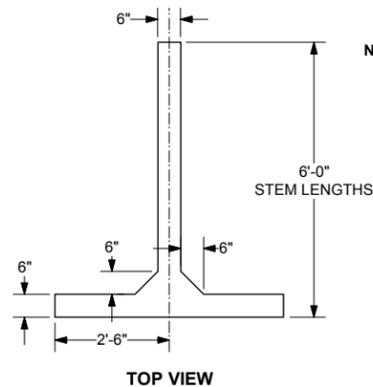


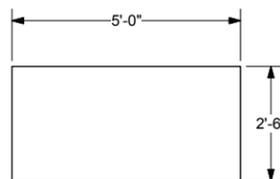
APPROVED: Approval of drawings and/or procedures indicates concurrence with the information presented and does not relieve the Contractor or Fabricator of compliance with all specifications and code requirements	X	
APPROVED AS NOTED		
REVISE AND RESUBMIT		
NOT REVIEWED		
Date: 4/2/15		
By: George Bogue		
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Vermont Agency of Transportation
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 ON: **March 17, 2015**
 and Checked for
CONFORMANCE
 BY: **D Bonneau** DATE: **04/03/15**

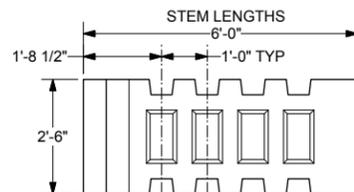


NOTES:
 • UNIT STEM LENGTHS RANGE FROM 2.25' TO 12'-0", IN 2'-0" INCREMENTS

T-WALL® UNIT WEIGHTS	
PANEL TYPES	WEIGHTS
2.5x5.0x06 Std	1836 lbs
2.5x5.0x08 Std	2098 lbs
2.5x5.0x10 Std	2360 lbs
2.5x5.0x12 Std	2622 lbs



FRONT VIEW



SIDE VIEW

TYPICAL 2'-6" x 5'-0" x 6'-0" STEM T-WALL® UNIT



SHEET SCALE

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This drawing contains information proprietary to The Neel Company. T-WALL® is a registered trademark owned by The Neel Company. ©2015 The Neel Company

PRECASTER: CONCRETE SYSTEMS, INC.
 HUDSON, NH
PROJECT #: T22259

CONTRACTOR: J. A. McDONALD
 LYNDON CENTER, VT
PROJECT #:

DESIGNER

THE NEEL COMPANY
 8328-D TRAFORD LANE
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 PH: (703) 913-7858
 FX: (703) 913-7859
 WEB: WWW.NEELCO.COM

PROJECT #: TW4437

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF T-WALL® STRUCTURES ONLY



REVISIONS

1	ADDRESS STANTEC COMMENTS 2/19/2015	CTH	3/6/2015
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I-89 BRIDGE DECK REPLACEMENTS
I-89 OVER STOWE STREET
 WATERBURY, VT
 VTRANS PROJECT NO. IM 089-2(43)
 SHOP DRAWINGS
 COVER SHEET
 T-WALL® RETAINING WALL SYSTEM

SCALE:	NO SCALE
DATE:	1/23/2015
DESIGNED BY:	KB
DRAWN BY:	CTH
CHECKED BY:	KB
SHEET:	TW-1

I-89 BRIDGE DECK REPLACEMENTS

I-89 OVER STOWE STREET

WATERBURY, VT

VTRANS PROJECT NO. IM 089-2(43)

T-WALL® RETAINING WALL SYSTEM

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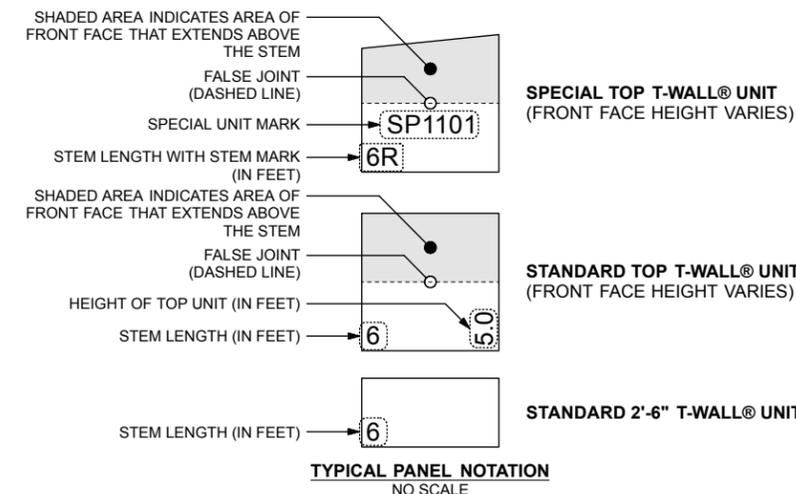
PRECASTER

CSI
 Concrete Systems Inc.
 9 Commercial St., Hudson, NH, 03051
 Phone 603-889-4163
 Fax 603-889-2417
 Web www.csigroup.biz

INDEX OF DRAWINGS

**SEE SHEET TW-2 FOR
INDEX OF DRAWINGS**

LEGEND



INDEX OF DRAWINGS

SHEET	TITLE	REV	DATE
TW-1	COVER SHEET	1	3/6/2015
TW-2	INDEX OF DRAWINGS	1	3/6/2015
TW-3	T-WALL® NOMENCLATURE AND TYPICAL SYSTEM DETAILS		1/23/2015
TW-4	GENERAL T-WALL® NOTES AND QUANTITIES	1	3/6/2015
TW-5	WALL A ELEVATION, PLAN AND SECTION		1/23/2015
TW-6	WALL 1 ELEVATION, PLAN, SECTION	1	3/6/2015
TW-7	WALL 1 90 DEG. CORNER DETAIL	1	3/6/2015
TW-8	WALL 1 CORNER PAN REMOVAL DETAIL	1	3/6/2015
TW-9	WALL 2 ELEVATION, PLAN, SECTION	1	3/6/2015
TW-10	WALL 2 90 DEG. CORNER DETAIL	1	3/6/2015
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TW-12	WALL 3 ELEVATION, PLAN, SECTION	1	3/6/2015
TW-13	WALL 3 90 DEG. CORNER DETAIL	1	3/6/2015
TW-14	WALL 3 CORNER PAN REMOVAL DETAIL	1	3/6/2015
TW-15	WALL 4 ELEVATION, PLAN, SECTION	1	3/6/2015
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TW-20	WALL 5 CORNER PAN REMOVAL DETAIL	1	3/6/2015
TW-21	WALL 6 ELEVATION, PLAN, SECTION	1	3/6/2015
TW-22	WALL 6 90 DEG. CORNER DETAIL	1	3/6/2015
TW-23	WALL 6 CORNER PAN REMOVAL DETAIL	1	3/6/2015
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TW-30	STANDARD UNIT REBAR (I)		1/23/2015
TW-31	STANDARD UNIT REBAR (II)	1	3/6/2015
TW-32	STANDARD CORNER UNIT REBAR (I)		1/23/2015
TW-33	STANDARD CORNER UNIT REBAR (II)	1	3/6/2015
TW-34	STANDARD CORNER 2.25' STEM REBAR (I)		1/23/2015
TW-35	STANDARD CORNER 2.25' STEM REBAR (II)	1	3/6/2015
TW-36	STANDARD CORNER 2.75' STEM REBAR (I)		1/23/2015
TW-37	STANDARD CORNER 2.75' STEM REBAR (II)	1	3/6/2015
TW-38	STANDARD TOP UNIT REBAR (I)		1/23/2015
TW-39	STANDARD TOP UNIT REBAR (II)	1	3/6/2015
TW-40	STANDARD TOP CORNER UNIT REBAR (I)		1/23/2015
TW-41	STANDARD TOP CORNER UNIT REBAR (II)	1	3/6/2015
TW-42	STANDARD TOP CORNER 2.25' STEM REBAR (I)		1/23/2015
TW-43	STANDARD TOP CORNER 2.25' STEM REBAR (II)	1	3/6/2015
TW-44	SPECIAL UNITS SP1, SP4, SP5, SP8 REBAR (I)		1/23/2015
TW-45	SPECIAL UNITS SP1, SP4, SP5, SP8 REBAR (II)	1	3/6/2015
TW-46	SPECIAL UNITS SP2, SP3, SP6 REBAR (I)		1/23/2015
TW-47	SPECIAL UNITS SP2, SP3, SP6 REBAR (II)	1	3/6/2015
TW-48	SPECIAL UNIT SP7 REBAR (I)		1/23/2015
TW-49	SPECIAL UNIT SP7 REBAR (II)	1	3/6/2015

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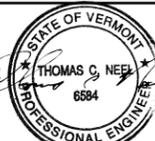
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PRECASTER: CONCRETE SYSTEMS, INC. HUDSON, NH PROJECT #: T22259
CONTRACTOR: J. A. MCDONALD LYNDON CENTER, VT PROJECT #:

DESIGNER
 THE NEEL COMPANY 8328-D TRAFORD LANE SPRINGFIELD, VIRGINIA 22152 PH: (703) 913-7858 FX: (703) 913-7859 WEB: WWW.NEELCO.COM
PROJECT #: TW4437

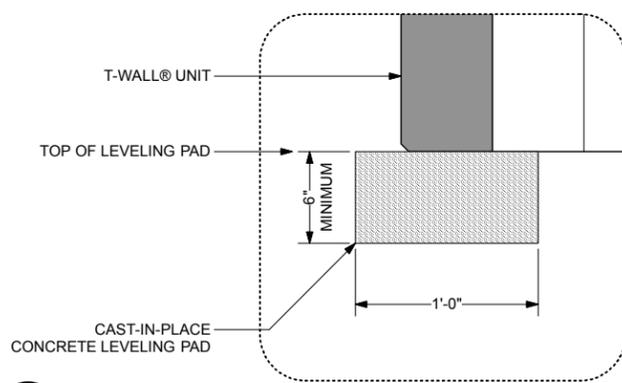
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TO INTERNAL STABILITY OF
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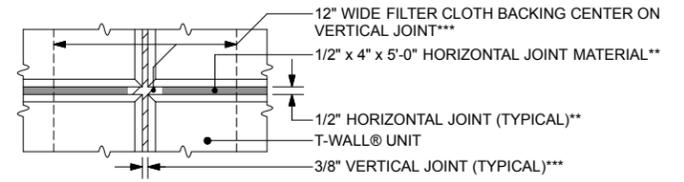
REVISIONS		
1	UPDATE INDEX OF SHEETS	CTH 3/6/2015

**I-89 BRIDGE DECK REPLACEMENTS
I-89 OVER STOWE STREET**
WATERBURY, VT
VTRANS PROJECT NO. IM 089-2(43)
SHOP DRAWINGS
INDEX OF DRAWINGS
T-WALL® RETAINING WALL SYSTEM

SCALE:	NO SCALE
DATE:	1/23/2015
DESIGNED BY:	KB
DRAWN BY:	CTH
CHECKED BY:	KB
SHEET:	TW-2



4 LEVELING PAD DETAIL
Scale: 2" = 1'-0"



3 HORIZONTAL AND VERTICAL JOINT DETAIL
Scale: 2" = 1'-0"
** SEE GENERAL NOTE 4 ON SHEET TW-4 FOR ADDITIONAL DETAILS
*** SEE GENERAL NOTE 5 ON SHEET TW-4 FOR ADDITIONAL DETAILS

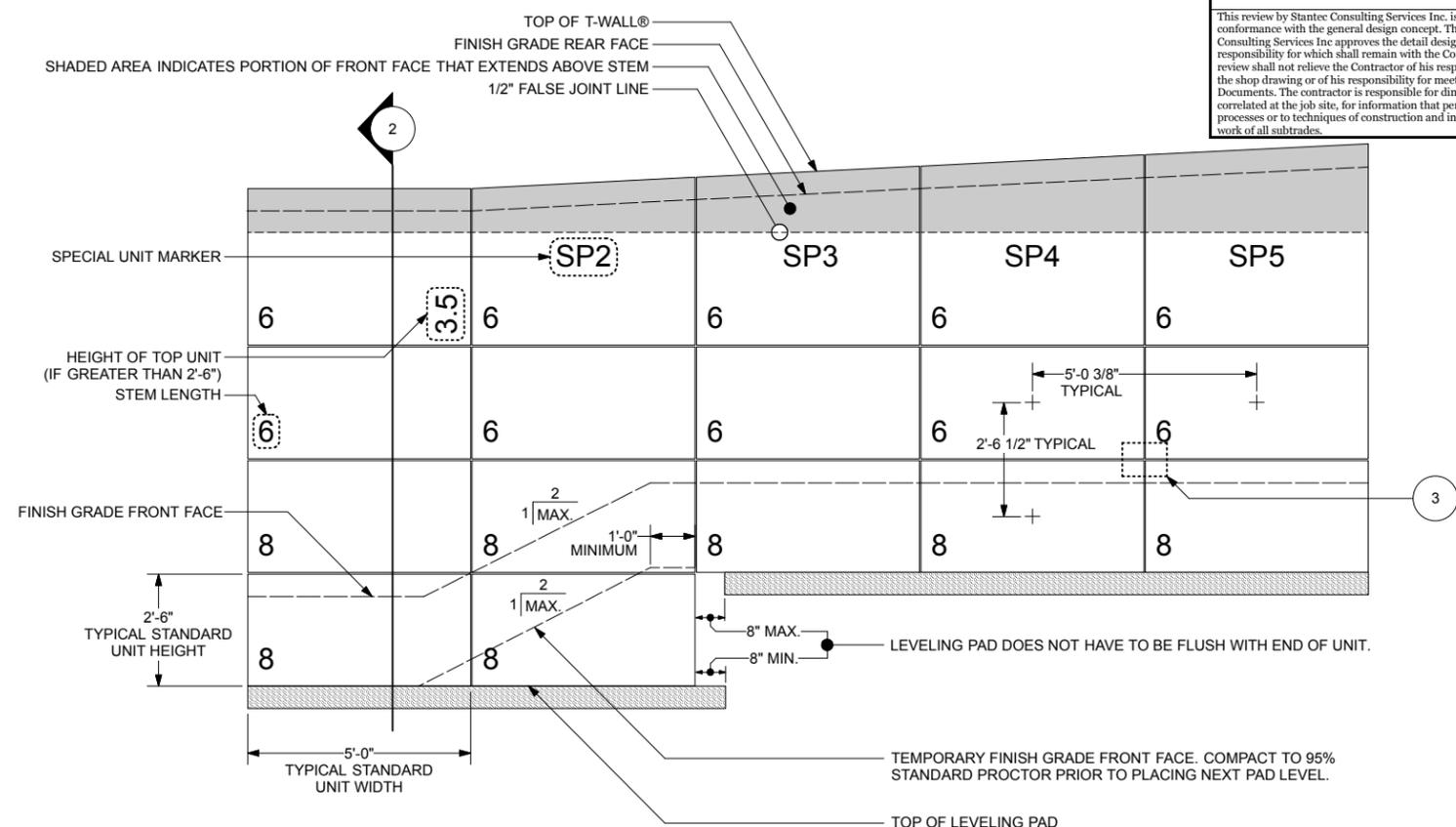
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NOMENCLATURE NOTE:
THIS SHEET IS PROVIDED FOR GENERAL INFORMATION PURPOSES ONLY, REFERENCING STANDARD DETAILS APPLICABLE TO ANY T-WALL® STRUCTURE. THIS SHEET IS NOT INTENDED TO PROVIDE DETAILS SPECIFIC TO THE WALL STRUCTURES CONTAINED IN THIS DRAWING PACKAGE. FOR INFORMATION SPECIFIC TO THESE WALLS, SEE THE APPLICABLE DRAWING SHEETS.

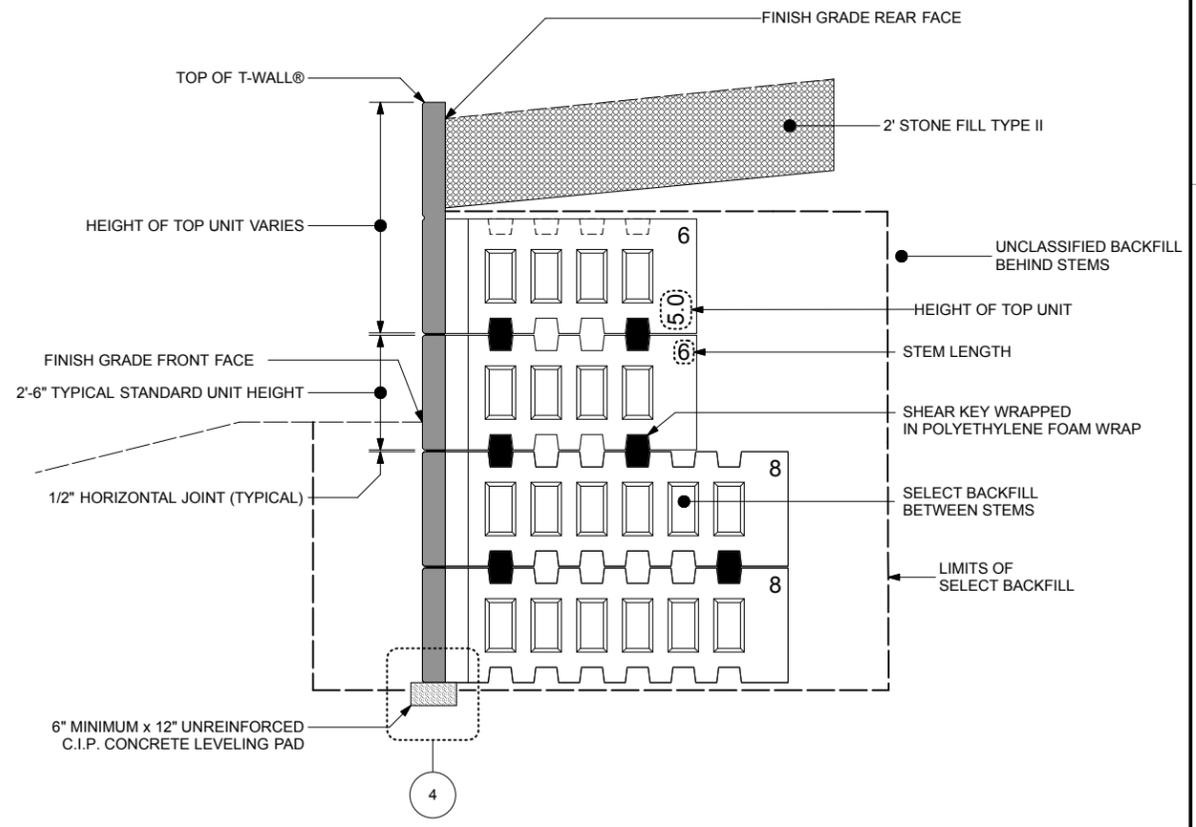
SHEAR KEY NOTES:
1. WALL IS DESIGNED FOR SPECIFIC NUMBER OF SHEAR KEYS AS NOTED IN 'GENERAL NOTES', NOTE 11 'SHEAR KEY' ON SHEET TW-4. LOCATION OF SHEAR KEYS CAN BE ADJUSTED IF NECESSARY AT A SPECIFIC LEVEL.

Vermont Agency of Transportation
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BY: **D Bonneau** DATE: **04/03/15**



1 PARTIAL ELEVATION SHOWN - TYPICAL DETAILS
Scale: 1/2" = 1'-0"

NOT ALL DETAILS APPLY. SEE SPECIFIC WALL ELEVATIONS



2 PARTIAL ELEVATION SHOWN - TYPICAL DETAILS
Scale: 1/2" = 1'-0"

NOT ALL DETAILS APPLY. SEE SPECIFIC WALL ELEVATIONS



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HUDSON, NH
PROJECT #: T22259

CONTRACTOR: J. A. MCDONALD
LYNDON CENTER, VT
PROJECT #:

DESIGNER

THE NEEL COMPANY
8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM

PROJECT #: TW4437

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF T-WALL® STRUCTURES ONLY

REVISIONS	

I-89 BRIDGE DECK REPLACEMENTS
I-89 OVER STOWE STREET
WATERBURY, VT
VTRANS PROJECT NO. IM 089-2(43)
SHOP DRAWINGS
T-WALL® NOMENCLATURE AND TYPICAL SYSTEM DETAILS

T-WALL® RETAINING WALL SYSTEM

SCALE:	AS NOTED
DATE:	1/23/2015
DESIGNED BY:	KB
DRAWN BY:	CTH
CHECKED BY:	KB
SHEET:	TW-3

UTILITIES NOTES:

1. THE CONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING UTILITIES (HORIZONTAL AND VERTICAL) PRIOR TO CONSTRUCTION.
2. CONTRACTOR SHALL NOTIFY OTHER PUBLIC UTILITIES (GAS, PHONE, ELECTRIC, CABLE TV, WATER, SEWER, ETC.) TO MAKE ALL NECESSARY ADJUSTMENTS TO RESPECTIVE FACILITIES BEFORE START OF CONSTRUCTION OF T-WALL'S LEVELING PAD.
3. ANY EXISTING UTILITIES THAT ARE LOCATED WITHIN THE STEM AREA OF THE T-WALL® UNITS MUST BE RELOCATED. ALL UTILITIES MUST STAY CLEAR OF T-WALL® STEM BY 2'-0".
4. T-WALL® UNIT AND UTILITY CONFLICTS:
 - FIELD CUTTING OF T-WALL® UNITS TO AVOID UTILITY CONFLICTS (NOT SHOWN ON CONTRACT DRAWINGS) IS PROHIBITED UNTIL IT IS BROUGHT TO THE DESIGNER'S ATTENTION. THE NEEL COMPANY SHALL PROVIDE DIRECTION AND / OR REDESIGN T-WALL® UNITS TO AVOID CONFLICTS.

SPECIAL NOTES:

1. THESE DRAWINGS WERE PREPARED BASED ON INFORMATION GIVEN IN THE FOLLOWING:
 - **CONTRACT DRAWINGS:**
 - IM 089-2(43) (RE-ADVERTISED)
 - PREPARED BY STANTEC, SOUTH BURLINGTON, VT, 6/10/2014
 - **GEOTECHNICAL REPORT:**
 - INFORMATION PROVIDED ON CONTRACT DRAWINGS BR100 THRU BR106
 - **SPECIFICATIONS:**
 - NONE PROVIDED
2. REPORT DISCREPANCIES BETWEEN CONTRACT INFORMATION AND ACTUAL CONDITIONS AS SITE WORK PROGRESSES TO THE NEEL COMPANY FOR REDESIGN. NO LIABILITY IS ACCEPTED FOR INACCURATE INFORMATION SUPPLIED BY OTHERS.
3. THE FOLLOWING ASSUMPTIONS WERE MADE:
 - FOUNDATION IS ABLE TO SUPPORT BEARING PRESSURE SHOWN IN SPECIAL NOTES 4 WITH AN ACCEPTABLE FACTOR OF SAFETY.
4. APPLIED BEARING PRESSURE AT MAXIMUM HEIGHT:
 - WALL A 3,703 psf (FACTORED) 2,537 psf (UNFACTORED)
 - WALL 1 3,001 psf (FACTORED) 2,022 psf (UNFACTORED)
 - WALL 2 3,292 psf (FACTORED) 2,266 psf (UNFACTORED)
 - WALL 3 3,703 psf (FACTORED) 2,537 psf (UNFACTORED)
 - WALL 4 4,732 psf (FACTORED) 3,197 psf (UNFACTORED)
 - WALL 5 3,491 psf (FACTORED) 2,398 psf (UNFACTORED)
 - WALL 6 4,446 psf (FACTORED) 3,017 psf (UNFACTORED)
 - WALL 7 3,514 psf (FACTORED) 2,348 psf (UNFACTORED)
 - WALL 8 3,491 psf (FACTORED) 2,398 psf (UNFACTORED)
 - DESIGN IS BASED ON AASHTO LRFD
5. THE DESIGN CONTAINED ON THESE DRAWINGS IS BASED UPON INFORMATION PROVIDED BY THE OWNER. ON THE BASIS OF THIS INFORMATION, THE NEEL COMPANY HAS DESIGNED, AND IS RESPONSIBLE FOR, THE INTERNAL STABILITY OF THE STRUCTURE ONLY. EXTERNAL STABILITY, INCLUDING FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER.
6. THE NEEL COMPANY HAS NOT PERFORMED GLOBAL STABILITY SETTLEMENT AND BEARING CAPACITY ANALYSIS FOR THE WALL FOUNDATION. THESE ANALYSES WILL BE THE RESPONSIBILITY OF THE OWNER.
7. DRAINAGE:
 - THE NEEL COMPANY HAS NOT PERFORMED A DRAINAGE ANALYSIS FOR THIS WALL SITE. IT IS THE OWNER'S RESPONSIBILITY TO ASSURE THAT SURFACE RUN-OFF IS DIVERTED AWAY FROM THE WALL.
8. SELECT BACKFILL GRADATION AND COMPACTION:
 - BACKFILL GRADATION AND COMPACTION BETWEEN STEMS AND AROUND PIPES ARE IMPORTANT TO THE WALL STABILITY. THE OWNER'S GEOTECHNICAL ENGINEER SHOULD PROVIDE SUFFICIENT TESTING TO INSURE COMPLIANCE WITH THE SELECT BACKFILL GRADATION AND COMPACTION SPECIFICATIONS NOTED ON THIS SHEET. PLACEMENT OF LOOSE LIFT OF BACKFILL SHALL NOT EXCEED 12 INCHES.
9. T-WALL® FACE FORM FINISH:
 - PLAIN STEEL FORM FINISH
10. SCOUR PROTECTION NOTE:
 - THE NEEL COMPANY HAS NOT PERFORMED ANY SCOUR ANALYSIS FOR THIS WALL.
 - THE NEEL COMPANY ASSUMES THAT THE BOTTOM OF WALL ELEVATIONS SHOWN ON THESE PLANS ARE BELOW SCOUR DEPTH FOR THIS LOCATION. THE ENGINEER/CONTRACTOR MUST VERIFY THIS ASSUMPTION. IF THIS ASSUMPTION IS NOT CORRECT, THE NEEL COMPANY MUST BE NOTIFIED SO THAT THE WALL DESIGN MAY BE REVIEWED.

T-WALL® LEGEND MARKERS:

6R = 6'-0" STEM LENGTH WITH A STEM HEIGHT OF 2'-2", REDUCE BY 4"
SP1 = SPECIAL UNIT AND MARK NUMBER.

GENERAL NOTES:

1. PRIMARY REFERENCE:
 - AASHTO LRFD BRIDGE SPECIFICATIONS, 4TH EDITION, 2007 WITH INTERIM REVISIONS.
2. SELECT BACKFILL BETWEEN STEMS (GRANULAR BACKFILL FOR STRUCTURES, ITEM 204.30):
 - ANGLE OF INTERNAL FRICTION - 34° (MINIMUM)
 - DENSITY - 120 PCF (MINIMUM)
 - 15% MAXIMUM PASSING #200 SIEVE
 - 100% PASSING 3" SIEVE
 - 95% STANDARD COMPACTION (ASTM D-698)
3. UNCLASSIFIED BACKFILL BEHIND STEMS (GRANULAR BACKFILL FOR STRUCTURES, ITEM 204.30):
 - ANGLE OF INTERNAL FRICTION - 30°
 - DENSITY - 120 PCF
 - 95% STANDARD COMPACTION (ASTM D-698)
4. HORIZONTAL JOINT:
 - 1/2 INCH FIBER EXPANSION JOINT MATERIAL PER ASTM D-1751 AS SHOWN ON DEVELOPED ELEVATIONS.
5. VERTICAL JOINT:
 - 3/8 INCH SPACE
 - 12 INCHES WIDE FILTER CLOTH BACKING CENTERED AT JOINT, UNLESS OTHERWISE NOTED.
 - FILTER CLOTH BACKING: MIRAFI 160N OR EQUAL
6. OVERALL DIMENSIONAL TOLERANCES FOR FINISHED WALL:
 - VERTICAL ALIGNMENT (PLUMBNESS) - 3/4 INCH IN 10 FEET
 - HORIZONTAL ALIGNMENT (LINE) - 3/4 INCH IN 10 FEET
7. FOUNDATION:
 - PROOF-ROLL THE FOUNDATION SUBGRADE ALONG THE ENTIRE WALL LENGTH PRIOR TO CONSTRUCTION OF THE T-WALL®. A GEOTECHNICAL ENGINEER MUST INSPECT THE EXCAVATED FOUNDATION SUBGRADE AND PROOF-ROLLING ACTIVITIES. ANY SOFT OR UNSUITABLE MATERIALS IDENTIFIED BY INSPECTION SHALL BE REMOVED AND REPLACED WITH COMPACTED STRUCTURAL BACKFILL AS DIRECTED BY THE ENGINEER. CONTRACTOR TO PROVIDE SUFFICIENT DEWATERING SO THAT THE EXCAVATIONS ARE DRY ENOUGH FOR INSPECTION, TESTING AND CONSTRUCTION.
8. CAST-IN-PLACE CONCRETE LEVELING PAD:
 - 6 INCHES MINIMUM x 12 INCHES
 - CONCRETE STRENGTH: 2500 psi (MINIMUM) @ 28 DAYS
 - NO REBAR
 - GRADE TOLERANCE - 1/4 INCH IN 10 FEET
9. T-WALL® UNIT REBAR:
 - ASTM A615
 - Fy = 60 ksi (GRADE 60)
 - EPOXY COATED
 - WELDING IS NOT PERMITTED
10. T-WALL® UNIT CONCRETE STRENGTH:
 - 5000 psi (MINIMUM) @ 28 DAYS
11. SHEAR KEYS:
 - NO REBAR
 - CONCRETE STRENGTH: 5000 psi (MINIMUM) @ 28 DAYS
 - WALL IS DESIGNED FOR SPECIFIC NUMBER OF SHEAR KEYS AS SHOWN IN TYPICAL SECTIONS ON SHEETS TW-5, TW-6, TW-9, TW-12, TW-15, TW-18, TW-21, TW-24, AND TW-27. LOCATION OF SHEAR KEYS CAN BE ADJUSTED IF NECESSARY AT A SPECIFIC LEVEL.
 - SHEAR KEY WRAP:
 - 1/4 INCH POLYETHYLENE FOAM WRAP TWO TIMES AROUND THE SHEAR KEY.
 - SHEAR KEY WRAP: AF250 POLYETHYLENE FOAM
12. CONSTRUCTION:
 - TO BE IN ACCORDANCE WITH T-WALL® CONSTRUCTION MANUAL (v07.04) AND TYPICAL T-WALL® NOMENCLATURE ON SHEET TW-2.
 - T-WALL® CONSTRUCTION MANUAL (v07.04) CAN BE DOWNLOADED FROM OUR WEB SITE AT www.neelco.com, UNDER "Downloads".
 - CONTRACTOR IS RESPONSIBLE FOR THE STABILITY OF ALL EXCAVATED SLOPES. DESIGN AND CONSTRUCTION OF ANY REQUIRED TEMPORARY SUPPORT OF EXCAVATION SHALL ALSO BE THE RESPONSIBILITY OF THE CONTRACTOR.
 - ALL SURFACE RUNOFF IS TO BE DIVERTED AWAY FROM EXCAVATIONS TO AVOID THE DETERIORATION OF THE SUBGRADE SOILS DUE TO EXPOSURE TO MOISTURE.

APPROVED: Approval of drawings and/or procedures indicates concurrence with the information presented and does not relieve the Contractor or Fabricator of compliance with all specifications and code requirements	X	
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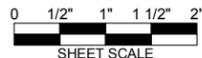
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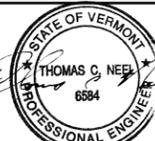
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WEB: WWW.NEELCO.COM

PROJECT #: TW4437

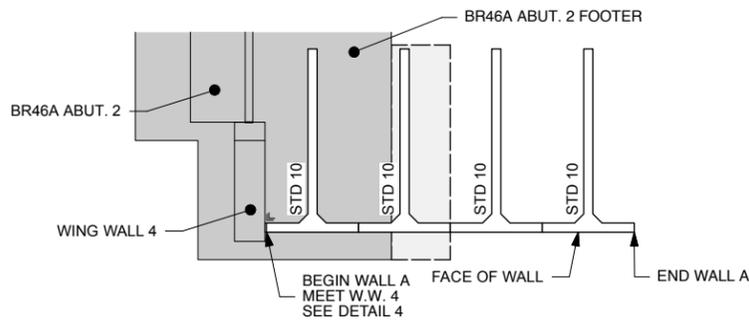
CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF T-WALL® STRUCTURES ONLY



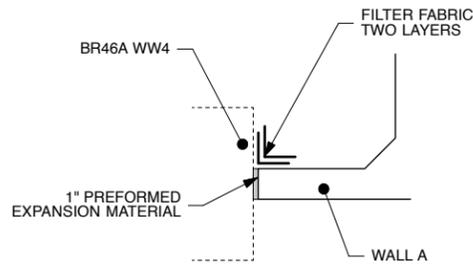
REVISIONS		
1	ADDRESS STANTEC COMMENTS 2/19/2015	CTH 3/6/2015

**I-89 BRIDGE DECK REPLACEMENTS
I-89 OVER STOWE STREET**
WATERBURY, VT
VTRANS PROJECT NO. IM 089-2(43)
SHOP DRAWINGS
GENERAL T-WALL® NOTES AND QUANTITIES
T-WALL® RETAINING WALL SYSTEM

SCALE:	NO SCALE
DATE:	1/23/2015
DESIGNED BY:	KB
DRAWN BY:	CTH
CHECKED BY:	KB
SHEET:	TW-4



1 PLAN VIEW (BOTTOM LEVEL)
Scale: 1:60



4 BEGIN WALL DETAIL
Scale: 1:18

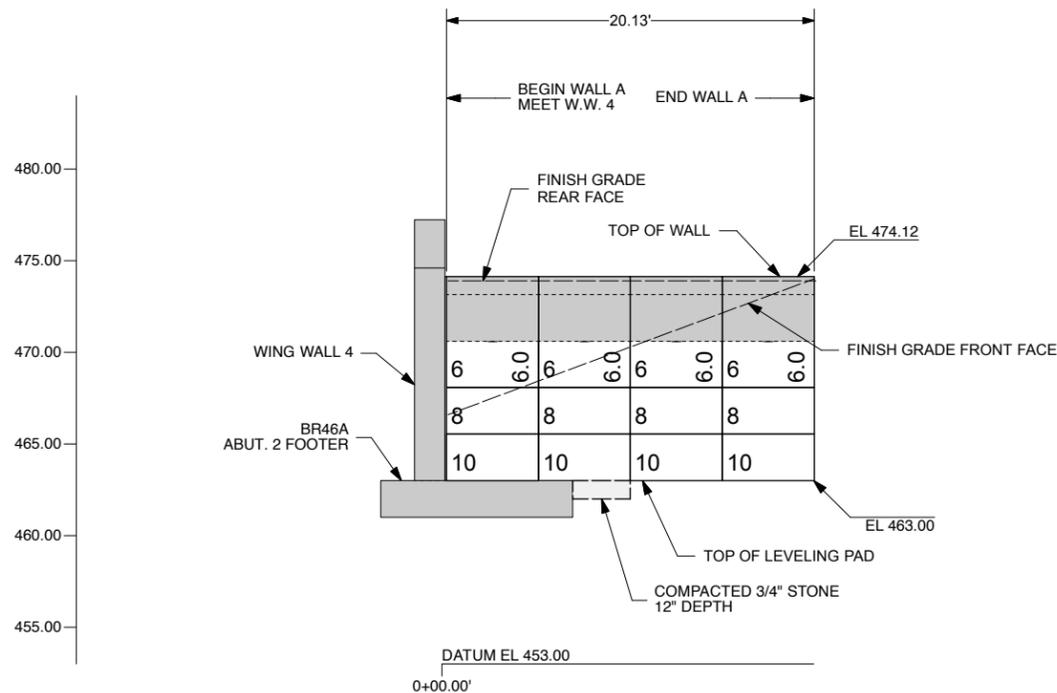
T-WALL Unit Count for Wall A 3/9/15 10:14:35 AM

PANEL TYPE	QNTY (ea)	AREA (sf)	SELECT FILL (cy)
2.5 x 5.0 x 08 Std	4	50.00	13
2.5 x 5.0 x 10 Std	4	50.00	17
6.0 x 5.0 x 06 Std Top	4	120.00	10
TOTALS:	12 ea	220.00 sf	40 cy

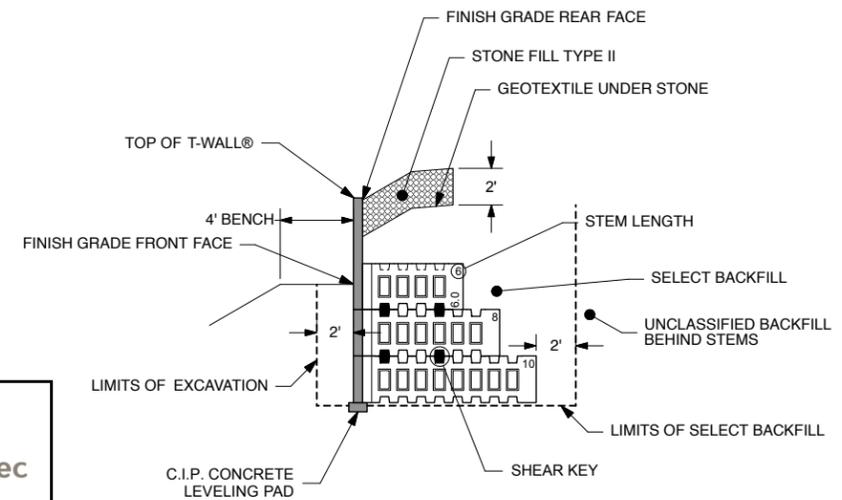
NOTE: Select backfill quantities are between stems only.

SHIP LOOSE LIST FOR RETAINING WALL:

ITEM	QNTY
Shear Keys	16 ea.
AF250 Polyethylene Foam*	1.00 Rolls
1/2" x 4" x 5.00' Horizontal Joint Material**	40.00 LF
Filter Cloth (12" wide)***	56.00 LF



2 DEVELOPED ELEVATION (FRONT FACE)
Scale: 1:60



3 TYP. SECTION
Scale: 1:60

APPROVED: Approval of drawings and/or procedures indicates concurrence with the information presented and does not relieve the Contractor or Fabricator of compliance with all specifications and code requirements	X	
APPROVED AS NOTED		
REVISE AND RESUBMIT		
NOT REVIEWED		
Date: 4/2/15		
By: George Bogue		
<p>This review by Stantec Consulting Services Inc. is for the sole purpose of ascertaining conformance with the general design concept. This review shall not mean that Stantec Consulting Services Inc approves the detail design inherent in the shop drawings, responsibility for which shall remain with the Contractor. Submitting same, and such review shall not relieve the Contractor of his responsibility for errors or omissions in the shop drawing or of his responsibility for meeting all requirements of the Contract Documents. The contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction and installation and for coordination of the work of all trades.</p>		

Vermont Agency of Transportation

RECEIVED

ON: **March 17, 2015**

and Checked for

CONFORMANCE

BY: **D Bonneau** DATE: **04/03/15**



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PRECASTER: CONCRETE SYSTEMS, INC.
HUDSON, NH
PROJECT #: T22259

CONTRACTOR: J. A. MCDONALD
LYNDON CENTER, VT
PROJECT #:

DESIGNER

THE NEEL COMPANY
8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM

PROJECT #: TW4437

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF T-WALL® STRUCTURES ONLY



REVISIONS

NO.	DESCRIPTION	DATE

**I-89 BRIDGE DECK REPLACEMENTS
I-89 OVER STOWE STREET**

**WATERBURY, VT
VTRANS PROJECT NO. IM 089-2(43)**

**SHOP DRAWINGS
WALL A ELEVATION, PLAN AND SECTION**

T-WALL® RETAINING WALL SYSTEM

SCALE: AS NOTED

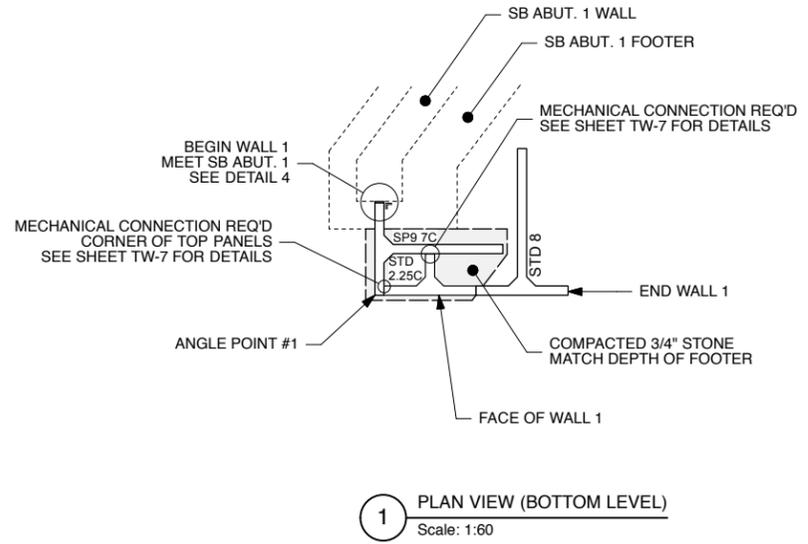
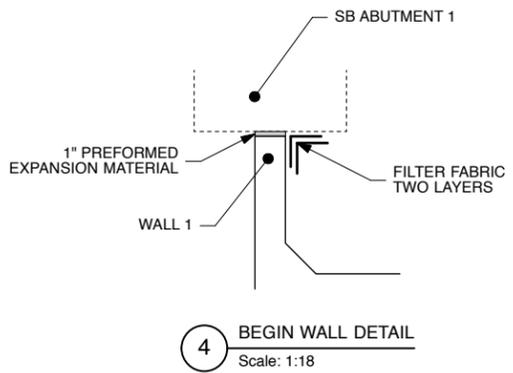
DATE: 1/23/2015

DESIGNED BY: KB

DRAWN BY: CTH

CHECKED BY: KB

SHEET: TW-5



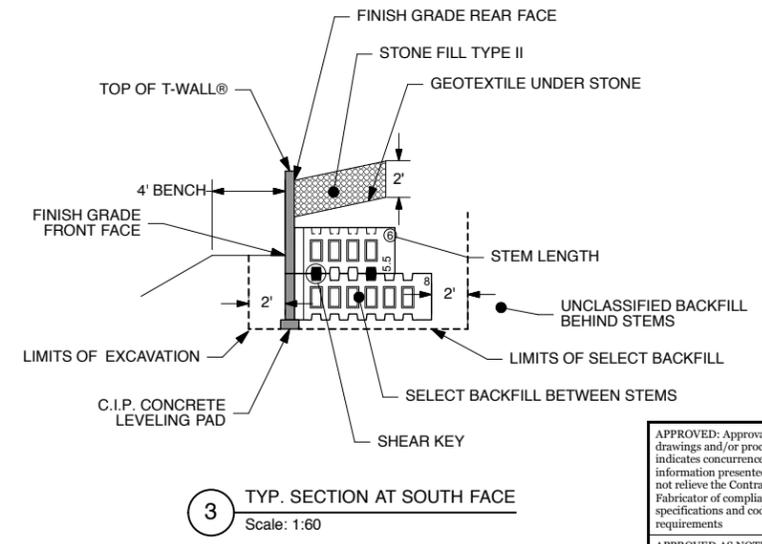
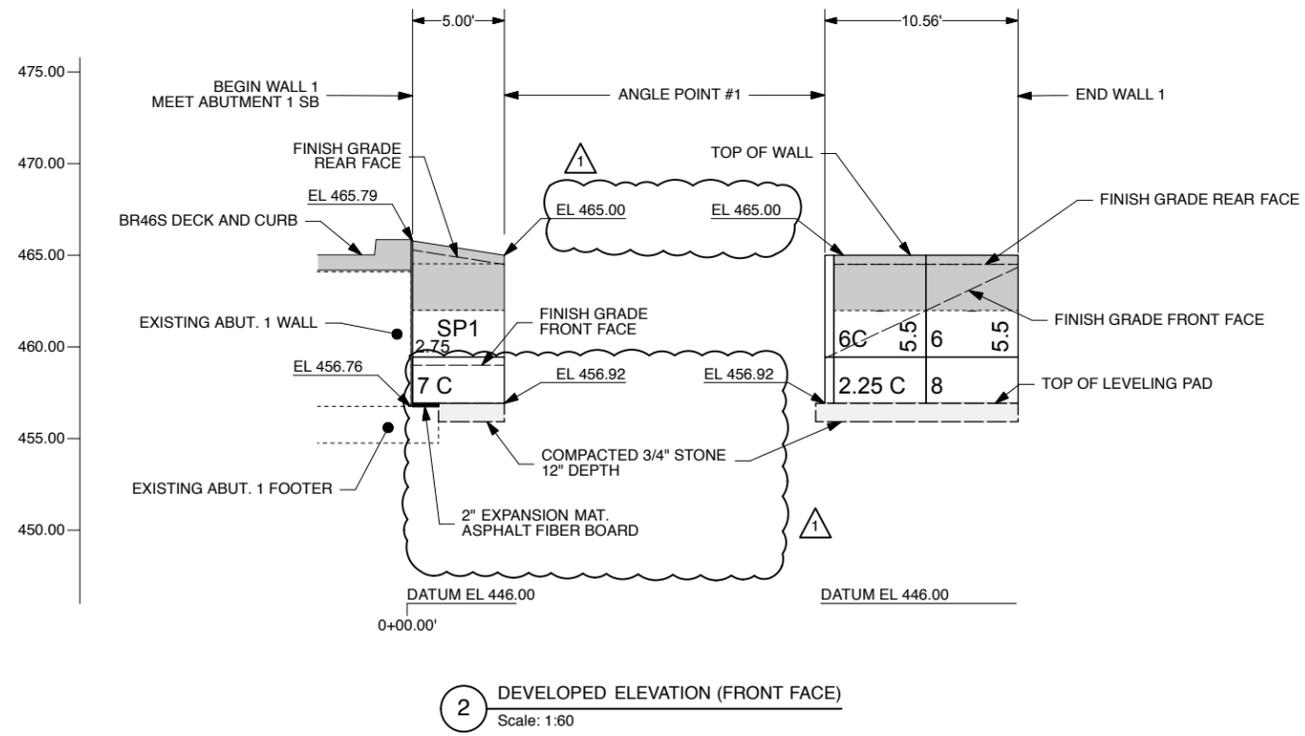
T-WALL Unit Count for Wall 1 3/9/15 11:44:49 AM

PANEL TYPE	QNTY (ea)	AREA (sf)	SELECT FILL (cy)
2.5 x 5.0 x 08 Std	1	12.50	3
2.5 x 5.0 x 02.25 Std Cnr	1	12.50	1
2.5 x 5.0 x 07 Std Cnr	1	12.50	3
5.5 x 5.0 x 06 Std Top	1	27.50	2
5.5 x 5.0 x 06 Std Top Cnr	1	27.50	2
Special Units	1	29.67	1
TOTALS:	6 ea	122.17 sf	13 cy

NOTE: Select backfill quantities are between stems only.

SHIP LOOSE LIST FOR RETAINING WALL:

ITEM	QNTY
Shear Keys	3 ea.
AF250 Polyethylene Foam*	1.00 Rolls
1/2" x 4" x 5.00' Horizontal Joint Material**	15.00 LF
Filter Cloth (12" wide)***	40.00 LF



APPROVED: Approval of drawings and/or procedures indicates concurrence with the information presented and does not relieve the Contractor or Fabricator of compliance with all specifications and code requirements	X	
APPROVED AS NOTED		
REVISE AND RESUBMIT		
NOT REVIEWED		
Date: 4/2/15		
By: George Bogue		
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Vermont Agency of Transportation
RECEIVED
 ON: **March 17, 2015**
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CONFORMANCE
 BY: **D Bonneau** DATE: **04/03/15**



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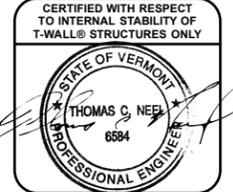
PRECASTER: CONCRETE SYSTEMS, INC. HUDSON, NH
PROJECT #: T22259

CONTRACTOR: J. A. McDONALD LYNDON CENTER, VT
PROJECT #:

DESIGNER

THE NEEL COMPANY
 8328-D TRAFORD LANE
 SPRINGFIELD, VIRGINIA 22152
 PH: (703) 913-7858
 FX: (703) 913-7859
 WEB: WWW.NEELCO.COM

PROJECT #: TW4437

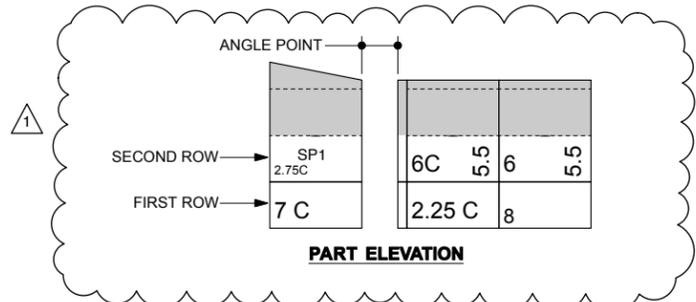


REVISIONS

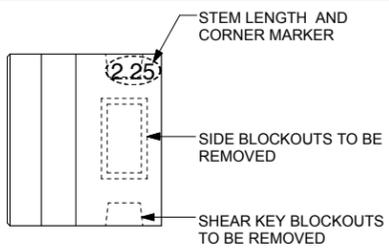
1	ELIMINATE BLOCKOUT AND RAISE WALL 2"	CTH	3/6/2015
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I-89 BRIDGE DECK REPLACEMENTS
I-89 OVER STOWE STREET
 WATERBURY, VT
VTRANS PROJECT NO. IM 089-2(43)
 SHOP DRAWINGS
 WALL 1 ELEVATION, PLAN, SECTION
 T-WALL® RETAINING WALL SYSTEM

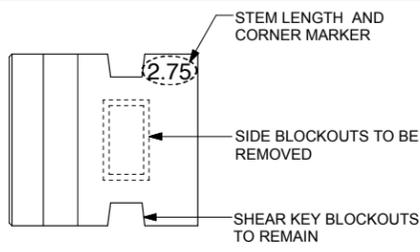
SCALE: AS NOTED
 DATE: 1/23/2015
 DESIGNED BY: KB
 DRAWN BY: CTH
 CHECKED BY: KB
 SHEET: TW-6



PART ELEVATION



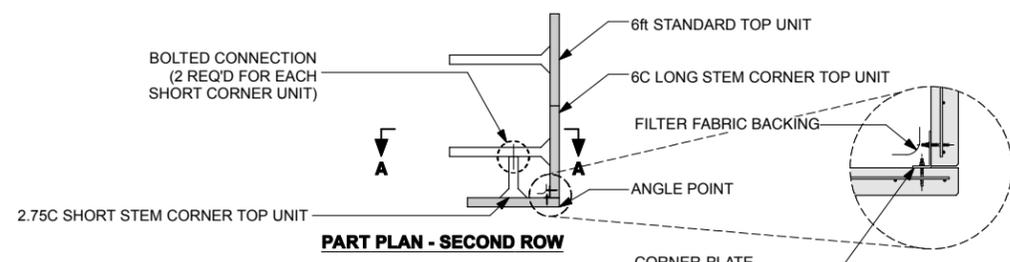
SIDE VIEW - 2.25C SHORT STEM CORNER UNIT
SIDE & SHEAR KEY BLOCKOUTS TO BE REMOVED.
SEE NOTE 3.



