CD22-03 Supporting Documents

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PROOF OF PUBLICATION

Butler
Fox Rothschild LLP
434 Fayetteville ST # 2800
Raleigh NC 27601-2943

STATE OF NORTH CAROLINA, COUNTY OF GASTON

The Gaston Gazette, a newspaper printed and published in the city of Gastonia, and of general circulation in the County of Gaston, State of North Carolina, and personal knowledge of the facts herein state and that the notice hereto annexed was Published in said newspapers in the issue dated:

05/02/2022

and that the fees charged are legal.
Sworn to and subscribed before on 05/02/2022

Legal Clerk

Notary, State of WI, County of Brown

My commision expires

Publication Cost:	$126.50		
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THIS IS NOT AN INVOICE!

Please do not use this form for payment remittance.

SARAH BERTELSEN
Notary Public
State of Wisconsin

PUBLIC NOTICE
IN THE MATTER OF
TOWERCO 2013 LLC'S
GASTON COUNTY
CONDITIONAL ZONING
DISTRICT APPLICATION
NOTICE OF PUBLIC
INFORMATION MEETINGS

NOTICE IS HEREBY GIVEN that TowerCo 2013 LLC, in accordance with the requirements of Gaston County, will hold two Public Information Meetings. The first meeting will be held on Monday, May 16, 2022, from 3:00 p.m. until 5:00 p.m. The second meeting will be held on Wednesday, May 18, 2022, from 5:00 p.m. until 7:00 p.m.

The purpose of these meetings is to provide information to the public about TowerCo's Application for a Conditional Zoning District and project and plans to construct a 250-foot self-supporting telecommunication tower and wireless facility on .48-acres of the 23.8-acre parent tract of land owned by Lance P. and Kelly A. Theobald, located at 906 Pinhook Loop Road, Gastonia, NC; Parcel I.D. Number 183034.

We hope you will plan to attend one of these meetings and learn more about the approval process from the representatives of the Gaston County Planning and Development Services and about the project from Marc C. Tucker, Regional Zoning Counsel for TowerCo.

Should you have any questions regarding this project prior to the meetings, please feel free to contact Marc C. Tucker by telephone at 919-755-8713 or by e-mail at mtucker@foxrothschild.com.

May 2, 2022 # 7229152

MAINTENANCE AGREEMENT

THIS MAINTENANCE AGREEMENT ("Agreement") is effective as of the later of the signature dates below by and between **Lance P. Theobald and Kelly A. Theobald**, a married couple ("Owner") and **TowerCo 2013 LLC**, a Delaware limited liability company ("Tenant").

Whereas, Landlord is the owner of certain real property located at 906 Pinhook Loop Road in the City of Gastonia County of Gaston, State of North Carolina, with a Parcel Number of 183034 (the "Parent Parcel").

Whereas, Landlord and Tenant entered into that certain Option and Ground Lease Agreement dated October 11, 2021 (the "Lease") for a certain portion of the Parent Parcel containing approximately 10,000 square feet (the "Compound") and access and utility easements (the "Easements") (The Compound and the Easements are collectively the "Premises") for the placement of a Communications Facility, as defined in the Lease.

Whereas, Landlord and Tenant desire to enter into this Agreement pertaining to scheduled maintenance of the access driveway and tower compound, which is part of the Premises.

For good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties hereto agree as follows:

1. The above recitals are true and correct and are incorporated herein by this reference.

2. Landowner agrees to allow access to Tenant's maintenance contractor for four annually scheduled maintenance visits of the access driveway and tower compound to be conducted as long as the Communications Facility and tower remains active and in service.

3. Maintenance procedures include:
   (a) Inspection of the access road improvements and upkeep of the access drive. This only applies to the portion of the access road constructed by Tenant.
   (b) Inspection of the Compound and upkeep of the Compound and any associated landscaping.

IN WITNESS WHEREOF, Landlord and Tenant have executed this Agreement as of the later of the signatures below.

LANDLORD:
Lance P. Theobald and Kelly A. Theobald, a married couple

By: Lance P Theobald
Name: Lance P. Theobald
Date: 04 / 27 / 2022

By: Kelly Theobald
Name: Kelly A. Theobald
Date: 04 / 27 / 2022

TENANT:
TOWERCO 2013 LLC, a Delaware limited liability company

By: [signature]
Name: DAVID HOCKEY
Title: DIRECTOR OF ZONING
Date: 04/25/22

TowerCo

NC0288- EXISTING TOWER STATEMENT

This document is being provided to confirm that there are no existing communication towers within 1,000 feet of the proposed site.

Please see attached GIS map with database of all existing towers. This confirms that no tower exists within ¼ mile of the proposed tower.

Therefore, section 8.4.22 (T) of the Gaston County Unified Development Ordinance has been satisfied.

(Signature)

DAVID HOCKEY

(Print name)

04/13/22

Date

ACKNOWLEDGMENT

State of NC

County of Wake)

On April 13, 2022 before me, Catherine Phipps

personally appeared David Hockey, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity, and that by his/her/their signature on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

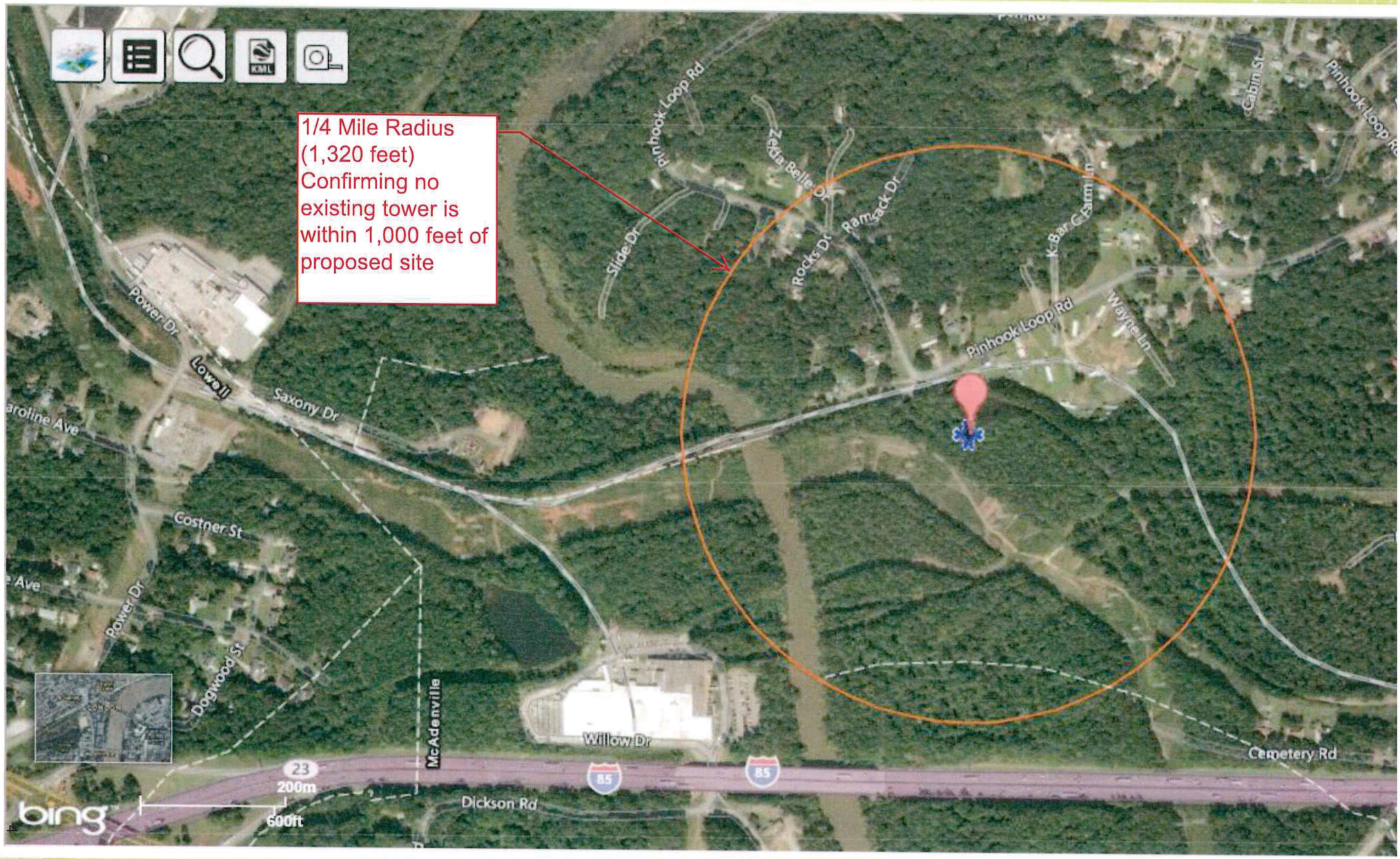
WITNESS my hand and official seal.

Signature _____ **(Seal)**

Catherine M. Phipps NOTARY PUBLIC Wake County, NC

5000 Valleystone Dr.
Suite 200
Cary, NC 27519
address
919.653.5700
main
919.469.5530
fax
info@towerco.com
email
towerco.com
website

NC0288: McAndenville



TowerCo

February 14, 2022

NC0288- COLOCATION STATEMENT

This document is being provided to confirm that TowerCo 2013 LLC commits to allow colocation on the proposed tower to be located on Pinhook Loop Road. Additionally, the wireless communication facility will be designed to accommodate multiple wireless tenants, thereby complying with Gaston County's unified development ordinance, more specifically Chapter 8.4.22 (B). Additionally, TowerCo has reached out to market contacts for both Verizon Wireless and T-Mobile notifying them of the proposed site and colocation availability. Therefore, this requirement has been satisfied.

As background, TowerCo is a privately held wireless infrastructure company that owns towers and leases space to all national and non-national wireless customers throughout the country. It is important to TowerCo that our sites have the capacity to handle multiple tenants, thereby supporting the goals of the County's zoning ordinance (reducing future potential for new towers).

Sincerely,

David Hockey

Director of Zoning

NOTARY BLOCK

State of NORTH CAROLINA

County of Wake

This instrument was acknowledged before me by David Hockey, Dir. of Zoning of TowerCo (Tower Facility owner), personally known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument and acknowledged to me that he/she executed the same.

WITNESS my hand and official seal, this 14th day of February, 2022

NOTARY SEAL

JILL E HARVEY
NOTARY PUBLIC
WAKE COUNTY, NC
My Commission Expires 7/26/2025

Notary Public Jill E. Hz

My Commission Expires: 7/26/2025

5000 Valleystone Dr.
Suite 200
Cary, NC 27519
address
919.653.5700
main
919.469.5530
fax
info@towerco.com
email
towerco.com
website

ASAC SITE SPECIFIC EVALUATION
FOR
Site Name: McAdenville
Site Number: NC0288
Site Location: McAdenville, NC.

Requestors Name: Chad Doherty
Company Name: TowerCo
Street Address: 5000 Valleystone Dr.
City and Zip: Cary, NC 27519

This is an evaluation based on application of surfaces identified in Federal Aviation Regulation (FAR) Part 77 and Federal Communication Commission (FCC) Rules Part 17.

EXECUTIVE SUMMARY

- **The max height that can be built at this site without notice to the FAA is 200 feet AGL or 855 feet AMSL.**
- **The max No Extended Study height at this site is 499 AGL, or 1154 AMSL.**
- **The max no hazard height at this site is 499 AGL, or 1154 AMSL.**
- **The max no marking and lighting height at this site is 200 AGL, or 855 AMSL.**

SITE DATA

Structure Type: Antenna Tower

Coordinates of site:	**Lat:**	**35° 16' 7.18"**
	Long:	**81° 4' 31.53"**
	Datum:	**NAD 83**

Site ground elevation:	**655**
Total height above the ground of the entire structure (AGL):	**258**
Total height above mean sea level (AMSL):	**913**

AIRPORT/HELIPORT INFORMATION

Nearest public use or Government Use (DOD) facility Gastonia Municipal.

This structure will be located 5.3 NM or 32725 FT from the airport on a bearing of 222 degrees true to the airport.

Nearest private use landing facility is Caromont RMC.

This structure will be located 3.1 NM from the helipad on a bearing of 276 degrees true to the helipad.

STUDY FINDINGS

FAA FAR Part 77 paragraph 9 (FAR 77.9): (Construction or Alteration requiring notice.) (These are the imaginary surfaces that the FAA has implemented to provide general criteria for notification purposes.)

This structure does require notification to the FAA.

FAA FAR Part 77 paragraph 17(FAR 77.17): (Standards for Determining Obstructions.)(These are the imaginary surfaces that the FAA has implemented to protect aircraft safety. If any of these surfaces are penetrated, the structure may pose a Hazard to Air Navigation.)

This structure does not exceed these surfaces.

FCC Notice Requirements:
(FCC Rules, Part 17)

This structure does require notification to the FAA or FCC based on these rules.

FAA EMI:
(The FAA protects certain air navigational aids, radio transmitters, and RADAR facilities from possible interference. The distance and direction are dependent on the type of facility being evaluated. Some of these transmission and receiver facilities are listed in the National Flight Data Center (NFDC) database.)

This site would not affect any FAA air navigational aids or transmitters.

Military Airspace:
(This would include low level visual and instrument routes along with operations areas and special use airspace.)

This structure will not affect this airspace.

AM Facilities:
(The FCC protects AM radio stations from possible interference for a distance of 3.0 km for directional facilities, and 1.0 km for non-directional facilities. New changes to the FCC critical distances are calculated based on the AM transmission Movement Method Proof evaluation.)

This site was evaluated against the FCC's AM antenna database using the Movement Method proof calculations and no further action is required.

MARKING AND LIGHTING

FAA Advisory Circular 70/7460-1:

Marking and lighting is required for this structure.

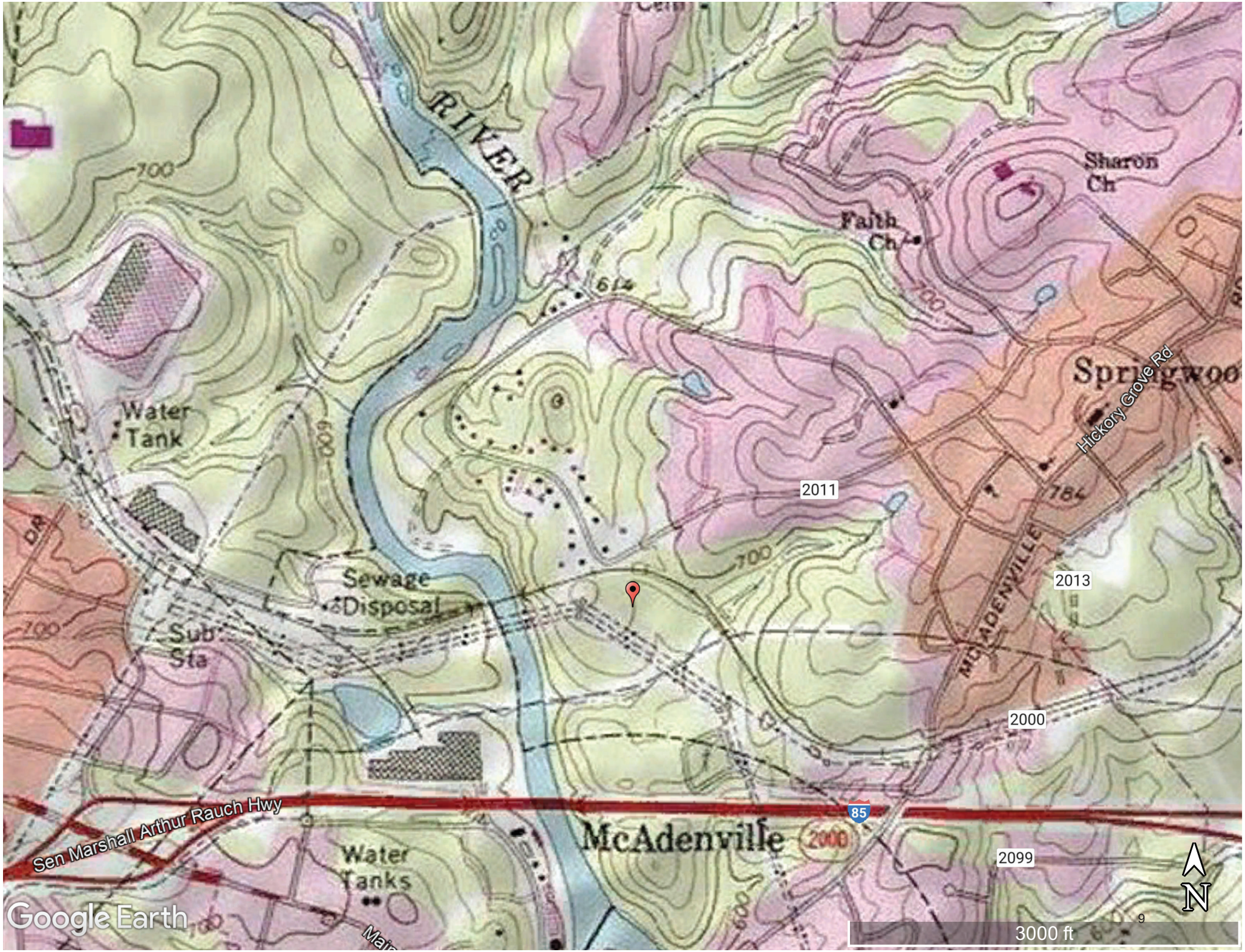
RECOMMENDATIONS

This site was evaluated in accordance with the requirements specified by the FAA under Federal Aviation Rules part 77, and found not to be a hazard to air navigation.

☐ **State filing required**

☒ **State filing not required**

The construction crane will require filing with the FAA.


RIVER
Sharon Ch
Faith Ch
Springwoo
Hickory Grove Rd
Water Tank
2011
Sewage Disposal
Sub Sta
McADENVILLE
2013
2000
Sen Marshall Arthur Rauch Hwy
85
McAdenville
2000
Water Tanks
2099
N
Google Earth
3000 ft

March 4, 2022

NC0288- PROPERTY OWNER COMPLIANCE STATEMENT

This document is being provided to confirm that as owner of the property with parcel ID 183034, I agree to comply with section 8.4.22 (K)of the Gaston County Unified Development Ordinance.

