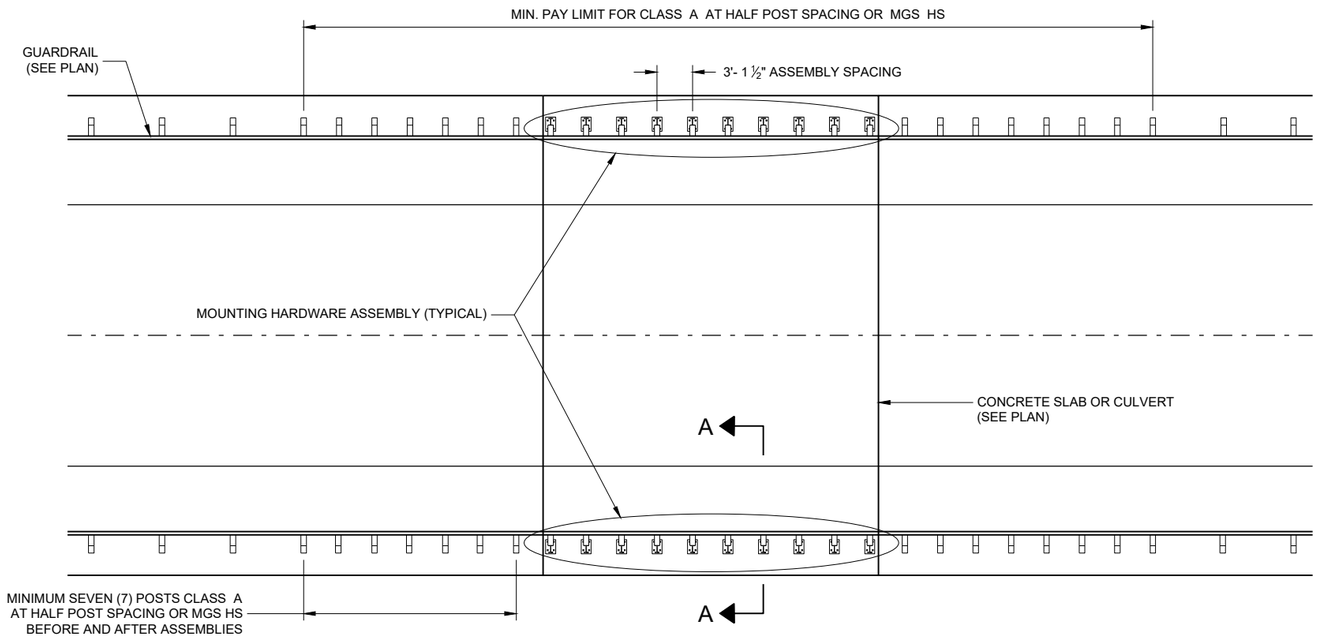


PLAN VIEW

GENERAL NOTES

HOLES DRILLED INTO CONCRETE SLAB OR CULVERT ARE 1 ⅛" DIAMETER.

POST BASE PLATE (AND BOTTOM PLATES IF USED) SHALL BE FLAT WITH ALL SURFACES SMOOTH, AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUTS. CUT BOTTOM OF POST SO THAT POST WILL BE VERTICAL WHEN POST ASSEMBLY IS PLACED ON TOP OF CONCRETE. HEX BOLTS AND THREADED RODS ARE TO BE PLACED PERPENDICULAR TO THE BASE PLATE.

