NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

Northeast Site Solutions
Victoria Masse
420 Main Street #2, Sturbridge, MA 01566
860-306-2326
victoria@northeastsitesolutions.com

August 6, 2021

Members of the Siting Council
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: Notice of Exempt Modification
345 Bushy Hill Road, Simsbury CT 06070
Latitude: 41.84138889
Longitude: -72.85055560
T-Mobile Site#: CTHA151A_L600

Dear Ms. Bachman:

T-Mobile is requesting to file an exempt modification for an existing 117-foot Monopole located at 345 Bushy Hill Road, Simsbury CT 06070. T-Mobile currently maintains three (3) antennas at the 77-foot level of the existing 117-foot monopole. The tower and property are owned by Simsbury Fire District. T-Mobile now intends to add three (3) new 600/700/1900 MHz 5G antenna as well as upgrade the existing mount. The new antennas would be installed at the 77-foot and level of the tower. T-Mobile is also proposing tower structure reinforcements from the 0ft level to the 74.6 ft level of the tower. Please see enclosed drawings by Tectonic Engineering date August 3, 2021.

Planned Modifications:
Remove: NONE

Remove and Replace:
(3) Existing Standoff Mounts (**Remove**) - (3) Sitepro1 – SNP8HR-396 Platform Mount (**Replace**)

Install New:
(3) RFS APXVAARR24_43-U-NA20- 1900/1900 MHz Antenna
(3) Radio 4449 B12/B71
(1) Hybrid Line

Existing to Remain:
(3) RFS APX16DWV- 600/700 MHz Antenna
(3) Twin Style TMA
(6) 7/8" Coax

NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

This facility was approved by the CT Siting Council TS-T-MOBILE-128-070328–on April 16, 2007. The height of the tower changed and was approved in Petition No. 1373 on August 16, 2019. T-Mobile tower share was approved to install three (3) antenna on the existing tower. Please see attached.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies§ 16- SOj-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.SA. § 16-SOj-73, a copy of this letter is being sent to Eric Wellman, First Selectman, for the Town of Simsbury, Michael Glidden, Director of Planning and Community Development, Laura Barkowski, Land Use Specialist and James Baldis, Director of Administration & Facilities.

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S;A. § 16-50j-72(b)(2).

1. The proposed modifications will not result in an increase in the height of the existing structure.

2. The proposed modifications will not require the extension of the site boundary.

3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.

4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.

5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

6. The existing structure and its foundation can support the proposed loading.

For the foregoing reasons, T-Mobile respectfully submits that the proposed modifications to the above referenced telecommunications facility constitute an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

Victoria Masse
Mobile: 860-306-2326
Fax: 413-521-0558
Office: 420 Main Street, Unit 2, Sturbridge MA 01566
Email: victoria@northeastsitesolutions.com

NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

Attachments
cc:
Eric Wellman -First Selectman- ewellman@simsbury-ct.gov
933 Hopmeadow Street
Simsbury, CT 06070

Michael Glidden-Director of Planning and Community Development- mglidden@simsbury-ct.gov
933 Hopmeadow Street
Simsbury, CT 06070

Laura Barkowski-Land Use Specialist- lbarkowski@simsbury-ct.gov
933 Hopmeadow Street
Simsbury, CT 06070

James Baldis- Director of Administration & Facilities - JBaldis@simsburyfd.org
345 Bushy Hill Road
Simsbury, CT 06070

Exhibit A

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

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

August 16, 2019

Kristen Motel, Esq.
Cuddy & Feder, LLP
445 Hamilton Avenue, 14th Floor
White Plains, NY 10601

RE: **PETITION NO. 1373** – New Cingular Wireless PCS, LLC (AT&T) petition for a declaratory ruling, pursuant to Connecticut General Statutes §4-176 and §16-50k, for the proposed modifications to an existing wireless telecommunications facility at the Simsbury Volunteer Fire Department located at 345 Bushy Hill Road, Simsbury, Connecticut.

Dear Attorney Motel:

At a public meeting held on August 15, 2019, the Connecticut Siting Council (Council) considered and ruled that the above-referenced proposal would not have a substantial adverse environmental effect, and pursuant to Connecticut General Statutes § 16-50k, would not require a Certificate of Environmental Compatibility and Public Need with the request that AT&T provide written confirmation of the amount of fill required to develop the site, and the following conditions:

1. Submission of an erosion and sedimentation control plan, consistent with the *2002 Connecticut Guidelines for Erosion and Sediment Control*, as amended, prior to commencement of site construction;

2. Prior to AT&T's antenna installation, tower modifications shall be installed in accordance with the Modification Structural Analysis prepared by Master Consulting Connecticut, dated May 30, 2019, and stamped and signed by Petros Tsoukalas;

3. Approval of any minor project changes be delegated to Council staff;

4. Within 45 days following completion of proposed modifications, AT&T shall provide documentation that its installation complied with the recommendations of the Modification Structural Analysis;

5. Unless otherwise approved by the Council, if the facility authorized herein is not fully constructed within three years from the date of the mailing of the Council's decision, this decision shall be void, and the facility owner/operator shall dismantle the facility and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made. The time between the filing and resolution of any appeals of the Council's decision shall not be counted in calculating this deadline. Authority to monitor and modify this schedule, as necessary, is delegated to the Executive Director. The facility owner/operator shall provide written notice to the Executive Director of any schedule changes as soon as is practicable;

6. Any request for extension of the time period to fully construct the facility shall be filed with the Council not later than 60 days prior to the expiration date of this decision and shall be served on all parties and intervenors, if applicable, and the Town of Simsbury;

7. Within 45 days after completion of construction, the Council shall be notified in writing that construction has been completed;

8. Any nonfunctioning antenna and associated antenna mounting equipment on this facility owned and operated by the Petitioner shall be removed within 60 days of the date the antenna ceased to function;

9. The facility owner/operator shall remit timely payments associated with annual assessments and invoices submitted by the Council for expenses attributable to the facility under Conn. Gen. Stat. §16-50v;

10. This Declaratory Ruling may be transferred, provided the facility owner/operator/transferor is current with payments to the Council for annual assessments and invoices under Conn. Gen. Stat. §16-50v and the transferee provides written confirmation that the transferee agrees to comply with the terms, limitations and conditions contained in the Declaratory Ruling, including timely payments to the Council for annual assessments and invoices under Conn. Gen. Stat. §16-50v; and

11. If the facility owner/operator is a wholly owned subsidiary of a corporation or other entity and is sold/transferred to another corporation or other entity, the Council shall be notified of such sale and/or transfer and of any change in contact information for the individual or representative responsible for management and operations of the facility within 30 days of the sale and/or transfer.

This decision is under the exclusive jurisdiction of the Council and is not applicable to any other modification or construction. All work is to be implemented as specified in the petition dated June 25, 2019, and additional information submitted on July 22 and July 25, 2019.

Enclosed for your information is a copy of the staff report on this project.

Sincerely,

Melanie A. Bachman
Executive Director

MAB/RDM/emr

Enclosure: Staff Report dated August 15, 2019

c: The Honorable Eric Wellman, First Selectman, Town of Simsbury
Maria Capriola, Town Manager, Town of Simsbury
Michael Glidden, Director of Planning and Community Development, Town of Simsbury
Simsbury Volunteer Fire Department, Property Owner

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

Petition No. 1373
New Cingular Wireless PCS, LLC
343 Bushy Hill Road, Simsbury

Staff Report
August 15, 2019

Introduction

On June 25, 2019, New Cingular Wireless PCS, LLC (AT&T) submitted a petition (Petition) to the Connecticut Siting Council (Council) for a declaratory ruling pursuant to Connecticut General Statutes (CGS) §4-176 and §16-50k for the proposed extension of an existing 107-foot monopole located at 343 Bushy Hill Road, in Simsbury.

Notice was provided to the Town of Simsbury (Town), the property owner and abutting property owners on June 21, 2019. On June 25, 2019, the Council sent correspondence to the Town stating that the Council has received the Petition and invited the municipality to contact the Council with any questions or comments by July 25, 2019. No comments have been received to date.

A field review of the proposed project was conducted on July 8, 2019. The field review was attended by Council member Larry Levesque, Public Utilities Regulatory Authority staff member Zak Alexander, Council staff member Robert Mercier, Town Code Compliance Officer Janell Mullen, and AT&T representatives Kristen Motel, Esq., Mark Donnelly, and Haleluya Haile.

The Council submitted interrogatories to AT&T on July 9, 2019. AT&T submitted responses to the interrogatories on July 22, 2019. A revised site plan was submitted to the Council on July 25, 2019.

Existing Facility

The existing 107-foot monopole is located on a 1.74-acre property owned by the Simsbury Fire District and developed with a fire station used by the Simsbury Volunteer Fire Company. The site property is located in a rural residential area and is accessed from Bushy Hill Road. The tower was approved by the Town in 2004 and was constructed as an 80-foot monopole located to the rear of the fire station, adjacent to an exterior wall.

Current tower users include T-Mobile at 77 feet above ground level (agl), Verizon at 101 feet agl and the Simsbury Volunteer Fire Company which maintains two, 13-foot tall whip antennas at the top of the tower.

On April 16, 2007, the Council approved a tower share by T-Mobile to locate at the 77-foot level of the tower. On December 12, 2013, the Council approved Petition No. 1077 to extend the existing 80-foot tower to a height of 107 feet agl to accommodate shared-use by Verizon. Due to the small size of the existing tower compound and lack of space for a compound expansion, Verizon's shelter was installed adjacent to the northwest edge of the fire station parking lot, at the top of a steep embankment.

On June 16, 2014, the Council approved an AT&T tower share request to install 12 panel antennas at the 90-foot level of the tower. This tower share approval was later modified by the Council on October 6, 2014 to allow AT&T to install an equipment shelter and small compound to the northwest of Verizon's shelter. It also included an underground utility run that extended parallel to Verizon's existing utility run, and a natural gas powered generator. AT&T subsequently did not proceed with the approved installation and is not currently located on the facility.

Although AT&T was previously approved to locate at the 90-foot level of the tower, network demands and equipment technology have changed since the Council's 2014 approval, requiring AT&T to install antennas at a height above 90 feet agl to meet network needs.

Proposed Extension

AT&T proposes to install a 10-foot extension on the existing tower which will bring the overall height of the tower to 117 feet agl. AT&T would install 9 panel antennas and 15 remote radio units on a V-boom mount at a centerline height of approximately 110 feet agl. The whip antennas would be relocated to the top of the monopole, extending to a height of 130-feet agl.

AT&T would install an equipment shelter to the northwest of Verizon's existing equipment shelter, in the same location the Council previously approved in 2014. The approximate 9.7 foot high equipment shelter would be located in a 758 square foot lease/compound area, accessed by a new 60-foot long, 14-foot wide paved driveway extending from the existing parking lot. Consistent with the Council's previous approval, underground utilities from AT&T's compound would extend through the parking lot to the tower, adjacent to Verizon's existing utility connection.

Due to the steep embankment in the proposed compound location, AT&T would install an approximate 396-foot long retaining wall to create the compound area at a ground elevation that matches the top of the embankment. The compound itself would have a gravel surface and would be enclosed by a six-foot high chain link fence. The height of the retaining wall would vary, with a maximum visible height of 9.7 feet. The proposed retaining wall would be approximately 60 feet from the nearest property line, located to the north at 9 Oakhurst Road.

A 20-kilowatt diesel-fueled generator unit would be installed on a four-foot by six-foot concrete pad within the compound. The unit includes a sub-base double walled fuel tank and a sound attenuation enclosure. It could run for 70 hours before refueling is required, assuming normal network loading.

Commercial Mobile Radio Service (CMRS) providers are licensed by and are under the jurisdiction and authority of the Federal Communications Commission (FCC). At present, no standards for backup power for CMRS providers have been promulgated by the FCC. Every year since 2006, AT&T, Sprint, T-Mobile, and Verizon have certified their compliance with the CTIA Business Continuity/Disaster Recovery Program and the Communications Security, Reliability and Interoperability Council standards and best practices to ensure network reliability during power outages.

The estimated cost of the project is $155,000.

Environmental

Approximately 12 trees with a trunk diameter of six inches or greater would be removed to develop the site. Approximately 200 cubic yards of fill would be required to create the compound area. The proposed site is not within a Connecticut Department of Energy and Environmental Protection (DEEP) Natural Diversity Database (NDDB) buffered area. According to Town 2014 mapping, the site is not within a wetland area.

The construction area would be isolated in accordance with the *2002 Connecticut Guidelines for Soil Erosion and Sedimentation Control.*

The proposed tower extension would have a minimal impact on year-round visibility, with a slight increase in views (1.62 acres) occurring within 1,000 feet of the site, mostly around and along Bushy Hill Road and at the entrance to Hildurcrest Drive directly across from the fire station.

There are 68 residences within a 1,000 foot radius of the existing tower with the nearest residence approximately 190 feet to the north at 9 Oakhurst Road. There are no schools or day care facilities within 1,000 feet of the existing tower.

Public Safety

The proposed tower extension would not require notice to the Federal Aviation Administration.

The Project would be constructed in accordance with the 2017 National Electric Code, 2018 Connecticut State Building Code and the American National Standards Institute "Structural Standards for Steel Antenna Towers and Antenna Support Structures" Revision G.

A Professional Engineer duly licensed in the State of Connecticut has certified that the tower is structurally adequate to support the proposed loading with certain conditions.

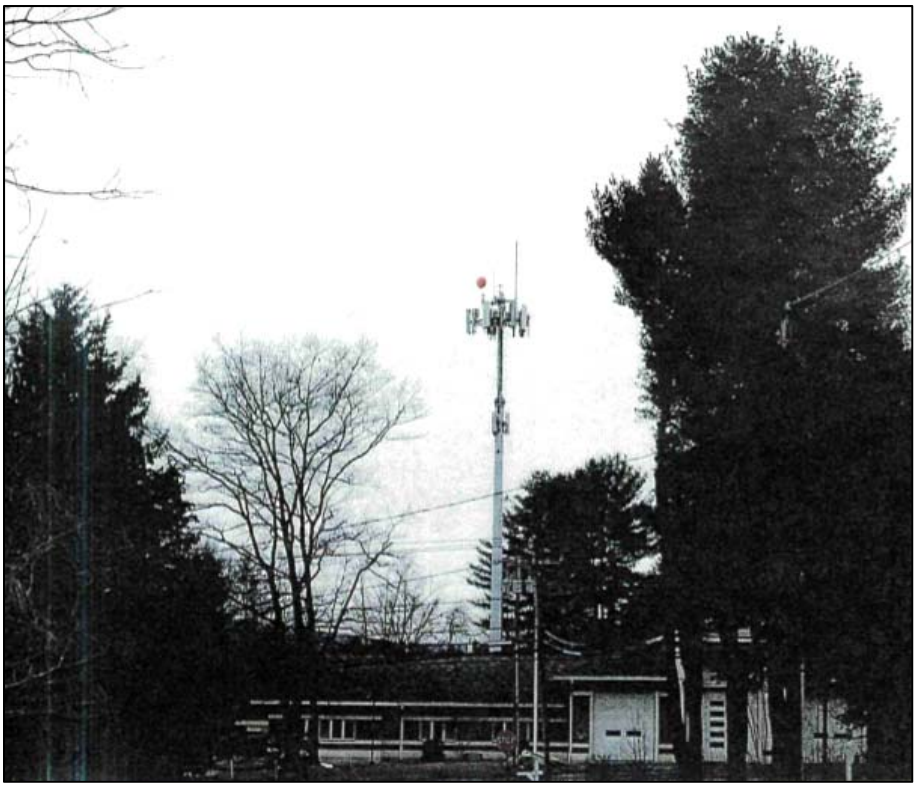
The calculated power density would be 31.9 percent of the applicable limit using a -10 dB off-beam adjustment.

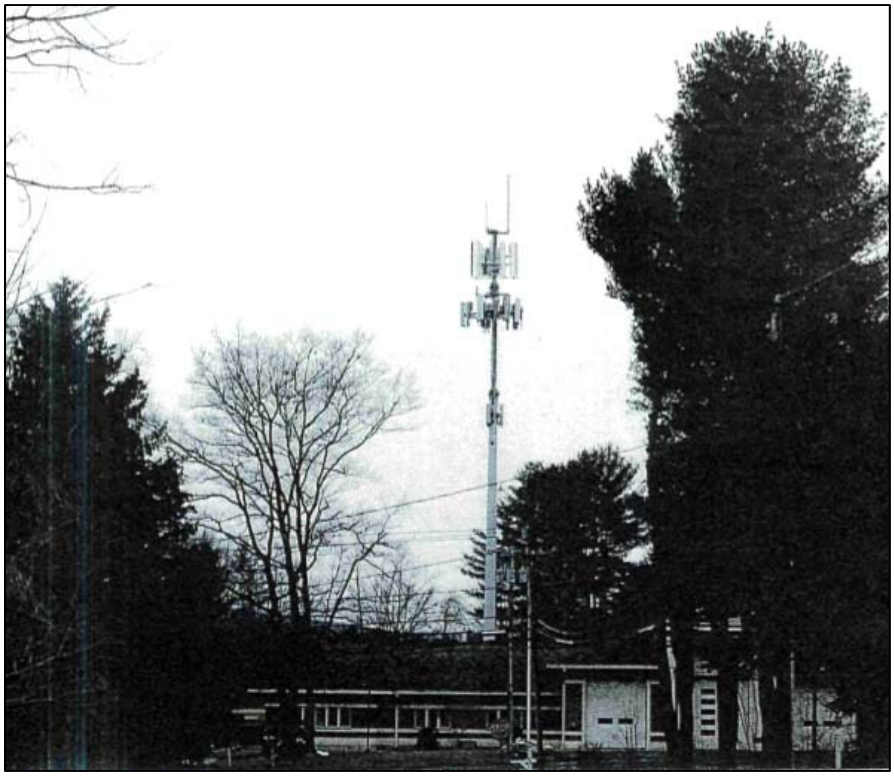
Conclusion

If approved, staff recommends the following conditions:

1) Submission of an erosion and sedimentation control plan, consistent with the *2002 Connecticut Guidelines for Erosion and Sediment Control*, as amended, prior to commencement of site construction;
2) Prior to AT&T's antenna installation, tower modifications shall be installed in accordance with the Modification Structural Analysis prepared by Master Consulting Connecticut, dated May 30, 2019, and stamped and signed by Petros Tsoukalas;
3) Approval of any minor project changes be delegated to Council staff; and
4) Within 45 days following completion of proposed modifications, AT&T shall provide documentation that its installation complied with the recommendations of the Modification Structural Analysis.

View of existing tower (top photo) and proposed extension (bottom photo) from the front of fire station





Site Plan

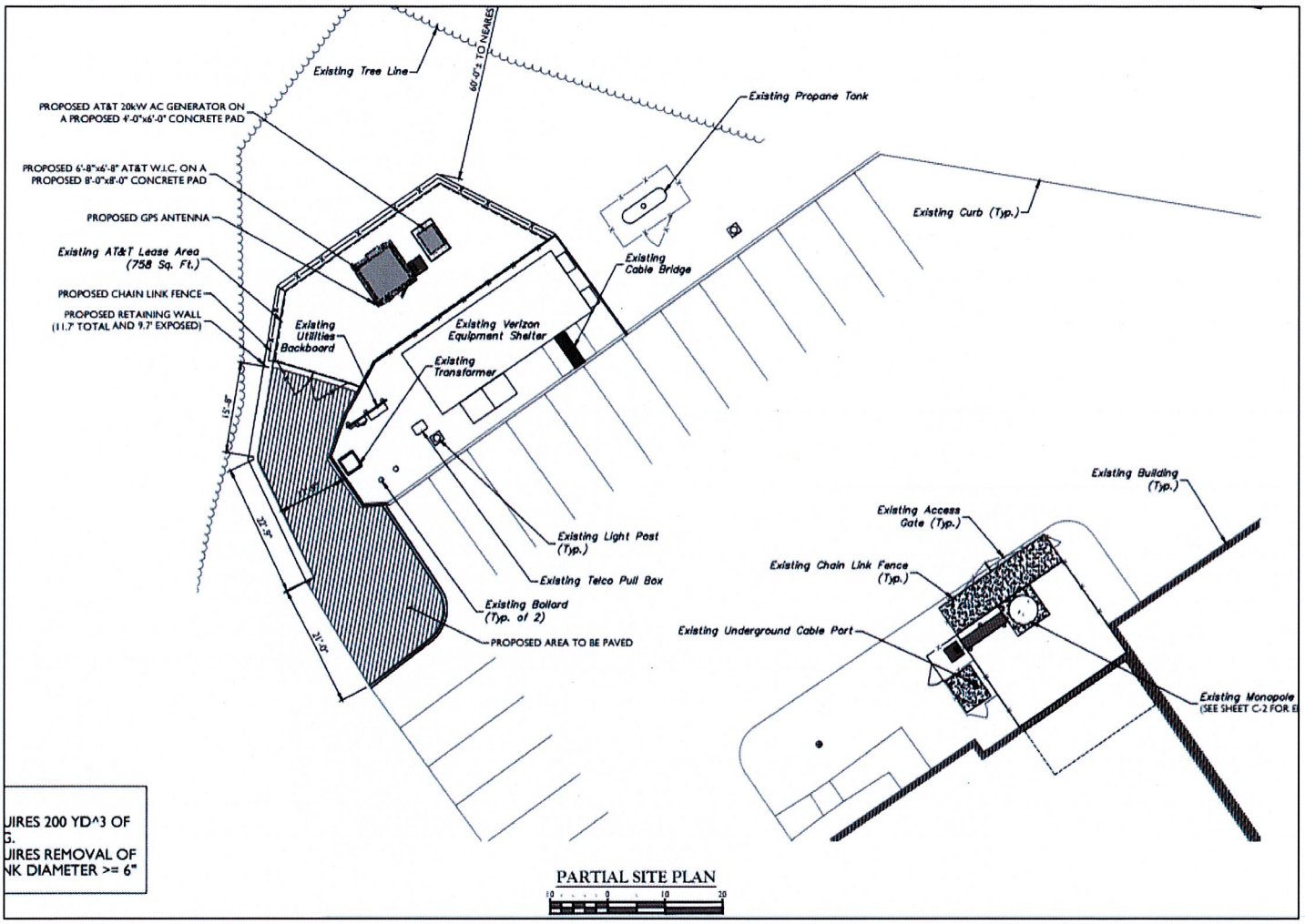

Existing Tree Line
60'-0"± TO NEARES
PROPOSED AT&T 20kW AC GENERATOR ON A PROPOSED 4'-0"x6'-0" CONCRETE PAD
PROPOSED 6'-8"x6'-8" AT&T W.I.C. ON A PROPOSED 8'-0"x8'-0" CONCRETE PAD
PROPOSED GPS ANTENNA
Existing AT&T Lease Area (758 Sq. Ft.)
PROPOSED CHAIN LINK FENCE
PROPOSED RETAINING WALL (11.7' TOTAL AND 9.7' EXPOSED)
Existing Utilities Backboard
Existing Verizon Equipment Shelter
Existing Transformer
Existing Propane Tank
Existing Cable Bridge
Existing Curb (Typ.)
15'-8"
22'-9"
21'-0"
Existing Light Post (Typ.)
Existing Telco Pull Box
Existing Bollard (Typ. of 2)
PROPOSED AREA TO BE PAVED
Existing Building (Typ.)
Existing Access Gate (Typ.)
Existing Chain Link Fence (Typ.)
Existing Underground Cable Port
Existing Monopole
(SEE SHEET C-2 FOR E
UIRES 200 YD^3 OF
G.
UIRES REMOVAL OF
NK DIAMETER >= 6"
PARTIAL SITE PLAN
10 0 10 20

Exhibit B

Town of Simsbury, CT

Property Listing Report

Map Block Lot	C16 301 012A	Building #	1	Unique Identifier	04007606

Property Information

Property Location	345 BUSHY HILL ROAD
Mailing Address	869 HOPMEADOW STREET SIMSBURY CT 06070
Land Use	Fire Station - Volunteer
Zoning Code	R-40
Neighborhood	0225

Owner	SIMSBURY FIRE DISTSRICT
Co-Owner	
Book / Page	0257/0645
Land Class	Public Utility
Census Tract	4661010
Acreage	1.74

Valuation Summary

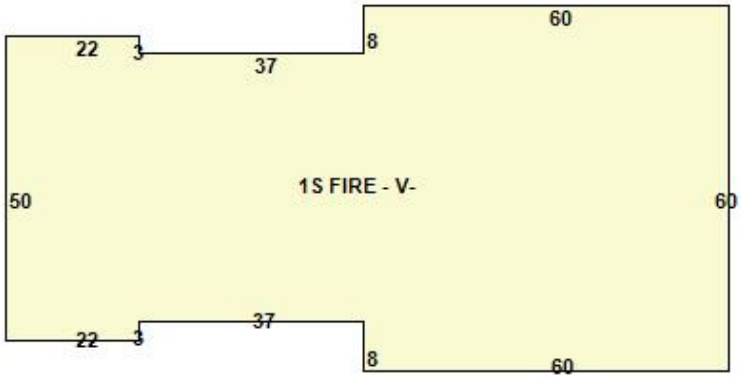
(Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings	973238	681270
Outbuildings	34845	24390
Land	309720	216800
Total	1317803	922460

Utility Information

Electric	No
Gas	No
Sewer	No
Public Water	No
Well	No

C16-301-012A 03/17/2012



Primary Construction Details

Year Built	1998	Heating Fuel	Gas	Livable Area (ft)	6328	Bsmt Area	0
Building Desc.	Commercial	Heating Type	Hot Water	Building Use	Fire Station -	Fin Bsmt Area	0
Building Style		AC Type	Central	Building Condition	VG	Fin Bsmt Quality	
Stories	1	Bedrooms	0	Frame Type	Good	Bsmt Access	
Exterior Walls	Brick	Full Bathrooms	0	Building Grade	20	Bsmt Gar	0
Exterior Walls 2		Half Bathrooms	0	Fireplaces	0	Bsmt Sump Pump	No
Interior Walls	Dry Wall	Extra Fixtures	9	Wood Stoves	0		
Interior Walls 2		Total Rooms	0	Attic Access			
Interior Floors 1	Carpet	Bath Style	NA	Roof Style			
Interior Floors 2		Kitchen Style		Roof Cover	Compo_Built		
		Occupancy	0				

Report Created On 3/4/2021

Town of Simsbury, CT

Property Listing Report | Map Block Lot **C16 301 012A** | Building # **1** | Unique Identifier **04007606**

Detached Outbuildings

Type	Description	Area (sq ft)	Condition	Year Built
Paving	Paving	19700	Average	1998
Poles	Light Poles	1	Average	1998

Attached Extra Features

Type	Description	Area (sq ft)	Condition	Year Built

Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
SIMSBURY FIRE DISTSRICT	0257_0645	12/21/1981	0

Report Created On **3/4/2021**

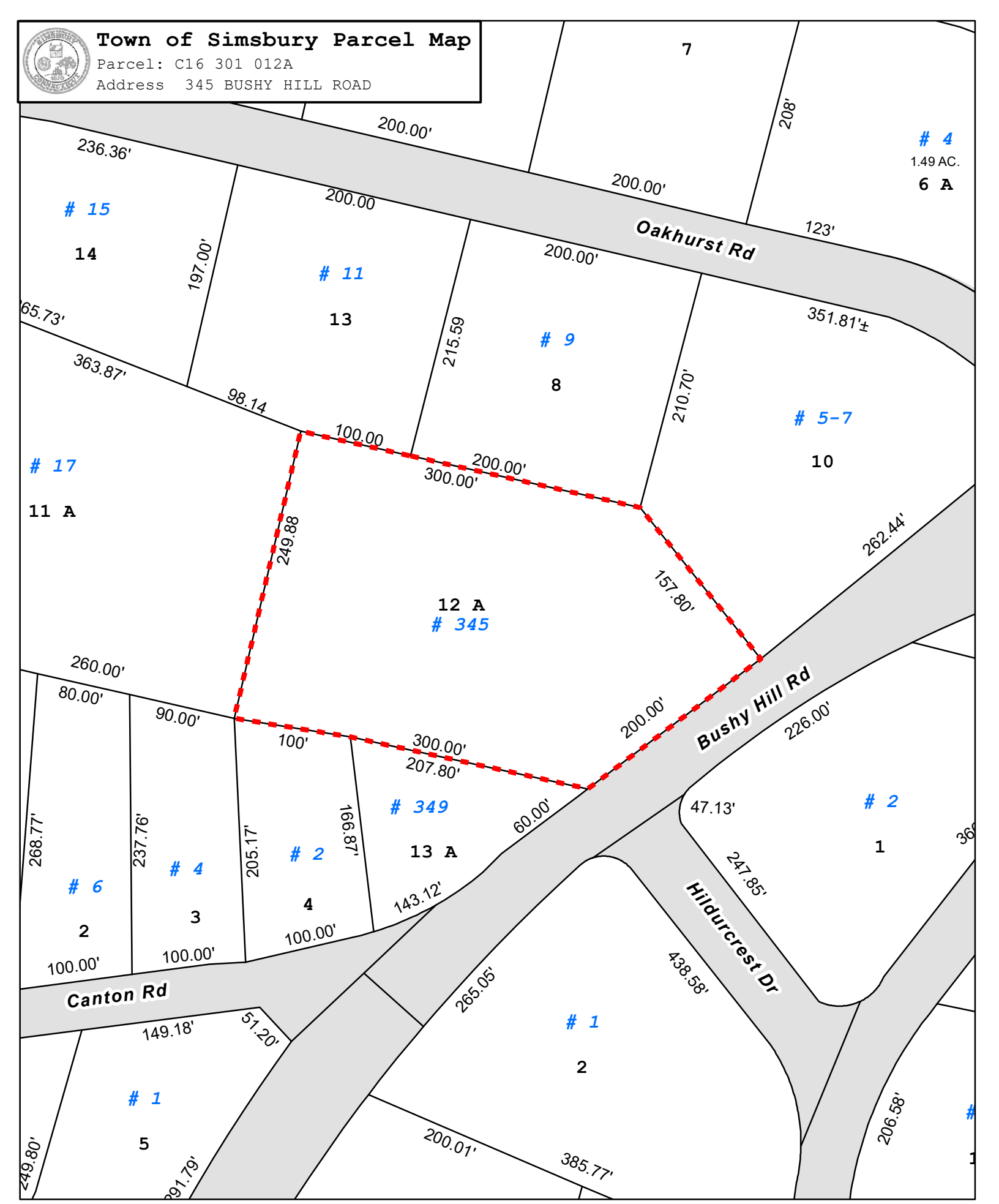

Town of Simsbury Parcel Map
Parcel: C16 301 012A
Address 345 BUSHY HILL ROAD
Oakhurst Rd
Bushy Hill Rd
Canton Rd
Hildurcrest Dr
345
12 A
15
14
11
13
9
8
4
1.49 AC.
6 A
5-7
10
17
11 A
349
13 A
6
2
4
3
2
4
2
1
1
2
1
5
7
236.36'
200.00'
200.00'
208'
200.00
200.00'
123'
197.00'
65.73'
363.87'
98.14
215.59
351.81'±
210.70'
100.00
200.00'
300.00'
249.88
157.80'
262.44'
260.00'
80.00'
90.00'
100'
300.00'
207.80'
200.00'
226.00'
47.13'
60.00'
268.77'
237.76'
205.17'
166.87'
143.12'
247.85'
100.00'
100.00'
100.00'
149.18'
51.20'
265.05'
438.58'
200.01'
385.77'
206.58'
249.80'
1 inch = 100 feet
0 50 100 150 200 Feet
Disclaimer: This map is for informational purposes only All information is subject to verification by any user. The Town of Simsbury and its mapping contractors assume no legal responsibility for the information contained herein.
Map Produced: February 2021

Exhibit C

T-Mobile
NORTHEAST, LLC.

PROJECT: L600
SITE I.D. NUMBER:
CTHA151A
SITE NAME:
HA151A/BUSHYHILLFD_MP
SITE ADDRESS:
345 BUSHY HILL ROAD
SIMSBURY, CT 06070

PROJECT INDEX

SITE NUMBER:	CTHA151A
SITE NAME:	HA151A/BUSHYHILLFD_MP
SITE ADDRESS:	345 BUSHY HILL ROAD SIMSBURY, CT 06070
PROPERTY OWNER:	SIMSBURY FIRE DISTRICT
APPLICANT:	T-MOBILE NORTHEAST LLC 35 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002
STRUCTURE TYPE:	MONOPOLE
LATTITUDE (NAD83):	N 41.84138889"
LONGITUDE (NAD83):	W 72.85055560"
GRADE ELEVATION:	348' AMSL (PER GOOGLE EARTH)
MUNICIPALITY:	TOWN OF SIMSBURY
ZONING:	R-40
PARCEL #:	C16-301-012A

PROJECT CLIENT:	NORTHEAST SITE SOLUTIONS, LLC
CONTACT:	SHELDON FREINCLE
PHONE:	(201) 776-8521
ENGINEER/ STRUCTURAL ENG:	TECTONIC ENGINEERING CONSULTANTS, PC.
CONTACT:	EDWARD IAMICELI
PHONE:	(845) 567-6656x2811

VICINITY MAP (NTS)

SHEET INDEX

SHEET NO	DESCRIPTION	REVISION	DATE
T-1	TITLE SHEET	C	08/03/21
Z-1	SETBACK PLAN & BULK REQUIREMENTS	C	08/03/21
A-1	SITE PLAN & EQUIPMENT PLAN	C	08/03/21
A-2	EXIST T-MOBILE ELEVATION & ANTENNA PLAN	C	08/03/21
A-3	FINAL T-MOBILE ELEVATION & ANTENNA PLAN	C	08/03/21
A-4	DETAILS, ANTENNA SCHEMATIC & ANTENNA SCHEDULE	C	08/03/21
A-5	NOTES	C	08/03/21
SN-1	MONOPOLE REINFORCEMENT MODIFICATION INSPECTION NOTES	C	08/03/21
SN-2	MONOPOLE REINFORCEMENT DESIGN CRITERIA & NOTES	C	08/03/21
SD-1	MONOPOLE REINFORCEMENT ELEVATION, MOD. SCHEDULE & NOTES	C	08/03/21
SD-2	MONOPOLE REINFORCEMENT PLAN & SECTIONS AT BASE PLATE	C	08/03/21
SD-3	MONOPOLE REINFORCEMENT PLAN AT EL 18'-0"± & AT EL 60'-0"±	C	08/03/21
SD-4	MONOPOLE REINFORCEMENT PLATE DETAILS	C	08/03/21

CODE COMPLIANCE

CODE INFORMATION

- STATE OF CONNECTICUT BUILDING CODE, LATEST EDITION
- ANSI/TIA-222-G
- NATIONAL ELECTRIC CODE, LATEST EDITION

DESIGN NOTE

DESIGN BASED ON RFDS DATED 4/22/2019, VERSION 1.1

RAN TEMPLATE: 67D04G
A&L TEMPLATE: 67D04G_1DP+1OP

STRUCTURAL NOTE

REFER TO THE STRUCTURAL MOUNT ANALYSIS REPORT BY TECTONIC ENGINEERING & SURVEYING CONSULTANTS P.C., REVISION 1, DATED NOVEMBER 3, 2020, AND THE STRUCTURAL MODIFICATION ANALYSIS REPORT BY TECTONIC ENGINEERING & SURVEYING CONSULTANTS P.C., REVISION 0, DATED AUGUST 3, 2021.

811 Know what's below. Call before you dig.

STATE OF CONNECTICUT · EDWARD W. IAMICELI · LICENSED PROFESSIONAL ENGINEER · PEN.0026473

Tectonic
PRACTICAL SOLUTIONS. EXCEPTIONAL SERVICE.
Tectonic Engineering & Surveying Consultants P.C.
70 Pleasant Hill Road
P.O. Box 37
Mountainville, NY 10953
Phone: (845) 534-5959
(800) 829-6531
www.tectonicengineering.com
Project Contact Info
1279 Route 300
Newburgh, NY 12550
Phone: (845) 567-6656

T-Mobile NORTHEAST, LLC.
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002

NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

APPROVALS

LANDLORD _____
RF _____
CONSTRUCTION _____
OPERATIONS _____
SITE ACQ. _____

PROJECT NUMBER	DESIGNED BY
9927.CTHA151A	EI

REV.	DATE	DESCRIPTION	DRAWN BY
A	10/09/20	FOR COMMENT	BWY
B	11/17/20	PER COMMENTS	BWY
C	08/03/21	ADDED POLE REINF.	MB

ISSUED BY _____ DATE _____

0 1 2 3
ORIGINAL SIZE IN INCHES

SITE INFORMATION

HA151A/BUSHYHILLFD_MP
CTHA151A
345 BUSHY HILL ROAD
SIMSBURY, CT 06070

SHEET TITLE

TITLE SHEET

SHEET NUMBER

T-1

1 / Z-1 SETBACK PLAN
SCALE: 1/32" = 1'-0"

GENERAL NOTES

1. EXISTING SITE FEATURES AND PROPERTY LINES BASED ON NORTH STONINGTON, CT GIS.
2. NORTH DETERMINED AS REFERENCED IN NOTE #1 (APPROXIMATE).
3. VERTICAL DATUM BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929 (APPROXIMATE).
4. DESIGN AND CONSTRUCTION OF ANTENNA SUPPORTS SHALL CONFORM TO ANSI/TIA-222-G-2005 "STRUCTURAL STANDARD FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS".
5. THE PROPOSED FACILITY IS MINIMAL, AND WILL CREATE NO ADDITIONAL STORM WATER RUNOFF AND WILL THEREFORE NOT IMPACT THE EXISTING STORM WATER DRAINAGE SYSTEM.
6. THE PROPOSED FACILITY IS UNMANNED, AND THEREFORE DOES NOT REQUIRE A MEANS OF WATER SUPPLY OR SEWAGE DISPOSAL.
7. THE PROPOSED FACILITY DOES NOT INCLUDE OUTDOOR STORAGE OR ANY SOLID WASTE RECEPTACLES.
8. NO LANDSCAPING IS PROPOSED WITH THIS APPLICATION.
9. EXISTING BUILDINGS AND ALL OTHER SIGNIFICANT FEATURES HAVE BEEN SHOWN WITHIN THE LIMITS OF DISTURBANCE. UNDERGROUND IMPROVEMENTS, IF ANY AND NOT VISIBLE, ARE NOT SHOWN.
10. THE PROPOSED UNMANNED FACILITY WILL REQUIRE MAINTENANCE VISITS OF APPROXIMATELY ONCE PER MONTH FOR GENERALLY AN HOUR AT A TIME. ADEQUATE PARKING EXISTS FOR THIS MAINTENANCE.
11. NO COMMERCIAL SIGNS ARE PROPOSED.

BULK REQUIREMENTS

AS PER CITY OF SIMSBURY ZONING CODE, SECTION 3.9

ZONING DISTRICT: R40 (LOW DENSITY RESIDENTIAL)

	REQUIRED	EXISTING	PROPOSED
MAXIMUM FLOOR AREA RATIO:	NA	NA	NO CHANGE
MAXIMUM BUILDING HEIGHT:	35'	30'	NO CHANGE
MINIMUM LOT AREA (SQ.FT):	40,000	93,104	NO CHANGE
MINIMUM BUILDABLE AREA (SQ.FT):	NA	NA	NO CHANGE
MINIMUM LOT FRONTAGE:	200'	200'	NO CHANGE
MINIMUM YARD SETBACK:			
FRONT:	50'	64.25'	NO CHANGE
SIDE:	40'	47.58'	NO CHANGE
REAR:	50'	121.91'	NO CHANGE

LEGEND

(line)	PROPERTY LINE
(line)	ADJACENT PROPERTY LINE
(line)	SETBACK ENVELOPE
R40	ZONING DISTRICT

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70 Pleasant Hill Road, P.O. Box 37, Mountainville, NY 10953
Phone: (845) 534-5959 (800) 829-6531 www.tectonicengineering.com
Project Contact Info
1279 Route 300, Newburgh, NY 12550
Phone: (845) 567-6656

T-Mobile
NORTHEAST, LLC.
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002

NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

APPROVALS

LANDLORD ______
RF ______
CONSTRUCTION ______
OPERATIONS ______
SITE ACQ. ______

PROJECT NUMBER	DESIGNED BY
9927.CTHA151A	EI

REV.	DATE	DESCRIPTION	DRAWN BY
A	10/09/20	FOR COMMENT	BWY
B	11/17/20	PER COMMENTS	BWY
C	08/03/21	ADDED POLE REINF.	MB

ISSUED BY	DATE

0 1 2 3
ORIGINAL SIZE IN INCHES

SITE INFORMATION

HA151A/BUSHYHILLFD_MP
CTHA151A
345 BUSHY HILL ROAD
SIMSBURY, CT 06070

SHEET TITLE

SETBACK PLAN & BULK REQUIREMENTS

SHEET NUMBER

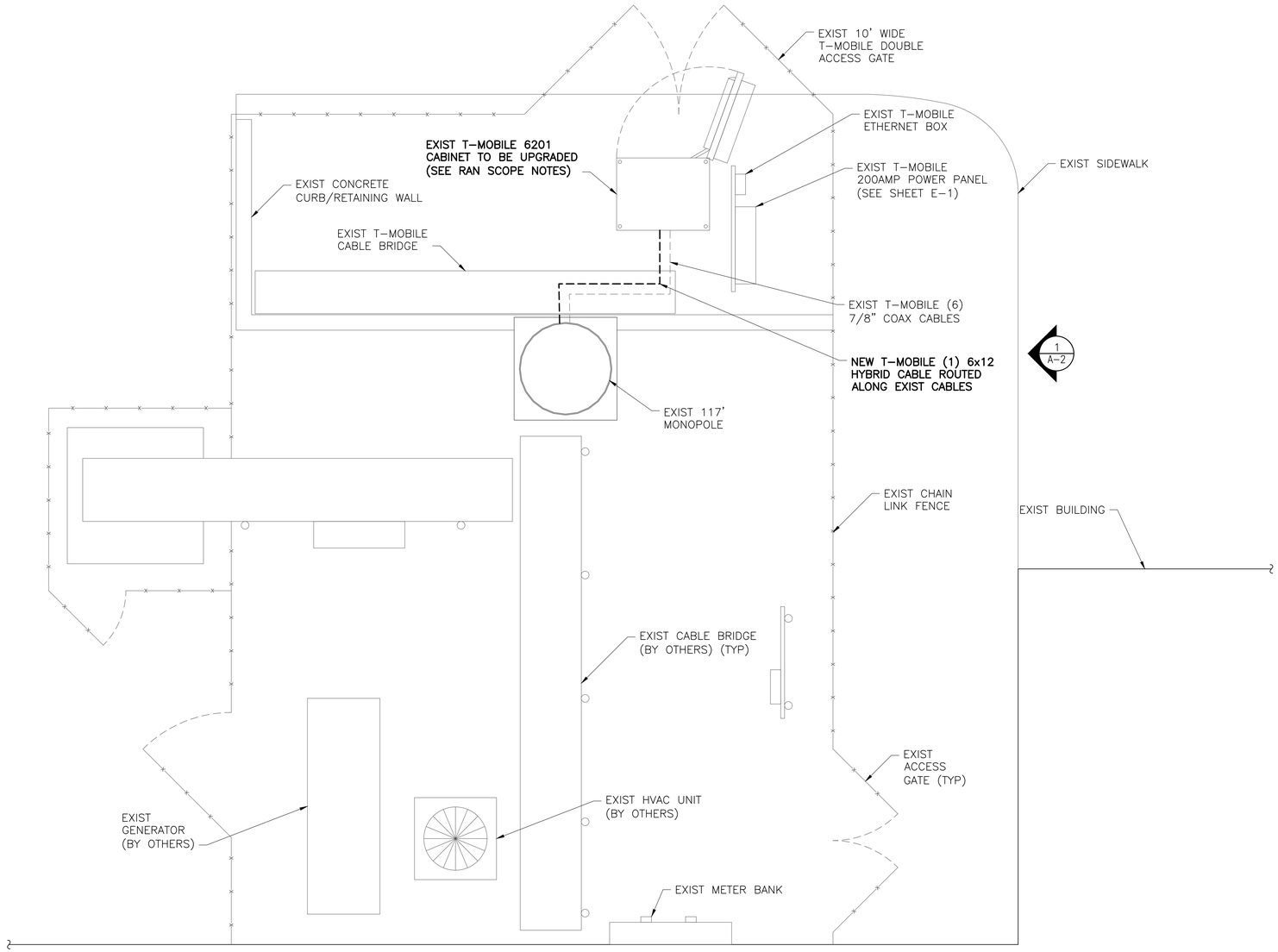
Z-1

N

TRUE

RAN SCOPE NOTES

1. REPLACE (1) DUS41 WITH (1) BB6630 FOR LTE.
2. INSTALL (1) BB6630 FOR FUTURE 5G N600.
3. ADD (1) 6x12 HCS



1 / A-1 SITE PLAN & EQUIPMENT PLAN

SCALE: 1/2" = 1'-0"

STATE OF CONNECTICUT
EDWARD N. LANCELI
LICENSED PROFESSIONAL ENGINEER
PEN.0028473

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CTHA151A
345 BUSHY HILL ROAD
SIMSBURY, CT 06070

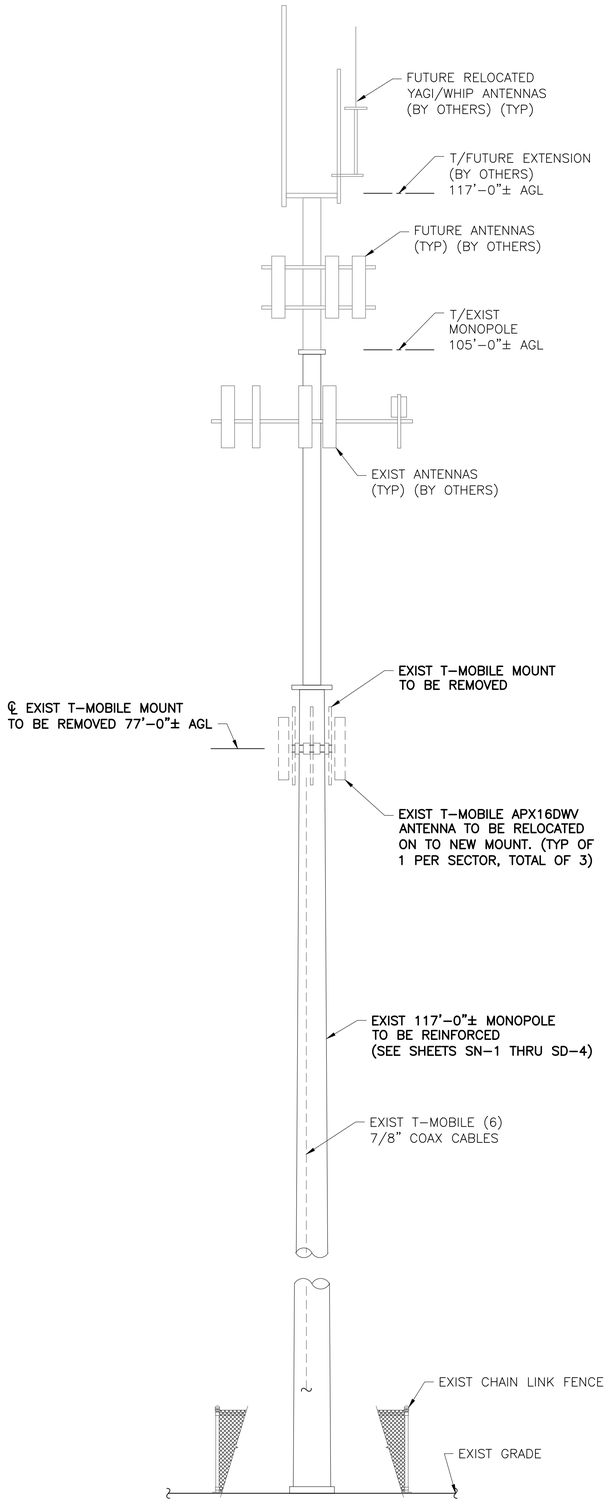
SHEET TITLE

SITE PLAN & EQUIPMENT PLAN

SHEET NUMBER

A-1

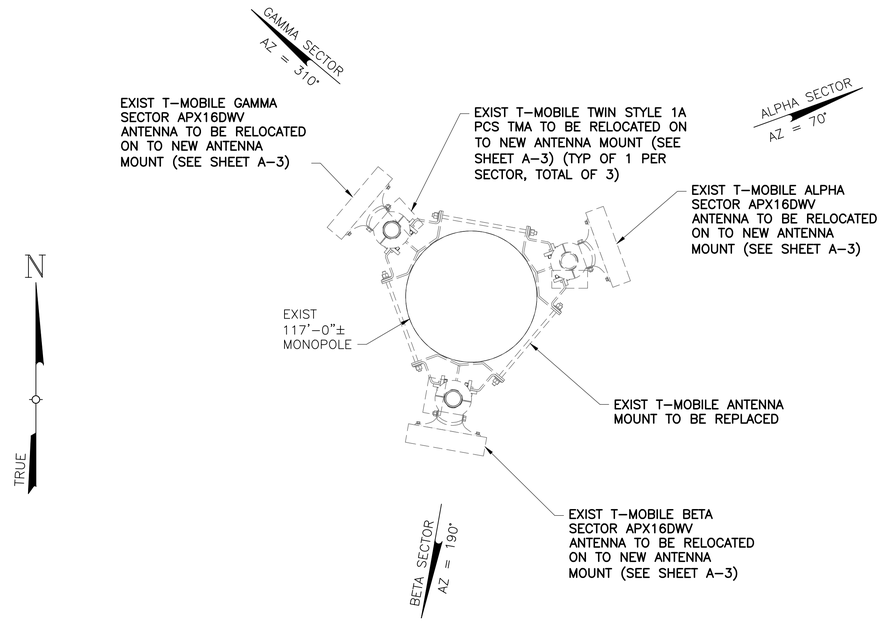
STRUCTURAL NOTE:
REFER TO THE STRUCTURAL MOUNT ANALYSIS REPORT BY TECTONIC ENGINEERING & SURVEYING CONSULTANTS P.C., REVISION 1, DATED NOVEMBER 3, 2020, AND THE STRUCTURAL MODIFICATION ANALYSIS REPORT BY TECTONIC ENGINEERING & SURVEYING CONSULTANTS P.C., REVISION 0, DATED AUGUST 3, 2021.



NOTE: NOT ALL SITE FEATURES SHOWN FOR CLARITY.

1 / A-2 MONOPOLE ELEVATION

SCALE: 3/16" = 1'-0"



2 / A-2 EXIST T-MOBILE ANTENNA PLAN @ 77'-0" AGL

SCALE: 1" = 1'-0"

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APPROVALS

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ISSUED BY | DATE

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ORIGINAL SIZE IN INCHES

SITE INFORMATION

HA151A/BUSHYHILLFD_MP
CTHA151A
345 BUSHY HILL ROAD
SIMSBURY, CT 06070

SHEET TITLE

EXIST T-MOBILE ELEVATION & ANTENNA PLAN

SHEET NUMBER

A-2

STRUCTURAL NOTE:
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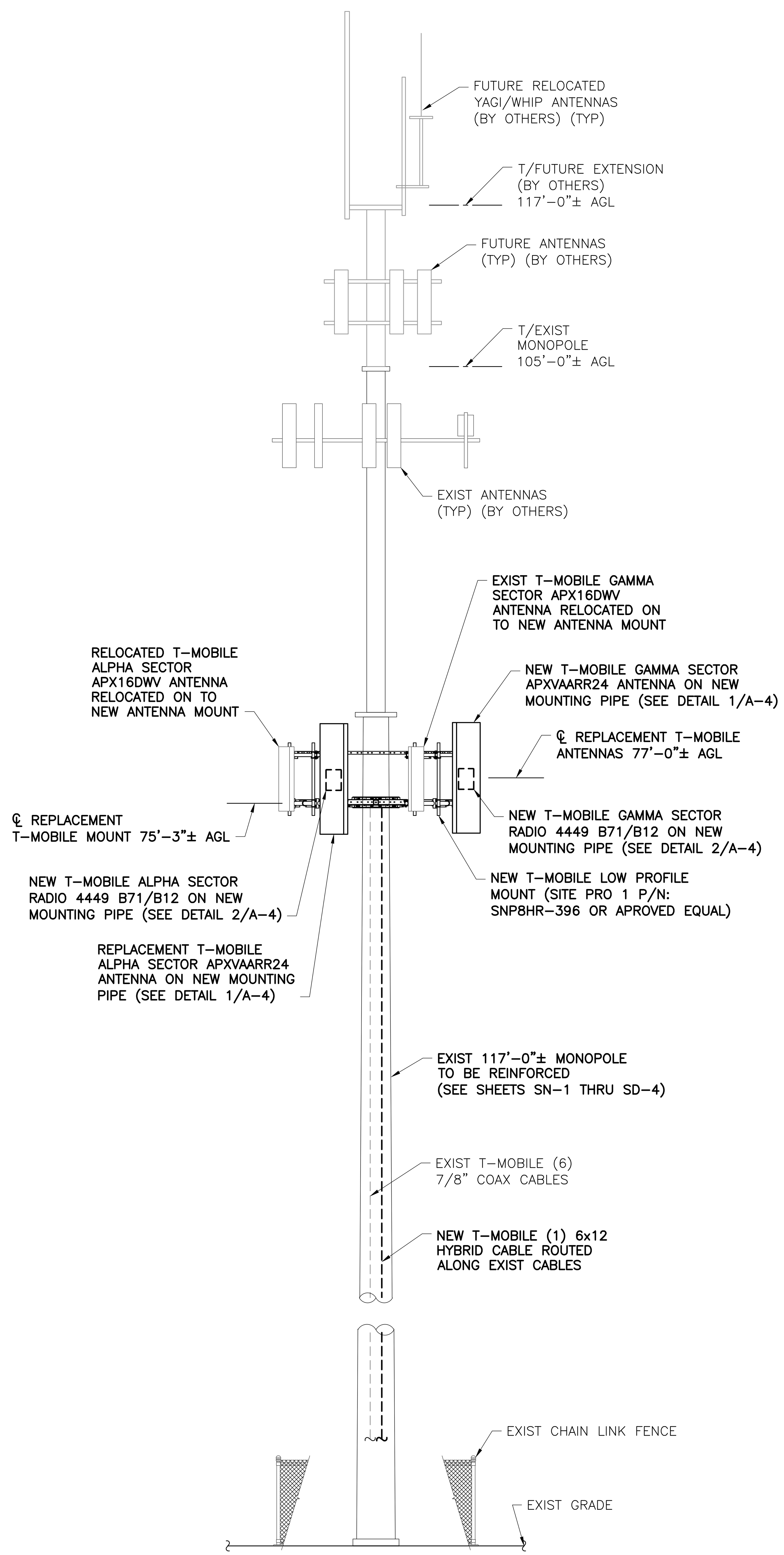
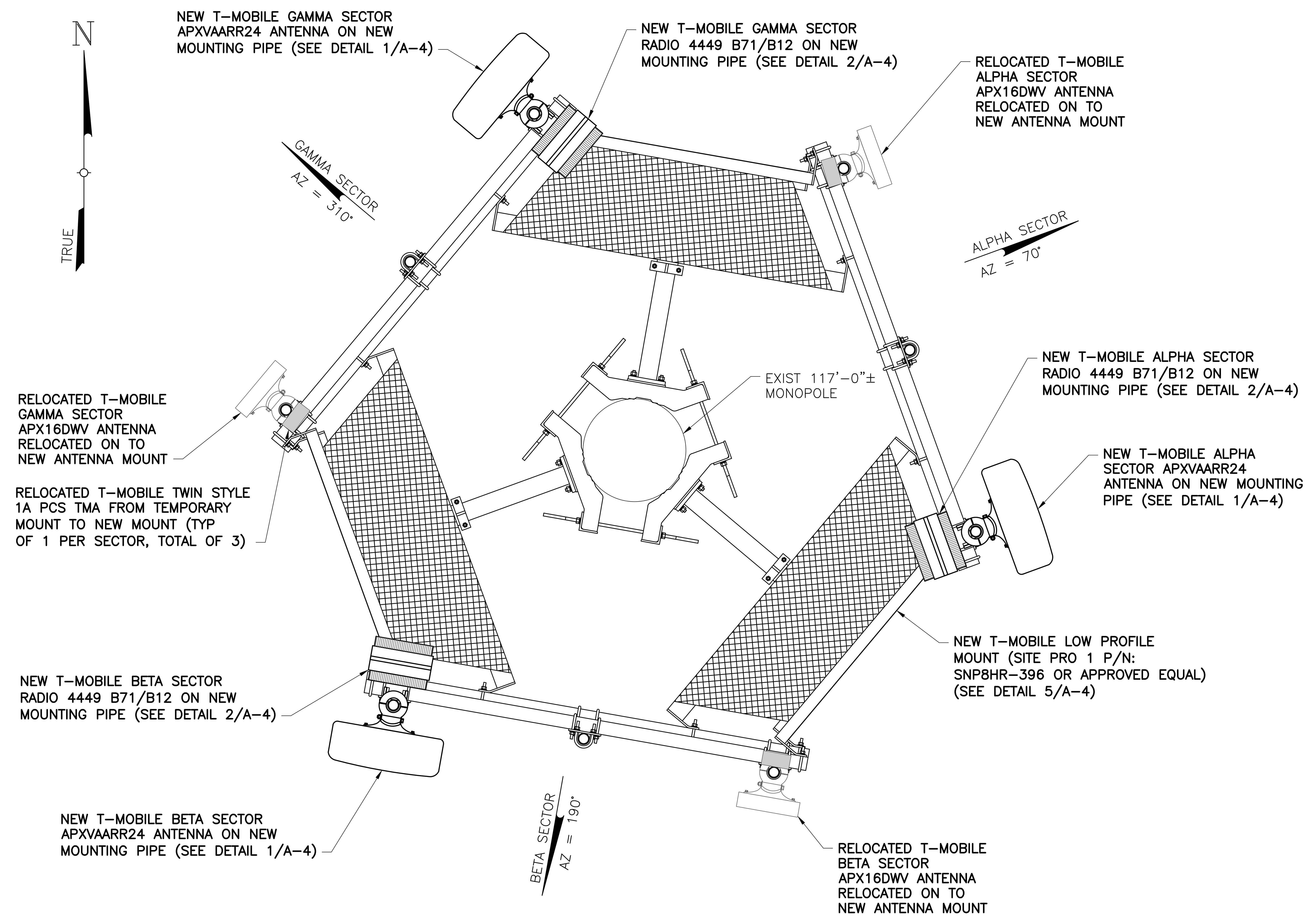


NOTE: NOT ALL SITE FEATURES SHOWN FOR CLARITY.

