



# North Dakota Department of Transportation

Thomas K. Sorel  
Director

Doug Burgum  
Governor

October 25, 2018

## ADDENDUM 2 – JOB 7

TO: All prospective bidders on Project SC-4718(060), Job No. 7 scheduled for the November 9, 2018 bid opening.

The following plans and request for proposal revision shall be made:

Plan Revisions:

See attached summary from Ben Aaseth, P.E. dated October 24, 2018 for an explanation.

Request for Proposal Revisions:

Remove pages 5 thru 8 of 8 of the Proposal pages located at the beginning of the Request for Proposal and replace with pages 5 thru 9 of 9 revised 10/24/2018.

The following changes were made to the Bid Items:

Spec No.	Code No.	Description	Description of Change
202	0149	REMOVE BRIDGE RAIL	Added Item at 118 LF
203	0109	TOPSOIL	Added Item at 200 CY
203	0142	BORROW-EXCAVATION	Added Item at 750 TON
251	0200	SEEDING CLASS II	Added Item at 0.300 ACRE
251	2000	TEMPORARY COVER CROP	Added Item at 0.300 ACRE
253	0101	STRAW MULCH	Added Item at 0.600 ACRE
261	0112	FIBER ROLLS 12IN	Added Item at 600 LF
261	0113	REMOVE FIBER ROLLS 12IN	Added Item at 300 LF
302	0113	AGGREGATE BASE COURSE CL 3	Removed Item
302	0160	AGGREGATE BASE COURSE CL 13	Added Item 2,292 TON
430	0043	SUPERPAVE FAA 43	Increased from 16,700 to 16,753 TON
430	5803	PG 58S-28 ASPHALT CEMENT	Increased from 1,085 to 1,089 TON
764	0131	W-BEAM GUARDRAIL	Added Item at 287.500 LF
764	0135	THRIE BEAM GUARDRAIL	Added Item at 174 LF
764	0145	W-BEAM GUARDRAIL END TERMINAL	Added Item at 3 EA

This addendum is to be incorporated into the bidder's proposal for this project. AASHTOWare Project Bids files should be updated by downloading the addendum file from the Bid Express on-line bidding exchange at <http://www.bidx.com/> and load it into the AASHTOWare Project Bids program.

PHILLIP MURDOFF, P.E. – CONSTRUCTION SERVICES ENGINEER

80: jwj

Enclosure



October 24, 2018

## ADDENUM 2 – JOB 7

TO: All prospective bidders and suppliers on Project SC-4718(060) scheduled for the November 9, 2018 bid opening.

The following plan revisions shall be made:

### Plan Revisions:

#### Section 1:

Updated title sheet to reflect guardrail work.

#### Section 2:

Added additional Sections and added additional Standard Drawings.

#### Section 6:

Updated Sheet 1 to change from Class 3 to Class 13.

#### Section 8:

Updated additional quantities and changed from CL 3 aggregate to CL 13.

#### Section 10:

Updated basis of estimate for guard rail work.

#### Section 20:

Update Sheet 1 to reflect Class 13 Aggregate.

#### Section 76:

Added temporary erosion control layout.

#### Section 77:

Added Permanent erosion control layout.

#### Section 130:

Added guardrail layouts.

#### Section 170:

Added Bridge Rail Removals and Modifications.

Professionals you need, people you trust

Added Standard Drawings

D261-1, D764-01, D764-05, D764-06, D764-10, D764-13, D764-14,  
and D764-22.

Sincerely,

A handwritten signature in blue ink that reads "Ben Aaseth". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Ben Aaseth, PE  
Project Engineer

Enclosure: Revised Plan Sections  
Project #: SC-4718(060)

BID ITEMS

Project: SC-4718(060) (PCN-22240)

**Bidder must type or neatly print unit prices in numerals, make extensions for each item, and total. Do not carry unit prices further than three (3) decimal places.**

Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						\$\$\$\$	000	\$\$\$\$	00
001	103	0100	CONTRACT BOND	L SUM	1.				
002	107	0100	RAILWAY PROTECTION INSURANCE	L SUM	1.				
003	202	0149	REMOVE BRIDGE RAIL	LF	118.				
004	203	0109	TOPSOIL	CY	200.				
005	203	0142	BORROW-EXCAVATION	TON	750.				
006	216	0100	WATER	M GAL	600.				
007	230	0125	SHOULDER PREPARATION	MILE	10.				
008	234	0103	CEMENT-SOIL DRYING AGENT	TON	1,006.				
009	251	0200	SEEDING CLASS II	ACRE	.300				
010	251	2000	TEMPORARY COVER CROP	ACRE	.300				
011	253	0101	STRAW MULCH	ACRE	.600				
012	261	0112	FIBER ROLLS 12IN	LF	600.				
013	261	0113	REMOVE FIBER ROLLS 12IN	LF	300.				
014	302	0160	AGGREGATE BASE COURSE CL 13	TON	2,292.				
015	302	0407	RESHAPE AGGREGATE BASE COURSE	STA	257.				
016	306	0500	FULL-DEPTH RECLAMATION-CEMENT STABILIZED	SY	80,055.				

BID ITEMS

Project: SC-4718(060) (PCN-22240)

**Bidder must type or neatly print unit prices in numerals, make extensions for each item, and total. Do not carry unit prices further than three (3) decimal places.**

Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						\$\$\$\$	000	\$\$\$\$	00
017	401	0050	TACK COAT	GAL	4,055.				
018	401	0060	PRIME COAT	GAL	20,014.				
019	401	0070	FOG SEAL	GAL	4,055.				
020	401	0160	BLOTTER MATERIAL CL 44	TON	603.				
021	411	0105	MILLING PAVEMENT SURFACE	SY	2,754.				
022	420	0111	CRS2P EMULSIFIED ASPHALT	GAL	27,613.				
023	420	0127	COVER COAT MATERIAL CL 41-M	TON	863.				
024	430	0043	SUPERPAVE FAA 43	TON	16,753.				
025	430	1000	CORED SAMPLE	EA	104.				
026	430	5803	PG 58S-28 ASPHALT CEMENT	TON	1,089.				
027	702	0100	MOBILIZATION	L SUM	1.				
028	704	1000	TRAFFIC CONTROL SIGNS	UNIT	2,423.				
029	704	1052	TYPE III BARRICADE	EA	64.				
030	704	1060	DELINEATOR DRUMS	EA	20.				
031	706	0550	BITUMINOUS LABORATORY	EA	1.				
032	706	0600	CONTRACTOR'S LABORATORY	EA	1.				



**PROPOSAL FORM**

North Dakota Department of Transportation

**BID OPENING: November 09, 2018**

**Job 007**

Page 8 of 9

Rev: 10/24/2018

**Project:** SC-4718(060) (PCN-22240)

**Type of Work:** FULL DEPTH RECLAMATION, MILLING, HMA, CHIP SEAL, FOG SEAL, & INCIDENTALS

**County:** STUTSMAN

**Length:** 4.9020 Miles

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**TIME FOR COMPLETION:**

The undersigned Bidder agrees, if awarded the contract, to prosecute the work with sufficient forces and equipment to complete the contract work within the allowable time specified as follows:

**WORKING DAY CONTRACT:** NA working days are provided. The Department will begin charging working days beginning NA or the date work begins on the project site, whichever is earlier.

**CALENDAR DAY CONTRACT:** NA calendar days are provided. The completion date will be determined by adding NA calendar days to NA or the date work begins on the project site, whichever is earlier.

**COMPLETION DATE CONTRACT** The project completion date is 08/03/2019. The Department provides a minimum of NA working days. The Department will begin charging working days beginning NA or the date work begins on the project site, whichever is earlier.

**Project:** SC-4718(060) (PCN-22240)

**Type of Work:** FULL DEPTH RECLAMATION, MILLING, HMA, CHIP SEAL, FOG SEAL, & INCIDENTALS

**County:** STUTSMAN

**Length:** 4.9020 Miles

**UTILIZATION OF DISADVANTAGED BUSINESS ENTERPRISE (M/WBE):**

The undersigned Bidder certifies that the information given on behalf of the Bidder in Special Provision, "Utilization of Disadvantaged Business Enterprise" (M/WBE), is true and correct and that the bidder has met the assigned goals or has met the good faith effort requirements of the Special Provision.

**CONTRACT EXECUTION:**

The undersigned Bidder agrees, if awarded the contract, to execute the contract form and furnish a contract bond within fifteen calendar days, as determined by NDCC Section 1-02-15, after date of notice of award, in accordance with the provisions of Sections 103.05 and 103.06 of the Standard Specifications.

**AFFIDAVIT:**

**STATE OF** \_\_\_\_\_ )  
 )  
**COUNTY OF** \_\_\_\_\_ ) **ss.**

The undersigned bidder, being duly sworn, does depose and say that they are an authorized representative of \_\_\_\_\_  
CONTRACTOR NAME  
of \_\_\_\_\_, a  
MAILING ADDRESS

- Individual       Partnership       Joint Venture       Corporation

and that they have read, understand, acknowledge, and accept the entire proposal form; and that all statements made by said bidder are true and correct.

\_\_\_\_\_, TITLE \_\_\_\_\_  
BIDDER MUST SIGN ON THIS LINE

\_\_\_\_\_  
TYPE OR PRINT SIGNATURE ON THIS LINE

Subscribed and sworn to before me this day.

\_\_\_\_\_  
COUNTY

(Seal) STATE \_\_\_\_\_ DATE \_\_\_\_\_

\_\_\_\_\_  
NOTARY PUBLIC

My commission expires \_\_\_\_\_



DESIGN DATA			
Traffic	Average Daily		
Current 2016	Pass:	Trucks:	Total: 135
Forecast	Pass:	Trucks:	Total:
Clear Zone Distance: 18'		Design Speed: 55	
Minimum Sight Dist. for Stopping: 495'		Bridges:	
Sight Dist. for No Passing Zone: 900'			
Pavement Design Life 20 (years)			
Design Accumulated ESALs: 270,000			

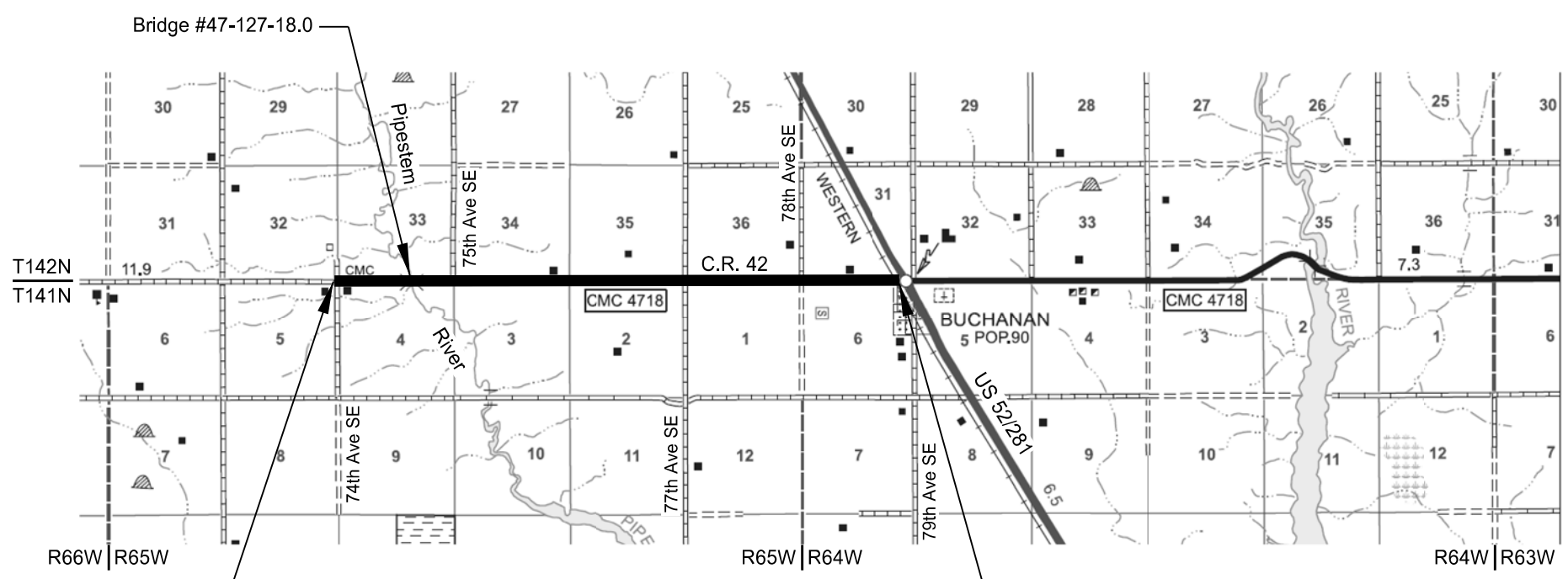
Revised 10/24/18	STATE	PROJECT NO.	PCN	SECTION NO.	SHEET NO.
	ND	SC-4718(060)	22240	1	1

# JOB # 7 NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

Federal Aid Project  
SC-4718(060)  
Stutsman County  
County Road 42  
CMC 4718, from Buchanan West 5 Miles  
Full Depth Reclamation - Cement Stabilized  
Milling, Hot Bituminous Paving, Chip Seal, Fog Seal & Striping  
Guardrail

**GOVERNING SPECIFICATIONS:**  
2014 Standard Specifications adopted by the North Dakota Department of Transportation and the Supplemental Specifications effective on the date the project is advertised.

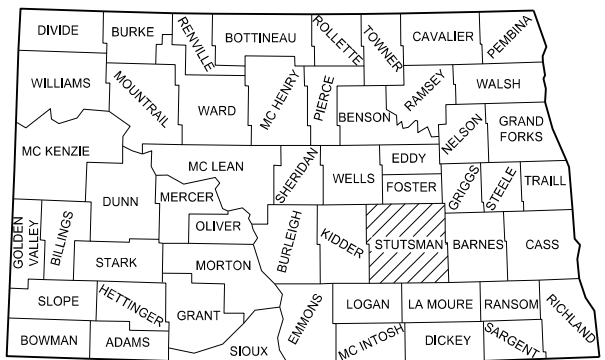
PROJECT NUMBER \ DESCRIPTION	NET MILES	GROSS MILES
SC-4718(060) Mainline	4.817	4.902
SC-4718(060) Guardrail	0.085	0.085



Begin Project SC-4718(060) Station 9+39, approximately 61' west of the northeast corner Section 5, T141N, R65W, the point where pavement begins.

End Project SC-4718(060) Station 268+26, approximately 105' east of the centerline of Red River Valley and Western Railroad tracks, and approximately 473' west of the northeast corner of Section 6, T141N, R64W.

DESIGNERS
Benjamin B. Aaseth, PE
Paul Sharp
Mike May



STATE COUNTY MAP

I hereby certify that the attached plans were prepared by me or under my direct supervision and that I am a duly registered professional engineer under the laws of the state of ND.

APPROVED DATE 10/24/2018

Benjamin B. Aaseth /s/  
Interstate Engineering, Inc.