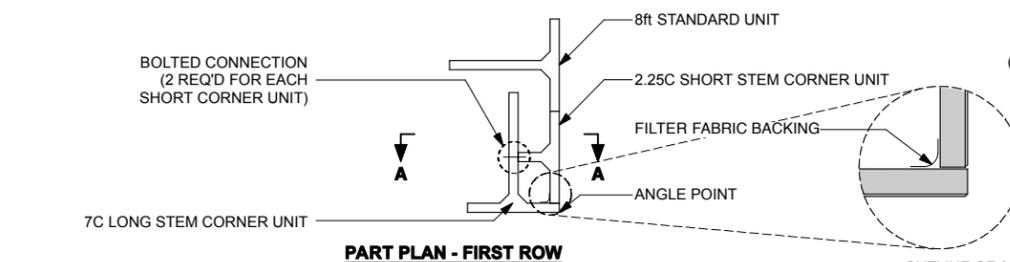
SIDE VIEW - 2.75C SHORT STEM CORNER UNIT
SIDE BLOCKOUTS TO BE REMOVED.
SEE NOTE 3.

CORNER CONNECTION SHIPLOOSE LIST

ITEM	QNTY
12" x 6" x 3/8" Hot Dipped Galv Bent Plate	1 ea
1/2" x 5 1/2" Galv Exp Anchor w/Nut & Washer	3 ea
3/4" x 12" Galv Exp Anchor w/Nut & Washer	4 ea

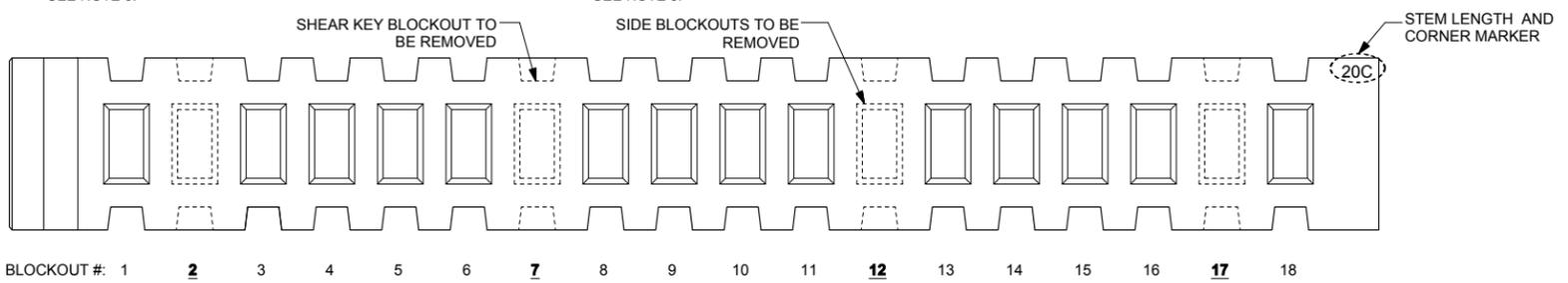


PART PLAN - SECOND ROW

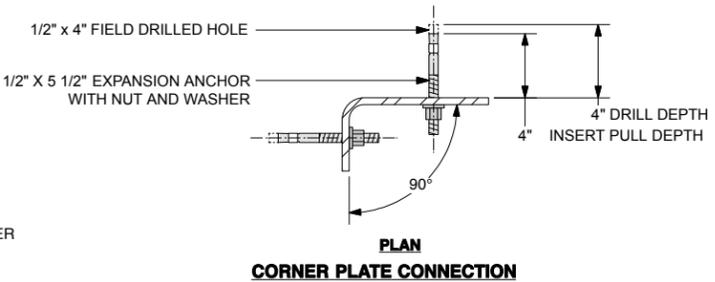
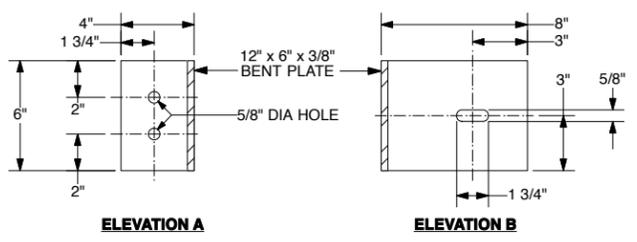


PART PLAN - FIRST ROW

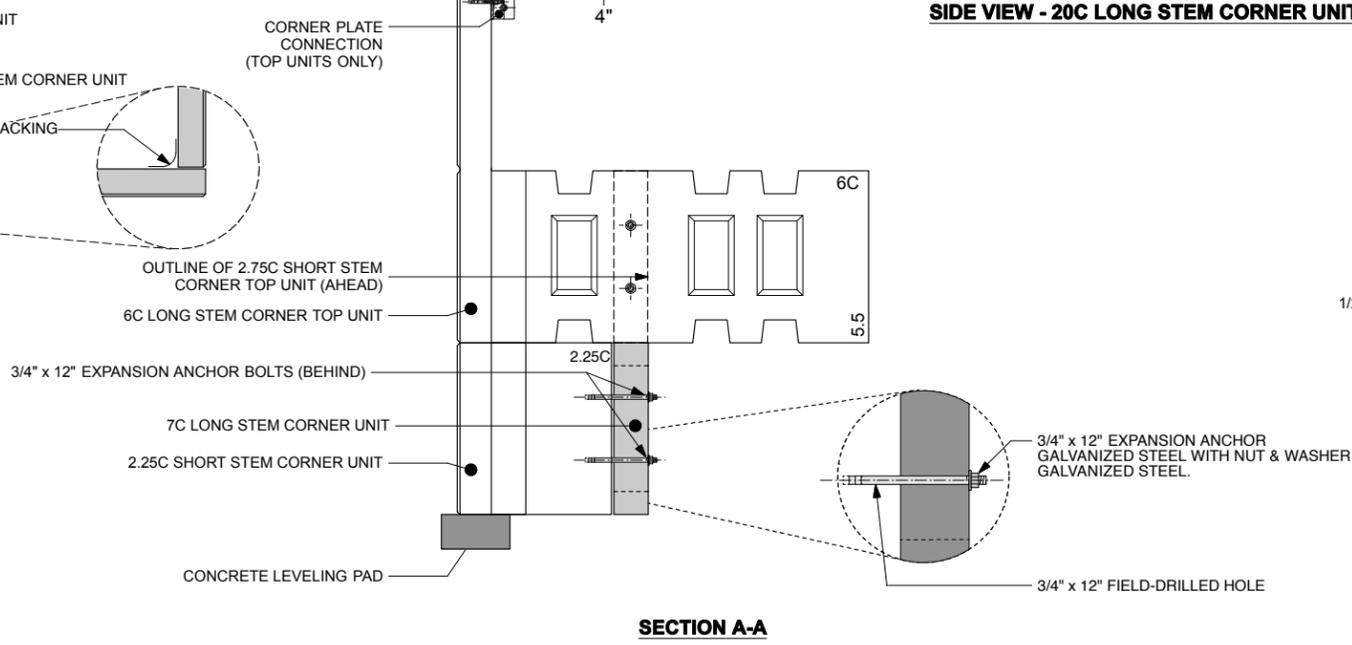
STEM LENGTHS VARY - SEE SPECIFIC ELEVATIONS FOR PROPER UNITS
TYPICAL CORNER UNIT ARRANGEMENT
NO SCALE



SIDE VIEW - 20C LONG STEM CORNER UNIT
BLOCKOUT # 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
BLOCKOUT: #2, 7, 12 & 17, AS SHOWN
SHOWING BLOCKOUTS TO BE REMOVED IN 20' STEM UNIT SHOWN. ALL OTHER STEM LENGTHS HAVE BLOCKOUTS REMOVED IN SAME LOCATIONS (AS REQUIRED).
SEE NOTE 2.



- NOTES:**
- ALL CORNER UNITS ARE DESIGNATED BY A TRAILING 'C' IN MARK No., i.e. "20C" INDICATES A 20 FOOT STEM CORNER UNIT WITH BLOCKOUTS REMOVED.
 - FOR LONG STEM CORNER UNITS: EXCEPT FOR REMOVAL OF SPECIFIC BLOCKOUTS, ALL DIMENSIONS AND REBAR ARE THE SAME AS STANDARD OR TOP UNITS OF THE SAME STEM LENGTH. SEE STANDARD OR TOP UNIT REBAR DRAWINGS FOR DETAILS.
 - FOR SHORT STEM CORNER UNITS (2.25C, 2.75C): SEE CORNER UNIT REBAR DRAWINGS
 - PLATE TO BE A36 STEEL 12" x 6" x 3/8". PLATES TO BE HOT DIPPED GALVANIZED (ASTM 123) AFTER FABRICATION.
 - EXPANSION ANCHOR BOLTS TO BE HOT DIPPED GALVANIZED (ASTM 123) AS FOLLOWS:
5.1 1/2"Ø x 5 1/2" EXPANSION BOLT
5.2 3/4"Ø x 12" EXPANSION BOLT
 - HOLES FOR EXPANSION ANCHOR BOLTS TO BE FIELD DRILLED AS FOLLOWS:
3.1 1/2"Ø DRILL BIT TO A DEPTH OF 4"
3.2 3/4"Ø DRILL BIT TO A DEPTH OF 12"



SECTION A-A

APPROVED: Approval of drawings and/or procedures indicates concurrence with the information presented and does not relieve the Contractor or Fabricator of compliance with all specifications and code requirements	X	
APPROVED AS NOTED		
REVISE AND RESUBMIT		
NOT REVIEWED		
Date: 4/2/15		
By: George Bogue		
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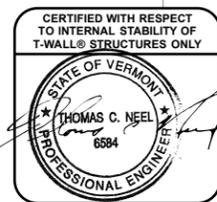
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PRECASTER: CONCRETE SYSTEMS, INC. HUDSON, NH PROJECT #: T22259
CONTRACTOR: J. A. McDONALD LYNDON CENTER, VT PROJECT #:

DESIGNER

THE NEEL COMPANY
8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM

PROJECT #: TW4437



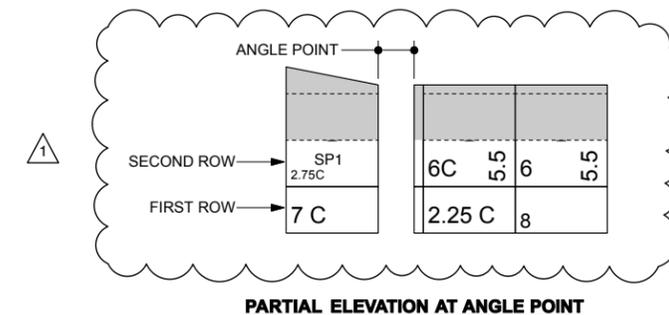
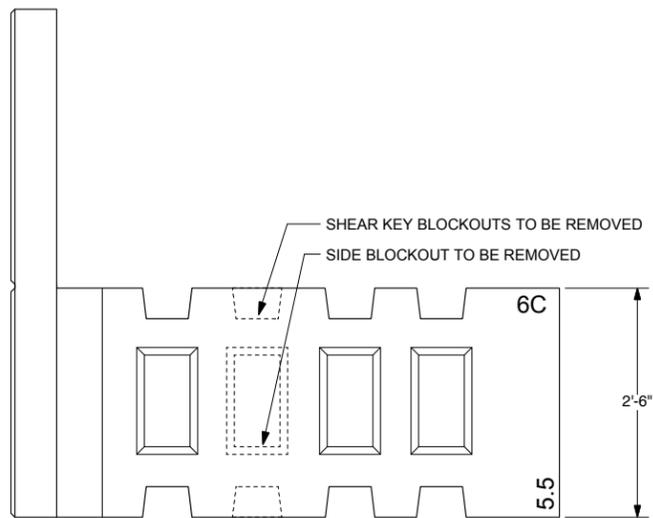
REVISIONS		
1	CORRECTED CORNER PIECE LABELS	CTH 3/6/2015

I-89 BRIDGE DECK REPLACEMENTS
I-89 OVER STOWE STREET
WATERBURY, VT
VTRANS PROJECT NO. IM 089-2(43)
SHOP DRAWINGS
WALL 1 90 DEG. CORNER DETAIL
T-WALL® RETAINING WALL SYSTEM

SCALE:	AS NOTED
DATE:	1/23/2015
DESIGNED BY:	KB
DRAWN BY:	CTH
CHECKED BY:	KB
SHEET:	TW-7

Vermont Agency of Transportation
RECEIVED
ON: **March 17, 2015**
and Checked for
CONFORMANCE
BY: **D Bonneau** DATE: **04/03/15**

6' LONG STEM BY 5' HEIGHT TOP CORNER UNIT
(SEE SHEET TW-40 FOR MORE DETAIL)



PARTIAL ELEVATION AT ANGLE POINT

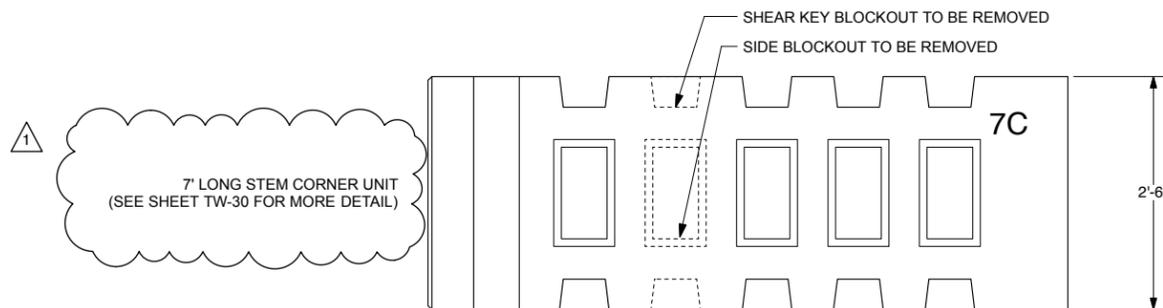
APPROVED: Approval of drawings and/or procedures indicates concurrence with the information presented and does not relieve the Contractor or Fabricator of compliance with all specifications and code requirements	X	
APPROVED AS NOTED		
REVISE AND RESUBMIT		
NOT REVIEWED		
Date: 4/2/15		
By: George Bogue		
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NOTES:

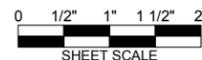
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- FOR LONG STEM CORNER UNITS: EXCEPT FOR REMOVAL OF SPECIFIC BLOCKOUTS, ALL DIMENSIONS AND REBAR ARE THE SAME AS A STANDARD UNIT OR A STANDARD TOP UNIT OF THE SAME STEM LENGTH. FOR MORE DETAILS, SEE THE STANDARD UNIT REBAR DRAWING OR STANDARD TOP UNIT REBAR DRAWINGS .

GENERAL NOTES:

- PRIMARY REFERENCE: AASHTO, LRFD SPECIFICATIONS FOR HIGHWAY BRIDGES, 4th EDITION 2007 (WITH INTERIMS)
- MINIMUM CONCRETE COVER IS DESIGNED FOR 2" ON ALL BARS.
- CONCRETE:
 - F'c = 5000psi @ 28 DAYS
- REBAR:
 - EPOXY
 - GRADE 60
- T-WALL FINISH FORM FINISH:
 - PLAIN STEEL FORM FINISH



SHEAR KEYS AND SIDE BLOCKOUTS REMOVAL DIAGRAM



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<p>PRECASTER: CONCRETE SYSTEMS, INC. HUDSON, NH</p> <p>PROJECT #: T22259</p>
<p>CONTRACTOR: J. A. MCDONALD LYNDON CENTER, VT</p> <p>PROJECT #:</p>

DESIGNER

THE NEEL COMPANY
8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM

PROJECT #: TW4437

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF T-WALL® STRUCTURES ONLY

REVISIONS		
1	CORRECTED CORNER PIECE LABELS	CTH 3/6/2015

I-89 BRIDGE DECK REPLACEMENTS
I-89 OVER STOWE STREET
WATERBURY, VT
VTRANS PROJECT NO. IM 089-2(43)
SHOP DRAWINGS
WALL 1 CORNER PAN REMOVAL DETAIL
T-WALL® RETAINING WALL SYSTEM

SCALE:	AS NOTED
DATE:	1/23/2015
DESIGNED BY:	KB
DRAWN BY:	CTH
CHECKED BY:	KB
SHEET:	TW-8

Vermont Agency of Transportation

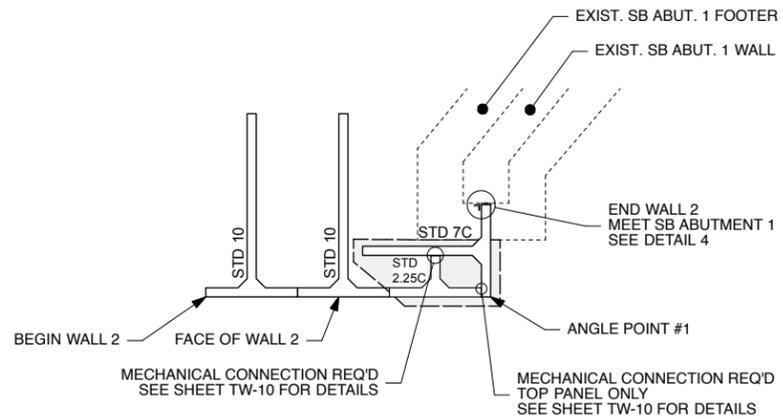
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ON: **March 17, 2015**

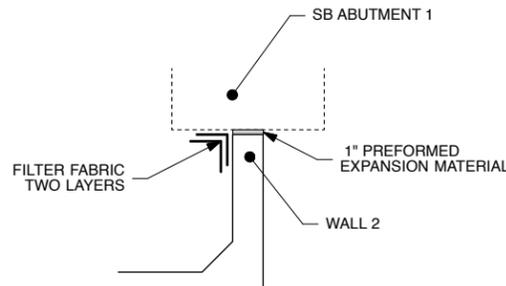
and Checked for

CONFORMANCE

BY: **D Bonneau** DATE: **04/03/15**



1 PLAN VIEW (BOTTOM LEVEL)
Scale: 1:60



4 END WALL DETAIL
Scale: 1:18

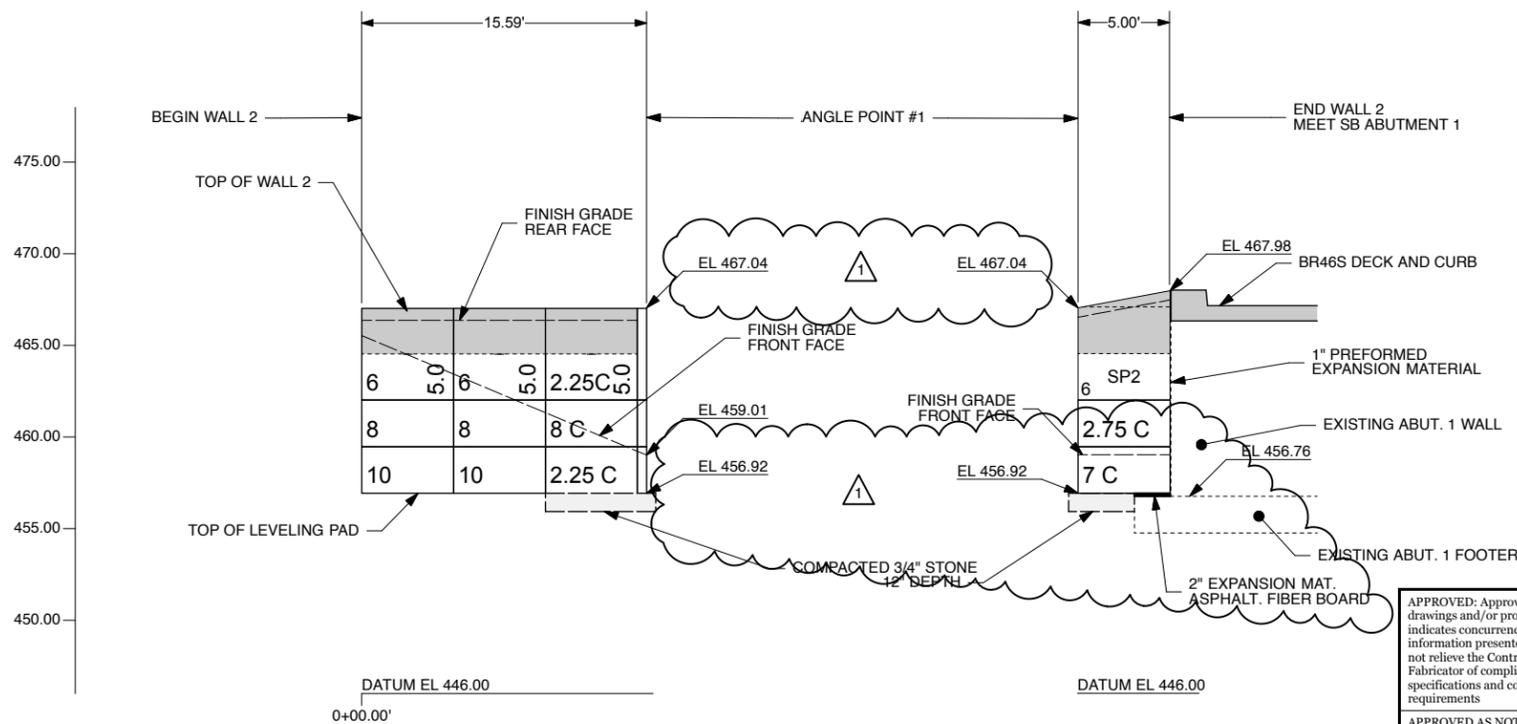
T-WALL Unit Count for Wall 2 3/9/15 11:47:29 AM

PANEL TYPE	QNTY (ea)	AREA (sf)	SELECT FILL (cy)
2.5 x 5.0 x 08 Std	2	25.00	7
2.5 x 5.0 x 10 Std	2	25.00	8
2.5 x 5.0 x 02.25 Std Cnr	1	12.50	1
2.5 x 5.0 x 02.75 Std Cnr	1	12.50	1
2.5 x 5.0 x 07 Std Cnr	1	12.50	3
2.5 x 5.0 x 08 Std Cnr	1	12.50	3
5.0 x 5.0 x 06 Std Top	2	50.42	5
5.0 x 5.0 x 02.25 Std Top Cnr	1	25.21	1
Special Units	1	27.55	2
TOTALS:	12 ea	203.18 sf	31 cy

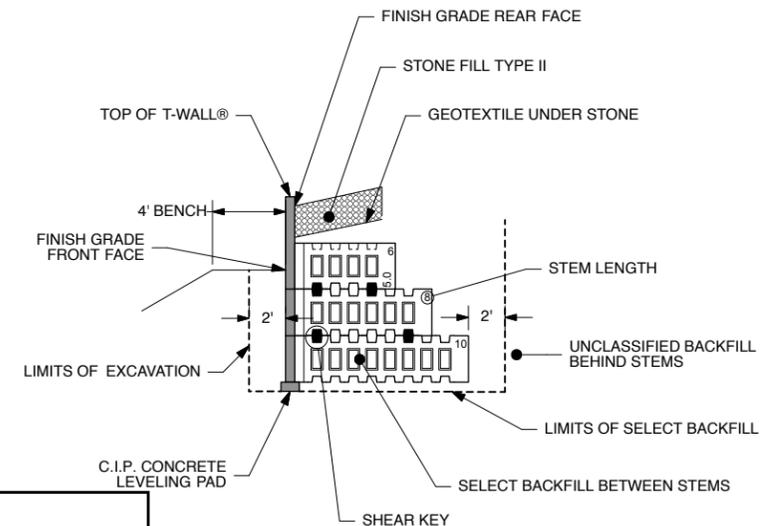
NOTE: Select backfill quantities are between stems only.

SHIP LOOSE LIST FOR RETAINING WALL:

ITEM	QNTY
Shear Keys	10 ea.
AF250 Polyethylene Foam*	1.00 Rolls
1/2" x 4" x 5.00' Horizontal Joint Material**	40.00 LF
Filter Cloth (12" wide)***	65.00 LF



2 DEVELOPED ELEVATION (FRONT FACE)
Scale: 1:60



1 TYP. SECTION AT EAST FACE
Scale: 1:60

APPROVED: Approval of drawings and/or procedures indicates concurrence with the information presented and does not relieve the Contractor or Fabricator of compliance with all specifications and code requirements

APPROVED AS NOTED

REVISE AND RESUBMIT

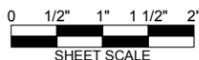
NOT REVIEWED

Date: 4/2/15

By: George Bogue

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Stantec



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FX: (703) 913-7859
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PROJECT #: TW4437

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF T-WALL® STRUCTURES ONLY

STATE OF VERMONT
THOMAS C. NEEL
6584
PROFESSIONAL ENGINEER

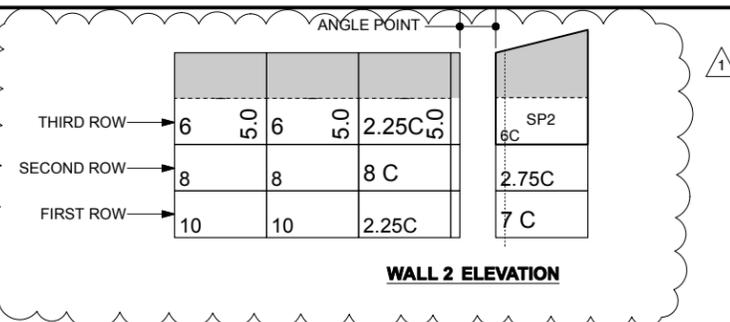
REVISIONS

NO.	DESCRIPTION	BY	DATE
1	ELIMINATE BLOCKOUT AND RAISE WALL 2"	CTH	3/6/2015

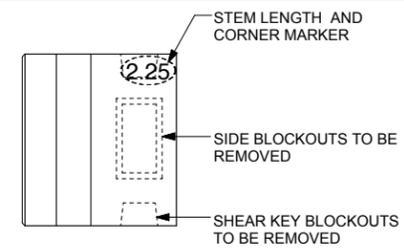
**I-89 BRIDGE DECK REPLACEMENTS
I-89 OVER STOWE STREET**
WATERBURY, VT
VTRANS PROJECT NO. IM 089-2(43)
SHOP DRAWINGS
WALL 2 ELEVATION, PLAN, SECTION
T-WALL® RETAINING WALL SYSTEM

SCALE:	AS NOTED
DATE:	1/23/2015
DESIGNED BY:	KB
DRAWN BY:	CTH
CHECKED BY:	KB
SHEET:	TW-9

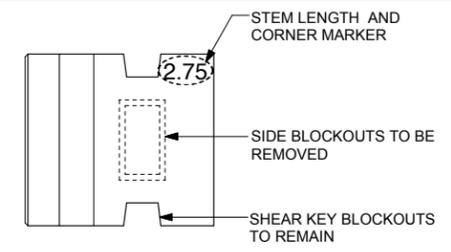
Vermont Agency of Transportation
RECEIVED
ON: **March 17, 2015**
and Checked for
CONFORMANCE
BY: **D Bonneau** DATE: **04/03/15**



SIDE VIEW - 2.25C SHORT STEM CORNER UNIT
SIDE & SHEAR KEY BLOCKOUTS TO BE REMOVED.
SEE NOTE 3.

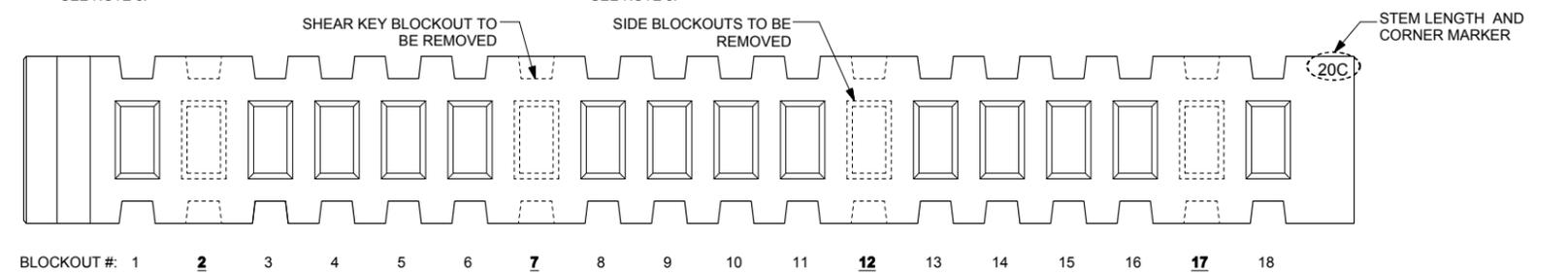


SIDE VIEW - 2.75C SHORT STEM CORNER UNIT
SIDE BLOCKOUTS TO BE REMOVED.
SEE NOTE 3.

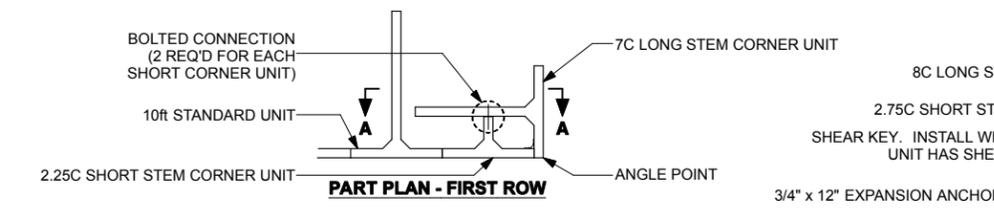
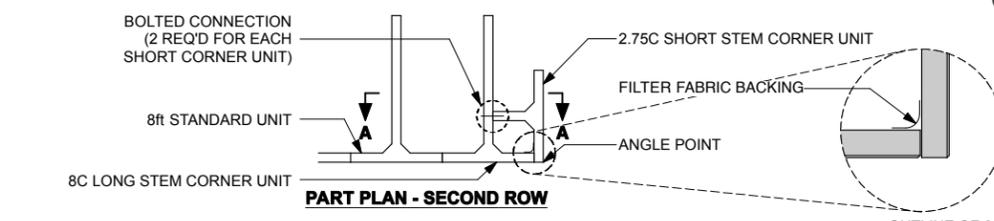
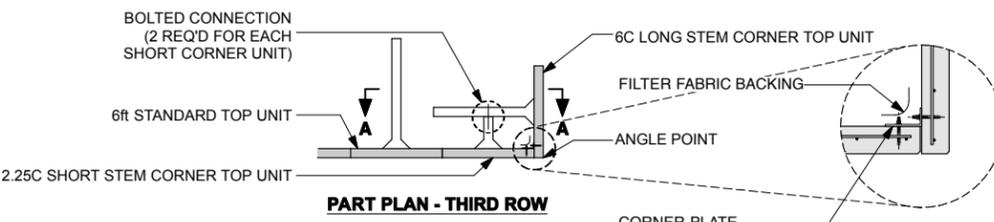
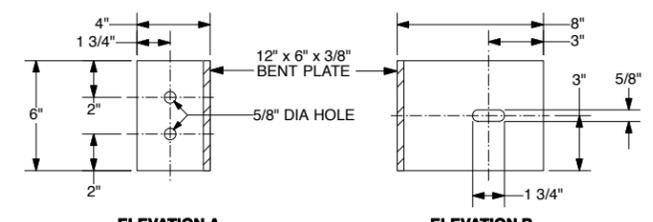


CORNER CONNECTION SHIPLOOSE LIST

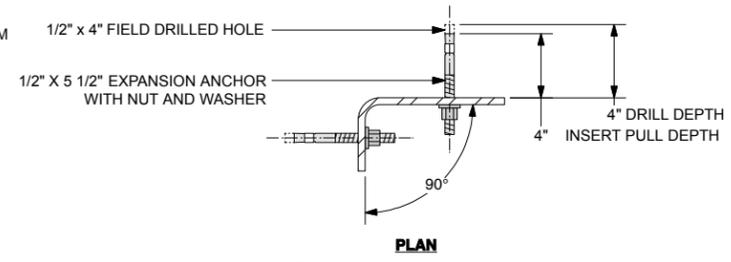
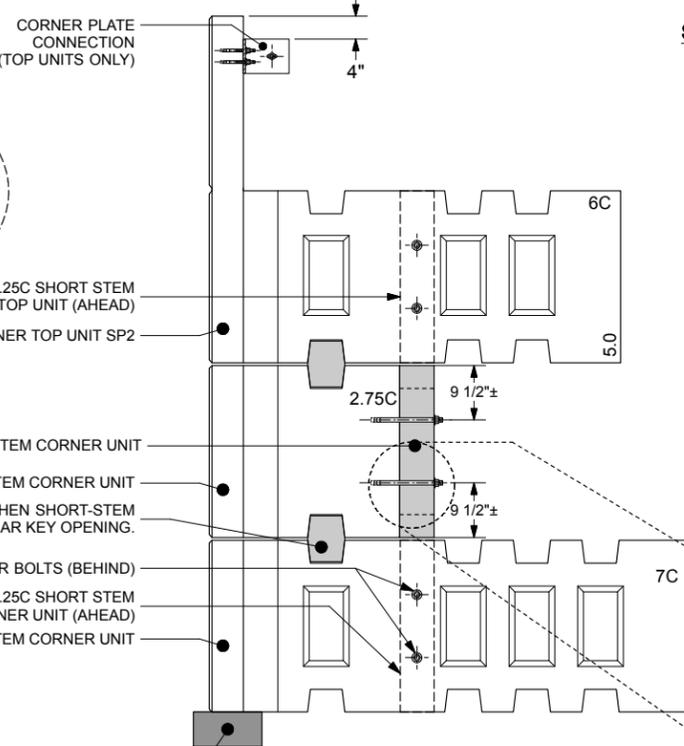
ITEM	QNTY
12" x 6" x 3/8" Hot Dipped Galv Bent Plate	1 ea
1/2" x 5 1/2" Galv Exp Anchor w/Nut & Washer	3 ea
3/4" x 12" Galv Exp Anchor w/Nut & Washer	6 ea



SIDE VIEW - 20C LONG STEM CORNER UNIT



TYPICAL CORNER UNIT ARRANGEMENT
NO SCALE



- NOTES:**
- ALL CORNER UNITS ARE DESIGNATED BY A TRAILING 'C' IN MARK No., i.e. "20C" INDICATES A 20 FOOT STEM CORNER UNIT WITH BLOCKOUTS REMOVED.
 - FOR LONG STEM CORNER UNITS: EXCEPT FOR REMOVAL OF SPECIFIC BLOCKOUTS, ALL DIMENSIONS AND REBAR ARE THE SAME AS STANDARD OR TOP UNITS OF THE SAME STEM LENGTH. SEE STANDARD OR TOP UNIT REBAR DRAWINGS FOR DETAILS.
 - FOR SHORT STEM CORNER UNITS (2.25C, 2.75C): SEE CORNER UNIT REBAR DRAWINGS
 - PLATE TO BE A36 STEEL 12" x 6" x 3/8". PLATES TO BE HOT DIPPED GALVANIZED (ASTM 123) AFTER FABRICATION.
 - EXPANSION ANCHOR BOLTS TO BE HOT DIPPED GALVANIZED (ASTM 123) AS FOLLOWS:
5.1 1/2"Ø x 5 1/2" EXPANSION BOLT
5.2 3/4"Ø x 12" EXPANSION BOLT
 - HOLES FOR EXPANSION ANCHOR BOLTS TO BE FIELD DRILLED AS FOLLOWS:
3.1 1/2"Ø DRILL BIT TO A DEPTH OF 4"
3.2 3/4"Ø DRILL BIT TO A DEPTH OF 12"

APPROVED: Approval of drawings and/or procedures indicates concurrence with the information presented and does not relieve the Contractor or Fabricator of compliance with all specifications and code requirements

APPROVED AS NOTED

REVISE AND RESUBMIT

NOT REVIEWED

Date: 4/2/15

By: George Bogue

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Stantec

Vermont Agency of Transportation

RECEIVED

ON: **March 17, 2015**

and Checked for

CONFORMANCE

BY: **D Bonneau** DATE: **04/03/15**



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PRECASTER: CONCRETE SYSTEMS, INC.
HUDSON, NH
PROJECT #: T22259

CONTRACTOR: J. A. MCDONALD
LYNDON CENTER, VT
PROJECT #:

DESIGNER

THE NEEL COMPANY

8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM

PROJECT #: TW4437



REVISIONS

1	CORRECTED CORNER PIECE LABELS	CTH	3/6/2015
---	-------------------------------	-----	----------

I-89 BRIDGE DECK REPLACEMENTS
I-89 OVER STOWE STREET
WATERBURY, VT
VTRANS PROJECT NO. IM 089-2(43)
SHOP DRAWINGS
WALL 2 90 DEG. CORNER DETAIL
T-WALL® RETAINING WALL SYSTEM

SCALE: AS NOTED

DATE: 1/23/2015

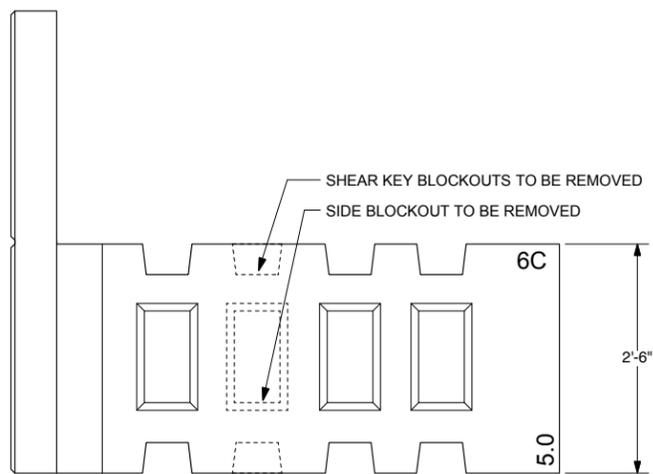
DESIGNED BY: KB

DRAWN BY: CTH

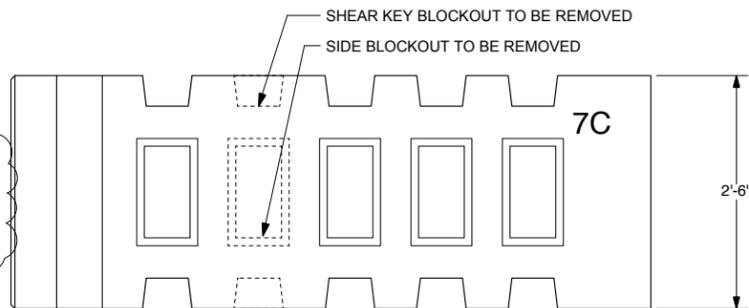
CHECKED BY: KB

SHEET: TW-10

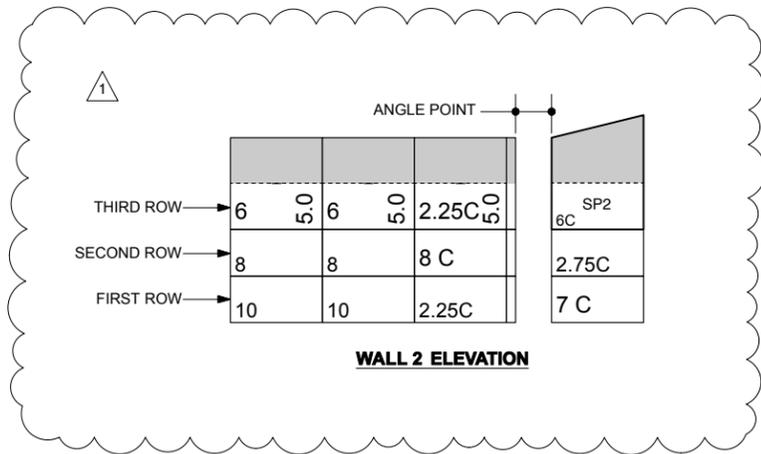
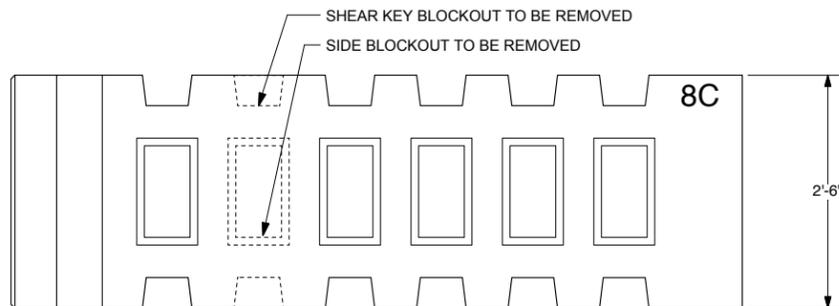
6' LONG STEM BY 5' HEIGHT CORNER UNIT SP2
(SEE SHEET TW-46 FOR MORE DETAIL)



7' LONG STEM CORNER UNIT
(SEE SHEET TW-30 FOR MORE DETAIL)



8' LONG STEM CORNER UNIT
(SEE SHEET TW-32 FOR MORE DETAIL)



APPROVED: Approval of drawings and/or procedures indicates concurrence with the information presented and does not relieve the Contractor or Fabricator of compliance with all specifications and code requirements	X	
APPROVED AS NOTED		
REVISE AND RESUBMIT		
NOT REVIEWED		
Date: 4/2/15		
By: George Bogue		
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- GENERAL NOTES:**
- PRIMARY REFERENCE: AASHTO, LRFD SPECIFICATIONS FOR HIGHWAY BRIDGES, 4th EDITION 2007 (WITH INTERIMS)
 - MINIMUM CONCRETE COVER IS DESIGNED FOR 2" ON ALL BARS.
 - CONCRETE:
 - F'c = 5000psi @ 28 DAYS
 - REBAR:
 - EPOXY
 - GRADE 60
 - T-WALL FINISH FORM FINISH:
 - PLAIN STEEL FORM FINISH



SHEAR KEYS AND SIDE BLOCKOUTS REMOVAL DIAGRAM

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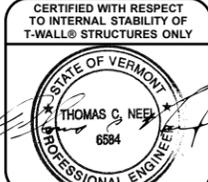
PRECASTER: CONCRETE SYSTEMS, INC.
HUDSON, NH
PROJECT #: T22259

CONTRACTOR: J. A. McDONALD
LYNDON CENTER, VT
PROJECT #:

DESIGNER

THE NEEL COMPANY
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PH: (703) 913-7858
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PROJECT #: TW4437

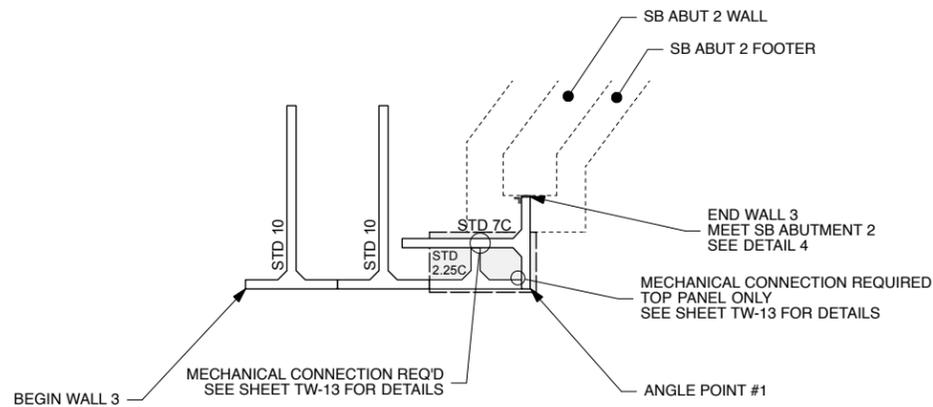


REVISIONS		
1	CORRECTED CORNER PIECE LABELS	CTH 3/6/2015

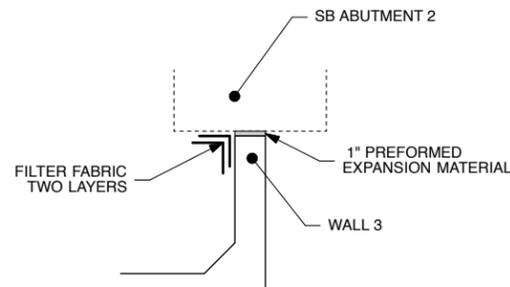
I-89 BRIDGE DECK REPLACEMENTS
I-89 OVER STOWE STREET
WATERBURY, VT
VTRANS PROJECT NO. IM 089-2(43)
SHOP DRAWINGS
WALL 2 CORNER PAN REMOVAL DETAIL
T-WALL® RETAINING WALL SYSTEM

SCALE:	AS NOTED
DATE:	1/23/2015
DESIGNED BY:	KB
DRAWN BY:	CTH
CHECKED BY:	KB
SHEET:	TW-11

Vermont Agency of Transportation
RECEIVED
ON: **March 17, 2015**
and Checked for
CONFORMANCE
BY: **D Bonnaeu** DATE: **04/03/15**



1 PLAN VIEW (BOTTOM LEVEL)
Scale: 1:60



4 END WALL DETAIL
Scale: 1:18

APPROVED: Approval of drawings and/or procedures indicates concurrence with the information presented and does not relieve the Contractor or Fabricator of compliance with all specifications and code requirements	X	
APPROVED AS NOTED		
REVISE AND RESUBMIT		
NOT REVIEWED		
Date: 4/2/15		
By: George Bogue		
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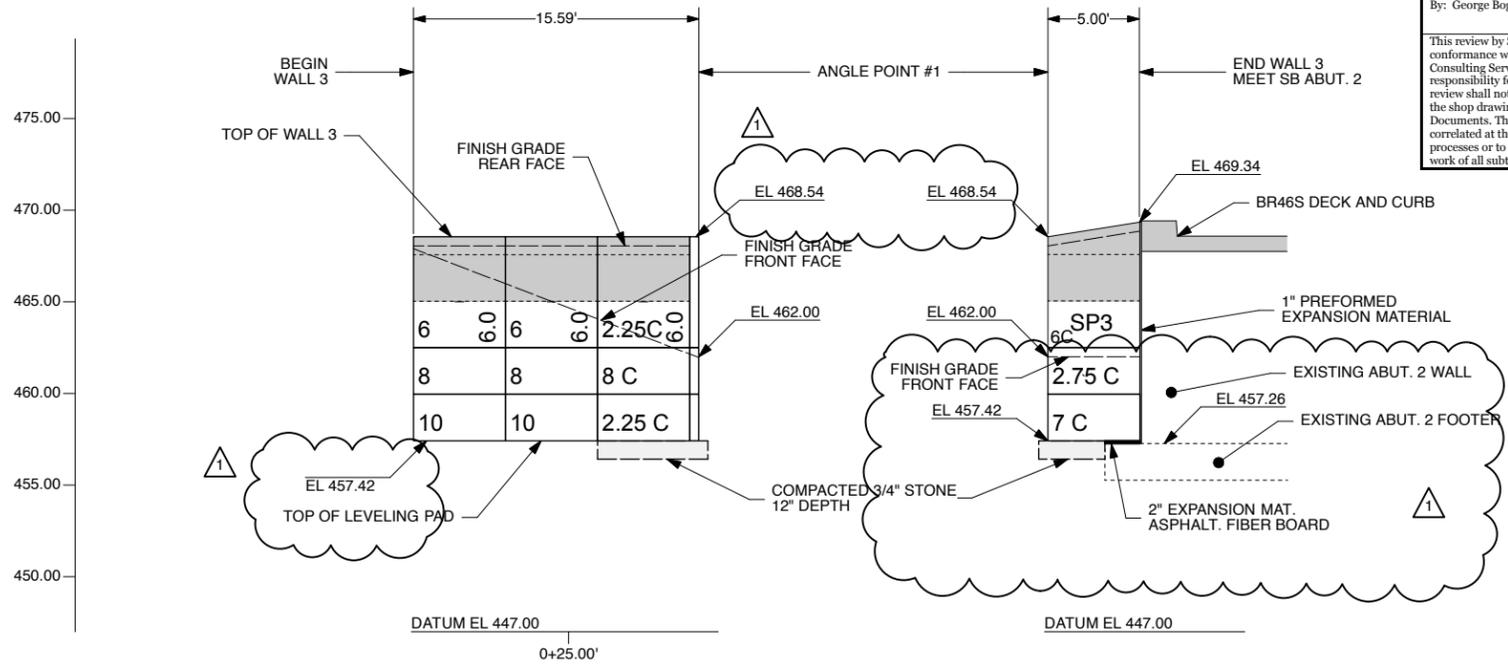
T-WALL Unit Count for Wall 3 3/9/15 11:51:53 AM

PANEL TYPE	QNTY (ea)	AREA (sf)	SELECT FILL (cy)
2.5 x 5.0 x 08 Std	2	25.00	7
2.5 x 5.0 x 10 Std	2	25.00	8
2.5 x 5.0 x 02.25 Std Cnr	1	12.50	1
2.5 x 5.0 x 07 Std Cnr	1	12.50	1
2.5 x 5.0 x 08 Std Cnr	1	12.50	3
6.0 x 5.0 x 06 Std Top Cnr	2	60.00	5
6.0 x 5.0 x 02.25 Std Top Cnr	1	30.00	1
Special Units	1	32.20	2
TOTALS:	12 ea	222.20 sf	31 cy

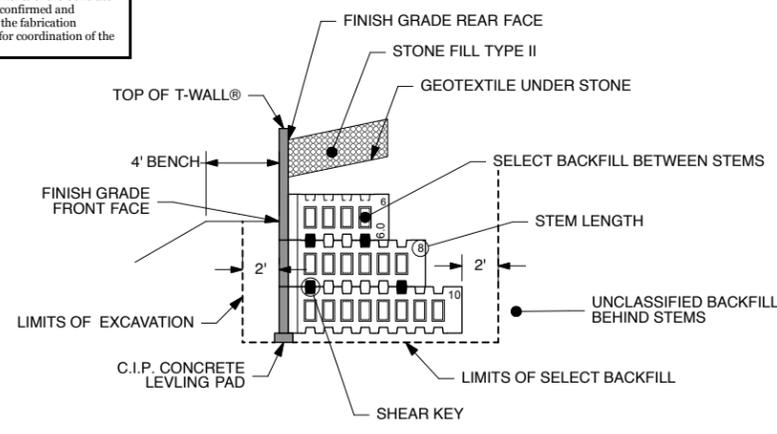
NOTE: Select backfill quantities are between stems only.

