

DESIGN DATA				
Traffic		Average Daily		
Current	2012	Pass: 1025	Trucks: 140	Total: 1165
Forecast	N/A	Pass: N/A	Trucks: N/A	Total: N/A
Clear Zone Distance:		N/A		
Design Speed:		65 MPH		
Minimum Sight Dist. for Stopping:		N/A		
Sight Dist. for No Passing Zone:		N/A		
Pavement Design Life (years)		N/A		
Design Accumulated One-way N/A ESALs:				

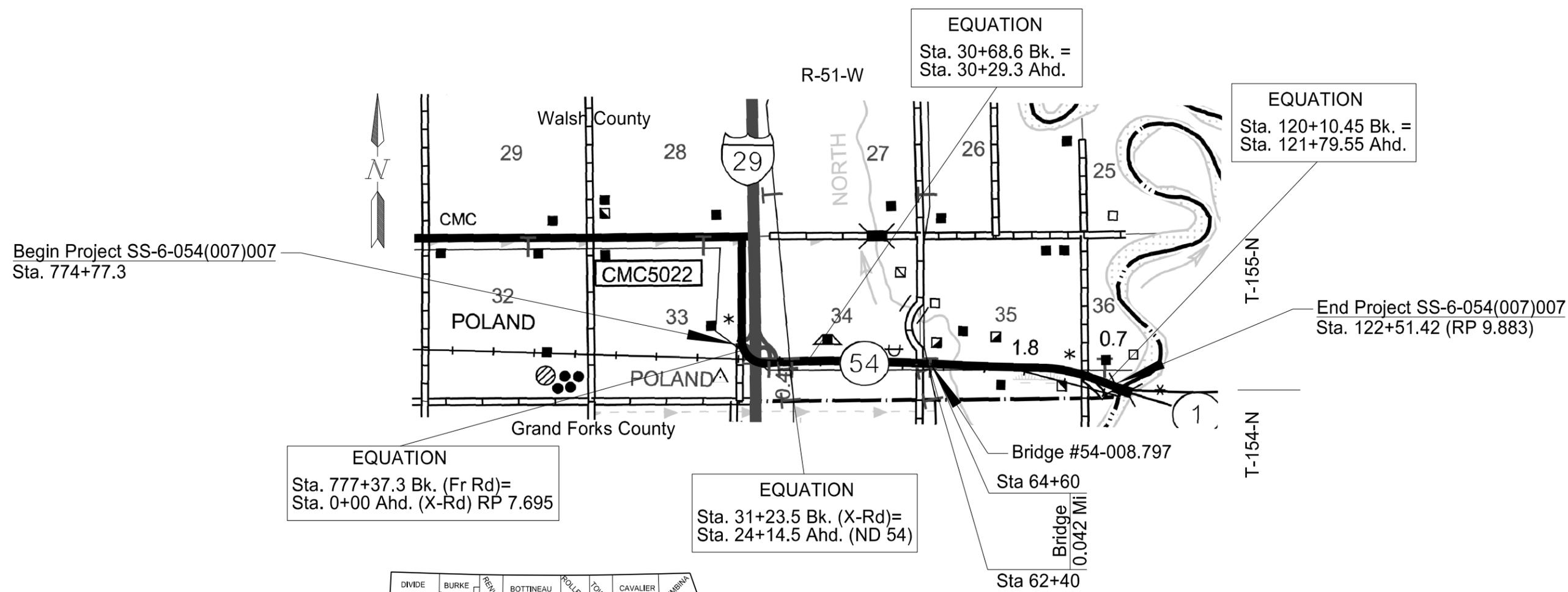
**JOB #14
NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION**

STATE	PROJECT NO.	PCN	SECTION NO.	SHEET NO.
ND	SS-6-054(007)007	18343	1	1

SS-6-054(007)007
FHWA Limited Involvement
Walsh County
I-29 X-Road Portion E to Red River
Milling and Recycled Hot Bituminous Pavement

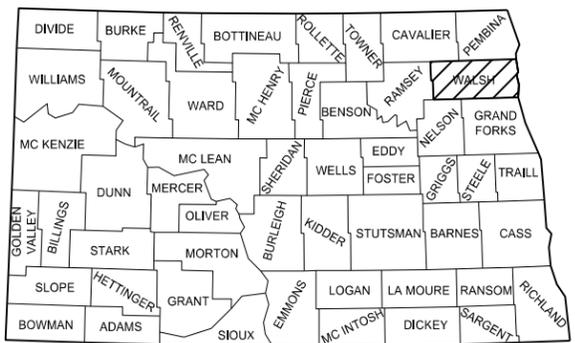
GOVERNING SPECIFICATIONS:
Standard Specifications adopted by the North Dakota Department of Transportation October 2008; Standard Drawings currently in effect; and other Contract Provisions submitted herein.

PROJECT NUMBER \ DESCRIPTION	NET MILES	GROSS MILES
SS-6-054(007)007	2.437	2.479
	0.042 miles deducted for bridge	



Begin Project SS-6-054(007)007
Sta. 774+77.3

End Project SS-6-054(007)007
Sta. 122+51.42 (RP 9.883)



STATE COUNTY MAP

DESIGNERS
Eric L. Rudrud /s/
Brian J. Rosin /s/

APPROVED DATE 8-30-2013

Roger Weigel /s/
for OFFICE OF PROJECT DEVELOPMENT
ND DEPARTMENT OF TRANSPORTATION

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 8-30-13

James Douglas Rath /s/
NDDOT DESIGN DIVISION

This document was originally issued and sealed by James Douglas Rath Registration Number PE- 4288, on 8/30/13 and the original document is stored at the North Dakota Department of Transportation

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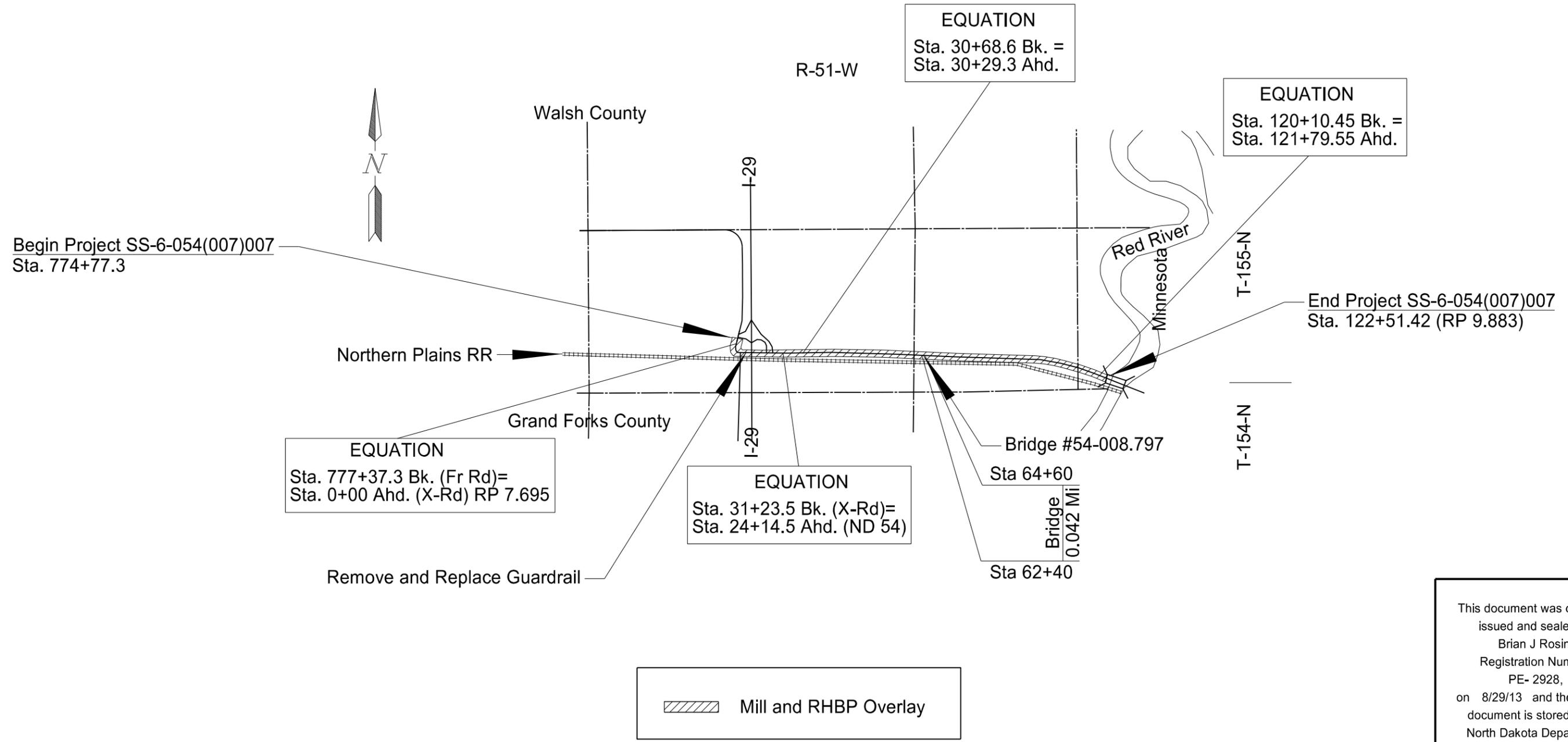
LIST OF STANDARD DRAWINGS

<u>STANDARD NO.</u>	<u>DESCRIPTION</u>
D-20-1, 2, 3	NDDOT Abbreviations
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D-704-2	Traffic Control For Coring Of Hot Bituminous Pavement
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D-706-1	Type C Field Laboratory
D-760-3	Rumble Strips Undivided Highways (Shoulders 4' Or Greater)
D-762-4	Pavement Marking
D-762-6	Short-Term Pavement Marking
D-764-1	Beam Guardrail General Details
D-764-2C	Flared Energy Absorbing Terminal For Steel Breakaway System
D-764-16A	Guardrail At Obstructions 65 Mph Design Length Of Need Tables
D-764-20A	Typical Grading At Obstruction-Flared W-Beam Guardrail 65 Mph Design Speed
D-766-1	Mailbox Location Details

LIST OF SPECIAL PROVISIONS (SP)

<u>SP #</u>	<u>Description</u>
SP 1101(08)	Split Sampling and Testing Requirements for Aggregate Base
SP 1275(08)	Weather Limitations for Hot Bituminous Mix

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Scope of Work

Milling and Recycled Hot Bit Pvm Overlay

I-29 X-Road Portion E to Red River

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NOTES

GENERAL NOTES

107-113 RAILROAD PROTECTIVE LIABILITY INSURANCE: This project nears the Northern Plains Railroad at RP 7.6. The type of work that will be performed within the railroad right of way is guardrail installation and mill and overlay. Inquiries for protective liability insurance should be directed to:

Jesse Chalich
 Vice President Operations
 Northern Plains Railroad
 P.O. Box 38
 Fordville, ND 58231
 701-229-3330
jesse_chalich@nprail.com

Information on crossing number 696252Y may be obtained from the Federal Railroad Administration website:
<http://safetydata.fra.dot.gov/Officeofsafety/>

107-P01 HAULROADS: No paved roads off the state system will be used as haul roads. The contractor must obtain written approval from the local government agency or agencies and the engineer if off state system paved roads are to be used. The engineer will determine what government agency or agencies approvals are appropriate.