This document was originally issued and sealed by Benjamin B. Aaseth, Registration Number PE-10085, on 10/24/18 and the original document is stored at the Stutsman County Highway Department

## TABLE OF CONTENTS

PLAN SECTIONS			LIST OF STANDARD DRAWINGS	
Section	Page(s)	Description	Number	Description
1	1	Title Sheet	D-101-1, 2, & 3	NDDOT Abbreviations
2	1	Table of Contents	D-101-10	NDDOT Utility Company and Organization Abbreviations
4	1	Scope of Work	D-101-20, & 21	Line Styles
6	1 - 2	Notes	D-101-30, 31, & 32	Symbols
8	1	Quantities	D-261-1	Erosion Control - Fiber Roll Placement Details
10	1	Basis of Estimate	D-704-2	Traffic Control For Coring Of Hot Bituminous Pavement
20	1 - 3	General Details	D-704-8	Breakaway Systems For Construction Zone Signs - U-Channel Post
30	1	Typical Sections	D-704-9	Construction Sign Details - Terminal And Guide Signs
76	1	Temporary Erosion Control	D-704-10	Construction Sign Details - Regulatory Signs
77	1	Permanent Erosion Control	D-704-11	Construction Sign Details - Warning Signs
100	1 - 3	Work Zone Traffic Control	D-704-13	Barricade And Channelizing Device Details
120	1	Pavement Marking	D-704-14	Construction Sign Punching And Mounting Details
130	1	Guardrail	D-704-15	Road Closure Layouts
170	1 - 2	Bridges and Box Culverts	D-704-19	Road Closure And Lane Closure On A Two Way Road Layouts
190	1 - 2	Haul Road Restrictions	D-704-20	Terminal And Seal Coat Sign Layouts
			D-704-21	Detour And Roadway Diversion Sign Layouts
			D-704-22	Construction Truck And Temporary Detour Layouts
			D-704-26	Miscellaneous Sign Layouts
			D-704-27	Traffic Control Plan For Moving Operations
			D-704-50	Portable Sign Support Assembly
			D-706-1	Bituminous Laboratory
			D-762-1	Pavement Marking Message Details
			D-762-4	Pavement Marking
			D-762-11	Short-Term Pavement Marking
			D-764-1	W-Beam Guardrail General Details
			D-764-5	Sequential Kinking Terminal
			D-764-6	Flared Energy Absorbing Terminal
			D-764-10	Thrie Beam Transition To Double Box Beam Retrofit
			D-764-13	W-Beam Guardrail With Approaches Near Bridge For Low Volume Low Speed Roadways
			D-764-14	Special W-Beam Guardrail Anchor
			D-764-22	Typical Grading At Bridge Ends With W-Beam Guardrail
			D-766-1	Mailbox Location Details

# Notes

Revised 10/23/18	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SC-4718(060)	6	1

**107-114 RAILROAD PROTECTIVE LIABILITY INSURANCE:** This project crosses the Red River Valley and Western Railroad Company at RP 0012.47. The type of work that will be performed within the railroad right of way is Paving, Milling, Chip Seal, and Fog Seal. Direct inquiries regarding protective liability insurance to:

Mr. Dan Zink, Director of Administration  
 Red River Valley and Western Railroad Company  
 P.O. Box 608  
 Wahpeton, ND 58074  
 701-642-8257

Obtain information regarding crossing number 080623C from the Federal Railroad Administration website: <http://safetydata.fra.dot.gov/Officeofsafety/>.

**107-P01 RAILROAD TEMPORARY OCCUPANCY PERMIT:** This project crosses the Red River Valley and Western Railroad Company at RP 0012.47. The type of work that will be performed within the railroad right of way is Paving, Milling, Chip Seal, and Fog Sea. Inquiries for railroad temporary occupancy permit should be directed to:

Jill Kvidera  
 Red River Valley & Western Railroad  
 209 Dakota Ave  
 Wahpeton, ND 58075  
 1-701-642-8257

Contact Cal Gruebele as soon as the project is awarded to coordinate construction. 1-701-640-0841 (Cell) 1-218-643-1532 (Office)

The costs of coordinating with the railroad shall be included in the contract unit price of the contract items.

**107-P02 LOAD LIMITS:** Stutsman County axle limits are posted and updated periodically on their web site at: [http://www.co.stutsman.nd.us/files/stutsman\\_co\\_road\\_restrictions.pdf](http://www.co.stutsman.nd.us/files/stutsman_co_road_restrictions.pdf) Contact the County Road Department at (701) 252-9040 for the most recent information on County load limits.

Stutsman County does not grant overload permits for anything other than non-divisible construction equipment loads. The entire haul cycle, loaded and empty, will be considered for haul routes. Obtain written approval from the local government agency or agencies prior to the pre-job and approved by the Engineer.

For Township and other local governmental agency roads the Contractor is referred to Section 39-12-05.3 of the North Dakota Century Code that pertains to weight limits. A portion of Paragraph # 2 of this section of the code reads: "... the gross weight may not exceed eighty thousand pounds (36,287.39 kilograms) unless designated by local authorities for highways under their jurisdiction..."

Contact the individual Township or other local governmental agency officials for the most recent road restrictions for each township. Contact information for townships can be located at:

[http://www.co.stutsman.nd.us/files/township\\_officers.pdf](http://www.co.stutsman.nd.us/files/township_officers.pdf)

**107-P03 SPEED LIMITS:** The speed limit for all trucks on Stutsman County highways is 55 miles per hour or unless signed different.

**216-P01 WATER:** The basis of estimate is 50 M GAL per mile. Include the water for haul road dust control and detour route during the paving operation in the bid item "WATER". Any water used prior to the paving operation including but not limited to dust control during material crushing shall be the Contractor's responsibility. All water used for full depth reclamation, reshaping aggregate base course, cement stabilization, and curing shall be included in the price bid for "Full Depth Reclamation – Cement Stabilized".

**302-P01 AGGREGATE BASE COURSE LIMITATIONS:** There is no limit to the maximum amount of roadway being worked on. This applies to full depth reclamation and reshaping aggregate base course.

**302-P02 AGGREGATE BASE COURSE CL13:** Approximately 2112 tons of Aggregate Base Course CL 13 has been provided for in the plans for approaches, spot filling, and detour maintenance. Millings will be allowed as a substitute for CL 13 with a maximum particle size of 1.5". All costs associated with hauling, placing, spreading, and compacting shall be included in the price bid for "Aggregate Base Course CL 13."

- 306-P01 FULL DEPTH RECLAMATION – CEMENT STABILIZED:**
1. Follow specifications according to Section 306. Full depth reclaim the existing road to a depth of 7". Produce a blended material that meets the gradations in Section 306. All costs associated with this work including the water shall be included the unit price bid for "Full Depth Reclamation – Cement Stabilized"
  2. Following the first pass of full depth reclamation, reshape the blended material to a cross section as shown in the plans. Utilize a motor grader to shape the blended material to a crown that is shown in the typical section. No compaction of this will be required as it shall take place prior to the cement treating. All labor, equipment and materials required to complete the work as described above in accordance with Section 302 of the Standard Specifications shall be included in the price bid for "Reshape Aggregate Base Course".
  3. After the roadway has been brought up to the final grade and cross section, blend the material to be treated with cement to the dimensions shown on the typical section. Spread the cement using spreaders that give a precise measurement of cement needed for the area being covered. The spreaders shall be close to the surface and shrouded so as to minimize cement loss due to wind. Reclaim the cement into the subgrade to the desired depth with a reclaimer along with a water truck which gauges the precise amount of water needed to achieve the necessary moisture content. Compact the subgrade to the necessary density following the reclaimer with a roller.
  4. Use the prepared mix design located in the bidding documents. The compressive strengths require a minimum of 125 pounds per square inch (psi) at seven (7) days cure and no more than 225 psi at seven days.
  5. Blend the treated compacted material to a minimum of 95% of the maximum dry density as determined by AASHTO T-99. Compressive strength samples are taken at a rate of two per lane mile. Three (cylinders) shall be cast per sample for two (2) seven day breaks and one (1) spare. Traffic is to remain off of the newly treated blended material for a period of 36 hours prior to applying the water shall be included the unit price bid for "Full Depth Reclamation – Cement Stabilized". The Portland cement utilized will be paid for separately per ton as per note #11.
  6. As compaction nears completion, shape the surface of the Stabilized Full Depth Reclaimed (SFDR) to the specified lines, grades, and cross sections. Continue compaction until

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**Estimated Quantities**

Revised	10/24/18	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
		ND	SC-4718(060)	8	1

SPEC	CODE	ITEM DESCRIPTION	UNIT	Mainline: SC-4718(060)	Bridge & Guardrail:	TOTAL
103	100	CONTRACT BOND	L SUM	1		1
107	100	RAILWAY PROTECTION INSURANCE	L SUM	1		1
202	149	REMOVE BRIDGE RAIL	LF		118	118
203	109	TOPSOIL	CY	200		200
203	142	BORROW-EXCAVATION	TON	750		750
216	100	WATER	M GAL	600		600
230	125	SHOULDER PREPARATION	MILE	10		10
234	103	CEMENT-SOIL DRYING AGENT	TON	1006		1006
251	200	SEEDING CLASS II	ACRE	0.3		0.3
251	2000	TEMPORARY COVER CROP	ACRE	0.3		0.3
253	101	STRAW MULCH	ACRE	0.6		0.6
261	112	FIBER ROLLS 12IN	LF	600		600
261	113	REMOVE FIBER ROLLS 12IN	LF	300		300
302	160	AGGREGATE BASE COURSE CL 13	TON	2292		2292
302	407	RESHAPE AGGREGATE BASE COURSE	STA	257		257
306	500	FULL-DEPTH RECLAMATION-CEMENT STABILIZED	SY	80055		80055
401	50	TACK COAT	GAL	4055		4055
401	60	PRIME COAT	GAL	20014		20014
401	70	FOG SEAL	GAL	4055		4055
401	160	BLOTTER MATERIAL CL 44	TON	603		603
411	105	MILLING PAVEMENT SURFACE	SY	2754		2754
420	111	CRS2P EMULSIFIED ASPHALT	GAL	27613		27613
420	127	COVER COAT MATERIAL CL 41-M	TON	863		863
430	43	SUPERPAVE FAA 43	TON	16753		16753
430	1000	CORED SAMPLE	EA	104		104
430	5803	PG 58S-28 ASPHALT CEMENT	TON	1089		1089
702	100	MOBILIZATION	L SUM	1		1
704	1000	TRAFFIC CONTROL SIGNS	UNIT	2423		2423
704	1052	TYPE III BARRICADE	EA	64		64
704	1060	DELINEATOR DRUMS	EA	20		20
706	550	BITUMINOUS LABORATORY	EA	1		1
706	600	CONTRACTOR'S LABORATORY	EA	1		1
762	103	PVMT MK PAINTED-MESSAGE	SF	157		157
762	430	SHORT TERM 4IN LINE-TYPE NR	LF	26866		26866
762	1104	PVMT MK PAINTED 4IN LINE	LF	13433		13433
764	131	W-BEAM GUARDRAIL	LF		287.5	287.5
764	135	THRIE BEAM GUARDRAIL	LF		174	174
764	145	W-BEAM GUARDRAIL END TERMINAL	EA		3	3
766	100	MAILBOX-ALL TYPES	EA	6		6

## Basis of Estimate

### Water

- 50 MGal / Mile Dust Palliative (Detour & Haul Route)

### Borrow Excavation

- 30% Shrinkage Factor @ 1.5 Tons / CY

### Full Depth Reclamation – Cement Stabilized

- 7" Full Depth Reclamation with Cement Stabilization, 28' width Portland Cement @ 3.8% 25 Lbs / SY

### Aggregate Base Course CL 13

- Approaches 165 Tons
- Guardrail 180 Tons
- To fill in potholes before FDR 50 Tons/Mile
- To correct steep areas off the highway sloughs 200 Tons
- Haul Road Repair 1500 Tons

### Prime Coat

- Over Stabilized Full Depth Reclamation, 28' Wide @ 0.25 Gal / SY
- Blotter Material CL-44, @ 15 Lbs / SY

### Superpave FAA 43

- Paving over SFDR  
     4" Depth, 24' Top, 2.0' sloughs. 8.67 SF @  
     2.0 Tons / CY = 3,390 Tons/Mile
- Approaches 159 Tons
- Guardrail 55 Tons
- PG 58S-28 Asphalt Cement: @ 6.5% / Ton of HBP
- Tack Coat
  - @ 0.05 Gal / SY

### Seal Coat

- CRS2P Emulsified Asphalt  
     24' Wide @ 0.40 Gal / SY 5,632 Gal / Mile
- Cover Coat Material CL 41  
     24' Wide @ 25 lbs / SY 176 Tons / Mile

### Fog Seal

- Fog Shoulders and pavement top width @ 0.05 Gal / SY

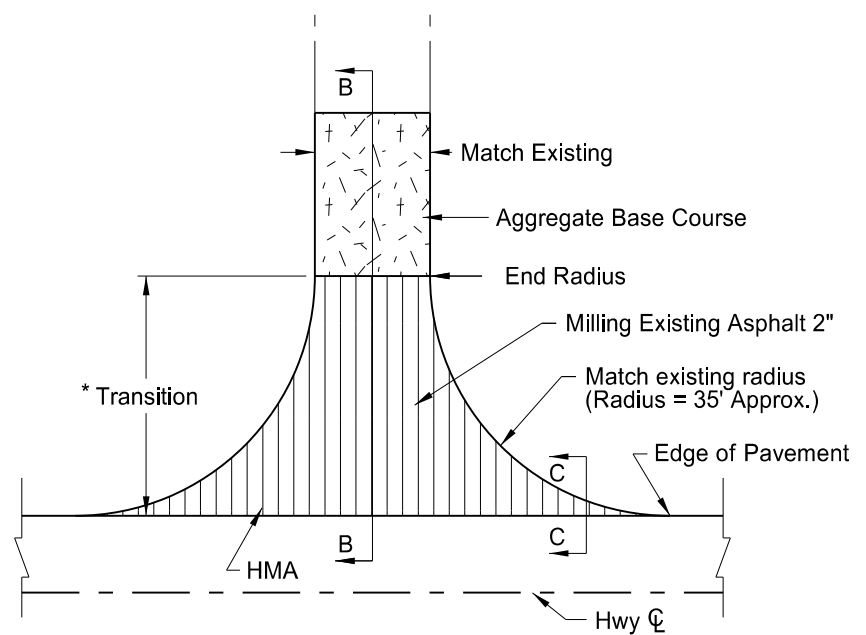
### PVMT MK Painted 4IN Line

10' Line, 30' Skip = 1320 LF / Mile + No Passing Zones

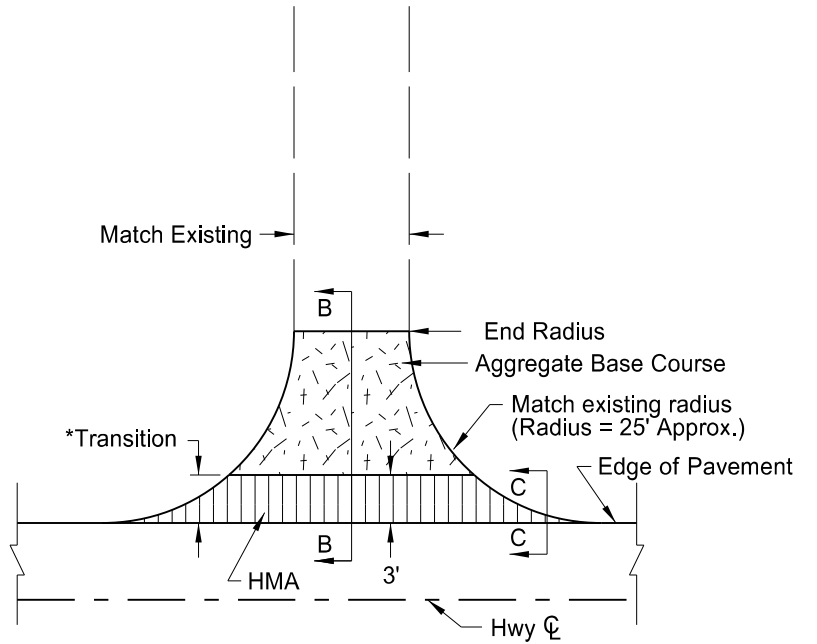
### HBP Cored Samples

	A	B	C	D		
Specification Section	Distance (Ft) / 2000	Lanes	Lifts	Sublots (A x B x C)	Quantity (D x 2)	Unit
430.04 I.2.b(1)	13	2	2	52	104	EA