SHIP LOOSE LIST FOR RETAINING WALL:

ITEM	QNTY
Shear Keys	10 ea.
AF250 Polyethylene Foam*	1.00 Rolls
1/2" x 4" x 5.00' Horizontal Joint Material**	40.00 LF
Filter Cloth (12" wide)***	68.00 LF



2 DEVELOPED ELEVATION (FRONT FACE)
Scale: 1:60



3 TYP. SECTION AT SOUTHWEST FACE
Scale: 1:60



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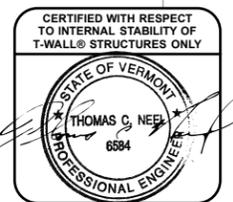
PRECASTER: CONCRETE SYSTEMS, INC.
HUDSON, NH
PROJECT #: T22259

CONTRACTOR: J. A. McDONALD
LYNDON CENTER, VT
PROJECT #:

DESIGNER

THE NEEL COMPANY
8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM

PROJECT #: TW4437



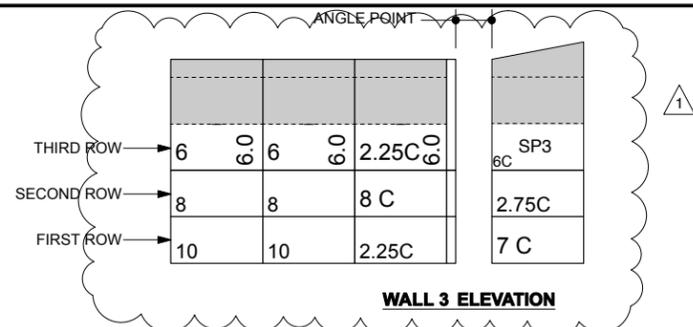
REVISIONS

NO.	DESCRIPTION	BY	DATE
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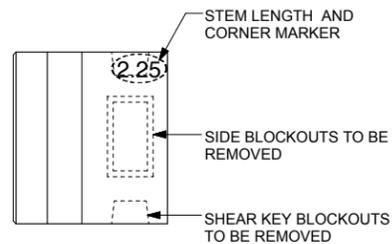
I-89 BRIDGE DECK REPLACEMENTS
I-89 OVER STOWE STREET
WATERBURY, VT
VTRANS PROJECT NO. IM 089-2(43)
SHOP DRAWINGS
WALL 3 ELEVATION, PLAN, SECTION
T-WALL® RETAINING WALL SYSTEM

SCALE:	AS NOTED
DATE:	1/23/2015
DESIGNED BY:	KB
DRAWN BY:	CTH
CHECKED BY:	KB
SHEET:	TW-12

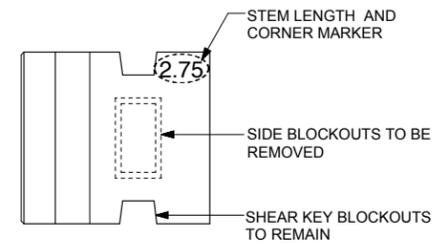
Vermont Agency of Transportation
RECEIVED
ON: **March 17, 2015**
and Checked for
CONFORMANCE
BY: **D Bonneau** DATE: **04/03/15**



WALL 3 ELEVATION

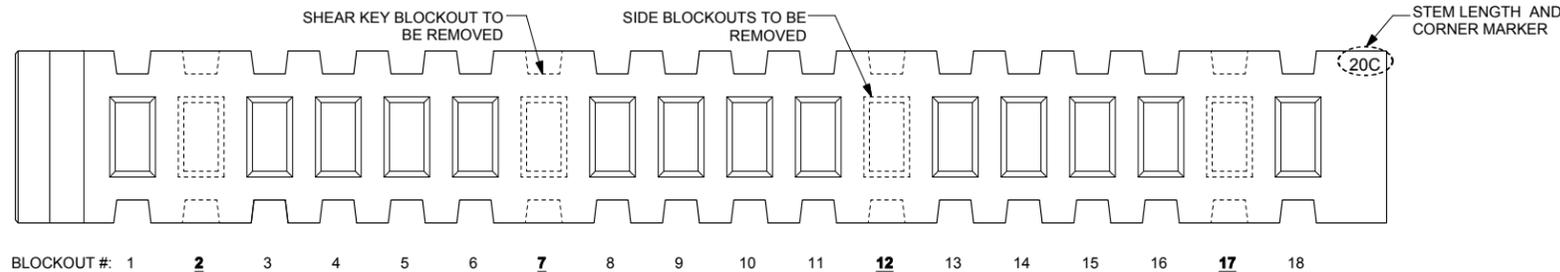


SIDE VIEW - 2.25C SHORT STEM CORNER UNIT
SIDE & SHEAR KEY BLOCKOUTS TO BE REMOVED.
SEE NOTE 3.



SIDE VIEW - 2.75C SHORT STEM CORNER UNIT
SIDE BLOCKOUTS TO BE REMOVED.
SEE NOTE 3.

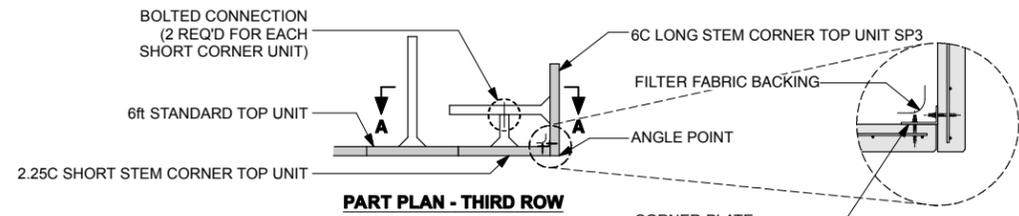
CORNER CONNECTION SHIPLOOSE LIST	
ITEM	QNTY
12" x 6" x 3/8" Hot Dipped Galv Bent Plate	1 ea
1/2" x 5 1/2" Galv Exp Anchor w/Nut & Washer	3 ea
3/4" x 12" Galv Exp Anchor w/Nut & Washer	6 ea



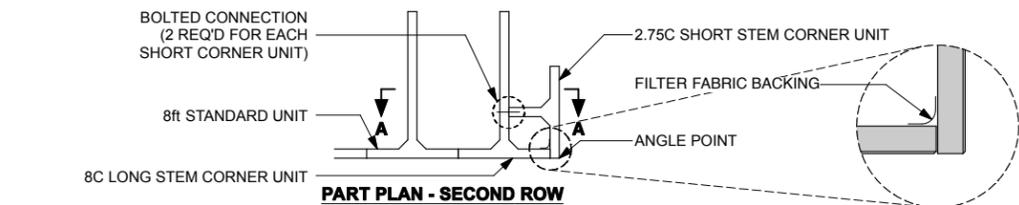
BLOCKOUT #: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

BLOCKOUT: #2, 7, 12 & 17, AS SHOWN

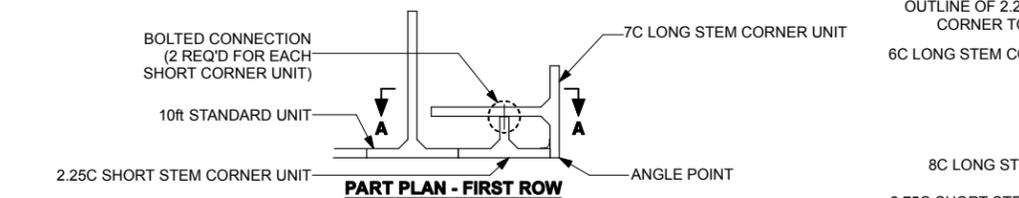
SHOWING BLOCKOUTS TO BE REMOVED IN 20' STEM UNIT SHOWN. ALL OTHER STEM LENGTHS HAVE BLOCKOUTS REMOVED IN SAME LOCATIONS (AS REQUIRED).
SEE NOTE 2.



PART PLAN - THIRD ROW



PART PLAN - SECOND ROW



PART PLAN - FIRST ROW

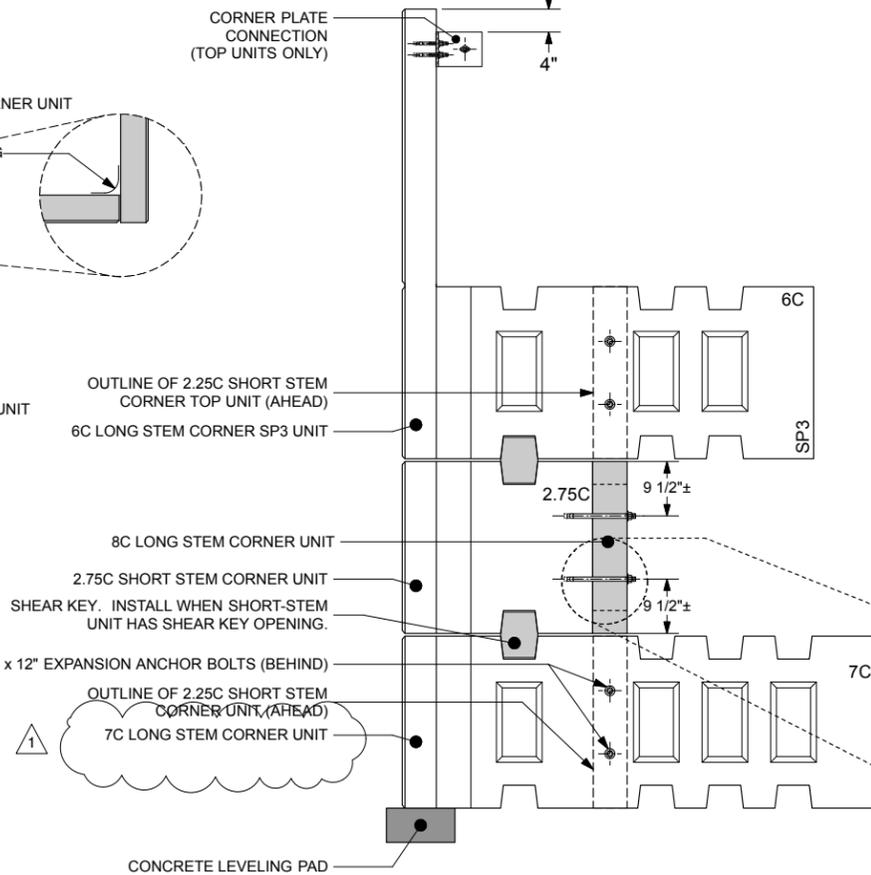
STEM LENGTHS VARY - SEE SPECIFIC ELEVATIONS FOR PROPER UNITS

TYPICAL CORNER UNIT ARRANGEMENT

NO SCALE

APPROVED: Approval of drawings and/or procedures indicates concurrence with the information presented and does not relieve the Contractor or Fabricator of compliance with all specifications and code requirements.	
APPROVED AS NOTED	
REVISE AND RESUBMIT	
NOT REVIEWED	
Date: 4/2/15	
By: George Bogue	

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SECTION A-A

SIDE VIEW - 20C LONG STEM CORNER UNIT

Vermont Agency of Transportation

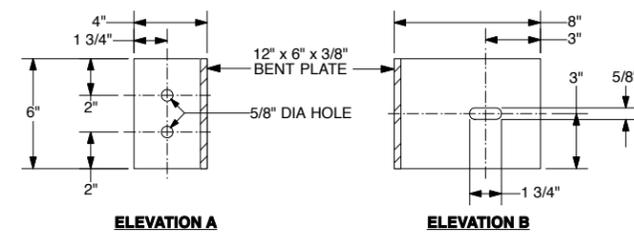
RECEIVED

ON: March 17, 2015

and Checked for

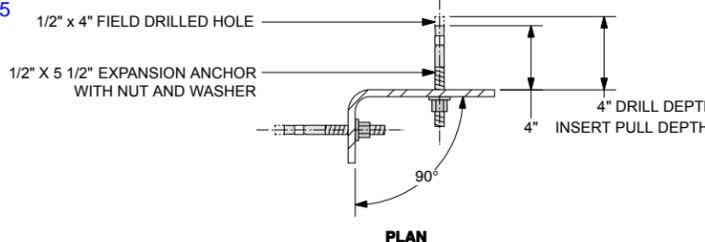
CONFORMANCE

BY: D Bonneau DATE: 04/03/15



ELEVATION A

ELEVATION B



CORNER PLATE CONNECTION

NOTES:

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SHEET SCALE

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DESIGNER

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WEB: WWW.NEELCO.COM

PROJECT #: TW4437

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF T-WALL® STRUCTURES ONLY



REVISIONS

NO.	DESCRIPTION	BY	DATE
1	CORRECTED CORNER PIECE LABELS	CTH	3/6/2015

I-89 BRIDGE DECK REPLACEMENTS
I-89 OVER STOWE STREET

WATERBURY, VT
VTRANS PROJECT NO. IM 089-2(43)
SHOP DRAWINGS
WALL 3 90 DEG. CORNER DETAIL

T-WALL® RETAINING WALL SYSTEM

SCALE: AS NOTED

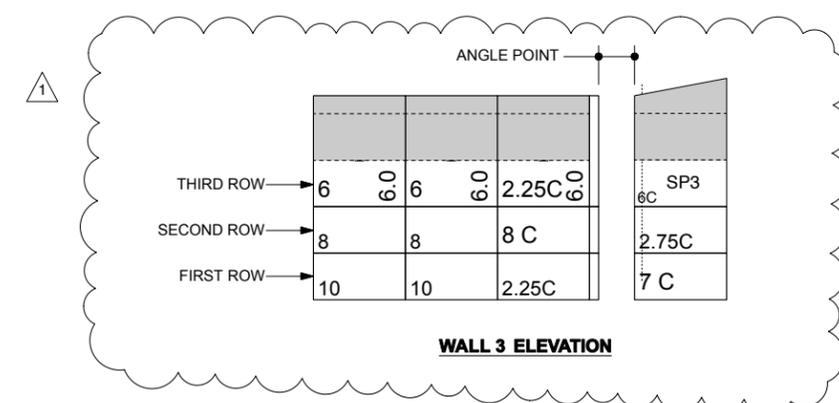
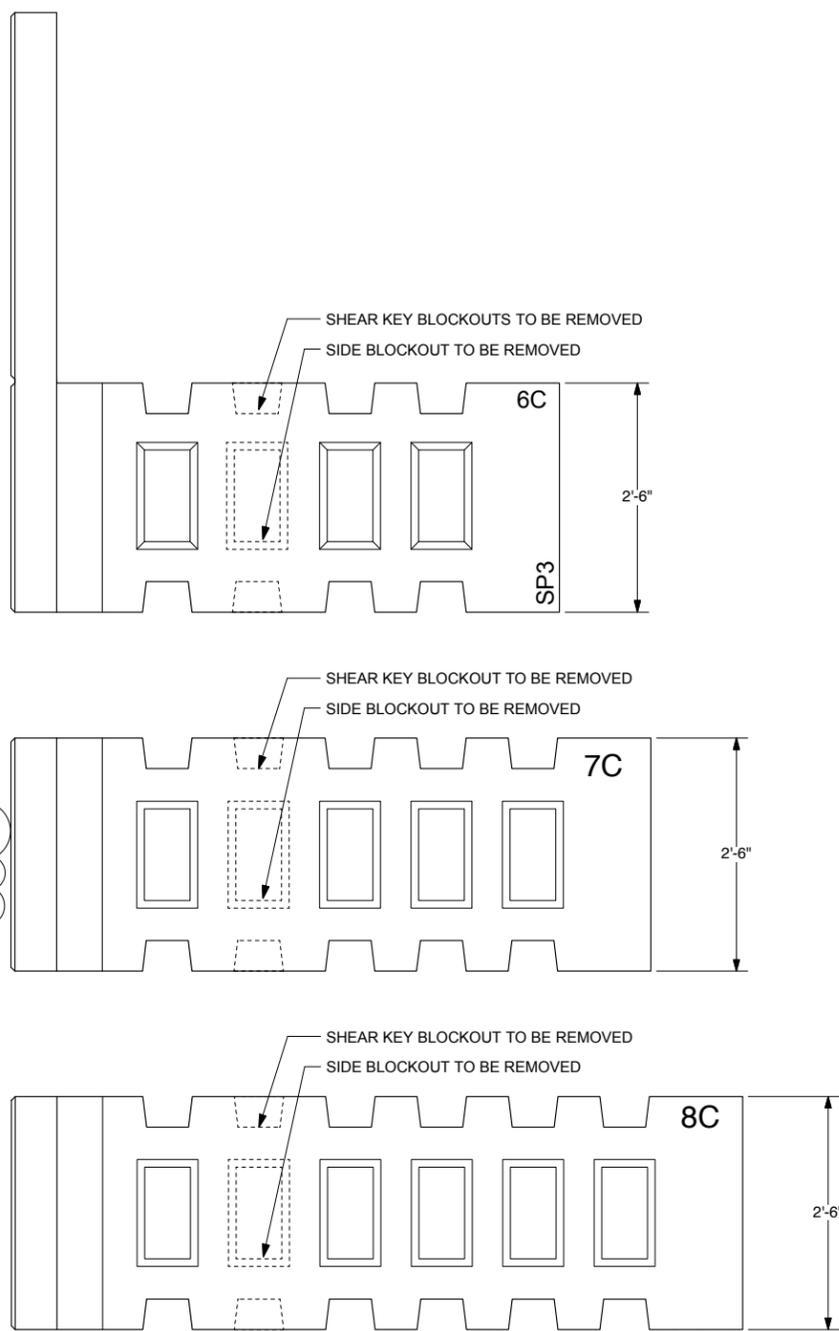
DATE: 1/23/2015

DESIGNED BY: KB

DRAWN BY: CTH

CHECKED BY: KB

SHEET: TW-13



1
7' LONG STEM CORNER UNIT
(SEE SHEET TW-30 FOR MORE DETAIL)

8' LONG STEM CORNER UNIT
(SEE SHEET TW-32 FOR MORE DETAIL)

APPROVED: Approval of drawings and/or procedures indicates concurrence with the information presented and does not relieve the Contractor or Fabricator of compliance with all specifications and code requirements	X	
APPROVED AS NOTED		
REVISE AND RESUBMIT		
NOT REVIEWED		
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 - GRADE 60
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 - PLAIN STEEL FORM FINISH



SHEAR KEYS AND SIDE BLOCKOUTS REMOVAL DIAGRAM

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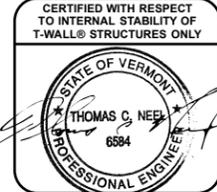
PRECASTER: CONCRETE SYSTEMS, INC.
HUDSON, NH
PROJECT #: T22259

CONTRACTOR: J. A. McDONALD
LYNDON CENTER, VT
PROJECT #:

DESIGNER

THE NEEL COMPANY
8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM

PROJECT #: TW4437

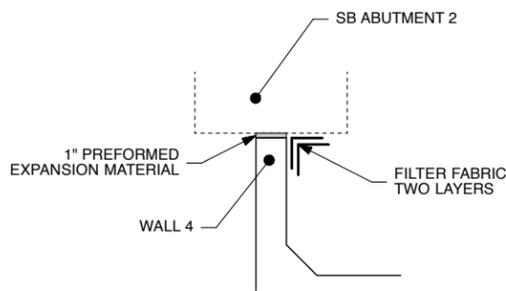


REVISIONS		
1	CORRECTED CORNER PIECE LABELS	CTH 3/6/2015

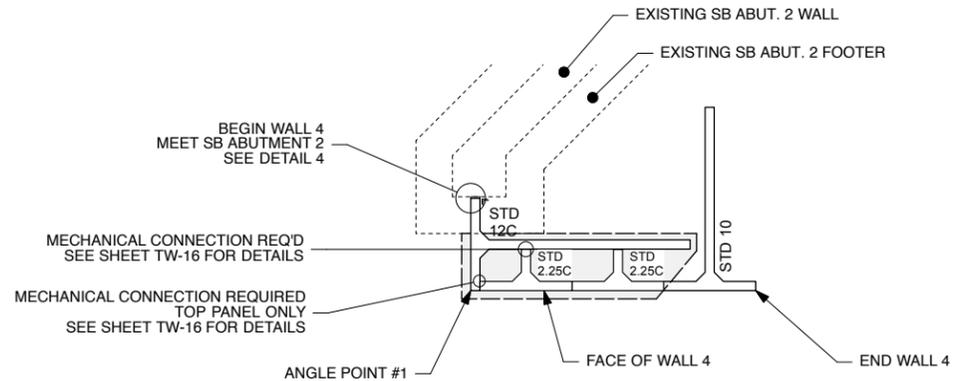
I-89 BRIDGE DECK REPLACEMENTS
I-89 OVER STOWE STREET
WATERBURY, VT
VTRANS PROJECT NO. IM 089-2(43)
SHOP DRAWINGS
WALL 3 CORNER PAN REMOVAL DETAIL
T-WALL® RETAINING WALL SYSTEM

SCALE:	AS NOTED
DATE:	1/23/2015
DESIGNED BY:	KB
DRAWN BY:	CTH
CHECKED BY:	KB
SHEET:	TW-14

Vermont Agency of Transportation
RECEIVED
ON: **March 17, 2015**
and Checked for
CONFORMANCE
BY: **D Bonneau** DATE: **04/03/15**



4 BEGIN WALL DETAIL
Scale: 1:18



1 PLAN VIEW (BOTTOM LEVEL)
Scale: 1:60

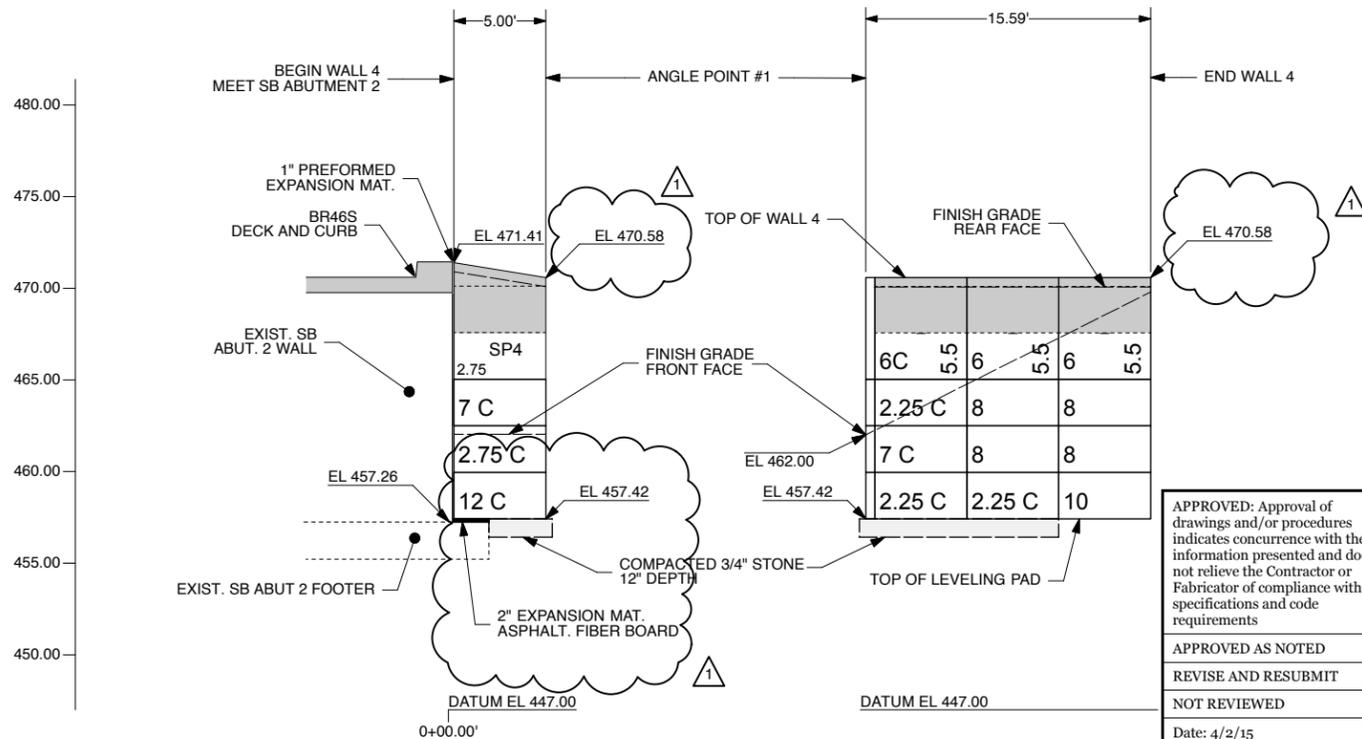
T-WALL Unit Count for Wall 4 3/9/15 12:55:20 PM

PANEL TYPE	QNTY (ea)	AREA (sf)	SELECT FILL (cy)
2.5 x 5.0 x 08 Std	4	50.00	13
2.5 x 5.0 x 10 Std	1	12.50	4
2.5 x 5.0 x 02.25 Std Cnr	3	37.50	2
2.5 x 5.0 x 02.75 Std Cnr	1	12.50	1
2.5 x 5.0 x 07 Std Cnr	2	25.00	6
2.5 x 5.0 x 12 Std Cnr	1	12.50	5
5.5 x 5.0 x 06 Std Top	2	55.00	5
5.5 x 5.0 x 06 Std Top Cnr	1	27.50	2
Special Units	1	29.78	1
TOTALS:	16 ea	262.28 sf	40 cy

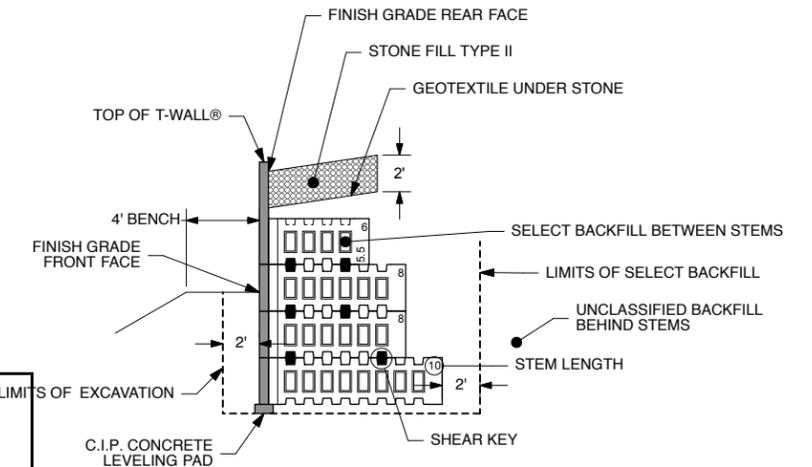
NOTE: Select backfill quantities are between stems only.

SHIP LOOSE LIST FOR RETAINING WALL:

ITEM	QNTY
Shear Keys	13 ea.
AF250 Polyethylene Foam*	1.00 Rolls
1/2" x 4" x 5.00' Horizontal Joint Material**	60.00 LF
Filter Cloth (12" wide)***	68.00 LF



2 DEVELOPED ELEVATION (FRONT FACE)
Scale: 1:60



3 TYP. SECTION AT NORTHEAST FACE
Scale: 1:60

APPROVED: Approval of drawings and/or procedures indicates concurrence with the information presented and does not relieve the Contractor or Fabricator of compliance with all specifications and code requirements

APPROVED AS NOTED

REVISE AND RESUBMIT

NOT REVIEWED

Date: 4/2/15

By: George Bogue

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Stantec



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HUDSON, NH
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CONTRACTOR: J. A. McDONALD
LYNDON CENTER, VT
PROJECT #:

DESIGNER

THE NEEL COMPANY

8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM

PROJECT #: TW4437

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF T-WALL® STRUCTURES ONLY

STATE OF VERMONT

THOMAS C. NEEL

6684

PROFESSIONAL ENGINEER

REVISIONS

NO.	DESCRIPTION	BY	DATE
1	ELIMINATE BLOCKOUT AND RAISE WALL 2"	CTH	3/6/2015

I-89 BRIDGE DECK REPLACEMENTS

I-89 OVER STOWE STREET

WATERBURY, VT

VTRANS PROJECT NO. IM 089-2(43)

SHOP DRAWINGS

WALL 4 ELEVATION, PLAN, SECTION

T-WALL® RETAINING WALL SYSTEM

SCALE: AS NOTED

DATE: 1/23/2015

DESIGNED BY: KB

DRAWN BY: CTH

CHECKED BY: KB

SHEET: TW-15

Vermont Agency of Transportation

RECEIVED

ON: **March 17, 2015**

and Checked for

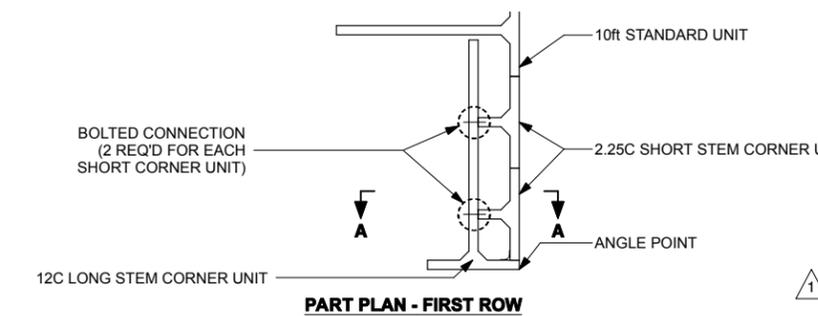
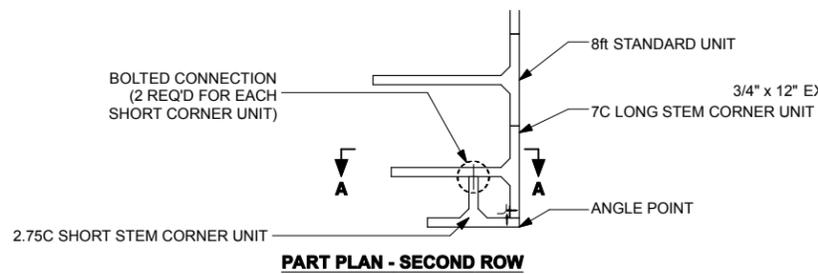
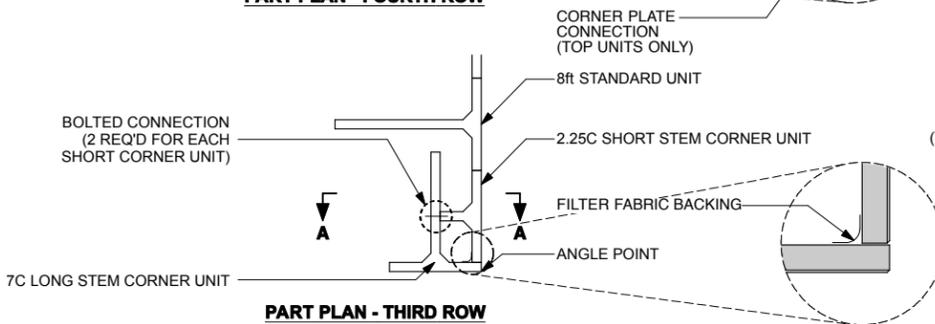
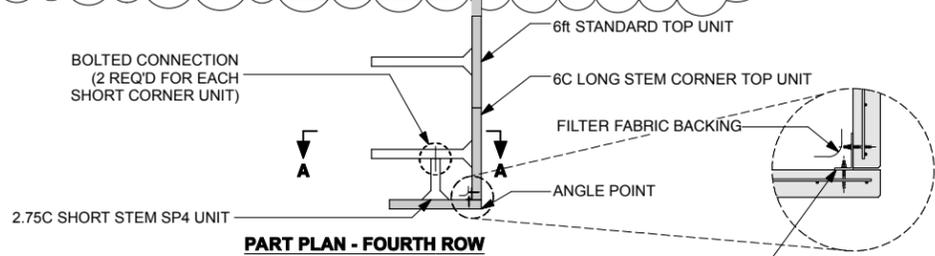
CONFORMANCE

BY: **D Bonneau** DATE: **04/03/15**

ANGLE POINT

FOURTH ROW	SP4 2.75C	6C 5.5	6	5.5	6	5.5
THIRD ROW	7C	2.25C	8	8		
SECOND ROW	2.75C	7C	8	8		
FIRST ROW	12C	2.25C	2.25C	10		

WALL 4 ELEVATION



TYPICAL CORNER UNIT ARRANGEMENT
STEM LENGTHS VARY - SEE SPECIFIC ELEVATIONS FOR PROPER UNITS
NO SCALE



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HUDSON, NH
PROJECT #: T22259

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LYNDON CENTER, VT
PROJECT #:

DESIGNER

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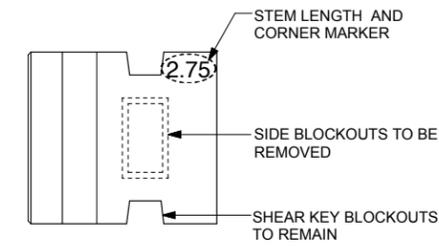
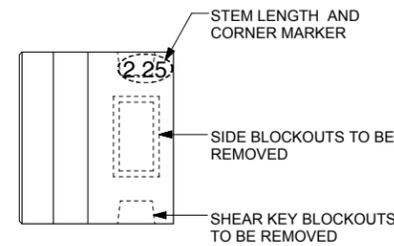
PROJECT #: TW4437

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF T-WALL® STRUCTURES ONLY

REVISIONS		
1	CORRECTED CORNER PIECE LABELS	CTH 3/6/2015

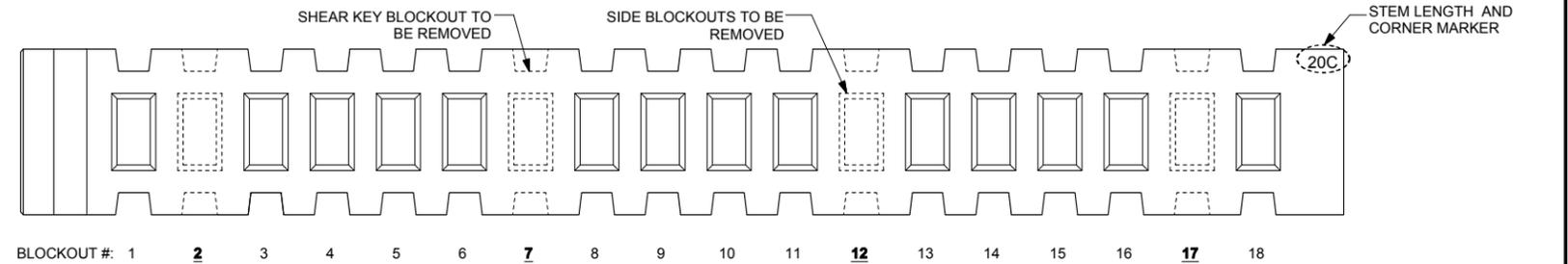
I-89 BRIDGE DECK REPLACEMENTS
I-89 OVER STOWE STREET
WATERBURY, VT
VTRANS PROJECT NO. IM 089-2(43)
SHOP DRAWINGS
WALL 4 90 DEG. CORNER DETAIL
T-WALL® RETAINING WALL SYSTEM

SCALE:	AS NOTED
DATE:	1/23/2015
DESIGNED BY:	KB
DRAWN BY:	CTH
CHECKED BY:	KB
SHEET:	TW-16



SIDE VIEW - 2.25C SHORT STEM CORNER UNIT
SIDE & SHEAR KEY BLOCKOUTS TO BE REMOVED.
SEE NOTE 3.

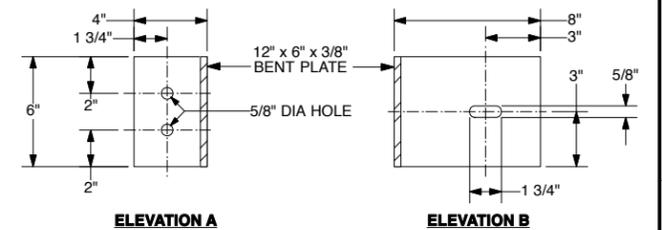
SIDE VIEW - 2.75C SHORT STEM CORNER UNIT
SIDE BLOCKOUTS TO BE REMOVED.
SEE NOTE 3.



BLOCKOUT: #2, 7, 12 & 17, AS SHOWN

SHOWING BLOCKOUTS TO BE REMOVED IN 20' STEM UNIT SHOWN. ALL OTHER STEM LENGTHS HAVE BLOCKOUTS REMOVED IN SAME LOCATIONS (AS REQUIRED).
SEE NOTE 2.

SIDE VIEW - 20C LONG STEM CORNER UNIT



ELEVATION A

ELEVATION B

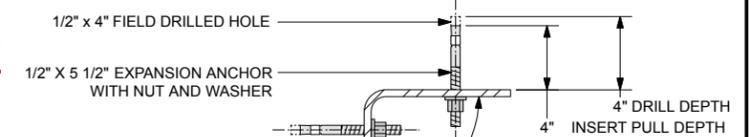
Vermont Agency of Transportation

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ON: **March 17, 2015**

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CONFORMANCE

BY: **D Bonneau** DATE: **04/03/15**



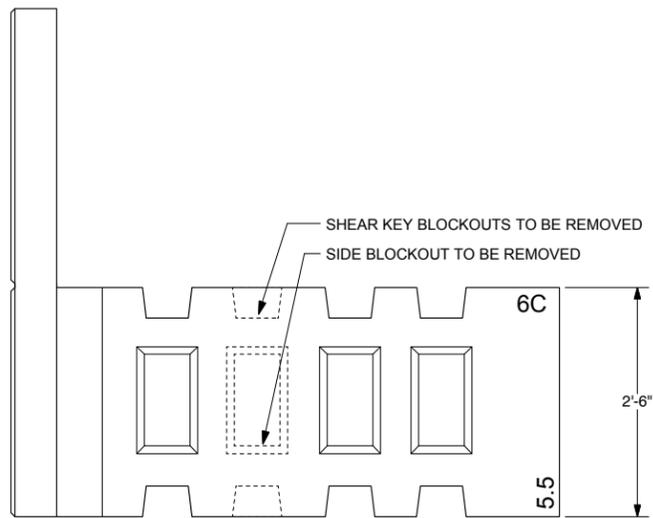
CORNER PLATE CONNECTION

NOTES:

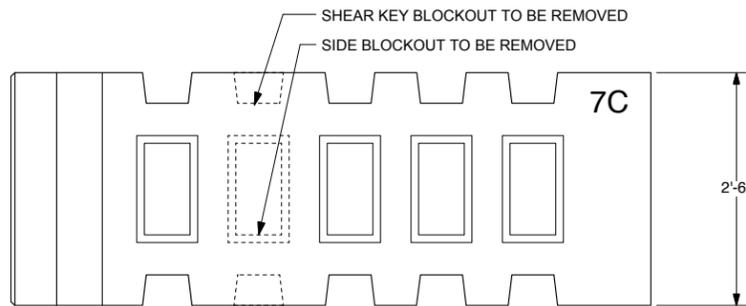
- ALL CORNER UNITS ARE DESIGNATED BY A TRAILING 'C' IN MARK No., i.e. "20C" INDICATES A 20 FOOT STEM CORNER UNIT WITH BLOCKOUTS REMOVED.
- FOR LONG STEM CORNER UNITS: EXCEPT FOR REMOVAL OF SPECIFIC BLOCKOUTS, ALL DIMENSIONS AND REBAR ARE THE SAME AS STANDARD OR TOP UNITS OF THE SAME STEM LENGTH. SEE STANDARD OR TOP UNIT REBAR DRAWINGS FOR DETAILS.
- FOR SHORT STEM CORNER UNITS (2.25C, 2.75C): SEE CORNER UNIT REBAR DRAWINGS
- PLATE TO BE A36 STEEL 12" x 6" x 3/8". PLATES TO BE HOT DIPPED GALVANIZED (ASTM 123) AFTER FABRICATION.
- EXPANSION ANCHOR BOLTS TO BE HOT DIPPED GALVANIZED (ASTM 123) AS FOLLOWS:
5.1 1/2"Ø x 5 1/2" EXPANSION BOLT
5.2 3/4"Ø x 12" EXPANSION BOLT
- HOLES FOR EXPANSION ANCHOR BOLTS TO BE FIELD DRILLED AS FOLLOWS:
3.1 1/2"Ø DRILL BIT TO A DEPTH OF 4"
3.2 3/4"Ø DRILL BIT TO A DEPTH OF 12"

APPROVED: Approval of drawings and procedures indicated on these drawings does not relieve the Contractor or Fabricator of compliance with all specifications and code requirements	X	
APPROVED AS NOTED		
REVISE AND RESUBMIT		
NOT REVIEWED		
Date: 4/2/15		
By: George Bogue		
<p>This review by Stantec Consulting Services Inc. is for the sole purpose of ascertaining conformance with the general design concept. This review shall not mean that Stantec Consulting Services Inc. approves the detail design inherent in the shop drawings, responsibility for which shall remain with the Contractor. Submitting same, and such review shall not relieve the Contractor of his responsibility for errors or omissions in the shop drawing or of his responsibility for meeting all requirements of the Contract Documents. The contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction and installation and for coordination of the work of all subtrades.</p>		

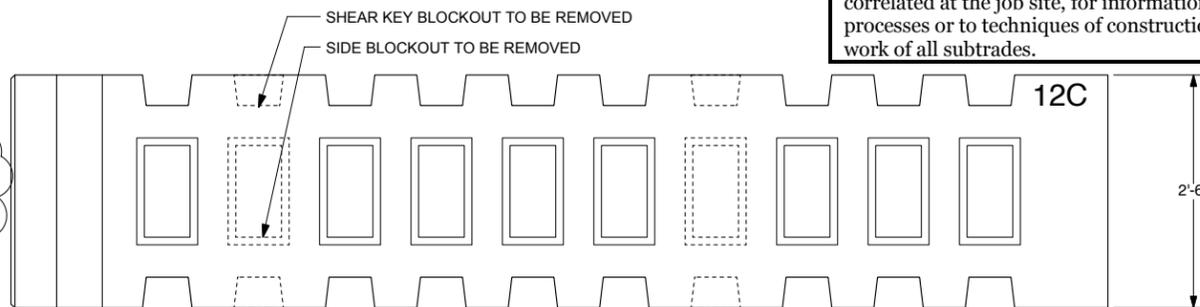
6' LONG STEM BY 5' HEIGHT TOP CORNER UNIT
(SEE SHEET TW-40 FOR MORE DETAIL)



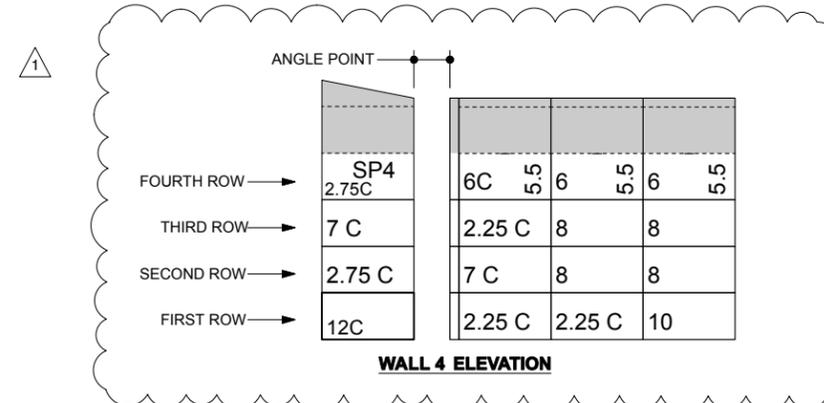
7' LONG STEM CORNER UNIT
(SEE SHEET TW-32 FOR MORE DETAIL)



12' LONG STEM CORNER UNIT
(SEE SHEET TW-32 FOR MORE DETAIL)



SHEAR KEYS AND SIDE BLOCKOUTS REMOVAL DIAGRAM



APPROVED: Approval of drawings and/or procedures indicates concurrence with the information presented and does not relieve the Contractor or Fabricator of compliance with all specifications and code requirements	X	
APPROVED AS NOTED		
REVISE AND RESUBMIT		
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NOTES:

- ALL CORNER UNITS ARE DESIGNATED BY A TRAILING 'C' IN MARK No., i.e. - "20C" INDICATES A 20 FOOT STEM CORNER UNIT WITH BLOCKOUTS REMOVED.
- FOR LONG STEM CORNER UNITS: EXCEPT FOR REMOVAL OF SPECIFIC BLOCKOUTS, ALL DIMENSIONS AND REBAR ARE THE SAME AS A STANDARD UNIT OR A STANDARD TOP UNIT OF THE SAME STEM LENGTH. FOR MORE DETAILS, SEE THE STANDARD UNIT REBAR DRAWING OR STANDARD TOP UNIT REBAR DRAWINGS.

