Road & Bridge Design Publications

Monthly Update – February 2026 (reissued)

Revisions for the month of **February** are listed and displayed below and will be included in projects submitted for the **June** letting.

Email road related questions to MDOT-Road-Design-Standards@Michigan.gov.
Email bridge related questions to MDOT-Bridge-Design-Standards@Michigan.gov.

Special Announcement Regarding "Reissued" Publication

B-43-A: Fencing for Pedestrian Structure Type 6 & 7 Barrier:
MDOT has chosen to pull special detail B-43-A, dated 01/14/2026. It was issued in error. The Special Detail Index has been updated accordingly.

Special Announcement Regarding Geometric Design

Roundabout Aid:

Updated material to better reflect newer Federal guidance (NCHRP Report 1043) and more recent Department practices. Revised numerous design criteria, provided additional guidance regarding three lane roundabouts (discouraging their use if other viable alternatives exist), and made smaller revisions to language and formatting. Click link to access the Roundabout Aid document.

Geometric Design Guidance:

Updated references and formatting. Made minor changes to language for clarity and brevity. Click link to access the Geometric Design Guidance document.

Sight Distance Guidelines:

Updated material to be more consistent with the 2018 version of the AASHTO Green Book. Expanded design ranges to include 80 mph design speeds (for 75 mph posted freeways), updated and expanded the range of the HSO chart, and made formatting changes. Click link to access the Sight Distance Guidelines document.

Additional information on the can be found on the Geometrics/Guidelines web site as well.

Road & Bridge Design Publications

Special Details

R-43-J: Location of Transverse Joints in Plain Concrete Pavement:

Converted notes and callouts to active voice.

R-55-H: Filler Walls at Bridge Pier Columns:

Converted notes and callouts to active voice.

R-62-H: Guardrail Approach Terminal Type 2M:

Converted notes and callouts to active voice.

R-66-E: Guardrail Departing Terminal Types B, T, & MGS:

Converted notes and callouts to active voice.

R-73-F: Guardrail Long Span Installations:

Converted notes and callouts to active voice.

B-42-A: Fencing for Bridge Railing, 3 Tube with Pickets:

New Special Detail.

Road Design Manual

4.06.06: Stone Baskets:

Updated stone basket details to current practice. Major revisions include allowing use under pavement sections, the use of 46G aggregate instead of 6A, and specifying geotextile blanket instead of geotextile or filter cloth (which completely covers the aggregate backfill with an overlap on the top). Also converted section to active voice.

Bridge Design Manual

Chapter 2: Table of Contents:

Added new section 2.05.04 Peer Reviews. Renumbered sections 2.05.05 Role of Federal Highway Administration (FHWA) and 2.05.06 References and Other Sources of Information.

Road & Bridge Design Publications

2.05.02: Definitions:

Updated the definition for D. Peer Review to specify that the Chief Structure Design Engineer is responsible for making the final determination of if a peer review is required on a project with guidance from the MDOT Bridges and Structure Committee. Added I. Peer Review Engineer to define the requirements of individuals qualified to perform a peer review.

2.03.06: Changes after Plan Completion; 2.04.01: Unit Assignment; 2.05.03 D. QA Procedures:

Updated Bridge Supervising Engineer position to current title of Chief Structure Design Engineer.

2.05.04: Peer Reviews:

Added new section to provide guidance on design peer reviews. Guidance includes information on projects that require a peer review and potential scope of work items for peer reviews.

2.05.05: Role of Federal Highway Administration (FHWA):

Changed section number from 2.05.04 to 2.05.05. No content change.

2.05.06: References and Other Sources of Information:

Changed section number from 2.05.05 to 2.05.06. No content change.

Updates to the MDOT Cell Library, Sample Plans, and other automated tools may be required in tandem with some of this month's updates. Until such updates can be made, it is the designer's/detailer's responsibility to manually incorporate any necessary revisions to notes and plan details to reflect these revisions.

Index to Road Special Details

⑥

2-26-2026

SPECIAL DETAIL NUMBER	NUMBER OF SHEETS	TITLE	PLAN DATE
21	2	GUARDRAIL AT INTERSECTIONS	6-6-22
24	8	GUARDRAIL ANCHORED IN BACKSLOPE TYPES 4B, 4T, 7 4MGS-8	12-6-22
99	2	CHAIN LINK FENCE WITH WIRE ROPE	12-6-22
R-22-G	4	COVER V	4-14-25
R-23-F	3	COVER W	4-14-25
R-24-G	3	COVER VG (FOR USE WITH CONCRETE VALLEY GUTTER)	4-14-25
R-32-F	8	APPROACH CURB & GUTTER DOWNSPOUTS	12-5-25
R-32-SD	6	APPROACH CURB & GUTTER DOWNSPOUTS (FOR SAFETY SHAPES)	12-5-25
*R-43-J	2	LOCATION OF TRANSVERSE JOINTS IN PLAIN CONCRETE PAVEMENT	2-23-26
R-44-G	7	CONCRETE PAVEMENT REPAIR	1-7-25
R-45-K	2	PAVEMENT REINFORCEMENT FOR BRIDGE APPROACH	1-4-22
R-50-H	6	LIGHT STANDARD FOUNDATION (CONCRETE BARRIER, DOUBLE FACE)	10-30-25
R-53-A	22	TEMPORARY CONCRETE BARRIER LIMITED DEFLECTION	8-14-15
R-54-J	5	CONCRETE BARRIER, SINGLE FACE	12-15-25
*R-55-H	5	FILLER WALLS AT BRIDGE PIER COLUMNS	2-23-26
R-56-F	6	GUARDRAIL MEDIAN OBJECT PROTECTION	10-10-23
R-60-J	16	GUARDRAIL TYPES A, B, BD, T, TD, MGS-8, & MGS-8D	1-29-24
*R-62-H	5	GUARDRAIL APPROACH TERMINAL TYPE 2M	2-23-26
R-63-C	3	GUARDRAIL APPROACH TERMINAL TYPE 3M	1-6-26
*R-66-E	4	GUARDRAIL DEPARTING TERMINAL TYPES B, T, & MGS	2-23-26
R-67-G	16	GUARDRAIL ANCHORAGE, BRIDGE, DETAILS	1-6-26
R-67-SD	6	GUARDRAIL ANCHORAGE, BRIDGE, DETAILS (FOR SAFETY SHAPES)	1-6-26
R-72-D	6	GUARDRAIL LONG SPAN INSTALLATIONS	4-25-25
*R-73-F	3	GUARDRAIL OVER BOX OR SLAB CULVERTS	2-23-26
R-76-F	4	CONCRETE GLARE SCREEN	11-4-25
R-80-F	8	GRANULAR BLANKETS, UNDERDRAINS, OUTLET ENDINGS, & BULKHEADS	4-2-25
R-97-D	4	HIGH TENSILE EIGHT WIRE FENCE	1-7-25
R-100-I	4	SEEDING AND TREE PLANTING	11-1-24
R-126-I	5	PLACEMENT OF TEMPORARY CONCRETE & STEEL BARRIER	8-21-25
R-127-I	8	DELINEATOR AND DRAINAGE MARKER INSTALLATIONS	10-24-25
R-130-A	6	LIGHT STANDARD DETAILS	1-6-26
R-135-A	4	TOWER LIGHTING UNIT FOUNDATION	2-21-25

***Denotes New or Revised Special Detail to be included in projects for (beginning with) the June letting.**

Notes:

Former Standard Plans IV-87, IV-89, IV-90, and IV-91 Series, used for building cast in place concrete head walls for elliptical and circular pipe culverts, are now being replaced with plans that detail each specific size. The Bureau of Bridges & Structures, Structure Design Section, Special Structures Unit will provide special details for inclusion in construction plans for MDOT jobs. To ensure prompt delivery**,** requests ***must*** **be made in advance**.

Contact: MDOT-TriezenbergSquad@Michigan.gov

Former Standard Plans IV-93 and IV-94 series have been replaced with precast concrete box & three-sided culverts as per the 2020 Standard Specifications for Construction.

Index to Bridge Special Details

2-26-2026

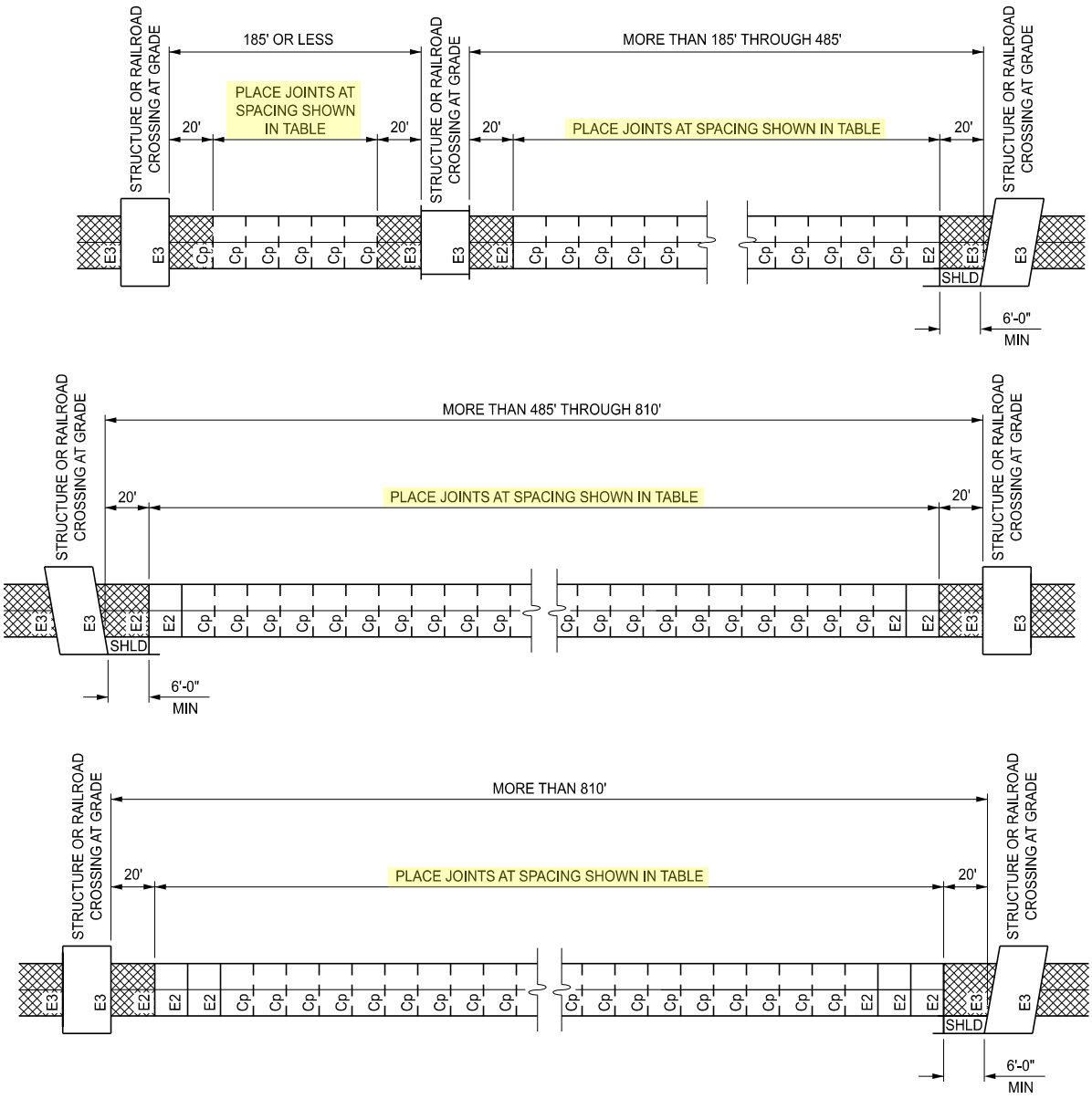
⑦

SPECIAL DETAIL NUMBER	NUMBER OF SHEETS	TITLE	PLAN DATE
B-21-K	4	BRIDGE RAILING, 2 TUBE	9-10-24
B-25-L	8	BRIDGE RAILING, AESTHETIC PARAPET TUBE	9-9-24
B-26-G	8	BRIDGE RAILING, 4 TUBE	9-6-24
B-27-B	7	BRIDGE RAILING, 3 TUBE WITH PICKETS	9-11-24
B-28-A	7	BRIDGE BARRIER RAILING, TYPE 7	12-17-25
B-29-A	8	BRIDGE BARRIER RAILING, TYPE 6	12-17-25
B-41-D	3	FENCING FOR BRIDGE RAILING, ASETHETIC PARAPET TUBE	12-10-25
*B-42-A	3	FENCING FOR BRIDGE RAILING, 3 TUBE WITH PICKETS	1-5-26
B-102-D	4	STANDARD SLOPE PAVING DETAILS	9-18-23
B-103-F	2	MOLDING, BEVEL, LIGHT STD. ANCHOR BOLT ASSEMBLY AND NAME PLATE DETAILS	12-8-23
EJ3AG	1 to 5	EXPANSION JOINT DETAILS (See Notes)	4-28-25
EJ4T	1 to 5	EXPANSION JOINT DETAILS (See Notes)	4-28-25
PC-1Q	2	PRESTRESSED CONCRETE I-BEAM DETAILS (See Notes)	12-22-25
PC-2L	2	70" PRESTRESSED CONCRETE I-BEAM DETAILS (See Notes)	12-22-25
PC-4J	2	PRESTRESSED CONCRETE 1800 BEAM DETAILS (See Notes)	12-22-25
PC-5D	2	PRESTRESSED CONCRETE BULB-TEE BEAM DETAILS (See Notes)	12-22-25

***Denotes New or Revised Special Detail to be included in projects for (beginning with) the June letting.**

Notes:
Details EJ3AG & EJ4T are interactive, i.e., designers and detailers choose details based upon railing type and angle of crossing and fill in the project specific dimensions for the end plate. Place all details appropriate for the project (including the end plate), structure specific information, and the Expansion Joint Device quantity on the sheet(s). Add the sheet(s) to the plans as a normal plan sheets. Call out and designate the location of the expansion joint device and the end plate on the Superstructure Sheet in the plan set. Include Rail Splice Detail sheet with all plans including an Expansion Joint Device.

Details PC-1Q, PC-2L, PC-4J, and PC-5D shall have structure specific information and quantities added to the sheet. The sheet shall then be added to the plans as a normal plan sheet.



PLAN VIEW SHOWING TRANSVERSE JOINT LOCATIONS

NOTE:
SEE SHEET 2 FOR DETAIL OF JOINT SPACING WITH INTEGRAL / SEMI-INTEGRAL ABUTMENTS AND SLEEPER SLAB.

JOINT LEGEND

ACCORDING TO STANDARD PLAN R-39-SERIES

(E2)	1" TRANSVERSE EXPANSION JOINT WITH LOAD TRANSFER ASSEMBLY
(E3)	1" TRANSVERSE EXPANSION JOINT WITHOUT LOAD TRANSFER ASSEMBLY
(Cp)	TRANSVERSE CONTRACTION JOINT
	REINFORCED CONCRETE PAVEMENT ADJACENT TO BRIDGE REFERENCE LINE OR SLEEPER SLAB

JOINTED PLAIN CONCRETE PAVEMENT	
PAVEMENT THICKNESS	JOINT SPACING
6½" TO 8¾"	12'
9" TO 11¾"	14'
12" OR MORE	16'

APPROVED BY: _____
DIRECTOR, BUREAU OF FIELD SERVICES

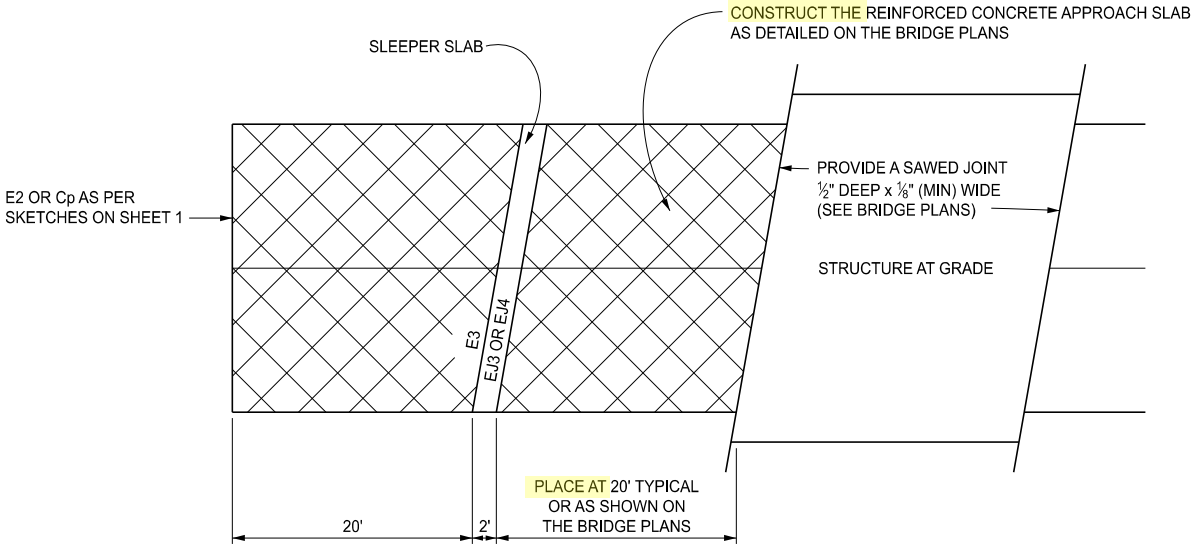
APPROVED BY: _____
DIRECTOR, BUREAU OF DEVELOPMENT

MDOT
Michigan Department of Transportation

DEPARTMENT DIRECTOR
BRADLEY C. WIEFERICH, PE

STANDARD PLAN FOR
LOCATION OF TRANSVERSE JOINTS IN PLAIN CONCRETE PAVEMENT

(SPECIAL DETAIL) FHWA APPROVAL	02/23/2026 PLAN DATE	R-43-J	SHEET 1 OF 2



JOINT SPACING WITH
INTEGRAL / SEMI-INTEGRAL ABUTMENTS AND SLEEPER SLABS

NOTES:

PLACE TRANSVERSE JOINTS ACCORDING TO THIS STANDARD PLAN AND STANDARD PLAN R-42-SERIES, UNLESS OTHERWISE SPECIFIED ON THE PLANS OR DIRECTED BY THE ENGINEER.

DO NOT EXCEED THE MAXIMUM JOINT SPACING SPECIFIED. WHEN AN ADJUSTMENT IS REQUIRED, MAKE IT BETWEEN CONTRACTION JOINTS, ENSURING THE ADJUSTED SPACING IS AT LEAST 6'-6".

PLACE EXPANSION JOINTS ONLY AT STRUCTURES, INTERSECTIONS, AND AT SPECIFIED LOCATIONS.

PLACE JOINTS ABUTTING RAILROAD TRACKS AS SHOWN ON STANDARD PLAN R-21-SERIES.

