERE POSSIBLE. IF SITE CONSTRAINTS DO NOT PERMIT, PROVIDE 4 FT. MINIMUM. RAMPS SERVICING SHARED USE PATHS SHALL MATCH THE WIDTH OF THE PATH.

(2) RAMP RUNNING SLOPE - 8.3% MAX.

(3) TURNING SPACE RUNNING SLOPE - 2.0% MAX. TURNING SPACE RUNNING SLOPE IS MEASURED IN THE SAME DIRECTION AS THE RAMP RUNNING SLOPE.

(4) RAMP AND TURNING SPACE CROSS SLOPE - 2.0% TYPICAL. AT CROSSINGS WITHOUT YIELD OR STOP CONTROL, OR WITH A SIGNAL WHERE VEHICLES CAN PROCEED THROUGH THE INTERSECTION WITHOUT SLOWING OR STOPPING, THE CROSS SLOPE OF RAMPS AND TURNING SPACES MAY EQUAL THE HIGHWAY GRADE. AT MIDBLOCK PEDESTRIAN STREET CROSSINGS THE RAMP AND TURNING SPACE CROSS SLOPE MAY EQUAL THE HIGHWAY GRADE.

(5) TURNING SPACE DIMENSIONS - PROVIDE A TURNING SPACE AT THE TOP OF PERPENDICULAR RAMPS WITH A WIDTH EQUAL TO THE WIDTH OF THE CURB RAMP. TURNING SPACE LENGTH MUST BE 4 FT. MINIMUM, MEASURED IN THE DIRECTION OF THE RAMP RUN. WHEN A TURNING SPACE IS CONSTRAINED AT THE BACK OF SIDEWALK, INCREASE LENGTH TO 5 FT. MINIMUM IN THE DIRECTION OF THE RAMP RUN.

(6) RAMP ALIGNMENT - RAMPS SHALL BE ALIGNED TO BE FULLY CONTAINED WITHIN THE CROSSWALK OR STREET CROSSING THEY SERVE. PROVIDE ONE RAMP FOR EACH STREET CROSSING DIRECTION. IN ALTERATIONS, WHERE EXISTING PHYSICAL CONSTRAINTS PREVENT PROVIDING ONE CURB RAMP FOR EACH CROSSING DIRECTION, A SINGLE DIAGONAL CURB RAMP (ON THE APEX OF A CORNER) SHALL BE PERMITTED TO SERVE BOTH PEDESTRIAN STREET CROSSINGS. IF A DIAGONAL RAMP IS USED, A CLEAR SPACE 4 FT. X 4FT. MUST BE PROVIDED AT THE BASE OF THE RAMP. THE CLEAR SPACE MUST BE WITHIN BOTH CROSSWALKS AND WHOLLY OUTSIDE OF ANY ADJACENT VEHICULAR TRAVEL LANES. DIAGONAL RAMPS ARE NOT ACCEPTABLE IN NEW CONSTRUCTION, OR FULL-DEPTH RECONSTRUCTION.

(7) RAMP LENGTH - PERPENDICULAR RAMP LENGTH IS DEPENDENT UPON THE RAMP SLOPE, HEIGHT OF CURB, AND ADJACENT SIDEWALK CROSS-SLOPE WHICH MUST BE INTERCEPTED. SEE DETAIL A FOR CALCULATING RAMP LENGTH WHEN CHASING SIDEWALK CROSS-SLOPE. WHERE TERRAIN IS SLOPING A RAMP IS NOT REQUIRED TO CHASE GRADE MORE THAN 15 FT. REGARDLESS OF THE RESULTING RAMP SLOPE.

(8) RAMP FLARES - WHERE A RAMP EDGE ABUTS A WALKABLE SURFACE, A FLARED SIDE SHALL BE PROVIDED. RAMP FLARE SLOPES SHALL NOT EXCEED 10.0%.

(9) VERTICAL CURB RETURNS - VERTICAL CURB RETURNS MAY BE USED ONLY WHERE A RAMP ABUTS A NON-WALKABLE SURFACE, OR WHERE A RAMP IS PROTECTED FROM PEDESTRIAN CROSS TRAFFIC (FOR EXAMPLE BY A SIGNAL CABINET OR UTILITY POLE WHICH BLOCKS PASSAGE).

(10) GUTTER COUNTER SLOPE - 5.0% MAX.

TYPE 1 PERPENDICULAR CURB RAMPS

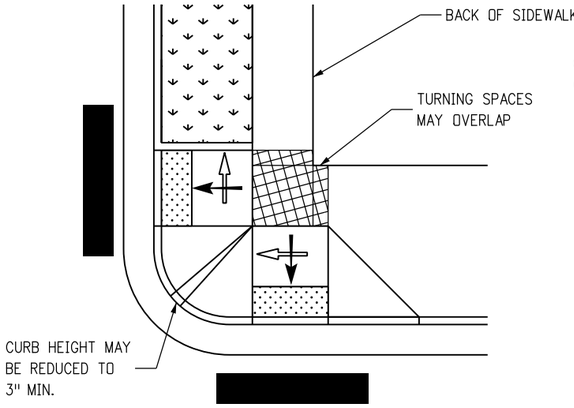
Computer File Information		Sheet Revisions	
Creation Date: 07/31/19		Date:	Comments
Designer Initials: JBK	(R-X)		
Last Modification Date: 07/31/19	(R-X)		
Detailer Initials: LTA	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

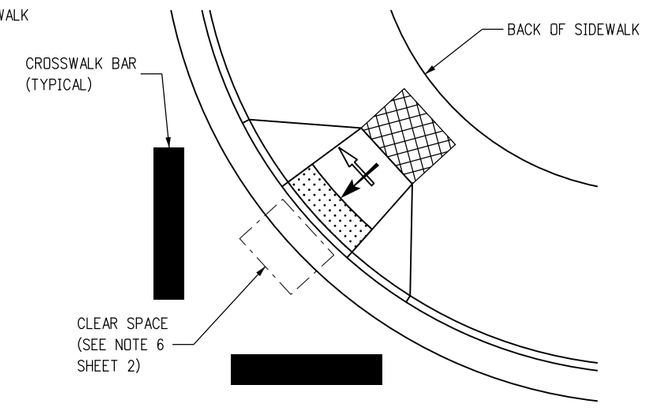
CURB RAMPS

Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO.
M-608-1
Standard Sheet No. 2 of 10
Project Sheet Number:

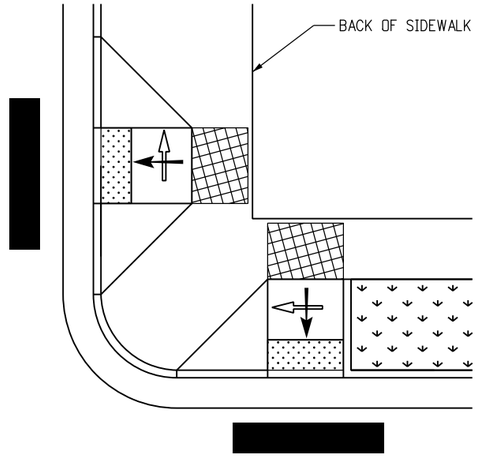


TYPE 1 RAMPS FOR WIDE SIDEWALK
(3" REDUCED CURB)



TYPE 1 RAMP
(DIAGONAL)

NOT ALLOWABLE IN NEW CONSTRUCTION/FULL DEPTH RECONSTRUCTION
SEE GENERAL NOTE 4



TYPE 1 RAMPS FOR WIDE SIDEWALK

TURNING SPACE
(SEE NOTES 3, 4, 5 - SHEET 2)

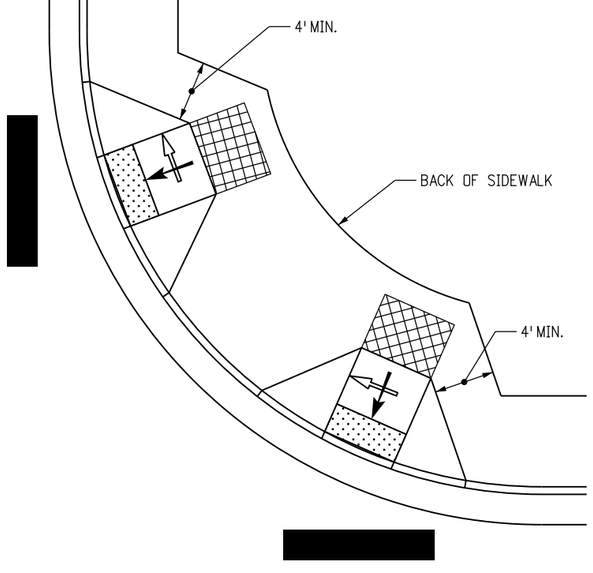
DETECTABLE WARNING SURFACE (DWS)
SEE DWS SHEETS FOR PLACEMENT DETAILS

RAMP RUNNING SLOPE

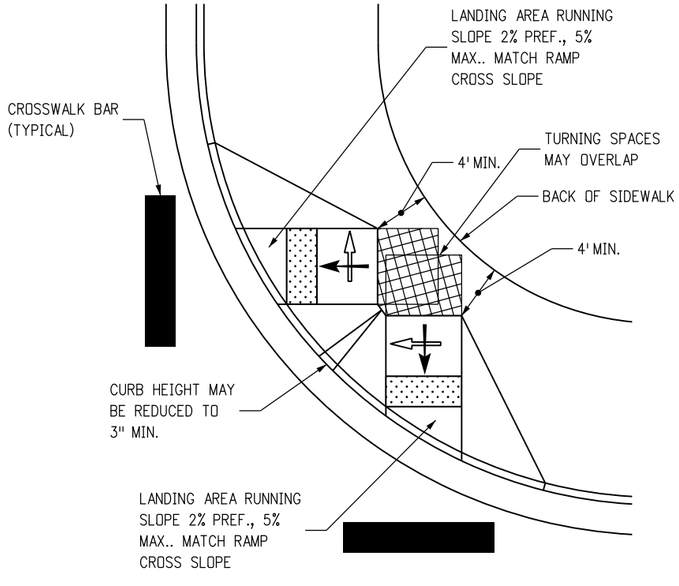
RAMP CROSS SLOPE

NOTE

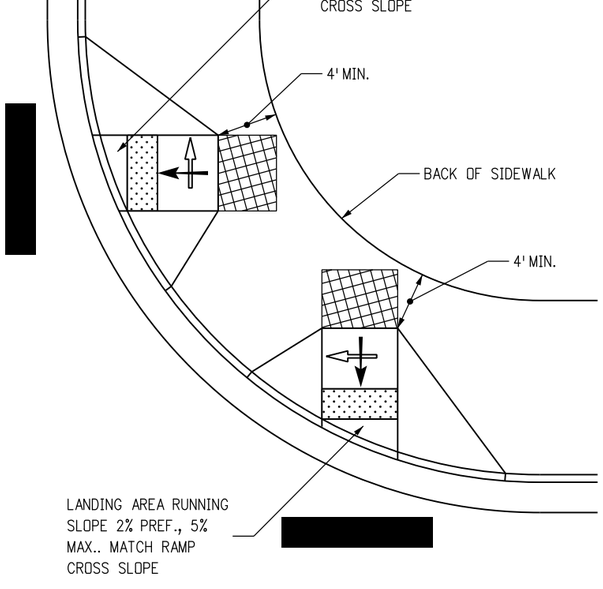
PLACEMENTS SHOWN ARE TYPICAL CONFIGURATIONS ONLY AND NOT INDICATIVE OF ALL OPTIONS. OTHER RAMP CONFIGURATIONS MAY BE ACCEPTABLE AS LONG AS THEY CONFORM TO THE CRITERIA IN THESE STANDARDS, AND ARE APPROVED BY THE ENGINEER.



TYPE 1 PERPENDICULAR RAMPS



TYPE 1 DIRECTIONAL RAMPS
(3" REDUCED CURB)



TYPE 1 DIRECTIONAL RAMPS
(LARGE RADIUS)

TYPE 1 CURB RAMPS TYPICAL CONFIGURATIONS

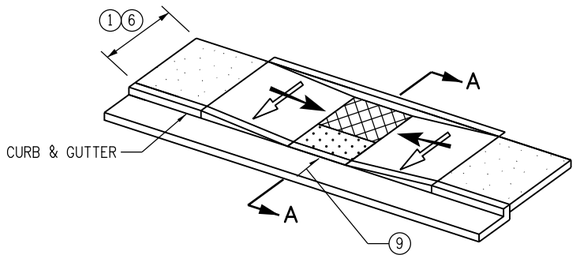
Computer File Information		Sheet Revisions	
Creation Date: 07/31/19		Date:	Comments
Designer Initials: JBK	(R-X)		
Last Modification Date: 07/31/19	(R-X)		
Detailer Initials: LTA	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

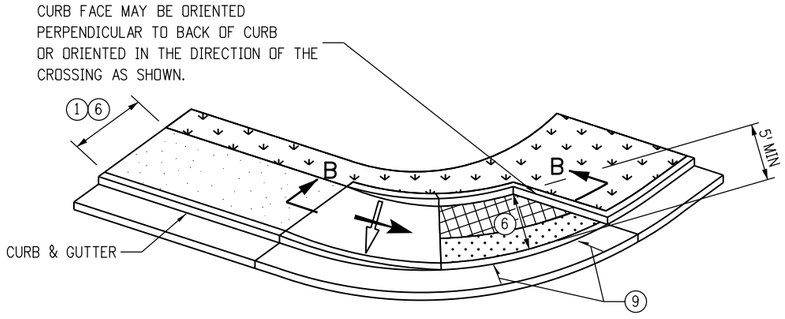
CURB RAMPS

Issued by the Project Development Branch: July 31, 2019

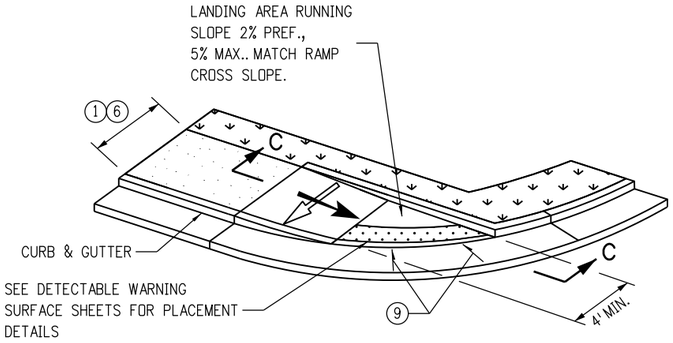
STANDARD PLAN NO.
M-608-1
Standard Sheet No. 3 of 10
Project Sheet Number:



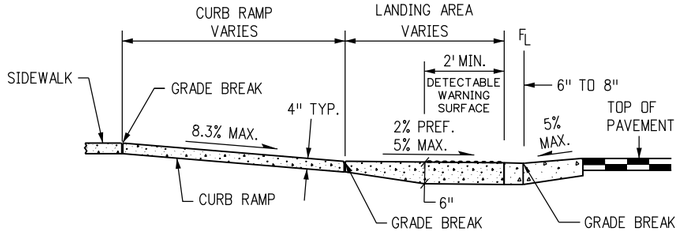
PARALLEL RAMP
(TYPICAL)



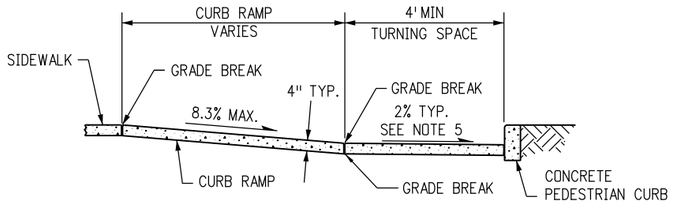
PARALLEL RAMP
(SIDEWALK ENDS)



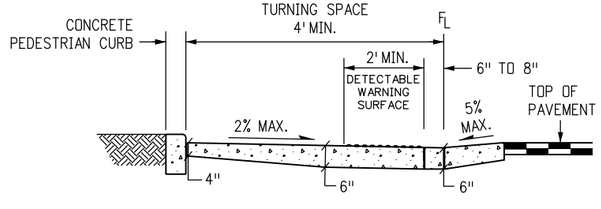
PARALLEL RAMP
(DIRECTIONAL - CROSSING IN ONE DIRECTION ONLY)



SECTION C-C



SECTION B-B

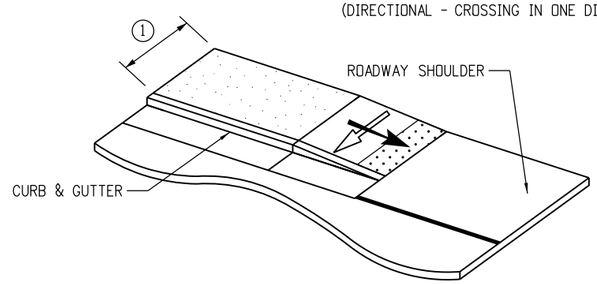


SECTION A-A

SIDEWALK

TURNING SPACE (4) (5) (6)

DETECTABLE WARNING SURFACE (DWS)



SIDEWALK TO SHOULDER TRANSITION

PARALLEL RAMP NOTES

(1) RAMP WIDTH - PROVIDE A RAMP WIDTH EQUAL TO THE ADJOINING SIDEWALK, PROVIDE 4 FT. WIDTH MINIMUM. RAMPS SERVICING SHARED USE PATHS SHALL MATCH THE WIDTH OF THE PATH.

(2) RAMP RUNNING SLOPE - 8.3% MAX.

(3) RAMP CROSS SLOPE - 2.0% MAX.

(4) TURNING SPACE RUNNING SLOPE - 2.0% MAX. TURNING SPACE RUNNING SLOPE IS MEASURED PERPENDICULAR TO THE BACK OF CURB.

(5) TURNING SPACE CROSS SLOPE - 2.0% TYPICAL, AT CROSSINGS WITHOUT YIELD OR STOP CONTROL, OR WITH A SIGNAL WHERE VEHICLES CAN PROCEED THROUGH THE INTERSECTION WITHOUT SLOWING OR STOPPING, THE CROSS SLOPE OF THE TURNING SPACE MAY EQUAL THE HIGHWAY GRADE. AT MIDBLOCK PEDESTRIAN STREET CROSSINGS THE TURNING SPACE CROSS SLOPE MAY EQUAL THE HIGHWAY GRADE. TURNING SPACE CROSS SLOPE IS MEASURED IN THE DIRECTION OF THE RAMP RUN.

(6) TURNING SPACE DIMENSIONS - PROVIDE A TURNING SPACE AT THE BOTTOM OF PARALLEL RAMPS WITH A WIDTH EQUAL TO THE WIDTH OF THE CURB RAMP. PROVIDE 4 FT. MINIMUM, MEASURED IN THE DIRECTION OF THE RAMP RUN. IF THE TURNING SPACE IS CONSTRAINED ON TWO SIDES, PROVIDE 5 FT. MEASURED IN THE DIRECTION OF PEDESTRIAN STREET CROSSING. THE TURNING SPACE MAY CONTAIN THE DETECTABLE WARNING SURFACE.

(7) RAMP ALIGNMENT - RAMPS SHALL BE ALIGNED SO THE TURNING SPACE IS FULLY CONTAINED WITHIN THE CROSSWALK OR STREET CROSSING THEY SERVE. PROVIDE ONE RAMP FOR EACH STREET CROSSING DIRECTION. IN ALTERATIONS, WHERE EXISTING PHYSICAL CONSTRAINTS PREVENT PROVIDING ONE CURB RAMP FOR EACH CROSSING DIRECTION, A SINGLE DIAGONAL CURB RAMP (ON THE APEX OF A CORNER) SHALL BE PERMITTED TO SERVE BOTH PEDESTRIAN STREET CROSSINGS. DIAGONAL RAMPS ARE NOT ACCEPTABLE IN NEW CONSTRUCTION, OR FULL-DEPTH RECONSTRUCTION.

(8) RAMP LENGTH - PARALLEL RAMP LENGTH IS DEPENDENT UPON THE RAMP SLOPE AND THE CHANGE OF ELEVATION FROM THE TURNING SPACE TO THE SIDEWALK. WHERE TERRAIN IS SLOPING A RAMP IS NOT REQUIRED TO CHASE GRADE MORE THAN 15 FT. REGARDLESS OF THE RESULTING RAMP SLOPE.

(9) GUTTER COUNTER SLOPE - 5.0% MAX.

TYPE 2 PARALLEL CURB RAMPS

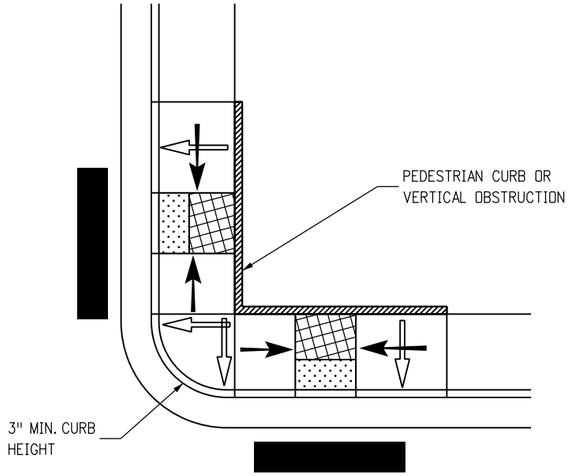
Computer File Information		Sheet Revisions	
Creation Date: 07/31/19		Date:	Comments
Designer Initials: JBK	(R-X)		
Last Modification Date: 07/31/19	(R-X)		
Detailer Initials: LTA	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

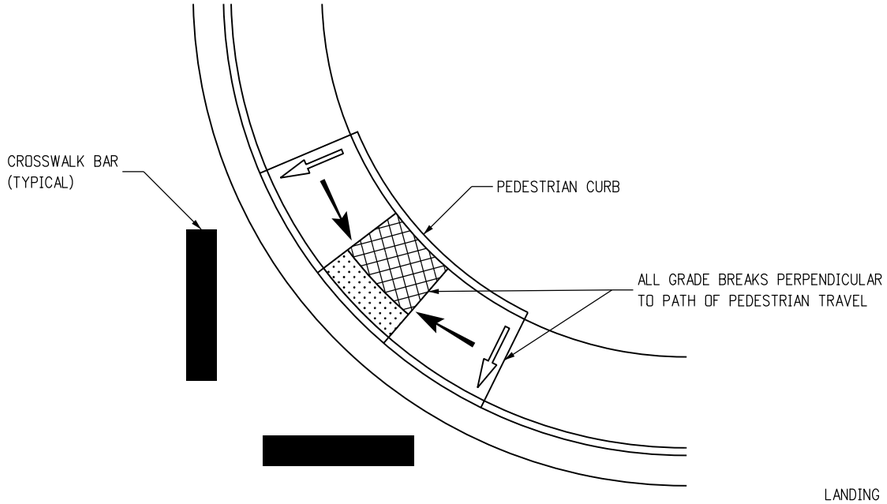
CURB RAMPS

Issued by the Project Development Branch: July 31, 2019

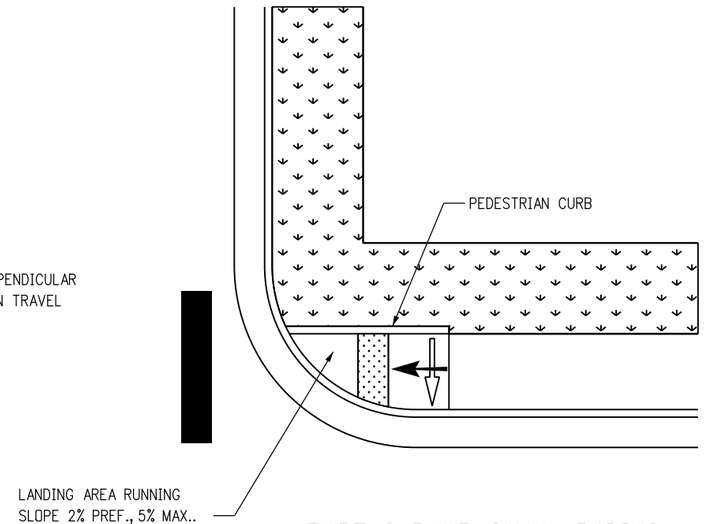
STANDARD PLAN NO.
M-608-1
Standard Sheet No. 4 of 10
Project Sheet Number:



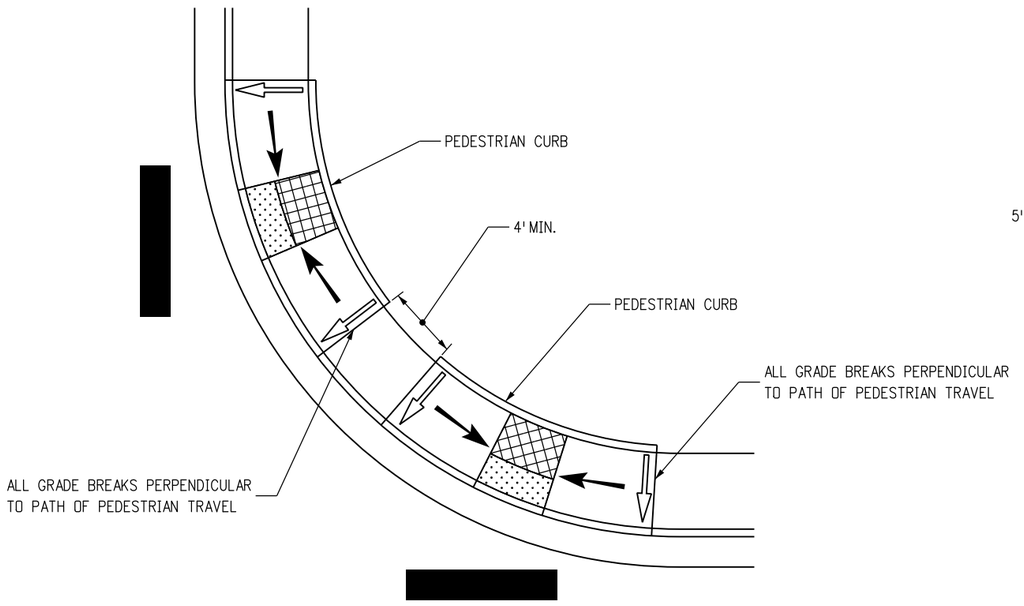
TYPE 2 RAMPS SMALL RADIUS
(3" REDUCED CURB)



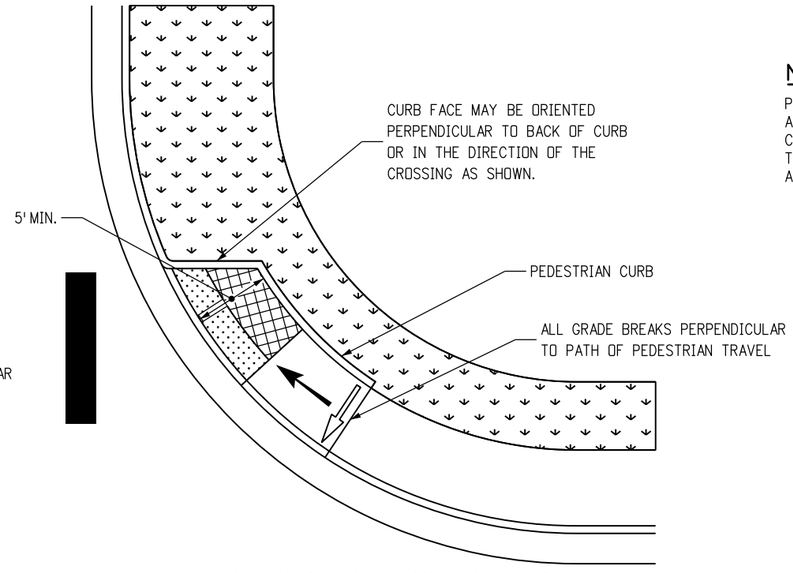
TYPE 2 RAMP (DIAGONAL)
NOT ALLOWABLE IN NEW CONSTRUCTION/FULL-DEPTH RECONSTRUCTION
SEE NOTE GENERAL NOTE 4



TYPE 2 RAMP SMALL RADIUS
(CROSSING IN ONE DIRECTION)



TYPE 2 RAMPS LARGE RADIUS



TYPE 2 RAMP LARGE RADIUS
(CROSSING IN ONE DIRECTION)

NOTE

PLACEMENTS SHOWN ARE TYPICAL CONFIGURATIONS ONLY AND NOT INDICATIVE OF ALL OPTIONS. OTHER RAMP CONFIGURATIONS MAY BE ACCEPTABLE AS LONG AS THEY CONFORM TO THE CRITERIA IN THESE STANDARDS, AND ARE APPROVED BY THE ENGINEER.

TURNING SPACE
(SEE NOTE 4, 5, 6 - SHEET 4)

DETECTABLE WARNING SURFACE (DWS)
SEE DWS SHEETS FOR PLACEMENT
DETAILS

RAMP RUNNING SLOPE

RAMP CROSS SLOPE

TYPE 2 CURB RAMPS TYPICAL CONFIGURATIONS

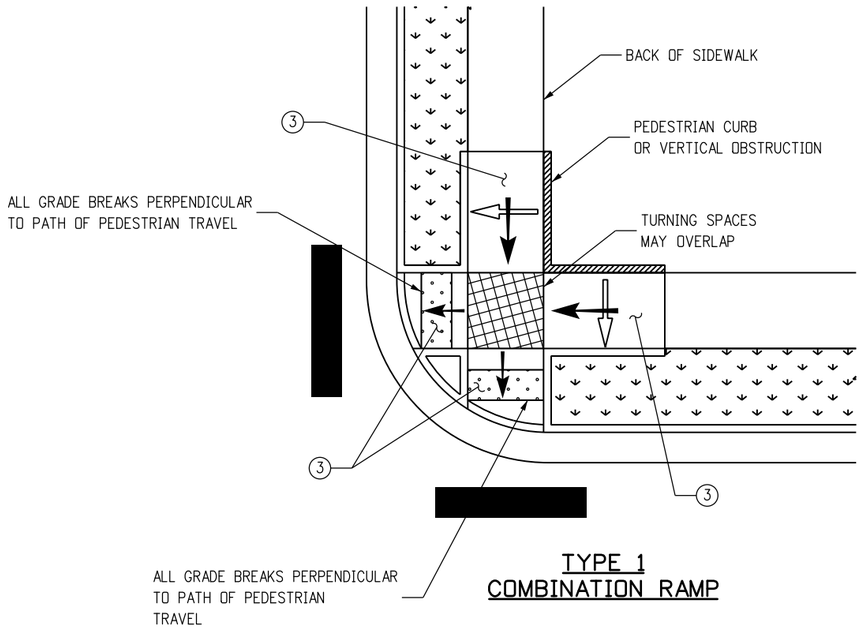
Computer File Information		Sheet Revisions	
Creation Date: 07/31/19		Date:	Comments
Designer Initials: JBK	(R-X)		
Last Modification Date: 07/31/19	(R-X)		
Detailer Initials: LTA	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

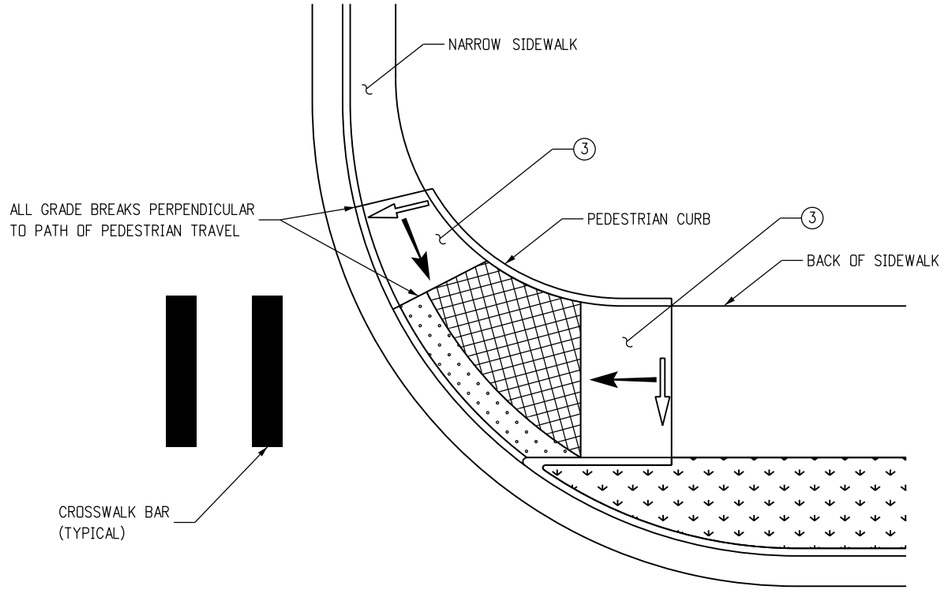
CURB RAMPS

Issued by the Project Development Branch: July 31, 2019

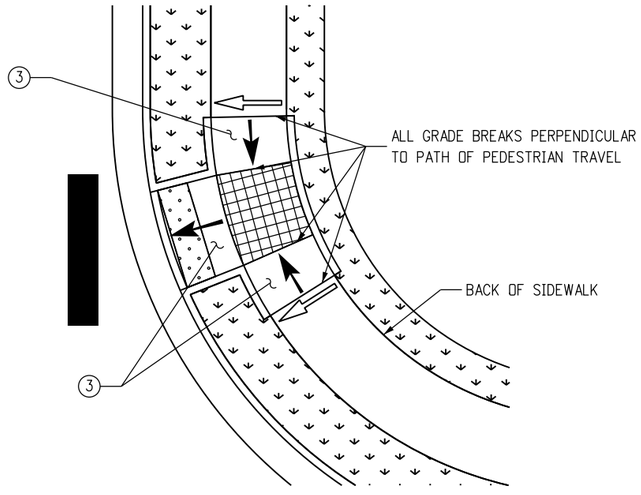
STANDARD PLAN NO.
M-608-1
Standard Sheet No. 5 of 10
Project Sheet Number:



TYPE 1
COMBINATION RAMP



TYPE 1/TYPE 2
COMBINATION RAMP



TYPE 1/TYPE 2
COMBINATION RAMP

COMBINATION CURB RAMP NOTES:

1. THE CURB RAMP PLACEMENTS SHOWN ARE TYPICAL CONFIGURATIONS ONLY AND NOT INDICATIVE OF ALL OPTIONS. OTHER CURB RAMP CONFIGURATIONS MAY BE ACCEPTABLE AS LONG AS THEY CONFORM TO THE CRITERIA IN THESE STANDARDS, AND ARE APPROVED BY THE ENGINEER.

2. RAMP AND TURNING SPACE CROSS SLOPE - 2.0% TYPICAL. AT CROSSINGS WITHOUT YIELD OR STOP CONTROL, OR WITH A SIGNAL WHERE VEHICLES CAN PROCEED THROUGH THE INTERSECTION WITHOUT SLOWING OR STOPPING, THE CROSS SLOPE OF THE RAMP AND TURNING SPACE MAY EQUALTHE HIGHWAY GRADE. AT MIDBLOCK PEDESTRIAN STREET CROSSINGS THE RAMP AND TURNING SPACE CROSS SLOPE MAY EQUAL THE HIGHWAY GRADE.

3. WHERE IT IS ACCEPTABLE FOR A RAMP OR TURNING SPACE CROSS SLOPE TO EXCEED 2.0% AND MATCH THE HIGHWAY GRADE, THE RAMP ABOVE THE TURNING SPACE MAY BE WARPED TO TIE INTO THE ADJOINING SIDEWALK CROSS SLOPE. THE TRANSITION TO THE SIDEWALK CROSS SLOPE SHALL BE SPREAD EVENLY OVER THE LENGTH OF THE RAMP TO MINIMIZE WARPING. THE RATE OF CHANGE IN CROSS SLOPE MAY NOT EXCEED 3.0% PER LINEAR FOOT.

TURNING SPACE (2) (3)

DETECTABLE WARNING SURFACE (DWS)
SEE DWS SHEETS FOR PLACEMENT DETAILS

RAMP RUNNING SLOPE

RAMP CROSS SLOPE (2) (3)

COMBINATION CURB RAMPS TYPICAL CONFIGURATIONS

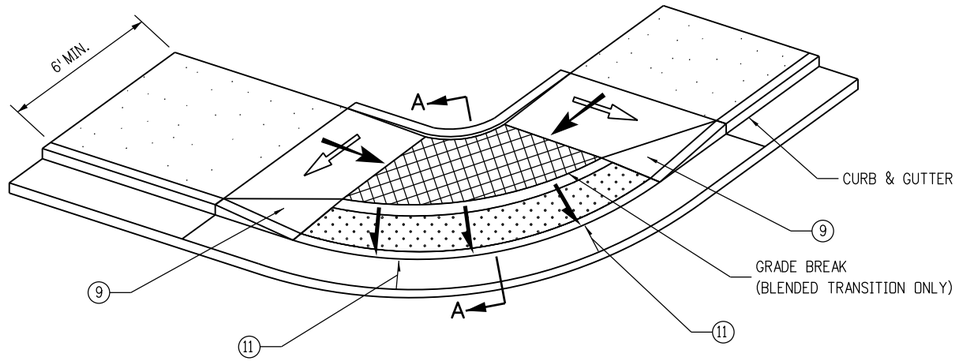
Computer File Information		Sheet Revisions	
Creation Date: 07/31/19		Date:	Comments
Designer Initials: JBK	(R-X)		
Last Modification Date: 07/31/19	(R-X)		
Detailer Initials: LTA	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

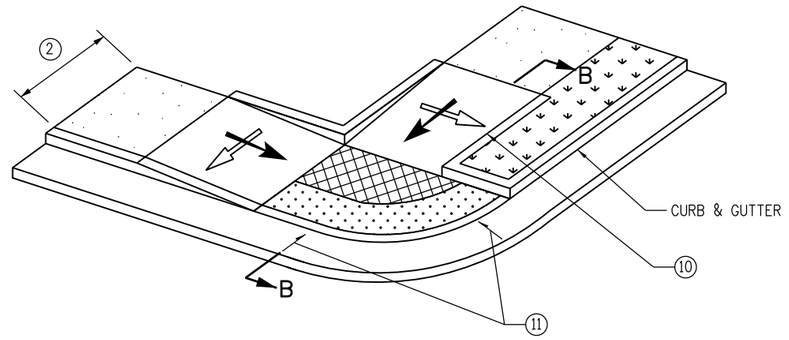
CURB RAMPS

Issued by the Project Development Branch: July 31, 2019

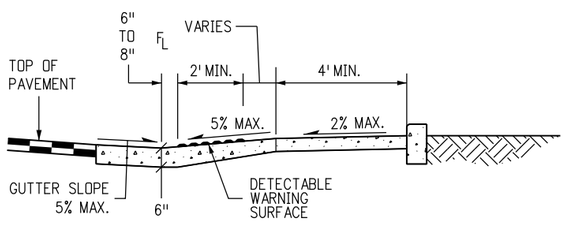
STANDARD PLAN NO.
M-608-1
Standard Sheet No. 6 of 10
Project Sheet Number:



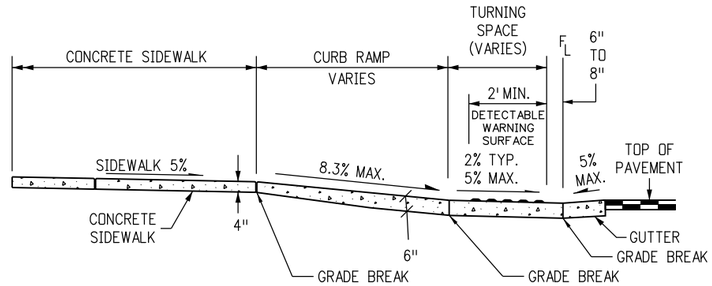
BLENDED TRANSITION



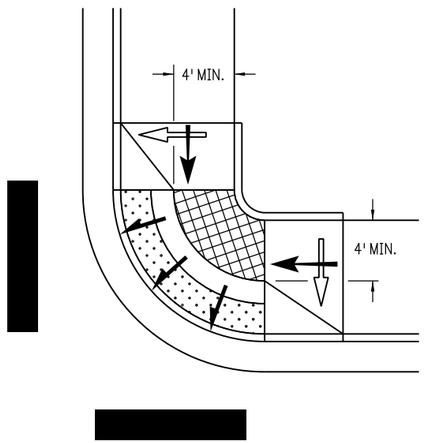
DEPRESSED CORNER



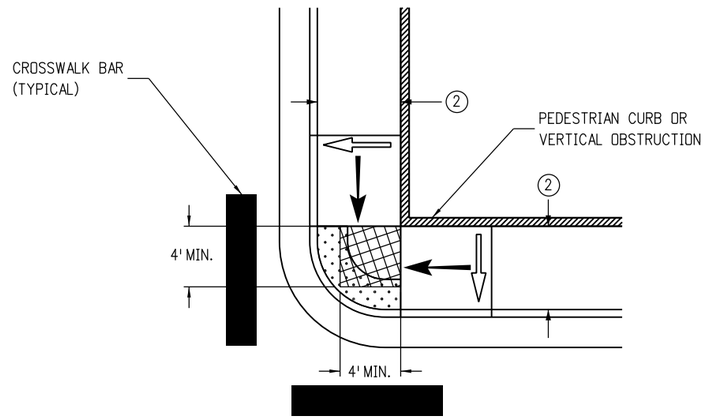
SECTION A-A



SECTION B-B



BLENDED TRANSITION



DEPRESSED CORNER

SIDEWALK

TURNING SPACE (4) (5) (6)

DETECTABLE WARNING SURFACE (DWS)

BLENDED TRANSITION & DEPRESSED CORNER NOTES

(1) PERPENDICULAR AND PARALLEL RAMP CONFIGURATIONS ARE PREFFERED. BLENDED TRANSITIONS AND DEPRESSED CORNERS SHOULD ONLY BE USED WHERE SITE CONDITIONS MAKE THEM A MORE APPROPRIATE OPTION, OR WHERE PERPENDICULAR OR PARALLEL RAMPS CANNOT BE INSTALLED DUE TO A PHYSICAL SITE CONSTRAINT.

(2) RAMP WIDTH - PROVIDE 5 FT. OR GREATER WHERE POSSIBLE. IF SITE CONSTRAINTS DO NOT PERMIT, PROVIDE 4FT. WIDTH MINIMUM. RAMPS SERVICING SHARED USE PATHS SHALL MATCH THE WIDTH OF THE PATH.

(3) RAMP RUNNING SLOPE - 8.3% MAX.

(4) BLENDED TRANSITION RUNNING SLOPE - 5.0% MAX.

(5) RAMP AND TURNING SPACE CROSS SLOPE - 2.0% TYPICAL. AT CROSSINGS WITHOUT YIELD OR STOP CONTROL, OR WITH A SIGNAL WHERE VEHICLES CAN PROCEED THROUGH THE INTERSECTION WITHOUT SLOWING OR STOPPING, THE CROSS SLOPE OF RAMPS AND TURNING SPACES MAY EQUAL THE HIGHWAY GRADE.

(6) TURNING SPACE DIMENSIONS - PROVIDE A 4 FT. X 4 FT. MIN. TURNING SPACE AT THE BOTTOM OF RAMP RUNS. THE TURNING SPACE MAY CONTAIN THE DETECTABLE WARNING SURFACES.

(7) RAMP ALIGNMENT - TURNING SPACE SHALL BE ALIGNED TO BE FULLY CONTAINED WITHIN THE CROSSWALK OR STREET CROSSING(S) THEY SERVE.

(8) RAMP LENGTH - RAMP LENGTH IS DEPENDENT UPON THE RAMP SLOPE AND THE CHANGE OF ELEVATION FROM THE TURNING SPACE TO THE SIDEWALK. WHERE TERRAIN IS SLOPING A RAMP IS NOT REQUIRED TO CHASE GRADE MORE THAN 15 FT. REGARDLESS OF THE RESULTING RAMP SLOPE.

(9) RAMP FLARES - WHERE A RAMP EDGE ABUTS A WALKABLE SURFACE, A FLARED SIDE MUST BE PROVIDED. RAMP FLARE SLOPES SHALL NOT EXCEED 10.0%.

(10) VERTICAL CURB RETURNS - VERTICAL CURB RETURNS MAY BE USED ONLY WHERE A RAMP ABUTS A NON-WALKABLE SURFACE, OR WHERE A RAMP IS PROTECTED FROM PEDESTRIAN CROSS TRAFFIC (FOR EXAMPLE BY A SIGNAL CABINET OR UTILITY POLE WHICH BLOCKS PASSAGE).

(11) GUTTER COUNTER SLOPE - 5.0% MAX.

(12) DWS PLACEMENT - DWS SHALL BE PLACED AROUND THE RADIUS AND LOCATED AT THE BACK OF CURB ON BLENDED TRANSITION AND DEPRESSED CORNER RAMPS.

TYPE 5 - DEPRESSED CORNER/BLENDED TRANSITION

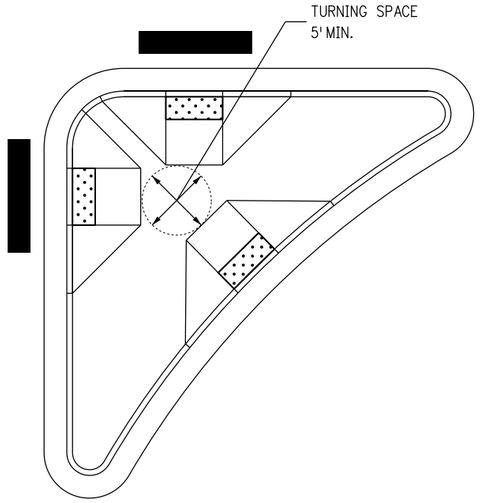
Computer File Information		Sheet Revisions	
Creation Date: 07/31/19		Date:	Comments
Designer Initials: JBK	(R-X)		
Last Modification Date: 07/31/19	(R-X)		
Detailer Initials: LTA	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

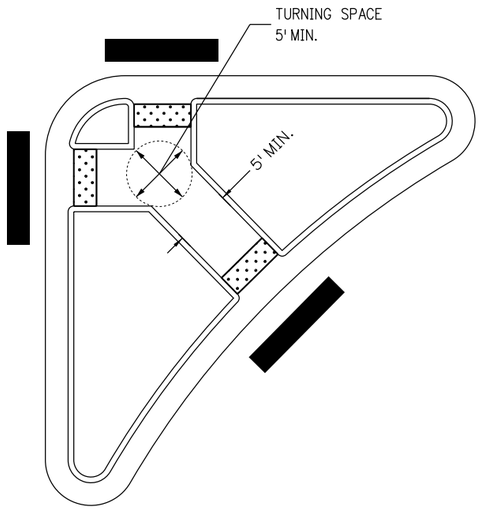
Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

CURB RAMPS

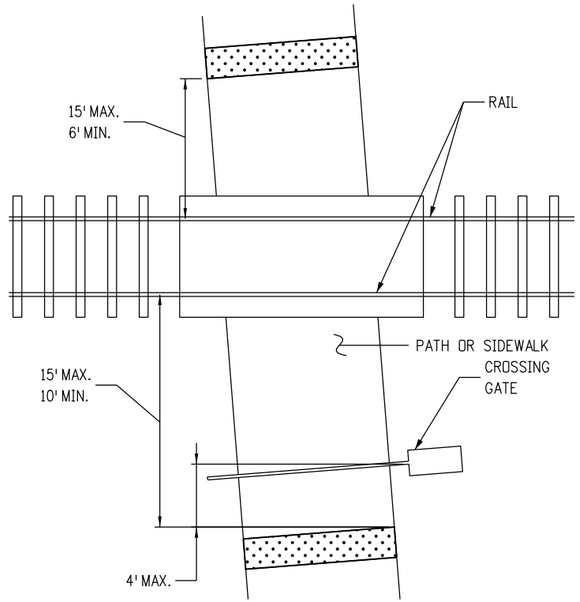
Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO.
M-608-1
Standard Sheet No. 7 of 10
Project Sheet Number:





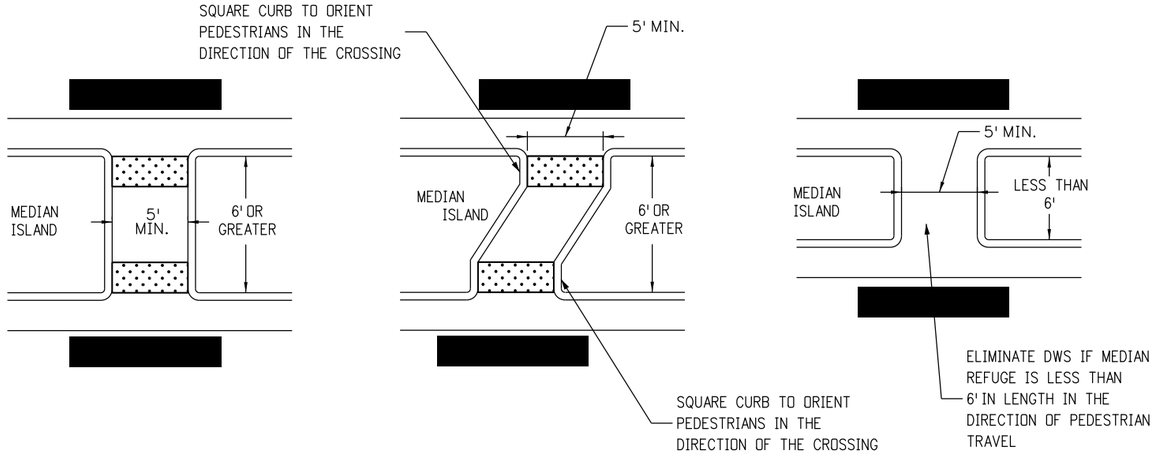
INTERSECTION ISLANDS

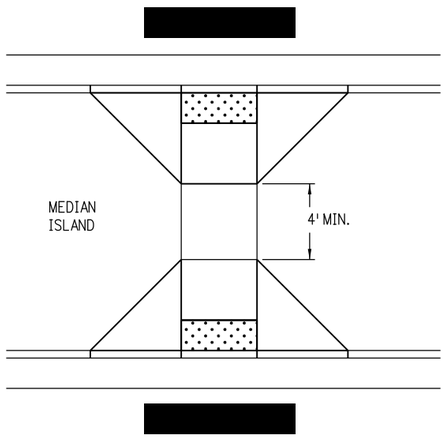


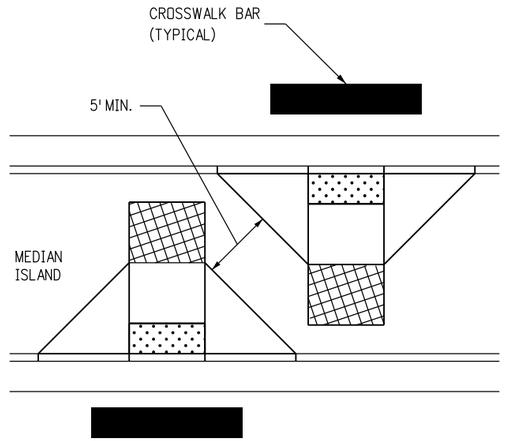
AT-GRADE RAIL CROSSING

NOTES:

1. DETECTABLE WARNING SURFACES SHALL BE PLACED IN ALIGNMENT WITH THE BACK OF CURB.
2. FLARED SIDES ARE PREFERENTIAL ON RAISED INTERSECTION ISLANDS AND SHOULD BE PROVIDED ON ISLANDS WHICH SERVE SHARED USE PATHS, OR AT LOCATIONS WHERE BICYCLE USE IS EXPECTED.
3. FOR CUT-THROUGH MEDIAN ISLANDS, DETECTABLE WARNING SURFACES SHALL BE PLACED IN ALIGNMENT WITH THE BACK OF CURB AND BE SEPARATED BY A MINIMUM 2 FOOT SPACE WITHOUT DWS. IF A 2 FOOT SEPARATION BETWEEN DETECTABLE WARNING SURFACES CANNOT BE PROVIDED NO DETECTABLE WARNING SURFACE SHALL BE INSTALLED.
4. CURB RAMP AND CUT-THROUGH WIDTHS SHOULD BE THE SAME WIDTH AS ANY SIDEWALK OR SHARED USE PATH WHICH THEY SERVE.