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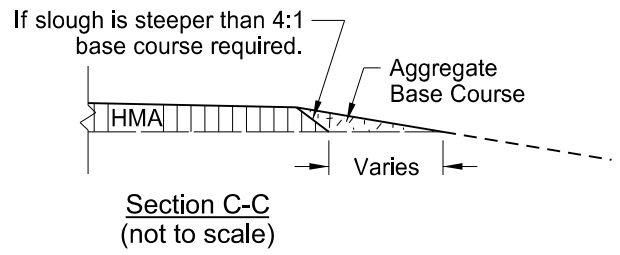
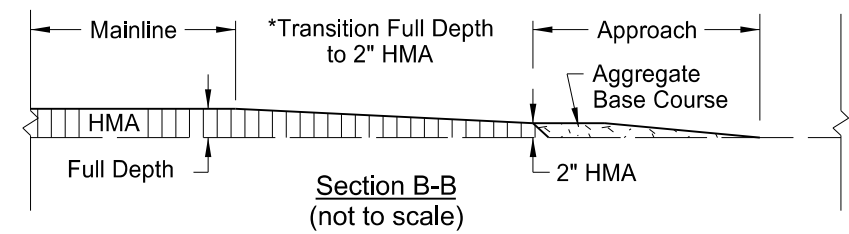
(1) Gravel Street Approach  
(Sta. 265+35 Rt, 266+76 Rt)



(2) Gravel Field Drive, Section Line Approach

Notes:

- Actual HMA paving and aggregate base course locations may vary in the field, as approved by the Engineer.
- Quantity totals have been included in the bid items of the "Estimate of Quantities" of the plans.
- Aggregate base course has been provided in the quantities to fill in around the radii. This material will be required when sloughs are steeper than 4:1 (see section C-C)



\*\*NOTE: Gravel field drive and section line approach quantities based on an average length of 75 LF. Lengths vary from 40' to 110'

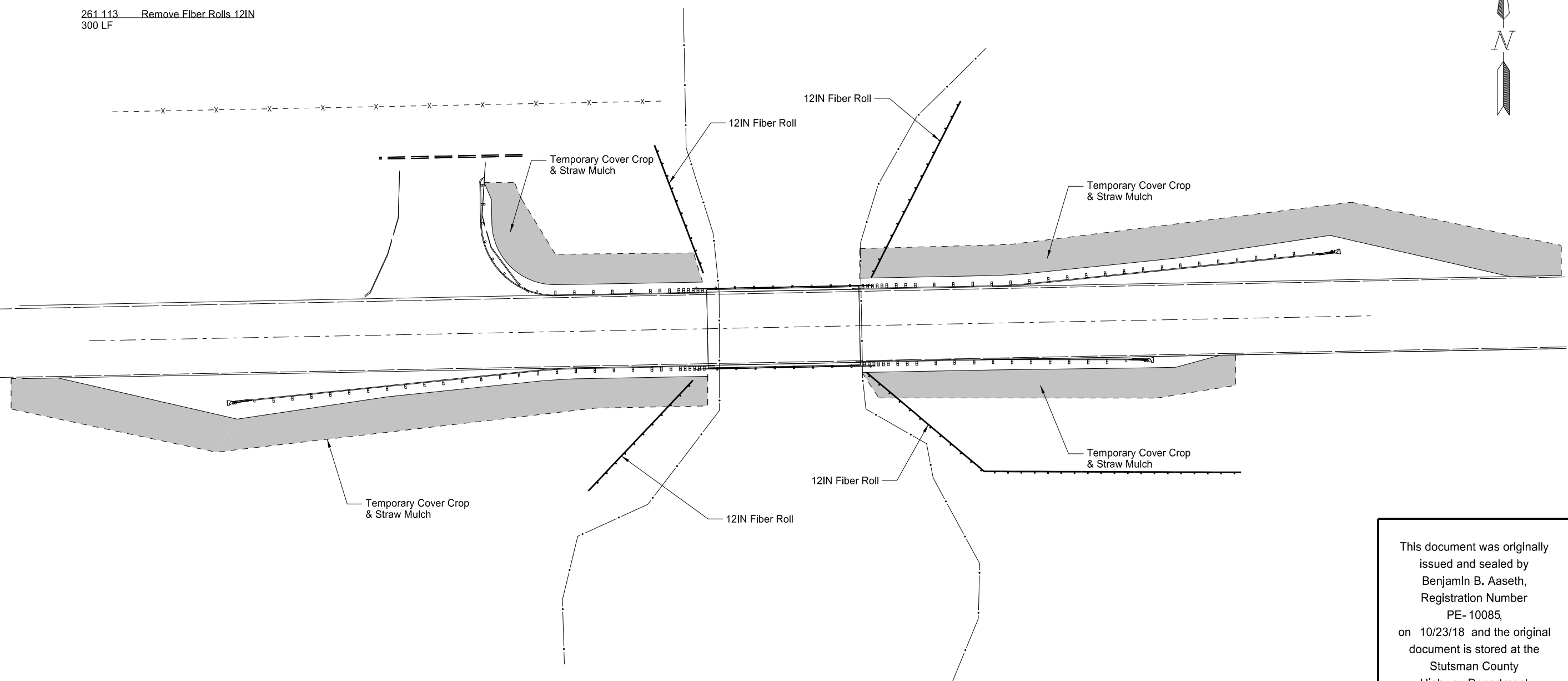
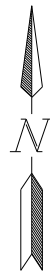
BASIS OF ESTIMATE		(1)	(2)	
ITEM	UNIT	Gravel Street	Field Drive **	TOTALS
Number of Locations		2	29	31
Milling Pavement Surface	SY	125	0	250
Aggregate Base Course CL 13	TON	10	5	165
Tack Coat	GAL	13	1	55
Superpave FAA 43	TON	36	3	159
PG 58S-28 Asphalt Cement	TON	2.3	0.2	11

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APPROACH DETAILS  
Co. Rd. 42  
Buchanan West Approximately 5 Miles  
Stutsman County, North Dakota

Sheet Added 10/23/18	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SC-4718(060)	76	1

- 251 2000 Temporary Cover Crop  
0.3 Acres
- 253 101 Straw Mulch  
0.3 Acres
- 261 112 Fiber Rolls 12IN  
300 LF
- 261 113 Remove Fiber Rolls 12IN  
300 LF

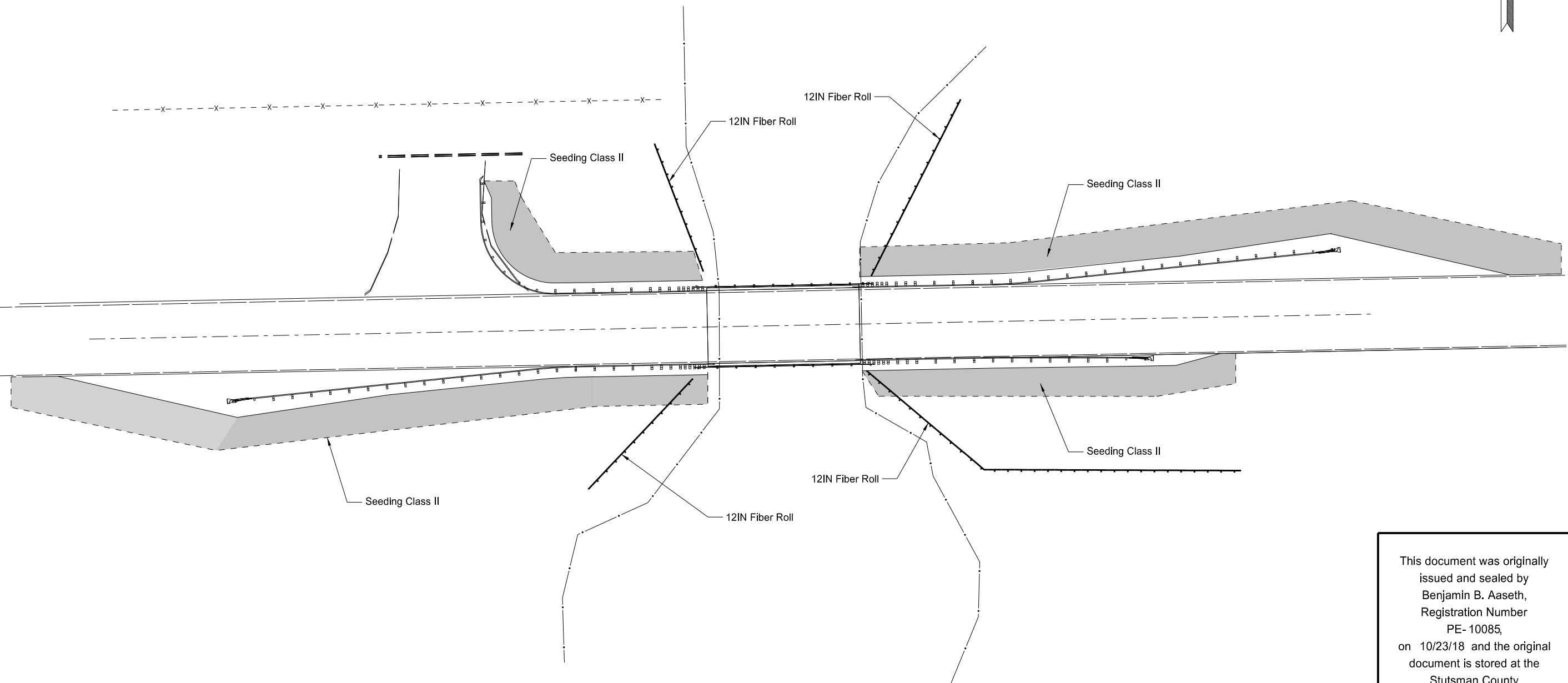
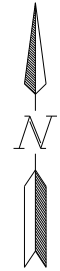


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TEMPORARY EROSION CONTROL  
 Co. Rd 42  
 Buchanan West Approximately 5 Miles  
 Stutsman County, North Dakota

Sheet Added 10/23/18	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SC-4718(060)	77	1

- 251 200 Seeding Class II  
0.3 Acres
- 253 101 Straw Mulch  
0.3 Acres
- 261 112 Fiber Rolls 12IN  
300 LF



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PERMANENT EROSION CONTROL  
 Co. Rd. 42  
 Buchanan West Approximately 5 Miles  
 Stutsman County, North Dakota

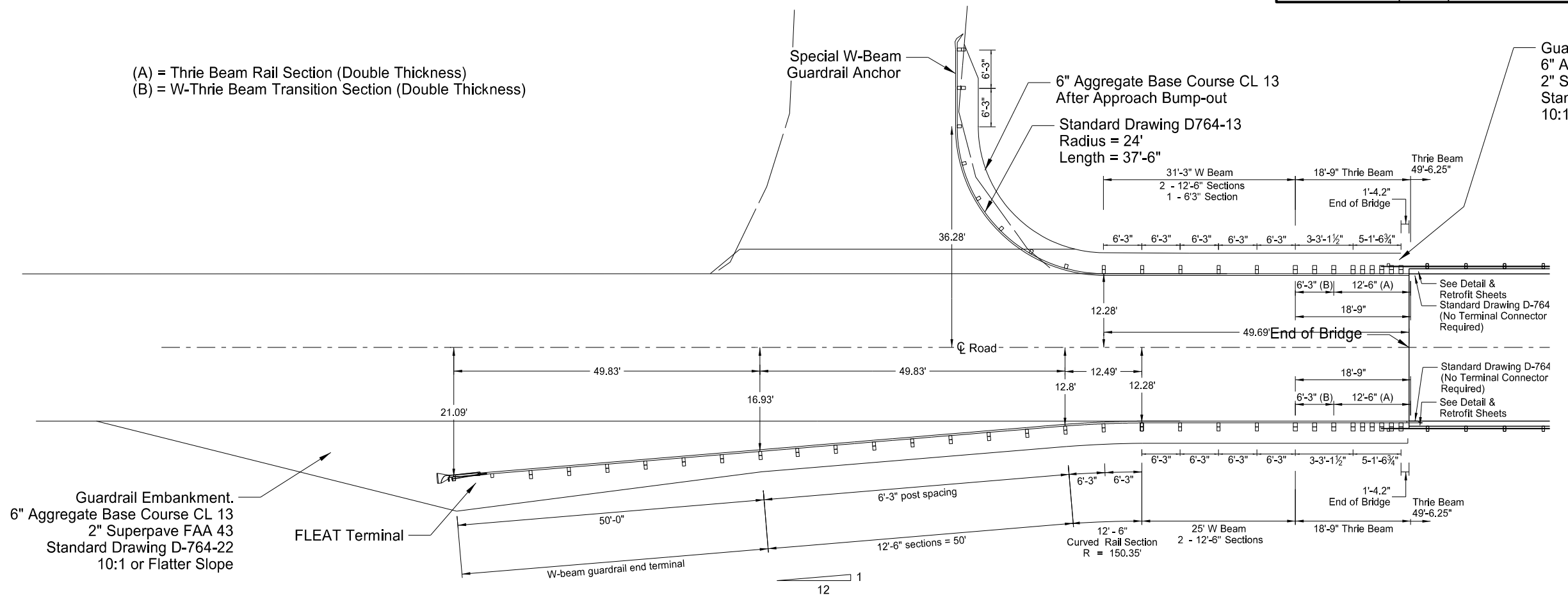


409 Documents § 23 USC  
NDDOT Reserves All Objections

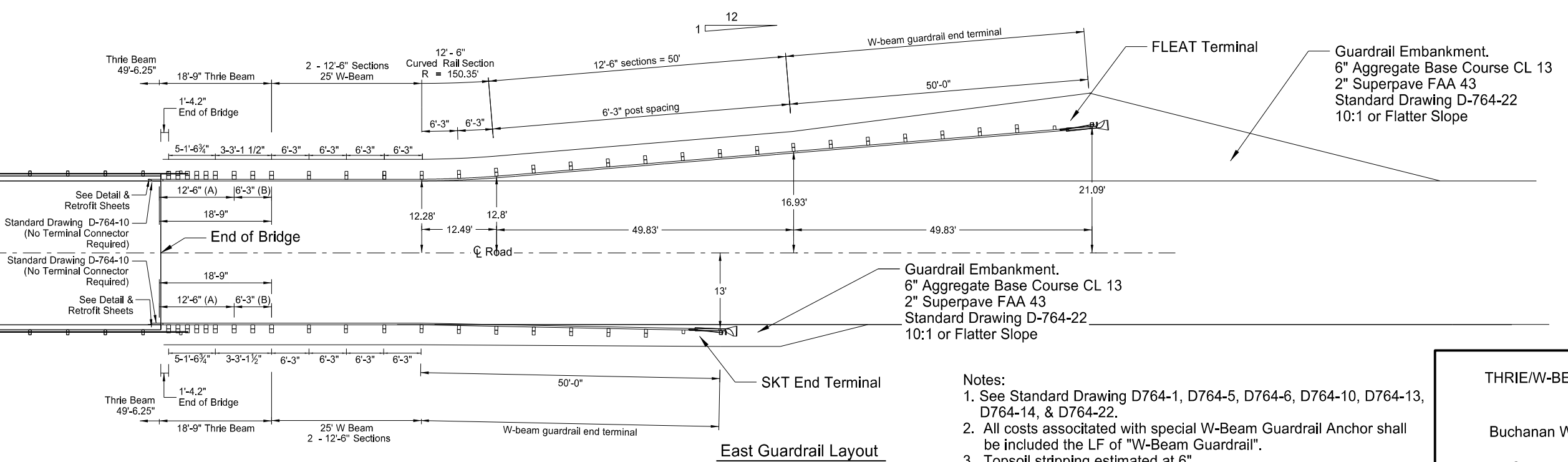
Added Sheet 10/23/18	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SC-4718(060)	130	1

(A) = Thrie Beam Rail Section (Double Thickness)  
(B) = W-Thrie Beam Transition Section (Double Thickness)

Guardrail Embankment.  
6" Aggregate Base Course CL 13  
2" Superpave FAA 43  
Standard Drawing D-764-22  
10:1 or Flatter Slope