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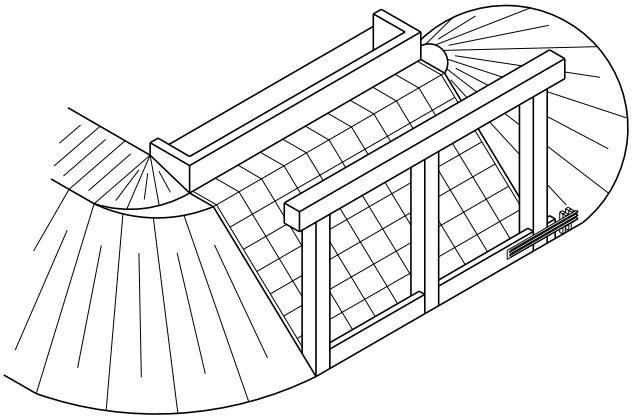
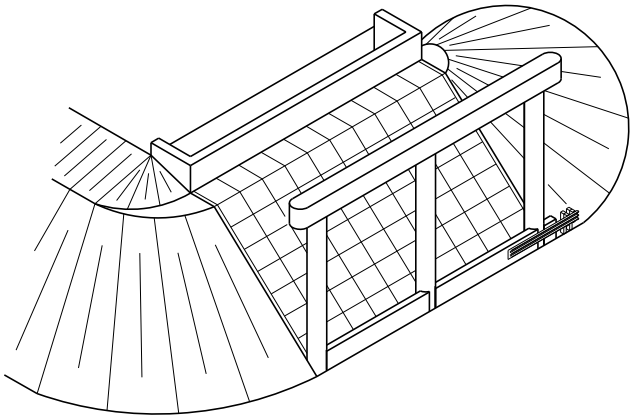
BRADLEY C. WIEFERICH, PE

STANDARD PLAN FOR
LOCATION OF TRANSVERSE JOINTS
IN PLAIN CONCRETE PAVEMENT

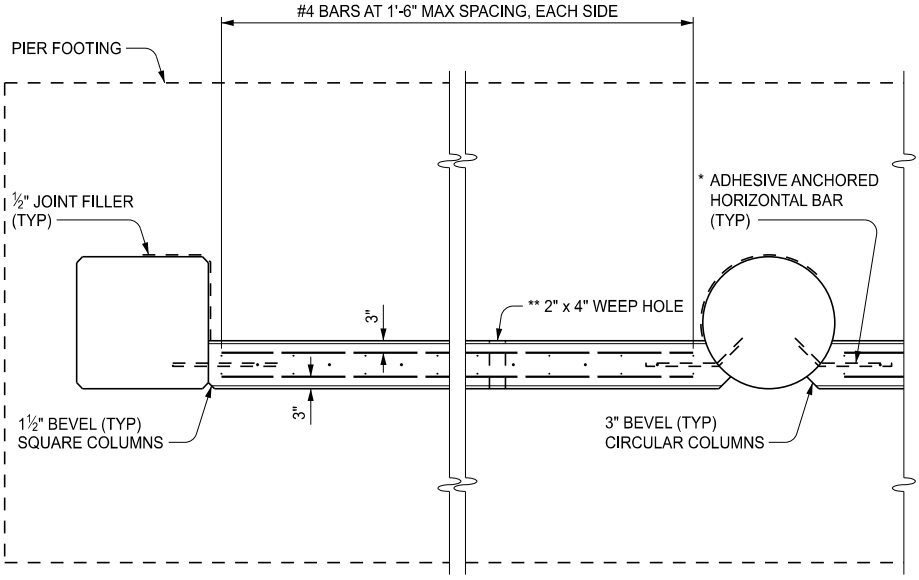
(SPECIAL DETAIL) FHWA APPROVAL	02/23/2026 PLAN DATE	R-43-J	SHEET 2 OF 2



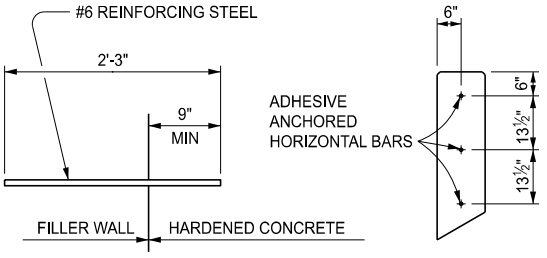
SKETCH OF FILLER WALLS
AT SQUARE PIER COLUMNS



SKETCH OF FILLER WALLS
AT CIRCULAR PIER COLUMNS



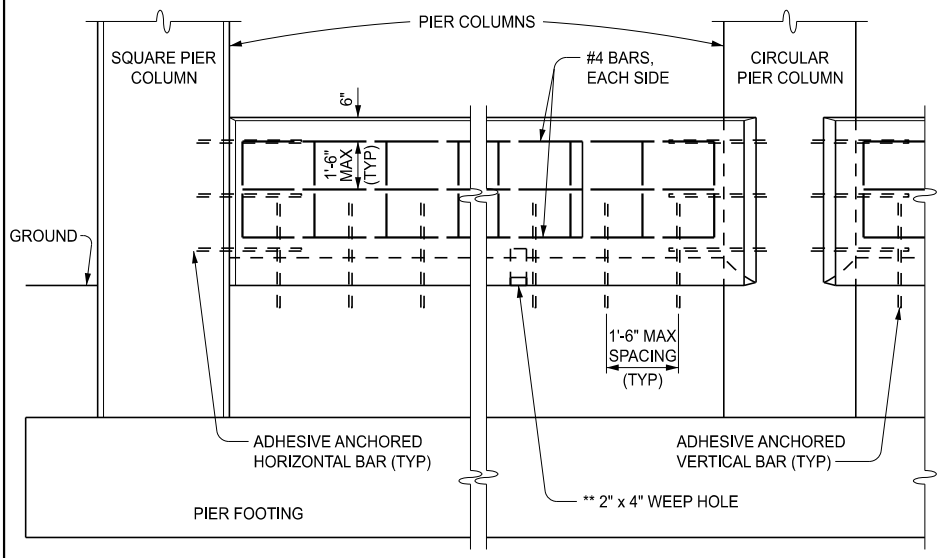
PLAN



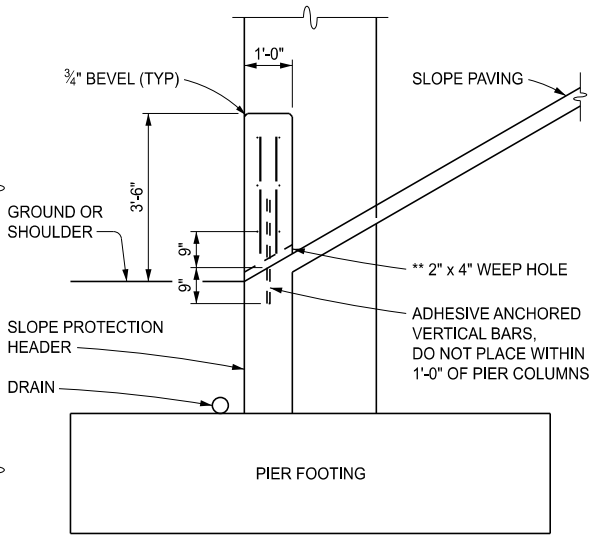
ADHESIVE ANCHORED
HORIZONTAL OR VERTICAL BAR
INSTALLATION DETAIL
(UNLESS OTHERWISE DETAILED)

* TEST REINFORCING STEEL ACCORDING TO THE STANDARD SPECIFICATIONS FOR CONSTRUCTION PRIOR TO BENDING. FIELD BEND THE REINFORCING STEEL RADIALLY TO CIRCULAR PIERS AND PARALLEL TO THE FILLER WALL. SEE THE STANDARD SPECIFICATIONS FOR CONSTRUCTION FOR FIELD BENDING REQUIREMENTS. REPAIR ANY DAMAGE TO THE EPOXY COATING DURING TESTING OR BENDING (AT CONTRACTORS EXPENSE).

** PLACE ONE 2" x 4" WEEP HOLE IN EACH FILLER WALL SECTION. (MAY BE RANDOMLY LOCATED)



ELEVATION



END

FILLER WALLS USING SLOPE PROTECTION HEADER AS FOOTING

APPROVED BY: _____
DIRECTOR, BUREAU OF FIELD SERVICES

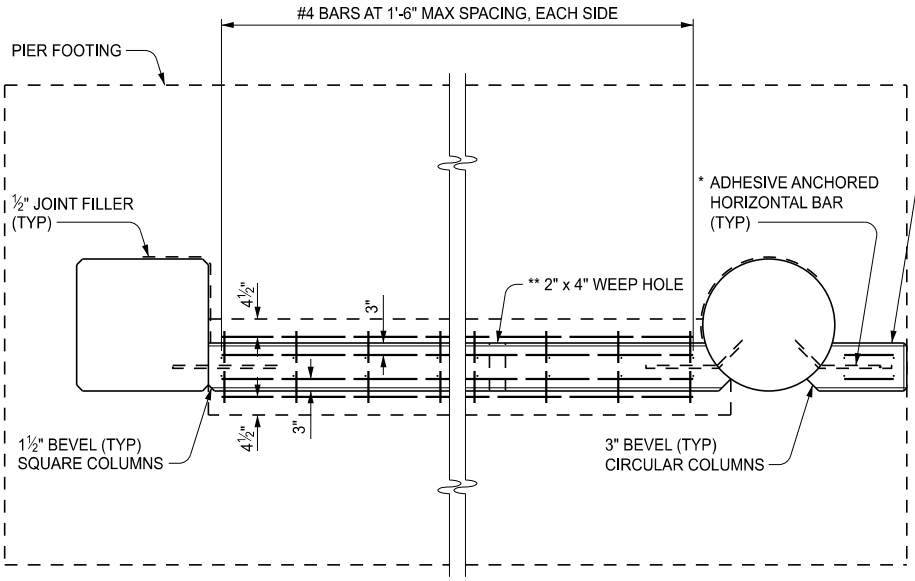
APPROVED BY: _____
DIRECTOR, BUREAU OF DEVELOPMENT

MDOT
Michigan Department of Transportation

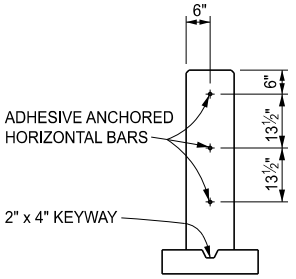
DEPARTMENT DIRECTOR
BRADLEY C. WIEFERICH, PE

STANDARD PLAN FOR
FILLER WALLS AT
BRIDGE PIER COLUMNS

(SPECIAL DETAIL)	02/23/2026	R-55-H	SHEET
FHWA APPROVAL	PLAN DATE		1 OF 5



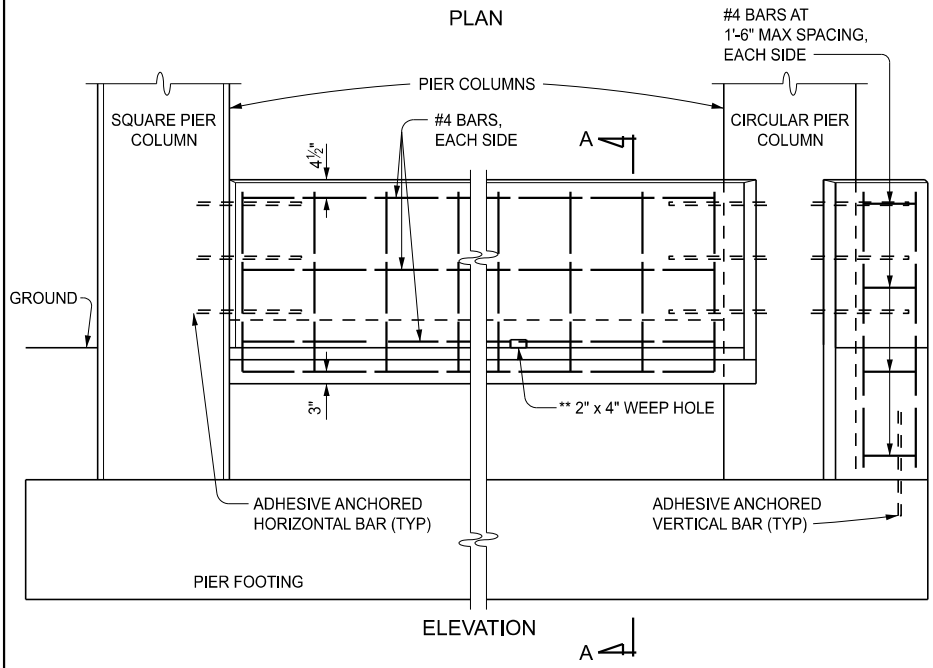
PLAN



ADHESIVE ANCHORED HORIZONTAL BAR LAYOUT

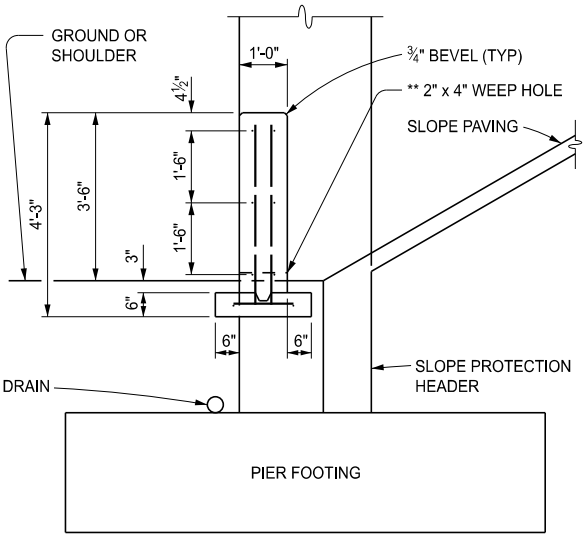
* TEST REINFORCING STEEL ACCORDING TO THE STANDARD SPECIFICATIONS FOR CONSTRUCTION PRIOR TO BENDING. FIELD BEND THE REINFORCING STEEL RADIALLY TO CIRCULAR PIERS AND PARALLEL TO THE FILLER WALL. SEE THE STANDARD SPECIFICATIONS FOR CONSTRUCTION FOR FIELD BENDING REQUIREMENTS. REPAIR ANY DAMAGE TO THE EPDXY COATING DURING TESTING OR BENDING (AT CONTRACTORS EXPENSE).

** PLACE ONE 2" x 4" WEEP HOLE IN EACH FILLER WALL SECTION. (MAY BE RANDOMLY LOCATED)



ELEVATION

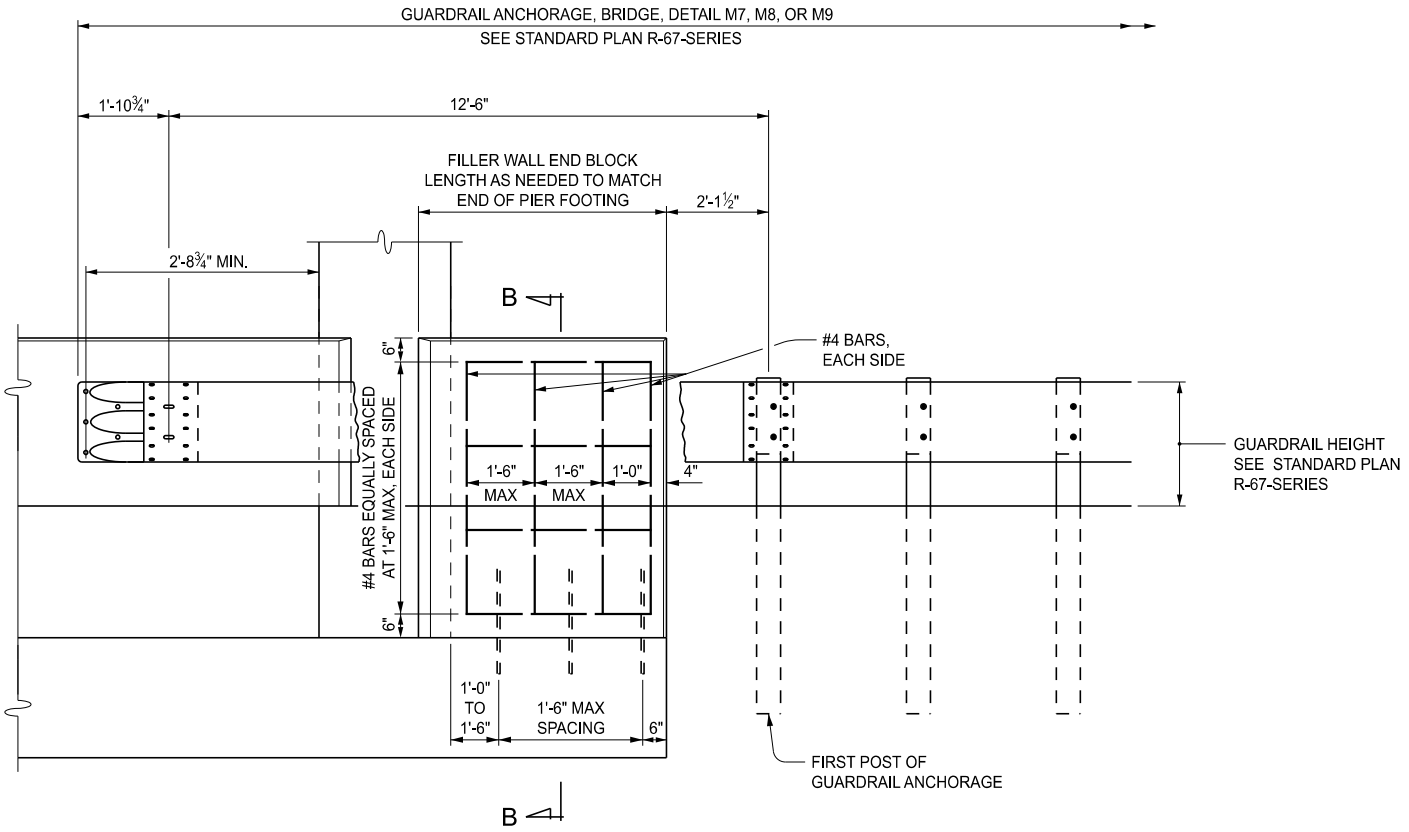
A



SECTION A-A

FILLER WALLS WITH FOOTINGS - OUTSIDE PIERS

MDOT Michigan Department of Transportation DEPARTMENT DIRECTOR BRADLEY C. WIEFERICH, PE	STANDARD PLAN FOR FILLER WALLS AT BRIDGE PIER COLUMNS		
(SPECIAL DETAIL) FHWA APPROVAL	02/23/2026 PLAN DATE	R-55-H	SHEET 2 OF 5



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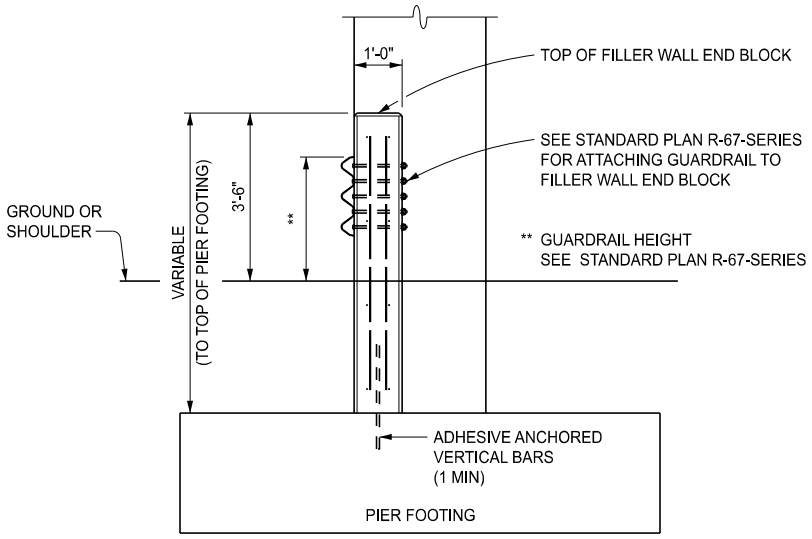


