

PAINT ALL NEW STEEL WITH
MATCHING TOWER PAINT.

—78'; INSTALL NEW STABILIZER PER SHEET 8.
INSTALL NEW 3/4"Ø EHS GUY WIRES AND HARDWARE
PER SHEETS 4 - 7.

INSTALL NEW ANCHORS 60' FROM
TOWER BASE PER SHEET 16.

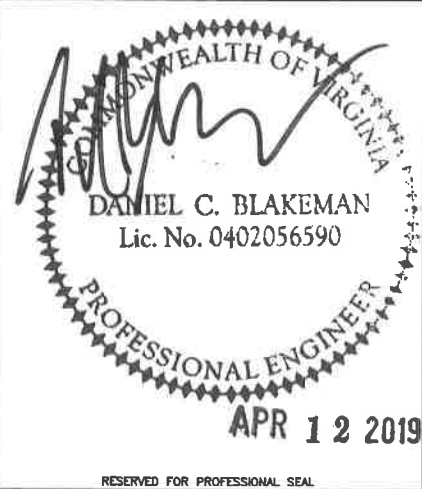
TABLE OF CONTENTS	
SHEET NO.	DESCRIPTION
SHEET 1	MASTER DRAWING
SHEET 2	MI CHECKLIST
SHEET 3	NOTES & GENERIC DETAILS
SHEET 4	GUY TENSIONING DETAILS
SHEET 5	GUY HARDWARE DETAILS
SHEET 6	FINAL ANCHOR DETAILS
SHEET 7	GENERIC GUYING DETAILS
SHEET 8	STABILIZER INSTALLATION (78')
SHEET 9	EXTENSION INSTALLATION (125' - 105')
SHEET 10	SECTION VIEWS
SHEET 11	STEPBOLT INSTALLATION DETAILS
SHEET 12	SECTION VIEWS
SHEET 13	PART DETAILS
SHEET 14	PART DETAILS
SHEET 15	PART DETAILS
SHEET 16	NEW ANCHOR INSTALLATION DETAILS

STRUCTURAL MODIFICATIONS:
THIS DRAWING DEPICTS THE REWORK REQUIRED TO REMEDY
THE DEFICIENCIES FOUND IN THE PETER'S MOUNTAIN, VA
TOWER PER THE REPORT PUBLISHED BY VERTICAL
STRUCTURES ON 4-9-2018, PROJECT# 2018-311-013A.
(REWORK PER FINAL MODIFIED TNX TOWER MODEL,
PROJECT# 2019-316-003.)

AFTER ALL WORK IS COMPLETE
PLUMB AND TENSION ENTIRE
TOWER PER SHEET 4.

A MINIMUM OF 24- 15/16"Ø & 19- 1 3/16"Ø
FIELD DRILLED HOLES ARE REQUIRED FOR THESE
MODIFICATIONS. HOLES MUST HAVE TWO COATS
OF ZINC RICH COMPOUND PER NOTE 8 ON
SHEET 3 BEFORE ASSEMBLY.

B	REVISED FOR CONS. #2019-316-003	MJM	SWB <i>SWB</i>	BG <i>BG</i>	4-12-19
A	ORIGINAL RELEASE	ANP	SWB	BG	4-11-18
REV.	DESCRIPTION	DRAWN BY:	CHECKED BY:	ENGINEERED BY:	DATE



P.O. Box 1496
Richmond, KY 40476
Phone: (859) 624-8360
Fax: (859) 624-8369
Email: engineering@verticalstructures.com

FOR

HARRIS

2018 MODIFICATIONS
TOWER REWORK FOR A 105'
VALMONT MONOPOLE W/ A 20' EXT.
PETER'S MOUNTAIN, VA

SHEET NUMBER: 1 OF 16	PROJECT NUMBER: 2018-311-013	SCALE: NONE
--------------------------	---------------------------------	----------------

MODIFICATION INSPECTION CHECKLIST			
	REQUIRED	REPORT ITEM	BRIEF DESCRIPTION OF REQUIREMENTS
PRE-CONSTRUCTION DOCUMENTS	X	MI CHECKLIST	THIS SHEET OF THE DRAWINGS.
	X	EOR APPROVED SHOP DRAWING	ENGINEER OF RECORD APPROVAL LETTER WITH APPROVED FABRICATION DRAWINGS.
	X	FABRICATION INSPECTION	A LETTER FROM THE FABRICATOR, STATING ALL FABRICATION WORK HAS BEEN COMPLETED IN ACCORDANCE WITH INDUSTRY STANDARDS AND THE CONTRACT DOCUMENTS.
	X	FABRICATOR CERTIFIED WELD INSPECTION	A REPORT FROM THE FABRICATOR, STATING ALL WELDING HAS BEEN COMPLETED IN ACCORDANCE WITH AWS D1.1 AND THE CONTRACT DOCUMENTS. REPORT TO INCLUDE, AT A MINIMUM, VISUAL INSPECTION RESULTS, PHOTOS OF ALL PHASES OF WELDING (PRE, DURING, AND POST), WELDER CERTIFICATIONS, WPS'S, WQTR, AND CWI CERTIFICATION.
	X	MATERIAL TEST REPORTS (MTR)	MATERIAL TEST REPORTS FOR ALL MATERIALS AND HARDWARE LISTED IN THE CONTRACT DOCUMENTS.
	N/A	FABRICATOR NDE INSPECTION	A REPORT FROM THE FABRICATOR, STATING ALL WELDING HAS BEEN INSPECTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. REPORT TO INCLUDE, AT A MINIMUM, TESTING RESULTS, METHODS OF NDE UTILIZED, PHOTOS OF EXAMINATION, AND EXAMINER'S QUALIFICATIONS.
	N/A	NDE REPORT OF MONOPOLE BASE PLATE	A REPORT FROM THE EXAMINER, STATING POLE TO BASE PLATE CONNECTION HAS BEEN INSPECTED. REPORT TO INCLUDE, AT A MINIMUM, TESTING RESULTS, WELD SIZES EXAMINED, METHODS OF NDE UTILIZED, PHOTOS OF EXAMINATION, AND EXAMINER'S QUALIFICATIONS.
CONSTRUCTION DOCUMENTS	X	PACKING SLIPS	PACKING SLIPS FOR ALL MATERIALS AND HARDWARE LISTED IN THE CONTRACT DOCUMENTS.
	X	CONSTRUCTION INSPECTIONS	A LETTER FROM THE GENERAL CONTRACTOR, STATING ALL WORK HAS BEEN COMPLETED IN ACCORDANCE WITH INDUSTRY STANDARDS AND THE CONTRACT DOCUMENTS.
	X	FOUNDATION INSPECTIONS	A LETTER FROM A THIRD PARTY INSPECTOR, STATING ALL EXCAVATION AND REBAR HAS BEEN INSPECTED PRIOR TO CONCRETE PLACEMENT AND HAS BEEN COMPLETED IN ACCORDANCE WITH INDUSTRY STANDARDS AND THE CONTRACT DOCUMENTS.
	X	CONCRETE COMPRESSIVE STRENGTH AND SLUMP TESTS	CONCRETE MIX DESIGN AND TEST REPORTS FOR CONCRETE COMPRESSIVE STRENGTH AND SLUMP TESTS IN ACCORDANCE WITH ACI 318, ASTM C143, AND THE CONTRACT DOCUMENTS.
	N/A	POST INSTALLED ANCHOR ROD VERIFICATION	A REPORT FROM THE GENERAL CONTRACTOR, DETAILING PROPER INSTALLATION OF ANCHOR RODS IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. REPORT TO INCLUDE, AT A MINIMUM, PHOTOS OF EPOXY/GROUT USED, HOLE CLEANING AND ROUGHENING PROCEDURES, HOLE DIAMETER, DEPTH, AND LOCATION, AND DIAMETER AND LENGTH OF ANCHOR RODS.
	N/A	BASE PLATE GROUT VERIFICATION	A LETTER FROM THE GENERAL CONTRACTOR, STATING GROUT HAS BEEN INSTALLED IN ACCORDANCE WITH INDUSTRY STANDARDS AND THE CONTRACT DOCUMENTS. LETTER TO INCLUDE, AT A MINIMUM, PHOTOS OF PRODUCT, SURFACE PREPARATION, AND INSTALLATION.
	N/A	CONTRACTOR'S CERTIFIED WELD INSPECTION	A REPORT FROM A CWI, STATING ALL WELDING HAS BEEN COMPLETED IN ACCORDANCE WITH AWS D1.1 AND THE CONTRACT DOCUMENTS. REPORT TO INCLUDE, AT A MINIMUM, VISUAL INSPECTION RESULTS, PHOTOS OF ALL PHASES OF WELDING (PRE, DURING, AND POST), WELDER CERTIFICATIONS, WPS'S, WQTR, AND CWI CERTIFICATION.
	X	EARTHWORK: LIFT AND DENSITY	A REPORT FROM A GEOTECHNICAL ENGINEER, STATING ALL BACKFILLING OPERATIONS HAVE BEEN COMPLETED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
	X	ON SITE COLD GALVANIZING VERIFICATION	A LETTER FROM THE GENERAL CONTRACTOR, STATING ALL COLD GALVANIZING HAS BEEN COMPLETED IN ACCORDANCE WITH INDUSTRY STANDARDS AND THE CONTRACT DOCUMENTS. LETTER TO INCLUDE, AT A MINIMUM, PHOTOS OF SITE VERIFICATION, PRODUCT USED, APPLICATION, AND AN EXAMPLE OF FINAL INSTALLED CONDITION.
	X	GUY WIRE TENSION REPORT	A LETTER FROM THE GENERAL CONTRACTOR, STATING ALL GUY WIRE PLUMB, TWIST AND TENSIONS HAVE BEEN COMPLETED IN ACCORDANCE WITH INDUSTRY STANDARDS AND THE CONTRACT DOCUMENTS. LETTER TO INCLUDE, AT A MINIMUM, SITE TEMPERATURE, EQUIPMENT USED, TENSION OF EACH WIRE WITH PHOTO DOCUMENTATION, AND PLUMB AND TWIST RESULTS.
POST-CONSTRUCTION DOCUMENTS	X	GENERAL CONTRACTOR'S AS-BUILT DOCUMENTS	DOCUMENTATION FROM THE GENERAL CONTRACTOR, STATING ALL WORK HAS BEEN COMPLETED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS OR THAT CHANGES WERE MADE DUE TO FIELD CONDITIONS. IF CHANGES WERE MADE, THE GENERAL CONTRACTOR MUST ALSO PROVIDE PROOF OF ACCEPTANCE FROM THE ENGINEER OF RECORD.
	N/A	POST INSTALLED ANCHOR ROD PULL-OUT TESTING	A REPORT FROM A PULL TEST CONTRACTOR, STATING ALL ANCHOR RODS HAVE BEEN INSTALLED AND TESTED IN ACCORDANCE WITH INDUSTRY STANDARDS AND THE CONTRACT DOCUMENTS. REPORT TO INCLUDE, AT A MINIMUM, DEFLECTION READINGS AT 15% INCREMENTS OF THE TARGET LOAD AFTER BEING HELD IN 2 MINUTE DURATIONS, LOCATIONS OF TESTING, EQUIPMENT USED, AND PHOTOS OF ALL PHASES OF PULL TESTING. THE GENERAL CONTRACTOR SHALL CONTACT THE ENGINEER OF RECORD IMMEDIATELY IF THE DISPLACEMENT IS GREATER THAN 0.01 INCHES.
	X	PHOTOGRAPHS	PHOTOS FROM ALL PHASES OF CONSTRUCTION.
	THE ABOVE DOCUMENTS SHALL BE PROVIDED BY THE GENERAL CONTRACTOR TO THE MI INSPECTOR TO BE INCLUDED IN THE FINAL MI REPORT		
	X	MI INSPECTOR REDLINE OR RECORD DRAWINGS	DOCUMENTATION FROM THE MI INSPECTOR, STATING ALL WORK HAS BEEN COMPLETED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND THE GENERAL CONTRACTOR'S AS-BUILT DOCUMENTS OR NOTING THE DIFFERENCES BETWEEN THE DOCUMENTS.
	N/A	MI INSPECTOR U-BOLT TORQUE VERIFICATION	DOCUMENTATION FROM THE MI INSPECTOR, STATING THEY HAVE VERIFIED THE TORQUE OF U-BOLTS WITH A SPECIFIED TORQUE VALUE AS INDICATED IN THE CONTRACT DOCUMENTS. THE INSPECTION SHALL BE PERFORMED TO 85% OF THE SPECIFIED TORQUE VALUE ON A MINIMUM OF 10% OF U-BOLTS RANDOMLY THROUGHOUT THE MODIFICATION, NOT ALL IN ONE AREA.
	THE ABOVE DOCUMENTS SHALL BE PROVIDED BY THE MI INSPECTOR TO BE INCLUDED IN THE FINAL MI REPORT		
	X INDICATES DOCUMENTS REQUIRED FOR MI REPORT. N/A INDICATES DOCUMENT IS NOT REQUIRED FOR MI REPORT.		

MODIFICATION INSPECTION NOTES:

GENERAL

THE MODIFICATION INSPECTION IS A VISUAL INSPECTION OF TOWER MODIFICATIONS AND A REVIEW OF THE DOCUMENTS LISTED HEREIN TO INSURE THE MODIFICATIONS WERE PERFORMED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

THE MODIFICATION INSPECTION IS TO CONFIRM THE INSTALLATION CONFIGURATION AND WORKMANSHIP ONLY AND IS NOT A REVIEW OF THE DESIGN ITSELF. OWNERSHIP OF THE MODIFICATION DESIGN RESIDES WITH THE ENGINEER OF RECORD.

TO ENSURE ALL MODIFICATION INSPECTION REQUIREMENTS ARE MET, THE GENERAL CONTRACTOR SHALL STAY IN GOOD COMMUNICATION WITH THE MODIFICATION INSPECTOR FOR PROPER COORDINATION THROUGHOUT THE ENTIRE LIFE OF THE PROJECT.

IT IS SUGGESTED THAT THE GENERAL CONTRACTOR PROVIDE A MINIMUM OF 5 BUSINESS DAYS NOTICE, PREFERABLY 10, TO THE MODIFICATION INSPECTOR AS TO WHEN THE SITE WILL BE READY FOR THE MODIFICATION INSPECTION TO BE PERFORMED.

CORRECTION OF FAILING MODIFICATION INSPECTIONS

IF ANY PORTION OF THE MODIFICATIONS WERE TO FAIL THE MODIFICATION INSPECTION, THE GENERAL CONTRACTOR SHALL WORK WITH THE TOWER OWNER, MODIFICATION INSPECTOR, AND THE ENGINEER OF RECORD TO COORDINATE A REMEDIATION PLAN IN ONE OF THE FOLLOWING WAYS:

1. CORRECT FAILING ISSUES TO COMPLY WITH THE SPECIFICATIONS OF THE ORIGINAL CONTRACT DOCUMENTS.
2. WITH APPROVAL BY ALL PARTIES; AND AT AN ADDITIONAL COST, THE GENERAL CONTRACTOR MAY WORK WITH THE ENGINEER OF RECORD TO RE-ANALYZE THE MODIFICATION USING THE AS-BUILT CONDITIONS.

REQUIRED PHOTOGRAPHS

BETWEEN THE GENERAL CONTRACTOR AND THE MODIFICATION INSPECTOR THE FOLLOWING PHOTOGRAPHS, AT A MINIMUM ARE REQUIRED TO BE INCLUDED IN THE MODIFICATION REPORT.

1. PRE-CONSTRUCTION GENERAL SITE CONDITIONS.
2. MATERIAL BEING USED.
3. EXAMPLES OF ALL THE MODIFICATIONS BEING PERFORMED.
4. FINAL INSTALLED CONDITION.
5. BOLT INSTALLATION AND TORQUE (WHEN APPLICABLE).
6. FOUNDATION MODIFICATIONS (WHEN APPLICABLE).
7. WELD PREPARATION (WHEN APPLICABLE).
8. SURFACE COATING REPAIR (WHEN APPLICABLE).

PHOTOS OF ELEVATED MODIFICATIONS TAKEN FROM THE GROUND ARE CONSIDERED INADEQUATE.

B	REVISED FOR CONS. #2019-316-003	MJM	SWB <i>SWB</i>	BG <i>BG</i>	4-12-19
A	ORIGINAL RELEASE	ANP	SWB	BG	4-11-18
RFV	DESCRIPTION	DRAWN BY:	CHECKED BY:	ENGINEERED BY:	DATE

DANIEL C. BLAKEMAN
Lic. No. 0402056590
APR 12 2018

VERTICAL STRUCTURES, INC.

P.O. Box 1496
Richmond, KY 40476
Phone: (859) 624-8360
Fax: (859) 624-8369
Email: engineering@verticalstructures.com

FOR

HARRIS

2018 MODIFICATIONS
TOWER REWORK FOR A 105'
VALMONT MONOPOLE W/ A 20' EXT.
PETER'S MOUNTAIN, VA

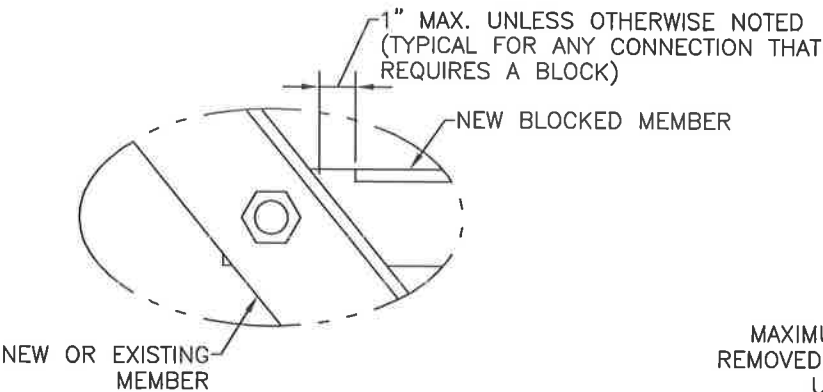
SHEET NUMBER: 2 OF 16	PROJECT NUMBER: 2018-311-013	SCALE: NONE
--------------------------	---------------------------------	----------------

TECHNICAL SPECIFICATION NOTES:

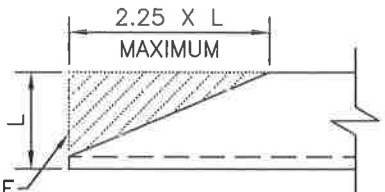
1. CONTRACTOR: CALL VERTICAL STRUCTURES AT (859) 624-8360 TO MAKE SURE YOU HAVE THE LATEST REVISION OF THIS DRAWING.
2. CONTACT THE ENGINEER CONCERNING ANY CHANGES OR MODIFICATIONS THAT MAY BE REQUIRED DUE TO THE EXISTING CONDITIONS.
3. ALL SAE GRADE 5 BOLTS TO BE INSTALLED WITH ASTM A194 HEX OR ASTM A194 2H HEAVY HEX NUTS.
4. ALL ASTM A325 AND ASTM A490 BOLTS TO BE INSTALLED WITH ASTM A194 2H HEAVY HEX NUTS.
5. LOCKING MECHANISM FOR BOLTS TO BE PALNUTS OR LOCKWASHERS UNLESS NOTED OTHERWISE.
6. ALL U-BOLTS TO BE INSTALLED WITH ASTM A194 2H HEAVY HEX NUTS AND LOCKWASHERS.
7. ANY HARDWARE REMOVED FROM THE EXISTING TOWER MUST BE REPLACED WITH NEW HARDWARE OF EQUAL SIZE AND QUALITY UNLESS NOTED OTHERWISE.
8. AFTER FIELD MODIFICATIONS OF ANY STEEL MEMBERS, COAT EXPOSED STEEL SURFACES WITH TWO COATS OF ZINC CLAD COATING, CONTAINING A MINIMUM 95% ZINC TO RESTORE THE GALVANIZED PROTECTION ON THE MEMBERS. IF REQUIRED, PAINT ALL AREAS AFFECTED OR NEW STEEL WITH MATCHING TOWER PAINT.
9. FINISHING SPECIFICATIONS - ALL MATERIAL TO BE HOT DIPPED GALVANIZED IN ACCORDANCE WITH THE FOLLOWING SPECIFICATIONS:
 - A. FABRICATED MATERIAL - ASTM A123.
 - B. HARDWARE - ASTM A153.
 - C. GUY WIRE - ASTM A475.
10. ELEVATIONS SHOWN ARE NOMINAL AND NOT EXACT.
11. ALL SHOP WELDING TO BE DONE IN ACCORDANCE WITH AWS D1.1 STRUCTURAL WELDING CODE. ALL WELDING TO BE DONE BY AWS CERTIFIED WELDER USING E70XX RODS.
12. PART FABRICATION DETAILS MUST BE APPROVED BY VERTICAL STRUCTURES, INC. BEFORE USE. REVIEW MAY INCLUDE RECEIPT OF MILL CERTIFICATIONS WHEN NECESSARY.
13. IT IS THE RESPONSIBILITY OF THE MATERIAL SUPPLIER TO GUARANTEE PROPER FITUP. ALL DIMENSIONS USED IN FABRICATION DETAILS MUST BE FIELD VERIFIED.
14. ALL CONSTRUCTION MUST BE PERFORMED IN ACCORDANCE WITH ANSI/TIA-1019-A STANDARD.

FIELD WELDING SPECIFICATION NOTES:

1. SURFACES TO BE CLEARED OF GALVANIZATION BEFORE FIELD WELDING ANY MATERIAL.
2. CARE MUST BE TAKEN TO ENSURE THAT THE COAX AND GALVANIZATION INSIDE THE POLE ARE NOT DAMAGED BY HEAT DURING WELDING.
3. WELDER TO BE AWS CERTIFIED AND USE E70XX RODS.
4. A LOW-HEAT WELDING PROCEDURE SHOULD BE EMPLOYED. PROCEDURE MUST BE SUBMITTED TO VERTICAL STRUCTURES FOR REVIEW PRIOR TO CONSTRUCTION.

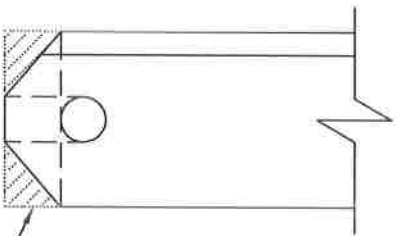


A
3
GENERIC BLOCK DETAIL
ALL MEMBERS MUST BE INSTALLED
AS SHOWN ON ELEVATION VIEW



MAXIMUM AREA ALLOWED TO BE
REMOVED ON ANY COPE MEMBER
UNLESS OTHERWISE NOTED

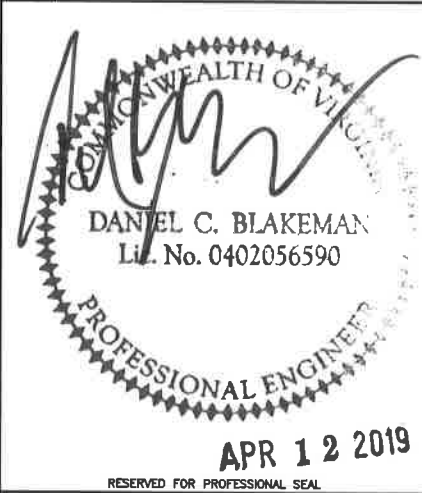
B
3
GENERIC COPE DETAIL



MAXIMUM AREA ALLOWED TO
BE REMOVED ON ANY
CLIPPED MEMBER UNLESS
OTHERWISE NOTED
(TYPICAL)

C
3
GENERIC CLIP DETAIL

B	REVISED FOR CONS. #2019-316-003	MJM	SWB <i>SwB</i>	BG <i>ISG</i>	4-12-19
A	ORIGINAL RELEASE	ANP	SWB	BG	4-11-18
RFV	DESCRIPTION	DRAWN BY:	CHECKED BY:	ENGINEERED BY:	DATE



P.O. Box 1496
Richmond, KY 40476
Phone: (859) 624-8360
Fax: (859) 624-8369
Email: engineering@verticalstructures.com

FOR

HARRIS

2018 MODIFICATIONS
TOWER REWORK FOR A 105'
VALMONT MONOPOLE W/ A 20' EXT.
PETER'S MOUNTAIN, VA

SHEET NUMBER: 3 OF 16	PROJECT NUMBER: 2018-311-013	SCALE: NONE
--------------------------	---------------------------------	----------------

INITIAL GUY TENSION	
GUY ELEVATION	78'
GUY WIRE SIZE	3/4"
ULTIMATE BREAKING STRENGTH (KIPS)	58.3
INITIAL TENSION	10%

ANCHOR LABEL	A
ANCHOR RADIUS	60'
ANCHOR ELEVATION	-4'
ACTUAL LENGTH	102'
CUT LENGTH	112'

TEMPERATURE:	
120°	4.685
100°	5.067
80°	5.448
60°	5.830
40°	6.212
20°	6.593
0°	6.975

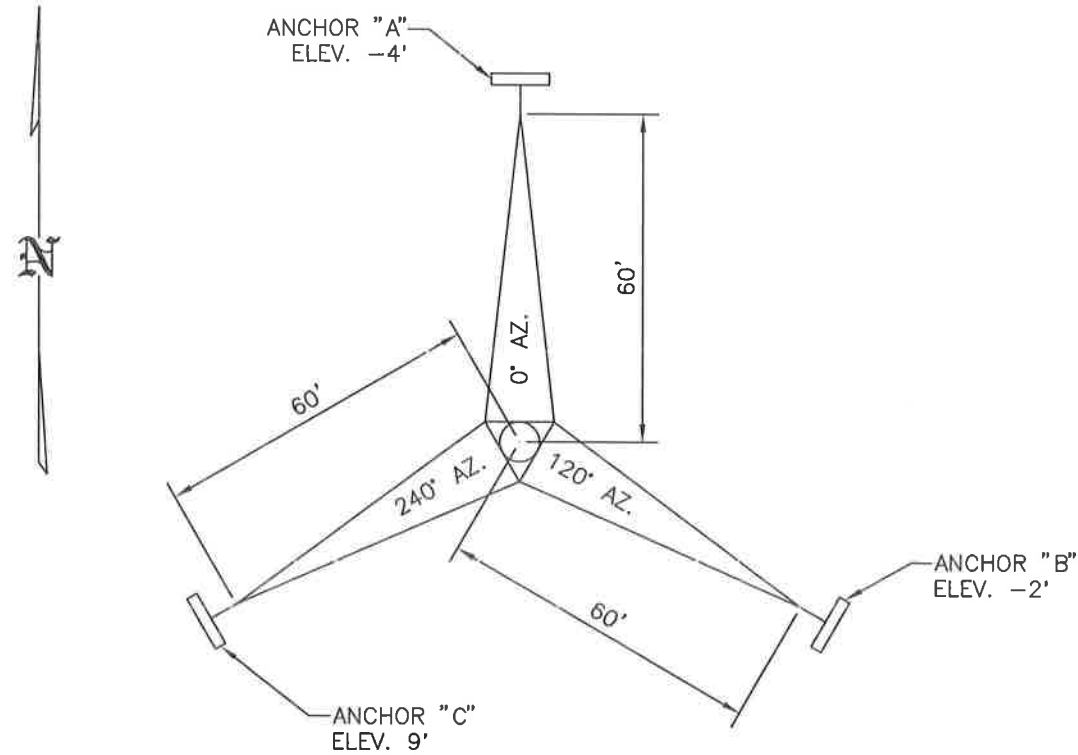
ANCHOR LABEL	B
ANCHOR RADIUS	60'
ANCHOR ELEVATION	-2'
ACTUAL LENGTH	100'
CUT LENGTH	110'

TEMPERATURE:	
120°	4.648
100°	5.042
80°	5.436
60°	5.830
40°	6.224
20°	6.618
0°	7.012

ANCHOR LABEL	C
ANCHOR RADIUS	60'
ANCHOR ELEVATION	9'
ACTUAL LENGTH	91'
CUT LENGTH	101'

TEMPERATURE:	
120°	4.416
100°	4.887
80°	5.359
60°	5.830
40°	6.301
20°	6.773
0°	7.244

- NOTES:
1. SET INITIAL GUY TENSION WITHIN 10% OF VALUES SHOWN IN CHART.
 2. MEASUREMENTS ARE IN KIPS.
 3. FIELD VERIFY EACH ANCHOR RADIUS AND ELEVATION PRIOR TO CUTTING WIRE.



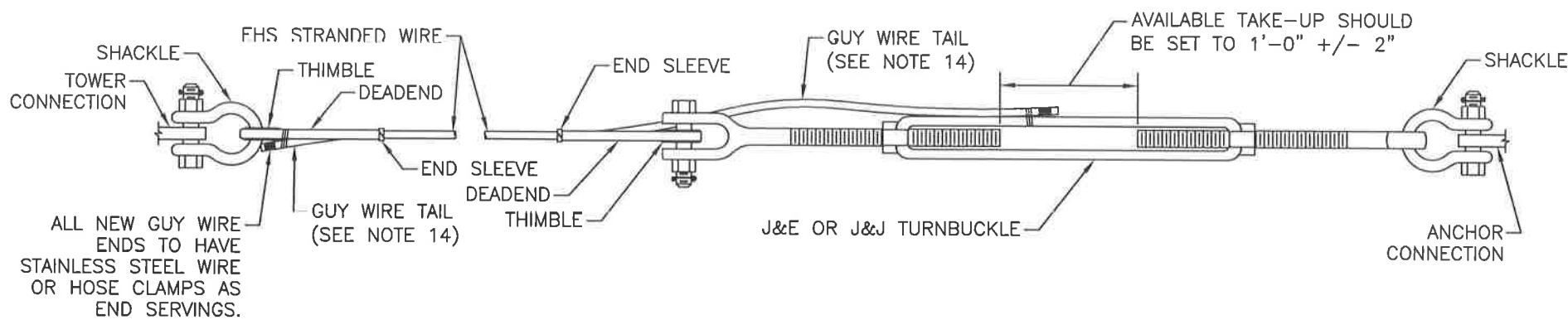
ANCHOR LAYOUT
 IF ANCHOR DISTANCES AND/OR ELEVATIONS DIFFER MORE THAN FIVE FEET FROM THOSE SHOWN CONTACT VERTICAL STRUCTURES.

