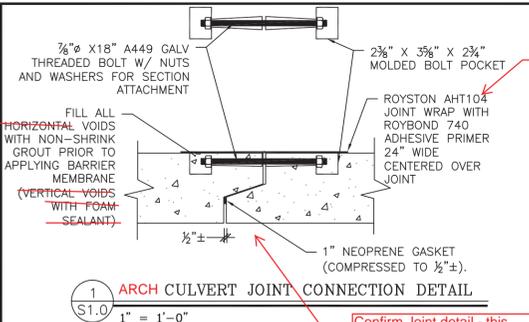


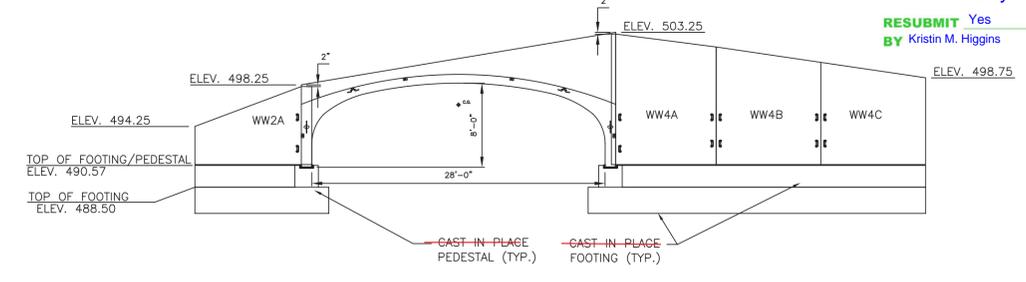
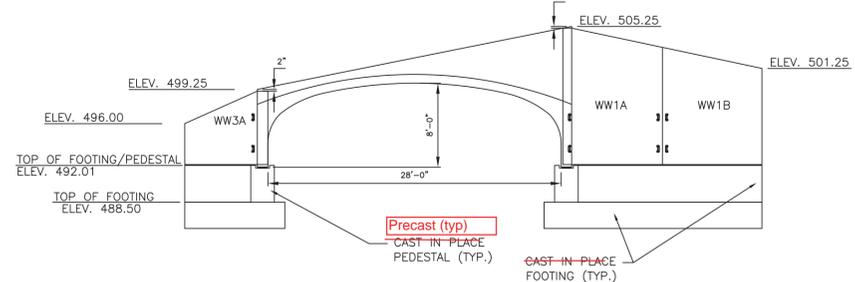
REVIEWED
By Jim Wild (jim.wild@state.vt.us) at 11:28 am, Jul 08, 2016

Vermont Agency of Transportation
RECEIVED
CK'D BY TYLin/KMH OK'D BY KMH
July 7, 2017
RESUBMIT Yes Rejected
By Kristin M. Higgins DATE 07/11/2016

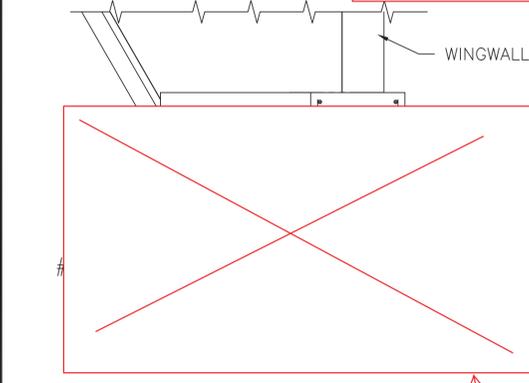


membrane to be supplied by Contractor, unless other arrangements between Contractor and Fabricator have been made

Confirm joint detail - this geometry is not defined nor shown on remaining arch fabrication sheets

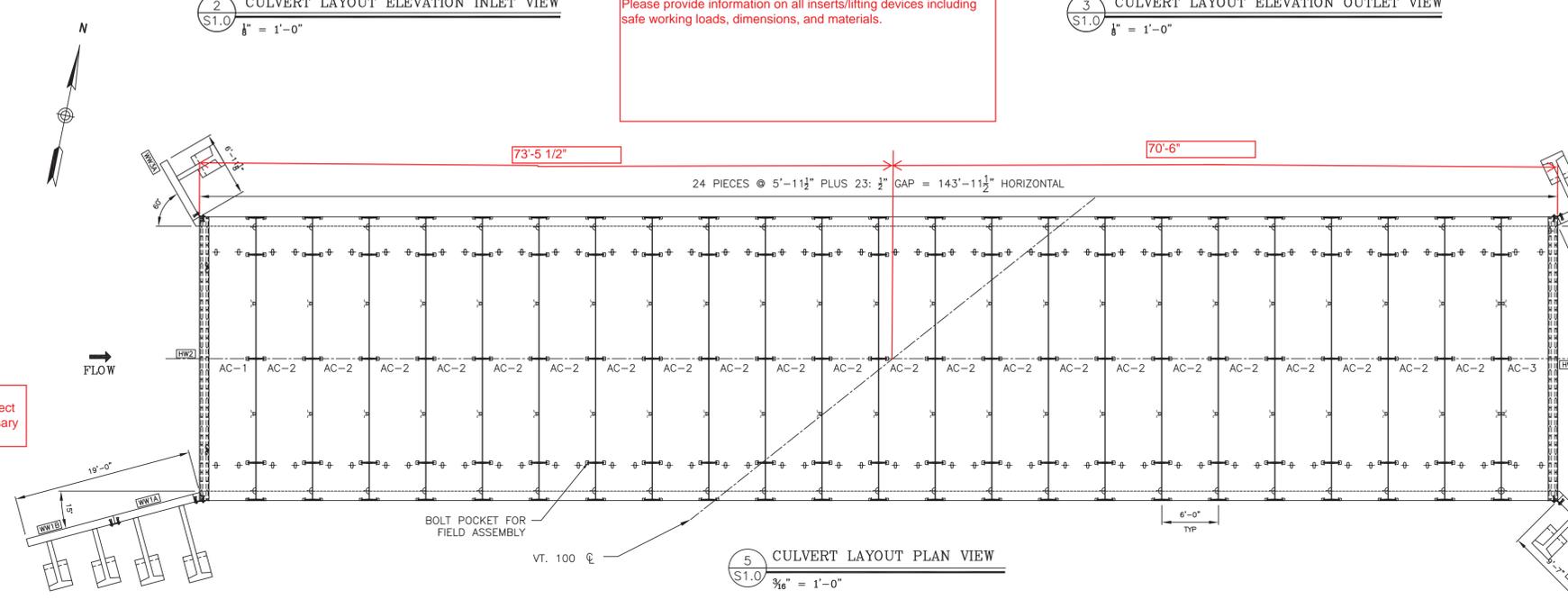


Please provide information on all inserts/lifting devices including safe working loads, dimensions, and materials.



Reinforcement details not correct and not necessary to be shown

provide details/requirements (grout, shim)



T.Y. LIN INTERNATIONAL
THE STAMPED DOCUMENTS ARE HEREBY:
APPROVED
APPROVED AS NOTED
REVISE AND RESUBMIT
SEE TRANSMITTAL FOR ADDITIONAL INFORMATION AS APPLICABLE
THIS REVIEW IS FOR GENERAL CONFORMANCE WITH DESIGN CONCEPT ONLY. ANY DEVIATION FROM THE PLANS OR SPECIFICATIONS NOT CLEARLY NOTED BY THE CONTRACTOR HAS NOT BEEN REVIEWED. REVIEW BY THE ENGINEER SHALL NOT RELIEVE THE CONTRACTOR OF THE CONTRACTUAL RESPONSIBILITY FOR ANY ERRORS OR DEVIATION FROM THE CONTRACT REQUIREMENTS.
JOHN OLIND REVIEWER July 11, 2016 DATE



Submittal items (e), (f), (h), (i), (j), and (k) from Subsection 540.04 of the Standard Specifications are missing from this submittal and need to be included

STANDARD SPECIFICATION AND GENERAL SPECIAL PROVISIONS SECTION 540

- GENERAL NOTES:
- THE PLANS ARE INTENDED TO BE DRAWN TO SCALE. HOWEVER, IF A CRITICAL DIMENSION IS NOT PROVIDED, MICHE CORPORATION SHOULD BE CONTACTED FOR VERIFICATION.
 - IF ANY OF THE WORK TO BE DONE AS SHOWN ON THE DRAWINGS DOES NOT CORRESPOND WITH THE EXISTING FIELD CONDITIONS, CONTACT THE ENGINEER PRIOR TO PROCEEDING WITH THE WORK IN QUESTION.
 - FIELD-VERIFY ALL ELEVATIONS PRIOR TO THE START OF CONSTRUCTION. IF THERE ARE ANY DISCREPANCIES, CONSULT THE ENGINEER PRIOR TO PROCEEDING WITH THE WORK IN QUESTION.
 - MAINTAIN MINIMUM 60 DEGREE SLING ANGLE WHEN HANDLING PRECAST COMPONENTS.
 - PRECAST COMPONENTS SHALL REACH A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI PRIOR TO STRIPPING, AND THE MINIMUM DESIGN COMPRESSIVE STRENGTH PRIOR TO SHIPPING, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
 - HORIZONTAL JOINTS AND VOIDS SHALL BE FILLED WITH NON-SHRINK GROUT.
 - SHOP DRAWINGS WERE DEVELOPED USING THE FOLLOWING RESOURCES FOR THE CONTRACT:
 - TOWN OF DUXBURY, DUXBURY, VERMONT, VT100 ROAD CULVERT PROJECT PLANS.
 - IF THERE IS ADDITIONAL INFORMATION PERTINENT TO THE FABRICATION AND INSTALLATION OF THESE UNITS THAT IS NOT CONTAINED WITHIN THE RESOURCES LISTED ABOVE, IT SHALL BE BROUGHT TO THE ATTENTION OF MICHE CORPORATION. FAILURE TO MAKE SUCH ADDITIONAL INFORMATION AVAILABLE SHALL RELIEVE MICHE CORPORATION OF ALL LIABILITIES ARISING FROM ERRORS OR OMISSIONS RELATED TO THE OMITTED INFORMATION.
 - ALL VOIDS SHALL BE FILLED WITH NON-SHRINK GROUT

curing procedures not given and dunnage locations not given

this should be done on site. My opinion that is the best place to do that. Any cracks, chips or scrapes will be protected after installation.

