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GENERAL NOTES:

1. The Midwest Guardrail System (MGS) is a steel or timber post w-beam guardrail semi-rigid longitudinal barrier system. The standard post length for MGS w-beam guardrail shall be 6 ft, unless noted otherwise.

2. MGS w-beam guardrail, omitted post, long-span, structure top-mount, guardrail transition, and cable terminal anchor are MASH TL-3 compliant.

3. Steel guardrail post W 6 x 8.5 may be substituted for W 6 x 9.
NOTES:

1. Where the distance from back of post to shoulder slope break is less than 2 ft, the working width shall be adjusted. See Standard Drawing E 601-MGSA-23.


3. Blockouts of 12 in. or 16 in. depth may be utilized to increase the post offset. There is no limit to the number of posts that can have additional blockouts up to a 16 in. depth.

4. Where two timber blockouts are installed, one 16D galvanized double head nail shall be centered at the back of the blockout and driven into the adjacent blockout to limit rotation.

5. The post shall not be encased with asphalt, concrete, or riprap.

TYPICAL MGS W-BEAM INSTALLATION

DETAIL FOR ALTERNATE BLOCKOUT DEPTH

TYPICAL DOUBLE-FACED MGS W-BEAM INSTALLATION
NOTES:

1. Where the distance from back of post to shoulder slope break is less than 2 ft, the working width shall be adjusted. See Standard Drawing E 601-MGSA-23.


3. Blockouts of 12 in. or 16 in. depth may be utilized to increase the post offset. There is no limit to the number of posts that can have additional blockouts up to a 16 in. depth.

4. The post shall not be encased with asphalt, concrete, or riprap.
NOTES:

1. Timber or steel posts may be used. Timber and steel posts shall not be intermixed.

2. Steel guardrail post W 6 x 8.5 may be substituted for W 6 x 9.

3. Steel posts shall be installed with bolt holes on approaching traffic side.

4. Where a timber post and a timber blockout are installed, one 16D galvanized double head nail shall be centered at the back of the blockout and driven into the adjacent post to limit rotation.

5. Blockouts of 12 in. or 16 in. depth may be utilized to increase the post offset. There is no limit to the number of posts that can have additional blockouts up to a 16 in. depth.

6. Hole pattern for posts may be drilled in back flange.
ELEVATION VIEW

MGS W-BEAM STANDARD POST SPACING, 6'-3"

MGS Standard Post Spacing

Half Post Spacing
As Needed

MGS Standard Post Spacing

6'-3"

Post Spacing

3'-1 1/2"

Post Spacing

6'-3"

Post Spacing

ELEVATION VIEW

MGS W-BEAM HALF POST SPACING, 3'-1 1/2"

Quarter Post Spacing
As Needed

1'-6 3/4"

Post Spacing

3'-1 1/2"

Post Spacing

ELEVATION VIEW

MGS W-BEAM QUARTER POST SPACING, 1'-6 3/4"

NOTES:
1. Splice locations shall be as shown.
2. A minimum of 25 ft of MGS w-beam half post spacing shall be installed on the approach and departure ends of the quarter post spacing.

LAPPING PROCEDURE

POST SPLICE DETAIL

MID-SPAN SPLICE DETAIL

INDIANA DEPARTMENT OF TRANSPORTATION

MIDWEST GUARDRAIL SYSTEM
ASSEMBLY

SEPTEMBER 2018

STANDARD DRAWING NO. E 601-MGSA-05

/s/ Elizabeth W. Phillips 03/20/18
DESIGN STANDARDS ENGINEER DATE

/s/ John Leckie 04/25/18
CHIEF ENGINEER DATE
1. A single post may be omitted within an MGS w-beam guardrail run.

2. Where a post is omitted, a minimum length of MGS standard post spacing guardrail shall be installed as shown.

3. An MGS w-beam guardrail run containing an omitted post shall not be installed adjacent to curb.

INDIANA DEPARTMENT OF TRANSPORTATION

MIDWEST GUARDRAIL SYSTEM
ASSEMBLY, OMITTED POST

SEPTEMBER 2018

STANDARD DRAWING NO. E 601-MGSA-06

/s/ Elizabeth W. Phillips 03/20/18
DESIGN STANDARDS ENGINEER  DATE

/s/ John Leckie 04/25/18
CHIEF ENGINEER  DATE
NOTES:

1. A single post may be omitted within an MGS w-beam guardrail run. See Standard Drawing E 601-MGSA-06

2. Where a post is omitted, a minimum length of MGS standard post spacing guardrail shall be installed as shown.

3. An MGS w-beam guardrail run containing an omitted post shall not be installed adjacent to curb.
A minimum length of MGS w-beam guardrail shall be installed on the approach and departure ends of the outermost CRT posts. This length may include the length of a guardrail end treatment, cable terminal anchor, or transition.

A minimum of 62 ft 6 in. of tangent MGS w-beam guardrail shall be installed between the outermost CRT post and the beginning of any flared guardrail section.