West Guardrail Layout



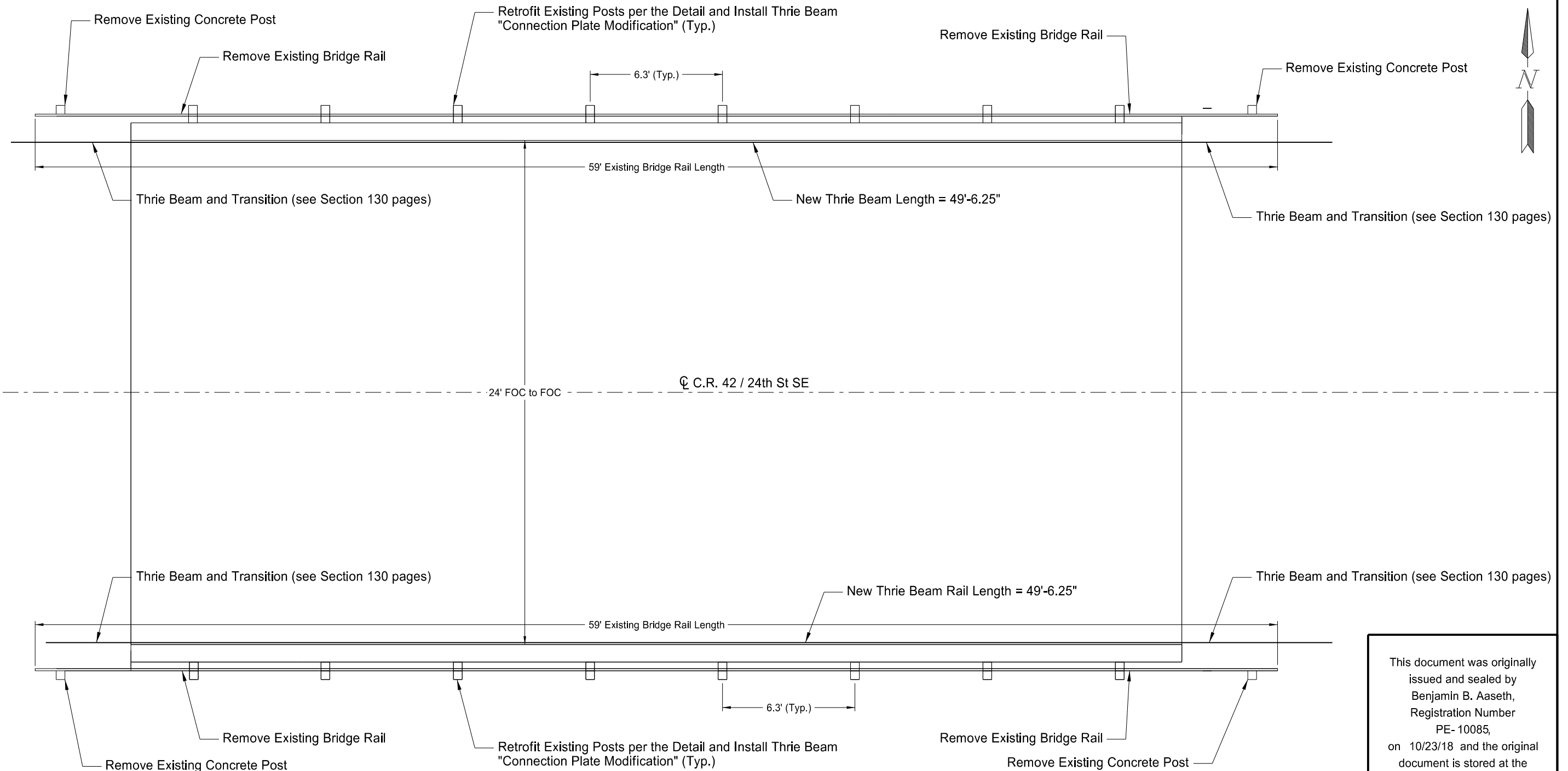
East Guardrail Layout

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- Notes:
1. See Standard Drawing D764-1, D764-5, D764-6, D764-10, D764-13, D764-14, & D764-22.
  2. All costs associated with special W-Beam Guardrail Anchor shall be included the LF of "W-Beam Guardrail".
  3. Topsoil stripping estimated at 6".
  4. Dimensions are to back of rail.

THRIE/W-BEAM GUARDRAIL LAYOUT  
Co. Rd. 42  
Buchanan West Approximately 5 Miles  
Stutsman County, North Dakota

Added Sheet 10/23/18	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SC-4718(060)	170	1



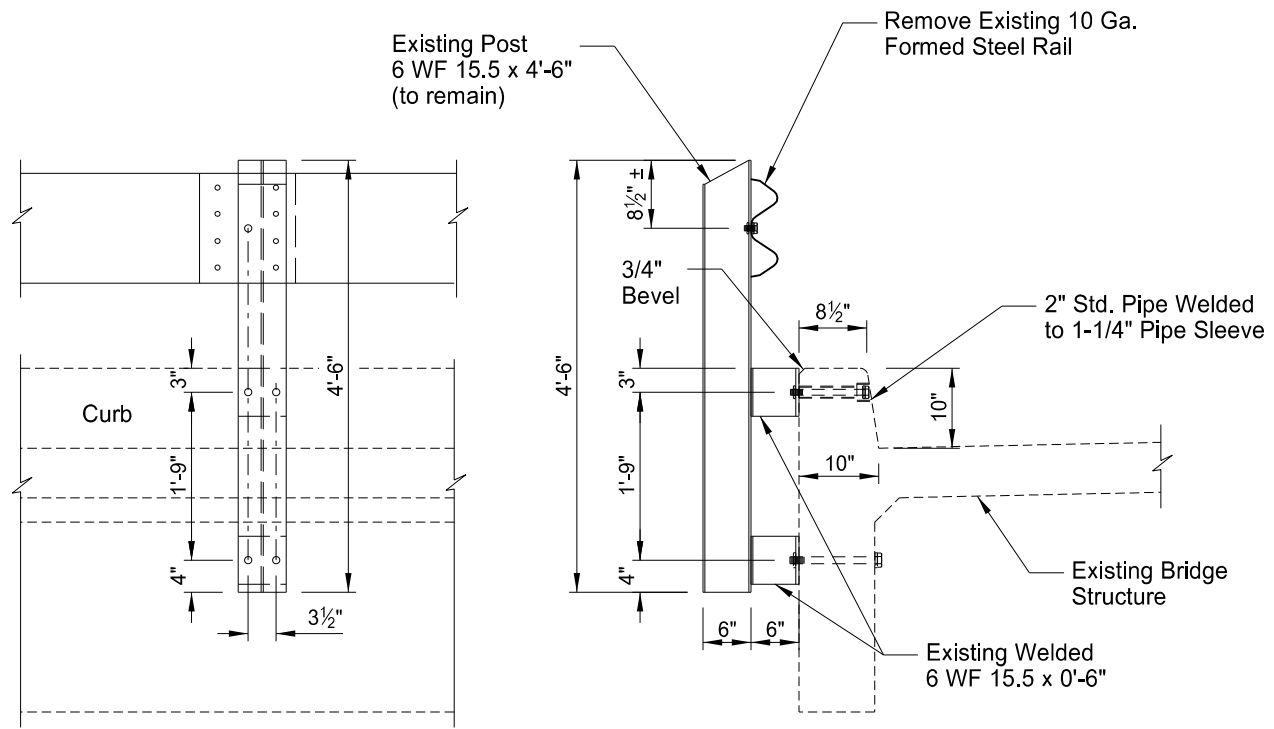
Note

1. County will remove all existing cattle fencing and signs from the bridge.
2. All costs to remove concrete end post shall be included in the price for "Remove Bridge Rail".

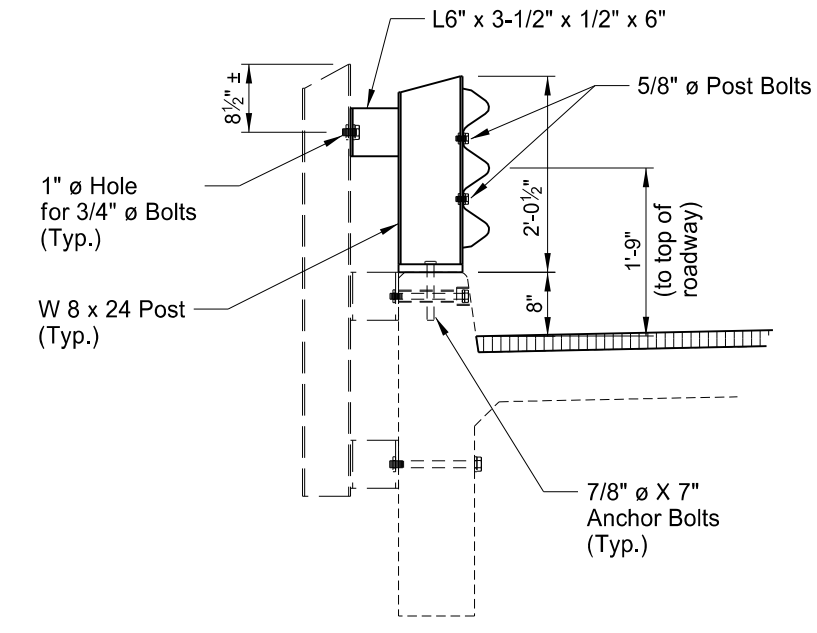
This document was originally issued and sealed by Benjamin B. Aaseth, Registration Number PE-10085, on 10/23/18 and the original document is stored at the Stutsman County Highway Department

**BRIDGERAIL REMOVAL & LAYOUT**  
Co. Rd. 42  
Buchanan West Approximately 5 Miles  
Stutsman County, North Dakota

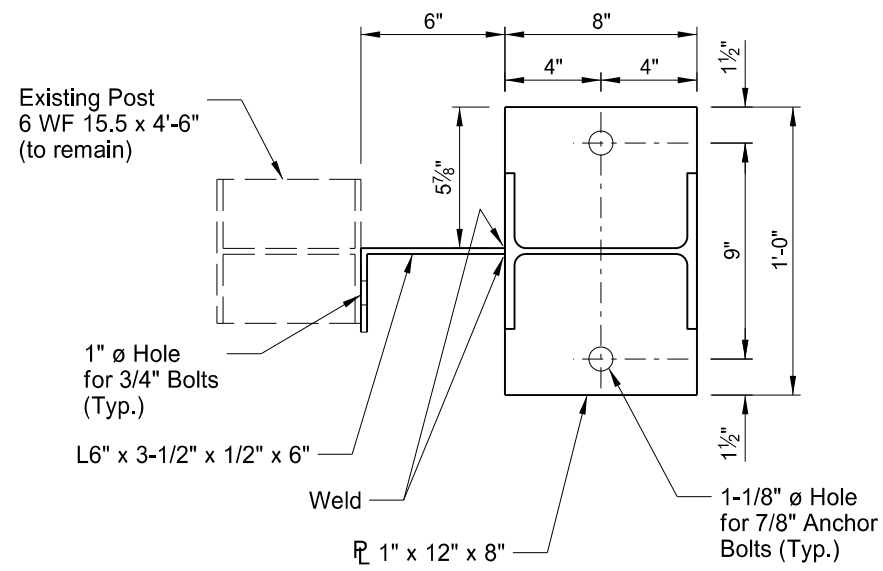
Added Sheet 10/23/18	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SC-4718(060)	170	2



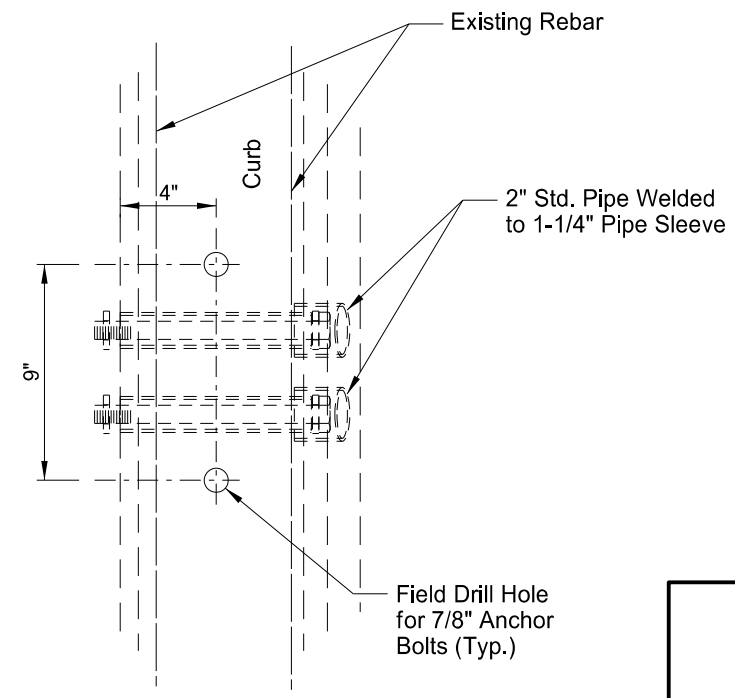
**EXISTING CURB & GUARD RAIL DETAIL**  
N.T.S.



**RETROFIT CURB & GUARD RAIL DETAIL**  
N.T.S.



**BASE PLATE DETAIL**  
N.T.S.



**TOP OF EXISING CURB DETAIL**  
N.T.S.

Notes:

The Costs of all materials and labor required to install the posts, base plate, anchors and bolts shall be included in the bid item "Thrie Beam Guardrail".

Field Verify all dimensions and incorporate them in the shop drawings. The retrofit shop drawings shall be submitted for review to the Engineer before fabrication.

Remove and dispose the existing guardrail.

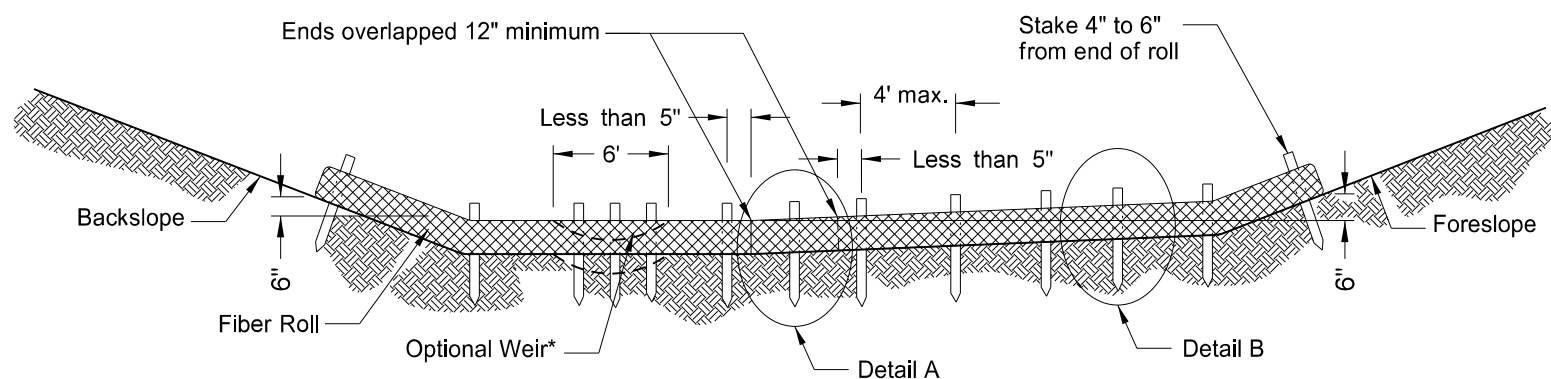
The cost of removing the existing rail is paid as "Remove Bridge Rail".

