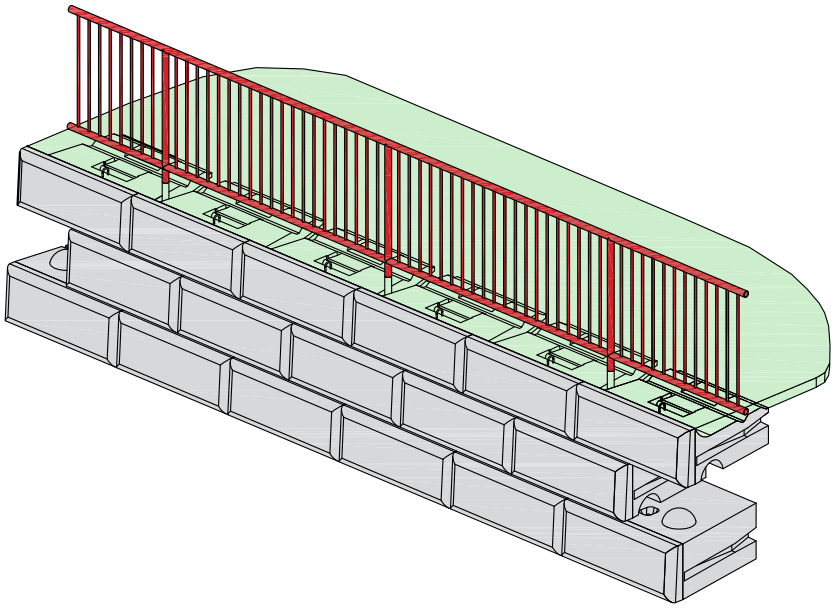
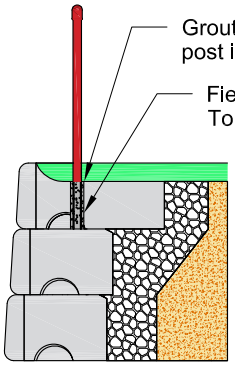
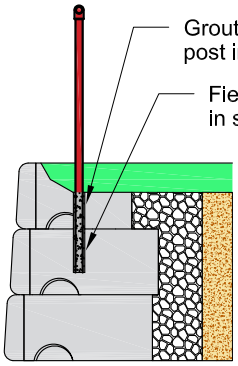
# Fence or Pedestrian Guard Connection Options



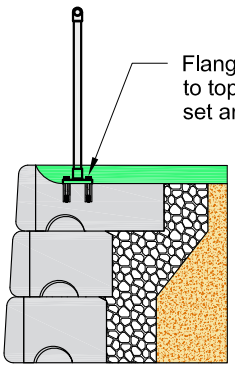



**Grouted Connection (1 Block)**

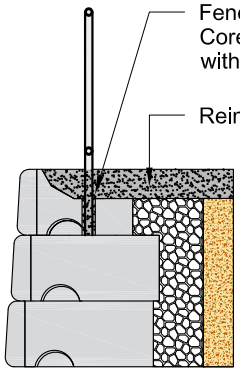



**Grouted Connection (2 Blocks)**

These generic pedestrian guard and fence details show a few potential options for their installation on the top of a Redi-Rock retaining wall. It is the design engineer's responsibility to fully design and detail the connection of the guard posts to the retaining wall blocks and assure acceptable resistance to the applied forces. Redi-Rock blocks are plain concrete, without steel reinforcement.




**Flange Bolted Connection**

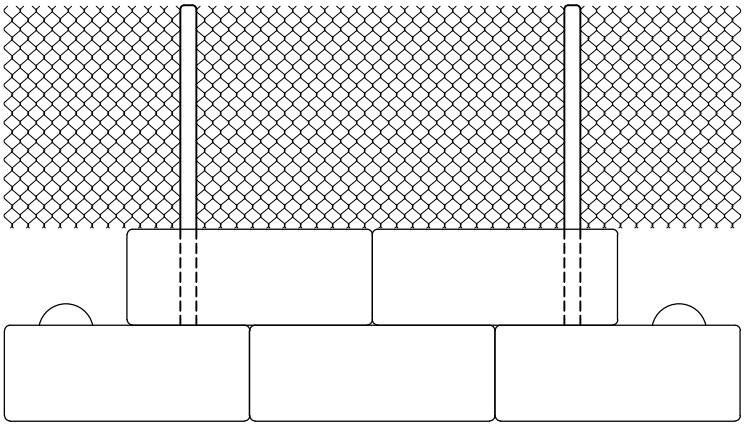



**Moment Slab Connection**

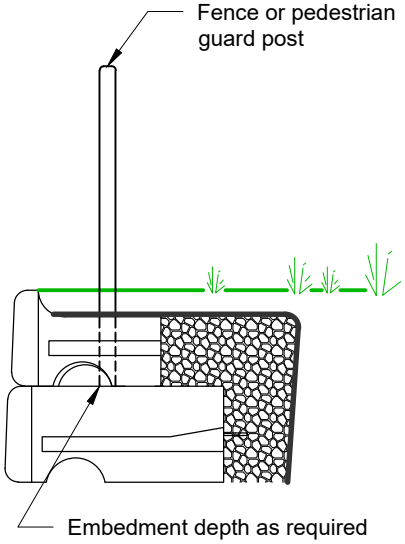
This drawing is for reference only. Determination of the suitability and/or manner of use of any details contained in this document is the sole responsibility of the design engineer of record. Final project designs, including all construction details, shall be prepared by a licensed professional engineer using the actual conditions of the proposed site.

| | | | |
|---|---|---|---|
| DRAWN BY: | JRJ | TITLE: Fence or Pedestrian Guard Connection Options | REDI-ROCK® 05481 US 31 SOUTH, CHARLEVOIX, MI 49720 (866) 222-8400 ext 3010 • engineering@redi-rock.com www.redi-rock.com |
| APPROVED BY: | JRJ | | |
| DATE: | 06-22-2015 | | |
| SHEET: | 1 of 1 | FILE: 5 Fence or Pedestrian Guard Connection Options 062215.dwg | |

# Fence or Pedestrian Guard Connection Locations

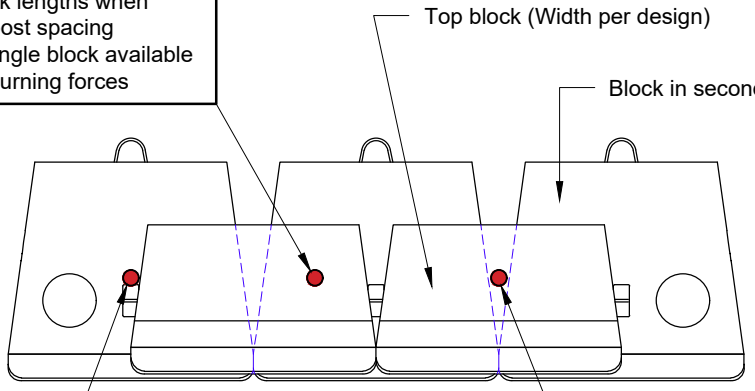


**Front View**




**Side View**

Connection Option #1
Anchor into the top block
- Consider block lengths when determining post spacing
- Weight of a single block available to resist overturning forces




**Top View**

Connection Option #2
Grout posts in v-shaped opening between top blocks
- Spacing in multiples of 46 1/8 in (1172 mm)
- Weight of a 2 adjacent blocks available to resist overturning forces

Connection Option #3
Core through top block and grout posts in V-shaped opening between lower blocks
- Spacing in multiples of 46 1/8 in (1172 mm)
- Weight of a 2 adjacent blocks on second level down and 3 top row blocks available to resist overturning forces