ONSITE WITH WATER REPELLENT, SILANE

verify

- ARCH CULVERT NOTES:
- ARCH CULVERT SECTIONS ARE DESIGNED IN ACCORDANCE WITH:
 - AASHTO "LRFD BRIDGE DESIGN SPECIFICATIONS", 6TH EDITION.
 - SPECIAL PROVISIONS SECTION 520.
 - THE FOLLOWING CRITERIA WAS USED FOR DESIGN:
 - LIVE LOAD: HL-93
 - EARTH COVER: 8.6 FEET
 - BACKFILL SOIL UNIT WEIGHT: 140 PCF
 - BACKFILL SOIL FRICTION ANGLE: 30 DEGREES
 - CONCRETE STRENGTH: 6,000 PSI
 - STEEL YIELD STRENGTH: 60,000 PSI
 - ARCH CULVERT AND HEADWALL CONCRETE SHALL BE SELF-CONSOLIDATING CONFORMING TO ASTM C260 WITH A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 6,000 PSI. AGGREGATE SHALL CONFORM TO ASTM C-33 WITH A MAXIMUM DIAMETER OF 3/4". CEMENT SHALL CONFORM TO ASTM C150. MICHE MIX 6535CAS
 - REINFORCING SHALL BE GRADE 60 DEFORMED BLACK BARS CONFORMING TO ASTM A-615. REINFORCING WITHIN THE HEADWALL SHALL BE GRADE 60, EPOXY COATED, CONFORMING TO ASTM A-615. ALL BARS SHALL BE BENT COLD. ALL REINFORCING STEEL EPOXY COATED
 - ALL EXPOSED EDGES EXCEPT WHERE NOTED SHALL BE CHAMFERED 3/4".
 - SUBGRADE PREPARATION SHALL CONFORM TO PROJECT PLANS.
 - BACKFILL MATERIAL SHALL CONFORM TO SECTION 209. BACKFILL SHALL EXTEND FOR A MINIMUM DISTANCE OF 3'-0" BEYOND THE HORIZONTAL LIMITS OF THE STRUCTURE. Change note see below
 - EXPOSED SURFACES SHOULD BE COATED WITH BARRIER MEMBRANE-WATERPROOFING (SUPPLIED BY OTHERS).
 - EACH SECTION SHALL BE PROVIDED WITH BOLT POCKETS FOR ATTACHMENT TO ADJACENT SECTIONS. 7/8" DIA. GALV. THREADED ROD, WASHERS AND NUTS SHALL BE PROVIDED FOR ASSEMBLY IN THE FIELD. CLOSED-CELL NEOPRENE JOINT SEALANT SHALL BE USED IN ALL JOINTS UNLESS NOTED OTHERWISE.
 - 2FT WIDE ROYSTON JOINT WRAP WITH ADHESIVE PROVIDED BY MICHE CORP. INSTALLED BY OTHERS, CENTER ON JOINT AFTER HORIZONTAL GROUTING. BARRIER MEMBRANE PROVIDED AND INSTALLED BY OTHERS OVER TOP OF STRUCTURE, AND DOWN SIDES TO 6" BELOW HORIZONTAL JOINT.
 - UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS, BACKFILL SHALL CONFORM TO VTRANS SECTION 708.04 GRANULAR BACKFILL FOR STRUCTURES. BACKFILL SHALL EXTEND A BEYOND THE HORIZONTAL LIMITS OF THE STRUCTURE AS DETAILED IN THE CONTRACT DOCUMENTS. PLACEMENT SHALL CONFORM TO VTRANS SECTION 204.08

section 540

This doesn't make sense. This is the requirement for air entraining admixtures. Conform to aot section 540.

same notes as for culvert section

Is a different mix design being used for the headwall?

- WING WALL NOTES:
- SECTIONS ARE DESIGNED IN ACCORDANCE WITH:
 - AASHTO "LRFD BRIDGE DESIGN SPECIFICATIONS", 6TH EDITION
 - SPECIAL PROVISIONS SECTION 520.
 - THE FOLLOWING SOIL PROPERTIES WERE USED IN THE DESIGN:

SOIL WEIGHT [PCF]	FRICTION ANGLE [DEG]
RETAINED SOIL 140	32
FOUNDATION SOIL 140	32
LIVE LOAD SURCHARGE = 2'	
BACKSLOPE ANGLE: ±8:1	
ALLOWABLE BEARING RESISTANCE = 6,000 PSF	
 - CONCRETE SHALL BE SELF-CONSOLIDATING CONFORMING TO ASTM C260 WITH A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4,000 PSI. AGGREGATE SHALL CONFORM TO ASTM C-33 WITH A MAXIMUM DIAMETER OF 3/4". CEMENT SHALL CONFORM TO ASTM C150. MICHE MIX 6535CAS
 - REINFORCING SHALL BE GRADE 60 DEFORMED BLACK BARS CONFORMING TO ASTM A-615. ALL BARS SHALL BE BENT COLD. ALL REINFORCING STEEL EPOXY COATED
 - ALL EXPOSED EDGES EXCEPT WHERE NOTED SHALL BE CHAMFERED 3/4".
 - BACKFILL MATERIAL SHALL CONFORM TO SECTION 209.
 - SUBGRADE PREPARATION SHALL CONFORM SECTION 209 BEDDING FOR STRUCTURES. FOOTINGS SHALL BE PLACED AT ELEVATIONS SHOWN ON A MINIMUM OF 1'-0" OF CRUSHED STONE CONCRETE. ALL TOPSOIL, LOOSE FILL, AND DELETERIOUS MATERIALS SHALL BE REMOVED BEFORE PLACING BACKFILL.
 - UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS, BACKFILL SHALL CONFORM TO VTRANS SECTION 708.04 GRANULAR BACKFILL FOR STRUCTURES. BACKFILL SHALL EXTEND A BEYOND THE HORIZONTAL LIMITS OF THE STRUCTURE AS DETAILED IN THE CONTRACT DOCUMENTS. PLACEMENT SHALL CONFORM TO VTRANS SECTION 204.08

STANDARD SPECIFICATION AND GENERAL SPECIAL PROVISIONS SECTION 540

- FOOTING NOTES:
- AASHTO LRFD 6TH EDITION
 - 15.5 KSF FACTORED BEARING RESISTANCE.
 - CAST AGAINST SOUND ROCK OR CIP FOUNDATION SEAL.

- LIST OF SHEETS:
- S1.0 CULVERT LAYOUT-PLAN AND ELEVATION
 - S2.0 CULVERT SECTION AND ELEVATION
 - S3.0 CULVERT SECTIONS AND ELEVATIONS
 - S4.0 HEAD WALL DETAILS
 - S5.0 WINGWALL DETAILS
 - S6.0 WINGWALL DETAILS
 - S7.0 ANCHOR DETAILS

DESIGNED AND DETAILED BY:
DELTA
ENGINEERS, ARCHITECTS, & LAND SURVEYORS
860 HOOPER ROAD, ENDWELL, NY 13760-1564
TEL: (607) 821-6600 FAX: (607) 821-6650

Scale: AS SHOWN
Project No. 7347
Date: 6/29/16
Drawn by: GSC
Checked by: DELTA
Designed by: DELTA

VT 100 Road Culvert
Duxbury, Vermont
Culvert Layout - Plan and Elevation

PREPARED FOR:
MICHE
MICHE CORPORATION, INC.
173 BOSTON AVENUE, SUITE 200
DUNSTABLE, NH 03824
PHONE: 603-428-3218
FAX: 603-428-1428

DWG NO.
S1.0

T.Y. LIN INTERNATIONAL
 THE STAMPED DOCUMENTS ARE HEREBY:
 _____ APPROVED
 _____ APPROVED AS NOTED
 _____ REVISED AND RESUBMIT
 SEE TRANSMITTAL FOR ADDITIONAL INFORMATION AS APPLICABLE.
 THIS REVIEW IS FOR GENERAL CONFORMANCE WITH DESIGN CONCEPT ONLY. ANY
 DEVIATION FROM THE PLAN OR SPECIFICATIONS NOT CLEARLY NOTED BY THE
 CONTRACTOR HAS NOT BEEN REVIEWED. REVIEW BY THE ENGINEER SHALL NOT
 RELIEVE THE CONTRACTOR OF THE CONTRACTUAL RESPONSIBILITY FOR ANY
 ERRORS OR DEVIATION FROM THE CONTRACT REQUIREMENTS.
 JOSH OLUND
 REVIEWER July 11, 2016 DATE

Vermont Agency of Transportation
RECEIVED
 CK'D BY TYLin/KMH OK'D BY KMH
 July 7, 2017
 RESUBMIT Yes Rejected
 BY Kristin M. Higgins DATE 07/11/2016



DESIGNED AND DETAILED BY:
DELTA
 ENGINEERS, ARCHITECTS, & LAND SURVEYORS
 880 HOOPER ROAD, ENDWELL, NY 13760-1564
 TEL. (607) 821-6600 FAX. (607) 821-6650

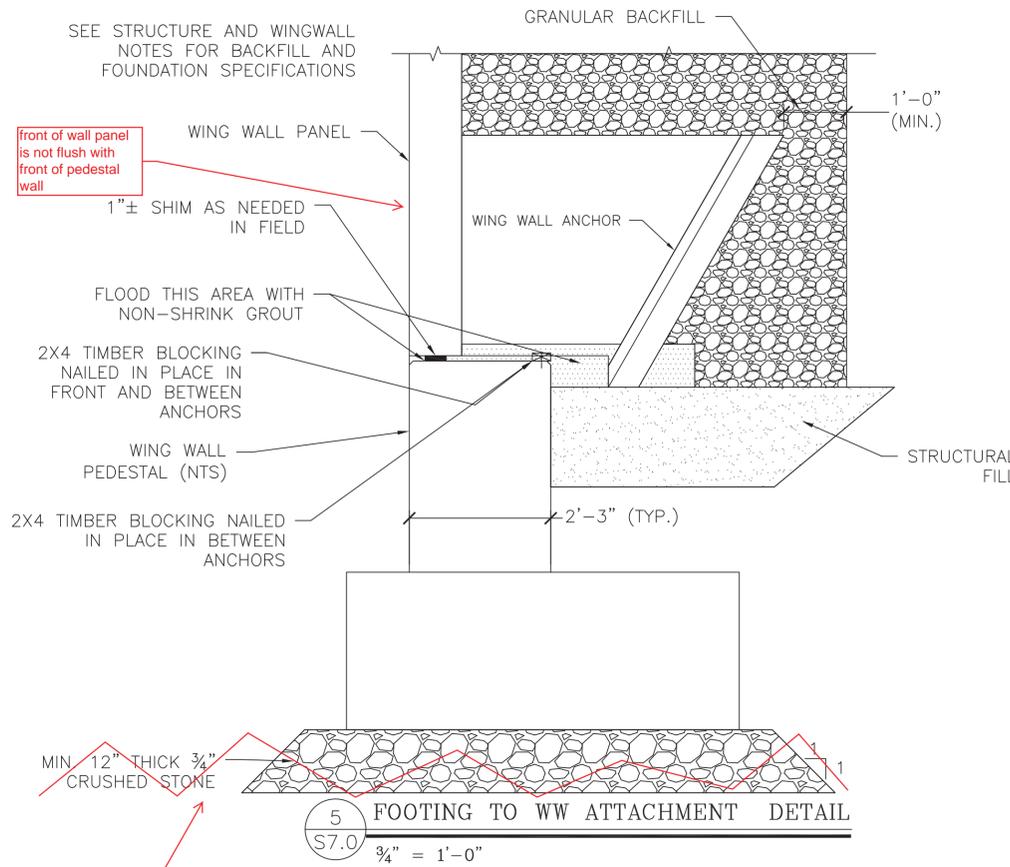
Scale: AS SHOWN
 Checked by:
 Drawn by: GSC

**VT 100 Road Culvert
 Duxbury, Vermont**
 Anchor Details

Project No. 7347
 Date: 6/29/16

PREPARED FOR:
MICHE
 MICHE CORPORATION, INC.
 173 BUXTON INDUSTRIAL DRIVE PO BOX 870
 BUXTON, VT 05309
 PHONE: 802-428-3218
 FAX: 802-428-7426

DWG NO.
S7.0



NOTE: BAR COUNTS REPRESENT 1 UNIT.

