

FOR THE PROPOSED IMPROVEMENT OF A
COUNTY HIGHWAY
FEDERAL AID PROJECTS NO. SC-0950(061) PCN 24302 & SC-0910(063) PCN 24301
MILL, HMA, SEEDING & INCIDENTALS

FEDERAL AID PROJECTS NO. SC-0950(061) PCN 24302 & SC-0910(063) PCN 24301

CASS COUNTY HIGHWAY 16 (CMC 0950); FROM STATE HWY 18 TO DAVENPORT

CASS COUNTY HIGHWAY 26 (CMC 0910); FROM CASS COUNTY 5 N. TO STATE HWY 18

GOVERNING SPECIFICATIONS	Date Published and Adopted by the North Dakota Department of Transportation
STANDARD SPECIFICATIONS	07/01/2024
SUPPLEMENTAL SPECIFICATIONS	NONE

PROJECT NUMBER / DESCRIPTION	NET MILES	EXCEPTION AREA	GROSS MILES
SC-0950(061) HWY 16 (CMC 0950)	7.882		7.882
SC-0910(063) HWY 26 (CMC 0910)	9.020	0.019	9.001
TOTAL	16.902		16.883

DESIGN DATA - HWY 16 (CMC 0950)

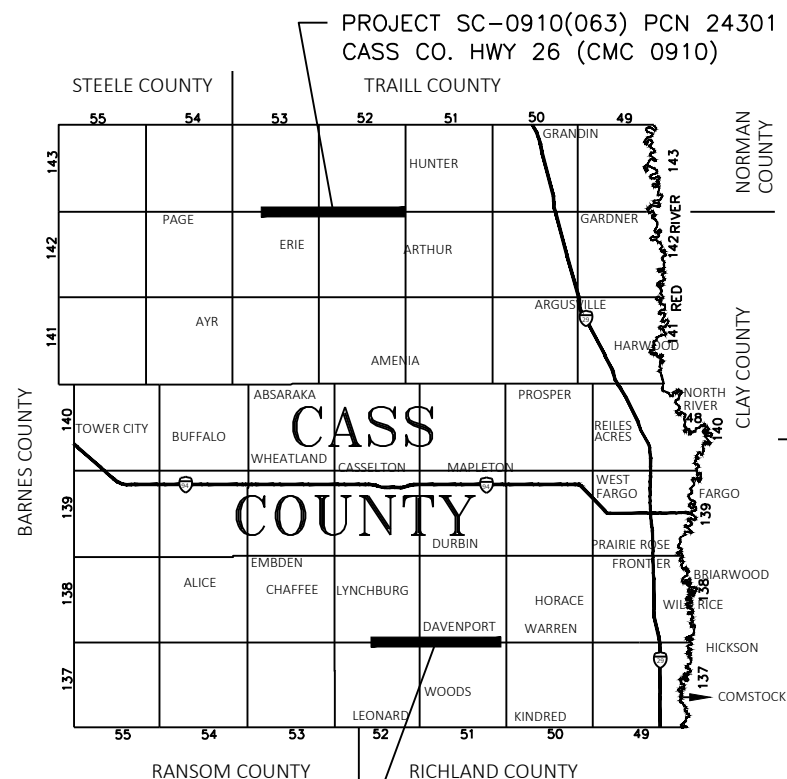
FROM STATE HWY 18 TO DAVENPORT

TRAFFIC ~ SC-0950(061)	AVERAGE DAILY		
	PASSENGER	TRUCKS	TOTAL
CURRENT TRAFFIC - 2024	90	90	180
TRAFFIC FORECAST - 2044	115	115	230
DESIGN SPEED	55 MPH		
DESIGN ESALS	461,642		
MINIMUM SIGHT DISTANCE (STOPPING)	495 FEET		
SUPERELEVATION	0.06 FT/FT		
HIGHWAY CROSS SLOPE	2.1%		

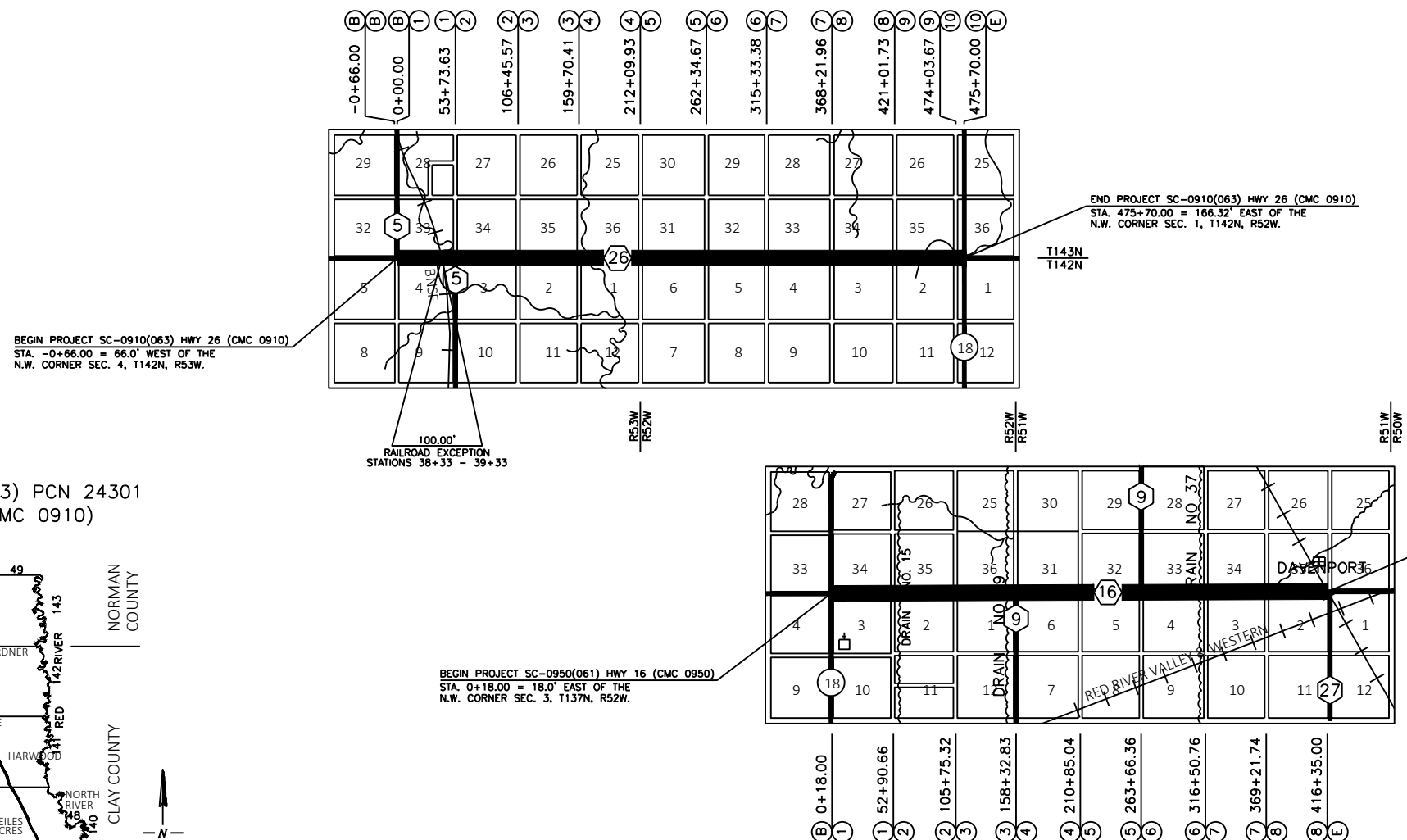
DESIGN DATA - HWY 26 (CMC 0910)

FROM CASS HWY 5 N. TO STATE HWY 18

TRAFFIC ~ SC-0910(063)	AVERAGE DAILY		
	PASSENGER	TRUCKS	TOTAL
CURRENT TRAFFIC - 2024	192	358	550
TRAFFIC FORECAST - 2044	235	436	671
DESIGN SPEED	65 MPH		
DESIGN ESALS	2,694,928		
MINIMUM SIGHT DISTANCE (STOPPING)	645 FEET		
SUPERELEVATION	0.06 FT/FT		
HIGHWAY CROSS SLOPE	2.1%		



- PROJECT SC-0950(061) PCN 24302
CASS CO. HWY 16 (CMC 0950)



END PROJECT SC-0950(061) HWY 16 (CMC 0950)
STA. 416+35.00 = 580.51' WEST OF THE
N.E. CORNER SEC. 2, T137N, R51W.

PROJECT NO. SC-0950(061) & SC-0910(063)

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION.

THOMAS B. SOUCY
THOMAS B. SOUCY N.D. REG. NO. 4038

DATE: 08/15/2024

CASS COUNTY HIGHWAY DEPARTMENT
WEST FARGO, NORTH DAKOTA

TITLE SHEET

Drawn By ZSW
Checked By KDL
REV DATE 1/12/2024
Scale As Shown
SEC NO. 001
SHEET NO. 1

CASS COUNTY HIGHWAY DEPARTMENT
PLANS

FOR THE PROPOSED IMPROVEMENT OF A
COUNTY HIGHWAY

FEDERAL AID PROJECTS NO. SC-0950(061) PCN 24302 & SC-0910(063) PCN 24301

MILL, HMA, SEEDING & INCIDENTALS

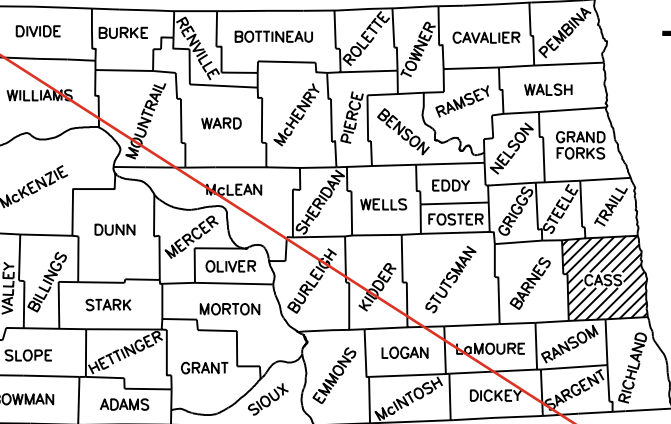
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CASS COUNTY HIGHWAY 26 (CMC 0910); FROM CASS COUNTY 5 N. TO STATE HWY 18

PCN	STATE	PROJECT NO.
24302 24301	ND	SC-0950(061) SC-0910(063)

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SC-0910(063) HWY 26 (CMC 0910)	9.020	0.002	9.018
TOTAL	16.902		16.900



SKETCH MAP OF NORTH DAKOTA
SHOWING COUNTIES

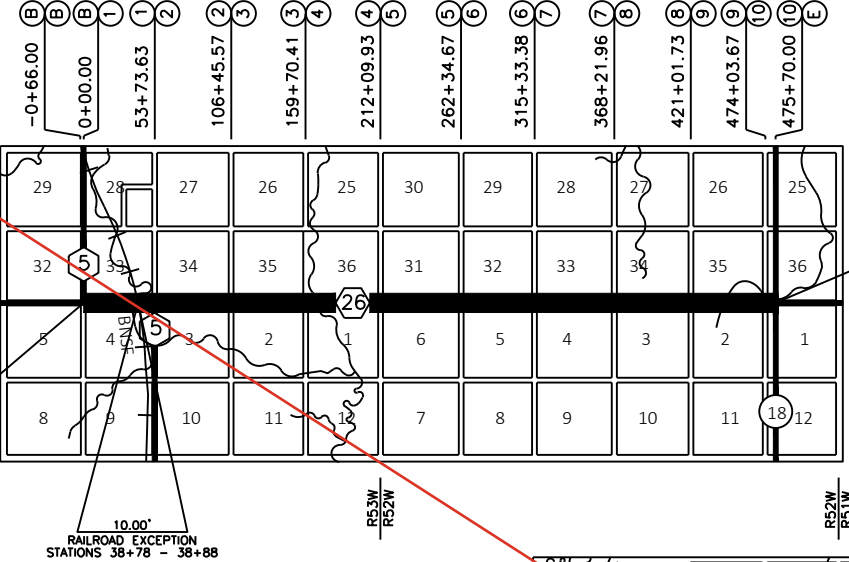
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	192	358	550
CURRENT TRAFFIC - 2024			
TRAFFIC FORECAST - 2044	235	436	671
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DESIGN ESALS	2,694,928		
MINIMUM SIGHT DISTANCE (STOPPING)	645 FEET		
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HIGHWAY CROSS SLOPE	2.1%		

BEGIN PROJECT SC-0910(063) HWY 26 (CMC 0910)
STA. -0+66.00 = 66.0' WEST OF THE
N.W. CORNER SEC. 4, T142N, R53W.



J:\Admin-Eng\Projects\CI6 ST 18 to Davenport\2025 Paving Project\Design\CI6 Paving Plan Sheets.dwg:TABLE OF CONTENTS-11/12/2024 11:25 AM: (wainz)

PCN	STATE	PROJECT NO.
24302 24301	ND	SC-0950(061) SC-0910(063)

PLAN SECTIONS

SECTION	PAGE(S)	DESCRIPTION
001	1	TITLE SHEET
002	1	TABLE OF CONTENTS
004	1-2	SCOPE OF WORK
006	1-3	NOTES
008	1	QUANTITIES
010	1-4	BASIS OF ESTIMATE
020	1-6	GENERAL DETAILS
030	1-7	TYPICAL SECTIONS
100	1-3	WORK ZONE TRAFFIC CONTROL

LIST OF STANDARD DRAWINGS

NUMBER	DESCRIPTION
D-704-02	TRAFFIC CONTROL FOR CORING OF HOT BITUMINOUS PAVEMENT
D-704-08	BREAKAWAY SYSTEMS FOR CONSTRUCTION ZONE SIGNS – U-CHANNEL POST
D-704-09	CONSTRUCTION SIGN DETAILS – TERMINAL AND GUIDE SIGNS
D-704-11	CONSTRUCTION SIGN DETAILS – WARNING SIGNS
D-704-11A	CONSTRUCTION SIGN DETAILS – WARNING SIGNS
D-704-13	BARRICADE AND CHANNELIZING DEVICE DETAILS
D-704-14	CONSTRUCTION SIGN PUNCHING AND MOUNTING DETAILS
D-704-22	CONSTRUCTION TRUCK AND TEMPORARY DETOUR LAYOUTS
D-704-26	MISCELLANEOUS SIGN LAYOUTS
D-704-27	MOBILE OPERATION (PAVEMENT MARKING)
D-704-50	PORTABLE SIGN SUPPORT ASSEMBLY
D-704-56	MOBILE OPERATION – GRINDING SHOULDER RUMBLE STRIPS
D-706-01	BITUMINOUS LABORATORY
D-762-01	PAVEMENT MARKING MESSAGE DETAILS
D-762-04	PAVEMENT MARKING
D-762-11	SHORT-TERM PAVEMENT MARKING

SPECIAL PROVISIONS

NUMBER	DESCRIPTION
SSP 1	TEMPORARY EROSION AND SEDIMENT BEST MANAGEMENT PRACTICES
SSP 3	LOCAL AGENCY CONTRACTS
SSP 4	LONGITUDINAL JOINT DENSITY
SSP 10	E-TICKETING
SP 165(24)	RAILROAD REQUIREMENTS RRVW
SP 166(24)	INTELLIGENT COMPACTION FOR HMA
SP 167(24)	FLEXIBLE PAVEMENT SURFACE TOLERANCE

THIS DOCUMENT WAS ORIGINALLY ISSUED AND SEALED BY KYLE LITCHY N.D.
REG. NO. 27408 ON 08/15/2024 AND THE ORIGINAL DOCUMENT IS STORED
AT THE CASS COUNTY HIGHWAY DEPARTMENT, WEST FARGO, ND

CASS COUNTY HIGHWAY DEPARTMENT
WEST FARGO, NORTH DAKOTA
TABLE OF CONTENTS

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REV DATE
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SEC NO.
002

SHEET NO.
1

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CASS COUNTY HIGHWAY DEPARTMENT
WEST FARGO, NORTH DAKOTA
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CASS COUNTY HIGHWAY DEPARTMENT
WEST FARGO, NORTH DAKOTA

SCOPE OF WORK

Drawn By
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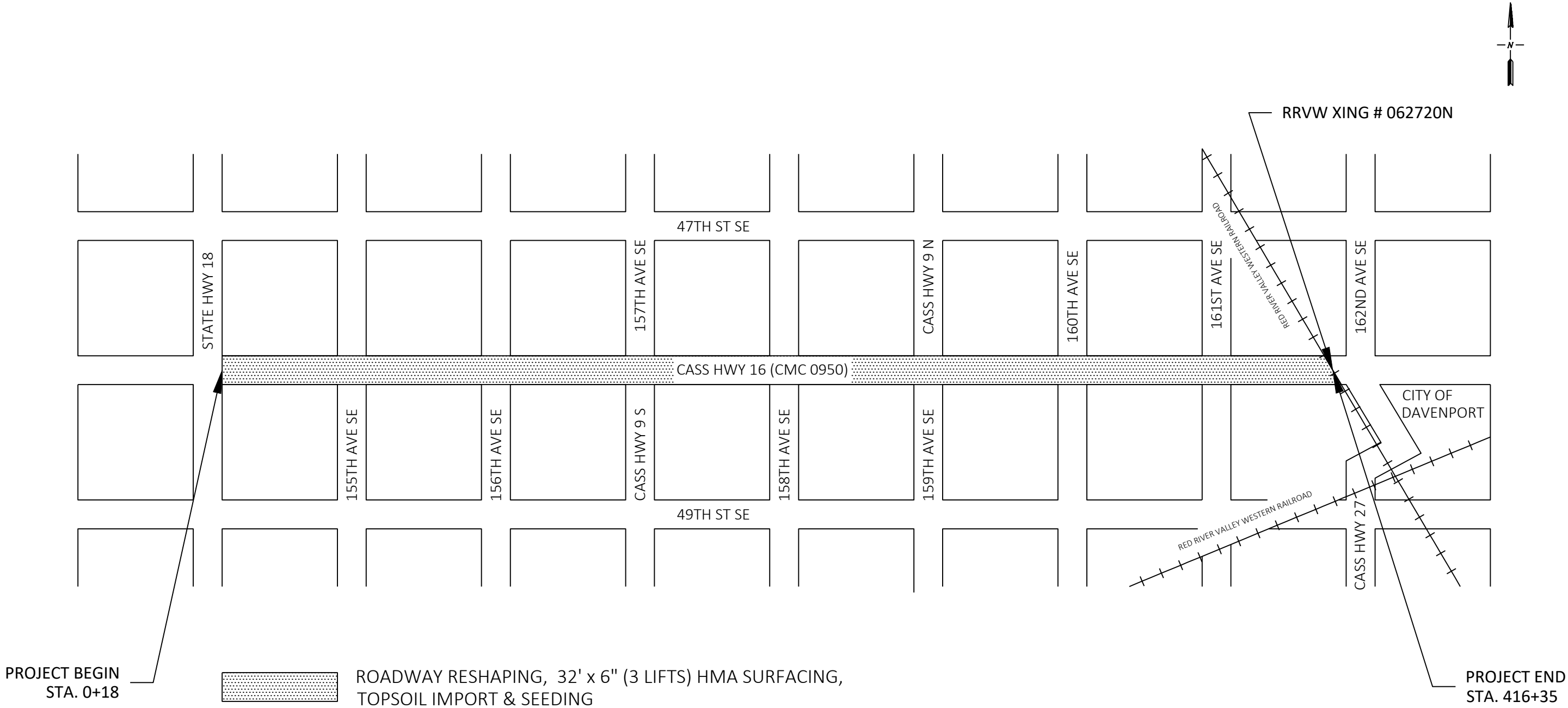
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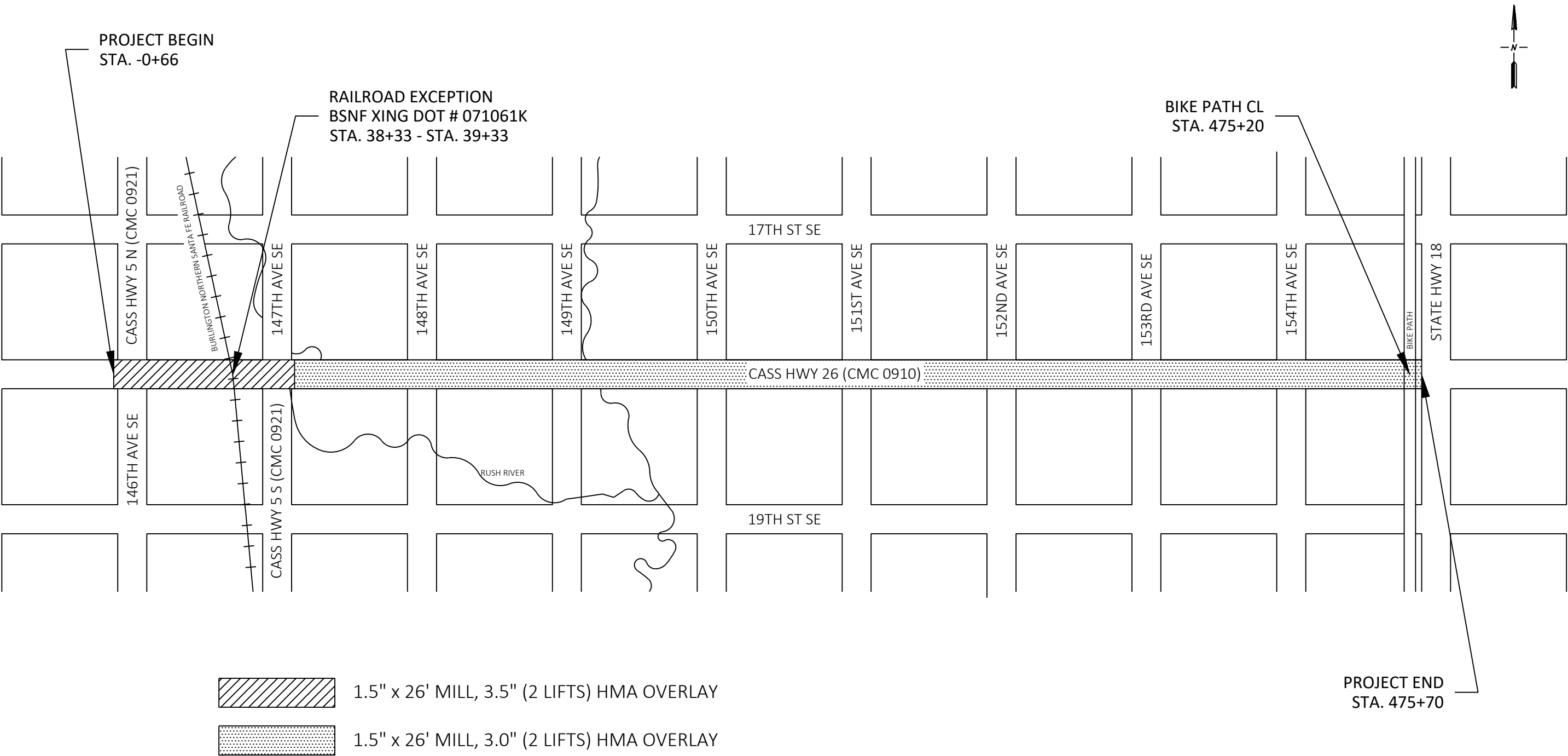


SCOPE OF WORK - HWY 16 (CMC 0950) SC-0950(061) PCN 24302

NOT TO SCALE

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PCN	STATE	PROJECT NO.
24302 24301	ND	SC-0950(061) SC-0910(063)