B	REVISED FOR CONS. #2019-316-003	MJM	SWB <i>SWB</i>	BG <i>BG</i>	4-12-19
A	ORIGINAL RELEASE	ANP	SWB	BG	4-11-18
RFV.	DESCRIPTION	DRAWN BY:	CHECKED BY:	ENGINEERED BY:	DATE

VERTICAL STRUCTURES, INC.

P.O. Box 1496
 Richmond, KY 40476
 Phone: (859) 624-8360
 Fax: (859) 624-8369
 Email: engineering@verticalstructures.com

FOR	
HARRIS	
2018 MODIFICATIONS TOWER REWORK FOR A 105' VALMONT MONOPOLE W/ A 20' EXT. PETER'S MOUNTAIN, VA	
SHEET NUMBER: 4 OF 16	PROJECT NUMBER: 2018-311-013
SCALE: NONE	



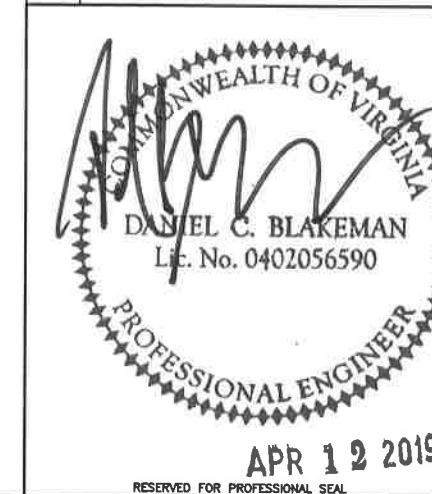
A
5
GUY HARDWARE DETAIL

GUY HARDWARE BILL OF MATERIALS		
HARDWARE P/N	DESCRIPTION	78'
YG1750	3/4" PREFORMED BIG-GRIP DEADEND	12
YG2750	3/4" PREFORMED END SLEEVE	12
YG3877	7/8" CROSBY G-2130 SHACKLE	12
YG4875	7/8" CROSBY G-414 THIMBLE	12
YG5225	1 1/4" X 18" CROSBY HG-227B J&E TURNBUCKLE	6

NOTES:

1. ALL GUY HARDWARE TO BE HOT-DIPPED GALVANIZED.
2. ALL GUY HARDWARE AS SPECIFIED OR AN EOR APPROVED EQUAL.
3. THE USE OF WIRE ROPE CLIPS AS DEADEND SLEEVES IS PROHIBITED.
4. THE TAG END OF GUY WIRES SHALL NOT TOUCH THE GROUND.
5. DEAD END SLEEVES SHALL BE INSTALLED SO FULLY EVEN WITH THE SHORT TAIL SIDE OF THE PREFORM.
6. PREFORMS SHALL BE PURCHASED FROM PREFORMED LINE PRODUCTS (PLP). WWW.PREFORMED.COM
7. SHACKLES AND TURNBUCKLES ASSEMBLIES SHALL BE FORGED AISI GRADE 1030, 1035, OR 1045 STEEL OR EQUIVALENT AND SUITABLY HEAT-TREATED (QUENCHED AND TEMPERED, NORMALIZED OR ANNEALED).
8. PINS SHALL CONSIST OF A BOLT, NUT, AND STAINLESS STEEL COTTER PINS.
9. SHACKLES AND TURNBUCKLES SUPPLIED BY THE CROSBY GROUP ARE PRE-APPROVED. SHACKLES AND TURNBUCKLES BY OTHERS REQUIRE APPROVAL FROM THE EOR PRIOR TO INSTALLATION. INSTALLATION OF NON-APPROVED COMPONENTS IS CAUSE FOR AUTOMATIC REJECTION.
10. CERTIFICATION/VERIFICATION DOCUMENTATION FOR THE GUY WIRE, TURNBUCKLES, SHACKLES, AND PREFORMS SHALL BE SUPPLIED TO THE MODIFICATION INSPECTOR TO BE INCLUDED IN THE CLOSE OUT REPORT.
11. THE TURNBUCKLE AND SHACKLE SIZE LISTED ARE MINIMUM DIMENSIONS. LARGER SIZES ARE PERMITTED WITH EOR APPROVAL BASED ON FIT UP. IT IS THE CONTRACTORS RESPONSIBILITY TO VERIFY FIT UP AT THE PRE-CONSTRUCTION SITE WALK.
12. IF THE FAN PLATE SIDE SHACKLE CAUSES INTERFERENCES, CONTACT THE EOR.
13. TURNBUCKLES SHALL BE ADJUSTED BY A PROPER SIZED SMOOTH JAWED WRENCH. CHANNEL LOCKS ARE PROHIBITED.
14. ON THE GUY ANCHOR CONNECTION, THE GUY WIRE TAIL MUST EXTEND TO THE TURNBUCKLE AND BE TIED BACK. ON THE GUY TOWER CONNECTION, THE GUY WIRE TAIL MUST EXTEND TO THE THIMBLE AND ALSO BE TIED BACK.

B	REVISED FOR CONS. #2019-316-003	MJM	SWB <i>SWB</i>	BG <i>BG</i>	4-12-19
A	ORIGINAL RELEASE	ANP	SWB	BG	4-11-18
REV.	DESCRIPTION	DRAWN BY:	CHECKED BY:	ENGINEERED BY:	DATE



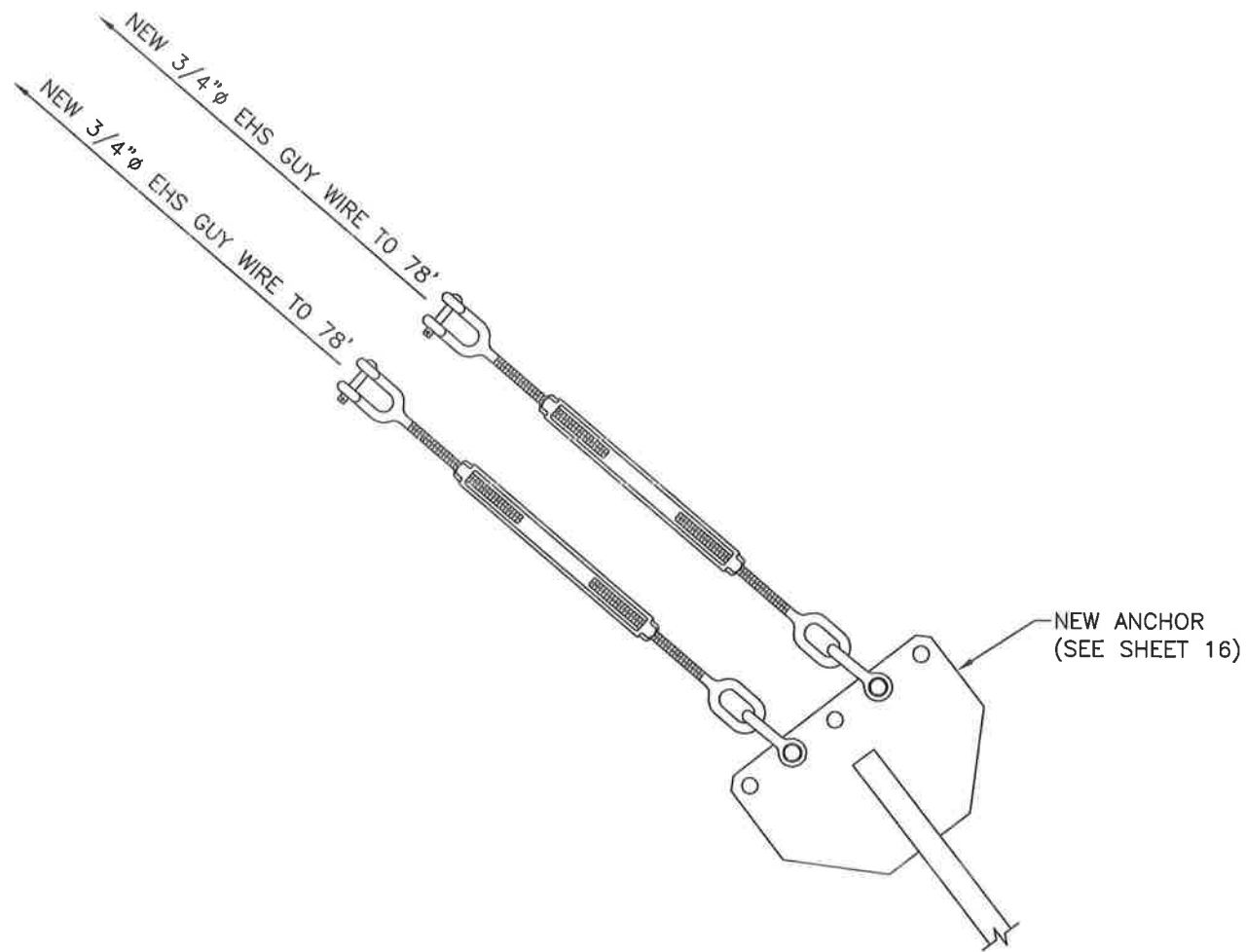
P.O. Box 1496
Richmond, KY 40476
Phone: (859) 624-8360
Fax: (859) 624-8369
Email: engineering@verticalstructures.com

FOR

HARRIS

2018 MODIFICATIONS
TOWER REWORK FOR A 105'
VALMONT MONOPOLE W/ A 20' EXT.
PETER'S MOUNTAIN, VA

SHEET NUMBER: 5 OF 16	PROJECT NUMBER: 2018-311-013	SCALE: NONE
--------------------------	---------------------------------	----------------



A
6 FINAL ANCHOR DETAIL

B	REVISED FOR CONS. #2019-316-003	MJM	SWB <i>SWB</i>	BG <i>BG</i>	4-12-19
A	ORIGINAL RELEASE	ANP	SWB	BG	4-11-18
RFV	DESCRIPTION	DRAWN BY:	CHECKED BY:	ENGINEERED BY:	DATE

DANIEL C. BLAKEMAN
Lic. No. 0402056590
APR 12 2019

RESERVED FOR PROFESSIONAL SEAL

P.O. Box 1496
Richmond, KY 40476
Phone: (859) 624-8360
Fax: (859) 624-8369
Email: engineering@verticalstructures.com

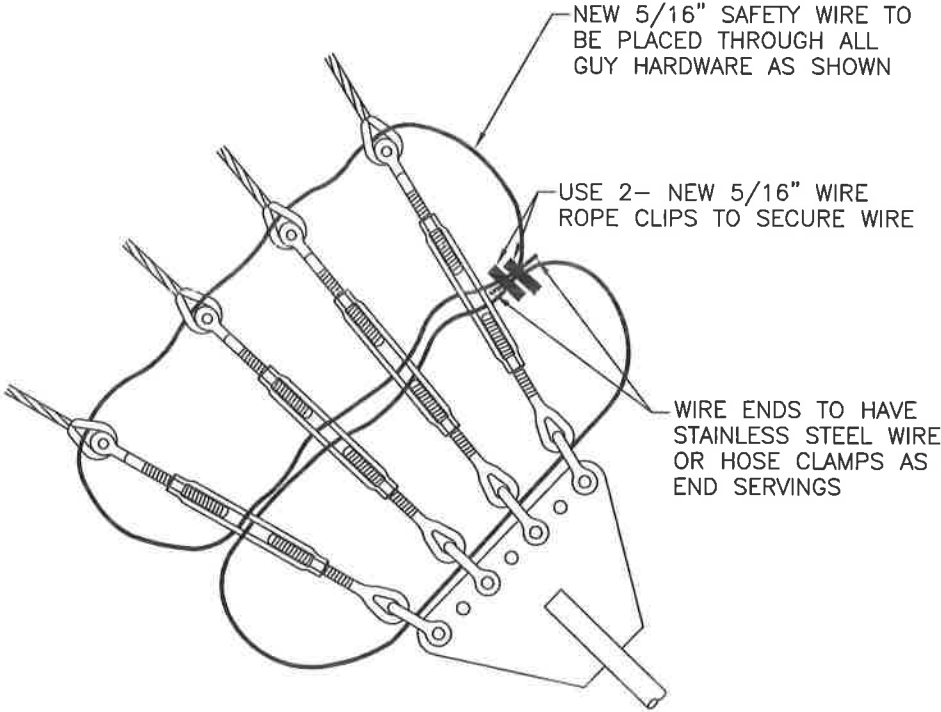
FOR

HARRIS

**2018 MODIFICATIONS
TOWER REWORK FOR A 105'
VALMONT MONOPOLE W/ A 20' EXT.
PETER'S MOUNTAIN, VA**

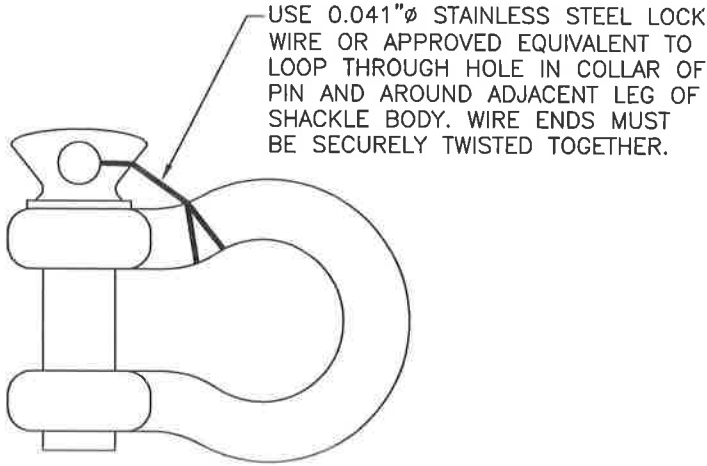
SHEET NUMBER: 6 OF 16	PROJECT NUMBER: 2018-311-013	SCALE: NONE
--------------------------	---------------------------------	----------------

- NOTES:
1. THE PREFERRED SAFETY LOOP IS A FIGURE 8 CONFIGURATION. IN SOME CASES A SINGLE LOOP MAY BE REQUIRED AND IS PERMITTED WITH PRIOR APPROVAL.
 2. THE TURNBUCKLE SAFETY LOOP SHALL BE ROUTED THROUGH THE THIMBLES AS SHOWN. THE SAFETY WIRE ROPE MAY BE ROUTED THROUGH A TURNBUCKLE EYE/JAW IF IT IS THE PATH OF LEAST RESISTANCE AS LONG AS THE CONDITION DECREASES THE RISK OF DAMAGING THE PREFORM OR OTHER GUY ASSEMBLY HARDWARE.
 3. ALL EXISTING SCREW TYPE SHACKLES AT THE FAN PLATE SHALL HAVE MOUSING INSTALLED AS PART OF THE MODIFICATION.



A
7

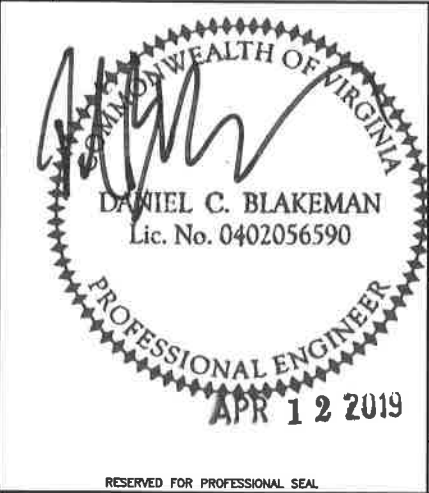
GENERIC SAFETY WIRE DETAIL




B
7

SCREW PIN MOUSING

B	REVISED FOR CONS. #2019-316-003	MJM	SWB <i>SWB</i>	BG <i>BG</i>	4-12-19
A	ORIGINAL RELEASE	ANP	SWB	BG	4-11-18
RFV.	DESCRIPTION	DRAWN BY:	CHECKED BY:	ENGINEERED BY:	DATE





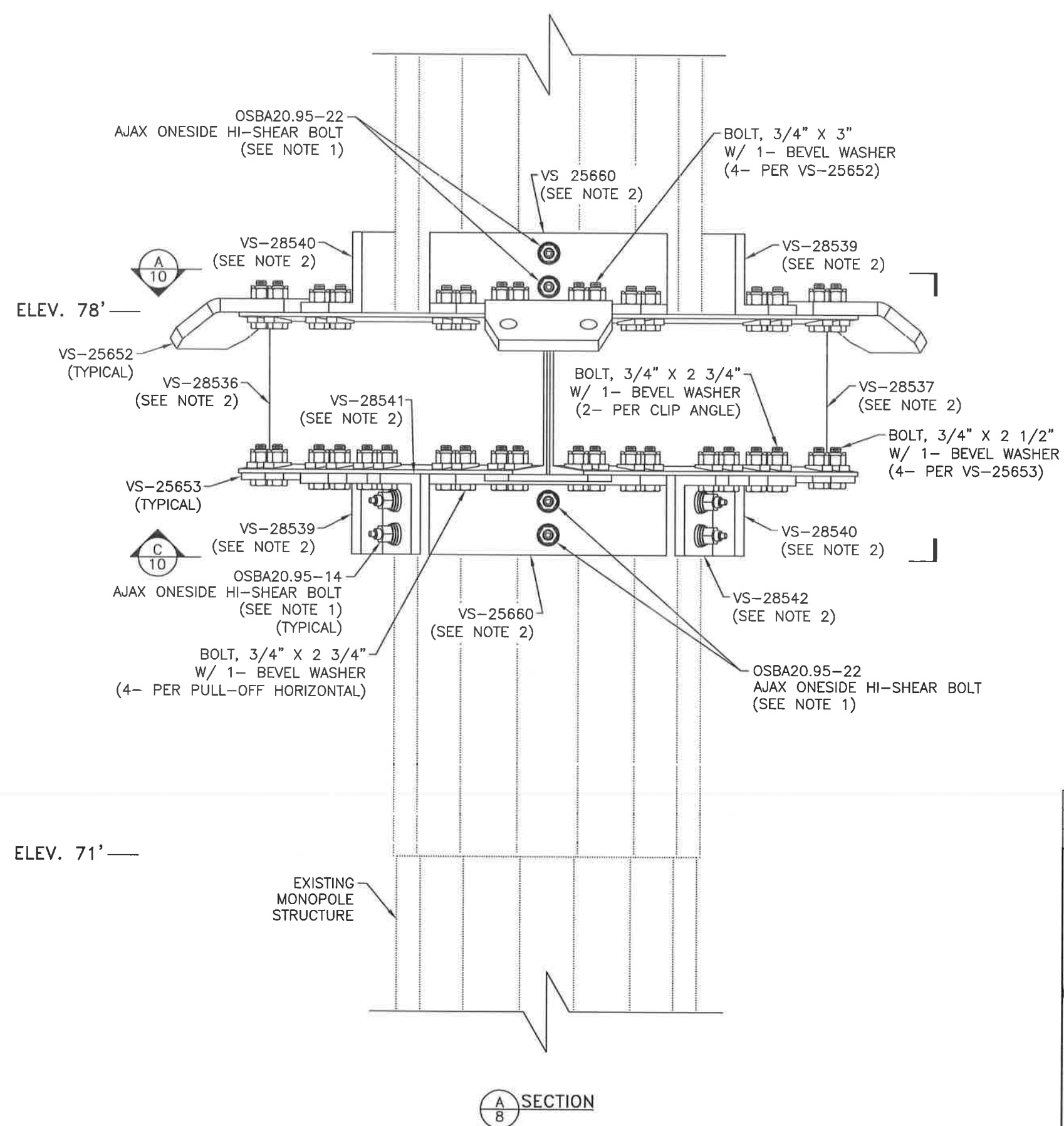
P.O. Box 1496
Richmond, KY 40476
Phone: (859) 624-8360
Fax: (859) 624-8369
Email: engineering@verticalstructures.com

FOR

HARRIS

2018 MODIFICATIONS
TOWER REWORK FOR A 105'
VALMONT MONOPOLE W/ A 20' EXT.
PETER'S MOUNTAIN, VA

SHEET NUMBER: 7 OF 16	PROJECT NUMBER: 2018-311-013	SCALE: NONE
--------------------------	---------------------------------	----------------



BILL OF MATERIALS			
MARK NO.	QTY.	DESCRIPTION	MATERIAL GRADE
VS-25651	1	STABILIZER CHANNEL, C12 X 20.7	ASTM A572 GRADE 50
VS-25652	3	BENT PLATE, 1" THICK	ASTM A572 GRADE 50
VS-25853	3	TIE PLATE, 1/2" THICK	ASTM A572 GRADE 50
VS-25660	2	PULL-OFF HORIZONTAL, L 6" X 6" X 3/4"	ASTM A572 GRADE 50
VS-28536	1	STABILIZER CHANNEL, C12 X 20.7	ASTM A572 GRADE 50
VS-28537	1	STABILIZER CHANNEL, C12 X 20.7	ASTM A572 GRADE 50
VS-28538	1	SPACER PLATE, 1/2" THICK	ASTM A572 GRADE 50
VS-28539	2	PULL-OFF HORIZONTAL, L 6" X 6" X 3/4"	ASTM A572 GRADE 50
VS-28540	2	PULL-OFF HORIZONTAL, L 6" X 6" X 3/4"	ASTM A572 GRADE 50
VS-28541	1	CLIP ANGLE, L 6" X 4" X 3/4"	ASTM A572 GRADE 50
VS-28542	1	CLIP ANGLE, L 6" X 4" X 3/4"	ASTM A572 GRADE 50
VS-28543	6	SPACER PLATE, 1/2" THICK	ASTM A572 GRADE 50
XX3424	12	BOLT, 3/4" X 2 1/2"	ASTM A325
XX3426	28	BOLT, 3/4" X 2 3/4"	ASTM A325
XX3430	12	BOLT, 3/4" X 3"	ASTM A325
XY0035	52	BEVEL WASHER	-
OSBA20.95-14	7	AJAX ONESIDE HI-SHEAR BOLT	-
OSBA20.95-22	12	AJAX ONESIDE HI-SHEAR BOLT	-

- NOTES:
- 19- 1 3/16"Ø FIELD DRILLED HOLES ARE REQUIRED.
 - EXISTING STEPBOLTS MAY NEED TO BE REMOVED FOR PROPER INSTALLATION OF NEW MATERIAL. CONTRACTOR IS RESPONSIBLE FOR PROPERLY RELOCATING STEPBOLTS THAT ARE REMOVED. SEE SHEET 11 FOR PROPER INSTALLATION OF STEPBOLTS.

B	REVISED FOR CONS. #2019-316-003	MJM	SWB <i>SWB</i>	BG <i>BG</i>	4-12-19
A	ORIGINAL RELEASE	ANP	SWB	BG	4-11-18
RFV	DESCRIPTION	DRAWN BY:	CHECKED BY:	ENGINEERED BY:	DATE

RESERVED FOR PROFESSIONAL SEAL

VERTICAL STRUCTURES, INC.

P.O. Box 1496
Richmond, KY 40476
Phone: (859) 624-8360
Fax: (859) 624-8369
Email: engineering@verticalstructures.com

FOR

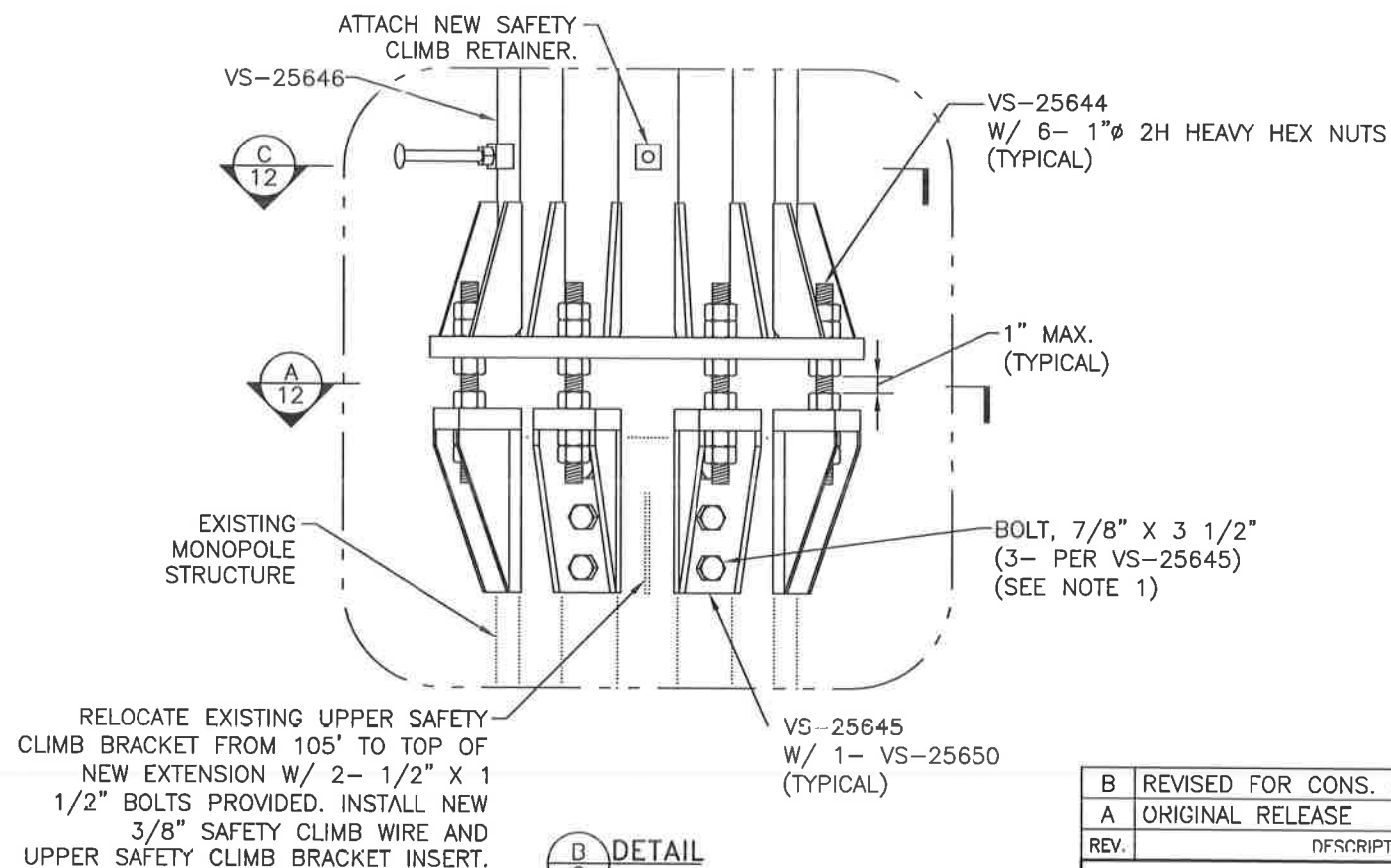
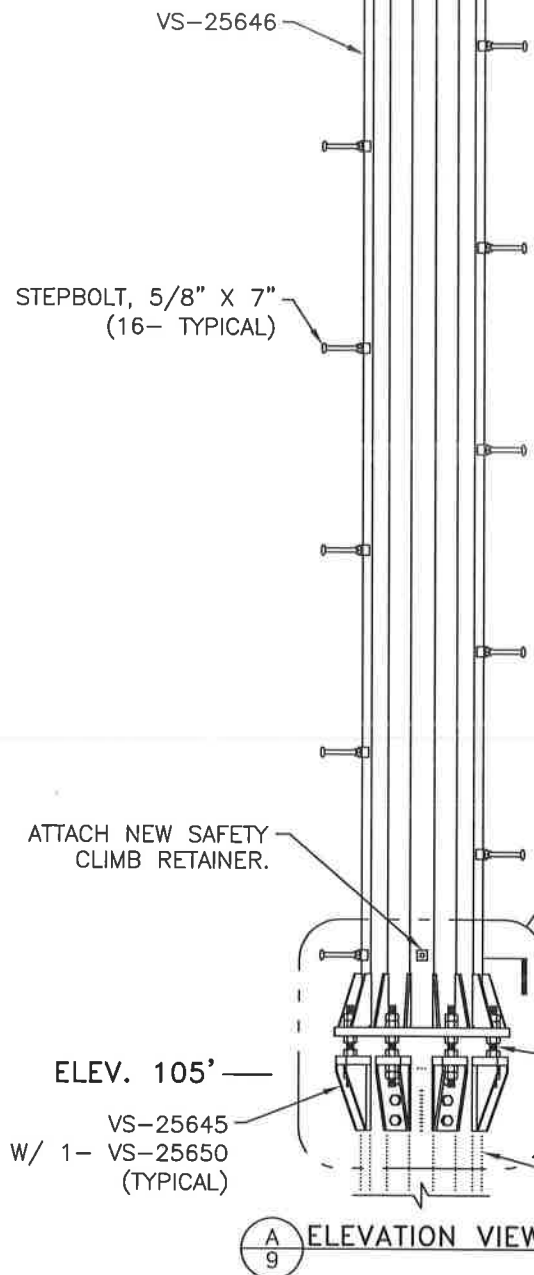
HARRIS

2018 MODIFICATIONS
TOWER REWORK FOR A 105'
VALMONT MONOPOLE W/ A 20' EXT.
PETER'S MOUNTAIN, VA

SHEET NUMBER: 8 OF 16	PROJECT NUMBER: 2018-311-013	SCALE: NONE
--------------------------	---------------------------------	----------------

ELEV. 125' —
VS-25649

VS-25644
W/ 2- 1"Ø 2H HEAVY HEX NUTS
& 2- 1"Ø LOCKWASHERS



BILL OF MATERIALS			
MARK NO.	QTY.	DESCRIPTION	MATERIAL GRADE
VS-25644	9	ALLTHREAD, 1"Ø	ASTM A193 GRADE B7
VS-25645	8	SUPPORT WELDMENT	ASTM A572 GRADE 50
VS-25646	1	EXTENSION, 18"Ø X 1/4" THICK WELDMENT	SEE PART DETAIL
VS-25647	8	BACKING PLATE, 3/4" THICK	ASTM A572 GRADE 50
VS-25648	1	TEMPLATE, 1/4" THICK	ASTM A36
VS-25649	1	COVER PLATE, 1/4" THICK	ASTM A36
VS-25650	8	SPACER PLATE, 1/4" THICK	ASTM A572 GRADE 50
XS5870	16	STEPBOLT, 5/8" X 7"	ASTM A394
XX1214	2	BOLT, 1/2" X 1 1/2"	ASTM A325
XX7834	24	BOLT, 7/8" X 3 1/2"	ASTM A325
XY1002	50	2H HEAVY HEX NUT, 1"Ø	—
XY1020	2	LOCKWASHER, 1"Ø	—
YG07	129'	SAFETY CLIMB WIRE, 3/8"Ø EHS GUY WIRE	—
YSCR2	1	SAFETY CLIMB RETAINER	—
YSCR4	1	UPPER SAFETY CLIMB BRACKET INSERT	—

NOTE:

- 24- 15/16"Ø FIELD DRILLED HOLES ARE REQUIRED.

