



STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: siting.council@ct.gov

www.ct.gov/csc

VIA ELECTRONIC MAIL

August 27, 2019

Elizabeth Jamieson
Real Estate Specialist
Transcend Wireless
10 Industrial Ave, Suite 3
Mahwah, NJ 07430

RE: **EM-T-MOBILE-148-190808** – T-Mobile notice of intent to modify an existing telecommunications facility located at 992 Northrop Road, Wallingford, Connecticut.

Dear Ms. Jamieson:

The Connecticut Siting Council (Council) is in receipt of your correspondence of August 20, 2019 regarding the above-referenced matter. Please note that a final decision to deny this exempt modification was rendered on August 14, 2019 and is attached for your review.

In order for the Council to review new information on this site, please submit a new request for exempt modification request following the applicable statutory and regulatory requirements, which includes, but is not limited to, a \$625 filing fee.

Sincerely,

Melanie Bachman
Executive Director

Enclosure

c: The Honorable William W. Dickinson, Jr., Mayor, Town of Wallingford
Kacie Hand, Town Planner, Town of Wallingford

MAB/RDM/laf

Mount Analysis of Existing T-Arms for American Tower on behalf of T-Mobile
302538 - Parsonage Hill Aka Wallin
Project #: 12927186
T-Mobile Site ID: CT11054A
Program: L600

CLS Engineering PLLC Project #41124-12927186-01-MA-R2
 August 6, 2019

MOUNT DESCRIPTION	Existing T-Arms at 140 ft AGL
ANTENNA ELEVATION	Nominal Rad. Elevation of 141 ft AGL (Eccentricity of ~1 ft)
SITE DESCRIPTION	150 ft Monopole
SITE ADDRESS	922 Northrop Road Wallingford CT 06492-1910, New Haven County
GPS COORDINATES	41.48934722, -72.76825278
ANALYSIS STANDARD	2015 IBC / 2018 Connecticut State Building Code / TIA-222-G
LOADING CRITERIA	125 mph, V_{ult} / 96.8 mph, V_{asd} (3-Second Gust) w/o ice & 50 mph (3-Second Gust) w/ 0.75" Ice

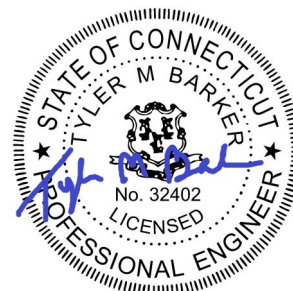
■ ANALYSIS RESULT: **Pass (Conditional)**

MEMBER USAGE	66%	Pass
CONNECTION USAGE	94%	Pass
COLLAR USAGE	75%	Pass

Modifications are proposed to bring mounts into compliance; see conclusion for details.
New mount pipes are required for final loading configuration; see conclusion for details.

Prepared by:
 Sean Rock, E.I.

Reviewed and Approved by:
 Tyler M. Barker, P.E.



Tyler M. Barker
 CLS Engineering, PLLC
 Director of Engineering
 PE # 32402 Exp. 1/31/2020
 COA # PEC.001833 Exp. 8/14/2019

■ INTRODUCTION

The proposed equipment is to be mounted to the existing T-Arms. This proposed mounting configuration was analyzed using RISA-3D, a commercially available finite element analysis software package. A selection of input and output from our analysis is attached to the end of this report.

■ STRUCTURAL DOCUMENTS PROVIDED

STRUCTURAL DATA	Site photos, dated September 27, 2018 Assembly Drawings by Site Pro 1, Part No. PRK-SFS-L, dated September 8, 2017 Assembly Drawings by Site Pro 1, Part No. SP219-xxxH, dated February 2, 2016
PREVIOUS ANALYSES	Structural Analysis by ATC, Engineering #OAA722111_C3_01, dated May 17, 2018
LOADING DATA	ATC Application, Project #12927186, dated April 2, 2019

■ ANALYSIS CRITERIA

STANDARD	2015 IBC / 2018 Connecticut State Building Code / TIA-222-G
BASIC WIND SPEED	125 mph, V_{ult} / 96.8 mph, V_{asd} (3-Second Gust)
BASIC WIND SPEED W/ ICE	50 mph (3-Second Gust) w/ 0.75" Radial Ice (Escalating)
EXPOSURE CATEGORY	C
MAX. TOPOGRAPHIC FACTOR, K_{zt}	1.00
RISK CATEGORY	II
MAINTENANCE LIVE LOAD	L_M : 500 lb

■ FINAL EQUIPMENT

ELEVATION (ft)		ANTENNAS	
MOUNT	RAD.	#	NAME
140.0	141.0	3	Ericsson AIR 21 B4A/B12P-B5F 6FT
		3	Ericsson AIR 21, 1.3 M, B2A B4P
		3	Ericsson RADIO 4449 B12/B71
		3	Ericsson KRY 112 144/1
		3	RFS Celwave APXVAARR24_43-U-NA20

■ RESULTS SUMMARY

COMPONENT	PEAK USAGE	RESULT
Connections	94%	Pass
Collar Reactions	75%	Pass
Face Horizontals	66%	Pass
Mount Pipes	57%	Pass
Stand-Off Horizontals	57%	Pass
Bracing Members	11%	Pass

■ CONCLUSION AND RECOMMENDATIONS

According to our structural analysis, the mounts have been found to **CONDITIONALLY PASS**. The mounting configuration considered in this analysis will be capable of supporting the referenced loading pursuant to referenced standards once the following scope is executed:

- Install (1) Site Pro 1 SP219-96H, 2-7/8" Pipe Mount Kit at each sector (3 total) as shown in following sketch.
- Install (1) Site Pro 1 PRK-SFS-L Support Rail Vertical Reinforcement Kit at existing face horizontal member as shown in the following sketches. Collar to be installed flush with existing monopole at a height of ± 3.5 ft. above the centerline of existing platform mount collar. Field-cut proposed members as required. Maintain minimum bolt edge distance.

See following sketches and Site Pro 1 assembly drawings for additional details.

■ ASSUMPTIONS AND CONDITIONS

This analysis is inclusive of the antenna supporting frames/mounts and all recorded connections that will support the equipment listed in this report. It considers only the theoretical capacity of structural components and it is not a condition assessment. The validity of the analysis may be dependent on the accuracy of structural information supplied by others. The client is responsible for verifying this information. If any provided information is revised after completion of this analysis, CLS Engineering PLLC should be notified immediately to revise results.

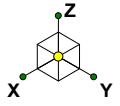
This analysis assumes the following:

1. The tower or other superstructure and mounts (if existing) were properly constructed as per the original design and have been properly maintained in accordance with applicable code standards.
2. Member sizes and strengths are accurate as supplied or are assumed as stated in the calculations.
3. In the absence of sufficient design information, all welds and connections are assumed to develop at least the capacity of the connected member, unless otherwise stated in this analysis.
4. All prior structural modifications, if any, are assumed to be correctly installed and fully effective.
5. The loading configuration is complete and accurate as supplied and/or as modeled in the previous analysis. All appurtenances are assumed to be properly installed and supported as per manufacturer requirements.
6. Some conservative assumptions may be used regarding appurtenances and their projected areas based on careful interpretation of data supplied, previous experience and standard industry practice.

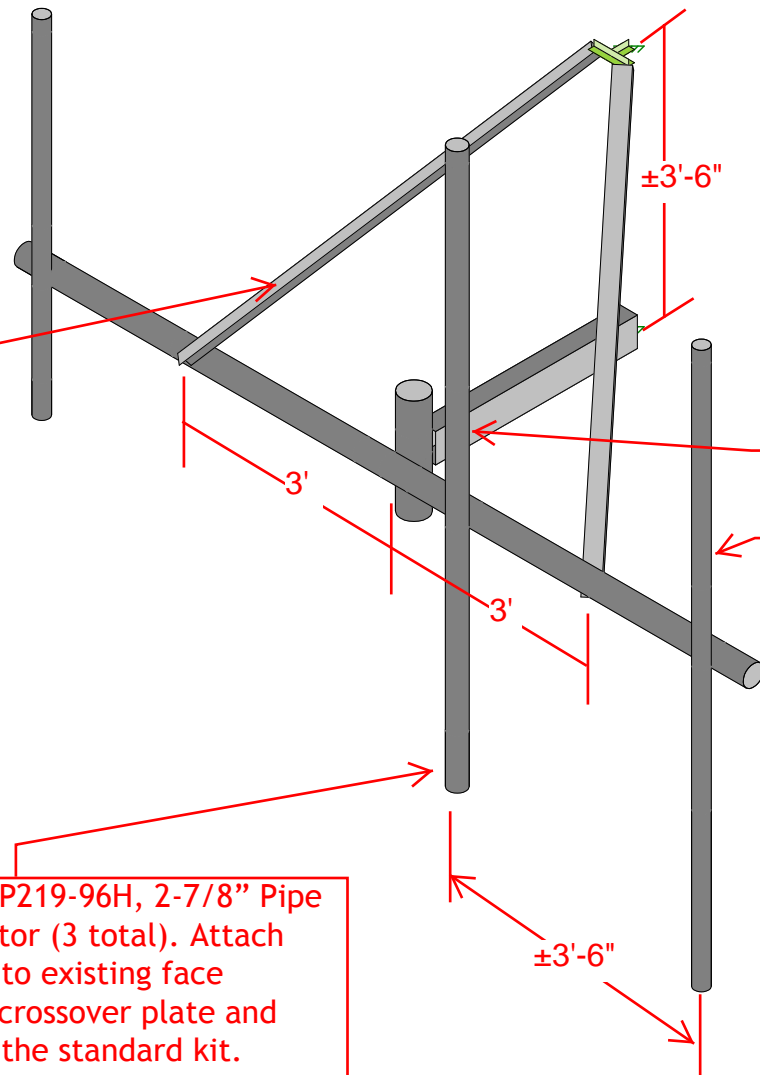
All opinions and conclusions are considered accurate to a reasonable degree of engineering certainty based upon the evidence available at the time of the report. All opinions and conclusions contained herein are subject to revision based upon receipt of new or updated information. All services are provided exercising a level of care and diligence equivalent to the standard of our profession. No warranty or guarantee, either expressed or implied, is offered. All services are confidential in nature and this report will not be released to any other party without the client's consent. The use of this analysis is limited to the expressed purpose for which it was commissioned and it may not be reused, copied or disseminated for any other purpose without consent from CLS Engineering PLLC.