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**GUARD RAIL DETAILS**

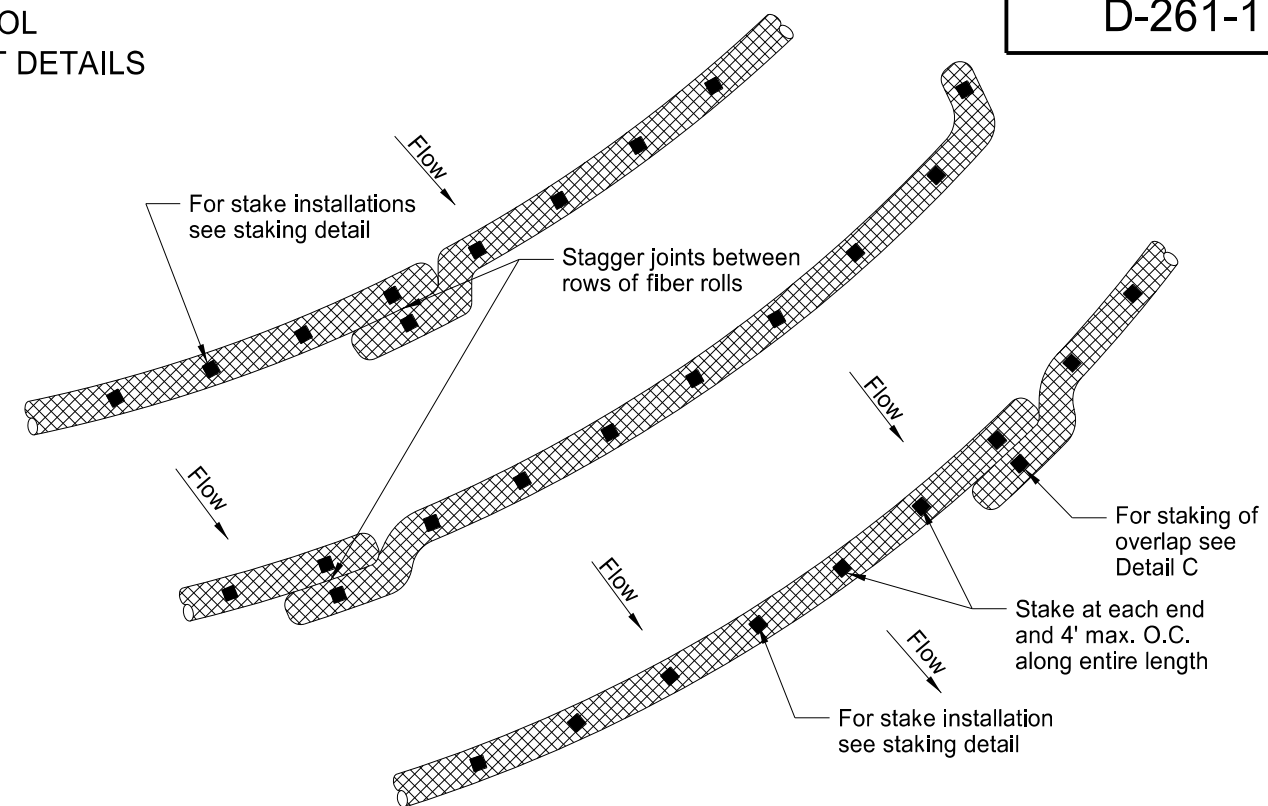
Co. Rd. 42  
Buchanan West Approximately 5 Miles  
Stutsman County, North Dakota

EROSION CONTROL  
FIBER ROLL PLACEMENT DETAILS

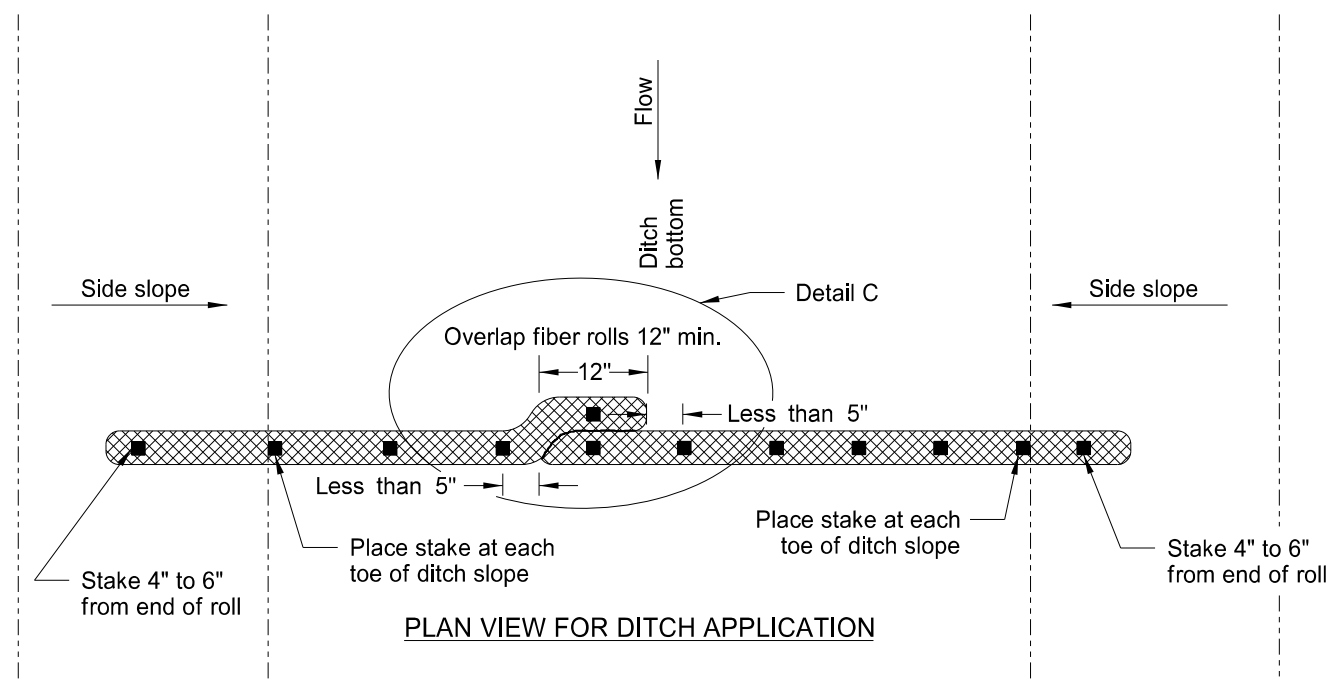


\*Optional Weir. Use in flat areas, such as the Red River Valley, where there is potential for water to back up on adjacent property. Lower fiber roll enough to prevent water from backing up on adjacent property. Do not use 20-inch fiber rolls in flat areas where there is potential for water to back up on adjacent property.

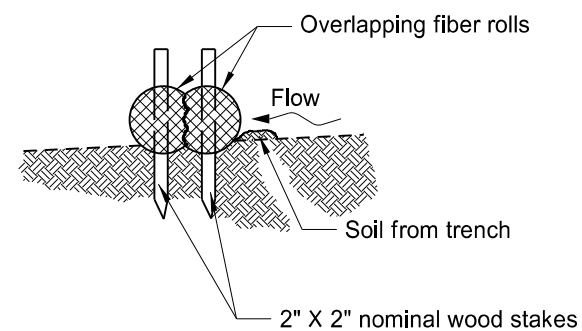
12 OR 20 INCH FIBER ROLL - DITCH BOTTOM



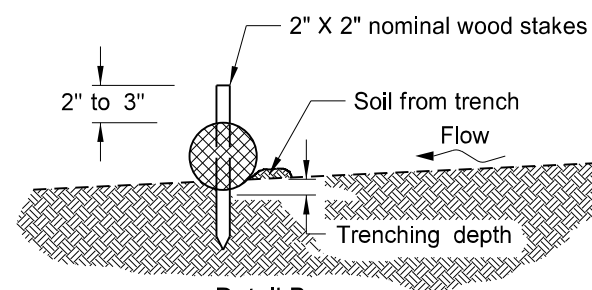
PLAN VIEW FOR SLOPE APPLICATION



PLAN VIEW FOR DITCH APPLICATION



Detail A  
Fiber Roll Overlapping Staking Detail



Detail B  
Fiber Roll Staking Detail

FIBER ROLL DIAMETER	NOMINAL STAKE SIZE	MINIMUM STAKE LENGTH	MINIMUM TRENCH DEPTH	MAXIMUM TRENCH DEPTH
6"	2" x 2"	18"	2"	2"
12"	2" x 2"	24"	2"	3"
20"	2" x 2"	36"	3"	5"

NOTE: Runoff must not be allowed to run under or around roll.

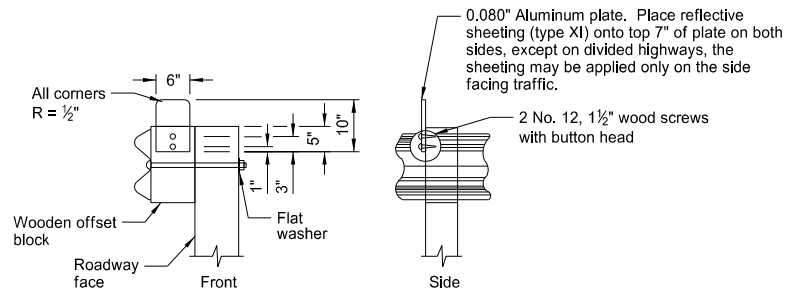
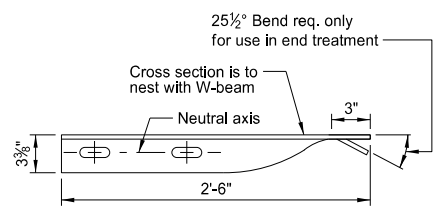
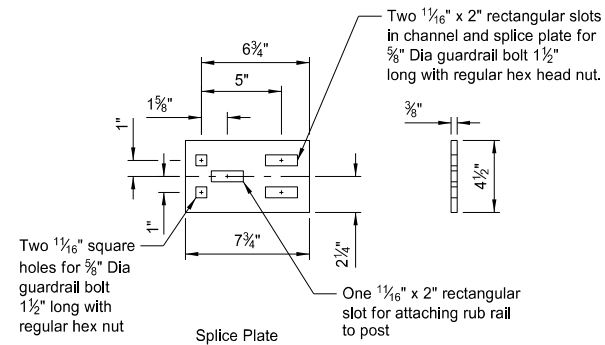
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
11-18-10	
REVISIONS	
DATE	CHANGE
06-10-13	Added plan view for ditch and slope application, Added table with values for stake and trench dimensions.
10-04-13	Revised fiber roll overlap detail.
06-26-14	Changed standard drawing number from D-708-7 to D-261-1

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W-BEAM GUARDRAIL GENERAL DETAILS

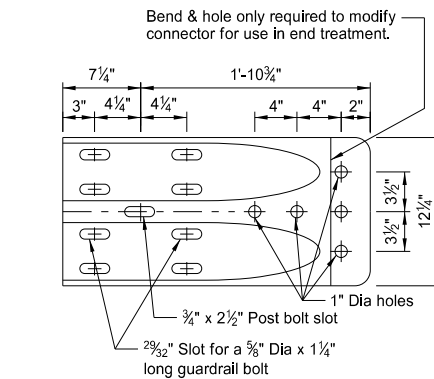
NOTES:

1. ReflectORIZED plates: Reflector plates shall begin at the first post and be spaced at 25' centers on guardrail less than 250' in length and at 50' centers for guardrail over 250' in length. The reflector shall be the same color as the pavement marking adjacent to that reflector unless noted otherwise on the plans.
2. Manner of replacing bituminous material at guardrail post: All excess earth from excavations for guard posts shall be disposed of as directed by the engineer. Replace bituminous material wherever guardrail is installed after mat has been laid. Cost of excavation and replacing of bituminous material to be included in the price bid for other items.
3. The Object Marker shall fit within the vertical edges of the Impact Plate. The retroreflective sheeting shall be type XI sheeting meeting the requirements of Section 894.02.B of the standard specifications. The sheeting shall be applied to 0.100 Aluminum sheeting meeting the requirements Section 894.01.A. The Object Marker shall attach to the Impact Head Plate with rivets or some other attachment device. The rivets or attachment device shall be non-rust. The stripes shall slope downward toward the roadway side.
4. Guardrail installation height tolerance =  $-\frac{1}{4}"$ ,  $+1"$ .

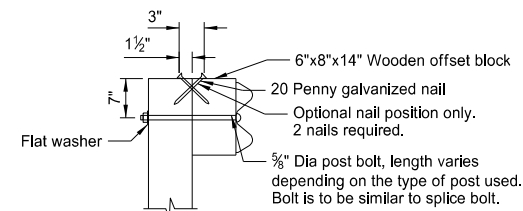


REFLECTORIZED PLATE DETAIL

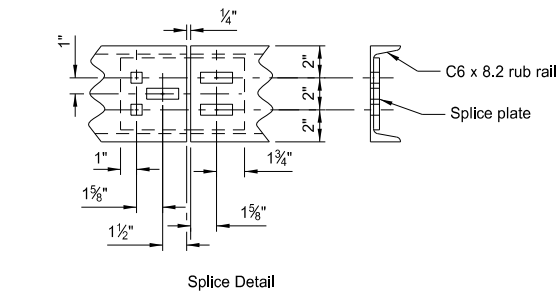
Additional reflectors are added to the W-beam guardrail quantities for placement on end treatment.



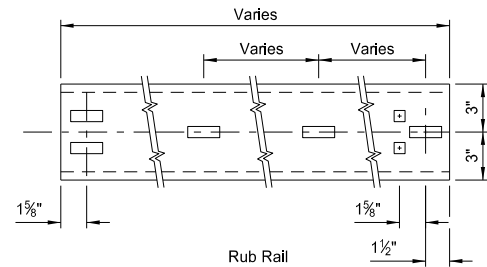
W BEAM TERMINAL CONNECTOR



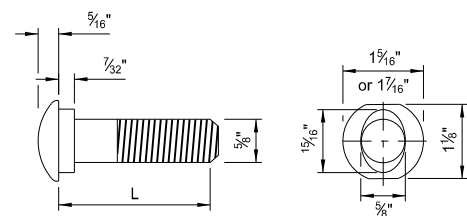
TYPICAL POST ATTACHMENT DETAIL



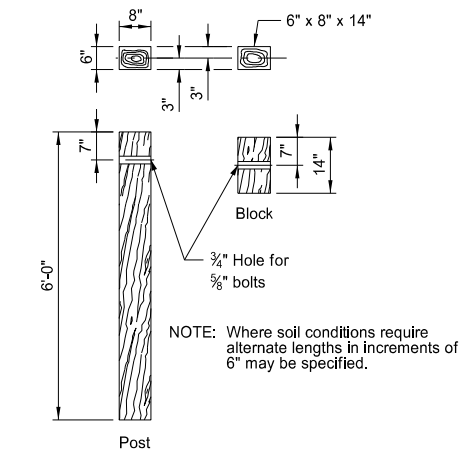
Splice Detail



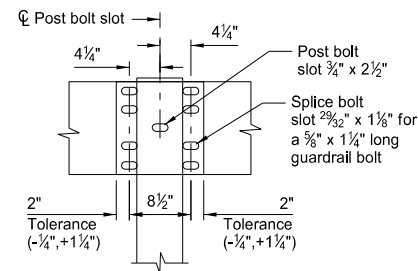
C6x8 RUB RAIL AND SPLICE PLATE



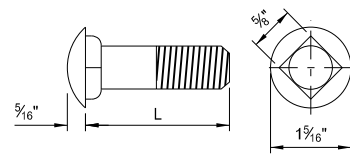
5/8" Diameter Guardrail Bolt	
L	Thread Length
1 1/4"	Full length thread
2"	1 3/4" Min thread length
9 1/2"	4" Min thread length
18"	4" Min thread length
20"	4" Min thread length
22"	4" Min thread length
25"	4" Min thread length



