VERMONT

State of Vermont
PDD/Structures Design Section
National Life Building – Drawer 33
Montpelier, VT 05633-5001
www.aot.state.vt.us

[phone] 802-828-2621
[fax] 802-828-3566
[ttd] 800-253-0191

Agency of Transportation

January 29, 2014

Kevin Ture
Schultz Construction
P.O. Box 2620
Ballston Spa, NY 12020

Project Name: Rochester ER STP 0162(19)
Structure Identification: VT 73 Bridge #13 over the Brandon Brook

Re: Precast Structure Proposed by Michie Corporation

Mr. Ture:

Pending receipt of the wingwall system certification as noted in Item #1 below, the Conceptual Precast Arch and Wingwall Proposal as provided on January 10, 2014 by Michie Corporation is accepted. Fabrication Drawings will be subject to full review and approval and will also be reviewed in consideration to the comments provided herein. Please submit wingwall system certification, fabrication drawings and design calculations at your earliest convenience in accordance with the Contract Plans and Specifications.

1. Per the VAOT Retaining System Selection Chart, the Contech Precast Anchored Wingwall Systems is approved only for use with Contech Con/Span Bridge Systems. The proposed wingwall system is not Con/Span; however, it is a similar design. In order to accept this concept as submitted, please submit a letter certifying that the system is equivalent to the approved Contech Precast Anchored Wingwall System as given in the VAOT Retaining System Selection Chart. This certification shall be complete with a P.E. stamp from an engineer licensed in the State of Vermont. Full design calculations and details should be submitted at a later date for review and acceptance by the Agency.

2. The layout and bottom of footing elevations generally conform to the Contract Plans. The footing configuration, size, and thickness are different from that shown on the plans. Per note 44 on sheet 19 of the Contract Plans, all precast components, including pedestals and footings, shall be designed by the fabricator and stamped by a Professional Engineer in the State of Vermont. In conformance with the Contract, design calculations shall be submitted with the shop drawings when transmitted for approval.

3. Constructability: There are concerns with respect to the constructability and installation of the stone material for the channel work through the structure. As described in the Proposed Sequence of Work on sheet 19 of the Contract Plans, it was anticipated that the footings and pedestals would be backfilled, stone and channel work would be installed, then the arch erected and backfilled after completing the channel. Provide written acknowledgement that Schultz Construction can construct the channel work, as required by the Contract, with the structure configuration as shown in this Conceptual Proposal. This acknowledgement shall include an explanation as to how the channel work will be phased relative to the erection of the arch, and how the work will be completed.

4. Footing to Subfooting Dowels: As shown in Section 3 on Sheet 2.0 of the Conceptual Proposal, the #8 dowels at the toe of the footing are placed approximately 6" from the face of the pedestal. It is our understanding that the precast pedestal will be cast onto the footing at the plant, in which case the dowels will be placed with the pedestal in-place. Will the dowels be drilled and set prior to installing the footings (using a template or other means), or does Schultz Construction intend to place the footings and drill the dowels using the in-place footing as the template? If the footing is to be placed prior to drilling the dowels, please confirm that there is sufficient mechanical clearance from the face of the pedestal for drilling the dowels.

5. Shear keys between adjacent footing and pedestal segments: The Conceptual Proposal shows 4" keyways at joints. VTrans standard practice is to provide a keyway that is 1/3 of the thickness of the footing.

6. Joint Stagger: It is anticipated that the joints in the precast arch units will be staggered from the joints in the precast footings or pedestals. Provide joint stagger details in future submittals.

Note: This Conceptual Proposal was reviewed for general conformance with the Contract Plans and does not constitute a full in-depth review of the submitted drawings for completeness. It is also noted that this Conceptual Submittal is for preliminary purposes only, and is not for final approval or construction.

Please feel free to contact me with any additional questions or clarifications.