All services were performed, results obtained and recommendations made in accordance with generally accepted engineering principles and practices. CLS Engineering PLLC is not responsible for the conclusions, opinions or recommendations made by others based on the information supplied in this analysis.

It is not possible to have the fully detailed information necessary to perform a complete and thorough analysis of every structural sub-component of an existing structure. The structural analysis by CLS Engineering PLLC verifies the adequacy of the primary members of the structure. CLS Engineering PLLC provides a limited scope of service in that we cannot verify the adequacy of every weld, bolt, gusset, etc.



Install (1) Site Pro 1 PRK-SFS-L Support Rail Vertical Reinforcement Kit at existing face horizontal member as shown in the following sketches. Collar to be installed flush with existing monopole at a height of ± 3.5 ft. above the centerline of existing platform mount collar. Field-cut proposed members as required. Maintain minimum bolt edge distance.



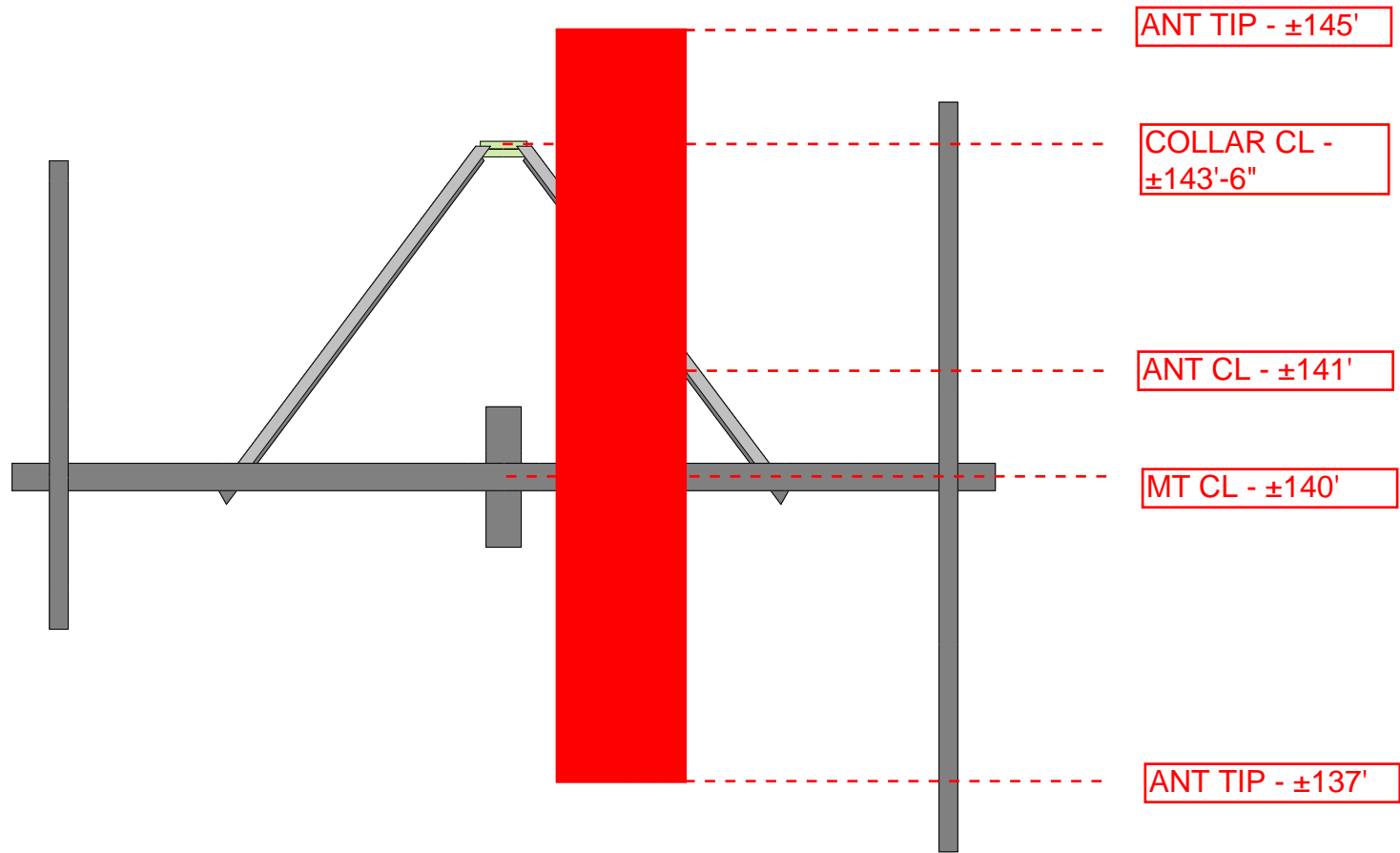
Install (1) Site Pro 1 SP219-96H, 2-7/8" Pipe Mount Kit at each sector (3 total). Attach proposed mount pipe to existing face horizontal pipe using crossover plate and hardware included in the standard kit.

Envelope Only Solution

CLS
SMR
41124-12927186-01-MA-R2

41124-12927186-Parsonage Hill Aka Wallin
Installation Sketch - Isometric View

SK - 0
July 8, 2019 at 4:20 PM
41124-12927186-01-MA-R2.r3d



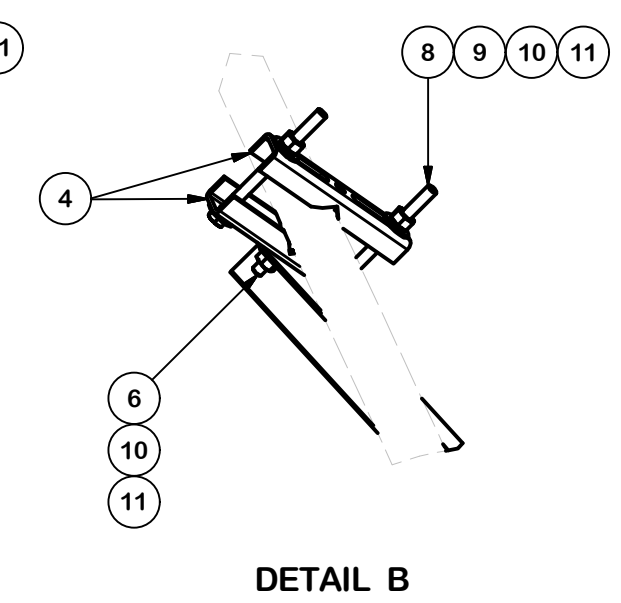
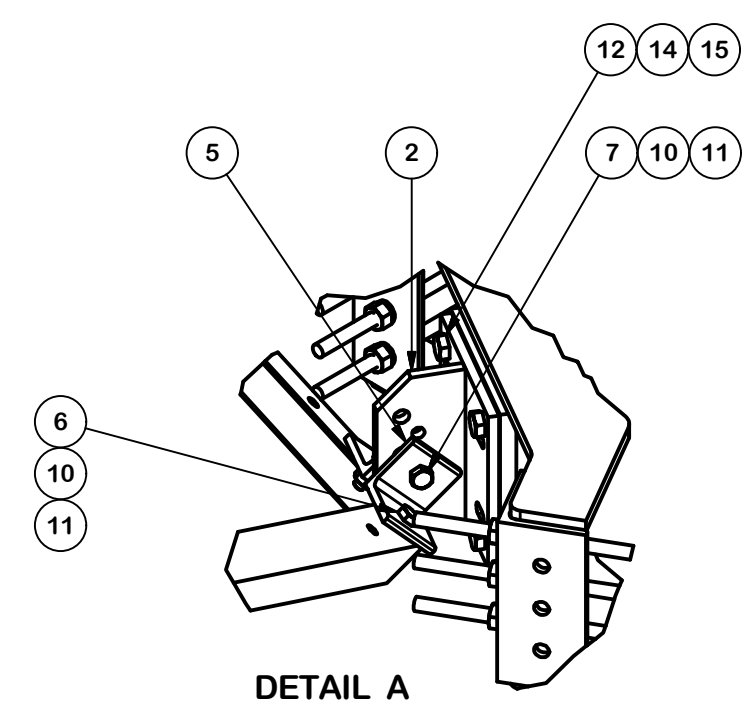
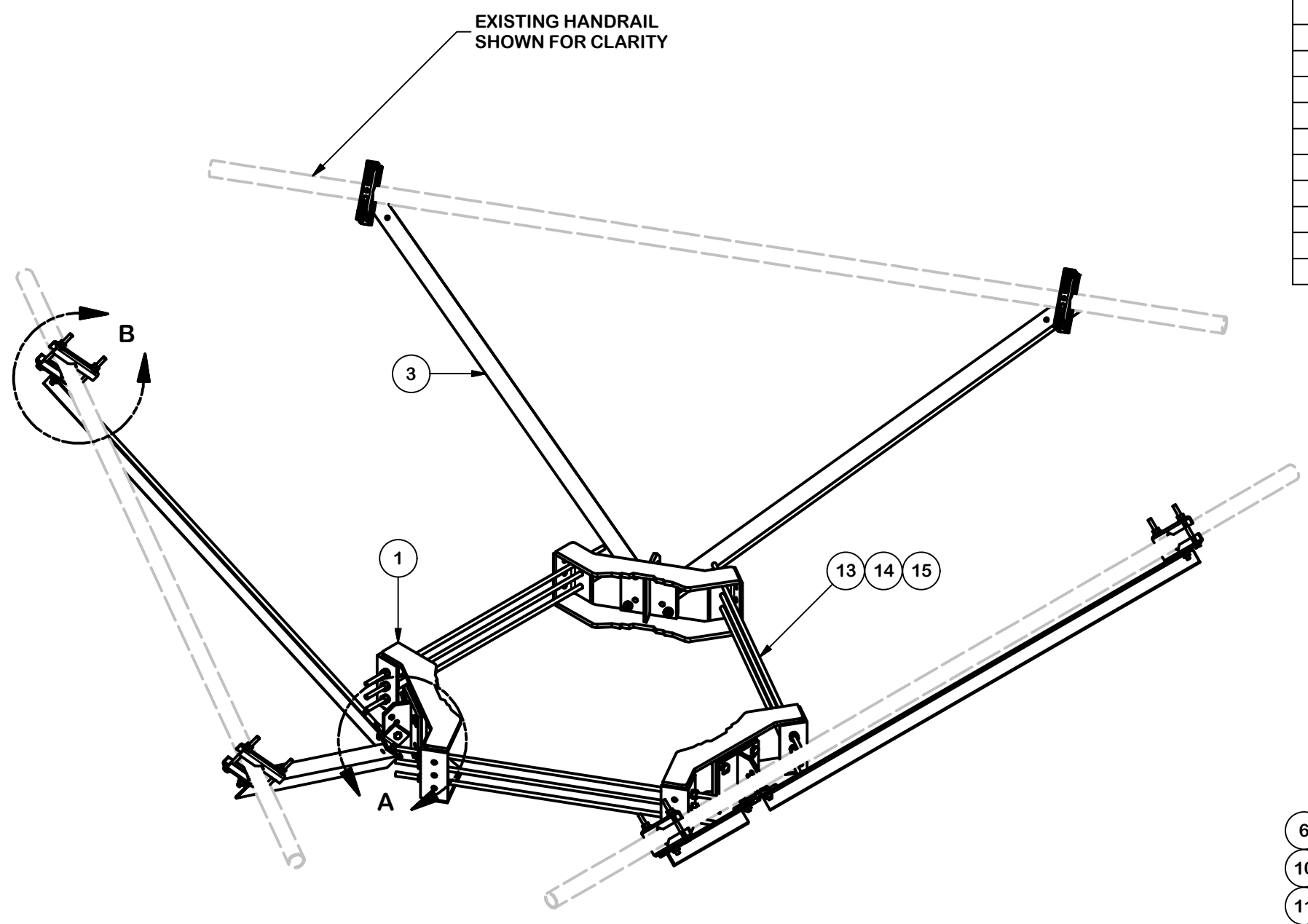
Envelope Only Solution