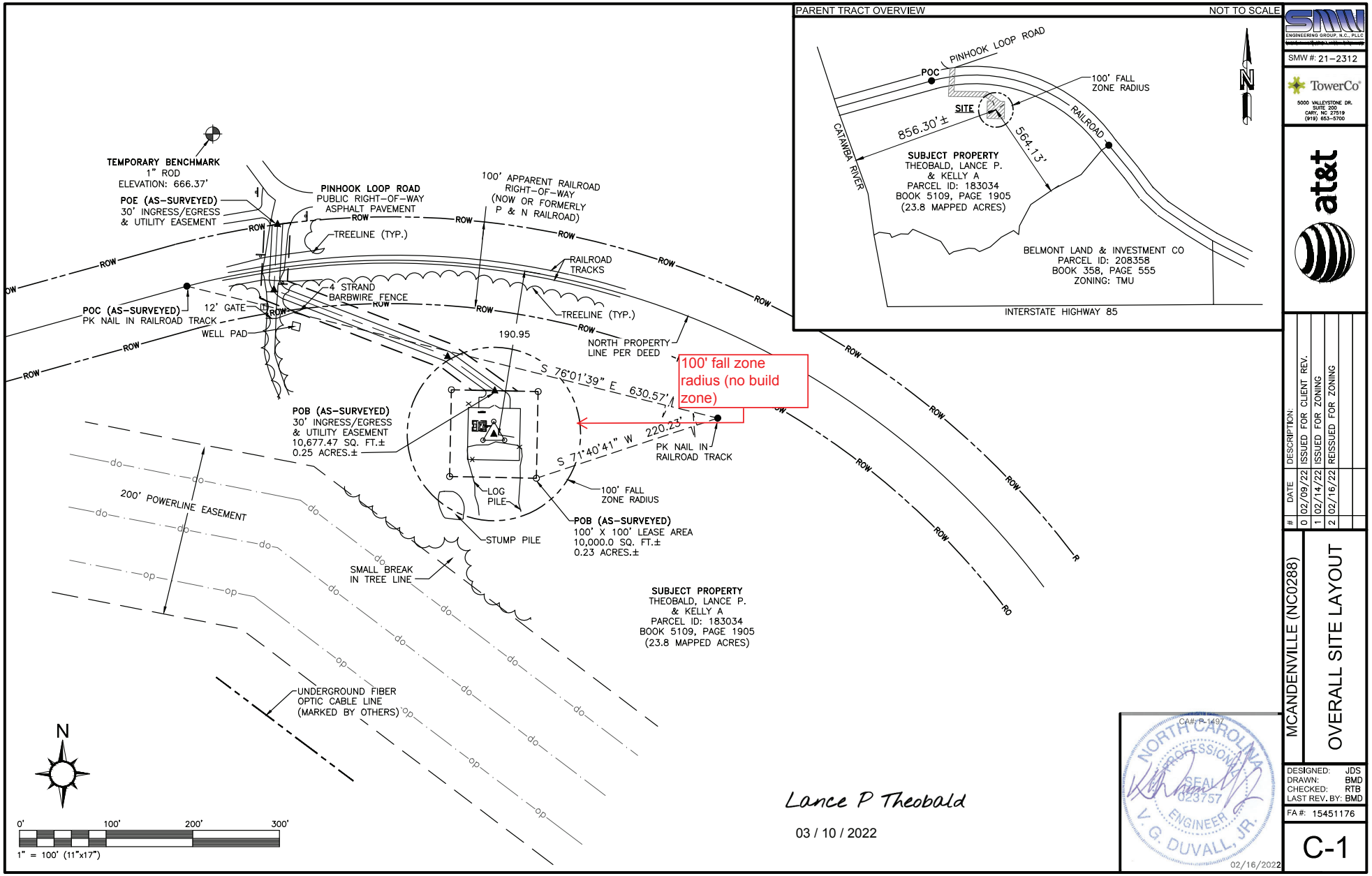
I acknowledge and will agree to not develop or subdivide land within the 100' setback radius of the proposed tower as noted on Sheet C-1 of the accompanying zoning drawings.

Sincerely,

Lance P Theobald

03 / 10 / 2022

Lance Theobald



Lance P Theobald

03 / 10 / 2022

CA#: P-1497
NORTH CAROLINA PROFESSIONAL SEAL 023757 ENGINEER V. G. DUVALL, JR.
02/16/2022

SMW ENGINEERING GROUP, N.C., PLLC
SMW #: 21-2312

TowerCo
5000 VALLEYSTONE DR.
SUITE 200
CARY, NC 27519
(919) 653-5700

at&t

#	DATE	DESCRIPTION:
0	02/09/22	ISSUED FOR CLIENT REV.
1	02/14/22	ISSUED FOR ZONING
2	02/16/22	REISSUED FOR ZONING

MCANDENVILLE (NC0288)

OVERALL SITE LAYOUT

DESIGNED: JDS
DRAWN: BMD
CHECKED: RTB
LAST REV. BY: BMD

FA #: 15451176

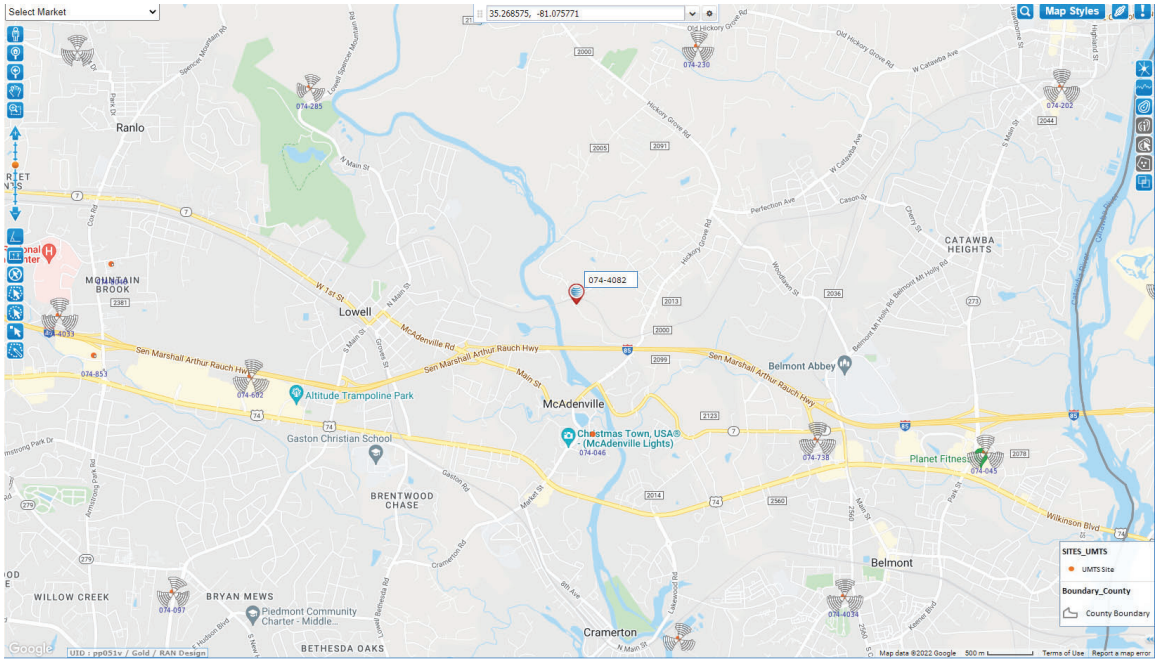
C-1

Paul Prychodko
AT&T Mobility LLC.
Charlotte/Greensboro/Asheville Markets

DATE: *March 16, 2022*
SUBJECT: ***RF Justification for AT&T Wireless Site: 074-4082***

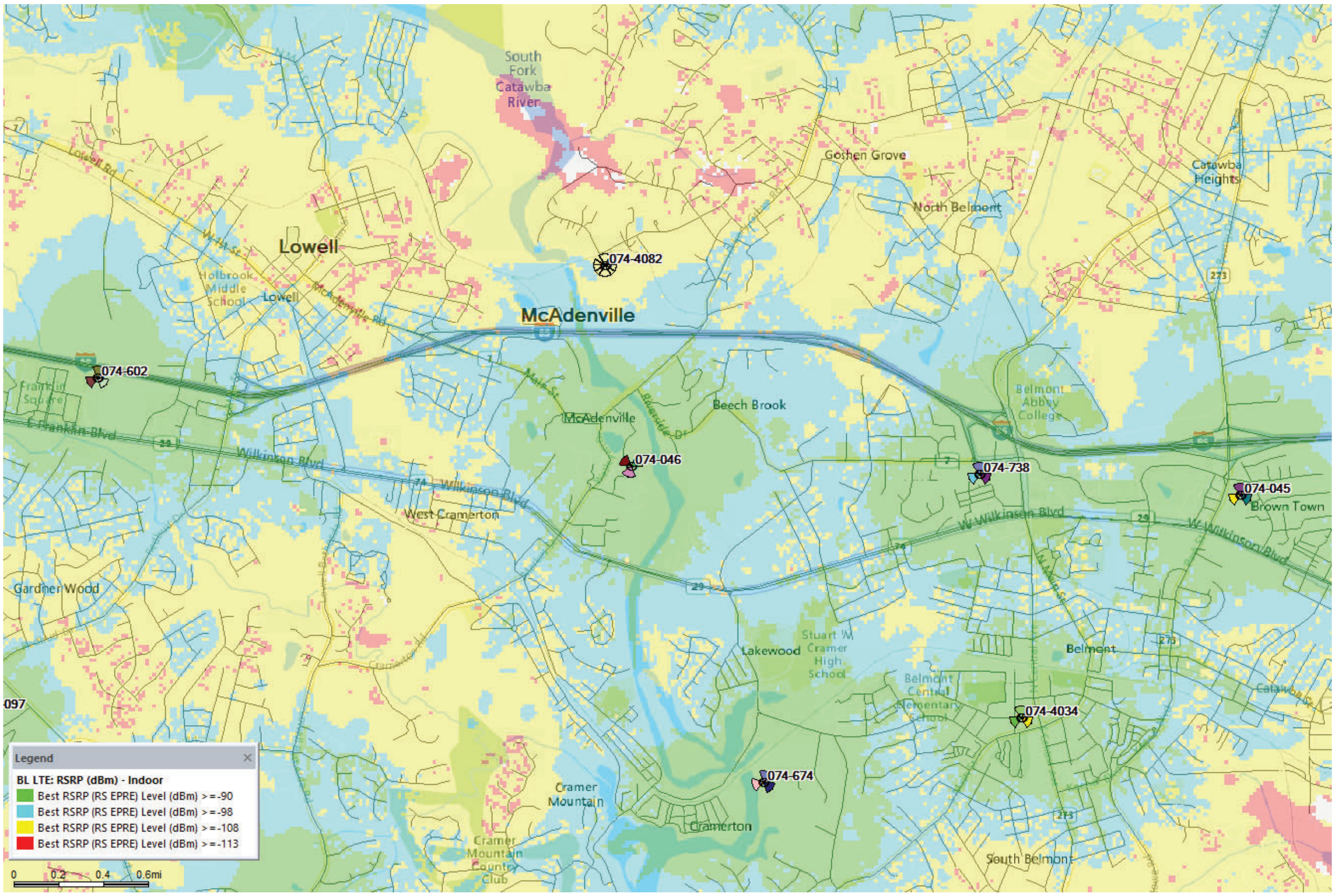
AT&T Mobility has been requested to provide justification for our proposed site 074-4082. AT&T Mobility is currently in the process of relocating our existing site in Gaston County. The proposed site will provide & extend the coverage along I-85 and provide indoor/outdoor coverage to residential and businesses in and around the town of McAdenville. The proposed tower height of 245 feet is the minimum necessary to meet AT&T's coverage objectives. Existing structures have been utilized whenever possible. AT&T certifies that all of its equipment will be installed and operated in keeping with applicable FAA and FCC rules and regulations and appropriate industry standards. The construction of this tower, including AT&T's installation of transmitter/receiver equipment, will not interfere with the usual and customary transmission or reception of radio, television, etc. service enjoyed by adjacent properties. AT&T certifies that the proposed tower will not interfere with Public Safety radio equipment in the vicinity. ***Figure 1*** *shows the general area within Gaston County that the new relocated site will be located. In* ***Figure 1*** *blue text indicate the location of all existing sites and the AT&T pin and the white text box indicates the location of the proposed site.*

Figure 1: Map of AT&T Wireless' Existing and Proposed Site



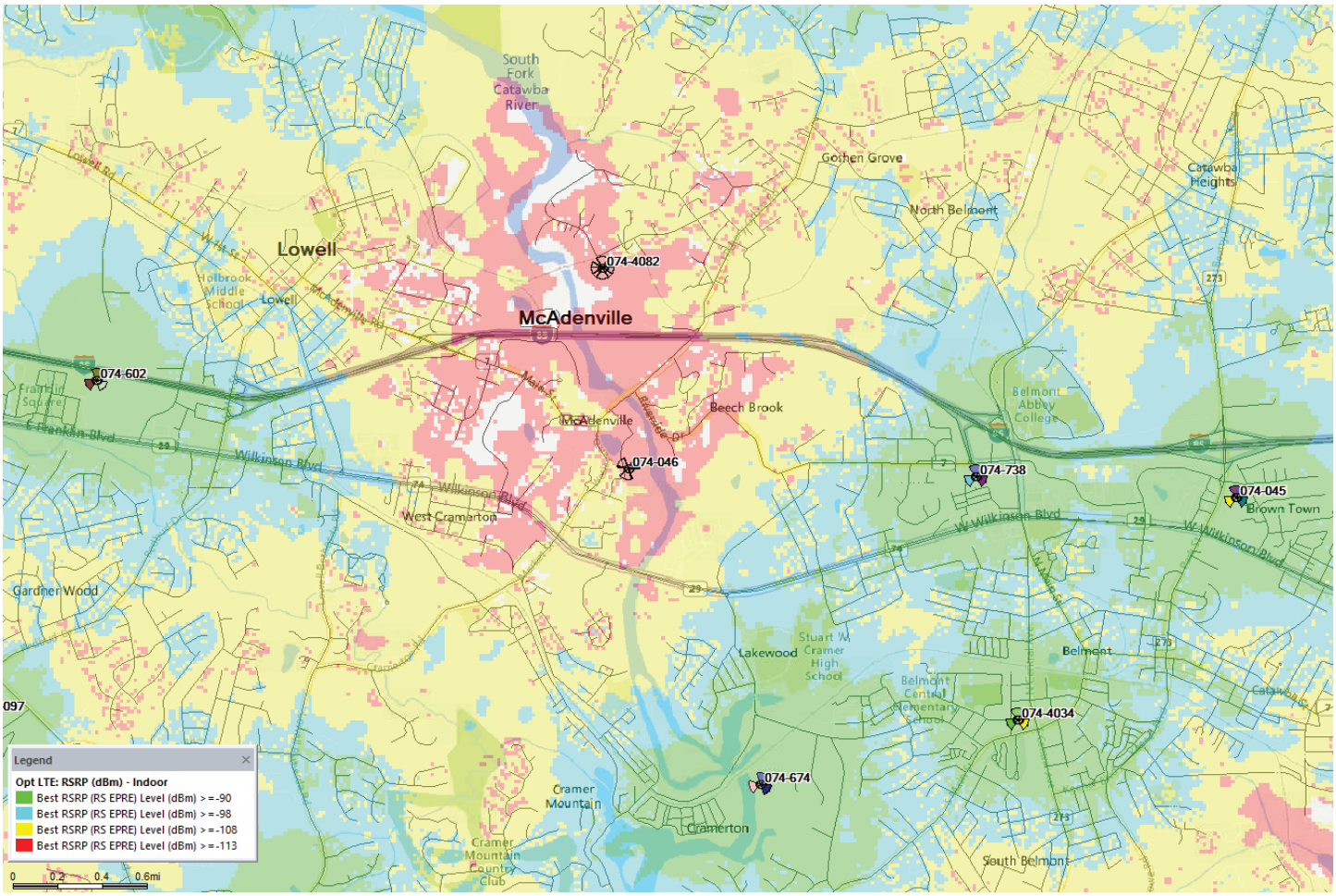
*Current Network Coverage from existing old Crown site. Refer to **Figure 2**, which shows coverage with existing site.*