3. An MGS w-beam guardrail run containing MGS Long-Span shall not be installed adjacent to curb.

4. See Standard Drawing E 601-MGSA-06 for one omitted post, span length 12 ft 6 in.

TYPICAL SECTION AT CRT POST

NOTES:

1. Where the structure headwall projection is greater than 2 in. above the grade, the inside face of the headwall shall be a minimum of 8 ft from the face of MGS Long-Span.

2. Where the structure headwall projection is 2 in. or less above the grade, the inside face of the headwall shall be a minimum of 2 ft from the face of MGS Long-Span.

3. MGS Long-Span shall not be installed adjacent to curb.
The post shall not be encased with asphalt, concrete, or riprap.

surfaces shall receive a galvanized coating.

The top of the post may be field cut to adjust the length. Where the post is field cut, drill holes at appropriate locations. All cut and hole surfaces shall receive a galvanized coating.

The post shall not be encased with asphalt, concrete, or riprap.
MIDWEST GUARDRAIL SYSTEM ASSEMBLY,
GUARDRAIL TRANSITION WITH CURB
SEPTEMBER 2018

INDIANA DEPARTMENT OF TRANSPORTATION

NOTES:

1. Optional 4 in. sloping curb only. See Standard Drawing E 605-CCG-01 or 605-CCIN-01. Where curb is present it shall extend the length of the transition to post 17. The face of curb shall not project beyond the face of w-beam or thrie-beam guardrail.

2. Where curb is not present, a single w-beam section may be installed instead of a nested section. See Standard Drawing E 601-MGSA-12 for guardrail transition without curb.

3. Guardrail mounting height at bridge railing transition shall be 2 ft 7 3/4 in. Transition guardrail mounting height down to 2 ft 7 in.

4. A minimum of 12 ft 6 in. of tangents MGS w-beam guardrail shall be installed beyond the MGS guardrail transition limits and the beginning of any flared guardrail section.


-10 3/4" 12'-6" Two Nested Thrie Beam Sections (12-Gage)
12'-6" Two Nested W-Beam Sections (12-Gage)
12'-6" Asymmetrical 10-Gage W-Beam to Thrie-Beam Transition
6'-3" Asymmetrical 10-Gage W-Beam Section (12-Gage)

MGS GUARDRAIL TRANSITION

MGS GUARDRAIL TRANSITION = 40'-7 1/2"
MGS Standard Post Spacing, or Guardrail End Treatment Type OS
Shoul 15'-7 1/2"
10 Spaces @ 1'-6 3/4"
4 Spaces @ 3'-1 1/2"
2 Spa. @ 3'-1 1/2"

2'-7" 3/4" Transition guardrail mounting height down to 2 ft 7 in.

ELEVATION VIEW

PLAN VIEW

6'-3" Thrie Beam Section (12-Gage)
6'-3" Asymmetrical 10-Gage W-Beam to Thrie-Beam Transition

10 Spaces @ 1'-6 3/4"
4 Spaces @ 3'-1 1/2"
2 Spa. @ 3'-1 1/2"

INDIANA DEPARTMENT OF TRANSPORTATION

MIDWEST GUARDRAIL SYSTEM ASSEMBLY,
GUARDRAIL TRANSITION WITH CURB
SEPTEMBER 2018

STANDARD DRAWING NO. E 601-MGSA-11

No. 10200124
STATE OF INDIANA
DESIGN STANDARDS ENGINEER

/s/ Elizabeth W. Phillips 03/20/18
/s/ John Leckie 04/25/18
CHIEF ENGINEER
DATE

03/20/18
DATE

04/25/18
NOTES:

1. Where a curb is present, details on Standard Drawing E 601-MGSA-11 guardrail transition with curb shall apply.

2. Guardrail mounting height at bridge railing transition is 2 ft 7 3/4 in. Transition guardrail mounting height down to 2 ft 7 in.

3. A minimum of 12 ft 6 in. of tangent MGS w-beam guardrail shall be installed beyond the MGS guardrail transition limits and the beginning of any flared guardrail section.


1'-10 3/4" 12'-6" Two Nested Thrie Beam Sections (12-Gage)

6'-3" Asymmetrical 10-Gage W-Beam to Thrie Beam Transition

MGS Guardrail Transition = 40'-7 1/2"

6'-3" Thrie Beam Section (12-Gage)

ELEVATION VIEW

MGS GUARDRAIL TRANSITION

INDIANA DEPARTMENT OF TRANSPORTATION

MIDWEST GUARDRAIL SYSTEM ASSEMBLY,
GUARDRAIL TRANSITION WITHOUT CURB

SEPTEMBER 2018

STANDARD DRAWING NO. E 601-MGSA-12

/s/ Elizabeth W. Phillips 03/20/18
DESIGN STANDARDS ENGINEER

/s/ John Leckie 04/25/18
CHIEF ENGINEER
GUARDRAIL TRANSITION PLAN VIEW

DETAIL A

LAP DETAILS AT BRIDGE RAILING TRANSITION PLAN VIEW

DETAIL B
NOTES:

1. All holes drilled or punched to 13/16 in. dia.

2. Timber posts shall not be used within the limits of the MGS guardrail transition.

3. Hole pattern for post numbers 1 through 12 may be drilled in back flange.

4. See Standard Drawing E 601-MGSA-11 or -12 for post numbers and sections.
NOTE:

1. All holes drilled or punched to 13/16 in. dia.
2. Timber posts shall not be used within the limits of the MGS guardrail transition.
3. Hole pattern for post numbers 13 through 17 may be drilled in back flange.
4. See Standard Drawing E 601-MGSA-11 or -12 for post numbers and sections.
NOTE:
1. Where rub-rail is present on existing W-beam guardrail, the channel shall be cut and repositioned behind the flange.
1. The MGS cable terminal anchor system shall only be used at the outgoing end of an MGS w-beam guardrail run not exposed to oncoming traffic.