CLS
SMR
41124-12927186-01-MA-R2

41124-12927186-Parsonage Hill Aka Wallin
Installation Sketch - Elevation Sketch

SK - 0
July 8, 2019 at 4:21 PM
41124-12927186-01-MA-R2.r3d

PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	3	X-LWRM	RING MOUNT WELDMENT		68.81	206.42
2	3	X-TBW	T-BRACKET WELDMENT		13.60	40.80
3	6	X-254924	DIAGONAL ANGLE - SITE PRO 1	72 in	19.71	118.24
4	12	X-STU	STIFF ARM CHANNEL BRACKET	8 1/2 in	1.37	16.46
5	6	SHCM-T	CHAIN MOUNT TIGHTENER BRACKET	3 in	1.86	11.15
6	12	G12112	1/2" x 1-1/2" HDG HEX BOLT GR5	1/2 in	0.15	1.77
7	3	G12212	1/2" x 2-1/2" HDG HEX BOLT GR5	2 1/2 in	0.20	0.61
8	12	G12065	1/2" x 6-1/2" HDG HEX BOLT GR5 FULL THREAD	6 1/2 in	0.41	4.91
9	24	G12FW	1/2" HDG USS FLATWASHER	3/32 in	0.03	0.82
10	27	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	0.38
11	27	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	1.93
12	12	A582114	5/8" x 2-1/4" HDG A325 HEX BOLT	2 1/4 in	0.31	3.75
13	9	G58R-24	5/8" x 24" THREADED ROD (HDG.)	24 in	0.40	3.59
13	9	G58R-48	5/8" x 48" THREADED ROD (HDG.)	48 in	0.40	3.59
14	30	G58LW	5/8" HDG LOCKWASHER		0.03	0.78
15	30	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	3.90
					TOTAL WT. #	642.04



REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
A	CHANGED MAX. DIA. FOR HANDRAIL CONNECTION	SP1	BC	10/25/2017
REVISION HISTORY				

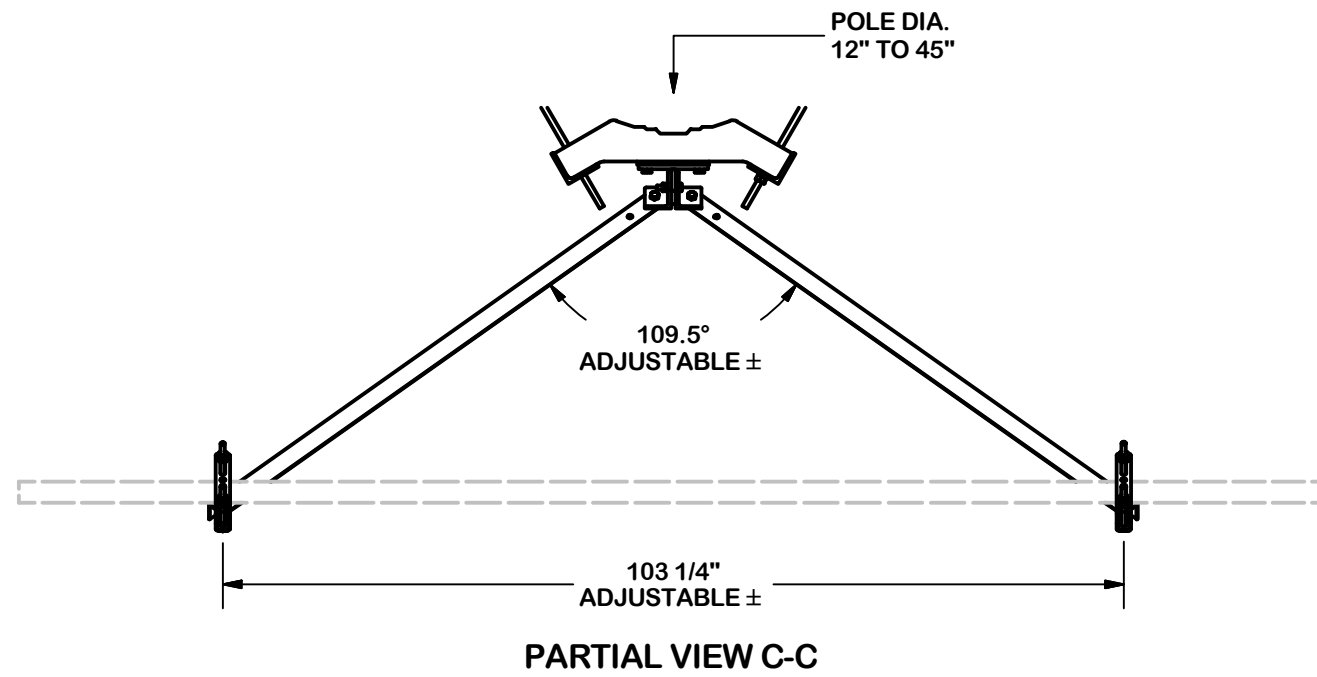
TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
 SAWED, SHEARED AND GAS CUT EDGES ($\pm 0.030''$)
 DRILLED AND GAS CUT HOLES ($\pm 0.030''$) - NO CONING OF HOLES
 LASER CUT EDGES AND HOLES ($\pm 0.010''$) - NO CONING OF HOLES
 BENDS ARE $\pm 1/2$ DEGREE
 ALL OTHER MACHINING ($\pm 0.030''$)
 ALL OTHER ASSEMBLY ($\pm 0.060''$)

