MINNESOTA DEPARTMENT OF TRANSPORTATION

LYON COUNTY

CONSTRUCTION PLAN FOR: CONCRETE PAVEMENT AND AGGREGATE SHOULDERS

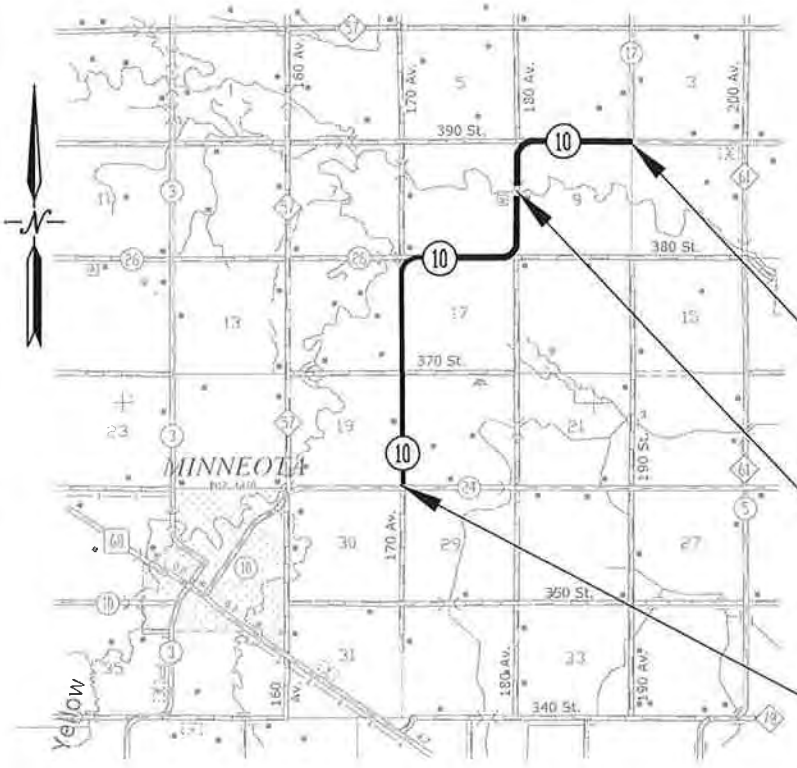
COUNTY STATE AID HIGHWAY NO. 10

BETWEEN: C.S.A.H. 24 AND C.S.A.H. 17,
(1.0 MILES EAST OF MINNEOTA)

FROM: N.E. COR. SEC. 30 T113N–R42W

TO: N.E. COR. SEC. 9 T113N–R42W

YELLOW MEDICINE COUNTY



END S.A.P. 042–610–040
STA. 246+13.71

BRIDGE #42521
STA. 176+40.00 TO STA. 177+20.00

BEG. S.A.P. 042–610–040
STA. 0+00.00

STATE AID PROJECT NO. 042–610–040

GROSS LENGTH	24,613.71	FEET	4.662	MILES
BRIDGE LENGTH	80.00	FEET	0.015	MILES
EXCEPTIONS LENGTH	0.00	FEET	0.000	MILES
NET LENGTH	24,613.71	FEET	4.662	MILES

SHEET NO.	1	TITLE SHEET
SHEET NO.	2	ESTIMATED QUANTITY SHEET
SHEET NO.	3	BASIS FOR ESTIMATED QUANTITIES
SHEET NO.	4–6	TYPICAL SECTIONS SHEET
SHEET NO.	7	TABULATIONS
SHEET NO.	8–9	DETOUR
SHEET NO.	10	TRAFFIC CONTROL PLAN SHEET
SHEET NO.	11	SIGN INSTALLATION TYPICAL SHEET
SHEET NO.	12A-12H	BRIDGE APPROACH TREATMENT

THIS PLAN CONTAINS 19 SHEETS

FUNCTIONAL CLASSIFICATION:
RURAL MINOR COLLECTOR

DESIGN SPEED: 60 MPH
ADT: 290(2017)
PROJ ADT: 380(2037)
NO. OF TRAFFIC LANES: 2
S.F. 130 %
R VALUE: 10
TON DESIGN: 10
ESALS (35 YR RIGID): 323,000
SHOULDER WIDTH: 6.0'
GRADED: S.A.P. 042–610–039 (2016)

STOPPING SITE DISTANCE BASED ON:
3.5' HEIGHT OF EYE
2.0' HEIGHT OF OBJECT

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Signature: _____ Typed Name: Aaron VanMoer
Design Engineer

Date: 2/15/17 License No.: 50428

_____ Date: 2/15/17
Approved County Engineer

_____ Date: 2/21/17
District State Aid Engineer:
Reviewed for Compliance with State Aid Rules/Policy

_____ Date: 2/21/17
Approved for State Aid Funding – for State Aid Engineer

GOVERNING SPECIFICATIONS
THE 2016 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION".

NOTE	ITEM NO.	ITEM	UNIT	TOTAL ESTIMATED QUANTITY
	2011.601	CONSTRUCTION SURVEYING	LUMP SUM	1.00
	2021.501	MOBILIZATION	LUMP SUM	1.00
	2051.501	MAINTENANCE & RESTORATION OF HAUL ROADS	LUMP SUM	1.00
	2104.513	SAWING BITUMINOUS PAVEMENT	LIN FT	120.00
2	2123.503	MOTOR GRADER	HOUR	20.00
3	2211.501	AGGREGATE BASE CLASS 5 MOD	TON	1,080.00
	2221.501	SHOULDER BASE AGGREGATE CLASS 5 MOD	TON	13,200.00
4	2232.501	MILL BITUMINOUS SURFACE (2.0")	SQ YD	285.00
5, 1	2301.504	PLACE CONCRETE PAVEMENT 7.0" (P)	SQ YD	72,276.23
	2301.508	SUPPLEMENTAL PAVEMENT REINFORCEMENT	POUND	8,790.60
	2301.511	STRUCTURAL CONCRETE	CU YD	14,650.00
6	2301.538	1.0" DOWEL BAR	EACH	9,792.00
7	2360.501	TYPE SP12.5 WEARING COURSE MIXTURE (3,B)	TON	455.00
13	2406.553	BRIDGE APPROACH PANEL	SQ YD	143.00
8	2540.602	RELOCATE MAIL BOX	EACH	13.00
	2563.601	DETOUR SIGNING	LUMP SUM	1.00
	2563.601	TRAFFIC CONTROL	LUMP SUM	1.00
9	2564.533	FURNISH SIGN PANELS TYPE C	SQ FT	48.00
10	2564.536	INSTALL SIGN PANEL TYPE SPECIAL	EACH	8.00
	2573.550	EROSION CONTROL SUPERVISOR	LUMP SUM	1.00
	2574.508	FERTILIZER TYPE 2	POUND	3,620.00
11	2575.501	SEEDING	ACRE	18.10
	2575.502	SEED MIXTURE 25-142	POUND	1,085.00
	2575.511	MULCH MATERIAL TYPE 1	TON	36.20
	2575.519	DISK ANCHORING	ACRE	18.10
	2582.502	24" SOLID LINE EPOXY GR IN (WR)	LIN FT	84.00
12	2582.502	4" SOLID LINE EPOXY GR IN (WR)	LIN FT	17,500.00
	2582.502	6" SOLID LINE EPOXY GR IN (WR)	LIN FT	52,770.00

CONSTRUCTION NOTES

(1) (P) = PLAN QUANTITY

(2) HOURS PROVIDED FOR SHAPING INSLOPES. SEE SHEET 4 FOR DETAILS.

(3) TOTAL QUANTITY FOR ROADWAY AND ENTRANCES. PLACE AGGREGATE BASE STA. 87+00.00 TO STA. 116+00.00 AS DIRECTED BY THE ENGINEER.

(4) MILL 2.0" AT BRIDGE #42521. SEE SHEET 4 FOR DETAILS.

(5) 30° SAFETY EDGE INCLUDED IN THE TOTAL BID PRICE. SEE SHEET 5 FOR DETAILS. BITUMINOUS TACK COAT SHALL BE INCLUDED IN THE TOTAL BID PRICE.

(6) EPOXY COATED

(7) SEE SHEET 7 FOR DETAILS.

(8) MAIL BOXES SHALL BE RELOCATED PRIOR TO CONSTRUCTION AND REPLACED ONCE CONSTRUCTION IS COMPLETED. THE CONTRACTOR MUST COORDINATE LOCATIONS WITH THE LOCAL POSTAL AUTHORITY. CONTRACTOR IS TO SALVAGE AND RE-INSTALL EXISTING MAIL BOX SUPPORT.

(9) FURNISH 8 W14-3 SIGNS (36"x48"). SIGNS SHALL BE DIAMOND GRADE (DG3). BLACK ON YELLOW.

(10) SEE SHEET 11 FOR DETAILS.

(11) SEE SHEET 3 (INSERT B) FOR DETAILS.

(12) TOTAL QUANTITY FOR BROKEN AND SOLID LINE (YELLOW).

(13) SEE SHEET 12A-12H FOR DETAILS. PLACE IN ACCORDANCE WITH MnDOT 2406.

CERTIFIED BY: _____ LIC. NO. 50428
LICENSED PROFESSIONAL ENGINEER

BASIS FOR ESTIMATED QUANTITIES

(2211)AGGREGATE BASE CLASS 5 MOD

CLASS 5 MOD QUANTITIES BASED ON 1.89 TONS PER C.Y. COMPACTED VOLUME ASSUMED

(2221)SHOULDERING BASE AGGREGATE CLASS 5 MOD

SHOULDERING QUANTITIES BASED ON 1.89 TONS PER C.Y. COMPACTED VOLUME ASSUMED

(2301)CONCRETE PAVEMENT (7.0")

WIDTH (26.583') x LENGTH / 9

(2301)SUPPLEMENTAL PAVEMENT REINFORCEMENT

NO. 4 BARS = 0.668 POUNDS/FOOT

7 LONGITUDINAL BARS @ 12' & 8 TRANSVERSE BARS @ 13'

125.58 POUNDS PER PANEL (13'x15')

(2360)BITUMINOUS WEAR COURSE MIXTURE

BITUMINOUS MATERIAL FOR MIXTURE (MAXIMUM DENSITY) 110LBS./SQ.YD./INCH OF DEPTH

(2360)TACK COAT

BITUMINOUS MATERIAL FOR TACK COAT .05 GALS. PER SQ.YD.

(2575) SEEDING

SEED MIXTURE 25-142: 60 POUNDS PER ACRE

STANDARD PLATES AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION SHALL APPLY ON THIS PROJECT.

STANDARD PLATES

PLATE NO.	DESCRIPTION
8000 J	CHANNELIZERS
9000 E	APPROACHES AND ENTRANCES
1070 M	SUPPLEMENTAL PAVEMENT REINFORCEMENT
1103 K	TYPICAL DOWEL BAR ASSEMBLY
1150 R	CONSTRUCTION OF HEADER JOINTS

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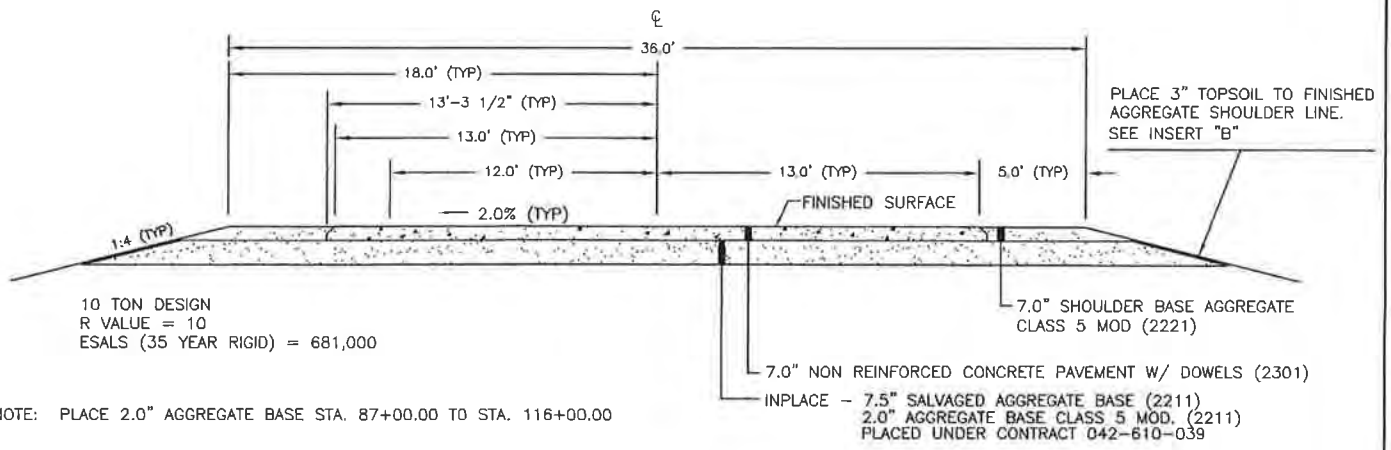
LICENSED PROFESSIONAL ENGINEER

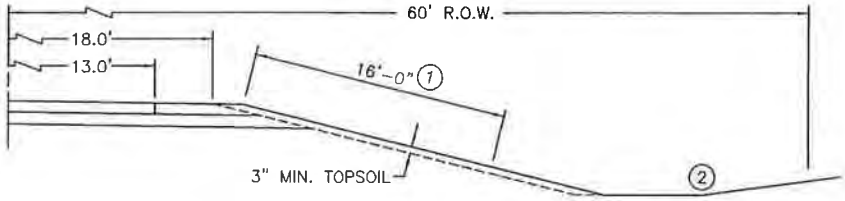
TYPICAL SECTION - FINISHED CONCRETE PAVEMENT

STA. 0+50.00 TO STA. 176+40.00 (17,590.00')
STA. 177+20.00 TO STA. 246+00.00 (6,880.00')
NOT TO SCALE



NOTE: PLACE 2.0" AGGREGATE BASE STA. 87+00.00 TO STA. 116+00.00

INSERT B
TYPICAL BOTH SIDES - NOT TO SCALE
TYPICAL ALL GRADING SECTIONS
NOT TO SCALE



GENERAL CONSTRUCTION NOTES (INSERT B):

1. THE CONTRACTOR IS REQUIRED TO PLACE TOPSOIL, SEED, MULCH AND FERTILIZE THE INSLOPE TO THE FINISHED SHOULDER. THE CONTRACTOR SHALL LIMIT THE IMPACTED AREA TO 16' AS SHOWN. TOPSOIL ON THE EXISTING INSLOPE SHALL BE SUFFICIENT TO COMPLETE THE ENTIRE TOPSOIL PLACEMENT.