MEDIAN ISLANDS

TURNING SPACE

MEDIANS / RAILROADS / ISLANDS

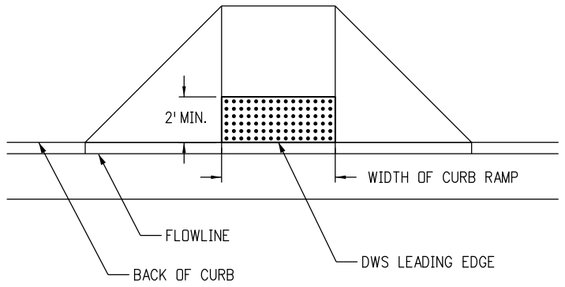
Computer File Information		Sheet Revisions	
Creation Date: 07/31/19		Date:	Comments
Designer Initials: JBK	(R-X)		
Last Modification Date: 07/31/19	(R-X)		
Detailer Initials: LTA	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

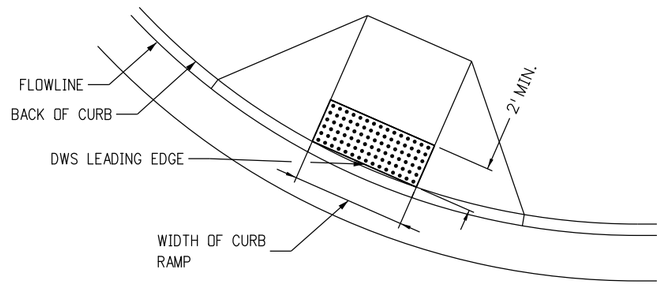
CURB RAMPS

Issued by the Project Development Branch: July 31, 2019

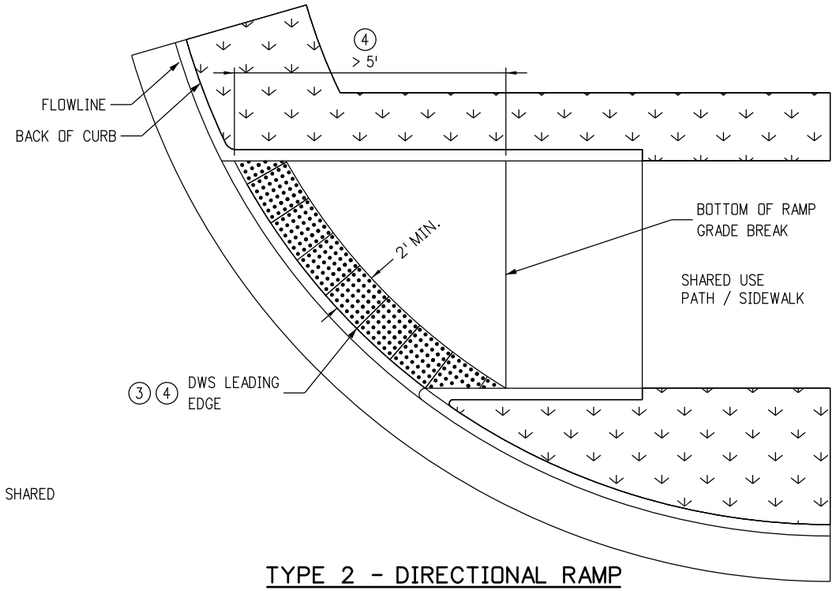
STANDARD PLAN NO.
M-608-1
Standard Sheet No. 8 of 10
Project Sheet Number:



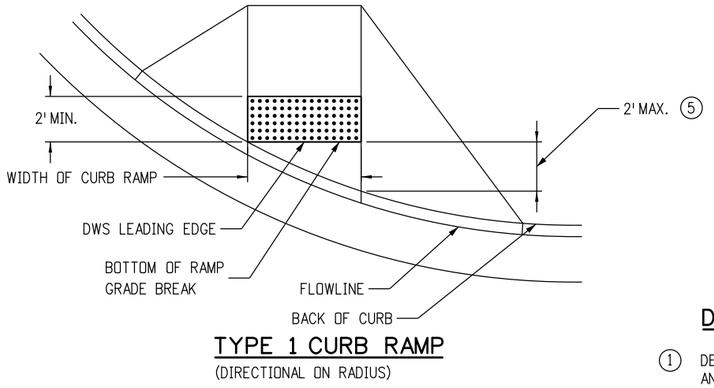
TYPE 1 CURB RAMP
(PERPENDICULAR ON TANGENT)



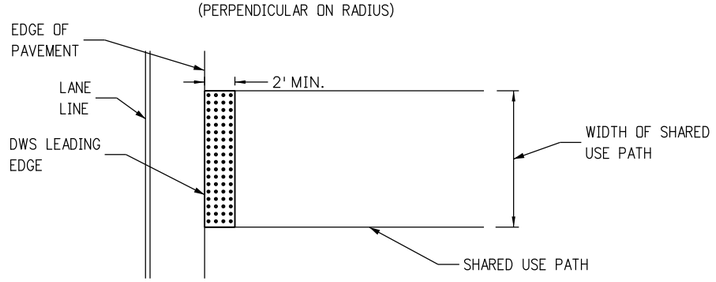
TYPE 1 CURB RAMP
(PERPENDICULAR ON RADIUS)



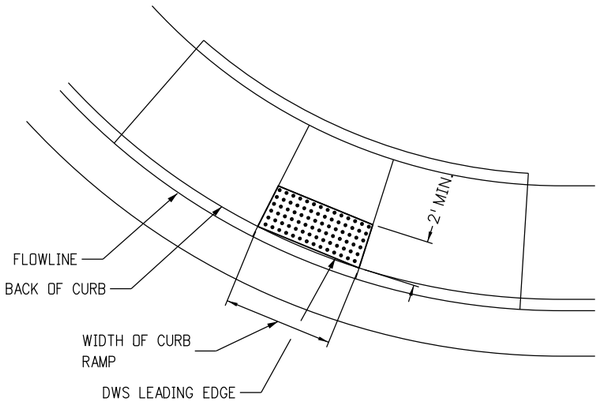
TYPE 2 - DIRECTIONAL RAMP



TYPE 1 CURB RAMP
(DIRECTIONAL ON RADIUS)



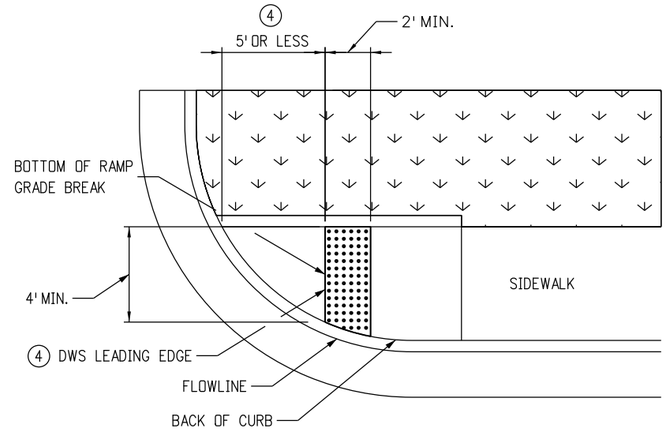
SHARED USE PATH CROSSING



TYPE 2 CURB RAMP

DETECTABLE WARNING SURFACE NOTES:

1. DETECTABLE WARNING SURFACES (DWS) SHALL BE INSTALLED AT SIDEWALK, OR SHARED USE PATH, TO STREET TRANSITIONS, AND SHALL CONSIST OF TRUNCATED DOME SURFACES. ANY TRUNCATED DOME PANELS OR PAVERS WHICH ARE USED MUST BE ON THE CDOT APPROVED PRODUCTS LIST (APL).
2. THE DETECTABLE WARNING SURFACE SHALL SPAN THE FULL WIDTH OF THE CURB RAMP, SHARED USE PATH, OR OTHER ROADWAY ENTRANCE AS APPLICABLE. A GAP OF 2 INCHES FROM THE EDGE OF THE DETECTABLE WARNING SURFACE TO THE EDGE OF THE CURB RAMP OR SHARED USE PATH IS PERMITTED.
3. WHEN DETECTABLE WARNING SURFACES ARE PLACED ON A SLOPE GREATER THAN 5.0%, TRUNCATED DOMES SHOULD BE ALIGNED IN THE DIRECTION OF THE RAMP RUN; OTHERWISE DOMES ARE NOT REQUIRED TO BE ALIGNED. TRUNCATED DOMES SHALL BE IN A SQUARE GRID OR RADIAL PATTERN. WHEN PLACED RADIALLY, PLACE ADJACENT DWS PLATES EDGE TO EDGE. EDGES OF CUT PLATES SHALL BE STRAIGHT.
4. LOCATE ONE CORNER OF THE DWS LEADING EDGE AT THE BACK OF CURB. NO POINT ON THE LEADING EDGE OF THE DWS MAY BE MORE THAN 5 FT. FROM THE BACK OF CURB. WHEN ANY POINT OF THE LEADING EDGE OF THE DWS WILL BE GREATER THAN 5 FT. FROM THE BACK OF CURB, PLACE THE DWS RADIALLY AT THE BACK OF CURB.
5. WHERE PERPENDICULAR DIRECTIONAL RAMPS ABUT A WALKABLE SURFACE, THE LEADING EDGE OF THE DWS SHALL NOT BE PLACED FURTHER THAN 2 FEET FROM THE BACK OF CURB. IF THE RADIUS OF A CORNER MAKES THIS IMPOSSIBLE, ORIENT THE CURB RAMP PERPENDICULAR TO THE CURB AND GUTTER.
6. IF THE DETECTABLE WARNING SURFACE IS CUT, GRIND OFF THE REMAINING PORTION OF ANY CUT TRUNCATED DOMES. SEAL ALL CUT PANEL EDGES WITH AN APL SEALANT TO PREVENT WATER DAMAGE.
7. TRUNCATED DOME PLATES SHALL BE EMBEDED IN THE CONCRETE CURB RAMP WHILE THE CONCRETE IS PLASTIC.
8. DWS SHALL NOT BE PLACED OVER GRADE BREAKS.



TYPE 2 - DIRECTIONAL RAMP

DETECTABLE WARNING SURFACE (DWS)

DETECTABLE WARNING SURFACE PLACEMENT

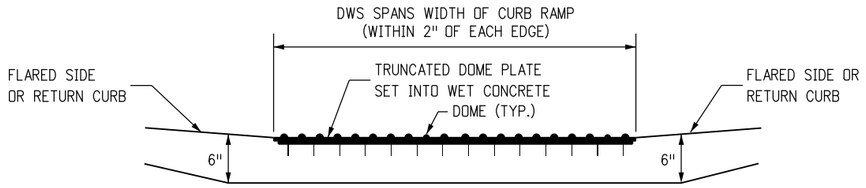
Computer File Information		Sheet Revisions	
Creation Date: 07/31/19		Date:	Comments
Designer Initials: JBK	(R-X)		
Last Modification Date: 07/31/19	(R-X)		
Detailer Initials: LTA	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

CURB RAMPS

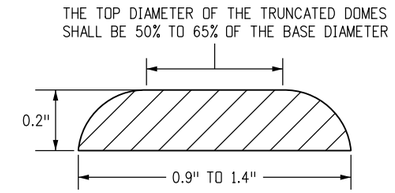
Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO.
M-608-1
Standard Sheet No. 9 of 10
Project Sheet Number:

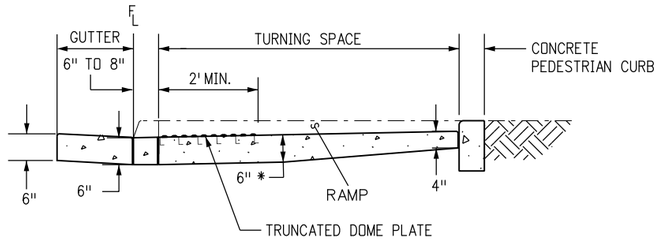


SECTION VIEW OF DETECTABLE WARNING SURFACE PLATE

(LOOKING AT PERPENDICULAR RAMP
RUN FROM STREET)

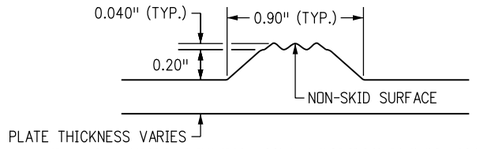


ELEVATION VIEW OF SINGLE TRUNCATED DOME

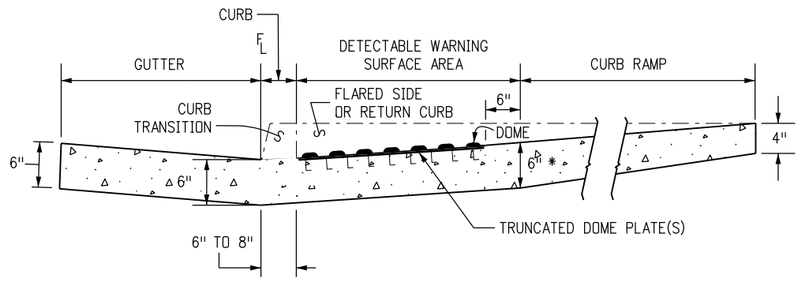


SECTION VIEW FOR PARALLEL CURB RAMP TYPES

(LOOKING PERPENDICULAR TO TURNING SPACE)

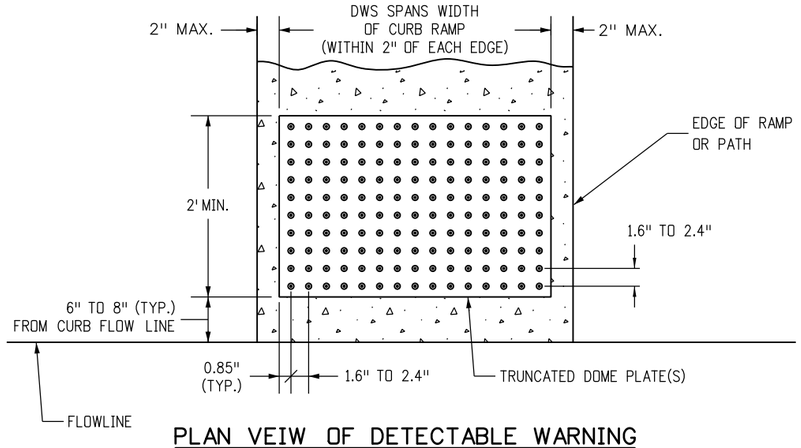


ELEVATION VIEW OF TRUNCATED DOME FOR DETECTABLE WARNING PLATE



SECTION VIEW FOR PERPENDICULAR CURB RAMP TYPES

(LOOKING PERPENDICULAR TO RAMP RUN)



PLAN VEIW OF DETECTABLE WARNING SURFACE PLATE

DETECTABLE WARNING SURFACE DETAILS

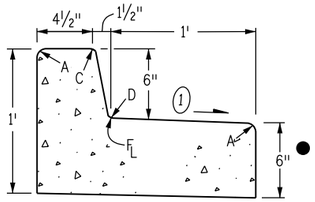
Computer File Information		Sheet Revisions	
Creation Date: 07/31/19		Date:	Comments
Designer Initials: JBK	(R-X)		
Last Modification Date: 07/31/19	(R-X)		
Detailer Initials: LTA	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

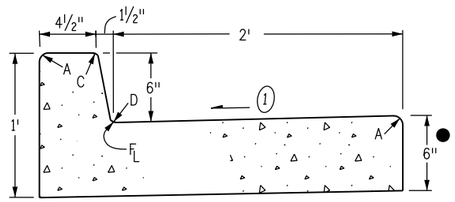
CURB RAMPS

Issued by the Project Development Branch: July 31, 2019

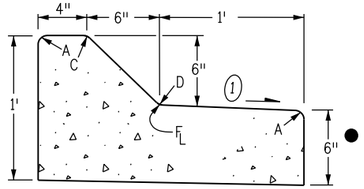
STANDARD PLAN NO.
M-608-1
Standard Sheet No. 10 of 10
Project Sheet Number:



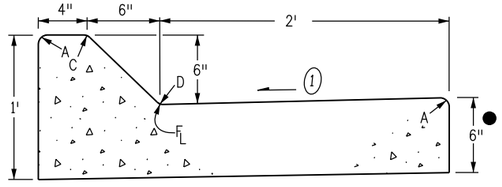
CURB AND GUTTER TYPE 2
(SECTION IB)
(6 IN. BARRIER - 1 FT. GUTTER)



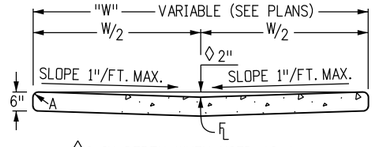
CURB AND GUTTER TYPE 2
(SECTION IIB)
(6 IN. BARRIER - 2 FT. GUTTER)



CURB AND GUTTER TYPE 2
(SECTION IM)
(6 IN. MOUNTABLE - 1 FT. GUTTER)

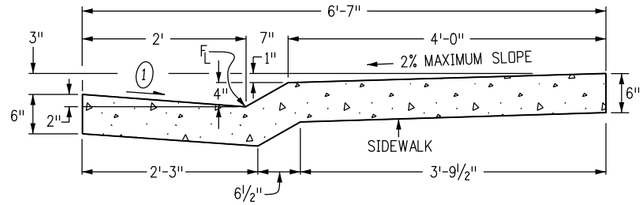


CURB AND GUTTER TYPE 2
(SECTION IIM)
(6 IN. MOUNTABLE - 2 FT. GUTTER)



◊ 2 IN. DEPTH WHEN USED AS A CROSSPAN IN AN INTERSECTION

GUTTER TYPE 2



CURB AND GUTTER TYPE 2
(SECTION MS)
(4 IN. MOUNTABLE WITH SIDEWALK)

GENERAL NOTES

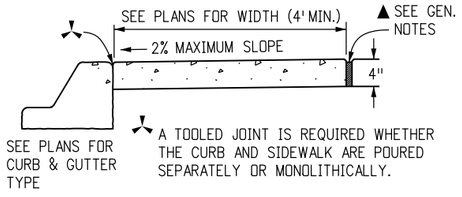
1. ON ROADWAY CURVES WITH A RADIUS OF 1,900 FT. OR LESS, CURBS AND GUTTERS ARE TO BE PLACED ON THE ARC OF THE CURVE, UNLESS OTHERWISE NOTED ON THE PLANS. A MAXIMUM CHORD LENGTH OF 10 FT. MAY BE USED WHEN THE CURVE RADIUS IS GREATER THAN 1,900 FT.
2. CONCRETE SHALL BE CLASS B.
3. PROFILE GRADE OF CURBS AND GUTTERS SHALL BE LOCATED AT THE FLOW LINE.
4. CURB TYPE 4 (KEY-WAY) MAY BE USED IN LIEU OF CURB AND GUTTER TYPE 2 (SECTIONS IB AND IM) UNLESS OTHERWISE SPECIFIED ON THE PLANS.
5. GUTTER CROSS SLOPES MAY BE ADJUSTED TO FACILITATE DRAINAGE FOR PROFILE GRADES AS SHOWN ON THE PLANS.
6. THICKNESS OF CURB AND GUTTER SECTION SHALL MATCH CONCRETE PAVEMENT THICKNESS IF SHOWN ON THE PLANS. CURB AND GUTTER SHALL BE CLASS P CONCRETE IF PLACED MONOLITHICALLY WITH CONCRETE PAVEMENT.
7. INCREASE SIDEWALK THICKNESS TO 6 IN. AT LOCATIONS SHOWN ON THE PLANS.
8. MINIMUM SIDEWALK WIDTH IS 4 FT.

▲ EXPANSION JOINTS SHALL BE INSTALLED WHEN ABUTTING EXISTING CONCRETE OR FIXED STRUCTURE. EXPANSION JOINT MATERIAL SHALL BE ½ IN. THICK AND SHALL EXTEND THE FULL DEPTH OF CONTACT SURFACE.

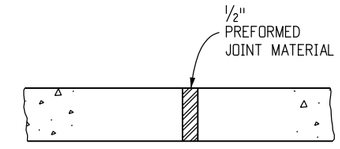
(1) GUTTER CROSS SLOPES SHALL BE ½ IN./FT. WHEN DRAINING AWAY FROM CURB AND 1 IN./FT. WHEN DRAINING TOWARD CURB (WITH EXCEPTION TO IMMEDIATELY ADJACENT TO CURB RAMPS - SEE STANDARD PLAN M-608-1 FOR SLOPE REQUIREMENTS).

● WHEN TIE BARS ARE REQUIRED, THE GUTTER THICKNESS SHALL BE INCREASED TO THE PAVEMENT THICKNESS (T). BARS SHALL BE EPOXY-COATED #4 CONFORMING TO AASHTO M 284 AND SPACED AT 3 FT. INTERVALS. THEY SHALL BE INSERTED T/2 AND 1#2 LENGTH INTO THE GUTTER.

LEGEND FOR RADII
A = 1/8" TO 1/4"
B = 1"
C = 1½"
D = 1½" TO 2"



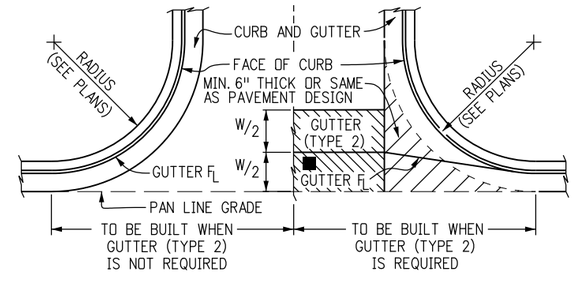
CONCRETE SIDEWALK



NOTES: 1. EXPANSION JOINTS SHALL BE PLACED IN THE SIDEWALK AT INTERVALS OF NOT MORE THAN 500 FT.

2. EXPANSION JOINTS MAY BE SEALED WHEN SPECIFIED ON THE PLANS.

SIDEWALK EXPANSION JOINT



▨ THIS AREA SHALL BE POURED MONOLITHICALLY WITH CURB AND GUTTER AND PAID FOR AS "CONCRETE PAVEMENT".

■ FLOW LINE LOCATION WILL BE ESTABLISHED BY W/2 SHOWN ON PLANS.

CONSTRUCTION OF CONCRETE GUTTERS AT INTERSECTION

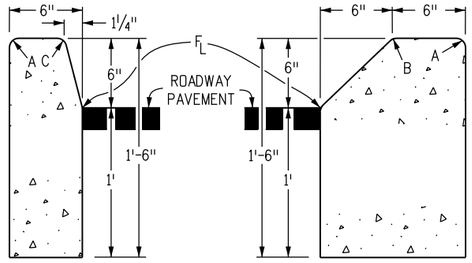
Computer File Information		Sheet Revisions	
Creation Date: 07/31/19		Date:	Comments
Designer Initials: JBK	(R-X)		
Last Modification Date: 07/31/19	(R-X)		
Detailer Initials: LTA	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

CURB, GUTTERS, AND SIDEWALKS

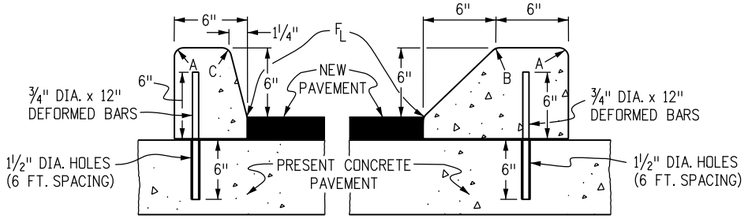
Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO.
M-609-1
Standard Sheet No. 1 of 4
Project Sheet Number:



CURB TYPE 2
(SECTION B)
6 IN. BARRIER

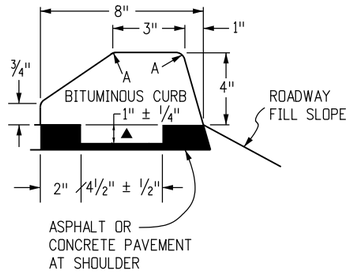
CURB TYPE 2
(SECTION M)
6 IN. MOUNTABLE

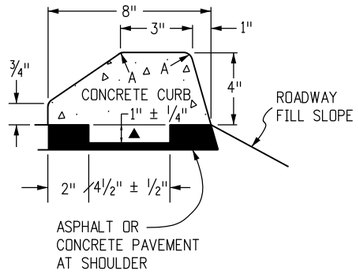


¾" DIA. x 12" DEFORMED REINFORCING BARS AT 6 FT. SPACING SHALL BE GROUTED IN 1¼" DIA. HOLES IN EXISTING CONCRETE. GROUT SHALL CONSIST OF 2 PARTS CLEAN SAND AND 1 PART CEMENT. COST OF INSTALLATION SHALL BE INCLUDED IN THE PRICE BID FOR CURB.

CURB TYPE 4
(SECTION B)
6 IN. BARRIER

CURB TYPE 4
(SECTION M)
6 IN. MOUNTABLE



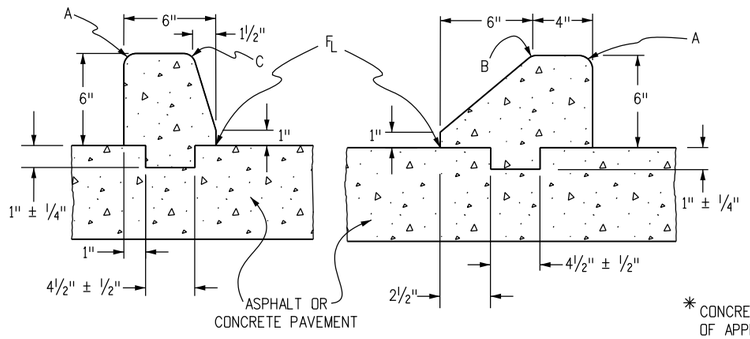


CURB TYPE 6
(SECTION M)
4 IN. MOUNTABLE

NOTE: BITUMINOUS OR CONCRETE * UNLESS OTHWISE SPECIFIED ON THE PLANS.

▲ KEY-WAY MAY BE OMITTED WHEN PLACED UNDER GUARDRAIL.

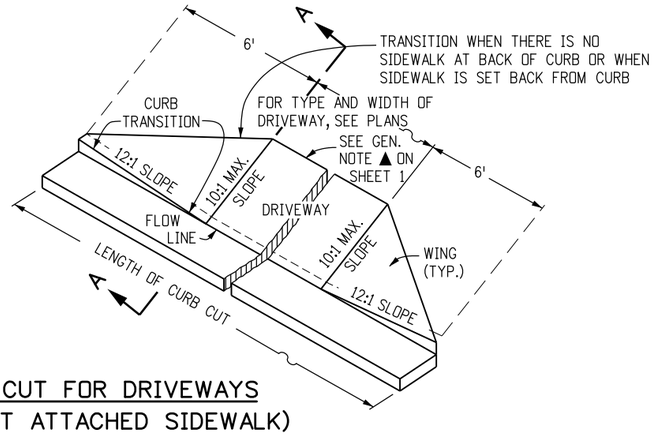
LEGEND FOR RADII
A = 1/8 TO 1/4"
B = 1"
C = 1½"
D = 1½" TO 2"



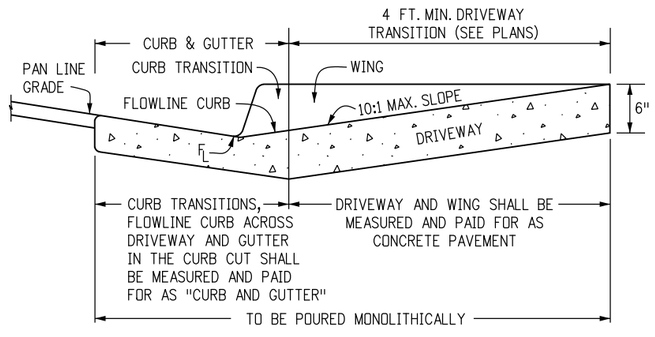
(SECTION B) (SECTION M)

CURB TYPE 4 (KEY-WAY) *

* CONCRETE CLASS B SHALL CONTAIN 1.5 POUNDS PER CUBIC YARD OF APPROVED POLYPROPYLENE FIBERS AND MAY HAVE A NOMINAL AGGREGATE SIZE OF ⅜ IN.

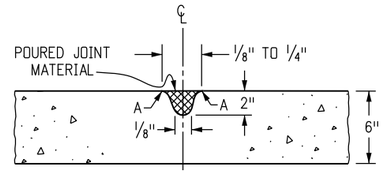


CURB CUT FOR DRIVEWAYS
(WITHOUT ATTACHED SIDEWALK)



SECTION A-A

CONCRETE PAVEMENT (DRIVEWAYS)



NOTE: RECOMMENED JOINT SPACING IS EVERY 8 FOOT ALONG THE WIDTH AND LENGTH OF DRIVEWAY. FOR DRIVEWAYS WIDER THAN 12 FEET, JOINTS ARE REQUIRED.

TRANSVERSE CONTRACTION JOINT
FOR CONCRETE PAVEMENT (DRIVEWAYS)

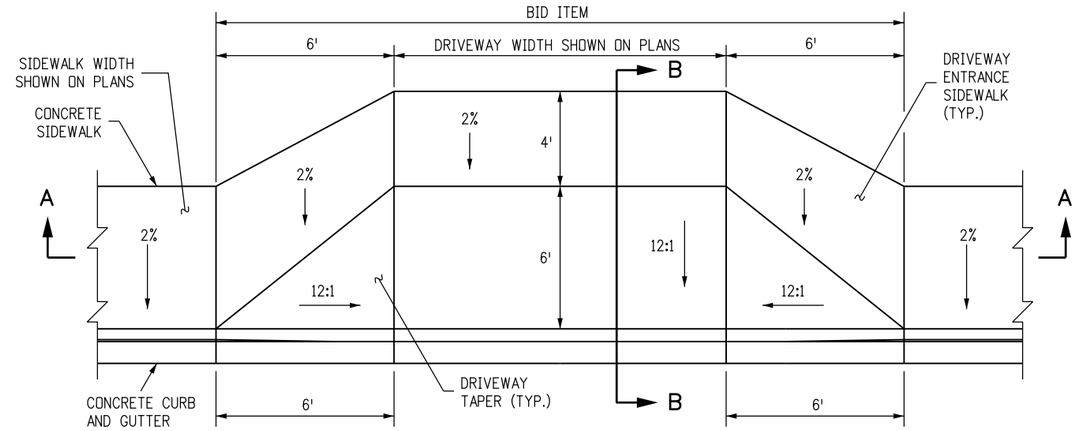
Computer File Information		Sheet Revisions	
		Date:	Comments
Creation Date: 07/31/19			
Designer Initials: JBK	(R-X)		
Last Modification Date: 07/31/19	(R-X)		
Detailer Initials: LTA	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

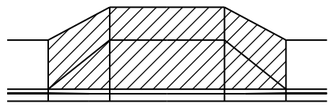
CURB, GUTTERS, AND SIDEWALKS

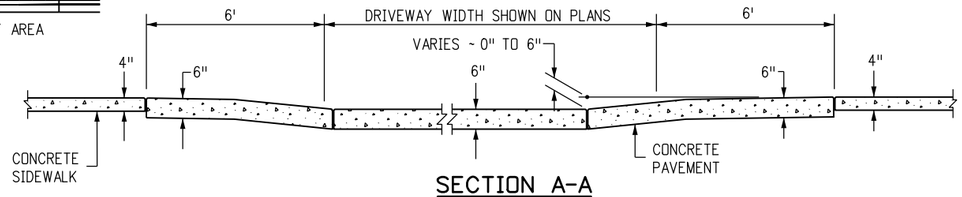
Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO.
M-609-1
Standard Sheet No. 2 of 4
Project Sheet Number:

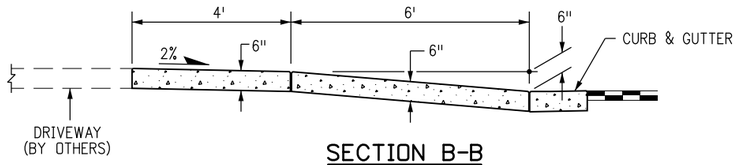


CONCRETE DRIVEWAY ENTRANCE TYPE 1

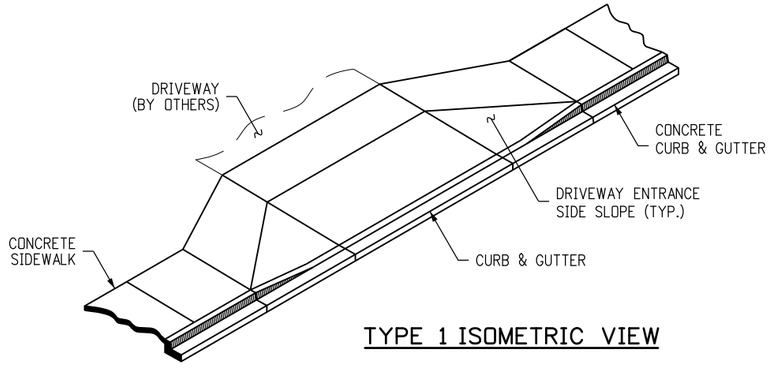




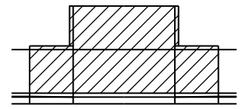
SECTION A-A

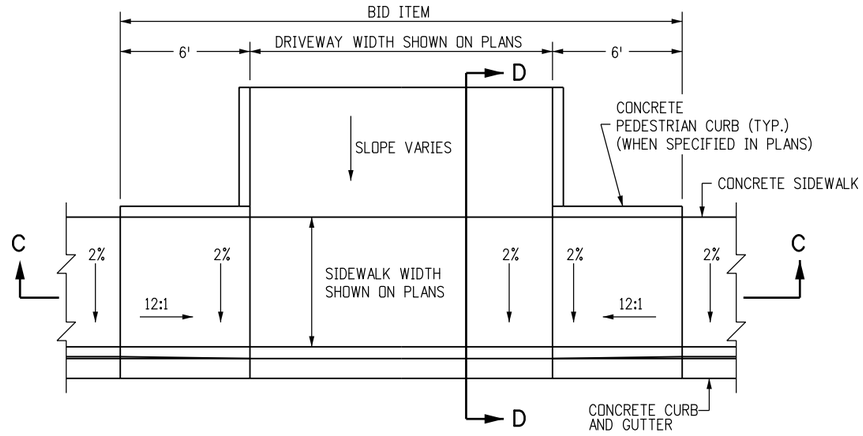


SECTION B-B

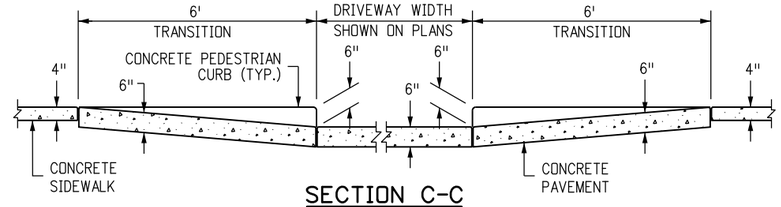


TYPE 1 ISOMETRIC VIEW

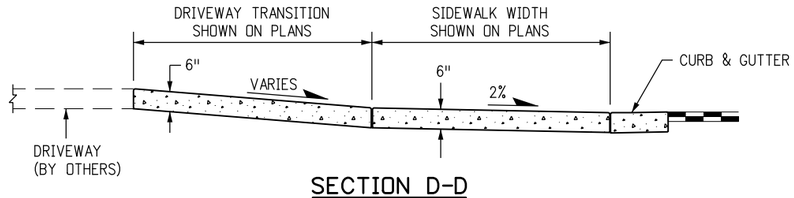




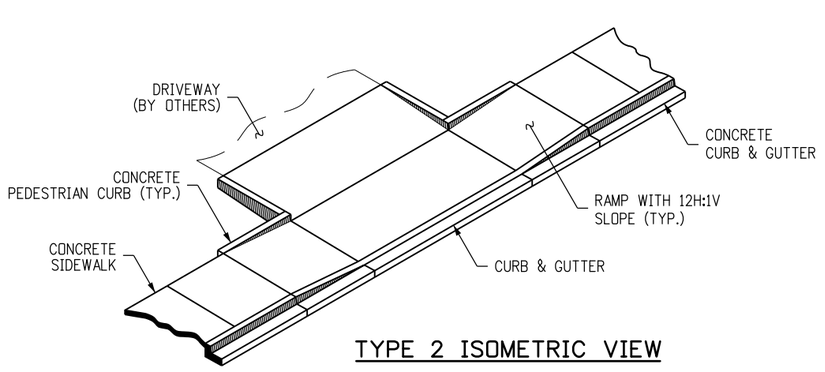
CONCRETE DRIVEWAY ENTRANCE TYPE 2



SECTION C-C



SECTION D-D



TYPE 2 ISOMETRIC VIEW

NOTES

1. DRAINAGE STRUCTURES, TRAFFIC SIGNAL EQUIPMENT, JUNCTION BOXES, AND OTHER OBSTRUCTIONS SHOULD NOT BE PLACED IN FRONT OF THE DRIVEWAY RAMP ACCESS AREAS.
2. FOR THE CURB AND GUTTER SHOWN, SEE PLANS FOR CURB TYPE.
3. RAMP SLOPES SHALL BE 12:1 OR FLATTER.
4. CONSTRUCTION OF THE CONCRETE PEDESTRIAN CURB SHALL BE INCLUDED IN THE BID PRICE OF THE CONCRETE PAVEMENT.

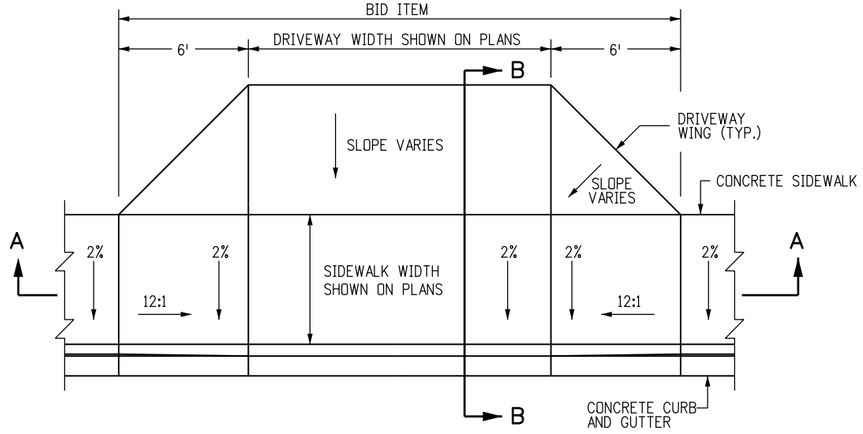
Computer File Information		Sheet Revisions	
Creation Date: 07/31/19		Date:	Comments
Designer Initials: JBK	(R-X)		
Last Modification Date: 07/31/19	(R-X)		
Detailer Initials: LTA	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

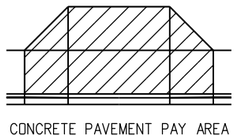
CURB, GUTTERS, AND SIDEWALKS

Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO.
M-609-1
Standard Sheet No. 3 of 4
Project Sheet Number:

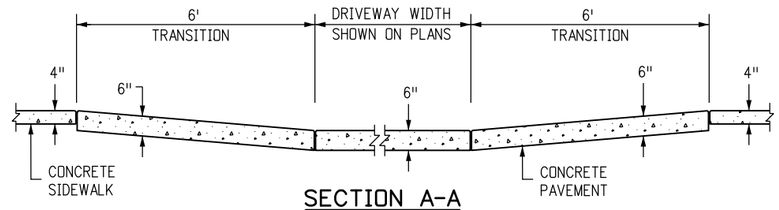


CONCRETE DRIVEWAY ENTRANCE TYPE 3

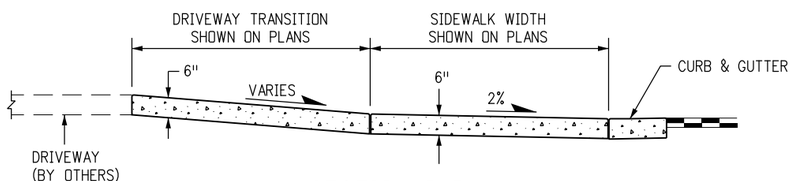


NOTES

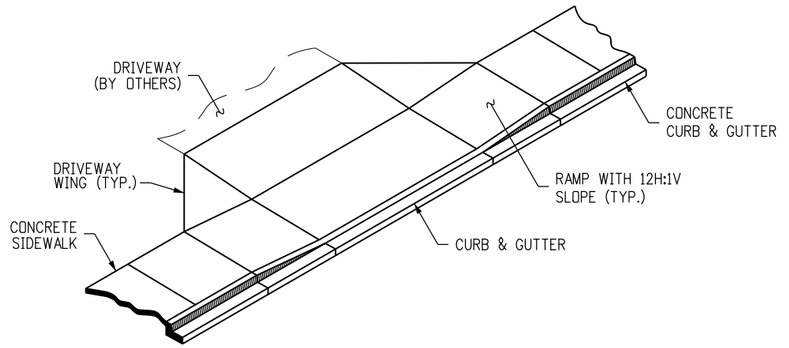
1. DRAINAGE STRUCTURES, TRAFFIC SIGNAL EQUIPMENT, JUNCTION BOXES, AND OTHER OBSTRUCTIONS SHOULD NOT BE PLACED IN FRONT OF THE DRIVEWAY RAMP ACCESS AREAS.
2. FOR THE CURB AND GUTTER SHOWN, SEE PLANS FOR CURB TYPE.
3. RAMP SLOPES SHALL BE 12:1 OR FLATTER.



SECTION A-A



SECTION B-B



TYPE 3 ISOMETRIC VIEW

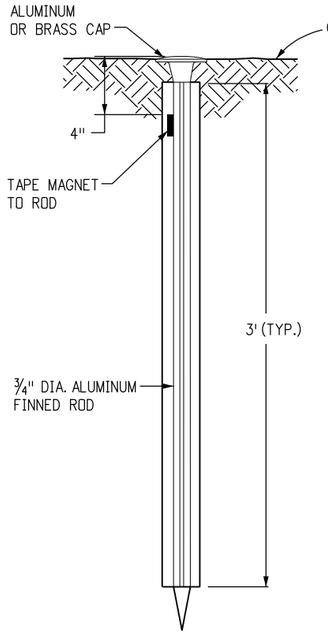
Computer File Information		Sheet Revisions	
		Date:	Comments
Creation Date: 07/31/19			
Designer Initials: JBK	(R-X)		
Last Modification Date: 07/31/19	(R-X)		
Detailer Initials: LTA	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

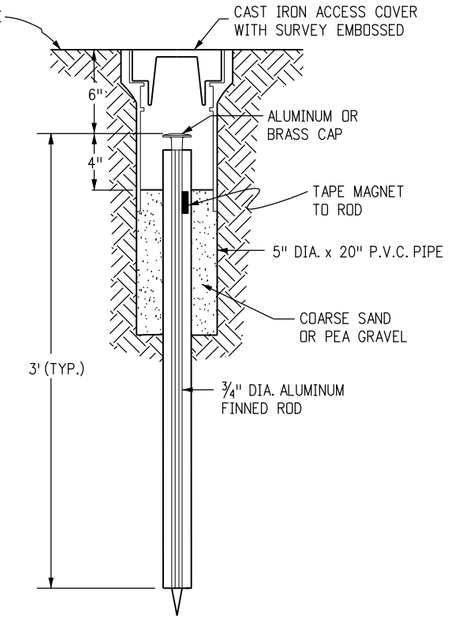
CURB, GUTTERS, AND SIDEWALKS

Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO.
M-609-1
Standard Sheet No. 4 of 4
Project Sheet Number:

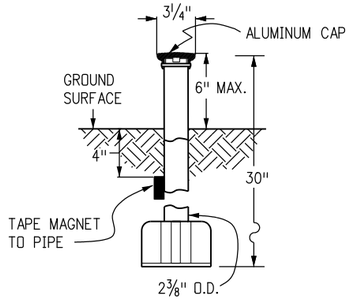


TYPE 1 MONUMENT

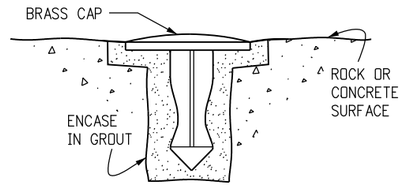


TYPE 1A MONUMENT

INCLUDES MONUMENT BOX

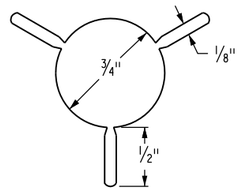


TYPE 3 MONUMENT

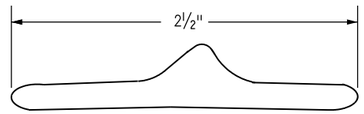


TYPE 5 MONUMENT

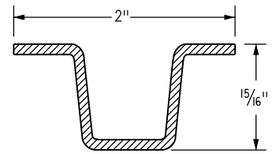
ALUMINUM CAP AND TYPE 5(S)
DETAILS SHOWN ON SHEET 2



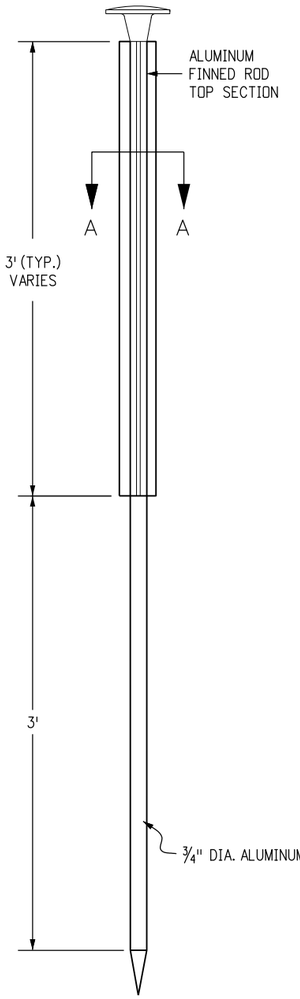
SECTION A-A

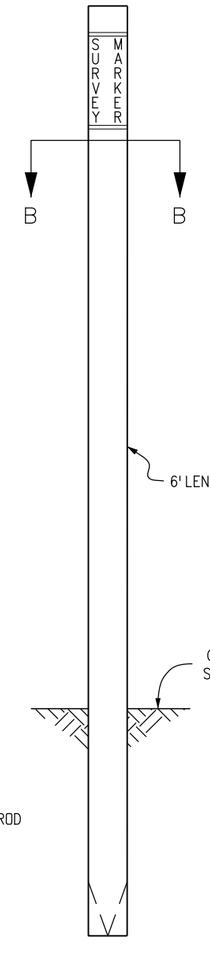


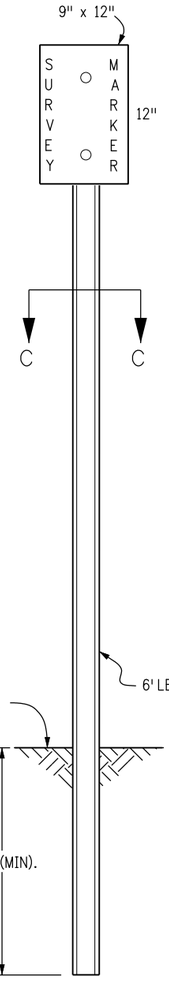
SECTION B-B



DELINEATOR POST
SECTION C-C



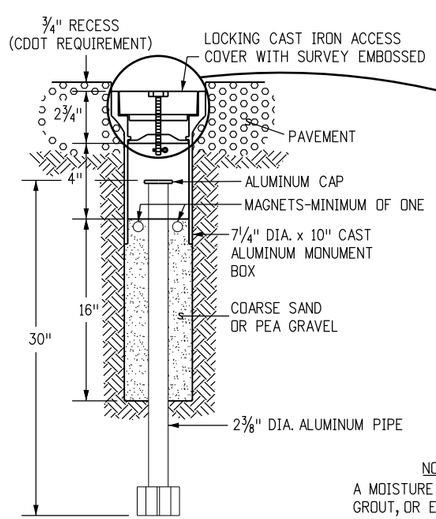




TYPE 2 MONUMENT

TYPE 2A INCLUDES MONUMENT BOX

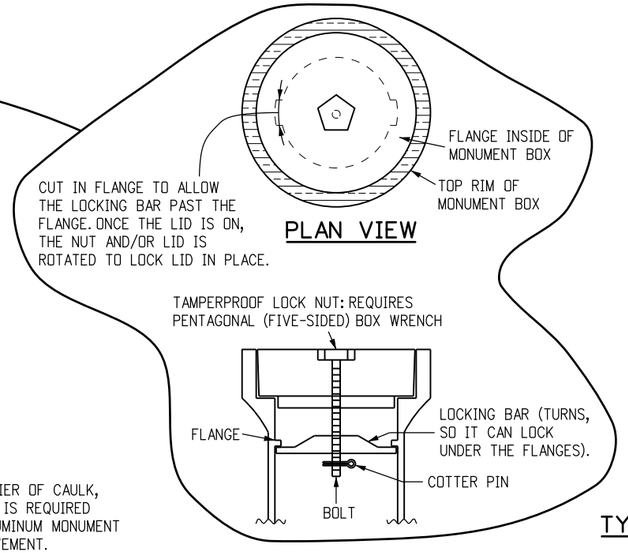
WITNESS POSTS



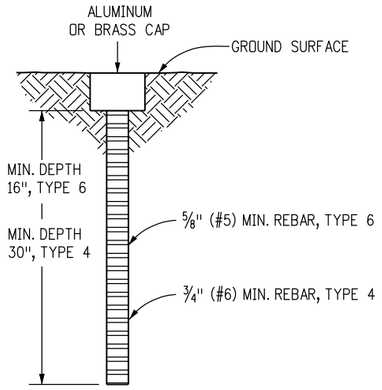
TYPE 3A MONUMENT

ROADWAY INSTALLATION
INCLUDES MONUMENT BOX

NOTE:
A MOISTURE BARRIER OF CAULK, GROUT, OR EPOXY IS REQUIRED BETWEEN THE ALUMINUM MONUMENT BOX AND THE PAVEMENT.



LOCKING CAST IRON ACCESS COVER



TYPE 4 AND TYPE 6 MONUMENT

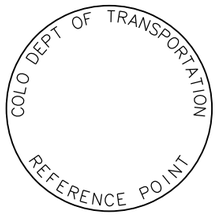
Computer File Information		Sheet Revisions	
		Date:	Comments
Creation Date: 07/31/19			
Designer Initials: JBK	(R-X)		
Last Modification Date: 07/31/19	(R-X)		
Detailer Initials: LTA	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

SURVEY MONUMENTS

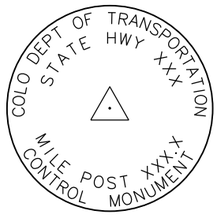
Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO.
M-629-1
Standard Sheet No. 1 of 2
Project Sheet Number:

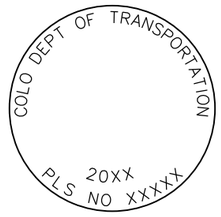


REFERENCE
MONUMENT CAP

ROW
MONUMENT CAP



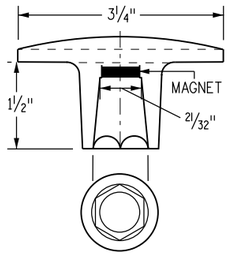
CONTROL
MONUMENT CAP



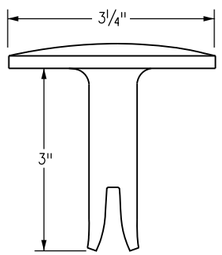
ALIQUOT CORNER
MONUMENT CAP

ALUMINUM CAP

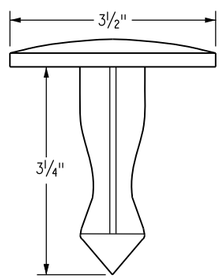
NOTE: A BLANK CAP MAY BE SUBSTITUTED IF THE APPROPRIATE CAP SHOWN ABOVE IS NOT AVAILABLE. IF A BLANK CAP IS USED, ALL INFORMATION NORMALLY INCLUDED ON THE APPROPRIATE STANDARD CAP, SHALL BE STAMPED ON THE BLANK CAP ALONG WITH SPECIFIC PROJECT INFORMATION SUCH AS PROJECT NO., DATE, POINT NO., ETC..



