

Proposed Bridge Improvement Project

Bridport STP CULV(29)

Bridge #5

Concrete:

Mix Designation: P60TER

1. Specified Mix Design - 5000 PSI
2. Proposed Mix Design - 6000 PSI
3. Striping Strength - 3000 PSI
4. Handling Strength - 3000 PSI
5. Shipping Strength - 5000 PSI
6. Install Strength - 5000 PSI
7. Traffic Loading - 5000 PSI

Fabrication Tolerances:

1. Width ±1/4"
2. Height ±1/4"
3. Length ±1/2"
4. Rebar Cover 2" Min. (Unless Noted Otherwise)
5. Rebar Spacing ±1"
6. Rebar Clearance ±1/4"
7. Insert Placement ±1/4"

Design Notes:

1. Design is in accordance w/ ASTM C1577, PCI MNL135, VAOT540 & AASHTO 2012 LRFD bridge design specs fifth edition
2. Any conflict between tolerances listed above shall result in the usage of the stricter tolerance
3. Design live load = HL-93
4. Materials and manufacturing shall conform to ASTM C1433
5. Earth Cover: ±1'-9" Soil Cover

Installation:

1. Sub Base for Box Culvert / Cut Off Walls to be Compacted and Level
2. Precast Cut Off Walls + Wing Walls to be installed
3. All Elevations are to be Checked and Verified they Match Those of Plan Set
4. Begin Sequence of Installing All Box Culvert Sections
5. Clean Granular Backfill for structures used for Backfill of Footers & of Box Culvert so water can reach weep holes if applicable
6. Fill all Lifting Holes, Bolt Pockets and Box Culvert grooves and seams w/ non-shrink grout. Applied by Site Contractor.
7. ASTM C1675-11 Box culvert installation guidelines shall be followed.

Reinforcing:

General Notes:

1. Reinforcing Steel -
 - a. Precast box sections, headwalls, wing walls, & cut off walls shall be level I uncoated bar ASTM A615
2. Materials and manufacturing shall conform to ASTM C1433

Tolerances:

1. Spacing ±1"
2. Clearance +1/4"

Lap Lengths:

1. Per AASHTO 5.11.2.1.1 & 5.11.5.3.1

Joint Treatment:

Vertical Seams:

Per VTrans approved product list 780.02
Overhead & vertical concrete repair mortar
Applied by site contractor

Horizontal Seams / Grout:

Per VTrans approved product list 707.03
Mortar, type IV
Applied by site contractor

Waterproofing:

1. Silane sealer applied in precast yard on all exposed surfaces (headwalls and top of wingwalls.)

Miscellaneous:

1. All bolt pocket hardware & wingwall hardware to be uncoated, black steel & shall remain in place.
2. All exposed edges of concrete shall be chamfered.
3. Concrete leveling pad for the cutoff walls is to be poured on site by the site contractor.
4. All lift anchors and embedded items will be made in America.

Legend:

- (A) 3"Ø PVC Sleeve
- (B) 4"Ø PVC Sleeve
- (C) Mechanical Bolt Pocket (w/ 1"Ø Coil Rod)
- (D) Oxford A750-7 Lifting Device - Allow 6" movement to avoid rebar conflict
- (E) 1 1/2" x 3 1/2" Continuous Keyway
- (F) Solid Lines Indicate 3/4" Chamfer
- (G) 1/2" FX-5 Ferrule Loop Insert

5/12/15
[Signature]

STRUCTURAL DESIGN ONLY

STATE OF VERMONT
GARY K. MUNKELT
NO. 6291
REGISTERED PROFESSIONAL ENGINEER

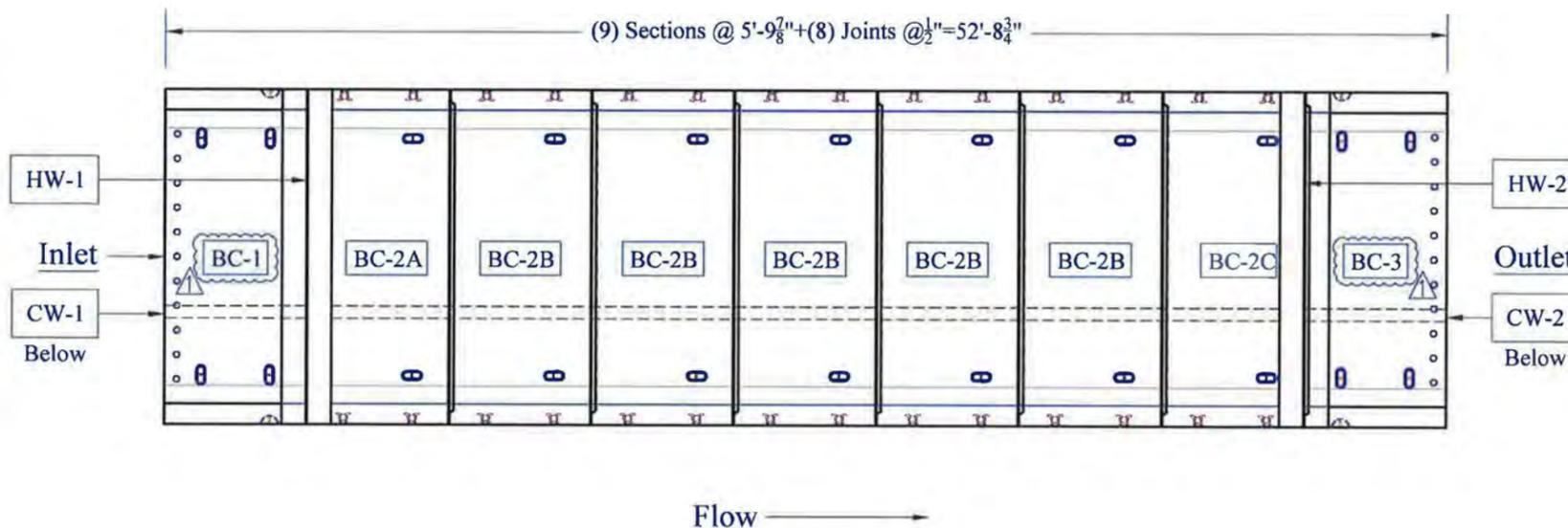
| | | | | | | | | |
|--------------------|--|-------------|-------------|-----------|------------------------|---|---------------------------|-----------------------|
| CONTRACTORS VTSPE: | | | | | | | | |
| | | Rev. | Date | By | Description | PRECAST CONCRETE BOX CULVERT SHOP DRAWINGS (SDI JOB #15428) | | |
| | | 1 | 05/06/15 | IBA | Changes per Redesign | SUPERVISOR: E. Barendse | PROJECT NAME: Bridport | Peckham Road Corp. |
| | | 2 | 05/11/15 | IBA | Inlet/Outlet BC Change | DETAILER: I. ADAMS | PROJECT #: CULV(29) Br.#5 | 1557 St. Rt. 9, #3 |
| | | | | | | CHECKER: E. Barendse | LOCATION: Bridport, VT | Lake George, NY 12845 |
| | | | | | | ENGINEER: G. K. Munkelt | | Ph: (518) 747-3353 |
| | | | | | | | | FABRICATOR: |
| | | | | | | | | 193 INDUSTRIAL AVE. |
| | | | | | | | | WILLISTON, VT 05495 |
| | | | | | | | | Ph: (802) 658-0201 |
| | | | | | | | | SD Ireland |
| | | | | | | | | PRECAST |
| | | | | | | 04/20/15 | COVER_PAGE | 1_OF_6 |