SCOPE OF WORK - HWY 26 (CMC 0910) SC-0910(063) PCN 24301

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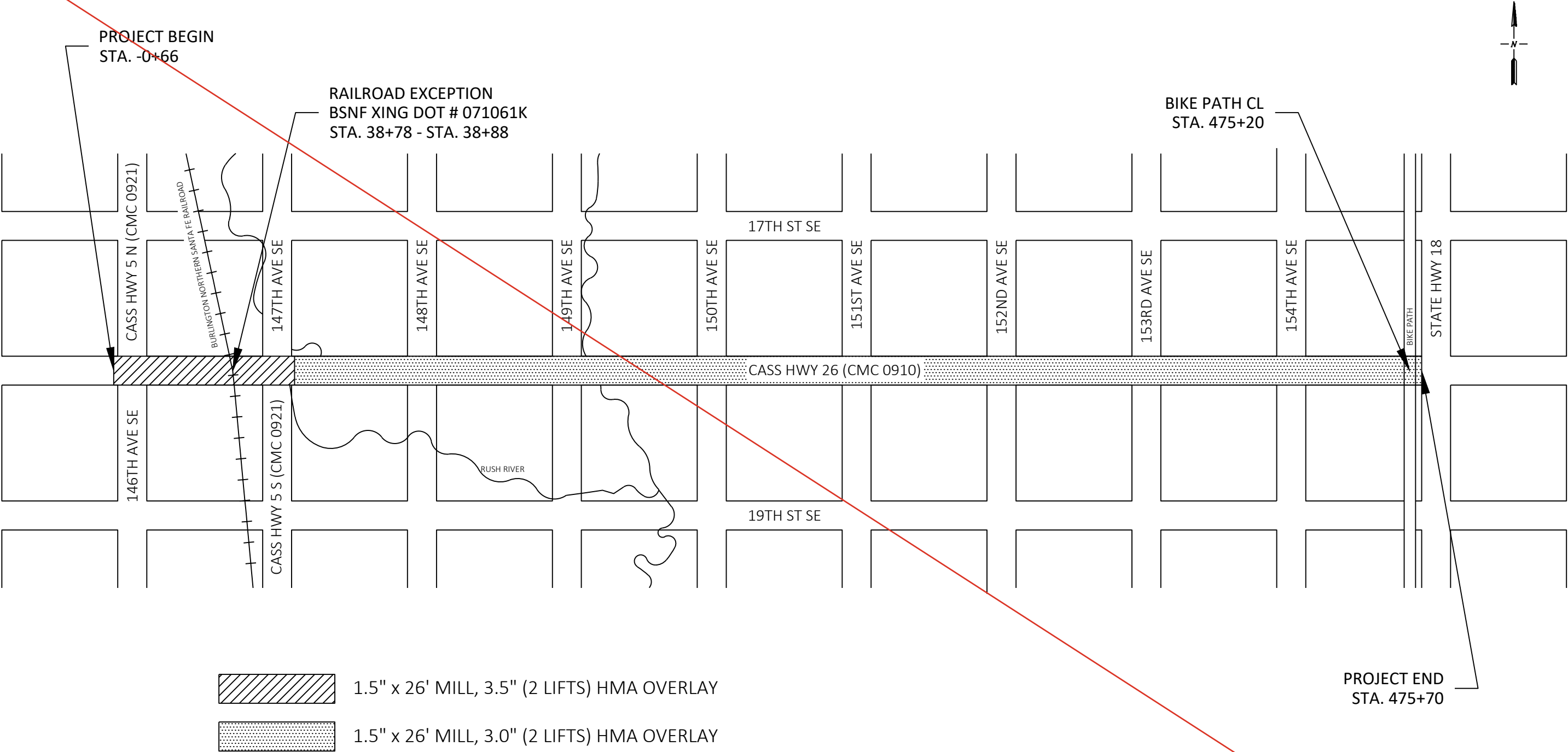
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CASS COUNTY HIGHWAY DEPARTMENT
WEST FARGO, NORTH DAKOTA
SCOPE OF WORK

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SHEET NO. 2

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SCOPE OF WORK - HWY 26 (CMC 0910) SC-0950(063) PCN 24301

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CASS COUNTY HIGHWAY DEPARTMENT
WEST FARGO, NORTH DAKOTA

SCOPE OF WORK

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100-P01 GENERAL PROVISIONS:

The cost of items on the plans, but not listed in the estimate of quantities, shall be included in the unit price for various items.

Thicknesses shown on the typical sections for surfacing are approximate. It is intended that the plan tonnages provided for by the basis of estimate shall be used uniformly throughout the project unless otherwise authorized by the Engineer.

The attention of the bidders is directed to M.S. 298.75 (Aggregate Material Tax), pursuant to the removal of aggregates from any deposit in Minnesota.

100-P02 COORDINATION OF PROJECTS:

Other projects in the vicinity of this project are under contract during the 2025 construction season.

These projects are:

- Cass Hwy 26 paving: Consists of Milling and overlaying Cass Hwy 26 from State Hwy 38 to State Hwy 32.
- Davenport Ring levee: Consists of Construction of Flood Ring levee around the City of Davenport with installing of Box Culvert on CR16 West of RR Tracks and pond on North side of CR16 East of RR Tracks. CR16 may be closed to allow this construction with no access allowed through. To coordinate this closure please call Cass County Water Resource District at (701) 298-2381.

100-P03 PROJECT COMPLETION:

The completion date for the project is September 13th, 2025 provided that a minimum of 0 working days, counted as mentioned in Standard Specification No. 108.06, are guaranteed for the performance of the work. Working days will be counted from {N/A} or from the actual date on which onsite work is conducted, whichever is earlier.

105-P01 UTILITIES:

No utilities relocations or adjustments are planned. All utilities on the project need to be protected and remain in existing location.

107-P01 CULTURAL RESOURCE PRESERVATION AND CLEARANCES OF GRAVEL PITS:

In accordance with Section 107.05 of the Standard Specifications, the Contractor is required to ensure that applicable cultural resource laws and regulations have been followed for all material sources. Below is the NDDOT website of pits that been certified.

<http://www.dot.nd.gov/dotnet2/materialsource/certificatesofapproval.aspx>

All material source locations, even those opened prior to the current project, must have been subjected to class III cultural resources inventory prior to use. Inventory results shall determine recommendations regarding use of a particular source. The Contractor's attention is directed to Section 107.06 of the Standard Specifications for the treatment of any cultural resources that may be uncovered within the right-of-way.

107-P02 WEED CONTROL:

Successful bidders as part of their supply contract shall be required as part of the bid acceptance to comply with the following:

1. All noxious weeds must be controlled within the pit and extraction area each year in compliance with North Dakota State Agriculture Department recommendations for noxious weed control.

2. The County Weed Officer shall inspect the pit and extraction area before any materials shall be removed and shall by written letter certify operator's compliance with the North Dakota Department of Agriculture's recommendations for noxious weed control.

3. Any questions concerning the certifications of compliance for noxious weed control and the requirements thereunder is available from the County Weed Officer at 701-298-2388.

This request is made pursuant to Section 4.1-47 of the North Dakota Century Code.

107-P03 HAUL ROADS:

The Contractor's attention is directed to Section 107.08 of the Standard Specifications regarding the use of public roads for hauling materials to the project. No township roads anywhere in Cass County shall be allowed for haul road usage, except within the project limits, unless permission is granted from the respective township. Hauling will not be permitted on Barnes County Highway 6 from State Highway 32 East to the Cass County line, Cass County Highway 26 from the Barnes County line East to State Highway 38, Cass County Highway 10 from Tower City East to State Highway 38, Cass County Highway 32 from Cass County Highway 11 East to Cass County Highway 81, Cass County Highway 20 from Cass County Highway 11 East to Cass County Highway 17, and Cass County Highway 22 from Cass County Highway 11 East to Cass County Highway 17. It shall be the Contractor's responsibility to investigate the suitability of routes with the agency having control of the road prior to submitting a bid.

203-P01 TOPSOIL - IMPORTED:

This bid item is for topsoil to be imported and placed on the aggregate and asphalt slough once paving has been completed on Hwy 16 (CMC 0950). The topsoil shall be placed with a shouldering machine on top of the asphalt slough (4" minimum depth) and then struck off. Approximately 6" deep and 5' wide for each side is estimated to be placed over the graded section. Payment for "TOPSOIL - IMPORTED" shall be by loose truck load cubic yards (CY) agreed upon between Contractor and Engineer. Contractor is to keep track of truck loads hauled onsite and give report to Engineer after each work day. All costs to complete this work shall be included in the price bid for "TOPSOIL - IMPORTED."

216-P01 WATER:

Any water needed for dust control on the haul and pit road shall be included in the price bid "WATER." All water needed for compaction of class 13 aggregate and Roadway Reshaping shall be incidental to its respective bid item.

230-P01 RESHAPING ROADWAY:

Prior to paving the Contractor shall scarify, reshape, water and compact existing roadway to uniform width and slope on Hwy 16 (CMC 0950) as shown in the plans. This item shall be paid per MILE, an increase or decrease from plan quantity will not be accepted as a reason to negotiated any pay adjustment for this bid item price. All costs associated to complete this work including blading, compacting, equipment, operator and any water needed for process shall be included in the bid price for "ROADWAY RESHAPING."

PCN	STATE	PROJECT NO.
24302 24301	ND	SC-0950(061) SC-0910(063)

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CASS COUNTY HIGHWAY DEPARTMENT

WEST FARGO, NORTH DAKOTA

NOTES

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251-P01 SEEDING:

This bid item shall include all costs associated with seeding, mulching, crimping and anything else required to complete this task according to Section 251 of the Standard Specifications. Seeding used to cover areas disturbed by construction activity shall be Class III and Class III (urban). All areas where Class III is used, straw mulch shall be used to cover seed, and all areas where Class III (urban) is used, hydraulic mulch shall be used to cover seed. The seed mixture for all areas designated as Class III or Class III (urban) shall be as follows:

PERCENT OF PURE LIVE SEED	
CLASS III	SEEDS PER ACRE
MEADOW BROMEGRASS	30%
INTERMEDIATE WHEAT GRASS	30%
CRESTED WHEATGRASS	30%
TETRAPLOID INT. RYEGRASS	10%

80 LBS OF SEED AND 20 LBS OF RYE PER ACRE.

PERCENT OF PURE LIVE	
CLASS III (URBAN)	SEEDS PER ACRE
BLUE GRASS (2 KINDS)	120
CREEPIN RED FESCUE	20
PERENNIAL RYE	20
TOTAL	160

302-P01 AGGREGATE SURFACE COURSE CL13:

This item shall include all costs associated with acquiring, hauling, placing and compacting aggregate on approaches and drives where applicable once paving is complete. See Section 10 "BASIS OF ESTIMATE" Sheet 3 of the plans for estimated quantities. All costs associated with this shall be included in the bid item "AGGREGATE SURFACE COURSE CL13."

During placement of aggregate Cass County staff will take the aggregate sample and perform the tests themselves or hire a testing firm to complete this work.

302-P02 PLACEMENT OF AGGREGATE SURFACE COURSE CL13:

The Contractor shall be responsible for the direction, placement (Dumpman) and coordination of aggregate trucks. Place class 13 on approaches and drives after final asphalt lift is placed.

401-P01 RUMBLE STRIP FOG SEAL:

The fog coat shall be placed after the rumble strips are cut. Rumble strips shall be fogged 2' wide in both directions. Apply a bitumen that is diluted with water at a (50/50) ratio at a rate of 0.10 gallons per square yard. All costs associated with this item shall be included in the unit cost for "FOG SEAL."

401-P02 TOP LIFT FOG COAT:

Apply the fog coat after the final rolling while pavement is still warm. Apply a bitumen that diluted with water at a (50/50) ratio at a rate of 0.05 GAL/SY. All costs associated with this item shall be included in the unit cost for "FOG SEAL."

401-P03 SS-1H, CSS-1H OR MS-1 EMULSIFIED ASPHALT:

Apply the tack coat at a rate of 0.10 GAL/SY on centerline cold joints and milled surfaces and 0.05 GAL/SY on non-milled surfaces. All costs associated with this item shall be included in the unit cost for "TACK COAT."

411-P01 MILLED MATERIAL:

The Contractor may add up to fifteen percent (15%) RAP to the asphalt pavement. Any millings needed for RAP shall come from the 1.5" of milling from Cass County Hwy 26 (approximately 11,520 TONS), "MILLING PAVEMENT SURFACE", and be hauled to the plant site first. Depending on the percentage RAP used by the Contractor additional RAP may be needed to achieve max amount of 15% RAP in the asphalt pavement. Any additional millings needed shall be provided by the Contractor and incidental to "RAP - SUPERPAVE FAA 43." RAP material being used for mix must be crushed to 1/2" size before being added to HMA. If any remaining millings remain, they shall become property of the Contractor and be hauled to a stockpile site of the Contractor's choosing and stockpiled at the Contractor's expense. All costs associated with this item shall be included in the unit cost for "MILLING PAVEMENT SURFACE."

430-P01 HOT MIX ASPHALT (HMA):

Before any mix is laid down the Contractor shall make sure the base material is free of any imperfections. The Hot Mix Asphalt (HMA) shall be placed and accepted according to the Standard Specifications Section 430. The vibratory screed shall be on at all times. If the Contractor chooses to pave both lanes in the same day, the Contractor needs to exercise extreme care to not mark or tear the freshly placed surface. Any damage on the paved surface needs to be repaired at the Contractor's expense.

PG 58H-34 asphalt cement shall be used for RAP - SUPERPAVE FAA 43.

430-P02 WARM MIX ASPHALT (WMA):

Warm Mix Asphalt (WMA) may be substituted for HMA at the Contractor's choosing. The WMA additive or technology is at the Contractor's choosing, and to be approved by the Engineer. All costs and savings associated with WMA shall be included in the unit cost for "RAP - SUPERPAVE FAA 43."

430-P03 CONTRACTOR CORING:

Before placing bituminous material into core holes, apply a tack coat on all sides of the core holes. Coring shall be in accordance with 403.04 I.2 of the Standard Specifications.

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CASS COUNTY HIGHWAY DEPARTMENT
WEST FARGO, NORTH DAKOTA

NOTES

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PCN	STATE	PROJECT NO.
24302 24301	ND	SC-0950(061) SC-0910(063)

430-P04 HOT MIX ASPHALT PROPERTIES:

The "RAP - SUPERPAVE FAA 43" shall have the following aggregate and mix design properties:

TEST	CRITERIA	REFERENCE
COURSE AGGREGATE ANGULARITY	75% MIN	NDDOT FIELD SAMPLING/TESTING MANUAL
FINE AGGREGATE ANGULARITY	43% MIN	AASHTO T 304
GYRATORY EFFORT, # GYRATIONS	Nini=7, Ndes=75, Nmax=115	AASHTO R 35
VOIDS FILLED WITH ASPHALT	65 - 78%	AASHTO M 323, T 166
%Gmm @ Nini	89% MAX	AASHTO M 323, T 166

704-P01 TRAFFIC CONTROL SUPERVISOR:

Provide a Traffic Control Supervisor.

704-P02 TRAFFIC CONTROL:

This item shall include all costs required to erect and maintain traffic work zone signs throughout work zone and at all public road crossings as needed. See Section 100 "TRAFFIC CONTROL SIGNS" Sheet 1-2 for traffic control layout, and see Section 100 "TRAFFIC CONTROL SIGNS" Sheet 3 for traffic control sign list. All traffic control signs will be paid per units under bid item "TRAFFIC CONTROL SIGNS."

704-P03 MAINTAINING TRAFFIC:

Once work begins on any part of the project, maintain all parts of the project. The Engineer may direct the Contractor to maintain any or all sections of roadway included in the project.

762-P01 STRIPING:

All striping must be to the correct width as shown in the plans (both temporary and permanent). If the temporary striping is measured at a thinner width, the prorated amount of width shall be paid for the quantity placed. If permanent striping is measured less than width, the section must be re-striped at the Contractor's expense.

For Standard Drawing D-762-11 Short-Term Pavement Marking, change all 6" pavement markings to 4".

762-P02 PERMANENT WATER BASED PAVEMENT MARKING:

Permanent striping shall take place two (2) weeks after the final paving lift is completed.

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08/15/2024

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3

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PCN	STATE	PROJECT NO.
24302 24301	ND	SC-0950(061) SC-0910(063)

CASS COUNTY HIGHWAY DEPARTMENT							
PROJECT NO. SC-0950(061) PCN 24302 & SC-0910(063) PCN 24301 MILL, HMA, SEEDING & INCIDENTALS CASS CO. HWY 16 (CMC 0950): FROM STATE HWY 18 TO DAVENPORT CASS CO. HWY 26 (CMC 0910): FROM CASS CO. HWY 5 N. TO STATE HWY 18					ESTIMATED QUANTITIES SC-0950(061) HIGHWAY 16 (CMC 0950)	ESTIMATED QUANTITIES SC-0910(063) HIGHWAY 26 (CMC 0910)	TOTAL ESTIMATED QUANTITIES
ITEM	ITEM ID		DESCRIPTION	UNIT	APPROX.	APPROX.	APPROX.
	SPEC NO.	CODE NO.			QUANTITY	QUANTITY	QUANTITY
1	103	0100	CONTRACT BOND	L SUM	0.61	0.39	1
2	107	0100	RAILWAY PROTECTION INSURANCE	L SUM	1	0	1
3	107	0140	RAILROAD COORDINATION	L SUM	1	0	1
4	203	0119	TOPSOIL - IMPORTED	CY	7,706	0	7,706
5	216	0100	WATER	M GAL	870	480	1,350
6	230	0106	ROADWAY RESHAPING	MILE	8	0	8.00
7	251	0300	SEEDING CLASS III	ACRE	9.55	0	9.55
8	253	0101	STRAW MULCH	ACRE	9.15	0	9.15
9	253	0201	HYDRAULIC MULCH	ACRE	0.40	0	0.40
10	302	0160	AGGREGATE SURFACE COURSE CL 13	TON	1,173	1,035	2,208
11	401	0050	TACK COAT	GAL	16,528	24,581	41,109
12	401	0070	FOG SEAL	GAL	8,960	11,441	20,401
13	411	0105	MILLING PAVEMENT SURFACE	SY	412	137,980	138,392
14	430	0143	RAP - SUPERPAVE FAA 43	TON	55,570	29,367	84,937
15	430	0400	HMA INTELLIGENT COMPACTION	L SUM	0.61	0.39	1
16	430	1000	CORED SAMPLE	EA	386	297	683
17	430	5818	PG 58H-34 ASPHALT CEMENT	TON	2,779	1,468	4,247
18	702	0100	MOBILIZATION	L SUM	0.61	0.39	1
19	704	0100	FLAGGING	MHR	672	360	1,032
20	704	1000	TRAFFIC CONTROL SIGNS	UNITS	1,414	1,407	2,821
21	704	1060	DELINEATOR DRUMS	EA	20	20	40
22	704	1185	PILOT CAR	HR	336	180	516
23	706	0550	BITUMINOUS LABORATORY	EA	0.61	0.39	1
24	706	0600	CONTRACTOR'S LABORATORY	EA	0.61	0.39	1
25	760	0005	RUMBLE STRIPS - ASPHALT SHOULDER	MILE	13.30	16.48	29.78
26	762	0122	PREFORMED PATTERNED PVMT MK - MESSAGE (GROOVED)	SF	132.5	217.0	349.5
27	762	0405	SHORT TERM 4IN BROKEN LINE - PNT TAPE OR RSD MRK	LF	31,140	34,929	66,069
28	762	0410	SHORT TERM 4IN LINE NPZ - PN TP OR RS MRK	LF	8,613	26,424	35,037
29	762	1104	PVMT MK PAINTED 4IN LINE	LF	96,293	0	96,293
30	762	1106	PVMT MK PAINTED 6IN LINE	LF	0	115,483	115,483
31	762	1124	PVMT MK PAINTED 24IN LINE	LF	24	24	48

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CASS COUNTY HIGHWAY DEPARTMENT
WEST FARGO, NORTH DAKOTA
QUANTITIES

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PCN	STATE	PROJECT NO.
24302 24301	ND	SC-0950(061) SC-0910(063)

CASS COUNTY HIGHWAY DEPARTMENT							
PROJECT NO. SC-0950(061) PCN 24302 & SC-0910(063) PCN 24301 MILL, HMA, SEEDING & INCIDENTALS CASS CO. HWY 16 (CMC 0950): FROM STATE HWY 18 TO DAVENPORT CASS CO. HWY 26 (CMC 0910): FROM CASS CO. HWY 5 N. TO STATE HWY 18					ESTIMATED QUANTITIES SC-0950(061) HIGHWAY 16 (CMC 0950)	ESTIMATED QUANTITIES SC-0910(063) HIGHWAY 26 (CMC 0910)	TOTAL ESTIMATED QUANTITIES
ITEM	ITEM ID		DESCRIPTION	UNIT	APPROX. QUANTITY	APPROX. QUANTITY	APPROX. QUANTITY
	SPEC NO.	CODE NO.					
1	103	0100	CONTRACT BOND	L SUM	0.61	0.39	1
2	203	0119	TOPSOIL - IMPORTED	CY	7,706	0	7,706
3	216	0100	WATER	M GAL	870	480	1,350
4	230	0106	ROADWAY RESHAPING	MILE	8	0	8.00
5	251	0300	SEEDING CLASS III	ACRE	9.55	0	9.55
6	253	0101	STRAW MULCH	ACRE	9.15	0	9.15
7	253	0201	HYDRAULIC MULCH	ACRE	0.40	0	0.40
8	302	0160	AGGREGATE SURFACE COURSE CL 13	TON	1,173	1,035	2,208
9	401	0050	TACK COAT	GAL	16,528	24,627	41,155
10	401	0070	FOG SEAL	GAL	8,960	11,461	20,421
11	411	0105	MILLING PAVEMENT SURFACE	SY	412	138,240	138,652
12	430	0143	RAP - SUPERPAVE FAA 43	TON	55,570	29,431	85,001
13	430	0400	HMA INTELLIGENT COMPACTION	L SUM	0.61	0.39	1
14	430	1000	CORED SAMPLE	EA	386	297	683
15	430	5818	PG 58H-34 ASPHALT CEMENT	TON	2,779	1,472	4,251
16	702	0100	MOBILIZATION	L SUM	0.61	0.39	1
17	704	0100	FLAGGING	MHR	672	360	1,032
18	704	1000	TRAFFIC CONTROL SIGNS	UNITS	1,414	1,407	2,821
19	704	1060	DELINEATOR DRUMS	EA	20	20	40
20	704	1185	PILOT CAR	HR	336	180	516
21	706	0550	BITUMINOUS LABORATORY	EA	0.61	0.39	1
22	706	0600	CONTRACTOR'S LABORATORY	EA	0.61	0.39	1
23	760	0005	RUMBLE STRIPS - ASPHALT SHOULDER	MILE	13.30	16.50	29.80
24	762	0122	PREFORMED PATTERNED PVMT MK - MESSAGE (GROOVED)	SF	132.5	265.0	397.5
25	762	0405	SHORT TERM 4IN BROKEN LINE - PNT TAPE OR RSD MRK	LF	31,140	35,001	66,141
26	762	0410	SHORT TERM 4IN LINE NPZ - PN TP OR RS MRK	LF	8,613	26,706	35,319
27	762	1104	PVMT MK PAINTED 4IN LINE	LF	96,293	0	96,293
28	762	1106	PVMT MK PAINTED 6IN LINE	LF	0	115,789	115,789
29	762	1124	PVMT MK PAINTED 24IN LINE	LF	24	24	48

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CASS COUNTY HIGHWAY DEPARTMENT
WEST FARGO, NORTH DAKOTA
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PCN	STATE	PROJECT NO.
24302 24301	ND	SC-0950(061) SC-0910(063)

BASIS OF ESTIMATE

MATERIAL

SEEDING & MULCHING
AGGREGATE SURFACE COURSE CL13
TONNAGE FOR AGGREGATE SURFACE COURSE CL13
HOT BITUMINOUS PAVEMENT
ADDED ASPHALT CEMENT (PG 58H-34)
EMULSIFIED ASPHALT FOR TACK COAT - NON MILLED SURFACE
EMULSIFIED ASPHALT FOR TACK COAT - MILLED SURFACE
EMULSIFIED ASPHALT FOR TACK COAT - CENTERLINE COLD JOINT 1' WIDE
EMULSIFIED ASPHALT FOR RUMBLE STRIPS
EMULSIFIED ASPHALT FOR FOG SEAL