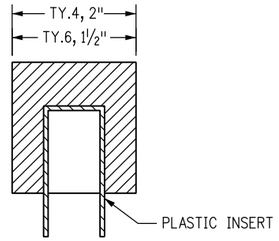
ALUMINUM CAP
USED WITH ALUMINUM ROD



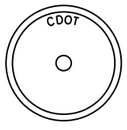
ALUMINUM CAP
TYPE 5
FOR PLACING IN EXISTING
CONCRETE OR ROCK



BRASS CAP
TYPE 5
FOR PLACING IN EXISTING
CONCRETE OR ROCK



ALUMINUM CAP



COPPER ALLOY CAP
TYPE 5(S)
FOR PLACING IN EXISTING
SIDEWALK, CURB, OR GUTTER

MONUMENT APPLICATION

CAP TYPE	MONUMENT TYPE									
	1	1A	2	2A	3	3A	4	5	5(S)	6
REFERENCE	X	X						X	X	X
ROW	X	X						X	X	
CONTROL			X	X				X	X	
ALIQUOT CORNER	X	X			X	X	X	X		
PERMANENT EASEMENT								X	X	X
PROJECT POINTS								X	X	X
WITNESS POST* (REQUIRED)	X		X	X	X			X		

ALL MONUMENTATION MATERIALS WILL BE FURNISHED BY CDOT

THE MONUMENT TYPE SHALL MEET THE MINIMUM STANDARDS AS DETERMINED BY THE COLORADO STATE BOARD OF REGISTRATION FOR PROFESSIONAL LAND SURVEYORS RULES (STATE BOARD RULES).
THE CDOT SURVEY COORDINATOR SHALL APPROVE ALL EXCEPTIONS FOR STAMPING MONUMENTS DIFFERING FROM THE STANDARDS.

TYPE 1 AND TYPE 1A ALUMINUM FINNED ROD MONUMENTS

THIS MONUMENT SHALL BE USED FOR ROW OR REFERENCE MONUMENTS OR MAY BE USED FOR AN ALIQUOT CORNER MONUMENT. WHEN USED AS AN ALIQUOT CORNER MONUMENT, INSTALLATION AND RECORD FILING REQUIREMENTS SHALL BE AS STATED FOR TYPE 3 AND TYPE 3A MONUMENTS.
MONUMENTS SHALL BE INSTALLED BY ATTACHING THE PROPER SIZE TIP TO ONE END OF A SECTION OF FINNED ROD, AND A 3 IN. LONG X ¾ IN. DIA. STAINLESS STEEL ADAPTER TO THE OTHER END. THE DRIVER IS THEN PLACED OVER THE STAINLESS STEEL ADAPTER FOR THE HAMMER TO CONTACT. TYPE 1 MONUMENTS SHALL USE A MINIMUM 3 FT. SECTION OF FINNED ROD. WHEN SUBSURFACE ROCK OR CONCRETE IS ENCOUNTERED LESS THAN 3 FT. BELOW THE GROUND SURFACE, THE ROD SHALL BE EMBEDDED IN THE ROCK OR IN CONCRETE AT LEAST 6 IN. AND GROUTED IN PLACE. THE ROD MAY BE SHORTENED TO ACCOMMODATE THE CONDITIONS.
WHEN UNSTABLE SOIL CONDITIONS ARE ENCOUNTERED, ADDITIONAL SECTIONS OF ROD SHALL BE ADDED TO ACHIEVE STABILITY. HORIZONTAL AND VERTICAL STABILITY ARE REQUIRED.
TYPE 1A MONUMENT INCLUDES MONUMENT BOX. A LOCKING CAST IRON ACCESS COVER SHALL BE INSTALLED WHEN THE MONUMENT IS LOCATED IN THE ROADWAY PAVEMENT.

TYPE 2 AND TYPE 2A ALUMINUM FINNED ROD MONUMENTS

THIS MONUMENT SHALL BE USED FOR HORIZONTAL AND VERTICAL CONTROL MONUMENTS. WHEN UNSTABLE SOIL CONDITIONS ARE ENCOUNTERED, ADDITIONAL SECTIONS OF ROD SHALL BE ADDED TO ACHIEVE STABILITY. HORIZONTAL AND VERTICAL STABILITY ARE REQUIRED. IN MOST SOIL CONDITIONS THE TYPE 2 MONUMENT IS EMBEDDED 6 FT. INTO THE GROUND.
THE MONUMENT SHALL BE INSTALLED BY FIRST ATTACHING THE PROPER SIZE TIP TO A 3 FT. LONG X ¾ IN. DIA. ROD, THEN DRIVING THE ROD AT LEAST 30 IN. INTO THE GROUND. ADDITIONAL 3 FT. LONG X ¾ IN. FINNED ROD SECTIONS SHALL BE ADDED AND DRIVEN FLUSH WITH THE GROUND UNTIL THE MONUMENT IS IN A STABLE POSITION. THE FINS ARE BENT OVER USING PLIERS TO ACCOMMODATE INSTALLING THE CAP. THE CAP IS FIRMLY SEATED ONTO THE LAST FINNED SECTION OF ROD USING A DEAD BLOW SLEDGE HAMMER.
TYPE 2A MONUMENT INCLUDES MONUMENT BOX. A LOCKING CAST IRON ACCESS COVER SHALL BE INSTALLED WHEN THE MONUMENT IS LOCATED IN THE ROADWAY PAVEMENT.

TYPE 3 AND TYPE 3A ALUMINUM PIPE MONUMENTS

THIS MONUMENT SHALL BE USED FOR AN ALIQUOT CORNER MONUMENT. THE INSTALLATION OF THIS MONUMENT AND RECORD FILING SHALL BE DONE IN ACCORDANCE WITH THE STATE BOARD RULES. ALSO REFER TO THE CDOT SURVEY MANUAL AND THE BUREAU OF LAND MANAGEMENT REQUIREMENTS FOR MONUMENT INSTALLATION. THE LAND SURVEYOR'S LICENSE NUMBER AND THE YEAR SHALL BE STAMPED ON THE CAP.
TYPE 3A MONUMENT INCLUDES MONUMENT BOX. A LOCKING CAST IRON ACCESS COVER SHALL BE INSTALLED WHEN THE MONUMENT IS LOCATED IN THE ROADWAY PAVEMENT.

TYPE 4 ALUMINUM MONUMENT

THIS MONUMENT MAY BE INSTALLED IN LIEU OF REPLACING THE ENTIRE MONUMENT WHEN REBAR IS IN PLACE AT AN ALIQUOT CORNER LOCATION. REFER TO THE STATE BOARD RULES. A MINIMUM 2 IN. DIA. CAP SHALL BE USED ON ¾ IN. (#6) REBAR.

TYPE 5 BRASS/ALUMINUM CAP MONUMENT

THIS MONUMENT MAY BE INSTALLED IN LIEU OF ALL OTHER CDOT MONUMENTS, WHEN THE POSITION IS LOCATED IN CONCRETE OR STABLE ROCK FORMATION.

TYPE 5(S) COPPER ALLOY CAP MONUMENT - SMALL

THIS MONUMENT MAY BE INSTALLED IN LIEU OF A TYPE 5 MONUMENT, WHEN THE POSITION IS LOCATED IN A CONCRETE SIDEWALK, CURB OR GUTTER, OR WHEN SETTING A TYPE 5 WOULD COMPROMISE THE INTEGRITY OF THE RECEIVING STRUCTURE.

STAMPING REQUIREMENTS:

- "RP", WHEN THE APPLICATION IS A REFERENCE POINT.
- "ROW", POINT NUMBER, "LS", AND REGISTRATION NUMBER WHEN THE APPLICATION IS A ROW POINT.
- "CP" AND A UNIQUE IDENTIFIER PROVIDED BY THE REGION SURVEY COORDINATOR, WHEN THE APPLICATION IS A CONTROL POINT.
- "PE", POINT NUMBER, "LS", AND REGISTRATION NUMBER, WHEN THE APPLICATION IS A PERMANENT EASEMENT POINT.
- "PP" AND POINT NUMBER, WHEN THE APPLICATION IS A PROJECT POINT.

TYPE 6 ALUMINUM MONUMENT

THIS MONUMENT SHALL BE USED FOR PERMANENT EASEMENTS, PROJECT BENCH MARKS, PROJECT POINTS, AND REFERENCES. AN ALUMINUM CAP WITH A MINIMUM DIAMETER OF 1 ½ IN., SHALL BE USED ON ⅝ IN. (#5) MINIMUM REBAR.

* WITNESS POSTS

THE WITNESS POST WILL BE SUPPLIED BY CDOT AND INSTALLATION SHALL BE INCLUDED IN THE WORK. IT SHALL BE DRIVEN WITHIN 1 FT. OF THE MONUMENT WHEN POSSIBLE. A DELINEATOR POST WITH A 9 IN. X 12 IN. METAL SIGN PANEL MAY BE USED IN LIEU OF THE PLASTIC POST. THIS POST SHALL CONFORM TO STANDARD PLAN S-612-1. A REQUIRED WITNESS POST MAY BE OMITTED WITH THE APPROVAL OF THE ENGINEER IF THE WITNESS POST LOCATION IS WITHIN A TRAVELED WAY, DRIVEWAY, OR ACCESS OPENING.

Computer File Information		Sheet Revisions	
Creation Date: 07/31/19		Date:	Comments
Designer Initials: JBK	(R-X)		
Last Modification Date: 07/31/19	(R-X)		
Detailer Initials: LTA	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

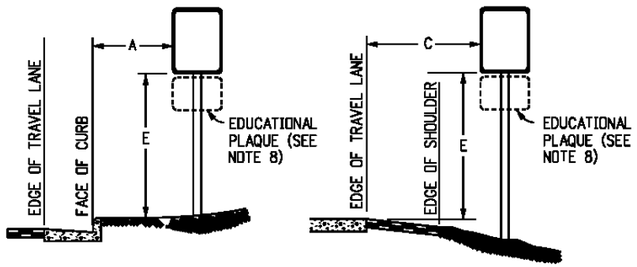
Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

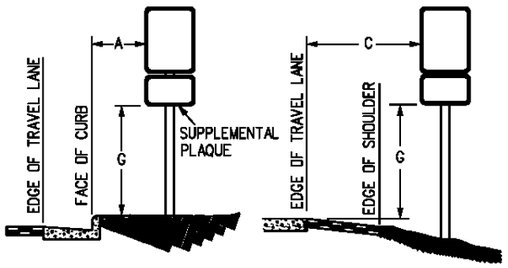
SURVEY MONUMENTS

STANDARD PLAN NO.
M-629-1
Standard Sheet No. 2 of 2

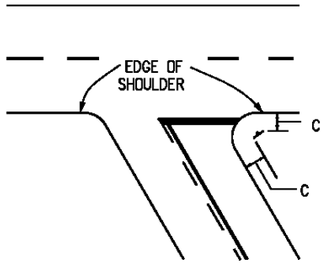
Issued by the Project Development Branch: July 31, 2019

Project Sheet Number:

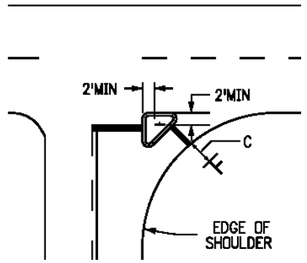




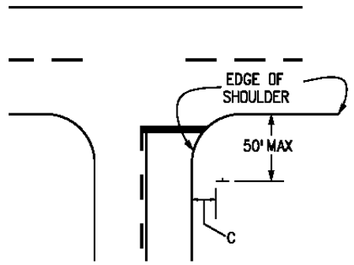
REGULATORY, RECREATIONAL AND CULTURAL INFORMATION SIGN PLACEMENT



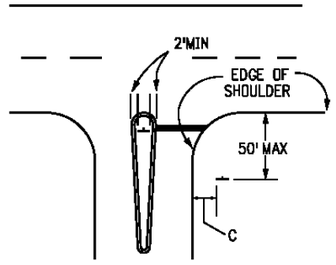
ACUTE ANGLE INTERSECTION



CHANNELIZED INTERSECTION



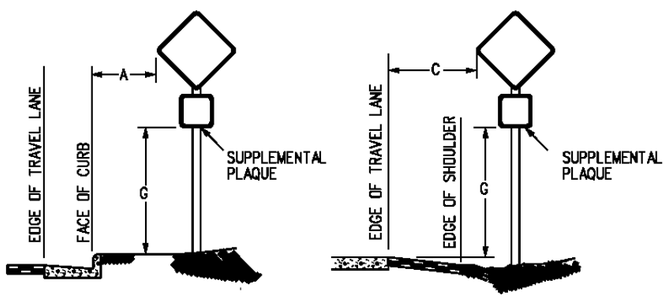
WIDE THROAT INTERSECTION



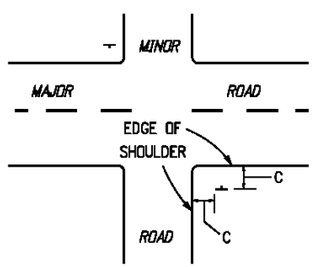
DIVISIONAL ISLAND

GENERAL NOTES

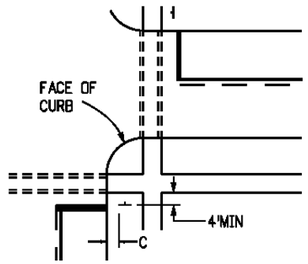
1. THE ENGINEER WILL ESTABLISH GRADES AND LOCATIONS FOR ALL SIGN POSTS IN ACCORDANCE WITH DETAILS SHOWN ON THE PLANS.
2. SPECIAL CARE SHALL BE TAKEN IN SIGN LOCATION TO ENSURE AN UNOBSTRUCTED VIEW OF EACH SIGN.
3. MINIMUM POST EMBEDMENT SHALL BE 3 FT. FOR U-2 POSTS AND 4-IN X 4-IN TIMBER POSTS, AND 5 FT FOR 6-IN X 6-IN TIMBER POSTS. SEE APPLICABLE STANDARDS FOR FOOTING DEPTH.
4. IF A SHOULDER IS WIDER THAN 6 FT., THE MINIMUM LATERAL OFFSET DISTANCE SHOULD BE 6 FT. FROM THE EDGE OF SHOULDER, EXCEPT FOR MILE MARKER SIGNS. SEE FIGURE 2A-2(B) OF THE 2009 MUTCD.
5. NORMAL LATERAL PLACEMENT IS MEASURED FROM THE EDGE OF THE TRAVEL LANE.
6. IN URBAN AREAS, A LATERAL CLEARANCE OF 1 FT FROM THE CURB FACE IS PERMISSIBLE WHERE SIDEWALK WIDTH IS LIMITED OR WHERE EXISTING POLES ARE CLOSE TO THE CURB.
7. TYPICAL POST MOUNTING HEIGHTS FROM GROUND TO BOTTOM OF SIGN PANEL ARE 7 OR 8 FT. OTHER HEIGHTS MAY BE REQUIRED WHEN SIGNS ARE MOUNTED ON STEEPER FILL OR CUT SLOPES.
8. "EDUCATIONAL PLAQUES" FOR SYMBOL SIGNS WILL NOT BE CONSIDERED WHEN DETERMINING VERTICAL PLACEMENT. FOR INFORMATION OF EDUCATIONAL PLAQUES, SEE PAGE 3 OF THE 2012 CDOT GUIDE SIGNING POLICIES & PROCEDURES, AND SECTION 2M.06 OF THE 2009 MUTCD.
9. WHEN LATERAL PLACEMENT IS 30 FT OR MORE FOR SIGNS WITHOUT A SUPPLEMENTAL PLAQUE, VERTICAL PLACEMENT D MAY BE REDUCED TO 5 FT WHEN LATERAL PLACEMENT IS 30 FT OR MORE FOR SIGNS WITH A SUPPLEMENTAL PANEL, VERTICAL PLACEMENT F DOES NOT DOES NOT APPLY - USE ONLY VERTICAL PLACEMENT H.
10. NORMAL ANGULAR PLACEMENT IS 0 DEG. SIGNS CLOSER THAN 30 FT. SHOULD BE TURNED SLIGHTLY AWAY TO MINIMIZE SPECULAR REFLECTION. SIGNS PLACED 30 FT. OR MORE SHOULD GENERALLY BE TURNED TOWARD THE ROAD.
11. THE EXIT PANEL IS MOUNTED ON THE RIGHT HAND SIDE FOR RIGHT HAND EXITS AND THE LEFT SIDE FOR LEFT HAND EXITS.
12. POST SHALL BE INSTALLED PLUMB, VERTICAL DEVIATION SHALL NOT EXCEED ½-IN. IN 10 FT.
13. ON ALL TWO-LANE, UNDIVIDED HIGHWAYS, THE MILE MARKER AND POST SHALL BE INSTALLED ON THE RIGHT SHOULDER IN THE ASCENDING DIRECTION WITH THE MILE MARKER PANELS DISPLAYED ON THE FRONT AND BACK SIDE OF THE POST.
14. ON ALL UNDIVIDED MULTI-LANE AND DIVIDED HIGHWAYS, AND INTERSTATES, THE MILE MARKER AND POST SHALL BE INSTALLED ON THE OUTSIDE SHOULDER (OR SIDEWALK IF APPLICABLE) IN BOTH DIRECTIONS OF TRAVEL.
15. VERTICAL SPACING BETWEEN SIGN PANELS SHALL BE 1 TO 1½ IN., TYPICAL.



WARNING SIGN PLACEMENT



MINOR CROSSROAD



URBAN INTERSECTION

TYPICAL LOCATIONS-STOP SIGNS AND YIELD SIGNS

PLACEMENT TABLES

KEY	LATERAL PLACEMENT: ALL CLASSES OF STREETS AND HIGHWAYS	
	MINIMUM	NORMAL
A	2'-0"	15'-0"PLUS CURB
B	2'-0"	30'-0" OR MORE INCLUDES CURB
C	2'-0"	6'-0"PLUS EDGE OF 6'+ WIDE SHOULDER. IF NONE, 15'-0" FROM EDGE OF TRAVEL LANE.

KEY	VERTICAL PLACEMENT: FREEWAYS AND EXPRESSWAYS		CONVENTIONAL STREETS AND HIGHWAYS			
			URBAN		RURAL	
	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.
D	7'-0" OR NOTE NO. 9	12'-0"	7'-0"	8'-0"	5'-0"	8'-0"
E	7'-0"	8'-0"	7'-0"	8'-0"	5'-0"	8'-0"
F	8'-0" OR NOTE NO. 9	12'-0"	8'-0"	9'-0"	5'-0"	9'-0"
G	6'-0"	7'-0"	6'-0"	7'-0"	4'-0"	7'-0"
H	5'-0"	10'-0"	6'-0"	7'-0"	4'-0"	7'-0"

Computer File Information	
Creation Date: 07/04/12	
Created By: KCM	
Last Modification Date: 07/31/19	
Lost Modified By: AVU	
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	

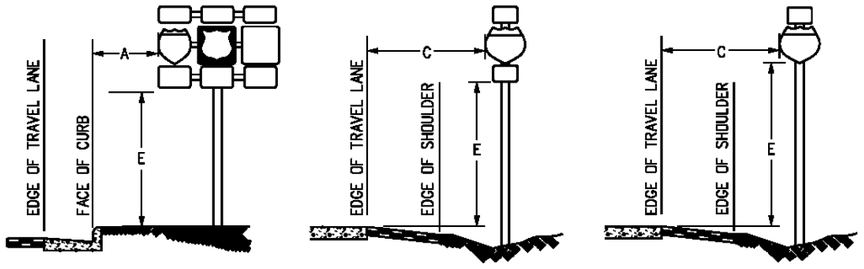
Sheet Revisions	
Date:	Comments

Colorodo Deportment of Transportotion
2829 W. Howard Pl.
Denver, CO 80204
Phone: 303-757-9436
FAX: 303-757-9219
Troffic & Sofety Engineering MKB

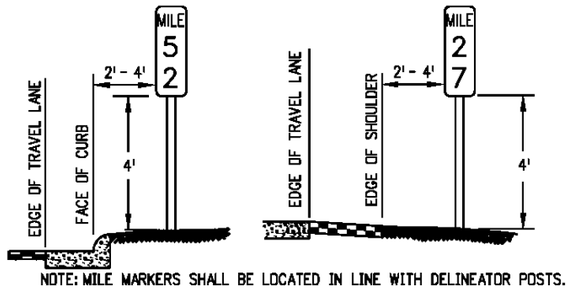
GROUND SIGN PLACEMENT

Issued By: Traffic & Safety Engineering Branch July 31, 2019

STANDARD PLAN NO.
S-614-1
Standard Sheet No. 1 of 2
Project Sheet Number:

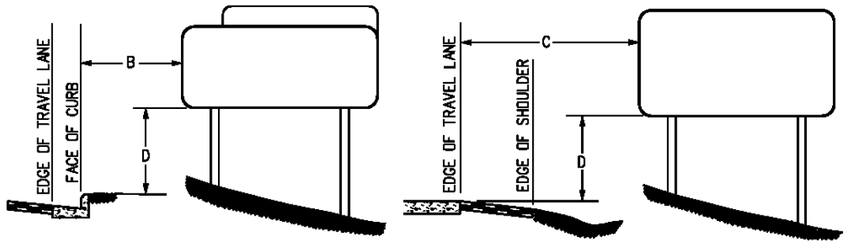


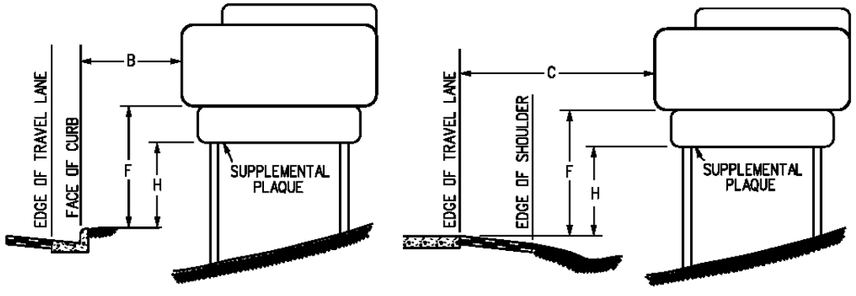
ROUTE MARKER ASSEMBLY PLACEMENT



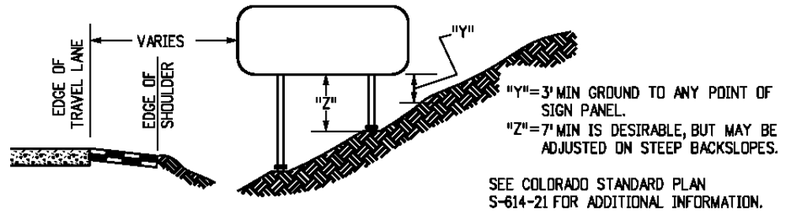
NOTE: MILE MARKERS SHALL BE LOCATED IN LINE WITH DELINEATOR POSTS.

MILE MARKER PLACEMENT

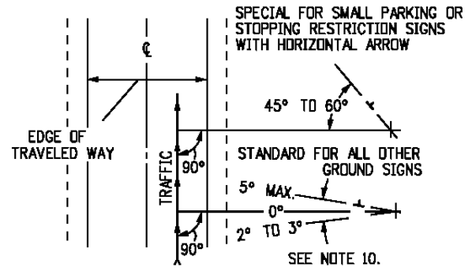




CLASS III SIGN PLACEMENT



CLASS III SIGNS, PANEL GROUND CLEARANCE



ANGULAR PLACEMENT

Computer File Information		Sheet Revisions	
Creation Date: 07/04/12		Date:	Comments
Created By: KCM			
Last Modification Date: 07/31/19			
Last Modified By: AVU			
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English			

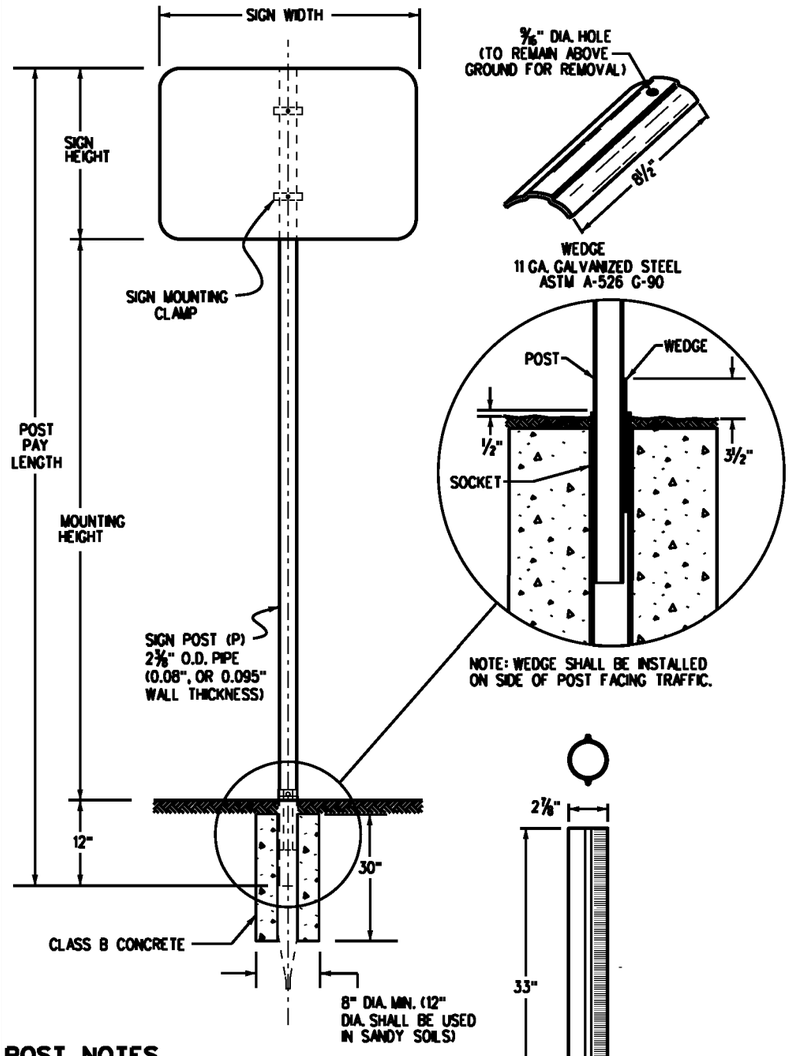
Colorodo Deportment of Transportation
2829 W. Howard Pl.
Denver, CO 80204
Phone: 303-757-9436
FAX: 303-757-9219
Troffic & Sofety Engineering MKB

GROUND SIGN PLACEMENT

Issued By: Traffic & Safety Engineering Branch July 31, 2019

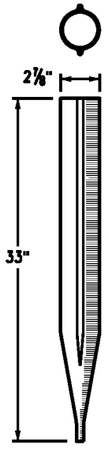
STANDARD PLAN NO.
S-614-1
Standard Sheet No. 2 of 2
Project Sheet Number:

TUBULAR STEEL POSTS
(SOCKET SYSTEM) (FOR USE WITH ALL P-POST INSTALLATIONS)
(SEE SHEET 2 FOR P1 AND P2 POST INSTALLATIONS)



WEDGE
11 GA. GALVANIZED STEEL
ASTM A-526 G-90

NOTE: WEDGE SHALL BE INSTALLED ON SIDE OF POST FACING TRAFFIC.



TUBULAR CONCRETE FOOTING
12 GA. GALVANIZED
STEEL ASTM - 787

POST NOTES

THE POST MAY BE PRE-PUNCHED WITH ⅜" DIA. HOLES AND THE SIGN MOUNTED DIRECTLY TO THE POST, OR AN APPROVED MOUNTING CLAMP MAY BE USED TO MOUNT THE SIGN TO THE POST. IF THE POST IS PRE-PUNCHED, THE HOLES SHALL BE SPACED THE FOLLOWING DISTANCES FROM THE TOP:

1", 3", 10", 16", 21", 23", 24", 27", 33", 37", 39", AND 45"

SIGNPOST SELECTION GUIDE (90 MPH WIND LOAD DESIGN)
(FOR SOCKET SYSTEM AND SLIPBASE INSTALLATIONS USING P, P1 OR P2 POSTS)

7' MOUNTING HEIGHT

SIGN HEIGHT (FT) \ SIGN WIDTH (FT)	1	2	2.5	3	4	5	6	7	8	9	10	11	12*
1	P	P	P	P	P	P1	SIZES NOT USED						
2	P	P	P	P	P	P1							
2.5	P	P	P	P	P1	P1							
3	P	P	P	P1	P1	P1							
4	P	P1	P1	P1	P1	P1	TWO P1'S					TWO P2'S	
5	SIZES NOT USED		P1	P1	P1	P1							
6			P1	P1	P1	▼P2					TWO P2'S	THREE P2'S	
7			P1	P1	▼P2						TWO P2'S		SEE CHART NOTE 5.

▼SEE CHART NOTE 4.

8' MOUNTING HEIGHT

SIGN HEIGHT (FT) \ SIGN WIDTH (FT)	1	2	2.5	3	4	5	6	7	8	9
1	P	P	P	P	P	P1	SIZES NOT USED			
2	P	P	P	P	P1	P1				
2.5	P	P	P	P1	P1	P1				
3	P	P	P1	P1	P1	P1	TWO P1'S			
4	P	P1	P1	P1	P1	P1				
5	SIZES NOT USED		P1	P1	P1	▼P2				
6			P1	P1	P1	▼P2				TWO P2'S
7			P1	P1	TWO P1'S	TWO P1'S	TWO P2'S	SIZES NOT USED		

9' MOUNTING HEIGHT

SIGN HEIGHT (FT) \ SIGN WIDTH (FT)	1	2	2.5	3	4	5	6	7	8	9
1	P	P	P	P	P	P1	SIZES NOT USED			
2	P	P	P	P	P1	P1				
2.5	P	P	P	P1	P1	P1				
3	P	P	P1	P1	P1	P1	TWO P1'S			
4	P	P1	P1	P1	P1	P1				
5	SIZES NOT USED		P1	P1	P1	▼P2				TWO P2'S
6			P1	P1	▼P2	TWO P1'S			TWO P2'S	
7			P1	P2	TWO P1'S	TWO P1'S		TWO P2'S	SIZES NOT USED	

CHART NOTES

1. TYPICAL POST MOUNTING HEIGHTS FROM GROUND TO BOTTOM OF SIGN PANEL ARE 7, 8 OR 9 FEET. OTHER HEIGHTS MAY BE REQUIRED WHEN SIGNS ARE MOUNTED ON STEEPER FILL OR CUT SLOPES.
2. FOR SIGNS MOUNTED ON TWO POSTS, THE MINIMUM DISTANCE BETWEEN POSTS SHALL BE 2 FEET AND THE MAXIMUM DISTANCE SHALL BE 8 FEET. DISTANCE FROM POST TO EDGE OF SIGN PANEL(S) SHALL BE 0 TO 4 INCHES. WHEN BACKING ZEES ARE USED, POSTS SHALL BE INSTALLED WITH A MINIMUM OF 2 INCHES TO THE EDGE OF THE BACKING ZEE.
3. ALL SIGN PANELS GREATER THAN 60 INCHES IN WIDTH MUST BE MOUNTED ON TWO POSTS TO PREVENT TURNING.
4. THE POST SIZES SHOWN ARE THE MINIMUM SIZES REQUIRED. TWO P1 POSTS MAY BE SUBSTITUTED WHERE ONE P2 POST IS INDICATED. P2 POSTS MAY SUBSTITUTED FOR P1 POSTS WHEN DIRECTED BY THE ENGINEER. W-SHAPE BEAM MAY BE SUBSTITUTED FOR P2 POSTS WHEN DIRECTED BY THE ENGINEER.
5. USE W-SHAPE BEAMS ONLY FOR SIGN POSTS.

GENERAL NOTES

1. SIGNS BETWEEN 37 IN. AND 60 IN. WIDTH WITH ONE POST INSTALLATION REQUIRE A T OR U SIGN SUPPORT BRACKET IN ADDITION TO THE BACKING ZEE REQUIREMENTS. WHEN DIRECTED BY THE ENGINEER, SIGN PANELS LESS THAN 48 IN. IN WIDTH MAY ATTACHED DIRECTLY TO T OR U BRACKETS WITHOUT ZEES.
2. U-BRACKETS MAY BE USED FOR MULTIPLE SIGN INSTALLATIONS.
3. FOR BACKING ZEE REQUIREMENTS AND DETAILS, SEE STANDARD PLANS S-614-3 AND S-614-4.
4. THE CONTRACTOR SHALL INSTALL THE POSTS PER THE MANUFACTURER'S RECOMMENDATIONS WITHOUT ADDITIONAL COMPENSATION.

POST SPECIFICATIONS

POST SIZE	OUTSIDE DIAMETER	WALL THICKNESS	MATERIAL	** COATING	MAX ALLOW MOMENT	PAID FOR AS:
P	2.375"	.080"	ASTM-513	ASTM A-653 G-210 WITH 3.0 MIL POLYMER COATING PER ASTM A123 CLEAR COATING	1.47 KIP FT	STEEL SIGN SUPPORT (2 INCH ROUND)
P1	2.875"	.160"	ASTM-513		4.02 KIP FT	STEEL SIGN SUPPORT (2½ INCH ROUND NP-40)
P2	2.875"	.276"	ASTM-500	GC HOT DIPPED PER ASTM-123	5.13 KIP FT	STEEL SIGN SUPPORT (2½ INCH ROUND SCH 80)

** COLOR POWDER COATING MAY BE ADDED ACCORDING TO MANUFACTURER SPECIFICATIONS FOR SPECIAL LOCATIONS WHEN SHOWN ON THE PLANS.

Computer File Information	
Creation Date:	07/04/12
Created By:	KEN
Last Modification Date:	12/29/2020
Last Modified By:	McCarthy
CAD Ver.: MicroStation V8	Scale: Not to Scale Units: English

R-D

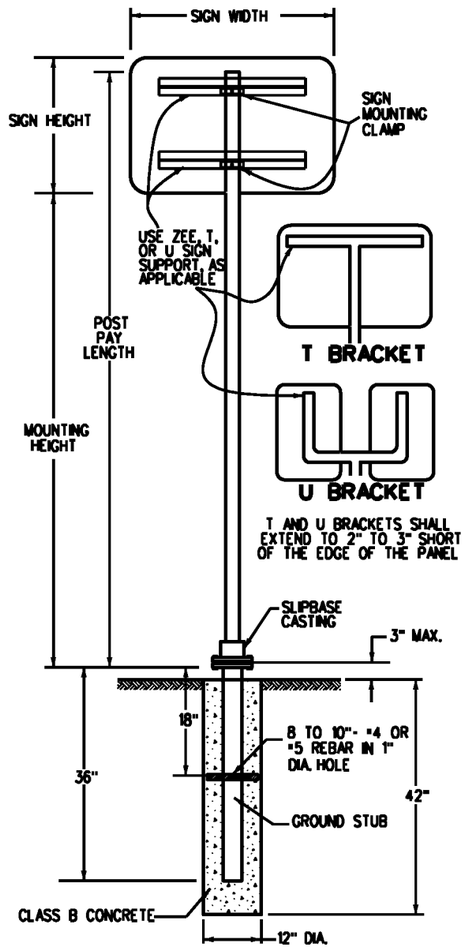
Sheet Revisions	
Date:	Comments
12/29/20	ADDED 10' FT SIGN WIDTHS TO 7' MOUNTING HEIGHT CHART

Colorado Department of Transportation
2829 W. Howard Pl.
Denver, CO 80204
Phone: 303-757-9436
FAX: 303-757-9219
Traffic & Safety Engineering MKB

TUBULAR STEEL SIGN SUPPORT DETAILS

STANDARD PLAN NO.
S-614-8
Standard Sheet No. 1 of 7
Project Sheet Number:

Issued By: Traffic & Safety Engineering Branch July 31, 2019

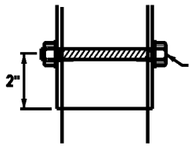


TUBULAR STEEL POST
(WITH SLIPBASE)
(FOR USE WITH ALL P1 AND P2 POST INSTALLATIONS)
(SEE SHEET 1 FOR P-POST INSTALLATIONS)

DIMENSIONS FOR MOUNTING CLAMP (ALL DIMENSION ARE IN INCHES)

STANDARD PIPE SIZE	A	B	C	D	E	F	G	K	L	R_1	R_2
2	3¾	2¾	1½	1⅛	½	5/16	1	2 11/16	1 1/32	¼	1 5/16
2½	4¼	3¼	2	¼	½	¼	1	3 5/16	1 5/32	½	1 5/16

T AND U BRACKET ATTACHMENT



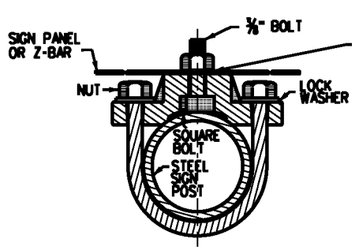
½" x 4½" INCH LONG ZINC-PLATED OR GALVANIZED, GRADE 5 HEX BOLT. 2 FLAT AND 1 LOCK WASHER REQUIRED.

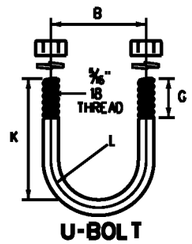
REPLACE FLAT WASHERS WITH 1½" FENDER WASHER IN HIGH WIND/SNOW AREAS OR AS DIRECTED BY THE ENGINEER.

PIPE CLAMP CASTING

PIPE CLAMP CASTING SHALL BE ASTM B26 OR B108 ALUMINUM ALLOY A444.0-T4 OR 356.0-F. ALL SIGN MOUNTING CLAMP PARTS NOT MADE FROM ALUMINUM SHALL BE GALVANIZED STEEL IN CONFORMANCE WITH ASTM A153 OR STAINLESS STEEL.

TYPICAL SINGLE BRACKET

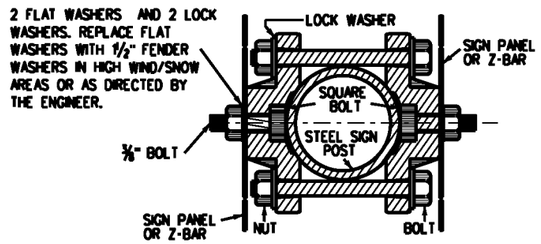


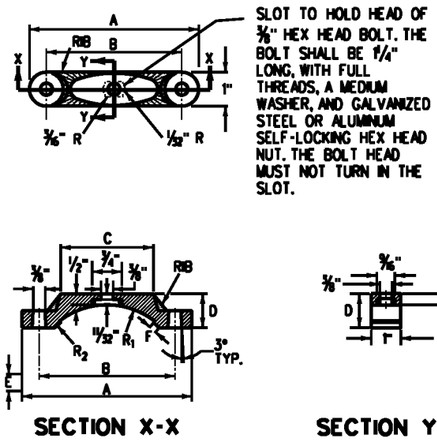


U-BOLT

U-BOLT TO BE MADE IN ACCORDANCE WITH STANDARD MANUFACTURING PROCEDURE. ¼" OR 5/16" DIAMETER STOCK IS PERMISSIBLE. AMERICAN STANDARD REGULAR SEMI-FINISHED HEX NUTS AND SPRING LOCKWASHERS.

TYPICAL BACK TO BACK





SLOT TO HOLD HEAD OF ⅜" HEX HEAD BOLT. THE BOLT SHALL BE 1¼" LONG, WITH FULL THREADS, A MEDIUM WASHER, AND GALVANIZED STEEL OR ALUMINUM SELF-LOCKING HEX HEAD NUT. THE BOLT HEAD MUST NOT TURN IN THE SLOT.

DETAILS FOR SIGN PANEL ATTACHMENT

MOUNTING CLAMP FOR SOCKET OR SLIPBASE

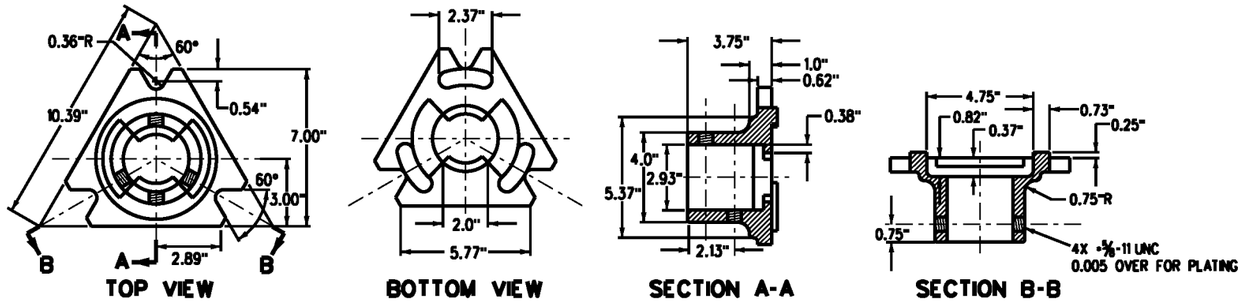
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12		Date:	Comments
Created By: SCL		12/29/20	BOLT LENGTH IN "T AND U BRACKET ATTACHMENT" WASHER REQUIREMENTS IN SIGN PANEL ATTACHMENT
Last Modification Date: 12/29/2020			
Last Modified By: DiNardo			
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English			

Colorado Department of Transportation
2829 W. Howard Pl.
Denver, CO 80204
Phone: 303-757-9436
FAX: 303-757-9219
Traffic & Safety Engineering
MKB

TUBULAR STEEL SIGN SUPPORT DETAILS

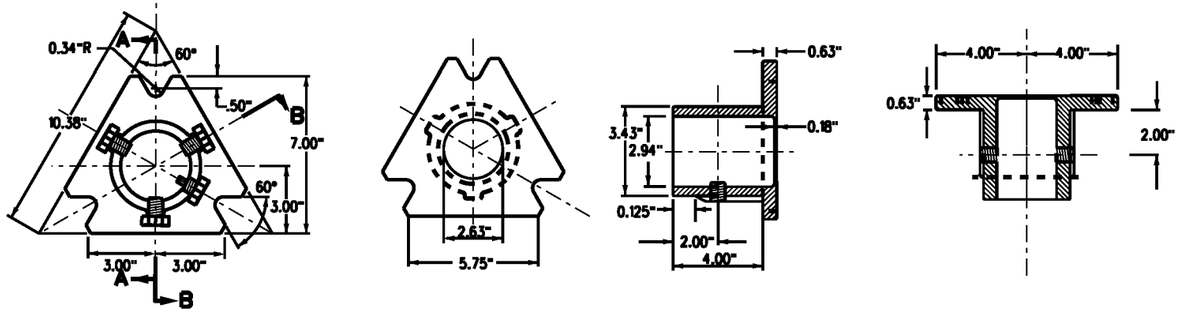
Issued By: Traffic & Safety Engineering Branch July 31, 2019

STANDARD PLAN NO.
S-614-8
Standard Sheet No. 2 of 7
Project Sheet Number:



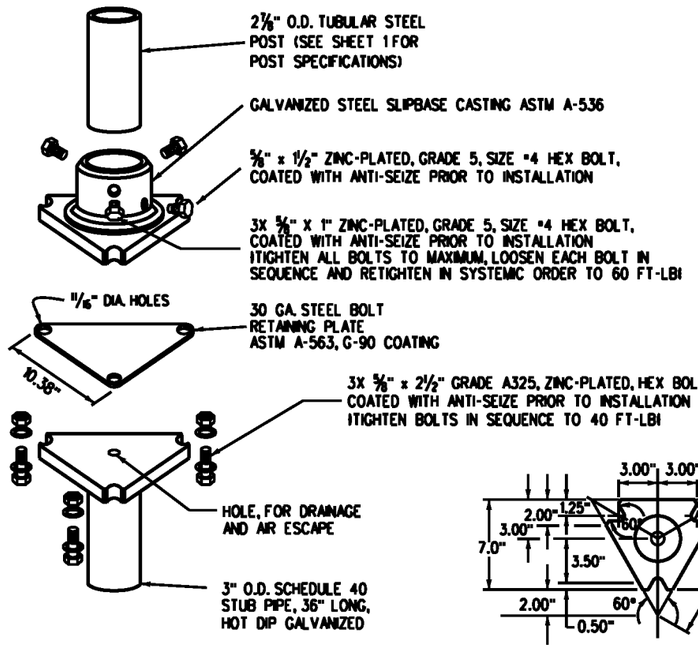
SLIPBASE CASTING 1

DIRECTION OF TRAVEL

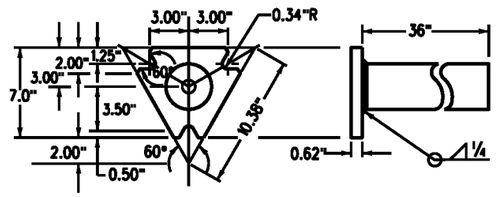


SLIPBASE CASTING 2

DIRECTION OF TRAVEL



TYPICAL ASSEMBLY



SLIPBASE STUB BASE

SLIPBASE CASTING REQUIREMENTS

FOR 2-7/8 INCH POSTS (P1 OR P2 POSTS)
GALVANIZED STEEL SLIPBASE CASTING ASTM-536

MOUNTING HARDWARE

- 3 - EACH ⅝ x 2½ INCH LONG HEX BOLT
- 3 - EACH ⅝ x 1 INCH LONG ZINC-PLATED, GRADE 5 SIZE #4 HEX BOLT
- 1 - EACH ⅝ x 1½ INCH LONG ZINC-PLATED, GRADE 5 SIZE #4 HEX BOLT
- 1 - EACH 30 GAUGE STEEL BOLT RETAINING PLATE ASTM A-563, G-90 COATING

ALL HARDWARE WILL BE GALVANIZED OR ZINC PLATED.

INSTALLATION REQUIREMENTS

ALL HEX BOLTS SHALL BE COATED WITH ANTI-SEIZE PRIOR TO INSTALLATION

TUBULAR STEEL SIGN SUPPORT SLIPBASE NOTES

1. REFER TO SIGNING PLANS FOR SIGN LOCATIONS AND HEIGHT
2. MINIMUM ALLOWABLE TENSION CAPACITY FOR WEDGE ANCHORS = 3000 LBS.
3. MAXIMUM ALLOWABLE MOMENT FOR SIGN BASE = 5.13 kip-ft.
4. PAY ITEM "STEEL SIGN SUPPORT(X-INCH ROUND)(SLIPBASE)" SHALL INCLUDE STUB BASE, CASTING AND NECESSARY HARDWARE (SLIPBASE CASTING MOUNTING HARDWARE AS SHOWN ON STD S-614-8, SHEET 3)
5. PAY ITEM "STEEL SIGN SUPPORT CASTING" SHALL INCLUDE CASTING AND NECESSARY MOUNTING HARDWARE (SLIPBASE CASTING MOUNTING HARDWARE AS SHOWN ON STD S-614-8, SHEET 3)
6. PAY ITEM "STEEL SIGN GROUND STUB BASE (36)" SHALL INCLUDE SLIPBASE STUB BASE

CAST-IN-PLACE SLIPBASE FOR NEW INSTALLATIONS

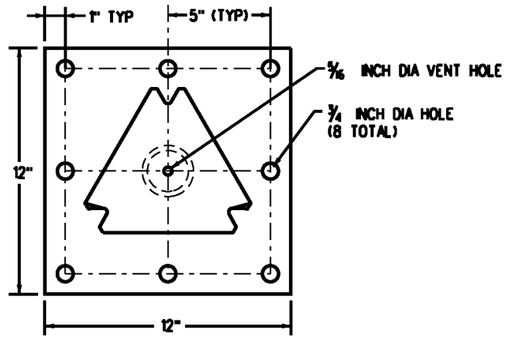
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12	R-1	Date:	Comments
Created By: KEN		12/29/20	⅝" x 2½" HEX BOLTS FROM GRADE 5, SIZE #4 TO GRADE A325 IN "TYPICAL ASSEMBLY"
Last Modification Date: 12/29/2020			
Last Modified By: DiNardo			
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English			

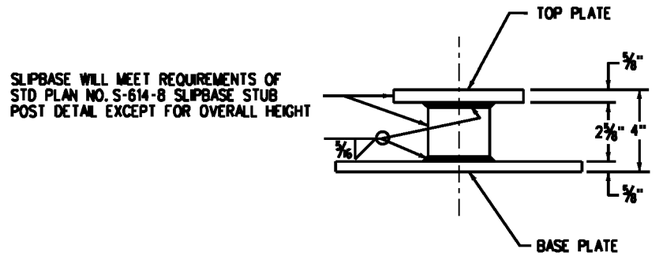
Colorado Department of Transportation
2829 W. Howard Pl.
Denver, CO 80204
Phone: 303-757-9436
FAX: 303-757-9219
Traffic & Safety Engineering MKB

TUBULAR STEEL SIGN SUPPORT DETAILS

Issued By: Traffic & Safety Engineering Branch July 31, 2019

STANDARD PLAN NO.
S-614-8
Standard Sheet No. 3 of 7
Project Sheet Number:





SURFACE MOUNT SLIPBASE BASE PLATE

SURFACE MOUNT SLIPBASE BASE PLATE FABRICATION REQUIREMENTS

BASE PLATE - 3/4 INCH ASTM A 36 PLATE STEEL
PIPE STUB - 3 INCH NOMINAL SCHEDULE 80, ASTM A-500 GRADE B
TOP PLATE - MEET REQUIREMENTS OF STD PLAN NO. S-614-8, SHEET 3

MEET ASTM A-123 GALVANIZING AFTER FABRICATION IS COMPLETE

SURFACE MOUNT SLIPBASE TUBULAR STEEL SIGN BASE REQUIREMENTS

FOR 2-7/8 INCH POSTS (P1 OR P2 POSTS)
FOR CONCRETE SURFACES GREATER THAN 7 INCHES THICK
FOR CONCRETE SURFACES GREATER THAN 12 INCHES IN WIDTH

MOUNTING HARDWARE

- 8 - EACH 5/8 x 5 1/2 INCH LONG "HILTIKWIK HUS-EZ SCREW ANCHORS
- 16 - EACH 5/8 INCH FLAT WASHERS
- 8 - EACH 5/8 INCH LOCK WASHERS
- 8 - EACH 5/8 INCH NUTS

ALL HARDWARE WILL BE GALVANIZED OR ZINC PLATED.

INSTALLATION REQUIREMENTS:

DRILL: (8) - 5/8 INCH HOLES 6 INCH DEEP, CLEAN HOLE PRIOR TO INSTALLING ANCHORS

USE ADDITIONAL WASHERS FOR SHIMMING TO LEVEL BASE PLATE.