Figure 2: Map of AT&T Wireless' Coverage with 074-046



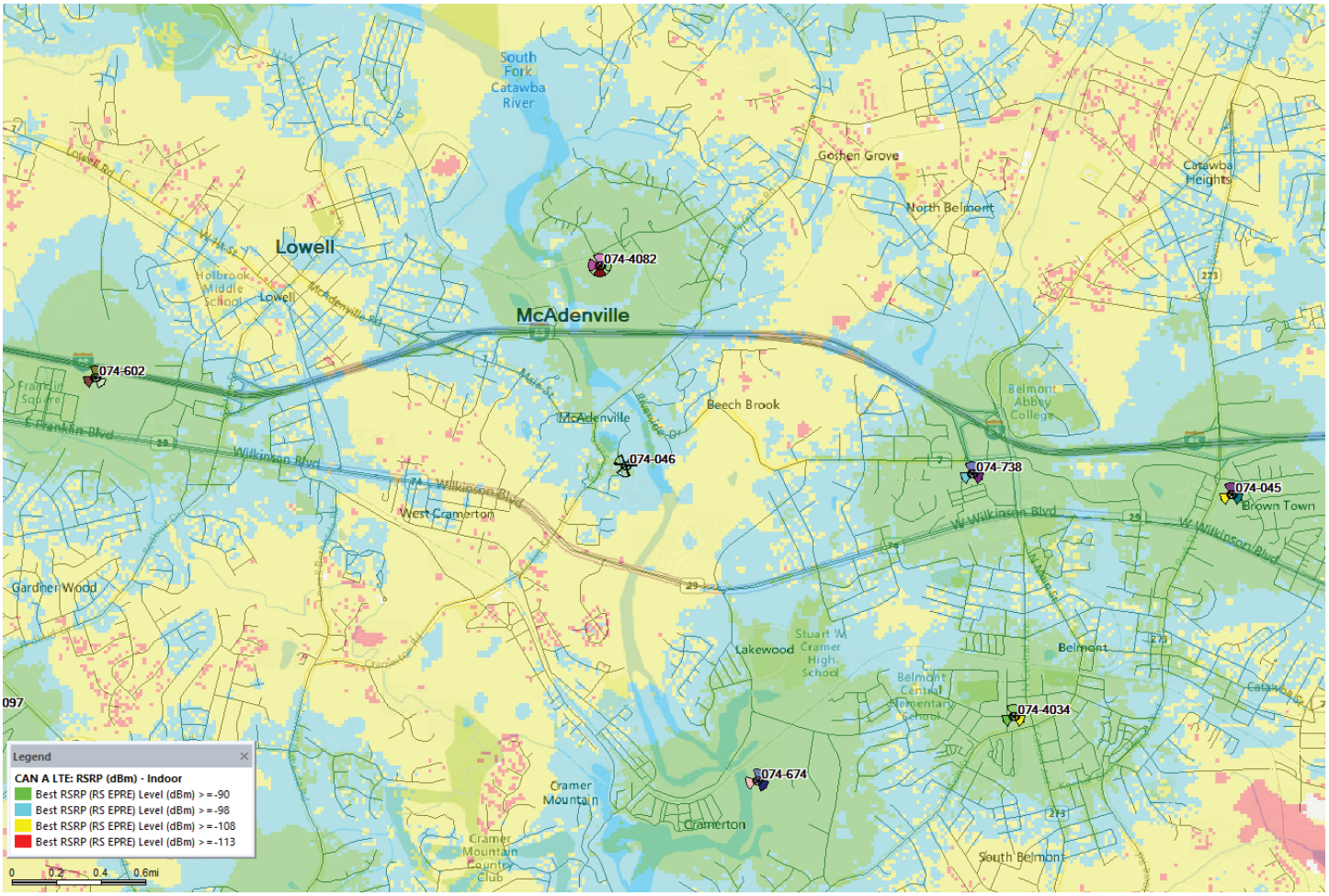
*Coverage after Crown site was removed. Refer to **Figure 3**, which shows loss of coverage without existing site 074-046.*

Figure 3: Map of AT&T Wireless' Coverage without 074-046



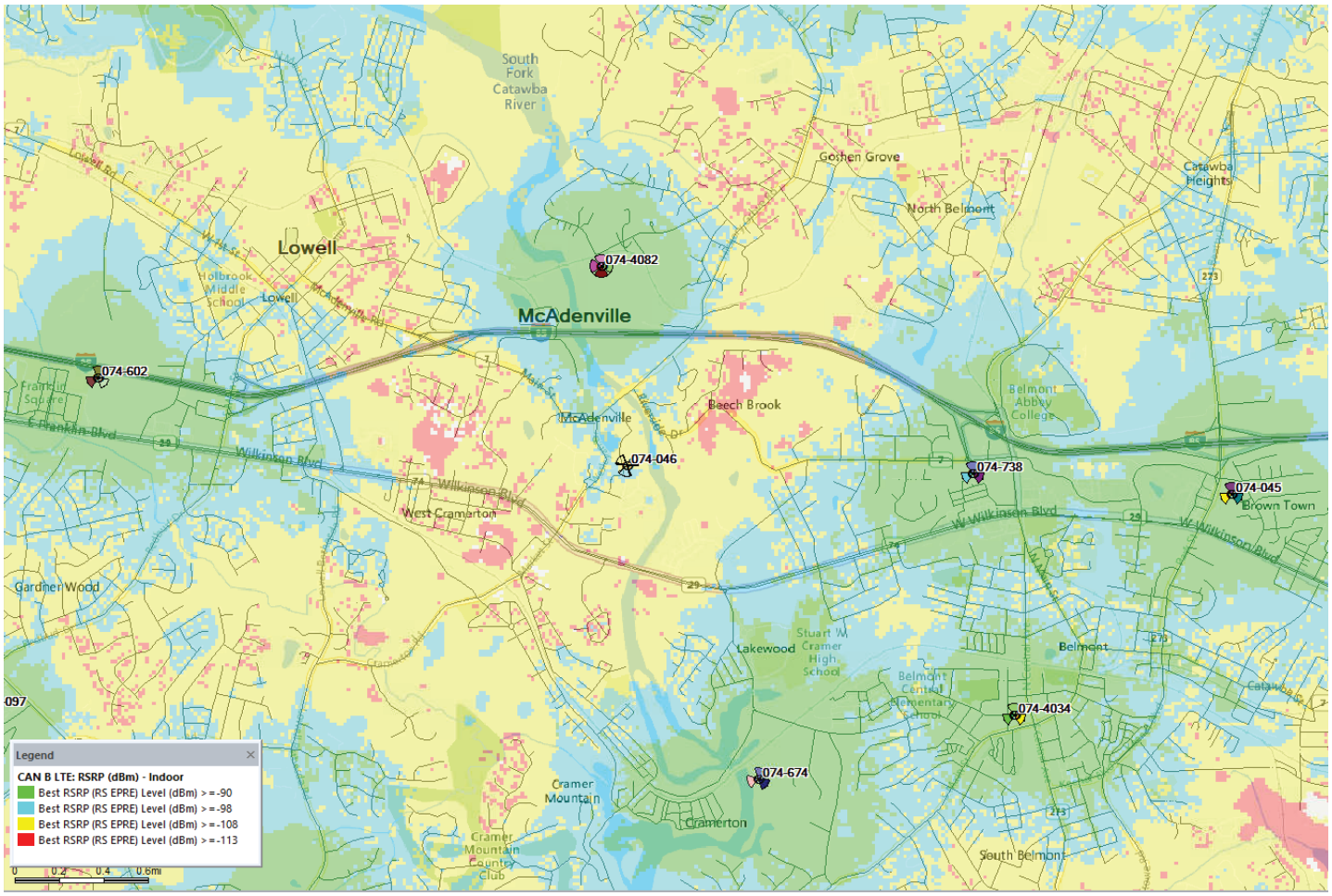
*With the addition of the relocation site 074-4082, AT&T Mobility will provide & enhance the coverage along I-85 and also provide outdoor/indoor coverage to residential and businesses around the town of McAdenville. Refer to **Figure 4** which shows coverage with proposed site 074-4082*

Figure 4: Map of AT&T Wireless' Coverage with 074-4082 RAD height 245'



AT&T could not meet their coverage and objectives if we lowered our RAD height to 195' which are to provide & enhance the coverage along I-85 and also provide outdoor/indoor coverage to residential and businesses around the town of McAdenville. Refer to ***Figure 5*** *which shows coverage with proposed site 074-4082*

Figure 5: Map of AT&T Wireless' Coverage with 074-4082 RAD 195'



Paul Prychodko
AT&T Mobility LLC.
Charlotte/Greensboro/Asheville Markets

Sabre Industries™
INNOVATION DELIVERED

Structural Design Report

250' S3TL Series HD1 Self-Supporting Tower
Site: McAndenville, NC
Site Number: NC0288

Prepared for: TOWERCO LLC
by: Sabre Industries ™

Job Number: 22-1871-JDS-R2
Revision A

February 17, 2022

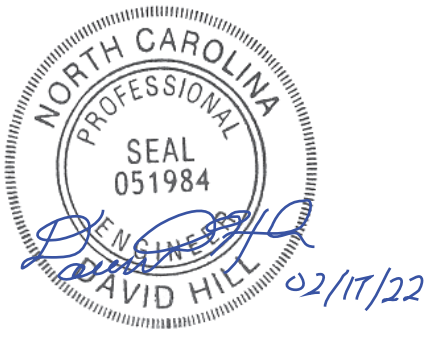
Tower Profile..... **1-2**

Maximum Leg Loads..... **3**

Maximum Diagonal Loads..... **4**

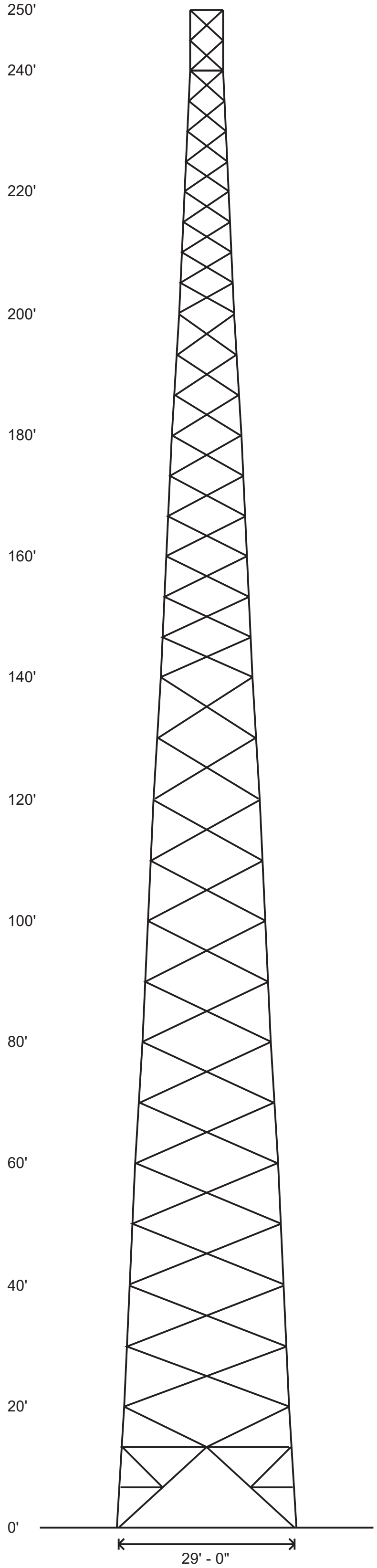
Maximum Foundation Loads..... **5**

Calculations..... **6-22**



Digitally Signed By David Hill
DN: c=US, st=Texas, l=Alvarado, o=SABRE INDUSTRIES, INC., cn=David Hill, email=dhill@sabreindustries.com Date: 2022.02.17 09:28:54

	0'–20'	20'–40'	40'–60'	60'–80'	80'–100'	100'–120'	120'–140'	140'–160'	160'–180'	180'–200'	200'–220'	220'–240'	240'–250'
Legs				8.625 OD X .500			A		5.563 OD X .500	B	C	2.875 OD X .276	
Diagonals	D		L 4 X 4 X 1/4			E	L 3 X 3 X 5/16		L 3 X 3 X 3/16		L 2 1/2 X 2 1/2 X 3/16	L 2 X 2 X 3/16	F
Horizontals	E						NONE					G	H | F
Internals	I						NONE						
Sub-Diagonals	J						NONE						
Sub-Horizontals	K						NONE						
Brace Bolts	(2) 3/4"		(2) 5/8"			(1) 3/4"					(1) 5/8"		
Top Face Width	27'	25'	23'	21'	19'	17'	15'	13'	11'	9'	7'	5'	
Panel Count/Height	L | M				12 @ 10'				9 @ 6.6667'			10 @ 5'	
Section Weight	6083	5406	5253	5013	4864	4518	3538	3145	2849	2211	1762	1225	549



Designed Appurtenance Loading

Elev	Description	Tx-Line
245	3 EHD V-Boom - 12ft Face - 3ft Standoff (AT&T approved)	
245	(1) 40,000 Sq. In. EPA 6000# (no ice)	(24) 1 5/8"
230	3V-Boom - 12ft Face - 3ft Standoff	
230	(1) 30,000 sq. in. EPA 4000# (no ice)	(12) 1 5/8"
220	3V-Boom - 12ft Face - 3ft Standoff	
220	(1) 30,000 sq. in. EPA 4000# (no ice)	(12) 1 5/8"

Design Criteria - ANSI/TIA-222-G

Ultimate Wind Speed (No Ice)	115 mph
Wind Speed (Ice)	30 mph
Design Ice Thickness	0.75 in
Structure Class	II
Risk Category	II
Exposure Category	C
Topographic Category	1
Seismic Importance Factor, Ie	1.00
0.2-sec Spectral Response, Ss	0.203 g
1-sec Spectral Response, S1	0.082 g
Site Class	D (DEFAULT)
Seismic Design Category	B
Basic Seismic Force-Resisting System	Telecommunication Tower (Truss: Steel)

Base Reactions - Wind/Ice

Total Foundation		Individual Footing	
Shear (kips)	81.26	Shear (kips)	49.49
Axial (kips)	206.62	Compression (kips)	535
Moment (ft-kips)	12715	Uplift (kips)	464

Base Reactions - Seismic

Total Foundation		Individual Footing	
Shear (kips)	3.67	Shear (kips)	3.86
Axial (kips)	97.29	Compression (kips)	60
Moment (ft-kips)	687	Uplift (kips)	5

Notes

1) All legs are A500 (50 ksi Min. Yield).
2) All braces are A572 Grade 50.
3) All brace bolts are A325-X.
4) The tower model is S3TL Series HD1.
5) Transmission lines are to be attached to standard 12 hole waveguide ladders with stackable hangers.
6) Azimuths are relative (not based on true north).
7) Foundation loads shown are maximums.
8) (6) 1 1/4" dia. x 63"-long F1554 grade 105 anchor bolts per leg on a 12.75" bolt circle w/ 8" max. projection above concrete.
9) All unequal angles are oriented with the short leg vertical.
10) Weights shown are estimates. Final weights may vary.
11) This tower design and, if applicable, the foundation design(s) shown on the following page(s) also meet or exceed the requirements of the 2015 International Building Code.
12) Tower Rating: 97.99%

Sabre Industries
INNOVATION DELIVERED

Sabre Industries
7101 Southbridge Drive
P.O. Box 658
Sioux City, IA 51102-0658
Phone: (712) 258-6690
Fax: (712) 279-0814

Job:	**22-1871-JDS-R2-RA**
Customer:	TOWERCO LLC
Site Name:	McAndenville, NC NC0288
Description:	250' S3TL
Date:	2022.02.17 By: DJH

Material List

Display	Value
A	8.625 OD X .322
B	5.563 OD X .375
C	4.000 OD X .318
D	L 5 X 3 1/2 X 1/4
E	L 3 1/2 X 3 1/2 X 1/4
F	L 2 X 2 X 1/8
G	L 2 X 2 X 3/16

Display	Value
H	NONE
I	L 3 X 3 X 1/4
J	L 3 X 3 X 3/16
K	L 2 1/2 X 2 1/2 X 3/16
L	1 @ 13.333'
M	1 @ 6.667'

Sabre Industries
INNOVATION DELIVERED
Sabre Industries
7101 Southbridge Drive
P.O. Box 658
Sioux City, IA 51102-0658
Phone: (712) 258-6690
Fax: (712) 279-0814

