

August 31, 2022

Melanie A. Bachman
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Regarding: Notice of Exempt Modification – AT&T Site CT-2174 / FA# 10035120
Address: 525 Orange Center Rd, Orange, CT 06477

Dear Ms. Bachman:

New Cingular Wireless, PCS, LLC (“AT&T”) currently maintains a wireless telecommunications facility on an existing +/- 162’ Self Support Tower at the above-referenced address, latitude 41.2736861, longitude -73.0188319. Said Self Support Tower is operated by Cellco Partnership d/b/a Verizon Wireless.

AT&T desires to modify its existing telecommunications facility by adding three (3) antennae, swapping nine (9) antennae, swapping nine (9) remote radio units, adding two (2) surge arrestors and accompanying feedlines and replacing the mount as more particularly detailed and described on the enclosed Construction Drawings prepared by Hudson Design Group, LLC, last revised April 11, 2022. The centerline height of the existing antennas is and will remain at 145 feet. This modification may include B2, B5, B17, B14, B29, B30, B66, & n77 hardware that is 4G(LTE) and/or 5GNR capable through remote software configuration and either or both services may be turned off at various times.

Please accept this letter as notification pursuant to R.C.S.A §16-50j-73 for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to the following individuals: The Honorable James M. Zeoli, First Selectman of the Town of Orange, as elected official, Jack Demirjian, Zoning Enforcement Officer and Town Planner of the Town of Orange, Cellco Partnership as tower operator, and the Town of Orange as property owner.

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

1. The proposed modifications will not result in an increase in the height of the existing structure.
2. The proposed modifications will not require an 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 modified facility will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. *Please see the RF emissions calculation for AT&T's modified facility enclosed herewith.*

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

6. The existing structure and its foundation can support the proposed loading. *Please see the structural analysis dated August 31, 2022, and prepared by Semann Engineering Solutions, enclosed herewith.*

For the foregoing reasons, AT&T 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,

Evan Renwick

Evan Renwick
Site Acquisition Specialist
Centerline Communications, LLC
750 West Center Street, Suite 301
West Bridgewater, MA 02379
erenwick@clinellc.com

Enclosures: Exhibit 1 – Construction Drawings
Exhibit 2 – Property Card and GIS
Exhibit 3 – Structural Analysis
Exhibit 4 – Mount Analysis
Exhibit 5 – RF Emissions Analysis Report Evaluation
Exhibit 6 – Original Tower Approval
Exhibit 7 – Notice Delivery Confirmations

cc: The Honorable James M. Zeoli, First Selectman, Town of Orange, as elected official
Jack Demirjian, Zoning Enforcement and Town Planner, Town of Orange
Cellco Partnership, as tower operator
Town of Orange as property owner

EXHIBIT 1



SITE NUMBER: CT2174
SITE NAME: GEORGES CELLAR HILL SOUTH
FA CODE: 10035120
PACE ID: MRCTB056016, MRCTB055194, MRCTB054386, MRCTB054409,
MRCTB055484, MRCTB054453, MRCTB056431
PROJECT: 5G NR RADIO, 5G NR 1SR CBAND, CELL SITE RF MODIFICATIONS, 5G
NR SOFTWARE UPGRADE, 5G NR 1DR-1, 4TX4RX SOFTWARE RETROFIT, LTE
NEXT CARRIER, LTE 3C, 2022 UPGRADE

PROJECT INFORMATION

- ITEMS TO BE MOUNTED ON THE EXISTING MONORAIL:
 - PROPOSED HEAVY DUTY V-FRAME SECTOR MOUNT (SITEP01 #VFA14-H10-2120) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
 - NEW AT&T ANTENNAS: TPA639-BUGDA-K (TYP. OF 1 PER SECTOR, TOTAL OF 3).
 - NEW AT&T ANTENNAS: DMF65R-BUGDA (TYP. OF 1 PER SECTOR, TOTAL OF 3).
 - NEW AT&T ANTENNAS: AR6419 B77G (TYP. OF 1 PER SECTOR, TOTAL OF 3).
 - NEW AT&T ANTENNAS: AIR6449 B77D (TYP. OF 1 PER SECTOR, TOTAL OF 3).
 - NEW AT&T RRUS: 4478 B1A (700') (TYP. OF 1 PER SECTOR, TOTAL OF 3).
 - NEW AT&T RRUS: 8843 B2/B6GA (1900'AWIS) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
 - NEW AT&T SURGE ARRESTOR: DCG-48-60-18 (TOTAL OF 2).
 - NEW AT&T (6) Y-CABLES
 - NEW AT&T (4) 6WG DC POWER CABLES & (2) 18 PAIRS OF FIBER RUS.
- ITEMS TO BE MOUNTED IN EQUIPMENT LOCATION:
 - INSTALL (2) FIBER TRAY IN LITE RACK & (2) FIBER BOX ON ICE BRIDGE
 - INSTALL (1) 6648+IDLE+XCDE IN LITE RACK.
 - INSTALL (1) 6648+IDLE+XCDE + 1XMMU/6648 + XCDE CABLE
 - INSTALL (1) DC12
- ITEMS TO BE REMOVED:
 - EXISTING AT&T ANTENNA: 7770 (OF 2 PER SECTOR, TOTAL OF 6).
 - EXISTING AT&T ANTENNA: HPA-65R-BUI-H6 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
 - EXISTING AT&T RRUS: RU1-1 B5 SHELTER (TYP. OF 1 PER SECTOR, TOTAL OF 3).
 - EXISTING AT&T RRUS: RU1-2 B2-BRRRS-A2 B2X (TYP. OF 1 PER SECTOR, TOTAL OF 3).
 - EXISTING AT&T RRUS: LGP21401 (TYP. OF 4 PER SECTOR, TOTAL OF 12).
 - EXISTING AT&T DMPLERS: LGP21901 (TYP. OF 4 PER SECTOR, TOTAL OF 12).

ITEMS TO REMAIN:

- (1) SURGE ARRESTOR. (6) COAX. (2) DC POWER & (1) FIBER.

525 ORANGE CENTER ROAD
ORANGE, CT 06477

41.2736861° N, 41° 16' 25.66" N
-73.0188319° W 73° 1' 7.94" W

MONOPOLE / INDOOR EQUIPMENT

 $162^{\circ}-0^{\prime}\pm$
 $148^{\circ}-3^{\prime}\pm$, $146^{\circ}-5^{\prime}\pm$, & $150^{\circ}-0^{\prime}\pm$

TELECOMMUNICATIONS FACILITY	TELECOMMUNICATIONS FACILITY
TELECOMMUNICATIONS FACILITY	TELECOMMUNICATIONS FACILITY

DRAWING

DRAWING INDEX

SHEET NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	1
GN-1	GENERAL NOTES	1
A-1	COMPOUND & EQUIPMENT PLANS	1
A-2	ANTENNA LAYOUT PLANS & ELEVATION	1
A-3	DETAILS	1
A-4	DETAILS	1
G-1	GROUNDING DETAILS	1
RF-1	RF PLUMBING DIAGRAM	1

VICINITY MAP

DIRECTIONS TO SITE: HEAD SOUTHEAST TOWARD CAPITAL BLVD, TURN LEFT ONTO CAPITAL BLVD, USE THE LEFT 2 LANES TO TURN LEFT ONTO STATE HWY 411, TURN LEFT TO MERGE WITH I-91 S, MERGE WITH I-91 S, TAKE EXIT 57 TO MERGE WITH CT-34 E/DERBY AVE/DERBY AVE, TAKE EXIT 57 TO MERGE WITH CT-34 E/DERBY AVE/DERBY TURN RIGHT ONTO WAPLEDALE RD, WAPLEDALE RD TURNS SLIGHTLY RIGHT AND BECOMES ORANGE CENTER RD, TURN LEFT, TURN RIGHT, DESTINATION WILL BE ON THE LEFT.