TUBULAR STEEL SIGN SUPPORT SURFACE MOUNT SLIPBASE NOTES

1. REFER TO SIGNING PLANS FOR SIGN LOCATIONS AND HEIGHT
2. REFER TO STD PLAN NO. S-614-8, SHEET 3 FOR SLIPBASE CASTING INFORMATION
3. MINIMUM ALLOWABLE TENSION CAPACITY FOR WEDGE ANCHORS = 3000 LBS.
4. MAXIMUM ALLOWABLE MOMENT FOR SIGN BASE = 5.13 kip-ft.
5. PAY ITEM "STEEL SIGN SURFACE MOUNT BASE PLATE (SLIPBASE)" SHALL INCLUDE BASE PLATE, CASTING AND ALL NECESSARY HARDWARE (SLIPBASE CASTING MOUNTING HARDWARE AS SHOWN ON STD S-614-8, SHEET 3 AND SURFACE MOUNT SLIPBASE MOUNTING HARDWARE AS SHOWN ON STD 6-14-8, SHEET 4)
6. PAY ITEM "STEEL SIGN SURFACE MOUNT BASE PLATE" SHALL INCLUDE BASE PLATE AND NECESSARY HARDWARE (SURFACE MOUNT SLIPBASE MOUNTING HARDWARE AS SHOWN ON STD S-614-8, SHEET 4)

SURFACE MOUNT SLIPBASE FOR RETROFIT INSTALLATIONS

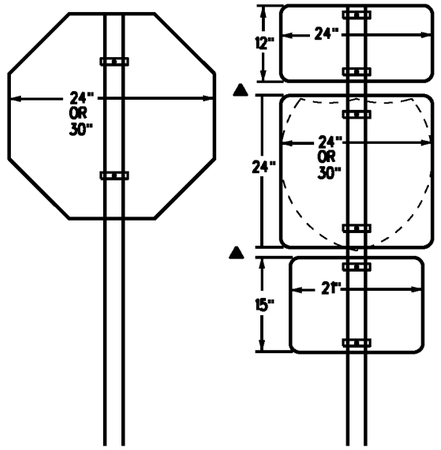
Computer File Information		Sheet Revisions	
Creation Date: 04/12/18		Date:	Comments
Created By: DiNardo			
Last Modification Date: 07/31/19			
Last Modified By: AVU			
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English			

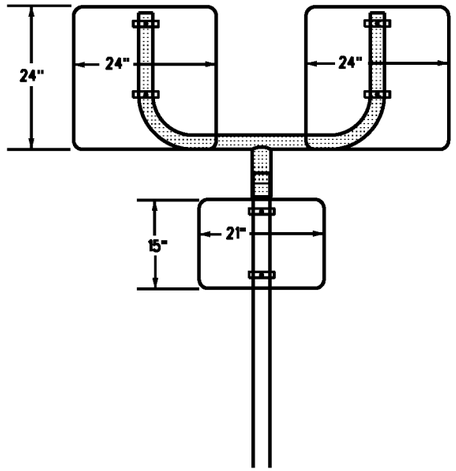
Colorado Department of Transportation
2829 W. Howard Pl.
Denver, CO 80204
Phone: 303-757-9436
FAX: 303-757-9219
Traffic & Safety Engineering MKB

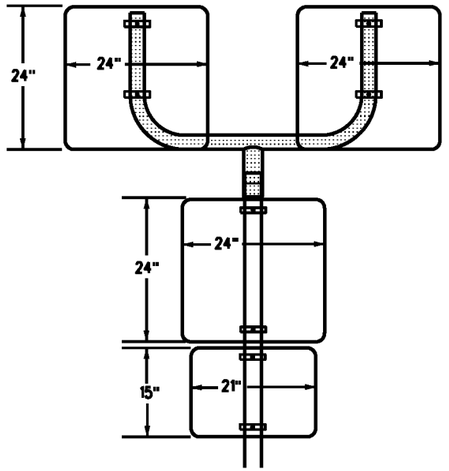
TUBULAR STEEL SIGN SUPPORT DETAILS

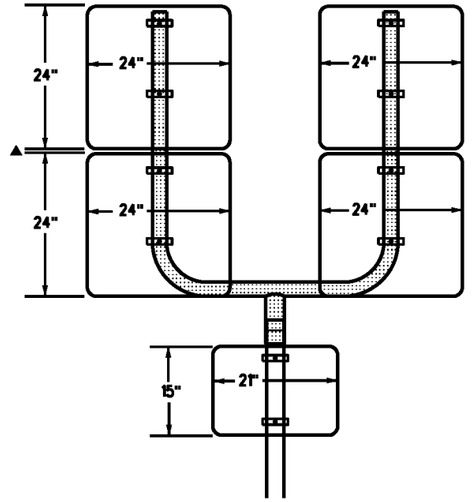
Issued By: Traffic & Safety Engineering Branch July 31, 2019

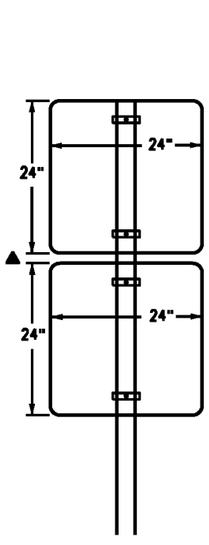
STANDARD PLAN NO.
S-614-8
Standard Sheet No. 4 of 7
Project Sheet Number:

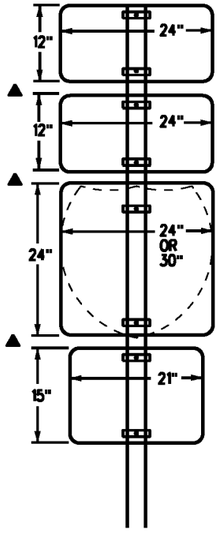


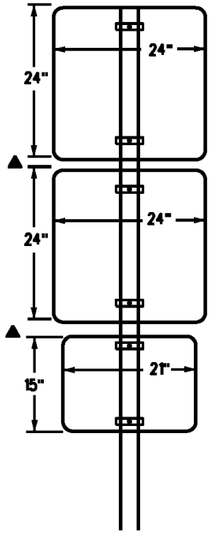




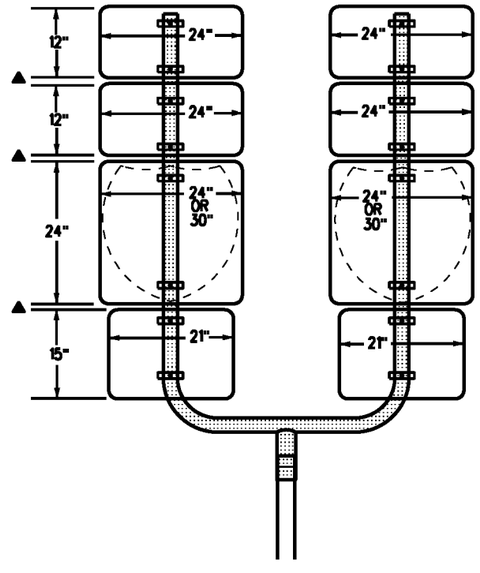








CLASS I SIGN COMBINATIONS (DIRECT ATTACHMENT)



CLASS I SIGN COMBINATIONS USING U-BRACKETS

▲ SEE NOTE 6 ON SHEET 5

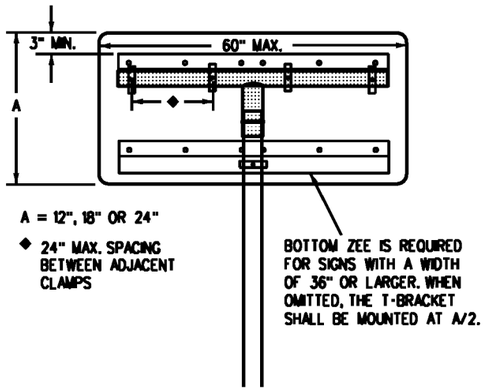
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12		Date:	Comments
Created By: KEN			
Last Modification Date:			
Last Modified By:			
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English			

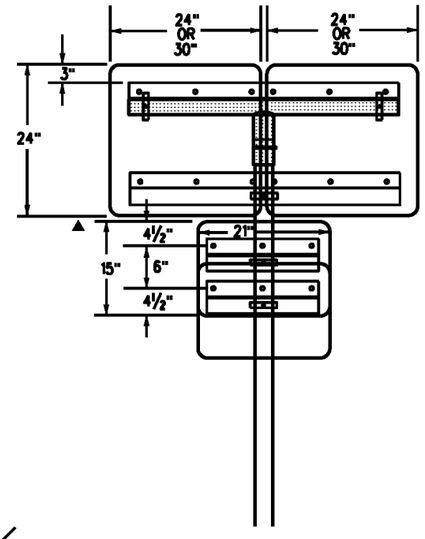
Colorado Department of Transportation
2829 W. Howard Pl.
Denver, CO 80204
Phone: 303-757-9436
FAX: 303-757-9219
Traffic & Safety Engineering MKB

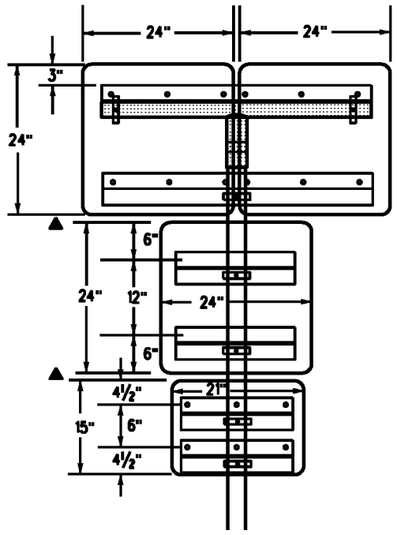
TUBULAR STEEL SIGN SUPPORT DETAILS

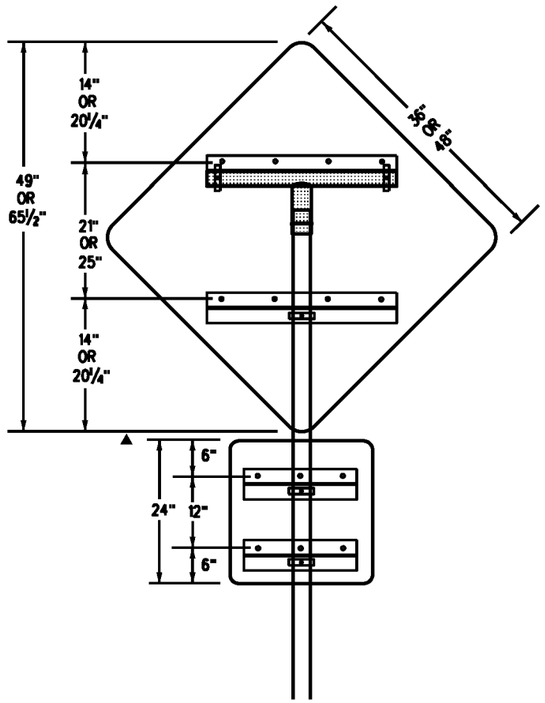
Issued By: Traffic & Safety Engineering Branch July 31, 2019

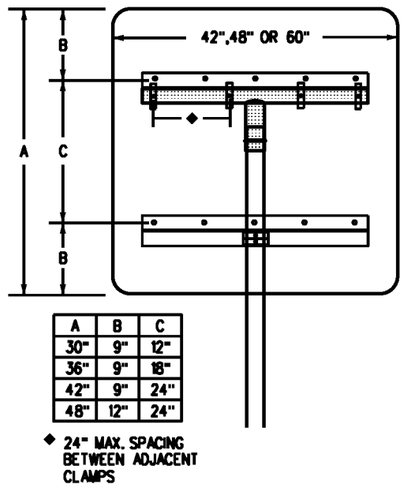
STANDARD PLAN NO.
S-614-8
Standard Sheet No. 5 of 7
Project Sheet Number:











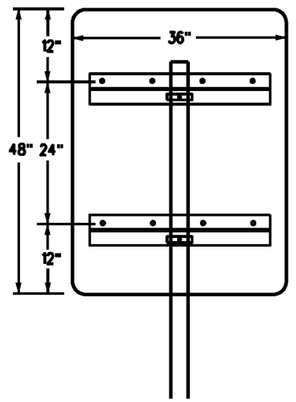
A	B	C
30"	9"	12"
36"	9"	18"
42"	9"	24"
48"	12"	24"

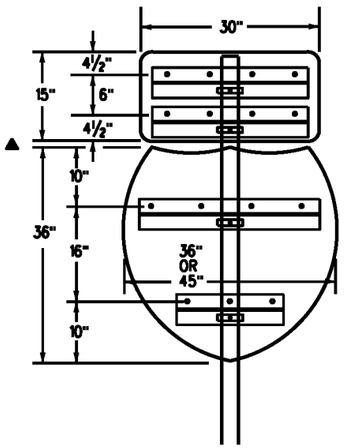
CLASS II SIGN COMBINATIONS USING T-BRACKETS WITH Z-BAR

PANEL WIDTHS	ZEE LENGTH
21"	15"
24"	18"
30"	24"
36"	30"
42"	36"
45"	39"
48"	42"
54"	48"
60"	54"
36" DIAMOND	22"
48" DIAMOND	36"
24" & 24"	43"
24" & 30"	49"
30" & 30"	55"
36" & 36"	67"
45" & 36"	76"
24" & 24" & 24"	68"
24" & 24" & 30"	74"
24" & 30" & 24"	74"
30" & 24" & 30"	80"
24" & 30" & 30"	80"
30" & 30" & 30"	86"

NOTES

1. Z-BAR LENGTH SHALL BE 3 IN. (- ½ IN.) SHORT OF THE EDGE OF THE SIGN OR ROW OF SIGNS ON BOTH SIDES. THE ACCOMPANYING TABLE GIVES THE Z-BAR LENGTH FOR MOST TYPICAL PANEL COMBINATIONS.
2. FIRST AND LAST HOLES SHALL BE 2 IN. FROM EDGE OF Z-BAR. THE HOLES IN BETWEEN SHALL BE 6 IN. TO 8 IN. APART.
3. T AND U BRACKETS SHALL TERMINATE 2 IN. TO 3 IN. FROM EDGE OF SIGN PANEL. WHEN A ZEE IS CONNECTED TO A T-BRACKET, THEY SHALL BE THE SAME LENGTH EXCEPT WHEN THE ZEE MUST EXTEND BEYOND THE MAXIMUM LENGTH OF A T-BRACKET.
4. TWO MOUNTING CLAMPS ARE REQUIRED ON ZEES WHERE THERE IS ONLY ONE ZEE FOR THE PANEL AND THE ZEE IS ATTACHED TO ONLY ONE POST.
5. ZEES SHALL BE ATTACHED TO T-BRACKETS AND U-BRACKETS WITH U-BOLTS OR MOUNTING CLAMPS.
6. ▲ VERTICAL SPACING BETWEEN SIGN PANELS SHALL BE 1 IN. TO 1 IN. TYPICAL.
7. IN SPECIAL CASES U-BRACKETS MAY BE USED TO MOUNT SIGNS THAT FACE DIFFERENT DIRECTIONS. THE ENGINEER SHALL DETERMINE THE ORIENTATION OF THE SIGN PANELS AND VERIFY THAT THE MAXIMUM ALLOWABLE WIND LOADS FOR THE POST ARE NOT EXCEEDED.





SINGLE POST CLASS II SIGNS USING Z-BAR

Computer File Information	
Creation Date: 07/04/12	
Created By: KEN	
Last Modification Date: 07/31/19	
Last Modified By: AVU	
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	

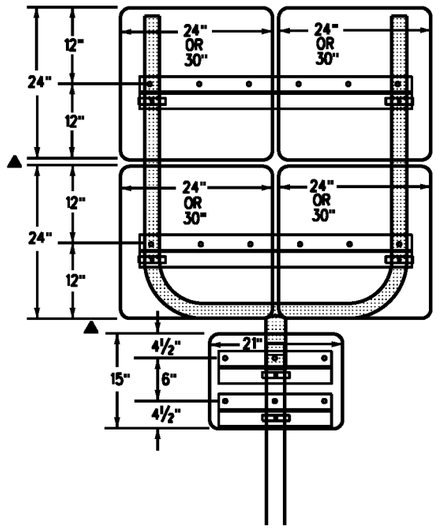
Sheet Revisions	
Date:	Comments

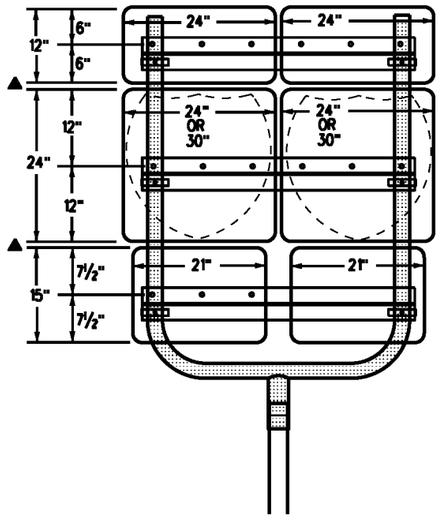
Colorado Department of Transportation
2829 W. Howard Pl.
Denver, CO 80204
Phone: 303-757-9436
FAX: 303-757-9219
Traffic & Safety Engineering MKB

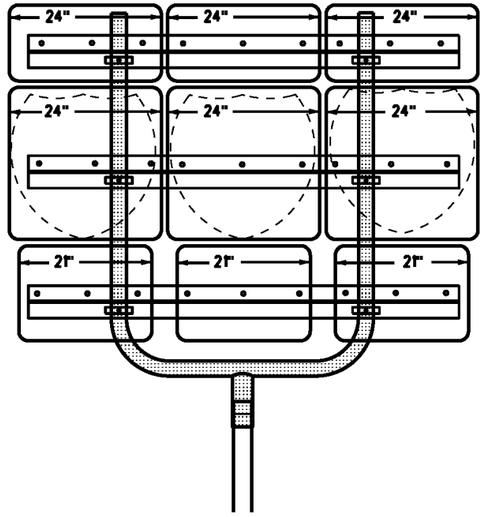
TUBULAR STEEL SIGN SUPPORT DETAILS

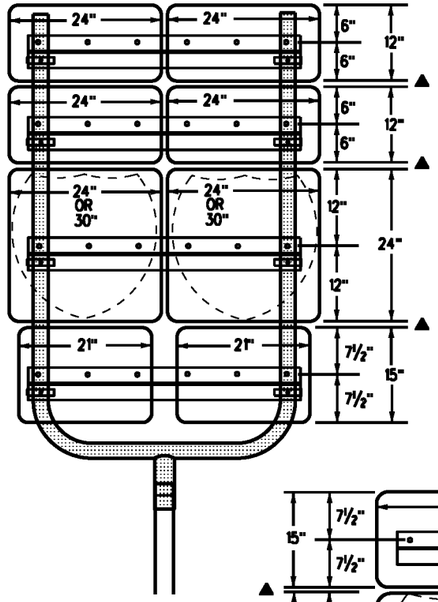
Issued By: Traffic & Safety Engineering Branch July 31, 2019

STANDARD PLAN NO.
S-614-8
Standard Sheet No. 6 of 7
Project Sheet Number:

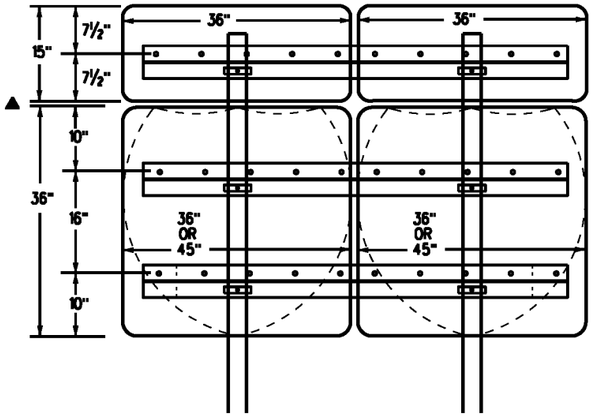




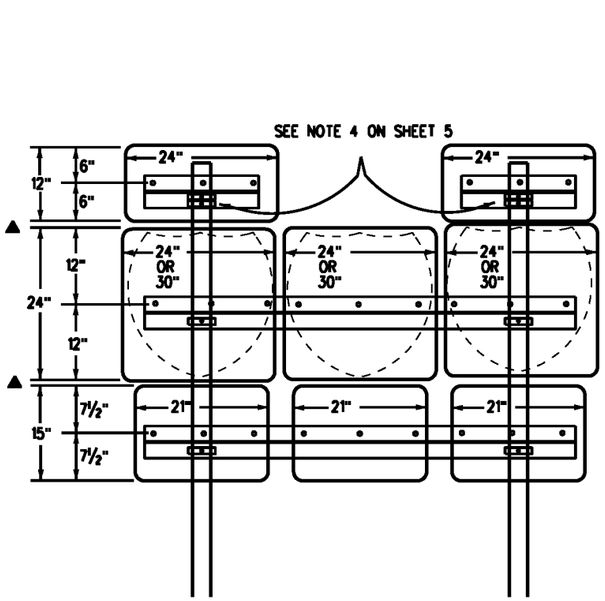


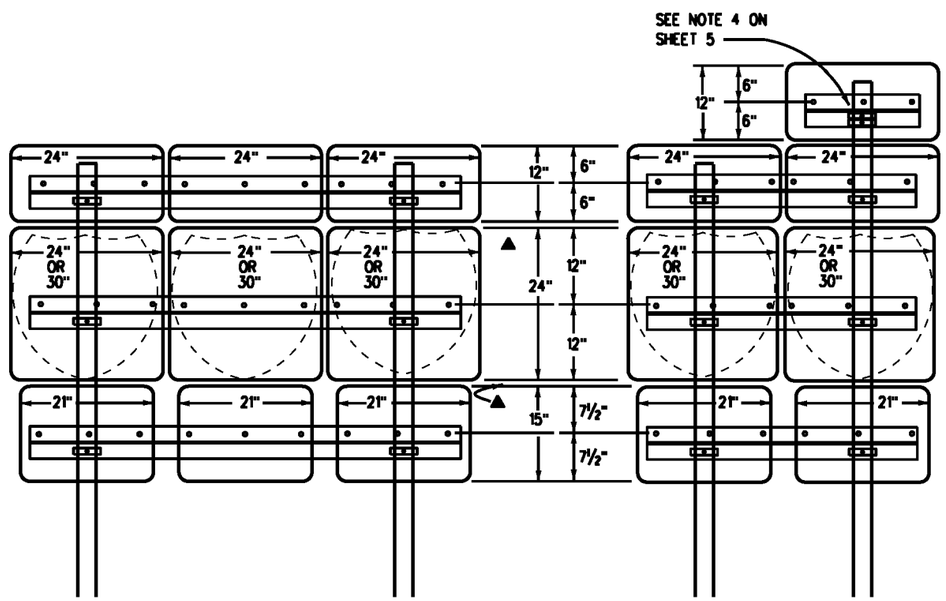


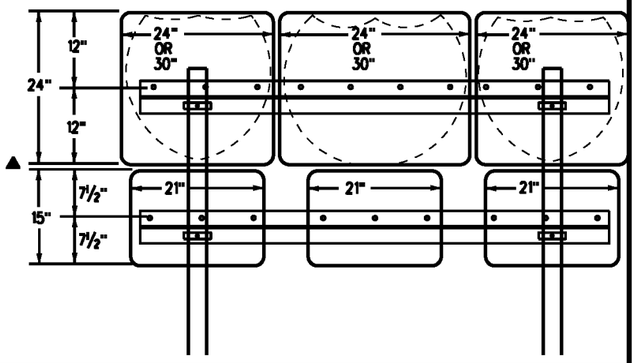
CLASS II SIGN COMBINATIONS USING U-BRACKETS



NOTE: THIS CONFIGURATION IS PREFERABLE TO USING TWO SEPARATE SIGNS.







▲ SEE NOTE 6 ON SHEET 5

CLASS II SIGN COMBINATIONS USING TWO POSTS

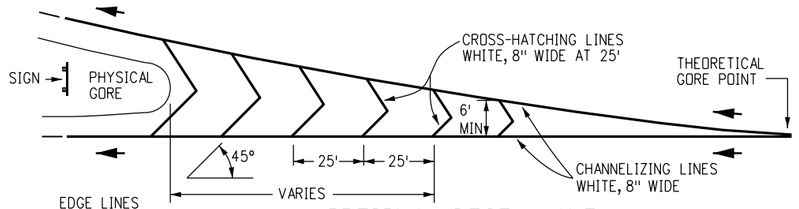
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12		Date:	Comments
Created By: KEN			
Last Modification Date:			
Last Modified By:			
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English			

Colorado Department of Transportation
2829 W. Howard Pl.
Denver, CO 80204
Phone: 303-757-9436
FAX: 303-757-9219
Traffic & Safety Engineering MKB

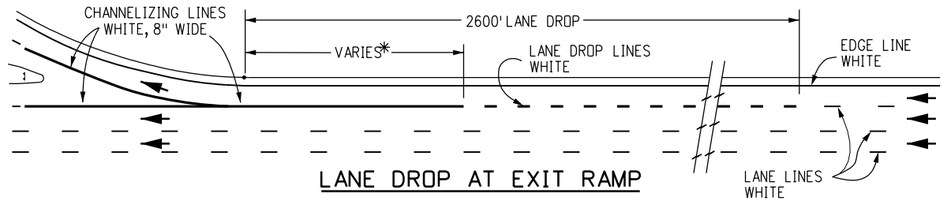
TUBULAR STEEL SIGN SUPPORT DETAILS

Issued By: Traffic & Safety Engineering Branch July 31, 2019

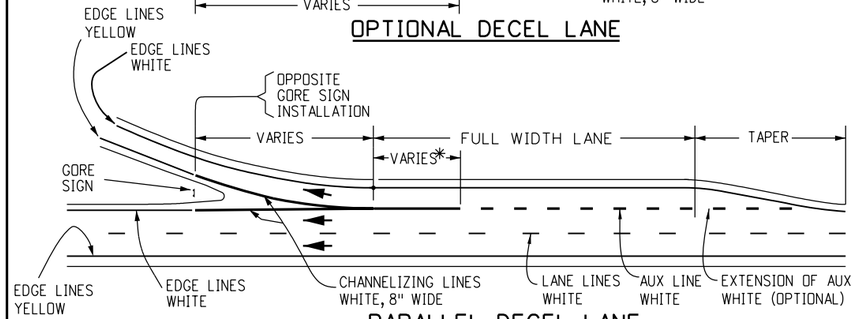
STANDARD PLAN NO.
S-614-8
Standard Sheet No. 7 of 7
Project Sheet Number:



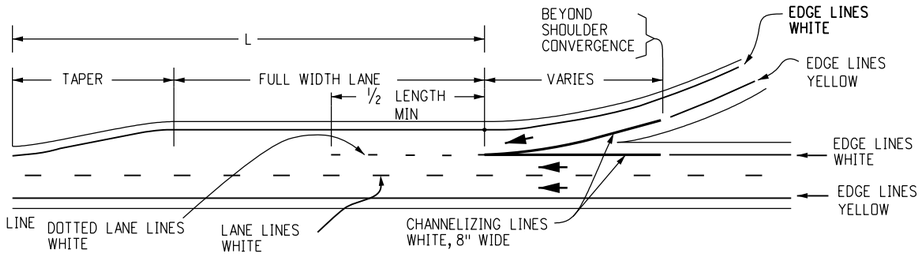
OPTIONAL DECEL LANE



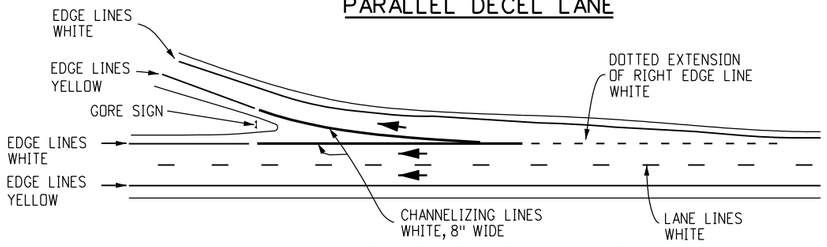
LANE DROP AT EXIT RAMP



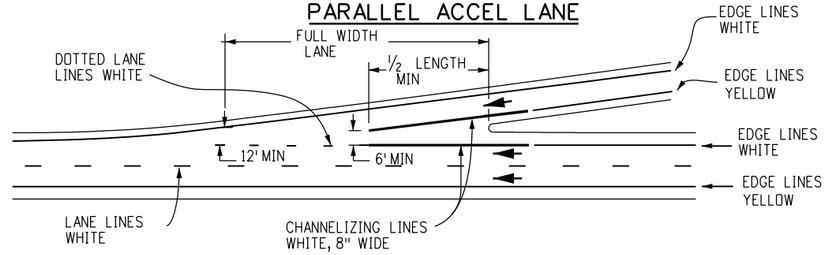
PARALLEL DECEL LANE



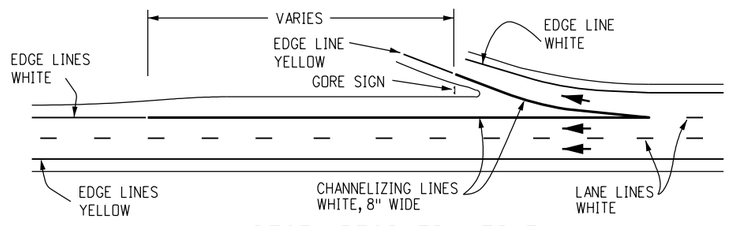
PARALLEL ACCEL LANE



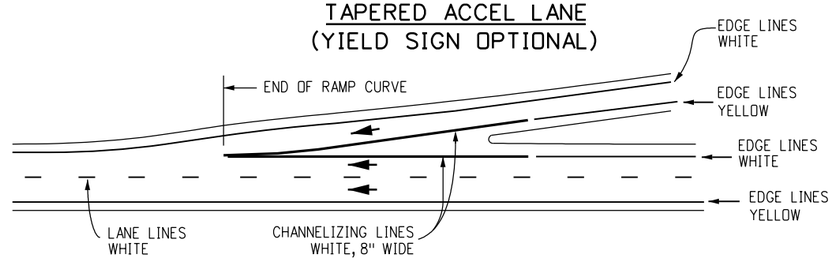
TAPERED DECEL LANE



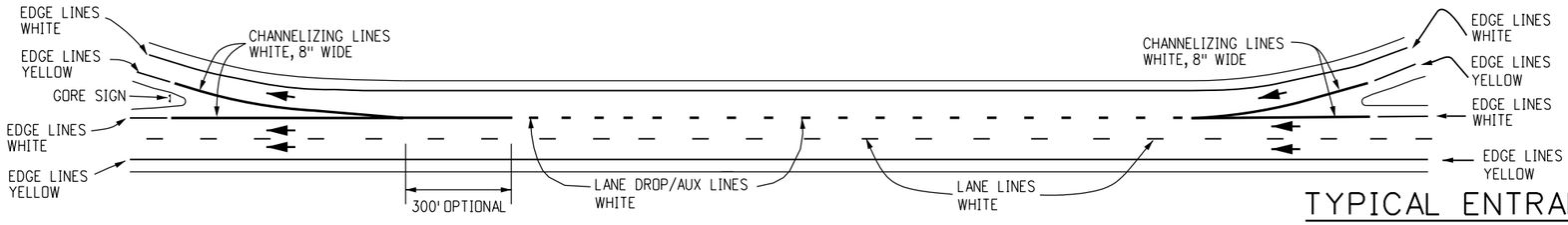
TAPERED ACCEL LANE (YIELD SIGN OPTIONAL)



DECEL RECOVERY ZONE



NO ACCEL LANE (REQUIRES YIELD SIGN)



COMBINATION ACCEL-DECEL LANE

TYPICAL ENTRANCE AND EXIT RAMP MARKINGS

GENERAL NOTES

1. MINIMUM LONGITUDINAL PAVEMENT MARKING WIDTH

Facility Type	Speed	Edge Lines	Lane Lines	Center Lines[1]	Dotted Lane Lines	Lane Drop/ Aux Lines
2-Lane Facilities	All	6"	n/a	4"	n/a	n/a
3- Lane Facilities	All	6"	6"	4"	6"	8"
Multi-Lane Facilities	≥ 50 MPH	6"	6"	4"	6"	8"
Multi-Lane Facilities	≤ 45 MPH	4"	4"	4"	4"	8"

[1]Applies to facility types with double yellow lines, painted median, or undivided highway.

2. TEMPORARY PAVEMENT MARKING
   4 INCHES WIDE MARKING CAN BE USED INSTEAD OF 6 INCHES WIDE MARKING FOR TEMPORARY MARKING UNLESS OTHERWISE DIRECTED BY THE REGION TRAFFIC ENGINEER.

3. CENTER LINES
   a. BROKEN YELLOW, 4 INCHES WIDE-10 FEET SEGMENTS WITH 30 FEET GAPS.
   b. SOLID YELLOW, 4 INCHES WIDE. THESE LINES SEPARATE ADJACENT-OPPOSITE DIRECTION TRAFFIC LANES. DOUBLE LINES SHALL BE SPACED 4 INCHES APART.

4. LANE LINES
   a. BROKEN WHITE, 4 OR 6 INCHES WIDE-10 FEET SEGMENTS WITH 30 FEET GAPS. THESE LINES SEPARATE ADJACENT-SAME DIRECTION TRAFFIC LANES.
   b. SOLID WHITE, 4 OR 6 INCHES 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.

5. EDGE LINES
   a. SOLID WHITE OR YELLOW EDGE LINES SHALL BE 4 OR 6 INCHES 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 RAMPS).
   b. 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.

6. DOTTED EXTENSION LINES
   BROKEN WHITE, WIDTH MATCHING THE LINE BEING EXTENDED-2 FEET SEGMENTS WITH 4 FEET GAPS. THESE LINES ARE USED TO DELINEATE THE EXTENSION OF A LINE THROUGH AN INTERSECTION OR INTERCHANGE AREA.

7. LANE DROP / AUX LINES
   BROKEN WHITE, 8 INCHES WIDE-3 FEET SEGMENTS WITH 12 FEET GAPS. THESE LINES SHOULD BEGIN 2600 FEET IN ADVANCE OF THE THEORETICAL GOREPOINT TO DISTINGUISH THE LANE DROP FROM A CONTINUOUS LANE.

8. DOTTED LANE LINES
   BROKEN WHITE, 4 OR 6 INCHES WIDE-3 FEET SEGMENTS WITH 12 FEET GAPS. LINE WIDTH SHALL MATCH THE ADJACENT LANE LINE. THE WIDTH SHOULD MATCH THAT OF THE LINE IT IS EXTENDING.

9. CHANNELIZING LINES
   SOLID WHITE, 8 INCHES WIDE. THESE LINES ARE USED WITH ACCELERATION-DECELERATION LANES, PAVEMENT WIDTH TRANSITIONS, AND LEFT-RIGHT TURN SLOTS OR ISLANDS.

* THE CHANNELIZING LINE MAY BE EXTENDED 300 FEET (TYPICAL) UPSTREAM FROM THE THEORETICAL GORE. FINAL LENGTH DEPENDS ON SITE CONDITIONS.

(CONTINUED ON SHEET NO. 2)

Computer File Information		Sheet Revisions	
Creation Date: 07/04/12		Date:	Comments
Created By: SCL	R-3	07/22/22	PARALLEL DECEL LANE AND NOTES UPDATE
Last Modification Date: 07/22/22	R-2	02/16/21	LINE TYPE UPDATE FOR PARALLEL DECEL LANE ADDED NOTE TEMPORARY PAVEMENT MARKING
Last Modified By: EButta			
CAD Ver.: MicroStation V8 Scale:Not to Scale Units: English	R-1	04/17/20	LINE WIDTH UPDATE

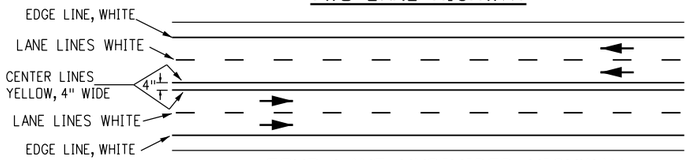
Colorado Department of Transportation
2829 W. Howard Pl.
Denver, CO 80204
Phone: 303-512-5102
FAX: 303-757-9219
Traffic & Safety Engineering EB

PAVEMENT MARKINGS

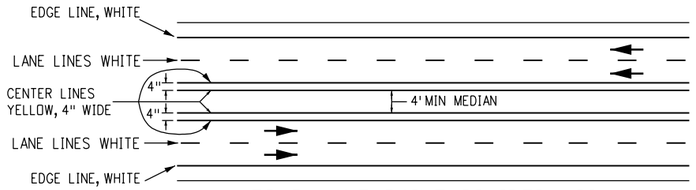
Issued By: Traffic & Safety Engineering Branch July 31, 2019

STANDARD PLAN NO.
S-627-1
Standard Sheet No. 1 of 9
Project Sheet Number:

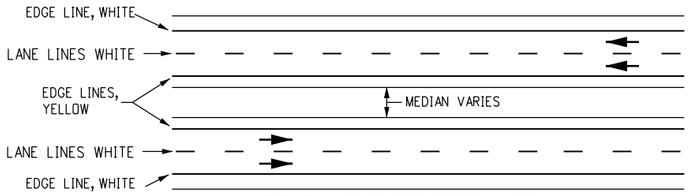
TWO LANE HIGHWAY



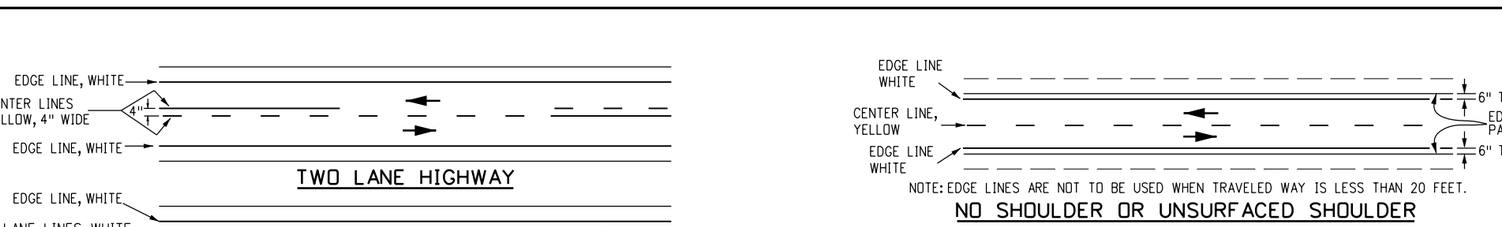
FOUR LANE UNDIVIDED HIGHWAY



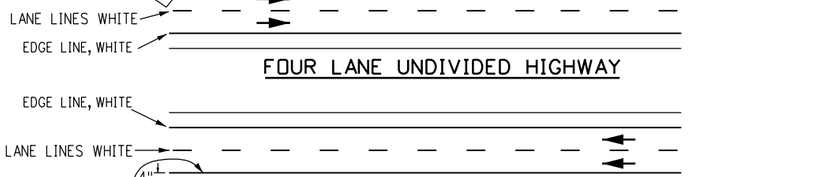
FOUR LANE PAINT DIVIDED HIGHWAY



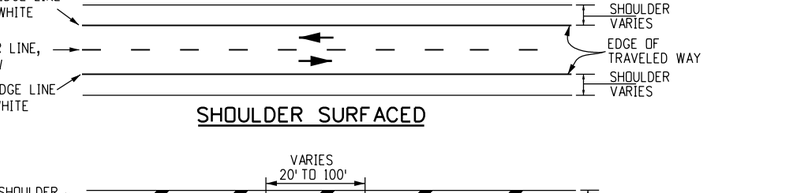
FOUR LANE DIVIDED HIGHWAY



DIVIDED ROADWAY



UNDIVIDED ROADWAY - CASE 1

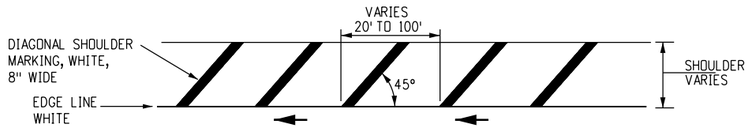


UNDIVIDED ROADWAY - CASE 2

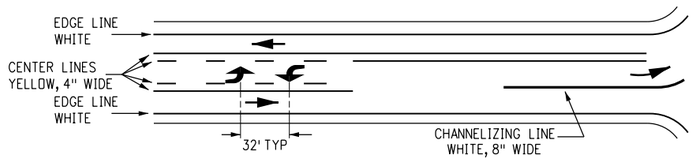
NOTE: EDGE LINES ARE NOT TO BE USED WHEN TRAVELED WAY IS LESS THAN 20 FEET.

NO SHOULDER OR UNSURFACED SHOULDER

SHOULDER SURFACED



EDGE LINE WITH OPTIONAL DIAGONAL SHOULDER MARKING



TYPICAL TWO WAY LEFT TURN LANE

GENERAL NOTES

(CONTINUED FROM SHEET NO. 1)

10. CROSS-HATCHING LINES
    a. SOLID WHITE OR YELLOW, 8 INCHES WIDE-45 DEGREE DIAGONAL, SPACED AT 25 FEET 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.

    b. OPTIONAL DIAGONAL SHOULDER MARKINGS SHALL BE SOLID WHITE, 8 INCHES WIDE, SPACED AT INTERVALS OF 20 FEET MINIMUM TO 100 FEET MAXIMUM.

11. PARKING LINES
    SOLID WHITE, 3 INCHES WIDE-DIAGONAL OR PARALLEL AS SHOWN ON THE PLANS OR DIRECTED BY THE ENGINEER.

12. STOP LINES
    SOLID WHITE, 24 INCHES 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 FEET, NOR LESS THAN 4 FEET FROM THE NEAREST EDGE OF THE INTERSECTED TRAFFIC LANE.

13. CROSSWALK LINES
    a. SOLID WHITE, 12 INCHES 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 INCHES. THE DISTANCE BETWEEN THE LINES IS USUALLY DETERMINED BY THE WIDTH OF THE SIDEWALKS CONNECTED, IN ANY CASE THIS SHALL NOT BE LESS THAN 6 FEET.

    b. COMPLICATED AND/OR CHANNELIZED INTERSECTIONS AND MID-BLOCK CROSSWALKS SHALL BE SOLID WHITE, 12 INCHES TO 24 INCHES WIDE AND 8 TO 10 FEET LONG FOR LONGITUDINAL LINE TYPE AS DETAILED IN THE PLANS OR AS DIRECTED BY THE ENGINEER.

14. 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.

15. MERGING 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, $L=SxW$

    FOR SPEED 40 MPH OR LESS, $L=\frac{WS^2}{60}$

16. TRANSITION LINES
    SOLID YELLOW, 8 INCHES 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.

17. SPEED MEASURING MARKING
    SOLID WHITE, 24 INCHES EXTEND 4 FEET FROM OUTSIDE OF EDGE LINES ON SHOULDERS.

18. ALL SPACING IS DETERMINED CENTER ON CENTER EXCEPT FOR DOUBLE LINES.

▲ NOTE:

D = THE DISTANCE FROM THE LANE ENDS SIGN (W4-2) TO THE BEGINNING OF THE MERGING TAPER. FOR MORE INFORMATION ON THE "D" VALUE REGARDING SIGN AND PAVEMENT MARKING PLACEMENT, SEE THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", TABLE 2C-4, CONDITION A: SPEED REDUCTION AND LANE CHANGING IN HEAVY TRAFFIC AND FOOTNOTE 2 REGARDING TYPICAL CONDITIONS.

LEGEND

→ Direction of Travel

TYPICAL PAVEMENT WIDTH TRANSITION MARKINGS

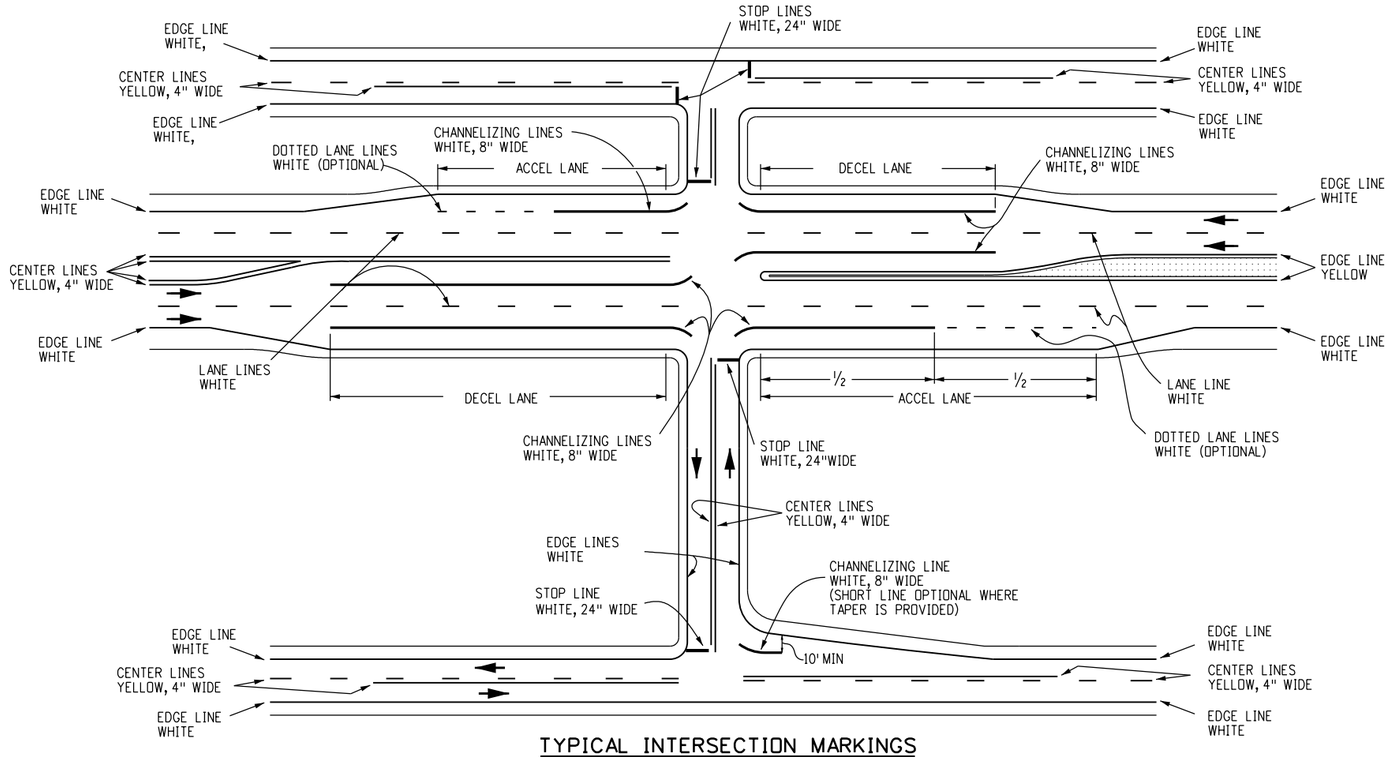
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12		Date:	Comments
Created By: KEN	R-2	07/22/22	GENERAL NOTES UPDATE
Last Modification Date: 07/22/22	R-2	02/16/21	UPDATE GENERAL NOTE NUMBER
Last Modified By: EButta	R-1	04/17/20	LINE WIDTH UPDATE.
CAD Ver.:MicroStation V8 Scale:Not to Scale Units: English			

Colorado Department of Transportation
2829 W. Howard Pl.
Denver, CO 80204
Phone: 303-512-5102
FAX: 303-757-9219
Traffic & Safety Engineering EB

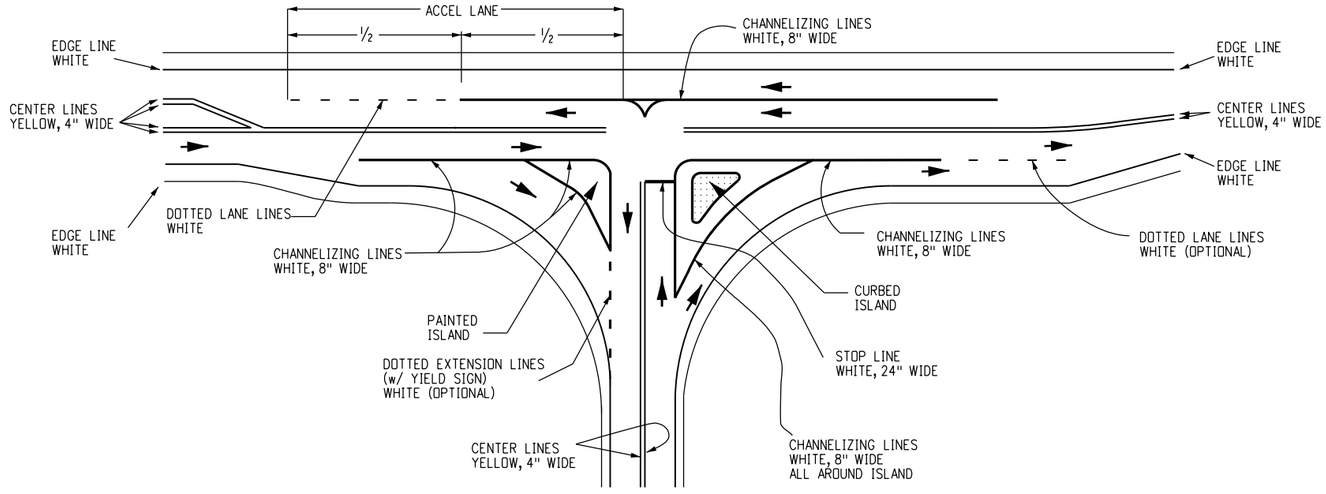
PAVEMENT MARKINGS

Issued By: Traffic & Safety Engineering Branch July 31, 2019

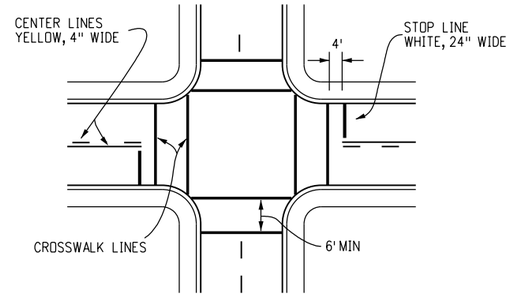
STANDARD PLAN NO.
S-627-1
Standard Sheet No. 2 of 9
Project Sheet Number:



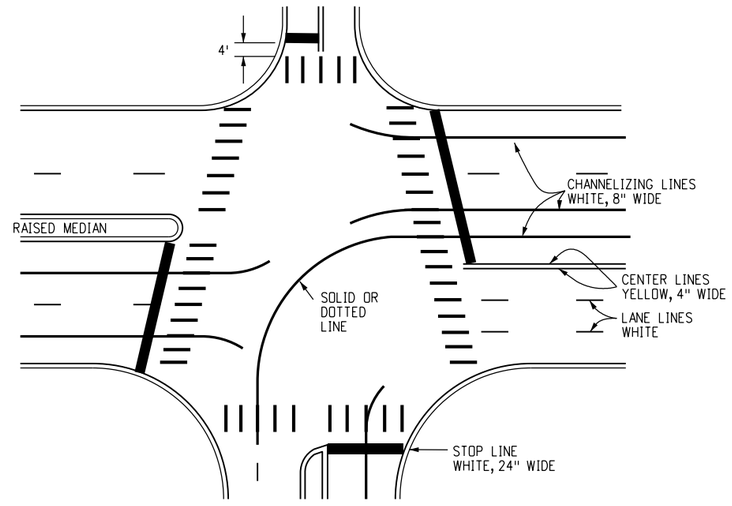
TYPICAL INTERSECTION MARKINGS



TYPICAL ISLAND MARKINGS

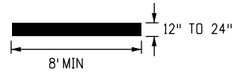


TYPICAL TRANSVERSE LINE CROSSWALK MARKINGS



TYPICAL CONTINENTAL CROSSWALK MARKINGS

CROSSWALK LINE DETAIL



LEGEND

→ Direction of Travel

CONTINENTAL CROSSWALK NOTES

1. CENTER CROSSWALKS ON CURB RAMPS. IF SUCH RAMPS ARE NOT PROVIDED, CENTER ON SIGNAL POLES WHEREVER PRACTICAL.
2. CENTER CROSSWALKS ON EDGE LINES, LANE LINES AND CHANNELIZING LINES.
3. CENTER CROSSWALKS BETWEEN ADJACENT LINES.
4. MARKINGS SHALL NOT BE WITHIN WHEEL PATH OF VEHICLES.
5. CENTER ON EXTENDED FLOW LINE.
6. LINES AND SPACES TO APPROXIMATE ADJACENT PATTERN.