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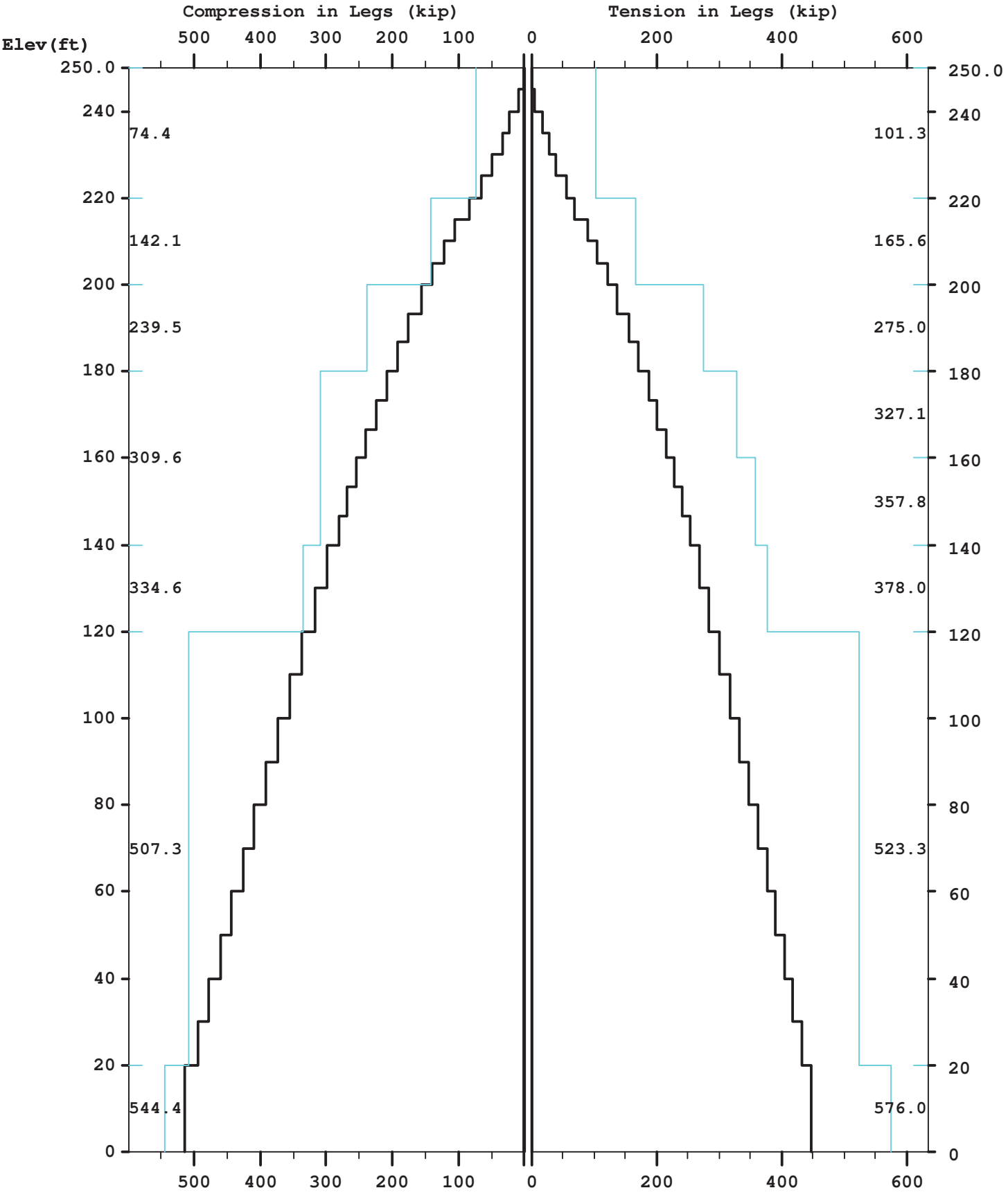
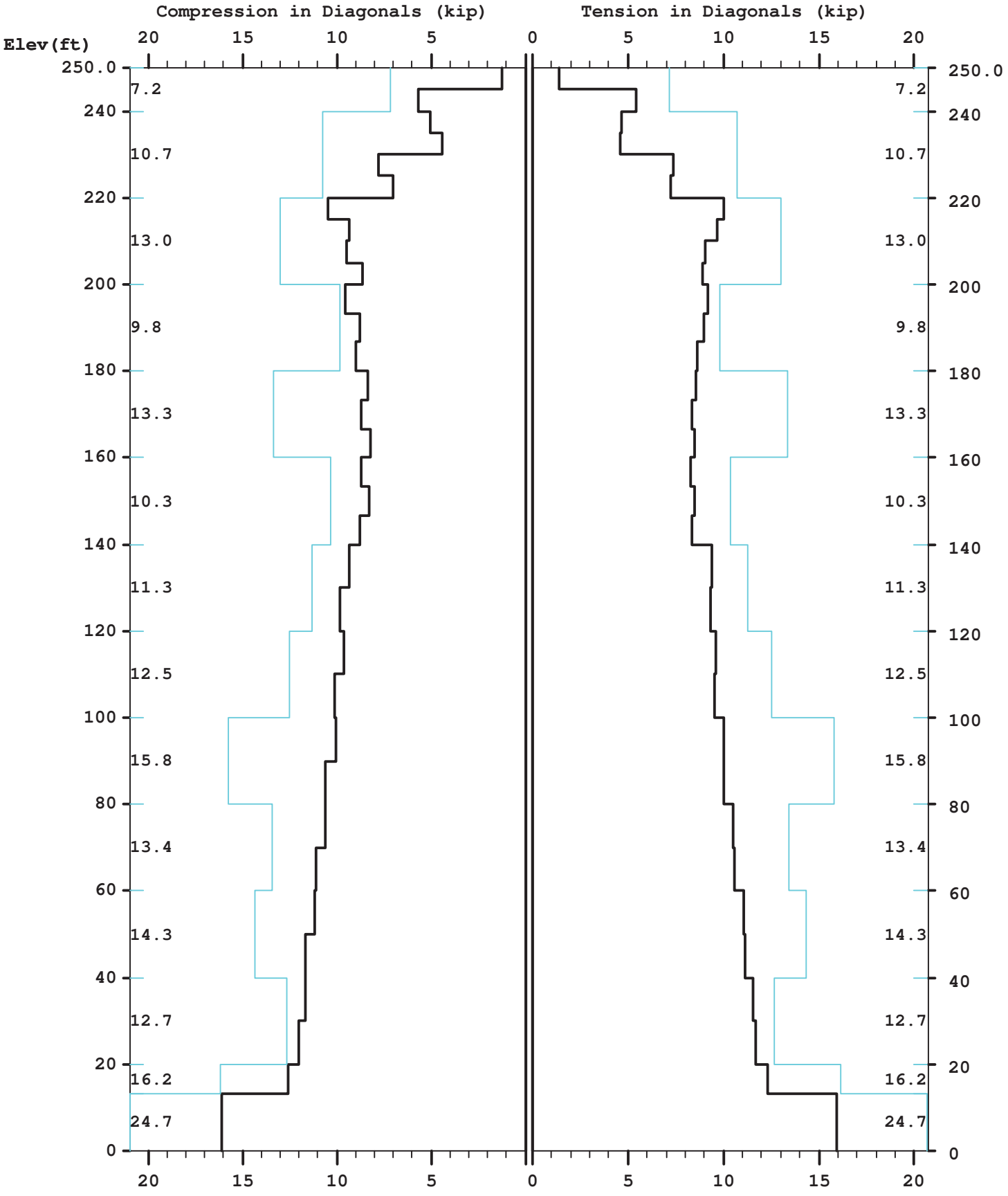
Customer:	TOWERCO LLC
Site Name:	McAndenville, NC NC0288
Description:	250' S3TL
Date:	2022.02.17 By: DJH

Maximum

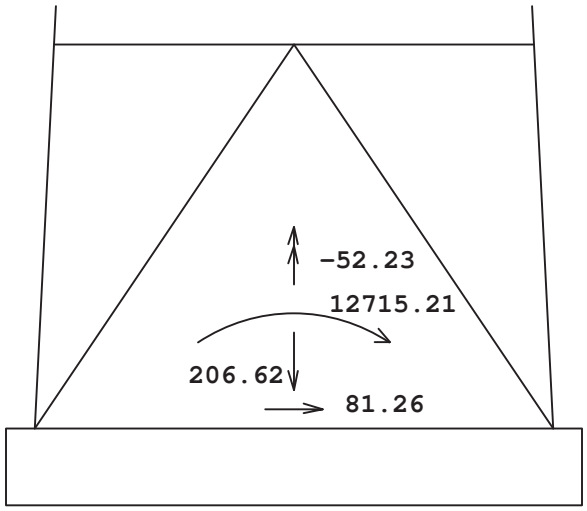

Compression in Legs (kip)
Tension in Legs (kip)
Elev(ft)
500 400 300 200 100 0
200 400 600
250.0
240
220
200
180
160
140
120
100
80
60
40
20
0
74.4
142.1
239.5
309.6
334.6
507.3
544.4
101.3
165.6
275.0
327.1
357.8
378.0
523.3
576.0

Maximum

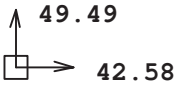

Compression in Diagonals (kip)
Tension in Diagonals (kip)
Elev(ft)
20 15 10 5 0 5 10 15 20
250.0
240
220
200
180
160
140
120
100
80
60
40
20
0
7.2
10.7
13.0
9.8
13.3
10.3
11.3
12.5
15.8
13.4
14.3
12.7
16.2
24.7

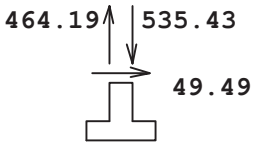
Maximum

TOTAL FOUNDATION LOADS (kip, ft-kip)



INDIVIDUAL FOOTING LOADS (kip)





MAST GEOMETRY (ft)

PANEL TYPE	NO.OF LEGS	ELEV.AT BOTTOM	ELEV.AT TOP	F.W..AT BOTTOM	F.W..AT TOP	TYPICAL PANEL HEIGHT
X	3	245.00	250.00	5.00	5.00	5.00
X	3	240.00	245.00	5.00	5.00	5.00
X	3	235.00	240.00	5.50	5.00	5.00
X	3	220.00	235.00	7.00	5.50	5.00
X	3	200.00	220.00	9.00	7.00	5.00
X	3	180.00	200.00	11.00	9.00	6.67
X	3	160.00	180.00	13.00	11.00	6.67
X	3	140.00	160.00	15.00	13.00	6.67
X	3	120.00	140.00	17.00	15.00	10.00
X	3	100.00	120.00	19.00	17.00	10.00
X	3	80.00	100.00	21.00	19.00	10.00
X	3	60.00	80.00	23.00	21.00	10.00
X	3	40.00	60.00	25.00	23.00	10.00
X	3	20.00	40.00	27.00	25.00	10.00
V	3	13.33	20.00	27.67	27.00	6.67
A	3	0.00	13.33	29.00	27.67	13.33

MEMBER PROPERTIES

MEMBER TYPE	BOTTOM ELEV ft	TOP ELEV ft	X-SECTN AREA in.sq	RADIUS OF GYRAT in	ELASTIC MODULUS ksi	THERMAL EXPANSN /deg
LE	220.00	250.00	2.254	0.924	29000.	0.0000117
LE	200.00	220.00	3.678	0.924	29000.	0.0000117
LE	180.00	200.00	6.111	0.924	29000.	0.0000117
LE	140.00	180.00	7.952	0.924	29000.	0.0000117
LE	120.00	140.00	8.399	0.924	29000.	0.0000117
LE	0.00	120.00	12.763	0.924	29000.	0.0000117
DI	240.00	250.00	0.484	0.626	29000.	0.0000117
DI	220.00	240.00	0.715	0.626	29000.	0.0000117
DI	180.00	220.00	0.902	0.626	29000.	0.0000117
DI	140.00	180.00	1.090	0.626	29000.	0.0000117
DI	120.00	140.00	1.777	0.626	29000.	0.0000117
DI	100.00	120.00	1.688	0.626	29000.	0.0000117
DI	13.33	100.00	1.938	0.626	29000.	0.0000117
DI	0.00	13.33	2.062	0.626	29000.	0.0000117
HO	245.00	250.00	0.484	0.626	29000.	0.0000117
HO	235.00	240.00	0.715	0.626	29000.	0.0000117
HO	0.00	13.33	1.688	0.626	29000.	0.0000117
BR	0.00	13.33	1.438	0.000	29000.	0.0000117

FACTORED MEMBER RESISTANCES

BOTTOM ELEV ft	TOP ELEV ft	LEGS COMP kip	LEGS TENS kip	DIAGONALS COMP kip	DIAGONALS TENS kip	HORIZONTALS COMP kip	HORIZONTALS TENS kip	INT BRACING COMP kip	INT BRACING TENS kip
245.0	250.0	74.39	101.25	7.16	7.16	5.82	5.82	0.00	0.00
240.0	245.0	74.39	101.25	7.16	7.16	0.00	0.00	0.00	0.00
235.0	240.0	74.39	101.25	10.74	10.74	8.46	8.46	0.00	0.00
220.0	235.0	74.39	101.25	10.74	10.74	0.00	0.00	0.00	0.00
200.0	220.0	142.05	165.60	13.03	13.03	0.00	0.00	0.00	0.00
180.0	200.0	239.46	274.95	9.84	9.84	0.00	0.00	0.00	0.00
160.0	180.0	309.64	327.10	13.34	13.34	0.00	0.00	0.00	0.00
140.0	160.0	309.64	357.75	10.34	10.34	0.00	0.00	0.00	0.00
120.0	140.0	334.65	378.00	11.28	11.28	0.00	0.00	0.00	0.00
100.0	120.0	507.33	523.32	12.53	12.53	0.00	0.00	0.00	0.00
80.0	100.0	507.33	523.32	15.77	15.77	0.00	0.00	0.00	0.00
60.0	80.0	507.33	523.32	13.43	13.43	0.00	0.00	0.00	0.00

40.0	60.0	507.33	523.32	14.31	14.31	0.00	0.00	0.00	0.00
20.0	40.0	507.33	523.32	12.68	12.68	0.00	0.00	0.00	0.00
13.3	20.0	544.40	576.00	16.16	16.16	0.00	0.00	0.00	0.00
0.0	13.3	544.40	576.00	24.72	24.72	11.36	11.36	7.41	7.41

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* Only 5 condition(s) shown in full

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LOADING CONDITION A ==========

115 mph Ultimate wind with no ice. Wind Azimuth: 0° (1.2 D + 1.0 Wo)

MAST LOADING

LOAD TYPE	ELEV ft	APPLY..LOAD..AT RADIUS ft	AZI	LOAD AZI	......FORCES...... HORIZ kip	DOWN kip	......MOMENTS...... VERTICAL ft-kip	TORSNAL ft-kip
C	245.0	0.00	0.0	0.0	10.68	9.04	0.00	0.00
C	230.0	0.00	0.0	0.0	7.91	6.40	0.00	0.00
C	220.0	0.00	0.0	0.0	7.84	6.40	0.00	0.00
D	250.0	0.00	180.0	0.0	0.07	0.05	0.00	0.00
D	245.0	0.00	180.0	0.0	0.07	0.05	0.00	0.00
D	245.0	0.00	42.0	0.0	0.13	0.08	0.07	0.10
D	240.0	0.00	42.0	0.0	0.13	0.08	0.07	0.10
D	240.0	0.00	38.3	0.0	0.14	0.10	0.08	0.10
D	230.0	0.00	40.8	0.0	0.14	0.09	0.07	0.10
D	230.0	0.00	74.0	0.0	0.17	0.11	0.07	0.12
D	220.0	0.00	76.5	0.0	0.17	0.11	0.06	0.12
D	220.0	0.00	96.9	0.0	0.19	0.16	0.09	0.14
D	200.0	0.00	103.2	0.0	0.20	0.16	0.08	0.13
D	200.0	0.00	90.8	0.0	0.19	0.18	0.11	0.15
D	180.0	0.00	94.8	0.0	0.20	0.19	0.10	0.14
D	180.0	0.00	86.2	0.0	0.21	0.22	0.13	0.16
D	160.0	0.00	89.1	0.0	0.22	0.23	0.12	0.16
D	160.0	0.00	82.7	0.0	0.21	0.23	0.15	0.18
D	140.0	0.00	84.9	0.0	0.22	0.23	0.13	0.17
D	140.0	0.00	80.2	0.0	0.21	0.25	0.16	0.18
D	120.0	0.00	81.5	0.0	0.21	0.26	0.15	0.18
D	120.0	0.00	78.0	0.0	0.22	0.31	0.18	0.19
D	100.0	0.00	79.0	0.0	0.22	0.31	0.17	0.19
D	100.0	0.00	76.2	0.0	0.23	0.33	0.20	0.20
D	80.0	0.00	77.1	0.0	0.23	0.34	0.19	0.19
D	80.0	0.00	74.8	0.0	0.22	0.34	0.22	0.20
D	60.0	0.00	75.5	0.0	0.23	0.34	0.21	0.20
D	60.0	0.00	73.5	0.0	0.22	0.35	0.24	0.20
D	40.0	0.00	74.1	0.0	0.22	0.35	0.23	0.20
D	40.0	0.00	72.5	0.0	0.20	0.36	0.26	0.18
D	20.0	0.00	73.0	0.0	0.20	0.36	0.25	0.19
D	20.0	0.00	71.5	0.0	0.17	0.34	0.28	0.18
D	13.3	0.00	71.5	0.0	0.17	0.34	0.28	0.18
D	13.3	0.00	72.0	0.0	0.20	0.41	0.27	0.18
D	0.0	0.00	72.0	0.0	0.20	0.41	0.27	0.18

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LOADING CONDITION M ==========

115 mph Ultimate wind with no ice. Wind Azimuth: 0° (0.9 D + 1.0 Wo)

MAST LOADING

LOAD TYPE	ELEV ft	APPLY..LOAD..AT RADIUS ft	AZI	LOAD AZI	......FORCES...... HORIZ kip	DOWN kip	......MOMENTS...... VERTICAL ft-kip	TORSNAL ft-kip
C	245.0	0.00	0.0	0.0	10.68	6.78	0.00	0.00
C	230.0	0.00	0.0	0.0	7.91	4.80	0.00	0.00
C	220.0	0.00	0.0	0.0	7.84	4.80	0.00	0.00
D	250.0	0.00	180.0	0.0	0.07	0.04	0.00	0.00

D	245.0	0.00	180.0	0.0	0.07	0.04	0.00	0.00
D	245.0	0.00	42.0	0.0	0.13	0.06	0.05	0.10
D	240.0	0.00	42.0	0.0	0.13	0.06	0.05	0.10
D	240.0	0.00	38.3	0.0	0.14	0.07	0.06	0.10
D	230.0	0.00	40.8	0.0	0.14	0.07	0.05	0.10
D	230.0	0.00	74.0	0.0	0.17	0.08	0.05	0.12
D	220.0	0.00	76.5	0.0	0.17	0.09	0.05	0.12
D	220.0	0.00	96.9	0.0	0.19	0.12	0.07	0.14
D	200.0	0.00	103.2	0.0	0.20	0.12	0.06	0.13
D	200.0	0.00	90.8	0.0	0.19	0.14	0.08	0.15
D	180.0	0.00	94.8	0.0	0.20	0.14	0.07	0.14
D	180.0	0.00	86.2	0.0	0.21	0.17	0.10	0.16
D	160.0	0.00	89.1	0.0	0.22	0.17	0.09	0.16
D	160.0	0.00	82.7	0.0	0.21	0.17	0.11	0.18
D	140.0	0.00	84.9	0.0	0.22	0.18	0.10	0.17
D	140.0	0.00	80.2	0.0	0.21	0.19	0.12	0.18
D	120.0	0.00	81.5	0.0	0.21	0.19	0.12	0.18
D	120.0	0.00	78.0	0.0	0.22	0.23	0.14	0.19
D	100.0	0.00	79.0	0.0	0.22	0.24	0.13	0.19
D	100.0	0.00	76.2	0.0	0.23	0.25	0.15	0.20
D	80.0	0.00	77.1	0.0	0.23	0.25	0.14	0.19
D	80.0	0.00	74.8	0.0	0.22	0.26	0.17	0.20
D	60.0	0.00	75.5	0.0	0.23	0.26	0.16	0.20
D	60.0	0.00	73.5	0.0	0.22	0.26	0.18	0.20
D	40.0	0.00	74.1	0.0	0.22	0.26	0.17	0.20
D	40.0	0.00	72.5	0.0	0.20	0.27	0.19	0.18
D	20.0	0.00	73.0	0.0	0.20	0.27	0.19	0.19
D	20.0	0.00	71.5	0.0	0.17	0.25	0.21	0.18
D	13.3	0.00	71.5	0.0	0.17	0.25	0.21	0.18
D	13.3	0.00	72.0	0.0	0.20	0.31	0.20	0.18
D	0.0	0.00	72.0	0.0	0.20	0.31	0.20	0.18

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LOADING CONDITION Y ==========