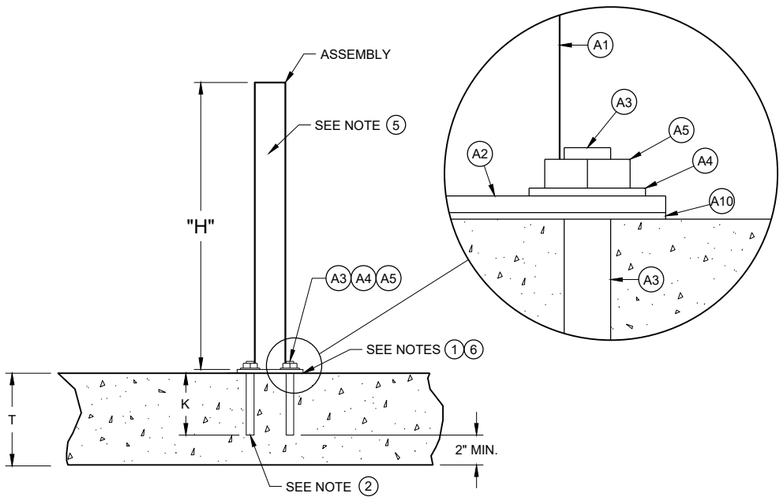
"H" DIMENSION WILL VARY. SEE PLAN FOR "H" DIMENSION. CONTRACTOR HAS OPTION OF INSTALLING POSTS THAT ARE TALLER THAN "H" DIMENSION AND CUT POSTS TO PROPER "H" DIMENSION IN THE FIELD. IF ELECTING TO FIELD CUT POSTS, DRILL HOLES AT APPROPRIATE LOCATIONS AND APPLY GALVANIZATION.

GALVANIZE STEEL COMPONENTS AFTER FABRICATION PER SECTION 614 OF THE WISCONSIN DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.

INSTALL 1 NUT AND 1 WASHER WHERE APPLICABLE. PROVIDE SUFFICIENT LENGTH OF BOLT OR THREADED ROD TO ALLOW FOR ¼" TO ½" OF THREAD TO BEYOND THE NUT.

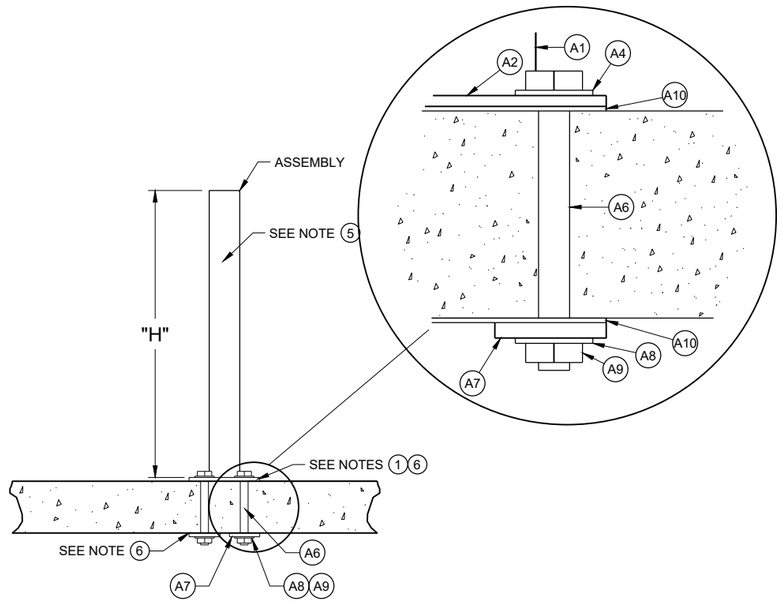
1. FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE A2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. CAULK AROUND PERIMETER OF A2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.
2. BOND STRENGTH OF ADHESIVE IS 1,305 PSI OR GREATER WITH A MINIMUM EMBEDMENT DEPTH OF 8-INCHES. IF MINIMUM EMBEDMENT CANNOT BE ACHIEVED, BOLT THROUGH STRUCTURE.
3. USE GAS-METAL ARC WELDING (GMAW) PROCESS WITH ER70S-3 WELDING WIRE AND ARGON-OXYGEN OR CO_2 COVER GAS.
4. OTHER COMPONENT OF BARRIER SYSTEM NOT SHOWN. SEE SDD 14B15 OR SDD 14B42 FOR MORE DETAILS.
5. HOLES TO MOUNT BEAM GUARD AND BLOCK NOT SHOWN ON DRAWINGS. SEE SDD 14B15 OR SDD 14B42 FOR MORE DETAILS.
6. ADD AND ADJUST SHIM PLATES AS NECESSARY TO INSTALL POST PLUMB. SEE (A10) FOR DETAIL.