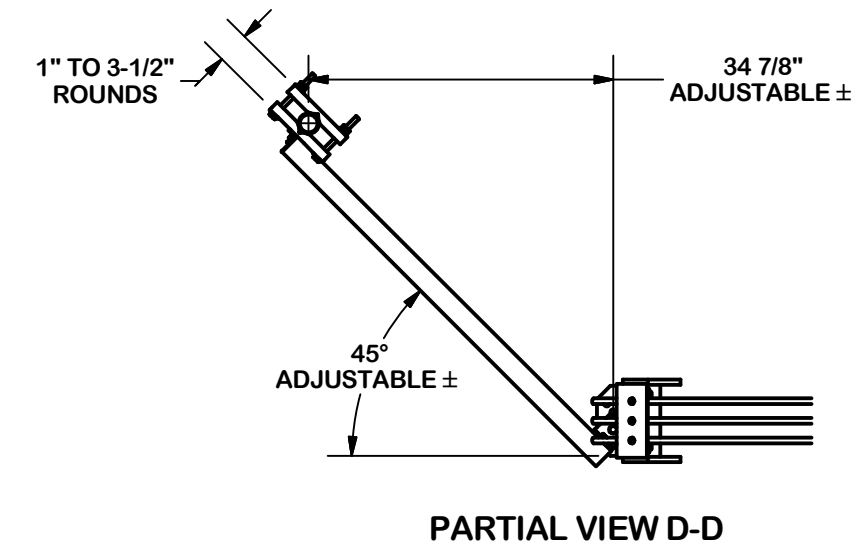
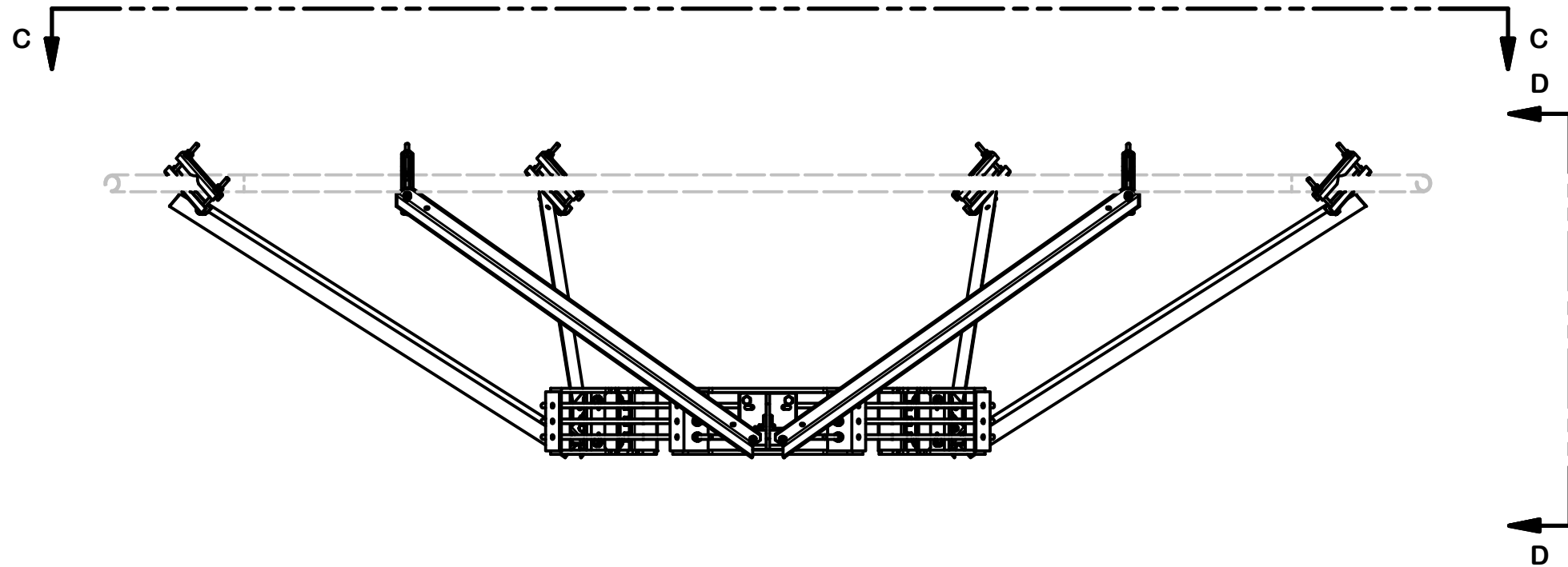
PROPRIETARY NOTE:
 THE DATA AND TECHNIQUES CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF VALMONT INDUSTRIES IS STRICTLY PROHIBITED.

DESCRIPTION			
HANDRAIL REINFORCEMENT KIT (LONG)			
CPD NO.	DRAWN BY	ENG. APPROVAL	
SP1	CSL3 2/23/2017	3RD PARTY	
CLASS	SUB	DRAWING USAGE	CHECKED BY
81	02	SHOP	BMC 9/8/2017

 A valmont COMPANY	Locations: New York, NY Atlanta, GA Los Angeles, CA Plymouth, IN Salem, OR Dallas, TX
	Engineering Support Team: 1-888-753-7446
PART NO.	PRK-SFS-L
DWG. NO.	PRK-SFS-L



VERTICAL POSITION




REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
A	CHANGED MAX. DIA. FOR HANDRAIL CONNECTION	SP1	BC	10/25/2017
REVISION HISTORY				

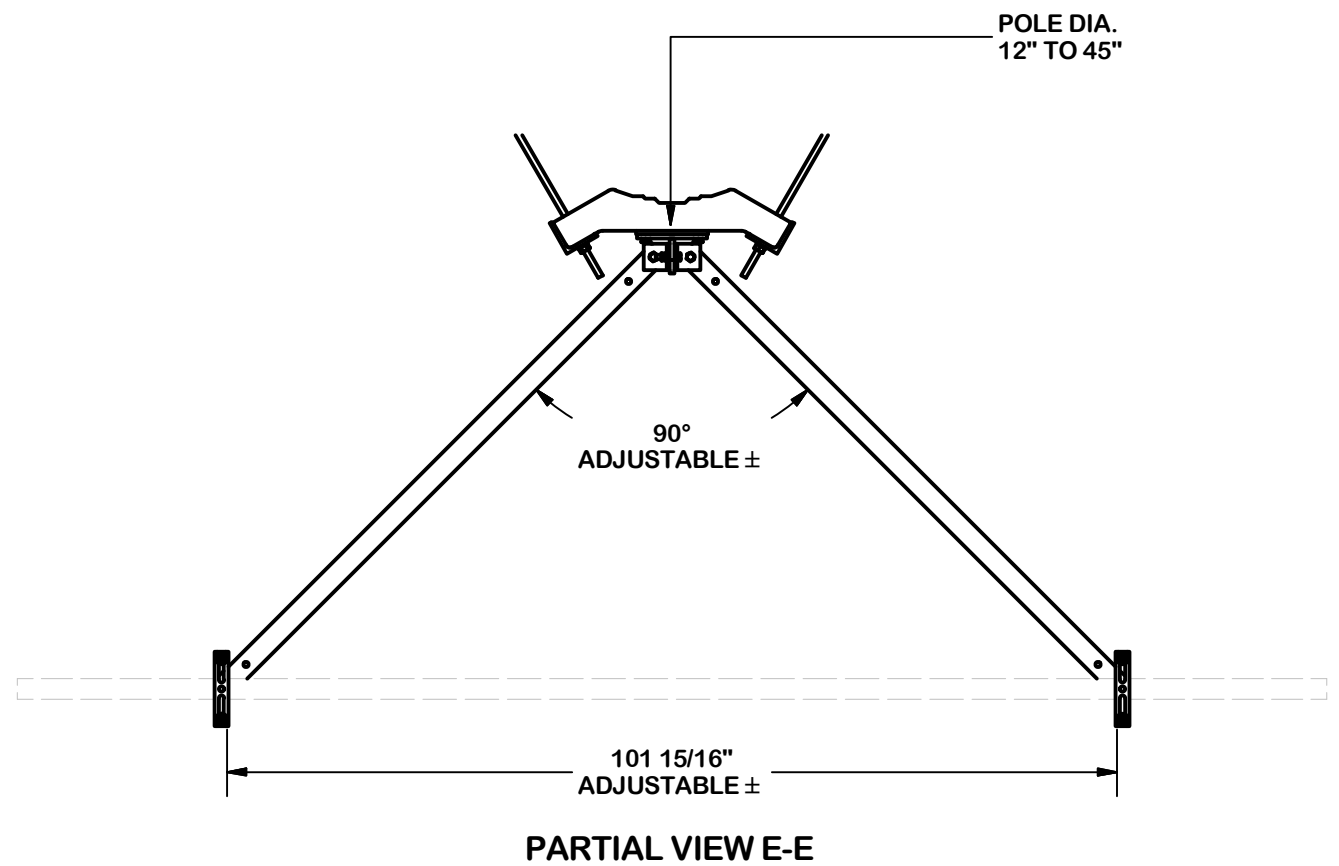
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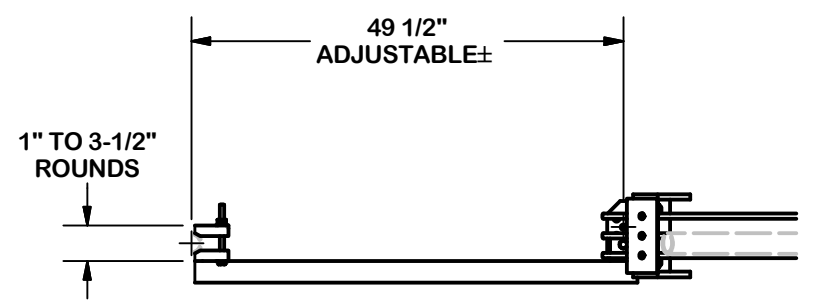
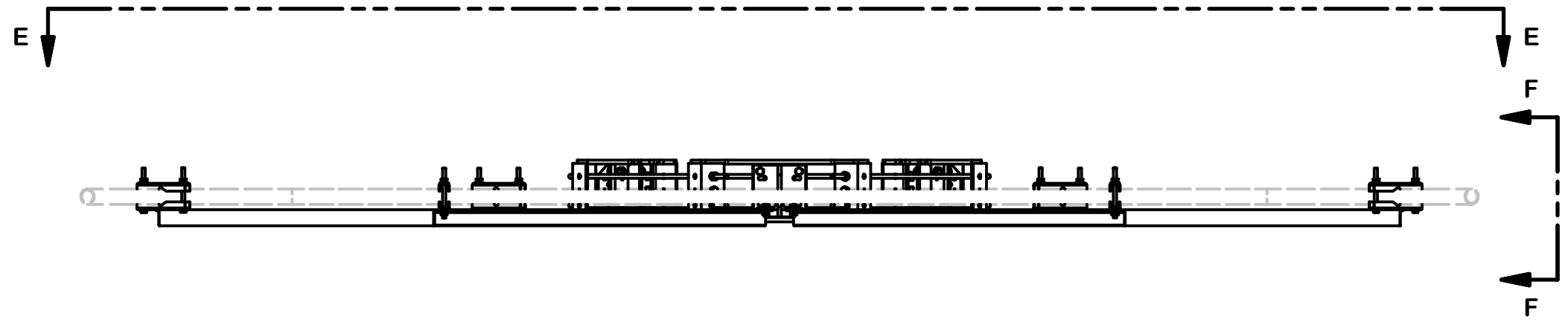
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DESCRIPTION HANDRAIL REINFORCEMENT KIT (LONG)			
CPD NO. SP1	DRAWN BY CSL3 2/23/2017	ENG. APPROVAL 3RD PARTY	
CLASS 81	SUB 02	DRAWING USAGE SHOP	CHECKED BY BMC 9/8/2017

