



INCIDENTAL DESIGN

PRESERVATION DETAILS

- v.3 [14a1](#) Tree Preservation Details
- v.1 [14a2](#) Tree Planting Detail

VEHICLE BARRIER SYSTEMS

- v.14 [14b7](#) Concrete Barrier Temporary Precast
sheets: [a](#) [b](#) [c](#) [d](#) [e](#) [f](#) [g](#) [h](#)
- v.2 [14b8](#) Crash Cushion/Sand Barrel Array and Other Temporary Barrier Layout Details
[sheet a](#): *End Treatments and General Note*
[sheet b](#): *End Treatments and Transitions from Unanchored barrier to Anchored Barrier*
[sheet c](#): *Overlapping of Temporary Barrier and Temporary Barrier Downstream of Hazard*
[sheet d](#): *Connecting Temporary Barrier to Permanent Barrier and Overlapping Downstream Temporary Barrier with Permanent Barrier*
[sheet e](#): *Median Installation*
- v.2 [14b11](#) Concrete Barrier (Double Faced)
- v.9 [14b15](#) Steel Plate Beam Guard, Class "A", Installation and Elements
sheets: [a](#) [b](#) [c](#)
- v.4 [14b16](#) Anchorage for Steel Plate Beam Guard Type 2
sheets: [a](#) [b](#)
- v.6 [14b18](#) Steel Plate Beam Guard, Class "A"
[sheet a](#): *Steel Plate Beam Guard, Class "A" (at Bridges, Obstacles and Sideroads/Driveways)*
[sheet b](#): *Steel Plate Beam Guard, Class "A" at Median Approach to Bridges at Median Piers and Sign Supports*
- v.11 [14b20](#) Steel Thrie Beam Structure Approach
[sheet a](#): *Steel Thrie Beam Structure Approach*
[sheet b](#): *Steel Thrie Beam Structure Approach, Connection to Square End Parapets*
[sheet c](#): *Steel Thrie Beam Structure Approach, Connection to Vertical Faced Parapets*
[sheet d](#): *Steel Thrie Beam Structure Approach, Connection to Sloped End Parapets*
[sheet e](#): *Steel Thrie Beam Structure Approach, Connection to Bridge Railing Types "F" and "W"*
[sheet f](#): *Steel Thrie Beam Structure Approach, Connection to Bridge Railing Type "M"*
[sheet g](#): *Steel Thrie Beam Structure Approach, Connector Plate Detail*
[sheet h](#): *Steel Thrie Beam Structure Approach, Single Slope Attachment*
- v.6 [14b22](#) Concrete Barrier, Single Faced (with Anchorage)
sheets: [a](#) [b](#)
- v.8 [14b24](#) Steel Plate Beam Guard Energy Absorbing Terminal
sheets: [a](#) [b](#) [c](#)
- v.1 [14b25](#) Steel Plate Beam Guard, Class "A", Over Low Fill Culverts
- v.3 [14b26](#) Steel Thrie Beam Bullnose Terminal
sheets: [a](#) [b](#) [c](#) [d](#) [e](#)