2. See Standard Drawing E 601-MGSA-18 for Details A and B.


7. See Standard Drawing E 601-WBGC-01 for curved terminal end details.
DETAIL A

1. BCT Bearing Plate
2. BCT Post Sleeve

DETAIL B

1. BCT Anchor Cable Assembly
2. Strut (Channel Section)

NOTES:


Attach BCT Post
3/4" Ø Hole to T 8" x 6" x 3/16"
FRONT SIDE
GALVANIZED STEEL FOUNDATION TUBE
STRUT DETAILS

YOKE DETAILS

STRUT AND YOKE ASSEMBLY

C.6 x 8.2 or Bent Plate 6" x 3" x 10 Gauge

1/2" R (typ.)

3" on Bent Plate

2" on C.6 x 8.2

3/16" x 2" Slot

STRUT DETAILS

YOKE DETAILS

(2 Required)

1"

3/8" R (typ.)

3/16"

8 1/8"

3/4" on Bent Plate

2" on C.6 x 8.2

INDIANA DEPARTMENT OF TRANSPORTATION

MIDWEST GUARDRAIL ASSEMBLY,
CABLE TERMINAL ANCHOR SYSTEM
SEPTEMBER 2018

STANDARD DRAWING NO. E 601-MGSA-20

/s/ Elizabeth W. Phillips 03/20/18
DESIGN STANDARDS ENGINEER DATE

/s/ John Leckie 04/25/18
CHIEF ENGINEER DATE
BCT ANCHOR CABLE ASSEMBLY

BCT POST SLEEVE

BCT BEARING PLATE

3/4"Ø (6 x 19) Galvanized Cable

1" Ø Hex Nut with Round Washer

1" Ø Hex Nut with Round Washer

1" Ø x 1/8" Pitch Threads (Both Sides)

Cable to be Swage-Connected

Standard Swaged Fitting and Stud (Stud Threaded Entire Length)

3" Ø Hole

INDIANA DEPARTMENT OF TRANSPORTATION

STANDARD DRAWING NO. E601-MGSA-21

SEPTEMBER 2018

No. 10200124

DESIGN STANDARDS ENGINEER

DATE

/s/ Elizabeth W. Phillips 03/20/18

/s/ John Leckie 04/25/18

CHIEF ENGINEER

DATE
Bracket

End Plate

3/8" R (Typ.)

3/8" R (Typ.)

3/8" Ø Holes

Weld End Plate to Bracket

1 1/8" Ø Hole

Indiana Department of Transportation

Midwest Guardrail System Assembly,
Cable Terminal Anchor System

September 2018

Standard Drawing No. E 601-MGSA-22

/s/ Elizabeth W. Phillips 03/20/18
Design Standards Engineer Date

/s/ John Leckie 04/25/18
Chief Engineer Date
NOTES:

1. Guardrail placement shall consider working width.

2. Working width assumes an 8-in. blockout. Where a deeper blockout is used, the working width shall be adjusted to include the additional depth.

3. Distance between the back of post and inside face of structure headwall.

4. See Standard Drawing E 601-MGSA-09 for the distance between front face of MSG Long-Span and inside face of structure headwall.

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<th>Post Spacing</th>
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<tr>
<td>MGS W-Beam Standard</td>
<td>6'-3&quot;</td>
<td>2 ft</td>
<td>5.0 ft</td>
</tr>
<tr>
<td>MGS W-Beam Standard w/Omitted Post</td>
<td>6'-3&quot;</td>
<td>2 ft</td>
<td>5.0 ft</td>
</tr>
<tr>
<td>MGS W-Beam Standard</td>
<td>6'-3&quot;</td>
<td>&lt; 2 ft</td>
<td>6.5 ft</td>
</tr>
<tr>
<td>MGS W-Beam Half Post Spacing</td>
<td>3'-1 1/2&quot;</td>
<td>2 ft</td>
<td>4.5 ft</td>
</tr>
<tr>
<td>MGS W-Beam Quarter Post Spacing</td>
<td>1'-6 3/4&quot;</td>
<td>2 ft</td>
<td>4.0 ft</td>
</tr>
<tr>
<td>MGS Long-Span</td>
<td>Varies</td>
<td>4</td>
<td>8.0 ft</td>
</tr>
<tr>
<td>MGS Structure Top-Mounted Post</td>
<td>6'-3&quot;</td>
<td>1.5 ft</td>
<td>4.2 ft</td>
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