B	REVISED FOR CONS. #2019-316-003	MJM	SWB <i>SWB</i>	BG <i>B.G.</i>	4-12-19
A	ORIGINAL RELEASE	ANP	SWB	BG	4-11-18
REV.	DESCRIPTION	DRAWN BY:	CHECKED BY:	ENGINEERED BY:	DATE



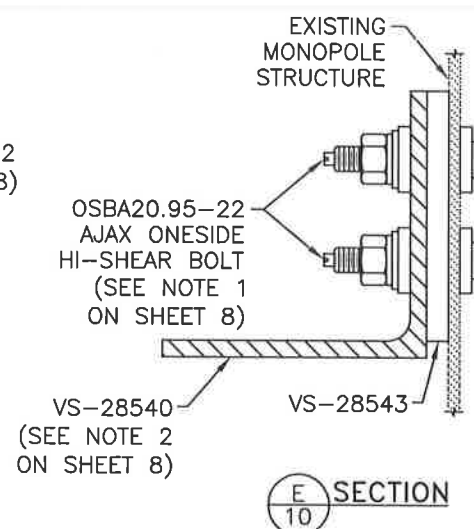
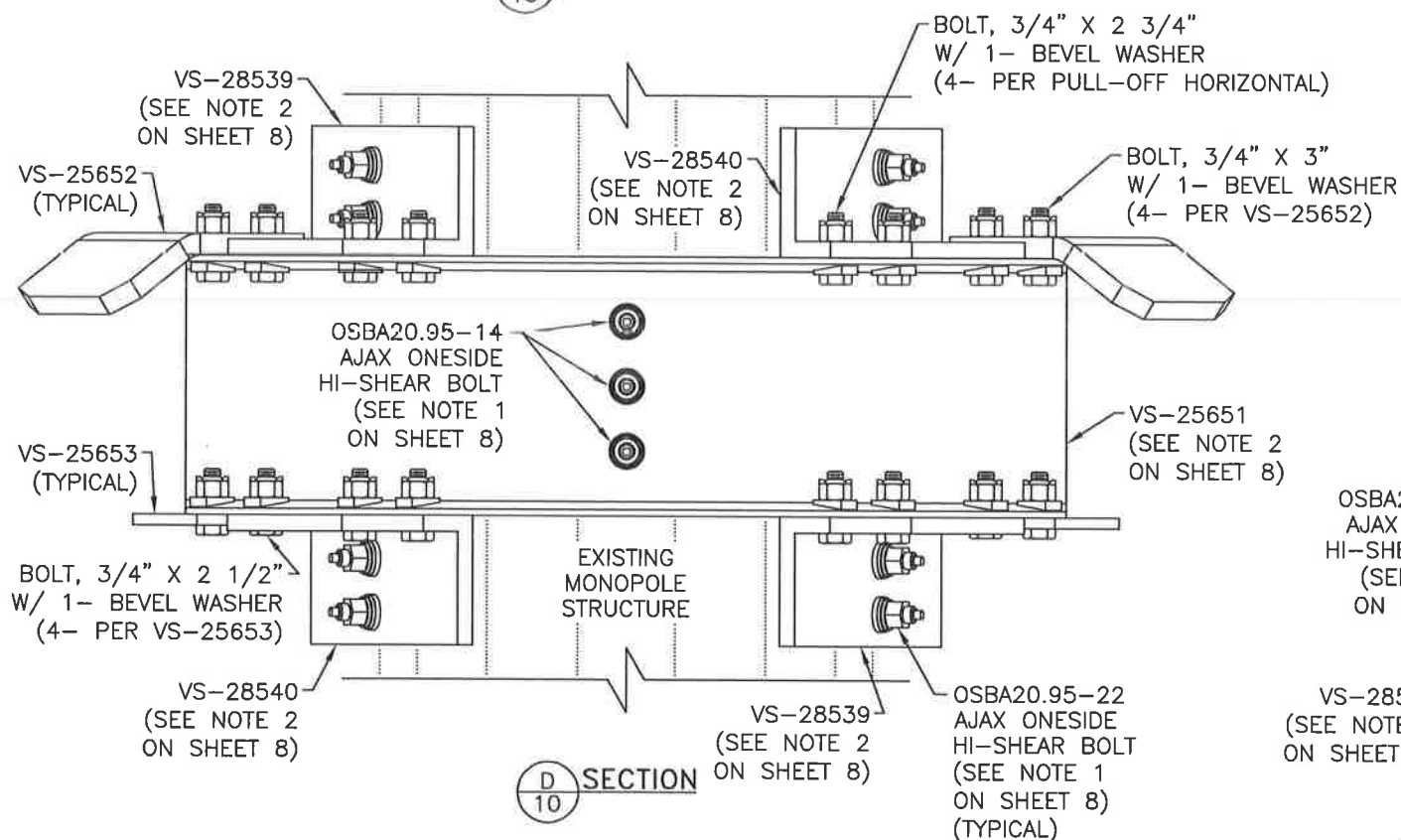
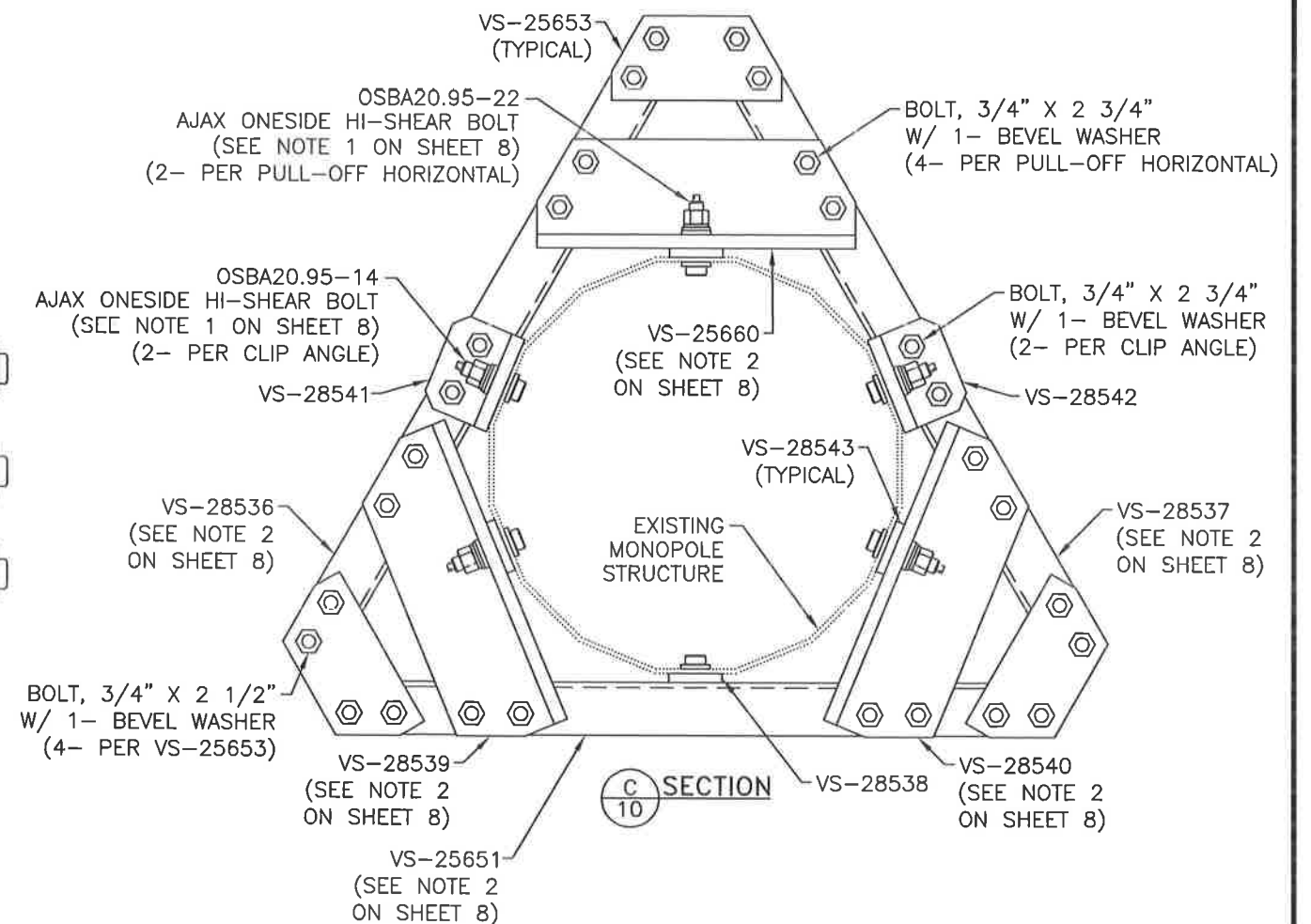
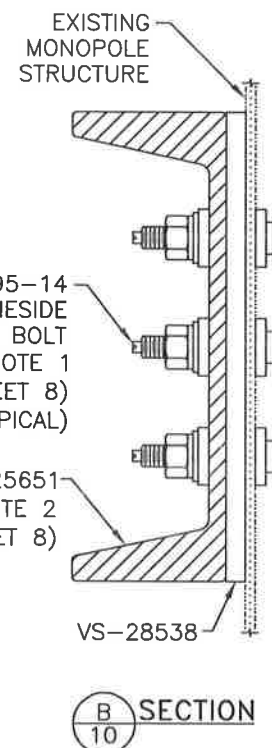
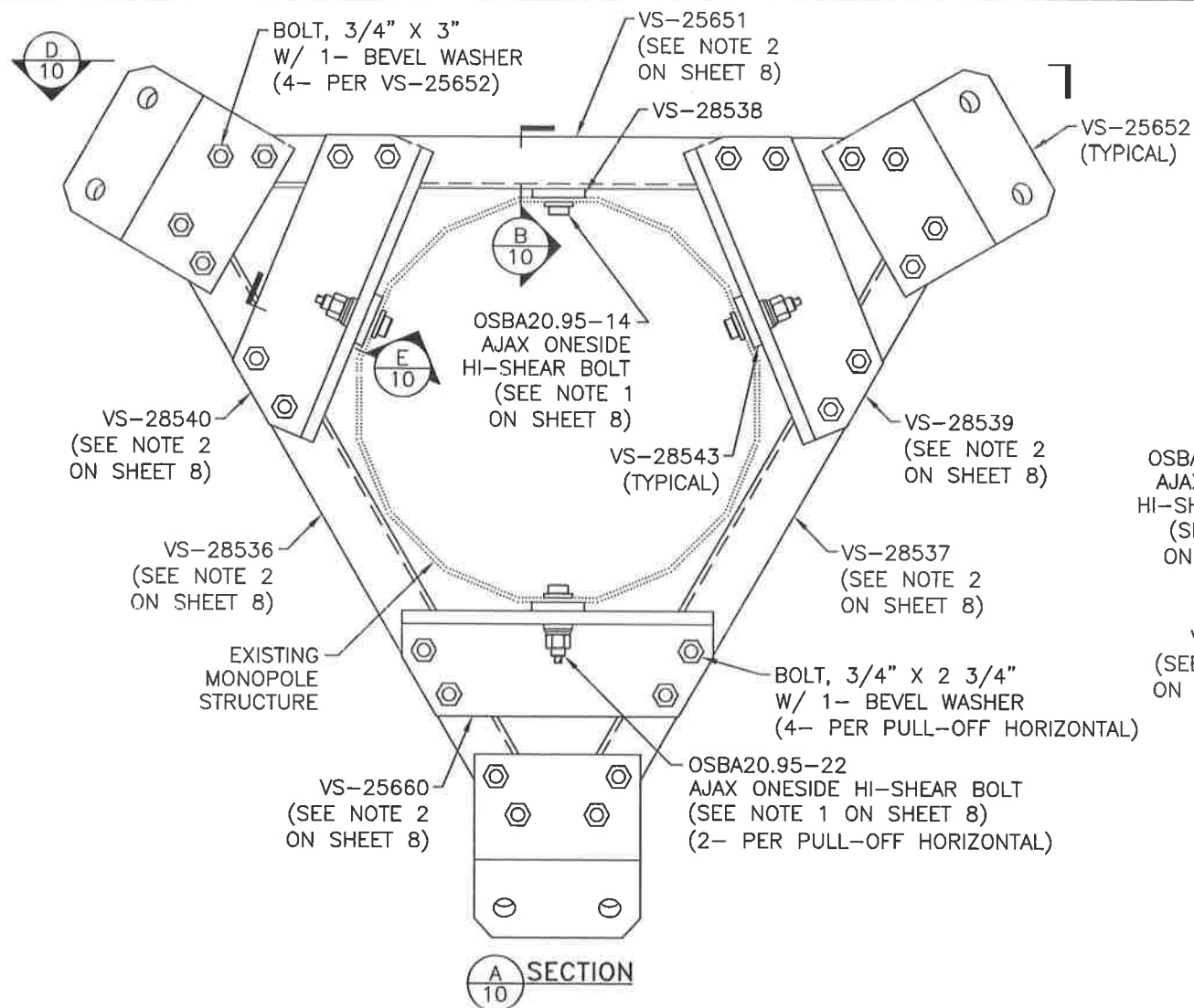
P.O. Box 1496
Richmond, KY 40476
Phone: (859) 624-8360
Fax: (859) 624-8369
Email: engineering@verticalstructures.com

FOR

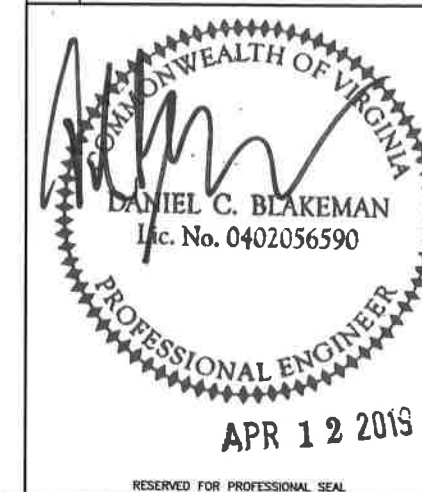
HARRIS

2018 MODIFICATIONS
TOWER REWORK FOR A 105'
VALMONT MONOPOLE W/ A 20' EXT.
PETER'S MOUNTAIN, VA

SHEET NUMBER: 9 OF 16	PROJECT NUMBER: 2018-311-013	SCALE: NONE
--------------------------	---------------------------------	----------------



B	REVISED FOR CONS. #2019-316-003	MJM	SWB <i>SWB</i>	BG <i>BG</i>	4-12-19
A	ORIGINAL RELEASE	ANP	SWB	BG	4-11-18
REV.	DESCRIPTION	DRAWN BY:	CHECKED BY:	ENGINEERED BY:	DATE

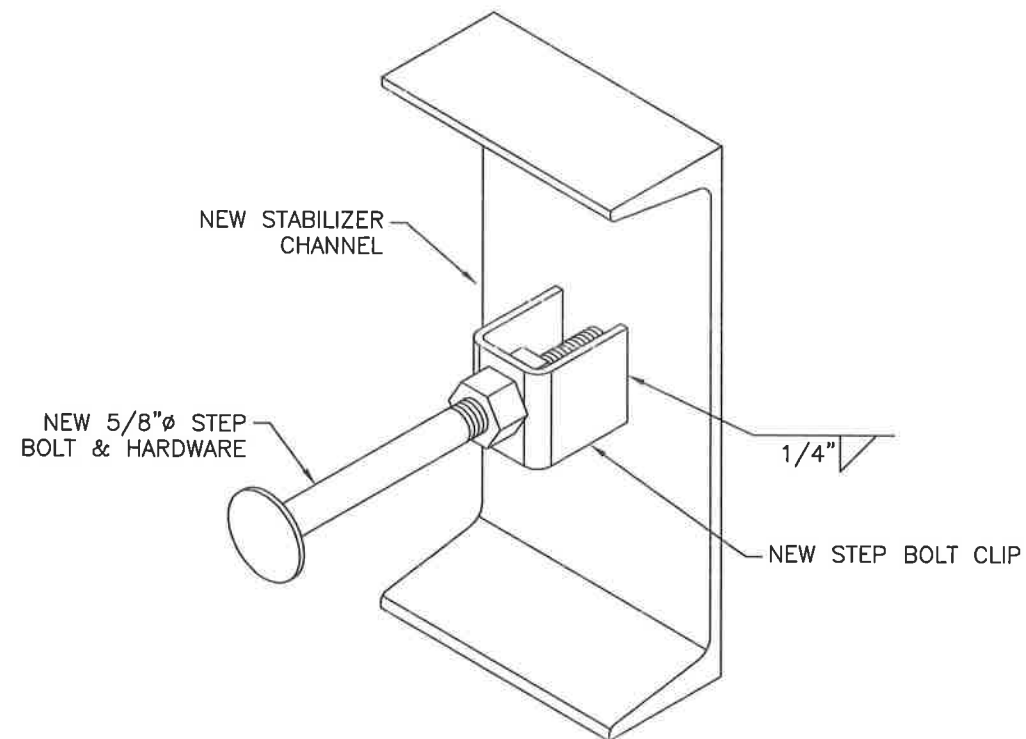


P.O. Box 1496
Richmond, KY 40476
Phone: (859) 624-8360
Fax: (859) 624-8369
Email: engineering@verticalstructures.com

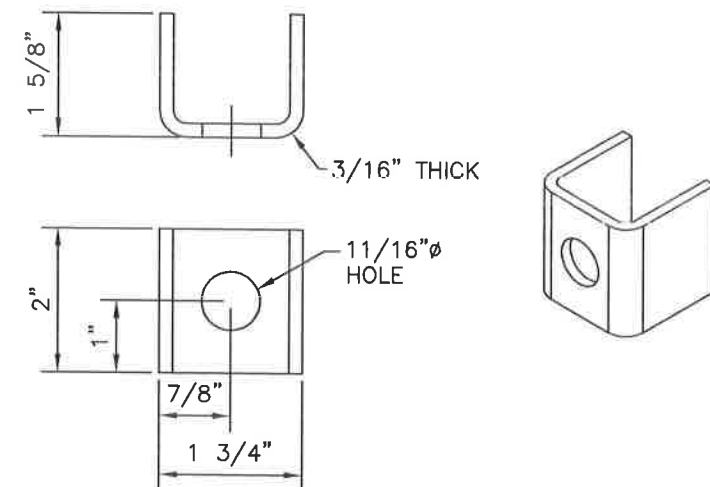
FOR
HARRIS

2018 MODIFICATIONS
TOWER REWORK FOR A 105'
VALMONT MONOPOLE W/ A 20' EXT.
PETER'S MOUNTAIN, VA

SHEET NUMBER: 10 OF 16	PROJECT NUMBER: 2018-311-013	SCALE: NONE
---------------------------	---------------------------------	----------------

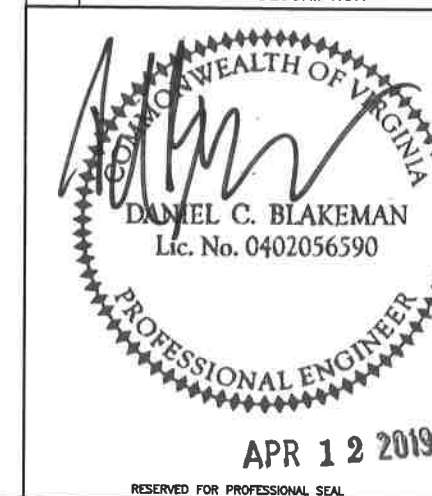


A
11 STEP BOLT CLIP INSTALLATION DETAIL



B
11 STEP BOLT CLIP DETAIL

B	REVISED FOR CONS. #2019-316-003	MJM	SWB <i>SWB</i>	BG <i>BG</i>	4-12-19
A	ORIGINAL RELEASE	ANP	SWB	BG	4-11-18
REV.	DESCRIPTION	DRAWN BY:	CHECKED BY:	ENGINEERED BY:	DATE



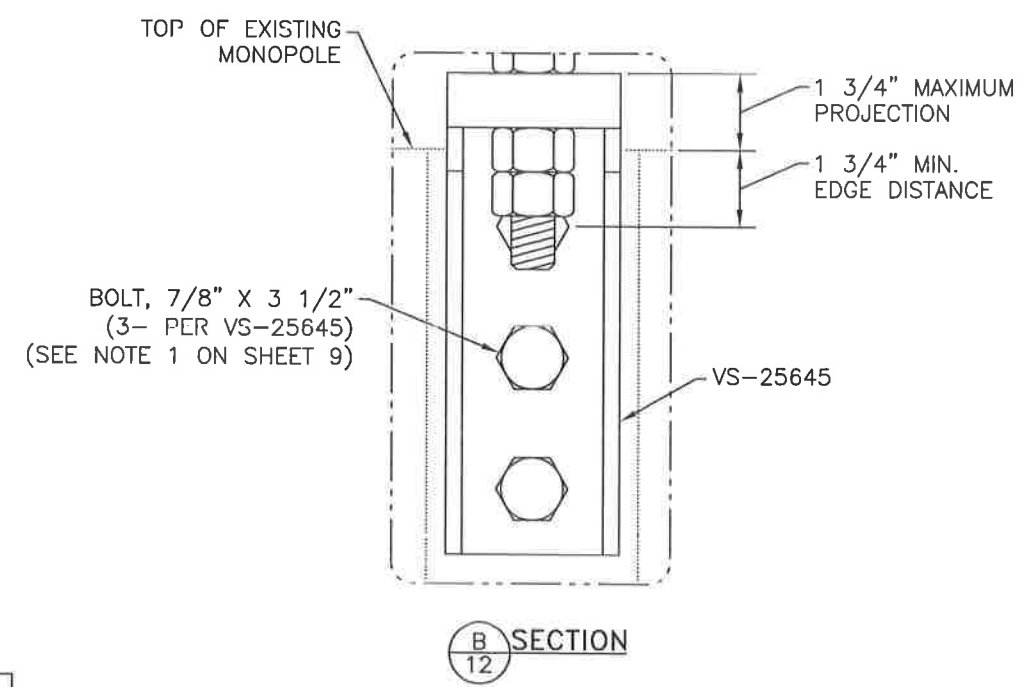
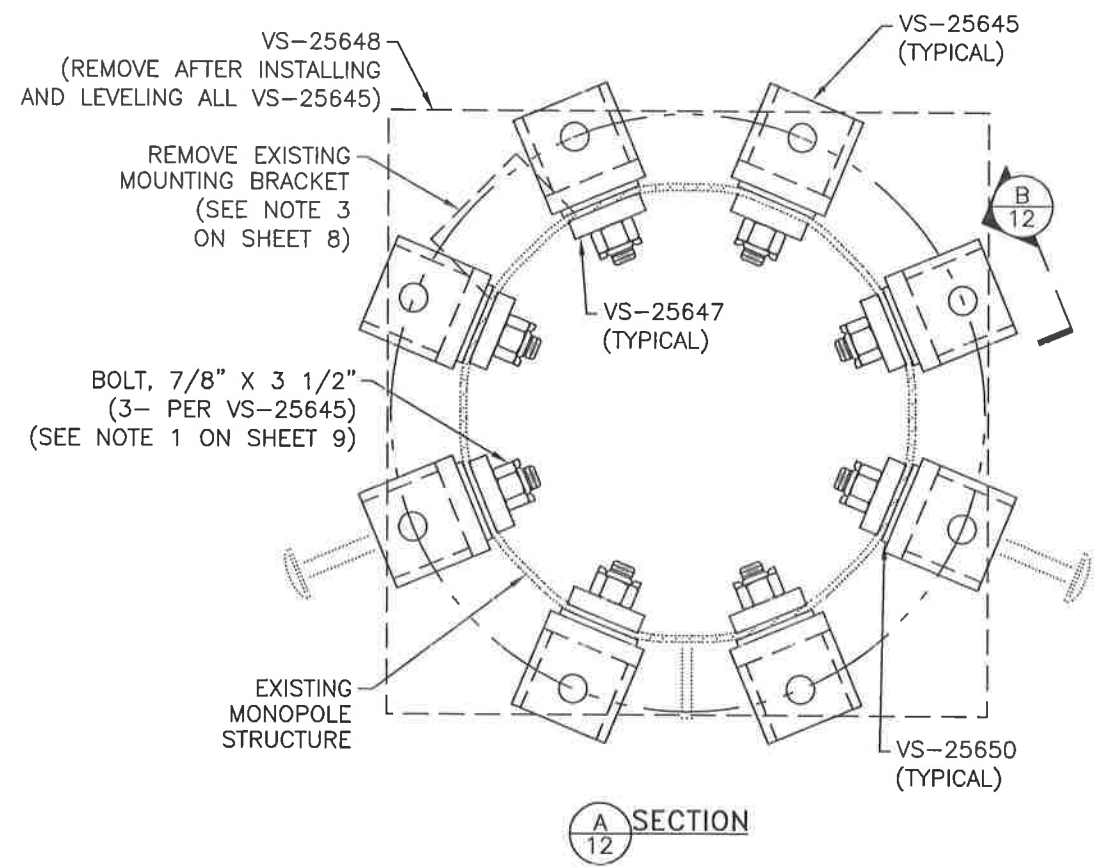
P.O. Box 1496
Richmond, KY 40476
Phone: (859) 624-8360
Fax: (859) 624-8369
Email: engineering@verticalstructures.com

FOR

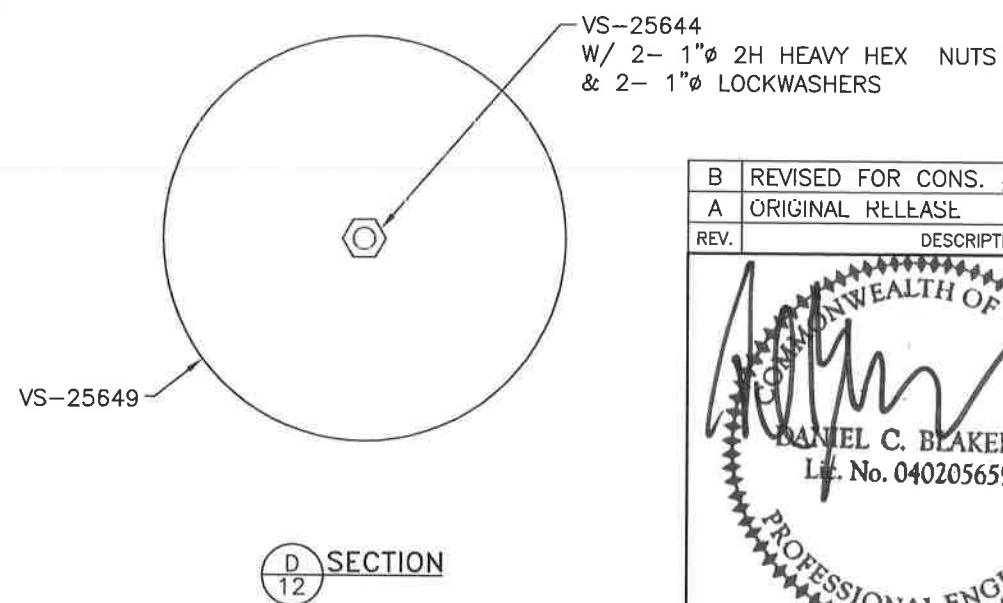
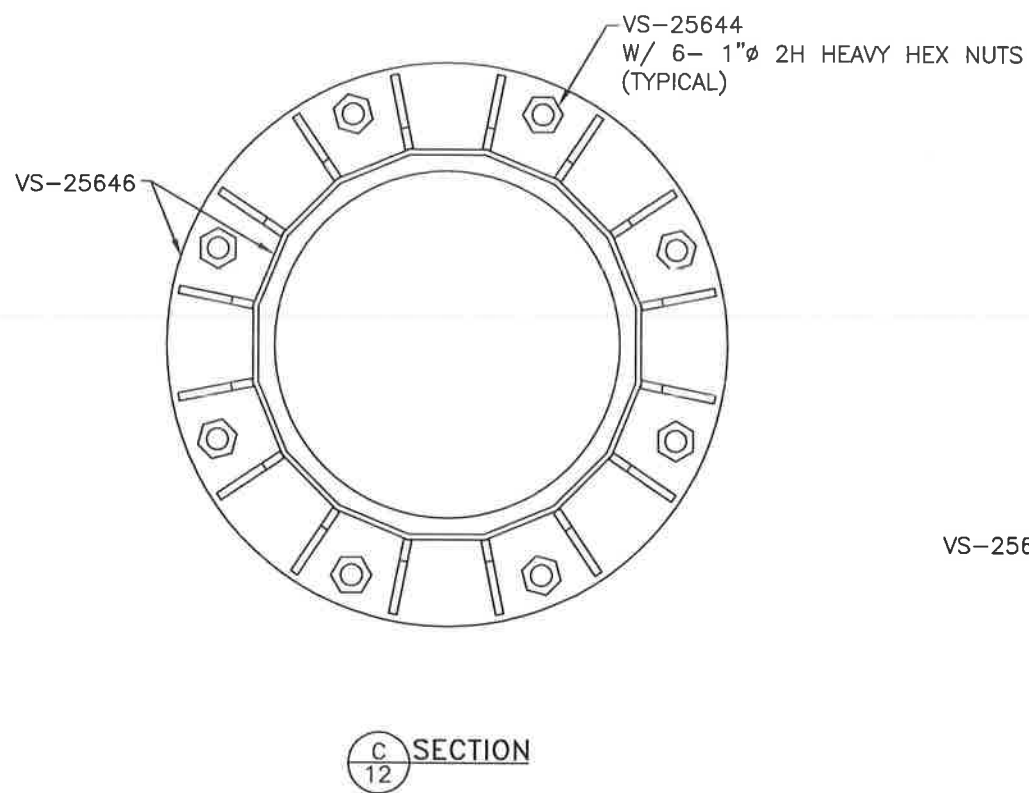
HARRIS