| | |
|---|---|
| DRAWN BY: | LBH |
| APPROVED BY: | LBH |
| DATE: | 08-18-2023 |
| SHEET: | 1 of 1 |

TITLE: Fence or Pedestrian Guard Connection Locations

FILE: Fence or Pedestrian Guard Connection Locations 08182023.dwg

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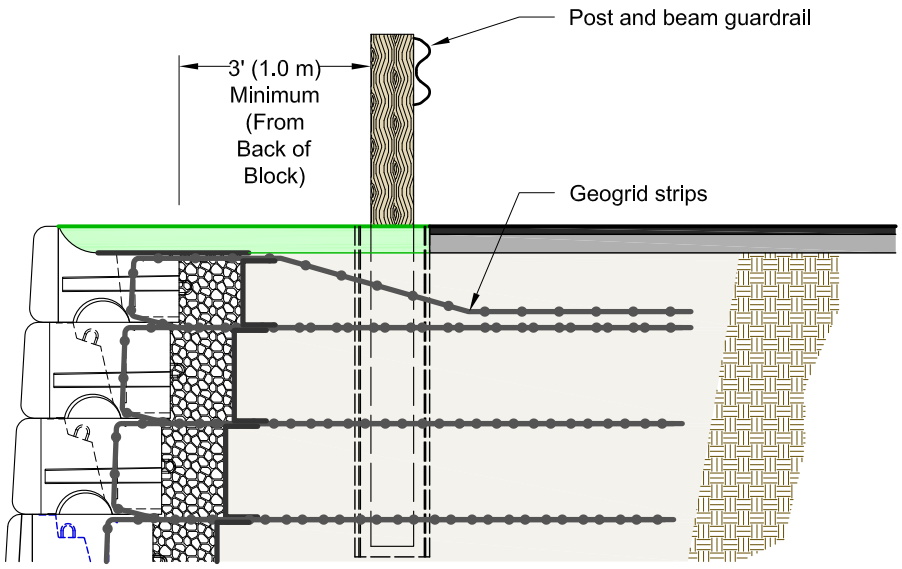
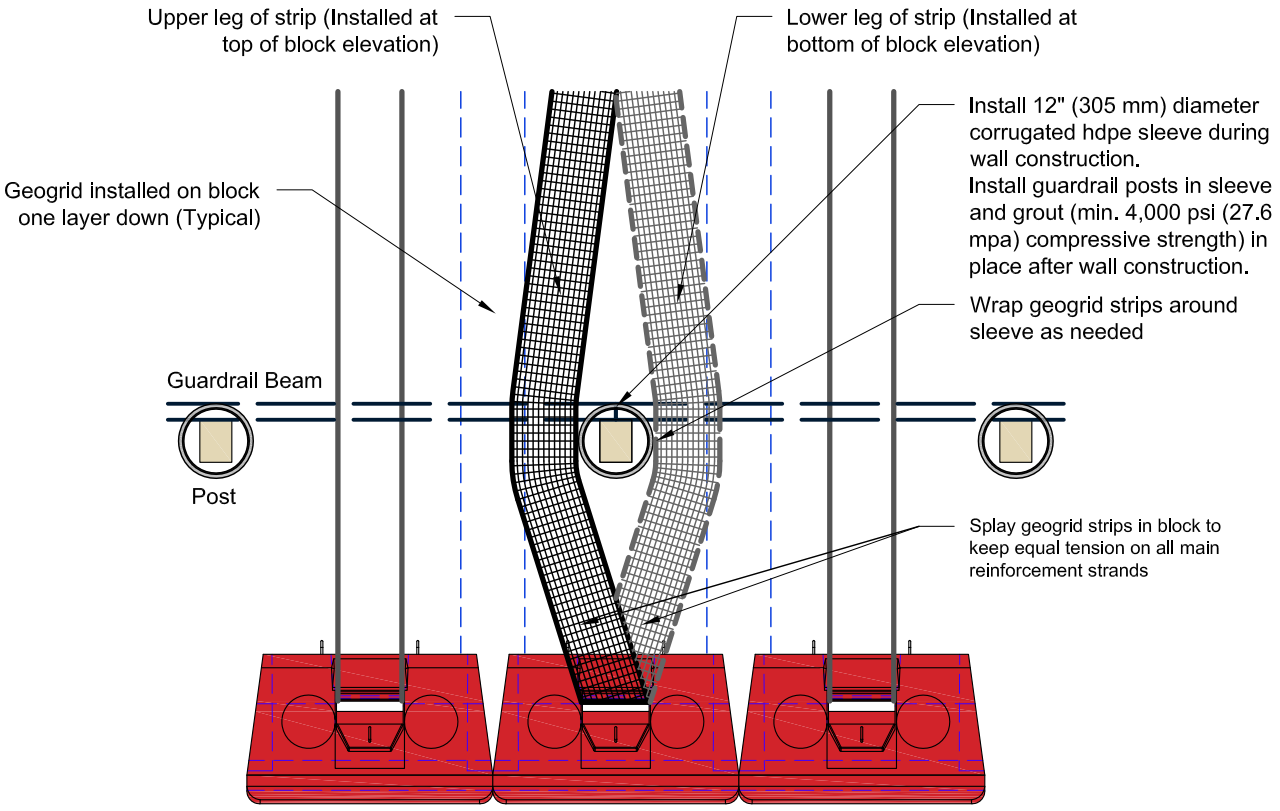
# Post and Beam Guardrail




## Section View




## Top View

This drawing is for reference only. Determination of the suitability and/or manner of use of any details contained in this document is the sole responsibility of the design engineer of record. Final project designs, including all construction details, shall be prepared by a licensed professional engineer using the actual conditions of the proposed site.

| | | | |
|---|---|---|---|
| DRAWN BY: | JRJ | TITLE: | Post and Beam Guardrail |
| APPROVED BY: | JRJ | | |
| DATE: | 06-22-2015 | | |
| SHEET: | 1 of 1 | FILE: | 7 Post and Beam Guardrail 062215.dwg |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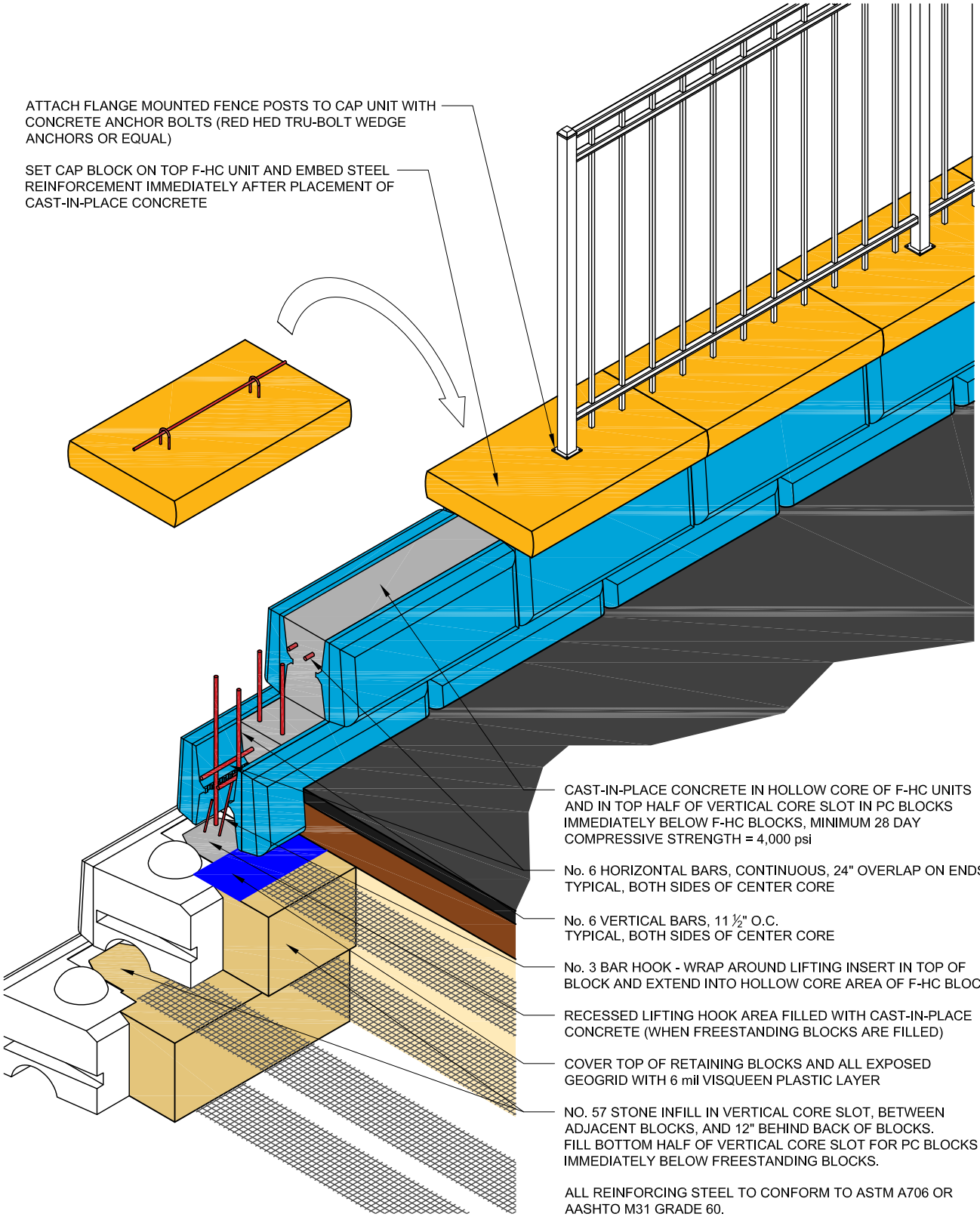


| | |
|---|---|
| DRAWN BY: J. JOHNSON | TITLE: **F-HC FREESTANDING BLOCK COPING WITH FENCE ATTACHMENT** |
| APPROVED BY: | |
| DATE: 01/18/17 | |
| SHEET: 1 OF 2 | FILE: F-HC Coping with Fence Attachment R-Anchor Option 011817.dwg |

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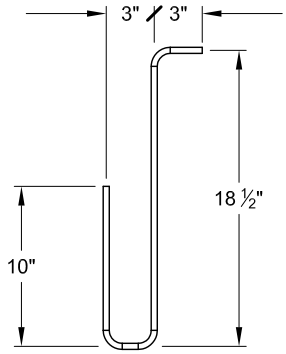
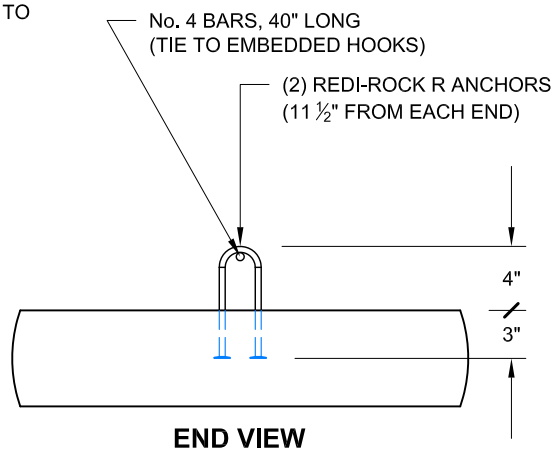
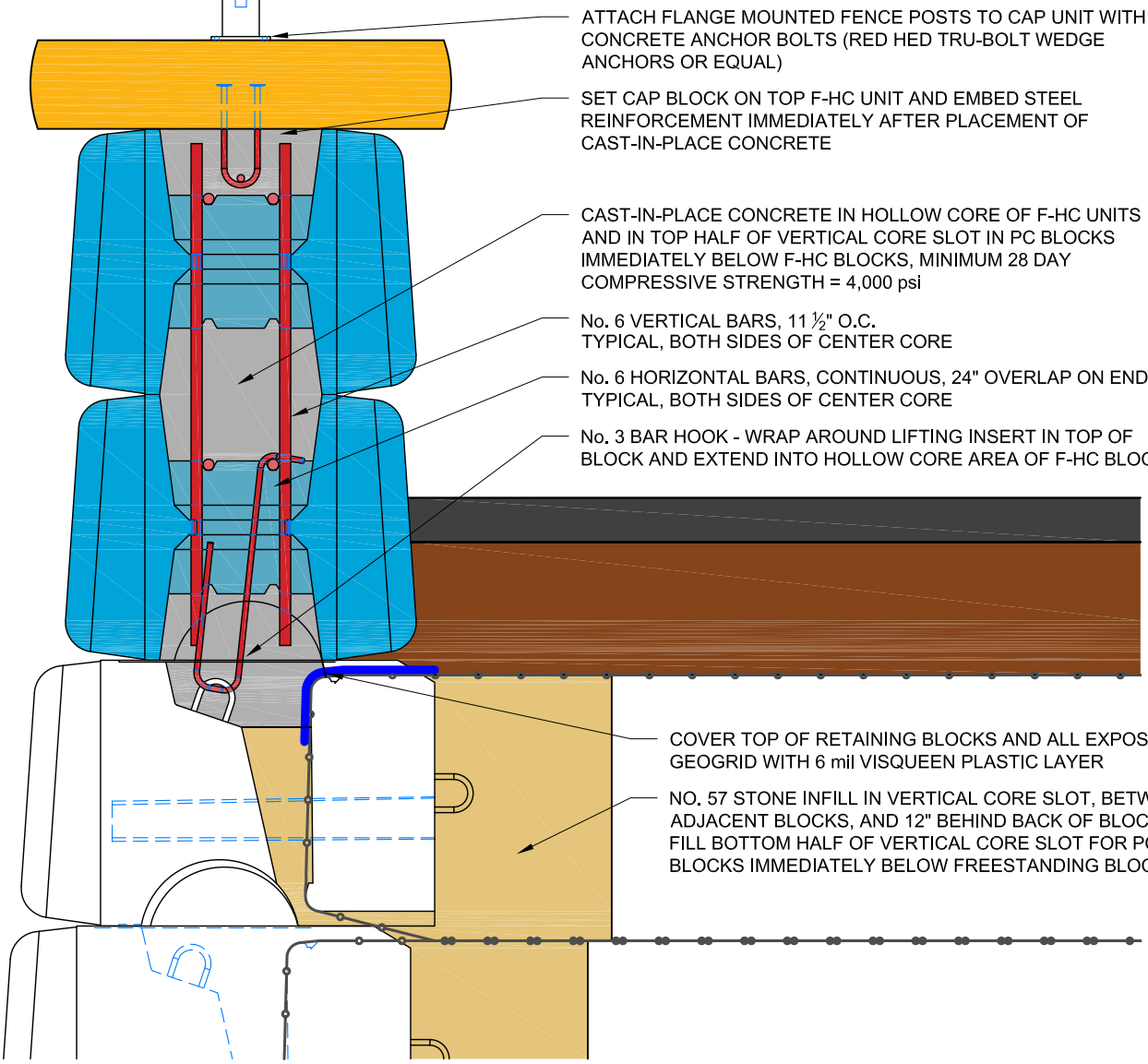
ALL REINFORCING STEEL TO CONFORM TO ASTM A706 OR AASHTO M31 GRADE 60.