 A valmont COMPANY	Engineering Support Team: 1-888-753-7446	Locations: New York, NY Atlanta, GA Los Angeles, CA Plymouth, IN Salem, OR Dallas, TX
	PART NO. PRK-SFS-L	DWG. NO. PRK-SFS-L



HORIZONTAL POSITION



PARTIAL VIEW F-F

TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
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 DRILLED AND GAS CUT HOLES (± 0.030") - NO CONING OF HOLES
 LASER CUT EDGES AND HOLES (± 0.010") - NO CONING OF HOLES
 BENDS ARE ± 1/2 DEGREE
 ALL OTHER MACHINING (± 0.030")
 ALL OTHER ASSEMBLY (± 0.060")

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DESCRIPTION

HANDRAIL REINFORCEMENT KIT (LONG)

SITE PRO 1

Engineering Support Team:
1-888-753-7446

Locations:
New York, NY
Atlanta, GA
Los Angeles, CA
Plymouth, IN
Salem, OR
Dallas, TX

A valmont COMPANY

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
A	CHANGED MAX. DIA. FOR HANDRAIL CONNECTION	SP1	BC	10/25/2017
REVISION HISTORY				

CPD NO. SP1	DRAWN BY CSL3 2/23/2017	ENG. APPROVAL 3RD PARTY
CLASS 81	SUB 02	DRAWING USAGE SHOP
CHECKED BY BMC 9/8/2017		

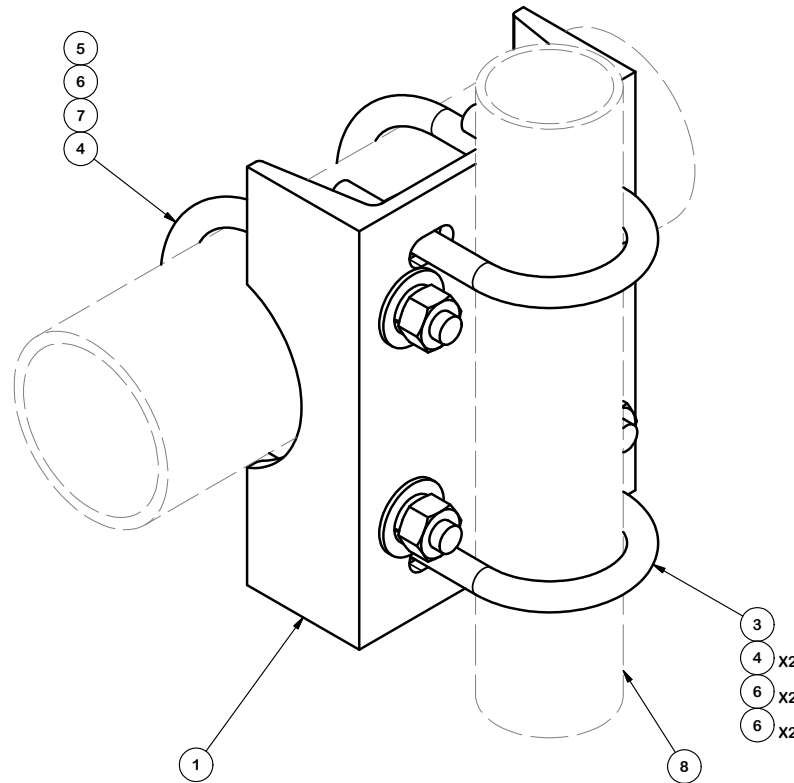
PART NO. PRK-SFS-L	3 OF 3 PAGE
DWG. NO. PRK-SFS-L	

2-7/8" O.D. VERTICAL MOUNTING PIPES

ASSEMBLY "A"	PART NO. "B"	PART DESCRIPTION	LENGTH "C"	UNIT WT. "D"	NET WT. "E"	TOTAL WEIGHT
SP219-96H	P3096	2-7/8" DIA X 63" SCH 40 GALVANIZED PIPE	96"	49.24	49.24	62.45
SP219-120H	P30126	2-7/8" DIA X 63" SCH 40 GALVANIZED PIPE	126"	76.94	76.94	89.15

PARTS LIST

ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	1	X-SP219	SMALL SUPPORT CROSS PLATE	8.250 in	8.61	8.61
3	2	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" U-BOLT (HDG.)		0.26	0.51
3	2	X-UB1300	1/2" X 3" X 5" X 2" GALV U-BOLT		0.74	1.48
4	2	X-UB1306	1/2" X 3-5/8" X 6" X 3" GALV U-BOLT		0.83	1.66
5	8	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	0.57
6	8	G12LW	1/2" HDG LOCKWASHER		0.01	0.11
7	8	G12FW	1/2" HDG USS FLATWASHER		0.03	0.27
8	1	"B"	2-7/8" O.D. VERTICAL MOUNTING PIPES	"C"	"D"	"E"



TOLERANCE NOTES

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DESCRIPTION
 2-7/8" PIPE MOUNT KITS

SITE PRO 1
 Engineering Support Team:
 1-888-753-7446
 Locations:
 New York, NY
 Atlanta, GA
 Los Angeles, CA
 Plymouth, IN
 Salem, OR
 Dallas, TX

CPD NO.	DRAWN BY	ENG. APPROVAL
CLASS	DRAWING USAGE	CHECKED BY
81	01	CUSTOMER
		BMC 2/2/2016

PART NO.	SP219-xxxH
DWG. NO.	SP219-xxxH

Wind & Ice Loading

Nominal Mount Elevation (AGL), z_{mount}	140 ft	K_a	0.90
Nominal Rad Elevation (AGL), z_{rad}	141 ft	K_d	0.95
Elevation AMSL (ft)	-	K_e	-
TIA Standard	G	K_z	1.36
Basic Wind Speed, V_{ult} (bare)	125 mph	K_{zt}	1.00
Basic Wind Speed, V (ice)	50 mph	K_s	-
Design Ice Thickness, t_i	3/4 in	t_{iz}	1.73 in
Exposure Category	C	G_h	1.00
Risk Category	II	q_z (bare)	51.6 psf
Seismic Response Coeff., C_s	-	q_z (ice)	8.3 psf

Live Loading

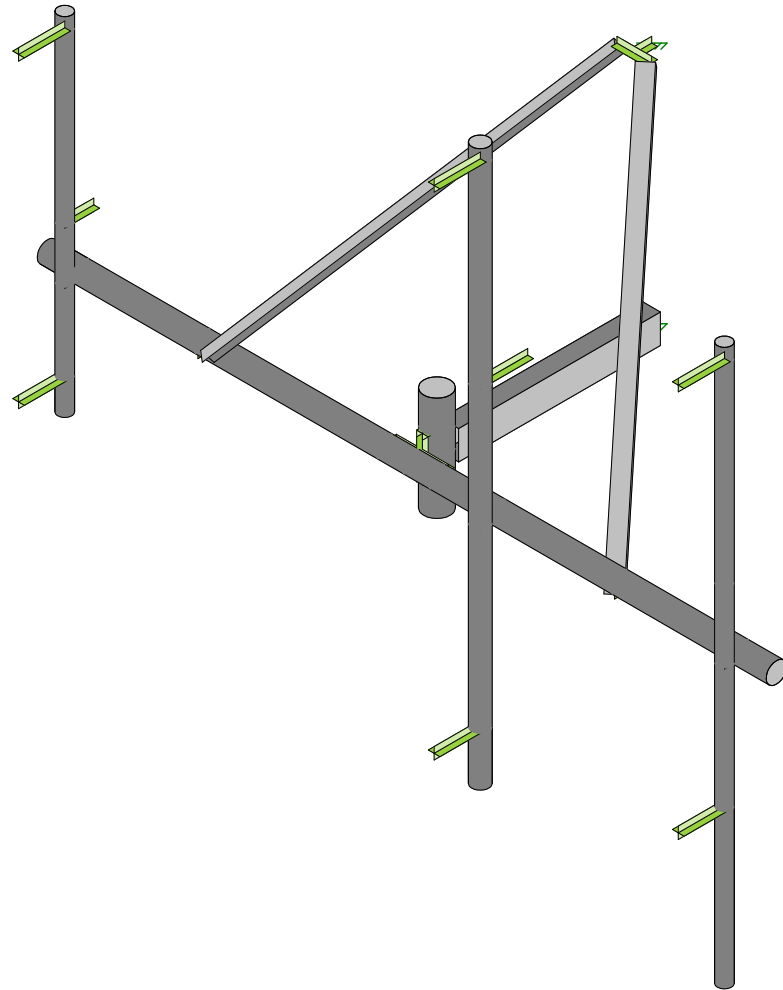
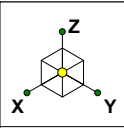
At Mount Pipes, L_M	500 lb
Joint Labels Considered	M1
	M2
	M3