1 / A-3 MONOPOLE ELEVATION
SCALE: 3/16" = 1'-0"



2 / A-3 FINAL T-MOBILE ANTENNA PLAN @ 77'-0" AGL
SCALE: 3/4" = 1'-0"

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APPROVALS

LANDLORD ______
RF ______
CONSTRUCTION ______
OPERATIONS ______
SITE ACQ. ______

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9927.CTHA151A	EI

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ISSUED BY	DATE

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ORIGINAL SIZE IN INCHES

SITE INFORMATION

HA151A/BUSHYHILLFD_MP
CTHA151A
345 BUSHY HILL ROAD
SIMSBURY, CT 06070

SHEET TITLE

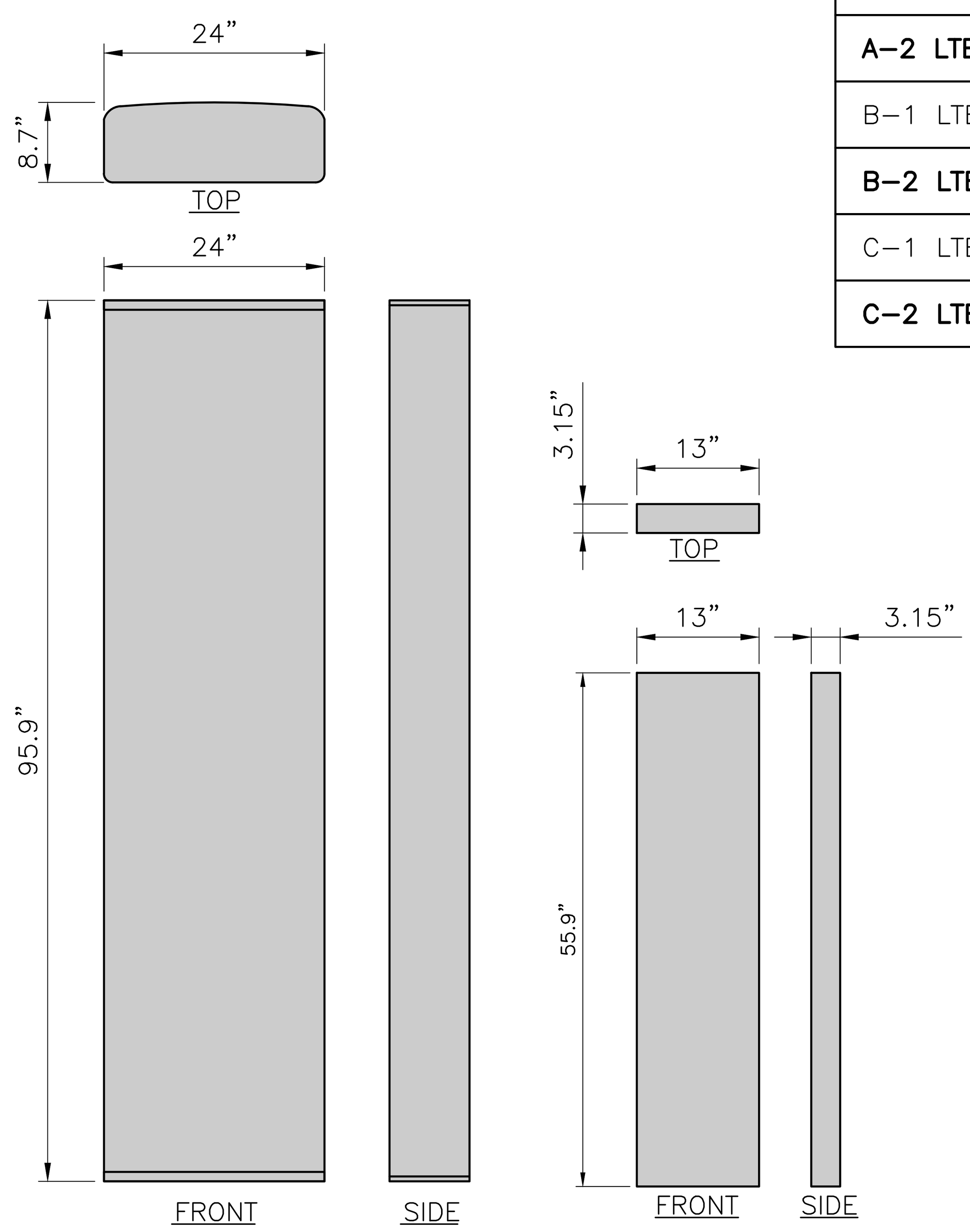
FINAL T-MOBILE ELEVATION & ANTENNA PLAN

SHEET NUMBER

A-3

ANTENNA CABLE SCHEDULE

SECTOR MARK	ANTENNA MODEL	AZIMUTH	ELEC DOWNTILT	MECH DOWNTILT	ANTENNA CENTERLINE	SECTOR	STATUS	TMA/RRU	CABLE	JUMPER TYPE	CABLE LENGTH
A-1 LTE/GSM	RFS APX16DWV-16DWVS-E-A20	70°	2°	0°	77'-0"±	LEFT ALPHA	**RELOCATED**	1/0	(2) EXIST 7/8" COAX	COAX COAX	100'- 0" 100'- 0"
A-2 LTE	**RFS APXVAARR24-43-U-NA20**	**70°**	**2°**	**0°**	**77'-0"±**	**RIGHT ALPHA**	**NEW**	**0/1**	**(1) NEW 6x12 HCS CABLE**	**FIBER** **FIBER**	100'- 0" 100'- 0"
B-1 LTE/GSM	RFS APX16DWV-16DWVS-E-A20	190°	2°	0°	77'-0"±	LEFT BETA	**RELOCATED**	1/0	(2) EXIST 7/8" COAX	COAX COAX	100'- 0" 100'- 0"
B-2 LTE	**RFS APXVAARR24-43-U-NA20**	**190°**	**2°**	**0°**	**77'-0"±**	**RIGHT BETA**	**NEW**	**0/1**	**NEW SHARED 6x12 HCS CABLE**	**FIBER** **FIBER**	100'- 0" 100'- 0"
C-1 LTE/GSM	RFS APX16DWV-16DWVS-E-A20	310°	2°	0°	77'-0"±	LEFT GAMMA	**RELOCATED**	1/0	(2) EXIST 7/8" COAX	COAX COAX	100'- 0" 100'- 0"
C-2 LTE	**RFS APXVAARR24-43-U-NA20**	**310°**	**2°**	**0°**	**77'-0"±**	**RIGHT GAMMA**	**NEW**	**0/1**	**NEW SHARED 6x12 HCS CABLE**	**FIBER** **FIBER**	100'- 0" 100'- 0"



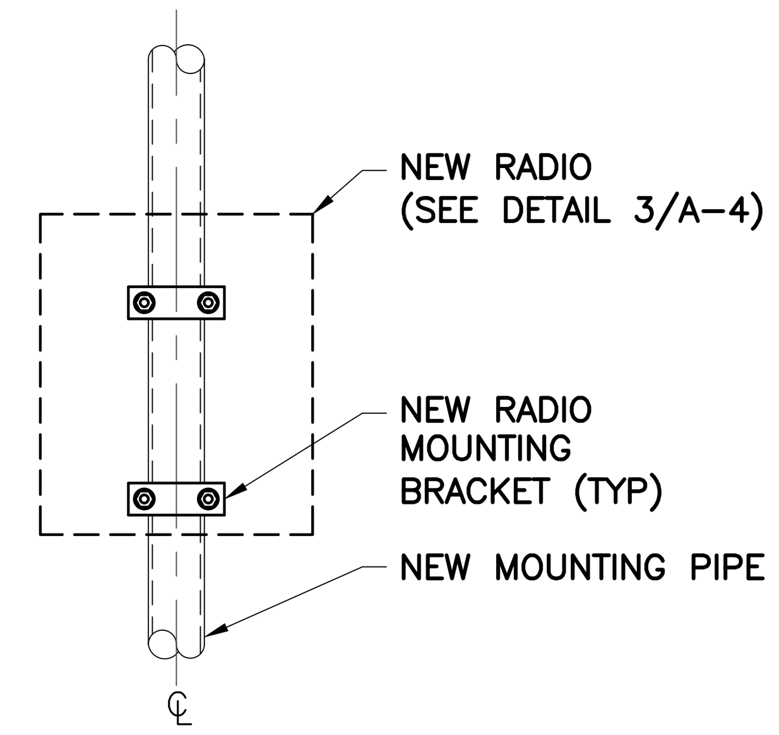
RFS: APXVAARR24_43_U_NA20
WEIGHT: 128 LBS

PROPOSED

APX16DWV-16DWVS-E-A20
WEIGHT: 40.7 LBS

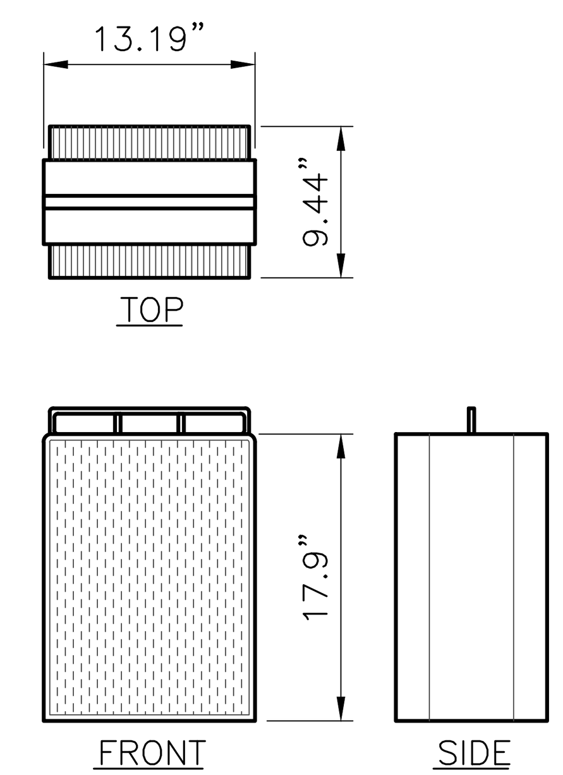
EXISTING

1/A-4 ANTENNA DETAIL
SCALE: 3/4" = 1'-0"



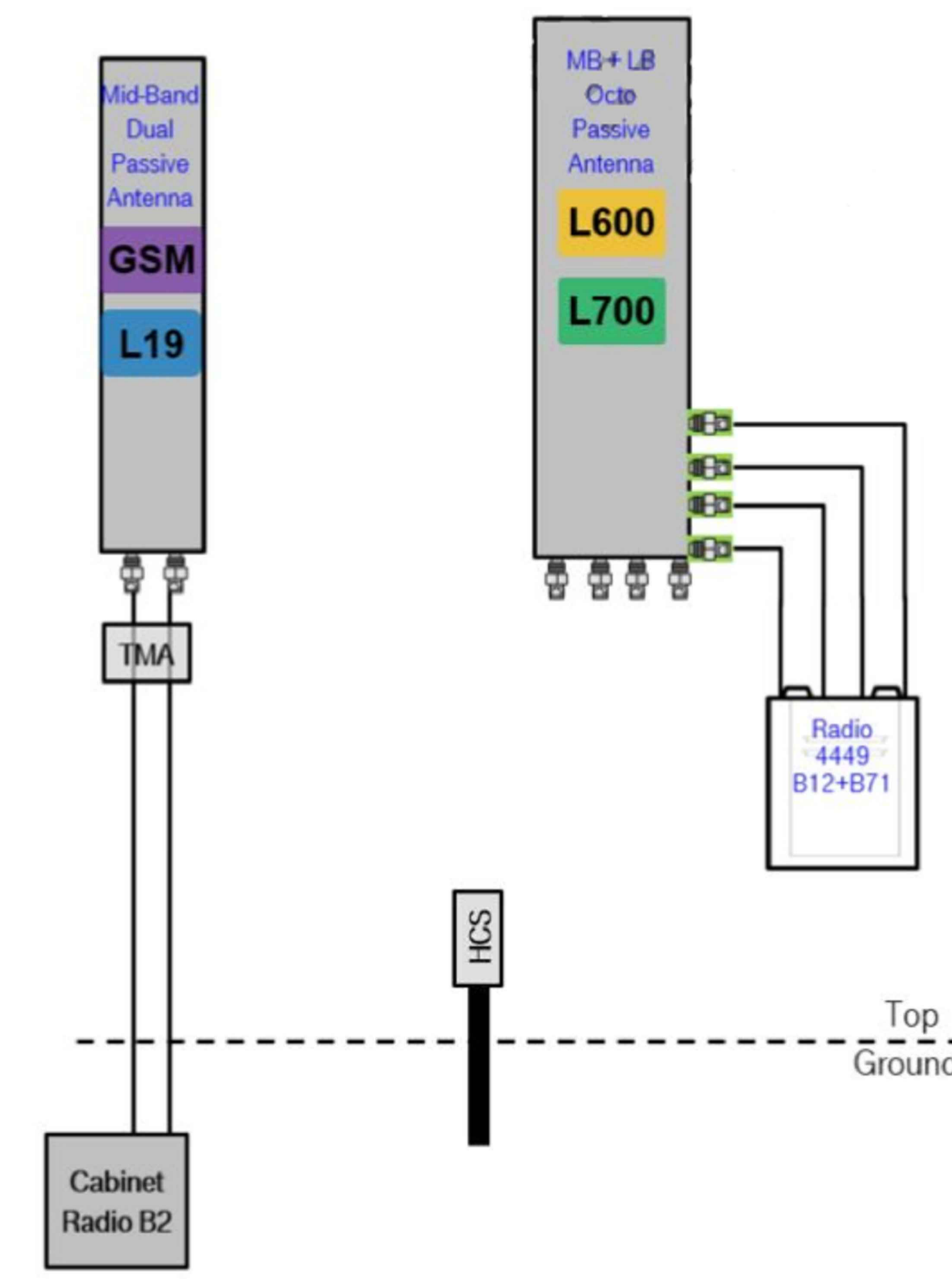
NOTE: MOUNTING OF RADIO TO MOUNTING PIPE, INCLUDING MOUNTING BRACKET ASSEMBLY SHALL BE PER MANUFACTURER DIRECTION.

2/A-4 RADIO MOUNTING DETAIL
SCALE: 1" = 1'-0"



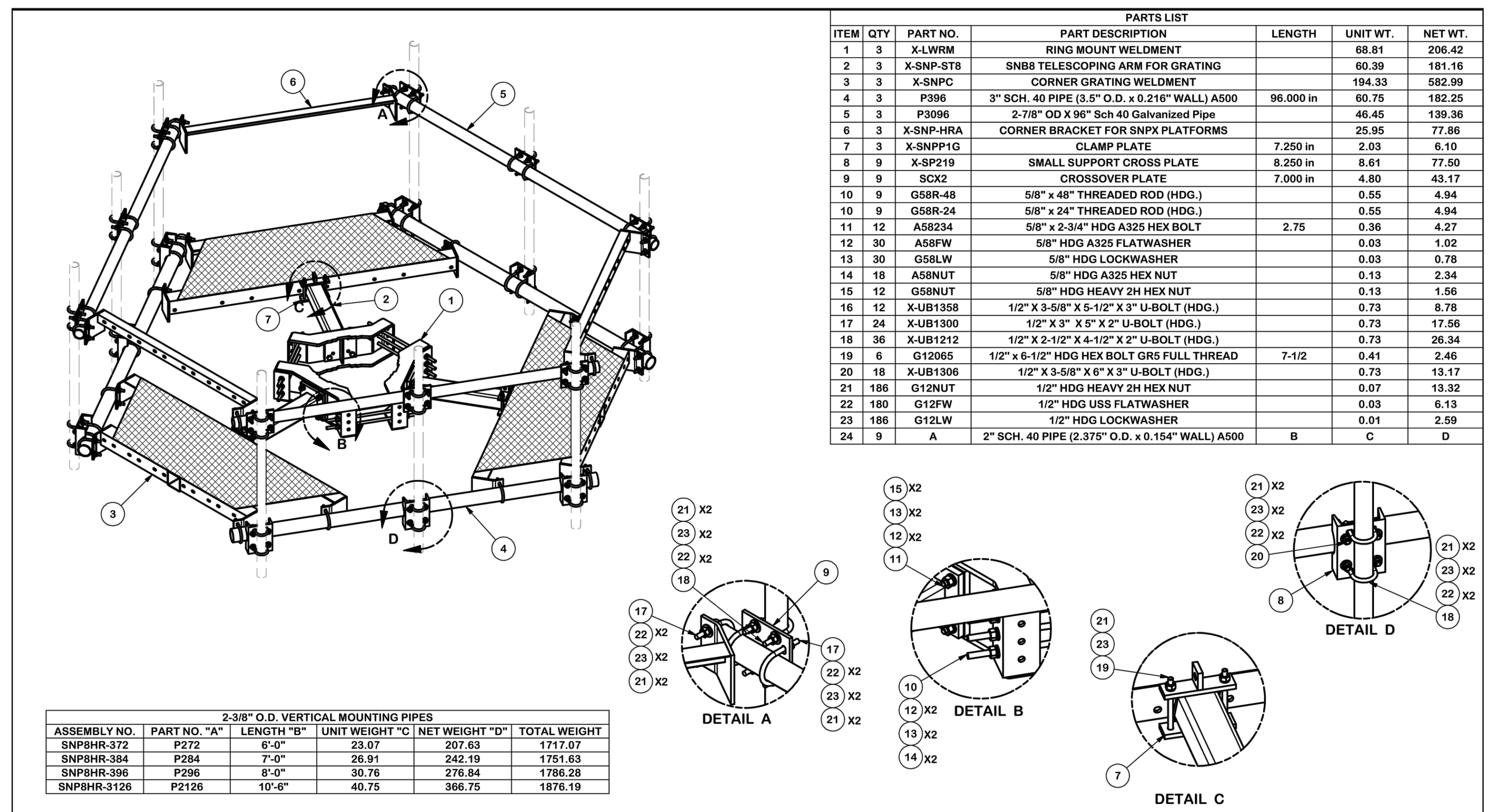
RRUS-4449 B71+B12
WEIGHT: 71.0 LBS

3/A-4 RADIO DETAIL
SCALE: 1" = 1'-0"



TYP ALL SECTORS

4/A-4 ANTENNA SCHEMATIC
SCALE: NTS



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-SNP-ST8	SNB8 TELESCOPING ARM FOR GRATING		60.39	181.16
3	3	X-SNPC	CORNER GRATING WELDMENT		194.33	582.99
4	3	P396	3" SCH. 40 PIPE (3.5" O.D. x 0.216" WALL) A500	96.000 in	60.75	182.25
5	3	P3096	2-7/8" OD X 96" Sch 40 Galvanized Pipe		46.45	139.36
6	3	X-SNP-HRA	CORNER BRACKET FOR SNPX PLATFORMS		25.95	77.86
7	3	X-SNPP1G	CLAMP PLATE	7.250 in	2.03	6.10
8	9	X-SP219	SMALL SUPPORT CROSS PLATE	8.250 in	8.61	77.50
9	9	SCX2	CROSSOVER PLATE	7.000 in	4.80	43.17
10	9	G58R-48	5/8" x 48" THREADED ROD (HDG.)		0.55	4.94
10	9	G58R-24	5/8" x 24" THREADED ROD (HDG.)		0.55	4.94
11	12	A58234	5/8" x 2-3/4" HDG A325 HEX BOLT	2.75	0.36	4.27
12	30	A58FW	5/8" HDG A325 FLATWASHER		0.03	1.02
13	30	G58LW	5/8" HDG LOCKWASHER		0.03	0.78
14	18	A58NUT	5/8" HDG A325 HEX NUT		0.13	2.34
15	12	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	1.56
16	12	X-UB1358	1/2" X 3-5/8" X 5-1/2" X 3" U-BOLT (HDG.)		0.73	8.78
17	24	X-UB1300	1/2" X 3" X 5" X 2" U-BOLT (HDG.)		0.73	17.56
18	36	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" U-BOLT (HDG.)		0.73	26.34
19	6	G12065	1/2" x 6-1/2" HDG HEX BOLT GR5 FULL THREAD	7-1/2	0.41	2.46
20	18	X-UB1306	1/2" X 3-5/8" X 6" X 3" U-BOLT (HDG.)		0.73	13.17
21	186	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	13.32
22	180	G12FW	1/2" HDG USS FLATWASHER		0.03	6.13
23	186	G12LW	1/2" HDG LOCKWASHER		0.01	2.59
24	9	A	2" SCH. 40 PIPE (2.375" O.D. x 0.154" WALL) A500	B	C	D

2-3/8" O.D. VERTICAL MOUNTING PIPES					
ASSEMBLY NO.	PART NO. "A"	LENGTH "B"	UNIT WEIGHT "C	NET WEIGHT "D"	TOTAL WEIGHT
SNP8HR-372	P272	6'-0"	23.07	207.63	1717.07
SNP8HR-384	P284	7'-0"	26.91	242.19	1751.63
SNP8HR-396	P296	8'-0"	30.76	276.84	1786.28
SNP8HR-3126	P2126	10'-6"	40.75	366.75	1876.19

TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
SAWED, SHEARED AND GAS CUT EDGES *(± 0.030")*
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")*

DESCRIPTION: 8' SNUB NOSE PLATFORM WITH HANDRAIL

SITE PRO 1 — 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

CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.	PAGE
	CEK 11/19/2014		SEE ASSEMBLY NO.	1 OF 2
CLASS 81 / SUB 02	DRAWING USAGE: CUSTOMER	CHECKED BY: BMC 11/21/2014	DWG. NO.: SNP8HR-3XX	

5/A-4 MOUNT SPECIFICATION
SCALE: NTS

STRUCTURAL NOTE:
REFER TO THE STRUCTURAL ANALYSIS REPORT BY TECTONIC ENGINEERING & SURVEYING CONSULTANTS P.C. DATED JULY 25, 2019 REV 0.

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SITE INFORMATION

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CTHA151A
345 BUSHY HILL ROAD
SIMSBURY, CT 06070

SHEET TITLE

DETAILS, ANTENNA SCHEMATIC & ANTENNA SCHEDULE

SHEET NUMBER

A-4

GENERAL NOTES

1. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE STATE OF CONNECTICUT BUILDING CODE, LATEST VERSION AND ALL OTHER APPLICABLE CODES AND ORDINANCES.
2. CONTRACTOR SHALL VISIT THE JOB SITE AND FAMILIARIZE HIMSELF WITH ALL CONDITIONS AFFECTING THE PROPOSED WORK AND MAKE PROVISIONS AS TO THE COST THEREOF. CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIMSELF WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS AND CONFIRMING THAT THE WORK MAY BE ACCOMPLISHED AS SHOWN PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO THE COMMENCEMENT OF WORK.
3. PLANS ARE NOT TO BE SCALED. THESE PLANS ARE INTENDED TO BE A DIAGRAMMATIC OUTLINE ONLY, UNLESS OTHERWISE NOTED. THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO EFFECT ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
4. DIMENSIONS SHOWN ARE TO FINISH SURFACES, UNLESS OTHERWISE NOTED. SPACING BETWEEN EQUIPMENT IS REQUIRED CLEARANCE. THEREFORE, IT IS CRITICAL TO FIELD VERIFY DIMENSIONS. SHOULD THERE BE ANY QUESTIONS REGARDING THE CONTRACT DOCUMENTS, EXISTING CONDITIONS AND/OR DESIGN INTENT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A CLARIFICATION FROM THE AUTHORIZED REPRESENTATIVE OR THE ENGINEER PRIOR TO PROCEEDING WITH THE WORK.
5. DETAILS ARE INTENDED TO SHOW END RESULT OF DESIGN. MINOR MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS, AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF THE WORK.
6. CONTRACTOR SHALL RECEIVE CLARIFICATION IN WRITING, AND SHALL RECEIVE IN WRITING AUTHORIZATION TO PROCEED BEFORE STARTING WORK ON ANY ITEMS NOT CLEARLY DEFINED OR IDENTIFIED BY THE CONTRACT DOCUMENTS.
7. ONCE THE CONTRACTOR HAS RECEIVED AND ACCEPTED THE "NOTICE TO PROCEED," CONTRACTOR WILL CONTACT THE CONSTRUCTION MANAGER OF RECORD A MINIMUM OF 48 HOURS PRIOR TO WORK START.
8. CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER OF ALL PRODUCTS OR ITEMS NOTED AS "EXISTING" WHICH ARE NOT FOUND TO BE IN THE FIELD.
9. CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK USING THE BEST CONSTRUCTION SKILLS AND ATTENTION. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER CONTRACT, UNLESS OTHERWISE NOTED.
10. ERECTION SHALL BE DONE IN A WORKMANLIKE MANNER BY COMPETENT EXPERIENCED WORKMEN IN ACCORDANCE WITH APPLICABLE CODES AND THE BEST ACCEPTED PRACTICE. ALL MEMBERS SHALL BE LAID PLUMB AND TRUE AS INDICATED ON THE DRAWINGS.
11. CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF THE WORK AREA, ADJACENT AREAS, AND BUILDING OCCUPANTS THAT ARE LIKELY TO BE AFFECTED BY THE WORK UNDER THIS CONTRACT. WORK SHALL CONFORM TO ALL OSHA REQUIREMENTS.
12. CONTRACTOR SHALL COORDINATE HIS WORK AND SCHEDULE HIS ACTIVITIES AND WORKING HOURS IN ACCORDANCE WITH THE REQUIREMENTS OF THE OWNER.
13. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING HIS WORK WITH THE WORK OF OTHERS AS IT MAY RELATE TO RADIO EQUIPMENT, ANTENNAS AND ANY OTHER PORTIONS OF THE WORK.
14. CONTRACTOR SHALL MAINTAIN LIABILITY INSURANCE TO PROTECT THE OWNER.
15. INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY INDICATED OR WHERE LOCAL CODES OR REGULATIONS TAKE PRECEDENCE.
16. MAKE NECESSARY PROVISIONS TO PROTECT EXISTING SURFACES, EQUIPMENT, IMPROVEMENTS, AND PIPING. REPAIR ANY DAMAGE THAT OCCURS DURING CONSTRUCTION.
17. REPAIR ALL EXISTING SURFACES DAMAGED DURING CONSTRUCTION SUCH THAT THEY MATCH AND BLEND WITH ADJACENT SURFACES.
18. KEEP CONTRACT AREA CLEAN, HAZARD FREE, AND DISPOSE OF ALL DEBRIS AND RUBBISH. EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY OF THE OWNER SHALL BE REMOVED. LEAVE PREMISES IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST, OR SMUDGES OF ANY NATURE. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL ITEMS UNTIL COMPLETION OF CONSTRUCTION.
19. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. ANY UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ATTENTION OF THE ENGINEER.
20. PROVIDE 48 HOURS WRITTEN NOTICE TO THE ENGINEER PRIOR TO THE COMMENCEMENT OF WORK.
21. ALL BROCHURES, OPERATING AND MAINTENANCE MANUALS, CATALOGS, SHOP DRAWINGS AND OTHER DOCUMENTATION SHALL BE TURNED OVER TO AT COMPLETION OF CONSTRUCTION.
22. COMPLETE JOB SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR AFTER DATE OF ACCEPTANCE BY. ANY WORK, MATERIALS OR EQUIPMENT FOUND TO BE DEFECTIVE DURING THAT PERIOD SHALL BE CORRECTED IMMEDIATELY UPON WRITTEN NOTIFICATION AT NO ADDITIONAL COST TO T-MOBILE.

STRUCTURAL NOTES

1. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. ANY UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ATTENTION OF THE ENGINEER.
2. DESIGN AND CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS", LATEST EDITION.
3. STRUCTURAL STEEL BEAMS SHALL CONFORM TO ASTM A992 (Fy=50ksi). STRUCTURAL STEEL PLATES AND ANGLES SHALL CONFORM TO ASTM A36.
4. ROUND AND SQUARE HOLLOW STRUCTURAL SECTIONS (HSS) CONFORM TO ASTM A500 "COLD-FORMED WELDED & SEAMLESS CARBON STEEL STRUCTURAL TUBING", GRADE C.
5. STEEL PIPE SHALL CONFORM TO ASTM A500 "COLD-FORMED WELDED & SEAMLESS CARBON STEEL STRUCTURAL TUBING", GRADE B, OR ASTM A53 "PIPE, STEEL, BLACK AND HOT-DIPPED, ZINC-COATED WELDED AND SEAMLESS", TYPE E OR S, GRADE B.
6. CONNECTIONS: WELD OR BOLT CONNECTIONS, AS INDICATED:
   A) CONNECTIONS NOT DETAILED ON THE DRAWINGS SHALL CONFORM TO THE REQUIREMENTS OF THE CITED AISC SPECIFICATION.
   B) STRUCTURAL BOLTS SHALL CONFORM TO THE LATEST ASTM A325 "HIGH STRENGTH BOLTS FOR STRUCTURAL JOINTS, INCLUDING SUITABLE NUTS AND PLAIN HARDENED WASHERS".
   C) WHERE THE REACTION VALUES OF BEAMS, BRACING, STRUTS, ETC., ARE NOT SHOWN ON THE DRAWINGS THE CONNECTIONS SHALL BE DESIGNED TO SUPPORT THE END REACTION DERIVED FROM THE TABLES AND FORMULA OF UNIFORM LOAD CONSTANTS IN PART 2, NINTH EDITION, OF THE AISC MANUAL OF STEEL CONSTRUCTION FOR THE GIVEN MEMBER SIZE, SPAN AND YIELD STRENGTH.
   D) MINIMUM 3/16" FILLET E70-XX WELD SHALL APPLY UNLESS NOTED.
   E) MINIMUM 1/2" DIA. A325 BOLTS SHALL APPLY UNLESS NOTED.
   F) MINIMUM SIZE OF CLIP ANGLES SHALL BE L3x3x3/8" UNLESS NOTED.
   G) ALL GUSSET PLATES SHALL BE 3/8" THICK UNLESS NOTED.
   H) ALL HOLES FOR BOLTS SHALL BE 1/16 INCH LARGER THAN THE BOLT DIAMETER WITH AN EDGE DISTANCE OF AT LEAST 1 1/2 TIMES THE BOLT DIAMETER AND A SPACING OF AT LEAST 3 TIMES THE BOLT DIAMETER. ALL BOLTS SHALL BE PROVIDED WITH PALNUTS OR LOCK NUTS.
7. STRUCTURAL CONNECTION BOLTS SHALL BE HIGH STRENGTH BOLTS AND CONFORM TO ASTM A325 "HIGH STRENGTH BOLTS FOR STRUCTURAL JOINTS, INCLUDING SUITABLE NUTS AND PLAIN HARDENED WASHERS", LATEST EDITION. BOLTS SHALL BE 3/4 INCH DIA. UNLESS OTHERWISE NOTED.
8. CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS AND FOR METHODS USED IN CORRECTING WELDING. ALL WELDERS AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES".
9. ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS OTHERWISE NOTED.
10. DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED BY COLD GALVANIZING IN ACCORDANCE WITH ASTM A780.
11. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC-COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS OTHERWISE NOTED.
12. ALL STEEL SUPPORTS SHALL BE INSTALLED WITH DOUBLE NUTS AND SHALL BE INSTALLED SNUG TIGHT.
13. SLEEVE ANCHORS SHALL CONFORM TO FEDERAL SPECIFICATION FF-S-325, GROUP II, TYPE 3, CLASS 3, AS MANUFACTURED BY HILTI FASTENING SYSTEMS OR APPROVED EQUAL. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. MINIMUM EMBEDMENT SHALL BE THREE (3) INCHES.
14. EXPANSION BOLTS SHALL CONFORM TO FEDERAL SPECIFICATION FF-S-325, GROUP II, TYPE 4, CLASS 1, HILTI KWIK BOLT II OR APPROVED EQUAL. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. MINIMUM EMBEDMENT SHALL BE FOUR (4) INCHES.
15. EPOXY ANCHORING SYSTEM SHALL BE THE HILTI HY-270 FOR MASONRY CONSTRUCTION WITH HOLLOW BRICK OR BLOCK & THE HILTI HIT HY200 INJECTION ADHESIVE ANCHOR FOR GROUT FILLED CONCRETE MASONRY UNITS AND CONCRETE. EPOXY ANCHOR ASSEMBLY SHALL CONSIST OF 1/2"ø STAINLESS STEEL ANCHOR ROD W/NUTS & WASHERS, AN INTERNALLY THREADED INSERT, A SCREEN TUBE FOR THE HY-270 ONLY & AN EPOXY ADHESIVE (6" MIN EMBEDMENT). THE INSTALLATION PROCEDURE SHALL BE AS FOLLOWS
   A. DRILL THE HOLE USING MANUFACTURER RECOMMENDED DRILL BIT UP TO SPECIFIED DEPTH. HAMMERING IS NOT PERMITTED.
   B. CLEAN THE HOLE USING NYLON BRUSH AND/OR COMPRESSED AIR. THE HOLE SHOULD BE CLEAR OF ANY LOOSE MATERIAL. IF WET, THE MASONRY SHOULD BE ALLOWED TO DRY FULLY BEFORE ANCHOR INSTALLATION.
   C. INSERT SPECIFIED SCREEN TUBE INTO THE HOLE.
   D. FILL THE SCREEN TUBE COMPLETELY WITH ADHESIVE, BEGINNING AT THE BOTTOM END.
   E. INSERT ANCHOR ROD OR INTERNALLY THREADED INSERT INTO THE ADHESIVE-FILLED SCREEN TUBE, TWISTING SLIGHTLY.
   F. LOAD FASTENER ONLY AFTER MANUFACTURER SPECIFIED CURE TIME HAS ELAPSED.
16. GRATING SHALL BE GALVANIZED WELDED STEEL BAR GRATING TYPE W/BA WITH 1-1/4" BEARING BARS AT 1-3/16" OC. FASTEN TO SUPPORTING MEMBERS WITH SADDLE-TYPE CLIPS AT 2'-0" O.C. AND BAND ALL EXPOSED EDGES.
17. SUBMIT DRAWINGS OF ALL STRUCTURAL AND MISCELLANEOUS STEEL TO THE ENGINEER FOR APPROVAL AND INCORPORATE ALL COMMENTS PRIOR TO FABRICATION.
18. INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE ENGINEER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE ENGINEER APPROVAL.
19. ALL WORK SHALL BE INSPECTED BY THE ENGINEER DURING AND AT THE COMPLETION OF CONSTRUCTION.
20. CONTRACTOR TO REMOVE MASTIC ON THE EXISTING WALL/PARAPET AT EVERY STEEL SUPPORT ATTACHMENT AND REPOINT MASONRY AS REQUIRED. A BED OF SILICONE SHALL BE APPLIED BEHIND AND ALL AROUND THE STEEL SUPPORT ATTACHMENT TO MAKE IT WEATHERPROOF.
21. HAMMER DRILLS ARE NOT TO BE USED WHEN DRILLING HOLES FOR SLEEVE OR EXPANSION BOLTS INSTALLED IN MASONRY BLOCKS/BRICKS.
22. ALL HOLES TO BE ADDED IN THE FIELD SHALL BE PUNCHED OR DRILLED. NO HOLE BURNING SHALL BE ALLOWED.
23. NOTES ARE NOT PROJECT SPECIFIC.

SITE NOTES

1. ALL SITE WORK SHALL BE AS INDICATED ON THE DRAWING.
2. RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
3. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE BTS EQUIPMENT AND TOWER AREAS.
4. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
5. THE SUBGRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
6. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY ENGINEERS. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR PIER DRILLING AROUND OR NEAR UTILITIES.
7. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF ENGINEER.
8. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK SHALL BE GRADED TO A UNIFORM SLOPE, FERTILIZED, SEEDED, AND COVERED WITH MULCH.
9. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
10. CARE SHALL BE TAKEN TO RETAIN NATURAL GROWTH AND PREVENT DAMAGE TO TREES WITHIN AND OUTSIDE THE LIMITS OF CONSTRUCTION AND SPECIFIED WORK AREAS CAUSED BY EQUIPMENT AND MATERIALS. ANY DAMAGE TO THIS NATURAL GROWTH SHALL BE RESTORED AT THE EXPENSE OF THE CONTRACTOR.
11. ALL AREAS DISTURBED BY THE CONTRACTOR WITHOUT AUTHORIZATION SHALL BE RESTORED BY THE CONTRACTOR.
12. IN THE EVENT THE CONTRACTOR DAMAGES AN EXISTING UTILITY SERVICE CAUSING AN INTERRUPTION IN SAID SERVICE, HE SHALL IMMEDIATELY COMMENCE WORK TO RESTORE SERVICE AND MAY NOT CEASE HIS WORK OPERATION UNTIL SERVICE IS RESTORED.

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APPROVALS

LANDLORD ______
RF ______
CONSTRUCTION ______
OPERATIONS ______
SITE ACQ. ______

PROJECT NUMBER	DESIGNED BY
9927.CTHA151A	EI

REV.	DATE	DESCRIPTION	DRAWN BY
A	10/09/20	FOR COMMENT	BWY
B	11/17/20	PER COMMENTS	BWY
C	08/03/21	ADDED POLE REINF.	MB

ISSUED BY | DATE

0 1 2 3
ORIGINAL SIZE IN INCHES

SITE INFORMATION

HA151A/BUSHYHILLFD_MP
CTHA151A
345 BUSHY HILL ROAD
SIMSBURY, CT 06070

SHEET TITLE

NOTES

SHEET NUMBER

A-5

MODIFICATION INSPECTION (MI) CHECKLIST

CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY EOR)	REPORT ITEM
PRE–CONSTRUCTION	
X	MI CHECKLIST DRAWING
X	EOR APPROVED SHOP DRAWINGS
X	FABRICATION INSPECTION
NA	FABRICATOR CERTIFIED WELD INSPECTION
X	MATERIAL TEST REPORT (MTR)
NA	FABRICATOR NDE INSPECTION
X	NDE REPORT OF MONOPOLE BASE PLATE (AS REQUIRED)
X	PACKING SLIPS
ADDITIONAL TESTING AND INSPECTIONS:	
CONSTRUCTION	
X	GENERAL CONSTRUCTION INSPECTION
X	SPECIAL INSPECTION OF STRUCTURAL STEEL ERECTION & BOLTING
X	SPECIAL INSPECTION OF FIELD WELDING
NA	CONTINUOUS FOUNDATION INSPECTIONS
NA	CONCRETE COMPRESSIVE STRENGTH AND SLUMP TESTS
NA	GROUT COMPRESSIVE STRENGTH TESTS (ASTM C942)
NA	POST INSTALLED ANCHOR ROD VERIFICATION
NA	BASE PLATE GROUT VERIFICATION
X	CONTRACTOR'S CERTIFIED WELD INSPECTION AND NDE REPORTS
NA	EARTHWORK: LIFT AND DENSITY
X	ON SITE COLD GALVANIZING VERIFICATION
NA	GUY WIRE TENSION REPORT
X	GC AS–BUILT DOCUMENTS
NA	NON–TENSION CONTROLLED BOLT INSPECTION (AS REQUIRED)
ADDITIONAL TESTING AND INSPECTIONS:	
POST–CONSTRUCTION	
X	MI INSPECTOR REDLINE OR RECORD DRAWING(S)
NA	POST INSTALLED ANCHOR ROD PULL–OUT TESTING
X	PHOTOGRAPHS
ADDITIONAL TESTING AND INSPECTIONS:	

NOTE: X DENOTES A DOCUMENT REQUIRED FOR THE MI REPORT
NA DENOTES A DOCUMENT THAT IS NOT REQUIRED FOR THE MI REPORT

MODIFICATION INSPECTION NOTES

GENERAL

THE MODIFICATION INSPECTION (MI) IS A VISUAL INSPECTION OF MONOPOLE MODIFICATIONS AND A REVIEW OF CONSTRUCTION INSPECTIONS AND OTHER REPORTS TO ENSURE THE INSTALLATION WAS CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, NAMELY THE MODIFICATION DRAWINGS, AS DESIGNED BY THE ENGINEER OF RECORD (EOR).

THE MI IS TO CONFIRM INSTALLATION CONFIGURATION AND WORKMANSHIP ONLY AND IS NOT A REVIEW OF THE MODIFICATION DESIGN ITSELF, NOR DOES THE MI INSPECTOR TAKE OWNERSHIP OF THE MODIFICATION DESIGN. OWNERSHIP OF THE STRUCTURAL MODIFICATION DESIGN EFFECTIVENESS AND INTEGRITY RESIDES WITH THE EOR AT ALL TIMES.

ALL MI'S SHALL BE CONDUCTED BY AN OWNER APPROVED ENGINEERING VENDOR THAT IS APPROVED TO PERFORM ELEVATED WORK FOR THE OWNER.

TO ENSURE THAT THE REQUIREMENTS OF THE MI ARE MET, IT IS VITAL THAT THE GENERAL CONTRACTOR (GC) AND THE MI INSPECTOR BEGIN COMMUNICATING AND COORDINATING AS SOON AS A PURCHASE ORDER (PO) IS RECEIVED. IT IS EXPECTED THAT EACH PARTY WILL BE PROACTIVE IN REACHING OUT TO THE OTHER PARTY. IF CONTACT INFORMATION IS NOT KNOWN, REFER TO THE PROJECT CONTACTS LISTED IN THE PROJECT DIRECTORY ON SHEET T–1.

MI INSPECTOR

THE MI INSPECTOR IS REQUIRED TO CONTACT THE GC AS SOON AS RECEIVING A PO FOR THE MI TO, AT A MINIMUM:

- REVIEW THE REQUIREMENTS OF THE MI CHECKLIST
- WORK WITH THE GC TO DEVELOP A SCHEDULE TO CONDUCT ON–SITE INSPECTIONS, INCLUDING FOUNDATION INSPECTIONS

THE MI INSPECTOR IS RESPONSIBLE FOR COLLECTING ALL GC INSPECTION AND TEST REPORTS, REVIEWING THE DOCUMENTS FOR ADHERENCE TO THE CONTRACT DOCUMENTS, CONDUCTING THE IN–FIELD INSPECTIONS, AND SUBMITTING THE MI REPORT TO THE OWNER.

GENERAL CONTRACTOR

THE GC IS REQUIRED TO CONTACT THE MI INSPECTOR AS SOON AS RECEIVING A PO FOR THE MODIFICATION INSTALLATION OR TURNKEY PROJECT TO, AT A MINIMUM:

- REVIEW THE REQUIREMENTS OF THE MI CHECKLIST
- WORK WITH THE MI INSPECTOR TO DEVELOP A SCHEDULE TO CONDUCT ON–SITE MI INSPECTIONS, INCLUDING FOUNDATION INSPECTIONS
- BETTER UNDERSTAND ALL INSPECTION AND TESTING REQUIREMENTS

THE GC SHALL PERFORM AND RECORD THE TEST AND INSPECTION RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE MI CHECKLIST.

RECOMMENDATIONS

THE FOLLOWING RECOMMENDATIONS AND SUGGESTIONS ARE OFFERED TO ENHANCE THE EFFICIENCY AND EFFECTIVENESS OF DELIVERING AN MI REPORT:

- IT IS SUGGESTED THAT THE GC PROVIDE A MINIMUM OF FIVE (5) BUSINESS DAYS NOTICE, PREFERABLY TEN (10), TO THE MI INSPECTOR AS TO WHEN THE SITE WILL BE READY FOR THE MI TO BE CONDUCTED.
- THE GC AND MI INSPECTOR COORDINATE CLOSELY THROUGHOUT THE ENTIRE PROJECT.
- WHEN POSSIBLE, IT IS PREFERRED TO HAVE THE GC AND MI INSPECTOR ON–SITE SIMULTANEOUSLY FOR ANY GUY WIRE TENSIONING OR RE–TENSIONING OPERATIONS.
- IT MAY BE BENEFICIAL TO INSTALL ALL MONOPOLE MODIFICATIONS PRIOR TO CONDUCTING THE FOUNDATION INSPECTIONS TO ALLOW THE FOUNDATION AND MI INSPECTION(S) TO COMMENCE WITH ONE SITE VISIT.
- WHEN POSSIBLE, IT IS PREFERRED TO HAVE THE GC AND MI INSPECTOR ON–SITE DURING THE MI TO HAVE ANY DEFICIENCIES CORRECTED DURING THE INITIAL MI. THEREFORE, THE GC MAY CHOOSE TO COORDINATE THE MI CAREFULLY TO ENSURE ALL CONSTRUCTION FACILITIES ARE AT THEIR DISPOSAL WHEN THE MI INSPECTOR IS ON SITE.

CANCELLATION OR DELAYS IN SCHEDULED MI

IF THE GC AND MI INSPECTOR AGREE TO A DATE ON WHICH THE MI WILL BE CONDUCTED, AND EITHER PARTY CANCELS OR DELAYS, THE OWNER SHALL NOT BE RESPONSIBLE FOR ANY COSTS, FEES, LOSS OF DEPOSITS AND/OR OTHER PENALTIES RELATED TO THE CANCELLATION OR DELAY INCURRED BY EITHER PARTY FOR ANY TIME (E.G. TRAVEL AND LODGING, COSTS OF KEEPING EQUIPMENT ON–SITE, ETC.). IF THE OWNER CONTRACTS DIRECTLY FOR A THIRD PARTY MI, EXCEPTIONS MAY BE MADE IN THE EVENT THAT THE DELAY/CANCELLATION IS CAUSED BY WEATHER OR OTHER CONDITIONS THAT MAY COMPROMISE THE SAFETY OF THE PARTIES INVOLVED.

CORRECTION OF FAILING MI'S

IF THE MODIFICATION INSTALLATION WOULD FAIL THE MI ("FAILED MI"), THE GC SHALL WORK WITH THE OWNER TO COORDINATE A REMEDIATION PLAN IN ONE OF TWO WAYS:

- CORRECT FAILING ISSUES TO COMPLY WITH THE SPECIFICATIONS CONTAINED IN THE ORIGINAL CONTRACT DOCUMENTS AND COORDINATE A SUPPLEMENT MI.
- OR, WITH THE OWNER'S APPROVAL, THE GC MAY WORK WITH THE EOR TO RE–ANALYZE THE MODIFICATION/REINFORCEMENT USING THE AS–BUILT CONDITION.

MI VERIFICATION INSPECTIONS

THE OWNER RESERVES THE RIGHT TO CONDUCT AN MI VERIFICATION INSPECTION TO VERIFY THE ACCURACY AND COMPLETENESS OF PREVIOUSLY COMPLETED MI INSPECTION(S) ON MONOPOLE MODIFICATION PROJECTS.

ALL VERIFICATION INSPECTIONS SHALL BE HELD TO THE SAME SPECIFICATIONS AND REQUIREMENTS IN THE CONTRACT DOCUMENTS.

VERIFICATION INSPECTION MAY BE CONDUCTED BY AN INDEPENDENT INSPECTION FIRM AFTER A MODIFICATION PROJECT IS COMPLETED, AS MARKED BY THE DATE OF AN ACCEPTED "PASSING MI" OR "PASS AS NOTED MI" REPORT FOR THE ORIGINAL PROJECT.

REQUIRED PHOTOS

BETWEEN THE GC AND THE MI INSPECTOR THE FOLLOWING PHOTOGRAPHS, AT A MINIMUM, ARE TO BE TAKEN AND INCLUDED IN THE MI REPORT:

1. PRE–CONSTRUCTION GENERAL SITE CONDITION
2. PHOTOGRAPHS DURING THE REINFORCEMENT MODIFICATION CONSTRUCTION/ERECTION AND INSPECTION:
   - RAW MATERIALS
   - PHOTOS OF ALL CRITICAL DETAILS
   - FOUNDATION MODIFICATIONS
   - WELD PREPARATION
   - BOLT INSTALLATION AND TORQUE
   - FINAL INSTALLED CONDITION
   - SURFACE COATING REPAIR
3. POST CONSTRUCTION PHOTOGRAPHS:
   - FINAL IN FIELD CONDITION

PHOTOS OF ELEVATED MODIFICATIONS TAKEN ONLY FROM THE GROUND SHALL BE CONSIDERED INADEQUATE.

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HA151A/BUSHYHILLFD_MP
CTHA151A
345 BUSHY HILL ROAD
SIMSBURY, CT 06070

SHEET TITLE

MONOPOLE REINFORCEMENT MODIFICATION INSPECTION NOTES

SHEET NUMBER

SN–1

MONOPOLE REINFORCEMENT NOTES

GENERAL

1. ALL REFERENCES TO THE OWNER IN THESE DOCUMENTS SHALL BE CONSIDERED T-MOBILE OR ITS DESIGNATED REPRESENTATIVE.
2. ALL WORK PRESENTED ON THESE DRAWINGS MUST BE COMPLETED BY THE CONTRACTOR, UNLESS NOTED OTHERWISE. THE CONTRACTOR MUST HAVE CONSIDERABLE EXPERIENCE IN THE PERFORMANCE OF WORK SIMILAR TO THAT DESCRIBED HEREIN. BY ACCEPTANCE OF THIS ASSIGNMENT, THE CONTRACTOR IS ATTESTING THAT HE DOES HAVE SUFFICIENT EXPERIENCE AND ABILITY, THAT HE IS KNOWLEDGEABLE OF THE WORK TO BE PERFORMED, THAT HE IS PROPERLY LICENSED, AND THAT HE IS PROPERLY REGISTERED TO DO THIS WORK IN THE STATE AND/OR COUNTY IN WHICH IT IS TO BE PERFORMED.
3. NOTES AND TYPICAL DETAILS ARE APPLICABLE TO ALL PARTS OF THE STRUCTURE, ALL MATERIALS LISTED HEREIN, ANY PROCEDURES TO BE USED ON THIS PROJECT, AND SHALL BE READ IN CONJUNCTION WITH THE STRUCTURAL DRAWINGS AND PROJECT SPECIFICATIONS.
4. CONTRACTOR SHALL RECEIVE CLARIFICATION IN WRITING, AND SHALL RECEIVE IN WRITING, AUTHORIZATION TO PROCEED BEFORE STARTING WORK ON ANY ITEMS NOT CLEARLY DEFINED OR IDENTIFIED BY THE CONTRACT DOCUMENTS.
5. CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK USING THE BEST CONSTRUCTION SKILLS AND ATTENTION. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER CONTRACT, UNLESS OTHERWISE NOTED.
6. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS AND APPROVALS FROM ALL AUTHORITIES HAVING JURISDICTION FOR THIS PROJECT AND SHALL NOTIFY THE APPLICABLE JURISDICTIONAL (STATE, COUNTY, OR CITY) ENGINEER 24 HOURS PRIOR TO THE BEGINNING OF CONSTRUCTION.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ABIDING BY ALL CONDITIONS AND REQUIREMENTS OF THE PERMITS.
8. ERECT GUARDS AND BARRIERS PER APPLICABLE LABOR AND CONSTRUCTION SAFETY REGULATIONS.
9. THE CONTRACTOR SHALL INSPECT THE EXISTING STRUCTURE AND FIELD VERIFY ALL EXISTING CONDITIONS, POSSIBLE INTERFERENCES, AND DIMENSIONS BEFORE PROCEEDING WITH THE WORK. REPORT ANY AND ALL DISCREPANCIES TO THE ENGINEER OF RECORD (EOR) AND FIELD PERSONNEL IMMEDIATELY. ANY AND ALL FIELD CHANGES SHALL BE APPROVED AND DOCUMENTED BY THE EOR PRIOR TO FIELD IMPLEMENTATION.
10. ALL MATERIALS AND WORKMANSHIP SHALL BE WARRANTED FOR TWO (2) YEARS FROM THE ACCEPTANCE DATE UPON COMPLETION OF CONSTRUCTION.
11. USE ONLY THE LATEST ISSUES OF ANY APPLICABLE CODES, STANDARDS, OR REGULATIONS MENTIONED IN THE FOLLOWING NOTES AND SPECIFICATIONS, UNLESS SPECIFICALLY NOTED OTHERWISE.
12. ALL WORKMANSHIP SHALL BE IN ACCORDANCE WITH ANSI, ASTM, ACI, TIA, AND AISC STANDARDS AS REFERENCED IN THE APPLICABLE CODE.
13. STRUCTURAL ELEMENTS SHOWN ON THESE DRAWINGS ARE DESIGNED IN ACCORDANCE WITH APPLICABLE BUILDING CODES/STANDARDS. ALL CONSTRUCTION, EXCEPT WHERE NOTED OTHERWISE, SHALL COMPLY WITH THOSE CODES/STANDARDS.
14. ALL MATERIALS AND EQUIPMENT FURNISHED SHALL BE NEW AND OF GOOD QUALITY, FREE FROM FAULTS AND DEFECTS, AND IN CONFORMANCE WITH THE CONTRACT DOCUMENTS. ANY AND ALL SUBSTITUTIONS MUST BE PROPERLY APPROVED AND AUTHORIZED IN WRITING BY THE OWNER AND ENGINEER OF RECORD PRIOR TO FABRICATION AND INSTALLATION. THE CONTRACTOR SHALL FURNISH SATISFACTORY EVIDENCE AS TO THE KIND AND QUALITY OF THE MATERIALS AND EQUIPMENT BEING SUBSTITUTED.
15. ALL MANUFACTURER'S HARDWARE ASSEMBLY INSTRUCTIONS SHALL BE FOLLOWED EXACTLY AND SHALL SUPERSEDE ANY CONFLICTING NOTES ENCLOSED HEREIN.
16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK WITHIN THE WORK AREA AND ANY ADJACENT AREAS THAT ARE LIKELY TO BE AFFECTED BY THE WORK UNDER THIS CONTRACT. THE CONTRACTOR IS ALSO RESPONSIBLE FOR ENSURING THAT ALL CONSTRUCTION PROCEDURES COMPLY WITH THE REQUIREMENTS OF OSHA, THE OWNER, AND ALL OTHER APPLICABLE LOCAL, STATE, AND FEDERAL SAFETY CODES AND REGULATIONS GOVERNING THIS WORK.
17. ACCESS TO THE PROPOSED WORK SITE MAY BE RESTRICTED. THE CONTRACTOR SHALL COORDINATE AND OBTAIN APPROVAL FOR INTENDED CONSTRUCTION ACTIVITY, INCLUDING WORK SCHEDULE AND MATERIAL ACCESS, WITH THE RESIDENT LEASING AGENT.
18. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO SAFEGUARD ALL EXISTING STRUCTURES OR BURIED SERVICES AFFECTED BY THIS CONSTRUCTION. CONTRACTOR IS ALSO RESPONSIBLE FOR TEMPORARILY RELOCATING ANY LINES OR STRUTS AS NECESSARY TO COMPLETE THE REQUIRED WORK.
19. STRUCTURAL DESIGN IS FOR THE COMPLETE CONDITION ONLY. THE CONTRACTOR MUST BE COGNIZANT THAT THE REMOVAL OF ANY STRUCTURAL COMPONENT OF AN EXISTING MONOPOLE HAS THE POTENTIAL TO CAUSE THE PARTIAL OR COMPLETE COLLAPSE OF THE STRUCTURE. ALL NECESSARY PRECAUTIONS MUST BE TAKEN TO ENSURE STRUCTURAL INTEGRITY, INCLUDING, BUT NOT LIMITED TO, ENGINEERING ASSESSMENT OF CONSTRUCTION STRESSES WITH INSTALLATION MAXIMUM WIND SPEED AND/OR TEMPORARY BRACING AND SHORING.
20. PLANS ARE NOT TO BE SCALED. DETAILS ARE INTENDED TO SHOW END RESULT OF DESIGN. MINOR MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS, AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF THE WORK.
21. FOR THIS ANALYSIS AND MODIFICATION, THE MONOPOLE HAS BEEN ASSUMED TO BE IN GOOD CONDITION WITHOUT ANY DEFECTS. IF THE CONTRACTOR DISCOVERS ANY INDICATION OF AN EXISTING STRUCTURAL DEFECT, CONTACT THE ENGINEER OF RECORD IMMEDIATELY.
22. ALL WORK SHALL BE PERFORMED IN CALM WEATHER, WITH WIND GUSTS LESS THAN 10 MPH.
23. THE CLIMBING FACILITIES, SAFETY CLIMB AND ALL PARTS THEREOF SHALL NOT BE IMPEDED, MODIFIED OR ALTERED WITHOUT THE EXPRESS APPROVAL OF THE ENGINEER OF RECORD.
24. ALL MONOPOLE REINFORCEMENT SHALL BE COMPLETED PRIOR TO INSTALLATION OF PROPOSED ANTENNAS, MOUNTS, AND CABLES.
25. PROTECT EXISTING ANTENNAS, MOUNTS, CABLES, AND EQUIPMENT FROM DAMAGE DURING INSTALLATION OF ANTENNAS AND REINFORCING.
26. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE TO ENSURE THE SAFETY OF THE STRUCTURE AND ITS COMPONENTS AND TO MAINTAIN MONOPOLE ALIGNMENT AND PLUMBNESS DURING REINFORCEMENT. THIS INCLUDES, BUT IS NOT LIMITED TO, PROVIDING TEMPORARY GUYS, TIE-DOWNS, OR BRACING/SUPPORT SYSTEMS AS NECESSARY. NO STRUCTURAL COMPONENTS SHALL BE REMOVED UNTIL SUCH SYSTEMS ARE ADEQUATELY INSTALLED ON THE MONOPOLE. MONOPOLE REINFORCEMENT WORK SHALL COMPLY WITH THE REQUIREMENTS OF ANSI/TIA-322 & ANSI/ASSE A10.48.
27. CONTRACTOR SHALL SUBMIT A DETAILED, SITE SPECIFIC RIGGING PLAN TO THE OWNER PRIOR TO THE START OF ANY WORK.
28. REMOVE FROM THE SITE AND PROPERLY DISPOSE OF ALL TEMPORARY BRACING, REMOVED MONOPOLE COMPONENTS, EXCESS MATERIALS, AND DEBRIS, AS DIRECTED BY THE OWNER'S REPRESENTATIVE UPON COMPLETION OF WORK.
29. GROUNDING SYSTEM SHALL BE CHECKED AND UPGRADED AS NECESSARY, AS DIRECTED BY THE OWNER'S REPRESENTATIVE.
30. CONTRACTOR SHALL ACCURATELY FIELD VERIFY LENGTHS OF ALL MATERIAL PRIOR TO FABRICATION OR ORDERING OF ANY PRODUCTS.
31. INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE ENGINEER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE ENGINEER APPROVAL.
32. CONTRACTOR SHALL FIELD VERIFY SAFETY CLIMB LOCATION AND CONTACT THE ENGINEER OF RECORD IF THE DESIGN SHOWN IMPACTS THE SAFETY CLIMB SYSTEM. THE CLIMBING FACILITIES, SAFETY CLIMB, AND ALL PARTS THEREOF SHALL NOT BE IMPEDED, MODIFIED, OR ALTERED WITHOUT THE EXPRESS WRITTEN APPROVAL OF THE MONOPOLE OWNER OR ENGINEER OF RECORD.