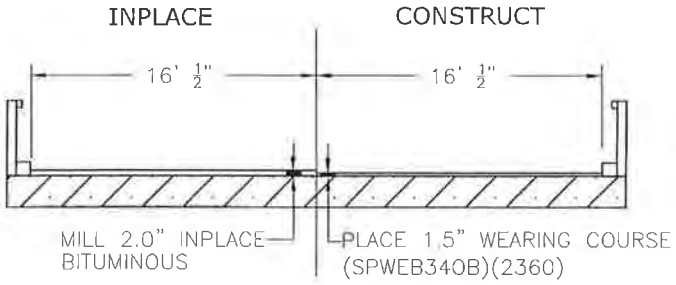
   MOTOR GRADER HOURS PROVIDED FOR TOPSOIL PLACEMENT AND SHAPING.

   CONTRACTOR IS REQUIRED TO WORK AROUND EXISTING SIGNS AND MAILBOX SUPPORTS.

2. THE CONTRACTOR SHALL PROTECT ALL VEGETATED AREAS OUTSIDE THE REQUIRED SEEDING AREA (INSLOPE). ANY DAMAGE CAUSED BY THE CONTRACTORS OPERATION OUTSIDE OF THE PROPOSED SEEDING AREA SHALL BE REPAIRED BY THE CONTRACTOR AT NO EXPENSE TO THE AGENCY.

TYPICAL SECTION
BRIDGE #42521 PAVING

STA. 176+40.00 TO STA. 177+20.00 (80.00')
NOT TO SCALE



NOTE: THE CONTRACTOR MUST PREVENT MILLING MATERIALS TO ENTER THE YELLOW MEDICINE RIVER BY BY PLACING A BIO-ROLL ALONG THE BRIDGE BRIDGE SCUPPERS OR OTHER METHODS APPROVED BY THE ENGINEER. ALL WORK AND MATERIALS SHALL BE INCLUDED WITH 2232.501 - MILL BITUMINOUS SURFACE (2.0").

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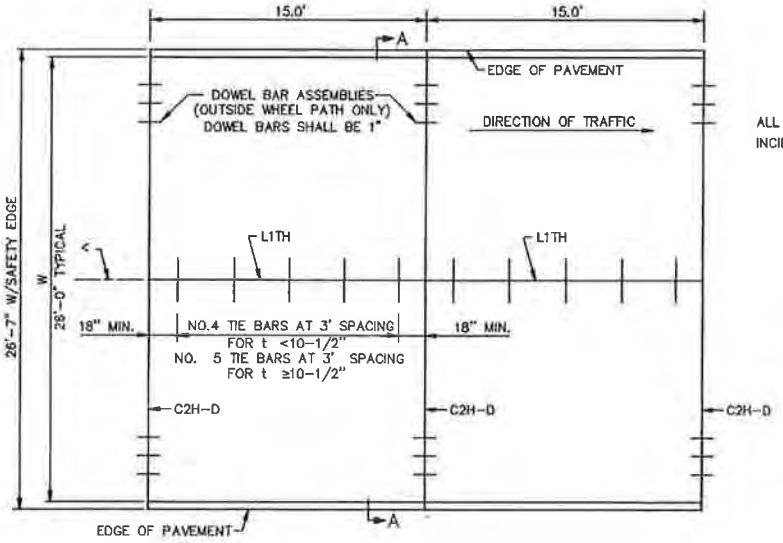
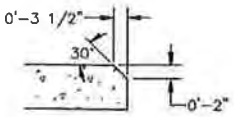
LICENSED PROFESSIONAL ENGINEER



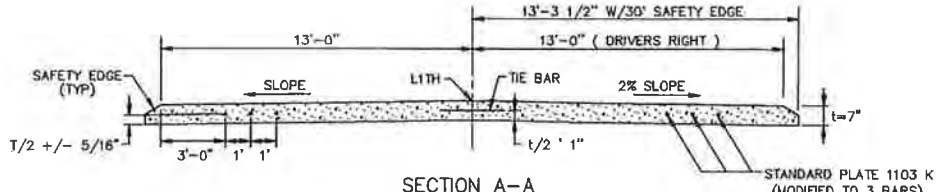
ALL TIE BARS SHALL BE CONSIDERED INCIDENTAL TO CONCRETE PAVEMENT.

MAINLINE PAVEMENT

DOWELED – OUTSIDE WHEEL PATH ONLY
NOT TO SCALE



30° CONCRETE SAFETY EDGE



SECTION A–A

DOWELED (1")– OUTSIDE WHEEL PATH ONLY
NOT TO SCALE
TYPICAL BOTH SIDES

NOTES:

1. STANDARD PLAN 5-297.217 SHALL BE MODIFIED TO INCLUDE SAFETY EDGE AND STANDARD PLATE 1103 K SHALL BE MODIFIED TO 3 BARS ONLY (INSTALLED IN THE OUTSIDE WHEEL PATH).

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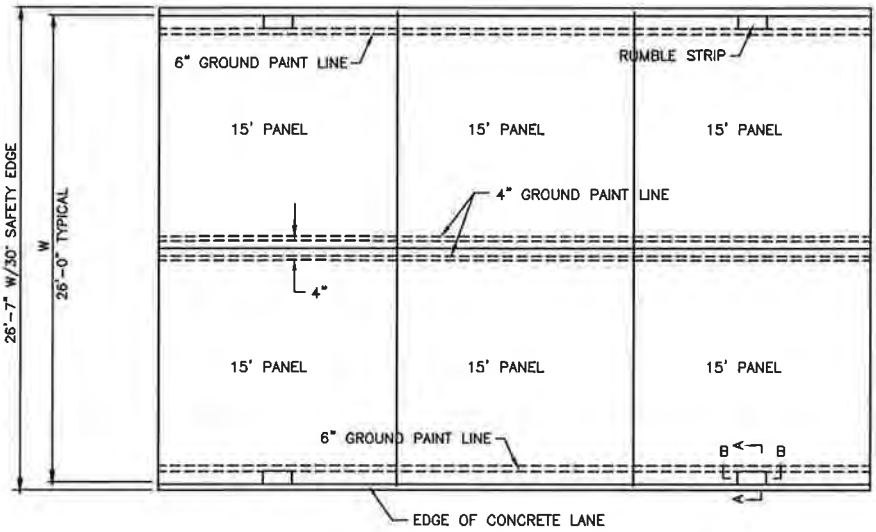
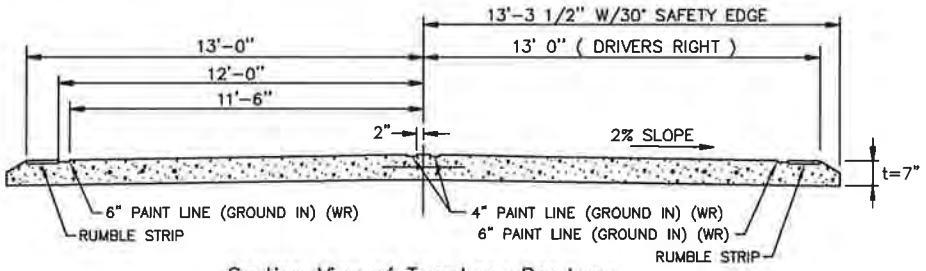


Plan View

Rumble Strip (Type 4) &
Ground Paint Line Detail

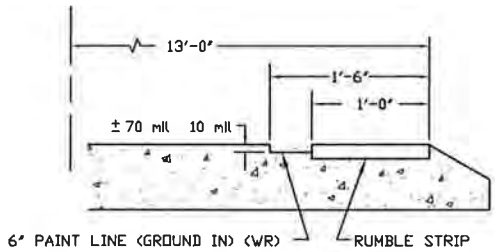
Scale: NONE



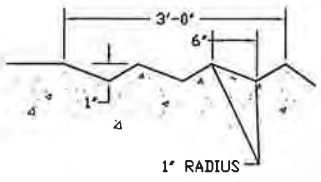
Section View of Two-Lane Roadway

Rumble Strip (Type 4) &
Ground Paint Line Detail
(WITH 5'-0" AGGREGATE SHOULDERS)

Scale: NONE



Section A–A
Scale: None



Section B–B

RUMBLE STRIP NOTES:

1. RUMBLE STRIP SHALL BE TYPE 4.
2. RUMBLE STRIP SHALL BE INCLUDED IN TOTAL BID PRICE OF CONCRETE PAVEMENT.
3. RUMBLE STRIP SHALL BE OMITTED 200' ON EACH SIDE OF A RESIDENTIAL ENTRANCE.
4. RUMBLE STRIP SHALL BE OMITTED ON THE TURNING RADIUS OF ALL CROSSROADS.

GROUND PAINT (WR) LINE NOTES:

1. GROUND PAINT LINE TO THE DIMENSIONS SHOWN IN ACCORDANCE WITH SPECIFICATION 2582.603. THE GROUND DEPTH SHALL BE 70 MIL± 10 MIL..

CERTIFIED BY: _____ LIC. NO. 50428
LICENSED PROFESSIONAL ENGINEER

TABULATIONS

REINFORCED CONCRETE PANEL SUMMARY

STATION	LENGTH	WIDTH	LOCATION	STRUCTURAL STEEL
19+10	30.0'	26.0'	CENTERLINE CULVERT	502.32
28+35	30.0'	26.0'	CENTERLINE CULVERT	502.32
46+25	30.0'	26.0'	TILE CROSSING	502.32
46+40	30.0'	26.0'	CENTERLINE CULVERT	502.32
58+56	30.0'	26.0'	TILE CROSSING	502.32
58+75	15.0'	26.0'	CENTERLINE CULVERT	251.16
67+00	30.0'	26.0'	CENTERLINE CULVERT	502.32
89+80	30.0'	26.0'	CENTERLINE CULVERT	502.32
102+00	30.0'	26.0'	CENTERLINE CULVERT	502.32
136+40	30.0'	26.0'	CENTERLINE CULVERT	502.32
155+96	30.0'	26.0'	TILE CROSSING	502.32
156+50	30.0'	26.0'	CENTERLINE CULVERT	502.32
184+30	30.0'	26.0'	CENTERLINE CULVERT	502.32
187+50	30.0'	26.0'	CENTERLINE CULVERT	502.32
216+00	30.0'	26.0'	TILE CROSSING	502.32
216+20	15.0'	26.0'	CENTERLINE CULVERT	251.16
235+00	30.0'	26.0'	CENTERLINE CULVERT	502.22
235+07	15.0'	26.0'	TILE CROSSING	251.16
239+40	30.0'	26.0'	TILE CROSSING	502.32
TOTAL				8,790.60

BITUMINOUS PAVING SUMMARY

STATION	LOCATION	BITUMINOUS (SPWEB430B)	AGGREGATE BASE
0+00 to 0+50	CSAH 24	70 TONS*	30 TONS
20+25	RESIDENTAL DRIVEWAY (RT)	25 TONS	20 TONS
29+53	RESIDENTAL DRIVEWAY (LT)	25 TONS	20 TONS
53+12	370TH STREET (RT)	40 TONS*	20 TONS
53+12	370TH STREET (LT)	40 TONS*	20 TONS
80+54	RESIDENTAL DRIVEWAY (LT)	25 TONS	20 TONS
103+00	CSAH 26	40 TONS*	30 TONS
126+38	RESIDENTAL DRIVEWAY (RT)	30 TONS	20 TONS
139+07	RESIDENTAL DRIVEWAY (RT)	30 TONS	20 TONS
150+71	380TH STREET (RT)	40 TONS*	20 TONS
173+86	RESIDENTAL DRIVEWAY (RT)	25 TONS	20 TONS
198+58	390TH STREET (RT)	40 TONS*	20 TONS
229+80	RESIDENTAL DRIVEWAY (LT)	25 TONS	20 TONS
TOTAL		455 TONS	280 TONS

*MUST BE PLACED IN TWO SEPARATE LIFTS.