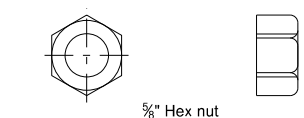
6"x8" TIMBER POST & BLOCK



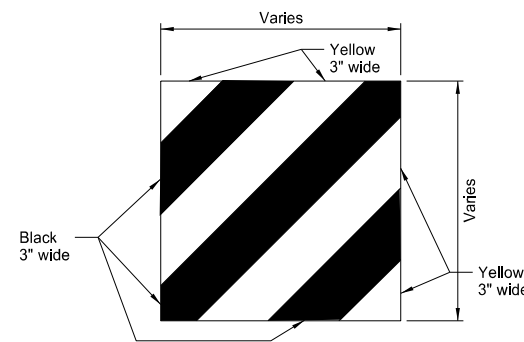
SPLICE DETAIL



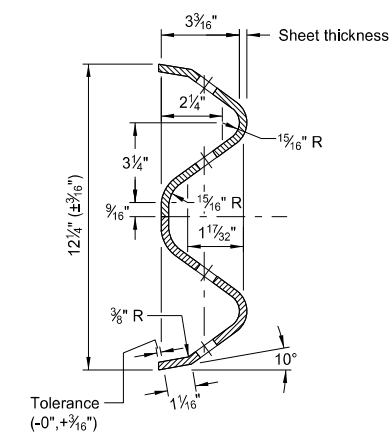
5/8" Diameter Carriage Bolt	
L	Thread Length
1 1/2"	Full length thread
3"	1 1/2" Min thread length
11"	1 3/4" Min thread length
13"	1 3/4" Min thread length



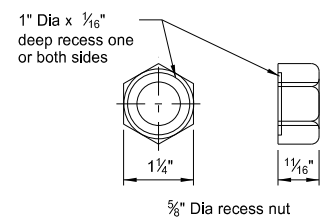
5/8" CARRIAGE BOLT & NUT



IMPACT HEAD OBJECT MARKER



W-BEAM CROSS SECTION



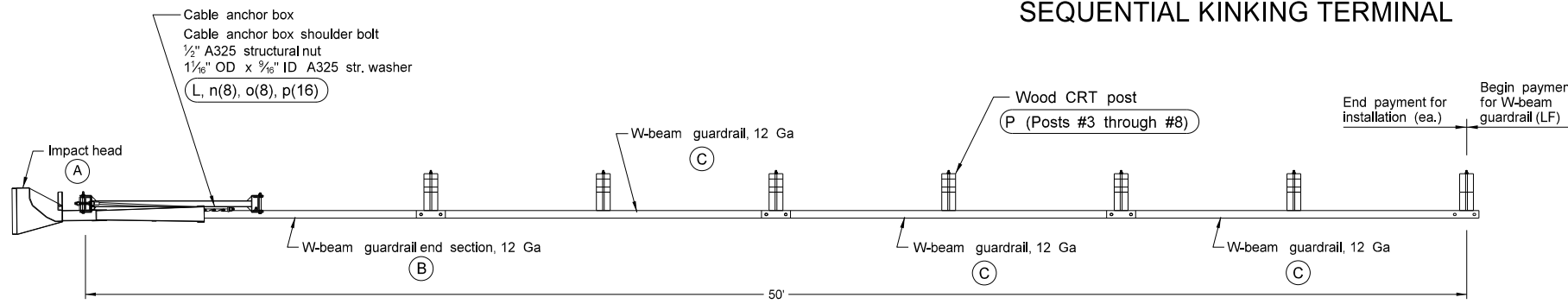
5/8" GUARDRAIL BOLT & RECESS NUT

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
10-11-13	
REVISIONS	
DATE	CHANGE

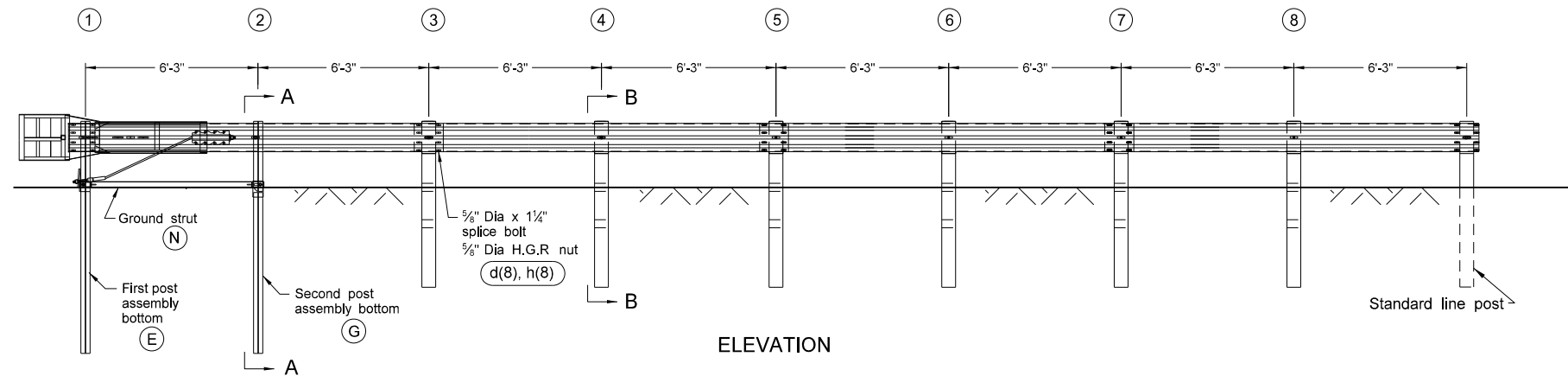
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# SEQUENTIAL KINKING TERMINAL

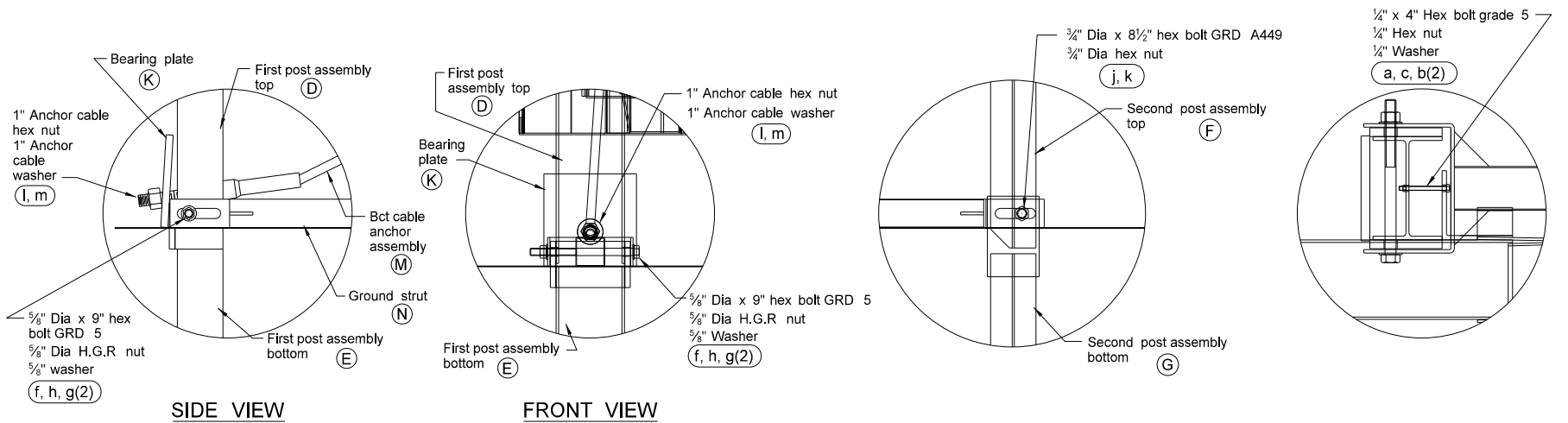
D-764-5



PLAN



ELEVATION



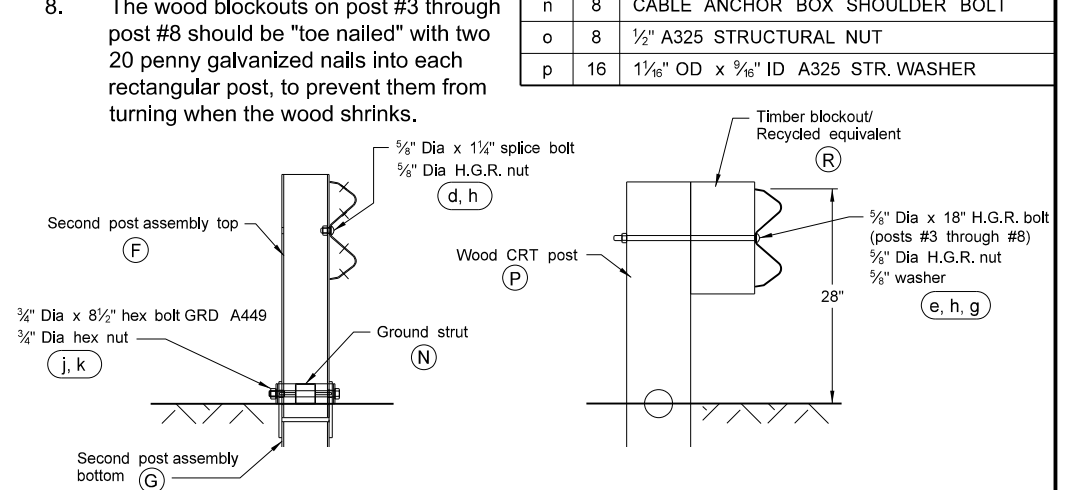
SIDE VIEW

FRONT VIEW

POST #1 CONNECTION DETAILS

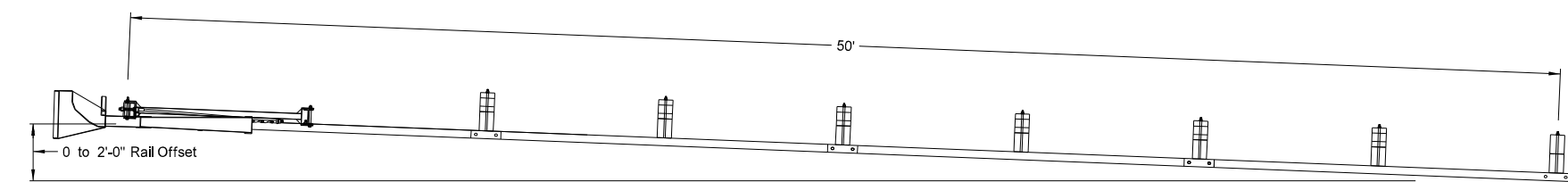
SIDE VIEW DETAIL OF POST #2

IMPACT HEAD CONNECTION DETAIL



SECTION A-A  
Post #2

SECTION B-B  
Posts #3 through #8



FLARED INSTALLATION  
25:1 maximum flare rate

GENERAL NOTES:

- Breakaway posts are required with the SKT.
- All bolts, nuts, cable assemblies, cable anchors and bearing plates shall be galvanized.
- The SKT can be flared at a rate of up to 25:1 to prevent the impact head from encroaching on the shoulder.
- The lower sections of the posts shall not protrude more than 4" above the ground (measured along a 5' cord). Site grading may be necessary to meet this requirement.
- The lower section 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.
- When rock is encountered, a 10" diameter post hole, 20" into the rock surface may be used if approved by the engineer. Granular material will be placed in the bottom of the hole, approximately 2 1/2" deep to provide drainage. Posts 1 & 2 can be field cut to length, placed in the hole and backfilled with adequately compacted material excavated from the hole.
- The breakaway cable assembly must be taut. A locking device (vice grips or channel lock pliers) should be used to prevent the cable from twisting when tightening nuts.
- The wood blockouts on post #3 through post #8 should be "toe nailed" with two 20 penny galvanized nails into each rectangular post, to prevent them from turning when the wood shrinks.

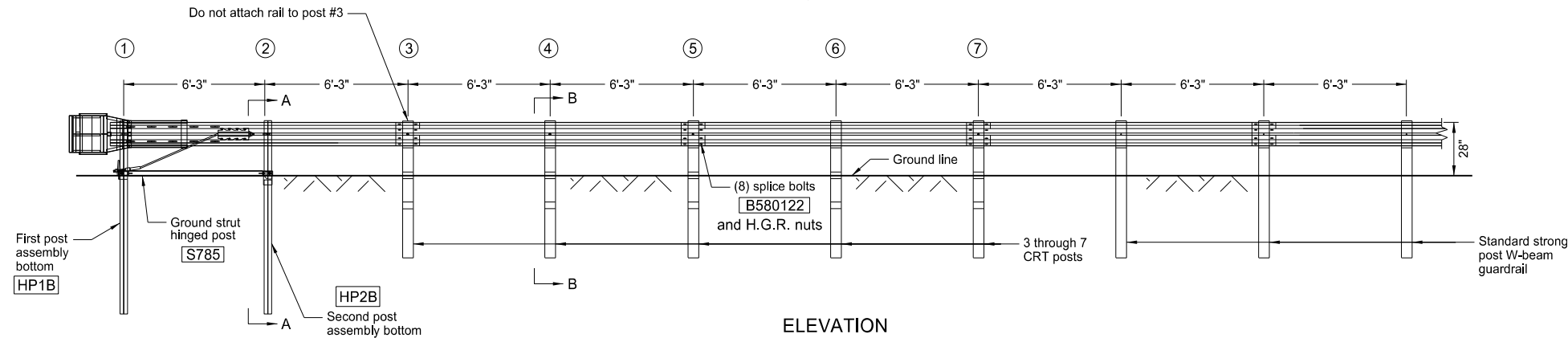
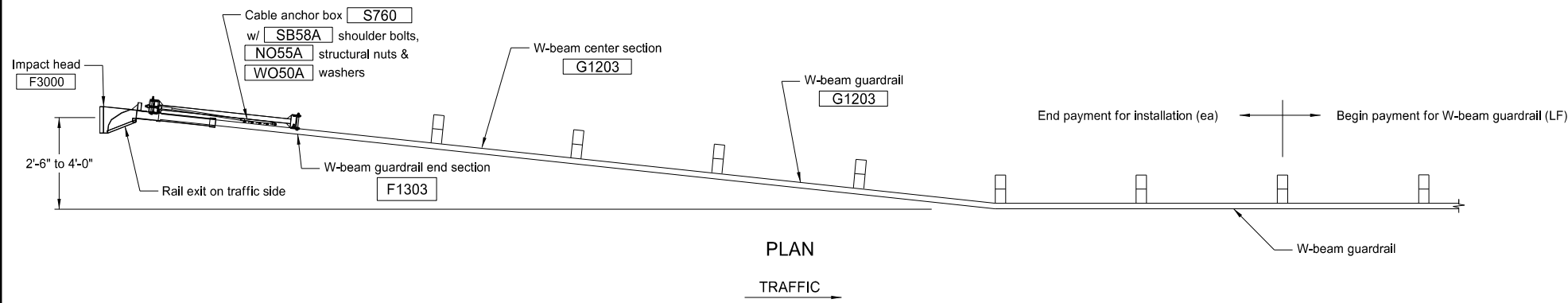
ITEM QTY		BILL OF MATERIALS
A	1	IMPACT HEAD
B	1	W-BEAM GUARDRAIL END SECTION, 12 Ga
C	3	W-BEAM GUARDRAIL, 12 Ga
D	1	FIRST POST ASSEMBLY TOP
E	1	FIRST POST ASSEMBLY BOTTOM
F	1	SECOND POST ASSEMBLY TOP
G	1	SECOND POST ASSEMBLY BOTTOM
K	1	BEARING PLATE
L	1	CABLE ANCHOR BOX
M	1	BCT CABLE ANCHOR ASSEMBLY
N	1	GROUND STRUT HINGED POST
P	6	WOOD CRT POST
R	6	TIMBER BLOCKOUT/RCY EQUIVALENT
HARDWARE		
a	2	1/4" x 4" HEX BOLT Grade 5
b	4	1/4" WASHER
c	2	1/4" HEX NUT
d	25	5/8" Dia x 1 1/4" SPLICE BOLT, POST #2
e	6	5/8" Dia x 18" H.G.R. BOLT (POSTS 3 THRU 8)
f	1	5/8" Dia x 9" HEX BOLT GRD 5
g	8	5/8" WASHER
h	32	5/8" Dia H.G.R. NUT
j	1	3/4" Dia x 8 1/2" HEX BOLT GRD A449
k	1	3/4" Dia HEX NUT
l	2	1" ANCHOR CABLE HEX NUT
m	2	1" ANCHOR CABLE WASHER
n	8	CABLE ANCHOR BOX SHOULDER BOLT
o	8	1/2" A325 STRUCTURAL NUT
p	16	1 1/8" OD x 3/16" ID A325 STR. WASHER