30 mph wind with 0.75 ice. Wind Azimuth: 0° (1.2 D + 1.0 Di + 1.0 Wi)

MAST LOADING
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LOAD TYPE	ELEV	APPLY..LOAD..AT RADIUS	AZI	LOAD AZI	......FORCES...... HORIZ	DOWN	......MOMENTS...... VERTICAL	TORSNAL
	ft	ft			kip	kip	ft-kip	ft-kip
C	245.0	0.00	0.0	0.0	1.32	22.29	0.00	0.00
C	230.0	0.00	0.0	0.0	1.01	14.66	0.00	0.00
C	220.0	0.00	0.0	0.0	1.00	14.62	0.00	0.00
D	250.0	0.00	180.0	0.0	0.01	0.19	0.00	0.00
D	245.0	0.00	180.0	0.0	0.01	0.19	0.00	0.00
D	245.0	0.00	42.0	0.0	0.01	0.28	0.25	0.01
D	240.0	0.00	42.0	0.0	0.01	0.28	0.25	0.01
D	240.0	0.00	38.3	0.0	0.01	0.33	0.27	0.01
D	235.0	0.00	38.3	0.0	0.01	0.33	0.27	0.01
D	235.0	0.00	40.8	0.0	0.01	0.30	0.25	0.01
D	230.0	0.00	40.8	0.0	0.01	0.30	0.25	0.01
D	230.0	0.00	85.9	0.0	0.02	0.39	0.24	0.01
D	225.0	0.00	85.9	0.0	0.02	0.39	0.24	0.01
D	225.0	0.00	88.5	0.0	0.02	0.39	0.22	0.01
D	220.0	0.00	88.5	0.0	0.02	0.39	0.22	0.01
D	220.0	0.00	96.8	0.0	0.02	0.48	0.32	0.01
D	205.0	0.00	101.0	0.0	0.02	0.49	0.30	0.01
D	205.0	0.00	103.1	0.0	0.02	0.50	0.29	0.01
D	200.0	0.00	103.1	0.0	0.02	0.50	0.29	0.01
D	200.0	0.00	90.8	0.0	0.02	0.51	0.38	0.01
D	193.3	0.00	90.8	0.0	0.02	0.51	0.38	0.01
D	193.3	0.00	92.8	0.0	0.02	0.52	0.36	0.01
D	186.7	0.00	92.8	0.0	0.02	0.52	0.36	0.01
D	186.7	0.00	94.8	0.0	0.02	0.53	0.34	0.01
D	180.0	0.00	94.8	0.0	0.02	0.53	0.34	0.01
D	180.0	0.00	86.2	0.0	0.02	0.58	0.43	0.01
D	173.3	0.00	86.2	0.0	0.02	0.58	0.43	0.01
D	173.3	0.00	87.6	0.0	0.02	0.59	0.42	0.01
D	166.7	0.00	87.6	0.0	0.02	0.59	0.42	0.01
D	166.7	0.00	89.1	0.0	0.02	0.60	0.40	0.01
D	160.0	0.00	89.1	0.0	0.02	0.60	0.40	0.01
D	160.0	0.00	82.7	0.0	0.02	0.60	0.49	0.01
D	153.3	0.00	82.7	0.0	0.02	0.60	0.49	0.01

D	153.3	0.00	83.8	0.0	0.02	0.61	0.47	0.01
D	146.7	0.00	83.8	0.0	0.02	0.61	0.47	0.01
D	146.7	0.00	84.9	0.0	0.02	0.62	0.45	0.01
D	140.0	0.00	84.9	0.0	0.02	0.62	0.45	0.01
D	140.0	0.00	80.2	0.0	0.02	0.61	0.55	0.01
D	130.0	0.00	80.2	0.0	0.02	0.61	0.55	0.01
D	130.0	0.00	81.5	0.0	0.02	0.62	0.52	0.01
D	120.0	0.00	81.5	0.0	0.02	0.62	0.52	0.01
D	120.0	0.00	78.0	0.0	0.02	0.69	0.60	0.02
D	110.0	0.00	78.0	0.0	0.02	0.69	0.60	0.02
D	110.0	0.00	79.0	0.0	0.02	0.70	0.58	0.01
D	100.0	0.00	79.0	0.0	0.02	0.70	0.58	0.01
D	100.0	0.00	76.2	0.0	0.02	0.74	0.66	0.02
D	90.0	0.00	76.2	0.0	0.02	0.74	0.66	0.02
D	90.0	0.00	77.1	0.0	0.02	0.75	0.63	0.02
D	80.0	0.00	77.1	0.0	0.02	0.75	0.63	0.02
D	80.0	0.00	74.8	0.0	0.02	0.75	0.71	0.02
D	70.0	0.00	74.8	0.0	0.02	0.75	0.71	0.02
D	70.0	0.00	75.5	0.0	0.02	0.76	0.69	0.02
D	60.0	0.00	75.5	0.0	0.02	0.76	0.69	0.02
D	60.0	0.00	73.5	0.0	0.02	0.76	0.76	0.02
D	50.0	0.00	73.5	0.0	0.02	0.76	0.76	0.02
D	50.0	0.00	74.1	0.0	0.02	0.77	0.74	0.02
D	40.0	0.00	74.1	0.0	0.02	0.77	0.74	0.02
D	40.0	0.00	72.5	0.0	0.02	0.76	0.80	0.01
D	20.0	0.00	73.0	0.0	0.02	0.77	0.78	0.02
D	20.0	0.00	71.5	0.0	0.02	0.57	0.38	0.01
D	13.3	0.00	71.5	0.0	0.02	0.57	0.38	0.01
D	13.3	0.00	72.0	0.0	0.02	0.82	0.64	0.01
D	0.0	0.00	72.0	0.0	0.02	0.82	0.64	0.01

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LOADING CONDITION k ==========

Seismic - Azimuth: 0° (1.2 D + 1.0 Ev + 1.0 Eh)

MAST LOADING

LOAD TYPE	ELEV	APPLY..LOAD..AT RADIUS	AZI	LOAD AZI	......FORCES...... HORIZ	DOWN	......MOMENTS...... VERTICAL	TORSNAL
	ft	ft			kip	kip	ft-kip	ft-kip
C	245.0	0.00	0.0	0.0	0.72	9.37	0.00	0.00
C	245.0	0.00	0.0	0.0	0.05	0.68	0.00	0.00
C	242.5	0.00	0.0	0.0	0.01	0.18	0.00	0.00
C	235.0	0.00	0.0	0.0	0.03	0.36	0.00	0.00
C	230.0	0.00	0.0	0.0	0.47	6.63	0.00	0.00
C	230.0	0.00	0.0	0.0	0.11	1.52	0.00	0.00
C	225.0	0.00	0.0	0.0	0.02	0.36	0.00	0.00
C	225.0	0.00	0.0	0.0	0.01	0.20	0.00	0.00
C	220.0	0.00	0.0	0.0	0.45	6.63	0.00	0.00
C	210.0	0.00	0.0	0.0	0.05	0.72	0.00	0.00
C	210.0	0.00	0.0	0.0	0.14	2.19	0.00	0.00
C	210.0	0.00	0.0	0.0	0.05	0.72	0.00	0.00
C	190.0	0.00	0.0	0.0	0.04	0.72	0.00	0.00
C	190.0	0.00	0.0	0.0	0.04	0.72	0.00	0.00
C	190.0	0.00	0.0	0.0	0.15	2.75	0.00	0.00
C	170.0	0.00	0.0	0.0	0.04	0.72	0.00	0.00
C	170.0	0.00	0.0	0.0	0.17	3.54	0.00	0.00
C	170.0	0.00	0.0	0.0	0.04	0.72	0.00	0.00
C	150.0	0.00	0.0	0.0	0.03	0.72	0.00	0.00
C	150.0	0.00	0.0	0.0	0.03	0.72	0.00	0.00
C	150.0	0.00	0.0	0.0	0.17	3.91	0.00	0.00
C	130.0	0.00	0.0	0.0	0.16	4.40	0.00	0.00
C	130.0	0.00	0.0	0.0	0.03	0.72	0.00	0.00
C	130.0	0.00	0.0	0.0	0.03	0.72	0.00	0.00
C	110.0	0.00	0.0	0.0	0.16	5.62	0.00	0.00
C	110.0	0.00	0.0	0.0	0.02	0.72	0.00	0.00
C	110.0	0.00	0.0	0.0	0.02	0.72	0.00	0.00
C	90.0	0.00	0.0	0.0	0.02	0.72	0.00	0.00
C	90.0	0.00	0.0	0.0	0.14	6.05	0.00	0.00
C	90.0	0.00	0.0	0.0	0.02	0.72	0.00	0.00
C	70.0	0.00	0.0	0.0	0.01	0.72	0.00	0.00
C	70.0	0.00	0.0	0.0	0.10	6.23	0.00	0.00
C	70.0	0.00	0.0	0.0	0.01	0.72	0.00	0.00
C	50.0	0.00	0.0	0.0	0.01	0.72	0.00	0.00
C	50.0	0.00	0.0	0.0	0.01	0.72	0.00	0.00

C	50.0	0.00	0.0	0.0	0.07	6.53	0.00	0.00
C	30.0	0.00	0.0	0.0	0.00	0.72	0.00	0.00
C	30.0	0.00	0.0	0.0	0.04	6.72	0.00	0.00
C	30.0	0.00	0.0	0.0	0.00	0.72	0.00	0.00
C	10.0	0.00	0.0	0.0	0.00	0.72	0.00	0.00
C	10.0	0.00	0.0	0.0	0.01	7.56	0.00	0.00
C	10.0	0.00	0.0	0.0	0.00	0.72	0.00	0.00
D	250.0	0.00	180.0	180.0	0.00	0.00	0.00	0.00
D	0.0	0.00	180.0	180.0	0.00	0.00	0.00	0.00

LOADING CONDITION w

Seismic - Azimuth: 0° (0.9 D - 1.0 Ev + 1.0 Eh)

MAST LOADING

LOAD TYPE	ELEV ft	APPLY..LOAD..AT RADIUS ft	AZI	LOAD AZI	......FORCES...... HORIZ kip	DOWN kip	......MOMENTS...... VERTICAL ft-kip	TORSNAL ft-kip
C	245.0	0.00	0.0	0.0	0.72	6.45	0.00	0.00
C	245.0	0.00	0.0	0.0	0.05	0.47	0.00	0.00
C	242.5	0.00	0.0	0.0	0.01	0.12	0.00	0.00
C	235.0	0.00	0.0	0.0	0.03	0.25	0.00	0.00
C	230.0	0.00	0.0	0.0	0.47	4.57	0.00	0.00
C	230.0	0.00	0.0	0.0	0.11	1.05	0.00	0.00
C	225.0	0.00	0.0	0.0	0.02	0.25	0.00	0.00
C	225.0	0.00	0.0	0.0	0.01	0.14	0.00	0.00
C	220.0	0.00	0.0	0.0	0.45	4.57	0.00	0.00
C	210.0	0.00	0.0	0.0	0.05	0.50	0.00	0.00
C	210.0	0.00	0.0	0.0	0.14	1.51	0.00	0.00
C	210.0	0.00	0.0	0.0	0.05	0.50	0.00	0.00
C	190.0	0.00	0.0	0.0	0.04	0.50	0.00	0.00
C	190.0	0.00	0.0	0.0	0.04	0.50	0.00	0.00
C	190.0	0.00	0.0	0.0	0.15	1.89	0.00	0.00
C	170.0	0.00	0.0	0.0	0.04	0.50	0.00	0.00
C	170.0	0.00	0.0	0.0	0.17	2.44	0.00	0.00
C	170.0	0.00	0.0	0.0	0.04	0.50	0.00	0.00
C	150.0	0.00	0.0	0.0	0.03	0.50	0.00	0.00
C	150.0	0.00	0.0	0.0	0.03	0.50	0.00	0.00
C	150.0	0.00	0.0	0.0	0.17	2.69	0.00	0.00
C	130.0	0.00	0.0	0.0	0.16	3.03	0.00	0.00
C	130.0	0.00	0.0	0.0	0.03	0.50	0.00	0.00
C	130.0	0.00	0.0	0.0	0.03	0.50	0.00	0.00
C	110.0	0.00	0.0	0.0	0.16	3.87	0.00	0.00
C	110.0	0.00	0.0	0.0	0.02	0.50	0.00	0.00
C	110.0	0.00	0.0	0.0	0.02	0.50	0.00	0.00
C	90.0	0.00	0.0	0.0	0.02	0.50	0.00	0.00
C	90.0	0.00	0.0	0.0	0.14	4.17	0.00	0.00
C	90.0	0.00	0.0	0.0	0.02	0.50	0.00	0.00
C	70.0	0.00	0.0	0.0	0.01	0.50	0.00	0.00
C	70.0	0.00	0.0	0.0	0.10	4.29	0.00	0.00
C	70.0	0.00	0.0	0.0	0.01	0.50	0.00	0.00
C	50.0	0.00	0.0	0.0	0.01	0.50	0.00	0.00
C	50.0	0.00	0.0	0.0	0.01	0.50	0.00	0.00
C	50.0	0.00	0.0	0.0	0.07	4.50	0.00	0.00
C	30.0	0.00	0.0	0.0	0.00	0.50	0.00	0.00
C	30.0	0.00	0.0	0.0	0.04	4.63	0.00	0.00
C	30.0	0.00	0.0	0.0	0.00	0.50	0.00	0.00
C	10.0	0.00	0.0	0.0	0.00	0.50	0.00	0.00
C	10.0	0.00	0.0	0.0	0.01	5.21	0.00	0.00
C	10.0	0.00	0.0	0.0	0.00	0.50	0.00	0.00
D	250.0	0.00	180.0	180.0	0.00	0.00	0.00	0.00
D	0.0	0.00	180.0	180.0	0.00	0.00	0.00	0.00

MAXIMUM TENSION IN MAST MEMBERS (kip)

ELEV ft	LEGS	DIAG	HORIZ	BRACE
250.0	----------		0.82 M	0.00 A
	0.65 S	1.40 G		

245.0	----------		0.13 G	0.00 A	
	3.42 M	5.41 M			
240.0	----------		0.98 I	0.00 A	
	16.83 M	4.67 T			
235.0	----------		0.26 A	0.00 A	
	27.10 M	4.62 B			
230.0	----------		0.14 W	0.00 A	
	38.28 M	7.40 M			
225.0	----------		0.38 A	0.00 A	
	54.89 M	7.21 B			
220.0	----------		0.12 C	0.00 A	
	68.60 M	10.03 M			
215.0	----------		0.29 A	0.00 A	
	89.25 M	9.69 G			
210.0	----------		0.05 C	0.00 A	
	104.37 M	9.07 M			
205.0	----------		0.25 A	0.00 A	
	121.35 M	8.88 G			
200.0	----------		0.02 a	0.00 A	
	136.69 M	9.16 M			
193.3	----------		0.18 A	0.00 A	
	155.60 M	8.95 G			
186.7	----------		0.04 A	0.00 A	
	170.98 M	8.60 M			
180.0	----------		0.14 A	0.00 A	
	187.10 M	8.57 G			
173.3	----------		0.03 A	0.00 A	
	200.83 M	8.36 M			
166.7	----------		0.12 A	0.00 A	
	215.12 M	8.46 G			
160.0	----------		0.03 A	0.00 A	
	227.77 M	8.32 M			
153.3	----------		0.17 A	0.00 A	
	240.80 M	8.48 G			
146.7	----------		0.04 A	0.00 A	
	252.70 M	8.36 M			
140.0	----------		0.11 A	0.00 A	
	267.62 M	9.40 G			
130.0	----------		0.11 A	0.00 A	
	284.27 M	9.33 M			
120.0	----------		0.09 A	0.00 A	
	300.87 M	9.61 G			
110.0	----------		0.06 A	0.00 A	
	316.35 M	9.57 M			
100.0	----------		0.08 A	0.00 A	
	331.90 M	10.00 G			
90.0	----------		0.06 A	0.00 A	
	346.73 M	9.99 S			
80.0	----------		0.07 A	0.00 A	
	361.64 M	10.51 G			
70.0	----------		0.05 A	0.00 A	
	376.01 M	10.57 G			
60.0	----------		0.06 A	0.00 A	
	390.42 M	11.05 G			
50.0	----------		0.05 A	0.00 A	
	404.39 M	11.13 G			
40.0	----------		0.17 k	0.00 A	
	418.36 M	11.58 G			
30.0	----------		0.08 S	0.00 A	
	431.94 M	11.71 G			
20.0	----------		0.14 A	0.00 A	
	447.90 M	12.29 G			
13.3	----------		0.73 M	0.00 G	
	446.93 M	15.93 G			
0.0	----------		0.00 A	0.00 A	