230-P01 SHOULDER PREPARATION: The contractor shall perform shoulder preparation on the existing shoulders. A herbicide such as FallowMaster, GlyKamba, or an approved equal is required to be sprayed on the shoulder and slough prior to the overlay to kill weeds and grass roots. The herbicide shall be mixed and applied in accordance to the manufacture's recommendations. A surfactant, which includes ammonium sulfate, shall be added to the tank at a minimum rate of 2-1/2 gallons per 100 gallons prior to adding the chemical or water.

The herbicide shall be applied two times, three weeks apart. Spraying shall be completed no more than 30 days prior to the paving operation. The contractor shall be responsible for any damage to adjacent vegetation caused by the spraying operation. The sprayer bar shall be shielded to protect against drift.

The overlay of the shoulder will not commence until it is evident that the vegetation on the shoulder is dead and removed. The contractor shall remove all dead vegetation and debris from the shoulders and sloughs.

All costs for the work as described above shall be included in the price bid for the item "Shoulder Preparation."

401-P01 FOG COAT: The final lift of pavement shall receive a fog seal with a SS1H or CSS1H emulsified asphalt. MS1 shall not be used as a fog seal. After final rolling, the fog seal shall be applied to pavement with a minimum mat temperature of 125 degrees F. Blotter sand may be necessary to correct any over application of emulsion. The blotter material shall be applied with equipment as specified in section 151.06 of the Standard Specifications or as approved by the engineer. All costs for providing and placing the blotter sand shall be paid for under PS-1 Schedule.

410-P01 CONTRACTOR DEVELOPED MIX DESIGN FAA 42: The contractor shall submit the Final Superpave Volumetric Mix Design. A mix design shall be submitted utilizing the RAP from this project (SS-6-054(007)007). The aggregate source and bitumen target percentage shall be shown on the mix designs. If the contractor is producing, for the NDDOT, a mix of equivalent or higher quality than what is shown in the plans, the contractor may propose it for use on this project. There will be no adjustment in bid price for this substitution if accepted. The mix design shall be submitted for approval 7 working days before the material is used.

410-P02 SUPERPAVE PROPERTIES: The following aggregate and mix design properties are required.

Test	Criteria	Reference
Coarse Aggregate Angularity	75% min	NDDOT Field Sampling and Testing Manual
Fine Aggregate Angularity	42% min	AASHTO T 304
Gyratory Effort, # Gyration	Nini=7, N des=75, Nmax=115	AASHTO R 35
Voids Filled with Asphalt	65-78%	AASHTO M 323, T166
%Gmm @ Nini	90.5% max	AASHTO M 323, T166
Lightweight Pieces for Virgin Aggregate % Shale	5.0% max	AASHTO M 113, NDDOT Modified

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410-P03 RECYCLED ASPHALT PAVEMENT: The contractor shall add 20 percent recycled asphalt pavement (RAP) in the Superpave FAA 42 mixture.

Job mix formula tolerances for RAP shall be ± 5 percent from the target value. During mix production, the virgin aggregate shall meet the physical property requirements as determined from the mix design, except the Initial Control Points for Superpave Aggregate may be waved.

Recycled asphalt pavement shall be processed so that the maximum particle size in the cold feed does not exceed 1-1/2 inches (37.5mm).

Recycled asphalt pavement shall be introduced into the drum and combined with the virgin aggregate so the recycled asphalt pavement does not come into direct contact with the burner flame. Asphalt binder shall be added to the mixture in the drum after the virgin aggregate and RAP have been combined.

The contractor shall supply a 165 pound sample of material milled from the project in addition to the virgin aggregate and liquid asphalt required in Section 410 for mix design purposes. The samples shall be submitted to the District.

410-P04 SHOULDER MATERIAL: Where necessary, the first lift of hot bituminous material placed on the shoulders may be either blade or paver laid ahead of the paving of the driving lane and shoulder. The final lift will be paver laid.

410-P05 AGGREGATE SAMPLING DEVICE: The Contractor shall provide an aggregate sampling device that can be safely operated by the Contractor and is capable of obtaining a representative sample of the combined aggregate from a flowing aggregate stream in accordance with the requirements of AASHTO T-2 prior to entering the dryer drum or drum mixer and without stopping plant production. The sampling device shall be approved by the Engineer.

410-P06 LEVELING COURSE: The hot bituminous pavement at centerline shall consist of a leveling course 2 feet wide (1 foot on each side of the center line joint) and a wearing course. The total depth of the combined leveling course and wearing course shall be such that the current roadway elevation is maintained. A tack coat shall be applied prior to placement of the leveling course at the rate shown on the basis of estimate. Approximately 40 tons/mile has been provided to be used as a leveling course and shall be compacted with a self-propelled pneumatic roller, which shall meet NDDOT Standard Specification 151.02B. The material for the centerline blade laid leveling course has been added to the mainline tonnage. The engineer will determine after the milling operation if this quantity is required. All hot bituminous mix and asphalt cement required for the leveling course shall be measured and paid for by the ton of "Recycled Asphalt Pavement-Superpave FAA 42" and "PG 58-28 Asphalt Cement." This shall be considered full payment for performing the leveling course work.

411-P01 TEMPORARY ASPHALT WEDGES: The contractor shall place temporary asphalt or milled material wedges at the milled taper locations to allow for a smooth passage of vehicles. All costs associated with labor, materials, and equipment for the installation, maintenance, and removal of the wedges shall be included in the price for "Milling Pavement Surface."

411-P02 MILLED MATERIAL: All milled material from this project (SS-6-054(007)007) not used for the production of recycled hot bituminous pavement shall be stockpiled at the NDDOT Grand Forks District Storage Yard. All costs for labor and equipment to mill, haul, and stockpile the material shall be included in the unit price bid for "MILLING PAVEMENT SURFACE".

704-251 TRAFFIC CONTROL FOR UNEVEN PAVEMENT: The contractor has the option of making the paving lanes even at the end of each day's paving operation or signing for the uneven pavement and providing the following devices: Install "Uneven Lanes" signs (Sign No. W8-11-48) and a supplemental plate (Sign No. W20-52-54), identifying the distance, on the right shoulder (both directions) in advance of the beginning of the uneven pavement and at major intersections. A major intersection shall be defined as a CMC, state, U.S. highway, or Interstate ramp. Install "Do Not Pass" signs (Sign No. R4-1-48) on the right shoulder (both directions) between the uneven pavement sign and the beginning of the uneven pavement and at major intersections. If uneven pavement exists at any location longer than one night, tubular markers shall be installed. Tubular markers shall be spaced at two times the posted speed limit on the centerline where uneven pavement exists. These traffic control devices shall be left in place until the lanes are even. These signs and tubular markers are included in the "Traffic Control Devices List" and will be measured and paid for at the contract unit price for each device. No extra compensation will be allowed for relocation due to work progression.

704-P01 TRAFFIC CONTROL DEVICES: The traffic control devices list has been developed using the layouts shown in the plans and the following layouts on Standard Drawings.

- D-704-15 Layout Type A for paving, fogging, and centerline rumble strip operations,
- D-704-20 Layout Type G for Intersecting Routes,
- D-704-22, Layouts Type K for Construction Trucks Hauling Material,
- D-704-26 Layouts Type CC, EE, and GG as needed,
- D-704-27 for striping operations,
- D-704-56 for Shoulder rumble strip operations.

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704-P02 TRAFFIC CONTROL FOR CENTERLINE RUMBLE STRIP INSTALLATION: For cutting in centerline rumble strips, the Contractor shall provide traffic control as described below:

Two sets of D-704-15, Layout A is a minimum. A set of signs is considered the signs required for one direction of travel.

This traffic control requires a minimum of two flaggers working at all times. Signs cannot be moved by the flaggers. The cost of moving these signs shall not be paid for separately, but included in the price bid for "Traffic Control Signs." All sets of signs shown in D-704-15, Layout A, will be paid for.

Any method of traffic control other than those described on D-704-15 or D-704-56 must be requested by the contractor and approved by the engineer prior to use in the field.

760-P01 RUMBLE STRIPS: The quantity for rumble strips is measured for each shoulder or centerline per mile, and paid for by plan quantity unless changed in the field as approved by the engineer. No deduction in length will be made for discontinued rumble strips as identified in the notes in the Standard Drawings.

762-P01 PAVEMENT MARKING: Pavement markings will not be measured for payment unless changes are made in the field. Payment for pavement markings will be plan quantity.

762-P02 PAVEMENT MARKING EDGE LINES: Edge lines shall be continued through private drives and broken for intersections.

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SECTION 110

754-P01 REMOVAL OF OBJECT MARKERS: 4 existing object markers shall be removed at the Morais River Bridge, RP 8.797. Removal of the object markers shall not be paid for separately, but shall be included in the price bid for the item "W-beam Guardrail."

SECTION 130

764-P01 EMBANKMENT FOR GUARDRAIL INSTALLATION: The embankment material required for guardrail installation is not available within the highway right of way. It will be the contractor's responsibility to obtain embankment material. The existing topsoil shall be removed from the area to be disturbed, stockpiled, and replaced when embankment is completed. The disturbed areas shall be seeded with a seed mixture of 50 percent brome grass, 50 percent crested wheat grass at a rate of 25 pounds pure live seed per acre. Fertilizers shall be applied at a rate of 20 pounds phosphorous and 20 pounds nitrogen per acre. Compaction of the embankment shall be in accordance with Section 203.02 I of the Standard Specifications. The inslopes in areas that are to be widened shall be benched in accordance with Section 203.02 F of the Standard Specifications. All existing drainage patterns shall be maintained. This may involve some excavation and ditch widening. The embankment will be measured by the number of sites complete and in place. A site is defined as the area of embankment needed to place a completed guardrail on as shown in the plans.

The cost for any excavation to maintain the drainage patterns and for benching, seeding, salvaging, stockpiling, and spreading of the topsoil shall be included in the price bid for "Guardrail Embankment - Type C."

764-P02 REMOVE W-BEAM GUARDRAIL & POSTS: The removed W-beam guardrail materials which are not reset shall be delivered by the contractor to the NDDOT Maintenance Storage Yard in Grand Forks, and neatly stacked at a location designated by the engineer.

The cost for delivery and stacking of the removed W-beam guardrail materials which are not to be reset shall not be paid for separately, but shall be included in the price bid for the item "Remove W-Beam Guardrail & Posts."

764-P03 REMOVE END TREATMENT & TRANSITION: The removed end treatment and transition shall become the property of the contractor.

The item "Remove End Treatment & Transition" shall be measured by the number removed.

The cost of removing the end treatment and transition, and disposing of the material shall be included in the price bid for the item "Remove End Treatment and Transition."