Concrete Strength (f'c) PSI	"T" Inch	Min. "K" Inch
3,500	11 ≤	9
4,000	10 ≤	8



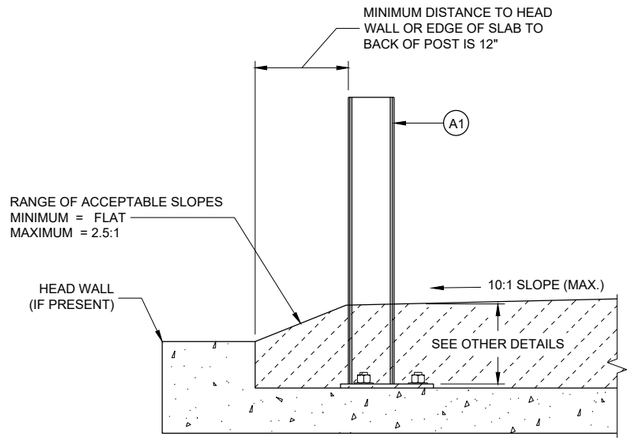
ADHESIVE ANCHOR DETAIL

SEE NOTE 4



BOLT THROUGH DETAIL

SEE NOTE 4



SECTION A - A

SEE NOTE 4

ANCHOR POST ASSEMBLY TOP MOUNTED

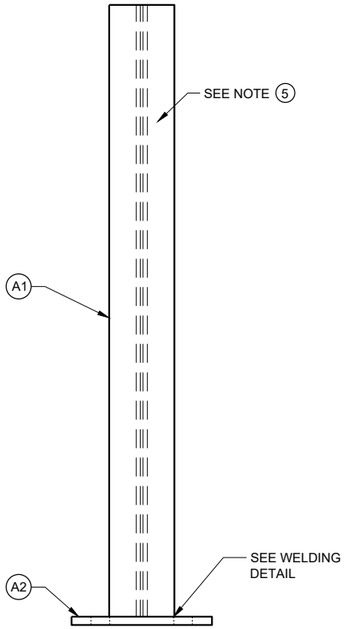
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