**BEND DETAIL**
*NO. 3 REBAR HOOKS*




**END VIEW**
*CAP BLOCK CAST WITH R-ANCHORS (SPECIALTY BLOCK)*




| | |
|---|---|
| DRAWN BY: J. JOHNSON | TITLE: **F-HC FREESTANDING BLOCK COPING WITH FENCE ATTACHMENT** |
| APPROVED BY: | |
| DATE: 01/18/17 | |
| SHEET: 2 OF 2 | FILE: F-HC Coping with Fence Attachment R-Anchor Option 011817.dwg |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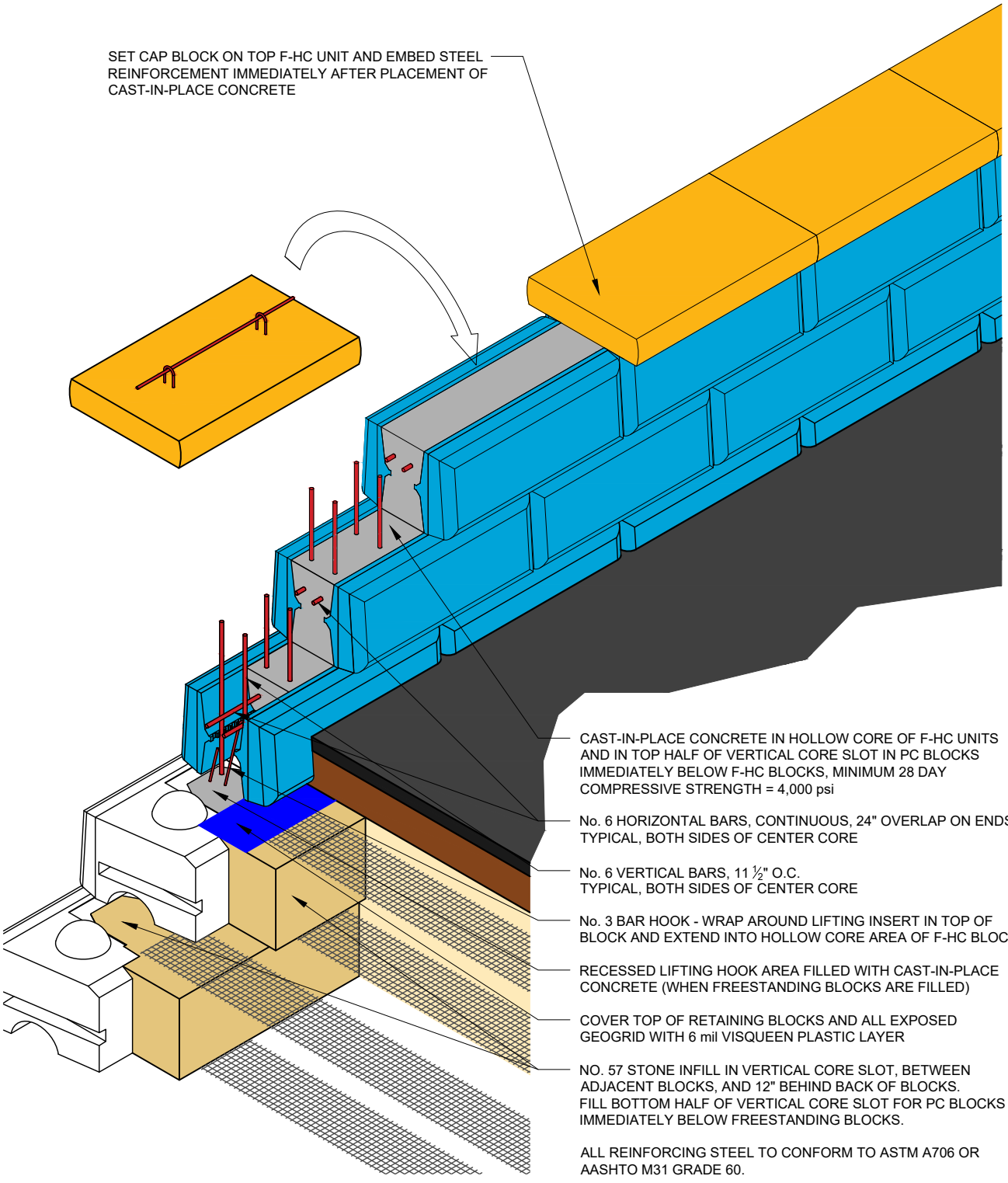


| | |
|---|---|
| DRAWN BY: N. LINDWALL | TITLE: **F-HC FREESTANDING BLOCK COPING** |
| APPROVED BY: J. JOHNSON | |
| DATE: 06/06/2018 | |
| SHEET: 1 OF 1 | FILE: F-HC Coping R-Anchor Option 060618.dwg |

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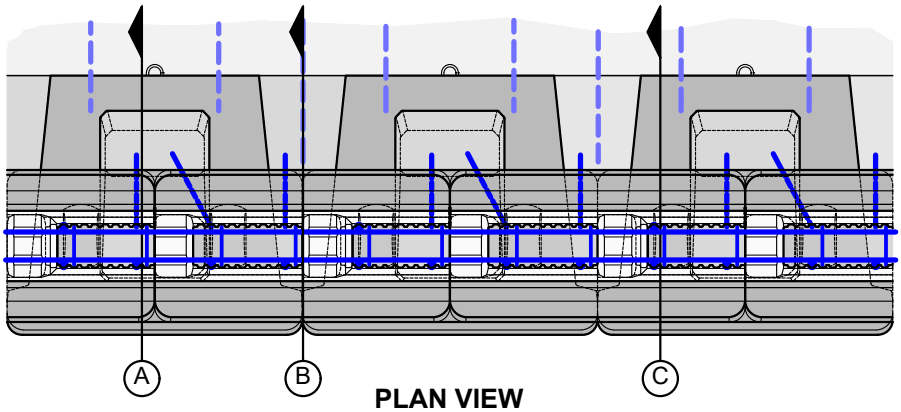
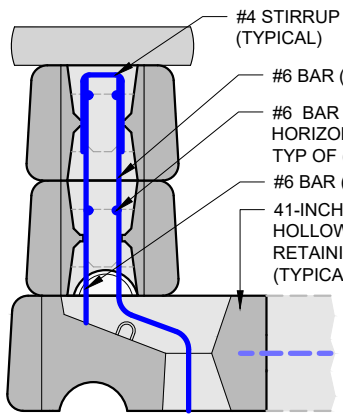
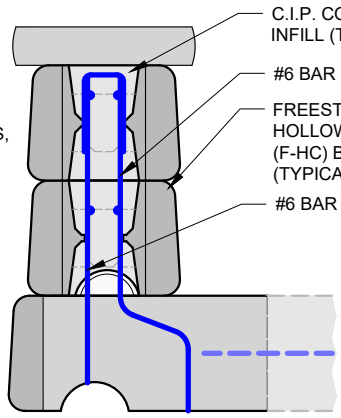


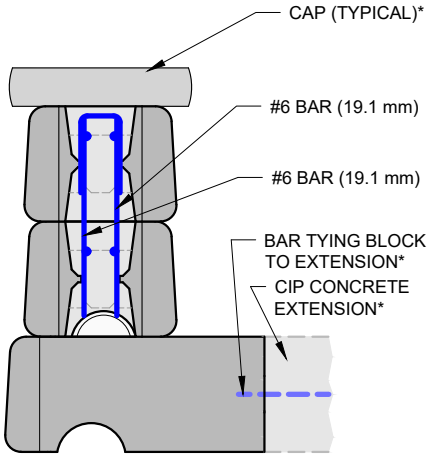

## PLAN VIEW




## SECTION A

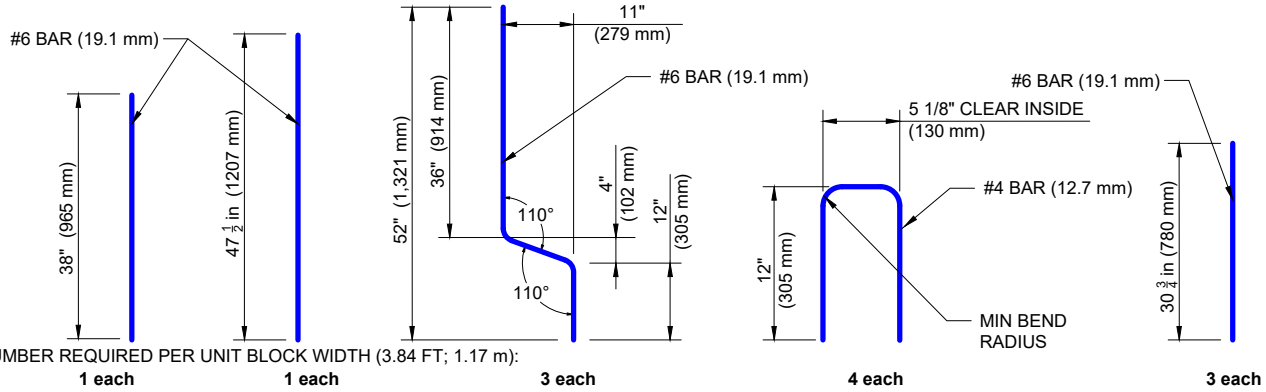



## SECTION B




## SECTION C

*SAMPLE WALL TESTED WITHOUT CAP.