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ENVIRONMENTAL COMMITMENTS

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ENVIRONMENTAL COMMITMENTS: The North Dakota Department of Transportation and the Federal Highway Administration have made several environmental commitments to various agencies and the public to secure approval of this project. The environmental commitments are as follows:

COMMITMENT NO. 1:

Based on the NEPA documentation, no additional permits or environmental commitments have been identified beyond what is covered by the NDDOT's Standard Specification of Road and Bridge Construction.

Wetland Number	Cowardin Classification	Wetland Type	Wetland Size (acres)	Wetland Feature	USACE Jurisdictional Wetlands	Impacts to Wetlands	
						Temp.	Perm.
There are a number of adjacent wetlands; however, no impacts are anticipated within the limits of construction.							
TOTALS:				0.00		0.00	0.00

*A wetland Jurisdictional Determination by the USACE is pending.

ESTIMATE OF QUANTITIES

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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SPEC CODE	ITEM DESCRIPTION	UNIT	MAINLINE	TOTAL
-----	-----	-----	-----	-----
103	0100 CONTRACT BOND	L SUM	1	1
107	0100 RAILWAY PROTECTION INSURANCE	L SUM	1	1
203	0208 GUARDRAIL EMBANKMENT-TYPE C	EA	1	1
216	0100 WATER	M GAL	64	64
230	0125 SHOULDER PREPARATION	MILE	4.8	4.8
302	0100 SALVAGED BASE COURSE	TON	245	245
401	0150 SS1H OR CSS1H OR MS1 EMULSIFIED ASPHALT	GAL	5,140	5,140
410	0247 RECYCLED ASPHALT PAVEMENT-SUPERPAVE FAA 42	TON	6,428	6,428
410	0445 PG 58-28 ASPHALT CEMENT	TON	328	328
410	0910 CORED SAMPLE	EA	31	31
411	0105 MILLING PAVEMENT SURFACE	SY	43,223	43,223
702	0100 MOBILIZATION	L SUM	1	1
704	0100 FLAGGING	MHR	400	400
704	1000 TRAFFIC CONTROL SIGNS	UNIT	1,589	1,589
704	1052 TYPE III BARRICADE	EA	2	2
704	1060 DELINEATOR DRUMS	EA	18	18
704	1067 TUBULAR MARKERS	EA	128	128
704	1185 PILOT CAR	HR	200	200
706	0300 FIELD LABORATORY-TYPE C	EA	2	2
760	0005 RUMBLE STRIPS - ASPHALT SHOULDER	MILE	4	4
760	0007 RUMBLE STRIPS - ASPHALT CENTERLINE	MILE	1.9	1.9
762	0405 SHORT TERM 4IN BROKEN LINE-PNT TAPE OR RSD MRK	LF	2,229	2,229
762	0410 SHORT TERM 4IN LINE NPZ-PN TP OR RS MRK	LF	21,069	21,069
762	1104 PVMT MK PAINTED 4IN LINE	LF	33,888	33,888
764	0131 W-BEAM GUARDRAIL	LF	150	150
764	0145 W-BEAM GUARDRAIL END TERMINAL	EA	2	2
764	0151 REMOVE W-BEAM GUARDRAIL & POSTS	LF	300	300
764	1050 RESET W-BEAM GUARDRAIL	LF	225	225
764	2081 REMOVE END TREATMENT & TRANSITION	EA	2	2
766	0100 MAILBOX-ALL TYPES	EA	1	1

BASIS OF ESTIMATE

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Description	Unit	Length = 33.83 Sta		Length = 70.31 Sta		Length = 19.66 Sta		Morais Bridge Approaches	
		Width	Quantity/Sta	Width	Quantity/Sta	Width	Quantity/Sta	60+08 to 62+40	
								64+60 to 67+18	
						Totals		West Appr	East Appr
Milling Pavement Surface	SY	36	400	26	289	35	389	860	864
SS1h or CSS1h or MS1 Emuls Asphalt @ 0.05 Gal/SY	Gal	36.5	20	36	20	38	21	43	43
Recycled Asphalt Pavement-Superpave FAA 42	Ton	34.9	44.1	33.8	49.0	37.2	49.3	95.6	96.0
PG 58-28 Asphalt Cement @ 5.1% of RHBP	Ton		2.25		2.50		2.51	4.87	4.89
SS1h or CSS1h Emuls Asphalt @ 0.05 Gal/SY (fog coat)	Gal	35	19	34	19	38	21	43	43

Approximate RAP Available from milling:
43,223 SY x 2/12/3 = **2,400 CY**

Coring Recycled Hot Bituminous Pavement
12,867/2,000 ft/sublot= 6.4 sublots (rounded to 7 sublots)
7 sublots x 2 cores/sublot x 2 lanes= 28 density cores
1 core per mile= 3 additional cores
Total Cores= 31

Rumble Strips - Asphalt Centerline
Sta 774+77.3 to Sta 777+37.3 Bk 260.0 LF
Sta 0+00 Ahd to Sta 10+50 1,050.0 LF
Sta 16+00 to Sta 31+23.5 Bk 1,523.5 LF
Sta 24+14.5 Ahd to Sta 30+68.6 Bk 654.1 LF
Sta 30+29.3 Ahd to Sta 60+08 2,978.7 LF
Sta 67+18 to Sta 105+00 3,782.0 LF
Total 10,248.3 LF (1.9 Mile)

Mailboxes	Location	Ea
	RP 8.85	1
Total		1

Basis of Estimate
Water @ 25 Mgal/Mi for dust palliative
Water @ 20 Gal/Ton of Salvaged Base
Tack @ 0.05 Gal/SY
Salvaged Base @ 1.875 Tons/CY
Recycled Asphalt Pvmnt-Superpave FAA 42@ 2.0 Tons/CY
PG 58-28 Asphalt Cement @ 5.1% of RHBP
Fog Coat @ 0.05 Gal/SY

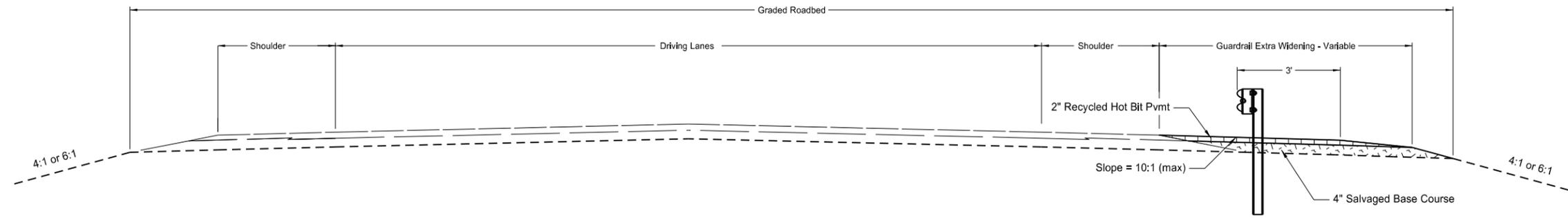
	Total	Total
Top of Milled Surface		
Short Term 4In Broken Line-Pnt Tape or Rsd Mkr	743 LF	
Short Term 4In Line NPZ-Pn Tp or RS Mrk		7,023 LF
Top of Recycled Hot Bit Pvmnt Superpave FAA 42		
Short Term 4In Broken Line-Pnt Tape or Rsd Mkr	743 LF	
Short Term 4In Line NPZ-Pn Tp or RS Mrk		7,023 LF
Top of Fog Coat		
Short Term 4In Broken Line-Pnt Tape or Rsd Mkr	743 LF	
Short Term 4In Line NPZ-Pn Tp or RS Mrk		7,023 LF
Total	2,229 LF	21,069 LF

Pvmnt Mk Painted 4In Line	
4" Yellow Centerline Skip-(10' Line, 30' Skip)-1,320 LF/Mi	743 LF
4" Yellow Barrier Line	7,023 LF
4" White Edge Line-10,560 LF/Mi	26,122 LF
Total	33,888 LF

Rumble Strips - Asphalt Shoulder
Left Shldr -
Sta 774+77.3 to Sta 777+37.3 Bk 260.0 LF
Sta 0+00 Ahd to Sta 31+23.5 Bk 3,123.5 LF
Sta 24+14.5 Ahd to Sta 30+68.6 Bk 654.1 LF
Sta 30+29.3 Ahd to Sta 60+84 3,054.7 LF
Sta 67+18 to Sta 105+00 3,782.0 LF
Right Shldr -
Sta 774+77.3 to Sta 777+37.3 Bk 260.0 LF
Sta 0+00 Ahd to Sta 10+50 1,050.0 LF
Sta 16+00 to Sta 31+23.5 Bk 1,523.5 LF
Sta 24+14.5 Ahd to Sta 30+68.6 Bk 654.1 LF
Sta 30+29.3 Ahd to Sta 60+08 2,978.7 LF
Sta 66+16 to Sta 105+00 3,884.0 LF
Total 21,224.6 LF (4.0 Mile)

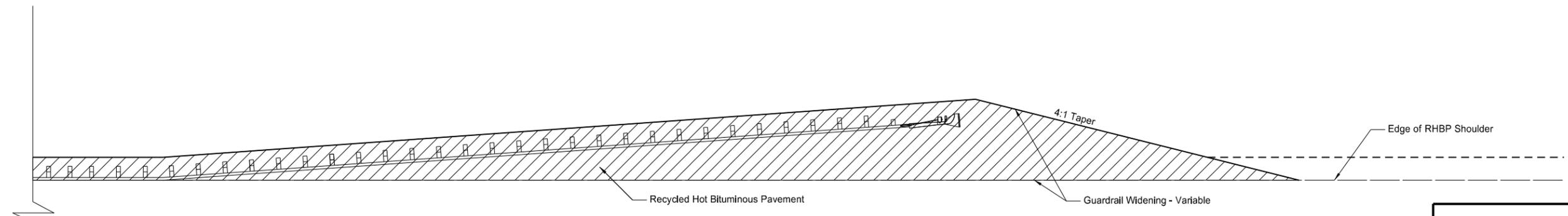
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Basis of Estimate
Milling & Recycled Hot Bit Pvmnt Overlay
I-29 X-Road E to Red River



I-29 UNDERPASS		
TOTAL FOR GUARDRAIL PAVING		
	UNIT	RT
SALV BASE	TON	98
*PRIME	GAL	117
RHBP	TON	52
AC	TON	2.6

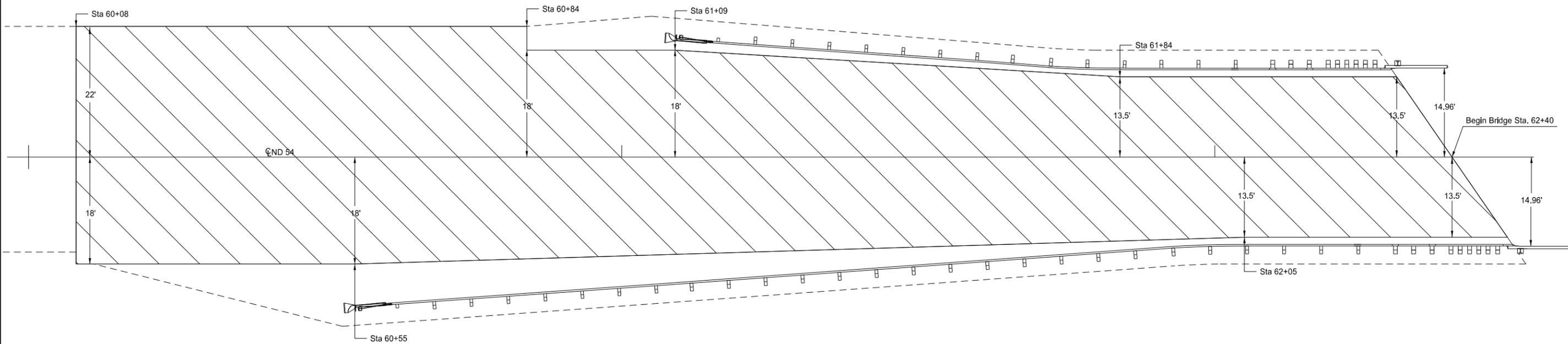
*Note: Prime not to be bid separately. All costs for material, labor, and equipment to be included in the unit price bid for "Recycled Asphalt Pavement-Superpave FAA 42."