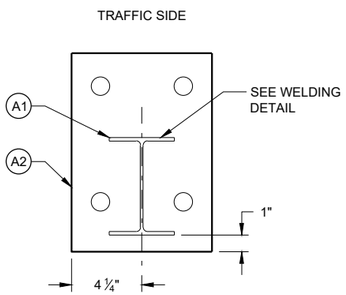
SDD 14B51 - 03a

6

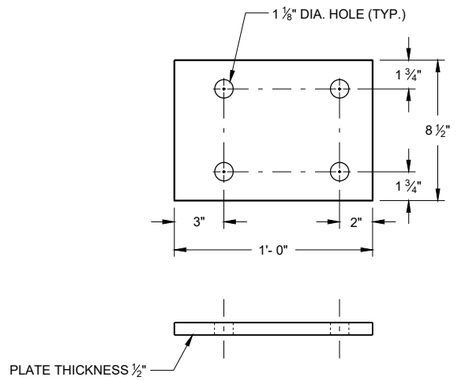
SDD 14B51 - 03a



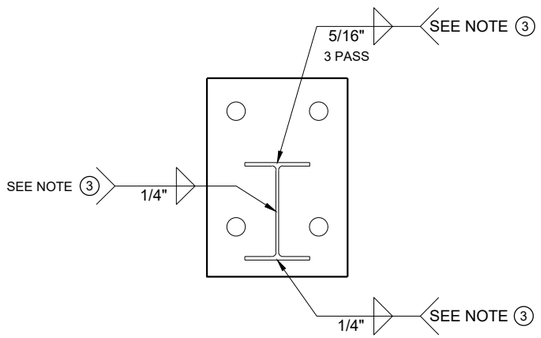
PROFILE VIEW
POST ASSEMBLY



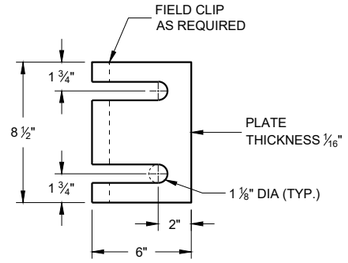
PLAN VIEW
POST ASSEMBLY



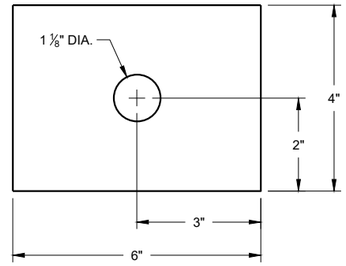
(A2) **STEEL BASE PLATE**



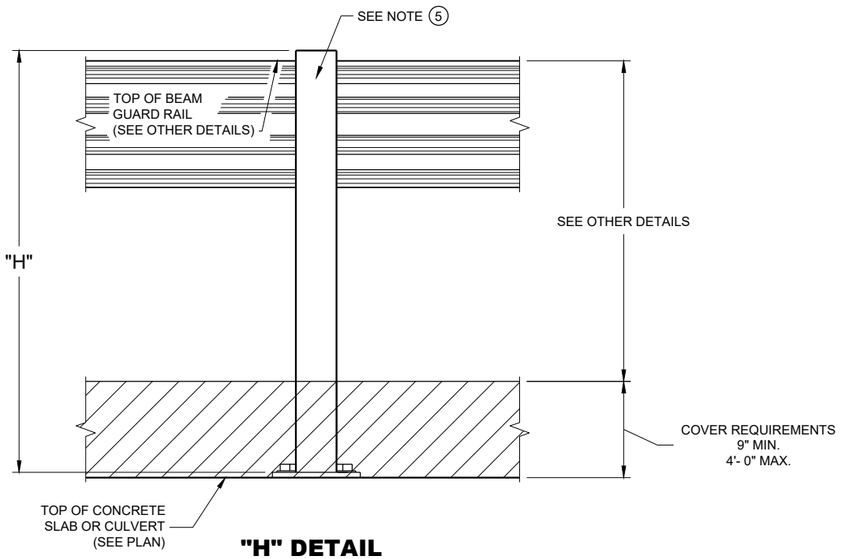
POST ASSEMBLY
WELDING DETAIL



(A10) **SHIM PLATE**



(A7) **PLATE WASHER**



"H" DETAIL

SEE NOTE (4)

ANCHOR POST ASSEMBLY
TOP MOUNTED

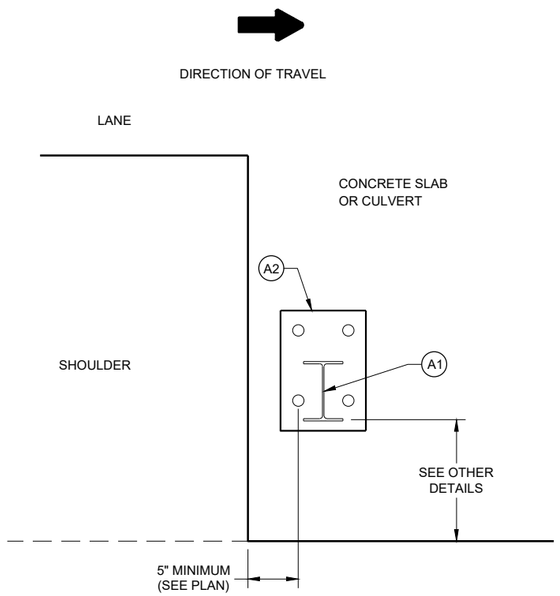
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