2018 MODIFICATIONS
TOWER REWORK FOR A 105'
VALMONT MONOPOLE W/ A 20' EXT.
PETER'S MOUNTAIN, VA

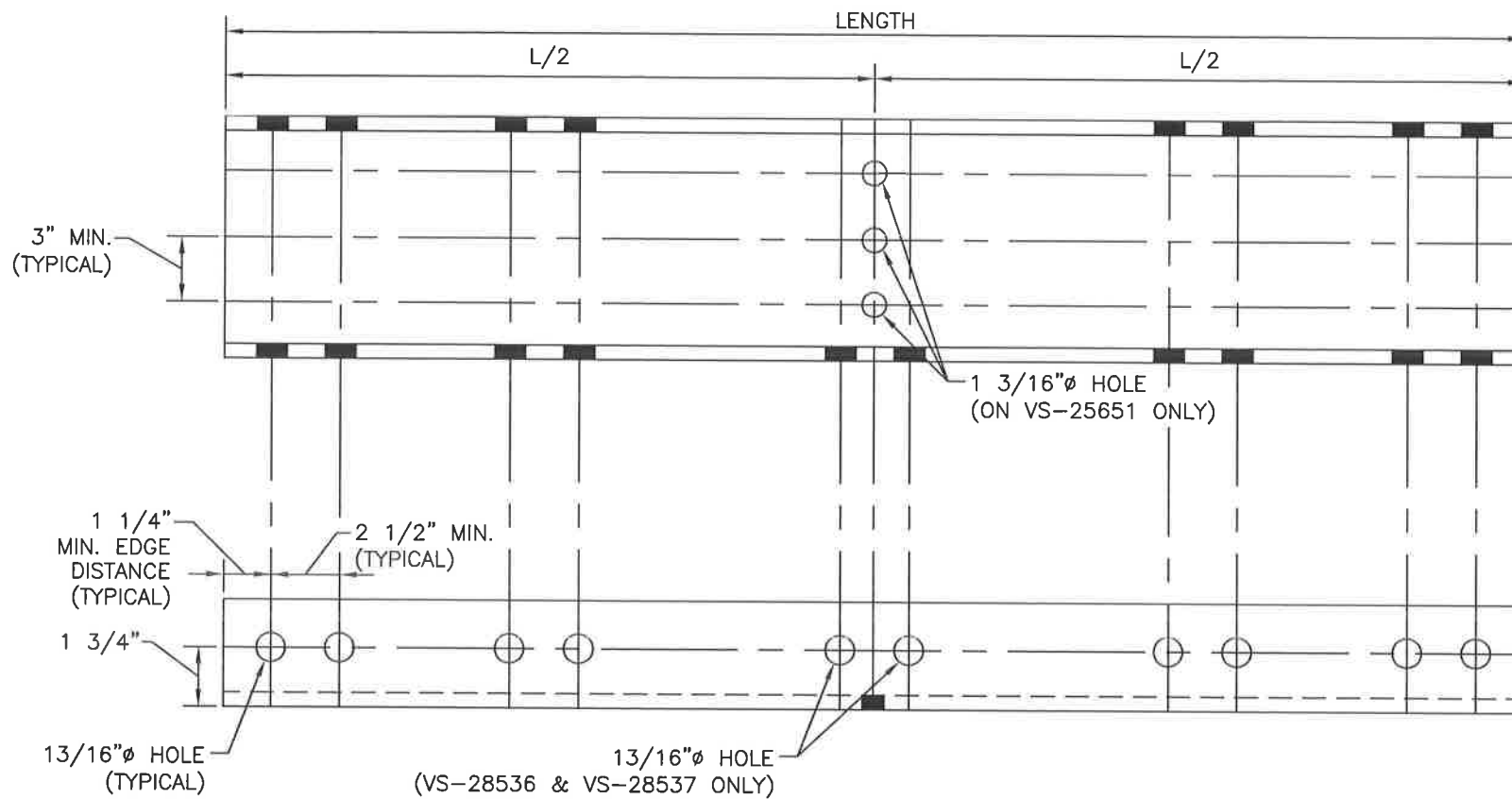
SHEET NUMBER: 11 OF 16	PROJECT NUMBER: 2018-311-013	SCALE: NONE
---------------------------	---------------------------------	----------------



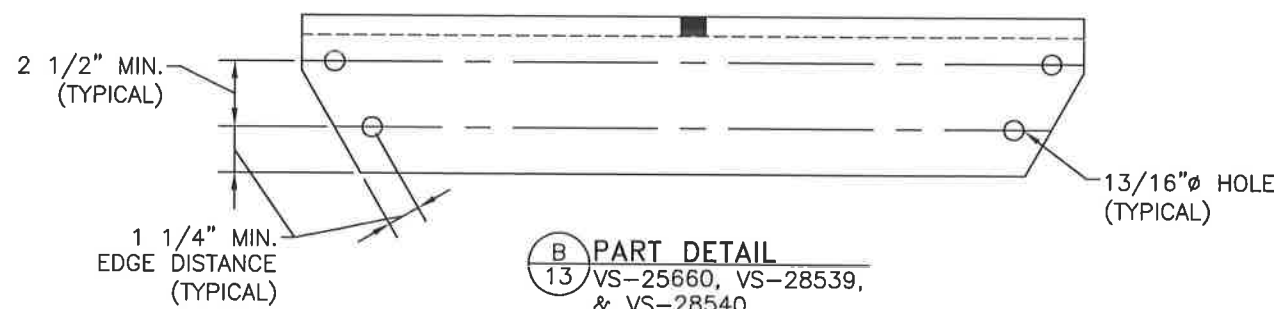
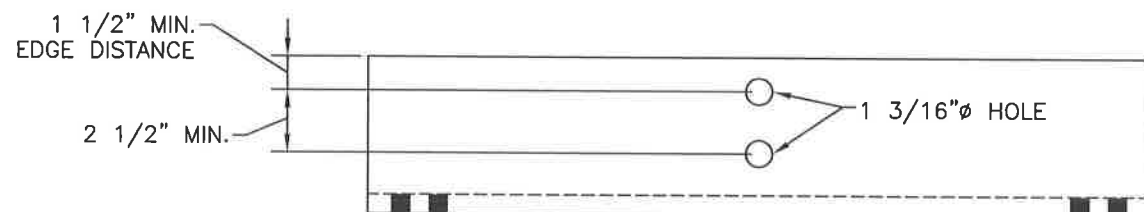
CARE SHOULD BE TAKEN
TO MAKE SURE VS-25645
SUPPORT WELDMENTS ARE
INSTALLED LEVEL.



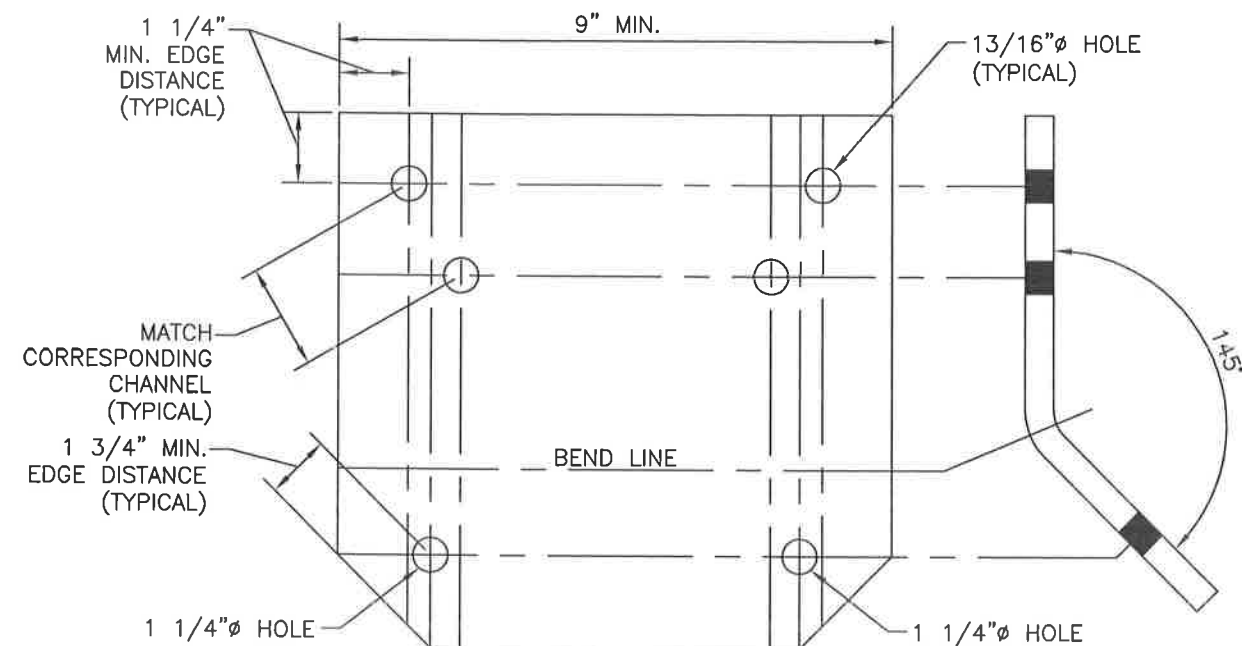
B	REVISED FOR CONS. #2019-316-003	MJM	SWB <i>SWB</i>	BG <i>BG</i>	4-12-19
A	ORIGINAL RELEASE	ANP	SWB	BG	4-11-18
REV.	DESCRIPTION	DRAWN BY:	CHECKED BY:	ENGINEERED BY:	DATE
<div> <div> </div> <div> VERTICAL STRUCTURES, INC. P.O. Box 1496 Richmond, KY 40476 Phone: (859) 624-8360 Fax: (859) 624-8369 Email: engineering@verticalstructures.com </div> </div>					
FOR					
HARRIS					
2018 MODIFICATIONS TOWER REWORK FOR A 105' VALMONT MONOPOLE W/ A 20' EXT. PETER'S MOUNTAIN, VA					
SHEET NUMBER: 12 OF 16		PROJECT NUMBER: 2018-311-013		SCALE: NONE	



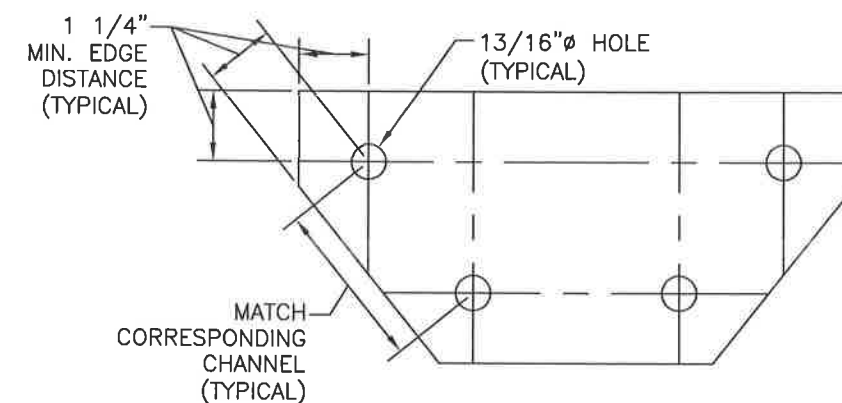
A PART DETAIL
13 VS-25651, VS-28536, & VS-28537



B PART DETAIL
13 VS-25660, VS-28539, & VS-28540

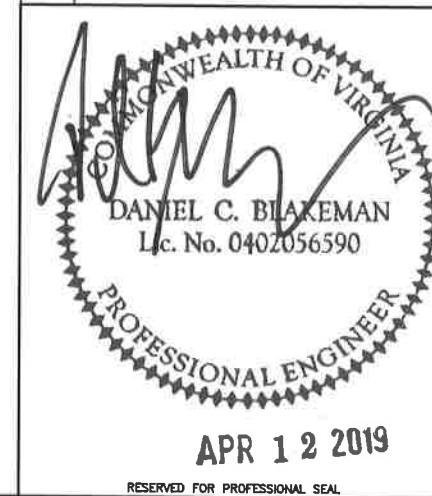


C PART DETAIL
13 VS-25652



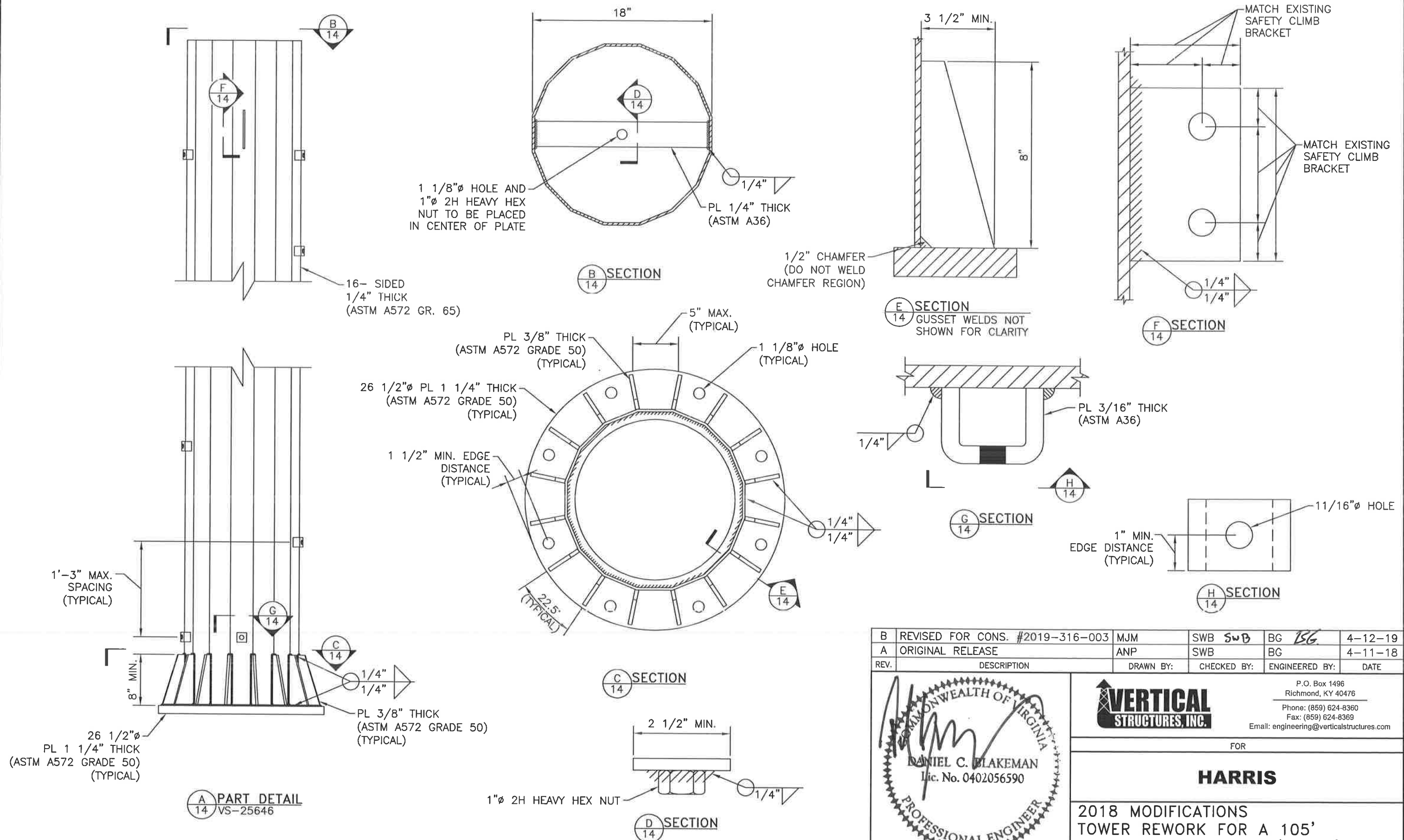
D PART DETAIL
13 VS-25653

B	REVISED FOR CONS. #2019-316-003	MJM	SWB SWB	BG BG	4-12-19
A	ORIGINAL RELEASE	ANP	SWB	BG	4-11-18
REV.	DESCRIPTION	DRAWN BY:	CHECKED BY:	ENGINEERED BY:	DATE

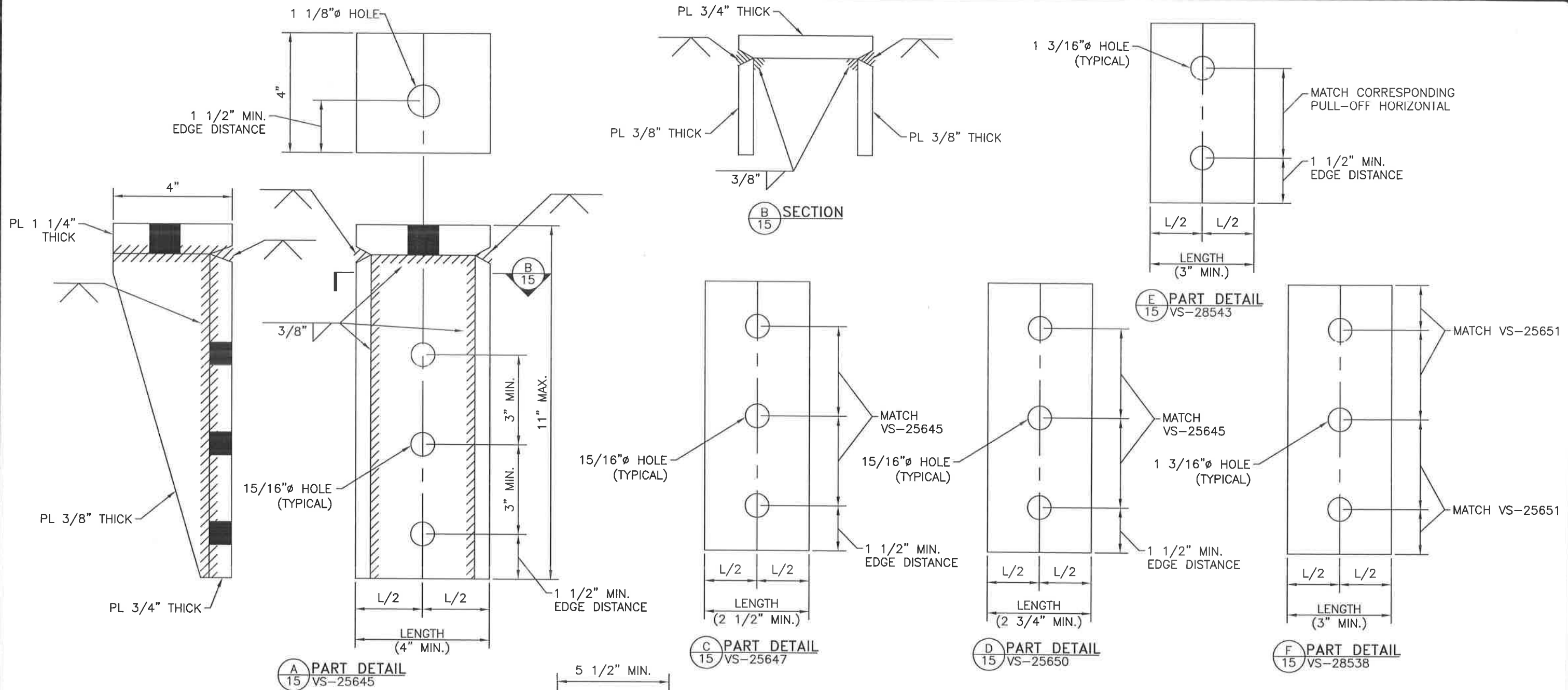


VERTICAL STRUCTURES, INC.
P.O. Box 1496
Richmond, KY 40476
Phone: (859) 624-8360
Fax: (859) 624-8369
Email: engineering@verticalstructures.com

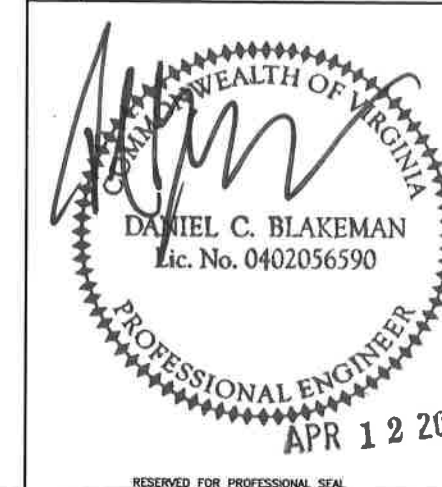
FOR
HARRIS
2018 MODIFICATIONS
TOWER REWORK FOR A 105'
VALMONT MONOPOLE W/ A 20' EXT.
PETER'S MOUNTAIN, VA
SHEET NUMBER: 13 OF 16
PROJECT NUMBER: 2018-311-013
SCALE: NONE



B	REVISED FOR CONS. #2019-316-003	MJM	SWB SWB	BG BG	4-12-19
A	ORIGINAL RELEASE	ANP	SWB	BG	4-11-18
REV.	DESCRIPTION	DRAWN BY:	CHECKED BY:	ENGINEERED BY:	DATE
<div> <div> </div> <div> VERTICAL STRUCTURES, INC. P.O. Box 1496 Richmond, KY 40476 Phone: (859) 624-8360 Fax: (859) 624-8369 Email: engineering@verticalstructures.com </div> </div>					
FOR					
HARRIS					
2018 MODIFICATIONS TOWER REWORK FOR A 105' VALMONT MONOPOLE W/ A 20' EXT. PETER'S MOUNTAIN, VA					
SHEET NUMBER: 14 OF 16		PROJECT NUMBER: 2018-311-013		SCALE: NONE	

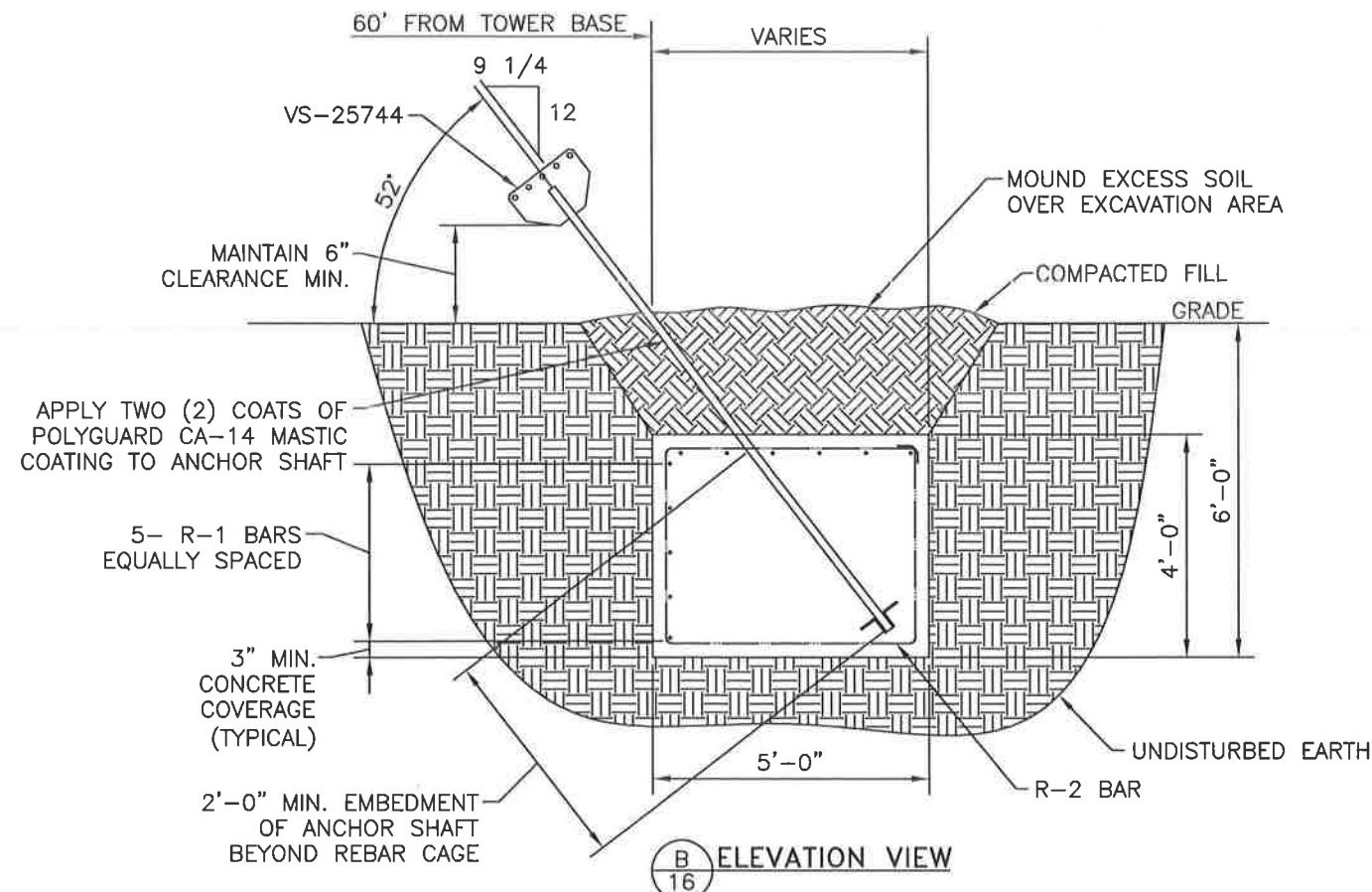
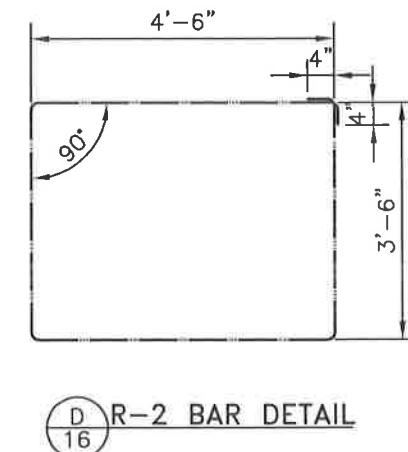
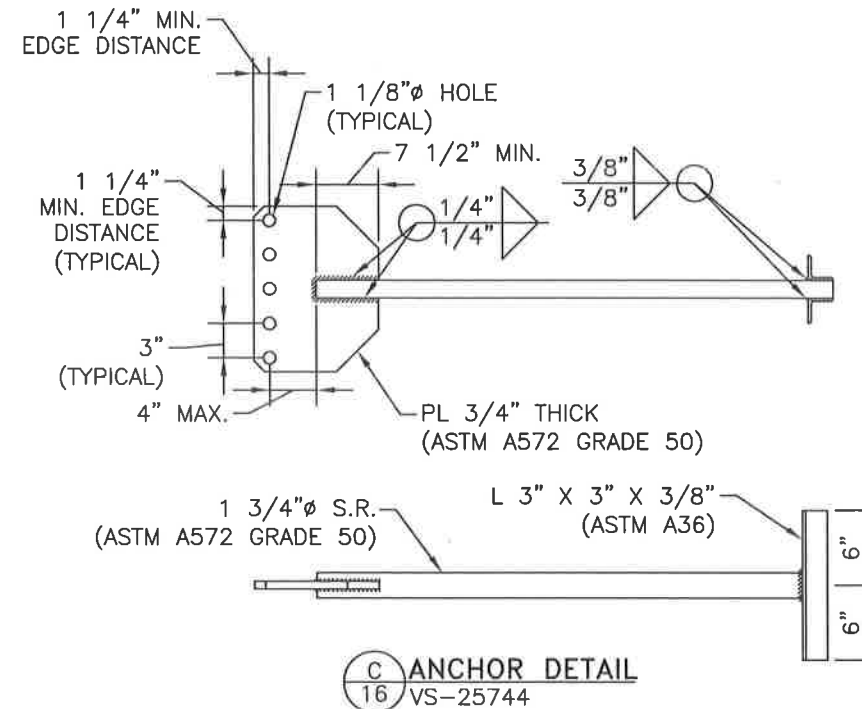
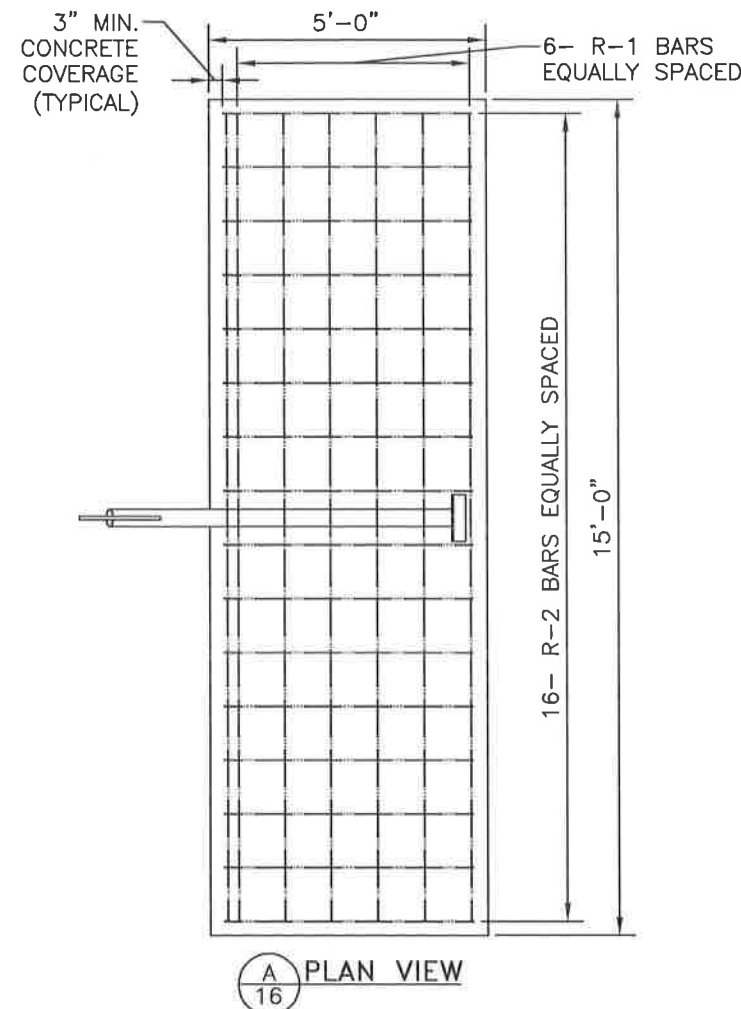


B	REVISED FOR CONS. #2019-316-003	MJM	SWB <i>SWB</i>	BG <i>BG</i>	4-12-19
A	ORIGINAL RELEASE	ANP	SWB	BG	4-11-18
REV.	DESCRIPTION	DRAWN BY:	CHECKED BY:	ENGINEERED BY:	DATE



VERTICAL STRUCTURES, INC.
P.O. Box 1496
Richmond, KY 40476
Phone: (859) 624-8360
Fax: (859) 624-8369
Email: engineering@verticalstructures.com

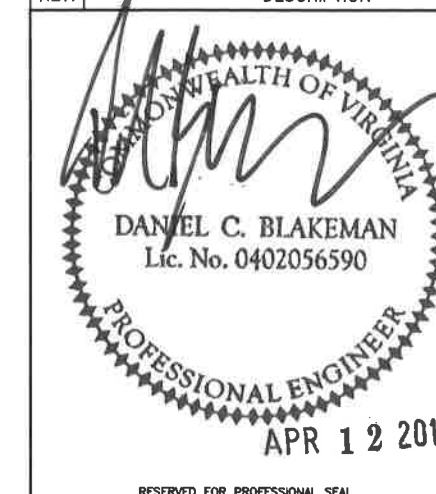
FOR
HARRIS
2018 MODIFICATIONS
TOWER REWORK FOR A 105'
VALMONT MONOPOLE W/ A 20' EXT.
PETER'S MOUNTAIN, VA
SHEET NUMBER: 15 OF 16
PROJECT NUMBER: 2018-311-013
SCALE: NONE



BILL OF MATERIALS		
REF.	QTY.	DESCRIPTION
VS-25744	3	ANCHOR SHAFT (ASTM A572, GRADE 50)
R-1	33	#7 REBAR X 14'-6"
R-2	48	#4 REBAR X 16'-8"
-	33.33	CONCRETE (CU. YARDS)
-	-	POLYGUARD CA-14 MASTIC COATING (QTY. AS NEEDED)

- NOTES:
1. QUANTITIES SHOWN ARE FOR 3- ANCHORS.
 2. ALL CONCRETE WORK SHALL CONFORM TO ACI 318 BUILDING REQUIREMENTS FOR REINFORCED CONCRETE.
 3. REBAR: REINFORCING BARS SHALL CONFORM TO ASTM A615 SPECIFICATIONS, GRADE 60.
 4. CONCRETE TO HAVE A MINIMUM OF 6 SACKS OF CEMENT PER CUBIC YARD AND HAVE 3000 P.S.I. MINIMUM COMPRESSION AT 28 DAYS.
 5. SLUMP TEST SHALL BE PERFORMED IN ACCORDANCE WITH ASTM C143. SLUMP CAN BE NO MORE THAN 5".
 6. BACKFILL IS TO BE MADE IN LIFTS NOT TO EXCEED 18". EACH LIFT IS TO BE TAMPED BY HAND OR WITH HAND HELD VIBRATORY COMPACTOR SUFFICIENTLY TO REMOVE LARGE VOIDS AND REDUCE SETTLEMENT. EXCAVATED AREA TO HAVE MINIMUM OF 6" MOUND ABOVE NATURAL GROUND SURFACE WHEN COMPLETED. NO FROZEN MATERIALS, LARGE ROCKS OR ORGANIC MATERIAL IS TO BE USED FOR BACKFILL.
 7. CONTRACTOR TO REFERENCE THE GEOTECHNICAL REPORT PUBLISHED BY FROEHLING & ROBERTSON, PROJECT NO. E71-175G TO EVALUATE SUBSURFACE CONDITIONS.