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Surfacing at Guardrail
 Milling and Recycled Hot Bit Pvm Overlay
 I-29 X-Road E to Red River

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 2" Milling and 2" Recycled Hot Bituminous Pavement

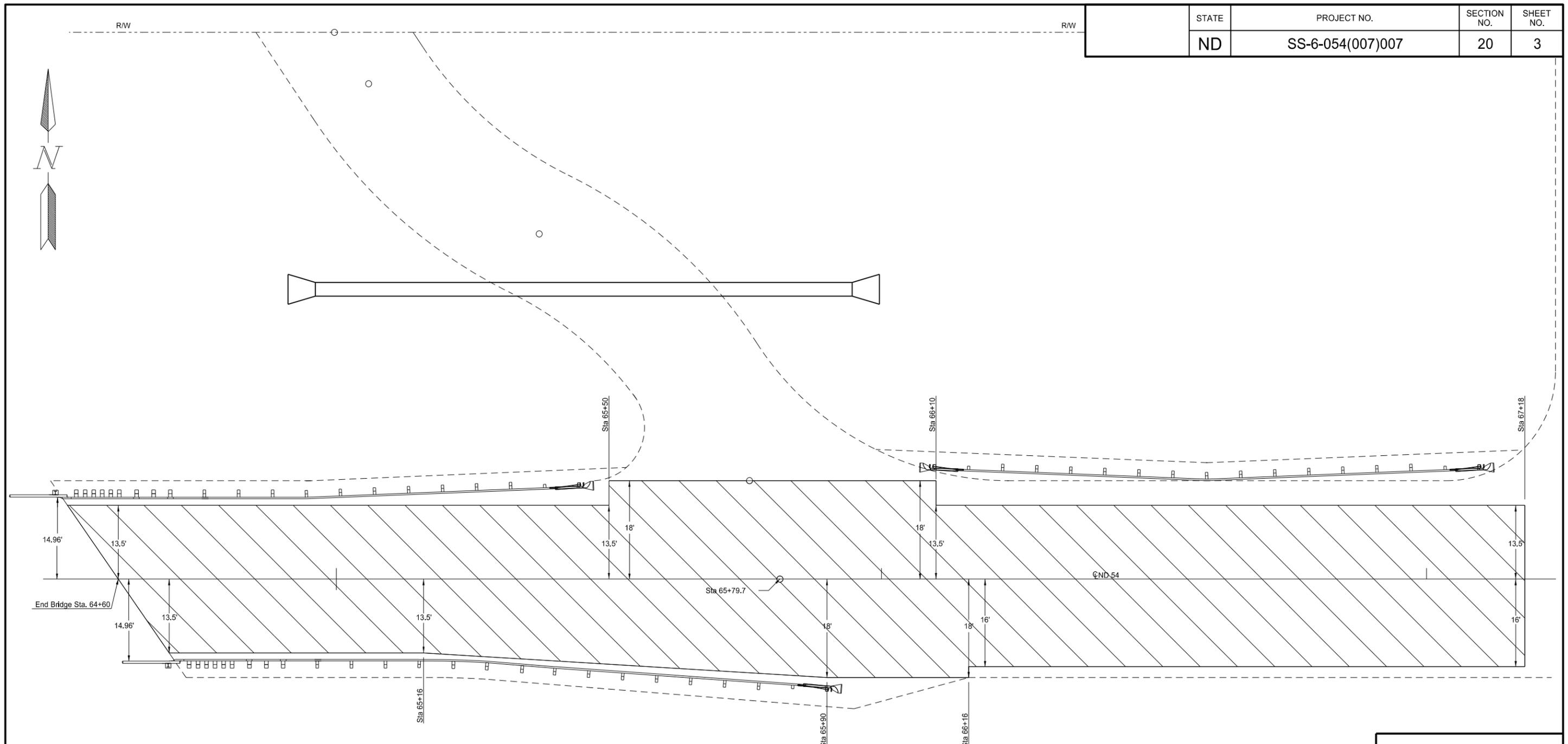
Item	Units	Quantity
Milling	SY	860
Tack	Gal	43
RHBP	Ton	95.6
AC	Ton	4.87
Fog Coat	Gal	43

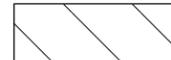
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West Approach to Morais River Bridge RP 8.797

Milling and Hot Bit Pvmt Overlay

I-29 X-Road E to Red River

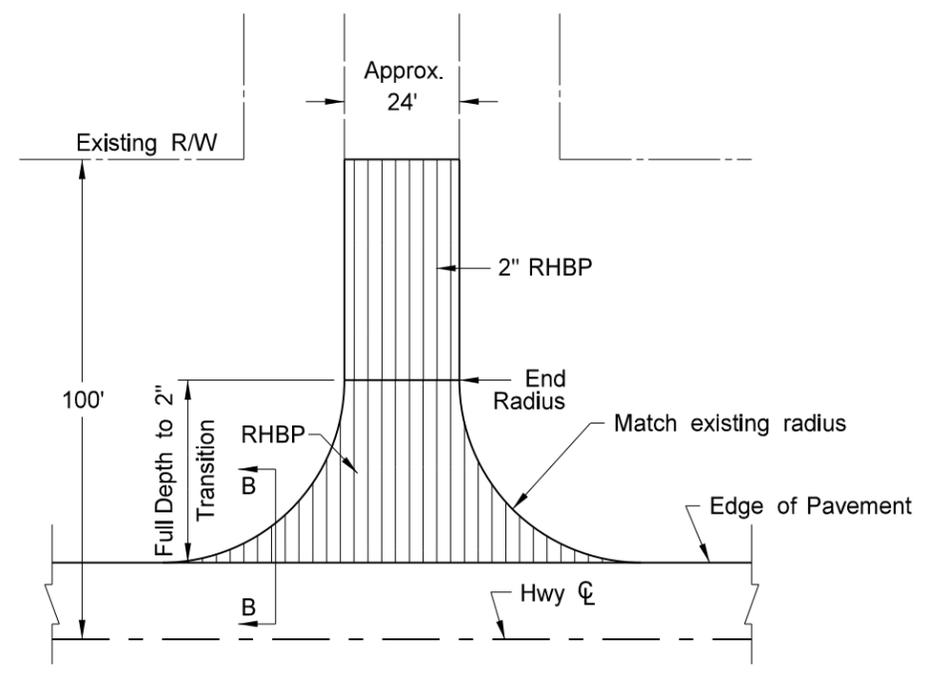


 2" Milling and 2" Recycled Hot Bituminous Pavement

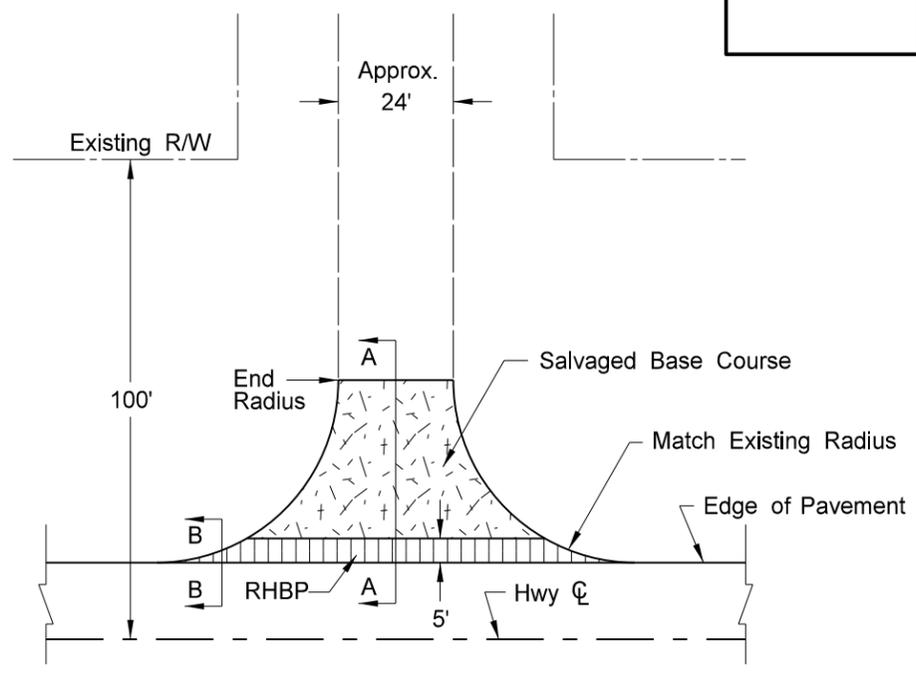
Item	Units	Quantity
Milling	SY	864
Tack	Gal	43
RHBP	Ton	96.0
AC	Ton	4.89
Fog Coat	Gal	43

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East Approach to Morais River Bridge RP 8.797
Milling and Hot Bit Pvmt Overlay
I-29 X-Road E to Red River