INTERSECTIONS, ISLANDS AND CROSSWALKS

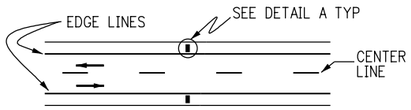
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12		Date:	Comments
Created By: JSW	R-3	07/22/22	Changed Accel Lane Lines To Dotted Lane Lines
Last Modification Date: 07/22/22	R-2	02/16/21	ADDED DEC TAPER TO TYPICAL ISLAND MARKINGS
Last Modified By: EButta	R-1	04/17/20	LINE WIDTH & CROSSWALK NOTES UPDATE
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English			

Colorado Department of Transportation
2829 W. Howard Pl.
Denver, CO 80204
Phone: 303-512-5102
FAX: 303-757-9219
Traffic & Safety Engineering EB

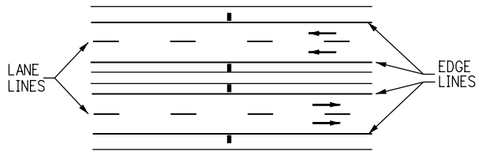
PAVEMENT MARKINGS

Issued By: Traffic & Safety Engineering Branch July 31, 2019

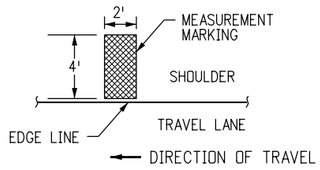
STANDARD PLAN NO.
S-627-1
Standard Sheet No. 3 of 9
Project Sheet Number:



TWO - WAY ROADWAY

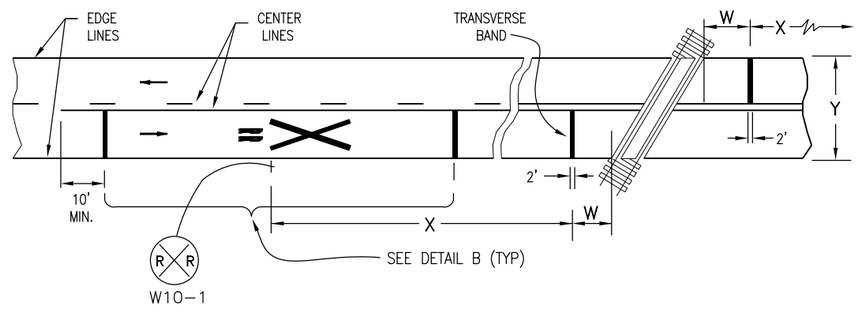


MULTI - LANE DIVIDED HIGHWAY

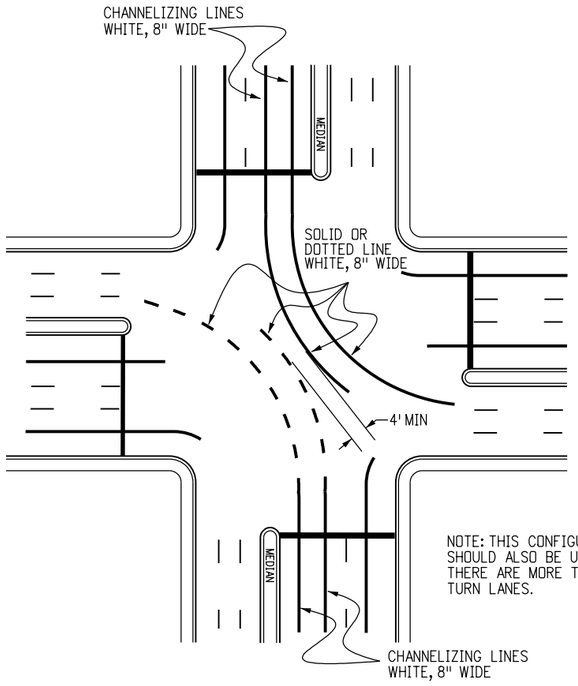


DETAIL A

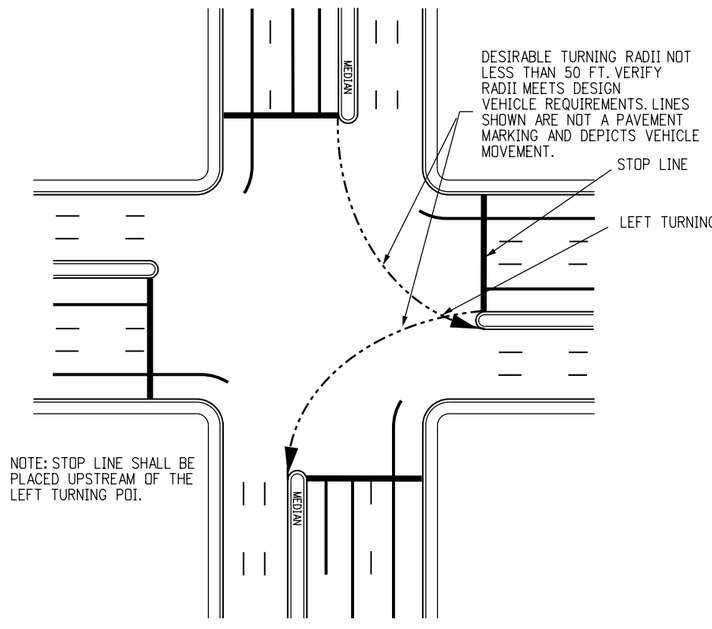
TYPICAL SPEED MEASUREMENT MARKING



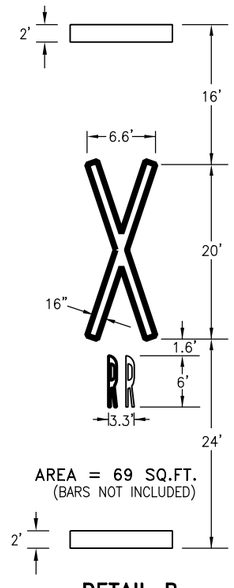
TYPICAL PAVEMENT MARKING AT RAILROAD CROSSING



TYPICAL DOUBLE LEFT TURN MARKINGS



TYPICAL STOP LINE PLACEMENT



DETAIL B

W= APPROXIMATELY 15 FT. (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 100 FT. (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.

NOTES

1. THE WARNING SIGN SHALL BE PLACED ACCORDING TO THE WARNING SIGN PLACEMENT TABLE IN THE MUTCD (CHAPTER 2C, TABLE 2C-4). IF CONDITIONS DO NOT ALLOW PLACEMENT ACCORDING TO THE TABLE, IT SHALL BE AS APPROVED BY THE ENGINEER.

2. FOR RR SYMBOL DETAILS, REFER TO "THE STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS", ADOPTED BY THE FEDERAL HIGHWAY ADMINISTRATION.

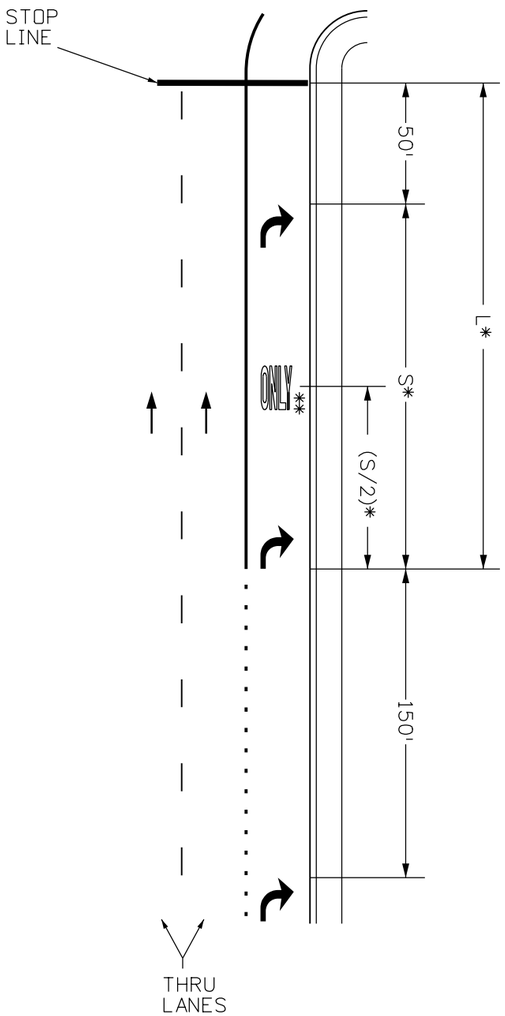
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12		Date:	Comments
Created By: SCL			
Last Modification Date: 07/24/19			
Last Modified By: EButta			
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English			

Colorado Department of Transportation
2829 W. Howard Pl.
Denver, CO 80204
Phone: 303-757-9436
FAX: 303-757-9219
Traffic & Safety Engineering MKB

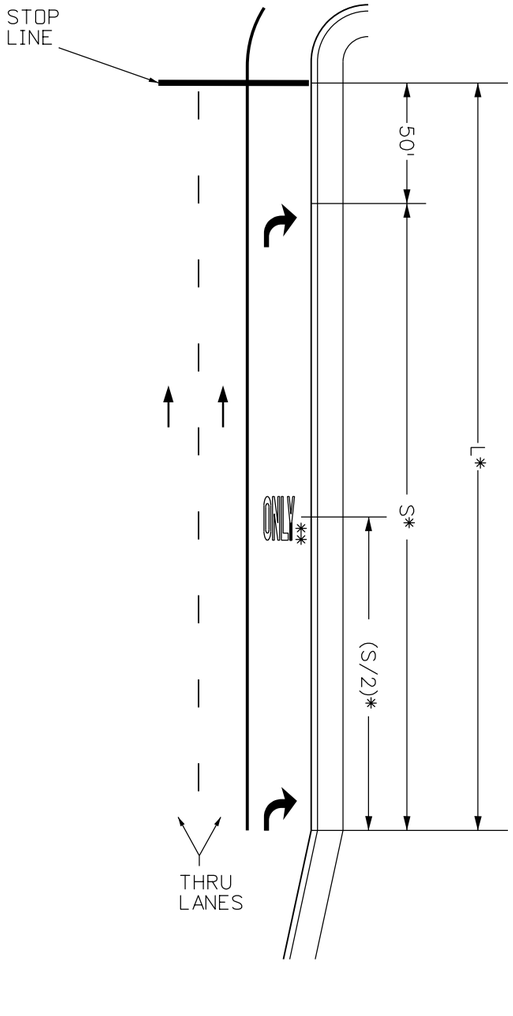
PAVEMENT MARKINGS

Issued By: Traffic & Safety Engineering Branch July 31, 2019

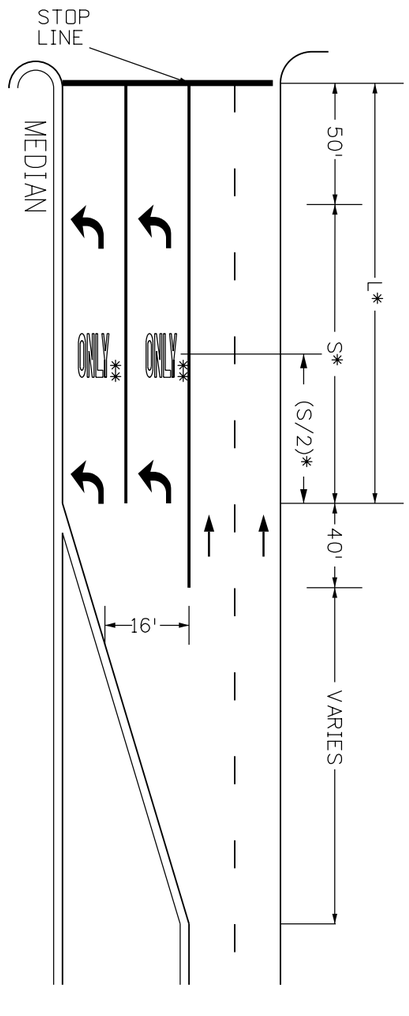
STANDARD PLAN NO.
S-627-1
Standard Sheet No. 4 of 9
Project Sheet Number:



LANE DROP



POCKET LANE



DOUBLE TURNING

GENERAL NOTES

1. THE SPACING, IN THE TABLE APPLIES TO LEFT & RIGHT TURN LANES.
2. ** 'ONLY' MARKING IS OPTIONAL. CONTACT REGION TRAFFIC ENGINEER FOR DIRECTION.
3. WHEN ONE (1) ARROW IS USED, IT SHALL BE PLACED AT THE BEGINNING OF THE FULL WIDTH TURN LANE, OTHERWISE USE THE TABLE BELOW FOR ARROW PLACEMENT.

LENGTH (L)	LEFT AND RIGHT TURN ARROW		NO. OF 'ONLY' PER LANE
	NO. OF ARROWS PER LANE	SPACING (S)	
L < 200'	1	NA	NA
200' - 350'	2	EVENLY SPACED BETWEEN 150'-300'	1
350' - 650'	3		2
650' - 950'	4		3
950' ≤	≥5		≥4

*L (LENGTH) AND *S (SPACING) PROVIDED IN THE TABLE ABOVE WILL HELP DETERMINE THE NUMBER OF ARROWS AND ONLY MARKINGS NEEDED PER LANE.

LEGEND

→ Direction of Travel

ARROW PLACEMENTS AT INTERSECTIONS

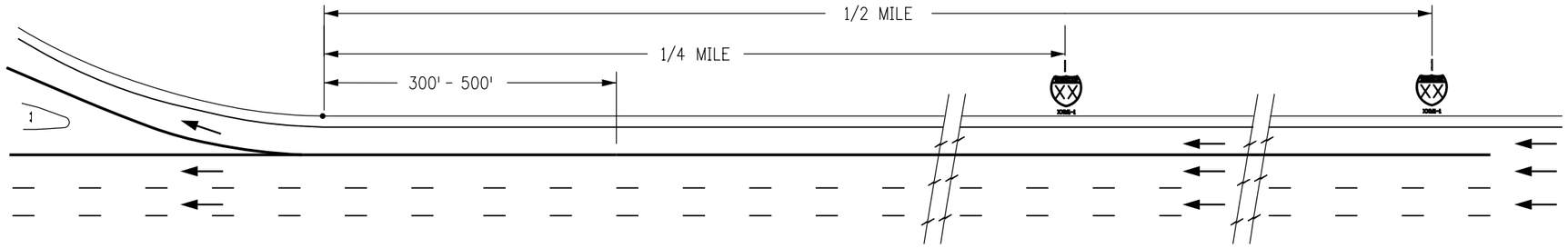
Computer File Information		Sheet Revisions	
Creation Date: 02/08/17		Date:	Comments
Created By: MBhat			
Last Modification Date: 05/14/19			
Last Modified By: EButta			
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English			

Colorado Department of Transportation
2829 W. Howard Pl.
Denver, CO 80204
Phone: 303-757-9436
FAX: 303-757-9219
Traffic & Safety Engineering MKB

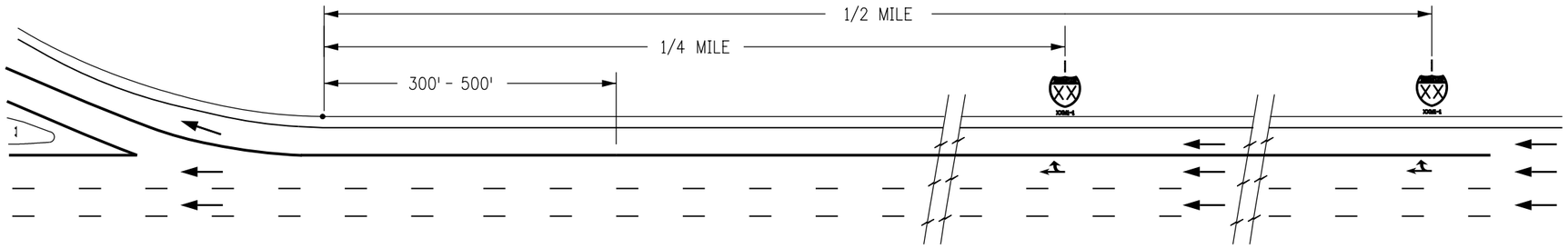
PAVEMENT MARKINGS

Issued By: Traffic & Safety Engineering Branch July 31, 2019

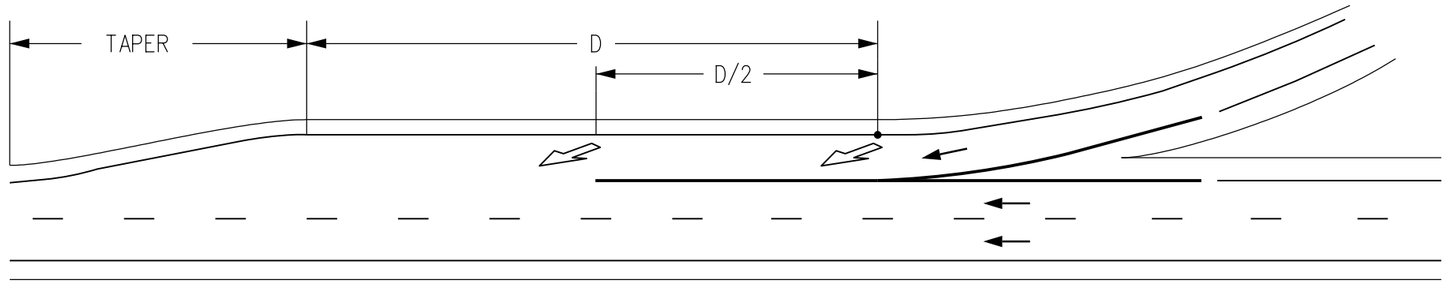
STANDARD PLAN NO.
S-627-1
Standard Sheet No. 5 of 9
Project Sheet Number:



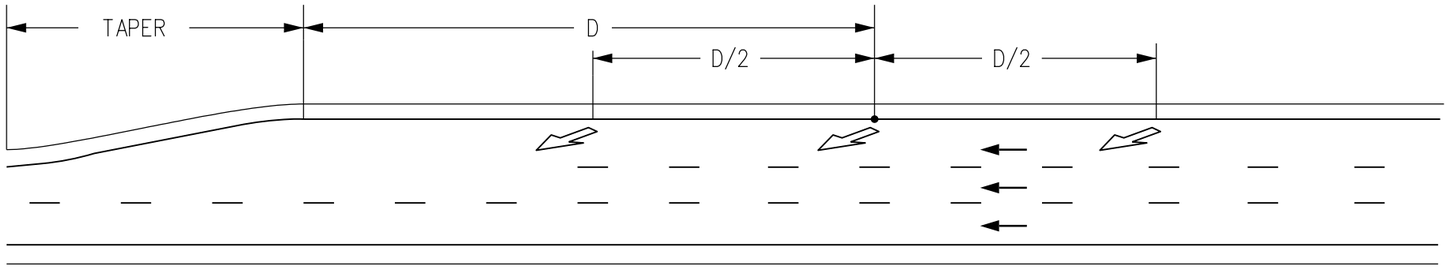
TYPICAL SHIELD PLACEMENT



TYPICAL SHIELD & OPTION ARROW PAVEMENT MARKING PLACEMENT

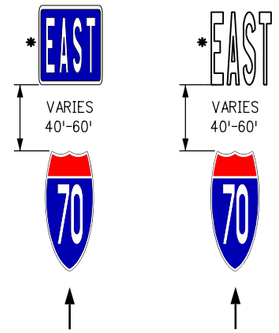


TRANSITION LANE MARKINGS



THRU LANE REDUCTION MARKINGS

SHIELD LAYOUT DETAIL



NOTES

D = THE DISTANCE FROM THE PAVEMENT WIDTH TRANSITION SIGN (W4-2) TO THE BEGINNING OF THE TRANSITION TAPER.

* SEE GENERAL NOTE 2 ON SHEET 9.

LEGEND

Direction of Travel

LANE REDUCTION TRANSITION MARKINGS

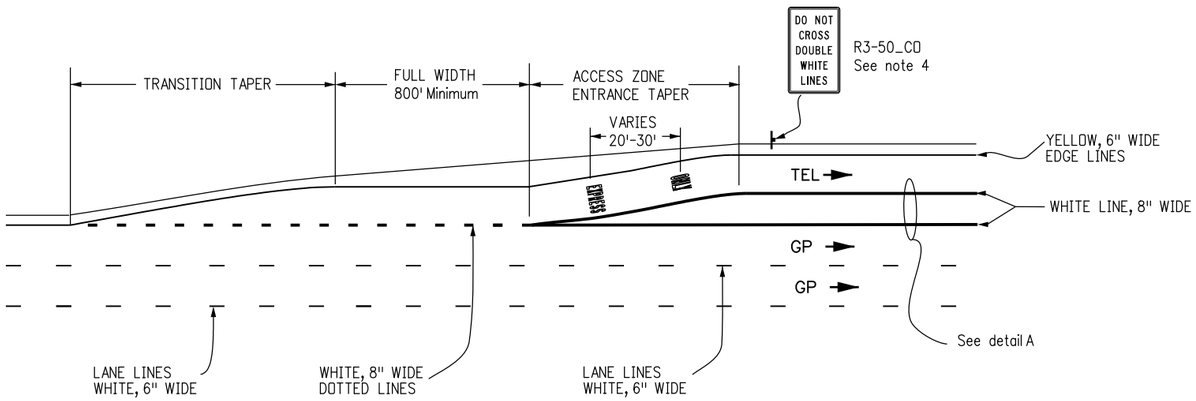
Computer File Information		Sheet Revisions	
Creation Date: 02/08/17		Date:	Comments
Created By: MBhat	R-1	07/22/22	Lane Drop to Thru Lane Reduction Markings
Last Modification Date: 07/22/22			
Last Modified By: EButta			
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English			

Colorado Department of Transportation
2829 W. Howard Pl.
Denver, CO 80204
Phone: 303-512-5102
FAX: 303-757-9219
Traffic & Safety Engineering EB

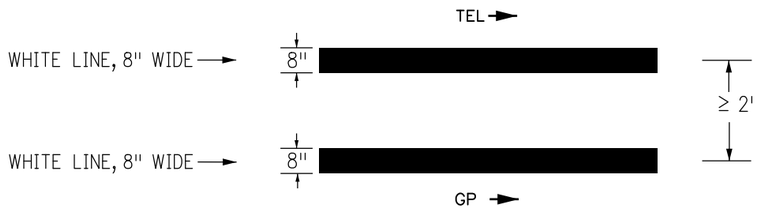
PAVEMENT MARKINGS

Issued By: Traffic & Safety Engineering Branch July 31, 2019

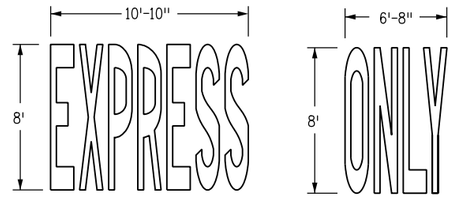
STANDARD PLAN NO.
S-627-1
Standard Sheet No. 6 of 9
Project Sheet Number:



TYPICAL ENTRANCE MARKING FOR BUFFER WIDTH ≥2' AND WHERE BUFFER CROSSING IS PROHIBITED



Detail A



GENERAL NOTES

1. For transition taper use 25:1 ratio.

2. For access zone entrance taper length use:

   L = S x W

   L = MINIMUM LENGTH OF TAPER

   S = DESIGN SPEED FOR NEW CONSTRUCTION OR NUMERICAL VALUE OF THE POSTED SPEED LIMIT

   W = WIDTH TRANSITIONED

3. If buffer space is wider than 4 feet, chevron markings are required (See MUCTD Section 3B.24 and figure 3D.2(A)).

4. For each section prohibiting entering and exiting movements, the R3-50_CO sign shall be installed within 300 feet of the start of the express lane. Additional R3-50_CO signing shall be installed as shown in the plans.

5. For each section prohibiting entering and exiting movements, an EXPRESS ONLY marking should be placed within 50 feet of the start of the express lane.

6. EXPRESS ONLY markings should supplement the signs.

TOLL EXPRESS LANE PAVEMENT MARKINGS

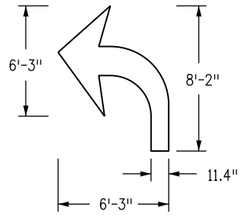
Computer File Information		Sheet Revisions	
Creation Date: 07/31/19		**Date:**	**Comments**
Created By: EButta	(R-1)	04/17/20	STRIPING LAYOUT & GENERAL NOTE UPDATE
Last Modification Date: 04/17/20			
Last Modified By: EButta			
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English			

Colorado Department of Transportation
2829 W. Howard Pl.
Denver, CO 80204
Phone: 303-757-9436
FAX: 303-757-9219
Traffic & Safety Engineering MKB

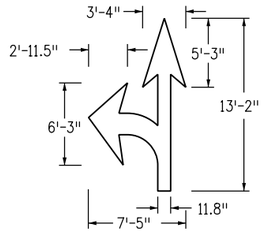
PAVEMENT MARKINGS

Issued By: Traffic & Safety Engineering Branch July 31, 2019

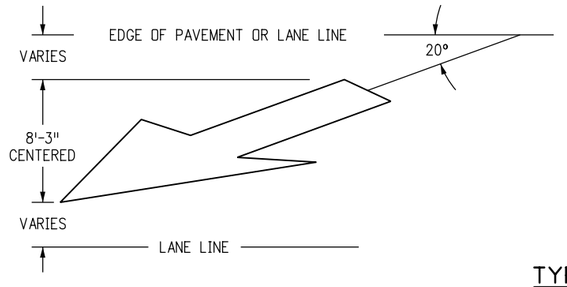
STANDARD PLAN NO.
S-627-1
Standard Sheet No. 7 of 9
Project Sheet Number:

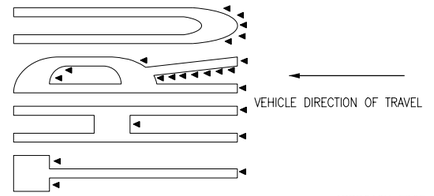


AREA = 16.1 SQ.FT.

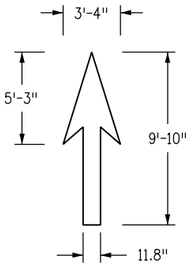


AREA = 27.5 SQ.FT.

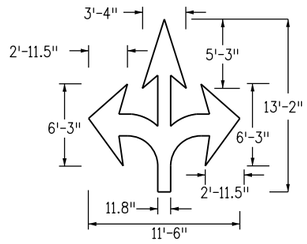




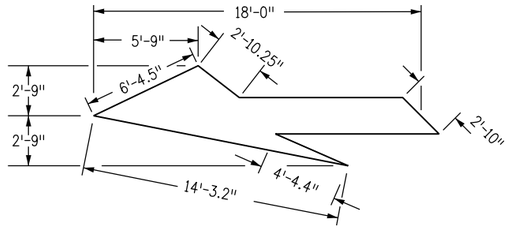
TYPICAL APPROACH EDGE TAPERING VIEW



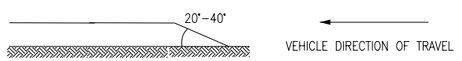
AREA = 12.1 SQ.FT.



AREA = 39.8 SQ.FT.



AREA = 58 SQ.FT.



TYPICAL APPROACH EDGE TAPERING PROFILE VIEW

WORD AND SYMBOL NOTES

1. IF HEIGHT IS INCREASED OR DECREASED THEN ALL MEASUREMENTS CHANGE PROPORTIONATELY. EXAMPLE: "H" MEASUREMENT FOR STOP IS REDUCED TO 4 FT. FROM 8 FT. THEN SQUARE FEET 5.75 ($^1/_4$ OF 23.0 SQ. FT.).
2. 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.
3. LETTER SPACING SHALL BE 8 IN. EXCEPT FOR THE LETTER "A" WHICH IS 6 IN..
4. USE THE MARKING WORD "BIKE" IF 6 FT. TO 8 FT. BIKE LANES ARE INSTALLED.

TAPERING NOTES

1. ALL PAVEMENT MARKING APPROACH EDGES FROM THE VEHICLE DIRECTION OF TRAVEL SHALL BE TAPERED USING A PUTTY KNIFE OR SIMILAR TOOL.

DESIGNATED PAYMENT AREAS

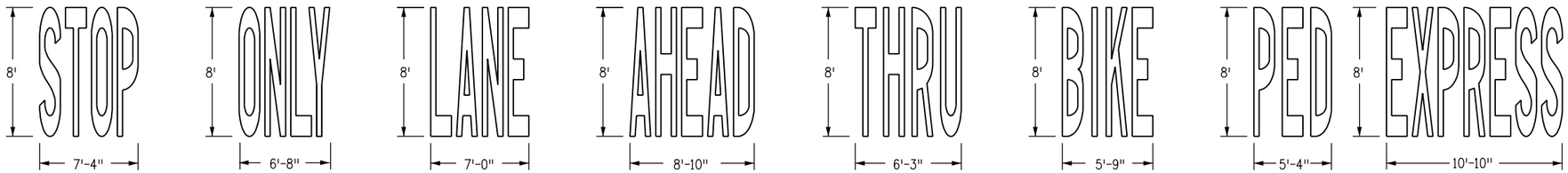
FOR THE FOLLOWING H, W, AND S DIMENSIONS PAY:

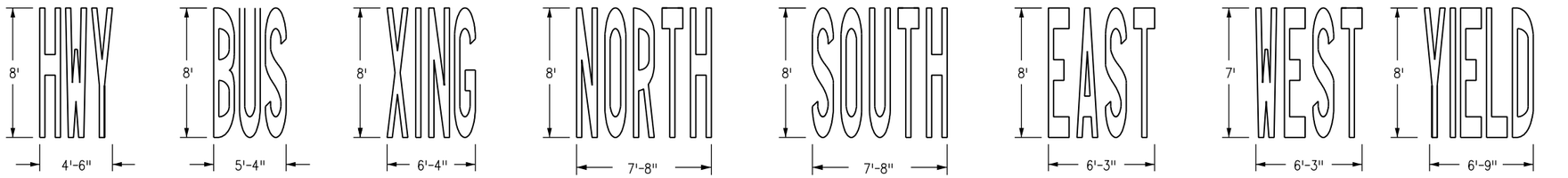
H = 4' WORDS

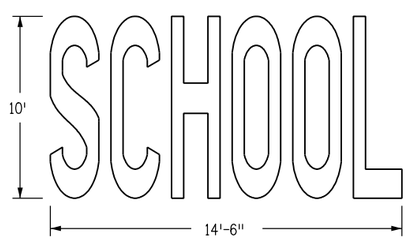
BIKE - 5.5 SQ.FT.
LANE - 6.0 SQ.FT.
ONLY - 6.0 SQ.FT.
XING - 5.0 SQ.FT.

H = 8' WORDS

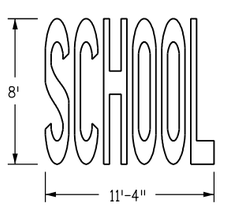
STOP - 23.0 SQ.FT.
XING - 20.0 SQ.FT.
ONLY - 22.5 SQ.FT.
LANE - 22.5 SQ.FT.
AHEAD - 29.0 SQ.FT.
BIKE - 21.0 SQ.FT.
BUS - 18.5 SQ.FT.
HWY - 16.5 SQ.FT.
SCHOOL(1L) - 33.0 SQ.FT.
THRU - 22.0 SQ.FT.
SCHOOL(2L) - 85.0 SQ.FT.
PED - 17.5 SQ.FT.
NORTH - 30.6 SQ.FT.
SOUTH - 28.5 SQ.FT.
EAST - 22.1 SQ.FT.
WEST - 23.7 SQ.FT.
X with RR - 69 SQ.FT.
EXPRESS - 41 SQ.FT.
YIELD - 23 SQ.FT.



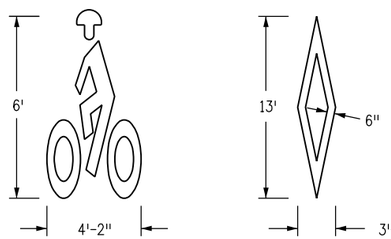




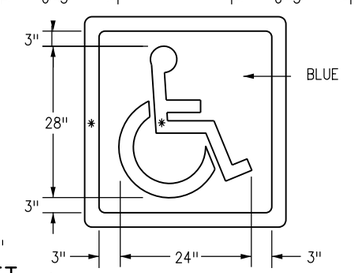
STROKE = 8"
2-LANE SCHOOL



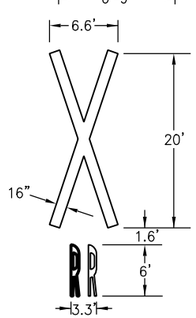
1-LANE SCHOOL



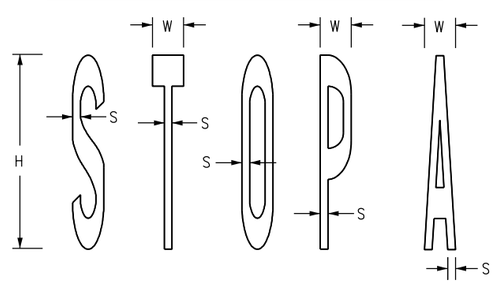
AREA = 11.9 SQ.FT. AREA = 10 SQ.FT.



* WHITE 3" STROKE WIDTH (BORDER MAY BE 4" STROKE WIDTH)



TYPICAL LETTER MEASUREMENTS



PAVEMENT MARKING WORDS AND SYMBOLS

Computer File Information	Sheet Revisions	
Creation Date: 07/04/12	Date:	Comments
Created By: SCL		
Last Modification Date: 07/31/19		
Last Modified By: EButta		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English		

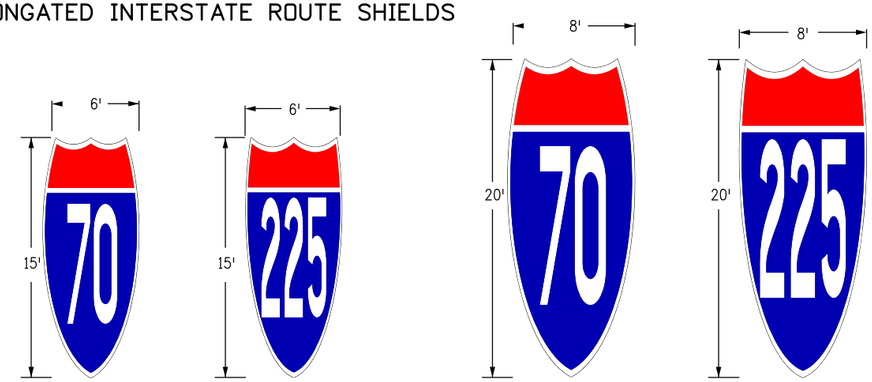
Colorado Department of Transportation
2829 W. Howard Pl.
Denver, CO 80204
Phone: 303-757-9436
FAX: 303-757-9219
Traffic & Safety Engineering MKB

PAVEMENT MARKINGS

Issued By: Traffic & Safety Engineering Branch July 31, 2019

STANDARD PLAN NO.
S-627-1
Standard Sheet No. 8 of 9
Project Sheet Number:

ELONGATED INTERSTATE ROUTE SHIELDS



DESIGNATED PAYMENT AREAS

FOR THE FOLLOWING ROUTE SHIELDS
& CARDINAL DIRECTIONS DIMENSIONS PAY:

INTERSTATE

6' X 15' - 75 SQ.FT. **8' X 20' - 128 SQ.FT.**

COLORADO STATE

6' X 15' - 90 SQ.FT. 8' X 20' - 160 SQ.FT.

US HIGHWAYS

7' X 16' - 112 SQ.FT. 9' X 21' - 189 SQ.FT.

CARDINAL

8' X 10' - 80 SQ.FT. 9' X 10' - 90 SQ.FT.

GENERAL NOTES

1. DIMENSIONS

   ELONGATED ROUTE SHIELDS SHALL BE AT LEAST 8'x20' WHEN USED ON HIGH SPEED ROADWAYS (55 MPH OR MORE).

   PER FIGURE 3B-25 OF THE 2009 MUTCD ELONGATED ROUTE SHIELD COLORS SHALL CONFORM WITH THE STANDARD HIGHWAY SIGNS AND MARKINGS BOOK.

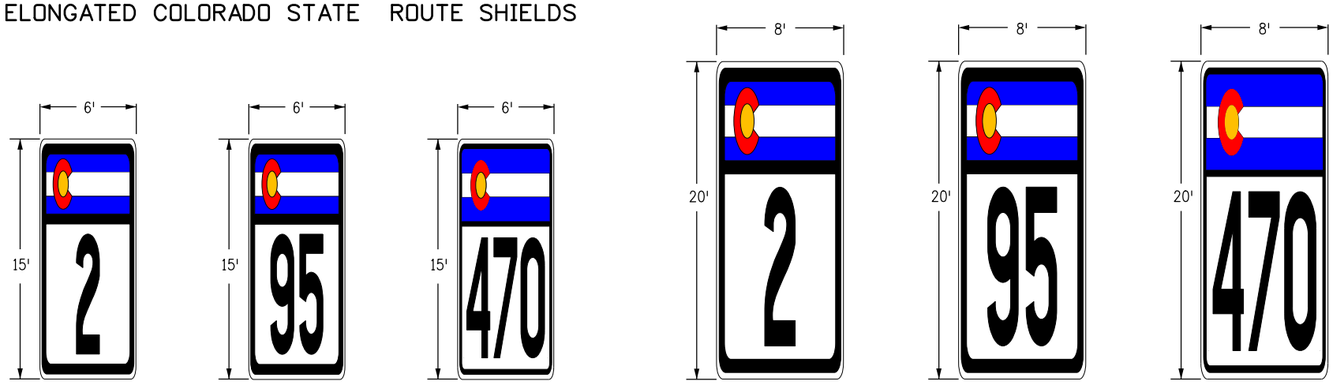
2. CARDINAL DIRECTIONS

   USE CARDINAL DIRECTIONS WITH WHITE ON BLUE WHEN USING INTERSTATE ROUTE SHIELDS

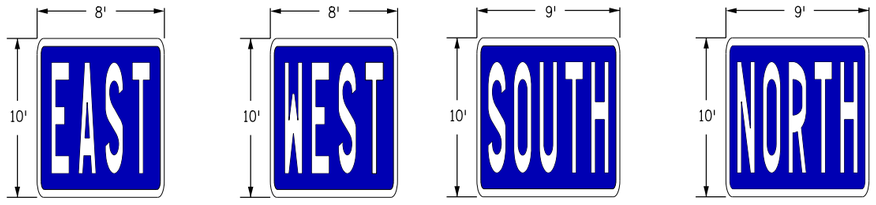
   USE CARDINAL DIRECTIONS WITH BLACK ON WHITE WHEN USING EITHER COLORADO STATE OR US HIGHWAY ROUTE SHIELDS.

   CARDINAL DIRECTION MARKING WORD SYMBOL FROM PAGE 8 OF 9 MAY BE USED INSTEAD OF PLAQUE.

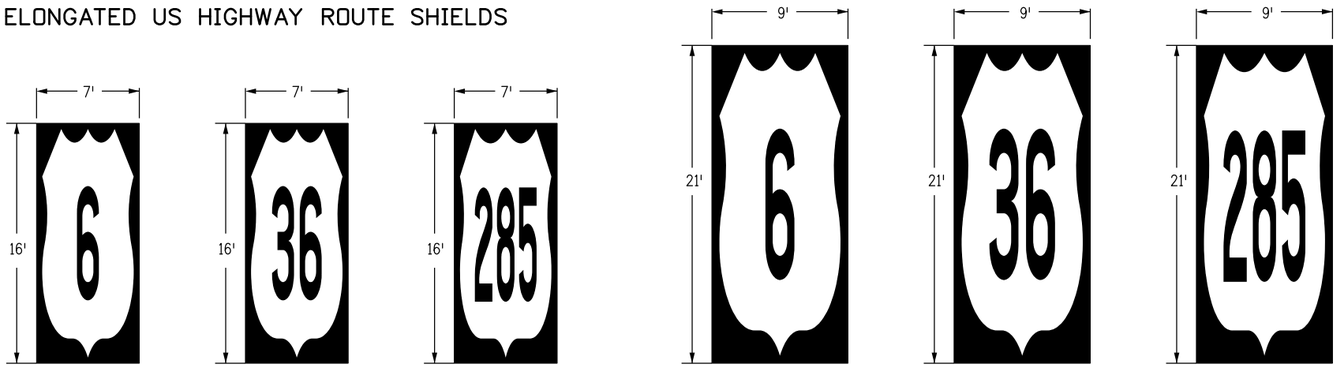
ELONGATED COLORADO STATE ROUTE SHIELDS



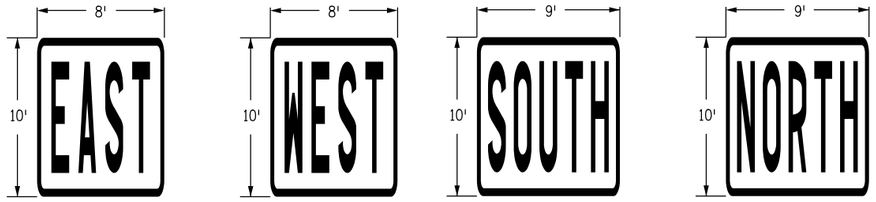
CARDINAL DIRECTIONS
(WHITE LETTERING ON BLUE BACKGROUND)



ELONGATED US HIGHWAY ROUTE SHIELDS



CARDINAL DIRECTIONS
(BLACK LETTERING ON WHITE BACKGROUND WITH BLACK BORDER)



ELONGATED ROUTE SHIELDS & CARDINAL DIRECTION MARKINGS

Computer File Information		Sheet Revisions	
Creation Date: 02/08/17		Date:	Comments
Created By: MBhat	R-1	02/16/21	GENERAL NOTE UPDATE
Last Modification Date: 02/16/21			
Last Modified By:EButta			
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English			

Colorado Department of Transportation
2829 W. Howard Pl.
Denver, CO 80204
Phone: 303-757-9436
FAX: 303-757-9219
Safety & Traffic Engineering MKB

PAVEMENT MARKINGS

Issued By: Traffic & Safety Engineering Branch July 31, 2019

STANDARD PLAN NO.
S-627-1
Standard Sheet No. 9 of 9
Project Sheet Number:

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. ALL DEVICES SHALL MEET THE REQUIREMENTS OF THE LATEST EDITION OF THE ATSSA "QUALITY GUIDELINES FOR TEMPORARY TRAFFIC CONTROL DEVICES & FEATURES".

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 (W13-1P) 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, EXCEPT WHERE ONLY ONE SHOULDER IS CLOSED (EX: CASE 11 ON SHEET 7).

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 SHALL NOT BE USED ON FREEWAYS, EXPRESSWAYS, OR OTHER HIGH SPEED ROADWAYS (55 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 A 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. FOR TEMPORARY PAVEMENT MARKINGS AND CONTROL POINTS FOR INSTALLING THOSE PAVEMENT MARKINGS FOR UNDIVIDED ROADWAYS THAT ARE BEING CONSTRUCTED UNDER TRAFFIC, FULL COMPLIANCE CENTER LINE, LANE LINE, AND EDGE LINE TEMPORARY MARKINGS SHALL BE IN PLACE AT THE END OF EACH WORK DAY IN ACCORDANCE WITH SECTION 627.03(d)2.

    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. ADDITIONAL SIGNAGE IS ALSO ENCOURAGED IN LOCATIONS WHERE DRIVERS' LINE OF SIGHT TO ADVANCE WARNING SIGNS IS OBSTRUCTED.

23. WHEN ARROW BOARDS ARE USED TO CLOSE MULTIPLE LANES, A SEPARATE ARROW BOARD SHALL BE USED FOR EACH CLOSED LANE.

    IF ARROW BOARDS ARE USED FOR SHOULDER WORK, BLOCKING THE SHOULDER, FOR ROADSIDE WORK NEAR THE SHOULDER, OR FOR TEMPORARILY CLOSING ONE LANE ON A TWO-LANE, TWO-WAY ROADWAY, USE THE ARROW BOARDS ONLY IN THE CAUTION MODE.

24. 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.

25. 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.

26. A SIGNIFICANT PROJECT IS DEFINED AS ONE THAT, ALONE OR IN COMBINATION WITH OTHER CONCURRENT PROJECTS NEARBY, IS ANTICIPATED TO CAUSE SUSTAINED WORK ZONE IMPACTS AT A LOCATION FOR THREE OR MORE CONSECUTIVE DAYS WITH EITHER INTERMITTENT OR CONTINUOUS LANE CLOSURES.

Computer File Information		Sheet Revisions	
Creation Date: 07/04/12		Date:	Comments
Created By: Nakao			
Last Modification Date: 12/08/14			
Last Modified By: Nakao			
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English			

Colorado Department of Transportation
2829 W. Howard Pl.
Denver, CO 80204
Phone: 303-757-9436
FAX: 303-757-9219
Traffic & Safety Engineering MKB

TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

Issued By: Traffic & Safety Engineering Branch July 31, 2019

STANDARD PLAN NO.
S-630-1
Standard Sheet No. 1 of 24
Project Sheet Number:

INDEX TO TYPICAL WORK ZONE CASES

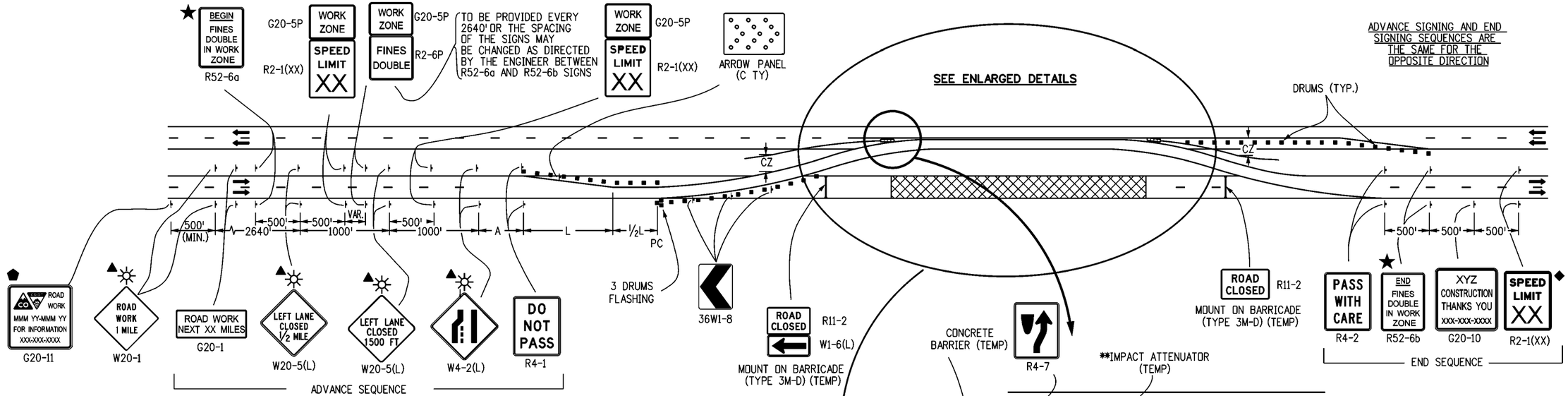
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12		Date:	Comments
Created By: Nakao			
Last Modification Date: 05/19/16			
Last Modified By: MBhat			
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English			

Colorado Department of Transportation
2829 W. Howard Pl.
Denver, CO 80204
Phone: 303-757-9436
FAX: 303-757-9219
Traffic & Safety Engineering MKB

TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

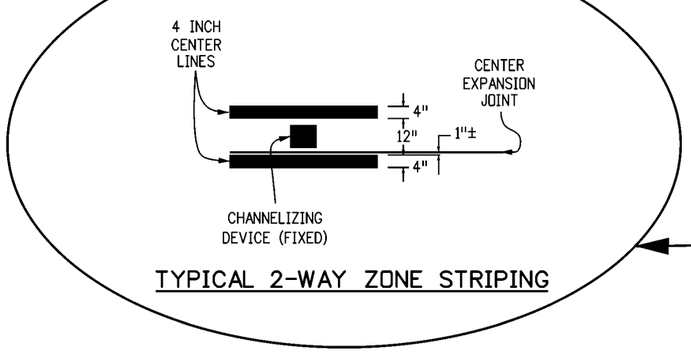
Issued By: Traffic & Safety Engineering Branch July 31, 2019

STANDARD PLAN NO.
S-630-1
Standard Sheet No. 2 of 24
Project Sheet Number:



LEGEND

- ▪ CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE SCHEDULE OF TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. DRUMS OR VERTICAL PANELS SHALL BE USED TO DELINEATE THE LANE CLOSURE TAPER.
- ▬ 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
- ▨ 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 ON SHEET 1).
- ▲ 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.
- VAR. BUFFER SPACE (SEE GENERAL NOTE 21 ON SHEET 1).
- ▭ IMPACT ATTENUATOR AS DETAILED ON THE PLANS
- ☼ FLASHING BEACON



TYPICAL 2-WAY ZONE STRIPING

- ◆ THESE DEVICES ARE NOT OPTIONAL IF THE POSTED SPEED LIMIT IN THE WORK ZONE IS REDUCED.
- * THESE ITEMS ARE NOT REQUIRED WHEN CONTINUOUS CONCRETE BARRIER IS USED FOR CHANNELIZATION.
- ** SEE GENERAL NOTE 16 ON SHEET 1.
- ⬟ G20-11 SIGN IS REQUIRED IF SECTION 626 "PUBLIC INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.
- ★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.

CASE NO. 1
TYPICAL APPLICATION
CLOSURE OF ONE ROADWAY 4-LANE DIVIDED HIGHWAY

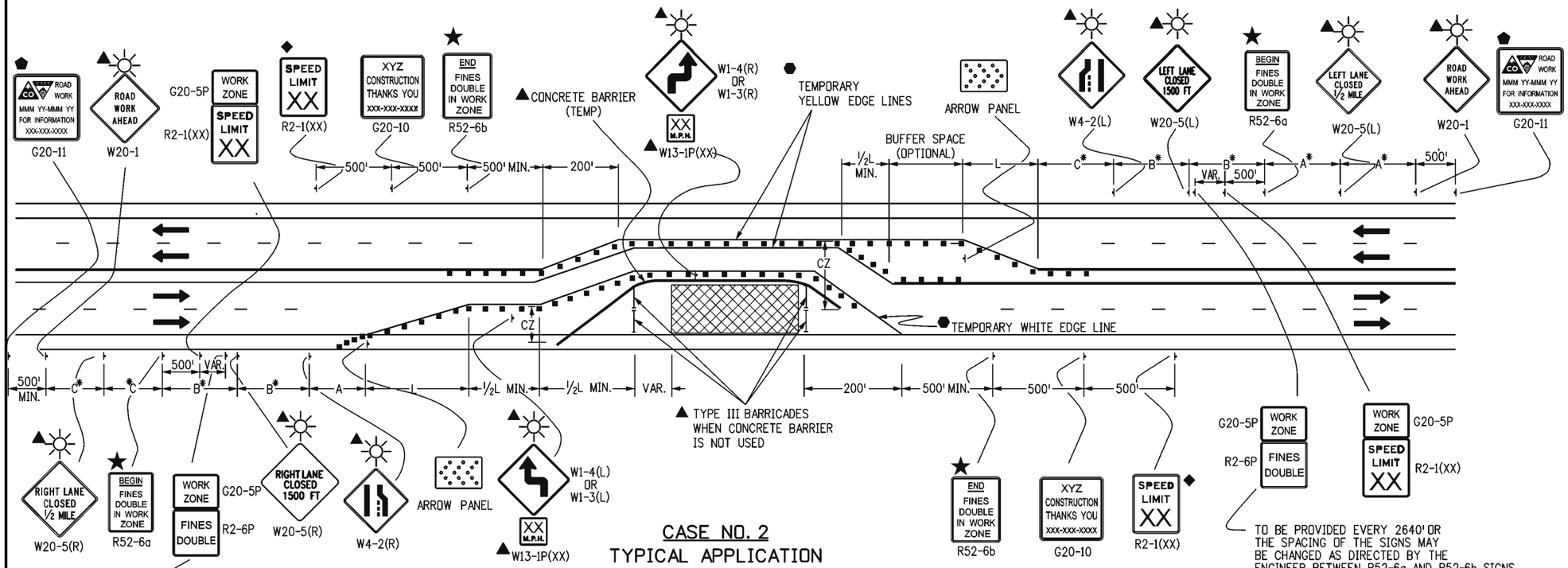
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12		Date:	Comments
Created By: Roybal			
Last Modification Date:			
Last Modified By:			
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English			

Colorado Department of Transportation
2829 W. Howard Pl.
Denver, CO 80204
Phone: 303-757-9436
FAX: 303-757-9219
Traffic & Safety Engineering MKB

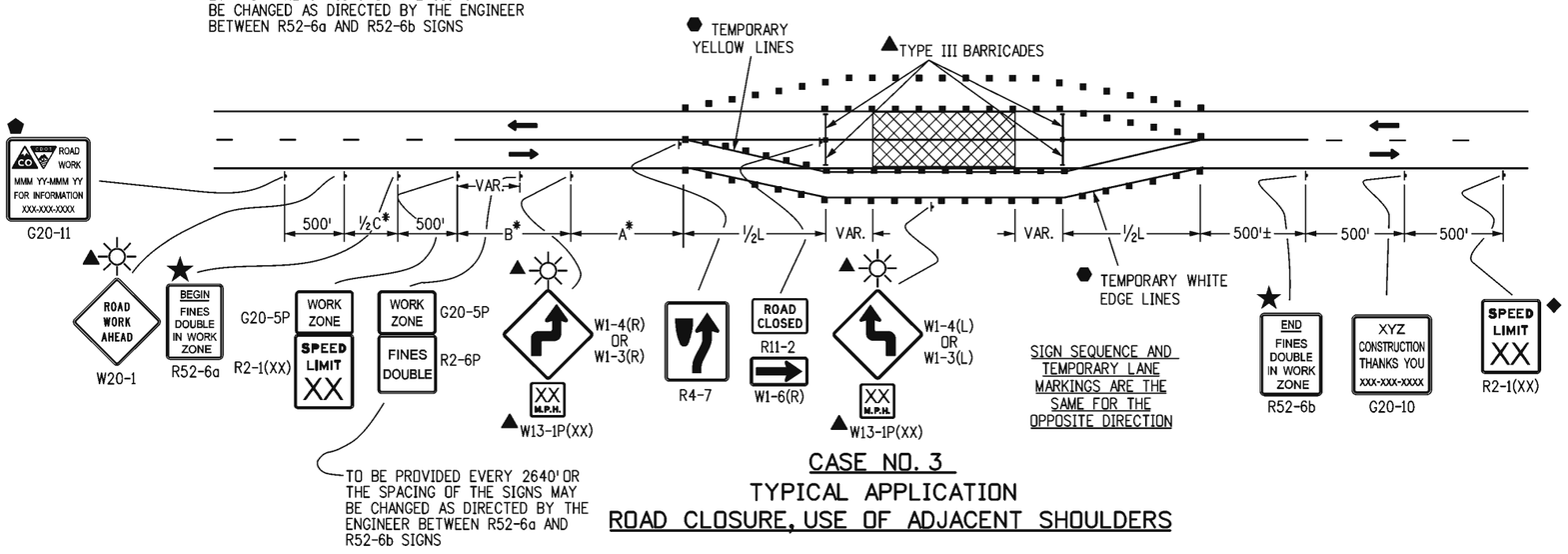
TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

Issued By: Traffic & Safety Engineering Branch July 31, 2019

STANDARD PLAN NO.
S-630-1
Standard Sheet No. 3 of 24
Project Sheet Number:



CASE NO. 2
TYPICAL APPLICATION
CLOSURE OF HALF OF 4-LANE UNDIVIDED HIGHWAY



CASE NO. 3
TYPICAL APPLICATION
ROAD CLOSURE, USE OF ADJACENT SHOULDERS

LEGEND

- CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE SCHEDULE OF TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. DRUMS OR VERTICAL PANELS SHALL BE USED TO DELINEATE THE LANE CLOSURE TAPER.
- TYPE III BARRICADE
- 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 ON SHEET 1)

▲ 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.