Sincerely,

Jennifer M. V. Fitch

Jennifer M. V. Fitch, P.E.
Project Manager

attachments

cc: [x] Resident Engineer – Christopher D. Williams
[x] Inspector – Jim Wild
[x] Design Engineer – Greg Goodrich and Scott Burbank
[x] Geotechnical Engineer – Chris Benda
[x] File

MICHIE CORPORATION

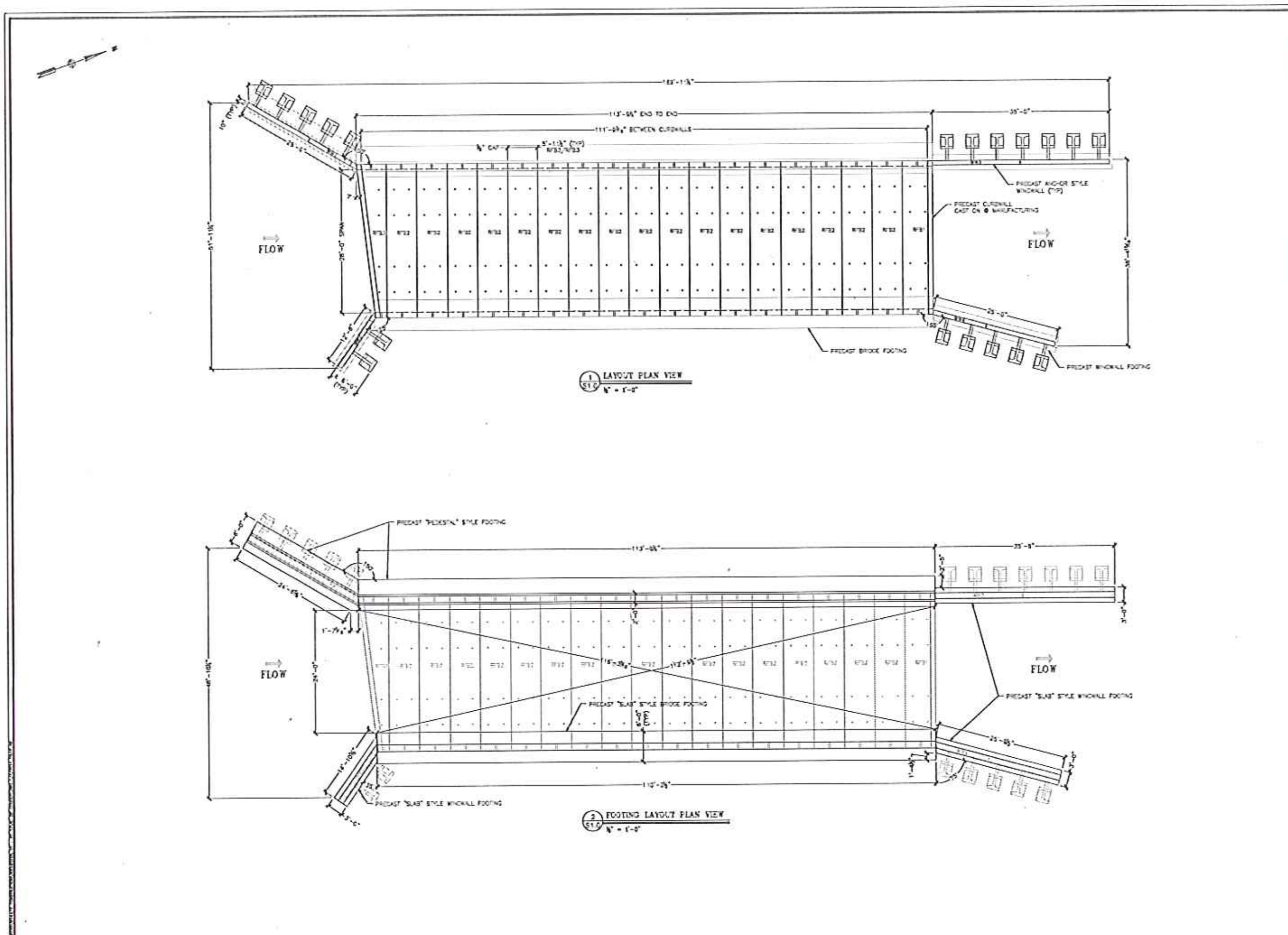
WHITE MOUNTAIN PRECAST LLC
Serving All Your Precast Bridge Needs

173 Buxton Industrial Drive • PO Box 870 • Henniker, NH 03242 • Tel: 603.428.3218 • 800.322.6949 • Fax: 603.428.7426

ATTN: Kevin Ture

The following is a brief synopsis of the proposed precast structure for bridge #13 of the, VT Route 73 bridge improvement project in Rochester, VT. This synopsis shall be accompanied by a three page set of concept drawings, which should clarify the intent, and briefly describe Michie Corporations proposed changes to the contract plans. The accompanying plans are concept plans only, and are not intended for construction, or fabrication of the precast components. If and when the concept is approved, a detailed, in depth set of shop drawings will be submitted to Schultz Construction.