- v.1 [14b27](#) Steel Plate Beam Guard Short Radius Terminal
 sheets: [a](#) [b](#) [c](#)
- v.3 [14B28](#) Guardrail Mow Strip
- v.1 [14B29](#) Safety Edge
- v.4 [14b32](#) Concrete Barrier Single Slope
[sheet a](#): Concrete Barrier Single Slope-Standard, Median Retaining Wall, Anchorages
[sheet b](#): Concrete Barrier Fixed Object Protection
[sheet c](#): Concrete Barrier Single Slope Median Retaining Wall Anchorage Placement
[sheet d](#): Concrete Barrier Single Slope Double Cold Joint Height Transition
[sheet e](#): Concrete Barrier Single Slope Removal and Retrofit
- v.1 [14b33](#) Concrete Barrier Single Slope Thrie Beam Anchorage
[sheet a](#): Concrete Barrier Single Slope 32-inch Thrie Beam Anchorage-Barrier Layout
[sheet b](#): Bar Details for Single Slope 32-inch Thrie Beam Anchorage-Steel Layout #1
[sheet c](#): Bar Details for Single Slope 32-inch Thrie Beam Anchorage-Steel Layout #2
[sheet d](#): Concrete Barrier Single Slope 36-inch Thrie Beam Anchorage-Barrier Layout
[sheet e](#): Bar Details for Single Slope 36-inch Thrie Beam Anchorage-Steel Layout #1
[sheet f](#): Bar Details for Single Slope 36-inch Thrie Beam Anchorage –Steel Layout #2
[sheet g](#): Concrete Barrier Single Slope 42-inch Thrie Beam Anchorage-Barrier Layout
[sheet h](#): Bar Details for Single Slope 42-inch Thrie Beam Anchorage-Steel Layout #1
- v.1 [14b34](#) Single Slope Barrier for Runs under 40 Feet Long
[sheet a](#): Concrete Barrier Single Slope Type B 32-inch, 36-inch, and 42-inch
[sheet b](#): Concrete Barrier Single Slope Type B 56-inch
[sheet c](#): Concrete Barrier Single Slope Type B 56-inch
- v.1 [14b35](#) Single-Faced NJ Shape Concrete Barrier to single slope Concrete Barrier Transitions
[sheet a](#): 32-Inch Single-Faced NJ Shape Concrete Barrier to 32-Inch single slope Concrete Barrier Transition- Transition Layout
[sheet b](#): 32-Inch Single-Faced NJ Shape Concrete Barrier to 32-Inch single slope Concrete Barrier Transition-Steel Layout
[sheet c](#): 32-Inch Single-Faced NJ Shape Concrete Barrier to 36-Inch single slope Concrete Barrier Transition-Transition Layout
[sheet d](#): 32-Inch Single-Faced NJ Shape Concrete Barrier to 36-Inch single slope Concrete Barrier Transition-Steel Layout
[sheet e](#): 42-Inch Single-Faced NJ Shape Concrete Barrier to 42-Inch single slope Concrete Barrier Transition-Transition Layout
[sheet f](#): 42-Inch Single-Faced NJ Shape Concrete Barrier to 42-Inch single slope Concrete Barrier Transition-Steel Layout
- v.1 [14b36](#) F Shape Concrete Barrier to Single Slope Concrete Barrier Transitions
[sheet a](#): 32-Inch Single-Faced F Shape to 32-Inch Single Slope Transition-Transition Layout
[sheet b](#): Bar details for 32-Inch Single-Faced F Shape to 32-Inch Single Slope Transition-Steel Layout
[sheet c](#): 32-Inch Single-Faced F Shape to 36-Inch Single Slope Transition-Transition Layout
[sheet d](#): Bar Details for 32-Inch Single-Faced F Shape to 36-Inch Single Slope Transition-Steel Layout
[sheet e](#): 42-Inch Single-Faced F Shape to 42-Inch Single Slope Transition-Transition Layout
[sheet f](#): Bar details for 42-Inch Single-Faced F Shape to 42-Inch Single Slope Transition-Steel Layout
[sheet g](#): 51-Inch Single-Faced F Shape to 42-Inch Single Slope Transition-Transition Layout
[sheet h](#): Bar Details for 51-Inch Single-Faced F Shape to 42-Inch Single Slope Transition-Steel