◆ THESE DEVICES ARE NOT OPTIONAL IF THE POSTED SPEED LIMIT IN THE WORK ZONE IS REDUCED.

VAR. BUFFER SPACE (SEE GENERAL NOTE 21 ON SHEET 1).

⬢ REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE THAN 3 DAYS.

⬟ G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.

FLASHING BEACON

★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.

* KEY TO ADVANCE SIGNING DISTANCES

ROAD TYPE	DISTANCE BETWEEN SIGNS		
	A	B	C
URBAN (<=40 MPH)	100	100	100
URBAN (>=45 MPH)	350	350	350
RURAL	500	500	500
EXPRESSWAY/FREEWAY	1000	1500	2640

Computer File Information	
Creation Date: 07/04/12	
Created By: Nakao	
Last Modification Date: 02/27/13	
Last Modified By: Nakao	
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	

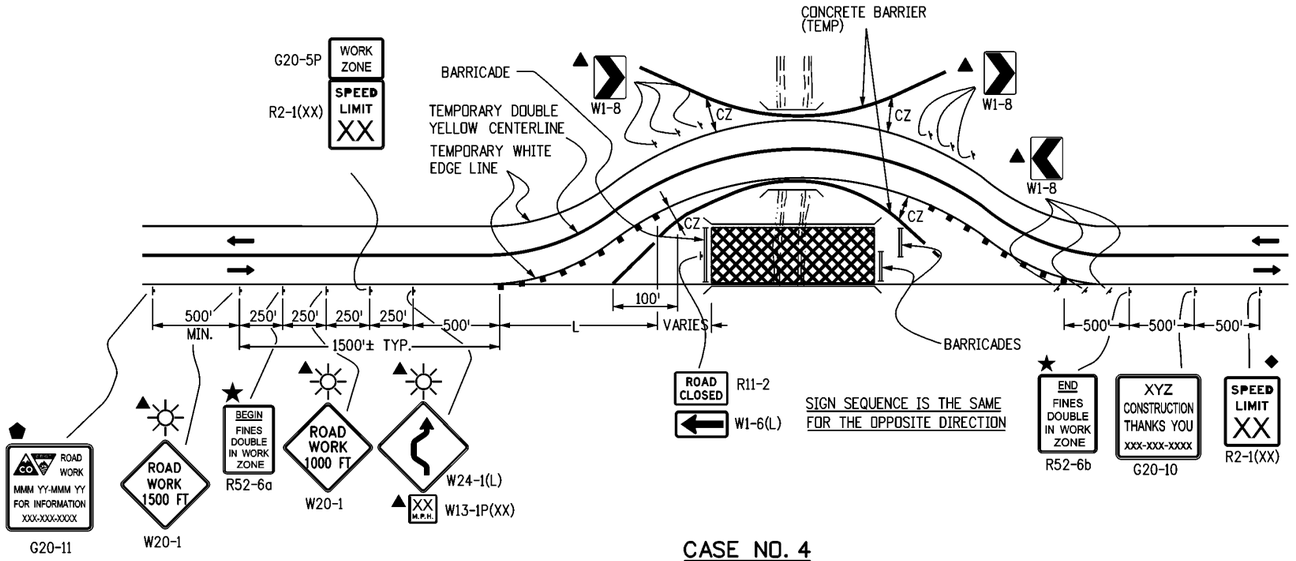
Sheet Revisions	
Date:	Comments

Colorado Department of Transportation
2829 W. Howard Pl.
Denver, CO 80204
Phone: 303-757-9436
FAX: 303-757-9219
Traffic & Safety Engineering MKB

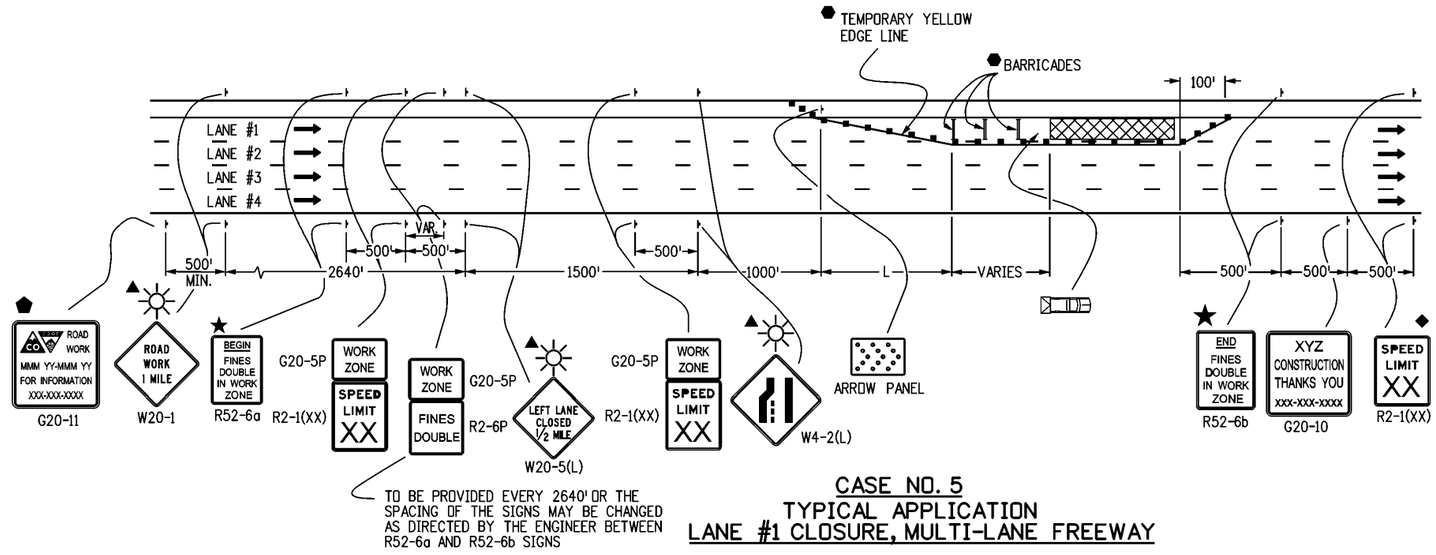
TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

Issued By: Traffic & Safety Engineering Branch July 31, 2019

STANDARD PLAN NO.
S-630-1
Standard Sheet No. 4 of 24
Project Sheet Number:



CASE NO. 4
TYPICAL APPLICATION
ROAD CLOSURE, BYPASS DETOUR PROVIDED



TO BE PROVIDED EVERY 2640' OR THE SPACING OF THE SIGNS MAY BE CHANGED AS DIRECTED BY THE ENGINEER BETWEEN R52-6a AND R52-6b SIGNS

CASE NO. 5
TYPICAL APPLICATION
LANE #1 CLOSURE, MULTI-LANE FREEWAY

LEGEND

- CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE SCHEDULE OF TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. DRUMS OR VERTICAL PANELS SHALL BE USED TO DELINEATE THE LANE CLOSURE TAPER.
- 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 ON SHEET 1).
- ▲ 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.
- ◆ THESE DEVICES ARE NOT OPTIONAL IF THE POSTED SPEED LIMIT IN THE WORK ZONE IS REDUCED.
- VARIES — BUFFER SPACE (SEE GENERAL NOTE 21 ON SHEET 1).
- ⬢ REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE THAN 3 DAYS.
- ⬟ G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.
- MOBILE ATTENUATOR
- FLASHING BEACON
- ★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.

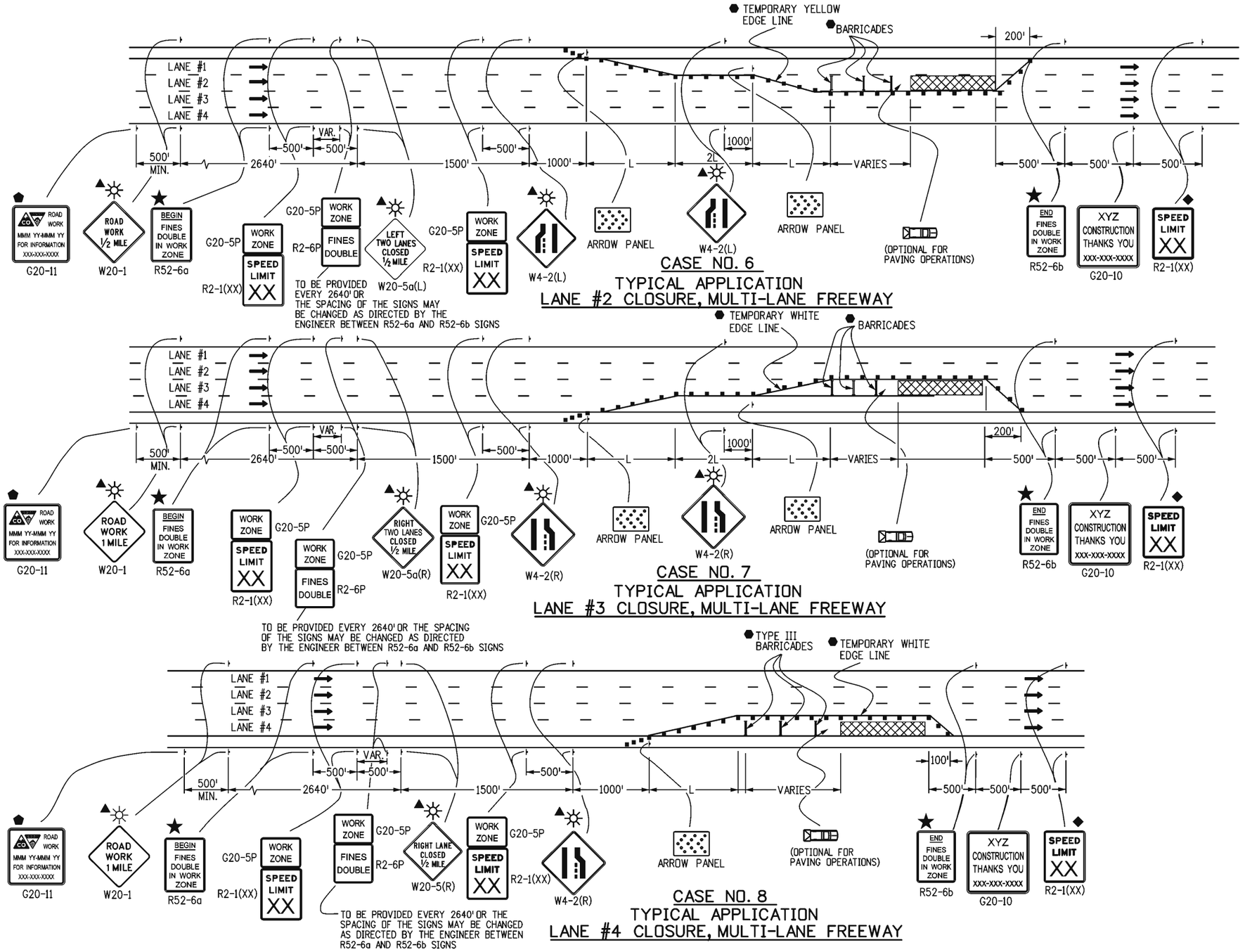
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12		Date:	Comments
Created By: Nakao			
Last Modification Date:			
Last Modified By:			
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English			

Colorado Department of Transportation
2829 W. Howard Pl.
Denver, CO 80204
Phone: 303-757-9436
FAX: 303-757-9219
Traffic & Safety Engineering MKB

TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

Issued By: Traffic & Safety Engineering Branch July 31, 2019

STANDARD PLAN NO.
S-630-1
Standard Sheet No. 5 of 24
Project Sheet Number:



LEGEND

- ■ CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE SCHEDULE OF TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. DRUMS OR VERTICAL PANELS SHALL BE USED TO DELINEATE THE LANE CLOSURE TAPER.
- 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 ON SHEET 1).
- ▲ 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.
- ◆ THESE DEVICES ARE NOT OPTIONAL IF THE POSTED SPEED LIMIT IN THE WORK ZONE IS REDUCED.
- VARIES BUFFER SPACE (SEE GENERAL NOTE 21 ON SHEET 1).
- ⬢ REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE THAN 3 DAYS.
- ⬟ G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.
- MOBILE ATTENUATOR
- FLASHING BEACON
- ★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.

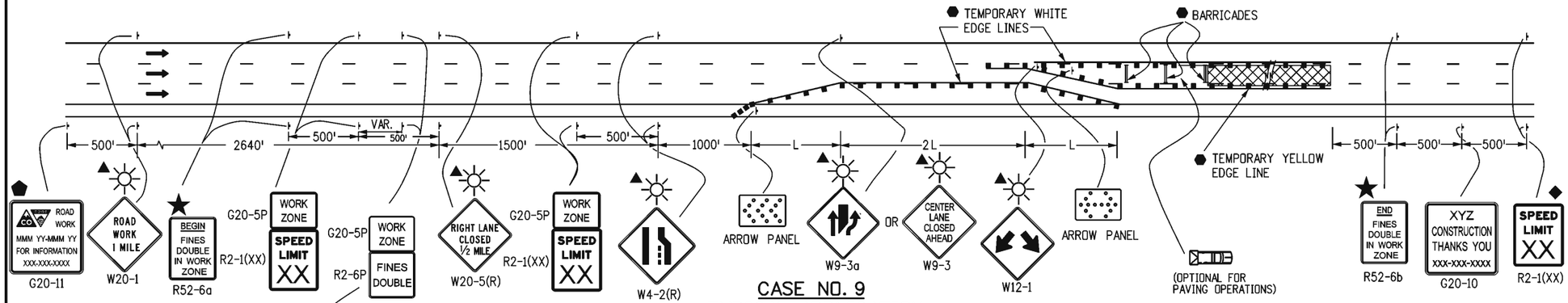
Computer File Information	Sheet Revisions	
Creation Date: 07/04/12	Date:	Comments
Created By: Roybal		
Last Modification Date: 05/19/16		
Last Modified By: MBhat		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English		

Colorado Department of Transportation
2829 W. Howard Pl.
Denver, CO 80204
Phone: 303-757-9436
FAX: 303-757-9219
Traffic & Safety Engineering MKB

TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

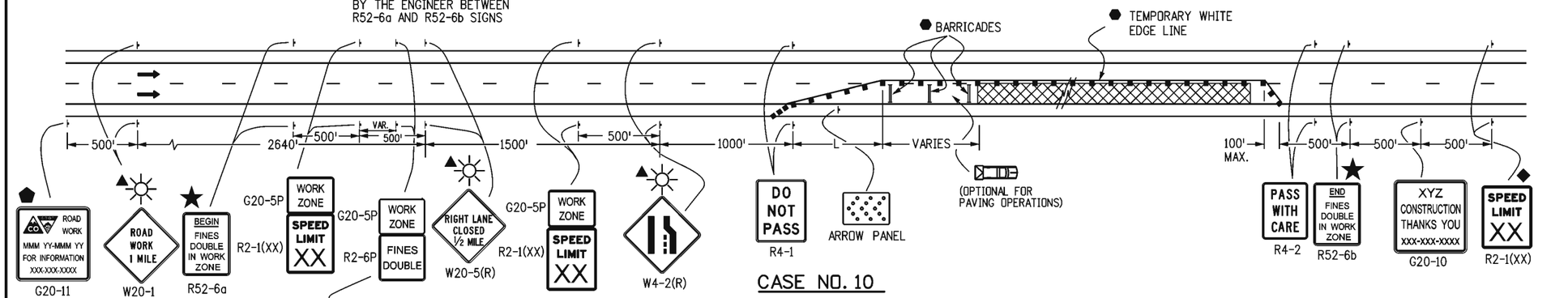
Issued By: Traffic & Safety Engineering Branch July 31, 2019

STANDARD PLAN NO.
S-630-1
Standard Sheet No. 6 of 24
Project Sheet Number:



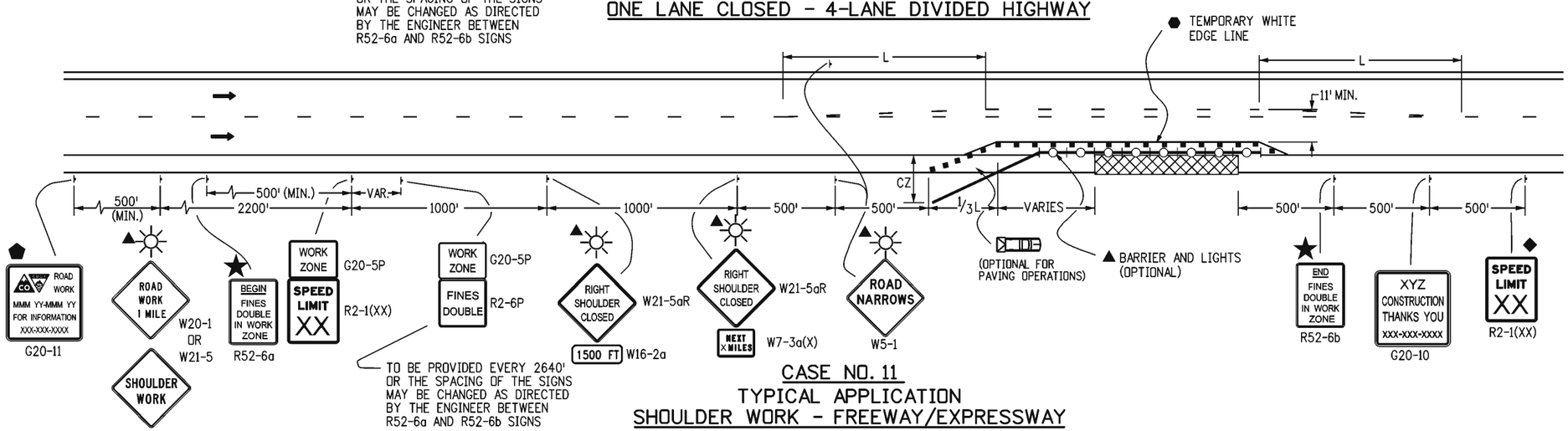
TO BE PROVIDED EVERY 2640' OR THE SPACING OF THE SIGNS MAY BE CHANGED AS DIRECTED BY THE ENGINEER BETWEEN R52-6a AND R52-6b SIGNS

CASE NO. 9
TYPICAL APPLICATION
CENTER LANE CLOSURE - MULTI-LANE FREEWAY



TO BE PROVIDED EVERY 2640' OR THE SPACING OF THE SIGNS MAY BE CHANGED AS DIRECTED BY THE ENGINEER BETWEEN R52-6a AND R52-6b SIGNS

CASE NO. 10
TYPICAL APPLICATION
ONE LANE CLOSED - 4-LANE DIVIDED HIGHWAY



TO BE PROVIDED EVERY 2640' OR THE SPACING OF THE SIGNS MAY BE CHANGED AS DIRECTED BY THE ENGINEER BETWEEN R52-6a AND R52-6b SIGNS

CASE NO. 11
TYPICAL APPLICATION
SHOULDER WORK - FREEWAY/EXPRESSWAY

LEGEND

- ■ CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE SCHEDULE OF TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. DRUMS OR VERTICAL PANELS SHALL BE USED TO DELINEATE THE LANE CLOSURE TAPER.
- 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 ON SHEET 1).
- ▲ 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.
- ◆ THESE DEVICES ARE NOT OPTIONAL IF THE POSTED SPEED LIMIT IN THE WORK ZONE IS REDUCED.
- FLASHING BEACON
- VARIES BUFFER SPACE (SEE GENERAL NOTE 21 ON SHEET 1).
- ⬢ REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE THAN 3 DAYS.
- ⬟ G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.
- MOBILE ATTENUATOR
- CONCRETE BARRIER (TEMPORARY) WITH LIGHTS
- ★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.

Computer File Information	
Creation Date: 07/04/12	
Created By: Roybal	
Last Modification Date: 05/19/16	
Last Modified By: MBhat	
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	

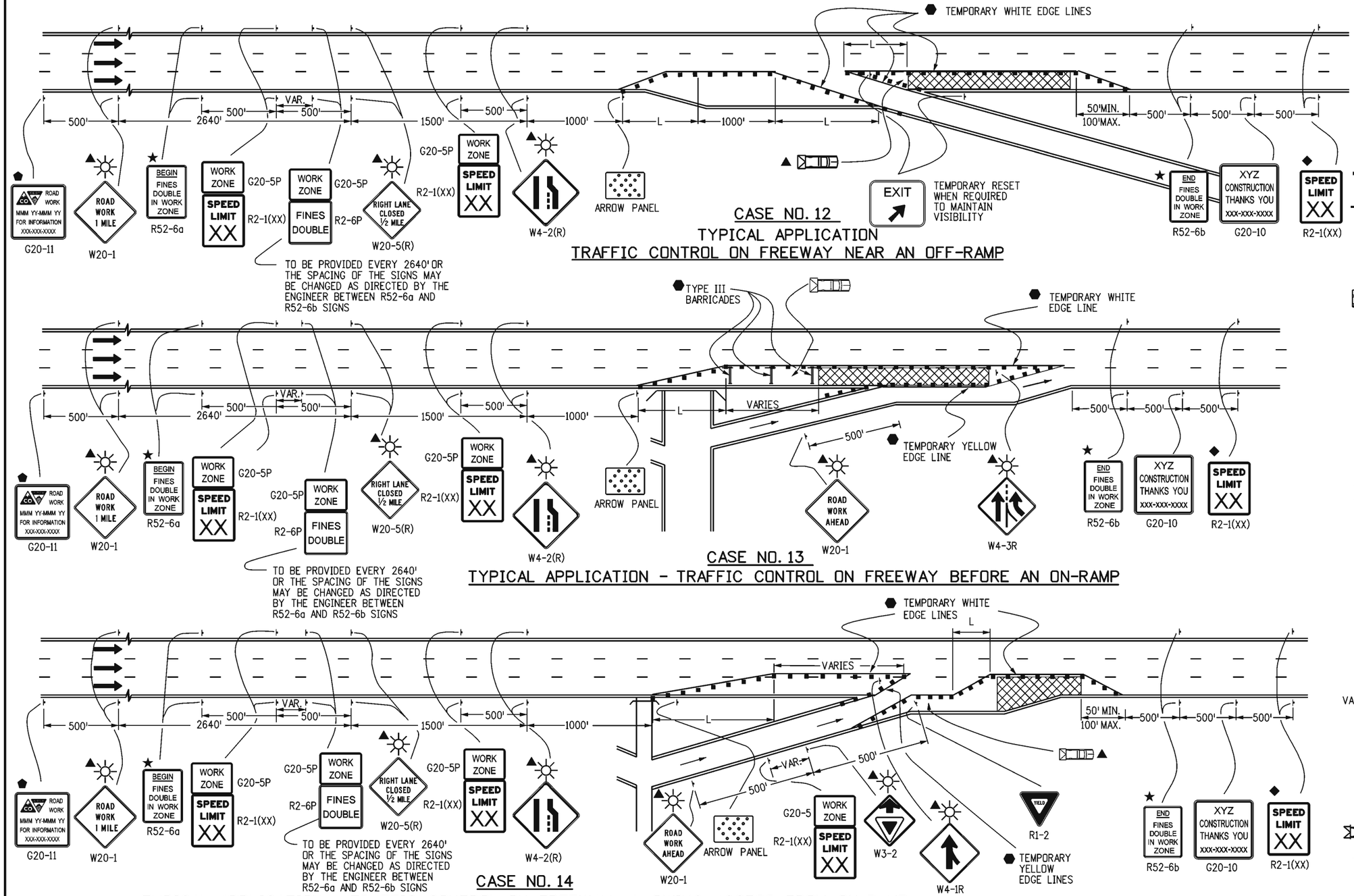
Sheet Revisions	
Date:	Comments

Colorado Department of Transportation
2829 W. Howard Pl.
Denver, CO 80204
Phone: 303-757-9436
FAX: 303-757-9219
Traffic & Safety Engineering MKB

TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

Issued By: Traffic & Safety Engineering Branch July 31, 2019

STANDARD PLAN NO.
S-630-1
Standard Sheet No. 7 of 24
Project Sheet Number:



LEGEND

- CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE SCHEDULE OF TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. DRUMS OR VERTICAL PANELS SHALL BE USED TO DELINEATE THE LANE CLOSURE TAPER.
- 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 ON SHEET 1).
- ▲ 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.
- ◆ THESE DEVICES ARE NOT OPTIONAL IF THE POSTED SPEED LIMIT IN THE WORK ZONE IS REDUCED.
- VARIES — BUFFER SPACE (SEE GENERAL NOTE 21).
- ⬢ REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE THAN 3 DAYS.
- ⬟ G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.
- MOBILE ATTENUATOR
- FLASHING BEACON
- ★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.

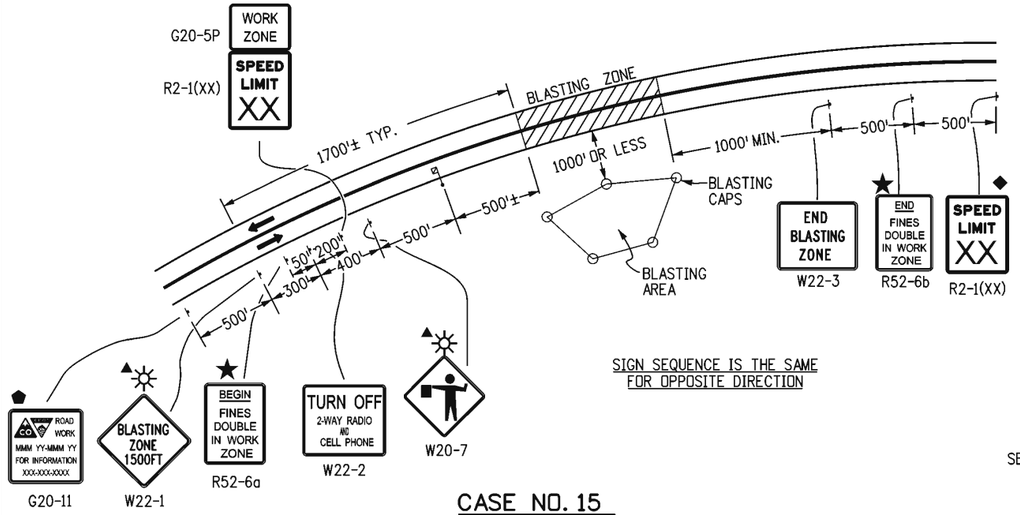
Computer File Information	Sheet Revisions	
Creation Date: 07/04/12	Date:	Comments
Created By: Nakao		
Last Modification Date:		
Last Modified By:		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English		

Colorado Department of Transportation
2829 W. Howard Pl.
Denver, CO 80204
Phone: 303-757-9436
FAX: 303-757-9219
Traffic & Safety Engineering MKB

TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

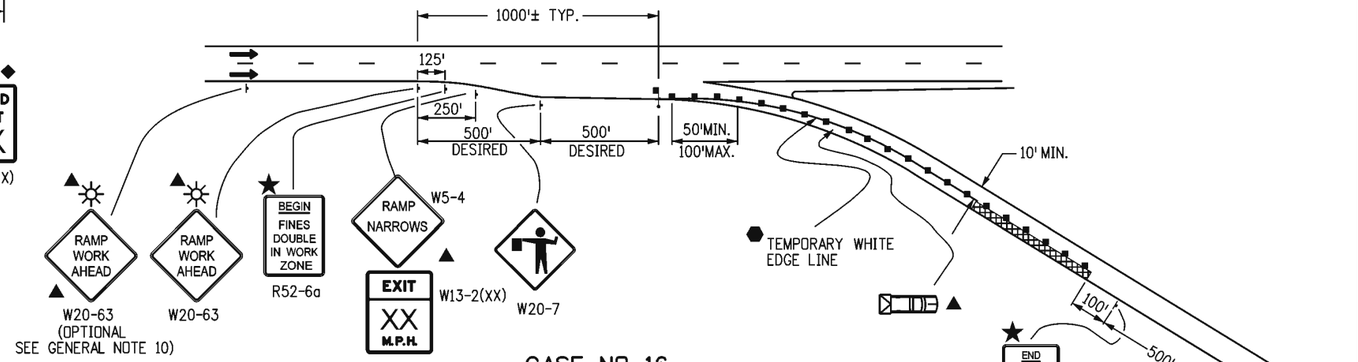
Issued By: Traffic & Safety Engineering Branch July 31, 2019

STANDARD PLAN NO.
S-630-1
Standard Sheet No. 8 of 24
Project Sheet Number:

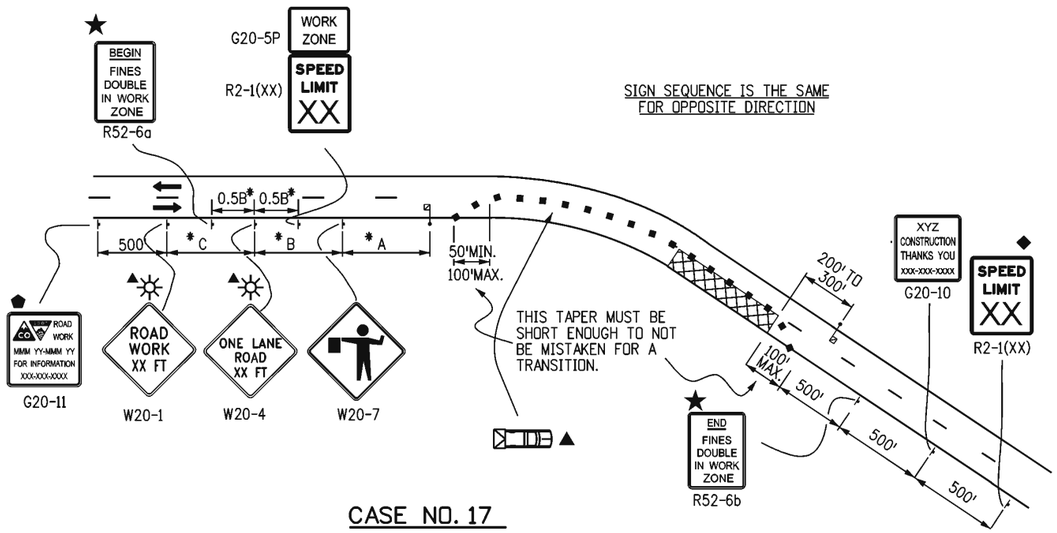


SIGN SEQUENCE IS THE SAME FOR OPPOSITE DIRECTION

CASE NO. 15
TYPICAL APPLICATION
BLASTING ZONE



CASE NO. 16
TYPICAL APPLICATION
RAMP CONSTRUCTION WHERE PARTIAL RAMP IS CLOSED



SIGN SEQUENCE IS THE SAME FOR OPPOSITE DIRECTION

CASE NO. 17
TYPICAL APPLICATION
LANE CLOSURE, 2-LANE HIGHWAY, AT CURVE

LEGEND

- ■ CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE SCHEDULE OF TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. DRUMS OR VERTICAL PANELS SHALL BE USED TO DELINEATE THE LANE CLOSURE TAPER.
- 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
- MOBILE ATTENUATOR
- ★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12
- ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL
- CZ CLEAR ZONE (SEE GENERAL NOTE 16 ON SHEET 1).
- ▲ 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.
- ◆ THESE DEVICES ARE NOT OPTIONAL IF THE POSTED SPEED LIMIT IN THE WORK ZONE IS REDUCED.
- FLASHING BEACON
- ● REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE THAN 3 DAYS.
- ⬟ G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.

*KEY TO ADVANCE SIGNING DISTANCES

ROAD TYPE	DISTANCE BETWEEN SIGNS		
	A	B	C
URBAN (<=40 MPH)	100	100	100
URBAN (>=45 MPH)	350	350	350
RURAL	500	500	500
EXPRESSWAY/FREEWAY	1000	1500	2640

Computer File Information	
Creation Date: 07/04/12	
Created By: Roybal	
Last Modification Date: 07/26/13	
Last Modified By: Nakao	
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	

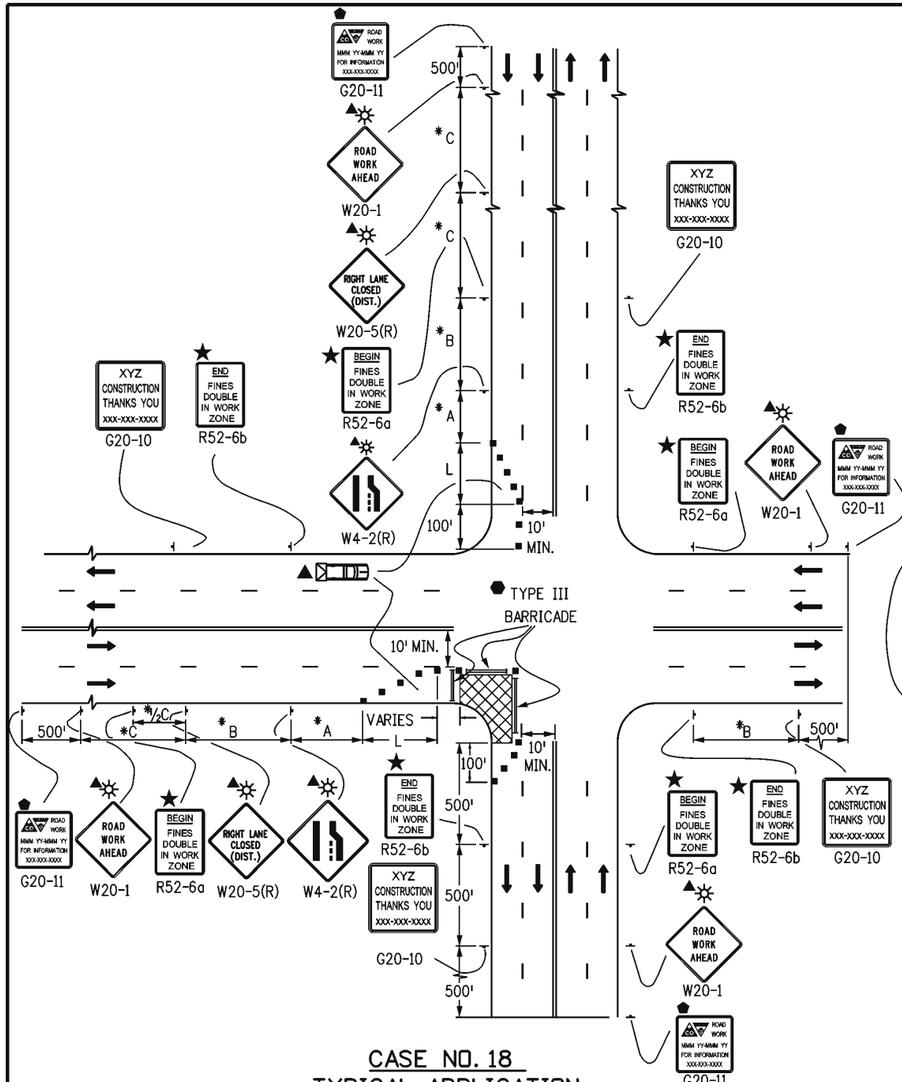
Sheet Revisions	
Date:	Comments

Colorado Department of Transportation
2829 W. Howard Pl.
Denver, CO 80204
Phone: 303-757-9436
FAX: 303-757-9219
Traffic & Safety Engineering MKB

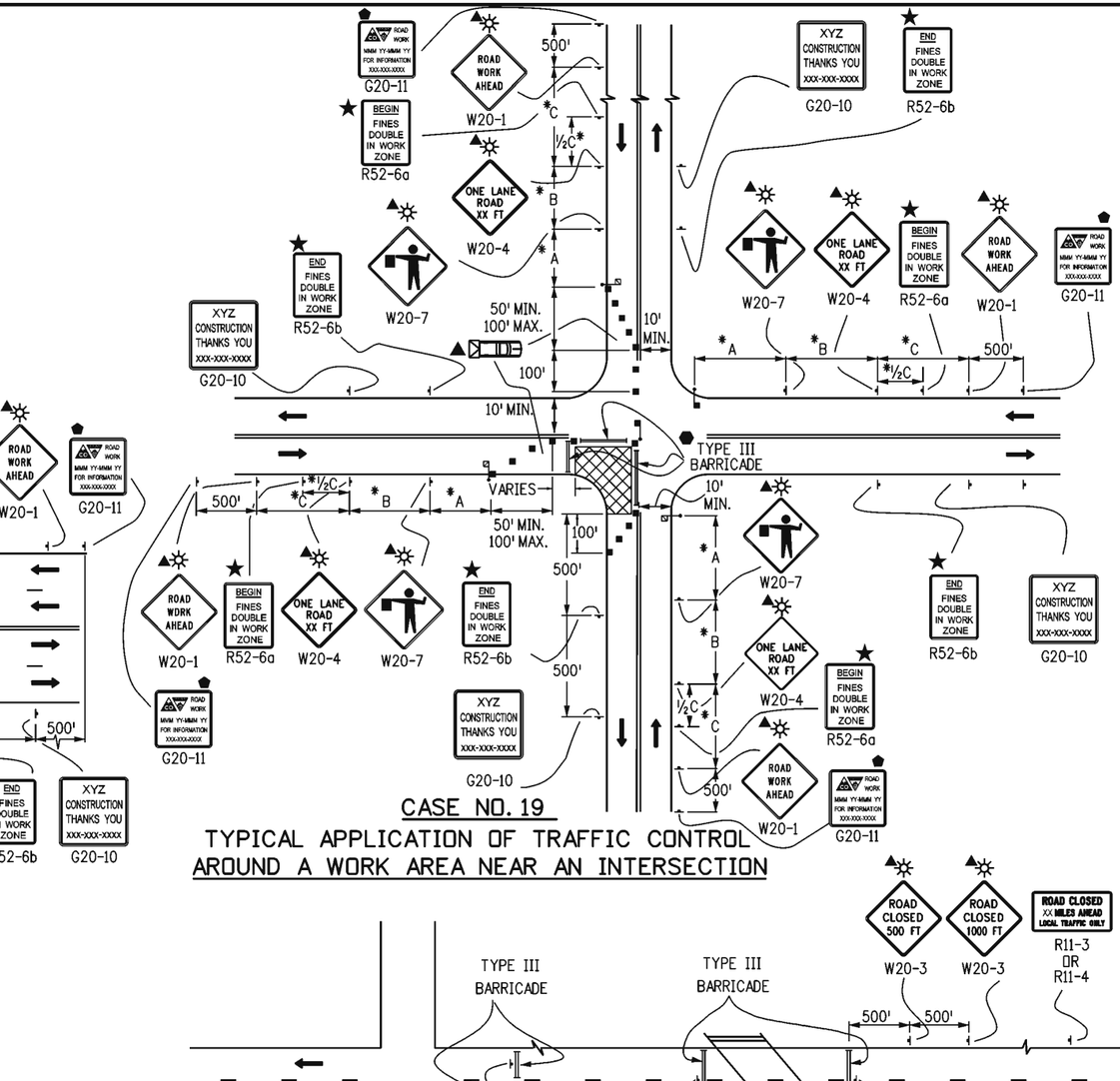
TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

Issued By: Traffic & Safety Engineering Branch July 31, 2019

STANDARD PLAN NO.
S-630-1
Standard Sheet No. 9 of 24
Project Sheet Number:



CASE NO. 18
TYPICAL APPLICATION TRAFFIC CONTROL AROUND A WORK AREA NEAR AN INTERSECTION, ONE LANE CLOSED



CASE NO. 19
TYPICAL APPLICATION OF TRAFFIC CONTROL AROUND A WORK AREA NEAR AN INTERSECTION

CASE NO. 20
TYPICAL SIGNING FOR ROAD CLOSURE

NOTES:

1. SIGN PLACEMENT SHOWN ON CASES 18 AND 19 TYPIFIES RURAL APPLICATIONS. URBAN APPLICATIONS REQUIRE THE SIGNS TO BE PLACED WITHIN ONE, OR PERHAPS TWO, BLOCKS.
2. TRUCK-MOUNTED ATTENUATORS (TMA) OPTIONAL FOR ALL CASES AS DETERMINED BY THE ENGINEER.

LEGEND

- ■ CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE SCHEDULE OF TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. DRUMS OR VERTICAL PANELS SHALL BE USED TO DELINEATE THE LANE CLOSURE TAPER.
- 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
- MOBILE ATTENUATOR
- CZ CLEAR ZONE (SEE GENERAL NOTE 16).
- FLASHING BEACON
- ▲ 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 ON SHEET 1).
- ⬟ REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE THAN 3 DAYS.
- ★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.
- ⬟ G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.

*KEY TO ADVANCE SIGNING DISTANCES

ROAD TYPE	DISTANCE BETWEEN SIGNS		
	A	B	C
URBAN (<= 40 MPH)	100	100	100
URBAN (>= 45 MPH)	350	350	350
RURAL	500	500	500
EXPRESSWAY/FREEWAY	1000	1500	2640

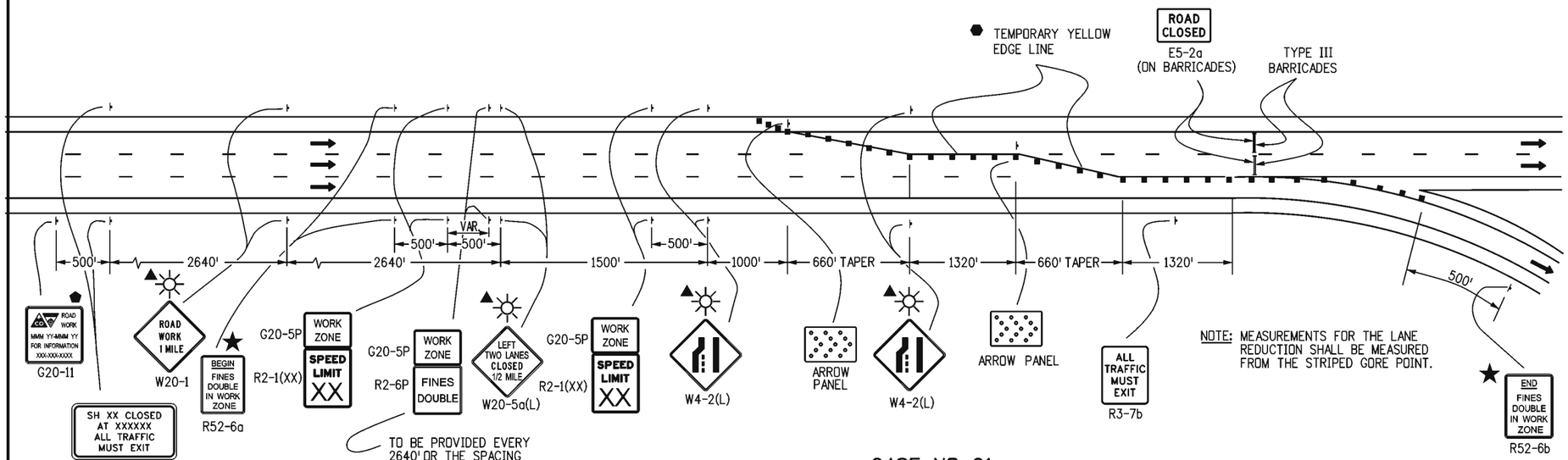
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12		Date:	Comments
Created By: Roybal			
Last Modification Date: 04/02/15			
Last Modified By: DiNardo			
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English			

Colorado Department of Transportation
2829 W. Howard Pl.
Denver, CO 80204
Phone: 303-757-9436
FAX: 303-757-9219
Traffic & Safety Engineering MKB

TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

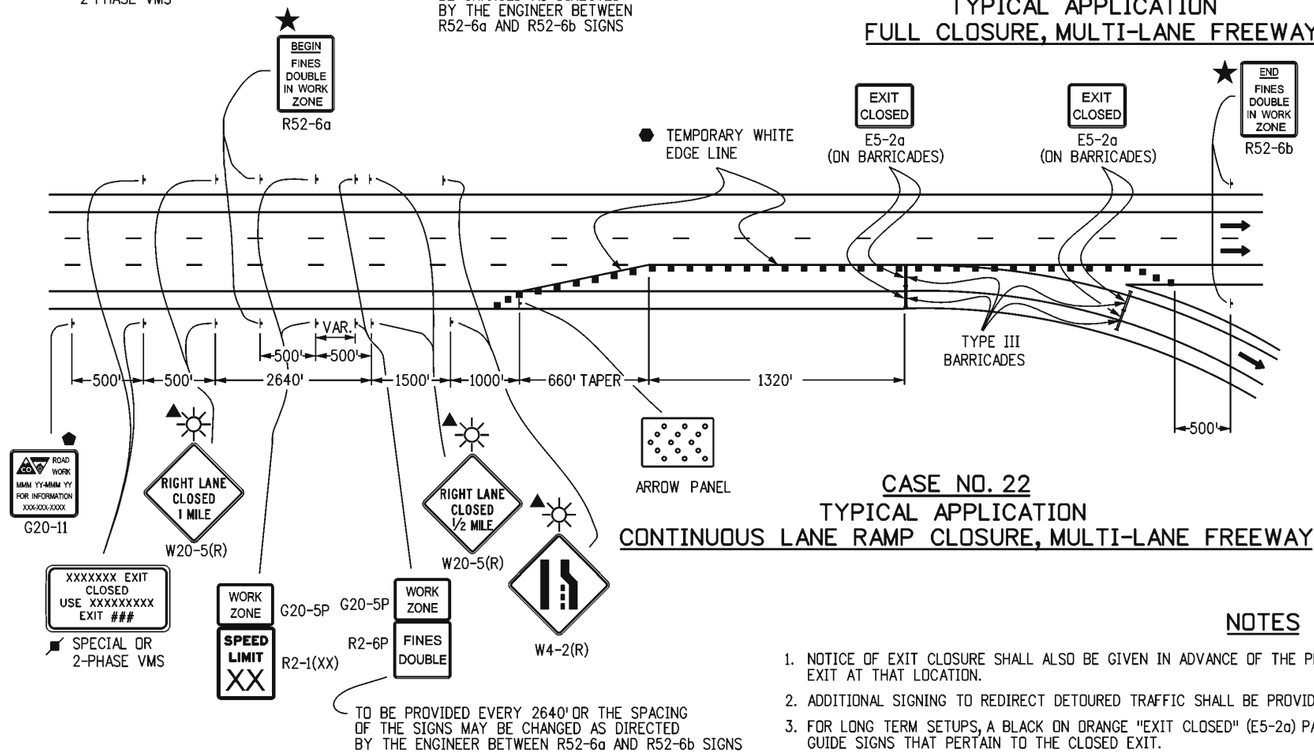
Issued By: Traffic & Safety Engineering Branch July 31, 2019

STANDARD PLAN NO.
S-630-1
Standard Sheet No. 10 of 24
Project Sheet Number:

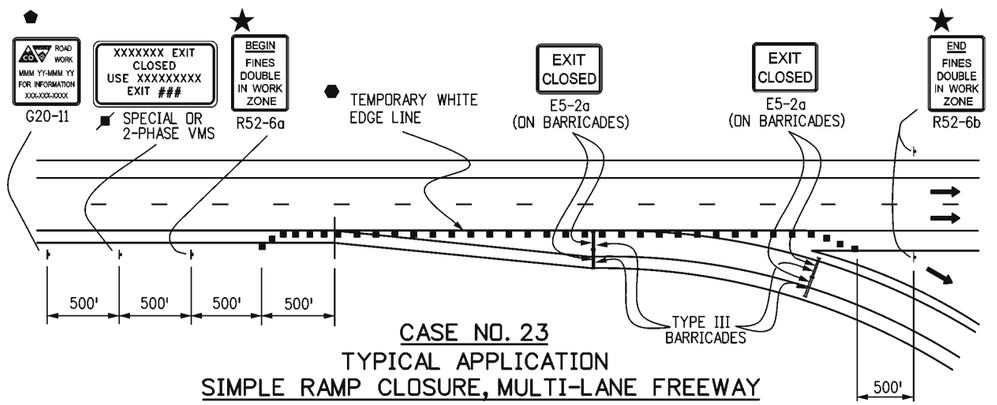


NOTE: MEASUREMENTS FOR THE LANE REDUCTION SHALL BE MEASURED FROM THE STRIPED GORE POINT.

CASE NO. 21
TYPICAL APPLICATION
FULL CLOSURE, MULTI-LANE FREEWAY



CASE NO. 22
TYPICAL APPLICATION
CONTINUOUS LANE RAMP CLOSURE, MULTI-LANE FREEWAY



CASE NO. 23
TYPICAL APPLICATION
SIMPLE RAMP CLOSURE, MULTI-LANE FREEWAY

LEGEND

- ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL
- ▲ THESE DEVICES ARE OPTIONAL. THEIR NEED WILL BE DETERMINED BY THE DESIGNER BASED ON DETOUR DESIGN AND/OR SCOPE OF THE CONSTRUCTION ACTIVITY, AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE PLANS.
- ⬣ REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE THAN 3 DAYS.
- ⬟ G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.
- ■ CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE SCHEDULE OF TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. DRUMS OR VERTICAL PANELS SHALL BE USED TO DELINEATE THE LANE CLOSURE TAPER.
- 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: $L = \frac{WS^2}{60}$
  - 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.
- FLASHING BEACON
- ★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.

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.