MAXIMUM COMPRESSION IN MAST MEMBERS (kip)
==========

ELEV ft	LEGS	DIAG	HORIZ	BRACE
250.0	----------		-0.95 G	0.00 A
	-1.01 A	-1.20 M		
245.0	----------		-0.11 M	0.00 A

```
            -8.72 G      -5.68 G
   240.0  ---------------------        -0.75 O       0.00 A
            -22.37 G      -5.02 B
   235.0  ---------------------        -0.19 S       0.00 A
            -33.82 G      -4.42 T
   230.0  ---------------------        -0.14 Q       0.00 A
            -48.53 G      -7.82 G
   225.0  ---------------------        -0.30 S       0.00 A
            -66.32 G      -7.00 T
   220.0  ---------------------        -0.11 U       0.00 A
            -83.74 G     -10.48 G
   215.0  ---------------------        -0.24 S       0.00 A
           -105.74 G      -9.34 M
   210.0  ---------------------        -0.04 U       0.00 A
           -121.06 G      -9.44 G
   205.0  ---------------------        -0.21 S       0.00 A
           -139.20 G      -8.62 T
   200.0  ---------------------        -0.01 U       0.00 A
           -155.06 G      -9.54 G
   193.3  ---------------------        -0.16 S       0.00 A
           -175.47 G      -8.74 T
   186.7  ---------------------        -0.03 S       0.00 A
           -191.68 G      -8.95 G
   180.0  ---------------------        -0.12 S       0.00 A
           -209.28 G      -8.36 N
   173.3  ---------------------        -0.02 S       0.00 A
           -224.13 G      -8.73 G
   166.7  ---------------------        -0.10 S       0.00 A
           -239.95 G      -8.23 N
   160.0  ---------------------        -0.03 S       0.00 A
           -253.84 G      -8.71 G
   153.3  ---------------------        -0.15 S       0.00 A
           -268.40 G      -8.28 L
   146.7  ---------------------        -0.03 S       0.00 A
           -281.68 G      -8.77 G
   140.0  ---------------------        -0.09 S       0.00 A
           -298.55 G      -9.35 G
   130.0  ---------------------        -0.10 S       0.00 A
           -317.47 G      -9.83 G
   120.0  ---------------------        -0.08 S       0.00 A
           -336.69 G      -9.61 G
   110.0  ---------------------        -0.05 S       0.00 A
           -354.82 G     -10.13 G
   100.0  ---------------------        -0.07 S       0.00 A
           -373.25 G     -10.07 G
    90.0  ---------------------        -0.05 S       0.00 A
           -390.92 G     -10.59 G
    80.0  ---------------------        -0.06 S       0.00 A
           -408.85 G     -10.62 G
    70.0  ---------------------        -0.05 S       0.00 A
           -426.21 G     -11.11 G
    60.0  ---------------------        -0.05 S       0.00 A
           -443.75 G     -11.19 G
    50.0  ---------------------        -0.04 S       0.00 A
           -460.83 G     -11.63 G
    40.0  ---------------------        -0.03 O       0.00 A
           -478.02 G     -11.70 G
    30.0  ---------------------        -0.09 A       0.00 A
           -494.82 G     -12.02 G
    20.0  ---------------------        -0.12 S       0.00 A
           -513.81 G     -12.60 G
    13.3  ---------------------        -0.88 G       0.00 X
           -515.10 G     -16.13 G
     0.0  ---------------------         0.00 A       0.00 A


FORCE/RESISTANCE RATIO IN LEGS
==============================

          -- LEG COMPRESSION -    ---- LEG TENSION ---
  MAST                  FORCE/                  FORCE/
  ELEV     MAX  COMP    RESIST    MAX   TENS    RESIST
    ft    COMP  RESIST  RATIO     TENS  RESIST  RATIO

250.00 ------------------------------------------------
         1.01   74.39    0.01    0.65  101.25    0.01
245.00 ------------------------------------------------
         8.72   74.39    0.12    3.42  101.25    0.03
240.00 ------------------------------------------------
        22.37   74.39    0.30   16.83  101.25    0.17
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235.00 ------------------------------------------------
        33.82   74.39    0.45   27.10  101.25    0.27
230.00 ------------------------------------------------
        48.53   74.39    0.65   38.28  101.25    0.38
225.00 ------------------------------------------------
        66.32   74.39    0.89   54.89  101.25    0.54
220.00 ------------------------------------------------
        83.74  142.05    0.59   68.60  165.60    0.41
215.00 ------------------------------------------------
       105.74  142.05    0.74   89.25  165.60    0.54
210.00 ------------------------------------------------
       121.06  142.05    0.85  104.37  165.60    0.63
205.00 ------------------------------------------------
       139.20  142.05    0.98  121.35  165.60    0.73
200.00 ------------------------------------------------
       155.06  239.46    0.65  136.69  274.95    0.50
193.33 ------------------------------------------------
       175.47  239.46    0.73  155.60  274.95    0.57
186.67 ------------------------------------------------
       191.68  239.46    0.80  170.98  274.95    0.62
180.00 ------------------------------------------------
       209.28  309.64    0.68  187.10  327.10    0.57
173.33 ------------------------------------------------
       224.13  309.64    0.72  200.83  327.10    0.61
166.67 ------------------------------------------------
       239.95  309.64    0.77  215.12  327.10    0.66
160.00 ------------------------------------------------
       253.84  309.64    0.82  227.77  357.75    0.64
153.33 ------------------------------------------------
       268.40  309.64    0.87  240.80  357.75    0.67
146.67 ------------------------------------------------
       281.68  309.64    0.91  252.70  357.75    0.71
140.00 ------------------------------------------------
       298.55  334.65    0.89  267.62  378.00    0.71
130.00 ------------------------------------------------
       317.47  334.65    0.95  284.27  378.00    0.75
120.00 ------------------------------------------------
       336.69  507.33    0.66  300.87  523.32    0.57
110.00 ------------------------------------------------
       354.82  507.33    0.70  316.35  523.32    0.60
100.00 ------------------------------------------------
       373.25  507.33    0.74  331.90  523.32    0.63
 90.00 ------------------------------------------------
       390.92  507.33    0.77  346.73  523.32    0.66
 80.00 ------------------------------------------------
       408.85  507.33    0.81  361.64  523.32    0.69
 70.00 ------------------------------------------------
       426.21  507.33    0.84  376.01  523.32    0.72
 60.00 ------------------------------------------------
       443.75  507.33    0.87  390.42  523.32    0.75
 50.00 ------------------------------------------------
       460.83  507.33    0.91  404.39  523.32    0.77
 40.00 ------------------------------------------------
       478.02  507.33    0.94  418.36  523.32    0.80
 30.00 ------------------------------------------------
       494.82  507.33    0.98  431.94  523.32    0.83
 20.00 ------------------------------------------------
       513.81  544.40    0.94  447.90  576.00    0.78
 13.33 ------------------------------------------------
       515.10  544.40    0.95  446.93  576.00    0.78
  0.00 ------------------------------------------------
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FORCE/RESISTANCE RATIO IN DIAGONALS

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         - DIAG COMPRESSION -     --- DIAG TENSION --
  MAST                  FORCE/                  FORCE/
  ELEV     MAX  COMP    RESIST    MAX   TENS    RESIST
    ft    COMP  RESIST  RATIO     TENS  RESIST  RATIO

250.00 ------------------------------------------------
         1.20    7.16    0.17    1.40    7.16    0.20
245.00 ------------------------------------------------
         5.68    7.16    0.79    5.41    7.16    0.76
240.00 ------------------------------------------------
         5.02   10.74    0.47    4.67   10.74    0.43
235.00 ------------------------------------------------
         4.42   10.74    0.41    4.62   10.74    0.43
230.00 ------------------------------------------------
         7.82   10.74    0.73    7.40   10.74    0.69
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225.00 ------------------------------------------------
         7.00   10.74    0.65    7.21   10.74    0.67
220.00 ------------------------------------------------
        10.48   13.03    0.80   10.03   13.03    0.77
215.00 ------------------------------------------------
         9.34   13.03    0.72    9.69   13.03    0.74
210.00 ------------------------------------------------
         9.44   13.03    0.72    9.07   13.03    0.70
205.00 ------------------------------------------------
         8.62   13.03    0.66    8.88   13.03    0.68
200.00 ------------------------------------------------
         9.54    9.84    0.97    9.16    9.84    0.93
193.33 ------------------------------------------------
         8.74    9.84    0.89    8.95    9.84    0.91
186.67 ------------------------------------------------
         8.95    9.84    0.91    8.60    9.84    0.87
180.00 ------------------------------------------------
         8.36   13.34    0.63    8.57   13.34    0.64
173.33 ------------------------------------------------
         8.73   13.34    0.65    8.36   13.34    0.63
166.67 ------------------------------------------------
         8.23   13.34    0.62    8.46   13.34    0.63
160.00 ------------------------------------------------
         8.71   10.34    0.84    8.32   10.34    0.80
153.33 ------------------------------------------------
         8.28   10.34    0.80    8.48   10.34    0.82
146.67 ------------------------------------------------
         8.77   10.34    0.85    8.36   10.34    0.81
140.00 ------------------------------------------------
         9.35   11.28    0.83    9.40   11.28    0.83
130.00 ------------------------------------------------
         9.83   11.28    0.87    9.33   11.28    0.83
120.00 ------------------------------------------------
         9.61   12.53    0.77    9.61   12.53    0.77
110.00 ------------------------------------------------
        10.13   12.53    0.81    9.57   12.53    0.76
100.00 ------------------------------------------------
        10.07   15.77    0.64   10.00   15.77    0.63
 90.00 ------------------------------------------------
        10.59   15.77    0.67    9.99   15.77    0.63
 80.00 ------------------------------------------------
        10.62   13.43    0.79   10.51   13.43    0.78
 70.00 ------------------------------------------------
        11.11   13.43    0.83   10.57   13.43    0.79
 60.00 ------------------------------------------------
        11.19   14.31    0.78   11.05   14.31    0.77
 50.00 ------------------------------------------------
        11.63   14.31    0.81   11.13   14.31    0.78
 40.00 ------------------------------------------------
        11.70   12.68    0.92   11.58   12.68    0.91
 30.00 ------------------------------------------------
        12.02   12.68    0.95   11.71   12.68    0.92
 20.00 ------------------------------------------------
        12.60   16.16    0.78   12.29   16.16    0.76
 13.33 ------------------------------------------------
        16.13   24.72    0.65   15.93   24.72    0.64
  0.00 ------------------------------------------------

MAXIMUM INDIVIDUAL FOUNDATION LOADS: (kip)
==========================================

    --------------LOAD---COMPONENTS-------------        TOTAL
    NORTH          EAST          DOWN        UPLIFT        SHEAR

    49.49 G      42.58 K     535.43 G    -464.19 M      49.49 G


MAXIMUM TOTAL LOADS ON FOUNDATION : (kip & kip-ft)
==================================================

  ------HORIZONTAL-----     DOWN       ---------OVERTURNING--------- TORSION
  NORTH    EAST   TOTAL               NORTH        EAST       TOTAL
                @   0.0                                    @   0.0

   81.3    72.0    81.3   206.6     12715.2    -11535.8     12715.2   -52.2
     G       V       G       i           G           D           G       R


================================================================================
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********** Service Load Condition **********

* Only 1 condition(s) shown in full

LOADING CONDITION A

60 mph wind with no ice. Wind Azimuth: 0° (1.0 D + 1.0 Wo)

MAST LOADING

LOAD TYPE	ELEV ft	APPLY..LOAD..AT RADIUS ft	AZI	LOAD AZI	......FORCES...... HORIZ kip	DOWN kip	......MOMENTS...... VERTICAL ft-kip	TORSNAL ft-kip
C	245.0	0.00	0.0	0.0	3.04	7.53	0.00	0.00
C	230.0	0.00	0.0	0.0	2.25	5.34	0.00	0.00
C	220.0	0.00	0.0	0.0	2.23	5.34	0.00	0.00
D	250.0	0.00	180.0	0.0	0.02	0.04	0.00	0.00
D	245.0	0.00	180.0	0.0	0.02	0.04	0.00	0.00
D	245.0	0.00	42.0	0.0	0.04	0.07	0.06	0.03
D	240.0	0.00	42.0	0.0	0.04	0.07	0.06	0.03
D	240.0	0.00	38.3	0.0	0.04	0.08	0.06	0.03
D	230.0	0.00	40.8	0.0	0.04	0.08	0.06	0.03
D	230.0	0.00	74.0	0.0	0.05	0.09	0.06	0.03
D	220.0	0.00	76.5	0.0	0.05	0.10	0.05	0.03
D	220.0	0.00	96.9	0.0	0.05	0.13	0.08	0.04
D	200.0	0.00	103.2	0.0	0.06	0.13	0.07	0.04
D	200.0	0.00	90.8	0.0	0.06	0.15	0.09	0.04
D	180.0	0.00	94.8	0.0	0.06	0.16	0.08	0.04
D	180.0	0.00	86.2	0.0	0.06	0.18	0.11	0.05
D	160.0	0.00	89.1	0.0	0.06	0.19	0.10	0.04
D	160.0	0.00	82.7	0.0	0.06	0.19	0.12	0.05
D	140.0	0.00	84.9	0.0	0.06	0.19	0.11	0.05
D	140.0	0.00	80.2	0.0	0.06	0.21	0.14	0.05
D	120.0	0.00	81.5	0.0	0.06	0.22	0.13	0.05
D	120.0	0.00	78.0	0.0	0.06	0.26	0.15	0.05
D	100.0	0.00	79.0	0.0	0.07	0.26	0.14	0.05
D	100.0	0.00	76.2	0.0	0.07	0.28	0.17	0.06
D	80.0	0.00	77.1	0.0	0.07	0.28	0.16	0.06
D	80.0	0.00	74.8	0.0	0.07	0.28	0.18	0.06
D	60.0	0.00	75.5	0.0	0.07	0.29	0.18	0.06
D	60.0	0.00	73.5	0.0	0.06	0.29	0.20	0.06
D	40.0	0.00	74.1	0.0	0.06	0.29	0.19	0.06
D	40.0	0.00	72.5	0.0	0.06	0.30	0.22	0.05
D	20.0	0.00	73.0	0.0	0.06	0.30	0.21	0.05
D	20.0	0.00	71.5	0.0	0.05	0.28	0.23	0.05
D	13.3	0.00	71.5	0.0	0.05	0.28	0.23	0.05
D	13.3	0.00	72.0	0.0	0.06	0.34	0.23	0.05
D	0.0	0.00	72.0	0.0	0.06	0.34	0.23	0.05

MAXIMUM MAST DISPLACEMENTS:

ELEV ft	------DEFLECTIONS (ft)----- NORTH	EAST	DOWN	--TILTS (DEG)--- NORTH	EAST	TWIST DEG
250.0	0.910 G	-0.844 D	0.014 G	0.456 G	-0.428 D	-0.036 F
245.0	0.871 G	-0.807 D	0.014 G	0.456 G	-0.428 D	-0.036 F

240.0	0.830 G	-0.768 D	0.014 G	0.453 G	-0.426 D	-0.036 F
235.0	0.790 G	-0.731 D	0.013 G	0.446 G	-0.418 D	-0.035 F
230.0	0.751 G	-0.695 D	0.013 G	0.436 G	-0.408 D	-0.034 F
225.0	0.712 G	-0.658 D	0.013 G	0.421 G	-0.394 D	-0.033 F
220.0	0.676 G	-0.625 D	0.012 G	0.403 G	-0.377 D	-0.032 F
215.0	0.640 G	-0.591 D	0.012 G	0.390 G	-0.364 D	-0.031 F
210.0	0.606 G	-0.559 D	0.011 G	0.375 G	-0.350 D	-0.030 F
205.0	0.573 G	-0.528 D	0.011 G	0.357 G	-0.333 D	-0.029 F
200.0	0.542 G	-0.499 D	0.010 G	0.338 G	-0.315 D	-0.028 F
193.3	0.502 G	-0.462 D	0.010 G	0.322 G	-0.300 D	-0.027 F
186.7	0.465 G	-0.427 D	0.009 G	0.306 G	-0.284 D	-0.025 F
180.0	0.429 G	-0.394 D	0.009 G	0.288 G	-0.268 D	-0.024 F
173.3	0.395 G	-0.363 D	0.009 G	0.275 G	-0.255 D	-0.023 F
166.7	0.363 G	-0.332 D	0.008 G	0.261 G	-0.242 D	-0.021 F
160.0	0.332 G	-0.304 D	0.008 G	0.247 G	-0.228 D	-0.020 F
153.3	0.303 G	-0.277 D	0.008 G	0.232 G	-0.215 D	-0.019 F
146.7	0.277 G	-0.253 D	0.007 G	0.218 G	-0.201 D	-0.017 F
140.0	0.251 G	-0.229 D	0.007 G	0.204 G	-0.188 D	-0.016 F
130.0	0.216 G	-0.197 D	0.007 G	0.183 G	-0.168 D	-0.015 F
120.0	0.185 G	-0.169 D	0.006 G	0.162 G	-0.149 D	-0.014 F
110.0	0.157 G	-0.143 D	0.006 G	0.148 G	-0.136 D	-0.013 F
100.0	0.131 G	-0.119 D	0.005 G	0.134 G	-0.123 D	-0.011 F
90.0	0.108 G	-0.098 D	0.005 G	0.121 G	-0.111 D	-0.010 F
80.0	0.087 G	-0.079 D	0.004 G	0.107 G	-0.098 D	-0.009 F
70.0	0.068 G	-0.062 D	0.004 G	0.094 G	-0.086 D	-0.008 F
60.0	0.052 G	-0.047 D	0.003 G	0.080 G	-0.073 D	-0.007 F