GENERAL NOTES:

- PRIMARY REFERENCE: AASHTO, LRFD SPECIFICATIONS FOR HIGHWAY BRIDGES, 4th EDITION 2007 (WITH INTERIMS)
- MINIMUM CONCRETE COVER IS DESIGNED FOR 2" ON ALL BARS.
- CONCRETE:
 - F'c = 5000psi @ 28 DAYS
- REBAR:
 - EPOXY
 - GRADE 60
- T-WALL FINISH FORM FINISH:
 - PLAIN STEEL FORM FINISH

Vermont Agency of Transportation

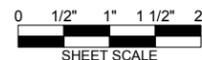
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ON: **March 17, 2015**

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CONFORMANCE

BY: **D Bonneau** DATE: **04/03/15**



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PH: (703) 913-7858
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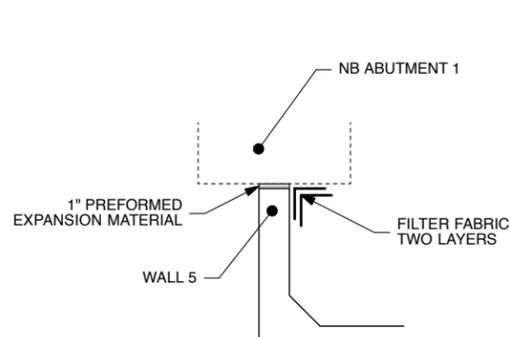
PROJECT #: TW4437

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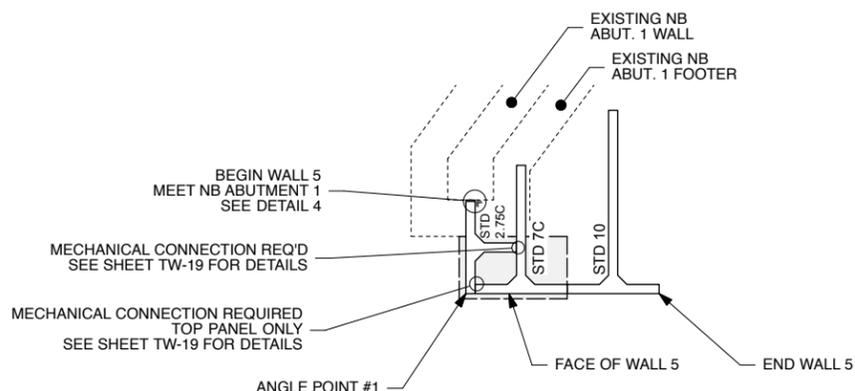
REVISIONS		
1	CORRECTED CORNER PIECE LABELS	CTH 3/6/2015

I-89 BRIDGE DECK REPLACEMENTS
I-89 OVER STOWE STREET
WATERBURY, VT
VTRANS PROJECT NO. IM 089-2(43)
SHOP DRAWINGS
WALL 4 CORNER PAN REMOVAL DETAIL
T-WALL® RETAINING WALL SYSTEM

SCALE:	AS NOTED
DATE:	1/23/2015
DESIGNED BY:	KB
DRAWN BY:	CTH
CHECKED BY:	KB
SHEET:	TW-17



4 BEGIN WALL DETAIL
Scale: 1:18



1 PLAN VIEW (BOTTOM LEVEL)
Scale: 1:60

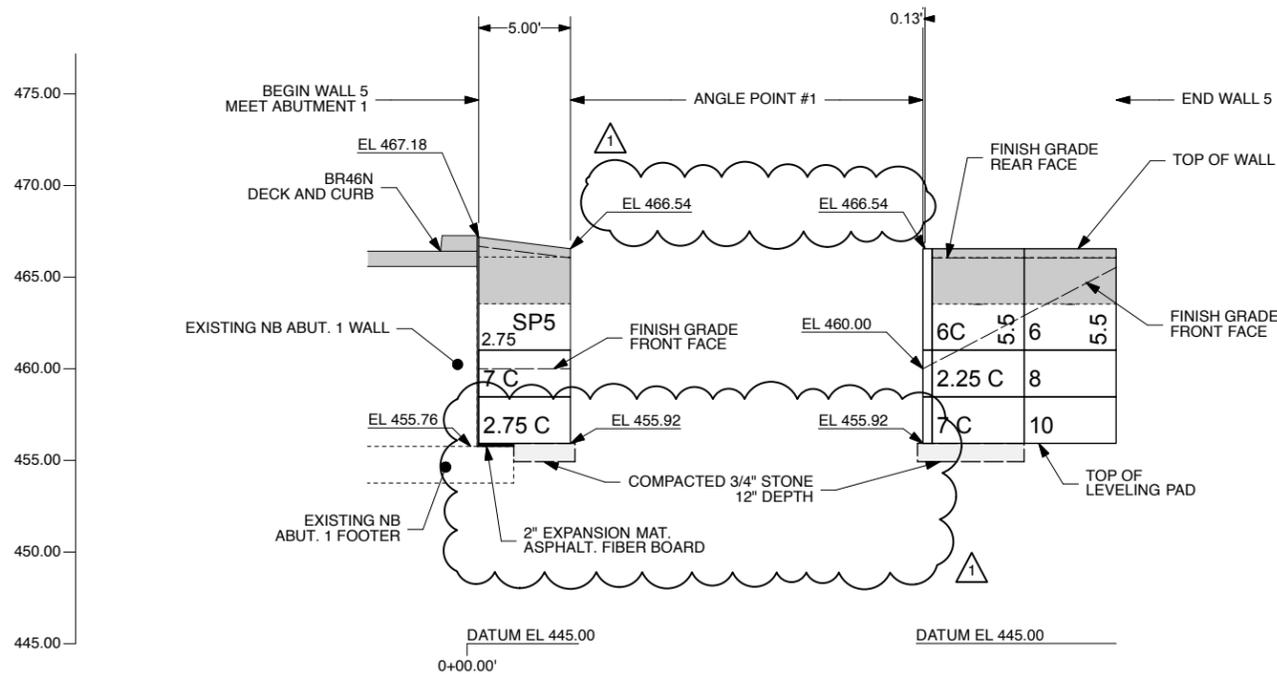
T-WALL Unit Count for Wall 5 3/9/15 12:04:37 PM

PANEL TYPE	QNTY (ea)	AREA (sf)	SELECT FILL (cy)
2.5 x 5.0 x 08 Std	1	12.50	3
2.5 x 5.0 x 10 Std	1	12.50	4
2.5 x 5.0 x 02.25 Std Cnr	1	12.50	1
2.5 x 5.0 x 02.75 Std Cnr	1	12.50	1
2.5 x 5.0 x 07 Std Cnr	2	25.00	6
5.5 x 5.0 x 06 Std Top	1	27.50	2
5.5 x 5.0 x 06 Std Top Cnr	1	27.50	2
Special Units	1	29.30	1
TOTALS:	9 ea	159.30 sf	21 cy

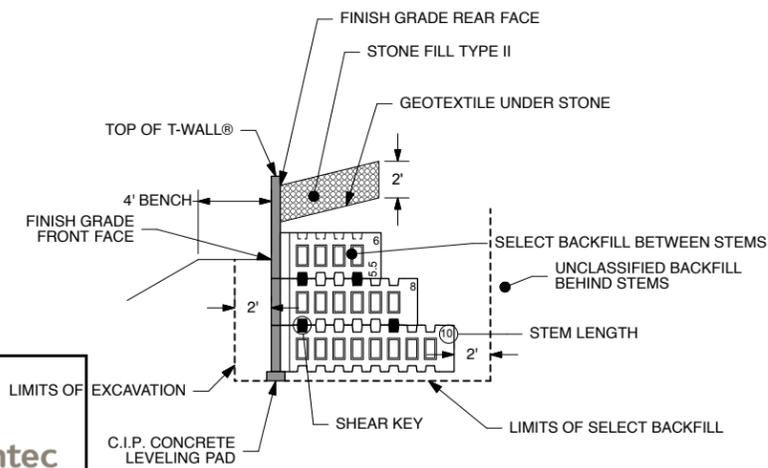
NOTE: Select backfill quantities are between stems only.

SHIP LOOSE LIST FOR RETAINING WALL:

ITEM	QNTY
Shear Keys	6 ea.
AF250 Polyethylene Foam*	1.00 Rolls
1/2" x 4" x 5.00' Horizontal Joint Material**	30.00 LF
Filter Cloth (12" wide)**	44.00 LF



2 DEVELOPED ELEVATION (FRONT FACE)
Scale: 1:60



3 TYP. SECTION AT SOUTHWEST FACE
Scale: 1:60

APPROVED: Approval of drawings and/or procedures indicates concurrence with the information presented and does not relieve the Contractor or Fabricator of compliance with all specifications and code requirements	X	
APPROVED AS NOTED		
REVISE AND RESUBMIT		
NOT REVIEWED		
Date: 4/2/15		
By: George Bogue		
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Vermont Agency of Transportation

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BY: **D Bonneau** DATE: **04/03/15**



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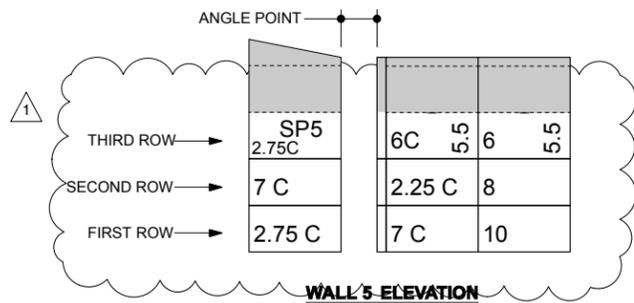
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STATE OF VERMONT
THOMAS C. NEEL
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PROFESSIONAL ENGINEER

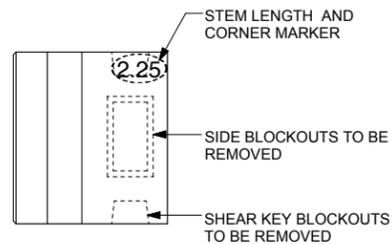
REVISIONS		
1	ELIMINATE BLOCKOUT AND RAISE WALL 2"	CTH 3/6/2015

I-89 BRIDGE DECK REPLACEMENTS
I-89 OVER STOWE STREET
WATERBURY, VT
VTRANS PROJECT NO. IM 089-2(43)
SHOP DRAWINGS
WALL 5 ELEVATION, PLAN, SECTION
T-WALL® RETAINING WALL SYSTEM

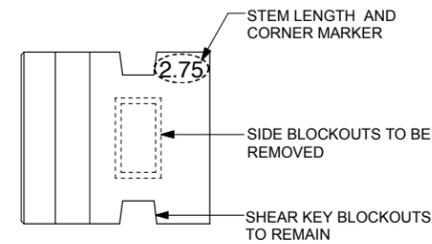
SCALE:	AS NOTED
DATE:	1/23/2015
DESIGNED BY:	KB
DRAWN BY:	CTH
CHECKED BY:	KB
SHEET:	TW-18



WALL 5 ELEVATION



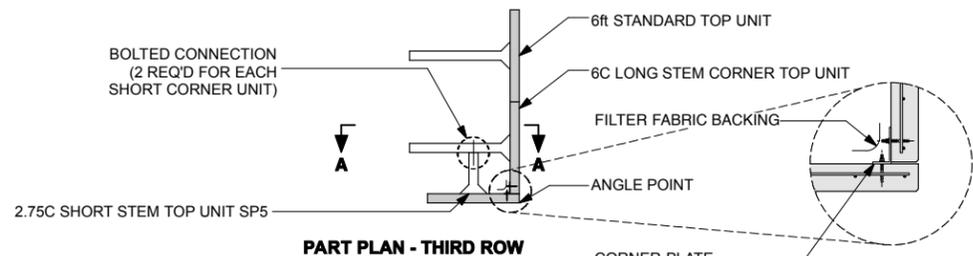
SIDE VIEW - 2.25C SHORT STEM CORNER UNIT
SIDE & SHEAR KEY BLOCKOUTS TO BE REMOVED.
SEE NOTE 3.



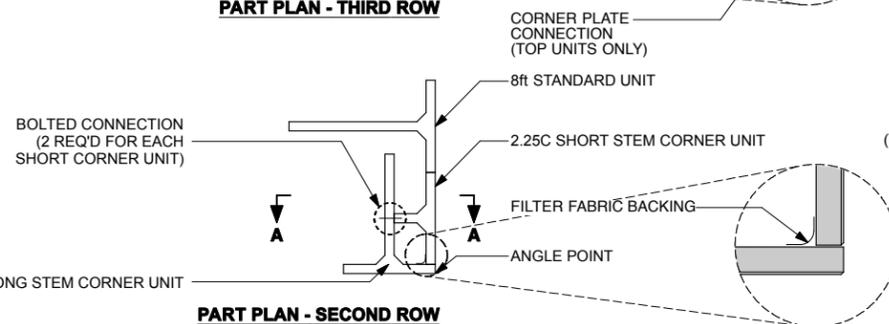
SIDE VIEW - 2.75C SHORT STEM CORNER UNIT
SIDE BLOCKOUTS TO BE REMOVED.
SEE NOTE 3.

CORNER CONNECTION SHIPLOOSE LIST

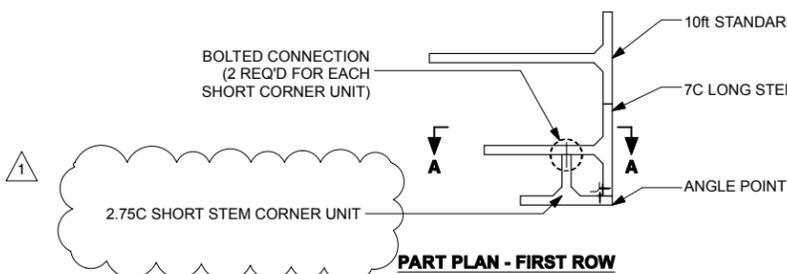
ITEM	QNTY
12" x 6" x 3/8" Hot Dipped Galv Bent Plate	1 ea
1/2" x 5 1/2" Galv Exp Anchor w/Nut & Washer	3 ea
3/4" x 12" Galv Exp Anchor w/Nut & Washer	6 ea



PART PLAN - THIRD ROW

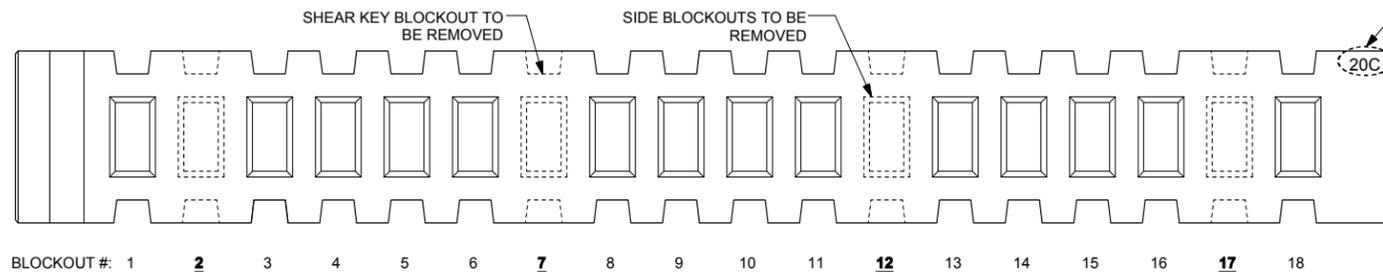


PART PLAN - SECOND ROW



PART PLAN - FIRST ROW

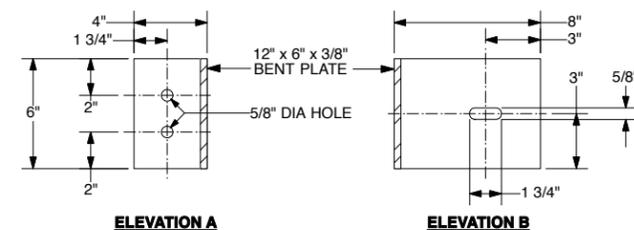
STEM LENGTHS VARY - SEE SPECIFIC ELEVATIONS FOR PROPER UNITS
TYPICAL CORNER UNIT ARRANGEMENT
NO SCALE



BLOCKOUT # 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
BLOCKOUT: #2, 7, 12 & 17, AS SHOWN

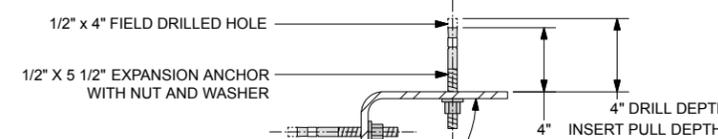
SHOWING BLOCKOUTS TO BE REMOVED IN 20' STEM UNIT SHOWN. ALL OTHER STEM LENGTHS HAVE BLOCKOUTS REMOVED IN SAME LOCATIONS (AS REQUIRED).
SEE NOTE 2.

SIDE VIEW - 20C LONG STEM CORNER UNIT



ELEVATION A

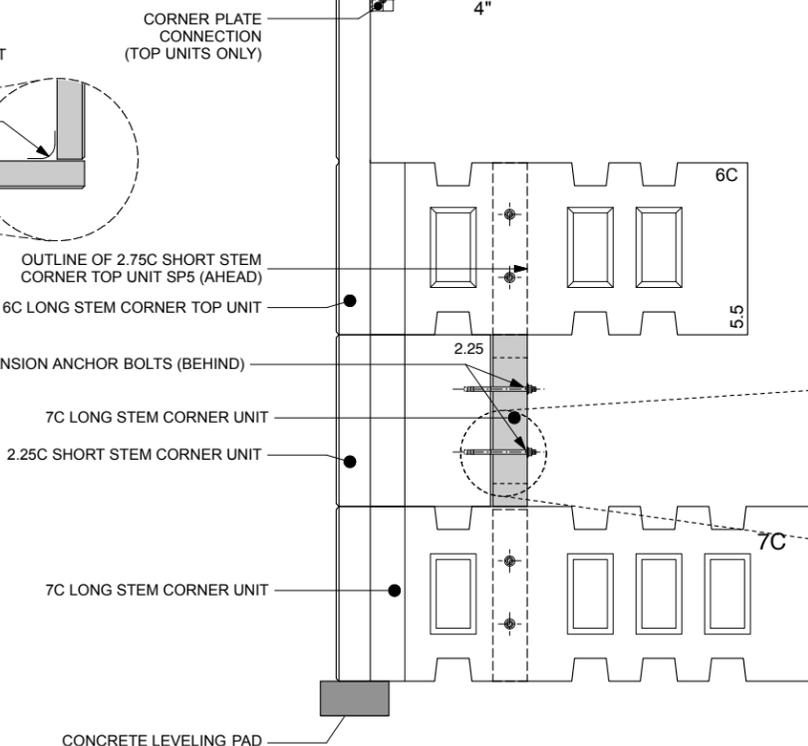
ELEVATION B



CORNER PLATE CONNECTION

NOTES:

- ALL CORNER UNITS ARE DESIGNATED BY A TRAILING 'C' IN MARK No., i.e. "20C" INDICATES A 20 FOOT STEM CORNER UNIT WITH BLOCKOUTS REMOVED.
- FOR LONG STEM CORNER UNITS: EXCEPT FOR REMOVAL OF SPECIFIC BLOCKOUTS, ALL DIMENSIONS AND REBAR ARE THE SAME AS STANDARD OR TOP UNITS OF THE SAME STEM LENGTH. SEE STANDARD OR TOP UNIT REBAR DRAWINGS FOR DETAILS.
- FOR SHORT STEM CORNER UNITS (2.25C, 2.75C): SEE CORNER UNIT REBAR DRAWINGS
- PLATE TO BE A36 STEEL 12" x 6" x 3/8". PLATES TO BE HOT DIPPED GALVANIZED (ASTM 123) AFTER FABRICATION.
- EXPANSION ANCHOR BOLTS TO BE HOT DIPPED GALVANIZED (ASTM 123) AS FOLLOWS:
5.1 1/2"Ø x 5 1/2" EXPANSION BOLT
5.2 3/4"Ø x 12" EXPANSION BOLT
- HOLES FOR EXPANSION ANCHOR BOLTS TO BE FIELD DRILLED AS FOLLOWS:
3.1 1/2"Ø DRILL BIT TO A DEPTH OF 4"
3.2 3/4"Ø DRILL BIT TO A DEPTH OF 12"



SECTION A-A

APPROVED: Approval of drawings and/or procedures indicates concurrence with the information presented and does not relieve the Contractor or Fabricator of compliance with all specifications and code requirements	X
APPROVED AS NOTED	
REVISE AND RESUBMIT	
NOT REVIEWED	
Date: 4/2/15	
By: George Bogue	

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Vermont Agency of Transportation
RECEIVED
ON: **March 17, 2015**
and Checked for
CONFORMANCE
BY: **D Bonnaeu** DATE: **04/03/15**



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PRECASTER: CONCRETE SYSTEMS, INC.
HUDSON, NH
PROJECT #: T22259

CONTRACTOR: J. A. McDONALD
LYNDON CENTER, VT
PROJECT #:

DESIGNER

THE NEEL COMPANY
8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM

PROJECT #: TW4437

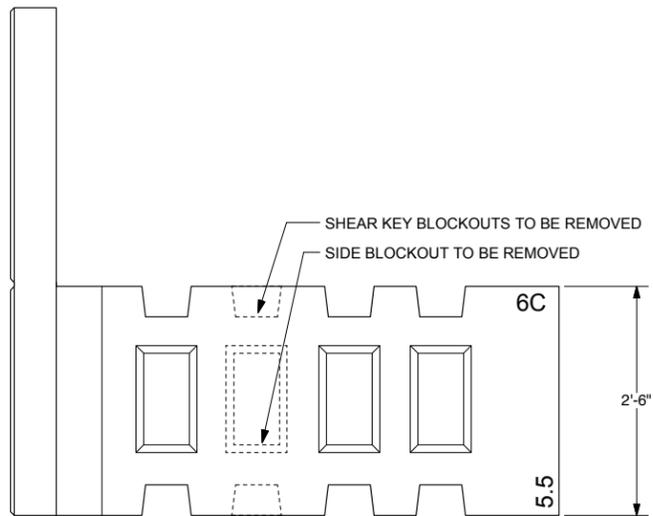
CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF T-WALL® STRUCTURES ONLY

STATE OF VERMONT
THOMAS C. NEEL
6584
PROFESSIONAL ENGINEER

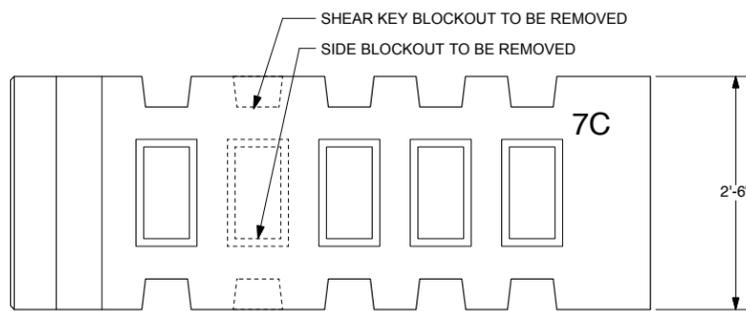
REVISIONS		
1	CORRECTED CORNER PIECE LABELS	CTH 3/6/2015

I-89 BRIDGE DECK REPLACEMENTS
I-89 OVER STOWE STREET
WATERBURY, VT
VTRANS PROJECT NO. IM 089-2(43)
SHOP DRAWINGS
WALL 5 90 DEG. CORNER DETAIL
T-WALL® RETAINING WALL SYSTEM

SCALE:	AS NOTED
DATE:	1/23/2015
DESIGNED BY:	KB
DRAWN BY:	CTH
CHECKED BY:	KB
SHEET:	TW-19

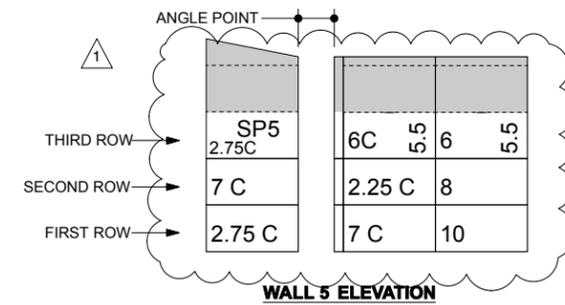


6' LONG STEM BY 5' HEIGHT TOP CORNER UNIT
(SEE SHEET TW-40 FOR MORE DETAIL)



7' LONG STEM CORNER UNIT
(SEE SHEET TW-32 FOR MORE DETAIL)

SHEAR KEYS AND SIDE BLOCKOUTS REMOVAL DIAGRAM



WALL 5 ELEVATION

APPROVED: Approval of drawings and/or procedures indicates concurrence with the information presented and does not relieve the Contractor or Fabricator of compliance with all specifications and code requirements	X	
APPROVED AS NOTED		
REVISE AND RESUBMIT		
NOT REVIEWED		
Date: 4/2/15		
By: George Bogue		
<p>This review by Stantec Consulting Services Inc. is for the sole purpose of ascertaining conformance with the general design concept. This review shall not mean that Stantec Consulting Services Inc approves the detail design inherent in the shop drawings, responsibility for which shall remain with the Contractor. Submitting same, and such review shall not relieve the Contractor of his responsibility for errors or omissions in the shop drawing or of his responsibility for meeting all requirements of the Contract Documents. The contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction and installation and for coordination of the work of all subtrades.</p>		

NOTES:

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- FOR LONG STEM CORNER UNITS: EXCEPT FOR REMOVAL OF SPECIFIC BLOCKOUTS, ALL DIMENSIONS AND REBAR ARE THE SAME AS A STANDARD UNIT OR A STANDARD TOP UNIT OF THE SAME STEM LENGTH. FOR MORE DETAILS, SEE THE STANDARD UNIT REBAR DRAWING OR STANDARD TOP UNIT REBAR DRAWINGS .

GENERAL NOTES:

- PRIMARY REFERENCE: AASHTO, LRFD SPECIFICATIONS FOR HIGHWAY BRIDGES, 4th EDITION 2007 (WITH INTERIMS)
- MINIMUM CONCRETE COVER IS DESIGNED FOR 2" ON ALL BARS.
- CONCRETE:
 - F'c = 5000psi @ 28 DAYS
- REBAR:
 - EPOXY
 - GRADE 60
- T-WALL FINISH FORM FINISH:
 - PLAIN STEEL FORM FINISH



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PRECASTER: CONCRETE SYSTEMS, INC. HUDSON, NH PROJECT #: T22259
CONTRACTOR: J. A. MCDONALD LYNDON CENTER, VT PROJECT #:

DESIGNER

THE NEEL COMPANY
8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM

PROJECT #: TW4437

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REVISIONS		
1	CORRECTED CORNER PIECE LABELS	CTH 3/6/2015

I-89 BRIDGE DECK REPLACEMENTS
I-89 OVER STOWE STREET
WATERBURY, VT
VTRANS PROJECT NO. IM 089-2(43)
SHOP DRAWINGS
WALL 5 CORNER PAN REMOVAL DETAIL
T-WALL® RETAINING WALL SYSTEM

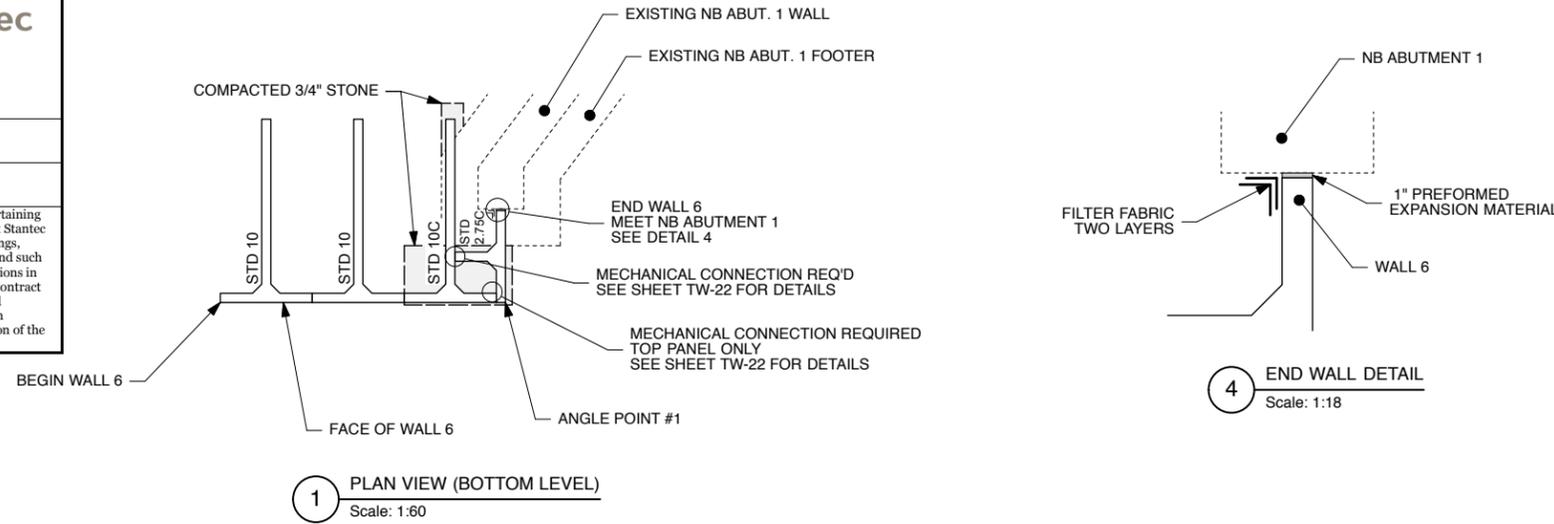
SCALE:	AS NOTED
DATE:	1/23/2015
DESIGNED BY:	KB
DRAWN BY:	CTH
CHECKED BY:	KB
SHEET:	TW-20

Vermont Agency of Transportation
RECEIVED
ON: **March 17, 2015**
and Checked for
CONFORMANCE
BY: **D Bonneau** DATE: **04/03/15**

APPROVED: Approval of drawings and/or procedures indicates concurrence with the information presented and does not relieve the Contractor or Fabricator of compliance with all specifications and code requirements	X
APPROVED AS NOTED	
REVISE AND RESUBMIT	
NOT REVIEWED	
Date: 4/2/15	
By: George Bogue	



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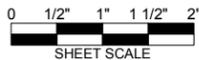
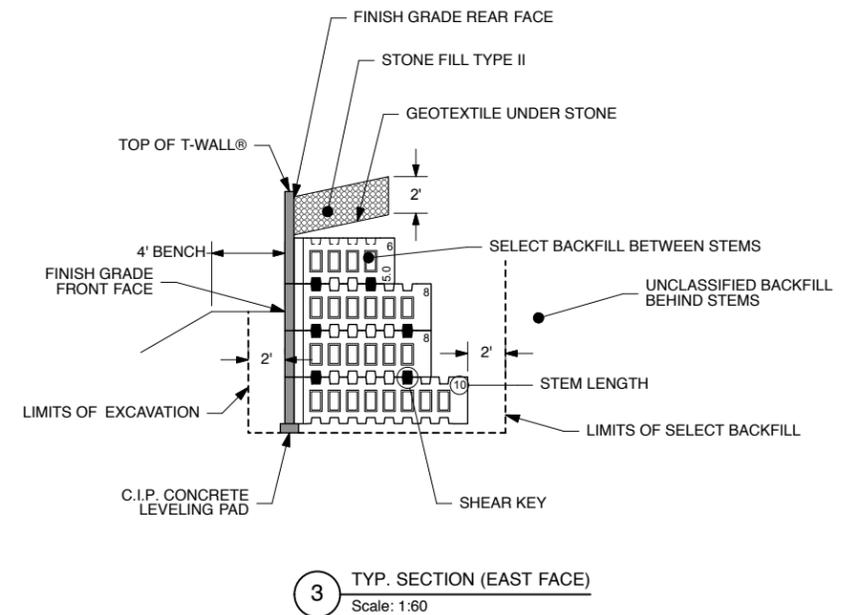
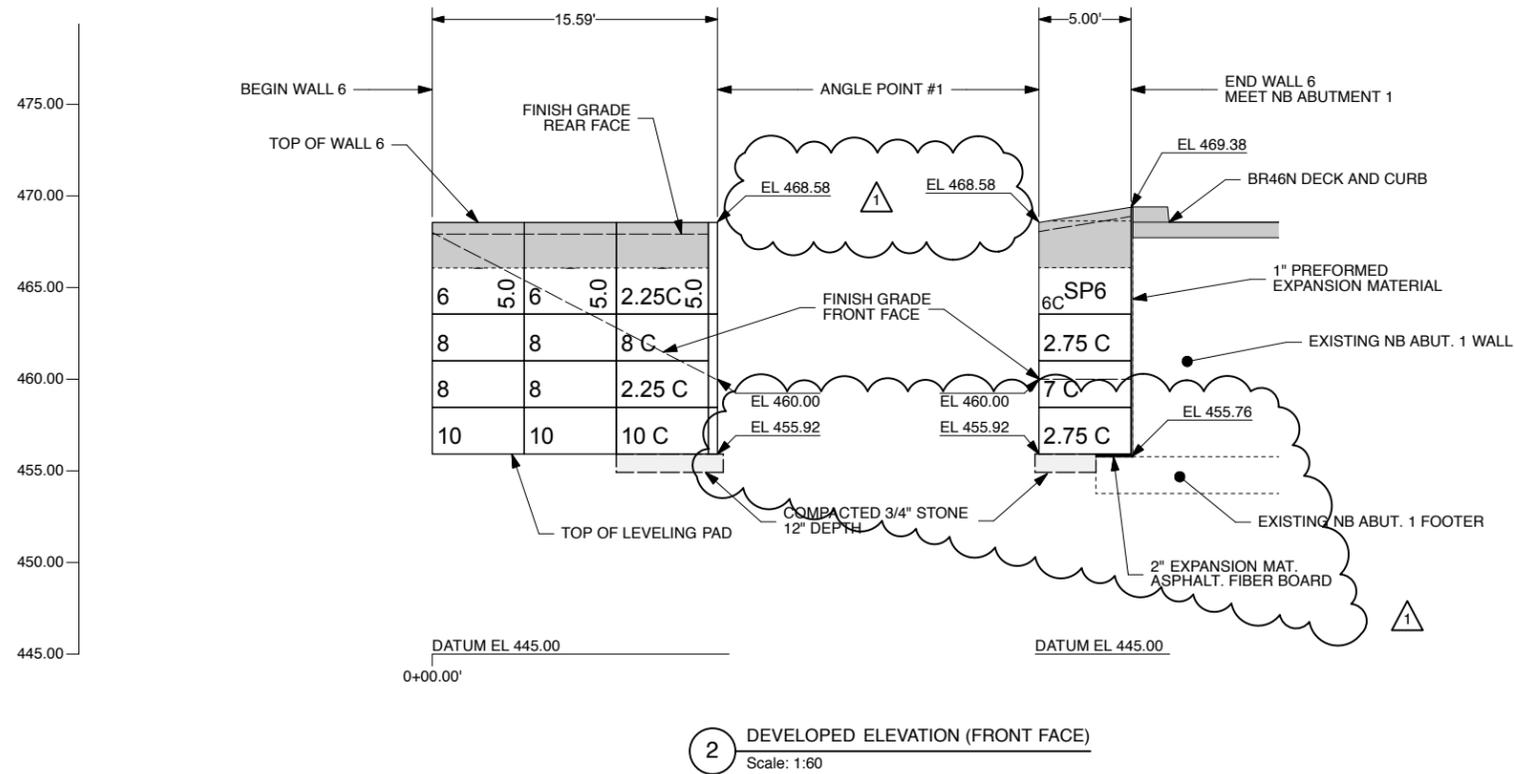
T-WALL Unit Count for Wall 6 3/9/15 12:08:27 PM

PANEL TYPE	QNTY (ea)	AREA (sf)	SELECT FILL (cy)
2.5 x 5.0 x 08 Std	4	50.00	13
2.5 x 5.0 x 10 Std	2	25.00	8
2.5 x 5.0 x 02.25 Std Cnr	1	12.50	1
2.5 x 5.0 x 02.75 Std Cnr	2	25.00	2
2.5 x 5.0 x 07 Std Cnr	1	12.50	3
2.5 x 5.0 x 08 Std Cnr	1	12.50	3
2.5 x 5.0 x 10 Std Cnr	1	12.50	4
5.0 x 5.0 x 06 Std Top	2	50.42	5
5.0 x 5.0 x 02.25 Std Top Cnr	1	25.21	1
Special Units	1	27.20	2
TOTALS:	16 ea	252.83 sf	43 cy

NOTE: Select backfill quantities are between stems only.

SHIP LOOSE LIST FOR RETAINING WALL:

ITEM	QNTY
Shear Keys	15 ea.
AF250 Polyethylene Foam*	1.00 Rolls
1/2" x 4" x 5.00' Horizontal Joint Material**	60.00 LF
Filter Cloth (12" wide)***	65.00 LF



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PRECASTER: CONCRETE SYSTEMS, INC.
HUDSON, NH
PROJECT #: T22259

CONTRACTOR: J. A. McDONALD
LYNDON CENTER, VT
PROJECT #:

DESIGNER

THE NEEL COMPANY
8328-D TRAFORD LANE
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PH: (703) 913-7858
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WEB: WWW.NEELCO.COM

PROJECT #: TW4437



REVISIONS

1	ELIMINATE BLOCKOUT AND RAISE WALL 2"	CTH	3/6/2015
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**I-89 BRIDGE DECK REPLACEMENTS
I-89 OVER STOWE STREET**
WATERBURY, VT
VTRANS PROJECT NO. IM 089-2(43)
SHOP DRAWINGS
WALL 6 ELEVATION, PLAN, SECTION
T-WALL® RETAINING WALL SYSTEM

SCALE:	AS NOTED
DATE:	1/23/2015
DESIGNED BY:	KB
DRAWN BY:	CTH
CHECKED BY:	KB
SHEET:	TW-21

Vermont Agency of Transportation
RECEIVED
ON: **March 17, 2015**
and Checked for
CONFORMANCE
BY: **D Bonneau** DATE: **04/03/15**

	ANGLE POINT				
FOURTH ROW	6	5.0	6	5.0	2.25C 5.0
THIRD ROW	8		8		7 C
SECOND ROW	8		8		2.25 C
FIRST ROW	10		10		10 C

WALL 6 ELEVATION

APPROVED: Approval of drawings and/or procedures indicates concurrence with the information presented and does not relieve the Contractor or fabricator of compliance with all specifications and code requirements

APPROVED AS NOTED

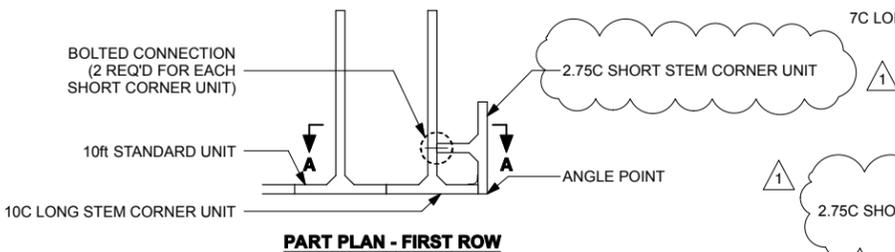
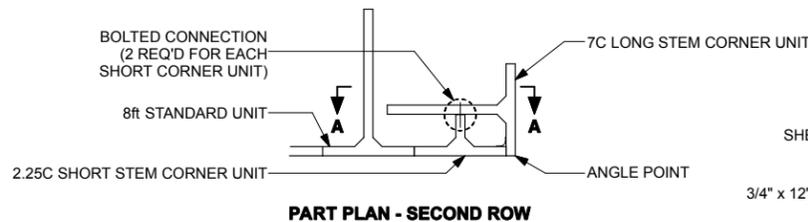
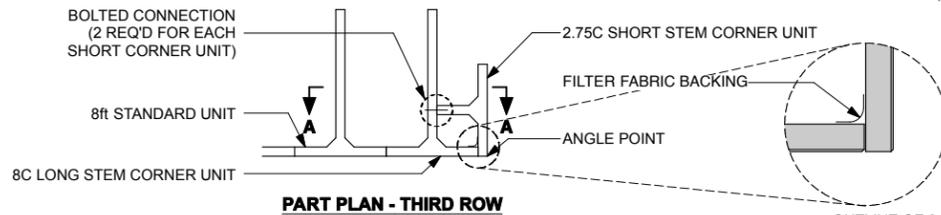
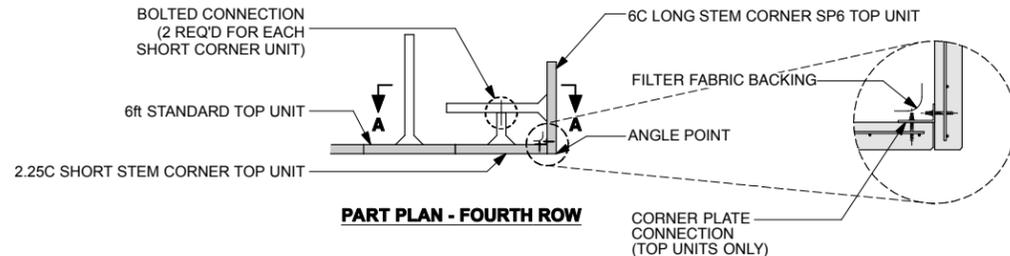
REVISE AND RESUBMIT

NOT REVIEWED

Date: 4/2/15

By: George Bogue

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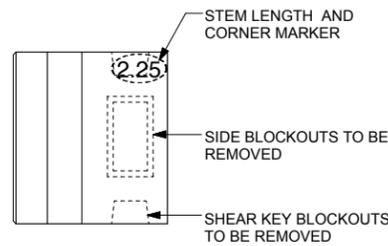
STEM LENGTHS VARY - SEE SPECIFIC ELEVATIONS FOR PROPER UNITS

TYPICAL CORNER UNIT ARRANGEMENT



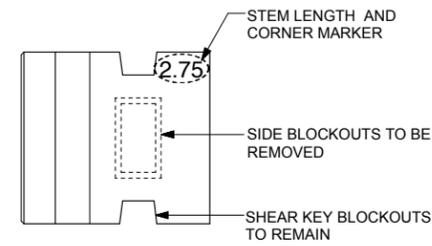
NO SCALE

SIDE VIEW - 2.25C SHORT STEM CORNER UNIT

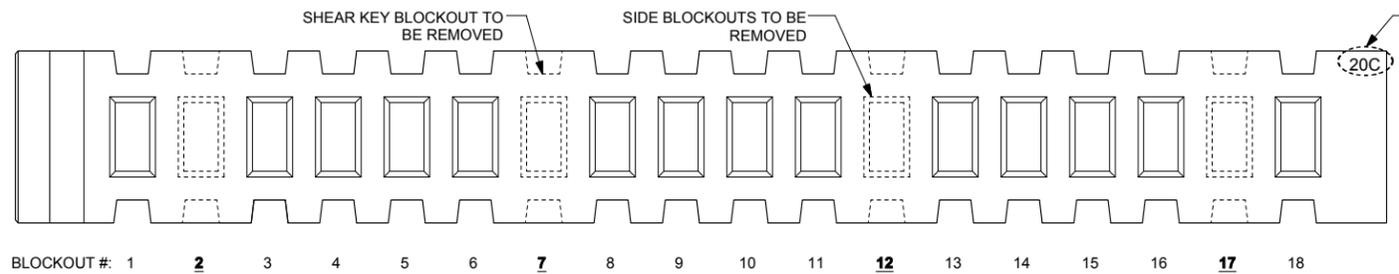


SIDE & SHEAR KEY BLOCKOUTS TO BE REMOVED. SEE NOTE 3.

SIDE VIEW - 2.75C SHORT STEM CORNER UNIT



SIDE BLOCKOUTS TO BE REMOVED. SEE NOTE 3.

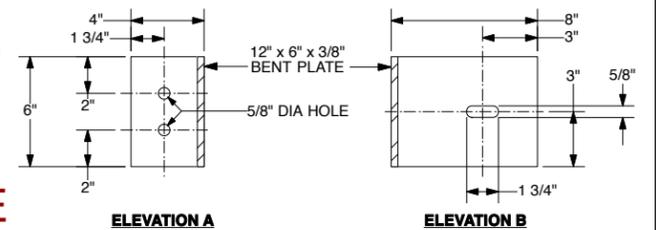


SIDE VIEW - 20C LONG STEM CORNER UNIT

Vermont Agency of Transportation

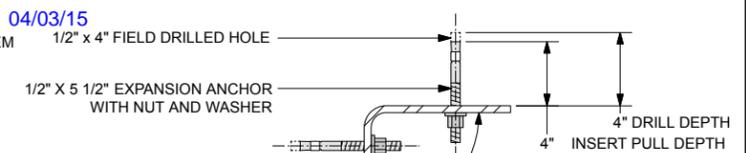
RECEIVED
ON: **March 17, 2015**
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CONFORMANCE

BY: **D Bonneau** DATE: **04/03/15**



ELEVATION A

ELEVATION B



PLAN CORNER PLATE CONNECTION

NOTES:

- ALL CORNER UNITS ARE DESIGNATED BY A TRAILING 'C' IN MARK No., i.e. "20C" INDICATES A 20 FOOT STEM CORNER UNIT WITH BLOCKOUTS REMOVED.
- FOR LONG STEM CORNER UNITS: EXCEPT FOR REMOVAL OF SPECIFIC BLOCKOUTS, ALL DIMENSIONS AND REBAR ARE THE SAME AS STANDARD OR TOP UNITS OF THE SAME STEM LENGTH. SEE STANDARD OR TOP UNIT REBAR DRAWINGS FOR DETAILS.
- FOR SHORT STEM CORNER UNITS (2.25C, 2.75C): SEE CORNER UNIT REBAR DRAWINGS
- PLATE TO BE A36 STEEL 12" x 6" x 3/8". PLATES TO BE HOT DIPPED GALVANIZED (ASTM 123) AFTER FABRICATION.
- EXPANSION ANCHOR BOLTS TO BE HOT DIPPED GALVANIZED (ASTM 123) AS FOLLOWS:
5.1 1/2"Ø x 5 1/2" EXPANSION BOLT
5.2 3/4"Ø x 12" EXPANSION BOLT
- HOLES FOR EXPANSION ANCHOR BOLTS TO BE FIELD DRILLED AS FOLLOWS:
3.1 1/2"Ø DRILL BIT TO A DEPTH OF 4"
3.2 3/4"Ø DRILL BIT TO A DEPTH OF 12"

CORNER PLATE CONNECTION (TOP UNITS ONLY)

CONCRETE LEVELING PAD

SECTION A-A

DESIGNER

THE NEEL COMPANY

8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM

PROJECT #: TW4437

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF T-WALL® STRUCTURES ONLY

REVISIONS		
1	CORRECTED CORNER PIECE LABELS	CTH 3/6/2015

I-89 BRIDGE DECK REPLACEMENTS
I-89 OVER STOWE STREET
WATERBURY, VT
VTRANS PROJECT NO. IM 089-2(43)
SHOP DRAWINGS
WALL 6 90 DEG. CORNER DETAIL
T-WALL® RETAINING WALL SYSTEM

SCALE:	AS NOTED
DATE:	1/23/2015
DESIGNED BY:	KB
DRAWN BY:	CTH
CHECKED BY:	KB
SHEET:	TW-22

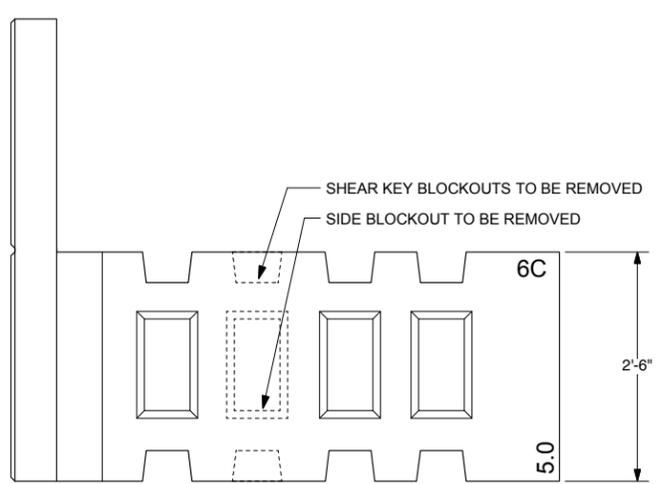
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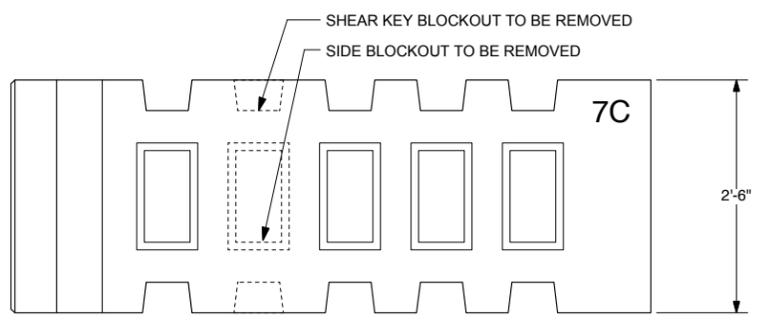
PRECASTER: CONCRETE SYSTEMS, INC.
HUDSON, NH
PROJECT #: T22259

CONTRACTOR: J. A. McDONALD
LYNDON CENTER, VT
PROJECT #:

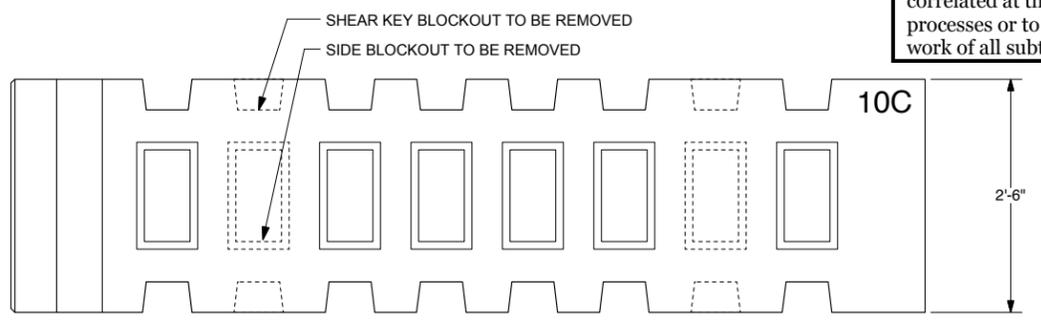
6' LONG STEM BY 5' HEIGHT CORNER UNIT
(SEE SHEET 40 FOR MORE DETAIL)



7' LONG STEM CORNER UNIT
(SEE SHEET 32 FOR MORE DETAIL)



10' LONG STEM CORNER UNIT
(SEE SHEET 32 FOR MORE DETAIL)



ANGLE POINT

FOURTH ROW	6	5.0	6	5.0	2.25C	5.0	SP6
THIRD ROW	8		8		7 C		2.75 C
SECOND ROW	8		8		2.25 C		7 C
FIRST ROW	10		10		10 C		2.75 C

WALL 6 ELEVATION

APPROVED: Approval of drawings and/or procedures indicates concurrence with the information presented and does not relieve the Contractor or Fabricator of compliance with all specifications and code requirements	X	
APPROVED AS NOTED		
REVISE AND RESUBMIT		
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Date: 4/2/15		
By: George Bogue		
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- GENERAL NOTES:**
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 - CONCRETE:
 - F'c = 5000psi @ 28 DAYS
 - REBAR:
 - EPOXY
 - GRADE 60
 - T-WALL FINISH FORM FINISH:
 - PLAIN STEEL FORM FINISH



WEAR SURF AND SIDE BLOCKOUTS REMOVAL DIAGRAM

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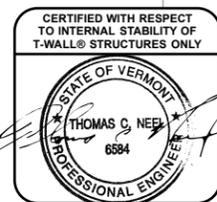
PRECASTER: CONCRETE SYSTEMS, INC.
HUDSON, NH
PROJECT #: T22259