Plan View

| Table of Units | | | | |
|----------------|-----|------------------------------------|----------|------------|
| Name | Qty | Length | Vol.(CY) | Wt.(lbs.)* |
| BC-1 | 1 | 5'-9 ⁷ / ₈ " | 7.73 | 30,930 |
| BC-2A* | 1 | 5'-9 ⁷ / ₈ " | 9.38 | 37,510 |
| BC-2B | 5 | 5'-9 ⁷ / ₈ " | 8.82 | 35,285 |
| BC-2C* | 1 | 5'-9 ⁷ / ₈ " | 9.38 | 37,510 |
| BC-3 | 1 | 5'-9 ⁷ / ₈ " | 7.73 | 30,930 |
| CW-1 | 1 | 13'-8" | 1.60 | 6,410 |
| CW-2 | 1 | 13'-8" | 1.60 | 6,410 |

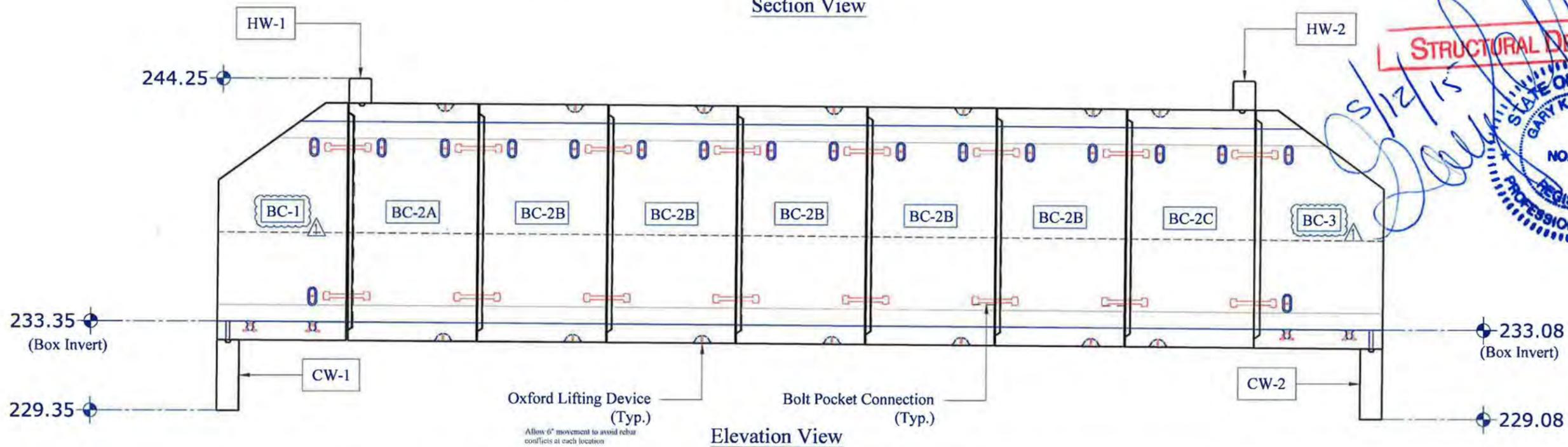
* Headwall Included in BC-2A and BC-2C

Note: Baffle weight included in all BC sections



| Culvert Specifications | |
|------------------------|--------------------|
| Inside Dimensions | 12'-0" W x 9'-0" H |
| Waterway Area | 76 Sq. Ft. |
| Top Slab Thickness | 10" |
| Side Wall Thickness | 10" |
| Bottom Slab Thickness | 10" |

Section View

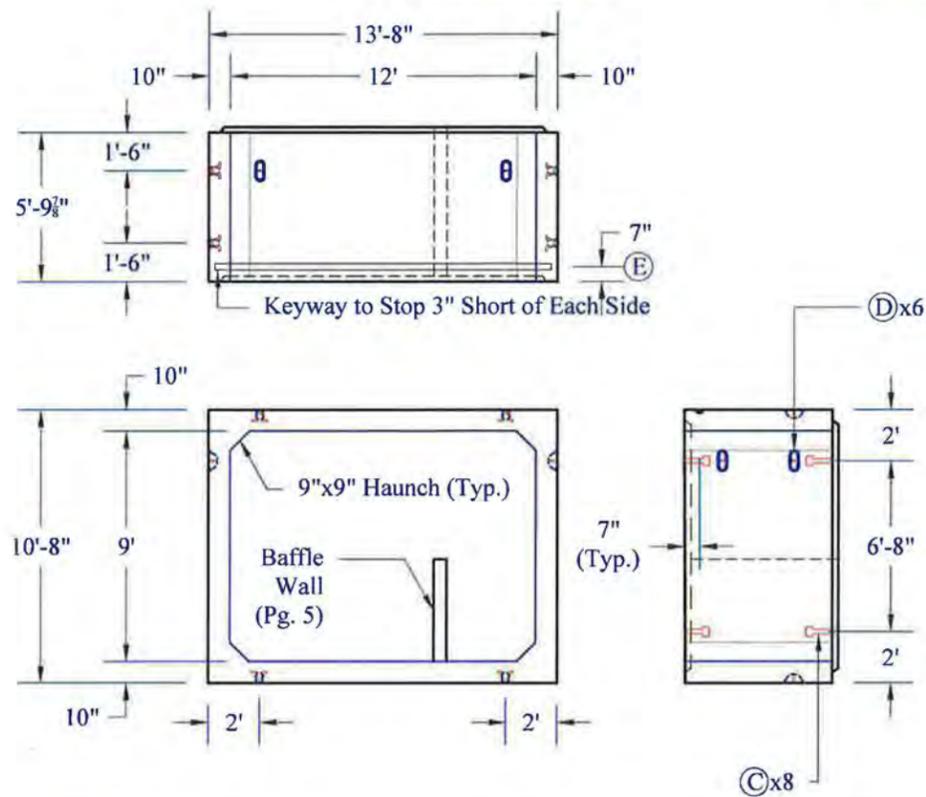


Elevation View

| | | | | | | | | | |
|--------------------|------|----------|-----|------------------------|---|---|---|---|------------------------------|
| CONTRACTORS VTSPE: | Rev. | Date | By | Description | PRECAST CONCRETE BOX CULVERT SHOP DRAWINGS (SDI JOB #15428) SUPERVISOR: E. Barendse DETAILER: I. ADAMS CHECKER: E. Barendse ENGINEER: G. K. Munkelt | PROJECT NAME: Bridport PROJECT #: CULV(29) Br.#5 LOCATION: Bridport, VT | Peckham Road Corp. 1557 St. Rt. 9, #3 Lake George, NY 12845 Ph: (518) 747-3353 | FABRICATOR: 193 INDUSTRIAL AVE. WILLISTON, VT 05495 Ph: (802) 658-0201 | SD Ireland PRECAST |
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| | 2 | 05/11/15 | IBA | Inlet/Outlet BC Change | | | | | |

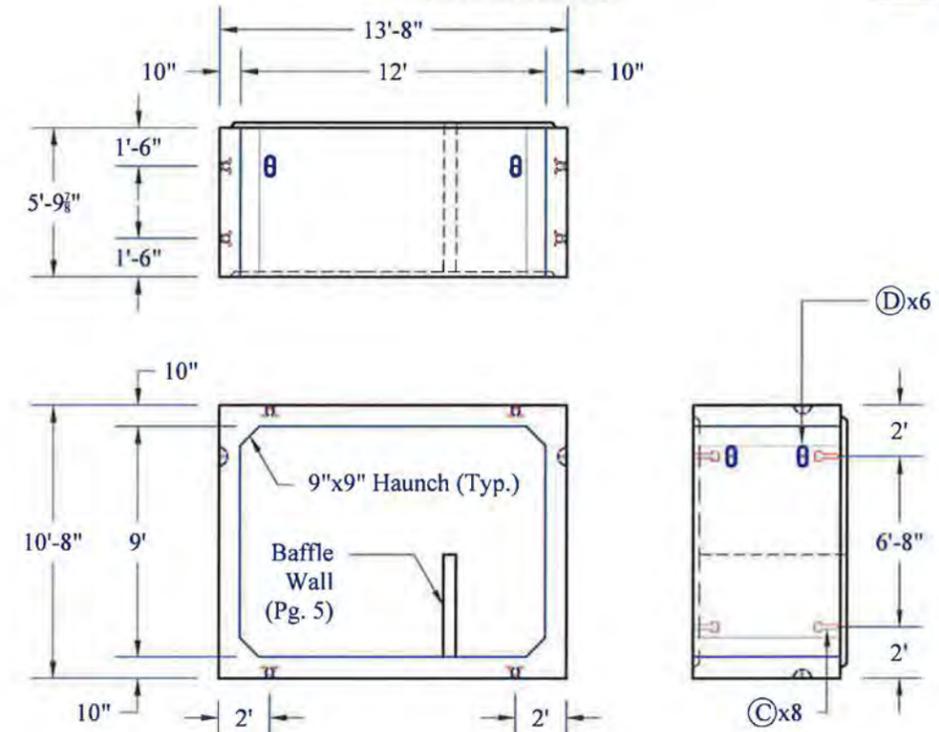
BC-2A Detail

Note: See Sh. 8 for Additional Details



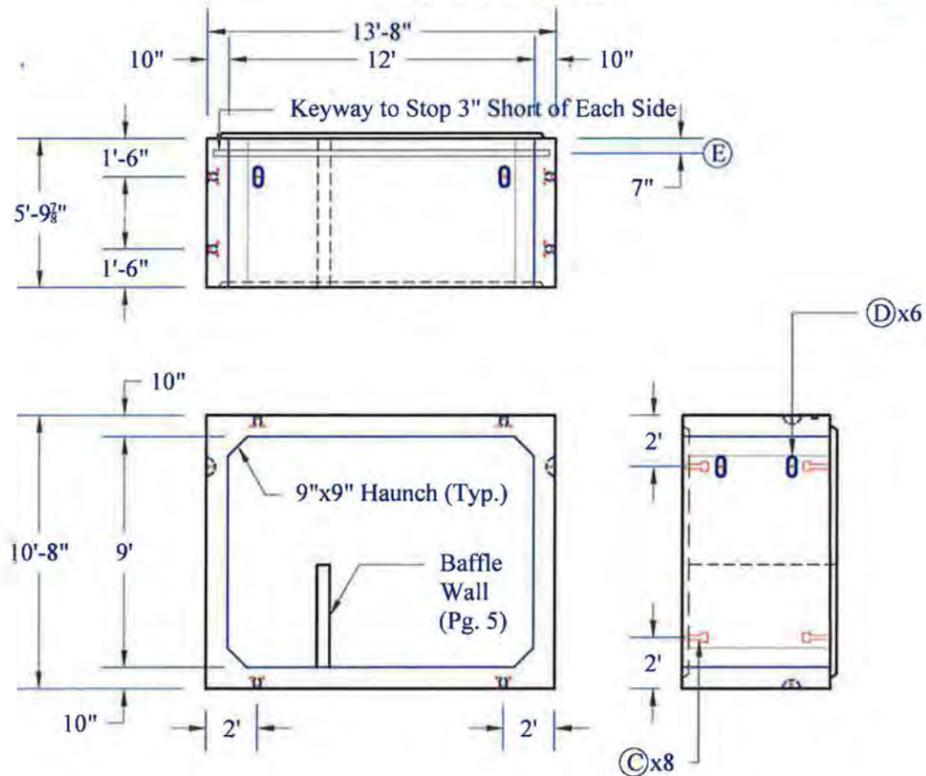
BC-2B Detail

Note: See Sh. 8 for Additional Details

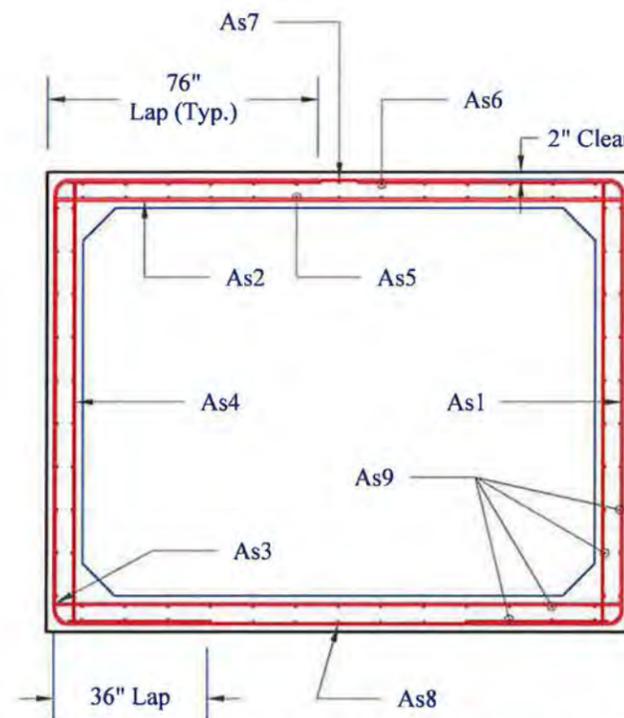


BC-2C Detail

Note: See Sh. 8 for Additional Details



Box Section Reinforcement Detail



| Rebar Schedule | | | | | | |
|----------------|------|-------------|--------|------|------|----------|
| Mark | Size | Max Spacing | Length | Type | A | B |
| As1 | #5 | 6" | 236" | Bent | 36" | 124" 76" |
| As2 | #5 | 5" | 160" | Str | 160" | |
| As3 | #5 | 6" | 160" | Str | 160" | |
| As4 | #4 | 9" | 124" | Str | 124" | |
| As5 | #5 | 10" | 65" | Str | 65" | |
| As6 | #4 | 9" | 65" | Str | 65" | |
| As7 | #4 | 9" | 160" | Str | 160" | |
| As8 | #4 | 9" | 160" | Str | 160" | |
| As9 | #4 | 12" | 65" | Str | 65" | |

Notes: 2" Clear Typical Unless Noted Otherwise

STRUCTURAL DESIGN ONLY



| CONTRACTORS VISPE: | Rev. | Date | By | Description |
|--|------|----------|-----|------------------------|
| (A) 3"Ø PVC Sleeve | 1 | 05/06/15 | IBA | Changes per Redesign |
| (B) 4"Ø PVC Sleeve | 2 | 05/11/15 | IBA | Inlet/Outlet BC Change |
| (C) Mechanical Bolt Pocket (w/ 1"Ø Coil Rod) | | | | |
| (D) Oxford A750-7 Lifting Device | | | | |
| (E) 1 1/2" x 3 1/2" Continuous Keyway | | | | |
| (F) Solid Lines Indicate 1/4" Chamfer | | | | |
| (G) 1/2" FX-5 Ferrule Loop Insert | | | | |

PRECAST CONCRETE BOX CULVERT SHOP DRAWINGS (SDI JOB #15428)
 SUPERVISOR: E. Barendse
 DETAILER: I. ADAMS
 CHECKER: E. Barendse
 ENGINEER: G. K. Munkelt

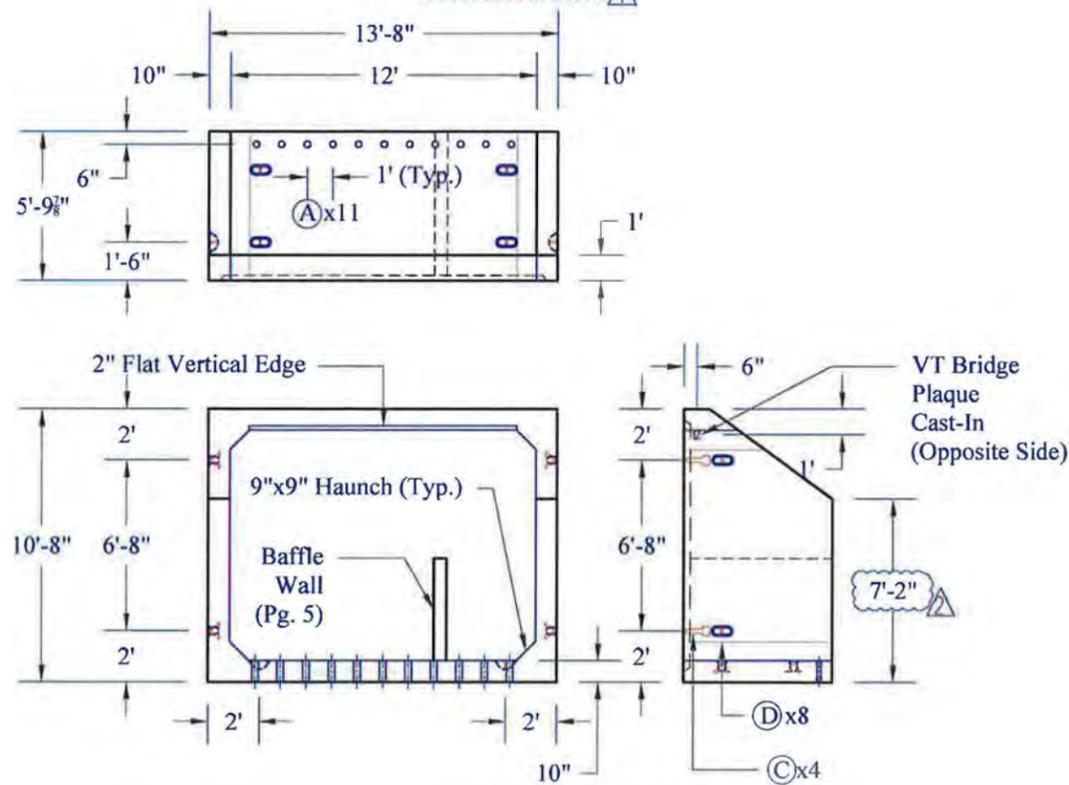
PROJECT NAME: Bridport
 PROJECT #: CULV(29) Br.#5
 LOCATION: Bridport, VT

Peckham Road Corp.
 1557 St. Rt. 9, #3
 Lake George, NY 12845
 Ph: (518) 747-3353

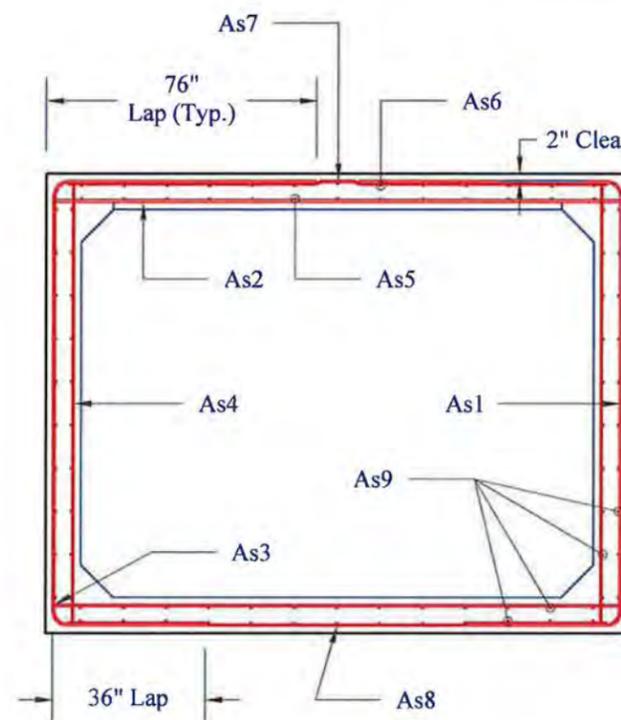
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 193 INDUSTRIAL AVE.
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BC-1 Detail



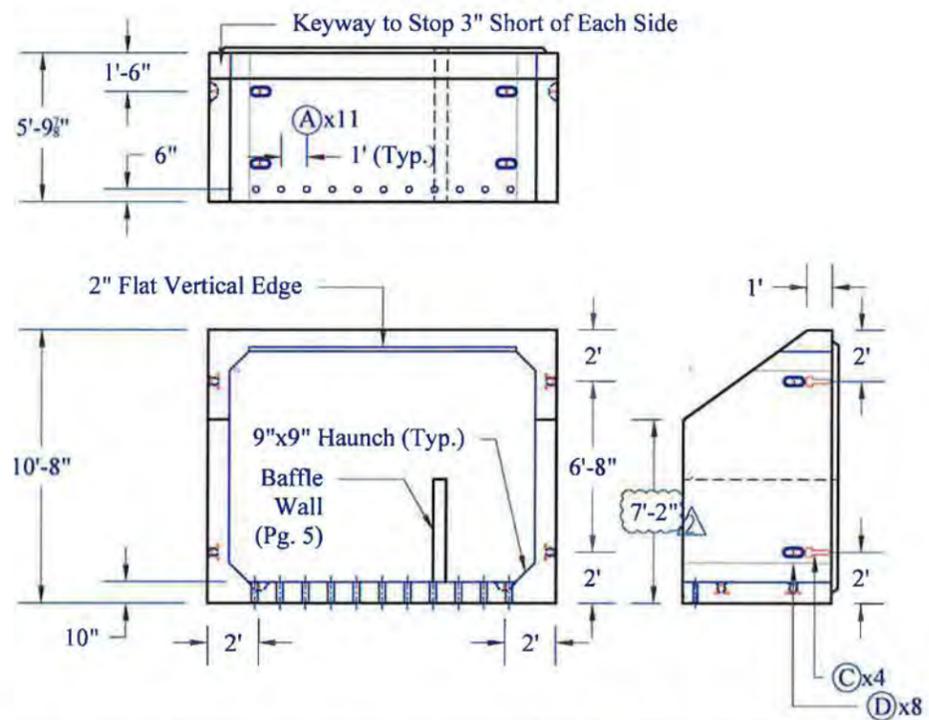
End Box Section Reinforcement Detail



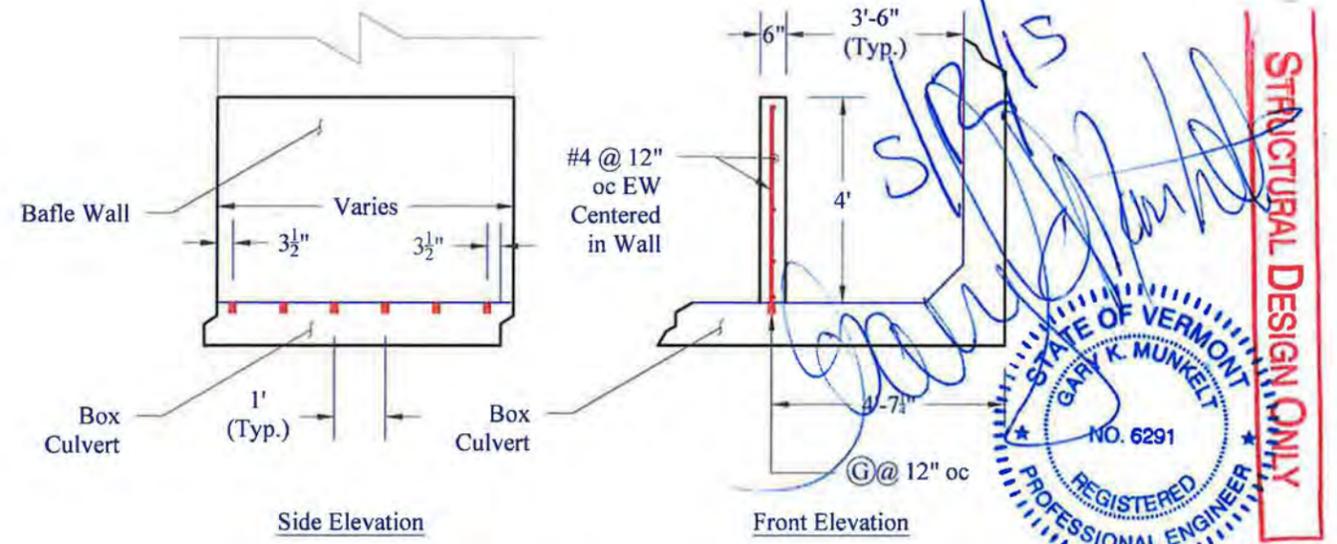
| Rebar Schedule | | | | | | | |
|----------------|------|-------------|--------|------|------|-----|-----|
| Mark | Size | Max Spacing | Length | Type | A | B | |
| As1 | #5 | 6" | Varies | Bent | 36" | Vrs | 76" |
| As2 | #5 | 5" | 160" | Str | 160" | | |
| As3 | #5 | 6" | 160" | Str | 160" | | |
| As4 | #4 | 9" | Varies | Str | Vrs | | |
| As5 | #5 | 10" | Varies | Str | Vrs | | |
| As6 | #4 | 9" | Varies | Str | Vrs | | |
| As7 | #4 | 9" | 160" | Str | 160" | | |
| As8 | #4 | 9" | 160" | Str | 160" | | |
| As9 | #4 | 12" | Varies | Str | Vrs | | |

Notes: 2" Clear Typical Unless Noted Otherwise

BC-3 Detail



Baffle Wall Detail



CONTRACTORS VTSPE:

| | | |
|--|---------------------------------------|-----------------------------------|
| (A) 3"Ø PVC Sleeve | (D) Oxford A750-7 Lifting Device | (G) 1/2" FX-5 Ferrule Loop Insert |
| (B) 4"Ø PVC Sleeve | (E) 1 1/2" x 3 1/2" Continuous Keyway | |
| (C) Mechanical Bolt Pocket (w/ 1"Ø Coil Rod) | (F) Solid Lines Indicate 3/4" Chamfer | |

| Rev. | Date | By | Description |
|------|----------|-----|------------------------|
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| 2 | 05/11/15 | IBA | Inlet/Outlet BC Change |

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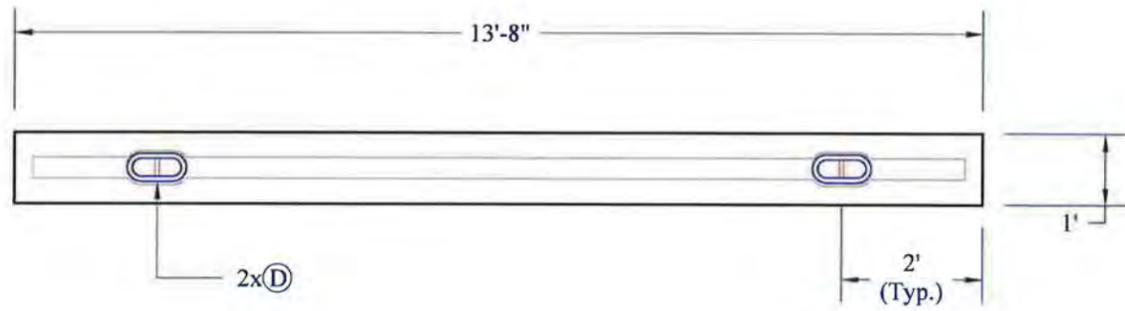
SD Ireland PRECAST

04/20/15

WING_WALLS_1

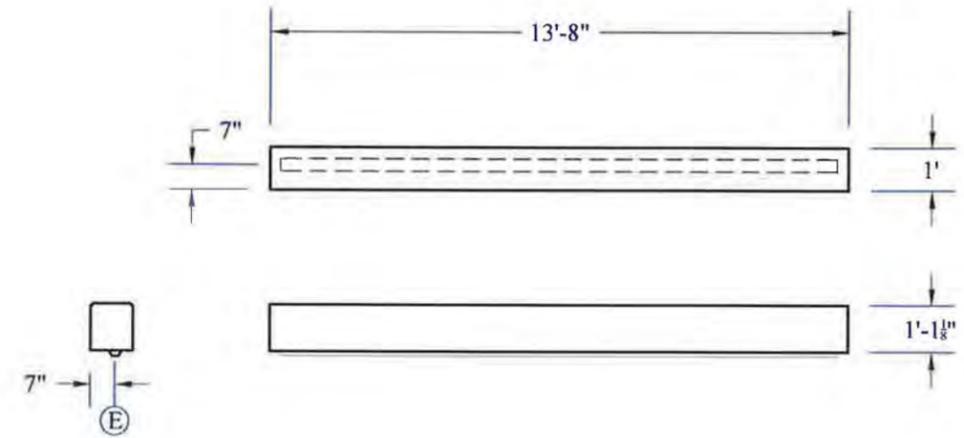
4_OF_6

CW-1/2 Detail

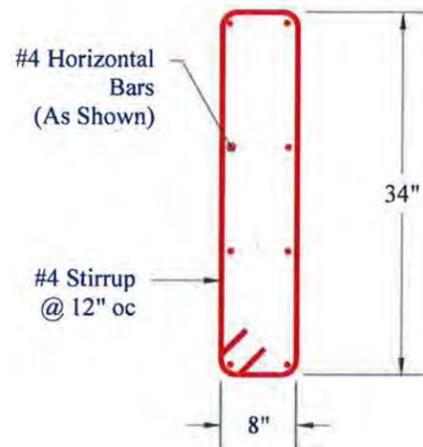


Headwall 1 Detail
(See Reinforcing Details on Sheet 7)

Note: - Secondary Pour
- Not Battered

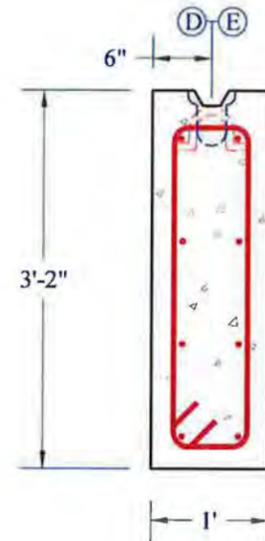


Cutoff Wall
Reinforcement Detail



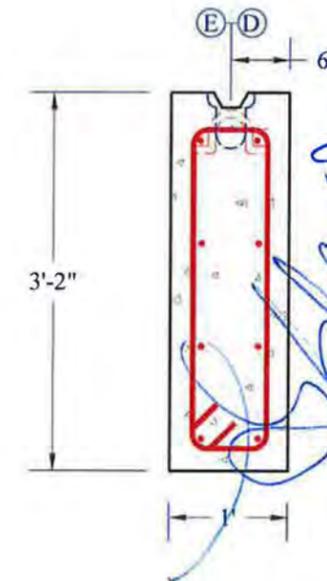
CW-1 Detail

Note: 2" Clear Cover



CW-2 Detail

Note: 2" Clear Cover



Handwritten signature and date: S/12/15

STATE OF VERMONT
GARY K. MUNKELT
NO. 6291
REGISTERED PROFESSIONAL ENGINEER

STRUCTURAL DESIGN ONLY

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|--|------|----------|-----|------------------------|
| (A) 3"Ø PVC Sleeve | 1 | 05/06/15 | IBA | Changes per Redesign |
| (B) 4"Ø PVC Sleeve | 2 | 05/11/15 | IBA | Inlet/Outlet BC Change |
| (C) Mechanical Bolt Pocket (w/ 1"Ø Coil Rod) | | | | |
| (D) Oxford A750-7 Lifting Device | | | | |
| (E) 1 1/2" x 3 1/2" Continuous Keyway | | | | |
| (F) Solid Lines Indicate 3/4" Chamfer | | | | |
| (G) 1/2" FX-5 Ferrule Loop Insert | | | | |

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 DETAILER: I. ADAMS
 CHECKER: E. Barendse
 ENGINEER: G. K. Munkelt

PROJECT NAME: Bridport
 PROJECT #: CULV(29) Br.#5
 LOCATION: Bridport, VT

Peckham Road Corp.
 1557 St. Rt. 9, #3
 Lake George, NY 12845
 Ph: (518) 747-3353

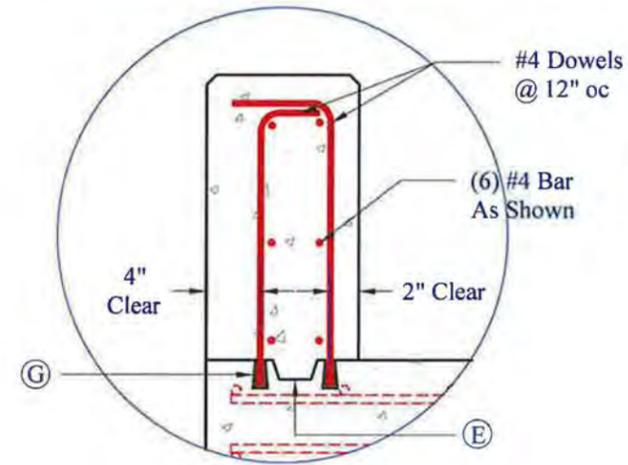
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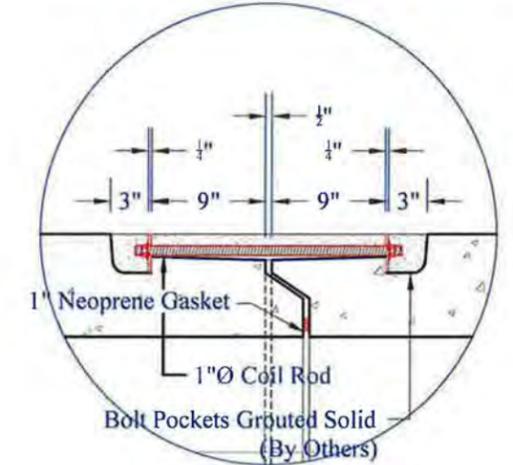
04/20/15 HW_CW_DETAILS 5_OF_6

| HW - Rebar Schedule | | | | | | |
|---------------------|------|-------------|--------|------|----|-----|
| Mark | Size | Max Spacing | Length | Type | A | B |
| As1 | #4 | 12" | 14" | Bent | 5" | 9" |
| As2 | #4 | 12" | 17" | Bent | 8" | 9" |
| As3 | #4 | 12" | 17" | Bent | 5" | 12" |
| As4 | #4 | 12" | 20" | Bent | 8" | 12" |