GENERAL NOTES

1. THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY, AND COPYRIGHTED WORK OF AT&T. ANY DUPLICATION OR USE WITHOUT THE WRITTEN CONSENT OF AT&T IS PROHIBITED. REPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.
 2. THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE A SPECIAL ACCESS PERMIT OR OTHER SPECIAL DOCUMENTS.
 3. REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.
- CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE AT&T MOBILITY REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.
- CONSTRUCTION DRAWINGS ARE VALID FOR SIX MONTHS AFTER ENGINEER OF RECORD'S STAMPED AND SIGNED SUBMITTAL DATE. (SEE#) HEREIN.

72 HOURS

CALL
BEFORE YOU DIG
CALL TOLL FREE 1-800-922-4455
OR CALL 811

UNDERGROUND SERVICE ALERT



500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

SITE NUMBER: CT2174
SITE NAME: GEORGES CELLAR HILL SOUTH

525 ORANGE CENTER ROAD
ORANGE, CT 06477
NEW HAVEN COUNTY



750 WEST CENTER STREET, SUITE #301
WEST BRIDGEWATER, MA 02379



45 BEECHWOOD DRIVE
NORTH ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

[illegible]

AT&T

5G NR RADIO, 5G NR 1SR CBAND, CELL SITE
RE MODIFICATIONS, 5G NR SOFTWARE UPGRADE,
5G NR 1DR-1 4TX4RX SOFTWARE RETROFIT

SITE NUMBER	DRAWING NUMBER	REV
CT2174	T-1	1

GROUNDING NOTES

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.
2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTS (UL 4196) TO VERIFY THE GROUNDING SYSTEM. THE CONTRACTOR SHALL PROVIDE THE SUBCONTRACTOR WITH THE LOCATION OF ALL EXISTING SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
4. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND BONDING CONDUCTOR. THE SUBCONTRACTOR SHALL PROVIDE THE REQUIRED SIZE OF GROUNDING CONDUCTOR IN ACCORDANCE WITH THE NEC. SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
5. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS AND #2 AWG STRANDED COPPER FOR OUTDOOR BTS.
6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
7. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO GROUND BAR.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
11. METAL CONDUIT SHALL BE MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS. THE SUBCONTRACTOR SHALL PROVIDE ELECTRICAL CONTINUITY WITH #6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
12. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/2 IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50

GENERAL NOTES

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
CONTRACTOR – CENTERLINE COMMUNICATIONS
OWNER – AT&T MOBILITY
2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.
3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND ALL OTHER REQUIREMENTS OF ANY AGENCY OR AGENCY OF GOVERNMENT. ALL WORK CARRIED OUT SHALL COMPLY WITH APPLICABLE MUNICIPAL AND STATE COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR, ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.
7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.
9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.
10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.

14. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.

15. ALL STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL SHALL BE GALVANIZED TO PREVENT CORROSION. ALL STEEL SHALL BE GALVANIZED. OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.

16. CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T SITES."

17. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.

18. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING COMMERCIAL OPERATION. ALL WORKS EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.

19. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

20. APPLICABLE BUILDING CODES:

SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.

BUILDING CODE: IBC 2015 WITH 2018 CT STATE BUILDING CODE AMENDMENTS
ELECTRICAL CODE: 2017 NATIONAL ELECTRICAL CODE (NFPA 70-2017)

SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:

AMERICAN CONCRETE INSTITUTE (ACI) 318: BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE.

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) MANUAL OF STEEL CONSTRUCTION, ASD, FOURTEENTH EDITION;

TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-II, STRUCTURAL STANDARDS FOR STEEL.

FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS A CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

ABBREVIATIONS

AGL	ABOVE GRADE LEVEL	EQ	EQUAL	REQ	REQUIRED
AWG	AMERICAN WIRE GAUGE	GC	GENERAL CONTRACTOR	RF	RADIO FREQUENCY
BBU	BATTERY BACKUP UNIT	GRC	GALVANIZED RIGID CONDUIT	TBD	TO BE DETERMINED
BTOW	BARE TINNED SOLID COPPER WIRE	MGB	MASTER GROUND BAR	TBR	TO BE REMOVED
BGR	BURIED GROUND RING	MIN	MINIMUM	TBRR	TO BE REMOVED AND REPLACED
BTS	BASE TRANSCIEVER STATION	P	PROPOSED	TYP	TYPICAL
E	EXISTING	NTS	NOT TO SCALE	UG	UNDER GROUND
EGB	EQUIPMENT GROUND BAR		RECOMMENDED WATER LINE	VIF	VERIFY IN FIELD
EGR	EQUIPMENT GROUND RING				

1		10/11/22		ISSUED FOR CONSTRUCTION		AT&T	
A		07/25/22		ISSUED FOR REVIEW		AT&T	
NO.	DATE	REVISIONS	BY	CHK	DATE	REV	REV
SCALE:	AS SHOWN	DESIGNED BY:	AT	DRAWN BY:	GD	CT2174	GN-1

AT&T
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

525 ORANGE CENTER ROAD
ORANGE, CT 06477
NEW HAVEN COUNTY

SITE NAME: GEORGES CELLAR HILL SOUTH

SITE NUMBER: CT2174

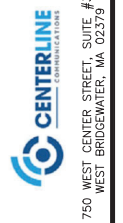
REVISIONS: 5G NR RADIO, 5G NR T1R GROUND, CELL SITE MODIFICATIONS, 5G NR SOFTWARE UPGRADE, 5G NR-DR-1, 4T4X4R SOFTWARE RETROFIT, LITE NEXT CARRIER, LITE 3C

CT2174

GN-1



525 ORANGE CENTER ROAD
ORANGE, CT 06477
NEW HAVEN COUNTY

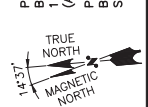




NOTE:
REFER TO
DATED: C
ANTENNA

NOTE:
REFER TO
DATED: C
ANTENNA

HDX	HUDSON Design Group LLC TEL: 1778.557-5533 FAX: 1778.551-5586	CENTERLINE COMMUNICATIONS 750 WEST CENTER STREET, SUITE #301 WEST BRIDGEWATER, MA 02379	SITE NUMBER: CT2174 SITE NAME: GEORGES CELLAR HILL SOUTH 525 ORANGE CENTER ROAD PO BOX 102 NEW HAVEN COUNTY	 500 ENTERPRISE DRIVE, SUITE 3A ROCKY HILL CT 06867	NO. DATE REVISIONS 1 04/11/22 ISSUED FOR CONSTRUCTION 2 07/25/22 ISSUED FOR REVIEW NO. DATE REVISIONS SCALE: AS SHOWN DRAWN BY: GP DESIGNED BY: AT		AT&T COMPOUND TELEPHONE PLANS NR RADIO, 5G NR 1SR GRAND, CELL SITE MODIFICATIONS, 5G NR SOFTWARE UPGRADE, RELEASE NR-HDR-1, 474XRX SOFTWARE RETROFIT, LTE NEXT CARRIER, LTE 3C
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[illegible]

NOTE:

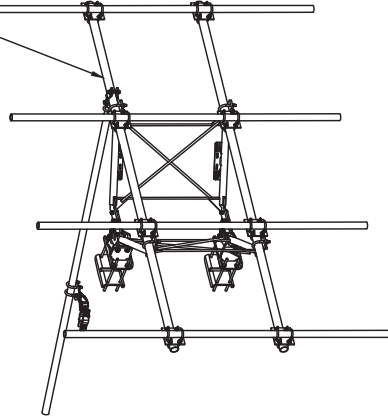
REFER TO THE FINAL RFDS V2.0
DATED: 03/25/2022 FOR FINAL
ANTENNA SETTINGS.