NUMBER REQUIRED PER UNIT BLOCK WIDTH (3.84 FT; 1.17 m):

| 1 each | 1 each | 3 each | 4 each | 3 each |
|---|---|---|---|---|

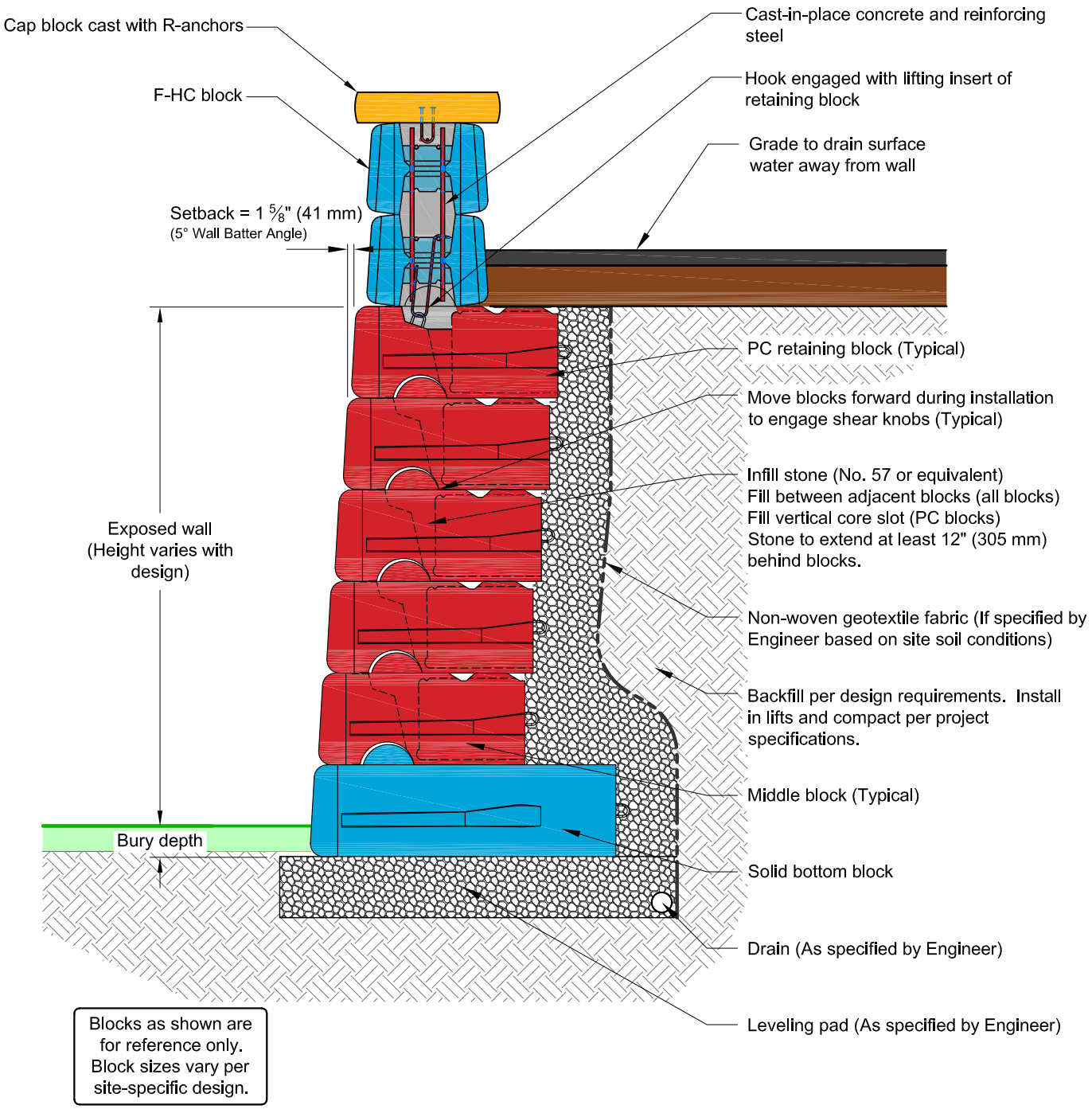
## REINFORCING BAR SCHEDULE

**NOTES:**

1. DETAIL SHOWN REPRESENTS CONFIGURATION OF SAMPLE WALL TESTED IN ASTER BRANDS TEST FACILITY.
2. SAMPLE WALL EXHIBITED ULTIMATE STRUCTURAL CAPACITY GREATER THAN 63,000 LBS (282 kN) AT A HEIGHT OF 29 $\frac{1}{2}$ INCHES (750 mm), CONSISTENT WITH AASHTO TL-4 EQUIVALENT STATIC LOADING.
3. C.I.P. CONCRETE INFILL: 4000 psi (27.6 MPa) COMPRESSIVE STRENGTH, REINFORCING STEEL BARS: 60,000 PSI (410 MPa).
4. REFER TO TEST REPORT FOR MORE INFORMATION.
5. USER IS RESPONSIBLE FOR DETERMINING SUITABILITY FOR PROJECT USE.
6. THIS DETAIL IS SHOWN FOR REFERENCE ONLY. DESIGN BY A LICENSED ENGINEER IS REQUIRED.
7. DESIGN MUST ALSO CONSIDER OVERTURNING AND SLIDING RESISTANCE.
8. *CIP CONCRETE EXTENSION OR MOMENT SLAB MAY BE CAST AGAINST BLOCKS TO ADD OVERTURNING AND SLIDING RESISTANCE. TIE TO BLOCKS WITH REINFORCING STEEL, AS NEEDED. (NOT INCLUDED IN TEST.)

| | | | |
|---|---|---|---|
| DRAWN BY: N. LINDWALL | TITLE: **F-HC FREESTANDING BLOCK PARAPET/BARRIER CONCEPT** | REDI-ROCK | |
| REVIEWED BY: D. HULA | | 2940 Parkview Dr., Petoskey, MI 49770 | |
| DATE: 08/26/2021 | | (866) 222-8400 ext 3010 • engineering@redi-rock.com | |
| SHEET: 1 OF 1 | FILE: F-HC _R-41HC_Parapet_Detail_082621.dwg | www.redi-rock.com | |

# Typical Gravity Wall Section with Freestanding Hollow Core Coping






| | | | |
|---|---|---|---|
| DRAWN BY: | NWL | TITLE: | Typical Gravity Wall Detail |
| APPROVED BY: | JRJ | | |
| DATE: | 31MAY2018 | | |
| SHEET: | 1 of 1 | FILE: | Typical-Gravity-Wall-with-F-HC-Section.dwg |

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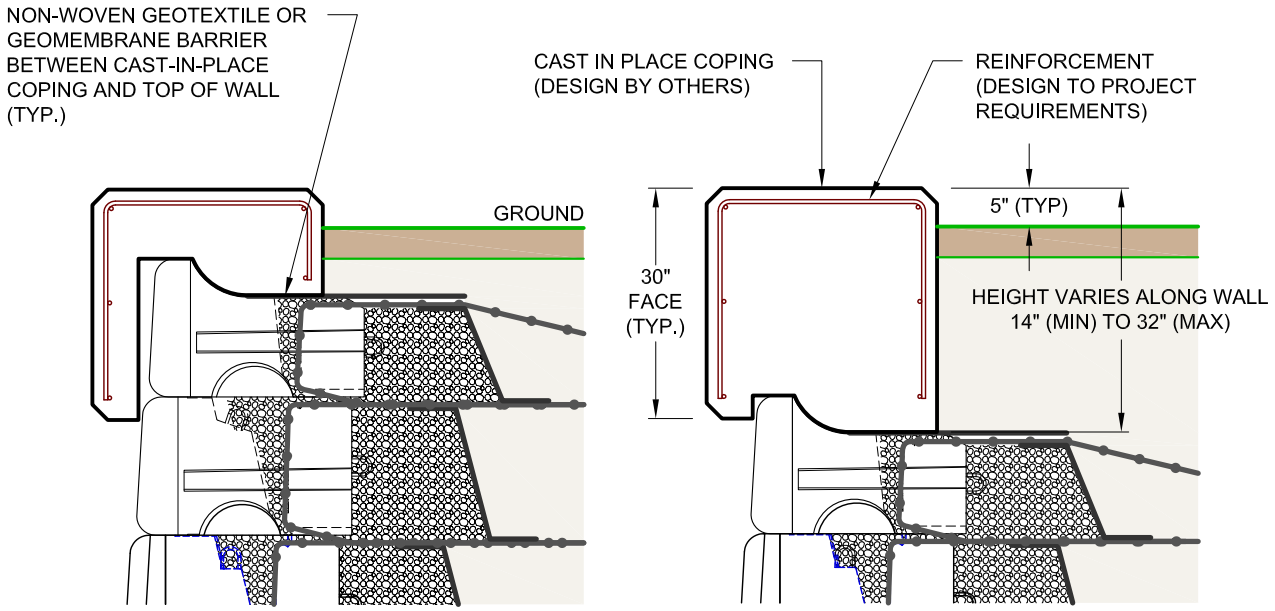
# CAST-IN-PLACE COPING