HW to BC Connection Detail

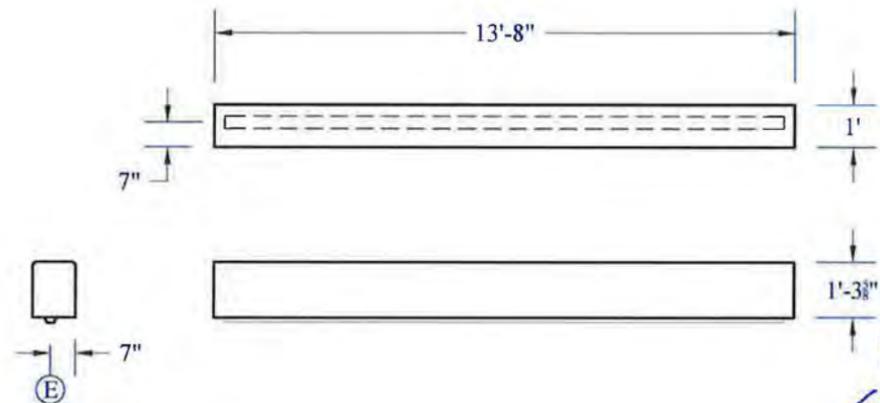


Bolt Pocket Connection Detail - C

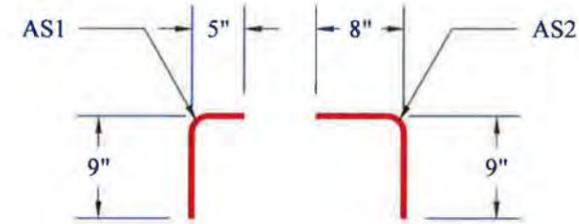


Headwall 2 Detail
(See Reinforcing Details on Sheet 7)

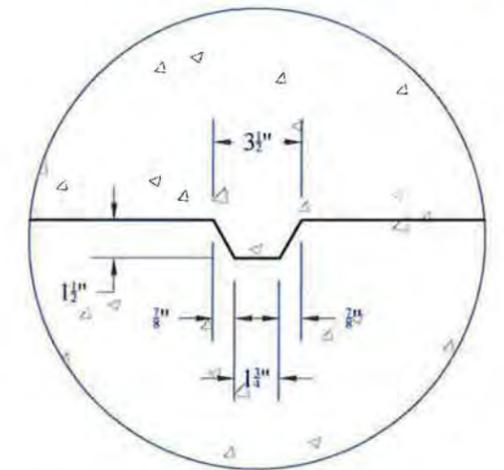
Note: - Secondary Pour
- Not Battered



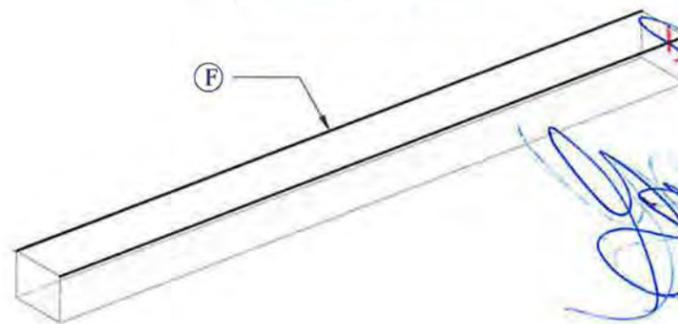
HW-1 Reinforcement Detail



Keyway Connection Detail - E



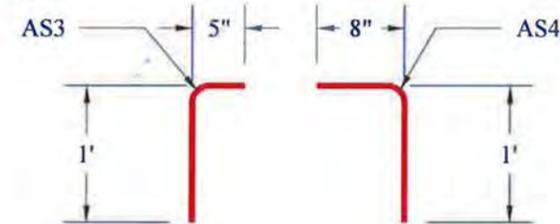
Headwall 2 Detail



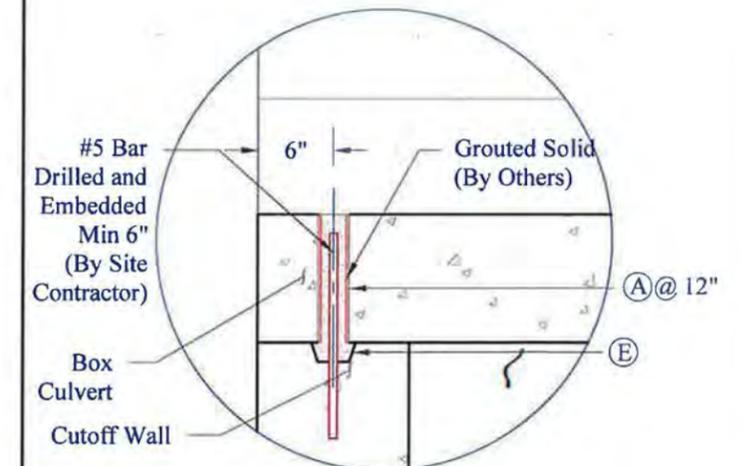
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HW-2 Reinforcement Detail



CW to BC Connection Detail



| CONTRACTORS VISPE: | Rev. | Date | By | Description |
|--|------|----------|-----|------------------------|
| (A) 3"Ø PVC Sleeve | 1 | 05/06/15 | IBA | Changes per Redesign |
| (B) 4"Ø PVC Sleeve | 2 | 05/11/15 | IBA | Inlet/Outlet BC Change |
| (C) Mechanical Bolt Pocket (w/ 1"Ø Coil Rod) | | | | |
| (D) Oxford A750-7 Lifting Device | | | | |
| (E) 1 1/2" x 3 1/2" Continuous Keyway | | | | |
| (F) Solid Lines Indicate 3/4" Chamfer | | | | |
| (G) 1/2" FX-5 Ferrule Loop Insert | | | | |

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