GRE

MARCH 2019

PROJECT ID: 1225-08-74

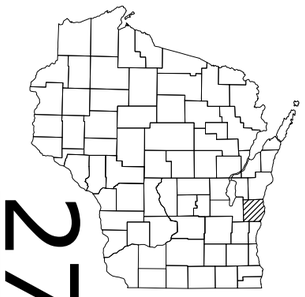
WITH:

COUNTY: SHEBOYGAN

ORDER OF SHEETS


Section No. 1 Title
Section No. 2 Typical Sections and Details
Section No. 3 Estimate of Quantities
Section No. 3 Miscellaneous Quantities
~~Section No. 4 Right of Way Plat~~
Section No. 5 Plan and Profile
Section No. 6 Standard Detail Drawings
~~Section No. 7 Sign Plates~~
Section No. 8 Structure Plans
~~Section No. 9 Computer Earthwork Data~~
~~Section No. 9 Cross Sections~~


TOTAL SHEETS = 56



27

N

DESIGN DESIGNATION

| | | | |
|---|---|---|---|
| A.A.D.T. | 2018 | = | 24,700 |
| A.A.D.T. | 2038 | = | 29,100 |
| D.H.V. | | = | 3,300 |
| D.D. | | = | 58/42 |
| T. | | = | 16.2% |
| DESIGN SPEED | | = | 70 MPH |
| ESALS | | = | 12,000,000 |

CONVENTIONAL SYMBOLS

PLAN

- CORPORATE LIMITS
- PROPERTY LINE
- LOT LINE
- LIMITED HIGHWAY EASEMENT
- EXISTING RIGHT OF WAY
- PROPOSED OR NEW R/W LINE
- SLOPE INTERCEPT
- REFERENCE LINE (300'EB')
- EXISTING CULVERT
- PROPOSED CULVERT (Box or Pipe)
- COMBUSTIBLE FLUIDS (CAUTION)
- MARSH AREA
- WOODED OR SHRUB AREA

PROFILE

- GRADE LINE
- ORIGINAL GROUND
- MARSH OR ROCK PROFILE (To be noted as such) (ROCK)
- SPECIAL DITCH (LABEL)
- GRADE ELEVATION (95.36)
- CULVERT (Profile View)

UTILITIES

- ELECTRIC (E)
- OVERHEAD UTILITY (OH)
- FIBER OPTIC (FO)
- GAS (G)
- SANITARY SEWER (SAN)
- STORM SEWER (SS)
- TELEPHONE (T)
- WATER (W)
- UTILITY PEDESTAL
- POWER POLE
- TELEPHONE POLE

STATE OF WISCONSIN

# DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

# SHEBOYGAN - MANITOWOC

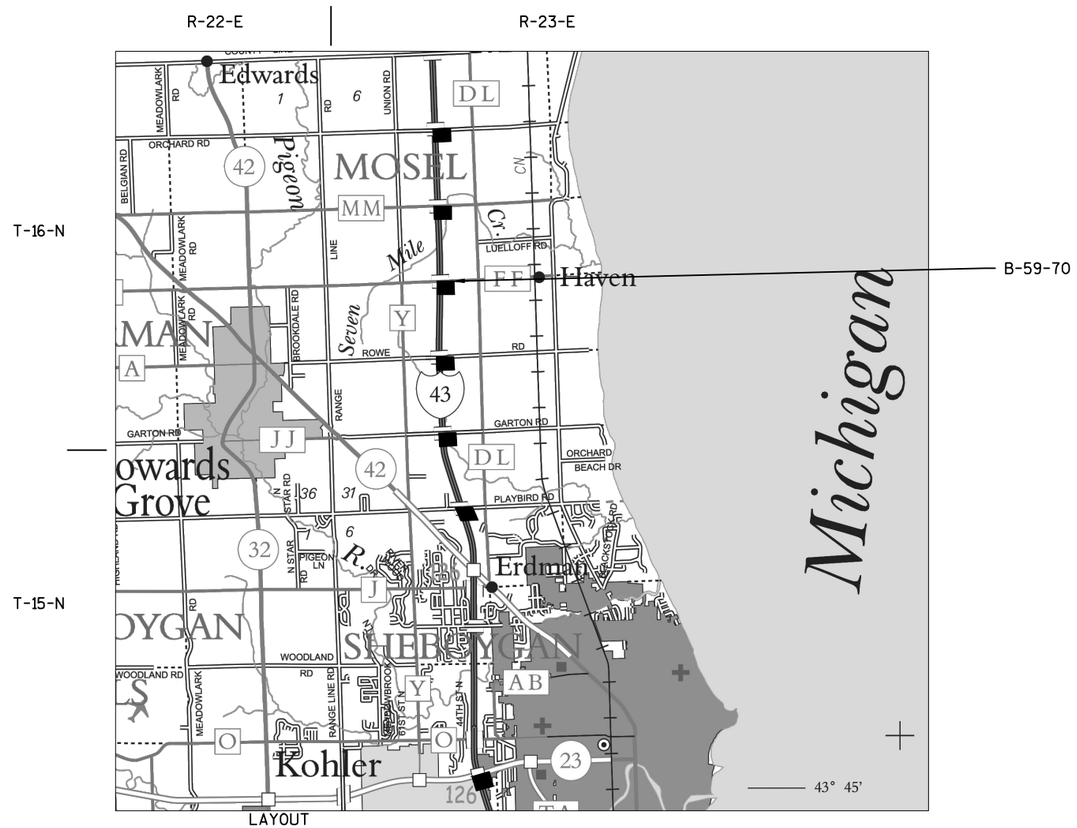
**CTH FF OVERPASS**

## IH 43

SHEBOYGAN COUNTY

| STATE PROJECT NUMBER |
|---|
| 1225-08-74 |

| STATE PROJECT | FEDERAL PROJECT | |
|---|---|---|
| | PROJECT | CONTRACT |
| 1225-08-74 | WISC 2019165 | 1 |
| | | |
| | | |
| | | |




LAYOUT

SCALE 0 2 MILES

TOTAL NET LENGTH OF CENTERLINE = 0.046

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COUNTY COORDINATES, SHEBOYGAN COUNTY, NAD83 (2007), IN U.S. SURVEY FEET. VALUES ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

| | |
|---|---|
| Surveyor | WISDOT |
| Designer | J. MATERNOSKI |
| Project Manager | B. HAEN |
| Regional Examiner | REGIONAL EXAMINER |
| Regional Supervisor | C. DEGRAVE |

APPROVED FOR THE DEPARTMENT

DATE: 12/18/18 (Signature)

E

## GENERAL NOTES

THE LOCATIONS OF EXISTING UTILITIES AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT THAT ARE NOT SHOWN.

PIPE ELEVATIONS, LENGTHS, AND LOCATIONS AS SHOWN ON THE PLANS, MAY BE ADJUSTED TO FIT EXISTING FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

NO TREES OR SHRUBS ARE TO BE REMOVED WITHOUT APPROVAL OF ENGINEER.

NOTIFY DIGGERS HOTLINE AND AFFECTED UTILITIES PRIOR TO THE START OF WORK.
ANY LOCAL MUNICIPAL UTILITY WHICH IS NOT A MEMBER OF THE DIGGERS HOTLINE MUST BE CONTACTED SEPARATELY.

PROTECT INLETS WITH PROPER INLET PROTECTION AT LOCATIONS EXHIBITING RISK OF BEING IMPACTED BY CONSTRUCTION OPERATIONS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESHAPING AND SEEDING ANY PREVIOUSLY GRASSED AREAS WHICH ARE DISTURBED BY ANY OPERATION OUTSIDE OF THE NORMAL CONSTRUCTION LIMITS AT THE CONTRACTOR EXPENSE.

VERIFY PROPOSED BEAM GUARD AND THRIE BEAM POST SPACING PRIOR TO SIGN STRUCTURE AND DRAINAGE STRUCTURE PLACEMENT.

THE EROSION CONTROL FEATURES AS SHOWN ON THE PLANS ARE AT SUGGESTED LOCATIONS. EXACT LOCATIONS WILL BE DETERMINED BY THE ENGINEER.

BENCHMARK LOCATIONS SHOWN ON PLAN ARE APPROXIMATE AND SHOULD BE VERIFIED.

| ALIGNMENT IDENTIFIERS | |
|---|---|
| NB | IH 43 NB |
| SB | IH 43 SB |
| FF | CTH FF |

## CONTACTS


WISDOT
BRIAN HAEN - PROJECT MANAGER
NORTHEAST REGION
944 VANDERPERREN WAY
GREEN BAY, WI 54304
(920) 366-4788
brian.haen@dot.wi.gov

WISDOT
JORDAN MATERNOSKI - DESIGN PROJECT LEADER
NORTHEAST REGION
944 VANDERPERREN WAY
GREEN BAY, WI 54304
(920) 492-7163
jordan.maternoski@dot.wi.gov

DNR AREA LIAISON
JAY SCHIEFELBEIN
DEPARTMENT OF NATURAL RESOURCES
2984 SHAWANO AVE
GREEN BAY, WI 54313
(920) 360-3784
jeremiah.schiefelbein@wisconsin.gov

SURVEY PERSON
CORMAC MCINNIS
NORTHEAST REGIONAL SURVEY COORDINATOR
944 VANDERPERREN WAY
GREEN BAY, WI 54304
(920)492-5638
cormac.mcinnis@dot.wi.gov


## UTILITIES


ALLIANT ENERGY - ELECTRICITY
4421 TOWER DR.
SHEBOYGAN, WI 53081
ATTN: JOE KOCHAN
PHONE: (920) 948-2052, (920) 459-6331
EMAIL: JOEKOCHAN@ALLIANTENERGY.COM

CHARTER COMMUNICATIONS - COMMUNICATION LINE
1320 N DR MARTIN LUTHER KING JR DR.
MILWAUKEE, WI 53212-4002
ATTN: STEVEN CRAMER
PHONE: (414) 688-2385, (414) 277-4045
EMAIL: STEVE.CRAMER@CHARTER.COM

PAETEC COMMUNICATIONS - COMMUNICATION LINE
13935 BISHOPS DR.
BROOKFIELD, WI 53005
ATTN: MARY BETH FISHER
PHONE: (262) 313-9032, (262) 792-7938
EMAIL: MARY.B.FISHER@WINDSTREAM.COM

TDS TELECOM (TDS) - COMMUNICATION LINE
10 COLLEGE AVE., SUITE 218A
APPLETON, WI 54911
ATTN: STEVE JAKUBIEC
PHONE: (920) 562-7221, (920) 882-4166
EMAIL: STEVE.JAKUBIEC@TDSTELECOM.COM

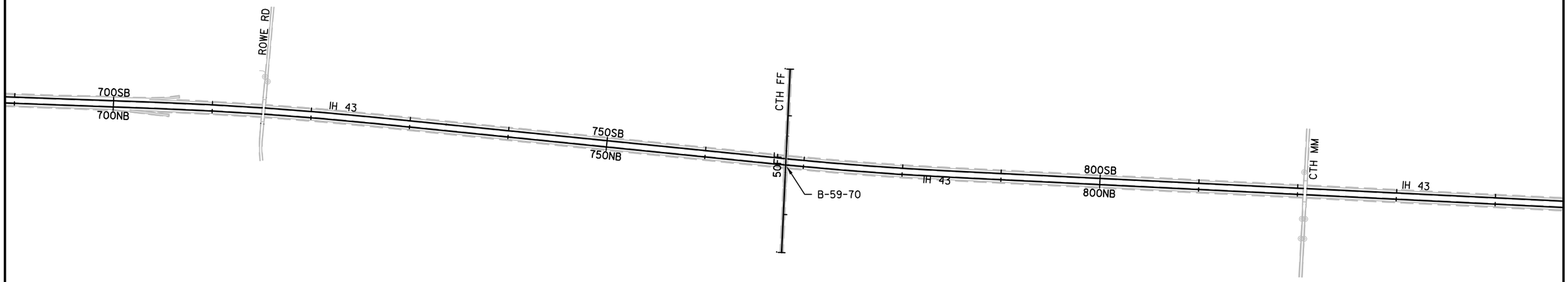

TO OBTAIN LOCATIONS OF
PARTICIPANTS UNDERGROUND
FACILITIES BEFORE YOU
DIG IN WISCONSIN

WIS. STATUTE 182.0175 (1974)
REQUIRES MIN. OF 3 WORK DAYS
NOTICE BEFORE YOU EXCAVATE

DIGGERS HOTLINE
Dial 811 or (800)242-8511
www.DiggersHotline.com

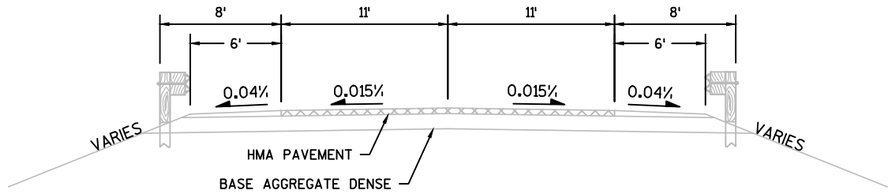
2

N



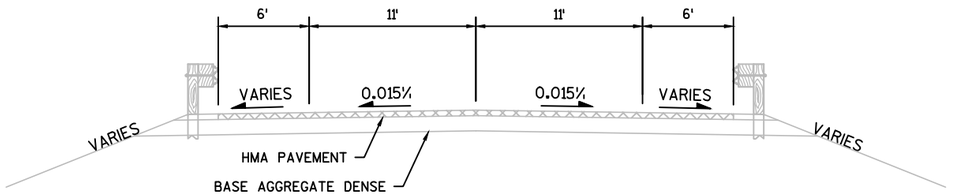

| PROJECT NO: 1225-08-74 | HWY: IH 43 | COUNTY: SHEBOYGAN | PROJECT OVERVIEW | SHEET 3 | E |
|---|---|---|---|---|---|

2



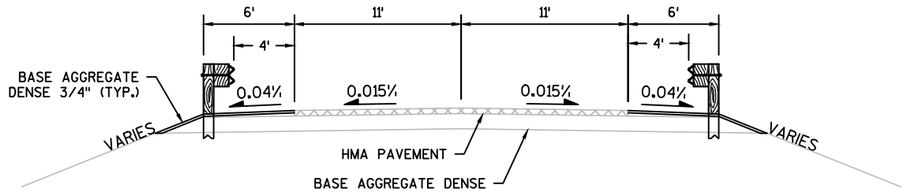

EXISTING TYPICAL SECTIONS

CTH FF
STA. 46FF+82 - STA. 48FF+06
STA. 51FF+37 - STA. 52FF+48



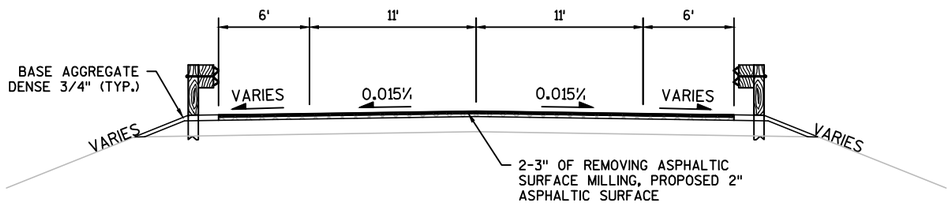

EXISTING TYPICAL SECTIONS

CTH FF
STA. 48FF+06 - STA. 48FF+56
STA. 50FF+75 - STA. 51FF+37




FINISHED TYPICAL SECTIONS

CTH FF
STA. 46FF+82 - STA. 48FF+06
STA. 51FF+37 - STA. 52FF+48



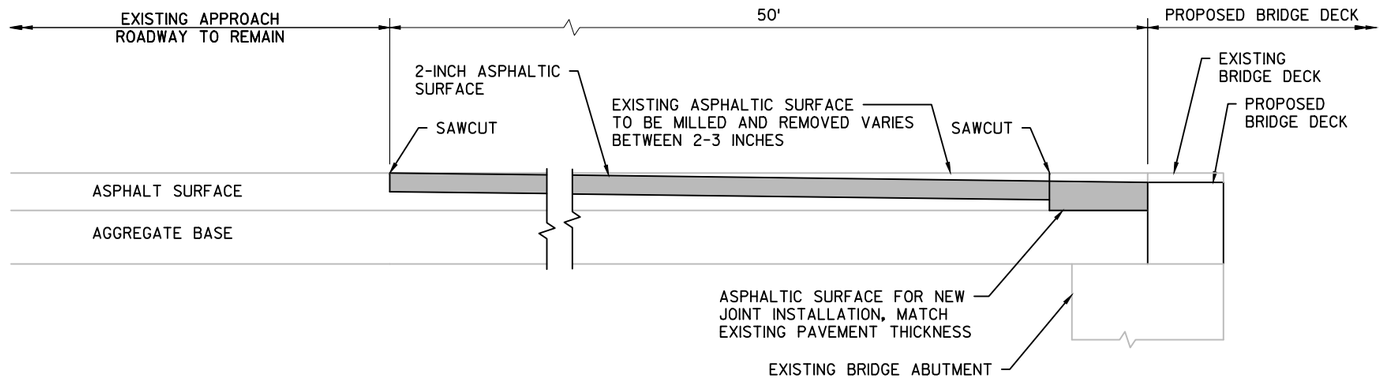

FINISHED TYPICAL SECTIONS

CTH FF
STA. 48FF+06 - STA. 48FF+56
STA. 50FF+75 - STA. 51FF+37

| PROJECT NO: 1225-08-74 | HWY: IH 43 | COUNTY: SHEBOYGAN | TYPICAL SECTIONS | SHEET 5 | E |
|---|---|---|---|---|---|

FILE NAME : N:\PDS\C3D\12250800\12250874\SHEETSPLAN\12250873_020301_TS.DWG
LAYOUT NAME - 12250873_020301_TS - 020302
PLOT DATE : 12/14/2018 8:14 AM PLOT BY : MATERNOSKI, JORDAN DPLOT NAME : PLOT SCALE : 1 IN:10 FT
WISDOT/CADDS SHEET 42

2




TYPICAL APPROACH DETAIL

| PROJECT NO:1225-08-74 | HWY: IH 43 | COUNTY: SHEBOYGAN | CONSTRUCTION DETAILS | SHEET 6 | E |
|---|---|---|---|---|---|

2

2

N

46FF+84.67

47FF+34.67

47FF+37.80

47FF+84.67

47FF+87.80

48FF+00.30

48FF+39.70

4'

25:1

MGS GUARDRAIL TERMINAL EAT
53.125'

MGS GUARDRAIL 3
62.5'

MGS THRIE BEAM TRANSITION
39.40'

STRUCTURE B-59-70

CTH FF

47FF

48FF

49FF

CTH FF

MGS GUARDRAIL TERMINAL EAT
53.125'

MGS GUARDRAIL 3
62.5'

MGS THRIE BEAM TRANSITION
39.40'

4'

25:1

46FF+82.50

47FF+32.50

47FF+35.62

47FF+82.50

47FF+85.62

47FF+98.12

48FF+37.52

IH 43

BEAMGUARD DETAIL
B-59-70 CTH FF
STA 46FF+82.50 - STA 48FF+39.70

| PROJECT NO: 1225-08-74 | HWY: IH 43 | COUNTY: SHEBOYGAN | CONSTRUCTION DETAILS | SHEET 7 | E |
|---|---|---|---|---|---|

FILE NAME : N:\PDS\C3D\12250800\12250874\SHEETSPLAN\12250873_021001_CD.DWG
LAYOUT NAME - 12250873_021001_CD - 021001
PLOT DATE : 12/14/2018 8:14 AM PLOT BY : MATERNOSKI, JORDAN DPLOT NAME :
PLOT SCALE : 1 IN:20 FT_1
WISDOT/CADDS SHEET 42

2

2

N

IH 43

51FF+32.78

50FF+93.38

51FF+45.28

51FF+48.40

51FF+95.28

51FF+98.40

52FF+48.40

25:1

4'

MGS THRIE BEAM TRANSITION
39.40'

MGS GUARDRAIL 3
62.5'

MGS GUARDRAIL TERMINAL EAT
53.125'

51FF

52FF

CTH FF

53FF

STRUCTURE B-59-70

MGS THRIE BEAM TRANSITION
39.40'

MGS GUARDRAIL 3
62.5'

MGS GUARDRAIL TERMINAL EAT
53.125'

25:1

4'

50FF+91.20

51FF+30.60

51FF+43.10

51FF+46.23

51FF+93.10

51FF+96.23

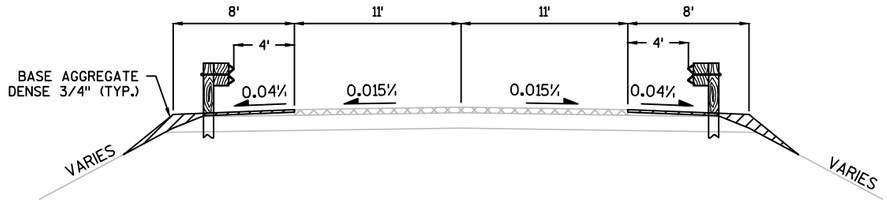
52FF+46.23

BEAMGUARD DETAIL
B-59-70 CTH FF
STA 50FF+91.20 - STA 52FF+48.40

| PROJECT NO: 1225-08-74 | HWY: IH 43 | COUNTY: SHEBOYGAN | CONSTRUCTION DETAILS | SHEET 8 | E |
|---|---|---|---|---|---|

2

N




BEAMGUARD DETAIL
B-59-70 CTH FF
EAT POST 1, POST 5, POST 9

| PROJECT NO: 1225-08-74 | HWY: IH 43 | COUNTY: SHEBOYGAN | CONSTRUCTION DETAILS | SHEET 9 | E |
|---|---|---|---|---|---|

2

2

LEGEND

REMOVE ASPHALTIC SURFACE MILLING

SAWCUT . XXXX .

REMOVE GUARDRAIL

REMOVE INLET AND STRUCTURE

N

IH 43 SB

IH 43 NB

769SB

769NB

768SB

768NB

767SB

767NB

CTH FF

47FF

48FF

48FF+55.86

48FF+05.86

49FF

STRUCTURE B-59-70

50FF

50FF+75.04

51FF

51FF+37.00

52FF

CTH FF

REMOVING CURB AND GUTTER

SLOPE INTERCEPT

SLOPE INTERCEPT

REMOVING CURB AND GUTTER

| PROJECT NO:1225-08-74 | HWY: IH 43 | COUNTY: SHEBOYGAN | REMOVAL PLAN: CTH FF | SHEET 10 | E |
|---|---|---|---|---|---|

FILE NAME : N:\PDS\C3D\12250800\12250874\SHEETSPLAN\12250873_021101_RM.DWG
LAYOUT NAME - 12250873_021101_RM - 021101

PLOT DATE : 12/14/2018 8:14 AM PLOT BY : MATERNOSKI, JORDAN DPLOT NAME : PLOT SCALE : 1 IN:40 FT

2

LEGEND

EROSION MAT CLASS 1 TYPE B

EXISTING ROW

IH 43 SB

IH 43 NB

769SB

769NB

768SB

768NB

767SB

767NB

PLACE SEEDING TEMPORARY AND SEEDING MIXTURE NO. 20 ON SHOULDERS (TYP.)

CTH FF

47FF

48FF

49FF

STRUCTURE B-59-70

50FF

51FF

52FF

CTH FF

RIP RAP MEDIUM (TYP)

6'

20'

2'

PLACE SURFACE DRAIN TO AVOID GUARDRAIL POSTS (TYP)

NOTE:
SURFACE DRAINS TO BE INSTALLED AS SHOWN ON SDD: CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES WITH THE FOLLOWING EXCEPTIONS. LENGTH OF SURFACE DRAINS TO BE DETERMINED BY THE ENGINEER IN THE FIELD. SURFACE DRAINS TO BE INSTALLED AT AN ANGLE SIMILAR TO THE PLAN SHEETS.

| PROJECT NO: 1225-08-74 | HWY: IH 43 | COUNTY: SHEBOYGAN | EROSION CONTROL: CTH FF | SHEET 11 | E |
|---|---|---|---|---|---|

1225-08-74

| Line | Item | Item Description | Unit | Total | Qty |
|---|---|---|---|---|---|
| 0002 | 204.0120 | Removing Asphaltic Surface Milling | SY | 406.000 | 406.000 |
| 0004 | 204.0150 | Removing Curb & Gutter | LF | 16.000 | 16.000 |
| 0006 | 204.0165 | Removing Guardrail | LF | 500.000 | 500.000 |
| 0008 | 204.0220 | Removing Inlets | EACH | 4.000 | 4.000 |
| 0010 | 204.0280 | Sealing Pipes | EACH | 3.000 | 3.000 |
| 0012 | 213.0100 | Finishing Roadway (project) 01. 1225-08-74 | EACH | 1.000 | 1.000 |
| 0014 | 305.0110 | Base Aggregate Dense 3/4-Inch | TON | 52.000 | 52.000 |
| 0016 | 416.1010 | Concrete Surface Drains | CY | 6.000 | 6.000 |
| 0018 | 455.0605 | Tack Coat | GAL | 25.000 | 25.000 |
| 0020 | 465.0105 | Asphaltic Surface | TON | 59.000 | 59.000 |
| 0022 | 502.3100 | Expansion Device (structure) 01. B-59-70 | LS | 1.000 | 1.000 |
| 0024 | 502.3200 | Protective Surface Treatment | SY | 828.000 | 828.000 |
| 0026 | 502.3210 | Pigmented Surface Sealer | SY | 209.000 | 209.000 |
| 0028 | 505.0600 | Bar Steel Reinforcement HS Coated Structures | LB | 2,600.000 | 2,600.000 |
| 0030 | 509.0301 | Preparation Decks Type 1 | SY | 596.000 | 596.000 |
| 0032 | 509.0302 | Preparation Decks Type 2 | SY | 1.000 | 1.000 |
| 0034 | 509.0500 | Cleaning Decks | SY | 820.000 | 820.000 |
| 0036 | 509.1000 | Joint Repair | SY | 31.000 | 31.000 |
| 0038 | 509.2000 | Full-Depth Deck Repair | SY | 1.000 | 1.000 |
| 0040 | 509.2500 | Concrete Masonry Overlay Decks | CY | 65.000 | 65.000 |
| 0042 | 509.9010.S | Removing Asphaltic Concrete Deck Overlay (structure) 01. B-59-70 | SY | 820.000 | 820.000 |
| 0044 | 517.3000.S | Structure Overcoating Cleaning and Priming (structure) 01. B-59-70 | LS | 1.000 | 1.000 |
| 0046 | 517.4000.S | Containment and Collection of Waste Materials (structure) 01. B-59-70 | LS | 1.000 | 1.000 |
| 0048 | 517.6001.S | Portable Decontamination Facility | EACH | 1.000 | 1.000 |
| 0050 | 604.0600 | Slope Paving Select Crushed Material | SY | 34.000 | 34.000 |
| 0052 | 606.0200 | Riprap Medium | CY | 14.000 | 14.000 |
| 0054 | 614.2300 | MGS Guardrail 3 | LF | 252.000 | 252.000 |
| 0056 | 614.2500 | MGS Thrie Beam Transition | LF | 160.000 | 160.000 |
| 0058 | 614.2610 | MGS Guardrail Terminal EAT | EACH | 4.000 | 4.000 |
| 0060 | 618.0100 | Maintenance And Repair of Haul Roads (project) 01. 1225-08-74 | EACH | 1.000 | 1.000 |
| 0062 | 619.1000 | Mobilization | EACH | 1.000 | 1.000 |
| 0064 | 625.0500 | Salvaged Topsoil | SY | 35.000 | 35.000 |
| 0066 | 628.1905 | Mobilizations Erosion Control | EACH | 2.000 | 2.000 |
| 0068 | 628.1910 | Mobilizations Emergency Erosion Control | EACH | 1.000 | 1.000 |
| 0070 | 628.2004 | Erosion Mat Class I Type B | SY | 35.000 | 35.000 |
| 0072 | 629.0210 | Fertilizer Type B | CWT | 0.020 | 0.020 |
| 0074 | 630.0120 | Seeding Mixture No. 20 | LB | 13.000 | 13.000 |

1225-08-74

| Line | Item | Item Description | Unit | Total | Qty |
|---|---|---|---|---|---|
| 0076 | 630.0200 | Seeding Temporary | LB | 13.000 | 13.000 |
| 0078 | 643.0300 | Traffic Control Drums | DAY | 741.000 | 741.000 |
| 0080 | 643.0420 | Traffic Control Barricades Type III | DAY | 798.000 | 798.000 |
| 0082 | 643.0705 | Traffic Control Warning Lights Type A | DAY | 1,596.000 | 1,596.000 |
| 0084 | 643.0900 | Traffic Control Signs | DAY | 855.000 | 855.000 |
| 0086 | 643.1050 | Traffic Control Signs PCMS | DAY | 14.000 | 14.000 |
| 0088 | 643.5000 | Traffic Control | EACH | 1.000 | 1.000 |
| 0090 | 645.0130 | Geotextile Type R | SY | 50.000 | 50.000 |
| 0092 | 646.1020 | Marking Line Epoxy 4-Inch | LF | 1,174.000 | 1,174.000 |
| 0094 | 690.0150 | Sawing Asphalt | LF | 133.000 | 133.000 |
| 0096 | ASP.1T0A | On-the-Job Training Apprentice at $5.00/HR | HRS | 150.000 | 150.000 |
| 0098 | ASP.1T0G | On-the-Job Training Graduate at $5.00/HR | HRS | 300.000 | 300.000 |
| 0100 | SPV.0060 | Special 01. Cleaning and Painting Bearings | EACH | 8.000 | 8.000 |

3

## REMOVING ASPHALTIC SURFACE MILLING

| CATEGORY | ROADWAY | STATION | TO | STATION | OFFSET | 204.0120 REMOVING ASPHALTIC SURFACE MILLING SY |
|---|---|---|---|---|---|---|
| 0010 | CTH FF | 48FF+06 | - | 48FF+56 | LT & RT | 189 |
| 0010 | CTH FF | 50FF+75 | - | 51FF+25 | LT & RT | 217 |
| | | | | | **PROJECT TOTALS** | **406** |

## REMOVING CURB & GUTTER

| CATEGORY | ROADWAY | STATION | TO | STATION | OFFSET | 204.0150 REMOVING CURB & GUTTER LF |
|---|---|---|---|---|---|---|
| 0010 | CTH FF | 50FF+97 | - | 51FF+05 | RT | 8 |
| 0010 | CTH FF | 50FF+99 | - | 51FF+07 | LT | 8 |
| | | | | | **PROJECT TOTALS** | **16** |

3

## REMOVING GUARDRAIL

| CATEGORY | ROADWAY | STATION | TO | STATION | OFFSET | 204.0165 REMOVING GUARDRAIL LF |
|---|---|---|---|---|---|---|
| 0010 | CTH FF | 47FF+06 | - | 48FF+37 | LT & RT | 250 |
| 0010 | CTH FF | 50FF+95 | - | 52FF+24 | LT & RT | 250 |
| | | | | | **PROJECT TOTALS** | **500** |

## REMOVING INLETS & SEALING PIPES

| CATEGORY | ROADWAY | STATION | OFFSET | 204.0220 REMOVING INLETS EACH | 204.0280 SEALING PIPES EACH |
|---|---|---|---|---|---|
| 0010 | CTH FF | 51FF+02 | LT | 2 | 1 |
| 0010 | CTH FF | 51FF+00 | RT | 2 | 2 |
| | | | **PROJECT TOTALS** | **4** | **3** |

## BASE AGGREGATE

| CATEGORY | ROADWAY | STATION | TO | STATION | OFFSET | 305.0110 BASE AGGREGATE DENSE 3/4-INCH TON | REMARKS |
|---|---|---|---|---|---|---|---|
| 0010 | CTH FF | 46FF+52 | - | 48FF+35 | LT & RT | 26 | LT & RT SHOULDER |
| 0010 | CTH FF | 50FF+96 | - | 52FF+78 | LT & RT | 26 | LT & RT SHOULDER |
| | | | | | | **52** | |

3

## CONCRETE SURFACE DRAINS

| CATEGORY | ROADWAY | STATION | TO | STATION | OFFSET | 416.1010 CONCRETE SURFACE DRAINS CY |
|---|---|---|---|---|---|---|
| 0010 | CTH FF | 51FF+28 | - | 51FF+38 | RT | 3 |
| 0010 | CTH FF | 51FF+30 | - | 51FF+40 | LT | 3 |
| | | | | | **PROJECT TOTALS** | **6** |

## HMA ITEMS

| CATEGORY | ROADWAY | STATION | TO | STATION | OFFSET | 455.0605 TACK COAT GAL | 465.0105 ASPHALTIC SURFACE TON |
|---|---|---|---|---|---|---|---|
| 0010 | CTH FF | 48FF+06 | - | 48FF+56 | LT & RT | 12 | 28 |
| 0010 | CTH FF | 50FF+75 | - | 51FF+37 | LT & RT | 13 | 31 |
| | | | | | **PROJECT TOTALS** | **25** | **59** |