WATER

AS A DUST PALLIATIVE MATERIAL

TRAFFIC CONTROL

FLAGGING

PILOT CAR

BASIS OF ESTIMATE

ALL DISTURBED AREAS OUTSIDE OF ROADBED BUT INSIDE OF RIGHT-OF-WAY
1.875 TON/CY
25 TONS/SECTION APPROACH, 25 TONS/PRIVATE DRIVE, 12 TONS/FIELD APPROACH
2.0 TON/CY
5.0% OF HBP BY WEIGHT
0.05 GAL/SY
0.10 GAL/SY
0.10 GAL/SY
0.10 GAL/SY (0.05 GAL/SY IN EITHER DIRECTION)
0.05 GAL/SY

30 M GAL PER DAY OF HAULING

12 HOURS FLAGGING/FLAGGER/2000 TONS HBP
(TOTAL HRS CR16 (CMC 0950) 672; CR 26 (CMC 0910) 360)

12 HOURS PILOT CAR/2000 TONS HBP
(TOTAL HRS CR16 (CMC 0950) 336; CR26 180)

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CASS COUNTY HIGHWAY DEPARTMENT
WEST FARGO, NORTH DAKOTA

BASIS OF ESTIMATE

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MILLING PAVEMENT SURFACE - 1.5IN					
CASS CO. HWY 16 (CMC 0950): FROM STATE HWY 18 TO DAVENPORT					
LOCATION	LENGTH (FT)	WIDTH (FT)	THICKNESS (IN)	AREA (SY)	TONS
ST 18 INTERSECTION	VARIES	VARIES	1.5	320	27
RRVW RR XING TIE IN	26	32	1.5	92	8
TOTAL				412	35

MILLING PAVEMENT SURFACE - 1.5IN						
CASS CO. HWY 26 (CMC 0910): FROM CASS CO. HWY 5 N. TO STATE HWY 18						
STA START	STA END	LENGTH (FT)	WIDTH (FT)	THICKNESS (IN)	AREA (SY)	TONS
-0+66	0+66	132	36	1.5	528	44
0+66	38+33	3,767	26	1.5	10,882	907
39+33	473+50	43,417	26	1.5	125,427	10,452
473+50	475+70	220	36	1.5	880	73
TIE IN POINTS (INCLUDES BIKE PATH)		VARIES	VARIES	1.5	263	22
TOTAL				137,980	11,498	

EMULSIFIED ASPHALT FOR FOGGING						
CASS CO. HWY 16 (CMC 0950): FROM STATE HWY 18 TO DAVENPORT						
LOCATION	STA START	STA END	LENGTH (FT)	WIDTH (FT)	AREA (SY)	GAL
MAINLINE - 0.05 GAL/SY	0+18	416+35	41,617	32	147,972	7,399
RUMBLE STRIPS - 0.10 GAL/SY	VARIES	VARIES	70,224	2	15,605	1,561
TOTAL =					163,577	8,960

EMULSIFIED ASPHALT FOR FOGGING						
CASS CO. HWY 26 (CMC 0910): FROM CASS CO. HWY 5 N. TO STATE HWY 18						
LOCATION	STA START	STA END	LENGTH (FT)	WIDTH (FT)	AREA (SY)	GAL
MAINLINE - 0.05 GAL/SY	-0+66	38+33	3,899	36	15,596	780
MAINLINE - 0.05 GAL/SY	39+33	475+70	43,637	36	174,548	8,727
RUMBLE STRIPS - 0.10 GAL/SY	VARIES	VARIES	87,014	2	19,337	1,934
TOTAL =					209,481	11,441

EMULSIFIED ASPHALT FOR TACK COAT						
CASS CO. HWY 16 (CMC 0950): FROM STATE HWY 18 TO DAVENPORT						
LOCATION	STA START	STA END	LENGTH (FT)	WIDTH (FT)	AREA (SY)	GAL
MAINLINE - 1ST LIFT CL JOINT - 0.10 GAL/SY	0+73	416+09	41,536	1	4,615	462
MAINLINE - 2ND LIFT - 0.05 GAL/SY	0+18	416+35	41,617	32	147,972	7,399
MAINLINE - 2ND LIFT CL JOINT - 0.10 GAL/SY	0+18	416+35	41,617	1	4,624	462
MAINLINE - 3RD LIFT - 0.05 GAL/SY	0+18	416+35	41,617	32	147,972	7,399
MAINLINE - 3RD LIFT CL JOINT - 0.10 GAL/SY	0+18	416+35	41,617	1	4,624	462
TOTAL =					309,807	16,184
(SEE OVERLAYING APPROACHES/INTERSECTIONS BASIS OF ESTIMATE) APPROACHES/INTERSECTIONS =					VARIES	344
GRAND TOTAL =					309,807	16,528

EMULSIFIED ASPHALT FOR TACK COAT						
CASS CO. HWY 26 (CMC 0910): FROM CASS CO. HWY 5 N. TO STATE HWY 18						
LOCATION	STA START	STA END	LENGTH (FT)	WIDTH (FT)	AREA (SY)	GAL
MAINLINE - 1ST LIFT - 0.10 GAL/SY	-0+66	0+66	132	36	528	53
MAINLINE - 1ST LIFT - 0.10 GAL/SY	0+66	38+33	3,767	26	10,882	1,088
MAINLINE - 1ST LIFT CL JOINT - 0.10 GAL/SY	-0+66	38+33	3,899	1	433	43
MAINLINE - 1ST LIFT - 0.10 GAL/SY	39+33	473+50	43,417	26	125,427	12,543
MAINLINE - 1ST LIFT - 0.10 GAL/SY	473+50	475+70	220	36	880	88
MAINLINE - 1ST LIFT CL JOINT - 0.10 GAL/SY	39+33	475+70	43,637	1	4,849	485
MAINLINE - 2ND LIFT - 0.05 GAL/SY	0+66	38+33	3,767	36	15,068	753
MAINLINE - 2ND LIFT CL JOINT - 0.10 GAL/SY	0+66	38+33	3,767	1	419	42
MAINLINE - 2ND LIFT - 0.05 GAL/SY	39+33	473+50	43,417	36	173,668	8,683
MAINLINE - 2ND LIFT CL JOINT - 0.10 GAL/SY	39+33	473+50	43,417	1	4,824	482
TOTAL =					336,978	24,260
(SEE OVERLAYING APPROACHES/INTERSECTIONS BASIS OF ESTIMATE) APPROACHES/INTERSECTIONS =					VARIES	321
GRAND TOTAL =					336,978	24,581

MAINTAINING TRAFFIC					
CASS CO. HWY 16 (CMC 0950): FROM STATE HWY 18 TO DAVENPORT					
	EST. QTY	12 HR DAYS	QTY OF WORKER	UNIT	HOURS WORKER @ 12 HR/2000 TON HBP
FLAGGING	55,570	28	2	MHR	672
PILOT CAR	55,570	28	1	HR	336

MAINTAINING TRAFFIC					
CASS CO. HWY 26 (CMC 0910): FROM CASS CO. HWY 5 N. TO STATE HWY 18					
	EST. QTY	12 HR DAYS	QTY OF WORKER	UNIT	HOURS WORKER @ 12 HR/2000 TON HBP
FLAGGING	29,439	15	2	MHR	360
PILOT CAR	29,439	15	1	HR	180

PCN	STATE	PROJECT NO.
24302 24301	ND	SC-0950(061) SC-0910(063)

RUMBLE STRIP QUANTITIES			
CASS CO. HWY 16 (CMC 0950): FROM STATE HWY 18 TO DAVENPORT			
STA START	STA END	SIDE (LT/RT)	LENGTH (MILE)
0+75	29+00	LT/RT	1.07
34+00	46+50	LT/RT	0.47
53+50	105+20	LT/RT	1.96
106+35	126+00	LT/RT	0.74
132+50	157+70	LT/RT	0.95
158+85	210+30	LT/RT	1.95
211+40	244+00	LT/RT	1.23
251+50	263+05	LT/RT	0.44
269+00	315+95	LT/RT	1.78
317+05	338+50	LT/RT	0.81
343+00	361+50	LT/RT	0.70
369+75	385+50	LT/RT	0.60
393+50	406+00	LT/RT	0.47
412+50	416+00	LT/RT	0.13
TOTAL =			13.30

RUMBLE STRIP QUANTITIES			
CASS CO. HWY 26 (CMC 0910): FROM CASS CO. HWY 5 N. TO STATE HWY 18			
STA START	STA END	SIDE (LT/RT)	LENGTH (MILE)
0+62	38+33	LT/RT	1.43
39+33	53+10	LT/RT	0.52
54+35	69+31	LT/RT	0.57
70+45	105+85	LT/RT	1.34
107+15	159+20	LT/RT	1.97
160+37	211+50	LT/RT	1.94
212+80	255+10	LT/RT	1.60
263+10	269+57	LT/RT	0.25
275+90	314+70	LT/RT	1.47
318+00	321+95	LT/RT	0.15
328+50	352+00	LT/RT	0.89
358+45	367+63	LT/RT	0.35
368+90	420+34	LT/RT	1.95
421+69	475+70	LT/RT	2.05
TOTAL =			16.48

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CASS COUNTY HIGHWAY DEPARTMENT
WEST FARGO, NORTH DAKOTA
BASIS OF ESTIMATE

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SEC NO. 010
SHEET NO. 2

J:\Admin\Eng\Projects\CI6 ST 18 to Davenport\2025 Paving Project\Design\CI6 Paving Plan Sheets.dwg-BASIS OF ESTIMATE (2)-8/15/2024 4:10 PM-(wainz)

MILLING PAVEMENT SURFACE - 1.5IN					
CASS CO. HWY 16 (CMC 0950): FROM STATE HWY 18 TO DAVENPORT					
LOCATION	LENGTH (FT)	WIDTH (FT)	THICKNESS (IN)	AREA (SY)	TONS
ST 18 INTERSECTION	VARIES	VARIES	1.5	320	27
RRVW RR XING TIE IN	26	32	1.5	92	8
TOTAL				412	35

MILLING PAVEMENT SURFACE - 1.5IN						
CASS CO. HWY 26 (CMC 0910): FROM CASS CO. HWY 5 N. TO STATE HWY 18						
STA START	STA END	LENGTH (FT)	WIDTH (FT)	THICKNESS (IN)	AREA (SY)	TONS
-0+66	0+66	132	36	1.5	528	44
0+66	38+78	3,812	26	1.5	11,012	918
38+88	473+50	43,462	26	1.5	125,557	10,463
473+50	475+70	220	36	1.5	880	73
TIE IN POINTS (INCLUDES BIKE PATH)				1.5	263	22
TOTAL					138,240	11,520

EMULSIFIED ASPHALT FOR FOGGING						
CASS CO. HWY 16 (CMC 0950): FROM STATE HWY 18 TO DAVENPORT						
LOCATION	STA START	STA END	LENGTH (FT)	WIDTH (FT)	AREA (SY)	GAL
MAINLINE - 0.05 GAL/SY	0+18	416+35	41,617	32	147,972	7,399
RUMBLE STRIPS - 0.10 GAL/SY	VARIES	VARIES	70,224	2	15,605	1,561
TOTAL =					163,577	8,960

EMULSIFIED ASPHALT FOR FOGGING						
CASS CO. HWY 26 (CMC 0910): FROM CASS CO. HWY 5 N. TO STATE HWY 18						
LOCATION	STA START	STA END	LENGTH (FT)	WIDTH (FT)	AREA (SY)	GAL
MAINLINE - 0.05 GAL/SY	-0+66	38+78	3,944	36	15,776	789
MAINLINE - 0.05 GAL/SY	38+88	475+70	43,682	36	174,728	8,736
RUMBLE STRIPS - 0.10 GAL/SY	VARIES	VARIES	87120	2	19,360	1,936
TOTAL =					209,864	11,461

EMULSIFIED ASPHALT FOR TACK COAT						
CASS CO. HWY 16 (CMC 0950): FROM STATE HWY 18 TO DAVENPORT						
LOCATION	STA START	STA END	LENGTH (FT)	WIDTH (FT)	AREA (SY)	GAL
MAINLINE - 1ST LIFT CL JOINT - 0.10 GAL/SY	0+73	416+09	41,536	1	4,615	462
MAINLINE - 2ND LIFT - 0.05 GAL/SY	0+18	416+35	41,617	32	147,972	7,399
MAINLINE - 2ND LIFT CL JOINT - 0.10 GAL/SY	0+18	416+35	41,617	1	4,624	462
MAINLINE - 3RD LIFT - 0.05 GAL/SY	0+18	416+35	41,617	32	147,972	7,399
MAINLINE - 3RD LIFT CL JOINT - 0.10 GAL/SY	0+18	416+35	41,617	1	4,624	462
TOTAL =					309,807	16,184
(SEE OVERLAYING APPROACHES/INTERSECTIONS BASIS OF ESTIMATE) APPROACHES/INTERSECTIONS =					VARIES	344
GRAND TOTAL =					309,807	16,528

EMULSIFIED ASPHALT FOR TACK COAT						
CASS CO. HWY 26 (CMC 0910): FROM CASS CO. HWY 5 N. TO STATE HWY 18						
LOCATION	STA START	STA END	LENGTH (FT)	WIDTH (FT)	AREA (SY)	GAL
MAINLINE - 1ST LIFT - 0.10 GAL/SY	-0+66	0+66	132	36	528	53
MAINLINE - 1ST LIFT - 0.10 GAL/SY	0+66	38+78	3,812	26	11,012	1,101
MAINLINE - 1ST LIFT CL JOINT - 0.10 GAL/SY	-0+66	38+78	3,944	1	438	44
MAINLINE - 1ST LIFT - 0.10 GAL/SY	38+88	473+50	43,462	26	125,557	12,556
MAINLINE - 1ST LIFT - 0.10 GAL/SY	473+50	475+70	220	36	880	88
MAINLINE - 1ST LIFT CL JOINT - 0.10 GAL/SY	38+88	475+70	43,682	1	4,854	485
MAINLINE - 2ND LIFT - 0.05 GAL/SY	0+66	38+78	3,812	36	15,248	762
MAINLINE - 2ND LIFT CL JOINT - 0.10 GAL/SY	0+66	38+78	3,812	1	424	42
MAINLINE - 2ND LIFT - 0.05 GAL/SY	38+88	473+50	43,462	36	173,848	8,692
MAINLINE - 2ND LIFT CL JOINT - 0.10 GAL/SY	38+88	473+50	43,462	1	4,829	483
TOTAL =					337,618	24,306
(SEE OVERLAYING APPROACHES/INTERSECTIONS BASIS OF ESTIMATE) APPROACHES/INTERSECTIONS =					N/A	321
GRAND TOTAL =					337,618	24,627

MAINTAINING TRAFFIC					
CASS CO. HWY 16 (CMC 0950): FROM STATE HWY 18 TO DAVENPORT					
	EST. QTY	12 HR DAYS	QTY OF WORKER	UNIT	HOURS WORKER @ 12 HR/2000 TON HBP
FLAGGING	55,570	28	2	MHR	672
PILOT CAR	55,570	28	1	HR	336

MAINTAINING TRAFFIC					
CASS CO. HWY 26 (CMC 0910): FROM CASS CO. HWY 5 N. TO STATE HWY 18					
	EST. QTY	12 HR DAYS	QTY OF WORKER	UNIT	HOURS WORKER @ 12 HR/2000 TON HBP
FLAGGING	29,439	15	2	MHR	360
PILOT CAR	29,439	15	1	HR	180

PCN	STATE	PROJECT NO.
24302 24301	ND	SC-0950(061) SC-0910(063)

RUMBLE STRIP QUANTITIES			
CASS CO. HWY 16 (CMC 0950): FROM STATE HWY 18 TO DAVENPORT			
STA START	STA END	SIDE (LT/RT)	LENGTH (MILE)
0+75	29+00	LT/RT	1.07
34+00	46+50	LT/RT	0.47
53+50	105+20	LT/RT	1.96
106+35	126+00	LT/RT	0.74
132+50	157+70	LT/RT	0.95
158+85	210+30	LT/RT	1.95
211+40	244+00	LT/RT	1.23
251+50	263+05	LT/RT	0.44
269+00	315+95	LT/RT	1.78
317+05	338+50	LT/RT	0.81
343+00	361+50	LT/RT	0.70
369+75	385+50	LT/RT	0.60
393+50	406+00	LT/RT	0.47
412+50	416+00	LT/RT	0.13
TOTAL =			13.30

RUMBLE STRIP QUANTITIES			
CASS CO. HWY 26 (CMC 0910): FROM CASS CO. HWY 5 N. TO STATE HWY 18			
STA START	STA END	SIDE (LT/RT)	LENGTH (MILE)
0+62	38+54	LT/RT	1.44
39+12	53+10	LT/RT	0.53
54+35	69+31	LT/RT	0.57
70+45	105+85	LT/RT	1.34
107+15	159+20	LT/RT	1.97
160+37	211+50	LT/RT	1.94
212+80	255+10	LT/RT	1.60
263+10	269+57	LT/RT	0.25
275+90	314+70	LT/RT	1.47
318+00	321+95	LT/RT	0.15
328+50	352+00	LT/RT	0.89
358+45	367+63	LT/RT	0.35
368+90	420+34	LT/RT	1.95
421+69	475+70	LT/RT	2.05
TOTAL =			16.50

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REG. NO. 27408 ON 08/15/2024 AND THE ORIGINAL DOCUMENT IS STORED
AT THE CASS COUNTY HIGHWAY DEPARTMENT, WEST FARGO, ND

CASS COUNTY HIGHWAY DEPARTMENT
WEST FARGO, NORTH DAKOTA
BASIS OF ESTIMATE

Drawn By ZSW
Checked By KDL
REV DATE 08/15/2024
Scale As Shown
SEC NO. 010
SHEET NO. 2

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PCN	STATE	PROJECT NO.
24302 24301	ND	SC-0950(061) SC-0910(063)

OVERLAYING APPROACHES/INTERSECTIONS				
CASS CO. HWY 16 (CMC 0950): FROM STATE HWY 18 TO DAVENPORT				
TYPE	SECTION LINE	PRIVATE DRIVE	FIELD APPROACH	TOTAL
AMOUNT OF APPPROACHES	14	10	27	
AGGREGATE SURFACE COURSE CL13 (TON)	23	23	23	1,173
RAP - SUPERPAVE FAA 43 (TON)	75	45	7	1,689
ASPHALT CEMENT	3.75	2.25	0.35	84
EMULSIFIED ASPHALT FOR TACK COAT	15	8	2	344

HMA CORED SAMPLES						
CASS CO. HWY 16 (CMC 0950): FROM STATE HWY 18 TO DAVENPORT						
	A	B	C			
SPECIFICATION SECTION	DISTANCE (FT) / 1000	LANES	LIFTS	QUANTITY (AxBxC)	QUANTITY (1-PER MILE)	UNIT
430.04 I.2.b(2), "Pavement Desnity Cores"	42	2	3	252	N/A	EA
SSP 4 Longitudinal Joint Density in HMA Pavements (Centerline)	42	N/A	3	126	N/A	EA
430.04 I.2.b(3), "Pavement Thickness Determination Cores"				N/A	8	EA
TOTAL =				378	8	EA

PAVING TONNAGE ESTIMATE							
CASS CO. HWY 16 (CMC 0950): FROM STATE HWY 18 TO DAVENPORT							
LOCATION	STA START	STA END	LENGTH (FT)	WIDTH (FT)	THICKNESS (IN)	AREA (SY)	TONS
MAINLINE	0+18	0+73	55	VARIES	1.5	320	27
SLOUGH	0+18	0+73	55	3	1.5	18	2
MAINLINE	0+73	416+09	41,536	32	6	147,684	49,228
SLOUGH	0+73	416+09	41,536	3	6	13,845	4,615
MAINLINE	416+09	416+35	26	32	1.5	92	8
SLOUGH	416+09	416+35	26	3	1.5	9	1
TOTAL =						161,867	53,881
(SEE OVERLAYING APPROACHES/INTERSECTIONS BASIS OF ESTIMATE) APPROACHES/INTERSECTIONS =							1,689
GRAND TOTAL =						161,867	55,570

PAVING TONNAGE ESTIMATE							
CASS CO. HWY 26 (CMC 0910): FROM CASS CO. HWY 5 N. TO STATE HWY 18							
LOCATION	STA START	STA END	LENGTH (FT)	WIDTH (FT)	THICKNESS (IN)	AREA (SY)	TONS
MAINLINE	-0+66	0+66	132	36	3.5	528	103
SLOUGH	-0+66	0+66	132	2	2	29	3
MAINLINE	0+66	38+33	3,767	26	1.5	10,882	907
MAINLINE	0+66	38+33	3,767	36	2	15,068	1,674
SLOUGH	0+66	38+33	3,767	2	2	837	93
MAINLINE	39+33	473+50	43,417	26	1.5	125,427	10,452
MAINLINE	39+33	54+37	1,504	36	2	6,016	668
SLOUGH	39+33	54+37	1,504	2	2	334	37
MAINLINE	54+37	473+50	41,913	36	1.5	167,652	13,971
SLOUGH	54+37	473+50	41,913	2	1.5	9,314	776
MAINLINE	473+50	475+70	220	36	3	880	147
SLOUGH	473+50	475+70	220	2	3	49	8
TOTAL =						337,016	28,839
PROJECT TIE INS =						263	51
(SEE OVERLAYING APPROACHES/INTERSECTIONS BASIS OF ESTIMATE) APPROACHES/INTERSECTIONS =						N/A	477
GRAND TOTAL =						337,279	29,367

PREFORMED PATTERNED PVMT MK-MESSAGE (GROOVED)			
CASS CO. HWY 16 (CMC 0950): FROM STATE HWY 18 TO DAVENPORT			
STATION	LANE	TYPE	AREA (SF)
412+94	RT	RR CROSSING	132.5
TOTAL =			132.5

PREFORMED PATTERNED PVMT MK-MESSAGE (GROOVED)			
CASS CO. HWY 26 (CMC 0910): FROM CASS CO. HWY 5 N. TO STATE HWY 18			
STATION	LANE	TYPE	AREA (SF)
33+89	RT	RR CROSSING	108.5
43+77	LT	RR CROSSING	108.5
TOTAL =			217.0

OVERLAYING APPROACHES/INTERSECTIONS				
CASS CO. HWY 26 (CMC 0910): FROM CASS CO. HWY 5 N. TO STATE HWY 18				
TYPE	SECTION LINE	PRIVATE DRIVE	FIELD APPROACH	TOTAL
AMOUNT OF APPPROACHES	15	6	24	
AGGREGATE SURFACE COURSE CL13 (TON)	23	23	23	1,035
RAP - SUPERPAVE FAA 43 (TON)	23	14	2	477
ASPHALT CEMENT	1.15	0.70	0.10	24
EMULSIFIED ASPHALT FOR TACK COAT	15	8	2	321

HMA CORED SAMPLES						
CASS CO. HWY 26 (CMC 0910): FROM CASS CO. HWY 5 N. TO STATE HWY 18						
	A	B	C			
SPECIFICATION SECTION	DISTANCE (FT) / 1000	LANES	LIFTS	QUANTITY (AxBxC)	QUANTITY (1-PER MILE)	UNIT
430.04 I.2.b(2), "Pavement Desnity Cores"	48	2	2	192	N/A	EA
SSP 4 Longitudinal Joint Density in HMA Pavements (Centerline)	48	N/A	2	96	N/A	EA
430.04 I.2.b(3), "Pavement Thickness Determination Cores"				N/A	9	EA
TOTAL =				288	9	EA

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CASS COUNTY HIGHWAY DEPARTMENT
WEST FARGO, NORTH DAKOTA
BASIS OF ESTIMATE

Drawn By
ZSW
Checked By
KDL
REV DATE
11/12/2024
Scale
As Shown
SEC NO.
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SHEET NO.
3

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PCN	STATE	PROJECT NO.
24302 24301	ND	SC-0950(061) SC-0910(063)

OVERLAYING APPROACHES/INTERSECTIONS				
CASS CO. HWY 16 (CMC 0950): FROM STATE HWY 18 TO DAVENPORT				
TYPE	SECTION LINE	PRIVATE DRIVE	FIELD APPROACH	TOTAL
AMOUNT OF APPPROACHES	14	10	27	
AGGREGATE SURFACE COURSE CL13 (TON)	23	23	23	1,173
RAP - SUPERPAVE FAA 43 (TON)	75	45	7	1,689
ASPHALT CEMENT	3.75	2.25	0.35	84
EMULSIFIED ASPHALT FOR TACK COAT	15	8	2	344