Layout

- [sheet i](#): 51-Inch Single-Faced F Shape to 56-Inch Single Slope Transition-Transition Layout
 - [sheet j](#): Bar Details for 51-Inch Single-Faced F Shape to 56-Inch Single Slope Transition-Steel Layout
- v.1 **[14b37](#)** Double-Faced NJ Shape Concrete Barrier to Single Slope Concrete Barrier Transitions
 - [sheet c](#): 32-Inch Double-Faced NJ Shape to 36-Inch Single Slope Transition-Transition Layout
 - [sheet d](#): Bar Details for 32-Inch Double-Faced NJ Shape to 36-Inch Single Slope Transition-Steel Layout
- v.1 **[14b38](#)** Double-Faced F Shape Concrete Barrier to Single Slope Concrete Barrier Transitions
 - [sheet a](#): 32-Inch Double-Faced F Shape to 32-Inch Single Slope Transition-Transition Layout
 - [sheet b](#): 32-Inch Double-Faced F Shape to 32-Inch Single Slope Transition-Steel Layout
 - [sheet c](#): 32-Inch Double-Faced F Shape to 36-Inch Single Slope Transition-Transition Layout
 - [sheet d](#): Bar Details for 32-Inch Double-Faced F Shape to 36-Inch Single Slope Transition-Steel Layout
- v.1 **[14b39](#)** Height Transitions for Single Slope Concrete Barrier
 - [sheet a](#): Height Transition From 32-inch Single Slope to 36-inch Single Slope
 - [sheet c](#): Height Transition From 36-inch Single Slope to 42-inch Single Slope
 - [sheet e](#): Height Transition From 42-inch Single Slope to 56-inch Single Slope
- v.1 **[14b40](#)** Vertical Faced Concrete Barrier to Single Slope Concrete Barrier Transitions
 - [sheet a](#): 32-Inch Vertical to 32-Inch Single Slope Transition-Transition Layout
 - [sheet b](#): Bar Details for 32-Inch Vertical to 32-Inch Single Slope Transition-Steel Layout
 - [sheet c](#): 32-Inch Vertical to 36-Inch Single Slope Transition-Transition Layout
 - [sheet d](#): Bar Details for 32-Inch Vertical to 36-Inch Single Slope Transition-Steel Layout
 - [sheet e](#): 42-Inch Vertical to 42-Inch Single Slope Transition-Transition Layout
 - [sheet f](#): Bar Details for 42-Inch Vertical to 42-Inch Single Slope Transition-Steel Layout
 - [sheet g](#): 51-Inch Vertical to 42-Inch Single Slope Transition-Transition Layout
 - [sheet h](#): Bar Details for 51-Inch Vertical to 42-Inch Single Slope Transition-Steel Layout
 - [sheet i](#): 56-Inch Vertical to 56-Inch Single Slope Transition-Transition Layout
 - [sheet j](#): Bar details for 56-Inch Vertical to 56-Inch Single Slope Transition-Steel Layout
- v.2 **[14b41](#)** Single Slope Roadside Retaining Wall
 - [sheet a](#): Cross Section and Steel Details
 - [sheet b](#): Placement and Drainage
- v.4 **[14b42](#)** Midwest Guardrail System (MGS) Guardrail
 - [sheet a](#): Midwest Guardrail System (MGS) Installation Cross Sections, Post and Block Details
 - [sheet b](#): Midwest Guardrail System (MGS) Bolt, Alternative Wood Block, and Additional block or Adjusting post spacing for Obstructions
 - [sheet c](#): Midwest Guardrail System (MGS) Post spacing, Reflector, W-beam rail, Bolt placement
- v.3 **[14b43](#)** Midwest Guardrail System Long Span (MGS L)
 - [sheet a](#): Midwest Guardrail System Long Span (MGS L) Two-way Road Layout
 - [sheet b](#): Midwest Guardrail System Long Span (MGS L) One-way Road Layout
 - [sheet c](#): Midwest Guardrail System Long Span (MGS L) Cross Section and CRT Post Details
- v.2 **[14b44](#)** Midwest Guardrail System (MGS) Terminal
 - [sheet a](#): Midwest Guardrail System (MGS) EAT
 - [sheet b](#): Midwest Guardrail System (MGS) EAT Ground Strut, Anchor Cable Box
 - [sheet c](#): Midwest Guardrail System (MGS) EAT Foundation Tube Details, Breakaway Post Detail, Block Detail, Marker Post Detail, Reflective Sheeting Detail
- v.4 **[14b45](#)** Midwest Guardrail System (MGS) Thrie Beam Transition