CONTRACTOR: J. A. McDONALD
LYNDON CENTER, VT
PROJECT #:

DESIGNER

THE NEEL COMPANY
8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
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WEB: WWW.NEELCO.COM

PROJECT #: TW4437



REVISIONS		
1	CORRECTED CORNER PIECE LABELS	CTH 3/6/2015

I-89 BRIDGE DECK REPLACEMENTS
I-89 OVER STOWE STREET
WATERBURY, VT
VTRANS PROJECT NO. IM 089-2(43)
SHOP DRAWINGS
WALL 6 CORNER PAN REMOVAL DETAIL
T-WALL® RETAINING WALL SYSTEM

SCALE:	AS NOTED
DATE:	1/23/2015
DESIGNED BY:	KB
DRAWN BY:	CTH
CHECKED BY:	KB
SHEET:	TW-23

Vermont Agency of Transportation
RECEIVED
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and Checked for
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BY: **D Bonneau** DATE: **04/03/15**

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APPROVED AS NOTED

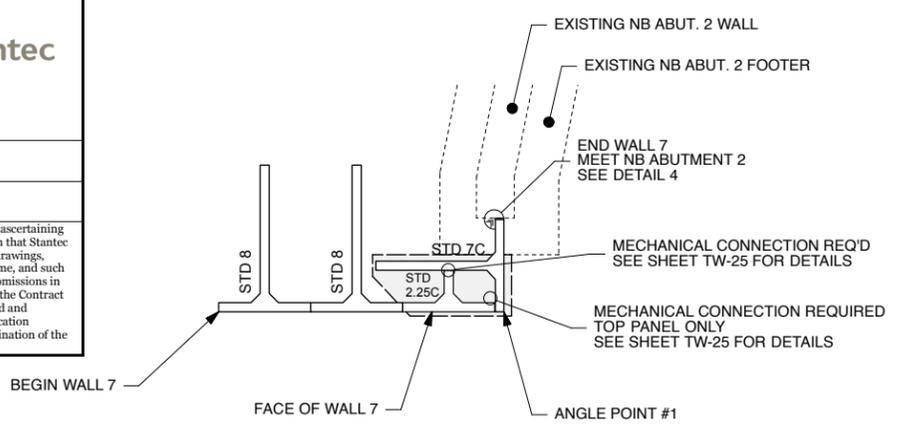
REVISE AND RESUBMIT

NOT REVIEWED

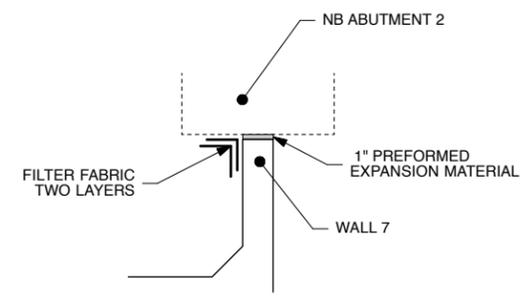
Date: 4/2/15

By: George Bogue

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1 PLAN VIEW (BOTTOM LEVEL)
Scale: 1:60



4 END WALL DETAIL
Scale: 1:18

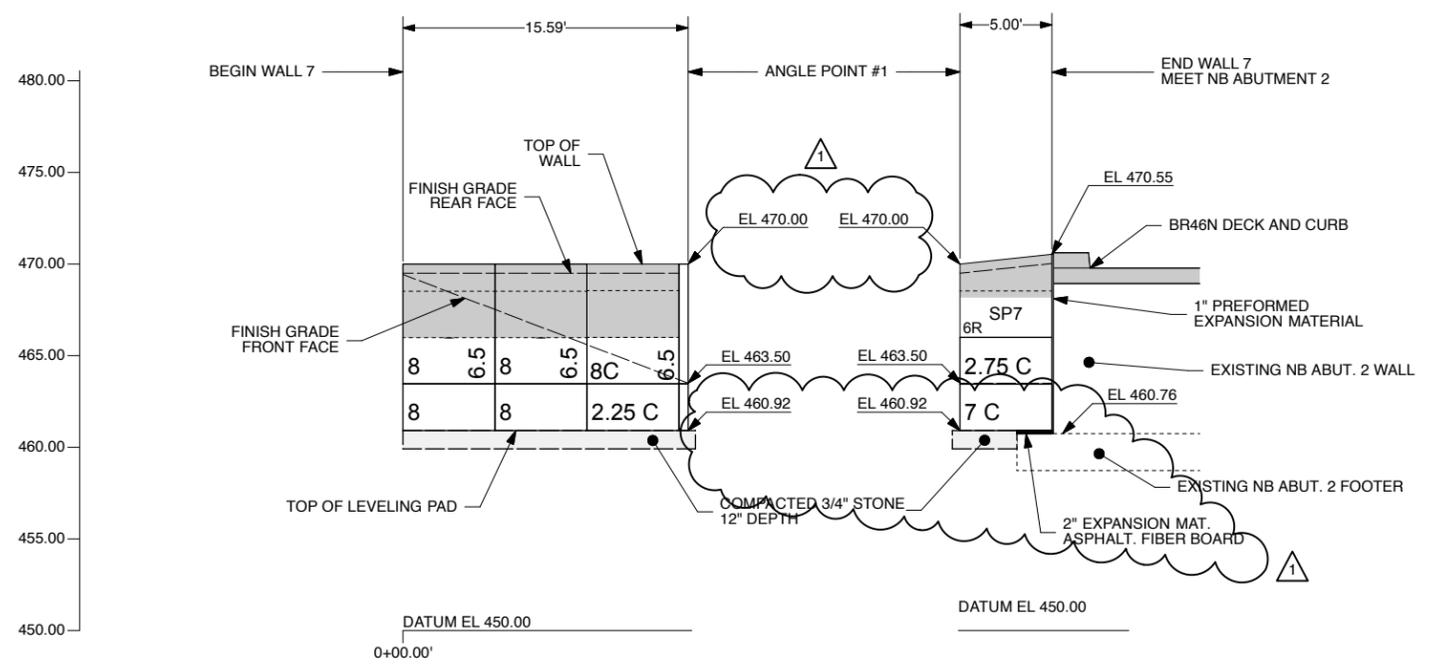
T-WALL Unit Count for Wall 7 3/9/15 12:14:08 PM

PANEL TYPE	QNTY (ea)	AREA (sf)	SELECT FILL (cy)
2.5 x 5.0 x 08 Std	2	25.00	7
2.5 x 5.0 x 02.25 Std Cnr	1	12.50	1
2.5 x 5.0 x 02.75 Std Cnr	1	12.50	1
2.5 x 5.0 x 07 Std Cnr	1	12.50	3
6.5 x 5.0 x 08 Std Top	2	65.00	7
6.5 x 5.0 x 08 Std Top Cnr	1	32.50	3
Special Units	1	21.35	2
TOTALS:	9 ea	181.35 sf	23 cy

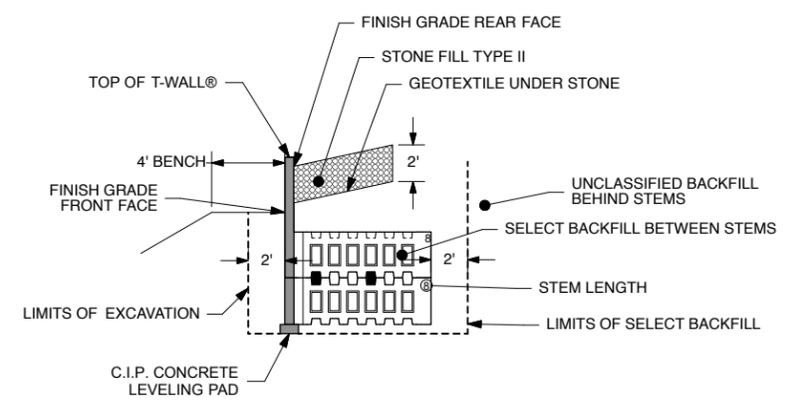
NOTE: Select backfill quantities are between stems only.

SHIP LOOSE LIST FOR RETAINING WALL:

ITEM	QNTY
Shear Keys	6 ea.
AF250 Polyethylene Foam*	1.00 Rolls
1/2" x 4" x 5.00' Horizontal Joint Material**	25.00 LF
Filter Cloth (12" wide)***	47.00 LF



2 DEVELOPED ELEVATION (FRONT FACE)
Scale: 1:60



3 TYP. SECTION AT SOUTHWEST FACE
Scale: 1:60



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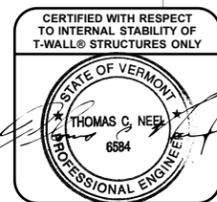
PRECASTER: CONCRETE SYSTEMS, INC.
HUDSON, NH
PROJECT #: T22259

CONTRACTOR: J. A. MCDONALD
LYNDON CENTER, VT
PROJECT #:

DESIGNER

THE NEEL COMPANY
8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM

PROJECT #: TW4437



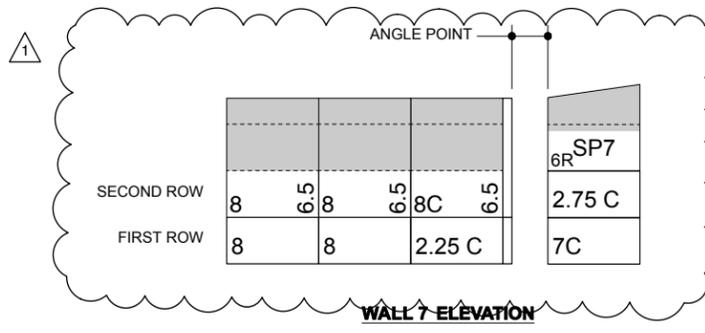
REVISIONS

NO.	DESCRIPTION	BY	DATE
1	ELIMINATE BLOCKOUT AND RAISE WALL 2"	CTH	3/6/2015

**I-89 BRIDGE DECK REPLACEMENTS
I-89 OVER STOWE STREET**
WATERBURY, VT
VTRANS PROJECT NO. IM 089-2(43)
SHOP DRAWINGS
WALL 7 ELEVATION, PLAN, SECTION
T-WALL® RETAINING WALL SYSTEM

SCALE:	AS NOTED
DATE:	1/23/2015
DESIGNED BY:	KB
DRAWN BY:	CTH
CHECKED BY:	KB
SHEET:	TW-24

Vermont Agency of Transportation
RECEIVED
ON: **March 17, 2015**
and Checked for
CONFORMANCE
BY: **D Bonneau** DATE: **04/03/15**



APPROVED: Approval of drawings and/or procedures indicates concurrence with the information presented and does not relieve the Contractor or Fabricator of compliance with all specifications and code requirements.

APPROVED AS NOTED

REVISE AND RESUBMIT

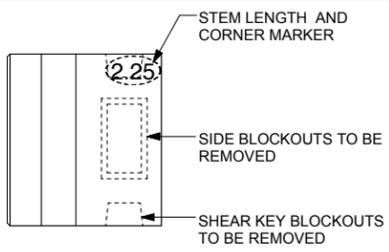
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Date: 4/2/15

By: George Bogue

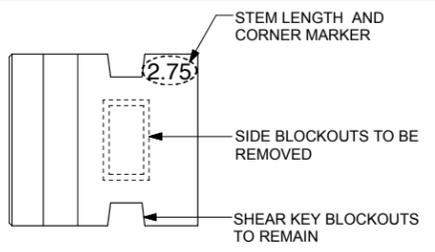
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SIDE VIEW - 2.25C SHORT STEM CORNER UNIT



SIDE & SHEAR KEY BLOCKOUTS TO BE REMOVED. SEE NOTE 3.

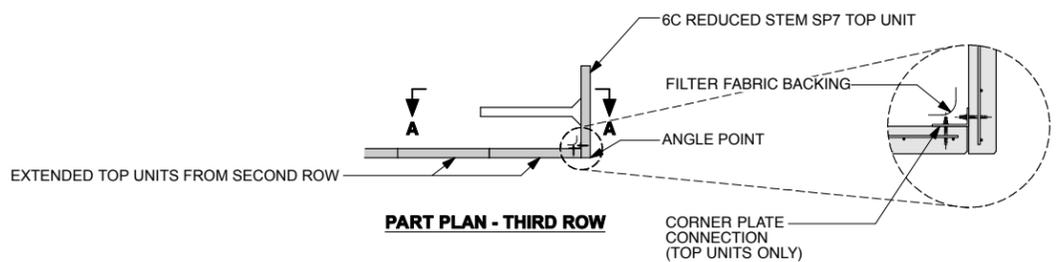
SIDE VIEW - 2.75C SHORT STEM CORNER UNIT



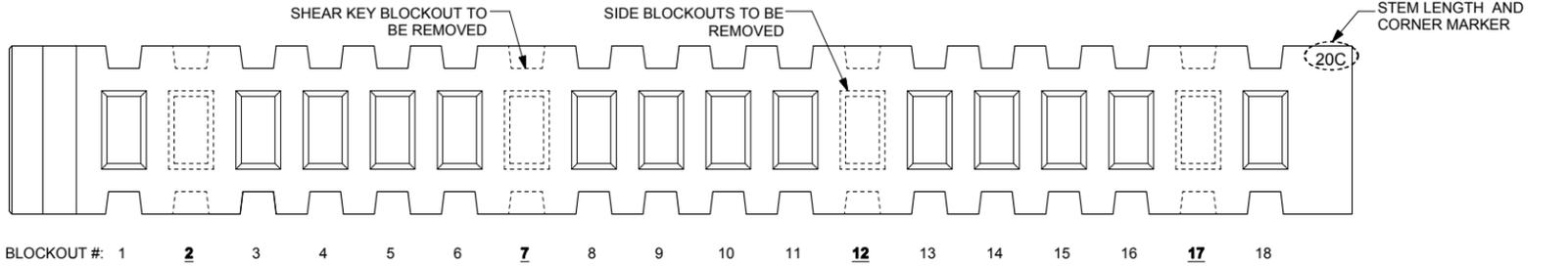
SIDE BLOCKOUTS TO BE REMOVED. SEE NOTE 3.

CORNER CONNECTION SHIPLOOSE LIST

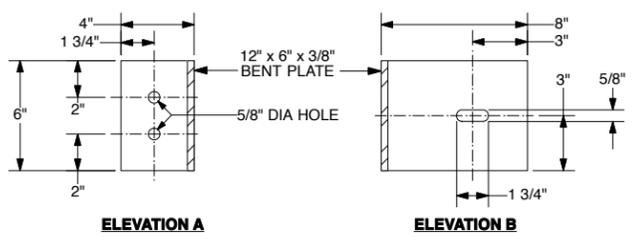
ITEM	QNTY
12" x 6" x 3/8" Hot Dipped Galv Bent Plate	1 ea
1/2" x 5 1/2" Galv Exp Anchor w/Nut & Washer	3 ea
3/4" x 12" Galv Exp Anchor w/Nut & Washer	4 ea



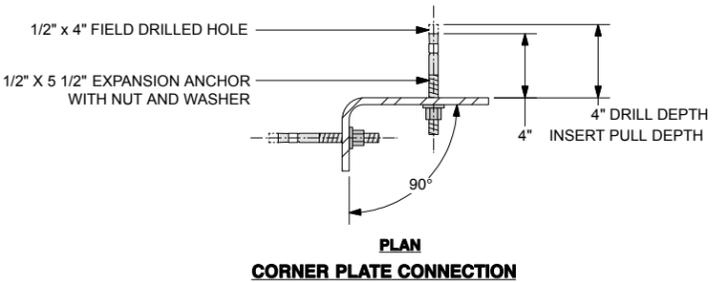
PART PLAN - THIRD ROW



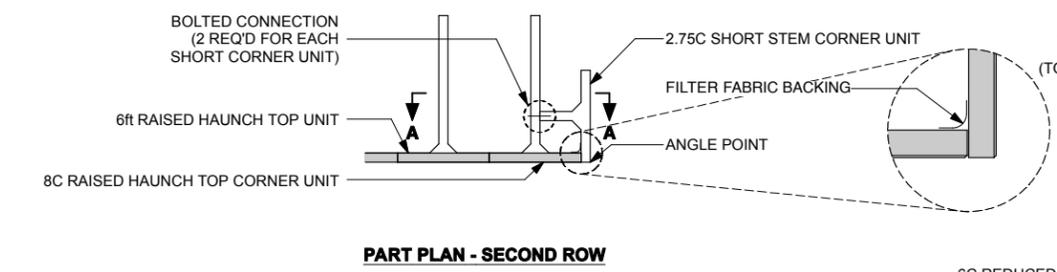
SIDE VIEW - 20C LONG STEM CORNER UNIT



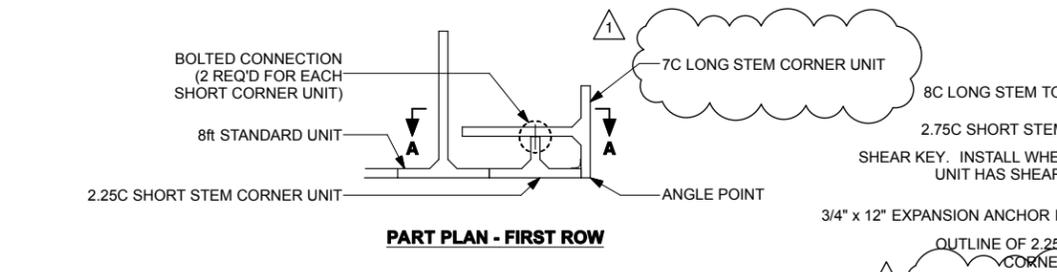
Vermont Agency of Transportation
RECEIVED
 ON: **March 17, 2015**
 and Checked for
CONFORMANCE
 BY: **D Bonneau** DATE: **04/03/15**



- NOTES:**
- ALL CORNER UNITS ARE DESIGNATED BY A TRAILING 'C' IN MARK No., i.e. "20C" INDICATES A 20 FOOT STEM CORNER UNIT WITH BLOCKOUTS REMOVED.
 - FOR LONG STEM CORNER UNITS: EXCEPT FOR REMOVAL OF SPECIFIC BLOCKOUTS, ALL DIMENSIONS AND REBAR ARE THE SAME AS STANDARD OR TOP UNITS OF THE SAME STEM LENGTH. SEE STANDARD OR TOP UNIT REBAR DRAWINGS FOR DETAILS.
 - FOR SHORT STEM CORNER UNITS (2.25C, 2.75C): SEE CORNER UNIT REBAR DRAWINGS
 - PLATE TO BE A36 STEEL 12" x 6" x 3/8". PLATES TO BE HOT DIPPED GALVANIZED (ASTM 123) AFTER FABRICATION.
 - EXPANSION ANCHOR BOLTS TO BE HOT DIPPED GALVANIZED (ASTM 123) AS FOLLOWS:
 5.1 1/2"Ø x 5 1/2" EXPANSION BOLT
 5.2 3/4"Ø x 12" EXPANSION BOLT
 - HOLES FOR EXPANSION ANCHOR BOLTS TO BE FIELD DRILLED AS FOLLOWS:
 3.1 1/2"Ø DRILL BIT TO A DEPTH OF 4"
 3.2 3/4"Ø DRILL BIT TO A DEPTH OF 12"



PART PLAN - SECOND ROW

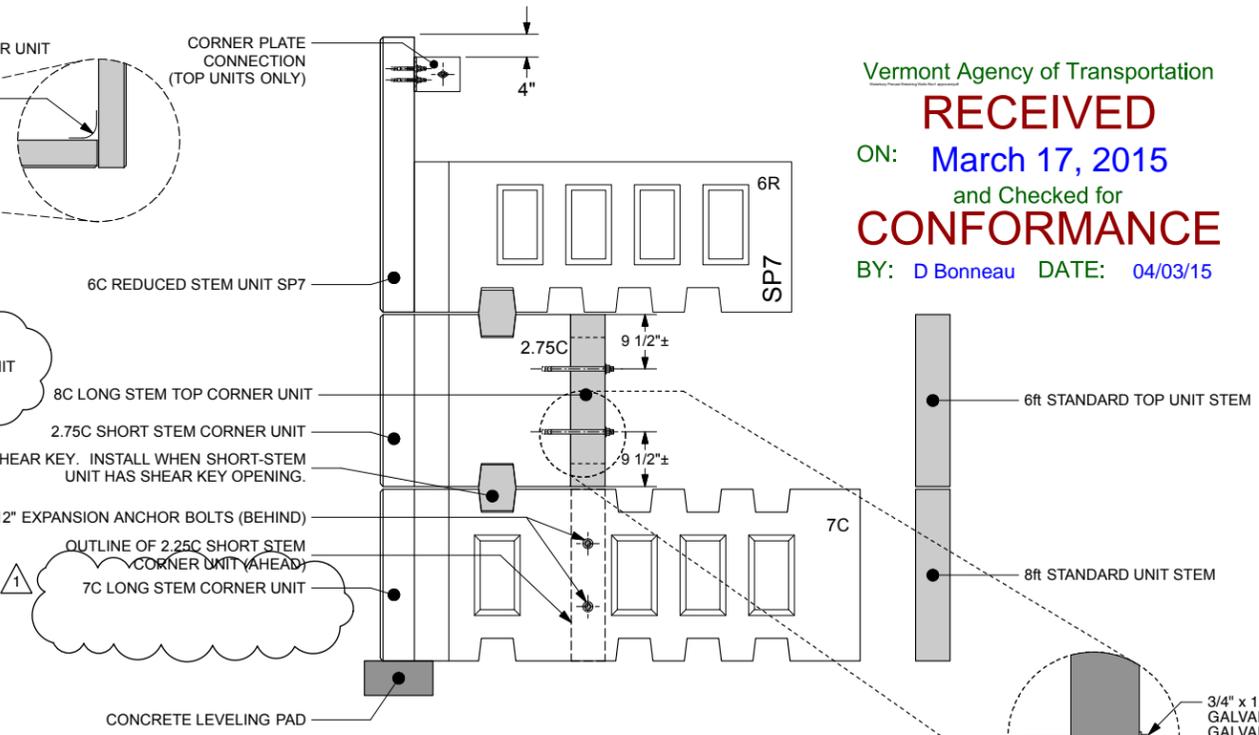


PART PLAN - FIRST ROW

STEM LENGTHS VARY - SEE SPECIFIC ELEVATIONS FOR PROPER UNITS

TYPICAL CORNER UNIT ARRANGEMENT

NO SCALE



SECTION A-A



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PRECASTER: CONCRETE SYSTEMS, INC. HUDSON, NH
PROJECT #: T22259

CONTRACTOR: J. A. McDONALD LYNDON CENTER, VT
PROJECT #:

DESIGNER

THE NEEL COMPANY
 8328-D TRAFORD LANE
 SPRINGFIELD, VIRGINIA 22152
 PH: (703) 913-7858
 FX: (703) 913-7859
 WEB: WWW.NEELCO.COM

PROJECT #: TW4437

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF T-WALL® STRUCTURES ONLY

REVISIONS

1	CORRECTED CORNER PIECE LABELS	CTH	3/6/2015
---	-------------------------------	-----	----------

I-89 BRIDGE DECK REPLACEMENTS
I-89 OVER STOWE STREET
 WATERBURY, VT
 VTRANS PROJECT NO. IM 089-2(43)
 SHOP DRAWINGS
 WALL 7 90 DEG. CORNER DETAIL
 T-WALL® RETAINING WALL SYSTEM

SCALE: AS NOTED

DATE: 1/23/2015

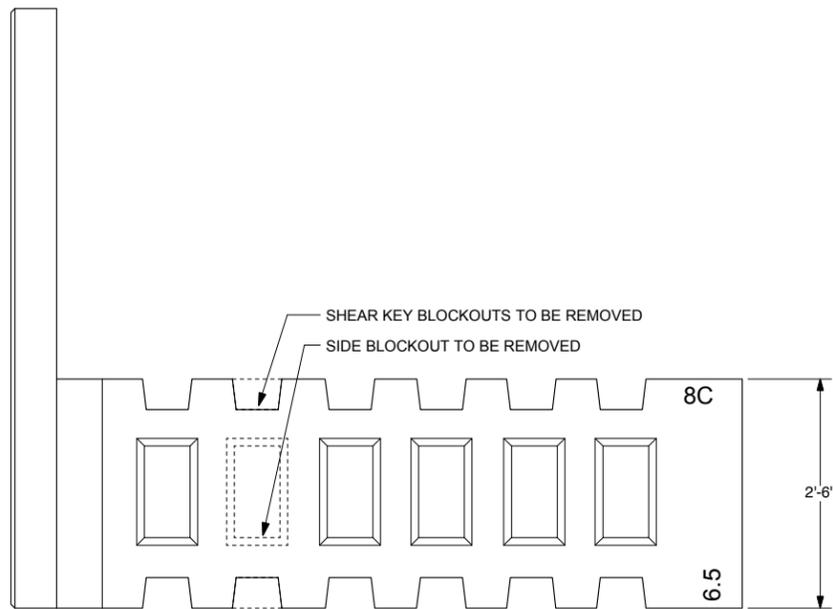
DESIGNED BY: KB

DRAWN BY: CTH

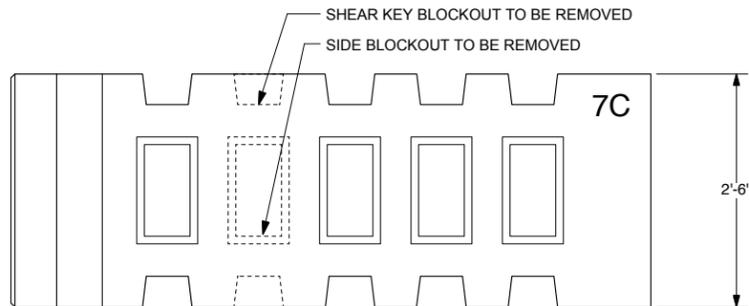
CHECKED BY: KB

SHEET: TW-25

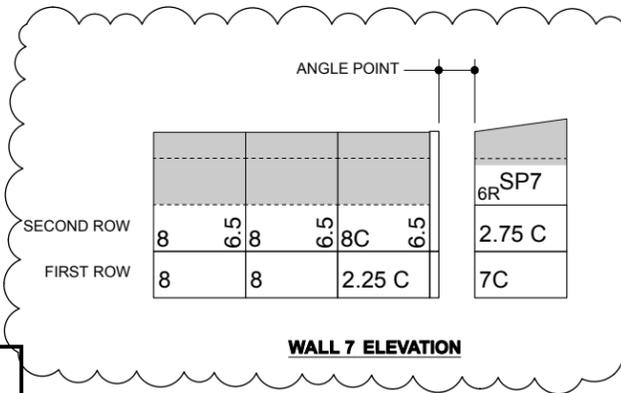
8' STEM BY 6.5' HEIGHT CORNER TOP UNIT
(SEE SHEET 40 FOR MORE DETAIL)



7' LONG STEM CORNER UNIT
(SEE SHEET 32 FOR MORE DETAIL)



SHEAR KEYS AND SIDE BLOCKOUTS REMOVAL DIAGRAM



APPROVED: Approval of drawings and/or procedures indicates concurrence with the information presented and does not relieve the Contractor or Fabricator of compliance with all specifications and code requirements	X	
APPROVED AS NOTED		
REVISE AND RESUBMIT		
NOT REVIEWED		
Date: 4/2/15		
By: George Bogue		
<p>This review by Stantec Consulting Services Inc. is for the sole purpose of ascertaining conformance with the general design concept. This review shall not mean that Stantec Consulting Services Inc approves the detail design inherent in the shop drawings, responsibility for which shall remain with the Contractor. Submitting same, and such review shall not relieve the Contractor of his responsibility for errors or omissions in the shop drawing or of his responsibility for meeting all requirements of the Contract Documents. The contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction and installation and for coordination of the work of all subtrades.</p>		

- NOTES:**
- ALL CORNER UNITS ARE DESIGNATED BY A TRAILING 'C' IN MARK No., i.e. - "20C" INDICATES A 20 FOOT STEM CORNER UNIT WITH BLOCKOUTS REMOVED.
 - FOR LONG STEM CORNER UNITS: EXCEPT FOR REMOVAL OF SPECIFIC BLOCKOUTS, ALL DIMENSIONS AND REBAR ARE THE SAME AS A STANDARD UNIT OR A STANDARD TOP UNIT OF THE SAME STEM LENGTH. FOR MORE DETAILS, SEE THE STANDARD UNIT REBAR DRAWING OR STANDARD TOP UNIT REBAR DRAWINGS.
- GENERAL NOTES:**
- PRIMARY REFERENCE: AASHTO, LRFD SPECIFICATIONS FOR HIGHWAY BRIDGES, 4th EDITION 2007 (WITH INTERIMS)
 - MINIMUM CONCRETE COVER IS DESIGNED FOR 2" ON ALL BARS.
 - CONCRETE:
 - F'c = 5000psi @ 28 DAYS
 - REBAR:
 - EPOXY
 - GRADE 60
 - T-WALL FINISH FORM FINISH:
 - PLAIN STEEL FORM FINISH



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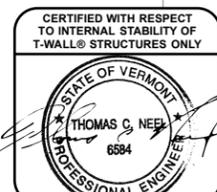
PRECASTER: CONCRETE SYSTEMS, INC.
HUDSON, NH
PROJECT #: T22259

CONTRACTOR: J. A. MCDONALD
LYNDON CENTER, VT
PROJECT #:

DESIGNER

THE NEEL COMPANY
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SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM

PROJECT #: TW4437

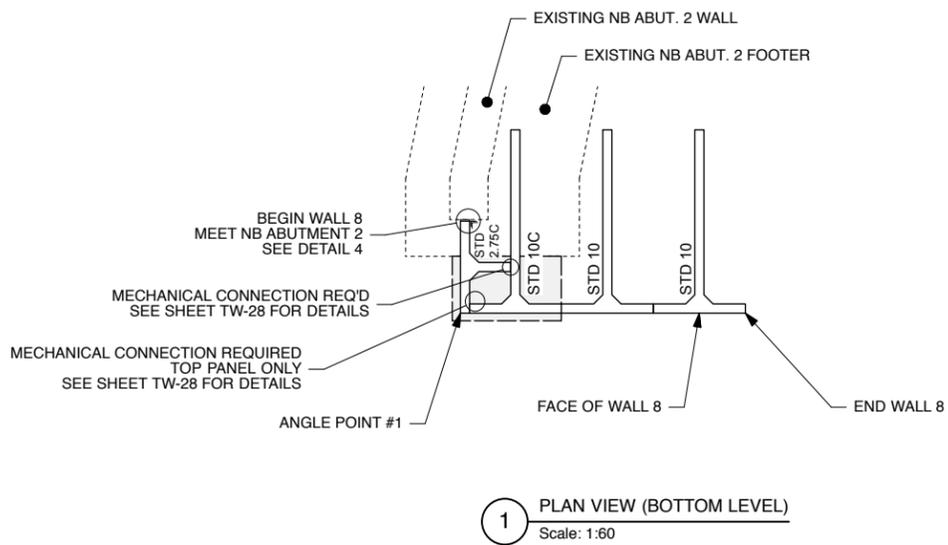
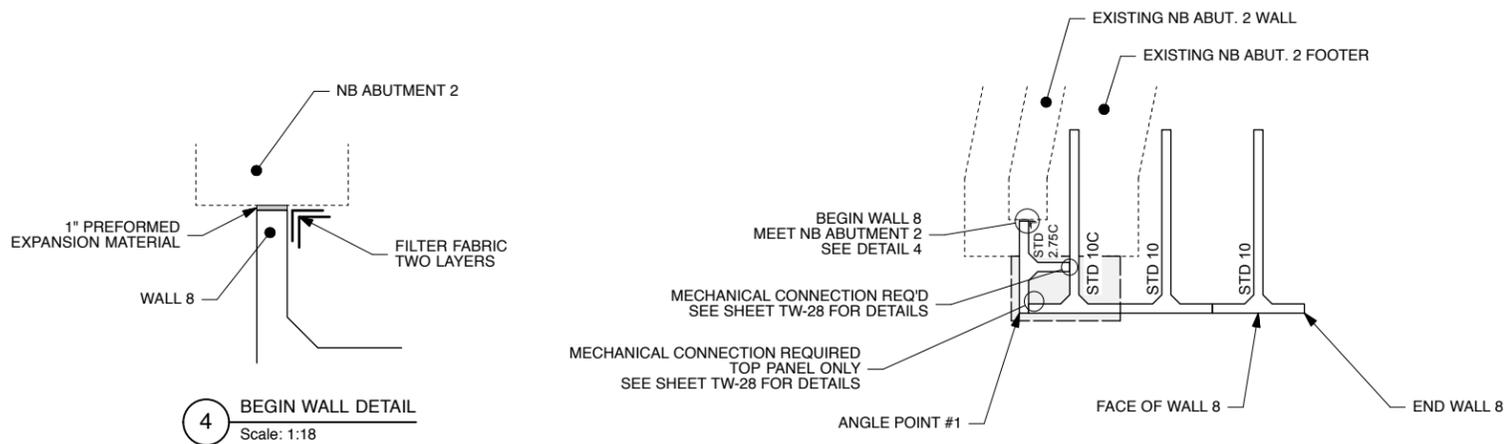


REVISIONS		
1	CORRECTED CORNER PIECE LABELS	CTH 3/6/2015

I-89 BRIDGE DECK REPLACEMENTS
I-89 OVER STOWE STREET
WATERBURY, VT
VTRANS PROJECT NO. IM 089-2(43)
SHOP DRAWINGS
WALL 7 CORNER PAN REMOVAL DETAIL
T-WALL® RETAINING WALL SYSTEM

SCALE:	AS NOTED
DATE:	1/23/2015
DESIGNED BY:	KB
DRAWN BY:	CTH
CHECKED BY:	KB
SHEET:	TW-26

Vermont Agency of Transportation
RECEIVED
ON: **March 17, 2015**
and Checked for
CONFORMANCE
BY: **D Bonneau** DATE: **04/03/15**



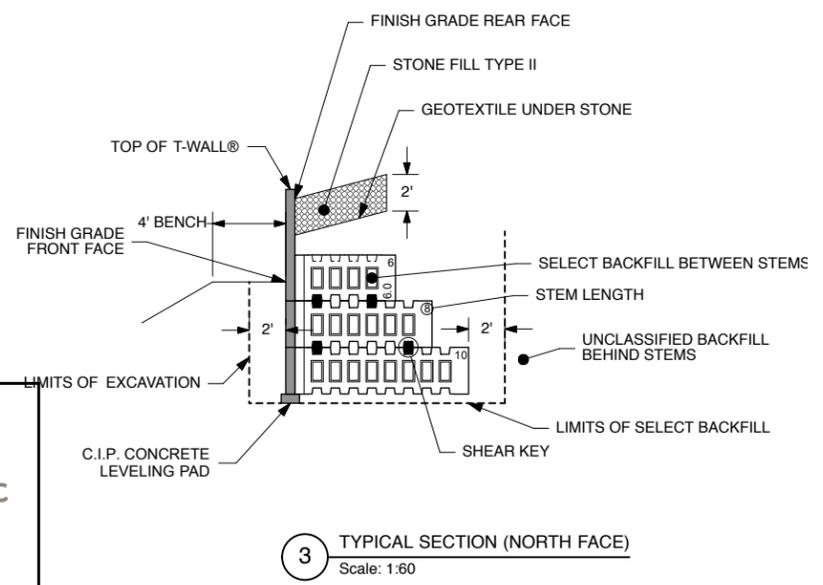
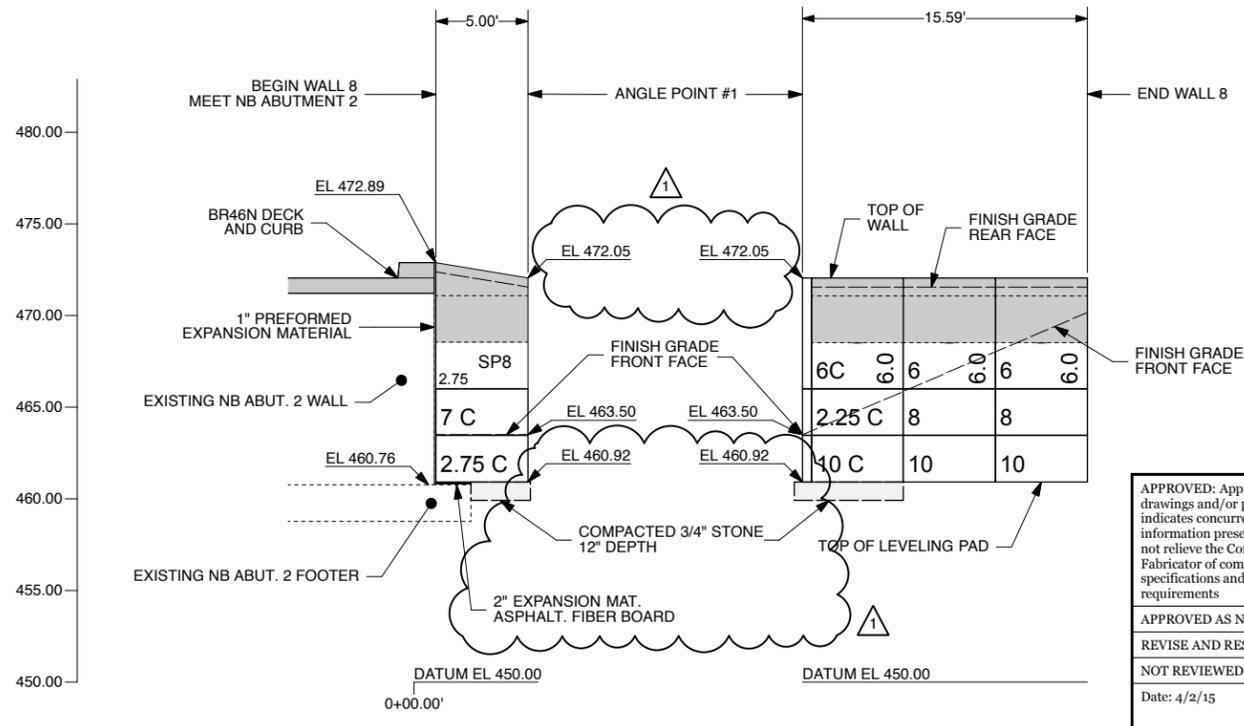
T-WALL Unit Count for Wall 8 3/9/15 12:21:15 PM

PANEL TYPE	QNTY (ea)	AREA (sf)	SELECT FILL (cy)
2.5 x 5.0 x 08 Std	2	25.00	7
2.5 x 5.0 x 10 Std	2	25.00	8
2.5 x 5.0 x 02.25 Std Cnr	1	12.50	1
2.5 x 5.0 x 02.75 Std Cnr	1	12.50	1
2.5 x 5.0 x 07 Std Cnr	1	12.50	3
2.5 x 5.0 x 10 Std Cnr	1	12.50	4
6.0 x 5.0 x 06 Std Top	2	60.00	5
6.0 x 5.0 x 06 Std Top Cnr	1	30.00	2
Special Units	1	32.32	1
TOTALS:	12 ea	222.32 sf	32 cy

NOTE: Select backfill quantities are between stems only.

SHIP LOOSE LIST FOR RETAINING WALL:

ITEM	QNTY
Shear Keys	10 ea.
AF250 Polyethylene Foam*	1.00 Rolls
1/2" x 4" x 5.00' Horizontal Joint Material**	40.00 LF
Filter Cloth (12" wide)***	57.00 LF



APPROVED: Approval of drawings and/or procedures indicates concurrence with the information presented and does not relieve the Contractor or Fabricator of compliance with all specifications and code requirements	X	
APPROVED AS NOTED		
REVISE AND RESUBMIT		
NOT REVIEWED		
Date: 4/2/15		
By: George Bogue		
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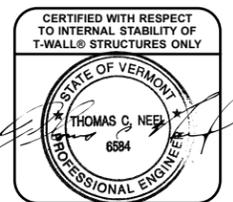
PRECASTER: CONCRETE SYSTEMS, INC.
HUDSON, NH
PROJECT #: T22259

CONTRACTOR: J. A. MCDONALD
LYNDON CENTER, VT
PROJECT #:

DESIGNER

THE NEEL COMPANY
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PH: (703) 913-7858
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PROJECT #: TW4437



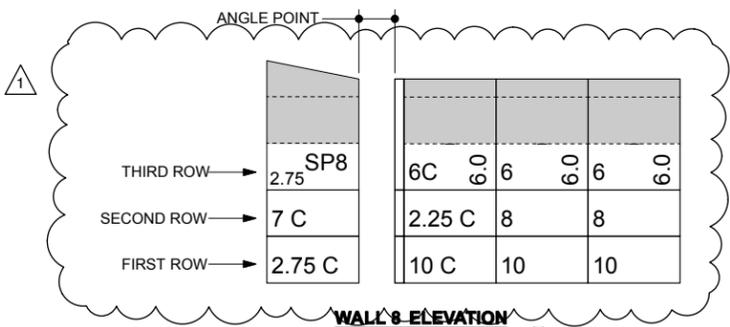
REVISIONS

1	ELIMINATE BLOCKOUT AND RAISE WALL 2"	CTH	3/6/2015
---	--------------------------------------	-----	----------

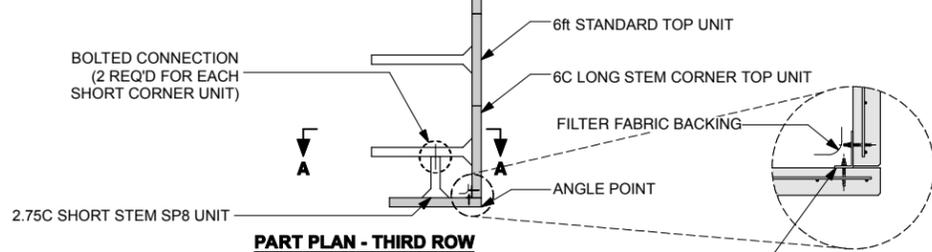
**I-89 BRIDGE DECK REPLACEMENTS
I-89 OVER STOWE STREET**
WATERBURY, VT
VTRANS PROJECT NO. IM 089-2(43)
SHOP DRAWINGS
WALL 8 ELEVATION, PLAN, SECTION
T-WALL® RETAINING WALL SYSTEM

SCALE:	AS NOTED
DATE:	1/23/2015
DESIGNED BY:	KB
DRAWN BY:	CTH
CHECKED BY:	KB
SHEET:	TW-27

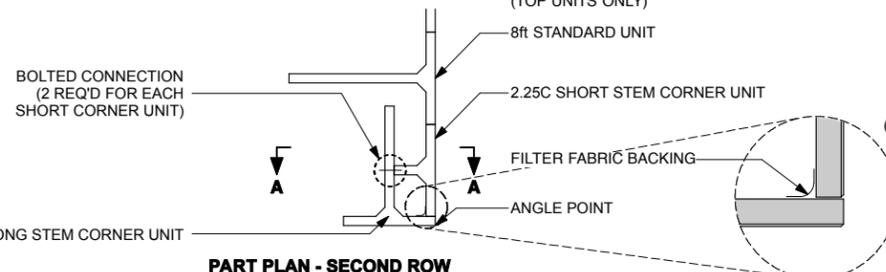
Vermont Agency of Transportation
RECEIVED
ON: **March 17, 2015**
and Checked for
CONFORMANCE
BY: **D Bonneau** DATE: **04/03/15**



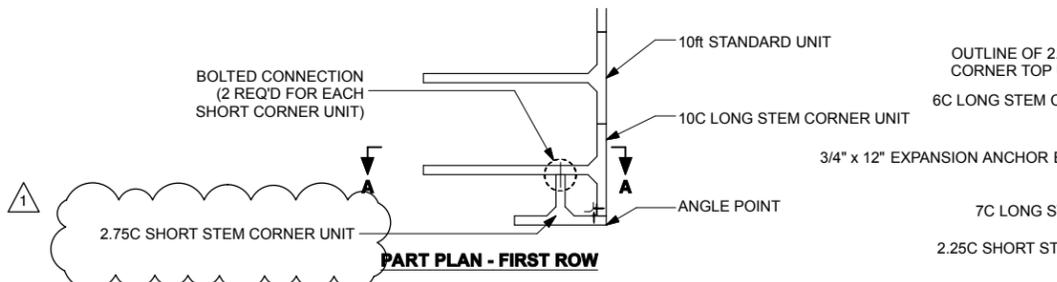
WALL 8 ELEVATION



PART PLAN - THIRD ROW

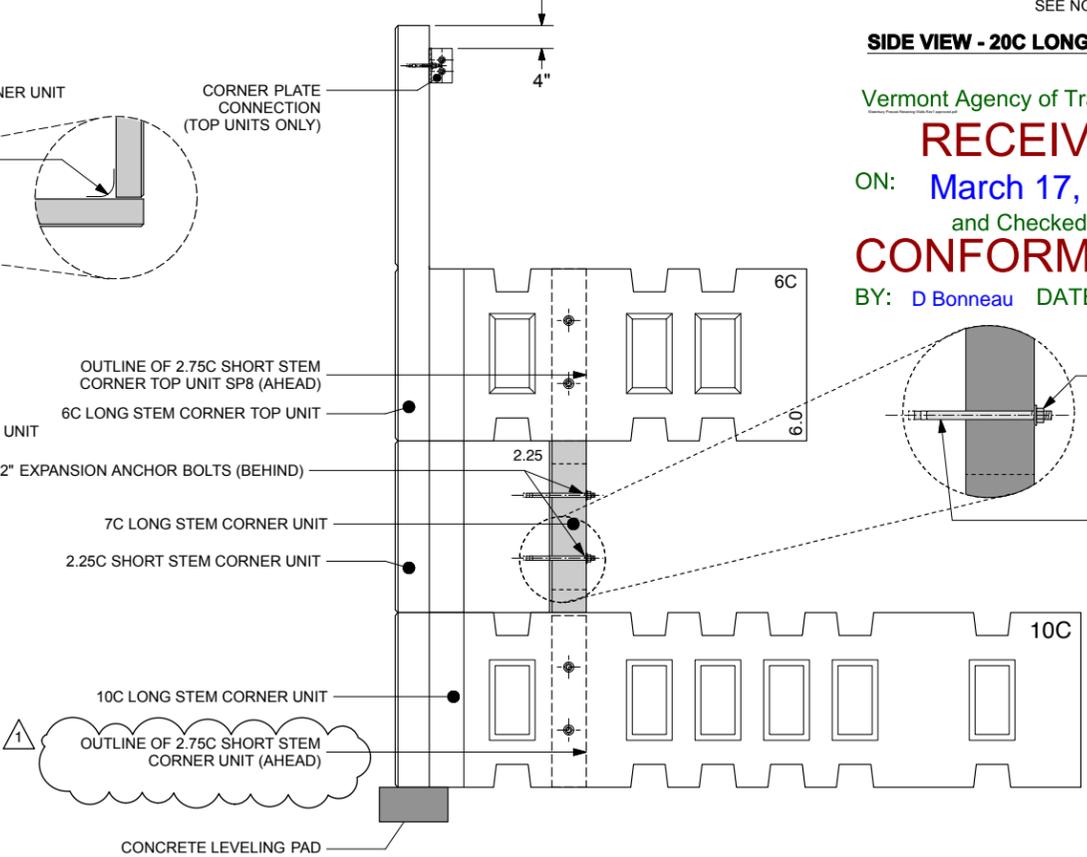


PART PLAN - SECOND ROW

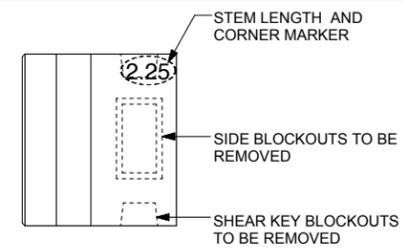


PART PLAN - FIRST ROW

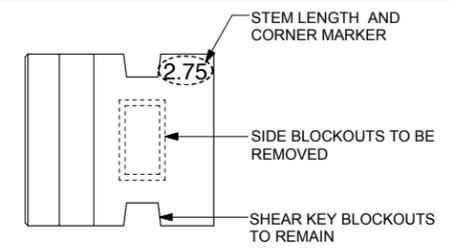
STEM LENGTHS VARY - SEE SPECIFIC ELEVATIONS FOR PROPER UNITS
TYPICAL CORNER UNIT ARRANGEMENT
NO SCALE



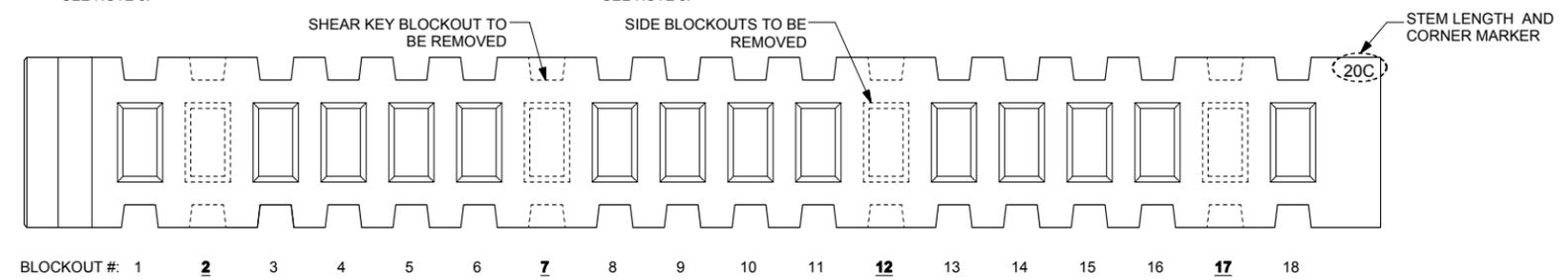
SECTION A-A



SIDE VIEW - 2.25C SHORT STEM CORNER UNIT
SIDE & SHEAR KEY BLOCKOUTS TO BE REMOVED.
SEE NOTE 3.