B	REVISED FOR CONS. #2019-316-003	MJM	SWB <i>SwB</i>	BG <i>BG</i>	4-12-19
A	ORIGINAL RELEASE	ANP	SWB	BG	4-11-18
REV.	DESCRIPTION	DRAWN BY:	CHECKED BY:	ENGINEERED BY:	DATE



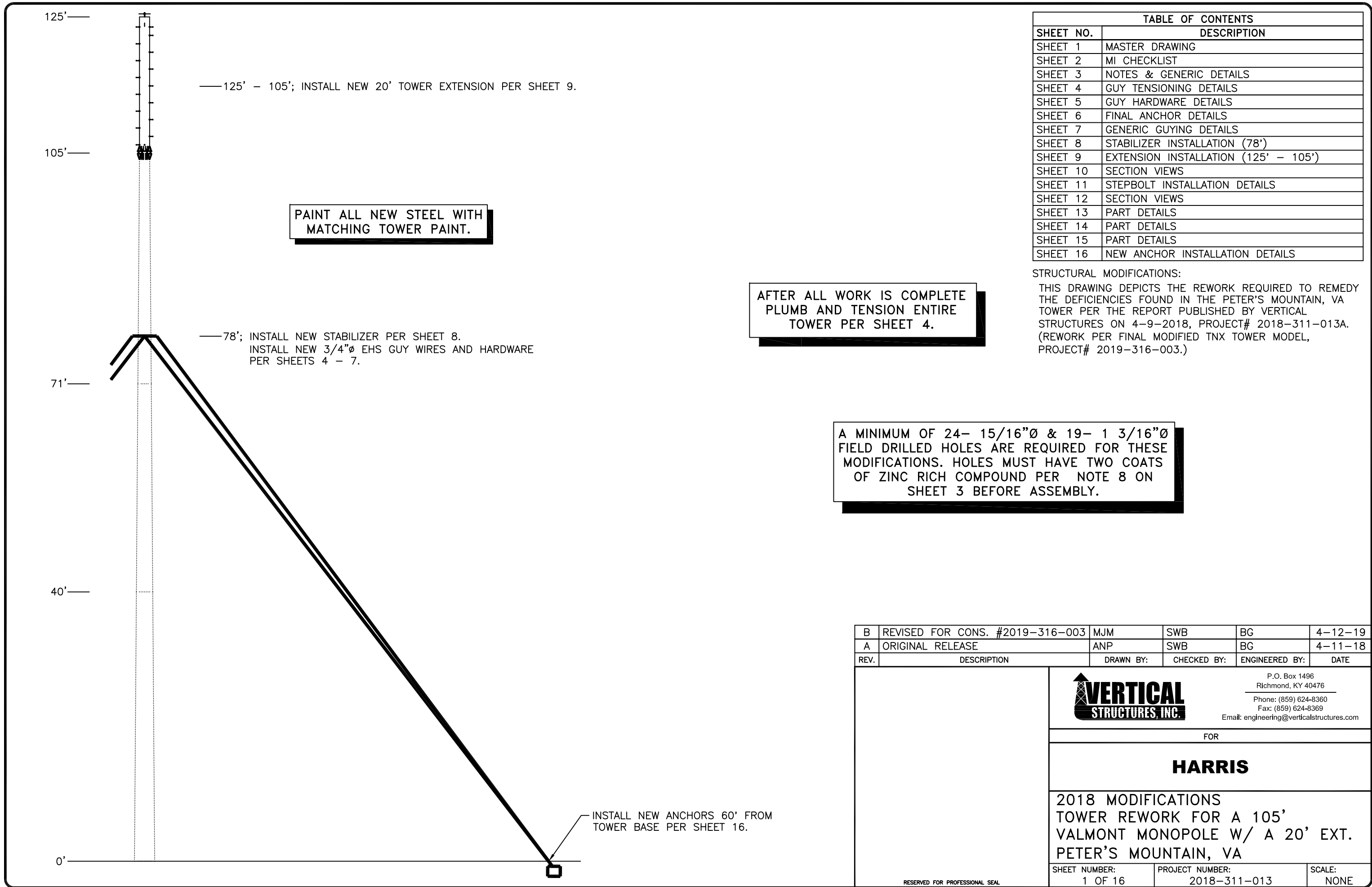
P.O. Box 1496
Richmond, KY 40476
Phone: (859) 624-8360
Fax: (859) 624-8369
Email: engineering@verticalstructures.com

FOR

HARRIS

2018 MODIFICATIONS
TOWER REWORK FOR A 105'
VALMONT MONOPOLE W/ A 20' EXT.
PETER'S MOUNTAIN, VA

SHEET NUMBER: 16 OF 16	PROJECT NUMBER: 2018-311-013	SCALE: NONE
---------------------------	---------------------------------	----------------



MODIFICATION INSPECTION CHECKLIST			
	REQUIRED	REPORT ITEM	BRIEF DESCRIPTION OF REQUIREMENTS
PRE-CONSTRUCTION DOCUMENTS	X	MI CHECKLIST	THIS SHEET OF THE DRAWINGS.
	X	EOR APPROVED SHOP DRAWING	ENGINEER OF RECORD APPROVAL LETTER WITH APPROVED FABRICATION DRAWINGS.
	X	FABRICATION INSPECTION	A LETTER FROM THE FABRICATOR, STATING ALL FABRICATION WORK HAS BEEN COMPLETED IN ACCORDANCE WITH INDUSTRY STANDARDS AND THE CONTRACT DOCUMENTS.
	X	FABRICATOR CERTIFIED WELD INSPECTION	A REPORT FROM THE FABRICATOR, STATING ALL WELDING HAS BEEN COMPLETED IN ACCORDANCE WITH AWS D1.1 AND THE CONTRACT DOCUMENTS. REPORT TO INCLUDE, AT A MINIMUM, VISUAL INSPECTION RESULTS, PHOTOS OF ALL PHASES OF WELDING (PRE, DURING, AND POST), WELDER CERTIFICATIONS, WPS'S, WQTR, AND CWI CERTIFICATION.
	X	MATERIAL TEST REPORTS (MTR)	MATERIAL TEST REPORTS FOR ALL MATERIALS AND HARDWARE LISTED IN THE CONTRACT DOCUMENTS.
	N/A	FABRICATOR NDE INSPECTION	A REPORT FROM THE FABRICATOR, STATING ALL WELDING HAS BEEN INSPECTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. REPORT TO INCLUDE, AT A MINIMUM, TESTING RESULTS, METHODS OF NDE UTILIZED, PHOTOS OF EXAMINATION, AND EXAMINER'S QUALIFICATIONS.
	N/A	NDE REPORT OF MONOPOLE BASE PLATE	A REPORT FROM THE EXAMINER, STATING POLE TO BASE PLATE CONNECTION HAS BEEN INSPECTED. REPORT TO INCLUDE, AT A MINIMUM, TESTING RESULTS, WELD SIZES EXAMINED, METHODS OF NDE UTILIZED, PHOTOS OF EXAMINATION, AND EXAMINER'S QUALIFICATIONS.
	X	PACKING SLIPS	PACKING SLIPS FOR ALL MATERIALS AND HARDWARE LISTED IN THE CONTRACT DOCUMENTS.
CONSTRUCTION DOCUMENTS	X	CONSTRUCTION INSPECTIONS	A LETTER FROM THE GENERAL CONTRACTOR, STATING ALL WORK HAS BEEN COMPLETED IN ACCORDANCE WITH INDUSTRY STANDARDS AND THE CONTRACT DOCUMENTS.
	X	FOUNDATION INSPECTIONS	A LETTER FROM A THIRD PARTY INSPECTOR, STATING ALL EXCAVATION AND REBAR HAS BEEN INSPECTED PRIOR TO CONCRETE PLACEMENT AND HAS BEEN COMPLETED IN ACCORDANCE WITH INDUSTRY STANDARDS AND THE CONTRACT DOCUMENTS.
	X	CONCRETE COMPRESSIVE STRENGTH AND SLUMP TESTS	CONCRETE MIX DESIGN AND TEST REPORTS FOR CONCRETE COMPRESSIVE STRENGTH AND SLUMP TESTS IN ACCORDANCE WITH ACI 318, ASTM C143, AND THE CONTRACT DOCUMENTS.
	N/A	POST INSTALLED ANCHOR ROD VERIFICATION	A REPORT FROM THE GENERAL CONTRACTOR, DETAILING PROPER INSTALLATION OF ANCHOR RODS IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. REPORT TO INCLUDE, AT A MINIMUM, PHOTOS OF EPOXY/GROUT USED, HOLE CLEANING AND ROUGHENING PROCEDURES, HOLE DIAMETER, DEPTH, AND LOCATION, AND DIAMETER AND LENGTH OF ANCHOR RODS.
	N/A	BASE PLATE GROUT VERIFICATION	A LETTER FROM THE GENERAL CONTRACTOR, STATING GROUT HAS BEEN INSTALLED IN ACCORDANCE WITH INDUSTRY STANDARDS AND THE CONTRACT DOCUMENTS. LETTER TO INCLUDE, AT A MINIMUM, PHOTOS OF PRODUCT, SURFACE PREPARATION, AND INSTALLATION.
	N/A	CONTRACTOR'S CERTIFIED WELD INSPECTION	A REPORT FROM A CWI, STATING ALL WELDING HAS BEEN COMPLETED IN ACCORDANCE WITH AWS D1.1 AND THE CONTRACT DOCUMENTS. REPORT TO INCLUDE, AT A MINIMUM, VISUAL INSPECTION RESULTS, PHOTOS OF ALL PHASES OF WELDING (PRE, DURING, AND POST), WELDER CERTIFICATIONS, WPS'S, WQTR, AND CWI CERTIFICATION.
	X	EARTHWORK: LIFT AND DENSITY	A REPORT FROM A GEOTECHNICAL ENGINEER, STATING ALL BACKFILLING OPERATIONS HAVE BEEN COMPLETED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
	X	ON SITE COLD GALVANIZING VERIFICATION	A LETTER FROM THE GENERAL CONTRACTOR, STATING ALL COLD GALVANIZING HAS BEEN COMPLETED IN ACCORDANCE WITH INDUSTRY STANDARDS AND THE CONTRACT DOCUMENTS. LETTER TO INCLUDE, AT A MINIMUM, PHOTOS OF SITE VERIFICATION, PRODUCT USED, APPLICATION, AND AN EXAMPLE OF FINAL INSTALLED CONDITION.
	X	GUY WIRE TENSION REPORT	A LETTER FROM THE GENERAL CONTRACTOR, STATING ALL GUY WIRE PLUMB, TWIST AND TENSIONS HAVE BEEN COMPLETED IN ACCORDANCE WITH INDUSTRY STANDARDS AND THE CONTRACT DOCUMENTS. LETTER TO INCLUDE, AT A MINIMUM, SITE TEMPERATURE, EQUIPMENT USED, TENSION OF EACH WIRE WITH PHOTO DOCUMENTATION, AND PLUMB AND TWIST RESULTS.
	X	GENERAL CONTRACTOR'S AS-BUILT DOCUMENTS	DOCUMENTATION FROM THE GENERAL CONTRACTOR, STATING ALL WORK HAS BEEN COMPLETED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS OR THAT CHANGES WERE MADE DUE TO FIELD CONDITIONS. IF CHANGES WERE MADE, THE GENERAL CONTRACTOR MUST ALSO PROVIDE PROOF OF ACCEPTANCE FROM THE ENGINEER OF RECORD.
POST-CONSTRUCTION DOCUMENTS	N/A	POST INSTALLED ANCHOR ROD PULL-OUT TESTING	A REPORT FROM A PULL TEST CONTRACTOR, STATING ALL ANCHOR RODS HAVE BEEN INSTALLED AND TESTED IN ACCORDANCE WITH INDUSTRY STANDARDS AND THE CONTRACT DOCUMENTS. REPORT TO INCLUDE, AT A MINIMUM, DEFLECTION READINGS AT 15% INCREMENTS OF THE TARGET LOAD AFTER BEING HELD IN 2 MINUTE DURATIONS, LOCATIONS OF TESTING, EQUIPMENT USED, AND PHOTOS OF ALL PHASES OF PULL TESTING. THE GENERAL CONTRACTOR SHALL CONTACT THE ENGINEER OF RECORD IMMEDIATELY IF THE DISPLACEMENT IS GREATER THAN 0.01 INCHES.
	X	PHOTOGRAPHS	PHOTOS FROM ALL PHASES OF CONSTRUCTION.
	THE ABOVE DOCUMENTS SHALL BE PROVIDED BY THE GENERAL CONTRACTOR TO THE MI INSPECTOR TO BE INCLUDED IN THE FINAL MI REPORT		
	X	MI INSPECTOR REDLINE OR RECORD DRAWINGS	DOCUMENTATION FROM THE MI INSPECTOR, STATING ALL WORK HAS BEEN COMPLETED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND THE GENERAL CONTRACTOR'S AS-BUILT DOCUMENTS OR NOTING THE DIFFERENCES BETWEEN THE DOCUMENTS.
	N/A	MI INSPECTOR U-BOLT TORQUE VERIFICATION	DOCUMENTATION FROM THE MI INSPECTOR, STATING THEY HAVE VERIFIED THE TORQUE OF U-BOLTS WITH A SPECIFIED TORQUE VALUE AS INDICATED IN THE CONTRACT DOCUMENTS. THE INSPECTION SHALL BE PERFORMED TO 85% OF THE SPECIFIED TORQUE VALUE ON A MINIMUM OF 10% OF U-BOLTS RANDOMLY THROUGHOUT THE MODIFICATION, NOT ALL IN ONE AREA.
THE ABOVE DOCUMENTS SHALL BE PROVIDED BY THE MI INSPECTOR TO BE INCLUDED IN THE FINAL MI REPORT			
X INDICATES DOCUMENTS REQUIRED FOR MI REPORT. N/A INDICATES DOCUMENT IS NOT REQUIRED FOR MI REPORT.			

MODIFICATION INSPECTION NOTES:

GENERAL

THE MODIFICATION INSPECTION IS A VISUAL INSPECTION OF TOWER MODIFICATIONS AND A REVIEW OF THE DOCUMENTS LISTED HEREIN TO INSURE THE MODIFICATIONS WERE PERFORMED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

THE MODIFICATION INSPECTION IS TO CONFIRM THE INSTALLATION CONFIGURATION AND WORKMANSHIP ONLY AND IS NOT A REVIEW OF THE DESIGN ITSELF. OWNERSHIP OF THE MODIFICATION DESIGN RESIDES WITH THE ENGINEER OF RECORD.

TO ENSURE ALL MODIFICATION INSPECTION REQUIREMENTS ARE MET, THE GENERAL CONTRACTOR SHALL STAY IN GOOD COMMUNICATION WITH THE MODIFICATION INSPECTOR FOR PROPER COORDINATION THROUGHOUT THE ENTIRE LIFE OF THE PROJECT.

IT IS SUGGESTED THAT THE GENERAL CONTRACTOR PROVIDE A MINIMUM OF 5 BUSINESS DAYS NOTICE, PREFERABLY 10, TO THE MODIFICATION INSPECTOR AS TO WHEN THE SITE WILL BE READY FOR THE MODIFICATION INSPECTION TO BE PERFORMED.

CORRECTION OF FAILING MODIFICATION INSPECTIONS

IF ANY PORTION OF THE MODIFICATIONS WERE TO FAIL THE MODIFICATION INSPECTION, THE GENERAL CONTRACTOR SHALL WORK WITH THE TOWER OWNER, MODIFICATION INSPECTOR, AND THE ENGINEER OF RECORD TO COORDINATE A REMEDIATION PLAN IN ONE OF THE FOLLOWING WAYS:

1. CORRECT FAILING ISSUES TO COMPLY WITH THE SPECIFICATIONS OF THE ORIGINAL CONTRACT DOCUMENTS.
2. WITH APPROVAL BY ALL PARTIES; AND AT AN ADDITIONAL COST, THE GENERAL CONTRACTOR MAY WORK WITH THE ENGINEER OF RECORD TO RE-ANALYZE THE MODIFICATION USING THE AS-BUILT CONDITIONS.

REQUIRED PHOTOGRAPHS

BETWEEN THE GENERAL CONTRACTOR AND THE MODIFICATION INSPECTOR THE FOLLOWING PHOTOGRAPHS, AT A MINIMUM ARE REQUIRED TO BE INCLUDED IN THE MODIFICATION REPORT.

1. PRE-CONSTRUCTION GENERAL SITE CONDITIONS.
2. MATERIAL BEING USED.
3. EXAMPLES OF ALL THE MODIFICATIONS BEING PERFORMED.
4. FINAL INSTALLED CONDITION.
5. BOLT INSTALLATION AND TORQUE (WHEN APPLICABLE).
6. FOUNDATION MODIFICATIONS (WHEN APPLICABLE).
7. WELD PREPARATION (WHEN APPLICABLE).
8. SURFACE COATING REPAIR (WHEN APPLICABLE).

PHOTOS OF ELEVATED MODIFICATIONS TAKEN FROM THE GROUND ARE CONSIDERED INADEQUATE.

B	REVISED FOR CONS. #2019-316-003	MJM	SWB	BG	4-12-19
A	ORIGINAL RELEASE	ANP	SWB	BG	4-11-18
REV.	DESCRIPTION	DRAWN BY:	CHECKED BY:	ENGINEERED BY:	DATE



P.O. Box 1496
Richmond, KY 40476
Phone: (859) 624-8360
Fax: (859) 624-8369
Email: engineering@verticalstructures.com

FOR

HARRIS

2018 MODIFICATIONS
TOWER REWORK FOR A 105'
VALMONT MONOPOLE W/ A 20' EXT.
PETER'S MOUNTAIN, VA

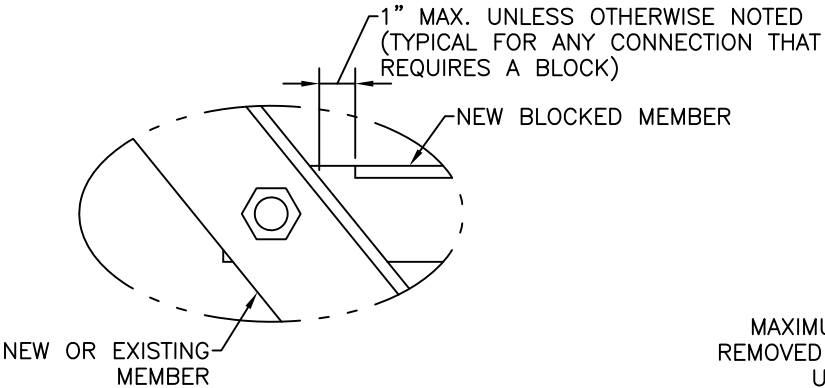
SHEET NUMBER: 2 OF 16	PROJECT NUMBER: 2018-311-013	SCALE: NONE
--------------------------	---------------------------------	----------------

TECHNICAL SPECIFICATION NOTES:

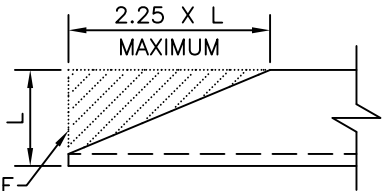
1. CONTRACTOR: CALL VERTICAL STRUCTURES AT (859) 624-8360 TO MAKE SURE YOU HAVE THE LATEST REVISION OF THIS DRAWING.
2. CONTACT THE ENGINEER CONCERNING ANY CHANGES OR MODIFICATIONS THAT MAY BE REQUIRED DUE TO THE EXISTING CONDITIONS.
3. ALL SAE GRADE 5 BOLTS TO BE INSTALLED WITH ASTM A194 HEX OR ASTM A194 2H HEAVY HEX NUTS.
4. ALL ASTM A325 AND ASTM A490 BOLTS TO BE INSTALLED WITH ASTM A194 2H HEAVY HEX NUTS.
5. LOCKING MECHANISM FOR BOLTS TO BE PALNUTS OR LOCKWASHERS UNLESS NOTED OTHERWISE.
6. ALL U-BOLTS TO BE INSTALLED WITH ASTM A194 2H HEAVY HEX NUTS AND LOCKWASHERS.
7. ANY HARDWARE REMOVED FROM THE EXISTING TOWER MUST BE REPLACED WITH NEW HARDWARE OF EQUAL SIZE AND QUALITY UNLESS NOTED OTHERWISE.
8. AFTER FIELD MODIFICATIONS OF ANY STEEL MEMBERS, COAT EXPOSED STEEL SURFACES WITH TWO COATS OF ZINC CLAD COATING, CONTAINING A MINIMUM 95% ZINC TO RESTORE THE GALVANIZED PROTECTION ON THE MEMBERS. IF REQUIRED, PAINT ALL AREAS AFFECTED OR NEW STEEL WITH MATCHING TOWER PAINT.
9. FINISHING SPECIFICATIONS – ALL MATERIAL TO BE HOT DIPPED GALVANIZED IN ACCORDANCE WITH THE FOLLOWING SPECIFICATIONS:
A. FABRICATED MATERIAL – ASTM A123.
B. HARDWARE – ASTM A153.
C. GUY WIRE – ASTM A475.
10. ELEVATIONS SHOWN ARE NOMINAL AND NOT EXACT.
11. ALL SHOP WELDING TO BE DONE IN ACCORDANCE WITH AWS D1.1 STRUCTURAL WELDING CODE. ALL WELDING TO BE DONE BY AWS CERTIFIED WELDER USING E70XX RODS.
12. PART FABRICATION DETAILS MUST BE APPROVED BY VERTICAL STRUCTURES, INC. BEFORE USE. REVIEW MAY INCLUDE RECEIPT OF MILL CERTIFICATIONS WHEN NECESSARY.
13. IT IS THE RESPONSIBILITY OF THE MATERIAL SUPPLIER TO GUARANTEE PROPER FITUP. ALL DIMENSIONS USED IN FABRICATION DETAILS MUST BE FIELD VERIFIED.
14. ALL CONSTRUCTION MUST BE PERFORMED IN ACCORDANCE WITH ANSI/TIA-1019-A STANDARD.

FIELD WELDING SPECIFICATION NOTES:

1. SURFACES TO BE CLEARED OF GALVANIZATION BEFORE FIELD WELDING ANY MATERIAL.
2. CARE MUST BE TAKEN TO ENSURE THAT THE COAX AND GALVANIZATION INSIDE THE POLE ARE NOT DAMAGED BY HEAT DURING WELDING.
3. WELDER TO BE AWS CERTIFIED AND USE E70XX RODS.
4. A LOW-HEAT WELDING PROCEDURE SHOULD BE EMPLOYED. PROCEDURE MUST BE SUBMITTED TO VERTICAL STRUCTURES FOR REVIEW PRIOR TO CONSTRUCTION.

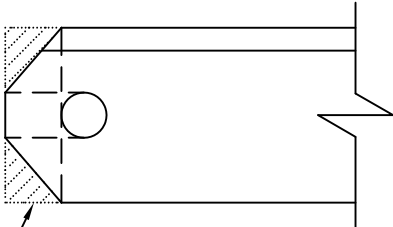


A
3 **GENERIC BLOCK DETAIL**
ALL MEMBERS MUST BE INSTALLED AS SHOWN ON ELEVATION VIEW



MAXIMUM AREA ALLOWED TO BE REMOVED ON ANY COPED MEMBER UNLESS OTHERWISE NOTED

B
3 **GENERIC COPE DETAIL**



MAXIMUM AREA ALLOWED TO BE REMOVED ON ANY CLIPPED MEMBER UNLESS OTHERWISE NOTED (TYPICAL)

C
3 **GENERIC CLIP DETAIL**

B	REVISED FOR CONS. #2019-316-003	MJM	SWB	BG	4-12-19
A	ORIGINAL RELEASE	ANP	SWB	BG	4-11-18
REV.	DESCRIPTION	DRAWN BY:	CHECKED BY:	ENGINEERED BY:	DATE



P.O. Box 1496
Richmond, KY 40476
Phone: (859) 624-8360
Fax: (859) 624-8369
Email: engineering@verticalstructures.com

FOR

HARRIS

2018 MODIFICATIONS
TOWER REWORK FOR A 105'
VALMONT MONOPOLE W/ A 20' EXT.
PETER'S MOUNTAIN, VA

SHEET NUMBER: 3 OF 16	PROJECT NUMBER: 2018-311-013	SCALE: NONE
--------------------------	---------------------------------	----------------

RESERVED FOR PROFESSIONAL SEAL

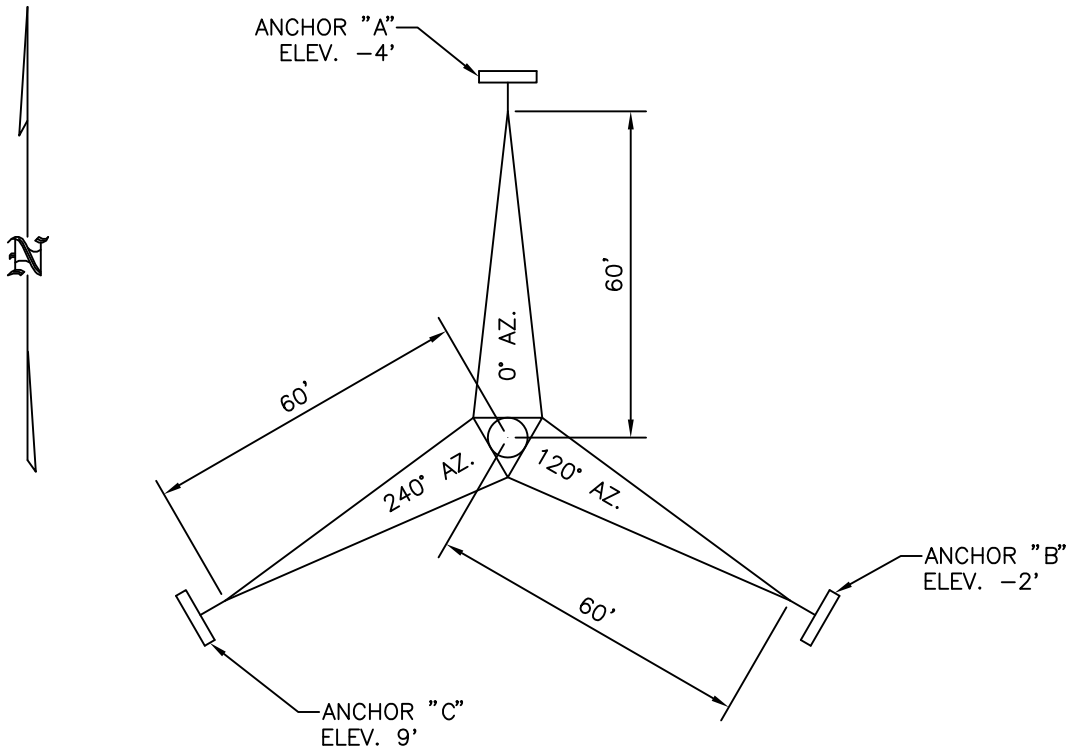
INITIAL GUY TENSION	
GUY ELEVATION	78'
GUY WIRE SIZE	3/4"
ULTIMATE BREAKING STRENGTH (KIPS)	58.3
INITIAL TENSION	10%
ANCHOR LABEL	A
ANCHOR RADIUS	60'
ANCHOR ELEVATION	-4'
ACTUAL LENGTH	102'
CUT LENGTH	112'
TEMPERATURE:	
120°	4.685
100°	5.067
80°	5.448
60°	5.830
40°	6.212
20°	6.593
0°	6.975
ANCHOR LABEL	B
ANCHOR RADIUS	60'
ANCHOR ELEVATION	-2'
ACTUAL LENGTH	100'
CUT LENGTH	110'
TEMPERATURE:	
120°	4.648
100°	5.042
80°	5.436
60°	5.830
40°	6.224
20°	6.618
0°	7.012
ANCHOR LABEL	C
ANCHOR RADIUS	60'
ANCHOR ELEVATION	9'
ACTUAL LENGTH	91'
CUT LENGTH	101'
TEMPERATURE:	
120°	4.416
100°	4.887
80°	5.359
60°	5.830
40°	6.301
20°	6.773
0°	7.244

ANCHOR "A"

ANCHOR "B"

ANCHOR "C"

- NOTES:
1. SET INITIAL GUY TENSION WITHIN 10% OF VALUES SHOWN IN CHART.
 2. MEASUREMENTS ARE IN KIPS.
 3. FIELD VERIFY EACH ANCHOR RADIUS AND ELEVATION PRIOR TO CUTTING WIRE.