Member Distributed Loading

Section Set Label	Shape Label	F_A (lb/ft)		Ice Wt. (lb/ft)
		Bare	Ice	
Face Horizontal Pipe	PIPE_3.0	16.26	5.18	11.08
MOD Mount Pipe	PIPE_2.5	13.36	4.71	9.76
Mount Pipe	PIPE_2.0	11.03	4.34	8.70
Standoff Tube	HSS5X3X6	38.72	3.04	14.45
Vertical Pipe	PIPE_4.0	20.91	5.92	13.20
MOD PRK	L2.5x2.5x3	19.36	2.81	10.16

Appurtenances

Appurtenance Model	Status	Azimuth Offset (°, °)	Rad Elev. Override (ft)	Swap Width & Depth	Area Factor		Qty.	Total Qty. Override	0° Joints		Height (in)	Width (in)	Depth (in)	Weight (Bare) (lb)	Shape	Weight of Ice (lb)	EPA_A (Bare) (ft²)		EPA_A (Ice) (ft²)		F_A (Bare) (lb)		F_A (Ice) (lb)		
					Front	Side			0°	1							2	N	T	N	T	N	T	N	T
					AIR 21 B4A/B12P-B5F 6FT												<input type="checkbox"/>			1	3	A1	A2	78	14.8
APXVAARR24_43-U-NA20				<input type="checkbox"/>			1	3	A3	A4	0	0	0	153.3	Generic	390.56	14.67	5.32	17.31	7.64	682.61	247.55	128.85	56.91	
AIR 21, 1.3 M, B2A B4P				<input type="checkbox"/>			1	3	A5	A6	56	12	8	83	Flat	145.36	6.05	4.36	8.05	6.25	281.48	202.67	59.91	46.52	
KRY 112 144/1				<input type="checkbox"/>	0.25		1	3	T1		7	6	3	11	Flat	11.02	0.09	0.18	0.21	0.56	4.07	8.14	1.54	4.20	
RADIO 4449 B12/B71				<input type="checkbox"/>	0.5		1	3	R1		15	13.2	10.4	75	Flat	59.68	0.83	1.30	1.28	2.13	38.39	60.49	9.55	15.89	

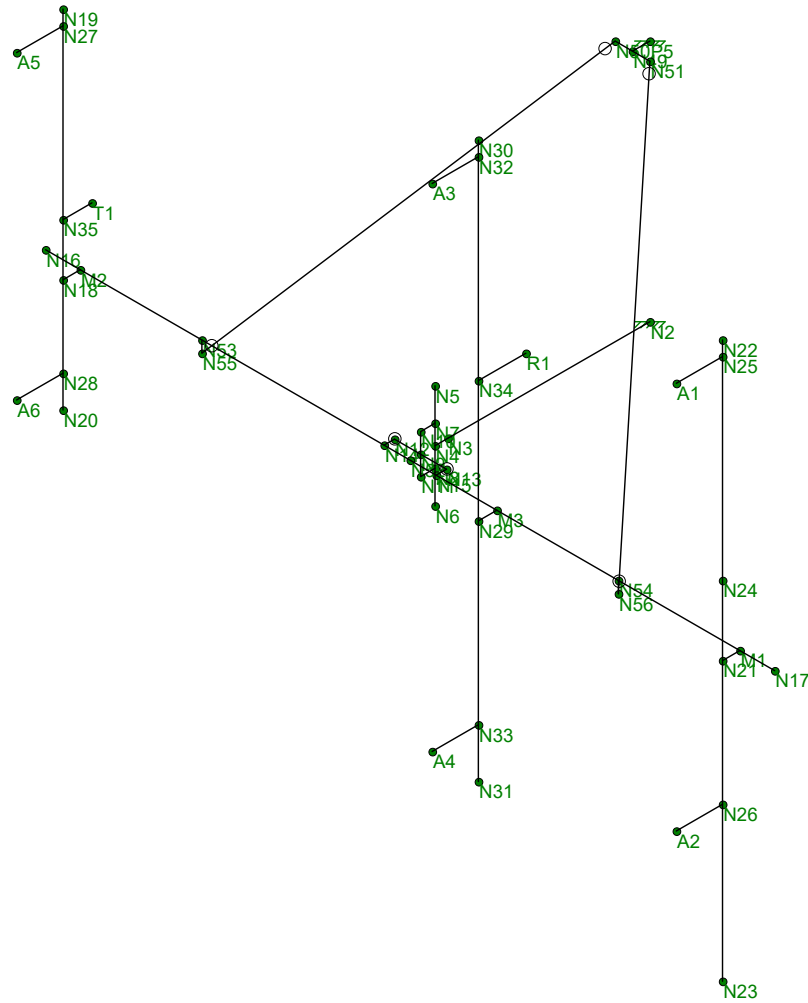
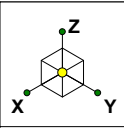


Envelope Only Solution

CLS
SMR
41124-12927186-01-MA-R2

41124-12927186-Parsonage Hill Aka Wallin
Rendered

SK - 1
Aug 6, 2019 at 1:58 PM
41124-12927186-01-MA-R2.r3d

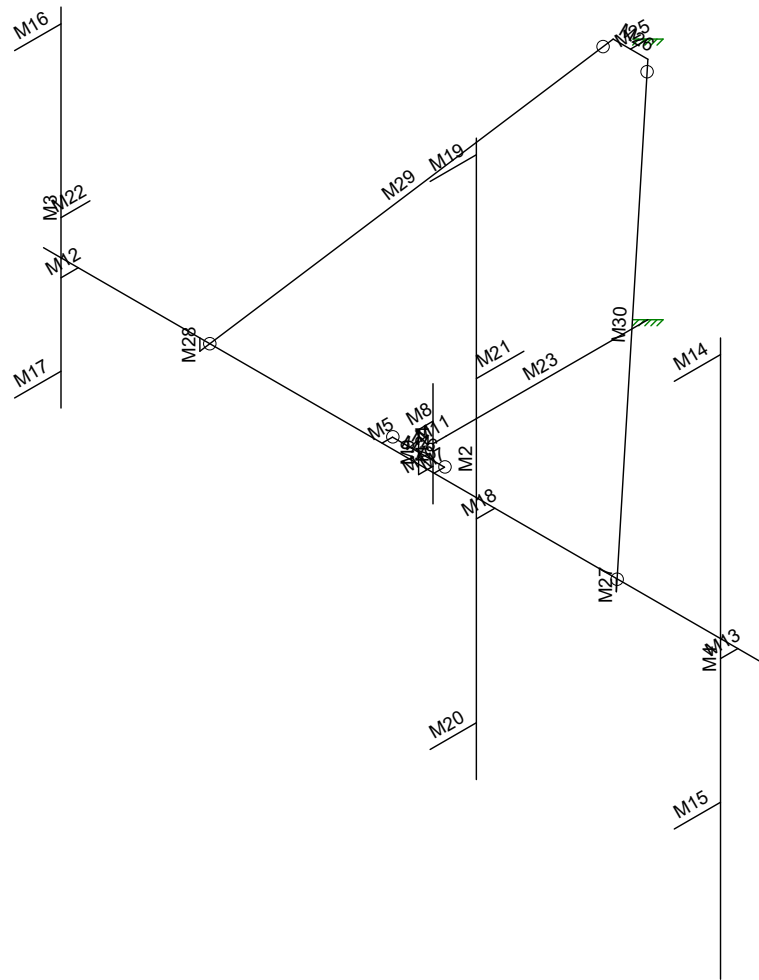
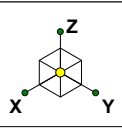


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CLS
SMR
41124-12927186-01-MA-R2