NOTE:

AN ANALYSIS FOR THE CAPACITY OF
THE EXISTING STRUCTURES TO
SUPPORT THE PROPOSED EQUIPMENT
HAS BEEN COMPLETED BY HUDSON
DESIGN GROUP, LLC. DATED:
FEBRUARY 24, 2022

PROPOSED HEAVY DUTY
L-PIPE SECTOR MOUNT
(SITEPRO1 #VFA14-H10-2120)
(TYP. OF 1 PER SECTOR,
TOTAL OF 3)

PROPOSED 2-1/2" STD (2.78" O.D.)
x 120" LONG PIPE MAST (TYP. OF 4
PER SECTOR, TOTAL OF 12)
(INCLUDED WITH KIT)



PROPOSED MOUNT (SITEPRO1
#VFA14-H10-2120) DETAIL

SCALE: N.T.S

1
A-4

PROPOSED DUAL RRU
MOUNT, ROSENBERGER
PART #D220RRUDSM
(TYP. OF 1 PER
SECTOR, TOTAL OF 3)



BACK TO BACK RRU MOUNT DETAIL

SCALE: N.T.S

2
A-4



45 BEECHWOOD DRIVE
NORTH ANDOVER, MA 01845
TEL: (978) 537-5533
FAX: (978) 334-5586



750 WEST CENTER STREET, SUITE #301
WEST BRIDGEWATER, MA 02379

SITE NAME: GEORGES CELLAR HILL SOUTH

525 ORANGE CENTER ROAD
ORANGE, CT 06477
NEW HAVEN COUNTY



500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067



NO.	DATE	REVISIONS	BY	CHK	DESIGNED BY	DRAWN BY	GD	REV
1	04/11/22	ISSUED FOR CONSTRUCTION	AT	DPH				1
A	07/25/22	ISSUED FOR REVIEW	AT	DPH				REV
SITE NUMBER								CT2174
DRAWING NUMBER								A-4

AT&T
NR RADIO, 5G NR TSS GRAND, CELL SITE
MODIFICATIONS, 5G NR SOFTWARE UPGRADE,
5G NR-FDR-1, 4T4RX SOFTWARE RETROFIT,
LTE NEXT CARRIER, LTE 3C



NOTES:

1. "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATION.
3. CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB, AND MGB

TYPICAL GROUND BAR CONNECTION DETAIL

SCALE: N.T.S.

3
G-1

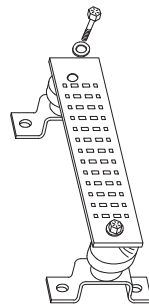
SEECH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" – SURGE PRODUCERS

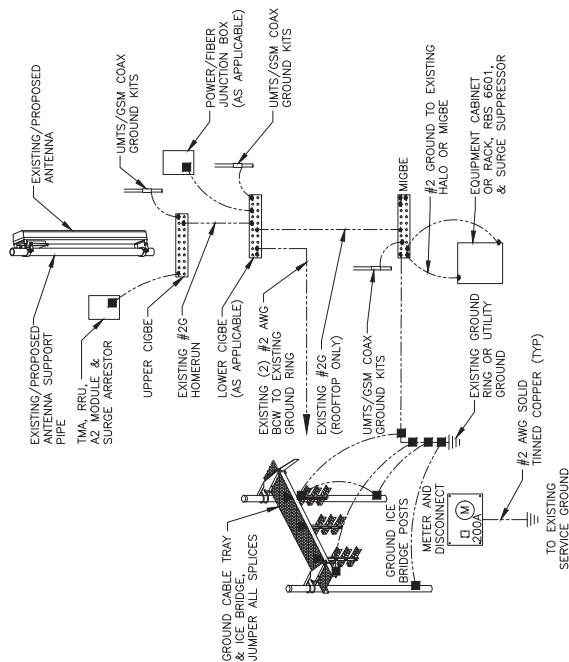
CABLE ENTRY PORTS (HATCH PLATES) (#2 AWG)
GENERATOR FRAMEWORK (IF AVAILABLE) (#2 AWG)
TELCO GROUND BAR
COMMERCIAL POWER COMMON NEUTRAL/GROUND B
+24V POWER SUPPLY RETURN BAR (#2 AWG)
-48V POWER SUPPLY RETURN BAR (#2 AWG)
RECTIFIER FRAMES.

SECTION "A" - SURGE ABSORBERS

INTERIOR GROUND RING (#2 AWG)
EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2 AWG)
METALLIC COLD WATER PIPE (IF AVAILABLE) (#2 AWG)
BUILDING STEEL (IF AVAILABLE) (#2 AWG)



GROUNDING RISER DIAGRAM 2
SCALE: N.T.S. G-1



GROUND BAR - DETAIL (AS REQUIRED)

SCALE: N.T.S.

[illegible]



NOTE:
REFER TO THE FINAL RFDS V2.0
DATED: 03/25/2022 FOR FINAL
ANTENNA SETTINGS.

AT&T	
RF PLUMBING DIAGRAM	
5G NR RADIO, 5G NR 1SR CBAND, CELL SITE	
RF MODIFICATIONS, 4G NR SOFTWARE UPGRADE,	
5G NR 1DR-1, 4TX-RX SOFTWARE RETROFIT,	
LTE NEXT CARRIER, LTE 3C	
SITE NUMBER	REV
C12174	RF-1
	1

[illegible]

500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

SITE NUMBER: CT2174
FE: GEORGES CELLAR HILL SOUTH

525 ORANGE CENTER ROAD
ORANGE, CT 06477
NEW HAVEN COUNTY



750 WEST CENTER STREET, SUITE #301
WEST BRIDGEWATER, MA 02379



45 BEECHWOOD DRIVE
NORTH ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

EXHIBIT 2

525 ORANGE CENTER RD

Location	525 ORANGE CENTER RD	Mblu	41/ 5/ 16/ 1/
Acct#	155905	Owner	TOWN OF ORANGE
Assessment	\$84,800	Appraisal	\$121,200
PID	2186	Building Count	1

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2017	\$0	\$121,200	\$121,200
Assessment			
Valuation Year	Improvements	Land	Total
2017	\$0	\$84,800	\$84,800

Owner of Record

Owner	TOWN OF ORANGE	Sale Price	\$0
Co-Owner	C/O CELLCO PARTNERSHIP	Certificate	
Address	PO BOX 2549 - DUFF & PHELPS ADDISON, TX 75001	Book & Page	0000/0000
		Sale Date	07/26/2010
		Instrument	00

Ownership History

Ownership History					
Owner	Sale Price	Certificate	Book & Page	Instrument	Sale Date
TOWN OF ORANGE	\$0		0000/0000	00	07/26/2010

Building Information

Building 1 : Section 1

Year Built:	
Living Area:	0
Replacement Cost	
Less Depreciation:	\$0
Building Attributes	
Field	Description

Style	Outbuildings
Model	
Grade	
Stories	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Floor 1	
Interior Floor 2	
Heat Fuel	
Heat Type	
AC Type	
Bedrooms	
Full Baths	
Half Baths	
Extra Fixtures	
Total Rooms	
Bathrm Style	
Kitchen Style	
Stacks	
Fireplace(S)	
Gas Fireplace(s)	
Attic	
Frame	
Traffic	
Bsmt Gar(s)	
Fireplaces	
SF FBM	
SF Rec Rm	
Basement_2	
Bsmt Floor	
Fndtn Cndtn	
Basement	

Building Photo



41-5-16-1 03/06/2017

(<http://images.vgsi.com/photos/OrangeCTPhotos/\00\01\37\88.JPG>)

Building Layout

 Building Layout
(http://images.vgsi.com/photos/OrangeCTPhotos//Sketches/2186_2186.jpg)

Building Sub-Areas (sq ft)	Legend
No Data for Building Sub-Areas	

Extra Features

Extra Features	Legend
----------------	--------

No Data for Extra Features

Land

Land Use		Land Line Valuation	
Use Code	520	Size (Acres)	0.23
Description	Comm Vacant	Frontage	
Zone	RES	Depth	
Neighborhood	C10	Assessed Value	\$84,800
Alt Land Appr Category	No	Appraised Value	\$121,200

Outbuildings

Outbuildings	Legend
No Data for Outbuildings	

Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2020	\$0	\$121,200	\$121,200
2019	\$0	\$121,200	\$121,200
2018	\$0	\$121,200	\$121,200

Assessment			
Valuation Year	Improvements	Land	Total
2020	\$0	\$84,800	\$84,800
2019	\$0	\$84,800	\$84,800
2018	\$0	\$84,800	\$84,800



1/6/2022 2:46:09
Scale: 1"=188'
Scale is approximate

The information depicted on this map is for planning purposes only. It is not adequate for legal boundary definition, regulatory interpretation, or parcel-level analyses.