SDD 14B51 - 03b

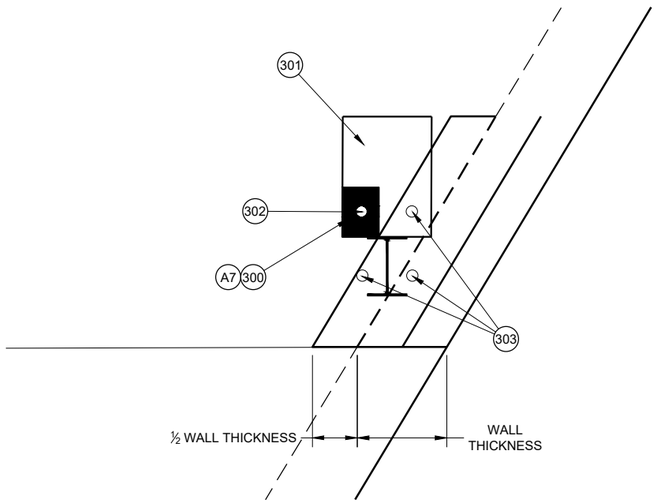
6

SDD 14B51 - 03b



EDGE PLACEMENT

SEE NOTE (4)



TOP MOUNT OPTION NEAR EDGE OF SLAB

BILL OF MATERIALS LIST

ITEM	DESCRIPTION	MATERIAL SPECIFICATIONS	NOTES
A1	W6x9 or W6x8.5	ASTM A992 50 KSI MIN., ASTM A709 GRADE 50, OR ASTM A36	SEE SDD 14B15 OR 14B42 LENGTH WILL VARY
A2	STEEL BASE PLATE	ASTM A992 50 KSI MIN., ASTM A529 GRADE 50, ASTM A572 GRADE 50, OR ASTM A36	
A3	1" DIA. THREADED ROD	SAE J429 GRADE 2, OR ASTM F1554 GRADE 55	LENGTH WILL VARY
A4	1" DIA. FLAT WASHER	ASTM F844	
A5	1" HEX NUT	ASTM A563A	
A6	1" DIA. HEX BOLT	ASTM A307	LENGTH WILL VARY
A7	PLATE WASHER	ASTM A992 50 KSI MIN., ASTM A529 GRADE 50, ASTM A572 GRADE 50, OR ASTM A36	¼" THICKNESS
A8	1" DIA. FLAT WASHER	ASTM F844	
A9	1" DIA. HEX NUT	ASTM A563A	
A10	SHIM PLATE	SEE (A2)	4 MAX PER POST

NOTES

300. Plate washer installed on underside of slab or culvert

301. Top plate assembly on top of slab or culvert

302. Bolt through option allowed

303. Adhesive Anchors

ANCHOR POST ASSEMBLY TOP MOUNTED

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

May 2023
DATE

/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT ENGINEER

FHWA

6

SDD 14B51 - 03c

Anchor Post Assembly Top Mounted

References:

Standard Spec 614
FDM 11-45-30
MwRSF Report TRP-03-114-02
MwRSF Report TRP-03-278-13
MwRSF Report TRP-03-383-20-R1
Bureau of Structures Standard Detail Drawing 36.08

Bid items associated with this drawing:

ITEM NUMBER	DESCRIPTION	UNIT
Bid Items **Required** with this Drawing with Class A:		
614.0305	Steel Plate Beam Guard Class A	LF
614.8010	Anchor Post Assemblies Top Mounted	EACH
Bid Items **Required** with this Drawing with MGS:		
614.2310	MGS Guardrail 3 HS	LF
614.2330	MGS Guardrail 3 K	LF
614.8010	Anchor Post Assemblies Top Mounted	EACH
Bid Items **Associated** with this Drawing with Class A:		
614.0010	Barrier System Grading Shaping Finishing	EACH
614.0115	Anchorages for Steel Plate Beam Guard Type 2	EACH
614.0305	Steel Plate Beam Guard Class A	LF
614.0370	Steel Plate Beam Guard Energy Absorbing Terminal	EACH
Bid Items **Associated** with this Drawing with MGS:		
614.0010	Barrier System Grading Shaping Finishing	EACH
614.2300	MGS Guardrail 3	LF
614.2610	MGS Guardrail Terminal EAT	EACH
614.2620	MGS Guardrail Terminal Type 2	EACH