HMA CORED SAMPLES						
CASS CO. HWY 16 (CMC 0950): FROM STATE HWY 18 TO DAVENPORT						
	A	B	C			
SPECIFICATION SECTION	DISTANCE (FT) / 1000	LANES	LIFTS	QUANTITY (AxBxC)	QUANTITY (1-PER MILE)	UNIT
430.04 I.2.b(2), "Pavement Desnity Cores"	42	2	3	252	N/A	EA
SSP 4 Longitudinal Joint Density in HMA Pavements (Centerline)	42	N/A	3	126	N/A	EA
430.04 I.2.b(3), "Pavement Thickness Determination Cores"				N/A	8	EA
TOTAL =				378	8	EA

PAVING TONNAGE ESTIMATE							
CASS CO. HWY 16 (CMC 0950): FROM STATE HWY 18 TO DAVENPORT							
LOCATION	STA START	STA END	LENGTH (FT)	WIDTH (FT)	THICKNESS (IN)	AREA (SY)	TONS
MAINLINE	0+18	0+73	55	VARIES	1.5	320	27
SLOUGH	0+18	0+73	55	3	1.5	18	2
MAINLINE	0+73	416+09	41,536	32	6	147,684	49,228
SLOUGH	0+73	416+09	41,536	3	6	13,845	4,615
MAINLINE	416+09	416+35	26	32	1.5	92	8
SLOUGH	416+09	416+35	26	3	1.5	9	1
TOTAL =						161,867	53,881
(SEE OVERLAYING APPROACHES/INTERSECTIONS BASIS OF ESTIMATE) APPROACHES/INTERSECTIONS =							1,689
GRAND TOTAL =						161,867	55,570

PAVING TONNAGE ESTIMATE							
CASS CO. HWY 26 (CMC 0910): FROM CASS CO. HWY 5 N. TO STATE HWY 18							
LOCATION	STA START	STA END	LENGTH (FT)	WIDTH (FT)	THICKNESS (IN)	AREA (SY)	TONS
MAINLINE	-0+66	0+66	132	36	3.5	528	103
SLOUGH	-0+66	0+66	132	2	2	29	3
MAINLINE	0+66	38+78	3,812	26	1.5	11,012	918
MAINLINE	0+66	38+78	3,812	36	2	15,248	1,694
SLOUGH	0+66	38+78	3,812	2	2	847	94
MAINLINE	38+88	473+50	43,462	26	1.5	125,557	10,463
MAINLINE	38+88	54+37	1,549	36	2	6,196	688
SLOUGH	38+88	54+37	1,549	2	2	344	38
MAINLINE	54+37	473+50	41,913	36	1.5	167,652	13,971
SLOUGH	54+37	473+50	41,913	2	1.5	9,314	776
MAINLINE	473+50	475+70	220	36	3	880	147
SLOUGH	473+50	475+70	220	2	3	49	8
TOTAL =						337,656	28,903
PROJECT TIE INS =						263	51
(SEE OVERLAYING APPROACHES/INTERSECTIONS BASIS OF ESTIMATE) APPROACHES/INTERSECTIONS =						N/A	477
GRAND TOTAL =						337,919	29,431

PREFORMED PATTERNED PVMT MK-MESSAGE (GROOVED)			
CASS CO. HWY 16 (CMC 0950): FROM STATE HWY 18 TO DAVENPORT			
STATION	LANE	TYPE	AREA (SF)
412+94	RT	RR CROSSING	132.5
TOTAL =			132.5

PREFORMED PATTERNED PVMT MK-MESSAGE (GROOVED)			
CASS CO. HWY 26 (CMC 0910): FROM CASS CO. HWY 5 N. TO STATE HWY 18			
STATION	LANE	TYPE	AREA (SF)
33+89	RT	RR CROSSING	132.5
43+77	LT	RR CROSSING	132.5
TOTAL =			265.0

OVERLAYING APPROACHES/INTERSECTIONS				
CASS CO. HWY 26 (CMC 0910): FROM CASS CO. HWY 5 N. TO STATE HWY 18				
TYPE	SECTION LINE	PRIVATE DRIVE	FIELD APPROACH	TOTAL
AMOUNT OF APPPROACHES	15	6	24	
AGGREGATE SURFACE COURSE CL13 (TON)	23	23	23	1,035
RAP - SUPERPAVE FAA 43 (TON)	23	14	2	477
ASPHALT CEMENT	1.15	0.70	0.10	24
EMULSIFIED ASPHALT FOR TACK COAT	15	8	2	321

HMA CORED SAMPLES						
CASS CO. HWY 26 (CMC 0910): FROM CASS CO. HWY 5 N. TO STATE HWY 18						
	A	B	C			
SPECIFICATION SECTION	DISTANCE (FT) / 1000	LANES	LIFTS	QUANTITY (AxBxC)	QUANTITY (1-PER MILE)	UNIT
430.04 I.2.b(2), "Pavement Desnity Cores"	48	2	2	192	N/A	EA
SSP 4 Longitudinal Joint Density in HMA Pavements (Centerline)	48	N/A	2	96	N/A	EA
430.04 I.2.b(3), "Pavement Thickness Determination Cores"				N/A	9	EA
TOTAL =				288	9	EA

THIS DOCUMENT WAS ORIGINALLY ISSUED AND SEALED BY KYLE LITCHY N.D.
REG. NO. 27408 ON 08/15/2024 AND THE ORIGINAL DOCUMENT IS STORED
AT THE CASS COUNTY HIGHWAY DEPARTMENT, WEST FARGO, ND

CASS COUNTY HIGHWAY DEPARTMENT
WEST FARGO, NORTH DAKOTA
BASIS OF ESTIMATE

Drawn By ZSW
Checked By KDL
REV DATE 08/15/2024
Scale As Shown
SEC NO. 010
SHEET NO. 3

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TOPSOIL - IMPORTED						
CASS CO. HWY 16 (CMC 0950): FROM STATE HWY 18 TO DAVENPORT						
STA START	STA END	LENGTH (FT)	WIDTH (FT)	SIDE (LT/RT)	THICKNESS(IN)	CY
0+18	416+35	41,617	5	LT	6	3,853
0+18	416+35	41,617	5	RT	6	3,853
TOTAL =						7,706

SEEDING & MULCHING							
CASS CO. HWY 16 (CMC 0950): FROM STATE HWY 18 TO DAVENPORT							
STA START	STA END	SIDE (LT/RT)	LENGTH (FT)	WIDTH (FT)	SEEDING CLASS III (ACRE)	STRAW MULCH (ACRE)	HYDRAULIC MULCH (ACRE)
0+18	29+00	LT	2,882	5	0.33	0.33	0.00
0+18	406+00	RT	40,582	5	4.66	4.66	0.00
29+00	34+00	LT	500	5	0.06	0.00	0.06
34+00	46+50	LT	1,250	5	0.14	0.14	0.00
46+50	53+00	LT	650	5	0.07	0.00	0.07
53+00	126+00	LT	7,300	5	0.84	0.84	0.00
126+00	132+00	LT	600	5	0.07	0.00	0.07
132+00	338+50	LT	20,650	5	2.37	2.37	0.00
338+50	343+00	LT	450	5	0.05	0.00	0.05
343+00	362+00	LT	1,900	5	0.22	0.22	0.00
362+00	369+00	LT	700	5	0.08	0.00	0.08
369+00	416+35	LT	4,735	5	0.54	0.54	0.00
406+00	412+00	RT	600	5	0.07	0.00	0.07
412+00	416+35	RT	435	5	0.05	0.05	0.00
TOTAL =					9.55	9.15	0.40

PAVEMENT MARKING QUANTITIES - HWY 16									
CASS CO. HWY 16 (CMC 0950): FROM STATE HWY 18 TO DAVENPORT									
STA START	STA END	LANE	4" YELLOW TEMPORARY (2 LIFTS)		4" PERMANENT MARKING				24" PERMANENT MARKING
			SKIP (LF)	NPZ (LF)	4" SKIP (LF)	4" NPZ (LF)	4" WHITE (LF)	TOTAL 4" (LF)	24" STOP BAR (LF)
0+18	158+09		3,948		3,948		31,582	35,530	
0+18	5+24			506		506		506	
0+29		LT							24
153+14	158+09	RT		495		495		495	
158+57	263+42		2,621		2,621		20,971	23,592	
158+57	163+52	LT		495		495		495	
258+47	263+42	RT		495		495		495	
263+90	416+35		3,811		3,811		30,489	34,300	
263+90	268+85	LT		495		495		495	
412+50	416+35	RT		385		385		385	
TOTAL =			10,380	2,871	10,380	2,871	83,042	96,293	24
TOTAL (3 LIFTS) =			31,140	8,613	N/A	N/A	N/A	N/A	N/A

PAVEMENT MARKING QUANTITIES - HWY 26									
CASS CO. HWY 26 (CMC 0910): FROM CASS CO. HWY 5 N. TO STATE HWY 18									
STA START	STA END	LANE	4" YELLOW TEMPORARY (3 LIFTS)		6" PERMANENT MARKING				24" PERMANENT MARKING
			SKIP (LF)	NPZ (LF)	6" SKIP (LF)	6" NPZ (LF)	6" WHITE (LF)	TOTAL 6" (LF)	24" STOP BAR (LF)
-0+66	-0+24	RT		84		84		168	
-0+66	-0+24		11		11			11	
0+24	2+74	LT/RT		500		500		1,000	
2+74	38+33		890		890		7,118	8,008	
2+74	17+24	LT		1,450		1,450		1,450	
33+47	38+33	RT		486		486		486	
39+33	53+50		354		354		2,834	3,188	
39+33	44+21	LT		488		488		488	
47+05	53+50	RT		645		645		645	
53+98	60+00	LT		602		602		602	
53+98	60+00		151		151		1,204	1,355	
60+00	60+43	LT/RT		86		86		172	
60+43	469+91		10,237		10,237		81,896	92,133	
60+43	71+00	RT		1,057		1,057		1,057	
74+00	84+00	LT		1,000		1,000		1,000	
458+91	469+91	RT		1,100		1,100		1,100	
469+91	476+46	LT/RT		1,310		1,310		2,620	
476+46		RT							24
TOTAL =			11,643	8,808	11,643	8,808	95,032	115,483	24
TOTAL (3 LIFTS) =			34,929	26,424	N/A	N/A	N/A	N/A	N/A

PCN	STATE	PROJECT NO.
24302 24301	ND	SC-0950(061) SC-0910(063)

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CASS COUNTY HIGHWAY DEPARTMENT
WEST FARGO, NORTH DAKOTA
BASIS OF ESTIMATE

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TOPSOIL - IMPORTED						
CASS CO. HWY 16 (CMC 0950): FROM STATE HWY 18 TO DAVENPORT						
STA START	STA END	LENGTH (FT)	WIDTH (FT)	SIDE (LT/RT)	THICKNESS(IN)	CY
0+18	416+35	41,617	5	LT	6	3,853
0+18	416+35	41,617	5	RT	6	3,853
TOTAL =						7,706

SEEDING & MULCHING							
CASS CO. HWY 16 (CMC 0950): FROM STATE HWY 18 TO DAVENPORT							
STA START	STA END	SIDE (LT/RT)	LENGTH (FT)	WIDTH (FT)	SEEDING CLASS III (ACRE)	STRAW MULCH (ACRE)	HYDRAULIC MULCH (ACRE)
0+18	29+00	LT	2,882	5	0.33	0.33	0.00
0+18	406+00	RT	40,582	5	4.66	4.66	0.00
29+00	34+00	LT	500	5	0.06	0.00	0.06
34+00	46+50	LT	1,250	5	0.14	0.14	0.00
46+50	53+00	LT	650	5	0.07	0.00	0.07
53+00	126+00	LT	7,300	5	0.84	0.84	0.00
126+00	132+00	LT	600	5	0.07	0.00	0.07
132+00	338+50	LT	20,650	5	2.37	2.37	0.00
338+50	343+00	LT	450	5	0.05	0.00	0.05
343+00	362+00	LT	1,900	5	0.22	0.22	0.00
362+00	369+00	LT	700	5	0.08	0.00	0.08
369+00	416+35	LT	4,735	5	0.54	0.54	0.00
406+00	412+00	RT	600	5	0.07	0.00	0.07
412+00	416+35	RT	435	5	0.05	0.05	0.00
TOTAL =					9.55	9.15	0.40

PAVEMENT MARKING QUANTITIES - HWY 16									
CASS CO. HWY 16 (CMC 0950): FROM STATE HWY 18 TO DAVENPORT									
STA START	STA END	LANE	4" YELLOW TEMPORARY (2 LIFTS)		4" PERMANENT MARKING				24" PERMANENT MARKING
			SKIP (LF)	NPZ (LF)	4" SKIP (LF)	4" NPZ (LF)	4" WHITE (LF)	TOTAL 4" (LF)	24" STOP BAR (LF)
0+18	158+09		3,948		3,948		31,582	35,530	
0+18	5+24			506		506		506	
0+29		LT							24
153+14	158+09	RT		495		495		495	
158+57	263+42		2,621		2,621		20,971	23,592	
158+57	163+52	LT		495		495		495	
258+47	263+42	RT		495		495		495	
263+90	416+35		3,811		3,811		30,489	34,300	
263+90	268+85	LT		495		495		495	
412+50	416+35	RT		385		385		385	
TOTAL =			10,380	2,871	10,380	2,871	83,042	96,293	24
TOTAL (3 LIFTS) =			31,140	8,613	N/A	N/A	N/A	N/A	N/A

PAVEMENT MARKING QUANTITIES - HWY 26									
CASS CO. HWY 26 (CMC 0910): FROM CASS CO. HWY 5 N. TO STATE HWY 18									
STA START	STA END	LANE	4" YELLOW TEMPORARY (3 LIFTS)		6" PERMANENT MARKING				24" PERMANENT MARKING
			SKIP (LF)	NPZ (LF)	6" SKIP (LF)	6" NPZ (LF)	6" WHITE (LF)	TOTAL 6" (LF)	24" STOP BAR (LF)
-0+66	-0+24	RT		84		84		168	
-0+66	-0+24		11		11			11	
0+24	2+74	LT/RT		500		500		1,000	
2+74	38+80		902		902		7,212	8,114	
2+74	17+24	LT		1,450		1,450		1,450	
33+47	38+80	RT		533		533		533	
38+86	53+50		366		366		2,928	3,294	
38+86	44+21	LT		535		535		535	
47+05	53+50	RT		645		645		645	
53+98	60+00	LT		602		602		602	
53+98	60+00		151		151		1,204	1,355	
60+00	60+43	LT/RT		86		86		172	
60+43	469+91		10,237		10,237		81,896	92,133	
60+43	71+00	RT		1,057		1,057		1,057	
74+00	84+00	LT		1,000		1,000		1,000	
458+91	469+91	RT		1,100		1,100		1,100	
469+91	476+46	LT/RT		1,310		1,310		2,620	
476+46		RT							24
TOTAL =			11,667	8,902	11,667	8,902	95,220	115,789	24
TOTAL (3 LIFTS) =			35,001	26,706	N/A	N/A	N/A	N/A	N/A

PCN	STATE	PROJECT NO.
24302 24301	ND	SC-0950(061) SC-0910(063)

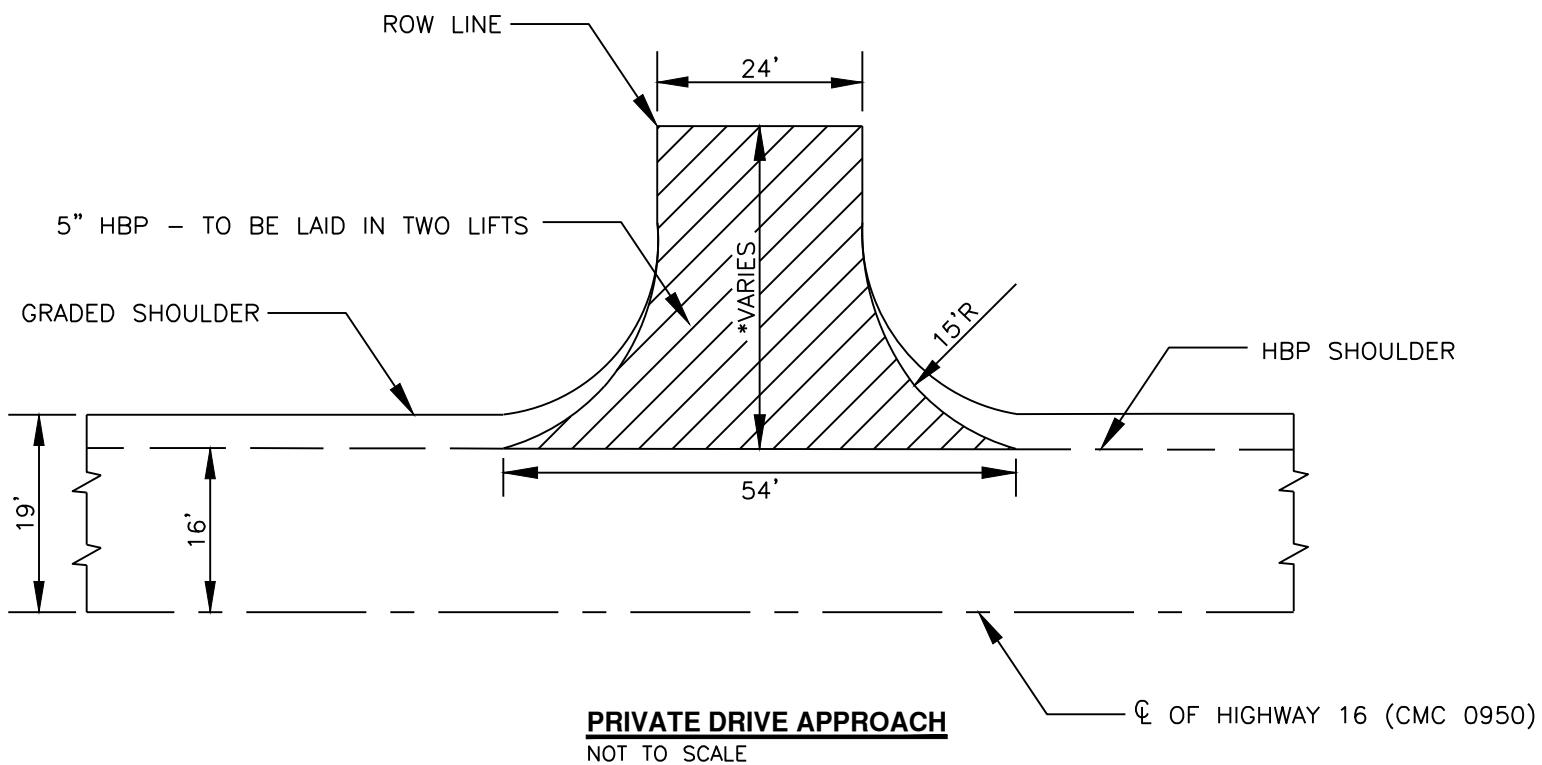
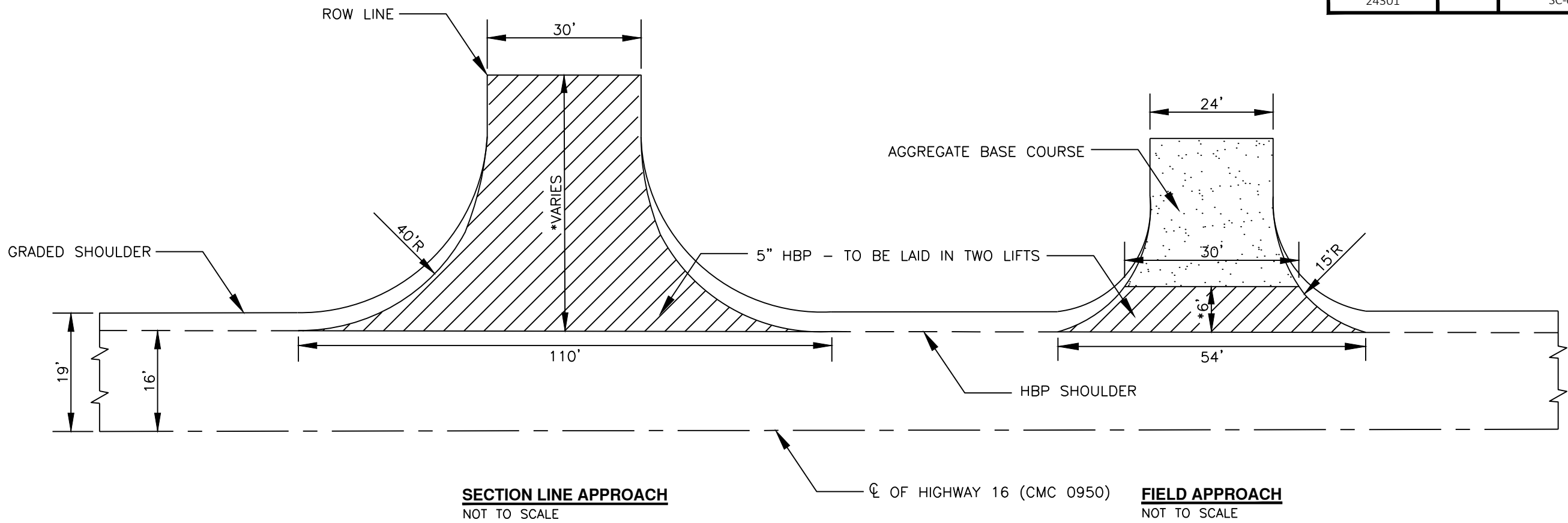
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CASS COUNTY HIGHWAY DEPARTMENT
WEST FARGO, NORTH DAKOTA

BASIS OF ESTIMATE

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SEC NO. 010
SHEET NO. 4

PCN	STATE	PROJECT NO.
24302 24301	ND	SC-0950(061) SC-0910(063)



- * DIMENSIONS MAY VARY. ENGINEER IN FIELD SHALL DETERMINE EXACT LIMITS OF SURFACING AT ALL DRIVES AND APPROACHES.
- * EXCAVATION COSTS REQUIRED TO EXTEND THE EXISTING APPROACHES SHALL BE INCLUDED IN THE "RAP - SUPERPAVE FAA 43" BID ITEM.

NOTE: PAVEMENT FOR APPROACHES SHALL BE PLACED AHEAD OF THE MAINLINE TOP LIFT PAVING OPERATION. NO COLD JOINT WILL BE ALLOWED BETWEEN THE MAINLINE AND APPROACHES.