- We are proposing a continuous, vertical leg arch, as opposed to a sloped leg arch for the bridge structure, as depicted in the stream altercation permit application, approved by the Vermont Agency of Natural Resources
- From page 15 of 238 on the contract plans, we are proposing to increase the leg height of the arch bridge to eliminate the pedestal portion of the footing on the southeast side of the structure.
- We are proposing slab style footings for wingwalls 2, 3, and 4. Wingwall 1 will remain a pedestal style footing due to the stream inlet elevation.
- We are proposing that the wingwall footings be 3'-0" wide, as opposed to 6'-0" wide as detailed on the contract plans. This is the standard footing for an anchor style wingwall which is limited in width due to the geometric design of the wingwall anchors. This system has been utilized on similar projects throughout NH and VT and is on the approved list of precast products from the VAOT.



Prepared for
WM Schultz Construction
PO Box 2620
Ballston Spa, NY 12020

VT Route 73 - Bridge Improvement Project
Rochester, VT

28'x10' Arch Bridge w/ Wingwalls and Footings

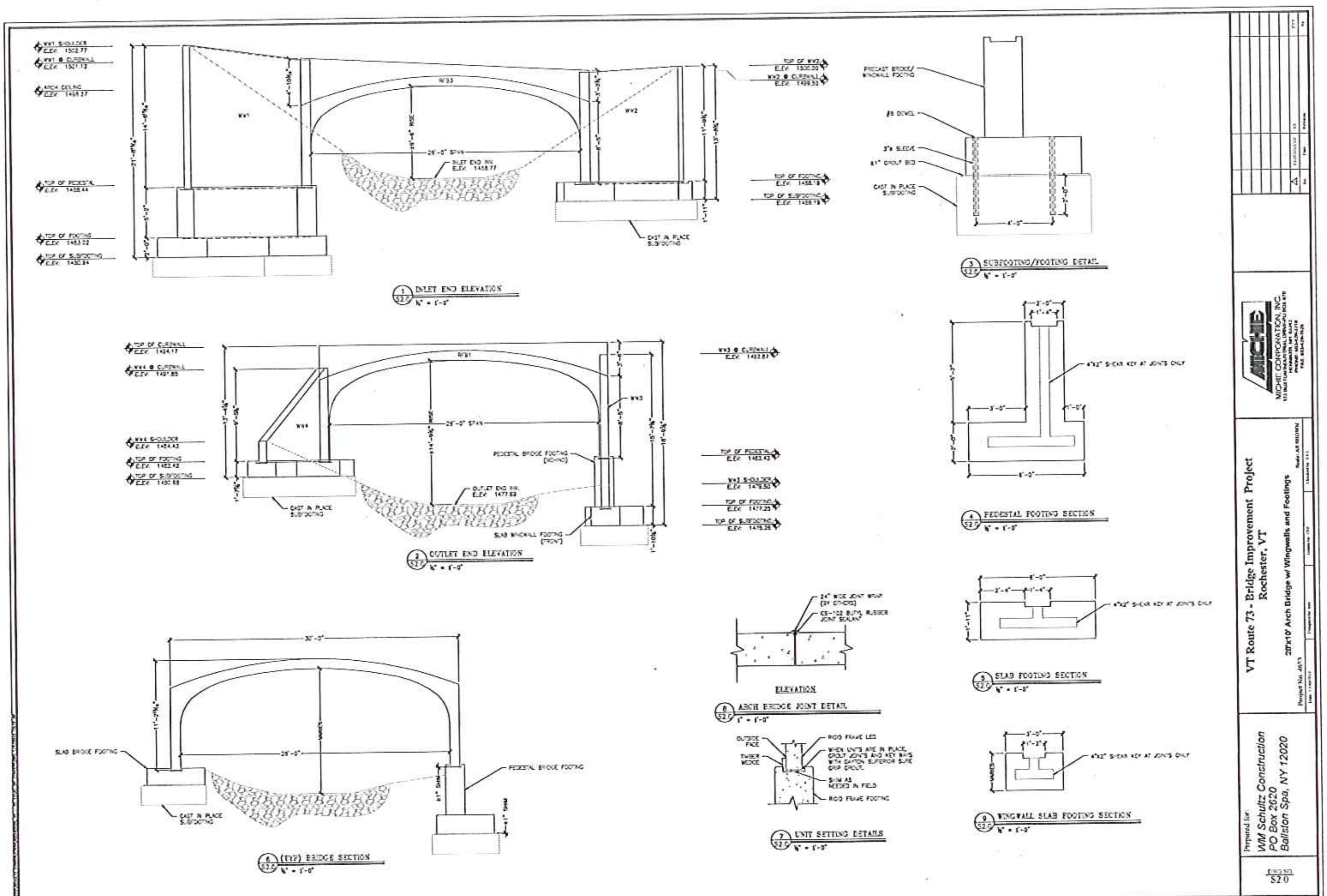
Project No. 4653

Scale: AS SHOWN

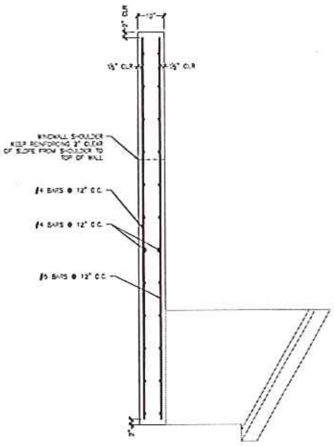