WW1A REINFORCING SCHEDULE

BAR MARK	LOCATION	TYPE	SIZE/SPACING	CUT LENGTH	# OF PCS
VERTICAL	OSF	STRAIGHT	#5 @ 12"	12'-8" TO 10'-10"	9
VERTICAL	ISF	STRAIGHT	#5 @ 5"	12'-8" TO 10'-10"	22
HORIZONTAL	OSF	STRAIGHT	#5 @ 12"	9'-2"	13
HORIZONTAL	ISF	STRAIGHT	#5 @ 12"	8'-11"	13
DIAGONAL	FOLLOW SLOPE	STRAIGHT	#4	8'-10"	2

WW1B REINFORCING SCHEDULE

BAR MARK	LOCATION	TYPE	SIZE/SPACING	CUT LENGTH	# OF PCS
VERTICAL	OSF	STRAIGHT	#5 @ 12"	10'-10" TO 8'-10"	10
VERTICAL	ISF	STRAIGHT	#5 @ 5"	10'-10" TO 8'-10"	23
HORIZONTAL	OSF	STRAIGHT	#5 @ 12"	9'-2"	11
HORIZONTAL	ISF	STRAIGHT	#5 @ 12"	9'-2"	11
DIAGONAL	FOLLOW SLOPE	STRAIGHT	#4	9'-4"	2

WW2A REINFORCING SCHEDULE

BAR MARK	LOCATION	TYPE	SIZE/SPACING	CUT LENGTH	# OF PCS
VERTICAL	OSF	STRAIGHT	#5 @ 12"	7'-1" TO 3'-4"	10
VERTICAL	ISF	STRAIGHT	#5 @ 12"	7'-1" TO 3'-4"	10
HORIZONTAL	OSF	STRAIGHT	#5 @ 12"	6'-9"	8
HORIZONTAL	ISF	STRAIGHT	#5 @ 12"	9'-4"	8
DIAGONAL	FOLLOW SLOPE	STRAIGHT	#4	6'-0"	2

WW3A REINFORCING SCHEDULE

BAR MARK	LOCATION	TYPE	SIZE/SPACING	CUT LENGTH	# OF PCS
VERTICAL	OSF	STRAIGHT	#5 @ 12"	5'-8" TO 3'-7"	8
VERTICAL	ISF	STRAIGHT	#5 @ 12"	5'-8" TO 3'-7"	7
HORIZONTAL	OSF	STRAIGHT	#5 @ 12"	6'-7"	6
HORIZONTAL	ISF	STRAIGHT	#5 @ 12"	9'-2"	6
DIAGONAL	FOLLOW SLOPE	STRAIGHT	#4	9'-4"	2

WW4A REINFORCING SCHEDULE

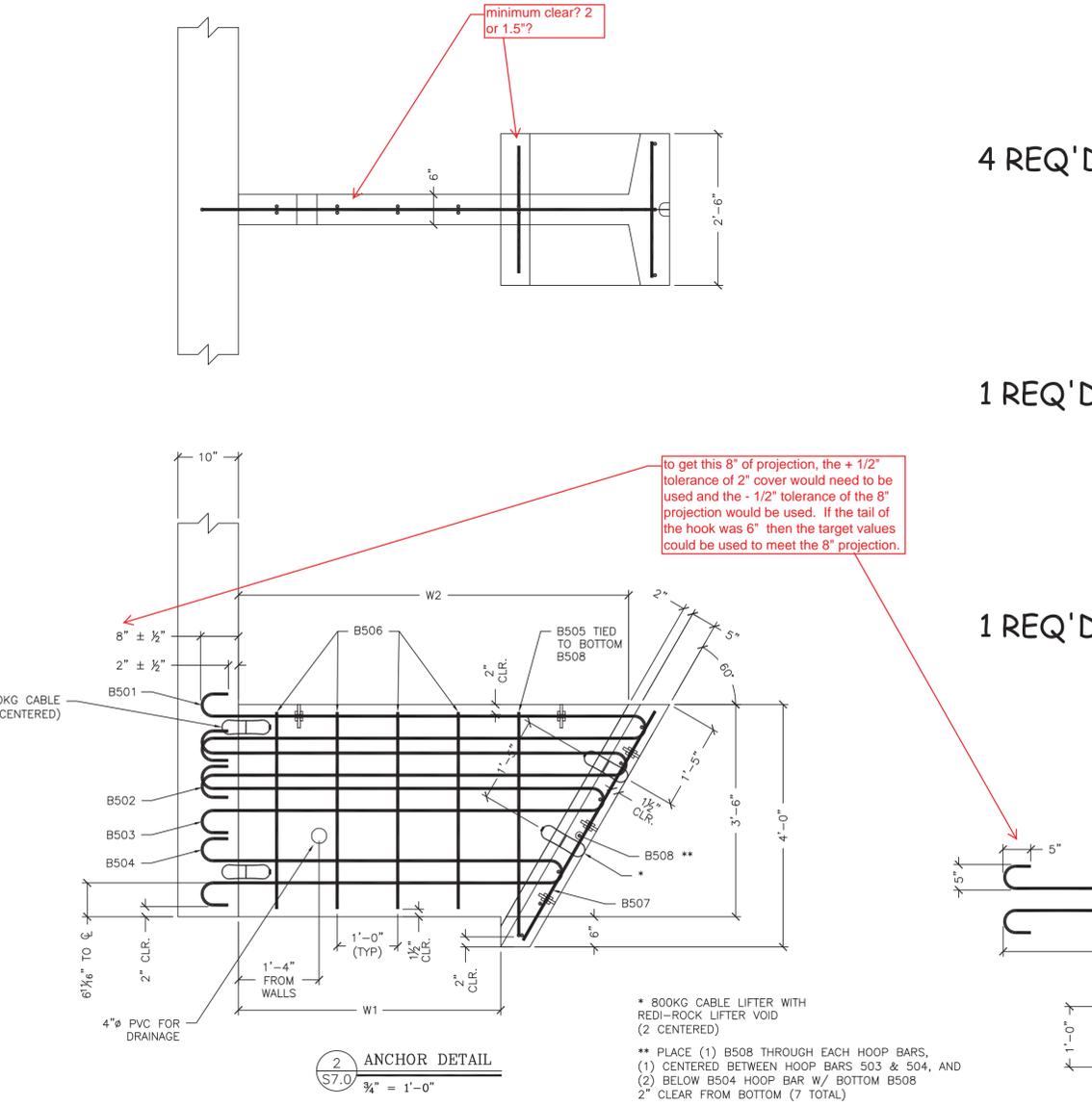
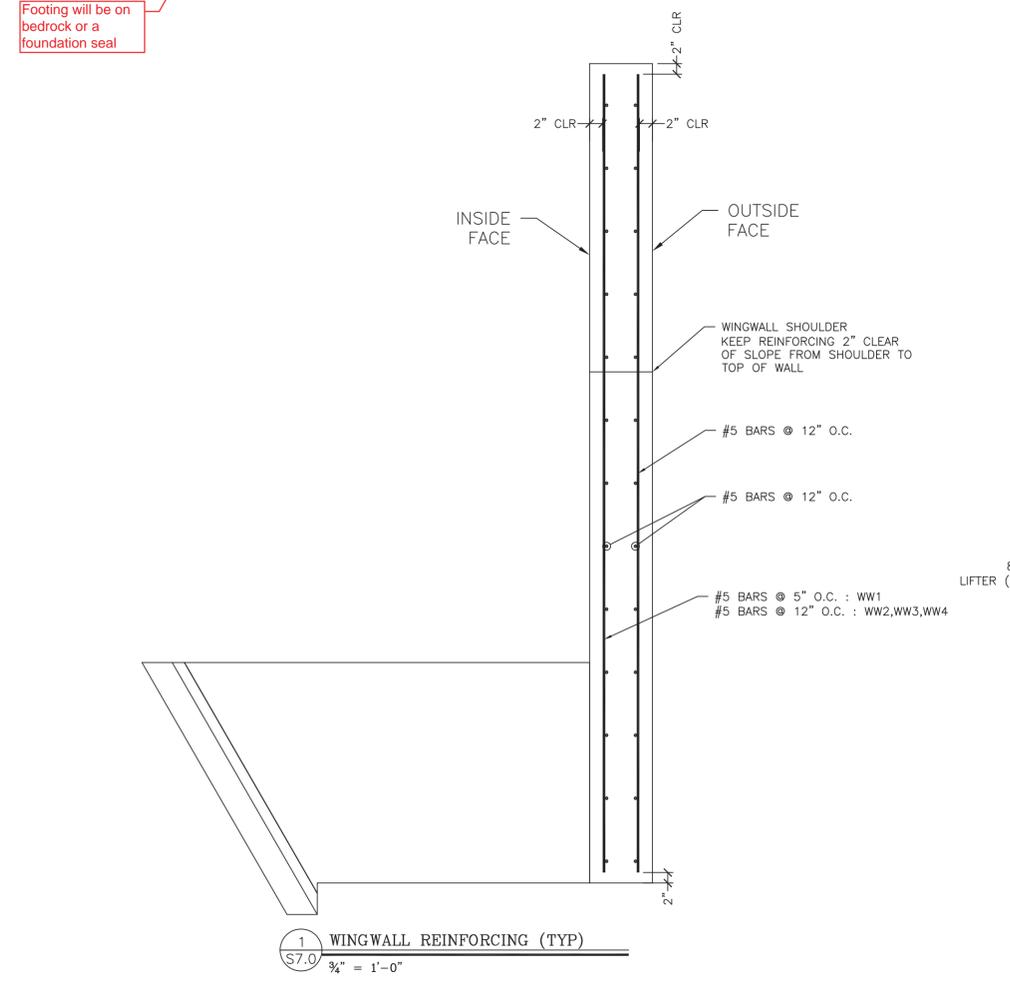
BAR MARK	LOCATION	TYPE	SIZE/SPACING	CUT LENGTH	# OF PCS
VERTICAL	OSF	STRAIGHT	#5 @ 12"	12'-3" TO 10'-10"	10
VERTICAL	ISF	STRAIGHT	#5 @ 12"	12'-3" TO 10'-10"	10
HORIZONTAL	OSF	STRAIGHT	#5 @ 12"	9'-8"	12
HORIZONTAL	ISF	STRAIGHT	#5 @ 12"	9'-3"	12
DIAGONAL	FOLLOW SLOPE	STRAIGHT	#4	9'-4"	2

WW4B REINFORCING SCHEDULE

BAR MARK	LOCATION	TYPE	SIZE/SPACING	CUT LENGTH	# OF PCS
VERTICAL	OSF	STRAIGHT	#5 @ 12"	10'-10" TO 9'-4"	10
VERTICAL	ISF	STRAIGHT	#5 @ 12"	10'-10" TO 9'-4"	10
HORIZONTAL	OSF	STRAIGHT	#5 @ 12"	9'-8"	12
HORIZONTAL	ISF	STRAIGHT	#5 @ 12"	9'-8"	12
DIAGONAL	FOLLOW SLOPE	STRAIGHT	#4	9'-4"	2

WW4C REINFORCING SCHEDULE

BAR MARK	LOCATION	TYPE	SIZE/SPACING	CUT LENGTH	# OF PCS
VERTICAL	OSF	STRAIGHT	#5 @ 12"	9'-4" TO 7'-11"	10
VERTICAL	ISF	STRAIGHT	#5 @ 12"	9'-4" TO 7'-11"	10
HORIZONTAL	OSF	STRAIGHT	#5 @ 12"	9'-8"	10
HORIZONTAL	ISF	STRAIGHT	#5 @ 12"	9'-8"	10
DIAGONAL	FOLLOW SLOPE	STRAIGHT	#4	9'-4"	2



ANCHOR TYPE "C"