EXHIBIT 3



Structural Analysis Report

Prepared for:

KGI

805 Las Cimas Parkway, Building Three, Suite 370

Austin, TX 78746

ATTN: Ms. Patti Leverette

Structure : 160.5 ft Monopole
Site ID : 29173
Proposed Carrier : AT&T Wireless
Site Name : Orange 1
Site Location : 525 Orange Center
Orange, CT
41.2737, -73.0187
County : New Haven
Date : August 26, 2022
Max Structure Usage : 60%
Max Foundation Usage : 61%
Result : Pass

Prepared By:
Nathan Wood, E.I.T. (NE)
Structural Engineer

A handwritten signature in black ink that reads 'Nathan Wood'.



08.31.22

EXP. 01/31/2023



Site ID 29173
August 26, 2022

Table of Contents

Introduction -----	1
Supporting Documents -----	1
Analysis -----	1
Conclusion -----	1
Existing and Reserved Equipment-----	2
Equipment to be Removed -----	2
Proposed Equipment -----	2
Structure Usages -----	4
Foundations -----	4
Standard Conditions -----	5
Calculations -----	Attached

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 160.5 ft Monopole to reflect the change in loading by AT&T Wireless.

Supporting Documents

Tower Drawing	Hightower Solutions Mapping Name: 29173 Orange 1, dated July 18, 2022
Foundation Drawing	MEI Job #98-027A, dated January 16, 1998
Mount Analysis	Hudson Site #CT2174, dated February 24, 2022
Tower Inventory	Hightower Solutions Mapping Name: 29173 Orange 1, dated July 18, 2022
Proposed Loading	KGI TLF Site #29173, dated August 12, 2022

Analysis

The tower was analyzed using TNX tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/TIA-222.

Basic Wind Speed	120 mph (3-Second Gust) Vult
Basic Wind Speed w/Ice	50 mph (3-Second Gust) w/ 1" radial ice concurrent
Code	ANSI/TIA-222-H / 2018 IBC / 2018 Connecticut State Building Code
Risk Category	II
Exposure Category	B
Topographic Category	1
Crest Height	0 ft
Spectral Response	$S_s = 0.201$, $S_1 = 0.054$
Site Class	D - Stiff Soil
Ground Elevation	175.28 ft

Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report.

If you have any questions or require additional information, please contact Semaan Engineering Solutions at 402-289-1888.

Existing and Reserved Equipment

This loading **is** included in the analysis.

Centerline Elevation (ft)		Qty.	Antenna	Mount Type	Coax (in)	Carrier
Mount	Equip.					
157.0	160.5	3	9442 RRH2x40-AWS	(1) Platform w/Double Rail	(4) 1 1/4" Hybrid (12) 1 5/8"	Verizon
		6	10"x7"x2" TMA			
	160.0	2	OVP Junction Box			
		3	RRH 4x30-4T4R-B25			
	159.5	6	4.5"x6"x1" TMA			
		6	BXA-171063-12CF-EDIN-2			
		6	LPA-80060/8CF-EDIN-4			
		3	BXA-70063-6CF-EDIN-5			
	157.5	1	RRFDC-3315-PF-48			
148.0	148.0	12	LGP21401*	-	(12) 1 1/4" (1) 3/8" Fiber (2) 7/8" DC (1) RET Cable	AT&T
		1	DC6-48-60-18*			
133.5	141.0	1	Camera	(1) Platform w/Rail	(4) 0.40" Black Cable (Exposed) (Stacked 1/1/2) (2) 7/8" (Exposed)	Cab A
	140.0	2	DB636-C			
	137.0	2	5"x4"x2.5" TMA			
		2	WB3221			
	136.0	1	WB2900D			
121.5	134.5	1	WB3222	(1) Platform w/Rail	(8) 1 5/8" (Exposed) (Stacked 2/6) (1) 1 1/4" Hybrid (Exposed) (1) 1.10" (Exposed)	T-Mobile
	126.0	1	6.5"x5"Ø Squid			
	124.5	3	4415 RRU			
		3	4449 RRU			
		3	AIR 6449			
	123.5	3	AIR 32 B2A/B66AA			
		3	APXVAALL24_43-U-NA20			
		3	8.5"x6.8"x3.3" TMA			
		3	5"x 7"x3" TMA			
83.5	86.5	1	GPS	(2) 1' Standoffs	-	-

* The existing equipment is considered repositioned/centered on the proposed mounts as shown in the loading table.

Equipment to be Removed

This loading **is not** included in the analysis.

Centerline Elevation (ft)		Qty.	Antenna	Mount Type	Coax (in)	Carrier
Mount	Equip.					
151.5	152	3	RRUS 11 B12	Pipe	-	AT&T
145.5	148.5	3	RRUS 12 B2	(1) Platform w/Rail		
		3	RRUS A2 Module			
		6	B9090416234			
	147.5	3	HPA-65R-BUU-H6			

Proposed Equipment

This loading is included in the analysis.

Centerline Elevation (ft)		Qty.	Antenna	Mount Type	Coax (in)	Carrier
Mount	Equip.					
148.0	148.0	3	TPA65R-BU6DA-K	(3) SitePro VFA14-H10- 2120 V-Frame Sector Mounts w/Monopole Adapter	(2) 18 Count Fiber Cables (4) 6 AWG DC Trunk	AT&T
		3	DMP65R-BU6DA			
		3	AIR 6449 B77D			
		3	AIR 6419 B77G			
		3	4478 B14 RRU			
		3	8843 B2/B66A RRU			
		3	4449 B5/B12 RRU			
		2	DC6-48-60-18			

Install proposed coax inside the pole shaft.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Shaft	60%	Pass
Anchor Bolts	54%	Pass
Baseplate	24%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	4,920.7	53%
Axial (Kips)	66.5	25%
Shear (Kips)	46.3	7%
Reinf. Conc. Fnd. Capacity	N/A	61%

The structure base reactions resulting from this analysis were found to be acceptable through analysis based on geotechnical and foundation information, therefore no modification or reinforcement of the foundation will be required.

Deflection and Sway*

Dish CL (ft)	Carrier	Dish	Deflection (in)	Twist (°)	Sway (Rotation) (°)
136.0	Cab A	WB2900D	12.379	0.003	0.894

*Deflection, Twist and Sway was evaluated considering a design wind speed of 60 mph (3-Second Gust) per ANSI/TIA-222-H



Standard Conditions

All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but is not necessary limited, to:

- Information supplied by the client regarding the structure itself, antenna, mounts and feed line loading on the structure and its components, or other relevant information.