AGGREGATE BASE SUMMARY

STATION	LOCATION	AGGREGATE BASE
87+00.00 to 116+00.00	ROADWAY	800.00 TONS

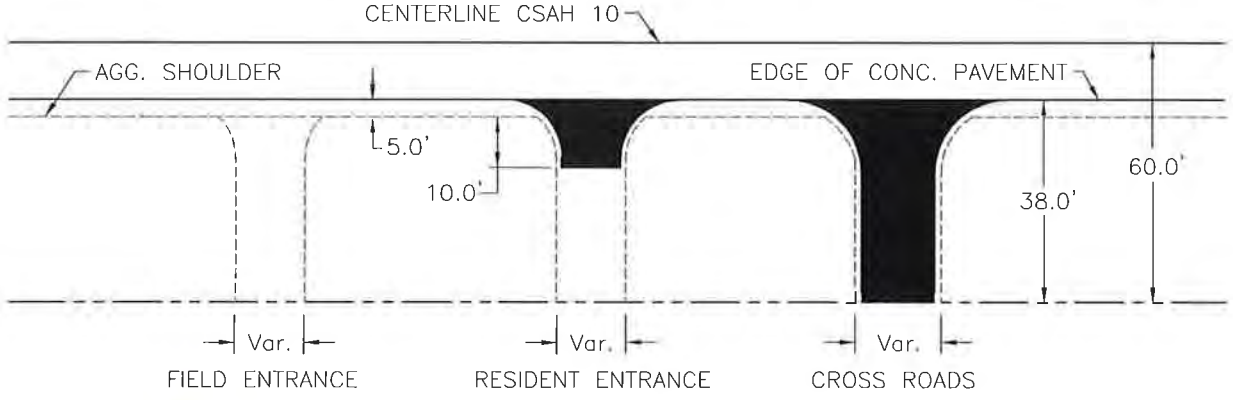
CONCRETE PAVING AND JOINT SUMMARY

PORTLAND CEMENT CONCRETE PAVING									JOINTS	
STATION		STATION	LENGTH	WIDTH	LOCATION	CONC. PAVEMENT STAND. WIDTH 7"	STRUCTURAL CONCRETE	1" DOWEL BARS	LONGITUDINAL L1TH*	CONTRACTION C4E-D*
0+50.0	to	176+40.0	17,590.0'	26.583'	C.S.A.H. 10 MAINLINE	51,955.00 SQ YD	10,078.42 CU YD	7038.00	17,590.0' (1 JOINT)	31,084.5'(1,173 JOINTS)
177+20.0	to	246+00.0	6,880.0'	26.583'	C.S.A.H. 10 MAINLINE	20,321.23 SQ YD	3,941.99 CU YD	2754.00	6,880.0' (1 JOINT)	12,163.5'(459 JOINTS)
			24,470.0'			72,276.23 SQ YD	14,020.41 CU YD	9792.00		

*ALL JOINTS SHALL BE INCLUDED IN TOTAL BID PRICE FOR CONCRETE PAVEMENT (2301.502)

TYPICAL AUXILIARY APPROACH PAVING

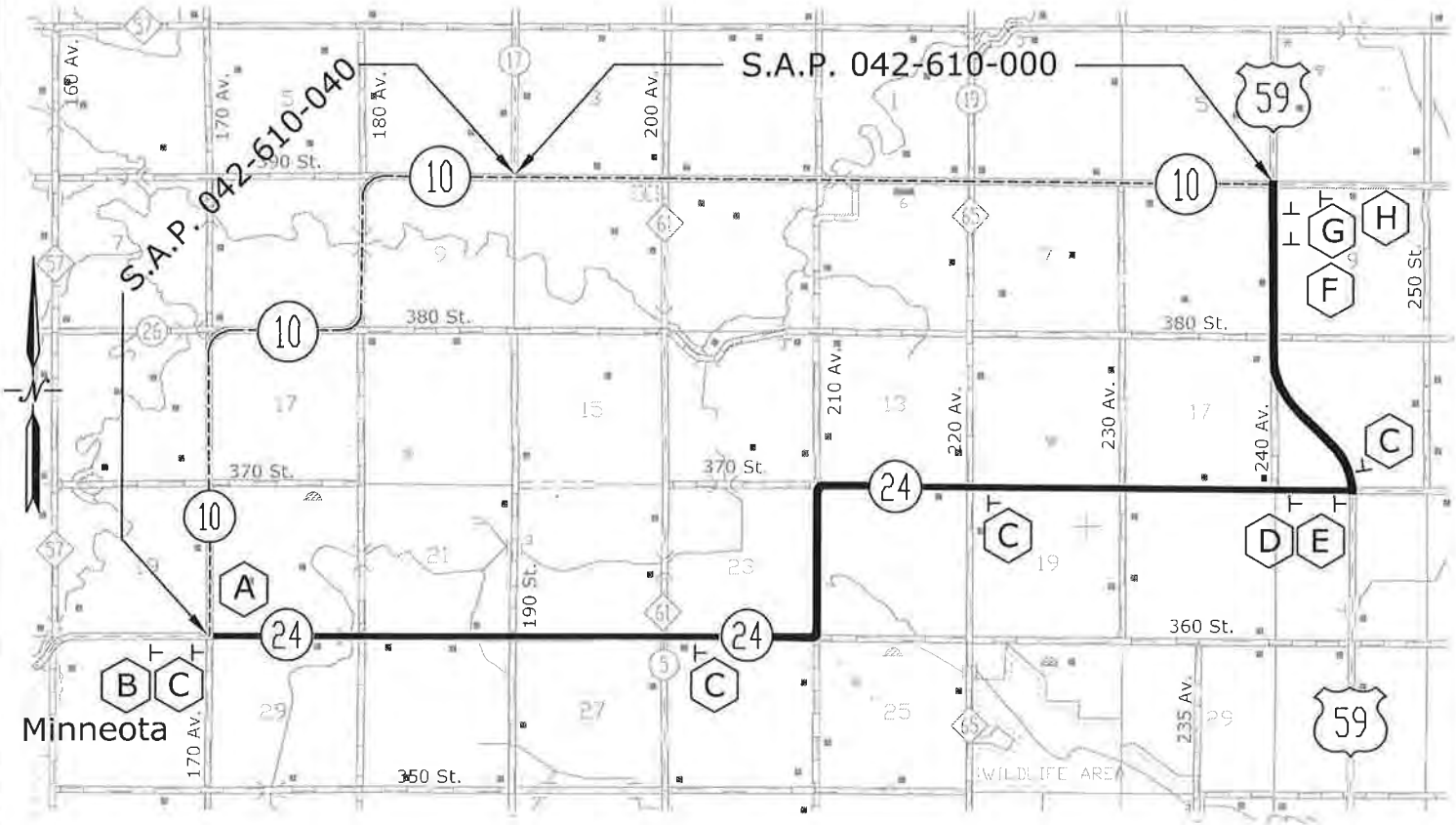
STANDARD PLATE 9000E SHALL APPLY. FIELD ADJUST AS DIRECTED BY THE ENGINEER.



CERTIFIED BY: _____ LIC. NO. 50428
LICENSED PROFESSIONAL ENGINEER

DETOUR PLAN

North Bound Traffic Detour



A

R11–4 (FRONT)
M4–9R (FRONT)
G20–2 (BACK)
3–TYPE 3 BARRICADE

SIGN ASSEMBLY IS FOR A COMPLETE ROAD CLOSURE.
A MINIMUM OF 3 BARRICADES AND SAFETY FENCE IS REQUIRED.
ALL POSTS AND HARDWARE TO INSTALL SAFETY FENCE SHALL BE INCLUDED WITH SIGN ASSEMBLY.

B

W20–2
M1–X4 (LYON COUNTY 10)
W–20–100P
*1500' FROM INT.

C

M4–8
M3–4
M1–X4 (LYON COUNTY 10)
M6–3
*200' FROM INT.

D

M4–8
M3–4
M1–X4 (LYON COUNTY 10)
M5–1 (LEFT)
*1000' FROM INT.

E

M4–8
M3–4
M1–X4 (LYON COUNTY 10)
M6–1 (LEFT)
*200' FROM INT.

F

M4–8
M3–4
M1–X4 (LYON COUNTY 10)
M5–1 (RIGHT)
*1000' FROM INT.

G

M4–8
M3–4
M1–X4 (LYON COUNTY 10)
M6–1 (RIGHT)
*200' FROM INT.

H

M4–8a
*500' FROM INT.

ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE LATEST EDITION OF THE MnMUTCD, INCLUDING THE FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS.

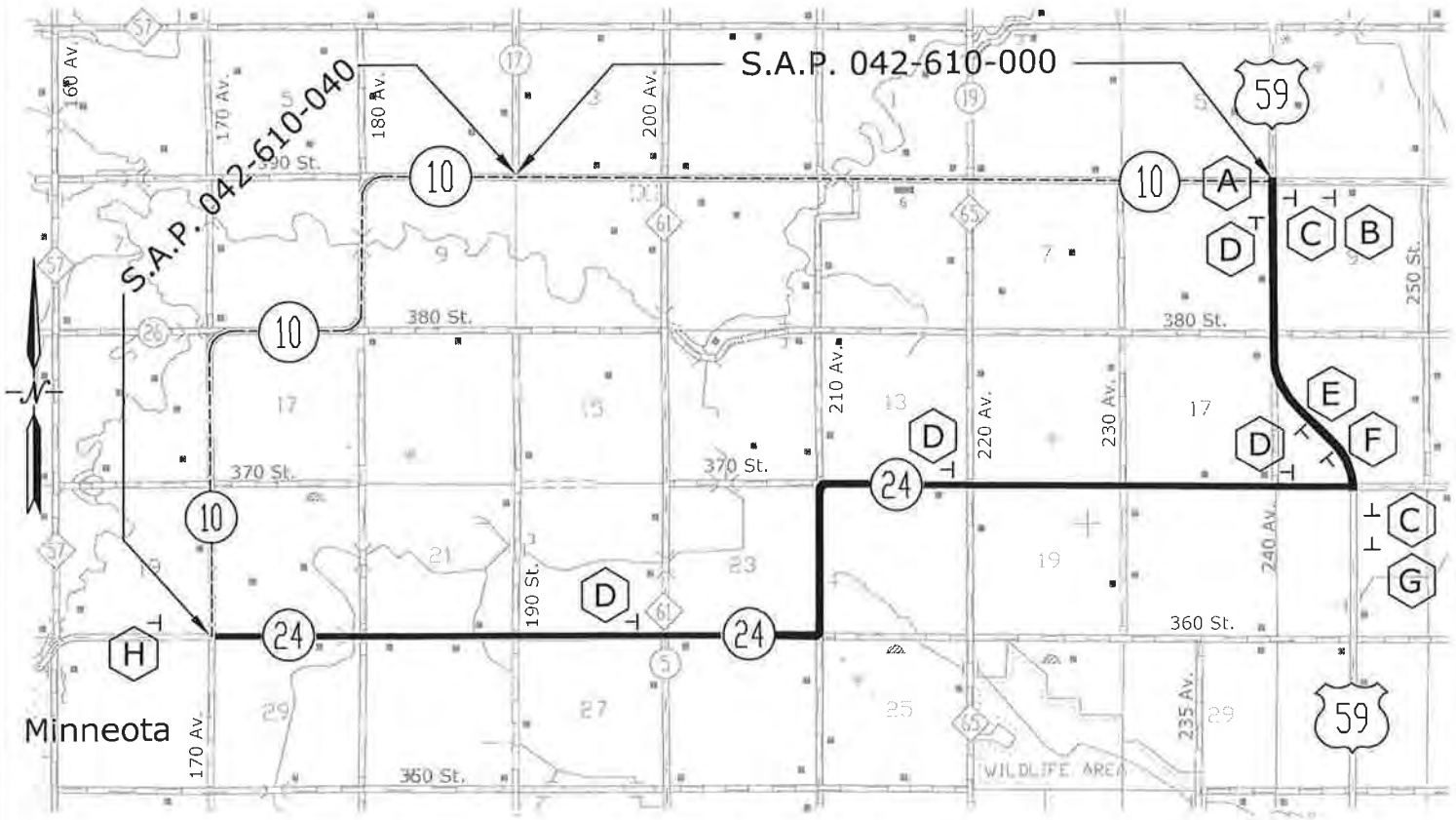
CERTIFIED BY: _____ LIC. NO. 50428

LICENSED PROFESSIONAL ENGINEER

STATE AID PROJECT NO. 042–610–040 SHEET 8 OF 12 SHEETS

DETOUR PLAN

South Bound Traffic Detour



A

SIGN ASSEMBLY IS FOR A COMPLETE ROAD CLOSURE. A MINIMUM OF 3 BARRICADES AND SAFETY FENCE IS REQUIRED. ALL POSTS AND HARDWARE TO INSTALL SAFETY FENCE SHALL BE INCLUDED WITH SIGN ASSEMBLY.

R11-4 (FRONT)
M4-9L (FRONT)
G20-2 (BACK)
3-TYPE 3 BARRICADE

B

W20-2
M1-X4 (LYON COUNTY 10)
W-20-100P
*1500' FROM INT.

C

M4-8
M3-2
M1-X4 (LYON COUNTY 10)
M6-1 (LEFT)
*200' FROM INT.

D

M4-8
M3-2
M1-X4 (LYON COUNTY 10)
M6-3
*200' FROM INT.

E

M4-8
M3-2
M1-X4 (LYON COUNTY 10)
M5-1 (RIGHT)
*1000' FROM INT.

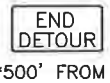
F

M4-8
M3-2
M1-X4 (LYON COUNTY 10)
M6-1 (RIGHT)
*200' FROM INT.

G

M4-8
M3-2
M1-X4 (LYON COUNTY 10)
M5-1 (LEFT)
*1000' FROM INT.