SIDE VIEW - 2.75C SHORT STEM CORNER UNIT
SIDE BLOCKOUTS TO BE REMOVED.
SEE NOTE 3.



BLOCKOUT # 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
BLOCKOUT: #2, 7, 12 & 17, AS SHOWN

SHOWING BLOCKOUTS TO BE REMOVED IN 20' STEM UNIT SHOWN. ALL OTHER STEM LENGTHS HAVE BLOCKOUTS REMOVED IN SAME LOCATIONS (AS REQUIRED).
SEE NOTE 2.

SIDE VIEW - 20C LONG STEM CORNER UNIT

Vermont Agency of Transportation

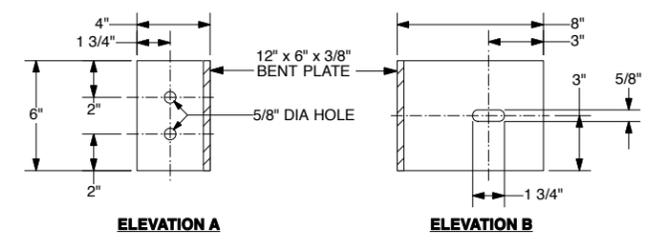
RECEIVED

ON: March 17, 2015

and Checked for

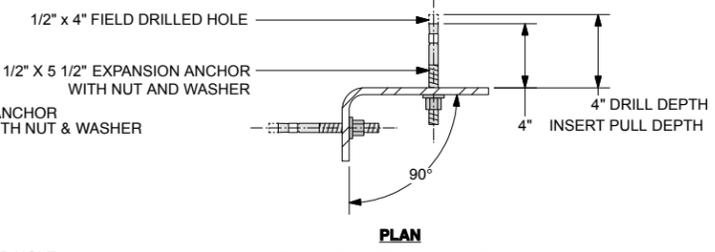
CONFORMANCE

BY: D Bonneau DATE: 04/03/15



ELEVATION A

ELEVATION B



PLAN CORNER PLATE CONNECTION

NOTES:

- ALL CORNER UNITS ARE DESIGNATED BY A TRAILING 'C' IN MARK No., i.e. - "20C" INDICATES A 20 FOOT STEM CORNER UNIT WITH BLOCKOUTS REMOVED.
- FOR LONG STEM CORNER UNITS: EXCEPT FOR REMOVAL OF SPECIFIC BLOCKOUTS, ALL DIMENSIONS AND REBAR ARE THE SAME AS STANDARD OR TOP UNITS OF THE SAME STEM LENGTH. SEE STANDARD OR TOP UNIT REBAR DRAWINGS FOR DETAILS.
- FOR SHORT STEM CORNER UNITS (2.25C, 2.75C): SEE CORNER UNIT REBAR DRAWINGS
- PLATE TO BE A36 STEEL 12" x 6" x 3/8". PLATES TO BE HOT DIPPED GALVANIZED (ASTM 123) AFTER FABRICATION.
- EXPANSION ANCHOR BOLTS TO BE HOT DIPPED GALVANIZED (ASTM 123) AS FOLLOWS:
5.1 1/2"Ø x 5 1/2" EXPANSION BOLT
5.2 3/4"Ø x 12" EXPANSION BOLT
- HOLES FOR EXPANSION ANCHOR BOLTS TO BE FIELD DRILLED AS FOLLOWS:
3.1 1/2"Ø DRILL BIT TO A DEPTH OF 4"
3.2 3/4"Ø DRILL BIT TO A DEPTH OF 12"

APPROVED: Approval of drawings and/or procedures indicates concurrence with the information presented and does not relieve the Contractor or Fabricator of compliance with all specifications and code requirements	X	
APPROVED AS NOTED		
REVISE AND RESUBMIT		
NOT REVIEWED		
Date: 4/2/15		
By: George Bogue		
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PRECASTER: CONCRETE SYSTEMS, INC. HUDSON, NH
PROJECT #: T22259

CONTRACTOR: J. A. MCDONALD LYNDON CENTER, VT
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DESIGNER

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WEB: WWW.NEELCO.COM

PROJECT #: TW4437

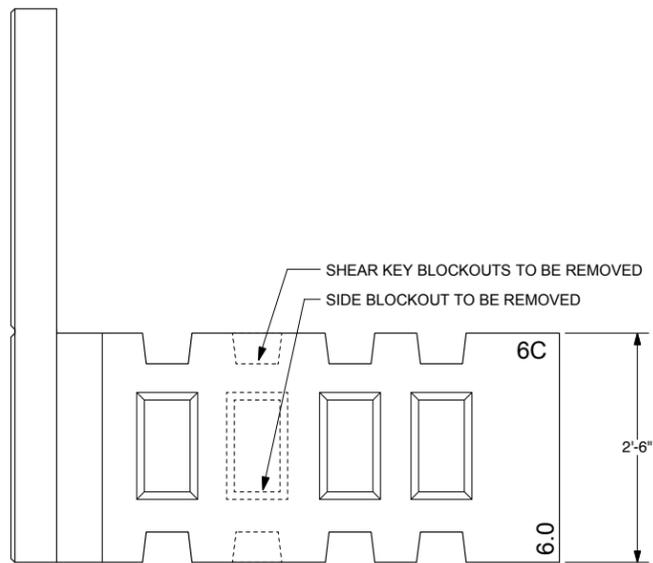


REVISIONS		
1	CORRECTED CORNER PIECE LABELS	CTH 3/6/2015

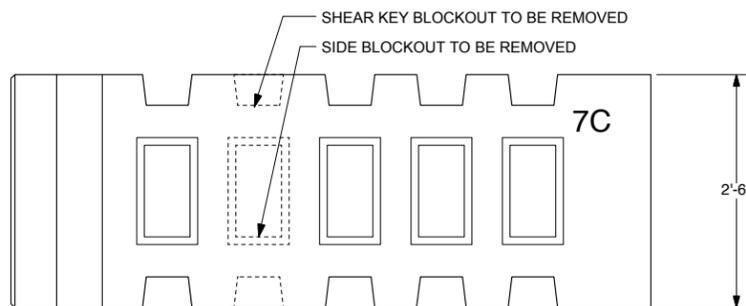
I-89 BRIDGE DECK REPLACEMENTS
I-89 OVER STOWE STREET
WATERBURY, VT
VTRANS PROJECT NO. IM 089-2(43)
SHOP DRAWINGS
WALL 8 90 DEG. CORNER DETAIL
T-WALL® RETAINING WALL SYSTEM

SCALE:	AS NOTED
DATE:	1/23/2015
DESIGNED BY:	KB
DRAWN BY:	CTH
CHECKED BY:	KB
SHEET:	TW-28

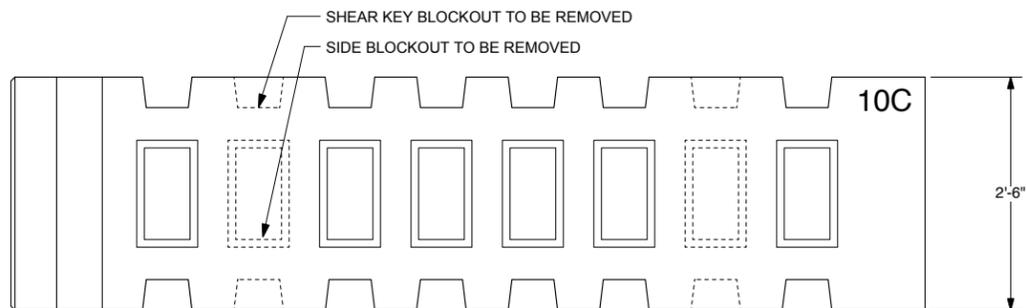
6' LONG STEM BY 6' HEIGHT CORNER UNIT
(SEE SHEET 40 FOR MORE DETAIL)



7' LONG STEM CORNER UNIT
(SEE SHEET 32 FOR MORE DETAIL)

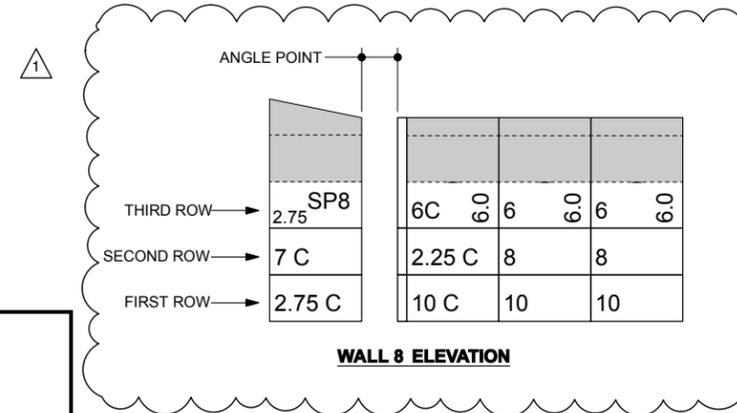


10' LONG STEM CORNER UNIT
(SEE SHEET 32 FOR MORE DETAIL)



SHEAR KEYS AND SIDE BLOCKOUTS REMOVAL DIAGRAM

APPROVED: Approval of drawings and/or procedures indicates concurrence with the information presented and does not relieve the Contractor or Fabricator of compliance with all specifications and code requirements	X	
APPROVED AS NOTED		
REVISE AND RESUBMIT		
NOT REVIEWED		
Date: 4/2/15		
By: George Bogue		
<p>This review by Stantec Consulting Services Inc. is for the sole purpose of ascertaining conformance with the general design concept. This review shall not mean that Stantec Consulting Services Inc approves the detail design inherent in the shop drawings, responsibility for which shall remain with the Contractor. Submitting same, and such review shall not relieve the Contractor of his responsibility for errors or omissions in the shop drawing or of his responsibility for meeting all requirements of the Contract Documents. The contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction and installation and for coordination of the work of all subtrades.</p>		



NOTES:

- ALL CORNER UNITS ARE DESIGNATED BY A TRAILING 'C' IN MARK No., i.e. - "20C" INDICATES A 20 FOOT STEM CORNER UNIT WITH BLOCKOUTS REMOVED.
- FOR LONG STEM CORNER UNITS: EXCEPT FOR REMOVAL OF SPECIFIC BLOCKOUTS, ALL DIMENSIONS AND REBAR ARE THE SAME AS A STANDARD UNIT OR A STANDARD TOP UNIT OF THE SAME STEM LENGTH. FOR MORE DETAILS, SEE THE STANDARD UNIT REBAR DRAWING OR STANDARD TOP UNIT REBAR DRAWINGS.

GENERAL NOTES:

- PRIMARY REFERENCE: AASHTO, LRFD SPECIFICATIONS FOR HIGHWAY BRIDGES, 4th EDITION 2007 (WITH INTERIMS)
- MINIMUM CONCRETE COVER IS DESIGNED FOR 2" ON ALL BARS.
- CONCRETE:
 - F'c = 5000psi @ 28 DAYS
- REBAR:
 - EPOXY
 - GRADE 60
- T-WALL FINISH FORM FINISH:
 - PLAIN STEEL FORM FINISH



The design contained on these drawings is based upon information provided by the owner. On the basis of this information, The Neel Company has designed, and is responsible for, the internal stability of the structure only. External stability, including foundation and slope stability, is the responsibility of the owner.

This drawing contains information proprietary to The Neel Company. T-WALL® is a registered trademark owned by The Neel Company. ©2015 The Neel Company

PRECASTER: CONCRETE SYSTEMS, INC.
HUDSON, NH
PROJECT #: T22259

CONTRACTOR: J. A. McDONALD
LYNDON CENTER, VT
PROJECT #:

DESIGNER

THE NEEL COMPANY
8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM

PROJECT #: TW4437

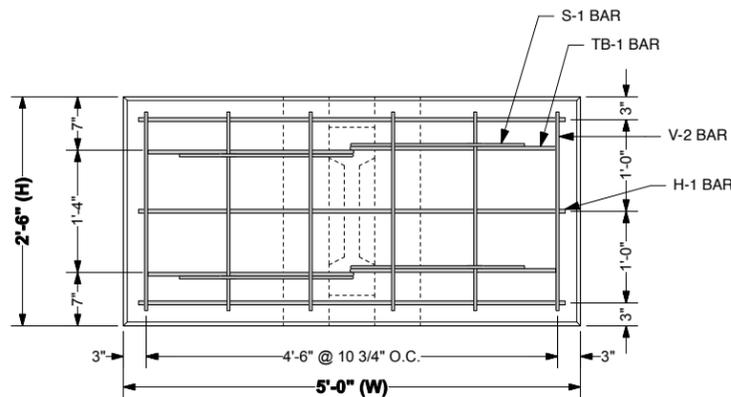
CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF T-WALL® STRUCTURES ONLY

REVISIONS		
1	CORRECTED CORNER PIECE LABELS	CTH 3/6/2015

I-89 BRIDGE DECK REPLACEMENTS
I-89 OVER STOWE STREET
WATERBURY, VT
VTRANS PROJECT NO. IM 089-2(43)
SHOP DRAWINGS
WALL 8 CORNER PAN REMOVAL DETAIL
T-WALL® RETAINING WALL SYSTEM

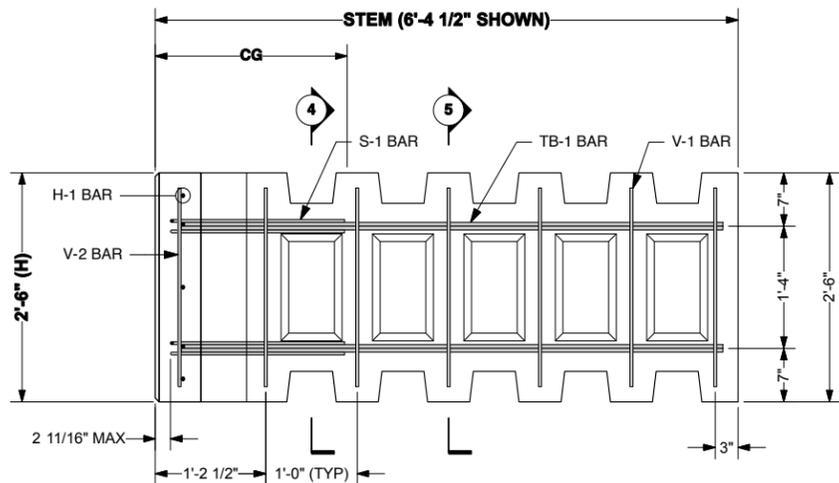
SCALE:	AS NOTED
DATE:	1/23/2015
DESIGNED BY:	KB
DRAWN BY:	CTH
CHECKED BY:	KB
SHEET:	TW-29

Vermont Agency of Transportation
RECEIVED
ON: **March 17, 2015**
and Checked for
CONFORMANCE
BY: **D Bonneau** DATE: **04/03/15**



(V-1 BARS IN STEM OMITTED FOR CLARITY)

1 FRONT VIEW
Scale: 1" = 1'-0"



2 SIDE VIEW
Scale: 1" = 1'-0"

SPECIAL NOTES:

- T-WALL® UNIT FRONT FACE FINISH TREATMENT:
 - PLAIN STEEL FORM FINISH

GENERAL NOTES:

- PRIMARY REFERENCES:
 - AASHTO LRFD BRIDGE SPECIFICATIONS, 4th EDITION, 2007 WITH INTERIM REVISIONS.
- SECONDARY REFERENCES:
 - ACI 318-05 - PRECAST CONCRETE.
- T-WALL® CONCRETE:
 - F'c = 5000 psi (MINIMUM) AT 28 DAYS
 - MINIMUM STRIPPING STRENGTH = 2500 psi
- REINFORCING STEEL:
 - ASTM A615
 - Fy = 60 ksi (GRADE 60)
 - EPOXY COATED
 - WELDING IS NOT PERMITTED**
- REINFORCING FABRICATION AND PLACEMENT TOLERANCES:
 - THE STRUCTURAL DESIGN OF PRECAST UNITS ASSUMES 2 INCHES OF CONCRETE COVER OVER ALL REINFORCING BARS.
 - UNLESS OTHERWISE NOTED IN CONTRACT DOCUMENTS OR REFERENCED SPECIFICATIONS, TOLERANCES ON CONCRETE COVER SHALL BE ± 3/8 INCHES.
 - UNLESS OTHERWISE NOTED IN CONTRACT DOCUMENTS OR REFERENCED SPECIFICATIONS, TOLERANCES ON BAR PLACEMENT SHALL BE:
 - VERTICAL LOCATION OF TB-1 BARS: ± 3/8 INCHES
 - LOCATION / SPACING OF H-1, V-1 AND V-2 BARS: ± 1 INCH
 - REGARDLESS OF THE SPECIFIED PLACEMENT TOLERANCES, CONCRETE COVER SHALL BE MAINTAINED WITHIN ± 3/8 INCHES AS PREVIOUSLY NOTED.
 - ALL REINFORCING BARS SHALL BE CUT AND BENT FOLLOWING REQUIREMENTS OF THE CRSI MANUAL OF STANDARD PRACTICE.
 - UNLESS NOTED OTHERWISE, TOLERANCES FOR BAR FABRICATION SHALL MEET REQUIREMENTS OF STANDARD ACI 318 AND THE CRSI MANUAL OF STANDARD PRACTICE.

Vermont Agency of Transportation

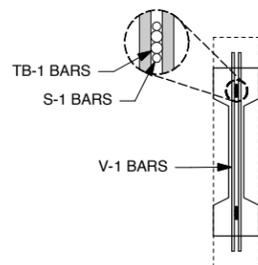
RECEIVED

ON: **March 17, 2015**

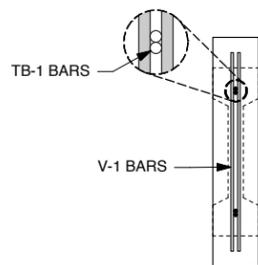
and Checked for

CONFORMANCE

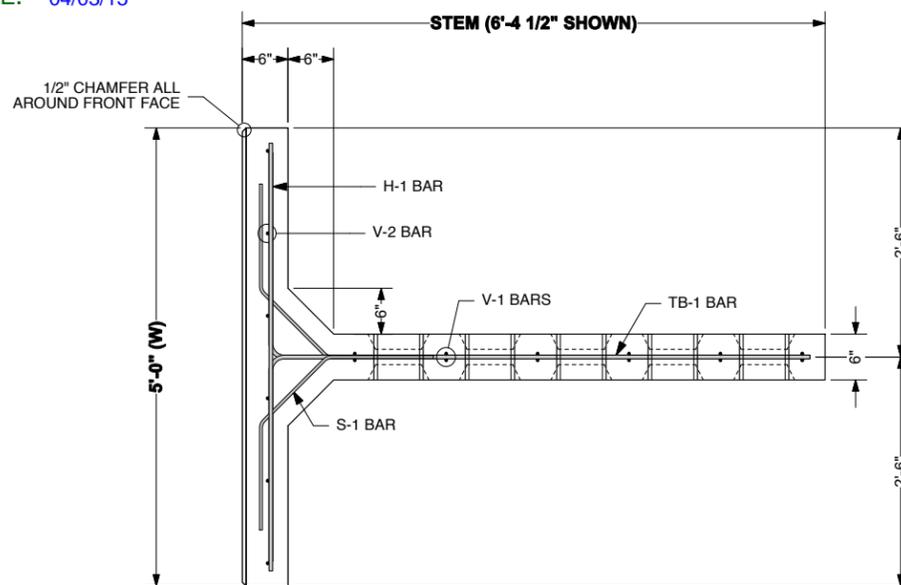
BY: **D Bonneau** DATE: **04/03/15**



4 SECTION THROUGH STEM
Scale: 1" = 1'-0"



5 SECTION THROUGH STEM
Scale: 1" = 1'-0"



3 TOP VIEW
Scale: 1" = 1'-0"

APPROVED: Approval of drawings and/or procedures indicates concurrence with the information presented and does not relieve the Contractor or Fabricator of compliance with all specifications and code requirements	X
APPROVED AS NOTED	
REVISE AND RESUBMIT	
NOT REVIEWED	

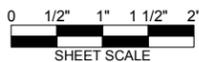


Date: 4/2/15

By: George Bogue

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2" MIN. COVER ON ALL BARS UNLESS OTHERWISE NOTED



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<p>PRECASTER: CONCRETE SYSTEMS, INC. HUDSON, NH PROJECT #: T22259</p>
<p>CONTRACTOR: J. A. McDONALD LYNDON CENTER, VT PROJECT #:</p>

DESIGNER

THE NEEL COMPANY
8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM

PROJECT #: TW4437

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF T-WALL® STRUCTURES ONLY

REVISIONS	

**I-89 BRIDGE DECK REPLACEMENTS
I-89 OVER STOWE STREET**
WATERBURY, VT
VTRANS PROJECT NO. IM 089-2(43)
SHOP DRAWINGS
STANDARD UNIT REBAR (I)
T-WALL® RETAINING WALL SYSTEM

SCALE:	AS NOTED
DATE:	1/23/2015
DESIGNED BY:	KB
DRAWN BY:	GDL
CHECKED BY:	KB
SHEET:	TW-30

T-WALL UNIT SCHEDULES

Unit Type	Qty	H	Dimensions		Lifting CG	Area	Properties	
			W	Stem			Vol	Weight
2.5 x 5.0 x 08 Std	22 ea	2'6"	5'0"	8'4 1/2"	2'5 1/2"	12.50 sf	0.53 cy	2,165 lbs
2.5 x 5.0 x 10 Std	14 ea	2'6"	5'0"	10'4 1/2"	3'3 1/2"	12.50 sf	0.60 cy	2,451 lbs

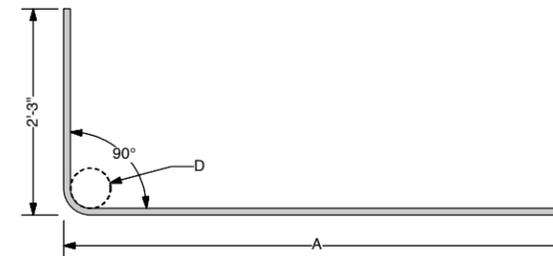
REBAR SCHEDULES

2.5 x 5.0 x 08 Std

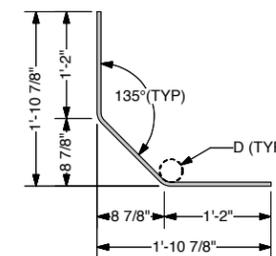
Unit Dims	Bar Mark	Qty	Size	Length	Dim A	Bend Dia.	Weight	Remarks
H=2'6"	H-1	3 ea	#4	4'8"			9.35 lbs	
W=5'0"	V-1	16 ea	#4	2'2"			23.14 lbs	
S=8'4 1/2"	V-2	6 ea	#4	2'2"			8.68 lbs	
SH=2'6"	S-1	4 ea	#4	3'4 1/2"	1'2"	3"	9.01 lbs	
	TB-1	4 ea	#4	10'2"	7'11"	3"	27.16 lbs	
							77.34 lbs	

2.5 x 5.0 x 10 Std

Unit Dims	Bar Mark	Qty	Size	Length	Dim A	Bend Dia.	Weight	Remarks
H=2'6"	H-1	3 ea	#4	4'8"			9.35 lbs	
W=5'0"	V-1	20 ea	#4	2'2"			28.93 lbs	
S=10'4 1/2"	V-2	6 ea	#4	2'2"			8.68 lbs	
SH=2'6"	S-1	4 ea	#4	3'4 1/2"	1'2"	3"	9.01 lbs	
	TB-1	4 ea	#4	12'2"	9'11"	3"	32.50 lbs	
							88.47 lbs	



A TB-1 BAR
Scale: 1" = 1'-0"



B S-1 BAR
Scale: 1" = 1'-0"

2" MIN. COVER ON ALL BARS UNLESS OTHERWISE NOTED

APPROVED: Approval of drawings and/or procedures indicates concurrence with the information presented and does not relieve the Contractor or Fabricator of compliance with all specifications and code requirements	X	
APPROVED AS NOTED		
REVISE AND RESUBMIT		
NOT REVIEWED		
Date: 4/2/15		
By: George Bogue		
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HUDSON, NH
PROJECT #: T22259

CONTRACTOR: J. A. MCDONALD
LYNDON CENTER, VT
PROJECT #:

DESIGNER

THE NEEL COMPANY
8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM

PROJECT #: TW4437

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF T-WALL® STRUCTURES ONLY



REVISIONS

NO	DESCRIPTION	BY	DATE
1	CHANGE #3 REBAR TO #4	CTH	3/6/2015

**I-89 BRIDGE DECK REPLACEMENTS
I-89 OVER STOWE STREET**

WATERBURY, VT
VTRANS PROJECT NO. IM 089-2(43)
SHOP DRAWINGS
STANDARD UNIT REBAR (II)

T-WALL® RETAINING WALL SYSTEM

SCALE: AS NOTED

DATE: 1/23/2015

DESIGNED BY: KB

DRAWN BY: GDL

CHECKED BY: KB

SHEET: TW-31

Vermont Agency of Transportation

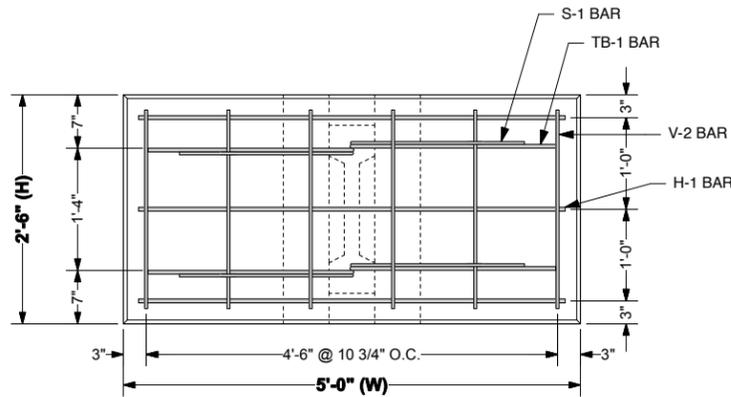
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ON: **March 17, 2015**

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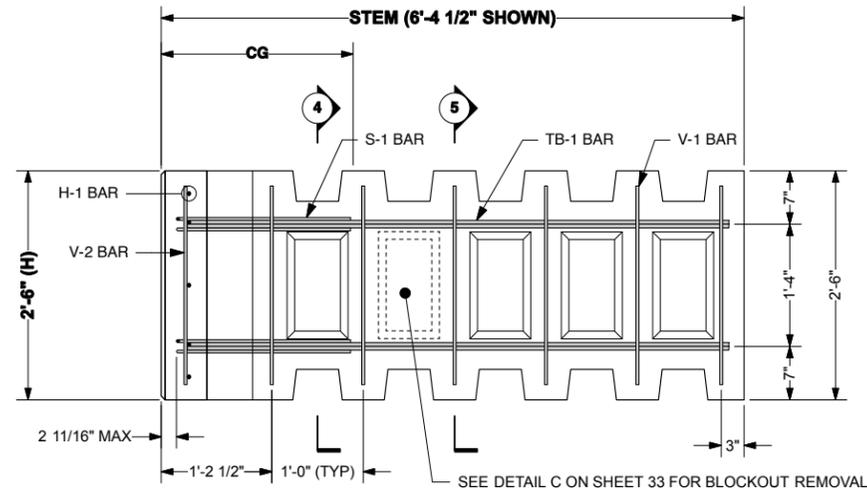
CONFORMANCE

BY: **D Bonneau** DATE: **04/03/15**

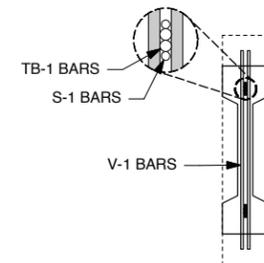


(V-1 BARS IN STEM OMITTED FOR CLARITY)

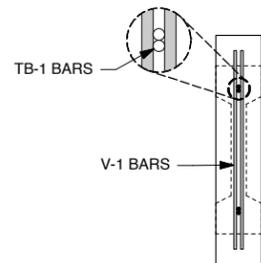
1 FRONT VIEW
Scale: 1" = 1'-0"



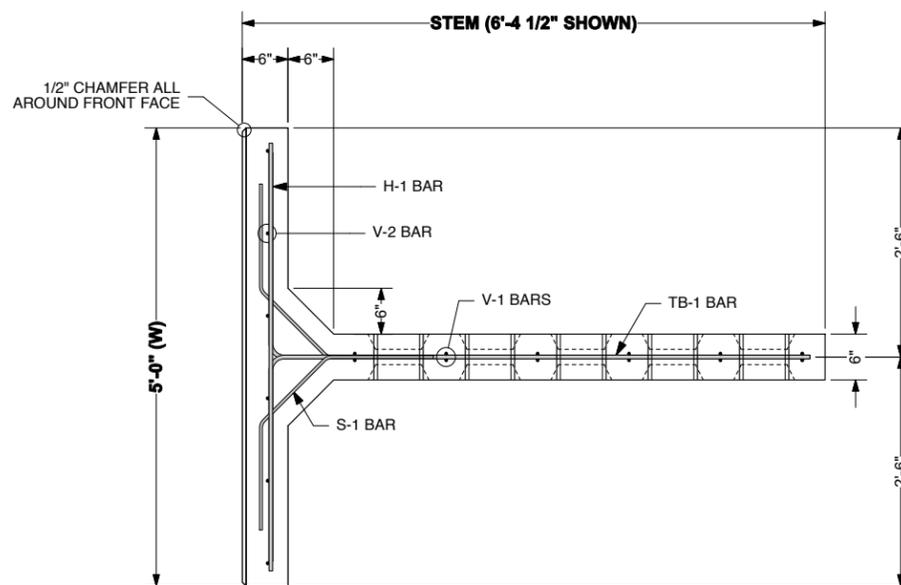
2 SIDE VIEW
Scale: 1" = 1'-0"



4 SECTION THROUGH STEM
Scale: 1" = 1'-0"



5 SECTION THROUGH STEM
Scale: 1" = 1'-0"



3 TOP VIEW
Scale: 1" = 1'-0"

SPECIAL NOTES:

- T-WALL® UNIT FRONT FACE FINISH TREATMENT:
 - PLAIN STEEL FORM FINISH

GENERAL NOTES:

- PRIMARY REFERENCES:
 - AASHTO LRFD BRIDGE SPECIFICATIONS, 4th EDITION, 2007 WITH INTERIM REVISIONS.
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 - MINIMUM STRIPPING STRENGTH = 2500 psi
- REINFORCING STEEL:
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 - Fy = 60 ksi (GRADE 60)
 - EPOXY COATED
 - WELDING IS NOT PERMITTED**
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Vermont Agency of Transportation

RECEIVED

ON: **March 17, 2015**

and Checked for

CONFORMANCE

BY: **D Bonneau** DATE: **04/03/15**

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Date: 4/2/15		
By: George Bogue		
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HUDSON, NH
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DESIGNER

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PROJECT #: TW4437

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REVISIONS

NO.	DESCRIPTION	DATE

**I-89 BRIDGE DECK REPLACEMENTS
I-89 OVER STOWE STREET**

**WATERBURY, VT
VTRANS PROJECT NO. IM 089-2(43)**

SHOP DRAWINGS
STANDARD CORNER UNIT REBAR (I)

T-WALL® RETAINING WALL SYSTEM

SCALE: AS NOTED

DATE: 1/23/2015

DESIGNED BY: KB

DRAWN BY: GDL

CHECKED BY: KB

SHEET: TW-32

T-WALL UNIT SCHEDULES

Unit Type	Qty	H	W	Stem	Lifting CG	Area	Vol	Weight
2.5 x 5.0 x 07 Std Cnr	10 ea	2'6"	5'0"	7'4 1/2"	2'0 3/4"	12.50 sf	0.50 cy	2,043 lbs
2.5 x 5.0 x 08 Std Cnr	3 ea	2'6"	5'0"	8'4 1/2"	2'5 1/2"	12.50 sf	0.53 cy	2,165 lbs
2.5 x 5.0 x 10 Std Cnr	2 ea	2'6"	5'0"	10'4 1/2"	3'3 1/2"	12.50 sf	0.60 cy	2,451 lbs
2.5 x 5.0 x 12 Std Cnr	1 ea	2'6"	5'0"	12'4 1/2"	4'2"	12.50 sf	0.66 cy	2,696 lbs

REBAR SCHEDULES

2.5 x 5.0 x 07 Std Cnr

Unit Dims	Bar Mark	Qty	Size	Length	Dim A	Bend Dia.	Weight	Remarks
H=2'6"	H-1	3 ea	#4	4'8"			9.35 lbs	
W=5'0"	V-1	14 ea	#4	2'2"			20.25 lbs	
S=7'4 1/2"	V-2	6 ea	#4	2'2"			8.68 lbs	
SH=2'6"	S-1	4 ea	#4	3'4 1/2"	1'2"	3"	9.01 lbs	
	TB-1	4 ea	#4	9'2"	6'11"	3"	24.49 lbs	
							71.78 lbs	

2.5 x 5.0 x 08 Std Cnr

Unit Dims	Bar Mark	Qty	Size	Length	Dim A	Bend Dia.	Weight	Remarks
H=2'6"	H-1	3 ea	#4	4'8"			9.35 lbs	
W=5'0"	V-1	16 ea	#4	2'2"			23.14 lbs	
S=8'4 1/2"	V-2	6 ea	#4	2'2"			8.68 lbs	
SH=2'6"	S-1	4 ea	#4	3'4 1/2"	1'2"	3"	9.01 lbs	
	TB-1	4 ea	#4	10'2"	7'11"	3"	27.16 lbs	
							77.34 lbs	

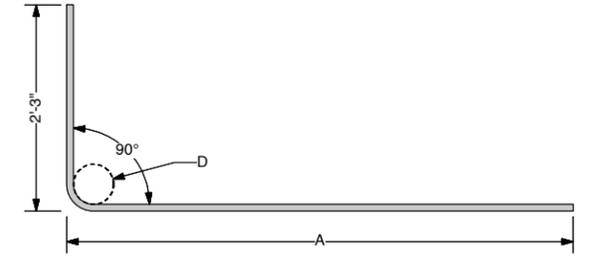
2.5 x 5.0 x 10 Std Cnr

Unit Dims	Bar Mark	Qty	Size	Length	Dim A	Bend Dia.	Weight	Remarks
H=2'6"	H-1	3 ea	#4	4'8"			9.35 lbs	
W=5'0"	V-1	20 ea	#4	2'2"			28.93 lbs	
S=10'4 1/2"	V-2	6 ea	#4	2'2"			8.68 lbs	
SH=2'6"	S-1	4 ea	#4	3'4 1/2"	1'2"	3"	9.01 lbs	
	TB-1	4 ea	#4	12'2"	9'11"	3"	32.50 lbs	
							88.47 lbs	

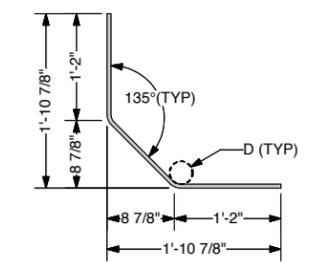
2.5 x 5.0 x 12 Std Cnr

Unit Dims	Bar Mark	Qty	Size	Length	Dim A	Bend Dia.	Weight	Remarks
H=2'6"	H-1	3 ea	#4	4'8"			9.35 lbs	
W=5'0"	V-1	24 ea	#4	2'2"			34.72 lbs	
S=12'4 1/2"	V-2	6 ea	#4	2'2"			8.68 lbs	
SH=2'6"	S-1	4 ea	#4	3'4 1/2"	1'2"	3"	9.01 lbs	
	TB-1	4 ea	#5	14'2"	11'11"	3 3/4"	59.13 lbs	
							120.88 lbs	

APPROVED: Approval of drawings and/or procedures indicates concurrence with the information presented and does not relieve the Contractor or Fabricator of compliance with all specifications and code requirements	X	
APPROVED AS NOTED		
REVISE AND RESUBMIT		
NOT REVIEWED		
Date: 4/2/15		
By: George Bogue		
<p>This review by Stantec Consulting Services Inc. is for the sole purpose of ascertaining conformance with the general design concept. This review shall not mean that Stantec Consulting Services Inc approves the detail design inherent in the shop drawings, responsibility for which shall remain with the Contractor. Submitting same, and such review shall not relieve the Contractor of his responsibility for errors or omissions in the shop drawing or of his responsibility for meeting all requirements of the Contract Documents. The contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction and installation and for coordination of the work of all subtrades.</p>		

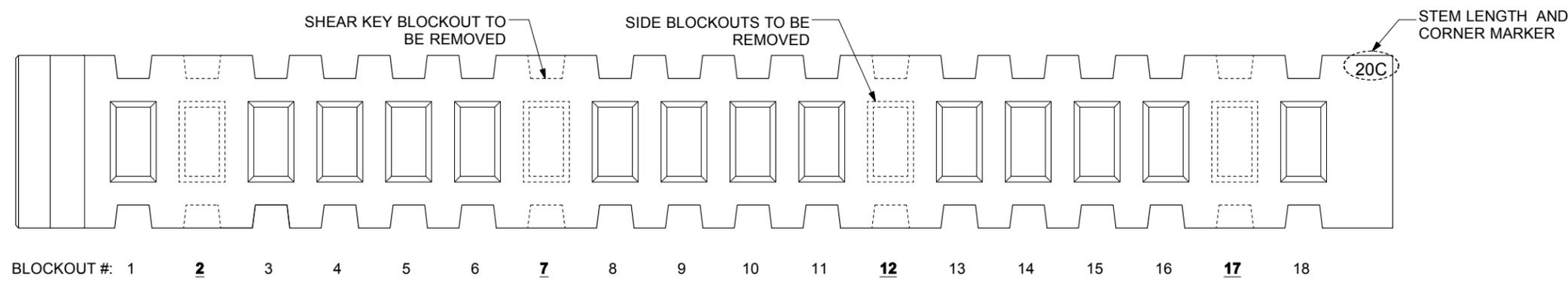


A TB-1 BAR
Scale: 1" = 1'-0"



B S-1 BAR
Scale: 1" = 1'-0"

2" MIN. COVER ON ALL BARS UNLESS OTHERWISE NOTED



BLOCKOUT #: 1 **2** 3 4 5 6 **7** 8 9 10 11 **12** 13 14 15 16 **17** 18

BLOCKOUT: #2, 7, 12 & 17, AS SHOWN

SHOWING BLOCKOUTS TO BE REMOVED IN 20' STEM UNIT SHOWN. ALL OTHER STEM LENGTHS HAVE BLOCKOUTS REMOVED IN SAME LOCATIONS (AS REQUIRED).

C SIDE VIEW - 20C LONG STEM CORNER UNIT
NO SCALE



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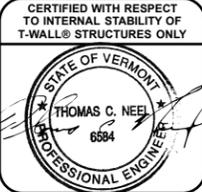
PRECASTER: CONCRETE SYSTEMS, INC.
HUDSON, NH
PROJECT #: T22259

CONTRACTOR: J. A. MCDONALD
LYNDON CENTER, VT
PROJECT #:

DESIGNER

THE NEEL COMPANY
8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM

PROJECT #: TW4437

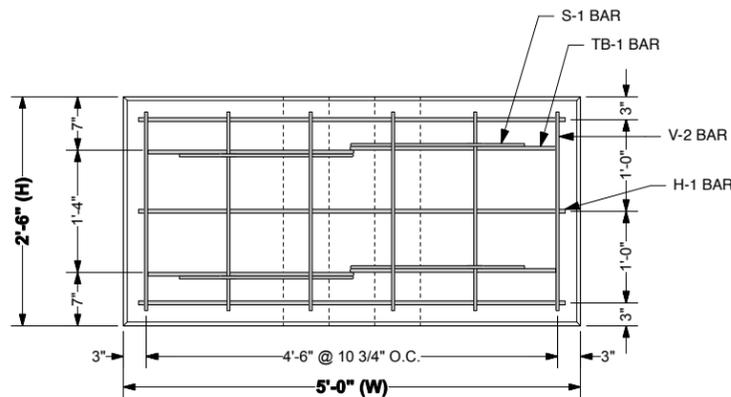


REVISIONS		
1	CHANGE #3 REBAR TO #4	CTH 3/6/2015

I-89 BRIDGE DECK REPLACEMENTS
I-89 OVER STOWE STREET
WATERBURY, VT
VTRANS PROJECT NO. IM 089-2(43)
SHOP DRAWINGS
STANDARD CORNER UNIT REBAR (II)
T-WALL® RETAINING WALL SYSTEM

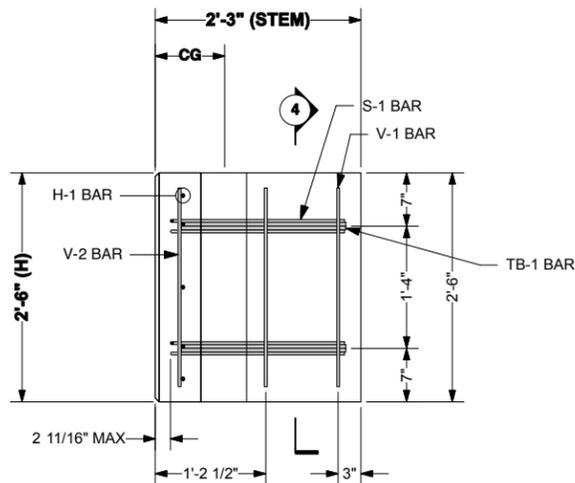
SCALE:	AS NOTED
DATE:	1/23/2015
DESIGNED BY:	KB
DRAWN BY:	GDL
CHECKED BY:	KB
SHEET:	TW-33

Vermont Agency of Transportation
RECEIVED
ON: **March 17, 2015**
and Checked for
CONFORMANCE
BY: **D Bonneau** DATE: **04/03/15**

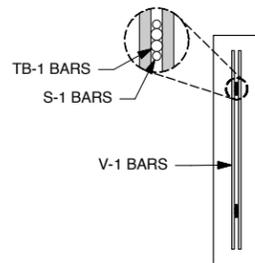


(V-1 BARS IN STEM OMITTED FOR CLARITY)

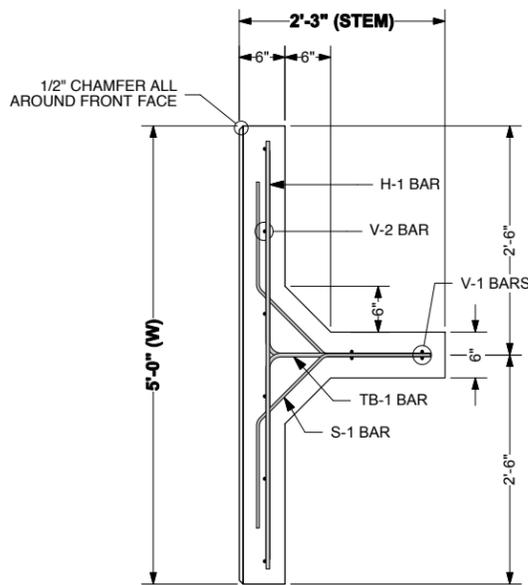
1 FRONT VIEW
Scale: 1" = 1'-0"



2 SIDE VIEW
Scale: 1" = 1'-0"



4 SECTION THROUGH STEM
Scale: 1" = 1'-0"



3 TOP VIEW
Scale: 1" = 1'-0"

SPECIAL NOTES:

- T-WALL® UNIT FRONT FACE FINISH TREATMENT:
 - PLAIN STEEL FORM FINISH

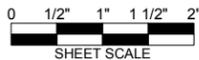
GENERAL NOTES:

- PRIMARY REFERENCES:
 - AASHTO LRFD BRIDGE SPECIFICATIONS, 4th EDITION, 2007 WITH INTERIM REVISIONS.
- SECONDARY REFERENCES:
 - ACI 318-05 - PRECAST CONCRETE.
- T-WALL® CONCRETE:
 - F'c = 5000 psi (MINIMUM) AT 28 DAYS
 - MINIMUM STRIPPING STRENGTH = 2500 psi
- REINFORCING STEEL:
 - ASTM A615
 - Fy = 60 ksi (GRADE 60)
 - EPOXY COATED
 - WELDING IS NOT PERMITTED**
- REINFORCING FABRICATION AND PLACEMENT TOLERANCES:
 - THE STRUCTURAL DESIGN OF PRECAST UNITS ASSUMES 2 INCHES OF CONCRETE COVER OVER ALL REINFORCING BARS.
 - UNLESS OTHERWISE NOTED IN CONTRACT DOCUMENTS OR REFERENCED SPECIFICATIONS, TOLERANCES ON CONCRETE COVER SHALL BE ± 3/8 INCHES.
 - UNLESS OTHERWISE NOTED IN CONTRACT DOCUMENTS OR REFERENCED SPECIFICATIONS, TOLERANCES ON BAR PLACEMENT SHALL BE:
 - VERTICAL LOCATION OF TB-1 BARS: ± 3/8 INCHES
 - LOCATION / SPACING OF H-1, V-1 AND V-2 BARS: ± 1 INCH
 - REGARDLESS OF THE SPECIFIED PLACEMENT TOLERANCES, CONCRETE COVER SHALL BE MAINTAINED WITHIN ± 3/8 INCHES AS PREVIOUSLY NOTED.
 - ALL REINFORCING BARS SHALL BE CUT AND BENT FOLLOWING REQUIREMENTS OF THE CRSI MANUAL OF STANDARD PRACTICE.
 - UNLESS NOTED OTHERWISE, TOLERANCES FOR BAR FABRICATION SHALL MEET REQUIREMENTS OF STANDARD ACI 318 AND THE CRSI MANUAL OF STANDARD PRACTICE.