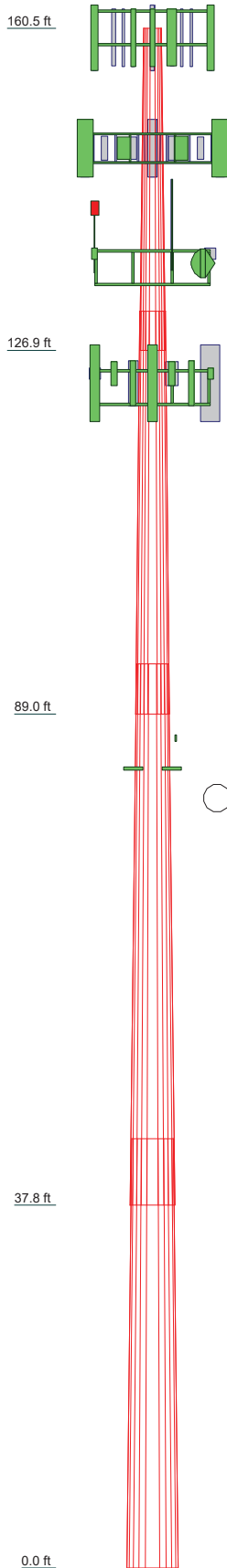
- Information from drawings in the possession of Semaan Engineering Solutions, or generated by field inspections or measurements of the structure.

It is the responsibility of the client to ensure that the information provided to Semaan Engineering Solutions Holdings and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and that their capacity has not significantly changed from the "as new" condition.

Unless explicitly agreed by both the client and Semaan Engineering Solutions, all services will be performed in accordance with the current revision of ANSI/TIA -222. The design basic wind speed will be determined based on the minimum basic wind speed as prescribed in ANSI/TIA-222. Although every effort is taken to ensure that the loading considered is adequate to meet the requirements of all applicable regulatory entities, we can provide no assurance to meet any other local and state codes or requirements. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. Semaan Engineering Solutions Holdings is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

Section	4	3	2	1
Length (ft)	44.75	56.42	42.00	33.58
Number of Sides	12	12	12	12
Thickness (in)	0.5000	0.4375	0.3438	0.2188
Socket Length (ft)		6.92	5.25	4.08
Top Dia (in)	52.6198	39.9669	31.1170	21.5000
Bot Dia (in)	64.9352	55.3859	42.0169	32.9451
Grade		A572-65		
Weight (K)	14.3	12.8	5.7	2.2



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
12' Platform w/Double Rail (Verizon)	157	AIR 6449 B77D w/10' Mount Pipe (ATT)	148
LPA-80060/8CF-EDIN-4 w/10' Mount Pipe (Verizon)	157	AIR 6449 B77D w/10' Mount Pipe (ATT)	148
LPA-80060/8CF-EDIN-4 w/10' Mount Pipe (Verizon)	157	AIR 6449 B77D w/10' Mount Pipe (ATT)	148
LPA-80060/8CF-EDIN-4 w/10' Mount Pipe (Verizon)	157	DMP65R-BU6DA w/10' Mount Pipe (ATT)	148
BXA-171063-12CF-EDIN-2 w/10' Mount Pipe (Verizon)	157	DMP65R-BU6DA w/10' Mount Pipe (ATT)	148
BXA-171063-12CF-EDIN-2 w/10' Mount Pipe (Verizon)	157	DMP65R-BU6DA w/10' Mount Pipe (ATT)	148
BXA-171063-12CF-EDIN-2 w/10' Mount Pipe (Verizon)	157	(4) Powerwave LGP21401 (ATT)	148
BXA-171063-12CF-EDIN-2 w/6' Mount Pipe (Verizon)	157	(4) Powerwave LGP21401 (ATT)	148
BXA-171063-12CF-EDIN-2 w/6' Mount Pipe (Verizon)	157	(4) Powerwave LGP21401 (ATT)	148
BXA-171063-12CF-EDIN-2 w/6' Mount Pipe (Verizon)	157	4478 B14 RRU (ATT)	148
BXA-171063-12CF-EDIN-2 w/6' Mount Pipe (Verizon)	157	4478 B14 RRU (ATT)	148
BXA-70063-6CF-EDIN-5 w/10' Mount Pipe (Verizon)	157	8843 B2/B66A RRU (ATT)	148
BXA-70063-6CF-EDIN-5 w/10' Mount Pipe (Verizon)	157	8843 B2/B66A RRU (ATT)	148
BXA-70063-6CF-EDIN-5 w/10' Mount Pipe (Verizon)	157	8843 B2/B66A RRU (ATT)	148
BXA-70063-6CF-EDIN-5 w/10' Mount Pipe (Verizon)	157	4449 B5/B12 RRU (ATT)	148
BXA-70063-6CF-EDIN-5 w/10' Mount Pipe (Verizon)	157	4449 B5/B12 RRU (ATT)	148
LPA-80060/8CF-EDIN-4 w/10' Mount Pipe (Verizon)	157	4449 B5/B12 RRU (ATT)	148
LPA-80060/8CF-EDIN-4 w/10' Mount Pipe (Verizon)	157	DC6-48-60-18 (ATT)	148
LPA-80060/8CF-EDIN-4 w/10' Mount Pipe (Verizon)	157	DC6-48-60-18 (ATT)	148
LPA-80060/8CF-EDIN-4 w/10' Mount Pipe (Verizon)	157	8"x2" Pipe Mount (ATT)	148
Extra 4' Mount Pipe (Verizon)	157	8"x2" Pipe Mount (ATT)	148
Extra 4' Mount Pipe (Verizon)	157	8"x2" Pipe Mount (ATT)	148
Extra 4' Mount Pipe (Verizon)	157	12' Platform w/ Rail (Cab A)	133.5
Extra 4' Mount Pipe (Verizon)	157	6"x2" Pipe Mount (Cab A)	133.5
Extra 4' Mount Pipe (Verizon)	157	Camera (Cab A)	133.5
Extra 4' Mount Pipe (Verizon)	157	WB3221 w/4' Mount Pipe (Cab A)	133.5
Extra 4' Mount Pipe (Verizon)	157	WB3221 w/4' Mount Pipe (Cab A)	133.5
Extra 4' Mount Pipe (Verizon)	157	5" x 4" x 2.5" TMA (Cab A)	133.5
Extra 4' Mount Pipe (Verizon)	157	5" x 4" x 2.5" TMA (Cab A)	133.5
Extra 4' Mount Pipe (Verizon)	157	WB3222 (Cab A)	133.5
Extra 4' Mount Pipe (Verizon)	157	DB636-C (Cab A)	133.5
Extra 4' Mount Pipe (Verizon)	157	DB636-C (Cab A)	133.5
Extra 4' Mount Pipe (Verizon)	157	4"x2" Pipe Mount (Cab A)	133.5
4.5" x 6" x 1" TMA (Verizon)	157	4"x2" Pipe Mount (Cab A)	133.5
4.5" x 6" x 1" TMA (Verizon)	157	4"x2" Pipe Mount (Cab A)	133.5
4.5" x 6" x 1" TMA (Verizon)	157	4"x2" Pipe Mount (Cab A)	133.5
4.5" x 6" x 1" TMA (Verizon)	157	4"x2" Pipe Mount (Cab A)	133.5
4.5" x 6" x 1" TMA (Verizon)	157	4"x2" Pipe Mount (Cab A)	133.5
4.5" x 6" x 1" TMA (Verizon)	157	4"x2" Pipe Mount (Cab A)	133.5
(2) 10"x7"x2" TMA (Verizon)	157	4"x2" Pipe Mount (Cab A)	133.5
(2) 10"x7"x2" TMA (Verizon)	157	4"x2" Pipe Mount (Cab A)	133.5
(2) 10"x7"x2" TMA (Verizon)	157	WB2900D (Cab A)	133.5
9442 RRH2x40-AWS (Verizon)	157	APXVAALL24 43-U-NA20 w/4' Mount Pipe (T-Mobile)	121.5
9442 RRH2x40-AWS (Verizon)	157	APXVAALL24 43-U-NA20 w/4' Mount Pipe (T-Mobile)	121.5
RRH 4x30-4T4R-B25 (Verizon)	157	APXVAALL24 43-U-NA20 w/4' Mount Pipe (T-Mobile)	121.5
RRH 4x30-4T4R-B25 (Verizon)	157	APXVAALL24 43-U-NA20 w/4' Mount Pipe (T-Mobile)	121.5
RRH 4x30-4T4R-B25 (Verizon)	157	AIR 6449 w/4' Mount Pipe (T-Mobile)	121.5
RRFDC-3315-PF-48 w/4' Mount Pipe (Verizon)	157	AIR 6449 w/4' Mount Pipe (T-Mobile)	121.5
OVP Junction Box w/4' Mount Pipe (Verizon)	157	AIR 6449 w/4' Mount Pipe (T-Mobile)	121.5
OVP Junction Box w/4' Mount Pipe (Verizon)	157	AIR 32 B2A/B66AA w/4' Mount Pipe (T-Mobile)	121.5
SitePro1 MSFAA Adapter (ATT)	148	AIR 32 B2A/B66AA w/4' Mount Pipe (T-Mobile)	121.5
SitePro1 VFA14-HD Sector Frame w/o Mount Pipe (SES) (ATT)	148	AIR 32 B2A/B66AA w/4' Mount Pipe (T-Mobile)	121.5
SitePro1 VFA14-HD Sector Frame w/o Mount Pipe (SES) (ATT)	148	4449 RRU w/4' Mount Pipe (T-Mobile)	121.5
SitePro1 VFA14-HD Sector Frame w/o Mount Pipe (SES) (ATT)	148	4449 RRU w/4' Mount Pipe (T-Mobile)	121.5
TPA65R-BU6DA-K w/10' Mount Pipe (ATT)	148	4415 RRU (T-Mobile)	121.5
TPA65R-BU6DA-K w/10' Mount Pipe (ATT)	148	4415 RRU (T-Mobile)	121.5
TPA65R-BU6DA-K w/10' Mount Pipe (ATT)	148	4415 RRU (T-Mobile)	121.5
AIR 6419 B77G w/10' Mount Pipe (ATT)	148	8.5" x 6.8" x 3.3" TMA (T-Mobile)	121.5
AIR 6419 B77G w/10' Mount Pipe (ATT)	148	8.5" x 6.8" x 3.3" TMA (T-Mobile)	121.5
AIR 6419 B77G w/10' Mount Pipe (ATT)	148	8.5" x 6.8" x 3.3" TMA (T-Mobile)	121.5
		5" x 7" x 3" TMA (T-Mobile)	121.5
		5" x 7" x 3" TMA (T-Mobile)	121.5
		5" x 7" x 3" TMA (T-Mobile)	121.5
		12' Platform w/ Rail (T-Mobile)	121.5
		1' Standoff (-)	83.5