CONCRETE QUANTITY	0.48 CY
WEIGHT	2010 LB
W1	2'-4"
W2	4'-5 1/2"
X = 2'-8 3/4"	Y = 1'-8 1/2"

BAR LIST

MARK	QTY	SIZE	L	TYPE	LENGTH
B501	1	#5	5'-4 1/2"	1	12'-1 1/2"
B502	1	#5	5'-0 1/2"	1	11'-5"
B503	1	#5	4'-8 1/4"	1	10'-9"
B504	1	#5	4'-0"	1	9'-4 1/2"
B505	2	#5	3'-8 1/2"	2	4'-7"
B506	4	#5	-----	Str.	3'-3"
B507	4	#5	-----	Str.	4'-4 1/2"
B508	7	#5	-----	Str.	2'-3"

ANCHOR TYPE "D"

CONCRETE QUANTITY	0.48 CY
WEIGHT	2020 LB
W1	3'-4"
W2	5'-5 1/2"
X = 3'-5 1/8"	Y = 1'-8 1/2"

BAR LIST

MARK	QTY	SIZE	L	TYPE	LENGTH
B501	1	#5	6'-4 1/2"	1	14'-1 1/2"
B502	1	#5	6'-0 1/2"	1	13'-5"
B503	1	#5	5'-8 1/4"	1	12'-9"
B504	1	#5	5'-0"	1	11'-4 1/2"
B505	2	#5	3'-8 1/2"	2	4'-7"
B506	6	#5	-----	Str.	3'-3"
B507	4	#5	-----	Str.	4'-4 1/2"
B508	7	#5	-----	Str.	2'-3"

ANCHOR TYPE "E"

CONCRETE QUANTITY	0.61 CY
WEIGHT	2550 LB
W1	4'-4"
W2	6'-5 1/2"
X = 4'-0"	Y = 1'-8 1/2"

BAR LIST

MARK	QTY	SIZE	L	TYPE	LENGTH
B501	1	#5	7'-4 1/2"	1	16'-1 1/2"
B502	1	#5	7'-0 1/2"	1	15'-5"
B503	1	#5	6'-8 1/4"	1	14'-9"
B504	1	#5	6'-0"	1	13'-4 1/2"
B505	2	#5	3'-8 1/2"	2	4'-8 1/2"
B506	8	#5	-----	Str.	3'-3"
B507	4	#5	-----	Str.	4'-4 1/2"
B508	7	#5	-----	Str.	2'-3"

ANCHOR TYPE "F"

CONCRETE QUANTITY	0.68 CY
WEIGHT	2860 LB
W1	5'-4"
W2	7'-5 1/2"
X = 4'-7 1/8"	Y = 1'-8 1/2"

BAR LIST

MARK	QTY	SIZE	L	TYPE	LENGTH
B501	1	#5	8'-4 1/2"	1	18'-1 1/2"
B502	1	#5	8'-0 1/2"	1	17'-5"
B503	1	#5	7'-8 1/4"	1	16'-9"
B504	1	#5	7'-0"	1	15'-4 1/2"
B505	2	#5	3'-8 1/2"	2	4'-8 1/2"
B506	10	#5	-----	Str.	3'-3"
B507	4	#5	-----	Str.	4'-4 1/2"
B508	7	#5	-----	Str.	2'-3"

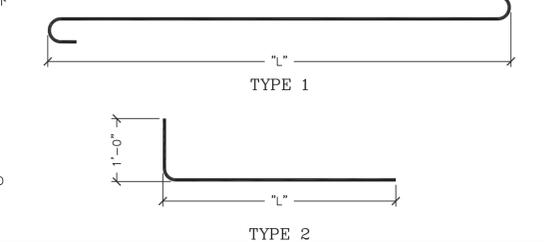
7 REQ'D

4 REQ'D

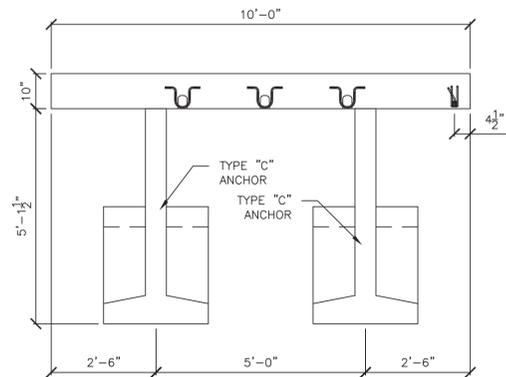
1 REQ'D

1 REQ'D

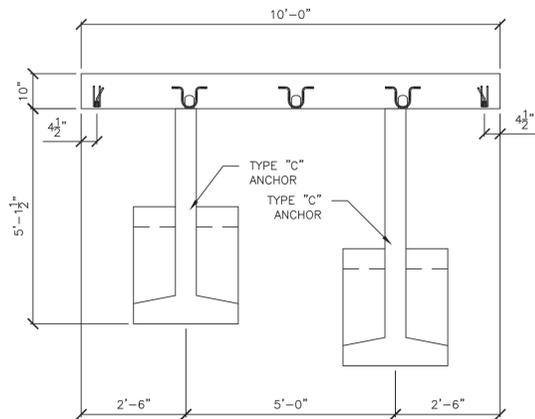
1 REQ'D



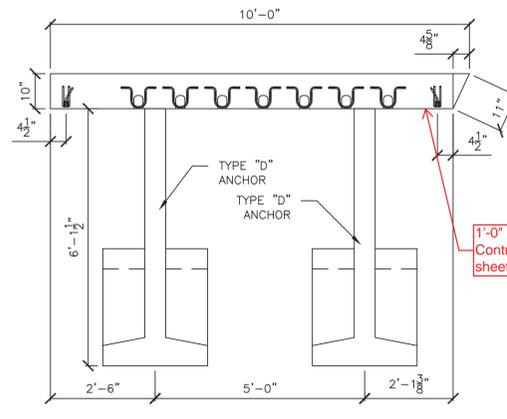
By
 Date
 No.
 1/16/16
 State of Vermont
 Professional Engineer
 License No. 6031
 Structural I
 T.Y. Lin International
 Scale: AS SHOWN
 Checked by:
 Drawn by: GSC
 Prepared for:
 MICHE CORPORATION, INC.
 173 BUXTON INDUSTRIAL DRIVE PO BOX 870
 BUXTON, VT 05309
 PHONE: 802-428-3218
 FAX: 802-428-7426
 DWG NO.
 S7.0



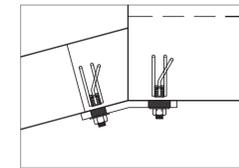
1 WW4C PLAN VIEW
S6.0 1/2" = 1'-0"



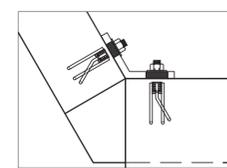
2 WW4B PLAN VIEW
S6.0 1/2" = 1'-0"



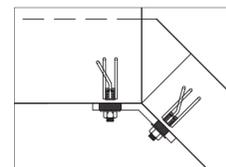
3 WW4A PLAN VIEW
S6.0 1/2" = 1'-0"



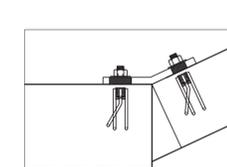
WW1 CONNECTION
165° BENT PLATE



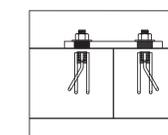
WW3 CONNECTION
120° BENT PLATE



WW2 CONNECTION
135° BENT PLATE

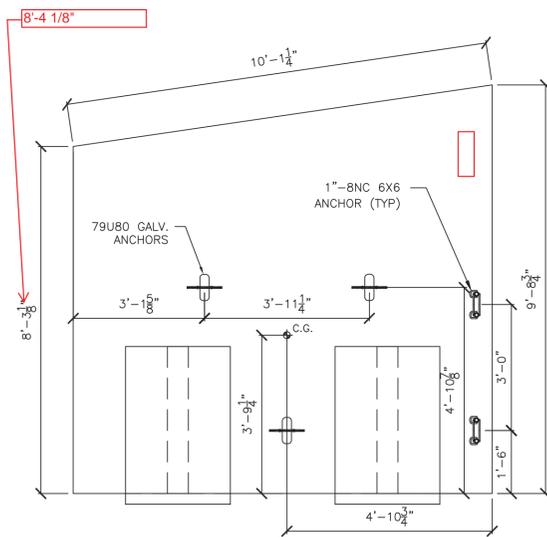


WW4 CONNECTION
155° BENT PLATE



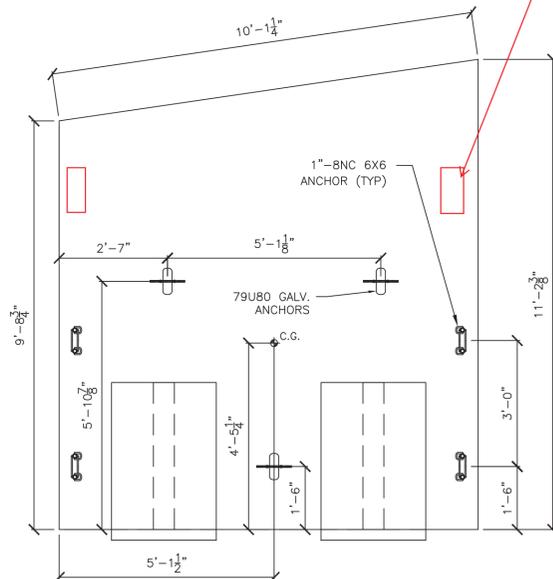
MIDWALL CONNECTION
180° PLATE

ALL CONNECTIONS USE
1" - 8NC 6X6 DOUBLE
WINGWALL ANCHORS
WITH 1" BENT PLATES



4 WW4C ELEVATION
S6.0 1/2" = 1'-0"

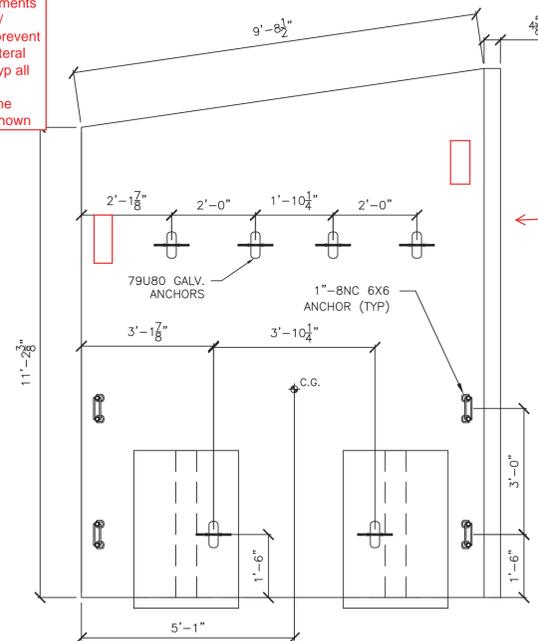
1 WW4C REQUIRED
UNIT WEIGHT AND VOLUME:
TOTAL: 15,377#
WALL: (2.78 CY)
C ANCHOR: 0.51 CY
D ANCHOR: 0.51 CY



5 WW4B ELEVATION
S6.0 1/2" = 1'-0"

1 WW4B REQUIRED
UNIT WEIGHT AND VOLUME:
TOTAL: 17,493#
WALL: (3.23 CY)
D ANCHOR: 0.58 CY
C ANCHOR: 0.51 CY

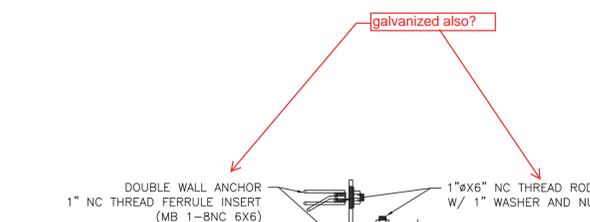
Provide additional anchor(s) between wingwall segments and wingwall/headwall to prevent differential lateral movement (typ all wings) or redistribute the connection shown



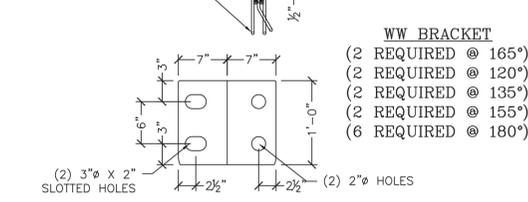
6 WW4A ELEVATION
S6.0 1/2" = 1'-0"

1 WW4A REQUIRED
UNIT WEIGHT AND VOLUME:
TOTAL: 19,602#
WALL: (3.68 CY)
D ANCHOR: 0.58 CY
D ANCHOR: 0.58 CY

wall height?



galvanized also?