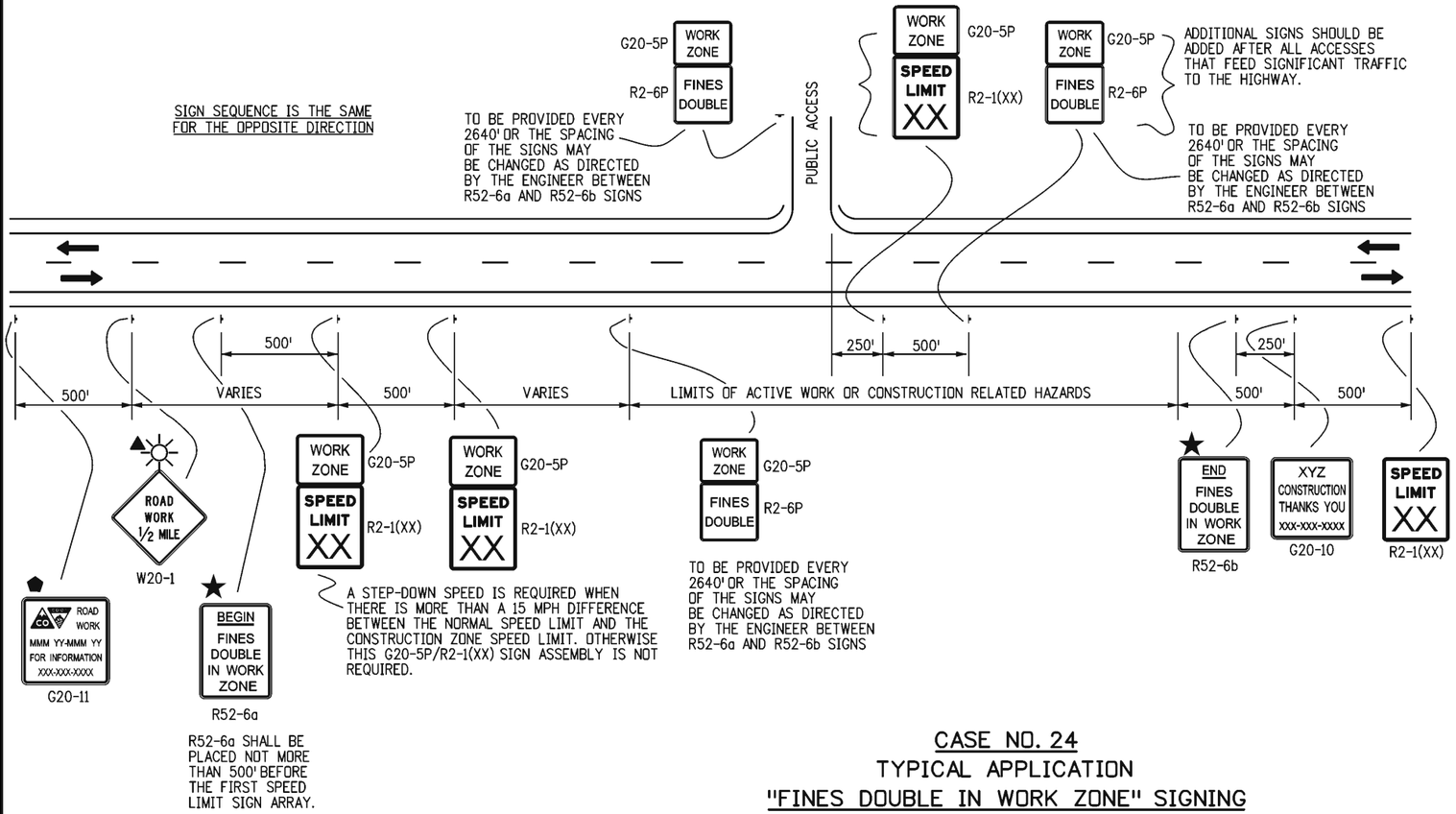
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12		Date:	Comments
Created By: Nakao			
Last Modification Date:			
Last Modified By:			
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English			

Colorado Department of Transportation
2829 W. Howard Pl.
Denver, CO 80204
Phone: 303-757-9436
FAX: 303-757-9219
Traffic & Safety Engineering MKB

TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

Issued By: Traffic & Safety Engineering Branch July 31, 2019

STANDARD PLAN NO.
S-630-1
Standard Sheet No. 11 of 24
Project Sheet Number:



CASE NO. 24
TYPICAL APPLICATION
"FINES DOUBLE IN WORK ZONE" SIGNING
(WITH SPEED REDUCTION)

LEGEND

- DIRECTION OF TRAVEL
- ▲ THESE DEVICES ARE OPTIONAL. THEIR NEED WILL BE DETERMINED BY THE DESIGNER BASED ON DETOUR DESIGN AND/OR SCOPE OF THE CONSTRUCTION ACTIVITY, AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE PLANS.
- ⬟ G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.
- FLASHING BEACON
- ★ FINES DOUBLE SIGNING NOTES, SEE BELOW

FINES DOUBLE 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. SIGNS SHALL ONLY BE PLACED WHERE WORKERS ARE PRESENT IN THE ROADWAY OR CLEAR ZONE OR ARE AT RISK, OR WHERE THERE ARE HAZARDS IN THE TRAVELWAY, SHOULDERS OR CLEAR ZONE.

3. SIGNS 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 IN A WORK ZONE. 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.

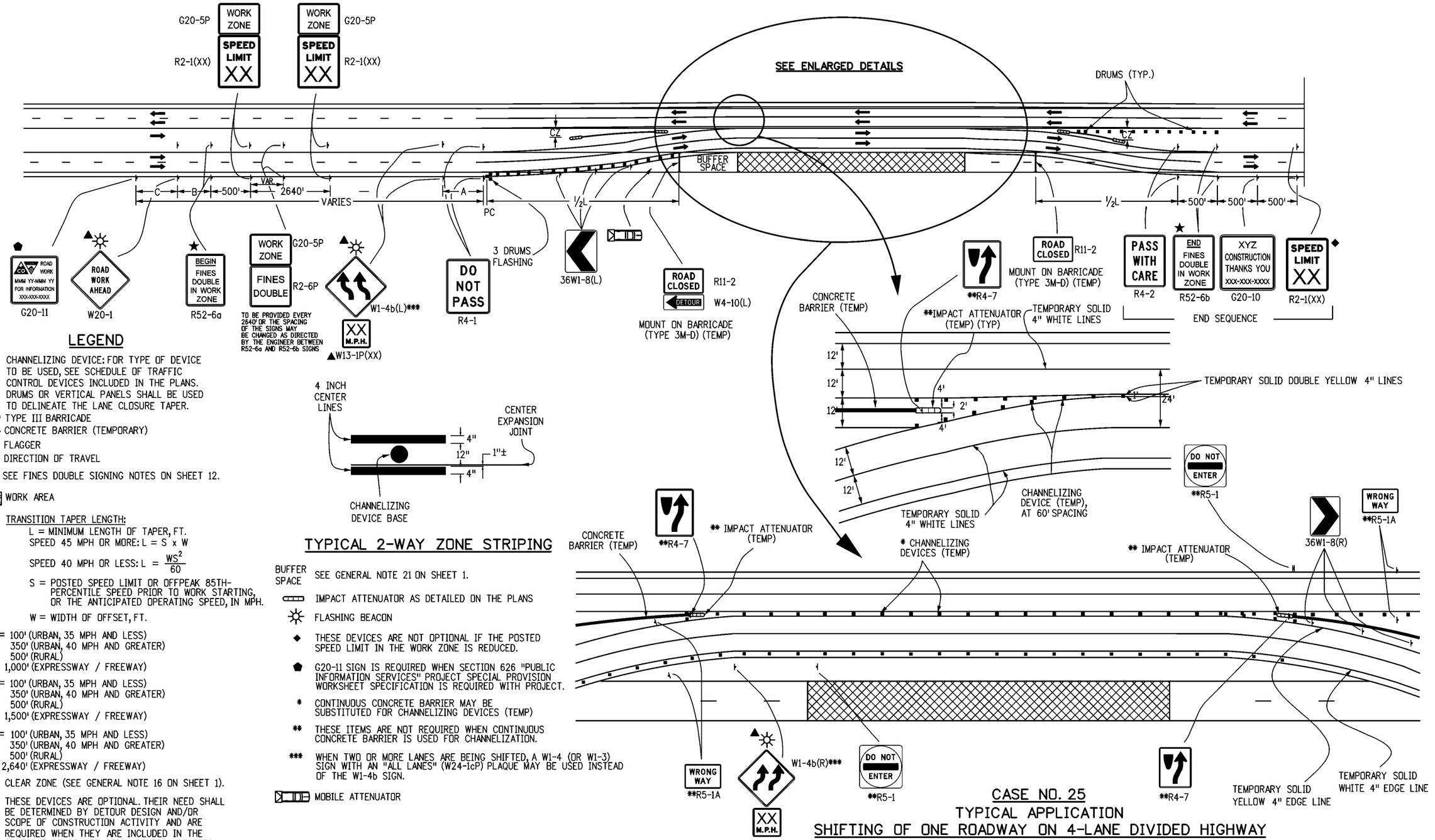
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12		Date:	Comments
Created By: Roybal			
Last Modification Date:			
Last Modified By:			
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English			

Colorado Department of Transportation
2829 W. Howard Pl.
Denver, CO 80204
Phone: 303-757-9436
FAX: 303-757-9219
Traffic & Safety Engineering MKB

TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

Issued By: Traffic & Safety Engineering Branch July 31, 2019

STANDARD PLAN NO.
S-630-1
Standard Sheet No. 12 of 24
Project Sheet Number:



LEGEND

- ▪ CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE SCHEDULE OF TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. DRUMS OR VERTICAL PANELS SHALL BE USED TO DELINEATE THE LANE CLOSURE TAPER.
- ⊢ TYPE III BARRICADE
- — CONCRETE BARRIER (TEMPORARY)
- ■→ FLAGGER
- ← DIRECTION OF TRAVEL
- ★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.
- ▨ WORK AREA

L TRANSITION TAPER LENGTH:

L = MINIMUM LENGTH OF TAPER, FT.

SPEED 45 MPH OR MORE: $L = S \times W$

SPEED 40 MPH OR LESS: $L = \frac{WS^2}{60}$

S = POSTED SPEED LIMIT OR OFFPEAK 85TH-PERCENTILE SPEED PRIOR TO WORK STARTING, OR THE ANTICIPATED OPERATING SPEED, IN MPH.

W = WIDTH OF OFFSET, FT.

A = 100' (URBAN, 35 MPH AND LESS)
350' (URBAN, 40 MPH AND GREATER)
500' (RURAL)
1,000' (EXPRESSWAY / FREEWAY)

B = 100' (URBAN, 35 MPH AND LESS)
350' (URBAN, 40 MPH AND GREATER)
500' (RURAL)
1,500' (EXPRESSWAY / FREEWAY)

C = 100' (URBAN, 35 MPH AND LESS)
350' (URBAN, 40 MPH AND GREATER)
500' (RURAL)
2,640' (EXPRESSWAY / FREEWAY)

CZ CLEAR ZONE (SEE GENERAL NOTE 16 ON SHEET 1).

▲ 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.

TYPICAL 2-WAY ZONE STRIPING

BUFFER SPACE — SEE GENERAL NOTE 21 ON SHEET 1.

- IMPACT ATTENUATOR AS DETAILED ON THE PLANS
- FLASHING BEACON
- ◆ THESE DEVICES ARE NOT OPTIONAL IF THE POSTED SPEED LIMIT IN THE WORK ZONE IS REDUCED.
- ⬟ G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.
- * CONTINUOUS CONCRETE BARRIER MAY BE SUBSTITUTED FOR CHANNELIZING DEVICES (TEMP)
- ** THESE ITEMS ARE NOT REQUIRED WHEN CONTINUOUS CONCRETE BARRIER IS USED FOR CHANNELIZATION.
- *** WHEN TWO OR MORE LANES ARE BEING SHIFTED, A W1-4 (OR W1-3) SIGN WITH AN "ALL LANES" (W24-1cP) PLAQUE MAY BE USED INSTEAD OF THE W1-4b SIGN.
- MOBILE ATTENUATOR

CASE NO. 25

TYPICAL APPLICATION

SHIFTING OF ONE ROADWAY ON 4-LANE DIVIDED HIGHWAY

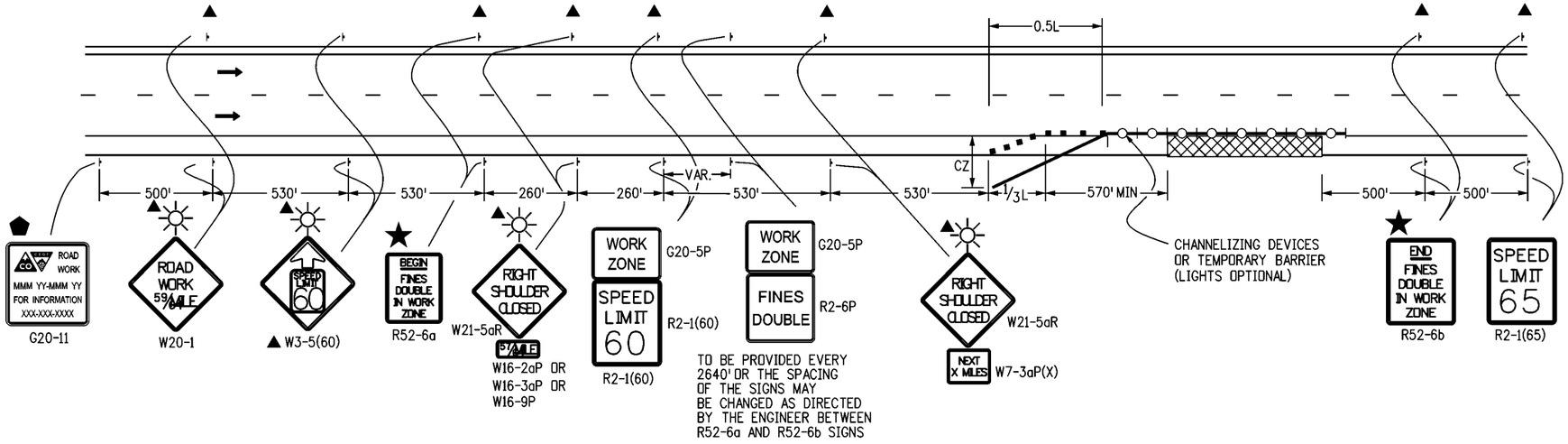
Computer File Information	Sheet Revisions		
Creation Date: 07/04/12	Date:	Comments	
Created By: Roybal			
Last Modification Date: 02/06/13			
Last Modified By: Nakao			
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English			

Colorado Department of Transportation
2829 W. Howard Pl.
Denver, CO 80204
Phone: 303-757-9436
FAX: 303-757-9219
Traffic & Safety Engineering MKB

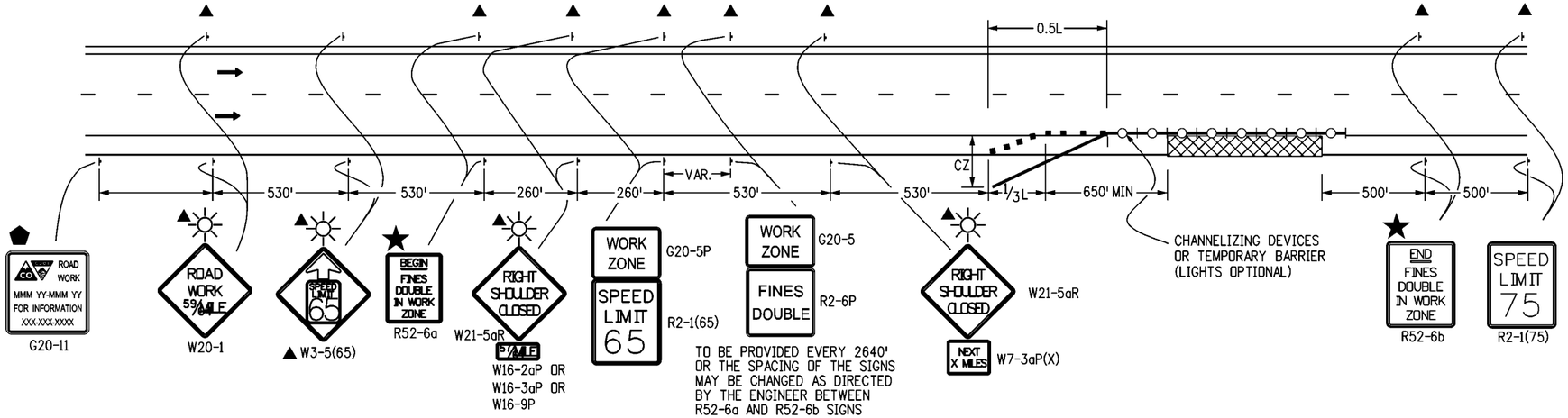
TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

Issued By: Traffic & Safety Engineering Branch July 31, 2019

STANDARD PLAN NO.
S-630-1
Standard Sheet No. 13 of 24
Project Sheet Number:



CASE NO. 26
TYPICAL APPLICATION
SHOULDER WORK - FREEWAY/EXPRESSWAY w/ 65 MPH SPEED LIMIT
WHEN HAZARDS (WORKERS, EQUIPMENT, OR TEMPORARY BARRIER) ARE WITHIN 8 FT OF TRAVEL WAY



CASE NO. 27
TYPICAL APPLICATION
SHOULDER WORK - FREEWAY/EXPRESSWAY w/ 75 MPH SPEED LIMIT
WHEN HAZARDS (WORKERS, EQUIPMENT, OR TEMPORARY BARRIER) ARE WITHIN 10 FT OF TRAVEL WAY

LEGEND

- CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE SCHEDULE OF TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. DRUMS OR VERTICAL PANELS SHALL BE USED TO DELINEATE THE LANE CLOSURE TAPER.
- 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 x W

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 ON SHEET 1).

▲ THESE DEVICES ARE OPTIONAL. THEIR NEED SHALL BE DETERMINED BY TRAFFIC VOLUMES AND/OR SCOPE OF CONSTRUCTION ACTIVITY, AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE SCHEDULE OF CONSTRUCTION CONTROL DEVICES.

⬟ G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.

⬢ REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE THAN 3 DAYS.

- MOBILE ATTENUATOR
- FLASHING BEACON

★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.

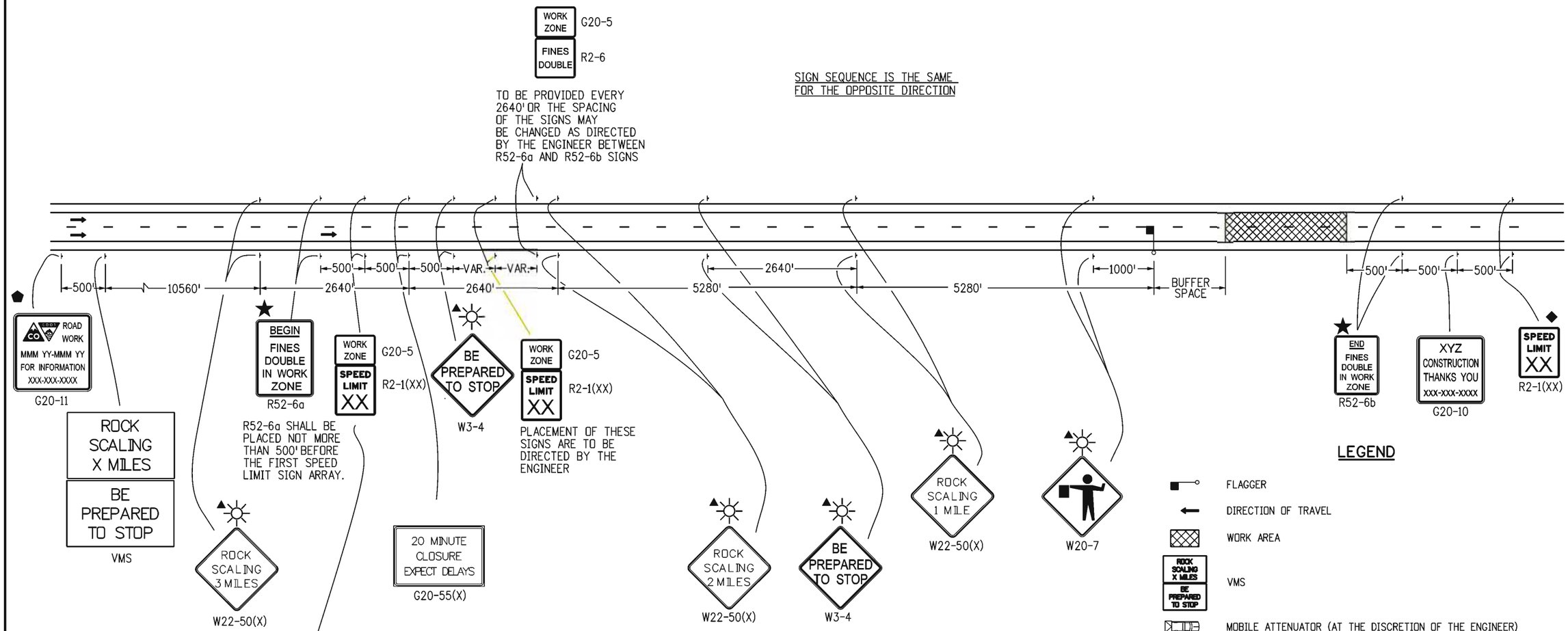
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12		Date:	Comments
Created By: Roybal			
Last Modification Date:			
Last Modified By:			
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English			

Colorado Department of Transportation
2829 W. Howard Pl.
Denver, CO 80204
Phone: 303-757-9436
FAX: 303-757-9219
Traffic & Safety Engineering MKB

TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

Issued By: Traffic & Safety Engineering Branch July 31, 2019

STANDARD PLAN NO.
S-630-1
Standard Sheet No. 14 of 24
Project Sheet Number:



CASE NO. 28
TYPICAL APPLICATION
ROCK SCALING - ROAD CLOSURE, 4-LANE DIVIDED HIGHWAY

LEGEND

- FLAGGER
- DIRECTION OF TRAVEL
- WORK AREA
- VMS
- MOBILE ATTENUATOR (AT THE DISCRETION OF THE ENGINEER)
- ▲ 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.
- ◆ THESE DEVICES ARE NOT OPTIONAL IF THE POSTED SPEED LIMIT IN THE WORK ZONE IS REDUCED.
- ⬟ G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.
- BUFFER SPACE — SEE GENERAL NOTE 21 ON SHEET 1.
- FLASHING BEACON
- ★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.

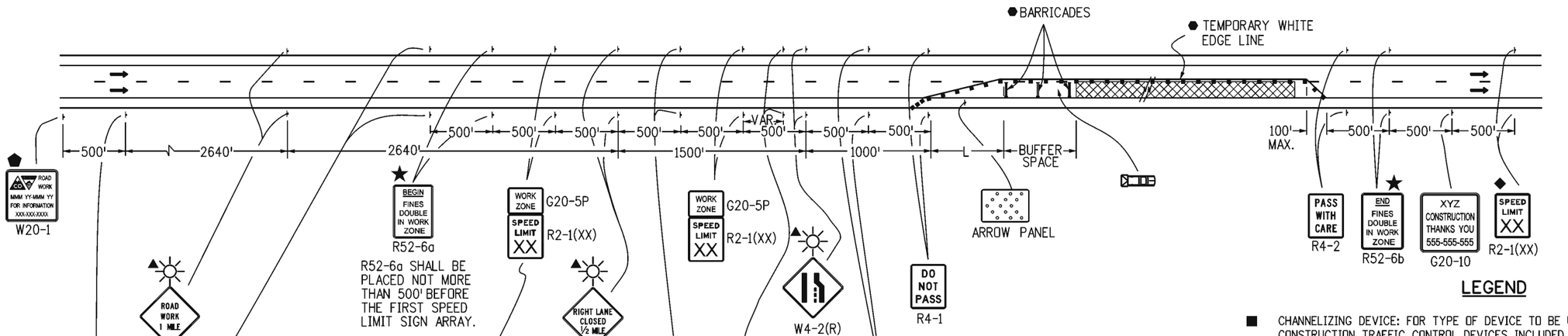
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12		Date:	Comments
Created By: Roybal			
Last Modification Date: 07/26/13			
Last Modified By: Nakao			
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English			

Colorado Department of Transportation
2829 W. Howard Pl.
Denver, CO 80204
Phone: 303-757-9436
FAX: 303-757-9219
Traffic & Safety Engineering MKB

TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

Issued By: Traffic & Safety Engineering Branch July 31, 2019

STANDARD PLAN NO.
S-630-1
Standard Sheet No. 15 of 24
Project Sheet Number:



CASE NO. 29
TYPICAL APPLICATION
LATE MERGING - ONE LANE CLOSED, 4-LANE DIVIDED HIGHWAY

LEGEND

- ■ CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE THE SCHEDULE OF CONSTRUCTION TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. IF PROJECT IS DESIGNATED AS A "SIGNIFICANT PROJECT" (SEE GENERAL NOTE 26), CONCRETE BARRIER SHALL BE USED FOR CHANNELIZATION DEVICES (TEMP) AS DETERMINED BY THE ENGINEER.
- TYPE III BARRICADE
- DIRECTION OF TRAVEL
- WORK AREA
- 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 CONTROL DEVICES.
- ◆ THESE DEVICES ARE NOT OPTIONAL IF THE POSTED SPEED LIMIT IN THE WORK ZONE IS REDUCED.
- ⬟ G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.
- FLASHING BEACON
- ● REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE THAN 3 DAYS.
- ★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.
- MOBILE ATTENUATOR
- 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
- BUFFER SPACE SEE GENERAL NOTE 21 ON SHEET 1.

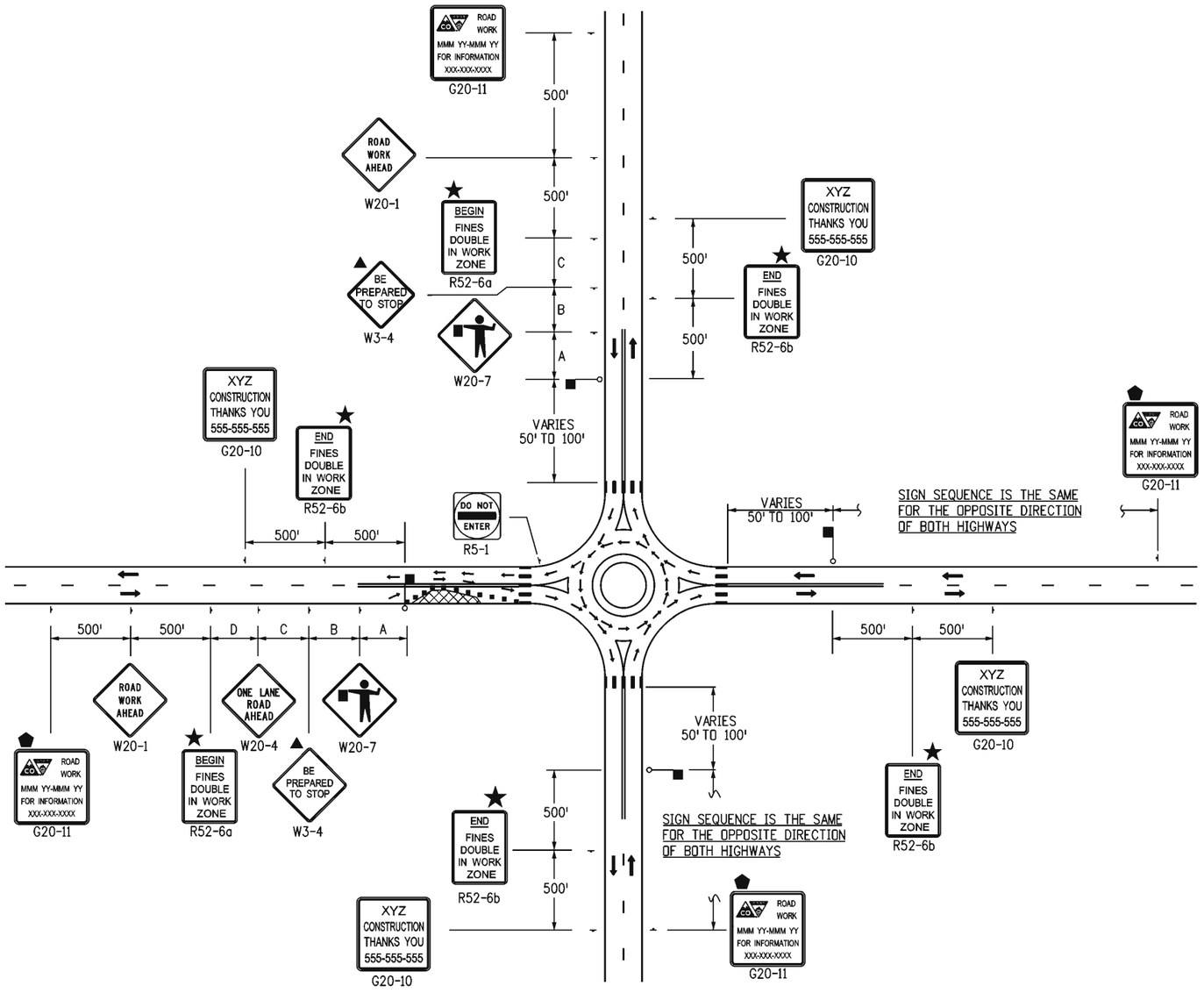
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12		Date:	Comments
Created By: Roybal			
Last Modification Date: 06/23/16			
Last Modified By: MBhat			
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English			

Colorado Department of Transportation
2829 W. Howard Pl.
Denver, CO 80204
Phone: 303-757-9436
FAX: 303-757-9219
Traffic & Safety Engineering MKB

TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

Issued By: Traffic & Safety Engineering Branch July 31, 2019

STANDARD PLAN NO.
S-630-1
Standard Sheet No. 16 of 24
Project Sheet Number:



LEGEND

- ■ CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE THE SCHEDULE OF CONSTRUCTION TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. IF PROJECT IS DESIGNATED AS A "SIGNIFICANT PROJECT" (SEE GENERAL NOTE 26), CONCRETE BARRIER SHALL BE USED FOR CHANNELIZATION DEVICES (TEMP) AS DETERMINED BY THE ENGINEER.
- TYPE III BARRICADE
- DIRECTION OF TRAVEL
- WORK AREA
- 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 CONTROL DEVICES.
- ◆ THESE DEVICES ARE NOT OPTIONAL IF THE POSTED SPEED LIMIT IN THE WORK ZONE IS REDUCED.
- ⬟ G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.
- FLASHING BEACON
- ⬢ REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE THAN 3 DAYS.
- ★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.
- MOBILE ATTENUATOR
- 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
- BUFFER SPACE SEE GENERAL NOTE 21 ON SHEET 1.
- FLAGGER

ROAD TYPE	DISTANCE BETWEEN SIGNS		
	A	B	C
URBAN (<= 40 MPH)	100	100	100
URBAN (>= 45 MPH)	350	350	350
RURAL	500	500	500
EXPRESSWAY/FREEWAY	1000	1500	2640

CASE NO. 30
TYPICAL APPLICATION
ROUNDABOUT - PARTIAL CLOSURE NEAR ONE-LANE ROUNDABOUT

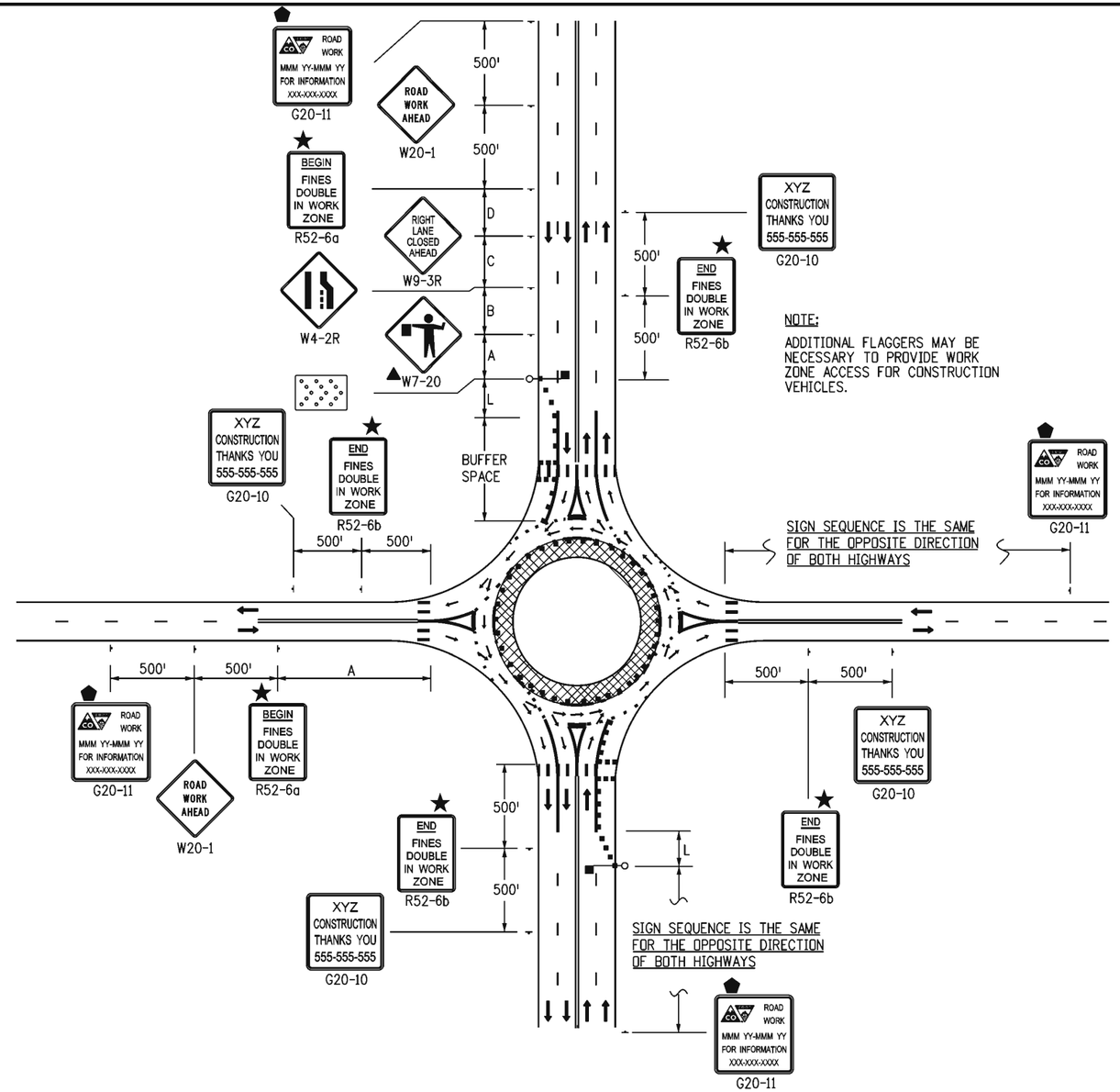
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12		Date:	Comments
Created By: Nakao			
Last Modification Date: 06/23/16			
Last Modified By: MBhat			
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English			

Colorado Department of Transportation
2829 W. Howard Pl.
Denver, CO 80204
Phone: 303-757-9436
FAX: 303-757-9219
Traffic & Safety Engineering MKB

TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

Issued By: Traffic & Safety Engineering Branch July 31, 2019

STANDARD PLAN NO.
S-630-1
Standard Sheet No. 17 of 24
Project Sheet Number:



CASE NO. 31

TYPICAL APPLICATION *

ROUNDABOUT - INSIDE LANE CLOSURE FOR TWO-LANE ROUNDABOUT

LEGEND

* A TRUCK DETOUR ROUTE MAY BE NECESSARY TO DIVERT TRUCKS AWAY FROM THE ROUNDABOUT CIRCLE. ALSO NECESSARY IS A STREET NAME AND/OR ROUTE NUMBER SIGN, INFORMING MOTORISTS WHERE THEY NEED TO EXIT THE ROUNDABOUT CIRCLE TO ENTER THE DESIRED STREET AND/OR ROUTE NUMBER.

■ CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE THE SCHEDULE OF CONSTRUCTION TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. IF PROJECT IS DESIGNATED AS A "SIGNIFICANT PROJECT" (SEE GENERAL NOTE 26), CONCRETE BARRIER SHALL BE USED FOR CHANNELIZATION DEVICES (TEMP) AS DETERMINED BY THE ENGINEER.

TYPE III BARRICADE

DIRECTION OF TRAVEL

WORK AREA

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 CONTROL DEVICES.

◆ THESE DEVICES ARE NOT OPTIONAL IF THE POSTED SPEED LIMIT IN THE WORK ZONE IS REDUCED.

⬟ G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.

FLASHING BEACON

⬢ REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE THAN 3 DAYS.

★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.

MOBILE ATTENUATOR

L TRANSITION TAPER LENGTH:

L = MINIMUM LENGTH OF TAPER

SPEED 45 MPH OR MORE: $L = \frac{WS^2}{60}$

SPEED 40 MPH OR LESS: $L = \frac{WS^2}{}$

S = NUMERICAL VALUE OF SPEED LIMIT OR 85 PERCENTILE SPEED

W = WIDTH OF OFFSET

SHOULDER TAPER = 1/3 L

BUFFER SPACE SEE GENERAL NOTE 21 ON SHEET 1.

FLAGGER

ROAD TYPE	DISTANCE BETWEEN SIGNS		
	A	B	C
URBAN (<= 40 MPH)	100	100	100
URBAN (>= 45 MPH)	350	350	350
RURAL	500	500	500
EXPRESSWAY/FREEWAY	1000	1500	2640

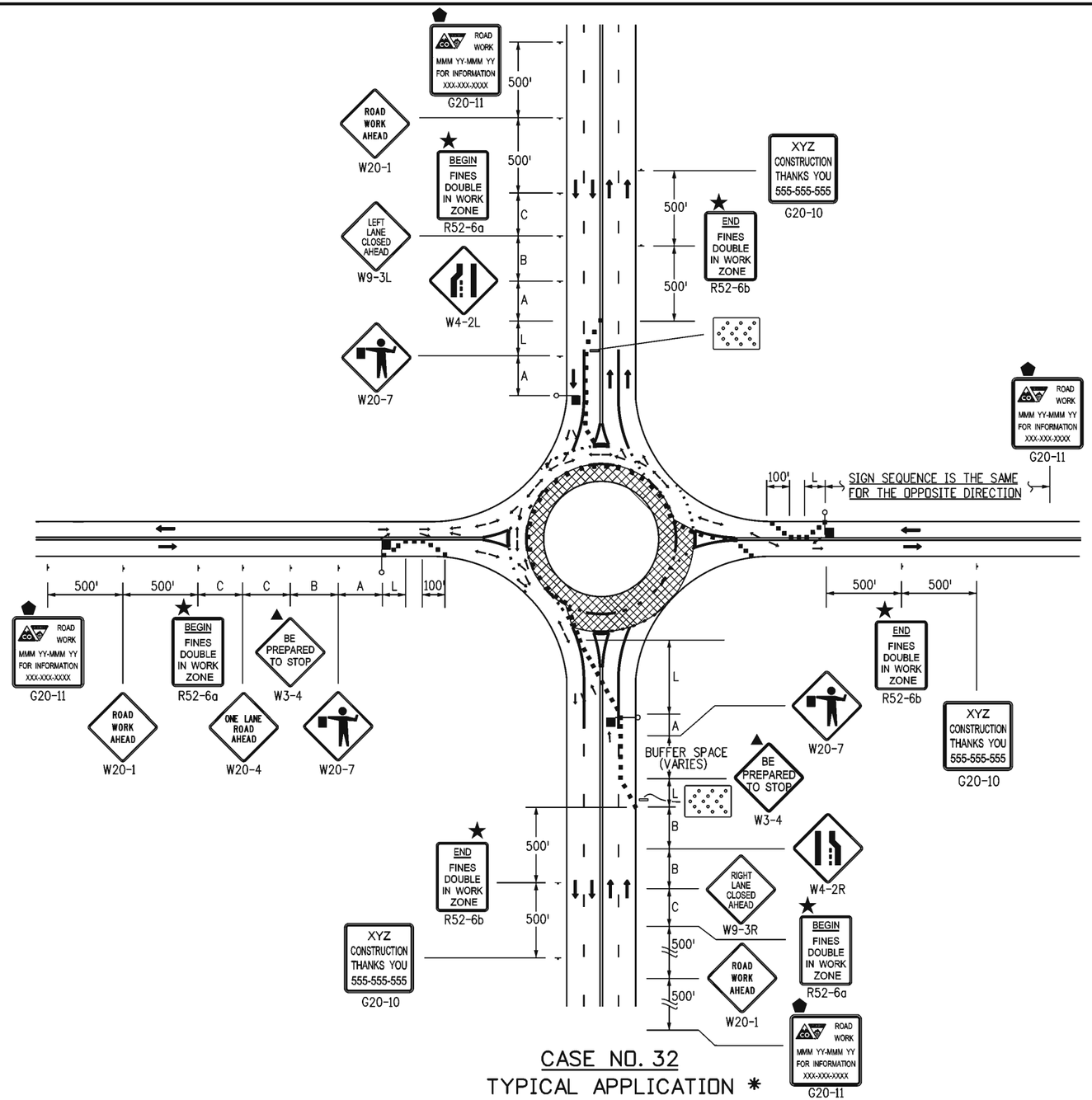
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12		Date:	Comments
Created By: Nakao			
Last Modification Date: 06/23/16			
Last Modified By: MBhat			
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English			

Colorado Department of Transportation
2829 W. Howard Pl.
Denver, CO 80204
Phone: 303-757-9436
FAX: 303-757-9219
Traffic & Safety Engineering MKB

TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

Issued By: Traffic & Safety Engineering Branch July 31, 2019

STANDARD PLAN NO.
S-630-1
Standard Sheet No. 18 of 24
Project Sheet Number:



CASE NO. 32

TYPICAL APPLICATION *

ROUNDABOUT - OUTSIDE LANE CLOSURE FOR TWO-LANE ROUNDABOUT

LEGEND

* A TRUCK DETOUR ROUTE MAY BE NECESSARY TO DIVERT TRUCKS AWAY FROM THE ROUNDABOUT CIRCLE. ALSO NECESSARY IS A STREET NAME AND/OR ROUTE NUMBER SIGN, INFORMING MOTORISTS WHERE THEY NEED TO EXIT THE ROUNDABOUT CIRCLE TO ENTER THE DESIRED STREET AND/OR ROUTE NUMBER.

■ CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE THE SCHEDULE OF CONSTRUCTION TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. IF PROJECT IS DESIGNATED AS A "SIGNIFICANT PROJECT" (SEE GENERAL NOTE 26), CONCRETE BARRIER SHALL BE USED FOR CHANNELIZATION DEVICES (TEMP) AS DETERMINED BY THE ENGINEER.

TYPE III BARRICADE

DIRECTION OF TRAVEL

WORK AREA

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 CONTROL DEVICES.

◆ THESE DEVICES ARE NOT OPTIONAL IF THE POSTED SPEED LIMIT IN THE WORK ZONE IS REDUCED.

⬟ G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.

FLASHING BEACON

● REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE THAN 3 DAYS.

★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.

MOBILE ATTENUATOR

L TRANSITION TAPER LENGTH: =

L = MINIMUM LENGTH OF TAPER: $\frac{WS^2}{60}$

SPEED 45 MPH OR MORE: L = S x W

SPEED 40 MPH OR LESS: L

S = NUMERICAL VALUE OF SPEED LIMIT OR 85 PERCENTILE SPEED

W = WIDTH OF OFFSET

SHOULDER TAPER = 1/3 L

BUFFER SPACE — SEE GENERAL NOTE 21 ON SHEET 1.

FLAGGER

ROAD TYPE	DISTANCE BETWEEN SIGNS		
	A	B	C
URBAN (<= 40 MPH)	100	100	100
URBAN (>= 45 MPH)	350	350	350
RURAL	500	500	500
EXPRESSWAY/FREEWAY	1000	1500	2640

Computer File Information	
Creation Date: 07/04/12	
Created By: Nakao	
Last Modification Date: 06/23/16	
Last Modified By: MBhat	
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	

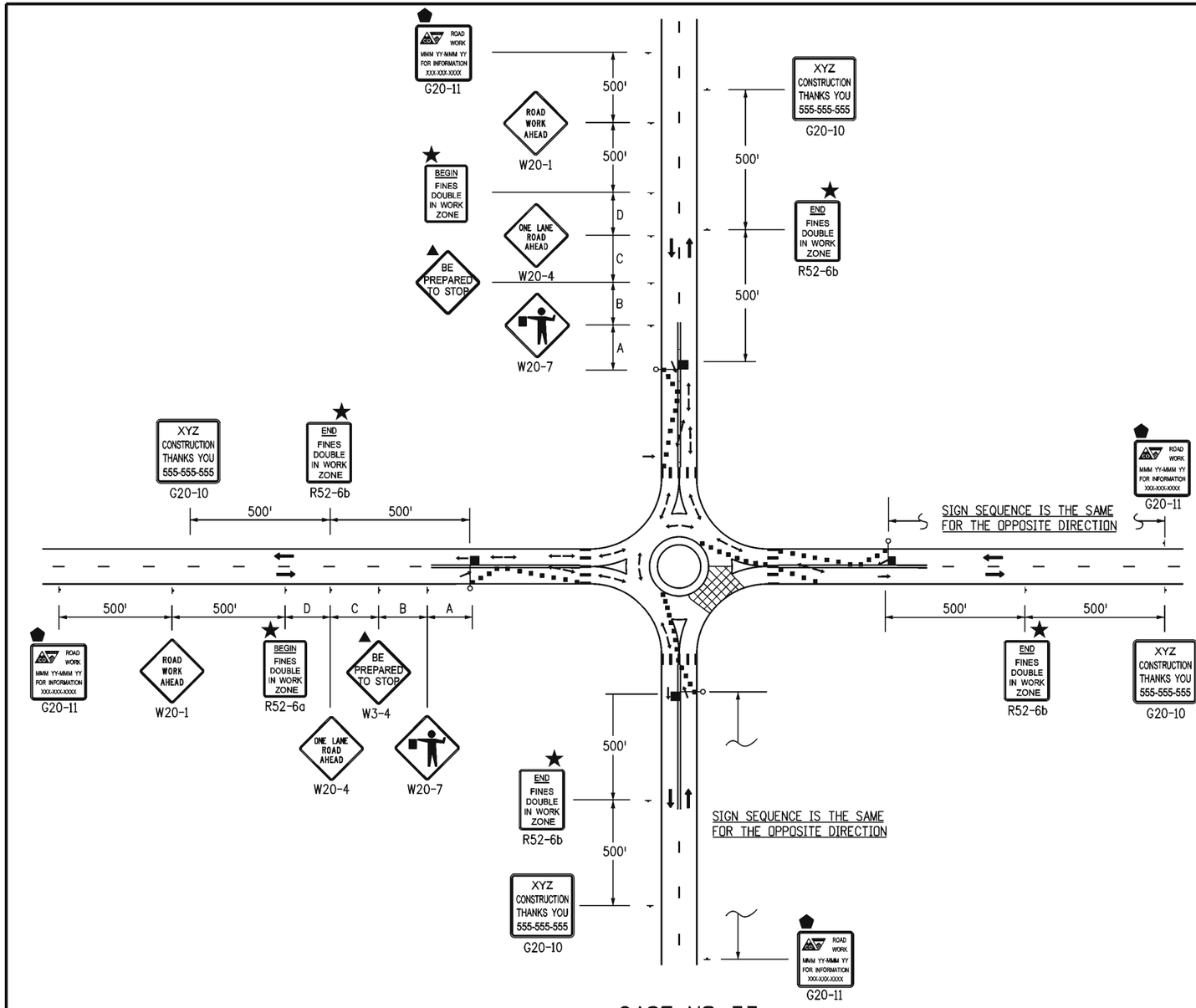
Sheet Revisions	
Date:	Comments

Colorado Department of Transportation
2829 W. Howard Pl.
Denver, CO 80204
Phone: 303-757-9436
FAX: 303-757-9219
Traffic & Safety Engineering MKB

TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

Issued By: Traffic & Safety Engineering Branch July 31, 2019

STANDARD PLAN NO.
S-630-1
Standard Sheet No. 19 of 24
Project Sheet Number:



CASE NO. 33

TYPICAL APPLICATION *

ROUNDABOUT - PARTIAL CLOSURE FOR ONE-LANE ROUNDABOUT

LEGEND

* A TRUCK DETOUR ROUTE MAY BE NECESSARY TO DIVERT TRUCKS AWAY FROM THE ROUNDABOUT CIRCLE. ALSO NECESSARY IS A STREET NAME AND/OR ROUTE NUMBER SIGN, INFORMING MOTORISTS WHERE THEY NEED TO EXIT THE ROUNDABOUT CIRCLE TO ENTER THE DESIRED STREET AND/OR ROUTE NUMBER.

■ CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE THE SCHEDULE OF CONSTRUCTION TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. IF PROJECT IS DESIGNATED AS A "SIGNIFICANT PROJECT" (SEE GENERAL NOTE 26), CONCRETE BARRIER SHALL BE USED FOR CHANNELIZATION DEVICES (TEMP) AS DETERMINED BY THE ENGINEER.

TYPE III BARRICADE

DIRECTION OF TRAVEL

WORK AREA

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 CONTROL DEVICES.

◆ THESE DEVICES ARE NOT OPTIONAL IF THE POSTED SPEED LIMIT IN THE WORK ZONE IS REDUCED.

⬟ G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.

FLASHING BEACON

⬢ REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE THAN 3 DAYS.

★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.

MOBILE ATTENUATOR

L TRANSITION TAPER LENGTH:

L = MINIMUM LENGTH OF TAPER

SPEED 45 MPH OR MORE: $L = \frac{WS^2}{60}$

SPEED 40 MPH OR LESS: $L = WS$

S = NUMERICAL VALUE OF SPEED LIMIT OR 85 PERCENTILE SPEED

W = WIDTH OF OFFSET

SHOULDER TAPER = 1/3 L

BUFFER SPACE SEE GENERAL NOTE 21 ON SHEET 1.

FLAGGER

ROAD TYPE	DISTANCE BETWEEN SIGNS		
	A	B	C
URBAN (<=40 MPH)	100	100	100
URBAN (>=45 MPH)	350	350	350
RURAL	500	500	500
EXPRESSWAY/FREEWAY	1000	1500	2640

Computer File Information		Sheet Revisions	
Creation Date: 07/04/12		Date:	Comments
Created By: Nakao			
Last Modification Date: 06/23/16			
Last Modified By: MBhat			
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English			

Colorado Department of Transportation
2829 W. Howard Pl.
Denver, CO 80204
Phone: 303-757-9436
FAX: 303-757-9219
Traffic & Safety Engineering MKB

TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

Issued By: Traffic & Safety Engineering Branch July 31, 2019

STANDARD PLAN NO.
S-630-1
Standard Sheet No. 20 of 24
Project Sheet Number:

LEGEND

MOBILE ATTENUATOR VEHICLE, TWO 360-DEGREE YELLOW FLASHING BEACONS, AND YELLOW FLASHING VEHICLE LIGHTS OR STROBES.

VMS — VARIABLE MESSAGE SIGN (VMS).

▲ WHEN VMS IS USED, THE "SHOULDER CLOSED" SIGN BECOMES OPTIONAL.

■ THE "PICK-UP VEHICLES" OR "WARNING VEHICLE" MAY ENCROACH INTO THE TRAFFIC LANE WHEN THE SHOULDER IS TOO NARROW TO DRIVE ON.