Semaan Engineering Solutions

1047 N 205th Street

Elkhorn, NE 68022

Phone: 402.289.1888

FAX:

Job: 29173 Orange 1

Project: **REV01**

Client: KGI

Drawn by: NathanW

App'd: _____

Code: TIA-222-H

Date: 08/26/22

Scale: NTS

Path:	\\DMZSESSERVER01\Common\TNX files\29173\29173_REV01\29173_REV01.er
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Dwg No. E-1

Section	1	2	3	4	
Length (ft)	33.58	42.00	56.42	44.75	
Number of Sides	12	12	12	12	
Thickness (in)	0.2188	0.3438	0.4375	0.5000	
Socket Length (ft)	4.08	5.25	6.92	52.6198	
Top Dia (in)	21.5000	31.1170	39.9669	64.9352	
Bot Dia (in)	32.9451	42.0169	55.3859		
Grade	A572-65				
Weight (K)	2.2	5.7	12.8	14.3	35.0

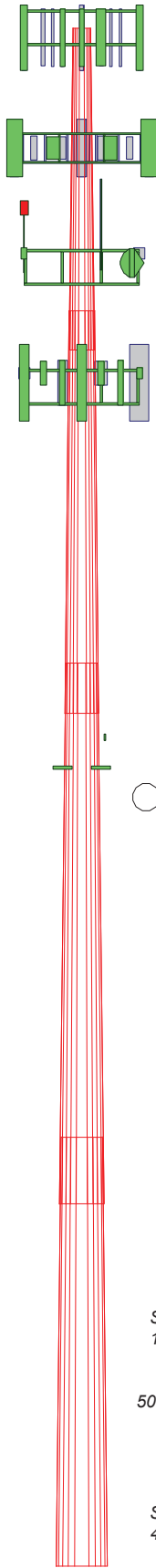
160.5 ft

126.9 ft

89.0 ft

37.8 ft

0.0 ft



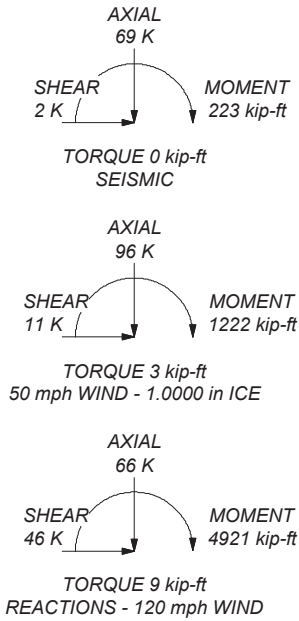
MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 120 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. Leg A azimuth is 0° from North.
9. CCISeismic Note: Seismic loads generated by CCISeismic 3.3.6
10. CCISeismic Note: Seismic calculations are in accordance with TIA-222-H-1
11. TOWER RATING: 60%