SECTION B-B

DETAILS FOR FILLER WALL END BLOCK

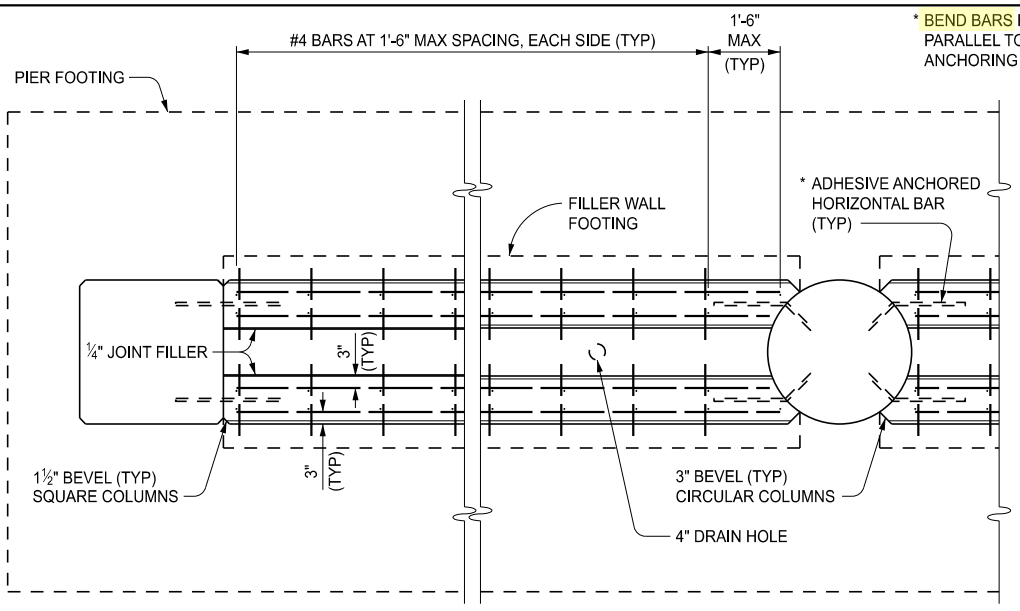
(SEE STANDARD PLAN R-67-SERIES FOR GUARDRAIL ATTACHMENT DETAILS)

MDOT Michigan Department of Transportation

DEPARTMENT DIRECTOR
BRADLEY C. WIEFERICH, PE

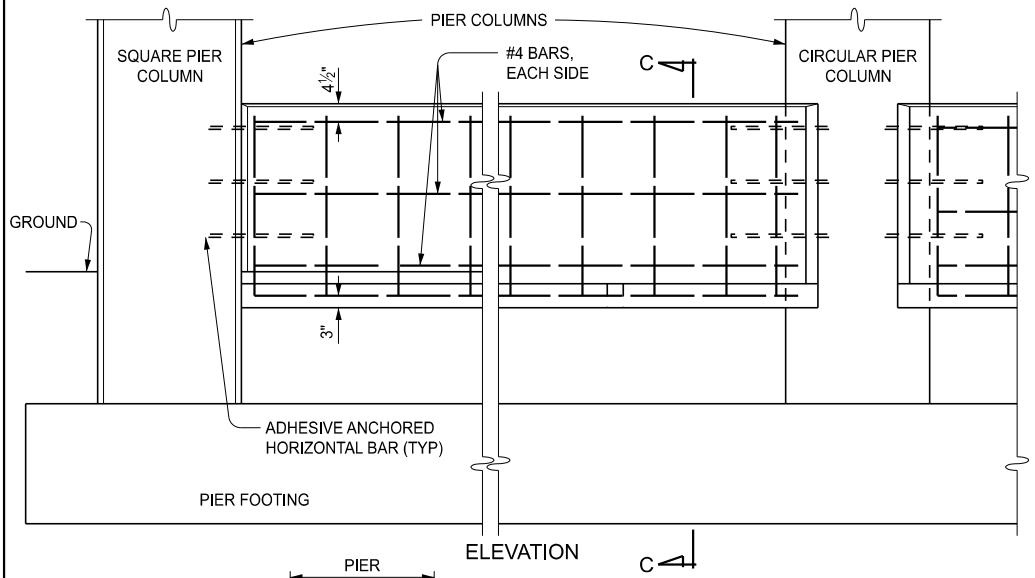
STANDARD PLAN FOR
FILLER WALLS AT
BRIDGE PIER COLUMNS

(SPECIAL DETAIL) FHWA APPROVAL	02/23/2026 PLAN DATE	R-55-H	SHEET 3 OF 5

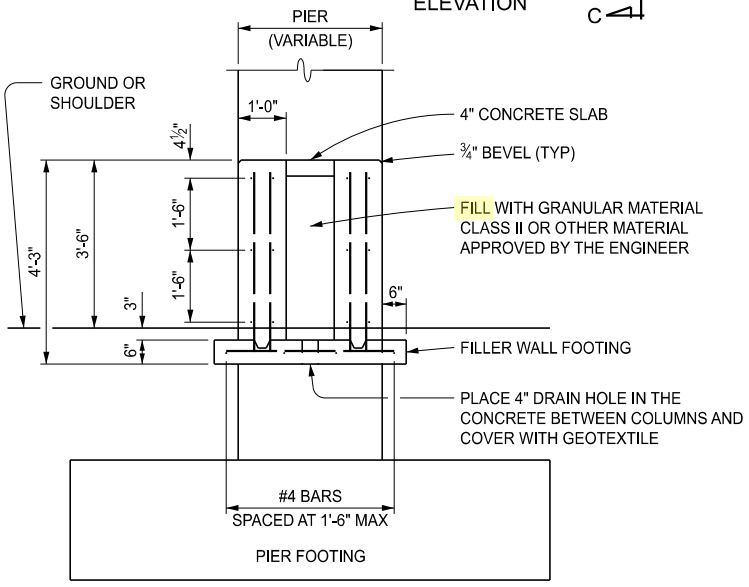


* BEND BARS RADIALLY TO CIRCULAR PIERS AND PARALLEL TO THE FILLER WALL PRIOR TO ADHESIVE ANCHORING TO PIER.

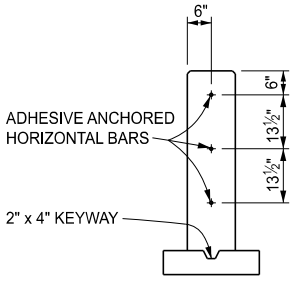
PLAN



ELEVATION C



SECTION C-C



ADHESIVE ANCHORED HORIZONTAL BAR LAYOUT

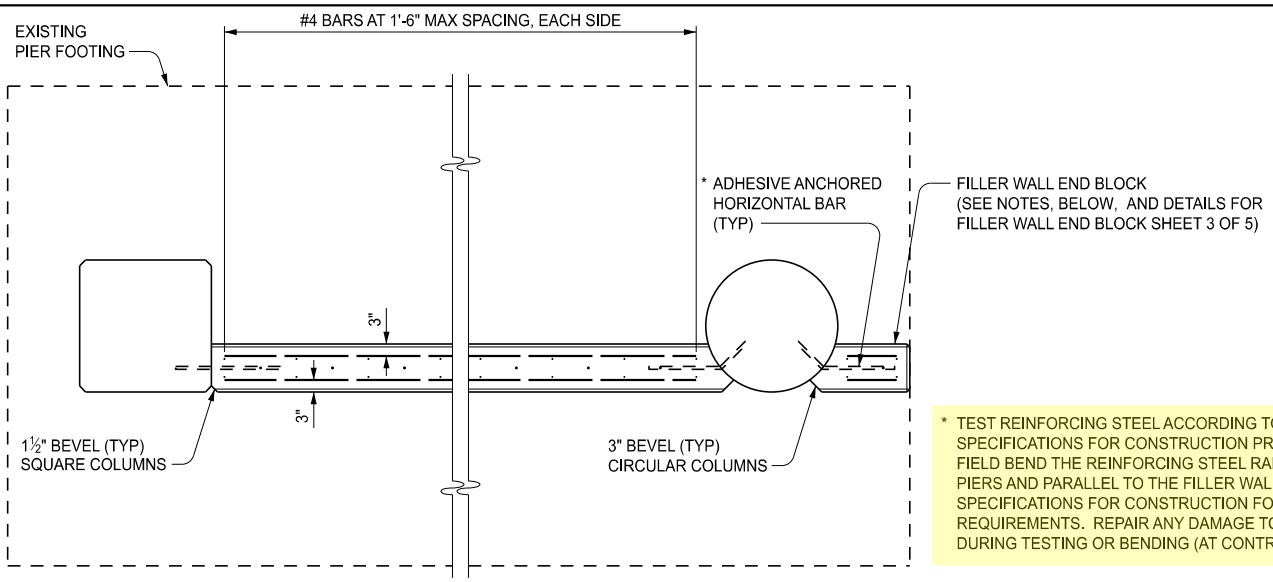
FILLER WALLS WITH FOOTINGS - MEDIAN PIERS

MDOT Michigan Department of Transportation

DEPARTMENT DIRECTOR
BRADLEY C. WIEFERICH, PE

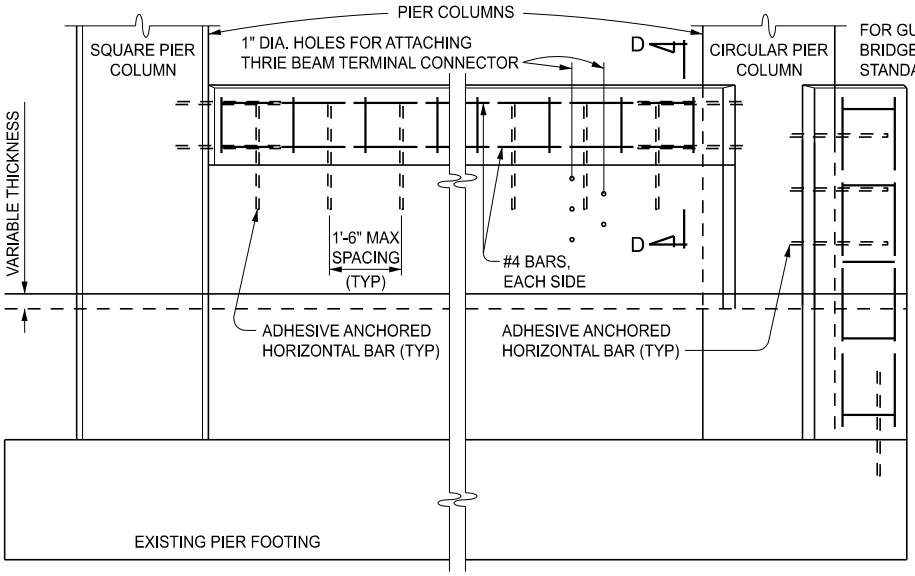
STANDARD PLAN FOR
FILLER WALLS AT
BRIDGE PIER COLUMNS

(SPECIAL DETAIL)	02/23/2026	R-55-H	SHEET
FHWA APPROVAL	PLAN DATE		4 OF 5

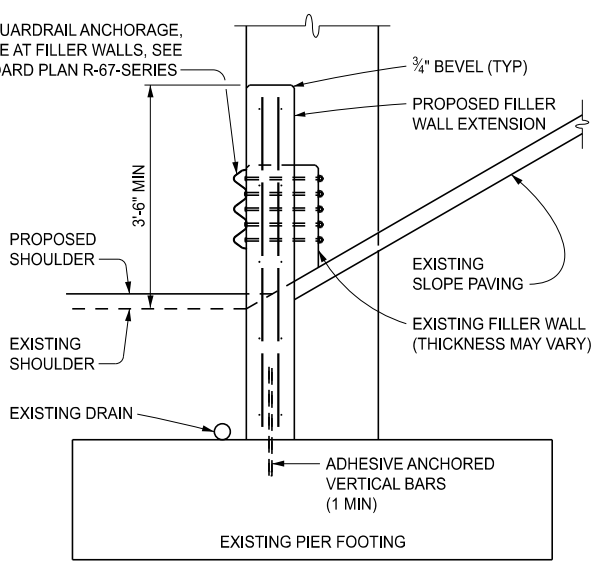


PLAN

* TEST REINFORCING STEEL ACCORDING TO THE STANDARD SPECIFICATIONS FOR CONSTRUCTION PRIOR TO BENDING. FIELD BEND THE REINFORCING STEEL RADIALLY TO CIRCULAR PIERS AND PARALLEL TO THE FILLER WALL. SEE THE STANDARD SPECIFICATIONS FOR CONSTRUCTION FOR FIELD BENDING REQUIREMENTS. REPAIR ANY DAMAGE TO THE EPOXY COATING DURING TESTING OR BENDING (AT CONTRACTORS EXPENSE).

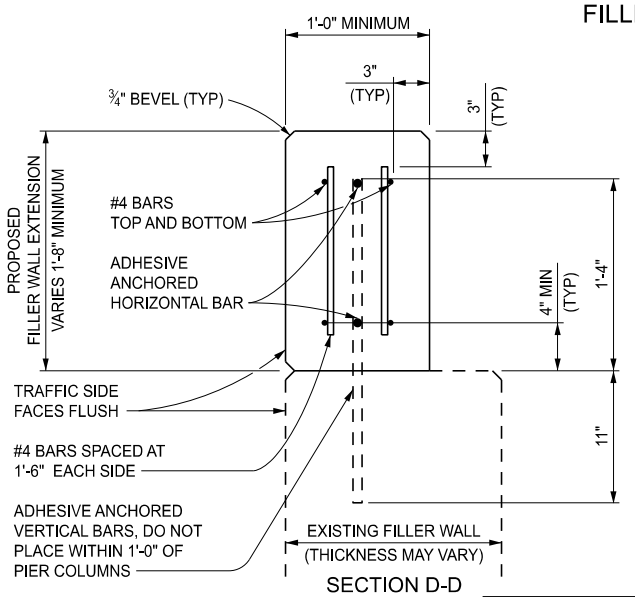


ELEVATION



END

FILLER WALL EXTENSION
FOR ADDITIONAL HEIGHT



SECTION D-D

NOTES:

THE CONTRACTOR MAY FILL THE AREA BETWEEN THE FILLER WALLS AT THE MEDIAN PIERS WITH CONCRETE AT THEIR OPTION, WITH NO INCREASE IN COST TO THE DEPARTMENT.

ENSURE FILLER WALLS DO NOT ENTRAP WATER. PROVIDE DRAINAGE WITH WEEP HOLES, DRAIN HOLES, AND/OR RESHAPING THE SLOPES.

ENSURE TOP OF FILLER WALL IS PARALLEL WITH THE PAVEMENT GRADE.

PAY FOR THE MATERIALS AND LABOR REQUIRED TO CONSTRUCT FILLER WALL END BLOCKS AS FILLER WALL CONCRETE. SEE STANDARD SPECIFICATIONS FOR CONSTRUCTION FOR ADHESIVE ANCHORING OF HORIZONTAL / VERTICAL BARS.

SEE STANDARD PLAN R-67-SERIES WHEN ATTACHING GUARDRAIL TO FILLER WALLS.

ONLY USE APPROVED (BY THE ENGINEER) ALTERNATE METHODS TO ANCHOR THE BARS.

EPOXY COAT AND PAY SEPARATELY FOR ALL STEEL REINFORCEMENT BARS AND ADHESIVE ANCHORED HORIZONTAL / VERTICAL BARS .

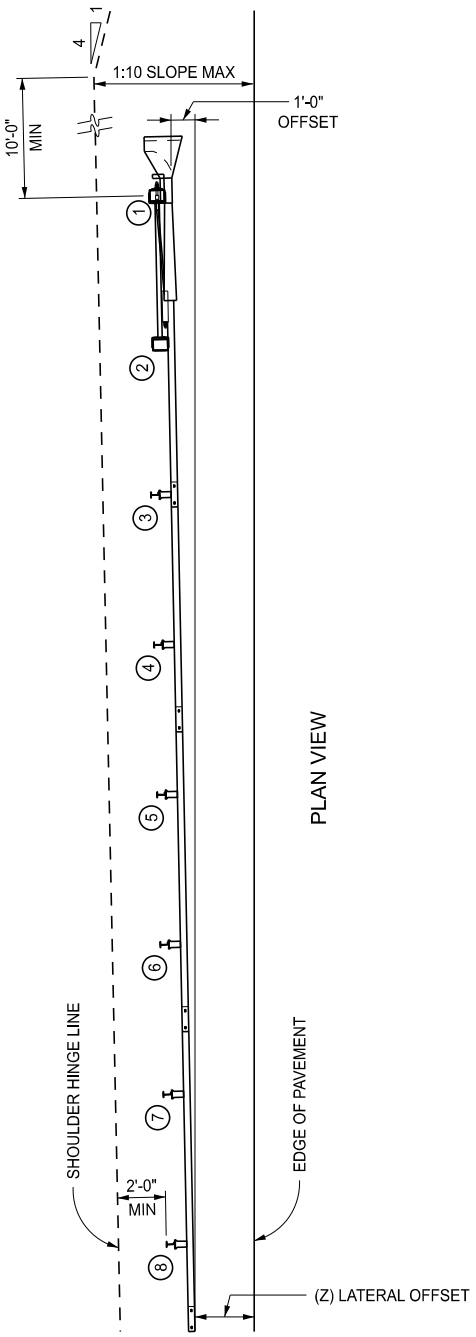
INSTALL ADHESIVE ANCHORS PER MANUFACTURERS RECOMMENDATION EXCEPT AS MODIFIED ON THIS STANDARD.