50.0	0.037 G	-0.034 D	0.003 G	0.067 G	-0.061 D	0.006 L
40.0	0.025 G	-0.023 D	0.002 G	0.054 G	-0.049 D	0.004 L
30.0	0.015 G	-0.013 D	0.002 L	0.040 G	-0.037 D	0.003 L
20.0	0.006 G	0.005 J	0.001 L	0.026 G	-0.024 D	0.002 L
13.3	0.002 G	0.002 J	0.001 L	0.018 G	-0.016 D	0.001 L
0.0	0.000 A	0.000 A	0.000 A	0.000 A	0.000 A	0.000 A

MAXIMUM TENSION IN MAST MEMBERS (kip)
==========

ELEV ft	LEGS	DIAG	HORIZ	BRACE
250.0	----------		0.19 A	0.00 A
	0.06 G	0.46 G		
245.0	----------		0.05 G	0.00 A
	0.00 A	1.48 A		
240.0	----------		0.35 I	0.00 A
	2.96 A	1.22 B		
235.0	----------		0.10 A	0.00 A
	5.56 A	1.39 B		
230.0	----------		0.04 K	0.00 A
	7.58 A	1.99 H		
225.0	----------		0.13 A	0.00 A
	11.96 A	2.12 H		
220.0	----------		0.03 C	0.00 A
	14.64 A	2.74 A		
215.0	----------		0.10 A	0.00 A
	20.15 A	2.84 G		
210.0	----------		0.02 C	0.00 A
	24.49 A	2.50 A		
205.0	----------		0.08 A	0.00 A
	29.02 A	2.59 G		
200.0	----------		0.01 C	0.00 A
	33.33 A	2.55 A		
193.3	----------		0.06 A	0.00 A
	38.37 A	2.60 G		
186.7	----------		0.01 A	0.00 A
	42.62 A	2.41 A		
180.0	----------		0.05 A	0.00 A
	46.89 A	2.49 G		
173.3	----------		0.01 A	0.00 A
	50.61 A	2.36 A		
166.7	----------		0.04 A	0.00 A
	54.36 A	2.45 G		
160.0	----------		0.01 A	0.00 A
	57.75 A	2.37 A		
153.3	----------		0.06 A	0.00 A
	61.16 A	2.46 G		
146.7	----------		0.01 A	0.00 A
	64.32 A	2.39 A		
140.0	----------		0.04 A	0.00 A
	68.20 A	2.72 G		

130.0	----------		0.04 A	0.00 A
	72.54 A	2.68 A		
120.0	----------		0.03 A	0.00 A
	76.76 A	2.79 G		
110.0	----------		0.02 A	0.00 A
	80.67 A	2.76 A		
100.0	----------		0.03 A	0.00 A
	84.52 A	2.91 G		
90.0	----------		0.02 A	0.00 A
	88.20 A	2.89 G		
80.0	----------		0.02 A	0.00 A
	91.85 A	3.06 G		
70.0	----------		0.02 A	0.00 A
	95.39 A	3.07 G		
60.0	----------		0.02 A	0.00 A
	98.90 A	3.22 G		
50.0	----------		0.02 A	0.00 A
	102.31 A	3.25 G		
40.0	----------		0.01 I	0.00 A
	105.68 A	3.39 G		
30.0	----------		0.02 G	0.00 A
	108.97 A	3.43 G		
20.0	----------		0.05 A	0.00 A
	113.09 A	3.59 G		
13.3	----------		0.19 A	0.00 F
	112.01 A	4.67 G		
0.0	----------		0.00 A	0.00 A

MAXIMUM COMPRESSION IN MAST MEMBERS (kip)
==========

ELEV ft	LEGS	DIAG	HORIZ	BRACE
250.0	----------		-0.32 G	0.00 A
	-0.40 A	-0.28 A		
245.0	----------		-0.02 A	0.00 A
	-4.13 G	-1.71 G		
240.0	----------		-0.14 C	0.00 A
	-8.10 G	-1.55 H		
235.0	----------		-0.03 G	0.00 A
	-11.70 G	-1.20 B		
230.0	----------		-0.04 E	0.00 A
	-16.96 G	-2.34 G		
225.0	----------		-0.06 G	0.00 A
	-22.35 G	-1.93 H		
220.0	----------		-0.03 I	0.00 A
	-28.42 G	-3.10 G		
215.0	----------		-0.05 G	0.00 A
	-35.05 G	-2.58 A		
210.0	----------		-0.01 I	0.00 A
	-39.41 G	-2.77 G		
205.0	----------		-0.05 G	0.00 A
	-44.86 G	-2.40 B		
200.0	----------		0.00 A	0.00 A
	-49.46 G	-2.79 G		
193.3	----------		-0.03 G	0.00 A
	-55.64 G	-2.46 B		
186.7	----------		0.00 G	0.00 A
	-60.42 G	-2.61 G		
180.0	----------		-0.03 G	0.00 A
	-65.80 G	-2.38 B		
173.3	----------		0.00 G	0.00 A
	-70.29 G	-2.55 G		
166.7	----------		-0.02 G	0.00 A
	-75.16 G	-2.35 B		
160.0	----------		-0.01 G	0.00 A
	-79.40 G	-2.54 G		
153.3	----------		-0.03 G	0.00 A
	-83.92 G	-2.39 L		
146.7	----------		-0.01 G	0.00 A
	-88.01 G	-2.55 G		
140.0	----------		-0.02 G	0.00 A
	-93.29 G	-2.71 G		
130.0	----------		-0.02 G	0.00 A

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          -99.21 G      -2.87 G
   120.0  ----------------------        -0.02 G       0.00 A
          -105.33 G      -2.79 G
   110.0  ----------------------        -0.01 G       0.00 A
          -111.16 G      -2.97 G
   100.0  ----------------------        -0.01 G       0.00 A
          -117.13 G      -2.94 G
    90.0  ----------------------        -0.01 G       0.00 A
          -122.89 G      -3.11 G
    80.0  ----------------------        -0.01 G       0.00 A
          -128.75 G      -3.11 G
    70.0  ----------------------        -0.01 G       0.00 A
          -134.44 G      -3.26 G
    60.0  ----------------------        -0.01 G       0.00 A
          -140.21 G      -3.29 G
    50.0  ----------------------        -0.01 G       0.00 A
          -145.86 G      -3.42 G
    40.0  ----------------------         0.00 B       0.00 A
          -151.55 G      -3.44 G
    30.0  ----------------------        -0.03 A       0.00 A
          -157.14 G      -3.54 G
    20.0  ----------------------        -0.03 G       0.00 A
          -163.24 G      -3.72 G
    13.3  ----------------------        -0.28 G       0.00 I
          -164.32 G      -4.75 G
     0.0  ----------------------         0.00 A       0.00 A


MAXIMUM INDIVIDUAL FOUNDATION LOADS: (kip)
==========================================

    --------------LOAD---COMPONENTS-------------        TOTAL
    NORTH          EAST          DOWN       UPLIFT        SHEAR

    15.27 G      13.15 K     170.80 G    -116.58 A      15.27 G


MAXIMUM TOTAL LOADS ON FOUNDATION : (kip & kip-ft)
==================================================

  ------HORIZONTAL-----    DOWN       ---------OVERTURNING--------- TORSION
  NORTH    EAST   TOTAL               NORTH        EAST       TOTAL
               @   0.0                                      @   0.0

   23.6    20.9    23.6    72.9      3679.4     -3344.7      3679.4    14.8
     G       J       G       L           G           D           G       L


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Seismic Load Effects
Equivalent Lateral Force Procedure
ANSI/TIA-222-G

Parameters	
Risk Category	II
R	3.000
S_S	0.203
S_1	0.082
Site Class	D (default)
T_L (sec)	8.000
F_a	1.600
F_v	2.400
S_{MS}	0.325
S_{M1}	0.197
S_{DS}	0.217
S_{D1}	0.131
T_s	0.604
I_e	1.000
Ω	1.500
C_S	0.047
h (ft)	250.00
K_f	4,540
W_a (ft)	16.52
W_o (ft)	29.00
W (kips)	78.250
W_1 (kips)	37.130
W_2 (kips)	8.742
f_1 (Hertz)	1.080
T (sec)	0.926
k_e	1.2130
V_s (kips)	3.678
Seismic Design Category	B

Vertical Distribution of Seismic Forces

Description	h_i (ft.)	w_i (kips)	W_2 (kips)	$w_i h_i^{ke}$	F_{sz} or E_h (kips)	E_V (kips)	1.2 D + 1.0 E_V (kips)	0.9 D - 1.0 E_V (kips)
Mount/Antenna Load	245.00	7.5330	7.5330	5,956.9839	0.7183	0.3269	9.3665	6.4528
Structure - Section 1	245.00	0.5490	0.5490	434.1410	0.0523	0.0238	0.6826	0.4703
Ladder/Line	242.50	0.1448	0.2172	113.0899	0.0136	0.0063	0.1801	0.1240
Ladder/Line	235.00	0.2896	0.2896	217.7228	0.0263	0.0126	0.3601	0.2480
Mount/Antenna Load	230.00	5.3350	0.0000	3,907.6017	0.4712	0.2315	6.6335	4.5700
Structure - Section 2	230.00	1.2250	0.1531	897.2469	0.1082	0.0532	1.5232	1.0493
Ladder/Line	225.00	0.2896	0.0000	206.5361	0.0249	0.0126	0.3601	0.2480
Ladder/Line	225.00	0.1648	0.0000	117.5316	0.0142	0.0072	0.2050	0.1411
Mount/Antenna Load	220.00	5.3350	0.0000	3,702.4835	0.4464	0.2315	6.6335	4.5700
Ladder/Line	210.00	0.5792	0.0000	379.9099	0.0458	0.0251	0.7201	0.4962
Ladder/Line	210.00	0.5792	0.0000	379.9099	0.0458	0.0251	0.7201	0.4962
Structure - Section 3	210.00	1.7620	0.0000	1,155.7341	0.1394	0.0765	2.1909	1.5093
Ladder/Line	190.00	0.5792	0.0000	336.4780	0.0406	0.0251	0.7201	0.4962
Ladder/Line	190.00	0.5792	0.0000	336.4780	0.0406	0.0251	0.7201	0.4962
Structure - Section 4	190.00	2.2110	0.0000	1,284.4490	0.1549	0.0960	2.7492	1.8939
Ladder/Line	170.00	0.5792	0.0000	294.0107	0.0355	0.0251	0.7201	0.4962
Ladder/Line	170.00	0.5792	0.0000	294.0107	0.0355	0.0251	0.7201	0.4962
Structure - Section 5	170.00	2.8490	0.0000	1,446.1955	0.1744	0.1236	3.5424	2.4405
Ladder/Line	150.00	0.5792	0.0000	252.5965	0.0305	0.0251	0.7201	0.4962
Ladder/Line	150.00	0.5792	0.0000	252.5965	0.0305	0.0251	0.7201	0.4962
Structure - Section 6	150.00	3.1450	0.0000	1,371.5743	0.1654	0.1365	3.9105	2.6940
Ladder/Line	130.00	0.5792	0.0000	212.3449	0.0256	0.0251	0.7201	0.4962
Ladder/Line	130.00	0.5792	0.0000	212.3449	0.0256	0.0251	0.7201	0.4962
Structure - Section 7	130.00	3.5380	0.0000	1,297.0930	0.1564	0.1535	4.3991	3.0307
Ladder/Line	110.00	0.5792	0.0000	173.3955	0.0209	0.0251	0.7201	0.4962
Ladder/Line	110.00	0.5792	0.0000	173.3955	0.0209	0.0251	0.7201	0.4962
Structure - Section 8	110.00	4.5180	0.0000	1,352.5569	0.1631	0.1961	5.6177	3.8701
Ladder/Line	90.00	0.5792	0.0000	135.9329	0.0164	0.0251	0.7201	0.4962
Ladder/Line	90.00	0.5792	0.0000	135.9329	0.0164	0.0251	0.7201	0.4962
Structure - Section 9	90.00	4.8640	0.0000	1,141.5363	0.1376	0.2111	6.0479	4.1665
Ladder/Line	70.00	0.5792	0.0000	100.2149	0.0121	0.0251	0.7201	0.4962
Ladder/Line	70.00	0.5792	0.0000	100.2149	0.0121	0.0251	0.7201	0.4962
Structure - Section 10	70.00	5.0130	0.0000	867.3645	0.1046	0.2176	6.2332	4.2941
Ladder/Line	50.00	0.5792	0.0000	66.6314	0.0080	0.0251	0.7201	0.4962
Ladder/Line	50.00	0.5792	0.0000	66.6314	0.0080	0.0251	0.7201	0.4962

Seismic Load Effects
Equivalent Lateral Force Procedure
ANSI/TIA-222-G

Vertical Distribution of Seismic Forces

Description	h_i (ft.)	w_i (kips)	W_2 (kips)	$w_i h_i^{ke}$	F_{sz} or E_h (kips)	E_V (kips)	1.2 D + 1.0 E_V (kips)	0.9 D - 1.0 E_V (kips)
Structure - Section 11	50.00	5.2530	0.0000	604.3075	0.0729	0.2280	6.5316	4.4997
Ladder/Line	30.00	0.5792	0.0000	35.8572	0.0043	0.0251	0.7201	0.4962
Ladder/Line	30.00	0.5792	0.0000	35.8572	0.0043	0.0251	0.7201	0.4962
Structure - Section 12	30.00	5.4060	0.0000	334.6757	0.0404	0.2346	6.7218	4.6308
Ladder/Line	10.00	0.5792	0.0000	9.4586	0.0011	0.0251	0.7201	0.4962
Ladder/Line	10.00	0.5792	0.0000	9.4586	0.0011	0.0251	0.7201	0.4962
Structure - Section 13	10.00	6.0830	0.0000	99.3385	0.0120	0.2640	7.5636	5.2107
	Σ	78.25	8.7419	30,501.82	3.68	3.40	97.29	67.03

Leg Connection Details												
Bottom Elevation (ft)	Top Elevation (ft)	Pipe Dimensions	Top Splice					Bottom Splice/Base				
			Bolt Qty.	Bolt Dia. (in)	Bolt Circle (in)	Plate Thickness (in)	Plate Dia. (in)	Bolt Qty.	Bolt Dia. (in)	Bolt Circle (in)	Plate Thickness (in)	Plate Dia. (in)
240	250	2.875 OD X .276						6	0.75	6.50	0.75	8.50
220	240	2.875 OD X .276	6	0.75	6.50	1.00	8.50	6	1.00	9.00	1.25	11.50
200	220	4.000 OD X .318	6	1.00	9.00	1.25	11.50	6	1.00	9.00	1.25	11.50
180	200	5.563 OD X .375	6	1.00	9.00	1.25	11.50	6	1.00	9.00	1.25	11.50
160	180	5.563 OD X .500	6	1.00	9.00	1.25	11.50	6	1.00	9.00	1.25	11.50
140	160	5.563 OD X .500	6	1.00	9.00	1.25	11.50	6	1.25	12.50	1.75	15.75
120	140	8.625 OD X .322	6	1.25	12.50	1.50	15.75	6	1.25	12.50	1.50	15.75
100	120	8.625 OD X .500	6	1.25	12.50	1.50	15.75	6	1.25	12.50	1.50	15.75
80	100	8.625 OD X .500	6	1.25	12.50	1.50	15.75	6	1.25	12.50	1.50	15.75
60	80	8.625 OD X .500	6	1.25	12.50	1.50	15.75	6	1.25	12.50	1.50	15.75
40	60	8.625 OD X .500	6	1.25	12.50	1.50	15.75	6	1.25	12.50	1.50	15.75
20	40	8.625 OD X .500	6	1.25	12.50	1.50	15.75	6	1.25	12.50	1.50	15.75
0	20	8.625 OD X .500	6	1.25	12.50	1.50	15.75	6	1.25	12.75	1.50	16.00

Diagonal Bracing Connection Details								
Bottom Elevation (ft)	Top Elevation (ft)	Angle Shape	Bolt Qty.	Bolt Dia. (in)	Bolt End Distance (in)	Bolt Spacing (in)	Gage Distance From Heel (in)	Gusset Plate Thickness (in)
240	250	L 2 X 2 X 1/8	1	0.625	1.500		1.125	0.375
220	240	L 2 X 2 X 3/16	1	0.625	1.500		1.125	0.375
200	220	L 2 1/2 X 2 1/2 X 3/16	1	0.625	1.500		1.375	0.375
180	200	L 2 1/2 X 2 1/2 X 3/16	1	0.625	1.500		1.375	0.375
160	180	L 3 X 3 X 3/16	1	0.625	1.500		1.750	0.375
140	160	L 3 X 3 X 3/16	1	0.750	1.500		1.750	0.375
120	140	L 3 X 3 X 5/16	1	0.750	1.625		1.750	0.375
100	120	L 3 1/2 X 3 1/2 X 1/4	1	0.750	1.625		1.750	0.375
80	100	L 4 X 4 X 1/4	1	0.750	1.625		2.000	0.375
60	80	L 4 X 4 X 1/4	1	0.750	1.625		2.000	0.375
40	60	L 4 X 4 X 1/4	2	0.625	1.625	2.1250	2.000	0.500
20	40	L 4 X 4 X 1/4	2	0.625	1.625	2.1250	2.000	0.500
13.33	20	L 4 X 4 X 1/4	2	0.750	1.625	2.5000	2.000	0.500
0	13.33	L 5 X 3 1/2 X 1/4	2	0.750	1.625	2.5000	1.750	0.500

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 03/15/2022

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME: Stacy Helpman	
Novak Insurance Agency, Inc. 30775 Bainbridge Road, Ste 100 Solon OH 44139	PHONE (A/C, No, Ext): (440) 349-2120	FAX (A/C, No): (440) 349-2195
	E-MAIL ADDRESS: stacy@novakinsurance.com	

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A : Vigilant Insurance Company	20397
INSURER B : Federal Insurance Company	20281
INSURER C : The Hanover Insurance Company	22292
INSURER D :	
INSURER E :	
INSURER F :	

INSURED
TowerCo 2013 LLC
5000 Valleystone Dr, Ste 200
Cary NC 27519

COVERAGES **CERTIFICATE NUMBER:** CL2092819967 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	[X] COMMERCIAL GENERAL LIABILITY [ ] CLAIMS-MADE [X] OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: [ ] POLICY [X] PRO-JECT [X] LOC [ ] OTHER:	Y		36055724	10/01/2021	10/01/2022	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG Combined Aggregate	$ 1,000,000 $ 1,000,000 $ 10,000 $ 1,000,000 $ 2,000,000 $ 2,000,000 $ 10,000,000
B	AUTOMOBILE LIABILITY [ ] ANY AUTO [ ] OWNED AUTOS ONLY [ ] SCHEDULED AUTOS [X] HIRED AUTOS ONLY [X] NON-OWNED AUTOS ONLY			73577776	10/01/2021	10/01/2022	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident) 	$ 1,000,000 $ $ $ $
B	[X] UMBRELLA LIAB [X] OCCUR [ ] EXCESS LIAB [ ] CLAIMS-MADE [ ] DED [ ] RETENTION $ 0			79898482	10/23/2021	10/23/2022	EACH OCCURRENCE AGGREGATE 	$ 25,000,000 $ 25,000,000 $
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y / N [ ] If yes, describe under DESCRIPTION OF OPERATIONS below	N / A		71744976	10/01/2021	10/01/2022	[X] PER STATUTE [ ] OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	 $ 1,000,000 $ 1,000,000 $ 1,000,000
C	Professional Liability			LHB H385504 00	09/28/2021	09/28/2022	Aggregate Privacy & Security Liab. Deductible	$2,000,000 $1,000,000 $5,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Lance P Theobald and Kelly A Theobald are included as Additional Insured with respect to Site ID No. NC0288 / Parcel ID No. 183034 located at 900 Pinhook Loop Rd - Gastonia, NC 28056.

CERTIFICATE HOLDER

Lance P Theobald and Kelly A Theobald
141 Lighthouse Rd
Mt Holly NC 28120

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Transforming public safety communications

The First Responder Network Authority (FirstNet) has entered into a public-private partnership with AT&T to build the first nationwide wireless broadband network dedicated to first responders for use in disasters, emergencies and daily public safety work.

FirstNet provides initial funding, 20 MHz of spectrum and deep public safety expertise to the partnership. AT&T brings a proven track record and strong commitment to public safety, as well as the commercial expertise and nationwide resources to deploy, maintain and operate the network.

This 25-year partnership offers the best overall value to America and its public safety responders – both from an investment perspective and in terms of the lifesaving technology it will put in the hands of law enforcement, fire and emergency medical personnel in communities across the nation.

FirstNet will serve...

FIRST RESPONDERS — fire, police, EMS

IN

COMMUNITIES — counties, cities, tribal, rural

ACROSS

THE NATION — **50** states, **5** territories & DC

Technology first responders need to save lives, protect communities

MODERNIZED

innovative **app & device ecosystem**

network **improvements & upgrades**

commercially proven **cybersecurity** solutions

PRIORITIZED

emergency communications receive highest **priority**

rapid buildout with publicsafety input

nationwide **public safety solutions** leveraging existing infrastructure

SPECIALIZED

robust **coverage** where **public safety** needs it

connectivity for advanced **mobile data**

24h

highly available **customer care**

FirstNet

Learn more at FirstNet.gov/mediakit

TOP10 FREQUENTLY ASKED QUESTIONS

1. What is the First Responder Network Authority?