H



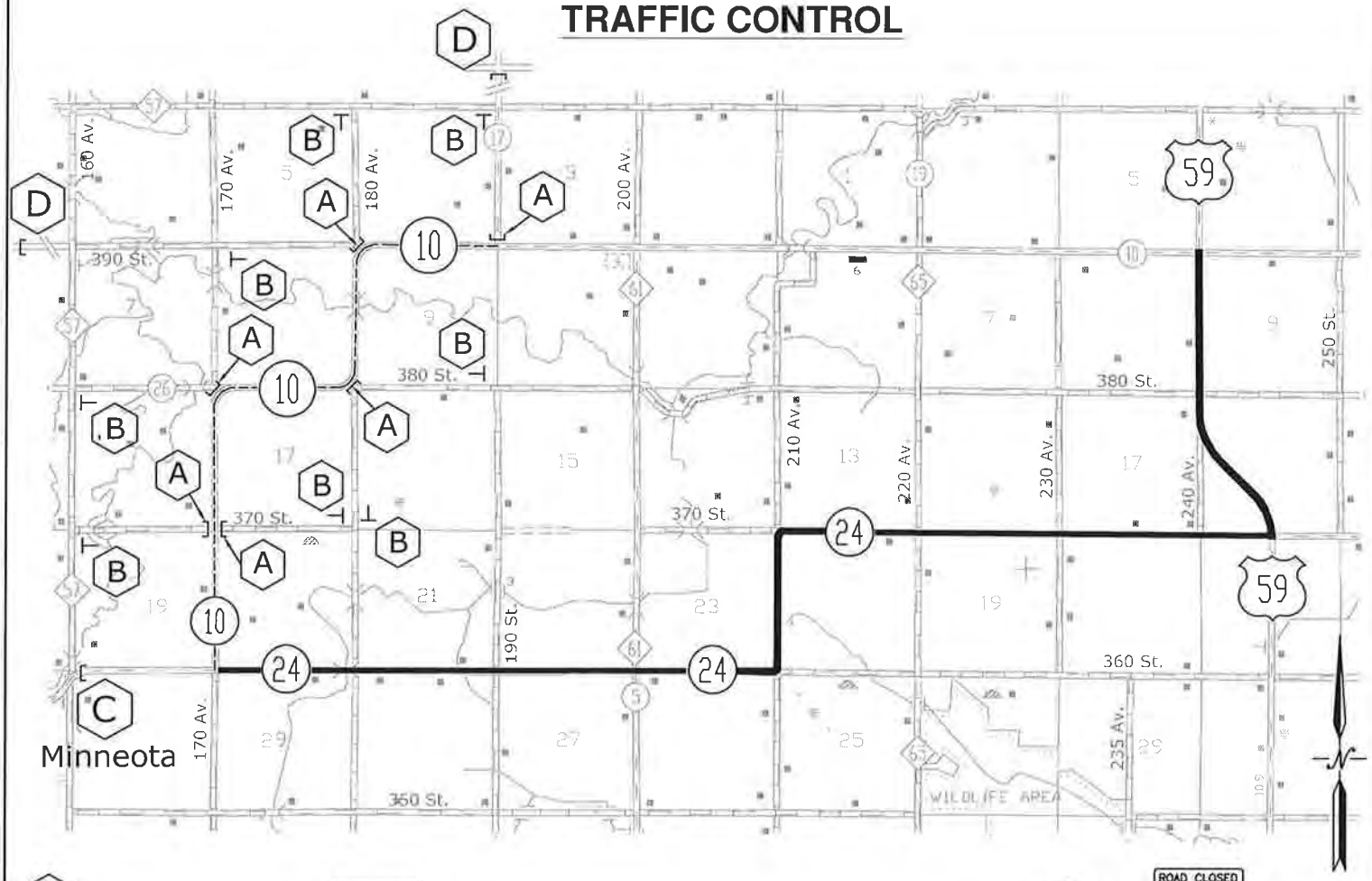
M4-8a
*500' FROM INT.

ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE LATEST EDITION OF THE MnMUTCD, INCLUDING THE FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS.

CERTIFIED BY: _____ LIC. NO. 50428
LICENSED PROFESSIONAL ENGINEER

STATE AID PROJECT NO. 042-610-040 SHEET 9 OF 12 SHEETS

TRAFFIC CONTROL



A

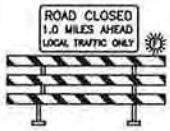
R11–4
3–TYPE 3 BARRICADE

SIGN ASSEMBLY IS FOR A COMPLETE ROAD CLOSURE.
A MINIMUM OF 3 BARRICADES AND SAFETY FENCE IS REQUIRED.
ALL POSTS AND HARDWARE TO INSTALL SAFETY FENCE SHALL BE INCLUDED WITH SIGN ASSEMBLY.

B

W20–1

C



1–TYPE 3 BARRICADE
R11–3A (1 MILE AHEAD)

D

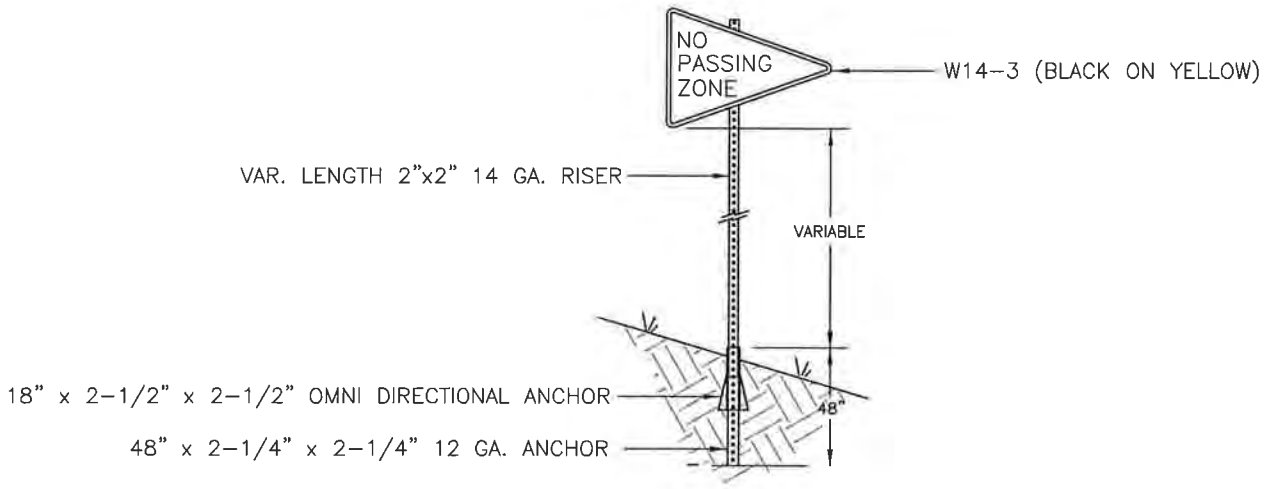
1–TYPE 3 BARRICADE
R11–3A (5 MILES AHEAD)

NOTES:

1. TRAFFIC CONTROL SHALL MEET THE REQUIREMENTS OF THE CURRENT EDITION OF THE MnMUTCD, INCLUDING THE FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS.
2. ALL NECESSARY TRAFFIC CONTROL DEVICES ON THIS PROJECT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR THE IMMEDIATE REPAIR OR REPLACEMENT OF ALL TRAFFIC CONTROL DEVICES THAT BECOME DAMAGED, MOVED, OR DESTROYED.
3. ALL INPLACE REGULATORY AND WARNING SIGNS TO REMAIN INPLACE THROUGHOUT CONSTRUCTION. IF THE CONTRACTOR REMOVES REGULATORY SIGNS THEY SHALL BE REPLACED AT THE EXPENSE OF THE CONTRACTOR.
4. THE CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN, AND REMOVE ALL TRAFFIC CONTROL DEVICES REQUIRED TO PROVIDE SAFE MOVEMENT OF LOCAL VEHICULAR TRAFFIC THROUGHOUT THE PROJECT. THE ENGINEER WILL HAVE THE RIGHT TO MODIFY THE REQUIREMENTS OF TRAFFIC CONTROL AS DEEMED NECESSARY DUE TO FIELD CONDITIONS. THE ROAD SHALL REMAIN OPEN TO LOCAL TRAFFIC AT ALL TIMES.
3. IF THE CONTRACTOR CHOOSES TO INSTALL ADDITIONAL TRAFFIC CONTROL MEASURES IT SHALL BE AT THE EXPENSE OF THE CONTRACTOR UNLESS AUTHORIZED BY THE ENGINEER.

CERTIFIED BY: _____ LIC. NO. 50428
LICENSED PROFESSIONAL ENGINEER

Sign Installation - Sign Panel Type Special (2564.536)
Dual Breakaway Anchor
Typical all locations



SIGN INSTALLATION NOTES:

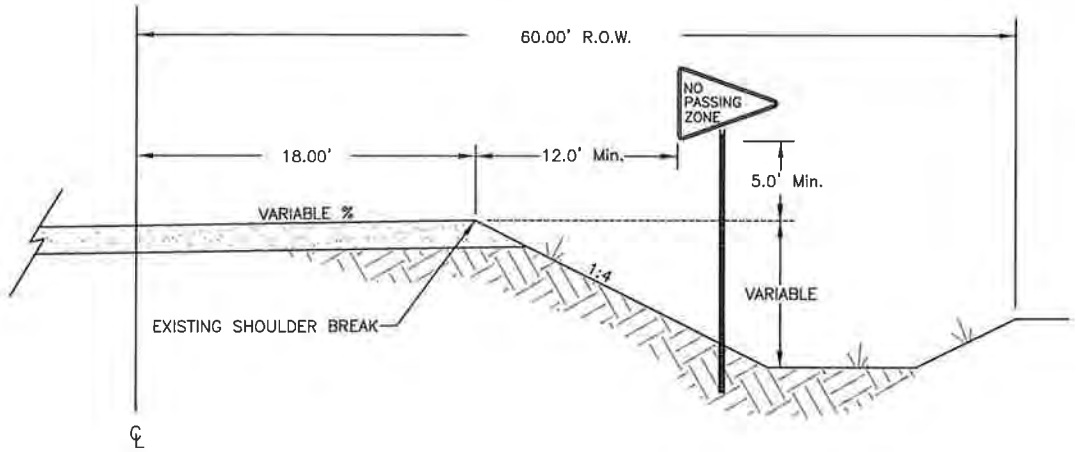
(1) ALL SQUARE POSTS SHALL BE GALVANIZED AND PRE-PUNCHED.

(2) STAINLESS BOLTS, WASHERS, AND NYLON LOCK NUTS REQUIRED. USE NYLON WASHERS AGAINST SIGN SHEETING.

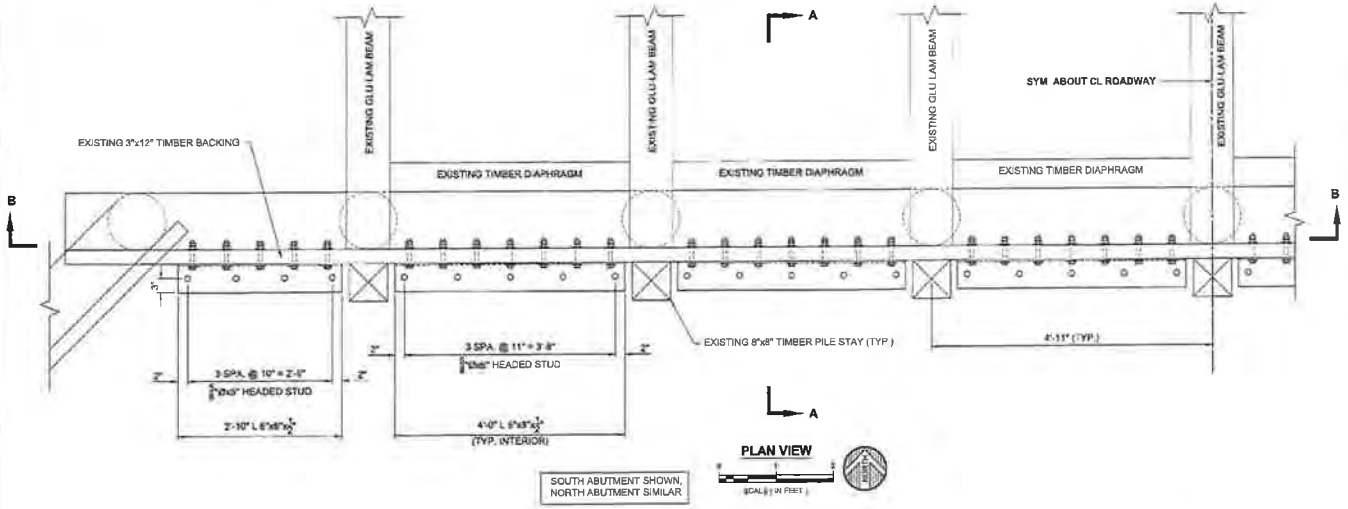
(3) INSTALL ANCHOR INTO THE GROUND LEAVING 1" TO 2" ABOVE THE EXISTING SURFACE. INSTALL THE SIGN POST 6" TO 8" INTO THE ANCHOR. INSTALL OMNI DIRECTIONAL ANCHOR.

(4) TOTAL BID PRICE FOR 2564.536 "INSTALL SIGN PANEL TYPE SPECIAL" SHALL INCLUDE ALL MATERIALS AND LABOR TO INSTALL ANCHOR, RISER, AND SIGNS.