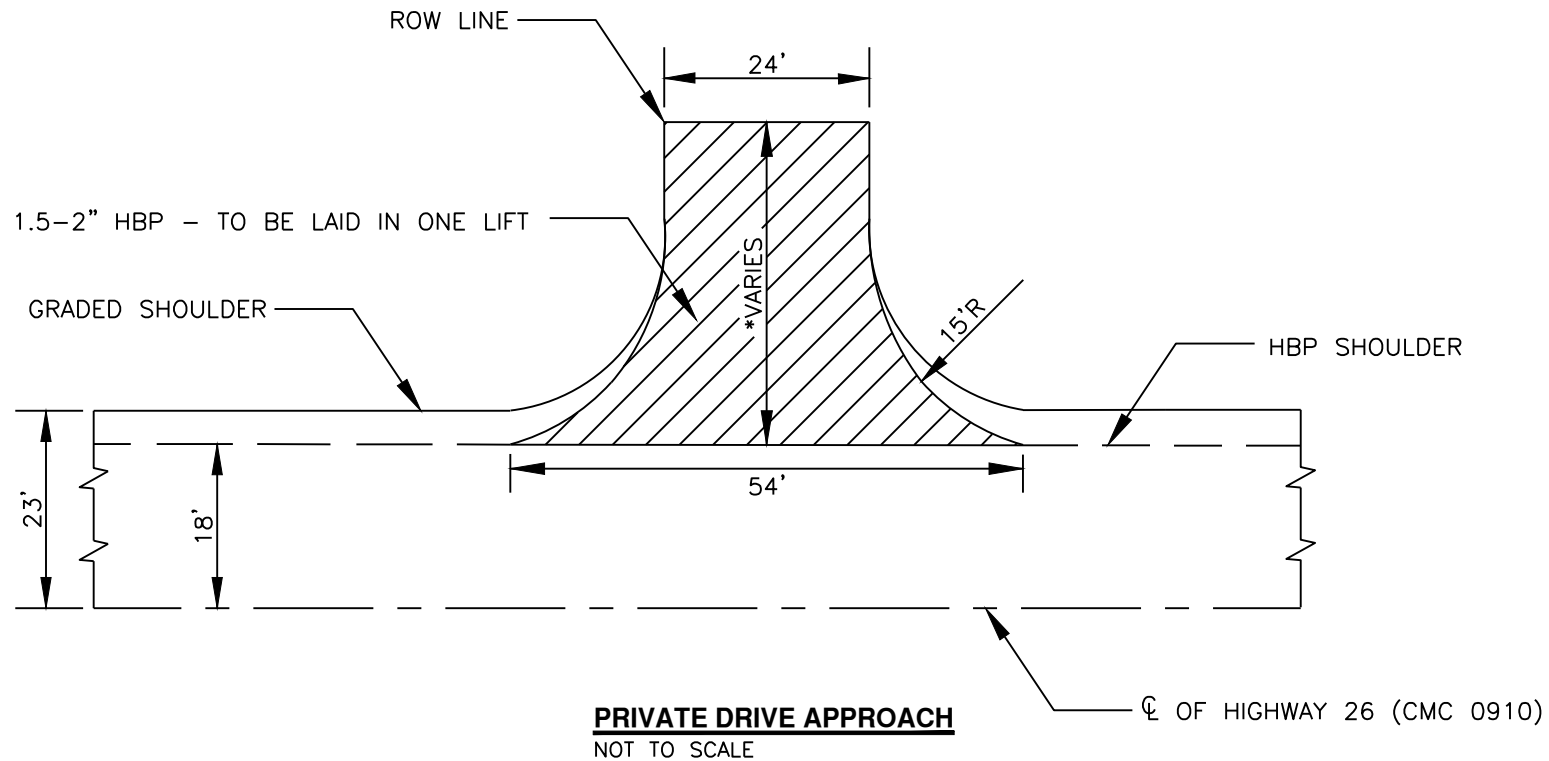
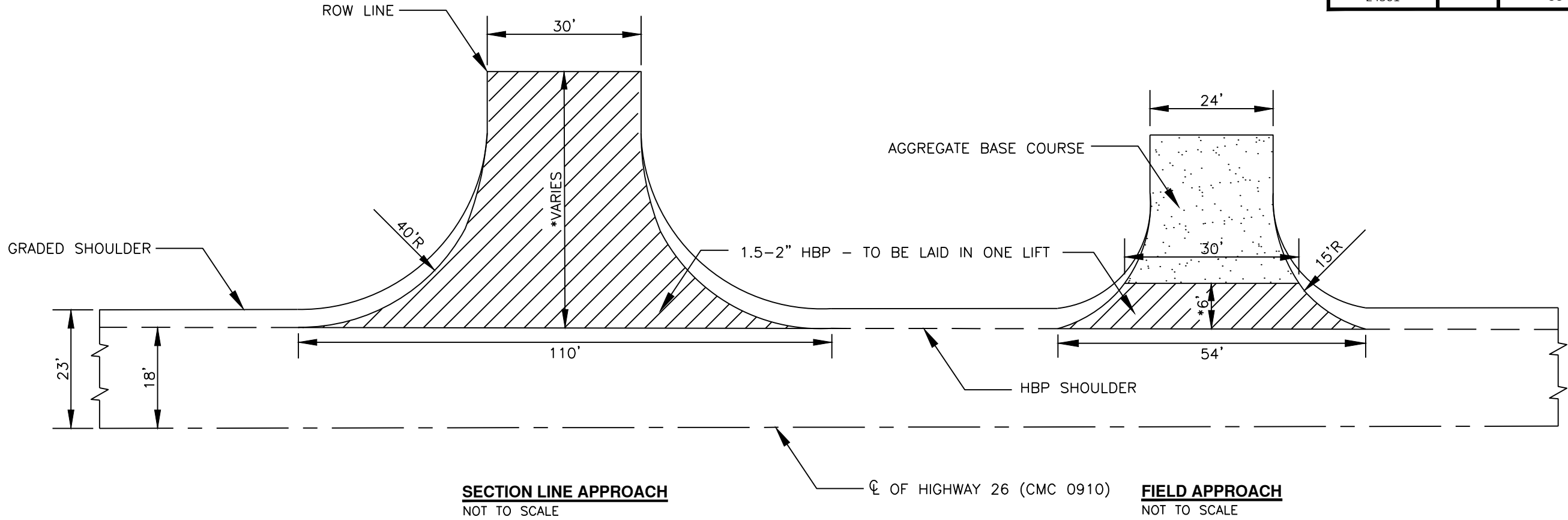
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CASS COUNTY HIGHWAY DEPARTMENT
WEST FARGO, NORTH DAKOTA
GENERAL DETAILS

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PCN	STATE	PROJECT NO.
24302 24301	ND	SC-0950(061) SC-0910(063)



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- ** EXCAVATION COSTS REQUIRED TO EXTEND THE EXISTING APPROACHES SHALL BE INCLUDED IN THE "RAP - SUPERPAVE FAA 43" BIT ITEM.

NOTE: PAVEMENT FOR APPROACHES SHALL BE PLACED AHEAD OF THE MAINLINE TOP LIFT PAVING OPERATION. NO COLD JOINT WILL BE ALLOWED BETWEEN THE MAINLINE AND APPROACHES.

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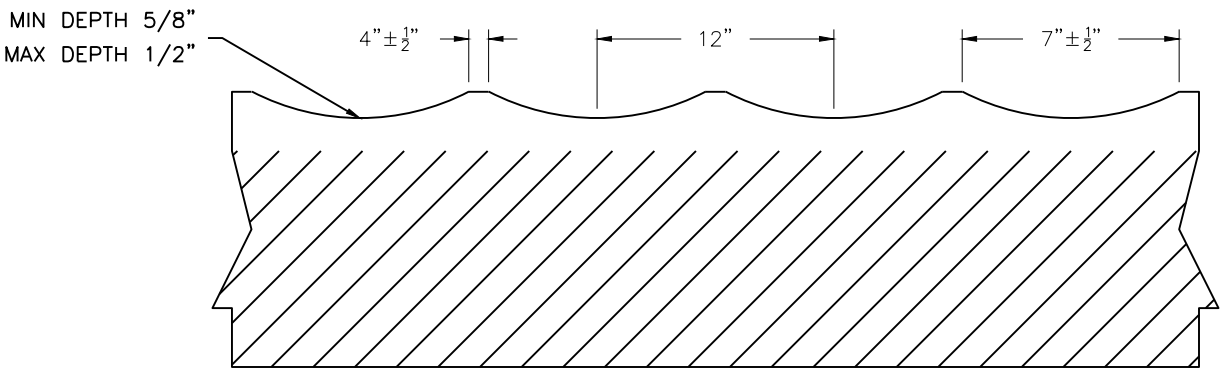
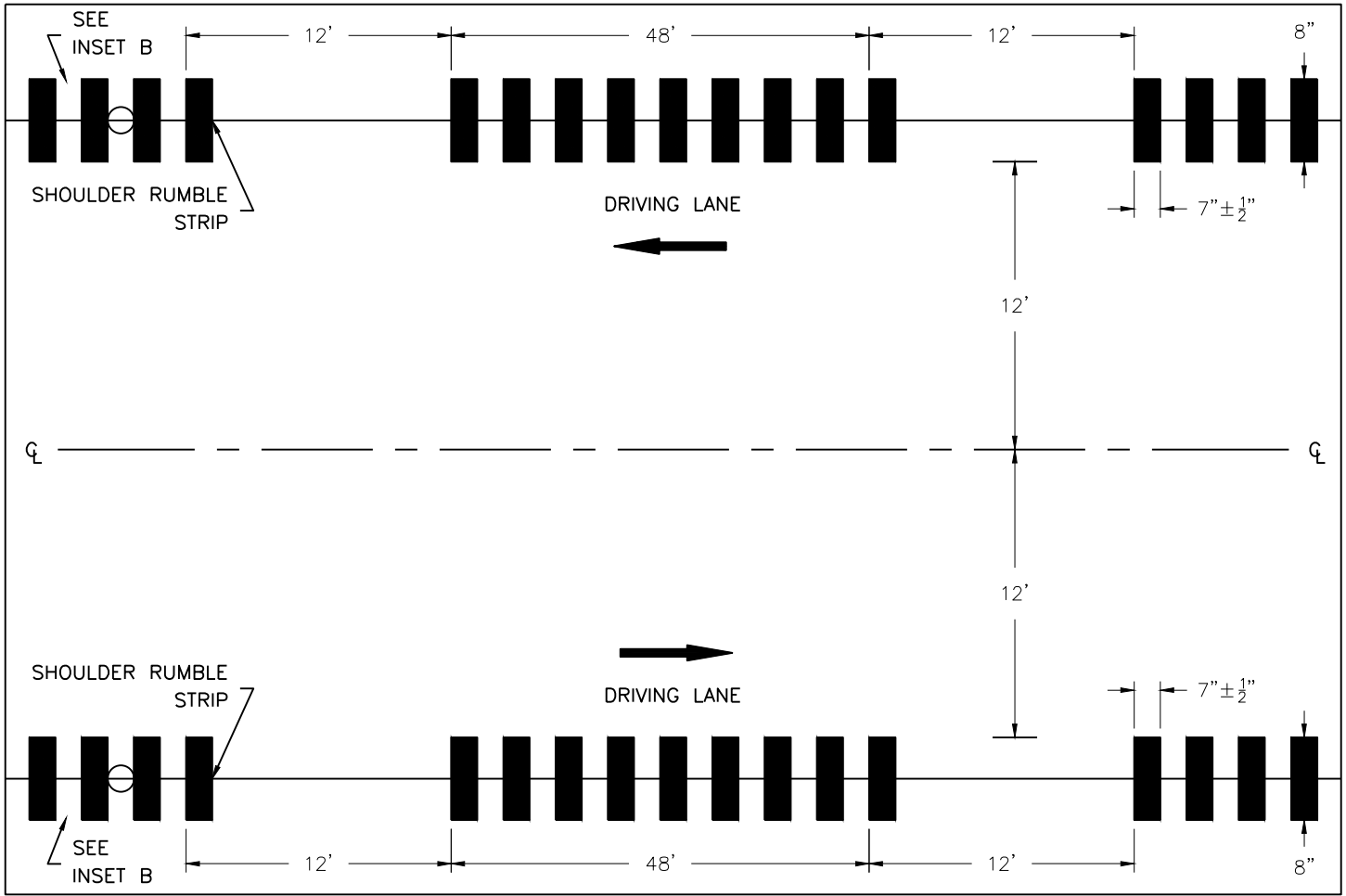
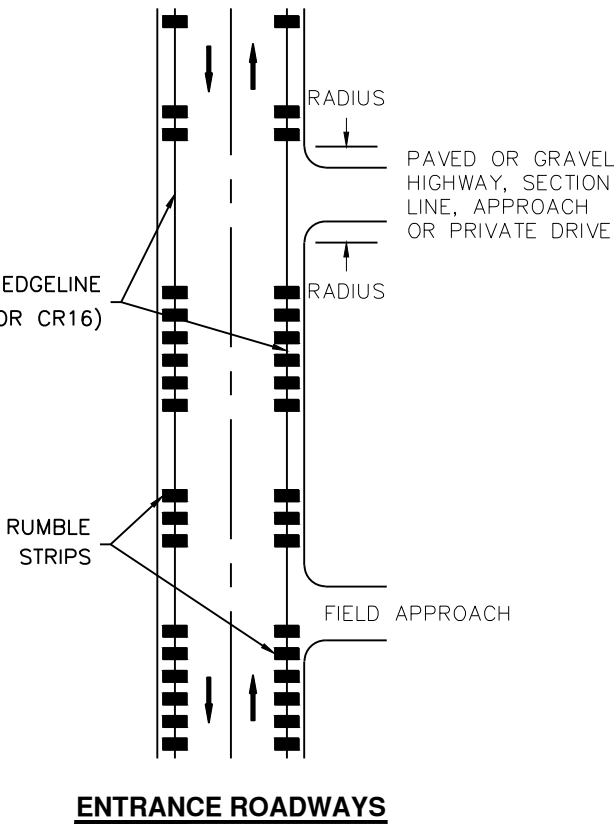
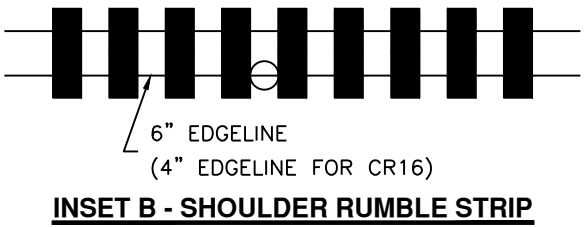
CASS COUNTY HIGHWAY DEPARTMENT
WEST FARGO, NORTH DAKOTA
GENERAL DETAILS

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REV DATE 08/15/2024
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PCN	STATE	PROJECT NO.
24302 24301	ND	SC-0950(061) SC-0910(063)

NOTES:

- Rumble strips shall be milled into the bituminous paved shoulders. All milled materials shall be swept off of the driving lanes and paved shoulders using a mechanical sweeper. All costs for sweeping shall be included in the price bid for "RUMBLE STRIPS - ASPHALT SHOULDER."
- Rumble strips milled into new or existing bituminous pavements shall be fog sealed across the full width of the milling with an application of SS-1h or CSS-1h emulsified asphalt diluted with water at a (50/50) ratio at a rate of 0.10 GAL/SY sprayed in both directions. All costs for fog seal shall be included in the price bid "FOG SEAL."
- Discontinue rumble strips across bridge decks and approach slabs, adjacent to guardrail and 1/2 mile on either side of:
 - Highways with posted speeds 45 mph or less
 - All urban areas
 - Areas with curb and gutter
- Discontinue shoulder rumble strips through the entire length of right turn lanes, 100' before right turn lane tapers and at the radius of a paved or gravel highway, section line, approach or private drive.
- All costs associated with the used of a point dribble line for rumble strip alignment shall be included in the "RUMBLE STRIP - ASPHALT SHOULDER" bid item.
- Skip in front of houses as seen in Section 10 Sheet 2 "RUMBLE STRIPS QUANTITIES" - All locations will be marked by Engineer.
- The Contractor shall use Standard Drawing D-704-15 Type A or Standard Drawing D-704-56 for shoulder rumble strips.



RUMBLE STRIP DETAIL
NOT TO SCALE

PLAN VIEW OF RUMBLE STRIPS

PROFILE VIEW OF RUMBLE STRIPS

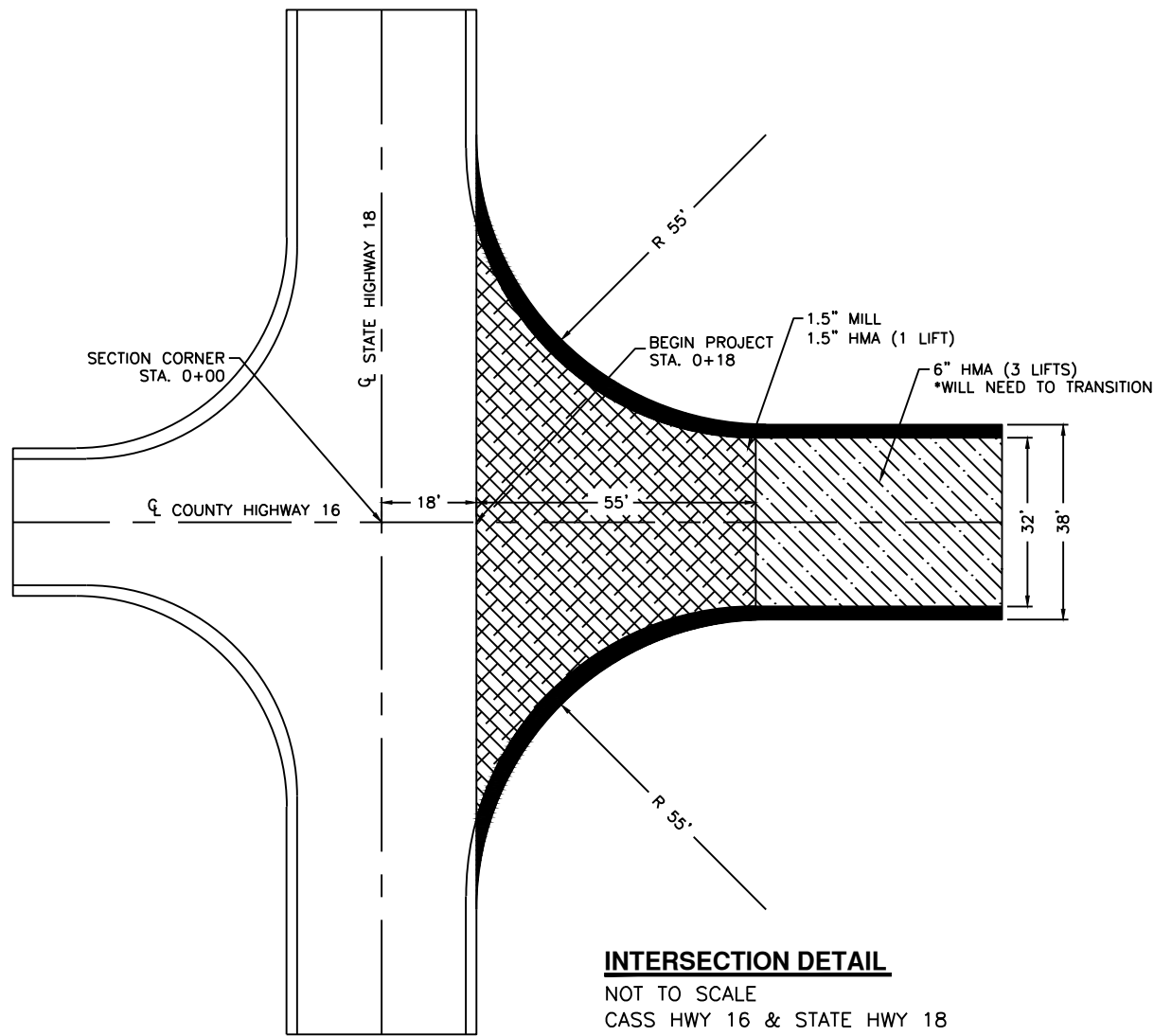
ENTRANCE ROADWAYS

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CASS COUNTY HIGHWAY DEPARTMENT
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SHEET NO. 3

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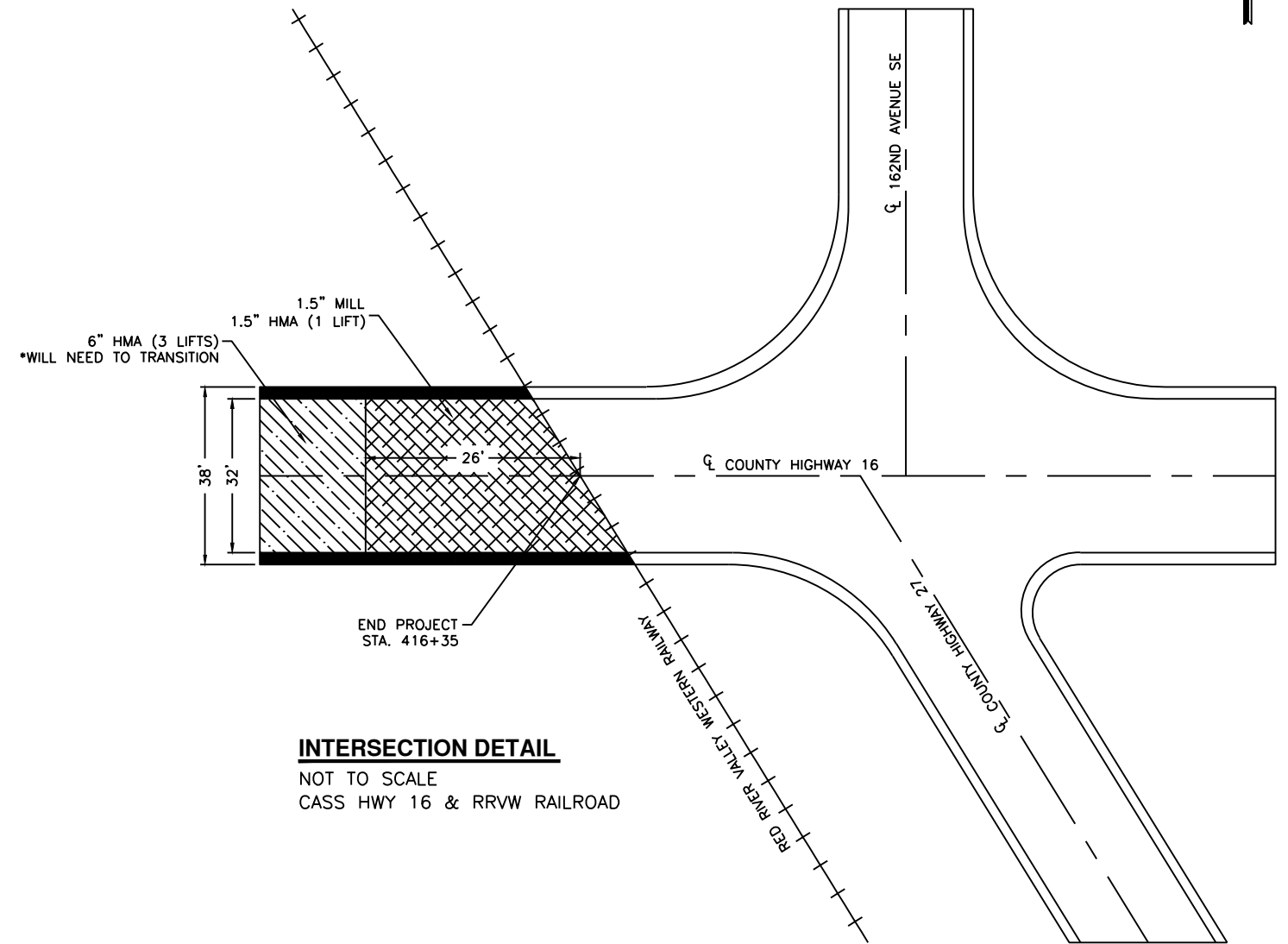


LEGEND

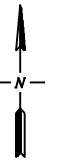
- 6" HOT MIX ASPHALT (3 LIFTS)
- 1.5" MILL
1.5" HOT MIX ASPHALT (1 LIFT)

NOTE:

- * DIMENSIONS MAY VARY. ENGINEER IN FIELD SHALL DETERMINE EXACT LIMITS OF SURFACING AT ALL DRIVES AND APPROACHES
- * CONTRACTOR AND FIELD ENGINEER SHALL HAVE AN AGREED UPON PLAN FOR TRANSITIONING BETWEEN MULTIPLE LIFTS PRIOR TO WORK STARTING. ALL TRANSITIONS SHALL BE AT A RATIO OF 1" VERTICAL DIFFERENCE BY 50LF HORIZONTALLY.