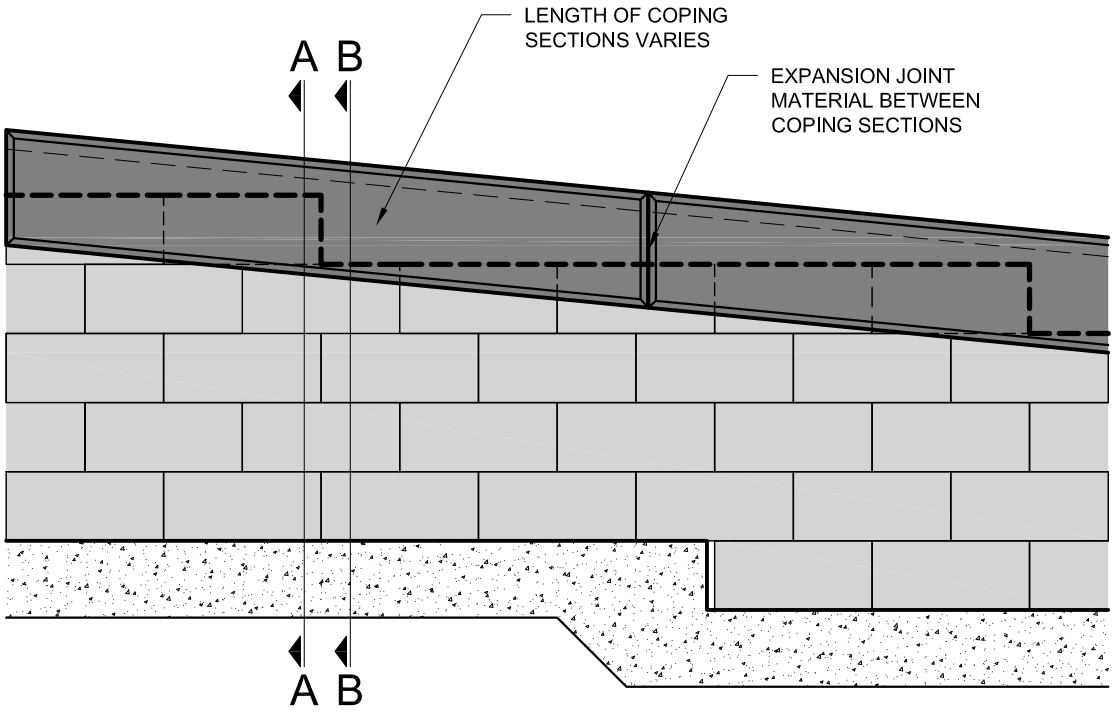



## SECTION A-A

*(JUST BEFORE STEP DOWN ON TOP OF WALL)*

## SECTION B-B

*(JUST AFTER STEP DOWN ON TOP OF WALL)*




## ELEVATION VIEW

| | | | |
|---|---|---|---|
| DRAWN BY: | JRJ | TITLE: | Cast-In-Place Wall Coping |
| APPROVED BY: | JRJ | | |
| DATE: | 06-22-2015 | | |
| SHEET: | 1 of 1 | FILE: | 11 Cast-In-Place Wall Coping 062215.dwg |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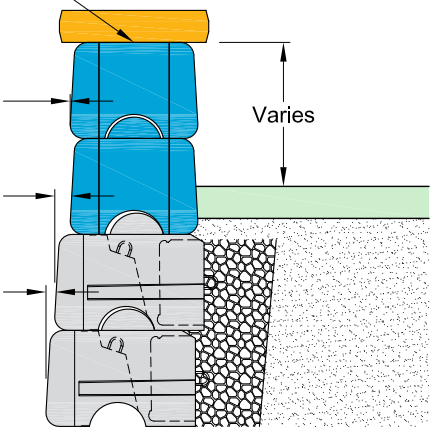
# Freestanding Blocks with Cap at Top of Wall

Secure cap block to freestanding block with polyurethane sealant. Optional shear lugs cast into cap block or rebar ties that can be embedded in site-cast concrete (with garden block) are also available.

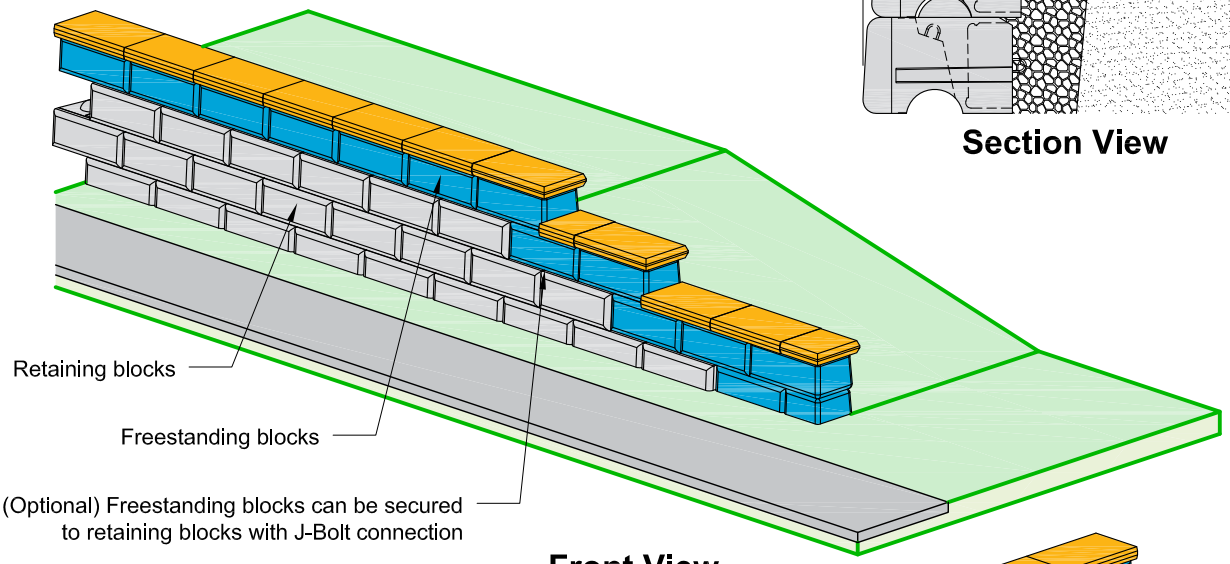
Setback = 0" (0 mm) on Freestanding blocks

Setback = 2 7/8" (73 mm) when 10" (254 mm) knob used
Setback = 1 5/8" (41 mm) when 7 1/2" (190 mm) knob used

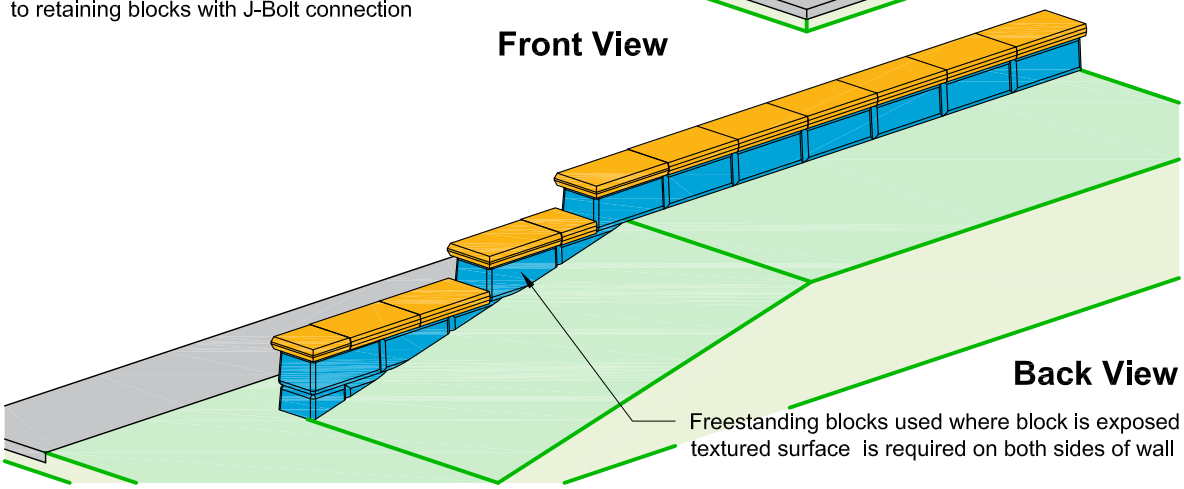
Setback = 1 5/8" (41 mm) when 10" (254 mm) knob used




**Section View**




**Front View**




**Back View**

One-component, highly flexible, non-priming, gun grade, high performance elastomeric polyurethane sealant shall have movement of plus or minus 25% per ASTM C719, tensile strength greater than 200 psi (1.4 MPa) per ASTM D412, and adhesion to peel on concrete greater than 20 PLI per ASTM C794. Apply sealant in one and one half-inch (1.5") (38 mm) diameter round "hersey kiss" shaped dollops located in two rows at the top of the Freestanding blocks at 8" (203 mm) on center.