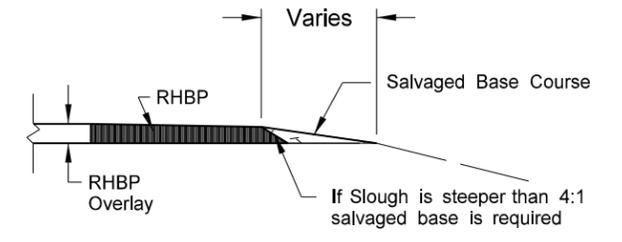


(1) Paved Section Line, County Road, or Street Approach

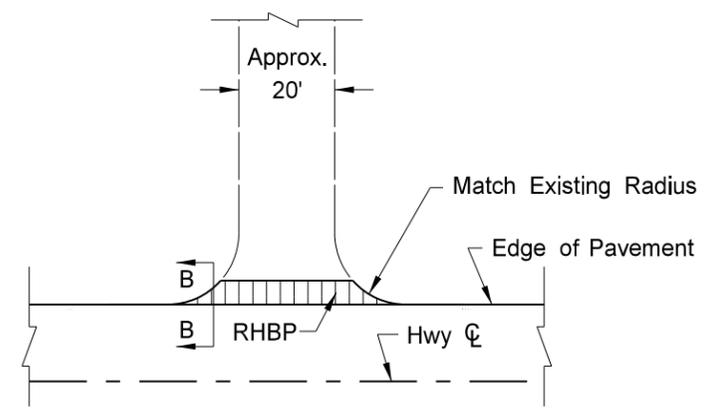


(2) Gravel Section Line, County Road, or Street Approach

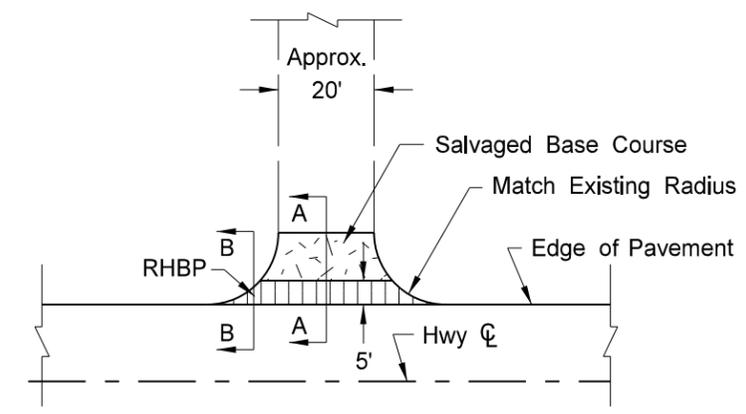
- Notes:
1. A longer HBP wedge may be needed if an existing elevation difference between the mainline and the approach exists. Actual HBP paving and salvaged base locations may vary in the field for situations, as approved by the Engineer.
 2. Quantity totals have been included in the bid items of the "Estimate of Quantities" of the plans.
 3. Approximately 100 tons of salvaged base have been provided to fill in around the radii. This material will be required when sloughs are steeper than 4:1. See B-B.



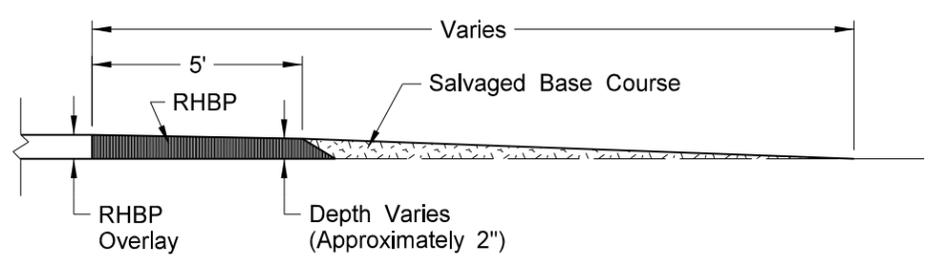
Section B-B



(3) Paved Private Drive Approach



(4) Gravel Private Drive or Field Drive Approach



Section A-A

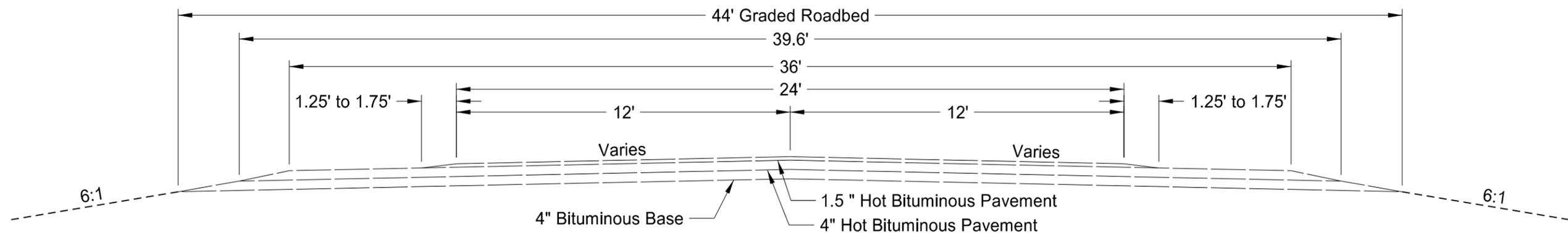
BASIS OF ESTIMATE		(1)	(2)	(3)	(4)	TOTALS
ITEM	UNIT	Paved Section Line	Gravel Section Line	Paved Private Drive	Gravel Field/Private Drive	
Number of Locations	#	4	5	2	10	21
Salvaged Base	TON	N/A	6.7	N/A	1.3	46.5
Tack Coat	GAL	14.6	2.1	1.0	1.0	81
RHBP	TON	32.5	4.6	2.1	2.1	178
Asphalt Cement	TON	1.66	0.23	0.11	0.11	9.1

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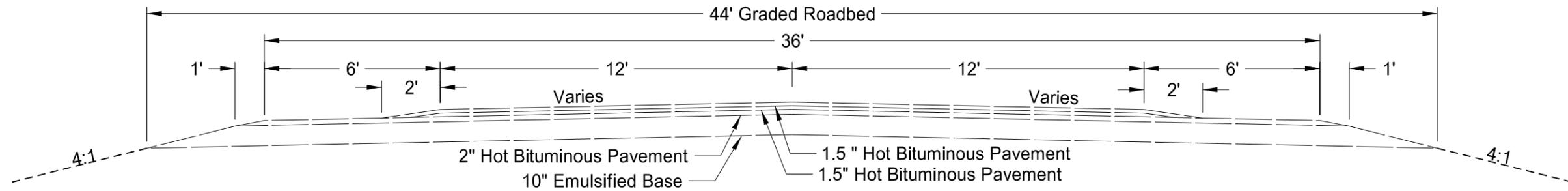
Approach Paving Details for Preventive Maintenance or Minor Rehabilitation Projects

Milling and Recycled Hot Bit Pvm Overlay

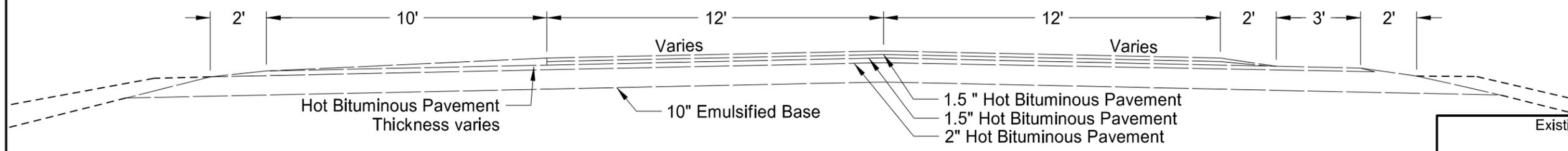
I-29 X-Road E to Red River



Crossroad - Ardoch Interchange
 Begin Sta. 774+77.3 to Sta. 777+37.3 Bk. Service Rd. =
 Sta. 0+00 Ahd. to Sta. 31+23.5 Bk X-Rd=Sta 24+14.5 Ahd



Sta. 24+14.5 Ahd to Sta. 30+68.6 Bk =
 Sta 30+29.3 Ahd to Sta 53+10
 Sta 79+86 to Sta 120+10.5 Bk =
 Sta 121+79.6 Ahd to Sta 122+51.42



Hot Bituminous Pavement
 Thickness varies

10" Emulsified Base

1.5" Hot Bituminous Pavement
 1.5" Hot Bituminous Pavement
 2" Hot Bituminous Pavement

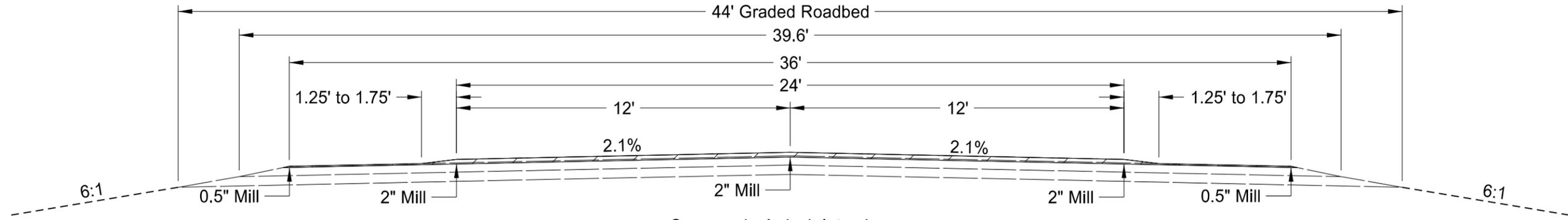
Sta 53+10 to Sta 60+08 and Sta 67+18 to Sta 79+86
 Sta 60+08 to Sta 60+84 LT
 Sta 66+16 to Sta 67+18 Rt

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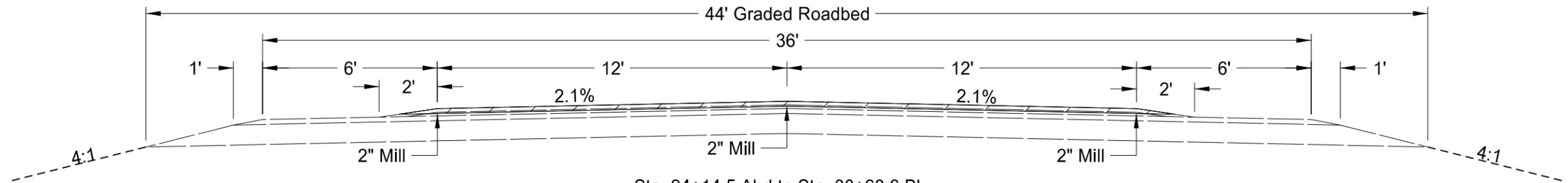
Existing Typical Sections

Milling and Recycled Hot Bit Pvmt Overlay

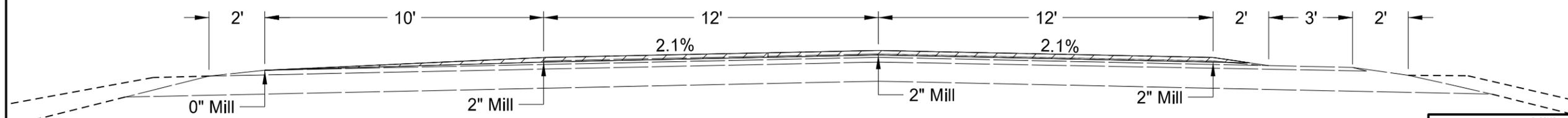
I-29 X-Road E to Red River



Crossroad - Ardoch Interchange
 Begin Sta. 774+77.3 to Sta. 777+37.3 Bk. Service Rd. =
 Sta. 0+00 Ahd. to Sta. 31+23.5 Bk X-Rd=Sta 24+14.5 Ahd