The First Responder Network Authority is the independent authority established by Congress to deliver a nationwide broadband network dedicated to public safety. The Network is strengthening public safety users' communications capabilities, enabling them to respond more quickly and effectively to accidents, disasters, and emergencies.

The First Responder Network Authority is led by a Board of leaders and executives from the public safety community; federal, state, and local governments; and the technology, finance, and wireless sectors. It has a staff of about 200 employees with expertise in public safety, telecommunications, customer service, technology, procurement, and other areas needed to develop the Network. It is headquartered in Reston, VA, and has a technology center and lab in Boulder, CO.

2. What led to the creation of the First Responder Network Authority?

The 9/11 terrorist attacks brought to the forefront the many communications challenges that first responders face during emergencies and disasters. These issues were captured in the *9/11 Commission Report*, which identified gaps in emergency communications and recommended a nationwide network for law enforcement, fire, and emergency medical personnel communications.

The public safety community united to fulfill the 9/11 Commission's recommendation. Public safety organizations and associations advocated before Congress for a dedicated, reliable wireless network for first responders. Their advocacy efforts led to the passage of legislation in 2012 to create the agency to deploy the Network in all U.S. states and territories, including rural communities and tribal nations.

3. How has public safety been involved in the vision for the FirstNet network?

Public safety officials have worked closely with the First Responder Network Authority since its inception in 2012 to ensure the Network meets first responders' needs – today and in the future. The agency's outreach and consultation efforts have connected the organization to more than 1.8 million first responders and state public safety and technology executives across the country.

Specifically, the First Responder Network Authority has consulted extensively with state single points of contact (SPOCs) in each of the 50 U.S. states, 5 territories, and the District of Columbia, as well as local/municipal, tribal and federal public safety leaders. It also coordinates with public safety through the Public Safety Advisory Committee (PSAC), which provides guidance and subject matter expertise from a first responder perspective. Public safety leaders at the national, state and local levels continue to advocate for and support deployment of the Network.

4. How was AT&T selected to build, operate, and maintain the FirstNet network?

The First Responder Network Authority and the Department of Interior made the 25-year award based on the determination of the overall best value solution for FirstNet and public safety. The buildup to the award included a fair, competitive procurement process that began in January 2016 with release of the Network RFP.

The procurement process followed the Federal Acquisition Regulation (FAR) and encouraged offerors to provide innovative solutions that could meet or exceed the needs of public safety.

The procurement was open to all entities, whether traditional wireless companies or new entrants, provided their proposal could meet the RFP's statement of objectives. AT&T was selected on a best-value award that considered financial sustainability and was based on more than just a technically acceptable solution at the lowest cost. The evaluation of proposals assessed the offerors' ability to submit a cost-effective and innovative model, and to meet or exceed the 16 objectives and evaluation factors outlined in the FirstNet RFP.

5. Why is the Network being built and operated through a public-private partnership?

The First Responder Network Authority and AT&T are modernizing and improving public safety communications by leveraging private sector resources, infrastructure, and cost-saving synergies to deploy and operate the Network. This public-private model also helps keep costs down for American taxpayers. To do this, Congress used the sale of communications airwaves (or spectrum) to fund FirstNet's initial operations and help start network deployment; the $7 billion FirstNet received in initial funding came from FCC spectrum auction revenue, not taxpayer funds.

If the federal government were to build, maintain and operate this Network, the estimated cost would be tens of billions of dollars over 25 years. The Government Accountability Office has estimated it could cost up to $47 billion over 10 years to construct and operate the Network.

With this partnership approach, the First Responder Network Authority and AT&T do not need any additional federal funding to build and operate the Network – it is a fully funded, self-sustaining Network. In return, America's first responders get services far above and beyond what they have today over a first-class broadband network dedicated to their communications needs.

6. What are the key terms this public-private partnership?

Congress intended for the Network to be built and operated as a public-private partnership that brings together the best of the private sector, including commercial best practices, infrastructure, and resources – with the First Responder Network Authority's public safety expertise. This approach will lead to a fully-funded, self-sustaining Network that will serve public safety for years to come. This business model is built upon the efficient use of resources, infrastructure, cost-saving synergies, and incentives, including:

- 20 MHz of federally owned spectrum and $6.5 billion in initial funding to the partnership; in return AT&T will deploy and operate a nation-wide high-speed broadband network for public safety over 25 years.
- AT&T will invest about $40 billion over the life of the contract to build, operate, deploy, and maintain the Network, and together with the First Responder Network Authority will help ensure the Network evolves with the needs of public safety.
- AT&T can use FirstNet's spectrum when it is not being used by public safety for other, commercial purposes. The company will prioritize first responders over any other commercial users.
- First Responder Network Authority will oversee the contract to ensure it delivers innovation, technology and customer care to public safety through various mechanisms, including subscriber adoption targets, milestone buildouts, disincentive fees and other mechanisms outlined in the contract.

7. What will the FirstNet Network provide first responders that they don't have today?

Today, in emergencies and at large events, heavy public use can lead to wireless communications networks becoming overloaded and inaccessible. In those instances, public safety users are treated the same as any other commercial or enterprise user, and communications can be limited due to congestion and capacity issues.

With the FirstNet Network, public safety will get a dedicated "fast lane" that provides highly secure communications every day and for every emergency. It will deliver specialized features to public safety that are not available on wireless networks today – such as priority access; preemption; more network capacity; and a resilient, hardened connection. The Network will deliver more than just a public-safety-dedicated wireless connection – it is also creating devices and apps ecosystems that will connect first responders to innovative, life-saving technologies.

8. How will the Network benefit first responders and help them do their jobs better?

FirstNet will improve communications, response times and outcomes for first responders from coast-to-coast, in rural and urban areas, inland and on boarders – leading to safer, and more secure communities. The Network will provide first responders with innovation and robust capacity so they can take advantage of advanced technologies, tools and services during emergencies, such as:

- Applications that allow first responders to reliably share videos, text messages, photos and other information during incidents in near real-time;
- Advanced capabilities, like camera-equipped connected drones and robots, to deliver images of wildfires, floods or other events;
- Improved location services to help with mapping capabilities during rescue and recovery operations; and
- Wearables that could relay biometric data of a patient to the hospital or alert when a fire fighter is in distress.

Network technology will also be tested and validated through the FirstNet Innovation and Test Lab, located in Boulder, CO, so first responders will have the proven tools they need in disasters and emergencies.

9. What's happening with FirstNet now?

All 50 states, five U.S. territories and Washington, D.C., have "opted in," to FirstNet, meaning each has accepted its individual State Plan detailing how the network will be deployed in their state/territory.

The First Responder Network Authority's public-private partnership with AT&T provides first responders with immediate access to mission-critical capabilities over the FirstNet network. This includes priority and preemption features that give first responders their own "fast lane" on the public safety network to communicate and share information during emergencies, large events, or other situations when commercial networks could become congested. FirstNet is the only broadband network to provide ruthless preemption for public safety.

Key FirstNet activities include:

Expanding the Network and Building Out Band 14: The First Responder Network Authority has issued work orders to deploy the RANs. This gave AT&T the green light to expand FirstNet's footprint and deploy Band 14 capacity and coverage throughout the nation, providing first responders with the bandwidth and mission critical connections they need to communicate, share information, and use innovative technologies every day and in every emergency.

Driving public safety innovation: FirstNet is also unlocking a new technology marketplace for public safety, enabling first responders to benefit from advancements in innovation. The FirstNet App Catalog store will be filling up with FirstNet-approved mobile apps that are optimized for public safety use over the Network.

Securing emergency communications: FirstNet's first-of-its-kind core infrastructure will give first responders the dedicated, highly secure, non-commercial network they deserve. The FirstNet Core, delivered in March 2018, provides full encryption of public safety data over FirstNet and end-to-end cyber security. FirstNet subscribers also have access to a dedicated Security Operations Center, offering 24/7/365 support.

Engaging with public safety: The First Responder Network Authority will continue to engage with public safety in the states, territories, federal agencies, and tribal nations to ensure the network meets their needs and incorporate their feedback in the design of future FirstNet products and services.

10. How can I learn more?

Stay up-to-date on the First Responder Network Authority activities and the building and deployment of FirstNet at www.firstnet.gov. Follow us on Twitter, Facebook and YouTube.

June 2, 2022

Dwayne Lyerly
TowerCo, LLC
5000 Valleystone Dr., Ste. 200
Cary, NC 27519

RE: 250' Self-Supporting Tower for McAndenville, NC
(Sabre proposal # 22-1871-JDS-R2)

Dear Mr. Lyerly,

Upon receipt of order, we propose to design and supply the above referenced tower for a Basic Wind Speed of 115 mph without ice and 30 mph with 0.75" ice, Risk Category II, Exposure Category C, and Topographic Category 1, in accordance with the Telecommunications Industry Association Standard ANSI/TIA-222-G, "Structural Standards for Steel Antenna Towers and Antenna-Supporting Structures", to support 3 carriers. Given the structure's height and loading requirements, a latticed self-supporting tower would be a reasonable choice for this site, whereas a monopole in this situation is likely to require more steel and could be impractical to design and fabricate.

When designed according to the above standard, the wind pressures and steel strength capacities include several safety factors. Therefore, it is highly unlikely that the tower will fail structurally in a wind event where the design wind speed is exceeded within the range of the built-in safety factors.

Should the wind speed increase beyond the capacity of the built-in safety factors, to the point of failure of one or more structural elements, the most likely location of the failure would be within one or more of the tower members in the upper portion. This would result in a buckling failure mode, where the loaded member would bend beyond its elastic limit (beyond the point where the member would return to its original shape upon removal of the wind load).

Therefore, it is likely that the overall effect of such an extreme wind event would be localized buckling of a tower section. Assuming that the wind pressure profile is similar to that used to design the tower, the tower is most likely to buckle at the location of the highest combined stress ratio in the upper portion of the tower. This would result in the portion of the tower above the failure location "folding over" onto the portion of the tower below the failure location and would effectively result in a fall radius of 100'. *Please note that this letter only applies to the above-referenced tower designed and manufactured by Sabre Industries*.

Sincerely,

NORTH CAROLINA PROFESSIONAL SEAL 051984 ENGINEER DAVID HILL

06/02/22

David Hill, P.E.
Design Engineer II

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2022-ASO-3500-OE

Issued Date: 06/08/2022

Chad Doherty
TowerCo 2013 LLC
5000 Valleystone Dr
Cary, NC 27519

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Antenna Tower NC0288 McAndenville - Tower
Location:	Gastonia, NC
Latitude:	35-16-07.18N NAD 83
Longitude:	81-04-31.54W
Heights:	656 feet site elevation (SE)
	258 feet above ground level (AGL)
	914 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, a med-dual system-Chapters 4,8(M-Dual),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

This determination expires on 12/08/2023 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within

6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

A copy of this determination will be forwarded to the Federal Communications Commission (FCC) because the structure is subject to their licensing authority.

If we can be of further assistance, please contact our office at (404) 305-6504, or dale.kimmel@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2022-ASO-3500-OE.

Signature Control No: 509613204-536011529 (DNE)
Dale Kimmel
Specialist

Attachment(s)
Frequency Data
Map(s)

cc: FCC

Frequency Data for ASN 2022-ASO-3500-OE

LOW FREQUENCY	HIGH FREQUENCY	FREQUENCY UNIT	ERP	ERP UNIT
6	7	GHz	55	dBW
6	7	GHz	42	dBW
10	11.7	GHz	55	dBW
10	11.7	GHz	42	dBW
17.7	19.7	GHz	55	dBW
17.7	19.7	GHz	42	dBW
21.2	23.6	GHz	55	dBW
21.2	23.6	GHz	42	dBW
614	698	MHz	1000	W
614	698	MHz	2000	W
698	806	MHz	1000	W
806	901	MHz	500	W
806	824	MHz	500	W
824	849	MHz	500	W
851	866	MHz	500	W
869	894	MHz	500	W
896	901	MHz	500	W
901	902	MHz	7	W
929	932	MHz	3500	W
930	931	MHz	3500	W
931	932	MHz	3500	W
932	932.5	MHz	17	dBW
935	940	MHz	1000	W
940	941	MHz	3500	W
1670	1675	MHz	500	W
1710	1755	MHz	500	W
1850	1910	MHz	1640	W
1850	1990	MHz	1640	W
1930	1990	MHz	1640	W
1990	2025	MHz	500	W
2110	2200	MHz	500	W
2305	2360	MHz	2000	W
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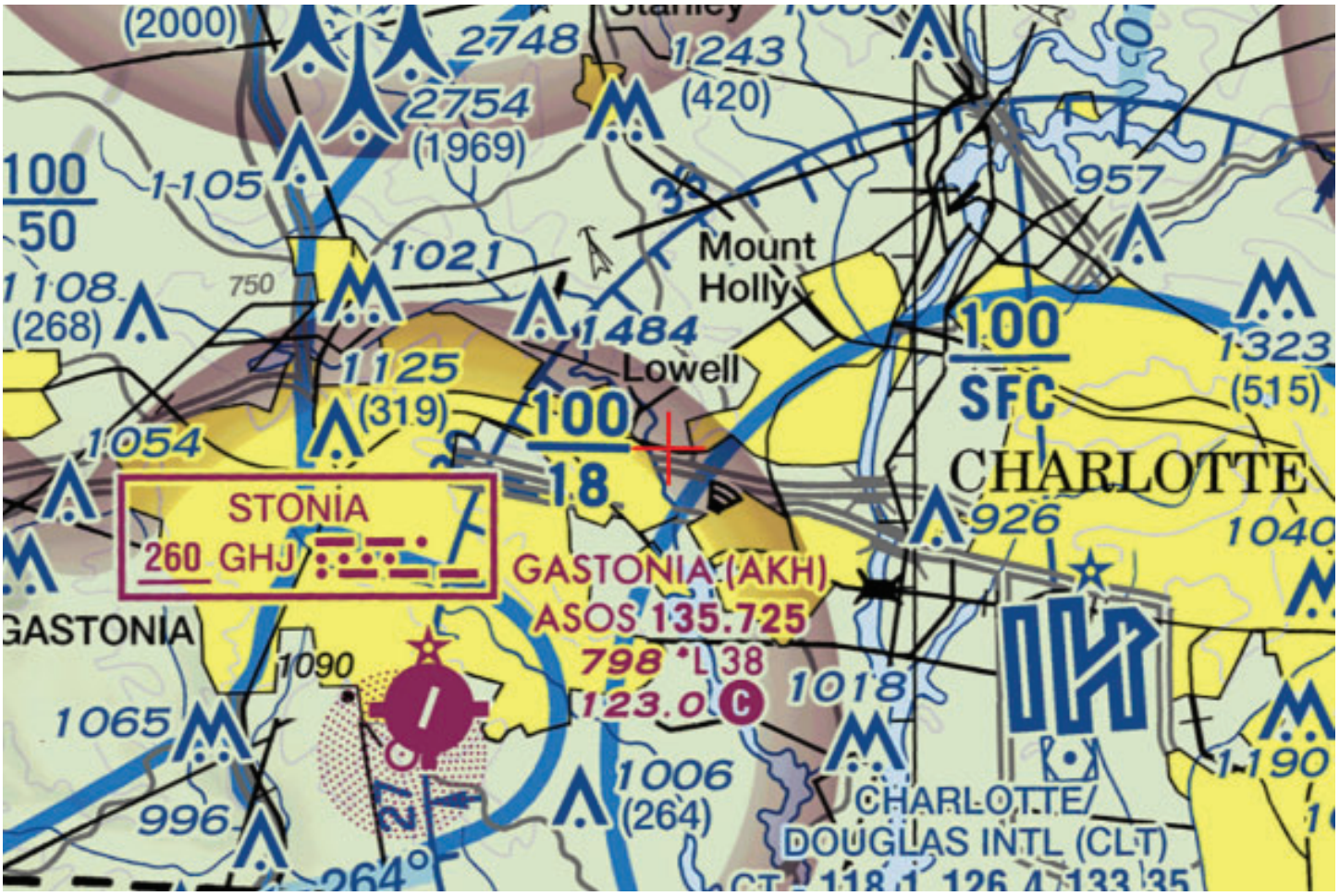
2345	2360	MHz	2000	W
2496	2690	MHz	500	W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