MICHIE CORPORATION, INC.

DWG NO. S1.0

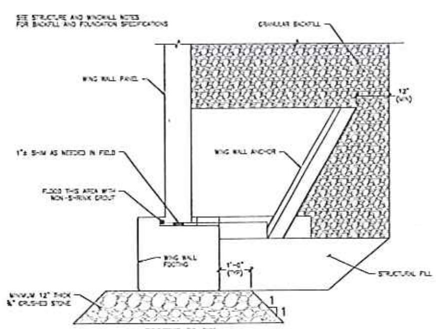
S:\PROJECTS\Schultz Construction\Rochester, VT – Rt 13\AC 28' concept.dwg, 1/7/2014 10:18:27 AM, DWG To PDF.pc3



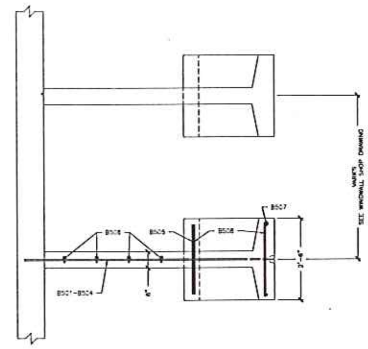
S:\PROJECTS\Schultz Construction\Rochester, VT - Rt 13\AC 28' concept.dwg, 1/7/2014 10:18:28 AM, DWG To PDF.pc3



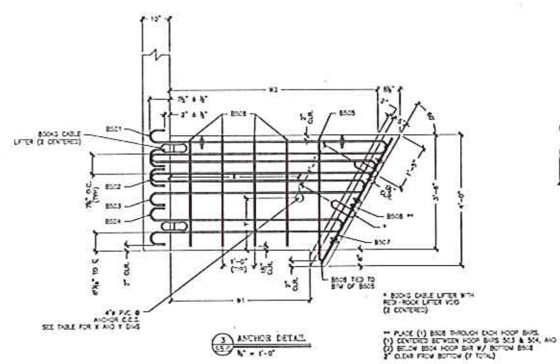
1 S3.0 WINGWALL REINFORCING (TYP)
¾" = 1'-0"



2 S3.0 FOOTING TO WW ATTACHMENT DETAIL
¾" = 1'-0"



NOTE: REINFORCING SHOWN REPRESENTS "E" ANCHOR
OTHER ANCHOR REINFORCING SIMILAR



3 S3.0 ANCHOR DETAIL
¾" = 1'-0"

* BOOKS CABLE LIFTER WITH
RED-ROCK LIFTER VOID
(2 CENTERED)

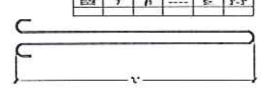
** PLACE (1) B508 THROUGH EACH HOOP BARS,
(1) CENTERED BETWEEN HOOP BARS 503 & 504, AND
(2) BELOW B504 HOOP BAR W/ BOTTOM B508
3" CLEAR FROM BOTTOM (7 TOTAL)

ANCHOR TYPE "B"					
CONCRETE QUANTITY				2.41 CY	
WEIGHT				1740 LB	
W1				1'-4"	
W2				3'-5½"	
X =	2'-2½"	Y=	1'-5½"		
BAR LIST					
MARK	QTY	SIZE	L	TYPE	LENGTH
B501	1	#5	4'-4½"	1	10'-1½"
B502	1	#5	4'-0½"	1	9'-5"
B503	1	#5	3'-8½"	1	8'-9"
B504	1	#5	3'-0"	1	7'-4½"
B505	2	#5	3'-6½"	2	4'-7"
B506	2	#5	----	Str.	3'-3"
B507	4	#5	----	Str.	4'-4½"
B508	7	#5	----	Str.	2'-3"