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION 10-11-13	
REVISIONS	
DATE	CHANGE

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# FLARED ENERGY ABSORBING TERMINAL

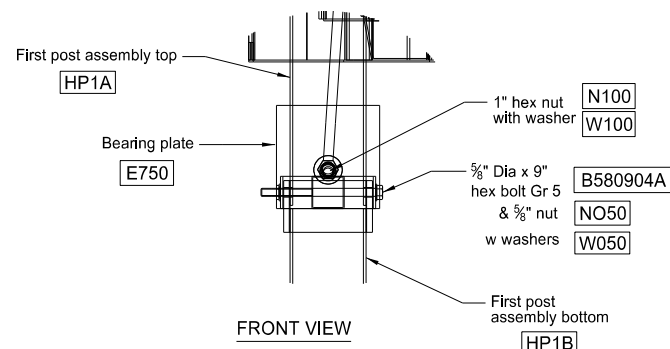
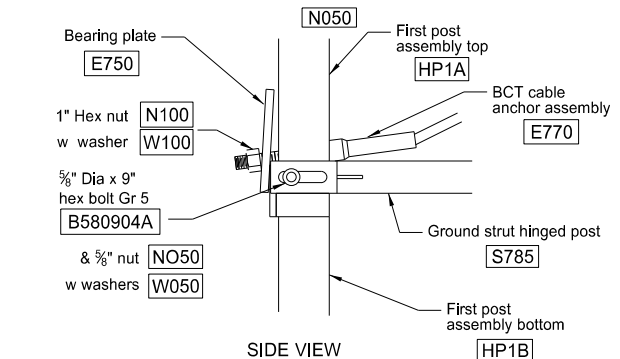
D-764-6



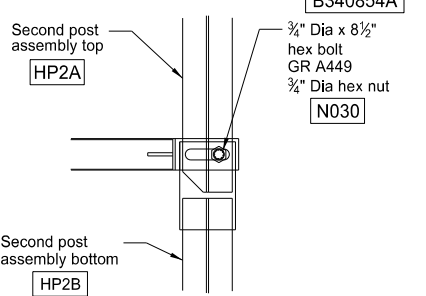
ITEM #	QTY	BILL OF MATERIALS
F3000	1	IMPACT HEAD
F1303	1	W-BEAM GUARDRAIL END SECTION, 12 GA
G1203	2	W-BEAM GUARDRAIL, 12 GA
HP1A	1	FIRST POST ASSEMBLY TOP
HP1B	1	FIRST POST ASSEMBLY BOTTOM
HP2A	1	SECOND POST ASSEMBLY TOP
HP2B	1	SECOND POST ASSEMBLY BOTTOM
P671	5	WOOD CRT POST
P675	5	TIMBER BLOCKOUT OR RECYCLED EQUIVALENT
E750	1	BEARING PLATE
S760	1	CABLE ANCHOR BOX
E770	1	BCT CABLE ANCHOR ASSEMBLY
S785	1	GROUND STRUT HINGED POST
HARDWARE (ALL DIMENSIONS IN INCHES)		
B140404	2	1/4 Dia x 4 HEX BOLT
WO14	4	1/4 WASHER
N014	2	1/4 HEX NUT
B580122	17	5/8 Dia x 1 1/4 SPLICE BOLT
B581802	4	5/8 Dia x 10 H.G.R. BOLT (POSTS 3 THRU 6)
B580904A	1	5/8 Dia x 9 HEX BOLT GR 5
W050	5	5/8 WASHER
N050	22	5/8 Dia H.G.R. NUT
B340854A	1	3/4 Dia x 8 1/2 HEX BOLT GR A449
N030	1	3/4 Dia HEX NUT
N100	2	1 ANCHOR CABLE HEX NUT
W100	2	1 ANCHOR CABLE WASHER
SB58A	8	CABLE ANCHOR BOX SHOULDER BOLT
N055A	8	1/2 Dia A325 STRUCTURAL NUT
W050A	16	1 1/16 OD x 3/16 ID A325 STR. WASHER

**GENERAL NOTES**

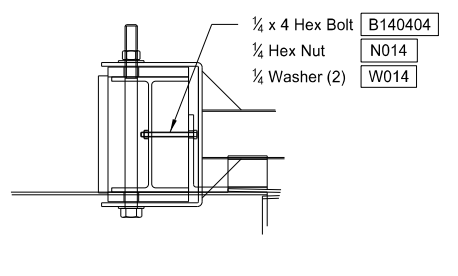
- Wood posts are required with the Flared Energy Absorbing Terminal except posts #1 and #2.
- All bolts, nuts, cable assemblies, cable anchors and bearing plates shall be galvanized.
- The lower sections of the posts shall not protrude more than 4 inches above the ground (measured along a 60 inch cord). Site grading may be necessary to meet this requirement.
- Lower post sections shall not be driven with the upper post attached. If the post is placed in a drilled hole, the backfill material must be satisfactory compacted to prevent settlement.
- When rock is encountered during excavation, a 12" diameter post hole 20" deep may be used if approved by the Engineer. Granular material will be placed in the bottom of the hole approximately 2 1/2" deep to provide drainage. The soil tubes shall be field cut to length, placed in the hole and back filled with adequately compacted material excavated from the hole.
- The breakaway cable assembly shall be taut. A locking device (vice grips or channel lock pliers) should be used to prevent cable from twisting when tightening nuts.
- The wood blockouts shall be "toe nailed" to the rectangular wood posts to prevent them from turning when wood shrinks. The nail shall be 20 penny and galvanized.
- The Flared Energy Absorbing Terminal shall be flared only when the approach guardrail is parallel with the roadway. When the approach guardrail is flared at 16:1 to 10:1, the Flared Energy Absorbing Terminal shall have only the flare rate of the guardrail. When the guardrail flare is between 10:1 and 7:1, the Flared Energy Absorbing Terminal shall be turned parallel to the roadway.



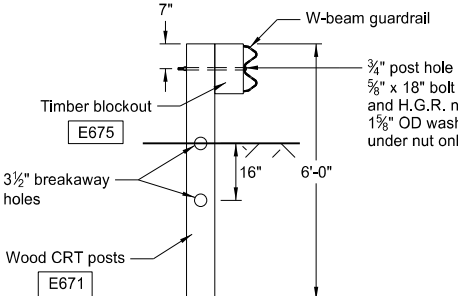
POST #1 CONNECTION DETAILS



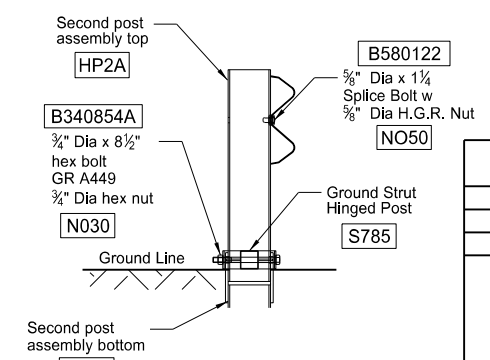
SIDE VIEW DETAIL OF POST #2



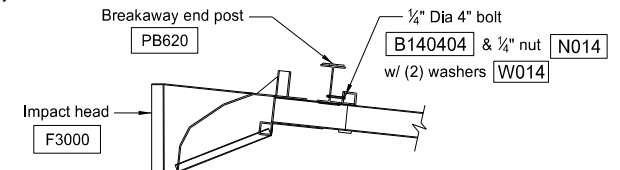
IMPACT HEAD CONNECTION DETAIL



SECTION B-B  
POST 3 THRU 7



SECTION A-A  
at Post #2



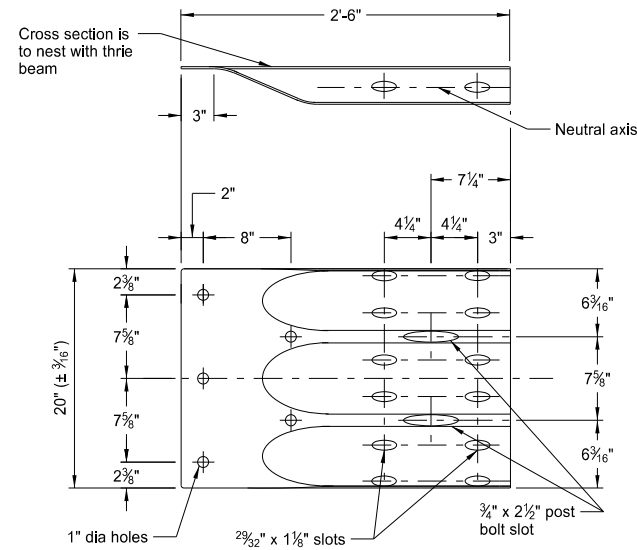
IMPACT HEAD CONNECTING DETAIL

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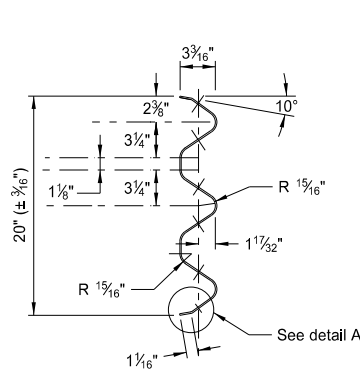
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# THRIE BEAM TRANSITION TO DOUBLE BOX BEAM RETROFIT

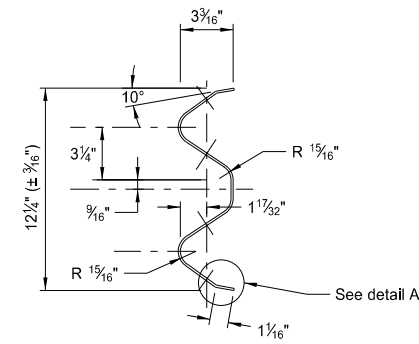
D-764-10



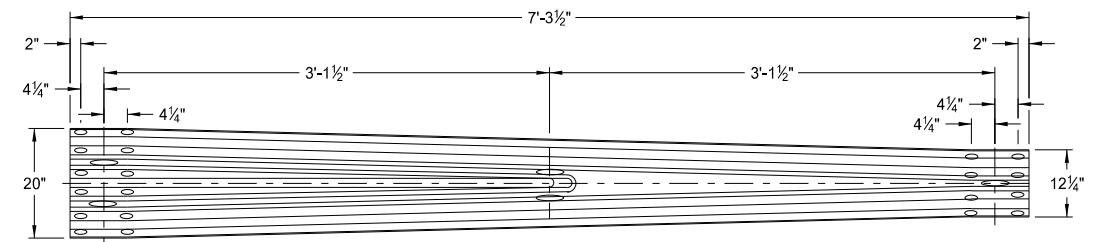
THRIE BEAM TERMINAL CONNECTOR



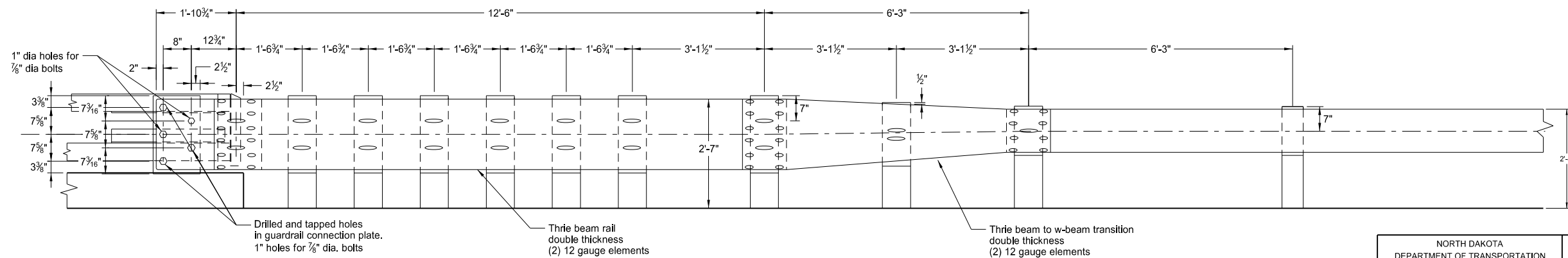
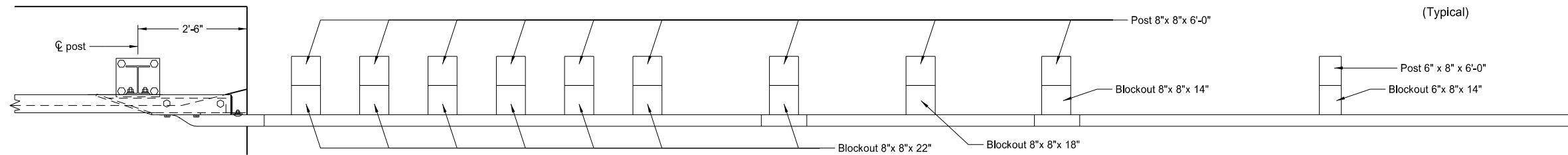
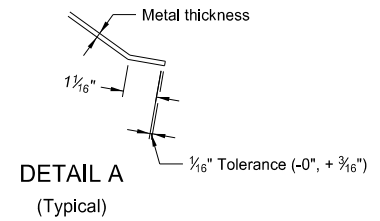
THRIE BEAM END VIEW



W-BEAM END VIEW



THRIE BEAM TO W-BEAM TRANSITION SECTION



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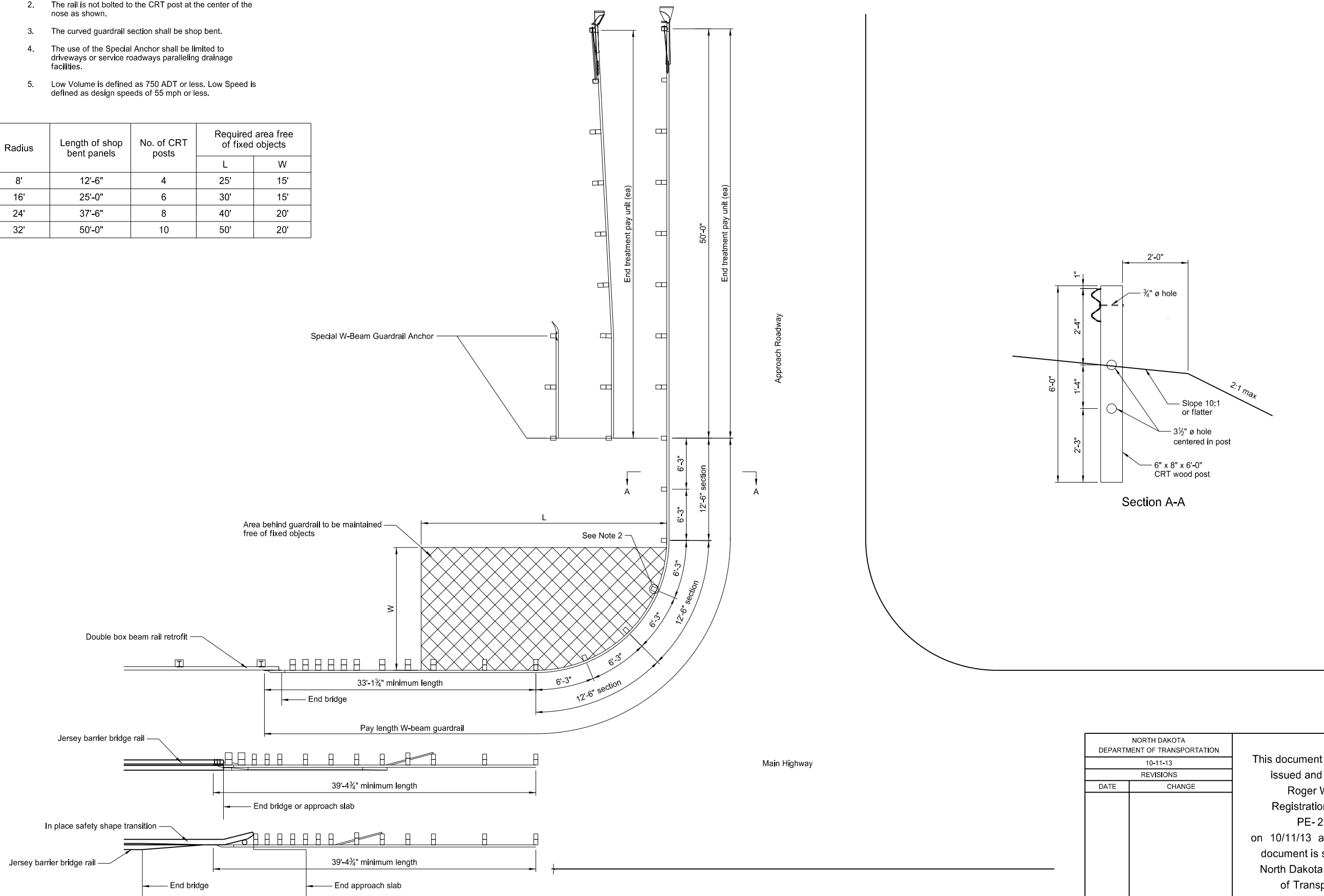


### W-BEAM GUARDRAIL WITH APPROACHES NEAR BRIDGE FOR LOW VOLUME LOW SPEED ROADWAYS

**NOTES:**

1. No washers are used on the  $\frac{5}{8}$ " guardrail bolts connecting the rail to the Controlled Release Terminal (CRT) posts.
2. The rail is not bolted to the CRT post at the center of the nose as shown.
3. The curved guardrail section shall be shop bent.
4. The use of the Special Anchor shall be limited to driveways or service roadways paralleling drainage facilities.
5. Low Volume is defined as 750 ADT or less. Low Speed is defined as design speeds of 55 mph or less.