Height and Lateral Location of Rural Roadside Signs
NOT TO SCALE



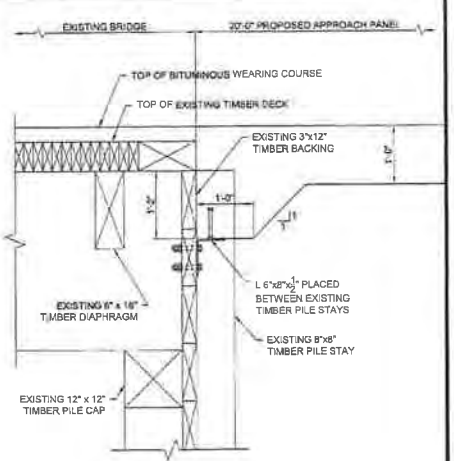
CERTIFIED BY: _____ LIC. NO. 50428
LICENSED PROFESSIONAL ENGINEER



PLAN VIEW

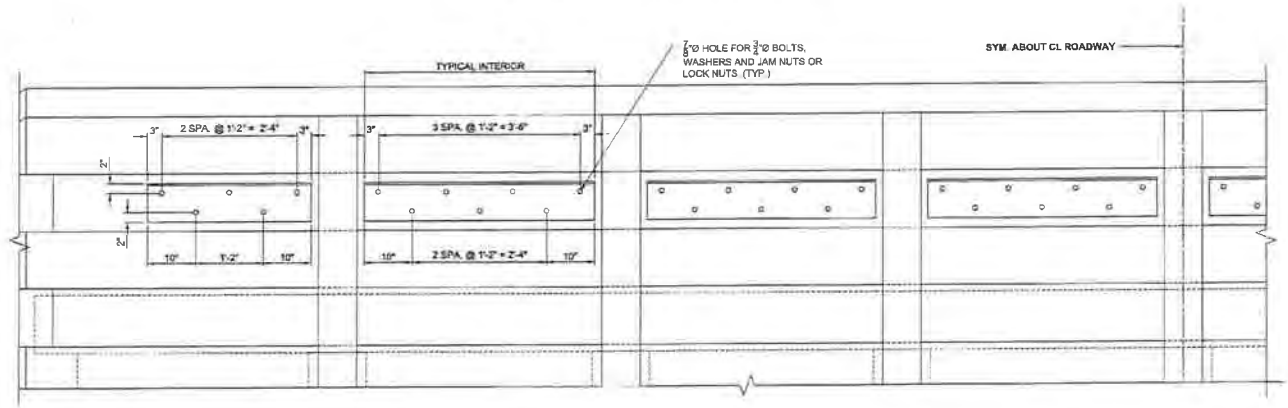
SCALE (IN FEET)

SOUTH ABUTMENT SHOWN, NORTH ABUTMENT SIMILAR



SECTION A-A

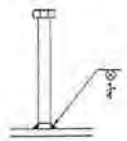
SCALE (IN FEET)



SECTION B-B

SCALE (IN FEET)

SOUTH ABUTMENT SHOWN, NORTH ABUTMENT SIMILAR



WELDED STUD DETAIL

SUMMARY OF QUANTITIES FOR BOTH ABUTMENTS ①

STRUCTURAL STEEL (3306)	1520	POUND
BRIDGE APPROACH PANELS	143	SQ YD
EXPANSION JOINTS, DESIGN E9H	52	LIN FT

① ALL MATERIAL AND LABOR SHOWN ON THIS SHEET SHALL BE INCLUDED IN PRICE BID FOR ITEM NO. 2408.533, "BRIDGE APPROACH PANELS", SQ. YD

NOTES:

STRUCTURAL STEEL MATERIAL SHALL BE PER MNDOT 3306. ALL MATERIAL SHALL BE GALVANIZED PER MNDOT 3394

HARDWARE SHALL BE PER MNDOT 3391 TYPE C. ALL HARDWARE SHALL BE GALVANIZED PER MNDOT 3392

CONTRACTOR TO VERIFY ALL DIMENSIONS IN THE FIELD PRIOR TO CONSTRUCTION.

WIDSETH SMITH NOLTING
Engineering | Architecture | Surveying | Environmental

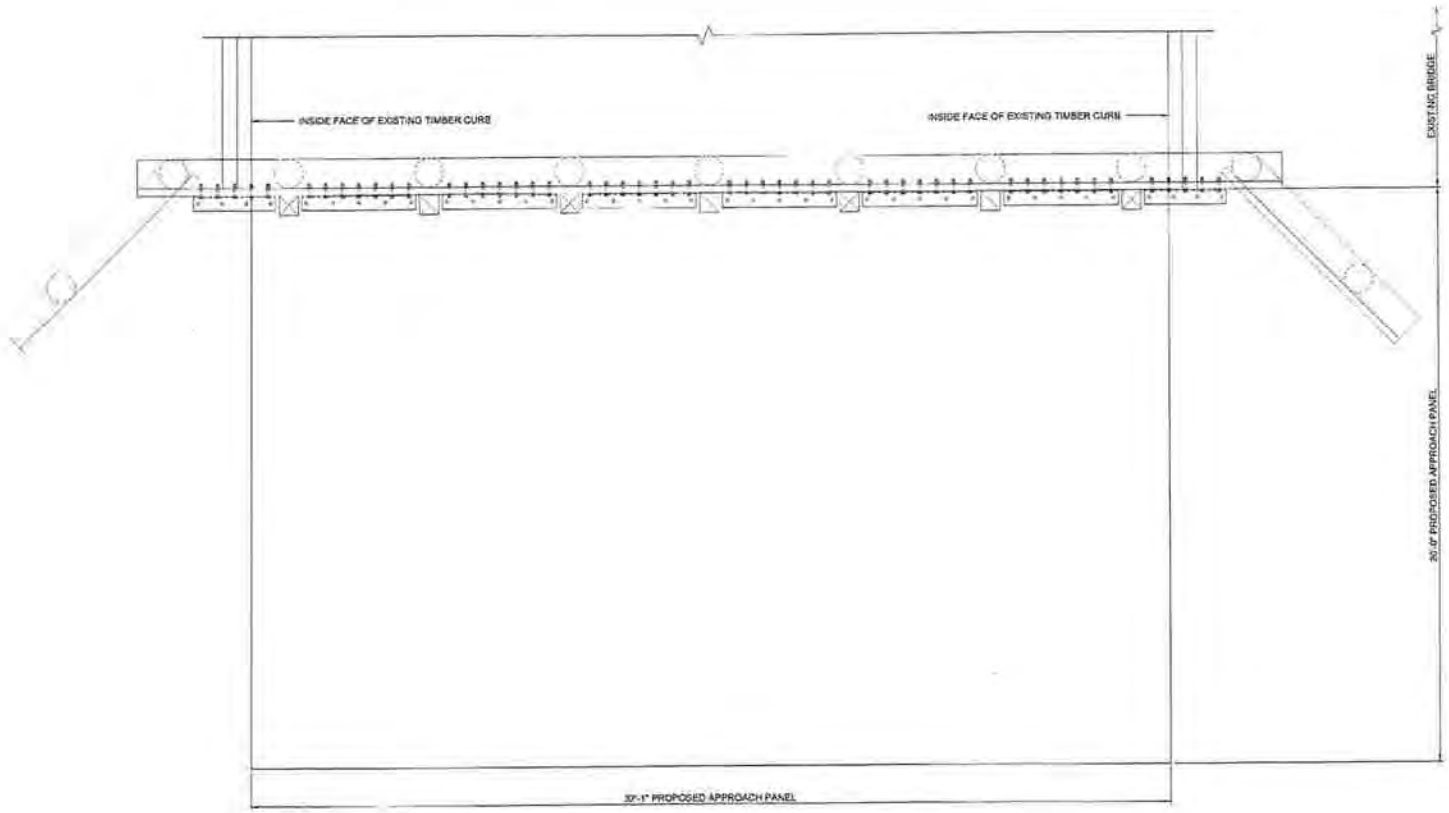
BR. 42521 APPROACH PANELS

APPROVED

DES. BY A.J.M	DR. BY J.J.E	BRIDGE NO.
CHK. BY K.A.R.	CHK. BY D.A.R.	42521

CERTIFIED BY: _____ LICENSE NO. 21179 DATE: 2-21- 2017

JOB NUMBER: 460A1019 | S.A.P. 042-610-040 | SHEET NO. 12A OF 12 SHEETS



PLAN VIEW

SCALE (IN FEET)

SOUTH ABUTMENT SHOWN.
NORTH ABUTMENT SIMILAR

CONTRACTOR TO VERIFY ALL DIMENSIONS IN THE FIELD PRIOR TO CONSTRUCTION.

WIDSETH SMITH NOLTING
Engineering | Architecture | Surveying | Environmental

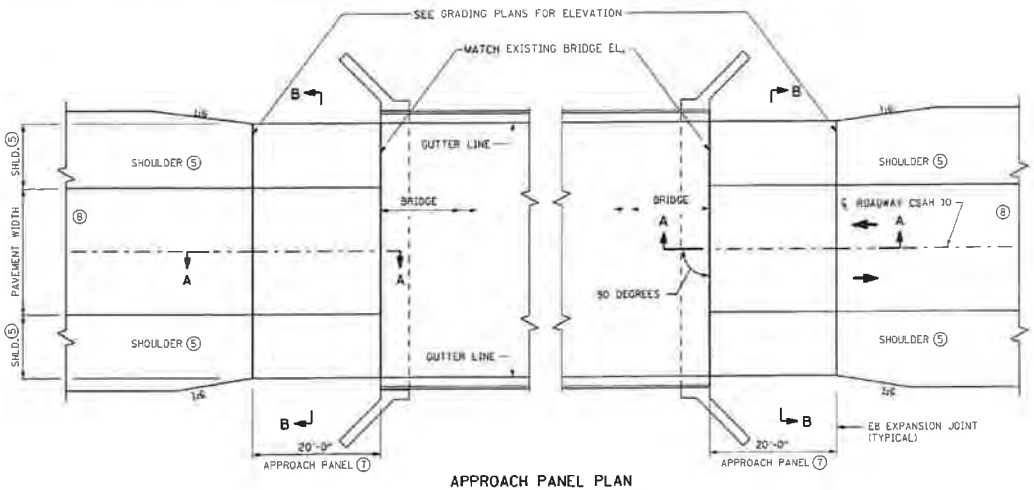
BR. 42521 APPROACH PANELS

APPROVED

DES. BY	A.J.M	DR. BY	J.J.E.	BRIDGE NO.
CHK. BY	K.A.R.	CHK. BY	D.A.N.	42521

CERTIFIED BY: _____ LICENSE NO 21179 DATE: 2-21- 2017

JOB NUMBER: 460A1019 | S.A.P. 042-610-040 | SHEET NO. 12B OF 12 SHEETS



APPROACH PANEL PLAN

SQUARE TO 10° SKEW, BARRIER ON APPROACH PANEL

NOTES:

~~(1) SEE STANDARD PLAN 5-297.231 FOR DRAINAGE DETAILS AND ADDITIONAL REQUIREMENTS.~~

~~(2) 6" CURB DESIGN SHOWN. SEE STANDARD PLATES FOR CURB DETAILS.~~

~~(3) EB QUANTITY SHALL BE PAID FOR SEPARATELY, MEASURED FROM BACK OF CURB TO BACK OF CURB.~~

~~(4) TO ACCOMMODATE GUARDRAIL CONNECTION AND CRASH TEST REQUIREMENTS, THE CONCRETE BARRIER SHALL EXTEND 7'-0" MINIMUM ONTO THE APPROACH PANEL. FOR PARALLEL WINGWALLS THE BARRIER SHALL EXTEND 7'-0" MINIMUM ON TO THE APPROACH PANEL OR TO THE END OF THE WINGWALL, WHICH EVER IS LONGER. REFER TO BRIDGE PLAN FOR BARRIER REINFORCEMENT AND PAYMENT.~~

(5) SEE GRADING PLANS FOR PAVEMENT AND SHOULDER WIDTHS AND CONFIGURATION.

~~(6) WHEN SKEW IS OVER 45°, THE JOINT SHALL BE PERPENDICULAR TO GUTTER FOR 1'-6" MIN.~~

(7) APPROACH PANEL LENGTHS ARE MEASURED ALONG CENTERLINE. PANEL SIZE AND REQUIREMENTS FOR TRANSVERSE AND LONGITUDINAL JOINTS ARE SHOWN ON STANDARD PLANS 5-297.228 AND 5-297.229. MAXIMUM PANEL LENGTH OF 20'-0" FOR UP TO 40°SKEWS, 15'-0" FOR SKEWS OVER 40°

(8) FOR CONCRETE PAVEMENT, SEE STANDARD PLAN 5-297.227 FOR LUG REQUIREMENTS.

GENERAL NOTES:

SECTION A-A IS SHOWN ON STANDARD PLAN 5-297.227.
SECTIONS B-B AND ℄=℄ ARE SHOWN ON STANDARD PLAN 5-297.225 AND SHOW THE STATION AND ELEVATION AT END LOCATIONS ON THE APPROACH PANEL.

A CONCRETE SILL IS REQUIRED BENEATH EXPANSION JOINT TYPE EB. EXTEND THE EXPANSION JOINT AND THE SILL ALONG THE FULL WIDTH OF THE TRAFFIC LANES, SHOULDERS AND CURB. ENSURE THAT SILL DOES NOT INTERFERE WITH GUARDRAIL POST PLACEMENT. CONCRETE SILL AND CURBING, IF REQUIRED, ARE INCLUDED IN THE APPROACH PANEL PAY ITEM.