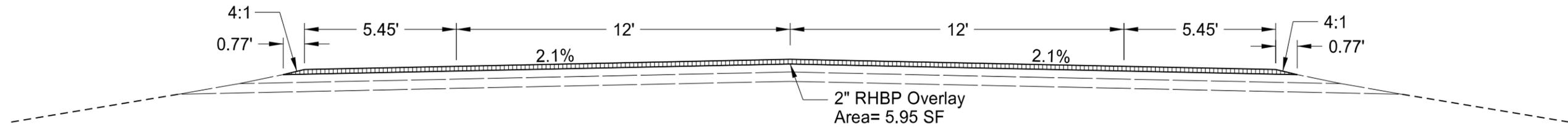
Sta. 24+14.5 Ahd to Sta. 30+68.6 Bk =
 Sta 30+29.3 Ahd to Sta 53+10
 Sta 79+86 to Sta 120+10.5 Bk =
 Sta121+79.6 Ahd to Sta 122+51.42



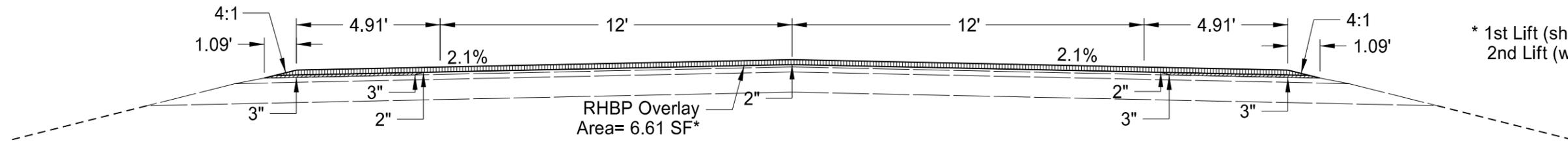
Sta 53+10 to Sta 60+08 and Sta 67+18 to Sta 79+86 Lt
 Sta 60+08 to Sta 60+84 Lt
 Sta 66+16 to Sta 67+18 Rt

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Milling Typical Sections
 Milling and Recycled Hot Bit Pvm Overlay
 I-29 X-Road E to Red River

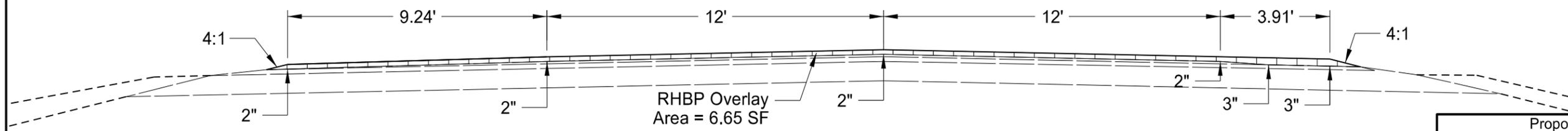


Crossroad - Ardoch Interchange
 Begin Sta. 774+77.3 to Sta. 777+37.3 Bk. Service Rd. =
 Sta. 0+00 Ahd. to Sta. 31+23.5 Bk X-Rd=Sta 24+14.5 Ahd



* 1st Lift (shoulders) = 0.85 SF
 2nd Lift (whole width) = 5.76 SF

Sta. 24+14.5 Ahd to Sta. 30+68.6 Bk =
 Sta 30+29.3 Ahd to Sta 53+10
 Sta 79+86 to Sta 120+10.5 Bk =
 Sta 121+79.6 Ahd to Sta 122+51.42

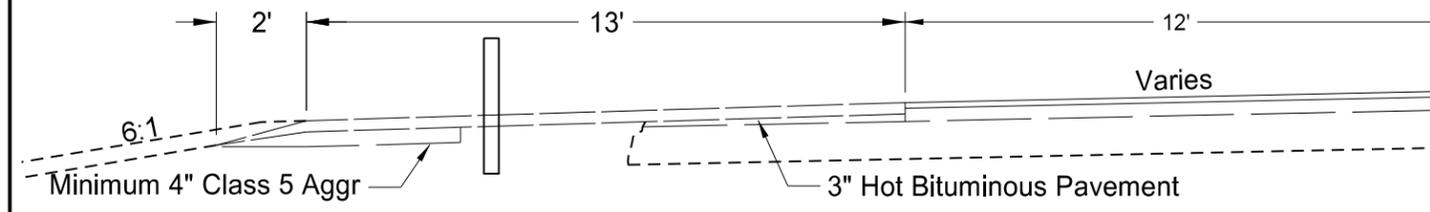


Sta 53+10 to Sta 60+08 and Sta 67+18 to Sta 79+86
 Sta 60+08 to Sta 60+84 Lt
 Sta 66+16 to Sta 67+18 Rt

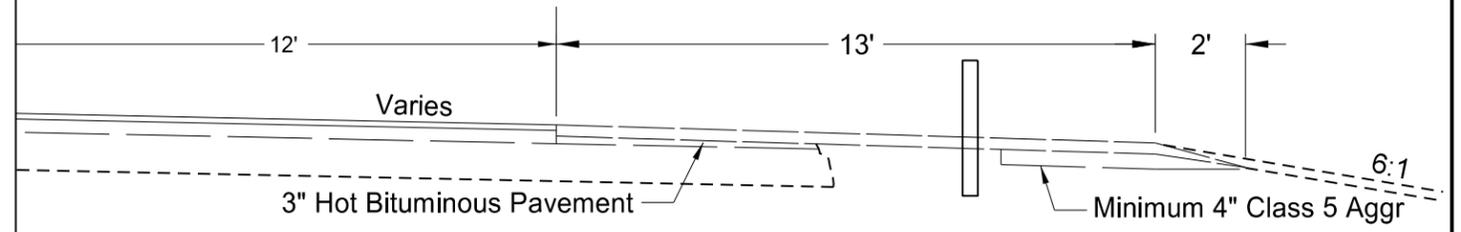
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Proposed Typical Sections
 Milling and Hot Bit Pvmnt Overlay
 I-29 X-Road E to Red River

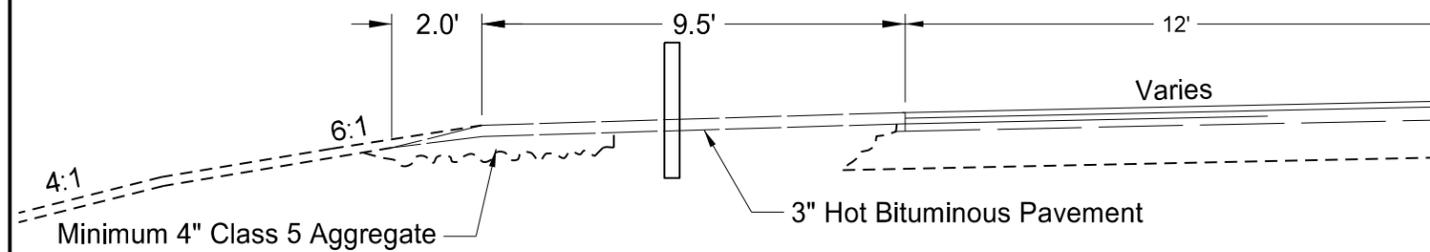
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-6-054(007)007	30	4



Sta 60+84 to Sta 61+09 Lt

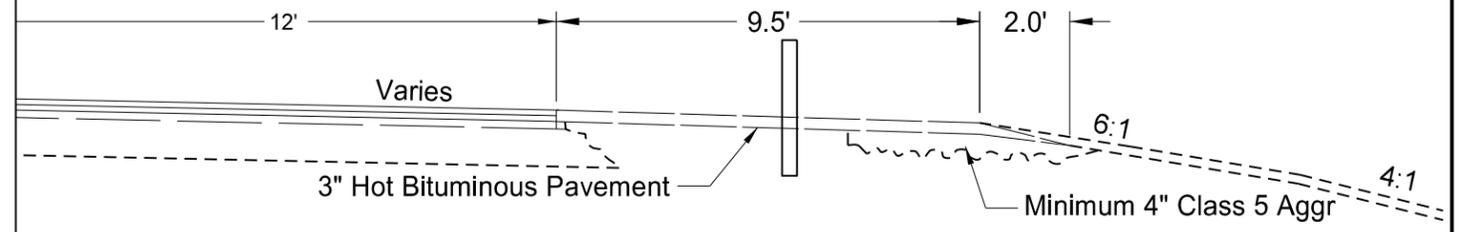


Sta 60+08 to Sta 60+55 Rt
Sta 65+90 to Sta 66+16 Rt



Sta 61+84 to Sta 62+40 Lt
(Sta 62+40 to Sta 64+60 is the bridge)
Sta 64+60 to Sta 65+50 Lt
Sta 66+10 to Sta 67+18 Lt

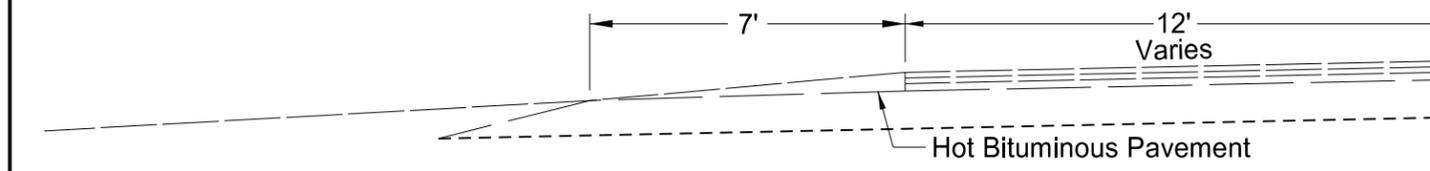
Paved Width Transitions from Sta 60+55 to Sta 62+05 Rt and from Sta 65+16 to Sta 65+90 Rt



Sta 62+05 to Sta 62+40 Rt
(Sta 62+40 to Sta 64+60 is the bridge)
Sta 64+60 to Sta 65+16 Rt

Paved Width Transitions from Sta 61+09 to Sta 61+84 Lt

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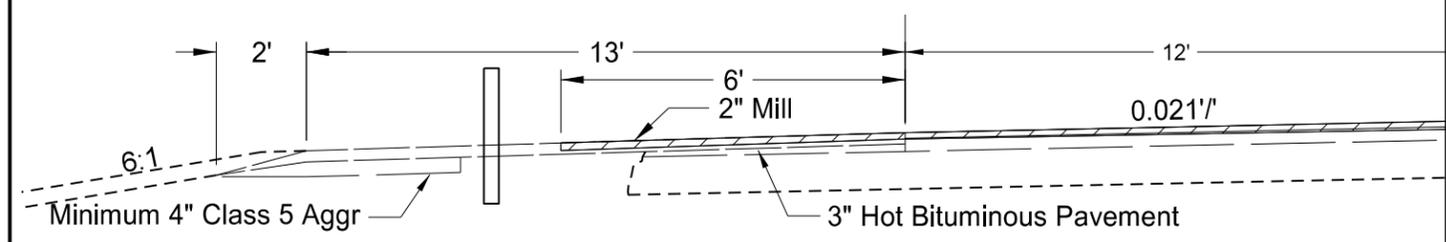
Sta 65+50 to Sta 66+10 Lt (driveway)