3 WINGWALL BRACKET DETAIL
S5.0 1" = 1'-0"

PLATES TO BE MADE OF 3/8" MILD STEEL, PLASMA CUT, AND BENT AS REQUIRED. (HOT DIPPED GALVANIZED AFTER BENDING)

Vermont Agency of Transportation
RECEIVED
CK'D BY TYLin/KMH OK'D BY KMH
July 7, 2017
RESUBMIT Yes Rejected
BY Kristin M. Higgins DATE 07/11/2016

T.Y. LIN INTERNATIONAL
THE STAMPED DOCUMENTS ARE HEREBY:
____ APPROVED
____ APPROVED AS NOTED
____ REVISE AND RESUBMIT
SEE TRANSMITTAL FOR ADDITIONAL INFORMATION AS APPLICABLE.
THIS REVIEW IS FOR GENERAL CONFORMANCE WITH DESIGN CONCEPT ONLY. ANY DEVIATION FROM THE PLANS OR SPECIFICATIONS NOT CLEARLY NOTED BY THE CONTRACTOR HAS NOT BEEN REVIEWED. REVIEW BY THE ENGINEER SHALL NOT RELIEVE THE CONTRACTOR OF THE CONTRACTUAL RESPONSIBILITY FOR ANY ERRORS OR DEVIATION FROM THE CONTRACT REQUIREMENTS.
JOHN OLIND REVIEWER July 11, 2016 DATE

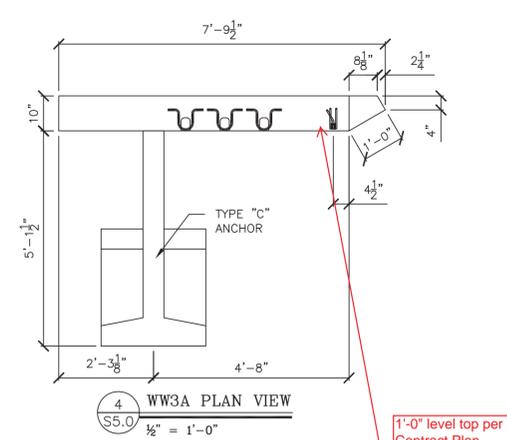
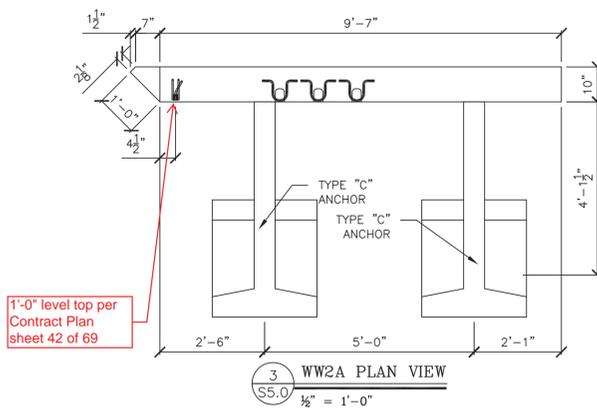
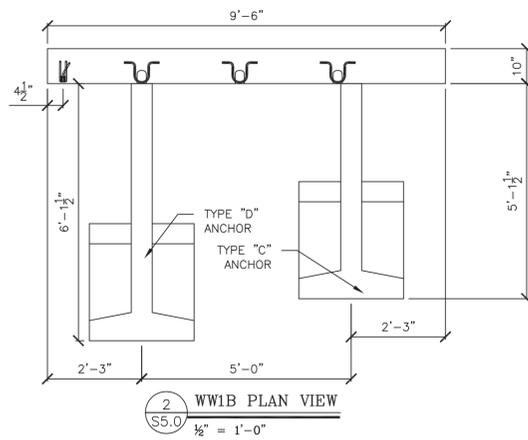
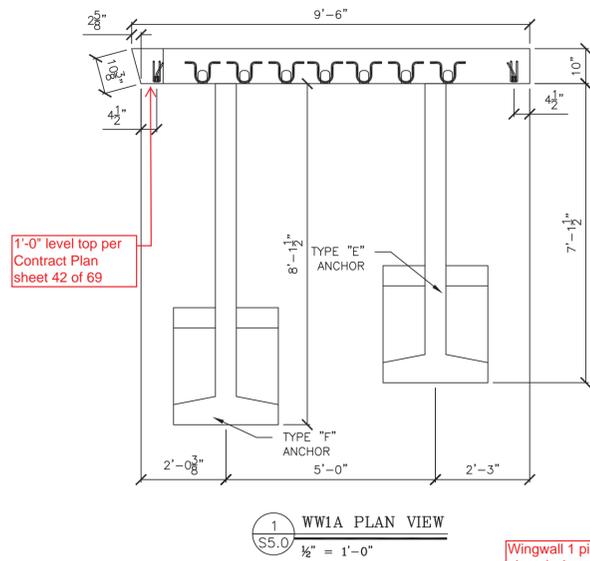
DESIGNED AND DETAILED BY:
DELTA
ENGINEERS, ARCHITECTS, & LAND SURVEYORS
880 HOOPER ROAD, ENDWELL, NY 13760-1564
TEL: (607) 231-6600 FAX: (607) 231-6650

Scale: AS SHOWN
Checked by: GSC
Drawn by: GSC
Project No. 7347
Date: 6/29/16
Designed by: DELTA

VT 100 Road Culvert
Duxbury, Vermont
Wingwall Details

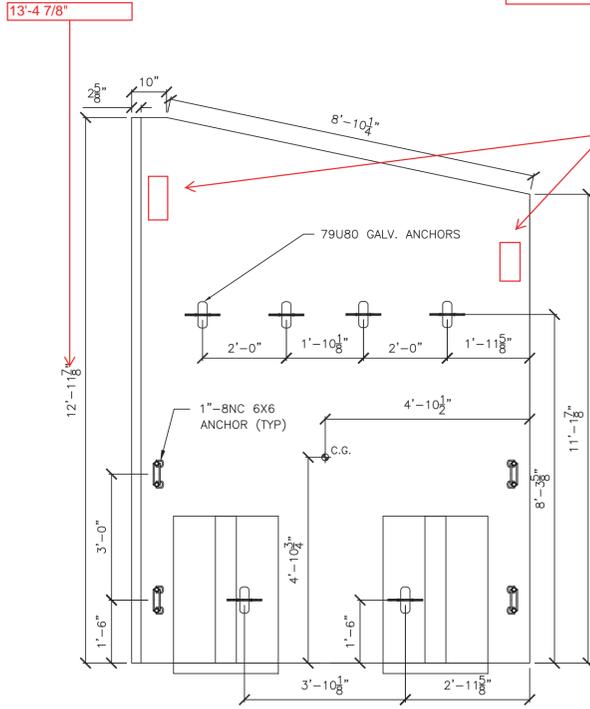
PREPARED FOR:
MICHE
MICHE CORPORATION, INC.
173 BUXTON INDUSTRIAL DRIVE, PO BOX 570
DUXBURY, VT 05828-0570
PHONE: 802-428-3218
FAX: 802-428-7426

DWG NO.
S6.0

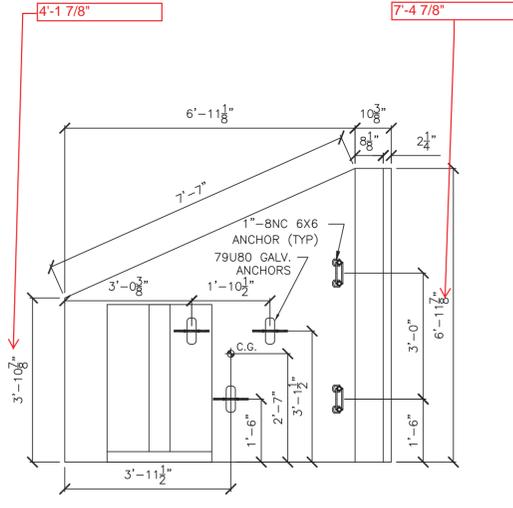
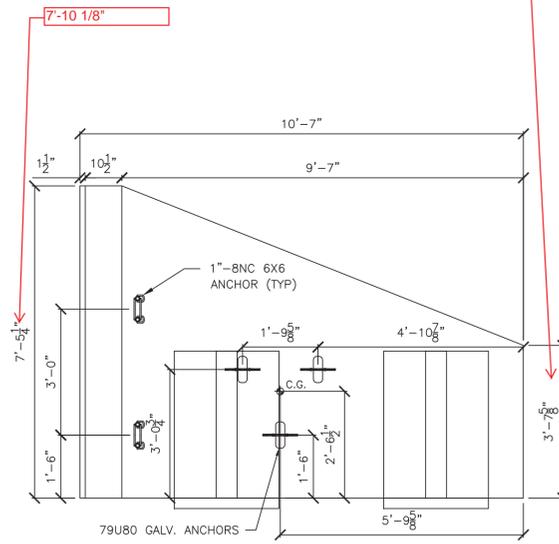
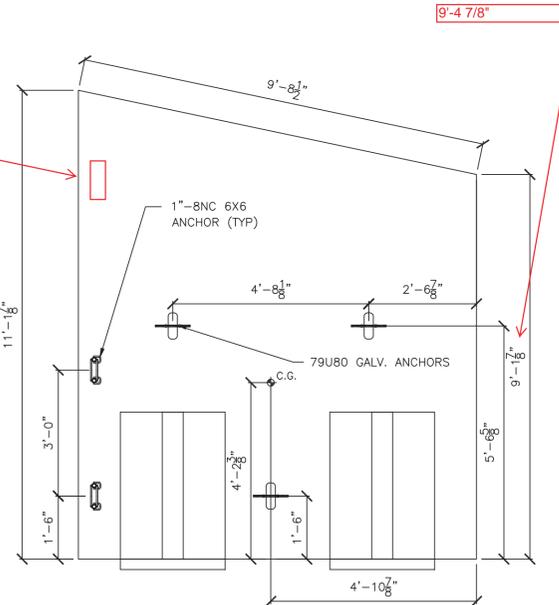


Wingwall 1 pieces appear to be drawn/detailed as if they will be placed where wingwall 3 should be.

Wingwall 3 appears to be drawn/detailed as if it will be placed where wingwall 1 should be.