~~AT THE END OF THE CONCRETE BARRIER, TRANSITION FACE OF 4-INCH CURB INTO PROFILE OF CONCRETE BARRIER. SEE CURB TRANSITION DETAILS ON STANDARD PLAN 5-297.227 TO TAPER 36" ONE ROADWAY CURB AT THE END OF THE APPROACH PANEL. APPROACH PANEL CURB HEIGHT FROM 4 INCH TO 0 INCH IN THE LAST 3'-4" SECTION (10:1 OR FLATTER SLOPE).~~

GENERAL DRAINAGE DETAILS ARE SHOWN ON BRIDGE APPROACH PANEL DRAINAGE DETAILS, STANDARD PLAN 5-297.231. ADDITIONAL CATCH BASIN DETAILS ARE SHOWN ON DRAINAGE PLAN SHEETS.

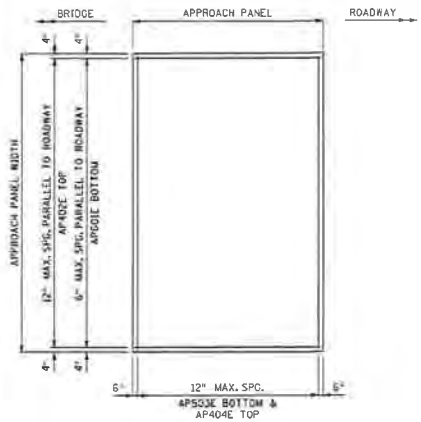
REFER TO SPEC. 2406 FOR ADDITIONAL INFORMATION.

MODIFICATIONS: REVISED BRIDGE AND APPROACH PANEL TO ACCOMADATE THIS PROJECT. DELETED AND CROSSED OUT DETAILS THAT DO NOT APPLY TO THIS PROJECT.

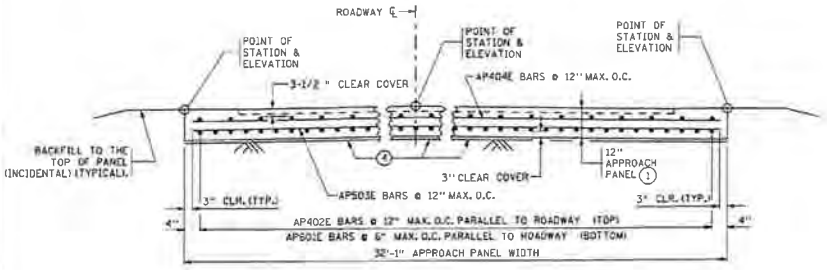
MODIFIED

BRIDGE NO. 42521

REVISION DATE 8-22-2016	STANDARD PLAN SHEET NO. 5-297.224 (1 OF 2)	TITLE: BRIDGE APPROACH PANEL LAYOUT (TYPE F CONCRETE BARRIER ON APPROACH PANEL)	
CERTIFIED BY [signature] LICENSED PROFESSIONAL ENGINEER — DATE 2-21-17	STANDARD APPROVED: FEBRUARY 16, 2016		
PRINTED NAME: KENT A. ROHR — LIC. NO. 21179	STATE AID PROJ. NO. 042-610-040		SHEET NO. 12C OF 12 SHEETS



APPROACH PANEL REINFORCEMENT
SQUARE TO 10° SKEWS



TRANSVERSE SECTION B-B
FROM STANDARD PLAN 5-297.224
CONCRETE BARRIERS ARE SHOWN, BUT MAY NOT BE PRESENT.
REFER TO BRIDGE PLANS FOR END OF BARRIER LOCATIONS.

ESTIMATED REINFORCEMENT QUANTITY FOR BRIDGE APPROACH PANELS

TYPE	LOCATION	ESTIMATED WEIGHT
PANEL (SQ. TO 10°)	BRIDGE TO END OF APPROACH PANEL	48.5 LB./SQ. YD.
~~PANEL SEGMENT (1) (OVER 10°)~~	~~BRIDGE TO CONTRACTION JOINT~~	~~48.5 LB./SQ. YD.~~
~~PANEL SEGMENT (11) (OVER 10°)~~	~~CONTRACTION JOINT TO END OF APPROACH PANEL~~	~~39.0 LB./SQ. YD~~
~~CURB~~	~~TO ES CURB TRANSITION~~	~~15.0 LB./FT.~~
SILL	SILL (IF REQUIRED)	14.0 LB./LIN FT.

NOTES:

TRANSVERSE BARS IN BOTH PANEL SEGMENTS ARE PERPENDICULAR TO ROADWAY CENTERLINE EXCEPT AP401E ARE PARALLEL TO SKEW IN SEGMENT (1) AND AP415E ARE PARALLEL TO SKEW IN SEGMENT (11).

LONGITUDINAL BARS IN BOTH PANEL SEGMENTS ARE PARALLEL TO ROADWAY CENTERLINE.

BILL OF REINFORCEMENT FOR BRIDGE APPROACH PANELS

CONTRACTOR IS REQUIRED TO COMPLETE THE BILL OF REINFORCEMENT TABLE AND PREPARE SHOP DRAWINGS INCLUDING CURB TRANSITIONS AND ALL DETAILS NECESSARY TO CONSTRUCT THE PANEL. SUBMIT THEM TO THE PROJECT ENGINEER AT LEAST 3 WEEKS BEFORE REBAR FABRICATION.

BAR	NO.	LENGTH	SHAPE	LOCATION
AP601E		'-"		BOTTOM LONGITUDINAL
AP402E		'-"		TOP LONGITUDINAL
AP503E		'-"		BOTTOM TRANSVERSE
AP404E		'-"		TOP TRANSVERSE
AP505E	SER. OF	'-" TO '-"		BOTTOM TRANSVERSE
AP406E	SER. OF	'-" TO '-"		TOP TRANSVERSE
AP407E		'-"		TOP & BOTTOM EDGE
AP508E		8'-0		TOP CORNER - FAN
AP509E		'-"		BOTTOM TRANSVERSE
AP410E		'-"		TOP TRANSVERSE
AP511E	SER. OF	'-" TO '-"		BOTTOM TRANSVERSE
AP412E	SER. OF	'-" TO '-"		TOP TRANSVERSE
AP613E	SER. OF	'-" TO '-"		BOTTOM LONGITUDINAL
AP414E	SER. OF	'-" TO '-"		TOP LONGITUDINAL
AP415E		'-"		TOP & BOTTOM EDGE
AP616E		5'-0		CSH-D JOINT

GENERAL NOTES:

USE EPOXY COATED GRADE 60 REINFORCEMENT PER SPEC. 3301 IN APPROACH PANEL, CONCRETE SILL, AND ~~CURB TRANSITION.~~ EPOXY COAT BARS MARKED WITH THE SUFFIX "E" IN ACCORDANCE WITH SPEC. 3301.

FOR VARIABLE ROADWAY WIDTHS, VARY THE LAP LENGTH OF THE REINFORCEMENT.

MINIMUM REINFORCEMENT LAP LENGTHS ARE AS FOLLOWS: NO. 4 BAR = 1'-11", NO. 5 BAR = 2'-5", NO. 6 BAR = 2'-10".

ALL LAP SPLICES SHALL BE STAGGERED SUCH THAT NO MORE THAN 50% OF REBAR IS SPLICED AT THE SAME LOCATION.

(1) APPROACH SLAB THICKNESS IS 12" (12" MONOLITHIC OR 10" SLAB + 2" WEARING COURSE). CHECK BRIDGE PLANS FOR CONCRETE WEARING COURSE, WHICH IS INCLUDED IN BRIDGE PLAN QUANTITIES.

~~(2) SPACING ONLY FOR B4 INTEGRANT CURB, SEE CURB DETAIL FOR SPACING FOR USING B424 CURB AND GUTTER.~~

~~(3) EXTEND AND/OR CUT REINFORCING AS NECESSARY TO ACCOMMODATE CURB TRANSITION IF PRESENT. REINFORCEMENT MUST EXTEND INTO CURB AS SHOWN IN TRANSVERSE SECTIONS B-B AND C-C.~~

(4) IF THE APPROACH PANEL IS TIED TO THE BRIDGE ABUTMENT WITH REINFORCEMENT BARS, PLACE 12 MIL POLYETHYLENE SHEETING (OR 2 LAYERS OF 6 MIL) UNDER THE LIMITS OF THE APPROACH PANEL TO ALLOW THE PANEL TO MOVE LONGITUDINALLY ON THE GRADE. SHEETING IS INCLUDED IN THE APPROACH PANEL PAY ITEM.

~~(5) SEE STANDARD PLAN 5-297.224 FOR CURB TRANSITION LOCATION.~~

~~(6) SEAL WITH SELF LEVELING SILICONE PER SPEC. 3722.~~

MODIFICATIONS: REVISED BRIDGE AND APPROACH PANEL TO ACCOMADATE THIS PROJECT. DELETED AND CROSSED OUT DETAILS THAT DO NOT APPLY TO THIS PROJECT.

MODIFIED

REVISION DATE
8-22-2016

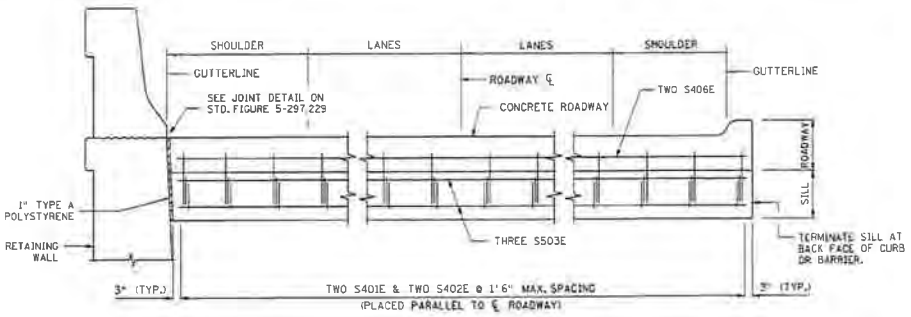
CERTIFIED BY _____ DATE 2-21-17
LICENSED PROFESSIONAL ENGINEER
PRINTED NAME: KENT A. ROHR LIC. NO. 21179

STANDARD PLAN SHEET NO. 5-297.225 (1 OF 2)
STANDARD APPROVED: DECEMBER 20, 2011

TITLED: BRIDGE APPROACH PANEL
REINFORCEMENT DETAILS
(TYPE F CONCRETE BARRIER ON APPROACH PANEL)

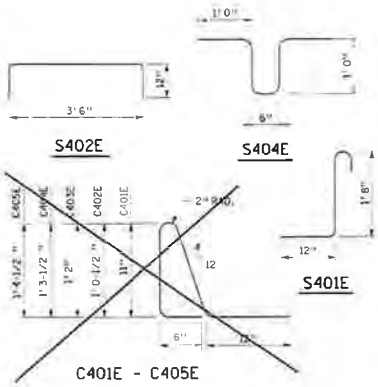
BRIDGE NO. 42521

STATE AID PROJ. NO. 042-610-040 SHEET NO. 12D OF 12 SHEETS



SILL ELEVATION

(REINFORCEMENT IN PAVEMENT NOT SHOWN)



C401E - C405E

BILL OF REINFORCEMENT FOR CONCRETE SILL

CONTRACTOR IS REQUIRED TO COMPLETE THE BILL OF REINFORCEMENT TABLE AND PREPARE SHOP DRAWINGS AND SUBMIT THEM TO THE PROJECT ENGINEER AT LEAST 3 WEEKS BEFORE REBAR FABRICATION.

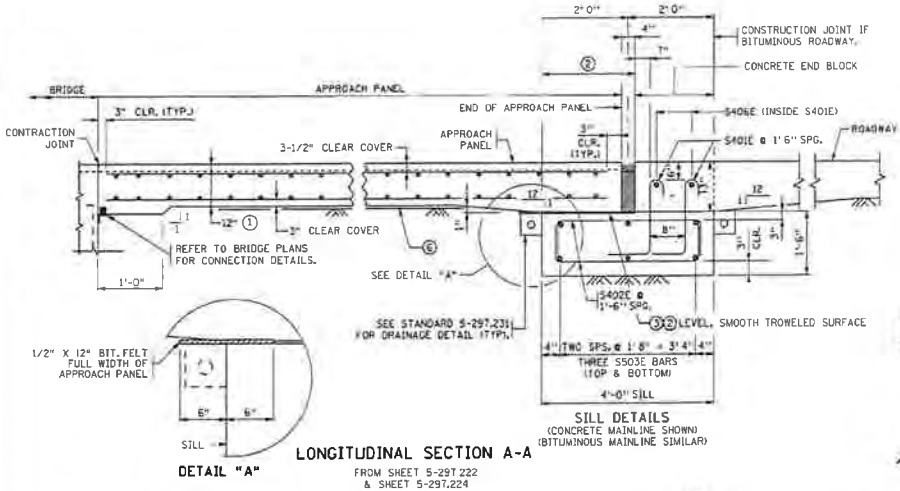
	BAR	NO.	LENGTH	SHAPE	LOCATION
	S401E		3'-2"		SILL VERTICAL
	S402E		5'-6"		SILL TIE
*	S503E		"		SILL HORIZONTAL
	S404E		4'-6"		KEY TIE
*	S405E		"		KEY HORIZONTAL
*	S406E		"		END BLOCK HORIZONTAL

* MINIMUM REINFORCEMENT LAP LENGTHS ARE AS FOLLOWS; NO. 4 BAR = 1'-11", NO. 5 BAR = 2'-5".