Standardized Special Provisions associated with this drawing:

STSP NUMBER	TITLE
NONE	

Other SDDs associated with this drawing:

Required SDDs if Class A is used:
SDD 14B15 Steel Plate Beam Guard Class “A”, Installation and Elements
SDD 14B18 Steel Plate Beam Guard Class A

Required SDDs if MGS is used:
SDD 14B42 Midwest Guardrail System (MGS) Guardrail

Other Associated SDDs if Class A is used:
SDD 14B16 Anchorage for Steel Plate Beam Guard Type 2
SDD 14B24 Steel Plate Beam Guard Energy Absorbing Terminal

Other Associated SDDs if MGS is used:
SDD 14B44 Midwest Guardrail System (MGS) Terminal
SDD 14B47 Midwest Guardrail System (MGS) Type 2 Terminal

Design Notes:

Post assemblies are MASH TL-3 designs. This detail can be used for MGS or Class A. When using with Class A indicate that half post spacing is required. When using MGS beam guard indicate that MGS HS or MGS K is being installed. Working width of beam guard mounted on assemblies is equal to working width of beam guard class A at half post spacing, MGS HS or MGS K.

Design is not intended to be mounted directly to slab without fill. A bridge parapet or bridge rail is more appropriate. Assembly is designed for a minimum of 9” of cover up to a maximum of 4’ of cover. For fill

heights greater than what is indicated in details, use standard beam guard or other barrier system. For fill heights different than what is indicated assembly may not operate as intended.

Coordination with Bureau of Structures (BOS) and regional maintenance is required when using this detail. Document in DSR that coordination has taken placed.

On new structures, the slab may need to be thicker or additional reinforcement may be required to properly use this attachment. On existing designs, the condition of the slab may prevent the use of this detail. Provide BOS with photos and other information prior to using this detail.

Avoid using this detail on box culverts that require bolting through the slab and the culvert has deep water or height of overall culvert makes it difficult to access bolts from beneath. Review small box culverts for confined space entry issues. Contractor or maintenance staff may not be able to access the area to install or replace hardware. Review the use of this detail with regional or local maintenance staff.

The SDD and standard specifications for the post assembly are for providing the assembly and mounting the assembly to the slab. Blocks, rail and associated hardware will be paid using Class A (half post spacing), MGS HS or MGS K

Indicate, in an individual construction detail drawing, that at least 7 posts at half post spacing is required prior to and after the location that uses this SDD.

Review assembly placement of individual assemblies. Drilling holes too close to an edge of concrete or joint may cause cracking. Placing assembly over a wall, other obstructions below the slab or locations with significant amount of reinforcement steel may make it difficult to install assemblies. Designer may need to shift whole beam guard run to place assemblies without conflict. Designer may need to extend beam guard, require field cuts or odd length railings to get appropriate length of need.

SDD indicates the minimum distance from back of steel post to headwall or outer edge of slab. If this distance smaller than what is indicated will cause vehicle to interact with headwall or outer edge.

Indicate in plan the “H” dimension and location of each post. This dimension depends on height of cover on top of slab or span, type of beam guard being installed, skew, cross slope and other variables. “H” is measured from top of plate to top of post. An excel spreadsheet has been developed to assist in calculating “H” height (http://wisconsindot.gov/rdwy/fdm/files/sd-14b51-File01.xlsx).

If posts are required to be installed on a slope (i.e. lower drawing in excel spreadsheet), use MGS beam guard alternatives with face of rail at slope break point. If MGS cannot be used (e.g. because of short radius system is needed at a location) provide documentation in DSR.

On existing slabs and spans use grading and shaping items to remove and replace fill. Show the excavation and replacement of fill in the individual construction detail and table associated with Barrier System Grading and Shaping Finishing item.

Contact Person:

Erik Emerson (608) 266-2842