Provide additional anchor(s) between wingwall segments and wingwall/headwall to prevent differential lateral movement (typ all wings)



1 WW1A REQUIRED
UNIT WEIGHT AND VOLUME:
TOTAL: 19,903#
WALL: (3.56 CY)
F ANCHOR: 0.71 CY
E ANCHOR: 0.64 CY

1 WW1B REQUIRED
UNIT WEIGHT AND VOLUME:
TOTAL: 16,478#
WALL: (2.98 CY)
D ANCHOR: 0.58 CY
C ANCHOR: 0.51 CY

1 WW2A REQUIRED
UNIT WEIGHT AND VOLUME:
TOTAL: 11,688#
WALL: (1.87 CY)
C ANCHOR: 0.51 CY
D ANCHOR: 0.51 CY

1 WW3A REQUIRED
UNIT WEIGHT AND VOLUME:
TOTAL: 7,540#
WALL: (1.35 CY)
C ANCHOR: 0.51 CY

Vermont Agency of Transportation
RECEIVED
CK'D BY TYLin/KMH OK'D BY KMH
July 7, 2017
RESUBMIT Yes Rejected
BY Kristin M. Higgins DATE 07/11/2016

T.Y. LIN INTERNATIONAL
THE STAMPED DOCUMENTS ARE HEREBY:
____ APPROVED
____ APPROVED AS NOTED
____ REVISE AND RESUBMIT
SEE TRANSMITTAL FOR ADDITIONAL INFORMATION AS APPLICABLE.
THIS REVIEW IS FOR GENERAL CONFORMANCE WITH DESIGN CONCEPT ONLY. ANY DEVIATION FROM THE PLANS OR SPECIFICATIONS NOT CLEARLY NOTED BY THE CONTRACTOR HAS NOT BEEN REVIEWED. REVIEW BY THE ENGINEER SHALL NOT RELIEVE THE CONTRACTOR OF THE CONTRACTUAL RESPONSIBILITY FOR ANY ERRORS OR DEVIATION FROM THE CONTRACT REQUIREMENTS.
JOSH OLLING REVIEWER July 11, 2016 DATE



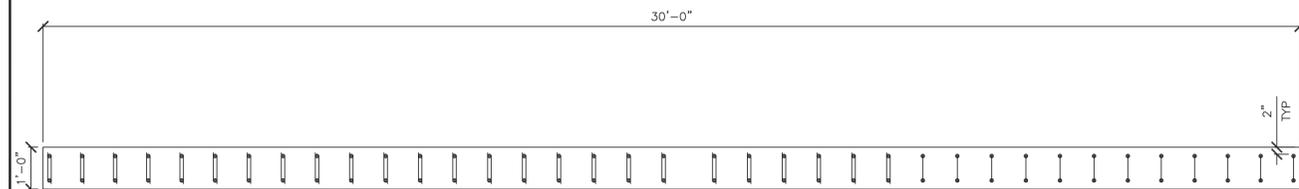
DESIGNED AND DETAILLED BY:
DELTA
ENGINEERS, ARCHITECTS, & LAND SURVEYORS
880 HOOPER ROAD, ENDWELL, NY 13760-1564
TEL: (607) 231-6600 FAX: (607) 231-6650

Scale: AS SHOWN
Checked by:
Drawn by: GSC
Designed by: DELTA
Project No. 7347
Date: 6/29/16

VT 100 Road Culvert
Duxbury, Vermont
Wingwall Details

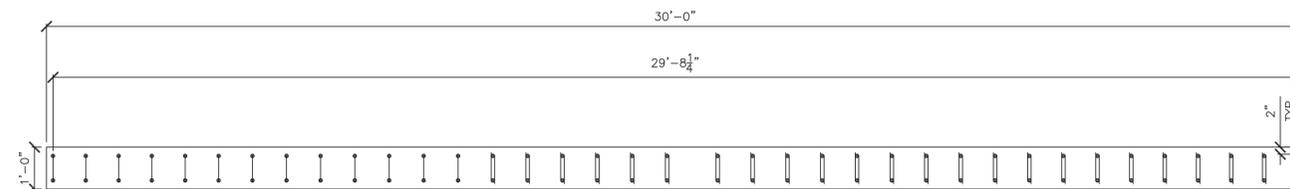
PREPARED FOR:
MICHE
MICHE CORPORATION, INC.
173 BUXTON INDUSTRIAL DRIVE PO BOX 870
DUXBURY, VT 05828
PHONE: 802-428-3218
FAX: 802-428-7426

DWG NO.
S5.0



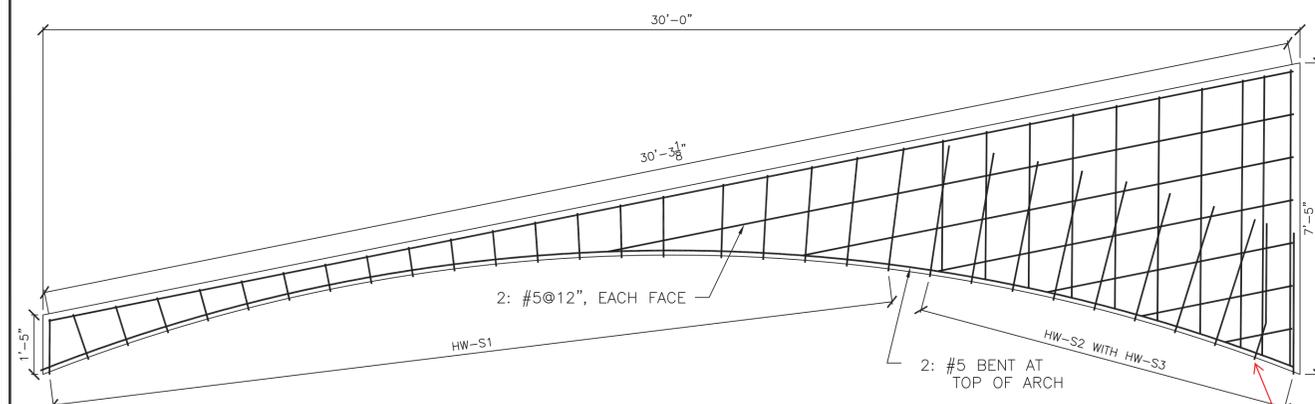
1
S4.0
INLET HEAD WALL PLAN VIEW
1/2" = 1'-0"

HW2 ONE REQUIRED
EACH PIECE WEIGHS: 11,300 LB
HEAD WALL: 2.79 CY

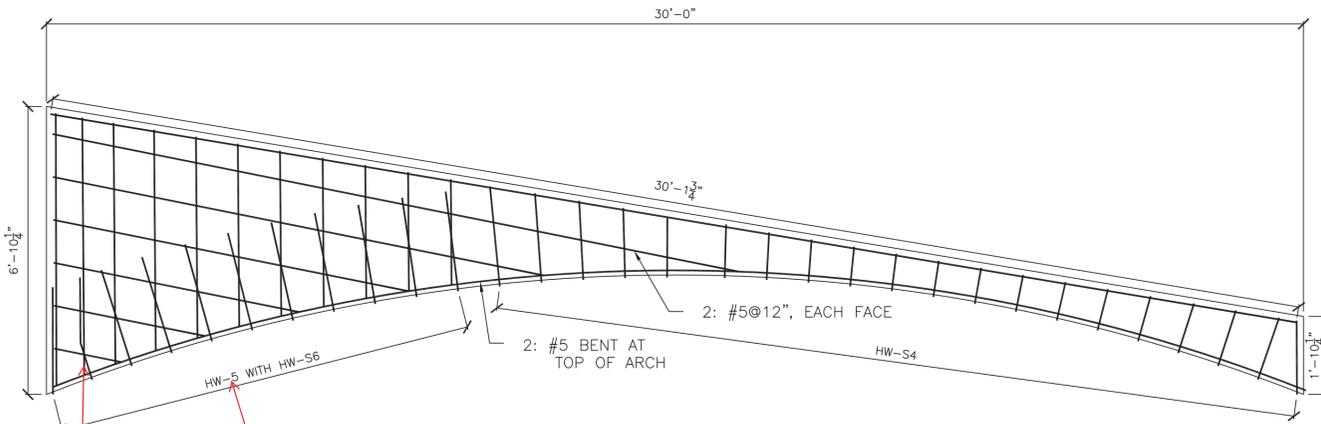


2
S4.0
OUTLET HEAD WALL PLAN VIEW
1/2" = 1'-0"

HW1 ONE REQUIRED
EACH PIECE WEIGHS: 11,016 LB
HEAD WALL: 2.72 CY

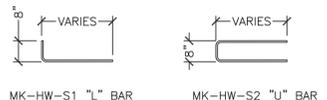


3
S4.0
INLET HEAD WALL ELEVATION VIEW (HW2)
1/2" = 1'-0"



4
S4.0
OUTLET HEAD WALL ELEVATION VIEW (HW1)
1/2" = 1'-0"

these bars are bent. dimensions of bend?



INLET HW2 REINFORCING SCHEDULE				
BAR MARK	TYPE	SIZE/SPACING	CUT LENGTH	# OF PCS
MK-HW-S1	BENT	#5@10"	1'-4 1/8" TO 3'-7 1/2"	21
MK-HW-S2	BENT	#5@10"	6'-11 1/2" TO 14'-9 1/4"	10
MK HW-S3	STRAIGHT DWL IN	#5	3'-2"	20

ALL REBAR TO BE EPOXY COATED

OUTLET HW1 REINFORCING SCHEDULE				
BAR MARK	TYPE	SIZE/SPACING	CUT LENGTH	# OF PCS
MK-HW-S4	BENT	#5@10"	1'-6 1/2" TO 3'-0 3/4"	27
MK-HW-S5	BENT	#5@10"	5'-8 1/2" TO 13'-7 1/2"	11
MK HW-S6	STRAIGHT DWL IN	#5	3'-2"	22

ALL REBAR TO BE EPOXY COATED

Vermont Agency of Transportation
RECEIVED
CK'D BY TYLin/KMH OK'D BY KMH
July 7, 2017
RESUBMIT Yes Rejected
BY Kristin M. Higgins DATE 07/11/2016

T.Y. LIN INTERNATIONAL
THE STAMPED DOCUMENTS ARE HEREBY:
APPROVED
APPROVED AS NOTED
REVISE AND RESUBMIT
SEE TRANSMITTAL FOR ADDITIONAL INFORMATION AS APPLICABLE
THIS REVIEW IS FOR GENERAL CONFORMANCE WITH DESIGN CONCEPT ONLY. ANY DEVIATION FROM THE PLANS OR SPECIFICATIONS NOT CLEARLY NOTED BY THE CONTRACTOR HAS NOT BEEN REVIEWED. REVIEW BY THE ENGINEER SHALL NOT RELIEVE THE CONTRACTOR OF THE CONTRACTUAL RESPONSIBILITY FOR ANY ERRORS OR DEVIATION FROM THE CONTRACT REQUIREMENTS.
JOSH OLEND REVISOR July 11, 2016 DATE



DESIGNED AND DETAILED BY:
DELTA
ENGINEERS, ARCHITECTS, & LAND SURVEYORS
860 HOOPER ROAD, ENDWELL, NY 13760-1564
TEL. (607) 831-6600 FAX. (607) 831-6650