MDOT
Michigan Department of Transportation

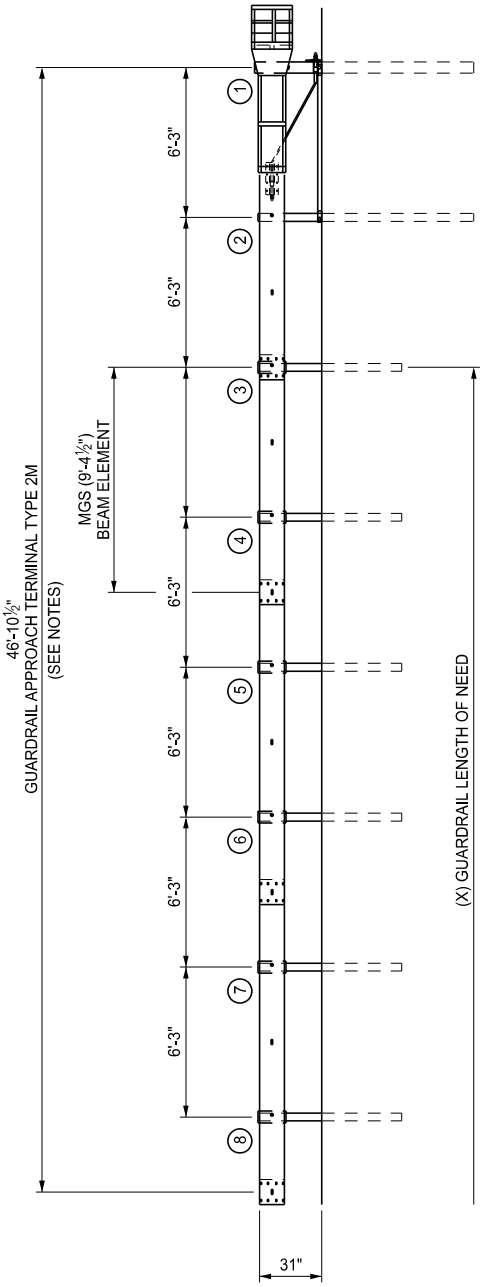
DEPARTMENT DIRECTOR
BRADLEY C. WIEFERICH, PE

STANDARD PLAN FOR
FILLER WALLS AT BRIDGE PIER COLUMNS

(SPECIAL DETAIL) / FHWA APPROVAL	02/23/2026 / PLAN DATE	R-55-H	SHEET 5 OF 5



PLAN VIEW



ELEVATION

GUARDRAIL APPROACH TERMINAL TYPE 2M
"MSKT"

OPTION 1

APPROVED BY: _____
DIRECTOR, BUREAU OF FIELD SERVICES

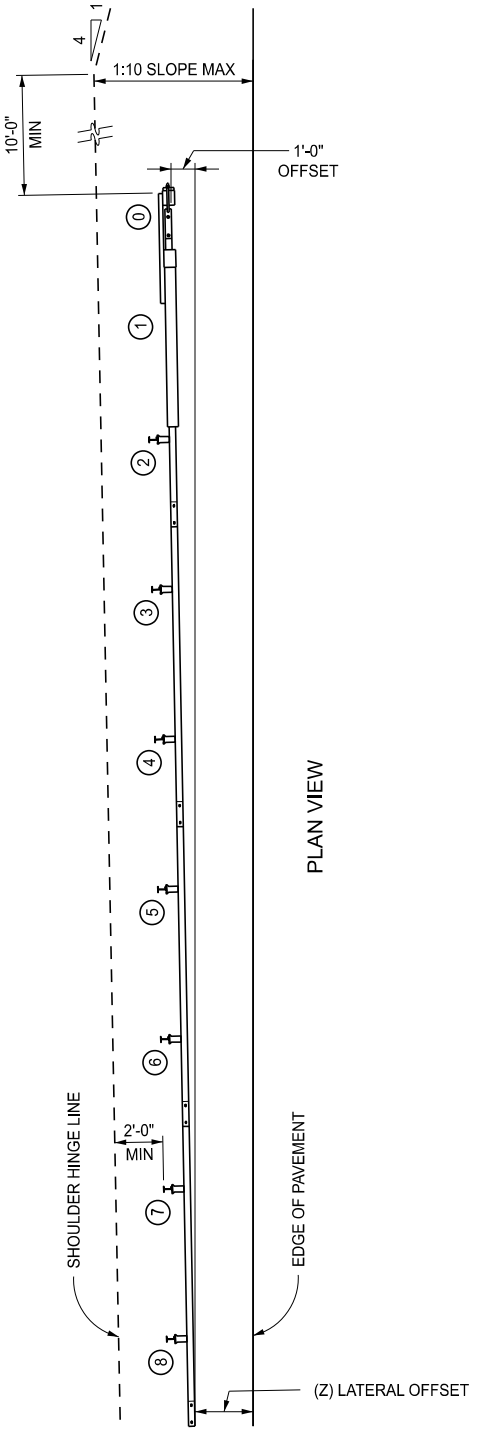
APPROVED BY: _____
DIRECTOR, BUREAU OF DEVELOPMENT

MDOT
Michigan Department of Transportation

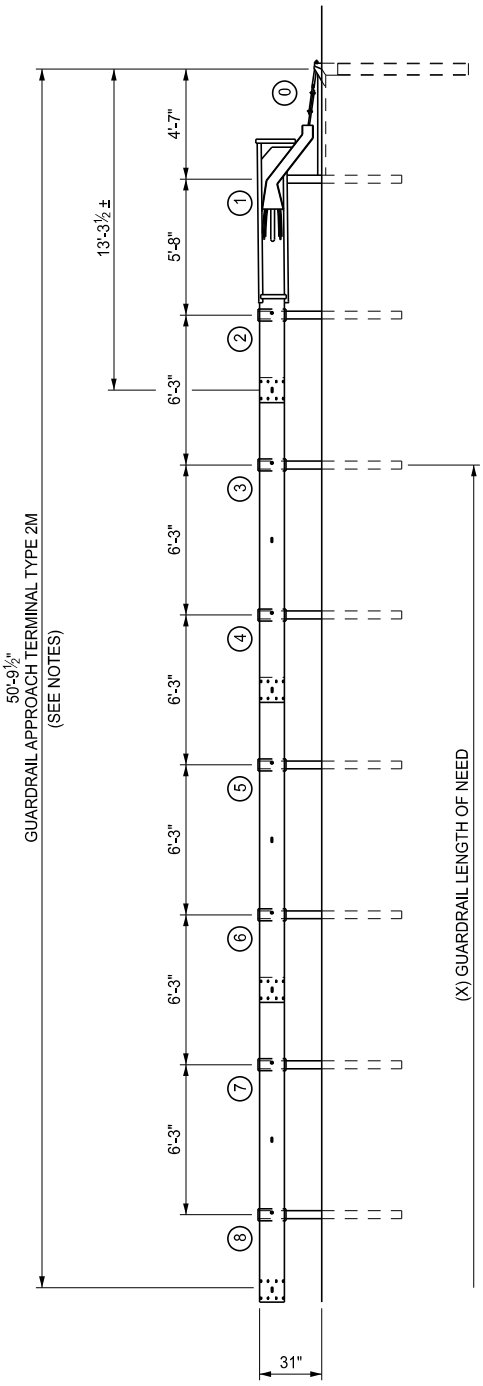
DEPARTMENT DIRECTOR
BRADLEY C. WIEFERICH, PE

STANDARD PLAN FOR
GUARDRAIL APPROACH TERMINAL TYPE 2M

SPECIAL DETAIL / FHWA APPROVAL	02/23/2026 / PLAN DATE	R-62-H	SHEET 1 OF 5



PLAN VIEW

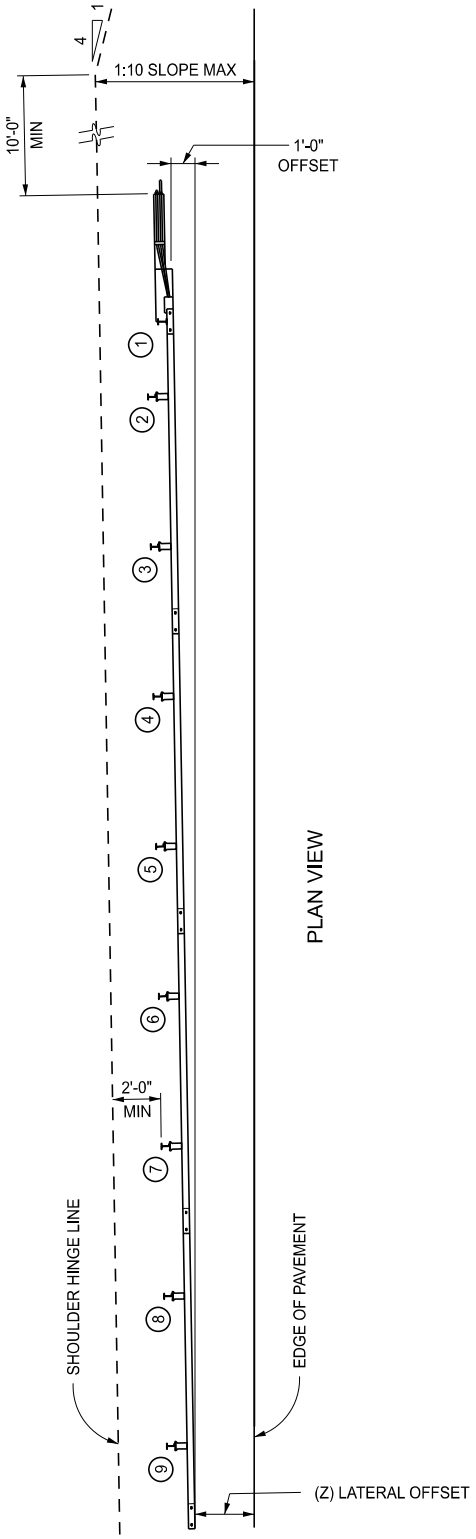


ELEVATION

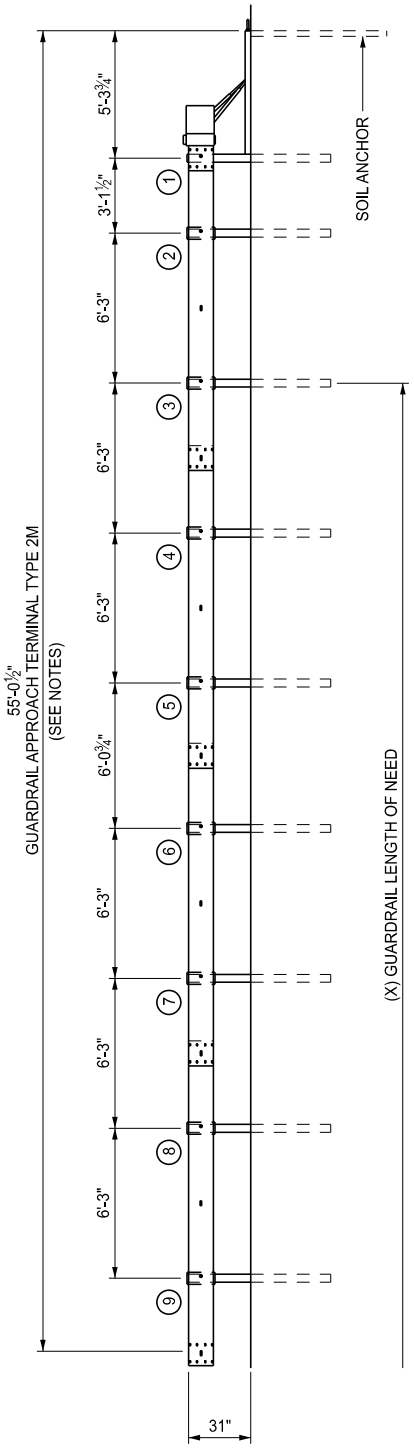
GUARDRAIL APPROACH TERMINAL TYPE 2M
"SOFT-STOP"

OPTION 2

MDOT Michigan Department of Transportation DEPARTMENT DIRECTOR BRADLEY C. WIEFERICH, PE	STANDARD PLAN FOR GUARDRAIL APPROACH TERMINAL TYPE 2M			
	SPECIAL DETAIL FHWA APPROVAL	02/23/2026 PLAN DATE	R-62-H	SHEET 2 OF 5



PLAN VIEW

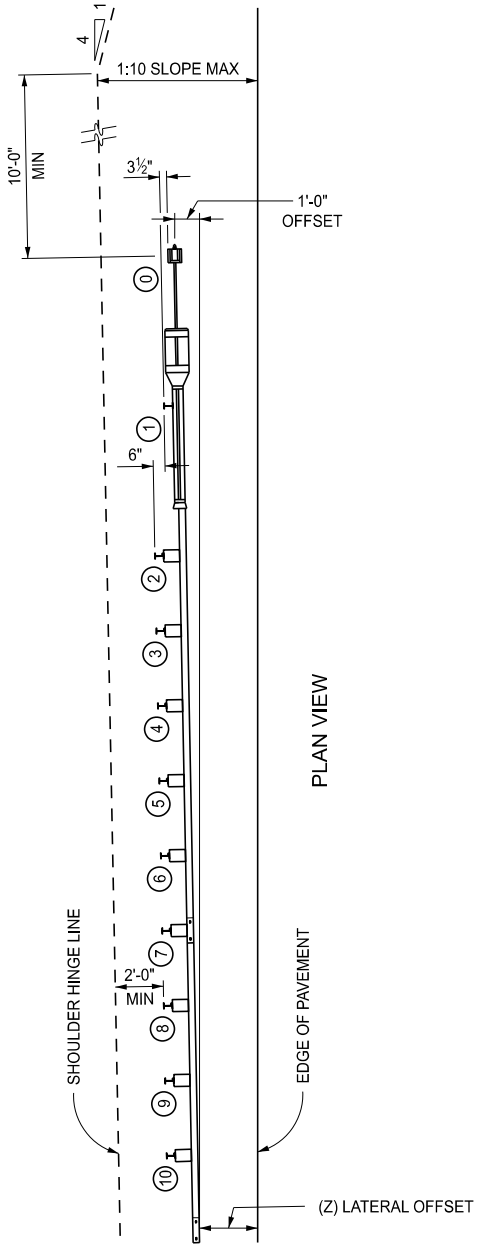


ELEVATION

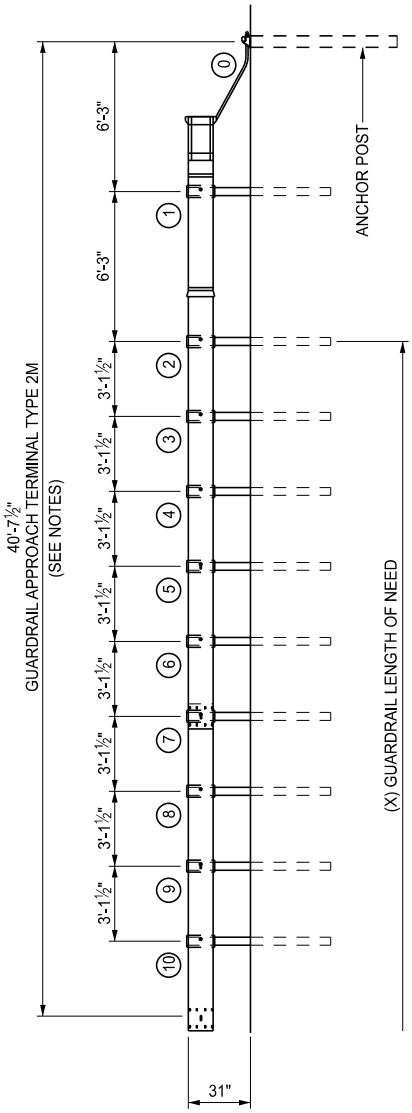
GUARDRAIL APPROACH TERMINAL TYPE 2M
"MAX-TENSION"

OPTION 3

MDOT Michigan Department of Transportation DEPARTMENT DIRECTOR BRADLEY C. WIEFERICH, PE	STANDARD PLAN FOR GUARDRAIL APPROACH TERMINAL TYPE 2M			
	SPECIAL DETAIL FHWA APPROVAL	02/23/2026 PLAN DATE	R-62-H	SHEET 3 OF 5



PLAN VIEW



ELEVATION

GUARDRAIL APPROACH TERMINAL TYPE 2M
"NGT"

OPTION 4

MDOT Michigan Department of Transportation DEPARTMENT DIRECTOR BRADLEY C. WIEFERICH, PE	STANDARD PLAN FOR GUARDRAIL APPROACH TERMINAL TYPE 2M			
	SPECIAL DETAIL FHWA APPROVAL	02/23/2026 PLAN DATE	R-62-H	SHEET 4 OF 5

NOTES:

REFER TO STANDARD PLAN R-60-SERIES TO DETERMINE ADDITIONAL TRANSITION LENGTHS WHEN ATTACHING TERMINALS TO GUARDRAIL TYPES OTHER THAN MGS-8.

ENSURE ALL POSTS, OFFSET BLOCKS, BEAM ELEMENTS, AND HARDWARE (INCLUDING BOLTS, NUTS, AND WASHERS) CONFORM TO THE MANUFACTURER'S DETAILS AND SPECIFICATIONS.

GRADE ALL 1:10 OR FLATTER SLOPES TO MEET CLASS A SLOPE TOLERANCES.

WHEN SITE CONDITIONS WARRANT AND WITH THE APPROVAL OF THE ENGINEER, INSTALL GUARDRAIL APPROACH TERMINAL TYPE 2M STRAIGHT (WITHOUT THE 1'-0" OFFSET FROM THE TANGENT LINE TO THE TRAFFIC FACE OF POST 1).

DO NOT INSTALL GUARDRAIL REFLECTORS OR OTHER ATTACHMENTS ON THE GUARDRAIL APPROACH TERMINAL. BEGIN PLACING REFLECTORS AT THE START OF THE STANDARD GUARDRAIL RUN.

USE REFLECTIVE SHEETING ACCORDING TO THE FOLLOWING TRAFFIC CONDITIONS:
(NOTE: ALTERNATE 3" BLACK AND 3" YELLOW STRIPES ON A 45° ANGLE)

TRAFFIC PASSING ON THE LEFT SIDE

TRAFFIC PASSING ON BOTH SIDES

TRAFFIC PASSING ON THE RIGHT SIDE

COMPLETELY COVER THE PORTION OF THE IMPACT HEAD ASSEMBLY FACING TRAFFIC WITH HIGH-INTENSITY REFLECTIVE SHEETING.

MSKT (MASH-COMPLIANT SEQUENTIAL KINKING TERMINAL) IS MANUFACTURED BY ROAD SYSTEMS, INC.

SOFT-STOP IS MANUFACTURED BY VALTIR, LLC.

MAX-TENSION IS MANUFACTURED BY LINDSAY TRANSPORTATION SOLUTIONS, LLC.

NGT (NEXT GENERATION TERMINAL) IS MANUFACTURED BY NEXTGEN SAFETY, LLC.