PCN	STATE	PROJECT NO.
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CASS COUNTY HIGHWAY DEPARTMENT
WEST FARGO, NORTH DAKOTA
GENERAL DETAILS

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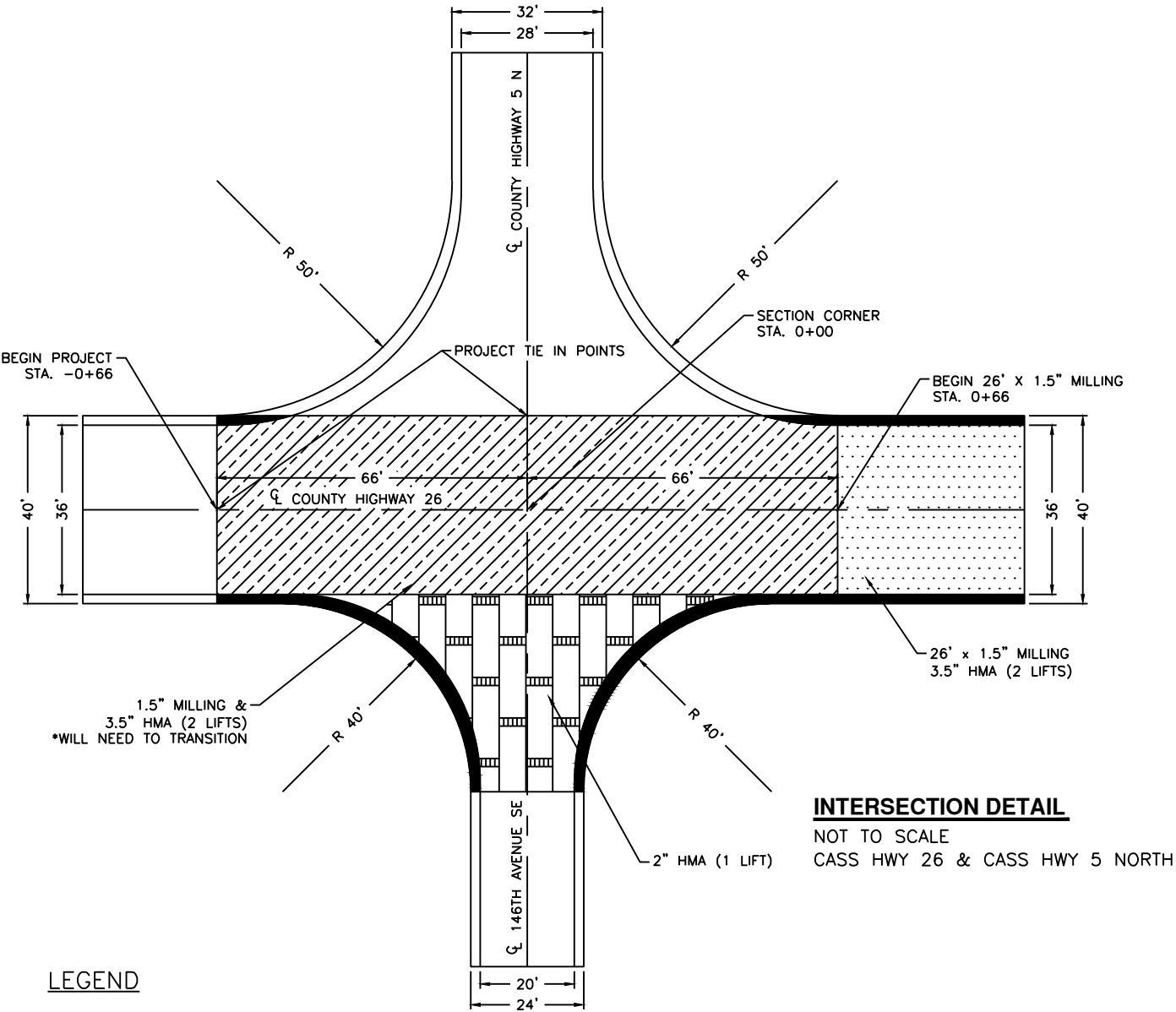
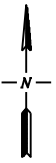
REV DATE
08/15/2024

Scale
As Shown

SEC NO.
020

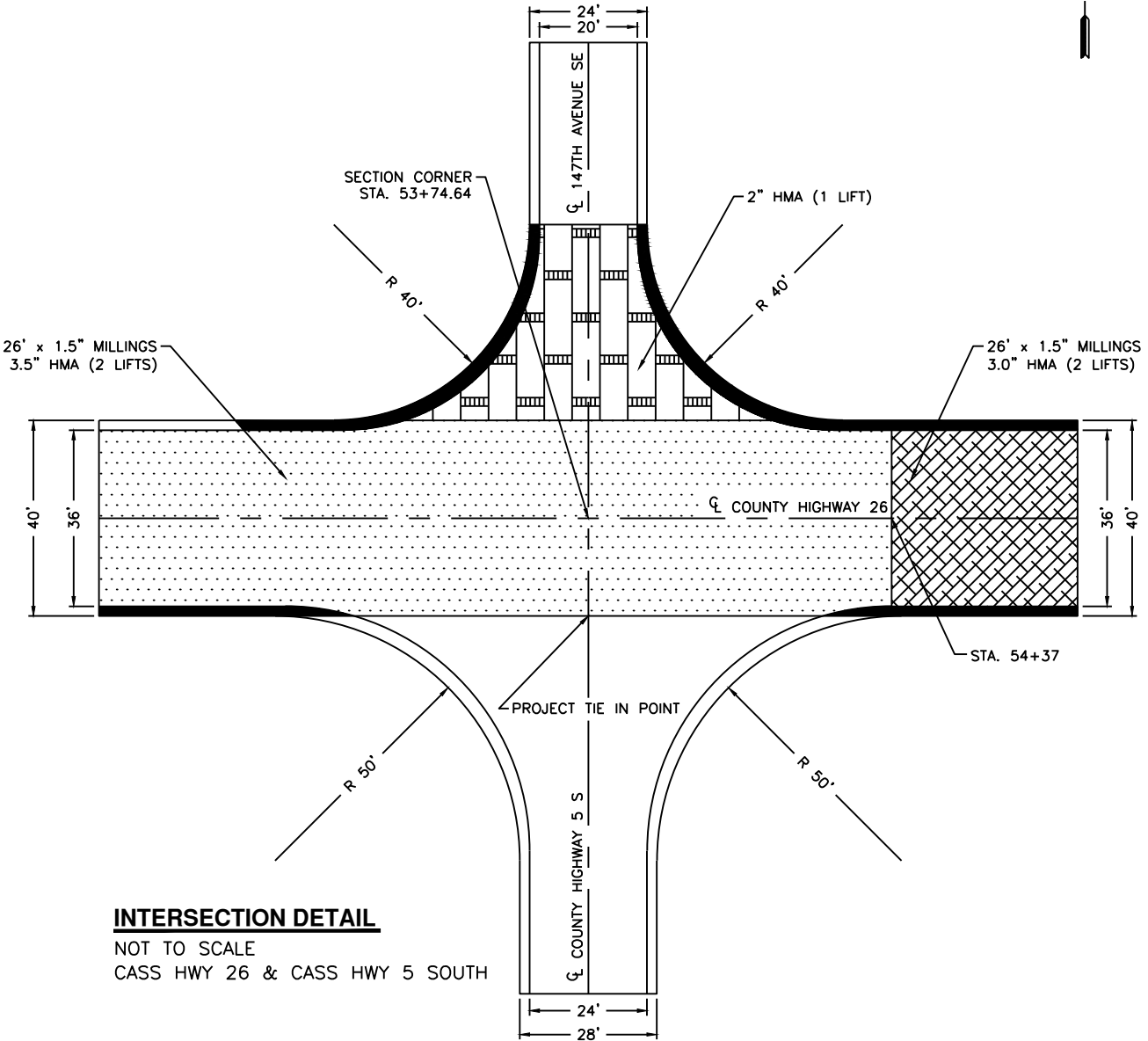
SHEET NO.

PCN	STATE	PROJECT NO.
24302 24301	ND	SC-0950(061) SC-0910(063)



LEGEND

- 1.5" MILLING
3.5" HOT MIX ASPHALT (2 LIFTS)
- 26'x1.5" MILLING
3.5" HOT MIX ASPHALT (2 LIFTS)
- 26'x1.5" MILLING
3.0" HOT MIX ASPHALT (2 LIFTS)
- 2" HOT MIX ASPHALT (1 LIFT)



- NOTE:**
- * DIMENSIONS MAY VARY. ENGINEER IN FIELD SHALL DETERMINE EXACT LIMITS OF SURFACING AT ALL DRIVES AND APPROACHES
 - * ALL PROJECT TIE IN POINTS WILL NEED TO BE MILLED SO THAT ALL 3.5" OF HMA WILL MATCH EXISTING GROUND, MAY STOP BOTTOM LIFT SHORT TO MAKE TIE IN EASIER
 - * CONTRACTOR AND FIELD ENGINEER SHALL HAVE AN AGREED UPON PLAN FOR TRANSITIONING BETWEEN MULTIPLE LIFTS PRIOR TO WORK STARTING. ALL TRANSITIONS SHALL BE AT A RATIO OF 1" VERTICAL DIFFERENCE BY 50LF HORIZONTALLY.

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CASS COUNTY HIGHWAY DEPARTMENT
WEST FARGO, NORTH DAKOTA
GENERAL DETAILS

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REV DATE 08/15/2024
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SHEET NO. 5

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CASS COUNTY HIGHWAY DEPARTMENT
WEST FARGO, NORTH DAKOTA
GENERAL DETAILS

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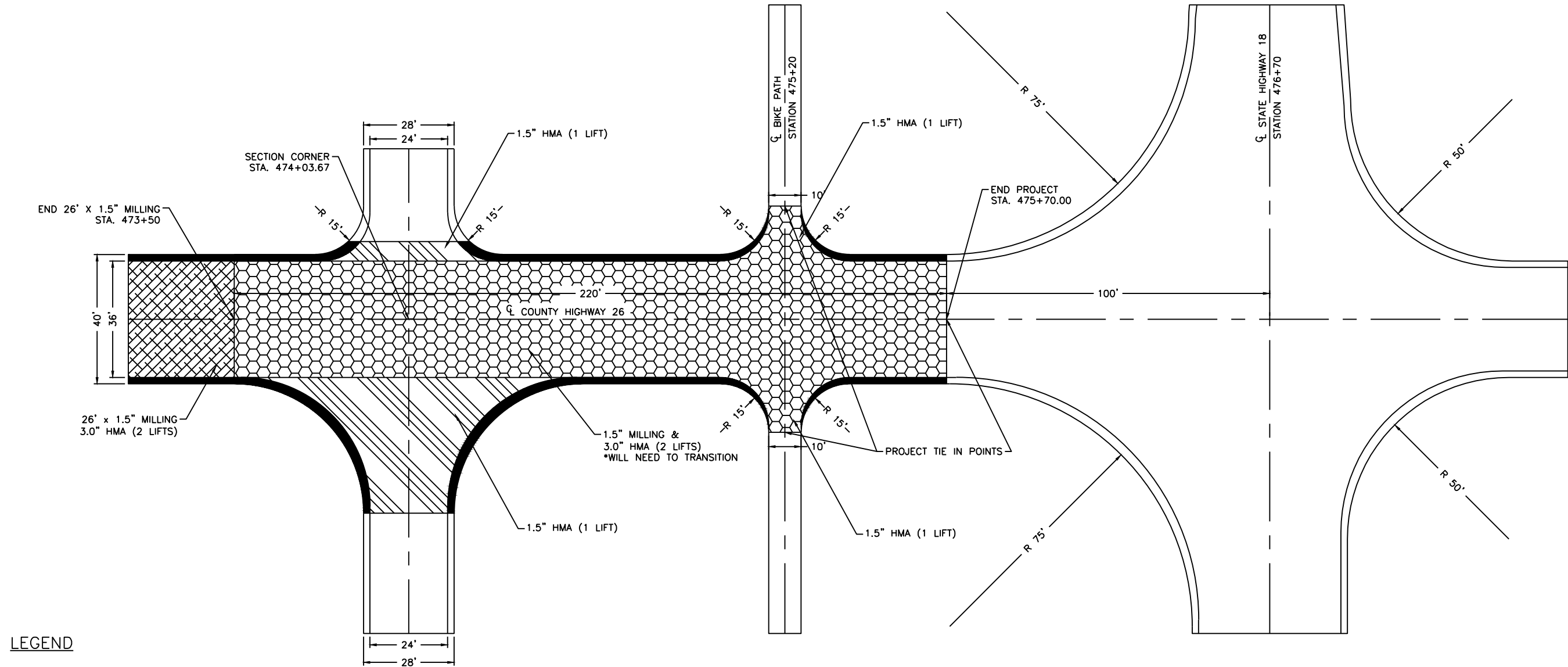
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REV DATE
08/15/2024

Scale
As Shown

SEC NO.
020

SHEET NO.
6



LEGEND

-
-
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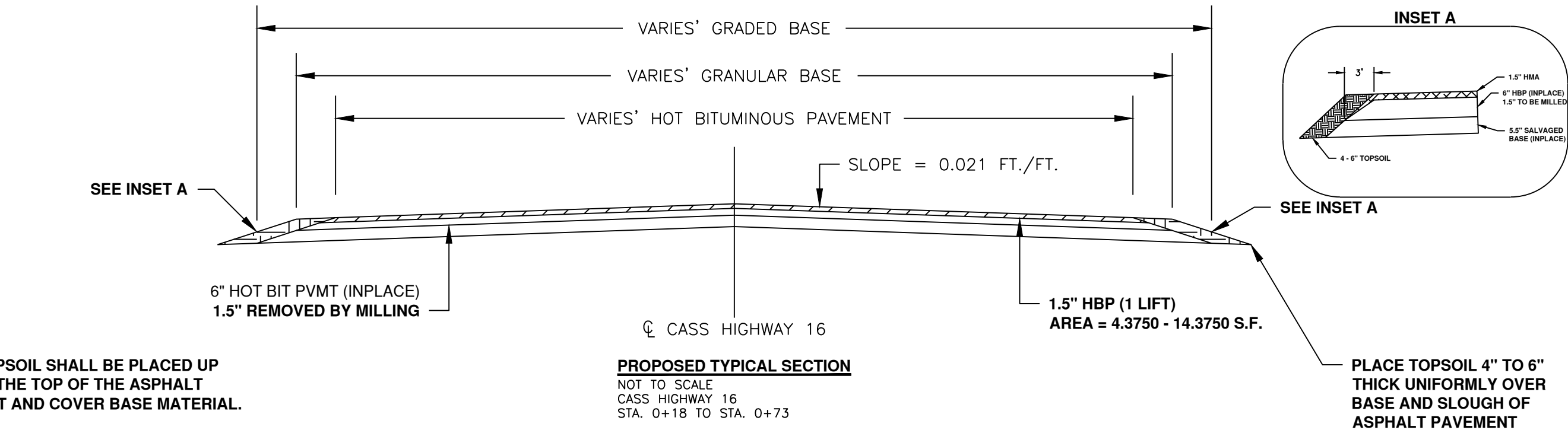
INTERSECTION DETAIL

NOT TO SCALE
CASS HWY 26 & STATE HWY 18

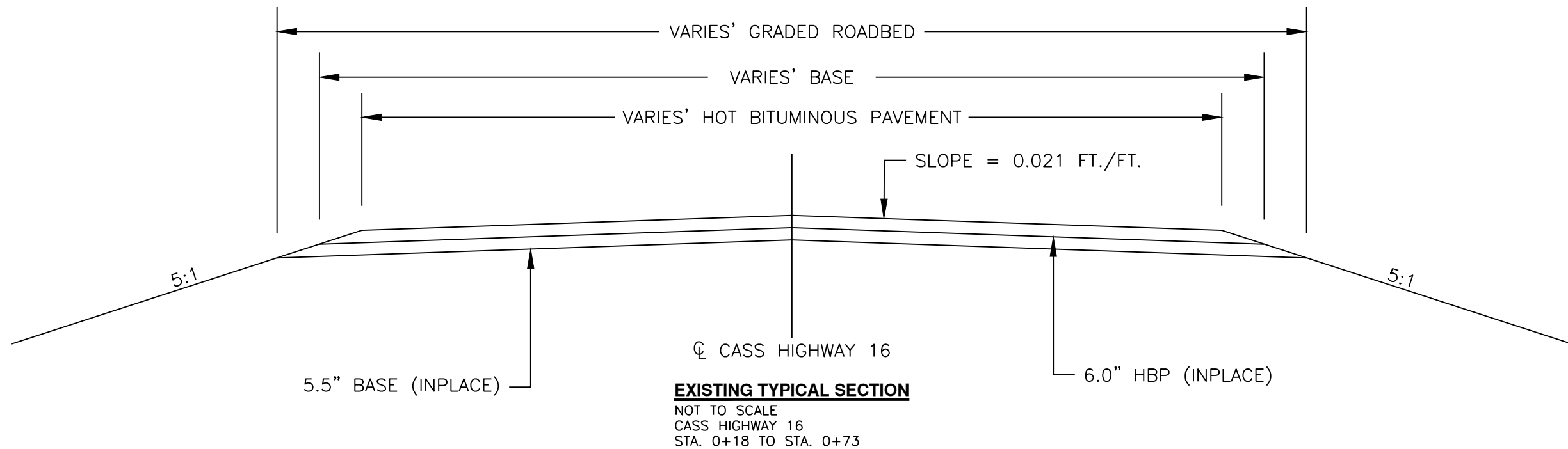
NOTE:

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- * ALL PROJECT TIE IN POINTS WILL NEED TO BE MILLED SO THAT ALL 3.0" OF HMA WILL MATCH EXISTING GROUND, MAY STOP BOTTOM LIFT SHORT TO MAKE TIE IN EASIER
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PCN	STATE	PROJECT NO.
24302 24301	ND	SC-0950(061) SC-0910(063)

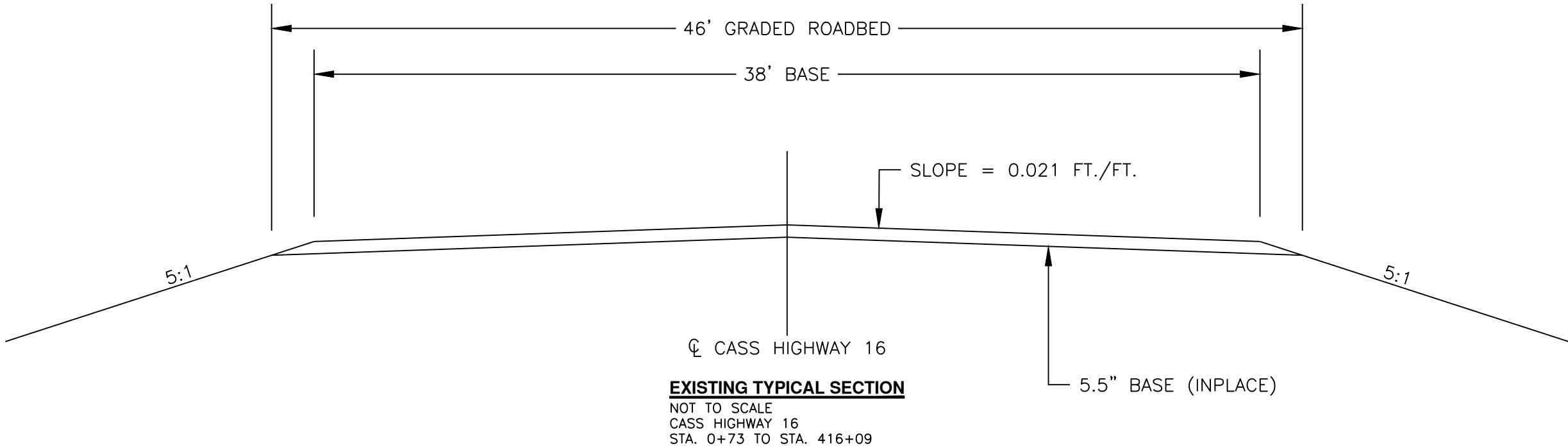
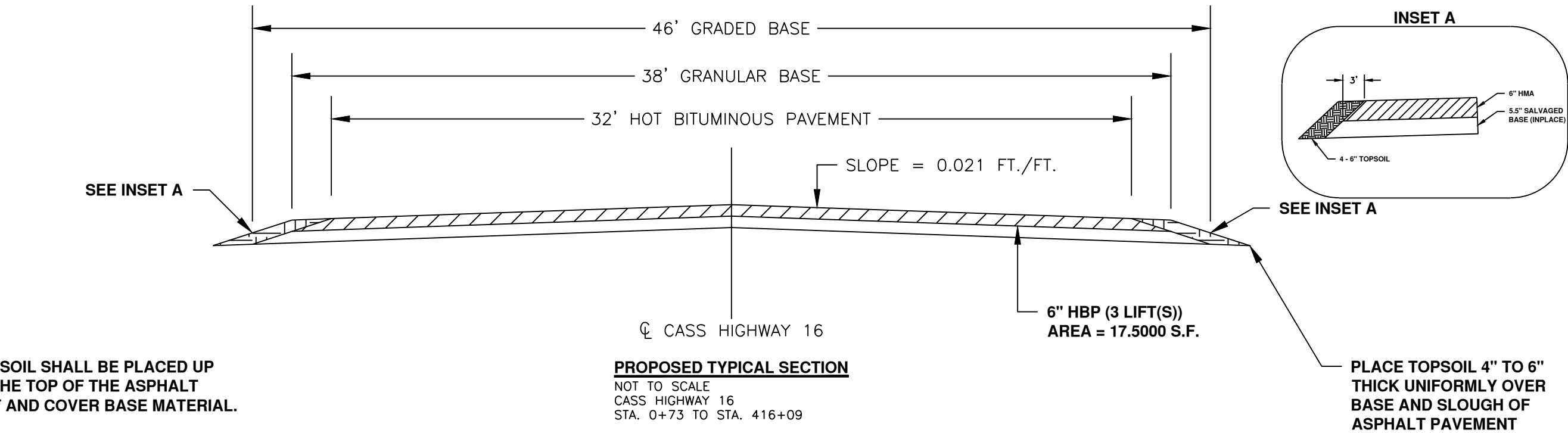


PROPOSED TYPICAL SECTION
NOT TO SCALE
CASS HIGHWAY 16
STA. 0+18 TO STA. 0+73



EXISTING TYPICAL SECTION
NOT TO SCALE
CASS HIGHWAY 16
STA. 0+18 TO STA. 0+73

PCN	STATE	PROJECT NO.
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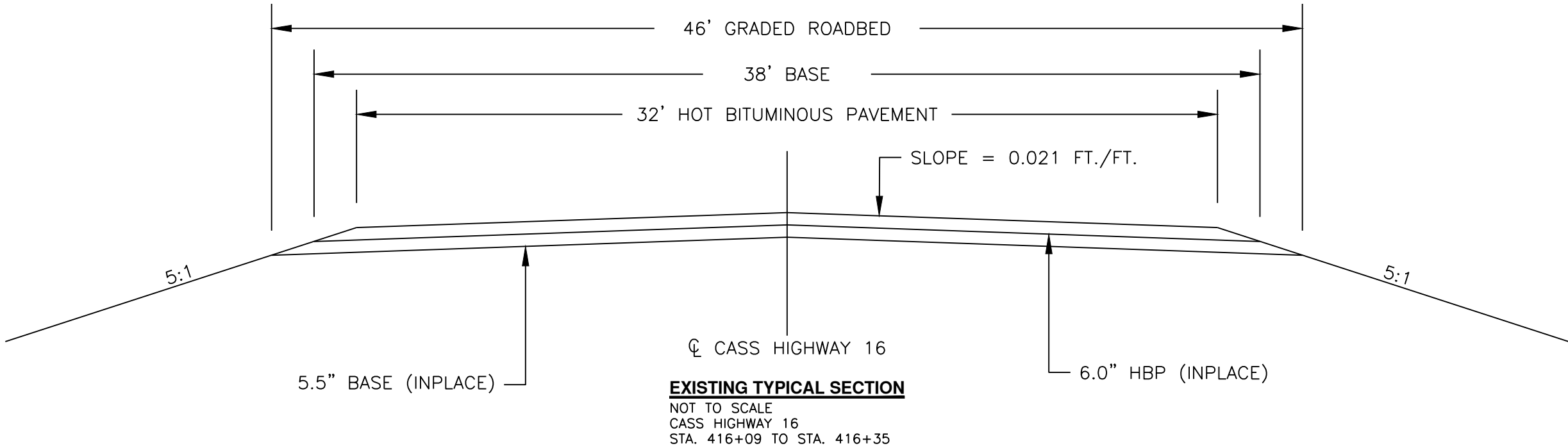
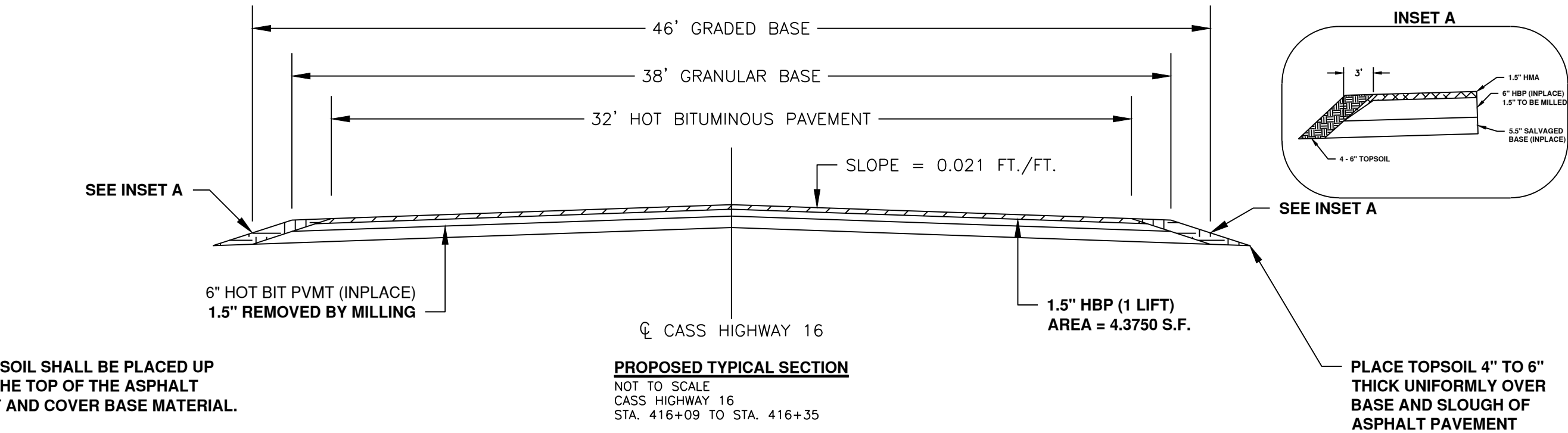