| | |
|---|---|
| DRAWN BY: | JRJ |
| APPROVED BY: | JRJ |
| DATE: | 06-22-2015 |
| SHEET: | 1 of 1 |

TITLE: Freestanding Blocks with Cap at Top of Wall

FILE: 3 Freestanding Blocks with Cap at Top of Wall 062215.dwg

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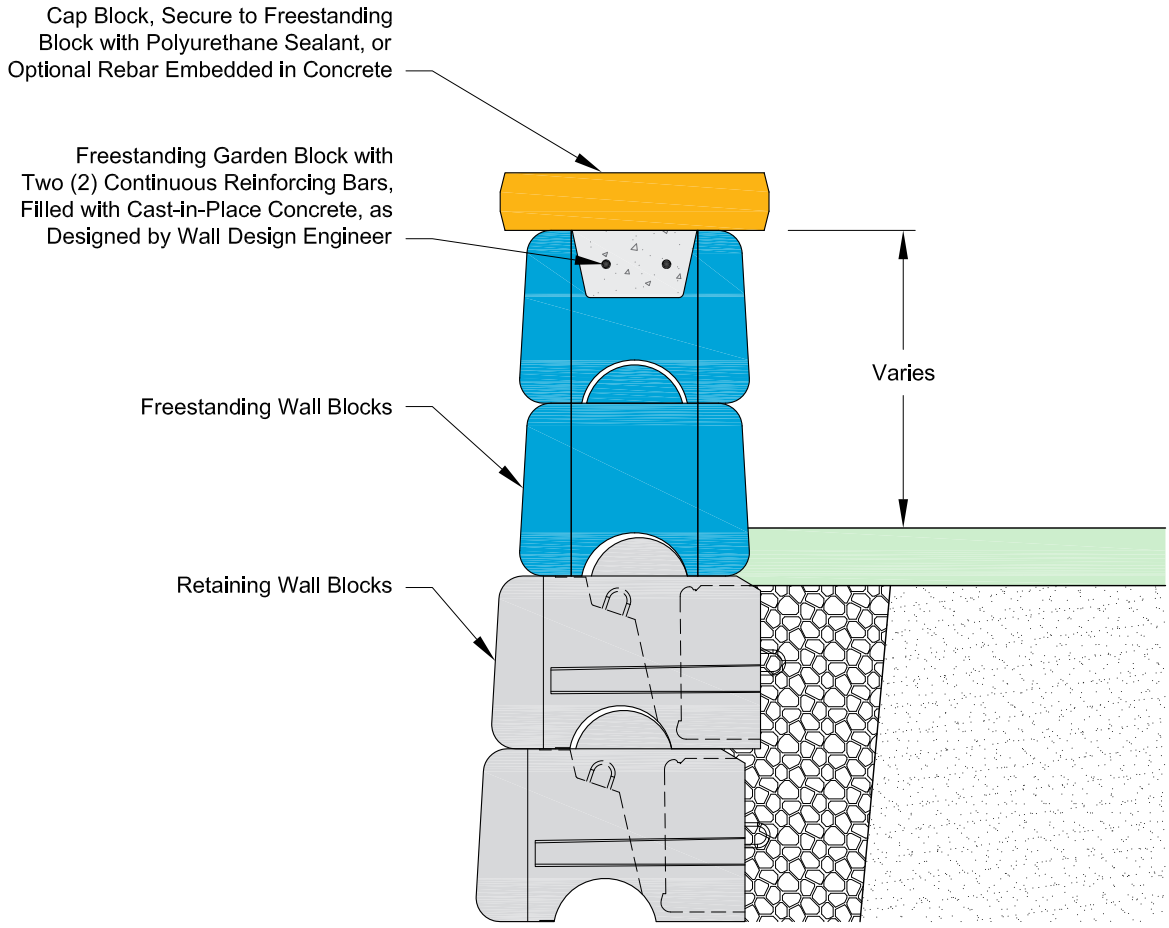


## Section View

Sealant Adhesive: One-component, highly flexible, non-priming, gun grade, high performance elastomeric polyurethane sealant shall have movement of plus or minus 25% per ASTM C719, tensile strength greater than 200 psi (1.4 MPa) per ASTM D412, and adhesion to peel on concrete greater than 20 PLI per ASTM C794. Apply sealant in one and one half-inch (1.5") (38 mm) diameter round "hersey kiss" shaped dollops located in two rows at the top of the Freestanding blocks at 8" (203 mm) on center.



| | | | |
|---|---|---|---|
| DRAWN BY: | BWL | TITLE: | Freestanding Bond Beam at Top of Wall |
| APPROVED BY: | JRJ | | |
| DATE: | 01-14-2016 | | |
| SHEET: | 1 of 1 | FILE: | Freestanding Bond Beam at Top of Wall 011416.dwg |

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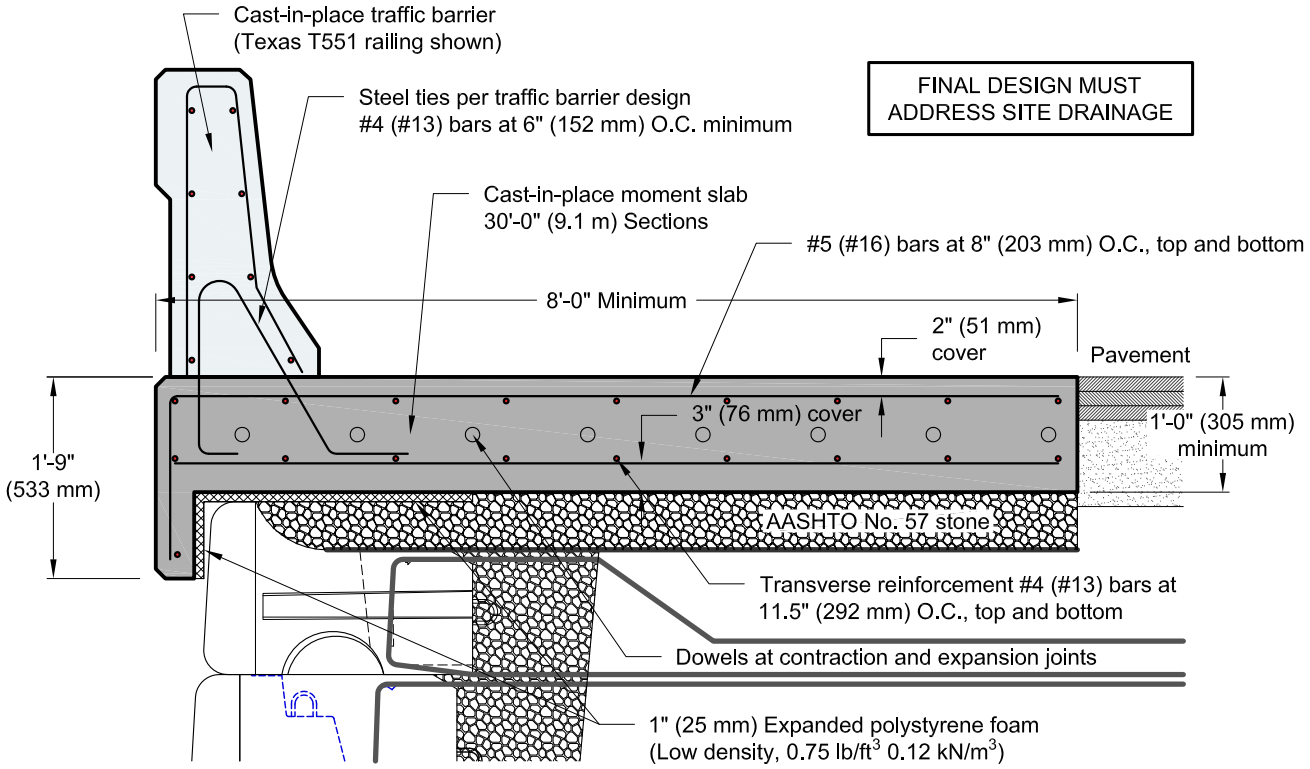
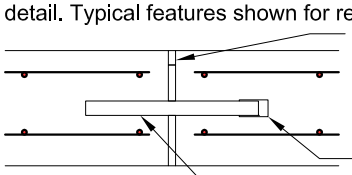
# Cast-in-Place Moment Slab Traffic Barrier - Flat Grade Installation



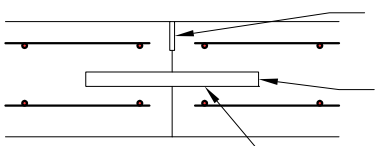

Expansion joints shall be provided in moment slab every 90'-0" (27.4 m). Expansion joint shall be dot standard detail. Typical features shown for reference.




EXPANSION JOINT

1½" (38 mm) dia. x 18" (457 mm) A36 galvanized or epoxy coated smooth dowel bar centered vertically in slab at 12" (305 mm) O.C. along expansion joint

Contraction joints shall be provided in moment slab every 30'-0" (9.1 m) between expansion joints. Contraction joint shall be dot standard detail. Typical features shown for reference.




CONTRACTION JOINT

1½" (38 mm) dia. x 18" (457 mm) A36 galvanized or epoxy coated smooth dowel bar centered vertically in slab at 12" (305 mm) O.C. along expansion joint

Materials

Concrete for cast-in-place barrier and moment slab shall be dot standard structure mix. Minimum 28 day compressive strength shall be 4,000 psi (27.6 mpa) or higher as specified. Reinforcing steel shall conform to ASTM A706 or AASHTO M31 Grade 60 (420 MPa).

Design

Moment slab shown is dimensioned based on an equivalent static load of 10,000 lbs (44.5 kN) per NCHRP Report 663. Moment slab reinforcement shown is based on *AASHTO LRFD Bridge Design Specifications, 5th edition, 2010*, **TL-4** loading detailed in Table A13.2.1.