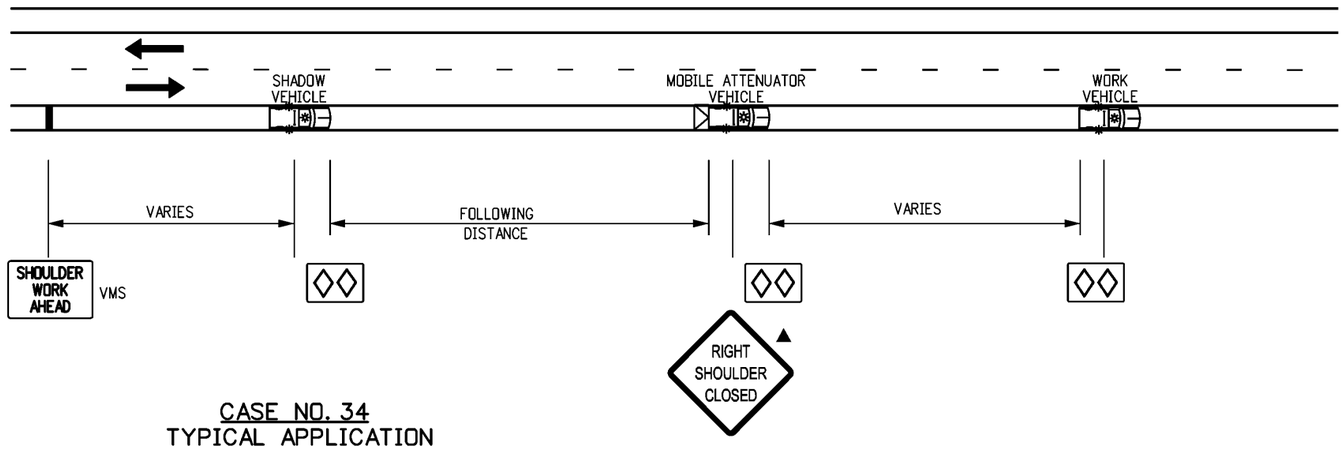
● IF TRACKING OF THE WET PAINT IS ANTICIPATED, THE USE OF CONES OR STATIONARY "WET PAINT" SIGNS SHALL BE POSTED.

⬢ THE VARIABLE SEPARATION DISTANCE BETWEEN THE "CONE PLACEMENT VEHICLE" AND "CONE PICKUP VEHICLE" SHALL BE DETERMINED BY THE TRACK DRYING TIME OF THE PAVEMENT MARKING MATERIAL.

⬭ OPTIONAL

FOLLOWING DISTANCE CHART FOR WARNING AND MOBILE ATTENUATOR (OR CONE PICKUP) VEHICLE

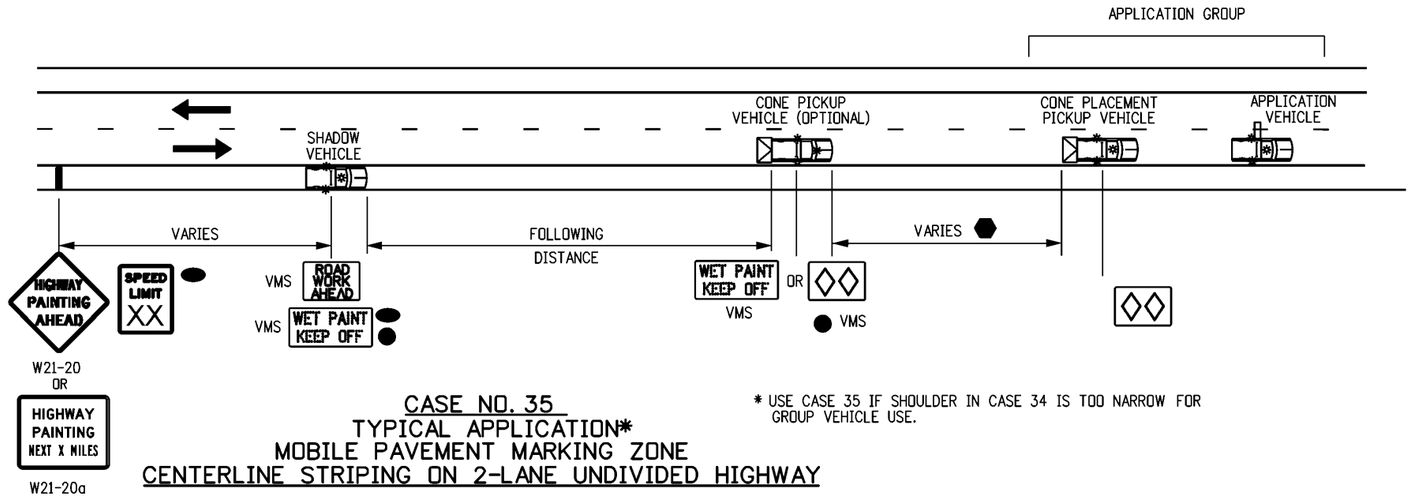
POSTED WZ SPEED LIMIT (MPH)	FOLLOWING DISTANCE (FEET)
0 - 30	250 - 550
35 - 40	325 - 700
45 - 50	600 - 900
55	750 - 1200
60 - 65	1000 - 1400
70 - 75	1200 - 1600



CASE NO. 34
TYPICAL APPLICATION
MOBILE WORK ZONE
MOBILE SHOULDER CLOSURE ON 2-LANE UNDIVIDED HIGHWAY

NOTE

THE VARIABLE SEPARATION DISTANCE BETWEEN THE "CONE PLACEMENT VEHICLE" AND "CONE PICKUP VEHICLE" SHALL BE DETERMINED BY THE TRACK DRYING TIME OF THE PAVEMENT MARKING MATERIAL.



CASE NO. 35
TYPICAL APPLICATION*
MOBILE PAVEMENT MARKING ZONE
CENTERLINE STRIPING ON 2-LANE UNDIVIDED HIGHWAY

* USE CASE 35 IF SHOULDER IN CASE 34 IS TOO NARROW FOR GROUP VEHICLE USE.

Computer File Information		Sheet Revisions	
Creation Date: 07/04/12		Date:	Comments
Created By: Nakao			
Last Modification Date: 03/16/16			
Last Modified By: Crayton			
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English			

Colorado Department of Transportation
2829 W. Howard Pl.
Denver, CO 80204
Phone: 303-757-9436
FAX: 303-757-9219
Traffic & Safety Engineering MKB

TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

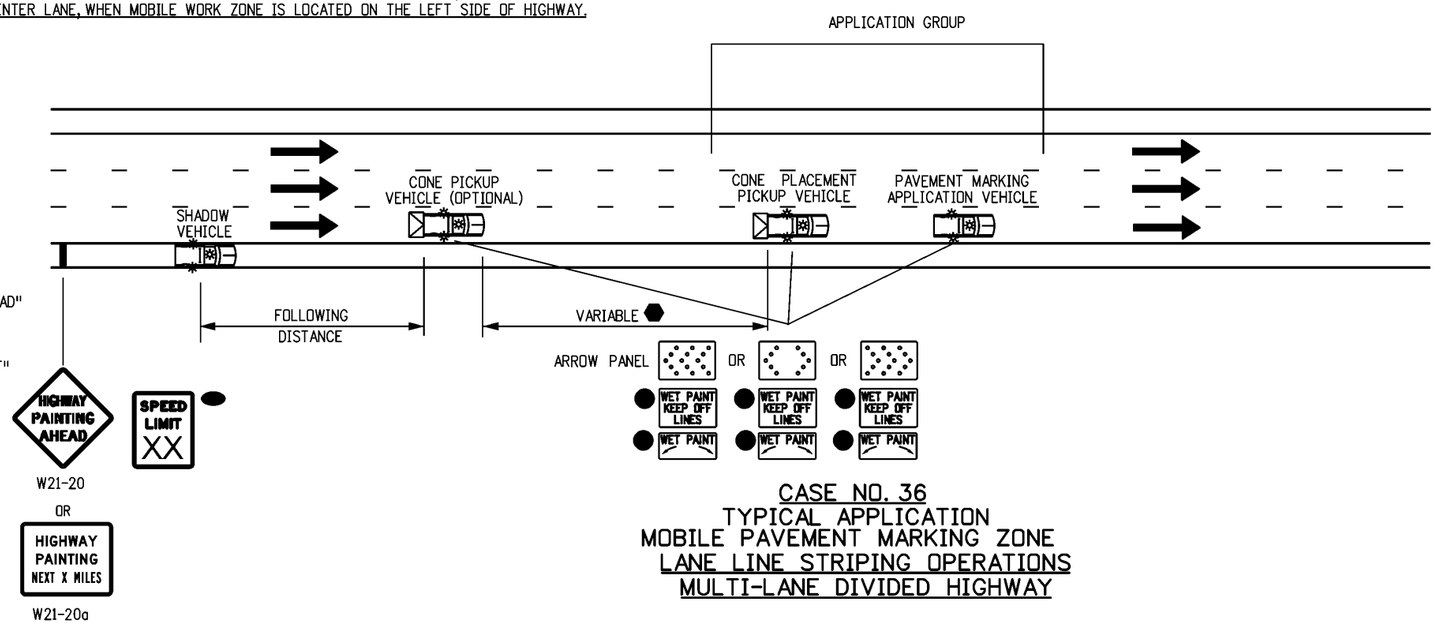
Issued By: Traffic & Safety Engineering Branch July 31, 2019

STANDARD PLAN NO.
S-630-1
Standard Sheet No. 21 of 24
Project Sheet Number:

FOR CASE #36, VEHICLE/SIGN SEQUENCE IS THE SAME FOR THE LEFT SIDE OF HIGHWAY, WHILE TAPER IS MIRRORED ABOUT THE CENTER LANE, WHEN MOBILE WORK ZONE IS LOCATED ON THE LEFT SIDE OF HIGHWAY.

LEGEND

- MOBILE ATTENUATOR VEHICLE, TWO 360-DEGREE YELLOW FLASHING BEACONS, AND YELLOW FLASHING VEHICLE LIGHTS OR STROBES.
- ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL.
- AHEAD / LANE CLOSED — PORTABLE VARIABLE MESSAGE SIGN (VMS).
- ▲ WHEN THE VMS IS USED, THE "SHOULDER CLOSED" (W21-5aX) OR W21-5bX), AND "RAMP CLOSED AHEAD" SIGNS BECOME OPTIONAL.
- ● IF TRACKING OF THE WET PAINT IS ANTICIPATED, THE USE OF CONES OR STATIONARY "WET PAINT" SIGNS SHALL BE POSTED.
- ⬢ THE VARIABLE SEPARATION DISTANCE BETWEEN THE "CONE PLACEMENT VEHICLE" AND "CONE PICKUP VEHICLE" SHALL BE DETERMINED BY THE TRACK DRYING TIME OF THE PAVEMENT MARKING MATERIAL.
- ⬬ OPTIONAL



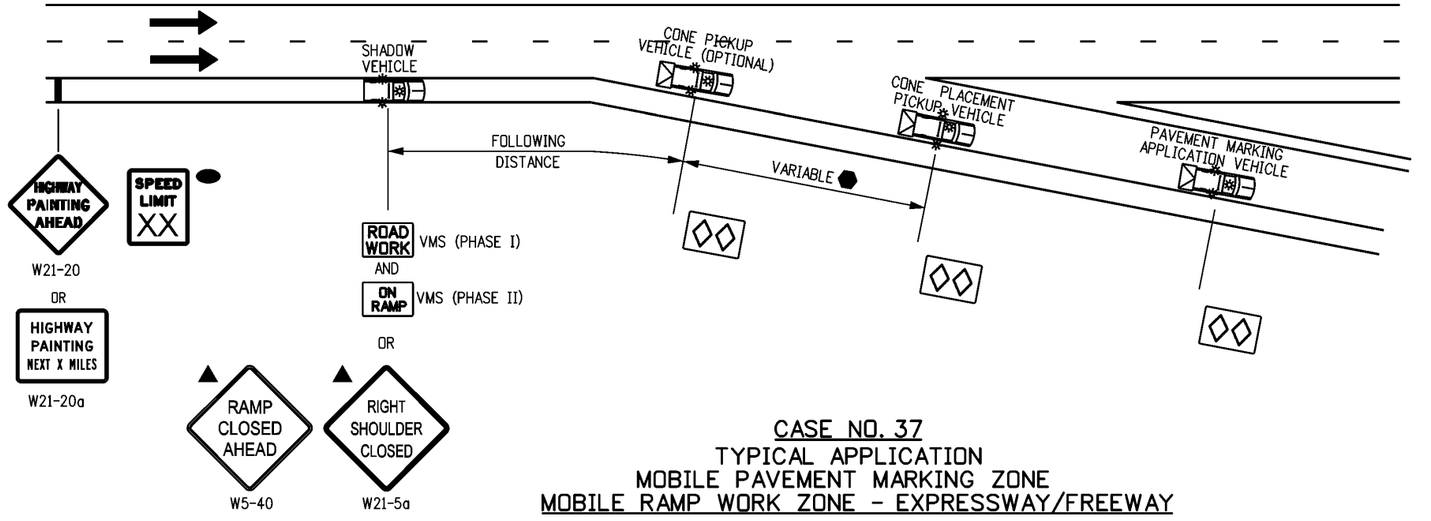
CASE NO. 36
TYPICAL APPLICATION
MOBILE PAVEMENT MARKING ZONE
LANE LINE STRIPING OPERATIONS
MULTI-LANE DIVIDED HIGHWAY

FOLLOWING DISTANCE CHART FOR WARNING VEHICLE AND CONE PICKUP VEHICLES

POSTED WZ SPEED LIMIT (MPH)	FOLLOWING DISTANCE (FEET)
0 - 30	250 - 550
35 - 40	325 - 700
45 - 50	600 - 900
55	750 - 1200
60 - 65	1000 - 1400
70 - 75	1200 - 1600

NOTES

1. THE SIGNING VEHICLES MAY ENCROACH INTO THE TRAFFIC LANE WHEN THE SHOULDER IS TOO NARROW TO DRIVE ON.
2. IF THE RAMP CANNOT BE REOPENED WITHIN 15 MINUTES, USE CASE NO. 22 OF THE S-630-1 STANDARD PLAN.



CASE NO. 37
TYPICAL APPLICATION
MOBILE PAVEMENT MARKING ZONE
MOBILE RAMP WORK ZONE - EXPRESSWAY/FREEWAY

Computer File Information	Sheet Revisions		
Creation Date: 07/04/12		Date:	Comments
Created By: Nakao			
Last Modification Date: 03/16/16			
Last Modified By: Crayton			
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English			

Colorado Department of Transportation
2829 W. Howard Pl.
Denver, CO 80204
Phone: 303-757-9436
FAX: 303-757-9219
Traffic & Safety Engineering MKB

TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

Issued By: Traffic & Safety Engineering Branch July 31, 2019

STANDARD PLAN NO.
S-630-1
Standard Sheet No. 22 of 24
Project Sheet Number:

LEGEND

MOBILE ATTENUATOR TRUCK, TWO 360-DEGREE YELLOW FLASHING BEACONS, AND YELLOW FLASHING VEHICLE LIGHTS OR STROBES.

ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL.

LANE CLOSED — PORTABLE VARIABLE MESSAGE SIGN (VMS).

▲ WHEN THE VMS IS USED, THE "RIGHT LANE CLSED AHEAD" (W9-3X) SIGN BECOMES OPTIONAL.

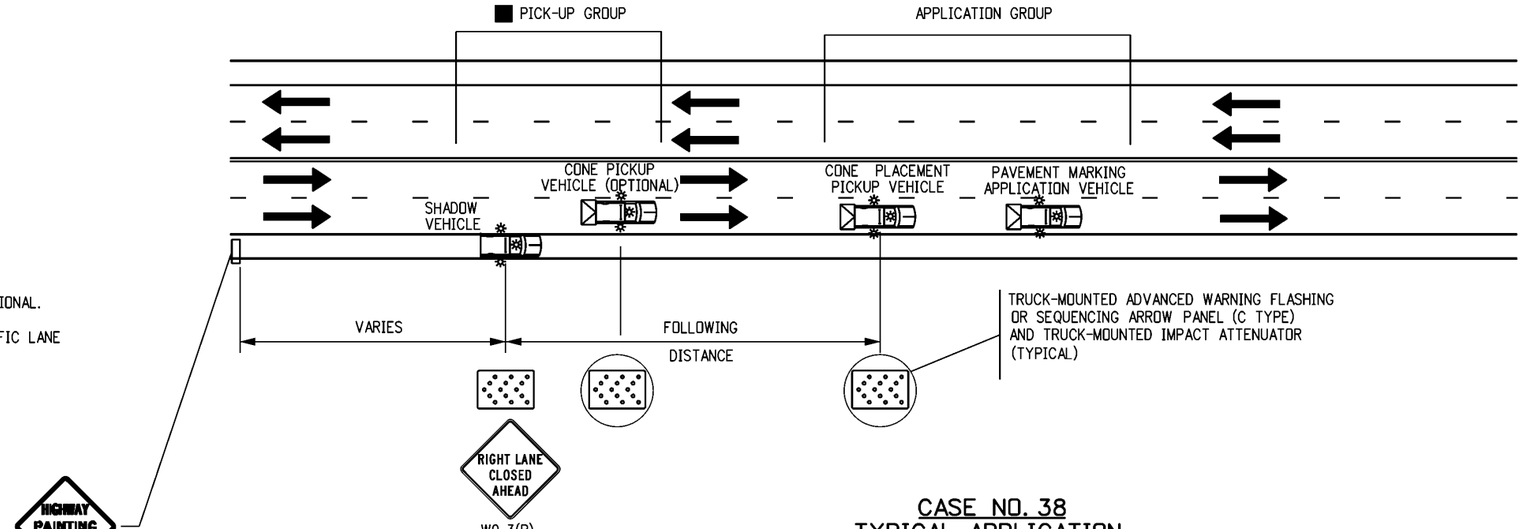
■ THE "CONE PICK-UP VEHICLE" OR "WARNING VEHICLE" MAY ENCROACH INTO THE TRAFFIC LANE WHEN THE SHOULDER IS TOO NARROW TO DRIVE ON.

NOTES

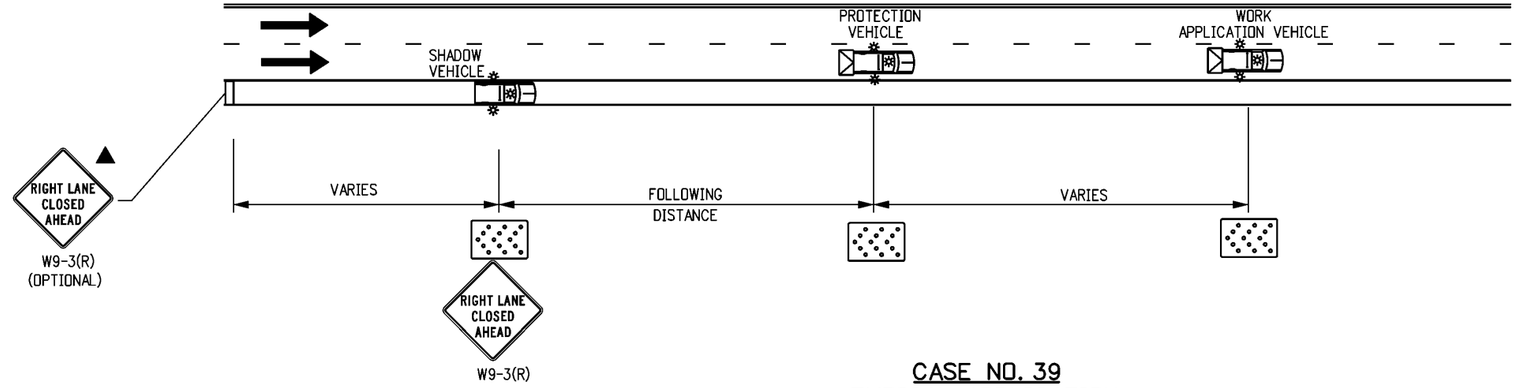
1. IN ROADWAY WHERE THE AADT IS 2,000 OR LESS, A SINGLE WORK VEHICLE WITH APPROPRIATE WARNING DEVICES ON THE VEHICLE MAY BE USED.
2. RADIO COMMUNICATIONS BETWEEN THE WORKCREW AND THE MOVING BLOCKADE ARE REQUIRED TO ADJUST THE BLOCKADE TO INCREASE OR DECREASE THE CLOSURE TIME. RELEASE TRAFFIC ONLY AFTER CONFIRMATION THAT ALL WORKERS AND THEIR VEHICLES ARE CLEAR OF THE ROADWAY.
3. IF APPLICABLE, ALL RAMPS AND ACCESS BETWEEN THE MOVING BLOCKADE AND WORK OPERATION AREA SHALL BE TEMPORARILY CLOSED USING TRAFFIC CONTROL EQUIPMENT AND PERSONNEL. EACH RAMP MUST REMAIN CLOSED UNTIL THE CREW DOING THE WORK GIVES THE "ALL CLEAR" SIGNAL OR UNTIL THE FRONT OF THE MOVING BLOCKADE PASSES THE CLOSED RAMP(S).

FOLLOWING DISTANCE CHART FOR WARNING VEHICLE AND SIGNING VEHICLES

POSTED WZ SPEED LIMIT (MPH)	FOLLOWING DISTANCE (FEET)
0 - 30	250 - 550
35 - 40	325 - 700
45 - 50	600 - 900
55	750 - 1200
60 - 65	1000 - 1400
70 - 75	1200 - 1600



CASE NO. 38
TYPICAL APPLICATION
MOBILE STRIPING OPERATION OF LANE CLOSURE OF MULTI-LANE HIGHWAY
(NOT FOR USE ON FREEWAYS)



CASE NO. 39
TYPICAL APPLICATION
MOBILE OPERATION OF LANE CLOSURE OF MULTI-LANE HIGHWAY

Computer File Information		Sheet Revisions	
Creation Date: 07/04/12		Date:	Comments
Created By: Nakao			
Last Modification Date: 05/17/16			
Last Modified By: Crayton			
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English			

Colorado Department of Transportation
2829 W. Howard Pl.
Denver, CO 80204
Phone: 303-757-9436
FAX: 303-757-9219
Traffic & Safety Engineering MKB

TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

Issued By: Traffic & Safety Engineering Branch July 31, 2019

STANDARD PLAN NO.
S-630-1
Standard Sheet No. 23 of 24
Project Sheet Number:

TYPICAL CONSTRUCTION ZONE SIGNS

THESE SIGNING NOTES ARE INTENDED AS A QUICK REFERENCE
FOR TYPICAL SIGN USE AND PLACEMENT IN CONSTRUCTION ZONES.

G20-1 "ROAD/WORK/NEXT XX MILES" - THIS SIGN SHALL BE ERECTED AT THE LIMITS OF ANY ROAD CONSTRUCTION OR MAINTENANCE PROJECT OF MORE THAN TWO (2) MILES IN LENGTH WHERE TRAFFIC IS MAINTAINED THROUGH THE PROJECT.

G20-4 "PILOT CAR/FOLLOW ME" - THIS SIGN SHALL BE MOUNTED IN A CONSPICUOUS POSITION ON THE REAR OF A VEHICLE USED FOR GUIDING ONE-WAY TRAFFIC THROUGH OR AROUND THE PROJECT.

G20-5P "WORK ZONE" - THIS PLAQUE SHALL BE MOUNTED JUST ABOVE THE WORK ZONE SPEED LIMIT SIGNS PRIOR TO THE WORK ZONE AREA.

G20-10 THANK YOU SIGN - THIS SIGN SHOULD BE ERECTED APPROXIMATELY 500 FEET BEYOND THE END OF THE PROJECT.

G20-11 CONSTRUCTION PROJECT INFORMATION SIGN - THIS SIGN SHOULD BE ERECTED AS DESCRIBED IN THE SECTION 626 STANDARD SPECIFICATION.

G20-55(X) "X MINUTE CLOSURE. EXPECT DELAYS" - THIS SIGN IS INTENDED FOR USE 500 FEET PAST THE "WORK ZONE"/SPEED LIMIT SIGN.

M4-9( ) "DETOUR/<<<<" - THIS SIGN IS USED FOR UNNUMBERED ROUTES; FOR USE IN EMERGENCY SITUATIONS; FOR PERIODS OF SHORT DURATION; OR WHERE, OVER RELATIVELY SHORT DISTANCES. IT IS NOT NECESSARY TO SHOW ROUTE MARKERS TO GUIDE TRAFFIC ALONG THE DETOUR AND BACK TO ITS AUTHORIZED ROUTE.

M4-10( ) "DETOUR ARROW" - THIS SIGN SHOULD BE MOUNTED JUST BELOW THE ROAD CLOSED SIGN AT THE POINT WHERE THE DETOUR ROADWAY OR ROUTE HAS BEEN ESTABLISHED DUE TO THE CLOSURE OF THE STREET OR HIGHWAY TO THROUGH TRAFFIC.

R2-1( ) "SPEED/LIMIT/XX" - THESE SIGNS ARE INTENDED TO REDUCE TRAFFIC SPEED IN ADVANCE OF THE DAILY WORK AREA WITHIN THE OVERALL PROJECT LIMITS.

R2-1(XX) "SPEED/LIMIT/XX" - THIS SIGN IS INTENDED FOR USE 500 FEET PAST THE "THANK YOU" SIGN TO BRING TRAFFIC BACK TO ORIGINAL POSTED SPEED.

R2-6P "FINES DOUBLE" - THIS SIGN IS INTENDED FOR USE WITHIN WORK ZONES TO PROVIDE NOTICE OF INCREASED FINES FOR TRAFFIC VIOLATIONS WITHIN WORK ZONES.

R4-1 "DO NOT PASS" - THIS SIGN SHOULD BE PLACED AT TRANSITION TAPER POINT.

R4-2 "PASS WITH CARE" - THIS SIGN SHOULD BE PLACED AT TRANSITION TAPER POINT.

R11-2 "ROAD/CLOSED" - THIS SIGN IS TO BE MOUNTED ON THE BARRICADE THAT IS PLACED BEFORE THE WORK ZONE ENTRANCE TO PROHIBIT TRAFFIC FROM ENTERING THE WORK ZONE.

R11-3 "ROAD CLOSED/X MILES AHEAD/L.T.O. - THIS SIGN SHOULD BE PLACED WHERE THROUGH TRAFFIC MUST DETOUR TO AVOID THE CLOSURE OF THE ROAD SOME DISTANCE BEYOND, BUT WHERE THE ROAD IS OPEN TO LOCAL TRAFFIC UP TO THE POINT OF CLOSURE.

R11-4 "ROAD CLOSED/TO/THRU TRAFFIC" FOR URBAN USE - THIS SIGN SHOULD BE PLACED WHERE THROUGH TRAFFIC MUST DETOUR TO AVOID THE CLOSURE OF THE ROAD SOME DISTANCE BEYOND, BUT WHERE THE ROAD IS OPEN TO LOCAL TRAFFIC UP TO THE POINT OF CLOSURE.

R52-6a "BEGIN FINES DOUBLE IN WORK ZONE" SIGN IS PLACED AT THE BEGINNING OF THE ADVANCED WARNING AREA OF THE TRAFFIC CONTROL ZONE.

R52-6b "END FINES DOUBLE IN WORK ZONE" SIGN IS PLACED AFTER WORK ZONE AREA, PAST DOWNSTREAM TAPER SECTION.

W1-1( ) "TURN ARROW" - THIS SIGN IS INTENDED FOR USE WHERE ENGINEERING INVESTIGATIONS OF ROADWAY CONDITIONS SHOW THE RECOMMENDED SPEED ON THE TURN TO BE 30 MPH OR LESS.*

W1-2( ) "CURVE ARROW" - THIS SIGN IS INTENDED FOR USE WHERE ENGINEERING INVESTIGATIONS OF ROADWAY CONDITIONS SHOW THE RECOMMENDED SPEED ON THE CURVE TO BE IN THE RANGE BETWEEN 30 AND 60 MILES PER HOUR.*

W1-3( ) "REVERSE TURN ARROW" - THIS SIGN IS INTENDED FOR USE WHERE TWO TURNS OR THE CURVE AND A TURN IN OPPOSITE DIRECTIONS ARE SEPARATED BY A TANGENT OF LESS THAN 600 FEET.*

W1-4( ) "REVERSE CURVE ARROW" - THIS SIGN IS INTENDED FOR USE WHERE TWO CURVES IN OPPOSITE DIRECTIONS ARE SEPARATED BY A TANGENT OF LESS THAN 600 FEET.*

W1-6( ) "ARROW" - THIS SIGN SHOULD BE MOUNTED JUST BELOW THE ROAD CLOSED SIGN AT THE POINT WHERE THE DIVERSION HAS BEEN ESTABLISHED DUE TO THE LANE CLOSURE.

W3-2 "YIELD AHEAD" - THIS SIGN IS INTENDED FOR USE AT THE APPROACH TO THE YIELD SIGN THAT IS NOT VISIBLE FOR A SUFFICIENT DISTANCE TO PERMIT THE DRIVER TO BRING HIS VEHICLE TO A STOP AT THE YIELD SIGN.*

W3-4 "BE PREPARED TO STOP" - THIS SIGN TO BE PLACED 1.5 MILES IN ADVANCED OF A FLAGGER.

W4-2(X) "LEFT (RIGHT) LANE TRANSITION SYMBOL" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF THE REDUCTION IN THE NUMBER OF TRAFFIC LANES IN THE DIRECTION OF TRAVEL ON THE MULTILANE HIGHWAY.*

W4-50 "USE BOTH LANES DURING CONGESTION" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF THE "ROAD WORK X MILE" ADVANCED WARNING SIGN.

W4-51 "USE BOTH LANES TO MERGE POINT" - THIS SIGN IS INTENDED TO DIRECT MOTORISTS TO USE BOTH TRAVEL LANES UNTIL THE LANES ARE REDUCED TO ONE LANE.

W4-52 "TAKE TURNS MERGE HERE" - THIS SIGN IS INTENDED TO WARN MOTORISTS IN ADVANCED TO MOVE FROM THE CLOSED TRAVEL LANE TO THE OPEN TRAVEL LANE, USUALLY 500 FEET IN ADVANCED OF THE START OF THE TRANSITION TAPER .

W5-1 "ROAD NARROWS" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF THE TRANSITION ON THE ROAD WHERE THE PAVEMENT WIDTH IS REDUCED ABRUPTLY TO A WIDTH SUCH THAT TWO CARS CANNOT PASS WITHOUT REDUCING SPEED.*

W5-2a "NARROW BRIDGE SYMBOL" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF A BRIDGE OR CULVERT HAVING A CLEAR TWO-WAY ROADWAY WIDTH OF 16 TO 18 FEET OR ANY BRIDGE OR CULVERT HAVING A ROADWAY CLEARANCE LESS THAN THE WIDTH OF THE APPROACH PAVEMENT.*

W5-3 "ONE LANE/BRIDGE" - THIS SIGN SHOULD BE PLACED ON TWO-WAY ROADWAYS IN ADVANCE OF THE BRIDGES OR CULVERTS WHERE THE ROADWAY WIDTH IS LESS THAN 16 FEET (18 FEET FOR COMMERCIAL VEHICLES) OR WHEN THE ALIGNMENT IS POOR ON THE APPROACH TO THE STRUCTURE HAVING A CLEAR ROADWAY WIDTH OF 18 FEET OR LESS.*

W6-1 "DIVIDED HIGHWAY SYMBOL" - THIS SIGN SHOULD BE PLACED ON THE APPROACHES TO THE SECTION OF HIGHWAY WHERE OPPOSING FLOWS OF TRAFFIC ARE SEPARATED BY A PHYSICAL MEDIAN.

W6-2 "DIVIDED HIGHWAY ENDS SYMBOL" - THIS SIGN SHOULD BE PLACED AT THE END OF THE SECTION OF PHYSICALLY DIVIDED HIGHWAY AS A WARNING OF TWO-WAY TRAFFIC AHEAD.

W6-3 "TWO-WAY TRAFFIC SYMBOL" - THIS SIGN IS INTENDED FOR USE TO GIVE WARNING OF TRANSITION FROM A SEPARATED ONE-WAY ROADWAY TO A TWO-WAY ROADWAY.*

W7-1 "HILL SYMBOL" - THIS SIGN SHOULD BE PLACED AT A POINT IN ADVANCE OF THE DOWNGRADE WHERE THE LENGTH, PERCENT OF GRADE, HORIZONTAL CURVATURE, OR OTHER PHYSICAL FEATURES REQUIRE SPECIAL CONSIDERATION ON THE PART OF DRIVERS.*

W8-1,W8-2 "BUMP"/"DIP" - THESE SIGNS ARE INTENDED FOR USE TO GIVE WARNING OF A SHARP RISE OR DEPRESSION IN THE PROFILE OF THE ROAD THAT IS SUFFICIENTLY ABRUPT TO AFFECT VEHICLE OPERATION OR CAUSE CONSIDERABLE DISCOMFORT TO PASSENGERS.*

W8-3a "PAVEMENT ENDS SYMBOL" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF A POINT WHERE THE PAVEMENT SURFACE CHANGES FROM A HARD-SURFACED PAVEMENT TO THE LOW-TYPE SURFACE OR EARTH ROAD.*

W8-4 "SOFT SHOULDER" - THIS SIGN IS INTENDED FOR USE TO WARN OF A SOFT SHOULDER CONDITION THAT COULD PRESENT A PROBLEM TO VEHICLES THAT MAY GET OFF THE PAVEMENT.*

W8-5 "SLIPPERY WHEN WET SYMBOL" - THIS SIGN SHOULD BE PLACED IN ADVANCE OF THE CONDITION WHERE THE HIGHWAY SURFACE IS SLIPPERY BEYOND WHAT IS ORDINARY WHEN WET.*

W8-9a "SHOULDER DROP-OFF" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF A SHOULDER DROP-OFF THAT EXCEEDS THREE INCHES IN HEIGHT.*

W8-11 "UNEVEN LANES" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF AN UNEVEN ADJACENT LANE SITUATION THAT EXCEEDS ONE INCH IN HEIGHT.*

W9-1( ) "LEFT (RIGHT) LANE ENDS" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF THE PAVEMENT WIDTH TRANSITION SIGN (W4-2).

W9-2( ) "LANE ENDS/MERGE LEFT (RIGHT)" - THIS SIGN IS INTENDED FOR USE AS A SUPPLEMENT TO THE PAVEMENT WIDTH TRANSITION SIGN (W4-2).

W9-3 OR W9-3a( ) "CENTER LANE CLOSED AHEAD" - THIS SIGN SHOULD BE USED IN ADVANCE OF THE POINT WHERE WORK OCCUPIES THE CENTER LANE AND TRAFFIC IS DIRECTED TO THE RIGHT OR LEFT OF THE WORK ZONE.*

W12-1 "DOUBLE ARROW SYMBOL" - THIS SIGN SHOULD BE PLACED AT THE POINT OF THE OBSTRUCTION IN THE ROADWAY, WHERE TRAFFIC IS PERMITTED TO PASS ON EITHER SIDE OF THE OBSTRUCTION.

W12-2 "LOW CLEARANCE SYMBOL" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF AN OBSTRUCTION TO WARN VEHICLE OPERATORS OF CLEARANCES LESS THAN THE MAXIMUM VEHICLE HEIGHT PERMITTED PLUS 12 INCHES.*

W13-1P( ) "ADVISORY SPEED PLAQUE" - THIS PLAQUE IS INTENDED TO SUPPLEMENT WARNING SIGNS ONLY AND SHALL NOT BE MOUNTED ALONE. IT IS USED TO INDICATE THE MAXIMUM RECOMMENDED SPEED FOR THE INDICATED CONDITION.

W13-3 "ADVISORY RAMP SPEED" - THIS SIGN IS TO BE POSTED TO INFORM MOTORISTS WHAT THE SUGGESTED SPEED LIMIT IS ON A RAMP.

W20-1 "ROAD/WORK/AHEAD" - THIS SIGN IS TO BE LOCATED IN ADVANCE OF THE INITIAL ACTIVITY OR DETOUR A DRIVER MAY ENCOUNTER, AND IS INTENDED TO BE USED AS A WARNING OF OBSTRUCTIONS OR RESTRICTIONS.

W20-2 "DETOUR/(DIST.)" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF THE POINT AT WHICH TRAFFIC IS DIVERTED OVER A TEMPORARY ROADWAY OR ROUTE.

W20-3 "ROAD/CLOSED/(DIST.)" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF A POINT AT WHICH A ROADWAY IS CLOSED TO ALL TRAFFIC OR TO ALL BUT LOCAL TRAFFIC.

W20-4 "ONE LANE/ROAD/(DIST.)" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF A POINT WHERE TRAFFIC IN BOTH DIRECTIONS MUST USE A SINGLE LANE.

W20-5( ) "XXX LANE/CLOSED/(DIST.)" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF A POINT WHERE ONE LANE OF A MULTIPLE-LANE ROADWAY IS CLOSED. IT SHOULD BE PROVIDED WITH INTERCHANGEABLE PLAQUES READING "RIGHT", "LEFT", AND "CENTER" AT NO ADDITIONAL COST TO THE PROJECT.

W20-7 "FLAGGER SYMBOL" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF ANY POINT AT WHICH A FLAGGER HAS BEEN STATIONED TO CONTROL TRAFFIC THROUGH OR AROUND THE PROJECT.*

W20-52 "GROOVED/PAVEMENT/AHEAD" - THIS SIGN IS INTENDED TO BE USED IN ADVANCE OF A ROADWAY THAT HAS BEEN GROOVED AND/OR ROTO MILLED.

W21-1a "WORKER SYMBOL" - THIS SIGN IS INTENDED FOR USE IN CONJUNCTION WITH MINOR MAINTENANCE AND PUBLIC UTILITY OPERATIONS FOR THE PROTECTION OF MEN WORKING IN OR NEAR THE ROADWAY.

W21-2 "FRESH/OIL" - THIS SIGN IS INTENDED FOR USE WHERE RE-SURFACING OPERATIONS HAVE RENDERED THE SURFACE OF THE PAVEMENT TEMPORARILY WET, AND OBJECTIONABLE SPLASHING ON VEHICLES MAY OCCUR.*

W21-3 "ROAD/MACHINERY/AHEAD" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF THE AREAS WHERE HEAVY EQUIPMENT IS OPERATING IN OR ADJACENT TO THE RDADWAY.*

W21-4 "ROAD/WORK/(DIST.)" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF MAINTENANCE FOR MINOR RECONSTRUCTION OPERATIONS IN THE ROADWAY.

W21-5 "SHOULDER/WORK" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF THE PROJECT INVOLVING THE SHOULDER, WHERE THE TRAVELED WAY REMAINS UNOBSTRUCTED.

W21-6 "SURVEY/CREW" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF A POINT WHERE A SURVEYING CREW IS WORKING IN OR ADJACENT TO THE ROADWAY.*

W21-20 "HIGHWAY PAINTING AHEAD" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF A POINT WHERE A PAINT CREW IS WORKING IN OR ADJACENT TO THE ROADWAY.

W21-20a "HIGHWAY PAINTING NEXT X MILES" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF PAINT CREW WORKING IN OR ADJACENT TO THE ROADWAY.

W22-1 "BLASTING/ZONE/(DIST.)" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF ANY POINT OR WORK SITE WHERE THERE ARE EXPLOSIVES BEING USED. THE W22-2 AND W22-3 SIGNS MUST BE USED IN SEQUENCE WITH THIS SIGN.

W22-2 "TURN OFF/2-WAY RADIOS/AND/CELLULAR/PHONES" - THIS SIGN IS TO BE USED IN SEQUENCE WITH THE W22-1 AND W22-3 SIGNS AND PLACED AT LEAST 1000 FEET FROM THE BEGINNING OF THE BLASTING ZONE.

W22-3 "END/BLASTING/ZONE" - THIS SIGN IS TO BE USED TO DENOTE THE END OF THE RADIO INFLUENCE AREA AND SHALL BE PLACED A MINIMUM OF 1000 FEET FROM THE BLASTING ZONE, EITHER WITH OR PRECEDING THE END CONSTRUCTION SIGN.

W22-50(X) "ROCK SCALING X MILE(S)" - THIS SIGN IS INTENDED TO BE USED IN ADVANCE OF A FLAGGER IN ADVANCED OF THE WORK ZONE AREA.

ADVANCE PLACEMENT OF WARNING SIGNS

POSTED OR 85TH PERCENTILE SPEED	CONDITION A +	ADVANCE PLACEMENT DISTANCE (FEET) MPH 0	10	20	30	40	50	60	70
		++ CONDITION B: DECLARATION TO THE LISTED ADVISORY SPEED (MPH) FOR THE CONDITION							
20	225	●	●	–	–	–	–	–	–
25	325	●	●	●	–	–	–	–	–
30	450	●	●	●	–	–	–	–	–
35	550	●	●	●	●	–	–	–	–
40	650	125	●	●	●	–	–	–	–
45	750	175	125	●	●	●	–	–	–
50	850	250	200	150	100	●	–	–	–
55	950	325	275	225	175	100	●	–	–
60	1100	400	350	300	250	175	●	–	–
65	1200	475	425	400	350	275	175	●	–
70	1250	550	525	500	425	350	250	150	–
75	1350	650	625	600	525	450	350	250	100

+ CONDITION A: SPEED REDUCTION AND LANE CHANGING IN HEAVY TRAFFIC. TYPICAL SIGNS ARE "MERGE" AND "RIGHT LANE ENDS".

++ CONDITION B: TYPICAL CONDITIONS ARE THE WARNING OF A POTENTIAL STOP SITUATION AND LOCATIONS WHERE THE ROAD USER MUST DECREASE SPEED TO MANEUVER THROUGH THE WARNED CONDITION. TYPICAL SIGNS ARE "STOP AHEAD", "SIGNAL AHEAD", "YIELD AHEAD", "CURVE", "REVERSE CURVE", "TURN".

● NO SUGGESTED DISTANCES ARE PROVIDED AT THESE SPEEDS, AS THE PLACEMENT IS DEPENDENT ON SITE CONDITIONS AND OTHER SIGNING.

A SUPPLEMENTAL PLAQUE MAY BE USED WITH WARNING SIGNS SPECIFYING THE DISTANCE TO THE CONDITION IF THERE IS AN IN-BETWEEN INTERSECTION THAT MIGHT CONFUSE THE MOTORIST.

* PLACEMENT SHOULD BE IN ACCORDANCE WITH WARNING SIGN PLACEMENT TABLE.

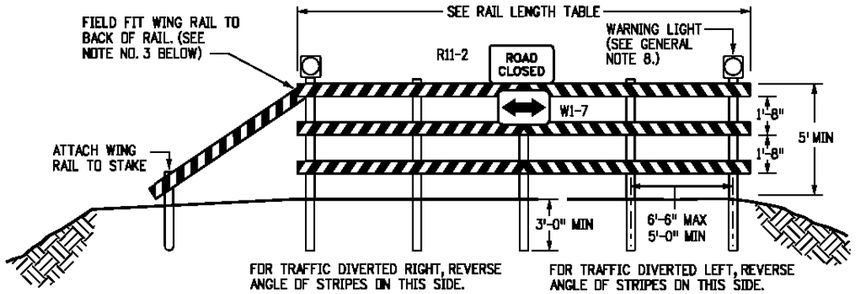
Computer File Information	Sheet Revisions	
Creation Date: 07/04/12	Date:	Comments
Created By: Nakao		
Last Modification Date: 05/19/16		
Last Modified By: Crayton		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English		

Colorado Department of Transportation
2829 W. Howard Pl.
Denver, CO 80204
Phone: 303-757-9436
FAX: 303-757-9219
Traffic & Safety Engineering MKB

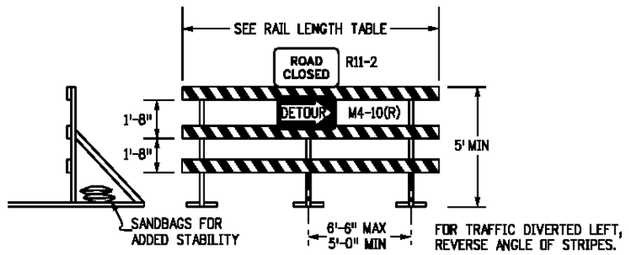
TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

Issued By: Traffic & Safety Engineering Branch July 31, 2019

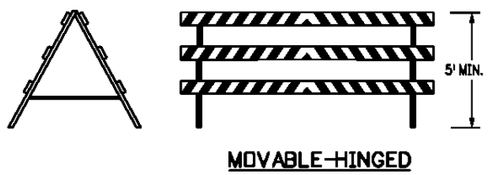
STANDARD PLAN NO.
S-630-1
Standard Sheet No. 24 of 24
Project Sheet Number:



FIXED



MOVABLE-SKIDS



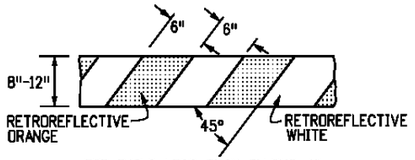
MOVABLE-HINGED

TYPICAL TYPE 3 BARRICADES

1. TYPE 3 BARRICADES HAVE 3 REFLECTORIZED RAIL FACES IF FACING TRAFFIC IN ONE DIRECTION AND 6 IF FACING TRAFFIC IN TWO DIRECTIONS.
2. THE PORTION OF THE POST ABOVE THE GROUND LINE SHALL BE PAINTED IN ACCORDANCE WITH THE APPROPRIATE GENERAL NOTE.
3. DETACHABLE EXTENSION WING RAILS FOR BYPASSING OF CONSTRUCTION EQUIPMENT ARE PERMITTED, WHEN NECESSARY, ON FIXED OR MOVABLE TYPE 3 BARRICADES. THE LENGTH SHALL BE ADEQUATE TO CLOSE THE BORROW PIT AND/OR SHOULDER AS REQUIRED.

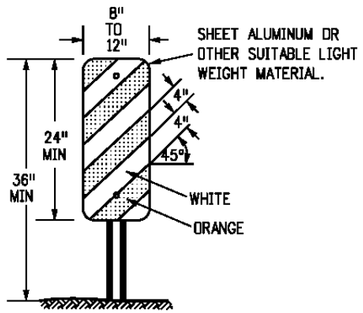
RAIL LENGTH TABLE

TYPE 3 BARRICADE		LENGTH
FIXED	MOVABLE	
F - A	M - A	8'- 14'
F - B	M - B	15'- 24'
F - C	M - C	25'- 35'
F - D	M - D	> 35'



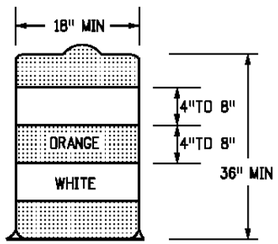
FOR RAILS LESS THAN 3' LONG, 4" WIDE STRIPES SHALL BE USED.

RAIL STRIPING DETAIL



TYPICAL VERTICAL PANEL

1. IF SPECIAL PANELS 3' OR GREATER IN HEIGHT ARE REQUIRED, THEN 6" STRIPES SHALL BE USED.
2. IF FIXED PLACEMENT IS REQUIRED, MOUNT ON DELINEATOR POST. SEE COLORADO STANDARD PLAN S-612-1.



TYPICAL DRUM

1. THE 18" MINIMUM DIMENSION SHALL APPLY TO THE SMALLEST MEASUREMENT OF OBLONG, RECTANGULAR, OR FLATTENED SIDE DRUMS.
2. THERE SHALL BE AT LEAST TWO ORANGE AND TWO WHITE HORIZONTAL, CIRCUMFERENTIAL, RETRODREFLECTIVE STRIPES ON EACH DRUM.

GENERAL NOTES

1. THE VARIOUS TYPES, COMBINATIONS AND APPLICATIONS OF SIGNS AND WARNING LIGHTS FOR BARRICADES REQUIRED FOR EACH PROJECT SHALL BE:
   A. AS SPECIFIED OR DETAILED IN THE PLANS.
   B. AS SHOWN IN APPLICABLE TYPICAL ILLUSTRATIONS.
   C. AS CALLED FOR AND SUBJECT TO APPROVAL BY THE ENGINEER.
2. TEMPORARY AND PERMANENT TYPE 3 BARRICADES SHALL BE FABRICATED FROM APPROVED CRASH TESTED MATERIALS. SEE SECTION 614 AND 630 OF THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION FOR ADDITIONAL REQUIREMENTS.
3. ALL PAINTING SHALL CONFORM WITH THE FOLLOWING:
   A. THE APPLICABLE SECTION OF 508 OF THE STANDARD SPECIFICATIONS.
   B. ALL SKIDS, BRACES AND POSTS SHALL BE PAINTED WITH 2 COATS OF EXTERIOR WHITE PAINT.
   C. THE BACKSIDES OF RAILS AND VERTICAL PANEL CHANNELIZING DEVICES FACING ONE DIRECTION OF TRAFFIC ONLY SHALL BE PAINTED WITH EXTERIOR WHITE PAINT.
   D. ALUMINUM OR GALVANIZED STEEL SKIDS, BRACES AND POSTS SHALL NOT BE PAINTED.
4. ALL STRIPED SURFACES SHALL CONFORM WITH THE FOLLOWING:
   A. THE ENTIRE AREA OF ORANGE AND WHITE STRIPES SHALL BE FABRICATED AS ONE PIECE.
   B. HORIZONTAL RAILS, WING RAILS AND VERTICAL PANEL CHANNELIZING DEVICES SHALL HAVE ORANGE AND WHITE STRIPES ON THE FACE SIDE(S) SLANTING DOWNWARD AT A 45° ANGLE TOWARD THE SIDE(S) TO WHICH TRAFFIC IS TO PASS OR TURN.
   C. PERMANENT BARRICADES SHALL HAVE RETROREFLECTIVE RED AND WHITE STRIPES. THEY MAY BE USED AT LOCATIONS TO MARK THE END OF A ROAD, STREET OR HIGHWAY THAT ENDS AT A "T" INTERSECTION, OR WHERE THERE IS NO CROSSROAD OR OUTLET.
   D. ALL RETROREFLECTIVE SHEETING SHALL CONFORM TO ASTM D4956:
      1. ORANGE AND WHITE SHALL BE TYPE IV MINIMUM.
      2. RED AND WHITE SHALL BE TYPE IV MINIMUM.
5. FOR ALL WOODEN BARRICADE COMPONENTS NOMINAL LUMBER DIMENSIONS ARE SATISFACTORY.
6. ALL SCREWS, BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED OR CADMIUM PLATED.
7. STABILITY OF BARRICADES AND CHANNELIZING DEVICES SHALL CONFORM WITH THE FOLLOWING:
   A. SKIDS (BASES) OF MOVABLE BARRICADES SHALL BE WEIGHTED WITH SANDBAGS ONLY WHERE NECESSARY TO PROVIDE STABILITY
   B. NO MOVABLE OR PORTABLE DEVICE SHALL BE WEIGHTED BY ANY METHOD OR WITH ANY MATERIAL THAT WOULD MAKE THEM HAZARDOUS TO MOTORISTS.
8. WARNING LIGHTS USED WITH BARRICADES, DRUMS AND VERTICAL PANELS SHALL CONFORM WITH THE FOLLOWING:
   A. USE FLASHING WARNING LIGHTS WHEN DEVICES ARE USED SINGLY, AND STEADY BURN LIGHTS WHEN THEY ARE USED IN A SERIES FOR CHANNELIZATION.
   B. THEY SHALL BE POSITIONED ABOVE THE TOP RAIL OF BARRICADES OR ON TOP OF DRUMS AND VERTICAL PANELS.
9. CONCRETE BARRIER (TEMPORARY) SHALL CONFORM WITH:
   A. PRECAST CONCRETE BARRIER AS SHOWN ON COLORADO STANDARD PLAN M-606-14.
   B. BARRIER REFLECTORS SHALL BE INSTALLED THAT MEET THE REQUIREMENTS OF STANDARD TYPICAL DELINEATOR INSTALLATIONS, EXCEPT THE MAXIMUM SPACING SHALL BE 50', AND THEY WILL NOT BE PAID FOR BUT ARE INCLUDED IN THE COST OF THE BARRIER.
   C. CONCRETE BARRIER END TREATMENT SHALL BE IN ACCORDANCE WITH CLEAR ZONE CRITERIA, AND PLACED AS SHOWN ON THE PLANS.
10. SIGN PANELS MOUNTED ON BARRICADES WILL BE PAID FOR SEPARATELY.

Computer File Information	
Creation Date: 07/04/12	
Created By: JSW	
Last Modification Date: 07/31/19	
Lost Modified By: AVU	
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	

Sheet Revisions	
Date:	Comments

Colorado Department of Transportation
2829 W. Howard Pl.
Denver, CO 80204
Phone: 303-757-9436
FAX: 303-757-9219
Traffic & Safety Engineering MKB

BARRICADES, DRUMS, CONCRETE BARRIERS (TEMP) & VERTICAL PANELS

Issued By: Traffic & Safety Engineering Branch July 31, 2019

STANDARD PLAN NO.
S-630-2
Standard Sheet No. 1 of 1
Project Sheet Number: