

LAX

WITH:

PROJECT ID: 1071-07-78

COUNTY: LA CROSSE

JANUARY 2019

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 Plan |
| 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 = 90

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

LA CROSSE - SPARTA

B-32-23, 24, 25, 26, 27, 28, 57

IH 90

LA CROSSE COUNTY

STATE PROJECT NUMBER

1071-07-78

STATE PROJECT

1071-07-78

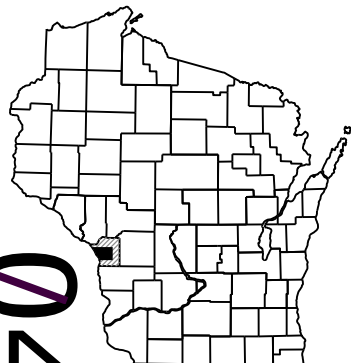
FEDERAL PROJECT

PROJECT

WISC 2019068

CONTRACT

1



04

DESIGN DESIGNATION

| | | |
|-----------------|---|------------|
| A.A.D.T. (2019) | = | 25,300 |
| A.A.D.T. (2039) | = | 30,600 |
| D.H.V. | = | 3,828 |
| D.D. | = | 60/40 |
| T. | = | 16.5% |
| DESIGN SPEED | = | 70 MPH |
| ESALS | = | 15,000,000 |

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 | |
| EXISTING CULVERT | |
| PROPOSED CULVERT (Box or Pipe) | |

COMBUSTIBLE FLUIDS

MARSH AREA

WOODED OR SHRUB AREA

PROFILE

| | |
|---|--|
| GRADE LINE | |
| ORIGINAL GROUND | |
| MARSH OR ROCK PROFILE (To be noted as such) | |
| SPECIAL DITCH | |
| GRADE ELEVATION | |
| CULVERT (Profile View) | |
| UTILITIES | |
| ELECTRIC | |
| FIBER OPTIC | |
| GAS | |
| SANITARY SEWER | |
| STORM SEWER | |
| TELEPHONE | |
| WATER | |
| UTILITY PEDESTAL | |
| POWER POLE | |
| TELEPHONE POLE | |

BEGIN PROJECT 1071-07-78

EB STATION 455+44
X=473675.20 Y=152969.22

WB STRUCTURE B-32-0024
BEGIN CONSTRUCTION STATION 456+65'A'
X=473828.93 Y=153037.67
END CONSTRUCTION STATION 461+11'A'
X=474273.91 Y=153060.32

WB STRUCTURE B-32-0026
BEGIN CONSTRUCTION STATION 475+47'A'
X=475707.50 Y=153141.98
END CONSTRUCTION STATION 478+85'A'
X=476039.66 Y=153204.61

WB STRUCTURE B-32-0028
BEGIN CONSTRUCTION STATION 590+52'A'
X=484933.01 Y=159653.84
END CONSTRUCTION STATION 592+37'A'
X=485096.21 Y=159735.14

STRUCTURE B-32-0057
BEGIN CONSTRUCTION STATION 27+62'C'
X=491696.59 Y=160875.04
END CONSTRUCTION STATION 29+42'C'
X=491695.07 Y=160695.22

END PROJECT 1071-07-78

EB STATION 660+46

EB STRUCTURE B-32-0023
BEGIN CONSTRUCTION STATION 455+44
X=473675.20 Y=152969.22
END CONSTRUCTION STATION 459+87
X= 474117.50 Y=152991.90

EB STRUCTURE B-32-0025
BEGIN CONSTRUCTION STATION 475+34
X=475662.41 Y=153074.82
END CONSTRUCTION STATION 478+73
X=475996.82 Y=153126.69

EB STRUCTURE B-32-0027
BEGIN CONSTRUCTION STATION 590+03
X=484921.68 Y=159581.11
END CONSTRUCTION STATION 591+69
X=485070.40 Y=159654.85

LAYOUT
SCALE 0 2 MI.

TOTAL NET LENGTH OF CENTERLINE = 0.000 MI.

HORIZONTAL POSITIONS SHOWN ARE WISCONSIN COUNTY COORDINATES, LA CROSSE COUNTY, NAD 83 (2011), US SURVEY FEET. VALUES ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCE MAY BE USED AS GROUND DISTANCE. VERTICAL DATUM NAVD 88 (2012).

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

| | |
|---------------------|------------------|
| Surveyor | WISDOT |
| Designer | MICHAEL GREINER |
| Project Manager | BRIAN MEYER |
| Regional Examiner | MICHAEL RUD |
| Regional Supervisor | JAMES SAVOLDELLI |
| C.O. Examiner | |

APPROVED FOR THE DEPARTMENT

DATE: 07-25-2017

(Signature)

E

ORDER OF SECTION 2 SHEETS

GENERAL NOTES/WRITTEN MATERIAL
PROJECT OVERVIEW
TYPICAL SECTIONS
CONSTRUCTION DETAILS
EROSION CONTROL
TRAFFIC CONTROL AND CONSTRUCTION STAGING
ALIGNMENT

GENERAL NOTES

- THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.
- THE CONTRACTOR'S PAVING OPERATIONS SHALL BE CONSISTENT WITH THE PLAN TYPICAL SECTIONS AND CONSTRUCTED TO PREVENT HMA LONGITUDINAL JOINTS FROM BEING LOCATED WITHIN A DRIVING, TURNING, BIKE OR PARKING LANE.
- HMA PAVEMENT WEIGHT CALCULATIONS ARE BASED ON 112 LB/SY/IN.
- 4" HMA PAVEMENT IS TO BE PLACED IN TWO EQUAL LAYERS.
- CONTRACTOR WILL BE RESPONSIBLE FOR RESHAPING AND SEEDING ANY PREVIOUSLY GRASSED AREAS WHICH ARE DISTURBED BY HIS OPERATION OUTSIDE OF THE NORMAL CONSTRUCTION LIMITS.
- THE QUANTITY OF THE ITEMS FOR EROSION PROTECTION INCLUDES AN UNDISTRIBUTED AMOUNT FOR PROTECTION, CONTROL AND ABATEMENT OF WATER POLLUTION RESULTING FROM SOIL EROSION. THE DISTRIBUTION AND LOCATION OF THESE MATERIALS ARE TO BE DETERMINED BY THE ENGINEER.
- DISTURBED AREAS WITHIN THE RIGHT OF WAY ARE TO BE TOPSOILED (SALVAGED), FERTILIZED, SEEDED, AND EROSION MAT AS DIRECTED BY THE ENGINEER.

STANDARD ABBREVIATIONS

| | | | |
|------------|-------------------------------|----------|----------------------------------|
| AC | ACRE | LC. | LONG CHORD |
| AGG | AGGREGATE | LS | LUMP SUM |
| < | ANGLE | M.P. | MARKER POST |
| AE, AEW | APRON ENDWALL | MGAL | 1000 GALLONS |
| ASPH. | ASPHALTIC | N.C. | NORMAL CROWN |
| A.D.T. | AVERAGE DAILY TRAFFIC | N | NORTH |
| A.A.D.T. | ANNUAL AVERAGE DAILY TRAFFIC | NB | NORTHBOUND |
| B.F. | BACK FACE | NOR | NORMAL |
| BM | BENCHMARK | NO. | NUMBER |
| BTWN | BETWEEN | PAV'T | PAVEMENT |
| CTR. | CENTER | P.L.E. | PERMANENT LIMITED EASEMENT |
| C/L | CENTER LINE | P.C. | POINT OF CURVATURE |
| Δ | CENTRAL ANGLE OR DELTA | P.I. | POINT OF INTERSECTION |
| C.E. | COMMERCIAL ENTRANCE | P.T. | POINT OF TANGENCY |
| CONST. | CONSTRUCTION | PCC | PORTLAND CEMENT CONCRETE |
| CMCP | CORRUGATED METAL CULVERT PIPE | P.E. | PRIVATE ENTRANCE |
| CMP | CORRUGATED METAL PIPE | PGL | PROFILE GRADE LINE |
| CO. | COUNTY | P.L. | PROPERTY LINE |
| CTH | COUNTY TRUNK HIGHWAY | R | RADIUS OR RANGE |
| CR. | CREEK | R/L | REFERENCE LINE |
| CABC | CRUSHED AGGREGATE BASE COURSE | R.C.C.P. | REINFORCED CONCRETE CULVERT PIPE |
| CY | CUBIC YARD | REQ'D | REQUIRED |
| CP | CONTROL POINT OR CULVERT PIPE | RT | RIGHT |
| C&G | CURB AND GUTTER | R.H.F. | RIGHT HAND FORWARD |
| D | DEGREE OF CURVE | R/W | RIGHT OF WAY |
| D.H.V. | DESIGN HOURLY VOLUME | RD. | ROAD |
| DIA. | DIAMETER | SHLD. | SHOULDER(S) |
| D.D. | DIRECTIONAL DISTRIBUTION | SHR. | SHRINKAGE |
| DISCH. | DISCHARGE | S | SOUTH |
| DMS | DYNAMIC MESSAGE SIGN | SB | SOUTHBOUND |
| EA | EACH | S.F. | SQUARE FOOT (FEET) |
| E | EAST | SDD | STANDARD DETAIL DRAWING(S) |
| EB | EASTBOUND | STH | STATE TRUNK HIGHWAY |
| ELEC. | ELECTRIC(AL), ELEC. CABLE | STA. | STATION |
| EL., ELEV. | ELEVATION | S.E. | SUPERELEVATION |
| ESALS | EQUIVALENT SINGLE AXLE LOADS | S/L | SURVEY LINE |
| EXC. | EXCAVATION | SYM | SYMMETRICAL |
| EXIST | EXISTING | T. | PERCENT TRUCKS |
| F.F. | FACE TO FACE | TEL. | TELEPHONE |
| FERT. | FERTILIZER | TEMP. | TEMPORARY |
| F.E. | FIELD ENTRANCE | T.L.E. | TEMPORARY LIMITED EASEMENT |
| F/L, F.L. | FLOW LINE | T.O.C. | TOP OF CURB |
| GALV. | GALVANIZE | TYP | TYPICAL |
| H.S. | HIGH STRENGTH | UNCL. | UNCLASSIFIED |
| CWT | HUNDRED WEIGHT | U.G. | UNDERGROUND (CABLE) |
| INL | INLET | VAR | VARIABLE |
| INTER. | INTERSECTION | V.C. | VERTICAL CURVE |
| IH | INTERSTATE HIGHWAY | V.P.C. | VERTICAL POINT OF CURVATURE |
| JT. | JOINT | V.P.I. | VERTICAL POINT OF INTERSECTION |
| LT | LEFT | V.P.T. | VERTICAL POINT OF TANGENCY |
| L.H.F. | LEFT HAND FORWARD | Wt. | WEIGHT |
| L. | LENGTH OF CURVE | W | WEST |
| L.F. | LINEAR FOOT(FEET) | WB | WESTBOUND |

TUMS 1078-Utility Owners List - As of June 6, 2018

RE: Design Project ID: 1071-07-08
Construction Project ID: 1071-07-78
LA CROSSE - SPARTA
B-32-23, 24, 25, 26, 27, 28, 57
IH 090, La Crosse County

Tom Murray (1078 Contact)
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Tom Dickson (Primary Contact)
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Scott Roberts (1078 Contact)
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(608) 789-3625
scott.w.roberts@xcelenergy.com

DNR LIAISON

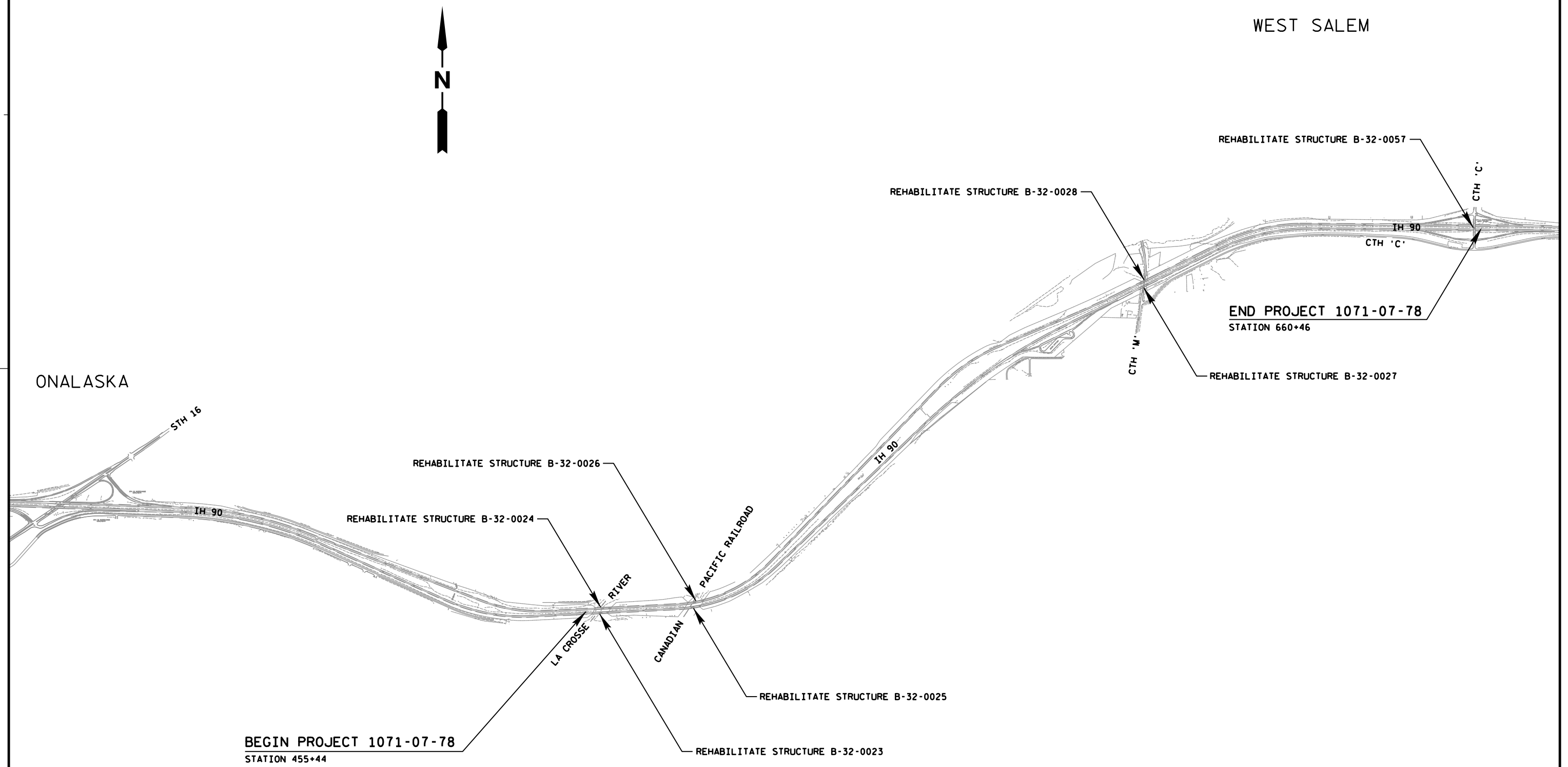
KAREN KALVELAGE
ENVIRONMENTAL ANALYSIS & REVIEW SPECIALIST
WISCONSIN DEPT. OF NATURAL RESOURCES
WEST CENTRAL REGION
3550 MORMON COULEE ROAD
LA CROSSE, WI 54601
608-785-9115

DESIGN CONTACTS

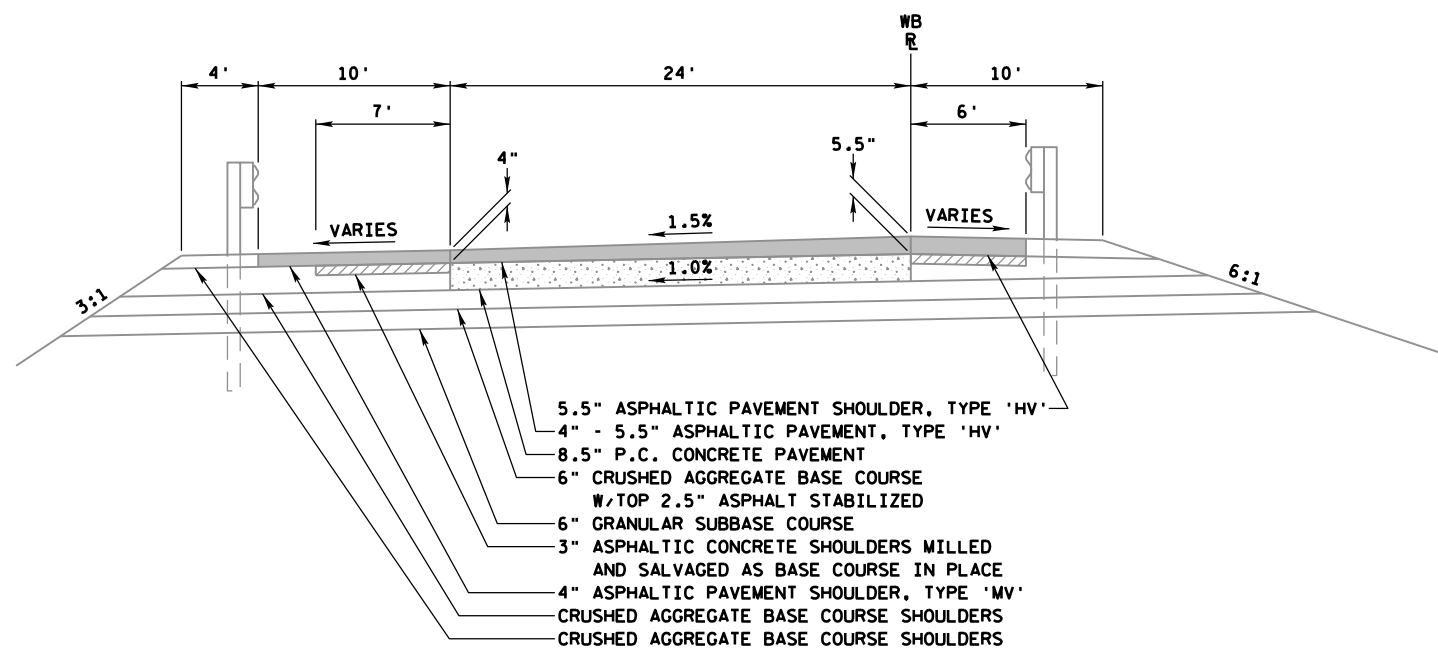
BRIAN MEYER
PROJECT MANAGER
WISDOT SW REGION
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608 789-5676

MICHAEL GREINER
PROJECT DESIGNER
WISDOT SW REGION
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La Crosse, WI 54601
608 789-5958

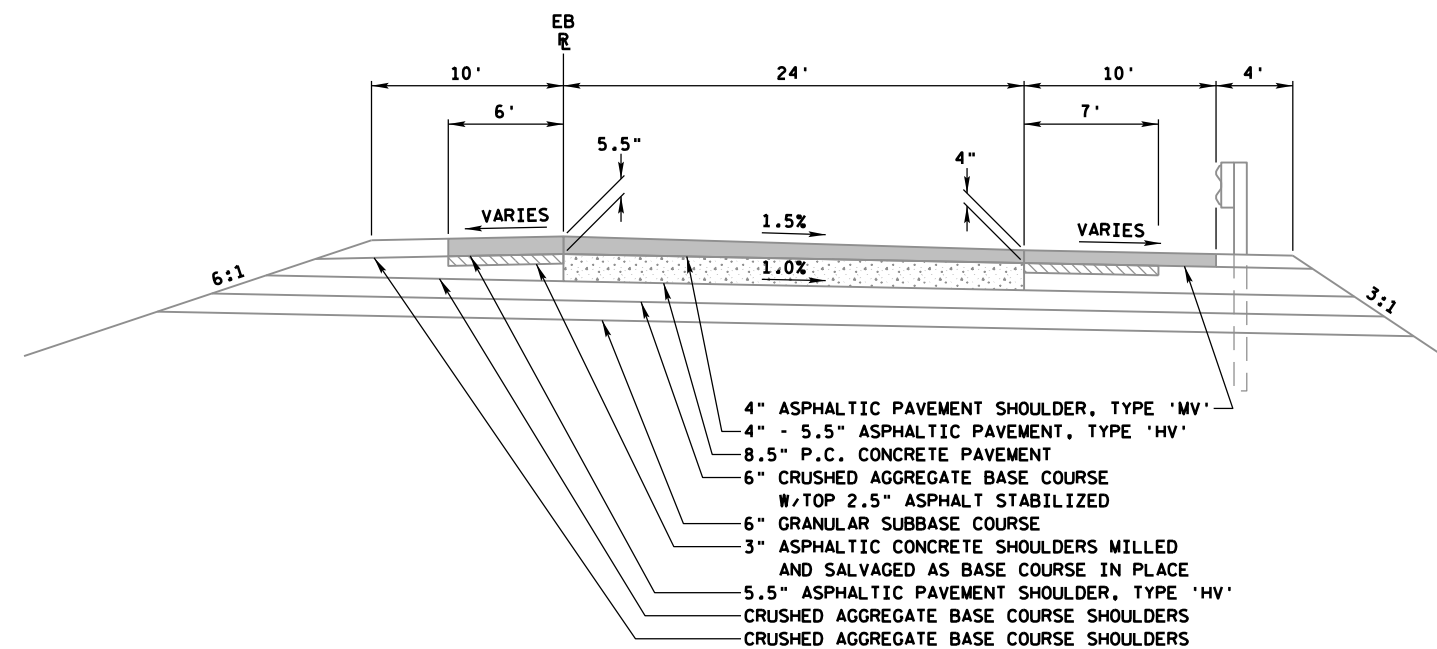




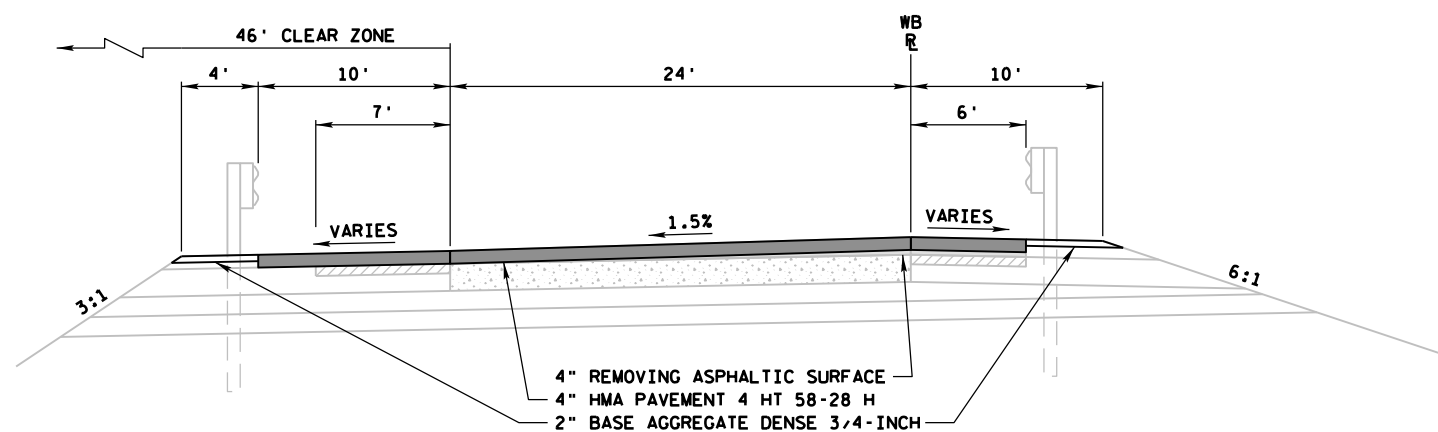
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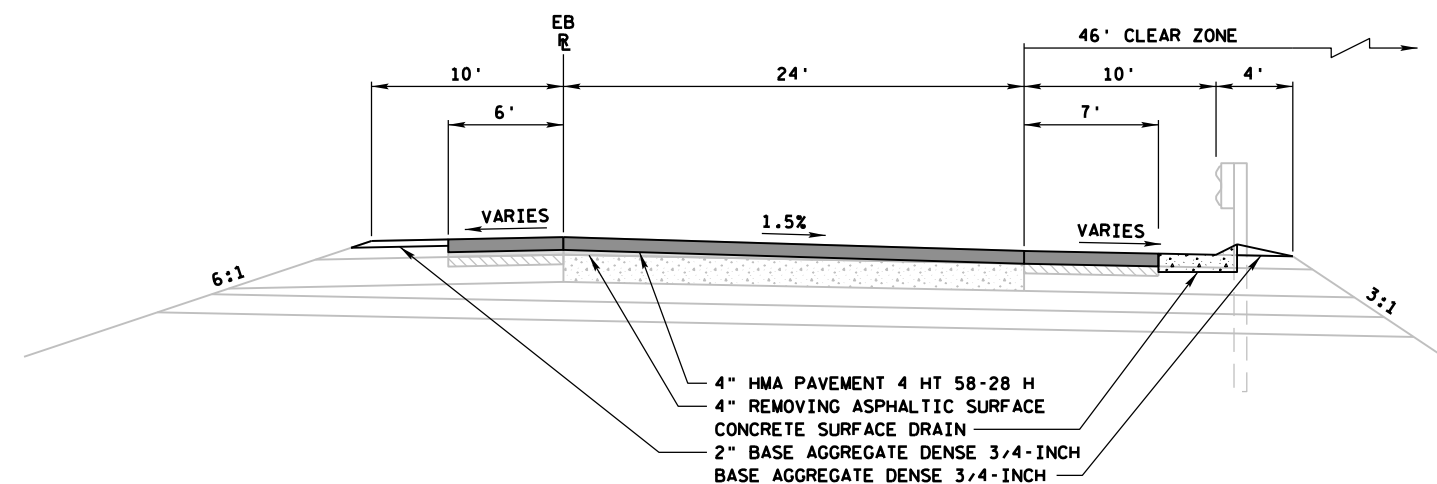
EXISTING TYPICAL SECTION
STATION 591+84'A' - STATION 592+37'A'



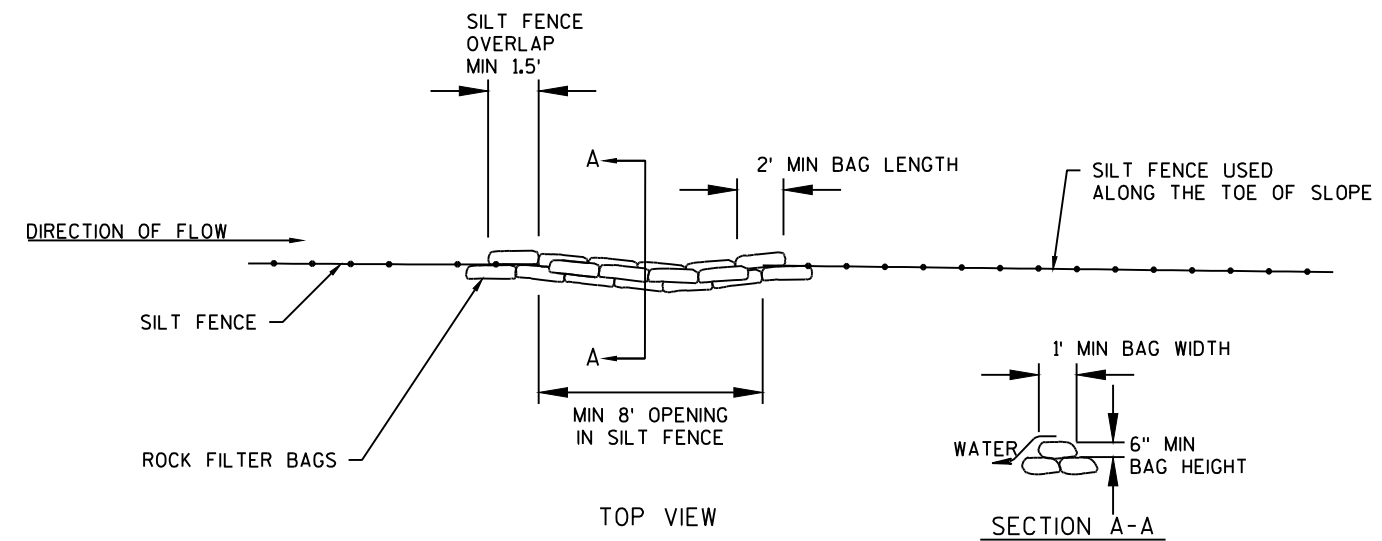
EXISTING TYPICAL SECTION
STATION 591+16 - STATION 591+69



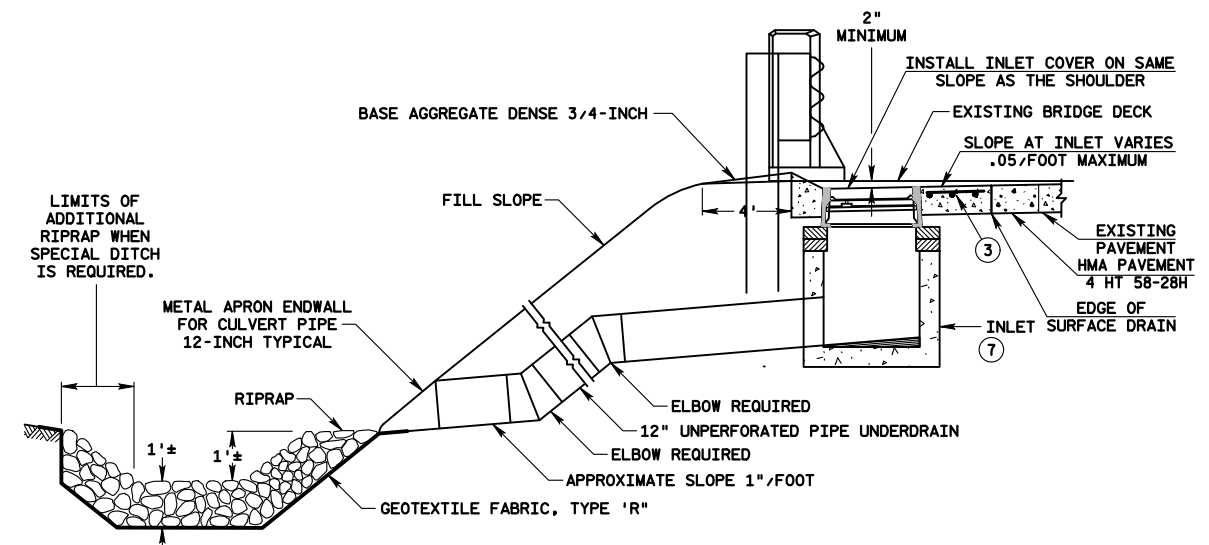
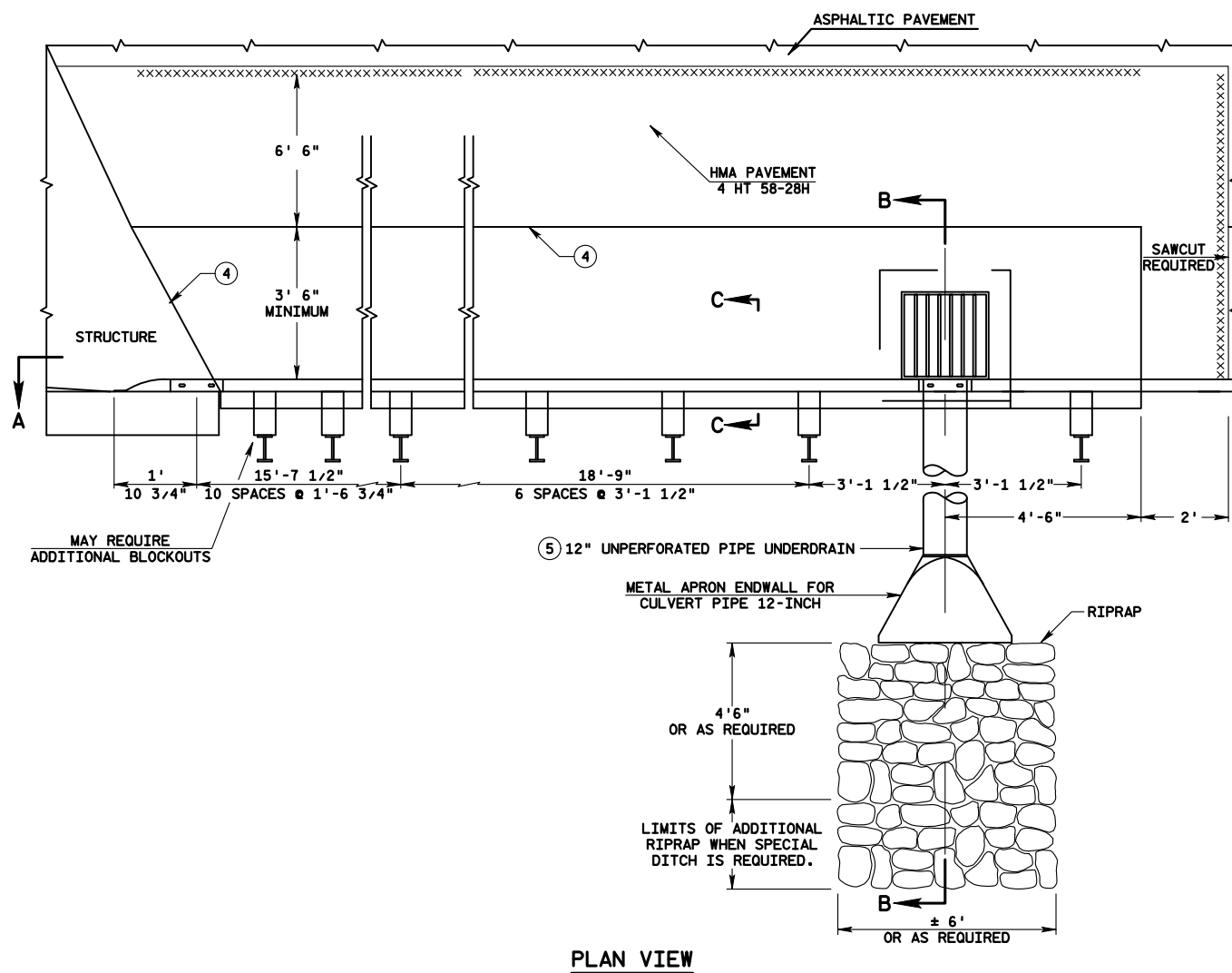
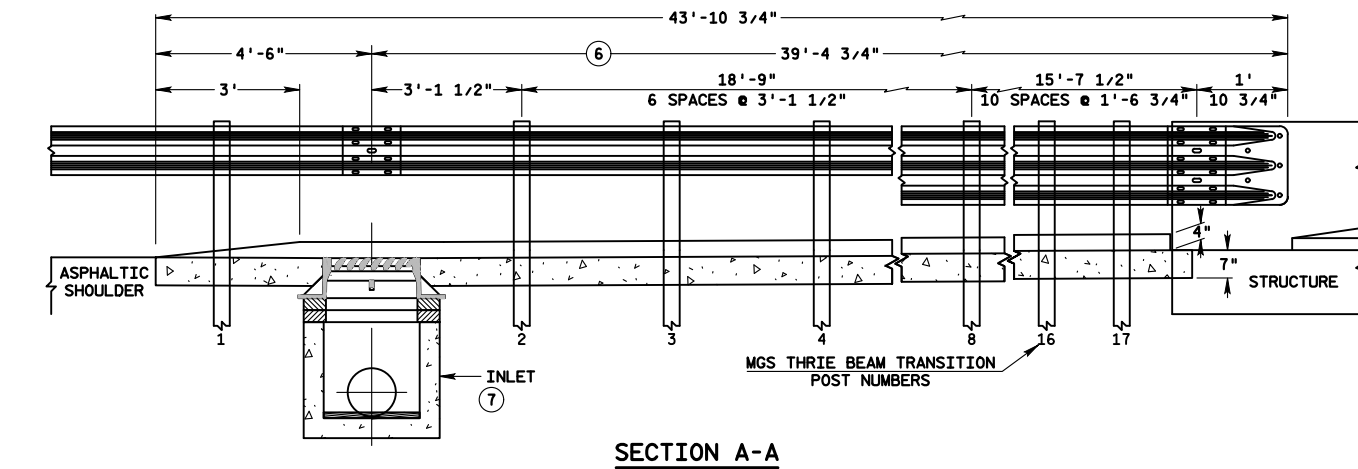
PROPOSED TYPICAL SECTION
STATION 591+84'A' - STATION 592+37'A'



PROPOSED TYPICAL SECTION
STATION 591+16 - STATION 591+69



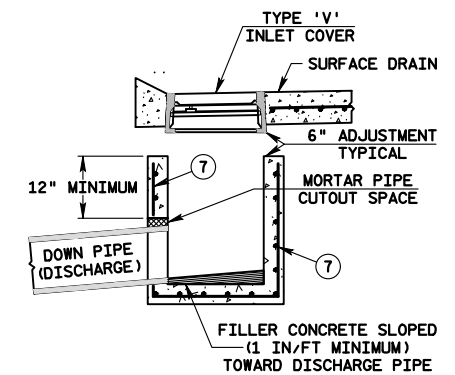
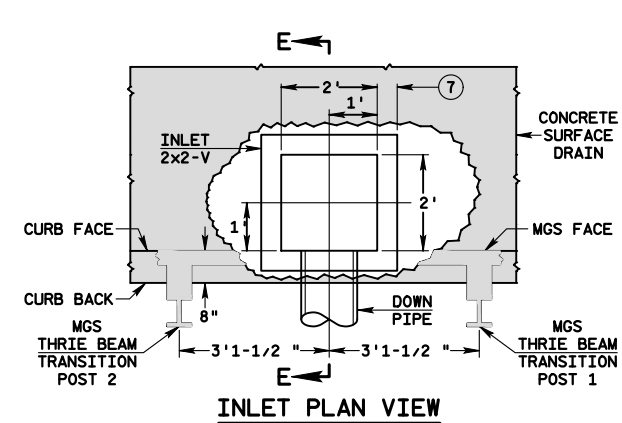
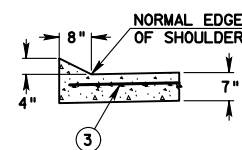
ROCK BAGS USED FOR SILT FENCE RELIEF



SECTION B-B

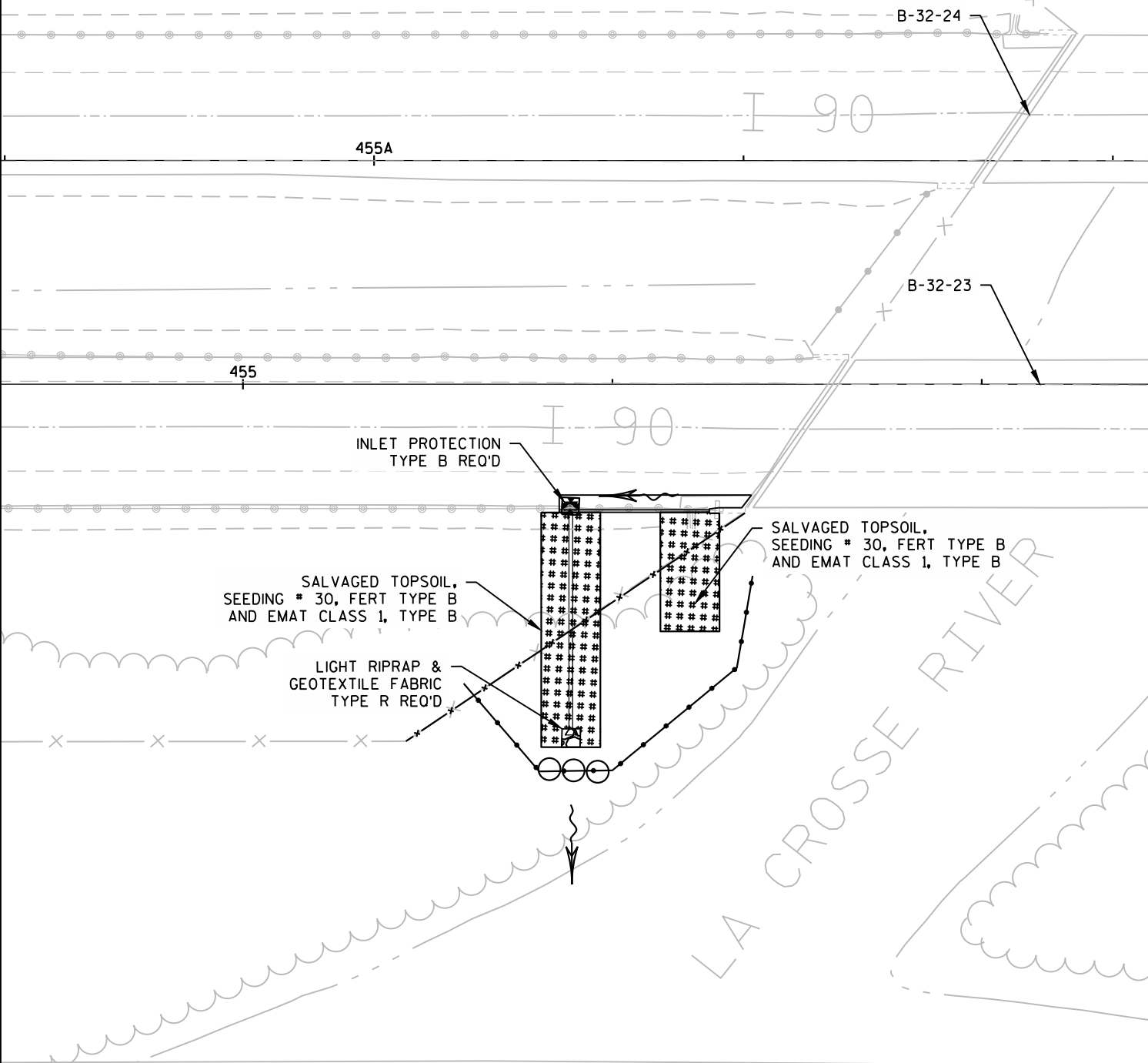
GENERAL NOTES

1. 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.
2. FOR THE PLACEMENT OF THE CASTING AND ADJUSTMENT RINGS, A BUTYL BASE MASTIC WRAP SHALL BE INSTALLED AROUND THE CASTING AND ADJUSTMENT RINGS TO PROVIDE A WATERTIGHT SEAL. THE WRAP SHALL OVERLAP ONTO THE CASTING AND SIDE OF INLET BY A MINIMUM OF 2-INCHES. AREAS TO BE WRAPPED SHALL BE THOROUGHLY CLEANED WITH A WIRE BRUSH AND PAINTED WITH AN ADHESIVE PRIMER. INSTALLATION OF WRAP IS INCIDENTAL TO PLACEMENT OF INLET.
3. ALL STEEL REINFORCEMENT SHALL BE EMBEDDED 2-INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED. MINIMUM REINFORCEMENT SHALL BE 6"x 6" - W4.0 OR NO.3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C-C.
4. HOT POURED SEALANT UNLESS OTHERWISE SPECIFIED.
5. THE PIPE UNDERDRAIN MAY BE ANY ONE OF THE SIX MATERIALS LISTED IN THE STANDARD SPECIFICATIONS SECTION 612.2 EXCEPT DRAIN TILE.
6. THIS DIMENSION MAY VARY DEPENDING ON THE MGS GUARDRAIL POST SPACING. THE TYPICAL LOCATION FOR THE SURFACE DRAIN IS WHERE THE POST SPACING WIDENS TO 6'-3".
7. FOR MORE DETAILS SEE STANDARD DETAIL DRAWINGS "INLET COVERS TYPE F, HM, HM-S, S, T, V, HM-GJ, & HM-GJ-S" AND "INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT".



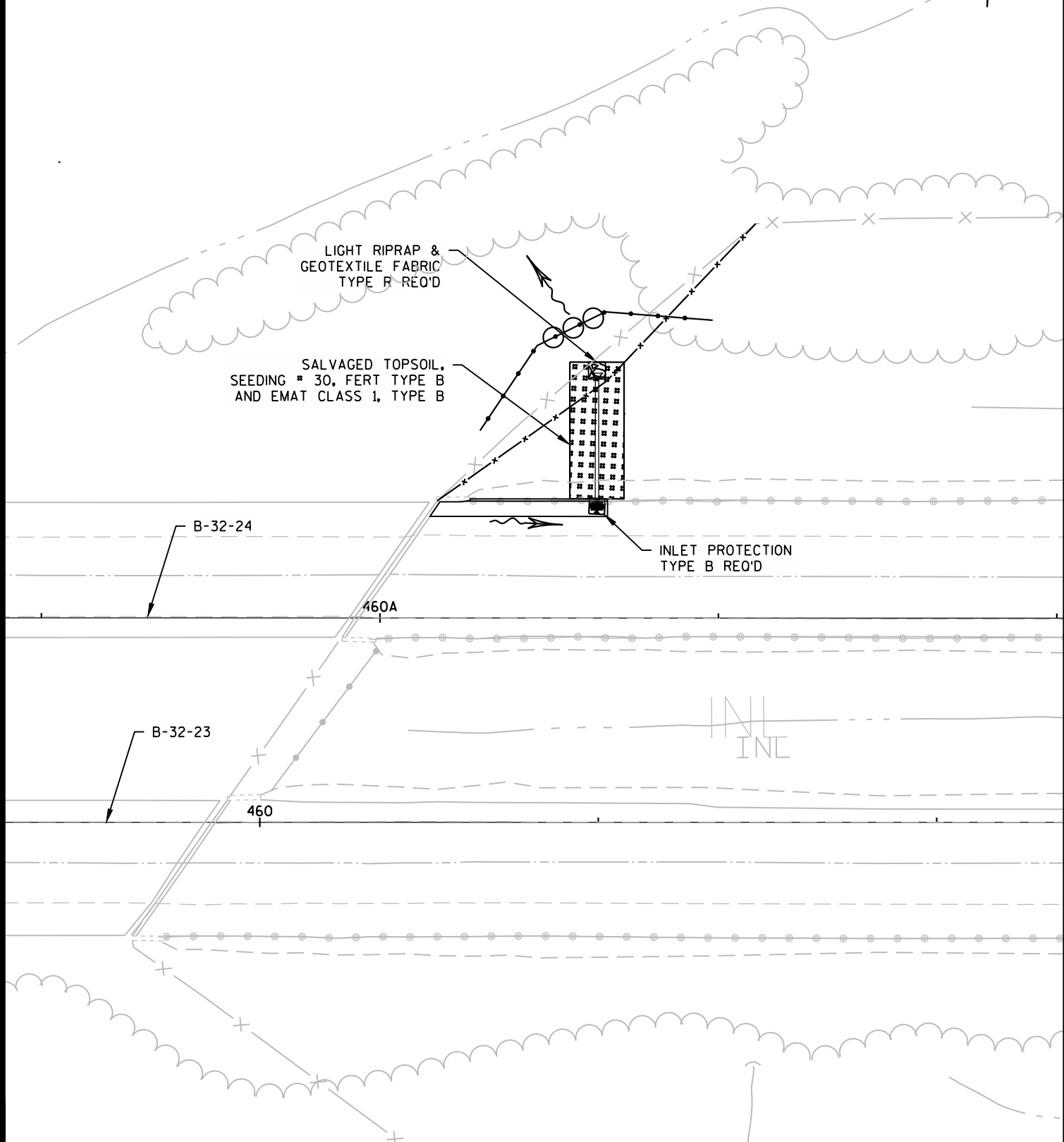
2

- LEGEND
- ##### EROSION MAT CLASS I, TYPE B
 - - - - - LIGHT RIP RAP
 - ☒ INLET PROTECTION
 - ~ ~ ~ ~ ~ SURFACE WATER FLOW
 - ○ ○ SILT FENCE RELIEF
 - — — SILT FENCE



2

- LEGEND
- ##### EROSION MAT CLASS I, TYPE B
 - - - - - LIGHT RIP RAP
 - ☒ INLET PROTECTION
 - ~ ~ ~ ~ ~ SURFACE WATER FLOW
 - ○ ○ SILT FENCE RELIEF
 - — — SILT FENCE



PROJECT NO:1071-07-78

HWY: IH 90

COUNTY: LA CROSSE

EROSION CONTROL

SHEET

E

FILE NAME : N:\PDS\C3D\10710708\SHEETS\PLAN\022001_EC.DWG
LAYOUT NAME - SHEET - (1)

PLOT DATE : 10/8/2018 7:41 AM

PLOT BY : GREINER JR, MICHAEL PLOT NAME :

PLOT SCALE : 1 IN:40 FT

WISDOT/CADDs SHEET 42

LEGEND

EROSION MAT CLASS I, TYPE B

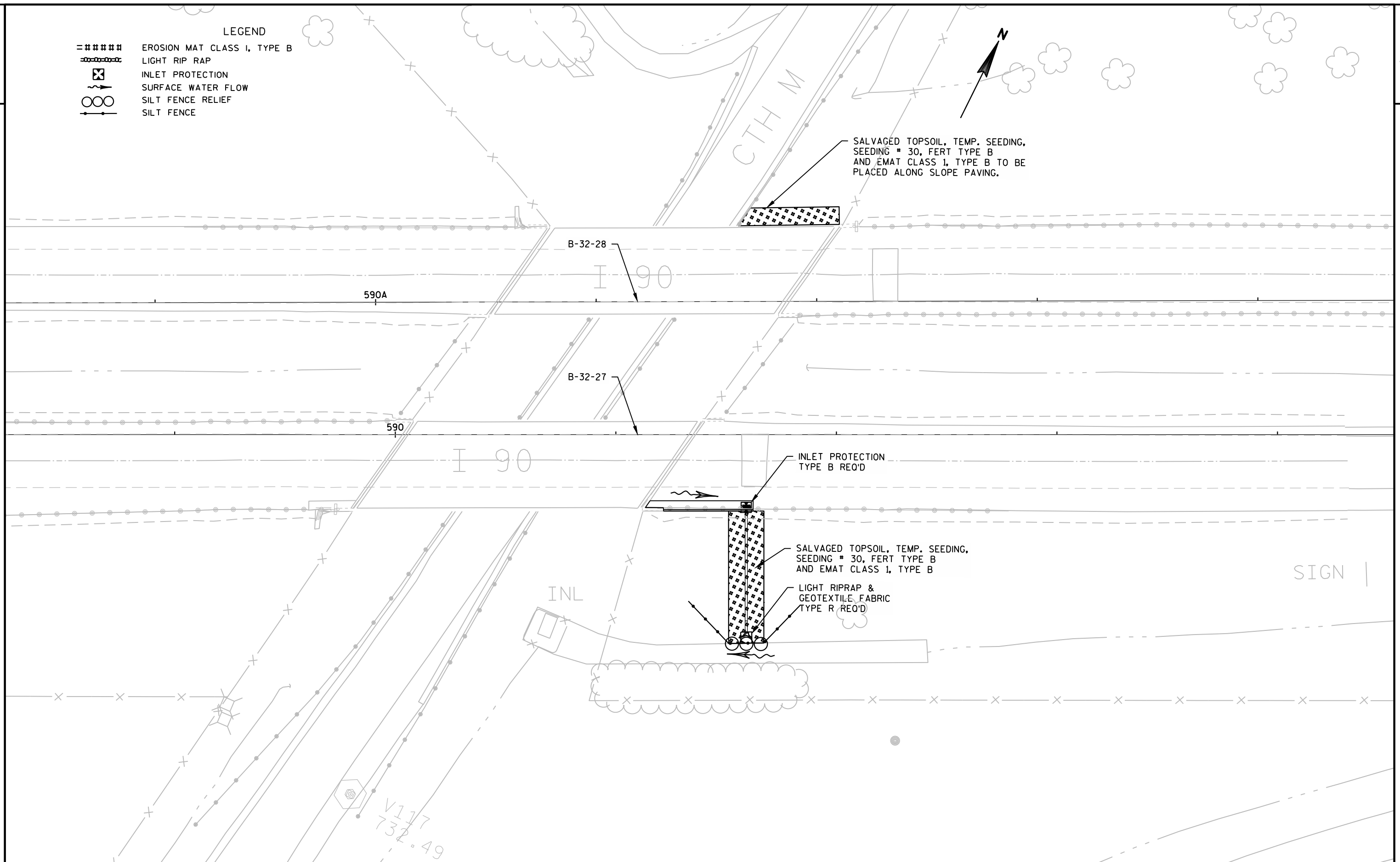
===== LIGHT RIP RAP

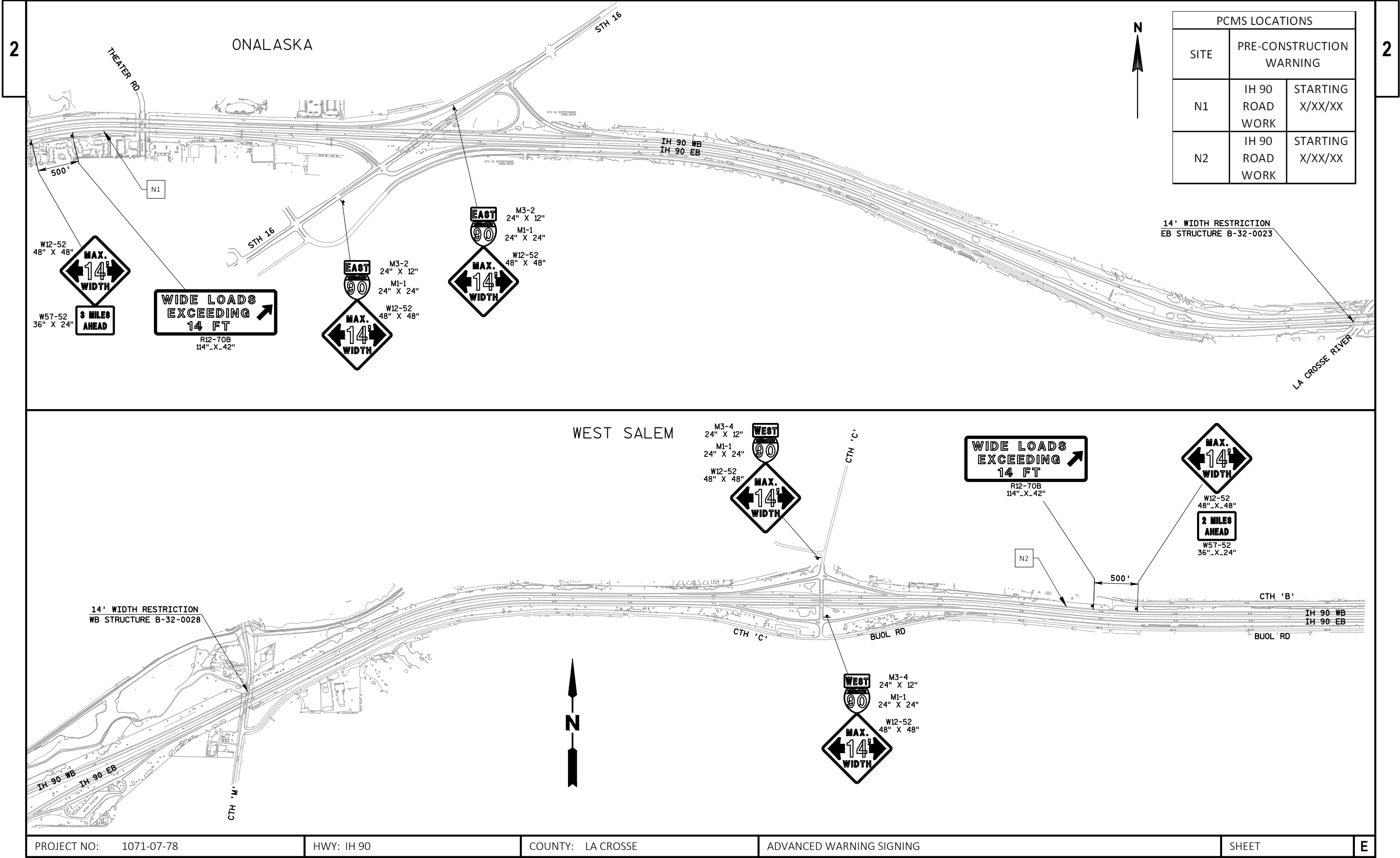
⊠ INLET PROTECTION

~ SURFACE WATER FLOW

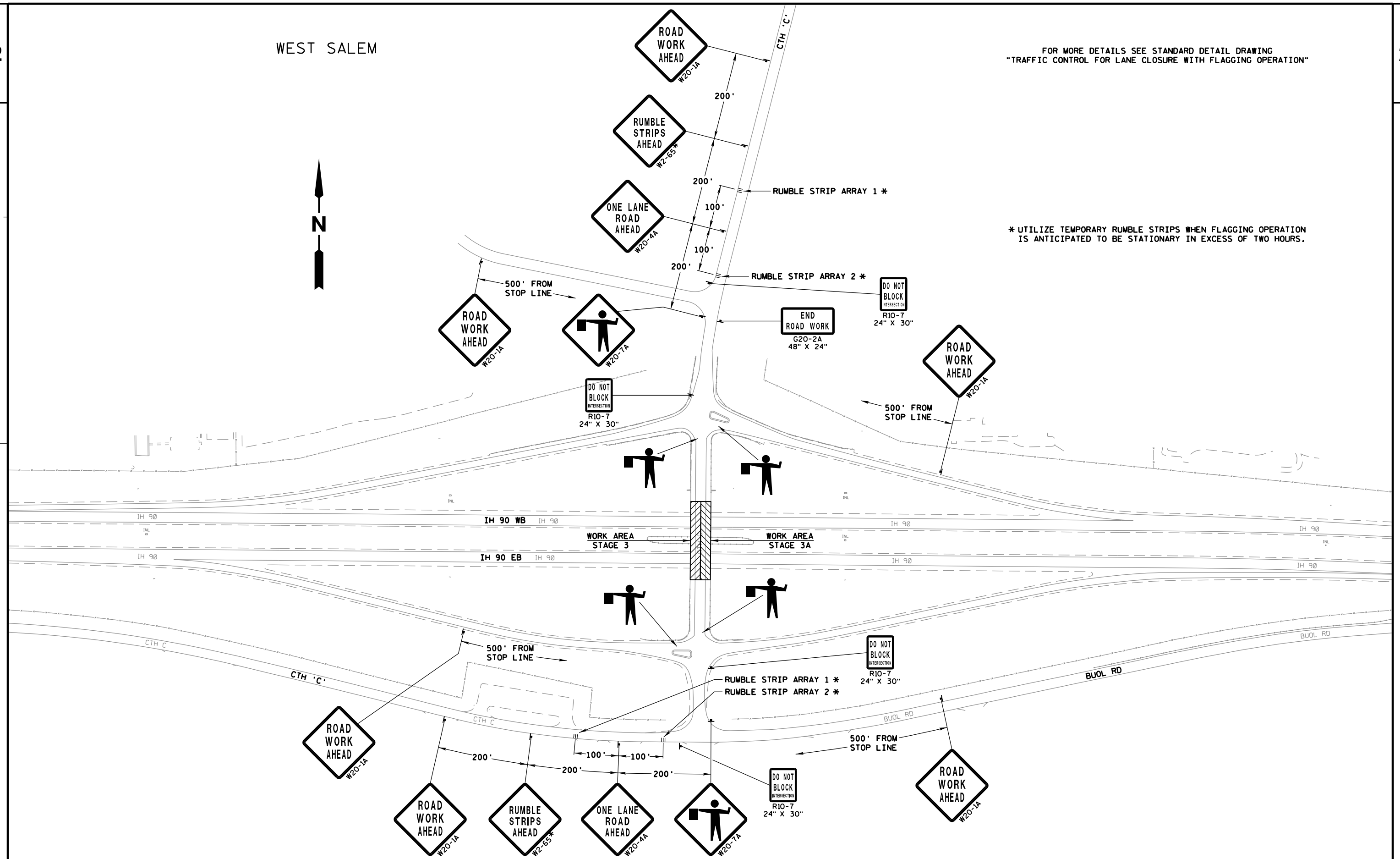
○ ○ SILT FENCE RELIEF

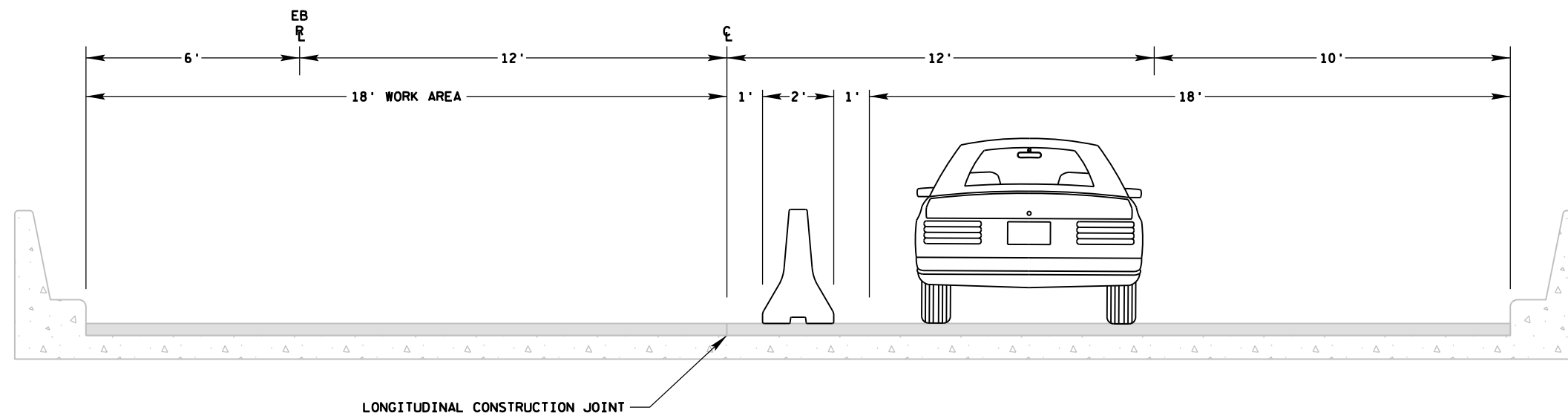
—●— SILT FENCE



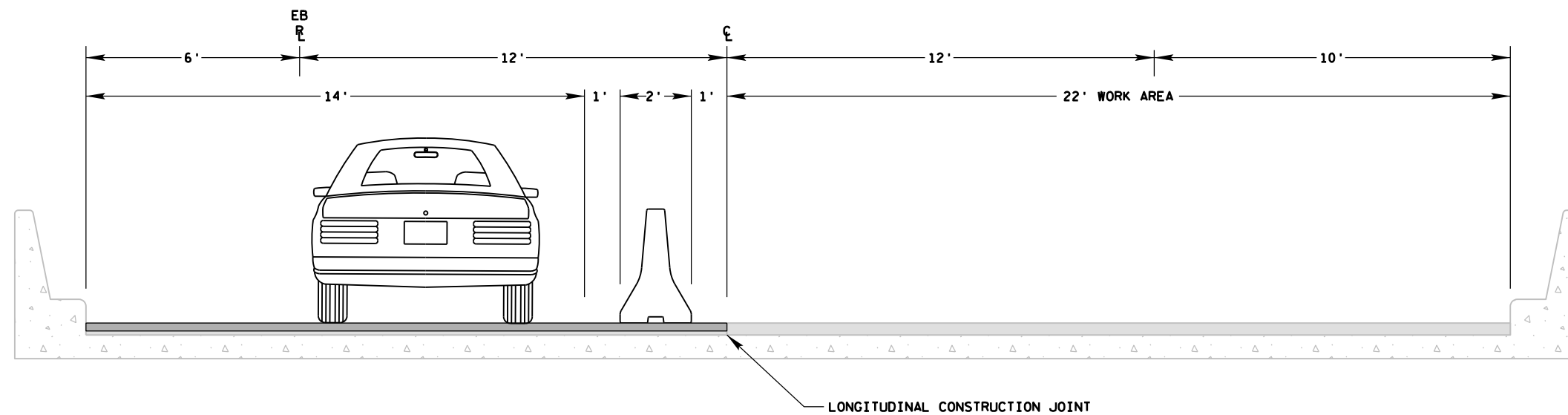


WEST SALEM

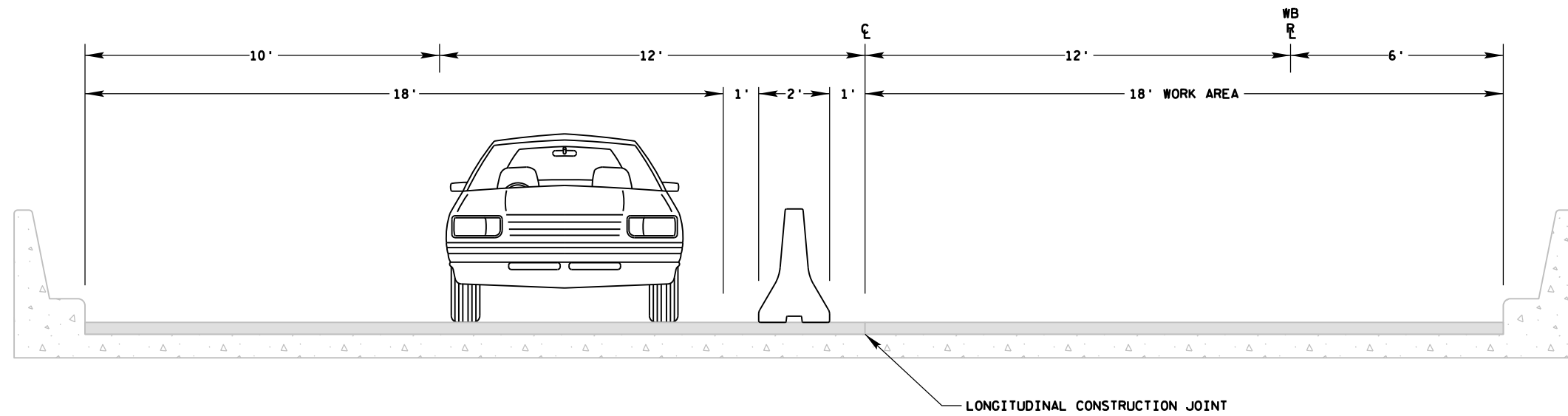




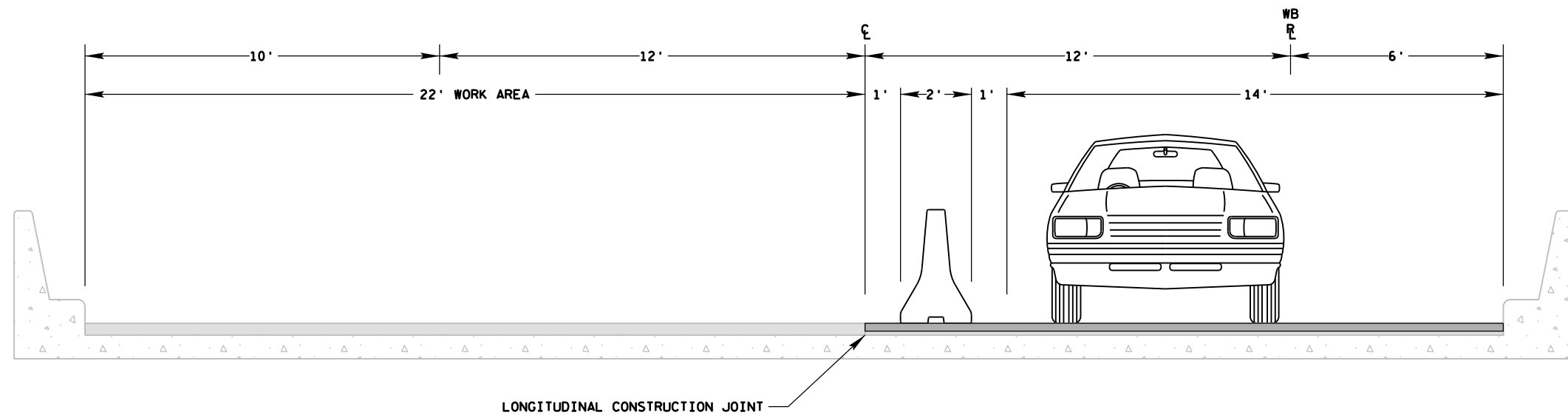
EB IH 90 STAGE 1
B-32-23 / B-32-27



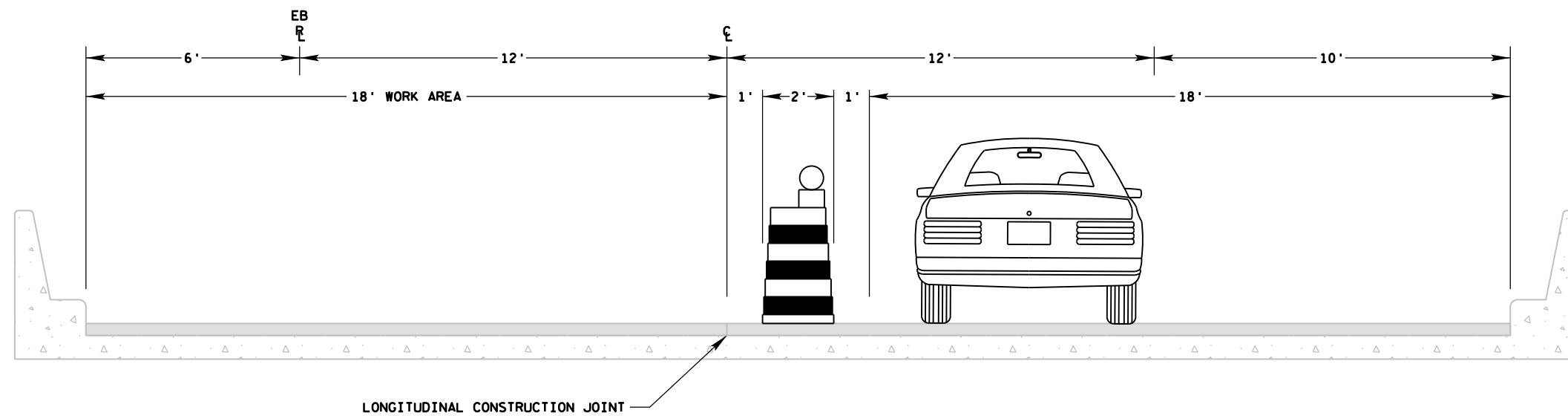
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B-32-23 / B-32-27



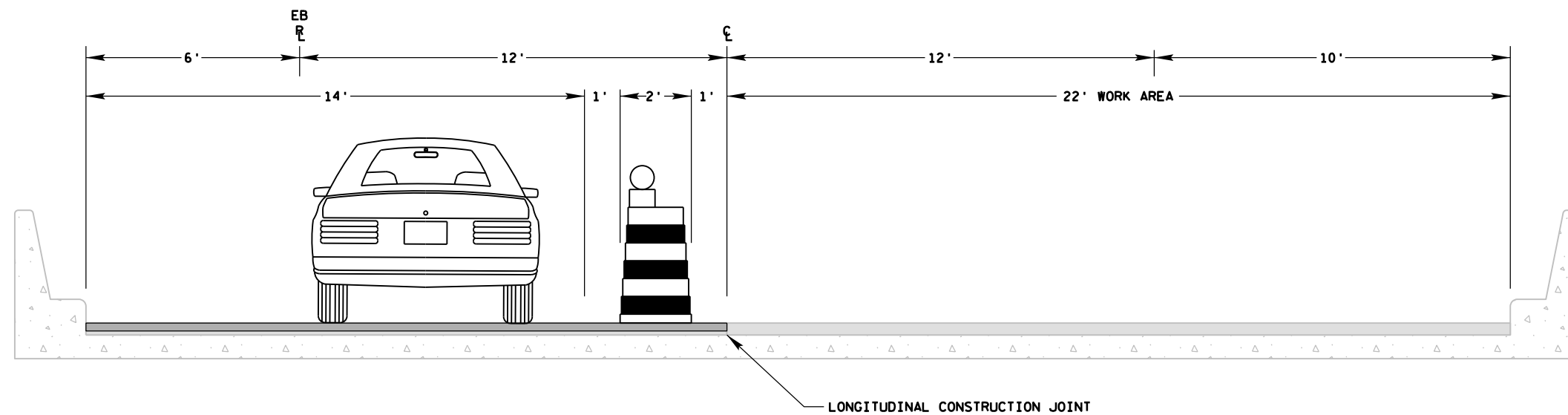
WB IH 90 STAGE 1
B-32-24 / B-32-28



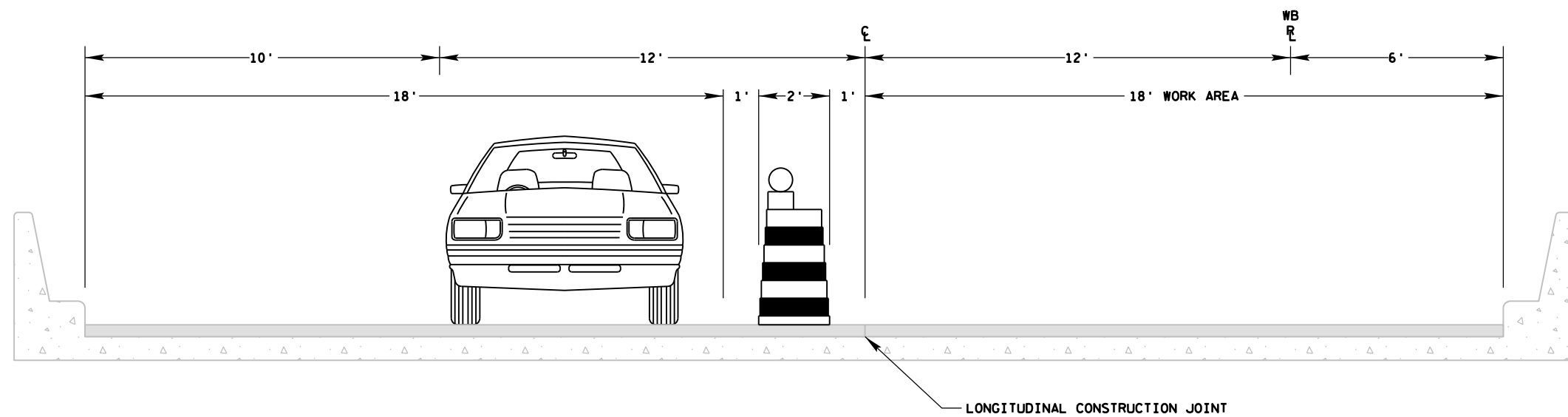
WB IH 90 STAGE 2
B-32-24 / B-32-28



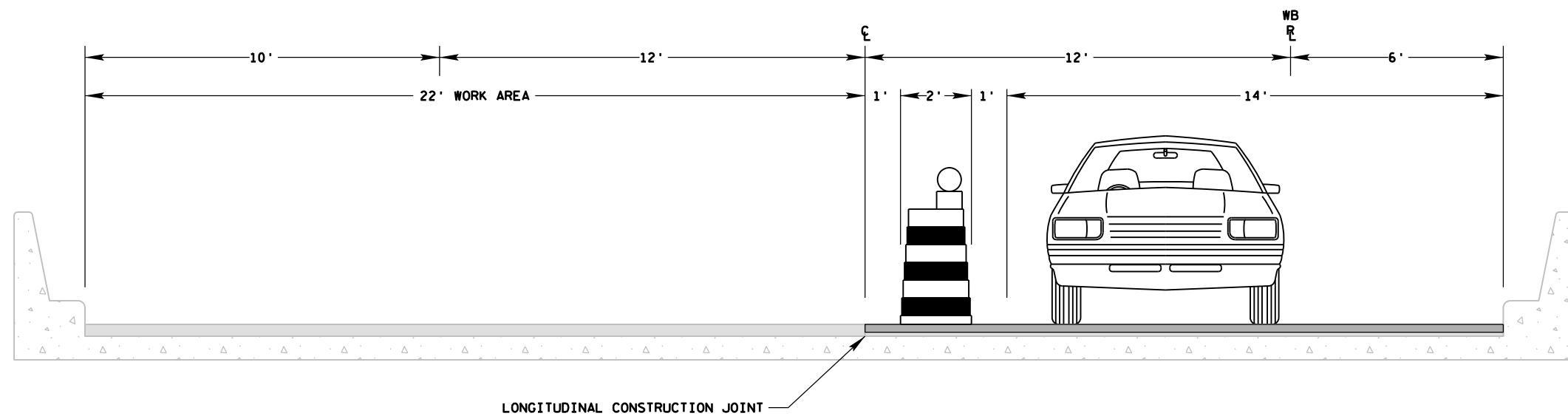
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B-32-25



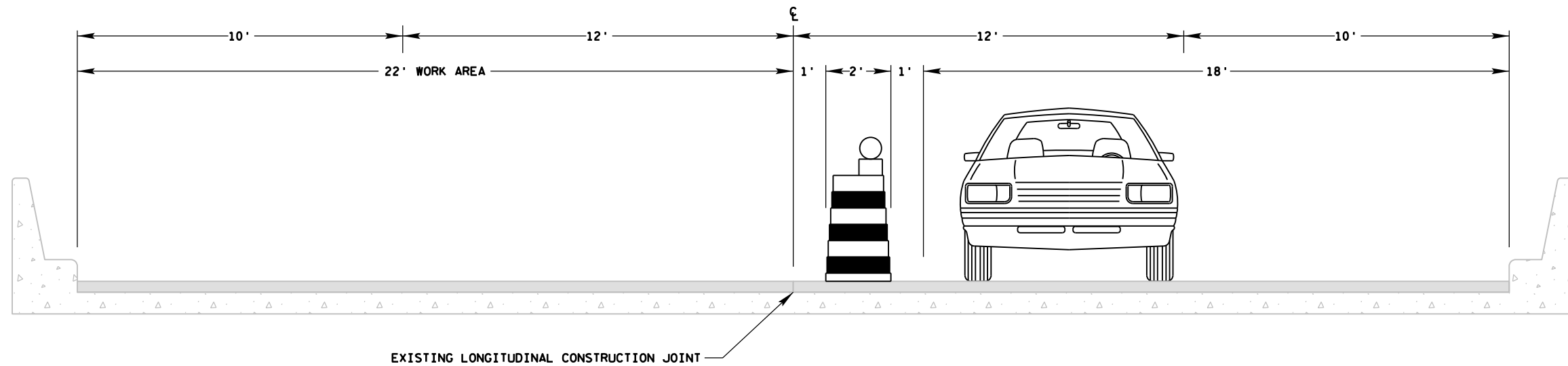
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B-32-25



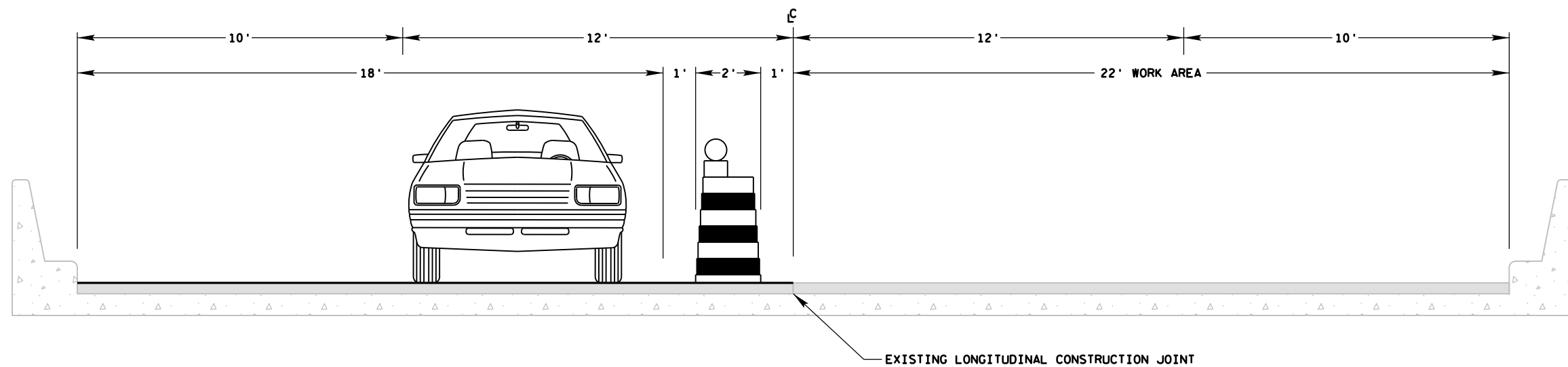
WB IH 90 STAGE 1
B-32-26



WB IH 90 STAGE 2
B-32-26



CTH "C" STAGE 3
B-32-57



CTH "C" STAGE 3A
B-32-57

GENERAL NOTES

THIS LANE CLOSURE IS TYPICAL FOR CLOSING RIGHT LANE-
MIRROR IT FOR CLOSING LEFT LANE.

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

THE SPACING BETWEEN SIGNS SHOULD BE ADJUSTED TO NOT
CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET,
(500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS.

ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED.
"W" IS THE SAME AS "W" EXCEPT THE BACKGROUND IS ORANGE.

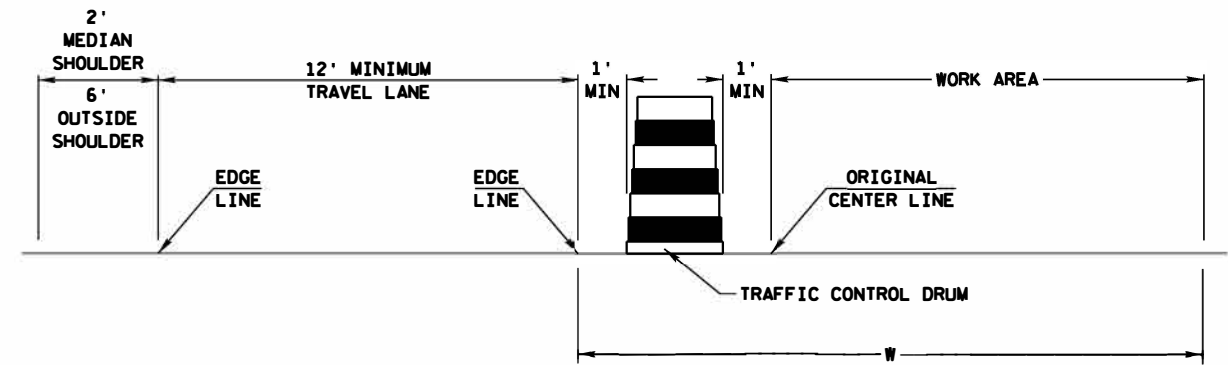
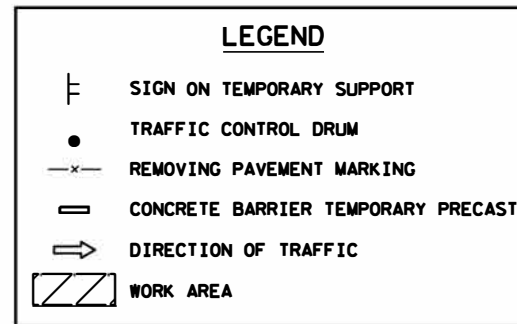
CONSIDER ROADWAY GEOMETRIC'S WHEN LOCATING SIGNS SO THE
DRIVER HAS A CLEAR VIEW OF LANE CLOSURE DRUMS FOR A MINIMUM
1500 FEET IN FRONT OF DRUM TAPER.

FOR A LANE CLOSURE THAT IS IN PLACE LESS THAN 7
CONTINUOUS DAYS AND NIGHTS THE ADVANCE WARNING SIGNS
MAY BE MOUNTED ON PORTABLE SUPPORTS.

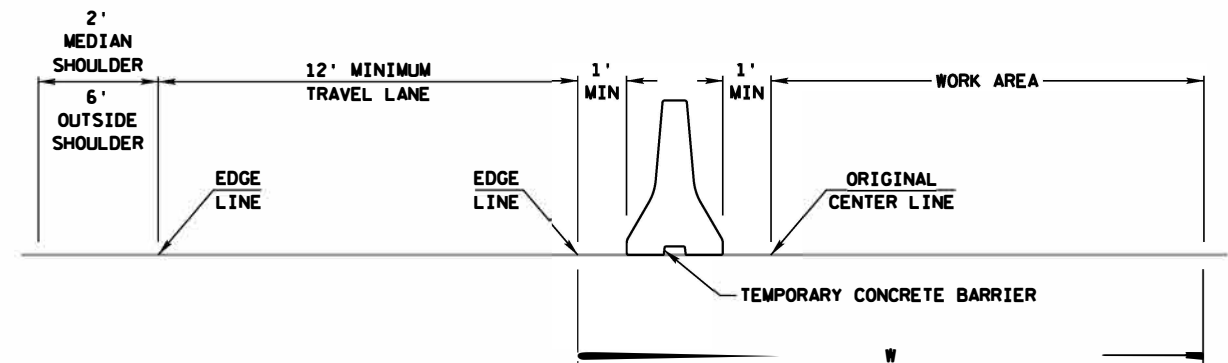
REMOVE PAVEMENT MARKINGS IF LANE CLOSURE IS TO BE INPLACE
FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

IF THE HORIZONTAL ALIGNMENT IS SUCH THAT A CURVE MAY
REQUIRE ADDITIONAL DELINEATION, THE DEVICE SPACING MAY BE
DECREASED TO 50 FEET.

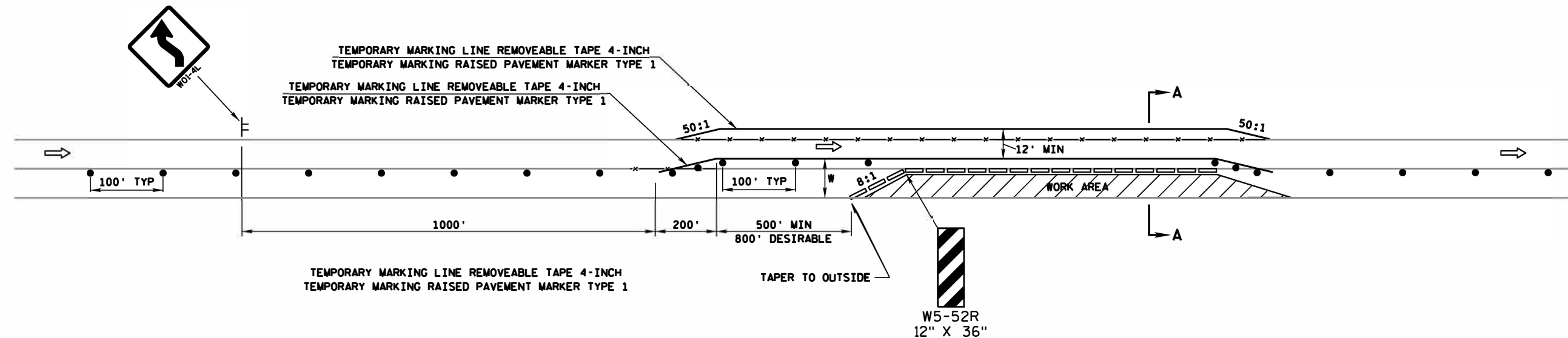
ADJUSTMENTS IN BUFFER SPACE NEEDS TO BE INCORPORATED
WHEN THE LANE CLOSURE OCCURS NEAR AN INTERCHANGE
EXIST OR ENTRANCE RAMP OR INTERSECTION. THE LANE
CLOSURE MUST TAKE PLACE FAR ENOUGH IN ADVANCE OF
AN EXIT OR ENTRANCE RAMP TO STILL ALLOW FOR ADEQUATE BUFFER
SPACE BEFORE AND EXIT RAMP SHOULD BE FOLLOWED
BY THE ORIGINAL BUFFER SPACE LENGTH OF 800 FEET DESIRABLE
PRIOR TO ANOTHER TRAFFIC CONTROL CHANGE SUCH AS A CROSSOVER
MANEUVER.



SECTION A-A
B-32-25 & B-32-26

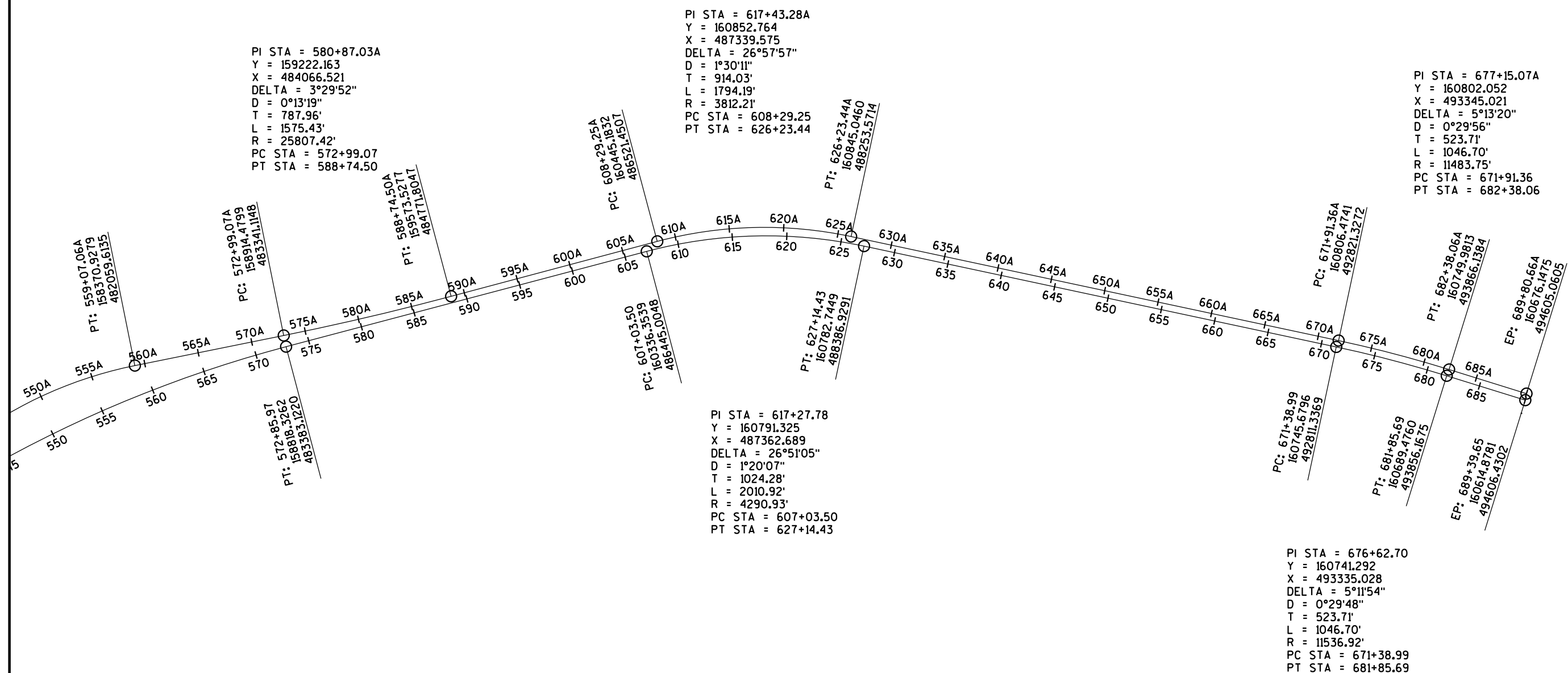


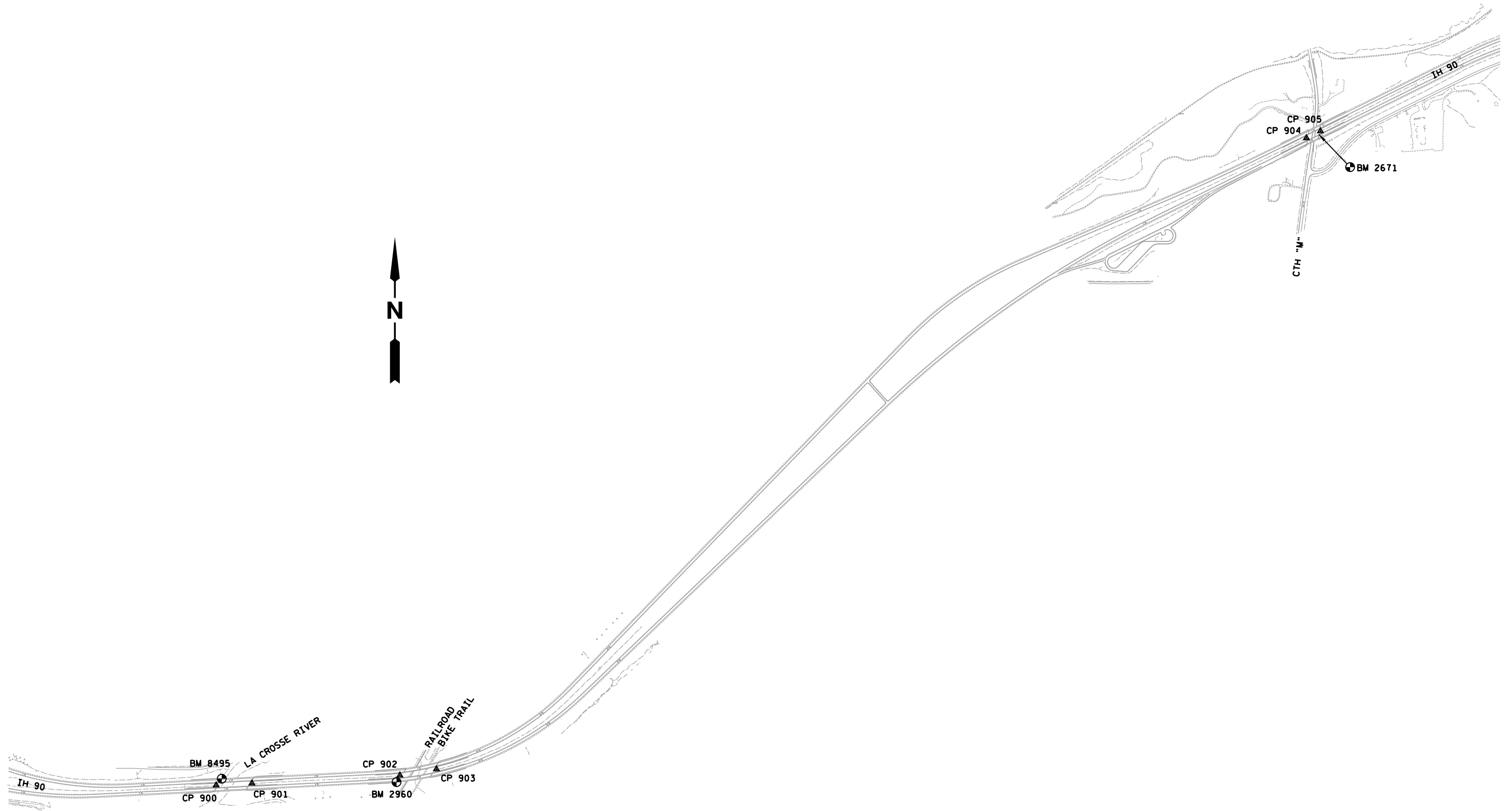
SECTION A-A
B-32-23, B-32-24, B-32-27 & B-32-28

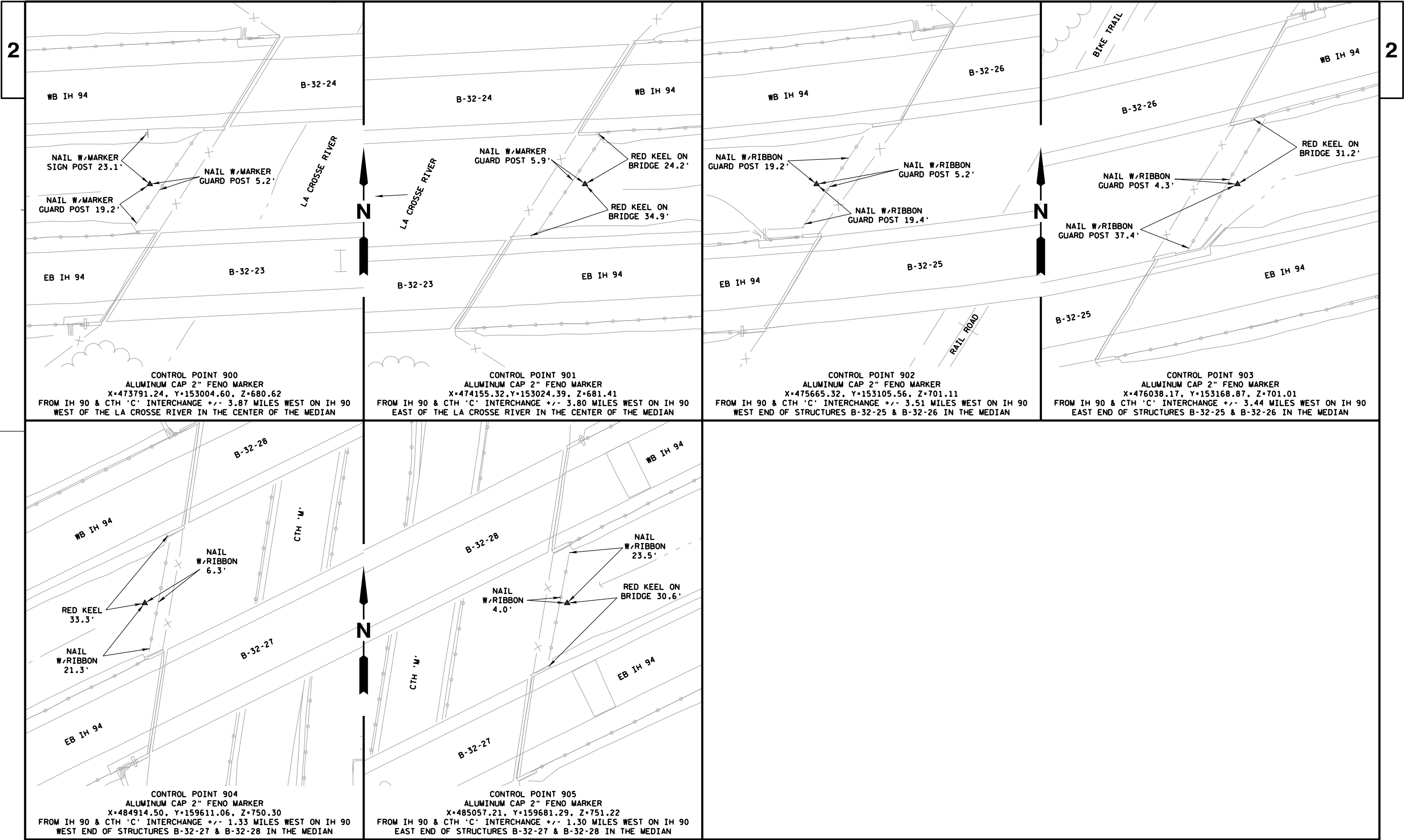


LANE SHIFT FOR BARRIER INSIDE LANE CLOSURE









Estimate Of Quantities

1071-07-78

| Line | Item | Item Description | Unit | Total | Qty |
|------|------------|---|------|-----------|-----------|
| 0002 | 202.0110 | Roadside Clearing | SY | 470.000 | 470.000 |
| 0004 | 203.0100 | Removing Small Pipe Culverts | EACH | 1.000 | 1.000 |
| 0006 | 203.0210.S | Abatement of Asbestos Containing Material (structure) 01. B-32-23 | LS | 1.000 | 1.000 |
| 0008 | 203.0210.S | Abatement of Asbestos Containing Material (structure) 02. B-32-24 | LS | 1.000 | 1.000 |
| 0010 | 203.0210.S | Abatement of Asbestos Containing Material (structure) 03. B-32-25 | LS | 1.000 | 1.000 |
| 0012 | 203.0210.S | Abatement of Asbestos Containing Material (structure) 04. B-32-26 | LS | 1.000 | 1.000 |
| 0014 | 203.0210.S | Abatement of Asbestos Containing Material (structure) 05. B-32-27 | LS | 1.000 | 1.000 |
| 0016 | 203.0210.S | Abatement of Asbestos Containing Material (structure) 06. B-32-28 | LS | 1.000 | 1.000 |
| 0018 | 203.0225.S | Debris Containment (structure) 01. B-32-25 | LS | 1.000 | 1.000 |
| 0020 | 203.0225.S | Debris Containment (structure) 02. B-32-26 | LS | 1.000 | 1.000 |
| 0022 | 204.0110 | Removing Asphaltic Surface | SY | 359.000 | 359.000 |
| 0024 | 204.0165 | Removing Guardrail | LF | 235.000 | 235.000 |
| 0026 | 204.0170 | Removing Fence | LF | 291.000 | 291.000 |
| 0028 | 204.0175 | Removing Concrete Slope Paving | SY | 20.000 | 20.000 |
| 0030 | 204.0190 | Removing Surface Drains | EACH | 1.000 | 1.000 |
| 0032 | 213.0100 | Finishing Roadway (project) 01. 1071-07-78 | EACH | 1.000 | 1.000 |
| 0034 | 305.0110 | Base Aggregate Dense 3/4-Inch | TON | 14.000 | 14.000 |
| 0036 | 416.1010 | Concrete Surface Drains | CY | 14.000 | 14.000 |
| 0038 | 455.0605 | Tack Coat | GAL | 322.400 | 322.400 |
| 0040 | 460.2000 | Incentive Density HMA Pavement | DOL | 520.000 | 520.000 |
| 0042 | 460.7424 | HMA Pavement 4 HT 58-28 H | TON | 790.300 | 790.300 |
| 0044 | 502.0717.S | Crack Sealing Epoxy | LF | 450.000 | 450.000 |
| 0046 | 502.3200 | Protective Surface Treatment | SY | 883.000 | 883.000 |
| 0048 | 509.0301 | Preparation Decks Type 1 | SY | 533.000 | 533.000 |
| 0050 | 509.0302 | Preparation Decks Type 2 | SY | 259.000 | 259.000 |
| 0052 | 509.0310.S | Sawing Pavement Deck Preparation Areas | LF | 5,330.000 | 5,330.000 |
| 0054 | 509.1500 | Concrete Surface Repair | SF | 3,475.000 | 3,475.000 |
| 0056 | 509.2000 | Full-Depth Deck Repair | SY | 51.000 | 51.000 |
| 0058 | 509.2100.S | Concrete Masonry Deck Repair | CY | 51.000 | 51.000 |
| 0060 | 509.5100.S | Polymer Overlay | SY | 3,015.000 | 3,015.000 |
| 0062 | 509.9010.S | Removing Asphaltic Concrete Deck Overlay (structure) 01. B-32-23 | SY | 1,440.000 | 1,440.000 |
| 0064 | 509.9010.S | Removing Asphaltic Concrete Deck Overlay (structure) 02. B-32-24 | SY | 1,440.000 | 1,440.000 |
| 0066 | 509.9010.S | Removing Asphaltic Concrete Deck Overlay (structure) 03. B-32-27 | SY | 557.000 | 557.000 |

Estimate Of Quantities

1071-07-78

| Line | Item | Item Description | Unit | Total | Qty |
|------|------------|---|------|-----------|-----------|
| 0068 | 509.9010.S | Removing Asphaltic Concrete Deck Overlay (structure) 04. B-32-28 | SY | 557.000 | 557.000 |
| 0070 | 509.9015.S | Removing Polymer Overlay (structure) 01. B-32-25 | SY | 1,502.000 | 1,502.000 |
| 0072 | 509.9015.S | Removing Polymer Overlay (structure) 02. B-32-26 | SY | 1,513.000 | 1,513.000 |
| 0074 | 517.3000.S | Structure Overcoating Cleaning and Priming (structure) 01. B-32-23 | LS | 1.000 | 1.000 |
| 0076 | 517.3000.S | Structure Overcoating Cleaning and Priming (structure) 02. B-32-24 | LS | 1.000 | 1.000 |
| 0078 | 517.3000.S | Structure Overcoating Cleaning and Priming (structure) 03. B-32-25 | LS | 1.000 | 1.000 |
| 0080 | 517.3000.S | Structure Overcoating Cleaning and Priming (structure) 04. B-32-26 | LS | 1.000 | 1.000 |
| 0082 | 517.3000.S | Structure Overcoating Cleaning and Priming (structure) 05. B-32-27 | LS | 1.000 | 1.000 |
| 0084 | 517.3000.S | Structure Overcoating Cleaning and Priming (structure) 06. B-32-28 | LS | 1.000 | 1.000 |
| 0086 | 517.4000.S | Containment and Collection of Waste Materials (structure) 01. B-32-23 | LS | 1.000 | 1.000 |
| 0088 | 517.4000.S | Containment and Collection of Waste Materials (structure) 02. B-32-24 | LS | 1.000 | 1.000 |
| 0090 | 517.4000.S | Containment and Collection of Waste Materials (structure) 03. B-32-25 | LS | 1.000 | 1.000 |
| 0092 | 517.4000.S | Containment and Collection of Waste Materials (structure) 04. B-32-26 | LS | 1.000 | 1.000 |
| 0094 | 517.4000.S | Containment and Collection of Waste Materials (structure) 05. B-32-27 | LS | 1.000 | 1.000 |
| 0096 | 517.4000.S | Containment and Collection of Waste Materials (structure) 06. B-32-28 | LS | 1.000 | 1.000 |
| 0098 | 517.6001.S | Portable Decontamination Facility | EACH | 6.000 | 6.000 |
| 0100 | 521.1012 | Apron Endwalls for Culvert Pipe Steel 12-Inch | EACH | 3.000 | 3.000 |
| 0102 | 603.8000 | Concrete Barrier Temporary Precast Delivered | LF | 2,126.000 | 2,126.000 |
| 0104 | 603.8125 | Concrete Barrier Temporary Precast Installed | LF | 4,252.000 | 4,252.000 |
| 0106 | 604.0400 | Slope Paving Concrete | SY | 20.000 | 20.000 |
| 0108 | 606.0100 | Riprap Light | CY | 12.000 | 12.000 |
| 0110 | 611.0654 | Inlet Covers Type V | EACH | 3.000 | 3.000 |
| 0112 | 611.3220 | Inlets 2x2-FT | EACH | 3.000 | 3.000 |
| 0114 | 612.0212 | Pipe Underdrain Unperforated 12-Inch | LF | 154.000 | 154.000 |
| 0116 | 614.2300 | MGS Guardrail 3 | LF | 38.000 | 38.000 |
| 0118 | 614.2500 | MGS Thrie Beam Transition | LF | 197.000 | 197.000 |
| 0120 | 616.0100 | Fence Woven Wire (height) 01. 4-FT | LF | 293.000 | 293.000 |
| 0122 | 618.0100 | Maintenance And Repair of Haul Roads (project) 01. 1071-07-78 | EACH | 1.000 | 1.000 |

Estimate Of Quantities

1071-07-78

| Line | Item | Item Description | Unit | Total | Qty |
|------|------------|--|------|------------|------------|
| 0124 | 619.1000 | Mobilization | EACH | 1.000 | 1.000 |
| 0126 | 624.0100 | Water | MGAL | 6.000 | 6.000 |
| 0128 | 625.0500 | Salvaged Topsoil | SY | 250.000 | 250.000 |
| 0130 | 628.1504 | Silt Fence | LF | 335.000 | 335.000 |
| 0132 | 628.1520 | Silt Fence Maintenance | LF | 335.000 | 335.000 |
| 0134 | 628.1905 | Mobilizations Erosion Control | EACH | 3.000 | 3.000 |
| 0136 | 628.1910 | Mobilizations Emergency Erosion Control | EACH | 3.000 | 3.000 |
| 0138 | 628.2004 | Erosion Mat Class I Type B | SY | 497.000 | 497.000 |
| 0140 | 628.7010 | Inlet Protection Type B | EACH | 4.000 | 4.000 |
| 0142 | 628.7570 | Rock Bags | EACH | 68.000 | 68.000 |
| 0144 | 629.0210 | Fertilizer Type B | CWT | 32.000 | 32.000 |
| 0146 | 630.0130 | Seeding Mixture No. 30 | LB | 10.000 | 10.000 |
| 0148 | 630.0200 | Seeding Temporary | LB | 4.000 | 4.000 |
| 0150 | 633.5200 | Markers Culvert End | EACH | 3.000 | 3.000 |
| 0152 | 642.5201 | Field Office Type C | EACH | 1.000 | 1.000 |
| 0154 | 643.0300 | Traffic Control Drums | DAY | 20,527.000 | 20,527.000 |
| 0156 | 643.0310.S | Temporary Portable Rumble Strips | LS | 1.000 | 1.000 |
| 0158 | 643.0420 | Traffic Control Barricades Type III | DAY | 1,320.000 | 1,320.000 |
| 0160 | 643.0715 | Traffic Control Warning Lights Type C | DAY | 2,200.000 | 2,200.000 |
| 0162 | 643.0800 | Traffic Control Arrow Boards | DAY | 220.000 | 220.000 |
| 0164 | 643.0900 | Traffic Control Signs | DAY | 2,699.000 | 2,699.000 |
| 0166 | 643.1000 | Traffic Control Signs Fixed Message | SF | 66.500 | 66.500 |
| 0168 | 643.1051 | Traffic Control Signs PCMS with Cellular Communications | DAY | 14.000 | 14.000 |
| 0170 | 643.5000 | Traffic Control | EACH | 1.000 | 1.000 |
| 0172 | 645.0130 | Geotextile Type R | SY | 15.000 | 15.000 |
| 0174 | 646.1020 | Marking Line Epoxy 4-Inch | LF | 21,355.000 | 21,355.000 |
| 0176 | 646.9000 | Marking Removal Line 4-Inch | LF | 20,635.000 | 20,635.000 |
| 0178 | 649.0150 | Temporary Marking Line Removable Tape 4-Inch | LF | 49,214.000 | 49,214.000 |
| 0180 | 649.0760 | Temporary Marking Raised Pavement Marker Type I | EACH | 1,969.000 | 1,969.000 |
| 0182 | 650.4000 | Construction Staking Storm Sewer | EACH | 6.000 | 6.000 |
| 0184 | 650.9910 | Construction Staking Supplemental Control (project) 01. 1071-07-78 | LS | 1.000 | 1.000 |
| 0186 | 690.0150 | Sawing Asphalt | LF | 172.000 | 172.000 |
| 0188 | 801.0117 | Railroad Flagging Reimbursment | DOL | 13,000.000 | 13,000.000 |
| 0190 | ASP.1T0A | On-the-Job Training Apprentice at \$5.00/HR | HRS | 1,200.000 | 1,200.000 |
| 0192 | ASP.1T0G | On-the-Job Training Graduate at \$5.00/HR | HRS | 1,200.000 | 1,200.000 |
| 0194 | SPV.0035 | Special 01. Rapid Set Deck Repair | CY | 2.000 | 2.000 |
| 0196 | SPV.0060 | Special 01. Cleaning And Painting Bearings | EACH | 40.000 | 40.000 |
| 0198 | SPV.0090 | Special 01. Restoring Rumble Strips | LF | 15,802.000 | 15,802.000 |

Estimate Of Quantities

1071-07-78

| Line | Item | Item Description | Unit | Total | Qty |
|------|----------|--|------|------------|------------|
| 0200 | SPV.0090 | Special 02. Bridge Joint Rout And Seal | LF | 985.000 | 985.000 |
| 0202 | SPV.0090 | Special 03. Filling Rumble Strips | LF | 15,802.000 | 15,802.000 |

ROADSIDE CLEARING

| 202.0110 | | | | | | |
|------------|--------|----|--------|----------|-----|---------------|
| CAT. | STA. | TO | STA. | LOCATION | SY | REMARKS |
| 0010 | 455+44 | - | 456+00 | EB RT | 470 | SURFACE DRAIN |
| TOTAL 0010 | | | | | 470 | |

ASPHALT SUMMARY

| | | | | | 204.0110 REMOVING ASPHALTIC SURFACE | 305.0110 BASE AGGREGATE DENSE 3/4-INCH | 455.0605 TACK COAT | 460.7424 HMA PAVEMENT 4 HT 58-28 H | |
|------------|-----------|----|-----------|----------|--|---|-----------------------|--|---------------|
| CAT. | STA. | TO | STA. | LOCATION | SY | TON | **GAL** | **TON** | REMARKS |
| 0010 | 455+83 | - | 456+70 | EB | 41 | 3 | 2.1 | 9.2 | SURFACE DRAIN |
| 0010 | 591+20 | - | 591+72 | EB | - | 3 | - | - | SURFACE DRAIN |
| 0010 | 591+49 | - | 591+69 | EB | - | 2 | - | - | MEDIAN |
| 0010 | 591+16 | - | 591+68 | EB | 136 | - | 19.1 | 30.4 | - |
| 0010 | 460+11'A' | - | 460+98'A' | WB | 41 | 3 | 2.1 | 9.2 | SURFACE DRAIN |
| 0010 | 591+92'A' | - | 592+37'A' | WB | - | 3 | - | - | MEDIAN |
| 0010 | 591+84'A' | - | 592+37'A' | WB | 141 | - | 19.1 | 31.5 | - |
| 0011 | 592+19'A' | - | 592+37'A' | WB | - | 1 | - | - | - |
| TOTAL 0010 | | | | | 359 | 14 | 42.4 | 80.3 | |

QUANTITY LISTED ELSEWHERE

DRAINAGE SUMMARY

| | | | | | | 203.0100 REMOVING SMALL PIPE CULVERTS | 204.0190 REMOVING SURFACE DRAINS | 416.1010 CONCRETE SURFACE DRAINS | 521.1012 APRON ENDWALLS FOR CULVERT PIPE STEEL 12-INCH | 611.0654 INLET COVERS TYPE V | 611.3220 INLETS 2X2-FT | 612.0212 PIPE UNDERDRAIN UNPERFORATED | 633.5200 MARKERS CULVERT END | |
|------------|-----------|----------|------|--------------------|--------------|--|---|---|---|------------------------------------|---------------------------|--|------------------------------------|---------|
| CAT. | STA. | LOCATION | TYPE | DIAMETER INCHES | LENGTH FT | EACH | EACH | CY | EACH | EACH | EACH | LF | EACH | REMARKS |
| 0010 | 455+88 | EB | CMCP | 12 | 52 | 1 | 1 | 4.6 | 1 | 1 | 1 | 60.0 | 1 | |
| 0010 | 591+59 | EB | - | - | - | - | - | 4.6 | 1 | 1 | 1 | 56.5 | 1 | |
| 0010 | 460+64'A' | WB | - | - | - | - | - | 4.6 | 1 | 1 | 1 | 37.5 | 1 | |
| TOTAL 0010 | | | | | | 1 | 1 | 14.0 | 3 | 3 | 3 | 154 | 3 | |

CONCRETE BARRIER SUMMARY

| | | | | | 603.8000 | 603.8125 | | |
|------------|-----------|----|-----------|----------|-----------|-----------|----------|--|
| | | | | | CONCRETE | CONCRETE | | |
| | | | | | BARRIER | BARRIER | | |
| | | | | | TEMPORARY | TEMPORARY | | |
| | | | | | PRECAST | PRECAST | | |
| | | | | | DELIVERED | INSTALLED | | |
| CAT. | STA. | TO | STA. | LOCATION | LF | LF | REMARKS | |
| STAGE 1 | | | | | | | | |
| 0010 | 454+10 | - | 455+35 | B-32-23 | 125 | 125 | TAPER | |
| 0010 | 455+35 | - | 460+48 | B-32-23 | 513 | 513 | MAINLINE | |
| 0010 | 587+57 | - | 588+82 | B-32-27 | 125 | 125 | TAPER | |
| 0010 | 588+82 | - | 591+82 | B-32-27 | 300 | 300 | MAINLINE | |
| STAGE 2 | | | | | | | | |
| 0010 | 453+98 | - | 455+35 | B-32-23 | - | 125 | TAPER | |
| 0010 | 455+35 | - | 460+48 | B-32-23 | - | 513 | MAINLINE | |
| 0010 | 588+07 | - | 588+82 | B-32-27 | - | 125 | TAPER | |
| 0010 | 588+82 | - | 591+82 | B-32-27 | - | 300 | MAINLINE | |
| STAGE 1 | | | | | | | | |
| 0010 | 456+11'A' | - | 461+24'A' | B-32-24 | 513 | 513 | MAINLINE | |
| 0010 | 461+24'A' | - | 462+49'A' | B-32-24 | 125 | 125 | TAPER | |
| 0010 | 590+09'A' | - | 593+09'A' | B-32-28 | 300 | 300 | MAINLINE | |
| 0010 | 593+09'A' | - | 594+34'A' | B-32-28 | 125 | 125 | TAPER | |
| STAGE 2 | | | | | | | | |
| 0010 | 456+11'A' | - | 461+24'A' | B-32-24 | - | 513 | MAINLINE | |
| 0010 | 461+24'A' | - | 462+49'A' | B-32-24 | - | 125 | TAPER | |
| 0010 | 590+09'A' | - | 593+09'A' | B-32-28 | - | 300 | MAINLINE | |
| 0010 | 593+09'A' | - | 594+34'A' | B-32-28 | - | 125 | TAPER | |
| TOTAL 0010 | | | | | 2126 | 4252 | | |

MOBILIZATION SUMMARY

| | | 628.1905 | 628.1910 | |
|------------|---------------|---------------|---------------|---------|
| | | MOBILIZATIONS | MOBILIZATIONS | |
| | | EROSION | EMERGENCY | |
| | | CONTROL | EROSION | |
| | | CONTROL | CONTROL | |
| CAT. | LOCATION | EACH | EACH | REMARKS |
| 0010 | PROJECT | 2 | 2 | |
| 0010 | UNDISTRIBUTED | 1 | 1 | |
| TOTAL 0010 | | 3 | 3 | |

FENCE SUMMARY

| | | | | | 204.0170 | 616.0100 | | |
|------------|-----------|----|-----------|----------|----------------|-------------|---------|--|
| | | | | | REMOVING FENCE | FENCE WOVEN | | |
| | | | | | | WIRE (4-FT) | | |
| CAT. | STA. | TO | STA. | LOCATION | LF | LF | REMARKS | |
| 0010 | 455+44 | - | 456+36 | B-32-23 | 111 | 111 | | |
| 0010 | 459+90 | - | 460+23 | MEDIAN | 56 | 56 | | |
| 0010 | 460+16'A' | - | 461+11'A' | B-32-24 | 124 | 126 | | |
| TOTAL 0010 | | | | | 291 | 293 | | |

RIPRAP SUMMARY

| | | | 606.0100 | 645.0130 | |
|------------|-----------|----------|--------------|------------|---------|
| | | | RIPRAP LIGHT | GEOTEXTILE | |
| | | | | TYPE R | |
| CAT. | STA. | LOCATION | CY | SY | REMARKS |
| 0010 | 455+88 | B-32-23 | 4 | 5 | |
| 0010 | 591+59 | B-32-27 | 4 | 5 | |
| 0010 | 460+64'A' | B-32-24 | 4 | 5 | |
| TOTAL 0010 | | | 12 | 15 | |

3

GUARDRAIL SUMMARY

| | | 204.0165 REMOVING GUARDRAIL | | 614.2300 MGS GUARDRAIL 3 | | 614.2500 MGS THRIE BEAM TRANSITION | | | |
|------------|-----------|-----------------------------------|-----------|-----------------------------------|-----|---|-------|---------|--|
| CAT. | STA. | TO | STA. | LOCATION | LF | LF | LF | REMARKS | |
| 0010 | 455+76 | - | 456+28 | B-32-23 | 52 | 12.5 | 39.40 | | |
| 0010 | 591+20 | - | 591+72 | B-32-27 | 52 | 12.5 | 39.40 | | |
| 0010 | 460+25'A' | - | 460+77'A' | B-32-24 | 52 | 12.5 | 39.40 | | |
| 0010 | 591+91'A' | | 592+30'A' | WB RT | 39 | - | 39.40 | | |
| 0010 | 592+18'A' | | 592+57'A' | WB LT | 39 | - | 39.40 | | |
| TOTAL 0010 | | | | | 235 | 38 | 197 | | |

SAWING ASPHALT

| | | | | 690.0150 | | | |
|------------|-----------|----|-----------|----------|-----|---------------|--|
| CAT. | STA. | TO | STA. | LOCATION | LF | REMARKS | |
| 0010 | 455+83 | - | 456+70 | EB | 70 | SURFACE DRAIN | |
| 0010 | 591+69 | | | EB LT | 6 | MATCH LINE | |
| 0010 | 591+69 | | | EB RT | 10 | MATCH LINE | |
| 0010 | 460+11'A' | - | 460+98'A' | WB | 70 | SURFACE DRAIN | |
| 0010 | 592+37'A' | | | WB LT | 10 | MATCH LINE | |
| 0010 | 592+37'A' | | | WB RT | 6 | MATCH LINE | |
| TOTAL 0010 | | | | | 172 | | |

3

EROSION CONTROL SUMMARY

| | | | | | 624.0100 WATER | 625.0500 SALVAGED TOPSOIL | 628.1504 SILT FENCE | 628.1520 SILT FENCE MAINTENANCE | 628.2004 EROSION MAT CLASS I TYPE B | 628.7010 INLET PROTECTION TYPE B | 628.7570 ROCK BAGS | 629.0210 FERTILIZER TYPE B | 630.0130 SEEDING MIXTURE NO. 30 | 630.0200 SEEDING TEMPORARY | |
|---------------|-----------|----|-----------|----------|-------------------|---------------------------------|------------------------|---------------------------------------|---|---|--------------------------|----------------------------------|--|----------------------------------|--------------------------|
| CAT. | STA. | TO | STA. | LOCATION | **MGAL** | SY | LF | LF | SY | EACH | EACH | CWT | LB | LB | REMARKS |
| PROJECT | | | | | - | - | - | - | - | - | - | - | - | - | |
| 0010 | 455+85 | - | 455+93 | B-32-23 | 1.28 | 57 | - | - | 114.0 | 1.0 | - | 7.20 | 2.1 | - | SURFACE DRAIN |
| 0010 | 455+60 | - | 456+38 | B-32-23 | - | - | 120 | 120 | - | - | - | - | - | - | |
| 0010 | 455+89 | - | - | B-32-23 | - | - | - | - | - | - | 17 | - | - | - | |
| 0010 | 456+17 | - | 456+25 | B-32-23 | 0.65 | 29 | - | - | 58.0 | - | - | 3.70 | 1.1 | - | SURFACE DRAIN REMOVAL |
| 0010 | 591+55 | - | 591+63 | B-32-27 | 1.24 | 55 | - | - | 109.0 | 1.0 | - | 6.90 | 2.0 | - | SURFACE DRAIN |
| 0010 | 591+33 | - | 591+84 | B-32-27 | - | - | 66 | 66 | - | - | - | - | - | - | |
| 0010 | 591+59 | - | - | B-32-27 | - | - | - | - | - | - | 17 | - | - | - | |
| 0010 | 460+60'A' | - | 460+68'A' | B-32-24 | 0.85 | 38 | - | - | 75.0 | 1.0 | - | 4.80 | 1.4 | - | SURFACE DRAIN |
| 0010 | 460+29'A' | - | 460+98'A' | B-32-24 | - | - | 84 | 84 | - | - | - | - | - | - | |
| 0010 | 460+58'A' | - | - | B-32-24 | - | - | - | - | - | - | 17 | - | - | - | |
| 0010 | 591+64'A' | - | 592+10'A' | B-32-28 | - | 21 | - | - | 41.0 | - | - | 2.60 | 0.8 | - | SLOPE PAVING RESTORATION |
| UNDISTRIBUTED | | | | | 1.00 | 50 | 65 | 65 | 100.0 | 1.0 | 17.0 | 6.30 | 2.0 | 4.0 | |
| TOTAL 0010 | | | | | 6.00 | 250 | 335 | 335 | 497 | 4 | 68 | 32.0 | 10.0 | 4.0 | |

MGAL
THE FOLLOWING FORMULA WAS USED TO COMPUTE WATER QUANTITY
SEEDED AREA (SY) x 1 INCH OF RAIN x 0.0278 YD/INCH = XXXX CY OF WATER
XXXX CY OF WATER x 1 GAL/0.004951 CY x 1 MGAL/1000 GAL = XXXX MGAL
XXXX MGAL x 4 WEEKS OF WATERING = XXXX MGAL

PROJECT NO: 1071-07-78

HWY: IH 90

COUNTY: LA CROSSE

MISCELLANEOUS QUANTITIES

SHEET NO:

E

| | | | |
|--------------|----------------|----------------|----------------|
| 646.1020 | 646.9000 | 649.0150 | 649.0760 |
| MARKING LINE | MARKING | TEMPORARY | TEMPORARY |
| EPOXY 4-INCH | REMOVAL 4-INCH | MARKING LINE | MARKING RAISED |
| | | REMOVABLE TAPE | PAVEMENT |
| | | 4-INCH | MARKER TYPE 1 |

| | | | | | |
|------------------------|------------|-------------------|--------------------------|-----------|---|
| PROJECT NO: 1071-07-78 | HWY: IH 90 | COUNTY: LA CROSSE | MISCELLANEOUS QUANTITIES | SHEET NO: | E |
|------------------------|------------|-------------------|--------------------------|-----------|---|

MARKING SUMMARY(CONTINUED)

| | | | | | 646.1020 | 646.9000 | 649.0150 | 649.0760 | | |
|---------------------------|-----------|----|-----------|-----------|--------------|----------------|----------------|----------------|-------------------|--|
| | | | | | MARKING LINE | MARKING | TEMPORARY | TEMPORARY | | |
| | | | | | EPOXY 4-INCH | REMOVAL 4-INCH | MARKING LINE | MARKING RAISED | | |
| | | | | | | | REMOVABLE TAPE | PAVEMENT | | |
| | | | | | | | 4-INCH | MARKER TYPE 1 | | |
| CAT. | STA. | TO | STA. | LOCATION | LF | LF | LF | EACH | REMARKS | |
| STAGE 2(CONTINUED) | | | | | | | | | | |
| 0010 | 436+43 | - | 460+98 | EB CENTER | - | - | 2455 | 98 | LANE SHIFT | |
| 0010 | 445+73 | - | 460+98 | EB LT | - | 1525 | 1525 | 61 | MEDIAN LANE SHIFT | |
| 0010 | 445+73 | - | 460+98 | B-32-23 | 1525 | - | - | - | WHITE | |
| 0010 | 465+26 | - | 482+26 | B-32-25 | 1700 | - | - | - | YELLOW | |
| 0010 | 465+26 | - | 467+26 | B-32-25 | 40 | - | - | - | WHITE CENTERLINE | |
| 0010 | 465+26 | - | 482+26 | B-32-25 | 1700 | - | - | - | WHITE | |
| 0010 | 579+79 | - | 593+87 | B-32-27 | 1408 | - | - | - | YELLOW | |
| 0010 | 579+79 | - | 581+79 | B-32-27 | 40 | - | - | - | WHITE CENTERLINE | |
| 0010 | 579+79 | - | 593+87 | B-32-27 | 1408 | - | - | - | WHITE | |
| 0010 | 455+11'A' | - | 470+50'A' | LANE RT | - | 1539 | 1539 | 62 | MEDIAN LANE SHIFT | |
| 0010 | 455+11'A' | - | 470+50'A' | WB CENTER | - | - | 1539 | 62 | LANE SHIFT | |
| 0010 | 473+57'A' | - | 488+95'A' | LANE RT | - | 1538 | 1538 | 62 | MEDIAN LANE SHIFT | |
| 0010 | 473+57'A' | - | 488+95'A' | WB CENTER | - | - | 1538 | 62 | LANE SHIFT | |
| 0010 | 588+09'A' | - | 603+78'A' | LANE RT | - | 1569 | 1569 | 63 | MEDIAN LANE SHIFT | |
| 0010 | 588+09'A' | - | 611+58'A' | WB CENTER | - | - | 2349 | 94 | LANE SHIFT | |
| 0010 | 455+11'A' | - | 470+50'A' | B-32-24 | 1539 | - | - | - | YELLOW | |
| 0010 | 455+11'A' | - | 470+50'A' | B-32-24 | 1539 | - | - | - | WHITE | |
| 0010 | 468+50'A' | - | 470+50'A' | B-32-24 | 40 | - | - | - | WHITE CENTERLINE | |
| 0010 | 473+57'A' | - | 488+95'A' | B-32-26 | 1538 | - | - | - | YELLOW | |
| 0010 | 473+57'A' | - | 488+95'A' | B-32-26 | 1538 | - | - | - | WHITE | |
| 0010 | 486+95'A' | - | 488+95'A' | B-32-26 | 40 | - | - | - | WHITE CENTERLINE | |
| 0010 | 588+09'A' | - | 603+78'A' | B-32-28 | 1569 | - | 2349 | 94 | YELLOW | |
| 0010 | 588+09'A' | - | 603+78'A' | B-32-28 | 1569 | - | 2349 | 94 | YELLOW | |
| 0010 | 601+78'A' | - | 611+58'A' | B-32-28 | 196 | - | - | - | WHITE CENTERLINE | |
| SUB TOTAL 0010 | | | | | 17389 | 6171 | 18750 | 750 | | |
| STAGE 3&3A | | | | | | | | | | |
| 0010 | 27+62'C' | - | 29+42'C' | B-32-57 | 180 | - | - | - | WHITE EDGE LINE | |
| 0010 | 27+62'C' | - | 29+42'C' | B-32-57 | 180 | - | - | - | WHITE EDGE LINE | |
| 0010 | 27+62'C' | - | 29+42'C' | B-32-57 | 360 | - | - | - | DOUBLE YELLOW | |
| SUB TOTAL 0010 | | | | | 720 | 0 | 0 | 0 | | |
| | | | | | | | | | | |
| TOTALS 0010 | | | | | 21355 | 20635 | 49214 | 1969 | | |

TRAFFIC CONTROL SUMMARY

| | | | | | 643.5000 | | | | | | 643.0300 | | | | | | 643.0420 | | | | | | 643.0715 | | | | | | 643.0800 | | | | | | 643.0900 | 643.1000 | 643.0310.S | | | | | | 643.1051 | | | | | | | | | | |
|-------------------------------------|-----------|----|-----------|----------|----------|------|------|------|------|-----|------------|------|------|-----|------|-----|----------|----|------|-----|--------------|--|----------|--|--|--|--|--|----------|--|--|--|--|--|----------|----------|------------|--|--|--|---------|--|-----------------|--|--|--|------|--|--|--|--|--|--|
| | | | | | TRAFFIC | | | | | | TRAFFIC | | | | | | TRAFFIC | | | | | | TRAFFIC | | | | | | TRAFFIC | | | | | | TRAFFIC | TRAFFIC | TEMPORARY | | | | | | TRAFFIC CONTROL | | | | | | | | | | |
| | | | | | CONTROL | | | | | | CONTROL | | | | | | CONTROL | | | | | | CONTROL | | | | | | CONTROL | | | | | | CONTROL | CONTROL | PORTABLE | | | | | | SIGNS PCMS WITH | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | RUMBLE | | | | | | CELLULAR | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | STRIPS | | | | | | COMMUNICATIONS | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | DRUMS | | | | | | BARRICADES | | | | | | LIGHTS | | | | | | TYPE C | | | | | | BOARDS | | | | | | SIGNS | | | | | | MESSAGE | | | | | | PCMS | | | | | | |
| CAT. | STA. | TO | STA. | LOCATION | DURATION | EACH | EACH | DAY | EACH | DAY | EACH | DAY | EACH | DAY | EACH | DAY | SF | LS | EACH | DAY | REMARKS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| STAGE PREWARN/FILLING RUMBLE STRIPS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0010 | | | | EXIT 5 | 7 | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 | 7 | PREWARN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0010 | | | | EXIT 12 | 7 | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 | 7 | PREWARN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0010 | 431+18 | - | 455+35 | EB | 1.00 | - | 53 | 53 | 1 | 1 | - | - | 1 | 1 | 10 | 10 | - | - | - | - | OUTSIDE LANE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0010 | 436+43 | - | 446+23 | EB | 1.00 | - | - | - | - | - | 20 | 20 | 1 | 1 | 1 | 1 | - | - | - | - | OUTSIDE LANE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0010 | 460+48 | - | 588+82 | EB | 1.00 | - | 129 | 129 | - | - | - | - | - | - | - | - | - | - | - | - | OUTSIDE LANE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0010 | 462+48 | - | 588+82 | EB | 1.00 | - | - | - | 11 | 11 | - | - | - | - | 13 | 13 | - | - | - | - | OUTSIDE LANE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0010 | 591+87 | - | 592+87 | EB | 1.00 | - | 4 | 4 | - | - | - | - | - | - | 2 | 2 | - | - | - | - | OUTSIDE LANE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0010 | 455+11'A' | - | 456+11'A' | WB | 1.00 | - | 4 | 4 | - | - | - | - | - | - | 2 | 2 | - | - | - | - | OUTSIDE LANE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0010 | 461+11'A' | - | 590+04'A' | WB | 1.00 | - | 129 | 129 | - | - | - | - | - | - | - | - | - | - | - | - | OUTSIDE LANE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0010 | 461+11'A' | | 588+04'A' | WB | 1.00 | - | - | - | 11 | 11 | - | - | - | - | - | - | - | - | - | - | OUTSIDE LANE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0010 | 593+09'A' | | 616+83'A' | WB | 1.00 | - | 53 | 53 | 1 | 1 | - | - | 1 | 1 | 10 | 10 | - | - | - | - | OUTSIDE LANE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0010 | 601+78'A' | | 611+58'A' | WB | 1.00 | - | - | - | - | - | 20 | 20 | 1 | 1 | 1 | 1 | - | - | - | - | OUTSIDE LANE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SUB TOTAL 0010 | | | | | | - | - | 373 | - | 24 | - | 40 | - | 4 | - | 39 | - | - | - | 14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| STAGE 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0010 | | | | PROJECT | - | 1 | - | - | - | - | - | - | - | - | - | - | - | 1 | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0010 | 431+18 | - | 455+35 | EB | 25.00 | - | 53 | 1334 | 1 | 25 | - | - | 1 | 25 | 10 | 250 | - | - | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0010 | 436+43 | - | 446+23 | EB | 25.00 | - | - | - | - | - | 20 | 500 | 1 | 25 | 1 | 25 | - | - | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0010 | 460+48 | - | 588+82 | EB | 25.00 | - | 129 | 3234 | - | - | - | - | - | - | - | - | - | - | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0010 | 462+48 | - | 588+82 | EB | 25.00 | - | - | - | 11 | 275 | - | - | - | - | 13 | 325 | - | - | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0010 | 591+87 | - | 592+87 | EB | 25.00 | - | 4 | 100 | - | - | - | - | - | - | 2 | 50 | - | - | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0010 | 455+11'A' | - | 456+11'A' | WB | 25.00 | - | 4 | 100 | - | - | - | - | - | - | 2 | 50 | - | - | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0010 | 461+11'A' | - | 590+04'A' | WB | 25.00 | - | 129 | 3223 | - | - | - | - | - | - | - | - | - | - | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0010 | 461+11'A' | | 588+04'A' | WB | 25.00 | - | - | - | 11 | 275 | - | - | - | - | - | - | - | - | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0010 | 593+09'A' | | 616+83'A' | WB | 25.00 | - | 53 | 1337 | 1 | 25 | - | - | 1 | 25 | 10 | 250 | - | - | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0010 | 601+78'A' | | 611+58'A' | WB | 25.00 | - | - | - | - | - | 20 | 500 | 1 | 25 | 1 | 25 | - | - | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SUB TOTAL 0010 | | | | | | 1 | - | 9327 | - | 600 | - | 1000 | - | 100 | - | 975 | - | 1 | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

TRAFFIC CONTROL SUMMARY(CONTINUED)

| | | 643.5000 | | 643.0300 | | 643.0420 | | 643.0715 | | 643.0800 | | 643.0900 | | 643.1000 | | 643.0310.S | | 643.1051 | | |
|----------------|-----------|----------|-----------|----------|----------|------------|-------|----------|-------|------------|------|----------|--------|----------|-----|------------|-------|-----------------|-------|--------------------------|
| | | TRAFFIC | | TRAFFIC | | TRAFFIC | | TRAFFIC | | TRAFFIC | | TRAFFIC | | TRAFFIC | | TEMPORARY | | TRAFFIC CONTROL | | |
| | | CONTROL | | CONTROL | | CONTROL | | CONTROL | | CONTROL | | CONTROL | | CONTROL | | PORTABLE | | SIGNS PCMS WITH | | |
| | | | | DRUMS | | BARRICADES | | WARNING | | ARROW | | SIGNS | | SIGNS | | RUMBLE | | CELLULAR | | |
| | | | | | | TYPE III | | LIGHTS | | BOARDS | | | | MESSAGE | | STRIPS | | COMMUNICATIONS | | |
| | | | | | | | | TYPE C | | | | | | | | | | | | |
| CAT. | STA. | TO | STA. | LOCATION | DURATION | EACH | DRUMS | EACH | DAY | BARRICADES | EACH | DAY | LIGHTS | EACH | DAY | BOARDS | EACH | DAY | SIGNS | REMARKS |
| STAGE 2 | | | | | | | | | | | | | | | | | | | | |
| 0010 | 431+18 | - | 455+35 | EB | 29.00 | - | 53 | | 1547 | 1 | | 29 | - | - | 1 | 29 | 10 | 290 | - | - |
| 0010 | 436+43 | - | 446+23 | EB | 29.00 | - | - | | - | - | | 20 | 580 | 1 | 29 | 1 | 29 | - | - | - |
| 0010 | 460+48 | - | 588+82 | EB | 29.00 | - | 128 | | 3722 | - | | - | - | - | - | - | - | - | - | - |
| 0010 | 462+48 | - | 588+82 | EB | 29.00 | - | - | | - | 11 | | 319 | - | - | - | 13 | 377 | - | - | - |
| 0010 | 591+87 | - | 592+87 | EB | 29.00 | - | 4 | | 116 | - | | - | - | - | 2 | 58 | - | - | - | - |
| 0010 | 455+11'A' | - | 456+11'A' | WB | 29.00 | - | 4 | | 116 | - | | - | - | - | 2 | 58 | - | - | - | - |
| 0010 | 461+11'A' | - | 590+04'A' | WB | 29.00 | - | 129 | | 3739 | - | | - | - | - | - | - | - | - | - | - |
| 0010 | 461+11'A' | | 588+04'A' | WB | 29.00 | - | - | | - | 11 | | 319 | - | - | - | - | - | - | - | - |
| 0010 | 593+09'A' | | 616+83'A' | WB | 29.00 | - | 52 | | 1522 | 1 | | 29 | - | - | 1 | 29 | 10 | 290 | - | - |
| 0010 | 601+78'A' | | 611+58'A' | WB | 29.00 | - | - | | - | - | | 20 | 580 | 1 | 29 | 1 | 29 | - | - | - |
| 0010 | | | | EXIT 5 | 29.00 | - | - | | - | - | | - | - | - | 8 | 232 | 33.25 | - | - | ADVANCED WARNING SIGNING |
| 0010 | | | | EXIT 12 | 29.00 | - | - | | - | - | | - | - | - | 8 | 232 | 33.25 | - | - | ADVANCED WARNING SIGNING |
| SUB TOTAL 0010 | | | | | | - | - | | 10762 | - | | 696 | - | 1160 | - | 116 | - | 1595 | 66.50 | - |
| STAGE 3 | | | | | | | | | | | | | | | | | | | | |
| 0010 | | | | CTH C | 3.00 | - | 13 | | 39 | - | | - | - | - | - | 18 | 54 | - | - | - |
| SUB TOTAL 0010 | | | | | | - | - | | 39 | - | | - | - | - | - | - | 54 | - | - | - |
| STAGE 3A | | | | | | | | | | | | | | | | | | | | |
| 0010 | | | | CTH C | 2.00 | - | 13 | | 26 | - | | - | - | - | - | 18 | 36 | - | - | - |
| SUB TOTAL 0010 | | | | | | - | - | | 26 | - | | - | - | - | - | - | 36 | - | - | 0 |
| | | | | | | | | | | | | | | | | | | | | |
| TOTAL 0010 | | | | | | 1 | - | | 20527 | - | | 1320 | - | 2200 | - | 220 | - | 2699 | 66.5 | 14 |

RUMBLE STRIPS SUMMARY

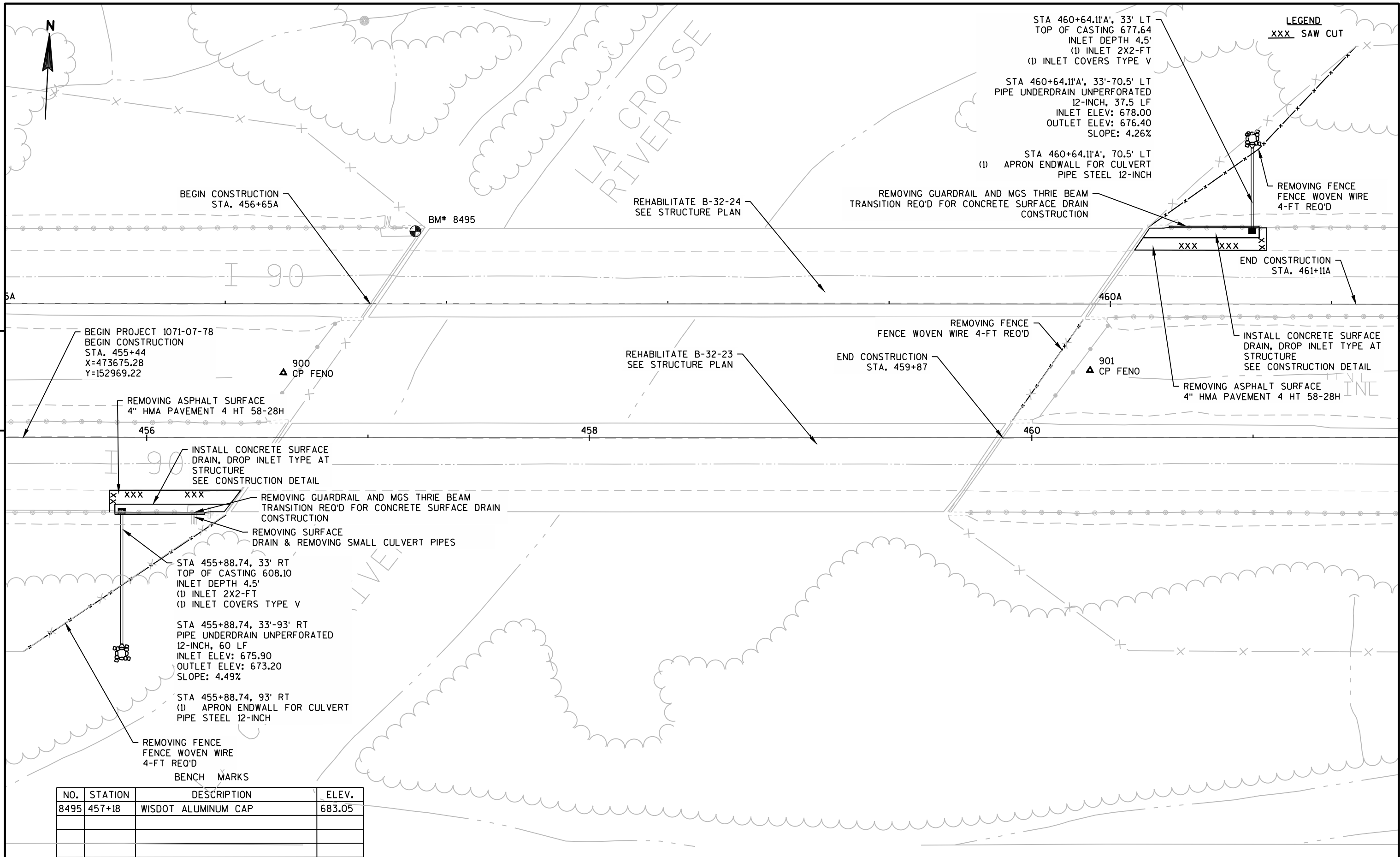
| | | SPV.0090.03 | | SPV.0090.04 | | | |
|--------------------------------------|-----------|-------------|-----------|-------------|------|------|---------|
| | | FILLING | | RESTORING | | | |
| | | RUMBLE | | RUMBLE | | | |
| | | STRIPS | | STRIPS | | | |
| CAT. | STA. | TO | STA. | LOCATION | LF | LF | REMARKS |
| STAGE: PREWARN/FILLING RUMBLE STRIPS | | | | | | | |
| 0010 | 445+73 | - | 456+43 | B-32-23 | 1070 | - | EB RT |
| 0010 | 459+70 | - | 460+98 | B-32-23 | 128 | - | EB RT |
| 0010 | 464+06 | - | 475+17 | B-32-25 | 1111 | - | EB RT |
| 0010 | 478+50 | - | 482+26 | B-32-25 | 376 | - | EB RT |
| 0010 | 579+79 | - | 589+86 | B-32-27 | 1007 | - | EB RT |
| 0010 | 591+20 | - | 593+87 | B-32-27 | 267 | - | EB RT |
| 0010 | 454+11'A' | - | 456+82'A' | B-32-24 | 271 | - | WB LT |
| 0010 | 460+11'A' | - | 470+51'A' | B-32-24 | 1040 | - | WB LT |
| 0010 | 473+57'A' | - | 475+65'A' | B-32-26 | 208 | - | WB LT |
| 0010 | 479+08'A' | - | 488+95'A' | B-32-26 | 987 | - | WB LT |
| 0010 | 588+09'A' | - | 590+71'A' | B-32-28 | 262 | - | WB LT |
| 0010 | 592+04'A' | - | 603+78'A' | B-32-28 | 1174 | - | WB LT |
| SUB TOTAL 0010 | | | | | 7901 | 0 | |
| STAGE 1 | | | | | | | |
| 0010 | 445+73 | - | 456+43 | B-32-23 | - | 1070 | EB RT |
| 0010 | 445+73 | - | 456+43 | B-32-23 | 1070 | - | EB LT |
| 0010 | 459+70 | - | 460+98 | B-32-23 | - | 128 | EB RT |
| 0010 | 459+70 | - | 460+98 | B-32-23 | 128 | - | EB LT |
| 0010 | 464+06 | - | 475+17 | B-32-25 | - | 1111 | EB RT |
| 0010 | 464+06 | - | 475+17 | B-32-25 | 1111 | - | EB LT |
| 0010 | 478+50 | - | 482+26 | B-32-25 | - | 376 | EB RT |
| 0010 | 478+50 | - | 482+26 | B-32-25 | 376 | - | EB LT |
| 0010 | 579+79 | - | 589+86 | B-32-27 | - | 1007 | EB RT |
| 0010 | 579+79 | - | 589+86 | B-32-27 | 1007 | - | EB LT |
| 0010 | 591+20 | - | 593+87 | B-32-27 | - | 267 | EB RT |
| 0010 | 591+20 | - | 593+87 | B-32-27 | 267 | - | EB LT |
| 0010 | 454+11'A' | - | 456+82'A' | B-32-24 | 271 | - | WB RT |
| 0010 | 454+11'A' | - | 456+82'A' | B-32-24 | - | 271 | WB LT |
| 0010 | 460+11'A' | - | 470+51'A' | B-32-24 | 1040 | - | WB RT |
| 0010 | 460+11'A' | - | 470+51'A' | B-32-24 | - | 1040 | WB LT |
| 0010 | 473+57'A' | - | 475+65'A' | B-32-26 | 208 | - | WB RT |
| 0010 | 473+57'A' | - | 475+65'A' | B-32-26 | - | 208 | WB LT |
| 0010 | 479+08'A' | - | 488+95'A' | B-32-26 | 987 | - | WB RT |
| 0010 | 479+08'A' | - | 488+95'A' | B-32-26 | - | 987 | WB LT |
| 0010 | 588+09'A' | - | 590+71'A' | B-32-28 | 262 | - | WB RT |
| 0010 | 588+09'A' | - | 590+71'A' | B-32-28 | - | 262 | WB LT |
| 0010 | 592+04'A' | - | 603+78'A' | B-32-28 | 1174 | - | WB RT |
| 0010 | 592+04'A' | - | 603+78'A' | B-32-28 | - | 1174 | WB LT |
| SUB TOTAL 0010 | | | | | 7901 | 7901 | |

RUMBLE STRIPS SUMMARY (CONTINUED)

| | | SPV.0090.03 | | SPV.0090.04 | | | |
|----------------|-----------|-------------|-----------|-------------|-------|-------|---------|
| | | FILLING | | RESTORING | | | |
| | | RUMBLE | | RUMBLE | | | |
| | | STRIPS | | STRIPS | | | |
| CAT. | STA. | TO | STA. | LOCATION | LF | LF | REMARKS |
| STAGE 2 | | | | | | | |
| 0010 | 445+73 | - | 456+43 | B-32-23 | - | 1070 | EB LT |
| 0010 | 459+70 | - | 460+98 | B-32-23 | - | 128 | EB LT |
| 0010 | 464+06 | - | 475+17 | B-32-25 | - | 1111 | EB LT |
| 0010 | 478+50 | - | 482+26 | B-32-25 | - | 376 | EB LT |
| 0010 | 579+79 | - | 589+86 | B-32-27 | - | 1007 | EB LT |
| 0010 | 591+20 | - | 593+87 | B-32-27 | - | 267 | EB LT |
| 0010 | 454+11'A' | - | 456+82'A' | B-32-24 | - | 271 | WB RT |
| 0010 | 460+11'A' | - | 470+51'A' | B-32-24 | - | 1040 | WB RT |
| 0010 | 473+57'A' | - | 475+65'A' | B-32-26 | - | 208 | WB RT |
| 0010 | 479+08'A' | - | 488+95'A' | B-32-26 | - | 987 | WB RT |
| 0010 | 588+09'A' | - | 590+71'A' | B-32-28 | - | 262 | WB RT |
| 0010 | 592+04'A' | - | 603+78'A' | B-32-28 | - | 1174 | WB RT |
| SUB TOTAL 0010 | | | | | 0 | 7901 | |
| TOTALS 0010 | | | | | 15802 | 15802 | |

CONSTRUCTION STAKING SUMMARY

| | | 650.4000 | | 650.9910 | | | |
|-------------|-----------|---------------|------|----------------------|---------|--|--|
| | | CONSTRUCTION | | CONSTRUCTION STAKING | | | |
| | | STAKING STORM | | SUPPLEMENTAL CONTROL | | | |
| | | SEWER | | (1071-07-78) | | | |
| CAT. | STA. | LOCATION | EACH | LS | REMARKS | | |
| 0010 | 455+89 | B-32-23 | 1 | - | INLET | | |
| 0010 | 455+89 | B-32-23 | 1 | - | ENDWALL | | |
| 0010 | 591+59 | B-32-27 | 1 | - | INLET | | |
| 0010 | 591+59 | B-32-27 | 1 | - | ENDWALL | | |
| 0010 | 460+64'A' | B-32-24 | 1 | - | INLET | | |
| 0010 | 460+64'A' | B-32-24 | 1 | - | ENDWALL | | |
| 0010 | - | PROJECT | - | 1 | | | |
| TOTALS 0010 | | | 6 | 1 | | | |



PROJECT NO:1071-07-78

HWY: IH 90

COUNTY: LA CROSSE

PLAN B-32-23 & 24

SHEET

E

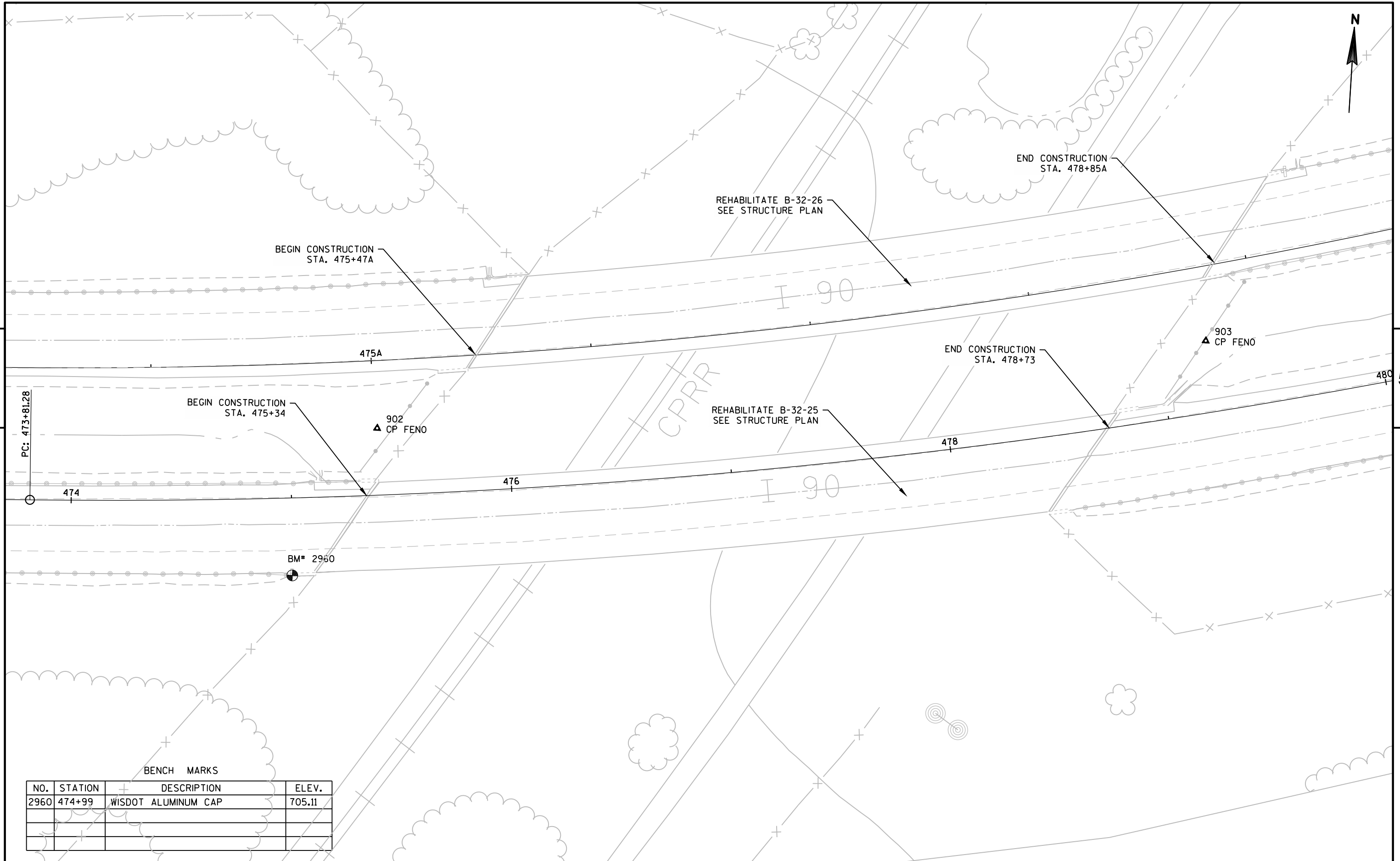
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 LAYOUT NAME - SHEET - (4)

PLOT DATE : 10/8/2018 2:50 PM

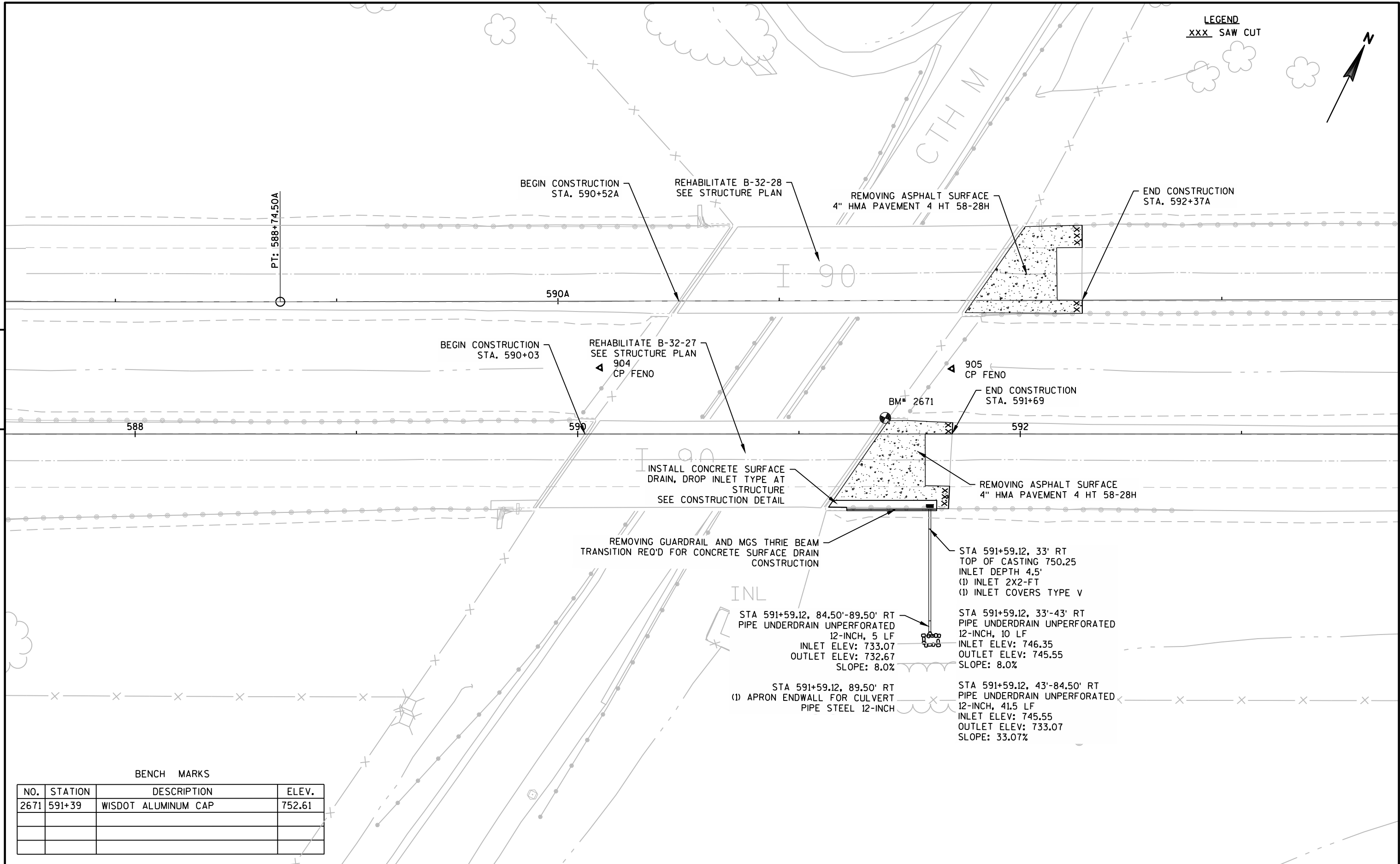
PLOT BY : GREINER JR, MICHAEL PLOT NAME :

PLOT SCALE : 1 IN:40 FT

WISDOT/CADDs SHEET 44



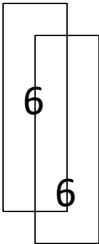
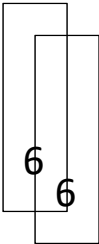
| BENCH MARKS | | | |
|-------------|---------|---------------------|--------|
| NO. | STATION | DESCRIPTION | ELEV. |
| 2960 | 474+99 | WISDOT ALUMINUM CAP | 705.11 |
| | | | |
| | | | |

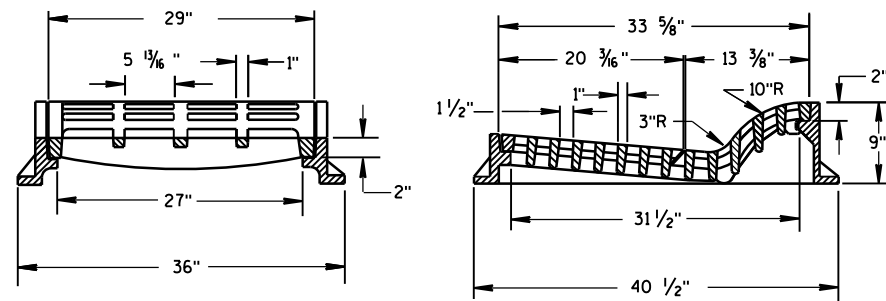
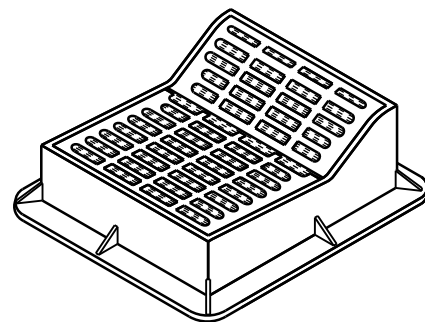


| BENCH MARKS | | | |
|-------------|---------|---------------------|--------|
| NO. | STATION | DESCRIPTION | ELEV. |
| 2671 | 591+39 | WISDOT ALUMINUM CAP | 752.61 |
| | | | |
| | | | |

Standard Detail Drawing List

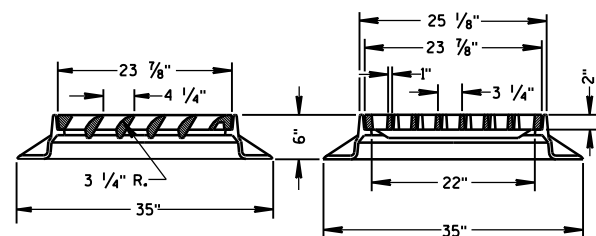
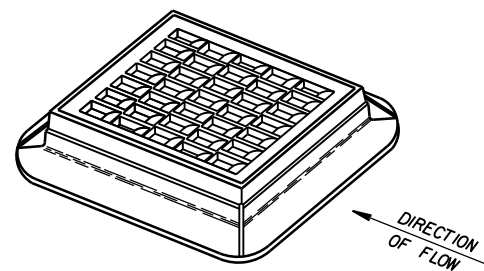
| | |
|-----------|---|
| 08A05-19C | INLET COVERS TYPE F, HM, HM-S, S, T, V, HM-GJ, & HM-GJ-S |
| 08C07-02 | INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT |
| 08D03-07 | CONCRETE SURFACE DRAINS DROP INLET TYPE AT STRUCTURES |
| 08E08-03 | TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS |
| 08E09-06 | SILT FENCE |
| 08E10-02 | INLET PROTECTION TYPE A, B, C AND D |
| 08F01-11 | APRON ENDWALLS FOR CULVERT PIPE |
| 14B07-15A | CONCRETE BARRIER TEMPORARY PRECAST, 12'-6" |
| 14B07-15B | CONCRETE BARRIER TEMPORARY PRECAST, 12'-6" |
| 14B07-15C | CONCRETE BARRIER TEMPORARY PRECAST, 12'-6" |
| 14B07-15D | CONCRETE BARRIER TEMPORARY PRECAST, 12'-6" |
| 14B07-15E | CONCRETE BARRIER TEMPORARY PRECAST, 12'-6" |
| 14B07-15F | CONCRETE BARRIER TEMPORARY PRECAST, 12'-6" |
| 14B07-15G | CONCRETE BARRIER TEMPORARY PRECAST, 12'-6" |
| 14B07-15H | CONCRETE BARRIER TEMPORARY PRECAST, 12'-6" |
| 14B07-15I | CONCRETE BARRIER TEMPORARY PRECAST, 12'-6" |
| 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 |
| 14B45-04A | MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS) |
| 14B45-04B | MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS) |
| 14B45-04C | MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS) |
| 14B45-04D | MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS) |
| 14B45-04E | MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS) |
| 14B45-04F | MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS) |
| 14B45-04G | MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS) |
| 14B45-04H | MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS) |
| 14B45-04I | MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS) |
| 14B45-04J | MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS) |
| 14B45-04K | MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS) |
| 14B45-04L | MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS) |
| 15A03-02A | FLEXIBLE MARKER POST FOR CULVERT END |
| 15A03-02B | FLEXIBLE MARKER POST FOR CULVERT END |
| 15B01-08A | FENCE WOVEN WIRE |
| 15B01-08B | FENCE WOVEN WIRE |
| 15C08-18A | LONGITUDINAL MARKING (MAINLINE) |
| 15C12-06 | TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION |
| 15D03-04 | TRAFFIC CONTROL, LANE CLOSURE, SPEEDS GREATER THAN 40 M.P.H. WITH BARRIER |
| 15D12-06A | TRAFFIC CONTROL, LANE CLOSURE |
| 15D38-02A | TEMPORARY TRAFFIC CONTROL SIGN MOUNTING |
| 15D38-02B | ATTACHMENT OF SIGNS TO POSTS |



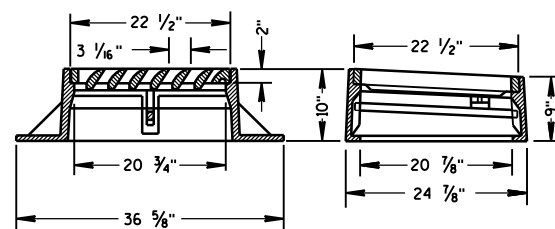
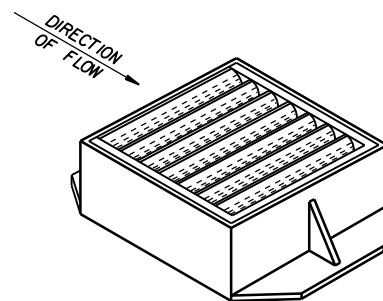


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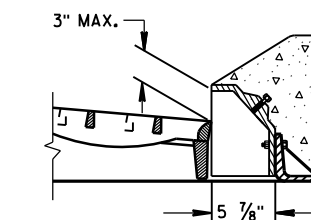
USE WITH TYPES A & D CONCRETE CURB & GUTTER, 36 INCH.



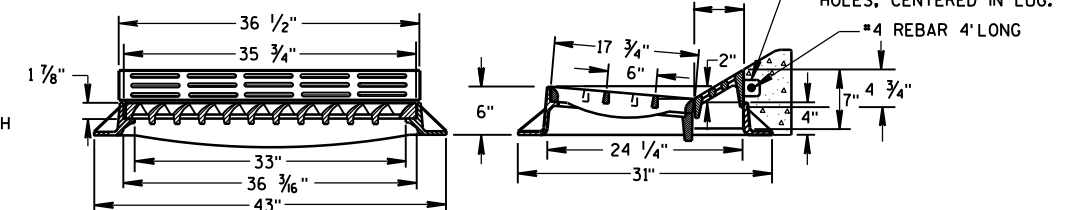
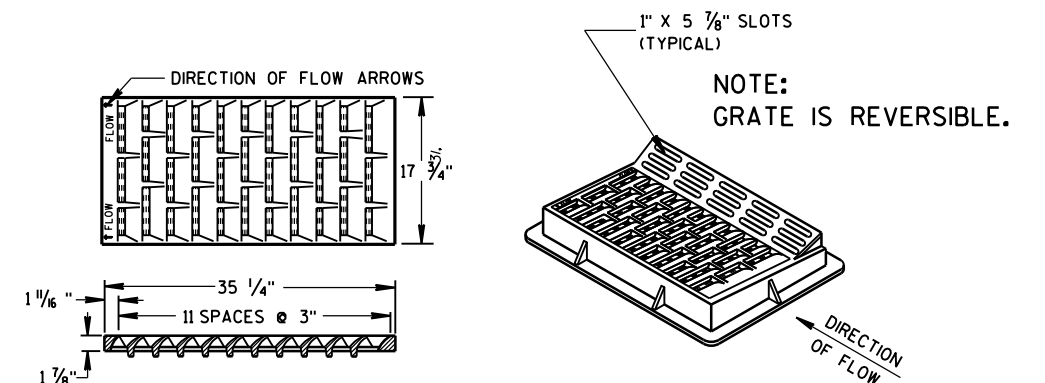
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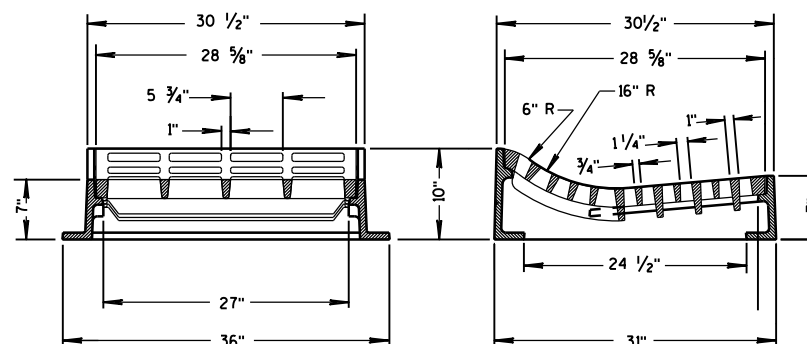
TYPE "V"

ALTERNATIVE CURB BOX
FOR TYPE "HM" COVERUSE WITH TYPES G & J CONCRETE CURB & GUTTER, 30 INCH
NOTED AS TYPE HM-GJ ON DRAINAGE TABLENOTE:
SPECIAL GRATE FOR THE
TYPE "H" COVER MAY ALSO BE
USED FOR THE TYPE "HM-GJ" COVER
NOTED AS TYPE HM-GJ-S ON DRAINAGE TABLE

GENERAL NOTES

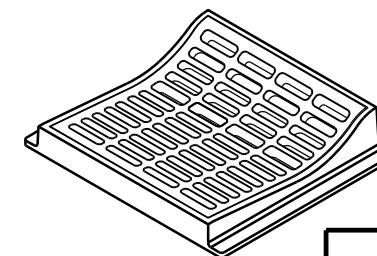
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING
SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND
THE APPLICABLE SPECIAL PROVISIONS.DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR INLET COVERS SHALL BE SUBMITTED
TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION
FOR EQUIVALENT CAPACITY AND STRENGTH.

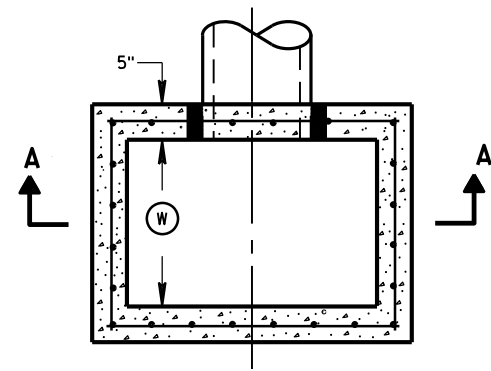
TYPE "HM"

USE WITH TYPES A & D CONCRETE
CURB & GUTTER, 36 INCH.NOTE:
SPECIAL GRATE FOR THE
TYPE "H" COVER MAY ALSO BE
USED FOR THE TYPE "HM" COVER
NOTED AS TYPE HM-S ON DRAINAGE TABLE

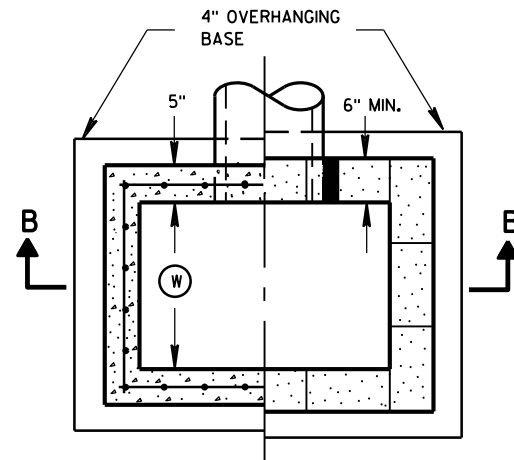
TYPE "T"

USE WITH TYPES R & T CONCRETE CURB & GUTTER, 36 INCH.

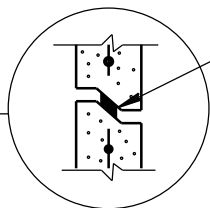
INLET COVERS
TYPE F, HM, HM-S, S, T, V,
HM-GJ, & HM-GJ-SSTATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATIONAPPROVED
11/27/2013
DATE /S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA



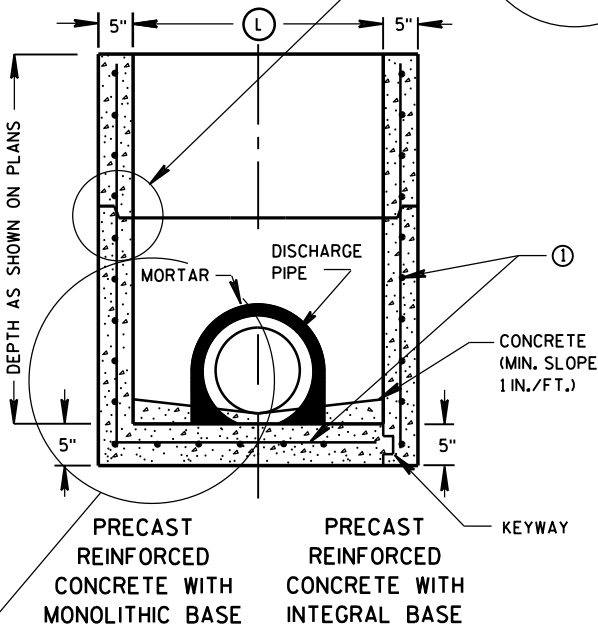
PLAN VIEW



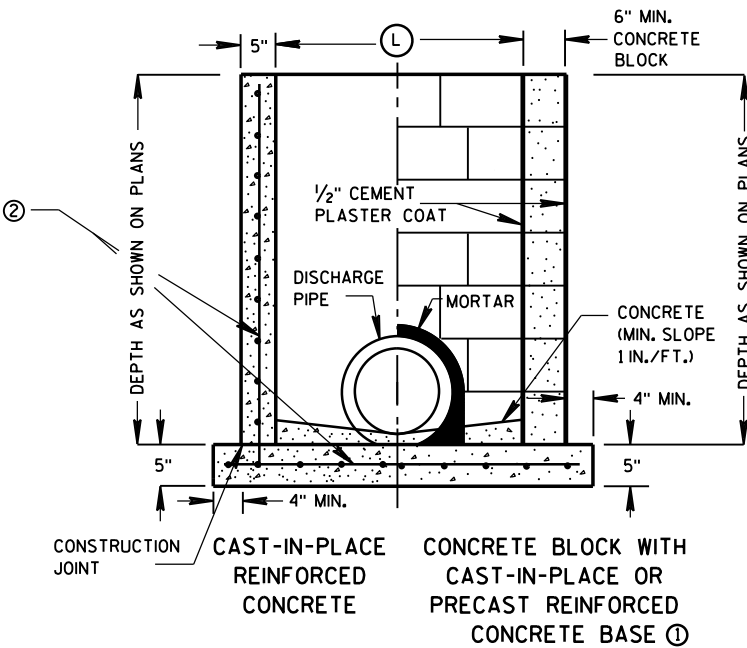
PLAN VIEW



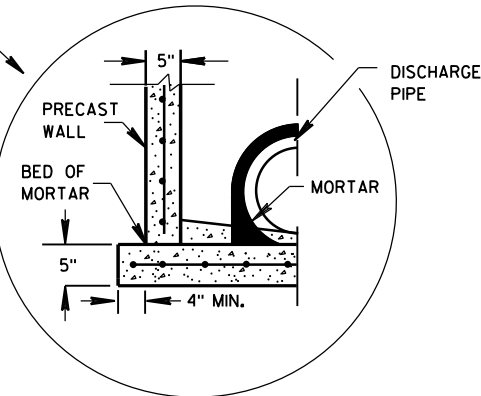
RISER JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C 990 (TYP)



SECTION A-A



SECTION B-B



SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION

INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT

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.

UNLESS OTHERWISE AUTHORIZED IN WRITING BY THE ENGINEER, THE CONTRACTOR SHALL NOT ORDER AND DELIVER PRECAST INLET UNITS REQUIRED FOR THE PROJECT UNTIL A LIST OF SIZES IS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR UNDERGROUND DRAINAGE STRUCTURES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ALL PRECAST INLET UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF ASTM C 913.

ALL DRAINAGE STRUCTURES ARE DESIGNATED ON THE PLANS AS "MANHOLES 3X3-L", "CATCH BASINS 4-B", "INLETS 2X3-H", ETC. THE FIRST NUMBERS DESIGNATES THE SIZE OF THE STRUCTURE, AND THE FOLLOWING LETTER DESIGNATES THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT.

BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 6 INCHES IN DEPTH, WHICH MEETS THE REQUIREMENTS OF FOUNDATION BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.

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

PRECAST REINFORCED RISERS SHALL HAVE A TONGUE AND GROOVE JOINT WITH TONGUE UP OR DOWN.

4" OVERHANGING BASES ARE REQUIRED FOR CAST-IN-PLACE REINFORCED CONCRETE AND CONCRETE BLOCK INSTALLATIONS. 4" OVERHANG IS REQUIRED WHEN SEPARATE PRECAST BASE IS PROVIDED. OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

MAXIMUM INSIDE PIPE DIAMETER DETERMINED BY 3 INCH CLEARANCE ON EACH SIDE OF THE OUTSIDE WALL OF THE PIPE. SEE DETAIL "A". ASSUMES PIPE ENTERS PERPENDICULAR TO THE STRUCTURE.

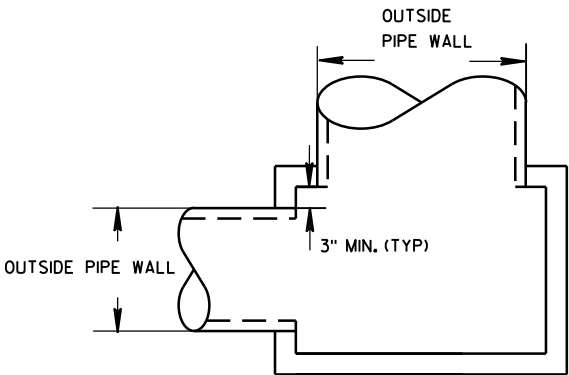
- ① FOR PRECAST INLETS PROVIDE REINFORCING STEEL IN ACCORDANCE TO ASTM C 913.
- ② CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES.

INLET COVER MATRIX

| INLET SIZE | | INLET COVER TYPE | ALL A'S | ALL B'S | BW | F | ALL H'S | S | T | V | WM |
|------------|--------------|------------------|---------|---------|----|---|---------|---|---|---|----|
| | WIDTH ① (FT) | LENGTH ② (FT) | | | | | | | | | |
| 2X2-FT | 2 | 2 | X | X | | | | X | | X | |
| 2X2.5-FT | 2 | 2.5 | | | X | | | X | X | X | X |
| 2X3-FT | 2 | 3 | | | | | X | | | | |
| 2.5X3-FT | 2.5 | 3 | | | | X | | | | | |

PIPE MATRIX

| INLET SIZE | MAXIMUM INSIDE PIPE DIAMETER | |
|------------|------------------------------|-------------|
| | WIDTH (IN) | LENGTH (IN) |
| 2X2-FT | 12 | 12 |
| 2X2.5-FT | 12 | 18 |
| 2X3-FT | 12 | 24 |
| 2.5X3-FT | 18 | 24 |

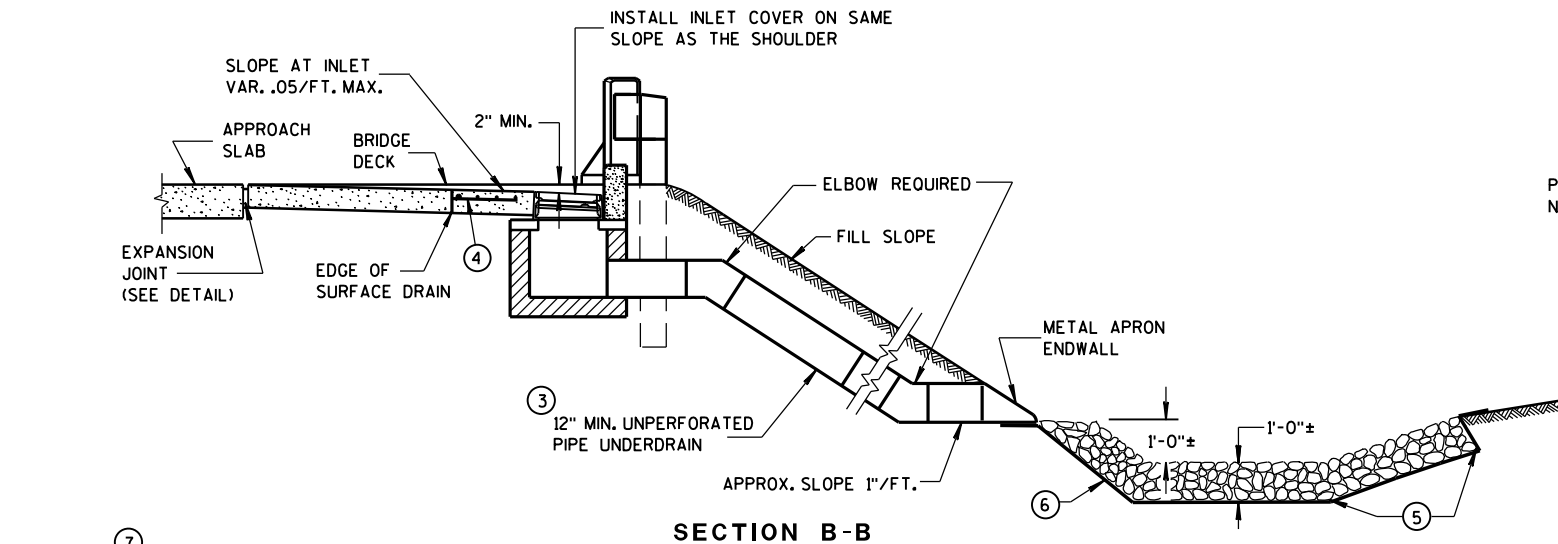


DETAIL "A"

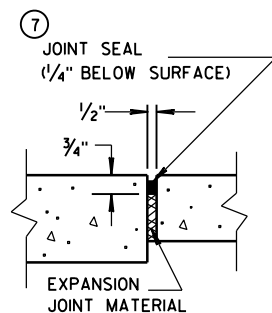
INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

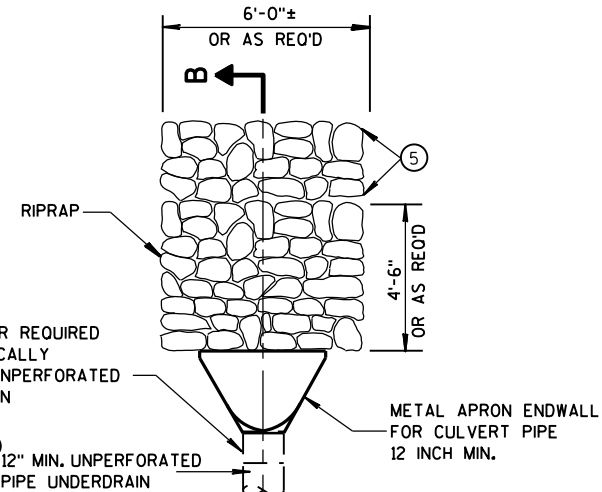
APPROVED
Sept., 2016 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
FHWA UNIT SUPERVISOR



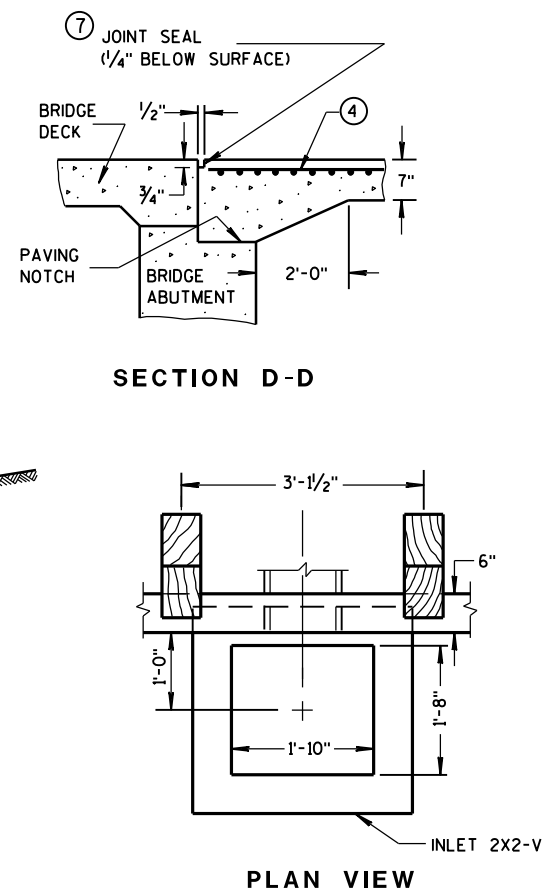
SECTION B-B



EXPANSION JOINT DETAIL

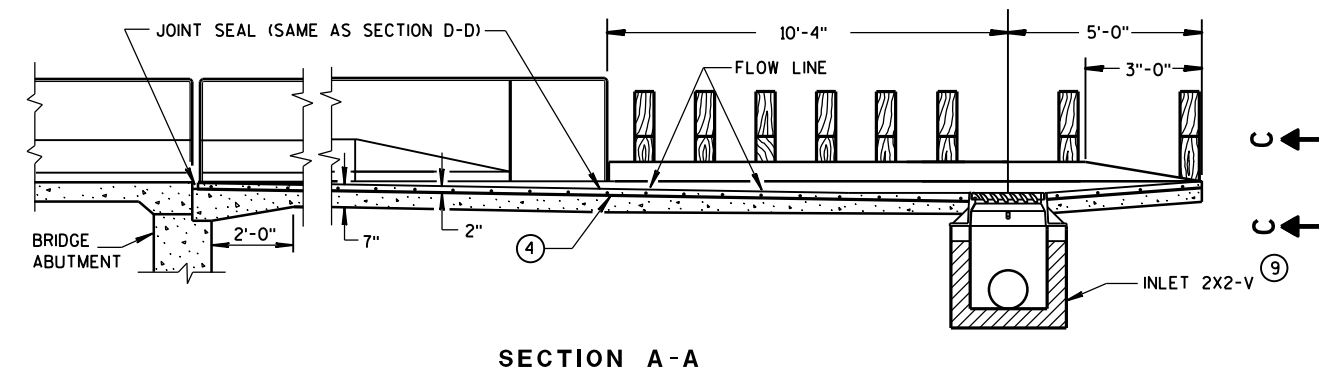


PLAN VIEW

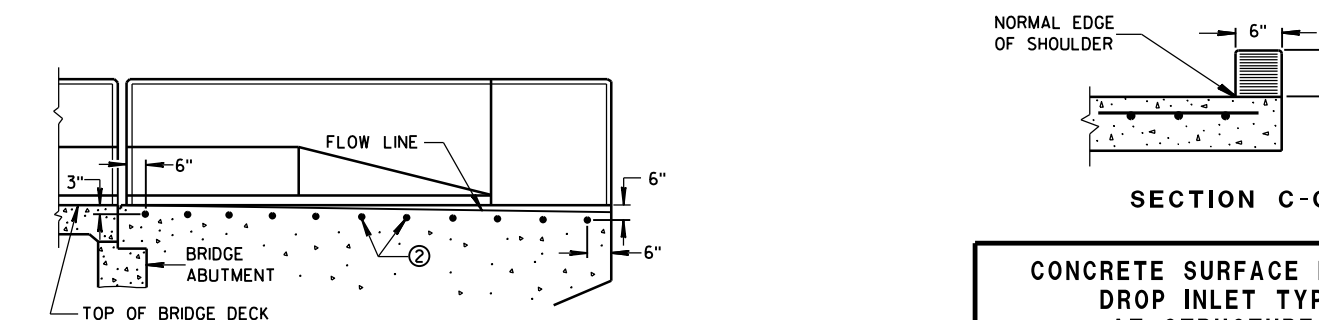


SECTION D-D

PLAN VIEW



SECTION A-A



SECTION C-C

LOCATION OF
TIE BARS IN WINGWALL

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.

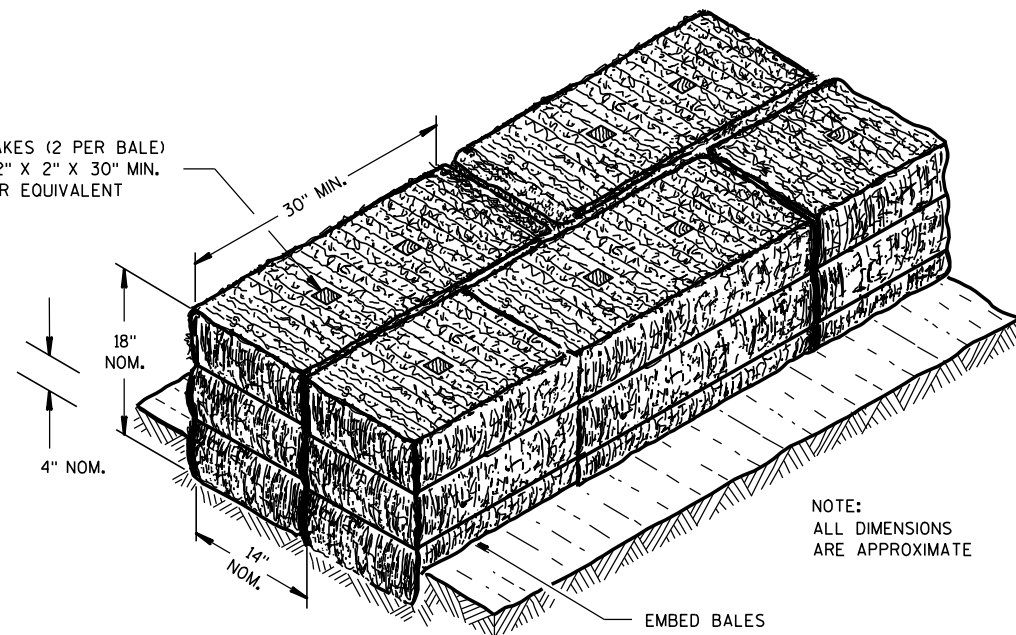
- ① NO. 4 X 2'-0" TIE BARS SPACED AT 3'-0" CENTERS TO BE USED ONLY WHEN ADJACENT TO P.C. CONCRETE.
- ② NO. 4 X 2'-0" TIE BARS SPACED AT 12" CENTERS TO BE PLACED BY BRIDGE CONTRACTOR, OR DRILLED TIE BARS PLACED AS DIRECTED BY THE ENGINEER.
- ③ THE PIPE UNDERDRAIN MAY BE ANY ONE OF THE SIX MATERIALS LISTED IN THE STANDARD SPECIFICATIONS SECTION 612.2 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.
- 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'-1 1/2".
- ⑨ SEE CURRENT STANDARD DETAIL DRAWINGS 8A5 AND 8C7 FOR DETAILS.

CONCRETE SURFACE DRAINS
DROP INLET TYPE
AT STRUCTURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

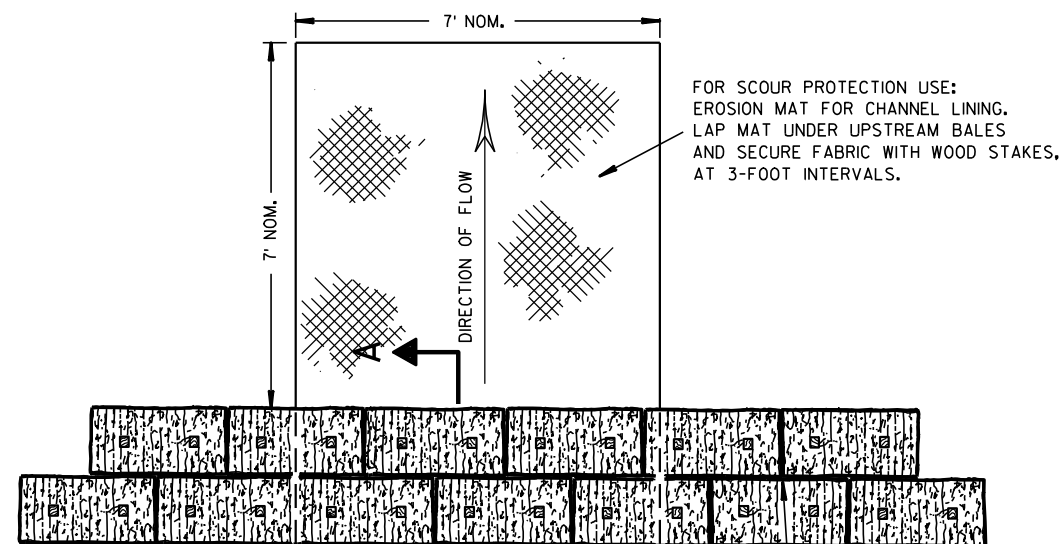
APPROVED
June 2017 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
FHWA UNIT SUPERVISOR

WOOD STAKES (2 PER BALE)
NOMINAL 2" X 2" X 30" MIN.
LENGTH OR EQUIVALENT



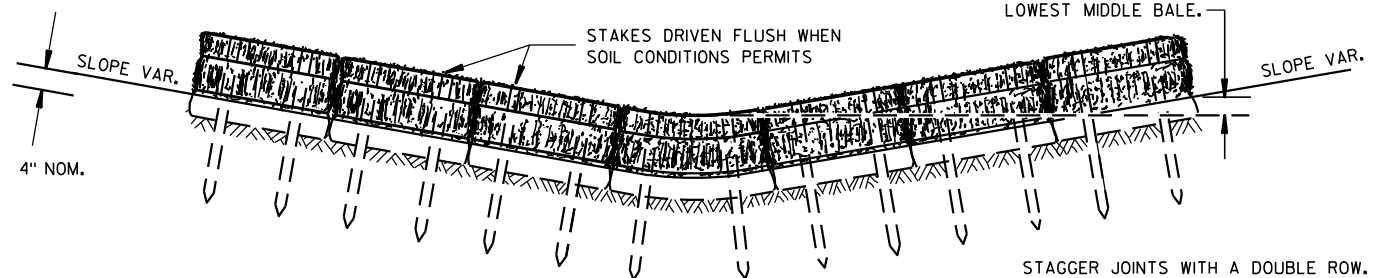
NOTE:
ALL DIMENSIONS
ARE APPROXIMATE

SECTION A-A



FOR SCOUR PROTECTION USE:
EROSION MAT FOR CHANNEL LINING.
LAP MAT UNDER UPSTREAM BALES
AND SECURE FABRIC WITH WOOD STAKES,
AT 3-FOOT INTERVALS.

PLAN VIEW



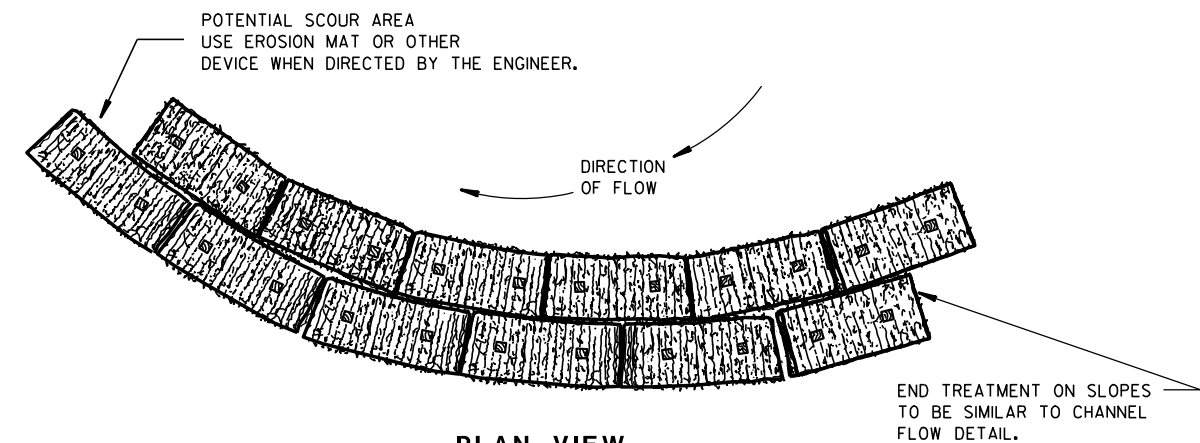
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

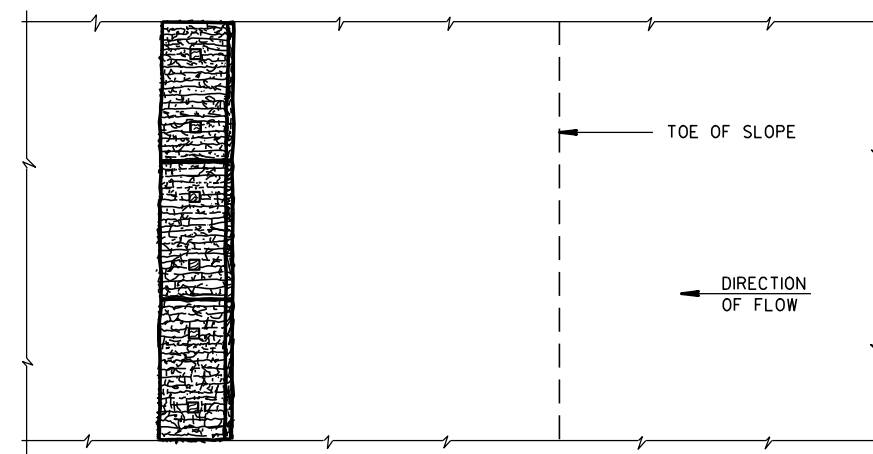
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

- ① TEMPORARY DITCH CHECKS EITHER EROSION BALES OR MANUFACTURED SHALL BE PAID FOR UNDER THE BID ITEM OF TEMPORARY DITCH CHECK. THE DEPARTMENT WILL NOT PAY FOR TEMPORARY DITCH CHECKS CONSTRUCTED OF A SINGLE ROW OF EROSION BALES.

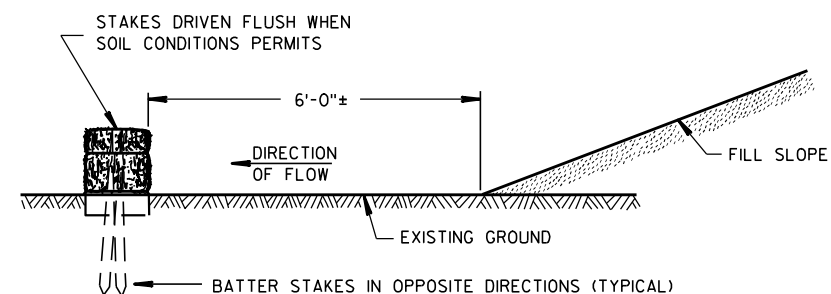


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS

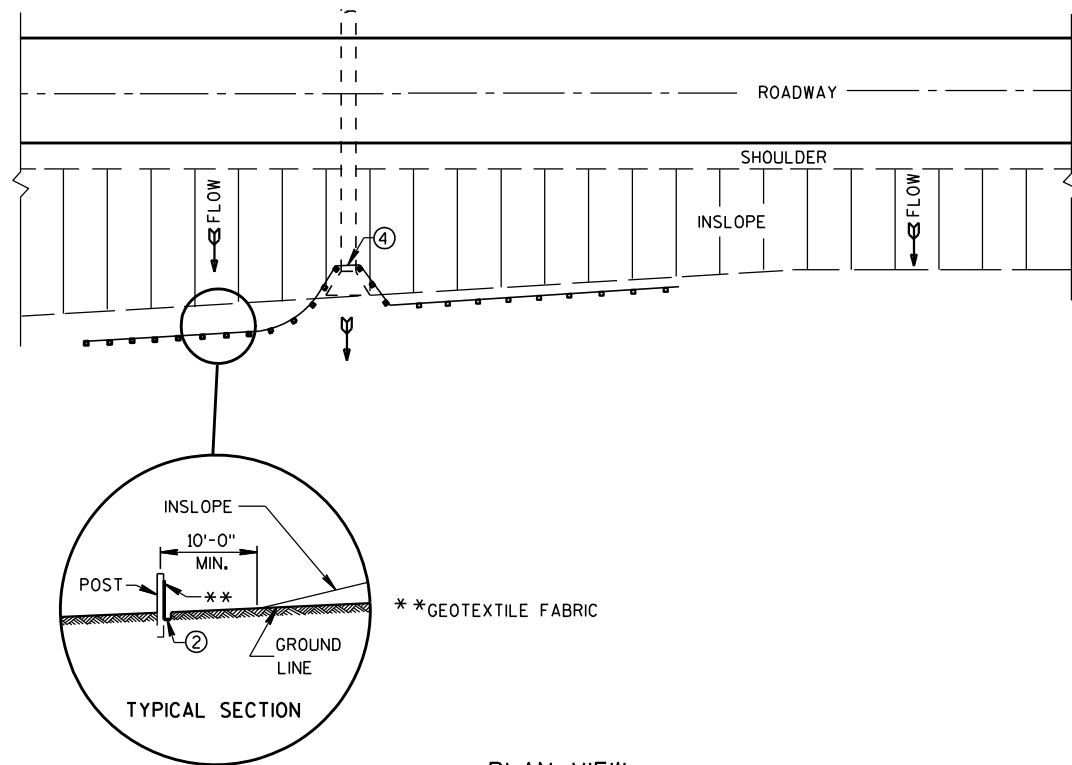
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

6/04/02
DATE

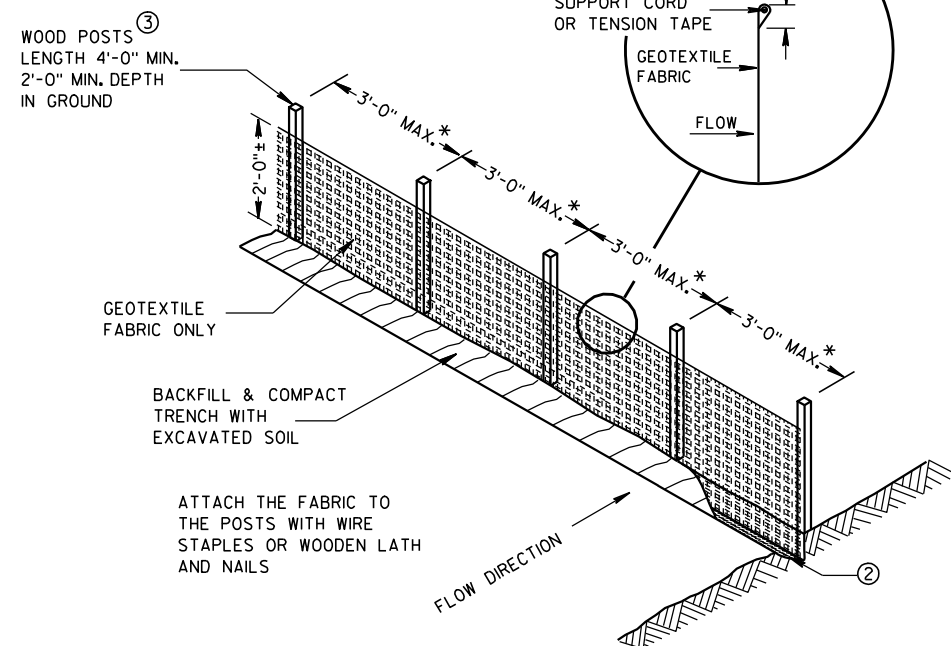
FHWA

/S/ Beth Canestra
CHIEF ROADWAY DEVELOPMENT ENGINEER



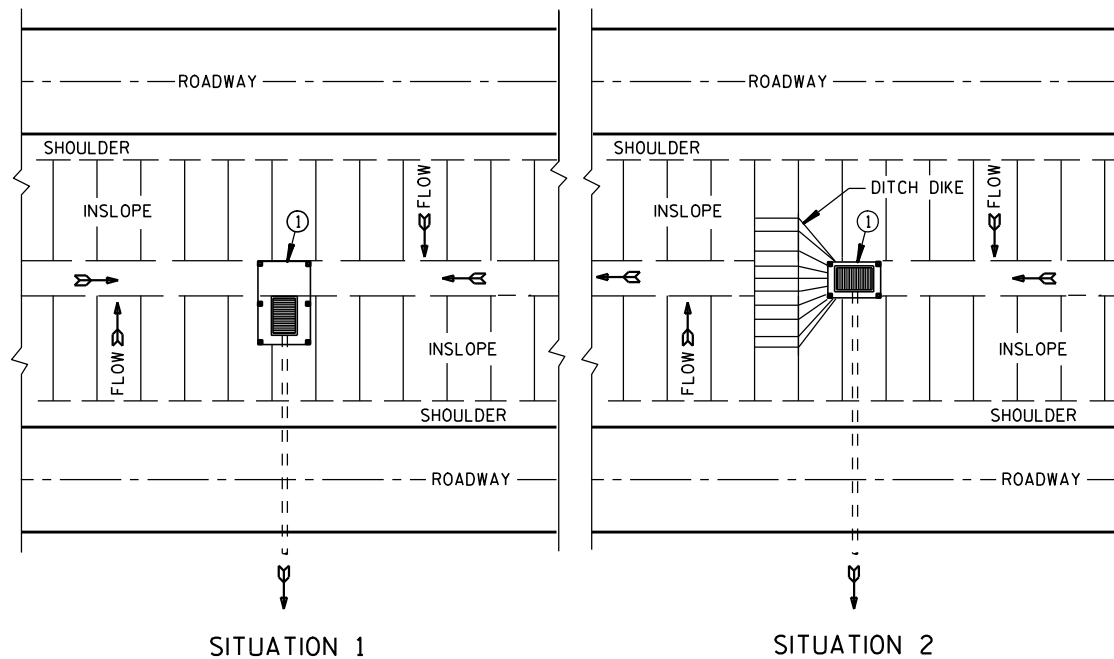
TYPICAL APPLICATION OF SILT FENCE

NOTE: ADDITIONAL POST DEPTH OR TIE BACKS MAY BE REQUIRED IN UNSTABLE SOILS



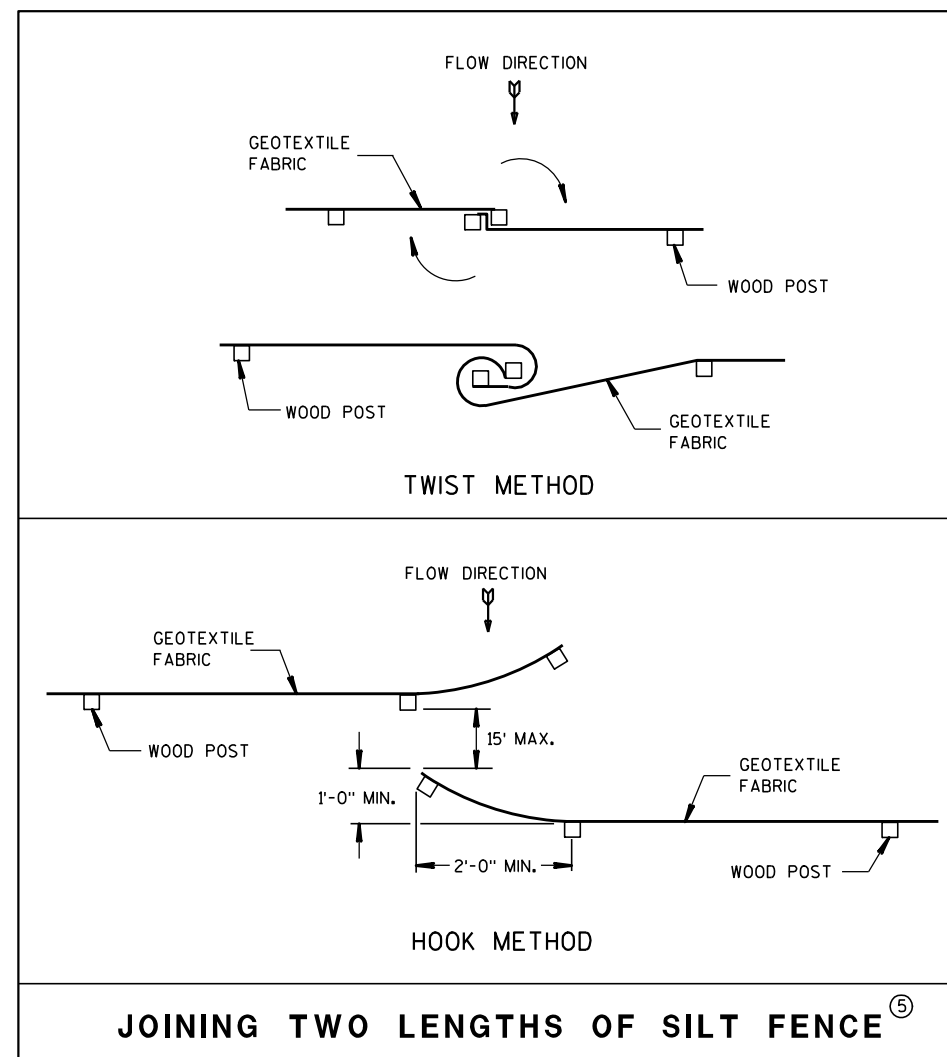
*NOTE: 8'-0" POST SPACING ALLOWED IF A WOVEN GEOTEXTILE FABRIC IS USED.

SILT FENCE



PLAN VIEW

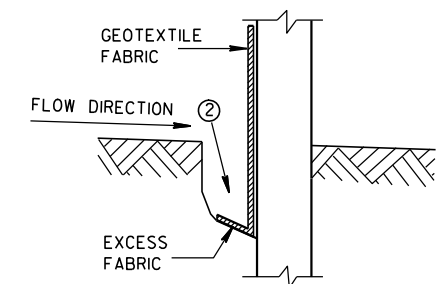
SILT FENCE AT MEDIAN SURFACE DRAINS



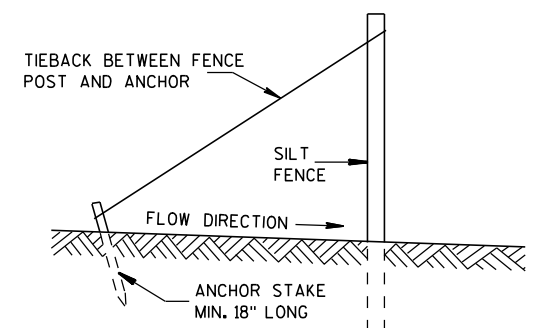
GENERAL NOTES

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

- ① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
- ② FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
- ③ WOOD POSTS SHALL BE A MINIMUM SIZE OF 1 1/8" X 1 1/8" OF OAK OR HICKORY.
- ④ SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
- ⑤ CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.



TRENCH DETAIL



SILT FENCE TIE BACK (WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

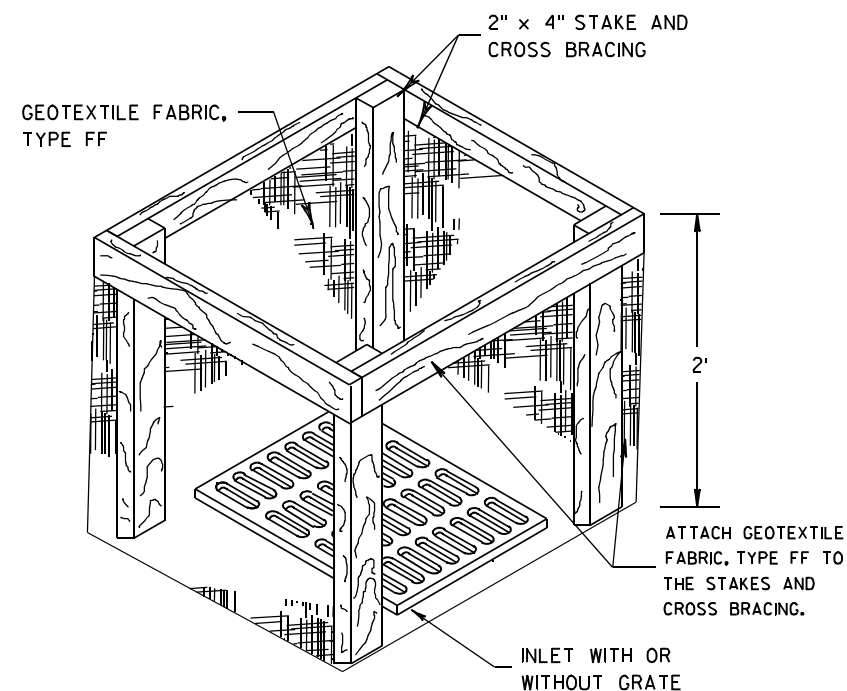
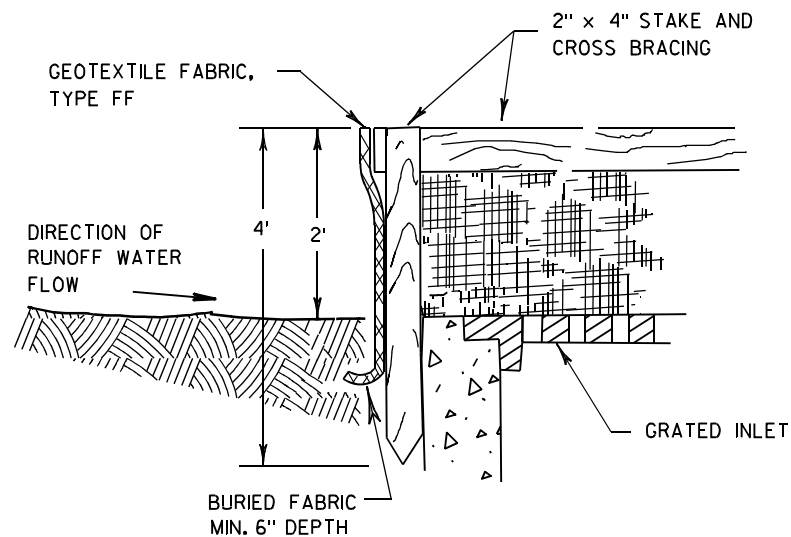
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

4-29-05
DATE

FHWA

/S/ Beth Canestra
CHIEF ROADWAY DEVELOPMENT ENGINEER



INLET PROTECTION, TYPE A

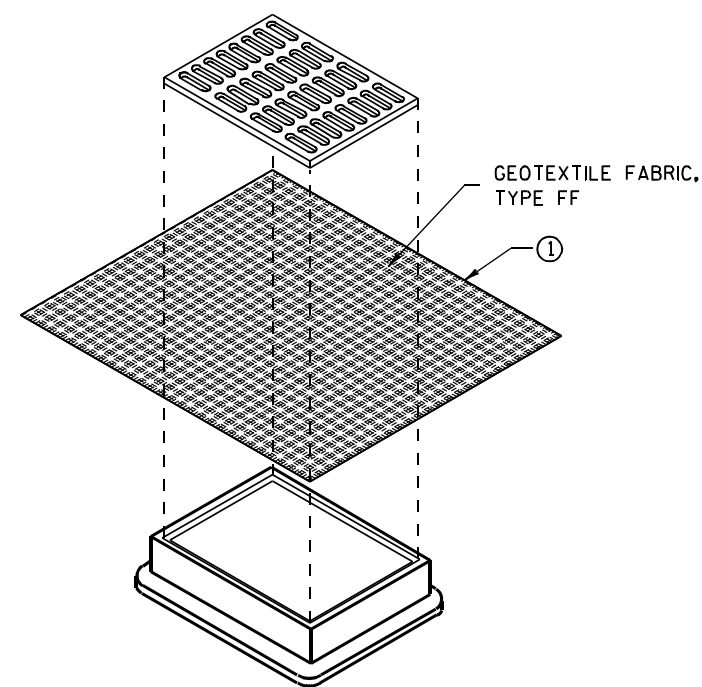
GENERAL NOTES

INLET PROTECTION DEVICES SHALL BE MAINTAINED OR REPLACED AT THE DIRECTION OF THE ENGINEER.

MANUFACTURED ALTERNATIVES APPROVED AND LISTED ON THE DEPARTMENT'S EROSION CONTROL PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTED.

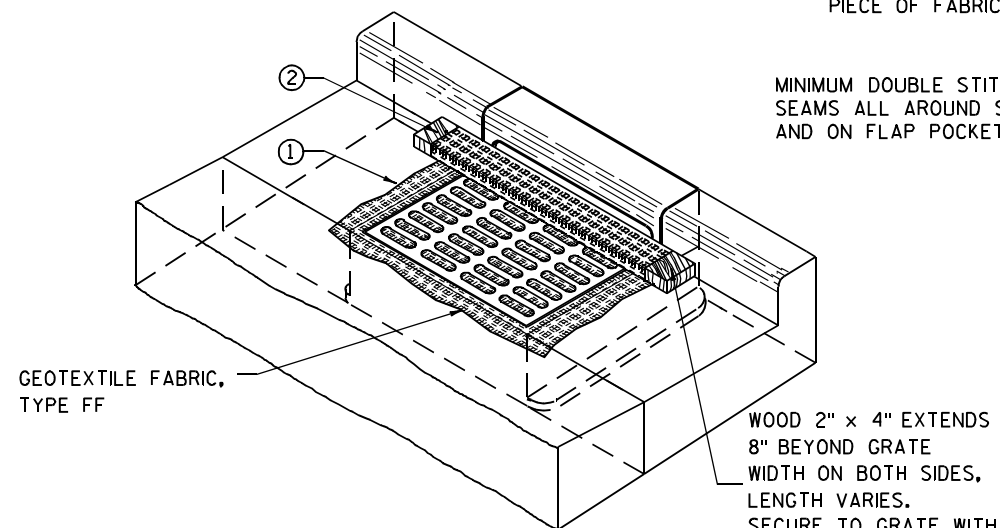
WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

- ① FINISHED SIZE, INCLUDING FLAP POCKETS WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10" AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.
- ② FOR INLET PROTECTION, TYPE C (WITH CURB BOX), AN ADDITIONAL 18" OF FABRIC IS WRAPPED AROUND THE WOOD AND SECURED WITH STAPLES. THE WOOD SHALL NOT BLOCK THE ENTIRE HEIGHT OF THE CURB BOX OPENING.
- ③ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2X4.



**INLET PROTECTION, TYPE B
(WITHOUT CURB BOX)**

(CAN BE INSTALLED IN ANY INLET WITHOUT A CURB BOX)



INLET PROTECTION, TYPE C (WITH CURB BOX)

INSTALLATION NOTES

TYPE B & C

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

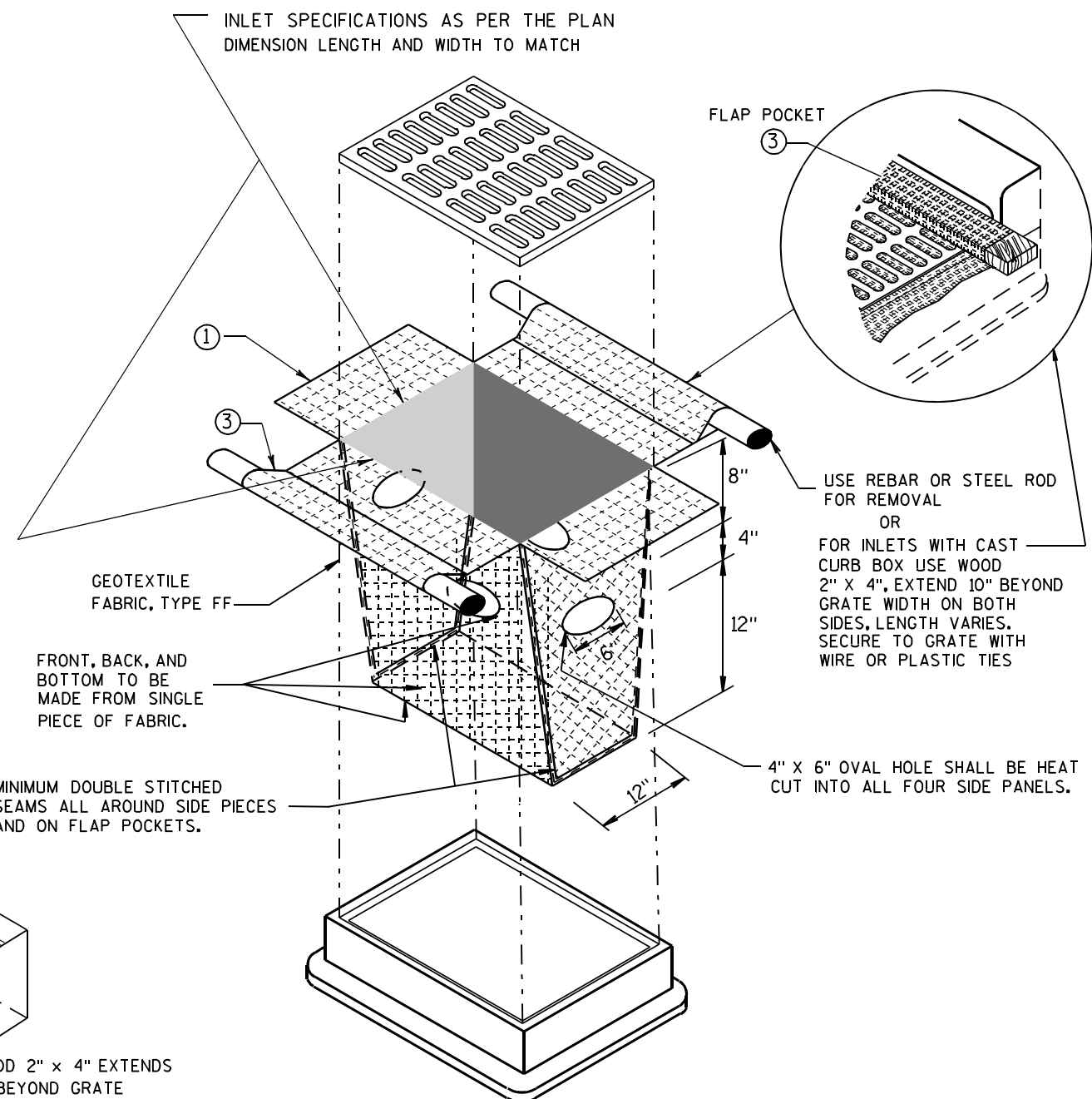
THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

TYPE D

DO NOT INSTALL INLET PROTECTION TYPE D IN INLETS SHALLower THAN 30", MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE.

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3". WHERE NECESSARY THE CONTRACTOR SHALL CINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4" FROM THE BOTTOM OF THE BAG.



INLET PROTECTION, TYPE D

(CAN BE INSTALLED IN ANY INLET TYPE WITH OR WITHOUT A CURB BOX AS PER NOTE ②)

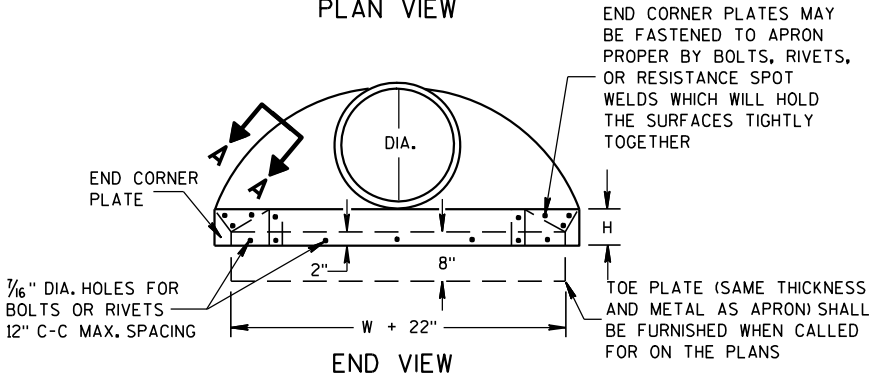
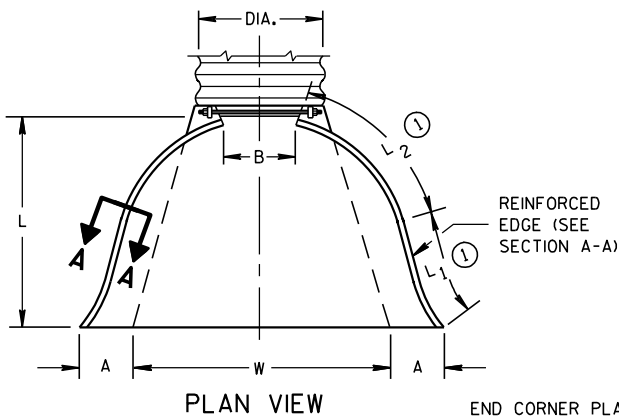
**INLET PROTECTION
TYPE A, B, C, AND D**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/16/02 /S/ Beth Cannestra
DATE
FHWA CHIEF ROADWAY DEVELOPMENT ENGINEER

| METAL APRON ENDWALLS | | | | | | | | | | | |
|----------------------|-------------------------|-------|---------------------|-------------|------------|----------------|---------------------|---------------------|------------------|------------|------------|
| PIPE DIA. (IN.) | MIN. THICK. (Inches) | | DIMENSIONS (Inches) | | | | | | APPROX. SLOPE | BODY | |
| | STEEL | ALUM. | A (±1") | B (MAX.) | H (±1") | L (±1 1/2") | L ₁ ① | L ₂ ① | | | W (±2") |
| 12 | .064 | .060 | 6 | 6 | 6 | 21 | 12 | 17 1/2 | 24 | 2 1/2 to 1 | 1 Pc. |
| 15 | .064 | .060 | 7 | 8 | 6 | 26 | 14 | 21 3/4 | 30 | 2 1/2 to 1 | 1 Pc. |
| 18 | .064 | .060 | 8 | 10 | 6 | 31 | 15 | 28 1/4 | 36 | 2 1/2 to 1 | 1 Pc. |
| 21 | .064 | .060 | 9 | 12 | 6 | 36 | 18 | 29 5/8 | 42 | 2 1/2 to 1 | 1 Pc. |
| 24 | .064 | .075 | 10 | 13 | 6 | 41 | 18 | 37 1/4 | 48 | 2 1/2 to 1 | 1 Pc. |
| 30 | .079 | .075 | 12 | 16 | 8 | 51 | 18 | 52 1/4 | 60 | 2 1/2 to 1 | 1 Pc. |
| 36 | .079 | .105 | 14 | 19 | 9 | 60 | 24 | 59 3/4 | 72 | 2 1/2 to 1 | 2 Pc. |
| 42 | .109 | .105 | 16 | 22 | 11 | 69 | 24 | 75 5/8 | 84 | 2 1/2 to 1 | 2 Pc. |
| 48 | .109 | .105 | 18 | 27 | 12 | 78 | 24 | 81 | 90 | 2 1/4 to 1 | 3 Pc. |
| 54 | .109 | .105 | 18 | 30 | 12 | 84 | 30 | 85 1/2 | 102 | 2 1/4 to 1 | 3 Pc. |
| 60 | .109x | .105x | 18 | 33 | 12 | 87 | — | — | 114 | 2 to 1 | 3 Pc. |
| 66 | .109x | .105x | 18 | 36 | 12 | 87 | — | — | 120 | 2 to 1 | 3 Pc. |
| 72 | .109x | .105x | 18 | 39 | 12 | 87 | — | — | 126 | 2 to 1 | 3 Pc. |
| 78 | .109x | .105x | 18 | 42 | 12 | 87 | — | — | 132 | 1 1/2 to 1 | 3 Pc. |
| 84 | .109x | .105x | 18 | 45 | 12 | 87 | — | — | 138 | 1 1/2 to 1 | 3 Pc. |
| 90 | .109x | .105x | 18 | 37 | 12 | 87 | — | — | 144 | 1 1/2 to 1 | 3 Pc. |
| 96 | .109x | .105x | 18 | 35 | 12 | 87 | — | — | 150 | 1 1/2 to 1 | 3 Pc. |

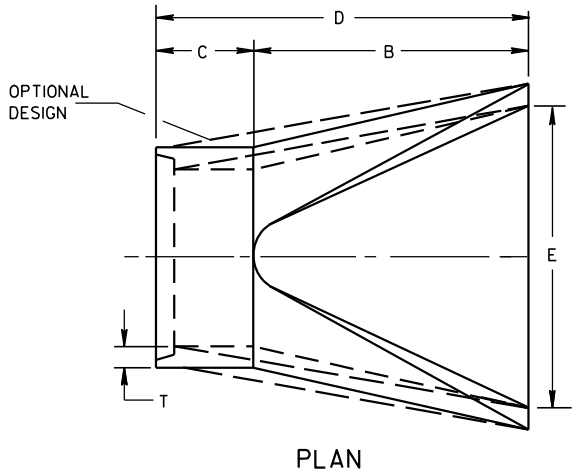
* EXCEPT CENTER PANEL
SEE GENERAL NOTES



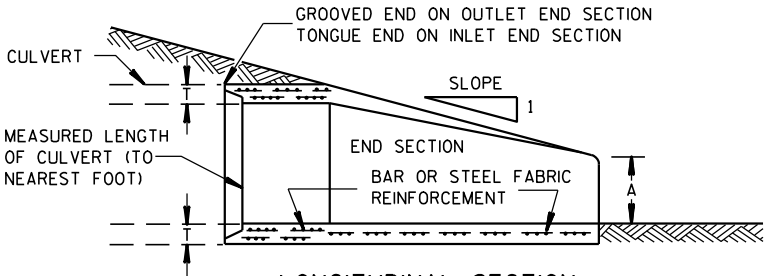
METAL ENDWALLS

| REINFORCED CONCRETE APRON ENDWALLS | | | | | | | | |
|------------------------------------|-------------------------------|--------------------------------|--------------------------------|------------------------------------|-------------------------------------|-----|-------------------------------|------------------------------------|
| PIPE DIA. (IN.) | DIMENSIONS (Inches) | | | | | | | APPROX. SLOPE |
| | T | A | B | C | D | E | G | |
| 12 | 2 | 4 | 24 | 48 ⁷ / ₈ | 72 ⁷ / ₈ | 24 | 2 | 3 to 1 |
| 15 | 2 ¹ / ₄ | 6 | 27 | 46 | 73 | 30 | 2 ¹ / ₄ | 3 to 1 |
| 18 | 2 ¹ / ₂ | 9 | 27 | 46 | 73 | 36 | 2 ¹ / ₂ | 3 to 1 |
| 21 | 2 ³ / ₄ | 9 | 36 | 37 ¹ / ₂ | 73 ¹ / ₂ | 42 | 2 ³ / ₄ | 3 to 1 |
| 24 | 3 | 9 ¹ / ₂ | 43 ¹ / ₂ | 30 | 73 ¹ / ₂ | 48 | 3 | 3 to 1 |
| 27 | 3 ¹ / ₄ | 10 ¹ / ₂ | 49 ¹ / ₂ | 24 | 73 ¹ / ₂ | 54 | 3 ¹ / ₄ | 3 to 1 |
| 30 | 3 ¹ / ₂ | 12 | 54 | 19 ³ / ₄ | 73 ¹ / ₂ | 60 | 3 ¹ / ₂ | 3 to 1 |
| 36 | 4 | 15 | 63 | 34 ³ / ₄ | 97 ³ / ₄ | 72 | 4 | 3 to 1 |
| 42 | 4 ¹ / ₂ | 21 | 63 | 35 | 98 | 78 | 4 ¹ / ₂ | 3 to 1 |
| 48 | 5 | 24 | 72 | 26 | 98 | 84 | 5 | 3 to 1 |
| 54 | 5 ¹ / ₂ | 27 | 65 | 33 ¹ / ₄ -35 | 98 ¹ / ₄ -100 | 90 | 5 ¹ / ₂ | 2 ¹ / ₂ to 1 |
| 60 | 6 | 30-35 | 60 | 39 | 99 | 96 | 5 | 2 to 1 |
| 66 | 6 ¹ / ₂ | 24-30 | 72-78 | 21-27 | 99 | 102 | 5 ¹ / ₂ | 2 to 1 |
| 72 | 7 | 24-36 | 78 | 21 | 99 | 108 | 6 | 2 to 1 |
| 78 | 7 ¹ / ₂ | 24-36 | 78 | 21 | 99 | 114 | 6 ¹ / ₂ | 2 to 1 |
| 84 | 8 | 36 | 90 ¹ / ₂ | 21 | 111 ¹ / ₂ | 120 | 6 ¹ / ₂ | 1 ¹ / ₂ to 1 |
| 90 | 8 ¹ / ₂ | 41 | 87 ¹ / ₂ | 24 | 111 ¹ / ₂ | 132 | 6 ¹ / ₂ | 1 ¹ / ₂ to 1 |

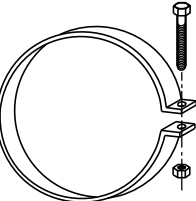
*MINIMUM
**MAXIMUM



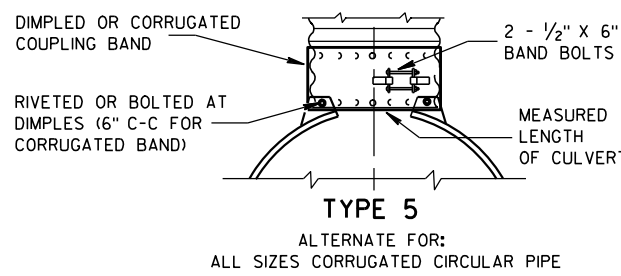
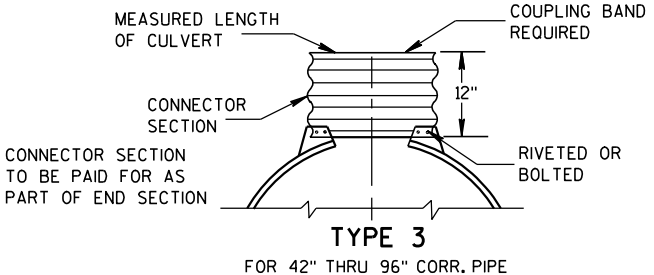
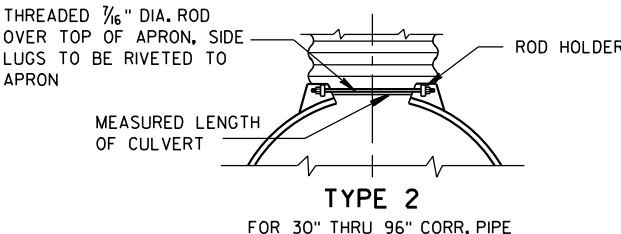
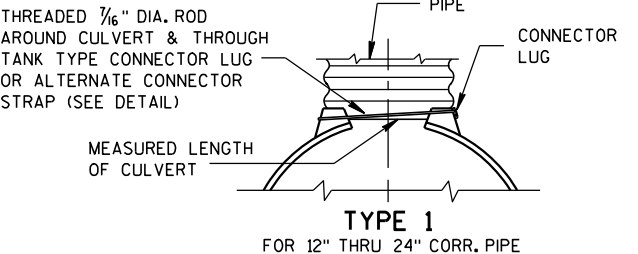
CONCRETE ENDWALLS



1" WIDE, 12 GA. (0.109" THICK) GALVANIZED STRAP WITH STANDARD 6" X 1/2" BAND BOLT AND NUT



ALTERNATE FOR TYPE 1 CONNECTION
END SECTION CONNECTOR STRAP



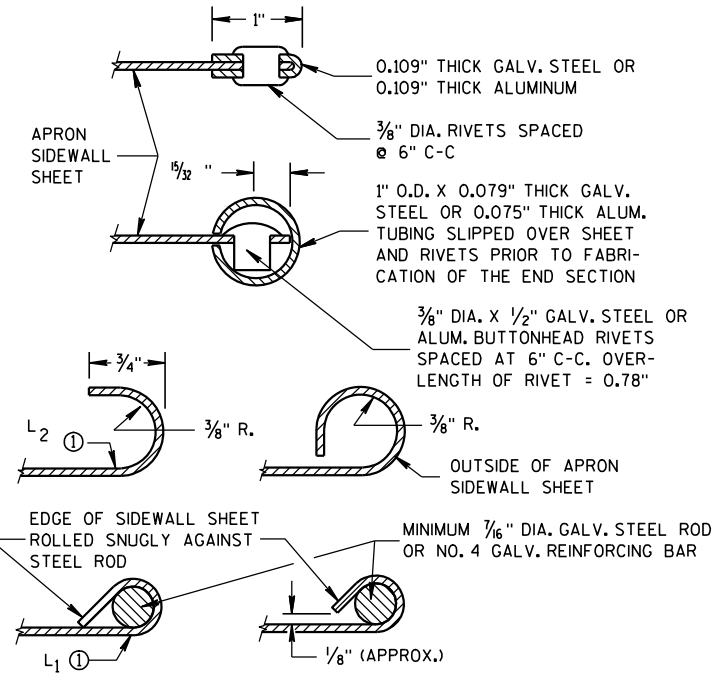
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

FOR CIRCUMFERENTIALLY CORRUGATED PIPE USE ENDWALL CONNECTION DETAILS 1, 2, 3 OR 5 AS APPLICABLE.

FOR HELICALLY CORRUGATED PIPE USE ENDWALL CONNECTION DETAILS 1, 2 OR 5.

FOR HELICALLY CORRUGATED PIPES WITH TWO CIRCUMFERENTIAL CORRUGATIONS AT EACH END USE ENDWALL CONNECTION DETAILS 1, 2 OR 3.

CONNECTION DETAILS



SECTION A-A

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.

CONCRETE CULVERT ENDWALLS MAY NOT BE USED WITH GALVANIZED STEEL OR ALUMINUM CULVERT PIPE OR VISE VERSA. GALVANIZED STEEL OR ALUMINUM ENDWALLS SHALL NORMALLY BE INSTALLED ON CULVERT PIPE OF THE SAME METAL.

ALL THREE PIECE STEEL APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT OF THE PIPE PERIMETER.

LAP SEAMS SHALL BE TIGHTLY JOINED BY GALVANIZED RIVETS OR BOLTS FOR STEEL UNITS AND ALUMINUM RIVETS AND BOLTS FOR ALUMINUM UNITS. FOR THE 60" THROUGH 96" DIAMETER APRON ENDWALL SIZES, THE REINFORCED EDGES AND CENTER PANEL SEAMS SHALL BE FURTHER REINFORCED WITH GALVANIZED STEEL OR ALUMINUM STIFFENER ANGLES. THE ANGLES SHALL BE ATTACHED BY GALVANIZED NUTS AND BOLTS FOR STEEL UNITS AND ALUMINUM NUTS AND BOLTS FOR ALUMINUM UNITS.

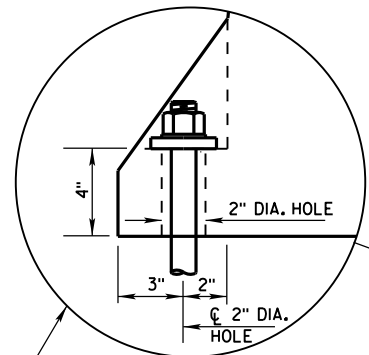
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

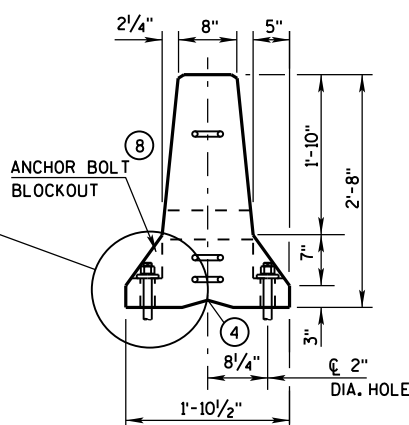
APRON ENDWALLS FOR
CULVERT PIPE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

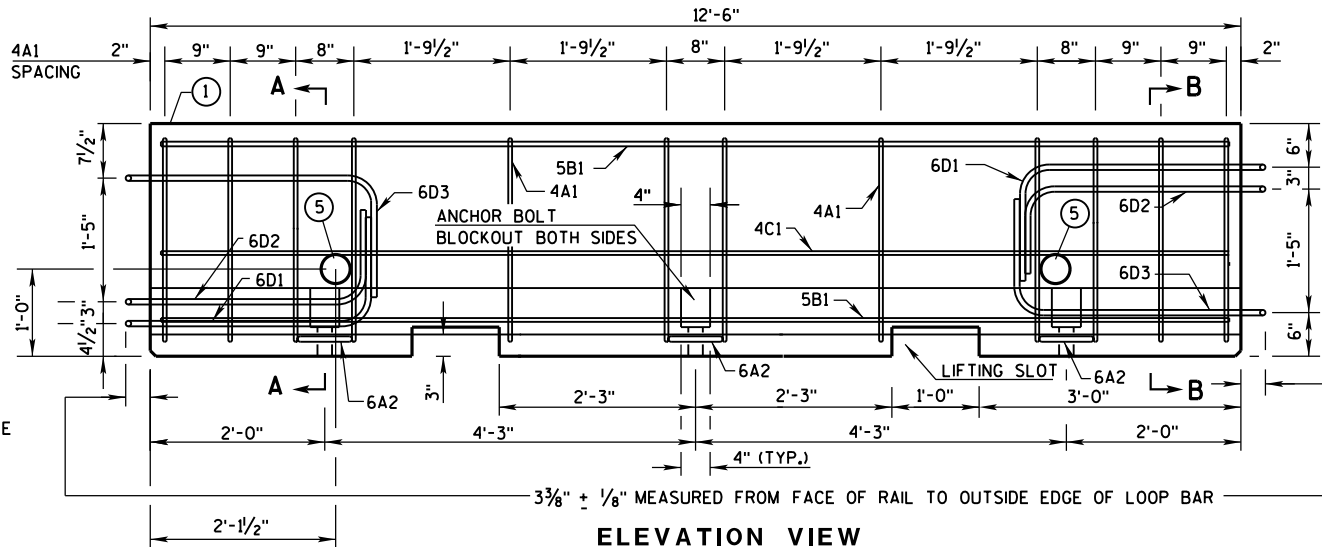
APPROVED
11/30/94
DATE
/S/ Rory L. Rhinesmith
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA



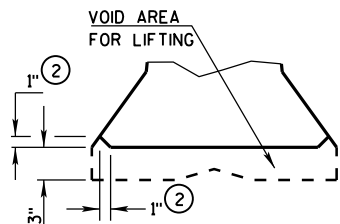
ANCHOR ON TRAFFIC SIDE
ONLY WHEN REQUIRED
(SEE SHEET D FOR ADDITIONAL
ANCHOR DETAIL)



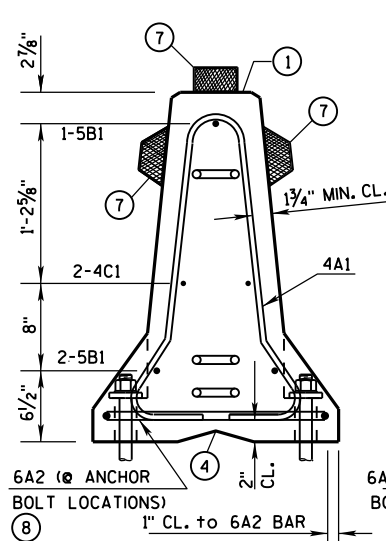
END VIEW



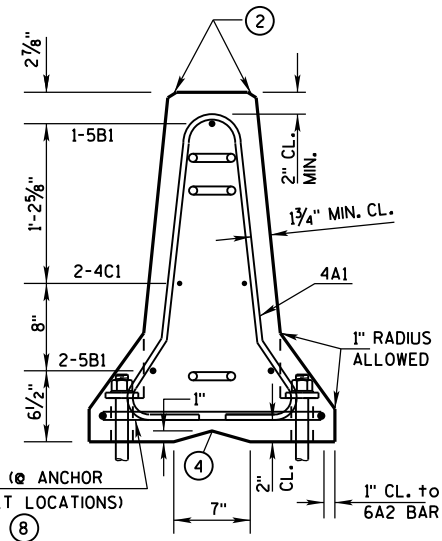
ELEVATION VIEW



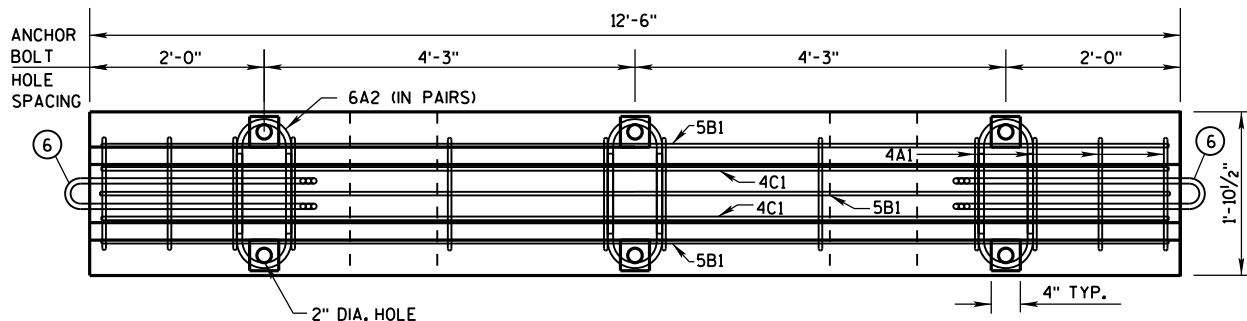
DETAIL "B"
LIFTING SLOT DETAIL



SECTION A-A
(STIRRUP PLACEMENT)

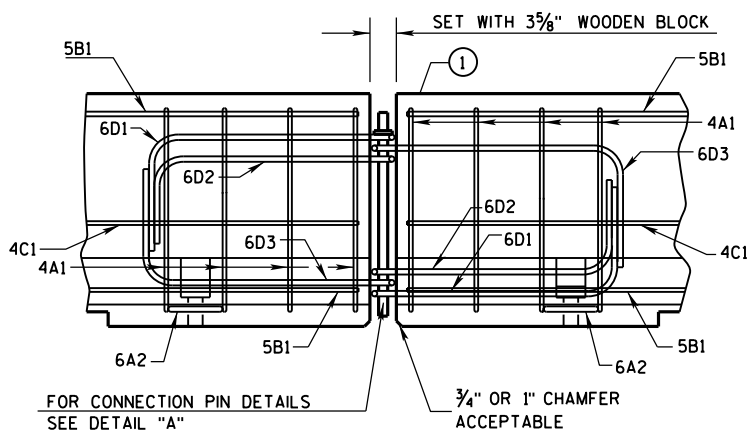


SECTION B-B
(STIRRUP PLACEMENT)

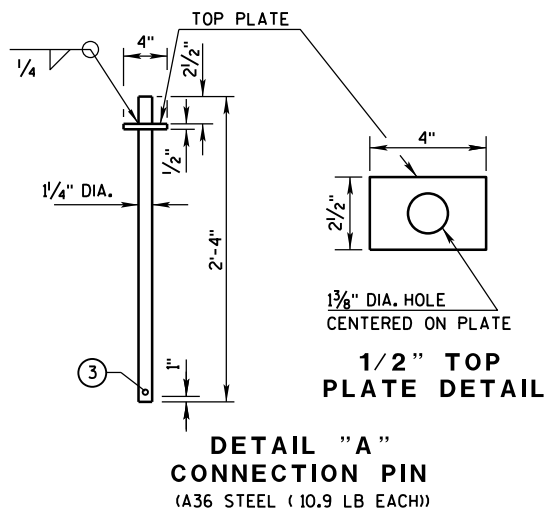


PLAN VIEW

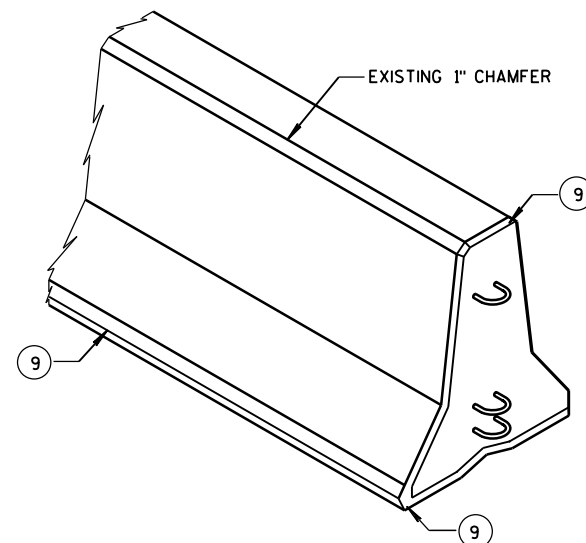
DETAILS OF BARRIER SECTION



DETAILS OF BARRIER CONNECTION



DETAIL "A"
CONNECTION PIN
(A36 STEEL (10.9 LB EACH))



GENERAL NOTES

THESE GENERAL NOTES APPLY TO SHEETS 14B7-15(a) THRU 14B7-15(i).

DO NOT INTERMIX CONCRETE BARRIER TEMPORARY PRECAST, 12'-6" (CBTP12.5) WITH OTHER TEMPORARY CONCRETE BARRIERS.

USE ASTM A-615, GRADE 60, DEFORMED STEEL BARS FOR BARS 4A1, 6A2, 5B1 AND 4C1 IN THE BARRIER SECTION AND FOR 4V1, 4V2, 4V3, 4V4, 4V5, 4V6, 4F1, 4F2 AND 5F3 IN THE BARRIER TAPER SECTION.

LOOP BARS 6D1, 6D2 AND 6D3 SHALL BE 3/4" SMOOTH STEEL BARS WITH A MINIMUM YIELD STRENGTH OF 60 KSI, A TENSILE STRENGTH OF NOT LESS THAN 1.25 TIMES THE YIELD STRENGTH BUT A MINIMUM OF 80 KSI, A MINIMUM 14% ELONGATION IN 8 INCHES AND PASSING A 180 DEGREE BEND TEST USING A 3-1/2" PIN BEND DIAMETER FOR BEND TESTS. THE LOOPS SHALL BE INSTALLED WITHIN 1/8" OF THE PLAN DIMENSION.

CONSTRUCT LIFTING SLOTS AS SPECIFIED ON THE PLANS TO FACILITATE THE DRAINAGE OF WATER AFTER INSTALLATION.

PLACE BARRIER ON A PAVED SURFACE. REMOVE ALL LOOSE DIRT AND SAND FROM THE ROADWAY SURFACE PRIOR TO PLACEMENT OF THE BARRIER.

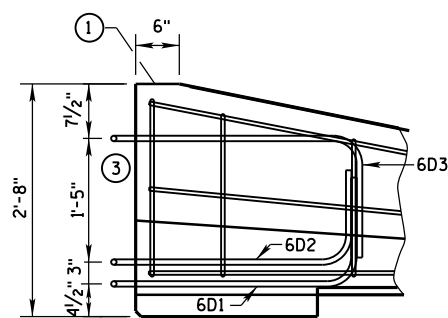
INSTALL MECHANICAL OR ADHESIVE ANCHORS PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE MANUFACTURER'S INFORMATION TO PROJECT ENGINEER.

- MARK ONE END OF EACH BARRIER PERMANENTLY BY FORMING INTO THE BARRIER THE FOLLOWING INFORMATION:
 - TYPE: WICBTP
 - MANUFACTURER
 - DATE MANUFACTURED (MONTH AND YEAR)
- 1" CHAMFER TO PREVENT SPALLING.
- A 3/8" HOLE IN THE CONNECTION PIN, AT THE LOCATION SHOWN, IS ACCEPTABLE, BUT NOT REQUIRED..
- "V" NOTCH IS OPTIONAL.
- THE 4" DIAMETER, 11 GAUGE STEEL, ROUND MECHANICAL TUBING SLEEVE FOR LIFTING (OPTIONAL).
- NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.
- USE DELINEATORS CONFORMING TO SECTION 633 OF THE STANDARD SPECIFICATIONS. CONTRACTOR MAY USE ALTERNATE SHAPES AND HOUSING. INSTALL DELINEATORS ACCORDING TO MANUFACTURES INSTRUCTION. INSTALL YELLOW REFLECTORS WHEN BARRIER IS LOCATED TO THE LEFT OF TRAFFIC AND WHITE REFLECTORS WHEN BARRIER IS LOCATED TO THE RIGHT OF TRAFFIC. SPACE DELINEATORS A MAXIMUM OF 25 FEET APART. PROVIDE TOP MOUNTED DELINEATORS IN ADDITION TO THE SIDE MOUNTED DELINEATORS ON ALL BARRIER INSTALLATIONS LOCATED ON A CURVED ALIGNMENT LONGER THAN 200 FEET AND ON BARRIERS USED TO SEPARATE OPPOSING TRAFFIC.
- SEE SHEET D FOR HOW TO ANCHOR BARRIER. SEE SHEET E FOR WHEN TO ANCHOR BARRIER.
- 1" CHAMFER OPTIONAL.

f'c = 4,000 psi

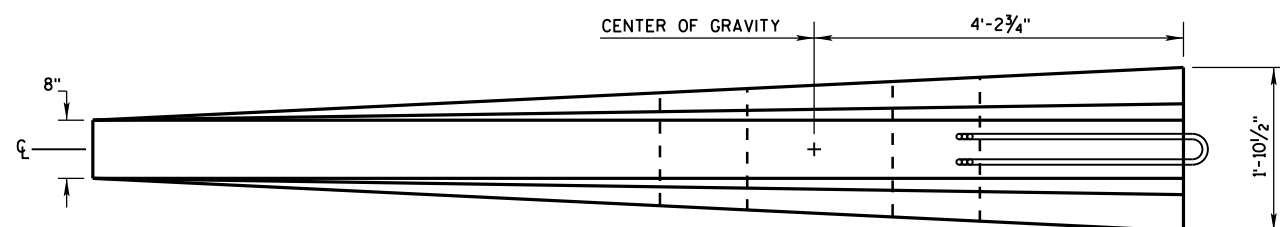
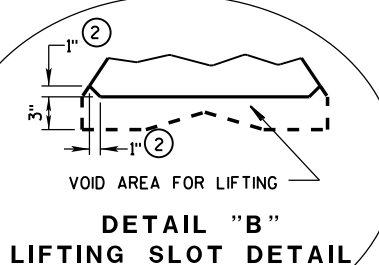
CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

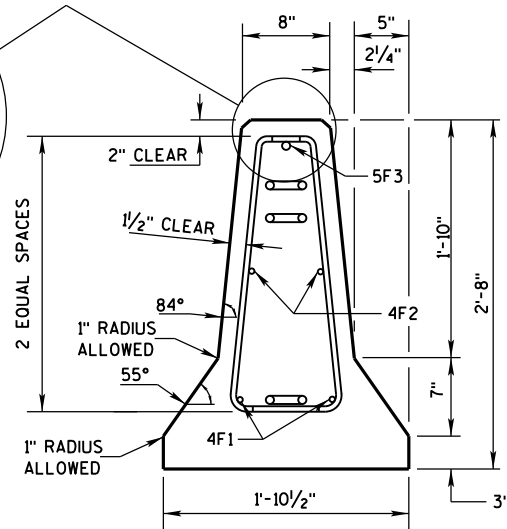


- ① MARK ONE END OF EACH BARRIER PERMANENTLY BY FORMING INTO THE BARRIER THE FOLLOWING INFORMATION:
 - a. TYPE WICBTP
 - b. MANUFACTURER
 - c. DATE MANUFACTURED (MONTH AND YEAR)
- ② 1" CHAMFER TO PREVENT SPALLING.
- ③ NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.

LOOP BAR ASSEMBLY INVERTED
FOR OPPOSITE END.
(FOR CONNECTION TO RIGHT END OF BARRIER)



**CHAMFER
DETAIL**



The diagram consists of two parts. The top part, titled "BARRIER ON CURVE", shows a perspective view of a barrier on a curved road. A horizontal line represents the centerline, and a vertical line represents the barrier. The barrier is offset from the centerline by 10" ±. The maximum angle of the barrier to the centerline is 5° ±. The distance from the centerline to the barrier is 12'-6". The bottom part, titled "FLARE AT BARRIER END", shows a perspective view of a barrier at the end of a road. The barrier is flared outwards, and the distance from the centerline to the barrier is 12'-6".

| POSTED SPEED, (MPH) | FLARE RATE |
|------------------------|---------------|
| 40 OR LESS | 6:1 |
| 45 OR GREATER | 8:1 |

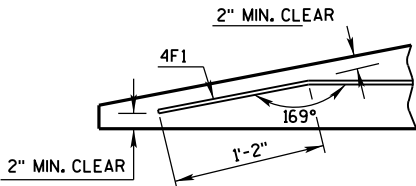
CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

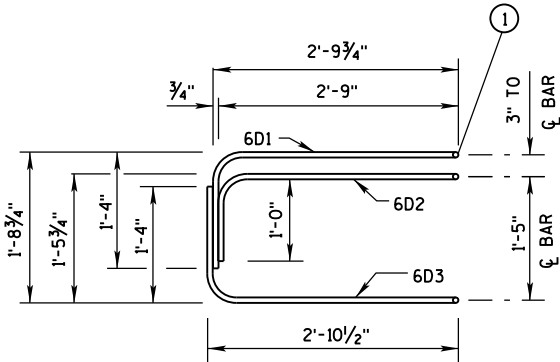
BARRIER TAPER SECTION
BILL OF MATERIALS

(PER 12'-6" BARRIER TAPER SECTION)

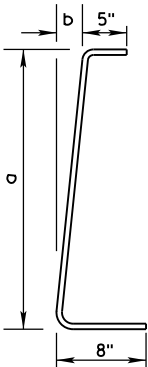
| BAR | BAR SIZE | NO. OF BARS | LENGTH FT. |
|---------------|----------|-------------|------------|
| 4V1 | 4 | 2 | 1'-11" |
| 4V2 | 4 | 2 | 2'-2" |
| 4V3 | 4 | 2 | 2'-6" |
| 4V4 | 4 | 2 | 2'-9" |
| 4V5 | 4 | 2 | 3'-2" |
| 4V6 | 4 | 2 | 3'-4" |
| 4F1 | 4 | 2 | 12'-0" |
| 4F2 | 4 | 2 | 7'-6" |
| 5F3 | 5 | 1 | 11'-9" |
| LOOP ASSEMBLY | | | |
| 6D1 | 6 | 1 | 8'-5" |
| 6D2 | 6 | 1 | 7'-7" |
| 6D3 | 6 | 1 | 8'-6" |



DETAIL "C"
BENT BAR DETAIL



ELEVATION
LOOP BAR ASSEMBLY



| BAR | a | b |
|-----|-----------|--------|
| V1 | 10" | 1" |
| V2 | 1'-1" | 1 1/4" |
| V3 | 1'-5" | 1 5/8" |
| V4 | 1'-8" | 1 7/8" |
| V5 | 2'-0 1/2" | 2 3/8" |
| V6 | 2'-3" | 2 3/4" |

4V BARS
2 AT EACH SIZE REQUIRED
FOR STIRRUP ASSEMBLY

TAPER BARRIER SECTION

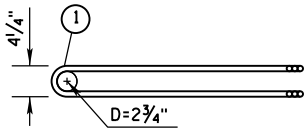
GENERAL NOTES

① NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.

BARRIER SECTION
BILL OF MATERIALS

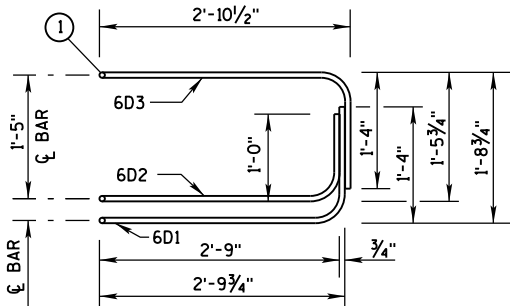
(PER 12'-6" BARRIER SECTION)

| BAR | BAR SIZE | NO. OF BARS | LENGTH FT. |
|---------------|----------|-------------|------------|
| 4A1 | 4 | 12 | 6'-0" |
| 6A2 | 6 | 6 | 2'-11" |
| 5B1 | 5 | 3 | 12'-2" |
| 4C1 | 4 | 2 | 12'-2" |
| LOOP ASSEMBLY | | | |
| 6D1 | 6 | 2 | 8'-5" |
| 6D2 | 6 | 2 | 7'-7" |
| 6D3 | 6 | 2 | 8'-6" |

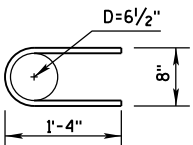


PLAN VIEW
LOOP BAR ASSEMBLY

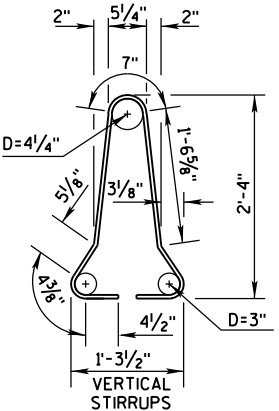
(MARKED END SHOWN, INVERT FOR OTHER END)



ELEVATION VIEW



6A2

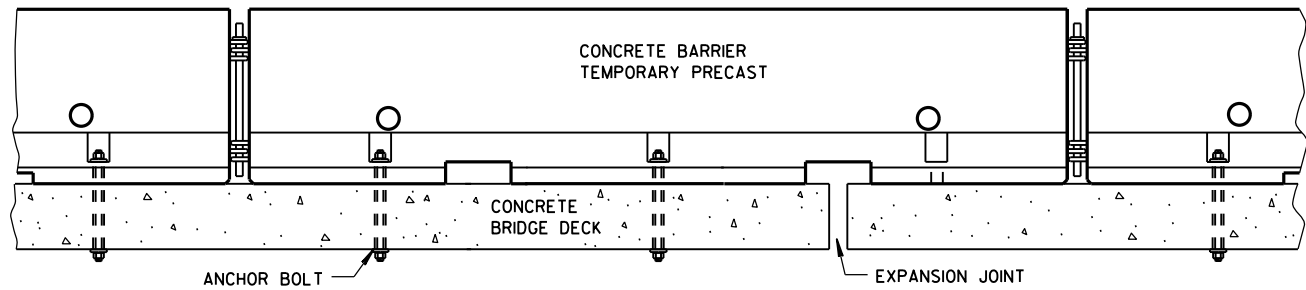
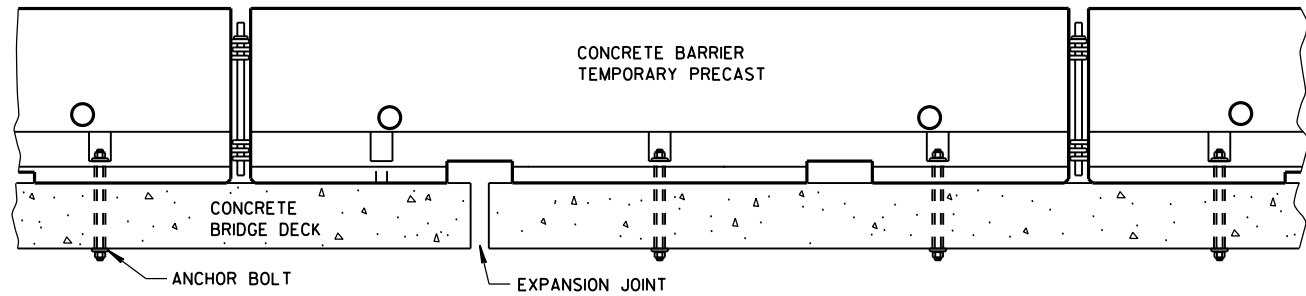


4A1

BARRIER SECTION

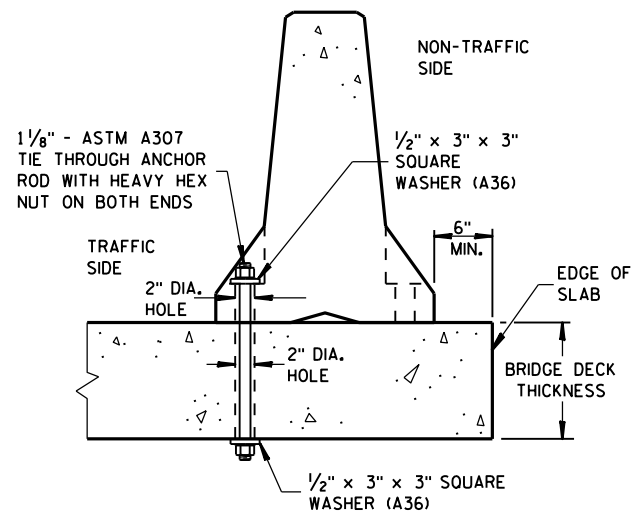
CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



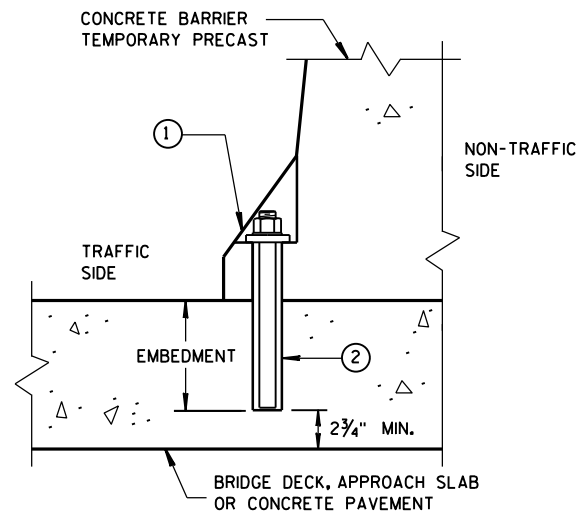
TREATMENT AT BRIDGE DECK EXPANSION JOINTS

(NO SINGLE CONCRETE BARRIER SECTION SHALL BE ANCHORED TO BOTH THE BRIDGE DECK AND THE APPROACH SLAB. ALL ANCHOR BOLT LOCATIONS SHALL BE ANCHORED TO THE DECK IN ACCORDANCE WITH THE DETAIL. NO MORE THAN ONE ANCHOR BOLT SHALL BE ELIMINATED FROM A BARRIER SECTION WHEN SPANNING AN EXPANSION JOINT.)



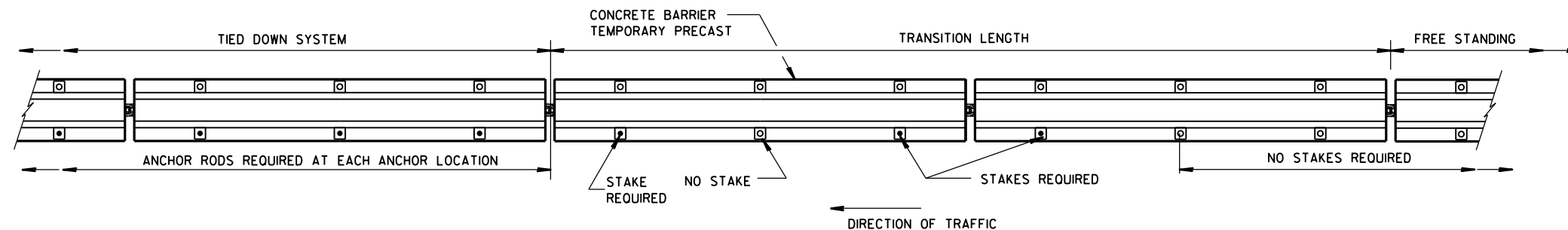
THROUGH BOLTED ANCHOR INSTALLATION ON BRIDGE DECK

(DO NOT USE ON CONCRETE BRIDGE DECK WITH ASPHALT OVERLAY)



REMOVABLE ADHESIVE ANCHOR INSTALLATION ON CONCRETE BRIDGE DECK, CONCRETE APPROACH SLAB, OR CONCRETE PAVEMENT

(DO NOT USE ON CONCRETE WITH AN ASPHALTIC OVERLAY)



PLAN VIEW

FREE STANDING TRANSITION TO TIED-DOWN SYSTEM

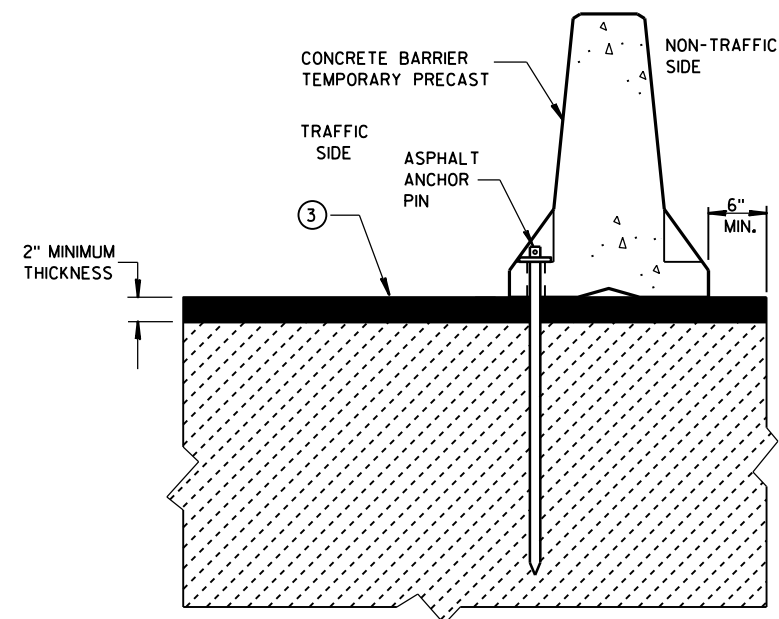
(PLACE TRANSITION IN A TANGENT SECTION OF BARRIER PARALLEL TO THE ROADWAY. IF TRANSITION OCCURS ON STRUCTURAL SLAB, ANCHOR AS SHOWN.)

GENERAL NOTES

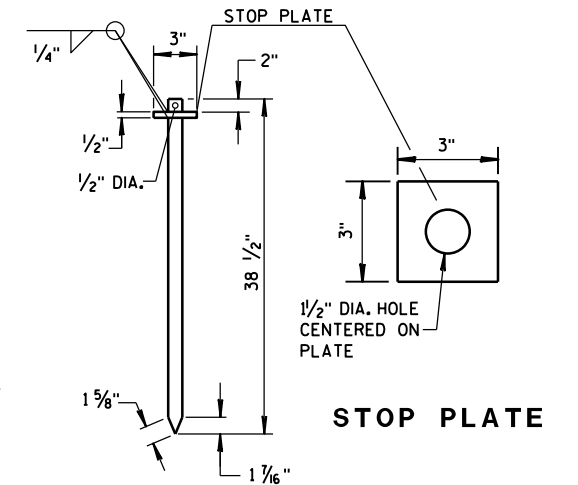
SEE SHEET E FOR WHEN TO ANCHOR. OTHER PARTS OF THE PLAN MAY SHOW ADDITIONAL LOCATIONS REQUIRING ANCHORING.

REMOVE ALL ANCHORS WHEN NO LONGER NEEDED. FILL CONCRETE PAVEMENTS, DECKS AND APPROACH SLABS WITH NON-SHRINK COMMERCIAL GROUT FROM THE APPROVED PRODUCT LIST. FILL ASPHALT PAVEMENTS WITH ASTM D6690 TYPE II RUBBERIZED CRACK FILLER.

- ① 1/8" DIAMETER A307 THREADED ROD, 1/2" X 3" X 3" SQUARE PLATE WASHER WITH ASTM A36 STEEL, ASTM A563A HEAVY HEX NUT.
- ② ADHESIVE ANCHORS WITH A MINIMUM BOND STRENGTH OF 1,800 PSI AND 5/4" EMBEDMENT. SEE 603.2 AND 603.3.12 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR MORE INFORMATION ON ADHESIVE ANCHORS.
- ③ ASPHALT SURFACE SHOWN. CONTRACTOR MAY DRILL THROUGH CONCRETE PAVEMENT AND THEN DRIVE ASPHALT ANCHOR PIN.



STAKE DOWN INSTALLATION FOR ASPHALTIC SURFACE

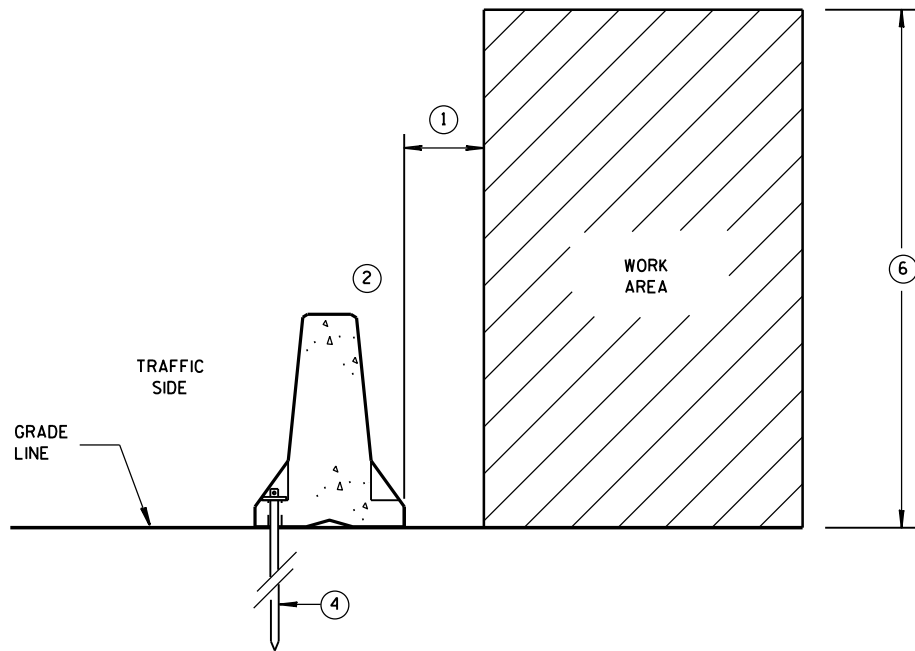


ASPHALT ANCHOR PIN

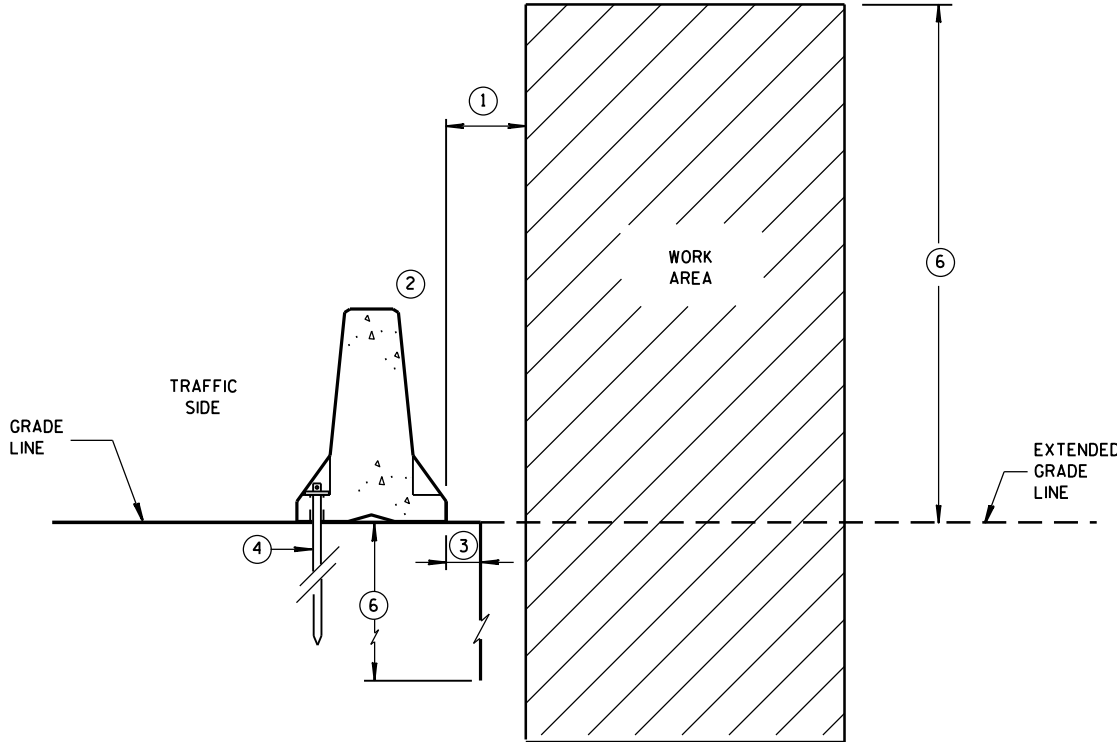
(ASTM A36 STEEL)

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



**ANCHORED BARRIER SPACE REQUIREMENTS
FOR HAZARDS EXTENDED
ABOVE THE GRADE LINE**

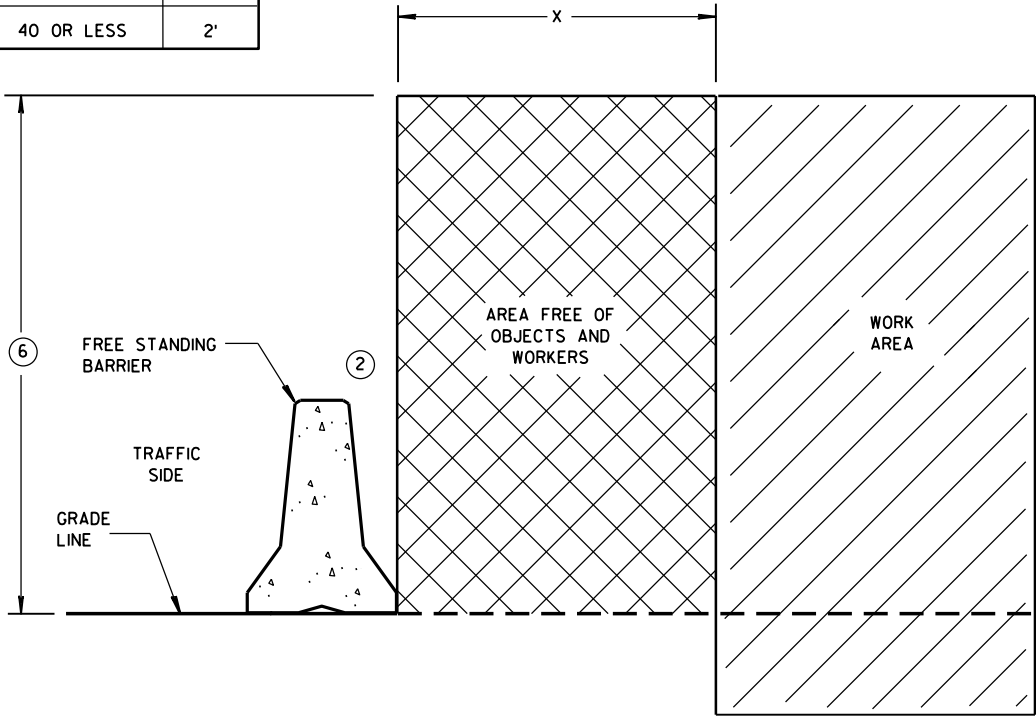


**ANCHORED BARRIER SPACE REQUIREMENTS
ON VERTICAL DROP OFFS**

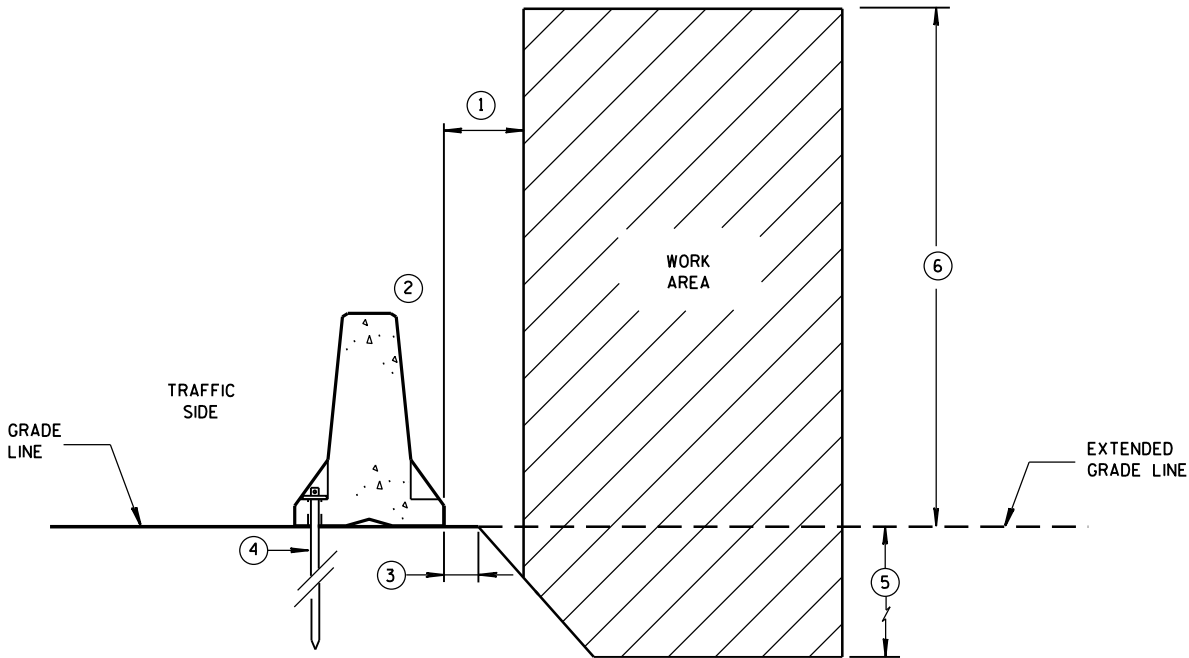
GENERAL NOTES

- ① WHEN OBJECTS EXTEND ABOVE THE GRADE, A MINIMUM OF 1 FOOT IS REQUIRED FROM BACK OF BARRIER TO OBJECT. SEE OTHER DETAILS FOR FOR THE MINIMUM OFFSET FROM BACK OF BARRIER TO SLOPES OR VERTICAL DROPS.
- ② OBJECTS ARE NOT TO BE PLACED ON, MOUNTED TO, OR LEANED AGAINST THE BARRIER WITHOUT PERMISSION OF THE PROJECT ENGINEER.
- ③ SEE OTHER DETAIL ON SHEET "D" FOR SPACE REQUIREMENTS.
- ④ SEE BOLT THROUGH DECK, REMOVABLE ADHESIVE ANCHOR, OR A STAKE DOWN FOR ASPHALTIC SURFACE TREATMENT DETAILS. ASPHALTIC ANCHOR SHOWN.
- ⑤ DEPTH OF 3 FEET OR MORE.
- ⑥ Y = 6'-6".

| POSTED SPEED MPH | X |
|------------------|----|
| 45 OR GREATER | 4' |
| 40 OR LESS | 2' |



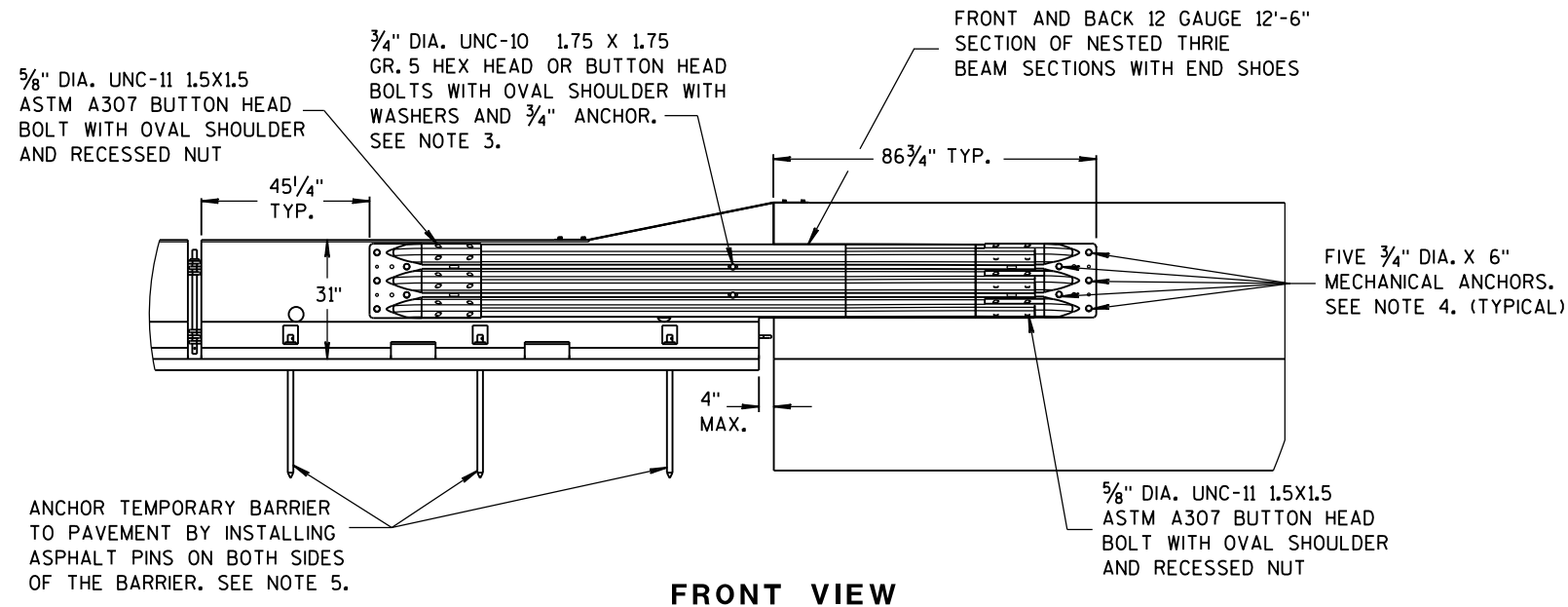
FREE STANDING BARRIER SPACE REQUIREMENTS



**ANCHORED BARRIER SPACE REQUIREMENTS
ON SLOPES**

**CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



FRONT VIEW

NOTES

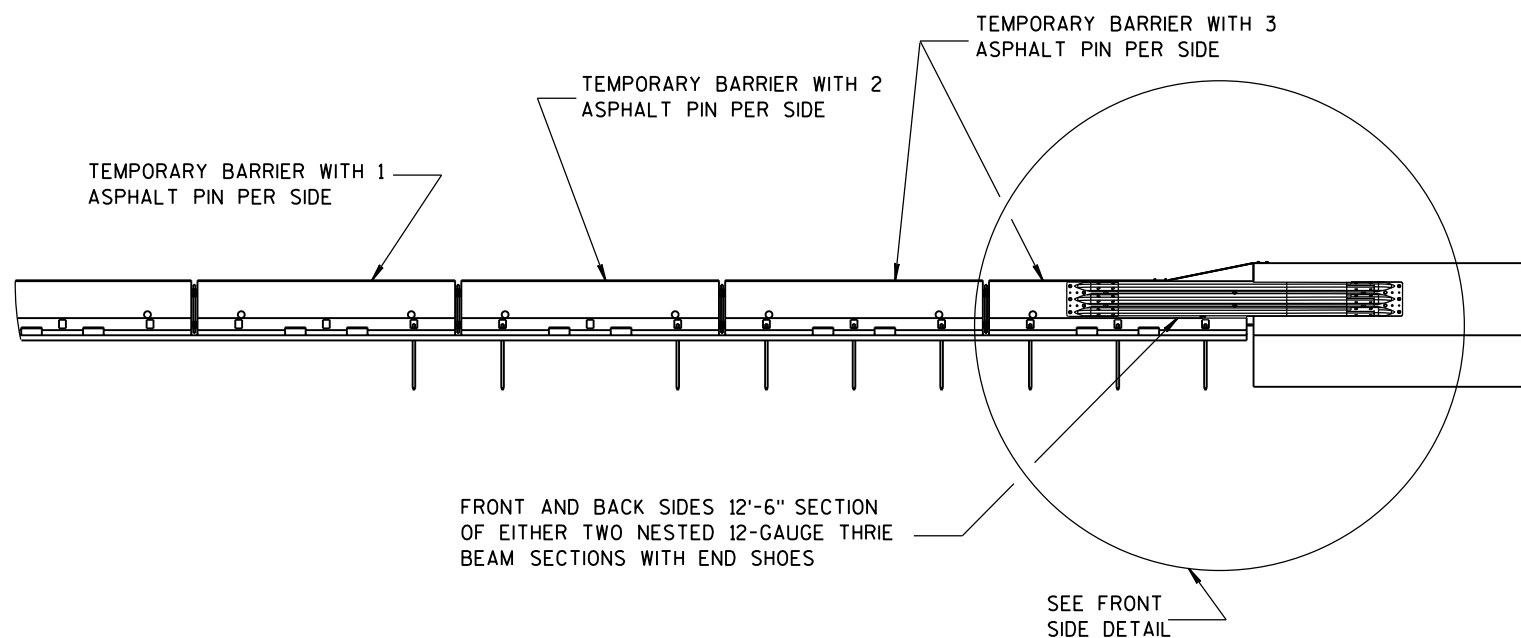
NESTED THRIE BEAM IS REQUIRED ON BOTH SIDES OF THE TEMPORARY BARRIER FOR ALL INSTALLATIONS REGARDLESS OF TRAFFIC.

1. CAP END PLATE PLACED FLUSH WITH UPSTREAM END OF PERMANENT BARRIER OR PARAPET.
2. THRIE BEAM PIECES ARE OFFSET 15 1/4" TO PREVENT INTERFERENCE FROM THE ANCHORS ON OPPOSING SIDES.
3. MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 9.48 KIPS AND ULTIMATE SHEAR LOAD 10.48 KIPS.

4. MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 17.9 KIPS AND ULTIMATE SHEAR LOAD 21.96 KIPS.

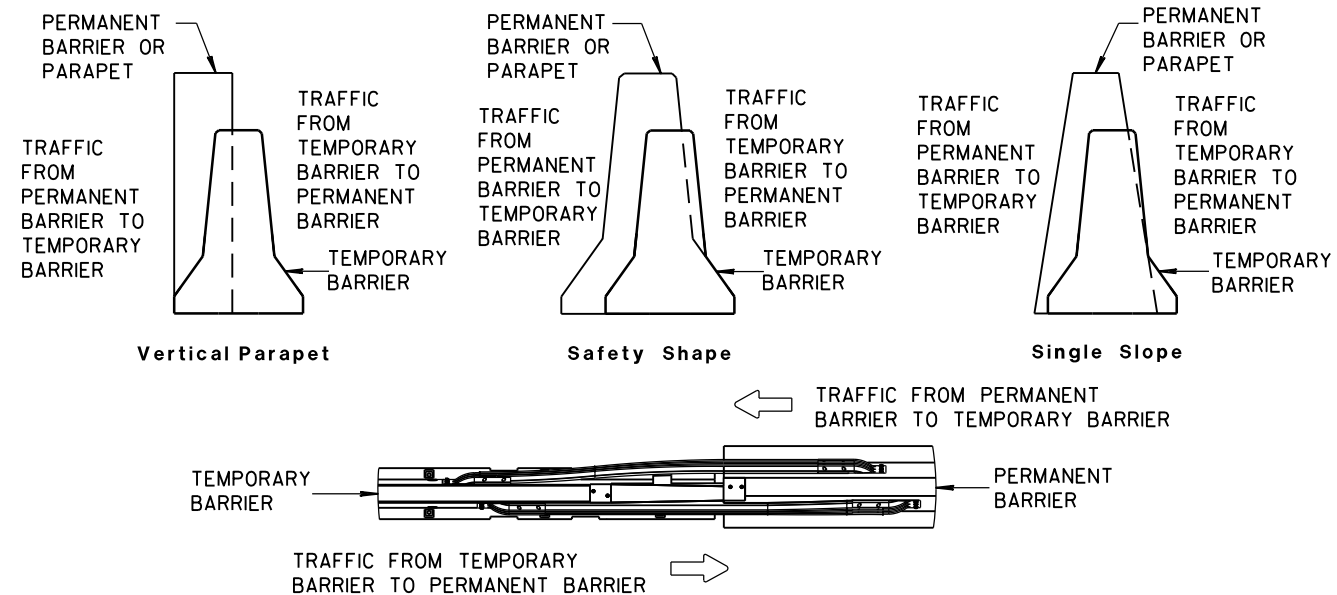
5. MAY BE USED ON CONCRETE OR ASPHALT PAVEMENTS. ASPHALT OPTION SHOWN. FOR CONCRETE OPTION SEE OTHER DETAILS.

6. MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 12.14 KIPS AND ULTIMATE SHEAR LOAD 17.5 KIPS.

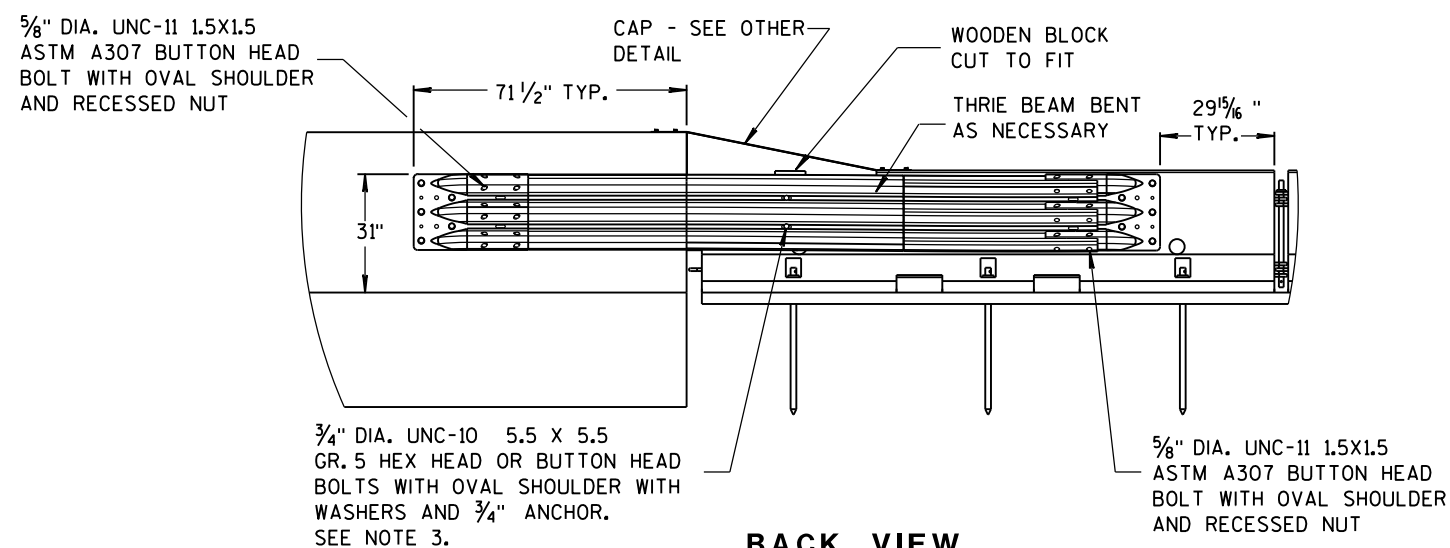


FRONT VIEW

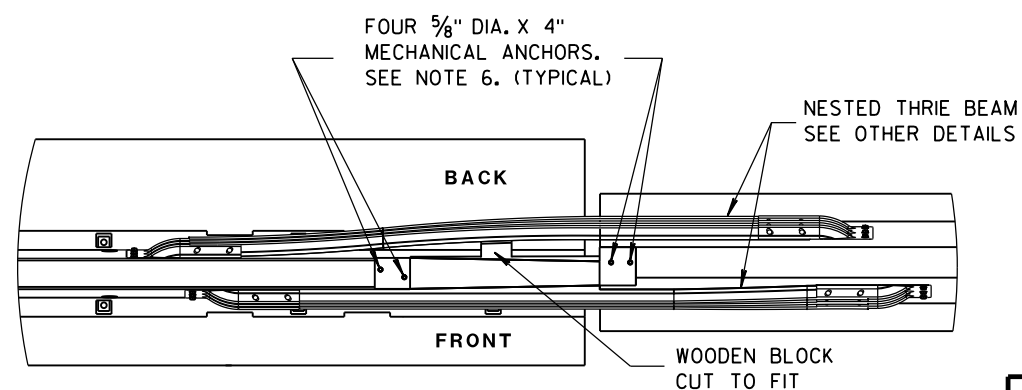
BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM



TEMPORARY BARRIER PLACEMENT FOR BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM



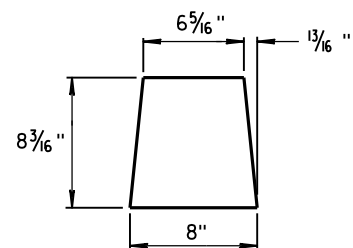
BACK VIEW



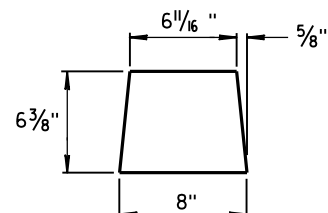
PLAN VIEW

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

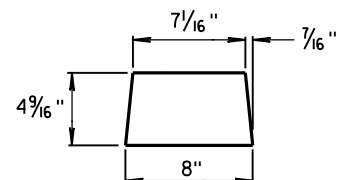
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



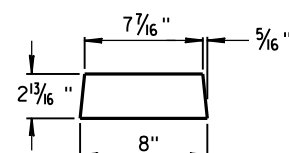
GUSSET 1



GUSSET 2

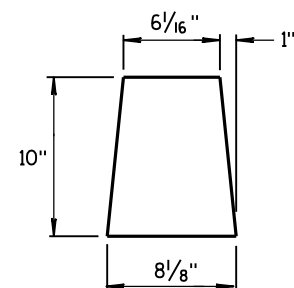


GUSSET 3

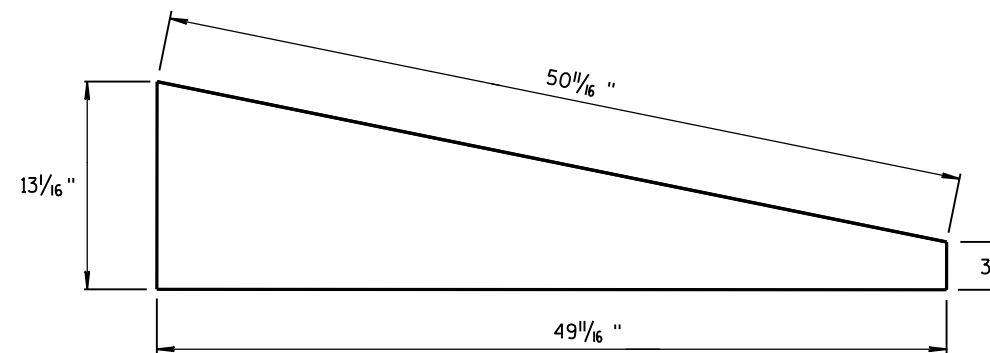


GUSSET 4

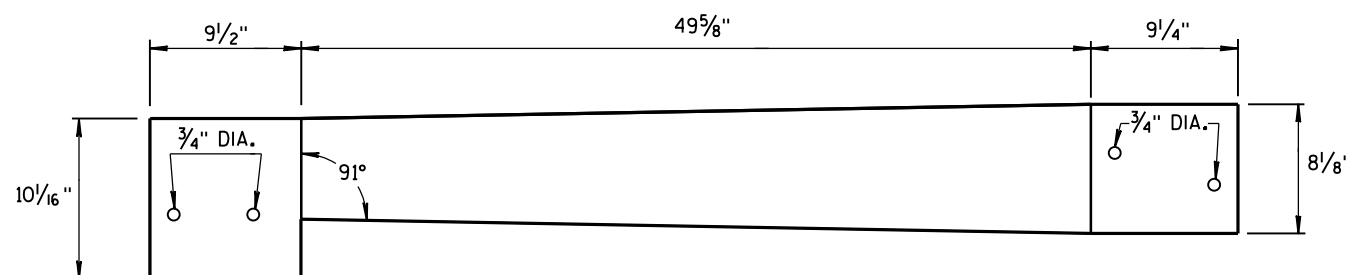
GUSSETS



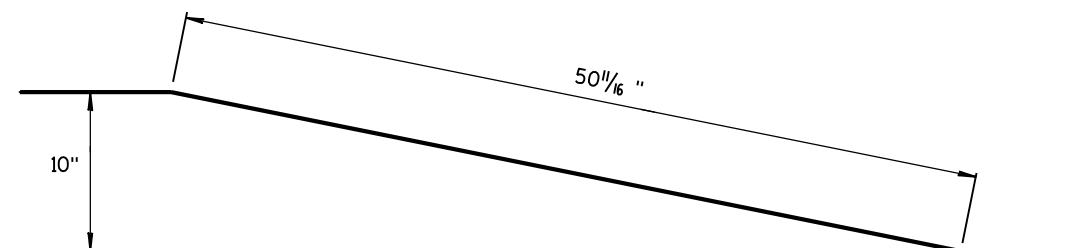
END PLATE



SIDE PLATE

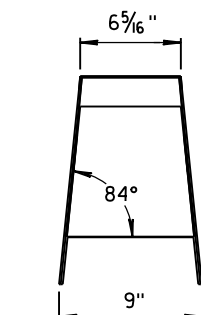
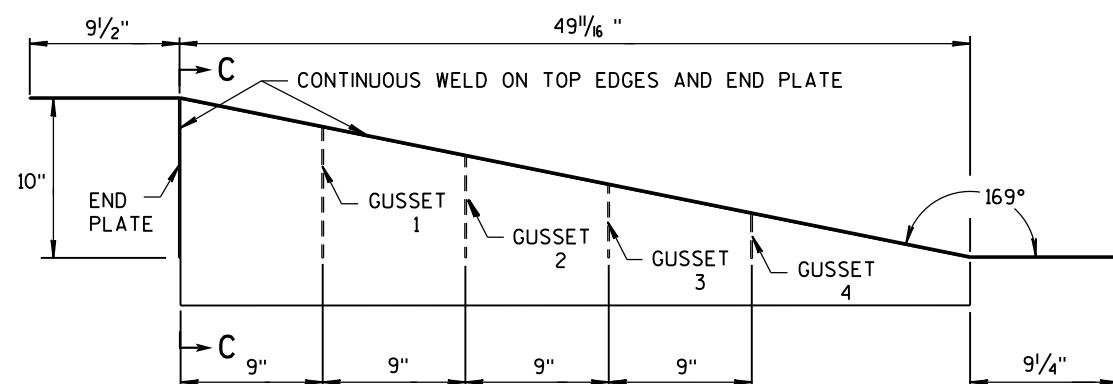
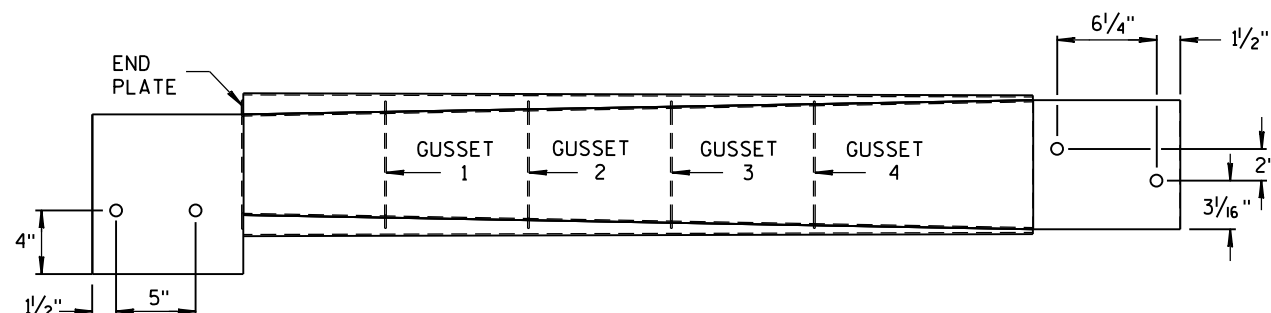


TOP PLATE



**SIDE, TOP AND END PLATES FOR CAP
FROM TEMPORARY CONCRETE BARRIER
TO 42" PERMANENT CONCRETE BARRIER**

SIDE PLATES, TOP PLATE, END PLATE AND GUSSETS ARE 12 GAUGE ASTM A36 GALVANIZED STEEL.



SECTION C-C

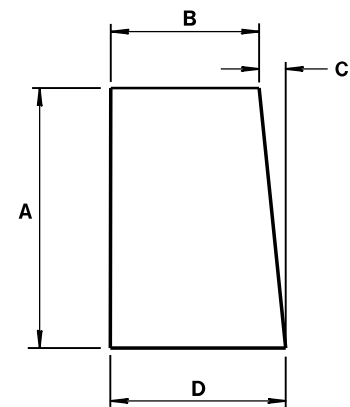
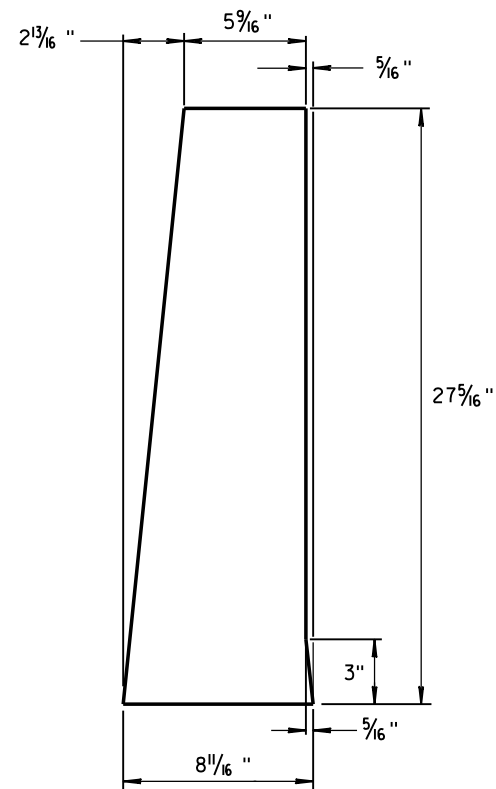
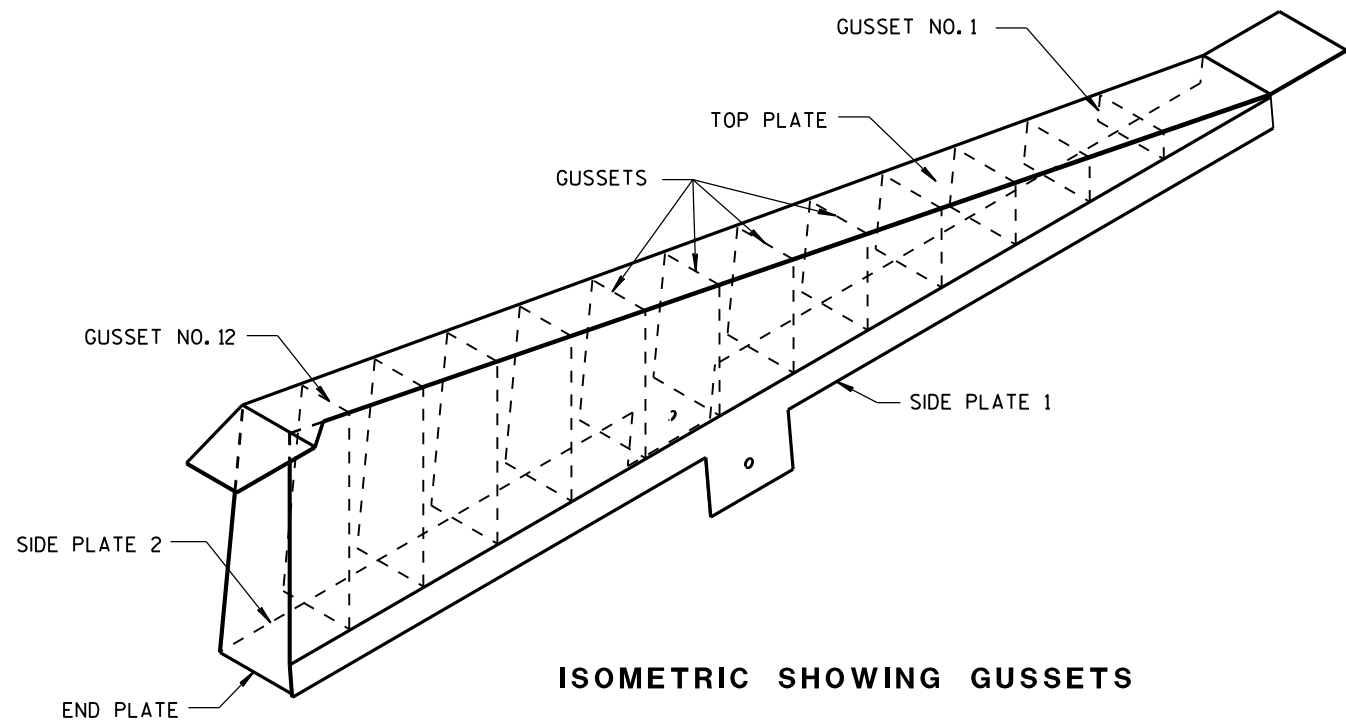
NOTES

1. FOUR GUSSETS AND END PLATE ARE STITCH WELDED ON THREE SIDES.
2. TWO TRIANGULAR SIDE PLATES ARE STITCH WELDED TO TOP PLATE, END PLATE, AND GUSSETS.

**CAP DETAILS FOR TEMPORARY CONCRETE
BARRIER TO 42" PERMANENT CONCRETE BARRIER**

**CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

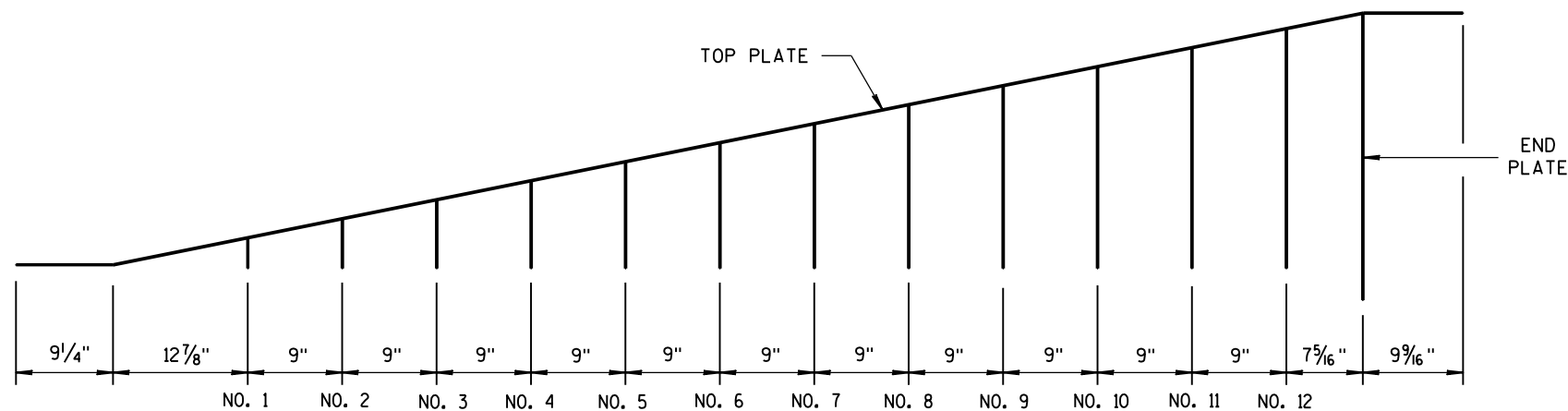


ALL GUSSETS 1/8" STEEL PLATE

| GUSSET DIMENSIONS | | | | |
|-------------------|------------|-----------|----------|----------|
| GUSSET NO. | A | B | C | D |
| 1 | 2 7/8" | 7 3/4" | 1/4" | 8 |
| 2 | 4 1/16 " | 7 9/16 " | 1/2" | 8 |
| 3 | 6 1/2" | 7 3/8" | 1 1/16 " | 8 1/16 " |
| 4 | 8 5/16" | 7 3/16" | 7/8" | 8 1/16" |
| 5 | 10 1/8" | 7" | 1 1/16" | 8 1/16" |
| 6 | 11 5/16 " | 6 13/16 " | 1 1/4" | 8 1/16" |
| 7 | 13 3/4" | 6 5/8" | 1 7/16" | 8 1/16" |
| 8 | 15 9/16" | 6 7/16" | 1 9/16" | 8 1/16" |
| 9 | 17 3/8" | 6 1/4" | 1 13/16" | 8 1/16" |
| 10 | 19 3/16" | 6 1/16" | 1 15/16" | 8 1/16" |
| 11 | 21" | 5 7/8" | 2 3/16" | 8 1/16" |
| 12 | 22 13/16 " | 5 11/16 " | 2 5/16" | 8 1/16" |

SIDE PLATES, TOP PLATE, END PLATE AND GUSSETS ARE 12 GAUGE ASTM A36 STEEL AND GALVANIZED.

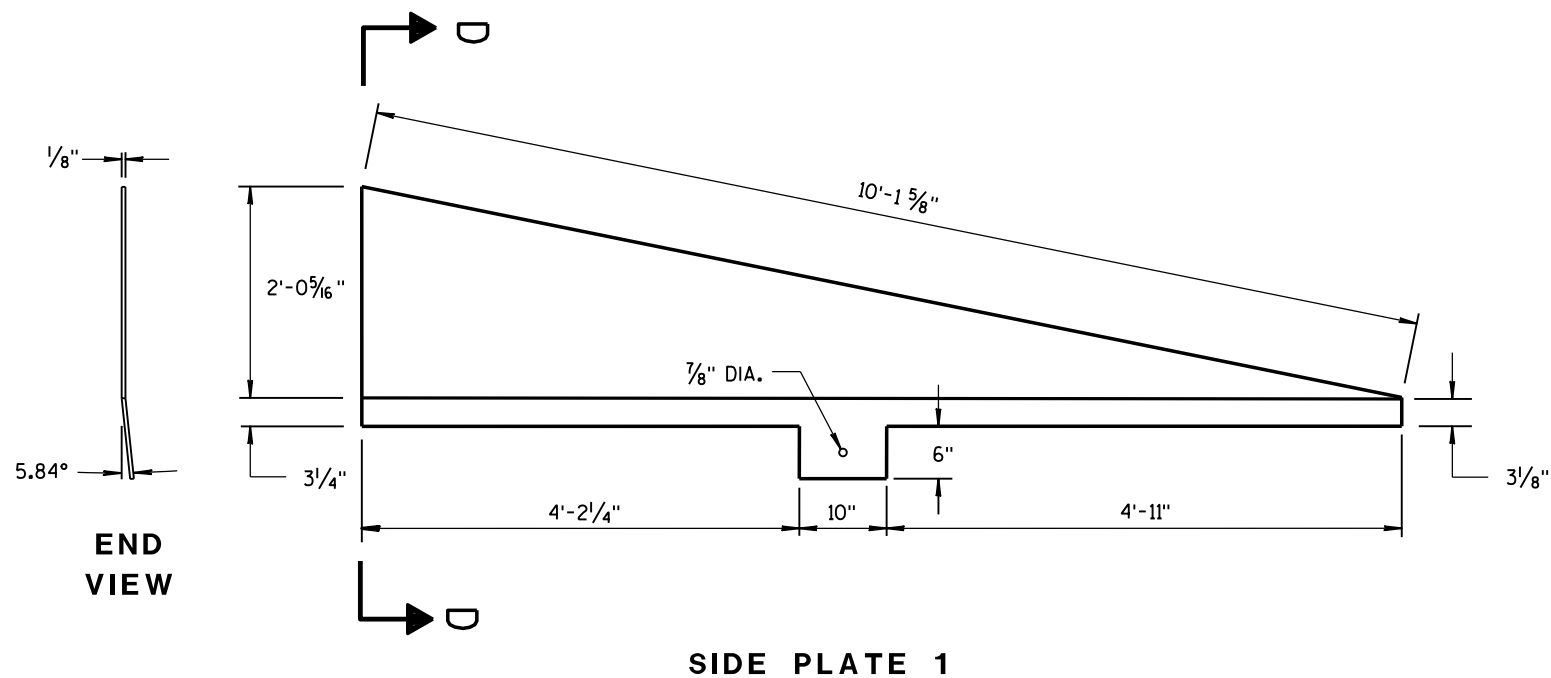
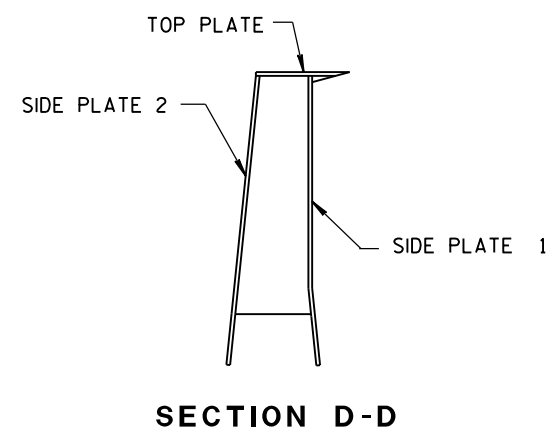
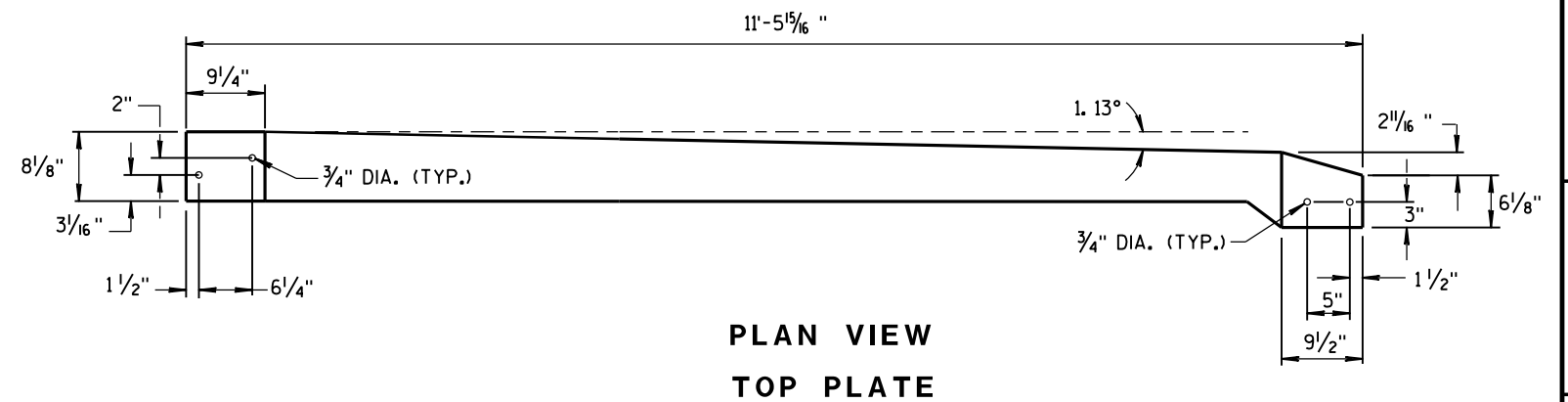
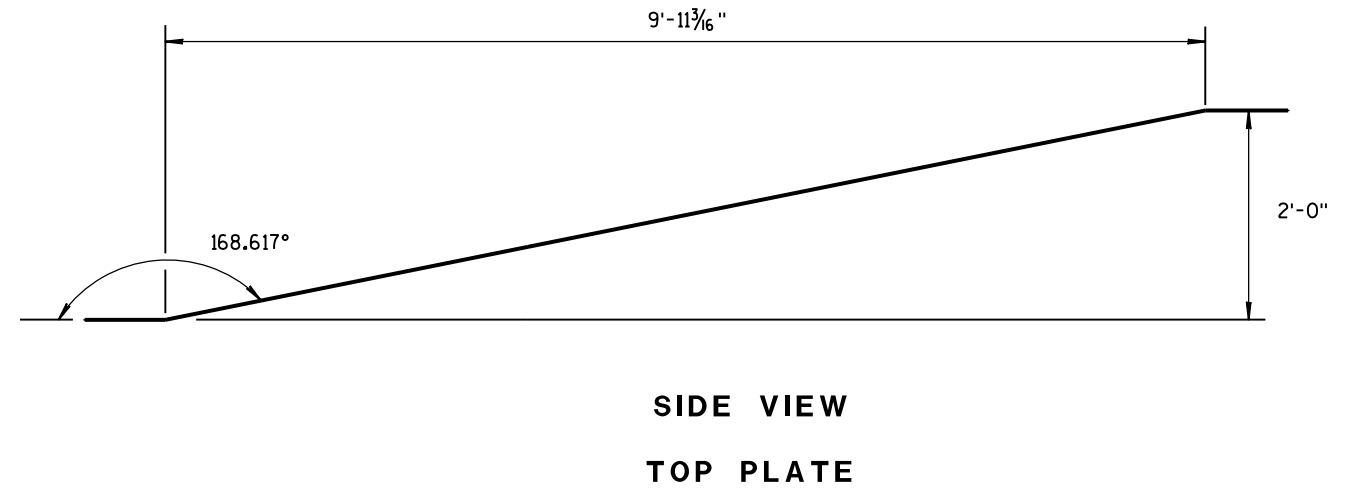
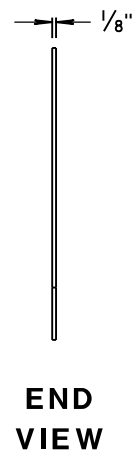
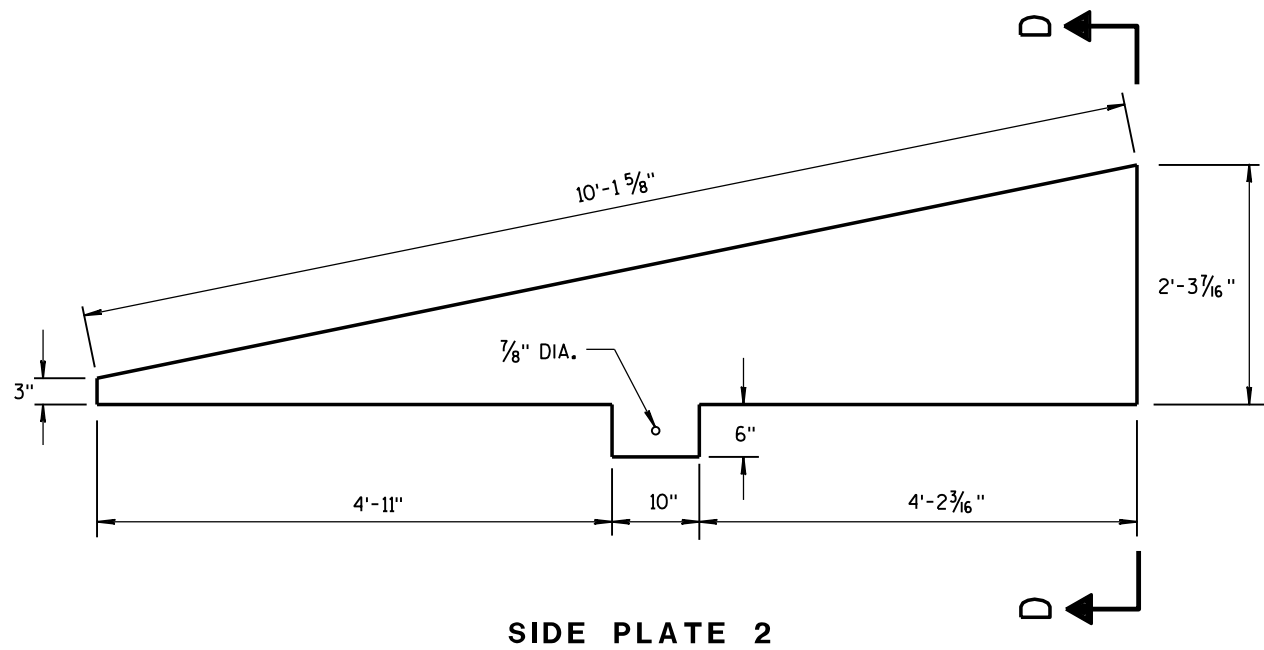
GUSSETS AND END PLATE ARE STITCH WELDED ON 3 SIDES. TWO TRIANGULAR SIDE PLATES ARE STITCH WELDED TO TOP PLATE, END PLATE AND GUSSETS.



CAP DETAILS FOR TEMPORARY CONCRETE BARRIER TO 56" PERMANENT CONCRETE BARRIER

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

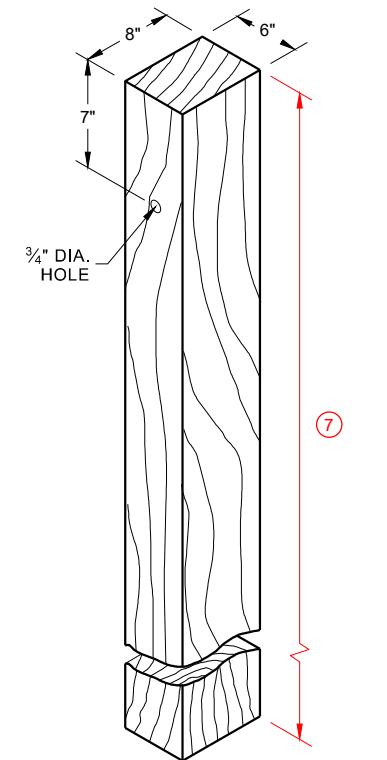
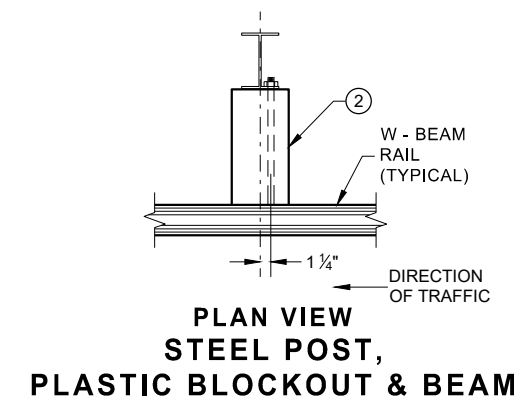
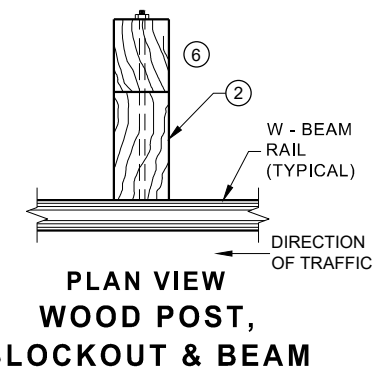
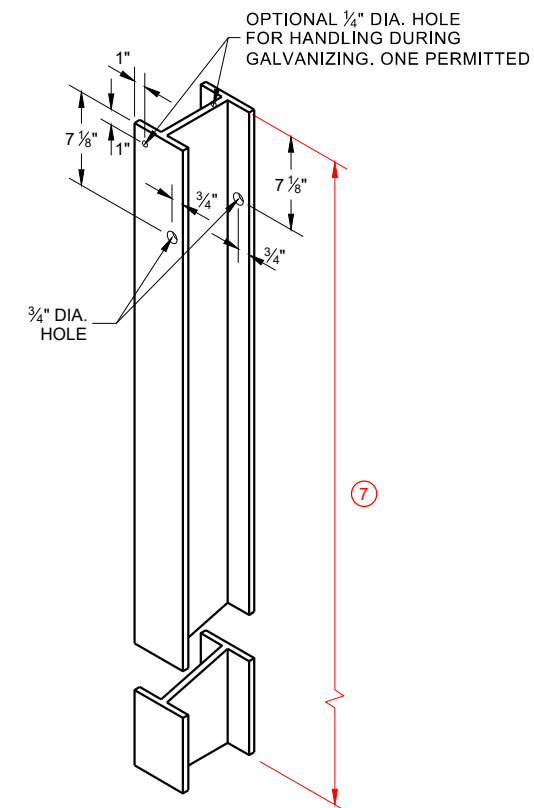
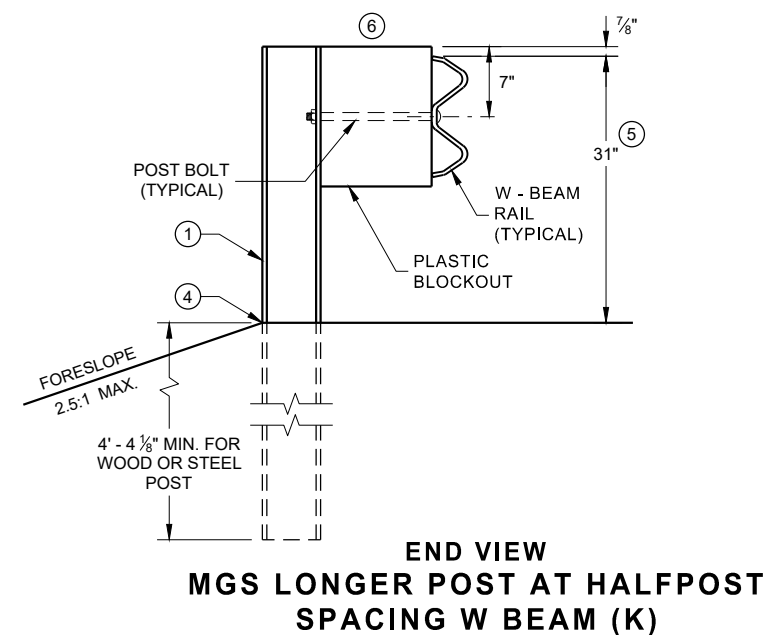
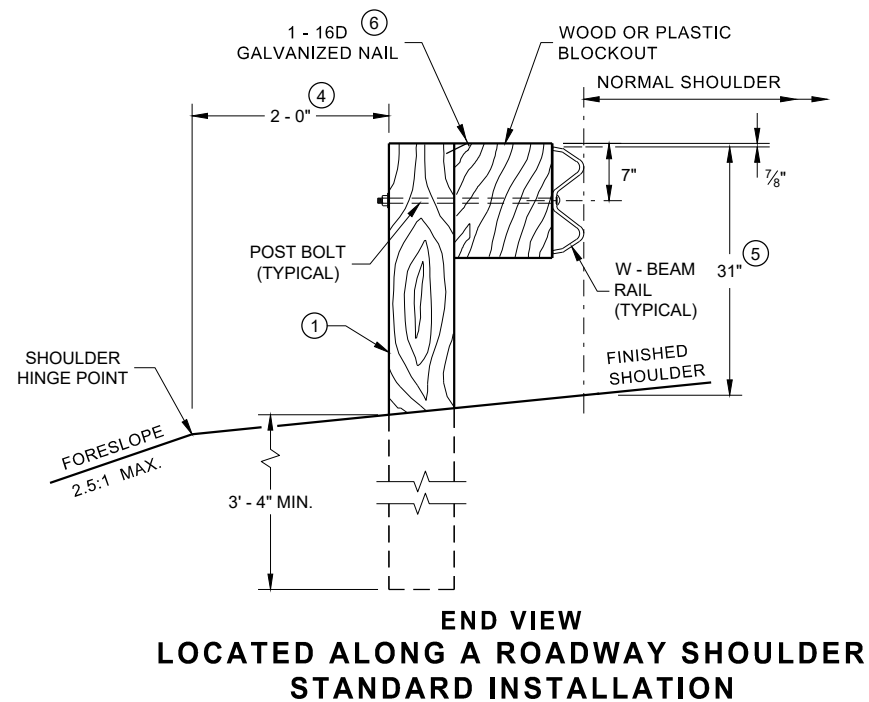
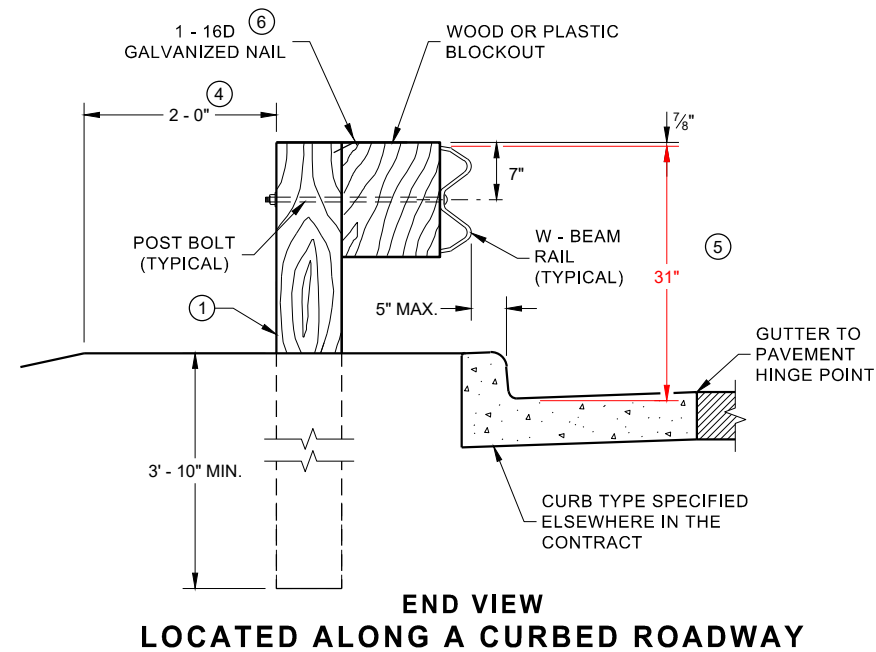
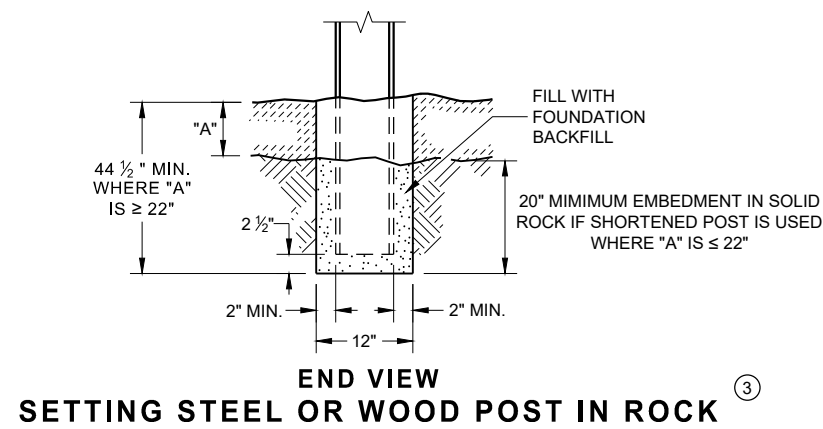
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



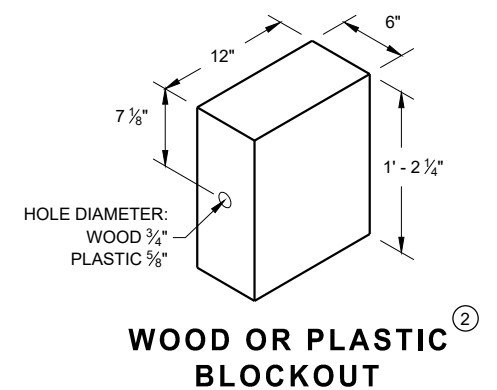
**CAP DETAILS FOR TEMPORARY CONCRETE
BARRIER TO 56" PERMANENT CONCRETE BARRIER**

| | |
|--|--|
| CONCRETE BARRIER TEMPORARY PRECAST, 12'-6" | |
| STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION | |
| APPROVED June 2017 DATE | /S/ Rodney Taylor ROADWAY STANDARD DEVELOPMENT UNIT SUPERVISOR |
| FHWA | |

- 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 AND 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 $\pm 1"$. FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27 3/4" 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".

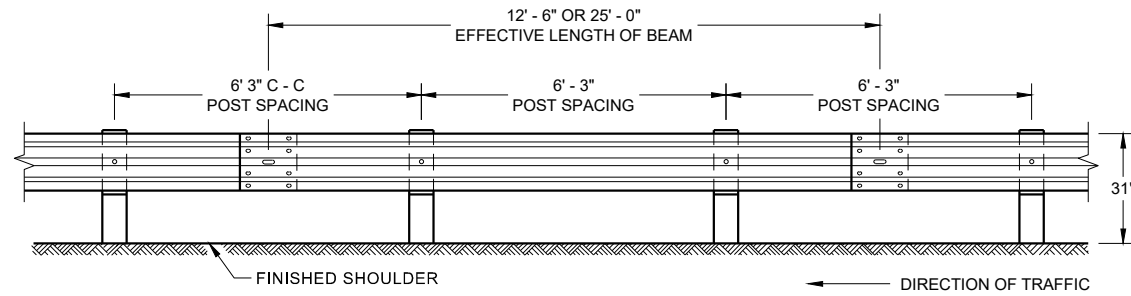


WOOD POST (6" X 8") NOMINAL ⁽¹⁾

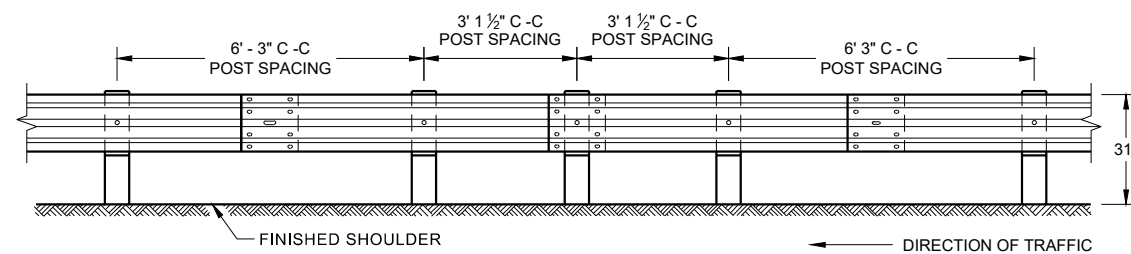


**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

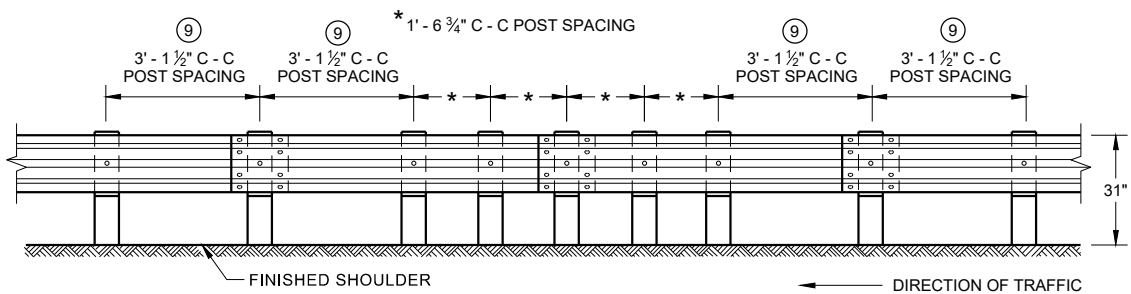
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



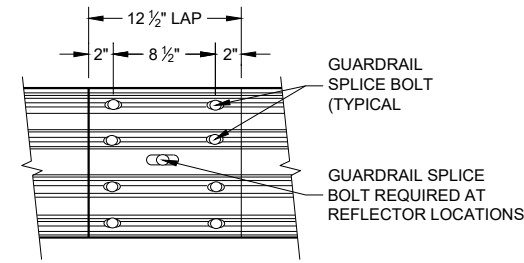
**FRONT VIEW
POST SPACING STANDARD INSTALLATION**



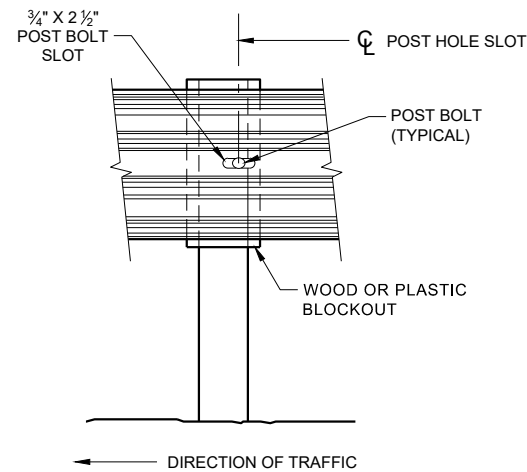
**FRONT VIEW
HALF POST SPACING (HS) AND
HALF POST SPACING WITH LONGER POSTS (K)**



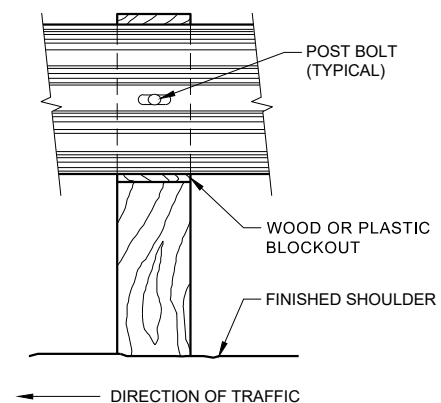
**FRONT VIEW
QUARTER POST SPACING (QS)**



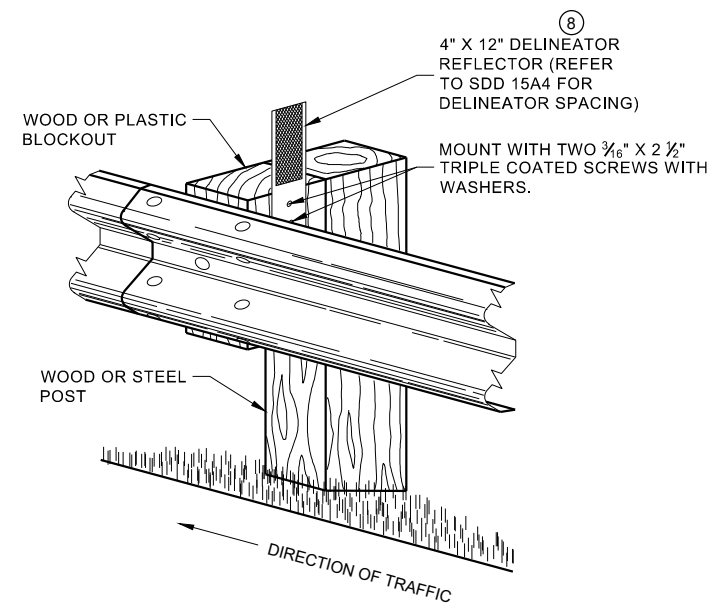
**FRONT VIEW
MID-SPAN BEAM SPLICE**



FRONT VIEW AT STEEL POST



FRONT VIEW AT WOOD POST



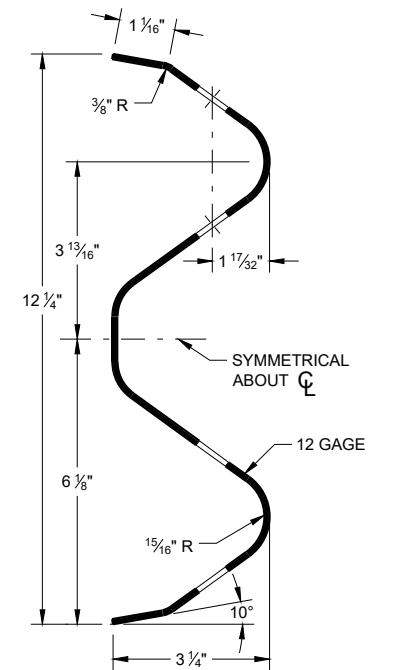
**ONE SIDED REFLECTOR DETAIL
AND TYPICAL INSTALLATION**

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 3/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 3/4" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND 3/4" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.

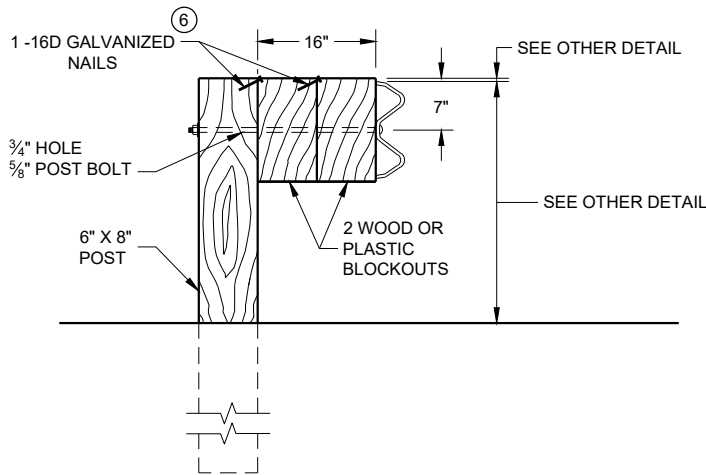
GUARD RAIL SPLICE BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES 3/4" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.



SECTION THRU W-BEAM RAIL

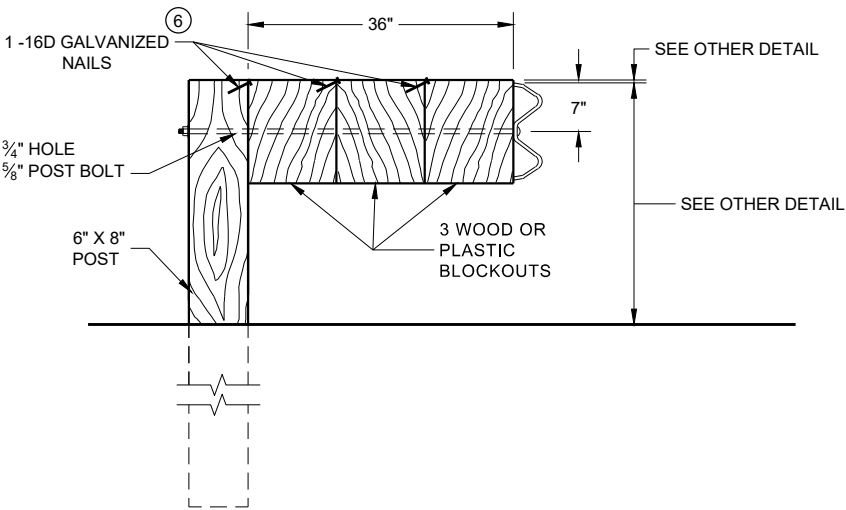
**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



DETAIL FOR 16" BLOCKOUT DEPTH

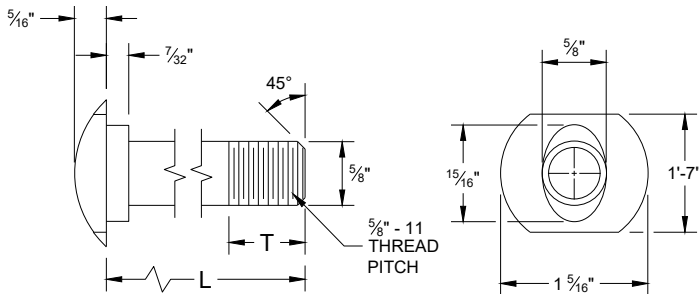
IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.



DETAIL FOR 36" BLOCKOUT DEPTH

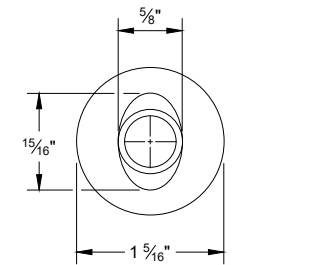
NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

- NOTE:
- 1. ALL FILLETS SHALL HAVE A MINIMUM RADIUS OF 3/16".
 - 2. IF THE BOLT EXTENDS MORE THAN 1/4" FROM THE NUT THE BOLT SHOULD BE TRIMMED BACK.

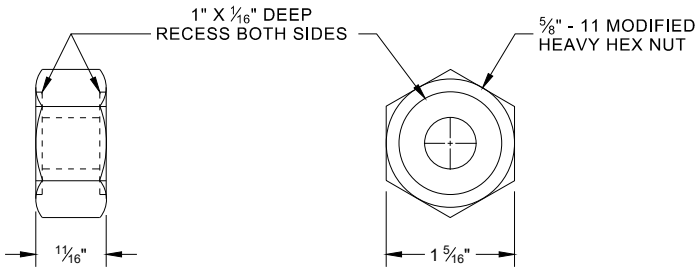


POST BOLT TABLE

| L | T (MIN.) |
|--------|----------|
| 1 1/4" | 1 1/8" |
| 2" | 1 3/4" |
| 10" | 4" |
| 14" | 4 1/16" |
| 18" | 4" |
| 21" | 4 1/16" |
| 25" | 4" |

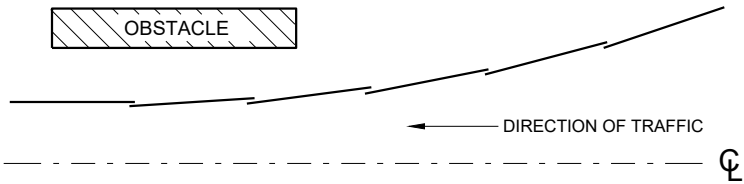


ALTERNATE BOLT HEAD

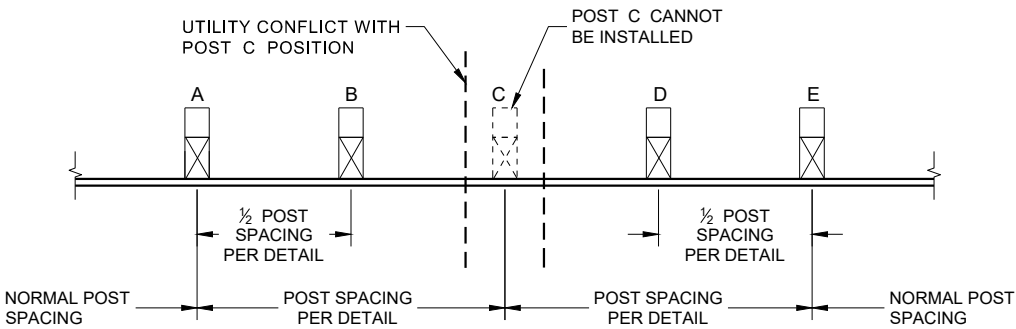


POST BOLT, SPLICE BOLT AND RECESS NUT

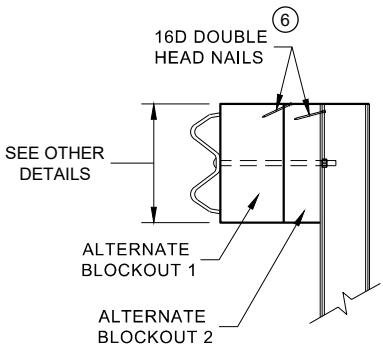
- 6 WHEN USING STEEL POST AD WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.



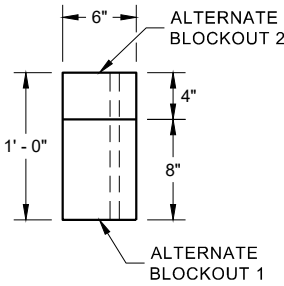
PLAN VIEW
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS
UNDERGROUND OBSTRUCTION



SIDE VIEW

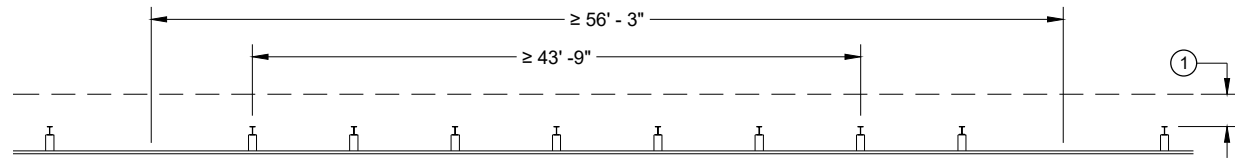


PLAN VIEW

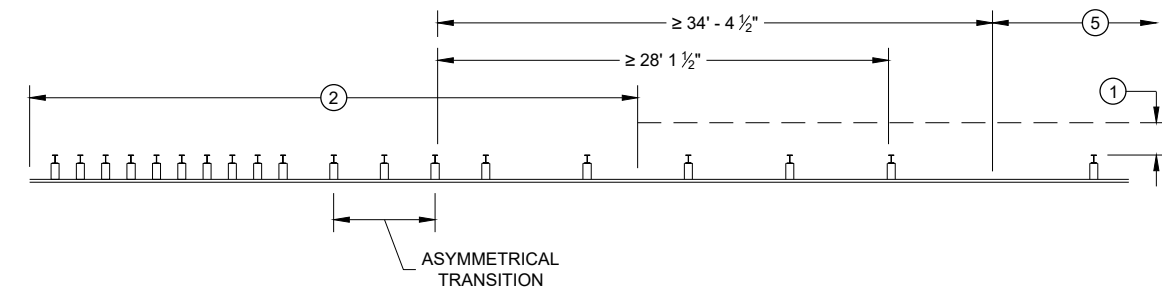
ALTERNATE WOOD
BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

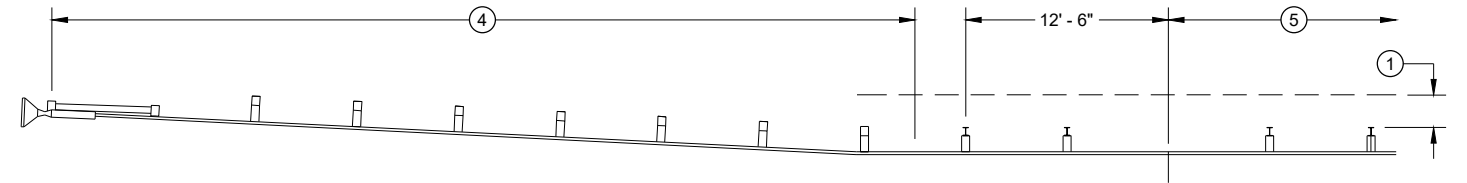
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



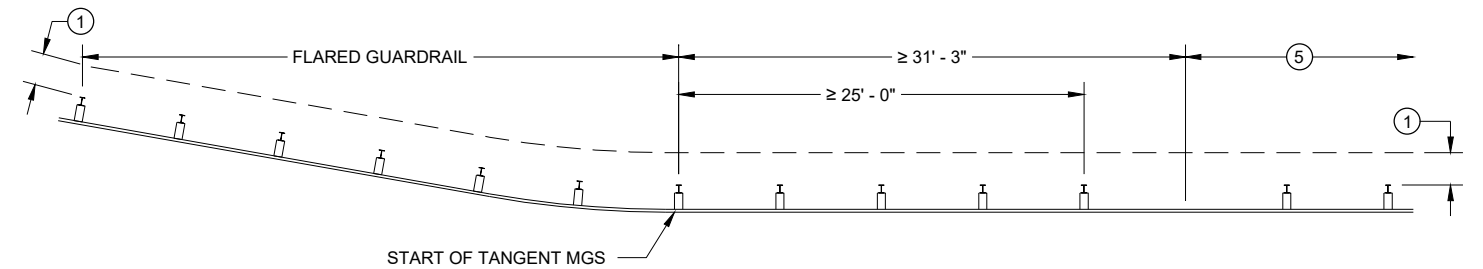
MISSING POST IN NORMAL BEAM GUARD RUN



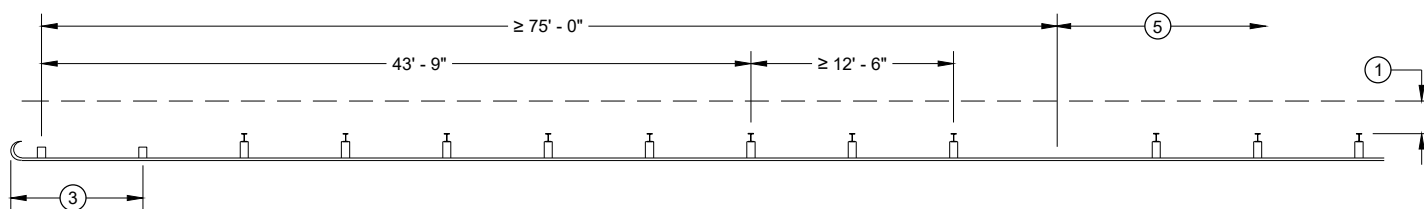
MISSING POST NEAR APPROACH THRIE BEAM TRANSITION



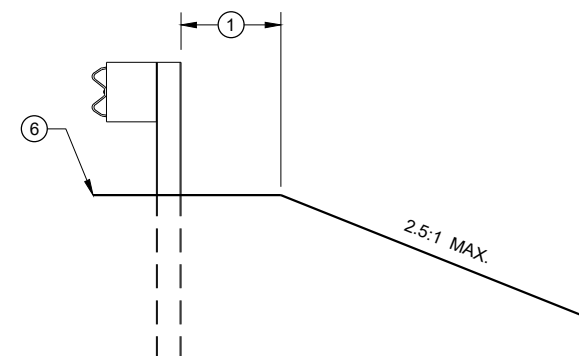
MISSING POST IN NORMAL BEAM GUARD RUN NEAR EAT



MISSING POST IN NORMAL BEAM GUARD RUN
NEAR FLARED BEAM GUARD



MISSING POST IN NORMAL BEAM GUARD RUN
NEAR TYPE 2 TERMINAL



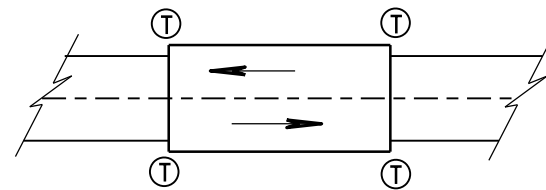
CROSS SECTION VIEW

- (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**

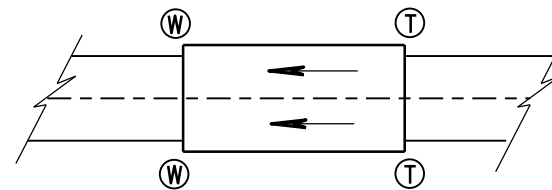
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



TWO WAY TRAFFIC

Ⓣ THRIE BEAM CONNECTION



ONE WAY TRAFFIC

Ⓦ W-BEAM CONNECTION WHEN REQUIRED

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.

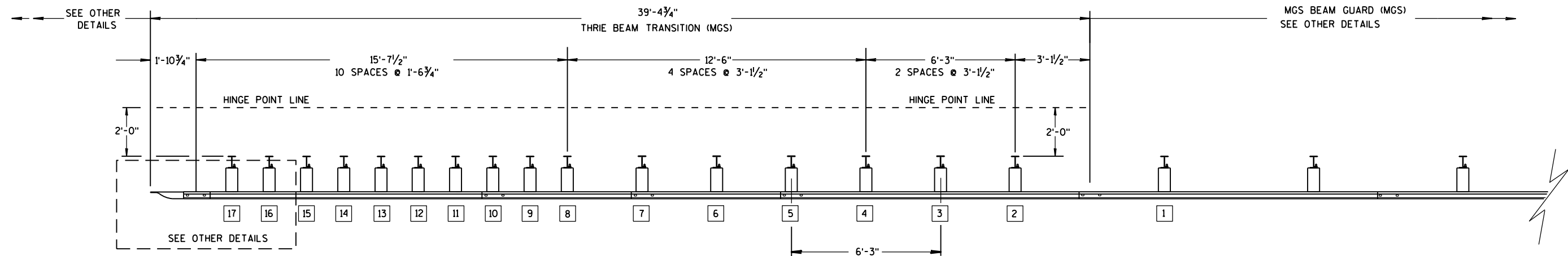
TRANSITION USES STEEL POSTS ONLY.

SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

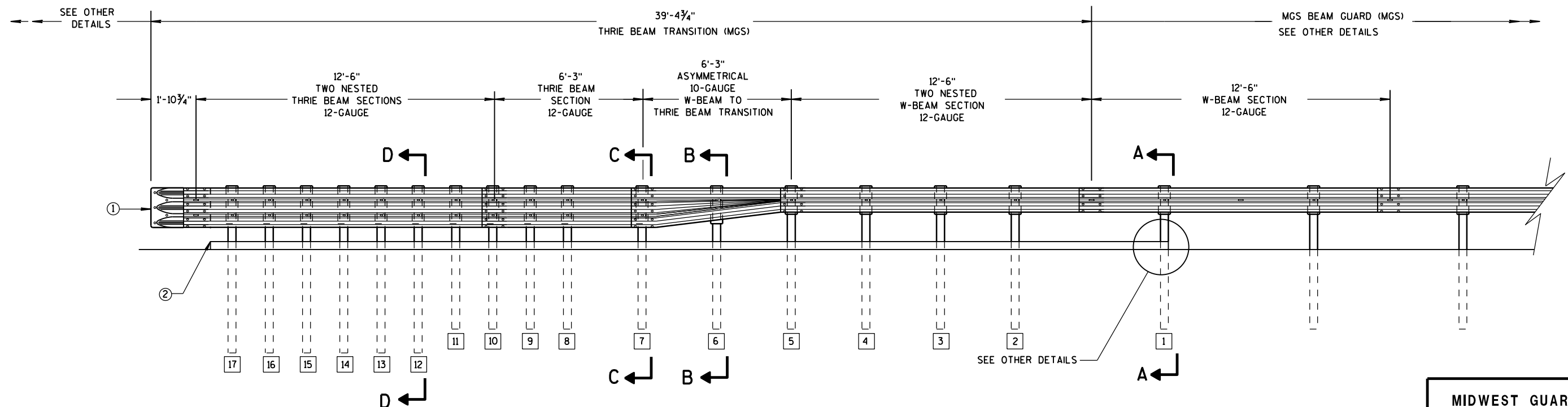
① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.

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

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



PLAN VIEW



ELEVATION VIEW

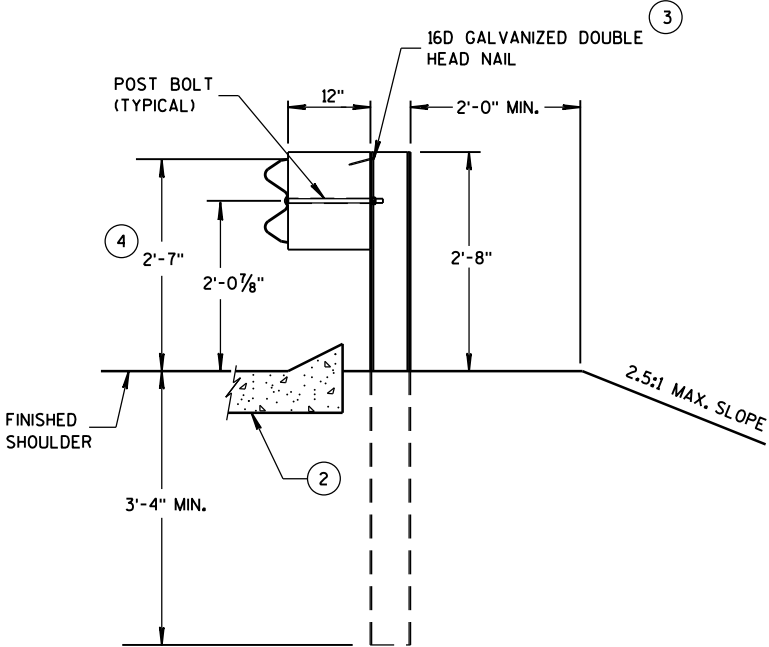
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

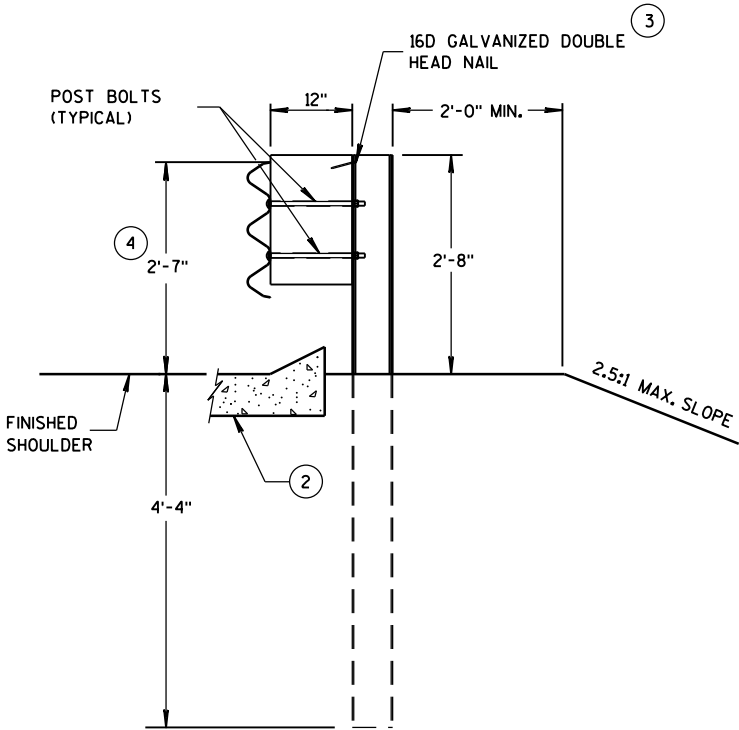
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

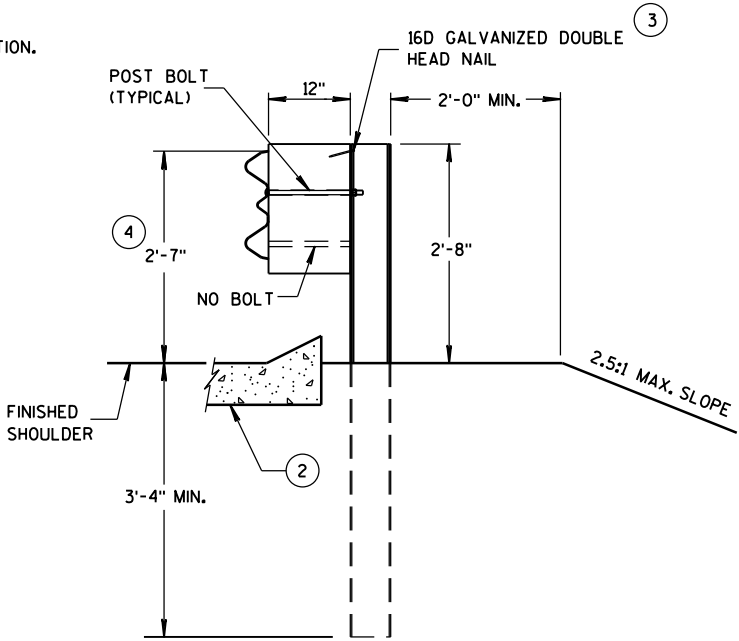
- 2 OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- 3 WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- 4 TOLERANCE FOR TOP OF W-BEAM RAIL IS $\pm 1"$.



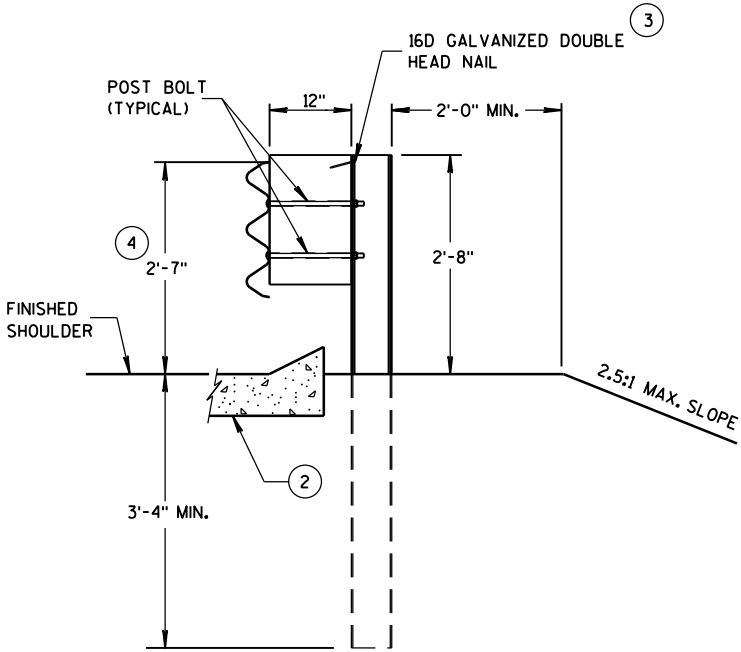
SECTION A-A
POSTS 1-5



SECTION D-D
POSTS 12-17



SECTION B-B
POST 6



SECTION C-C
POSTS 7-11

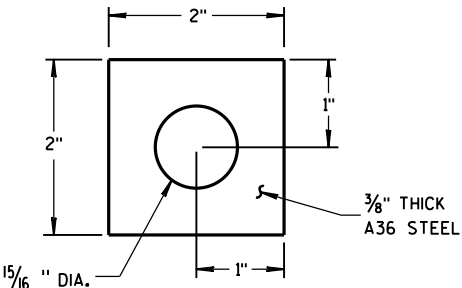
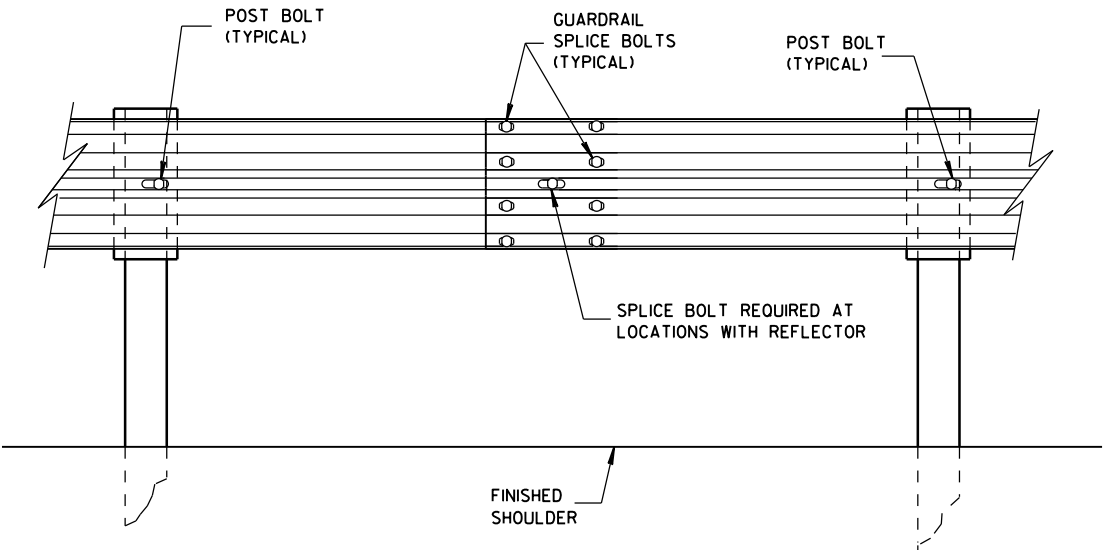
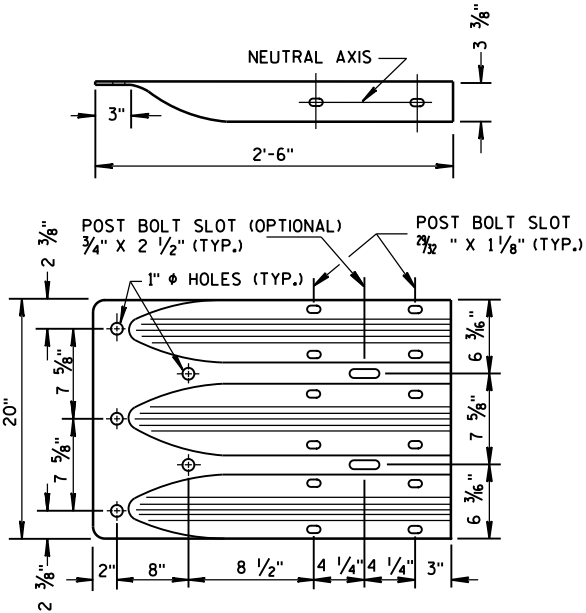


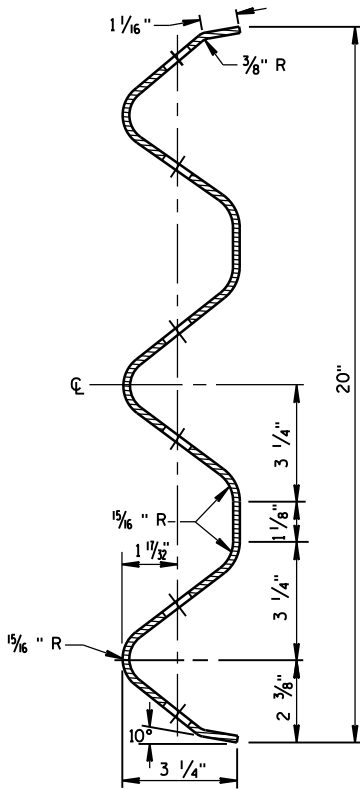
PLATE WASHER DETAIL



SPlice DETAIL



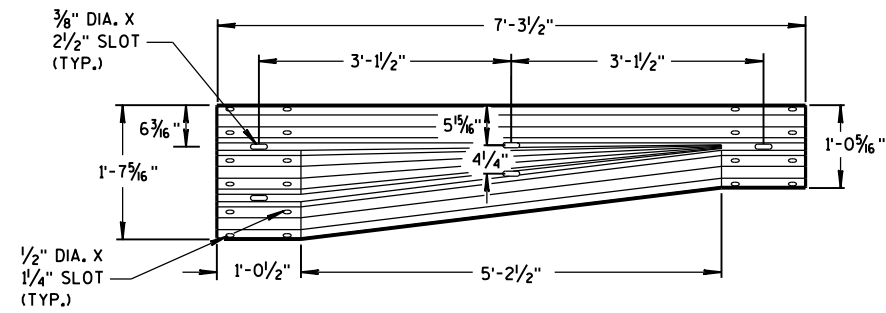
THRIE BEAM
TERMINAL CONNECTOR



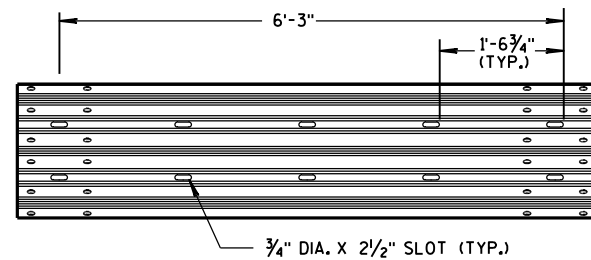
SECTION THRU THRIE
BEAM RAIL ELEMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

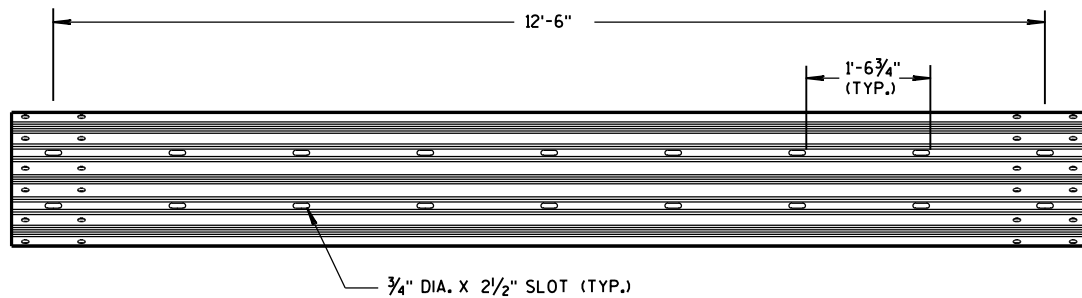
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



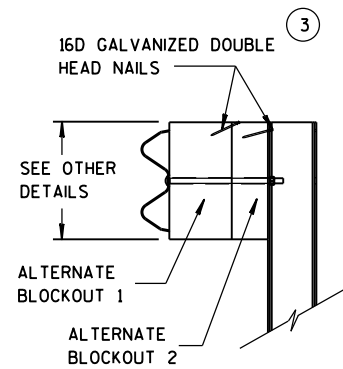
W-BEAM TO THRIE BEAM TRANSITION SECTION



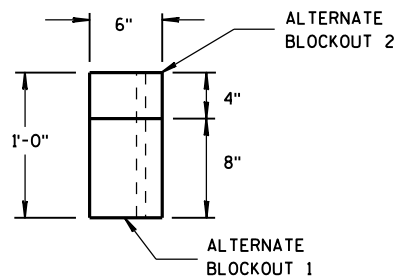
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

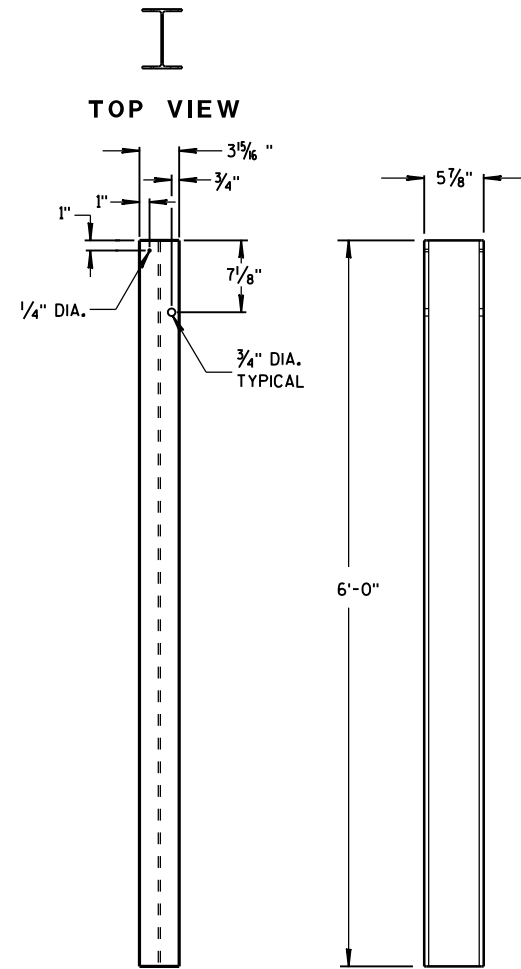


SIDE VIEW



TOP VIEW

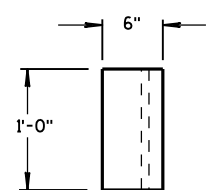
ALTERNATE WOOD BLOCKOUT DETAIL



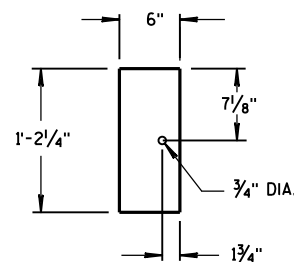
FRONT VIEW

SIDE VIEW

STEEL POSTS 1-5

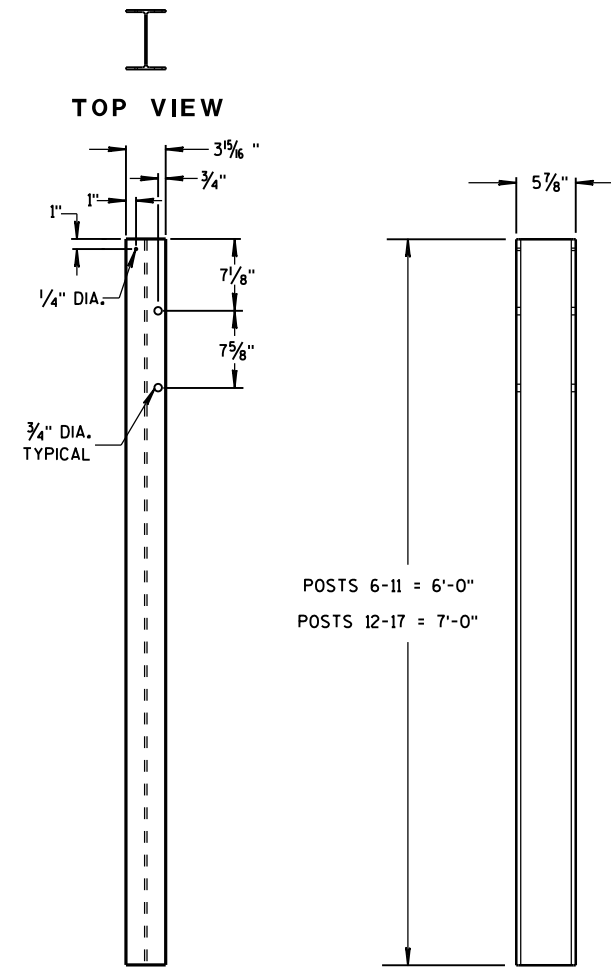


TOP VIEW



FRONT VIEW

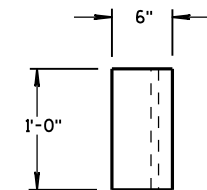
BLOCKOUT
POSTS 1-5



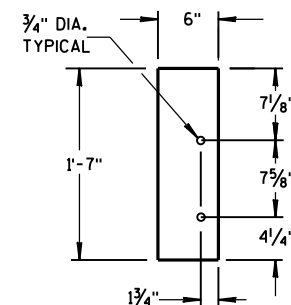
FRONT VIEW

SIDE VIEW

STEEL POSTS 6-17



TOP VIEW



FRONT VIEW

BLOCKOUT
POSTS 6-17

GENERAL NOTES

STEEL POSTS ARE W6X9 OR W6X8.5.

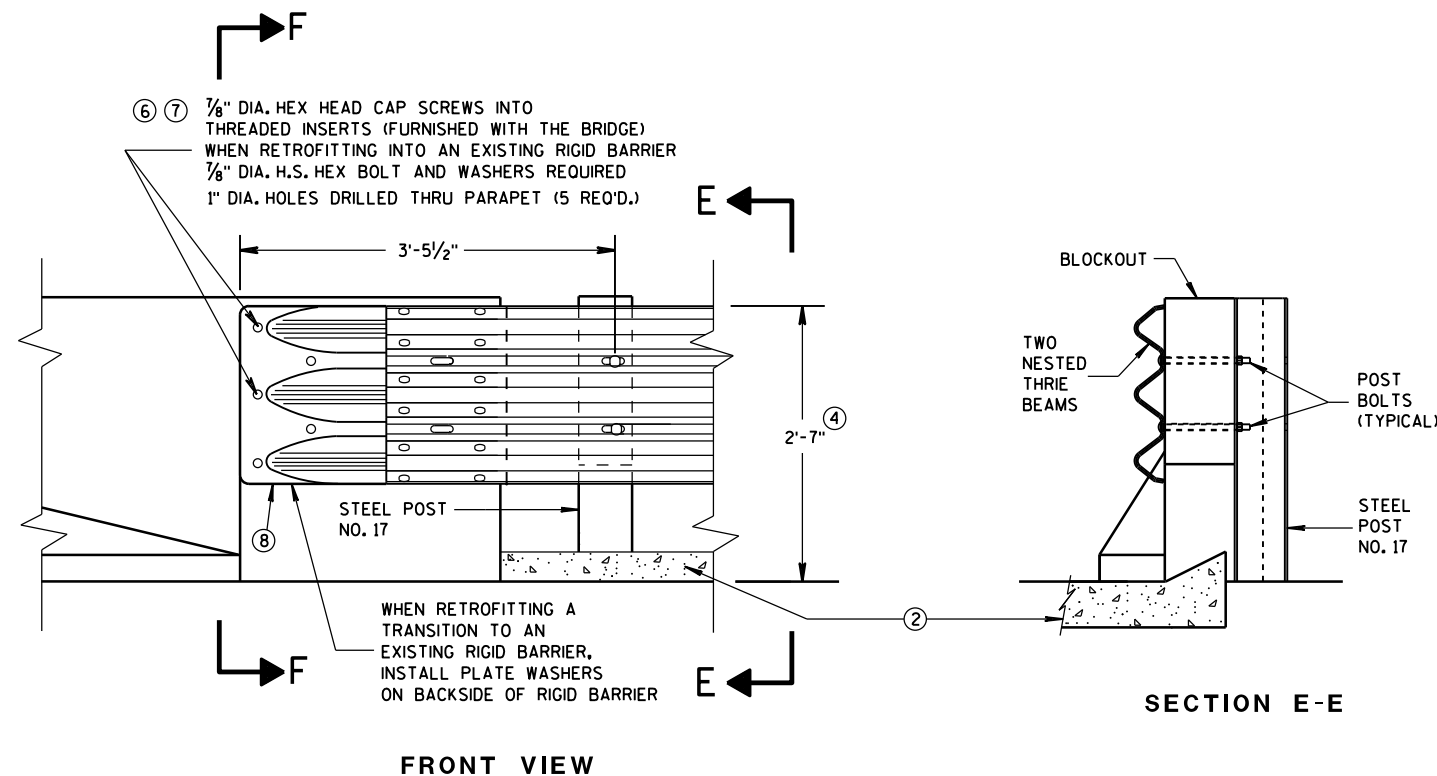
BOLT HOLES FOR POST ARE ON FRONT AND OF SIDE OF POST.

(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.

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



GENERAL NOTES

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

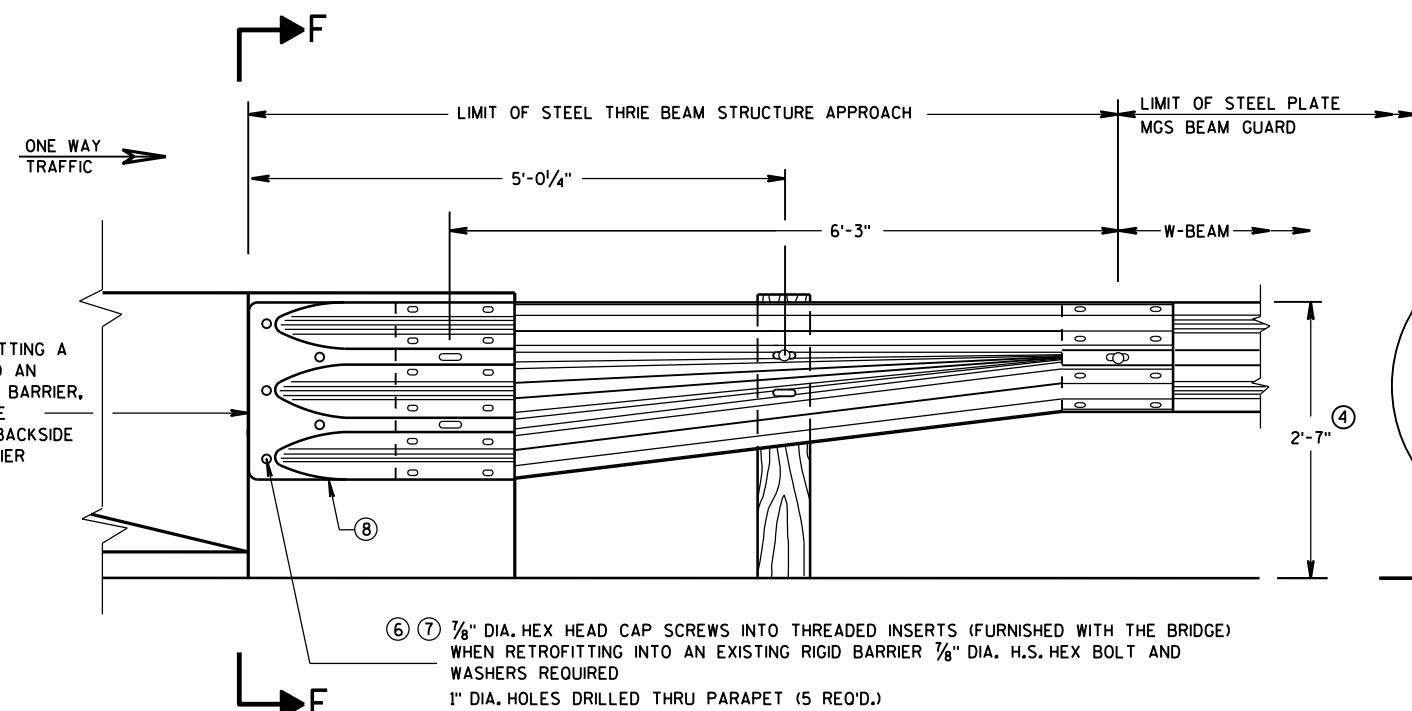
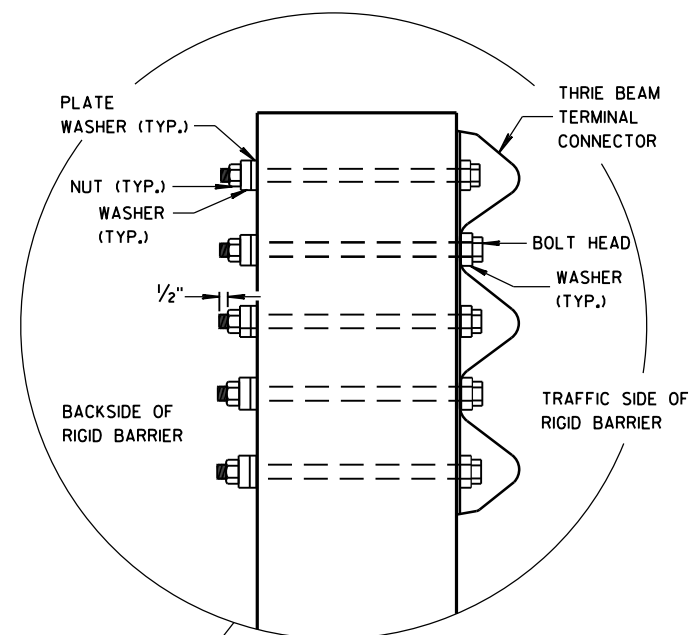
② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.

④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.

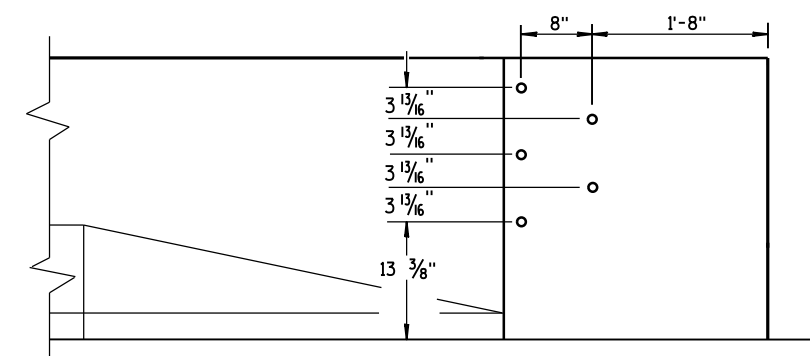
⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

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".



SECTION F-F



DRILL HOLE LOCATION

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

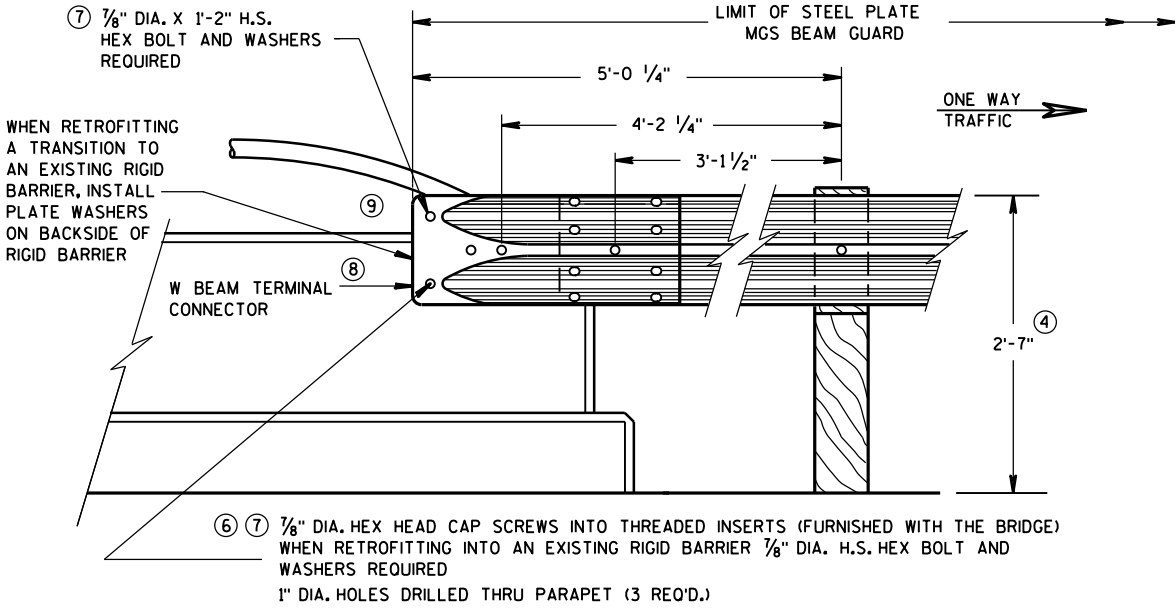
APPROVED
June, 2015
DATE
FHWA

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

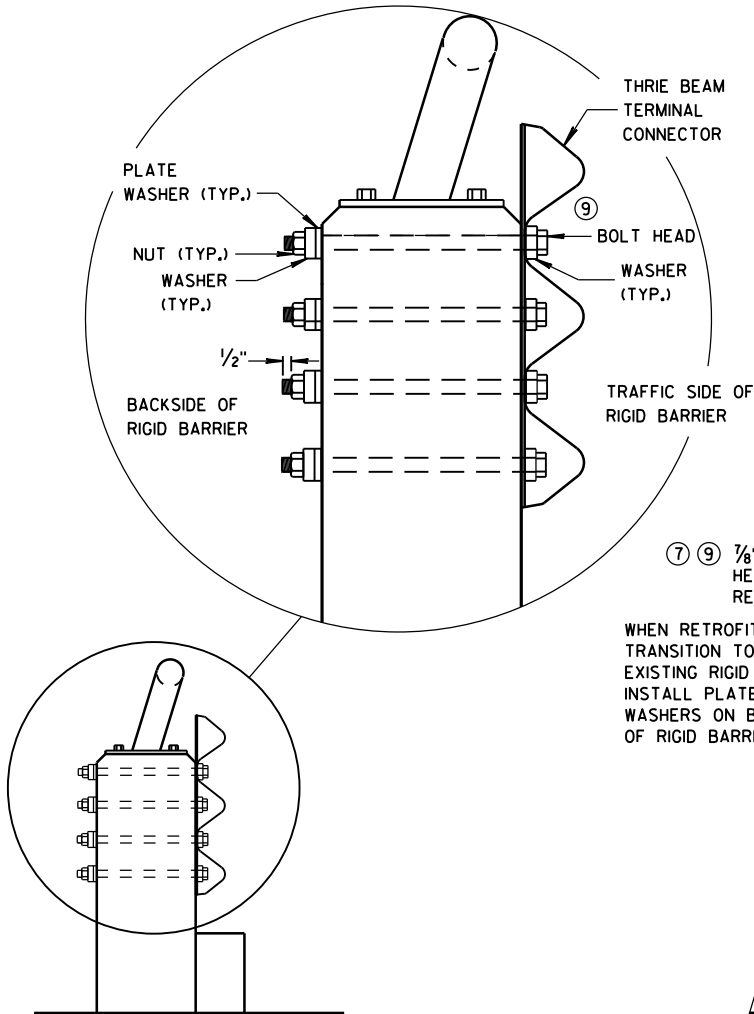
GENERAL NOTES

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

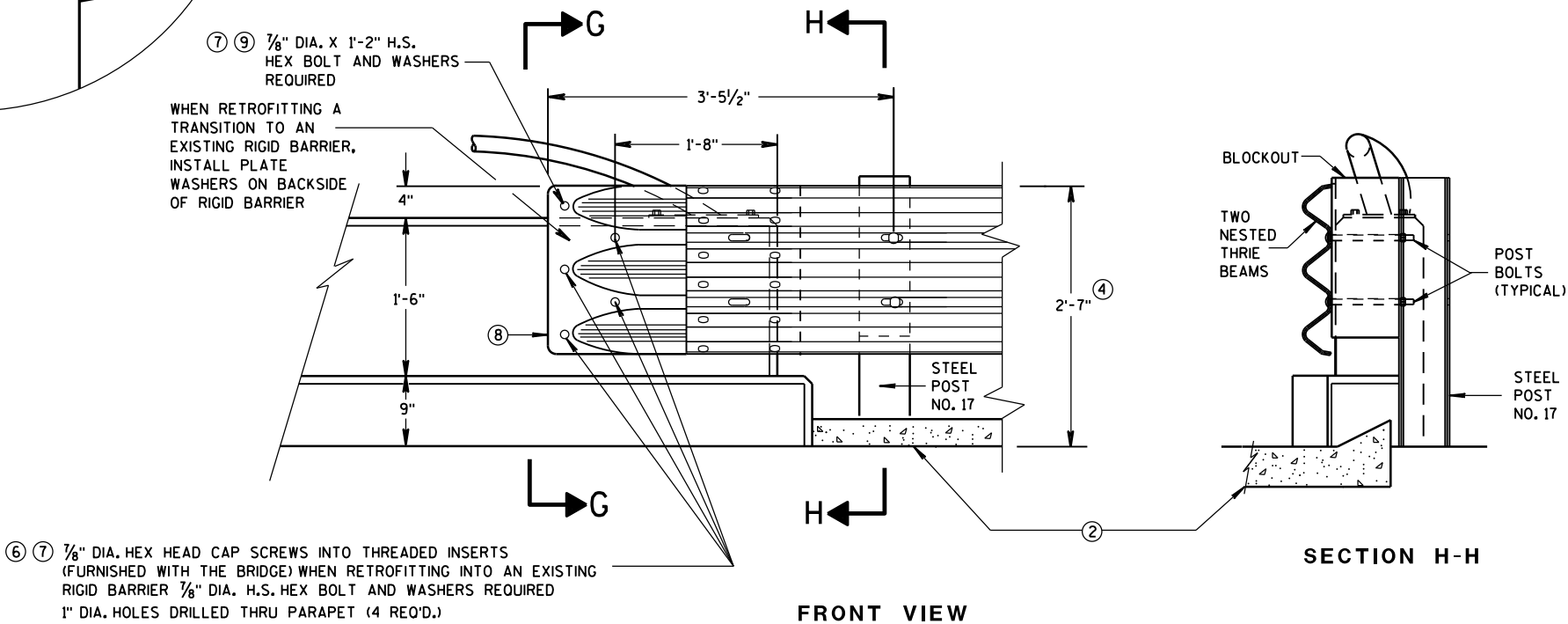
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- ⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH 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 $\frac{5}{8}"$ 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 $\frac{1}{2}"$.
- 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.



FRONT VIEW
W BEAM CONNECTION TO VERTICAL FACE PARAPET
(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)



SECTION G-G



FRONT VIEW

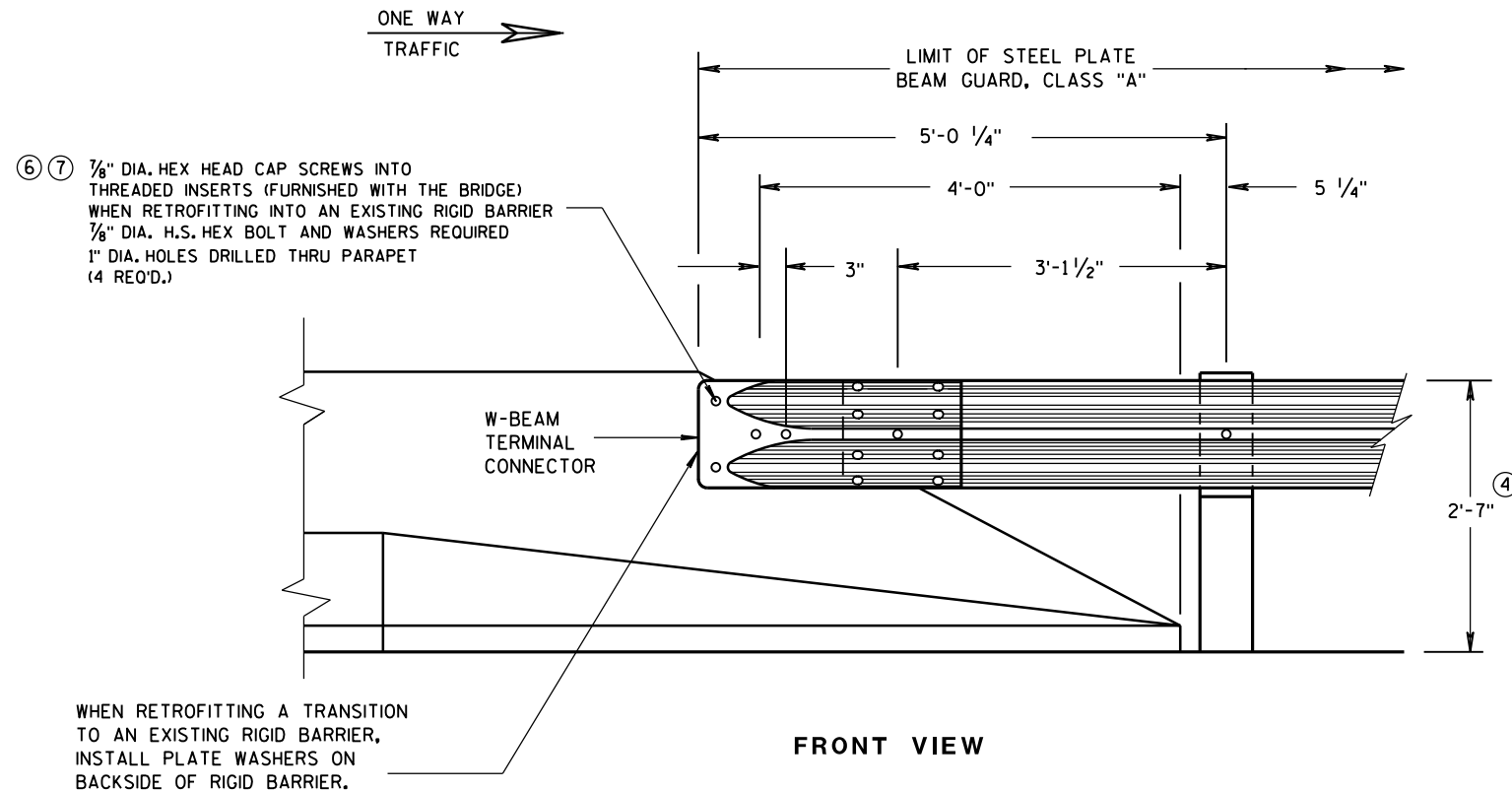
THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS

SECTION H-H

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

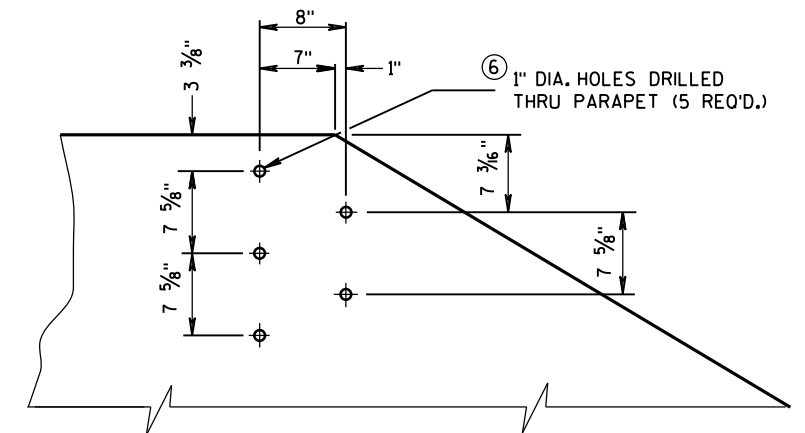
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA

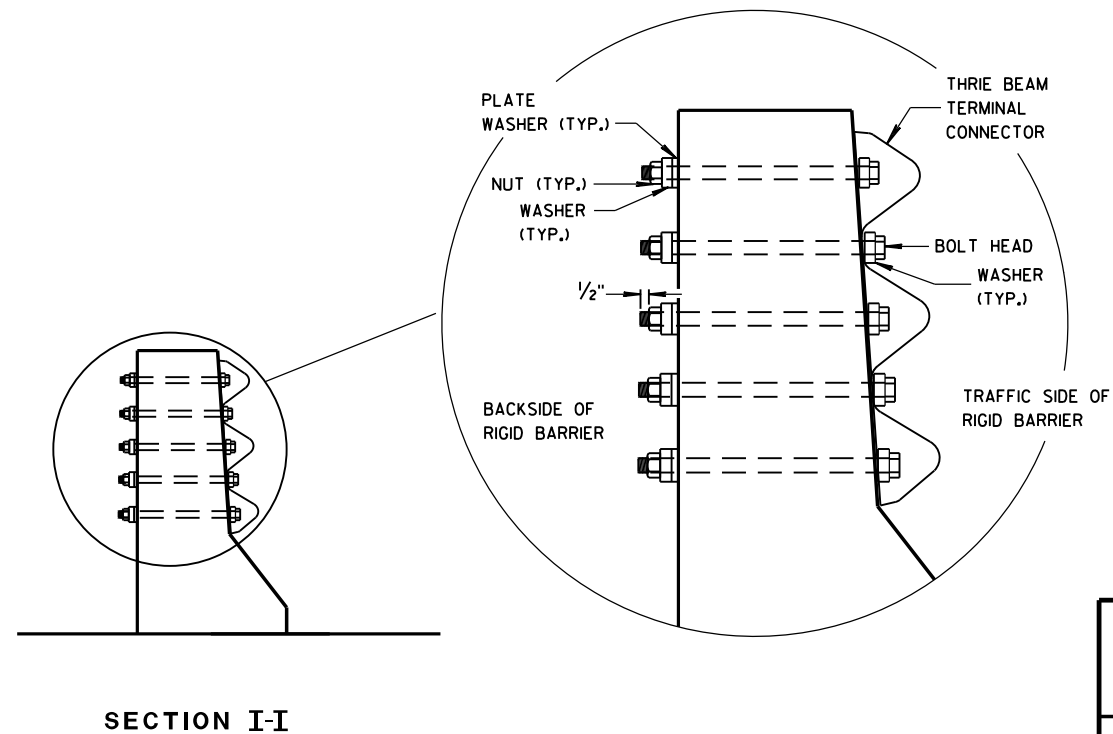
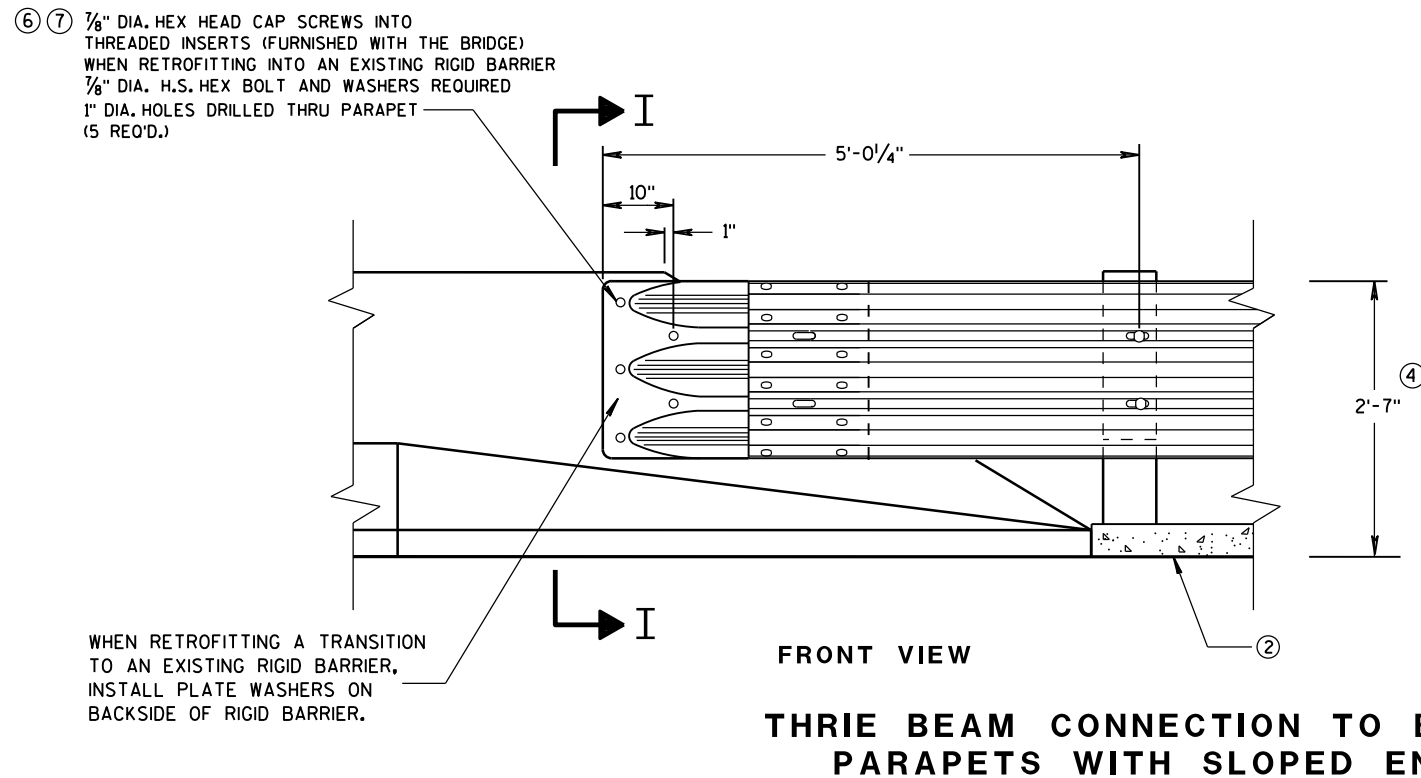


GENERAL NOTES

- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- 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

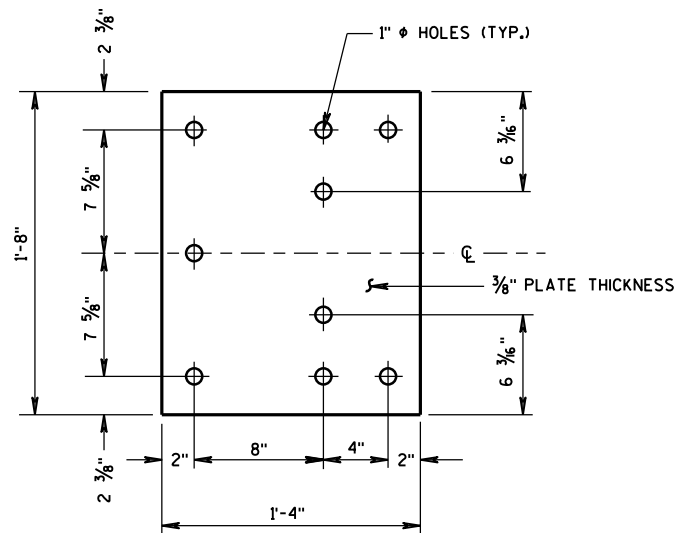


MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

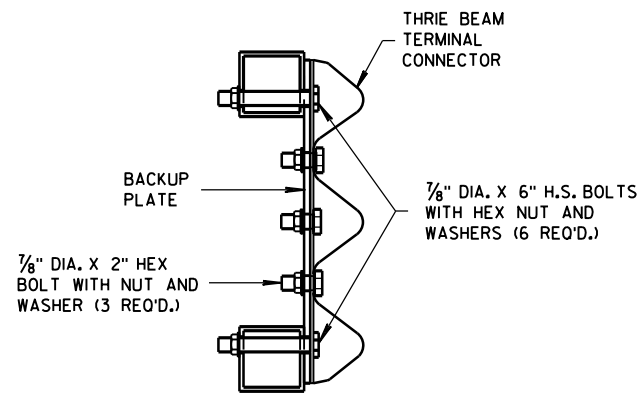
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015
DATE
FHWA

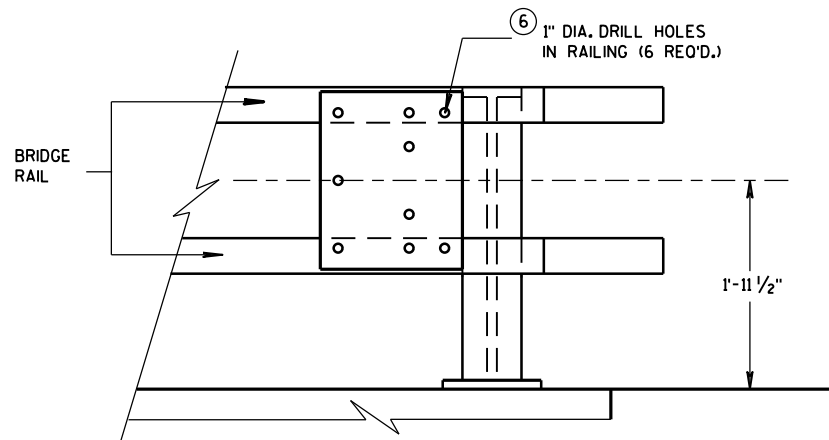
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER



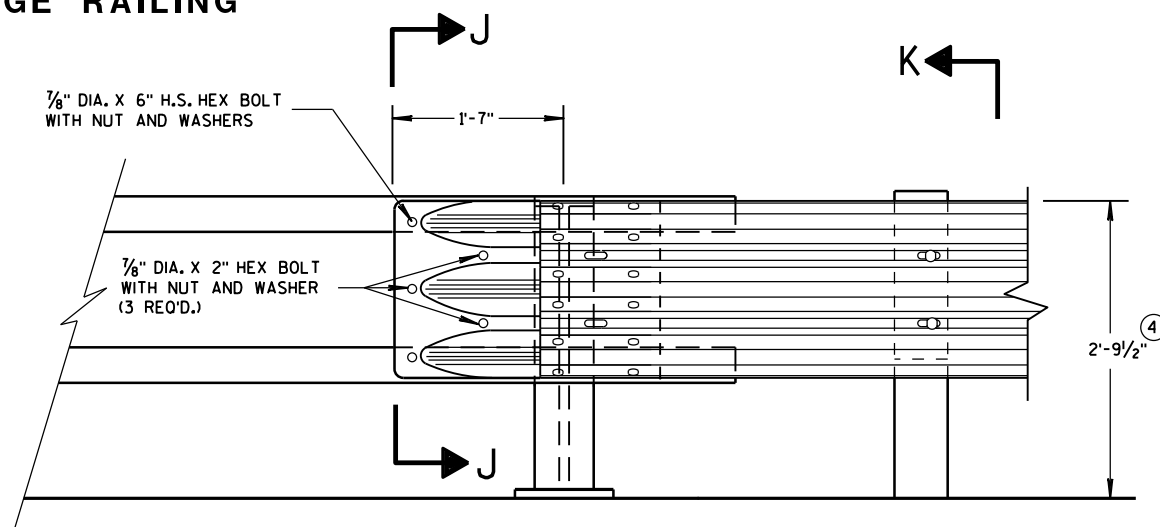
BACK-UP PLATE DETAIL



SECTION J-J

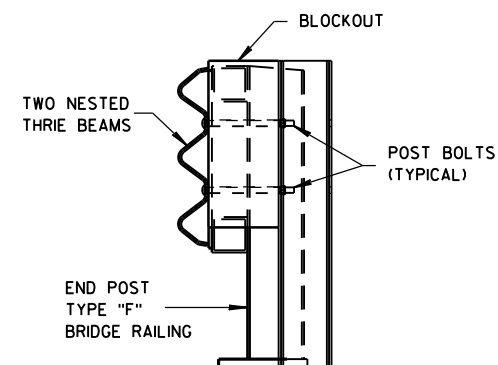


BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING



FRONT VIEW

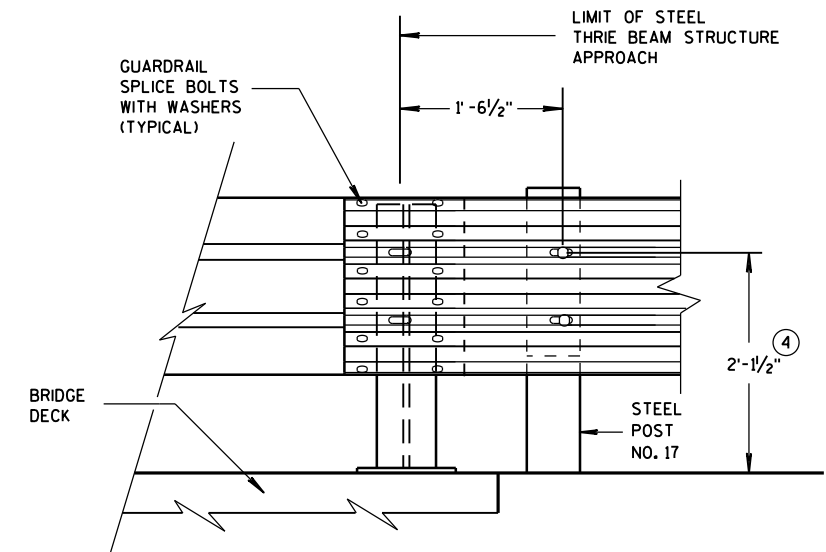
THRIE BEAM CONNECTION TO TUBULAR RAILING TYPE "F"



SECTION K-K

GENERAL NOTES

- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- ⑥ DRILLING HOLES THROUGH THE PAPER, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.



FRONT VIEW

THRIE BEAM CONNECTION TO STEEL RAILING TYPE "W"

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

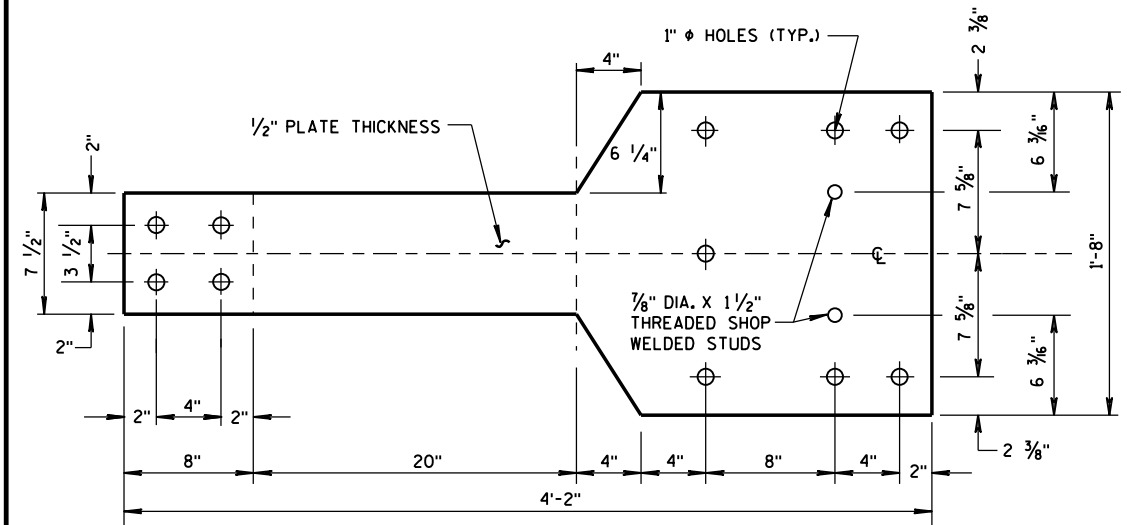
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015
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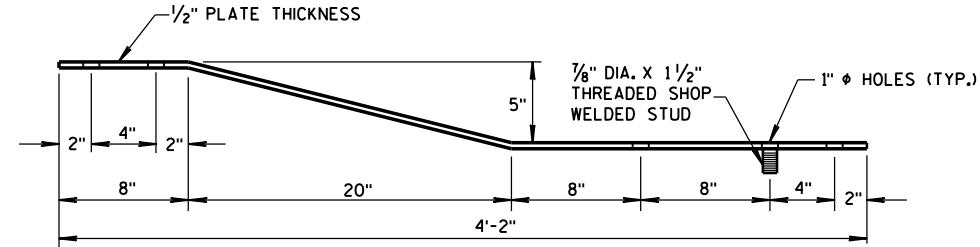
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

GENERAL NOTES

④ TOLERANCE FOR TOP OF W-BEAM RAIL IS $\pm 1"$.

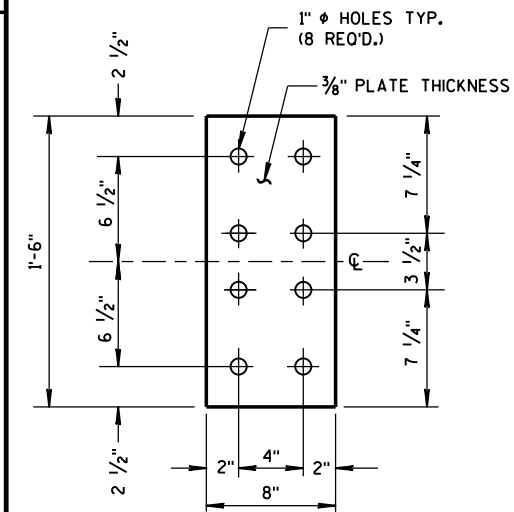


FRONT VIEW



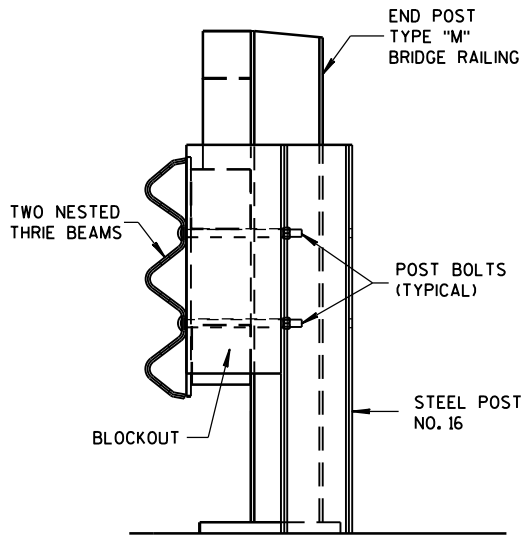
PLAN VIEW

BACK-UP PLATE DETAIL, TYPE "M"

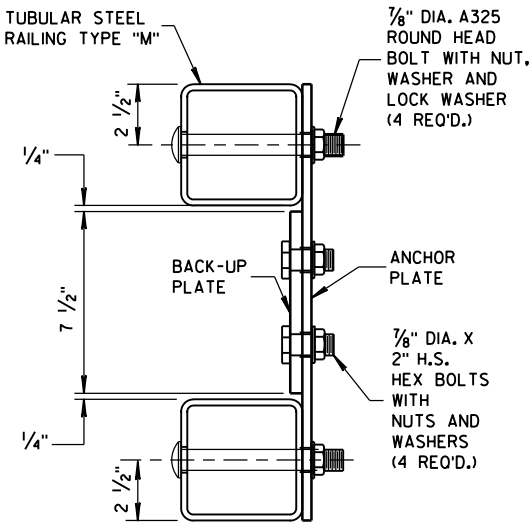


FRONT VIEW

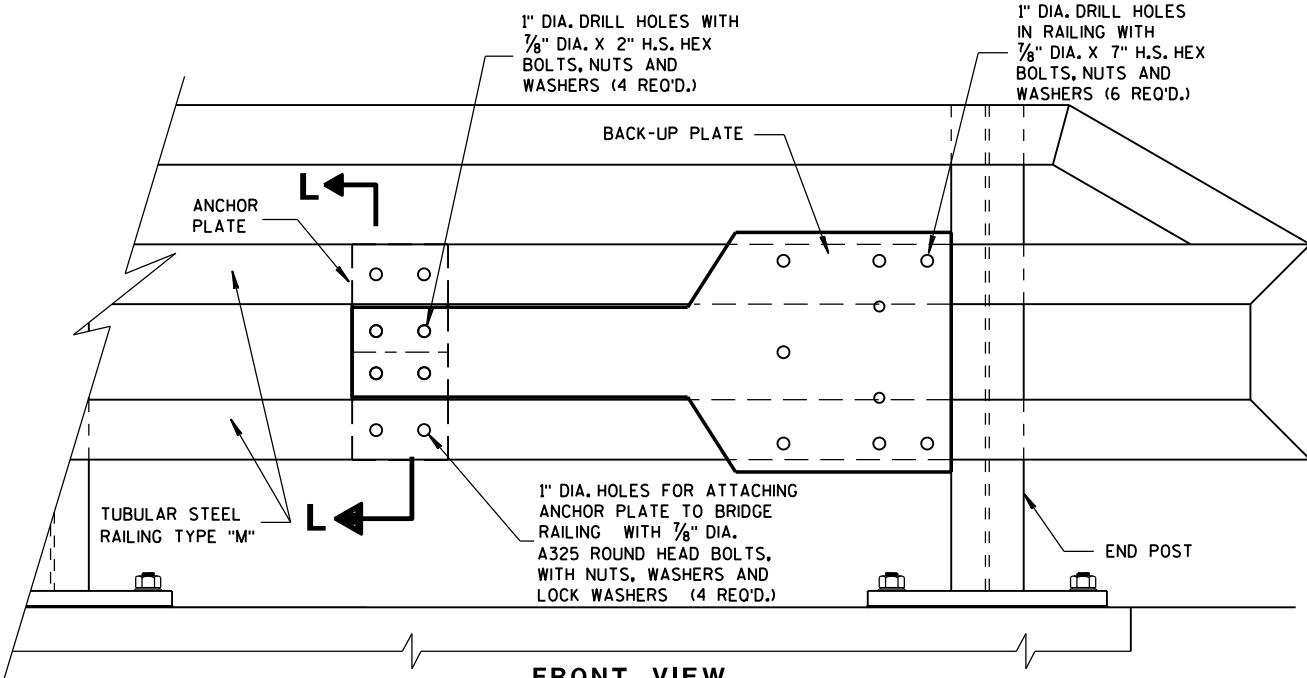
ANCHOR PLATE DETAIL, TYPE "M"



SECTION M-M

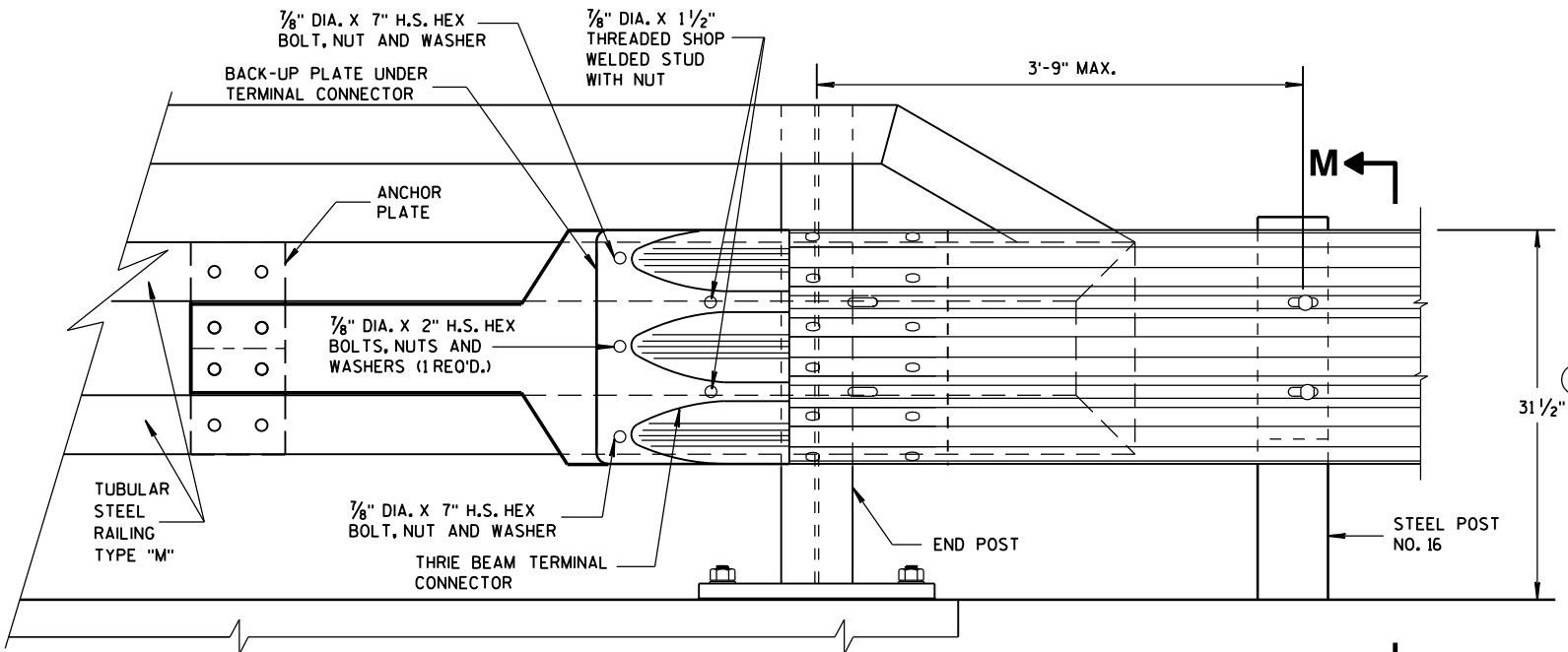


SECTION L-L

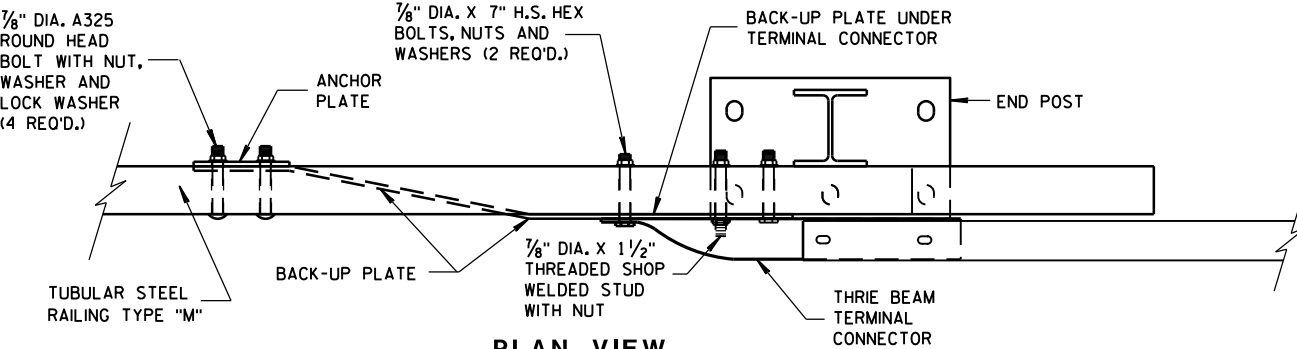


FRONT VIEW

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



FRONT VIEW



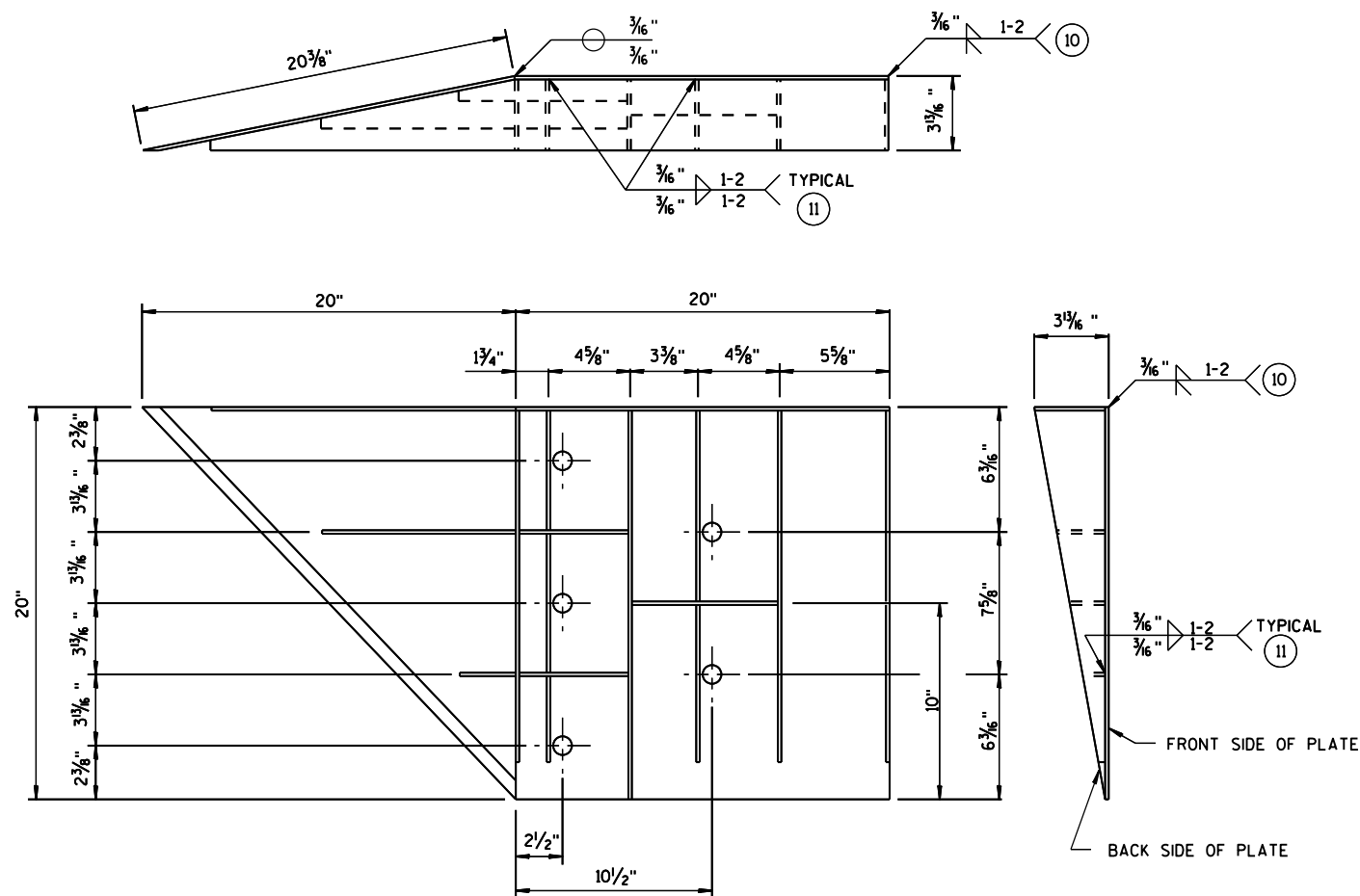
PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

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WELDING INSTRUCTION

(VIEWED FROM BACK SIDE OF PLATE)

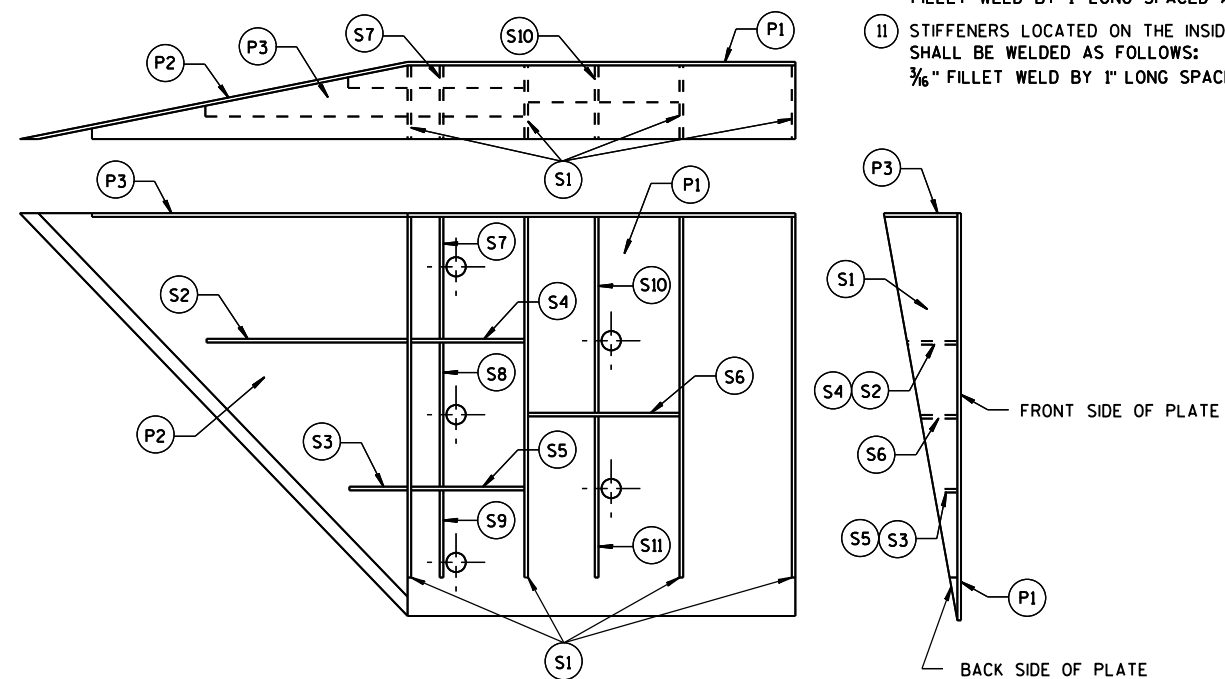


PLATE AND STIFFENER IDENTIFICATION

(VIEWED FROM BACK SIDE OF PLATE)

GENERAL NOTES

COVER PLATE PANELS ARE $\frac{3}{16}$ " THICK.

ALL STIFFENERS ARE $\frac{1}{4}$ " 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 $\frac{3}{16}$ " 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:
 $\frac{3}{16}$ " 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" | $\frac{3}{16}$ " |
| P2 | 1 | | 20" x 20" x $28\frac{3}{16}$ " | $\frac{3}{16}$ " |
| P3 | 1 | | 39" x $3\frac{3}{8}$ " x 20" x $19\frac{3}{16}$ " | $\frac{3}{16}$ " |
| S1 | 4 | | $18\frac{7}{16}$ " x $3\frac{5}{8}$ " x $18\frac{3}{4}$ " | $\frac{1}{4}$ " |
| S2 | 1 | | $10\frac{1}{4}$ " x $2\frac{1}{16}$ " x $10\frac{3}{8}$ " x $\frac{1}{2}$ " | $\frac{1}{4}$ " |
| S3 | 1 | | 3" x $1\frac{1}{16}$ " x $3\frac{1}{8}$ " x $\frac{1}{2}$ " | $\frac{1}{4}$ " |
| S4 | 1 | | $6\frac{1}{8}$ " x $2\frac{1}{16}$ " | $\frac{1}{4}$ " |
| S5 | 1 | | $6\frac{1}{8}$ " x $1\frac{1}{16}$ " | $\frac{1}{4}$ " |
| S6 | 1 | | $7\frac{3}{4}$ " x $1\frac{3}{4}$ " | $\frac{1}{4}$ " |
| S7 | 1 | | $2\frac{9}{16}$ " x 6" x $3\frac{3}{8}$ " x $5\frac{1}{8}$ " | $\frac{1}{4}$ " |
| S8 | 1 | | $1\frac{1}{32}$ " x $7\frac{1}{2}$ " x $2\frac{1}{2}$ " x $7\frac{3}{8}$ " | $\frac{1}{4}$ " |
| S9 | 1 | | $6\frac{1}{16}$ " x $6\frac{3}{16}$ " x $1\frac{1}{32}$ " | $\frac{1}{4}$ " |
| S10 | 1 | | $1\frac{1}{8}$ " x $9\frac{7}{8}$ " x $3\frac{3}{8}$ " x $9\frac{1}{16}$ " | $\frac{1}{4}$ " |
| S11 | 1 | | $8\frac{1}{2}$ " x $8\frac{3}{4}$ " x $1\frac{1}{16}$ " | $\frac{1}{4}$ " |

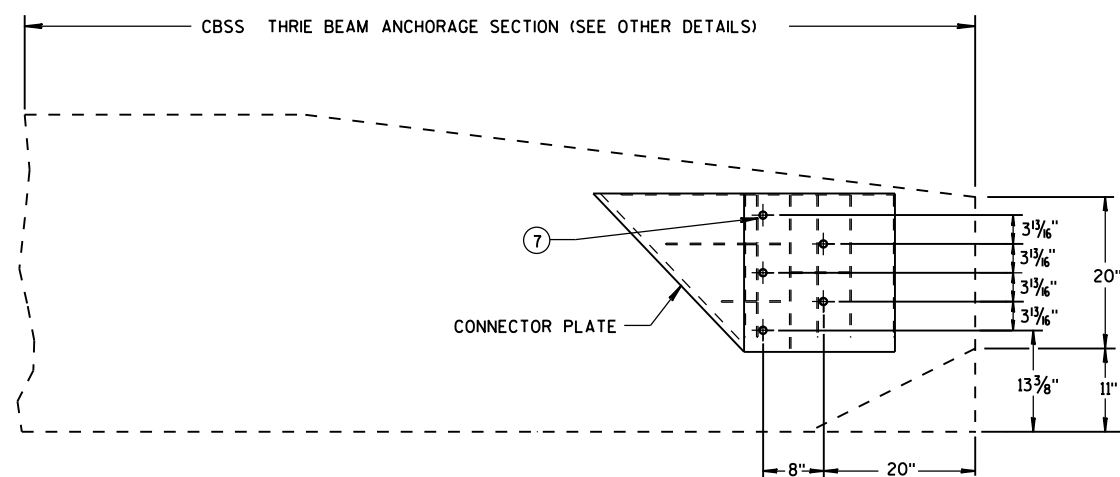
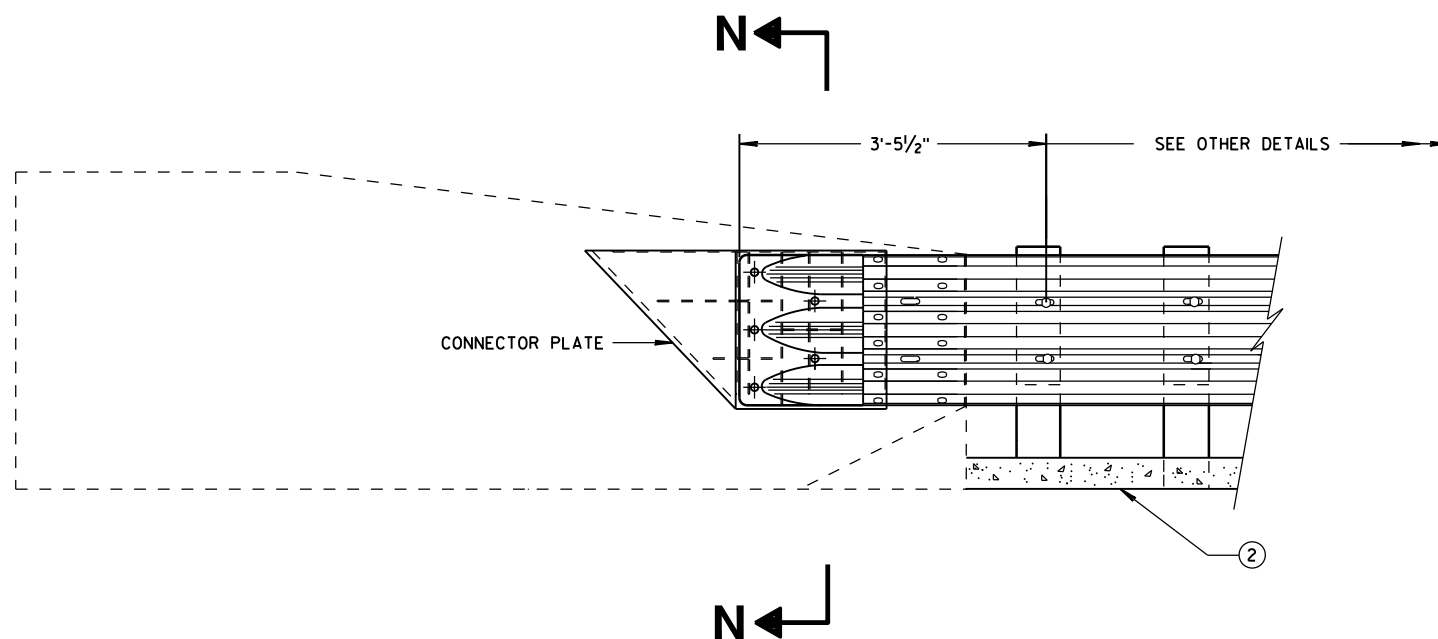
SINGLE SLOPE CONNECTION PLATE

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
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June, 2015 /S/ Jerry H. Zogg
DATE ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA

THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER



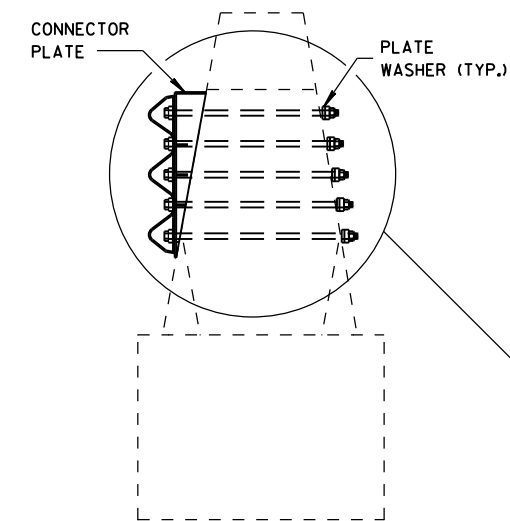
SINGLE SLOPE CONNECTION PLATE PLACEMENT

GENERAL NOTES

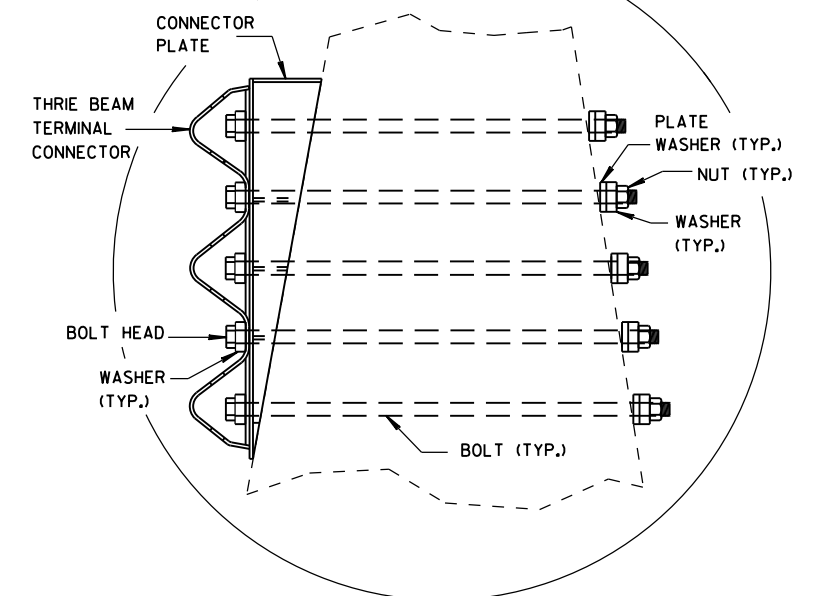
CONNECTOR PLATE, DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

(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 5/8" 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

June, 2015

DATE

FHWA

/s/ Jerry H. Zogg

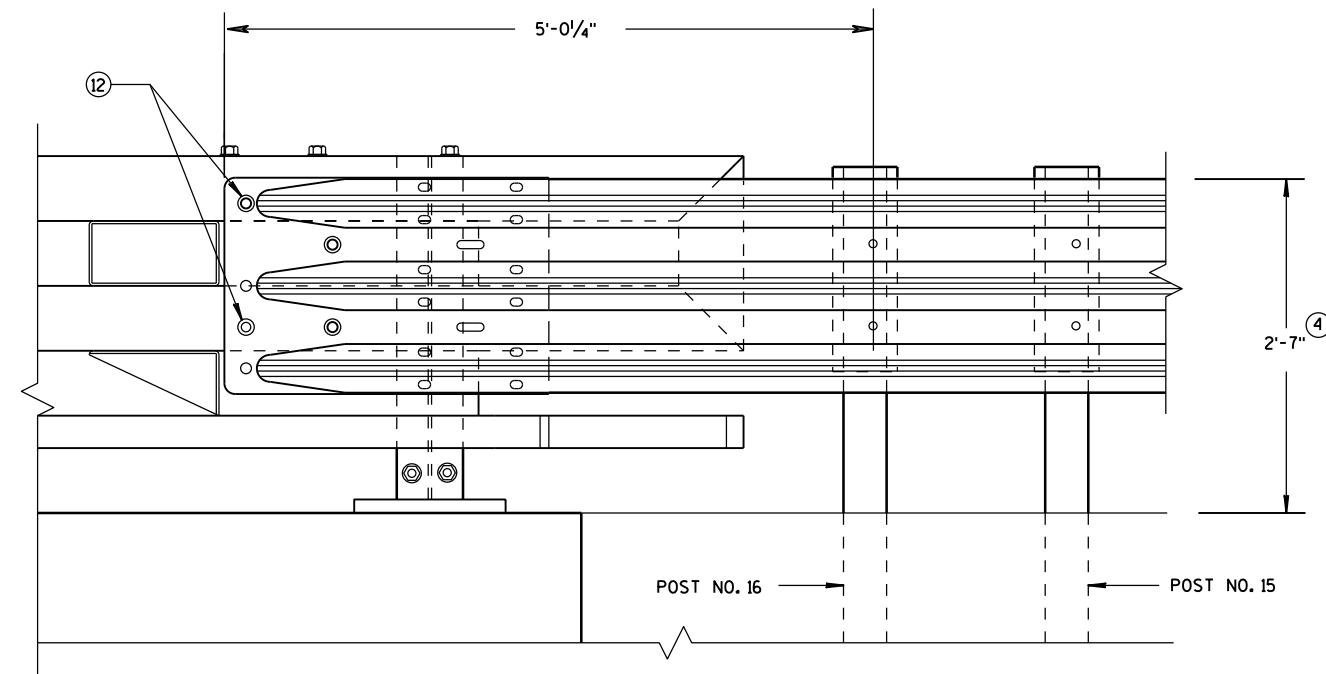
ROADWAY STANDARDS DEVELOPMENT

ENGINEER

GENERAL NOTES

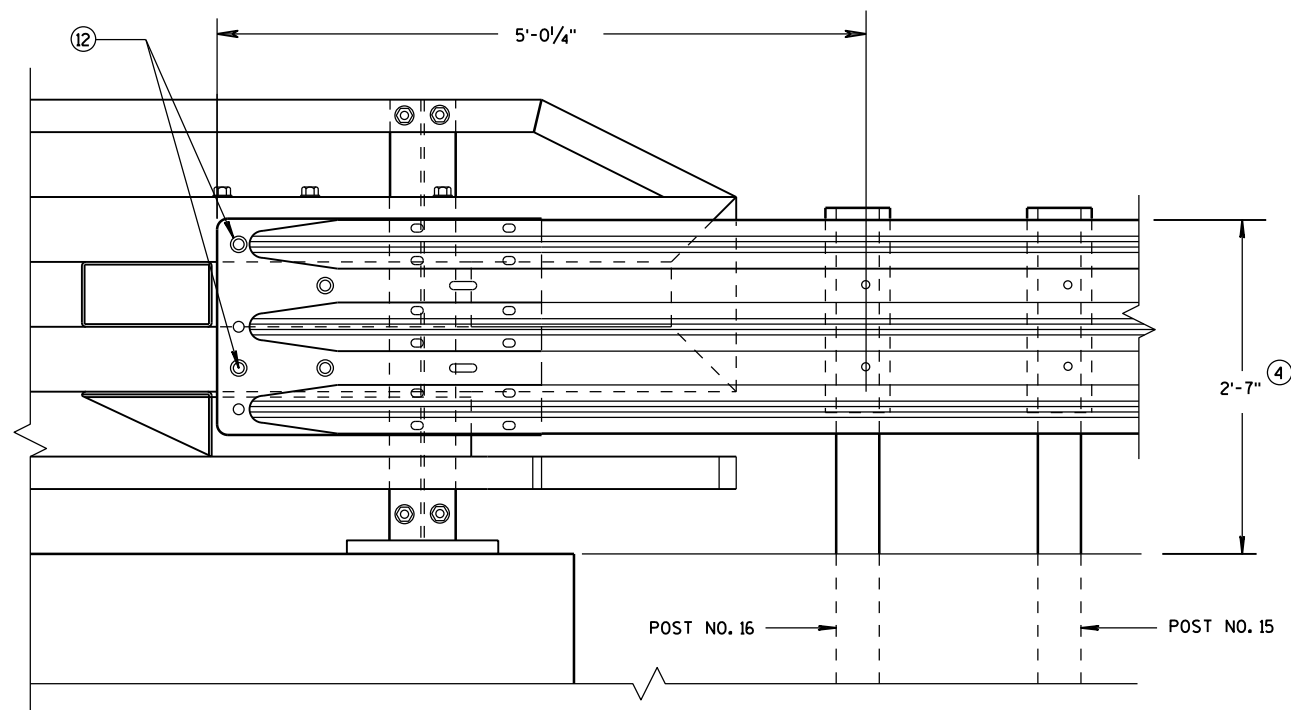
④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.

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 $\frac{1}{2}$ -INCH BEYOND NUT.



ELEVATION OF DETAIL AT NY3 END POST

THRIE BEAM RAIL ATTACHMENT



ELEVATION OF DETAIL AT NY4 END POST

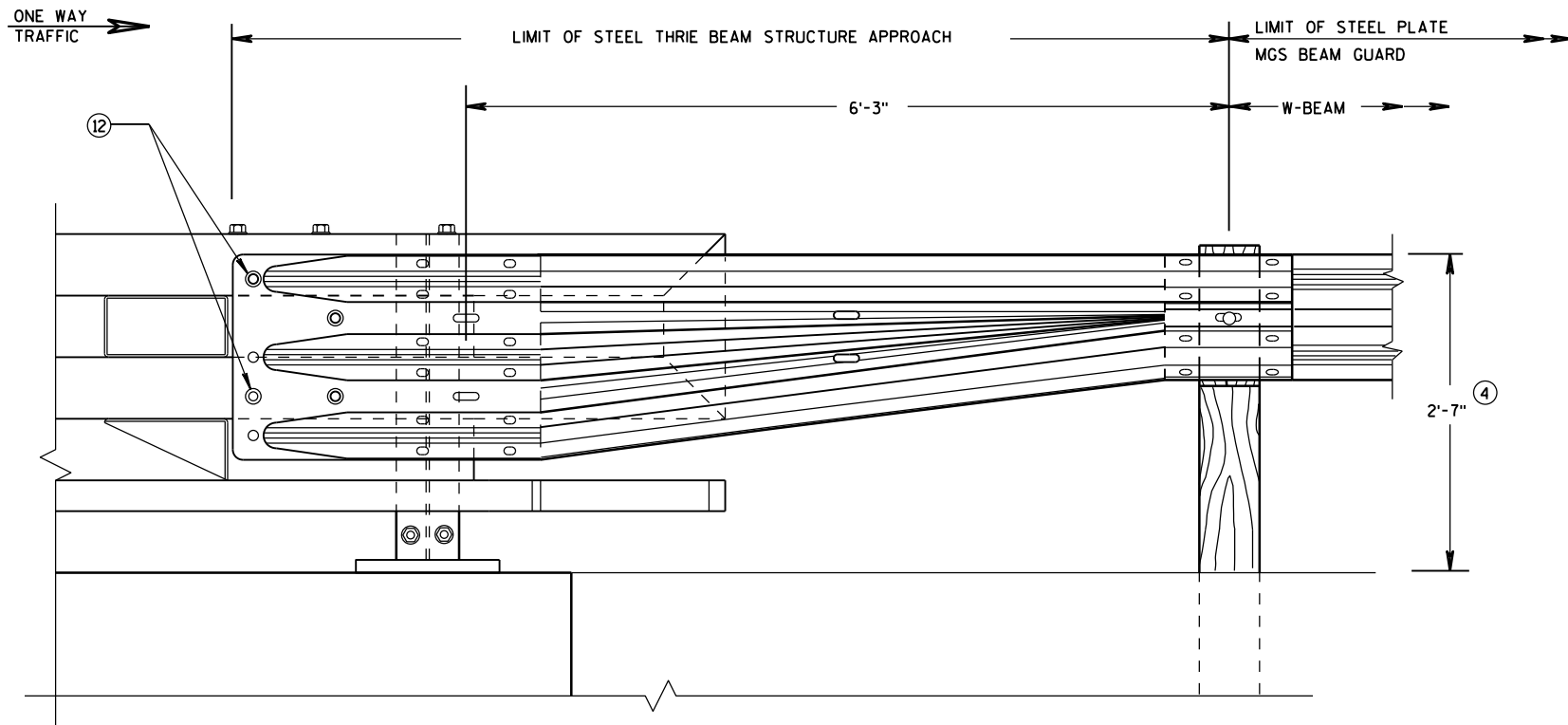
THRIE BEAM RAIL ATTACHMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015
DATE
FHWA

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

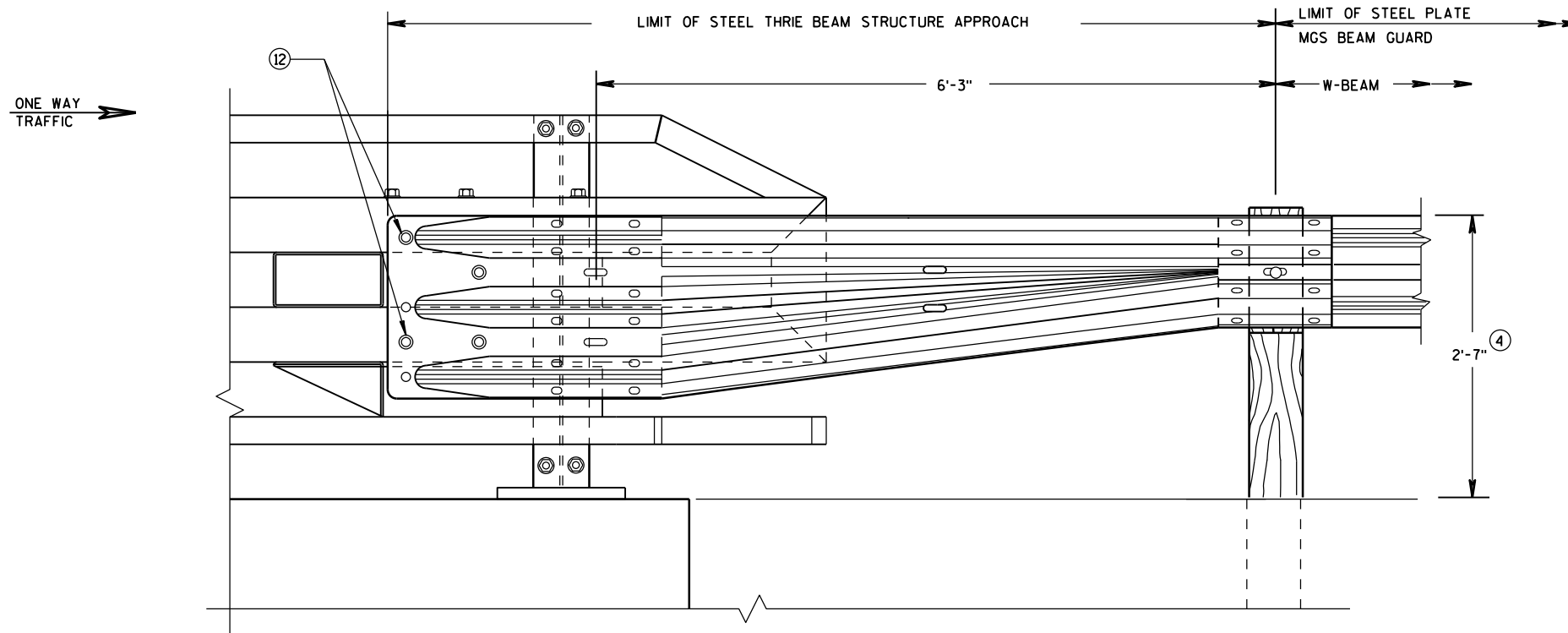


FRONT VIEW

**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 $\pm 1"$.
- 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 $\frac{1}{2}$ -INCH BEYOND NUT.



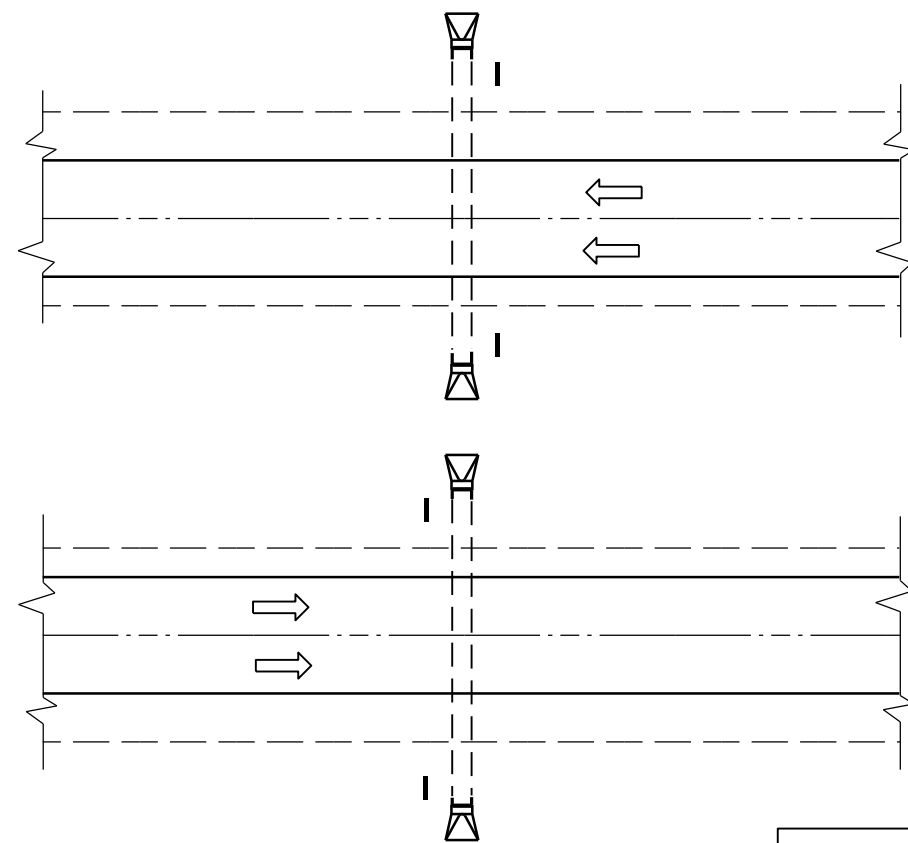
FRONT VIEW

**W BEAM TRANSITION AND
CONNECTION TO BRIDGE RAILING TYPE "NY4"**
(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

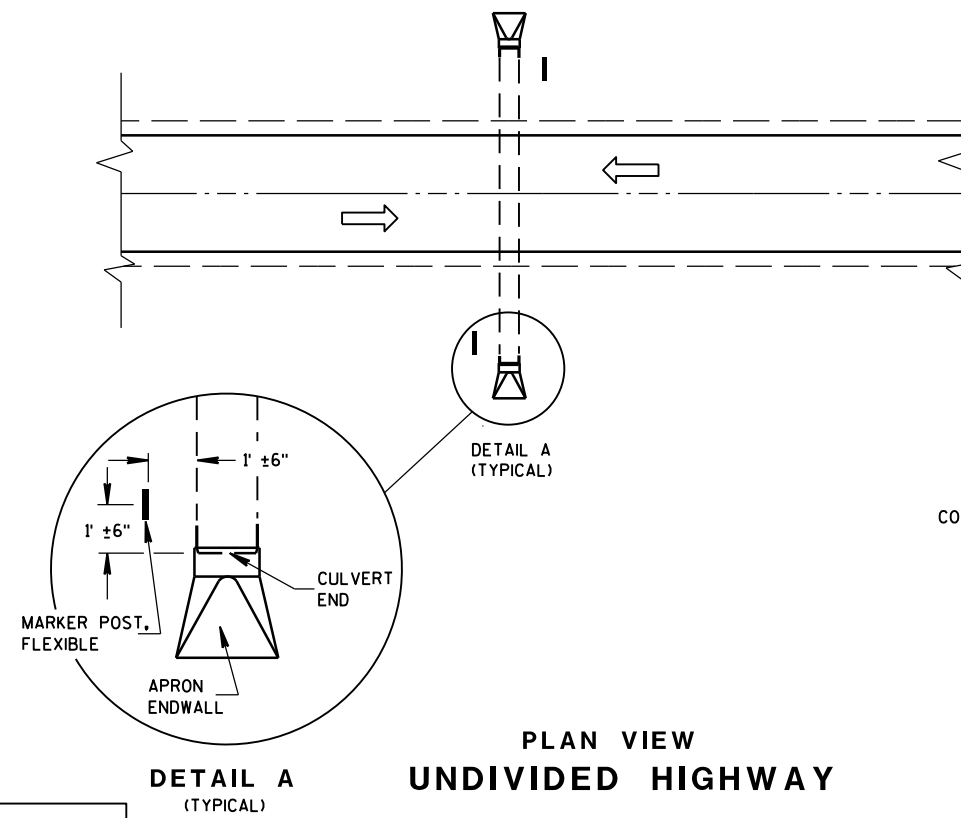
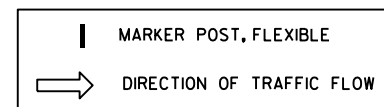
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

| | |
|------------------------|---|
| APPROVED June, 2015 | /S/ Jerry H. Zogg |
| DATE | ROADWAY STANDARDS DEVELOPMENT ENGINEER |
| FHWA | |



PLAN VIEW
DIVIDED HIGHWAY

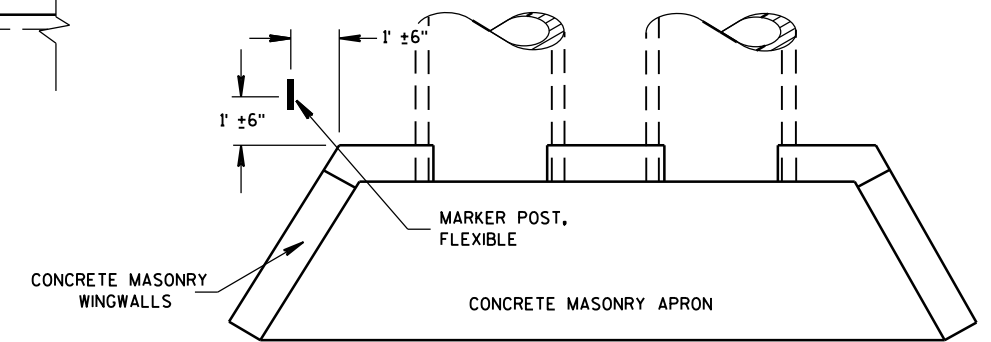


PLAN VIEW
UNDIVIDED HIGHWAY

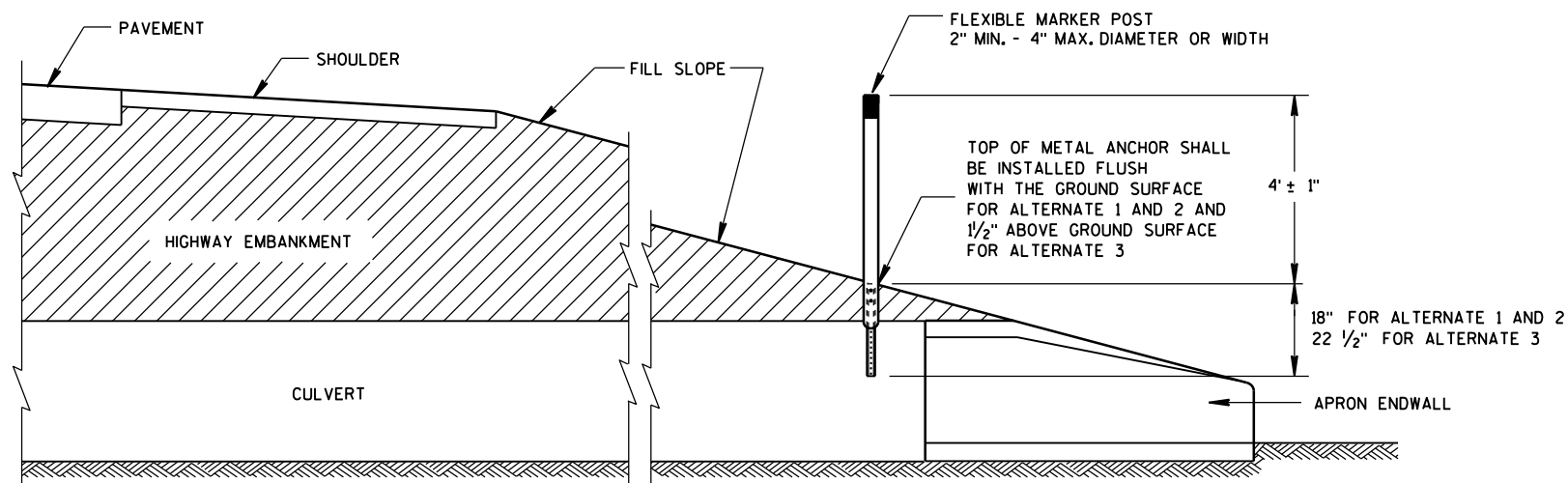
FLEXIBLE MARKER POST LOCATION

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.



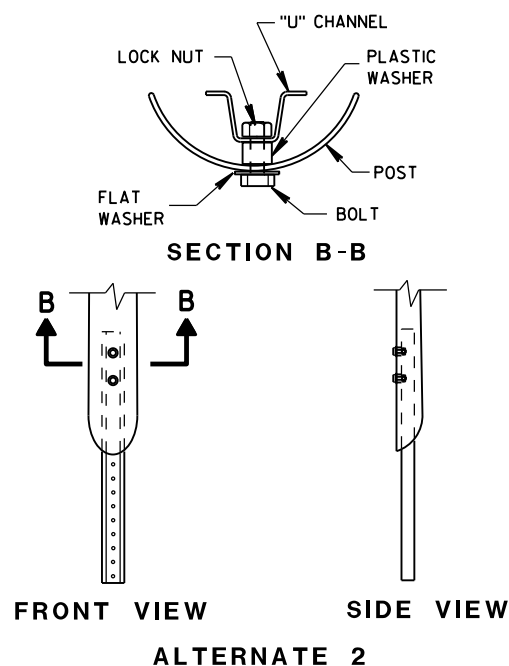
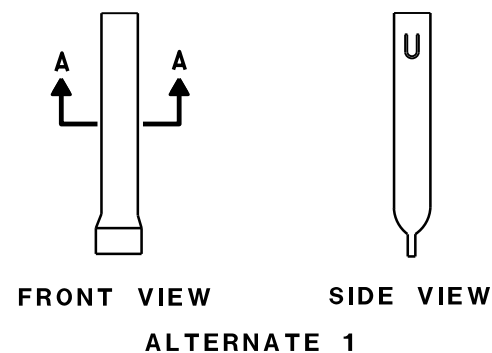
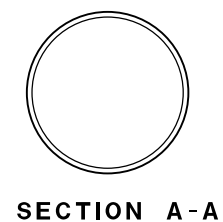
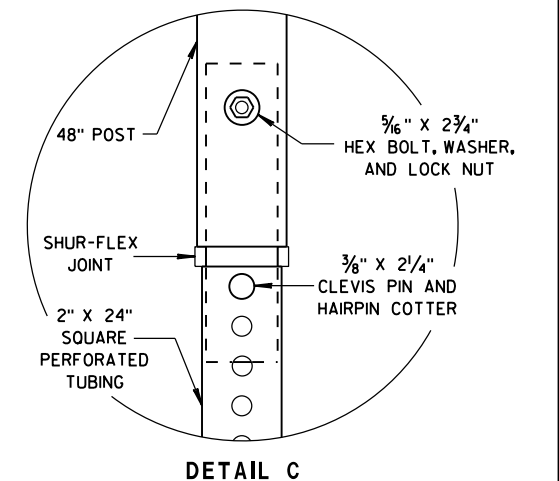
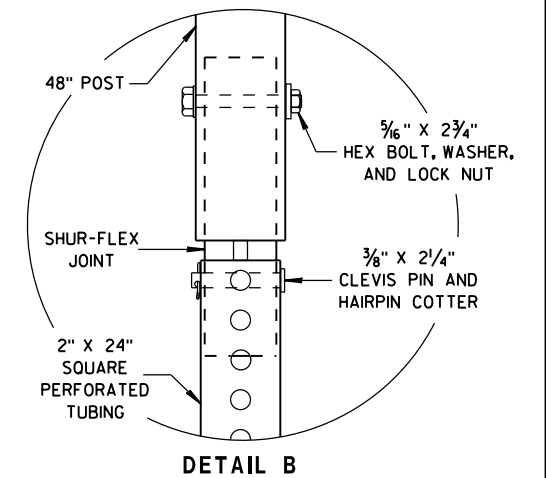
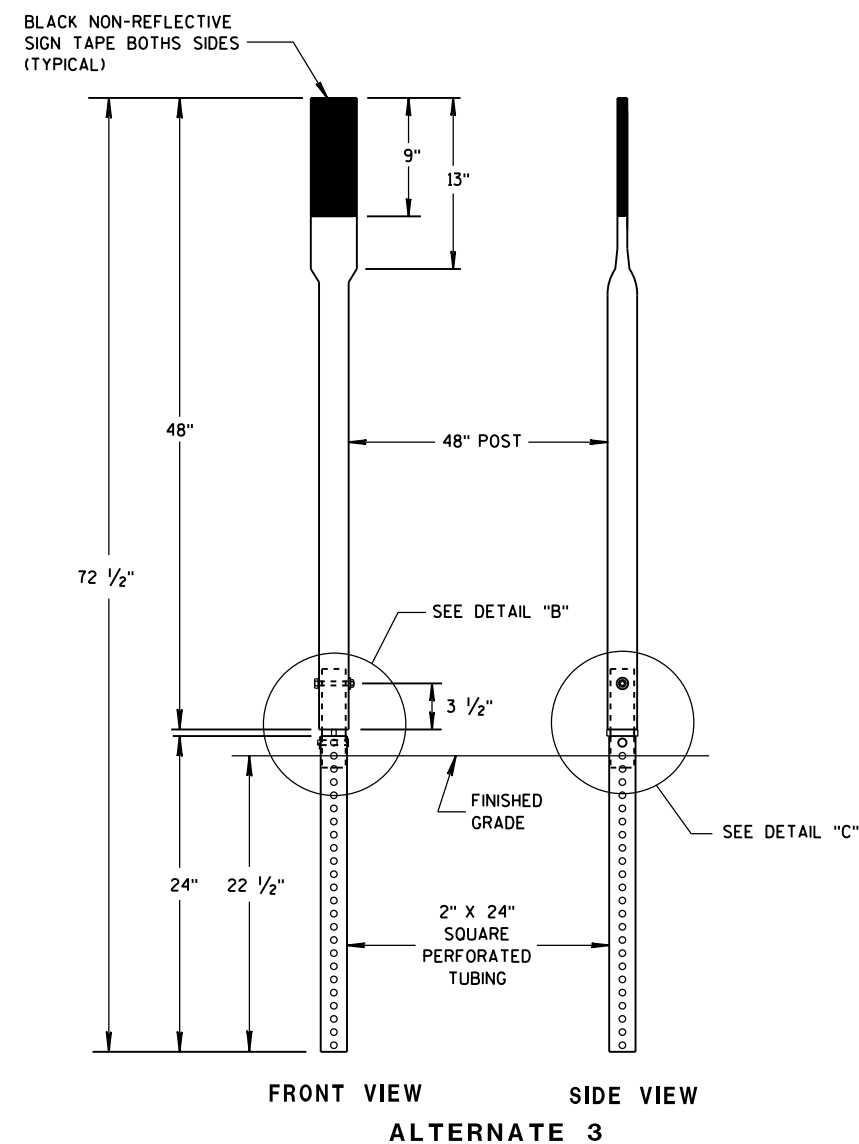
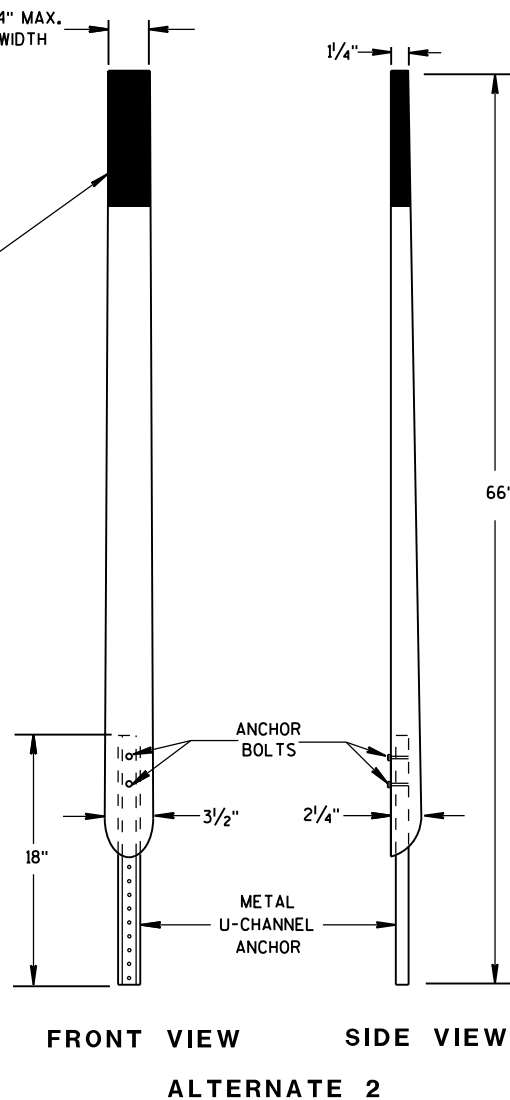
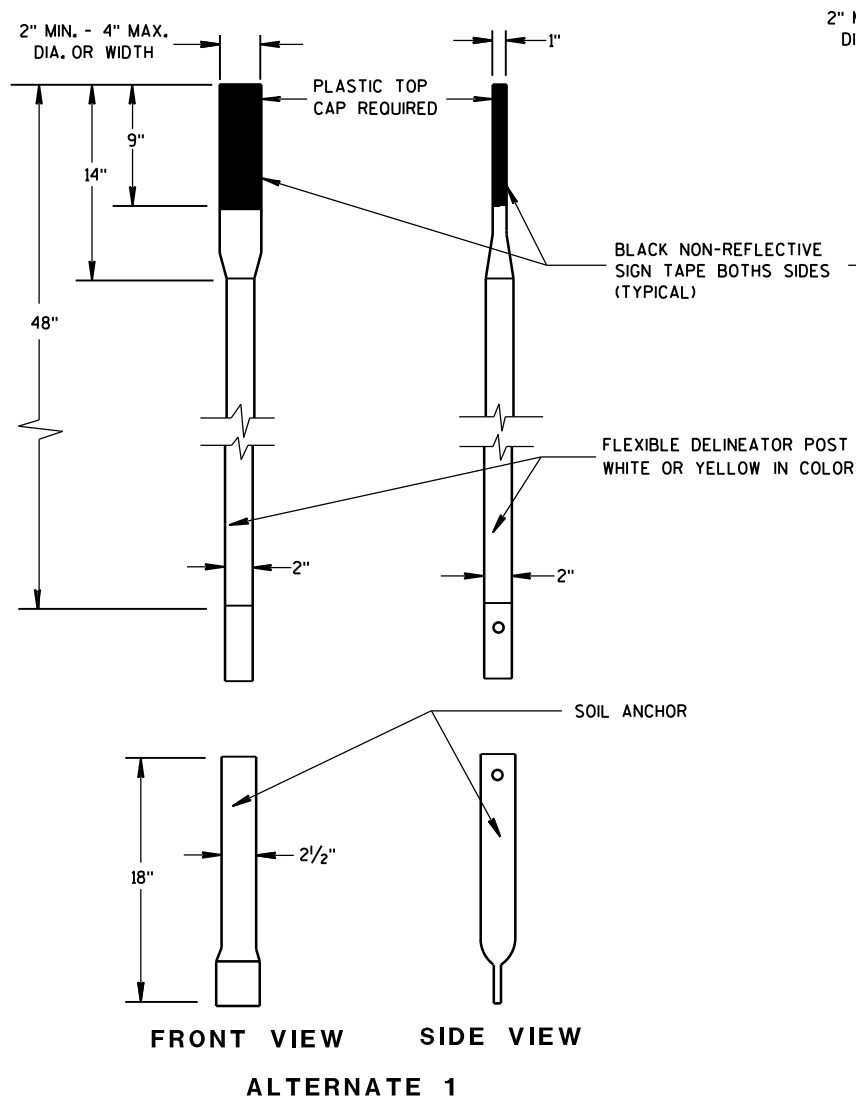
PLAN VIEW
CONCRETE MASONRY ENDWALLS FOR
CULVERT PIPE AND PIPE ARCH



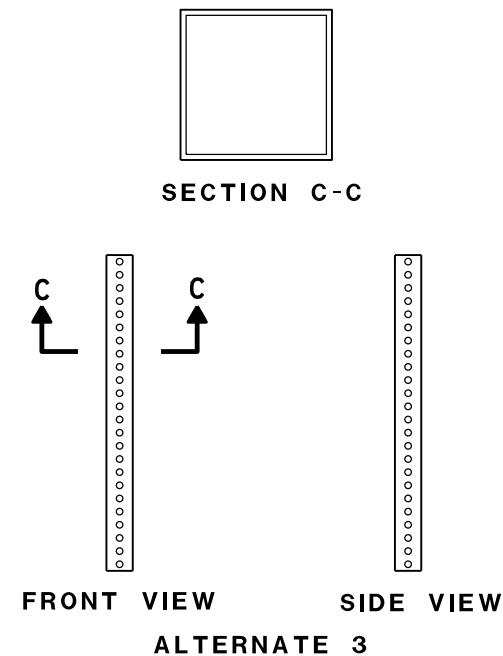
CROSS SECTION
FLEXIBLE MARKER POST

FLEXIBLE MARKER POST
FOR CULVERT END

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



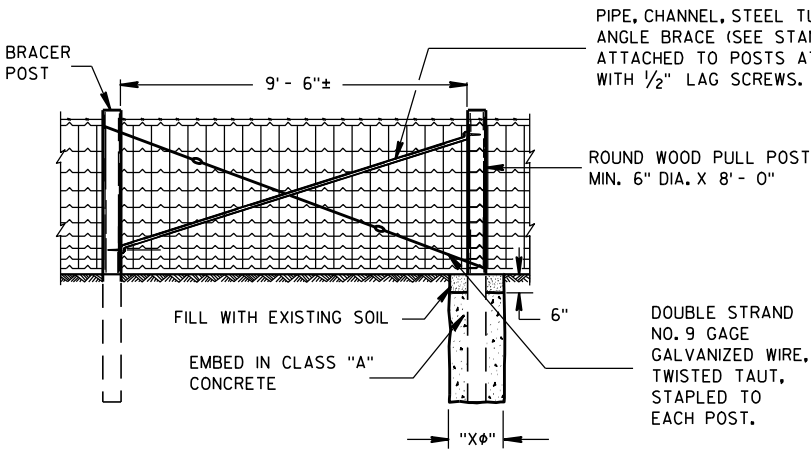
FLEXIBLE MARKER POST ANCHORS



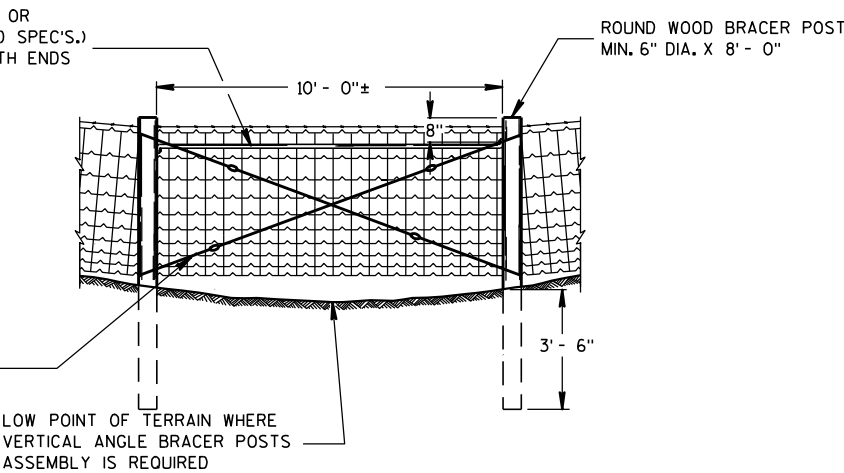
| | |
|--|---|
| FLEXIBLE MARKER POST FOR CULVERT END | |
| STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION | |
| APPROVED 10/1/2012 DATE | /S/ Travis Feltes STATE TRAFFIC ENGINEER OF DESIGN |
| FHWA | |

NOTE: PULL OR STRETCHER POST ASSEMBLIES SHALL BE PLACED MIDWAY BETWEEN END POSTS AND CORNER POSTS WHERE A RUN OF FENCE EXCEEDS 660' BUT IS LESS THAN 1,320'. FOR RUNS OF FENCE IN EXCESS OF 1,320' MAXIMUM SPACING OF PULL OR STRETCHER POST ASSEMBLIES SHALL BE 660'± C-C.

ILLUSTRATION SHOWS POSITION OF STANDARD STEEL BRACE, DOUBLE STRAND GALVANIZED WIRE, AND THE POST TO BE EMBEDDED IN CONCRETE WHEN WIRE FENCE IS INSTALLED FROM LEFT TO RIGHT. THE BRACES SHALL BE POSITIONED ON THE OPPOSITE DIAGONALS AND THE OPPOSITE POST SHALL BE EMBEDDED IN CONCRETE WHEN WIRE FENCE IS INSTALLED FROM RIGHT TO LEFT.



PULL OR STRETCHER POSTS ASSEMBLY



VERTICAL ANGLE BRACER POSTS ASSEMBLY

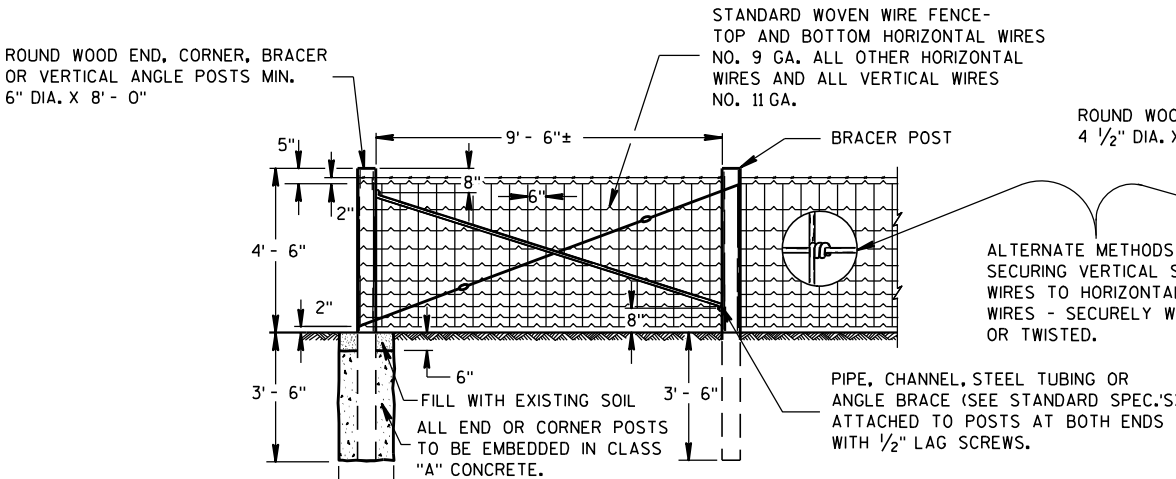
GENERAL NOTES

"Xφ" = DIAMETER OF THE POST PLUS 12".

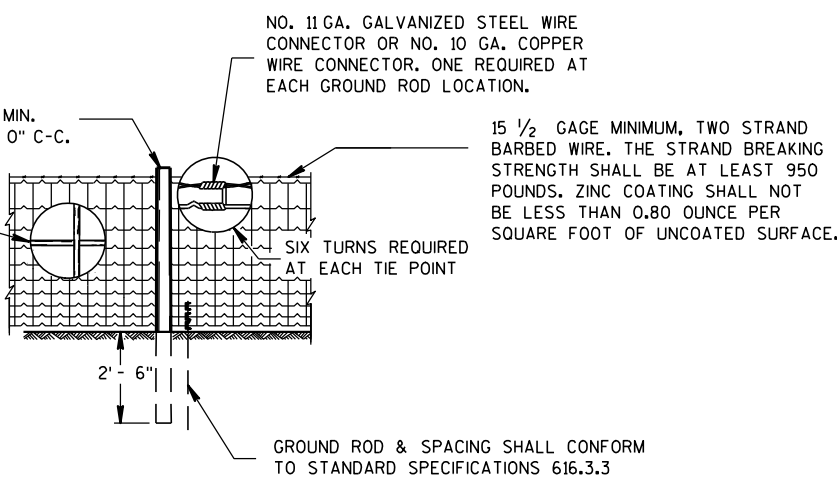
FENCE STAPLES SHOULD NEVER BE DRIVEN VERTICALLY INTO WOOD POSTS (WITH BOTH LEGS PARALLEL WITH THE WOOD GRAIN). DOING SO CAN SEPARATE THE GRAIN AND SIGNIFICANTLY REDUCE THE HOLDING POWER. ROTATING THE STAPLES SLIGHTLY OFF VERTICAL STRADDLES THE GRAIN AND PROVIDES MORE RESISTANCE TO PULL-OUT.

DO NOT STAPLE WIRE TIGHT TO THE LINE POSTS. ALLOW MOVEMENT OF WIRE FOR EXPANSION AND CONTRACTION. STAPLE ARRANGEMENT SHALL BE THE SAME FOR ALL OTHER POSTS EXCEPT THAT THEY SHALL BE DRIVEN TIGHT TO POSTS. ALL STAPLES SHALL BE 2" X 9 GAGE AND SHALL BE MANUFACTURED FROM GALVANIZED WIRE OR HOT DIP GALVANIZED AFTER FORMING. STAPLES SHALL HAVE SLASH-CUT POINTS.

FENCE SHALL BE LOCATED 3'-0" INSIDE THE RIGHT OF WAY LINE UNLESS OTHERWISE INDICATED ON THE PLANS.

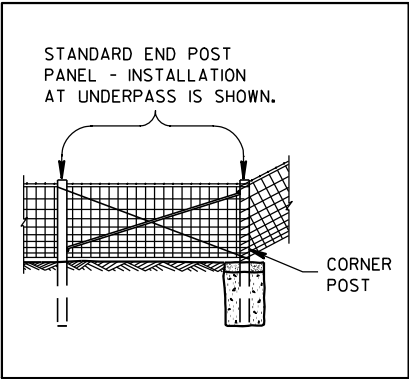


END OR CORNER POSTS ASSEMBLY

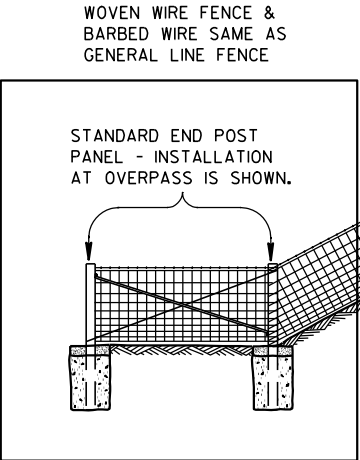


LINE FENCE CONSTRUCTION

GENERAL ROADSIDE VIEW OF WOVEN WIRE FENCE



ALTERNATE FENCE DESIGN AT STRUCTURE



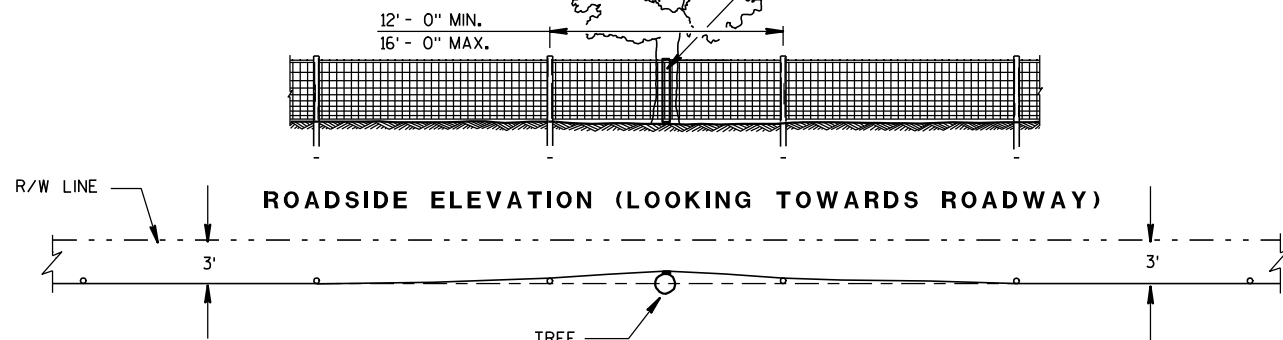
FENCE DESIGN AT STRUCTURE APPROACH

FENCE WOVEN WIRE

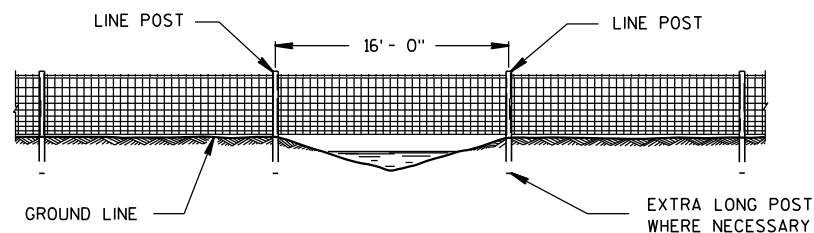
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

NOTE: TREE IN NORMAL FENCE LINE SPECIFICALLY ORDERED BY ENGINEER TO REMAIN IN PLACE.

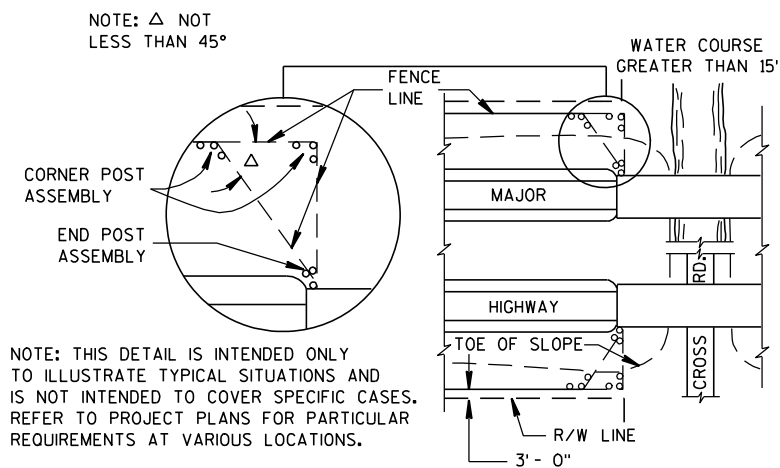
2" X 6" DOUGLAS FIR OR SO. YELLOW PINE PLACED BETWEEN TREE AND WOVEN WIRE FENCE. WOVEN WIRE FENCE AND BARBED WIRE TO BE STAPLED TO 2" X 6" LIKE AS TO LINE POST. 2" X 6" NOT FASTENED TO TREE.



PLAN VIEW
FENCE DESIGN AT TREES REMAINING
IN NORMAL FENCE LINE

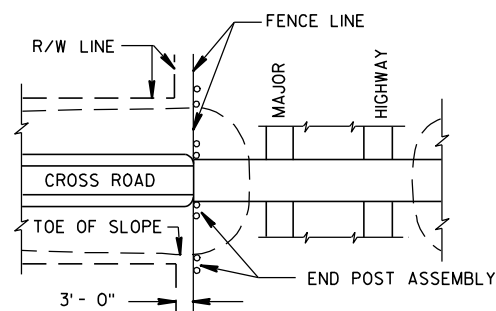


FENCE CONSTRUCTION OVER STREAM
COURSES OF 15 FT. OR LESS IN WIDTH

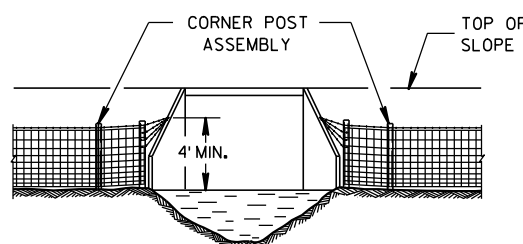


PLAN VIEW
MAJOR HIGHWAY OVERPASS OR STREAM COURSE
CROSSING OF GREATER THAN 15 FT. IN WIDTH

FENCE LOCATION AT STRUCTURES

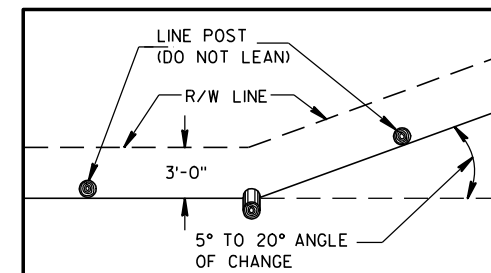
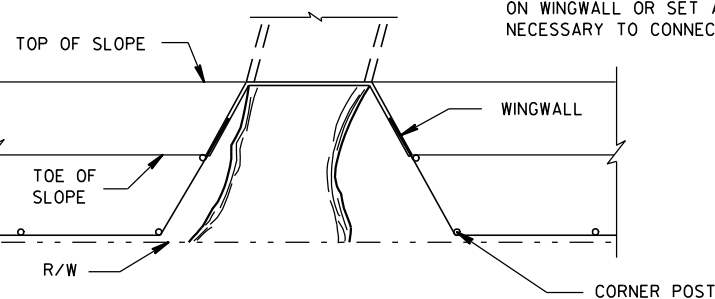


PLAN VIEW
MAJOR HIGHWAY UNDERPASS

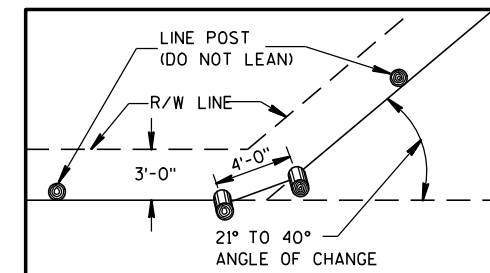


FENCE INSTALLATION TO WINGWALLS

NOTE: PLACE A MINIMUM OF 4 STRANDS OF BARBED WIRE, 6" MAXIMUM CENTERS IN FAN SHAPE CONNECTED TO AN EYE BOLT ON WINGWALL OR SET A LONE POST WHEN NECESSARY TO CONNECT BARBED WIRE.



PLAN VIEW
SINGLE POST CORNER

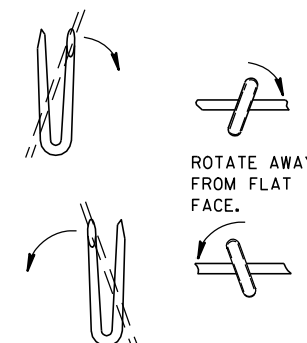


PLAN VIEW
DOUBLE POST CORNER

RIGHT OF WAY LINE CHANGE 40° AND LESS

NOTE: SINGLE AND DOUBLE POSTS SHALL BE A MIN. 6" DIA. X 8'-0" WITH A LEAN OF 4" TOWARD THE OUTSIDE OF THE CURVE.

WHEN THE RIGHT OF WAY LINE CHANGE IS MORE THAN 40° USE THE CORNER OR STRETCHER POSTS ASSEMBLY.



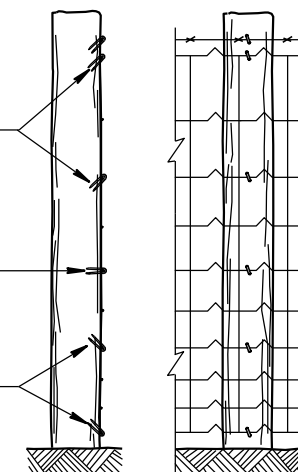
LINE POST

NOTE: WHEN POSTS ARE DRIVEN THE SMALL END SHALL BE DOWN.

STAPLES SLOPED DOWNWARD FOR SUSTAINED GRADES AND OVER KNOLLS.

STAPLES LEVEL FOR LEVEL GROUND.

SLOPE UPWARDS WHEN FENCE TENDS TO LIFT.



END ELEVATION
FARM SIDE ELEVATION
FENCE MOUNTING DETAIL

FENCE WOVEN WIRE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

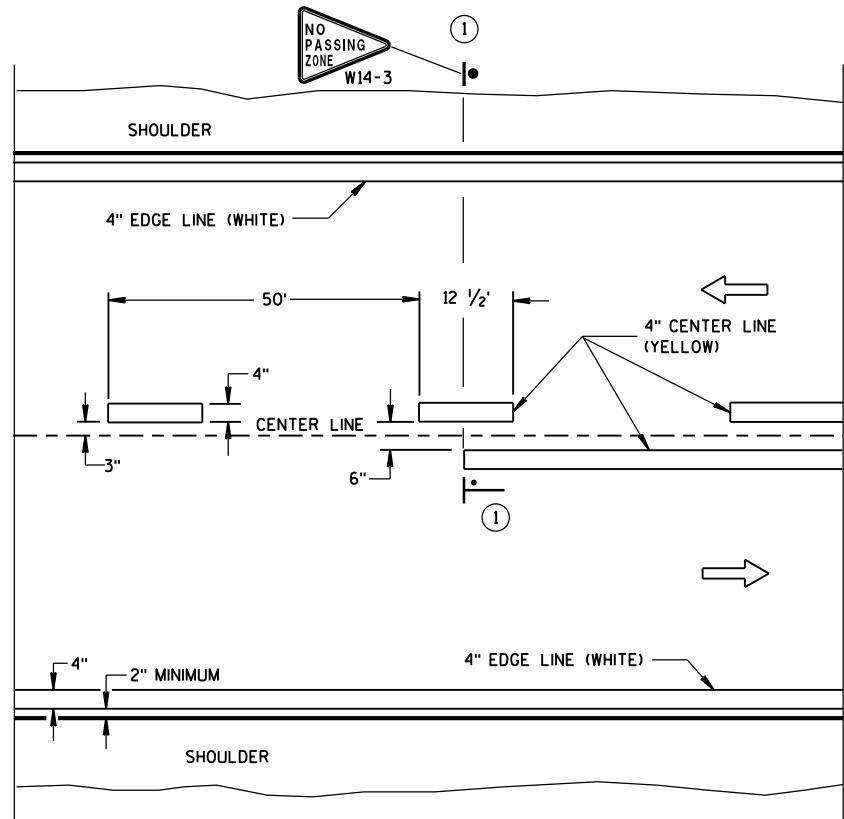
APPROVED

4/4/2008

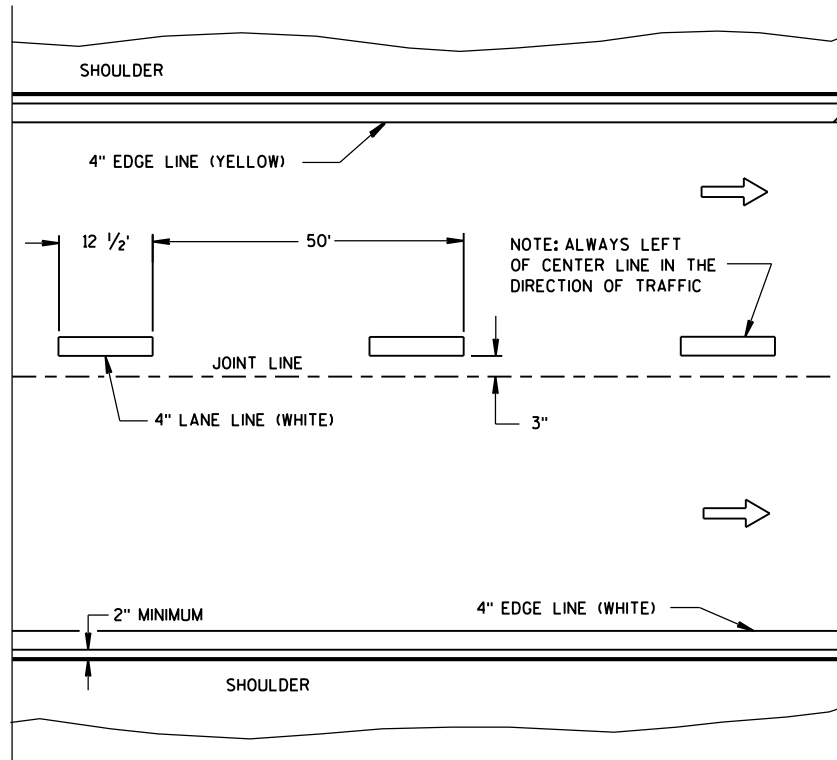
DATE

FHWA

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

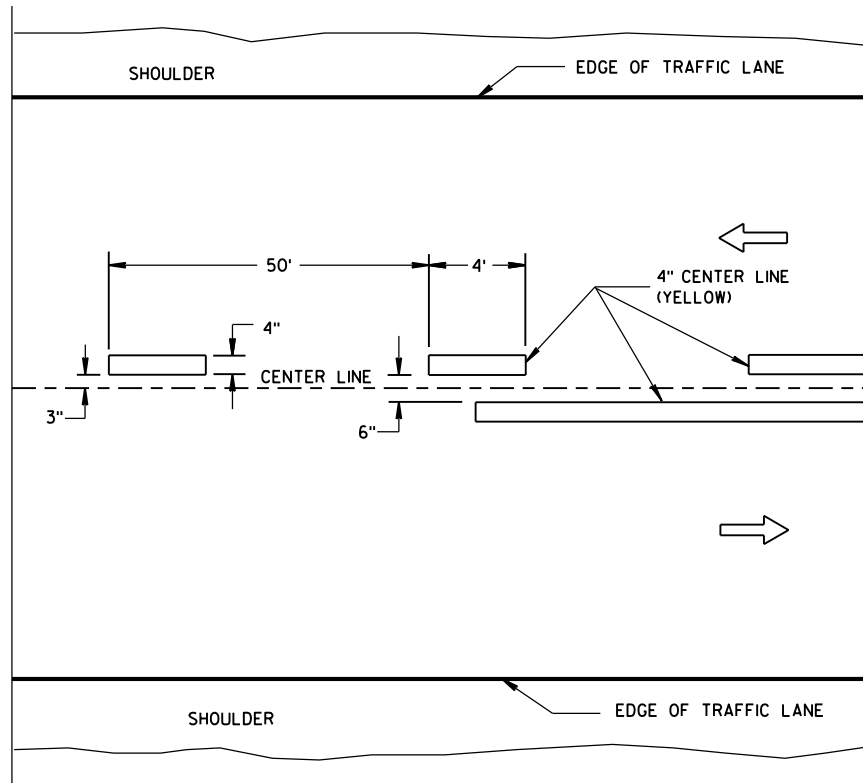


TWO WAY TRAFFIC

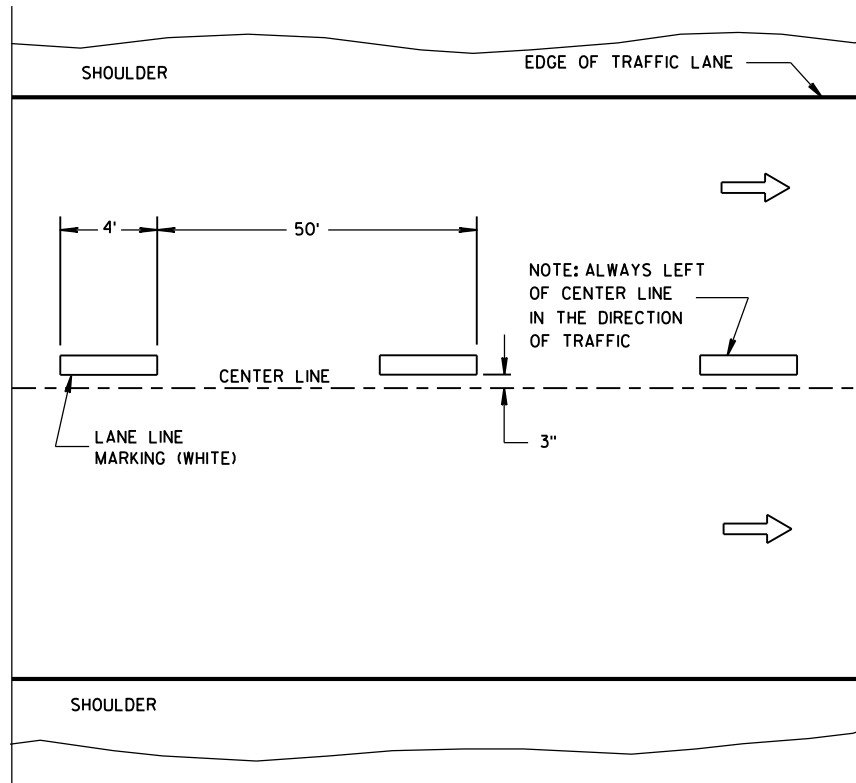


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY 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

LONGITUDINAL MARKING
(MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017 /S/ Matthew R. Rauch
DATE STATE SIGNING AND MARKING ENGINEER
FHWA

LEGEND

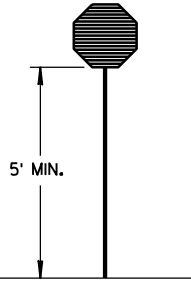
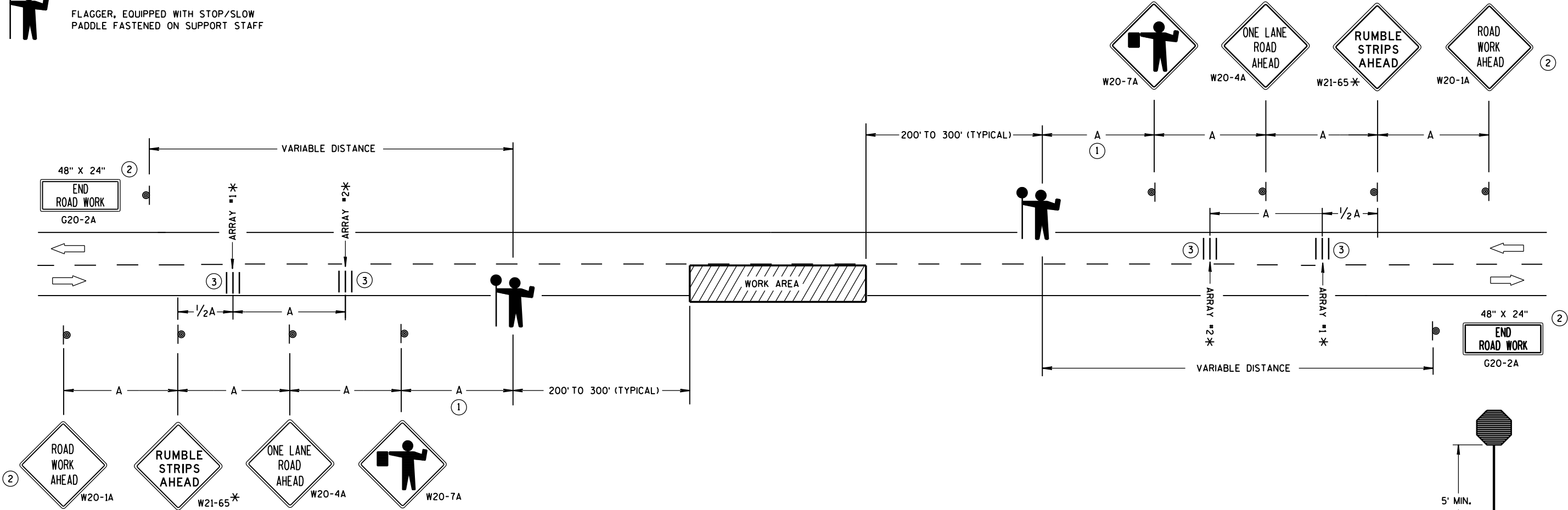
- SIGN ON PORTABLE OR PERMANENT SUPPORT
- DIRECTION OF TRAFFIC
- WORK AREA
- FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF

SIGN AND TEMPORARY RUMBLE STRIP ARRAY SPACING TABLE

| SPEED LIMIT | SPACING A |
|-------------|-----------|
| 25-35 MPH | 200' |
| 35-40 MPH | 350' |
| 45-55 MPH | 500' |



USE OF THE "BE PREPARED TO STOP" SIGN IS OPTIONAL. WHEN USED, THIS SIGN SHALL BE LOCATED BETWEEN THE W20-7A AND W20-4A SIGNS, USING SPACING A.



STOP/SLOW PADDLE ON SUPPORT STAFF

TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION

GENERAL NOTES

DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

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

THE FIRST ADVANCE WARNING SIGN SHOULD TYPICALLY BE LOCATED IN ADVANCE OF THE ANTICIPATED TRAFFIC BACKUP OR QUEUE.

"W0" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

WHEN A SIDE ROAD OR RAMP INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, ADDITIONAL TRAFFIC CONTROLS SHALL BE PROVIDED AS SPECIFIED IN THE PLANS AND/OR THE SPECIAL PROVISIONS OR AS APPROVED BY THE ENGINEER.

INSTALL TEMPORARY RUMBLE STRIPS PER MANUFACTURER'S RECOMMENDATIONS. PLACE ADVANCE SIGNING PRIOR TO INSTALLING TEMPORARY RUMBLE STRIPS.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY SHALL BE EQUIPPED WITH STOP/SLOW PADDLES FASTENED ON SUPPORT STAFFS. WHEN THE FLAGGING OPERATION IS NOT IN EFFECT, REMOVE TEMPORARY RUMBLE STRIPS PRIOR TO COVERING OR REMOVING ALL ADVANCE SIGNING.

* UTILIZE TEMPORARY RUMBLE STRIPS WHEN FLAGGING OPERATION IS ANTICIPATED TO BE STATIONARY IN EXCESS OF TWO HOURS.

- FOR A MOVING WORK OPERATION, SIGNING AND TEMPORARY RUMBLE STRIPS (IF USED) SHALL BE REESTABLISHED (AS SIMULTANEOUSLY AS PRACTICAL) AT APPROXIMATELY 3,500 FOOT INTERVALS IN THE MOVING WORK OPERATION OR AS APPROVED BY THE ENGINEER.
- SIGN NOT REQUIRED IF FLAGGING OPERATION OCCURS WITHIN A SIGNED ROAD WORK ZONE AREA.
- EACH TEMPORARY RUMBLE STRIP ARRAY CONSISTS OF THREE RUMBLE STRIPS SPACED ACCORDING TO MANUFACTURER'S RECOMMENDATION, PLACED TRANSVERSE ACROSS THE LANE AT LOCATIONS SHOWN.

TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017 /S/ Andrew Heldtke
DATE WORK ZONE ENGINEER
FHWA

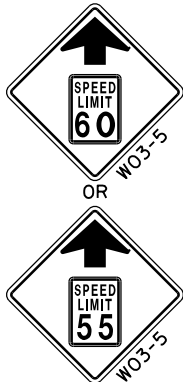
LEGEND

- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TRAFFIC CONTROL DRUM
- FLASHING ARROW BOARD
- REMOVING PAVEMENT MARKING
- CONCRETE BARRIER TEMPORARY PRECAST
- DIRECTION OF TRAFFIC
- WORK AREA

| L, TAPER LENGTH (MPH) | | | | | | |
|-----------------------|------------------------|-----|-----|-----|-----|------|
| SPEED (MPH) | W, LATERAL OFFSET (FT) | | | | | |
| | 10 | 11 | 12 | 13 | 14 | 15 |
| 45 | 450 | 495 | 540 | 585 | 630 | 675 |
| 50 | 500 | 550 | 600 | 650 | 700 | 750 |
| 55 | 550 | 605 | 660 | 715 | 770 | 825 |
| 60 | 600 | 660 | 720 | 780 | 840 | 900 |
| 65 | 650 | 715 | 780 | 845 | 910 | 975 |
| 70 | 700 | 770 | 840 | 910 | 980 | 1050 |



INSTALL ON EACH APPROACH AT THE CLOSEST INTERSECTION WITH A STATE OR COUNTY TRUNK HIGHWAY, OR AS DIRECTED BY THE ENGINEER. WIDTH ON SIGN TO BE APPROX. 1 FOOT LESS THAN AVAILABLE WIDTH (OMIT IF AVAILABLE WIDTH IS MORE THAN 16 FEET).



LOCATED 2600 FEET IN ADVANCE OF R2-1 SIGN AND 500 FEET BEYOND THE "ROAD WORK 1 MILE" SIGN.



OR



R2-1 48"x60" (BLACK AND WHITE) LOCATED 500 FEET BEYOND W20-5G SIGN.

IF THE REGULATORY SPEED HAS BEEN REDUCED, A SPEED LIMIT SIGN SHALL BE LOCATED 1500 FEET BEYOND THE END OF THE ACCELERATION LANE OF EACH ENTRANCE RAMP. THERE SHOULD BE A SPEED LIMIT SIGN INCORPORATED A MINIMUM OF EVERY 2 OR 3 MILES.

* INCLUDE RESUME SPEED LIMIT SIGN A MINIMUM OF 200 FEET (500 FEET DESIRABLE) AFTER END ROAD WORK SIGNS.

GENERAL NOTES

THIS LANE CLOSURE IS TYPICAL FOR CLOSING RIGHT LANE - REVERSE FOR CLOSING LEFT LANE.

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

THE SPACING BETWEEN SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS.

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

"W0" IS THE SAME AS "W" EXCEPT THE BACKGROUND IS ORANGE.

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

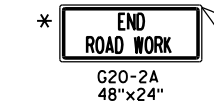
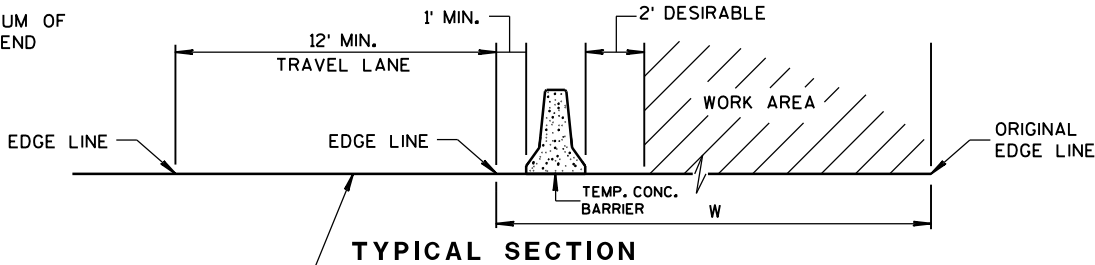
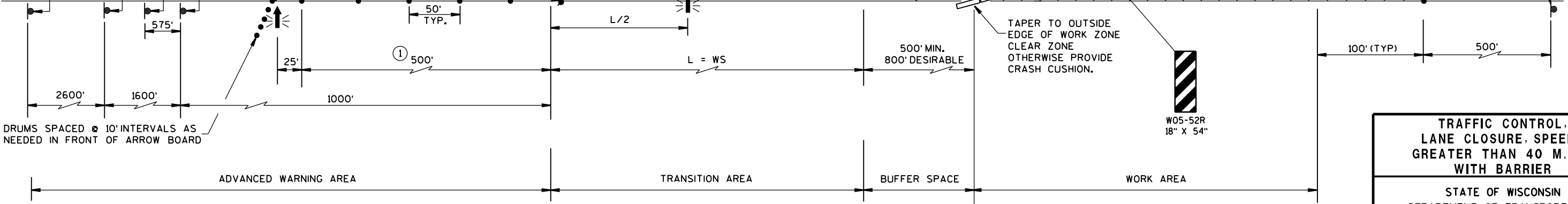
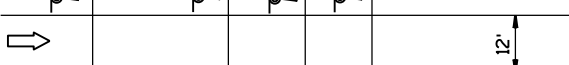
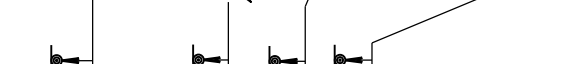
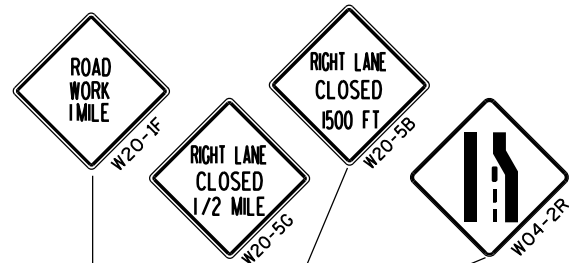
1. CONSIDER ROADWAY GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARD SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE DRUMS FOR A MINIMUM 1500 FEET IN FRONT OF DRUM TAPER.

FOR A LANE CLOSURE THAT IS IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, THE ADVANCED WARNING SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS.

REMOVE PAVEMENT MARKINGS IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

IF THE HORIZONTAL ALIGNMENT IS SUCH THAT A CURVE MAY REQUIRE ADDITIONAL DELINEATION, THE DEVICE SPACING MAY BE DECREASED TO 50 FEET.

ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE CLOSURE OCCURS NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP OR INTERSECTION. THE LANE CLOSURE MUST TAKE PLACE FAR ENOUGH IN ADVANCE OF AN EXIT OR ENTRANCE RAMP TO STILL ALLOW FOR ADEQUATE BUFFER SPACE. THE MINIMUM LENGTH OF THE BUFFER SPACE BEFORE AN EXIT RAMP SHOULD BE 1/2 THE LENGTH OF THE TRANSITION AREA. THE ENTRANCE RAMP SHOULD BE FOLLOWED BY THE ORIGINAL BUFFER SPACE LENGTH OF 800 FEET DESIRABLE PRIOR TO ANOTHER TRAFFIC CONTROL CHANGE SUCH AS A CROSSOVER MANEUVER.



| | |
|--|---|
| TRAFFIC CONTROL, LANE CLOSURE, SPEEDS GREATER THAN 40 M.P.H. WITH BARRIER | |
| STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION | |
| APPROVED Sept., 2016 DATE | /S/ Peter Amakobe Atepe STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER |
| FHWA | |

LEGEND

- TYPE III BARRICADE WITH ATTACHED SIGN
- SIGN ON PERMENENT SUPPORT
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TRAFFIC CONTROL DRUM
- FLASHING ARROW BOARD
- TYPE "A" WARNING LIGHT (FLASHING)
- REMOVING PAVEMENT MARKING
- DIRECTION OF TRAFFIC
- WORK AREA

GENERAL NOTES

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

THE SPACING BETWEEN SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET, (500 FEET DESIREABLE) DISTANCE TO EXISTING SIGNS.

THIS LANE CLOSURE IS TYPICAL FOR CLOSING RIGHT LANE - REVERSE FOR CLOSING LEFT LANE.

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

"W0" IS THE SAME AS "W" EXCEPT THE BACKGROUND IS ORANGE.

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. NO WARNING LIGHTS SHALL BE WORKING ON "COVERED" OR "DOWNED" SIGNS.

CONSIDER GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARD SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE DRUMS FOR A MINIMUM 1500 FEET IN FRONT OF DRUMS.

FOR A LANE CLOSURE THAT IS IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, THE ADVANCED WARNING SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS.

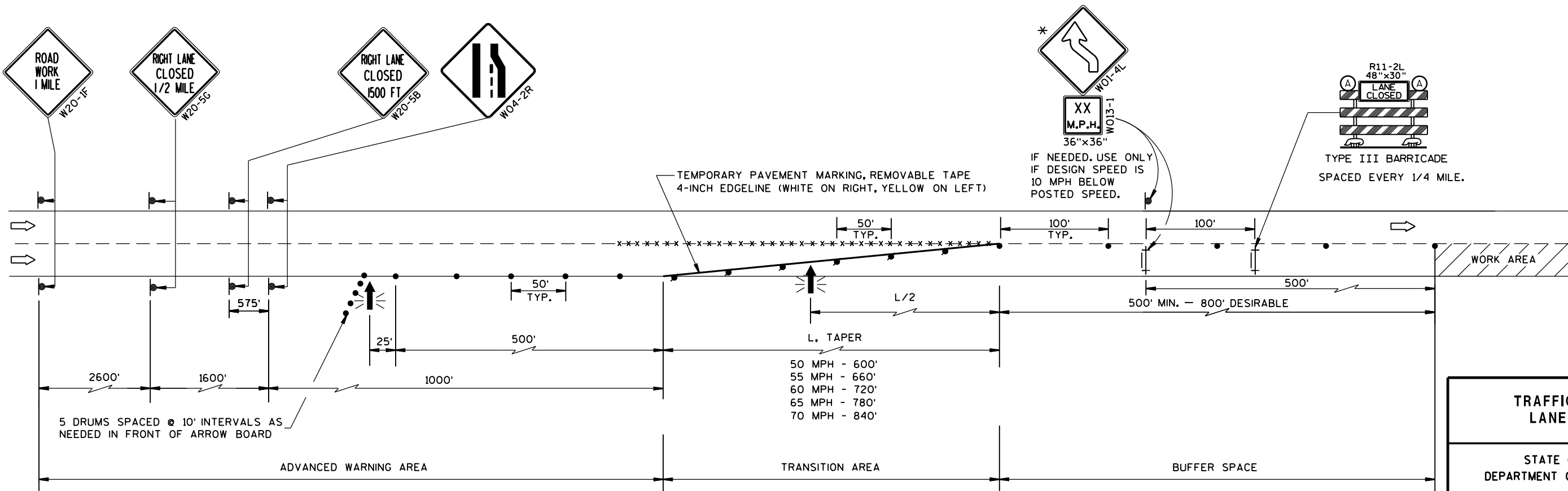
REMOVE PAVEMENT MARKINGS IF LANE CLOSURE IS TO BE IN PLACE FOR LONGER THAN 4 OR MORE DAYS AND NIGHTS.

WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

IF THE HORIZONTAL ALIGNMENT IS SUCH THAT A CURVE MAY REQUIRE ADDITIONAL DELINEATION, THE DEVICE SPACING MAY BE DECREASED TO 50 FEET.

ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE CLOSURE OCCURS NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP. THE LANE CLOSURE MUST MUST TAKE PLACE FAR ENOUGH IN ADVANCE OF AN EXIT OR ENTRANCE RAMP TO STILL ALLOW FOR ADEQUATE BUFFER SPACE. THE MINIMUM LENGTH OF THE BUFFER SPACE BEFORE AN EXIT RAMP SHOULD BE 1/2 THE LENGTH OF THE TRANSITION AREA. THE ENTRANCE RAMP SHOULD BE FOLLOWED BY THE ORIGINAL BUFFER SPACE LENGTH OF 800 FEET DESIRABLE PRIOR TO ANOTHER TRAFFIC CONTROL CHANGE SUCH AS A CROSSOVER MANEUVER.

* THE LEFT REVERSE CURVE SIGN (W01-4L) IS ONLY REQUIRED WHEN THIS DETAIL IS USED IN COMBINATION WITH "SINGLE LANE CROSSOVER" DETAIL.



| | |
|--|---|
| TRAFFIC CONTROL, LANE CLOSURE | |
| STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION | |
| APPROVED March 2016 DATE | /S/ Peter Amakobe Atepe STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER |
| FHWA | |



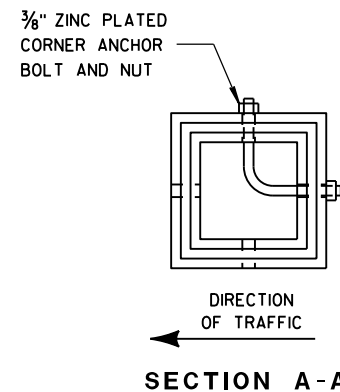
DETAIL OF TUBULAR
STEEL SIGN POST

TUBULAR STEEL POSTS

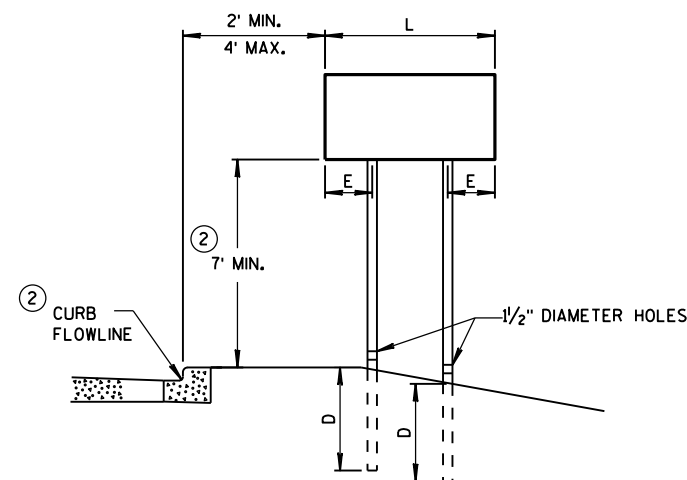
| AREA OF SIGN INSTALLATION (SQ. FT.) | NUMBER OF REQUIRED TUBULAR STEEL POSTS |
|--|--|
| 9 OR LESS | 1 |
| GREATER THAN 9 LESS THAN OR EQUAL TO 18 | 2 |
| GREATER THAN 18 LESS THAN OR EQUAL TO 27 | 3 |

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.



SECTION A-A

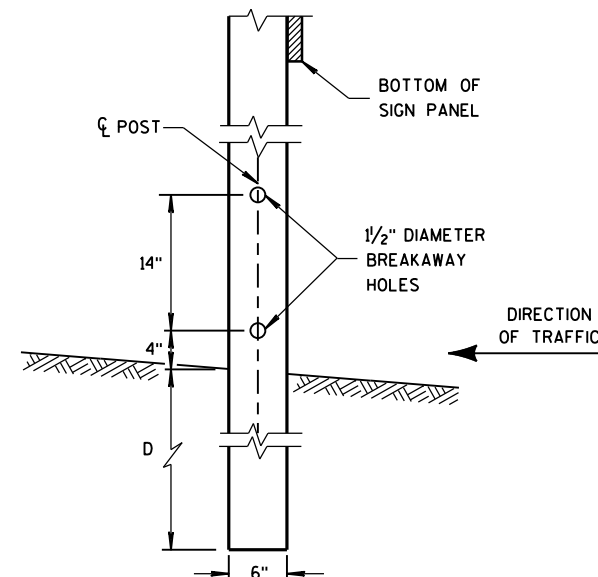


URBAN AREA

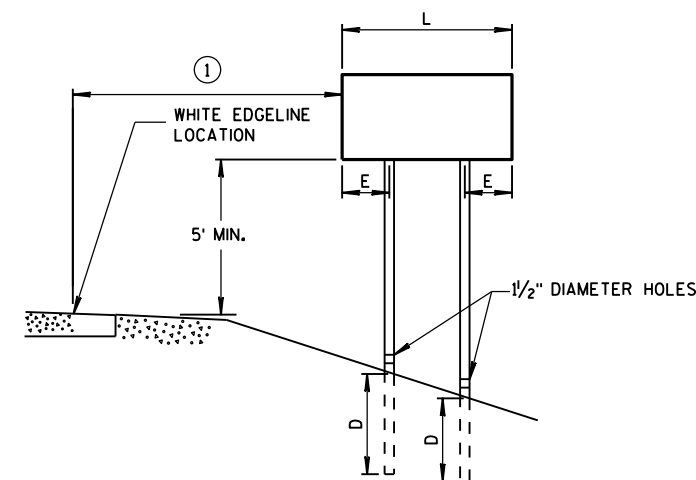
POST MOUNTING DETAIL FOR TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS

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
MODIFICATION



RURAL AREA

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 |

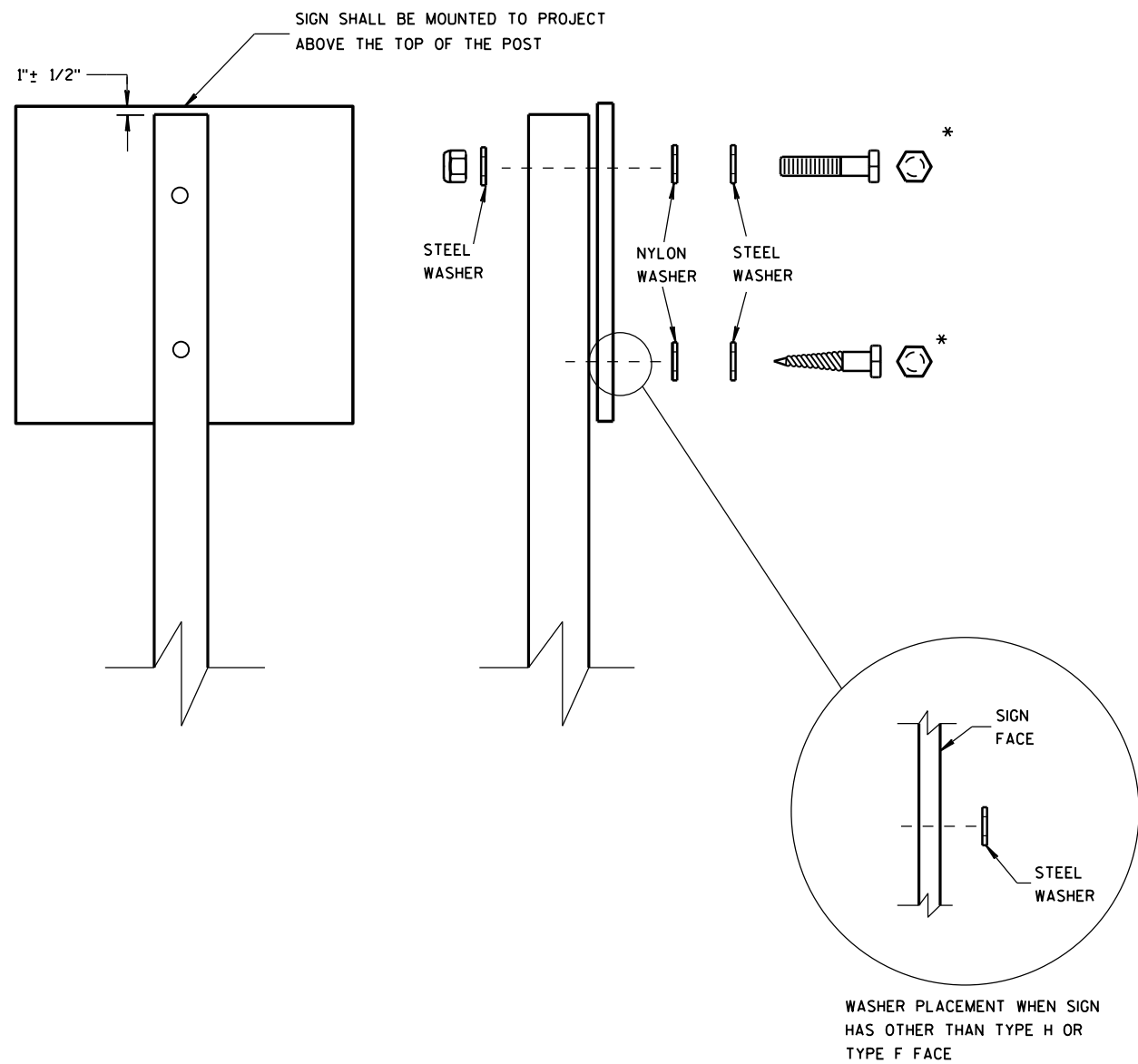
SEE NOTE ③

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.

TEMPORARY TRAFFIC CONTROL
SIGN MOUNTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



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.

| | |
|--|--|
| ATTACHMENT OF SIGNS TO POSTS | |
| STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION | |
| APPROVED June 2017 DATE | /S/ Andrew Heldtke WORK ZONE ENGINEER |
| FHWA | |

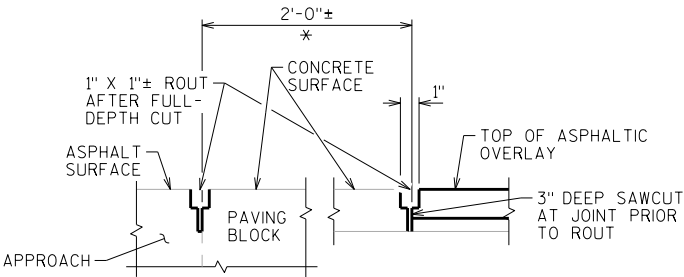
DESIGN DATA

LIVE LOAD:

INVENTORY RATING: HS-15
OPERATING RATING: HS-25
MAXIMUM STANDARD PERMIT VEHICLE LOAD = 160 KIPS

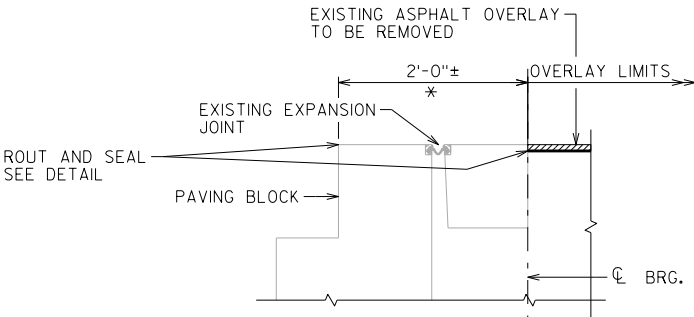
MATERIAL PROPERTIES:

CONCRETE MASONRY:
SUPERSTRUCTURE — f'c = 4,000 P.S.I.
SUBSTRUCTURE — f'c = 3,500 P.S.I.



ROUT AND SEAL DETAIL

* MEASURED NORMAL TO C SUBSTRUCTURE




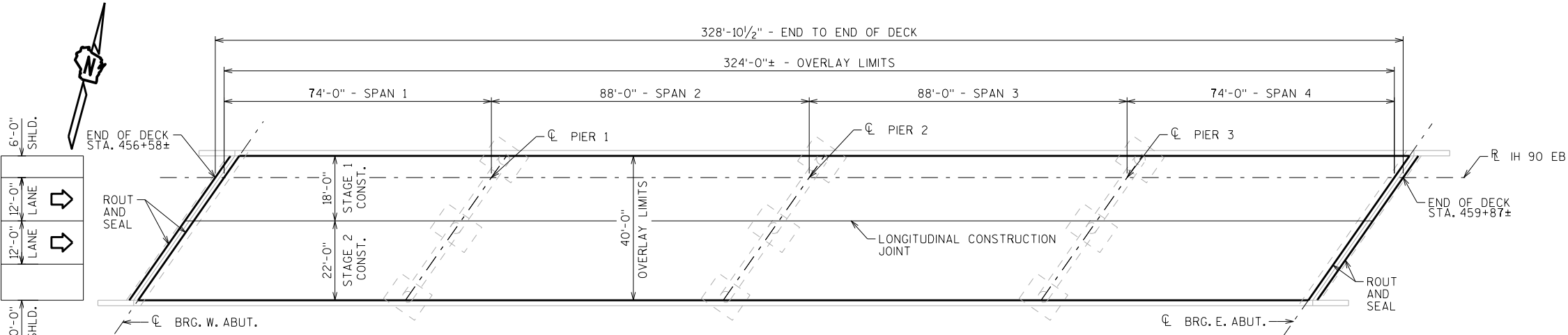
DETAIL AT ABUTMENT

* MEASURED NORMAL TO C SUBSTRUCTURE

STRUCTURE DESIGN CONTACTS:

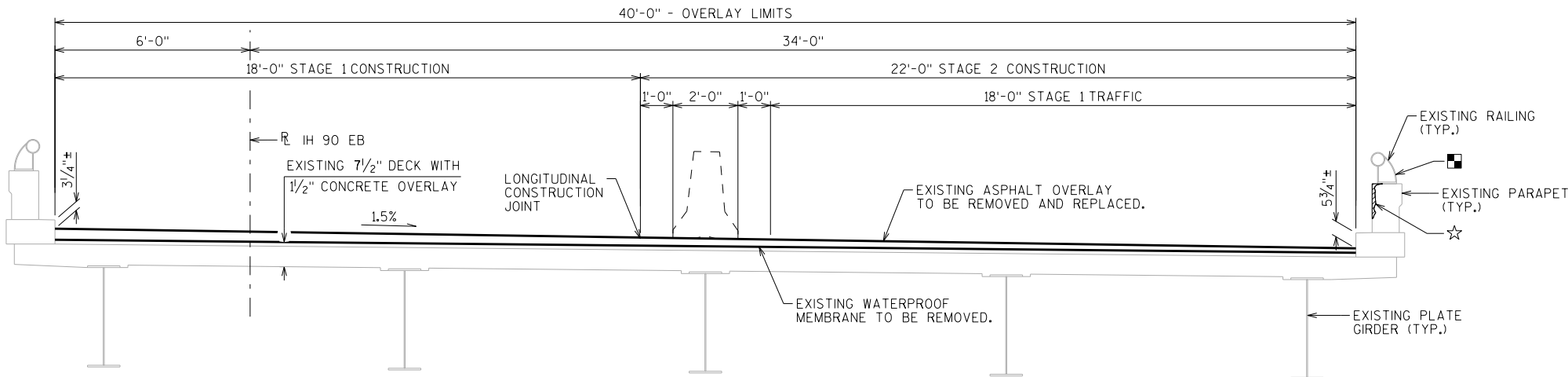
MICHAEL LARSON (608) 267-4539
LAURA SHADEWALD (608) 267-9592

| | | | |
|---|-----------|-------------------|--------------|
| NO. | DATE | REVISION | BY |
|  | | | |
| ACCEPTED <i>William C. Dreher</i> 8/3/18 CHIEF STRUCTURES DESIGN ENGINEER DATE | | | |
| STRUCTURE B-32-23 | | | |
| IH 90 EB OVER LA CROSSE RIVER | | | |
| COUNTY | LA CROSSE | TOWN/CITY/VILLAGE | HAMILTON |
| DESIGN SPEC. REHABILITATION N/A | | | |
| DESIGNED BY | MJL | DESIGNED CK'D. | DMB |
| DRAWN BY | MJL | PLANS CK'D. | DMB |
| HOT MIXED ASPHALT OVERLAY | | | SHEET 1 OF 1 |



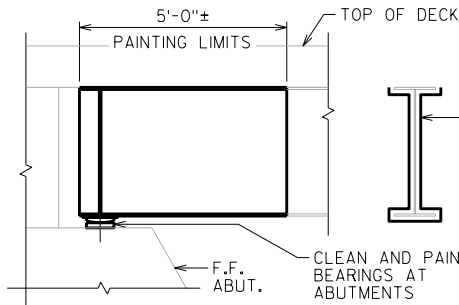
PLAN

(4 SPAN STEEL PLATE GIRDER BRIDGE)



CROSS SECTION THRU ROADWAY

(LOOKING UPSTATION)
(STAGE 1 TRAFFIC SHOWN, STAGE 2 SIMILAR)



PAINTING DETAIL

(TYP. AT BOTH ABUTMENTS)

PAINTING LIMITS:
SP3 CLEAN AND OVERCOAT
ALL STEEL SURFACES FOR
5'-0" FROM GIRDER ENDS AT
ABUTMENTS AT ALL GIRDERS
(INCLUDING ALL DIAPHRAGMS
AND STIFFENERS) PAINT COLOR
SHALL BE GRAY FEDERAL
COLOR NUMBER 26293

TOTAL ESTIMATED QUANTITIES

| BID ITEM NUMBER | BID ITEMS | UNIT | TOTALS |
|-----------------|---|------|--------|
| 203.0210.S | ABATEMENT OF ASBESTOS CONTAINING MATERIAL B-32-23 | LS | 1 |
| 455.0605 | TACK COAT | GAL | 101 |
| 460.7424 | HMA PAVEMENT 4 HT 58-28 H | TON | 258 |
| 509.0301 | PREPARATION DECKS TYPE 1 | SY | 201 |
| 509.0302 | PREPARATION DECKS TYPE 2 | SY | 91 |
| 509.0310.S | SAWING PAVEMENT DECK PREPARATION AREAS | LF | 2,010 |
| 509.1500 | CONCRETE SURFACE REPAIR | SF | 658 |
| 509.2000 | FULL-DEPTH DECK REPAIR | SY | 26 |
| 509.2100.S | CONCRETE MASONRY DECK REPAIR | CY | 20 |
| 509.9010.S | REMOVING ASPHALTIC CONCRETE DECK OVERLAY B-32-23 | SY | 1,440 |
| 517.3000.S | STRUCTURE OVERCOATING CLEANING AND PRIMING B-32-23 | LS | 1 |
| 517.4000.S | CONTAINMENT AND COLLECTION OF WASTE MATERIALS B-32-23 | LS | 1 |
| 517.6001.S | PORTABLE DECONTAMINATION FACILITY | EACH | 1 |
| SPV.0060 | CLEANING AND PAINTING BEARINGS | EACH | 10 |
| SPV.0090 | BRIDGE JOINT ROUT AND SEAL | LF | 196 |

TRAFFIC VOLUME

IH 90 EB
ADT = 10,650 (2011)
R.D.S. = 70 M.P.H.

LIST OF DRAWINGS

1. HOT MIXED ASPHALT OVERLAY

EXISTING RAILING MAY NEED TO BE TEMPORARILY REMOVED DURING CONCRETE SURFACE REPAIR. TIGHTEN AND REPLACE MISSING BOLTS HOLDING ALUMINUM RAIL TO PARAPET. TO BE PAID UNDER BID ITEM "CONCRETE SURFACE REPAIR."

LOCATION OF CONCRETE SURFACE REPAIR ON PARAPETS TO BE DETERMINED BY THE ENGINEER.

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

AREAS OF "PREPARATION DECKS TYPE 1" SHALL BE DEFINED BY A SAW CUT.

PREPARATION DECKS TYPE 1, PREPARATION DECKS TYPE 2, AND FULL-DEPTH DECK REPAIR AREAS ARE BASED ON THE PLANS AND AS DETERMINED BY THE ENGINEER. DECK PREPARATION AND FULL-DEPTH DECK REPAIRS SHALL BE FILLED WITH "CONCRETE MASONRY DECK REPAIR".

ANY EXCAVATION NECESSARY TO COMPLETE THE OVERLAY OR JOINT REPAIR AT THE ABUTMENTS IS TO BE CONSIDERED INCIDENTAL TO THE BID ITEM "HMA PAVEMENT 4 HT 58-28 H".

THE EXPECTED AVERAGE OVERLAY THICKNESS IS 3.2". IF EXPECTED AVERAGE OVERLAY THICKNESS IS EXCEEDED BY MORE THAN 1/2", CONTACT THE STRUCTURES DESIGN SECTION.

THE EXISTING ASPHALT OVERLAY AND WATERPROOF MEMBRANE SHALL BE REMOVED FROM THE BRIDGE DECK UNDER BID ITEM "REMOVING ASPHALTIC CONCRETE DECK OVERLAY B-32-23".

THE PLAN QUANTITY FOR THE BID ITEM "HMA PAVEMENT 4 HT 58-28 H" IS BASED ON THE AVERAGE OVERLAY THICKNESS.

THE PROFILE GRADE LINE SHALL MATCH THE EXISTING ELEVATION.

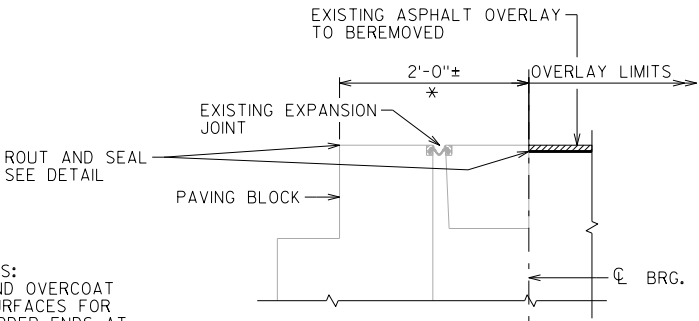
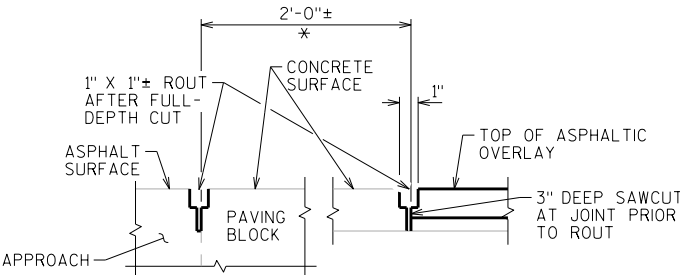
DESIGN DATA

LIVE LOAD:


INVENTORY RATING: HS-15
OPERATING RATING: HS-25
MAXIMUM STANDARD PERMIT VEHICLE LOAD = 160 KIPS

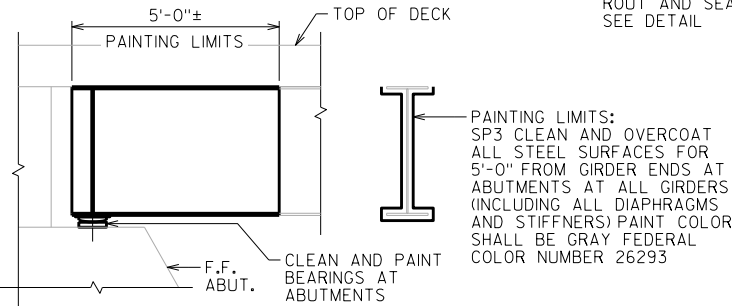
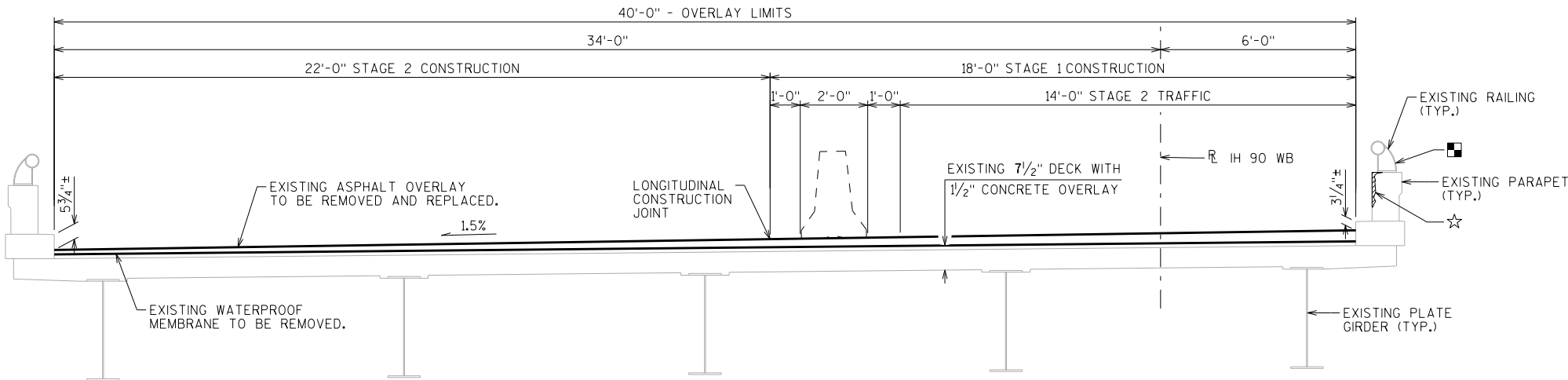
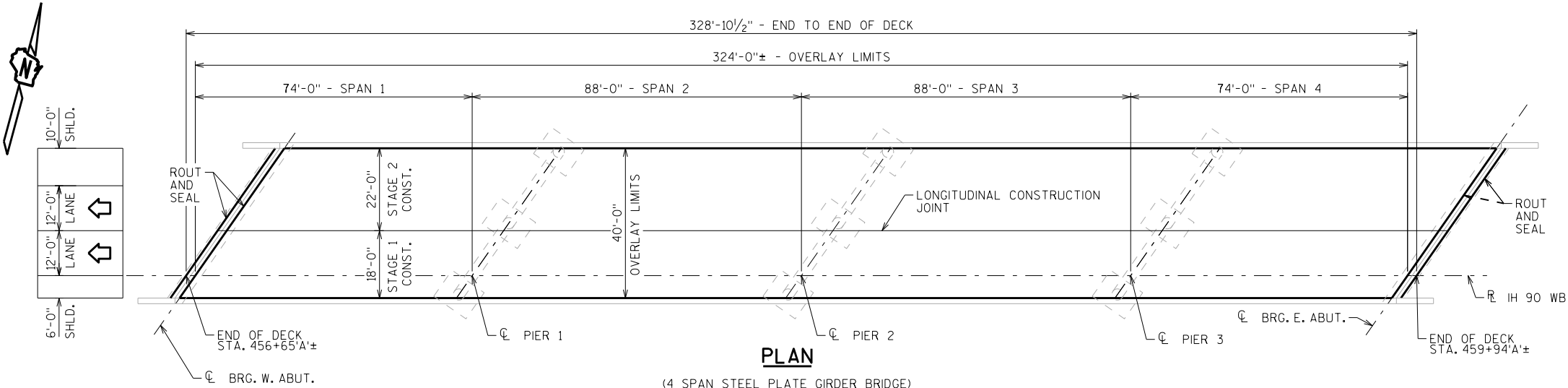
MATERIAL PROPERTIES:

CONCRETE MASONRY:
SUPERSTRUCTURE — $f'c = 4,000$ P.S.I.
SUBSTRUCTURE — $f'c = 3,500$ P.S.I.



STRUCTURE DESIGN CONTACTS:
MICHAEL LARSON (608) 267-4539
LAURA SHADEWALD (608) 267-9592

| | | | |
|---|-----------|-------------------|--------------|
| NO. | DATE | REVISION | BY |
|  | | | |
| ACCEPTED <i>William C. Dierker</i> 8/3/18 CHIEF STRUCTURES DESIGN ENGINEER DATE | | | |
| STRUCTURE B-32-24 | | | |
| IH 90 WB OVER LA CROSSE RIVER | | | |
| COUNTY | LA CROSSE | TOWN/CITY/VILLAGE | HAMILTON |
| DESIGN SPEC. REHABILITATION N/A | | | |
| DESIGNED BY | MJL | DESIGNED CK'D. | DMB |
| DRAWN BY | MJL | PLANS CK'D. | DMB |
| HOT MIXED ASPHALT OVERLAY | | | SHEET 1 OF 1 |



TOTAL ESTIMATED QUANTITIES

| BID ITEM NUMBER | BID ITEMS | UNIT | TOTALS |
|-----------------|---|------|--------|
| 203.0210.S | ABATEMENT OF ASBESTOS CONTAINING MATERIAL B-32-24 | LS | 1 |
| 455.0605 | TACK COAT | GAL | 101 |
| 460.7424 | HMA PAVEMENT 4 HT 58-28 H | TON | 258 |
| 509.0301 | PREPARATION DECKS TYPE 1 | SY | 185 |
| 509.0302 | PREPARATION DECKS TYPE 2 | SY | 80 |
| 509.0310.S | SAWING PAVEMENT DECK PREPARATION AREAS | LF | 1,850 |
| 509.1500 | CONCRETE SURFACE REPAIR | SF | 235 |
| 509.2000 | FULL-DEPTH DECK REPAIR | SY | 8 |
| 509.2100.S | CONCRETE MASONRY DECK REPAIR | CY | 16 |
| 509.9010.S | REMOVING ASPHALTIC CONCRETE DECK OVERLAY B-32-24 | SY | 1,440 |
| 517.3000.S | STRUCTURE OVERCOATING CLEANING AND PRIMING B-32-24 | LS | 1 |
| 517.4000.S | CONTAINMENT AND COLLECTION OF WASTE MATERIALS B-32-24 | LS | 1 |
| 517.6001.S | PORTABLE DECONTAMINATION FACILITY | EACH | 1 |
| SPV.0060 | CLEANING AND PAINTING BEARINGS | EACH | 10 |
| SPV.0090 | BRIDGE JOINT ROUT AND SEAL | LF | 196 |

TRAFFIC VOLUME

IH 90 WB
ADT = 10,650 (2011)
R.D.S. = 70 M.P.H.

LIST OF DRAWINGS

1. HOT MIXED ASPHALT OVERLAY

EXISTING RAILING MAY NEED TO BE TEMPORARILY REMOVED DURING CONCRETE SURFACE REPAIR. TIGHTEN AND REPLACE MISSING BOLTS HOLDING ALUMINUM RAIL TO PARAPET. TO BE PAID UNDER BID ITEM "CONCRETE SURFACE REPAIR."

LOCATION OF CONCRETE SURFACE REPAIR ON PARAPETS TO BE DETERMINED BY THE ENGINEER.

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

AREAS OF "PREPARATION DECKS TYPE 1" SHALL BE DEFINED BY A SAW CUT.

PREPARATION DECKS TYPE 1, PREPARATION DECKS TYPE 2, AND FULL-DEPTH DECK REPAIR AREAS ARE BASED ON THE PLANS AND AS DETERMINED BY THE ENGINEER. DECK PREPARATION AND FULL-DEPTH DECK REPAIRS SHALL BE FILLED WITH "CONCRETE MASONRY DECK REPAIR".

ANY EXCAVATION NECESSARY TO COMPLETE THE OVERLAY OR JOINT REPAIR AT THE ABUTMENTS IS TO BE CONSIDERED INCIDENTAL TO THE BID ITEM "HMA PAVEMENT 4 HT 58-28 H".

THE EXPECTED AVERAGE OVERLAY THICKNESS IS 3.2". IF EXPECTED AVERAGE OVERLAY THICKNESS IS EXCEEDED BY MORE THAN 1/2", CONTACT THE STRUCTURES DESIGN SECTION.

THE EXISTING ASPHALT OVERLAY AND WATERPROOF MEMBRANE SHALL BE REMOVED FROM THE BRIDGE DECK UNDER BID ITEM "REMOVING ASPHALTIC CONCRETE DECK OVERLAY B-32-24".

THE PLAN QUANTITY FOR THE BID ITEM "HMA PAVEMENT 4 HT 58-28 H" IS BASED ON THE AVERAGE OVERLAY THICKNESS.

THE PROFILE GRADE LINE SHALL MATCH THE EXISTING ELEVATION.

DESIGN DATA

LIVE LOAD:

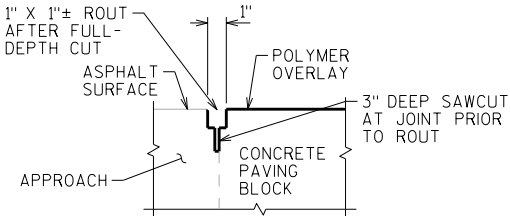
INVENTORY RATING: HS-14
OPERATING RATING: HS-24
MAXIMUM STANDARD PERMIT VEHICLE LOAD = 160 KIPS

MATERIAL PROPERTIES:

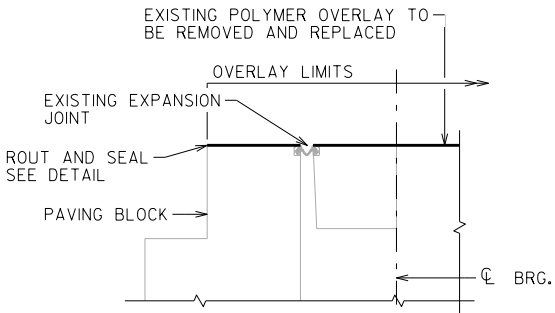
CONCRETE MASONRY:
SUPERSTRUCTURE — f'_c = 4,000 P.S.I.
SUBSTRUCTURE — f'_c = 3,500 P.S.I.

TRAFFIC VOLUME

IH 90 EB
ADT = 10,650 (2011)
R.D.S. = 70 M.P.H.




ROUT AND SEAL DETAIL



DETAIL AT ABUTMENT

STRUCTURE DESIGN CONTACTS:

MICHAEL LARSON (608) 267-4539
LAURA SHADEWALD (608) 267-9592

| | | | |
|---|-----------|----------------------------------|----------|
| NO. | DATE | REVISION | BY |
|  | | | |
| ACCEPTED | | 8/3/18 | |
| WILLIAM C. DIEHL, III | | CHIEF STRUCTURES DESIGN ENGINEER | |
| STRUCTURE B-32-25 | | | |
| IH 90 EB OVER CP RAILROAD | | | |
| COUNTY | LA CROSSE | TOWN/CITY/VILLAGE | HAMILTON |
| DESIGN SPEC. REHABILITATION N/A | | | |
| DESIGNED BY | MJL | DESIGNED CK'D. | DMB |
| DRAWN BY | MJL | PLANS CK'D. | DMB |
| POLYMER OVERLAY | | SHEET 1 OF 1 | |

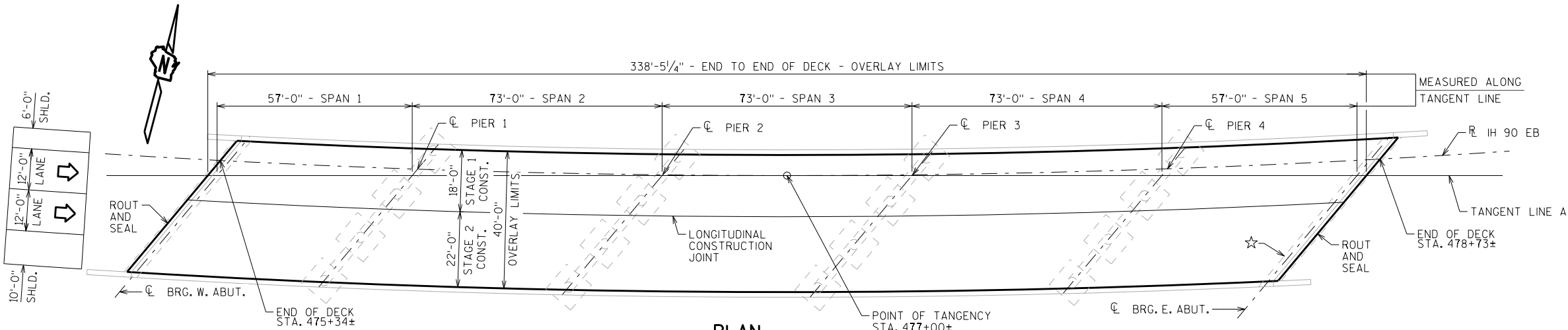
CURVE DATA

FEATURE ON
P.I. = 485+00.75
 Δ = 40° 54'
D = 1° 50'
T = 1,165.4
L = 2,230.9
R = 3,125.36
S.E. = 5.1%
P.C. = 473+81.28
P.T. = 496+20.23

LIST OF DRAWINGS

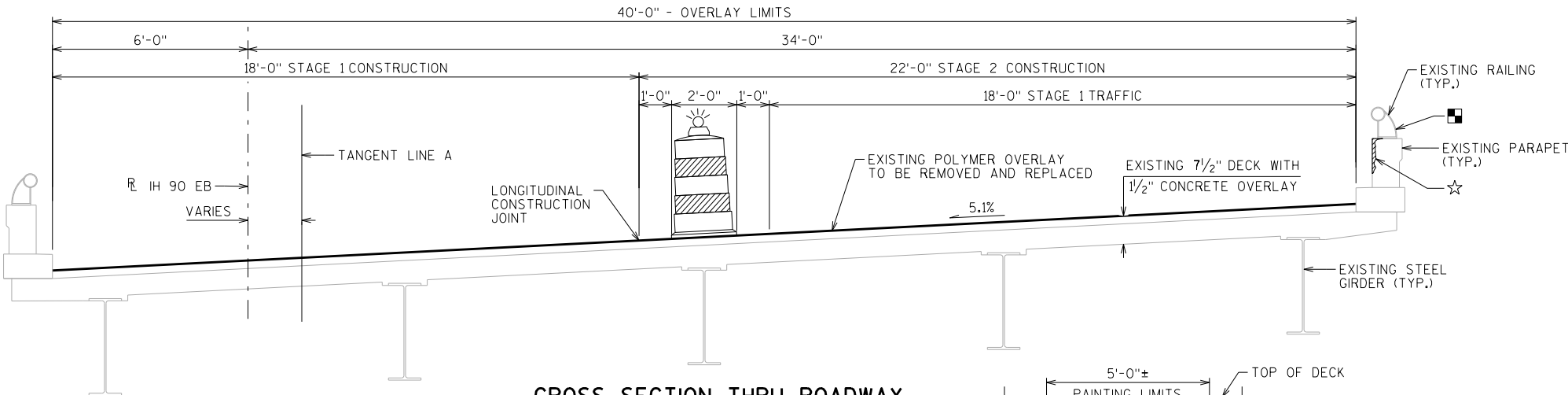
1. POLYMER OVERLAY

- EXISTING RAILING MAY NEED TO BE TEMPORARILY REMOVED DURING CONCRETE SURFACE REPAIR. TIGHTEN AND REPLACE MISSING BOLTS HOLDING ALUMINUM RAIL TO PARAPET. TO BE PAID UNDER BID ITEM "CONCRETE SURFACE REPAIR."
- LOCATION OF CONCRETE SURFACE REPAIR ON PARAPETS AND ABUTMENTS TO BE DETERMINED BY THE ENGINEER.



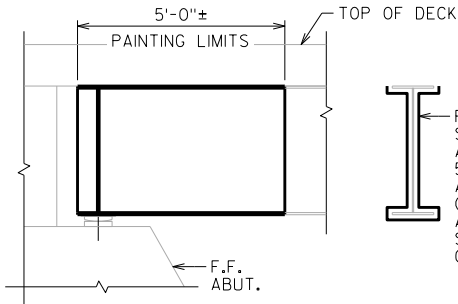
PLAN

(5 SPAN STEEL GIRDER BRIDGE)



CROSS SECTION THRU ROADWAY

(LOOKING UPSTATION)
(STAGE 1 TRAFFIC SHOWN, STAGE 2 SIMILAR)



PAINTING DETAIL

(TYP. AT BOTH ABUTMENTS)

TOTAL ESTIMATED QUANTITIES

| BID ITEM NUMBER | BID ITEMS | UNIT | TOTALS |
|-----------------|---|------|--------|
| 203.0210.S | ABATEMENT OF ASBESTOS CONTAINING MATERIAL B-32-25 | LS | 1 |
| 203.0225.S | DEBRIS CONTAINMENT B-32-25 | LS | 1 |
| 509.0301 | PREPARATION DECKS TYPE 1 | SY | 1 |
| 509.0302 | PREPARATION DECKS TYPE 2 | SY | 1 |
| 509.0310.S | SAWING PAVEMENT DECK PREPARATION AREAS | LF | 10 |
| 509.1500 | CONCRETE SURFACE REPAIR | SF | 461 |
| 509.5100.S | POLYMER OVERLAY | SY | 1,502 |
| 509.9015.S | REMOVING POLYMER OVERLAY B-32-25 | SY | 1,502 |
| 517.3000.S | STRUCTURE OVERCOATING CLEANING AND PRIMING B-32-25 | LS | 1 |
| 517.4000.S | CONTAINMENT AND COLLECTION OF WASTE MATERIALS B-32-25 | LS | 1 |
| 517.6001.S | PORTABLE DECONTAMINATION FACILITY | EACH | 1 |
| SPV.0035 | RAPID SET DECK REPAIR | CY | 1 |
| SPV.0090 | BRIDGE JOINT ROUT AND SEAL | LF | 105 |

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

AREAS OF "PREPARATION DECKS TYPE 1" SHALL BE DEFINED BY A SAW CUT.

PREPARATION DECKS TYPE 1 AND PREPARATION DECKS TYPE 2 ARE BASED ON THE PLANS AND AS DETERMINED BY THE ENGINEER. DECK PREPARATION SHALL BE FILLED WITH "RAPID SET DECK REPAIR".

THE EXISTING POLYMER OVERLAY SHALL BE REMOVED FROM THE BRIDGE DECK UNDER BID ITEM "REMOVING POLYMER OVERLAY B-32-25".

DESIGN DATA

LIVE LOAD:

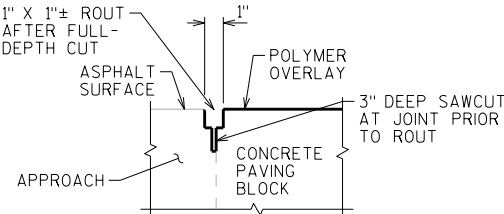
INVENTORY RATING: HS-14
OPERATING RATING: HS-24
MAXIMUM STANDARD PERMIT VEHICLE LOAD = 160 KIPS

MATERIAL PROPERTIES:

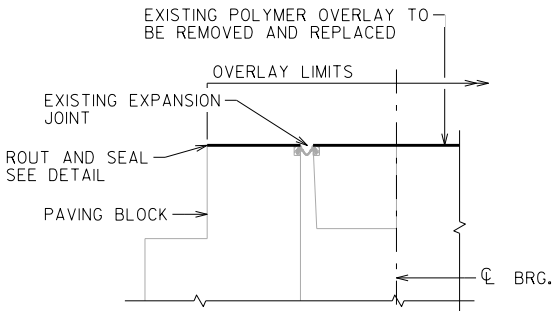
CONCRETE MASONRY:
SUPERSTRUCTURE — $f'_c = 4,000$ P.S.I.
SUBSTRUCTURE — $f'_c = 3,500$ P.S.I.

TRAFFIC VOLUME

FEATURE ON
ADT = 10,650 (2011)
R.D.S. = 70 M.P.H.



ROUT AND SEAL DETAIL



DETAIL AT ABUTMENT

STRUCTURE DESIGN CONTACTS:

MICHAEL LARSON (608) 267-4539
LAURA SHADEWALD (608) 267-9592

CURVE DATA

FEATURE ON

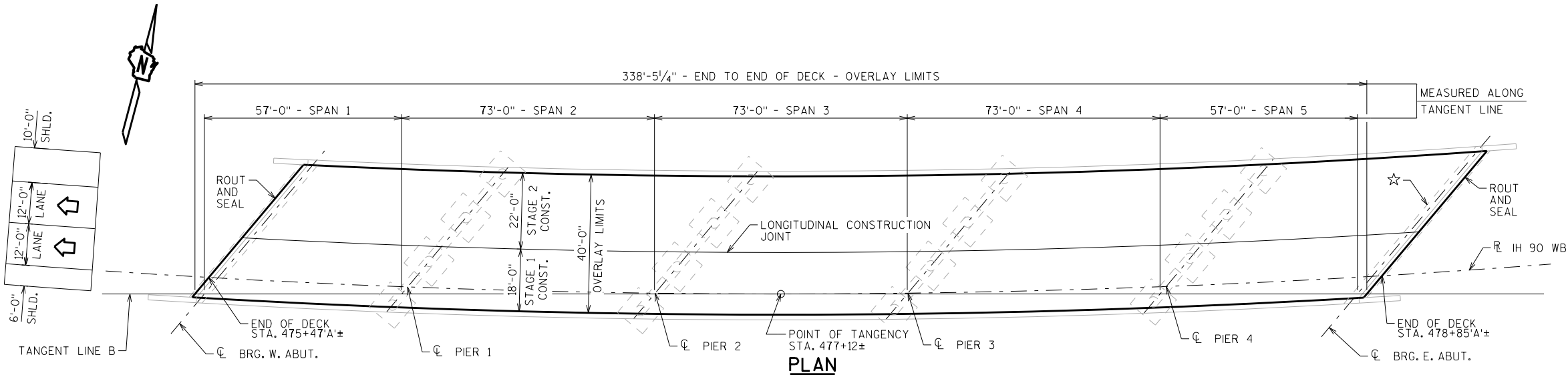
P.I. = 484+09.87'A'
 $\Delta = 43^\circ 05'$
D = 2° 0'
T = 1,130.9
L = 2,154.2
R = 2,864.93
S.E. = 5.6 %
P.C. = 473+29.81'A'
P.T. = 494+89.94'A'

LIST OF DRAWINGS

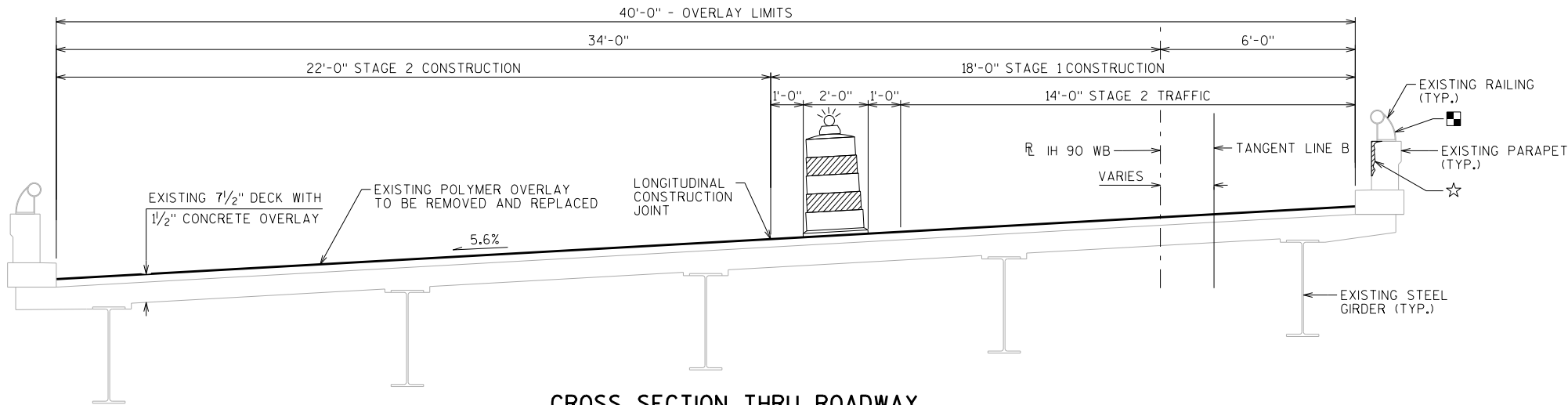
1. POLYMER OVERLAY

EXISTING RAILING MAY NEED TO BE TEMPORARILY REMOVED DURING CONCRETE SURFACE REPAIR. TIGHTEN AND REPLACE MISSING BOLTS HOLDING ALUMINUM RAIL TO PARAPET. TO BE PAID UNDER BID ITEM "CONCRETE SURFACE REPAIR."

LOCATION OF CONCRETE SURFACE REPAIR ON PARAPETS AND ABUTMENTS TO BE DETERMINED BY THE ENGINEER.

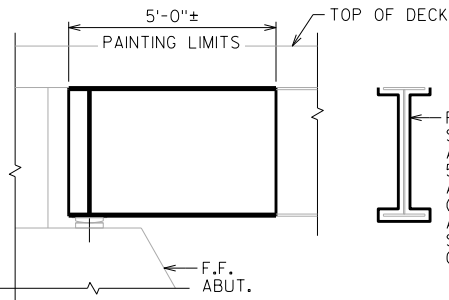


(5 SPAN STEEL GIRDER BRIDGE)



CROSS SECTION THRU ROADWAY

(LOOKING UPSTATION)
(STAGE 1 TRAFFIC SHOWN, STAGE 2 SIMILAR)



PAINTING DETAIL

(TYP. AT BOTH ABUTMENTS)

TOTAL ESTIMATED QUANTITIES

| BID ITEM NUMBER | BID ITEMS | UNIT | TOTALS |
|-----------------|---|------|--------|
| 203.0210.S | ABATEMENT OF ASBESTOS CONTAINING MATERIAL B-32-26 | LS | 1 |
| 203.0225.S | DEBRIS CONTAINMENT B-32-26 | LS | 1 |
| 509.0301 | PREPARATION DECKS TYPE 1 | SY | 1 |
| 509.0302 | PREPARATION DECKS TYPE 2 | SY | 1 |
| 509.0310.S | SAWING PAVEMENT DECK PREPARATION AREAS | LF | 10 |
| 509.1500 | CONCRETE SURFACE REPAIR | SF | 1,395 |
| 509.5100.S | POLYMER OVERLAY | SY | 1,513 |
| 509.9015.S | REMOVING POLYMER OVERLAY B-32-26 | SY | 1,513 |
| 517.3000.S | STRUCTURE OVERCOATING CLEANING AND PRIMING B-32-26 | LS | 1 |
| 517.4000.S | CONTAINMENT AND COLLECTION OF WASTE MATERIALS B-32-26 | LS | 1 |
| 517.6001.S | PORTABLE DECONTAMINATION FACILITY | EACH | 1 |
| SPV.0035 | RAPID SET DECK REPAIR | CY | 1 |
| SPV.0090 | BRIDGE JOINT ROUT AND SEAL | LF | 106 |

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

AREAS OF "PREPARATION DECKS TYPE 1" SHALL BE DEFINED BY A SAW CUT.

PREPARATION DECKS TYPE 1 AND PREPARATION DECKS TYPE 2 AREAS ARE BASED ON THE PLANS AND AS DETERMINED BY THE ENGINEER. DECK PREPARATION SHALL BE FILLED WITH "RAPID SET DECK REPAIR".

THE EXISTING POLYMER OVERLAY SHALL BE REMOVED FROM THE BRIDGE DECK UNDER BID ITEM "REMOVING POLYMER OVERLAY B-32-26".

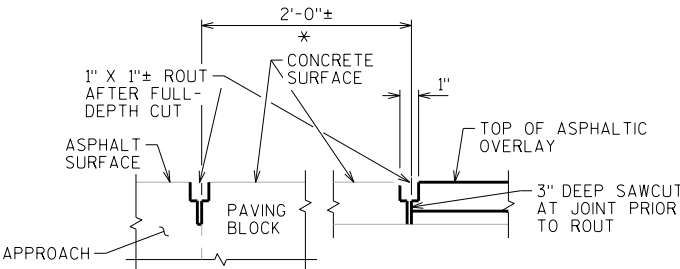
DESIGN DATA

LIVE LOAD:

INVENTORY RATING: HS-18
OPERATING RATING: HS-31
MAXIMUM STANDARD PERMIT VEHICLE LOAD = 140 KIPS

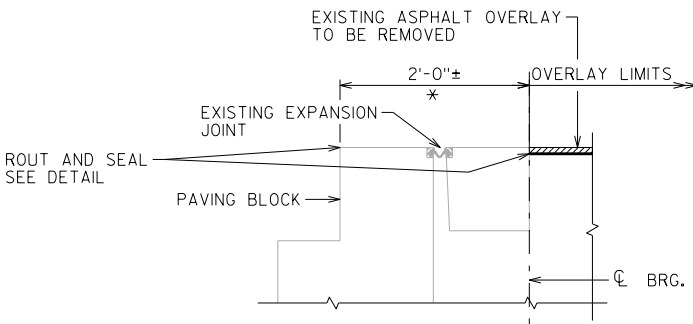
MATERIAL PROPERTIES:

CONCRETE MASONRY:
SUPERSTRUCTURE — f'c = 4,000 P.S.I.
SUBSTRUCTURE — f'c = 3,500 P.S.I.



ROUT AND SEAL DETAIL

* MEASURED NORMAL TO CL SUBSTRUCTURE




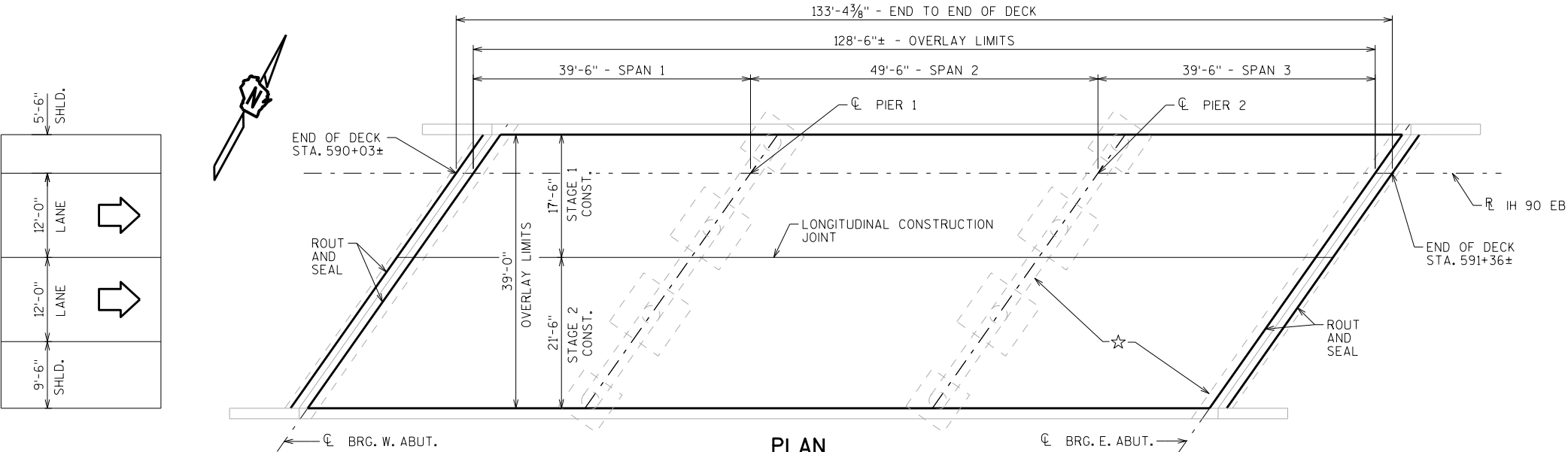
DETAIL AT ABUTMENT

* MEASURED NORMAL TO CL SUBSTRUCTURE

STRUCTURE DESIGN CONTACTS:

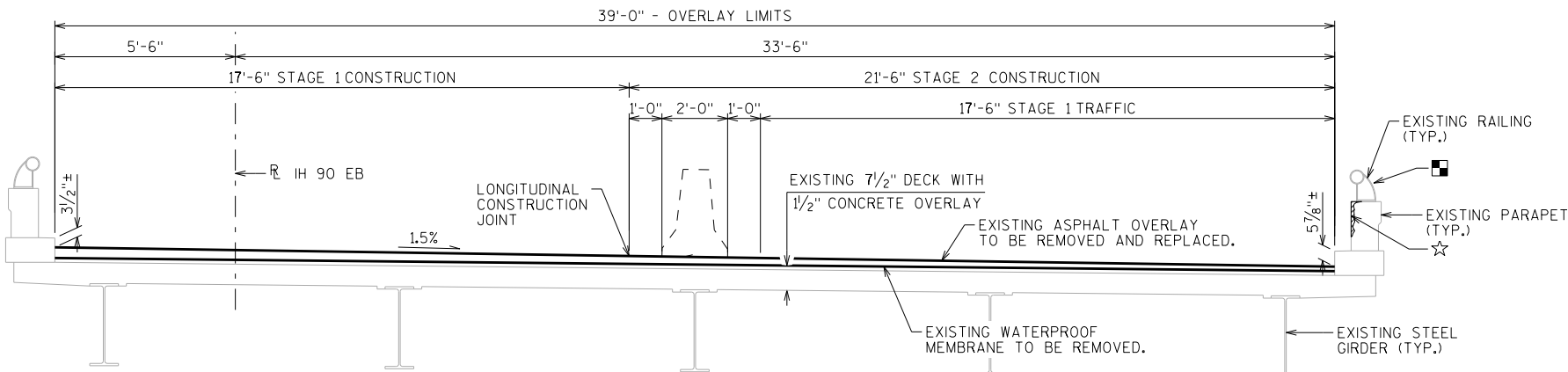
MICHAEL LARSON (608) 267-4539
LAURA SHADEWALD (608) 267-9592

| | | | |
|---|-----------|-------------------|--------------|
| NO. | DATE | REVISION | BY |
|  | | | |
| ACCEPTED <i>William C. Dieker</i> ^{LS} 8/3/18 CHIEF STRUCTURES DESIGN ENGINEER DATE | | | |
| STRUCTURE B-32-27 | | | |
| IH 90 EB OVER CTH M | | | |
| COUNTY | LA CROSSE | TOWN/CITY/VILLAGE | HAMILTON |
| DESIGN SPEC. REHABILITATION N/A | | | |
| DESIGNED BY | MJL | DESIGNED CK'D. | DMB |
| DRAWN BY | MJL | PLANS CK'D. | DMB |
| HOT MIXED ASPHALT OVERLAY | | | SHEET 1 OF 1 |



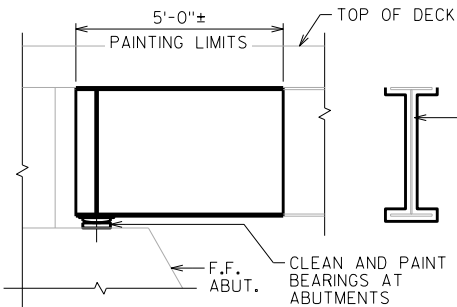
PLAN

(3 SPAN STEEL GIRDER BRIDGE)



CROSS SECTION THRU ROADWAY

(LOOKING UPSTATION)
(STAGE 1 TRAFFIC SHOWN, STAGE 2 SIMILAR)



PAINTING DETAIL

(TYP. AT BOTH ABUTMENTS)

PAINTING LIMITS:
SP3 CLEAN AND OVERCOAT
ALL STEEL SURFACES FOR
5'-0" FROM GIRDER ENDS AT
ABUTMENTS AT ALL GIRDERS
(INCLUDING ALL DIAPHRAGMS
AND STIFFENERS) PAINT COLOR
SHALL BE GRAY FEDERAL
COLOR NUMBER 26293

TOTAL ESTIMATED QUANTITIES

| BID ITEM NUMBER | BID ITEMS | UNIT | TOTALS |
|-----------------|---|------|--------|
| 203.0210.S | ABATEMENT OF ASBESTOS CONTAINING MATERIAL B-32-27 | LS | 1 |
| 455.0605 | TACK COAT | GAL | 39 |
| 460.7424 | HMA PAVEMENT 4 HT 58-28 H | TON | 97 |
| 509.0301 | PREPARATION DECKS TYPE 1 | SY | 77 |
| 509.0302 | PREPARATION DECKS TYPE 2 | SY | 32 |
| 509.0310.S | SAWING PAVEMENT DECK PREPARATION AREAS | LF | 770 |
| 509.1500 | CONCRETE SURFACE REPAIR | SF | 464 |
| 509.2000 | FULL-DEPTH DECK REPAIR | SY | 11 |
| 509.2100.S | CONCRETE MASONRY DECK REPAIR | CY | 8 |
| 509.9010.S | REMOVING ASPHALTIC CONCRETE DECK OVERLAY B-32-27 | SY | 557 |
| 517.3000.S | STRUCTURE OVERCOATING CLEANING AND PRIMING B-32-27 | LS | 1 |
| 517.4000.S | CONTAINMENT AND COLLECTION OF WASTE MATERIALS B-32-27 | LS | 1 |
| 517.6001.S | PORTABLE DECONTAMINATION FACILITY | LS | 1 |
| SPV.0060 | CLEANING AND PAINTING BEARINGS | EACH | 10 |
| SPV.0090 | BRIDGE JOINT ROUT AND SEAL | LF | 191 |

TRAFFIC VOLUME

IH 90 EB
ADT = 10,650 (2011)
R.D.S. = 70 M.P.H.
CTH M
ADT = 5,700 (2011)
R.D.S. = 60 M.P.H.

LIST OF DRAWINGS

1. HOT MIXED ASPHALT OVERLAY

- EXISTING RAILING MAY NEED TO BE TEMPORARILY REMOVED DURING CONCRETE SURFACE REPAIR. TIGHTEN AND REPLACE MISSING BOLTS HOLDING ALUMINUM RAIL TO PARAPET. TO BE PAID UNDER BID ITEM "CONCRETE SURFACE REPAIR."
- LOCATION OF CONCRETE SURFACE REPAIR ON PARAPETS, ABUTMENTS, AND PIERS TO BE DETERMINED BY THE ENGINEER.

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

AREAS OF "PREPARATION DECKS TYPE 1" SHALL BE DEFINED BY A SAW CUT.

PREPARATION DECKS TYPE 1, PREPARATION DECKS TYPE 2, AND FULL-DEPTH DECK REPAIR AREAS ARE BASED ON THE PLANS AND AS DETERMINED BY THE ENGINEER. DECK PREPARATION AND FULL-DEPTH DECK REPAIRS SHALL BE FILLED WITH "CONCRETE MASONRY DECK REPAIR".

ANY EXCAVATION NECESSARY TO COMPLETE THE OVERLAY OR JOINT REPAIR AT THE ABUTMENTS IS TO BE CONSIDERED INCIDENTAL TO THE BID ITEM "HMA PAVEMENT 4 HT 58-28 H".

THE EXPECTED AVERAGE OVERLAY THICKNESS IS 3.1". IF EXPECTED AVERAGE OVERLAY THICKNESS IS EXCEEDED BY MORE THAN 1/2", CONTACT THE STRUCTURES DESIGN SECTION.

THE EXISTING ASPHALT OVERLAY AND WATERPROOF MEMBRANE SHALL BE REMOVED FROM THE BRIDGE DECK UNDER BID ITEM "REMOVING ASPHALTIC CONCRETE DECK OVERLAY B-32-27".

THE PLAN QUANTITY FOR THE BID ITEM "HMA PAVEMENT 4 HT 58-28 H" IS BASED ON THE AVERAGE OVERLAY THICKNESS.

THE PROFILE GRADE LINE SHALL MATCH THE EXISTING ELEVATION.

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

AREAS OF "PREPARATION DECKS TYPE 1" SHALL BE DEFINED BY A SAW CUT.

PREPARATION DECKS TYPE 1, PREPARATION DECKS TYPE 2, AND FULL-DEPTH DECK REPAIR AREAS ARE BASED ON THE PLANS AND AS DETERMINED BY THE ENGINEER. DECK PREPARATION AND FULL-DEPTH DECK REPAIRS SHALL BE FILLED WITH "CONCRETE MASONRY DECK REPAIR".

ANY EXCAVATION NECESSARY TO COMPLETE THE OVERLAY OR JOINT REPAIR AT THE ABUTMENTS IS TO BE CONSIDERED INCIDENTAL TO THE BID ITEM "HMA PAVEMENT 4 HT 58-28 H".

THE EXPECTED AVERAGE OVERLAY THICKNESS IS 3.1". IF EXPECTED AVERAGE OVERLAY THICKNESS IS EXCEEDED BY MORE THAN 1/2", CONTACT THE STRUCTURES DESIGN SECTION.

THE EXISTING ASPHALT OVERLAY AND WATERPROOF MEMBRANE SHALL BE REMOVED FROM THE BRIDGE DECK UNDER BID ITEM "REMOVING ASPHALTIC CONCRETE DECK OVERLAY B-32-28".

THE PLAN QUANTITY FOR THE BID ITEM "HMA PAVEMENT 4 HT 58-28 H" IS BASED ON THE AVERAGE OVERLAY THICKNESS.

THE PROFILE GRADE LINE SHALL MATCH THE EXISTING ELEVATION.

HEAVING SLOPE PAVING ON EAST SLOPE TO BE REMOVED UNDER BID ITEM "REMOVING CONCRETE SLOPE PAVING". SLOPE PAVING TO BE REPLACED UNDER BID ITEM "SLOPE PAVING CONCRETE". FIELD ENGINEER IS TO DETERMINE ACTUAL LOCATIONS REQUIRING REMOVAL.

TOTAL ESTIMATED QUANTITIES

| BID ITEM NUMBER | BID ITEMS | UNIT | TOTALS |
|-----------------|---|------|--------|
| 203.0210.S | ABATEMENT OF ASBESTOS CONTAINING MATERIAL B-32-28 | LS | 1 |
| 204.0175 | REMOVING CONCRETE SLOPE PAVING | SY | 20 |
| 455.0605 | TACK COAT | GAL | 39 |
| 460.7424 | HMA PAVEMENT 4 HT 58-28 H | TON | 97 |
| 509.0301 | PREPARATION DECKS TYPE 1 | SY | 68 |
| 509.0302 | PREPARATION DECKS TYPE 2 | SY | 54 |
| 509.0310.S | SAWING PAVEMENT DECK PREPARATION AREAS | LF | 680 |
| 509.1500 | CONCRETE SURFACE REPAIR | SF | 262 |
| 509.2000 | FULL-DEPTH DECK REPAIR | SY | 6 |
| 509.2100.S | CONCRETE MASONRY DECK REPAIR | CY | 7 |
| 509.9010.S | REMOVING ASPHALTIC CONCRETE DECK OVERLAY B-32-28 | SY | 557 |
| 517.3000.S | STRUCTURE OVERCOATING CLEANING AND PRIMING B-32-28 | LS | 1 |
| 517.4000.S | CONTAINMENT AND COLLECTION OF WASTE MATERIALS B-32-28 | LS | 1 |
| 517.6001.S | PORTABLE DECONTAMINATION FACILITY | LS | 1 |
| 604.0400 | SLOPE PAVING CONCRETE | SY | 20 |
| SPV.0060 | CLEANING AND PAINTING BEARINGS | EACH | 10 |
| SPV.0090 | BRIDGE JOINT ROUT AND SEAL | LF | 191 |

PAINTING DETAIL

(TYP. AT BOTH ABUTMENTS)

TRAFFIC VOLUME

IH 90 WB

ADT = 10,650 (2011)
R.D.S. = 70 M.P.H.

CTH M

ADT = 5,700 (2011)
R.D.S. = 60 M.P.H.

LIST OF DRAWINGS

- HOT MIXED ASPHALT OVERLAY
- SLOPE PAVING (CONCRETE CAST-IN-PLACE)

- EXISTING RAILING MAY NEED TO BE TEMPORARILY REMOVED DURING CONCRETE SURFACE REPAIR. TIGHTEN AND REPLACE MISSING BOLTS HOLDING ALUMINUM RAIL TO PARAPET. TO BE PAID UNDER BID ITEM "CONCRETE SURFACE REPAIR."

- LOCATION OF CONCRETE SURFACE REPAIR ON PARAPETS, ABUTMENTS, AND PIERS TO BE DETERMINED BY THE ENGINEER.

STATE PROJECT NUMBER

1071-07-78

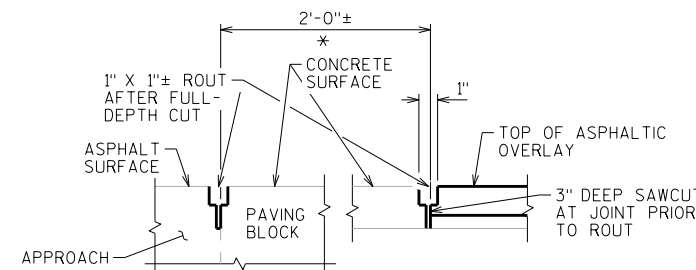
DESIGN DATA

LIVE LOAD:

INVENTORY RATING: HS-18
OPERATING RATING: HS-31
MAXIMUM STANDARD PERMIT VEHICLE LOAD = 140 KIPS

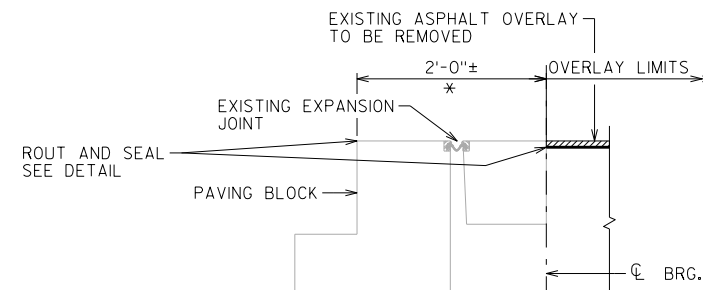
MATERIAL PROPERTIES:

CONCRETE MASONRY:
SUPERSTRUCTURE $f'_c = 4,000$ P.S.I.
SUBSTRUCTURE $f'_c = 3,500$ P.S.I.



ROUT AND SEAL DETAIL

* MEASURED NORMAL TO ϕ SUBSTRUCTURE




DETAIL AT ABUTMENT

* MEASURED NORMAL TO ϕ SUBSTRUCTURE

PAINTING LIMITS:
SP3 CLEAN AND OVERCOAT ALL STEEL SURFACES FOR 5'-0" FROM GIRDER ENDS AT ABUTMENTS AT ALL GIRDERS (INCLUDING ALL DIAPHRAGMS AND STIFFENERS) PAINT COLOR SHALL BE GRAY FEDERAL COLOR NUMBER 26293

STRUCTURE DESIGN CONTACTS:

MICHAEL LARSON (608) 267-4539
LAURA SHADEWALD (608) 267-9592

| | | | |
|--|-----------|-------------------|--------------|
| NO. | DATE | REVISION | BY |
|  | | | |
| ACCEPTED <i>William C. Diehl</i> ^{LLS} 8/3/18 CHIEF STRUCTURES DESIGN ENGINEER DATE | | | |
| STRUCTURE B-32-28 | | | |
| IH 90 WB OVER CTH M | | | |
| COUNTY | LA CROSSE | TOWN/CITY/VILLAGE | HAMILTON |
| DESIGN SPEC. REHABILITATION N/A | | | |
| DESIGNED BY | MJL | DESIGNED CK'D. | DMB |
| DRAWN BY | MJL | PLANS CK'D. | DMB |
| HOT MIXED ASPHALT OVERLAY | | | SHEET 1 OF 2 |

I.D. 1071-07-08F

DATE: JULY 2018

DESIGN DATA

LIVE LOAD:

INVENTORY RATING: HS-16
OPERATING RATING: HS-26
MAXIMUM STANDARD PERMIT VEHICLE LOAD = 190 KIPS

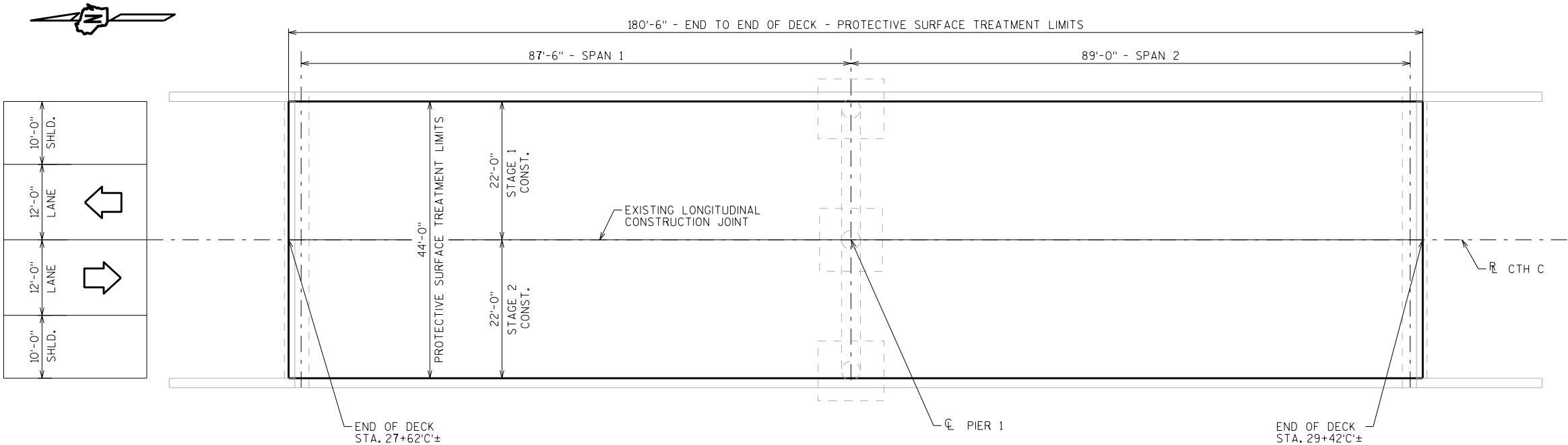
TRAFFIC VOLUME

CTH C

ADT = 3,200 (2011)
R.D.S. = 40 M.P.H.

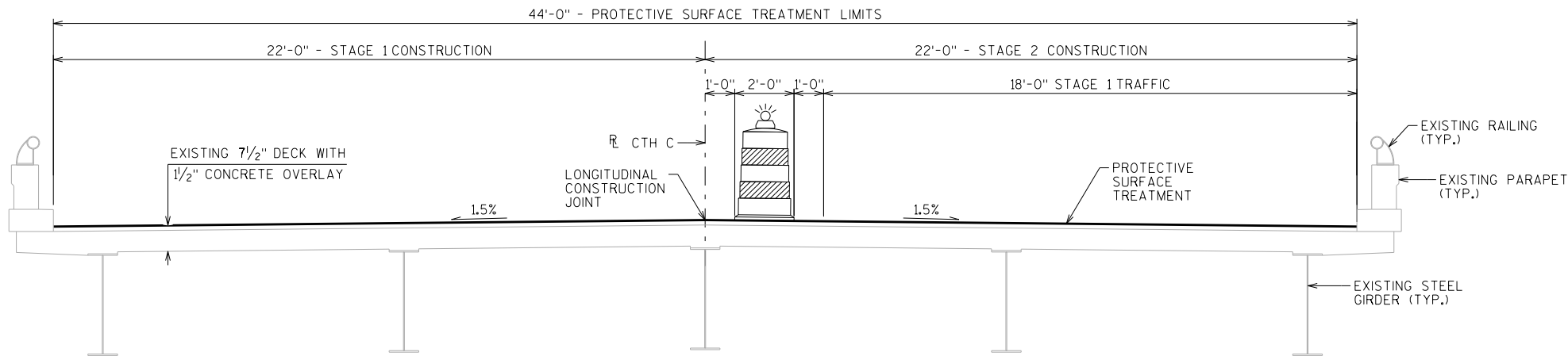
IH 90

ADT = 21,300 (2011)
R.D.S. = 70 M.P.H.



PLAN

(4 SPAN STEEL PLATE GIRDER BRIDGE)



CROSS SECTION THRU ROADWAY

(LOOKING UPSTATION)
(STAGE 1 TRAFFIC SHOWN, STAGE 2 SIMILAR)

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.
DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.
PROTECTIVE SURFACE TREATMENT TO BE APPLIED TO THE ENTIRE EXISTING TOP OF DECK SURFACE.
LOCATIONS OF "CRACK SEALING EPOXY" TO BE DETERMINED BY THE ENGINEER.

TOTAL ESTIMATED QUANTITIES

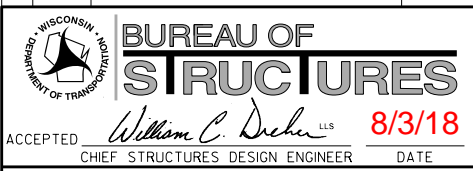
| BID ITEM NUMBER | BID ITEMS | UNIT | TOTALS |
|-----------------|------------------------------|------|--------|
| 502.0717.S | CRACK SEALING EPOXY | LF | 450 |
| 502.3200 | PROTECTIVE SURFACE TREATMENT | SY | 883 |

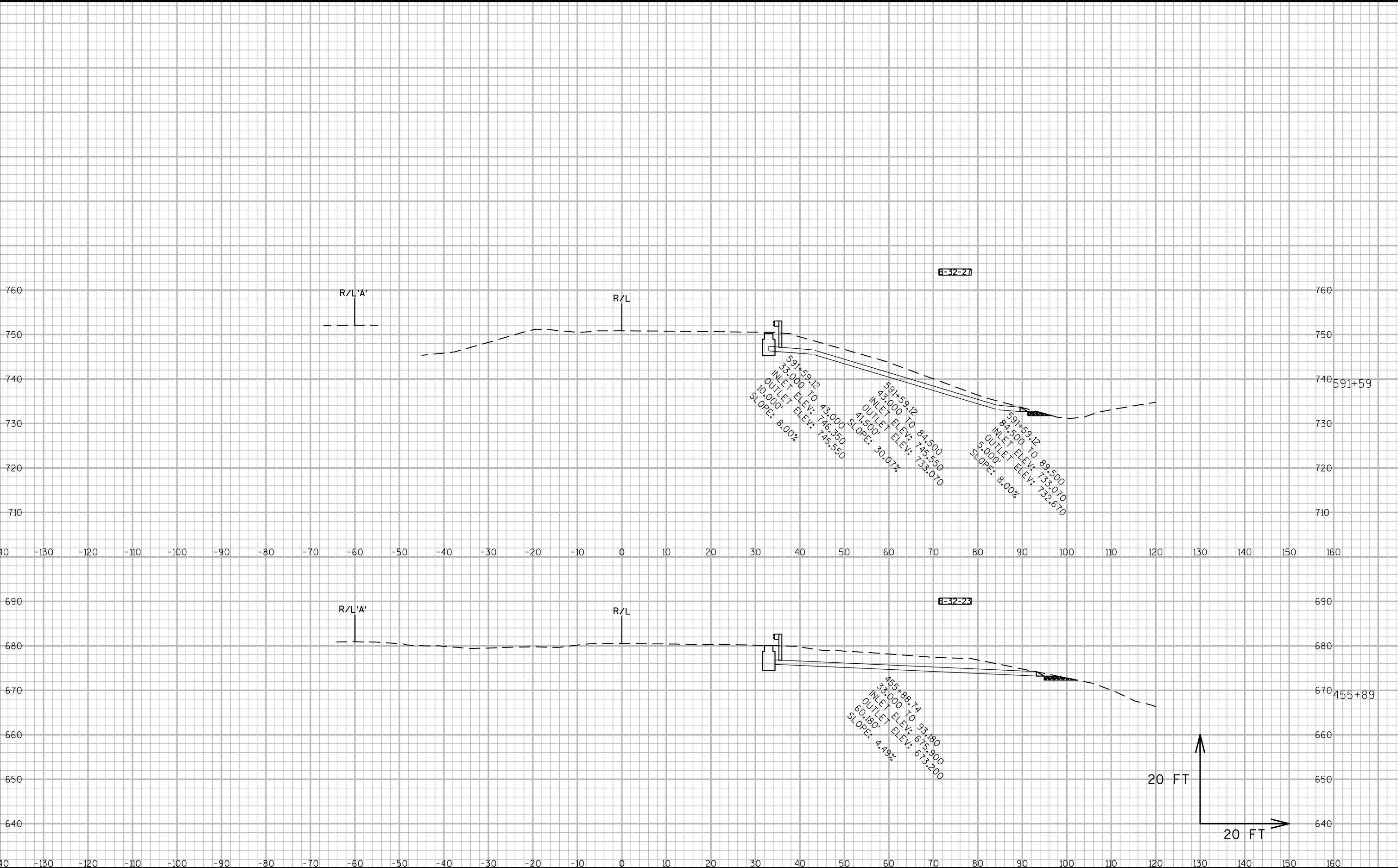
LIST OF DRAWINGS

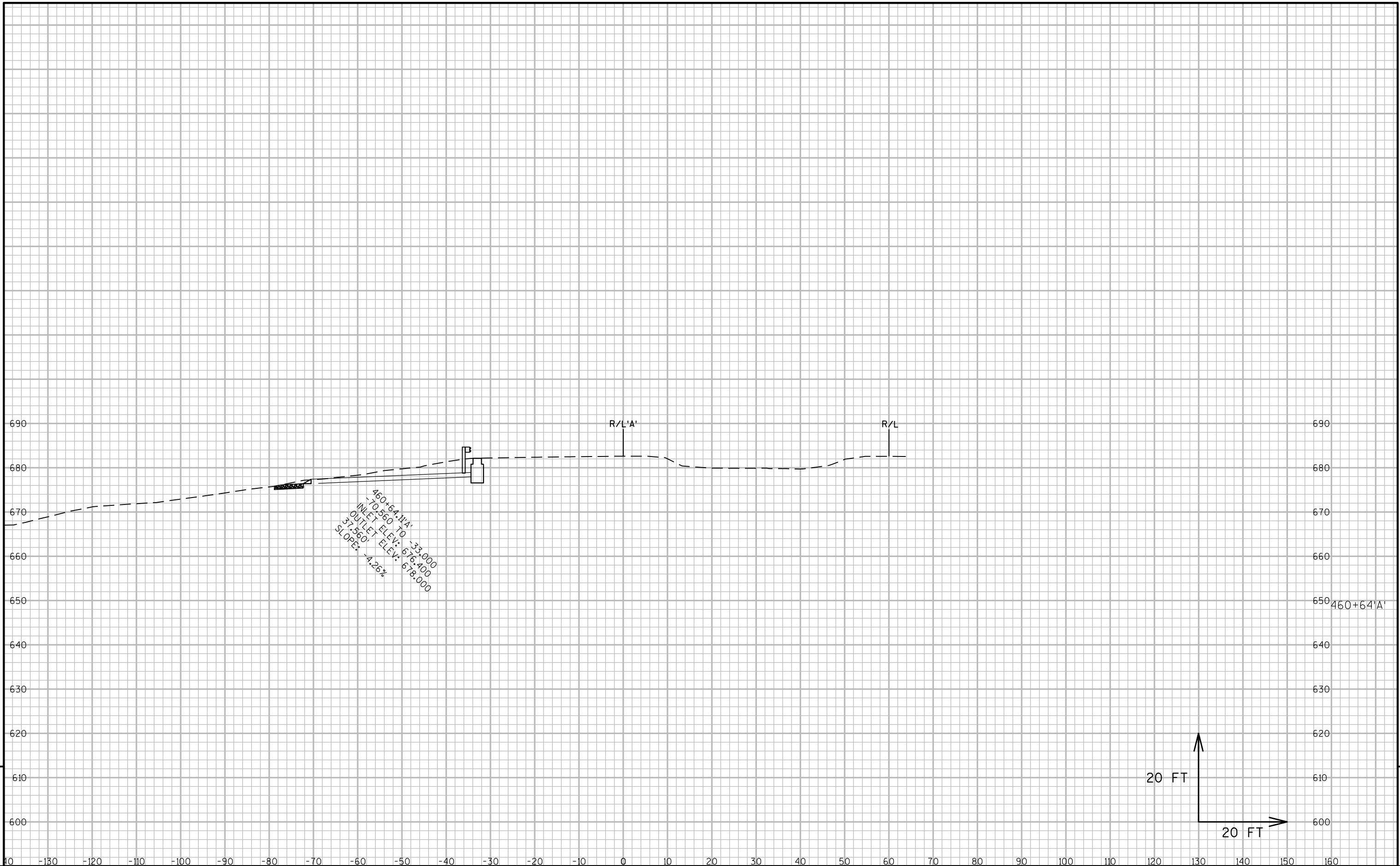
1. PROTECTIVE SURFACE TREATMENT

STRUCTURE DESIGN CONTACTS:

MICHAEL LARSON (608) 267-4539
LAURA SHADEWALD (608) 267-9592

| | | | |
|--|----------|-------------------|--------------|
| NO. | DATE | REVISION | BY |
|  | | | |
| ACCEPTED <i>William C. Decker</i> ^{LLS} 8/3/18 CHIEF STRUCTURES DESIGN ENGINEER DATE | | | |
| STRUCTURE B-32-57 | | | |
| CTH C OVER IH 90 | | | |
| COUNTY | LACROSSE | TOWN/CITY/VILLAGE | HAMILTON |
| DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS | | | |
| DESIGNED BY | M.J.L. | DESIGNED CK'D. | DMB |
| DRAWN BY | M.J.L. | PLANS CK'D. | DMB |
| PROTECTIVE SURFACE TREATMENT | | | SHEET 1 OF 1 |





Notes



Wisconsin Department of Transportation

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through innovation and exceptional service.

<http://www.dot.wisconsin.gov>