APPROVED: Approval of drawings and/or procedures indicates concurrence with the information presented and does not relieve the Contractor or Fabricator of compliance with all specifications and code requirements	X	
APPROVED AS NOTED		
REVISE AND RESUBMIT		
NOT REVIEWED		
Date: 4/2/15		
By: George Bogue		
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Vermont Agency of Transportation
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CONFORMANCE
BY: D Bonneau DATE: 04/03/15

2" MIN. COVER ON ALL BARS UNLESS OTHERWISE NOTED



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PRECASTER: CONCRETE SYSTEMS, INC.
HUDSON, NH
PROJECT #: T22259

CONTRACTOR: J. A. McDONALD
LYNDON CENTER, VT
PROJECT #:

DESIGNER

THE NEEL COMPANY
8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM

PROJECT #: TW4437

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF T-WALL® STRUCTURES ONLY



REVISIONS

NO.	DESCRIPTION	DATE

**I-89 BRIDGE DECK REPLACEMENTS
I-89 OVER STOWE STREET**

WATERBURY, VT
VTRANS PROJECT NO. IM 089-2(43)

SHOP DRAWINGS
STANDARD CORNER 2.25' STEM REBAR (I)

T-WALL® RETAINING WALL SYSTEM

SCALE: AS NOTED

DATE: 1/23/2015

DESIGNED BY: KB

DRAWN BY: GDL

CHECKED BY: KB

SHEET: TW-34

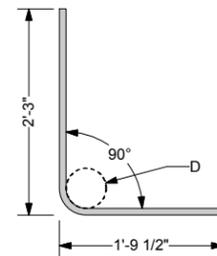
T-WALL UNIT SCHEDULES

Unit Type	Qty	H	Dimensions W	Stem	Lifting CG	Area	Properties Vol	Weight
2.5 x 5.0 x 02.25 Std Cnr	10 ea	2'6"	5'0"	2'3"	5 5/8"	12.50 sf	0.34 cy	1,388 lbs

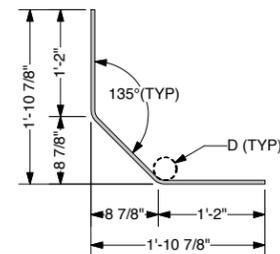
REBAR SCHEDULES

2.5 x 5.0 x 02.25 Std Cnr

Unit Dims	Bar Mark	Qty	Size	Length	Dim A	Bend Dia.	Weight	Remarks
H=2'6"	H-1	3 ea	#4	4'8"			9.35 lbs	
W=5'0"	V-1	6 ea	#4	2'2"			8.68 lbs	
S=2'3"	V-2	6 ea	#4	2'2"			8.68 lbs	
SH=2'6"	S-1	4 ea	#4	3'4 1/2"	1'2"	3"	9.01 lbs	
	TB-1	4 ea	#4	4'0 1/2"	1'9 1/2"	3"	10.79 lbs	
							46.51 lbs	



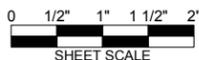
A TB-1 BAR
Scale: 1" = 1'-0"



B S-1 BAR
Scale: 1" = 1'-0"

**2" MIN. COVER ON ALL BARS
UNLESS OTHERWISE NOTED**

APPROVED: Approval of drawings and/or procedures indicates concurrence with the information presented and does not relieve the Contractor or Fabricator of compliance with all specifications and code requirements	X	
APPROVED AS NOTED		
REVISE AND RESUBMIT		
NOT REVIEWED		
Date: 4/2/15		
By: George Bogue		
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HUDSON, NH
PROJECT #: T22259

CONTRACTOR: J. A. McDONALD
LYNDON CENTER, VT
PROJECT #:

DESIGNER

THE NEEL COMPANY
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SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM

PROJECT #: TW4437

CERTIFIED WITH RESPECT
TO INTERNAL STABILITY OF
T-WALL® STRUCTURES ONLY



REVISIONS

NO.	DESCRIPTION	BY	DATE
1	CHANGE #3 REBAR TO #4	CTH	3/6/2015

**I-89 BRIDGE DECK REPLACEMENTS
I-89 OVER STOWE STREET**

WATERBURY, VT
VTRANS PROJECT NO. IM 089-2(43)
SHOP DRAWINGS
STANDARD CORNER 2.25' STEM REBAR (II)

T-WALL® RETAINING WALL SYSTEM

Vermont Agency of Transportation

RECEIVED

ON: **March 17, 2015**

and Checked for

CONFORMANCE

BY: **D Bonneau** DATE: **04/03/15**

SCALE: AS NOTED

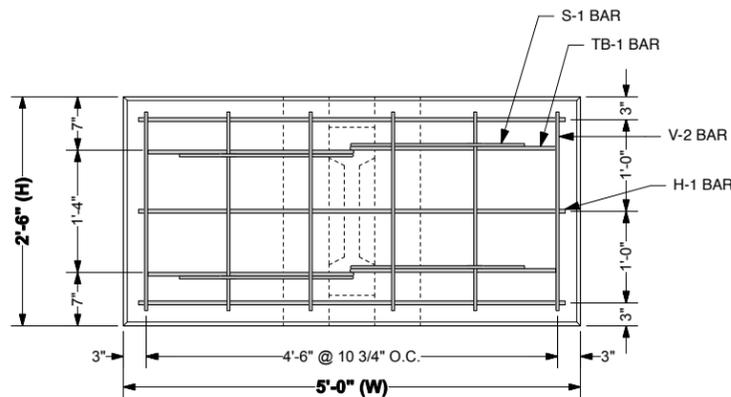
DATE: 1/23/2015

DESIGNED BY: KB

DRAWN BY: GDL

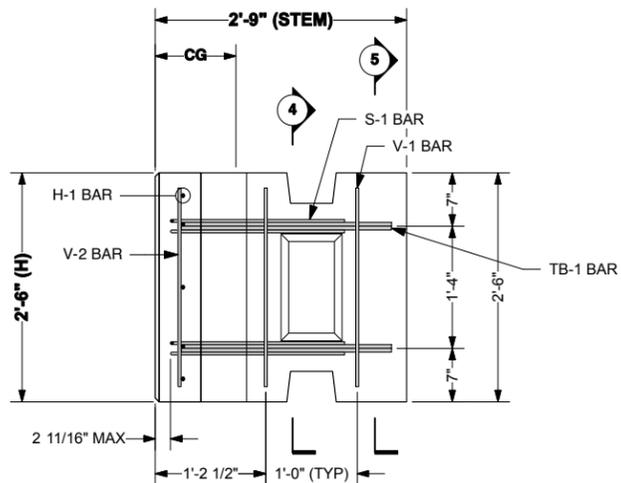
CHECKED BY: KB

SHEET: TW-35

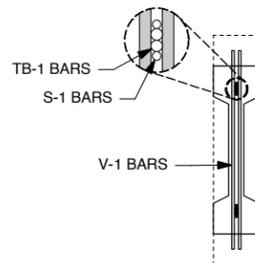


(V-1 BARS IN STEM OMITTED FOR CLARITY)

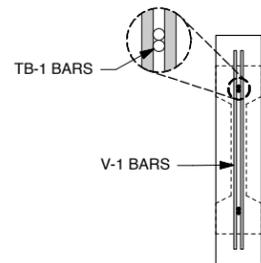
1 FRONT VIEW
Scale: 1" = 1'-0"



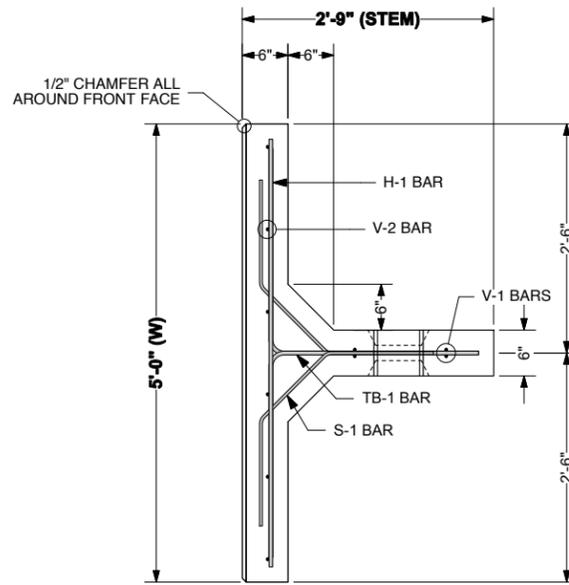
2 SIDE VIEW
Scale: 1" = 1'-0"



4 SECTION THROUGH STEM
Scale: 1" = 1'-0"



5 SECTION THROUGH STEM
Scale: 1" = 1'-0"



3 TOP VIEW
Scale: 1" = 1'-0"

SPECIAL NOTES:

- T-WALL® UNIT FRONT FACE FINISH TREATMENT:
 - PLAIN STEEL FORM FINISH

GENERAL NOTES:

- PRIMARY REFERENCES:
 - AASHTO LRFD BRIDGE SPECIFICATIONS, 4th EDITION, 2007 WITH INTERIM REVISIONS.
- SECONDARY REFERENCES:
 - ACI 318-05 - PRECAST CONCRETE.
- T-WALL® CONCRETE:
 - F'c = 5000 psi (MINIMUM) AT 28 DAYS
 - MINIMUM STRIPPING STRENGTH = 2500 psi
- REINFORCING STEEL:
 - ASTM A615
 - Fy = 60 ksi (GRADE 60)
 - EPOXY COATED
 - WELDING IS NOT PERMITTED**
- REINFORCING FABRICATION AND PLACEMENT TOLERANCES:
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Vermont Agency of Transportation
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BY: D Bonneau DATE: 04/03/15

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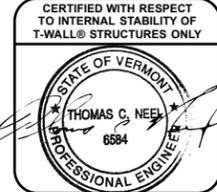
PRECASTER: CONCRETE SYSTEMS, INC.
HUDSON, NH
PROJECT #: T22259

CONTRACTOR: J. A. MCDONALD
LYNDON CENTER, VT
PROJECT #:

DESIGNER

THE NEEL COMPANY
8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM

PROJECT #: TW4437



REVISIONS	

I-89 BRIDGE DECK REPLACEMENTS
I-89 OVER STOWE STREET
WATERBURY, VT
VTRANS PROJECT NO. IM 089-2(43)
SHOP DRAWINGS
STANDARD CORNER 2.75' STEM REBAR (I)
T-WALL® RETAINING WALL SYSTEM

SCALE:	AS NOTED
DATE:	1/23/2015
DESIGNED BY:	KB
DRAWN BY:	GDL
CHECKED BY:	KB
SHEET:	TW-36



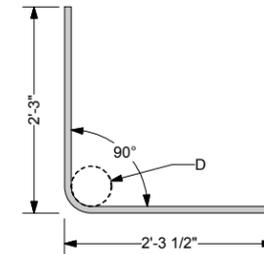
T-WALL UNIT SCHEDULES

Unit Type	Qty	H	Dimensions		Lifting CG	Area	Properties	
			W	Stem			Vol	Weight
2.5 x 5.0 x 02.75 Std Cnr	8 ea	2'6"	5'0"	2'9"	6 3/4"	12.50 sf	0.36 cy	1,469 lbs

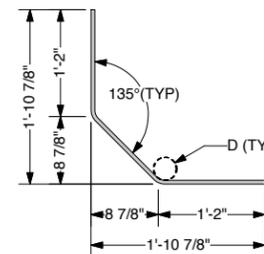
REBAR SCHEDULES

2.5 x 5.0 x 02.75 Std Cnr

Unit Dims	Bar Mark	Qty	Size	Length	Dim A	Bend Dia.	Weight	Remarks
H=2'6"	H-1	3 ea	#4	4'8"			9.35 lbs	
W=5'0"	V-1	4 ea	#4	2'2"			5.79 lbs	
S=2'9"	V-2	6 ea	#4	2'2"			8.68 lbs	
SH=2'6"	S-1	4 ea	#4	3'4 1/2"	1'2"	3"	9.01 lbs	
	TB-1	4 ea	#4	4'6 1/2"	2'3 1/2"	3"	12.13 lbs	
							44.95 lbs	



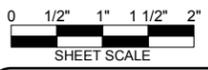
A TB-1 BAR
Scale: 1" = 1'-0"



B S-1 BAR
Scale: 1" = 1'-0"

2" MIN. COVER ON ALL BARS UNLESS OTHERWISE NOTED

APPROVED: Approval of drawings and/or procedures indicates concurrence with the information presented and does not relieve the Contractor or Fabricator of compliance with all specifications and code requirements	X	
APPROVED AS NOTED		
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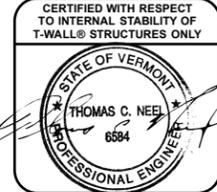
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PROJECT #: T22259

CONTRACTOR: J. A. MCDONALD
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DESIGNER

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PROJECT #: TW4437

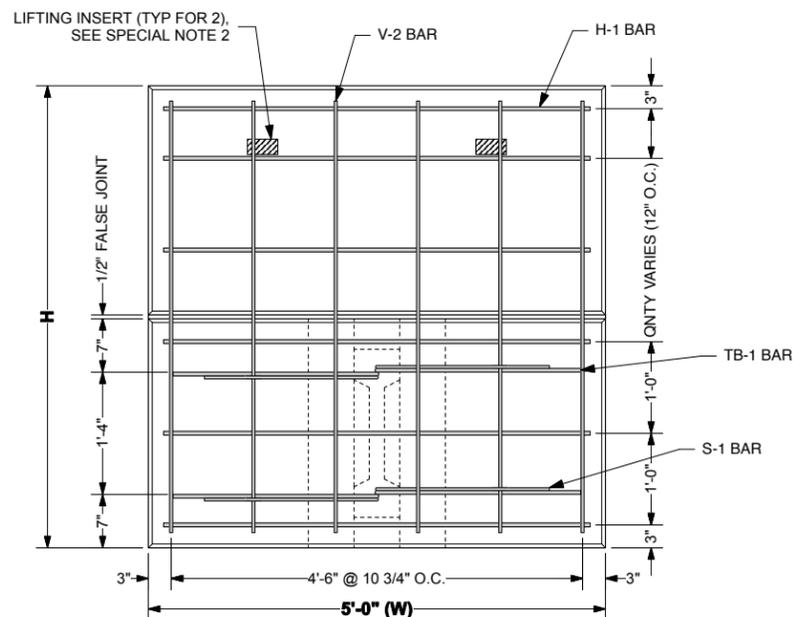


REVISIONS		
1	CHANGE #3 REBAR TO #4	CTH 3/6/2015

I-89 BRIDGE DECK REPLACEMENTS
I-89 OVER STOWE STREET
WATERBURY, VT
VTRANS PROJECT NO. IM 089-2(43)
SHOP DRAWINGS
STANDARD CORNER 2.75' STEM REBAR (II)
T-WALL® RETAINING WALL SYSTEM

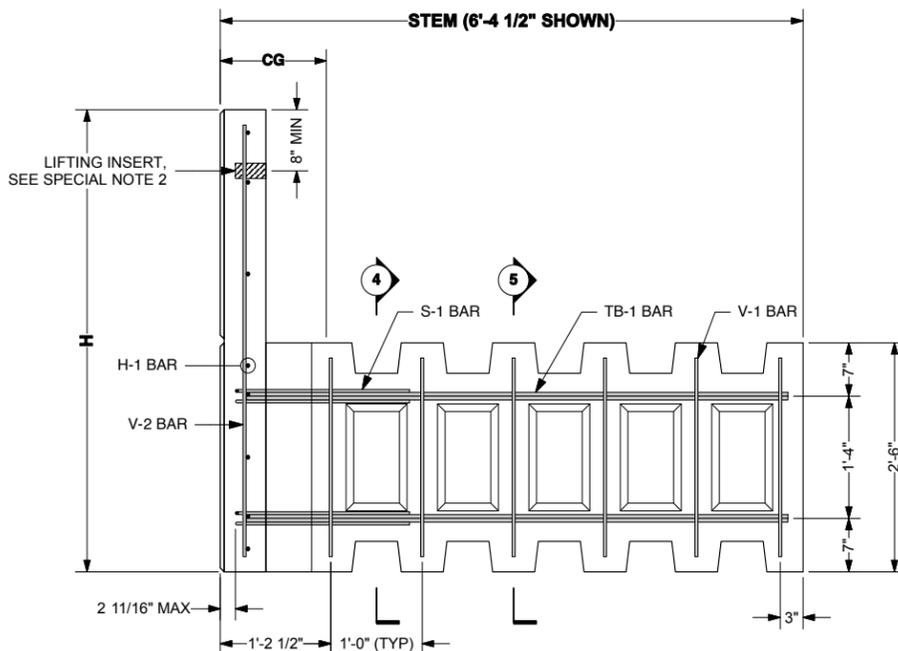
SCALE:	AS NOTED
DATE:	1/23/2015
DESIGNED BY:	KB
DRAWN BY:	GDL
CHECKED BY:	KB
SHEET:	TW-37

Vermont Agency of Transportation
RECEIVED
ON: **March 17, 2015**
and Checked for
CONFORMANCE
BY: **D Bonneau** DATE: **04/03/15**

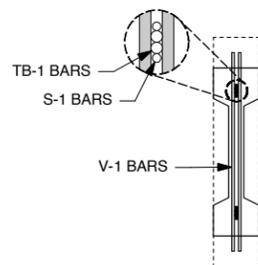


(V-1 BARS IN STEM OMITTED FOR CLARITY)

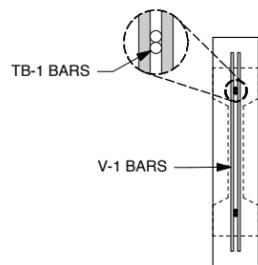
1 FRONT VIEW
Scale: 1" = 1'-0"



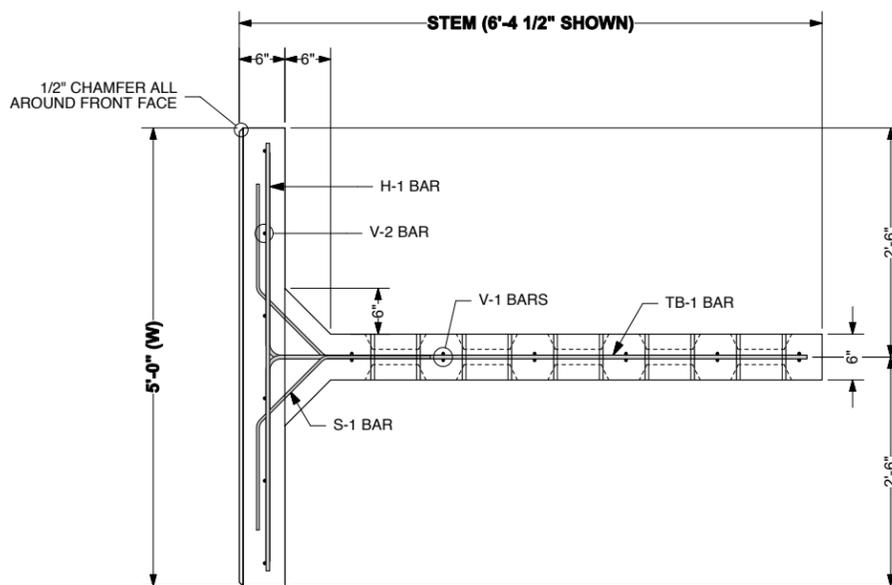
2 SIDE VIEW
Scale: 1" = 1'-0"



4 SECTION THROUGH STEM
Scale: 1" = 1'-0"



5 SECTION THROUGH STEM
Scale: 1" = 1'-0"



3 TOP VIEW
Scale: 1" = 1'-0"

- SPECIAL NOTES:**
- T-WALL® UNIT FRONT FACE FINISH TREATMENT:
 - PLAIN STEEL FORM FINISH
 - LIFTING INSERTS:
 - TWO QUICKLIFT 'QL050G' LIFTING INSERTS OR EQUAL, SPACED AT LEAST 30" APART.
 - 2000 LBS (1 TON) MINIMUM RATED WORKING LOAD CAPACITY.
 - MINIMUM CONCRETE STRENGTH SHALL BE 3,500 psi PRIOR TO STRIPPING AND LIFTING OPERATIONS.
- GENERAL NOTES:**
- PRIMARY REFERENCES:
 - AASHTO LRFD BRIDGE SPECIFICATIONS, 4th EDITION, 2007 WITH INTERIM REVISIONS.
 - SECONDARY REFERENCES:
 - ACI 318-05 - PRECAST CONCRETE.
 - T-WALL® CONCRETE:
 - F_c = 5000 psi (MINIMUM) AT 28 DAYS
 - MINIMUM STRIPPING STRENGTH = 2500 psi
 - REINFORCING STEEL:
 - ASTM A615
 - F_y = 60 ksi (GRADE 60)
 - EPOXY COATED
 - WELDING IS NOT PERMITTED
 - REINFORCING FABRICATION AND PLACEMENT TOLERANCES:
 - THE STRUCTURAL DESIGN OF PRECAST UNITS ASSUMES 2 INCHES OF CONCRETE COVER OVER ALL REINFORCING BARS.
 - UNLESS OTHERWISE NOTED IN CONTRACT DOCUMENTS OR REFERENCED SPECIFICATIONS, TOLERANCES ON CONCRETE COVER SHALL BE ± 3/8 INCHES.
 - UNLESS OTHERWISE NOTED IN CONTRACT DOCUMENTS OR REFERENCED SPECIFICATIONS, TOLERANCES ON BAR PLACEMENT SHALL BE:
 - VERTICAL LOCATION OF TB-1 BARS: ± 3/8 INCHES
 - LOCATION / SPACING OF H-1, U-1 AND V-2 BARS: ± 1 INCH
 - REGARDLESS OF THE SPECIFIED PLACEMENT TOLERANCES, CONCRETE COVER SHALL BE MAINTAINED WITHIN ± 3/8 INCHES AS PREVIOUSLY NOTED.
 - ALL REINFORCING BARS SHALL BE CUT AND BENT FOLLOWING REQUIREMENTS OF THE CRSI MANUAL OF STANDARD PRACTICE.
 - UNLESS NOTED OTHERWISE, TOLERANCES FOR BAR FABRICATION SHALL MEET REQUIREMENTS OF STANDARD ACI 318 AND THE CRSI MANUAL OF STANDARD PRACTICE.

Vermont Agency of Transportation

RECEIVED

ON: March 17, 2015

and Checked for

CONFORMANCE

BY: D Bonneau DATE: 04/03/15

APPROVED: Approval of drawings and/or procedures indicates concurrence with the information presented and does not relieve the Contractor or Fabricator of compliance with all specifications and code requirements	X	
APPROVED AS NOTED		
REVISE AND RESUBMIT		
NOT REVIEWED		
Date: 4/2/15		
By: George Bogue		
<p>This review by Stantec Consulting Services Inc. is for the sole purpose of ascertaining conformance with the general design concept. This review shall not mean that Stantec Consulting Services Inc approves the detail design inherent in the shop drawings, responsibility for which shall remain with the Contractor. Submitting same, and such review shall not relieve the Contractor of his responsibility for errors or omissions in the shop drawing or of his responsibility for meeting all requirements of the Contract Documents. The contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction and installation and for coordination of the work of all subtrades.</p>		

2" COVER ON ALL BARS
UNLESS OTHERWISE NOTED



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This drawing contains information proprietary to The Neel Company. T-WALL® is a registered trademark owned by The Neel Company. ©2015 The Neel Company

PRECASTER: CONCRETE SYSTEMS, INC.
HUDSON, NH
PROJECT #: T22259

CONTRACTOR: J. A. McDONALD
LYNDON CENTER, VT
PROJECT #:

DESIGNER

THE NEEL COMPANY
8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM

PROJECT #: TW4437

CERTIFIED WITH RESPECT
TO INTERNAL STABILITY OF
T-WALL® STRUCTURES ONLY



REVISIONS

NO.	DESCRIPTION	DATE

**I-89 BRIDGE DECK REPLACEMENTS
I-89 OVER STOWE STREET**
WATERBURY, VT
VTRANS PROJECT NO. IM 089-2(43)
SHOP DRAWINGS
STANDARD TOP UNIT REBAR (I)
T-WALL® RETAINING WALL SYSTEM

SCALE:	AS NOTED
DATE:	1/23/2015
DESIGNED BY:	KB
DRAWN BY:	GDL
CHECKED BY:	KB
SHEET:	TW-38

T-WALL UNIT SCHEDULES

Unit Type	Qty	H	W	Stem	Lifting CG	Area	Vol	Weight
5.0 x 5.0 x 06 Std Top	4 ea	5'0 1/2"	5'0"	6'4 1/2"	8 1/2"	25.21 sf	0.72 cy	2,928 lbs
5.5 x 5.0 x 06 Std Top	4 ea	5'6"	5'0"	6'4 1/2"	8 1/2"	27.50 sf	0.76 cy	3,090 lbs
6.0 x 5.0 x 06 Std Top	8 ea	6'0"	5'0"	6'4 1/2"	8 1/2"	30.00 sf	0.81 cy	3,294 lbs
6.5 x 5.0 x 08 Std Top	2 ea	6'6"	5'0"	8'4 1/2"	8 1/2"	32.50 sf	0.85 cy	3,456 lbs

REBAR SCHEDULES

5.0 x 5.0 x 06 Std Top

Unit Dims	Bar Mark	Qty	Size	Length	Dim A	Bend Dia.	Weight	Remarks
H=5'0 1/2"	H-1	6 ea	#4	4'8"			18.69 lbs	
W=5'0"	V-1	12 ea	#4	2'2"			17.36 lbs	
S=6'4 1/2"	V-2	6 ea	#5	4'8 1/2"			29.46 lbs	
SH=2'6"	S-1	4 ea	#4	3'4 1/2"	1'2"	3"	9.01 lbs	
	TB-1	4 ea	#5	8'3 3/8"	5'11"	3 3/4"	34.55 lbs	
							109.07 lbs	

5.5 x 5.0 x 06 Std Top

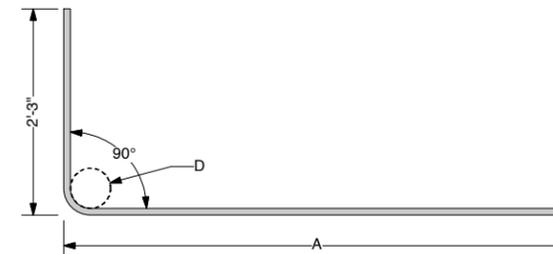
Unit Dims	Bar Mark	Qty	Size	Length	Dim A	Bend Dia.	Weight	Remarks
H=5'6"	H-1	6 ea	#4	4'8"			18.69 lbs	
W=5'0"	V-1	12 ea	#4	2'2"			17.36 lbs	
S=6'4 1/2"	V-2	6 ea	#5	5'2"			32.34 lbs	
SH=2'6"	S-1	4 ea	#4	3'4 1/2"	1'2"	3"	9.01 lbs	
	TB-1	4 ea	#5	8'3 3/8"	5'11"	3 3/4"	34.55 lbs	
							111.95 lbs	

6.0 x 5.0 x 06 Std Top

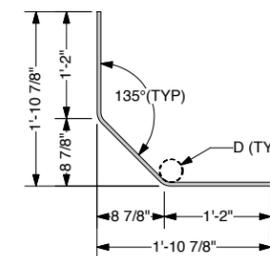
Unit Dims	Bar Mark	Qty	Size	Length	Dim A	Bend Dia.	Weight	Remarks
H=6'0"	H-1	6 ea	#4	4'8"			18.69 lbs	
W=5'0"	V-1	12 ea	#4	2'2"			17.36 lbs	
S=6'4 1/2"	V-2	6 ea	#5	5'8"			35.47 lbs	
SH=2'6"	S-1	4 ea	#4	3'4 1/2"	1'2"	3"	9.01 lbs	
	TB-1	4 ea	#5	8'3 3/8"	5'11"	3 3/4"	34.55 lbs	
							115.08 lbs	

6.5 x 5.0 x 08 Std Top

Unit Dims	Bar Mark	Qty	Size	Length	Dim A	Bend Dia.	Weight	Remarks
H=6'6"	H-1	7 ea	#4	4'8"			21.81 lbs	
W=5'0"	V-1	12 ea	#4	2'2"			17.36 lbs	
S=8'4 1/2"	V-2	6 ea	#5	6'2"			38.60 lbs	
SH=2'6"	S-1	4 ea	#4	3'4 1/2"	1'2"	3"	9.01 lbs	
	TB-1	4 ea	#5	8'3"	5'11"	3 3/4"	34.44 lbs	
							121.22 lbs	



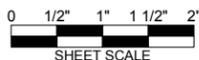
A TB-1 BAR
Scale: 1" = 1'-0"



B S-1 BAR
Scale: 1" = 1'-0"

**2" COVER ON ALL BARS
UNLESS OTHERWISE NOTED**

APPROVED: Approval of drawings and/or procedures indicates concurrence with the information presented and does not relieve the Contractor or Fabricator of compliance with all specifications and code requirements	X	
APPROVED AS NOTED		
REVISE AND RESUBMIT		
NOT REVIEWED		
Date: 4/2/15		
By: George Bogue		
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PRECASTER: CONCRETE SYSTEMS, INC.
HUDSON, NH
PROJECT #: T22259

CONTRACTOR: J. A. MCDONALD
LYNDON CENTER, VT
PROJECT #:

DESIGNER

THE NEEL COMPANY
8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM

PROJECT #: TW4437

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF T-WALL® STRUCTURES ONLY

REVISIONS		
1	CHANGE #3 REBAR TO #4	CTH 3/6/2015

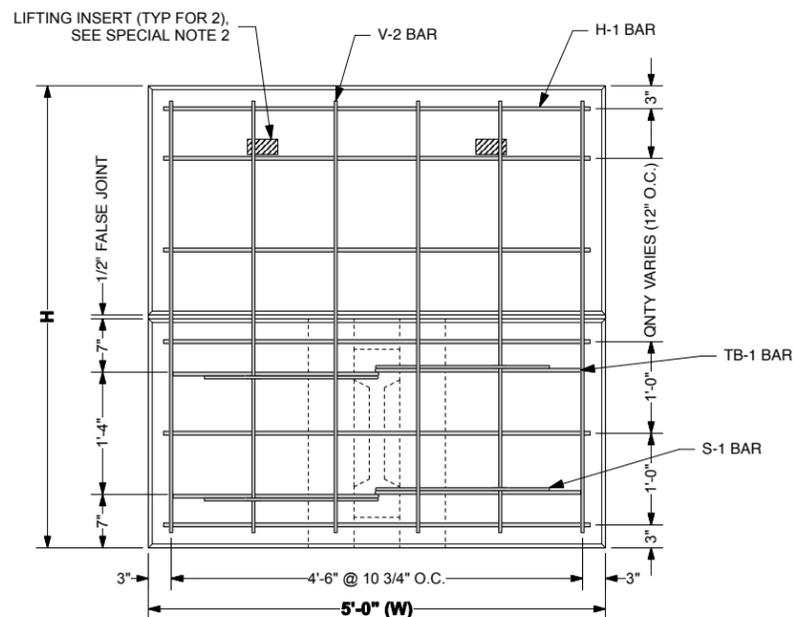
**I-89 BRIDGE DECK REPLACEMENTS
I-89 OVER STOWE STREET**

WATERBURY, VT
VTRANS PROJECT NO. IM 089-2(43)
SHOP DRAWINGS
STANDARD TOP UNIT REBAR (II)

T-WALL® RETAINING WALL SYSTEM

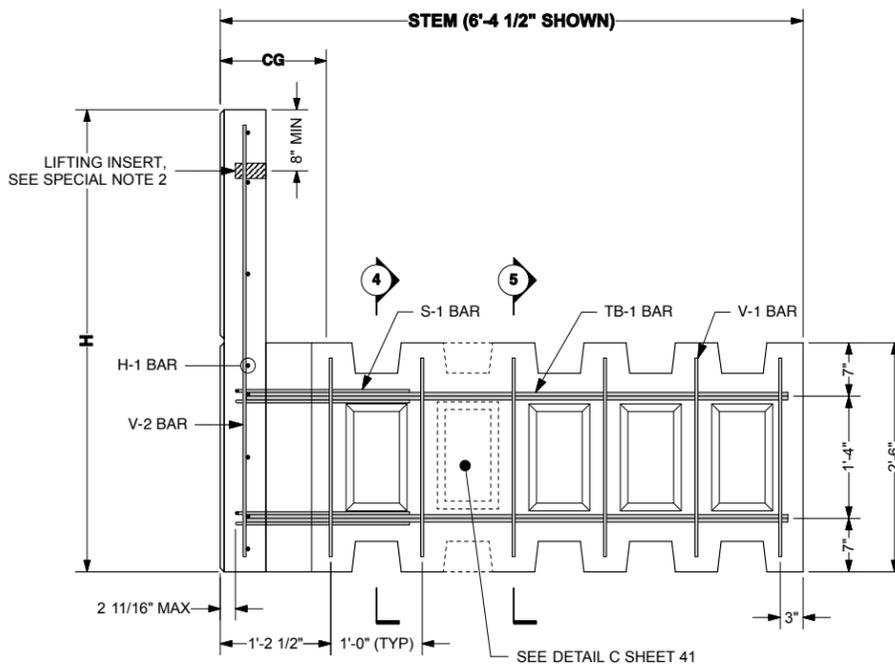
SCALE:	AS NOTED
DATE:	1/23/2015
DESIGNED BY:	KB
DRAWN BY:	GDL
CHECKED BY:	KB
SHEET:	TW-39

Vermont Agency of Transportation
RECEIVED
ON: **March 17, 2015**
and Checked for
CONFORMANCE
BY: **D Bonneau** DATE: **04/03/15**

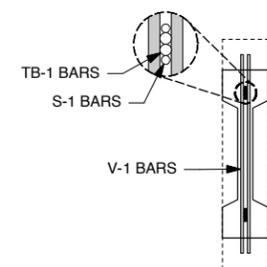


(V-1 BARS IN STEM OMITTED FOR CLARITY)

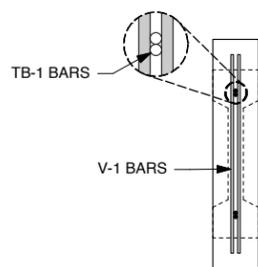
1 FRONT VIEW
Scale: 1" = 1'-0"



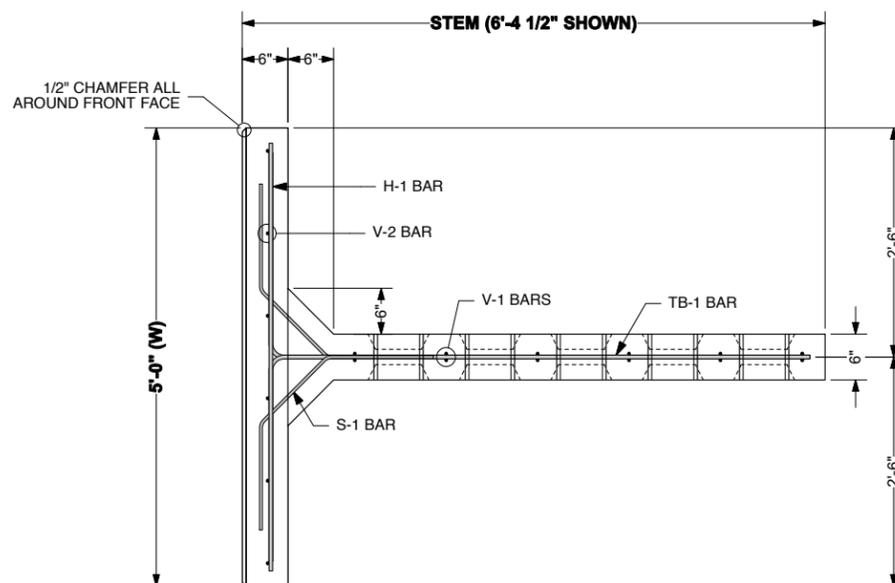
2 SIDE VIEW
Scale: 1" = 1'-0"



4 SECTION THROUGH STEM
Scale: 1" = 1'-0"



5 SECTION THROUGH STEM
Scale: 1" = 1'-0"



3 TOP VIEW
Scale: 1" = 1'-0"

SPECIAL NOTES:

- T-WALL® UNIT FRONT FACE FINISH TREATMENT:
 - PLAIN STEEL FORM FINISH
- LIFTING INSERTS:
 - TWO QUICKLIFT 'QL050G' LIFTING INSERTS OR EQUAL, SPACED AT LEAST 30" APART.
 - 2000 LBS (1 TON) MINIMUM RATED WORKING LOAD CAPACITY.
 - MINIMUM CONCRETE STRENGTH SHALL BE 3,500 psi PRIOR TO STRIPPING AND LIFTING OPERATIONS.

GENERAL NOTES:

- PRIMARY REFERENCES:
 - AASHTO LRFD BRIDGE SPECIFICATIONS, 4th EDITION, 2007 WITH INTERIM REVISIONS.
- SECONDARY REFERENCES:
 - ACI 318-05 - PRECAST CONCRETE.
- T-WALL® CONCRETE:
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- REINFORCING STEEL:
 - ASTM A615
 - Fy = 60 ksi (GRADE 60)
 - EPOXY COATED
 - WELDING IS NOT PERMITTED**
- REINFORCING FABRICATION AND PLACEMENT TOLERANCES:
 - THE STRUCTURAL DESIGN OF PRECAST UNITS ASSUMES 2 INCHES OF CONCRETE COVER OVER ALL REINFORCING BARS.
 - UNLESS OTHERWISE NOTED IN CONTRACT DOCUMENTS OR REFERENCED SPECIFICATIONS, TOLERANCES ON CONCRETE COVER SHALL BE ± 3/8 INCHES.
 - UNLESS OTHERWISE NOTED IN CONTRACT DOCUMENTS OR REFERENCED SPECIFICATIONS, TOLERANCES ON BAR PLACEMENT SHALL BE:
 - VERTICAL LOCATION OF TB-1 BARS: ± 3/8 INCHES
 - LOCATION / SPACING OF H-1, U-1 AND V-2 BARS: ± 1 INCH
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 - UNLESS NOTED OTHERWISE, TOLERANCES FOR BAR FABRICATION SHALL MEET REQUIREMENTS OF STANDARD ACI 318 AND THE CRSI MANUAL OF STANDARD PRACTICE.

Vermont Agency of Transportation

RECEIVED

ON: **March 17, 2015**

and Checked for

CONFORMANCE

BY: **D Bonneau** DATE: **04/03/15**

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NOT REVIEWED		
Date: 4/2/15		
By: George Bogue		
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PRECASTER: CONCRETE SYSTEMS, INC.
HUDSON, NH
PROJECT #: T22259

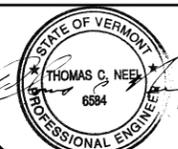
CONTRACTOR: J. A. McDONALD
LYNDON CENTER, VT
PROJECT #:

DESIGNER

THE NEEL COMPANY
8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM

PROJECT #: TW4437

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF T-WALL® STRUCTURES ONLY



REVISIONS

NO.	DESCRIPTION	DATE

I-89 BRIDGE DECK REPLACEMENTS
I-89 OVER STOWE STREET
WATERBURY, VT
VTRANS PROJECT NO. IM 089-2(43)
SHOP DRAWINGS
STANDARD TOP CORNER UNIT REBAR (I)
T-WALL® RETAINING WALL SYSTEM

SCALE:	AS NOTED
DATE:	1/23/2015
DESIGNED BY:	KB
DRAWN BY:	GDL
CHECKED BY:	KB
SHEET:	TW-40

T-WALL UNIT SCHEDULES

Unit Type	Qty	H	Dimensions W Stem	Lifting CG	Area	Properties Vol	Weight
5.5 x 5.0 x 06 Std Top Cnr	3 ea	5'6"	5'0" 6'4 1/2"	8 1/2"	27.50 sf	0.76 cy	3,089 lbs
6.0 x 5.0 x 06 Std Top Cnr	1 ea	6'0"	5'0" 6'4 1/2"	8 1/2"	30.00 sf	0.81 cy	3,293 lbs
6.5 x 5.0 x 08 Std Top Cnr	1 ea	6'6"	5'0" 8'4 1/2"	8 1/2"	32.50 sf	0.92 cy	3,740 lbs

REBAR SCHEDULES

5.5 x 5.0 x 06 Std Top Cnr

Unit Dims	Bar Mark	Qty	Size	Length	Dim A	Bend Dia.	Weight	Remarks
H=5'6"	H-1	6 ea	#4	4'8"			18.69 lbs	
W=5'0"	V-1	12 ea	#4	2'2"			17.36 lbs	
S=6'4 1/2"	V-2	6 ea	#5	5'2"			32.34 lbs	
	S-1	4 ea	#4	3'4 1/2"	1'2"	3"	9.01 lbs	
	TB-1	4 ea	#5	8'3 3/8"	5'11"	3 3/4"	34.55 lbs	
							111.95 lbs	

6.0 x 5.0 x 06 Std Top Cnr

Unit Dims	Bar Mark	Qty	Size	Length	Dim A	Bend Dia.	Weight	Remarks
H=6'0"	H-1	6 ea	#4	4'8"			18.69 lbs	
W=5'0"	V-1	12 ea	#4	2'2"			17.36 lbs	
S=6'4 1/2"	V-2	6 ea	#5	5'8"			35.47 lbs	
	S-1	4 ea	#4	3'4 1/2"	1'2"	3"	9.01 lbs	
	TB-1	4 ea	#5	8'3 3/8"	5'11"	3 3/4"	34.55 lbs	
							115.08 lbs	

6.5 x 5.0 x 08 Std Top Cnr

Unit Dims	Bar Mark	Qty	Size	Length	Dim A	Bend Dia.	Weight	Remarks
H=6'6"	H-1	7 ea	#4	4'8"			21.81 lbs	
W=5'0"	V-1	16 ea	#4	2'2"			23.14 lbs	
S=8'4 1/2"	V-2	6 ea	#5	6'2"			38.60 lbs	
	S-1	4 ea	#4	3'4 1/2"	1'2"	3"	9.01 lbs	
	TB-1	4 ea	#5	10'3"	7'11"	3 3/4"	42.79 lbs	
							135.35 lbs	

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X



APPROVED AS NOTED

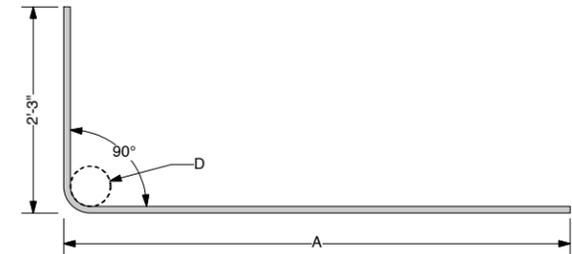
REVISE AND RESUBMIT

NOT REVIEWED

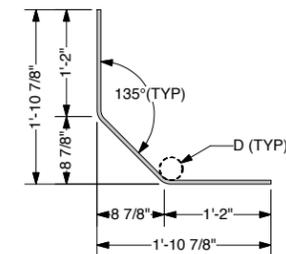
Date: 4/2/15

By: George Bogue

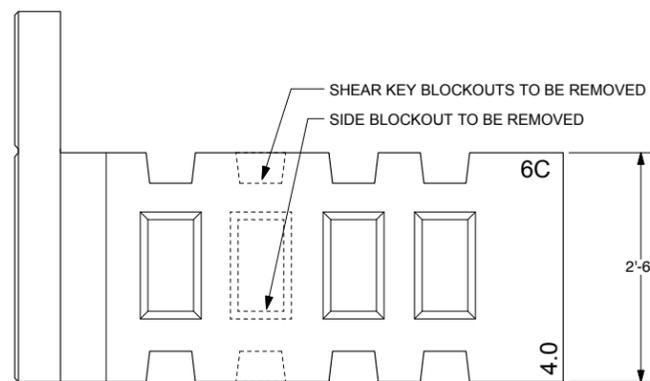
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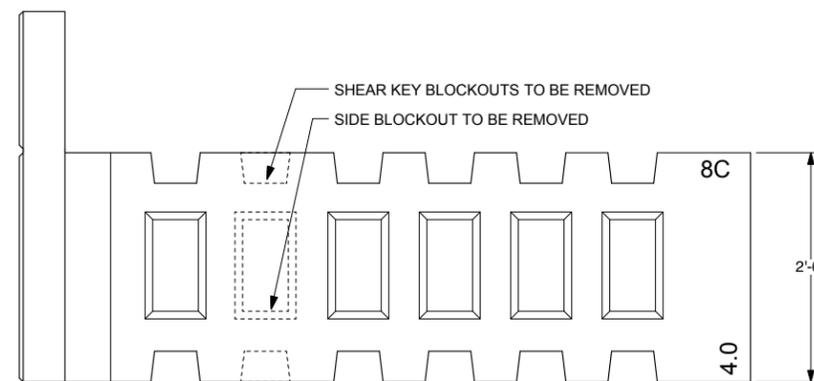
A TB-1 BAR
Scale: 1" = 1'-0"



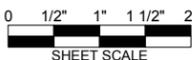
B S-1 BAR
Scale: 1" = 1'-0"



C BLOCKOUT REMOVAL DETAIL
Scale: 1" = 1'-0"



**2" COVER ON ALL BARS
UNLESS OTHERWISE NOTED**



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PROJECT #: TW4437

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REVISIONS

NO.	DESCRIPTION	BY	DATE
1	CHANGE #3 REBAR TO #4	CTH	3/6/2015

**I-89 BRIDGE DECK REPLACEMENTS
I-89 OVER STOWE STREET**

WATERBURY, VT
VTRANS PROJECT NO. IM 089-2(43)

SHOP DRAWINGS
STANDARD TOP CORNER UNIT REBAR (II)

T-WALL® RETAINING WALL SYSTEM

SCALE: AS NOTED

DATE: 1/23/2015

DESIGNED BY: KB

DRAWN BY: GDL

CHECKED BY: KB

SHEET: TW-41

Vermont Agency of Transportation

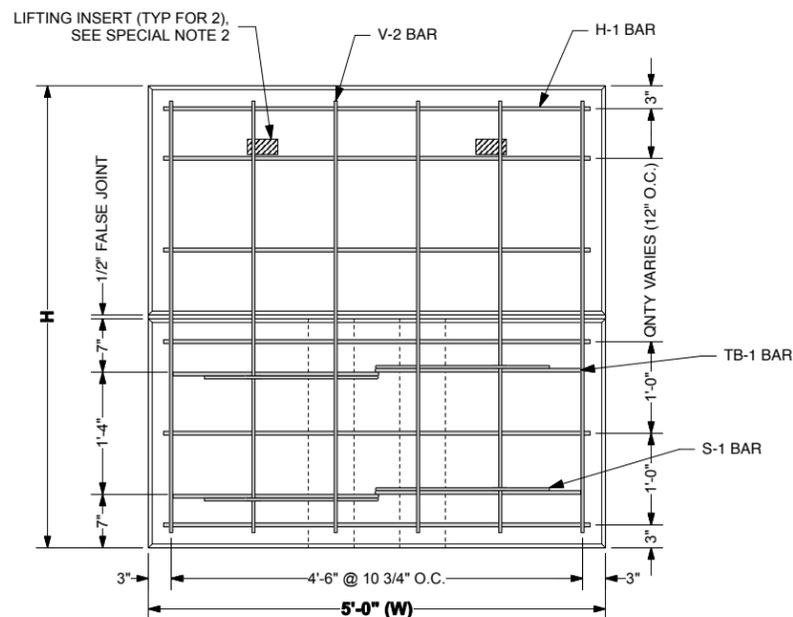
RECEIVED

ON: **March 17, 2015**

and Checked for

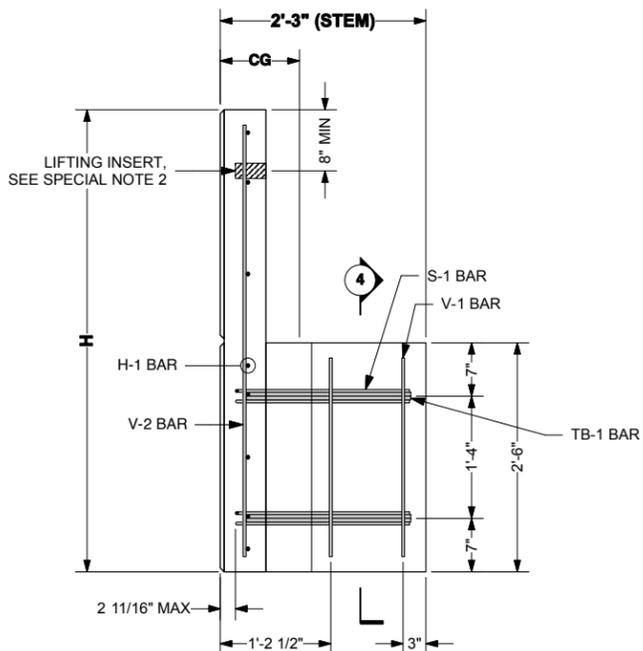
CONFORMANCE

BY: **D Bonneau** DATE: **04/03/15**



(V-1 BARS IN STEM OMITTED FOR CLARITY)

1 FRONT VIEW
Scale: 1" = 1'-0"



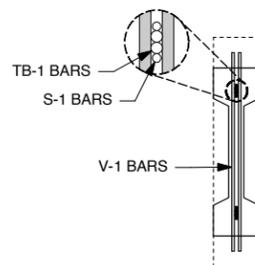
2 SIDE VIEW
Scale: 1" = 1'-0"

SPECIAL NOTES:

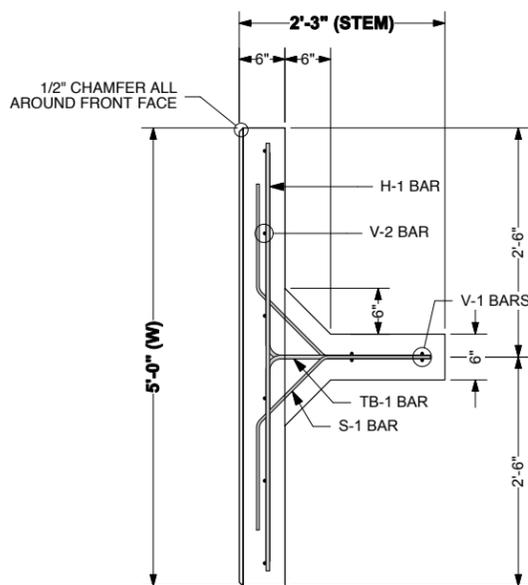
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 - WELDING IS NOT PERMITTED**
- REINFORCING FABRICATION AND PLACEMENT TOLERANCES:
 - THE STRUCTURAL DESIGN OF PRECAST UNITS ASSUMES 2 INCHES OF CONCRETE COVER OVER ALL REINFORCING BARS.
 - UNLESS OTHERWISE NOTED IN CONTRACT DOCUMENTS OR REFERENCED SPECIFICATIONS, TOLERANCES ON CONCRETE COVER SHALL BE ± 3/8 INCHES.
 - UNLESS OTHERWISE NOTED IN CONTRACT DOCUMENTS OR REFERENCED SPECIFICATIONS, TOLERANCES ON BAR PLACEMENT SHALL BE:
 - VERTICAL LOCATION OF TB-1 BARS: ± 3/8 INCHES
 - LOCATION / SPACING OF H-1, V-1 AND V-2 BARS: ± 1 INCH
 - REGARDLESS OF THE SPECIFIED PLACEMENT TOLERANCES, CONCRETE COVER SHALL BE MAINTAINED WITHIN ± 3/8 INCHES AS PREVIOUSLY NOTED.
 - ALL REINFORCING BARS SHALL BE CUT AND BENT FOLLOWING REQUIREMENTS OF THE CRSI MANUAL OF STANDARD PRACTICE.
 - UNLESS NOTED OTHERWISE, TOLERANCES FOR BAR FABRICATION SHALL MEET REQUIREMENTS OF STANDARD ACI 318 AND THE CRSI MANUAL OF STANDARD PRACTICE.