ANCHOR LAYOUT
IF ANCHOR DISTANCES AND/OR ELEVATIONS DIFFER MORE THAN FIVE FEET FROM THOSE SHOWN CONTACT VERTICAL STRUCTURES.

B	REVISED FOR CONS. #2019-316-003	MJM	SWB	BG	4-12-19
A	ORIGINAL RELEASE	ANP	SWB	BG	4-11-18
REV.	DESCRIPTION	DRAWN BY:	CHECKED BY:	ENGINEERED BY:	DATE



P.O. Box 1496
Richmond, KY 40476
Phone: (859) 624-8360
Fax: (859) 624-8369
Email: engineering@verticalstructures.com

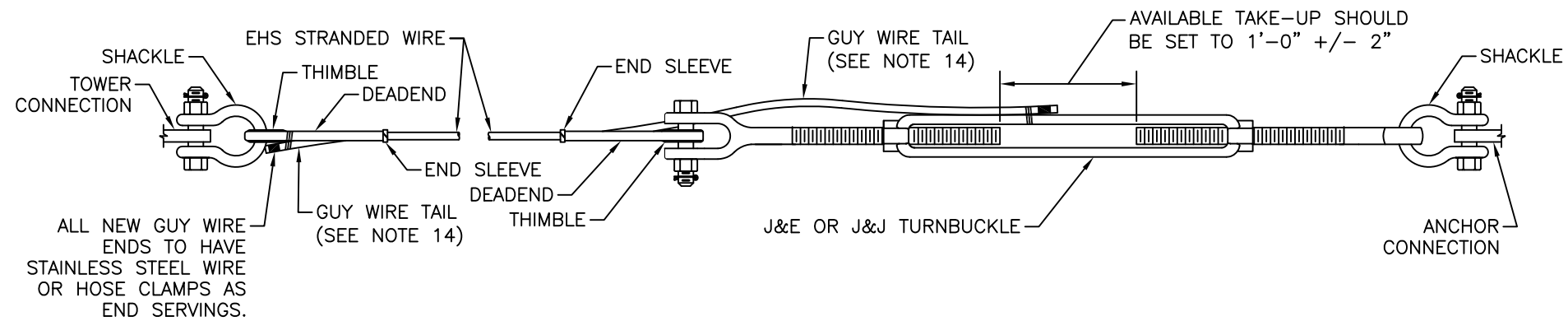
FOR

HARRIS

2018 MODIFICATIONS
TOWER REWORK FOR A 105'
VALMONT MONOPOLE W/ A 20' EXT.
PETER'S MOUNTAIN, VA

SHEET NUMBER: 4 OF 16	PROJECT NUMBER: 2018-311-013	SCALE: NONE
--------------------------	---------------------------------	----------------

RESERVED FOR PROFESSIONAL SEAL



A
5 GUY HARDWARE DETAIL

GUY HARDWARE BILL OF MATERIALS		
HARDWARE P/N	DESCRIPTION	78'
YG1750	3/4" PREFORMED BIG-GRIP DEADEND	12
YG2750	3/4" PREFORMED END SLEEVE	12
YG3877	7/8" CROSBY G-2130 SHACKLE	12
YG4875	7/8" CROSBY G-414 THIMBLE	12
YG5225	1 1/4" X 18" CROSBY HG-227B J&E TURNBUCKLE	6

- NOTES:
1. ALL GUY HARDWARE TO BE HOT-DIPPED GALVANIZED.
 2. ALL GUY HARDWARE AS SPECIFIED OR AN EOR APPROVED EQUAL.
 3. THE USE OF WIRE ROPE CLIPS AS DEADEND SLEEVES IS PROHIBITED.
 4. THE TAG END OF GUY WIRES SHALL NOT TOUCH THE GROUND.
 5. DEAD END SLEEVES SHALL BE INSTALLED SO FULLY EVEN WITH THE SHORT TAIL SIDE OF THE PREFORM.
 6. PREFORMS SHALL BE PURCHASED FROM PREFORMED LINE PRODUCTS (PLP). WWW.PREFORMED.COM
 7. SHACKLES AND TURNBUCKLES ASSEMBLIES SHALL BE FORGED AISI GRADE 1030, 1035, OR 1045 STEEL OR EQUIVALENT AND SUITABLY HEAT-TREATED (QUENCHED AND TEMPERED, NORMALIZED OR ANNEALED).
 8. PINS SHALL CONSIST OF A BOLT, NUT, AND STAINLESS STEEL COTTER PINS.
 9. SHACKLES AND TURNBUCKLES SUPPLIED BY THE CROSBY GROUP ARE PRE-APPROVED. SHACKLES AND TURNBUCKLES BY OTHERS REQUIRE APPROVAL FROM THE EOR PRIOR TO INSTALLATION. INSTALLATION OF NON-APPROVED COMPONENTS IS CAUSE FOR AUTOMATIC REJECTION.
 10. CERTIFICATION/VERIFICATION DOCUMENTATION FOR THE GUY WIRE, TURNBUCKLES, SHACKLES, AND PREFORMS SHALL BE SUPPLIED TO THE MODIFICATION INSPECTOR TO BE INCLUDED IN THE CLOSE OUT REPORT.
 11. THE TURNBUCKLE AND SHACKLE SIZE LISTED ARE MINIMUM DIMENSIONS. LARGER SIZES ARE PERMITTED WITH EOR APPROVAL BASED ON FIT UP. IT IS THE CONTRACTORS RESPONSIBILITY TO VERIFY FIT UP AT THE PRE-CONSTRUCTION SITE WALK.
 12. IF THE FAN PLATE SIDE SHACKLE CAUSES INTERFERENCES, CONTACT THE EOR.
 13. TURNBUCKLES SHALL BE ADJUSTED BY A PROPER SIZED SMOOTH JAWED WRENCH. CHANNEL LOCKS ARE PROHIBITED.
 14. ON THE GUY ANCHOR CONNECTION, THE GUY WIRE TAIL MUST EXTEND TO THE TURNBUCKLE AND BE TIED BACK. ON THE GUY TOWER CONNECTION, THE GUY WIRE TAIL MUST EXTEND TO THE THIMBLE AND ALSO BE TIED BACK.

B	REVISED FOR CONS. #2019-316-003	MJM	SWB	BG	4-12-19
A	ORIGINAL RELEASE	ANP	SWB	BG	4-11-18
REV.	DESCRIPTION	DRAWN BY:	CHECKED BY:	ENGINEERED BY:	DATE



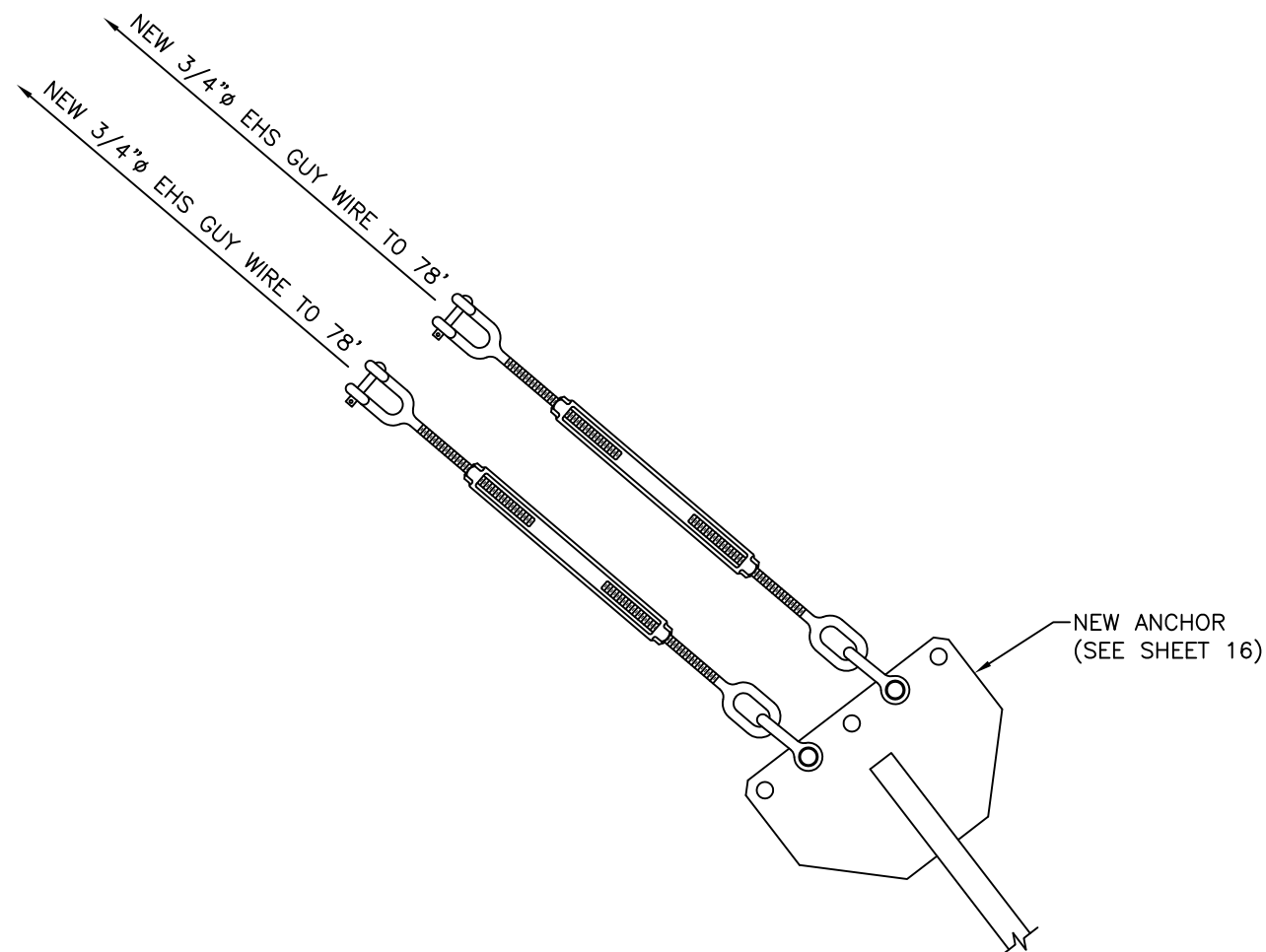
P.O. Box 1496
Richmond, KY 40476
Phone: (859) 624-8360
Fax: (859) 624-8369
Email: engineering@verticalstructures.com

FOR

HARRIS

2018 MODIFICATIONS
TOWER REWORK FOR A 105'
VALMONT MONOPOLE W/ A 20' EXT.
PETER'S MOUNTAIN, VA

SHEET NUMBER: 5 OF 16	PROJECT NUMBER: 2018-311-013	SCALE: NONE
--------------------------	---------------------------------	----------------



A
6

FINAL ANCHOR DETAIL

B	REVISED FOR CONS. #2019-316-003	MJM	SWB	BG	4-12-19
A	ORIGINAL RELEASE	ANP	SWB	BG	4-11-18
REV.	DESCRIPTION	DRAWN BY:	CHECKED BY:	ENGINEERED BY:	DATE



P.O. Box 1496
Richmond, KY 40476
Phone: (859) 624-8360
Fax: (859) 624-8369
Email: engineering@verticalstructures.com

FOR

HARRIS

2018 MODIFICATIONS
TOWER REWORK FOR A 105'
VALMONT MONOPOLE W/ A 20' EXT.
PETER'S MOUNTAIN, VA


SHEET NUMBER: 6 OF 16	PROJECT NUMBER: 2018-311-013	SCALE: NONE
--------------------------	---------------------------------	----------------

RESERVED FOR PROFESSIONAL SEAL

1. THE PREFERRED SAFETY LOOP IS A FIGURE 8 CONFIGURATION. IN SOME CASES A SINGLE LOOP MAY BE REQUIRED AND IS PERMITTED WITH PRIOR APPROVAL.
2. THE TURNBUCKLE SAFETY LOOP SHALL BE ROUTED THROUGH THE THIMBLES AS SHOWN. THE SAFETY WIRE ROPE MAY BE ROUTED THROUGH A TURNBUCKLE EYE/JAW IF IT IS THE PATH OF LEAST RESISTANCE AS LONG AS THE CONDITION DECREASES THE RISK OF DAMAGING THE PREFORM OR OTHER GUY ASSEMBLY HARDWARE.
3. ALL EXISTING SCREW TYPE SHACKLES AT THE FAN PLATE SHALL HAVE MOUSING INSTALLED AS PART OF THE MODIFICATION.



B	REVISED FOR CONS. #2019-316-003	MJM	SWB	BG	4-12-19
A	ORIGINAL RELEASE	ANP	SWB	BG	4-11-18
REV.	DESCRIPTION	DRAWN BY:	CHECKED BY:	ENGINEERED BY:	DATE

 **VERTICAL
STRUCTURES, INC.**

P.O. Box 1496
Richmond, KY 40476

Phone: (859) 624-8360
Fax: (859) 624-8369
Email: engineering@verticalstructures.com

FOR

HARRIS

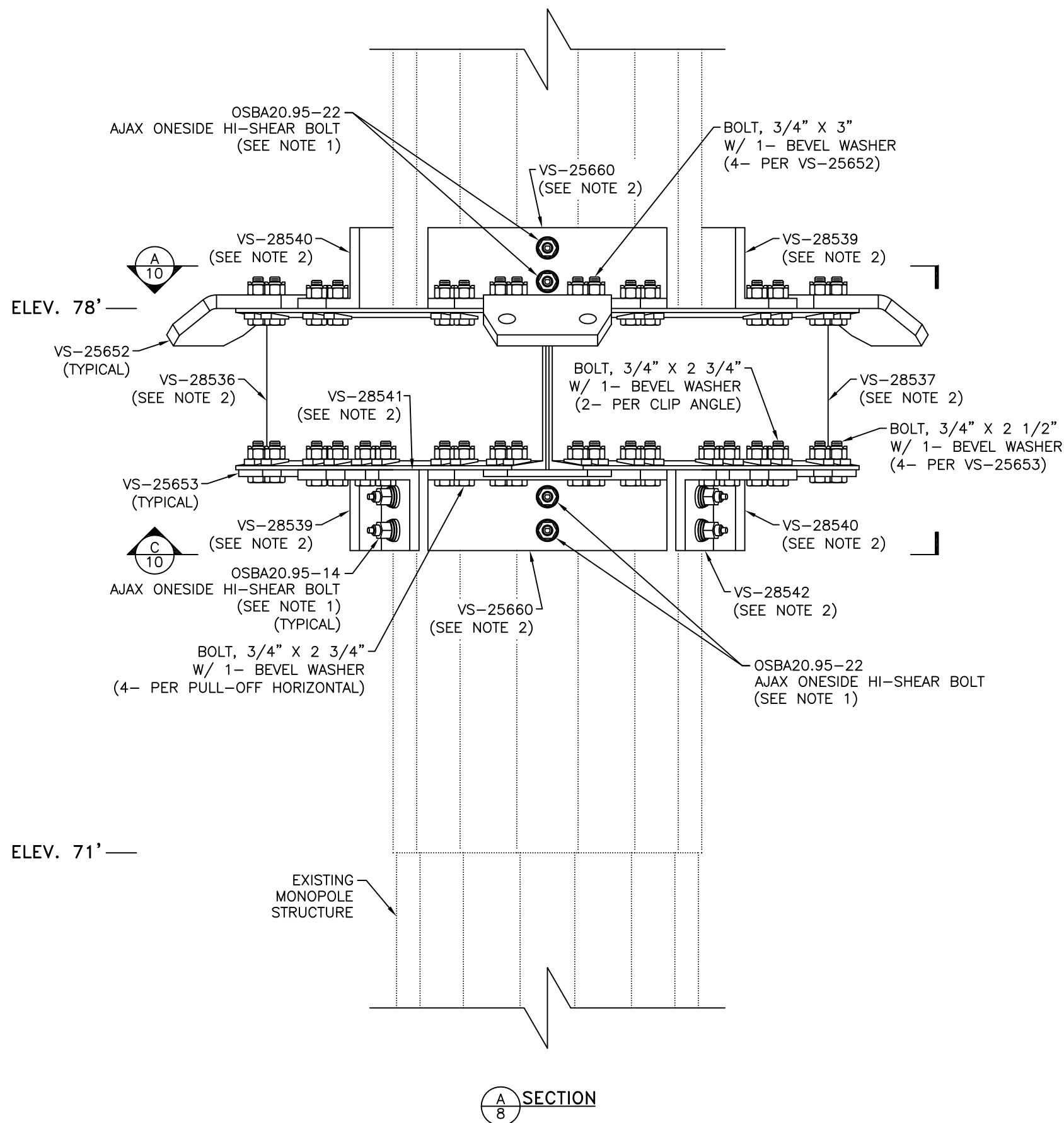
2018 MODIFICATIONS
TOWER REWORK FOR A 105'
VALMONT MONOPOLE W/ A 20' EXT.
PETER'S MOUNTAIN, VA

SHEET NUMBER:
7 OF 16

PROJECT NUMBER: 2018-311-013

SCALE:
NONE

RESERVED FOR PROFESSIONAL SEAL



BILL OF MATERIALS			
MARK NO.	QTY.	DESCRIPTION	MATERIAL GRADE
VS-25651	1	STABILIZER CHANNEL, C12 X 20.7	ASTM A572 GRADE 50
VS-25652	3	BENT PLATE, 1" THICK	ASTM A572 GRADE 50
VS-25653	3	TIE PLATE, 1/2" THICK	ASTM A572 GRADE 50
VS-25660	2	PULL-OFF HORIZONTAL, L 6" X 6" X 3/4"	ASTM A572 GRADE 50
VS-28536	1	STABILIZER CHANNEL, C12 X 20.7	ASTM A572 GRADE 50
VS-28537	1	STABILIZER CHANNEL, C12 X 20.7	ASTM A572 GRADE 50
VS-28538	1	SPACER PLATE, 1/2" THICK	ASTM A572 GRADE 50
VS-28539	2	PULL-OFF HORIZONTAL, L 6" X 6" X 3/4"	ASTM A572 GRADE 50
VS-28540	2	PULL-OFF HORIZONTAL, L 6" X 6" X 3/4"	ASTM A572 GRADE 50
VS-28541	1	CLIP ANGLE, L 6" X 4" X 3/4"	ASTM A572 GRADE 50
VS-28542	1	CLIP ANGLE, L 6" X 4" X 3/4"	ASTM A572 GRADE 50
VS-28543	6	SPACER PLATE, 1/2" THICK	ASTM A572 GRADE 50
XX3424	12	BOLT, 3/4" X 2 1/2"	ASTM A325
XX3426	28	BOLT, 3/4" X 2 3/4"	ASTM A325
XX3430	12	BOLT, 3/4" X 3"	ASTM A325
XY0035	52	BEVEL WASHER	-
OSBA20.95-14	7	AJAX ONESIDE HI-SHEAR BOLT	-
OSBA20.95-22	12	AJAX ONESIDE HI-SHEAR BOLT	-

NOTES:

- 19- 1 3/16"Ø FIELD DRILLED HOLES ARE REQUIRED.
- EXISTING STEPBOLTS MAY NEED TO BE REMOVED FOR PROPER INSTALLATION OF NEW MATERIAL. CONTRACTOR IS RESPONSIBLE FOR PROPERLY RELOCATING STEPBOLTS THAT ARE REMOVED. SEE SHEET 11 FOR PROPER INSTALLATION OF STEPBOLTS.

B	REVISED FOR CONS. #2019-316-003	MJM	SWB	BG	4-12-19
A	ORIGINAL RELEASE	ANP	SWB	BG	4-11-18
REV.	DESCRIPTION	DRAWN BY:	CHECKED BY:	ENGINEERED BY:	DATE



P.O. Box 1496
Richmond, KY 40476
Phone: (859) 624-8360
Fax: (859) 624-8369
Email: engineering@verticalstructures.com

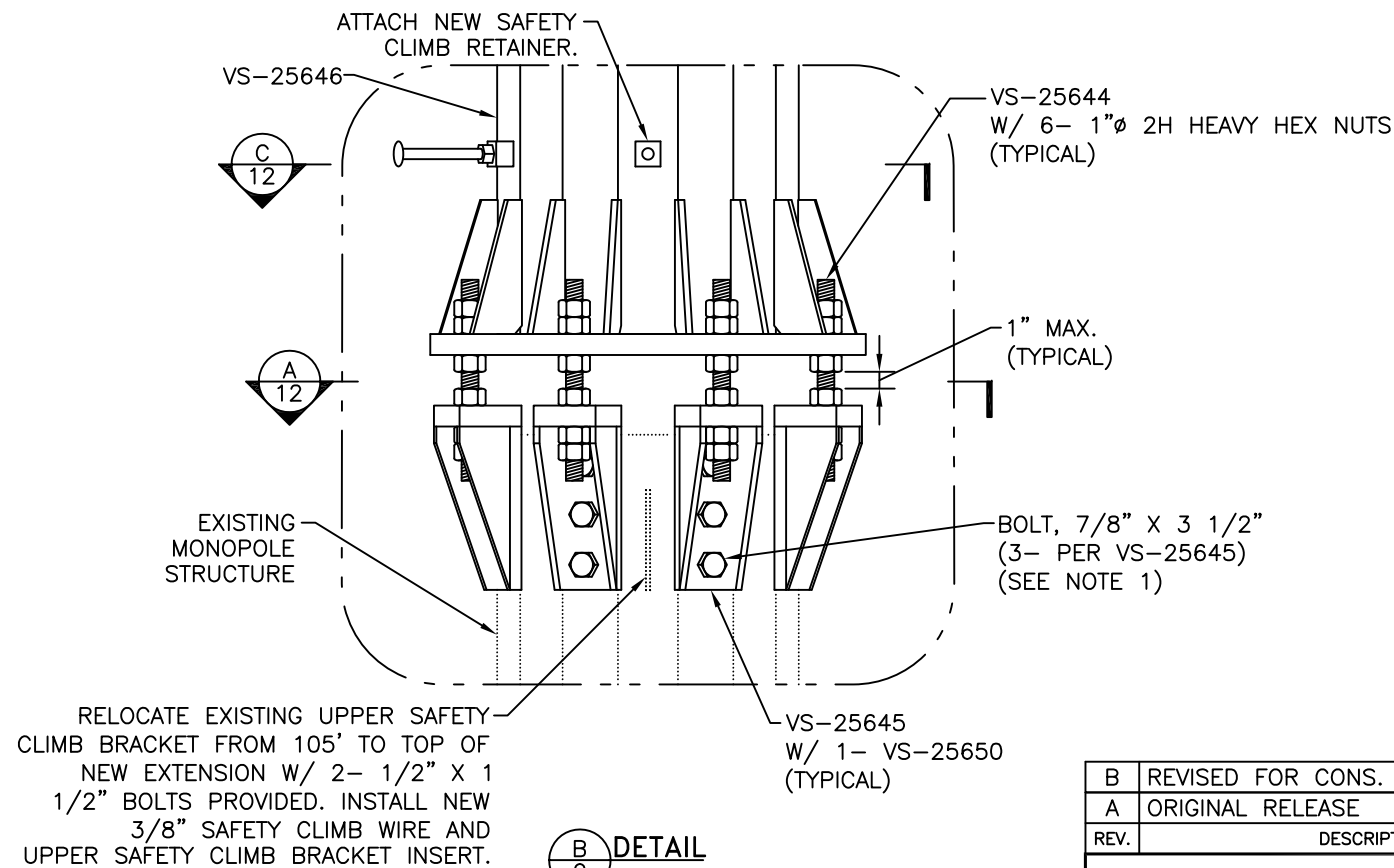
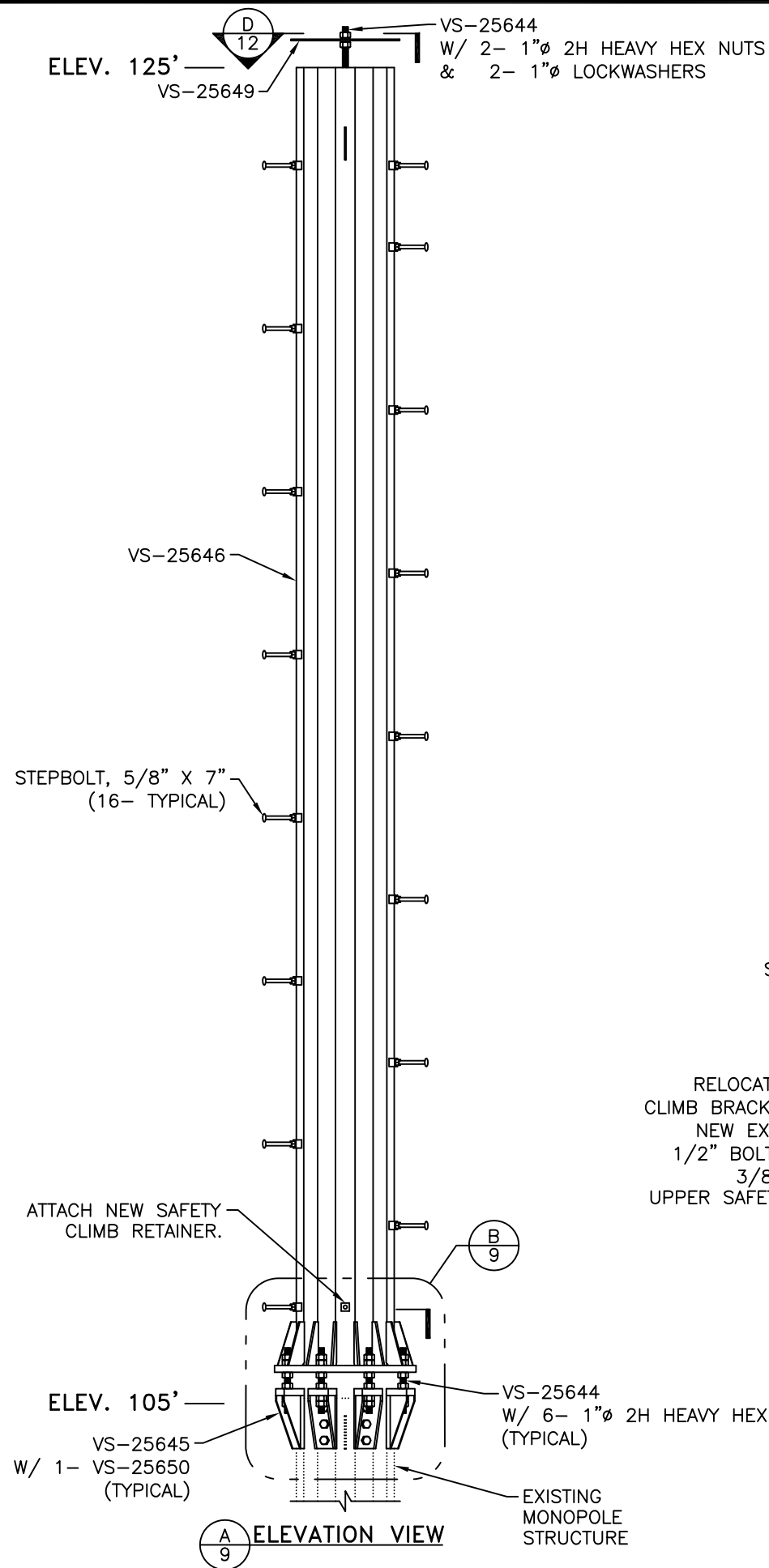
FOR

HARRIS

2018 MODIFICATIONS
TOWER REWORK FOR A 105'
VALMONT MONOPOLE W/ A 20' EXT.
PETER'S MOUNTAIN, VA

SHEET NUMBER: 8 OF 16	PROJECT NUMBER: 2018-311-013	SCALE: NONE
--------------------------	---------------------------------	----------------

RESERVED FOR PROFESSIONAL SEAL



BILL OF MATERIALS			
MARK NO.	QTY.	DESCRIPTION	MATERIAL GRADE
VS-25644	9	ALLTHREAD, 1"Ø	ASTM A193 GRADE B7
VS-25645	8	SUPPORT WELDMENT	ASTM A572 GRADE 50
VS-25646	1	EXTENSION, 18"Ø X 1/4" THICK WELDMENT	SEE PART DETAIL
VS-25647	8	BACKING PLATE, 3/4" THICK	ASTM A572 GRADE 50
VS-25648	1	TEMPLATE, 1/4" THICK	ASTM A36
VS-25649	1	COVER PLATE, 1/4" THICK	ASTM A36
VS-25650	8	SPACER PLATE, 1/4" THICK	ASTM A572 GRADE 50
XS5870	16	STEPBOLT, 5/8" X 7"	ASTM A394
XX1214	2	BOLT, 1/2" X 1 1/2"	ASTM A325
XX7834	24	BOLT, 7/8" X 3 1/2"	ASTM A325
XY1002	50	2H HEAVY HEX NUT, 1"Ø	—
XY1020	2	LOCKWASHER, 1"Ø	—
YG07	129'	SAFETY CLIMB WIRE, 3/8"Ø EHS GUY WIRE	—
YSCR2	1	SAFETY CLIMB RETAINER	—
YSCR4	1	UPPER SAFETY CLIMB BRACKET INSERT	—

NOTE:

- 24- 15/16"Ø FIELD DRILLED HOLES ARE REQUIRED.