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CASS COUNTY HIGHWAY DEPARTMENT
WEST FARGO, NORTH DAKOTA
TYPICAL SECTIONS

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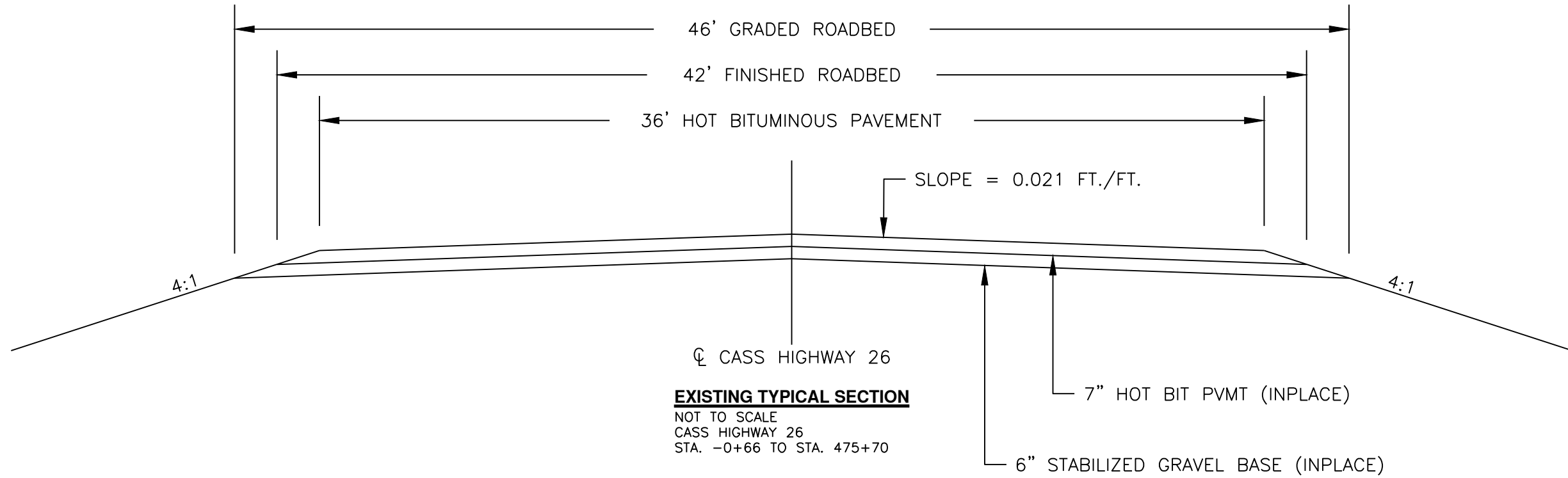
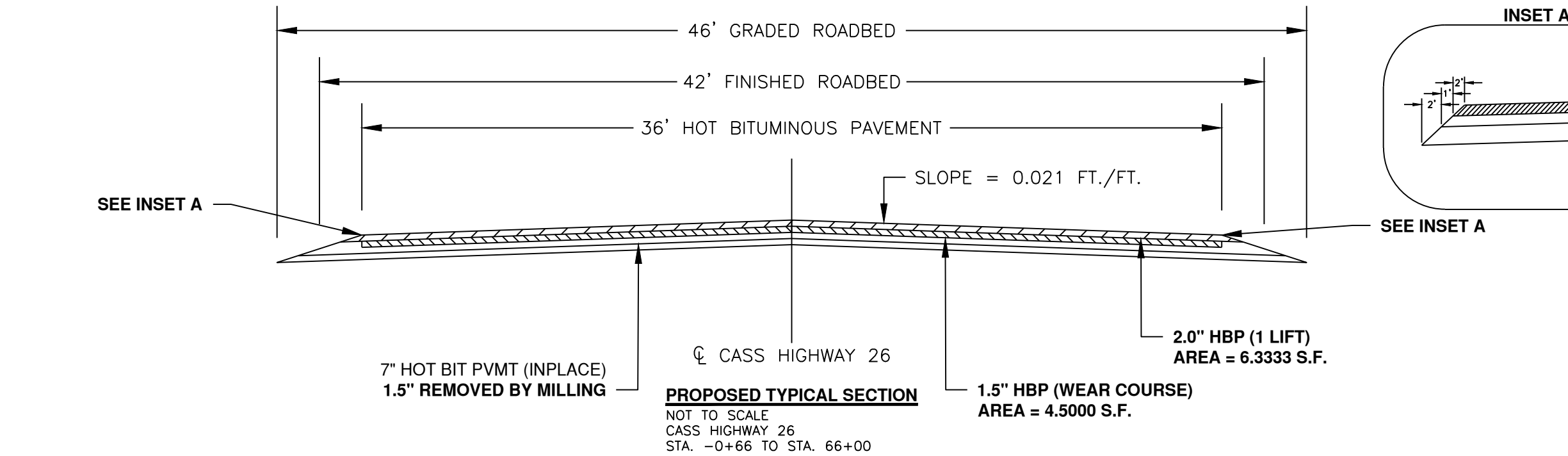
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030

SHEET NO.
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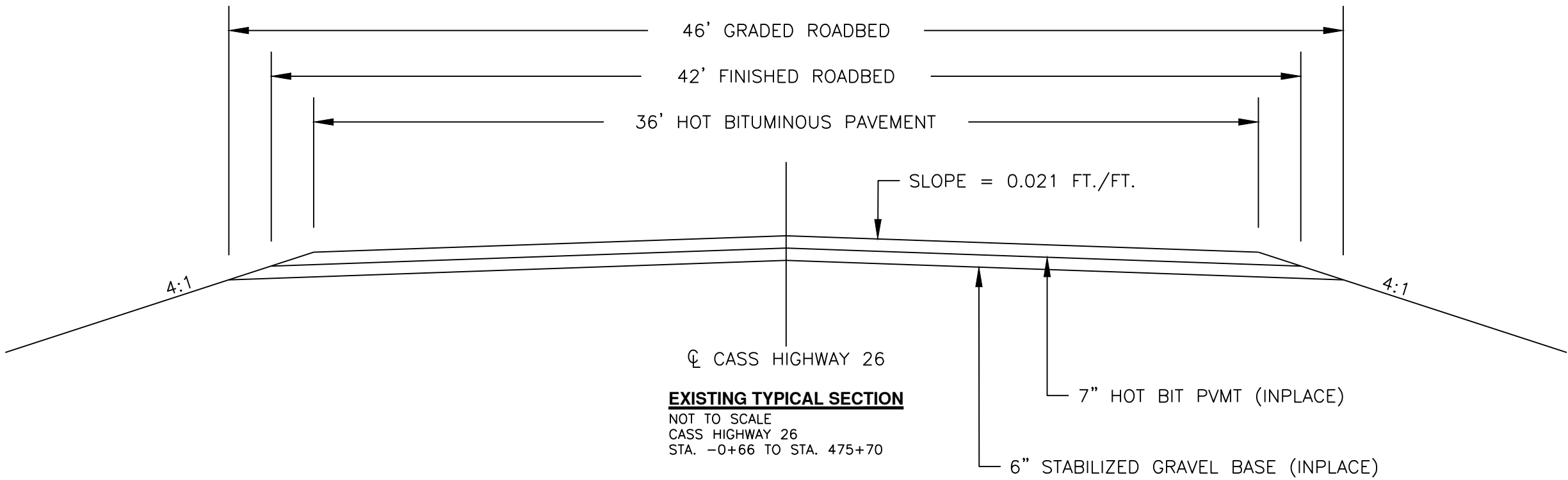
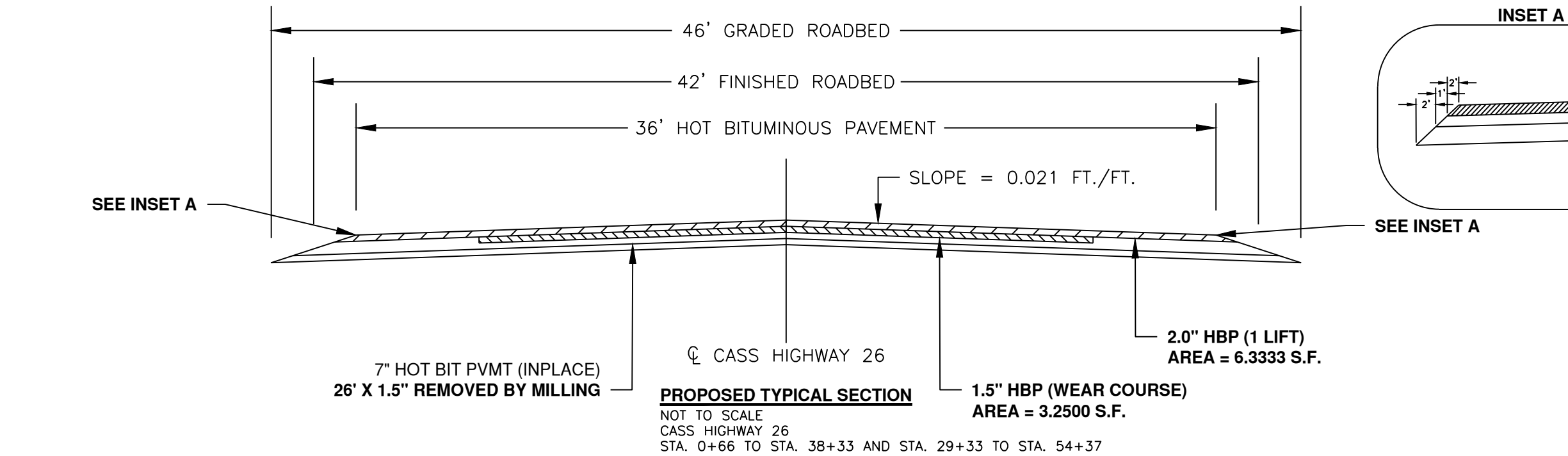
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CASS COUNTY HIGHWAY DEPARTMENT
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24302 24301	ND	SC-0950(061) SC-0910(063)

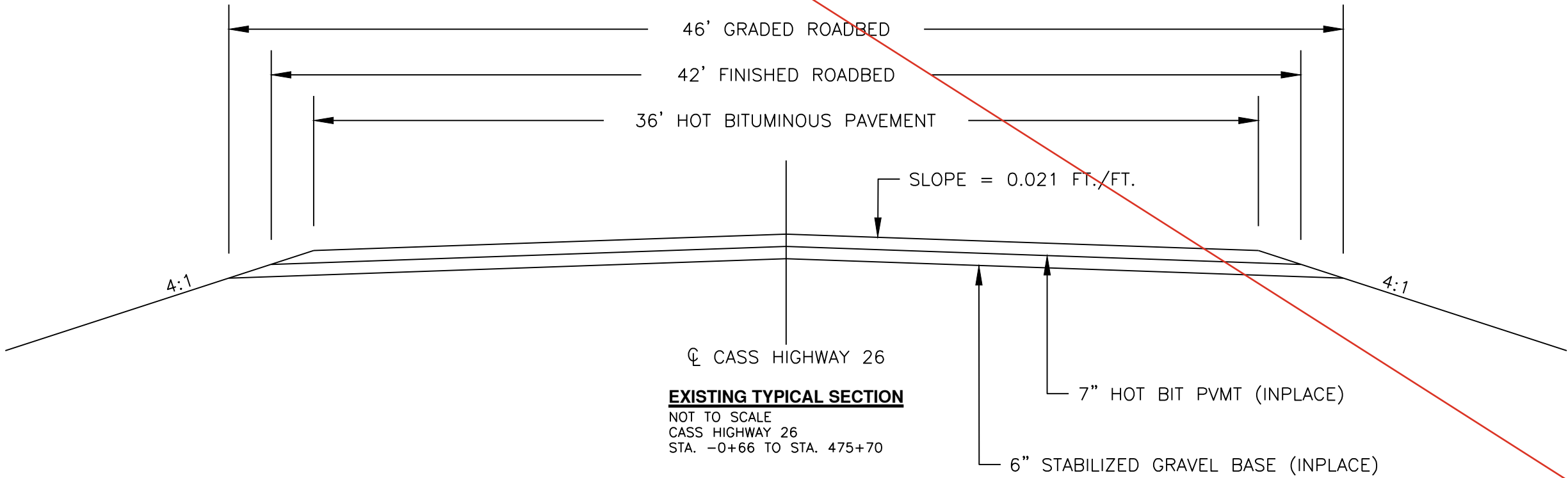
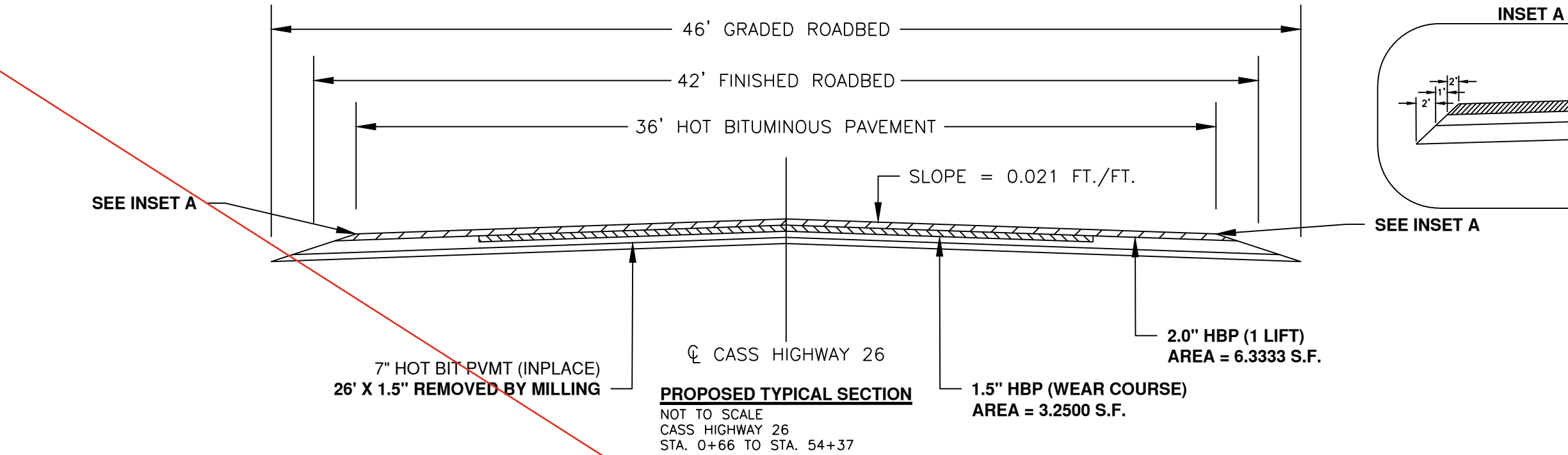


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CASS COUNTY HIGHWAY DEPARTMENT
WEST FARGO, NORTH DAKOTA
TYPICAL SECTIONS

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Checked By KDL
REV DATE 11/12/2024
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SEC NO. 030
SHEET NO. 5

PCN	STATE	PROJECT NO.
24302 24301	ND	SC-0950(061) SC-0910(063)



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CASS COUNTY HIGHWAY DEPARTMENT
WEST FARGO, NORTH DAKOTA

TYPICAL SECTIONS

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KDL

REV DATE
08/15/2024

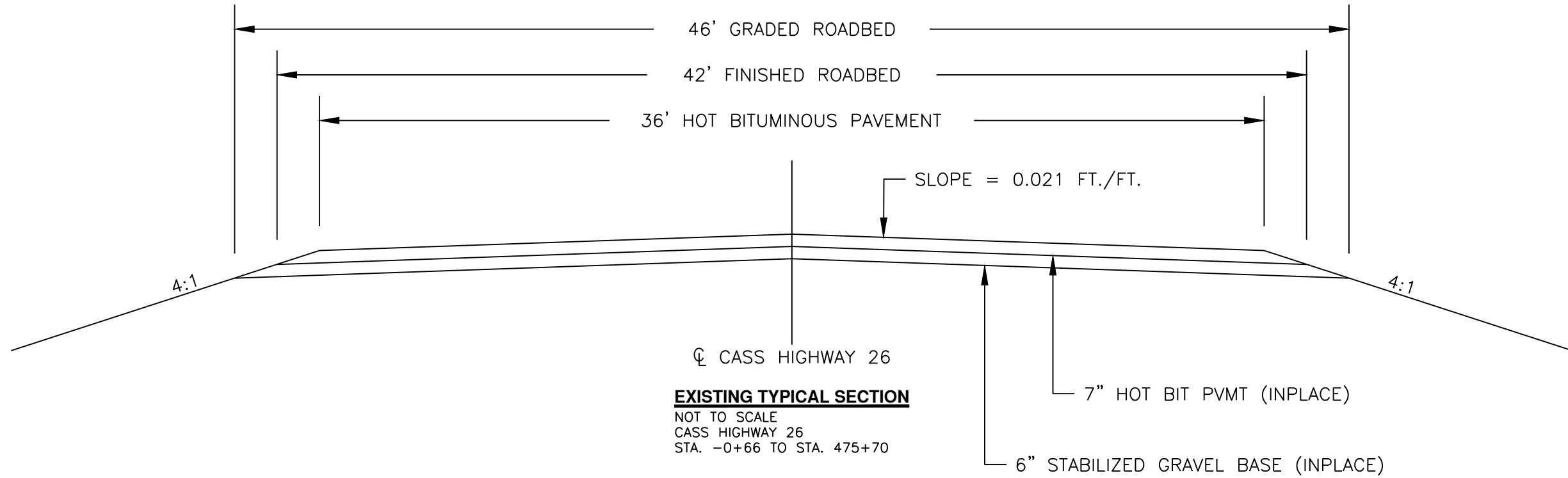
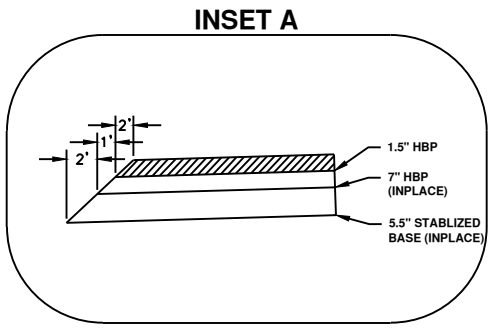
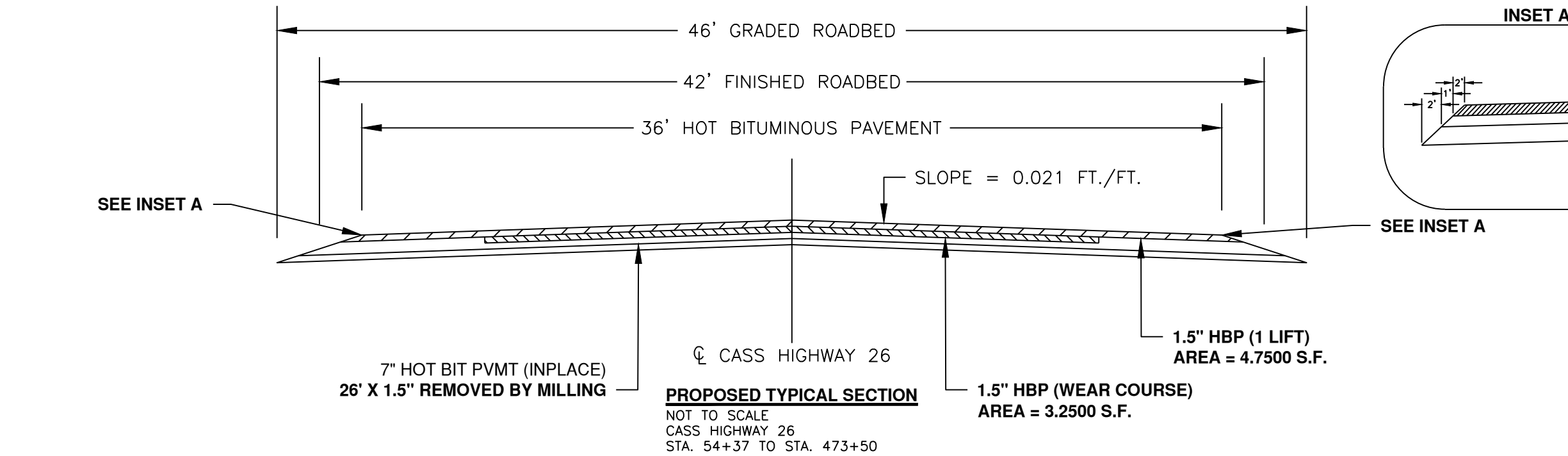
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SEC NO.
030

SHEET NO.
5

J:\Admin-Eng\Projects\CI6 ST 18 to Davenport\2025 Paving Project\Design\CI6 Paving Plan Sheets.dwg-TYPICAL SECTIONS (6/8/15/2024 4:11 PM:walnz)