STRUCTURAL STEEL & BOLTING

1. DESIGN AND CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS", LATEST EDITION.
2. HOLLOW STRUCTURAL SECTIONS (HSS) SHALL CONFORM TO ASTM A500 "COLD-FORMED WELDED AND SEAMLESS CARBON STEEL STRUCTURAL TUBING IN ROUNDS AND SHAPES", GRADE C (Fy = 46 ksi). SUBSTITUTION WITH ASTM A53 PIPE IS **NOT** ACCEPTABLE.
3. STEEL PLATES SHALL CONFORM TO A572 "HIGH-STRENGTH LOW-ALLOY COLUMBIUM-VANADIUM STRUCTURAL STEEL", GRADE 65, UNLESS OTHERWISE INDICATED.
4. MISCELLANEOUS STEEL, INCLUDING CHANNELS, ANGLES, BARS, AND SOLID RODS SHALL CONFORM TO ASTM A36 "CARBON STRUCTURAL STEEL" (Fy = 36 ksi), UNLESS OTHERWISE INDICATED.
5. ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS OTHERWISE NOTED.
6. STRUCTURAL CONNECTION BOLTS SHALL BE HIGH STRENGTH BOLTS CONFORMING TO ASTM A325 "STRUCTURAL BOLTS, STEEL, HEAT TREATED, 120/105 ksi MINIMUM TENSILE STRENGTH" OR ASTM A490 "STRUCTURAL BOLTS, ALLOY STEEL, HEAT TREATED, 150 KSI MINIMUM TENSILE STRENGTH", AS INDICATED ON THE MONOPOLE MODIFICATION SCHEDULE AND MONOPOLE REINFORCEMENT ELEVATION, **CONNECTION TYPE X**, UNLESS OTHERWISE NOTED. **BOLT THREADS SHALL BE EXCLUDED FROM THE SHEAR PLANE.** FULLY THREADED BOLTS (A325T) SHALL NOT BE USED. EXISTING BOLTS THAT HAVE BEEN REMOVED SHALL NOT BE REUSED.
7. U-BOLTS SHALL CONFORM TO ASTM A36 OR A307 "CARBON STEEL BOLTS, STUDS, AND THREADED ROD 60000 PSI TENSILE STRENGTH". ALL U-BOLTS SHALL BE 1/2" DIAMETER IN 9/16" DIAMETER HOLES, UNLESS OTHERWISE NOTED. INSTALL DOUBLE NUTS ON ALL CONNECTIONS.
8. MATCHING NUTS SHALL BE HEAVY HEX TYPE, CONFORMING TO ASTM A563, "CARBON AND ALLOY STEEL NUTS". WASHERS, WHERE REQUIRED, SHALL CONFORM TO ASTM F436 "HARDENED STEEL WASHERS". INSTALL NUT-LOCKING DEVICES OR MECHANISMS SUCH AS, BUT NOT LIMITED TO, LOCK NUTS, LOCK WASHERS, OR PALNUTS, CONFORMING TO SECTION 4.9.2 OF ANSI/TIA-222 ON ALL NEW/REPLACED BOLTS TO PREVENT LOOSENING.
9. ALL A325 BOLTS, U-BOLTS, AND MISCELLANEOUS HARDWARE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS OTHERWISE NOTED.
10. ALL ASTM A490 BOLTS SHALL BE COATED WITH ZINC/ALUMINUM CORROSION PROTECTIVE COATINGS PER ASTM F1136 "ZINC/ALUMINUM CORROSION PROTECTIVE COATINGS FOR FASTENERS", GRADE 3, USING GEOMET, MAGNI, OR OTHER ENGINEER APPROVED CORROSION PROTECTIVE COATING.
11. DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED BY COLD GALVANIZING IN ACCORDANCE WITH ASTM A780 "REPAIR OF DAMAGED AND UNCOATED AREAS OF HOT-DIP GALVANIZED COATINGS", USING Z.R.C. COLD GALVANIZING COMPOUND AS MANUFACTURED BY ZINGA-USA OR ZINC KOTE, OR ENGINEER APPROVED EQUAL, WITH A MINIMUM METALLIC ZINC CONTENT OF 95% BY WEIGHT IN DRY FILM. DRY FINISHED COATING THICKNESS SHALL BE 3 MILS MINIMUM.
12. ALL BOLT HOLES SHALL BE STANDARD HOLES AS DEFINED BY AISC, DRILLED OR PUNCHED 1/16" LARGER IN DIAMETER THAN THE CONNECTING BOLT, UNLESS OTHERWISE NOTED. OVERSIZED OR SLOTTED HOLES, OR ANY BURNING OF HOLES, IS NOT PERMITTED.
13. ALL CONNECTIONS TO BE SNUG TIGHT TYPE IN ACCORDANCE WITH THE RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS".
14. ALL CONNECTIONS THAT ARE NOT FULLY DETAILED ON THESE DRAWINGS SHALL BE DETAILED BY THE STEEL FABRICATOR. STEEL FABRICATOR SHALL MAINTAIN EDGE DISTANCES AND SPACING OF BOLT HOLES IN ACCORDANCE WITH THE TIA REQUIREMENTS AND EXISTING FIELD CONDITIONS. IF REQUIRED, COPING OF REINFORCING ANGLES SHALL BE WITHIN THE LIMITS OF ALLOWABLE COPING AS INDICATED ON THESE DRAWINGS. **IN CASE OF DISCREPANCIES, IMMEDIATELY CONTACT THE ENGINEER OF RECORD FOR FURTHER DIRECTION.**
15. ALL NEW/REPLACED BOLTS SHALL BE OF SUFFICIENT LENGTH SUCH THAT THE END OF THE BOLT IS AT LEAST FLUSH WITH THE FACE OF THE NUT, PROVIDING A MINIMUM STICK-THROUGH OF ZERO. IT IS NOT PERMITTED FOR THE BOLT END TO BE BELOW THE FACE OF THE NUT AFTER TIGHTENING IS COMPLETED.
16. SUBMIT SHOP DETAIL DRAWINGS OF ALL STRUCTURAL AND MISCELLANEOUS STEEL TO THE ENGINEER FOR APPROVAL, AND INCORPORATE ALL COMMENTS PRIOR TO FABRICATION.
17. AFTER FINAL INSPECTION, ALL GALVANIZED STEEL SURFACES THAT HAVE BEEN DAMAGED AS THE RESULT OF THIS SCOPE OF WORK, INCLUDING AREAS AROUND GRINDING, WELDS, FIELD DRILLED HOLES, AND SHAFT INTERIORS (WHERE ACCESSIBLE), SHALL BE PREPARED BY POWER TOOL CLEANING IN ACCORDANCE WITH SSPC SP-3, AND TOUCH-UP PAINTED WITH BRUSH-APPLIED, COLD-GALVANIZING COMPOUND. PHOTO DOCUMENTATION IS REQUIRED TO BE SUBMITTED TO THE MI INSPECTOR.

WELDING

1. **FIELD WELDING OF EXISTING MONOPOLE COMPONENTS IS NOT PERMITTED, UNLESS SPECIFICALLY INDICATED OTHERWISE ON THESE DRAWINGS.**
2. CONTRACTOR SHALL COMPLY WITH AWS D1.1 "STRUCTURAL WELDING CODE – STEEL" FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS, AND FOR METHODS USED IN CORRECTING WELDING. ALL WELDERS AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES".
3. REMOVE ALL GALVANIZING IN AREAS TO BE WELDED BY GRINDING. SURFACES TO BE WELDED SHALL BE FREE FROM SCALE, SLAG, RUST, MOISTURE, GREASE OR ANY OTHER FOREIGN MATERIAL THAT WOULD PREVENT PROPER WELDING. GRIND THE SURFACE ADJACENT TO THE WELD FOR A DISTANCE OF 2" MINIMUM ALL AROUND, AND ENSURE THAT THESE AREAS ARE 100% FREE OF ALL GALVANIZING. AFTER WELDING, CLEAN AND PROTECT ALL EXPOSED STEEL AND WELDS BY COLD GALVANIZING.
4. ALL WELDING TO THE MONOPOLE SHALL BE PERFORMED USING THE SMAW PROCESS WITH E80XX LOW HYDROGEN ELECTRODES, UNLESS OTHERWISE INDICATED. LOW HYDROGEN ELECTRODES SHALL BE PURCHASED IN HERMETICALLY SEALED CONTAINERS AND SHALL BE USED WITHIN 4 HOURS AFTER OPENING THE CONTAINER. ELECTRODES NOT USED WITHIN 4 HOURS SHALL BE REDRIED AT A TEMPERATURE BETWEEN 450°F AND 500°F FOR AT LEAST 2 HOURS AND THEN STORED AT 250°F. REDRIED ELECTRODES SHALL BE USED WITHIN 4 HOURS AFTER REMOVAL FROM THE STORAGE OVEN. REDRIED ELECTRODES NOT USED WITHIN 4 HOURS SHALL BE DISCARDED.
5. SPACES BETWEEN INTERMITTENT WELDS SHALL BE FILLED USING CHEM-CALK 915 SEALANT AS MANUFACTURED AND MARKETED BY BOSTIK, INC., WAUWATOSA, WI 53226 (800) 726-7845, OR ENGINEER APPROVED EQUAL.
6. ALL FIELD WELDING SHALL BE VISUALLY INSPECTED BY AN AWS CERTIFIED WELDING INSPECTOR (CWI) IN ACCORDANCE WITH THE ACCEPTANCE CRITERIA OF AWS D1.1., PRIOR TO INSTALLATION OF THE PROPOSED ANTENNAS AND/OR APPURTENANCES. THE CWI SHALL WORK WITH THE GC ON THE LEVEL OF INTERACTION NEEDED TO CONDUCT THE REQUIRED WELDING INSPECTION(S). THE CERTIFIED WELDING INSPECTION IS THE RESPONSIBILITY OF THE GC.
7. DO NOT WELD IF THE TEMPERATURE OF THE STEEL IN THE VICINITY OF THE WELD AREA IS BELOW 0°F. MINIMUM PREHEAT AND INTERPASS TEMPERATURE REQUIREMENTS SHALL COMPLY WITH AWS D1.1.
8. DO NOT WELD ON WET OR FROST-COVERED SURFACES, AND PROVIDE ADEQUATE PROTECTION FROM HIGH WINDS.

MONOPOLE REINFORCEMENT DESIGN CRITERIA

MONOPOLE REINFORCEMENT IS DESIGNED IN CONFORMANCE TO THE REQUIREMENTS OF THE CODES AND STANDARDS LISTED BELOW. ALL MONOPOLE REINFORCEMENT WORK, INCLUDING FABRICATION, ERECTION, ALTERATION, AND MAINTENANCE, SHALL COMPLY WITH THE REQUIREMENTS OF FOLLOWING, UNLESS SPECIFICALLY NOTED OTHERWISE:

- 2018 CONNECTICUT STATE BUILDING CODE
- ANSI/TIA-222-G "STRUCTURAL STANDARD FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS"
- ANSI/TIA-322 "LOADING, ANALYSIS, AND DESIGN CRITERIA RELATED TO THE INSTALLATION, ALTERATION AND MAINTENANCE OF COMMUNICATION STRUCTURES"
- ANSI/ASSE A10.48 "CRITERIA FOR SAFETY PRACTICES WITH THE CONSTRUCTION, DEMOLITION, MODIFICATION AND MAINTENANCE OF COMMUNICATION STRUCTURES"

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NORTHEAST, LLC.
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NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

APPROVALS

LANDLORD ____________
RF ____________
CONSTRUCTION ____________
OPERATIONS ____________
SITE ACQ. ____________

PROJECT NUMBER	DESIGNED BY
9927.CTHA151A	EI

REV.	DATE	DESCRIPTION	DRAWN BY
A	10/09/20	FOR COMMENT	BWY
B	11/17/20	PER COMMENTS	BWY
C	08/03/21	ADDED POLE REINF.	MB

ISSUED BY	DATE

0 1 2 3
ORIGINAL SIZE IN INCHES

SITE INFORMATION

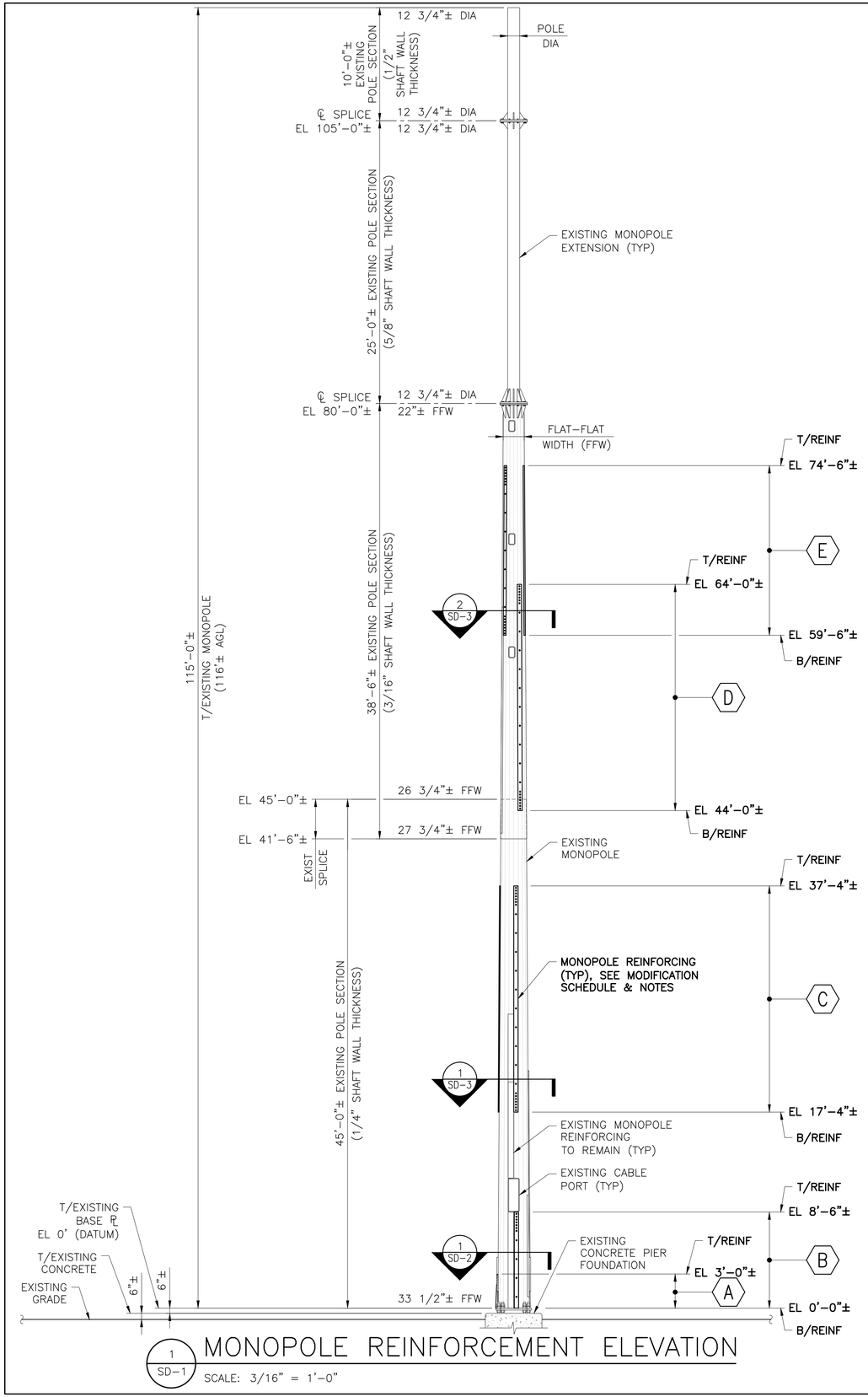
HA151A/BUSHYHILLFD_MP
CTHA151A
345 BUSHY HILL ROAD
SIMSBURY, CT 06070

SHEET TITLE

MONOPOLE REINFORCEMENT DESIGN CRITERIA & NOTES

SHEET NUMBER

SN-2



1 SD-1 MONOPOLE REINFORCEMENT ELEVATION

SCALE: 3/16" = 1'-0"

MONOPOLE MODIFICATION SCHEDULE

SECTION	ELEVATION	COMPONENT TYPE	EXISTING COMPONENT	REINFORCING MEMBER	DESCRIPTION
A	0'-0"± TO 3'-0"±	POLE SHAFT	18 SIDED	(1) TRANSITION STIFFENER ℄ 1x4x3'-0"	INSTALL NEW TRANSITION STIFFENER PLATE ON FLAT 5. SEE PLAN 1/SD-2 AND SECTION 2/SD-2.
B	0'-0"± TO 8'-6"±	POLE SHAFT	18 SIDED	(2) ℄ 1x4 1/2x8'-6"	INSTALL NEW REINFORCING PLATES ON FLATS 1 AND 11. SEE PLAN 1/SD-2, SECTION 3/SD-2, AND DETAIL 1/SD-4.
C	17'-4"± TO 37'-4"±	POLE SHAFT	18 SIDED	(4) ℄ 1x4 1/2x20'-0"	INSTALL NEW REINFORCING PLATES ON FLATS 2, 6, 11, AND 16. SEE PLAN 1/SD-3 AND DETAIL 1/SD-4.
D	44'-0"± TO 64'-0"±	POLE SHAFT	18 SIDED	(1) ℄ 1x4 1/2x20'-0"	INSTALL NEW REINFORCING PLATE ON FLAT 12. SEE PLAN 2/SD-3 AND DETAIL 1/SD-4.
E	59'-6"± TO 74'-6"±	POLE SHAFT	18 SIDED	(3) ℄ 1x4x15'-0"	INSTALL NEW REINFORCING PLATES ON FLATS 2, 8, AND 14. SEE PLAN 2/SD-3 AND DETAIL 1/SD-4.

MONOPOLE MODIFICATION NOTES

1. THE PROPOSED POLE REINFORCEMENT CONNECTION DETAILS AS SHOWN ARE TYPICAL. CONTRACTOR SHALL COORDINATE FINAL INSTALLATION METHOD AND PROCEDURE.
2. THE PLACEMENT OF REINFORCING MEMBERS IS BASED ON A LIMITED VISUAL INSPECTION. FINAL LOCATION OF PROPOSED REINFORCEMENT SHALL BE VERIFIED IN FIELD PRIOR TO FABRICATION.
3. THIS IS A CONCEPTUAL REINFORCEMENT DESIGN AND ASSUMES THAT THE PROPOSED REINFORCEMENT CAN BE INSTALLED SYMMETRICALLY AROUND THE POLE SHAFT AS DETAILED ON THIS DRAWING. ADJUSTMENTS TO THE REINFORCEMENT LAYOUT MAY BE REQUIRED UPON COMPLETION OF A DETAILED MAPPING. FINAL LOCATION SHALL BE BASED ON EXISTING FIELD CONDITIONS AND SHALL BE APPROVED BY THE ENGINEER OF RECORD. FIELD INVESTIGATION IS REQUIRED PRIOR TO FABRICATION/BIDDING OF THE PROJECT.
4. REMOVE AND REPLACE EXISTING STEP BOLTS, CLIMBING RUNGS/PEGS, GROUNDING LUG ANGLES, AND GROUND LEADS AS REQUIRED TO ALLOW FOR INSTALLATION OF THE PROPOSED REINFORCEMENT. SOME EXISTING POLE HARDWARE ITEMS HAVE BEEN OMITTED FOR CLARITY.
5. REINFORCING PLATES SHALL BE FABRICATED WITH **MINIMUM 65 ksi** HOT-DIP GALVANIZED STEEL CONFORMING TO ASTM A572 "HIGH-STRENGTH LOW-ALLOY COLUMBIUM-VANADIUM STRUCTURAL STEEL", UNLESS OTHERWISE INDICATED. SHOP DRAWINGS DETAILING THE PROPOSED REINFORCING SHALL BE SUPPLIED TO THE CONTRACTOR BY THE FABRICATOR AND SUBMITTED TO TECTONIC FOR FINAL APPROVAL.
6. BLIND BOLT FASTENERS SHALL BE AJAX ONESIDE BOLT ASSEMBLIES AS MANUFACTURED BY AJAX ENGINEERED FASTENERS, OR APPROVED EQUAL. UTILIZE 3/4" DIAMETER BOLTS TYPE PC 8.8-M20, UNLESS NOTED OTHERWISE. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS.
7. BLIND BOLT SLEEVES SHALL BE SIZED TO ENGAGE THE POLE SHAFT AND NEW REINFORCEMENT. THE SLEEVES ARE TO BE INSERTED FIRMLY AGAINST SPLIT WASHER INSIDE POLE AND HAVE A 1/8" TO 1/4" GAP BETWEEN THE OUTERMOST BOLTING SURFACE AND THE OUTERMOST SURFACE OF THE SLEEVE. THE CONTRACTOR SHALL INCORPORATE THE NECESSARY MEASURES TO ENSURE THAT THE SLEEVES DO NOT SLIDE FORWARD AND THEY REMAIN POSITIONED TOWARD THE BACKSIDE OF THE HOLE ENGAGING BOTH SIDES OF THE SHEAR PLANE BETWEEN THE POLE SHAFT AND THE NEW REINFORCEMENT.
8. BLIND BOLTS SHALL BE INSTALLED, TENSIONED AND INSPECTED IN ACCORDANCE WITH THE TURN-OF-NUT METHOD AS SPECIFIED IN THE RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS "SPECIFICATIONS FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS".
9. PROVIDE SHIM PLATES FOR LEVELING AND SPACING AS REQUIRED.
10. ALL FIELD WELDING AND STRUCTURAL STEEL ERECTION/BOLTING WORK, INCLUDING BLIND BOLT FASTENING, SHALL BE SUBJECT TO SPECIAL INSPECTIONS DURING CONSTRUCTION AS INDICATED. SEE MODIFICATION INSPECTION (MI) CHECKLIST.

NOTES:

1. REINFORCEMENT OF THE EXISTING MONOPOLE HAS BEEN DESIGNED TO SUPPORT THE ANTENNAS AND CABLES LISTED IN THE STRUCTURAL MODIFICATION ANALYSIS REPORT BY TECTONIC, DATED 8/3/21. REINFORCEMENT DETAILS AS SHOWN ARE BASED ON THE RECOMMENDATIONS OUTLINED AND DOCUMENTS REFERENCED IN THE REPORT. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO FABRICATION OF STEEL OR ORDERING OF ANY PRODUCTS.
2. EXISTING STEP BOLTS, ANTENNAS, CABLES, WAVEGUIDE SHIELDS, AND OTHER APPURTENANCES ARE NOT SHOWN FOR CLARITY. CONTRACTOR SHALL IDENTIFY TO THE OWNER'S REPRESENTATIVE ALL EXISTING WAVEGUIDES, CABLES, CABLE ATTACHMENTS, ANTENNAS, AND ANTENNA SUPPORT FRAMES THAT MUST BE TEMPORARILY REMOVED OR PERMANENTLY REPOSITIONED AS REQUIRED TO ALLOW FOR INSTALLATION OF PROPOSED REINFORCEMENT. CONTRACTOR SHALL PLAN AND COORDINATE ALL TEMPORARY REMOVAL AND/OR PERMANENT RELOCATION DIRECTLY WITH THE OWNER'S REPRESENTATIVE AND OBTAIN WRITTEN PERMISSION FROM THE REPRESENTATIVE PRIOR TO ALTERATION OF ANY EXISTING WAVEGUIDES, CABLES, ANTENNAS, OR OTHER APPURTENANCES. MAINTAIN EXISTING ANTENNA AZIMUTHS.
3. EXISTING SHELTERS, EQUIPMENT, FENCE, AND OTHER SITE FEATURES ARE NOT SHOWN FOR CLARITY.

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BLOOMFIELD, CT 06002

NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

APPROVALS

LANDLORD _____
RF _____
CONSTRUCTION _____
OPERATIONS _____
SITE ACQ. _____

PROJECT NUMBER	DESIGNED BY
9927.CTHA151A	EI

REV.	DATE	DESCRIPTION	DRAWN BY
A	10/09/20	FOR COMMENT	BWY
B	11/17/20	PER COMMENTS	BWY
C	08/03/21	ADDED POLE REINF.	MB

ISSUED BY _____ DATE _____

0 1 2 3
ORIGINAL SIZE IN INCHES

SITE INFORMATION

HA151A/BUSHYHILLFD_MP
CTHA151A
345 BUSHY HILL ROAD
SIMSBURY, CT 06070

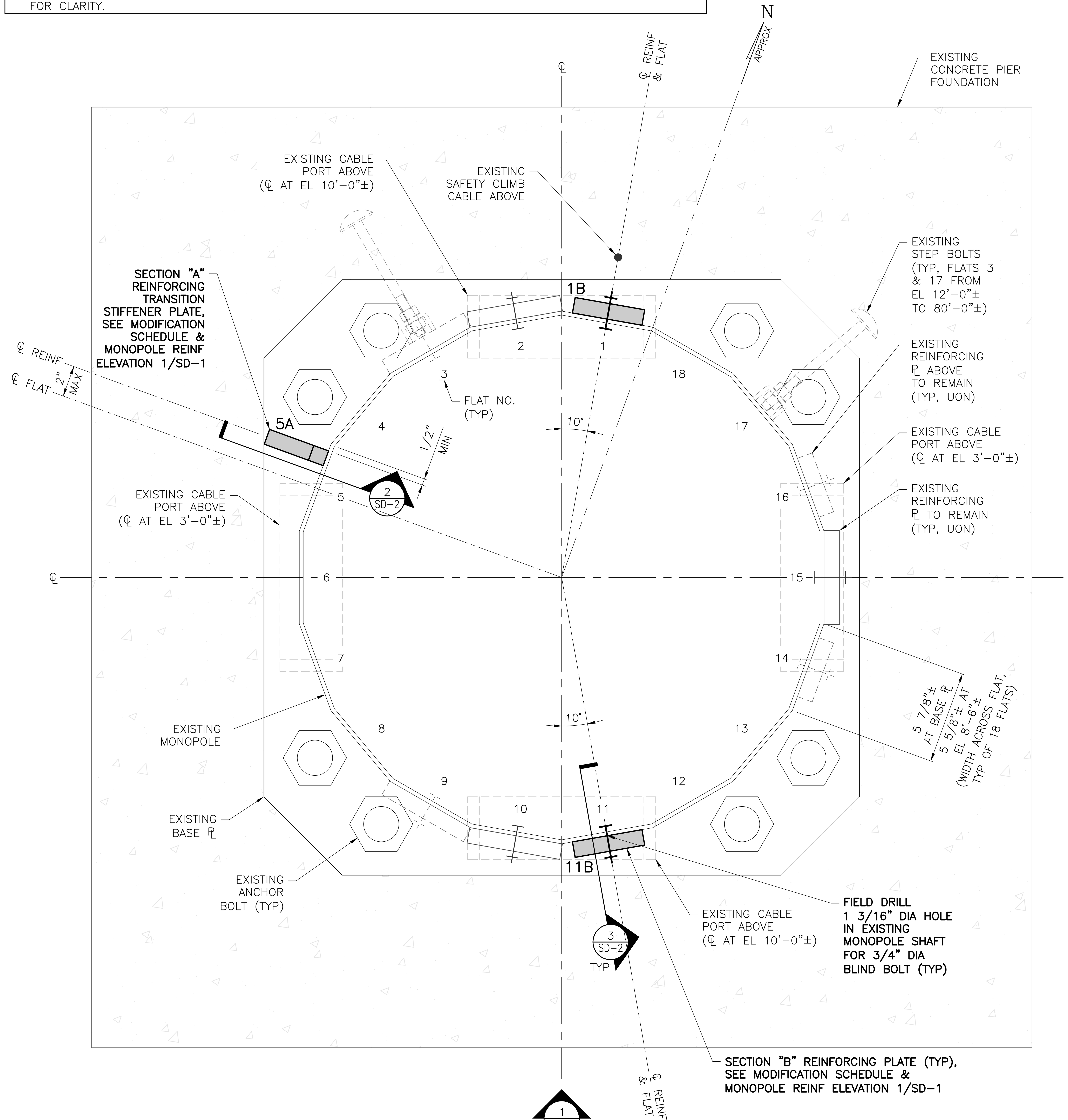
SHEET TITLE

MONOPOLE REINFORCEMENT ELEVATION, MODIFICATION SCHEDULE & NOTES

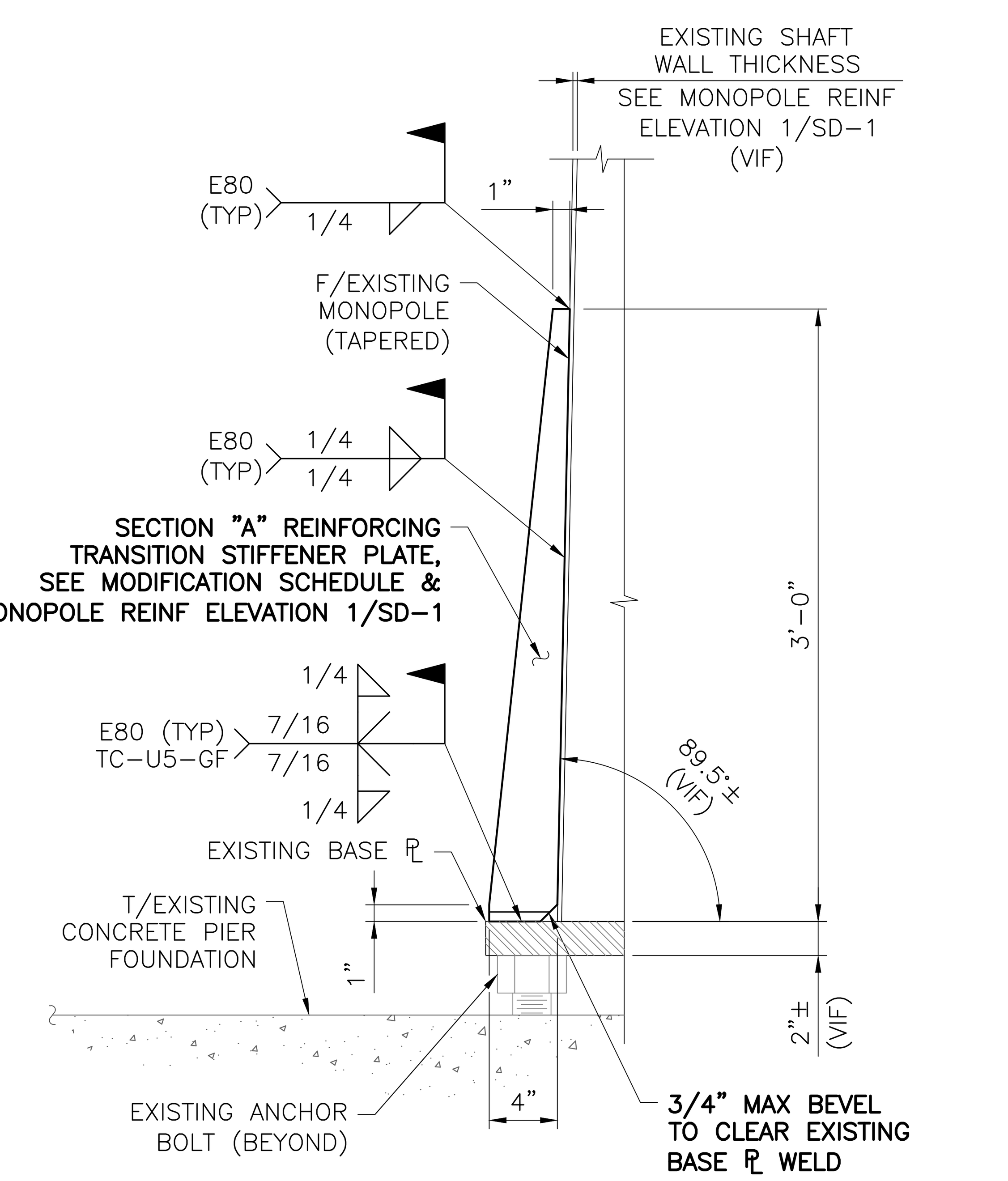
SHEET NUMBER

SD-1

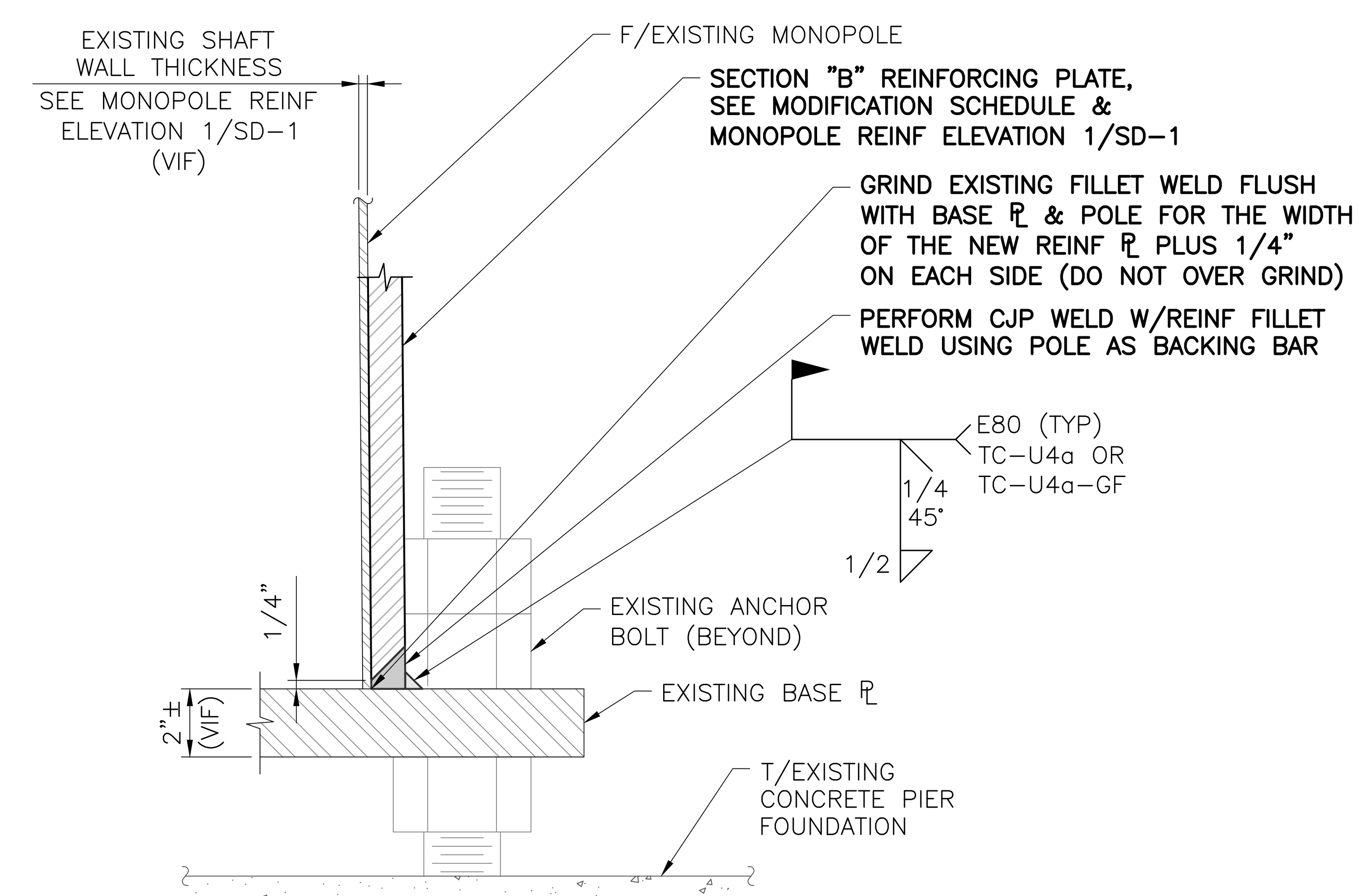
NOTES:
1. REMOVE AND REPLACE EXISTING STEP BOLTS, GROUNDING LUG ANGLES, AND GROUND LEADS AS REQUIRED TO ALLOW FOR INSTALLATION OF THE PROPOSED REINFORCEMENT. SOME EXISTING POLE HARDWARE ITEMS HAVE BEEN OMITTED FOR CLARITY.
2. EXISTING SAFETY CLIMB CABLE SHALL BE TEMPORARILY REMOVED AS REQUIRED TO ALLOW FOR INSTALLATION OF PROPOSED REINFORCEMENT AND REINSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
3. WHEN WELDING OVER PRE-EXISTING WELDS, THE PRE-EXISTING WELDS SHALL BE INSPECTED BY A CERTIFIED WELDING INSPECTOR FOR DISCONTINUITIES BY VISUAL INSPECTION. IT IS RECOMMENDED THAT THE PRE-EXISTING WELDS ARE ALSO INSPECTED USING MAGNETIC PARTICLE TESTING, BUT THIS OPTION MAY BE WAIVED BY THE MONOPOLE OWNER, IF THE VISUAL INSPECTION DOES NOT REVEAL ANY POTENTIAL ISSUES. THE PURPOSE OF THE INSPECTION IS TO ENSURE THAT THE PRE-EXISTING WELDS DO NOT CONTAIN DISCONTINUITIES THAT MAY IMPACT THE CONNECTION CAPACITY.
4. EXISTING ANTENNA CABLES, CABLE ATTACHMENTS, WAVEGUIDE SHIELD, AND OTHER APPURTENANCES NOT SHOWN FOR CLARITY.



1 SD-2 MONOPOLE REINFORCEMENT PLAN AT BASE PLATE
SCALE: 3" = 1'-0"



2 SD-2 TRANSITION STIFFENER ℙ SECTION
SCALE: 1" = 1'-0"



3 SD-2 TYP REINF ℙ SECTION AT BASE PLATE
SCALE: 3" = 1'-0"

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CTHA151A
345 BUSHY HILL ROAD
SIMSBURY, CT 06070

SHEET TITLE

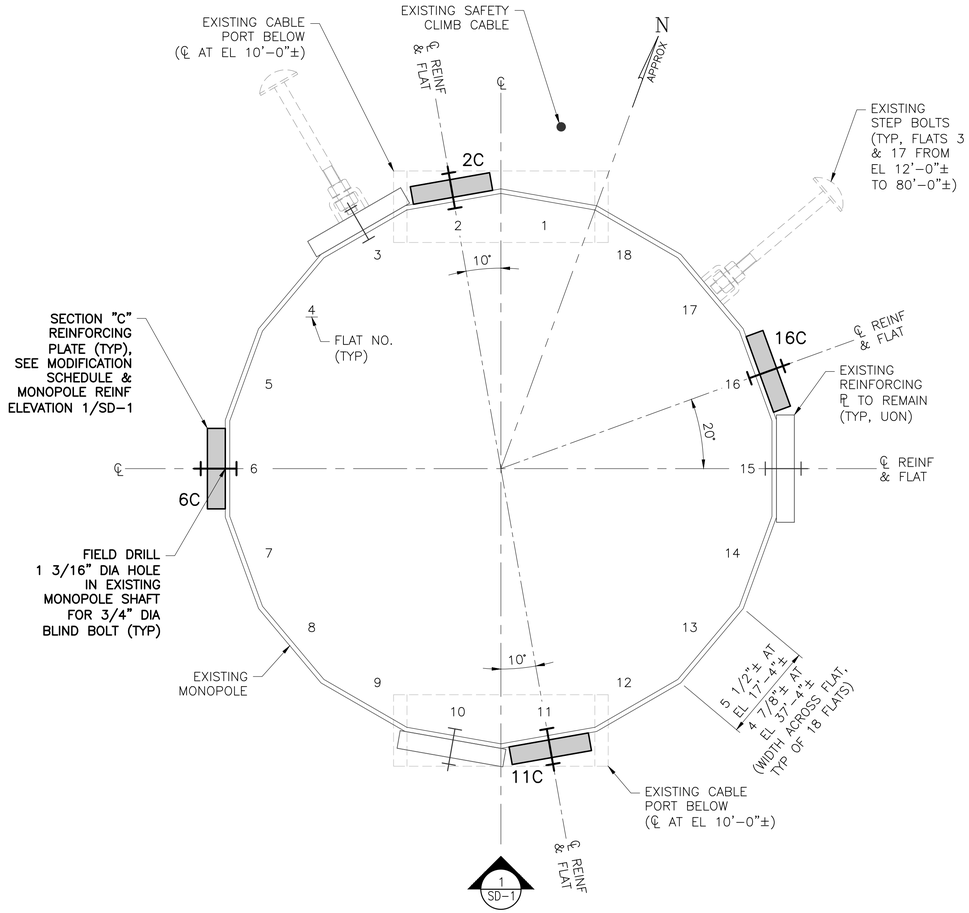
MONOPOLE REINFORCEMENT PLAN & SECTIONS AT BASE PLATE

SHEET NUMBER

SD-2

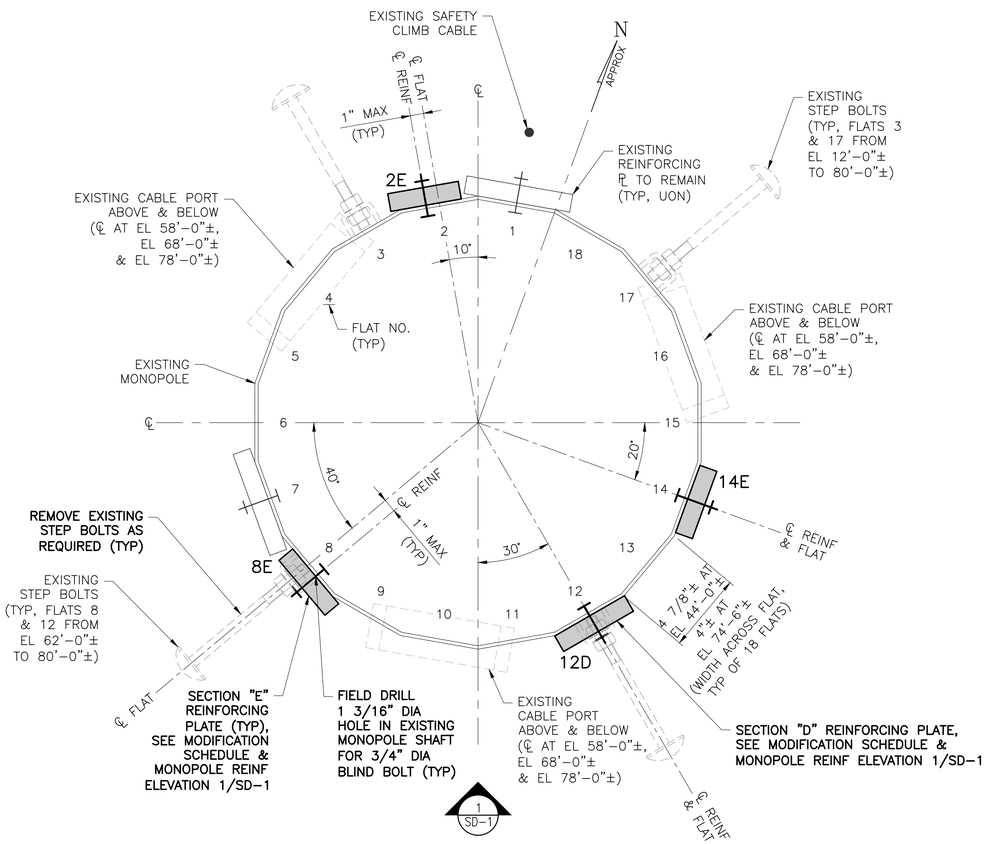
NOTES:

1. REMOVE AND REPLACE EXISTING STEP BOLTS, GROUNDING LUG ANGLES, AND GROUND LEADS AS REQUIRED TO ALLOW FOR INSTALLATION OF THE PROPOSED REINFORCEMENT. SOME EXISTING POLE HARDWARE ITEMS HAVE BEEN OMITTED FOR CLARITY.
2. EXISTING SAFETY CLIMB CABLE SHALL BE TEMPORARILY REMOVED AS REQUIRED TO ALLOW FOR INSTALLATION OF PROPOSED REINFORCEMENT AND REINSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
3. EXISTING ANTENNA CABLES, CABLE ATTACHMENTS, WAVEGUIDE SHIELD, AND OTHER APPURTENANCES NOT SHOWN FOR CLARITY.



1 SD-3 MONOPOLE REINFORCEMENT PLAN AT EL 18'-0"±

SCALE: 3" = 1'-0"



2 SD-3 MONOPOLE REINFORCEMENT PLAN AT EL 60'-0"±

SCALE: 3" = 1'-0"

STATE OF CONNECTICUT · EDWARD N. WAMSLEY · LICENSED PROFESSIONAL ENGINEER · PEN.0026473

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T-Mobile NORTHEAST, LLC.

35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002

NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

APPROVALS

LANDLORD _____
RF _____
CONSTRUCTION _____
OPERATIONS _____
SITE ACQ. _____

PROJECT NUMBER	DESIGNED BY
9927.CTHA151A	EI

REV.	DATE	DESCRIPTION	DRAWN BY
A	10/09/20	FOR COMMENT	BWY
B	11/17/20	PER COMMENTS	BWY
C	08/03/21	ADDED POLE REINF.	MB

ISSUED BY _____ DATE _____

0 1 2 3
ORIGINAL SIZE IN INCHES

SITE INFORMATION

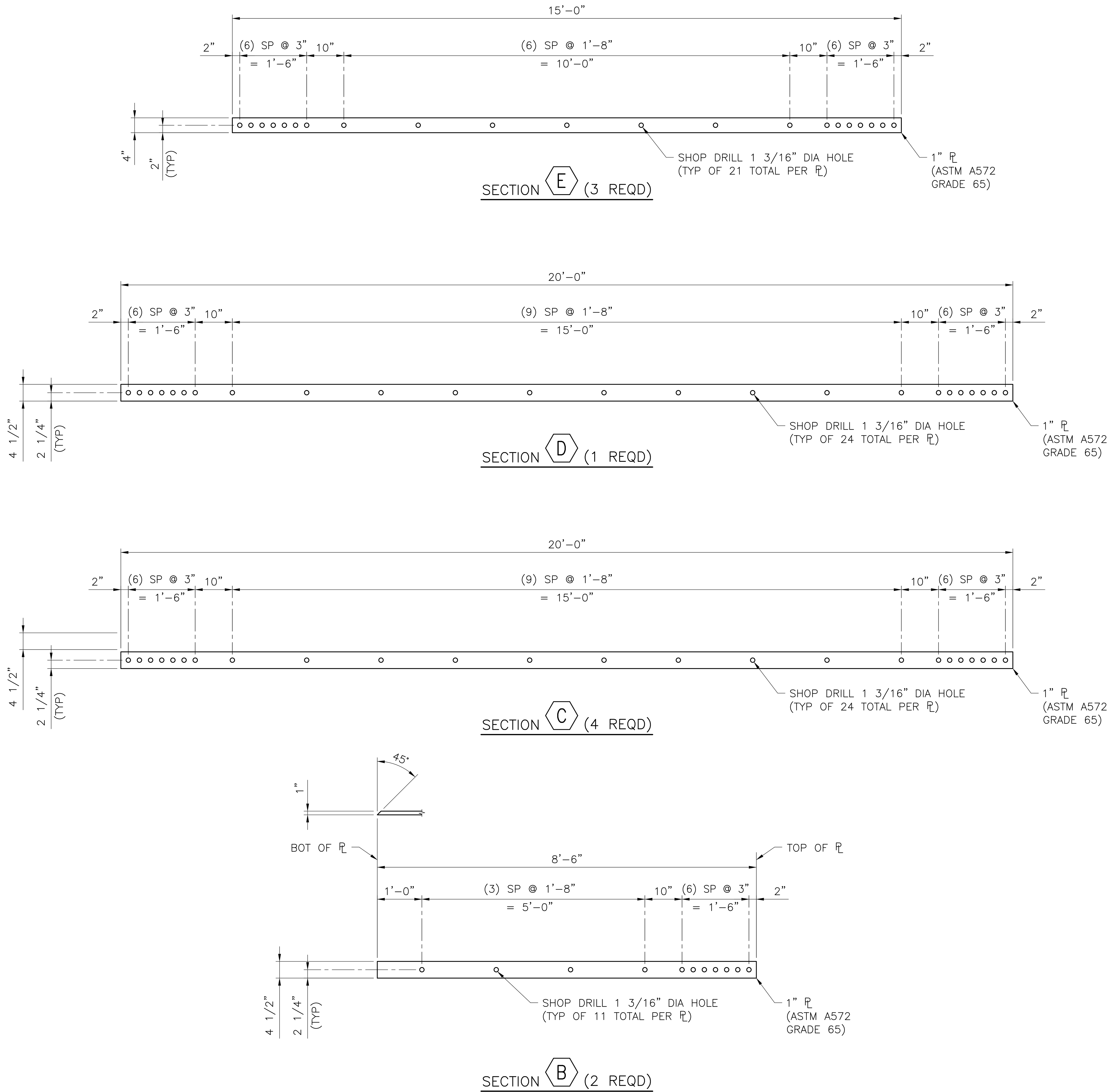
HA151A/BUSHYHILLFD_MP
CTHA151A
345 BUSHY HILL ROAD
SIMSBURY, CT 06070

SHEET TITLE

MONOPOLE REINFORCEMENT PLAN AT EL 18'-0"± & PLAN AT EL 60'-0"±

SHEET NUMBER

SD-3



1 / SD-4 MONOPOLE REINFORCEMENT PLATE DETAILS

SCALE: 3/4" = 1'-0"

STATE OF CONNECTICUT · EDWARD N. IAMICELI · PEN.0026473 · LICENSED · PROFESSIONAL ENGINEER

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T-Mobile
NORTHEAST, LLC.
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002

NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

APPROVALS

LANDLORD ______
RF ______
CONSTRUCTION ______
OPERATIONS ______
SITE ACQ. ______

PROJECT NUMBER	DESIGNED BY
9927.CTHA151A	EI

REV.	DATE	DESCRIPTION	DRAWN BY
A	10/09/20	FOR COMMENT	BWY
B	11/17/20	PER COMMENTS	BWY
C	08/03/21	ADDED POLE REINF.	MB

ISSUED BY	DATE

0 1 2 3
ORIGINAL SIZE IN INCHES

SITE INFORMATION

HA151A/BUSHYHILLFD_MP
CTHA151A
345 BUSHY HILL ROAD
SIMSBURY, CT 06070

SHEET TITLE

MONOPOLE REINFORCEMENT PLATE DETAILS

SHEET NUMBER

SD-4

Exhibit D

Tectonic
PRACTICAL SOLUTIONS. EXCEPTIONAL SERVICE.

S[redacted]UCTURAL MODIFIC[redacted]N ANALYSIS REPORT

[redacted]92[redacted]A151A

[redacted]E "L600 SCOPE"
SITE T[redacted] 115' REINFORCED MONOPOLE

DATE: August 3, 2021
REVISION #: 0

SITE ID #: CTHA151A
SITE NAME: HA151A/BUSHYHILLFD_MP
SITE ADDRESS: 345 BUSHY HILL ROAD,
SIMSBURY, CT 06070

PREPARED FOR: NORTHEAST SITE SOLUTIONS

☐ PASS ☒ PASS WITH MODS ☐ FAIL
99.9% UTILIZATION

APPROVED BY: _____
EDWARD N. IAMICELI, P.E

STATE OF CONNECTICUT
EDWARD N. IAMICELI
PEN.0028473
LICENSED
PROFESSIONAL ENGINEER

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tectonicengineering.com
Equal Opportunity Employer

TABLE OF CONTENTS

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APPENDICE□

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TOWER MODIFICATION REPORT

Project Information

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Proposed T-Mobile Installation

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		3	**Ericson**	**Radio 4449 B12/B71**		
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□□		□	□	□	**Sitepro1 - TCHM3 or sim. (Chain Mount)**	□emp□r□r□ Loca□i□n □**To Be Removed after installtion of platform mount**

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Conclusions

□□□ed □n □□r □n□□□□i□□□e exi□in□ □□□er □nd i□□ □□nd□i□n □□□e □de□□□e □□p□□i□□ □□ □□pp□r□□e pr□p□□ed □M□□i□ in□□□□□□i□n □□ de□ri□ed □erein in □□□□rd□n□e □i□□ □□rren□□□de re□□iremen□ **once the proposed reinforcement has been completed. Based on our site inspection, the existing reinforcement was modifed from the orignal design by Maser Consulting in order to accommodate the site conditions during the installation. As such, all existing modifications and obstructions shall be verified in field by the contractor prior to the ordering of materials.**

□□e exi□in□ □n□enn□ □□□nd□□m□□n□□ □re n□□□□□e □□ □□□□mm□d□e □□e ne□ □M□□i□ in□□□□□□i□n □□□□e □□□□e□e□□□e□e m□□n□□□ □re □□ □e rep□□□ed □i□□ □ □□□□ pr□i□ p□□□□rm□□□e □M□□i□ in□□□□□□i□n m□□□ □e □emp□r□ri□ re□□□□□ed □nd □□pp□r□d □n □ne□ □□□in m□□n□in□□□□□ed □□□□pproxim□□e□ □□□□□□e exi□in□ □□□nd□□□ □□n □□en □e rep□□□ed □nd □□en □□e □M□□i□ e□□ipmen□r□i□ed □□□□□ □□ □□e □□□□e□e□**The temporary chain mount must then be removed for the results of this analysis to be considered valid.** □□e rep□□emen□p□□□□rm □□□□□□e □i□Pr□□ □NP□□R□□□□□□□ee □□e C□n□r□□i□n Dr□□in□□ □□ □e□□ni□ □r m□re de□i□□

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CONNECTICUT DESIGN CRITERIA - STATE

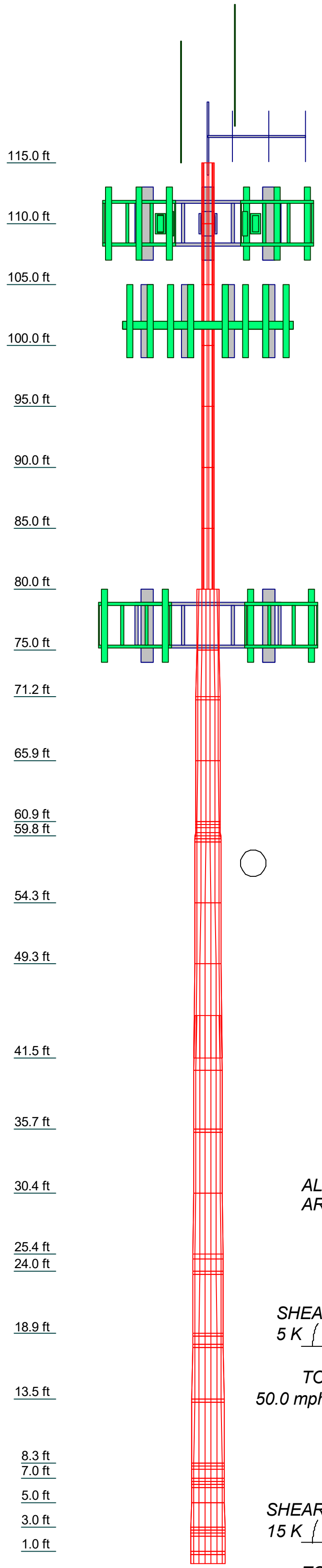
Revison:

CT is NOT a Home Rule State; Tab added only for Design Criteria

(APPENDIX N) MUNICIPALITY - SPECIFIC STRUCTURAL DESIGN PARAMETERS

				Wind Design Parameters					
Municipality	**Ground Snow Load**	**MCE Spectral Accelerations** (%g)		**Ultimate Design Wind Speeds,** V_{ult} (mph)			**Nominal Design Wind Speeds,** V_{asd} (mph)		
		S_s	S_1	Risk Cat.I	Risk Cat.II	Risk Cat III-IV	Risk Cat. I	Risk Cat. II	Risk Cat. III-IV
Andover	30	0.176	0.063	120	130	140	93	101	108
Ansonia	30	0.195	0.064	115	125	135	89	97	105
Ashford	35	0.173	0.063	120	130	140	93	101	108
Avon	35	0.181	0.064	110	120	130	85	93	101
Barkhamsted	40	0.177	0.065	110	120	125	85	93	97
Beacon Falls	30	0.192	0.064	115	125	135	89	97	105
Berlin	30	0.183	0.063	115	125	135	89	97	105
Bethany	30	0.189	0.063	115	125	135	89	97	105
Bethel	30	0.215	0.066	110	120	125	85	93	97
Bethlehem	35	0.190	0.065	110	120	125	85	93	97
Bloomfield	35	0.180	0.064	115	125	130	89	97	101
Simsbury	35	0.179	0.064	110	120	130	85	93	101
Bozrah	30	0.170	0.061	120	135	145	93	105	112
Branford	30	0.180	0.061	120	130	140	93	101	108
Bridgeport	30	0.209	0.064	115	125	135	89	97	105
Bridgewater	35	0.201	0.066	110	120	125	85	93	97
Bristol	35	0.185	0.064	110	120	130	85	93	101
Brookfield	35	0.208	0.066	110	120	125	85	93	97
Brooklyn	35	0.171	0.062	120	130	140	93	101	108
Burlington	35	0.182	0.064	110	120	130	85	93	101
Canaan	40	0.173	0.065	105	115	120	81	89	93
Canterbury	35	0.171	0.061	120	130	140	93	101	108
Canton	35	0.180	0.064	110	120	130	85	93	101
Chaplin	35	0.173	0.062	120	130	140	93	101	108
Cheshire	30	0.186	0.063	115	125	135	89	97	105
Chester	30	0.172	0.060	120	130	140	93	101	108
Clinton	30	0.169	0.059	120	135	140	93	105	108
Colchester	30	0.174	0.061	120	130	140	93	101	108
Colebrook	40	0.174	0.065	105	115	125	81	89	97
Columbia	30	0.175	0.062	120	130	140	93	101	108
Cornwall	40	0.180	0.065	105	115	120	81	89	93
Coventry	30	0.176	0.063	120	130	140	93	101	108
Cromwell	30	0.181	0.063	115	125	135	89	97	105
Danbury	30	0.217	0.067	110	120	125	85	93	97
Darien	30	0.242	0.068	110	120	130	85	93	101
Deep River	30	0.170	0.060	120	130	140	93	101	108
Derby	30	0.195	0.064	115	125	135	89	97	105
Durham	30	0.179	0.062	115	130	140	89	101	108
Eastford	40	0.172	0.063	120	130	140	93	101	108
East Granby	35	0.177	0.065	110	120	130	85	93	101
East Haddam	30	0.172	0.061	120	130	140	93	101	108
East Hampton	30	0.177	0.062	120	130	140	93	101	108

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	5.00	0	0.50		12.75	12.75	A500-42	0.3
2	5.00	0	0.50		12.75	12.75	A500-42	0.3
3	5.00	0	0.63		12.75	12.75	A500-42	0.4
4	5.00	0	0.63		12.75	12.75	A500-42	0.4
5	5.00	0	0.63		12.75	12.75	A500-42	0.4
6	5.00	0	0.63		12.75	12.75	A500-42	0.4
7	5.00	0	0.63		12.75	12.75	A500-42	0.4
8	5.00	18	0.19		22.00	22.74	A607-65	0.2
9	3.83	18	0.19		22.74	23.31	A607-65	0.2
10	[illegible]	18	0.40		[illegible]	[illegible]	A607-65	0.0
11	5.00	18	0.39		23.34	24.08	A607-65	0.5
12	5.00	18	0.39		24.08	24.82	A607-65	0.5
13–18	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	A607-65	[illegible]
19	5.00	18	0.39		25.07	25.81	A607-65	0.5
20	5.00	18	0.39		25.81	26.55	A607-65	0.5
21	7.75	18	0.38	3.50	26.55	27.70	A607-65	0.9
22	4.50	18	0.25		26.81	27.47	A607-65	0.3
23	4.83	18	0.25		27.47	28.19	A607-65	0.4
24	0.25	18	0.49		[illegible]	[illegible]	A607-65	0.0
25	5.00	18	0.48		28.23	28.97	A607-65	0.7
26	5.00	18	0.47		28.97	29.71	A607-65	0.7
27–29	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	A607-65	[illegible]
30	4.84	18	0.31		[illegible]	[illegible]	A607-65	0.6
31–33	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	A607-65	[illegible]
34	4.25	18	0.41		[illegible]	[illegible]	A607-65	0.6
35	0.25	18	0.46		31.47	[illegible]	A607-65	0.0
36	5.00	18	0.45		31.51	32.25	A607-65	0.7
37+	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	A607-65	[illegible]



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
10' x 3" Whip	115	Junction Boxes	102
3' Stand-off	115	Junction Boxes	102
15'x4" Whip	115	VZS01 w/ Mount Pipe	102
DB201-A	115	VZS01 w/ Mount Pipe	102
ANT220D3	115	VZS01 w/ Mount Pipe	102
(2) EPBQ-654L8H8_TIA w/ Mount Pipe	110	(2) SBNHH-1D65B w/ Mount Pipe	102
(2) EPBQ-654L8H8_TIA w/ Mount Pipe	110	(2) SBNHH-1D65B w/ Mount Pipe	102
(2) EPBQ-654L8H8_TIA w/ Mount Pipe	110	(2) SBNHH-1D65B w/ Mount Pipe	102
HPA65R-BU8A_TIA w/ Mount Pipe	110	BXA-171063-12CF-EDIN-2 w/ Mount Pipe	102
HPA65R-BU8A_TIA w/ Mount Pipe	110	BXA-171063-12CF-EDIN-2 w/ Mount Pipe	102
HPA65R-BU8A_TIA w/ Mount Pipe	110	BXA-171063-12CF-EDIN-2 w/ Mount Pipe	102
RADIO 4415 B30	110	4' x 2" STD Pipe	102
RADIO 4415 B30	110	4' x 2" STD Pipe	102
RADIO 4415 B30	110	4' x 2" STD Pipe	102
RRUS 4449 B5/B12	110	T-ARM MOUNT REINFORCEMENT	102
RRUS 4449 B5/B12	110	T-ARM MOUNT	102
RRUS 4449 B5/B12	110	APX16DWVS-16DWVS w/ Mount pipe	77
RRUS 4478 B14	110	APX16DWVS-16DWVS w/ Mount pipe	77
RRUS 4478 B14	110	APX16DWVS-16DWVS w/ Mount pipe	77
RRUS 4478 B14	110	APXVAARR24_43-U-NA20_TIA w/ Mount Pipe	77
RRUS 8843 B2/B66A	110	APXVAARR24_43-U-NA20_TIA w/ Mount Pipe	77
RRUS 8843 B2/B66A	110	APXVAARR24_43-U-NA20_TIA w/ Mount Pipe	77
RRUS 8843 B2/B66A	110	RADIO 4449 B12/B71	77
DC6-48-60-18-8F	110	RADIO 4449 B12/B71	77
DC6-48-60-18-8F	110	RADIO 4449 B12/B71	77
DC6-48-60-18-8F	110	Valmont SNP8-HRA8	77
RRUS E2 B29	110	Twin Style TMA	77
RRUS E2 B29	110	Twin Style TMA	77
RRUS E2 B29	110	Twin Style TMA	77
Sabre 12' V-Boom (C10857001C)	110		
B2/B66 RRH-BR049	102		
B2/B66 RRH-BR049	102		
B2/B66 RRH-BR049	102		
B5/B13 RRH-BR04C	102		
B5/B13 RRH-BR04C	102		
B5/B13 RRH-BR04C	102		

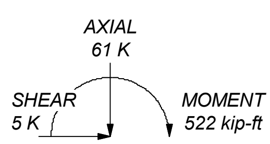
MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A500-42	42 ksi	58 ksi	A607-65	65 ksi	80 ksi