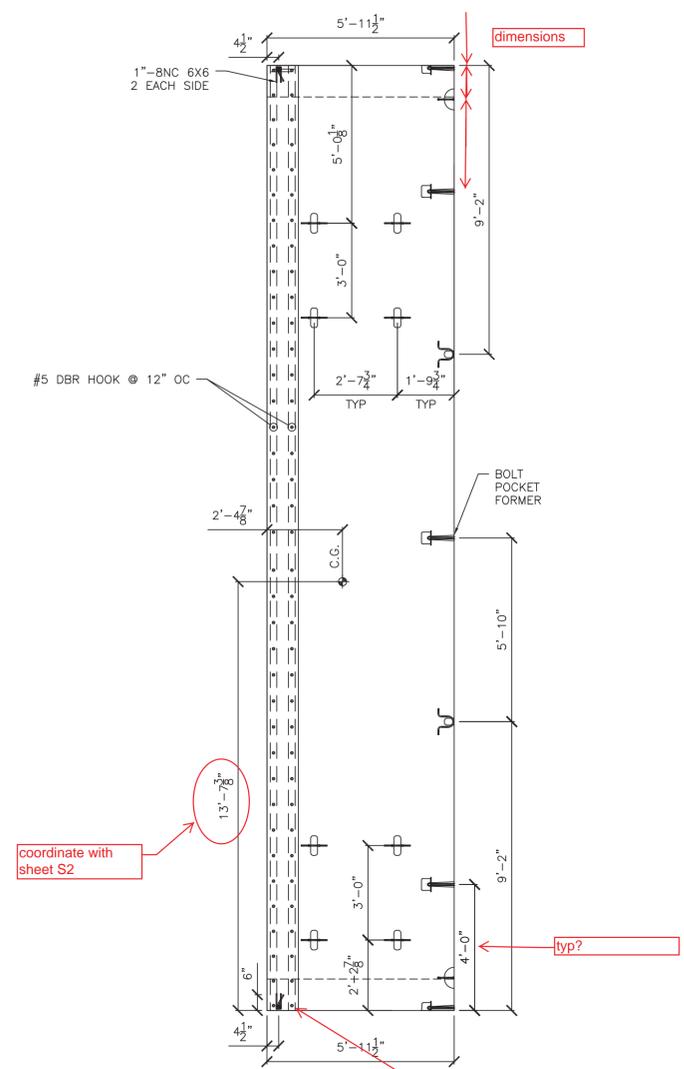
Scale: AS SHOWN
Checked by:
Drawn by: GSC
Designed by: DELTA
VT 100 Road Culvert
Duxbury, Vermont
Head Wall Details

Project No. 7347
Date: 6/29/16

PREPARED FOR:
MICHELLE
MICHELLE CORPORATION, INC.
173 BOSTON INDUSTRIAL DRIVE
BOSTON, MA 02128
PHONE: 603-428-3218
FAX: 603-428-7426

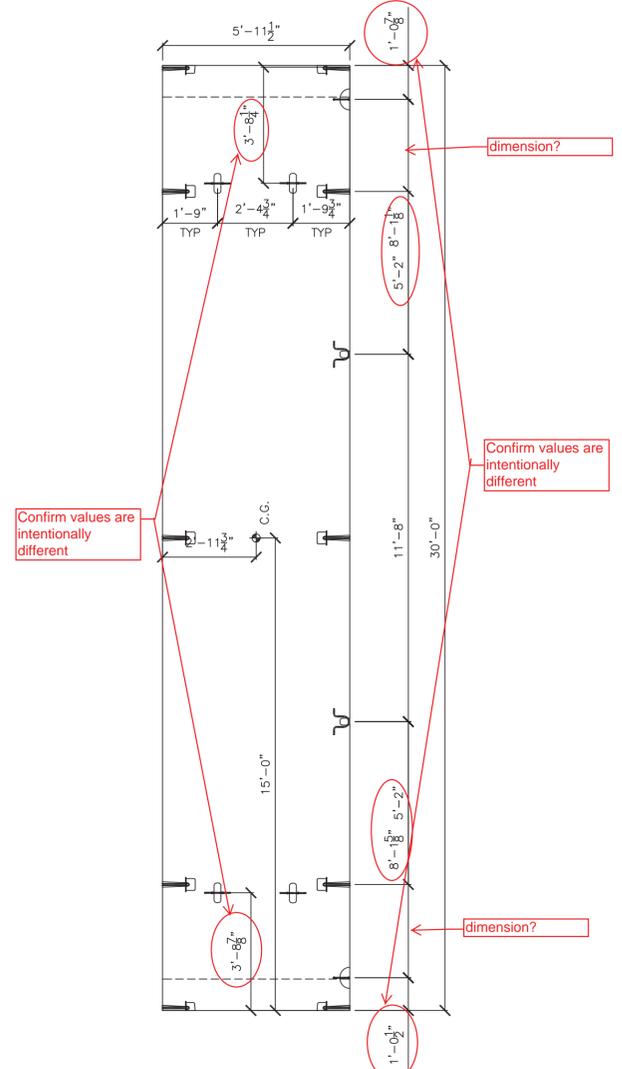
DWG NO.
S4.0

No.	Date	Revision	By



1 AC-1 PLAN VIEW
S3.0 3/8" = 1'-0"

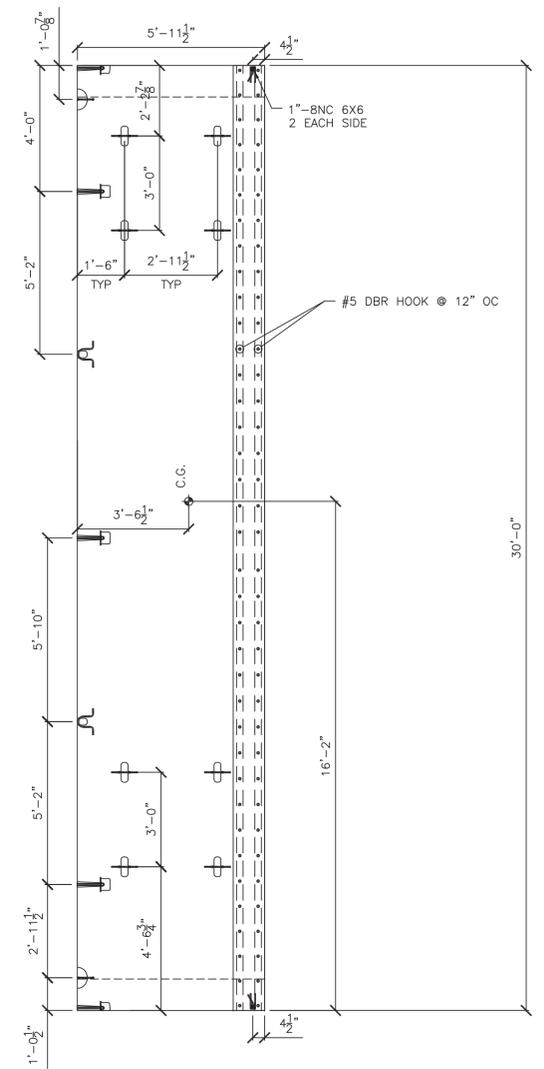
how far from the edge to start placing these? 2"?



2 AC-2 PLAN VIEW
S3.0 3/8" = 1'-0"

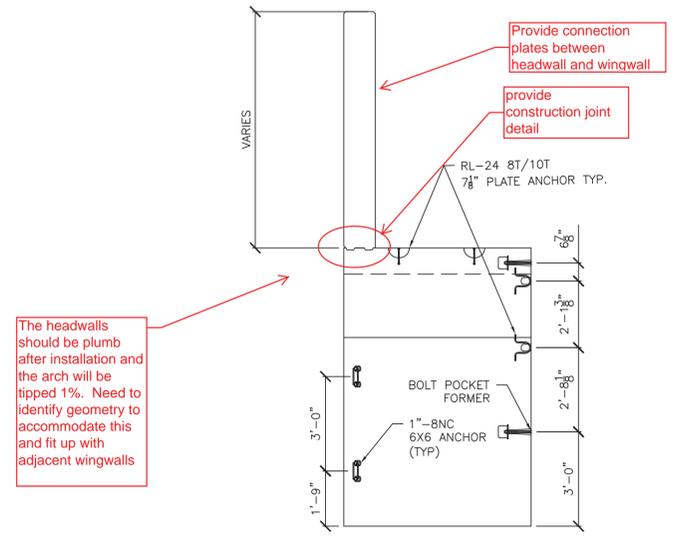
Confirm values are intentionally different

Confirm values are intentionally different



3 AC-3 PLAN VIEW
S3.0 3/8" = 1'-0"

dimension?

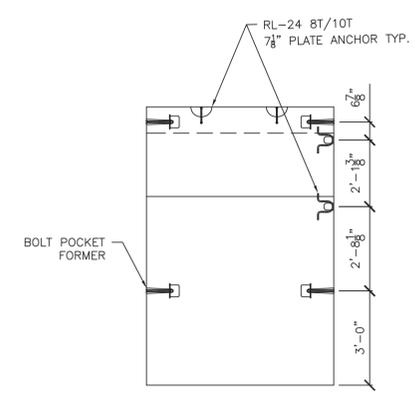


4 AC-1 ELEVATION VIEW
S3.0

AC-1: 1 REQ'D
UNIT WEIGHT AND VOLUME:
CULVERT: 9.24 CY (37,422#)
HEADWALL: 2.79 CY (11,300#)
TOTAL WEIGHT: 48,722#

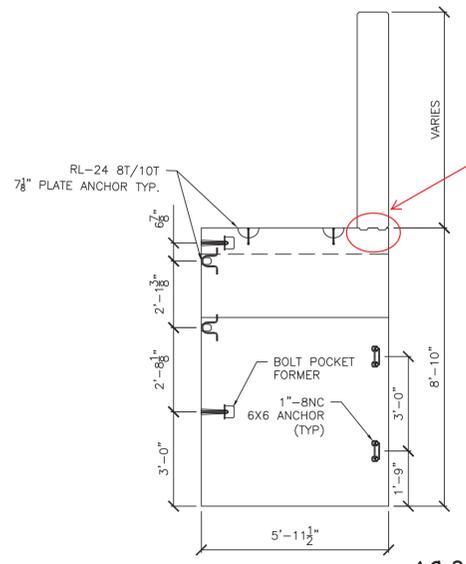
The headwalls should be plumb after installation and the arch will be tipped 1%. Need to identify geometry to accommodate this and fit up with adjacent wingwalls

Provide connection plates between headwall and wingwall
provide construction joint detail



5 AC-2 ELEVATION VIEW
S3.0 3/8" = 1'-0"

AC-2: 22 REQ'D
UNIT WEIGHT AND VOLUME:
CULVERT: 9.24 CY (37,422#)
TOTAL WEIGHT: 37,422#



6 AC-3 ELEVATION VIEW
S3.0 3/8" = 1'-0"

AC-3: 1 REQ'D
UNIT WEIGHT AND VOLUME:
CULVERT: 9.24 CY (37,422#)
HEADWALL: 2.71 CY (11,016#)
TOTAL WEIGHT: 48,438#

detail of key way dimensions?