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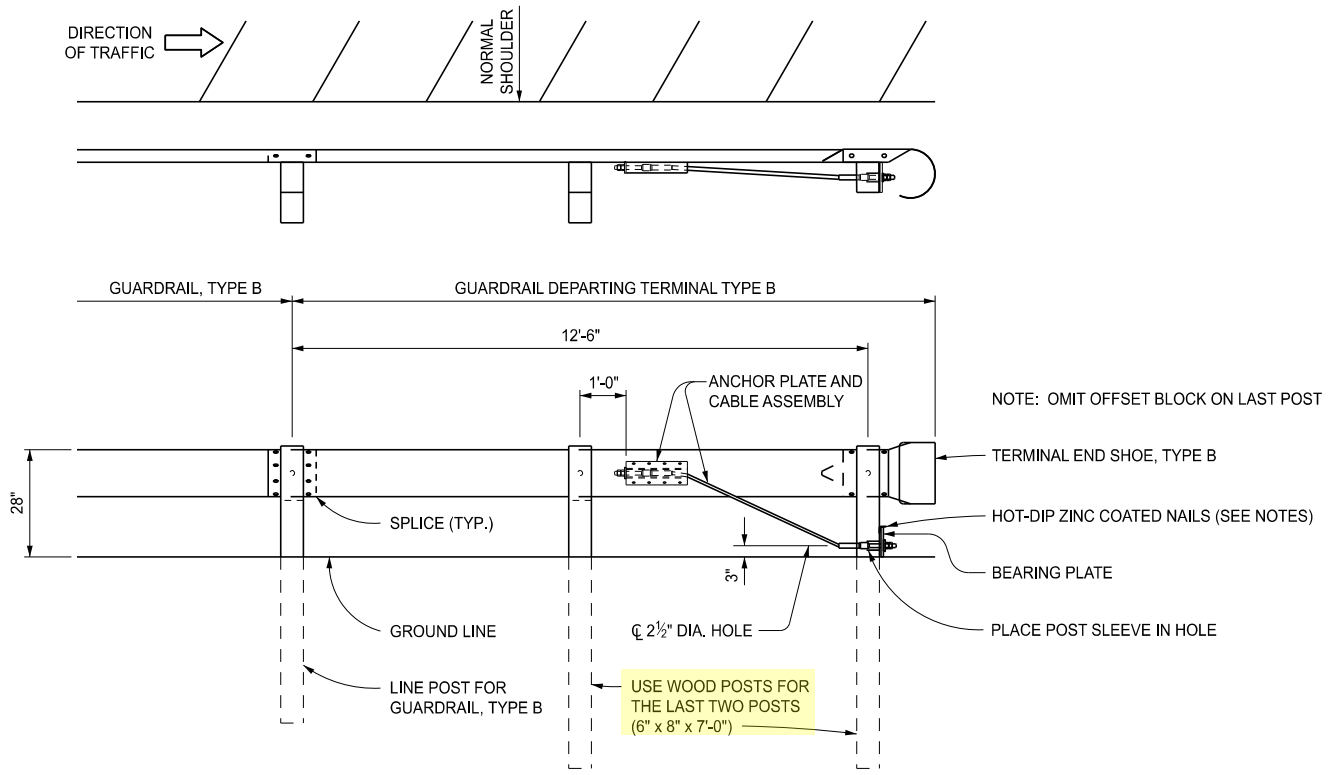
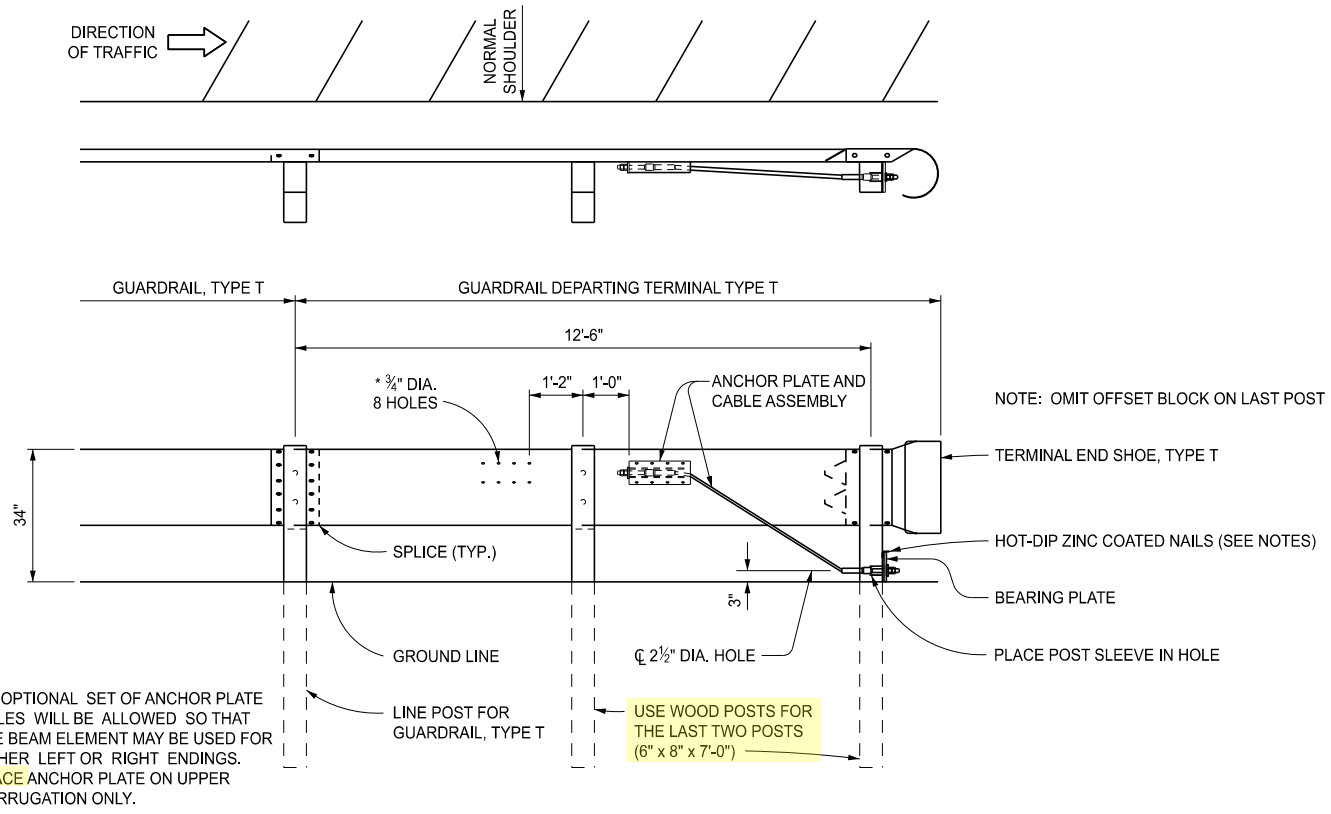
STANDARD PLAN FOR
GUARDRAIL APPROACH TERMINAL TYPE 2M

(SPECIAL DETAIL) FHWA APPROVAL	02/23/2026 PLAN DATE	R-62-H	SHEET 5 OF 5



GUARDRAIL DEPARTING TERMINAL TYPE B



* AN OPTIONAL SET OF ANCHOR PLATE HOLES WILL BE ALLOWED SO THAT THE BEAM ELEMENT MAY BE USED FOR EITHER LEFT OR RIGHT ENDINGS. PLACE ANCHOR PLATE ON UPPER CORRUGATION ONLY.

GUARDRAIL DEPARTING TERMINAL TYPE T

APPROVED BY: _____
DIRECTOR, BUREAU OF FIELD SERVICES

APPROVED BY: _____
DIRECTOR, BUREAU OF DEVELOPMENT

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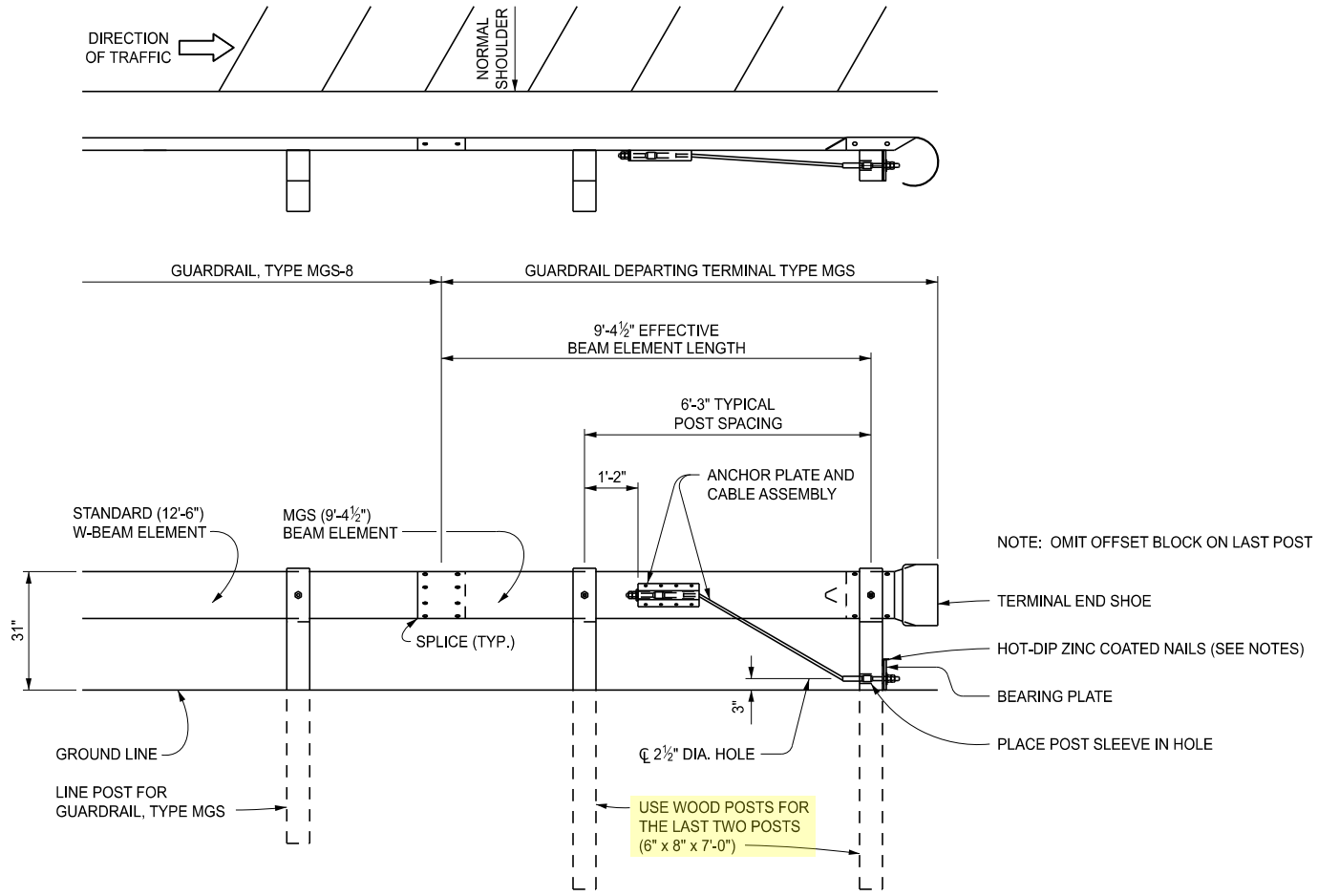
Michigan Department of Transportation

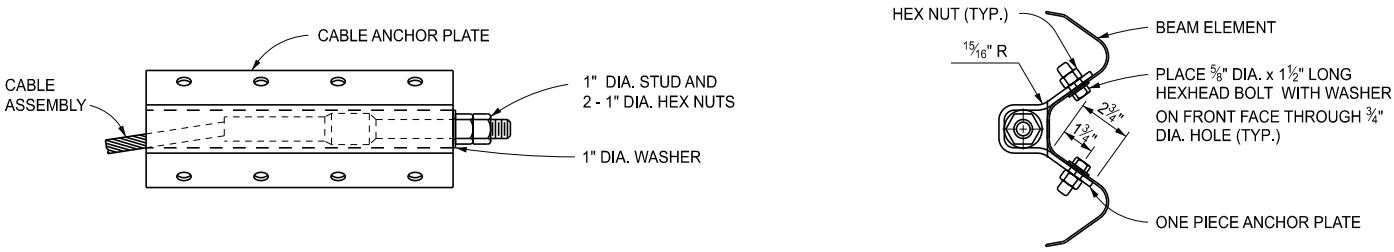
DEPARTMENT DIRECTOR
BRADLEY C. WIEFERICH, PE

STANDARD PLAN FOR
GUARDRAIL DEPARTING TERMINAL TYPES B, T, & MGS

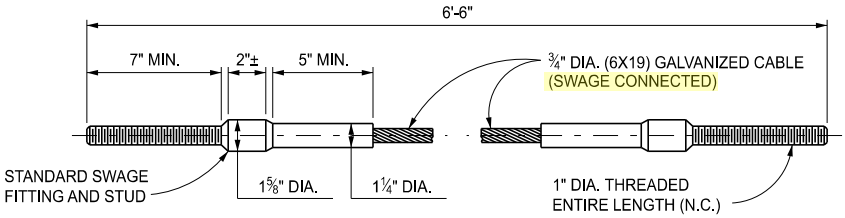
(SPECIAL DETAIL) FHWA APPROVAL	02/23/2026 PLAN DATE	R-66-E	SHEET 1 OF 4



GUARDRAIL DEPARTING TERMINAL TYPE MGS



CABLE ANCHOR PLATE DETAILS



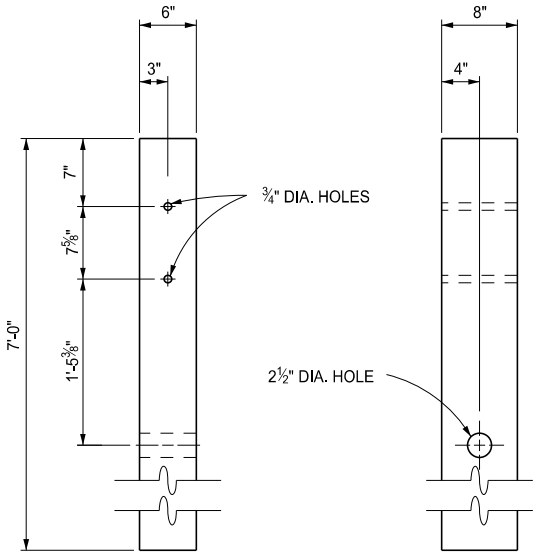
CABLE ASSEMBLY

MDOT Michigan Department of Transportation

DEPARTMENT DIRECTOR
BRADLEY C. WIEFERICH, PE

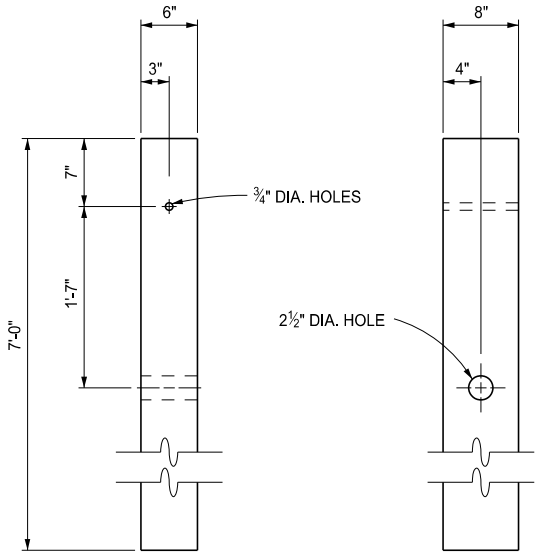
STANDARD PLAN FOR
GUARDRAIL DEPARTING TERMINAL TYPES B, T, & MGS

(SPECIAL DETAIL) FHWA APPROVAL	02/23/2026 PLAN DATE	R-66-E	SHEET 2 OF 4



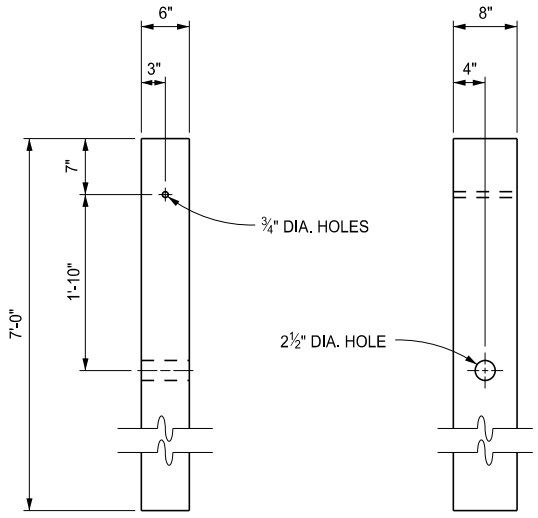
WOOD POST DETAIL

(FOR LAST POST, GUARDRAIL DEPARTING TERMINAL TYPE T)



WOOD POST DETAIL

(FOR LAST POST, GUARDRAIL DEPARTING TERMINAL TYPE B)



WOOD POST DETAIL

(FOR LAST POST, GUARDRAIL DEPARTING TERMINAL TYPE MGS)

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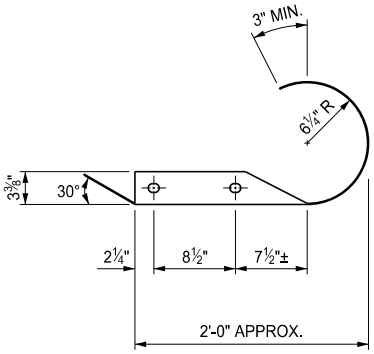
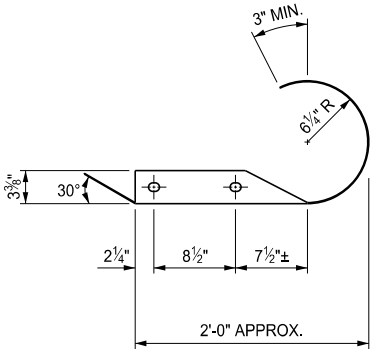
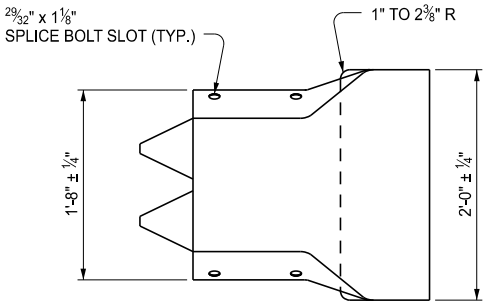
STANDARD PLAN FOR
GUARDRAIL DEPARTING TERMINAL TYPES B, T, & MGS

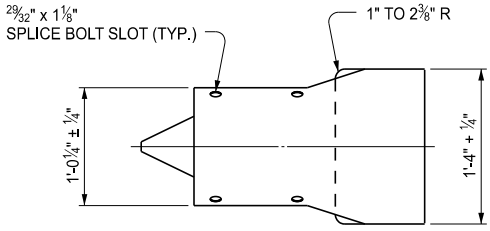
(SPECIAL DETAIL) FHWA APPROVAL	02/23/2026 PLAN DATE	R-66-E	SHEET 3 OF 4



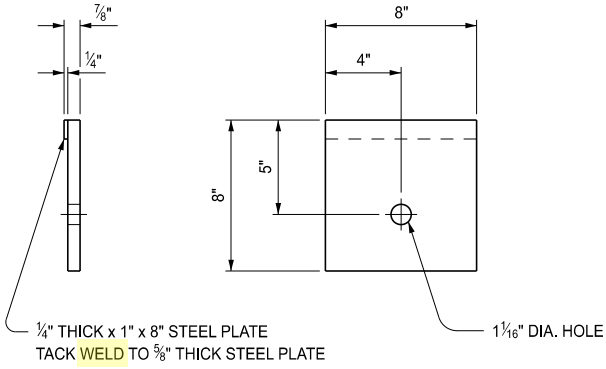




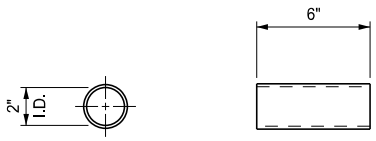
TERMINAL END SHOE, TYPE T



TERMINAL END SHOE,
TYPE A, TYPE B OR TYPE MGS



BEARING PLATE



POST SLEEVE

NOTES:

ENSURE ALL POSTS, OFFSET BLOCKS, BEAM ELEMENTS, AND HARDWARE (INCLUDING BOLTS, NUTS, AND WASHERS) CONFORM TO THE STANDARD SPECIFICATIONS FOR CONSTRUCTION AND TO STANDARD PLAN R-60-SERIES, WHERE APPLICABLE, EXCEPT AS SPECIFIED ON THIS STANDARD.

FOR DETAILS OF GUARDRAIL PLACEMENT, SEE STANDARD PLAN R-59-SERIES.

GRADE ALL 1:10 SLOPES TO CLASS A SLOPE TOLERANCES.

AFTER THE CABLE ASSEMBLY HAS BEEN TIGHTENED, INSTALL A SECOND NUT ON EACH END OF THE CABLE SO THAT THE CABLE WILL NOT LOOSEN.

DRIVE TWO HOT-DIP ZINC COATED NAILS INTO THE WOOD POST AT THE TOP OF THE BEARING PLATE TO KEEP THE BEARING PLATE FROM ROTATING.