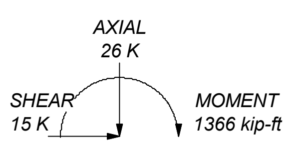
TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 93.0 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50.0 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60.0 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft

ALL REACTIONS ARE FACTORED



TORQUE 0 kip-ft
50.0 mph WIND - 1.00 in ICE



TORQUE 0 kip-ft
REACTIONS - 93.0 mph WIND

Tectonic
PRACTICAL SOLUTIONS. EXCEPTIONAL SERVICE.
Tectonic
1279 Route 300
Newburgh, NY 12550
Phone: (845) 567-6656
FAX: (845) 567-8703

Job: ***9927.CTHA151A - Monopole Reinforcement***		
Project: ***115' Monopole***		
Client: T-Mobile	Drawn by: Ian Marinaccio	App'd:
Code: TIA-222-G	Date: 08/03/21	Scale: NTS
Path: G:\Newburgh\Projects\9927 NSS-L600 project\CTHA151A\Structural\Tower\Reinf - Rev 0\CTHA151A - TowerMod.eri		Dwg No. E-1

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Newburgh, NY 12550
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Job	**Page**
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Project	**Date**
□□□□M□n□p□e	□□□□□□□□ □□□□□□□□
Client	**Designed by**
□□M□□i□e	I□n M□rin□□□i□

Tower Input Data

The tower is a monopole.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

Tower is located in Hartford County, Connecticut.
Basic wind speed of 93.0 mph.
Structure Class II.
Exposure Category B.
Topographic Category 1.
Crest Height 0.00 ft.
Nominal ice thickness of 1.00 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50.0 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60.0 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs	Distribute Leg Loads As Uniform	Use ASCE 10 X-Brace Ly Rules
Consider Moments - Horizontals	Assume Legs Pinned	√ Calculate Redundant Bracing Forces
Consider Moments - Diagonals	√ Assume Rigid Index Plate	Ignore Redundant Members in FEA
Use Moment Magnification	√ Use Clear Spans For Wind Area	SR Leg Bolts Resist Compression
√ Use Code Stress Ratios	√ Use Clear Spans For KL/r	All Leg Panels Have Same Allowable
Use Code Safety Factors - Guys	Retension Guys To Initial Tension	Offset Girt At Foundation
Escalate Ice	Bypass Mast Stability Checks	√ Consider Feed Line Torque
Always Use Max Kz	Use Azimuth Dish Coefficients	Include Angle Block Shear Check
Use Special Wind Profile	√ Project Wind Area of Appurt.	Use TIA-222-G Bracing Resist. Exemption
Include Bolts In Member Capacity	√ Autocalc Torque Arm Areas	Use TIA-222-G Tension Splice Exemption
Leg Bolts Are At Top Of Section	Add IBC .6D+W Combination	Poles
Secondary Horizontal Braces Leg	√ Sort Capacity Reports By Component	√ Include Shear-Torsion Interaction
Use Diamond Inner Bracing (4 Sided)	Triangulate Diamond Inner Bracing	Always Use Sub-Critical Flow
SR Members Have Cut Ends	Treat Feed Line Bundles As Cylinder	Use Top Mounted Sockets
SR Members Are Concentric	Ignore KL/ry For 60 Deg. Angle Legs	Pole Without Linear Attachments
		Pole With Shroud Or No Appurtenances
		Outside and Inside Corner Radii Are Known

Tapered Pole Section Geometry

Section	*Elevation*	*Section Length*	*Splice Length*	*Number of Sides*	*Top Diameter*	*Bottom Diameter*	*Wall Thickness*	*Bend Radius*	*Pole Grade*
	ft	*ft*	*ft*		*in*	*in*	*in*	*in*	
L1	115.00-110.00	5.00	0.00	Round	12.75	12.75	0.50		A500-42

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Job	Page
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Project	**Date**
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Client	**Designed by**
□□M□□i□e	I□n M□rin□□□i□

Section	*Elevation* ft	*Section Length* ft	*Splice Length* ft	*Number of Sides*	*Top Diameter* in	*Bottom Diameter* in	*Wall Thickness* in	*Bend Radius* in	*Pole Grade*
									(42 ksi)
L2	110.00-105.00	5.00	0.00	Round	12.75	12.75	0.50		A500-42 (42 ksi)
L3	105.00-100.00	5.00	0.00	Round	12.75	12.75	0.63		A500-42 (42 ksi)
L4	100.00-95.00	5.00	0.00	Round	12.75	12.75	0.63		A500-42 (42 ksi)
L5	95.00-90.00	5.00	0.00	Round	12.75	12.75	0.63		A500-42 (42 ksi)
L6	90.00-85.00	5.00	0.00	Round	12.75	12.75	0.63		A500-42 (42 ksi)
L7	85.00-80.00	5.00	0.00	Round	12.75	12.75	0.63		A500-42 (42 ksi)
L8	80.00-75.00	5.00	0.00	18	22.00	22.74	0.19	0.75	A607-65 (65 ksi)
L9	75.00-71.17	3.83	0.00	18	22.74	23.31	0.19	0.75	A607-65 (65 ksi)
L10	71.17-70.92	0.25	0.00	18	23.31	23.34	0.40	1.60	A607-65 (65 ksi)
L11	70.92-65.92	5.00	0.00	18	23.34	24.08	0.39	1.58	A607-65 (65 ksi)
L12	65.92-60.92	5.00	0.00	18	24.08	24.82	0.39	1.55	A607-65 (65 ksi)
L13	60.92-60.67	0.25	0.00	18	24.82	24.86	0.39	1.55	A607-65 (65 ksi)
L14	60.67-60.42	0.25	0.00	18	24.86	24.90	0.39	1.55	A607-65 (65 ksi)
L15	60.42-60.00	0.42	0.00	18	24.90	24.96	0.39	1.55	A607-65 (65 ksi)
L16	60.00-59.75	0.25	0.00	18	24.96	25.00	0.57	2.30	A607-65 (65 ksi)
L17	59.75-59.50	0.25	0.00	18	25.00	25.04	0.57	2.30	A607-65 (65 ksi)
L18	59.50-59.25	0.25	0.00	18	25.04	25.07	0.40	1.60	A607-65 (65 ksi)
L19	59.25-54.25	5.00	0.00	18	25.07	25.81	0.39	1.55	A607-65 (65 ksi)
L20	54.25-49.25	5.00	0.00	18	25.81	26.55	0.39	1.55	A607-65 (65 ksi)
L21	49.25-41.50	7.75	3.50	18	26.55	27.70	0.38	1.50	A607-65 (65 ksi)
L22	41.50-40.50	4.50	0.00	18	26.81	27.47	0.25	1.00	A607-65 (65 ksi)
L23	40.50-35.67	4.83	0.00	18	27.47	28.19	0.25	1.00	A607-65 (65 ksi)
L24	35.67-35.42	0.25	0.00	18	28.19	28.23	0.49	1.95	A607-65 (65 ksi)
L25	35.42-30.42	5.00	0.00	18	28.23	28.97	0.48	1.93	A607-65 (65 ksi)
L26	30.42-25.42	5.00	0.00	18	28.97	29.71	0.47	1.90	A607-65 (65 ksi)
L27	25.42-25.00	0.42	0.00	18	29.71	29.77	0.47	1.90	A607-65 (65 ksi)
L28	25.00-24.00	1.00	0.00	18	29.77	29.92	0.47	1.90	A607-65 (65 ksi)
L29	24.00-23.75	0.25	0.00	18	29.92	29.95	0.49	1.95	A607-65 (65 ksi)
L30	23.75-18.91	4.84	0.00	18	29.95	30.67	0.31	1.23	A607-65 (65 ksi)
L31	18.91-18.66	0.25	0.00	18	30.67	30.71	0.31	1.23	A607-65 (65 ksi)

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Job	**Page**
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Project	**Date**
□□□□M□n□p□e	□□□□□□□□ □□□□□□□□
Client	**Designed by**
□□M□□i□e	I□n M□rin□□□i□

Section	*Elevation*	*Section Length*	*Splice Length*	*Number of Sides*	*Top Diameter*	*Bottom Diameter*	*Wall Thickness*	*Bend Radius*	*Pole Grade*
	ft	*ft*	*ft*		*in*	*in*	*in*	*in*	
L32	18.66-18.00	0.66	0.00	18	30.71	30.81	0.31	1.23	A607-65 (65 ksi)
L33	18.00-17.75	0.25	0.00	18	30.81	30.84	0.41	1.65	A607-65 (65 ksi)
L34	17.75-13.50	4.25	0.00	18	30.84	31.47	0.41	1.65	A607-65 (65 ksi)
L35	13.50-13.25	0.25	0.00	18	31.47	31.51	0.46	1.83	A607-65 (65 ksi)
L36	13.25-8.25	5.00	0.00	18	31.51	32.25	0.45	1.80	A607-65 (65 ksi)
L37	8.25-8.00	0.25	0.00	18	32.25	32.29	0.45	1.80	A607-65 (65 ksi)
L38	8.00-7.75	0.25	0.00	18	32.29	32.32	0.49	1.95	A607-65 (65 ksi)
L39	7.75-7.00	0.75	0.00	18	32.32	32.43	0.49	1.95	A607-65 (65 ksi)
L40	7.00-6.73	0.27	0.00	18	32.43	32.47	0.46	1.85	A607-65 (65 ksi)
L41	6.73-6.48	0.25	0.00	18	32.47	32.51	0.40	1.60	A607-65 (65 ksi)
L42	6.48-6.25	0.23	0.00	18	32.51	32.55	0.40	1.60	A607-65 (65 ksi)
L43	6.25-5.00	1.25	0.00	18	32.55	32.73	0.40	1.60	A607-65 (65 ksi)
L44	5.00-3.00	2.00	0.00	18	32.73	33.03	0.40	1.60	A607-65 (65 ksi)
L45	3.00-2.75	0.25	0.00	18	33.03	33.06	0.50	2.00	A607-65 (65 ksi)
L46	2.75-2.50	0.25	0.00	18	33.06	33.10	0.50	2.00	A607-65 (65 ksi)
L47	2.50-2.25	0.25	0.00	18	33.10	33.14	0.35	1.40	A607-65 (65 ksi)
L48	2.25-1.00	1.25	0.00	18	33.14	33.32	0.35	1.40	A607-65 (65 ksi)
L49	1.00-0.75	0.25	0.00	18	33.32	33.36	0.35	1.40	A607-65 (65 ksi)
L50	0.75-0.00	0.75		18	33.36	33.47	0.47	1.90	A607-65 (65 ksi)

Tapered Pole Properties

Section	*Tip Dia.*	*Area*	*I*	*r*	*C*	*I/C*	*J*	*It/Q*	*w*	*w/t*
	in	in^2	in^4	*in*	*in*	in^3	in^4	in^2	*in*	
L1	12.75	19.24	361.54	4.33	6.38	56.71	723.09	9.62	0.00	0
	12.75	19.24	361.54	4.33	6.38	56.71	723.09	9.62	0.00	0
L2	12.75	19.24	361.54	4.33	6.38	56.71	723.09	9.62	0.00	0
	12.75	19.24	361.54	4.33	6.38	56.71	723.09	9.62	0.00	0
L3	12.75	23.81	438.67	4.29	6.38	68.81	877.34	11.90	0.00	0
	12.75	23.81	438.67	4.29	6.38	68.81	877.34	11.90	0.00	0
L4	12.75	23.81	438.67	4.29	6.38	68.81	877.34	11.90	0.00	0
	12.75	23.81	438.67	4.29	6.38	68.81	877.34	11.90	0.00	0
L5	12.75	23.81	438.67	4.29	6.38	68.81	877.34	11.90	0.00	0
	12.75	23.81	438.67	4.29	6.38	68.81	877.34	11.90	0.00	0
L6	12.75	23.81	438.67	4.29	6.38	68.81	877.34	11.90	0.00	0
	12.75	23.81	438.67	4.29	6.38	68.81	877.34	11.90	0.00	0
L7	12.75	23.81	438.67	4.29	6.38	68.81	877.34	11.90	0.00	0

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Project	**Date**
□□□□M□n□p□□e	□□□□□□□□□ □□□□□□□□□
Client	**Designed by**
□□M□□i□e	I□n M□rin□□□i□

Section	*Tip Dia.*	*Area*	*I*	*r*	*C*	*I/C*	*J*	*It/Q*	*w*	*w/t*
	in	*in²*	*in⁴*	*in*	*in*	*in³*	*in⁴*	*in²*	*in*	
	12.75	23.81	438.67	4.29	6.38	68.81	877.34	11.90	0.00	0
L8	22.31	12.98	780.30	7.74	11.18	69.82	1561.63	6.49	3.54	18.891
	23.06	13.42	862.47	8.01	11.55	74.66	1726.08	6.71	3.67	19.586
L9	23.06	13.42	862.47	8.01	11.55	74.66	1726.08	6.71	3.67	19.586
	23.64	13.76	929.18	8.21	11.84	78.48	1859.57	6.88	3.77	20.118
L10	23.61	29.08	1928.08	8.13	11.84	162.84	3858.71	14.54	3.40	8.495
	23.64	29.13	1937.45	8.15	11.86	163.37	3877.44	14.57	3.40	8.511
L11	23.64	28.68	1908.73	8.15	11.86	160.95	3819.98	14.34	3.42	8.675
	24.40	29.61	2099.45	8.41	12.23	171.59	4201.66	14.81	3.55	9.005
L12	24.40	29.15	2067.76	8.41	12.23	169.00	4138.24	14.58	3.56	9.179
	25.15	30.06	2267.66	8.68	12.61	179.82	4538.30	15.03	3.69	9.515
L13	25.15	30.06	2267.66	8.68	12.61	179.82	4538.30	15.03	3.69	9.515
	25.19	30.10	2277.98	8.69	12.63	180.36	4558.95	15.05	3.69	9.532
L14	25.19	30.10	2277.98	8.69	12.63	180.36	4558.95	15.05	3.69	9.532
	25.22	30.15	2288.33	8.70	12.65	180.92	4579.67	15.08	3.70	9.549
L15	25.22	30.15	2288.33	8.70	12.65	180.92	4579.67	15.08	3.70	9.549
	25.29	30.22	2305.79	8.72	12.68	181.84	4614.61	15.11	3.71	9.577
L16	25.26	44.51	3343.77	8.66	12.68	263.70	6691.93	22.26	3.38	5.88
	25.29	44.57	3359.02	8.67	12.70	264.51	6722.45	22.29	3.39	5.892
L17	25.29	44.57	3359.02	8.67	12.70	264.51	6722.45	22.29	3.39	5.892
	25.33	44.64	3374.31	8.68	12.72	265.32	6753.06	22.32	3.39	5.903
L18	25.36	31.28	2398.09	8.75	12.72	188.56	4799.34	15.64	3.70	9.255
	25.40	31.32	2408.92	8.76	12.74	189.13	4821.00	15.66	3.71	9.272
L19	25.40	30.36	2337.19	8.76	12.74	183.50	4677.45	15.18	3.73	9.628
	26.15	31.27	2553.82	9.03	13.11	194.76	5111.00	15.64	3.86	9.964
L20	26.15	31.27	2553.82	9.03	13.11	194.76	5111.00	15.64	3.86	9.964
	26.90	32.18	2783.45	9.29	13.49	206.35	5570.56	16.09	3.99	10.3
L21	26.90	31.16	2697.52	9.29	13.49	199.98	5398.59	15.58	4.01	10.702
	28.07	32.52	3068.01	9.70	14.07	218.03	6140.05	16.26	4.22	11.241
L22	27.71	21.07	1877.64	9.43	13.62	137.88	3757.75	10.54	4.28	17.112
	27.86	21.60	2022.64	9.66	13.96	144.92	4047.93	10.80	4.40	17.581
L23	27.86	21.60	2022.64	9.66	13.96	144.92	4047.93	10.80	4.40	17.581
	28.58	22.17	2186.25	9.92	14.32	152.67	4375.38	11.09	4.52	18.085
L24	28.55	42.86	4155.40	9.83	14.32	290.18	8316.26	21.44	4.10	8.417
	28.59	42.92	4172.09	9.85	14.34	290.97	8349.66	21.46	4.11	8.43
L25	28.59	42.38	4121.38	9.85	14.34	287.43	8248.19	21.19	4.12	8.563
	29.34	43.51	4460.41	10.11	14.71	303.12	8926.68	21.76	4.25	8.833
L26	29.34	42.96	4405.38	10.11	14.71	299.38	8816.55	21.48	4.26	8.973
	30.09	44.07	4758.02	10.38	15.09	315.28	9522.30	22.04	4.39	9.247
L27	30.09	44.07	4758.02	10.38	15.09	315.28	9522.30	22.04	4.39	9.247
	30.16	44.17	4788.71	10.40	15.12	316.65	9583.72	22.09	4.40	9.271
L28	30.16	44.17	4788.71	10.40	15.12	316.65	9583.72	22.09	4.40	9.271
	30.31	44.39	4861.66	10.45	15.20	319.88	9729.71	22.20	4.43	9.325
L29	30.30	45.54	4983.24	10.45	15.20	327.88	9973.04	22.77	4.41	9.041
	30.34	45.60	5002.06	10.46	15.22	328.71	10010.70	22.80	4.41	9.055
L30	30.37	28.82	3200.66	10.53	15.22	210.33	6405.53	14.41	4.73	15.455
	31.10	29.52	3438.46	10.78	15.58	220.68	6881.45	14.76	4.86	15.867
L31	31.10	29.52	3438.46	10.78	15.58	220.68	6881.45	14.76	4.86	15.867
	31.14	29.55	3451.05	10.79	15.60	221.22	6906.64	14.78	4.87	15.888
L32	31.14	29.55	3451.05	10.79	15.60	221.22	6906.64	14.78	4.87	15.888
	31.23	29.65	3484.25	10.83	15.65	222.64	6973.08	14.83	4.88	15.944
L33	31.22	39.79	4644.20	10.79	15.65	296.76	9294.50	19.90	4.70	11.384
	31.26	39.84	4661.18	10.80	15.67	297.49	9328.49	19.92	4.70	11.4
L34	31.26	39.84	4661.18	10.80	15.67	297.49	9328.49	19.92	4.70	11.4
	31.89	40.67	4956.23	11.03	15.99	310.00	9918.99	20.34	4.81	11.668
L35	31.89	44.92	5458.76	11.01	15.99	341.43	10924.71	22.46	4.74	10.38
	31.92	44.97	5478.32	11.02	16.01	342.25	10963.85	22.49	4.74	10.395
L36	31.93	44.36	5406.54	11.03	16.01	337.77	10820.19	22.18	4.75	10.564
	32.68	45.42	5802.26	11.29	16.38	354.17	11612.16	22.71	4.88	10.853
L37	32.68	45.42	5802.26	11.29	16.38	354.17	11612.16	22.71	4.88	10.853
	32.71	45.47	5822.54	11.30	16.40	355.00	11652.74	22.74	4.89	10.867
L38	32.71	49.20	6285.49	11.29	16.40	383.23	12579.24	24.61	4.82	9.896

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Client	**Designed by**
□□M□□i□e	I□n M□rin□□□i□

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
	32.75	49.26	6307.45	11.30	16.42	384.13	12623.21	24.63	4.83	9.909
L39	32.75	49.26	6307.45	11.30	16.42	384.13	12623.21	24.63	4.83	9.909
	32.86	49.43	6373.66	11.34	16.48	386.83	12755.71	24.72	4.85	9.95
L40	32.86	46.93	6061.01	11.35	16.48	367.86	12130.00	23.47	4.89	10.582
	32.90	46.99	6083.49	11.36	16.50	368.77	12174.98	23.50	4.90	10.597
L41	32.91	40.72	5292.27	11.39	16.50	320.81	10591.51	20.36	5.01	12.528
	32.95	40.77	5310.61	11.40	16.52	321.56	10628.20	20.39	5.02	12.545
L42	32.95	40.77	5310.61	11.40	16.52	321.56	10628.20	20.39	5.02	12.545
	32.99	40.81	5327.76	11.41	16.53	322.25	10662.53	20.41	5.02	12.56
L43	32.99	40.81	5327.76	11.41	16.53	322.25	10662.53	20.41	5.02	12.56
	33.17	41.05	5420.28	11.48	16.63	326.00	10847.69	20.53	5.06	12.641
L44	33.17	41.05	5420.28	11.48	16.63	326.00	10847.69	20.53	5.06	12.641
	33.47	41.42	5570.52	11.58	16.78	332.03	11148.37	20.71	5.11	12.771
L45	33.46	51.62	6899.32	11.55	16.78	411.23	13807.72	25.81	4.93	9.865
	33.50	51.68	6922.89	11.56	16.80	412.17	13854.89	25.84	4.94	9.878
L46	33.50	51.68	6922.89	11.56	16.80	412.17	13854.89	25.84	4.94	9.878
	33.53	51.74	6946.52	11.57	16.81	413.12	13902.18	25.87	4.95	9.891
L47	33.56	36.38	4929.99	11.63	16.81	293.19	9866.47	18.19	5.21	14.885
	33.59	36.42	4946.72	11.64	16.83	293.86	9899.95	18.22	5.22	14.903
L48	33.59	36.42	4946.72	11.64	16.83	293.86	9899.95	18.22	5.22	14.903
	33.78	36.63	5030.93	11.71	16.93	297.20	10068.48	18.32	5.25	14.996
L49	33.78	36.63	5030.93	11.71	16.93	297.20	10068.48	18.32	5.25	14.996
	33.82	36.67	5047.89	11.72	16.95	297.87	10102.41	18.34	5.26	15.015
L50	33.80	49.58	6773.17	11.67	16.95	399.68	13555.25	24.79	5.04	10.6
	33.91	49.74	6841.99	11.71	17.00	402.40	13692.98	24.88	5.05	10.642

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 115.00-110.00				1	1	1			
L2 110.00-105.00				1	1	1			
L3 105.00-100.00				1	1	1			
L4 100.00-95.00				1	1	1			
L5 95.00-90.00				1	1	1			
L6 90.00-85.00				1	1	1			
L7 85.00-80.00				1	1	1			
L8 80.00-75.00				1	1	1			
L9 75.00-71.17				1	1	1			
L10 71.17-70.92				1	1	0.936546			
L11 70.92-65.92				1	1	0.936312			
L12 65.92-60.92				1	1	0.937008			
L13 60.92-60.67				1	1	0.936322			
L14 60.67-60.42				1	1	1.08491			
L15 60.42-60.00				1	1	1.08339			
L16 60.00-59.75				1	1	1.00433			
L17 59.75-59.50				1	1	1.00331			
L18				1	1	0.999565			

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Client	**Designed by**
[illegible]	[illegible]

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
59.50-59.25									
L19				1	1	1.01535			
59.25-54.25									
L20				1	1	1.00031			
54.25-49.25									
L21				1	1	1.02065			
49.25-41.50									
L22				1	1	1			
41.50-40.50									
L23				1	1	1			
40.50-35.67									
L24				1	1	0.936611			
35.67-35.42									
L25				1	1	0.937403			
35.42-30.42									
L26				1	1	0.938804			
30.42-25.42									
L27				1	1	0.937921			
25.42-25.00									
L28				1	1	0.935852			
25.00-24.00									
L29				1	1	1.04334			
24.00-23.75									
L30				1	1	1.22441			
23.75-18.91									
L31				1	1	1.22391			
18.91-18.66									
L32				1	1	1.22261			
18.66-18.00									
L33				1	1	1.0611			
18.00-17.75									
L34				1	1	1.05188			
17.75-13.50									
L35				1	1	0.951878			
13.50-13.25									
L36 13.25-8.25				1	1	0.955378			
L37 8.25-8.00				1	1	0.954914			
L38 8.00-7.75				1	1	1.04448			
L39 7.75-7.00				1	1	1.04263			
L40 7.00-6.73				1	1	1.0336			
L41 6.73-6.48				1	1	1.3393			
L42 6.48-6.25				1	1	1.33853			
L43 6.25-5.00				1	1	1.33445			
L44 5.00-3.00				1	1	1.32801			
L45 3.00-2.75				1	1	1.14244			
L46 2.75-2.50				1	1	1.14171			
L47 2.50-2.25				1	1	1.40287			
L48 2.25-1.00				1	1	1.399			
L49 1.00-0.75				1	1	1.39824			
L50 0.75-0.00				1	1	0.891764			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

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Project	**Date**
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Client	**Designed by**
□□M□□i□e	I□n M□rin□□□i□

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
*										
PL1"x4"	A	No	Surface Af (CaAa)	68.75 - 58.75	1	1	0.000 0.000	4.00	10.00	0.00
PL1"x4"	B	No	Surface Af (CaAa)	68.75 - 58.75	1	1	0.000 0.000	4.00	10.00	0.00
PL1"x4"	C	No	Surface Af (CaAa)	68.75 - 58.75	1	1	0.000 0.000	4.00	10.00	0.00
PL1"x6"	A	No	Surface Af (CaAa)	62.50 - 42.50	1	1	0.000 0.000	6.00	14.00	0.00
PL1"x6"	B	No	Surface Af (CaAa)	62.50 - 42.50	1	1	0.000 0.000	6.00	14.00	0.00
PL1"x6"	C	No	Surface Af (CaAa)	62.50 - 42.50	1	1	0.000 0.000	6.00	14.00	0.00
PL1"x6"	A	No	Surface Af (CaAa)	39.50 - 14.50	1	1	0.000 0.000	6.00	14.00	0.00
PL1"x6"	B	No	Surface Af (CaAa)	39.50 - 14.50	1	1	0.000 0.000	6.00	14.00	0.00
PL1"x6"	C	No	Surface Af (CaAa)	39.50 - 14.50	1	1	0.000 0.000	6.00	14.00	0.00
PL1"x6"	C	No	Surface Af (CaAa)	25.00 - 10.00	1	1	0.000 0.000	6.00	14.00	0.00
PL1"x6"	B	No	Surface Af (CaAa)	19.00 - 4.00	1	1	0.000 0.000	6.00	14.00	0.00
PL1"x6"	A	No	Surface Af (CaAa)	18.50 - 3.50	1	1	0.000 0.000	6.00	14.00	0.00
PL1"x6"	C	No	Surface Af (CaAa)	14.00 - 4.00	1	1	0.000 0.000	6.00	14.00	0.00
PL1"x6"	A	No	Surface Af (CaAa)	12.00 - 2.00	1	1	0.000 0.000	6.00	14.00	0.00
PL1"x6"	A	No	Surface Af (CaAa)	12.00 - 2.00	1	1	0.000 0.000	6.00	14.00	0.00
PL1"x6"	C	No	Surface Af (CaAa)	10.00 - 0.00	1	1	0.000 0.000	6.00	14.00	0.00
PL1"x6"	B	No	Surface Af (CaAa)	10.00 - 0.00	1	1	0.000 0.000	6.00	14.00	0.00
PL1"x6"	A	No	Surface Af (CaAa)	1.00 - 0.00	1	1	0.000 0.000	6.00	14.00	0.00
PL1"x4.5"	A	No	Surface Af (CaAa)	35.67 - 19.00	1	1	0.000 0.000	4.50	11.00	0.00
PL1"x4.5"	B	No	Surface Af (CaAa)	35.67 - 19.00	1	1	0.000 0.000	4.50	11.00	0.00
PL1"x4.5"	C	No	Surface Af (CaAa)	35.67 - 19.00	1	1	0.250 0.250	4.50	11.00	0.00
PL1"x4.5"	C	No	Surface Af (CaAa)	35.67 - 19.00	1	1	-0.250 -0.250	4.50	11.00	0.00
PL1"x4.5"	A	No	Surface Af (CaAa)	8.50 - 0.00	1	1	0.000 0.000	4.50	11.00	0.00
PL1"x4.5"	C	No	Surface Af (CaAa)	8.50 - 0.00	1	1	0.000 0.000	4.50	11.00	0.00

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
LCF78-50JA(7/8)	B	No	No	Inside Pole	115.00 - 8.00	3	No Ice	0.00	0.32

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Project	**Date**
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Client	**Designed by**
□□M□□i□e	I□n M□rin□□□i□

Description	*Face or Leg*	*Allow Shield*	*Exclude From Torque Calculation*	*Component Type*	*Placement* *ft*	*Total Number*		C_AA_A *ft²/ft*	*Weight* *plf*
							1/2" Ice	0.00	0.32
							1" Ice	0.00	0.32
FLC 12-50J(1/2")	B	No	No	Inside Pole	115.00 - 8.00	1	No Ice	0.00	0.17
							1/2" Ice	0.00	0.17
							1" Ice	0.00	0.17
FLC 158-50J(1-5/8")	B	No	No	Inside Pole	115.00 - 8.00	1	No Ice	0.00	0.92
							1/2" Ice	0.00	0.92
							1" Ice	0.00	0.92
***									
1/2" DC Cable	C	No	No	Inside Pole	110.00 - 8.00	6	No Ice	0.00	0.12
							1/2" Ice	0.00	0.12
							1" Ice	0.00	0.12
Fiber	C	No	No	Inside Pole	110.00 - 8.00	3	No Ice	0.00	0.12
							1/2" Ice	0.00	0.12
							1" Ice	0.00	0.12
***									
FLC 158-50J(1-5/8")	B	No	No	Inside Pole	102.00 - 8.00	2	No Ice	0.00	0.92
							1/2" Ice	0.00	0.92
							1" Ice	0.00	0.92
FLC 12-50J(1/2)	C	No	No	Inside Pole	102.00 - 8.00	2	No Ice	0.00	0.17
							1/2" Ice	0.00	0.17
							1" Ice	0.00	0.17
**									
LCF78-50JA(7/8)	C	No	No	Inside Pole	77.00 - 8.00	6	No Ice	0.00	0.32
							1/2" Ice	0.00	0.32
							1" Ice	0.00	0.32
FLC38-50J(3/8)	C	No	No	Inside Pole	77.00 - 8.00	1	No Ice	0.00	0.08
							1/2" Ice	0.00	0.08
							1" Ice	0.00	0.08
MLC Hybrid 6Power/12Fiber(1 1/2)	C	No	No	Inside Pole	77.00 - 8.00	1	No Ice	0.00	0.98
							1/2" Ice	0.00	0.98
							1" Ice	0.00	0.98

Feed Line/Linear Appurtenances Section Areas

Tower Section	*Tower Elevation* *ft*	*Face*	A_R *ft²*	A_F *ft²*	C_AA_A *In Face* *ft²*	C_AA_A *Out Face* *ft²*	*Weight* *K*
L1	115.00-110.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.01
		C	0.000	0.000	0.000	0.000	0.00
L2	110.00-105.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.01
		C	0.000	0.000	0.000	0.000	0.01
L3	105.00-100.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.01
		C	0.000	0.000	0.000	0.000	0.01
L4	100.00-95.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.02
		C	0.000	0.000	0.000	0.000	0.01
L5	95.00-90.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.02
		C	0.000	0.000	0.000	0.000	0.01
L6	90.00-85.00	A	0.000	0.000	0.000	0.000	0.00

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Project	**Date**
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Client	**Designed by**
□□M□□i□e	I□n M□rin□□□i□

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		B	0.000	0.000	0.000	0.000	0.02
		C	0.000	0.000	0.000	0.000	0.01
L7	85.00-80.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.02
		C	0.000	0.000	0.000	0.000	0.01
L8	80.00-75.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.02
		C	0.000	0.000	0.000	0.000	0.01
L9	75.00-71.17	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.01
		C	0.000	0.000	0.000	0.000	0.02
L10	71.17-70.92	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L11	70.92-65.92	A	0.000	0.000	1.887	0.000	0.00
		B	0.000	0.000	1.887	0.000	0.02
		C	0.000	0.000	1.887	0.000	0.02
L12	65.92-60.92	A	0.000	0.000	4.913	0.000	0.00
		B	0.000	0.000	4.913	0.000	0.02
		C	0.000	0.000	4.913	0.000	0.02
L13	60.92-60.67	A	0.000	0.000	0.417	0.000	0.00
		B	0.000	0.000	0.417	0.000	0.00
		C	0.000	0.000	0.417	0.000	0.00
L14	60.67-60.42	A	0.000	0.000	0.417	0.000	0.00
		B	0.000	0.000	0.417	0.000	0.00
		C	0.000	0.000	0.417	0.000	0.00
L15	60.42-60.00	A	0.000	0.000	0.700	0.000	0.00
		B	0.000	0.000	0.700	0.000	0.00
		C	0.000	0.000	0.700	0.000	0.00
L16	60.00-59.75	A	0.000	0.000	0.417	0.000	0.00
		B	0.000	0.000	0.417	0.000	0.00
		C	0.000	0.000	0.417	0.000	0.00
L17	59.75-59.50	A	0.000	0.000	0.417	0.000	0.00
		B	0.000	0.000	0.417	0.000	0.00
		C	0.000	0.000	0.417	0.000	0.00
L18	59.50-59.25	A	0.000	0.000	0.417	0.000	0.00
		B	0.000	0.000	0.417	0.000	0.00
		C	0.000	0.000	0.417	0.000	0.00
L19	59.25-54.25	A	0.000	0.000	5.333	0.000	0.00
		B	0.000	0.000	5.333	0.000	0.02
		C	0.000	0.000	5.333	0.000	0.02
L20	54.25-49.25	A	0.000	0.000	5.000	0.000	0.00
		B	0.000	0.000	5.000	0.000	0.02
		C	0.000	0.000	5.000	0.000	0.02
L21	49.25-41.50	A	0.000	0.000	6.750	0.000	0.00
		B	0.000	0.000	6.750	0.000	0.03
		C	0.000	0.000	6.750	0.000	0.03
L22	41.50-40.50	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L23	40.50-35.67	A	0.000	0.000	3.827	0.000	0.00
		B	0.000	0.000	3.827	0.000	0.02
		C	0.000	0.000	3.827	0.000	0.02
L24	35.67-35.42	A	0.000	0.000	0.435	0.000	0.00
		B	0.000	0.000	0.435	0.000	0.00
		C	0.000	0.000	0.620	0.000	0.00
L25	35.42-30.42	A	0.000	0.000	8.750	0.000	0.00
		B	0.000	0.000	8.750	0.000	0.02
		C	0.000	0.000	12.500	0.000	0.02
L26	30.42-25.42	A	0.000	0.000	8.750	0.000	0.00
		B	0.000	0.000	8.750	0.000	0.02

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Client	**Designed by**
□□M□□i□e	I□n M□rin□□□i□

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C	0.000	0.000	12.500	0.000	0.02
L27	25.42-25.00	A	0.000	0.000	0.741	0.000	0.00
		B	0.000	0.000	0.741	0.000	0.00
		C	0.000	0.000	1.058	0.000	0.00
L28	25.00-24.00	A	0.000	0.000	1.750	0.000	0.00
		B	0.000	0.000	1.750	0.000	0.00
		C	0.000	0.000	3.500	0.000	0.00
L29	24.00-23.75	A	0.000	0.000	0.438	0.000	0.00
		B	0.000	0.000	0.438	0.000	0.00
		C	0.000	0.000	0.875	0.000	0.00
L30	23.75-18.91	A	0.000	0.000	8.406	0.000	0.00
		B	0.000	0.000	8.499	0.000	0.02
		C	0.000	0.000	16.812	0.000	0.02
L31	18.91-18.66	A	0.000	0.000	0.250	0.000	0.00
		B	0.000	0.000	0.500	0.000	0.00
		C	0.000	0.000	0.500	0.000	0.00
L32	18.66-18.00	A	0.000	0.000	1.157	0.000	0.00
		B	0.000	0.000	1.313	0.000	0.00
		C	0.000	0.000	1.313	0.000	0.00
L33	18.00-17.75	A	0.000	0.000	0.500	0.000	0.00
		B	0.000	0.000	0.500	0.000	0.00
		C	0.000	0.000	0.500	0.000	0.00
L34	17.75-13.50	A	0.000	0.000	7.500	0.000	0.00
		B	0.000	0.000	7.500	0.000	0.02
		C	0.000	0.000	7.956	0.000	0.02
L35	13.50-13.25	A	0.000	0.000	0.250	0.000	0.00
		B	0.000	0.000	0.250	0.000	0.00
		C	0.000	0.000	0.478	0.000	0.00
L36	13.25-8.25	A	0.000	0.000	12.020	0.000	0.00
		B	0.000	0.000	6.596	0.000	0.02
		C	0.000	0.000	9.585	0.000	0.02
L37	8.25-8.00	A	0.000	0.000	0.885	0.000	0.00
		B	0.000	0.000	0.478	0.000	0.00
		C	0.000	0.000	0.635	0.000	0.00
L38	8.00-7.75	A	0.000	0.000	0.885	0.000	0.00
		B	0.000	0.000	0.478	0.000	0.00
		C	0.000	0.000	0.635	0.000	0.00
L39	7.75-7.00	A	0.000	0.000	2.654	0.000	0.00
		B	0.000	0.000	1.434	0.000	0.00
		C	0.000	0.000	1.904	0.000	0.00
L40	7.00-6.73	A	0.000	0.000	0.944	0.000	0.00
		B	0.000	0.000	0.510	0.000	0.00
		C	0.000	0.000	0.677	0.000	0.00
L41	6.73-6.48	A	0.000	0.000	0.885	0.000	0.00
		B	0.000	0.000	0.478	0.000	0.00
		C	0.000	0.000	0.635	0.000	0.00
L42	6.48-6.25	A	0.000	0.000	0.826	0.000	0.00
		B	0.000	0.000	0.446	0.000	0.00
		C	0.000	0.000	0.592	0.000	0.00
L43	6.25-5.00	A	0.000	0.000	4.423	0.000	0.00
		B	0.000	0.000	2.390	0.000	0.00
		C	0.000	0.000	3.173	0.000	0.00
L44	5.00-3.00	A	0.000	0.000	6.577	0.000	0.00
		B	0.000	0.000	2.824	0.000	0.00
		C	0.000	0.000	4.165	0.000	0.00
L45	3.00-2.75	A	0.000	0.000	0.635	0.000	0.00
		B	0.000	0.000	0.228	0.000	0.00
		C	0.000	0.000	0.407	0.000	0.00
L46	2.75-2.50	A	0.000	0.000	0.635	0.000	0.00
		B	0.000	0.000	0.228	0.000	0.00
		C	0.000	0.000	0.407	0.000	0.00

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Client	**Designed by**
□□M□□i□e	I□n M□rin□□□i□

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L47	2.50-2.25	A	0.000	0.000	0.635	0.000	0.00
		B	0.000	0.000	0.228	0.000	0.00
		C	0.000	0.000	0.407	0.000	0.00
L48	2.25-1.00	A	0.000	0.000	1.349	0.000	0.00
		B	0.000	0.000	1.140	0.000	0.00
		C	0.000	0.000	2.033	0.000	0.00
L49	1.00-0.75	A	0.000	0.000	0.329	0.000	0.00
		B	0.000	0.000	0.228	0.000	0.00
		C	0.000	0.000	0.407	0.000	0.00
L50	0.75-0.00	A	0.000	0.000	0.986	0.000	0.00
		B	0.000	0.000	0.684	0.000	0.00
		C	0.000	0.000	1.220	0.000	0.00

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	115.00-110.00	A	2.261	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.01
		C		0.000	0.000	0.000	0.000	0.00
L2	110.00-105.00	A	2.251	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.01
		C		0.000	0.000	0.000	0.000	0.01
L3	105.00-100.00	A	2.240	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.01
		C		0.000	0.000	0.000	0.000	0.01
L4	100.00-95.00	A	2.229	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.02
		C		0.000	0.000	0.000	0.000	0.01
L5	95.00-90.00	A	2.217	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.02
		C		0.000	0.000	0.000	0.000	0.01
L6	90.00-85.00	A	2.205	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.02
		C		0.000	0.000	0.000	0.000	0.01
L7	85.00-80.00	A	2.192	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.02
		C		0.000	0.000	0.000	0.000	0.01
L8	80.00-75.00	A	2.178	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.02
		C		0.000	0.000	0.000	0.000	0.01
L9	75.00-71.17	A	2.165	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.01
		C		0.000	0.000	0.000	0.000	0.02
L10	71.17-70.92	A	2.159	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
L11	70.92-65.92	A	2.151	0.000	0.000	2.640	0.000	0.04
		B		0.000	0.000	2.640	0.000	0.06
		C		0.000	0.000	2.640	0.000	0.06
L12	65.92-60.92	A	2.135	0.000	0.000	6.893	0.000	0.10
		B		0.000	0.000	6.893	0.000	0.12
		C		0.000	0.000	6.893	0.000	0.13
L13	60.92-60.67	A	2.126	0.000	0.000	0.586	0.000	0.01
		B		0.000	0.000	0.586	0.000	0.01
		C		0.000	0.000	0.586	0.000	0.01
L14	60.67-60.42	A	2.125	0.000	0.000	0.586	0.000	0.01

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Project	**Date**
□□□□M□n□p□e	□□□□□□□□□ □□□□□□□□□
Client	**Designed by**
□□M□□i□e	I□n M□rin□□□i□

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		B		0.000	0.000	0.586	0.000	0.01
		C		0.000	0.000	0.586	0.000	0.01
L15	60.42-60.00	A	2.124	0.000	0.000	0.985	0.000	0.01
		B		0.000	0.000	0.985	0.000	0.02
		C		0.000	0.000	0.985	0.000	0.02
L16	60.00-59.75	A	2.123	0.000	0.000	0.586	0.000	0.01
		B		0.000	0.000	0.586	0.000	0.01
		C		0.000	0.000	0.586	0.000	0.01
L17	59.75-59.50	A	2.122	0.000	0.000	0.586	0.000	0.01
		B		0.000	0.000	0.586	0.000	0.01
		C		0.000	0.000	0.586	0.000	0.01
L18	59.50-59.25	A	2.121	0.000	0.000	0.586	0.000	0.01
		B		0.000	0.000	0.586	0.000	0.01
		C		0.000	0.000	0.586	0.000	0.01
L19	59.25-54.25	A	2.111	0.000	0.000	7.525	0.000	0.10
		B		0.000	0.000	7.525	0.000	0.12
		C		0.000	0.000	7.525	0.000	0.12
L20	54.25-49.25	A	2.092	0.000	0.000	7.045	0.000	0.09
		B		0.000	0.000	7.045	0.000	0.11
		C		0.000	0.000	7.045	0.000	0.11
L21	49.25-41.50	A	2.065	0.000	0.000	9.481	0.000	0.12
		B		0.000	0.000	9.481	0.000	0.15
		C		0.000	0.000	9.481	0.000	0.15
L22	41.50-40.50	A	2.044	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
L23	40.50-35.67	A	2.029	0.000	0.000	5.379	0.000	0.07
		B		0.000	0.000	5.379	0.000	0.08
		C		0.000	0.000	5.379	0.000	0.09
L24	35.67-35.42	A	2.015	0.000	0.000	0.633	0.000	0.01
		B		0.000	0.000	0.633	0.000	0.01
		C		0.000	0.000	0.915	0.000	0.01
L25	35.42-30.42	A	1.999	0.000	0.000	12.701	0.000	0.16
		B		0.000	0.000	12.701	0.000	0.18
		C		0.000	0.000	18.402	0.000	0.25
L26	30.42-25.42	A	1.967	0.000	0.000	12.643	0.000	0.15
		B		0.000	0.000	12.643	0.000	0.17
		C		0.000	0.000	18.318	0.000	0.25
L27	25.42-25.00	A	1.947	0.000	0.000	1.067	0.000	0.01
		B		0.000	0.000	1.067	0.000	0.01
		C		0.000	0.000	1.547	0.000	0.02
L28	25.00-24.00	A	1.941	0.000	0.000	2.519	0.000	0.03
		B		0.000	0.000	2.519	0.000	0.03
		C		0.000	0.000	4.926	0.000	0.06
L29	24.00-23.75	A	1.936	0.000	0.000	0.629	0.000	0.01
		B		0.000	0.000	0.629	0.000	0.01
		C		0.000	0.000	1.231	0.000	0.02
L30	23.75-18.91	A	1.914	0.000	0.000	12.051	0.000	0.14
		B		0.000	0.000	12.170	0.000	0.16
		C		0.000	0.000	23.568	0.000	0.30
L31	18.91-18.66	A	1.890	0.000	0.000	0.344	0.000	0.00
		B		0.000	0.000	0.662	0.000	0.01
		C		0.000	0.000	0.662	0.000	0.01
L32	18.66-18.00	A	1.886	0.000	0.000	1.539	0.000	0.02
		B		0.000	0.000	1.738	0.000	0.02
		C		0.000	0.000	1.738	0.000	0.02
L33	18.00-17.75	A	1.881	0.000	0.000	0.661	0.000	0.01
		B		0.000	0.000	0.661	0.000	0.01
		C		0.000	0.000	0.661	0.000	0.01
L34	17.75-13.50	A	1.856	0.000	0.000	9.841	0.000	0.11
		B		0.000	0.000	9.841	0.000	0.13

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Client	**Designed by**
□□M□□i□e	I□n M□rin□□□i□

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C		0.000	0.000	10.395	0.000	0.14
L35	13.50-13.25	A	1.827	0.000	0.000	0.316	0.000	0.00
		B		0.000	0.000	0.316	0.000	0.00
		C		0.000	0.000	0.592	0.000	0.01
L36	13.25-8.25	A	1.788	0.000	0.000	14.784	0.000	0.18
		B		0.000	0.000	8.228	0.000	0.12
		C		0.000	0.000	11.753	0.000	0.17
L37	8.25-8.00	A	1.738	0.000	0.000	1.086	0.000	0.01
		B		0.000	0.000	0.588	0.000	0.01
		C		0.000	0.000	0.772	0.000	0.01
L38	8.00-7.75	A	1.733	0.000	0.000	1.085	0.000	0.01
		B		0.000	0.000	0.588	0.000	0.01
		C		0.000	0.000	0.772	0.000	0.01
L39	7.75-7.00	A	1.722	0.000	0.000	3.253	0.000	0.04
		B		0.000	0.000	1.761	0.000	0.02
		C		0.000	0.000	2.312	0.000	0.03
L40	7.00-6.73	A	1.709	0.000	0.000	1.155	0.000	0.01
		B		0.000	0.000	0.625	0.000	0.01
		C		0.000	0.000	0.821	0.000	0.01
L41	6.73-6.48	A	1.702	0.000	0.000	1.082	0.000	0.01
		B		0.000	0.000	0.586	0.000	0.01
		C		0.000	0.000	0.769	0.000	0.01
L42	6.48-6.25	A	1.697	0.000	0.000	1.010	0.000	0.01
		B		0.000	0.000	0.547	0.000	0.01
		C		0.000	0.000	0.718	0.000	0.01
L43	6.25-5.00	A	1.676	0.000	0.000	5.397	0.000	0.06
		B		0.000	0.000	2.923	0.000	0.03
		C		0.000	0.000	3.836	0.000	0.05
L44	5.00-3.00	A	1.619	0.000	0.000	7.968	0.000	0.09
		B		0.000	0.000	3.411	0.000	0.04
		C		0.000	0.000	5.019	0.000	0.06
L45	3.00-2.75	A	1.567	0.000	0.000	0.759	0.000	0.01
		B		0.000	0.000	0.270	0.000	0.00
		C		0.000	0.000	0.489	0.000	0.01
L46	2.75-2.50	A	1.553	0.000	0.000	0.758	0.000	0.01
		B		0.000	0.000	0.269	0.000	0.00
		C		0.000	0.000	0.489	0.000	0.01
L47	2.50-2.25	A	1.537	0.000	0.000	0.756	0.000	0.01
		B		0.000	0.000	0.269	0.000	0.00
		C		0.000	0.000	0.488	0.000	0.01
L48	2.25-1.00	A	1.480	0.000	0.000	1.622	0.000	0.02
		B		0.000	0.000	1.336	0.000	0.01
		C		0.000	0.000	2.424	0.000	0.03
L49	1.00-0.75	A	1.391	0.000	0.000	0.406	0.000	0.00
		B		0.000	0.000	0.265	0.000	0.00
		C		0.000	0.000	0.480	0.000	0.00
L50	0.75-0.00	A	1.278	0.000	0.000	1.199	0.000	0.01
		B		0.000	0.000	0.786	0.000	0.01
		C		0.000	0.000	1.423	0.000	0.01

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	115.00-110.00	0.00	0.00	0.00	0.00
L2	110.00-105.00	0.00	0.00	0.00	0.00

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Project	**Date**
□□□□M□n□p□e	□□□□□□□□ □□□□□□□□
Client	**Designed by**
□□M□□i□e	I□n M□rin□□□i□

Section	*Elevation*	CP_X	CP_Z	CP_X *Ice*	CP_Z *Ice*
	ft	*in*	*in*	*in*	*in*
L3	105.00-100.00	0.00	0.00	0.00	0.00
L4	100.00-95.00	0.00	0.00	0.00	0.00
L5	95.00-90.00	0.00	0.00	0.00	0.00
L6	90.00-85.00	0.00	0.00	0.00	0.00
L7	85.00-80.00	0.00	0.00	0.00	0.00
L8	80.00-75.00	0.00	0.00	0.00	0.00
L9	75.00-71.17	0.00	0.00	0.00	0.00
L10	71.17-70.92	0.00	0.00	0.00	0.00
L11	70.92-65.92	0.00	0.00	0.00	0.00
L12	65.92-60.92	0.00	0.00	0.00	0.00
L13	60.92-60.67	0.00	0.00	0.00	0.00
L14	60.67-60.42	0.00	0.00	0.00	0.00
L15	60.42-60.00	0.00	0.00	0.00	0.00
L16	60.00-59.75	0.00	0.00	0.00	0.00
L17	59.75-59.50	0.00	0.00	0.00	0.00
L18	59.50-59.25	0.00	0.00	0.00	0.00
L19	59.25-54.25	0.00	0.00	0.00	0.00
L20	54.25-49.25	0.00	0.00	0.00	0.00
L21	49.25-41.50	0.00	0.00	0.00	0.00
L22	41.50-40.50	0.00	0.00	0.00	0.00
L23	40.50-35.67	0.00	0.00	0.00	0.00
L24	35.67-35.42	0.00	0.36	0.00	0.34
L25	35.42-30.42	0.00	0.37	0.00	0.35
L26	30.42-25.42	0.00	0.37	0.00	0.35
L27	25.42-25.00	0.00	0.38	0.00	0.36
L28	25.00-24.00	0.00	2.12	0.00	1.79
L29	24.00-23.75	0.00	2.12	0.00	1.80
L30	23.75-18.91	0.03	2.13	0.03	1.80
L31	18.91-18.66	2.05	1.19	1.72	0.99
L32	18.66-18.00	0.44	0.25	0.37	0.22
L33	18.00-17.75	0.00	0.00	0.00	0.00
L34	17.75-13.50	0.00	0.24	0.00	0.20
L35	13.50-13.25	0.00	2.63	0.00	2.12
L36	13.25-8.25	-2.09	0.12	-1.77	0.07
L37	8.25-8.00	-2.40	-0.32	-2.14	-0.32
L38	8.00-7.75	-2.40	-0.32	-2.14	-0.32
L39	7.75-7.00	-2.41	-0.32	-2.15	-0.32
L40	7.00-6.73	-2.41	-0.32	-2.15	-0.32
L41	6.73-6.48	-1.70	-0.23	-1.52	-0.23
L42	6.48-6.25	-2.42	-0.32	-2.15	-0.32
L43	6.25-5.00	-2.42	-0.32	-2.16	-0.33
L44	5.00-3.00	-3.21	-0.53	-2.82	-0.48
L45	3.00-2.75	-3.48	-0.24	-2.96	-0.17
L46	2.75-2.50	-3.48	-0.24	-2.97	-0.17
L47	2.50-2.25	-3.48	-0.24	-2.97	-0.17
L48	2.25-1.00	-0.45	1.98	-0.42	1.62
L49	1.00-0.75	-1.05	1.55	-1.01	1.20
L50	0.75-0.00	-1.05	1.55	-1.00	1.21

Note: For pole sections, center of pressure calculations do not consider feed line shielding.