41124-12927186-Parsonage Hill Aka Wallin
Joint Labels

SK - 2
Aug 6, 2019 at 1:59 PM
41124-12927186-01-MA-R2.r3d

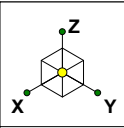


Envelope Only Solution

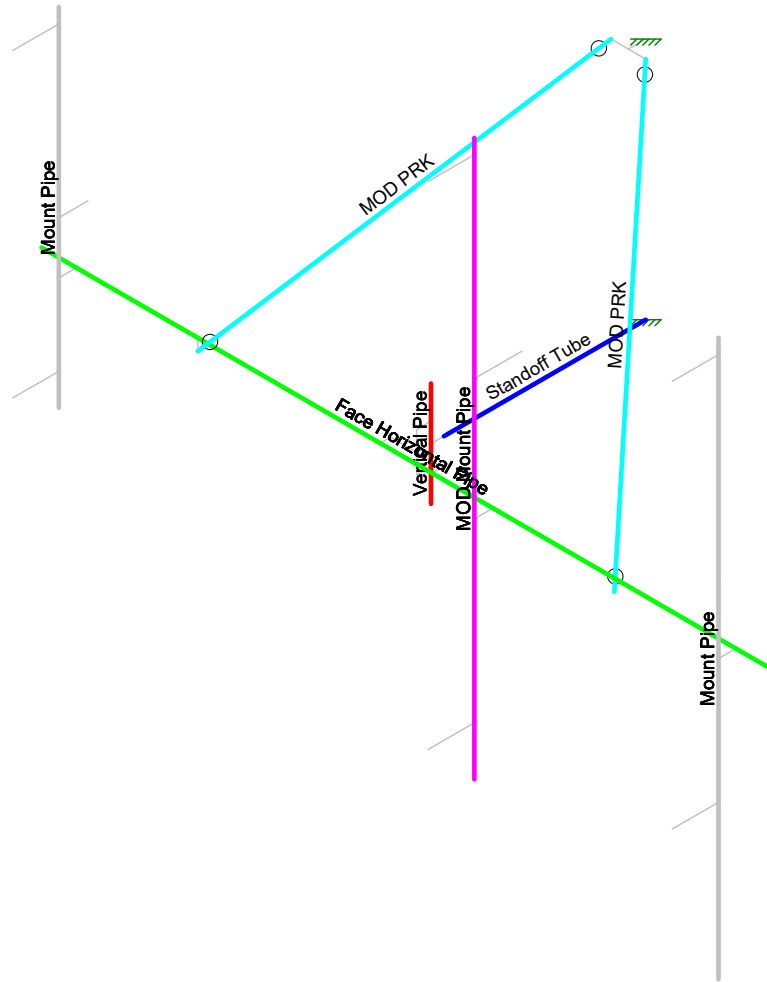
CLS
SMR
41124-12927186-01-MA-R2

41124-12927186-Parsonage Hill Aka Wallin
Member Labels

SK - 3
Aug 6, 2019 at 2:00 PM
41124-12927186-01-MA-R2.r3d

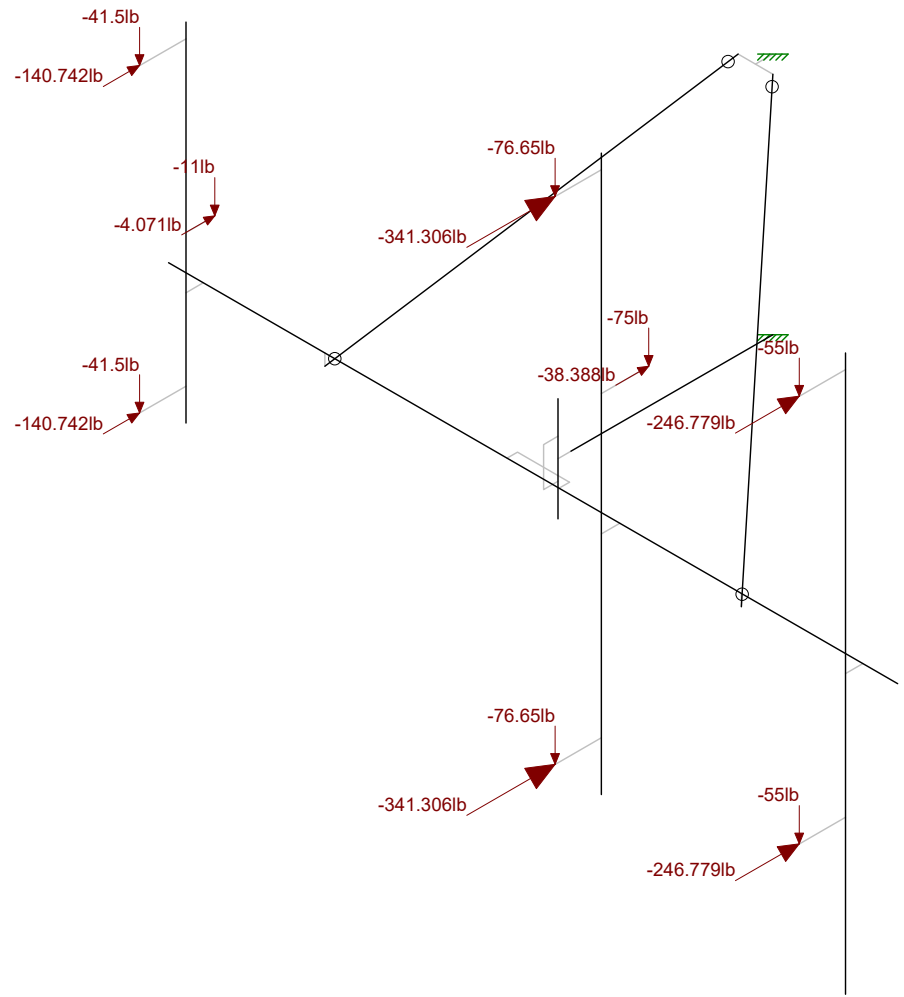
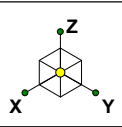


Section Sets	
Blue	Standoff Tube
Green	Face Horizontal Pipe
Red	Vertical Pipe
Grey	Mount Pipe
Purple	MOD Mount Pipe
Cyan	MOD PRK
Brown	RIGID



Envelope Only Solution

CLS	41124-12927186-Parsonage Hill Aka Wallin Section Sets	SK - 4
SMR		Aug 6, 2019 at 2:00 PM
41124-12927186-01-MA-R2		41124-12927186-01-MA-R2.r3d

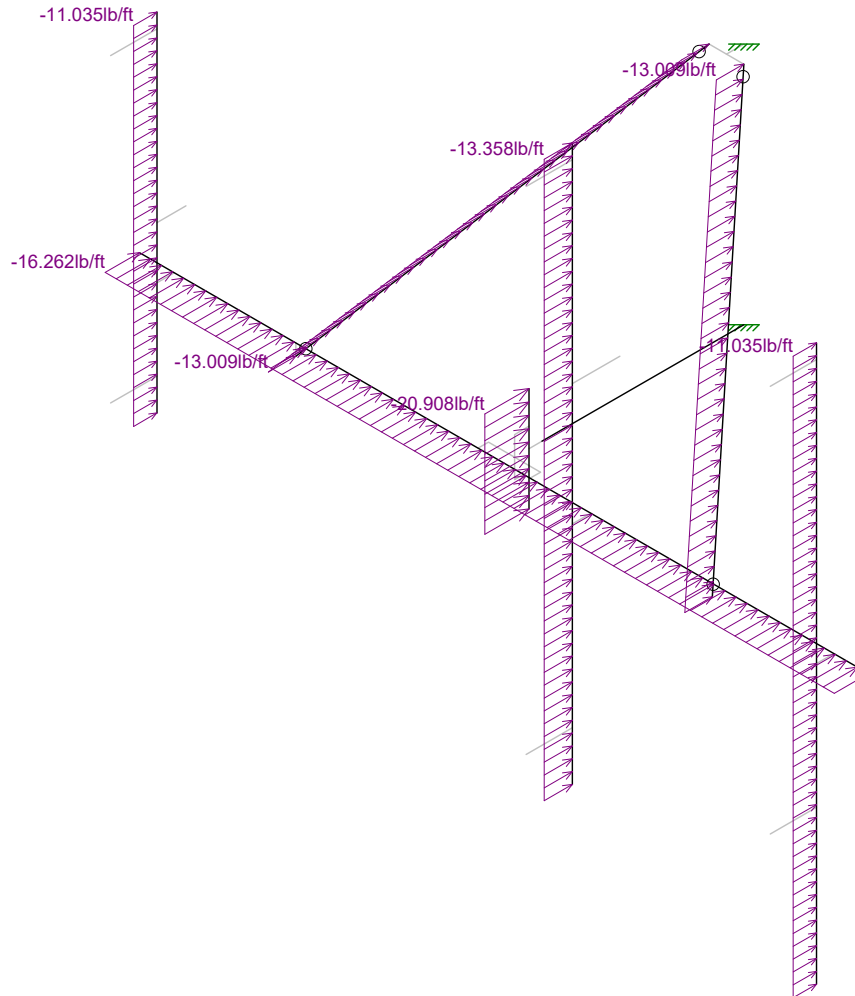
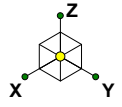