4 SECTION THROUGH STEM
Scale: 1" = 1'-0"



3 TOP VIEW
Scale: 1" = 1'-0"

APPROVED: Approval of drawings and/or procedures indicates concurrence with the information presented and does not relieve the Contractor or Fabricator of compliance with all specifications and code requirements	X
APPROVED AS NOTED	
REVISE AND RESUBMIT	
NOT REVIEWED	
Date: 4/2/15	
By: George Bogue	
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Vermont Agency of Transportation

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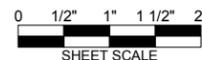
ON: March 17, 2015

and Checked for

CONFORMANCE

BY: D Bonneau DATE: 04/03/15

2" MIN. COVER ON ALL BARS UNLESS OTHERWISE NOTED



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PRECASTER: CONCRETE SYSTEMS, INC.
HUDSON, NH
PROJECT #: T22259

CONTRACTOR: J. A. MCDONALD
LYNDON CENTER, VT
PROJECT #:

DESIGNER

THE NEEL COMPANY

8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM

PROJECT #: TW4437

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF T-WALL® STRUCTURES ONLY

REVISIONS	

I-89 BRIDGE DECK REPLACEMENTS
I-89 OVER STOWE STREET
WATERBURY, VT
VTRANS PROJECT NO. IM 089-2(43)
SHOP DRAWINGS
STANDARD TOP CORNER 2.25" STEM REBAR (I)
T-WALL® RETAINING WALL SYSTEM

SCALE:	AS NOTED
DATE:	1/23/2015
DESIGNED BY:	KB
DRAWN BY:	GDL
CHECKED BY:	KB
SHEET:	TW-42

T-WALL UNIT SCHEDULES

Unit Type	Qty	H	Dimensions W Stem	Lifting CG	Area	Properties Vol	Weight
5.0 x 5.0 x 02.25 Std Top Cnr	2 ea	5'0 1/2"	5'0" 2'3"	8 1/2"	25.21 sf	0.57 cy	2,316 lbs
6.0 x 5.0 x 02.25 Std Top Cnr	1 ea	6'0"	5'0" 2'3"	8 1/2"	30.00 sf	0.66 cy	2,680 lbs

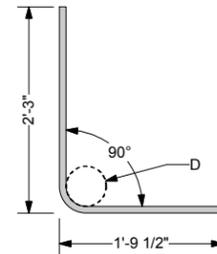
REBAR SCHEDULES

5.0 x 5.0 x 02.25 Std Top Cnr

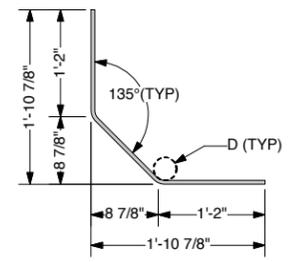
Unit Dims	Bar Mark	Qty	Size	Length	Dim A	Bend Dia.	Weight	Remarks
H=5'0 1/2"	H-1	6 ea	#4	4'8"			18.69 lbs	
W=5'0"	V-1	4 ea	#4	2'2"			5.79 lbs	
S=2'3"	V-2	6 ea	#5	4'8 1/2"			29.46 lbs	
SH=2'6"	S-1	4 ea	#4	3'4 1/2"	1'2"	3"	9.01 lbs	
	TB-1	4 ea	#5	4'1 7/8"	1'9 1/2"	3 3/4"	17.32 lbs	
							80.27 lbs	

6.0 x 5.0 x 02.25 Std Top Cnr

Unit Dims	Bar Mark	Qty	Size	Length	Dim A	Bend Dia.	Weight	Remarks
H=6'0"	H-1	6 ea	#4	4'8"			18.69 lbs	
W=5'0"	V-1	4 ea	#4	2'2"			5.79 lbs	
S=2'3"	V-2	6 ea	#5	5'8"			35.47 lbs	
SH=2'6"	S-1	4 ea	#4	3'4 1/2"	1'2"	3"	9.01 lbs	
	TB-1	4 ea	#5	4'1 7/8"	1'9 1/2"	3 3/4"	17.32 lbs	
							86.26 lbs	



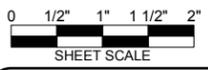
A TB-1 BAR
Scale: 1" = 1'-0"



B S-1 BAR
Scale: 1" = 1'-0"

2" MIN. COVER ON ALL BARS UNLESS OTHERWISE NOTED

APPROVED: Approval of drawings and/or procedures indicates concurrence with the information presented and does not relieve the Contractor or Fabricator of compliance with all specifications and code requirements	X	
APPROVED AS NOTED		
REVISE AND RESUBMIT		
NOT REVIEWED		
Date: 4/2/15		
By: George Bogue		
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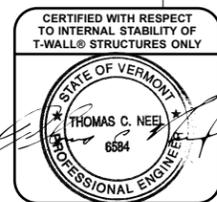
PRECASTER: CONCRETE SYSTEMS, INC.
HUDSON, NH
PROJECT #: T22259

CONTRACTOR: J. A. McDONALD
LYNDON CENTER, VT
PROJECT #:

DESIGNER

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PH: (703) 913-7858
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PROJECT #: TW4437

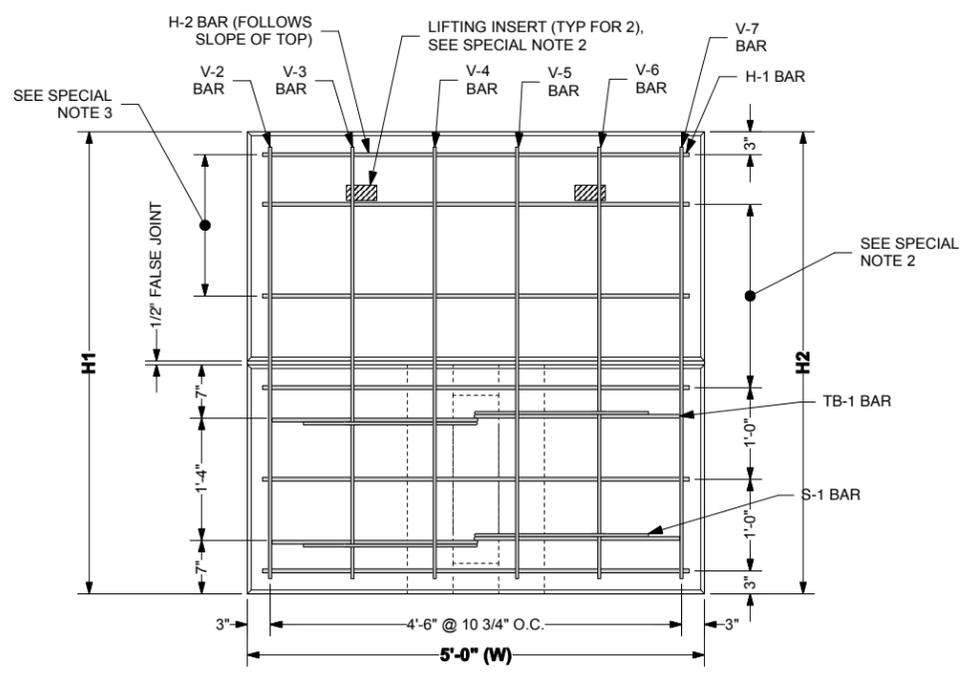


REVISIONS		
1	CHANGE #3 REBAR TO #4 AND CHANGE H DIMS	CTH 3/6/2015

I-89 BRIDGE DECK REPLACEMENTS
I-89 OVER STOWE STREET
WATERBURY, VT
VTRANS PROJECT NO. IM 089-2(43)
SHOP DRAWINGS
STANDARD TOP CORNER 2.25' STEM REBAR (II)
T-WALL® RETAINING WALL SYSTEM

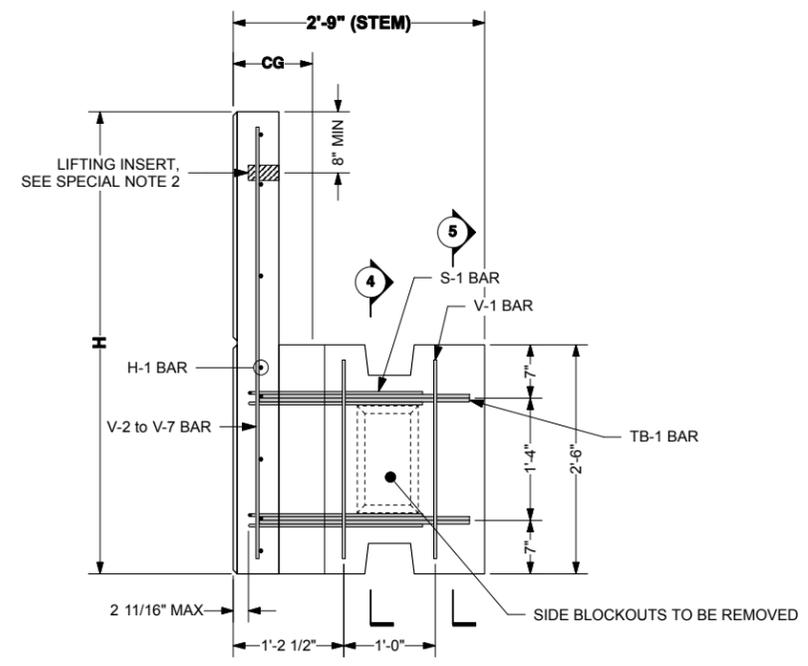
SCALE:	AS NOTED
DATE:	1/23/2015
DESIGNED BY:	KB
DRAWN BY:	GDL
CHECKED BY:	KB
SHEET:	TW-43

Vermont Agency of Transportation
RECEIVED
ON: **March 17, 2015**
and Checked for
CONFORMANCE
BY: **D Bonneau** DATE: **04/03/15**

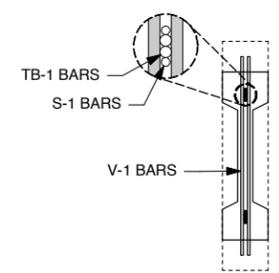


(V-1 BARS IN STEM OMITTED FOR CLARITY)

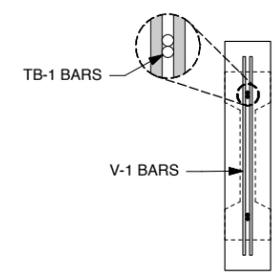
1 FRONT VIEW
Scale: 1" = 1'-0"



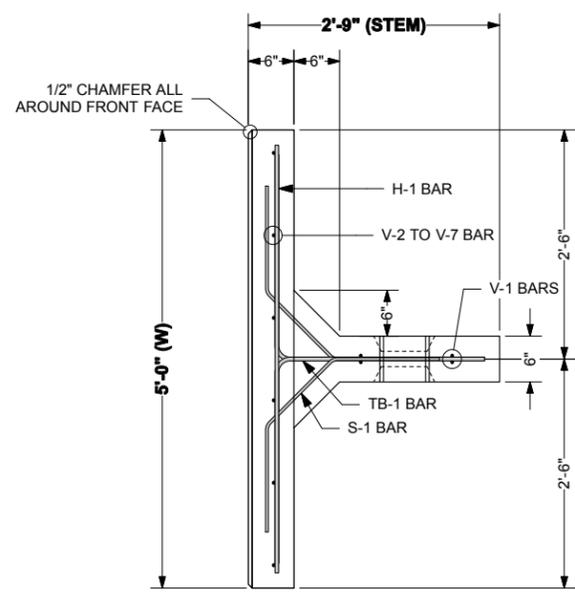
2 SIDE VIEW
Scale: 1" = 1'-0"



4 SECTION THROUGH STEM
Scale: 1" = 1'-0"



5 SECTION THROUGH STEM
Scale: 1" = 1'-0"



3 TOP VIEW
Scale: 1" = 1'-0"

SPECIAL NOTES:

- T-WALL® UNIT FRONT FACE FINISH TREATMENT:
 - PLAIN STEEL FORM FINISH
- ON LOW SIDE OF T-WALL UNIT, MAINTAIN H-1 BAR SPACING AT 1'-0" O.C. FOR AS MANY BARS AS POSSIBLE, THEN FAN THE REMAINING H BARS AT EQUAL SPACING.
- ON HIGH SIDE OF T-WALL UNIT, SPACE H-1 BARS AT 1'-0" O.C.
- LIFTING INSERTS:
 - TWO QUICKLIFT 'QL050G' LIFTING INSERTS OR EQUAL, SPACED AT LEAST 30" APART.
 - 2000 LBS (1 TON) MINIMUM RATED WORKING LOAD CAPACITY.
 - MINIMUM CONCRETE STRENGTH SHALL BE 3,500 psi PRIOR TO STRIPPING AND LIFTING OPERATIONS.

GENERAL NOTES:

- PRIMARY REFERENCES:
 - AASHTO LRFD BRIDGE SPECIFICATIONS, 4th EDITION, 2007 WITH INTERIM REVISIONS.
- SECONDARY REFERENCES:
 - ACI 318-05 - PRECAST CONCRETE.
- T-WALL® CONCRETE COMPRESSIVE STRENGTH:
 - F_c = 5000 psi (MINIMUM) AT 28 DAYS
 - MINIMUM STRIPPING STRENGTH = 2500 psi
- REINFORCING STEEL:
 - ASTM A615
 - F_y = 60 ksi (GRADE 60)
 - EPOXY COATED
 - WELDING IS NOT PERMITTED**
- REINFORCING FABRICATION AND PLACEMENT TOLERANCES:
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 - LOCATION / SPACING OF H-1, V-1 AND V-2 BARS: ± 1 INCH
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 - ALL REINFORCING BARS SHALL BE CUT AND BENT FOLLOWING REQUIREMENTS OF THE CRSI MANUAL OF STANDARD PRACTICE.
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APPROVED: Approval of drawings and/or procedures indicates concurrence with the information presented and does not relieve the Contractor or Fabricator of compliance with all specifications and code requirements	X
APPROVED AS NOTED	
REVISE AND RESUBMIT	
NOT REVIEWED	
Date: 4/2/15	
By: George Bogue	
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Vermont Agency of Transportation
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 and Checked for
CONFORMANCE
 BY: **D Bonneau** DATE: **04/03/15**

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PRECASTER: CONCRETE SYSTEMS, INC.
HUDSON, NH
PROJECT #: T22259

CONTRACTOR: J. A. McDONALD
LYNDON CENTER, VT
PROJECT #:

DESIGNER

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 SPRINGFIELD, VIRGINIA 22152
 PH: (703) 913-7858
 FX: (703) 913-7859
 WEB: WWW.NEELCO.COM

PROJECT #: TW4437

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF T-WALL® STRUCTURES ONLY

REVISIONS	

I-89 BRIDGE DECK REPLACEMENTS
I-89 OVER STOWE STREET
 WATERBURY, VT
VTRANS PROJECT NO. IM 089-2(43)
 SHOP DRAWINGS
 SPECIAL UNITS SP1, SP4, SP5, SP8 REBAR (I)
 T-WALL® RETAINING WALL SYSTEM

SCALE:	AS NOTED
DATE:	1/23/2015
DESIGNED BY:	KB
DRAWN BY:	GDL
CHECKED BY:	KB
SHEET:	TW-44

T-WALL UNIT SCHEDULES

Unit Type	Qty	Dimensions				Lifting CG	Properties		
		H1	H2	W	Stem		Area	Vol	Weight
SP1	1 ea	6'4"	5'6 1/2"	5'0"	2'9"	5"	29.67 sf	0.68 cy	2,845 lbs
SP4	1 ea	6'4 1/2"	5'6 1/2"	5'0"	2'9"	5"	29.78 sf	0.68 cy	2,841 lbs
SP5	1 ea	6'2 1/8"	5'6 1/2"	5'0"	2'9"	5"	29.30 sf	0.67 cy	2,804 lbs
SP8	1 ea	6'10 5/8"	6'0 1/2"	5'0"	2'9"	4 7/8"	32.32 sf	0.73 cy	3,051 lbs

REBAR SCHEDULES

SP1

Unit Dims	Bar Mark	Qty	Size	Length	Dim A	Dim B	Bend Dia.	Weight	Remarks
H=6'4"(max) W=5'0" S=2'9" SH=2'6"	H-1	7 ea	#4	4'8"				21.81 lbs	
	V-1	4 ea	#4	2'2"				5.79 lbs	
	V-2	1 ea	#5	5'11 1/2"				6.21 lbs	
	V-3	1 ea	#5	5'9 3/4"				6.06 lbs	
	V-4	1 ea	#5	5'8 1/8"				5.92 lbs	
	V-5	1 ea	#5	5'6 3/8"				5.77 lbs	
	V-6	1 ea	#5	5'4 5/8"				5.62 lbs	
	V-7	1 ea	#5	5'3"				5.47 lbs	
	S-1	4 ea	#4	3'4 1/2"	1'2"		3"	9.01 lbs	
	TB-1	4 ea	#5	4'6 1/2"	2'3 1/2"	2'3"	3 3/4"	18.95 lbs	
								90.62 lbs	

SP4

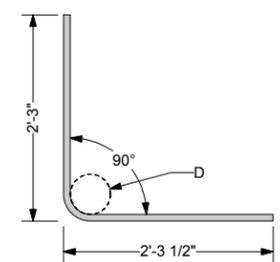
Unit Dims	Bar Mark	Qty	Size	Length	Dim A	Dim B	Bend Dia.	Weight	Remarks
H=6'4 1/2"(max) W=5'0" S=2'9" SH=2'6"	H-1	7 ea	#4	4'8"				21.81 lbs	
	V-1	4 ea	#4	2'2"				5.79 lbs	
	V-2	1 ea	#5	5'11 7/8"				6.25 lbs	
	V-3	1 ea	#5	5'10 1/8"				6.10 lbs	
	V-4	1 ea	#5	5'8 3/8"				5.94 lbs	
	V-5	1 ea	#5	5'6 5/8"				5.79 lbs	
	V-6	1 ea	#5	5'4 3/4"				5.63 lbs	
	V-7	1 ea	#5	5'3"				5.48 lbs	
	S-1	4 ea	#3	3'4 1/2"	1'2"		2 1/4"	5.07 lbs	
	TB-1	4 ea	#5	4'6 1/2"	2'3 1/2"	2'3"	3 3/4"	18.95 lbs	
								86.80 lbs	

SP5

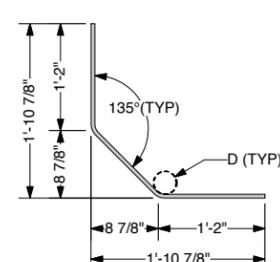
Unit Dims	Bar Mark	Qty	Size	Length	Dim A	Dim B	Bend Dia.	Weight	Remarks
H=6'2 1/8"(max) W=5'0" S=2'9" SH=2'6"	H-1	7 ea	#4	4'8"				21.81 lbs	
	V-1	4 ea	#4	2'2"				5.79 lbs	
	V-2	1 ea	#5	5'9 3/4"				6.06 lbs	
	V-3	1 ea	#5	5'8 3/8"				5.94 lbs	
	V-4	1 ea	#5	5'7"				5.82 lbs	
	V-5	1 ea	#5	5'5 5/8"				5.71 lbs	
	V-6	1 ea	#5	5'4 1/4"				5.59 lbs	
	V-7	1 ea	#5	5'2 7/8"				5.47 lbs	
	S-1	4 ea	#4	3'4 1/2"	1'2"		3"	9.01 lbs	
	TB-1	4 ea	#5	4'6 1/2"	2'3 1/2"	2'3"	3 3/4"	18.95 lbs	
								90.15 lbs	

SP8

Unit Dims	Bar Mark	Qty	Size	Length	Dim A	Dim B	Bend Dia.	Weight	Remarks
H=6'10 5/8"(max) W=5'0" S=2'9" SH=2'6"	H-1	7 ea	#4	4'8"				21.81 lbs	
	V-1	4 ea	#4	2'2"				5.79 lbs	
	V-2	1 ea	#5	6'6 1/8"				6.79 lbs	
	V-3	1 ea	#5	6'4 3/8"				6.63 lbs	
	V-4	1 ea	#5	6'2 1/2"				6.48 lbs	
	V-5	1 ea	#5	6'0 5/8"				6.32 lbs	
	V-6	1 ea	#5	5'10 7/8"				6.16 lbs	
	V-7	1 ea	#5	5'9"				6.00 lbs	
	S-1	4 ea	#4	3'4 1/2"	1'2"		3"	9.01 lbs	
	TB-1	4 ea	#5	4'6 1/2"	2'3 1/2"	2'3"	3 3/4"	18.95 lbs	
								93.93 lbs	



A TB-1 BAR
Scale: 1" = 1'-0"



B S-1 BAR
Scale: 1" = 1'-0"

2" MIN. COVER ON ALL BARS UNLESS OTHERWISE NOTED

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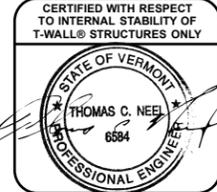
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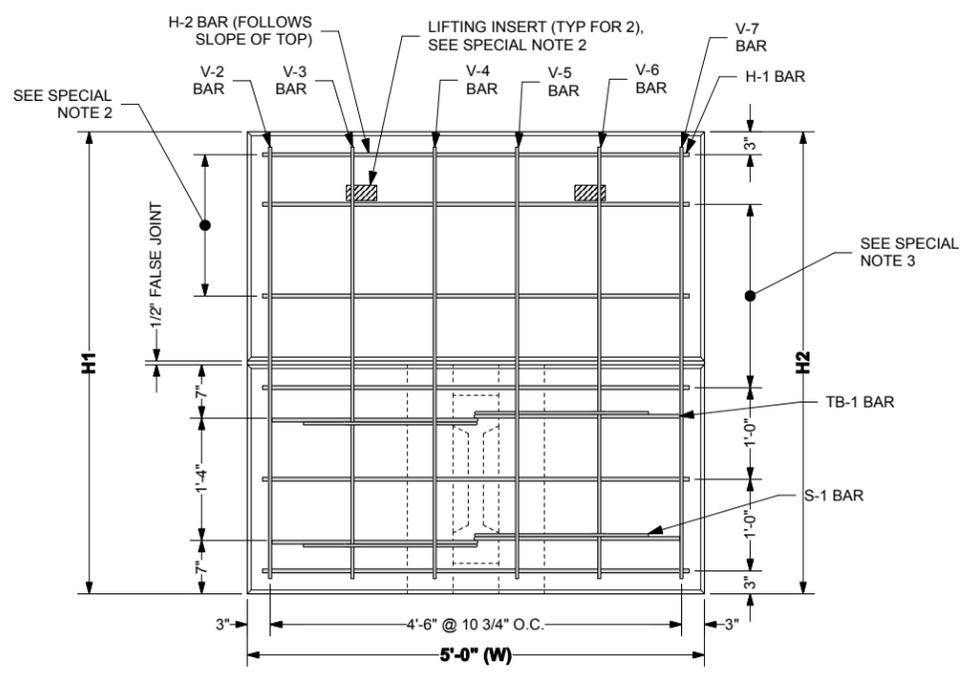
PROJECT #: TW4437



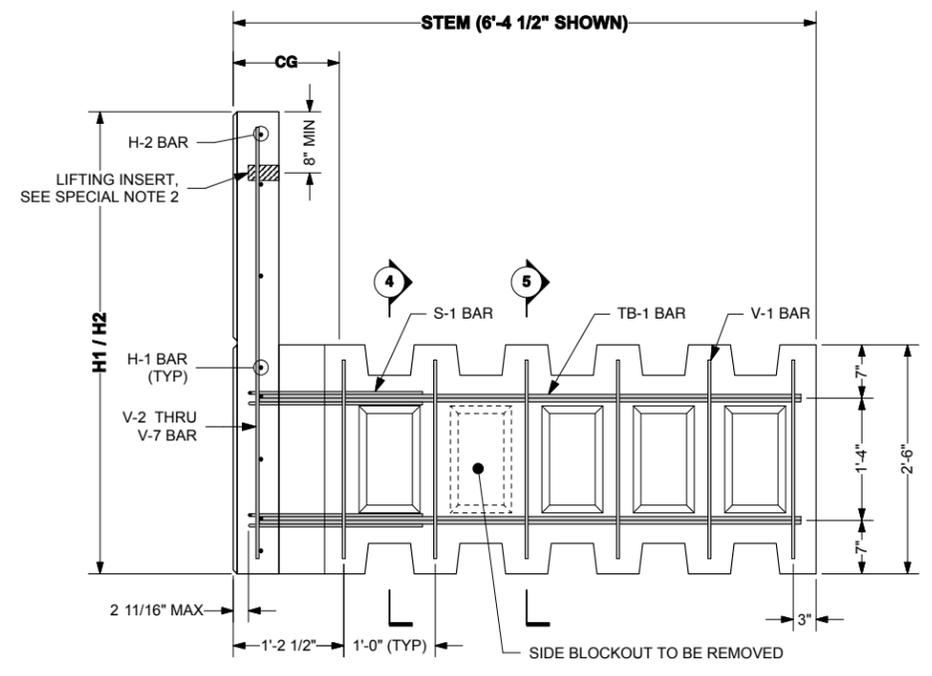
REVISIONS			
1	CHANGE #3 REBAR TO #4 AND CHANGE H DIMS	CTH	3/6/2015

I-89 BRIDGE DECK REPLACEMENTS
I-89 OVER STOWE STREET
 WATERBURY, VT
VTRANS PROJECT NO. IM 089-2(43)
 SHOP DRAWINGS
 SPECIAL UNITS SP1, SP4, SP5, SP8 REBAR (II)
 T-WALL® RETAINING WALL SYSTEM

SCALE:	AS NOTED
DATE:	1/23/2015
DESIGNED BY:	KB
DRAWN BY:	GDL
CHECKED BY:	KB
SHEET:	TW-45

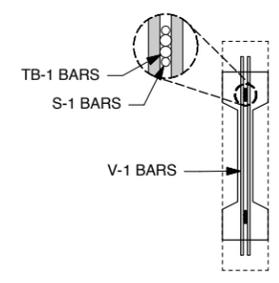


1 FRONT VIEW
Scale: 1" = 1'-0"

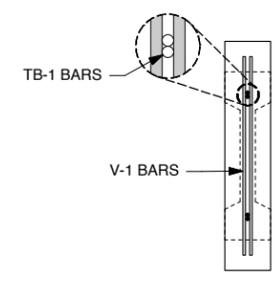


2 SIDE VIEW
Scale: 1" = 1'-0"

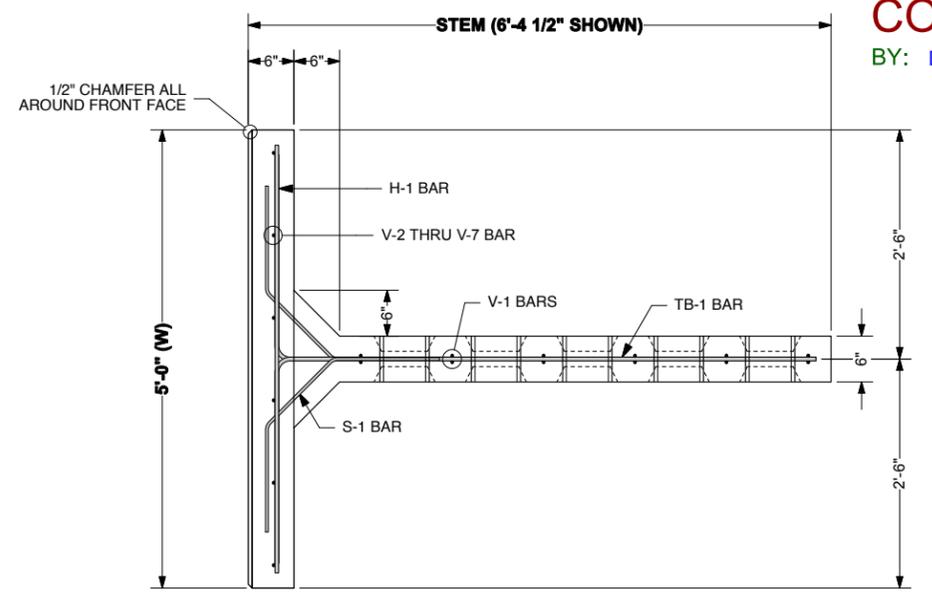
(V-1 BARS IN STEM OMITTED FOR CLARITY. LEFT-SLOPE SHOWN, RIGHT-SLOPE SIMILAR)



4 SECTION THROUGH STEM
Scale: 1" = 1'-0"



5 SECTION THROUGH STEM
Scale: 1" = 1'-0"



3 TOP VIEW
Scale: 1" = 1'-0"

- SPECIAL NOTES:**
- T-WALL® UNIT FRONT FACE FINISH TREATMENT:
 - PLAIN STEEL FORM FINISH
 - ON LOW SIDE OF T-WALL UNIT, MAINTAIN H-1 BAR SPACING AT 1'-0" O.C. FOR AS MANY BARS AS POSSIBLE, THEN FAN THE REMAINING H BARS AT EQUAL SPACING.
 - ON HIGH SIDE OF T-WALL UNIT, SPACE H-1 BARS AT 1'-0" O.C.
 - LIFTING INSERTS:
 - TWO QUICKLIFT 'QL050G' LIFTING INSERTS OR EQUAL, SPACED AT LEAST 30" APART.
 - 2000 LBS (1 TON) MINIMUM RATED WORKING LOAD CAPACITY.
 - MINIMUM CONCRETE STRENGTH SHALL BE 3,500 psi PRIOR TO STRIPPING AND LIFTING OPERATIONS.
- GENERAL NOTES:**
- PRIMARY REFERENCES:
 - AASHTO LRFD BRIDGE SPECIFICATIONS, 4th EDITION, 2007 WITH INTERIM REVISIONS.
 - SECONDARY REFERENCES:
 - ACI 318-05 - PRECAST CONCRETE.
 - T-WALL® CONCRETE:
 - F'c = 5000 psi (MINIMUM) AT 28 DAYS
 - MINIMUM STRIPPING STRENGTH = 2500 psi
 - REINFORCING STEEL:
 - ASTM A615
 - Fy = 60 ksi (GRADE 60)
 - EPOXY COATED
 - WELDING IS NOT PERMITTED**
 - REINFORCING FABRICATION AND PLACEMENT TOLERANCES:
 - THE STRUCTURAL DESIGN OF PRECAST UNITS ASSUMES 2 INCHES OF CONCRETE COVER OVER ALL REINFORCING BARS.
 - UNLESS OTHERWISE NOTED IN CONTRACT DOCUMENTS OR REFERENCED SPECIFICATIONS, TOLERANCES ON CONCRETE COVER SHALL BE ± 3/8 INCHES.
 - UNLESS OTHERWISE NOTED IN CONTRACT DOCUMENTS OR REFERENCED SPECIFICATIONS, TOLERANCES ON BAR PLACEMENT SHALL BE:
 - VERTICAL LOCATION OF TB-1 BARS: ± 3/8 INCHES
 - LOCATION / SPACING OF H-1, V-1 AND V-2 BARS: ± 1 INCH
 - REGARDLESS OF THE SPECIFIED PLACEMENT TOLERANCES, CONCRETE COVER SHALL BE MAINTAINED WITHIN ± 3/8 INCHES AS PREVIOUSLY NOTED.
 - ALL REINFORCING BARS SHALL BE CUT AND BENT FOLLOWING REQUIREMENTS OF THE CRSI MANUAL OF STANDARD PRACTICE.
 - UNLESS NOTED OTHERWISE, TOLERANCES FOR BAR FABRICATION SHALL MEET REQUIREMENTS OF STANDARD ACI 318 AND THE CRSI MANUAL OF STANDARD PRACTICE.

Vermont Agency of Transportation
RECEIVED
ON: **March 17, 2015**
and Checked for
CONFORMANCE
BY: **D Bonneau** DATE: **04/03/15**

APPROVED: Approval of drawings and/or procedures indicates concurrence with the information presented and does not relieve the Contractor or Fabricator of compliance with all specifications and code requirements	X	
APPROVED AS NOTED		
REVISE AND RESUBMIT		
NOT REVIEWED		
Date: 4/2/15		
By: George Bogue		
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2" MIN. COVER ON ALL BARS UNLESS OTHERWISE NOTED



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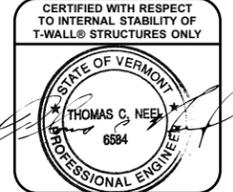
PRECASTER: CONCRETE SYSTEMS, INC.
HUDSON, NH
PROJECT #: T22259

CONTRACTOR: J. A. McDONALD
LYNDON CENTER, VT
PROJECT #:

DESIGNER

THE NEEL COMPANY
8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM

PROJECT #: TW4437



REVISIONS	

I-89 BRIDGE DECK REPLACEMENTS
I-89 OVER STOWE STREET
WATERBURY, VT
VTRANS PROJECT NO. IM 089-2(43)
SHOP DRAWINGS
SPECIAL UNITS SP2, SP3, SP6 REBAR (I)
T-WALL® RETAINING WALL SYSTEM

SCALE:	AS NOTED
DATE:	1/23/2015
DESIGNED BY:	KB
DRAWN BY:	GDL
CHECKED BY:	KB
SHEET:	TW-46

T-WALL UNIT SCHEDULES

Unit Type	Qty	H1	H2	W	Stem	Lifting CG	Area	Vol	Weight
SP2	1 ea	5'0 1/2"	5'11 3/4"	5'0"	6'4 1/2"	1'2 1/4"	27.55 sf	0.76 cy	3,078 lbs
SP3	1 ea	6'0 1/2"	6'10 1/8"	5'0"	6'4 1/2"	1'1 1/8"	32.20 sf	0.85 cy	3,564 lbs
SP6	1 ea	5'0 1/2"	5'10 1/8"	5'0"	6'4 1/2"	1'2 3/8"	27.20 sf	0.75 cy	3,038 lbs

REBAR SCHEDULES

SP2

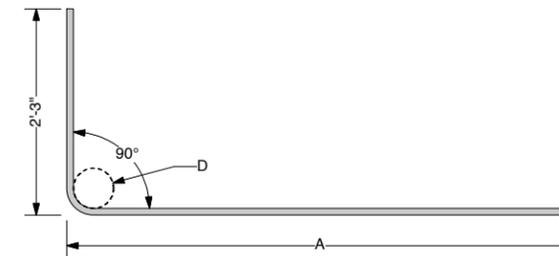
Unit Dims	Bar Mark	Qty	Size	Length	Dim A	Dim B	Bend Dia.	Weight	Remarks
H=5'11 3/4"(max) W=5'0" S=6'4 1/2" SH=2'6"	H-1	6 ea	#4	4'8"				18.69 lbs	
	V-1	12 ea	#4	2'2"				17.36 lbs	
	V-2	1 ea	#5	4'9 1/8"				4.96 lbs	
	V-3	1 ea	#5	4'11 1/8"				5.14 lbs	
	V-4	1 ea	#5	5'1 1/8"				5.31 lbs	
	V-5	1 ea	#5	5'3 1/8"				5.49 lbs	
	V-6	1 ea	#5	5'5 1/8"				5.66 lbs	
	V-7	1 ea	#5	5'7 1/8"				5.84 lbs	
	S-1	4 ea	#4	3'4 1/2"	1'2"		3"	9.01 lbs	
	TB-1	4 ea	#5	8'2"	5'11"	2'3"	3 3/4"	34.10 lbs	
								111.56 lbs	

SP3

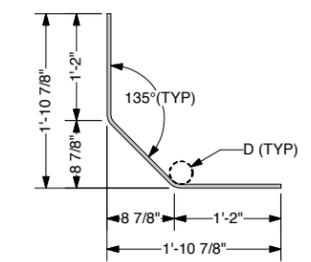
Unit Dims	Bar Mark	Qty	Size	Length	Dim A	Dim B	Bend Dia.	Weight	Remarks
H=6'10 1/8"(max) W=5'0" S=6'4 1/2" SH=2'6"	H-1	7 ea	#4	4'8"				21.81 lbs	
	V-1	12 ea	#4	2'2"				17.36 lbs	
	V-2	1 ea	#5	5'9"				6.00 lbs	
	V-3	1 ea	#5	5'10 3/4"				6.15 lbs	
	V-4	1 ea	#5	6'0 3/8"				6.30 lbs	
	V-5	1 ea	#5	6'2 1/8"				6.44 lbs	
	V-6	1 ea	#5	6'3 7/8"				6.59 lbs	
	V-7	1 ea	#5	6'5 5/8"				6.74 lbs	
	S-1	4 ea	#4	3'4 1/2"	1'2"		3"	9.01 lbs	
	TB-1	4 ea	#5	8'2"	5'11"	2'3"	3 3/4"	34.10 lbs	
								120.49 lbs	

SP6

Unit Dims	Bar Mark	Qty	Size	Length	Dim A	Dim B	Bend Dia.	Weight	Remarks
H=5'10 1/8"(max) W=5'0" S=6'4 1/2" SH=2'6"	H-1	6 ea	#4	4'8"				18.69 lbs	
	V-1	12 ea	#4	2'2"				17.36 lbs	
	V-2	1 ea	#5	4'9"				4.95 lbs	
	V-3	1 ea	#5	4'10 3/4"				5.10 lbs	
	V-4	1 ea	#5	5'0 3/8"				5.25 lbs	
	V-5	1 ea	#5	5'2 1/8"				5.40 lbs	
	V-6	1 ea	#5	5'3 7/8"				5.55 lbs	
	V-7	1 ea	#5	5'5 5/8"				5.70 lbs	
	S-1	4 ea	#4	3'4 1/2"	1'2"		3"	9.01 lbs	
	TB-1	4 ea	#5	8'2"	5'11"	2'3"	3 3/4"	34.10 lbs	
								111.12 lbs	



A TB-1 BAR
Scale: 1" = 1'-0"



B S-1 BAR
Scale: 1" = 1'-0"

**2" MIN. COVER ON ALL BARS
UNLESS OTHERWISE NOTED**

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APPROVED AS NOTED		
REVISE AND RESUBMIT		
NOT REVIEWED		
Date: 4/2/15		
By: George Bogue		
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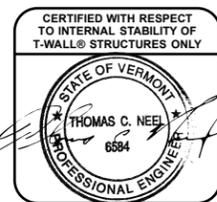
PRECASTER: CONCRETE SYSTEMS, INC.
HUDSON, NH
PROJECT #: T22259

CONTRACTOR: J. A. McDONALD
LYNDON CENTER, VT
PROJECT #:

DESIGNER

THE NEEL COMPANY
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SPRINGFIELD, VIRGINIA 22152
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WEB: WWW.NEELCO.COM

PROJECT #: TW4437



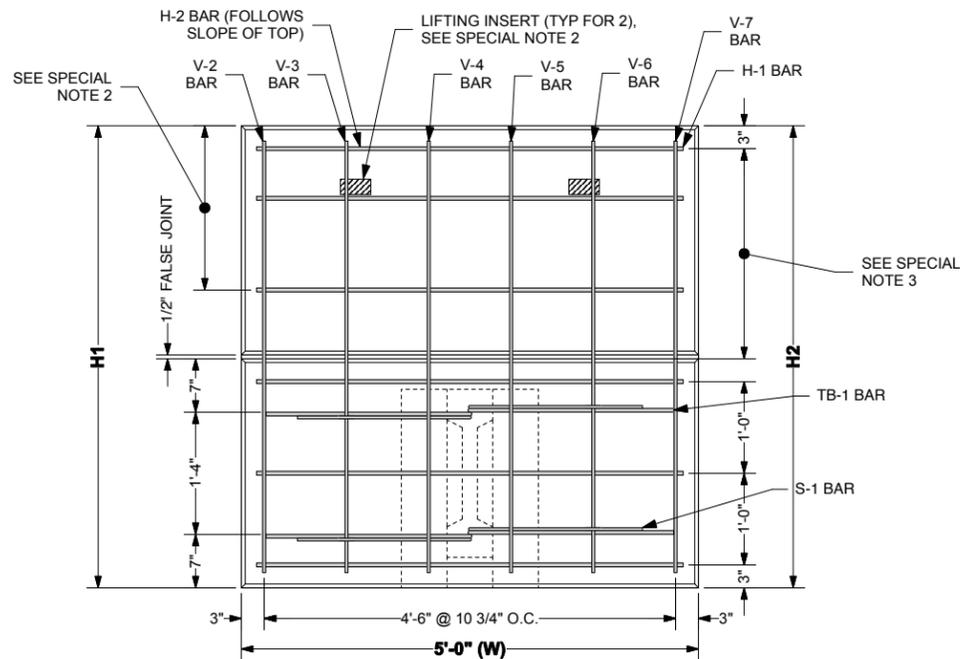
REVISIONS

NO.	DESCRIPTION	BY	DATE
1	CHANGE #3 REBAR TO #4 AND CHANGE H DIMS	CTH	3/6/2015

**I-89 BRIDGE DECK REPLACEMENTS
I-89 OVER STOWE STREET**
WATERBURY, VT
VTRANS PROJECT NO. IM 089-2(43)
SHOP DRAWINGS
SPECIAL UNITS SP2, SP3, SP6 REBAR (II)
T-WALL® RETAINING WALL SYSTEM

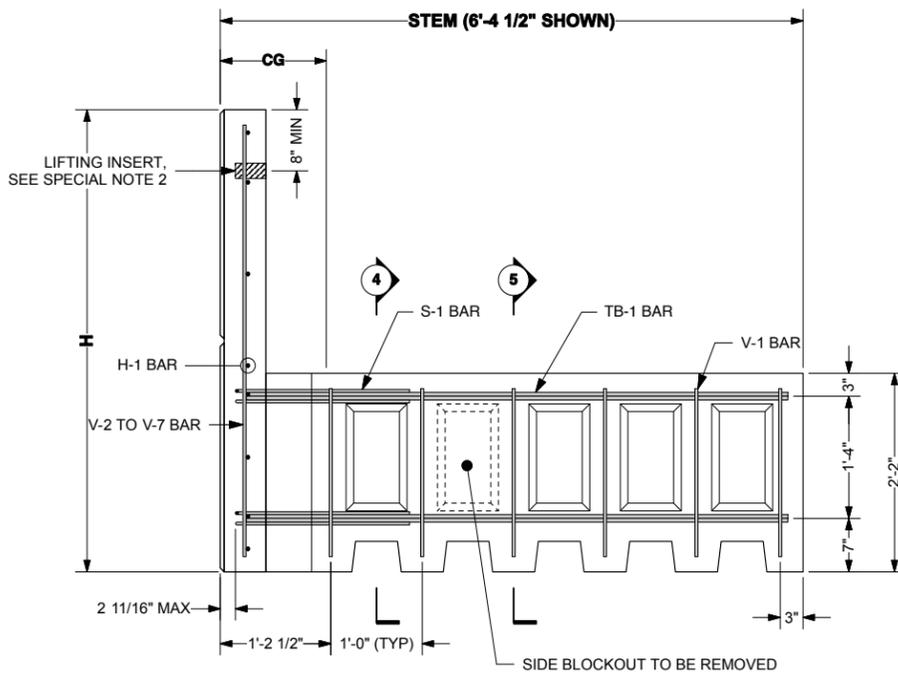
SCALE:	AS NOTED
DATE:	1/23/2015
DESIGNED BY:	KB
DRAWN BY:	GDL
CHECKED BY:	KB
SHEET:	TW-47

Vermont Agency of Transportation
RECEIVED
ON: **March 17, 2015**
and Checked for
CONFORMANCE
BY: **D Bonneau** DATE: **04/03/15**

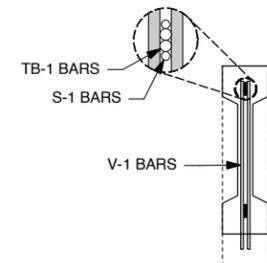


(V-1 BARS IN STEM OMITTED FOR CLARITY)

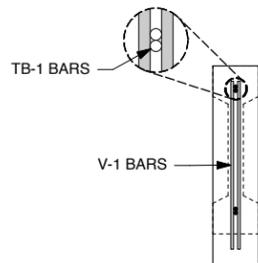
1 FRONT VIEW
Scale: 1" = 1'-0"



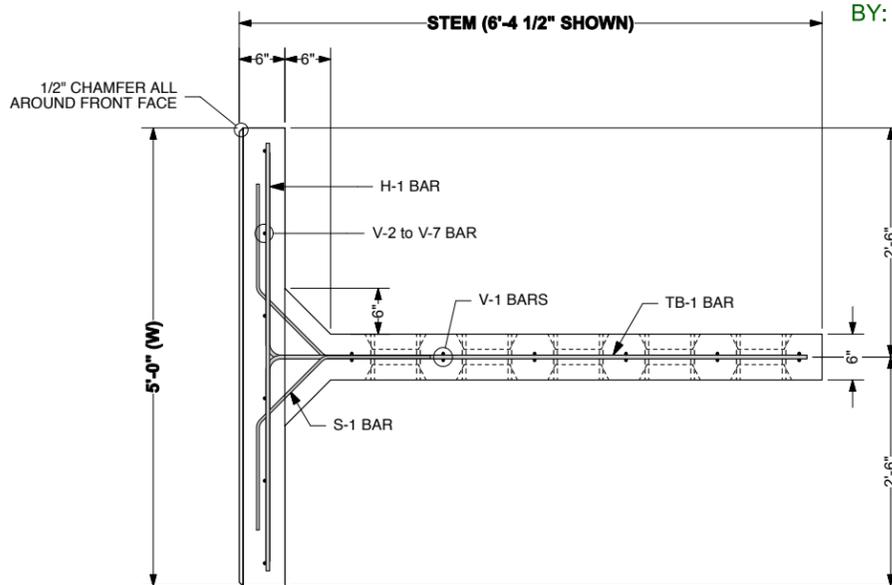
2 SIDE VIEW
Scale: 1" = 1'-0"



4 SECTION THROUGH STEM
Scale: 1" = 1'-0"



5 SECTION THROUGH STEM
Scale: 1" = 1'-0"



3 TOP VIEW
Scale: 1" = 1'-0"

SPECIAL NOTES:

- T-WALL® UNIT FRONT FACE FINISH TREATMENT:
 - PLAIN STEEL FORM FINISH
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- ON HIGH SIDE OF T-WALL UNIT, SPACE H-1 BARS AT 1'-0" O.C.
- LIFTING INSERTS:
 - TWO QUICKLIFT 'QL050G' LIFTING INSERTS OR EQUAL, SPACED AT LEAST 30" APART.
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GENERAL NOTES:

- PRIMARY REFERENCES:
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 - WELDING IS NOT PERMITTED
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 - UNLESS NOTED OTHERWISE, TOLERANCES FOR BAR FABRICATION SHALL MEET REQUIREMENTS OF STANDARD ACI 318 AND THE CRSI MANUAL OF STANDARD PRACTICE.

Vermont Agency of Transportation

RECEIVED

ON: March 17, 2015

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BY: D Bonneau DATE: 04/03/15

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NOT REVIEWED		
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PROJECT #: T22259

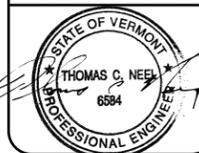
CONTRACTOR: J. A. McDONALD
LYNDON CENTER, VT
PROJECT #:

DESIGNER

THE NEEL COMPANY
8328-D TRAFORD LANE
SPRINGFIELD, VIRGINIA 22152
PH: (703) 913-7858
FX: (703) 913-7859
WEB: WWW.NEELCO.COM

PROJECT #: TW4437

CERTIFIED WITH RESPECT TO INTERNAL STABILITY OF T-WALL® STRUCTURES ONLY



REVISIONS

NO.	DESCRIPTION	DATE

**I-89 BRIDGE DECK REPLACEMENTS
I-89 OVER STOWE STREET**

WATERBURY, VT
VTRANS PROJECT NO. IM 089-2(43)
SHOP DRAWINGS
SPECIAL UNIT SP7 REBAR (I)

T-WALL® RETAINING WALL SYSTEM

SCALE: AS NOTED

DATE: 1/23/2015

DESIGNED BY: KB

DRAWN BY: GDL

CHECKED BY: KB

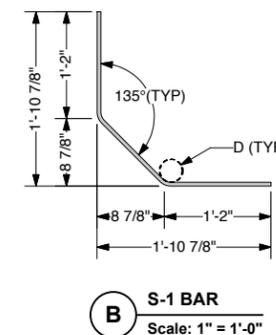
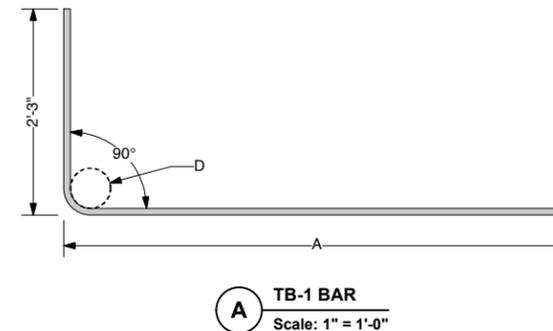
SHEET: TW-48

T-WALL UNIT SCHEDULES

Unit Type	Qty	H1	Dimensions			Lifting CG	Area	Properties	
			H2	W	Stem			Vol	Weight
SP7	1 ea	4'0"	4'6 1/2"	5'0"	6'4 1/2"	1'3"	21.35 sf	0.61 cy	2,471 lbs

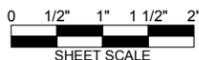
REBAR SCHEDULES

Unit Dims	Bar Mark	Qty	Size	Length	Dim A	Dim B	Bend Dia.	Weight	Remarks	
H=4'6 1/2"(max) W=5'0" S=6'4 1/2" SH=2'1 7/8"	H-1	5 ea	#4	4'8"				15.58 lbs		
	V-1	12 ea	#4	1'9 7/8"				14.63 lbs		
	V-2	1 ea	#5	3'8 3/8"				3.85 lbs		
	V-3	1 ea	#5	3'9 1/2"				3.95 lbs		
	V-4	1 ea	#5	3'10 5/8"				4.06 lbs		
	V-5	1 ea	#5	3'11 7/8"				4.16 lbs		
	V-6	1 ea	#5	4'1"				4.26 lbs		
	V-7	1 ea	#5	4'2 1/8"				4.36 lbs		
	S-1	4 ea	#4	3'4 1/2"		1'2"		9.01 lbs	3"	
	TB-1	4 ea	#4	8'2"		5'11"	2'3"	21.82 lbs	3"	
									85.68 lbs	



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REVISIONS		
1	CHANGE #3 REBAR TO #4 AND CHANGE H DIMS	CTH 3/6/2015

I-89 BRIDGE DECK REPLACEMENTS
I-89 OVER STOWE STREET
WATERBURY, VT
VTRANS PROJECT NO. IM 089-2(43)
SHOP DRAWINGS
SPECIAL UNIT SP7 REBAR (II)
T-WALL® RETAINING WALL SYSTEM

SCALE:	AS NOTED
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SHEET:	TW-49

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