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DEPARTMENT DIRECTOR
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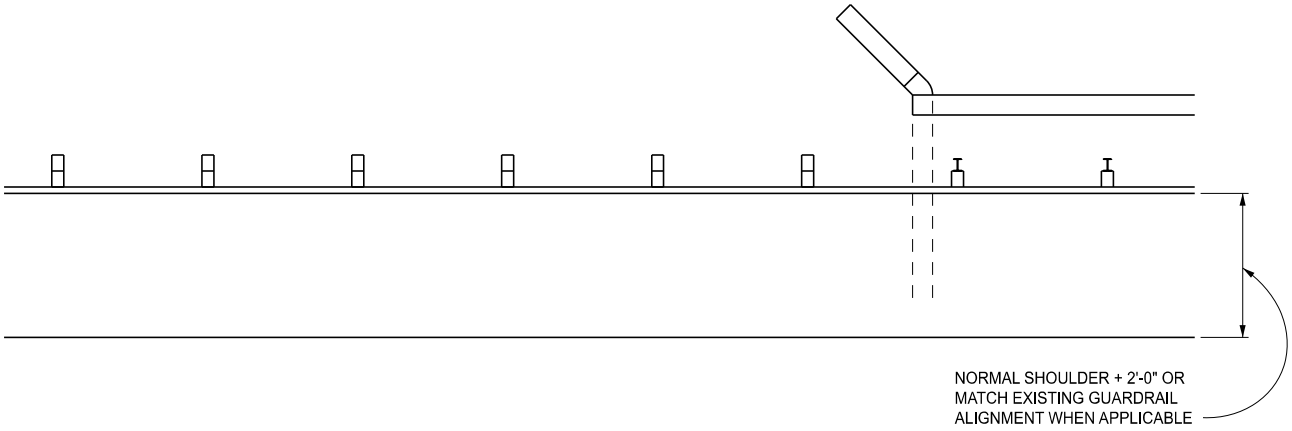
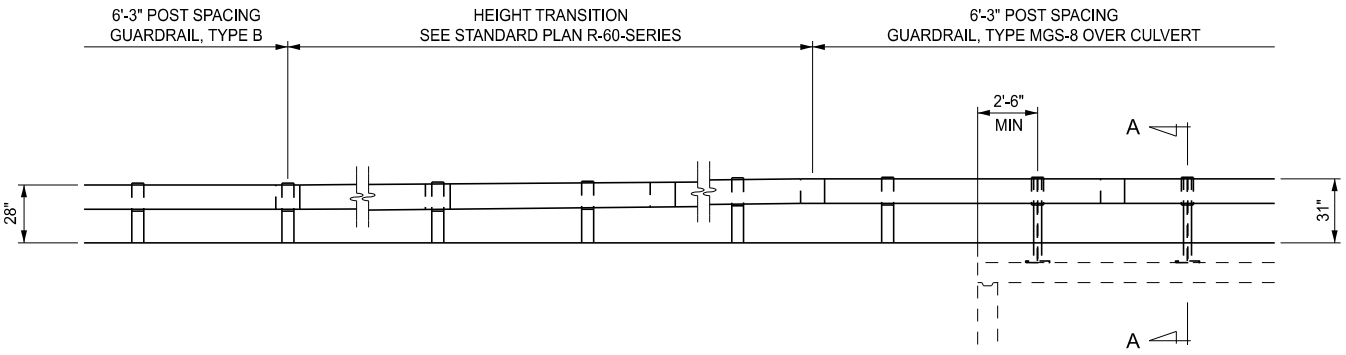
STANDARD PLAN FOR
GUARDRAIL DEPARTING TERMINAL TYPES B, T, & MGS

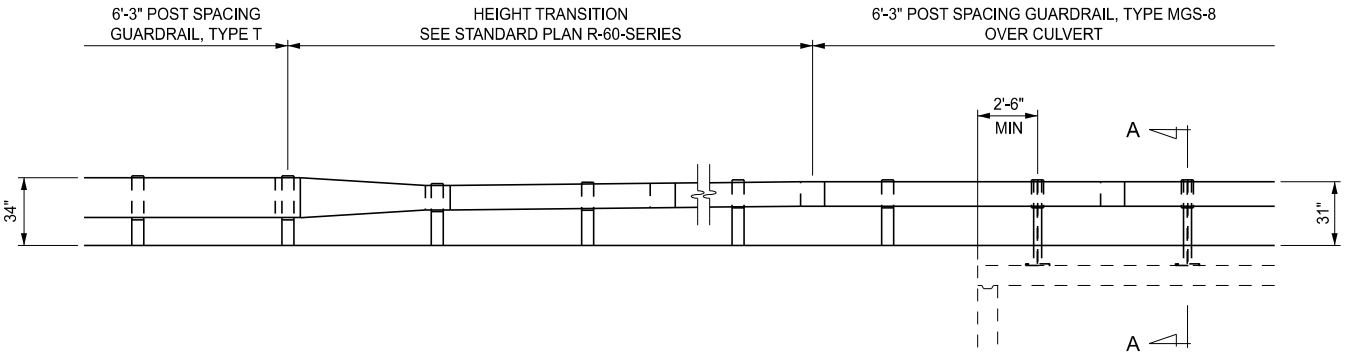
(SPECIAL DETAIL) FHWA APPROVAL	02/23/2026 PLAN DATE	R-66-E	SHEET 4 OF 4



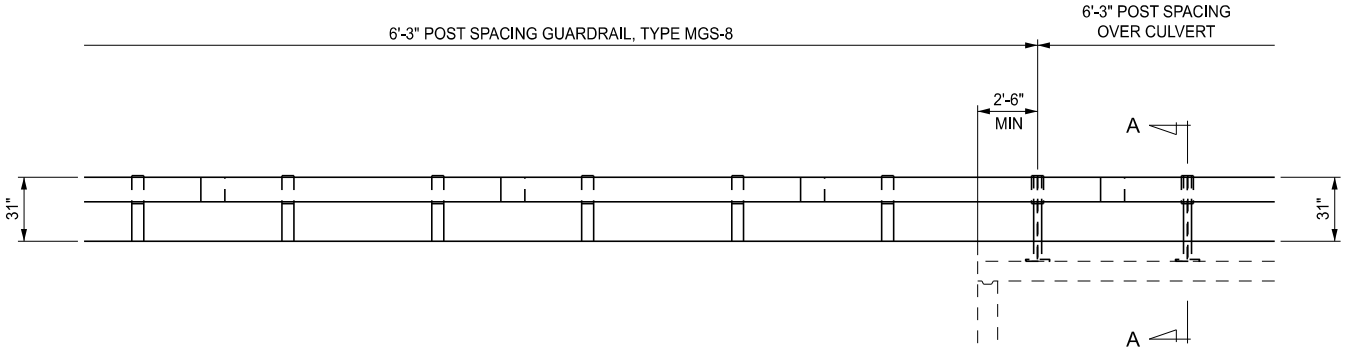
PLAN VIEW



ELEVATION SHOWING GUARDRAIL, TYPE B



ELEVATION SHOWING GUARDRAIL, TYPE T



ELEVATION SHOWING GUARDRAIL, TYPE MGS-8

APPROVED BY: _____
DIRECTOR, BUREAU OF FIELD SERVICES

APPROVED BY: _____
DIRECTOR, BUREAU OF DEVELOPMENT

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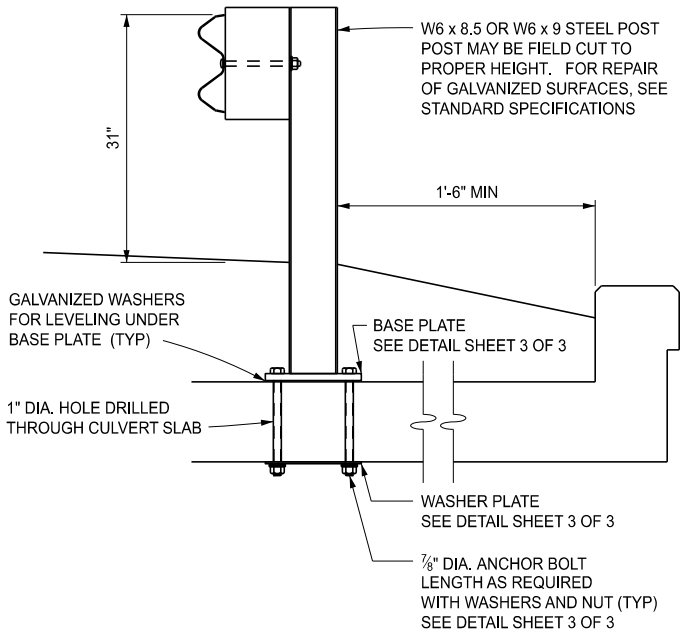
BRADLEY C. WIEFERICH, PE

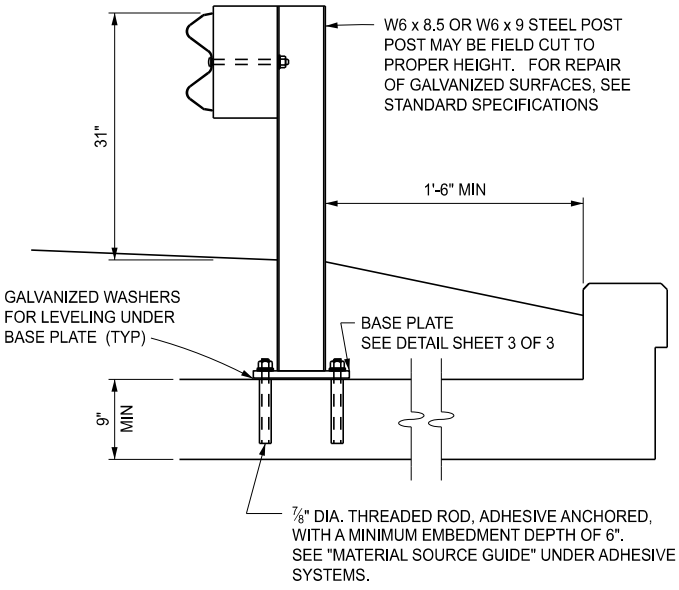
STANDARD PLAN FOR
GUARDRAIL OVER BOX OR SLAB CULVERTS

(SPECIAL DETAIL) FHWA APPROVAL	02/23/2026 PLAN DATE	R-73-F	SHEET 1 OF 3



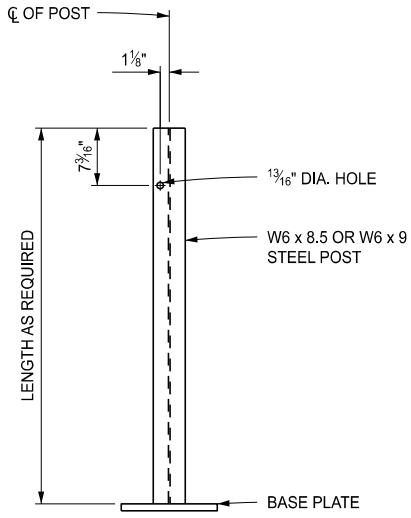
SECTION A - A

PREFERRED CONSTRUCTION METHOD

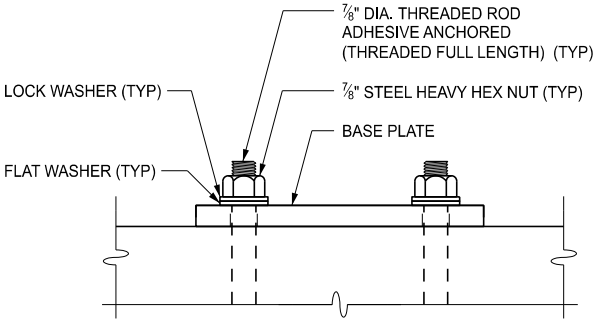


SECTION A - A

ALTERNATE CONSTRUCTION METHOD



STEEL POST DETAIL FOR
GUARDRAIL, TYPE MGS-8



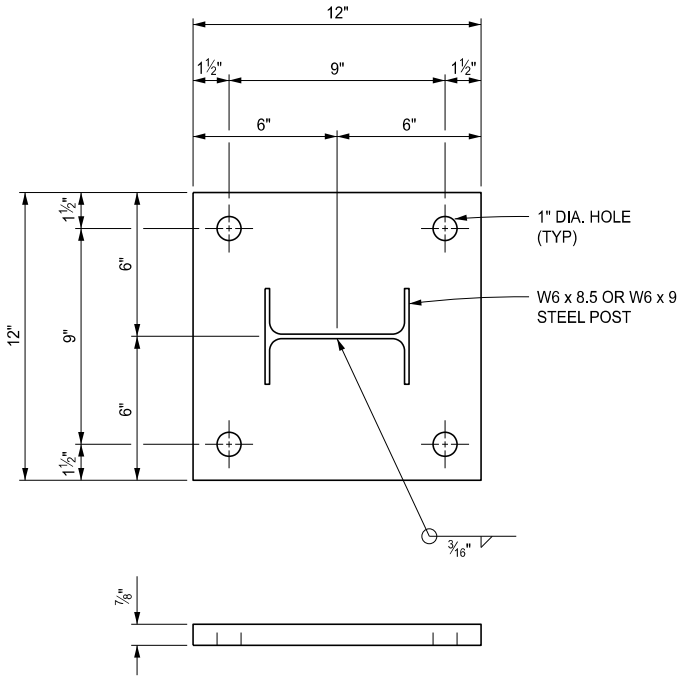
ANCHOR DETAIL

MDOT Michigan Department of Transportation

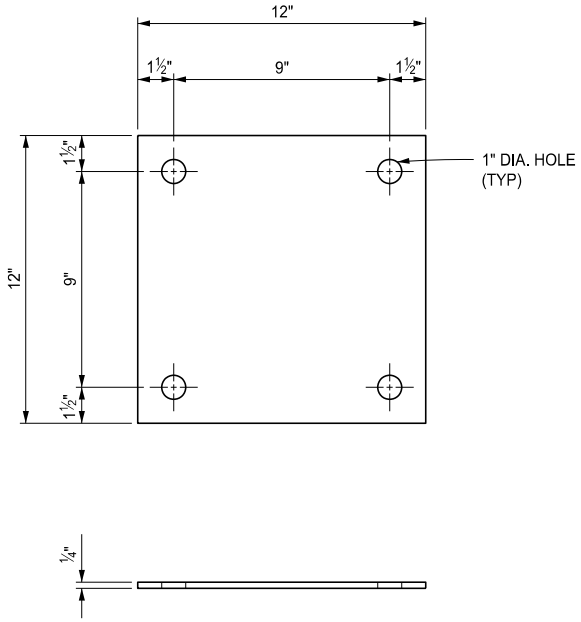
DEPARTMENT DIRECTOR
BRADLEY C. WIEFERICH, PE

STANDARD PLAN FOR
GUARDRAIL LONG SPAN INSTALLATIONS

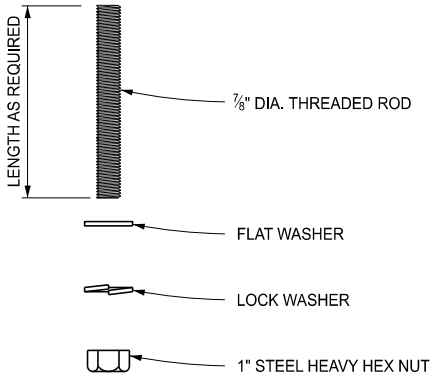
(SPECIAL DETAIL) FHWA APPROVAL	02/23/2026 PLAN DATE	R-73-F	SHEET 2 OF 3



BASE PLATE DETAIL



WASHER PLATE DETAIL



THREADED ROD DETAIL

NOTES:

CONSTRUCT AND PAY FOR GUARDRAIL ACCORDING TO THE STANDARD SPECIFICATIONS FOR CONSTRUCTION AND STANDARD PLAN R-60-SERIES. IN ADDITION, PAY FOR POSTS ANCHORED TO THE CULVERT SLAB AS "GUARDRAIL POST, CULV", WHICH INCLUDES ALL LABOR AND MATERIALS REQUIRED TO CONSTRUCT THE POST AS DETAILED ON THIS PLAN.

ENSURE ALL MATERIALS FOR GUARDRAIL POST, CULVERT CONFORM TO THE STANDARD SPECIFICATIONS FOR CONCTRUCTION FOR BRIDGE RAILINGS.

ENSURE ALL WORK AND MATERIALS CONFORM TO THE STANDARD SPECIFICATIONS FOR CONSTRUCTION.

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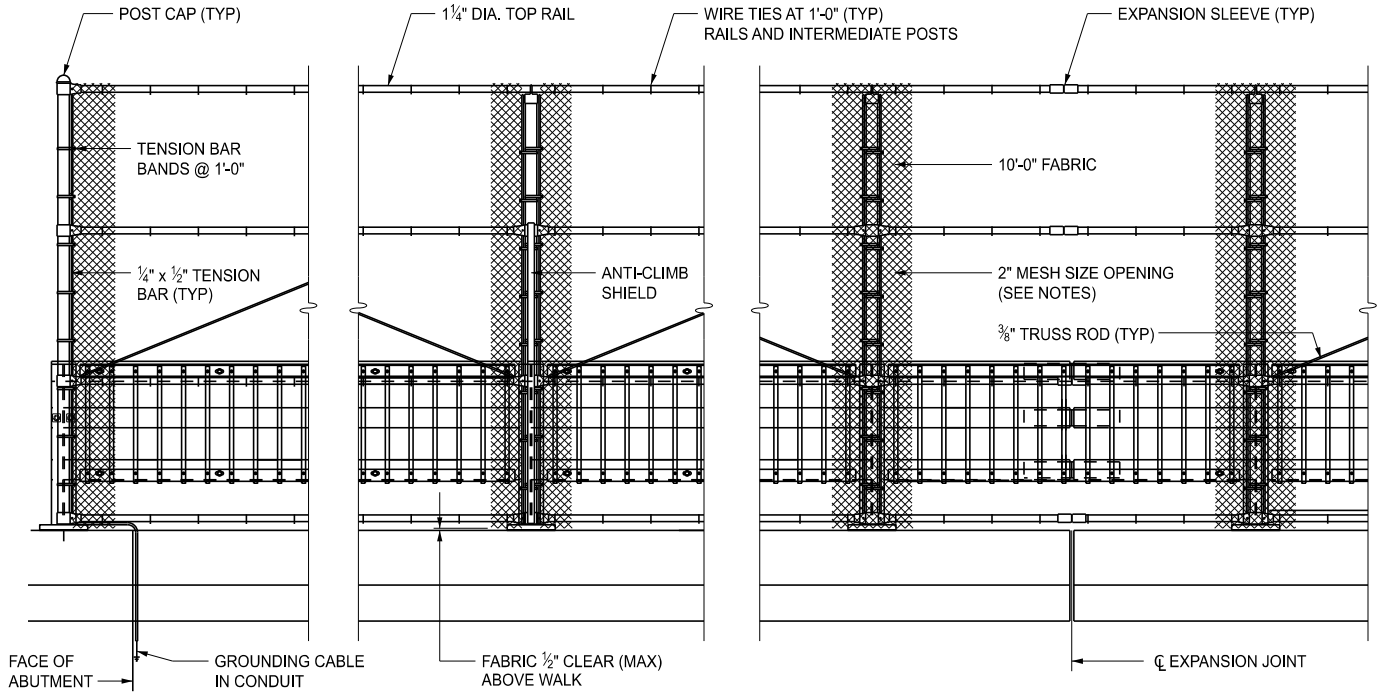
BRADLEY C. WIEFERICH, PE