BILL OF REINFORCEMENT FOR CURB TRANSITION

CONTRACTOR IS REQUIRED TO COMPLETE THE BILL OF REINFORCEMENT TABLE AND PREPARE SHOP DRAWINGS AND SUBMIT THEM TO THE PROJECT ENGINEER AT LEAST 3 WEEKS BEFORE REBAR FABRICATION.

BAR	NO.	LENGTH	SHAPE	LOCATION
C401E		3'-6"		CURB VERTICAL
C402E		1'-9"		CURB VERTICAL
C403E		4'-0"		CURB VERTICAL
C404E		4'-3"		CURB VERTICAL
C405E		4'-5"		CURB VERTICAL
C406E		6'-9"		CURB LONGITUDINAL



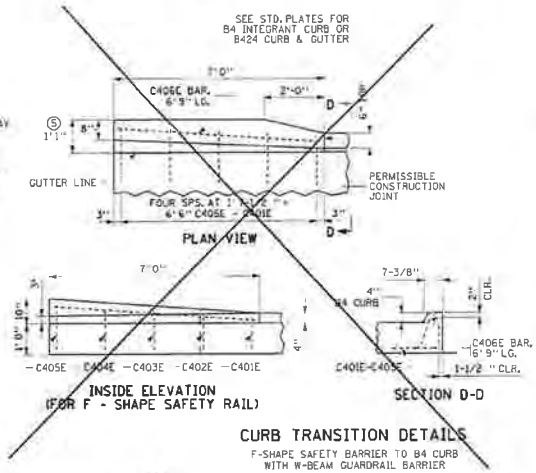
SILL DETAILS

(CONCRETE MAINLINE SHOWN)
(BITUMINOUS MAINLINE SIMILAR)

DETAIL "A"

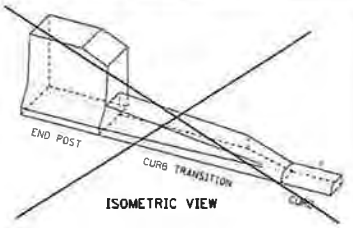
LONGITUDINAL SECTION A-A

FROM SHEET 5-297.222
& SHEET 5-297.224



CURB TRANSITION DETAILS

F-SHAPE SAFETY BARRIER TO B4 CURB WITH W-BEAM GUARDRAIL BARRIER



ISOMETRIC VIEW

NOTES:

USE EPOXY COATED GRADE 60 REINFORCEMENT PER SPEC 3301.

ENSURE THAT SILL DOES NOT INTERFERE WITH GUARDRAIL POST PLACEMENT.

(1) APPROACH SLAB THICKNESS IS 12" (12" MONOLITHIC OR 10" SLAB + 2" WEARING COURSE). CHECK BRIDGE PLANS FOR CONCRETE WEARING COURSE, WHICH IS INCLUDED IN BRIDGE PLAN QUANTITIES.

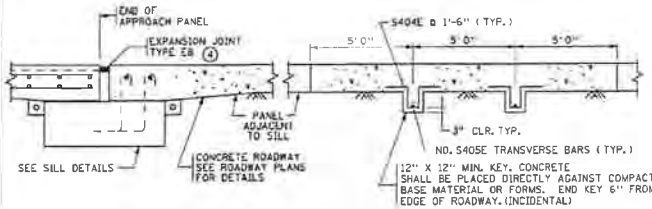
(2) PLACE PLASTIC SHEETING PER SPEC. 3756 AS APPROVED BY THE ENGINEER TO BREAK BOND. COVER AREA SHOWN IN DETAIL. (SHEETING IS INCLUDED IN THE APPROACH PANEL PAY ITEM).

(3) REQUIRED CONSTRUCTION JOINT.

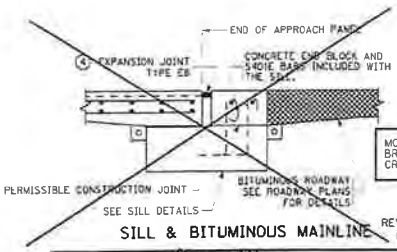
(4) SEE STANDARD PLANS 5-297.222 & 5-297.224 FOR TYPE OF EXPANSION JOINT. DETAILS OF EXPANSION JOINT TYPE EBH ARE SHOWN ON STANDARD PLAN 5-297.229.

~~(5) FROM BACK SIDE OF CURB TRANSITION TO GUTTERLINE.~~

(6) IF THE APPROACH PANEL IS TIED TO THE BRIDGE ABUTMENT WITH REINFORCEMENT BARS, PLACE 12 MIL POLYETHYLENE SHEETING (OR 2 LAYERS OF 6 MIL) UNDER THE LIMITS OF THE APPROACH PANEL TO ALLOW THE PANEL TO MOVE LONGITUDINALLY ON THE GRADE. SHEETING IS INCLUDED IN THE APPROACH PANEL PAY ITEM.



SILL & CONCRETE MAINLINE



SILL & BITUMINOUS MAINLINE

END OF APPROACH PANEL

MODIFICATIONS: REVISED APPROACH PANEL CONNECTION AT BRIDGE TO ACCOMADATE THIS PROJECT. DELETED AND CROSSED OUT DETAILS THAT DO NOT APPLY TO THIS PROJECT.

MODIFIED

REVISION DATE 8-22-2016

CERTIFIED BY [signature] REGISTERED PROFESSIONAL ENGINEER 12-17 DATE

PRINTED NAME: KENT A. ROHR LIC. NO. 21179

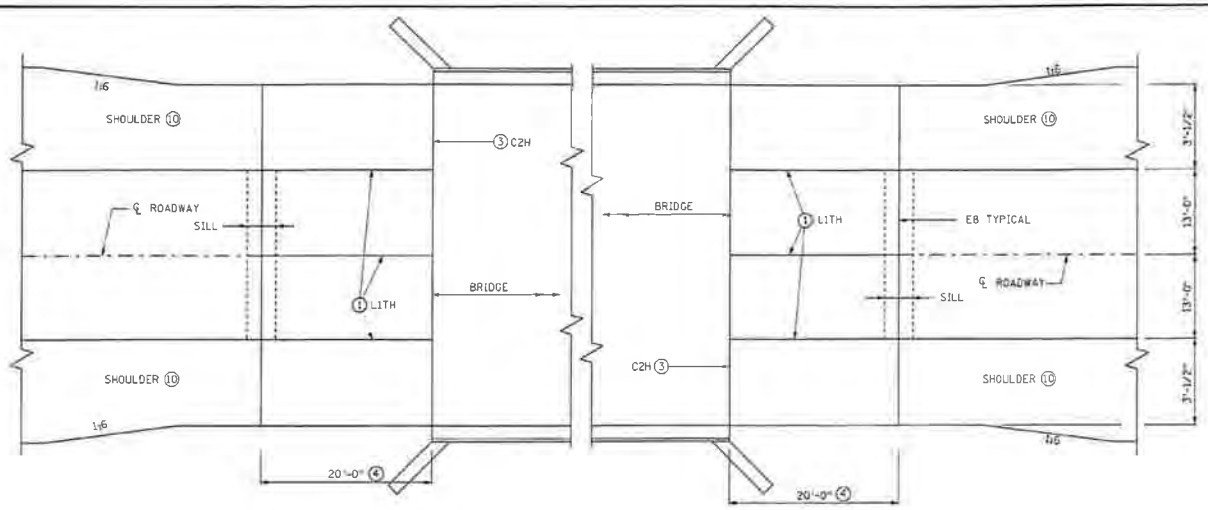
STANDARD PLAN SHEET NO. 5-297.227 (1 OF 2)

STANDARD APPROVED: DECEMBER 20, 2011

TITLE: **BRIDGE APPROACH PANEL MISCELLANEOUS DETAILS (TYPE F CONCRETE BARRIER)**

BRIDGE NO. 42521

STATE AID PROJ. NO. 042-610-040 SHEET NO. 12E OF 12 SHEETS



APPROACH PANELS - SQUARE TO 10° SKEWS (5)

APPROACH PANEL JOINT LAYOUT NOTES:

(1) L1TH LONGITUDINAL JOINT. SEE STANDARD PLAN 5-297.229 FOR REINFORCEMENT LAP LENGTH REQUIREMENTS FOR STAGED CONSTRUCTION.

~~(2) PERMISSIBLE CONSTRUCTION JOINT. USE JOINT TYPE E2H-6 WITH AP616E BARS AT 12-INCH SPACING AT MID DEPTH OF THE SLAB, PARALLEL TO THE CENTERLINE OF THE ROADWAY. AP616E BARS ARE 5'-0" LONG. PLACE THE BAR WITH 2'-0" ON ONE SIDE OF THE JOINT AND 3'-0" ON THE OPPOSITE SIDE OF THE JOINT. ALTERNATE THE 2'-0" AND 3'-0" DIMENSIONS AS SHOWN ON THE PLAN. THE C2H-D JOINT AND AP616E BARS ARE REQUIRED ON ALL PANELS WITH A SKEW OVER 10 DEGREES.~~

(3) C2H CONTRACTION JOINT.

(4) MAXIMUM PANEL LENGTH MEASURED ALONG CENTERLINE OF 20'-0" FOR UP TO 40°SKEWS, 15'-0" FOR SKEWS OVER 40°.

(5) ALL JOINTS SHALL BE SAWCUT. SAWCUTS SHALL BE MADE WHILE THE CONCRETE IS STILL GREEN. WHEN A CONCRETE WEARING COURSE IS SPECIFIED, THE JOINTS SHALL BE SAWN THROUGH BOTH THE WEARING COURSE AND THE UNDERLYING APPROACH SLAB IN A SINGLE OPERATION.

~~(6) E8 JOINT REQUIRED IN CURB ADJACENT TO E8 JOINT. E8 QUANTITY SHALL BE PAID FOR SEPARATELY, MEASURED FROM BACK OF CURB TO BACK OF CURB.~~

~~(7) 10'-0" MINIMUM.~~

~~(8) SEE STANDARD PLANS 5-297.229 OR 5-297.231 FOR JOINT DETAIL FOR CONCRETE BARRIER ON WINGWALL.~~

~~(9) WHEN SKEW IS OVER 45°, THE JOINT SHALL BE PERPENDICULAR TO GUTTER FOR 1'-6"MIN.~~

(10) SEE GRADING PLAN FOR PAVEMENT AND SHOULDER WIDTHS AND CONFIGURATION.

MODIFICATIONS: REVISED BRIDGE AND APPROACH PANEL TO ACCOMADATE THIS PROJECT. DELETED AND CROSSED OUT DETAILS THAT DO NOT APPLY TO THIS PROJECT.

MODIFIED

BRIDGE NO. 42521

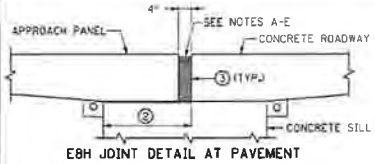
REVISION DATE	STANDARD PLAN SHEET NO.	TITLE:
8-22-2016	5-297.228 (1 OF 2)	BRIDGE APPROACH PANEL JOINT LAYOUT (TYPE F CONCRETE BARRIER)
	STANDARD APPROVED: MARCH 23, 2011	

CERTIFIED BY _____ LICENSED PROFESSIONAL ENGINEER 2-22-17 DATE

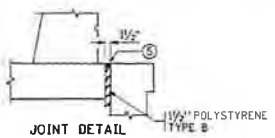
PRINTED NAME: KENT A. ROHR LIC. NO. 21179

STATE AID PROJ. NO. 042-610-040 SHEET NO. 12F OF 12 SHEETS

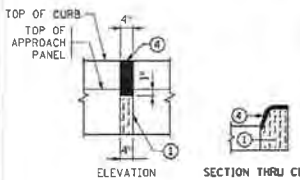
EXPANSION JOINTS



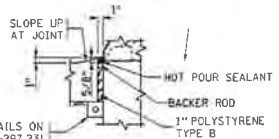
E8H JOINT DETAIL AT PAVEMENT



JOINT DETAIL
(CONCRETE BARRIER ON APPROACH PANEL)



E8H JOINT AT CURB



JOINT DETAIL
(CONCRETE BARRIER ON WINGWALL)

EXPANSION JOINT NOTES:

① PREFORMED JOINT FILLER MATERIAL, SPEC. 3702.

② PLACE PLASTIC SHEETING SPEC. 3756 AS APPROVED BY THE ENGINEER TO BREAK BOND. COVER AREA SHOWN IN DETAIL. SEE SILL DETAILS ON STANDARD PLAN 5-297.227.

③ THE JOINT FACES SHALL BE CLEANED AND DRIED BY SANDBLASTING AND AIR BLASTING PRIOR TO SEALING THE JOINT.

④ HOT POUR JOINT SEALER SPEC. 3725. TOP OF SEALER FLUSH TO 1/8 INCH BELOW TOP OF PAVEMENT SURFACE. MAKE TOP OF SEALER FOR CURB SECTION E8H JOINTS FLUSH WITH SURFACE (+ 1/8 INCH OR - 1/8 INCH).

⑤ SEAL WITH SELF-LEVELING SILICONE PER MNDOT 3722.

E8H PRESSURE RELIEF JOINT MATERIAL INSTALLATION INSTRUCTIONS:

SEE MNDOT APPROVED/QUALIFIED PRODUCTS LIST.