3

## RIPRAP

| CATEGORY | ROADWAY | STATION | TO | STATION | OFFSET | 606.0200 RIPRAP MEDIUM CY |
|---|---|---|---|---|---|---|
| 0010 | CTH FF | 51FF+33 | - | 51FF+47 | RT | 7 |
| 0010 | CTH FF | 51FF+35 | - | 51FF+49 | LT | 7 |
| | | | | | **PROJECT TOTALS** | **14** |

## MGS GUARDRAIL SUMMARY

| CATEGORY | ROADWAY | STATION | TO | STATION | OFFSET | 614.2300 MGS GUARDRAIL 3 LF | 614.2500 MGS THRIE BEAM TRANSITION LF | 614.2610 MGS GUARDRAIL TERMINAL EAT EACH |
|---|---|---|---|---|---|---|---|---|
| 0010 | CTH FF | 46FF+83 | - | 48FF+38 | RT | 63 | 40 | 1 |
| 0010 | CTH FF | 46FF+85 | - | 48FF+40 | LT | 63 | 40 | 1 |
| 0010 | CTH FF | 50FF+91 | - | 52FF+46 | RT | 63 | 40 | 1 |
| 0010 | CTH FF | 50FF+93 | - | 52FF+48 | LT | 63 | 40 | 1 |
| | | | | | **PROJECT TOTALS** | **252** | **160** | **4** |

3

## MOBILIZATIONS EROSION CONTROL

| CATEGORY | LOCATION | 628.1905 MOBILIZATIONS EROSION CONTROL EACH | 628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL EACH |
|---|---|---|---|
| 0010 | 1225-08-73 | 2 | 1 |
| | **PROJECT TOTALS** | **2** | **1** |

## GEOTEXTILE TYPE R

| CATEGORY | ROADWAY | STATION | TO | STATION | OFFSET | 645.0130 GEOTEXTILE TYPE R SY |
|---|---|---|---|---|---|---|
| 0010 | CTH FF | 51FF+30 | - | 51FF+48 | RT | 25 |
| 0010 | CTH FF | 51FF+32 | - | 51FF+50 | LT | 25 |
| | | | | **PROJECT TOTALS** | | **50** |

3

## EROSION CONTROL SUMMARY

| CATEGORY | ROADWAY | STATION | TO | STATION | OFFSET | 625.0500 SALVAGED TOPSOIL SY | 628.2004 EROSION MAT CLASS I TYPE B SY | 629.0210 FERTILIZER TYPE B CWT | 630.0120 SEEDING MIXTURE NO. 20 LB | 630.0200 SEEDING TEMPORARY LB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0010 | CTH FF | 51FF+29 | - | 51FF+52 | LT & RT | 28 | 28 | 0.02 | 1 | 1 | |
| 0010 | CTH FF | 46FF+52 | - | 52FF+80 | LT & RT | - | - | - | 12 | 12 | SEED FOR SHOULDER AGGREGATE |
| | | | | | UNDISTRIBUTED | 7 | 7 | - | - | - | |
| | | | | | **PROJECT TOTALS** | 35 | 35 | 0.02 | 13 | 13 | |

## TRAFFIC CONTROL SUMMARY

| CATEGORY | LOCATION | DURATION DAYS | 643.0300 TRAFFIC CONTROL DRUMS EACH | 643.0300 TRAFFIC CONTROL DRUMS DAY | 643.0420 TRAFFIC CONTROL BARRICADES TYPE III EACH | 643.0420 TRAFFIC CONTROL BARRICADES TYPE III DAY | 643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A EACH | 643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A DAY | 643.0900 TRAFFIC CONROL SIGNS EACH | 643.0900 TRAFFIC CONROL SIGNS DAYS | 643.1050 TRAFFIC CONROL SIGNS PCMS EACH | 643.1050 TRAFFIC CONROL SIGNS PCMS DAYS | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0010 | CTH FF | 57 | 13 | 741 | 14 | 798 | 28 | 1596 | 15 | 855 | 2 | 14 | MAINLINE CLOSURE S.D.D. 15 C 2 |
| | **PROJECT TOTALS** | | | **741** | | **798** | | **1,596** | | **855** | | **14** | |

3

3

**PAVEMENT MARKING SUMMARY**

| CATEGORY | ROADWAY | STATION | TO | STATION | OFFSET | 646.1020 MARKING LINE EPOXY 4-INCH WHITE LF | 646.1020 MARKING LINE EPOXY 4-INCH YELLOW LF |
|---|---|---|---|---|---|---|---|
| 0010 | CTH FF | 48FF+06 | - | 51FF+37 | LT & RT | 662 | 512 |
| | | | | | **PROJECT TOTALS** | **1,174** | |

**SAWING SUMMARY**

| CATEGORY | ROADWAY | STATION | TO | STATION | OFFSET | 690.0150 SAWING ASPHALT LF | REMARKS |
|---|---|---|---|---|---|---|---|
| 0010 | CTH FF | 48FF+05 | - | 48FF+05 | LT/RT | 34 | STRUCTURE B-59-70 |
| 0010 | CTH FF | 48FF+50 | - | 48FF+50 | LT/RT | 34 | JOINT REPLACEMENT |
| 0010 | CTH FF | 51FF+37 | - | 51FF+37 | LT/RT | 31 | STRUCTURE B-59-70 |
| 0010 | CTH FF | 50FF+80 | - | 50FF+80 | LT/RT | 34 | JOINT REPLACEMENT |
| | | | | | **PROJECT TOTALS** | **133** | |

LEGEND

- AP1 ASPHALTIC SURFACE
- BG1 MGS THRIE BEAM TRANSITION
- BG2 MGS GUARDRAIL 3
- BG5 MGS GUARDRAIL TERMINAL EAT
- CS1 CONCRETE SURFACE DRAIN

N

NOTES:

SEE CONSTRUCTION DETAILS FOR BEAMGUARD DETAILS

IH 43 SB

IH 43 NB

769SB

769NB

768SB

768NB

767SB

767NB

5

5

CTH FF

48-CTH FF

50-CTH FF

52-CTH FF

CTH FF

STRUCTURE B-59-70

48FF+05.86
-17.00' LT

48FF+56.95
-17.00' LT

48FF+55.86
0.00'

48FF+05.86
0.00'

48FF+05.86
17.00' RT

48FF+54.77
17.00' RT

50FF+76.13
-17.00' LT

50FF+75.04
0.00'

50FF+73.95
17.00' RT

51FF+37.13
-15.00' LT

51FF+37.13
0.26' RT

51FF+37.13
15.53' RT

MARKING LINE EPOXY
4-INCH (YELLOW)
(12.5 FT LINE 37.5 FT SKIP)

MARKING LINE EPOXY
4-INCH (YELLOW)

MARKING LINE EPOXY
4-INCH (WHITE)

MARKING LINE EPOXY
4-INCH (WHITE)

MARKING LINE EPOXY
4-INCH (YELLOW)
(12.5 FT LINE 37.5 FT SKIP)

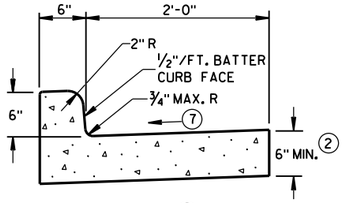
SLOPE INTERCEPT

SLOPE INTERCEPT

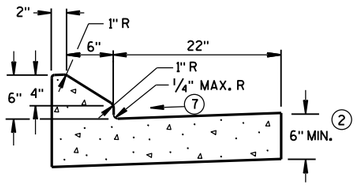
| PROJECT NO: 1225-08-74 | HWY: IH 43 | COUNTY: SHEBOYGAN | PLAN: CTH FF | SHEET 18 | E |
|---|---|---|---|---|---|

# Standard Detail Drawing List

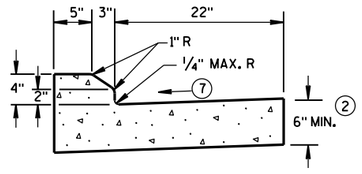
| | |
|---|---|
| 08D01-20A | CONCRETE CURB & GUTTER |
| 08D01-20B | CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS |
| 08D02-06 | CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES |
| 14B42-06A | MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL |
| 14B42-06B | MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL |
| 14B42-06C | MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL |
| 14B42-06D | MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL |
| 14B44-04A | MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS) |
| 14B44-04B | MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS) |
| 14B44-04C | MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS) |
| 14B45-05A | MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS) |
| 14B45-05B | MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS) |
| 14B45-05C | MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS) |
| 14B45-05D | MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS) |
| 14B45-05E | MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS) |
| 14B45-05F | MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS) |
| 14B45-05G | MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS) |
| 14B45-05H | MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS) |
| 14B45-05I | MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS) |
| 14B45-05J | MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS) |
| 14B45-05K | MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS) |
| 14B45-05L | MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS) |
| 15C02-06A | BARRICADES AND SIGNS FOR MAINLINE CLOSURES |
| 15C02-06B | BARRICADES AND SIGNS FOR MAINLINE CLOSURES |
| 15C08-19A | LONGITUDINAL MARKING (MAINLINE) |
| 15C11-07B | CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS |
| 15D38-02A | TEMPORARY TRAFFIC CONTROL SIGN MOUNTING |
| 15D38-02B | ATTACHMENT OF SIGNS TO POSTS |



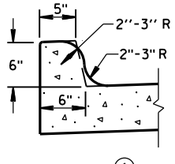

TYPES A (1) & D



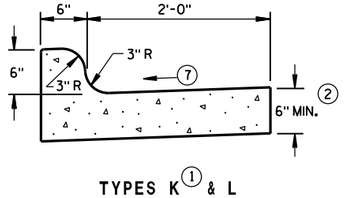

6" SLOPED CURB TYPES G (1) & J




4" SLOPED CURB TYPES G (1) & J

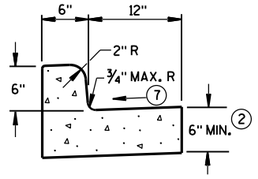



TYPES K (1) & L
(OPTIONAL CURB SHAPE)



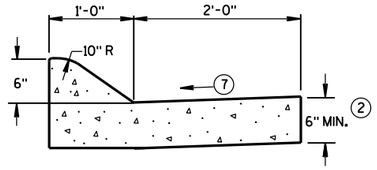

TYPES K (1) & L

CONCRETE CURB & GUTTER 30"

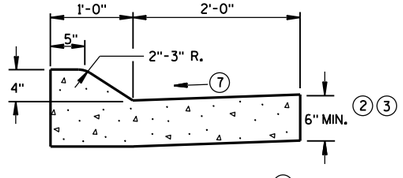



TYPES A (1) & D

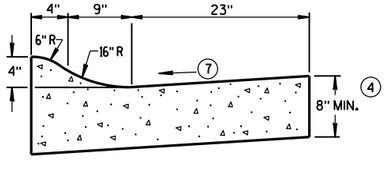
CONCRETE CURB & GUTTER 18"




6" SLOPED CURB TYPES A (1) & D

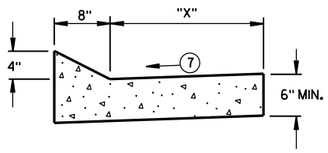



4" SLOPED CURB TYPES A (1) & D




4" SLOPED CURB TYPES R (1) & T (5)

CONCRETE CURB & GUTTER 36"




TYPES TBT & TBTT (1)

CONCRETE CURB & GUTTER

| TBT & TBTT | "X" |
|---|---|
| 30" | 22" |
| 36" | 28" |

## GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

INTEGRAL CURB & GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB & GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE.

WHERE THE TRANSVERSE JOINTS IN THE PAVEMENT ARE REQUIRED TO BE SEALED, THE JOINTS IN THE INTEGRAL CURB AND GUTTER SHALL BE SEALED TO THE FACE OF CURB WITH THE SAME TYPE OF SEALANT. THE COST OF FURNISHING AND INSTALLING THIS SEALANT SHALL BE INCIDENTAL TO THE ITEM CONCRETE CURB AND GUTTER.

UNLESS OTHERWISE SHOWN ON THE TYPICAL CROSS SECTIONS, THE BASE AGGREGATE AND COMMON EXCAVATION LIMITS ARE 2'-0" BEHIND THE BACK OF CURBS.

(1) TIE BARS ARE REQUIRED FOR CURB AND GUTTER TYPES A, G, K, R AND TBTT.

(2) THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.

(3) USE 8" MINIMUM GUTTER THICKNESS WHEN USED WITH AN ADJACENT CONCRETE TRUCK APRON PLACED BEHIND BACK OF CURB.

(4) THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 8" MINIMUM GUTTER THICKNESS IS MAINTAINED.

(5) THE FACE OF CURB IS 6" FROM THE BACK OF CURB.

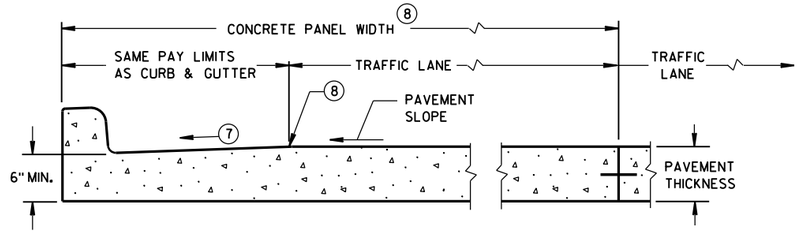
(6) WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATION(S) WILL BE SHOWN ELSEWHERE IN THE PLAN.

(7) USE 4% GUTTER CROSS SLOPE UNLESS OTHERWISE NOTED IN THE PLANS.

(8) INCLUDE LONGITUDINAL JOINT AND TIE BARS ALONG LANE EDGE WHEN CONCRETE PANEL WIDTH EXCEEDS THE MAXIMUM WIDTH PER TABLE BELOW. LONGITUDINAL JOINT(S) ARE NOT ALLOWED WITHIN TRAFFIC LANES AND BIKE LANES. LONGITUDINAL JOINT MAY BE SAWED.

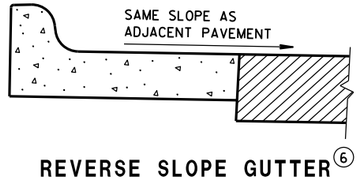
### PAVEMENT THICKNESS AND MAXIMUM CONCRETE PANEL WIDTH TABLE

| PAVEMENT THICKNESS | MAXIMUM PANEL WIDTH |
|---|---|
| LESS THAN 10" | 12' |
| 10" & ABOVE | 15' |




PARTIAL SECTION OF PAVEMENT *
WITH INTEGRAL CURB & GUTTER

* BIKE LANE IS NOT SHOWN.




REVERSE SLOPE GUTTER (6)
(TYPICAL FOR ALL CURB & GUTTER TYPES)

CONCRETE CURB & GUTTER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

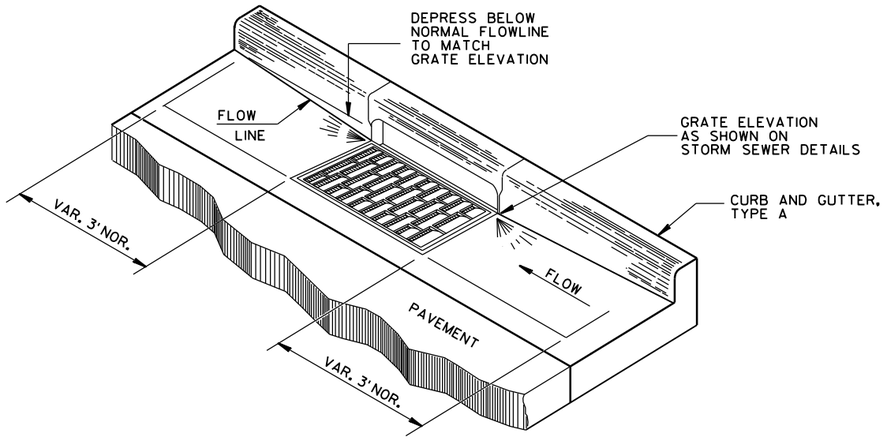


6

S.D.D. 8 D 1-20a

6

S.D.D. 8 D 1-20a




## DETAIL OF CURB AND GUTTER AT INLETS

(TYPE H INLET COVER SHOWN)

## GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

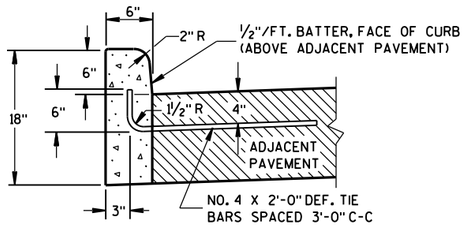
PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

UNLESS OTHERWISE SHOWN ON THE TYPICAL CROSS SECTIONS, THE BASE AGGREGATE AND COMMON EXCAVATION LIMITS ARE 2'-0" BEHIND THE BACK OF CURBS.

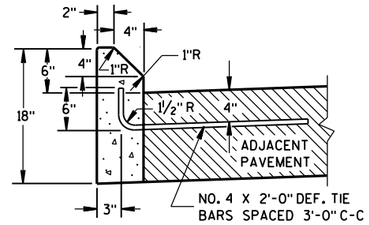
(1) TIE BARS ARE REQUIRED FOR CURB AND GUTTER TYPES A, G, K, R AND TBTT.

(2) THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.

(9) REFER TO SDD 8D18 AND SDD 8D19 FOR ADDITIONAL DRIVEWAY ENTRANCE CURB DETAILS.

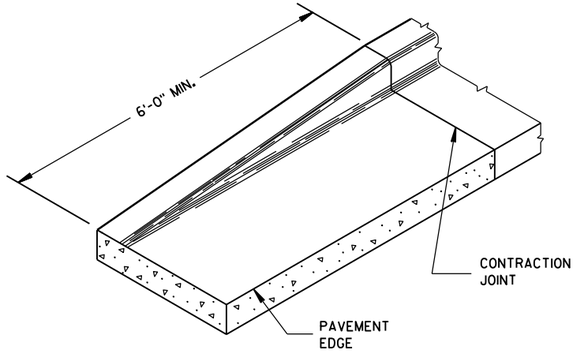



TYPES A(1) & D

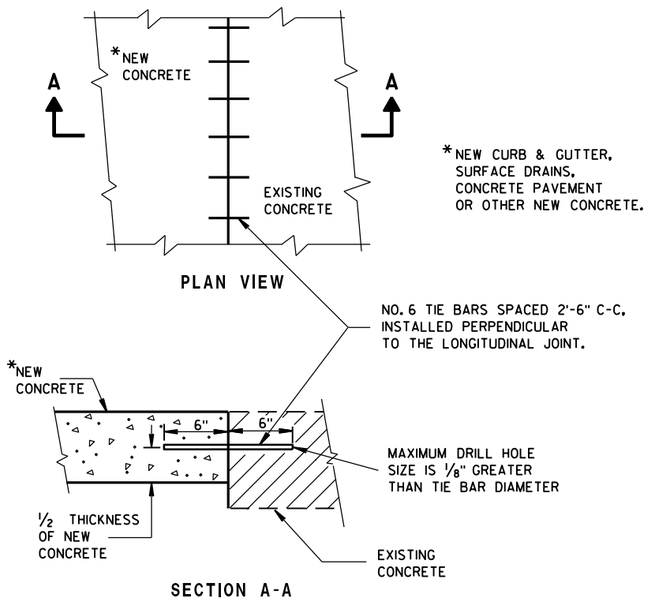



TYPES G(1) & J

## CONCRETE CURB



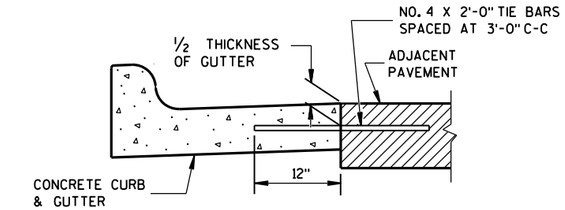

## END SECTION CURB & GUTTER



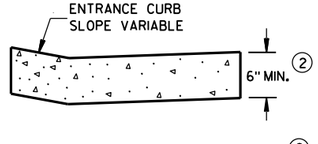

PLAN VIEW

SECTION A-A

## TIE BARS DRILLED INTO EXISTING PAVEMENT




## TYPICAL TIE BAR LOCATION (1)




## DRIVEWAY ENTRANCE CURB (9)

(WHEN DIRECTED BY THE ENGINEER)

## CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS

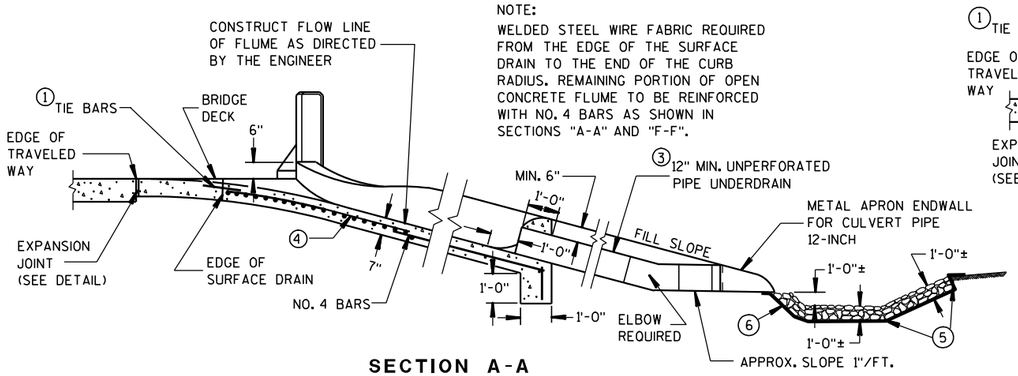
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2017 — DATE
/S/ Rodney Taylor — ROADWAY STANDARDS UNIT SUPERVISOR
FHWA

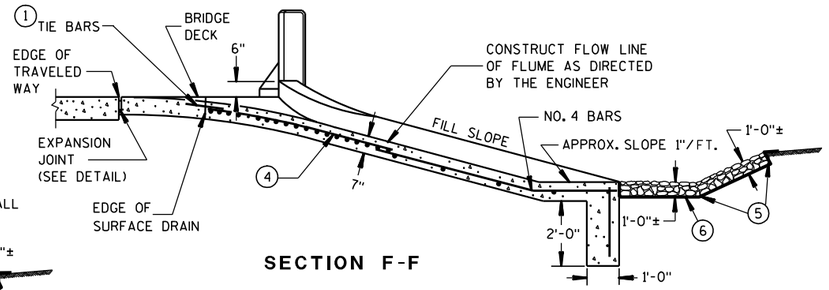


6

S.D.D. 8 D 1-20b




SECTION A-A




SECTION F-F

## GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

ALL STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

(1) NO. 4 X 2'-0" TIE BARS SPACED AT 3'-0" CENTERS TO BE USED ONLY WHEN ADJACENT TO P.C. CONCRETE.

(2) NO. 4 X 2'-0" TIE BARS SPACED AT 12" CENTERS TO BE PLACED BY BRIDGE CONTRACTOR, OR DRILLED TIE BARS PLACED AS DIRECTED BY THE ENGINEER.

(3) PIPE UNDERDRAIN MAY BE ANY OF THE MATERIALS LISTED IN SECTION 612.2 OF THE STANDARD SPECIFICATIONS EXCEPT DRAIN TILE.

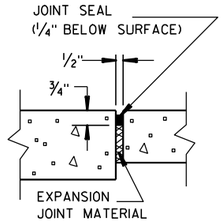
(4) MINIMUM REINFORCEMENT SHALL BE 6" X 6" - W4.0 X W4.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C-C.

(5) LIMITS OF ADDITIONAL RIPRAP WHEN SPECIAL DITCH IS REQUIRED.

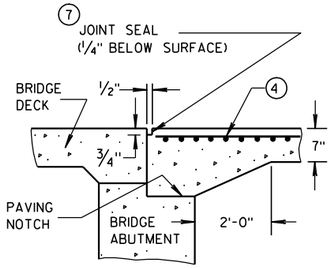
(6) GEOTEXTILE FABRIC, TYPE 'R"

(7) HOT POURED SEALANT UNLESS OTHERWISE SPECIFIED.

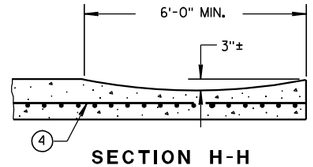
(8) THIS DIMENSION MAY VARY DEPENDING ON THE SPACING OF POSTS FOR THE STEEL PLATE BEAM GUARD. THE TYPICAL LOCATION FOR THE SURFACE DRAIN IS WHERE THE POST SPACING WIDENS TO 3'-1½".



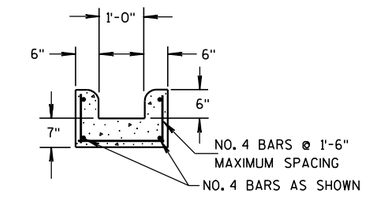

EXPANSION JOINT DETAIL



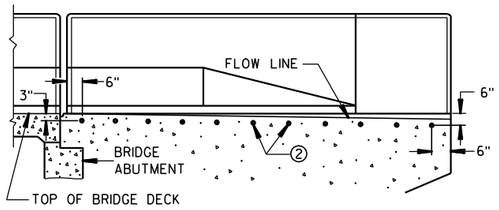

SECTION D-D



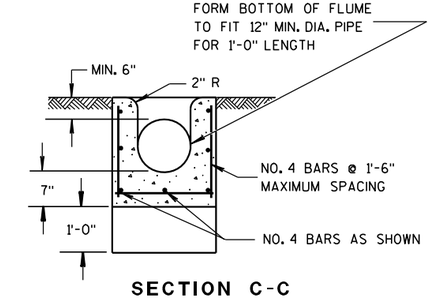

SECTION H-H



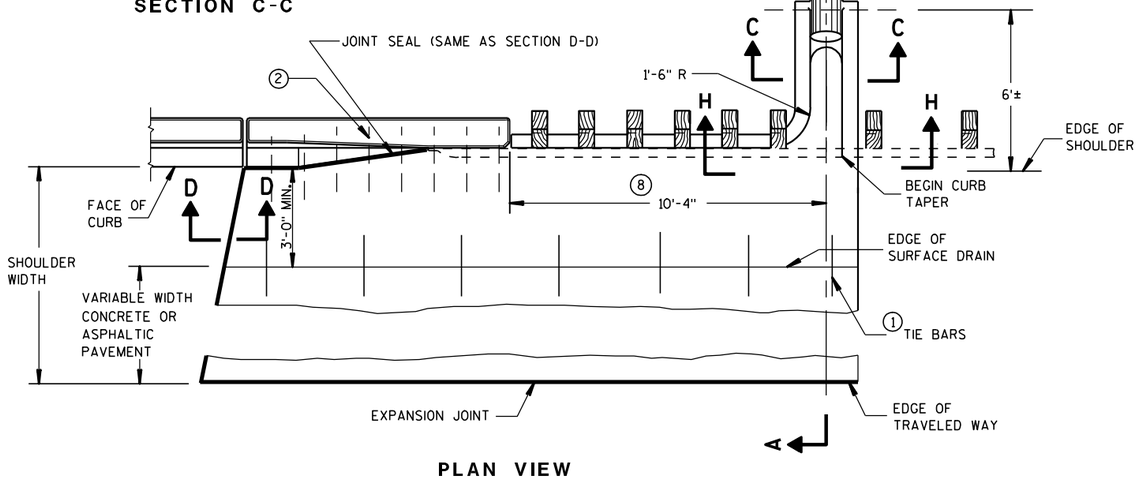

SECTION E-E



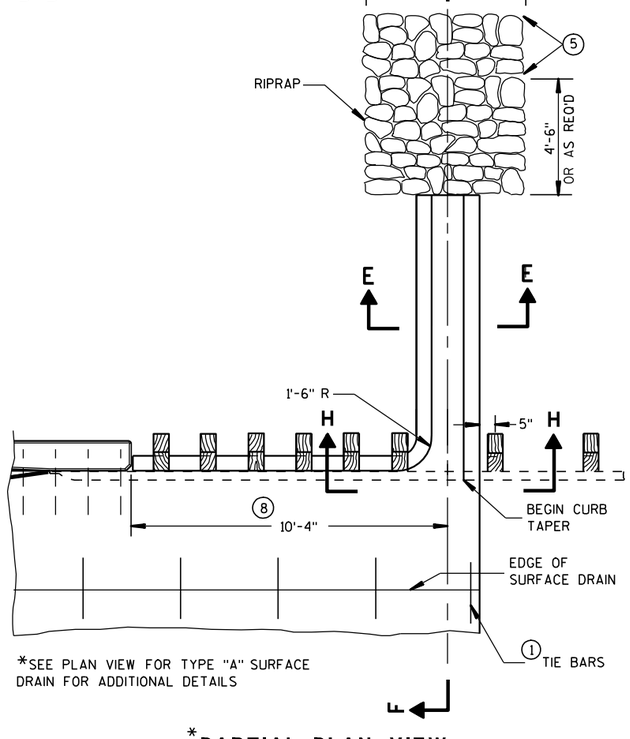

LOCATION OF TIE BARS IN WINGWALL




SECTION C-C




PLAN VIEW
SURFACE DRAIN WITH PIPE
TYPE "A"




*SEE PLAN VIEW FOR TYPE "A" SURFACE DRAIN FOR ADDITIONAL DETAILS

*PARTIAL PLAN VIEW
SURFACE DRAIN WITHOUT PIPE
TYPE "B"

CONCRETE SURFACE DRAINS
FLUME TYPE
AT STRUCTURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
9/4/08 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS ENGINEER
FHWA



S.D.D. 8 D 2-6

6

(1) WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.

(2) USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.

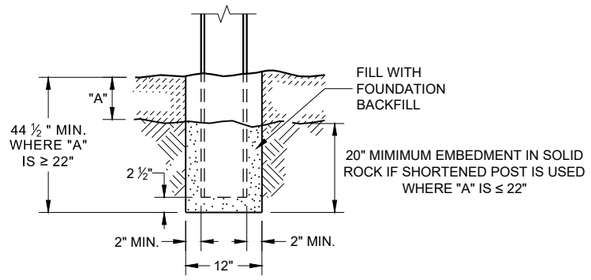
(3) IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2 1/2" INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AMD INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL IS TO BE FREE OF LARGE ROCKS.

(4) WHEN THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING (K).

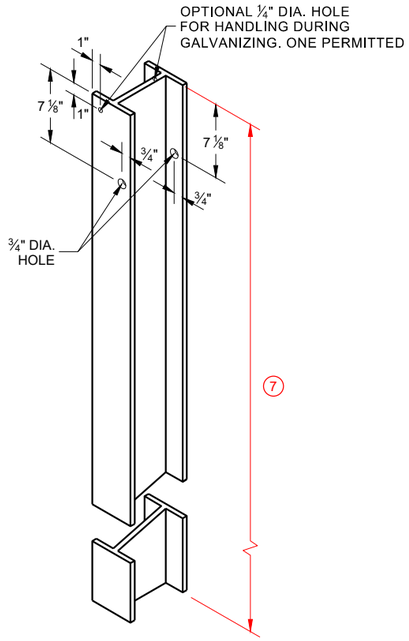
(5) FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS ±1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27 ¾" TO 32".

(6) WHEN USING STEEL POST AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

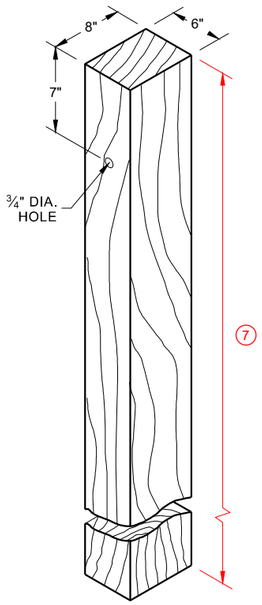
(7) TOTAL POST LENGTH FOR TYPE K IS 7' - 0".
TOTAL POST LENGTH FOR OTHER MGS TYPES IS 6' - 0".