- [sheet a:](#) *Midwest Guardrail System (MGS) Thrie Beam Transition: Layout*
- [sheet b:](#) *Midwest Guardrail System (MGS) Thrie Beam Transition: Cross Sections, Thrie Beam Details, Splice Detail*
- [sheet c:](#) *Midwest Guardrail System (MGS) Thrie Beam Transition: Thrie Beam Details, Post Details, Block Details*
- [sheet d:](#) *Midwest Guardrail System (MGS) Thrie Beam Transition: W and Thrie Beam Connection to Bridge Parapet with Square Ends*
- [sheet e:](#) *Midwest Guardrail System (MGS) Thrie Beam Transition: W and Thrie Beam Connection to Vertical Faced Parapets*
- [sheet f:](#) *Midwest Guardrail System (MGS) Thrie Beam Transition: W and Thrie Beam Connection to Bridge Parapets with Sloped Ends*
- [sheet g:](#) *Midwest Guardrail System (MGS) Thrie Beam Transition: Connection to W and F Bridge Parapet*
- [sheet h:](#) *Midwest Guardrail System (MGS) Thrie Beam Transition: Connection to M Bridge Parapet*
- [sheet i:](#) *Midwest Guardrail System (MGS) Thrie Beam Transition: Single Slope Connection Plate Details*
- [sheet j:](#) *Midwest Guardrail System (MGS) Thrie Beam Transition: Connection to Single Slope Barrier*
- [sheet k:](#) *Midwest Guardrail System (MGS) Thrie Beam Transition: Approach Connection to NY Bridge Parapets*
- [sheet l:](#) *Midwest Guardrail System (MGS) Thrie Beam Transition: Downstream Connection to NY Bridge Parapets*
- v.2 [14b47](#) Midwest Guardrail System (MGS) Type 2 Terminal
 - [sheet a:](#) *Midwest Guardrail System (MGS) Type 2 Terminal: Terminal Layout, End and Section Detail*
 - [sheet b:](#) *Midwest Guardrail System (MGS) Type 2 Terminal: CRT details, Foundation Tube details, BCT details*
 - [sheet c:](#) *Midwest Guardrail System (MGS) Type 2 Terminal: Terminal Ground Strut Details, Cable Barrier Anchor Details*
- v.1 [14b48](#) Retrofit Cantilever Blunt End
 - [sheet a:](#) *Installation and Bill of Materials*
 - [sheet b:](#) *Components*
- v.1 [14b49](#) Retrofit Cantilever Sloped End
 - [sheet a:](#) *Installation and Bill of Materials*
 - [sheet b:](#) *Components*
- v.1 [14b50](#) Thrie Beam Approach Retrofit Installation of Missing Post
 - [sheet a:](#) *Layout*
 - [sheet b:](#) *Components*
 - [sheet c:](#) *Bill of Materials*
- v.1 [14b51](#) Anchor Post Assembly Top Mount
 - [sheet a:](#) *Layout and Mounting Details*
 - [sheet b:](#) *Assembly Details*
 - [sheet c:](#) *Fill, Joint Placement and Bill of Materials*
- v.1 [14b52](#) Cable Barrier Type 1
 - [sheet a:](#) *Material List, General*
 - [sheet b:](#) *Rock Excavation, Cross Section, Line Post Details*

RECREATIONAL FACILITIES

- v.2 [14c1](#) Timber Rail Guard Fence, Curb and Guard Post and Marker Post
- v.2 [14c2](#) Historical Marker Construction
- v.3 [14c3](#) Roadside Picnic Table
- v.5 [14c6](#) Wayside Well Shelter and Pump and Well Platform
sheets: [a](#) [b](#)
- v.3 [14c7](#) Picnic Tables, Single Pedestal
sheets: [a](#) [b](#)