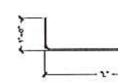
ANCHOR TYPE "C"					
CONCRETE QUANTITY				2.48 CY	
WEIGHT				2010 LB	
W1				2'-4"	
W2				4'-5½"	
X =	2'-8½"	Y=	1'-5½"		
BAR LIST					
MARK	QTY	SIZE	L	TYPE	LENGTH
B501	1	#5	5'-4½"	1	12'-1½"
B502	1	#5	5'-0½"	1	11'-5"
B503	1	#5	4'-8½"	1	10'-9"
B504	1	#5	4'-0"	1	9'-4½"
B505	2	#5	3'-6½"	2	4'-7"
B506	4	#5	----	Str.	3'-3"
B507	4	#5	----	Str.	4'-4½"
B508	7	#5	----	Str.	2'-3"

ANCHOR TYPE "D"					
CONCRETE QUANTITY				2.54 CY	
WEIGHT				2285 LB	
W1				3'-4"	
W2				5'-5½"	
X =	3'-5½"	Y=	1'-5½"		
BAR LIST					
MARK	QTY	SIZE	L	TYPE	LENGTH
B501	1	#5	6'-4½"	1	14'-1½"
B502	1	#5	6'-0½"	1	13'-5"
B503	1	#5	5'-8½"	1	12'-9"
B504	1	#5	5'-0"	1	11'-4½"
B505	2	#5	3'-6½"	2	4'-7"
B506	6	#5	----	Str.	3'-3"
B507	4	#5	----	Str.	4'-4½"
B508	7	#5	----	Str.	2'-3"

ANCHOR TYPE "E"					
CONCRETE QUANTITY				2.81 CY	
WEIGHT				2550 LB	
W1				4'-4"	
W2				6'-5½"	
X =	4'-0"	Y=	1'-8½"		
BAR LIST					
MARK	QTY	SIZE	L	TYPE	LENGTH
B501	1	#5	7'-4½"	1	16'-1½"
B502	1	#5	7'-0½"	1	15'-5"
B503	1	#5	6'-8½"	1	14'-9"
B504	1	#5	6'-0"	1	13'-4½"
B505	2	#5	3'-6½"	2	4'-7"
B506	8	#5	----	Str.	3'-3"
B507	4	#5	----	Str.	4'-4½"
B508	7	#5	----	Str.	2'-3"



TYPE 1



TYPE 2

MICHIE CORPORATION, INC.

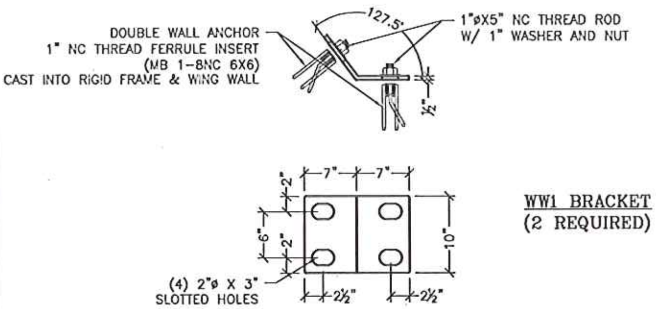
VT Route 73 - Bridge Improvement Project
Rochester, VT

20'x10' Arch Bridge w/ Wingwalls and Footings

Prepared for:
WM Schultz Construction
PO Box 2620
Ballston Spa, NY 12020

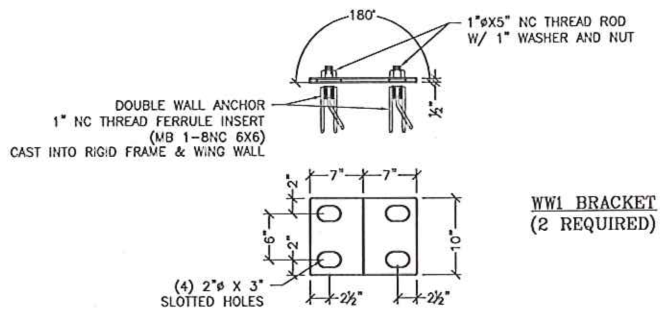
S3.0

S:\PROJECTS\Schultz Construction\Rochester, VT - Rt 13\AC 23' concept.dwg, 1/7/2014 10:18:29 AM, DWG To PDF.pc3



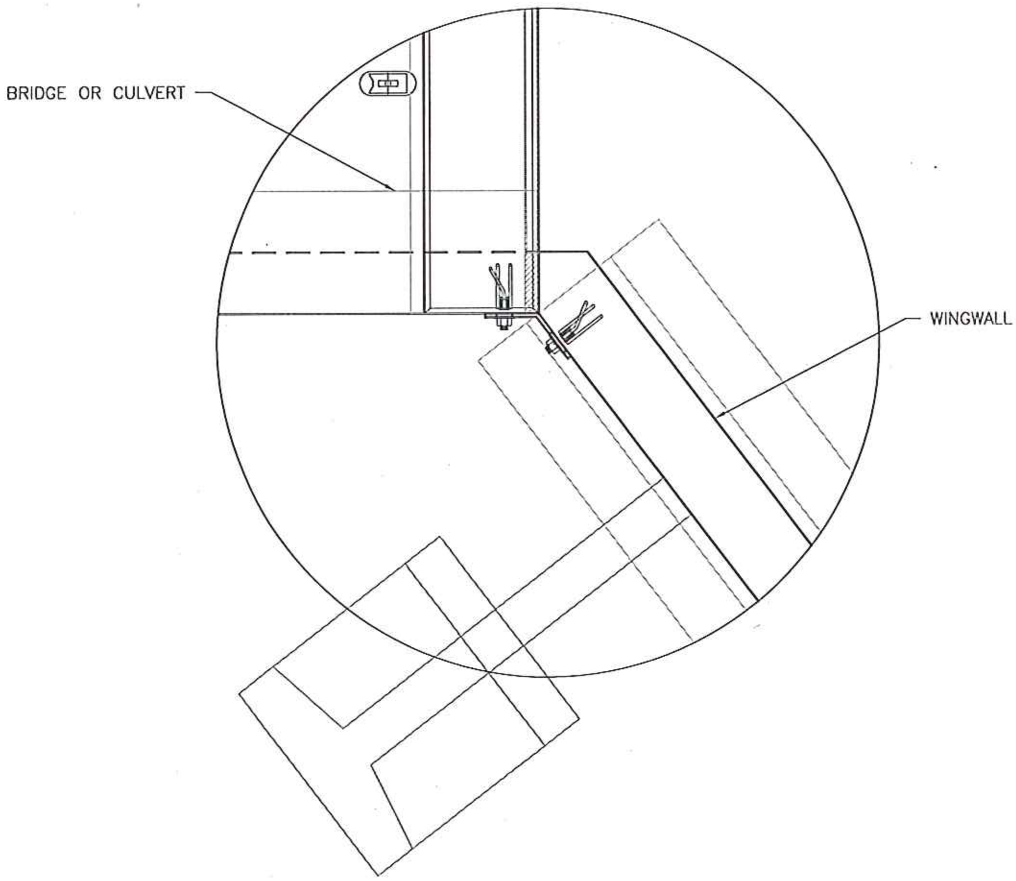
PLATES TO BE MADE OF ½" MILD STEEL,
PLASMA CUT, AND BENT AS REQUIRED.
(HOT DIPPED GALVANIZED AFTER BENDING)

3B / S1.1 WINGWALL BRACKET DETAIL
1" = 1'-0"



PLATES TO BE MADE OF ½" MILD STEEL,
PLASMA CUT, AND BENT AS REQUIRED.
(HOT DIPPED GALVANIZED AFTER BENDING)

3B / S1.1 WINGWALL BRACKET DETAIL
1" = 1'-0"



S:\PROJECTS\WINTERSET CONST\ROTALTON, VT\DWGS\HC 8X6 WINTERSET 4751.DWG 1/16/2014 3:25 PM

DWG NO. S1	Prepared for: *Michie Corporation*	**Project Name** **Project Location** **Anchor Plate Detail** Project No. XXXX Scale: AS SHOWN		MICHIE CORPORATION, INC. 173 BUXTON INDUSTRIAL DRIVE-PO BOX 870 HENNIKER, NH 03242 PHONE: 603-428-3218 FAX: 603-428-7426
		Date: X/XX	Designed by: Drawn by: XXX Checked by: XXX	