ALL REACTIONS
ARE FACTORED



Semaan Engineering Solutions

1047 N 205th Street
Elkhorn, NE 68022
Phone: 402.289.1888
FAX:

Job: **29173_Orange 1**

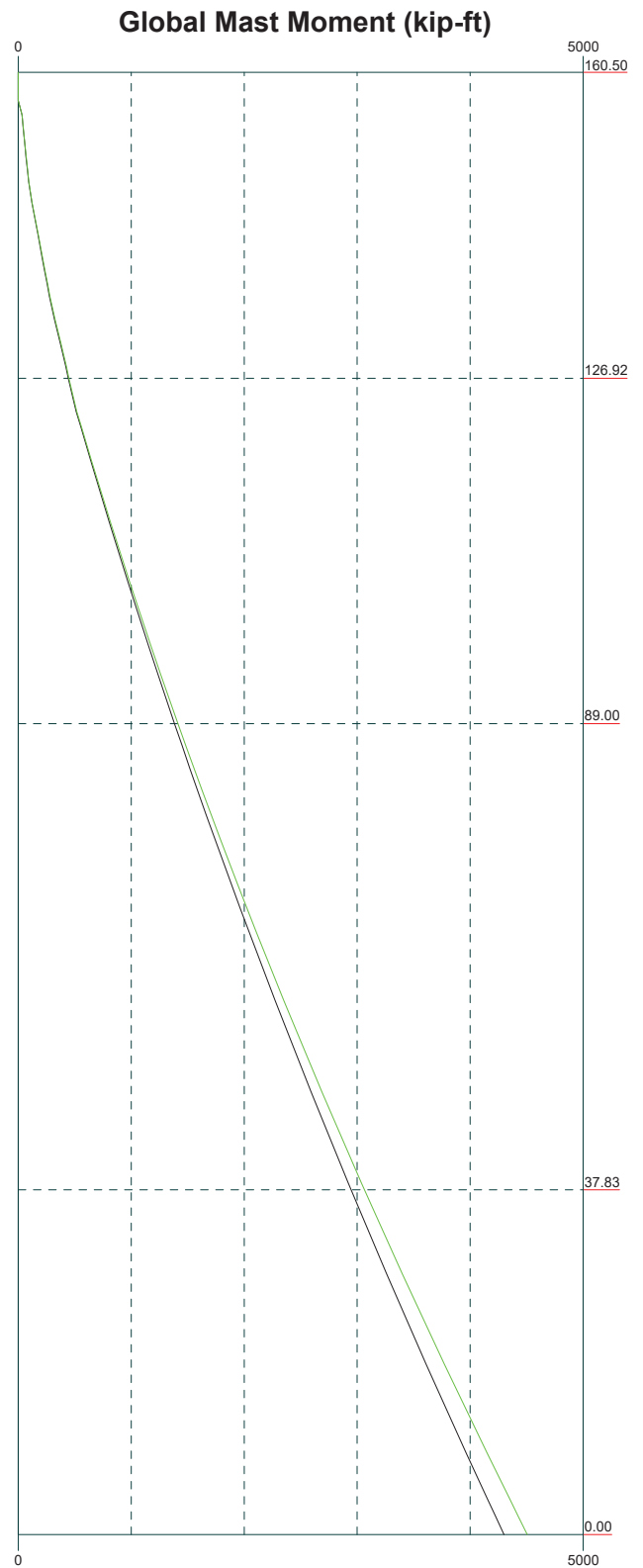
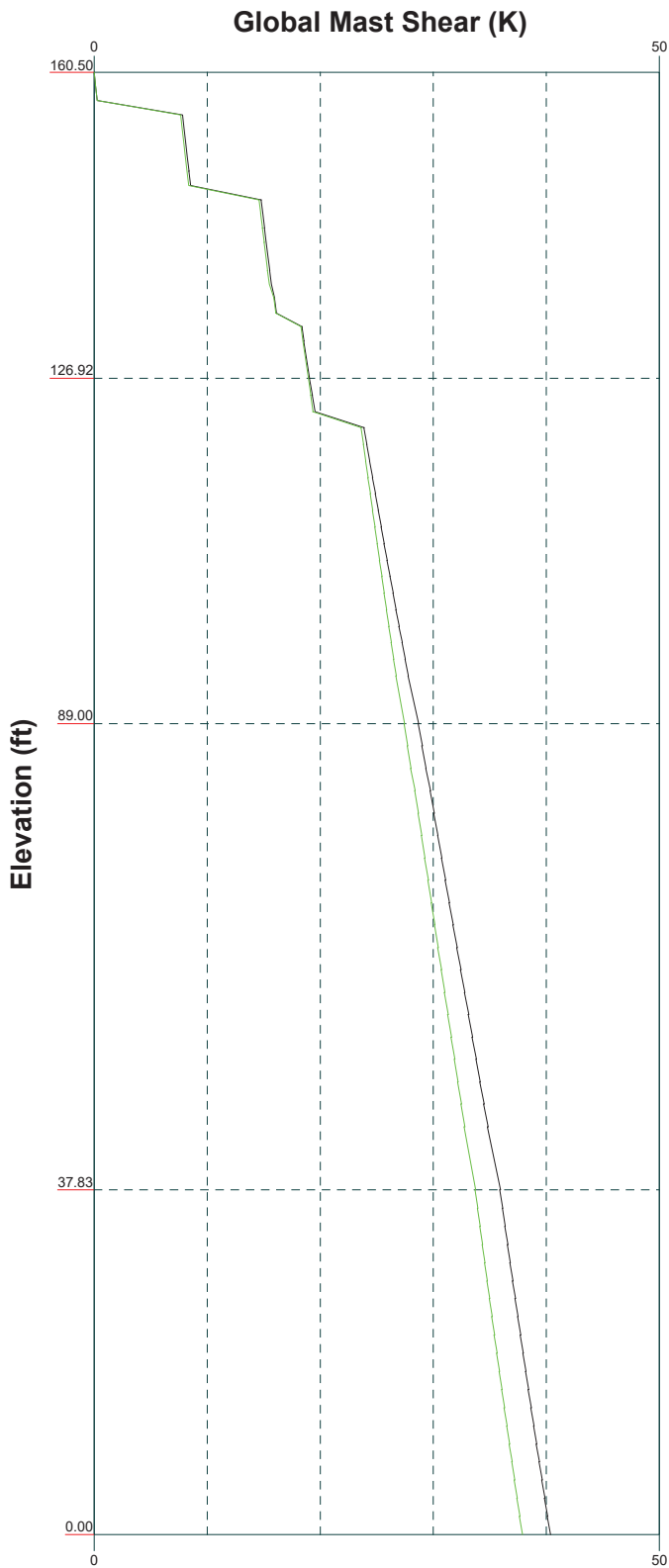
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Client: KGI	Date: 08/26/22	Scale: NTS
Code: TIA-222-H	Path: \\DMZSESSERVER01\Common\TNX files\29173\29173_REV01\29173_REV01.dwg	Dwg No. E-1

Vx

Vz

Mx

Mz



Semaan Engineering Solutions

1047 N 205th Street

Elkhorn, NE 68022

Phone: 402.289.1888

FAX:

Job: **29173_Orange 1**

Project: **REV01**

Client: KGI

Drawn by: NathanW

App'd:

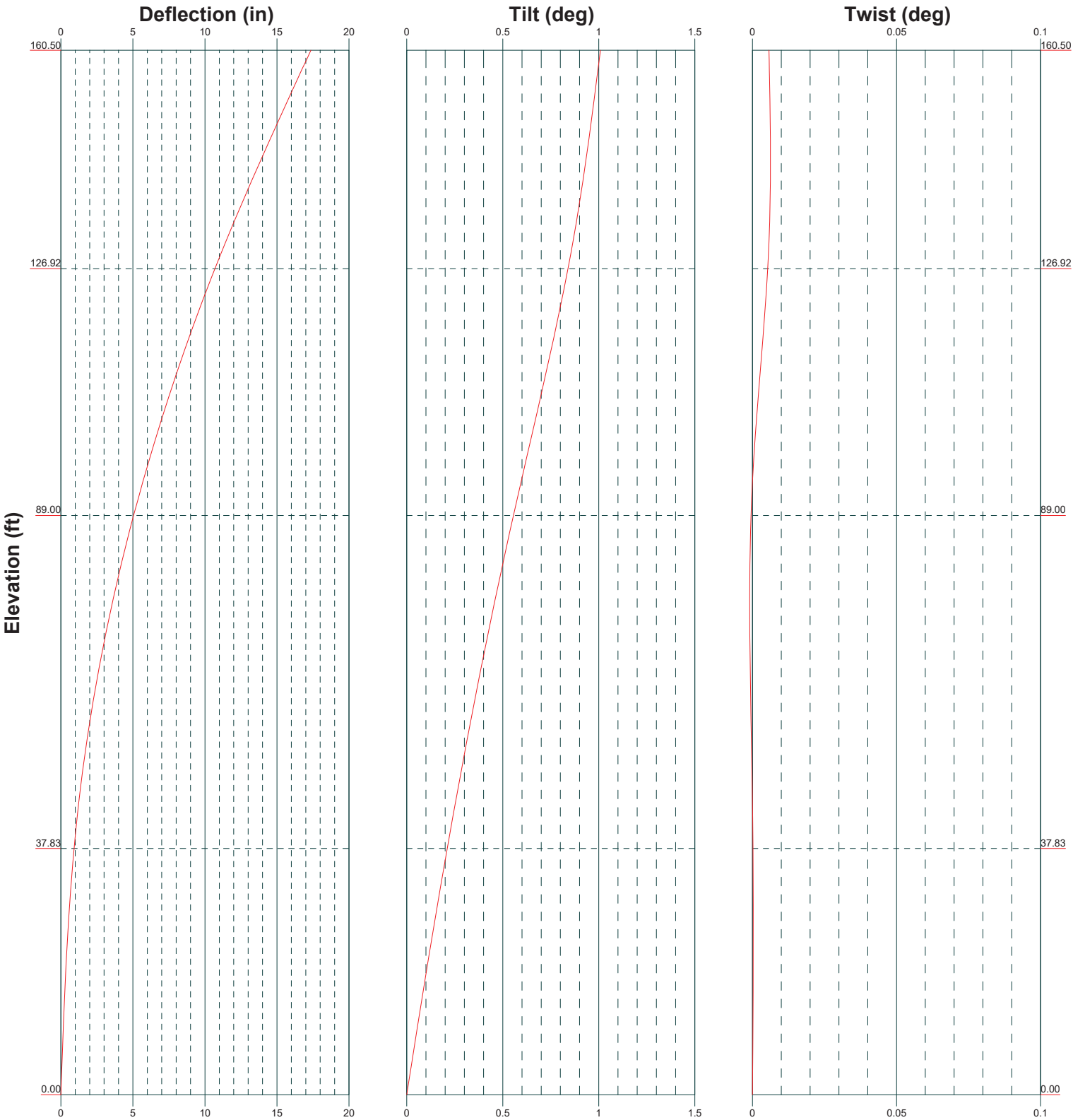
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Date: 08/26/22