The selection and use of this detail, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the registered professional engineer in charge of the project.



| | | | |
|---|---|---|---|
| DRAWN BY: | JRJ | TITLE: | Cast-In-Place Moment Slab Traffic Barrier - Flat Grade |
| APPROVED BY: | JRJ | | |
| DATE: | 06-22-2015 | | |
| SHEET: | 1 of 1 | FILE: | 9 Cast-In-Place Moment Slab Traffic Barrier - Flat 062215.dwg |

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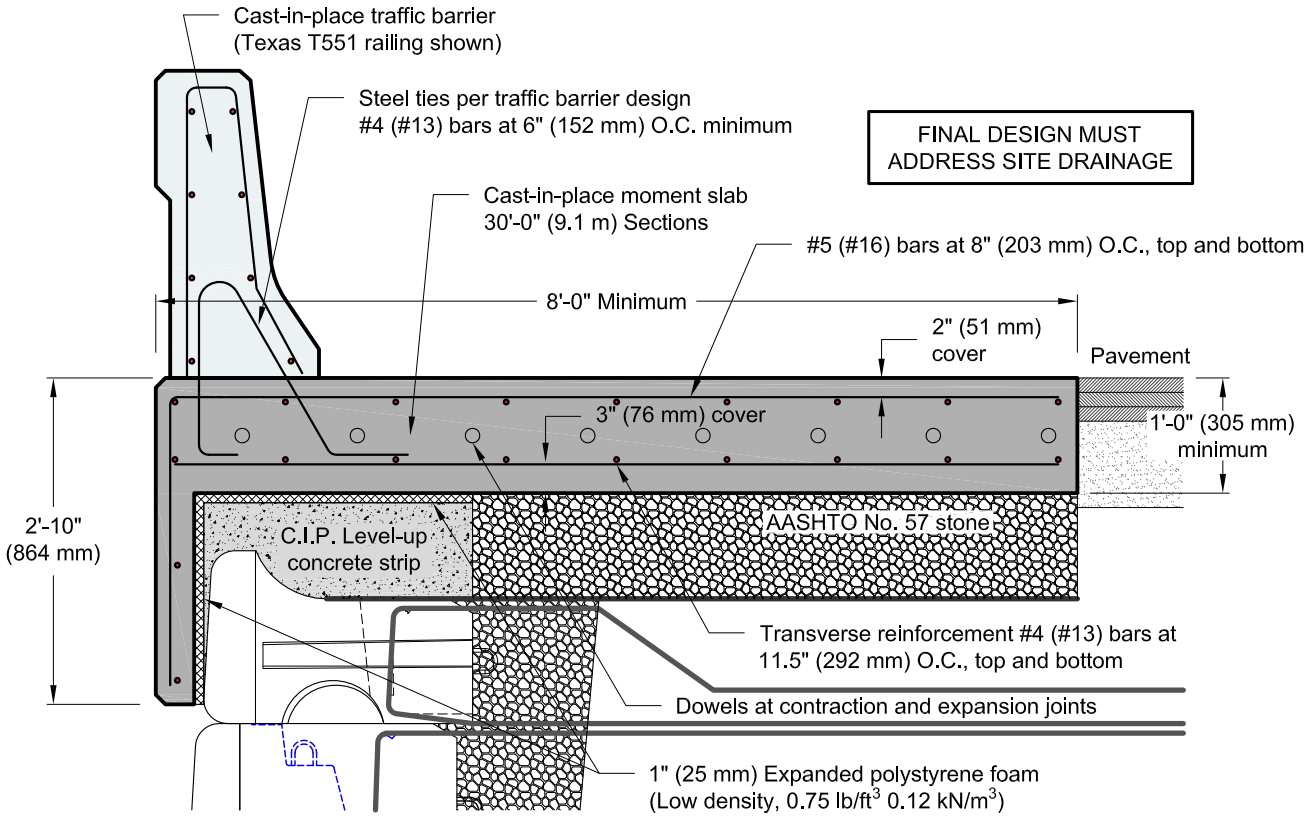
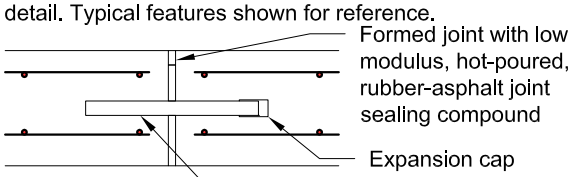
# Cast-in-Place Moment Slab Traffic Barrier - Sloping Installation



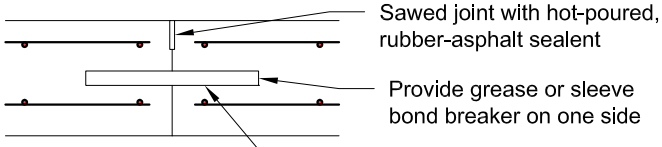

Expansion joints shall be provided in moment slab every 90'-0" (27.4 m). Expansion joint shall be dot standard detail. Typical features shown for reference.




EXPANSION JOINT

1½" (38 mm) dia. x 18" (457 mm) A36 galvanized or epoxy coated smooth dowel bar centered vertically in slab at 12" (305 mm) O.C. along expansion joint

Contraction joints shall be provided in moment slab every 30'-0" (9.1 m) between expansion joints. Contraction joint shall be dot standard detail. Typical features shown for reference.




CONTRACTION JOINT

1½" (38 mm) dia. x 18" (457 mm) A36 galvanized or epoxy coated smooth dowel bar centered vertically in slab at 12" (305 mm) O.C. along expansion joint

Materials

Concrete for cast-in-place barrier and moment slab shall be dot standard structure mix. Minimum 28 day compressive strength shall be 4,000 psi (27.6 mpa) or higher as specified. Cast-In-Place level up concrete shall be manufactured in accordance with ASTM C94. Minimum 28 day compressive strength shall be 3,500 psi (24.1 MPa) or higher as specified. Reinforcing steel shall conform to ASTM A706 or AASHTO M31 Grade 60 (420 MPa).

Design

Moment slab shown is dimensioned based on an equivalent static load of 10,000 lbs (44.5 kN) per NCHRP Report 663. Moment slab reinforcement shown is based on *AASHTO LRFD Bridge Design Specifications, 5th edition, 2010*, **TL-4** loading detailed in Table A13.2.1.

The selection and use of this detail, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the registered professional engineer in charge of the project.



| | | | |
|---|---|---|---|
| DRAWN BY: | JRJ | TITLE: | Cast-In-Place Moment Slab Traffic Barrier - Sloping Grade |
| APPROVED BY: | JRJ | | |
| DATE: | 06-22-2015 | | |
| SHEET: | 1 of 1 | FILE: | 10 CIP Moment Slab Traffic Barrier - Sloping 062215.dwg |

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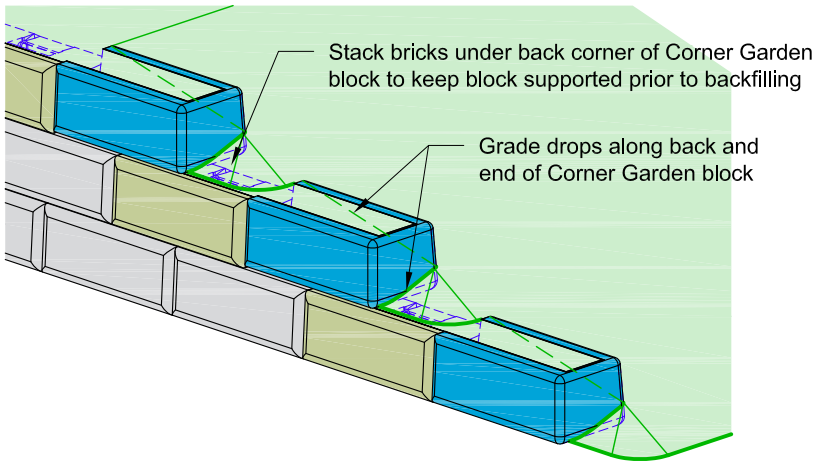
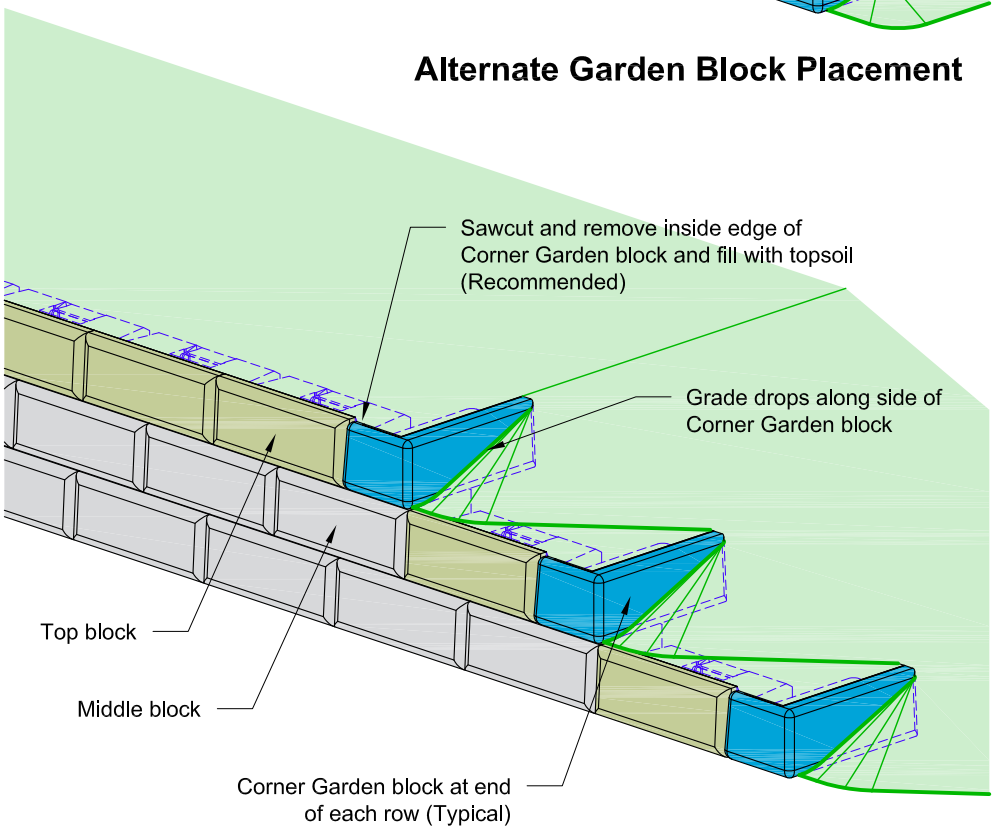
# Top of Wall Step Options




## Alternate Garden Block Placement



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| DRAWN BY: | JRJ | TITLE: | Top of Wall Step Options |
| APPROVED BY: | JRJ | | |
| DATE: | 06-22-2015 | | |
| SHEET: | 1 of 1 | FILE: | 1 Top of Wall Step Options 062215.dwg |