STANDARD PLAN FOR
GUARDRAIL LONG SPAN INSTALLATIONS

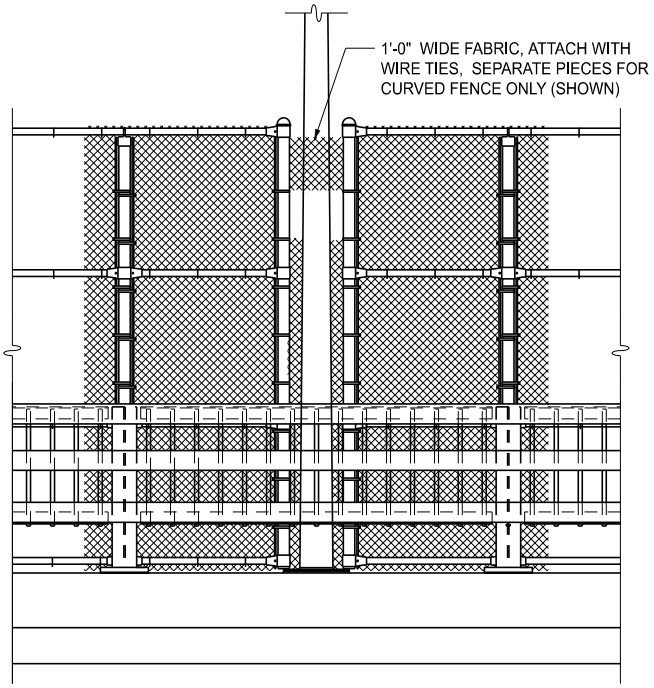
(SPECIAL DETAIL)	02/23/2026	R-73-F	SHEET
FHWA APPROVAL	PLAN DATE		3 OF 3



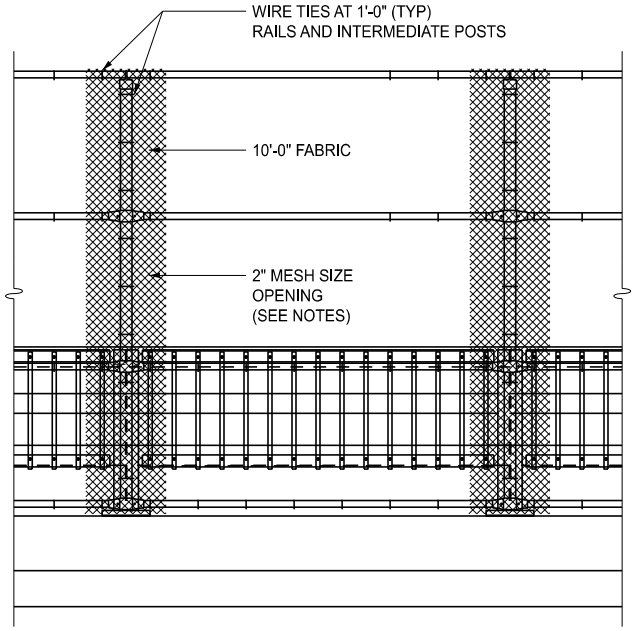
AT END PANEL

AT ANTI-CLIMB SHIELD

AT EXPANSION JOINT



AT LIGHT STANDARD



AT TYPICAL PANEL

TYPICAL ELEVATIONS

PEDESTRIAN RAILING SHOWN; AND BICYCLE RAILING SIMILAR

APPROVED BY: _____
DIRECTOR, BUREAU OF BRIDGES AND STRUCTURES

APPROVED BY: _____
DIRECTOR, BUREAU OF FIELD SERVICES

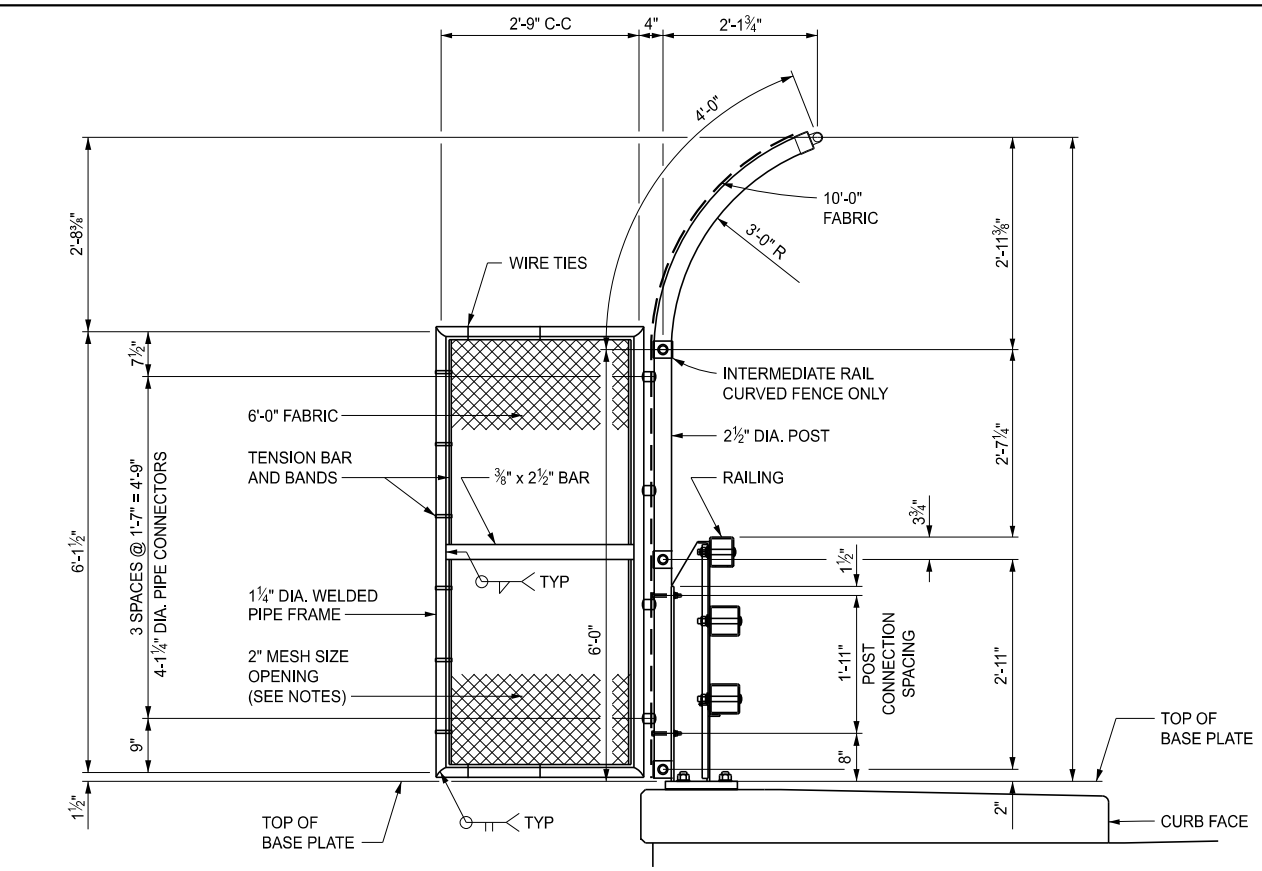
APPROVED BY: _____
DIRECTOR, BUREAU OF DEVELOPMENT

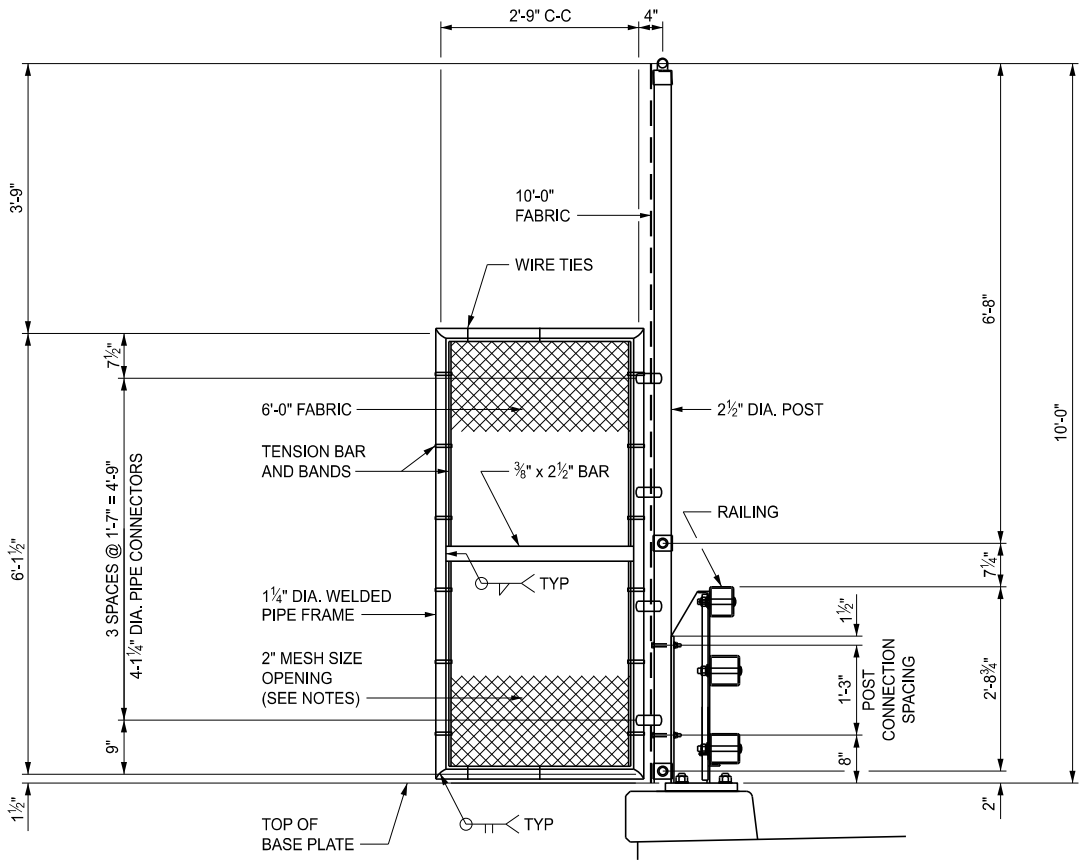
MDOT
Michigan Department of Transportation

DEPARTMENT DIRECTOR
BRADLEY C. WIEFERICH, PE

STANDARD PLAN FOR
FENCING FOR
BRIDGE RAILING, 3 TUBE WITH PICKETS

(SPECIAL DETAIL) FHWA APPROVAL	01/05/2026 PLAN DATE	B-42-A	SHEET 1 OF 3





ANTI-CLIMB / POST DETAIL

INSTALL ANTI-CLIMB SHIELD AT THE SECOND POST FROM THE END,
AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER

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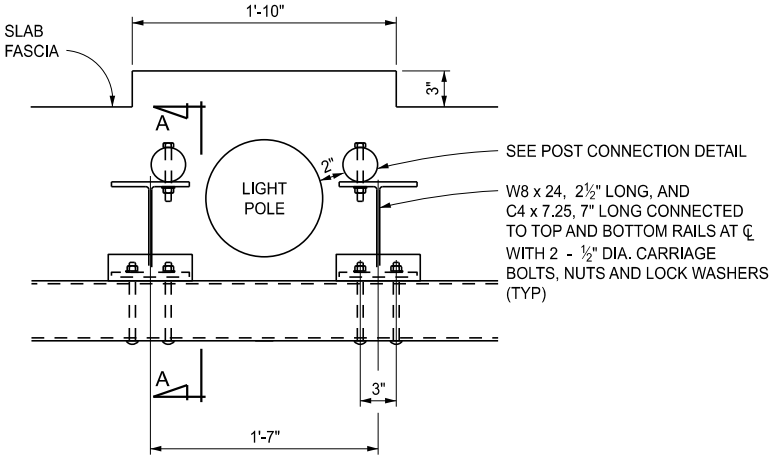
Michigan Department of Transportation

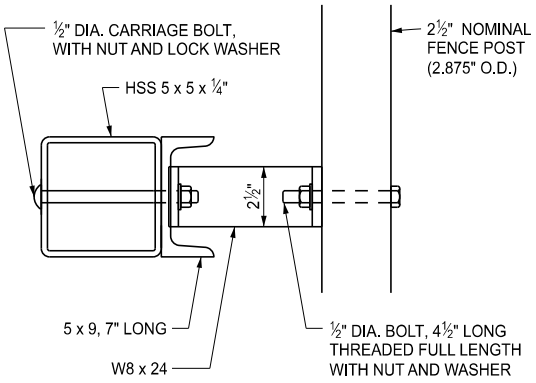
DEPARTMENT DIRECTOR
BRADLEY C. WIEFERICH, PE

STANDARD PLAN FOR
FENCING FOR
BRIDGE RAILING, 3 TUBE WITH PICKETS

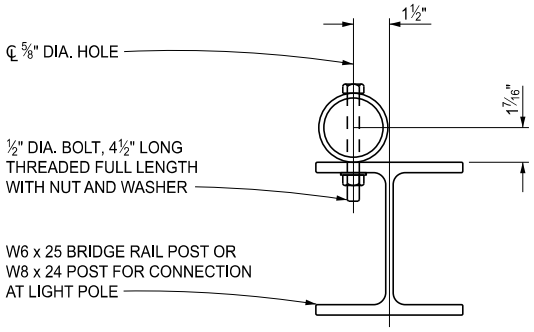
(SPECIAL DETAIL) FHWA APPROVAL	01/05/2026 PLAN DATE	B-42-A	SHEET 2 OF 3



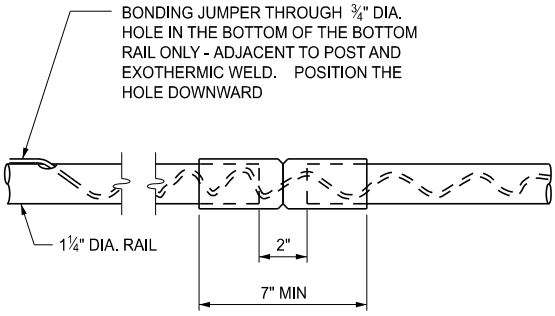
POST CONNECTION AT LIGHT POLE



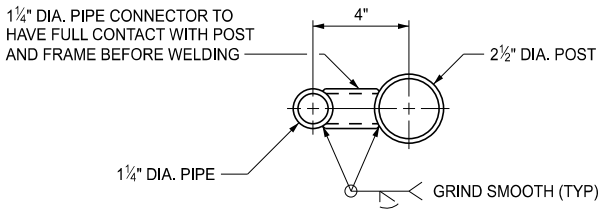
SECTION A - A



POST CONNECTION DETAIL



EXPANSION SLEEVE DETAIL



PIPE CONNECTION DETAIL

USE AT ANTI-CLIMB SHIELD ONLY

NOTES:

USE 2½" NOMINAL (2.875" O.D.) PIPE FOR ALL FENCE POSTS. USE 1¼" NOMINAL (1.66" O.D.) PIPE FOR ANTI-CLIMB SHIELD FRAMES, ACCORDING TO ASTM F669, CLASS 1C.

USE 1¼" NOMINAL (1.66" O.D.) PIPE FOR HORIZONTAL RAILS, ACCORDING TO ASTM F669, CLASS 1C OR ASTM F1083.

GALVANIZE ALL FENCE COMPONENTS, UNLESS OTHERWISE INDICATED, ACCORDING TO THE STANDARD SPECIFICATIONS FOR CONSTRUCTION.

FURNISH ALL POSTS, ANTI-CLIMB SHIELDS, AND OTHER FABRICATED COMPONENTS AS "BLACK" PIPE, THEN GALVANIZE THEM AFTER FABRICATION.

REPAIR DAMAGED GALVANIZED SURFACES (NEW AND EXISTING) ACCORDING TO THE STANDARD SPECIFICATIONS FOR CONSTRUCTION.

USE #9 GAUGE MESH FOR FENCE FABRIC. GALVANIZE OR ALUMINUM-COAT THE FABRIC ACCORDING TO THE STANDARD SPECIFICATIONS FOR CONSTRUCTION. PROVIDE A 2" MESH SIZE OPENING UNLESS THE TRAFFIC AND SAFETY DIVISION APPROVES A 1" MESH SIZE OPENING AND NOTES IT ON THE DESIGN PLANS. APPLY ALL DETAILS FROM THE STANDARD PLAN REGARDLESS OF MESH SIZE.

INSTALL GALVANIZED ⅜" DIAMETER TRUSS RODS DIAGONALLY FROM THE TOP CONNECTION CLIP AT EACH TENSION BAR TO THE ADJACENT POST, EXCEPT ACROSS EXPANSION JOINTS AND AT LIGHT STANDARDS WITH A CURVED FENCE DETAIL. INSTALL TRUSS RODS WHEN TWO OR MORE CONTINUOUS PANELS OF FABRIC ARE PRESENT.

INSTALL ALL POSTS PLUMB AND IF NEEDED, SHIM THEM USING NON-METALLIC SHIMS APPROVED BY THE ENGINEER. INCLUDE ALL SHIMMING COSTS IN THE PAY ITEM "FENCE, STRUCTURE".

PLACE THE GROUNDING CABLE IN A NON-METALLIC CONDUIT, FROM THE END POST CONNECTION TO THE GROUND ROD CONNECTION. SECURE THE CONDUIT TO THE STRUCTURE USING EITHER EXPANSION BOLTS OR ADHESIVE-ANCHORED BOLTS WITH GALVANIZED METAL STRIPS, AS APPROVED BY THE ENGINEER.

IF INSTALLING A GROUND ROD IS IMPRACTICAL, CONNECT THE GROUNDING CABLE TO THE NEAREST LIGHT STANDARD USING A MECHANICAL CLIP. OBTAIN PERMISSION FROM THE LOCAL PUBLIC LIGHTING AUTHORITY BEFORE MAKING THIS CONNECTION.

USE THE MANUFACTURER'S STANDARD OVERSIZED SLEEVES, CRIMPED IN THE MIDDLE, FOR HORIZONTAL RAIL EXPANSION JOINTS.

INCLUDE ALL LABOR, MATERIALS, AND EQUIPMENT REQUIRED TO INSTALL PEDESTRIAN FENCING IN THE PAY ITEM "FENCE, STRUCTURE".