B	REVISED FOR CONS. #2019-316-003	MJM	SWB	BG	4-12-19
A	ORIGINAL RELEASE	ANP	SWB	BG	4-11-18
REV.	DESCRIPTION	DRAWN BY:	CHECKED BY:	ENGINEERED BY:	DATE



P.O. Box 1496
Richmond, KY 40476
Phone: (859) 624-8360
Fax: (859) 624-8369
Email: engineering@verticalstructures.com

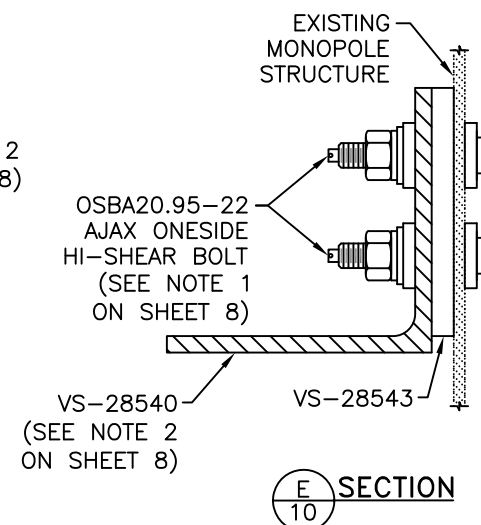
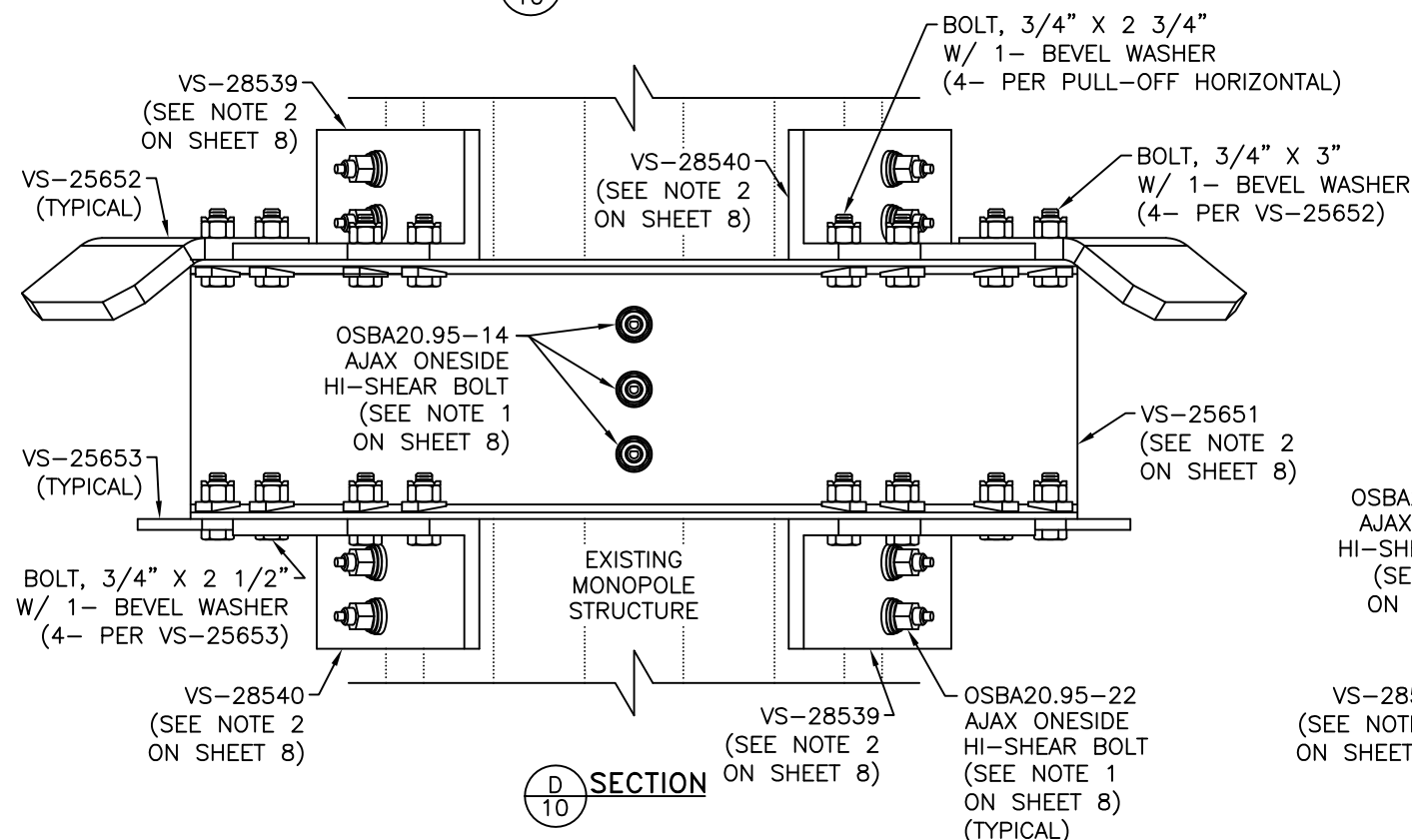
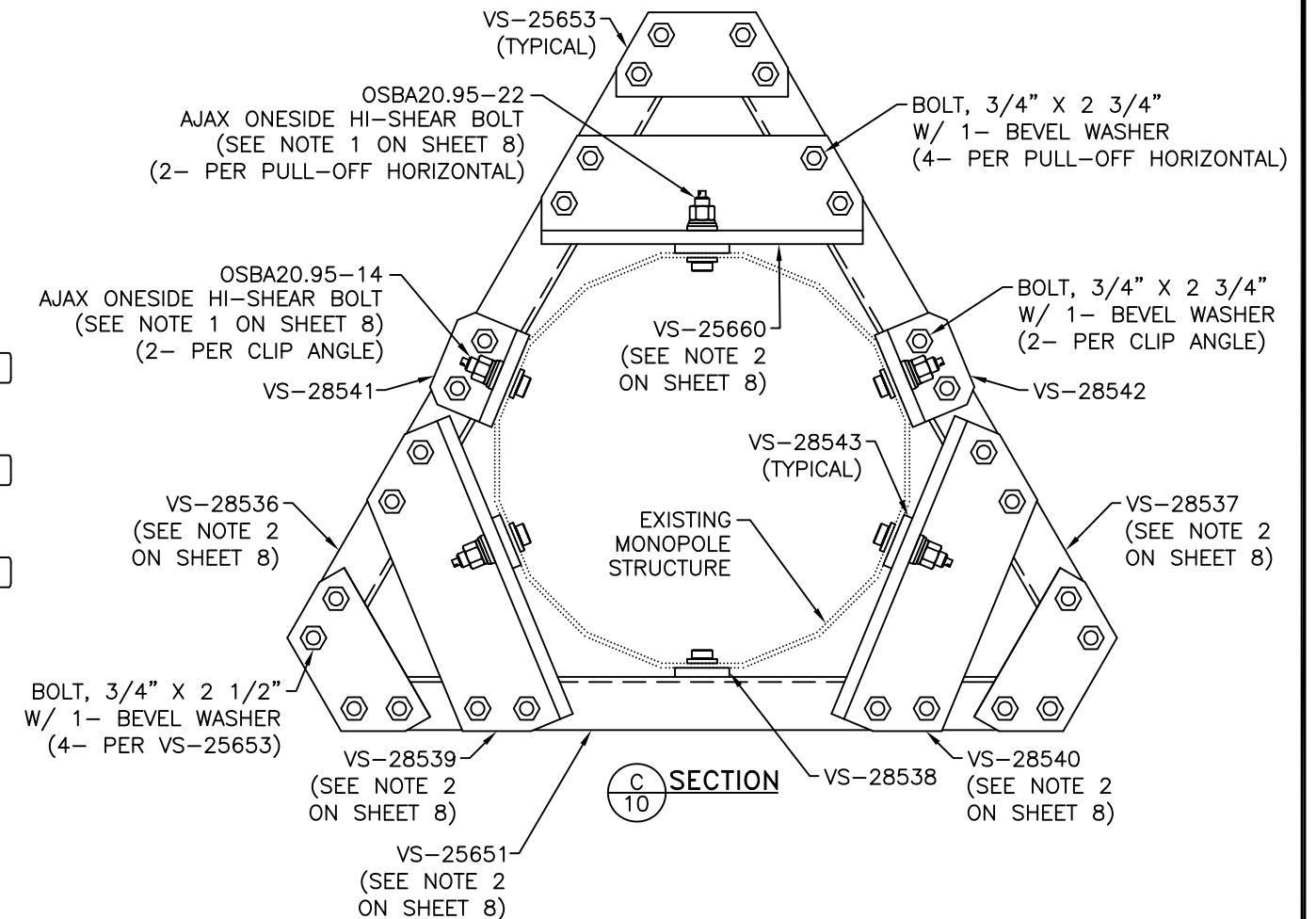
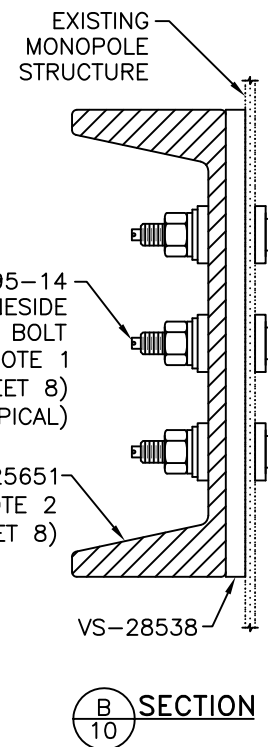
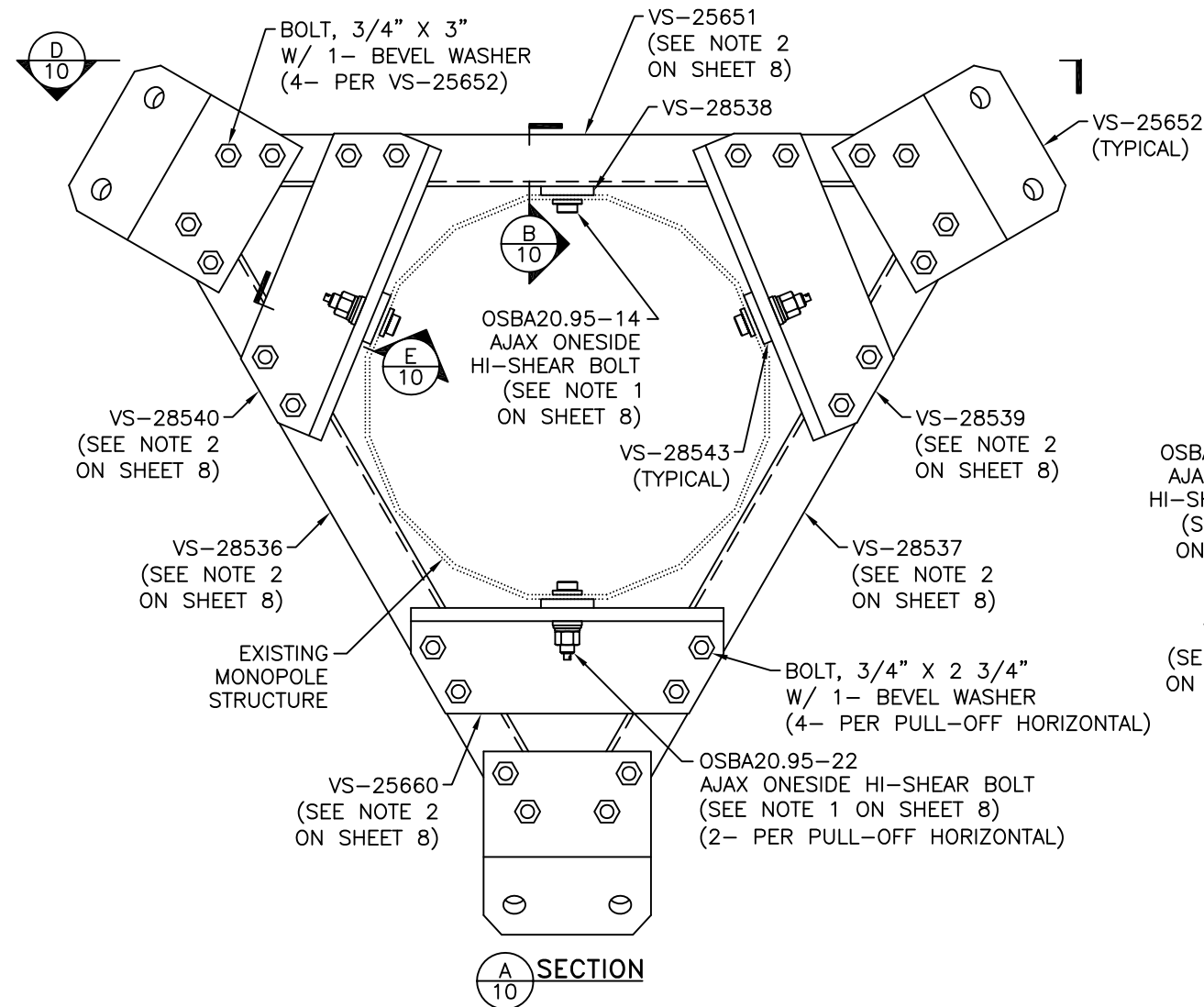
FOR

HARRIS

2018 MODIFICATIONS
TOWER REWORK FOR A 105'
VALMONT MONOPOLE W/ A 20' EXT.
PETER'S MOUNTAIN, VA

SHEET NUMBER: 9 OF 16	PROJECT NUMBER: 2018-311-013	SCALE: NONE
--------------------------	---------------------------------	----------------

RESERVED FOR PROFESSIONAL SEAL



B	REVISED FOR CONS. #2019-316-003	MJM	SWB	BG	4-12-19
A	ORIGINAL RELEASE	ANP	SWB	BG	4-11-18
REV.	DESCRIPTION	DRAWN BY:	CHECKED BY:	ENGINEERED BY:	DATE



P.O. Box 1496
Richmond, KY 40476
Phone: (859) 624-8360
Fax: (859) 624-8369
Email: engineering@verticalstructures.com

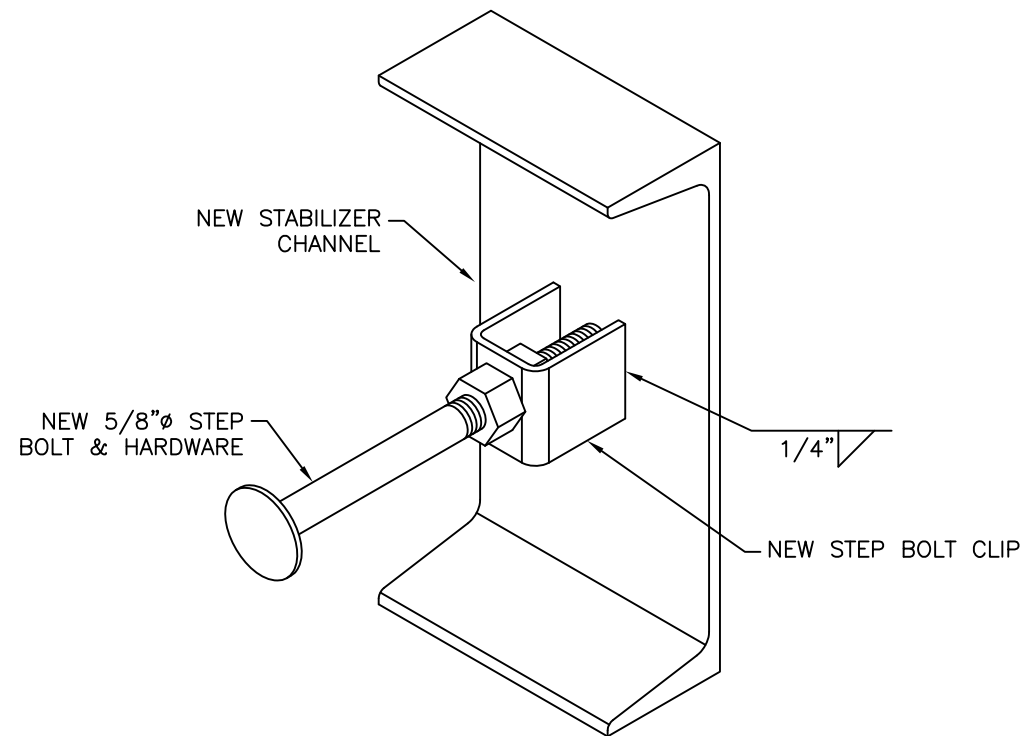
FOR

HARRIS

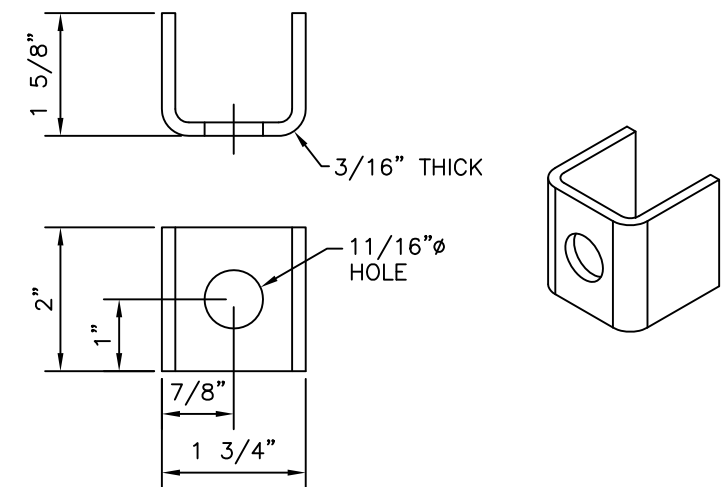
2018 MODIFICATIONS
TOWER REWORK FOR A 105'
VALMONT MONOPOLE W/ A 20' EXT.
PETER'S MOUNTAIN, VA

SHEET NUMBER: 10 OF 16	PROJECT NUMBER: 2018-311-013	SCALE: NONE
---------------------------	---------------------------------	----------------

RESERVED FOR PROFESSIONAL SEAL



A
11 STEP BOLT CLIP INSTALLATION DETAIL



B
11 STEP BOLT CLIP DETAIL

B	REVISED FOR CONS. #2019-316-003	MJM	SWB	BG	4-12-19
A	ORIGINAL RELEASE	ANP	SWB	BG	4-11-18
REV.	DESCRIPTION	DRAWN BY:	CHECKED BY:	ENGINEERED BY:	DATE



P.O. Box 1496
Richmond, KY 40476
Phone: (859) 624-8360
Fax: (859) 624-8369
Email: engineering@verticalstructures.com

FOR

HARRIS

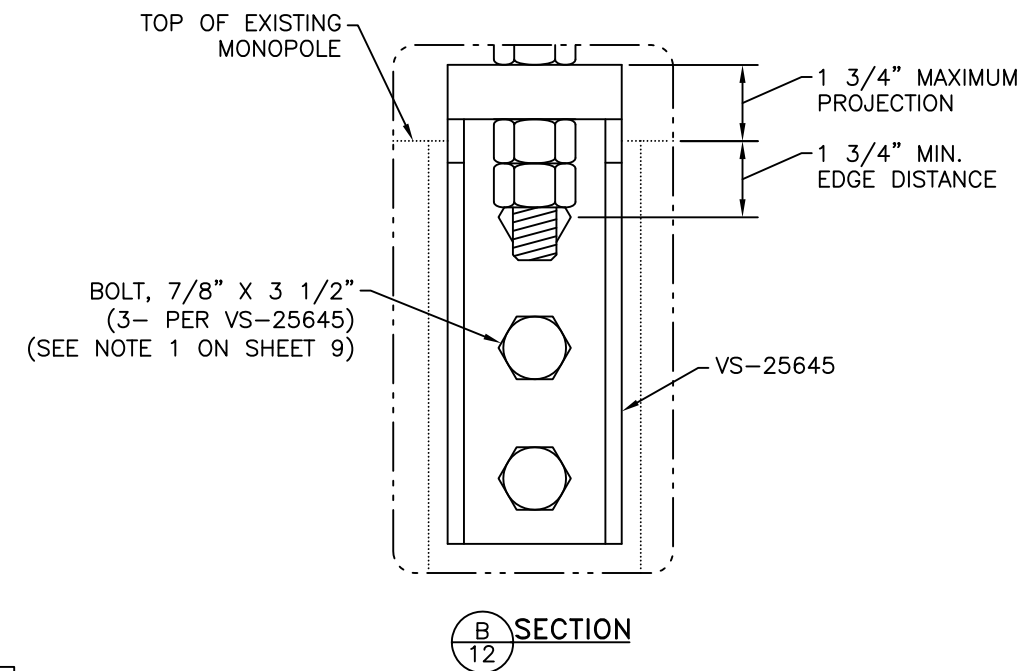
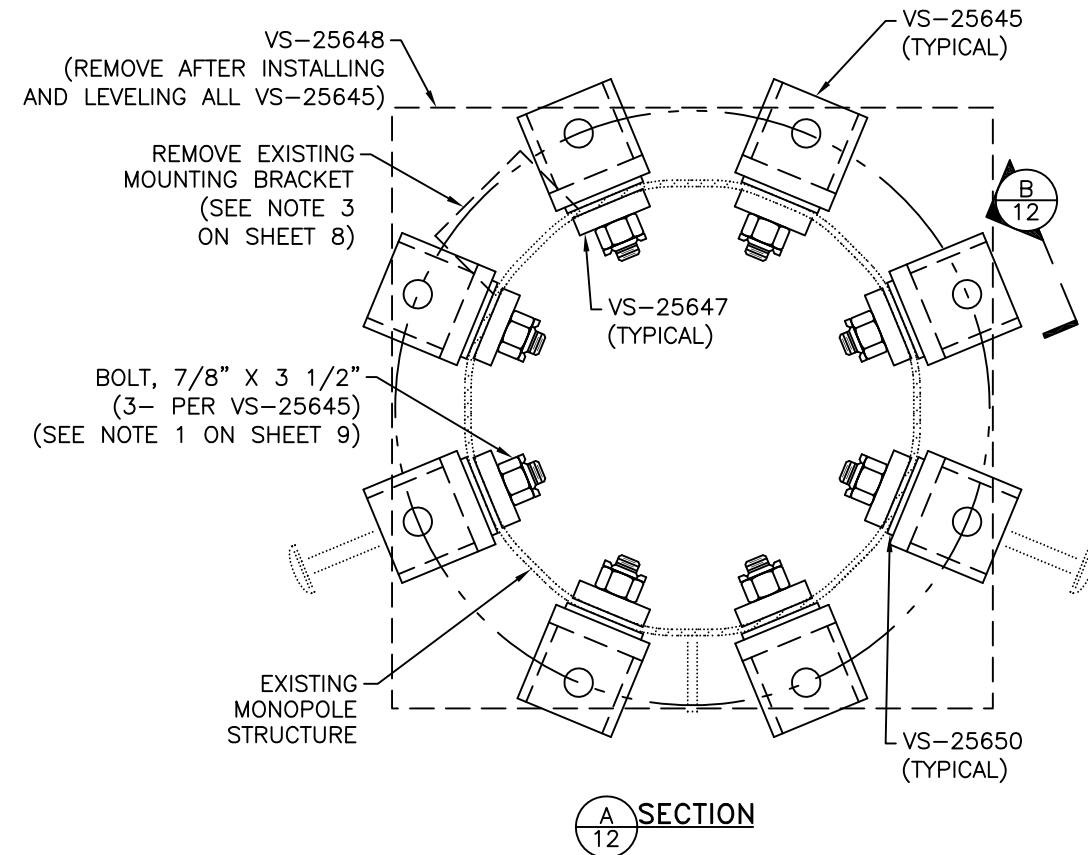
2018 MODIFICATIONS
TOWER REWORK FOR A 105'
VALMONT MONOPOLE W/ A 20' EXT.
PETER'S MOUNTAIN, VA

SHEET NUMBER:
11 OF 16

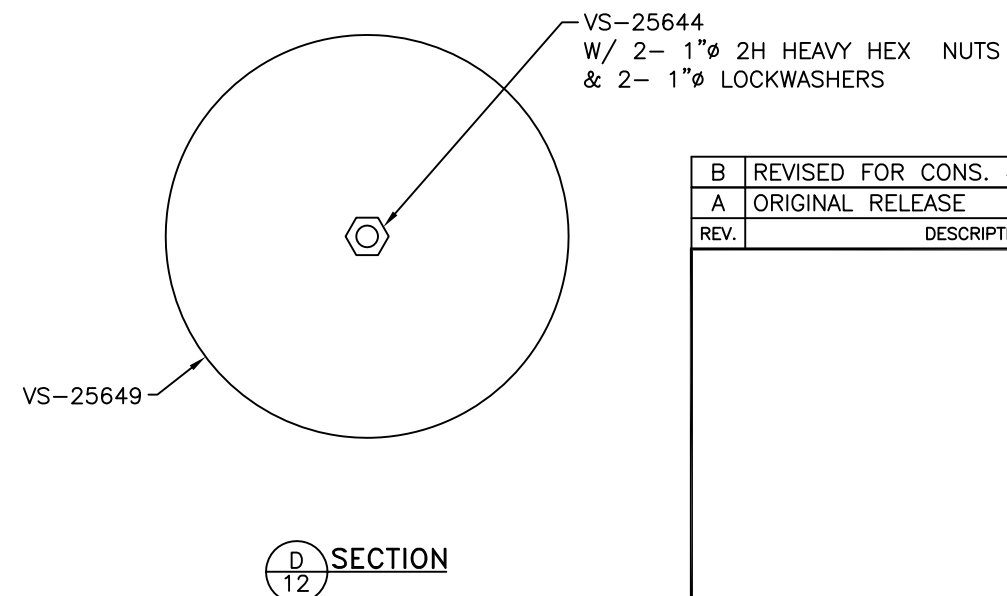
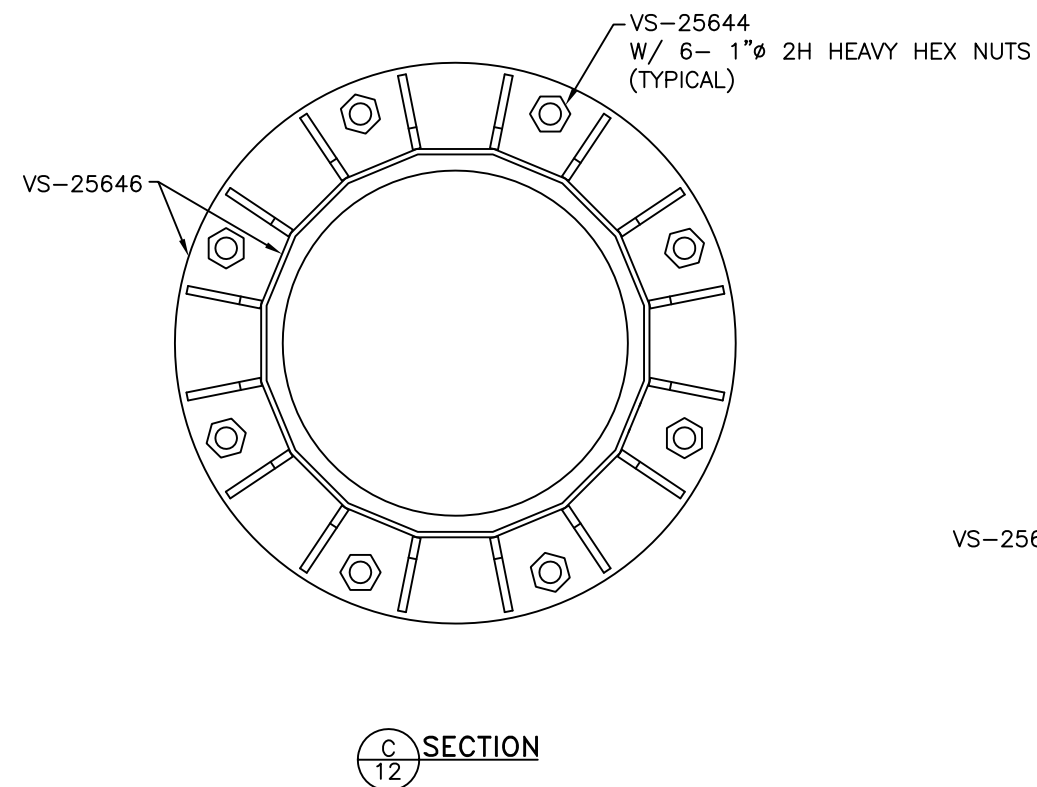
PROJECT NUMBER:
2018-311-013

SCALE:
NONE

RESERVED FOR PROFESSIONAL SEAL



CARE SHOULD BE TAKEN TO MAKE SURE VS-25645 SUPPORT WELDMENTS ARE INSTALLED LEVEL.