Vermont Agency of Transportation
RECEIVED
CK'D BY TYLin/KMH OK'D BY KMH
July 7, 2017
RESUBMIT Yes Rejected
BY Kristin M. Higgins DATE 07/11/2016

T.Y. LIN INTERNATIONAL
THE STAMPED DOCUMENTS ARE HEREBY:
____ APPROVED
____ APPROVED AS NOTED
____ REVISE AND RESUBMIT
SEE TRANSMITTAL FOR ADDITIONAL INFORMATION AS APPLICABLE.
THIS REVIEW IS FOR GENERAL CONFORMANCE WITH DESIGN CONCEPT ONLY. ANY DEVIATION FROM THE PLANS OR SPECIFICATIONS NOT CLEARLY NOTED BY THE CONTRACTOR HAS NOT BEEN REVIEWED. REVIEW BY THE ENGINEER SHALL NOT BELIEVE THE CONTRACTOR OF THE CONTRACTUAL RESPONSIBILITY FOR ANY ERRORS OR DEVIATION FROM THE CONTRACT REQUIREMENTS.
JOSH OLIND REVIEWER July 11, 2016 DATE

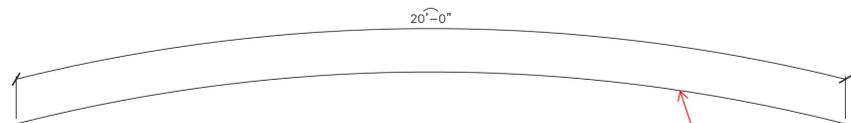
DESIGNED AND DETAILED BY:
DELTA
ENGINEERS, ARCHITECTS, & LAND SURVEYORS
860 HOOPER ROAD, ENDWELL, NY 13760-1564
TEL: (607) 831-6600 FAX: (607) 831-6650

Project No. 7347
Date: 6/29/16
Drawn by: GSC
Checked by:
Scale: AS SHOWN
Date: 7/6/16
No. _____
Date _____
Revision _____
By _____

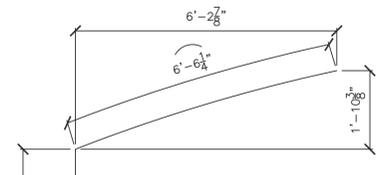
VT 100 Road Culvert
Duxbury, Vermont
Culvert Plans And Elevations

PREPARED FOR:
MICHE
MICHE CORPORATION, INC.
173 BUXTON INDUSTRIAL DRIVE PO BOX 570
BUXTON, VT 05202
PHONE: 802-428-3218
FAX: 802-428-7426

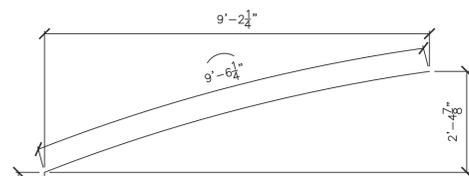
DWG NO.
S3.0



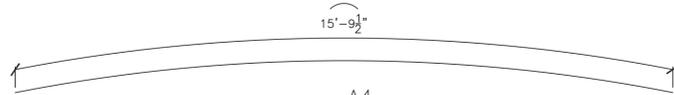
A1
(UNBENT = 20'-0")



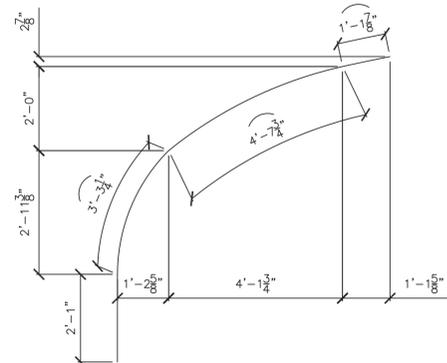
A2
(UNBENT = 11'-11 1/4")



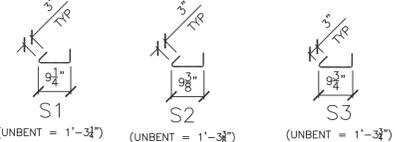
A3
(UNBENT = 15'-3 3/4")



A4
(UNBENT = 15'-9 1/2")



A5
(UNBENT = 11'-2")

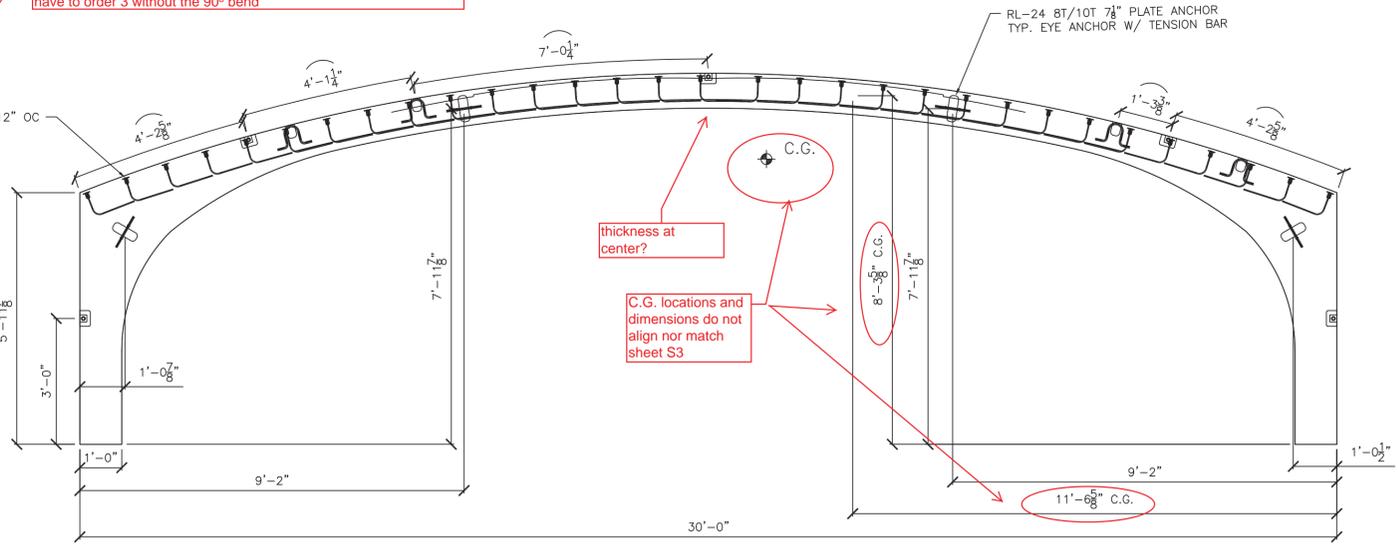


S1 (UNBENT = 1'-3 1/4")
S2 (UNBENT = 1'-3 3/8")
S3 (UNBENT = 1'-3 3/4")

Bar Radius? (Typ for all bars this sheet)

dimension of these? Need 3 extra complete sets for testing. We would like at a very minimum of 7" of straight bar below the "bell" portion of the dowel bar insert. If there is not enough then they will have to order 3 without the 90° bend

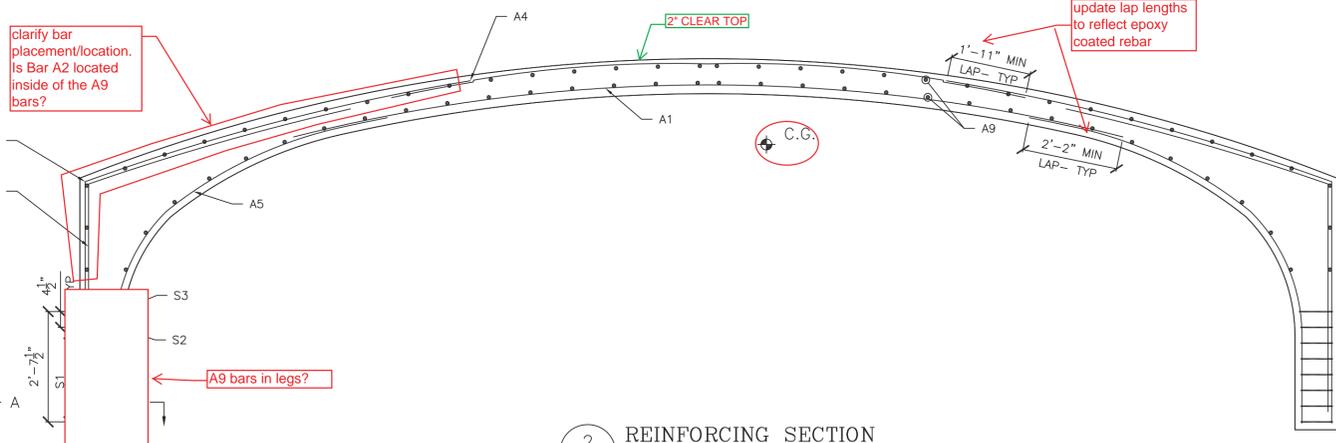
#5 DBR HOOK @ 12" OC



1 ELEVATION VIEW
S2.0 3/8" = 1'-0"

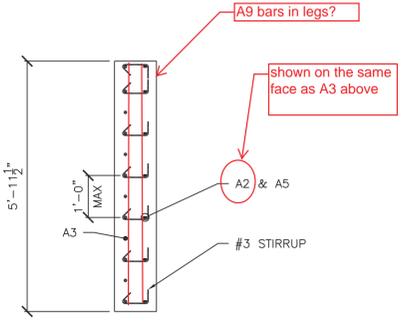
T.Y. LIN INTERNATIONAL
THE STAMPED DOCUMENTS ARE HEREBY:
____ APPROVED
____ APPROVED AS NOTED
____ X REVISE AND RESUBMIT
SEE TRANSMITTAL FOR ADDITIONAL INFORMATION AS APPLICABLE.
THIS REVIEW IS FOR GENERAL CONFORMANCE WITH DESIGN CONCEPT ONLY. ANY DEVIATION FROM THE PLANS OR SPECIFICATIONS NOT CLEARLY NOTED BY THE CONTRACTOR HAS NOT BEEN REVIEWED. REVIEW BY THE ENGINEER SHALL NOT RELIEVE THE CONTRACTOR OF THE CONTRACTUAL RESPONSIBILITY FOR ANY ERRORS OR DEVIATION FROM THE CONTRACT REQUIREMENTS.
JOSH OLUND REVIEWER July 11, 2016 DATE

Vermont Agency of Transportation
RECEIVED
CK'D BY TYLin/KMH OK'D BY KMH
July 7, 2017
RESUBMIT Yes Rejected
BY Kristin M. Higgins DATE 07/11/2016



2 REINFORCING SECTION
S2.0 3/8" = 1'-0"

1 1/2" CLEAR UNLESS OTHERWISE NOTED



SECTION A-A

BAR MARK	TYPE	SIZE/SPACING	CUT LENGTH	# OF PCS
A1	RADIUS	#6@5"	20'-0"	15
A2	L	#5@5"	11'-11 1/4"	30
A3	L	#6@5"	15'-3 3/4"	30
A4	RADIUS	#4@10"	15'-9 1/2"	7
A5	L	#5@10"	11'-2"	7/LEG
A9	STRAIGHT	#4@12"	5'-7 1/2"	52
S1	STIRRUP	#3@4 1/2"	1'-3 1/4"	42/LEG
S2	STIRRUP	#3@4 1/2"	1'-3 3/8"	7/LEG
S3	STIRRUP	#3@4 1/2"	1'-3 3/4"	7/LEG



DESIGNED AND DETAILLED BY:
DELTA
ENGINEERS, ARCHITECTS, & LAND SURVEYORS
880 HOOPER ROAD, ENDWELL, NY 13760-1564
TEL. (607) 821-6600 FAX. (607) 821-6650

Scale: AS SHOWN
Checked by:
Drawn by: GSC
Designed by: DELTA
Project No. 7347
Date: 6/29/16

PREPARED FOR:
MICHIE
MICHIE CORPORATION, INC.
173 BUXTON INDUSTRIAL DRIVE
PO BOX 870
PHOENIX, AZ 85061
PHONE: 602-428-3218
FAX: 602-428-7428