Existing Typical Sections

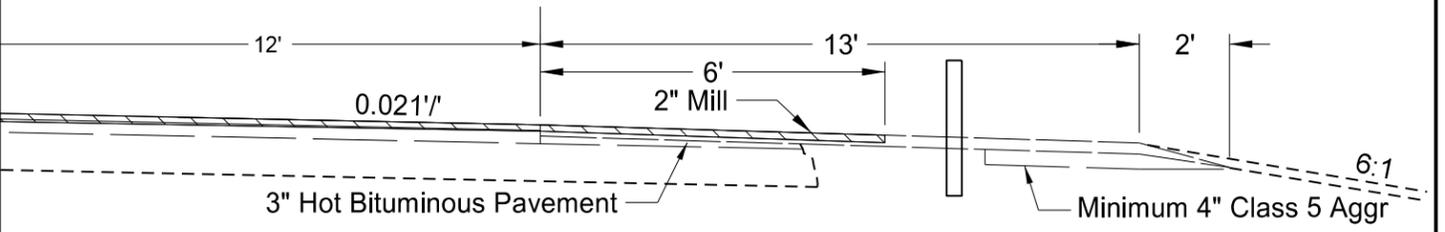
Milling and Recycled Hot Bit Pvmnt Overlay

I-29 X-Road E to Red River

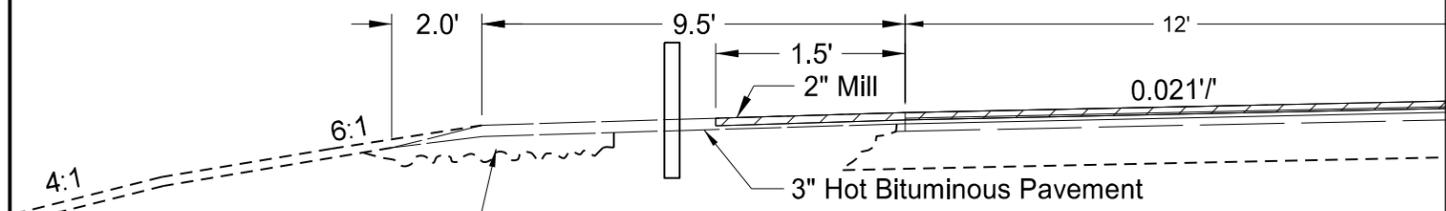
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-6-054(007)007	30	5



Sta 60+84 to Sta 61+09 Lt

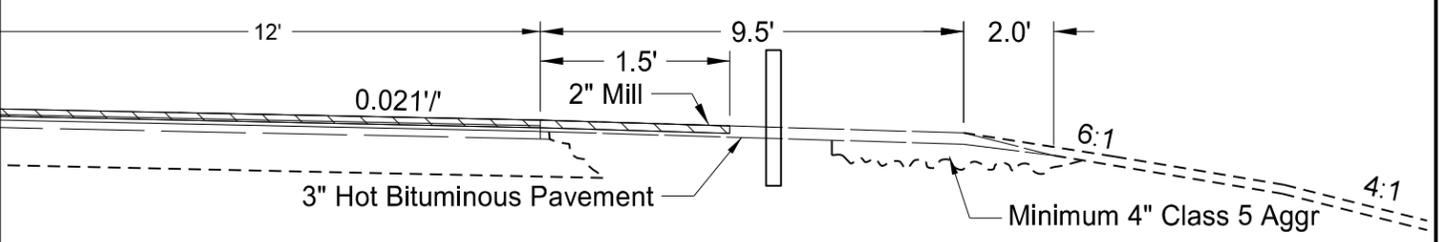


Sta 60+08 to Sta 60+55 Rt
Sta 65+90 to Sta 66+16 Rt



Sta 61+84 to Sta 62+40 Lt
(Sta 62+40 to Sta 64+60 is the bridge)
Sta 64+60 to Sta 65+50 Lt
Sta 66+10 to Sta 67+18 Lt

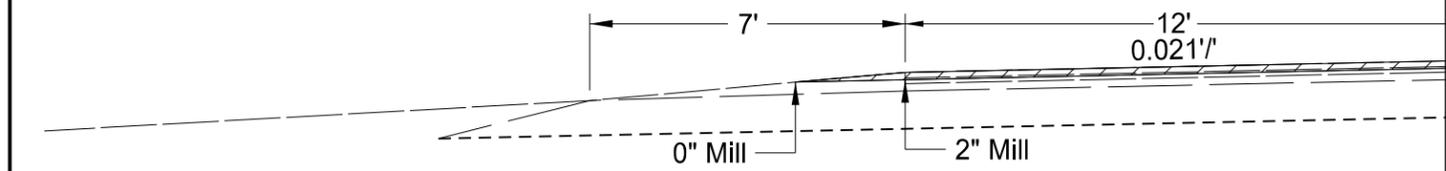
Milling Width Varies from Sta 60+55 to Sta 62+05 Rt and from Sta 65+16 to Sta 65+90 Rt



Sta 62+05 to Sta 62+40 Rt
(Sta 62+40 to Sta 64+60 is the bridge)
Sta 64+60 to Sta 65+16 Rt

Milling Width Varies from Sta 61+09 to Sta 61+84 Lt

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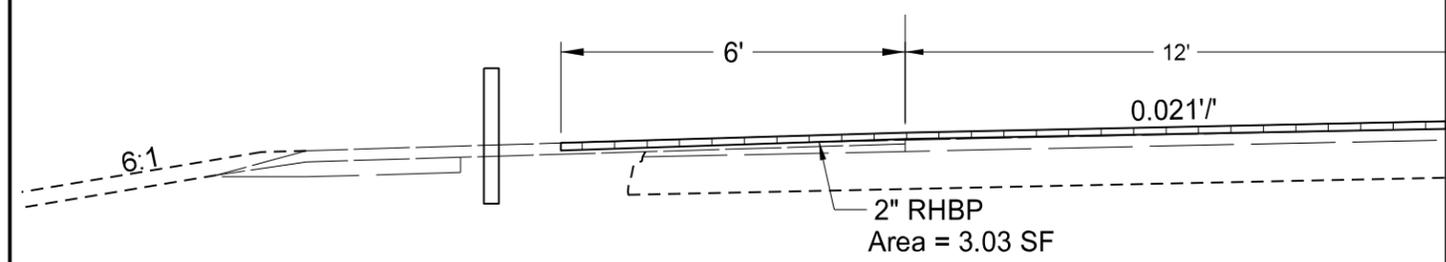


Sta 65+50 to Sta 66+10 Lt (driveway)

Milling Typical Sections

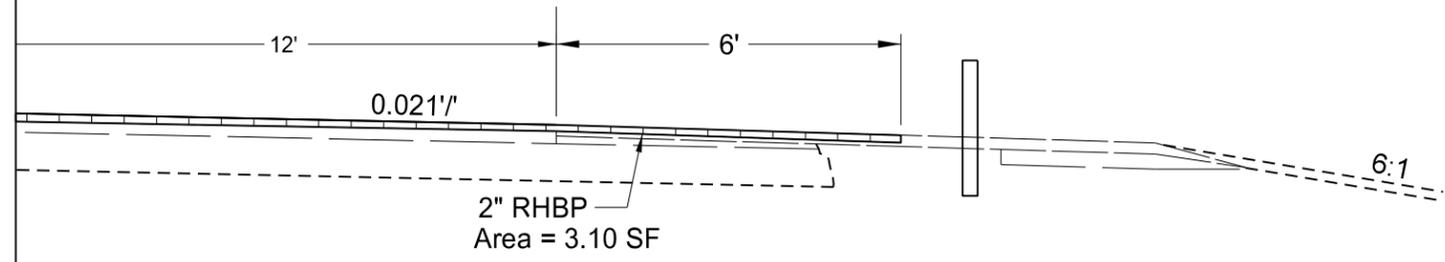
Milling and Recycled Hot Bit Pvmnt Overlay

I-29 X-Road E to Red River



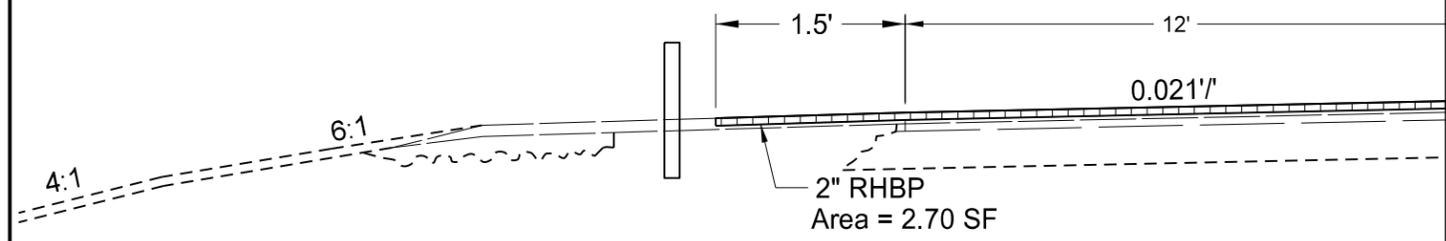
Sta 60+84 to Sta 61+09 Lt

2" RHBP
Area = 3.03 SF



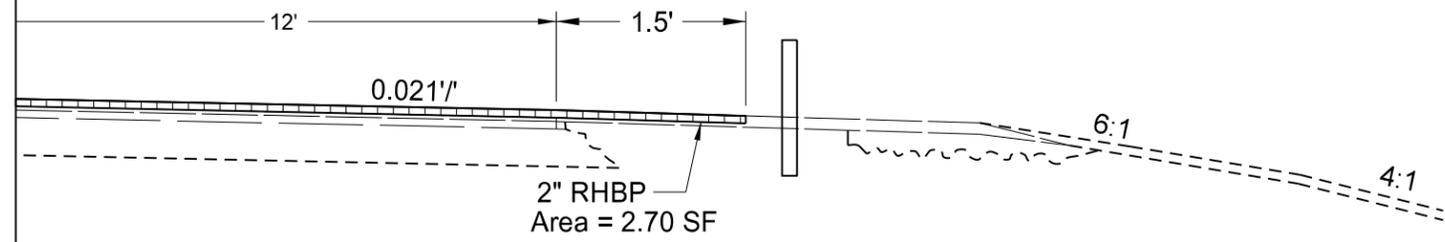
Sta 60+08 to Sta 60+55 Rt
Sta 65+90 to Sta 66+16 Rt

2" RHBP
Area = 3.10 SF



Sta 61+84 to Sta 62+40 Lt
(Sta 62+40 to Sta 64+60 is the bridge)
Sta 64+60 to Sta 65+50 Lt
Sta 66+10 to Sta 67+18 Lt