Shielding Factor Ka

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Client	**Designed by**
[illegible]	[illegible]

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L11	15	PL1"x4"	65.92 - 68.75	1.0000	1.0000
L11	16	PL1"x4"	65.92 - 68.75	1.0000	1.0000
L11	17	PL1"x4"	65.92 - 68.75	1.0000	1.0000
L12	15	PL1"x4"	60.92 - 65.92	1.0000	1.0000
L12	16	PL1"x4"	60.92 - 65.92	1.0000	1.0000
L12	17	PL1"x4"	60.92 - 65.92	1.0000	1.0000
L12	18	PL1"x6"	60.92 - 62.50	1.0000	1.0000
L12	19	PL1"x6"	60.92 - 62.50	1.0000	1.0000
L12	20	PL1"x6"	60.92 - 62.50	1.0000	1.0000
L13	15	PL1"x4"	60.67 - 60.92	1.0000	1.0000
L13	16	PL1"x4"	60.67 - 60.92	1.0000	1.0000
L13	17	PL1"x4"	60.67 - 60.92	1.0000	1.0000
L13	18	PL1"x6"	60.67 - 60.92	1.0000	1.0000
L13	19	PL1"x6"	60.67 - 60.92	1.0000	1.0000
L13	20	PL1"x6"	60.67 - 60.92	1.0000	1.0000
L14	15	PL1"x4"	60.42 - 60.67	1.0000	1.0000
L14	16	PL1"x4"	60.42 - 60.67	1.0000	1.0000
L14	17	PL1"x4"	60.42 - 60.67	1.0000	1.0000
L14	18	PL1"x6"	60.42 - 60.67	1.0000	1.0000
L14	19	PL1"x6"	60.42 - 60.67	1.0000	1.0000
L14	20	PL1"x6"	60.42 - 60.67	1.0000	1.0000
L15	15	PL1"x4"	60.00 - 60.42	1.0000	1.0000
L15	16	PL1"x4"	60.00 - 60.42	1.0000	1.0000
L15	17	PL1"x4"	60.00 - 60.42	1.0000	1.0000
L15	18	PL1"x6"	60.00 - 60.42	1.0000	1.0000
L15	19	PL1"x6"	60.00 - 60.42	1.0000	1.0000
L15	20	PL1"x6"	60.00 - 60.42	1.0000	1.0000
L16	15	PL1"x4"	59.75 - 60.00	1.0000	1.0000
L16	16	PL1"x4"	59.75 - 60.00	1.0000	1.0000
L16	17	PL1"x4"	59.75 - 60.00	1.0000	1.0000
L16	18	PL1"x6"	59.75 - 60.00	1.0000	1.0000
L16	19	PL1"x6"	59.75 - 60.00	1.0000	1.0000
L16	20	PL1"x6"	59.75 - 60.00	1.0000	1.0000
L17	15	PL1"x4"	59.50 - 59.75	1.0000	1.0000
L17	16	PL1"x4"	59.50 - 59.75	1.0000	1.0000
L17	17	PL1"x4"	59.50 - 59.75	1.0000	1.0000
L17	18	PL1"x6"	59.50 - 59.75	1.0000	1.0000
L17	19	PL1"x6"	59.50 - 59.75	1.0000	1.0000
L17	20	PL1"x6"	59.50 - 59.75	1.0000	1.0000
L18	15	PL1"x4"	59.25 - 59.50	1.0000	1.0000
L18	16	PL1"x4"	59.25 - 59.50	1.0000	1.0000
L18	17	PL1"x4"	59.25 - 59.50	1.0000	1.0000
L18	18	PL1"x6"	59.25 - 59.50	1.0000	1.0000
L18	19	PL1"x6"	59.25 - 59.50	1.0000	1.0000
L18	20	PL1"x6"	59.25 - 59.50	1.0000	1.0000
L19	15	PL1"x4"	58.75 - 59.25	1.0000	1.0000
L19	16	PL1"x4"	58.75 - 59.25	1.0000	1.0000
L19	17	PL1"x4"	58.75 - 59.25	1.0000	1.0000
L19	18	PL1"x6"	54.25 - 59.25	1.0000	1.0000
L19	19	PL1"x6"	54.25 - 59.25	1.0000	1.0000
L19	20	PL1"x6"	54.25 - 59.25	1.0000	1.0000
L20	18	PL1"x6"	49.25 - 54.25	1.0000	1.0000
L20	19	PL1"x6"	49.25 - 54.25	1.0000	1.0000
L20	20	PL1"x6"	49.25 - 54.25	1.0000	1.0000
L21	18	PL1"x6"	42.50 - 49.25	1.0000	1.0000
L21	19	PL1"x6"	42.50 - 49.25	1.0000	1.0000
L21	20	PL1"x6"	42.50 - 49.25	1.0000	1.0000
L23	21	PL1"x6"	35.67 - 39.50	1.0000	1.0000
L23	22	PL1"x6"	35.67 - 39.50	1.0000	1.0000
L23	23	PL1"x6"	35.67 - 39.50	1.0000	1.0000
L24	21	PL1"x6"	35.42 - 35.67	1.0000	1.0000
L24	22	PL1"x6"	35.42 - 35.67	1.0000	1.0000

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Client	**Designed by**
□□M□□i□e	I□n M□rin□□□i□

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L24	23	PL1"x6"	35.42 - 35.67	1.0000	1.0000
L24	33	PL1"x4.5"	35.42 - 35.67	1.0000	1.0000
L24	34	PL1"x4.5"	35.42 - 35.67	1.0000	1.0000
L24	35	PL1"x4.5"	35.42 - 35.67	1.0000	1.0000
L24	36	PL1"x4.5"	35.42 - 35.67	1.0000	1.0000
L25	21	PL1"x6"	30.42 - 35.42	1.0000	1.0000
L25	22	PL1"x6"	30.42 - 35.42	1.0000	1.0000
L25	23	PL1"x6"	30.42 - 35.42	1.0000	1.0000
L25	33	PL1"x4.5"	30.42 - 35.42	1.0000	1.0000
L25	34	PL1"x4.5"	30.42 - 35.42	1.0000	1.0000
L25	35	PL1"x4.5"	30.42 - 35.42	1.0000	1.0000
L25	36	PL1"x4.5"	30.42 - 35.42	1.0000	1.0000
L26	21	PL1"x6"	25.42 - 30.42	1.0000	1.0000
L26	22	PL1"x6"	25.42 - 30.42	1.0000	1.0000
L26	23	PL1"x6"	25.42 - 30.42	1.0000	1.0000
L26	33	PL1"x4.5"	25.42 - 30.42	1.0000	1.0000
L26	34	PL1"x4.5"	25.42 - 30.42	1.0000	1.0000
L26	35	PL1"x4.5"	25.42 - 30.42	1.0000	1.0000
L26	36	PL1"x4.5"	25.42 - 30.42	1.0000	1.0000
L27	21	PL1"x6"	25.00 - 25.42	1.0000	1.0000
L27	22	PL1"x6"	25.00 - 25.42	1.0000	1.0000
L27	23	PL1"x6"	25.00 - 25.42	1.0000	1.0000
L27	24	PL1"x6"	25.00 - 25.00	1.0000	1.0000
L27	33	PL1"x4.5"	25.00 - 25.42	1.0000	1.0000
L27	34	PL1"x4.5"	25.00 - 25.42	1.0000	1.0000
L27	35	PL1"x4.5"	25.00 - 25.42	1.0000	1.0000
L27	36	PL1"x4.5"	25.00 - 25.42	1.0000	1.0000
L28	21	PL1"x6"	24.00 - 25.00	1.0000	1.0000
L28	22	PL1"x6"	24.00 - 25.00	1.0000	1.0000
L28	23	PL1"x6"	24.00 - 25.00	1.0000	1.0000
L28	24	PL1"x6"	24.00 - 25.00	1.0000	1.0000
L28	33	PL1"x4.5"	24.00 - 25.00	1.0000	1.0000
L28	34	PL1"x4.5"	24.00 - 25.00	1.0000	1.0000
L28	35	PL1"x4.5"	24.00 - 25.00	1.0000	1.0000
L28	36	PL1"x4.5"	24.00 - 25.00	1.0000	1.0000
L29	21	PL1"x6"	23.75 - 24.00	1.0000	1.0000
L29	22	PL1"x6"	23.75 - 24.00	1.0000	1.0000
L29	23	PL1"x6"	23.75 - 24.00	1.0000	1.0000
L29	24	PL1"x6"	23.75 - 24.00	1.0000	1.0000
L29	33	PL1"x4.5"	23.75 - 24.00	1.0000	1.0000
L29	34	PL1"x4.5"	23.75 - 24.00	1.0000	1.0000
L29	35	PL1"x4.5"	23.75 - 24.00	1.0000	1.0000
L29	36	PL1"x4.5"	23.75 - 24.00	1.0000	1.0000
L30	21	PL1"x6"	18.91 - 23.75	1.0000	1.0000
L30	22	PL1"x6"	18.91 - 23.75	1.0000	1.0000
L30	23	PL1"x6"	18.91 - 23.75	1.0000	1.0000
L30	24	PL1"x6"	18.91 - 23.75	1.0000	1.0000
L30	25	PL1"x6"	18.91 - 19.00	1.0000	1.0000
L30	33	PL1"x4.5"	19.00 - 23.75	1.0000	1.0000
L30	34	PL1"x4.5"	19.00 - 23.75	1.0000	1.0000
L30	35	PL1"x4.5"	19.00 - 23.75	1.0000	1.0000
L30	36	PL1"x4.5"	19.00 - 23.75	1.0000	1.0000
L31	21	PL1"x6"	18.66 - 18.91	1.0000	1.0000
L31	22	PL1"x6"	18.66 - 18.91	1.0000	1.0000
L31	23	PL1"x6"	18.66 - 18.91	1.0000	1.0000
L31	24	PL1"x6"	18.66 - 18.91	1.0000	1.0000
L31	25	PL1"x6"	18.66 - 18.91	1.0000	1.0000
L32	21	PL1"x6"	18.00 - 18.66	1.0000	1.0000
L32	22	PL1"x6"	18.00 - 18.66	1.0000	1.0000
L32	23	PL1"x6"	18.00 - 18.66	1.0000	1.0000
L32	24	PL1"x6"	18.00 - 18.66	1.0000	1.0000
L32	25	PL1"x6"	18.00 - 18.66	1.0000	1.0000

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Client	**Designed by**
□□M□□i□e	I□n M□rin□□□i□

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L32	26	PL1"x6"	18.00 - 18.50	1.0000	1.0000
L33	21	PL1"x6"	17.75 - 18.00	1.0000	1.0000
L33	22	PL1"x6"	17.75 - 18.00	1.0000	1.0000
L33	23	PL1"x6"	17.75 - 18.00	1.0000	1.0000
L33	24	PL1"x6"	17.75 - 18.00	1.0000	1.0000
L33	25	PL1"x6"	17.75 - 18.00	1.0000	1.0000
L33	26	PL1"x6"	17.75 - 18.00	1.0000	1.0000
L34	21	PL1"x6"	14.50 - 17.75	1.0000	1.0000
L34	22	PL1"x6"	14.50 - 17.75	1.0000	1.0000
L34	23	PL1"x6"	14.50 - 17.75	1.0000	1.0000
L34	24	PL1"x6"	13.50 - 17.75	1.0000	1.0000
L34	25	PL1"x6"	13.50 - 17.75	1.0000	1.0000
L34	26	PL1"x6"	13.50 - 17.75	1.0000	1.0000
L34	27	PL1"x6"	13.50 - 14.00	1.0000	1.0000
L35	24	PL1"x6"	13.25 - 13.50	1.0000	1.0000
L35	25	PL1"x6"	13.25 - 13.50	1.0000	1.0000
L35	26	PL1"x6"	13.25 - 13.50	1.0000	1.0000
L35	27	PL1"x6"	13.25 - 13.50	1.0000	1.0000
L36	24	PL1"x6"	10.00 - 13.25	1.0000	1.0000
L36	25	PL1"x6"	8.25 - 13.25	1.0000	1.0000
L36	26	PL1"x6"	8.25 - 13.25	1.0000	1.0000
L36	27	PL1"x6"	8.25 - 13.25	1.0000	1.0000
L36	28	PL1"x6"	8.25 - 12.00	1.0000	1.0000
L36	29	PL1"x6"	8.25 - 12.00	1.0000	1.0000
L36	30	PL1"x6"	8.25 - 10.00	1.0000	1.0000
L36	31	PL1"x6"	8.25 - 10.00	1.0000	1.0000
L36	37	PL1"x4.5"	8.25 - 8.50	1.0000	1.0000
L36	38	PL1"x4.5"	8.25 - 8.50	1.0000	1.0000
L37	25	PL1"x6"	8.00 - 8.25	1.0000	1.0000
L37	26	PL1"x6"	8.00 - 8.25	1.0000	1.0000
L37	27	PL1"x6"	8.00 - 8.25	1.0000	1.0000
L37	28	PL1"x6"	8.00 - 8.25	1.0000	1.0000
L37	29	PL1"x6"	8.00 - 8.25	1.0000	1.0000
L37	30	PL1"x6"	8.00 - 8.25	1.0000	1.0000
L37	31	PL1"x6"	8.00 - 8.25	1.0000	1.0000
L37	37	PL1"x4.5"	8.00 - 8.25	1.0000	1.0000
L37	38	PL1"x4.5"	8.00 - 8.25	1.0000	1.0000
L38	25	PL1"x6"	7.75 - 8.00	1.0000	1.0000
L38	26	PL1"x6"	7.75 - 8.00	1.0000	1.0000
L38	27	PL1"x6"	7.75 - 8.00	1.0000	1.0000
L38	28	PL1"x6"	7.75 - 8.00	1.0000	1.0000
L38	29	PL1"x6"	7.75 - 8.00	1.0000	1.0000
L38	30	PL1"x6"	7.75 - 8.00	1.0000	1.0000
L38	31	PL1"x6"	7.75 - 8.00	1.0000	1.0000
L38	37	PL1"x4.5"	7.75 - 8.00	1.0000	1.0000
L38	38	PL1"x4.5"	7.75 - 8.00	1.0000	1.0000
L39	25	PL1"x6"	7.00 - 7.75	1.0000	1.0000
L39	26	PL1"x6"	7.00 - 7.75	1.0000	1.0000
L39	27	PL1"x6"	7.00 - 7.75	1.0000	1.0000
L39	28	PL1"x6"	7.00 - 7.75	1.0000	1.0000
L39	29	PL1"x6"	7.00 - 7.75	1.0000	1.0000
L39	30	PL1"x6"	7.00 - 7.75	1.0000	1.0000
L39	31	PL1"x6"	7.00 - 7.75	1.0000	1.0000
L39	37	PL1"x4.5"	7.00 - 7.75	1.0000	1.0000
L39	38	PL1"x4.5"	7.00 - 7.75	1.0000	1.0000
L40	25	PL1"x6"	6.73 - 7.00	1.0000	1.0000
L40	26	PL1"x6"	6.73 - 7.00	1.0000	1.0000
L40	27	PL1"x6"	6.73 - 7.00	1.0000	1.0000
L40	28	PL1"x6"	6.73 - 7.00	1.0000	1.0000
L40	29	PL1"x6"	6.73 - 7.00	1.0000	1.0000
L40	30	PL1"x6"	6.73 - 7.00	1.0000	1.0000
L40	31	PL1"x6"	6.73 - 7.00	1.0000	1.0000

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Client	**Designed by**
□□M□□i□e	I□n M□rin□□□i□

Tower Section	*Feed Line Record No.*	*Description*	*Feed Line Segment Elev.*	*K_a No Ice*	*K_a Ice*
L40	37	PL1"x4.5"	6.73 - 7.00	1.0000	1.0000
L40	38	PL1"x4.5"	6.73 - 7.00	1.0000	1.0000
L41	25	PL1"x6"	6.48 - 6.73	1.0000	1.0000
L41	26	PL1"x6"	6.48 - 6.73	1.0000	1.0000
L41	27	PL1"x6"	6.48 - 6.73	1.0000	1.0000
L41	28	PL1"x6"	6.48 - 6.73	1.0000	1.0000
L41	29	PL1"x6"	6.48 - 6.73	1.0000	1.0000
L41	30	PL1"x6"	6.48 - 6.73	1.0000	1.0000
L41	31	PL1"x6"	6.48 - 6.73	1.0000	1.0000
L41	37	PL1"x4.5"	6.48 - 6.73	1.0000	1.0000
L41	38	PL1"x4.5"	6.48 - 6.73	1.0000	1.0000
L42	25	PL1"x6"	6.25 - 6.48	1.0000	1.0000
L42	26	PL1"x6"	6.25 - 6.48	1.0000	1.0000
L42	27	PL1"x6"	6.25 - 6.48	1.0000	1.0000
L42	28	PL1"x6"	6.25 - 6.48	1.0000	1.0000
L42	29	PL1"x6"	6.25 - 6.48	1.0000	1.0000
L42	30	PL1"x6"	6.25 - 6.48	1.0000	1.0000
L42	31	PL1"x6"	6.25 - 6.48	1.0000	1.0000
L42	37	PL1"x4.5"	6.25 - 6.48	1.0000	1.0000
L42	38	PL1"x4.5"	6.25 - 6.48	1.0000	1.0000
L43	25	PL1"x6"	5.00 - 6.25	1.0000	1.0000
L43	26	PL1"x6"	5.00 - 6.25	1.0000	1.0000
L43	27	PL1"x6"	5.00 - 6.25	1.0000	1.0000
L43	28	PL1"x6"	5.00 - 6.25	1.0000	1.0000
L43	29	PL1"x6"	5.00 - 6.25	1.0000	1.0000
L43	30	PL1"x6"	5.00 - 6.25	1.0000	1.0000
L43	31	PL1"x6"	5.00 - 6.25	1.0000	1.0000
L43	37	PL1"x4.5"	5.00 - 6.25	1.0000	1.0000
L43	38	PL1"x4.5"	5.00 - 6.25	1.0000	1.0000
L44	25	PL1"x6"	4.00 - 5.00	1.0000	1.0000
L44	26	PL1"x6"	3.50 - 5.00	1.0000	1.0000
L44	27	PL1"x6"	4.00 - 5.00	1.0000	1.0000
L44	28	PL1"x6"	3.00 - 5.00	1.0000	1.0000
L44	29	PL1"x6"	3.00 - 5.00	1.0000	1.0000
L44	30	PL1"x6"	3.00 - 5.00	1.0000	1.0000
L44	31	PL1"x6"	3.00 - 5.00	1.0000	1.0000
L44	37	PL1"x4.5"	3.00 - 5.00	1.0000	1.0000
L44	38	PL1"x4.5"	3.00 - 5.00	1.0000	1.0000
L45	28	PL1"x6"	2.75 - 3.00	1.0000	1.0000
L45	29	PL1"x6"	2.75 - 3.00	1.0000	1.0000
L45	30	PL1"x6"	2.75 - 3.00	1.0000	1.0000
L45	31	PL1"x6"	2.75 - 3.00	1.0000	1.0000
L45	37	PL1"x4.5"	2.75 - 3.00	1.0000	1.0000
L45	38	PL1"x4.5"	2.75 - 3.00	1.0000	1.0000
L46	28	PL1"x6"	2.50 - 2.75	1.0000	1.0000
L46	29	PL1"x6"	2.50 - 2.75	1.0000	1.0000
L46	30	PL1"x6"	2.50 - 2.75	1.0000	1.0000
L46	31	PL1"x6"	2.50 - 2.75	1.0000	1.0000
L46	37	PL1"x4.5"	2.50 - 2.75	1.0000	1.0000
L46	38	PL1"x4.5"	2.50 - 2.75	1.0000	1.0000
L47	28	PL1"x6"	2.25 - 2.50	1.0000	1.0000
L47	29	PL1"x6"	2.25 - 2.50	1.0000	1.0000
L47	30	PL1"x6"	2.25 - 2.50	1.0000	1.0000
L47	31	PL1"x6"	2.25 - 2.50	1.0000	1.0000
L47	37	PL1"x4.5"	2.25 - 2.50	1.0000	1.0000
L47	38	PL1"x4.5"	2.25 - 2.50	1.0000	1.0000
L48	28	PL1"x6"	2.00 - 2.25	1.0000	1.0000
L48	29	PL1"x6"	2.00 - 2.25	1.0000	1.0000
L48	30	PL1"x6"	1.00 - 2.25	1.0000	1.0000
L48	31	PL1"x6"	1.00 - 2.25	1.0000	1.0000
L48	37	PL1"x4.5"	1.00 - 2.25	1.0000	1.0000
L48	38	PL1"x4.5"	1.00 - 2.25	1.0000	1.0000

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Client	**Designed by**
□□M□□i□e	I□n M□rin□□□i□

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L49	30	PL1"x6"	0.75 - 1.00	1.0000	1.0000
L49	31	PL1"x6"	0.75 - 1.00	1.0000	1.0000
L49	32	PL1"x6"	0.75 - 1.00	1.0000	1.0000
L49	37	PL1"x4.5"	0.75 - 1.00	1.0000	1.0000
L49	38	PL1"x4.5"	0.75 - 1.00	1.0000	1.0000
L50	30	PL1"x6"	0.00 - 0.75	1.0000	1.0000
L50	31	PL1"x6"	0.00 - 0.75	1.0000	1.0000
L50	32	PL1"x6"	0.00 - 0.75	1.0000	1.0000
L50	37	PL1"x4.5"	0.00 - 0.75	1.0000	1.0000
L50	38	PL1"x4.5"	0.00 - 0.75	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
10' x 3" Whip	C	From Leg	2.00 0 5	0.000	115.00	No Ice 1/2" Ice 1" Ice	3.00 4.03 5.03	3.00 4.03 5.03	0.02 0.04 0.07
3' Stand-off	C	None		0.000	115.00	No Ice 1/2" Ice 1" Ice	2.83 3.92 5.01	2.83 3.92 5.01	0.20 0.24 0.28
15'x4" Whip	B	From Leg	2.00 0 8	0.000	115.00	No Ice 1/2" Ice 1" Ice	4.50 6.03 7.58	4.50 6.03 7.58	0.02 0.06 0.10
DB201-A	A	From Leg	2.00 0 2	0.000	115.00	No Ice 1/2" Ice 1" Ice	0.55 0.91 1.05	0.55 0.91 1.05	0.01 0.02 0.03
ANT220D3	A	From Leg	2.00 0 2	0.000	115.00	No Ice 1/2" Ice 1" Ice	3.30 4.43 5.58	3.30 4.43 5.58	0.04 0.06 0.09
***									
(2) EPBQ-654L8H8_TIA w/ Mount Pipe	A	From Leg	4.00 0 0	0.000	110.00	No Ice 1/2" Ice 1" Ice	11.69 12.41 13.14	11.33 12.86 14.41	0.13 0.23 0.33
(2) EPBQ-654L8H8_TIA w/ Mount Pipe	B	From Leg	4.00 0 0	0.000	110.00	No Ice 1/2" Ice 1" Ice	11.69 12.41 13.14	11.33 12.86 14.41	0.13 0.23 0.33
(2) EPBQ-654L8H8_TIA w/ Mount Pipe	C	From Leg	4.00 0 0	0.000	110.00	No Ice 1/2" Ice 1" Ice	11.69 12.41 13.14	11.33 12.86 14.41	0.13 0.23 0.33
HPA65R-BU8A_TIA w/ Mount Pipe	A	From Leg	4.00 0 0	0.000	110.00	No Ice 1/2" Ice 1" Ice	11.47 12.19 12.92	10.18 11.70 13.25	0.09 0.18 0.28
HPA65R-BU8A_TIA w/ Mount Pipe	B	From Leg	4.00 0 0	0.000	110.00	No Ice 1/2" Ice 1" Ice	11.47 12.19 12.92	10.18 11.70 13.25	0.09 0.18 0.28
HPA65R-BU8A_TIA w/ Mount Pipe	C	From Leg	4.00 0 0	0.000	110.00	No Ice 1/2" Ice 1" Ice	11.47 12.19 12.92	10.18 11.70 13.25	0.09 0.18 0.28
RADIO 4415 B30	A	From Leg	4.00	0.000	110.00	No Ice	1.64	0.64	0.04

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Client	**Designed by**
□□M□□i□e	I□n M□rin□□□i□

Description	*Face or Leg*	*Offset Type*	*Offsets: Horz Lateral ft* / *Vert ft* / *ft*	*Azimuth Adjustment* °	*Placement* *ft*		C_AA_A *Front* ft^2	C_AA_A *Side* ft^2	*Weight* *K*
			0			1/2" Ice	1.80	0.75	0.05
			0			1" Ice	1.97	0.87	0.07
RADIO 4415 B30	B	From Leg	4.00	0.000	110.00	No Ice	1.64	0.64	0.04
			0			1/2" Ice	1.80	0.75	0.05
			0			1" Ice	1.97	0.87	0.07
RADIO 4415 B30	C	From Leg	4.00	0.000	110.00	No Ice	1.64	0.64	0.04
			0			1/2" Ice	1.80	0.75	0.05
			0			1" Ice	1.97	0.87	0.07
RRUS 4449 B5/B12	A	From Leg	4.00	0.000	110.00	No Ice	1.97	1.41	0.07
			0			1/2" Ice	2.14	1.56	0.09
			0			1" Ice	2.33	1.73	0.11
RRUS 4449 B5/B12	B	From Leg	4.00	0.000	110.00	No Ice	1.97	1.41	0.07
			0			1/2" Ice	2.14	1.56	0.09
			0			1" Ice	2.33	1.73	0.11
RRUS 4449 B5/B12	C	From Leg	4.00	0.000	110.00	No Ice	1.97	1.41	0.07
			0			1/2" Ice	2.14	1.56	0.09
			0			1" Ice	2.33	1.73	0.11
RRUS 4478 B14	A	From Leg	4.00	0.000	110.00	No Ice	1.84	1.06	0.06
			0			1/2" Ice	2.01	1.20	0.08
			0			1" Ice	2.19	1.34	0.09
RRUS 4478 B14	B	From Leg	4.00	0.000	110.00	No Ice	1.84	1.06	0.06
			0			1/2" Ice	2.01	1.20	0.08
			0			1" Ice	2.19	1.34	0.09
RRUS 4478 B14	C	From Leg	4.00	0.000	110.00	No Ice	1.84	1.06	0.06
			0			1/2" Ice	2.01	1.20	0.08
			0			1" Ice	2.19	1.34	0.09
RRUS 8843 B2/B66A	A	From Leg	4.00	0.000	110.00	No Ice	1.64	1.35	0.07
			0			1/2" Ice	1.80	1.50	0.09
			0			1" Ice	1.97	1.65	0.11
RRUS 8843 B2/B66A	B	From Leg	4.00	0.000	110.00	No Ice	1.64	1.35	0.07
			0			1/2" Ice	1.80	1.50	0.09
			0			1" Ice	1.97	1.65	0.11
RRUS 8843 B2/B66A	C	From Leg	4.00	0.000	110.00	No Ice	1.64	1.35	0.07
			0			1/2" Ice	1.80	1.50	0.09
			0			1" Ice	1.97	1.65	0.11
DC6-48-60-18-8F	A	From Leg	3.00	0.000	110.00	No Ice	0.92	0.92	0.02
			0			1/2" Ice	1.46	1.46	0.04
			0			1" Ice	1.64	1.64	0.06
DC6-48-60-18-8F	B	From Leg	3.00	0.000	110.00	No Ice	0.92	0.92	0.02
			0			1/2" Ice	1.46	1.46	0.04
			0			1" Ice	1.64	1.64	0.06
DC6-48-60-18-8F	C	From Leg	3.00	0.000	110.00	No Ice	0.92	0.92	0.02
			0			1/2" Ice	1.46	1.46	0.04
			0			1" Ice	1.64	1.64	0.06
RRUS E2 B29	A	From Leg	4.00	0.000	110.00	No Ice	3.15	1.29	0.06
			0			1/2" Ice	3.36	1.44	0.08
			0			1" Ice	3.59	1.60	0.11
RRUS E2 B29	B	From Leg	4.00	0.000	110.00	No Ice	3.15	1.29	0.06
			0			1/2" Ice	3.36	1.44	0.08
			0			1" Ice	3.59	1.60	0.11
RRUS E2 B29	C	From Leg	4.00	0.000	110.00	No Ice	3.15	1.29	0.06
			0			1/2" Ice	3.36	1.44	0.08
			0			1" Ice	3.59	1.60	0.11
Sabre 12' V-Boom (C10857001C)	C	None		0.000	110.00	No Ice	29.82	29.82	1.67
						1/2" Ice	42.21	42.21	2.27
						1" Ice	54.43	54.43	3.05

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Client	**Designed by**
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Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
B2/B66 RRH-BR049	A	From Leg	4.00 0 0	0.000	102.00	No Ice 1/2" Ice 1" Ice	1.88 2.05 2.22	1.25 1.39 1.54	0.08 0.10 0.12
B2/B66 RRH-BR049	B	From Leg	4.00 0 0	0.000	102.00	No Ice 1/2" Ice 1" Ice	1.88 2.05 2.22	1.25 1.39 1.54	0.08 0.10 0.12
B2/B66 RRH-BR049	C	From Leg	4.00 0 0	0.000	102.00	No Ice 1/2" Ice 1" Ice	1.88 2.05 2.22	1.25 1.39 1.54	0.08 0.10 0.12
B5/B13 RRH-BR04C	A	From Leg	4.00 0 0	0.000	102.00	No Ice 1/2" Ice 1" Ice	1.88 2.05 2.22	1.01 1.14 1.28	0.07 0.09 0.11
B5/B13 RRH-BR04C	B	From Leg	4.00 0 0	0.000	102.00	No Ice 1/2" Ice 1" Ice	1.88 2.05 2.22	1.01 1.14 1.28	0.07 0.09 0.11
B5/B13 RRH-BR04C	C	From Leg	4.00 0 0	0.000	102.00	No Ice 1/2" Ice 1" Ice	1.88 2.05 2.22	1.01 1.14 1.28	0.07 0.09 0.11
Junction Boxes	B	From Leg	2.00 0 0	0.000	102.00	No Ice 1/2" Ice 1" Ice	4.06 4.32 4.58	3.10 3.34 3.58	0.03 0.07 0.11
Junction Boxes	C	From Leg	2.00 0 0	0.000	102.00	No Ice 1/2" Ice 1" Ice	4.06 4.32 4.58	3.10 3.34 3.58	0.03 0.07 0.11
VZS01 w/ Mount Pipe	A	From Leg	4.00 0 0	0.000	102.00	No Ice 1/2" Ice 1" Ice	5.91 6.72 7.44	3.74 4.79 5.70	0.12 0.17 0.22
VZS01 w/ Mount Pipe	B	From Leg	4.00 0 0	0.000	102.00	No Ice 1/2" Ice 1" Ice	5.91 6.72 7.44	3.74 4.79 5.70	0.12 0.17 0.22
VZS01 w/ Mount Pipe	C	From Leg	4.00 0 0	0.000	102.00	No Ice 1/2" Ice 1" Ice	5.91 6.72 7.44	3.74 4.79 5.70	0.12 0.17 0.22
(2) SBNHH-1D65B w/ Mount Pipe	A	From Leg	4.00 0 0	0.000	102.00	No Ice 1/2" Ice 1" Ice	4.09 4.49 4.89	3.30 3.68 4.07	0.07 0.13 0.20
(2) SBNHH-1D65B w/ Mount Pipe	B	From Leg	4.00 0 0	0.000	102.00	No Ice 1/2" Ice 1" Ice	4.09 4.49 4.89	3.30 3.68 4.07	0.07 0.13 0.20
(2) SBNHH-1D65B w/ Mount Pipe	C	From Leg	4.00 0 0	0.000	102.00	No Ice 1/2" Ice 1" Ice	4.09 4.49 4.89	3.30 3.68 4.07	0.07 0.13 0.20
BXA-171063-12CF-EDIN-2 w/ Mount Pipe	A	From Leg	4.00 0 0	0.000	102.00	No Ice 1/2" Ice 1" Ice	5.03 5.58 6.10	5.29 6.46 7.35	0.04 0.09 0.14
BXA-171063-12CF-EDIN-2 w/ Mount Pipe	B	From Leg	4.00 0 0	0.000	102.00	No Ice 1/2" Ice 1" Ice	5.03 5.58 6.10	5.29 6.46 7.35	0.04 0.09 0.14
BXA-171063-12CF-EDIN-2 w/ Mount Pipe	C	From Leg	4.00 0 0	0.000	102.00	No Ice 1/2" Ice 1" Ice	5.03 5.58 6.10	5.29 6.46 7.35	0.04 0.09 0.14
4' x 2" STD Pipe	A	From Leg	4.00 0 0	0.000	102.00	No Ice 1/2" Ice 1" Ice	0.87 1.11 1.36	0.87 1.11 1.36	0.01 0.02 0.03
4' x 2" STD Pipe	B	From Leg	4.00 0 0	0.000	102.00	No Ice 1/2" Ice 1" Ice	0.87 1.11 1.36	0.87 1.11 1.36	0.01 0.02 0.03

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Description	*Face or Leg*	*Offset Type*	*Offsets: Horz Lateral Vert* ft ft ft	*Azimuth Adjustment* °	*Placement* ft		C_AA_A *Front* ft^2	C_AA_A *Side* ft^2	*Weight* K
4' x 2" STD Pipe	C	From Leg	4.00 0 0	0.000	102.00	No Ice 1/2" Ice 1" Ice	0.87 1.11 1.36	0.87 1.11 1.36	0.01 0.02 0.03
T-ARM MOUNT REINFORCEMENT	C	None		0.000	102.00	No Ice 1/2" Ice 1" Ice	5.64 6.55 7.46	5.64 6.55 7.46	0.34 0.43 0.52
T-ARM MOUNT	C	None		0.000	102.00	No Ice 1/2" Ice 1" Ice	5.64 6.55 7.46	5.64 6.55 7.46	0.34 0.43 0.52
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APX16DWVS-16DWVS w/ Mount pipe	A	From Leg	4.00 0 0	0.000	77.00	No Ice 1/2" Ice 1" Ice	6.68 7.07 7.48	3.48 4.12 4.78	0.07 0.12 0.18
APX16DWVS-16DWVS w/ Mount pipe	B	From Leg	4.00 0 0	0.000	77.00	No Ice 1/2" Ice 1" Ice	6.68 7.07 7.48	3.48 4.12 4.78	0.07 0.12 0.18
APX16DWVS-16DWVS w/ Mount pipe	C	From Leg	4.00 0 0	0.000	77.00	No Ice 1/2" Ice 1" Ice	6.68 7.07 7.48	3.48 4.12 4.78	0.07 0.12 0.18
APXVAARR24_43-U-NA20 _TIA w/ Mount Pipe	A	From Leg	4.00 0 0	0.000	77.00	No Ice 1/2" Ice 1" Ice	20.48 21.23 21.99	11.02 12.55 14.10	0.19 0.32 0.47
APXVAARR24_43-U-NA20 _TIA w/ Mount Pipe	B	From Leg	4.00 0 0	0.000	77.00	No Ice 1/2" Ice 1" Ice	20.48 21.23 21.99	11.02 12.55 14.10	0.19 0.32 0.47
APXVAARR24_43-U-NA20 _TIA w/ Mount Pipe	C	From Leg	4.00 0 0	0.000	77.00	No Ice 1/2" Ice 1" Ice	20.48 21.23 21.99	11.02 12.55 14.10	0.19 0.32 0.47
RADIO 4449 B12/B71	A	From Leg	4.00 0 0	0.000	77.00	No Ice 1/2" Ice 1" Ice	1.65 1.81 1.98	1.16 1.30 1.45	0.07 0.09 0.11
RADIO 4449 B12/B71	B	From Leg	4.00 0 0	0.000	77.00	No Ice 1/2" Ice 1" Ice	1.65 1.81 1.98	1.16 1.30 1.45	0.07 0.09 0.11
RADIO 4449 B12/B71	C	From Leg	4.00 0 0	0.000	77.00	No Ice 1/2" Ice 1" Ice	1.65 1.81 1.98	1.16 1.30 1.45	0.07 0.09 0.11
Valmont SNP8-HRA8	C	None		0.000	77.00	No Ice 1/2" Ice 1" Ice	26.80 32.20 37.60	26.80 32.20 37.60	1.51 1.81 2.11
Twin Style TMA	A	From Leg	4.00 0 0	0.000	77.00	No Ice 1/2" Ice 1" Ice	0.48 0.57 0.66	0.23 0.30 0.38	0.01 0.01 0.02
Twin Style TMA	B	From Leg	4.00 0 0	0.000	77.00	No Ice 1/2" Ice 1" Ice	0.48 0.57 0.66	0.23 0.30 0.38	0.01 0.01 0.02
Twin Style TMA	C	From Leg	4.00 0 0	0.000	77.00	No Ice 1/2" Ice 1" Ice	0.48 0.57 0.66	0.23 0.30 0.38	0.01 0.01 0.02
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Load Combinations

Comb. No.	*Description*
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 30 deg - No Ice
5	0.9 Dead+1.6 Wind 30 deg - No Ice
6	1.2 Dead+1.6 Wind 60 deg - No Ice
7	0.9 Dead+1.6 Wind 60 deg - No Ice
8	1.2 Dead+1.6 Wind 90 deg - No Ice
9	0.9 Dead+1.6 Wind 90 deg - No Ice
10	1.2 Dead+1.6 Wind 120 deg - No Ice
11	0.9 Dead+1.6 Wind 120 deg - No Ice
12	1.2 Dead+1.6 Wind 150 deg - No Ice
13	0.9 Dead+1.6 Wind 150 deg - No Ice
14	1.2 Dead+1.6 Wind 180 deg - No Ice
15	0.9 Dead+1.6 Wind 180 deg - No Ice
16	1.2 Dead+1.6 Wind 210 deg - No Ice
17	0.9 Dead+1.6 Wind 210 deg - No Ice
18	1.2 Dead+1.6 Wind 240 deg - No Ice
19	0.9 Dead+1.6 Wind 240 deg - No Ice
20	1.2 Dead+1.6 Wind 270 deg - No Ice
21	0.9 Dead+1.6 Wind 270 deg - No Ice
22	1.2 Dead+1.6 Wind 300 deg - No Ice
23	0.9 Dead+1.6 Wind 300 deg - No Ice
24	1.2 Dead+1.6 Wind 330 deg - No Ice
25	0.9 Dead+1.6 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	*Elevation ft*	*Component Type*	*Condition*	*Gov. Load Comb.*	*Axial K*	*Major Axis Moment kip-ft*	*Minor Axis Moment kip-ft*

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Client	**Designed by**
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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	115 - 110	Pole	Max Tension	26	0.00	0	0
			Max. Compression	26	-1.78	0	0
			Max. Mx	8	-0.64	-6	0
			Max. My	2	-0.64	0	6
			Max. Vy	8	0.77	-6	0
			Max. Vx	2	-0.76	0	6
			Max. Torque	3			0
L2	110 - 105	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-17.78	0	0
			Max. Mx	8	-4.73	-37	0
			Max. My	2	-4.74	0	37
			Max. Vy	8	6.27	-37	0
			Max. Vx	14	6.27	0	-37
			Max. Torque	3			0
L3	105 - 100	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-27.03	0	0
			Max. Mx	8	-7.38	-74	0
			Max. My	14	-7.39	0	-74
			Max. Vy	8	9.29	-74	0
			Max. Vx	14	9.26	0	-74
			Max. Torque	18			0
L4	100 - 95	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-27.75	0	0
			Max. Mx	8	-7.93	-121	0
			Max. My	14	-7.94	0	-121
			Max. Vy	8	9.43	-121	0
			Max. Vx	14	9.40	0	-121
			Max. Torque	18			0
L5	95 - 90	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-28.47	0	-1
			Max. Mx	8	-8.50	-168	0
			Max. My	14	-8.51	0	-168
			Max. Vy	8	9.55	-168	0
			Max. Vx	14	9.52	0	-168
			Max. Torque	18			0
L6	90 - 85	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-29.19	0	-1
			Max. Mx	8	-9.11	-216	0
			Max. My	14	-9.11	0	-216
			Max. Vy	8	9.63	-216	0
			Max. Vx	14	9.60	0	-216
			Max. Torque	18			0
L7	85 - 80	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-29.91	0	-1
			Max. Mx	8	-9.74	-264	0
			Max. My	14	-9.74	0	-264
			Max. Vy	8	9.67	-264	0
			Max. Vx	14	9.64	0	-264
			Max. Torque	18			0
L8	80 - 75	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-38.15	0	-1
			Max. Mx	8	-12.88	-319	0
			Max. My	14	-12.89	0	-318
			Max. Vy	8	12.83	-319	0
			Max. Vx	14	12.80	0	-318
			Max. Torque	18			0
L9	75 - 71.17	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-38.66	0	-1
			Max. Mx	8	-13.21	-368	0
			Max. My	14	-13.21	0	-367
			Max. Vy	8	12.93	-368	0

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	14	12.90	0	-367
			Max. Torque	18			0
L10	71.17 - 70.92	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-38.70	0	-1
			Max. Mx	8	-13.25	-372	0
			Max. My	14	-13.26	0	-371
			Max. Vy	8	12.92	-372	0
			Max. Vx	14	12.89	0	-371
			Max. Torque	18			0
L11	70.92 - 65.92	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-39.78	0	-1
			Max. Mx	8	-13.90	-437	0
			Max. My	14	-13.90	0	-436
			Max. Vy	8	13.12	-437	0
			Max. Vx	14	13.09	0	-436
			Max. Torque	18			0
L12	65.92 - 60.92	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-41.06	0	-1
			Max. Mx	8	-14.57	-503	0
			Max. My	14	-14.57	0	-501
			Max. Vy	8	13.31	-503	0
			Max. Vx	14	13.28	0	-501
			Max. Torque	18			0
L13	60.92 - 60.67	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-41.13	0	-1
			Max. Mx	8	-14.61	-506	0
			Max. My	14	-14.61	0	-505
			Max. Vy	8	13.31	-506	0
			Max. Vx	14	13.28	0	-505
			Max. Torque	18			0
L14	60.67 - 60.42	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-41.21	0	-1
			Max. Mx	8	-14.65	-509	0
			Max. My	14	-14.65	0	-508
			Max. Vy	8	13.32	-509	0
			Max. Vx	14	13.29	0	-508
			Max. Torque	18			0
L15	60.42 - 60	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-41.34	0	-1
			Max. Mx	8	-14.71	-515	0
			Max. My	14	-14.71	0	-514
			Max. Vy	8	13.34	-515	0
			Max. Vx	14	13.31	0	-514
			Max. Torque	18			0
L16	60 - 59.75	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-41.44	0	-1
			Max. Mx	8	-14.76	-518	0
			Max. My	14	-14.77	0	-517
			Max. Vy	8	13.35	-518	0
			Max. Vx	14	13.32	0	-517
			Max. Torque	18			0
L17	59.75 - 59.5	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-41.53	0	-1
			Max. Mx	8	-14.81	-522	0
			Max. My	14	-14.82	0	-520
			Max. Vy	8	13.36	-522	0
			Max. Vx	14	13.33	0	-520
			Max. Torque	18			0
L18	59.5 - 59.25	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-41.60	0	-1
			Max. Mx	8	-14.85	-525	0

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	14	-14.85	0	-524
			Max. Vy	8	13.37	-525	0
			Max. Vx	14	13.34	0	-524
			Max. Torque	18			0
L19	59.25 - 54.25	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-42.94	0	-1
			Max. Mx	8	-15.59	-592	0
			Max. My	14	-15.59	0	-591
			Max. Vy	8	13.55	-592	0
			Max. Vx	14	13.52	0	-591
			Max. Torque	18			0
L20	54.25 - 49.25	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-44.27	0	-1
			Max. Mx	8	-16.35	-660	0
			Max. My	14	-16.36	0	-659
			Max. Vy	8	13.72	-660	0
			Max. Vx	14	13.69	0	-659
			Max. Torque	18			0
L21	49.25 - 41.5	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-45.39	0	-1
			Max. Mx	8	-17.01	-719	0
			Max. My	14	-17.02	0	-717
			Max. Vy	8	13.86	-719	0
			Max. Vx	14	13.82	0	-717
			Max. Torque	18			0
L22	41.5 - 40.5	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-47.05	0	-1
			Max. Mx	8	-17.97	-782	0
			Max. My	14	-17.97	0	-780
			Max. Vy	8	14.03	-782	0
			Max. Vx	14	14.00	0	-780
			Max. Torque	18			0
L23	40.5 - 35.6733	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-48.08	0	-1
			Max. Mx	8	-18.56	-849	0
			Max. My	14	-18.57	0	-847
			Max. Vy	8	14.09	-849	0
			Max. Vx	14	14.06	0	-847
			Max. Torque	18			0
L24	35.6733 - 35.4233	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-48.17	0	-1
			Max. Mx	8	-18.62	-853	0
			Max. My	14	-18.63	0	-851
			Max. Vy	8	14.08	-853	0
			Max. Vx	14	14.05	0	-851
			Max. Torque	18			0
L25	35.4233 - 30.4233	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-49.96	0	-1
			Max. Mx	8	-19.55	-924	0
			Max. My	14	-19.56	0	-922
			Max. Vy	8	14.23	-924	0
			Max. Vx	14	14.20	0	-922
			Max. Torque	18			0
L26	30.4233 - 25.4233	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-51.75	0	-1
			Max. Mx	8	-20.50	-995	0
			Max. My	14	-20.51	0	-993
			Max. Vy	8	14.36	-995	0

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	14	14.33	0	-993
			Max. Torque	19			0
L27	25.4233 - 25	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-51.91	0	-1
			Max. Mx	8	-20.59	-1001	0
			Max. My	14	-20.59	0	-999
			Max. Vy	8	14.37	-1001	0
			Max. Vx	14	14.34	0	-999
			Max. Torque	19			0
L28	25 - 24	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-52.28	0	-1
			Max. Mx	8	-20.78	-1016	0
			Max. My	14	-20.78	0	-1013
			Max. Vy	8	14.40	-1016	0
			Max. Vx	14	14.37	0	-1013
			Max. Torque	19			0
L29	24 - 23.75	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-52.38	0	-1
			Max. Mx	8	-20.84	-1019	0
			Max. My	14	-20.84	0	-1017
			Max. Vy	8	14.40	-1019	0
			Max. Vx	14	14.37	0	-1017
			Max. Torque	19			0
L30	23.75 - 18.9067	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-54.07	0	-1
			Max. Mx	8	-21.69	-1089	0
			Max. My	14	-21.69	0	-1087
			Max. Vy	8	14.48	-1089	0
			Max. Vx	14	14.45	0	-1087
			Max. Torque	19			0
L31	18.9067 - 18.6567	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-54.15	0	-1
			Max. Mx	8	-21.74	-1093	0
			Max. My	14	-21.74	0	-1090
			Max. Vy	8	14.47	-1093	0
			Max. Vx	14	14.44	0	-1090
			Max. Torque	19			0
L32	18.6567 - 18	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-54.36	0	-1
			Max. Mx	8	-21.85	-1102	0
			Max. My	14	-21.86	0	-1100
			Max. Vy	8	14.49	-1102	0
			Max. Vx	14	14.46	0	-1100
			Max. Torque	19			0
L33	18 - 17.75	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-54.45	0	-1
			Max. Mx	8	-21.91	-1106	0
			Max. My	14	-21.91	0	-1103
			Max. Vy	8	14.48	-1106	0
			Max. Vx	14	14.45	0	-1103
			Max. Torque	19			0
L34	17.75 - 13.5	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-55.90	0	-1
			Max. Mx	8	-22.75	-1168	0
			Max. My	14	-22.75	0	-1165
			Max. Vy	8	14.58	-1168	0
			Max. Vx	14	14.56	0	-1165
			Max. Torque	19			0
L35	13.5 - 13.25	Pole	Max Tension	1	0.00	0	0

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	26	-55.98	0	-1
			Max. Mx	8	-22.81	-1171	0
			Max. My	14	-22.81	0	-1168
			Max. Vy	8	14.58	-1171	0
			Max. Vx	14	14.55	0	-1168
			Max. Torque	19			0
L36	13.25 - 8.25	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-57.70	0	-1
			Max. Mx	8	-23.80	-1244	0
			Max. My	14	-23.80	0	-1242
			Max. Vy	8	14.70	-1244	0
			Max. Vx	14	14.67	0	-1242
			Max. Torque	19			0
L37	8.25 - 8	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-57.80	0	-1
			Max. Mx	8	-23.86	-1248	0
			Max. My	14	-23.86	0	-1245
			Max. Vy	8	14.70	-1248	0
			Max. Vx	14	14.67	0	-1245
			Max. Torque	19			0
L38	8 - 7.75	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-57.90	0	-1
			Max. Mx	8	-23.91	-1252	0
			Max. My	14	-23.91	0	-1249
			Max. Vy	8	14.70	-1252	0
			Max. Vx	14	14.68	0	-1249
			Max. Torque	19			0
L39	7.75 - 7	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-58.20	0	-1
			Max. Mx	8	-24.08	-1263	0
			Max. My	14	-24.08	0	-1260
			Max. Vy	8	14.73	-1263	0
			Max. Vx	14	14.70	0	-1260
			Max. Torque	19			0
L40	7 - 6.73333	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-58.30	0	-1
			Max. Mx	8	-24.14	-1267	0
			Max. My	14	-24.14	0	-1264
			Max. Vy	8	14.73	-1267	0
			Max. Vx	14	14.70	0	-1264
			Max. Torque	19			0
L41	6.73333 - 6.4833	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-58.41	0	-1
			Max. Mx	8	-24.20	-1270	0
			Max. My	14	-24.20	0	-1267
			Max. Vy	8	14.73	-1270	0
			Max. Vx	14	14.71	0	-1267
			Max. Torque	19			0
L42	6.4833 - 6.24997	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-58.50	0	-1
			Max. Mx	8	-24.25	-1274	0
			Max. My	14	-24.25	0	-1271
			Max. Vy	8	14.74	-1274	0
			Max. Vx	14	14.71	0	-1271
			Max. Torque	19			0
L43	6.24997 - 5	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-59.01	0	-1
			Max. Mx	8	-24.55	-1292	0
			Max. My	14	-24.55	0	-1289

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	8	14.78	-1292	0
			Max. Vx	14	14.75	0	-1289
			Max. Torque	19			0
L44	5 - 3	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-59.79	0	-1
			Max. Mx	8	-25.03	-1322	0
			Max. My	14	-25.03	0	-1319
			Max. Vy	8	14.81	-1322	0
			Max. Vx	14	14.78	0	-1319
			Max. Torque	19			0
L45	3 - 2.75	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-59.88	0	-1
			Max. Mx	8	-25.10	-1325	0
			Max. My	14	-25.10	0	-1322
			Max. Vy	8	14.80	-1325	0
			Max. Vx	14	14.78	0	-1322
			Max. Torque	19			0
L46	2.75 - 2.5	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-59.98	0	-1
			Max. Mx	8	-25.16	-1329	0
			Max. My	14	-25.16	0	-1326
			Max. Vy	8	14.81	-1329	0
			Max. Vx	14	14.78	0	-1326
			Max. Torque	19			0
L47	2.5 - 2.25	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-60.06	0	-1
			Max. Mx	8	-25.22	-1333	0
			Max. My	14	-25.22	0	-1330
			Max. Vy	8	14.82	-1333	0
			Max. Vx	14	14.79	0	-1330
			Max. Torque	19			0
L48	2.25 - 1	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-60.46	0	-1
			Max. Mx	8	-25.50	-1351	0
			Max. My	14	-25.50	0	-1348
			Max. Vy	8	14.85	-1351	0
			Max. Vx	14	14.82	0	-1348
			Max. Torque	19			0
L49	1 - 0.75	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-60.54	0	-1
			Max. Mx	8	-25.56	-1355	0
			Max. My	14	-25.56	0	-1352
			Max. Vy	8	14.84	-1355	0
			Max. Vx	14	14.81	0	-1352
			Max. Torque	19			0
L50	0.75 - 0	Pole	Max Tension	1	0.00	0	0
			Max. Compression	26	-60.75	0	-1
			Max. Mx	8	-25.71	-1366	0
			Max. My	14	-25.71	0	-1363
			Max. Vy	8	14.86	-1366	0
			Max. Vx	14	14.83	0	-1363
			Max. Torque	19			0

Maximum Reactions

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Location	*Condition*	*Gov. Load Comb.*	*Vertical K*	*Horizontal, X K*	*Horizontal, Z K*
Pole	Max. Vert	33	60.75	-0.00	-4.91
	Max. H_x	20	25.71	14.85	0.00
	Max. H_z	3	19.28	0.02	14.82
	Max. M_x	2	1363	-0.03	14.82
	Max. M_z	8	1366	-14.85	0.00
	Max. Torsion	19	0	12.86	-7.41
	Min. Vert	9	19.28	-14.85	0.00
	Min. H_x	8	25.71	-14.85	0.00
	Min. H_z	15	19.28	0.02	-14.82
	Min. M_x	14	-1363	-0.03	-14.82
	Min. M_z	20	-1366	14.85	0.00
	Min. Torsion	7	0	-12.86	7.41

Tower Mast Reaction Summary

Load Combination	*Vertical* K	*Shear$_x$* K	*Shear$_z$* K	*Overturning Moment, M_x* kip-ft	*Overturning Moment, M_z* kip-ft	*Torque* kip-ft
Dead Only	21.43	0.00	0.00	0	0	0
1.2 Dead+1.6 Wind 0 deg - No Ice	25.71	0.03	-14.82	-1363	0	0
0.9 Dead+1.6 Wind 0 deg - No Ice	19.28	-0.02	-14.82	-1337	0	0
1.2 Dead+1.6 Wind 30 deg - No Ice	25.71	7.43	-12.85	-1181	-683	0
0.9 Dead+1.6 Wind 30 deg - No Ice	19.28	7.43	-12.85	-1158	-670	0
1.2 Dead+1.6 Wind 60 deg - No Ice	25.71	12.86	-7.41	-682	-1183	0
0.9 Dead+1.6 Wind 60 deg - No Ice	19.28	12.86	-7.41	-669	-1161	0
1.2 Dead+1.6 Wind 90 deg - No Ice	25.71	14.85	0.00	0	-1366	0
0.9 Dead+1.6 Wind 90 deg - No Ice	19.28	14.85	0.00	0	-1340	0
1.2 Dead+1.6 Wind 120 deg - No Ice	25.71	12.86	7.41	682	-1183	0
0.9 Dead+1.6 Wind 120 deg - No Ice	19.28	12.86	7.41	669	-1161	0
1.2 Dead+1.6 Wind 150 deg - No Ice	25.71	7.42	12.84	1181	-683	0
0.9 Dead+1.6 Wind 150 deg - No Ice	19.28	7.42	12.84	1158	-670	0
1.2 Dead+1.6 Wind 180 deg - No Ice	25.71	0.03	14.82	1363	0	0
0.9 Dead+1.6 Wind 180 deg - No Ice	19.28	-0.02	14.82	1337	0	0
1.2 Dead+1.6 Wind 210 deg - No Ice	25.71	-7.43	12.85	1181	683	0
0.9 Dead+1.6 Wind 210 deg - No Ice	19.28	-7.43	12.85	1158	670	0
1.2 Dead+1.6 Wind 240 deg - No Ice	25.71	-12.86	7.41	682	1183	0
0.9 Dead+1.6 Wind 240 deg - No Ice	19.28	-12.86	7.41	669	1161	0
1.2 Dead+1.6 Wind 270 deg - No Ice	25.71	-14.85	0.00	0	1366	0

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Client	**Designed by**
□□M□□i□e	I□n M□rin□□□i□

Load Combination	Vertical K	Shear$_x$ K	Shear$_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
0.9 Dead+1.6 Wind 270 deg - No Ice	19.28	-14.85	0.00	0	1340	0
1.2 Dead+1.6 Wind 300 deg - No Ice	25.71	-12.86	-7.41	-682	1183	0
0.9 Dead+1.6 Wind 300 deg - No Ice	19.28	-12.86	-7.41	-669	1161	0
1.2 Dead+1.6 Wind 330 deg - No Ice	25.71	-7.42	-12.84	-1181	683	0
0.9 Dead+1.6 Wind 330 deg - No Ice	19.28	-7.42	-12.84	-1158	670	0
1.2 Dead+1.0 Ice+1.0 Temp	60.75	0.00	0.00	1	0	0
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	60.75	0.00	-4.91	-520	0	0
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	60.75	2.46	-4.25	-450	-261	0
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	60.75	4.26	-2.46	-259	-452	0
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	60.75	4.92	0.00	1	-522	0
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	60.75	4.26	2.46	262	-452	0
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	60.75	2.46	4.25	453	-261	0
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	60.75	0.00	4.91	522	0	0
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	60.75	-2.46	4.25	453	261	0
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	60.75	-4.26	2.46	262	452	0
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	60.75	-4.92	0.00	1	522	0
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	60.75	-4.26	-2.46	-259	452	0
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	60.75	-2.46	-4.25	-450	261	0
Dead+Wind 0 deg - Service	21.43	0.00	-3.45	-314	0	0
Dead+Wind 30 deg - Service	21.43	1.73	-2.99	-272	-158	0
Dead+Wind 60 deg - Service	21.43	3.00	-1.73	-157	-273	0
Dead+Wind 90 deg - Service	21.43	3.46	0.00	0	-315	0
Dead+Wind 120 deg - Service	21.43	3.00	1.73	157	-273	0
Dead+Wind 150 deg - Service	21.43	1.73	2.99	272	-158	0
Dead+Wind 180 deg - Service	21.43	0.00	3.45	315	0	0
Dead+Wind 210 deg - Service	21.43	-1.73	2.99	272	158	0
Dead+Wind 240 deg - Service	21.43	-3.00	1.73	157	273	0
Dead+Wind 270 deg - Service	21.43	-3.46	0.00	0	315	0
Dead+Wind 300 deg - Service	21.43	-3.00	-1.73	-157	273	0
Dead+Wind 330 deg - Service	21.43	-1.73	-2.99	-272	158	0

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
1	0.00	-21.43	0.00	0.00	21.43	0.00	0.000%
2	0.00	-25.71	-14.82	-0.03	25.71	14.82	0.104%
3	0.00	-19.28	-14.82	0.02	19.28	14.82	0.090%
4	7.43	-25.71	-12.85	-7.43	25.71	12.85	0.000%
5	7.43	-19.28	-12.85	-7.43	19.28	12.85	0.000%

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Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
6	12.86	-25.71	-7.41	-12.86	25.71	7.41	0.000%
7	12.86	-19.28	-7.41	-12.86	19.28	7.41	0.000%
8	14.85	-25.71	0.00	-14.85	25.71	0.00	0.000%
9	14.85	-19.28	0.00	-14.85	19.28	0.00	0.000%
10	12.86	-25.71	7.41	-12.86	25.71	-7.41	0.000%
11	12.86	-19.28	7.41	-12.86	19.28	-7.41	0.000%
12	7.42	-25.71	12.84	-7.42	25.71	-12.84	0.000%
13	7.42	-19.28	12.84	-7.42	19.28	-12.84	0.000%
14	0.00	-25.71	14.82	-0.03	25.71	-14.82	0.104%
15	0.00	-19.28	14.82	0.02	19.28	-14.82	0.090%
16	-7.43	-25.71	12.85	7.43	25.71	-12.85	0.000%
17	-7.43	-19.28	12.85	7.43	19.28	-12.85	0.000%
18	-12.86	-25.71	7.41	12.86	25.71	-7.41	0.000%
19	-12.86	-19.28	7.41	12.86	19.28	-7.41	0.000%
20	-14.85	-25.71	0.00	14.85	25.71	0.00	0.000%
21	-14.85	-19.28	0.00	14.85	19.28	0.00	0.000%
22	-12.86	-25.71	-7.41	12.86	25.71	7.41	0.000%
23	-12.86	-19.28	-7.41	12.86	19.28	7.41	0.000%
24	-7.42	-25.71	-12.84	7.42	25.71	12.84	0.000%
25	-7.42	-19.28	-12.84	7.42	19.28	12.84	0.000%
26	0.00	-60.75	0.00	-0.00	60.75	-0.00	0.000%
27	0.00	-60.75	-4.91	-0.00	60.75	4.91	0.000%
28	2.46	-60.75	-4.25	-2.46	60.75	4.25	0.000%
29	4.26	-60.75	-2.46	-4.26	60.75	2.46	0.000%
30	4.92	-60.75	0.00	-4.92	60.75	-0.00	0.000%
31	4.26	-60.75	2.46	-4.26	60.75	-2.46	0.000%
32	2.46	-60.75	4.25	-2.46	60.75	-4.25	0.000%
33	0.00	-60.75	4.91	-0.00	60.75	-4.91	0.000%
34	-2.46	-60.75	4.25	2.46	60.75	-4.25	0.000%
35	-4.26	-60.75	2.46	4.26	60.75	-2.46	0.000%
36	-4.92	-60.75	0.00	4.92	60.75	-0.00	0.000%
37	-4.26	-60.75	-2.46	4.26	60.75	2.46	0.000%
38	-2.46	-60.75	-4.25	2.46	60.75	4.25	0.000%
39	0.00	-21.43	-3.45	-0.00	21.43	3.45	0.006%
40	1.73	-21.43	-2.99	-1.73	21.43	2.99	0.000%
41	3.00	-21.43	-1.73	-3.00	21.43	1.73	0.000%
42	3.46	-21.43	0.00	-3.46	21.43	0.00	0.000%
43	3.00	-21.43	1.73	-3.00	21.43	-1.73	0.000%
44	1.73	-21.43	2.99	-1.73	21.43	-2.99	0.000%
45	0.00	-21.43	3.45	-0.00	21.43	-3.45	0.006%
46	-1.73	-21.43	2.99	1.73	21.43	-2.99	0.000%
47	-3.00	-21.43	1.73	3.00	21.43	-1.73	0.000%
48	-3.46	-21.43	0.00	3.46	21.43	0.00	0.000%
49	-3.00	-21.43	-1.73	3.00	21.43	1.73	0.000%
50	-1.73	-21.43	-2.99	1.73	21.43	2.99	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	14	0.00000001	0.00000000
3	Yes	14	0.00000001	0.00000000
4	Yes	7	0.00000001	0.00079485
5	Yes	7	0.00000001	0.00018517
6	Yes	7	0.00000001	0.00078290

7	Yes	7	0.00000001	0.00018182
8	Yes	6	0.00000001	0.00027607
9	Yes	14	0.00000001	0.00000000
10	Yes	7	0.00000001	0.00079279
11	Yes	7	0.00000001	0.00018454
12	Yes	7	0.00000001	0.00078917
13	Yes	7	0.00000001	0.00018360
14	Yes	14	0.00000001	0.00000000
15	Yes	14	0.00000001	0.00000000
16	Yes	7	0.00000001	0.00078357
17	Yes	7	0.00000001	0.00018205
18	Yes	7	0.00000001	0.00079613
19	Yes	7	0.00000001	0.00018546
20	Yes	6	0.00000001	0.00027607
21	Yes	14	0.00000001	0.00000000
22	Yes	7	0.00000001	0.00078612
23	Yes	7	0.00000001	0.00018271
24	Yes	7	0.00000001	0.00078916
25	Yes	7	0.00000001	0.00018360
26	Yes	4	0.00000001	0.00045753
27	Yes	9	0.00000001	0.00042314
28	Yes	9	0.00000001	0.00078276
29	Yes	9	0.00000001	0.00077521
30	Yes	9	0.00000001	0.00042559
31	Yes	9	0.00000001	0.00078658
32	Yes	9	0.00000001	0.00078581
33	Yes	9	0.00000001	0.00042575
34	Yes	9	0.00000001	0.00077898
35	Yes	9	0.00000001	0.00078713
36	Yes	9	0.00000001	0.00042458
37	Yes	9	0.00000001	0.00077561
38	Yes	9	0.00000001	0.00077582
39	Yes	14	0.00000001	0.00000000
40	Yes	6	0.00000001	0.00012969
41	Yes	6	0.00000001	0.00012431
42	Yes	5	0.00000001	0.00017490
43	Yes	6	0.00000001	0.00012873
44	Yes	6	0.00000001	0.00012706
45	Yes	14	0.00000001	0.00000000
46	Yes	6	0.00000001	0.00012461
47	Yes	6	0.00000001	0.00013031
48	Yes	5	0.00000001	0.00017490
49	Yes	6	0.00000001	0.00012569
50	Yes	6	0.00000001	0.00012704

Maximum Tower Deflections - Service Wind

Section No.	*Elevation*	*Horz. Deflection*	*Gov. Load Comb.*	*Tilt*	*Twist*
	ft	*in*		°	°
L1	115 - 110	23.42	42	1.891	0.002
L2	110 - 105	21.44	42	1.888	0.002
L3	105 - 100	19.48	42	1.868	0.002
L4	100 - 95	17.54	42	1.828	0.002
L5	95 - 90	15.66	42	1.756	0.001
L6	90 - 85	13.87	42	1.648	0.001
L7	85 - 80	12.22	42	1.505	0.001
L8	80 - 75	10.73	42	1.326	0.001
L9	75 - 71.17	9.40	42	1.211	0.001
L10	71.17 - 70.92	8.47	42	1.115	0.000

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Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L11	70.92 - 65.92	8.41	42	1.112	0.000
L12	65.92 - 60.92	7.28	42	1.046	0.000
L13	60.92 - 60.67	6.22	42	0.975	0.000
L14	60.67 - 60.42	6.17	42	0.971	0.000
L15	60.42 - 60	6.12	42	0.968	0.000
L16	60 - 59.75	6.04	42	0.962	0.000
L17	59.75 - 59.5	5.99	42	0.959	0.000
L18	59.5 - 59.25	5.94	42	0.957	0.000
L19	59.25 - 54.25	5.89	42	0.953	0.000
L20	54.25 - 49.25	4.93	42	0.878	0.000
L21	49.25 - 41.5	4.05	42	0.802	0.000
L22	45 - 40.5	3.37	42	0.733	0.000
L23	40.5 - 35.6733	2.70	42	0.673	0.000
L24	35.6733 - 35.4233	2.08	42	0.551	0.000
L25	35.4233 - 30.4233	2.05	42	0.548	0.000
L26	30.4233 - 25.4233	1.51	42	0.480	0.000
L27	25.4233 - 25	1.05	42	0.411	0.000
L28	25 - 24	1.01	42	0.405	0.000
L29	24 - 23.75	0.93	42	0.392	0.000
L30	23.75 - 18.9067	0.91	42	0.388	0.000
L31	18.9067 - 18.6567	0.56	42	0.288	0.000
L32	18.6567 - 18	0.55	42	0.283	0.000
L33	18 - 17.75	0.51	42	0.269	0.000
L34	17.75 - 13.5	0.50	42	0.265	0.000
L35	13.5 - 13.25	0.29	42	0.199	0.000
L36	13.25 - 8.25	0.28	42	0.196	0.000
L37	8.25 - 8	0.11	42	0.125	0.000
L38	8 - 7.75	0.10	42	0.122	0.000
L39	7.75 - 7	0.10	42	0.118	0.000
L40	7 - 6.73333	0.08	42	0.109	0.000
L41	6.73333 - 6.4833	0.07	42	0.105	0.000
L42	6.4833 - 6.24997	0.07	42	0.101	0.000
L43	6.24997 - 5	0.06	42	0.097	0.000
L44	5 - 3	0.04	42	0.078	0.000
L45	3 - 2.75	0.01	42	0.047	0.000
L46	2.75 - 2.5	0.01	42	0.044	0.000
L47	2.5 - 2.25	0.01	42	0.040	0.000
L48	2.25 - 1	0.01	42	0.036	0.000
L49	1 - 0.75	0.00	42	0.014	0.000
L50	0.75 - 0	0.00	42	0.010	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
115.00	10' x 3" Whip	42	23.42	1.891	0.002	30187
110.00	(2) EPBQ-654L8H8_TIA w/ Mount Pipe	42	21.44	1.888	0.002	30187
102.00	B2/B66 RRH-BR049	42	18.31	1.848	0.002	6477
77.00	APX16DWVS-16DWVS w/ Mount pipe	42	9.92	1.257	0.001	2229