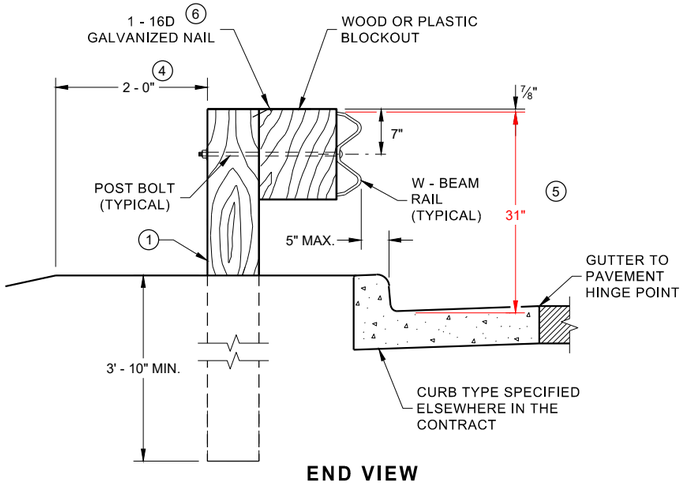

END VIEW
**SETTING STEEL OR WOOD POST IN ROCK** (3)



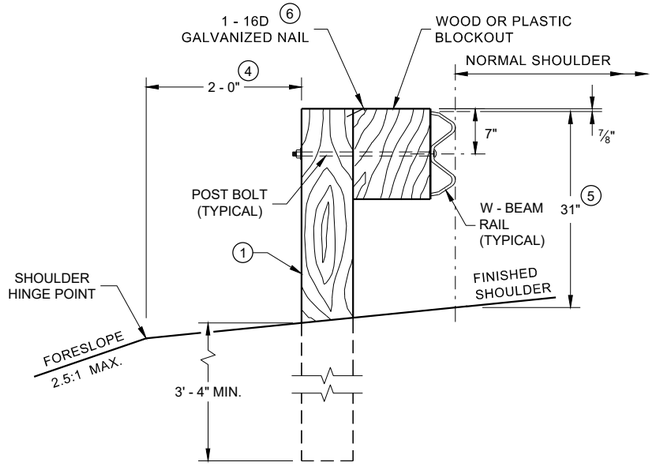

**STEEL POST & HOLE PUNCHING DETAIL (W 6 X 9)** (1)



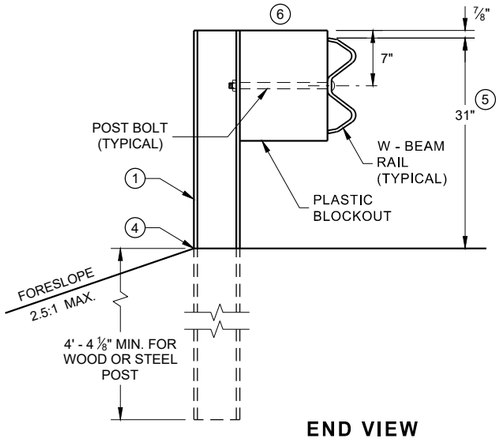

**WOOD POST (6" X 8") NOMINAL** (1)



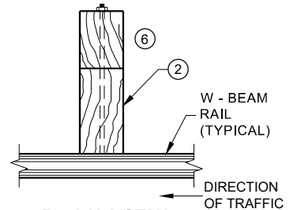

END VIEW
**LOCATED ALONG A CURBED ROADWAY**



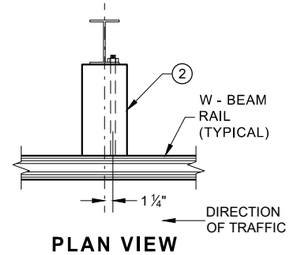

END VIEW
**LOCATED ALONG A ROADWAY SHOULDER STANDARD INSTALLATION**



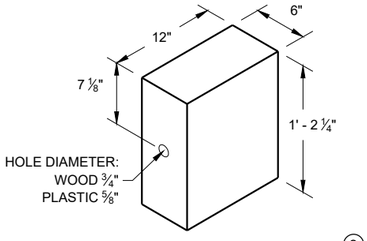

END VIEW
**MGS LONGER POST AT HALFPOST SPACING W BEAM (K)**




PLAN VIEW
**WOOD POST, BLOCKOUT & BEAM**




PLAN VIEW
**STEEL POST, PLASTIC BLOCKOUT & BEAM**




**WOOD OR PLASTIC BLOCKOUT** (2)

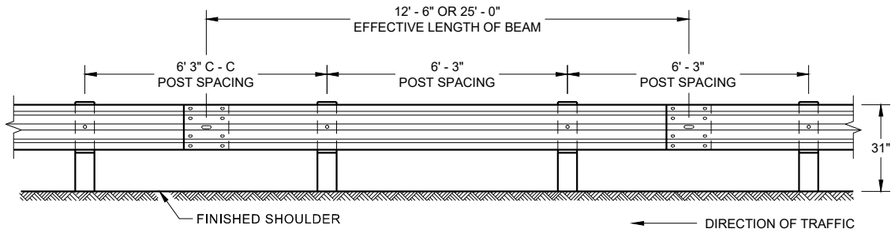
**MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

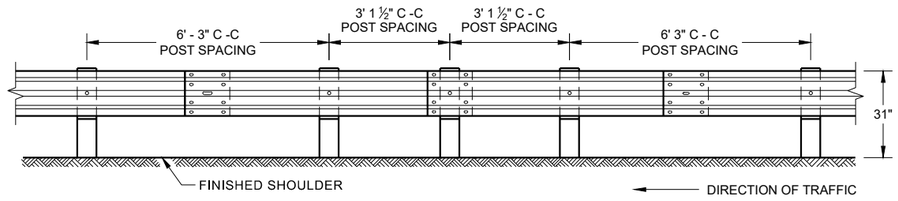


SDD 14B42 - 06a

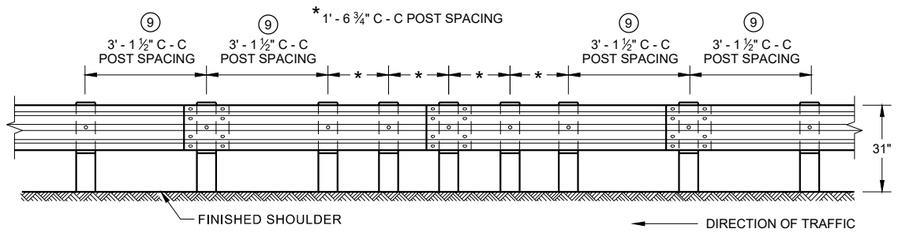
SDD 14B42 - 06a



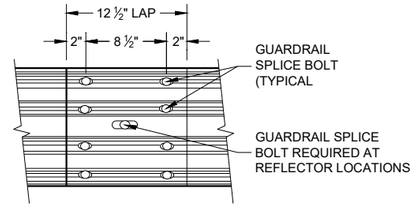

**FRONT VIEW**
**POST SPACING STANDARD INSTALLATION**



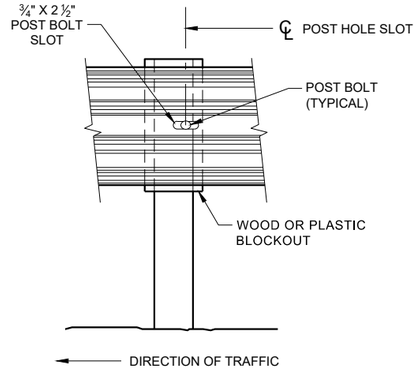

**FRONT VIEW**
**HALF POST SPACING (HS) AND**
**HALF POST SPACING WITH LONGER POSTS (K)**



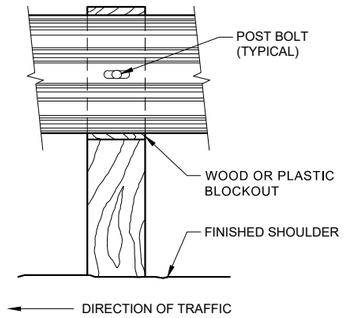

**FRONT VIEW**
**QUARTER POST SPACING (QS)**



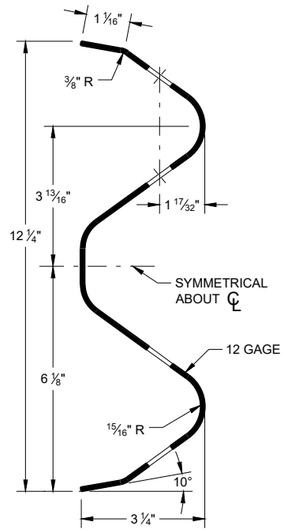

**FRONT VIEW**
**MID-SPAN BEAM SPLICE**



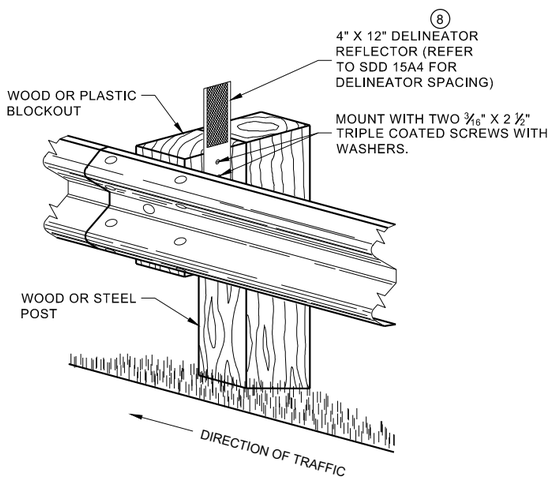

**FRONT VIEW AT STEEL POST**




**FRONT VIEW AT WOOD POST**




**SECTION THRU W-BEAM RAIL**




**ONE SIDED REFLECTOR DETAIL**
**AND TYPICAL INSTALLATION**

## GENERAL NOTES

⑧ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL. RAIL SPLICE LOCATIONS ARE THE ONLY ACCEPTABLE LOCATIONS FOR REFLECTORS.

⑨ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.

POST BOLTS ARE A ¾" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES ⅝" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND ⅝" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.

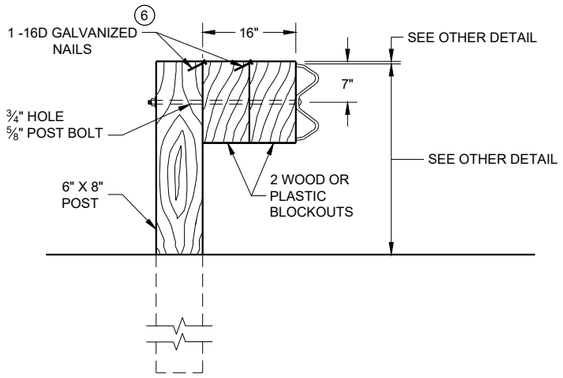
GUARD RAIL SPLICE BOLTS ARE A ⅝" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES ⅝" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.

**MIDWEST GUARDRAIL SYSTEM**
**(MGS) GUARDRAIL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION




6
SDD 14B42 - 06b

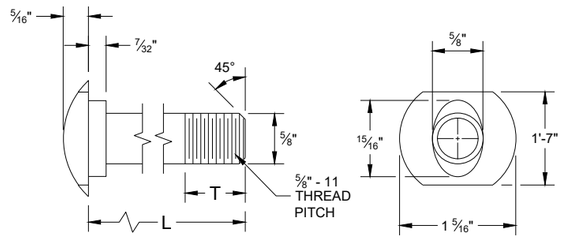



## DETAIL FOR 16" BLOCKOUT DEPTH

IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.

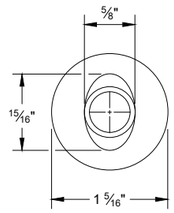
NOTE:

1. ALL FILLETS SHALL HAVE A MINIMUM RADIUS OF 3⁄16".
2. IF THE BOLT EXTENDS MORE THAN ¼" FROM THE NUT THE BOLT SHOULD BE TRIMMED BACK.

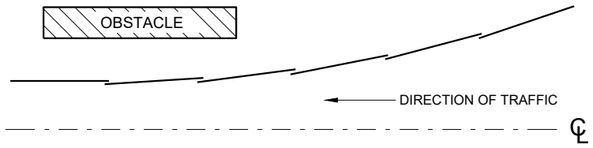



## POST BOLT TABLE

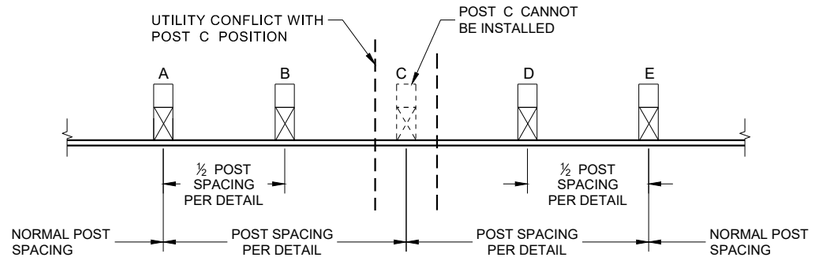
| L | T (MIN.) |
|---|---|
| 1 ¼" | 1 ⅛" |
| 2" | 1 ¾" |
| 10" | 4" |
| 14" | 4 1⁄16" |
| 18" | 4" |
| 21" | 4 1⁄16" |
| 25" | 4" |



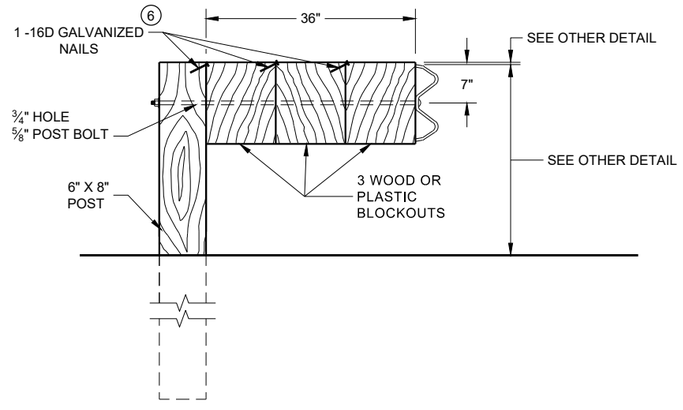

## ALTERNATE BOLT HEAD



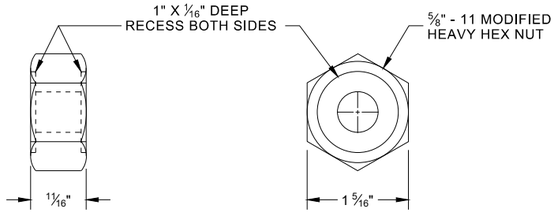

## PLAN VIEW
## BEAM LAPPING DETAIL



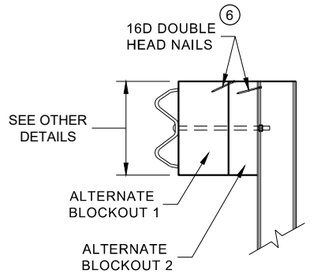

## POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



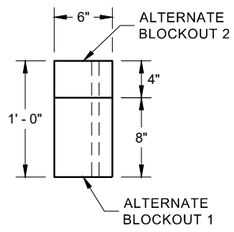

## DETAIL FOR 36" BLOCKOUT DEPTH




## POST BOLT, SPLICE BOLT AND RECESS NUT




## SIDE VIEW




## PLAN VIEW

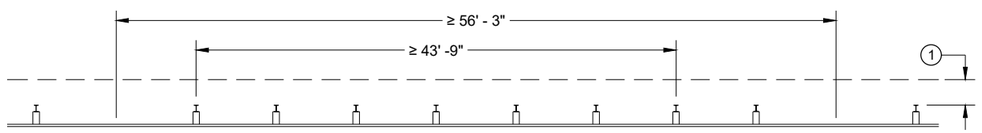
## ALTERNATE WOOD BLOCKOUT DETAIL

NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.

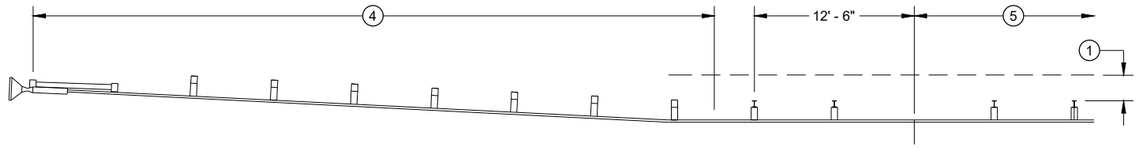
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

(6) WHEN USING STEEL POST AD WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

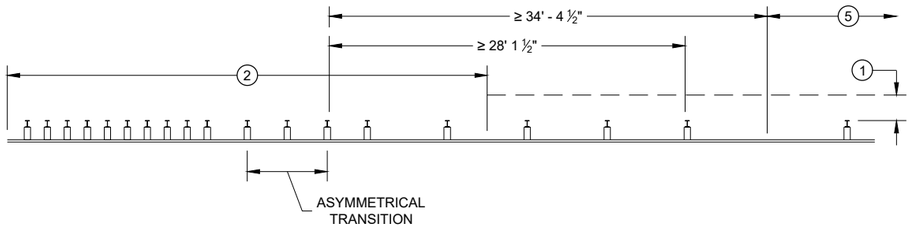
**MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL**



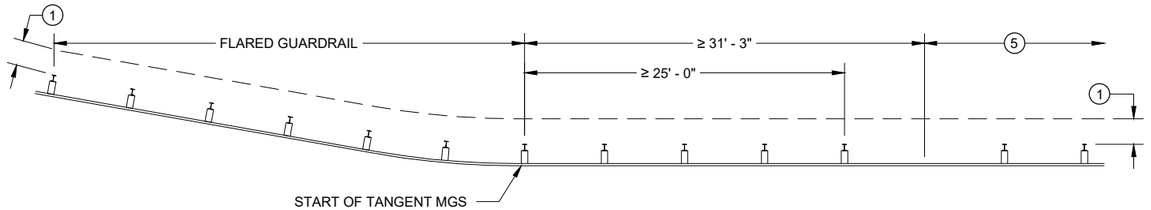

**MISSING POST IN NORMAL BEAM GUARD RUN**



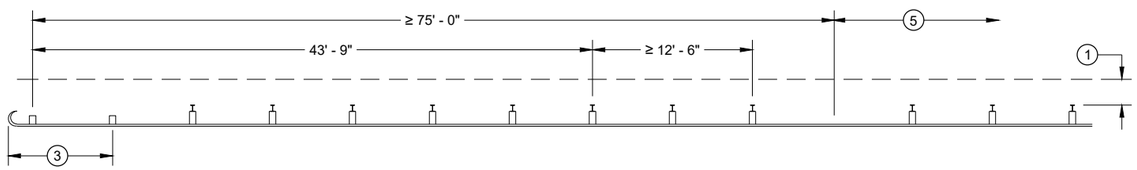

**MISSING POST IN NORMAL BEAM GUARD RUN NEAR EAT**



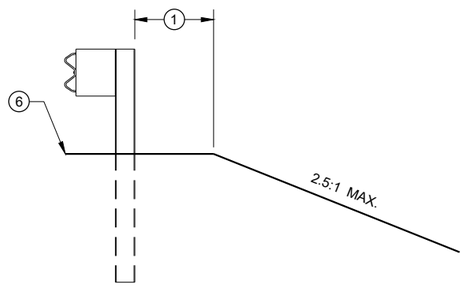

**MISSING POST NEAR APPROACH THRIE BEAM TRANSITION**




**MISSING POST IN NORMAL BEAM GUARD RUN NEAR FLARED BEAM GUARD**




**MISSING POST IN NORMAL BEAM GUARD RUN NEAR TYPE 2 TERMINAL**




**CROSS SECTION VIEW**

1. MINIMUM OF 2 FEET OF GRADING BEHIND POST.
2. SEE SDD 14B45 FOR MORE DETAILS.
3. SEE SDD 14B47 FOR MORE DETAILS.
4. SEE SDD 14B44 FOR MORE DETAILS.
5. SEE MISSING POST IN NORMAL BEAM GUARD RUN FOR DISTANCE TO NEXT MISSING POST AND AREA FOR WELL DRAINED, COMPACTED SOILS.
6. SEE PLAN FOR SHOULDER DESIGN.

**MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
7/2018 — DATE
/S/ Rodney Taylor — ROADWAY STANDARDS DEVE UNIT SUPERVISOR
FHWA




6


SDD 14B42 - 06d

## GENERAL NOTES

(A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE (HPL) AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.

(B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED

(C) DIFFERENT MANUFACTURERS REQUIRE DIFFERENT PERFORATED W - BEAM RAIL END PANELS. SEE MANUFACTURER'S INFORMATION.

(D) ATTACH ALUMINUM SHEET TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF - TAPPING SCREWS. ONE SCREW PER CORNER.

(E) HARDWARE MAY VARY BETWEEN MANUFACTURER. SEE MANUFACTURER'S DRAWING FOR INFORMATION.

DIMENSIONS MAY VARY, MANUFACTURER'S INFORMATION.

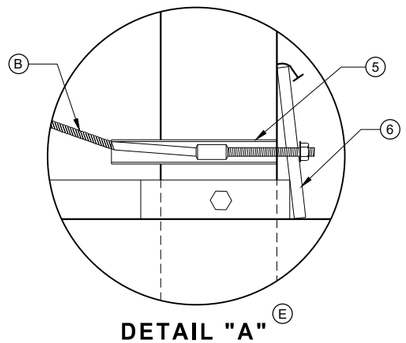
SEE SDD 14B42 FOR MORE INFORMATION.

* DO NOT ATTACH BLOCKOUTS TO POST 1 AND 2.

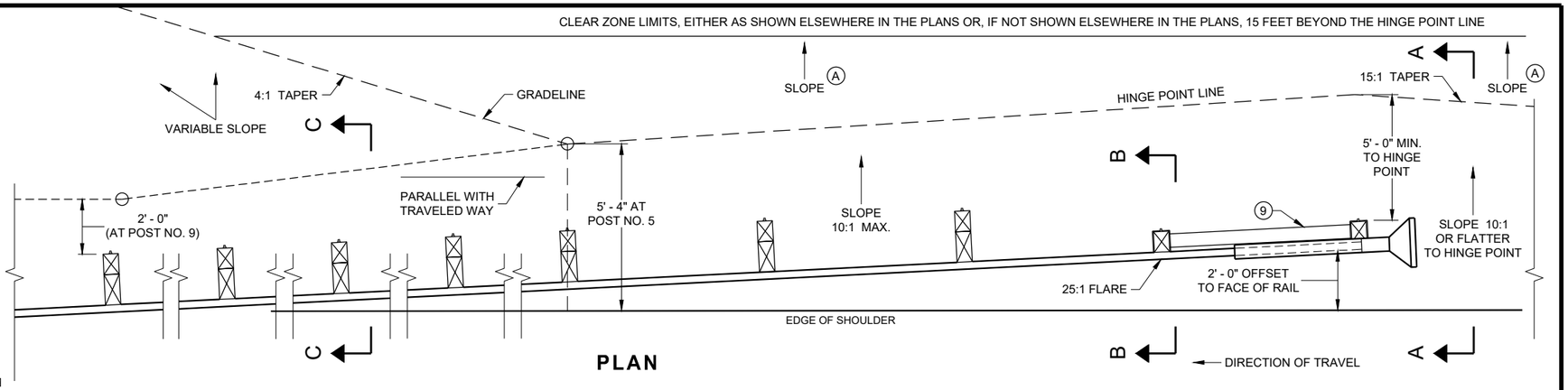
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

SEE MANUFACTURER'S DRAWING FOR SPLICE LOCATION, HARDWARE DIMENSIONS AND INSTALLATION INSTRUCTIONS.

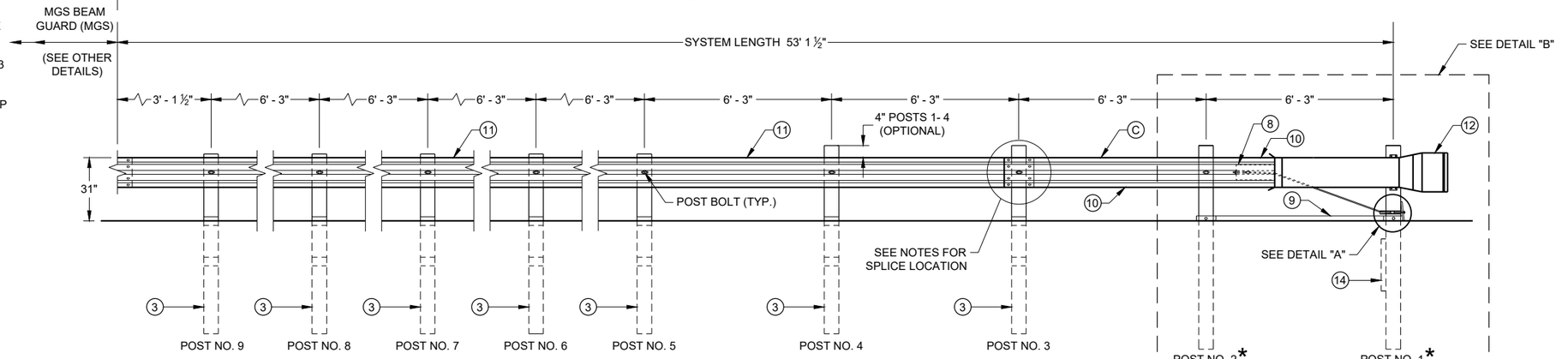
THE CENTER OF THE UPPER 3 ½" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE. WOOD BLOCKS ON POSTS NUMBERED 3 THROUGH 9 MAY BE ADJUSTED UP TO 3" ABOVE THE TOP OF POST.



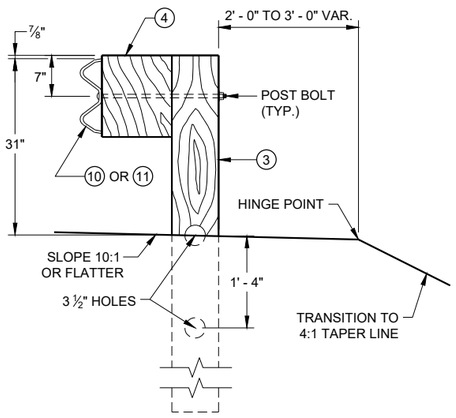

DETAIL "A" (E)



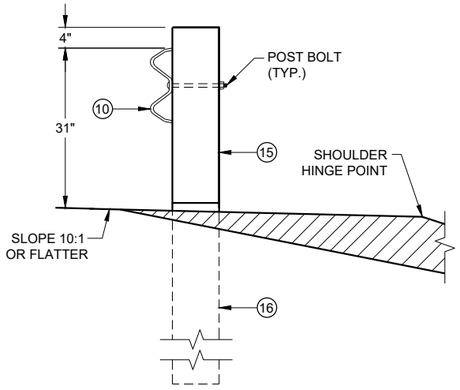

PLAN



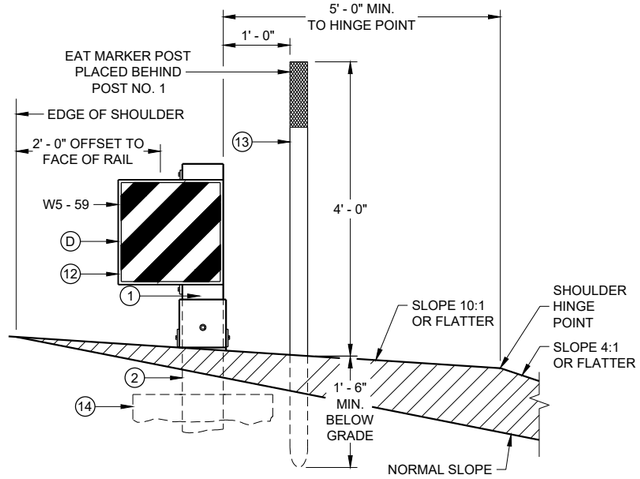

ELEVATION



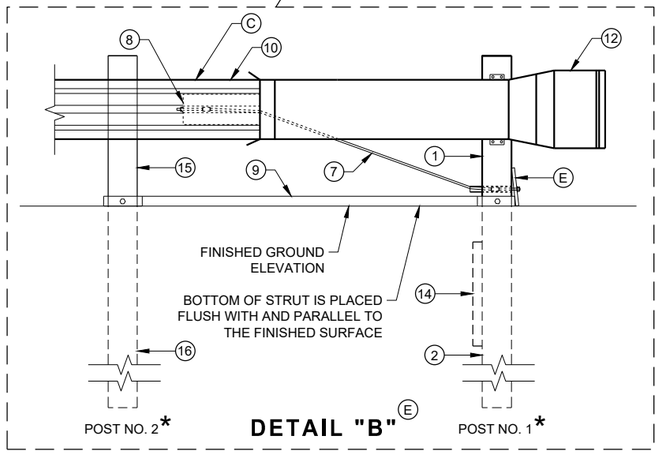

SECTION C - C
TYPICAL AT POST NOS. 3 - 9




SECTION B - B
TYPICAL AT POST NO. 2*




SECTION A - A
TYPICAL AT POST NO. 1*




DETAIL "B" (E)

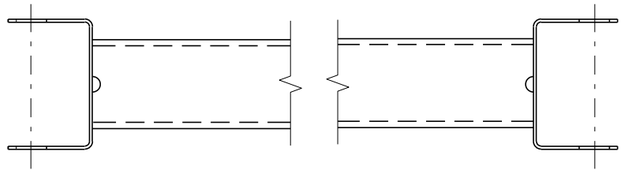
**MIDWEST GUARDRAIL SYSTEM**
**ENERGY ABSORBING TERMINAL (MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



SDD 14B44 - 04a

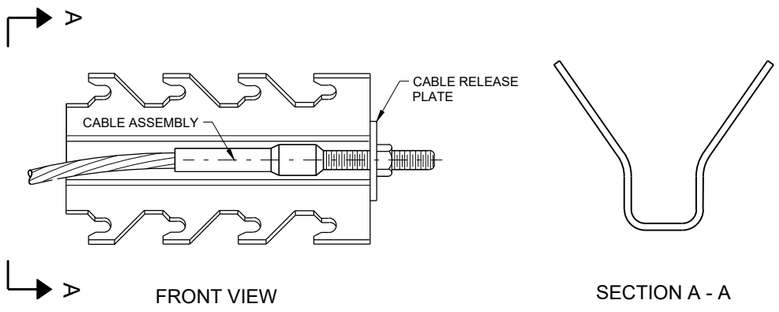
SDD 14B44 - 04a



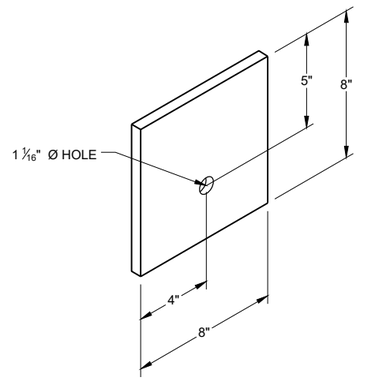
GENERIC GROUND STRUT ⑨ Ⓔ

## BILL OF MATERIALS

| PART NO. | DESCRIPTION<br>MATERIALS PROVIDED BY MGS EAT MANUFACTURER.<br>SEE MANUGACTURER'S DETAILS FOR MORE INFORMATION. |
|---|---|
| ① | UPPER POST NO. 1 6" X 6" TUBE |
| ② | LOWER POST NO. 1 |
| ③ | WOOD CRT |
| ④ | WOOD BLOCKOUT |
| ⑤ | PIPE SLEEVE |
| ⑥ | BEARING PLATE |
| ⑦ | BCT CABLE ASSEMBLY |
| ⑧ | ANCHOR CABLE BOX |
| ⑨ | GROUND STRUT |
| ⑩ | PERFORATED W-BEAM RAIL END PANEL, 12'-6" LONG. |
| ⑪ | STANDARD W-BEAM RAIL. MULTIPLE SECTIONS REQUIRED.<br>SECTIONS VARY IN LENGTH. |
| ⑫ | IMPACT HEAD |
| ⑬ | EAT MARKER POST - YELLOW<br>(SEE APPROVED PRODUCTS LIST) |
| ⑭ | SOIL PLATE |
| ⑮ | UPPER POST NO. 2 |
| ⑯ | LOWER POST NO. 2 |




GENERIC ANCHOR CABLE BOX ⑨ Ⓔ




BEARING PLATE ⑥ Ⓔ

6

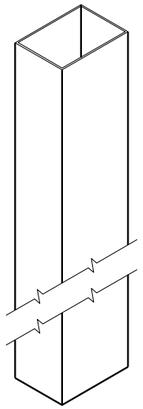
6

SDD 14B45 - 04b

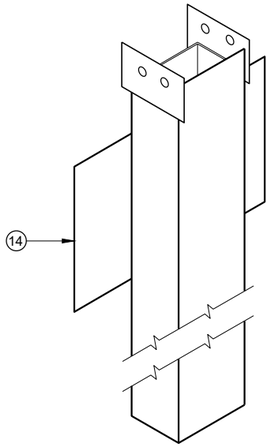
SDD 14B45 - 04b

**MIDWEST GUARDRAIL SYSTEM**
**ENERGY ABSORBING TERMINAL (MGS)**

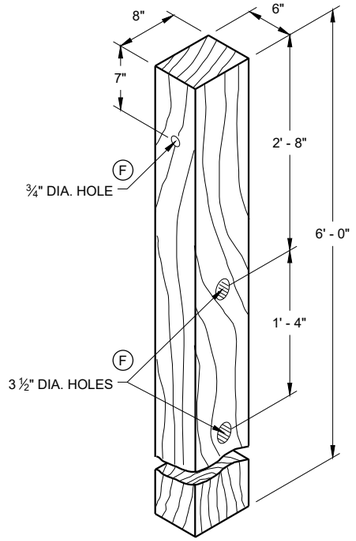
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



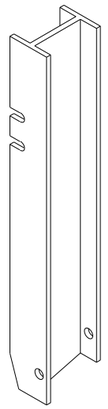
**UPPER POST NO. 1** (1) (E)



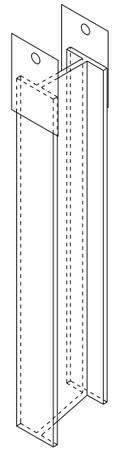

**LOWER POST NO. 1** (2) (E)



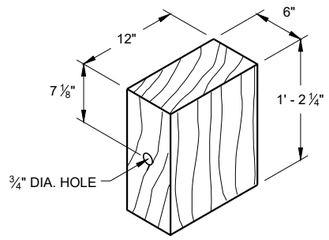

**WOOD CRT POST** (3) (E)
POSTS NUMBER 3-9



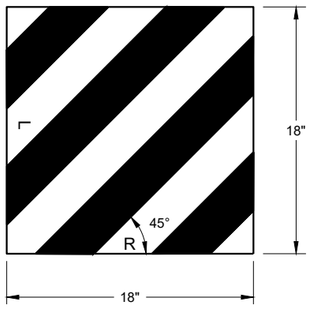
**UPPER POST NO. 2** (15) (E)



**LOWER POST NO. 2** (16) (E)

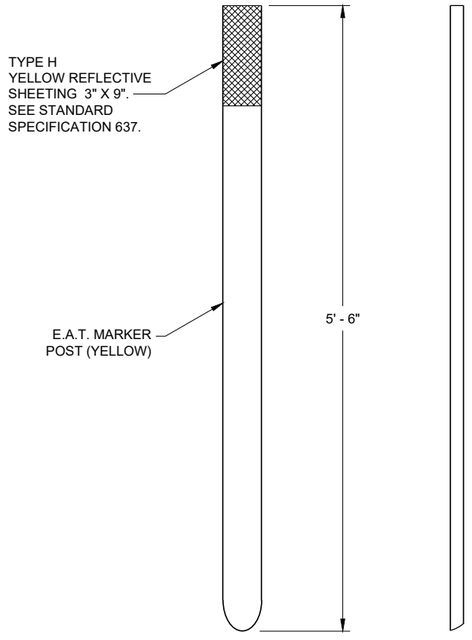



**WOOD BLOCKOUT** (4)
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



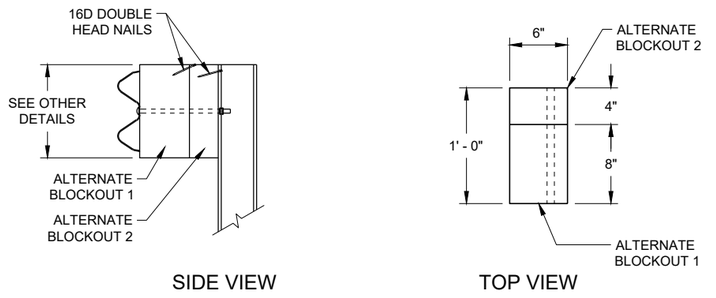

W5 - 59

**REFLECTIVE SHEETING DETAIL** (E)




FRONT VIEW SIDE VIEW

**E.A.T. MARKER POST** (13)




SIDE VIEW TOP VIEW

**ALTERNATE WOOD BLOCKOUT DETAIL**

**MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

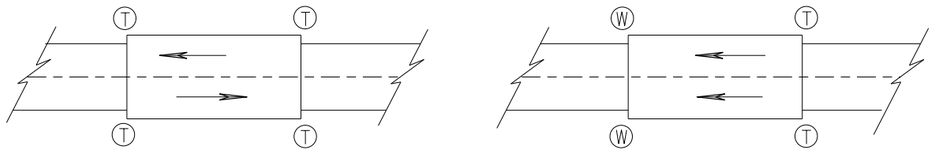
APPROVED
7/2018 — DATE
/S/ Rodney Taylor — ROADWAY STANDARDS DEVE UNIT SUPERVISOR

FHWA




6


SDD 14B44 - 04c




**TWO WAY TRAFFIC**




**ONE WAY TRAFFIC**

(T) THRIE BEAM CONNECTION

(W) W-BEAM CONNECTION WHEN REQUIRED

## TYPICAL LOCATIONS OF THRIE BEAM AND W-BEAM CONNECTIONS TO BRIDGE

## GENERAL NOTES

IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2½", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

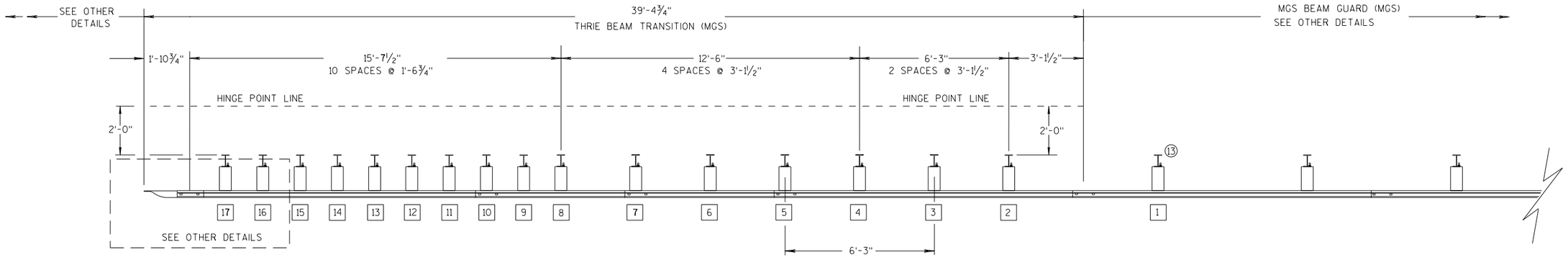
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

POST 2 THROUGH 17 USES STEEL POST ONLY

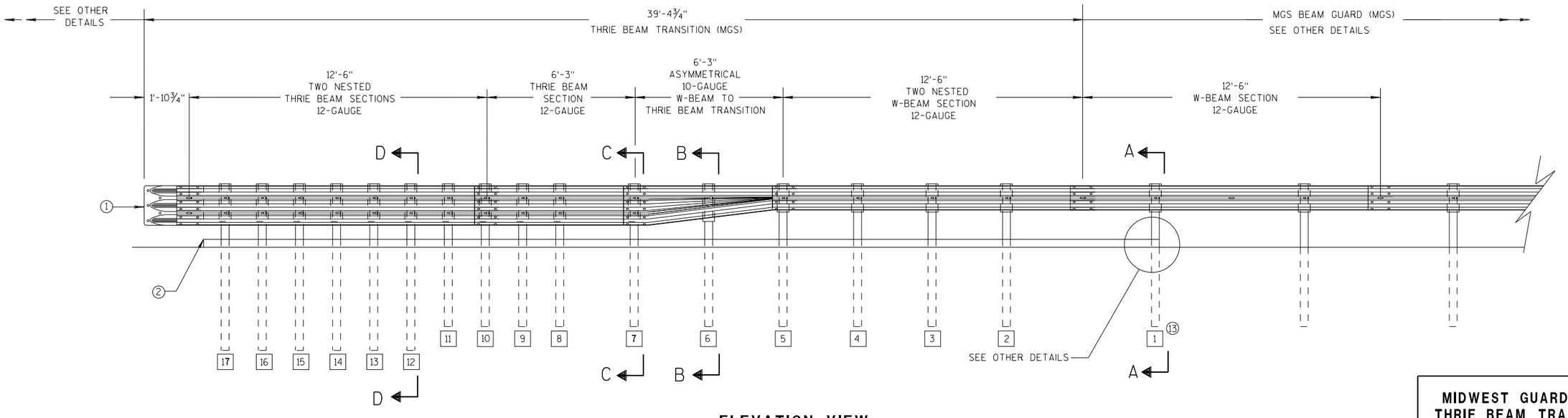
(1) BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.

(2) OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.

(13) STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD14B42




**PLAN VIEW**




**ELEVATION VIEW**

## MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

**MIDWEST GUARDRAIL SYSTEM**
**THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR







6

S.D.D. 14 B 45-5a

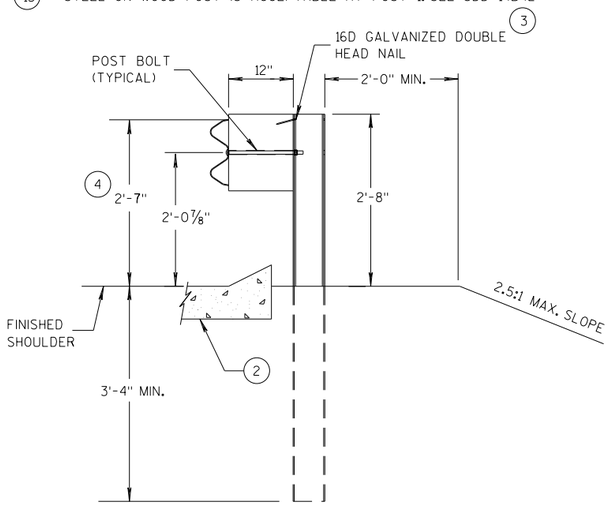
## GENERAL NOTES

(2) OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.

(3) WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

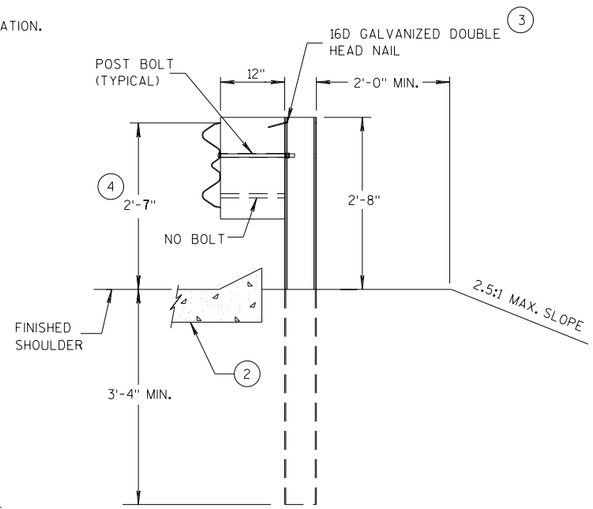
(4) TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".

(13) STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD 14B42



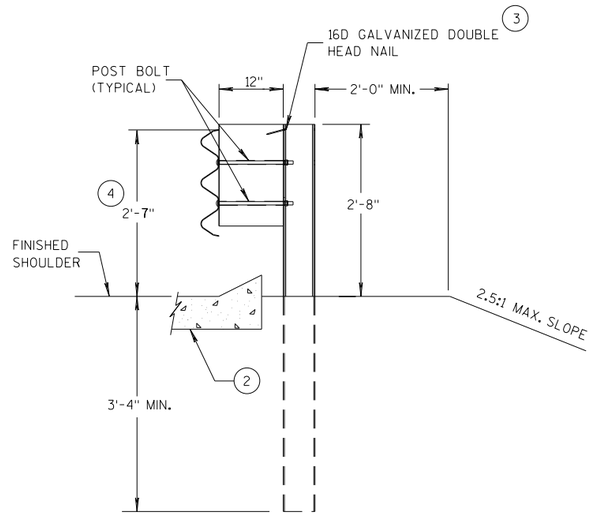

SECTION A-A (13)

**POSTS 1-5**



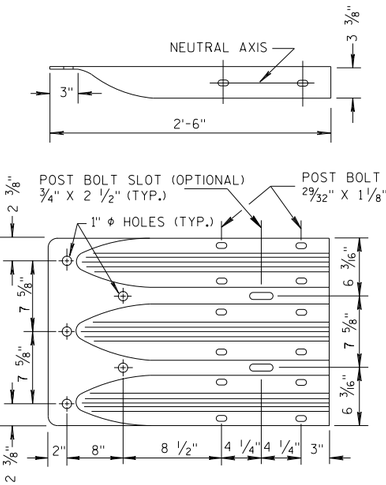

SECTION B-B

**POST 6**

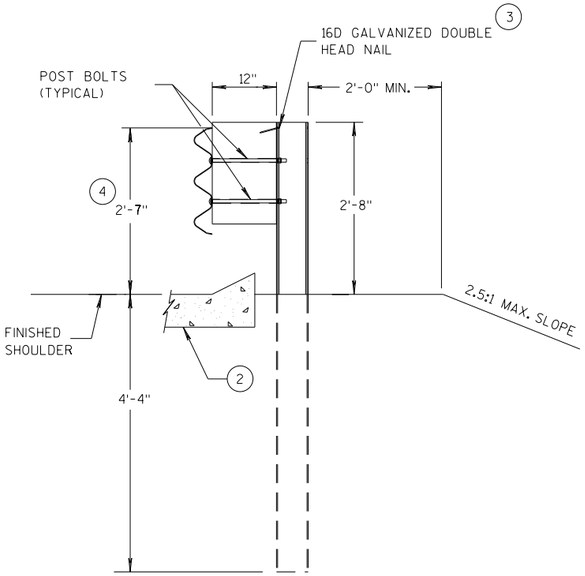



SECTION C-C

**POSTS 7-11**

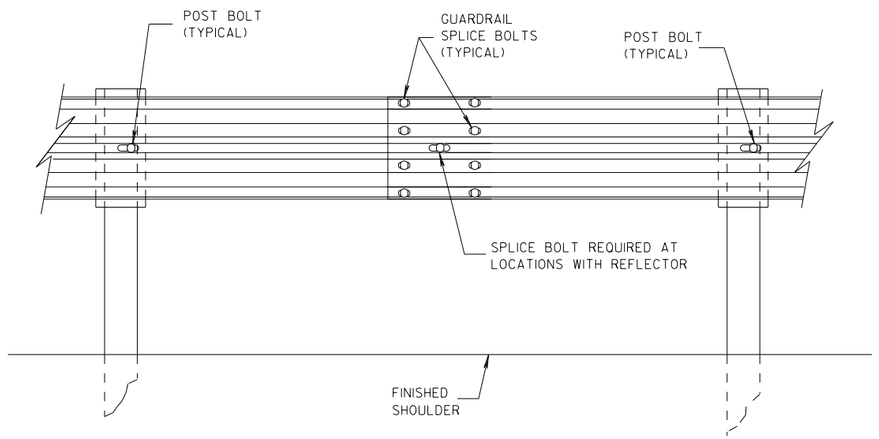



**THRIE BEAM TERMINAL CONNECTOR**




SECTION D-D

**POSTS 12-17**




**SPLICE DETAIL**

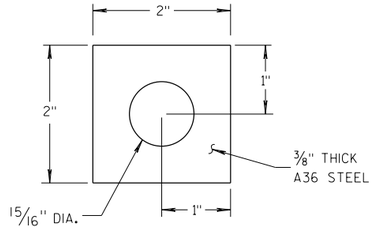
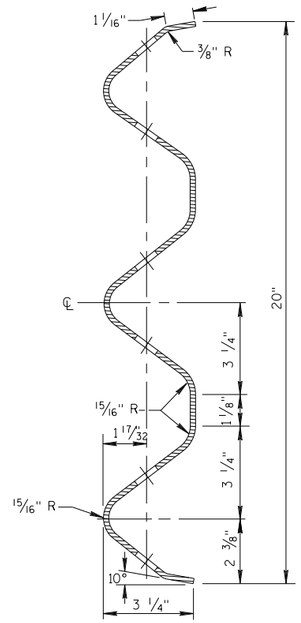



**PLATE WASHER DETAIL**




**SECTION THRU THRIE BEAM RAIL ELEMENT**

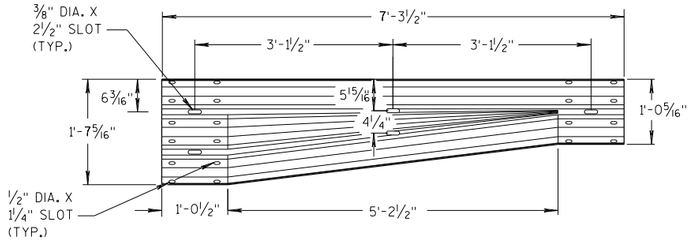
**MIDWEST GUARDRAIL SYSTEM**
**THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOF

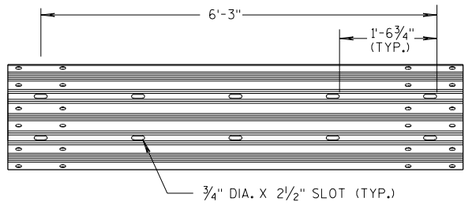



6

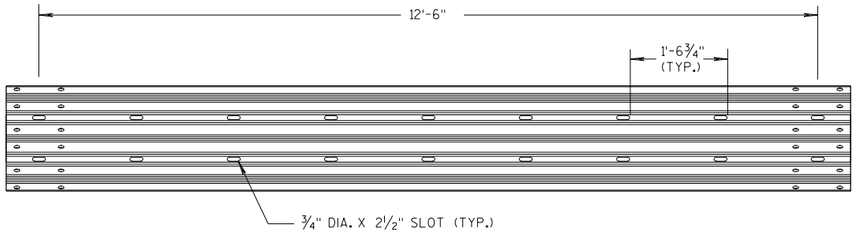
S.D.D. 14 B 45-5b



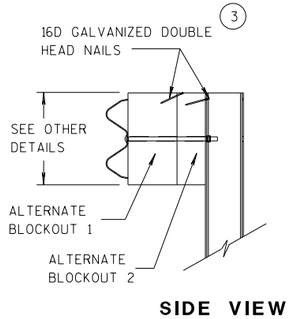

## W-BEAM TO THRIE BEAM TRANSITION SECTION



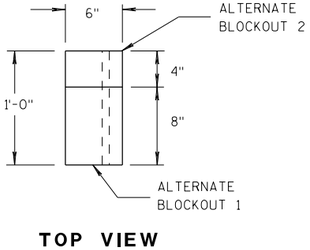

## 6'-3" THRIE BEAM SECTION




## 12'-6" THRIE BEAM SECTION

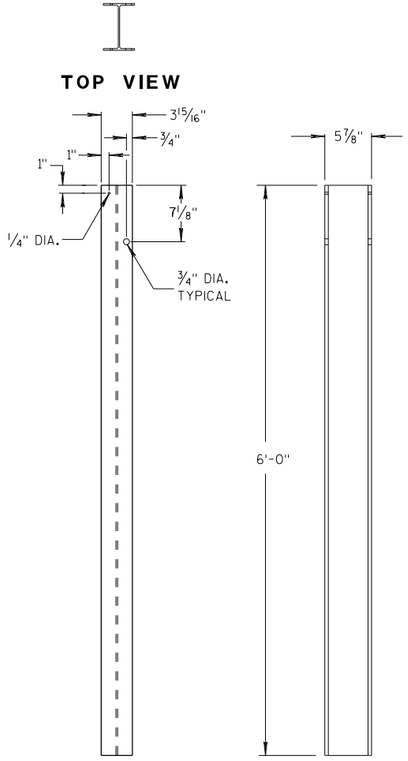



SIDE VIEW



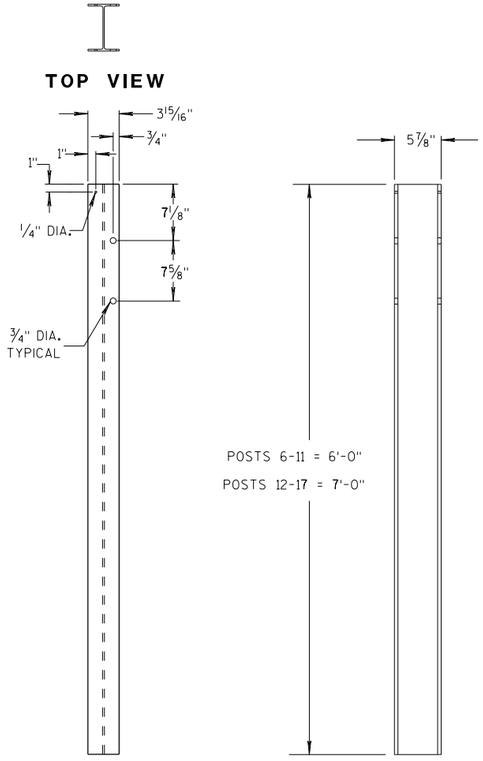

TOP VIEW

## ALTERNATE WOOD BLOCKOUT DETAIL



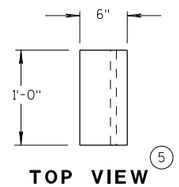

FRONT VIEW SIDE VIEW

## STEEL POSTS 1-5 (13)

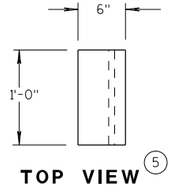



FRONT VIEW SIDE VIEW

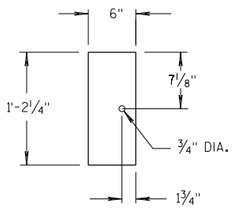
## STEEL POSTS 6-17




TOP VIEW (5)

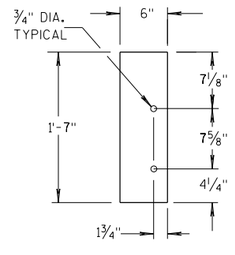



TOP VIEW (5)




FRONT VIEW

## BLOCKOUT POSTS 1-5




FRONT VIEW

## BLOCKOUT POSTS 6-17

## GENERAL NOTES

STEEL POSTS ARE W6X9 OR W6X8.5.

BOLT HOLES FOR POST ARE ON FRONT AND OF SIDE OF POST.

(3) WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

(5) WOOD BLOCKS MAY BE CONSTRUCTED OUT OF 2 WOOD BLOCKS. SEE ALTERNATE WOOD BLOCK DETAIL.

(13) STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD 14B42.

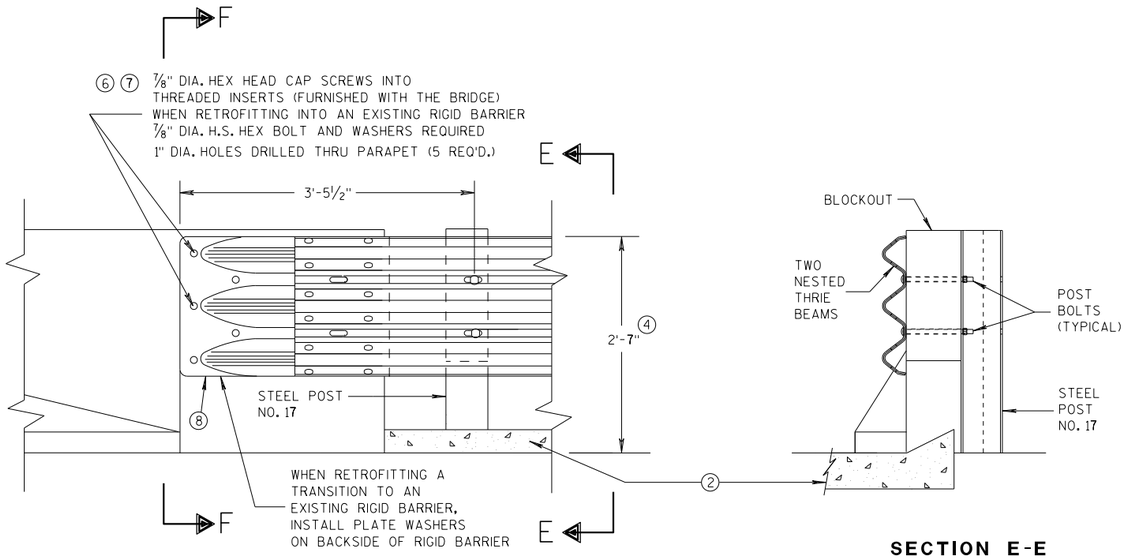
**MIDWEST GUARDRAIL SYSTEM**
**THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR




6

S.D.D. 14 B 45-5c




FRONT VIEW

SECTION E-E

# THRIE BEAM CONNECTION TO BRIDGE PARAPET WITH SQUARE ENDS

## GENERAL NOTES

THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSTION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.

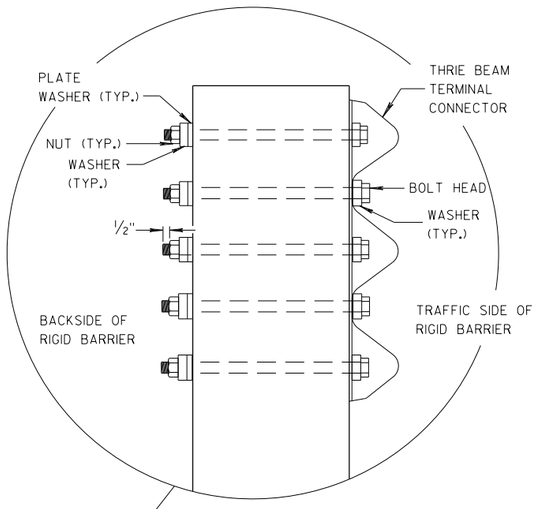
② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.

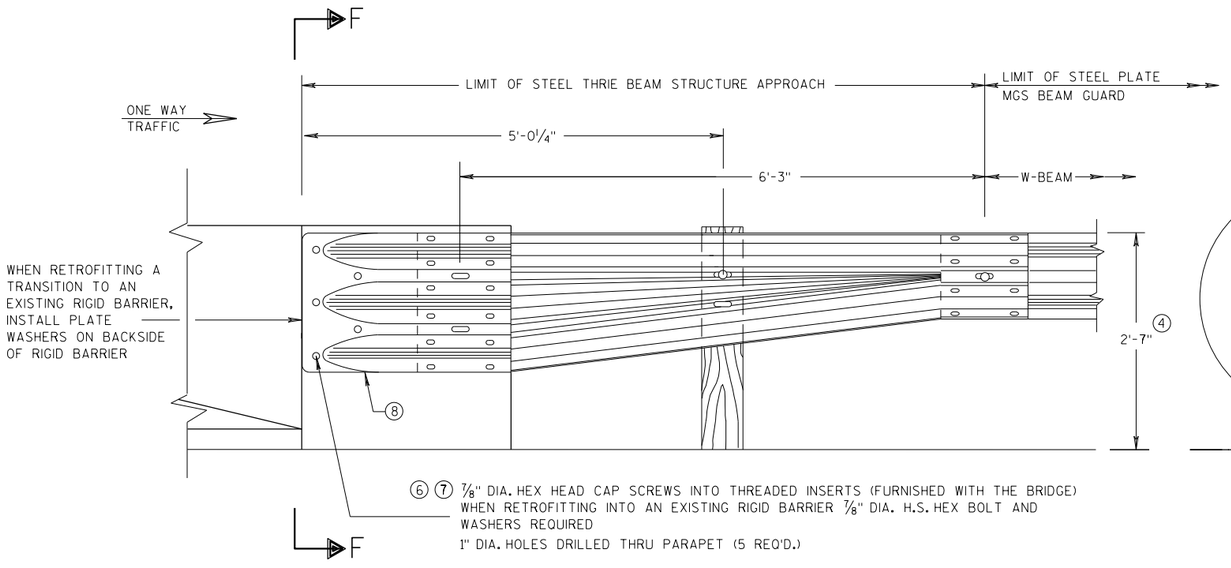
④ TOLERANCE FOR TOP OF BEAM IS ± 1".

⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

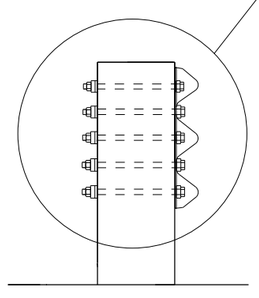
⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.

⑧ THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".

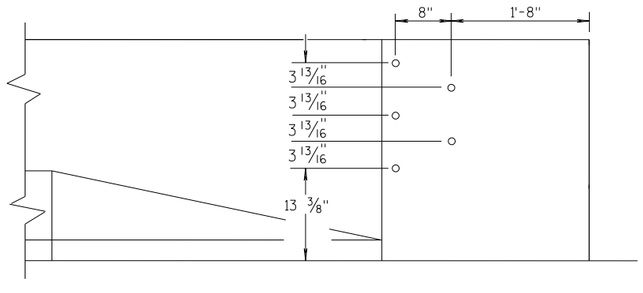



FRONT VIEW



SECTION F-F




DRILL HOLE LOCATION

# W BEAM TRANSITION AND CONNECTION TO BRIDGE PARAPETS WITH SQUARE ENDS

(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

**MIDWEST GUARDRAIL SYSTEM**
**THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
07/2018 DATE
/S/ Rodney Taylor
ROADWAY STANDARDS D UNIT SUPERVI
NT
FHWA



6

S.D.D. 14 B 45-5d

6

S.D.D. 14 B 45-5d

# GENERAL NOTES

THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSTION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.

(2) OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.

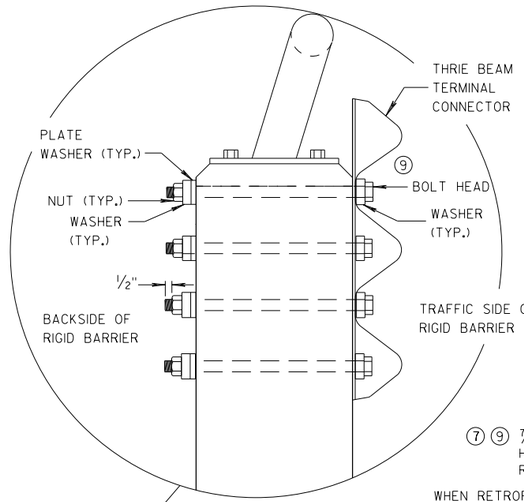
(4) TOLERANCE FOR TOP OF BEAM IS ± 1".

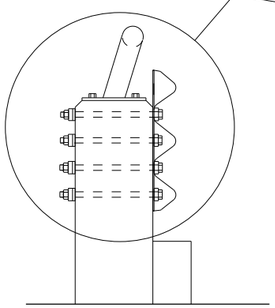
(6) DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

(7) BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.

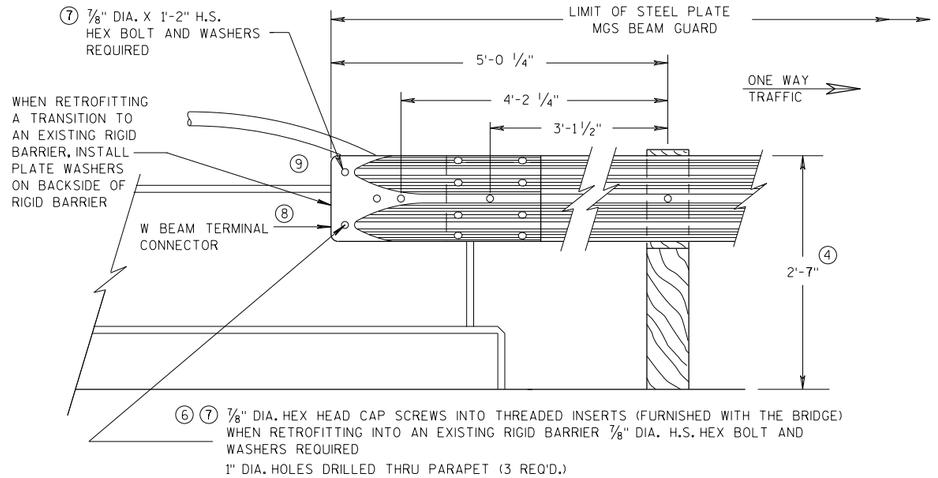
(8) THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".

(9) BOLT, NUT AND WASHERS NOT REQUIRED FOR THIS LOCATION WHEN RETROFITTING AN EXISTING PAPAPET AND THE HOLE IS EITHER ABOVE PARAPET OR WITHIN 4 INCHES OF THE EDGE OF PARAPET.



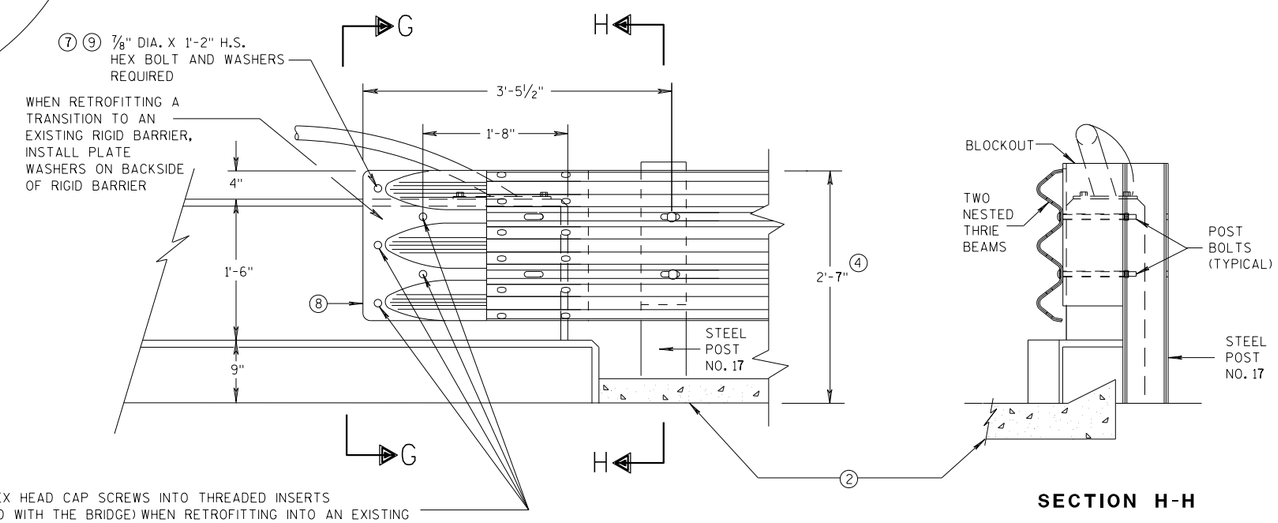
SECTION G-G




FRONT VIEW

## W BEAM CONNECTION TO VERTICAL FACE PARAPET

**(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)**




FRONT VIEW




SECTION H-H

## THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS

**MIDWEST GUARDRAIL SYSTEM**
**THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
07/2018 — DATE
/S/ Rodney Taylor
ROADWAY STANDARDS D UNIT SUPERVIS — NT
FHWA

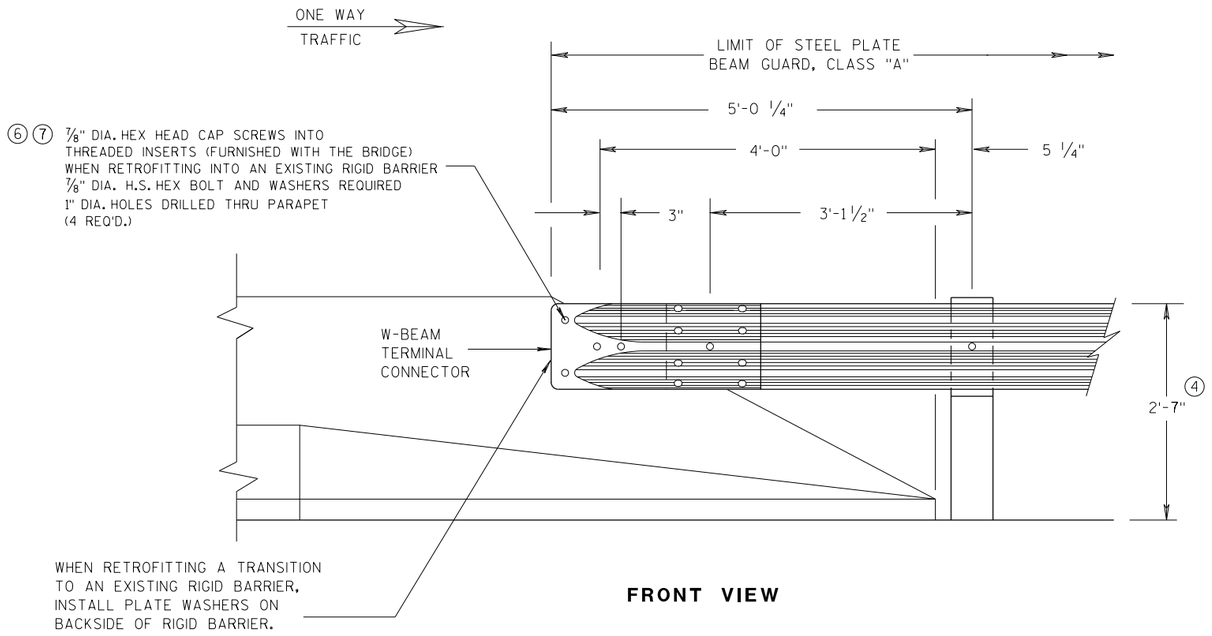


6

S.D.D. 14 B 45-5e

6

S.D.D. 14 B 45-5e




FRONT VIEW

## W BEAM CONNECTION TO PARAPETS WITH SLOPED ENDS

(USE ONLY AT TRAFFIC EXIT END OF ONE WAY BRIDGE)

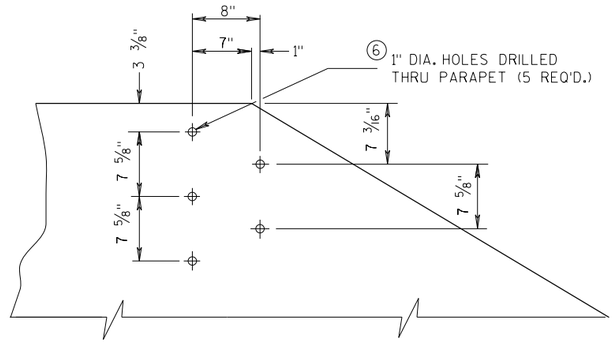
## GENERAL NOTES

② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.

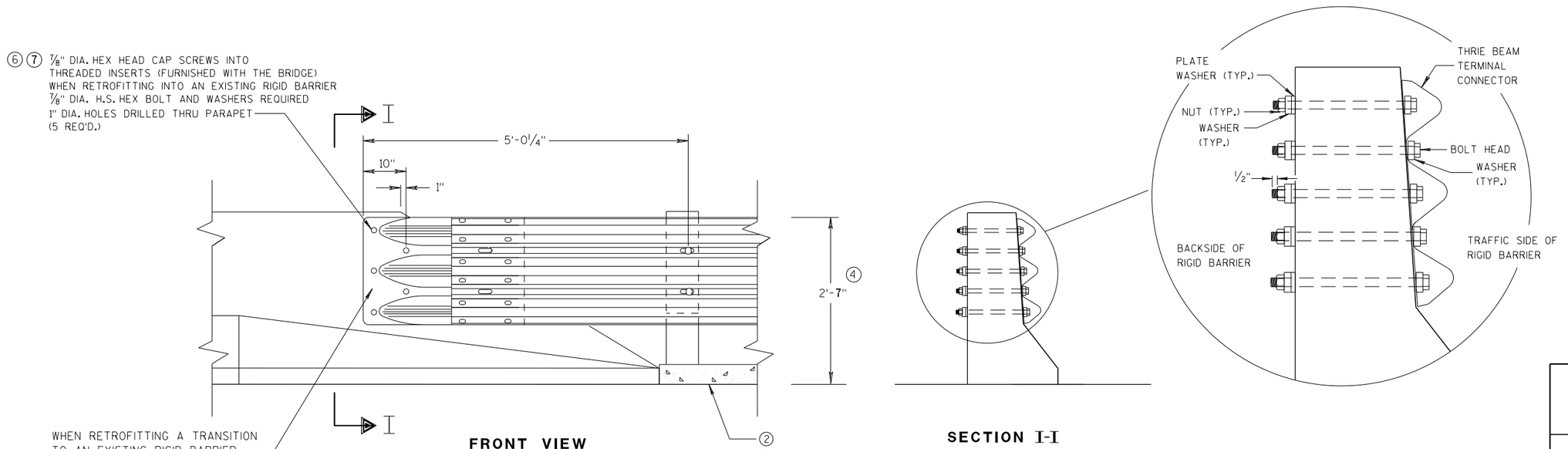
④ TOLERANCE FOR TOP OF BEAM IS ± 1".

⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.




DRILL HOLE LOCATION AND PATTERN
FOR THRIE BEAM CONNECTION




FRONT VIEW

SECTION I-I

## THRIE BEAM CONNECTION TO BRIDGE PARAPETS WITH SLOPED ENDS

**MIDWEST GUARDRAIL SYSTEM**
**THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
07/2018 — DATE
/S/ Rodney Taylor — ROADWAY STANDARDS I[illegible] UNIT SUPERVI[illegible]ENT
FHWA

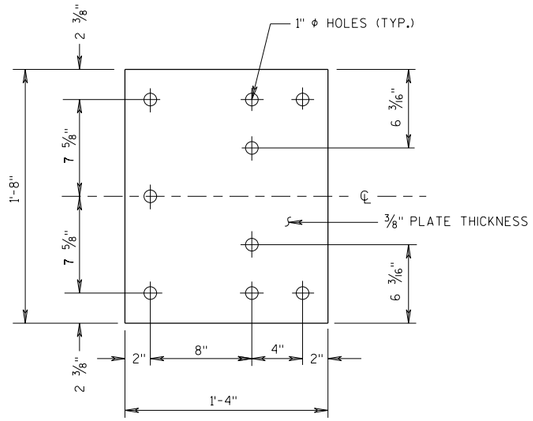


6

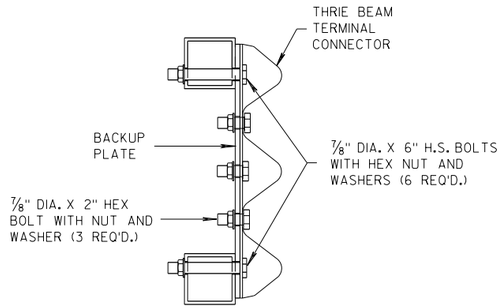
S.D.D. 14 B 45-5f

6

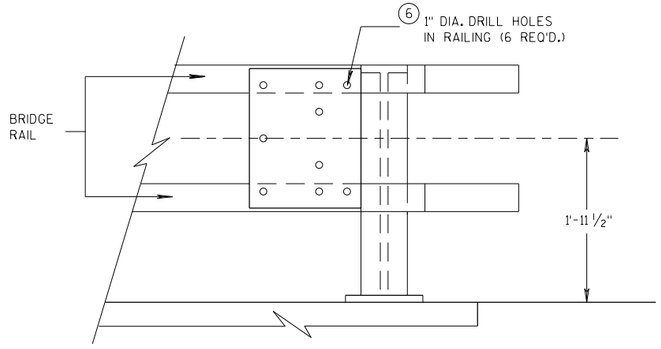
S.D.D. 14 B 45-5f




## BACK-UP PLATE DETAIL




## SECTION J-J

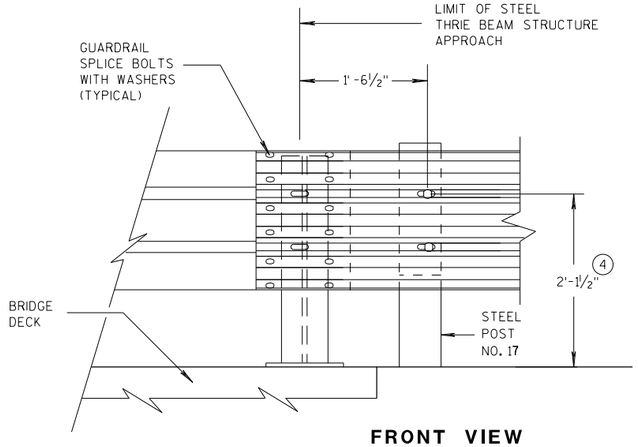



## BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING

# GENERAL NOTES

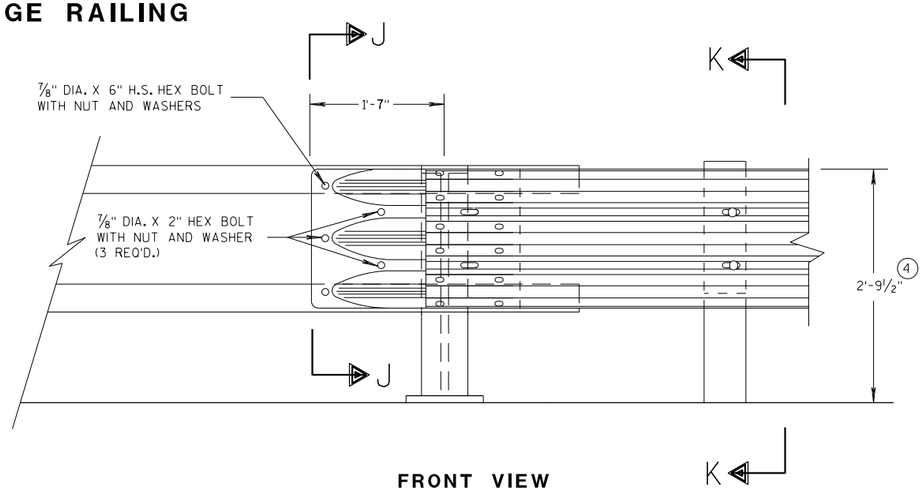
④ TOLERANCE FOR TOP OF BEAM IS ± 1".

⑥ DRILLING HOLES THROUGH THE PAPRPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

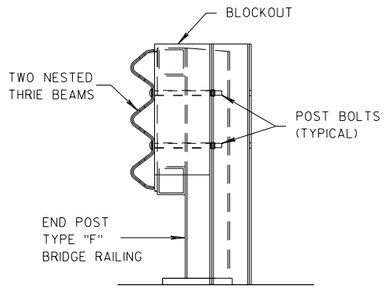



FRONT VIEW

## THRIE BEAM CONNECTION TO STEEL RAILING TYPE "W"




FRONT VIEW




SECTION K-K

## THRIE BEAM CONNECTION TO TUBULAR RAILING TYPE "F"

## MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED 07/2018 — DATE — FHWA

/S/ Rodney Taylor 36 — ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR

6

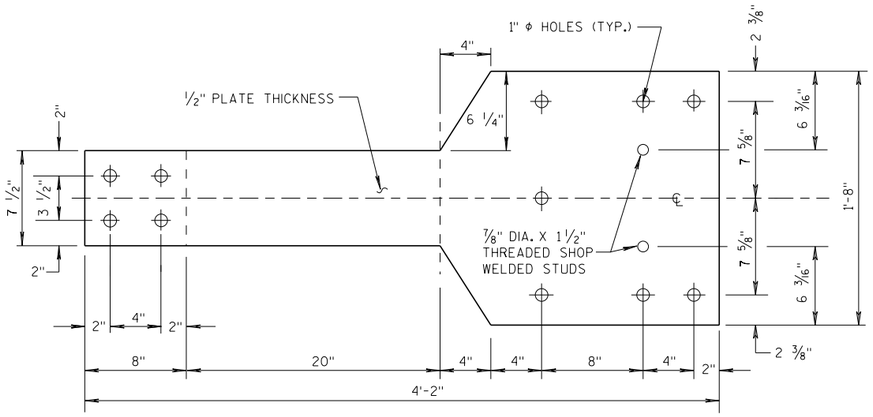
S.D.D. 14 B 45-5g

6

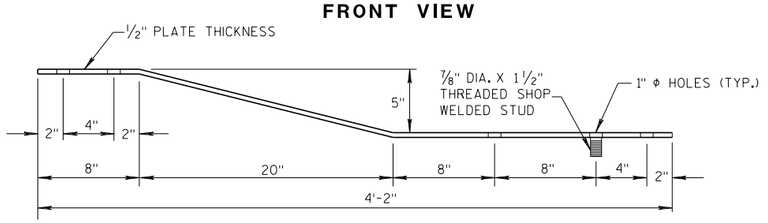
S.D.D. 14 B 45-5g

## GENERAL NOTES

(4) TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".

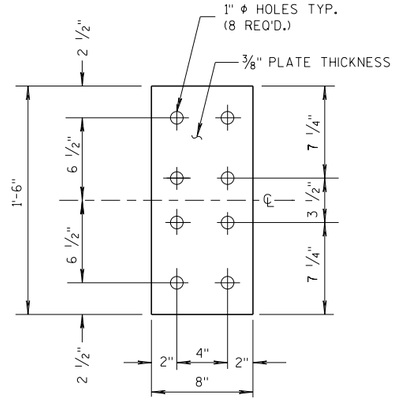



FRONT VIEW



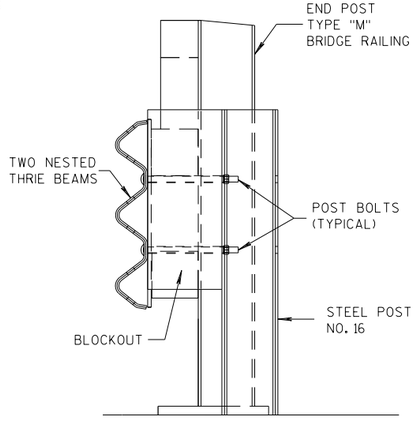

PLAN VIEW

## BACK-UP PLATE DETAIL, TYPE "M"

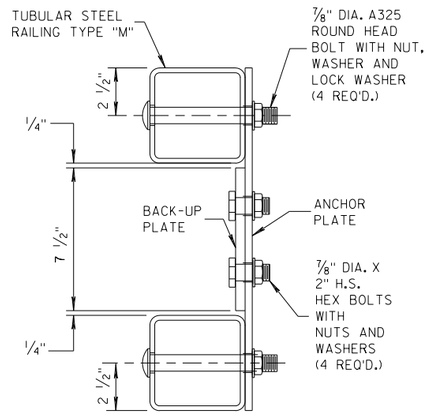



FRONT VIEW

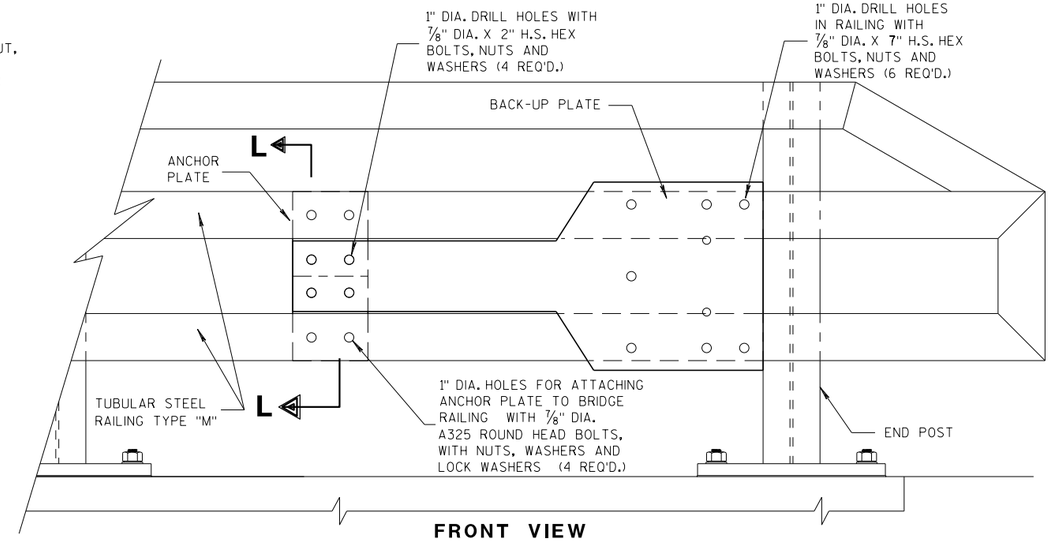
## ANCHOR PLATE DETAIL, TYPE "M"




SECTION M-M

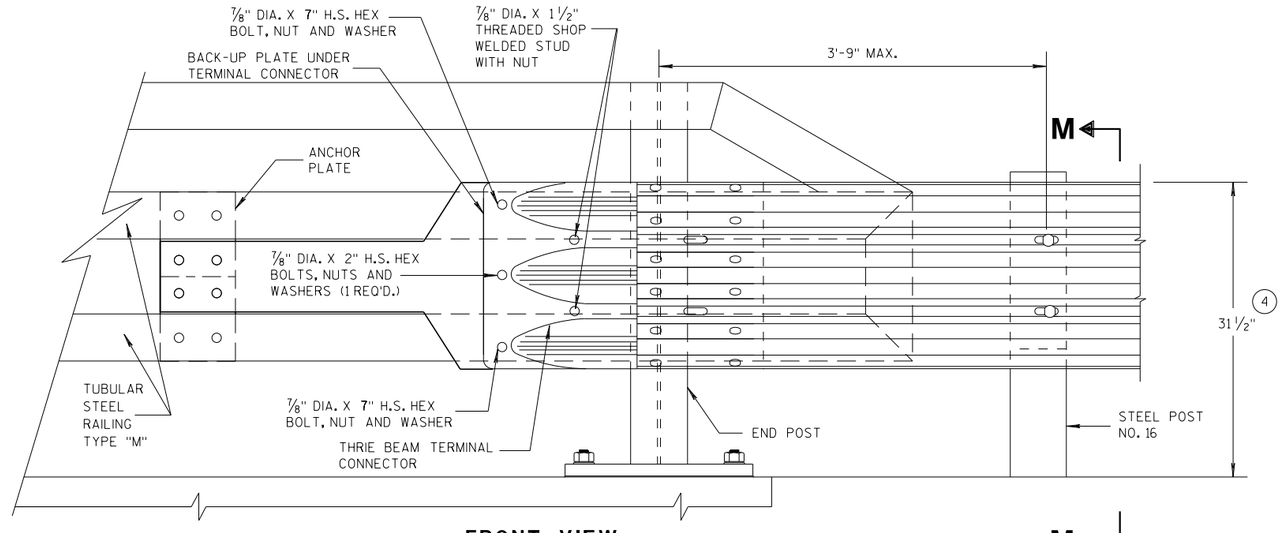



SECTION L-L

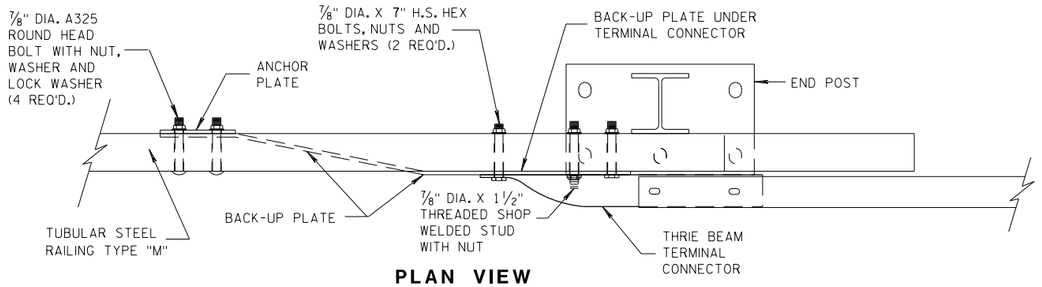



FRONT VIEW

## ANCHOR AND BACK-UP PLATE MOUNTING TO BRIDGE RAILING, TYPE "M"




FRONT VIEW




PLAN VIEW

## THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

**MIDWEST GUARDRAIL SYSTEM**
**THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
07/2018 — DATE
/S/ Rodney Taylor — ROADWAY STANDARDS UNIT SUPERVISOR
FHWA

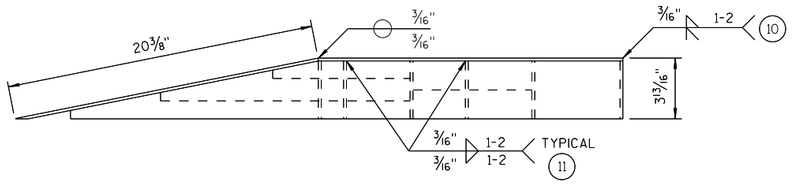


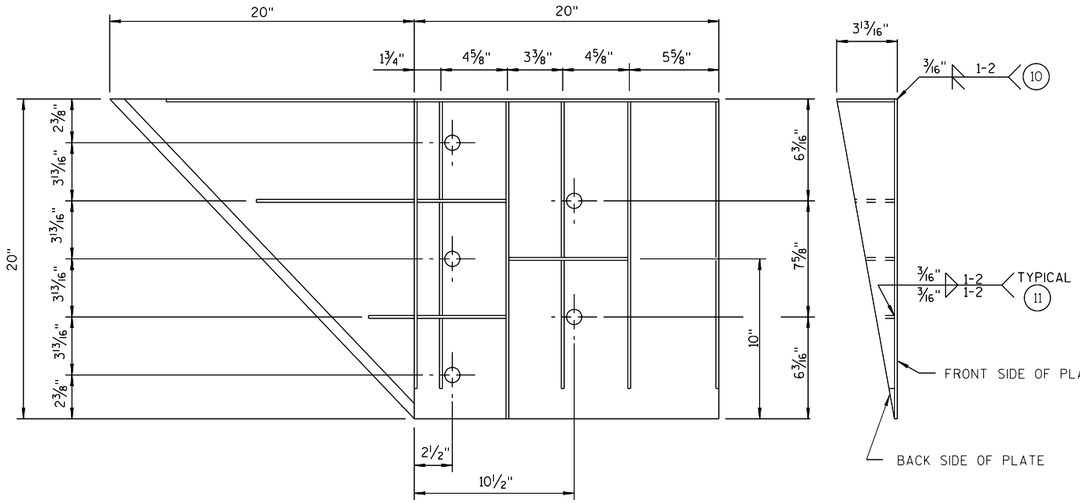
6

S.D.D. 14 B 45-5h

6

S.D.D. 14 B 45-5h



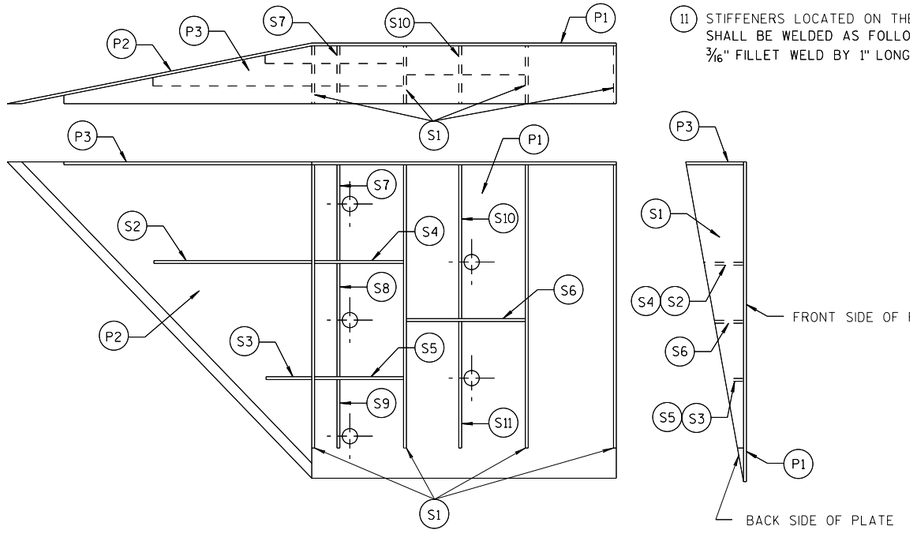







## WELDING INSTRUCTION

(VIEWED FROM BACK SIDE OF PLATE)




## PLATE AND STIFFENER IDENTIFICATION

(VIEWED FROM BACK SIDE OF PLATE)

## GENERAL NOTES

COVER PLATE PANELS ARE 3/16" THICK.

ALL STIFFENERS ARE 1/4" THICK.

CONNECTOR PLATE SHALL BE FABRICATED FROM ASTM GRADE A36 STEEL AND GALVANIZED.

FOR GALVANIZED REQUIREMENTS, SEE SECTION 614 OF THE STANDARD SPECIFICATIONS.

ALL HOLE DIAMETERS SHALL BE 1".

FOR OPPOSITE SIDE INSTALLATION MIRROR DRAWINGS.

(10) STIFFENERS LOCATED AT THE OUTSIDE EDGES OF THE COVER PLATES SHALL BE WELDED AS FOLLOWS:
SINGLE BEVEL GROOVE WELD ON EXTERNAL SIDES AND 3/16" FILLET WELD BY 1" LONG SPACED AT 2" ON INTERNAL SIDES.

(11) STIFFENERS LOCATED ON THE INSIDE OF THE COVER PLATE SHALL BE WELDED AS FOLLOWS:
3/16" FILLET WELD BY 1" LONG SPACED AT 2".

**CONNECTOR PLATE DIMENSION (PER ASSEMBLY)**

| PLATE | QUANTITY | SHAPE | SIZE (A x B x C x D) | THICKNESS |
|---|---|---|---|---|
| P1 | 1 | | 20" x 20" | 3/16" |
| P2 | 1 | | 20" x 20" x 28 9/16" | 3/16" |
| P3 | 1 | | 39" x 3 5/8" x 20" x 19 5/16" | 3/16" |
| S1 | 4 | | 18 7/16" x 3 5/8" x 18 3/4" | 1/4" |
| S2 | 1 | | 10 1/4" x 2 7/16" x 10 3/8" x 1/2" | 1/4" |
| S3 | 1 | | 3" x 1 1/16" x 3 1/8" x 1/2" | 1/4" |
| S4 | 1 | | 6 1/8" x 2 7/16" | 1/4" |
| S5 | 1 | | 6 1/8" x 1 1/16" | 1/4" |
| S6 | 1 | | 7 3/4" x 1 3/4" | 1/4" |
| S7 | 1 | | 2 9/16" x 6" x 3 5/8" x 5 7/8" | 1/4" |
| S8 | 1 | | 1 5/32" x 7 1/2" x 2 1/2" x 7 3/8" | 1/4" |
| S9 | 1 | | 6 1/16" x 6 3/16" x 1 3/32" | 1/4" |
| S10 | 1 | | 1 7/8" x 9 7/8" x 3 5/8" x 9 11/16" | 1/4" |
| S11 | 1 | | 8 1/2" x 8 3/4" x 1 13/16" | 1/4" |

## SINGLE SLOPE CONNECTION PLATE

**MIDWEST GUARDRAIL SYSTEM**
**THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
7/2018
DATE
FHWA

/S/ Rodney Taylor
ROADWAY STANDARDS I
UNIT SUPERVI

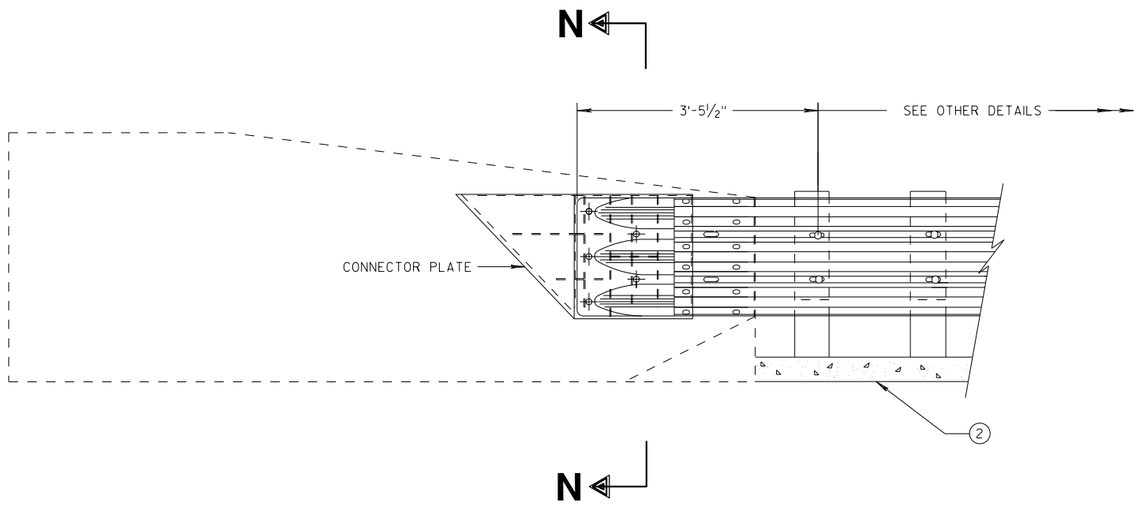


6

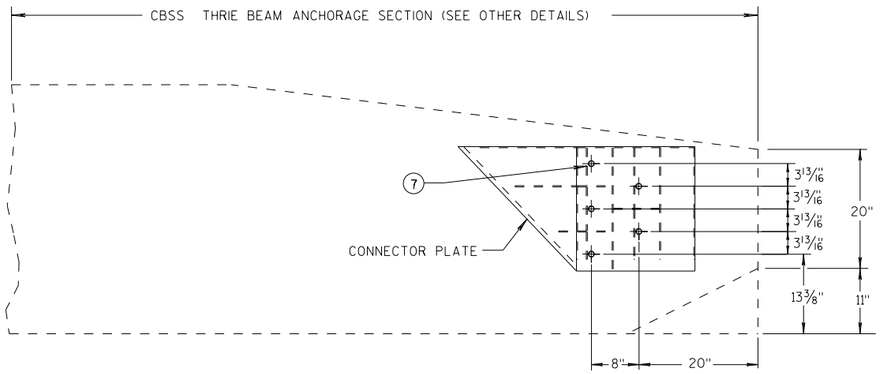
S.D.D. 14 B 45-5i

6

S.D.D. 14 B 45-5i




## THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER



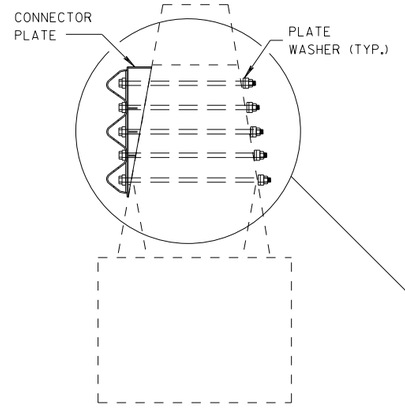

## SINGLE SLOPE CONNECTION PLATE PLACEMENT

## GENERAL NOTES

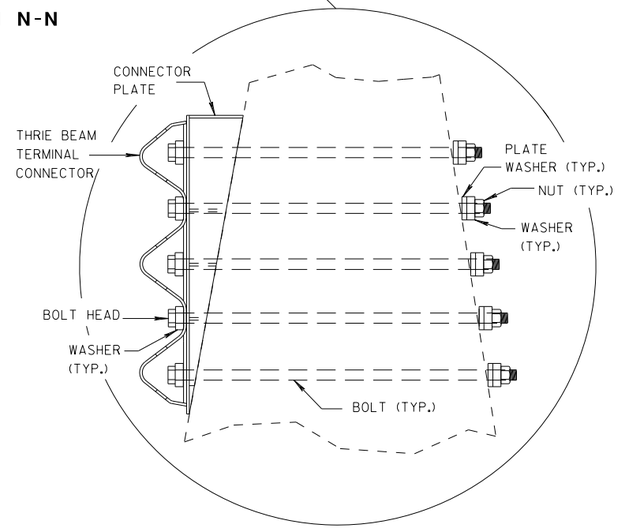
CONNECTOR PLATE, DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

(2) OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.

(7) BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X ⅝" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.




SECTION N-N




**MIDWEST GUARDRAIL SYSTEM**
**THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
7/2018
DATE
/S/ Rodney Taylor
ROADWAY STANDARDS DI UNIT SUPERVIS NT
FHWA

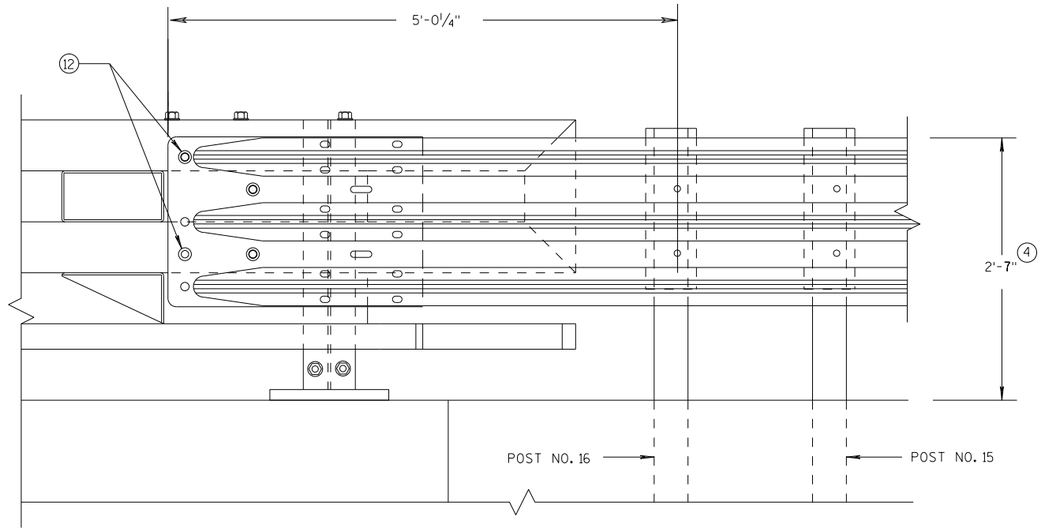


6

S.D.D. 14 B 45-5j

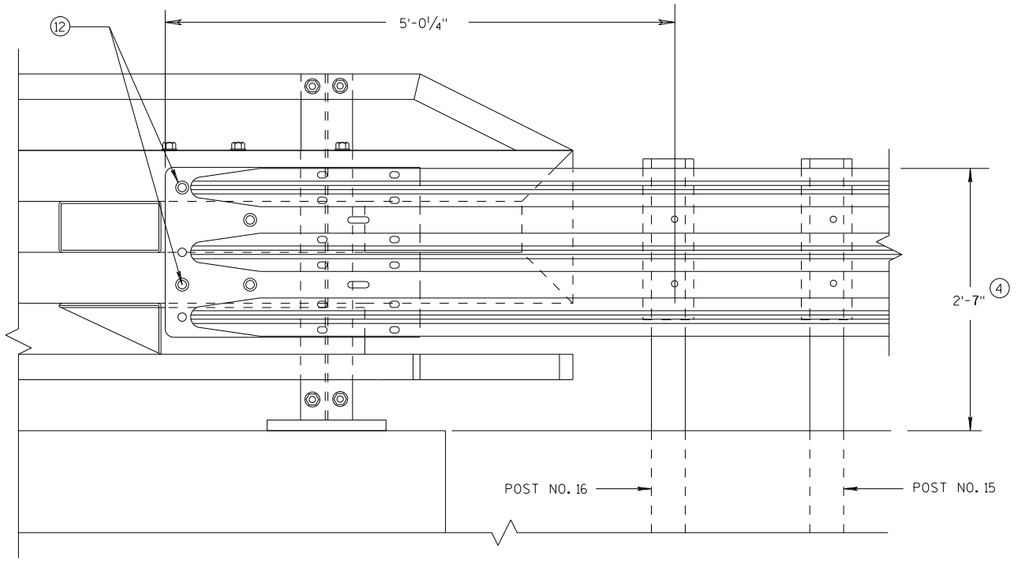
6

S.D.D. 14 B 45-5j




## ELEVATION OF DETAIL AT NY3 END POST

### THRIE BEAM RAIL ATTACHMENT




## ELEVATION OF DETAIL AT NY4 END POST

### THRIE BEAM RAIL ATTACHMENT

## GENERAL NOTES

(4) TOLERANCE FOR TOP OF BEAM IS ± 1".

(12) BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. ON BACKSIDE OF PARAPET ONE ROUND WASHER, AND NUT REQUIRED. BOLT THREAD IS TO EXTEND 1/2-INCH BEYOND NUT.

**MIDWEST GUARDRAIL SYSTEM**
**THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

7/2018
DATE

/S/ Rodney Taylor
ROADWAY STANDARDS D
UNIT SUPERVIS

NT

FHWA

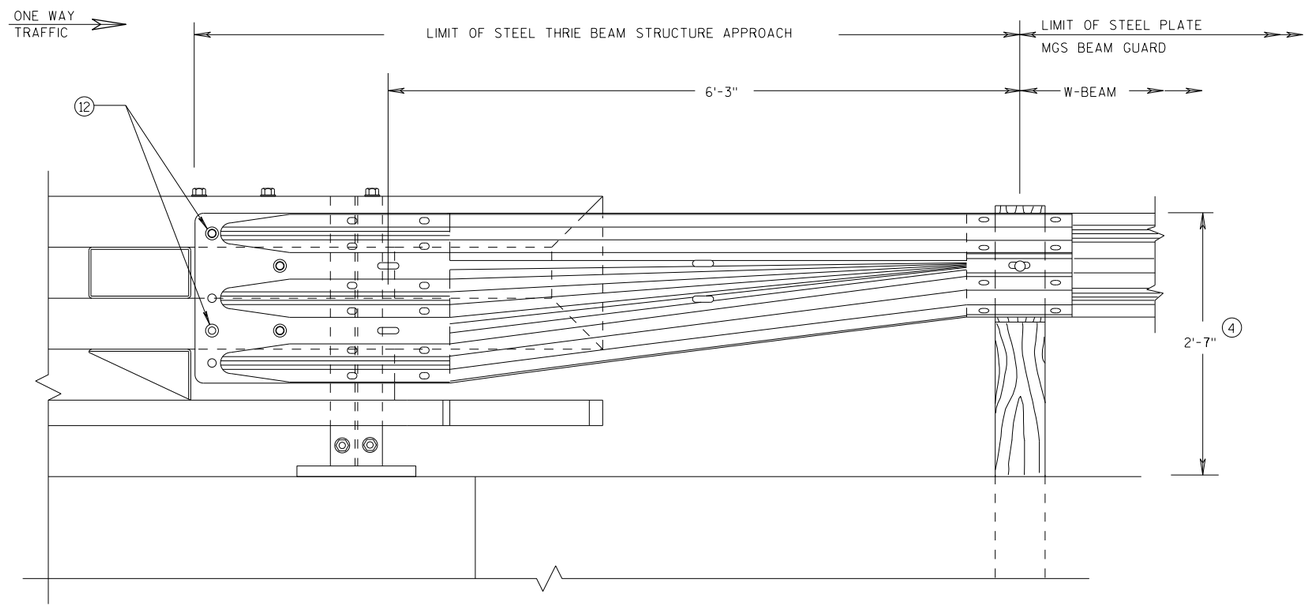


6

S.D.D. 14 B 45-5k

6

S.D.D. 14 B 45-5k




FRONT VIEW

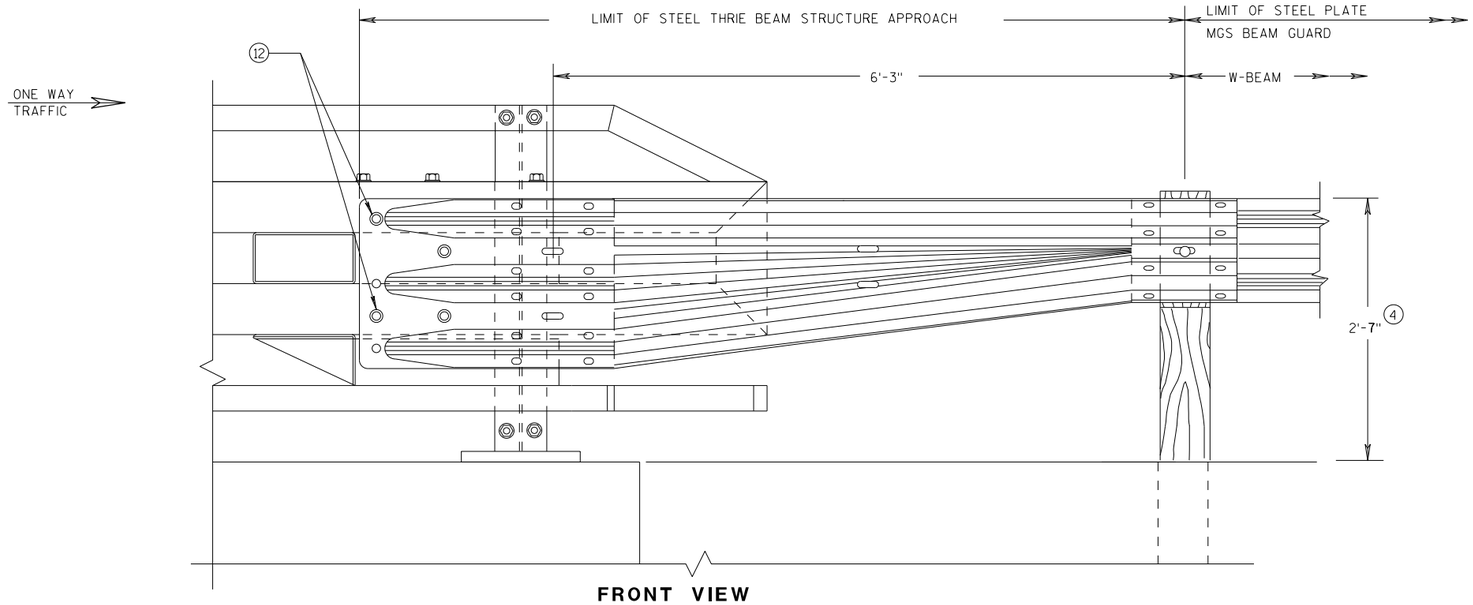
## W BEAM TRANSITION AND CONNECTION TO BRIDGE RAILING TYPE "NY3"

(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

## GENERAL NOTES

(4) TOLERANCE FOR TOP OF BEAM IS ± 1".

(12) BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. ON BACKSIDE OF PARAPET ONE ROUND WASHER, AND NUT REQUIRED. BOLT THREAD IS TO EXTEND 1/2-INCH BEYOND NUT.




FRONT VIEW

## W BEAM TRANSITION AND CONNECTION TO BRIDGE RAILING TYPE "NY4"

(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

**MIDWEST GUARDRAIL SYSTEM**
**THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
7/2018 DATE
/S/ Rodney Taylor
ROADWAY STANDARDS D
UNIT SUPERVIS
NT
FHWA

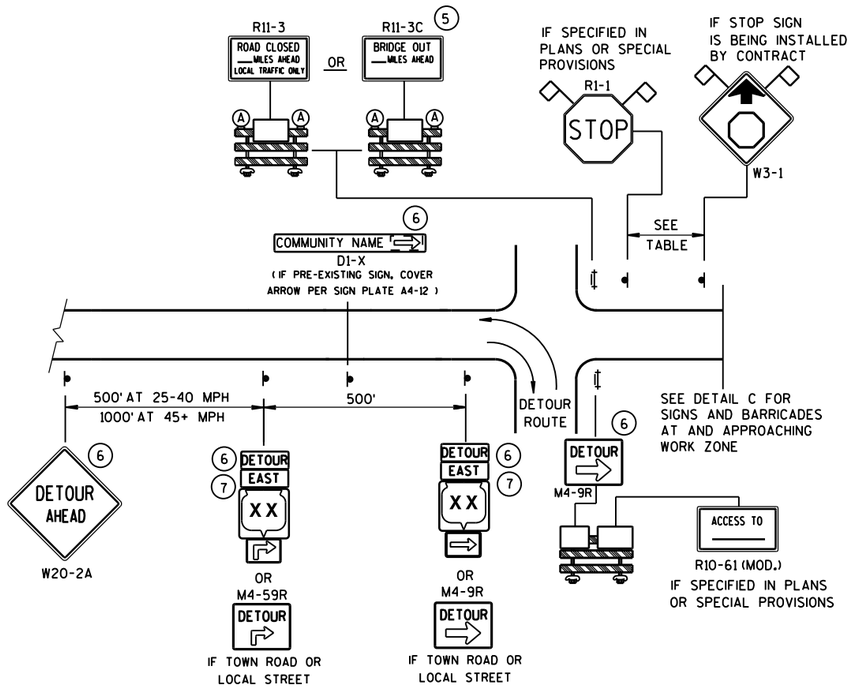


6

S.D.D. 14 B 45-5L

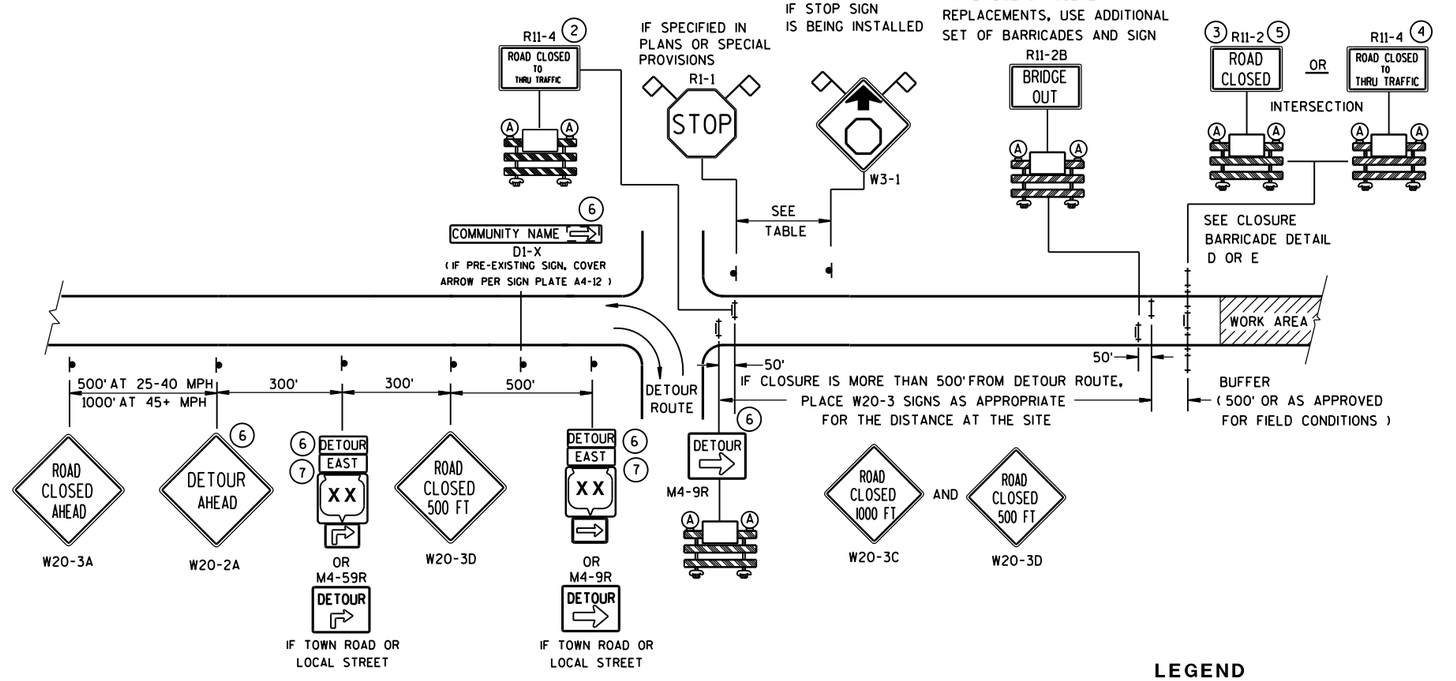
6

S.D.D. 14 B 45-5L



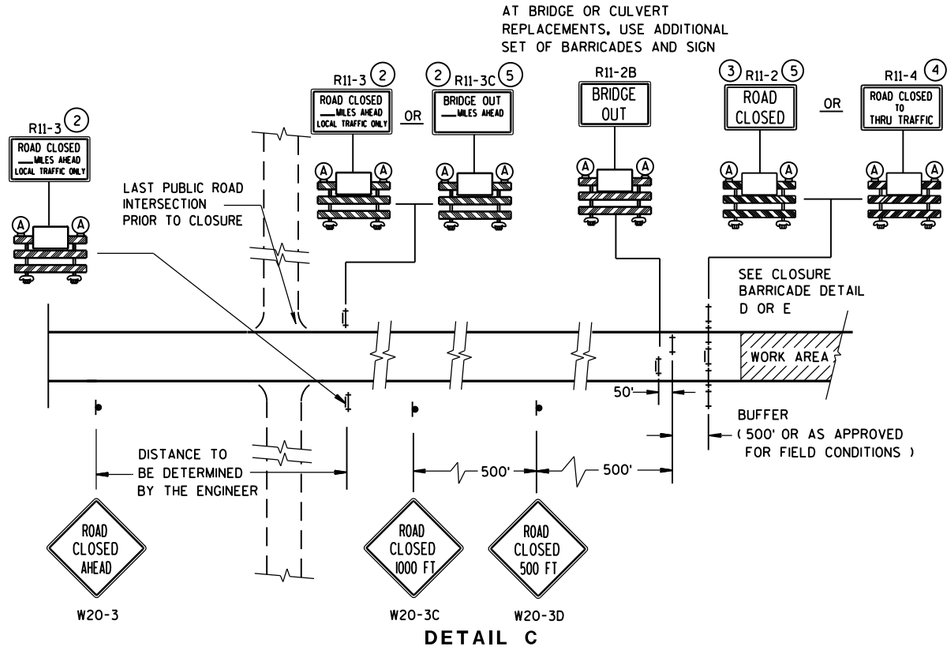

## DETAIL A
## MAINLINE CLOSURE WITH POSTED DETOUR

WORK ZONE GREATER THAN ½ MILE FROM DETOUR ROUTE ( 1000 FEET IF URBAN )




## DETAIL B
## MAINLINE CLOSURE WITH POSTED DETOUR

WORK ZONE LESS THAN ½ MILE FROM DETOUR ROUTE ( 1000 FEET IF URBAN )




## DETAIL C
## MAINLINE CLOSURE, NO POSTED DETOUR

| SPEED LIMIT (MPH) | "STOP AHEAD" ADVANCE WARNING DISTANCE (FT) |
|---|---|
| 25 | 200 |
| 30 | 200 |
| 35 | 350 |
| 40 | 350 |
| 45 | 500 |
| 50 | 550 |
| 55 | 750 |

### LEGEND

- SIGN ON PERMANENT SUPPORT
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- (A) TYPE "A" WARNING LIGHT (FLASHING)
- WORK AREA
- DETOUR / EAST — M4-8 / M3-X
- XX — M1-4; COUNTY XX — M1-5A; XX — M1-6
- M05-1 OR M06-1
- FLAGS, 16" X 16" MIN., (ORANGE)

SEE SDD 15C2-SHEET "**b**" FOR GENERAL NOTES AND FOOTNOTES (1) THROUGH (7)

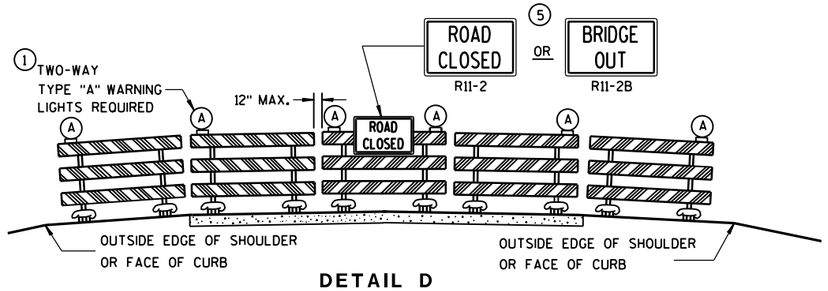
**BARRICADES AND SIGNS FOR MAINLINE CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

Sept. 2015 — DATE
/S/ Peter Amakobe Atepe
STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER
FHWA



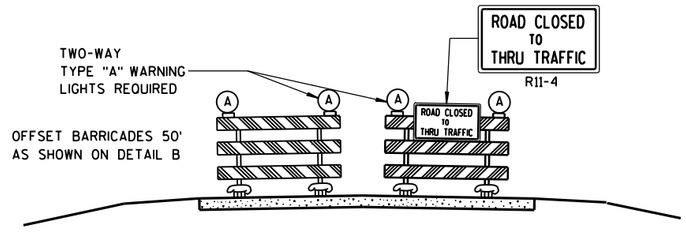
S.D.D. 15 C 2-6a




**DETAIL D**

## ROAD CLOSURE BARRICADE DETAIL

APPROACH VIEW




**DETAIL E**

## LANE CLOSURE BARRICADE DETAIL

APPROACH VIEW

SEE SDD 15C2-SHEET "**a**" FOR LEGEND

## GENERAL NOTES

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND BARRICADES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

BARRICADES THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY RE-ESTABLISHED UPON COMPLETION OF THE OPERATION OR, FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

ALL TYPE III BARRICADES SHALL HAVE RAILS REFLECTORIZED ON BOTH FACES. STRIPES SHALL BE PROPERLY SLOPED DOWN TOWARD THE TRAFFIC SIDE OR AS SHOWN IN THE ROAD CLOSURE BARRICADE DETAIL D FOR FULL ROAD CLOSURES.

TYPE "A" LOW-INTENSITY FLASHING WARNING LIGHTS SHALL BE VISIBLE ON BOTH SIDES OF THE BARRICADE.

THE R11-2, R11-3, M4-9, R11-4 AND R10-61 SIGNS PLACED ON BARRICADES SHALL COVER NO MORE THAN THE TOP RAIL. THE SIGNS SHALL NOT COVER ANY PORTION OF THE MIDDLE OR BOTTOM RAILS.

"WO AND "MO" SIGNS ARE THE SAME AS "W" AND "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:
- R11-2 SHALL BE 48" X 30".
- R11-3, R11-4 AND R10-61 SHALL BE 60" X 30".
- M4-9 SHALL BE 30" X 24".
- M3-X SHALL BE 24" X 12". (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS.)
- M4-8 SHALL BE 24" X 12". (30" X 15" IF NEEDED TO MATCH EXISTING SIGNS.)
- M1-4, M1-5A, AND M1-6 SHALL BE 24" X 24". (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS.)
- M05-1 AND M06-1 SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS.)
- D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.
- R1-1 SHALL BE 36" X 36".

(1) TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8-FOOT LIGHT SPACING).

(2) THESE SIGNS AND BARRICADES ARE NOT REQUIRED IF ROAD CLOSURE BEGINS AT INTERSECTION.

(3) FOR ROAD CLOSURE WITHOUT LOCAL ACCESS TO PROJECT, SEE ROAD CLOSURE BARRICADE DETAIL D.

(4) FOR ROAD CLOSURE WITH LOCAL ACCESS TO PROJECT, SEE LANE CLOSURE BARRICADE DETAIL E.

(5) FOR BRIDGE OR CULVERT REPLACEMENTS, SUBSTITUTE "BRIDGE OUT" INSTEAD OF "ROAD CLOSED" ON R11-2 AND R11-3 SIGNS.

(6) INSTALL DETOUR AND COMMUNITY GUIDE SIGNS AND ARROWS ONLY IF SPECIFIED IN THE CONTRACT. IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. MODIFY EXISTING SIGNS WHERE POSSIBLE. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. IF DETOUR SIGNS ARE BEING INSTALLED BY OTHERS, PLACE THE CONTRACTED TRAFFIC CONTROL SIGNS TO ALLOW FOR PLACEMENT OF ALL WARNING, DETOUR AND GUIDE SIGNS AS SHOWN.

(7) "EAST" CARDINAL DIRECTION MARKERS AND RIGHT TURN ARROWS ARE SHOWN. USE OTHER CARDINAL DIRECTIONS AND ARROWS AS APPROPRIATE.

**BARRICADES AND SIGNS FOR MAINLINE CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

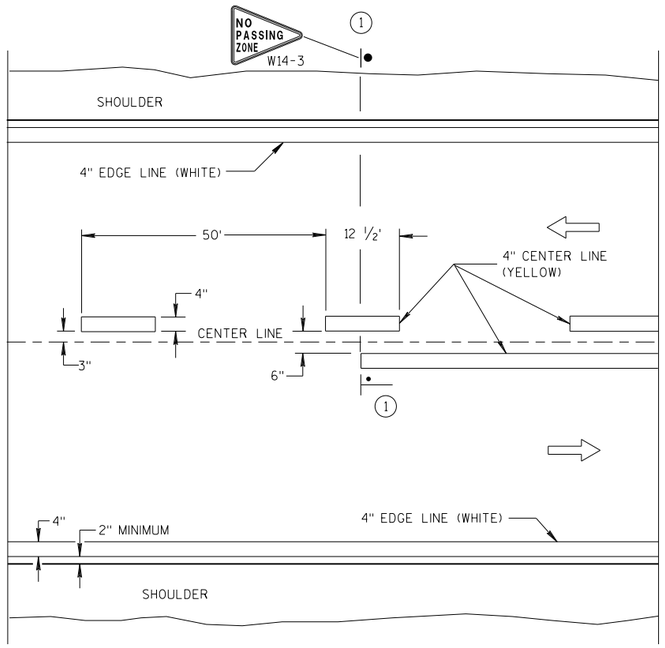
Sept. 2015 — DATE

/S/ Peter Amakobe Atepe
STATEWIDE WORK ZO SAFETY ENGI — FHWA — FIC

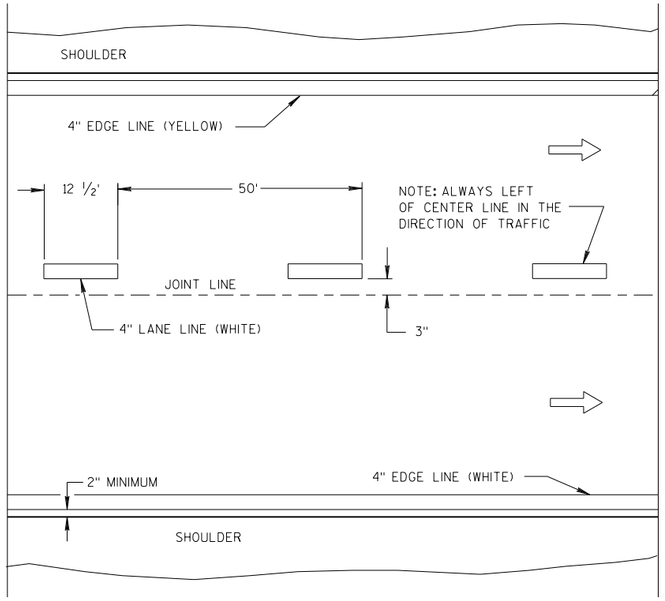



6


S.D.D. 15 C 2-6b




TWO WAY TRAFFIC




ONE WAY TRAFFIC

## PERMANENT PAVEMENT MARKING

## GENERAL NOTES

DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

(1) LOCATE THE NO PASSING ZONE W14-3 SIGN WITHIN 50 FEET OF THE "T" MARKING.

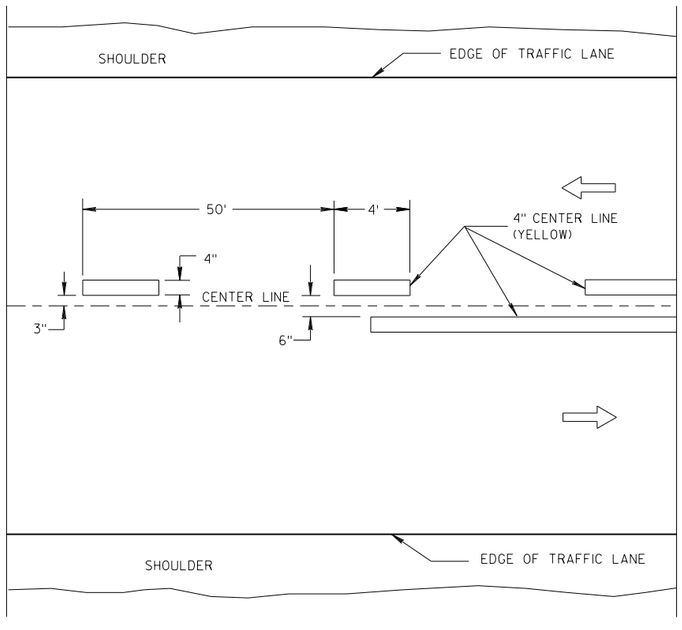
## NOTE

ARROW SYMBOL ( ⇨ ) SHOWS DIRECTION OF TRAVEL

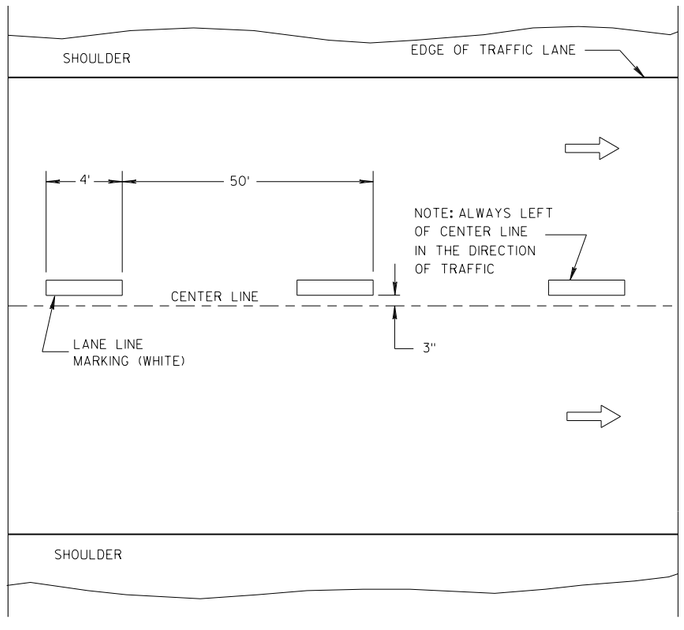
## LEGEND

"T" MARKING

POST MOUNTED SIGN




TWO WAY TRAFFIC




ONE WAY TRAFFIC

## TEMPORARY PAVEMENT MARKING

**LONGITUDINAL MARKING (MAINLINE)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

7/2018 — DATE

/S/ Matthew R. Rauch — STATE SIGNING AND MARKING ENGINEER

FHWA

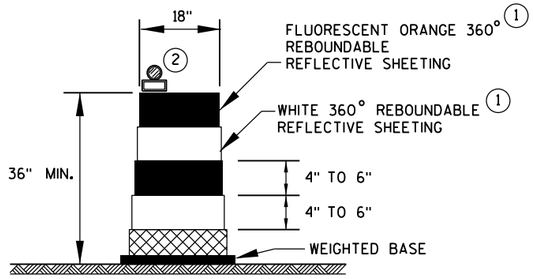


6

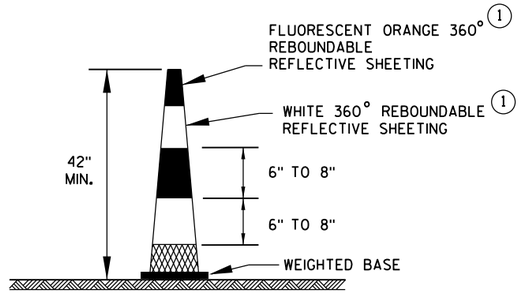
S.D.D. 15 C 8-19a

6

S.D.D. 15 C 8-19a




## DRUM

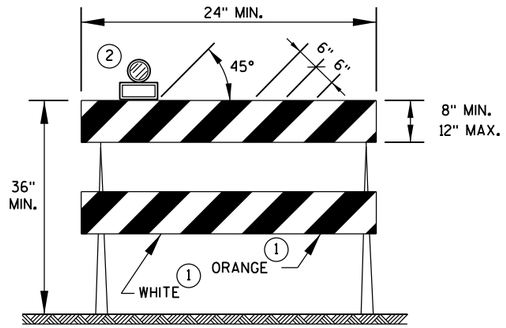



## 42" CONE

DO NOT USE IN TAPERS
1/2 SPACING OF DRUMS

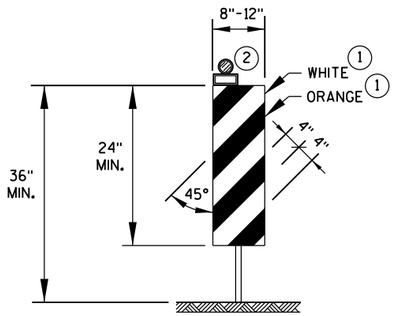
## GENERAL NOTES

1. REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.
2. LOCATION OF WARNING LIGHTS WHEN SHOWN ON THE PLAN.



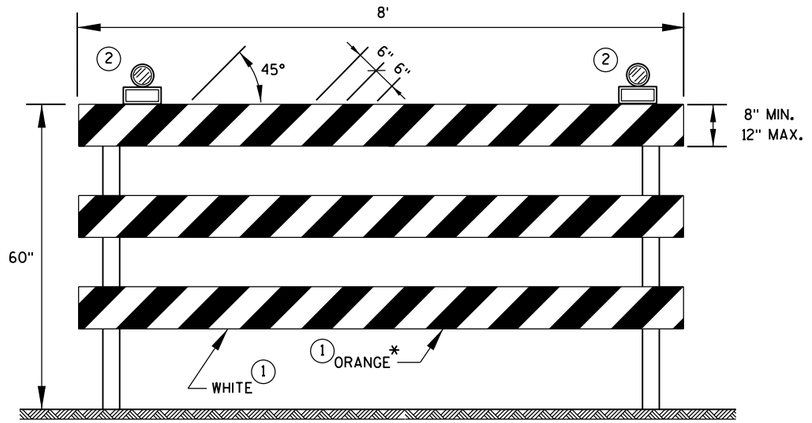

## TYPE 2 BARRICADE

FOR RAILS LESS THAN 36" LONG, 4" WIDE STRIPES MAY BE USED. ALL STRIPES SHALL SLOPE DOWNWARD TO THE TRAFFIC SIDE FOR CHANNELIZATION.




## VERTICAL PANEL

THE STRIPES SHALL SLOPE DOWNWARD TO THE TRAFFIC SIDE FOR CHANNELIZATION.




## TYPE 3 BARRICADE

IF SIGN MOUNTED, DO NOT COVER MORE THAN 50% OF THE TOP TWO RAILS OR 33% OF THE TOTAL AREA OF THE THREE RAILS.

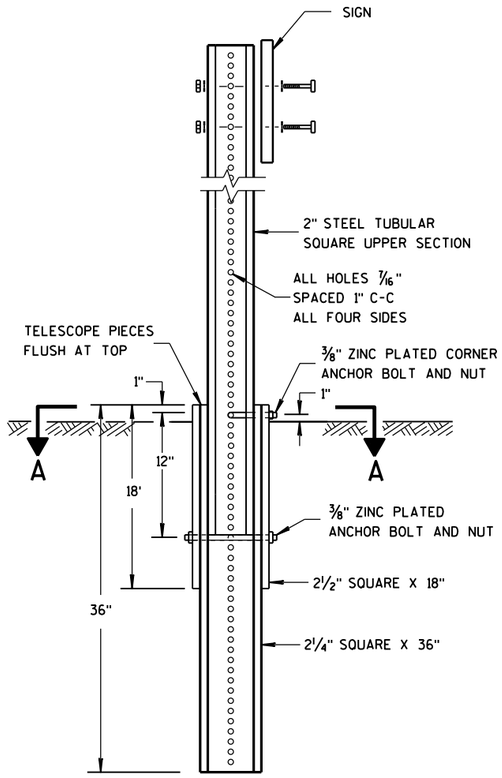
* IF USED FOR A PERMANENT APPLICATION, USE RED SHEETING.

| CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS | |
|---|---|
| STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION | |
| APPROVED | |
| June 2017 DATE | /S/ Andrew Heidtke WORK ZONE ENG |
| FHWA | |

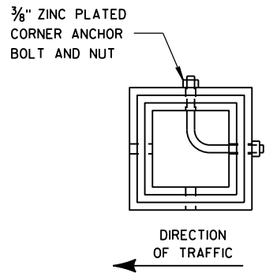



6

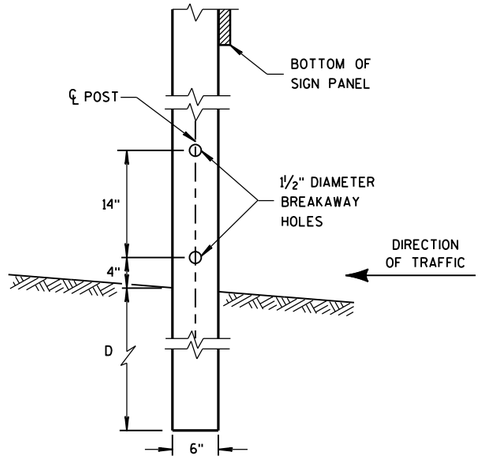
S.D.D. 15 C 11-7b




## DETAIL OF TUBULAR STEEL SIGN POST




## SECTION A-A



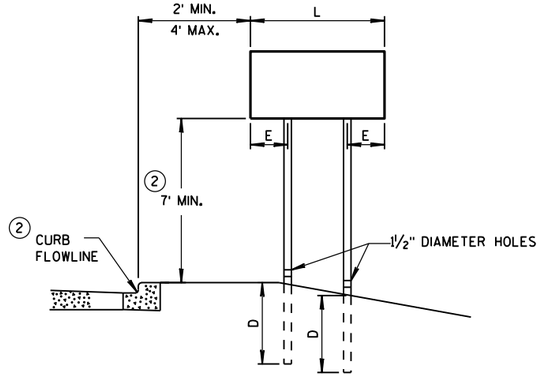

## 4"x6" WOOD POST MODIFICATION

## GENERAL NOTES

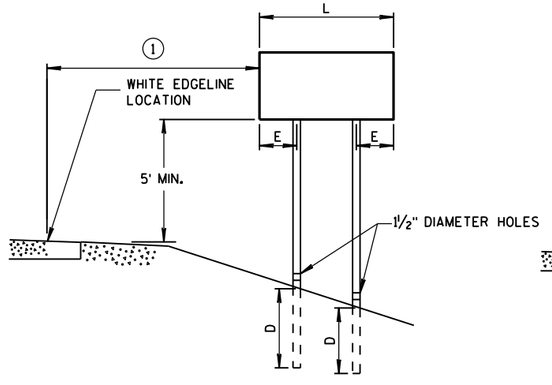
(1) 6 FEET FROM THE EDGE OF PAVEMENT (EDGE LINE LOCATION) UNLESS OTHERWISE DIRECTED BY THE PROJECT ENGINEER. LATERAL OFFSET SHOULD BE ADJUSTED TO AVOID THE DITCH FLOWLINE.

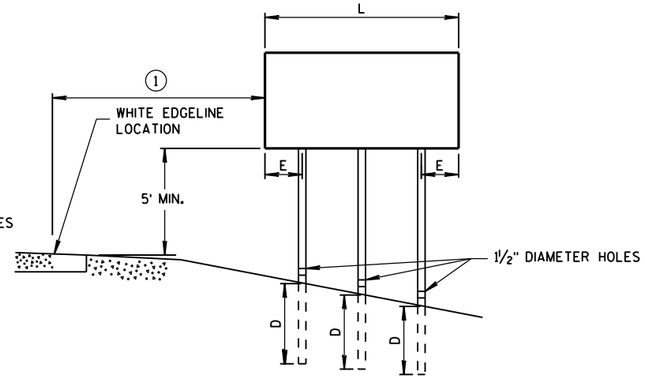
(2) THE EXISTENCE OF CURB AND GUTTER DOES NOT IN ITSELF MANDATE THE VERTICAL CLEARANCE ILLUSTRATED. THAT HEIGHT IS TYPICALLY MEASURED WHERE THERE IS SIDEWALK ADJACENT TO THE ROADWAY OR PARKING IS PERMITTED. IN THE ABSENCE OF SIDEWALK, VERTICAL CLEARANCE IS MEASURED FROM THE TOP OF THE CURB. IF NO SIDEWALK AND NO PARKING, VERTICAL CLEARANCE MAY BE REDUCED TO 5 FOOT MINIMUM. OFFSET OF SIGNS IS MEASURED FROM THE CURB FLOWLINE.

(3) FOR SIGNS REQUIRING 4 POSTS, SPACE INTERMEDIATE POSTS EVENLY.




## URBAN AREA




## RURAL AREA

## POST MOUNTING DETAIL FOR TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS

### TUBULAR STEEL POSTS

| AREA OF SIGN INSTALLATION (SQ. FT.) | NUMBER OF REQUIRED TUBULAR STEEL POSTS |
|---|---|
| 9 OR LESS | 1 |
| GREATER THAN 9 LESS THAN OR EQUAL TO 18 | 2 |
| GREATER THAN 18 LESS THAN OR EQUAL TO 27 | 3 |

SIGNS WIDER THAN 3 FEET OR LARGER THAN 9 SQ. FT. SHALL BE MOUNTED ON MULTIPLE POSTS (SEE ABOVE TABLE).

SIGNS LARGER THAN 27 SQ. FT. SHALL NOT BE MOUNTED ON TUBULAR STEEL POSTS.

### WOOD POST EMBEDMENT DEPTH

| AREA OF SIGN INSTALLATION (SQ. FT.) | D (MIN) |
|---|---|
| 20 OR LESS | 4' |
| GREATER THAN 20 | 5' |

### 4" X 6" WOOD POST

| POST SPACING REQUIREMENTS | | NUMBER OF WOOD POSTS REQUIRED |
|---|---|---|
| L | E | |
| 48" OR LESS AND LESS THAN 20 SQ. FT. | - | 1 |
| LESS THAN 60" | 12" | 2 |
| 60" TO 120" | L/5 | 2 |
| GREATER THAN 120" LESS THAN 168" | 12" | 3 |
| 168" AND GREATER | 12" | 4 |

SEE NOTE (3)

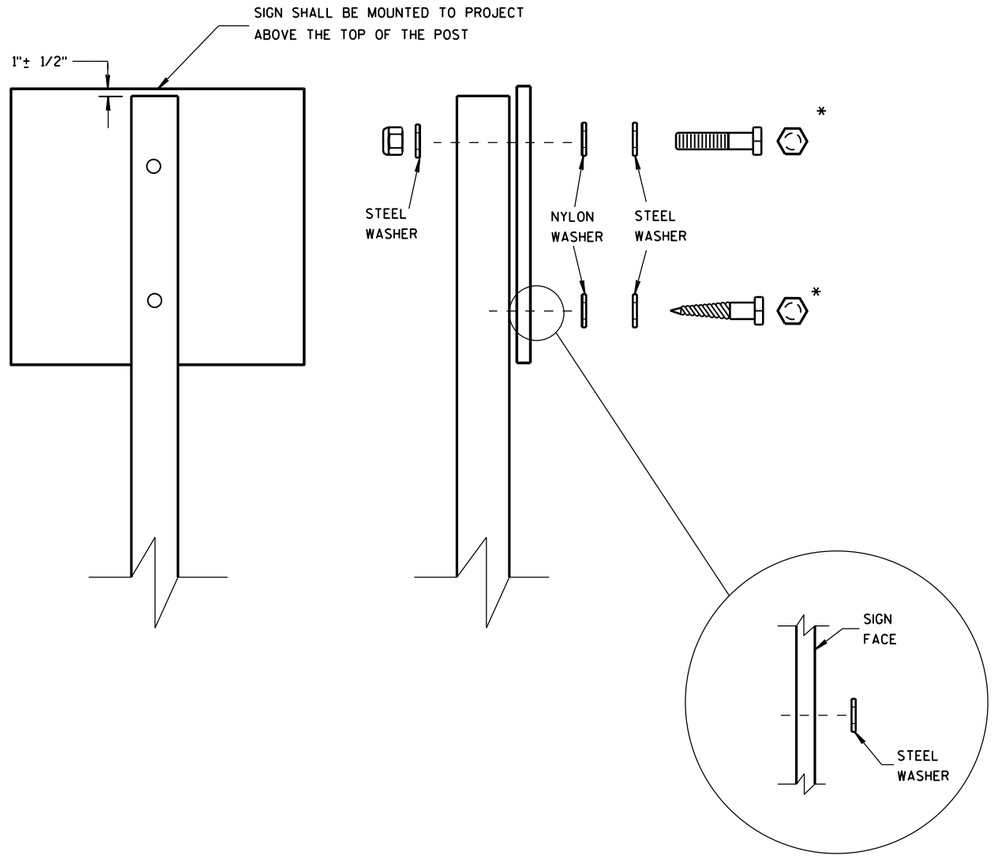
TEMPORARY TRAFFIC CONTROL SIGN MOUNTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR




6


S.D.D. 15 D 38-2a




WASHER PLACEMENT WHEN SIGN HAS OTHER THAN TYPE H OR TYPE F FACE

NUTS, BOLTS AND LAGS USED FOR MOUNTING SIGNS SHALL HAVE HEXAGONAL HEADS AND SHALL BE EITHER:

A. HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM DESIGNATION: A 153, CLASS D, OR SC 3

B. ELECTRO-GALVANIZED IN ACCORDANCE WITH ASTM DESIGNATION: B 633, TYPE III, SC 3

THREADS ON BOLTS AND NUTS SHALL BE MANUFACTURED WITH SUFFICIENT ALLOWANCE FOR THE CADMIUM PLATE OR GALVANIZED COATING TO PERMIT THE NUTS TO RUN FREELY ON THE BOLTS.

WOOD POSTS (4" x 4" or 4" x 6")

LAG SCREWS - 3/8" X 3"

MACHINE BOLTS - 5/16" X 6-1/2" OR 7" LENGTH W/ NUTS

SQUARE STEEL POSTS (2" x 2")

MACHINE BOLTS - 3/8" X 3-1/4" LENGTH W/ NUTS

RIVETS - 9/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH

WASHERS (ALL POSTS) -

1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL

1-1/4" O.D. X 3/8" I.D. X .080 NYLON FOR ALL TYPE H SIGNS

* TWO DIFFERENT FASTENING SYSTEMS ARE SHOWN FOR ILLUSTRATION PURPOSES. ON ANY INDIVIDUAL SIGN, EITHER ONE OR THE OTHER SYSTEM SHALL BE USED. ACTUAL NUMBER OF FASTENERS PER SIGN VARIES WITH THE SIGN AREA. FOR A SINGLE POST INSTALLATION, ALL SIGNS GREATER THAN 9 SQ. FT. REQUIRE THE USE OF 3 FASTENERS.

6

6

S.D.D. 15 D 38-2b

S.D.D. 15 D 38-2b

# ATTACHMENT OF SIGNS TO POSTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

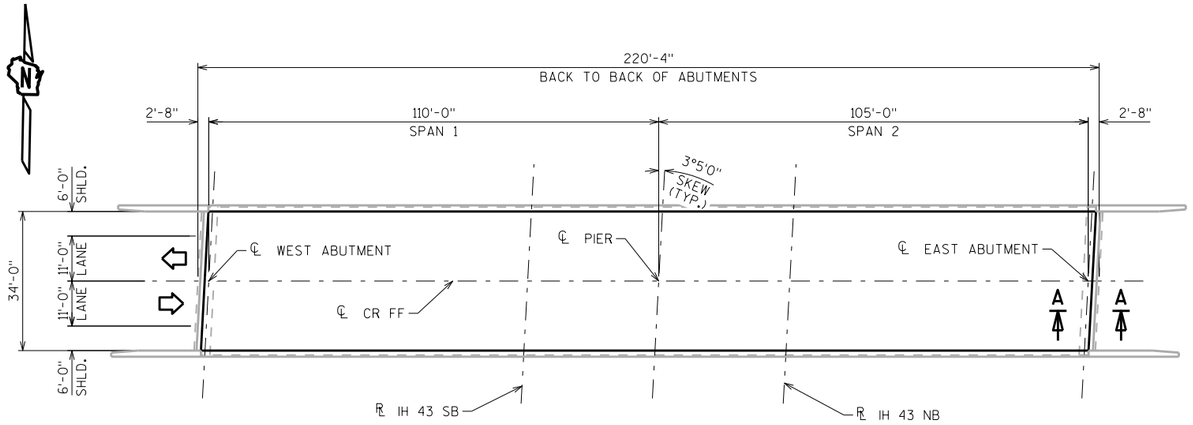
June 2017
DATE

/S/ Andrew Heldtke
WORK ZONE ENG

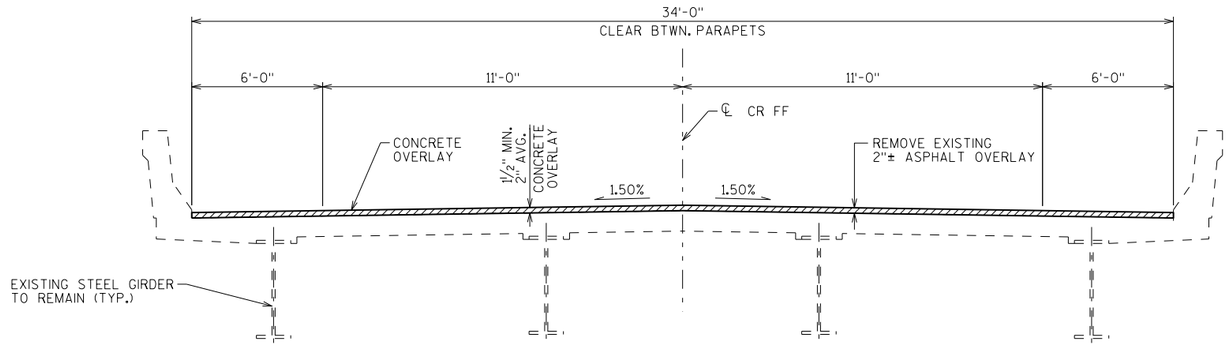
FHWA

STATE PROJECT NUMBER

1225-08-74



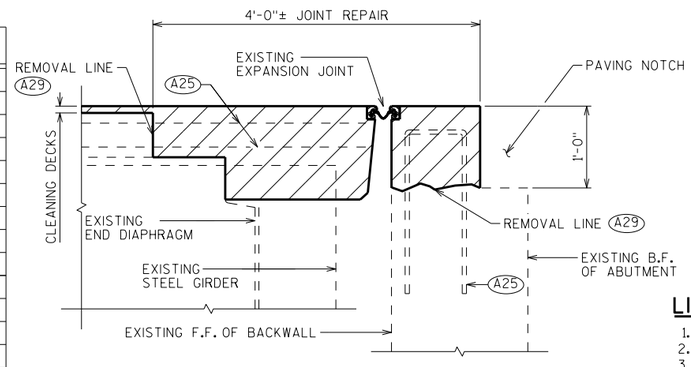

## PLAN




## CROSS-SECTION THRU DECK

## TOTAL ESTIMATED QUANTITIES

| BID ITEM NUMBER | BID ITEMS | UNIT | TOTALS |
|---|---|---|---|
| 502.3100 | EXPANSION DEVICE B-59-70 | LS | 1 |
| 502.3200 | PROTECTIVE SURFACE TREATMENT | SY | 828 |
| 502.3210 | PIGMENTED SURFACE SEALER | SY | 209 |
| 505.0600 | BAR STEEL REINFORCEMENT HS COATED STRUCTURES | LB | 2,600 |
| 509.0301 | PREPARATION DECKS TYPE 1 | SY | 596 |
| 509.0302 | PREPARATION DECKS TYPE 2 | SY | 1 |
| 509.0500 | CLEANING DECKS | SY | 820 |
| 509.1000 | JOINT REPAIR | SY | 31 |
| 509.2000 | FULL-DEPTH DECK REPAIR | SY | 1 |
| 509.2500 | CONCRETE MASONRY OVERLAY DECKS | CY | 65 |
| 509.9010.S | REMOVING ASPHALTIC CONCRETE DECK OVERLAY B-59-70 | SY | 820 |
| 517.3000.S | STRUCTURE OVERCOATING CLEANING AND PRIMING B-59-70 | LS | 1 |
| 517.4000.S | CONTAINMENT AND COLLECTION OF WASTE MATERIALS B-59-70 | LS | 1 |
| 517.6001.S | PORTABLE DECONTAMINATION FACILITY | EACH | 1 |
| 604.0600 | SLOPE PAVING SELECT CRUSHED MATERIAL | SY | 34 |
| SPV.0060 | CLEANING AND PAINTING BEARINGS | EACH | 8 |




## SECTION A-A - SHOWING DECK REMOVAL

(TYPICAL BOTH JOINTS)

## DESIGN DATA

**LIVE LOAD:**

DESIGN RATING: HS-25
INVENTORY RATING: HS-20
OPERATING RATING: HS-34
WISCONSIN STANDARD PERMIT VEHICLE (WIS.-SPV): 190 (KIPS)

**MATERIAL PROPERTIES:**

CONCRETE MASONRY:
CONCRETE MASONRY OVERLAY DECKS ——— f'c = 4,000 P.S.I.
CONCRETE MASONRY SUPERSTRUCTURE ——— f'c = 4,000 P.S.I.
BAR STEEL REINFORCEMENT, GRADE 60 ——— fy = 60,000 P.S.I.

## GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

ANY EXCAVATION NECESSARY TO COMPLETE THE OVERLAY OR JOINT REPAIR AT THE ABUTMENTS IS TO BE CONSIDERED INCIDENTAL TO THE BID ITEM "CONCRETE MASONRY OVERLAY DECKS".

CONTACT THE BUREAU OF STRUCTURES BEFORE PLACEMENT OF OVERLAY IF THE AVERAGE THICKNESS OF THE NEW OVERLAY WILL EXCEED THE AVERAGE OVERLAY SHOWN ON THE PLANS BY MORE THAN ½".

A MINIMUM OF 1-INCH OF CONCRETE SHALL BE REMOVED FROM THE ENTIRE BRIDGE DECK UNDER THE BID ITEM "CLEANING DECKS".

"CONCRETE MASONRY OVERLAY DECKS" BID ITEM INCLUDES CONCRETE FOR "PREPARATION DECKS TYPE 1", "PREPARATION DECKS TYPE 2", "FULL DEPTH DECK REPAIR", "JOINT REPAIR", AND OVERLAY.

PROTECTIVE SURFACE TREATMENT TO BE APPLIED TO THE ENTIRE TOP OF OVERLAY SURFACE AND TOP OF PAVING BLOCKS.

PIGMENTED SURFACE SEALER TO BE APPLIED TO THE FRONT FACE AND THE TOP OF THE PARAPETS, INCLUDING PARAPETS ON WINGS.

PREPARATION DECKS TYPE 1, PREPARATION DECKS TYPE 2, AND FULL DEPTH DECK REPAIR SHALL BE DETERMINED BY THE FIELD ENGINEER.

ALL LINES OF REMOVAL SHALL BE DEFINED BY A MIN. 1" DEEP SAW CUT.

CLEAN AND PAINT ALL ABUTMENT BEARINGS UNDER BID ITEM "CLEANING AND PAINTING BEARINGS".

BEARING AND GIRDER PAINT TO BE FEDERAL COLOR 20059.

SELECT CRUSHED MATERIAL SHALL BE PLACED ON EXISTING EAST ABUTMENT SLOPE PAVING AS DIRECTED BY ENGINEER.

(A25) SALVAGE EXIST. REINF. & EXTEND FULL LENGTH INTO NEW WORK.

(A29) ROUGHEN SURFACE OF CONCRETE ¼" DEEP MINIMUM FOR ALL AREAS OF NEW TO EXISTING CONCRETE CONTACT.

## LIST OF DRAWINGS


1. CONCRETE OVERLAY
2. JOINT REPAIR DETAILS 1
3. JOINT REPAIR DETAILS 2
4. EXPANSION DEVICE
5. COVER PLATE
6. SLOPE REPAIR
7. PAINTING DETAILS
8. DECK TEST RESULTS



**STRUCTURE DESIGN CONTACTS:**

JONATHON RESHESKE (608) 266-8491
LAURA SHADEWALD (608) 267-9592


| NO. | DATE | REVISION | BY |
|---|---|---|---|

WISCONSIN DEPARTMENT OF TRANSPORTATION
BUREAU OF STRUCTURES

ACCEPTED William C. Dreher LLS 12/4/18
CHIEF STRUCTURES DESIGN ENGINEER — DATE

# STRUCTURE B-59-70

CR FF OVER IH 43

| COUNTY | TOWN |
|---|---|
| SHEBOYGAN | MOSEL |

DESIGN SPEC.
REHABILITATION N/A

| DESIGNED BY | DESIGNED CK'D. | DRAWN BY | PLANS CK'D. |
|---|---|---|---|
| JLR | JDM | JLR | JDM |

CONCRETE OVERLAY

SHEET 1 OF 8

48

I.D. 1225-08-00D

DATE: DEC 2018

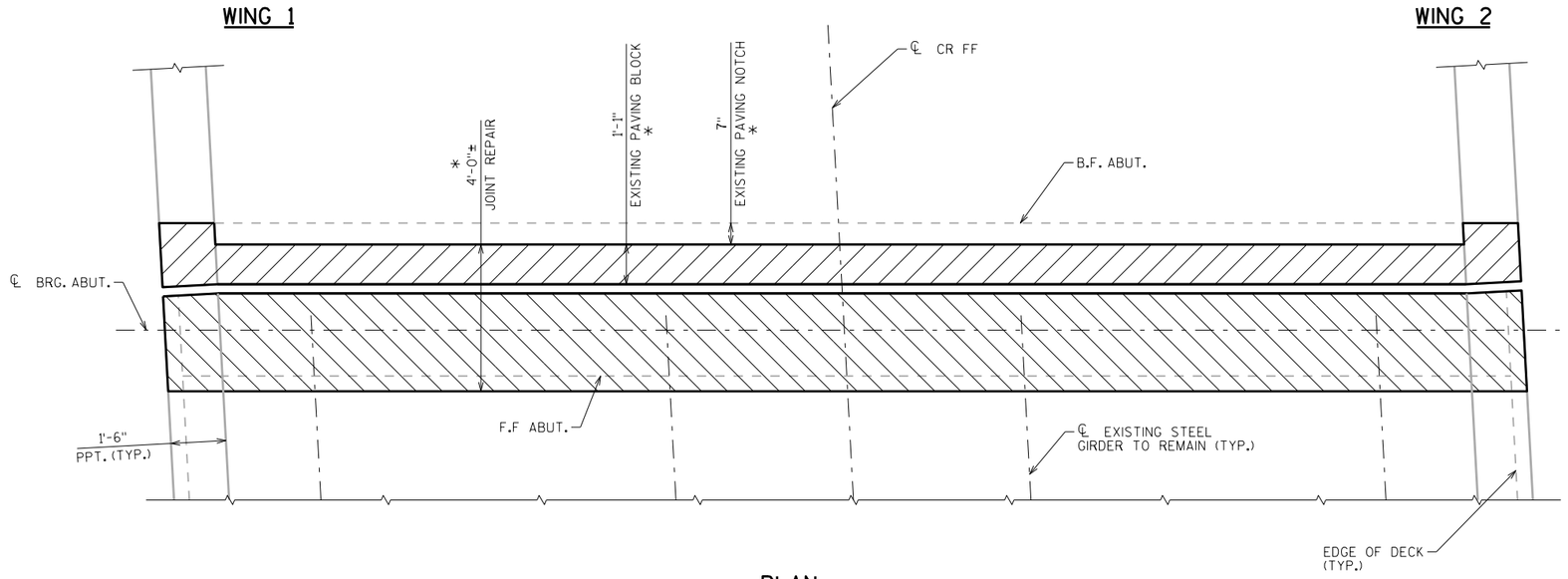
SCALE = 18.00

8

8

STATE PROJECT NUMBER

1225-08-77




* DIMENSION IS TAKEN NORMAL TO ℄ ABUTMENT

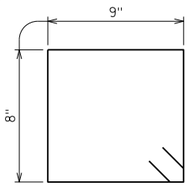
## PLAN

SHOWING REMOVAL AREAS
(WEST ABUTMENT SHOWN
EAST ABUTMENT SIMILAR)

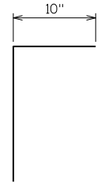
## BILL OF BARS

NOTE: THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE

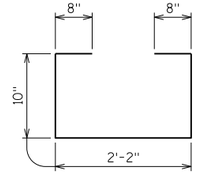
| BAR MARK | COAT | NO. REQ'D. | LENGTH | BENT | BAR SERIES | LOCATION |
|---|---|---|---|---|---|---|
| A501 | X | 30 | 8'-4" | | | PAVING BLOCK - TRANSVERSE |
| A402 | X | 76 | 3'-4" | X | | PAVING BLOCK - STIRRUPS - VERTICAL |
| A503 | X | 76 | 3'-0" | X | | PAVING BLOCK - VERTICAL |
| A604 | X | 18 | 35'-10" | | | SUPERSTRUCTURE - TRANSVERSE |
| A605 | X | 30 | 9'-3" | | | DIAPHRAGM - TRANSVERSE - BOTTOM |
| A406 | X | 12 | 9'-3" | | | DIAPHRAGM - TRANSVERSE - TOP |
| A407 | X | 72 | 4'-10" | X | | DIAPHRAGM - VERTICAL |
| A408 | X | 32 | 5'-0" | X | | PARAPET - VERTICAL |
| A409 | X | 20 | 4'-3" | X | | PARAPET - VERTICAL |
| ☆ A410 | X | 12 | 9'-3" | | | DIAPHRAGM - TRANSVERSE |



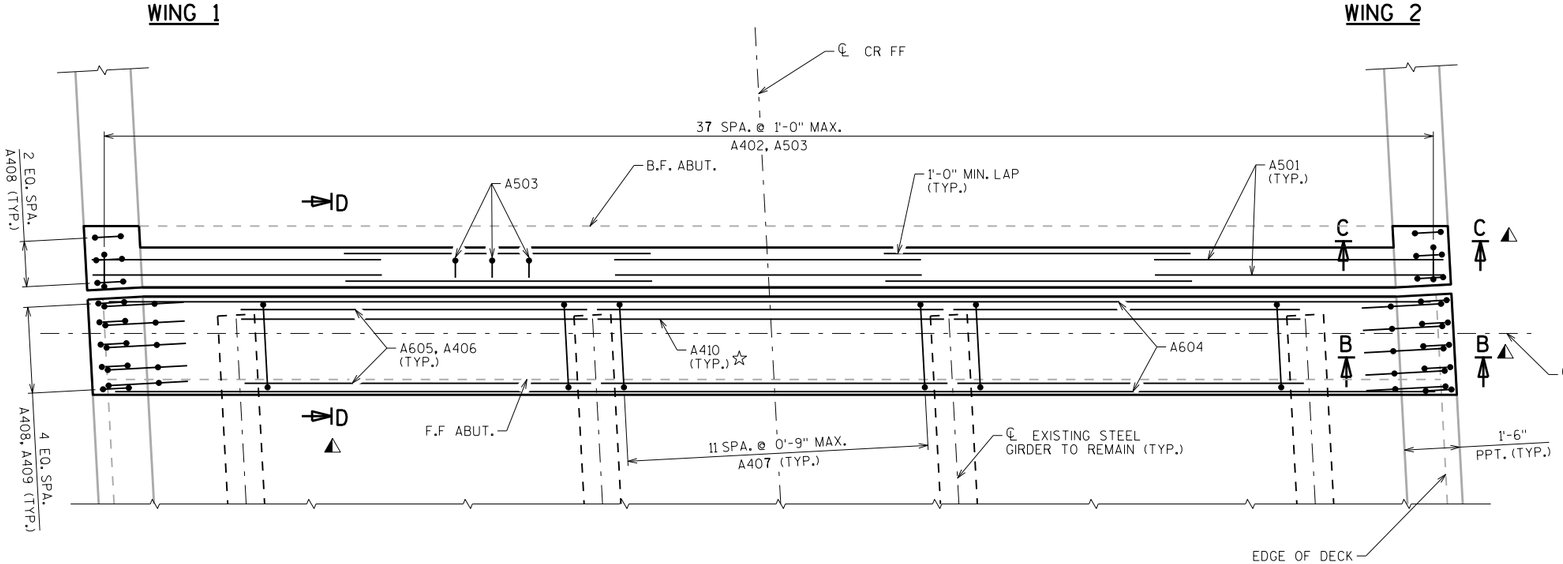

A402




A503

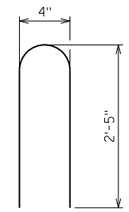



A407

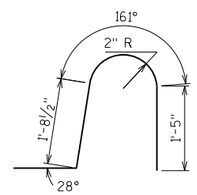



## PLAN

SHOWING REINFORCEMENT
(WEST ABUTMENT SHOWN
EAST ABUTMENT SIMILAR)