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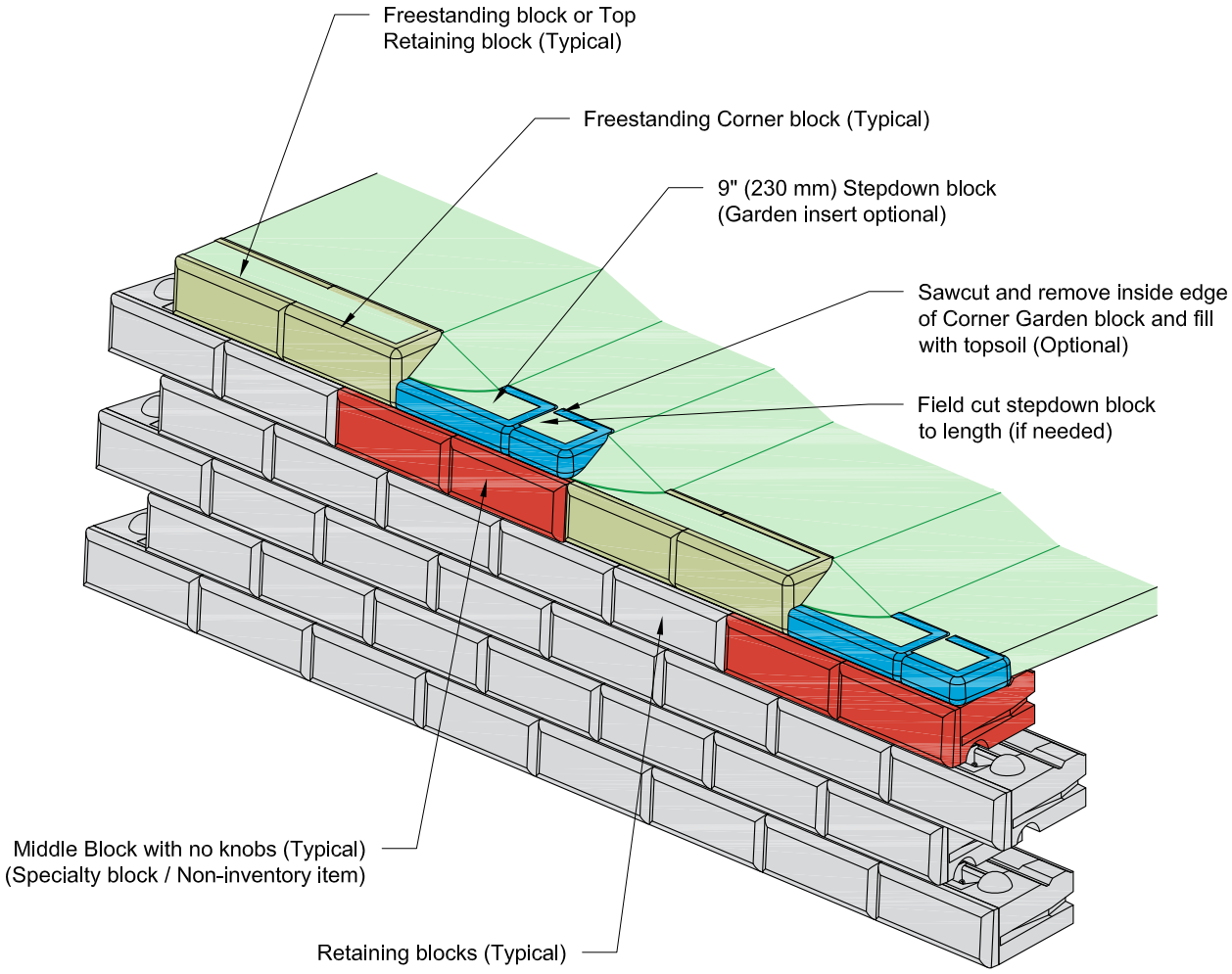
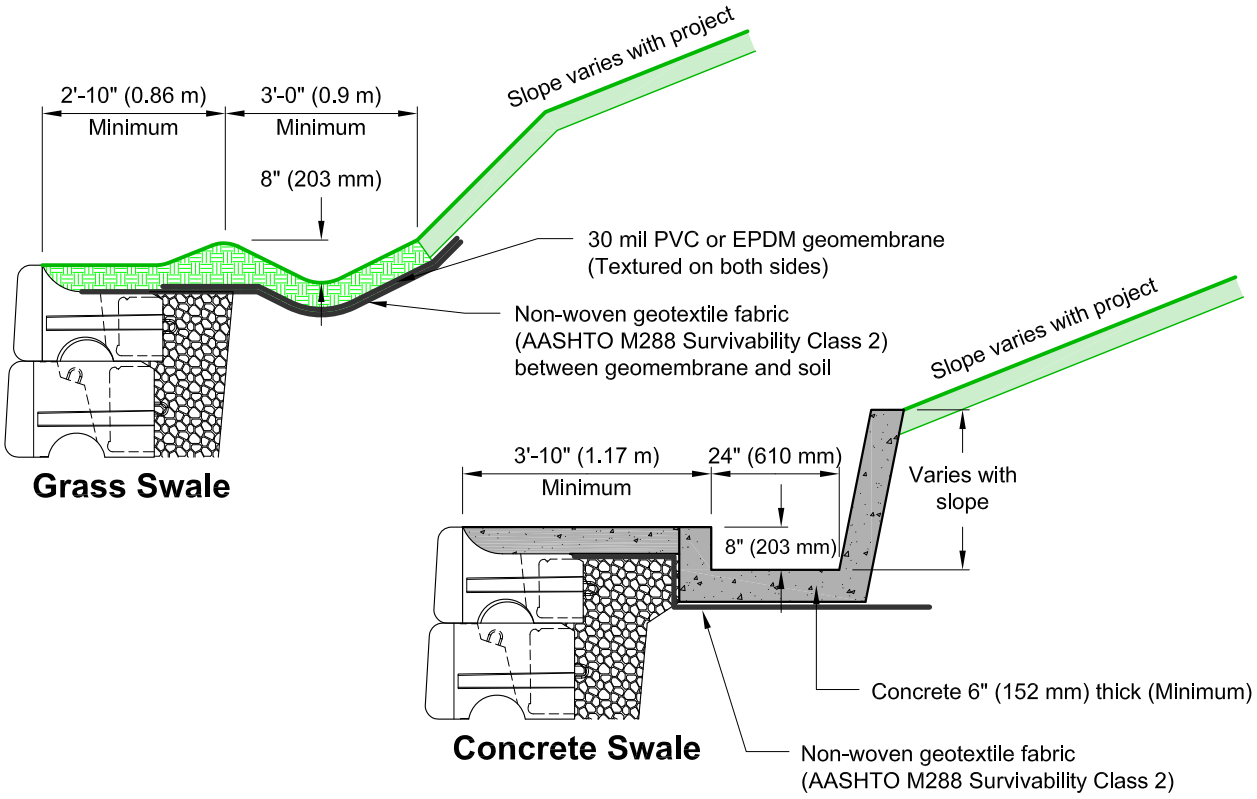
# Top of Wall 9" (230 mm) Stepdown Blocks

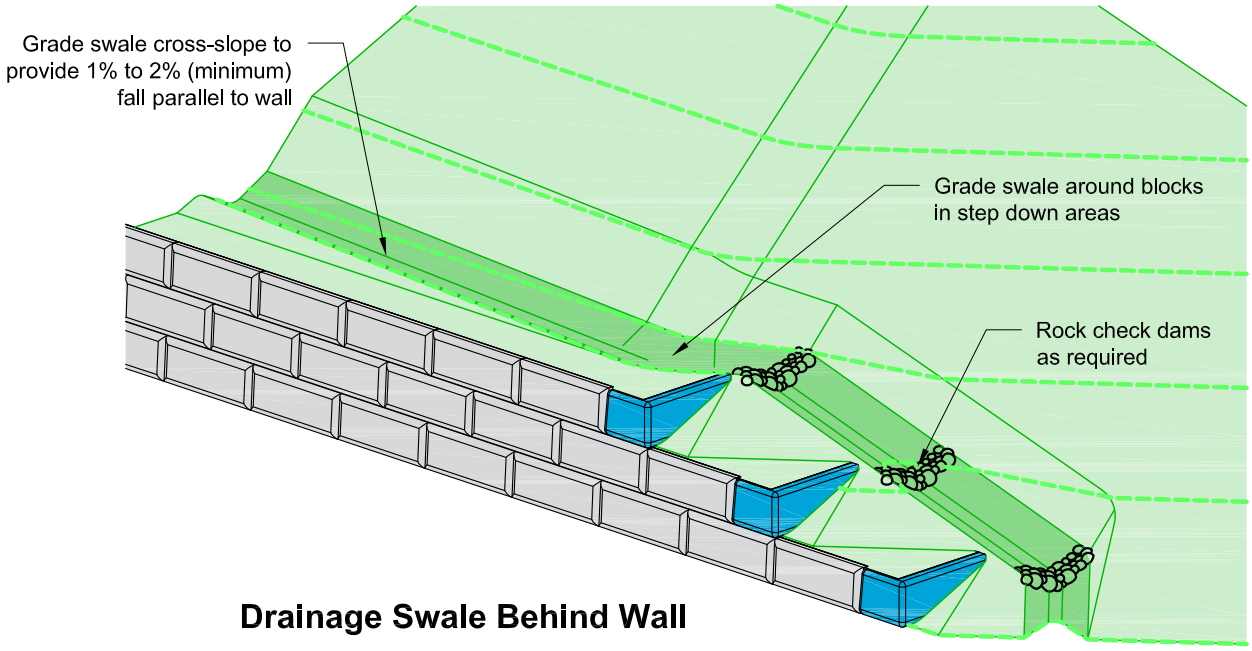





| | | | |
|---|---|---|---|
| DRAWN BY: | JRJ | TITLE: Top of Wall, 9" Stepdown Blocks | REDI-ROCK® 05481 US 31 SOUTH, CHARLEVOIX, MI 49720 (866) 222-8400 ext 3010 • engineering@redi-rock.com www.redi-rock.com |
| APPROVED BY: | JRJ | | |
| DATE: | 06-22-2015 | | |
| SHEET: | 1 of 1 | FILE: 2 Top of Wall 9in Stepdown Blocks 062215.dwg | |

# Drainage Swale Options




## Drainage Swale Behind Wall

This drawing is for reference only. Determination of the suitability and/or manner of use of any details contained in this document is the sole responsibility of the design engineer of record. Final project designs, including all construction details, shall be prepared by a licensed professional engineer using the actual conditions of the proposed site.

| | | | |
|---|---|---|---|
| DRAWN BY: | JRJ | TITLE: | Drainage Swale Options |
| APPROVED BY: | JRJ | | |
| DATE: | 06-22-2015 | | |
| SHEET: | 1 of 1 | FILE: | 4 Drainage Swale Options 062215.dwg |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