Loads: LC 1, DISPLAY (1.0D + 1.0W_0°)
Envelope Only Solution

CLS
SMR
41124-12927186-01-MA-R2

41124-12927186-Parsonage Hill Aka Wallin
Joint Loads - Dead and Normal Wind

SK - 5
Aug 6, 2019 at 2:00 PM
41124-12927186-01-MA-R2.r3d

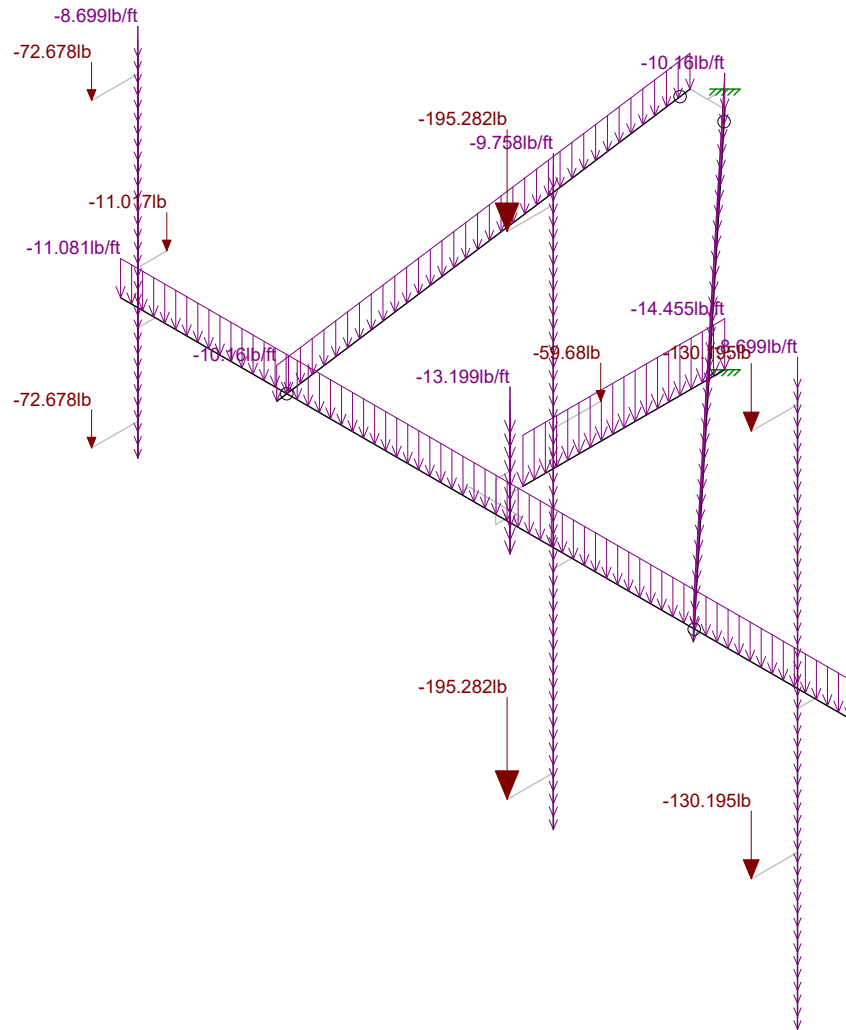
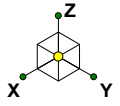


Loads: BLC 4, Structure Wind 0°
Envelope Only Solution

CLS
SMR
41124-12927186-01-MA-R2

41124-12927186-Parsonage Hill Aka Wallin
Distributed Load - Normal Wind

SK - 6
Aug 6, 2019 at 2:00 PM
41124-12927186-01-MA-R2.r3d

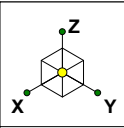


Loads: BLC 2, Ice Dead
Envelope Only Solution

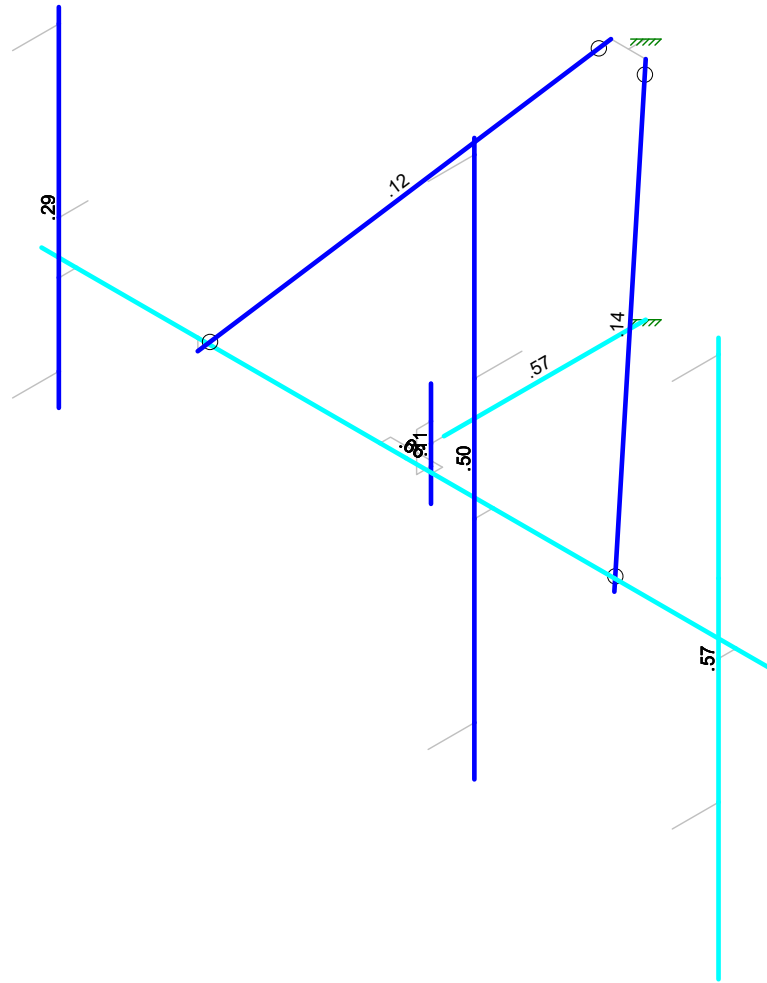
CLS
SMR
41124-12927186-01-MA-R2

41124-12927186-Parsonage Hill Aka Wallin
Ice Dead Loads

SK - 7
Aug 6, 2019 at 2:01 PM
41124-12927186-01-MA-R2.r3d

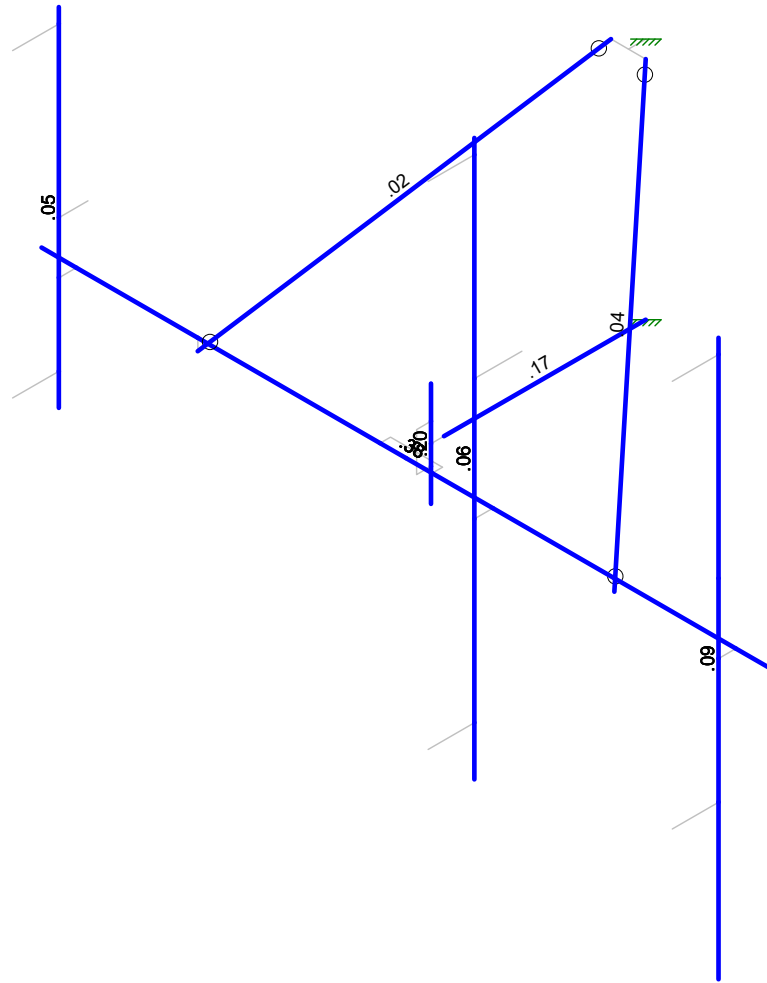
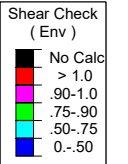
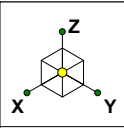


Code Check (Env)	
Black	No Calc
Red	> 1.0
Pink	.90-1.0
Green	.75-.90
Cyan	.50-.75
Blue	0-.50



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

CLS	41124-12927186-Parsonage Hill Aka Wallin Envelope Member Unity Check Results - Bending	SK - 8
SMR		Aug 6, 2019 at 2:01 PM
41124-12927186-01-MA-R2		41124-12927186-01-MA-R2.r3d



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

CLS	41124-12927186-Parsonage Hill Aka Wallin Envelope Member Check Results - Shear	SK - 9
SMR		Aug 6, 2019 at 2:01 PM
41124-12927186-01-MA-R2		41124-12927186-01-MA-R2.r3d

BOLTED CONNECTION ROTATIONAL SLIP RESISTANCE

v. 2017.11.20

DESIGN LOADS	
Factored Moment, M_u (lb-ft)	1728

BOLT PROPERTIES	
Bolt Type	U-Bolt
# of U-Bolts	2
Hole Type	Standard
Bolt Grade	A36
Bolt Diameter, d (in)	0.5
Leg Width, W_{leg} (in)	3.5
Bolt Torque Override, T (lb-ft)	50
Bolt Pretension Stress Override (ksi)	
Bolt Ultimate Strength, F_u (ksi)	58
Specified Torque, T (lb-ft)	50.00
Clamping Force per Bolt, P_u (lb)	6000.00
Bolt Pretension Stress (ksi)	30.56
Tensile Strength per Bolt, ϕP_n (lb)	6405.90
Slip Resistance per Bolt, ϕM_n (lb-ft)	593.25
Total Slip Resistance, ϕM_n (lb-ft)	2373.00
Bolt Tensile Usage, $P_u / \phi P_n$	0.94
Connection Slip Usage, $M_u / \phi M_n$	0.73

FACTORS	
Nut Factor, K	0.20
$\phi_{(BOLT\ TENSION)}$	0.75
$\phi_{(SLIP-CRITICAL)}$	1.00
Mean Slip Coefficient, μ	0.30
Installed Pretension Ratio, D_u	1.13

Rule-of-thumb estimate

AISC 15th, J3.6

AISC 15th, J3.8

AISC 15th, J3.8

AISC 15th, J3.8

Using Torque Override