2" RHBP
Area = 2.70 SF

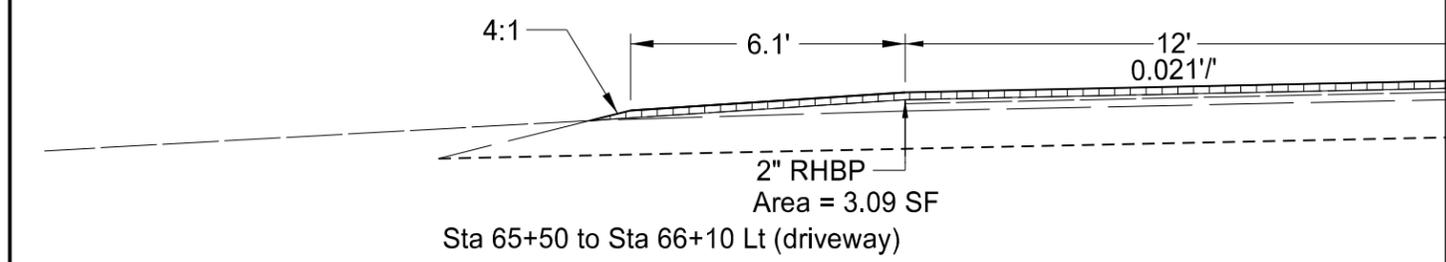


Sta 62+05 to Sta 62+40 Rt
(Sta 62+40 to Sta 64+60 is the bridge)
Sta 64+60 to Sta 65+16 Rt

2" RHBP
Area = 2.70 SF

Paving Width Varies from Sta 60+55 to Sta 62+05 Rt and from Sta 65+16 to Sta 65+90 Rt

Paving Width Varies from Sta 61+09 to Sta 61+84 Lt

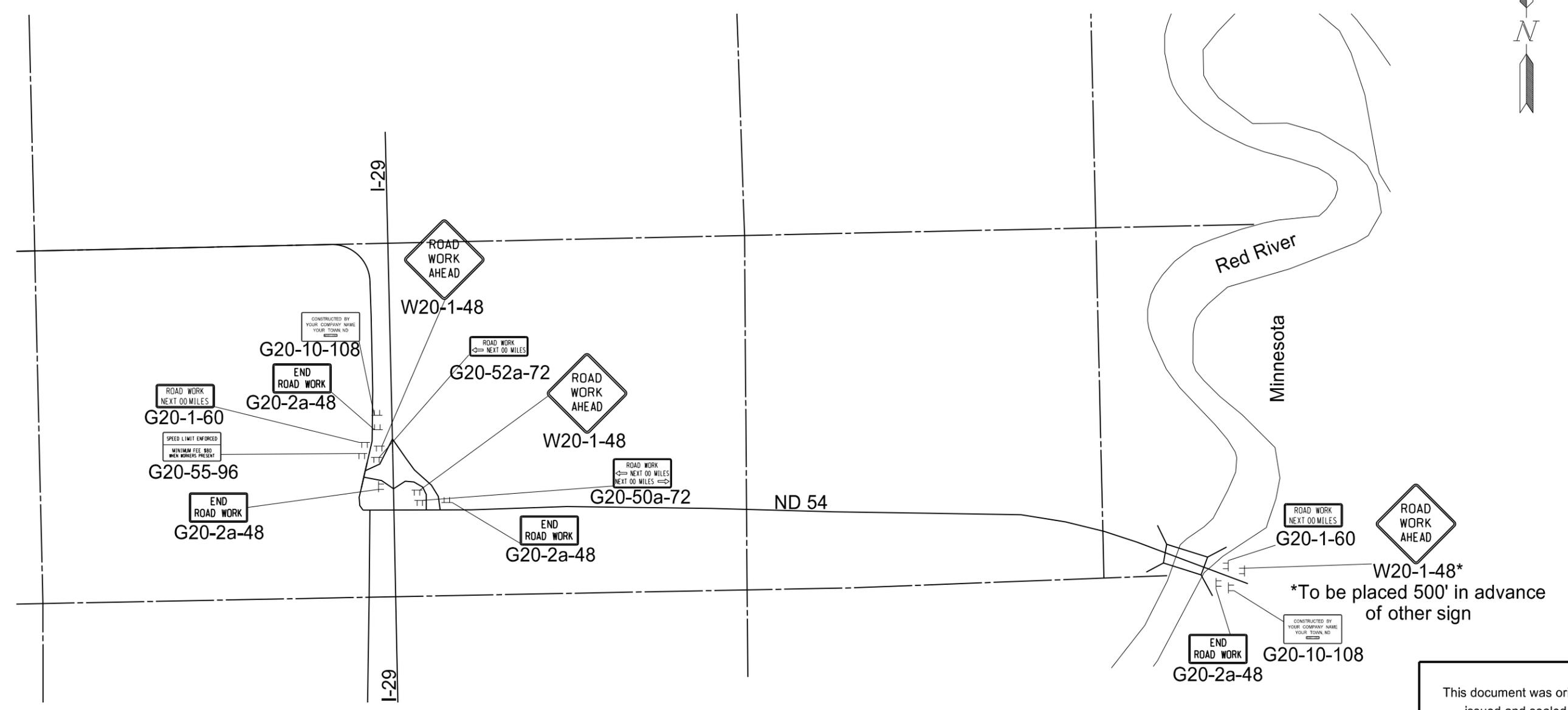


Sta 65+50 to Sta 66+10 Lt (driveway)

2" RHBP
Area = 3.09 SF

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Proposed Typical Sections
Milling and Recycled Hot Bit Pvm Overlay
I-29 X-Road E to Red River



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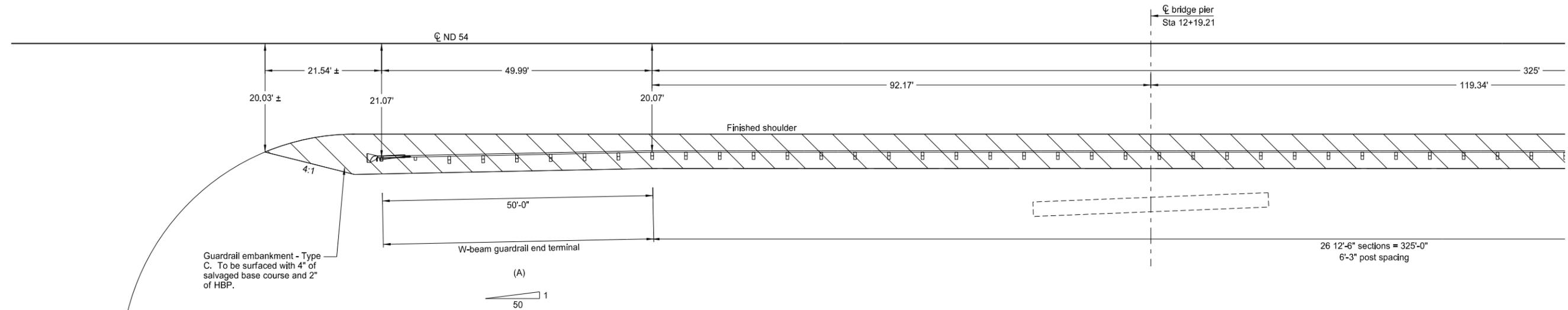
Construction Sign Layout

Milingl and Recycled Hot Bit Pvmt Overlay

I-29 X-Road Portion E to Red River

23 USC § 409 Documents
 NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-5-054(007)007	130	1



Guardrail embankment - Type C. To be surfaced with 4" of salvaged base course and 2" of HBP.

(A)
 1
 50

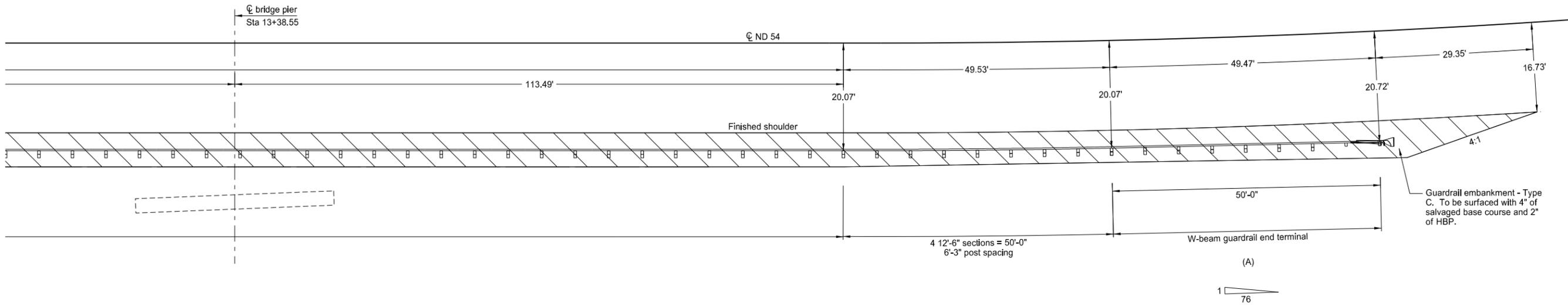
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W-Beam Guardrail Layout
 Ardoch Interchange Crossroad
 RP 160.927, I-29
 RP 7.695, ND 54

(A) The W-beam guardrail end terminal to be installed at this location shall be a FLEAT.

23 USC § 409 Documents
 NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-5-054(007)007	130	2



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W-Beam Guardrail Layout
 Ardoch Interchange Crossroad
 RP 160.927, I-29
 RP 7.695, ND 54

(A) The W-beam guardrail end terminal to be installed at this location shall be a FLEAT.

23 USC § 409 Documents
 NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-6-054(007)007	130	3

W-BEAM GUARDRAIL SUMMARY OF QUANTITIES								
W-BEAM GUARDRAIL AT OBSTRUCTIONS TWO-LANE HIGHWAYS								
LOCATION	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(B)
	5/8" Ø x 18" LONG BUTTON HEAD BOLT	5/8" Ø x 1 1/4" LONG BUTTON HEAD BOLT	6" x 8" x 14" TIMBER BLOCK	6" x 8" x 6'-0" TIMBER POST	12'-6" STRAIGHT RAIL SECTION	12'-6" CURVED RAIL SECTION	REFLECTOR- IZED PLATES	EMBANK- MENT - TYPE C
	EACH	EACH	EACH	EACH	EACH	EACH	EACH	CY
Sta 11+27.04 to 12+77.04 Rt	25	104	25	25	12		11	95
TOTAL	25	104	25	25	12		11	95

W-beam guardrail
 Sta 11+27.04 to 12+77.04 Rt 150 LF

Reset W-beam guardrail
 Sta 12+77.04 to 15+01.57 Rt 225 LF

(A) These items are not to be bid separately, but shall be included in the price bid for the item "W-Beam Guardrail."

W-beam guardrail end terminal
 Sta 10+77.05 to 11+27.04 Rt 1 ea
 Sta 15+01.57 to 15+51.04 Rt 1 ea
 Total 2 ea

Remove end treatment & transition
 Sta 10+90.24 to 11+27.04 Rt 1 ea
 Sta 14+27.04 to 14+63.84 Rt 1 ea
 Total 2 ea

(B) The volume of guardrail embankment - type-C (cubic yards) is for informational purposes only.

Remove W-beam guardrail & posts
 Sta 11+27.04 to 14+27.04 Rt 300 LF

Guardrail embankment - Type C
 Sta 10+55.51 to 15+80.39 Rt 1 ea

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W-Beam Guardrail Quantities
Ardoch Interchange Crossroad
 RP 160.927, I-29
 RP 7.695, ND 54