MDOT
Michigan Department of Transportation

DEPARTMENT DIRECTOR
BRADLEY C. WIEFERICH, PE

STANDARD PLAN FOR
FENCING FOR
BRIDGE RAILING, 3 TUBE WITH PICKETS

(SPECIAL DETAIL)	01/05/2026	B-42-A	SHEET
FHWA APPROVAL	PLAN DATE		3 OF 3

4.06.05

Underdrain Outlets & Outlet Endings

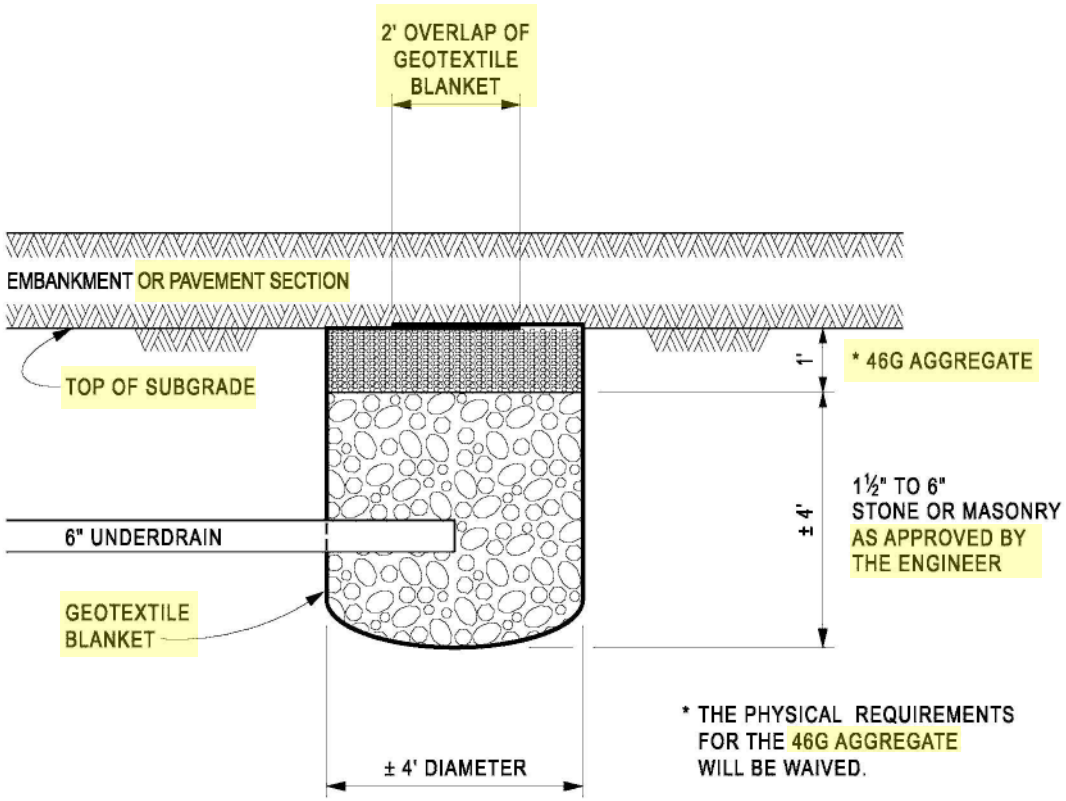
Underdrain outlets are used to connect underdrains to the outlet endings. To resist crushing from heavy construction and maintenance vehicles and to insure positive flow, rigid PVC or corrugated steel pipe shall be used for underdrain outlets.

Currently three approved outlet endings are shown on Standard Plan R-80-Series. Other designs may be used when approved by the Engineer.

4.06.06 (revised 2-23-2026)

Stone Baskets

Use stone baskets to drain springs that occur below the roadway. Construct the stone basket by making an excavation at the spring head 4’ in diameter and approximately 5’ below the bottom of embankment or pavement section. Place geotextile blanket in the excavated hole and backfill with 1½” to 6” stone or masonry, and a 1’ thick layer of 46G open-graded aggregate. Use a 6” diameter underdrain to dissipate water from the stone basket. Show the location of the stone basket on the typical cross section and detail the following sketch on the plans.



TYPICAL STONE BASKET SECTION

CHAPTER 2 - STEPS IN PRODUCING PLANS INDEX (continued)

2.02.15 Preliminary Constructability Review (10-22-2012)

2.02.16 Scope Verification Meeting (11-19-99)

2.02.17 The Plan Review (11-19-99) (10-22-2012)

2.02.18 Region/TSC Maintaining Traffic Recommendations

2.02.19 Final Constructability Review (10-22-2012)

2.02.20 Final Project Coordination (FPC) Meeting (12-17-2018)

2.02.21 Omissions Errors / Check (OEC) Meeting (11-19-99) (10-22-2012) (12-17-2018)

2.02.22 Rehabilitation Project Scoping (11-19-99) (10-22-2012) (12-17-2018)

2.03 PLAN PREPARATION STEPS

2.03.01 FHWA Oversight / MDOT Oversight (12-5-2005)

2.03.02 Study

2.03.03 Preliminary Plans

2.03.04 Final Plans

2.03.05 Changes During Plan Preparation

2.03.06 Changes After Plan Completion

2.03.07 Authority for Bridge Closures (2-22-2021)

2.04 PLAN PRODUCTION PROCEDURE

2.04.01 Unit Assignment

2.04.02 Plan Distribution

2.04.03 Estimating Man-Hours

2.04.04 Project History

2.04.05 Project Contact Person

2.05 BRIDGE DESIGN QUALITY ASSURANCE & QUAILTY CONTROL (5-23-2016)

2.05.01 Overview

2.05.02 Definitions

2.05.03 Implementing and Documenting Procedures

2.05.04 Peer Reviews (2-23-2026)

CHAPTER 2 - STEPS IN PRODUCING PLANS INDEX (continued)

2.05.05 Role of Federal Highway Administration (FHWA)

2.05.06 References and Other Sources of Information

2.03.03

Preliminary Plans

Once the study is approved, preliminary plans and preliminary estimate of cost are prepared by the Design Unit for approval by the FHWA and other concerned agencies.

2.03.04

Final Plans

Work on final plans can begin after the FHWA has approved the preliminary plans and the project has been environmentally classified. The final plans consist of all the details necessary to build the structure, the quantities of the materials required for construction, and the specifications that must be included in the Bid Proposal.

2.03.05 (12-17-2018)

Changes During Plan Preparation

Before requesting changes in programming, the Project Manager should contact all persons, sections, Regions/TSCs or support areas having an interest in the project in order to include as many changes as possible in a single request. (9-1-88)

For bridge construction, rehabilitation, or preventative maintenance projects, a JobNet Change Request should be submitted to the Bridge System Manager for approval. Change Request may be submitted to request program revisions involving project costs, work revisions, work types, and scheduled dates. Program additions, deletions, project splits or consolidations (cost redistributions), and finance revisions must be requested and documented along with the Change Request submittal. All data and documentation supporting the requested change(s) should accompany any request submitted and can be attached in JobNet. A clear and concise justification (reason), which includes language indicating that the request was discussed and agreed with by the Region, must be submitted with all electronic Change Request submissions.
(11-19-99)

2.03.05 (continued)

Where it appears that a change in work scope may affect a project's environmental clearance, the Environmental Services Section should be notified as soon as possible. Notification should include copies of any correspondence, memos or forms that will help describe the project revisions. (8-6-92)

Project designs and plans should not be changed prior to receiving the approval of the Program Administration Division and the Change Request pertaining to the modifications.

2.03.06

Changes after Plan Completion

If policy or specification changes occur after the details have been completed, such changes must be discussed with the Chief Structure Design Engineer to determine if they will be retroactive. Addenda to a contract should be avoided where they do not significantly affect the bidding. Where they are required, an effort should be made to consolidate several items in one addendum with bridge and road unit leaders coordinating their submittals. The deadline for addenda is 10 days preceding the date of the letting. Projects not meeting the 10 day limit, but needing an addenda, should be discussed with Design Engineer-Specifications and Estimates. (2-23-2026)

2.03.07 (2-22-2021)

Authority for Bridge Closures

The responsibility/authority to close bridges is shared by many individuals. After initial assessment, closure actions may be initiated by:

- The Engineer/Construction Administrator
- The Design Engineer of Record (EOR)
- The Contractor's Safety Supervisor, or Site Superintendent
- The Bridge Owner

Concerns or questions related to bridge closures should be directed to one of these individuals. Additional information can be found at MDOT's Construction Manual website, Division 7 – Structures.

2.04

PLAN PRODUCTION PROCEDURE

It is the responsibility of the Project Manager and Design Engineer to produce sets of plans in a timely fashion and to be informed of the status of plans for a project at all times.

2.04.01

Unit Assignment

The Chief Structure Design Engineer will assign a project to a Design Unit and the Unit's Design Engineer will assign the project to an Engineer for plan preparation. The Engineer will gather information and data, perform necessary calculations, and run bridge program (internal only). (2-23-2026)

2.04.02

Plan Distribution

The plans are distributed for review to all interested agencies and parties according to the distribution schedules listed in Chapter 3 of this Manual. The Design Engineer will forward the Final Plans to the Specifications & Estimates and Plans & Field Review Section for preparation of the cost estimate and the contract documents. Final contract documents are advertised for bids by the Contracts Section.

2.04.03

Estimating Man-Hours (12-17-2018)

For estimating man-hour requirements of future projects, the average values of recently similar projects will generally serve as a guide, as well as the budgeted dates generated in the Planisware system. If unusual features are anticipated, the man-hour estimate will be adjusted accordingly. (11-19-99)

In estimating the unit's man-hour capabilities, the effects of temporary absences should be anticipated. This accounts for intermittent personnel absences for alternate assignments, training, vacations, holidays, etc. Temporary training assignments for new hires may also be a consideration.

2.04.04

Project History

Unit Design Engineers should keep an accurate and thorough history record of each project. These records are necessary to explain design costs and letting delays. Among items documented should be the changes in scheduling, whether or not the unit leader is aware of the reasons.

2.04.05

Project Contact Person

Prior to Letting, all Contractor requests for information concerning the project should be directed to the engineer who has been designated in the proposal as the project contact person, generally the Project Manager/Cost and Scheduling Engineer. (11-19-99)

2.05.02

Definitions

A. Quality Control (QC).

Procedures followed within a unit or working group to check the accuracy of the calculations, drawings, and specifications for the purpose of detecting and correcting design omissions and errors to accomplish the overarching goal of producing complete and error free final plans and specifications. QC occurs continuously throughout the course of a project.

B. Quality Assurance (QA).

Review procedures followed by staff outside the unit or working group to ensure the QC procedures were effective in preventing mistakes and promoting consistency in the development of bridge design calculations, drawings, and specifications.

C. Program Level Quality Assurance (PLQA).

Review procedures followed by management to assure the effectiveness of QC and QA procedures in verifying and measuring the level of quality of the entire bridge design QA/QC program.

D. Peer Review.

A review by a separate unit or consultant not intimately involved with the design of the structure. Determination of the need for a peer review is made by the Chief Structure Design Engineer, with guidance provided by the MDOT Bridges and Structure Committee. (2-23-2026)

E. Designer.

An individual directly responsible for the development of design calculations, drawings, specifications, and review of shop drawings related to a specific bridge design.

2.05.02

F. Checker.

An individual responsible for performing technical review of design calculations, drawings, and specifications.

G. Reviewer.

An individual responsible for performing QA procedures that ensure that QC procedures were performed properly.

H. Engineer of Record (EOR).

An individual responsible for all aspects of the design of the structure, including the design of all of the bridge's systems and components. This individual is appointed by the bridge owner, and must be a licensed Professional Engineer in the State of Michigan. For MDOT in-house projects, the bridge squad leader is the EOR, and signs, but does not seal the final contract plans. For consultant-designed projects, the EOR is the consultant Project Manager, and is required to seal and sign his/her portion of the final contract plans.

I. Peer Review Engineer

An individual who is a licensed Professional Engineer in the State of Michigan and has recent experience as either a Designer or Checker (as defined in this section of the MDOT Bridge Design Manual) with elements similar to those that will be included in the peer review. While it's preferred that the experience be on projects in Michigan, having Michigan experience is not required. (2-23-2026)

Implementing and Documenting Procedures (continued)

D. QA procedures.

1. The MDOT Quality Assurance and Quality Control Process Guide for Project Managers provides a deliberate and systematic process for plan development and quality assurance. These processes are further defined in other sections of the MDOT Bridge Design Manual and the MDOT Road Design Manual.

2. The MDOT Design Division Quality Assurance Section performs QA during The Plan Review, Final Project Coordination (FPC), Plan Completion (Omissions and Errors Check) and Final Package Submittal stages of each project. The Quality Assurance Section reviews all project contract documents, facilitates department wide review, and documents all review comments in accordance with section 14 of the MDOT Road Design Manual. (12-17-2018)

3. In accordance with National Bridge Inspection Standard requirements, a load rating is performed for each bridge rehabilitation and bridge replacement/new construction project. For bridge rehabilitation projects, a preliminary load rating is typically performed at The Plan Review stage, and finalized at the Plan Completion stage. For new or reconstructed bridges, load rating is typically performed at Plan Completion stage. Load rating calculations serve as a QA of structural design of the beams for projects, and feedback is provided to the Designer if deficiencies are discovered.

4. MDOT's Bridge Field Services (BFS) section performs QA at the Plan Completion (Omissions and Errors Check) stage of each project. BFS maintains a plan review checklist

comprised of focus areas for plan reviews based on past experience with construction issues. BFS focuses specifically on constructability and structural fabrication aspects of bridge projects and provides feedback to the designer for incorporation into the final project package.

5. QA is performed by the project supervisor or team leader at various times during the project and at The Plan Review, Final Project Coordination, Plan Completion, and Final Package submittal stages. While QC is performed on one hundred percent of project documents, the level of QA performed by the supervisor or team leader is subject to the supervisor's discretion based on a combination of factors such as experience of the Designer and Checker, complexity of the project, uniqueness of project parameters and details. (12-17-2018)

6. PLQA is performed by the Chief Structure Design Engineer to ensure that the bridge design units, consultant coordinators, and consultant design teams are performing adequate QA/QC in accordance to this document. This involves periodic review of a representative sample of bridge design units and consultant coordinator projects at selected project milestones. The Chief Structure Design Engineer may assign peer reviews to promote consistency and uniformity between MDOT working units and between MDOT in-house and consultant designers. Performance measures will be developed and used to track progress in key areas. (2-23-2026)

7. If the QA review shows evidence that the proper QA/QC process is not being properly followed, a more rigorous review of the QA/QC process documentation is performed, and recommendations are provided.

2.05.03

Implementing and Documenting Procedures (continued)

G. Corrective Actions.

QA/QC procedures are implemented on all projects. Through the PLQA, the overall program is continually monitored for effectiveness. When level of QC or QA is found to be insufficient, corrective actions are required.

1. The following actions are taken if QA or PLQA reviews indicate that a specific design unit, consultant, or consultant coordinator is not following the process.

   a. The representative sample of projects for that unit or coordinator is increased until the Chief Structure Design Engineer is satisfied that the issue is corrected. (2-23-2026)

   b. Concerns with consultant's performance are noted on consultant's review at the completion of the project.

   c. Concerns with MDOT staff member's performance are reflected in the staff member's annual performance review or interim performance review, depending on severity.

2. If, during the review of project submittals, it is evident that the consultant team has not followed QA/QC practices, payment for hours associated with QA of a project as negotiated prior to the start of a project can be withheld.

2.05.04

Peer Reviews

Determine the need for a peer review based on the following factors:

- The Department's level of expertise relevant to the elements included in the design of the project.
- The use of new or innovative design or construction methodologies.
- The assessed risk on the project due to:

  1. The redundancy of the structure.
  2. The feature intersected by the structure, with features like navigable waterways, environmentally sensitive areas, and multi-level interchanges typically increasing the risk to the project.
  3. The complexity of the required design details.
  4. The existing geotechnical conditions.
  5. The existing hydraulic conditions and the construction sequence required to permit the project.
  6. The construction sequence.
  7. The construction schedule.
  8. The operational importance of the structure.

Other factors may also be used to assess the need for a peer review on a project. Consider a peer review of projects where the scope of work leads to increased risk to the Department. Consider factors such as:

- Work on bridges that are part of an international border crossing.
- Work on bridges with non-redundant steel tension members (NSTM).
- Work on bridges that are unique structure types or fall outside of the current design standards. This may include, but is not limited to:

  1. Bridges designed as a frame;
  2. Post-tensioned concrete box girders;
  3. Arches (excluding buried culverts);
  4. Suspension or cable stay spans.

2.05.04 (continued)

- Work on bridges with movable spans.
- Accelerated Bridge Construction techniques including, but not limited to:
  1. Superstructure slide
  2. Self-propelled modular transporters (SPMTs)
- Girder launching to construct the superstructure.
- Straddle bent piers.

Potential scope of work items for a peer review includes, but is not limited to the following:

- Reviewing all relevant design calculations prepared by the EOR. Review the design calculations after all required QC checks have been completed by the EOR.
- If required on a project, review the Structure Study after all required QC and QA checks have been completed and before submittal to the Chief Structure Design Engineer.
- Review the plans at the Plan Review milestone to verify that the details reflect the calculations developed for the project, account for the existing conditions at the site, and reflect the agreed to construction sequence.
- Review the plans at the Final Plan Coordination (FPC) milestone to verify that the details reflect the calculations developed for the project, that the plans are complete and account for the existing conditions at the site, and reflect the agreed to construction sequence.

The Peer Review Engineer selected to complete the peer review must be independent from the in-house Bridge Design Unit or the Consultant serving as the EOR for the project.

2.05.04 (continued)

For in-house designed projects, it is desired to determine if a peer review is warranted on a project as part of the Scope Verification phase of the project. A peer review can be initiated after the Scope Verification is completed if a factor warranting a peer review is identified during a later phase of the project. The Chief Structure Design Engineer in consultation with the EOR for the project is responsible for evaluating the project and for making a recommendation if a peer review is warranted based on these guidelines. The Peer Review Engineer may be another in-house design unit or a Consultant meeting the minimum requirements specified in Section 2.05.02.I. (2-23-2026)

For Consultant designed projects, determine if a peer review is warranted prior to developing the Consultant Request for Proposal (RFP) documents. The Chief Structure Design Engineer in consultation with the Consultant Coordinator for the project is responsible for evaluating the project and for making a recommendation if a peer review is warranted based on these guidelines. The Consultant RFP documents must state that a peer review will be implemented on the project. The Peer Review Engineer must be another Consultant meeting the minimum requirements specified in Section 2.05.02.I. Select the Consultant Peer Review Engineer using a separate requisition and Contract. The Consultant Peer Review Engineer shall not be a subconsultant to the Consultant EOR. (2-23-2026)

A peer review does not relieve the EOR of ensuring that both Quality Control and Quality Assurance reviews are completed in compliance with Section 2.05 of the Bridge Design Manual. The EOR is still responsible for the completeness and accuracy of the work performed under their supervision.

The Peer Review Engineer is expected to participate as part of the project team from the beginning of the project, so they have the same understanding of the project scope of work, project goals and constraints, and project risks as the EOR.

2.05.05

Role of Federal Highway Administration (FHWA)

A. Initial Review and Approval of Program.

The general role of FHWA Division Office is to review each State Highway Agency (SHA) QA/QC Program and to ensure the QA/QC program is thorough, effective, documented, and followed. Further, it is the role of the FHWA Office of Bridge Technology to assure uniformity within division offices regarding implementation of this guidance.

B. Periodic Program Reviews.

FHWA division offices may perform periodic reviews of the MDOT's programs. Upon request, MDOT will provide project documents to the FHWA division office for review, in accordance with the Federal-Aid Stewardship Agreement. The need of periodic reviews depends on the complexity of the bridge projects.

2.05.06

References and Other Sources of Information (11-24-2025)

A. MDOT Bridge Design Manual

The procedures involved in preparing bridge plans, quality control and quality assurance are interlaced within Chapters 1 – 5. (11-24-2025)

B. MDOT Road Design Manual

Specifications and Special Provisions guidance are addressed in Chapter 11. (12-17-2018)

Procedures for plan preparation are addressed in Chapter 14.

2.05.06 (continued)

C. Preconstruction Process Documentation (PPD) Task Manual (5-22-2023)

Documents the preconstruction process as it pertains to project development. Networks based on the PPD Tasks are used to plan and to track virtually every aspect of a project design schedule.

D. Guidelines For Bridge Plan Preparation (MDOT Sample Plans Bridge)

Bridge sample plans including plan sheet examples of typical plan set detailing preferred details and drafting procedures.