PCN	STATE	PROJECT NO.
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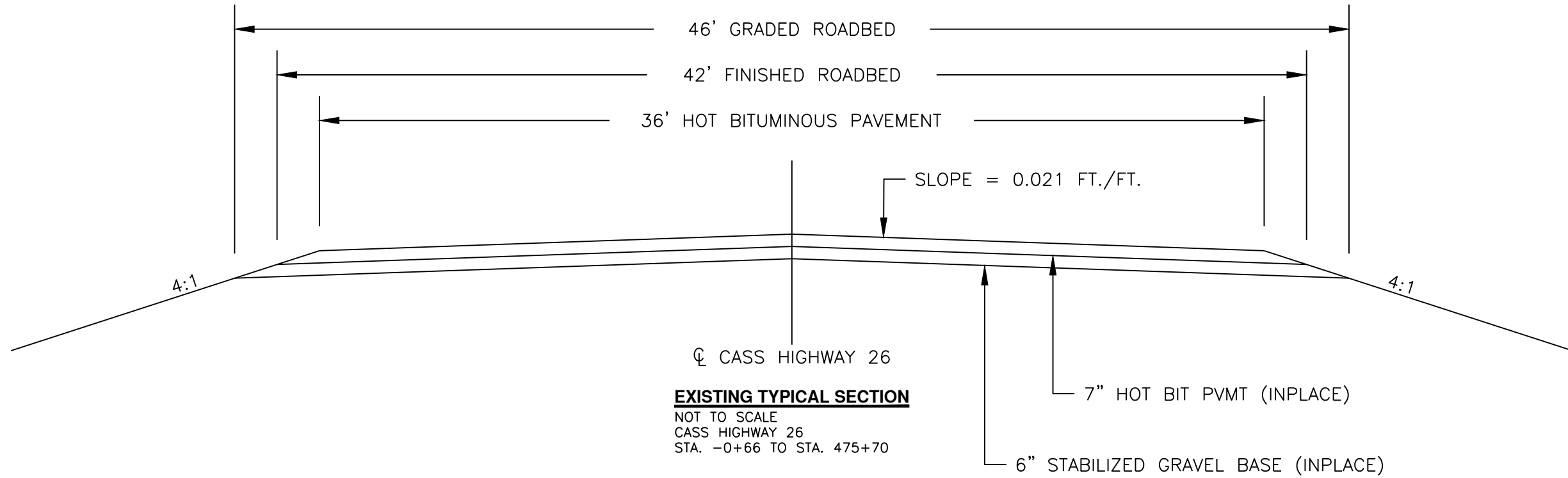
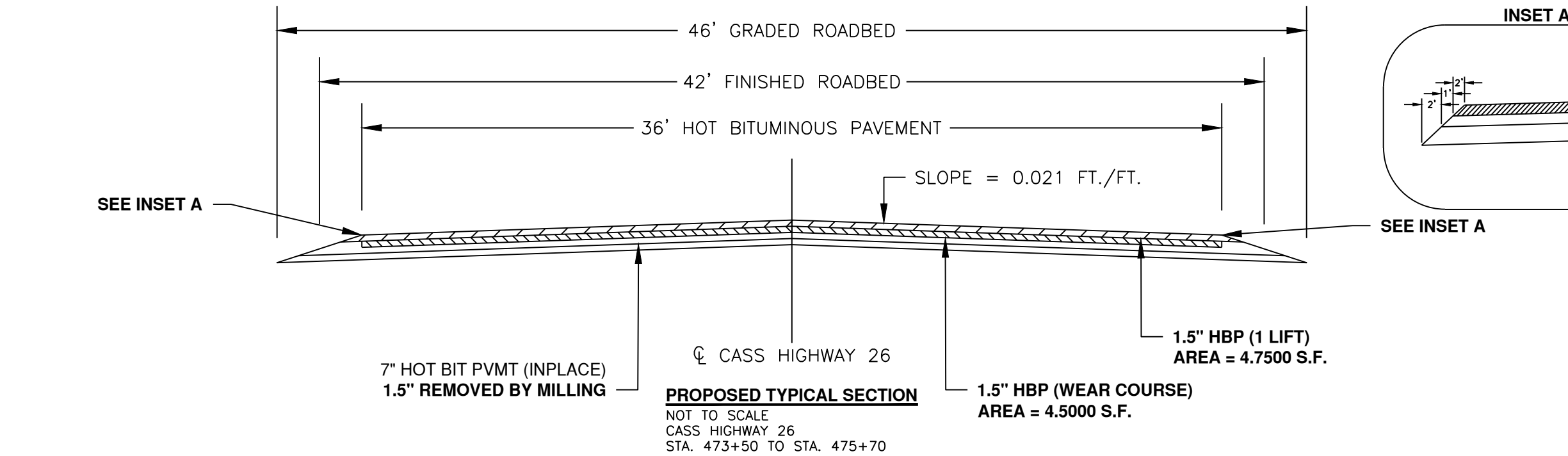
CASS COUNTY HIGHWAY DEPARTMENT
WEST FARGO, NORTH DAKOTA

TYPICAL SECTIONS

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Checked By KDL
REV DATE 08/15/2024
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SHEET NO. 6

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CASS COUNTY HIGHWAY DEPARTMENT
WEST FARGO, NORTH DAKOTA

TYPICAL SECTIONS

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SHEET NO. 7

J:\Admin-Eng\Projects\C16 ST 18 to Davenport\2025 Paving Project\Design\Project\C16 Paving Plan Sheets.dwg-TRAFFIC CONTROL SIGNS-8/15/2024 4:11 PM-(wainz)

TRAFFIC CONTROL LEGEND

-  PORTABLE CHANGEABLE MESSAGE BOARD
-  SKID-MOUNTED SIGN
-  TYPE III BARRICADE

- 
G20-1-60
- 
G20-52a-72
- 
G20-52a-72
- 
G20-50a-72
- 
G20-2-48
- 
W20-1-48
- 
W20-1-48



CONSTRUCTION SIGN LAYOUT

NOT TO SCALE

PCN	STATE	PROJECT NO.
24302 24301	ND	SC-0950(061) SC-0910(063)

CASS COUNTY HIGHWAY DEPARTMENT
WEST FARGO, NORTH DAKOTA

TRAFFIC CONTROL SIGNS

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REV DATE
08/15/2024

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TRAFFIC CONTROL LEGEND

- PORTABLE CHANGEABLE MESSAGE BOARD
- SKID-MOUNTED SIGN
- TYPE III BARRICADE

- A

ROAD WORK
NEXT X MILES

G20-1-60
- B

ROAD WORK
NEXT X MILES →

G20-52a-72
- C

ROAD WORK
← NEXT X MILES

G20-52a-72
- D

ROAD WORK
← NEXT X MILES
NEXT X MILES →

G20-50a-72
- E

END
ROAD WORK

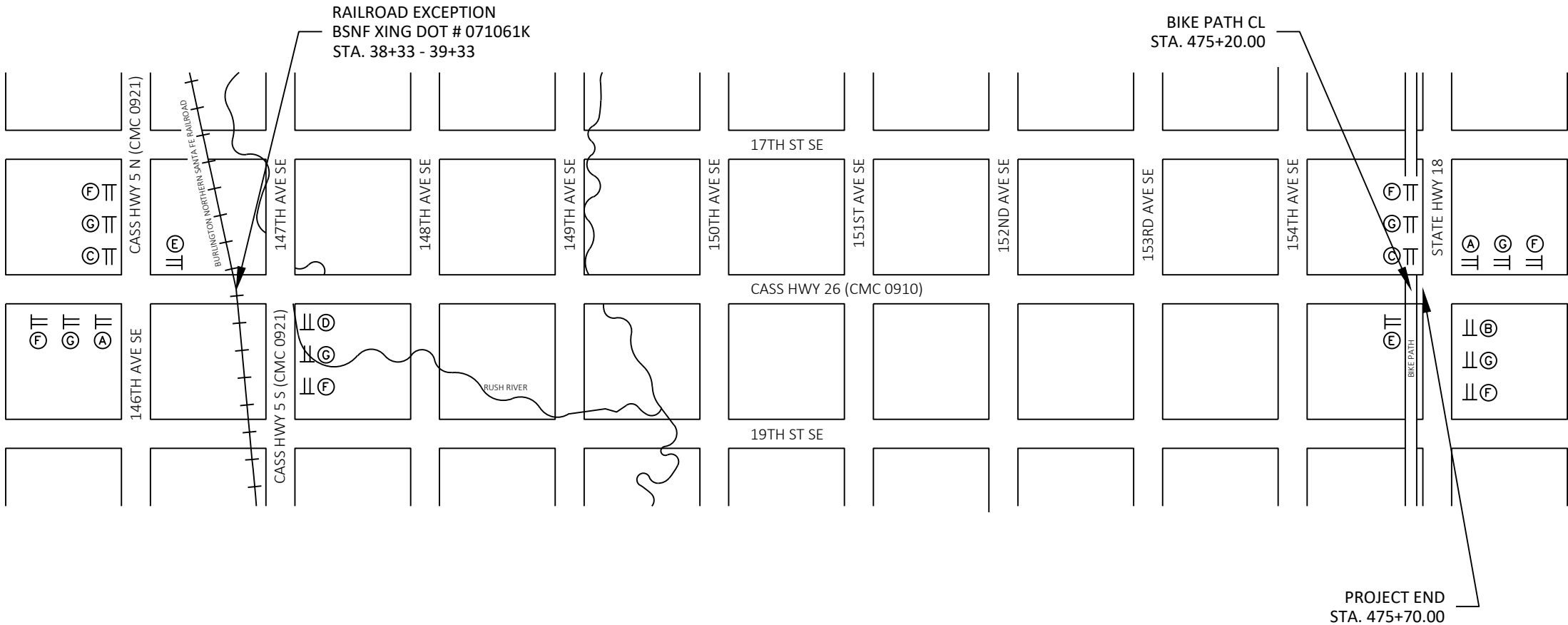
G20-2-48
- F

ROAD
WORK
AHEAD

W20-1-48
- G

ROAD
WROK
500 FT

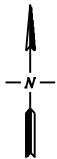
W20-1-48



CONSTRUCTION SIGN LAYOUT

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CASS COUNTY HIGHWAY DEPARTMENT
WEST FARGO, NORTH DAKOTA

TRAFFIC CONTROL SIGNS

Drawn By ZSW
Checked By KDL
REV DATE 11/12/2024
Scale As Shown
SEC NO. 100
SHEET NO. 2

J:\Admin\Eng\Projects\C16 ST 18 to Davenport\2025 Paving Project\Design\C16 Paving Plan Sheets.dwg-TRAFFIC CONTROL SIGNS (21-8/15/2024 4:11 PM-(walnz))

TRAFFIC CONTROL LEGEND

- PORTABLE CHANGEABLE MESSAGE BOARD
- SKID-MOUNTED SIGN
- TYPE III BARRICADE

- A

ROAD WORK
NEXT X MILES

G20-1-60
- B

ROAD WORK
NEXT X MILES →

G20-52a-72
- C

ROAD WORK
← NEXT X MILES

G20-52a-72
- D

ROAD WORK
← NEXT X MILES NEXT X MILES →

G20-50a-72
- E

END
ROAD WORK

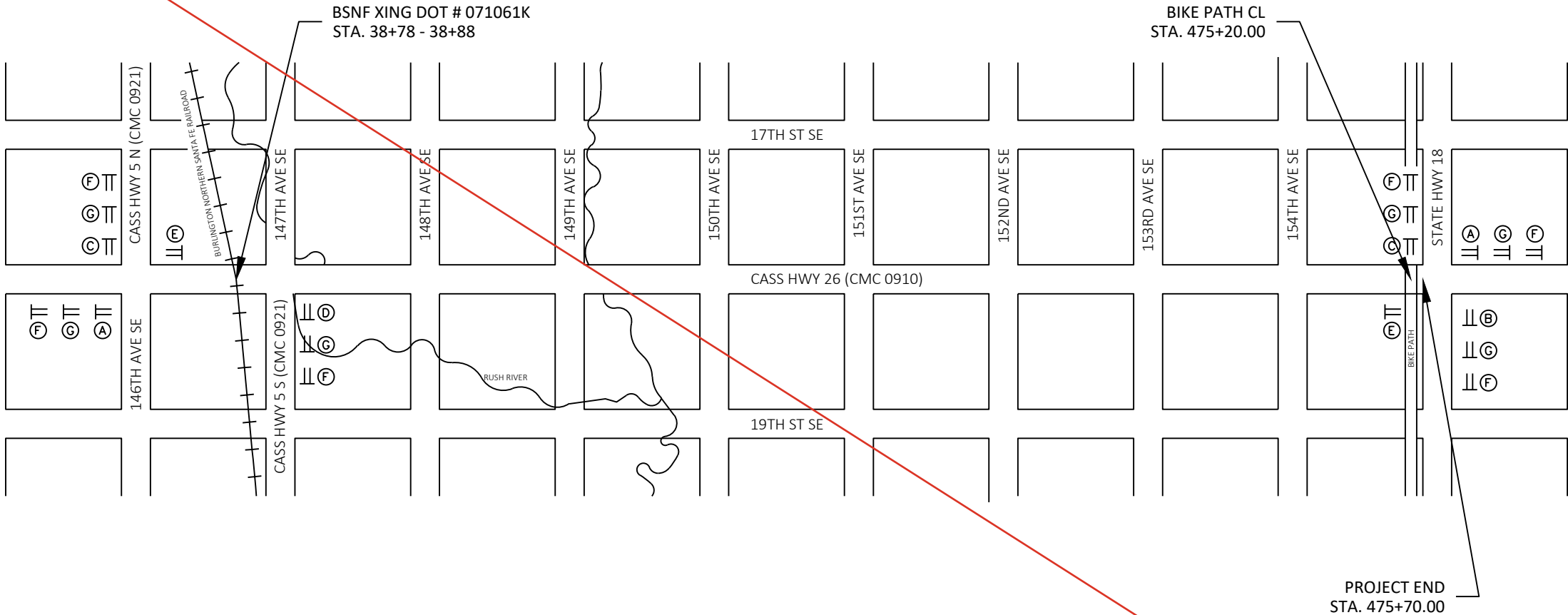
G20-2-48
- F

ROAD
WORK
AHEAD

W20-1-48
- G

ROAD
WROK
500 FT

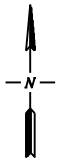
W20-1-48



CONSTRUCTION SIGN LAYOUT

NOT TO SCALE

PCN	STATE	PROJECT NO.
24302 24301	ND	SC-0950(061) SC-0910(063)



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CASS COUNTY HIGHWAY DEPARTMENT
WEST FARGO, NORTH DAKOTA

TRAFFIC CONTROL SIGNS

Drawn By ZSW
Checked By KDL
REV DATE 08/15/2024
Scale As Shown
SEC NO. 100
SHEET NO. 2

J:\Admin-Eng\Projects\C16 ST 18 to Davenport\2025 Paving Project\Design\C16 Paving Plan Sheets.dwg-TRAFFIC CONTROL SIGNS (3)-8/15/2024 4:11 PM- (wahnz)

PCN	STATE	PROJECT NO.
24302 24301	ND	SC-0950(061) SC-0910(063)

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED SC-0950(061) HIGHWAY 16 (CMC 0950)	AMOUNT REQUIRED SC-0910(063) HIGHWAY 26 (CMC 0910)	UNITS PER AMOUNT	AMOUNT REQUIRED SC-0950(061) HIGHWAY 16 (CMC 0950)	AMOUNT REQUIRED SC-0910(063) HIGHWAY 26 (CMC 0910)
E5-1-48	48"x48"	EXIT GORE			35		
G20-1-60	60"x24"	ROAD WORK NEXT ____ MILES	2	2	28	56	56
G20-1b-60	60"x24"	NO WORK IN PROGRESS (Sign and installation only)			18		
G20-2-48	48"x24"	END ROAD WORK	2	2	26	52	52
G20-4-36	36"x18"	PILOT CAR FOLLOW ME (Mounted to back of pilot car)	1	1	18	18	18
G20-4b-36	36"x30"	WAIT FOR PILOT CAR			18		
G20-50a-72	72"x36"	ROAD WORK NEXT ____ MILES RT & LT ARROWS	2	1	43	86	43
G20-52a-72	72"x24"	ROAD WORK NEXT ____ MILES RT or LT ARROW	2	3	36	72	108
G20-55-96	96"x48"	SPEED LIMIT ENFORCED - MINIMUM FEE \$80 WHEN WORKERS PRESENT			59		
M1-1-36	36"x36"	INTERSTATE ROUTE MARKER (Post and installation only)			11		
M1-4-24	24"x24"	U.S. ROUTE MARKER (Post and installation only)			10		
M1-5-24	24"x24"	STATE ROUTE MARKER (Post and installation only)			10		
M3-1-24	24"x12"	NORTH (Mounted on route marker post)			7		
M3-2-24	24"x12"	EAST (Mounted on route marker post)			7		
M3-3-24	24"x12"	SOUTH (Mounted on route marker post)			7		
M3-4-24	24"x12"	WEST (Mounted on route marker post)			7		
M4-8-24	24"x12"	DETOUR (Mounted on route marker post)			7		
M4-9-30	30"x24"	DETOUR ARROW RIGHT or LEFT/AHD AND RT or LT			15		
M4-10-48	48"x18"	DETOUR (INSIDE ARROW) RIGHT or LEFT (Mounted on barricade)			7		
M5-1-21	21"x15"	ADVANCE TURN ARROW RT or LT(Mounted on route marker post)			7		
M5-1-30	30"x21"	ADVANCE TURN ARROW RT or LT(Mounted on route marker post)			9		
M6-1-21	21"x15"	DIRECTIONAL ARROW RT or LT (Mounted on route marker post)			7		
M6-1-30	30"x21"	DIRECTIONAL ARROW RT or LT (Mounted on route marker post)			9		
M6-3-21	21"x15"	DIRECTIONAL ARROW UP (Mounted on route marker post)			7		
R1-1-48	48"x48"	STOP			32		
R1-2-60	60"x60"	YIELD			29		
R2-1-36	36"x48"	SPEED LIMIT ____ (Portable only)			30		
R2-1-48	48"x60"	SPEED LIMIT ____			39		
R2-1aP-24	24"x18"	MINIMUM FEE \$80 (Mounted on Speed Limit post)			10		
R3-2-48	48"x48"	NO LEFT TURN			35		
R4-1-48	48"x60"	DO NOT PASS			39		
R4-7-48	48"x60"	KEEP RIGHT			39		
R5-1-48	48"x48"	DO NOT ENTER			35		
R6-1-54	54"x18"	ONE WAY RIGHT or LEFT (Mounted on STOP or DO NOT ENTER post)			14		
R7-1-12	12"x18"	NO PARKING ANY TIME			11		
R10-6-24	24"x36"	STOP HERE ON RED			16		
R11-2-48	48"x30"	ROAD CLOSED (Mounted on barricade)			12		
R11-2a-48	48"x30"	STREET CLOSED (Mounted on barricade)			12		
R11-3a-60	60"x30"	ROAD CLOSED ____ MILES AHEAD LOCAL TRAFFIC ONLY (Mtd on barricade)			15		
R11-3c-60	60"x30"	STREET CLOSED ____ MILES AHEAD LOCAL TRAFFIC ONLY (Mtd on barricade)			15		
R11-4a-60	60"x30"	ROAD CLOSED TO THRU TRAFFIC (Mounted on barricade)			15		
W1-3-48	48"x48"	REVERSE TURN RIGHT or LEFT			35		
W1-4-48	48"x48"	REVERSE CURVE RIGHT or LEFT			35		
W1-4b-48	48"x48"	TWO LANE REVERSE CURVE RIGHT or LEFT			35		
W1-6-48	48"x24"	ONE DIRECTION LARGE ARROW			26		
W3-1-48	48"x48"	STOP AHEAD			35		
W3-3-48	48"x48"	SIGNAL AHEAD			35		
W3-4-48	48"x48"	BE PREPARED TO STOP	2	2	35	70	70
W3-5-48	48"x48"	SPEED REDUCTION AHEAD			35		
W4-2-48	48"x48"	LANE ENDS RIGHT or LEFT			35		
W5-1-48	48"x48"	ROAD NARROWS			35		
W5-8-48	48"x48"	THRU TRAFFIC RIGHT LANE			35		
W5-9-48	48"x48"	ROAD WORK TRAFFIC ONLY DOWN & LT or RT ARROW			35		
W6-3-48	48"x48"	TWO WAY TRAFFIC			35		
W6-1-48	48"x48"	BUMP	4	4	35	140	140
W6-3-48	48"x48"	PAVEMENT ENDS	4	4	35	140	140
W6-7-48	48"x48"	LOOSE GRAVEL			35		
W6-11-48	48"x48"	UNEVEN LANES	4	4	35	140	140
W6-12-48	48"x48"	NO CENTER LINE	4	4	35	140	140
W8-17-48	48"x48"	SHOULDER DROP-OFF SYMBOL			35		
W8-53-48	48"x48"	TRUCKS ENTERING HIGHWAY			35		
W8-54-48	48"x48"	TRUCKS ENTERING AHEAD or ____ FT or ____ MILE			35		
W8-55-48	48"x48"	TRUCKS CROSSING AHEAD or ____ FT or ____ MILE			35		
W8-56-48	48"x48"	TRUCKS EXITING HIGHWAY			35		

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED SC-0950(061) HIGHWAY 16 (CMC 0950)	AMOUNT REQUIRED SC-0910(063) HIGHWAY 26 (CMC 0910)	UNITS PER AMOUNT	AMOUNT REQUIRED SC-0950(061) HIGHWAY 16 (CMC 0950)	AMOUNT REQUIRED SC-0910(063) HIGHWAY 26 (CMC 0910)
W9-3a-48	48"x48"	CENTER LANE CLOSED SYMBOL			35		
W13-1P-30	30"x30"	MPH ADVISORY SPEED PLAQUE (Mounted on warning sign post)			14		
W14-3-64	64"x48"	NO PASSING ZONE			28		
W16-2P-30	30"x24"	____ FEET PLAQUE (Mounted on warning sign post)			10		
W20-1-48	48"x48"	ROAD WORK AHEAD or ____ FT or ____ MILE	12	12	35	420	420
W20-2-48	48"x48"	DETOUR AHEAD or ____ FT or ____ MILE			35		
W20-3-48	48"x48"	ROAD or STREET CLOSED AHEAD or ____ FT or ____ MILE			35		
W20-4-48	48"x48"	ONE LANE ROAD AHEAD or ____ FT or ____ MILE			35		
W20-5-48	48"x48"	RIGHT or CENTER or LEFT LANE CLOSED AHEAD or ____ FT or ____ MILE			35		
W20-7-48	48"x48"	FLAGGER	2	2	35	70	70
W20-8-18	18"x18"	STOP - SLOW PADDLE Back to Back	2	2	5	10	10
W20-52P-54	54"x12"	NEXT ____ MILES (Mounted on warning sign post)			12		
W21-1-48	48"x48"	WORKERS			35		
W21-2-48	48"x48"	FRESH OIL			35		
W21-3-48	48"x48"	ROAD MACHINERY AHEAD or ____ FT or ____ MILE			35		
W21-5-48	48"x48"	SHOULDER WORK			35		
W21-5a-48	48"x48"	RIGHT or LEFT SHOULDER CLOSED			35		
W21-5b-48	48"x48"	RIGHT or LEFT SHOULDER CLOSED AHEAD or ____ FT or ____ MILE			35		
W21-6-48	48"x48"	SURVEY CREW			35		
W21-50-48	48"x48"	BRIDGE PAINTING AHEAD or ____ FT			35		
W21-51-48	48"x48"	MATERIAL ON ROADWAY			35		
W21-52-48	48"x48"	PAVEMENT BREAKS			35		
W21-53-48	48"x48"	RUMBLE STRIPS AHEAD			35		
W22-8-48	48"x48"	FRESH OIL LOOSE ROCK			35		
W24-1-48	48"x48"	DOUBLE REVERSE CURVE			35		

SPECIAL SIGNS							

SPEC & CODE		TOTAL UNITS	
704-1000	TRAFFIC CONTROL SIGNS	1,414	1,407

SPEC & CODE	DESCRIPTION	UNIT	AMOUNT REQUIRED SC-0950(061) HIGHWAY 16 (CMC 0950)	AMOUNT REQUIRED SC-0910(063) HIGHWAY 26 (CMC 0910)
704-0100	FLAGGING	MHR	672	360
704-1048	PORTABLE RUMBLE STRIPS	EACH		
704-1049	TYPE I BARRICADES	EACH		
704-1050	TYPE III BARRICADES	EACH		
704-1051	DELINEATOR DRUMS	EACH	20	20
704-1052	TRAFFIC CONES	EACH		
704-1053	TUBULAR MARKERS	EACH		
704-1054	DELINEATOR	EACH		
704-1055	FLEXIBLE DELINEATORS	EACH		
704-1056	STACKABLE VERTICAL PANELS	EACH		
704-1057	VERTICAL PANELS - BACK TO BACK	EACH		
704-1058	SEQUENCING ARROW PANEL - TYPE A	EACH		
704-1059	SEQUENCING ARROW PANEL - TYPE B	EACH		
704-1060	SEQUENCING ARROW PANEL - TYPE C	EACH		
704-1061	OBLITERATION OF PVMT MK	SF		
704-1062	PORTABLE PRECAST CONCRETE MED BARRIER	LF		
704-1063	PRECAST CONCRETE MED BARRIER - STATE FURNISHED	EACH		
704-1064	RAISED PAVEMENT MARKERS	EACH		
704-1065	SHORT TERM 4IN LINE - TYPE R	LF		
704-1066	SHORT TERM 4IN LINE - TYPE NR	LF		
704-1185	PILOT CAR	MHR	336	180

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CASS COUNTY HIGHWAY DEPARTMENT
WEST FARGO, NORTH DAKOTA
TRAFFIC CONTROL SIGNS

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SHEET NO. 3