Radius	Length of shop bent panels	No. of CRT posts	Required area free of fixed objects	
			L	W
8'	12'-6"	4	25'	15'
16'	25'-0"	6	30'	15'
24'	37'-6"	8	40'	20'
32'	50'-0"	10	50'	20'

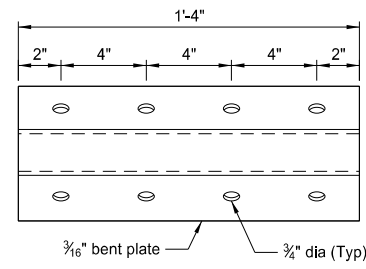


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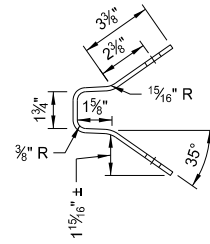
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# SPECIAL W-BEAM GUARDRAIL ANCHOR

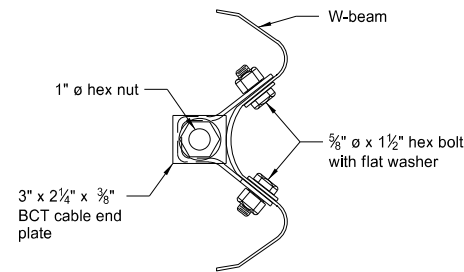
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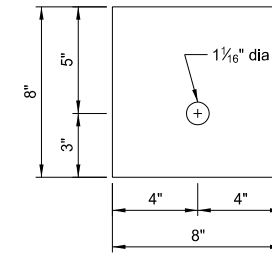
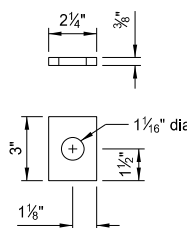
BCT ANCHOR PLATE



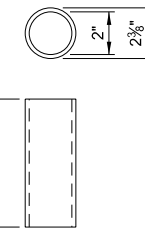
SECTION B-B



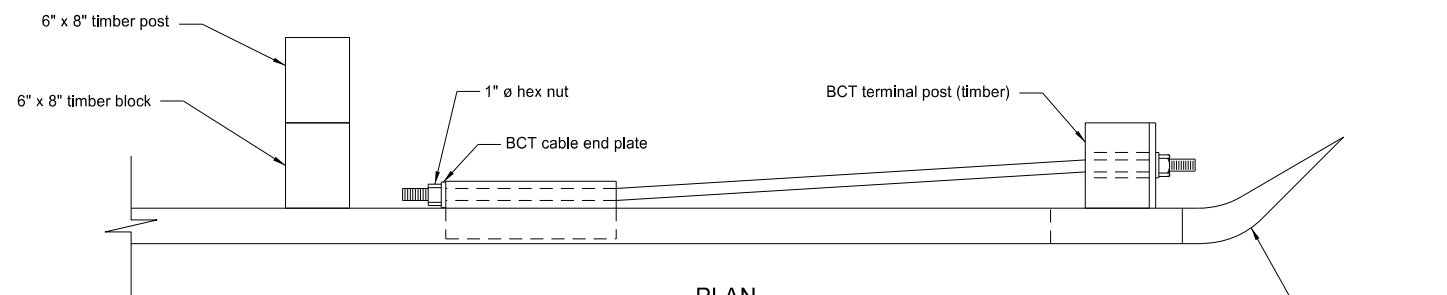
BCT CABLE END PLATE



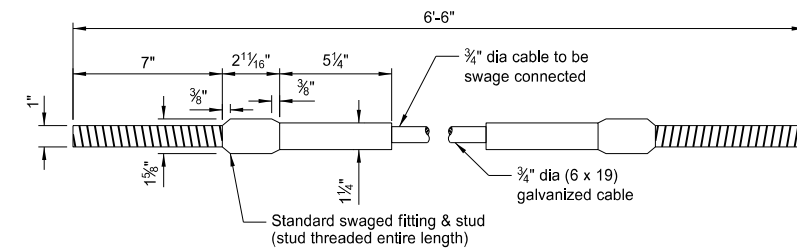
BEARING PLATE



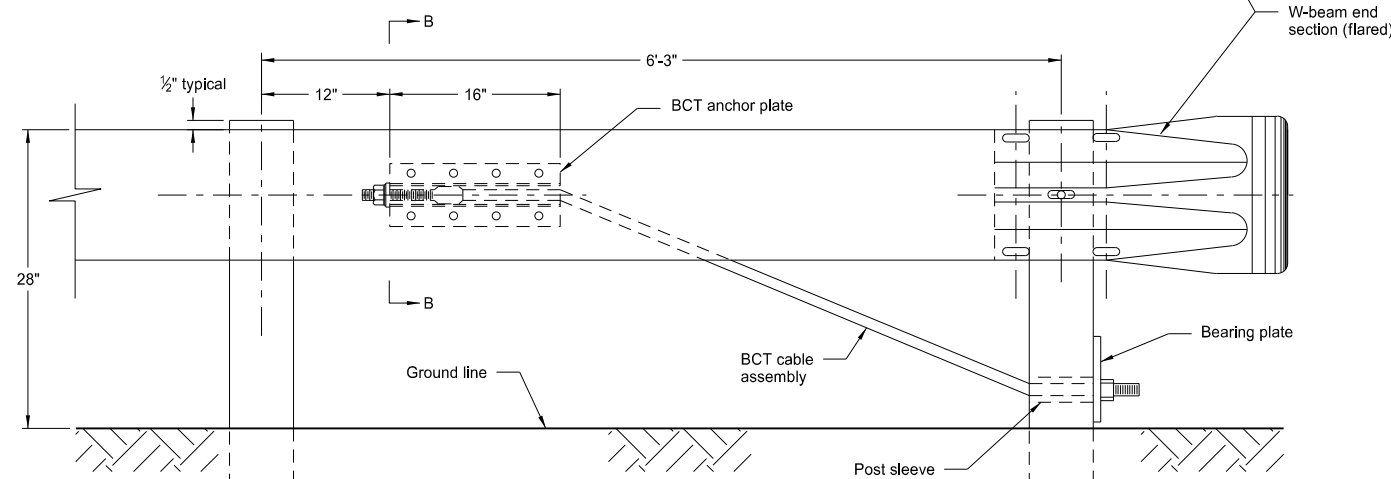
POST SLEEVE



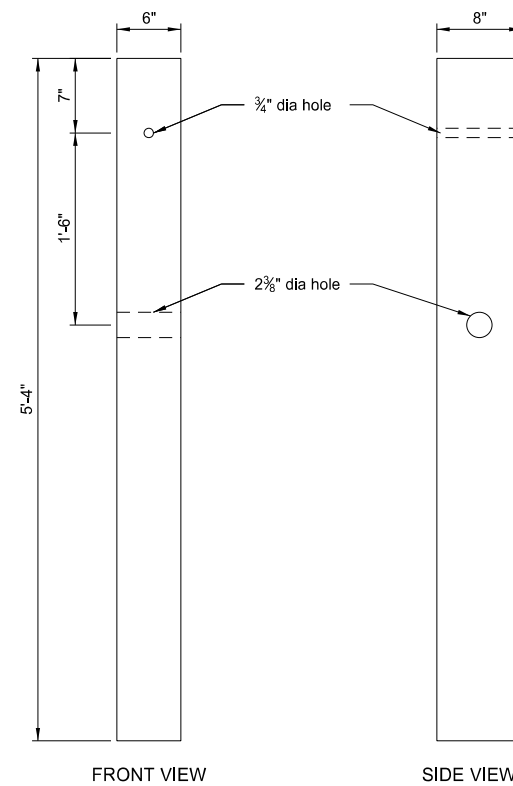
PLAN



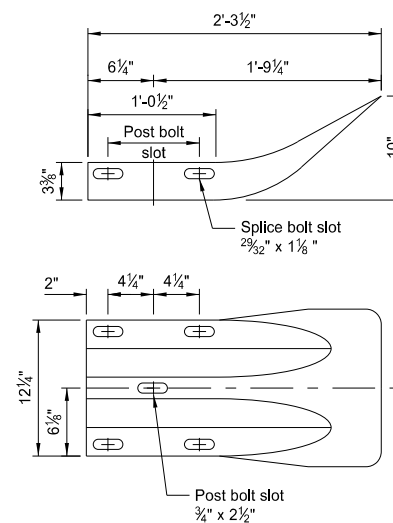
BCT CABLE ASSEMBLY



ELEVATION



BCT TERMINAL POST DETAILS



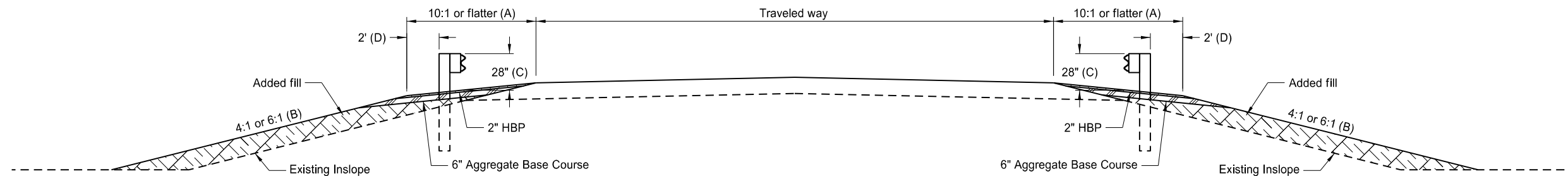
W BEAM END SECTION (FLARED)

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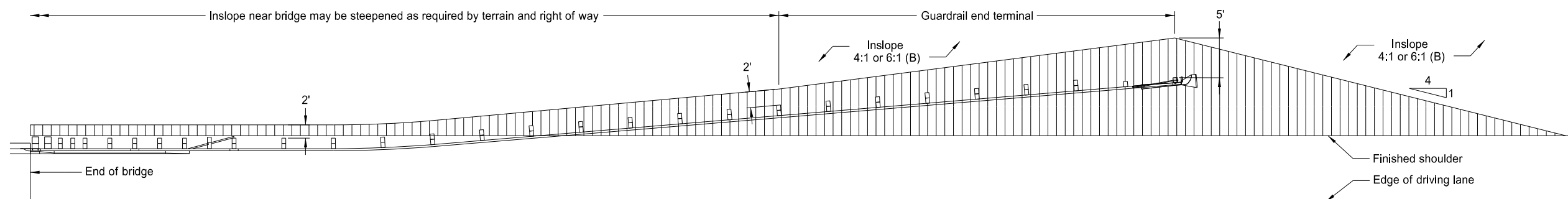
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TYPICAL GRADING AT BRIDGE ENDS  
WITH W-BEAM GUARDRAIL

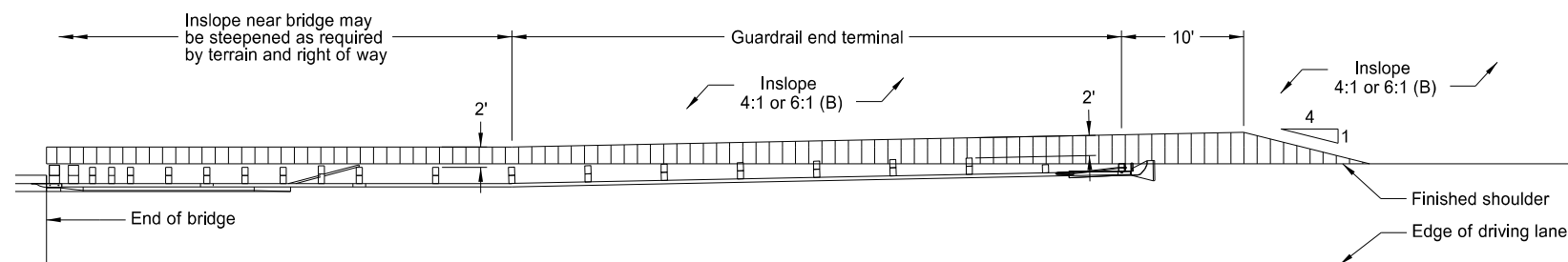
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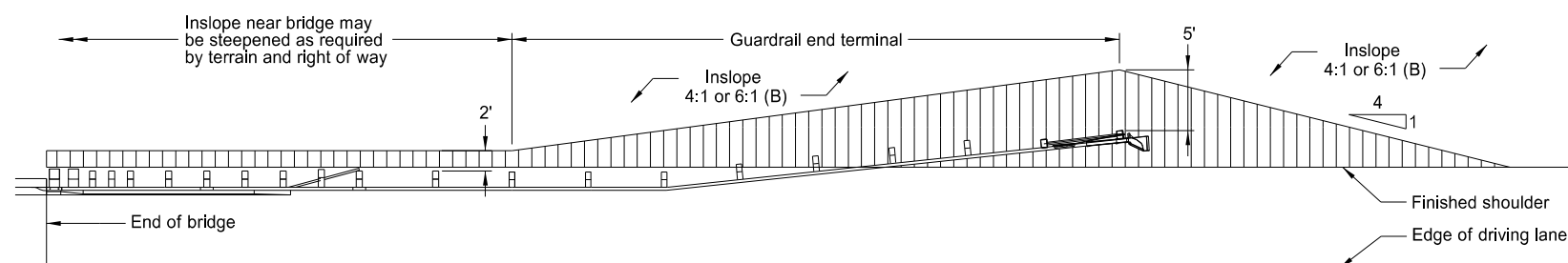
TYPICAL SECTION



PLAN LAYOUT  
FLARED GUARDRAIL WITH END TERMINAL



PLAN LAYOUT  
NON-FLARED GUARDRAIL WITH TANGENT END TERMINAL



PLAN LAYOUT  
NON-FLARED GUARDRAIL WITH FLARED END TERMINAL

NOTES:

- (A) Slope flatter than 10:1 may be required to provide proper guardrail height.
- (B) Where normal inslope is 4:1 the added fill shall be 4:1. Where normal inslope is 6:1 the added fill shall be 6:1.
- (C) Measured from top of guardrail to top of surfacing at front face of guardrail.
- (D) Dimension at end terminals may vary per Plan Layouts shown on this sheet.

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