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Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	115 - 110	101.62	8	8.224	0.009
L2	110 - 105	93.04	8	8.209	0.008
L3	105 - 100	84.51	8	8.126	0.008
L4	100 - 95	76.11	8	7.952	0.007
L5	95 - 90	67.96	8	7.636	0.006
L6	90 - 85	60.21	8	7.168	0.005
L7	85 - 80	53.04	8	6.544	0.004
L8	80 - 75	46.59	8	5.765	0.003
L9	75 - 71.17	40.82	8	5.263	0.002
L10	71.17 - 70.92	36.77	8	4.845	0.002
L11	70.92 - 65.92	36.52	8	4.832	0.002
L12	65.92 - 60.92	31.61	8	4.545	0.002
L13	60.92 - 60.67	27.02	8	4.237	0.002
L14	60.67 - 60.42	26.80	8	4.221	0.002
L15	60.42 - 60	26.58	8	4.205	0.002
L16	60 - 59.75	26.21	8	4.179	0.002
L17	59.75 - 59.5	25.99	8	4.168	0.002
L18	59.5 - 59.25	25.77	8	4.157	0.002
L19	59.25 - 54.25	25.55	8	4.141	0.002
L20	54.25 - 49.25	21.39	8	3.816	0.001
L21	49.25 - 41.5	17.57	8	3.482	0.001
L22	45 - 40.5	14.60	8	3.184	0.001
L23	40.5 - 35.6733	11.70	8	2.924	0.001
L24	35.6733 - 35.4233	9.02	8	2.391	0.001
L25	35.4233 - 30.4233	8.89	8	2.377	0.001
L26	30.4233 - 25.4233	6.56	8	2.082	0.001
L27	25.4233 - 25	4.53	8	1.784	0.001
L28	25 - 24	4.38	8	1.759	0.000
L29	24 - 23.75	4.01	8	1.700	0.000
L30	23.75 - 18.9067	3.93	8	1.686	0.000
L31	18.9067 - 18.6567	2.44	8	1.248	0.000
L32	18.6567 - 18	2.37	8	1.226	0.000
L33	18 - 17.75	2.21	8	1.167	0.000
L34	17.75 - 13.5	2.15	8	1.150	0.000
L35	13.5 - 13.25	1.25	8	0.864	0.000
L36	13.25 - 8.25	1.21	8	0.849	0.000
L37	8.25 - 8	0.48	8	0.542	0.000
L38	8 - 7.75	0.45	8	0.527	0.000
L39	7.75 - 7	0.42	8	0.513	0.000
L40	7 - 6.73333	0.35	8	0.471	0.000
L41	6.73333 - 6.4833	0.32	8	0.455	0.000
L42	6.4833 - 6.24997	0.30	8	0.438	0.000
L43	6.24997 - 5	0.28	8	0.422	0.000
L44	5 - 3	0.18	8	0.338	0.000
L45	3 - 2.75	0.06	8	0.203	0.000
L46	2.75 - 2.5	0.05	8	0.189	0.000
L47	2.5 - 2.25	0.04	8	0.176	0.000
L48	2.25 - 1	0.03	8	0.156	0.000
L49	1 - 0.75	0.01	8	0.062	0.000
L50	0.75 - 0	0.00	8	0.042	0.000

Critical Deflections and Radius of Curvature - Design Wind

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Client	**Designed by**
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Elevation *ft*	*Appurtenance*	*Gov. Load Comb.*	*Deflection* *in*	*Tilt* °	*Twist* °	*Radius of Curvature* *ft*
115.00	10' x 3" Whip	8	101.62	8.224	0.009	7380
110.00	(2) EPBQ-654L8H8_TIA w/ Mount Pipe	8	93.04	8.209	0.008	7380
102.00	B2/B66 RRH-BR049	8	79.44	8.036	0.008	1547
77.00	APX16DWVS-16DWVS w/ Mount pipe	8	43.06	5.462	0.003	521

Compression Checks

Pole Design Data

Section No.	*Elevation* *ft*	*Size*	*L* *ft*	L_u *ft*	*Kl/r*	*A* in^2	P_u *K*	ϕP_n *K*	*Ratio* $\frac{P_u}{\phi P_n}$
L1	115 - 110 (1)	TP12.75x12.75x0.5	5.00	115.00	318.4	19.24	-1.75	42.89	0.041
L2	110 - 105 (2)	TP12.75x12.75x0.5	5.00	115.00	318.4	19.24	-17.64	42.89	0.411
L3	105 - 100 (3)	TP12.75x12.75x0.63	5.00	115.00	321.5	23.81	-26.83	52.04	0.516
L4	100 - 95 (4)	TP12.75x12.75x0.63	5.00	115.00	321.5	23.81	-27.56	52.04	0.530
L5	95 - 90 (5)	TP12.75x12.75x0.63	5.00	115.00	321.5	23.81	-28.29	52.04	0.544
L6	90 - 85 (6)	TP12.75x12.75x0.63	5.00	115.00	321.5	23.81	-9.11	52.04	0.175
L7	85 - 80 (7)	TP12.75x12.75x0.63 4.8.2 (1.10 CR) - 7	5.00	115.00	321.5	23.81	-9.74	52.04	0.187
L8	80 - 75 (8)	TP22.74x22x0.19	5.00	115.00	172.4	13.42	-12.88	102.06	0.126
L9	75 - 71.17 (9)	TP23.31x22.74x0.19	3.83	115.00	168.1	13.76	-13.21	109.95	0.120
L10	71.17 - 70.92 (10)	TP23.34x23.31x0.4	0.25	115.00	169.4	29.13	-13.25	229.26	0.058
L11	70.92 - 65.92 (11)	TP24.08x23.34x0.39	5.00	115.00	164.1	29.61	-13.90	248.43	0.056
L12	65.92 - 60.92 (12)	TP24.82x24.08x0.39	5.00	115.00	159.1	30.06	-14.57	268.34	0.054
L13	60.92 - 60.67 (13)	TP24.86x24.82x0.39	0.25	115.00	158.8	30.10	-14.61	269.56	0.054
L14	60.67 - 60.42 (14)	TP24.9x24.86x0.39	0.25	115.00	158.6	30.15	-14.65	270.78	0.054
L15	60.42 - 60 (15)	TP24.96x24.9x0.39	0.42	115.00	158.2	30.22	-14.71	272.85	0.054
L16	60 - 59.75 (16)	TP25x24.96x0.58	0.25	115.00	159.2	44.57	-14.76	397.48	0.037
L17	59.75 - 59.5 (17)	TP25.04x25x0.58	0.25	115.00	158.9	44.64	-14.81	399.29	0.037
L18	59.5 - 59.25 (18)	TP25.07x25.04x0.4	0.25	115.00	157.6	31.32	-14.85	285.05	0.052
L19	59.25 - 54.25 (19)	TP25.81x25.07x0.39	5.00	115.00	152.9	31.27	-15.59	302.20	0.052
L20	54.25 - 49.25 (20)	TP26.55x25.81x0.39	5.00	115.00	148.6	32.18	-16.35	329.37	0.050
L21	49.25 - 41.5 (21)	TP27.7x26.55x0.38	7.75	115.00	145.0	31.91	-17.01	342.78	0.050
L22	41.5 - 40.5 (22)	TP27.47x26.81x0.25	4.50	115.00	142.8	21.60	-17.97	239.34	0.075
L23	40.5 - 35.6733 (23)	TP28.19x27.47x0.25	4.83	115.00	139.1	22.17	-18.56	258.70	0.072
L24	35.6733 - 35.4233 (24)	TP28.23x28.19x0.49	0.25	115.00	140.1	42.92	-18.62	493.69	0.038
L25	35.4233 - 30.4233 (25)	TP28.97x28.23x0.48	5.00	115.00	136.5	43.51	-19.55	527.81	0.037
L26	30.4233 -	TP29.71x28.97x0.48	5.00	115.00	133.0	44.07	-20.50	563.02	0.036

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Client	**Designed by**
□□M□□i□e	I□n M□rin□□□i□

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
	25.4233 (26)								
L29	24 - 23.75 (29)	TP29.96x29.92x0.49	0.25	115.00	131.9	45.60	-20.84	591.90	0.035
L32	18.6567 - 18 (32)	TP30.81x30.71x0.31	0.66	115.00	127.5	29.65	-21.85	412.30	0.053
L33	18 - 17.75 (33)	TP30.84x30.81x0.41	0.25	115.00	127.7	39.84	-21.91	551.57	0.040
L34	17.75 - 13.5 (34)	TP31.47x30.84x0.41	4.25	115.00	125.2	40.67	-22.75	586.48	0.039
L35	13.5 - 13.25 (35)	TP31.51x31.47x0.46	0.25	115.00	125.2	44.97	-22.81	648.26	0.035
L36	13.25 - 8.25 (36)	TP32.25x31.51x0.45	5.00	115.00	122.2	45.42	-23.80	686.59	0.035
L37	8.25 - 8 (37)	TP32.29x32.25x0.45	0.25	115.00	122.1	45.47	-23.86	688.99	0.035
L38	8 - 7.75 (38)	TP32.32x32.29x0.49	0.25	115.00	122.1	49.26	-23.91	746.37	0.032
L39	7.75 - 7 (39)	TP32.43x32.32x0.49	0.75	115.00	121.7	49.43	-24.08	754.21	0.032
L40	7 - 6.73333 (40)	TP32.47x32.43x0.46	0.27	115.00	121.4	46.99	-24.14	719.87	0.034
L41	6.73333 - 6.4833 (41)	TP32.51x32.47x0.4	0.25	115.00	121.1	40.77	-24.20	628.41	0.039
L44	5 - 3 (44)	TP33.03x32.73x0.4	2.00	115.00	119.1	41.42	-25.03	659.17	0.038
L45	3 - 2.75 (45)	TP33.06x33.03x0.5	0.25	115.00	119.4	51.68	-25.10	819.20	0.031
L46	2.75 - 2.5 (46)	TP33.1x33.06x0.5	0.25	115.00	119.2	51.74	-25.16	821.99	0.031
L47	2.5 - 2.25 (47)	TP33.14x33.1x0.35	0.25	115.00	118.6	36.42	-25.22	585.35	0.043
L48	2.25 - 1 (48)	TP33.32x33.14x0.35	1.25	115.00	117.9	36.63	-25.50	595.32	0.043
L49	1 - 0.75 (49)	TP33.36x33.32x0.35	0.25	115.00	117.8	36.67	-25.56	597.33	0.043
L50	0.75 - 0 (50)	TP33.47x33.36x0.48	0.75	115.00	117.8	49.74	-25.71	809.62	0.032

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	115 - 110 (1)	TP12.75x12.75x0.5	3	236	0.013	0	236	0.000
L2	110 - 105 (2)	TP12.75x12.75x0.5	17	236	0.073	0	236	0.000
L3	105 - 100 (3)	TP12.75x12.75x0.63	35	290	0.119	0	290	0.000
L4	100 - 95 (4)	TP12.75x12.75x0.63	56	290	0.192	0	290	0.000
L5	95 - 90 (5)	TP12.75x12.75x0.63	77	290	0.264	0	290	0.000
L6	90 - 85 (6)	TP12.75x12.75x0.63	216	290	0.746	0	290	0.000
L7	85 - 80 (7)	TP12.75x12.75x0.63	264	290	0.913	0	290	0.000
L8	80 - 75 (8)	TP22.74x22x0.19	319	439	0.727	0	439	0.000
L9	75 - 71.17 (9)	TP23.31x22.74x0.19	368	458	0.805	0	458	0.000
L10	71.17 - 70.92 (10)	TP23.34x23.31x0.4	372	1011	0.367	0	1011	0.000
L11	70.92 - 65.92 (11)	TP24.08x23.34x0.39	437	1062	0.411	0	1062	0.000
L12	65.92 - 60.92 (12)	TP24.82x24.08x0.39	503	1113	0.452	0	1113	0.000
L13	60.92 - 60.67 (13)	TP24.86x24.82x0.39	506	1117	0.453	0	1117	0.000
L14	60.67 - 60.42 (14)	TP24.9x24.86x0.39	509	1120	0.455	0	1120	0.000
L15	60.42 - 60 (15)	TP24.96x24.9x0.39	515	1126	0.457	0	1126	0.000
L16	60 - 59.75 (16)	TP25x24.96x0.58	518	1638	0.316	0	1638	0.000
L17	59.75 - 59.5 (17)	TP25.04x25x0.58	522	1643	0.318	0	1643	0.000
L18	59.5 - 59.25 (18)	TP25.07x25.04x0.4	525	1171	0.448	0	1171	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L19	59.25 - 54.25 (19)	TP25.81x25.07x0.39	592	1206	0.491	0	1206	0.000
L20	54.25 - 49.25 (20)	TP26.55x25.81x0.39	660	1278	0.517	0	1278	0.000
L21	49.25 - 41.5 (21)	TP27.7x26.55x0.38	719	1299	0.554	0	1299	0.000
L22	41.5 - 40.5 (22)	TP27.47x26.81x0.25	782	877	0.891	0	877	0.000
L23	40.5 - 35.6733 (23)	TP28.19x27.47x0.25	849	918	0.926	0	918	0.000
L24	35.6733 - 35.4233 (24)	TP28.23x28.19x0.49	853	1801	0.473	0	1801	0.000
L25	35.4233 - 30.4233 (25)	TP28.97x28.23x0.48	924	1877	0.492	0	1877	0.000
L26	30.4233 - 25.4233 (26)	TP29.71x28.97x0.48	995	1952	0.510	0	1952	0.000
L29	24 - 23.75 (29)	TP29.96x29.92x0.49	1019	2035	0.501	0	2035	0.000
L32	18.6567 - 18 (32)	TP30.81x30.71x0.31	1102	1378	0.800	0	1378	0.000
L33	18 - 17.75 (33)	TP30.84x30.81x0.41	1106	1842	0.600	0	1842	0.000
L34	17.75 - 13.5 (34)	TP31.47x30.84x0.41	1168	1919	0.608	0	1919	0.000
L35	13.5 - 13.25 (35)	TP31.51x31.47x0.46	1171	2119	0.553	0	2119	0.000
L36	13.25 - 8.25 (36)	TP32.25x31.51x0.45	1244	2193	0.567	0	2193	0.000
L37	8.25 - 8 (37)	TP32.29x32.25x0.45	1248	2198	0.568	0	2198	0.000
L38	8 - 7.75 (38)	TP32.32x32.29x0.49	1252	2378	0.526	0	2378	0.000
L39	7.75 - 7 (39)	TP32.43x32.32x0.49	1263	2395	0.527	0	2395	0.000
L40	7 - 6.73333 (40)	TP32.47x32.43x0.46	1267	2283	0.555	0	2283	0.000
L41	6.73333 - 6.4833 (41)	TP32.51x32.47x0.4	1270	1991	0.638	0	1991	0.000
L44	5 - 3 (44)	TP33.03x32.73x0.4	1322	2056	0.643	0	2056	0.000
L45	3 - 2.75 (45)	TP33.06x33.03x0.5	1325	2552	0.519	0	2552	0.000
L46	2.75 - 2.5 (46)	TP33.1x33.06x0.5	1329	2558	0.520	0	2558	0.000
L47	2.5 - 2.25 (47)	TP33.14x33.1x0.35	1333	1819	0.733	0	1819	0.000
L48	2.25 - 1 (48)	TP33.32x33.14x0.35	1351	1840	0.734	0	1840	0.000
L49	1 - 0.75 (49)	TP33.36x33.32x0.35	1355	1844	0.735	0	1844	0.000
L50	0.75 - 0 (50)	TP33.47x33.36x0.48	1366	2491	0.548	0	2491	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	115 - 110 (1)	TP12.75x12.75x0.5	0.41	363.68	0.001	0	357	0.000
L2	110 - 105 (2)	TP12.75x12.75x0.5	2.89	363.68	0.008	0	357	0.000
L3	105 - 100 (3)	TP12.75x12.75x0.63	4.19	449.96	0.009	0	434	0.000
L4	100 - 95 (4)	TP12.75x12.75x0.63	4.22	449.96	0.009	0	434	0.000
L5	95 - 90 (5)	TP12.75x12.75x0.63	4.22	449.96	0.009	0	434	0.000
L6	90 - 85 (6)	TP12.75x12.75x0.63	9.63	449.96	0.021	0	434	0.001
L7	85 - 80 (7)	TP12.75x12.75x0.63	9.67	449.96	0.021	0	434	0.001
L8	80 - 75 (8)	TP22.74x22x0.19	12.83	473.30	0.027	0	880	0.000
L9	75 - 71.17 (9)	TP23.31x22.74x0.19	12.93	481.33	0.027	0	917	0.000
L10	71.17 - 70.92 (10)	TP23.34x23.31x0.4	12.92	1082.11	0.012	0	2031	0.000

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Client	**Designed by**
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Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L11	70.92 - 65.92 (11)	TP24.08x23.34x0.39	13.12	1099.86	0.012	0	2133	0.000
L12	65.92 - 60.92 (12)	TP24.82x24.08x0.39	13.31	1116.51	0.012	0	2235	0.000
L13	60.92 - 60.67 (13)	TP24.86x24.82x0.39	13.31	1118.20	0.012	0	2241	0.000
L14	60.67 - 60.42 (14)	TP24.9x24.86x0.39	13.32	1119.89	0.012	0	2248	0.000
L15	60.42 - 60 (15)	TP24.96x24.9x0.39	13.34	1122.73	0.012	0	2260	0.000
L16	60 - 59.75 (16)	TP25x24.96x0.58	13.35	1655.79	0.008	0	3291	0.000
L17	59.75 - 59.5 (17)	TP25.04x25x0.58	13.36	1658.30	0.008	0	3301	0.000
L18	59.5 - 59.25 (18)	TP25.07x25.04x0.4	13.37	1163.60	0.011	0	2351	0.000
L19	59.25 - 54.25 (19)	TP25.81x25.07x0.39	13.55	1161.63	0.012	0	2420	0.000
L20	54.25 - 49.25 (20)	TP26.55x25.81x0.39	13.72	1195.45	0.011	0	2564	0.000
L21	49.25 - 41.5 (21)	TP27.7x26.55x0.38	13.86	1185.26	0.012	0	2606	0.000
L22	41.5 - 40.5 (22)	TP27.47x26.81x0.25	14.03	784.68	0.018	0	1759	0.000
L23	40.5 - 35.6733 (23)	TP28.19x27.47x0.25	14.09	799.39	0.018	0	1840	0.000
L24	35.6733 - 35.4233 (24)	TP28.23x28.19x0.49	14.08	1594.37	0.009	0	3617	0.000
L25	35.4233 - 30.4233 (25)	TP28.97x28.23x0.48	14.23	1616.32	0.009	0	3767	0.000
L26	30.4233 - 25.4233 (26)	TP29.71x28.97x0.48	14.36	1637.17	0.009	0	3918	0.000
L29	24 - 23.75 (29)	TP29.96x29.92x0.49	14.40	1693.77	0.009	0	4085	0.000
L32	18.6567 - 18 (32)	TP30.81x30.71x0.31	14.49	1101.31	0.013	0	2764	0.000
L33	18 - 17.75 (33)	TP30.84x30.81x0.41	14.48	1480.03	0.010	0	3696	0.000
L34	17.75 - 13.5 (34)	TP31.47x30.84x0.41	14.58	1510.62	0.010	0	3851	0.000
L35	13.5 - 13.25 (35)	TP31.51x31.47x0.46	14.58	1670.47	0.009	0	4253	0.000
L36	13.25 - 8.25 (36)	TP32.25x31.51x0.45	14.70	1687.18	0.009	0	4400	0.000
L37	8.25 - 8 (37)	TP32.29x32.25x0.45	14.70	1689.15	0.009	0	4411	0.000
L38	8 - 7.75 (38)	TP32.32x32.29x0.49	14.70	1829.88	0.008	0	4773	0.000
L39	7.75 - 7 (39)	TP32.43x32.32x0.49	14.73	1836.26	0.008	0	4807	0.000
L40	7 - 6.73333 (40)	TP32.47x32.43x0.46	14.73	1745.61	0.008	0	4582	0.000
L41	6.73333 - 6.4833 (41)	TP32.51x32.47x0.4	14.73	1514.41	0.010	0	3994	0.000
L44	5 - 3 (44)	TP33.03x32.73x0.4	14.81	1538.72	0.010	0	4124	0.000
L45	3 - 2.75 (45)	TP33.06x33.03x0.5	14.80	1919.69	0.008	0	5122	0.000
L46	2.75 - 2.5 (46)	TP33.1x33.06x0.5	14.81	1921.87	0.008	0	5133	0.000
L47	2.5 - 2.25 (47)	TP33.14x33.1x0.35	14.82	1353.03	0.011	0	3649	0.000
L48	2.25 - 1 (48)	TP33.32x33.14x0.35	14.85	1360.66	0.011	0	3691	0.000
L49	1 - 0.75 (49)	TP33.36x33.32x0.35	14.84	1362.19	0.011	0	3699	0.000
L50	0.75 - 0 (50)	TP33.47x33.36x0.48	14.86	1847.90	0.008	0	5000	0.000

Pole Interaction Design Data

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Client	**Designed by**
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Section No.	Elevation ft	Ratio $P_u/\phi P_n$	Ratio $M_{ux}/\phi M_{nx}$	Ratio $M_{uy}/\phi M_{ny}$	Ratio $V_u/\phi V_n$	Ratio $T_u/\phi T_n$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	115 - 110 (1)	0.041	0.013	0.000	0.001	0.000	0.054	1.000	4.8.2
L2	110 - 105 (2)	0.411	0.073	0.000	0.008	0.000	0.484	1.000	4.8.2
L3	105 - 100 (3)	0.516	0.119	0.000	0.009	0.000	0.635	1.000	4.8.2
L4	100 - 95 (4)	0.530	0.192	0.000	0.009	0.000	0.721	1.000	4.8.2
L5	95 - 90 (5)	0.544	0.264	0.000	0.009	0.000	0.808	1.000	4.8.2
L6	90 - 85 (6)	0.175	0.746	0.000	0.021	0.001	0.922	1.000	4.8.2
L7	85 - 80 (7)	0.187	0.913	0.000	0.021	0.001	**1.100**	1.000	4.8.2
L8	80 - 75 (8)	0.126	0.727	0.000	0.027	0.000	0.854	1.000	4.8.2
L9	75 - 71.17 (9)	0.120	0.805	0.000	0.027	0.000	0.926	1.000	4.8.2
L10	71.17 - 70.92 (10)	0.058	0.367	0.000	0.012	0.000	0.425	1.000	4.8.2
L11	70.92 - 65.92 (11)	0.056	0.411	0.000	0.012	0.000	0.467	1.000	4.8.2
L12	65.92 - 60.92 (12)	0.054	0.452	0.000	0.012	0.000	0.506	1.000	4.8.2
L13	60.92 - 60.67 (13)	0.054	0.453	0.000	0.012	0.000	0.508	1.000	4.8.2
L14	60.67 - 60.42 (14)	0.054	0.455	0.000	0.012	0.000	0.509	1.000	4.8.2
L15	60.42 - 60 (15)	0.054	0.457	0.000	0.012	0.000	0.511	1.000	4.8.2
L16	60 - 59.75 (16)	0.037	0.316	0.000	0.008	0.000	0.354	1.000	4.8.2
L17	59.75 - 59.5 (17)	0.037	0.318	0.000	0.008	0.000	0.355	1.000	4.8.2
L18	59.5 - 59.25 (18)	0.052	0.448	0.000	0.011	0.000	0.501	1.000	4.8.2
L19	59.25 - 54.25 (19)	0.052	0.491	0.000	0.012	0.000	0.543	1.000	4.8.2
L20	54.25 - 49.25 (20)	0.050	0.517	0.000	0.011	0.000	0.567	1.000	4.8.2
L21	49.25 - 41.5 (21)	0.050	0.554	0.000	0.012	0.000	0.603	1.000	4.8.2
L22	41.5 - 40.5 (22)	0.075	0.891	0.000	0.018	0.000	0.966	1.000	4.8.2
L23	40.5 - 35.6733 (23)	0.072	0.926	0.000	0.018	0.000	0.998	1.000	4.8.2
L24	35.6733 - 35.4233 (24)	0.038	0.473	0.000	0.009	0.000	0.511	1.000	4.8.2
L25	35.4233 - 30.4233 (25)	0.037	0.492	0.000	0.009	0.000	0.529	1.000	4.8.2
L26	30.4233 - 25.4233 (26)	0.036	0.510	0.000	0.009	0.000	0.546	1.000	4.8.2
L29	24 - 23.75 (29)	0.035	0.501	0.000	0.009	0.000	0.536	1.000	4.8.2
L32	18.6567 - 18 (32)	0.053	0.800	0.000	0.013	0.000	0.853	1.000	4.8.2
L33	18 - 17.75 (33)	0.040	0.600	0.000	0.010	0.000	0.640	1.000	4.8.2
L34	17.75 - 13.5 (34)	0.039	0.608	0.000	0.010	0.000	0.647	1.000	4.8.2
L35	13.5 - 13.25 (35)	0.035	0.553	0.000	0.009	0.000	0.588	1.000	4.8.2
L36	13.25 - 8.25 (36)	0.035	0.567	0.000	0.009	0.000	0.602	1.000	4.8.2
L37	8.25 - 8 (37)	0.035	0.568	0.000	0.009	0.000	0.603	1.000	4.8.2
L38	8 - 7.75 (38)	0.032	0.526	0.000	0.008	0.000	0.558	1.000	4.8.2
L39	7.75 - 7 (39)	0.032	0.527	0.000	0.008	0.000	0.559	1.000	4.8.2
L40	7 - 6.73333 (40)	0.034	0.555	0.000	0.008	0.000	0.588	1.000	4.8.2
L41	6.73333 - 6.4833 (41)	0.039	0.638	0.000	0.010	0.000	0.677	1.000	4.8.2
L44	5 - 3 (44)	0.038	0.643	0.000	0.010	0.000	0.681	1.000	4.8.2
L45	3 - 2.75 (45)	0.031	0.519	0.000	0.008	0.000	0.550	1.000	4.8.2

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Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L46	2.75 - 2.5 (46)	0.031	0.520	0.000	0.008	0.000	0.550	1.000	4.8.2
L47	2.5 - 2.25 (47)	0.043	0.733	0.000	0.011	0.000	0.776	1.000	4.8.2
L48	2.25 - 1 (48)	0.043	0.734	0.000	0.011	0.000	0.777	1.000	4.8.2
L49	1 - 0.75 (49)	0.043	0.735	0.000	0.011	0.000	0.778	1.000	4.8.2
L50	0.75 - 0 (50)	0.032	0.548	0.000	0.008	0.000	0.580	1.000	4.8.2

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	115 - 110	Pole	TP12.75x12.75x0.5	1	-1.75	42.89	5.4	Pass
L2	110 - 105	Pole	TP12.75x12.75x0.5	2	-17.64	42.89	48.4	Pass
L3	105 - 100	Pole	TP12.75x12.75x0.63	3	-26.83	52.04	63.5	Pass
L4	100 - 95	Pole	TP12.75x12.75x0.63	4	-27.56	52.04	72.1	Pass
L5	95 - 90	Pole	TP12.75x12.75x0.63	5	-28.29	52.04	80.8	Pass
L6	90 - 85	Pole	TP12.75x12.75x0.63	6	-9.11	52.04	92.2	Pass
L7	85 - 80	Pole	TP12.75x12.75x0.63	7	-9.74	52.04	92.4	Pass
L8	80 - 75	Pole	TP22.74x22x0.19	8	-12.88	102.06	85.4	Pass
L9	75 - 71.17	Pole	TP23.31x22.74x0.19	9	-13.21	109.95	92.6	Pass
L10	71.17 - 70.92	Pole	TP23.34x23.31x0.4	10	-13.25	229.26	42.5	Pass
L11	70.92 - 65.92	Pole	TP24.08x23.34x0.39	11	-13.90	248.43	46.7	Pass
L12	65.92 - 60.92	Pole	TP24.82x24.08x0.39	12	-14.57	268.34	50.6	Pass
L13	60.92 - 60.67	Pole	TP24.86x24.82x0.39	13	-14.61	269.56	50.8	Pass
L14	60.67 - 60.42	Pole	TP24.9x24.86x0.39	14	-14.65	270.78	50.9	Pass
L15	60.42 - 60	Pole	TP24.96x24.9x0.39	15	-14.71	272.85	51.1	Pass
L16	60 - 59.75	Pole	TP25x24.96x0.58	16	-14.76	397.48	35.4	Pass
L17	59.75 - 59.5	Pole	TP25.04x25x0.58	17	-14.81	399.29	35.5	Pass
L18	59.5 - 59.25	Pole	TP25.07x25.04x0.4	18	-14.85	285.05	50.1	Pass
L19	59.25 - 54.25	Pole	TP25.81x25.07x0.39	19	-15.59	302.20	54.3	Pass
L20	54.25 - 49.25	Pole	TP26.55x25.81x0.39	20	-16.35	329.37	56.7	Pass
L21	49.25 - 41.5	Pole	TP27.7x26.55x0.38	21	-17.01	342.78	60.3	Pass
L22	41.5 - 40.5	Pole	TP27.47x26.81x0.25	22	-17.97	239.34	96.6	Pass
L23	40.5 - 35.6733	Pole	TP28.19x27.47x0.25	23	-18.56	258.70	99.8	Pass
L24	35.6733 - 35.4233	Pole	TP28.23x28.19x0.49	24	-18.62	493.69	51.1	Pass
L25	35.4233 - 30.4233	Pole	TP28.97x28.23x0.48	25	-19.55	527.81	52.9	Pass
L26	30.4233 - 25.4233	Pole	TP29.71x28.97x0.48	26	-20.50	563.02	54.6	Pass
L29	24 - 23.75	Pole	TP29.96x29.92x0.49	29	-20.84	591.90	53.6	Pass
L32	18.6567 - 18	Pole	TP30.81x30.71x0.31	32	-21.85	412.30	85.3	Pass
L33	18 - 17.75	Pole	TP30.84x30.81x0.41	33	-21.91	551.57	64.0	Pass
L34	17.75 - 13.5	Pole	TP31.47x30.84x0.41	34	-22.75	586.48	64.7	Pass
L35	13.5 - 13.25	Pole	TP31.51x31.47x0.46	35	-22.81	648.26	58.8	Pass
L36	13.25 - 8.25	Pole	TP32.25x31.51x0.45	36	-23.80	686.59	60.2	Pass
L37	8.25 - 8	Pole	TP32.29x32.25x0.45	37	-23.86	688.99	60.3	Pass
L38	8 - 7.75	Pole	TP32.32x32.29x0.49	38	-23.91	746.37	55.8	Pass
L39	7.75 - 7	Pole	TP32.43x32.32x0.49	39	-24.08	754.21	55.9	Pass
L40	7 - 6.73333	Pole	TP32.47x32.43x0.46	40	-24.14	719.87	58.8	Pass
L41	6.73333 - 6.4833	Pole	TP32.51x32.47x0.4	41	-24.20	628.41	67.7	Pass
L44	5 - 3	Pole	TP33.03x32.73x0.4	44	-25.03	659.17	68.1	Pass
L45	3 - 2.75	Pole	TP33.06x33.03x0.5	45	-25.10	819.20	55.0	Pass
L46	2.75 - 2.5	Pole	TP33.1x33.06x0.5	46	-25.16	821.99	55.0	Pass

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Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$øP_{allow}$ K	% Capacity	Pass Fail
L47	2.5 - 2.25	Pole	TP33.14x33.1x0.35	47	-25.22	585.35	77.6	Pass
L48	2.25 - 1	Pole	TP33.32x33.14x0.35	48	-25.50	595.32	77.7	Pass
L49	1 - 0.75	Pole	TP33.36x33.32x0.35	49	-25.56	597.33	77.8	Pass
L50	0.75 - 0	Pole	TP33.47x33.36x0.48	50	-25.71	809.62	58.0	Pass
							Summary	
						Pole (L7)	99.8	Pass
						RATING =	**99.8***	**Pass**

***NOTE: Above stress ratios for reinforced sections are approximate. More exact calculations are presented in the report below.**

M□N□P□□E REIN□□RCEMEN□

per TIA-222- G

□i□e N□me□HA151A/BUSHYHILLFD_MP

□ □r□ □rder □□ □□□□□C□□A□□□A

Pole Geometry

	Pole Height Above Base (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Bend Radius (in)	Pole Material
1	115	10	0	0	12.75	12.75	0.5		A500-42
2	105	20	0	0	12.75	12.75	0.625		A500-42
3	85	5	0	0	12.75	12.75	0.625		A500-42
4	80	20	0	18	22.00	24.961039	0.1875	Auto	A607-65
5	60	18.5	3.5	18	24.96	27.7	0.1875	Auto	A607-65
6	45	20	0	18	26.81	29.77	0.25	Auto	A607-65
7	25	20	0	18	29.77	32.73	0.25	Auto	A607-65
8	5	5	0	18	32.73	33.47	0.25	Auto	A607-65

Reinforcement Configuration

	Bottom Effective Elevation (ft)	Top Effective Elevation (ft)	Type	Model	Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	0	1	plate	END PL	1															E			
2	0	6.5	plate	PL1"x6" W	2		E								E								
3	2.5	8	plate	PL1"x4" B	2														E		E		
4	7	18	plate	PL1"x6" B	1			E															
5	7	13.5	plate	PL1"x6" B	1									E									
6	6.5	19	plate	PL1"x6" B	1															E			
7	13.5	24	plate	PL1"x6" B	1										E								
8	44	60	plate	PL1"x6" B	2	E						E											
9	19.00666667	35.67333333	plate	New PL 1"x4 1/2"	4		P				P					P					P		
10	59.5	71.17	plate	New PL 1'x4"	3		P						P						P				
11	0	6.833333333	plate	ew PL 1"x4 1/2" Welde	2	P										P							
12	44	60.67	plate	New PL 1"x4 1/2"	1												P						
13	0	3	plate	New TS PL 4"x1"	1					x													
14																							

Reinforcement Details

	B (in)	H (in)	Gross Area (in^2)	Pole Face to Centroid (in)	Bottom Termination Type	Bottom Termination Length (in)	Top Termination Type	Top Termination Length (in)	Lu (in)	Net Area (in2)	Bolt Hole Size (in)	Reinforcement Material
1	6	1	6	0.5	Welded	n/a	Welded	n/a	0.000	6.000	0.0000	A572-65
2	6	1	6	0.5	Welded	n/a	PC 8.8 - M20 (120)	24.000	16.000	4.750	1.1875	A572-65
3	4	1	4	0.5	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	16.000	2.750	1.1875	A572-65
4	6	1	6	0.5	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	16.000	4.750	1.1875	A572-65
5	6	1	6	0.5	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	16.000	4.750	1.1875	A572-65
6	6	1	6	0.5	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	16.000	4.750	1.1875	A572-65
7	6	1	6	0.5	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	16.000	4.750	1.1875	A572-65
8	6	1	6	0.5	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	16.000	4.750	1.1875	A572-65
9	4.5	1	4.5	0.5	PC 8.8 - M20 (100)	20	PC 8.8 - M20 (100)	20.000	20.000	3.250	1.1875	A572-65
10	4	1	4	0.5	PC 8.8 - M20 (100)	20	PC 8.8 - M20 (100)	20.000	20.000	2.750	1.1875	A572-65
11	4.5	1	4.5	0.5	Welded	n/a	PC 8.8 - M20 (100)	20.000	20.000	3.250	1.1875	A572-65
12	4.5	1	4.5	0.5	PC 8.8 - M20 (100)	20	PC 8.8 - M20 (100)	20.000	20.000	3.250	1.1875	A572-65
13	1	4	4	2	Welded	n/a	Welded	n/a	0.000	4.000	0.0000	A572-65

Connection Details for Custom Reinforcements

Reinforcement	End	# Bolts	N or X	Bolt Spacing (in)	Edge Dist (in)	Weld Grade (ksi)	Transverse (Horiz.) Weld Type	Horiz. Weld Length (in)	Horiz. Groove Depth (in)	Horiz. Groove Angle (deg)	Horiz. Fillet Size (in)	Vertical Weld Length (in)	Vertical Fillet Size (in)	Rev G Connection Capacity (kip)
PL1"x6" W	Top	8	N	3	3	-	-	-	-	-	-	-	-	-
	Bottom	-	-	-	-	70	CJP Groove	6	1	45	0.25	-	-	-
PL1"x6" B	Top	8	N	3	3	-	-	-	-	-	-	-	-	-
	Bottom	8	N	3	3	-	-	-	-	-	-	-	-	-
PL1"x4" B	Top	8	N	3	3	-	-	-	-	-	-	-	-	-
	Bottom	8	N	3	3	-	-	-	-	-	-	-	-	-
END PL	Top	-	-	-	-	70	Fillet	6	-	-	0.25	12	0.250	-
	Bottom	-	-	-	-	70	CJP Groove	6	1	45	0.25	-	-	-
New PL 1"x4 1/2"	Top	7	N	3	2	-	-	-	-	-	-	-	-	-
	Bottom	7	N	3	2	-	-	-	-	-	-	-	-	-
New TS PL 4"x1"	Top	-	-	-	-	70	None	-	-	-	-	36	0.250	-
	Bottom	-	-	-	-	70	CJP Groove	4	0.5	45	0.25	-	-	-
New PL 1"x4 1/2" Welded	Top	7	N	3	2	-	-	-	-	-	-	-	-	-
	Bottom	-	-	-	-	70	CJP Groove	4.5	1	45	0.25	12	0.250	-
New PL 1'x4"	Top	7	N	3	2	-	-	-	-	-	-	-	-	-
	Bottom	7	N	3	2	-	-	-	-	-	-	-	-	-

TNX Geometry Input

Increment (ft): 5 Export to TNX

	Section Height (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Tapered Pole Grade	Weight Multiplier
1	115 - 110	5		0	12.750	12.750	0.5	A500-42	1.000
2	110 - 105	5	0	0	12.750	12.750	0.5	A500-42	1.000
3	105 - 100	5		0	12.750	12.750	0.625	A500-42	1.000
4	100 - 95	5		0	12.750	12.750	0.625	A500-42	1.000
5	95 - 90	5		0	12.750	12.750	0.625	A500-42	1.000
6	90 - 85	5	0	0	12.750	12.750	0.625	A500-42	1.000
7	85 - 80	5	0	0	12.750	12.750	0.625	A500-42	1.000
8	80 - 75	5		18	22.000	22.740	0.1875	A607-65	1.000
9	75 - 71.17	3.83		18	22.740	23.307	0.1875	A607-65	1.000
10	71.17 - 70.92	0.25		18	23.307	23.344	0.375	A607-65	0.943
11	70.92 - 65.92	5		18	23.344	24.085	0.36875	A607-65	0.945
12	65.92 - 60.92	5		18	24.085	24.825	0.3625	A607-65	0.947
13	60.92 - 60.67	0.25		18	24.825	24.862	0.3625	A607-65	0.947
14	60.67 - 60.42	0.25		18	24.862	24.899	0.3625	A607-65	1.105
15	60.42 - 60	0.42	0	18	24.899	24.961	0.3625	A607-65	1.104
16	60 - 59.75	0.25		18	24.961	24.998	0.55	A607-65	1.014
17	59.75 - 59.5	0.25		18	24.998	25.035	0.55	A607-65	1.013
18	59.5 - 59.25	0.25		18	25.035	25.072	0.4	A607-65	1.000
19	59.25 - 54.25	5		18	25.072	25.812	0.3875	A607-65	1.015
20	54.25 - 49.25	5		18	25.812	26.553	0.3875	A607-65	1.000
21	49.25 - 45	7.75	3.5	18	26.553	27.700	0.375	A607-65	1.021
22	45 - 40.5	4.5		18	26.807	27.474	0.25	A607-65	1.000
23	40.5 - 35.6733	4.826666667		18	27.474	28.189	0.25	A607-65	1.000
24	35.6733 - 35.4233	0.25		18	28.189	28.226	0.4875	A607-65	0.937
25	35.4233 - 30.4233	5		18	28.226	28.966	0.48125	A607-65	0.937
26	30.4233 - 25.4233	5		18	28.966	29.707	0.475	A607-65	0.939
27	25.4233 - 25	0.423333333	0	18	29.707	29.770	0.475	A607-65	0.938
28	25 - 24	1		18	29.770	29.918	0.475	A607-65	0.936
29	24 - 23.75	0.25		18	29.918	29.955	0.4875	A607-65	1.043
30	23.75 - 18.9067	4.843333333		18	29.955	30.672	0.30625	A607-65	1.224
31	18.9067 - 18.6567	0.25		18	30.672	30.709	0.30625	A607-65	1.224
32	18.6567 - 18	0.656666667		18	30.709	30.806	0.30625	A607-65	1.223
33	18 - 17.75	0.25		18	30.806	30.843	0.4125	A607-65	1.061
34	17.75 - 13.5	4.25		18	30.843	31.472	0.4125	A607-65	1.052
35	13.5 - 13.25	0.25		18	31.472	31.509	0.45625	A607-65	0.952
36	13.25 - 8.25	5		18	31.509	32.249	0.45	A607-65	0.955
37	8.25 - 8	0.25		18	32.249	32.286	0.45	A607-65	0.955
38	8 - 7.75	0.25		18	32.286	32.323	0.4875	A607-65	1.044
39	7.75 - 7	0.75		18	32.323	32.434	0.4875	A607-65	1.043
40	7 - 6.73333	0.266666667		18	32.434	32.473	0.4625	A607-65	1.034
41	6.73333 - 6.48333	0.25		18	32.473	32.510	0.4	A607-65	1.339
42	6.48333 - 6.25	0.233333333		18	32.510	32.545	0.4	A607-65	1.339
43	6.25 - 5	1.25	0	18	32.545	32.730	0.4	A607-65	1.334
44	5 - 3	2		18	32.730	33.026	0.4	A607-65	1.328
45	3 - 2.75	0.25		18	33.026	33.063	0.5	A607-65	1.142
46	2.75 - 2.5	0.25		18	33.063	33.100	0.5	A607-65	1.142
47	2.5 - 2.25	0.25		18	33.100	33.137	0.35	A607-65	1.403
48	2.25 - 1	1.25		18	33.137	33.322	0.35	A607-65	1.399
49	1 - 0.75	0.25		18	33.322	33.359	0.35	A607-65	1.398
50	0.75 - 0	0.75		18	33.359	33.470	0.475	A607-65	0.892

TNX Section Forces

Increment (ft): 5

	Section Height (ft)	TNX Output P_u (K)	M_{ux} (kip-ft)	V_u (K)
1	115 - 110	0.64	5.74	0.76
2	110 - 105	4.74	36.67	6.27
3	105 - 100	7.38	74.08	9.29
4	100 - 95	7.93	120.87	9.43
5	95 - 90	8.50	168.30	9.55
6	90 - 85	9.11	216.20	9.63
7	85 - 80	9.74	264.40	9.67
8	80 - 75	12.88	319.09	12.83
9	75 - 71.17	13.21	368.37	12.93
10	71.17 - 70.92	13.25	371.60	12.92
11	70.92 - 65.92	13.90	436.69	13.12
12	65.92 - 60.92	14.57	502.72	13.31
13	60.92 - 60.67	14.61	506.05	13.31
14	60.67 - 60.42	14.65	509.38	13.32
15	60.42 - 60	14.71	514.98	13.34
16	60 - 59.75	14.76	518.31	13.35
17	59.75 - 59.5	14.81	521.65	13.36
18	59.5 - 59.25	14.85	524.99	13.37
19	59.25 - 54.25	15.59	592.27	13.55
20	54.25 - 49.25	16.35	660.42	13.72
21	49.25 - 45	17.01	718.98	13.86
22	45 - 40.5	17.97	781.70	14.03
23	40.5 - 35.67333	18.56	849.45	14.09
24	35.67333 - 35.42333	18.62	852.97	14.08
25	35.42333 - 30.42333	19.55	923.70	14.23
26	30.42333 - 25.42333	20.50	995.13	14.36
27	25.42333 - 25	20.59	1001.21	14.37
28	25 - 24	20.78	1015.58	14.40
29	24 - 23.75	20.84	1019.18	14.40
30	23.75 - 18.90667	21.69	1089.07	14.48
31	18.90667 - 18.65667	21.74	1092.69	14.47
32	18.65667 - 18	21.85	1102.19	14.49
33	18 - 17.75	21.91	1105.81	14.48
34	17.75 - 13.5	22.75	1167.54	14.58
35	13.5 - 13.25	22.81	1171.19	14.58
36	13.25 - 8.25	23.80	1244.35	14.70
37	8.25 - 8	23.86	1248.02	14.70
38	8 - 7.75	23.91	1251.70	14.70
39	7.75 - 7	24.08	1262.73	14.73
40	7 - 6.733333	24.14	1266.66	14.73
41	6.733333 - 6.483333	24.20	1270.34	14.73
42	6.483333 - 6.25	24.25	1273.78	14.74
43	6.25 - 5	24.55	1292.21	14.78
44	5 - 3	25.03	1321.76	14.81
45	3 - 2.75	25.10	1325.46	14.80
46	2.75 - 2.5	25.16	1329.17	14.81
47	2.5 - 2.25	25.22	1332.87	14.82
48	2.25 - 1	25.50	1351.39	14.85
49	1 - 0.75	25.56	1355.10	14.84
50	0.75 - 0	25.71	1366.23	14.86

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
[illegible]	P□e	□P□x□x□	P□e	[illegible]	P□
[illegible]	P□e	□P□x□x□	P□e	[illegible]	P□
[illegible]	P□e	□P□x□x□	P□e	[illegible]	P□
[illegible]	P□e	□P□x□x□	P□e	[illegible]	P□
[illegible]	P□e	□P□x□x□	P□e	[illegible]	P□
[illegible]	P□e	□P□x□x□	P□e	[illegible]	P□
[illegible]	P□e	□P□x□x□	P□e	[illegible]	P□
[illegible]	P□e	□P□x□x□	P□e	[illegible]	P□
[illegible]	P□e	□P□x□x□	P□e	[illegible]	P□
[illegible]	P□e □ Rein□	□P□x□x□	Rein□ □en□i□n R□p□re	[illegible]	P□
[illegible]	P□e □ Rein□	□P□x□x□	Rein□ □en□i□n R□p□re	[illegible]	P□
[illegible]	P□e □ Rein□	□P□x□x□	Rein□ □en□i□n R□p□re	[illegible]	P□
[illegible]	P□e □ Rein□	□P□x□x□	Rein□ □en□i□n R□p□re	[illegible]	P□
[illegible]	P□e □ Rein□	□P□x□x□	Rein□ □en□i□n R□p□re	[illegible]	P□
[illegible]	P□e □ Rein□	□P□x□x□	Rein□ □en□i□n R□p□re	[illegible]	P□
[illegible]	P□e □ Rein□	□P□x□x□	Rein□ □en□i□n R□p□re	[illegible]	P□
[illegible]	P□e □ Rein□	□P□x□x□	Rein□ □en□i□n R□p□re	[illegible]	P□
[illegible]	P□e □ Rein□	□P□x□x□	Rein□ □en□i□n R□p□re	[illegible]	P□
[illegible]	P□e □ Rein□	□P□x□x□	Rein□ □en□i□n R□p□re	[illegible]	P□
[illegible]	P□e □ Rein□	□P□x□x□	Rein□ □en□i□n R□p□re	[illegible]	P□
[illegible]	P□e □ Rein□	□P□x□x□	Rein□ □en□i□n R□p□re	[illegible]	P□
[illegible]	P□e	□P□x□x□	P□e	[illegible]	P□
[illegible]	P□e	□P□x□x□	P□e	[illegible]	P□
[illegible]	P□e □ Rein□	□P□x□x□	Rein□ □en□i□n R□p□re	[illegible]	P□
[illegible]	P□e □ Rein□	□P□x□x□	Rein□ □en□i□n R□p□re	[illegible]	P□
[illegible]	P□e □ Rein□	□P□x□x□	Rein□ □en□i□n R□p□re	[illegible]	P□
[illegible]	P□e □ Rein□	□P□x□x□	Rein□ □en□i□n R□p□re	[illegible]	P□
[illegible]	P□e □ Rein□	□P□x□x□	Rein□ □en□i□n R□p□re	[illegible]	P□
[illegible]	P□e □ Rein□	□P□x□x□	Rein□ □en□i□n R□p□re	[illegible]	P□
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[illegible]	P□e □ Rein□	□P□x□x□	P□e	[illegible]	P□
[illegible]	P□e □ Rein□	□P□x□x□	Rein□ □en□i□n R□p□re	[illegible]	P□
[illegible]	P□e □ Rein□	□P□x□x□	Rein□ □en□i□n R□p□re	[illegible]	P□
[illegible]	P□e □ Rein□	□P□x□x□	Rein□ □en□i□n R□p□re	[illegible]	P□
[illegible]	P□e □ Rein□	□P□x□x□	Rein□ □en□i□n R□p□re	[illegible]	P□
[illegible]	P□e □ Rein□	□P□x□x□	Rein□ □en□i□n R□p□re	[illegible]	P□
[illegible]	P□e □ Rein□	□P□x□x□	Rein□ □en□i□n R□p□re	[illegible]	P□
[illegible]	P□e □ Rein□	□P□x□x□	Rein□ □en□i□n R□p□re	[illegible]	P□
[illegible]	P□e □ Rein□	□P□x□x□	Rein□ □en□i□n R□p□re	[illegible]	P□
[illegible]	P□e □ Rein□	□P□x□x□	Rein□ □en□i□n R□p□re	[illegible]	P□
[illegible]	P□e □ Rein□	□P□x□x□	Rein□ □en□i□n R□p□re	[illegible]	P□
[illegible]	P□e □ Rein□	□P□x□x□	Rein□ □en□i□n R□p□re	[illegible]	P□
[illegible]	P□e □ Rein□	□P□x□x□	Rein□ □en□i□n R□p□re	[illegible]	P□
[illegible]	P□e □ Rein□	□P□x□x□	Rein□ □en□i□n R□p□re	[illegible]	P□
[illegible]	P□e □ Rein□	□P□x□x□	Rein□ □en□i□n R□p□re	[illegible]	P□
[illegible]	P□e □ Rein□	□P□x□x□	Rein□ C□mpre□□i□n	[illegible]	P□
[illegible]	P□e □ Rein□	□P□x□x□	Rein□ C□mpre□□i□n	[illegible]	P□
[illegible]	P□e □ Rein□	□P□x□x□	Rein□ C□mpre□□i□n	[illegible]	P□
[illegible]	P□e □ Rein□	□P□x□x□	Rein□ □en□i□n R□p□re	[illegible]	P□
				□□mm□r□	
			P□e	[illegible]	P□
			Rein□r□emen□	[illegible]	P□
			□ □er□	[illegible]	P□

Additional Calculations

Section Elevation (ft)	Moment of Inertia (in^4)			Area (in^2)			% Capacity												
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13
115 - 110	362	n/a	362	19.24	n/a	19.24	2.5%													
110 - 105	362	n/a	362	19.24	n/a	19.24	16.2%													
105 - 100	439	n/a	439	23.81	n/a	23.81	26.4%													
100 - 95	439	n/a	439	23.81	n/a	23.81	42.6%													
95 - 90	439	n/a	439	23.81	n/a	23.81	59.1%													
90 - 85	439	n/a	439	23.81	n/a	23.81	75.7%													
85 - 80	439	n/a	439	23.81	n/a	23.81	92.4%													
80 - 75	862	n/a	862	13.42	n/a	13.42	74.2%													
75 - 71.17	929	n/a	929	13.76	n/a	13.76	82.0%													
71.17 - 70.92	933	897	1831	13.78	12.00	25.78	41.6%										72.8%			
70.92 - 65.92	1026	952	1978	14.22	12.00	26.22	47.1%										81.5%			
65.92 - 60.92	1124	1009	2133	14.66	12.00	26.66	52.3%										89.5%			
60.92 - 60.67	1129	1012	2141	14.68	12.00	26.68	52.5%										89.9%			
60.67 - 60.42	1134	1022	2156	14.71	16.50	31.21	53.3%										88.5%		56.8%	
60.42 - 60	1143	1027	2170	14.74	16.50	31.24	53.7%										89.1%		57.2%	
60 - 59.75	1154	2097	3252	14.76	28.50	43.26	37.5%								47.8%		64.0%		55.5%	
59.75 - 59.5	1159	2103	3263	14.79	28.50	43.29	37.7%								48.0%		64.3%		55.8%	
59.5 - 59.25	1165	1238	2403	14.81	16.50	31.31	52.2%								67.8%				81.1%	
59.25 - 54.25	1272	1308	2580	15.25	16.50	31.75	57.0%								73.3%				87.6%	
54.25 - 49.25	1385	1379	2765	15.69	16.50	32.19	61.6%								78.4%				93.6%	
49.25 - 45	1486	1442	2929	16.06	16.50	32.56	65.4%								82.5%				98.3%	
45 - 40.5	2022	n/a	2022	21.60	n/a	21.60	90.3%													
40.5 - 35.67	2185	n/a	2185	22.17	n/a	22.17	93.8%													
35.67 - 35.42	2201	1975	4176	22.20	18.00	40.20	50.7%									86.7%				
35.42 - 30.42	2381	2076	4457	22.79	18.00	40.79	53.2%									90.1%				
30.42 - 25.42	2569	2179	4749	23.37	18.00	41.37	55.6%									93.3%				
25.42 - 25	2586	2188	4774	23.42	18.00	41.42	55.7%									93.6%				
25 - 24	2625	2209	4834	23.54	18.00	41.54	56.2%									94.2%				
24 - 23.75	2641	2337	4978	23.57	24.00	47.57	56.1%							59.1%		92.6%				
23.75 - 18.91	3097	576	3674	24.14	12.00	36.14	97.0%						90.1%	90.1%						
18.91 - 18.66	3108	578	3686	24.17	12.00	36.17	97.1%						90.2%	90.2%						
18.66 - 18	3137	583	3719	24.25	12.00	36.25	97.4%						90.5%	90.5%						
18 - 17.75	2881	1833	4714	24.27	18.00	42.27	66.5%				82.5%		89.8%	85.7%						
17.75 - 13.5	3062	1905	4967	24.77	18.00	42.77	68.4%				84.5%		91.8%	87.6%						
13.5 - 13.25	3061	2406	5467	24.80	18.00	42.80	59.1%				88.9%	88.9%	88.9%							
13.25 - 8.25	3283	2515	5799	25.39	18.00	43.39	61.1%				91.0%	91.0%	91.0%							
8.25 - 8	3295	2521	5816	25.42	18.00	43.42	61.1%				91.1%	91.1%	91.1%							
8 - 7.75	3333	3017	6350	25.45	26.00	51.45	60.4%			73.8%	88.6%	88.6%	60.9%							
7.75 - 7	3368	3037	6404	25.54	26.00	51.54	60.7%			74.1%	88.9%	88.9%	61.1%							
7 - 6.73	3374	2706	6080	25.57	23.00	48.57	63.1%			76.3%			64.6%					96.8%		
6.73 - 6.48	3479	1968	5447	25.60	29.00	54.60	76.4%		67.4%	98.4%								63.2%		
6.48 - 6.25	3490	1972	5462	25.63	29.00	54.63	76.5%		67.5%	98.5%								63.3%		
6.25 - 5	3550	1994	5544	25.77	29.00	54.77	77.1%		67.9%	99.0%								63.8%		
5 - 3	3647	2029	5676	26.01	29.00	55.01	77.9%		68.5%	99.9%								64.4%		
3 - 2.75	3563	3399	6962	26.04	33.00	59.04	59.6%		64.9%	89.6%								64.7%		72.3%
2.75 - 2.5	3575	3406	6981	26.07	33.00	59.07	59.7%		65.0%	89.7%								64.8%		72.4%
2.5 - 2.25	3629	1377	5007	26.09	25.00	51.09	86.5%		66.4%									80.4%		90.2%
2.25 - 1	3691	1391	5082	26.24	25.00	51.24	87.0%		66.7%									80.8%		90.6%
1 - 0.75	3703	1394	5097	26.27	25.00	51.27	87.2%		66.8%									80.9%		90.6%
0.75 - 0	3685	3171	6855	26.36	18.00	44.36	62.6%	81.1%	88.0%											

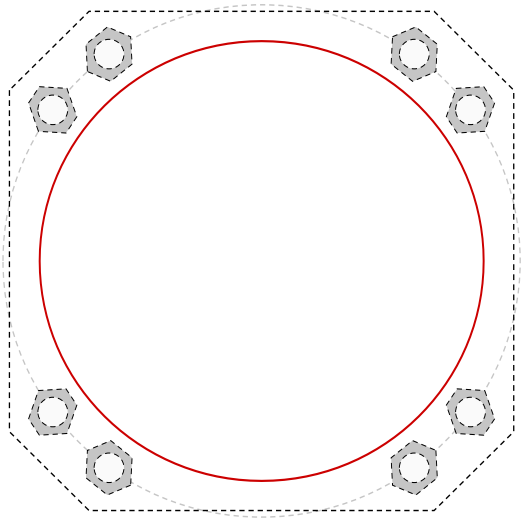
Note: Section capacity checked using 5 degree increments.

Monopole Base Plate Connection

Site Info	
Work Order #:	9927.CTHA151A
Site Name:	HA151A/BUSHYHILLFD_MP

Analysis Considerations	
TIA-222 Revision	G
Grout Considered:	N□
I□r □in□	□
Eta Factor, η	□□□

Applied Loads	
Moment (kip-ft)	1366.23
Axial Force (kips)	25.71
Shear Force (kips)	14.86



Connection Properties

Anchor Rod Data

(8) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 39" BC

Anchor Spacing: 6 in

Base Plate Data

38" OD x 2" Plate (A572-60; Fy=60 ksi, Fu=75 ksi)

Stiffener Data

N/A

Pole Data

33.47" x 0.25" 18-sided pole (A607-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

Anchor Rod Summary *(units of kips, kip-in)*

Pu_c = 213.12	ϕPn_t = 260	**Stress Rating**
Vu = 1.86	ϕVn = n/a	**83.4%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	52.64	(Flexural)
Allowable Stress (ksi):	54	
Stress Rating:	**97.5%**	**Pass**

Analysis Date: 8/3/2021

Monopole Flange Plate Connection

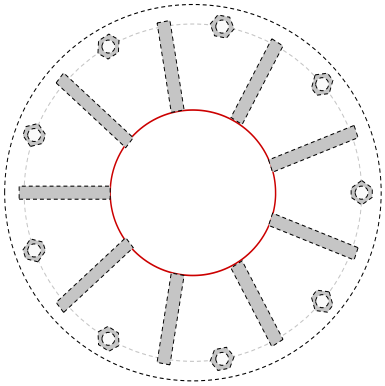
Elevation = 80 ft.

Work Order #	9927.CTHA151A
Site Name	HA151A/BUSHYHILLFD_MP

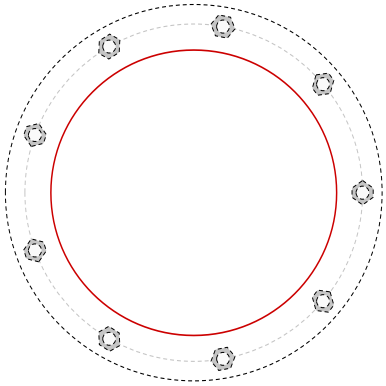
TIA-222 Revision	G

Applied Loads	
Moment (kip-ft)	264.40
Axial Force (kips)	9.74
Shear Force (kips)	9.67

Top Plate - External



Bottom Plate - External



Connection Properties

Bolt Data

(9) 1" ø bolts (A490 N; Fy=130 ksi, Fu=150 ksi) on 26" BC

Top Plate Data

29" OD x 1.5" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Plate Data

29" OD x 1.5" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

(9) 14"H x 7"W x 1"T, Notch: 0.5"
plate: Fy= 50 ksi ; weld: Fy= 70 ksi
horiz. weld: 0.3125" fillet
vert. weld: 0.3125" fillet

Bottom Stiffener Data

N/A

Top Pole Data

12.75" x 0.625" round pole (A500-42; Fy=42 ksi, Fu=58 ksi)

Bottom Pole Data

22" x 0.1875" 18-sided pole (A607-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	53.12	
Allowable (kips)	68.15	
Stress Rating:	**77.9%**	**Pass**

Top Plate Capacity

Max Stress (ksi):	15.43	(Roark's Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	**47.6%**	**Pass**
Tension Side Stress Rating:	**N/A**	

Bottom Plate Capacity

Max Stress (ksi):	16.23	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	**50.1%**	**Pass**
Tension Side Stress Rating:	**22.0%**	**Pass**

Top Stiffener Capacity

Horizontal Weld:	**71.1%**	**Pass**
Vertical Weld:	**40.2%**	**Pass**
Plate Flexure+Shear:	**10.3%**	**Pass**
Plate Tension+Shear:	**22.3%**	**Pass**
Plate Compression:	**32.9%**	**Pass**

Bottom Stiffener Capacity

Horizontal Weld:	**N/A**
Vertical Weld:	**N/A**
Plate Flexure+Shear:	**N/A**
Plate Tension+Shear:	**N/A**
Plate Compression:	**N/A**

Top Pole Capacity

Punching Shear:	**12.1%**	**Pass**

Bottom Pole Capacity

Punching Shear:	**N/A**

Analysis Date: 8/3/2021

Monopole Flange Plate Connection

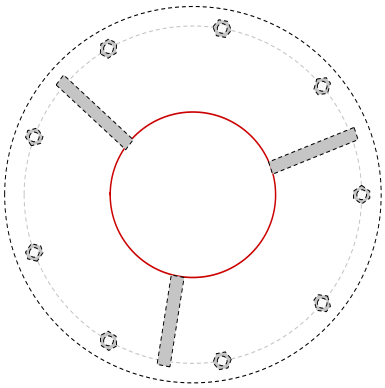
Elevation = 105 ft.