B	REVISED FOR CONS. #2019-316-003	MJM	SWB	BG	4-12-19
A	ORIGINAL RELEASE	ANP	SWB	BG	4-11-18
REV.	DESCRIPTION	DRAWN BY:	CHECKED BY:	ENGINEERED BY:	DATE



P.O. Box 1496
Richmond, KY 40476
Phone: (859) 624-8360
Fax: (859) 624-8369
Email: engineering@verticalstructures.com

FOR

HARRIS

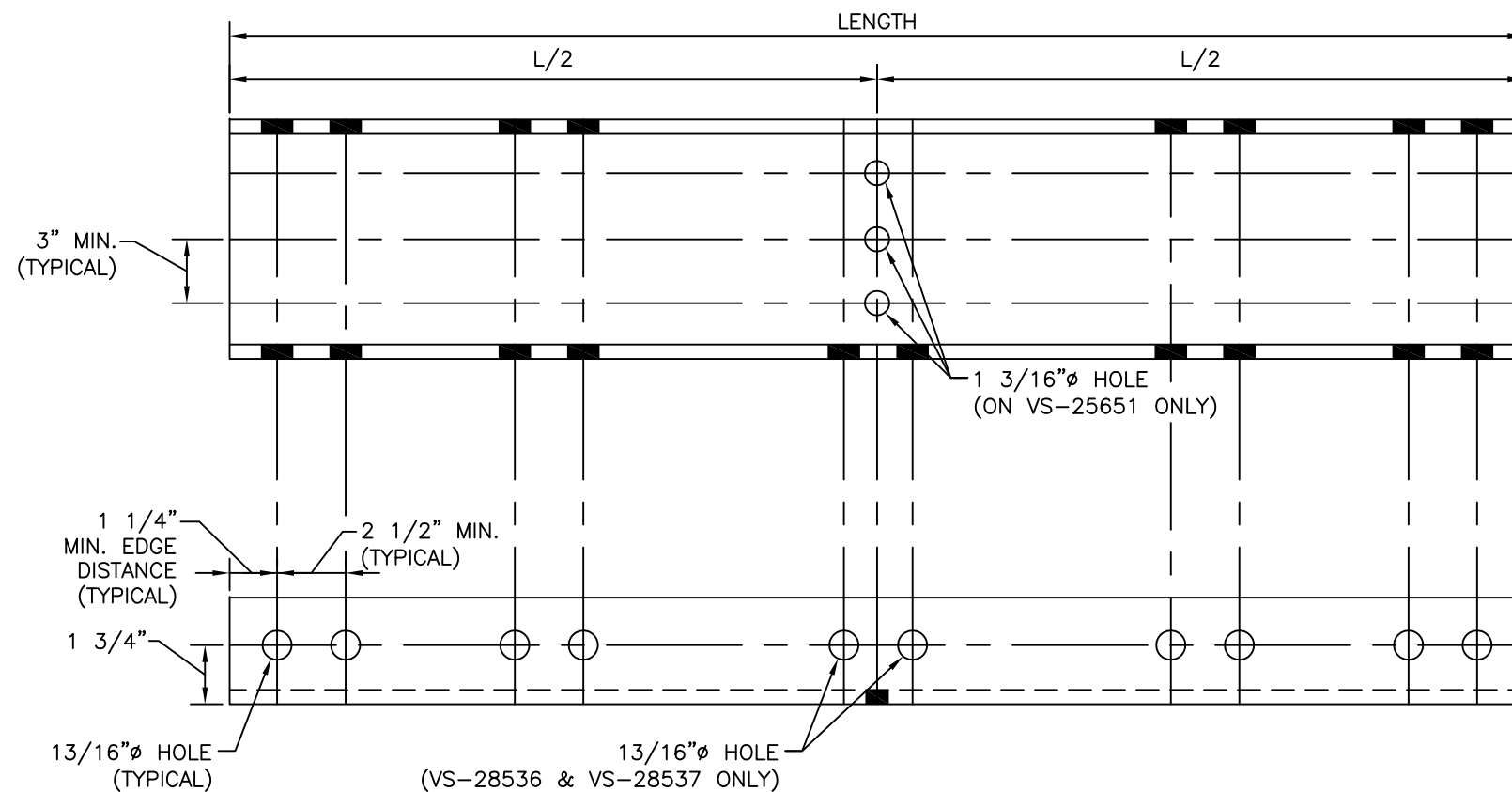
2018 MODIFICATIONS
TOWER REWORK FOR A 105'
VALMONT MONOPOLE W/ A 20' EXT.
PETER'S MOUNTAIN, VA

SHEET NUMBER:
12 OF 16

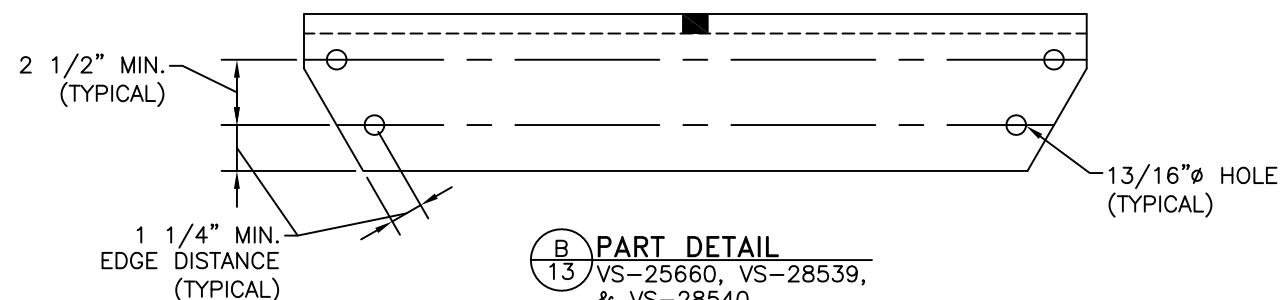
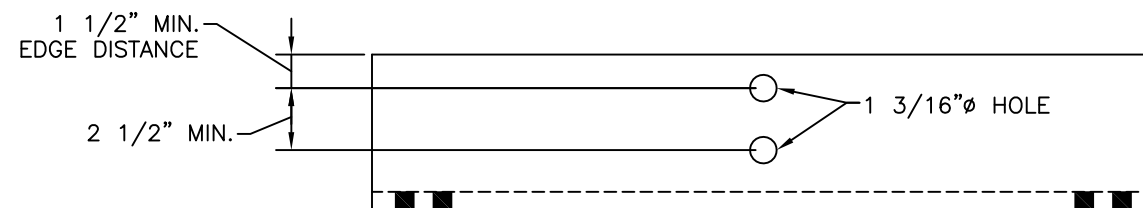
PROJECT NUMBER:
2018-311-013

SCALE:
NONE

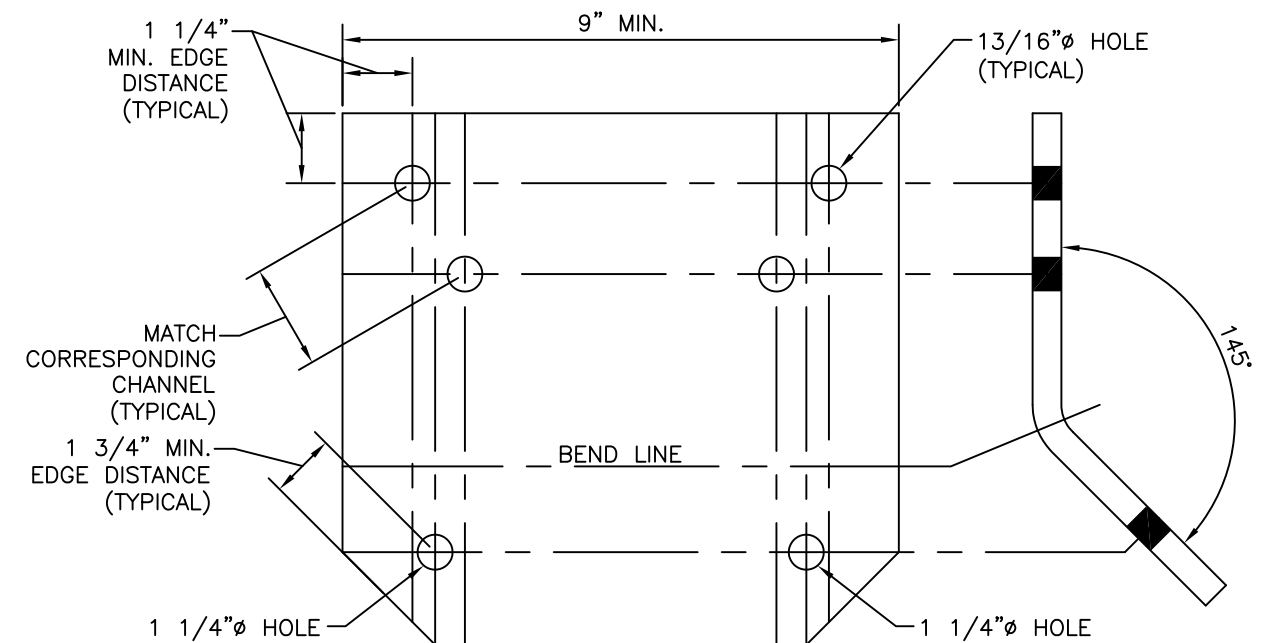
RESERVED FOR PROFESSIONAL SEAL



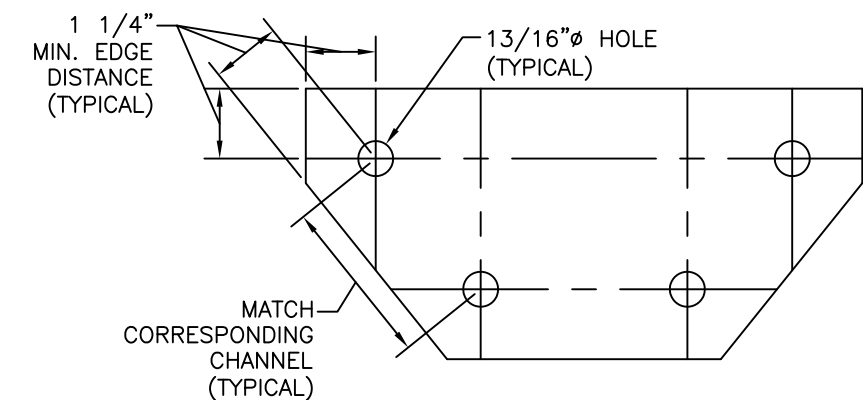
A PART DETAIL
13 VS-25651, VS-28536, & VS-28537



B PART DETAIL
13 VS-25660, VS-28539, & VS-28540



C PART DETAIL
13 VS-25652



D PART DETAIL
13 VS-25653

B	REVISED FOR CONS. #2019-316-003	MJM	SWB	BG	4-12-19
A	ORIGINAL RELEASE	ANP	SWB	BG	4-11-18
REV.	DESCRIPTION	DRAWN BY:	CHECKED BY:	ENGINEERED BY:	DATE



P.O. Box 1496
Richmond, KY 40476
Phone: (859) 624-8360
Fax: (859) 624-8369
Email: engineering@verticalstructures.com

FOR

HARRIS

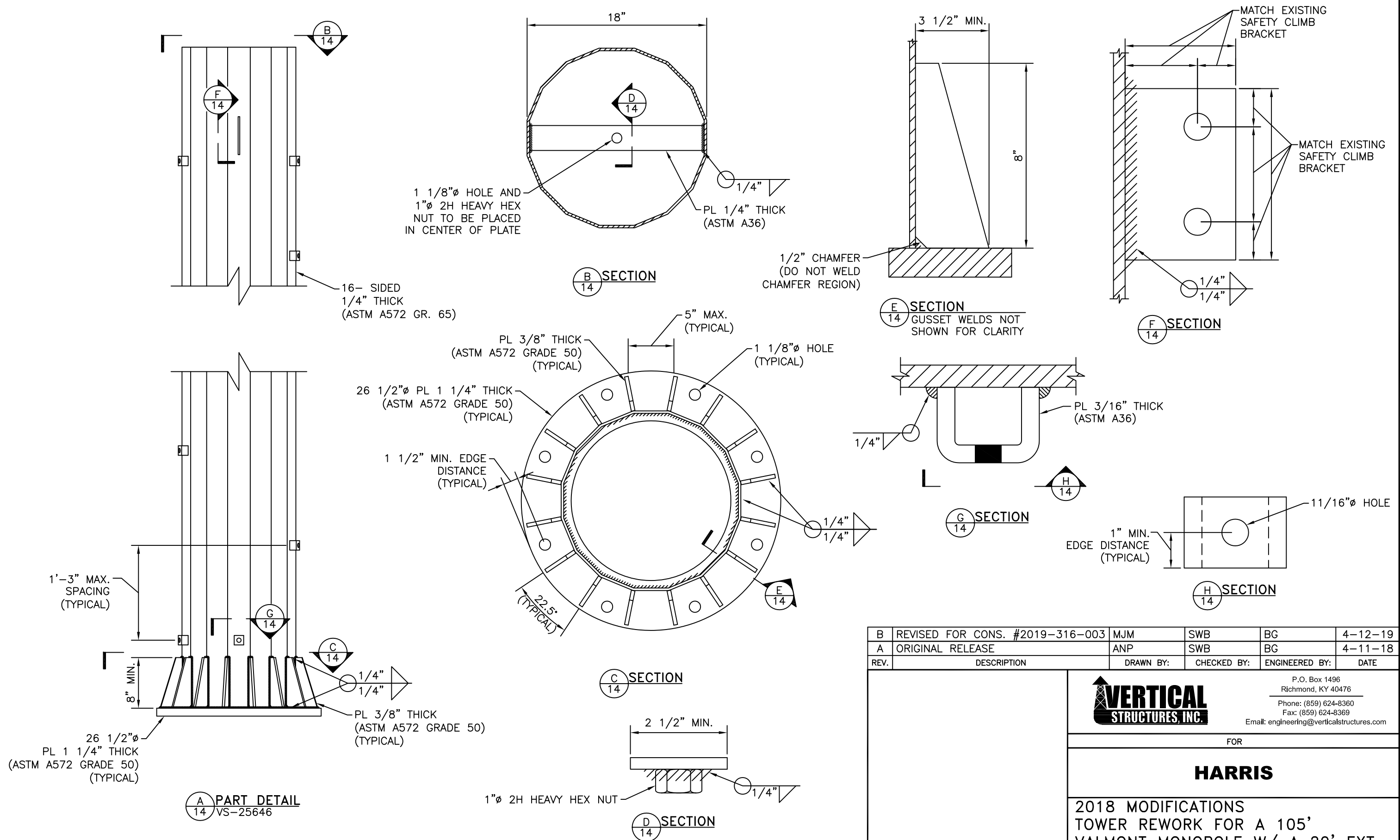
2018 MODIFICATIONS
TOWER REWORK FOR A 105'
VALMONT MONOPOLE W/ A 20' EXT.
PETER'S MOUNTAIN, VA

SHEET NUMBER:
13 OF 16

PROJECT NUMBER:
2018-311-013

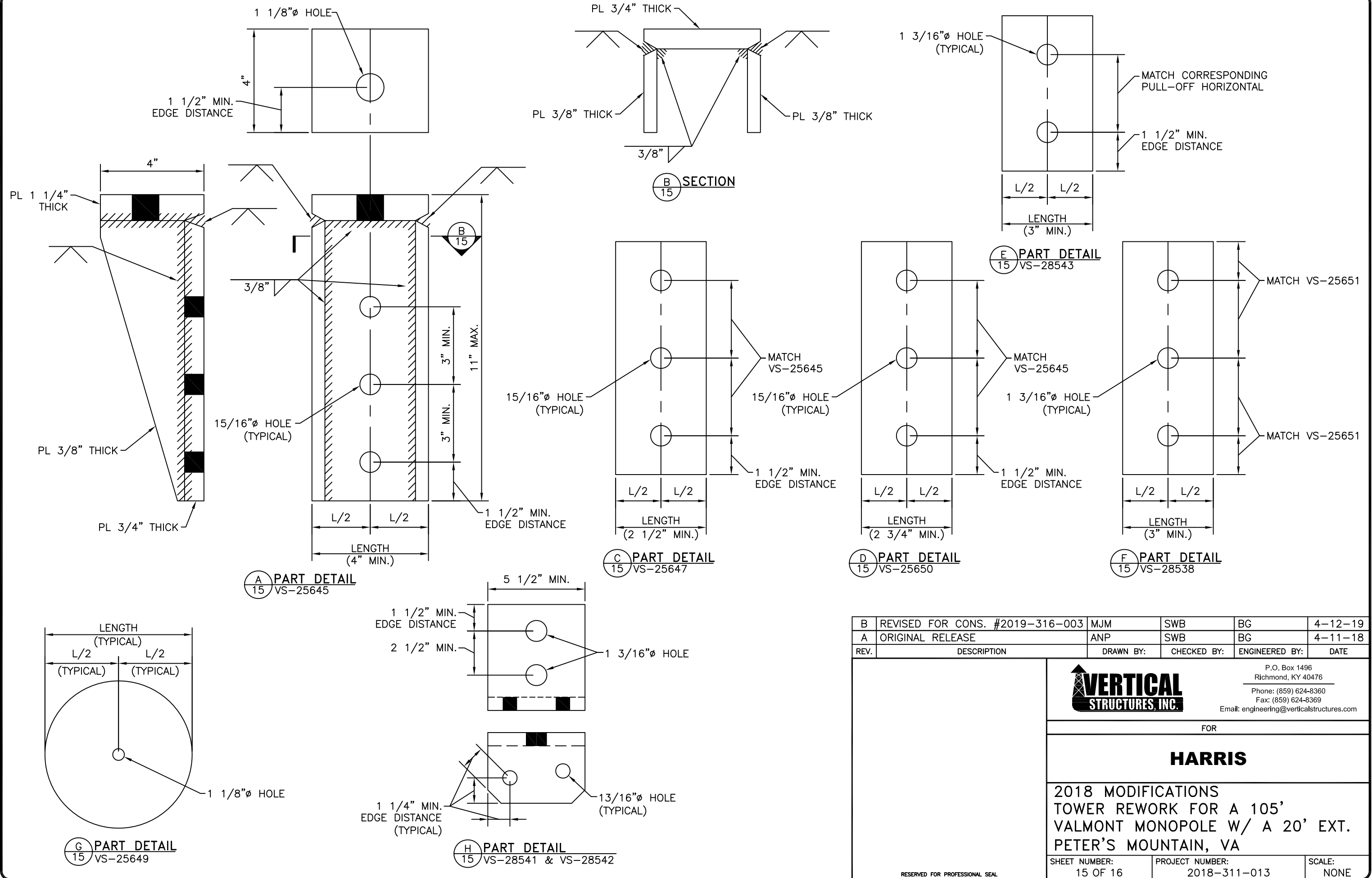
SCALE:
NONE

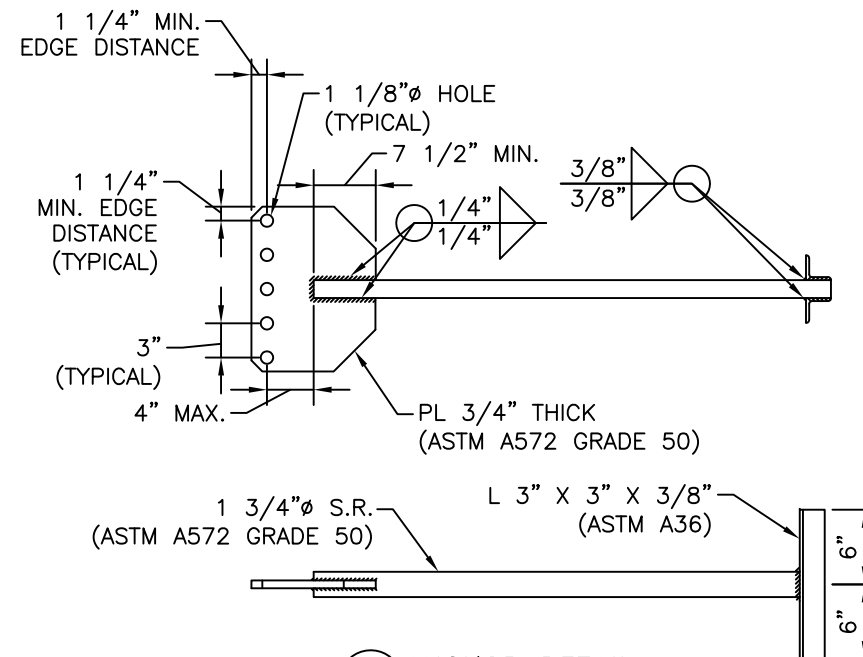
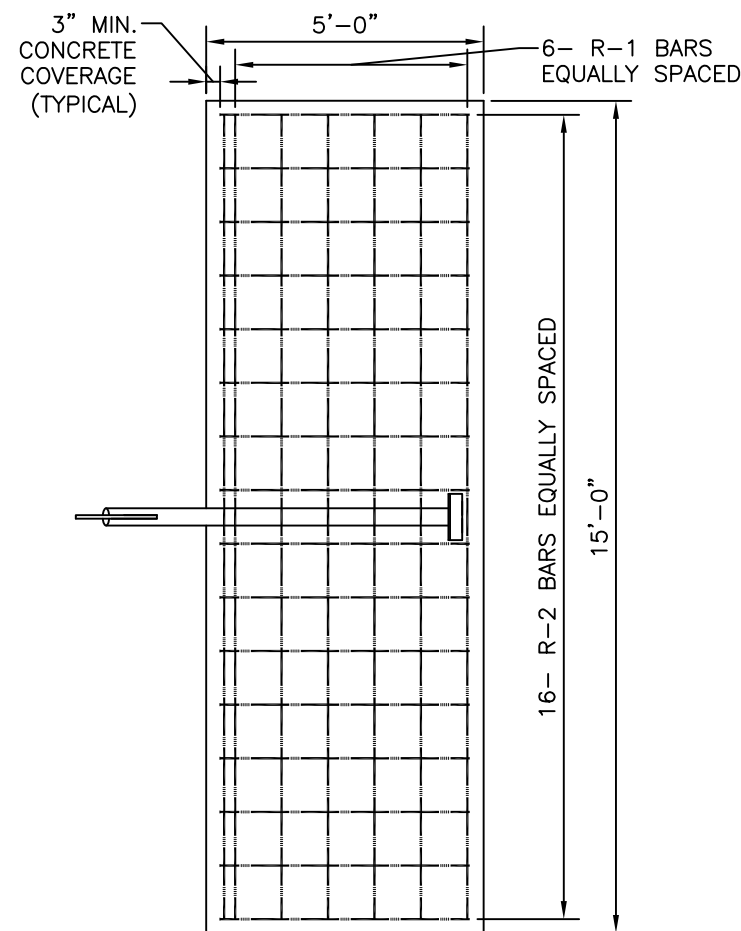
RESERVED FOR PROFESSIONAL SEAL



B	REVISED FOR CONS. #2019-316-003	MJM	SWB	BG	4-12-19
A	ORIGINAL RELEASE	ANP	SWB	BG	4-11-18
REV.	DESCRIPTION	DRAWN BY:	CHECKED BY:	ENGINEERED BY:	DATE
<div> <div> <p>P.O. Box 1496 Richmond, KY 40476 Phone: (859) 624-8360 Fax: (859) 624-8369 Email: engineering@verticalstructures.com</p> </div> <div> <p>FOR</p> <p>HARRIS</p> <p>2018 MODIFICATIONS TOWER REWORK FOR A 105' VALMONT MONOPOLE W/ A 20' EXT. PETER'S MOUNTAIN, VA</p> </div> </div>					
SHEET NUMBER: 14 OF 16		PROJECT NUMBER: 2018-311-013		SCALE: NONE	

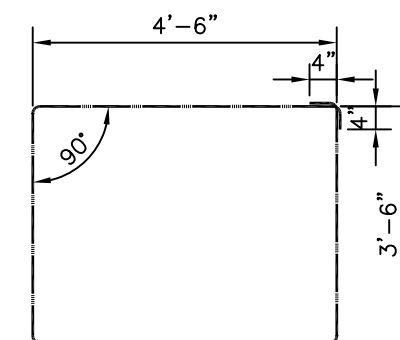
RESERVED FOR PROFESSIONAL SEAL



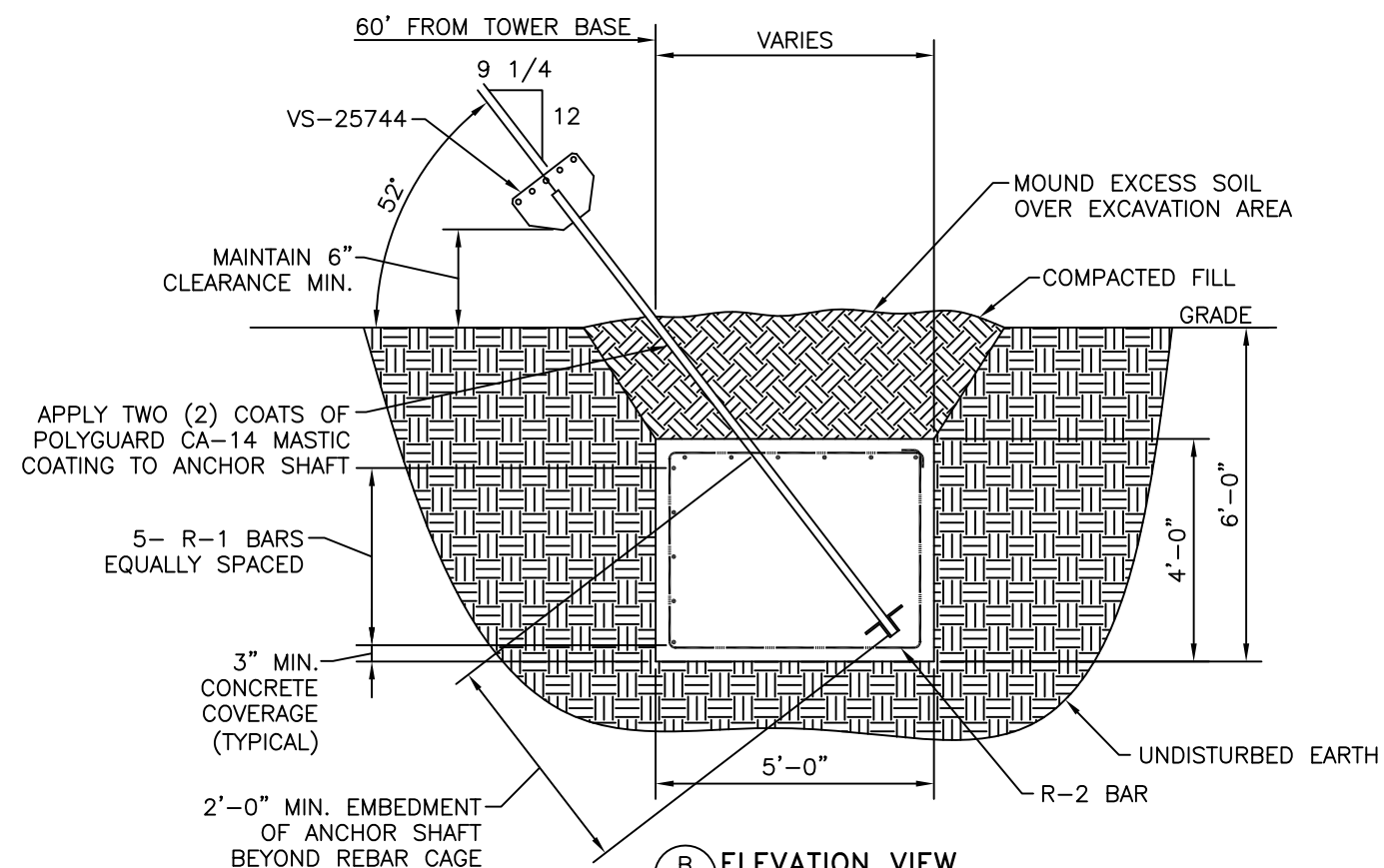


C
16

ANCHOR DETAIL
VS-25744



D R-2 BAR DETAIL
16



B ELEVATION VIEW
16

BILL OF MATERIALS		
REF.	QTY.	DESCRIPTION
VS-25744	3	ANCHOR SHAFT (ASTM A572, GRADE 50)
R-1	33	#7 REBAR X 14'-6"
R-2	48	#4 REBAR X 16'-8"
-	33.33	CONCRETE (CU. YARDS)
-	-	POLYGUARD CA-14 MASTIC COATING (QTY. AS NEEDED)

NOTES:

1. QUANTITIES SHOWN ARE FOR 3- ANCHORS.
2. ALL CONCRETE WORK SHALL CONFORM TO ACI 318 BUILDING REQUIREMENTS FOR REINFORCED CONCRETE.
3. REBAR: REINFORCING BARS SHALL CONFORM TO ASTM A615 SPECIFICATIONS, GRADE 60.
4. CONCRETE TO HAVE A MINIMUM OF 6 SACKS OF CEMENT PER CUBIC YARD AND HAVE 3000 P.S.I. MINIMUM COMPRESSION AT 28 DAYS.
5. SLUMP TEST SHALL BE PERFORMED IN ACCORDANCE WITH ASTM C143. SLUMP CAN BE NO MORE THAN 5".
6. BACKFILL IS TO BE MADE IN LIFTS NOT TO EXCEED 18". EACH LIFT IS TO BE TAMPED BY HAND OR WITH HAND HELD VIBRATORY COMPACTOR SUFFICIENTLY TO REMOVE LARGE VOIDS AND REDUCE SETTLEMENT. EXCAVATED AREA TO HAVE MINIMUM OF 6" MOUND ABOVE NATURAL GROUND SURFACE WHEN COMPLETED. NO FROZEN MATERIALS, LARGE ROCKS OR ORGANIC MATERIAL IS TO BE USED FOR BACKFILL.
7. CONTRACTOR TO REFERENCE THE GEOTECHNICAL REPORT PUBLISHED BY FROEHLING & ROBERTSON, PROJECT NO. E71-175G TO EVALUATE SUBSURFACE CONDITIONS.

B	REVISED FOR CONS. #2019-316-003	MJM	SWB	BG	4-12-19
A	ORIGINAL RELEASE	ANP	SWB	BG	4-11-18
REV.	DESCRIPTION	DRAWN BY:	CHECKED BY:	ENGINEERED BY:	DATE

P.O. Box 1496
Richmond, KY 40476

Phone: (859) 624-8360
Fax: (859) 624-8369
Email: engineering@verticalstructures.com

FOR

HARRIS

2018 MODIFICATIONS
TOWER REWORK FOR A 105'
VALMONT MONOPOLE W/ A 20' EXT.
PETER'S MOUNTAIN, VA

SHEET NUMBER:
16 OF 16

PROJECT NUMBER:	2018-311-013
-----------------	--------------

SCALE:
NONE

RESERVED FOR PROFESSIONAL SEAL