A408




A409

☆ SEE " EXPANSION DEVICE" SHEET FOR DETAILS

⚠ SEE "JOINT REPAIR DETAILS 2" SHEET FOR SECTIONS

| NO. | DATE | REVISION | BY |
|---|---|---|---|

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-59-70

DRAWN BY JLR | PLANS CK'D. JDM

JOINT REPAIR DETAILS 1

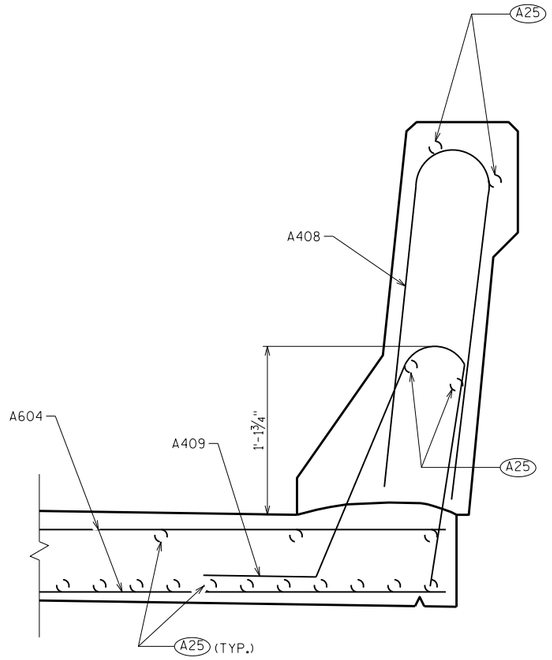
SHEET 2

49

SCALE = 2.00

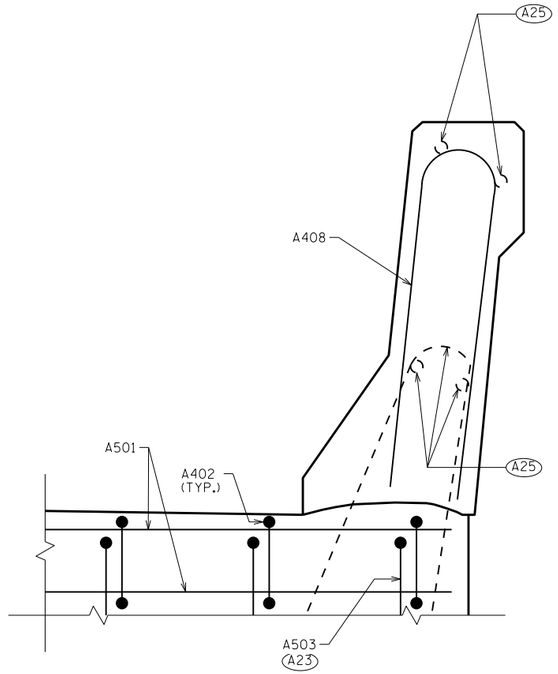
STATE PROJECT NUMBER

1225-08-74



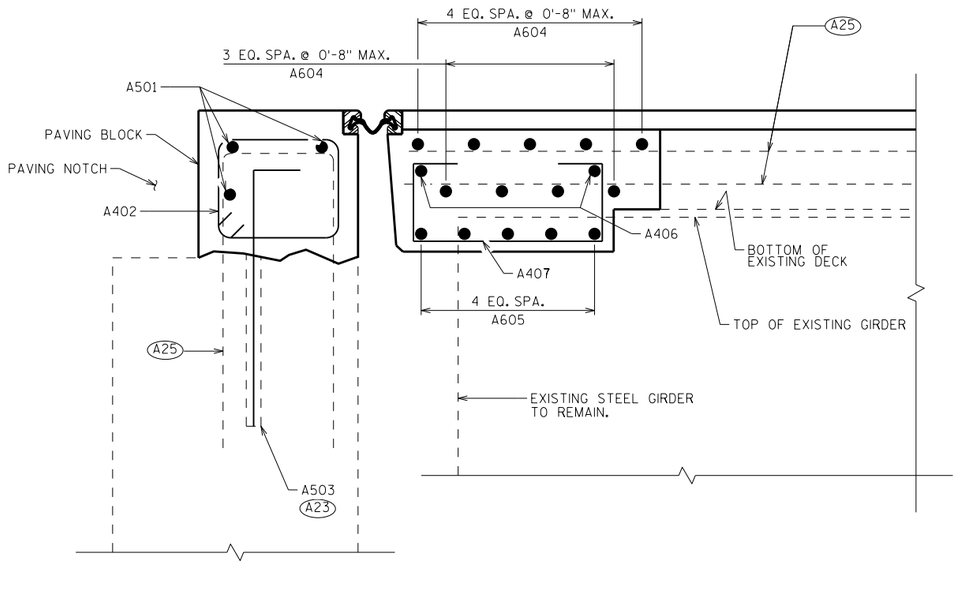

## SECTION B-B

(FROM "JOINT REPAIR DETAILS 1" SHEET)



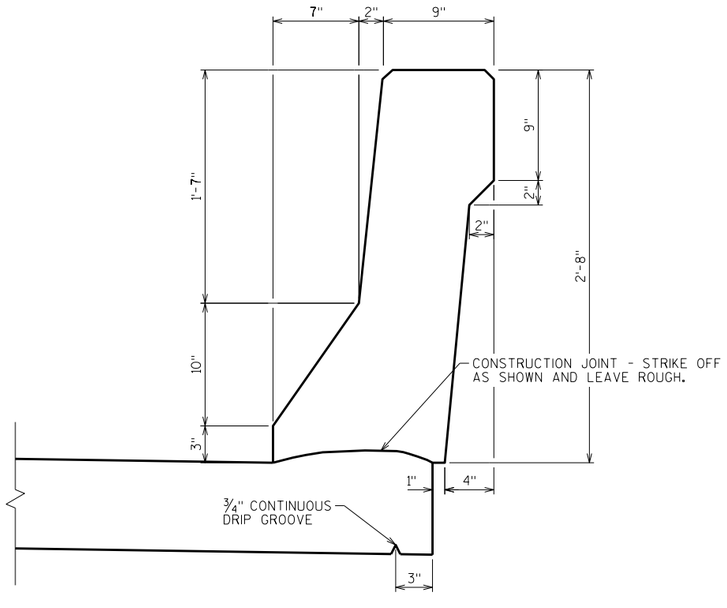

## SECTION C-C

(FROM "JOINT REPAIR DETAILS 1" SHEET)

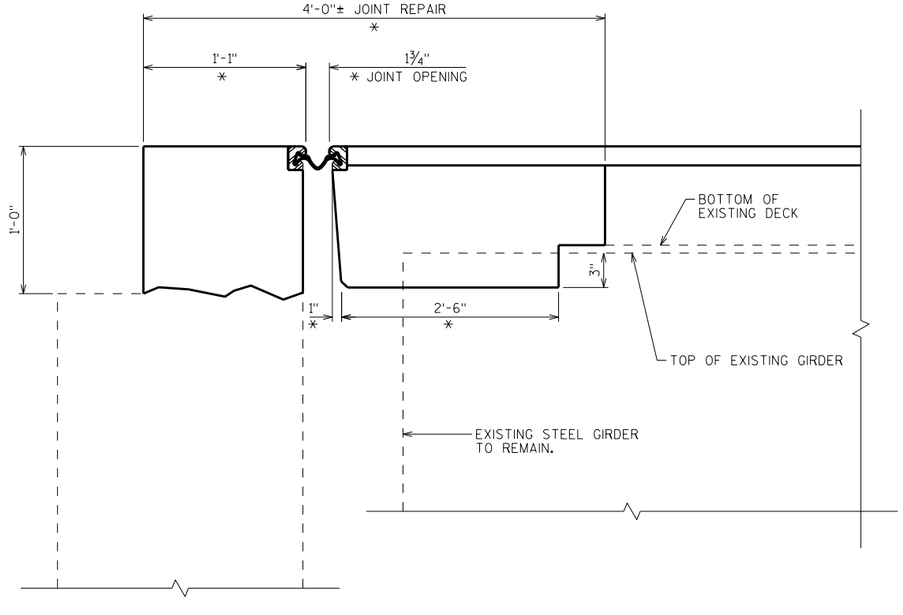



## SECTION D-D

(FROM "JOINT REPAIR DETAILS 1" SHEET)




## SECTION THRU PARAPET




## SECTION THRU JOINT

* DIMENSION IS TAKEN NORMAL TO ℄ ABUTMENT

(A23) ADHESIVE ANCHORS. EMBED 1'-6" IN CONCRETE. SPACE AT 1'-0". TURN 10" LEG AS NECESSARY TO FIT.

(A25) SALVAGE EXIST. REINF. & EXTEND FULL LENGTH INTO NEW WORK.

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-59-70

DRAWN BY JLR | PLANS CK'D. JDM

JOINT REPAIR DETAILS 2

SHEET 3

50

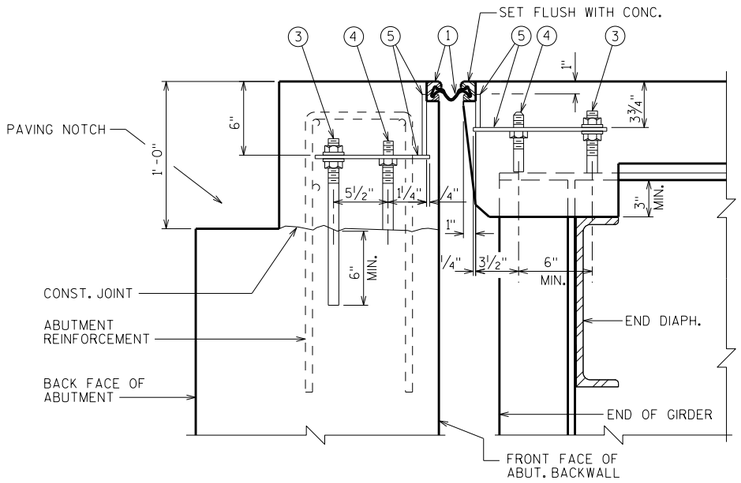
SCALE = 1.00

8

8

STATE PROJECT NUMBER

1225-08-74

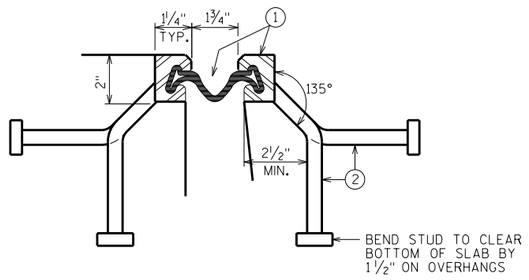



## SECTION THRU JOINT AT ABUTMENT

NORMAL TO ℄ SUBSTRUCTURE

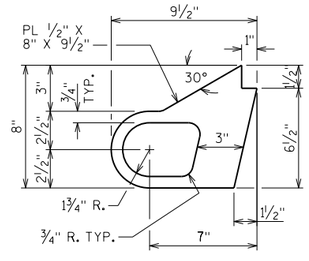
## LEGEND

1. NEOPRENE STRIP SEAL ( 4 - INCH) & STEEL EXTRUSIONS.
2. STUDS ⅝"Φ X 6⅜" LONG AT 6" ALTERNATE CENTERS. WELD TO EXTRUSIONS & BEND AS SHOWN AFTER WELDING.
2A. ½" THICK ANCHOR PLATE WITH ⅝"Φ ROD (OR ALTERNATE STRIP SEAL ANCHOR). WELD ROD TO ANCHOR PLATE. WELD ANCHOR PLATE TO #1 AT 1'-6" CENTERS BETWEEN GIRDERS.
3. ¾" Φ THREADED ROD WITH 2 NUTS AND WASHERS. WELD THREADED ROD TO TOP FLANGE OR ATTACH BY BOLTING THRU FLANGE. ON ABUTMENT SIDE GROUT THREADED ROD INTO FIELD DRILLED HOLES IN ABUTMENT BACKWALL AS SHOWN.
4. ¾"Φ THREADED ROD WITH NUT. TACK WELD NUT TO NO. 5.
5. FABRICATE SUPPORT FROM 3" X ½" BAR AS SHOWN OR EQUIVALENT, ONE PER GIRDER PER SIDE. FIELD OR SHOP WELD TO NO. 1. IF FIELD WELDED, COVER WELDED AREAS WITH EPOXY-COATING MATERIAL. PROVIDE 1½" Φ HOLE FOR NO. 3 & 1" Φ HOLE FOR NO. 4.
6. GALVANIZED PLATE ⅜" X 10" X 2'-2" WITH HOLES FOR #7. BEND AS SHOWN.
7. ¾"Φ X 1½" STAINLESS STEEL SOCKET FLAT HEAD SCREWS WITH ANTI-SEIZE LUBRICANT. PLACE IN COUNTERSUNK HOLE. RECESS 1/16" BELOW PLATE SURFACE.
8. ¾"Φ X 4" GALVANIZED HEX HEAD BOLT. BEND 45°.
9. ¾"Φ X 2¼" GALVANIZED THREADED COUPLING.
10. 1" X 5" SLOTTED CSK. HOLE FOR #7. SLOT PARALLEL TO DIRECTION OF MOVEMENT.

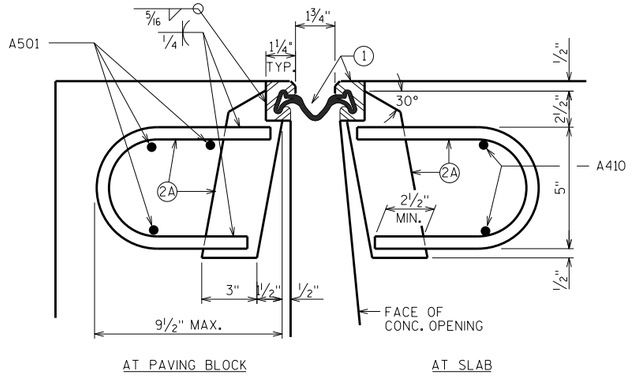



## SECTION THRU JOINT

EXTERIOR GIRDER TO EDGE OF SLAB & AT PARAPETS

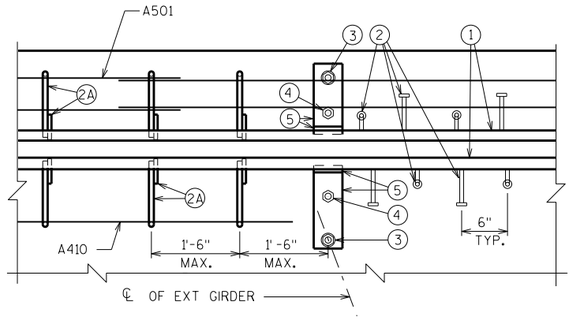



## ALTERNATE STRIP SEAL ANCHOR




## SECTION THRU JOINT

ROADWAY TRAFFIC AREA BETWEEN EXTERIOR GIRDERS.




## PART PLAN

## GENERAL NOTES

ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS. IF USED, DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PERMITTED IN NEOPRENE STRIP SEAL.

AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST & SWEEP.

FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN & SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.

SANDBLAST PLATES & EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING THE PLATES & EXTRUSIONS SHALL BE HOT DIPPED GALVANIZED.

ANCHOR SYSTEM #8 & #9 SHALL CONFORM TO ASTM A307 & SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C & D.

STRIP SEAL EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS & HARDWARE WILL BE PAID FOR AT THE LUMP SUM PRICE BID FOR "EXPANSION DEVICE B-59-70".

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-59-70

DRAWN BY JLR | PLANS CK'D. JDM

EXPANSION DEVICE

SHEET 4

51

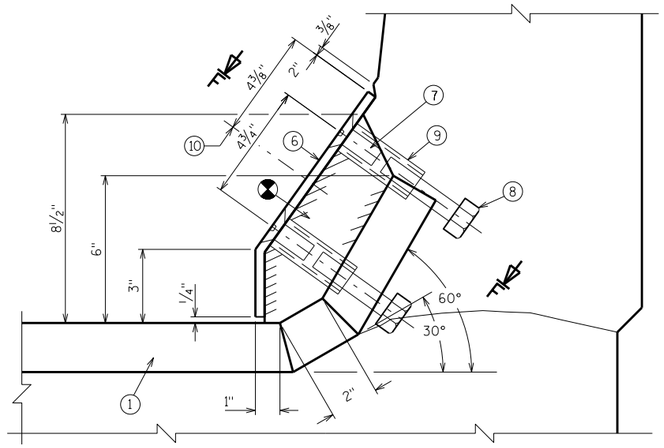
8

8

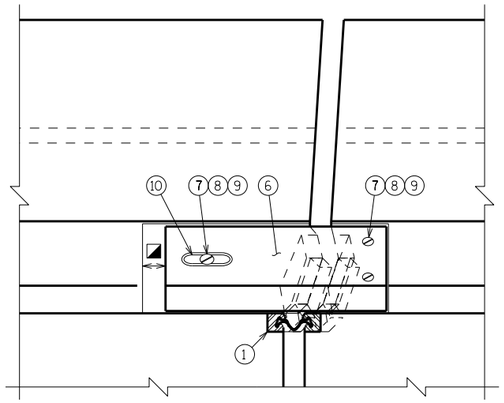
SCALE = 1.00

STATE PROJECT NUMBER

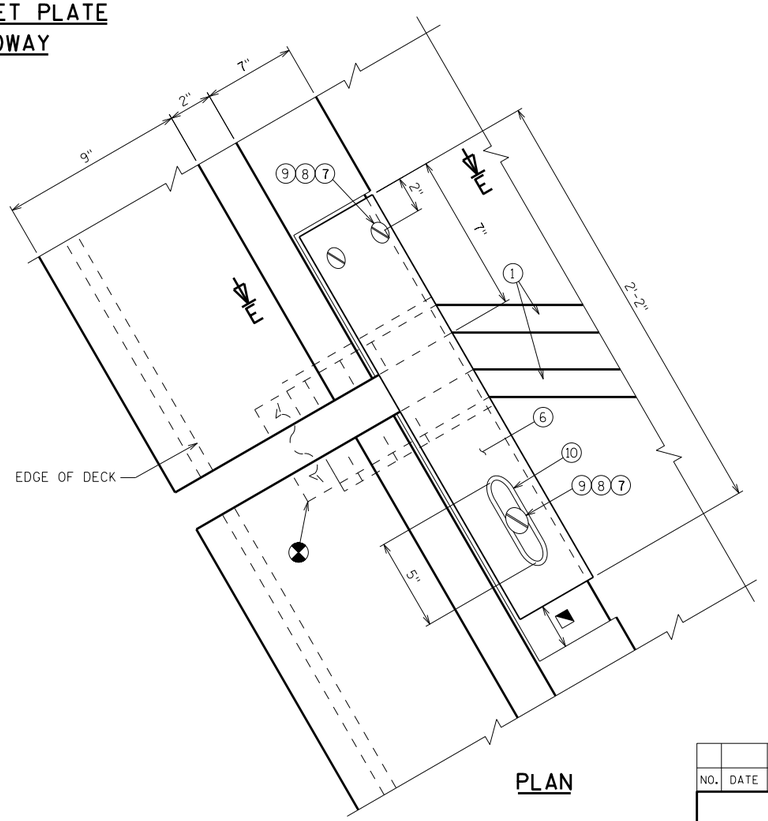
1225-08-74



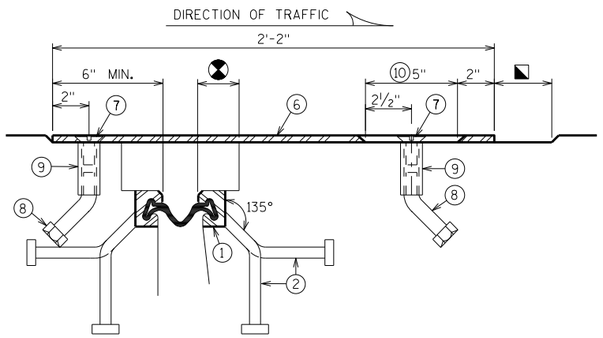

SECTION E-E




VIEW OF PARAPET PLATE FROM ROADWAY




PLAN




SECTION F-F

BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING.

JOINT OPENING DIM. ALONG SKEW PLUS 1/2".

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-59-70

DRAWN BY JLR | PLANS CK'D. JDM

COVER PLATE

SHEET 5

52

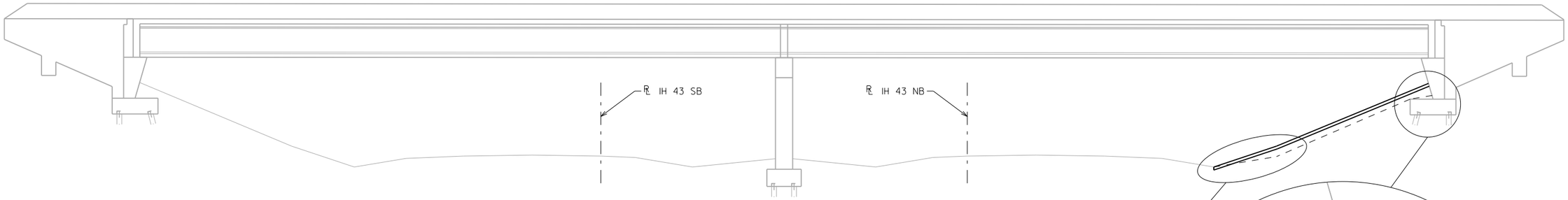
8

8

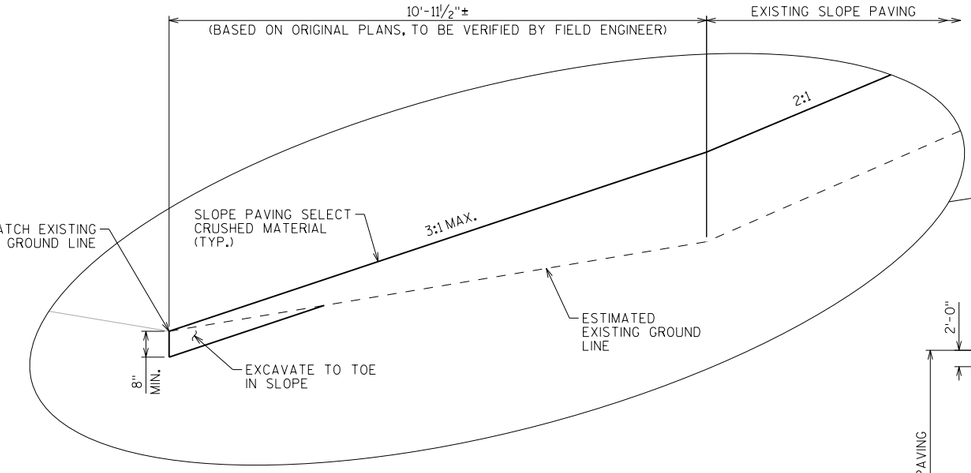
SCALE = 1.00

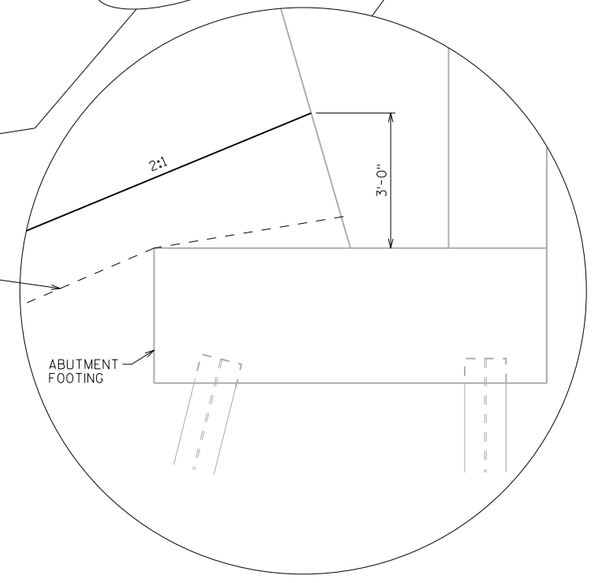
STATE PROJECT NUMBER

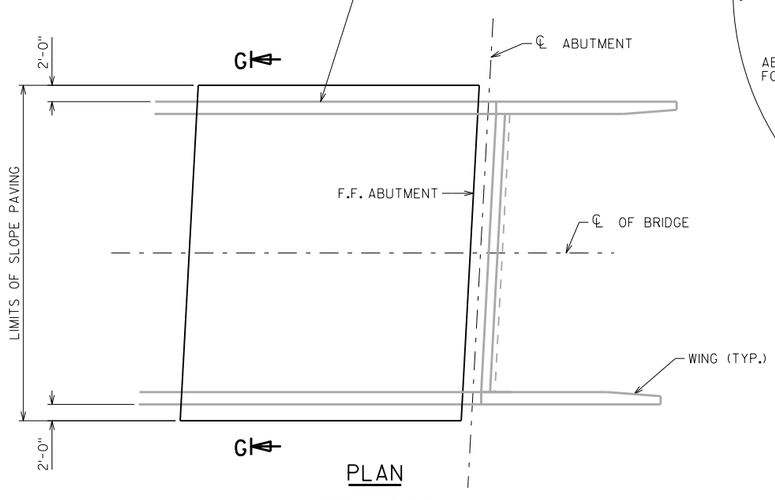
1225-08-74




ELEVATION

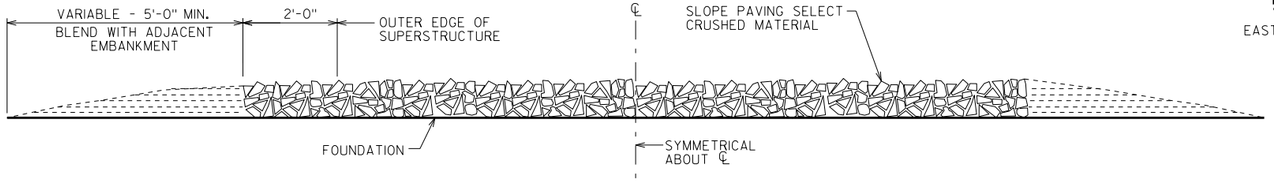



PLAN

EAST ABUTMENT




SECTION G-G

NOTE: PLACE SLOPE PAVING SELECT CRUSHED MATERIAL AT EAST ABUTMENT AS DIRECTED BY ENGINEER.

| NO. | DATE | REVISION | BY |
|---|---|---|---|

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-59-70

DRAWN BY JLR | PLANS CK'D. JDM

SLOPE REPAIR

SHEET 6

53

SCALE = 9.00

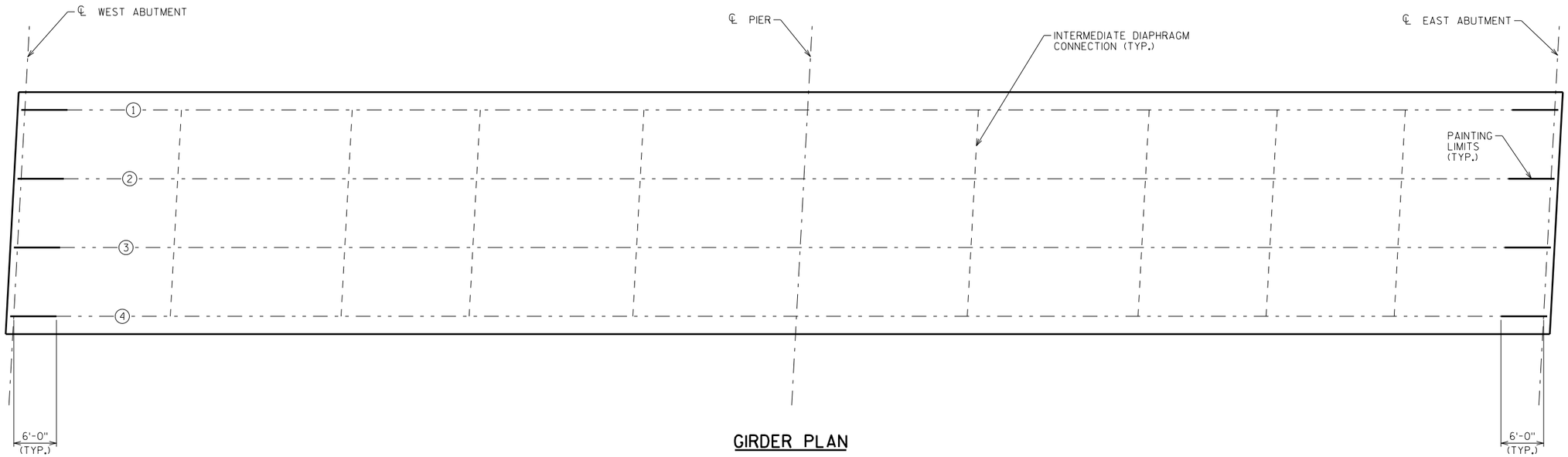
8

8

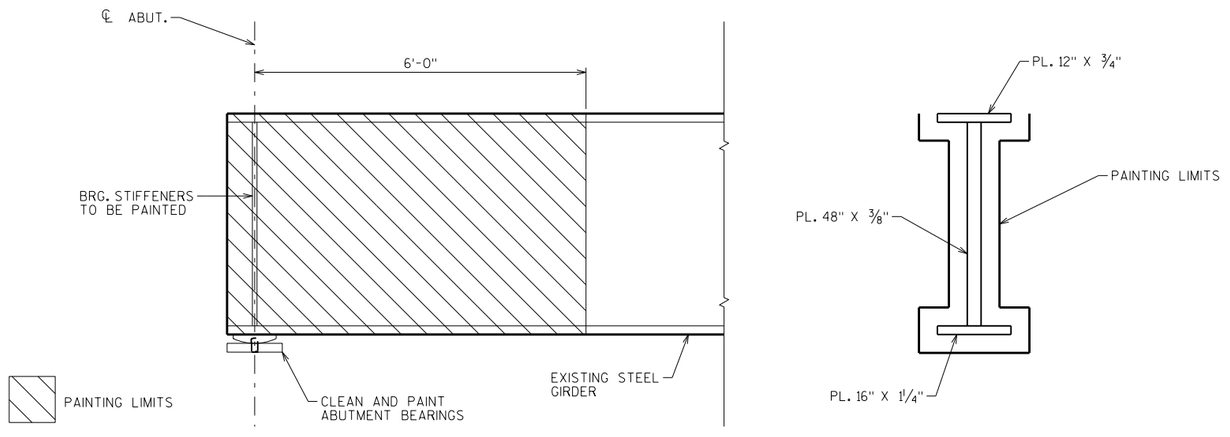
STATE PROJECT NUMBER

1225-08-74


(X) GIRDER NUMBER




## GIRDER PLAN




## GIRDER ELEVATION

TYP. BOTH ABUTMENTS

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-59-70

DRAWN BY JLR | PLANS CK'D. JDM

PAINTING DETAILS

SHEET 7

54

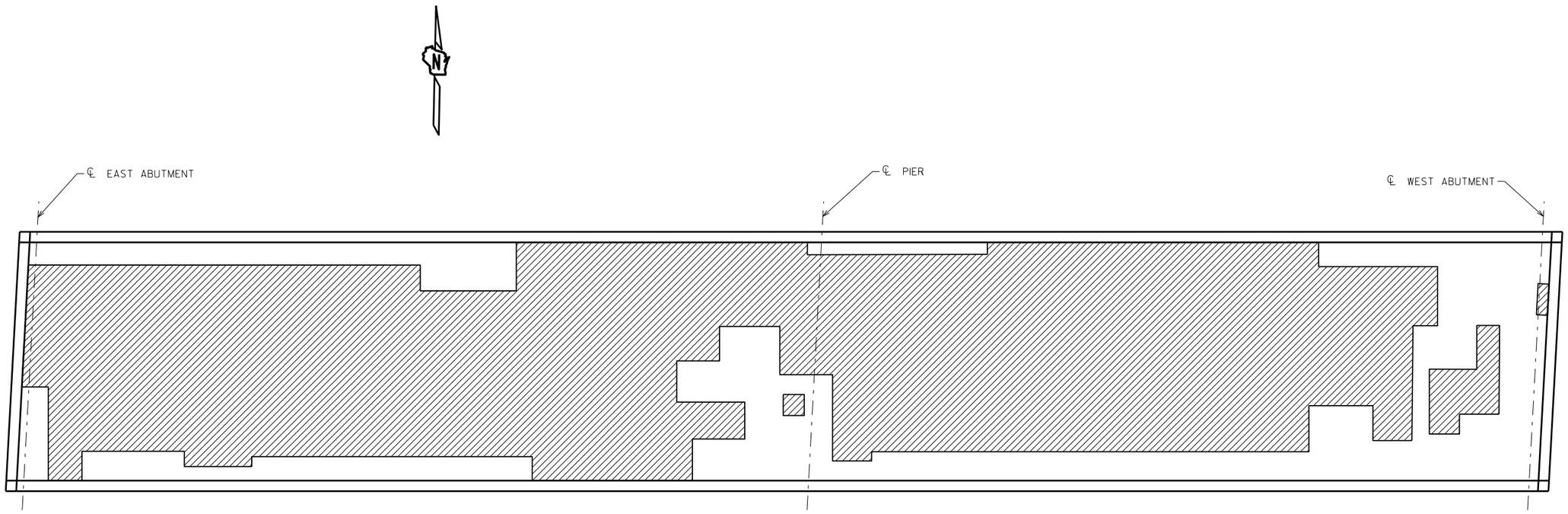
SCALE = 8.00

8

8

STATE PROJECT NUMBER

1225-08-74




**PLAN**
SHOWING APPROXIMATE
REPAIR AREAS

ESTIMATED DECK
PREPARATION AREAS

8

8

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-59-70

DRAWN BY JLR | PLANS CK'D. JDM

DECK TEST RESULTS

SHEET 8

55

SCALE = 8.00

**Wisconsin Department of Transportation**

Dedicated people creating transportation solutions
through innovation and exceptional service.

http://www.dot.wisconsin.gov