FURNISH AND INSTALL JOINT MATERIAL IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND THE FOLLOWING:

(A) EXPANSION JOINT FILLER MATERIALS USED FOR A 4 INCH PRESSURE RELIEF JOINT CONSISTS OF A PREFORMED FOAM PRODUCT HAVING MINIMUM DIMENSIONS OF 4.5 INCHES IN WIDTH (MAY BE LAMINATED) AND 8 INCHES IN DEPTH, AND A MINIMUM LENGTH OF 10 FEET. WHEN THE CONCRETE DEPTH IS GREATER THAN THE DEPTH OF THE PRESSURE RELIEF MATERIAL, FILL THE VOID BELOW THE MATERIAL WITH POLYSTYRENE. FURNISH AND INSTALL THE JOINT MATERIAL UNDER COMPRESSION WITH A LUBRICANT ADHESIVE APPLIED TO THE CONCRETE CONTACT SURFACES.

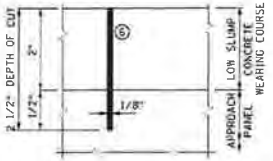
(B) SAW OR FORM THE JOINTS 4 INCHES WIDE BY THE FULL-DEPTH OF THE PANEL. INSPECT TO ASSURE THAT THE INSIDE WALLS OF THE JOINT HAVE BEEN SANDBLASTED, ARE DRY, SMOOTH AND FREE OF DEBRIS AND LOOSE PARTICLES. APPLY TAPE TO THE TOP 1 INCH OF THE INSIDE WALLS TO PREVENT THE LUBRICANT ADHESIVE FROM CONTAMINATING THE CONCRETE BONDING SURFACES OF THE SUBSEQUENTLY PLACED HOT POUR JOINT SEALER.

(C) PAINT THE INSIDE WALLS OF THE JOINT WITH LUBRICANT ADHESIVE AT THE RATE OF 1 GALLON PER 50 LINEAL FEET OF JOINT.

(D) PINCH THE BOTTOM OF THE MATERIAL TOGETHER AND PUSH IT DOWN INTO THE JOINT. WALK THE MATERIAL DOWN INTO THE JOINT; USE A SLEDGEHAMMER AND A 2 X 4 IF NECESSARY. APPLY LUBRICANT ADHESIVE TO THE ENDS OF THE PREFORMED FOAM MATERIAL WHEN BUTTING TWO PIECES TOGETHER.

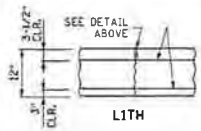
(E) FURNISH AND INSTALL THE FOAM RELIEF JOINT MATERIAL TO A DEPTH OF APPROXIMATELY 7/8 INCH BELOW THE FINISHED CONCRETE SURFACE. AFTER INSTALLATION, REMOVE THE TAPE AND FILL THE VOID ON TOP OF THE FOAM MATERIAL WITH APPROXIMATELY 1/2 INCH OF HOT POUR JOINT SEALER (MNDOT 3723 OR 3725) TO A LEVEL OF 3/8 INCH +/- 1/4 INCH BELOW THE FINISHED CONCRETE SURFACE. THE HOT POUR JOINT SEALER SHOULD ONLY SLIGHTLY MELT INTO THE FOAM JOINT MATERIAL (TO PREVENT EXCESSIVE MELTING OF THE JOINT MATERIAL, PLACE THE HOT POUR SEALER AT THE LOWER END OF THE TEMPERATURE SPECIFICATION). CHECK FOR CORRECT TEMPERATURE BY PLACING HOT POUR SEALER ON A SAMPLE OF WASTE FOAM MATERIAL.

JOINT DETAILS

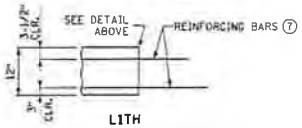


C2H & L1TH WITH CONCRETE WEARING COURSE ⑥
(SAWED & SEALED PER SPEC. 3725)

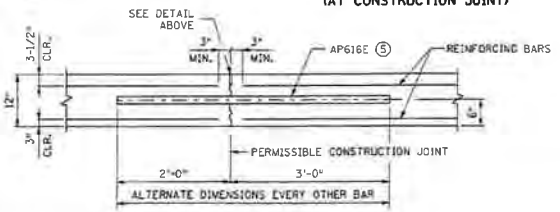
C2H & L1TH WITHOUT CONCRETE WEARING COURSE ⑥
(SAWED & SEALED PER SPEC. 3725)



L1TH



L1TH
(AT CONSTRUCTION JOINT)



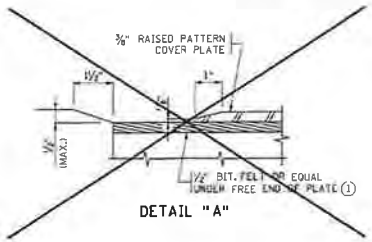
SECTION AT C2H-D JOINT ⑤

JOINT NOTES:

⑤ PERMISSIBLE CONSTRUCTION JOINT. AP616E BARS AT 12-INCH SPACING AT MID DEPTH OF SLAB, PARALLEL TO THE CENTERLINE OF THE ROADWAY. AP616E BARS ARE 5'-0" LONG. PLACE THE BAR WITH 2'-0" ON ONE SIDE OF THE JOINT AND 3'-0" ON THE OPPOSITE SIDE OF THE JOINT. ALTERNATE THE 2'-0" AND 3'-0" DIMENSION AS SHOWN ON THE PLAN.

⑥ CLEAN AND DRY FULLY CURED JOINT FACES BY SANDBLASTING PRIOR TO SEALING THE JOINT.

⑦ WHEN CONSTRUCTING A L1TH JOINT UNDER STAGED CONSTRUCTION, EXTEND NO. 4 BARS 1'-8" AND NO. 5 BARS 2'-1" PAST THE EDGE OF THE FIRST CONCRETE POUR. CONSTRUCT L1TH JOINT ACCORDING TO DETAIL SHOWN AFTER ADJACENT POUR IS COMPLETE.



DETAIL "A"

SIDEWALK COVER PLATE

GENERAL NOTES:

GALVANIZE STRUCTURAL STEEL AFTER FABRICATION PER MN/DOT SPEC. 3394
GALVANIZE FASTENERS PER MN/DOT SPEC. 3392.

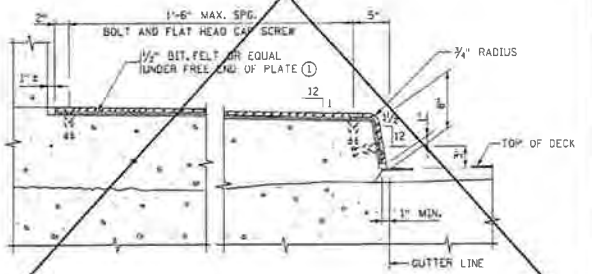
STRUCTURAL STEEL SHALL COMPLY WITH MN/DOT SPEC. 3306 OR MN/DOT SPEC. 3309.

SHOP DRAWING SUBMITTALS REQUIRED PER MN/DOT SPEC. 2471.

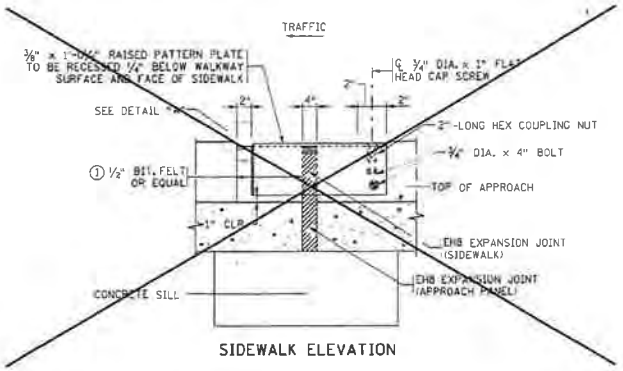
CAP SCREWS SHALL BE COUNTERSUNK 1/16" BELOW TOP OF PLATE.

FURNISHING AND INSTALLING SIDEWALK COVER PLATE IS INCIDENTAL

① USE LARGEST SINGLE PIECE POSSIBLE. USE OF SMALL PIECES OR SCRAPS SECURED TOGETHER IS PROHIBITED.



SECTION THROUGH SIDEWALK



SIDEWALK ELEVATION

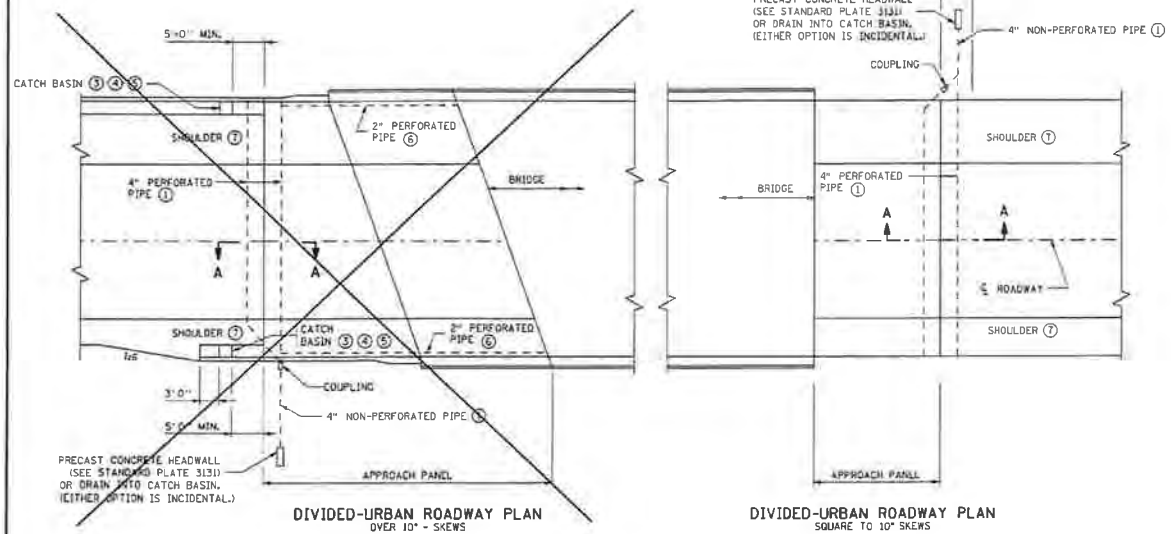
WSN 0460A1006

BRIDGE NO. 42521

STANDARD PLAN SHEET NO.	TITLE:
5-297.229	BRIDGE APPROACH PANEL JOINT DETAILS
STANDARD APPROVED: DECEMBER 20, 2011	

REVISION DATE 3-22-2013

STATE AID PROJ. NO. 042-610-040 SHEET NO. 12G OF 12 SHEETS



DIVIDED-URBAN ROADWAY PLAN
OVER 10° - SKEWS

DIVIDED-URBAN ROADWAY PLAN
SQUARE TO 10° SKEWS

NOTES:

① 4-INCH NOMINAL DIAMETER THERMOPLASTIC PIPE, AS PER ASTM D1785M, SCHEDULE 40. SLOPE PIPE TO DITCH. WRAP PERFORATED PIPE WITH GEOTEXTILE AS PER SPEC. 3733. 1/8 INCH PER 12 INCH MINIMUM SLOPE. FURNISHING AND INSTALLING THE DRAIN SYSTEM IS INCIDENTAL.

② BACKFILL WITH FINE AGGREGATE (MNDOT 3149) MODIFIED TO 0-3% PASSING A NO. 200 SIEVE (INCIDENTAL).

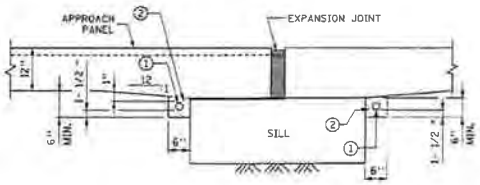
~~③ SEE ROADWAY PLAN FOR ADDITIONAL CATCH BASIN DETAILS.~~

~~④ LOCATE BETWEEN GUARDRAIL POST OR AS DETERMINED BY THE DESIGNER.~~

~~⑤ REFER TO THE DRAINAGE PLAN TO DETERMINE WHETHER A FLUME OR A CATCH BASIN REQUIRED.~~

~~⑥ 2-INCH NOMINAL DIAMETER THERMOPLASTIC PIPE, AS PER ASTM D1785M, SCHEDULE 40. SLOPE PIPE TO DITCH. WRAP PERFORATED PIPE WITH GEOTEXTILE AS PER SPEC. 3733. 1/8 INCH PER 12 INCH MINIMUM SLOPE. FURNISHING AND INSTALLING THE DRAIN SYSTEM IS INCIDENTAL.~~

⑦ SEE GRADING PLANS FOR PAVEMENT AND SHOULDER WIDTHS AND CONFIGURATION.



SECTION A-A
DRAINAGE AT EXPANSION JOINT DETAIL

MODIFICATIONS: REVISED BRIDGE AND APPROACH PANEL TO ACCOMADATE THIS PROJECT. DELETED AND CROSSED OUT DETAILS THAT DO NOT APPLY TO THIS PROJECT.

MODIFIED

BRIDGE NO. 42521

CERTIFIED BY _____ 2-21-17
LICENSED PROFESSIONAL ENGINEER — DATE
PRINTED NAME: KENT A. ROHR — LIC. NO. 21179

STANDARD PLAN SHEET NO. 5-297.231
STANDARD APPROVED: MARCH 23, 2011

TITLE: BRIDGE APPROACH PANEL DRAINAGE DETAILS

STATE AID PROJ. NO. 042-610-040

SHEET NO. 12H OF 12 SHEETS