Work Order #	9927.CTHA151A
Site Name	HA151A/BUSHYHILLFD_MP

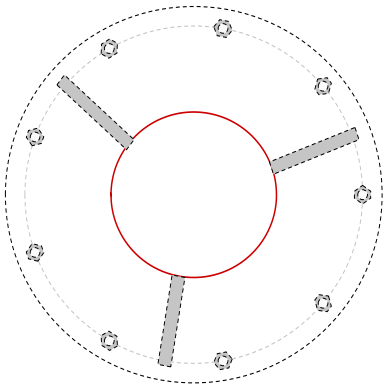
TIA-222 Revision	G

Applied Loads	
Moment (kip-ft)	36.67
Axial Force (kips)	4.74
Shear Force (kips)	6.27

Top Plate - External



Bottom Plate - External



Connection Properties

Bolt Data

(9) 3/4" ø bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 26" BC

Top Plate Data

29" OD x 1.5" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Plate Data

29" OD x 1.5" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

(3) 7"H x 7"W x 1"T, Notch: 0.5"
plate: Fy= 36 ksi ; weld: Fy= 70 ksi
horiz. weld: 0.3125" fillet
vert. weld: 0.3125" fillet

Bottom Stiffener Data

(3) 7"H x 7"W x 1"T, Notch: 0.5"
plate: Fy= 36 ksi ; weld: Fy= 70 ksi
horiz. weld: 0.3125" fillet
vert. weld: 0.3125" fillet

Top Pole Data

12.75" x 0.5" round pole (A500-42; Fy=42 ksi, Fu=58 ksi)

Bottom Pole Data

12.75" x 0.625" round pole (A500-42; Fy=42 ksi, Fu=58 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	6.99	
Allowable (kips)	30.04	
Stress Rating:	**23.3%**	**Pass**

Top Plate Capacity

Max Stress (ksi):	7.72	(Flexural (b/Le>2))
Allowable Stress (ksi):	32.40	
Stress Rating:	**23.8%**	**Pass**
Tension Side Stress Rating:	**18.4%**	**Pass**

Bottom Plate Capacity

Max Stress (ksi):	7.72	(Flexural (b/Le>2))
Allowable Stress (ksi):	32.40	
Stress Rating:	**23.8%**	**Pass**
Tension Side Stress Rating:	**18.4%**	**Pass**

Top Stiffener Capacity

Horizontal Weld:	**30.5%**	**Pass**
Vertical Weld:	**42.8%**	**Pass**
Plate Flexure+Shear:	**18.2%**	**Pass**
Plate Tension+Shear:	**12.1%**	**Pass**
Plate Compression:	**45.2%**	**Pass**

Bottom Stiffener Capacity

Horizontal Weld:	**28.8%**	**Pass**
Vertical Weld:	**40.4%**	**Pass**
Plate Flexure+Shear:	**17.0%**	**Pass**
Plate Tension+Shear:	**11.3%**	**Pass**
Plate Compression:	**42.8%**	**Pass**

Top Pole Capacity

Punching Shear:	**21.8%**	**Pass**

Bottom Pole Capacity

Punching Shear:	**16.5%**	**Pass**

Analysis Date: 8/3/2021

Pier and Pad Foundation

Site Name:	□A□□□A□□□□□□□□i□□D□MP
Work Order #:	□□□□□C□□A□□□A □M□D

□lA□□□□ Re□i□i□n□	□
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□□p □ □□□□P□d Rein□Di□eren□□□	☐
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Superstructure Analysis Reactions

C□mpre□□i□n□P_{comp}□	□□□□□□	□ip□
□□□e □□e□r□□□□□□mp□	□□□□□□	□ip□
M□men□□M_u□	□□□□□□□□	□□□ip□
□□□er □ei□□□□H□	□□□□	□□
□P Di□□A□□□e □dn□bp_{dist}□	□	in

Pier Properties

Pier □□□pe□	Cir□□□□r	
Pier Di□me□er□$dpier$□	□	□□
Ex□□A□□□e □r□de□E□	□□□□	□□
Pier Re□□r □i□e□Sc□	□	
Pier Re□□r □ □□n□i□□□mc□	□□	
Pier □ie□□pir□□□□i□e□St□	□	
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Pier Rein□□r□emen□□□pe□	□ie	
Pier C□e□r C□□er□cc_{pier}□	□	in

Pad Properties

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P□d □□i□□ne□□□T□	□	□□
P□d Re□□r □i□e □□□□□□m□□Sp□	□	
P□d Re□□r □ □□n□i□□ □□ □□□□m□□mp□	□□	
P□d C□e□r C□□er□cc_{pad}□	□	in

Material Properties

Re□□r □r□de□Fy□	□□	□□i
C□n□re□e C□mpre□□i□e □□ren□□□□$F'c$□	□	□□i
Dr□C□n□re□e Den□i□□□δc:	□□□	p□□

Soil Properties

□□□□□□□i□□ni□□ ei□□□□γ:	□□□	p□□
□□im□□e □r□□□ □e□rin□□□ □□□	□□□□□	□□□
C□□e□i□n□Cu□	□□□□□	□□□
□ri□□i□n An□□e□φ:	□□	de□ree□
□P□ □□□□ C□□n□N_{blows}□		
□□□e □ri□□i□n□μ:		
Ne□□ë□ed Dep□□□N□	□□□□	□□
□□□nd□□i□n □e□rin□ □n R□□□□	N□	
□r□□nd□□□er Dep□□□gw□	N□ne	□□

Foundation Analysis Checks

	Capacity	Demand	Rating	Check
Lateral (Sliding) (kips)	□□□□□□	□□□□□	**13.9%**	**Pass**
Bearing Pressure (ksf)	□□□□	□□□□	**73.6%**	**Pass**
*Overturning (kip*ft)*	□□□□□□□	□□□□□□□	**88.4%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	□□□□□□□	□□□□□□□	**47.5%**	**Pass**
Pier Compression (kip)	□□□□□□□	□□□□□	**0.4%**	**Pass**
*Pad Flexure (kip*ft)*	□□□□□□□	□□□□□□	**18.7%**	**Pass**
Pad Shear - 1-way (kips)	□□□□□□	□□□□□□	**28.4%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	□□□□□	□□□□□	**0.0%**	**Pass**

□□i□R□□in□□	**88.4%**
□□r□□□□r□□R□□in□□	**47.5%**

□□□□□□□□e □e□□een □r□□□ □nd Ne□

Exhibit E

Tectonic
PRACTICAL SOLUTIONS. EXCEPTIONAL SERVICE.

[redacted]

TECTONIC WORK ORDER: .CTHA151A

PROJECT SCOPE OF WORK: OBILE "L600 SCOPE"
SITE TYPE: POSED ANTENNA PLATFORM ON A 105 MONOPOLE

DATE: November 3, 2020
REVISION #: 1

SITE ID #: CTHA151A
SITE NAME: HA151A/BUSHYHILLFD_MP
SITE ADDRESS: 345 BUSHY HILL ROAD, SIMSBURY, CT 06070

PREPARED FOR: NORTHEAST SITE SOLUTIONS

☒ PASS ☐ PASS WITH MODS ☐ FAIL
69% UTILIZATION

APPROVED BY: _____
EDWARD N. IAMICELI, P.E

STATE OF CONNECTICUT
EDWARD N. IAMICELI
PEN.0028473
LICENSED PROFESSIONAL ENGINEER

Project Contact Info

1279 Route 300 | Newburgh, NY 12550
845.567.6656 Tel | 845.567.8703 Fax

tectonicengineering.com
Equal Opportunity Employer

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APPENDICE□

A. PR□P□ □ED MOU NT □PECI□ICA□I□N□

CONNECTICUT DESIGN CRITERIA - STATE

Revison:

CT is NOT a Home Rule State; Tab added only for Design Criteria

(APPENDIX N) MUNICIPALITY - SPECIFIC STRUCTURAL DESIGN PARAMETERS

				Wind Design Parameters					
Municipality	**Ground Snow Load**	**MCE Spectral Accelerations** (%g)		**Ultimate Design Wind Speeds,** V_{ult} (mph)			**Nominal Design Wind Speeds,** V_{asd} (mph)		
		S_s	S_1	Risk Cat.I	Risk Cat.II	Risk Cat III-IV	Risk Cat. I	Risk Cat. II	Risk Cat. III-IV
Andover	30	0.176	0.063	120	130	140	93	101	108
Ansonia	30	0.195	0.064	115	125	135	89	97	105
Ashford	35	0.173	0.063	120	130	140	93	101	108
Avon	35	0.181	0.064	110	120	130	85	93	101
Barkhamsted	40	0.177	0.065	110	120	125	85	93	97
Beacon Falls	30	0.192	0.064	115	125	135	89	97	105
Berlin	30	0.183	0.063	115	125	135	89	97	105
Bethany	30	0.189	0.063	115	125	135	89	97	105
Bethel	30	0.215	0.066	110	120	125	85	93	97
Bethlehem	35	0.190	0.065	110	120	125	85	93	97
Bloomfield	35	0.180	0.064	115	125	130	89	97	101
Simsbury	35	0.179	0.064	110	120	130	85	93	101
Bozrah	30	0.170	0.061	120	135	145	93	105	112
Branford	30	0.180	0.061	120	130	140	93	101	108
Bridgeport	30	0.209	0.064	115	125	135	89	97	105
Bridgewater	35	0.201	0.066	110	120	125	85	93	97
Bristol	35	0.185	0.064	110	120	130	85	93	101
Brookfield	35	0.208	0.066	110	120	125	85	93	97
Brooklyn	35	0.171	0.062	120	130	140	93	101	108
Burlington	35	0.182	0.064	110	120	130	85	93	101
Canaan	40	0.173	0.065	105	115	120	81	89	93
Canterbury	35	0.171	0.061	120	130	140	93	101	108
Canton	35	0.180	0.064	110	120	130	85	93	101
Chaplin	35	0.173	0.062	120	130	140	93	101	108
Cheshire	30	0.186	0.063	115	125	135	89	97	105
Chester	30	0.172	0.060	120	130	140	93	101	108
Clinton	30	0.169	0.059	120	135	140	93	105	108
Colchester	30	0.174	0.061	120	130	140	93	101	108
Colebrook	40	0.174	0.065	105	115	125	81	89	97
Columbia	30	0.175	0.062	120	130	140	93	101	108
Cornwall	40	0.180	0.065	105	115	120	81	89	93
Coventry	30	0.176	0.063	120	130	140	93	101	108
Cromwell	30	0.181	0.063	115	125	135	89	97	105
Danbury	30	0.217	0.067	110	120	125	85	93	97
Darien	30	0.242	0.068	110	120	130	85	93	101
Deep River	30	0.170	0.060	120	130	140	93	101	108
Derby	30	0.195	0.064	115	125	135	89	97	105
Durham	30	0.179	0.062	115	130	140	89	101	108
Eastford	40	0.172	0.063	120	130	140	93	101	108
East Granby	35	0.177	0.065	110	120	130	85	93	101
East Haddam	30	0.172	0.061	120	130	140	93	101	108
East Hampton	30	0.177	0.062	120	130	140	93	101	108

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Tectonic	Job No. 9927.CTHA151A - Rev 1			
PRACTICAL SOLUTIONS. EXCEPTIONAL SERVICE.	Sheet No.	1	of	3
	Calculated By	JJ	Date :	11/3/2020
	Checked By	IM	Date :	11/3/2020

WIND AND ICE LOADS PER TIA-222-G

W.O.	9927.CTHA151A - Rev 1
Project Name	HA151A/BushyHillFD_MP
Location	345 Bushy Hill Rd, Simbury, CT 06070
County	Hartford

Tower Type	MP	Monopole
Structure Class	2	Substantial hazard
Exposure Category	B	Suburban/wooded/obstructed
Topo Category	1	Flat or rolling terrain
Height of crest	0	ft

Basic Wind Speed (3-sec gust):		
Without ice	93	mph*
With ice	50	mph
Service	60	mph
Ice thickness	1.00	in

Importance Factor	
Wind only	1.00
Wind with ice	1.00
Ice thickness	1.00
Supporting Data:	
K_e	0.90
K_t	N/A
f	N/A
z_g	1200
α	7
$K_{z,min}$	0.7
K_d	0.95
G_h	1.00

Height	z (ft)	77
	Kh	N/A
	Kzt	1.00
	Kz	0.92
	Kiz	1.09
Wind Pressure, qz (psf)	No Ice	19.29
	With Ice	5.58
	Service	8.03
(tiz)	Ice Thk	2.18
Appurtenances (qzGh)	No Ice	19.29
	With Ice	5.58
	Service	8.03

*Ultimate 3-second gust wind speed of 120 mph converted to a nominal 3-second wind gust speed of 93 mph per Section 1609.3 and Appendix N, as required for use in the TIA-222-G Standard.

Tectonic
PRACTICAL SOLUTIONS. EXCEPTIONAL SERVICE.

Job No.	9927.CTHA151A - Rev 1		
Sheet No.	2	of	3
Calculated By	JJ	Date :	11/03/20
Checked By	IM	Date :	11/03/20

Appurtenance Information

Effective Projected Area for Appurtenance $(EPA)_A=Max((EPA)_N,(EPA)_T)$

$(EPA)_T=\sum(C_aA_A)_T$ | $(EPA)_N=\sum(C_aA_A)_N$

Reduction Factor = 1

Wind Only Load Combinations

Antenna Configuration	(E) or (P)	Qty	z (ft)	Length or Diameter (ft)	Width (in)	Depth (in)	Flat or Cylindrical?	Antenna $(Ca)_T$	Antenna $(Ca)_N$	Side Face $(Aa)T$ (ft^2)	Wind ward Side Face (CaAa)T (ft^2)	Face Normal $(A_a)_N$ (ft^2)	Windward face Normal $(C_aA_a)_N$ (ft^2)	Normal Antenna Wind Load Each (lb)	Transverse Antenna Wind Load Each (lb)	Antenna Weight (lb)	Total Weight (lb)
APX16DWV-16DWVS-E-A20	E	3	77	4.99	13.00	3.15	Flat	1.80	1.29	1.31	7.08	5.41	20.99	135	46	41.8	125.4
KRY 112 144/2	E	3	77	0.72	6.65	3.19	Flat	1.21	1.20	0.19	0.70	0.40	1.44	9	4	9.7	29.1
RRU 4449 B71+B12	**P**	**3**	77	1.25	13.20	10.40	Flat	1.20	1.20	1.08	3.90	1.38	4.95	32	25	75.0	225.0
APXVAARR24_43-U-NA20	**P**	**3**	77	7.99	24.00	8.70	Flat	1.53	1.27	5.79	26.67	15.98	60.73	391	171	153.3	459.9
										$\sum(CaAA)_T$	38.34	$\sum(CaA_A)_N$	88.10				839

Note: Appurtenances listed above are to be installed along three (3) sectors.

Wind with Ice Load Combinations **Ice Thk=** 2.18 in

Antenna Configuration	(E), (R) or (P)	Qty	z (ft)	Length or Diameter (ft)	Width (in)	Depth (in)	Flat or Cylindrical?	Antenna $(Ca)_T$	Antenna $(Ca)_N$	Side Face $(A_a)_T$ (ft^2)	Windward Side Face (CaAa)T (ft^2)	Face Normal $(A_a)_N$ (ft^2)	Windward Face Normal $(C_aA_a)_N$ (ft^2)	Normal Antenna Wind Load Each (lb)	Transverse Antenna Wind Load Each (lb)	Ice Area for Weight (ft^2)	Ice Weight Alone (lbs)
APX16DWV-16DWVS-E-A20	E	3.00	77.00	5.35	17.35	7.50	Cylindrical	1.45	1.25	3.35	14.59	7.74	29.12	54	27	13.4	136.5
KRY 112 144/2	E	3.00	77.00	1.08	11.00	7.54	Cylindrical	1.20	1.20	0.68	2.45	0.99	3.58	7	5	1.2	12.0
RRU 4449 B71+B12	P	3.00	77.00	1.61	17.55	14.75	Cylindrical	1.20	1.20	1.98	7.14	2.36	8.49	16	13	4.9	49.9
APXVAARR24_43-U-NA20	P	3.00	77.00	8.35	28.35	13.05	Cylindrical	1.42	1.25	9.09	38.79	19.74	73.79	137	72	43.6	442.5
										$\sum(CaAA)_T$	62.96	$\sum(CaA_A)_N$	114.98				641

Tectonic
PRACTICAL SOLUTIONS. EXCEPTIONAL SERVICE.

Job No. 9927.CTHA151A - Rev 1
Sheet No. 3 of 3
Calculated By JJ Date : 11/03/20
Checked By IM Date : 11/03/20

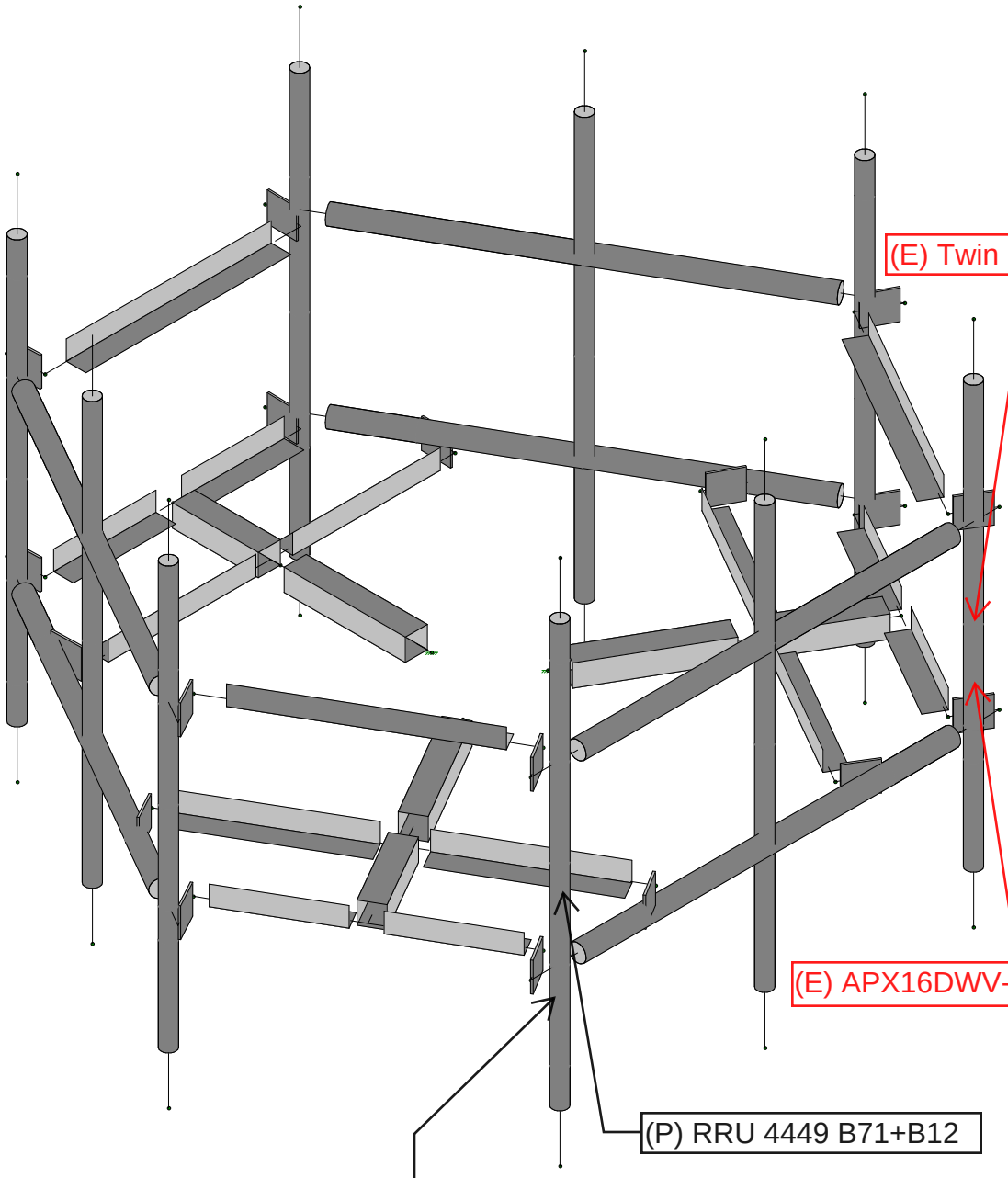
Proposed Platform Mount

Mount Center Line=	77 ft

Member sizes and lengths are based on assembly drawing by SitePro1 (P/N: SNP8H)

Reduction Factor = 1

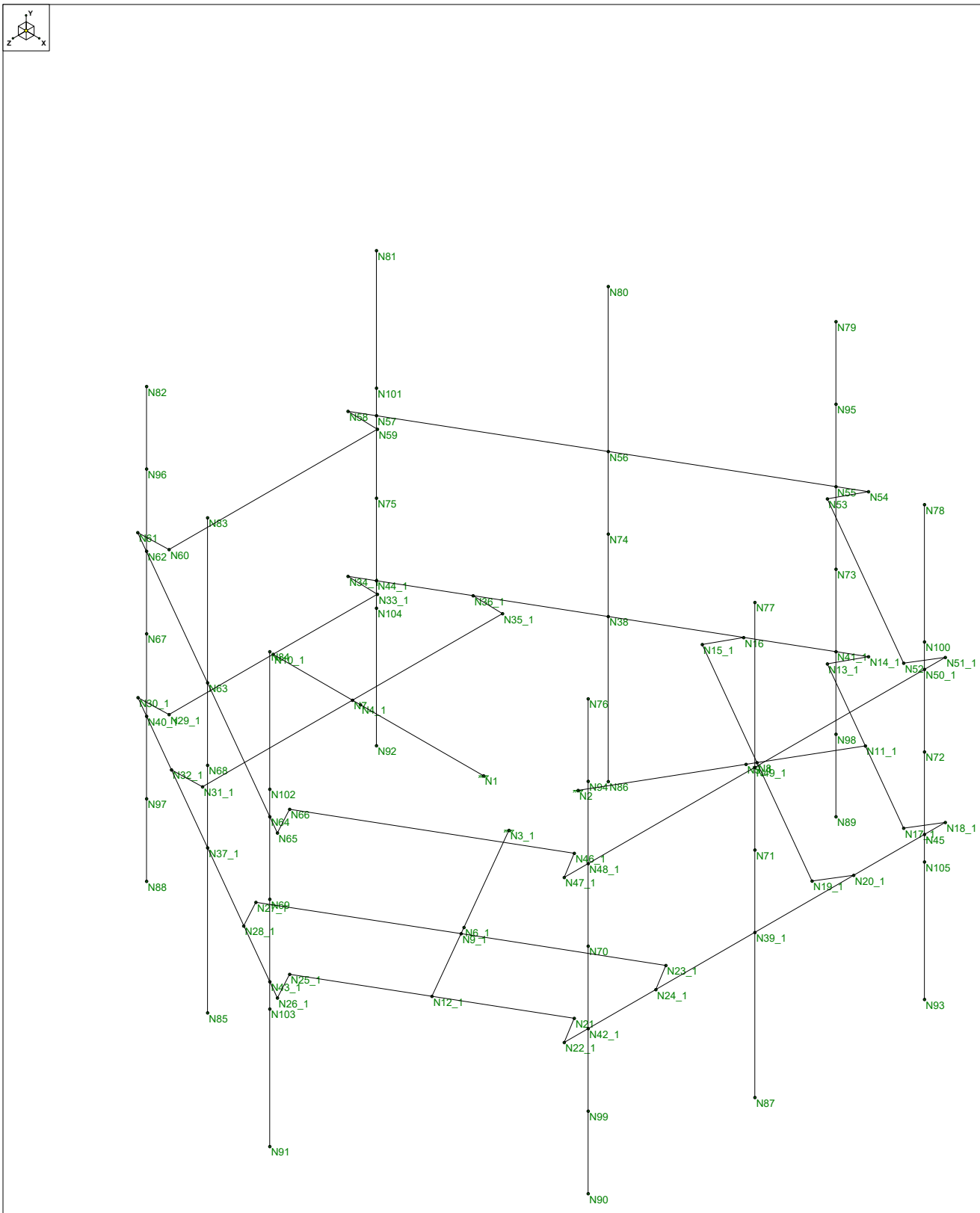
Mount Part	Quantity	Length (ft)	Projected Width (in)	Depth (in)	Flat or Cylindrical?	Drag Factor	Projected Area (ft^2)	Wind Force (lbs/ft)	Ice Weight Area (ft^2)	Ice Weight (lbs/ft)	Projected Area with Ice (ft^2)	Wind Force Ice (lbs/ft)	Service Wind Force (lbs/ft)
Face Horizontal_3.0" STD Pipe	6	8.00	3.50	3.50	Cylindrical	1.2	16.80	6.8	43.96	9.3	37.70	4.4	2.8
Standoff Horizontal_HSS4.5x4.5x3/16	6	4.00	4.50	4.50	Flat	2	18.00	14.5	36.00	15.2	35.41	8.2	6.0
Corner Angle_L4x4x3/8	9	4.00	4.00	4.00	Flat	2	24.00	12.9	48.00	13.5	50.12	7.8	5.4
Mount Pipe_2.5" STD	9	8.00	2.88	2.88	Cylindrical	1.2	20.70	5.5	54.17	7.6	52.05	4.0	2.3



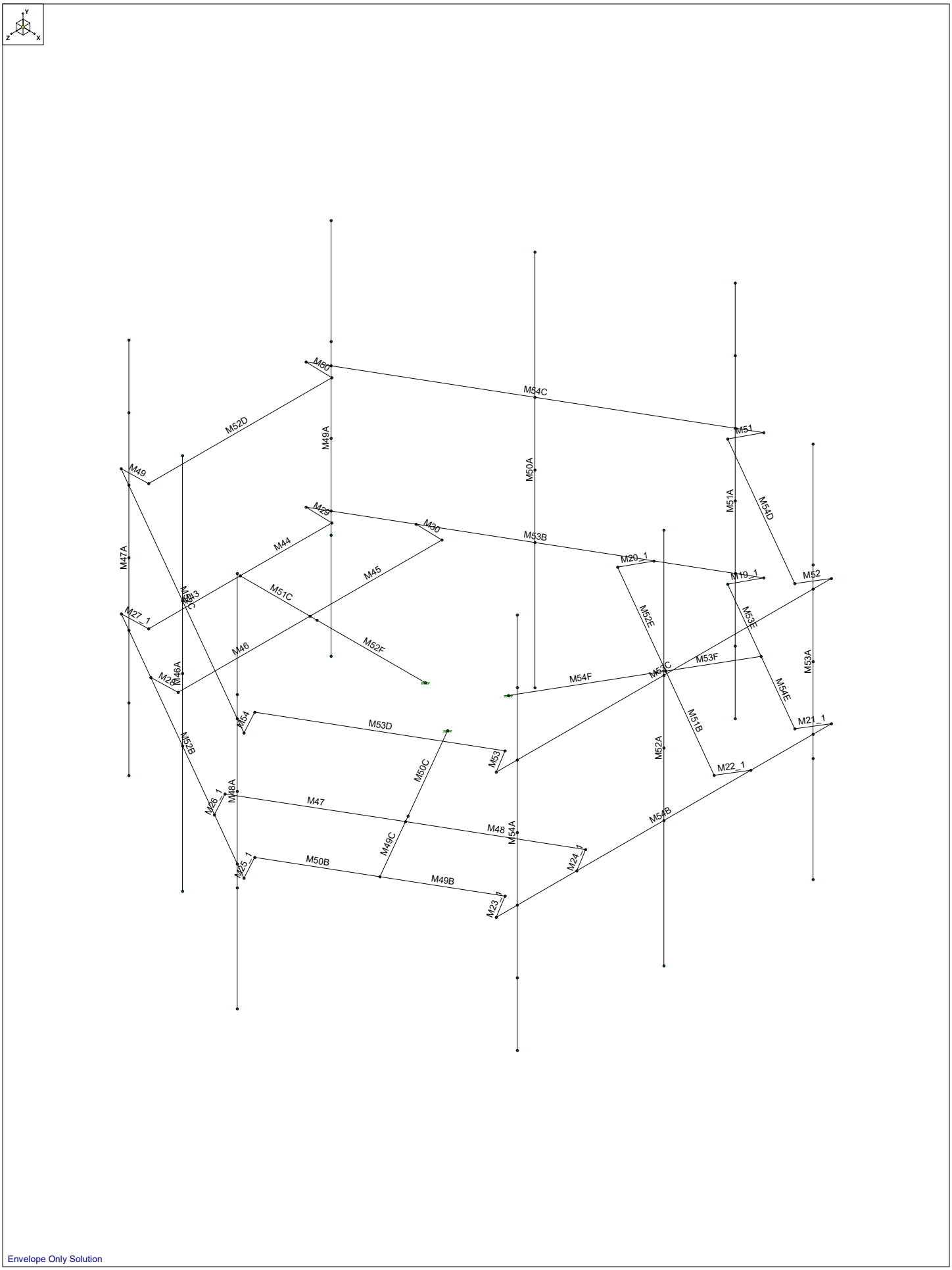
NOTES:
1)EXISTING AND PROPOSED ANTENNAS AND MOUNTING PIPES HAVE BEEN VERTICALLY CENTERED ALONG THE EXISTING MOUNT (NO OFFSET).
2) LISTED APPURTENANCES ABOVE ARE TYPICAL FOR ALL SECTORS.
3) RADIOS ARE LOCATED BEHIND THE ANTENNAS.

(P) PROPOSED
(E) EXISTING

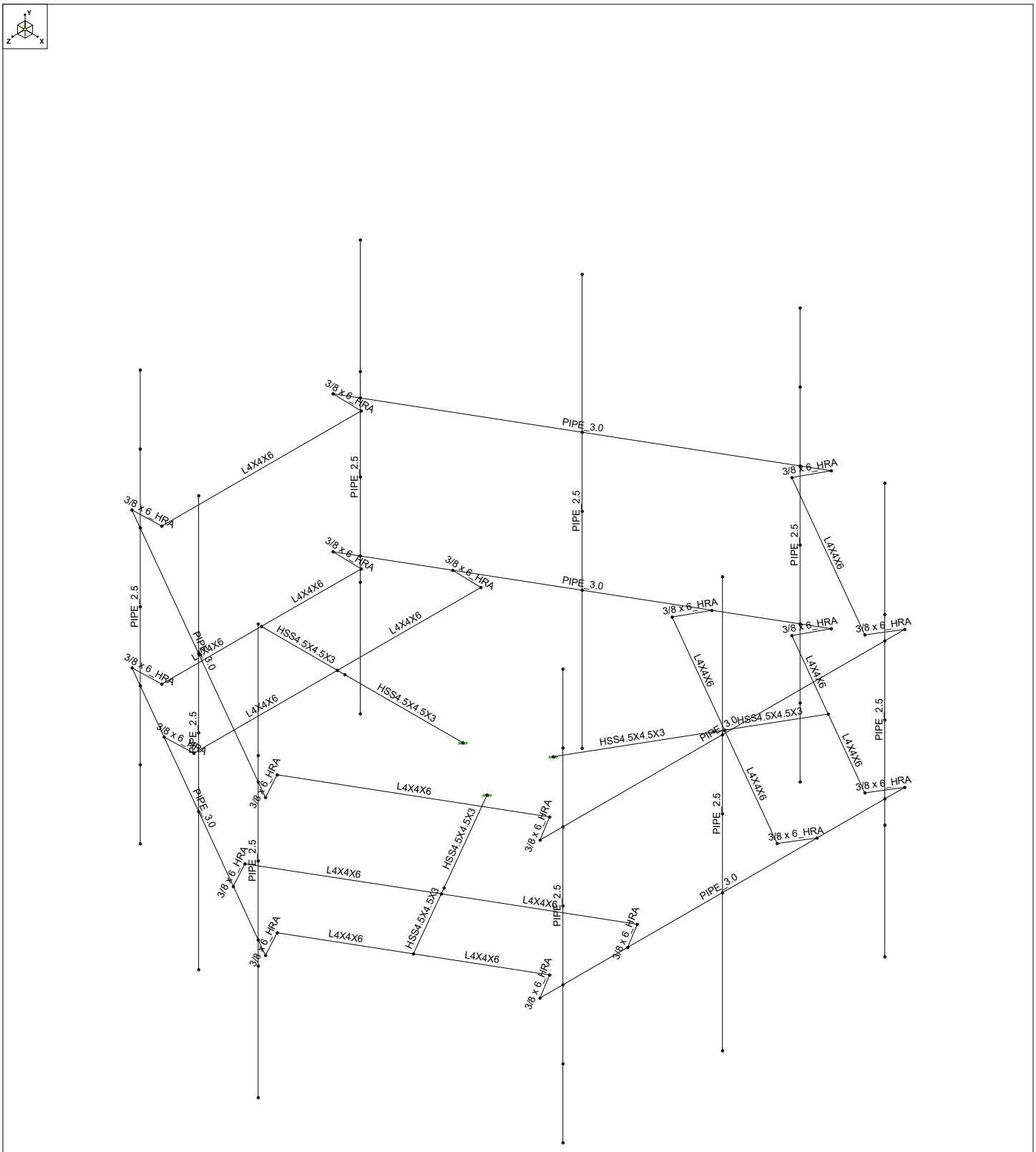
Envelope Only Solution



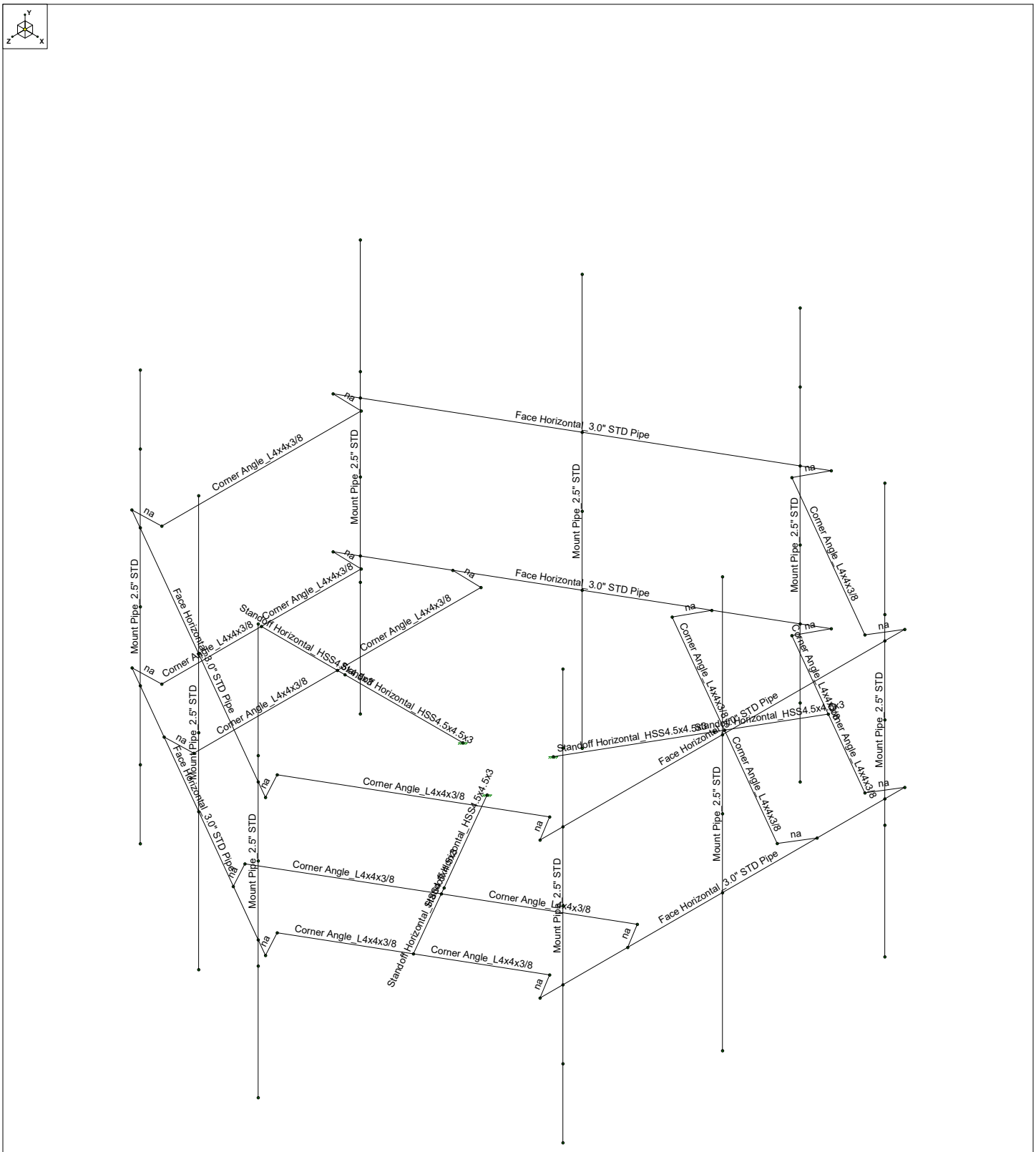
Envelope Only Solution



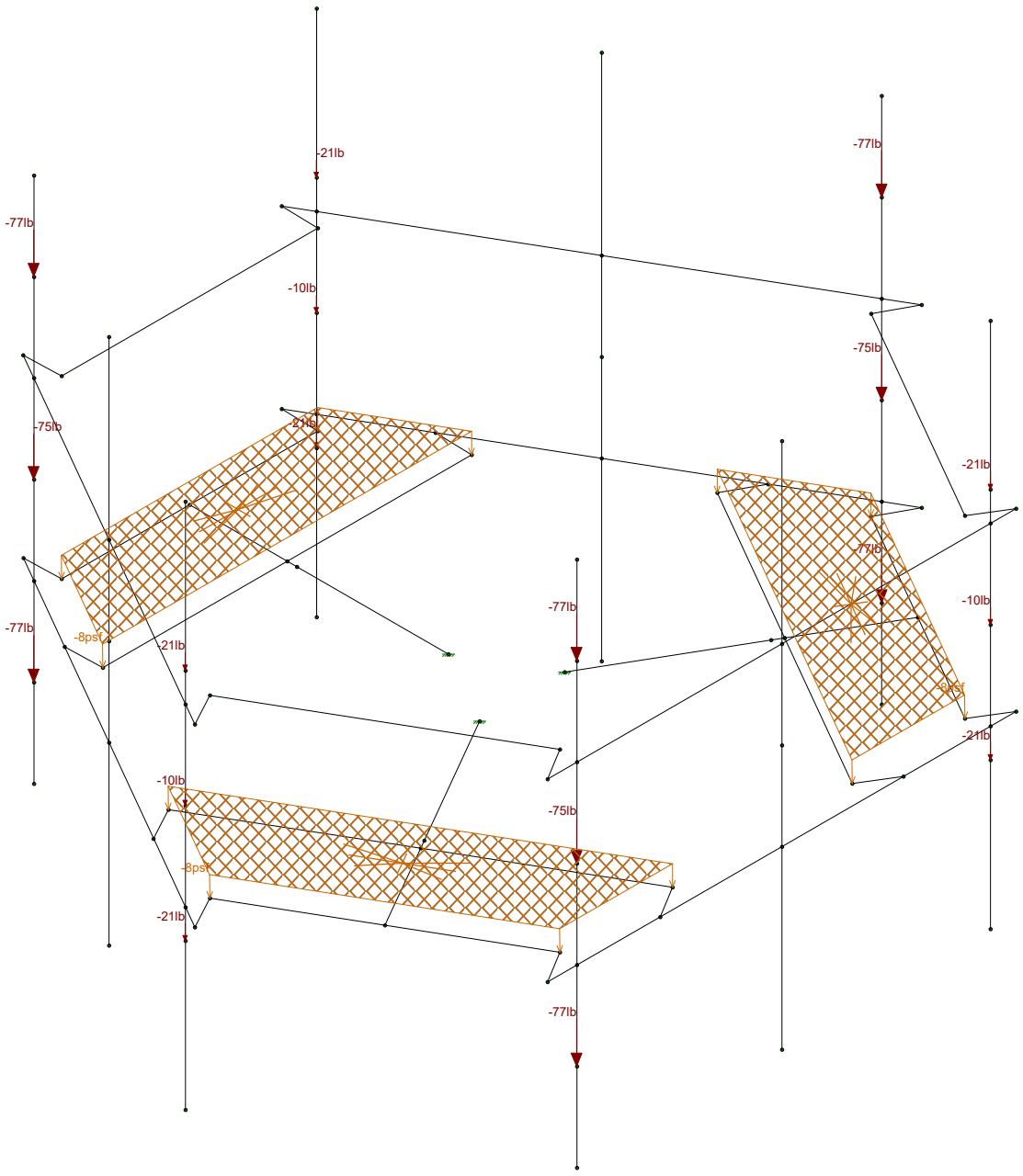
Envelope Only Solution



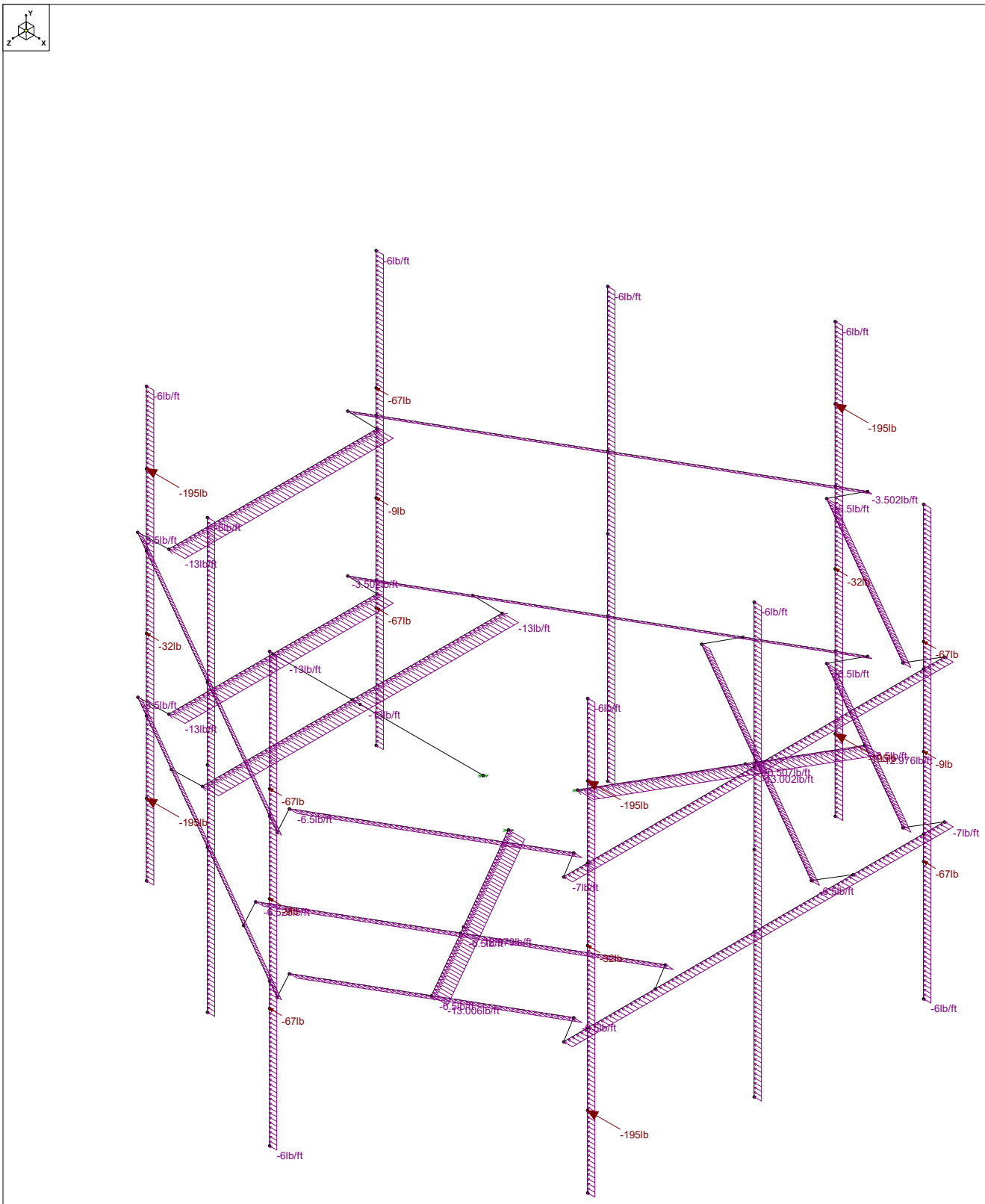
Envelope Only Solution



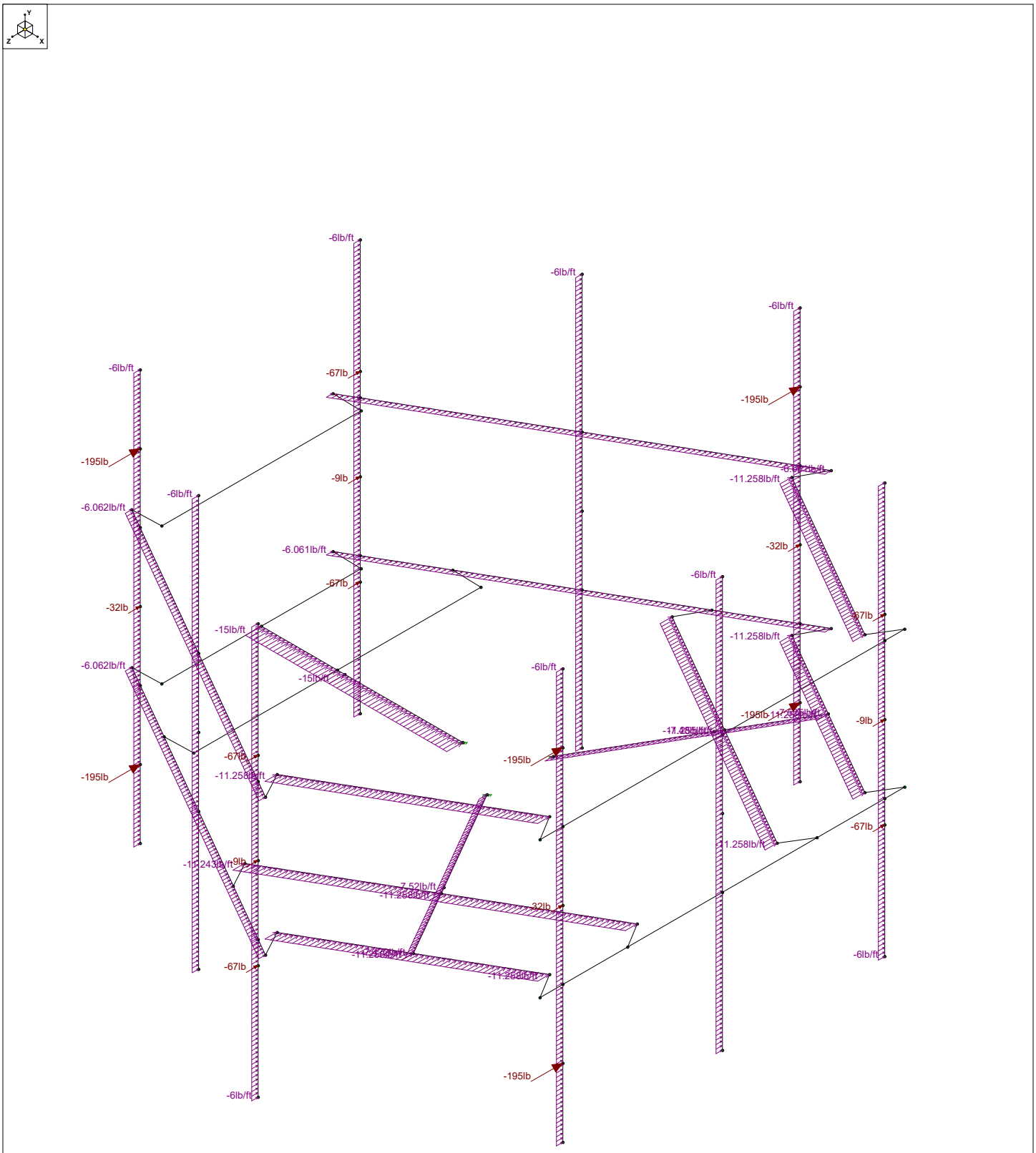
Envelope Only Solution



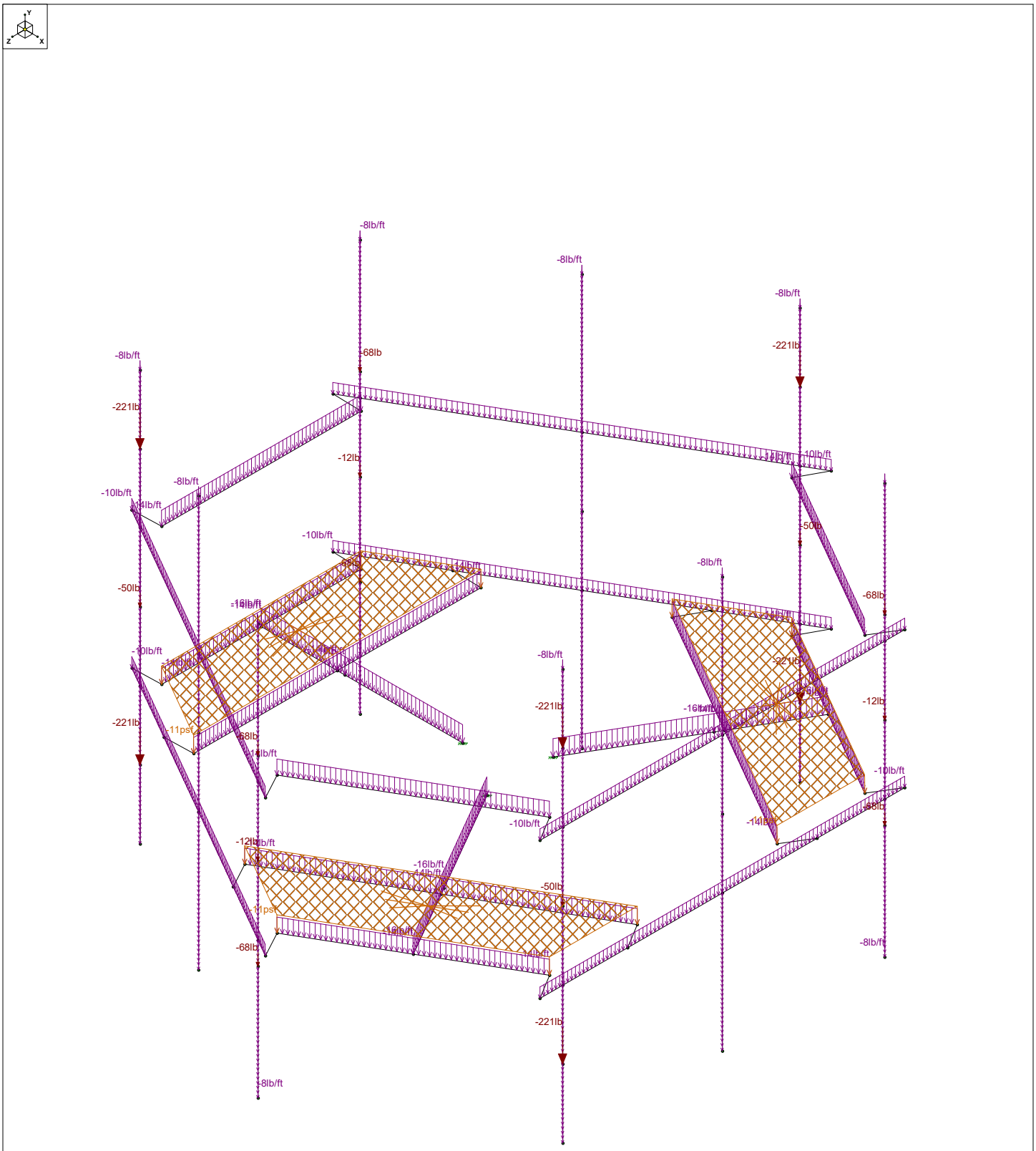
Loads: BLC 1, DL
Envelope Only Solution



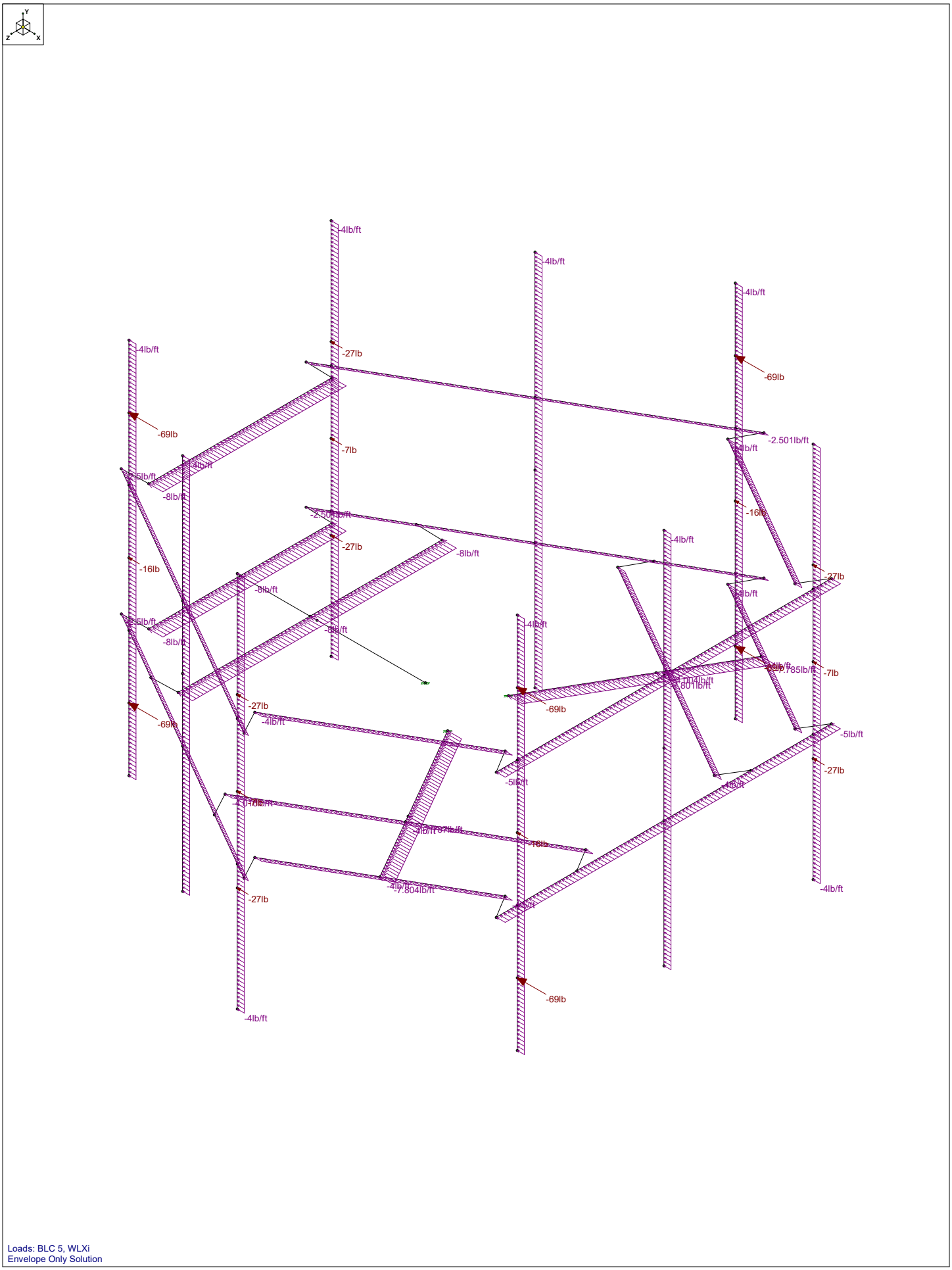
Loads: BLC 2, WLX
Envelope Only Solution



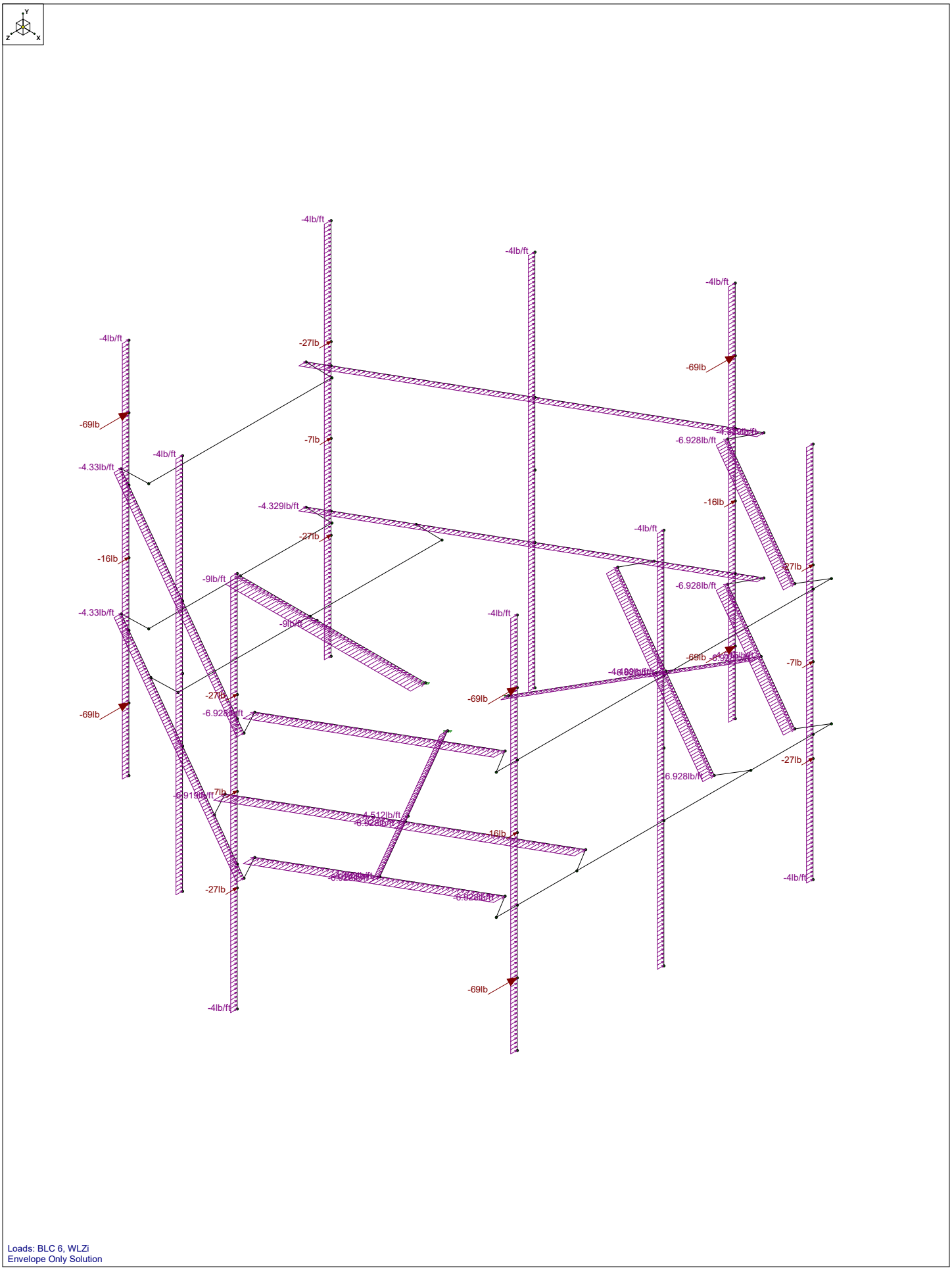
Loads: BLC 3, WLZ
Envelope Only Solution



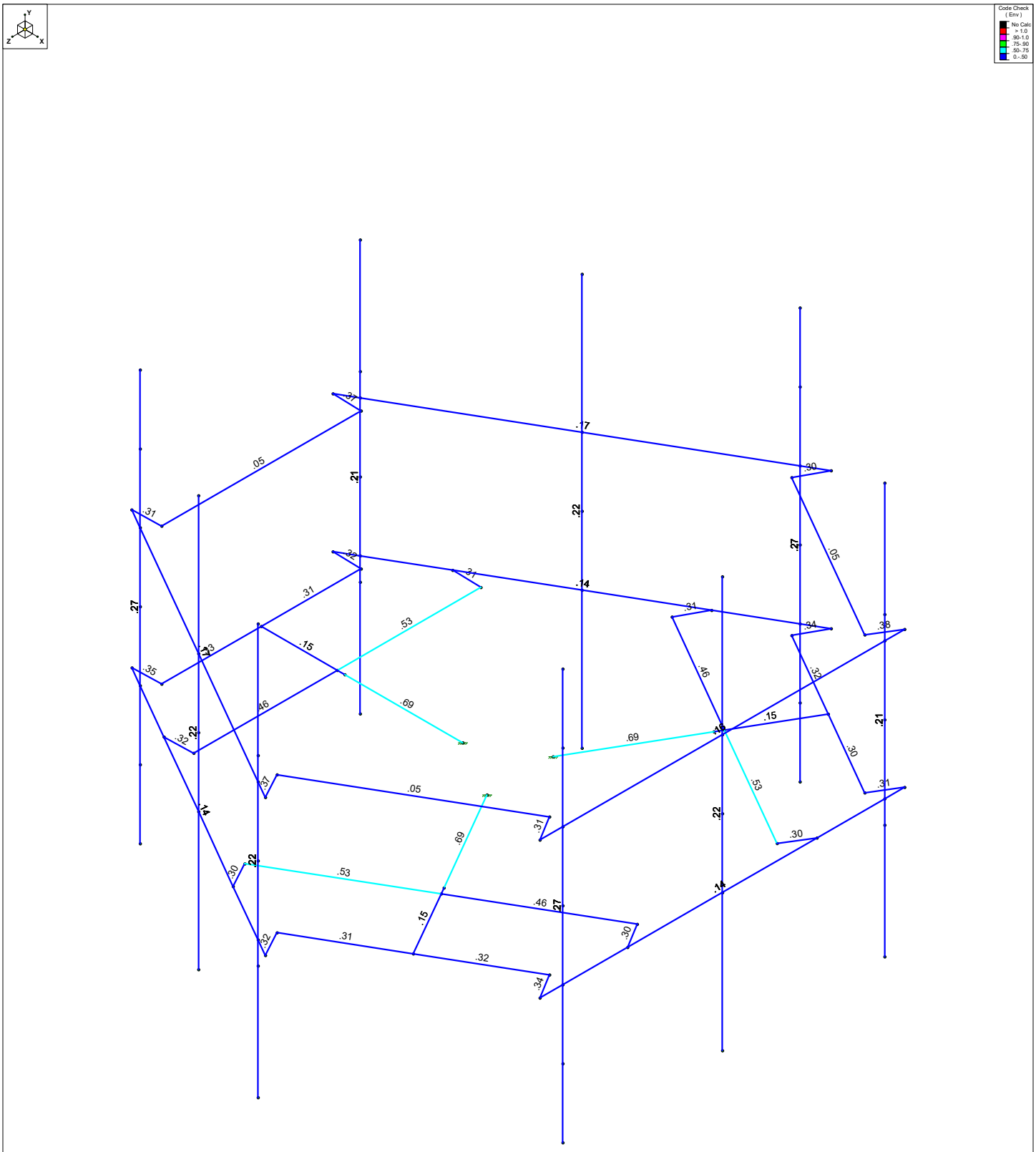
Loads: BLC 4, DLi
Envelope Only Solution



Loads: BLC 5, WLXi
Envelope Only Solution



Loads: BLC 6, WLZi
Envelope Only Solution



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1E...	Density[k/ft...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	.3	.65	.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65	.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	.49	50	1.4	65	1.3
8	A500 Gr.42	29000	11154	.3	.65	.49	42	1.3	58	1.1
9	A500 Gr.46	29000	11154	.3	.65	.49	46	1.2	58	1.1

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
1	DL	DL		-1.05		18			3	
2	WLX	WLX				18		36		
3	WLZ	WLZ				18		36		
4	DLi	OL1				18		36	3	
5	WLXi	WLX				18		36		
6	WLZi	WLZ				18		36		
7	BLC 1 Transient Area...	None						20		
8	BLC 4 Transient Area...	None						20		

Load Combinations

	Description	S...	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	1.4D	Yes	Y		1	1.4																		
2	1.2D+1.6(WLX+WLZ) - 0 Deg	Yes	Y		1	1.2	2	1.6																
3	1.2D+1.6(WLX+WLZ) - 30 Deg	Yes	Y		1	1.2	2	1.3...	3	.8														
4	1.2D+1.6(WLX+WLZ) - 60 Deg	Yes	Y		1	1.2	2	.8	3	1.3...														
5	1.2D+1.6(WLX+WLZ) - 90 Deg	Yes	Y		1	1.2	2		3	1.6														
6	1.2D+1.6(WLX+WLZ) - 120 Deg	Yes	Y		1	1.2	2	-.8	3	1.3...														
7	1.2D+1.6(WLX+WLZ) - 150 Deg	Yes	Y		1	1.2	2	-1....	3	.8														
8	1.2D+1.6(WLX+WLZ) - 180 Deg	Yes	Y		1	1.2	2	-1.6	3															
9	1.2D+1.6(WLX+WLZ) - 210 Deg	Yes	Y		1	1.2	2	-1....	3	-.8														
10	1.2D+1.6(WLX+WLZ) - 240 Deg	Yes	Y		1	1.2	2	-.8	3	-1....														
11	1.2D+1.6(WLX+WLZ) - 270 Deg	Yes	Y		1	1.2	2		3	-1.6														
12	1.2D+1.6(WLX+WLZ) - 300 Deg	Yes	Y		1	1.2	2	.8	3	-1....														
13	1.2D+1.6(WLX+WLZ) - 330 Deg	Yes	Y		1	1.2	2	1.3...	3	-.8														
14	**Wind Load with Ice**																							
15	1.2D+1.0Di+1.0(WLXi+WLZi) - 0...	Yes	Y		1	1.2	4	1	5	1	6													
16	1.2D+1.0Di+1.0(WLXi+WLZi) - 3...	Yes	Y		1	1.2	4	1	5	.87	6	.5												
17	1.2D+1.0Di+1.0(WLXi+WLZi) - 6...	Yes	Y		1	1.2	4	1	5	.5	6	.87												
18	1.2D+1.0Di+1.0(WLXi+WLZi) - 9...	Yes	Y		1	1.2	4	1	5		6	1												
19	1.2D+1.0Di+1.0(WLXi+WLZi) - 1...	Yes	Y		1	1.2	4	1	5	-.5	6	.87												
20	1.2D+1.0Di+1.0(WLXi+WLZi) - 1...	Yes	Y		1	1.2	4	1	5	-.87	6	.5												
21	1.2D+1.0Di+1.0(WLXi+WLZi) - 1...	Yes	Y		1	1.2	4	1	5	-1	6													
22	1.2D+1.0Di+1.0(WLXi+WLZi) - 2...	Yes	Y		1	1.2	4	1	5	-.87	6	-.5												
23	1.2D+1.0Di+1.0(WLXi+WLZi) - 2...	Yes	Y		1	1.2	4	1	5	-.5	6	-.87												
24	1.2D+1.0Di+1.0(WLXi+WLZi) - 2...	Yes	Y		1	1.2	4	1	5		6	-1												
25	1.2D+1.0Di+1.0(WLXi+WLZi) - 3...	Yes	Y		1	1.2	4	1	5	.5	6	-.87												
26	1.2D+1.0Di+1.0(WLXi+WLZi) - 3...	Yes	Y		1	1.2	4	1	5	.87	6	-.5												

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Mount Pipe_2.5" STD	PIPE_2.5	None	None	A53 Gr.B	Typical	1.61	1.45	1.45	2.89
2	Face Horizontal_3.0"...	PIPE_3.0	None	None	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
3	Standoff Horizontal_...	HSS4.5X4.5X3	None	None	A36 Gr.36	Typical	2.93	9.02	9.02	14.4
4	Corner Angle_L4x4x...	L4X4X6	None	None	A36 Gr.36	Typical	2.86	4.32	4.32	.141

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N1	max	2109.095	2	2736.115	15	1104.068	5	-57.904	10	2004.237	5	356.722	8
2		min	-1708.31	8	1.596	8	-1091.357	11	-684.826	17	-2022.949	11	-8477.343	15
3	N2	max	1133.069	2	2726.867	19	2033.571	5	7661.365	19	2179.534	9	3643.925	19
4		min	-1345.138	8	18.516	12	-1692.306	11	-200.325	12	-2196.436	3	-245.083	12
5	N3_1	max	1415.7	2	2725.025	23	1416.379	5	337.024	4	2183.458	13	4789.78	23
6		min	-1604.416	8	18.11	4	-1770.355	11	-6991.345	23	-2198.517	7	-17.718	4
7	Totals:	max	4657.864	2	7268.672	26	4554.017	5						
8		min	-4657.864	8	3083.351	2	-4554.017	11						

Envelope AISC 15th(360-16): LRFD Steel Code Checks

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc...	...	...	phi*P...	phi*P...	phi*M...	phi*M...	Cb	Eqn
1	M50C	HSS4.5X4.5X3	.692	2.584	22	.162	2.5...	y	23	93384...	94932	12717	12717	1.493	H1-1b
2	M52F	HSS4.5X4.5X3	.692	2.584	26	.164	2.5...	y	16	93384...	94932	12717	12717	1.494	H1-1b
3	M54F	HSS4.5X4.5X3	.691	2.584	18	.164	2.5...	y	19	93384...	94932	12717	12717	1.493	H1-1b
4	M45	L4X4X6	.535	3.15	16	.075	3.15	y	24	81862...	92664	4398....	9886....	1.673	H2-1
5	M51B	L4X4X6	.533	3.153	19	.075	3.1...	y	16	81839...	92664	4398....	9886....	1.675	H2-1
6	M47	L4X4X6	.531	3.153	23	.075	3.1...	y	20	81839...	92664	4398....	9886....	1.675	H2-1
7	M46	L4X4X6	.464	0	15	.051	0	y	19	81862...	92664	4398....	9886....	1.687	H2-1
8	M48	L4X4X6	.463	0	23	.052	0	y	15	81885...	92664	4398....	9886....	1.687	H2-1
9	M52E	L4X4X6	.462	0	19	.052	0	y	23	81906...	92664	4398....	9886....	1.686	H2-1
10	M52	3/8 x 6_HRA	.383	.637	5	.513	0	y	9	65255...	72900	9112.5	569.5...	1.09	H1-1b
11	M54	3/8 x 6_HRA	.374	.637	9	.512	0	y	13	65255...	72900	9112.5	569.5...	1.106	H1-1b
12	M50	3/8 x 6_HRA	.365	.637	13	.509	0	y	5	65255...	72900	9112.5	569.5...	1.098	H1-1b
13	M27_1	3/8 x 6_HRA	.347	.637	3	.417	0	y	5	65255...	72900	9112.5	569.5...	1.635	H1-1b
14	M19_1	3/8 x 6_HRA	.344	.639	7	.418	0	y	9	65200...	72900	9112.5	569.5...	1.632	H1-1b
15	M23_1	3/8 x 6_HRA	.339	.637	11	.420	0	y	13	65255...	72900	9112.5	569.5...	1.63	H1-1b
16	M43	L4X4X6	.328	2.187	8	.071	2.1...	z	7	87287...	92664	4398....	9886....	1.653	H2-1
17	M53E	L4X4X6	.325	2.187	12	.072	2.1...	z	11	87288...	92664	4398....	9886....	1.65	H2-1
18	M29	3/8 x 6_HRA	.321	.637	2	.466	0	y	5	65255...	72900	9112.5	569.5...	1.599	H1-1b
19	M28	3/8 x 6_HRA	.317	.637	3	.383	0	y	6	65255...	72900	9112.5	569.5...	1.657	H1-1b
20	M25_1	3/8 x 6_HRA	.316	.637	9	.469	0	y	13	65255...	72900	9112.5	569.5...	1.547	H1-1b
21	M49B	L4X4X6	.315	2.187	3	.072	2.1...	z	2	87287...	92664	4398....	9886....	1.754	H2-1
22	M21_1	3/8 x 6_HRA	.314	.637	6	.469	0	y	9	65255...	72900	9112.5	569.5...	1.588	H1-1b
23	M30	3/8 x 6_HRA	.311	.637	13	.376	0	y	11	65255...	72900	9112.5	569.5...	1.624	H1-1b
24	M20_1	3/8 x 6_HRA	.311	.639	7	.385	0	y	9	65200...	72900	9112.5	569.5...	1.655	H1-1b
25	M44	L4X4X6	.308	0	8	.080	0	z	23	87287...	92664	4398....	9886....	1.519	H2-1
26	M53	3/8 x 6_HRA	.308	0	9	.536	0	y	2	65255...	72900	9112.5	569.5...	1.342	H1-1b
27	M49	3/8 x 6_HRA	.308	0	13	.530	0	y	6	65255...	72900	9112.5	569.5...	1.342	H1-1b
28	M50B	L4X4X6	.306	0	4	.081	0	z	19	87287...	92664	4398....	9886....	1.514	H2-1
29	M51	3/8 x 6_HRA	.305	0	5	.528	0	y	9	65200...	72900	9112.5	569.5...	1.333	H1-1b
30	M26_1	3/8 x 6_HRA	.304	.637	9	.381	0	y	7	65255...	72900	9112.5	569.5...	1.622	H1-1b
31	M24_1	3/8 x 6_HRA	.302	.637	11	.391	0	y	2	65255...	72900	9112.5	569.5...	1.654	H1-1b
32	M54E	L4X4X6	.296	0	12	.080	0	z	15	87285...	92664	4398....	9886....	1.516	H2-1
33	M22_1	3/8 x 6_HRA	.296	.637	5	.384	0	y	3	65255...	72900	9112.5	569.5...	1.621	H1-1b
34	M47A	PIPE_2.5	.271	6	4	.064	6		4	26137...	50715	3596....	3596....	1.842	H1-1b
35	M51A	PIPE_2.5	.268	6	9	.068	6		8	26137...	50715	3596....	3596....	2.239	H1-1b

Envelope AISC 15th(360-16): LRFD Steel Code Checks (Continued)

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc...	...	...	phi*P...	phi*P...	phi*M...	phi*M...	Cb	Eqn
36	M54A	PIPE_2.5	.265	6	12	.068	6		12	26137..	50715	3596....	3596....	2.645	H1-1b
37	M50A	PIPE_2.5	.224	6	13	.095	6		13	26137..	50715	3596....	3596....	4.341	H1-1b
38	M46A	PIPE_2.5	.224	6	9	.095	6		9	26137..	50715	3596....	3596....	4.435	H1-1b
39	M48A	PIPE_2.5	.217	3	2	.064	3		9	26137..	50715	3596....	3596....	4.27	H1-1b
40	M52A	PIPE_2.5	.217	6	5	.097	6		5	26137..	50715	3596....	3596....	2.576	H1-1b
41	M53A	PIPE_2.5	.214	3	10	.066	6		6	26137..	50715	3596....	3596....	3.897	H1-1b
42	M49A	PIPE_2.5	.214	6	6	.064	3		2	26137..	50715	3596....	3596....	4.492	H1-1b
43	M54C	PIPE_3.0	.166	.5	13	.090	4.0...		2	46285..	65205	5748....	5748....	1.893	H1-1b
44	M52C	PIPE_3.0	.166	.5	9	.087	4		10	46290..	65205	5748....	5748....	1.896	H1-1b
45	M53C	PIPE_3.0	.164	.5	5	.091	4		6	46290..	65205	5748....	5748....	1.896	H1-1b
46	M53F	HSS4.5X4.5X3	.151	1.833	5	.161	1.8...	y	19	94149..	94932	12717	12717	1.899	H1-1b
47	M49C	HSS4.5X4.5X3	.148	1.833	9	.159	1.8...	y	23	94149..	94932	12717	12717	1.903	H1-1b
48	M51C	HSS4.5X4.5X3	.147	1.833	13	.161	1.8...	y	16	94149..	94932	12717	12717	1.899	H1-1b
49	M53B	PIPE_3.0	.139	2	15	.093	8.0...		9	46285..	65205	5748....	5748....	1.475	H1-1b
50	M54B	PIPE_3.0	.139	2	19	.093	8		13	46290..	65205	5748....	5748....	1.473	H1-1b
51	M52B	PIPE_3.0	.138	6	23	.092	0		5	46290..	65205	5748....	5748....	1.468	H1-1b
52	M54D	L4X4X6	.051	0	9	.050	0	y	3	72957..	92664	4398....	9886....	2.059	H2-1
53	M53D	L4X4X6	.051	4.375	13	.050	4.3...	z	7	72957..	92664	4398....	9886....	2.14	H2-1
54	M52D	L4X4X6	.051	0	5	.048	0	y	11	72957..	92664	4398....	9886....	2.1	H2-1

THE MAXIMUM MEMBER STRESS IS AT 69% OF ITS CAPACITY AND IS ADEQUATE TO SUPPORT THE PROPOSED UPGRADE.

SERVICE DEFLECTION = 1.4" x [(60MPH)^2/(93MPH)^2] = 0.58" < 1.6"
HENCE, OK.

Tectonic
PRACTICAL SOLUTIONS. EXCEPTIONAL SERVICE.

Job No. 9927.CTHA151A - Rev 1
Calculated By: JJ Date : 11/2/20
Checked By: IM Date : 11/2/20

Design connection per AISC Steel Manual, 14th edition [LRFD].

Connection Details

Bolts

Quantity =	4	
Diameter =	0.625	in
Vertical Spacing =	6	in
Horizontal Spacing =	6	in
Grade =	A325	
F_{nt} =	90	ksi
F_{nv} =	54	ksi

Loading Details

Node N1

Shear, Z =	1.104	k
Shear, Y =	2.736	k
Tension, X =	2.109	k
Mz =	8.477	k-ft
My =	2.023	k-ft
Mx =	0.685	k-ft

[Table J3.2]
[Table J3.2]

1 - Tensile Capacity

$$\phi R_{nt} = F_{nt} A_b$$ [Eqn. J3-1]

φ =	0.75	
F_{nt} =	90	ksi
A_b =	0.307	in^2
φR_{nt} =	20.72	k
T_{max} =	11.03	k

Rnt > Tmax

53%

OK

2 - Shear Capacity

$$\phi R_{nv} = F_{nv} A_b$$ [Eqn. J3-1]

φ =	0.75	
F_{nv} =	54	ksi
A_b =	0.307	in^2
φR_{nv} =	12.43	k
V_{max} =	1.71	k

Rnv > Vmax

14%

OK

3 - Combined Tension and Shear Capacity

$$\phi R'_{nt} = F'_{nt} A_b$$ [Eqn. J3-2]

$$F'_{nt} = 1.3F_{nt} - \frac{F_{nt}}{\phi F_{nv}} f_{rv} \leq F_{nt}$$ [Eqn. J3-3a]

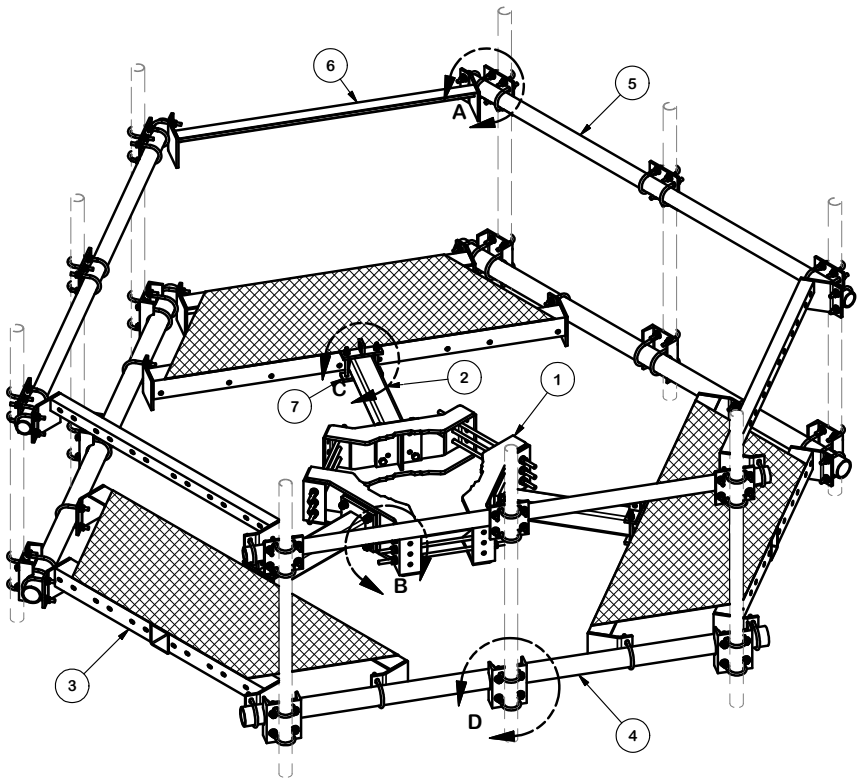
φ =	0.75	
F'_{nt} =	90	ksi
A_b =	0.307	in^2
$\varphi R'_{nt}$ =	20.72	k
T_{max} =	11.03	k

R'nt > Tmax

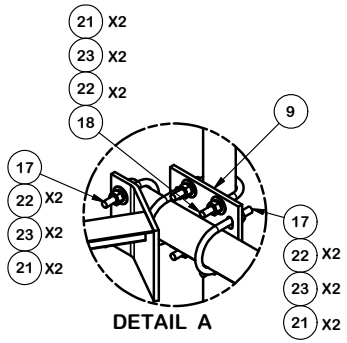
53%

OK

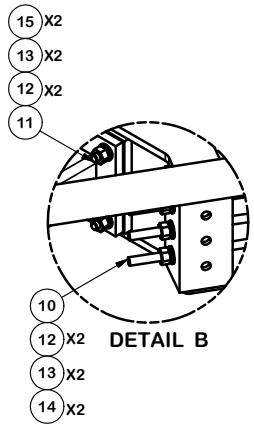
Appendix A



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-SNP-ST8	SNB8 TELESCOPING ARM FOR GRATING		60.39	181.16
3	3	X-SNPC	CORNER GRATING WELDMENT		194.33	582.99
4	3	P396	3" SCH. 40 PIPE (3.5" O.D. x 0.216" WALL) A500	96.000 in	60.75	182.25
5	3	P3096	2-7/8" OD X 96" Sch 40 Galvanized Pipe		46.45	139.36
6	3	X-SNP-HRA	CORNER BRACKET FOR SNPX PLATFORMS		25.95	77.86
7	3	X-SNPP1G	CLAMP PLATE	7.250 in	2.03	6.10
8	9	X-SP219	SMALL SUPPORT CROSS PLATE	8.250 in	8.61	77.50
9	9	SCX2	CROSSOVER PLATE	7.000 in	4.80	43.17
10	9	G58R-48	5/8" x 48" THREADED ROD (HDG.)		0.55	4.94
10	9	G58R-24	5/8" x 24" THREADED ROD (HDG.)		0.55	4.94
11	12	A58234	5/8" x 2-3/4" HDG A325 HEX BOLT	2.75	0.36	4.27
12	30	A58FW	5/8" HDG A325 FLATWASHER		0.03	1.02
13	30	G58LW	5/8" HDG LOCKWASHER		0.03	0.78
14	18	A58NUT	5/8" HDG A325 HEX NUT		0.13	2.34
15	12	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	1.56
16	12	X-UB1358	1/2" X 3-5/8" X 5-1/2" X 3" U-BOLT (HDG.)		0.73	8.78
17	24	X-UB1300	1/2" X 3" X 5" X 2" U-BOLT (HDG.)		0.73	17.56
18	36	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" U-BOLT (HDG.)		0.73	26.34
19	6	G12065	1/2" x 6-1/2" HDG HEX BOLT GR5 FULL THREAD	7-1/2	0.41	2.46
20	18	X-UB1306	1/2" X 3-5/8" X 6" X 3" U-BOLT (HDG.)		0.73	13.17
21	186	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	13.32
22	180	G12FW	1/2" HDG USS FLATWASHER		0.03	6.13
23	186	G12LW	1/2" HDG LOCKWASHER		0.01	2.59
24	9	A	2" SCH. 40 PIPE (2.375" O.D. x 0.154" WALL) A500	B	C	D



DETAIL A



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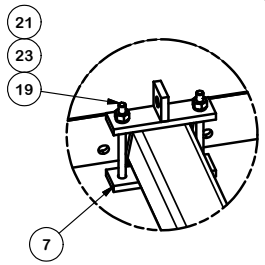

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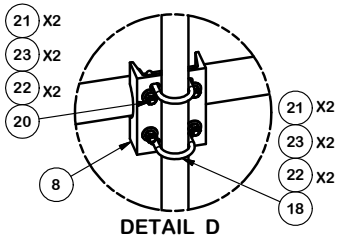


DETAIL D

2-3/8" O.D. VERTICAL MOUNTING PIPES					
ASSEMBLY NO.	PART NO. "A"	LENGTH "B"	UNIT WEIGHT "C	NET WEIGHT "D"	TOTAL WEIGHT
SNP8HR-372	P272	6'-0"	23.07	207.63	1717.07
SNP8HR-384	P284	7'-0"	26.91	242.19	1751.63
SNP8HR-396	P296	8'-0"	30.76	276.84	1786.28
SNP8HR-3126	P2126	10'-6"	40.75	366.75	1876.19

TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
SAWED, SHEARED AND GAS CUT EDGES *(± 0.030")*
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")*

DESCRIPTION: 8' SNUB NOSE PLATFORM WITH HANDRAIL

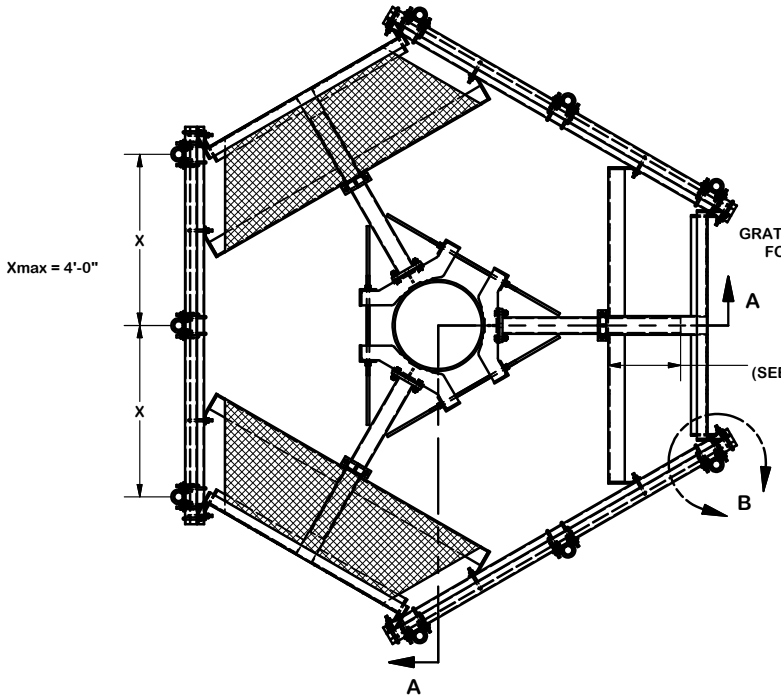
SITE PRO 1 — A valmont COMPANY

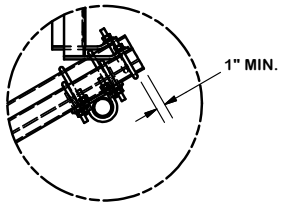
Engineering Support Team: 1-888-753-7446

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

CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
	CEK 11/19/2014		SEE ASSEMBLY NO.

CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81	02	CUSTOMER	BMC 11/21/2014	SNP8HR-3XX





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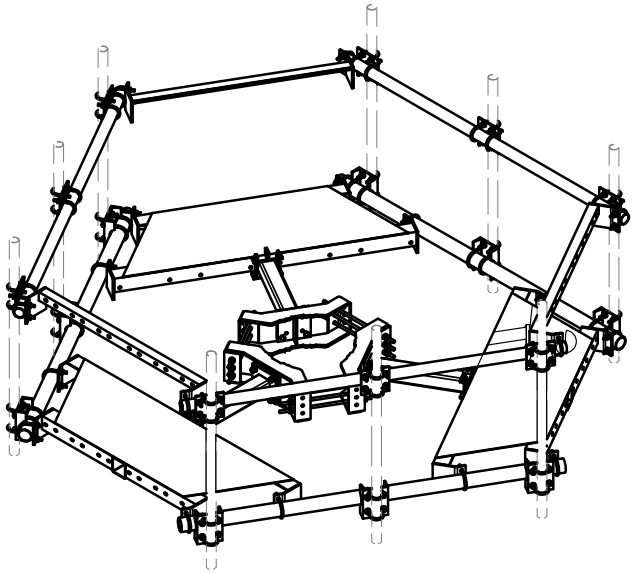
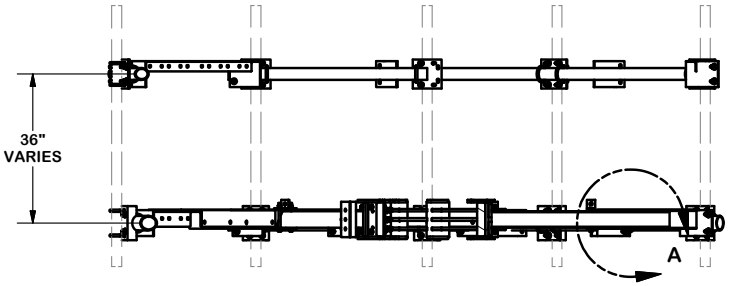
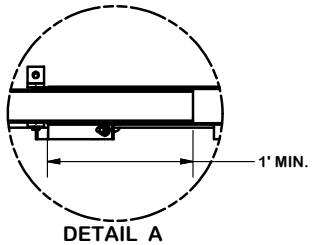
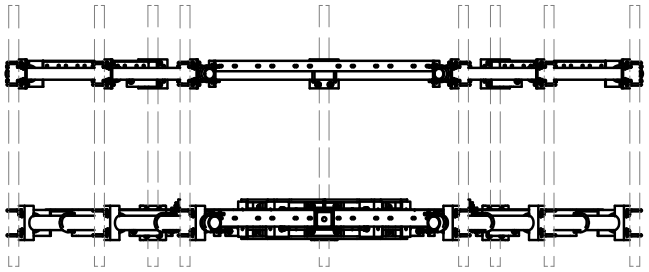




SECTION A-A



DETAIL A



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

DESCRIPTION: 8' SNUB NOSE PLATFORM WITH HANDRAIL

SITE PRO 1 — 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

CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
	CEK 11/19/2014		SEE ASSEMBLY NO.

CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81	02	CUSTOMER	BMC 11/21/2014	SNP8HR-3XX

Exhibit F

INFINIGY

Non-Ionizing Radiation Report

Compiled For: Northeast Site Solutions on behalf of T-Mobile

Site Name: CTHA151A

Site ID: CTHA151A

345 Bushy Hill Road, Simsbury, CT 06070

Latitude: 41.84138889; Longitude: -72.85055560

Structure Type: Monopole

Report Date: April 26, 2021

Report Written By: Tim Harris

Status: T-Mobile will be compliant with FCC rules on RF Exposure.

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2. Site Summary: 4
3. Site Compliance 4
4. Site Compliance Recommendations 5
5. Antenna Inventory Table 6
6. RF Guidelines 7
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   Occupational / Controlled 10
   General Population / Uncontrolled 10
9. Preparer Certification 13

1. Executive Summary:

Northeast Site Solutions on behalf of T-Mobile has contracted Infinigy Solutions, LLC to determine whether the site CTHA151A located at 345 Bushy Hill Road in Simsbury, CT Will Be Compliant with all Federal Communications Commission (FCC) rules and regulations for radio frequency (RF) exposure as indicated in **47CFR§1.1310**.

The report incorporates a theoretical RF field analysis in accordance with the FCC Rules and Regulations for all individuals classified as "Occupational or Controlled" and "General Public or Uncontrolled" (see Appendix A and B).

This document and the conclusions herein are based on information provided by Northeast Site Solutions on behalf of T-Mobile.

As a result of the analysis, **T-Mobile Will Be Compliant with FCC rules.**

T-Mobile, All Bands Cumulative Exposure %		
Uncontrolled / General Population	Exposure values at the site (mW/cm^2)	0.0242
	% Exposure	3.68 %
Controlled / Occupational	Exposure values at the site (mW/cm^2)	0.0242
	% Exposure	0.75 %

2. Site Summary:

Site Information	
Site Name: CTHA151A	
Site Address: 345 Bushy Hill Road, Simsbury, CT 06070	
Site Type: Monopole	
Compliance Status	Will Be Compliant
Mitigation Required	No
Signage Required	Yes
Barriers Required	No
Access Locked	No
Area Controlled or Uncontrolled	Uncontrolled

3. Site Compliance

This report also incorporates overview of the site information:

- Antenna Inventory Table
- Calculation Tables showing exposure for each carrier transmit frequency
- Total exposure for all carriers existing and proposed at ground level considering the centerline of all antennas and horizontal distance from the tower.
- Maximum Effective Radiated Power Assumed as Worst Case for Calculations used in this study
- Calculations based on flat ground around base of the structure

4. Site Compliance Recommendations

Infinigy recommends the following upon the installation of antennas at the site:

Base of tower

Install an RF caution sign. Note: The recommendation for alerting signage is moot if there is an RF caution, or greater already installed.

5. Antenna Inventory Table

Ant ID	Sector	Operator	Antenna manufacturer	Antenna Model	Operating Frequency/Technology	Rad Ctr (Ft)	Az (Deg)	Total ERP Power (Watts)
1a	Alpha	T-Mobile	RFS	APX16DW-16DWV-S-E-A20	1900 MHz LTE	77	70	3152
1b	Alpha	T-Mobile	RFS	APX16DW-16DWV-S-E-A20	1900 MHz GSM	77	70	3152
2a	Alpha	T-Mobile	RFS	APXVARR24_43-C-NA20	600 MHz 5G	77	70	1128
2a	Alpha	T-Mobile	RFS	APXVARR24_43-C-NA20	600 MHz LTE	77	70	1128
2c	Alpha	T-Mobile	RFS	APXVARR24_43-C-NA20	700 MHz LTE	77	70	2256
3a	Beta	T-Mobile	RFS	APX16DW-16DWV-S-E-A20	1900 MHz LTE	77	190	3152
3b	Beta	T-Mobile	RFS	APX16DW-16DWV-S-E-A20	1900 MHz GSM	77	190	3152
4a	Beta	T-Mobile	RFS	APXVARR24_43-C-NA20	600 MHz 5G	77	190	1128
4b	Beta	T-Mobile	RFS	APXVARR24_43-C-NA20	600 MHz LTE	77	190	1128
4c	Beta	T-Mobile	RFS	APXVARR24_43-C-NA20	700 MHz LTE	77	190	2256
5a	Gamma	T-Mobile	RFS	APX16DW-16DWV-S-E-A20	1900 MHz LTE	77	310	3152
5b	Gamma	T-Mobile	RFS	APX16DW-16DWV-S-E-A20	1900 MHz GSM	77	310	3152
6a	Gamma	T-Mobile	RFS	APXVARR24_43-C-NA20	600 MHz 5G	77	310	1128
6b	Gamma	T-Mobile	RFS	APXVARR24_43-C-NA20	600 MHz LTE	77	310	1128
6c	Gamma	T-Mobile	RFS	APXVARR24_43-C-NA20	700 MHz LTE	77	310	2256

6. RF Guidelines

To ensure safety of company workers, the following points need to be taken into consideration and implemented at wireless sites in accordance with the Carriers policies:

a) Worksite: Any employee at the site should avoid working directly in front of the antenna or in areas predicted to exceed general population exposure limits by 100%. Workers should insist that the transmitters be switched off during the work period.

b) RF Safety Training and Awareness: All employees working in areas exceeding the general population limits should have a basic awareness of RF safety measures. Videos, classroom lectures and online courses are all appropriate training methods on these topics.

c) Site Access: Restricting access to transmitting antenna locations is one of the most important elements of RF safety. This can be done with:

- Locked doors/gates/ladder access
- Alarmed doors
- Restrictive barriers

d) Three-foot Buffer: There is an inverse relationship between the strength of the field and the distance from the antenna. The RF field diminishes with distance from the antenna. Workers should maintain a three-foot distance from the antennas.

e) Antennas: Workers should always assume that the antenna is transmitting and should never stop right in front of the antenna. If someone must pass by an antenna, he/she should move quickly, thus reducing RF exposure.

7. T-Mobile Exposure Analysis By Band and Technology

T-Mobile 600 MHz LTE		
Uncontrolled / General Population	FCC's exposure limits (mW/cm^2)	**0.4**
	Exposure values at the site (mW/cm^2)	**0.0025**
	% Exposure	**0.63%**
Controlled / Occupational	FCC's Exposure limits(mW/cm^2)	**2.0**
	Exposure values at the site (mW/cm^2)	**0.0025**
	% Exposure	**0.13%**

T-Mobile 600 MHz 5G		
Uncontrolled / General Population	FCC's exposure limits (mW/cm^2)	**0.4**
	Exposure values at the site (mW/cm^2)	**0.0025**
	% Exposure	**0.63%**
Controlled / Occupational	FCC's Exposure limits(mW/cm^2)	**2.0**
	Exposure values at the site (mW/cm^2)	**0.0025**
	% Exposure	**0.13%**

T-Mobile 700 MHz LTE		
Uncontrolled / General Population	FCC's exposure limits (mW/cm^2)	**0.5**
	Exposure values at the site (mW/cm^2)	**0.0050**
	% Exposure	**1.01%**
Controlled / Occupational	FCC's Exposure limits(mW/cm^2)	**2.3**
	Exposure values at the site (mW/cm^2)	**0.0050**
	% Exposure	**0.22%**

T-Mobile 1900 MHz GSM		
Uncontrolled / General Population	FCC's exposure limits (mW/cm^2)	**1.0**
	Exposure values at the site (mW/cm^2)	**0.0070**
	% Exposure	**0.70%**
Controlled / Occupational	FCC's Exposure limits(mW/cm^2)	**5.0**
	Exposure values at the site (mW/cm^2)	**0.0070**
	% Exposure	**0.14%**

T-Mobile 1900 MHz LTE		
Uncontrolled / General Population	FCC's exposure limits (mW/cm^2)	**1.0**
	Exposure values at the site (mW/cm^2)	**0.0070**
	% Exposure	**0.70%**
Controlled / Occupational	FCC's Exposure limits(mW/cm^2)	**5.0**
	Exposure values at the site (mW/cm^2)	**0.0070**
	% Exposure	**0.14%**

8. Appendix A: FCC Guidelines

FCC Policies

The Federal Communications Commission (FCC) in 1996 implemented regulations and policies for analysis of RF propagation to evaluate RF emissions. All the analysis and results of this report are compared with FCC's (Federal Communications Commission) rules to determine whether a site is compliant for Occupational/Controlled or General Public/Uncontrolled exposure. All the analysis of RF propagation is done in terms of a percentage. The limits primarily indicate the power density and are generally expressed in terms of milliwatts per centimeter square, mW/cm^2.

FCC guidelines incorporate two separate tiers of exposure limits that are dependent on the scenario/ situation in which that exposure takes place or the status of the individuals who are subjected to that exposure. The decision as to which tier is applied to a scenario is based on the following definitions:

Occupational / Controlled

These limits apply in situations when someone is exposed to RF energy through his/her occupation, is fully aware of the harmful effects of the RF exposure and has an ability to exercise control over this exposure. Occupational / controlled exposure limits also apply when exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means. limits for Occupational/Controlled exposure can be found on Table 1(A).

General Population / Uncontrolled

These limits apply to situations in which the general public may be exposed or in which persons who are exposed because of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure to RF. Therefore, members of the general public would always be considered under this category, for example, in the case of a telecommunications tower that exposes people in a nearby residential area. Exposure limits for General Population/Uncontrolled can be found on Table 1(B).

Table 1. LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

(A) Limits for Occupational/Controlled Exposure

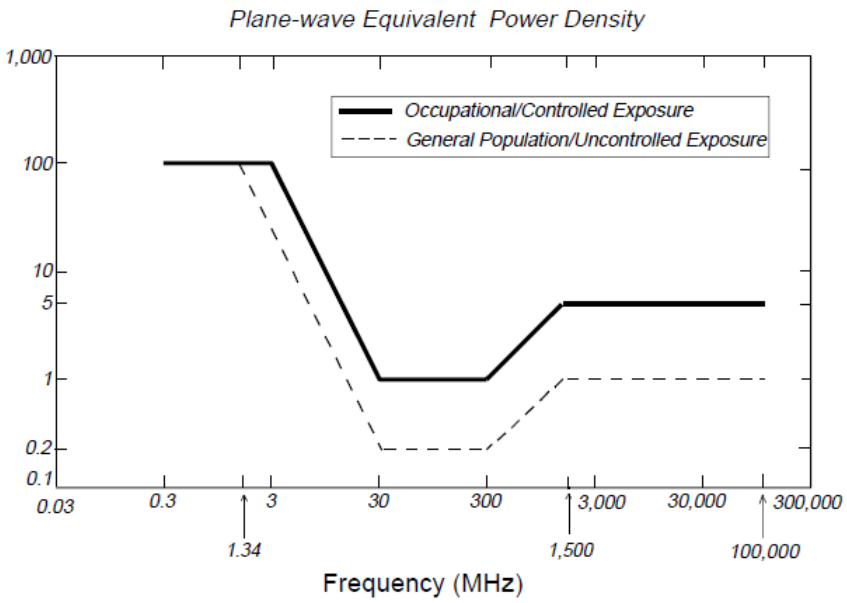
Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $|E|^2$, $|H|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	($900/f^2$)*	6
30-300	61.4	0.163	1.0	6
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6

(B) Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $|E|^2$, $|H|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	($180/f^2$)*	30
30-300	27.5	0.073	0.2	30
300-1500	--	--	f/1500	30
1500-100,000	--	--	1.0	30

f = frequency in MHz *Plane-wave equivalent power density

Figure 1. *FCC Limits for Maximum Permissible Exposure (MPE)*



OSHA Statement:

The objective of the OSHA Act is to ensure the safety and health of the working men and women by enforcing certain standards. The act also assists and encourages the states in their efforts to ensure safe and healthy working conditions through means of research, information, education and training in the field of occupational safety and health and for other purposes.

According to OSHA Act section 5, important duties to be considered are:

(a) Each employer

1) Shall furnish to each of his employees' employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious harm to his employees
2) Shall comply with occupational safety and health standards promulgated under this act.

(b) Each employee shall comply with occupational safety and health standards and all rules, regulations, and orders issued pursuant to this Act which are applicable to his own actions and conduct.

9. Preparer Certification

I, Tim Harris, preparer of this report, certify that I am fully trained and aware of the rules and regulations of both the Federal Communications Commission and the Occupational Safety and Heath Administration regarding Human Exposure to Radio Frequency Radiation. In addition, I have been trained in RF safety practices, rules, and regulations.

I certify that the information contained in this report is true and correct to the best of my knowledge.

Timothy A. Harris *4/26/2021*

Signature Date

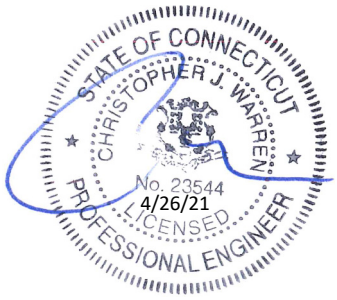
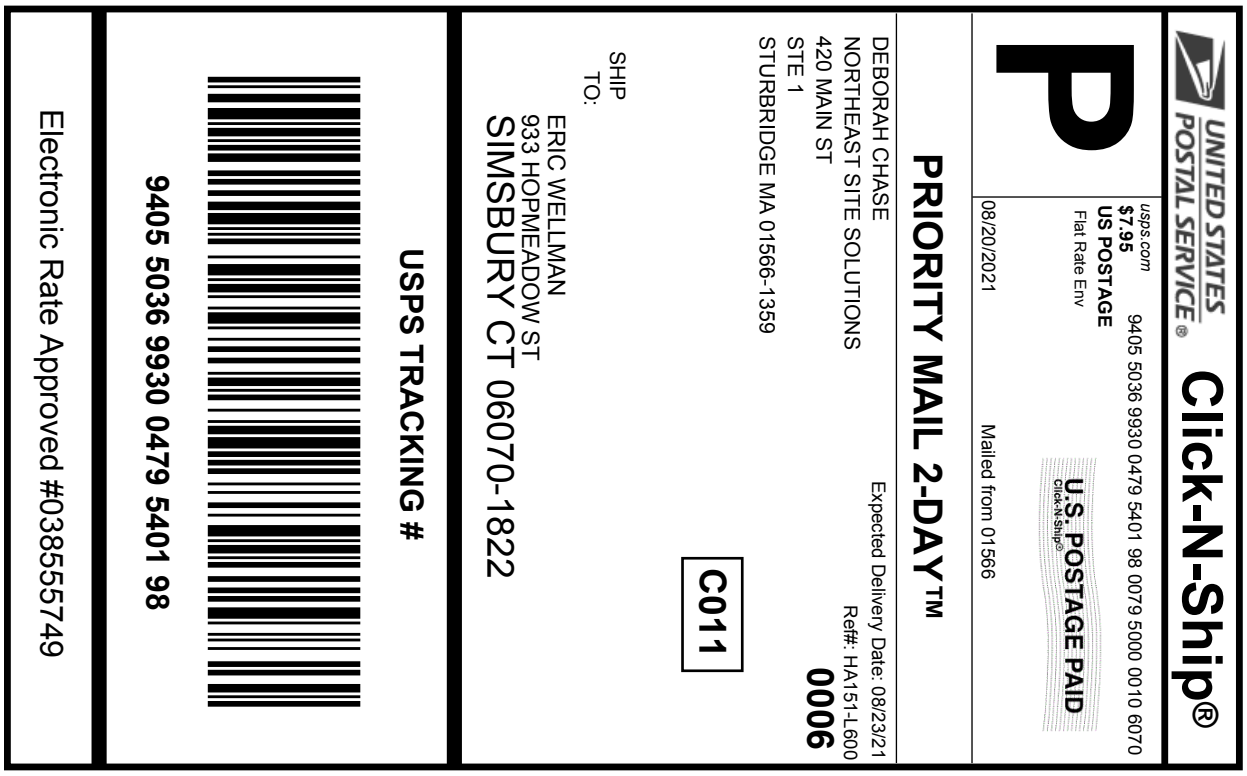


Exhibit G



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1. **Each Click-N-Ship® label is unique. Labels are to be used as printed and used only once. DO NOT PHOTO COPY OR ALTER LABEL.**
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5. **Mail your package on the "Ship Date" you selected when creating this label.**

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Expected Delivery Date:	08/23/2021

Priority Mail® Postage:	**$7.95**
Total:	**$7.95**

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STURBRIDGE MA 01566-1359

Ref#: HA151-L600

To: ERIC WELLMAN
933 HOPMEADOW ST
SIMSBURY CT 06070-1822

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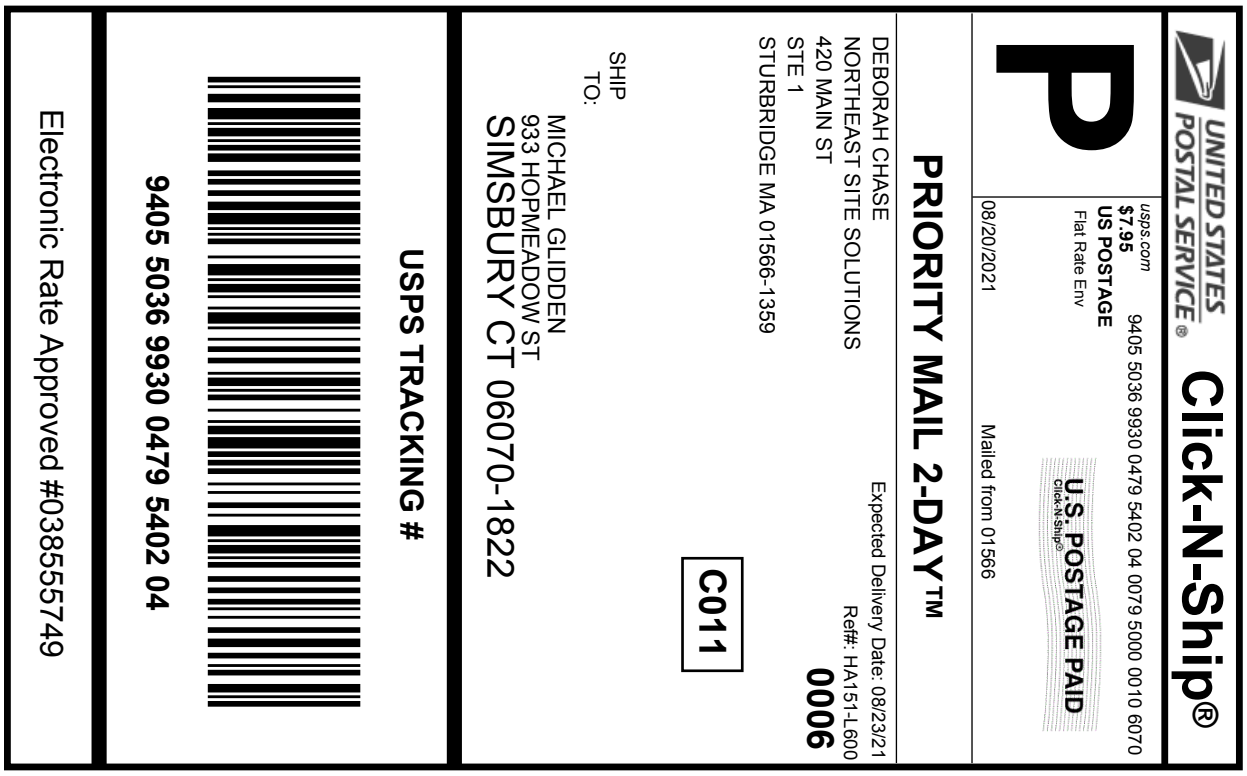
Thank you for shipping with the United States Postal Service!
Check the status of your shipment on the USPS Tracking® page at usps.com



Cut on dotted line.

Instructions

1. **Each Click-N-Ship® label is unique. Labels are to be used as printed and used only once. DO NOT PHOTO COPY OR ALTER LABEL.**
2. **Place your label so it does not wrap around the edge of the package.**
3. **Adhere your label to the package. A self-adhesive label is recommended. If tape or glue is used, DO NOT TAPE OVER BARCODE. Be sure all edges are secure.**
4. **To mail your package with PC Postage®, you may schedule a Package Pickup online, hand to your letter carrier, take to a Post Office™, or drop in a USPS collection box.**
5. **Mail your package on the "Ship Date" you selected when creating this label.**

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0479 5402 04

Trans. #:	541288693
Print Date:	08/19/2021
Ship Date:	08/20/2021
Expected Delivery Date:	08/23/2021

Priority Mail® Postage:	**$7.95**
Total:	**$7.95**

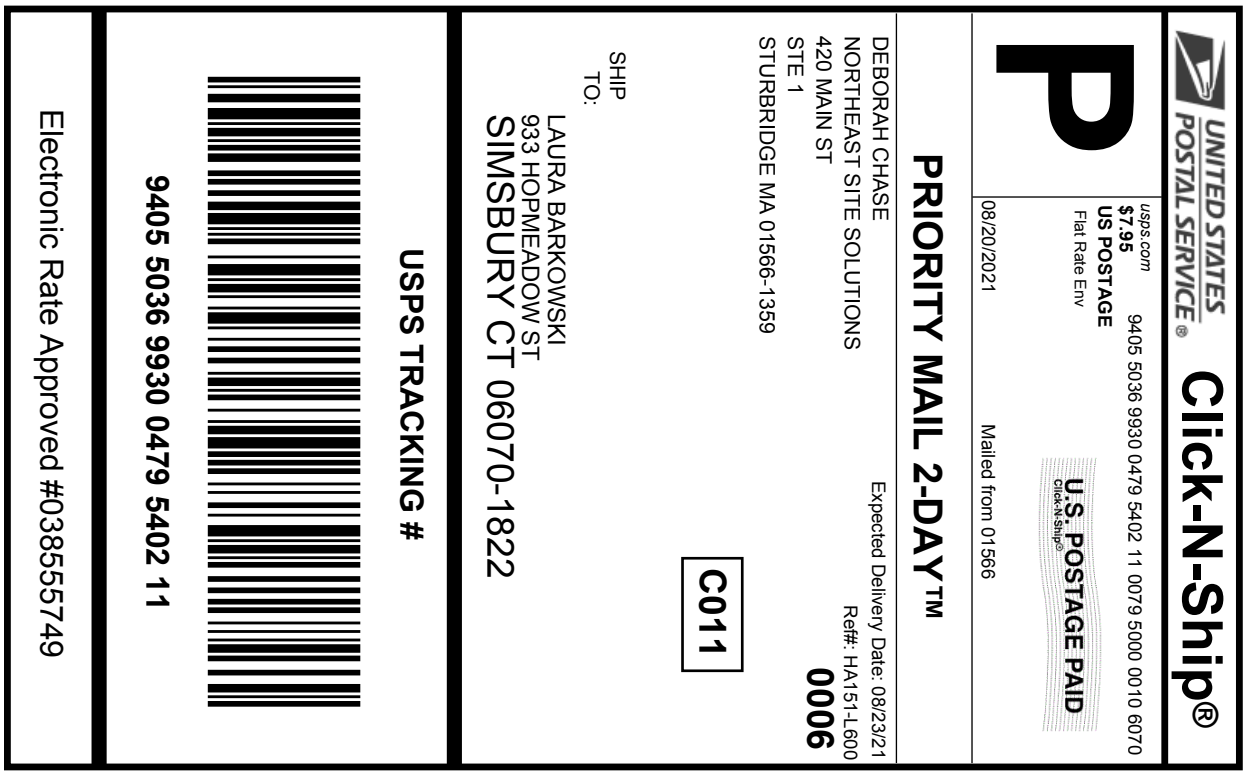
From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
420 MAIN ST
STE 1
STURBRIDGE MA 01566-1359

Ref#: HA151-L600

To: MICHAEL GLIDDEN
933 HOPMEADOW ST
SIMSBURY CT 06070-1822

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Thank you for shipping with the United States Postal Service!
Check the status of your shipment on the USPS Tracking® page at usps.com



Cut on dotted line.

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Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0479 5402 11

Trans. #:	541288693
Print Date:	08/19/2021
Ship Date:	08/20/2021
Expected Delivery Date:	08/23/2021

Priority Mail® Postage:	**$7.95**
Total:	**$7.95**

From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
420 MAIN ST
STE 1
STURBRIDGE MA 01566-1359

Ref#: HA151-L600

To: LAURA BARKOWSKI
933 HOPMEADOW ST
SIMSBURY CT 06070-1822

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Thank you for shipping with the United States Postal Service!
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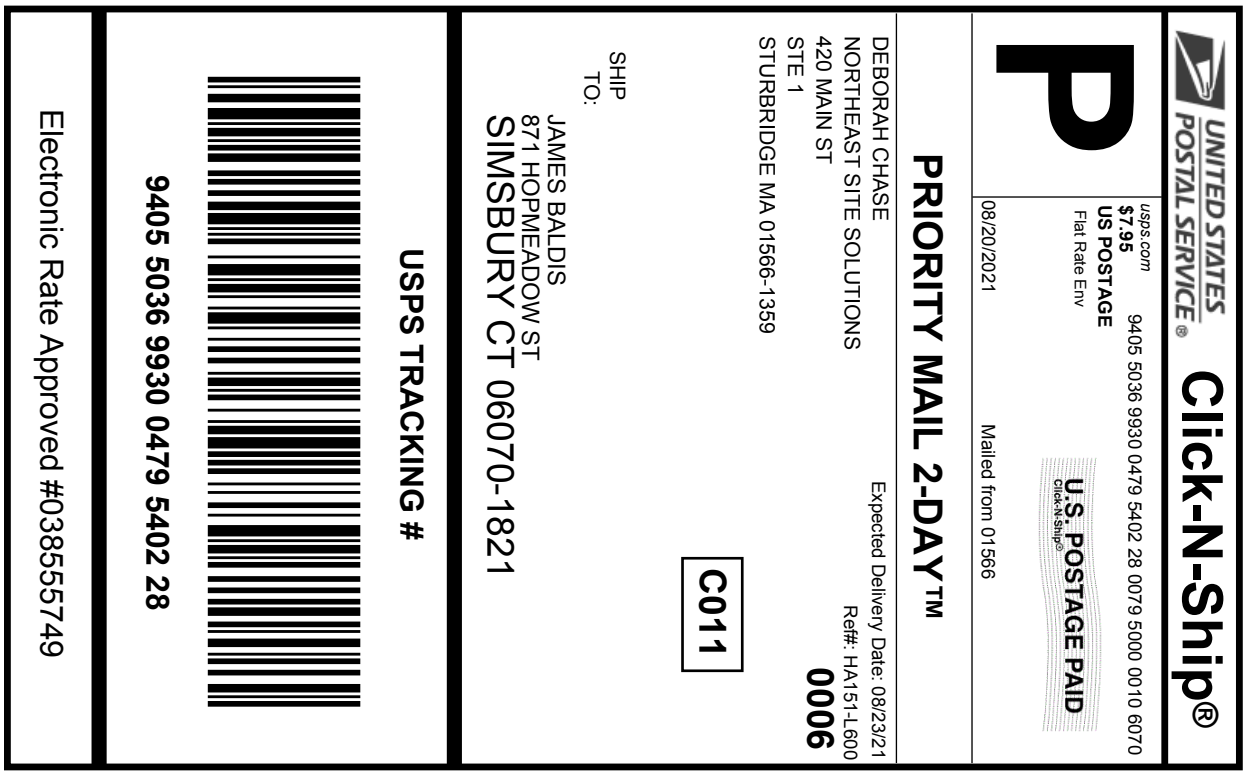

Cut on dotted line.

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5. **Mail your package on the "Ship Date" you selected when creating this label.**

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0479 5402 28

Trans. #:	541288693
Print Date:	08/19/2021
Ship Date:	08/20/2021
Expected Delivery Date:	08/23/2021

Priority Mail® Postage:	**$7.95**
Total:	**$7.95**

From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
420 MAIN ST
STE 1
STURBRIDGE MA 01566-1359

Ref#: HA151-L600

To: JAMES BALDIS
871 HOPMEADOW ST
SIMSBURY CT 06070-1821

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Thank you for shipping with the United States Postal Service!
Check the status of your shipment on the USPS Tracking® page at usps.com

CT(HAISI-A-L600

UNITED STATES POSTAL SERVICE.

FISKDALE
458 MAIN ST
FISKDALE, MA 01518-9998
(800)275-8777

08/24/2021 12:18 PM

Product	Qty	Unit Price	Price
Prepaid Mail Simsbury, CT 06070 Weight: 1 lb 7.40 oz Acceptance Date: Tue 08/24/2021 Tracking #: 9405 5036 9930 0479 5402 28	1		$0.00
Prepaid Mail Simsbury, CT 06070 Weight: 1 lb 7.40 oz Acceptance Date: Tue 08/24/2021 Tracking #: 9405 5036 9930 0479 5402 11	1		$0.00
Prepaid Mail Simsbury, CT 06070 Weight: 1 lb 7.40 oz Acceptance Date: Tue 08/24/2021 Tracking #: 9405 5036 9930 0479 5401 98	1		$0.00
Prepaid Mail Simsbury, CT 06070 Weight: 1 lb 6.70 oz Acceptance Date: Tue 08/24/2021 Tracking #: 9405 5036 9930 0479 5402 04	1		$0.00

Grand Total: $0.00