Scale: NTS

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Dwg No. E-4



Semaan Engineering Solutions

1047 N 205th Street

Elkhorn, NE 68022

Phone: 402.289.1888

FAX:

Job: **29173_Orange 1**

Project: **REV01**

Client: KGI

Drawn by: NathanW

App'd:

Code: TIA-222-H

Date: 08/26/22

Scale: NTS

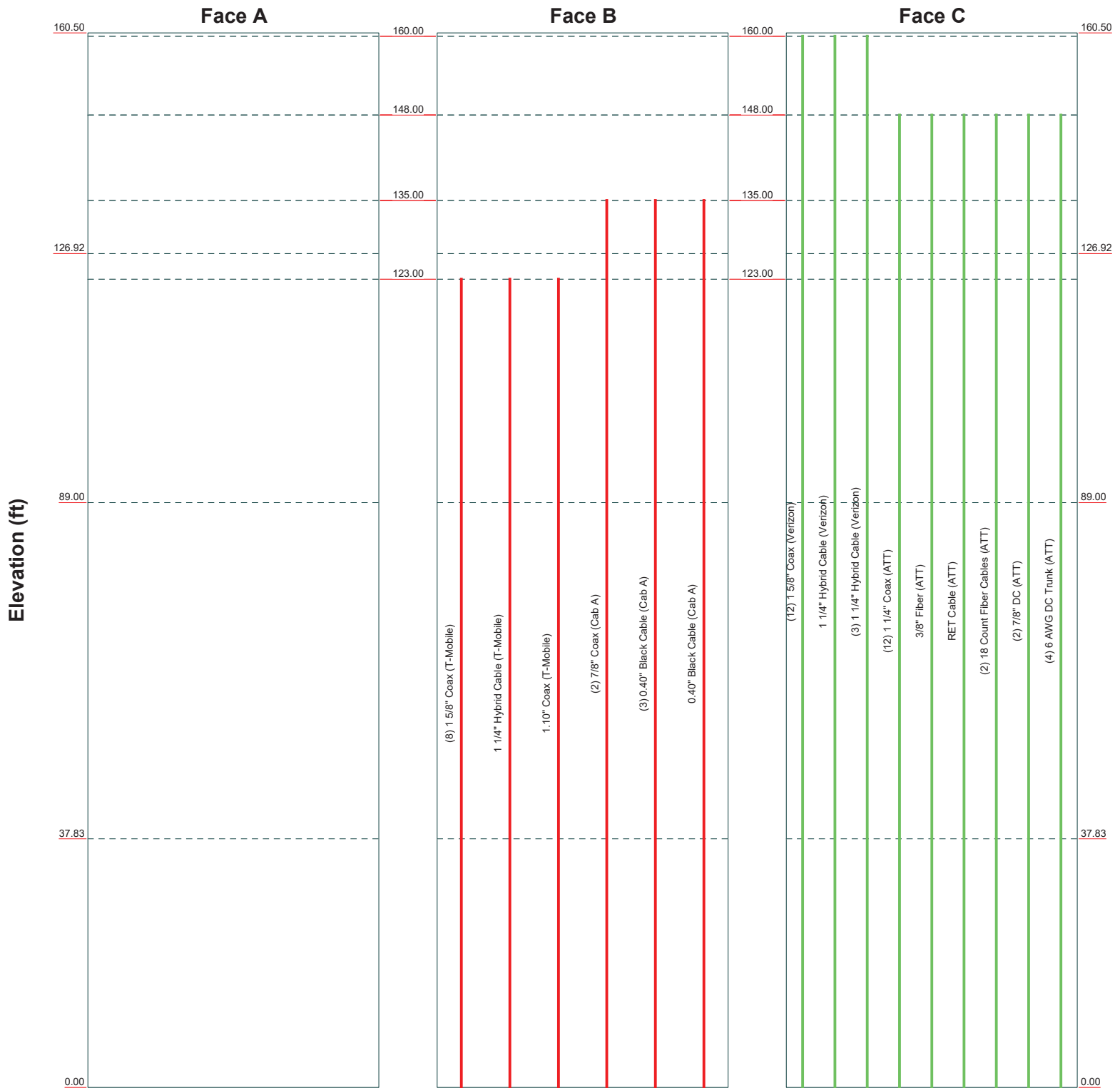
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Dwg No. E-5

Feed Line Distribution Chart

0' - 160'6"

Round Flat App In Face App Out Face Truss Leg



Semaan Engineering Solutions

1047 N 205th Street

Elkhorn, NE 68022

Phone: 402.289.1888

FAX:

Job: **29173_Orange 1**

Project: **REV01**

Client: KGI

Drawn by: NathanW

App'd:

Code: TIA-222-H

Date: 08/26/22

Scale: NTS

Path:

\\DMZSESSERVER01\\Common\\TNX files\\29173\\29173_REV01\\29173_REV01.dwg

Dwg No. E-7

tnxTower Semaan Engineering Solutions 1047 N 205th Street Elkhorn, NE 68022 Phone: 402.289.1888 FAX:	Job 29173_Orange 1	Page 1 of 44
	Project REV01	Date 08:20:57 08/26/22
	Client KGI	Designed by NathanW

Tower Input Data

The tower is a monopole.

This tower is designed using the TIA-222-H standard.

The following design criteria apply:

Tower is located in New Haven County, Connecticut.

Tower base elevation above sea level: 175.28 ft.

Basic wind speed of 120 mph.

Risk Category II.

Exposure Category B.

Simplified Topographic Factor Procedure for wind speed-up calculations is used.

Topographic Category: 1.

Crest Height: 0.00 ft.

Nominal ice thickness of 1.0000 in.

Ice thickness is considered to increase with height.

Ice density of 56 pcf.

A wind speed of 50 mph is used in combination with ice.

Temperature drop of 50 °F.

Deflections calculated using a wind speed of 60 mph.

Leg A azimuth is 0° from North..

CCISismic Note: Seismic loads generated by CCISismic 3.3.6.

CCISismic Note: Seismic calculations are in accordance with TIA-222-H-1.

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-H Bracing Resist. Exemption
Include Bolts In Member Capacity	Autocalc Torque Arm Areas	Use TIA-222-H 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

tnxTower Semaan Engineering Solutions 1047 N 205th Street Elkhorn, NE 68022 Phone: 402.289.1888 FAX:	Job	29173_Orange 1	Page	2 of 44
	Project	REV01	Date	08:20:57 08/26/22
	Client	KGI	Designed by	NathanW

Tapered Pole Section Geometry

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
L1	160.50-126.92	33.58	4.08	12	21.5000	32.9451	0.2188	0.8750	A572-65 (65 ksi)
L2	126.92-89.00	42.00	5.25	12	31.1170	42.0169	0.3438	1.3750	A572-65 (65 ksi)
L3	89.00-37.83	56.42	6.92	12	39.9669	55.3859	0.4375	1.7500	A572-65 (65 ksi)
L4	37.83-0.00	44.75		12	52.6198	64.9352	0.5000	2.0000	A572-65 (65 ksi)

Tapered Pole Properties

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
L1	22.1813	14.9900	866.5254	7.6187	11.1370	77.8060	1755.8153	7.3776	5.1757	23.661
	34.0301	23.0516	3151.2403	11.7160	17.0655	184.6551	6385.2672	11.3453	8.2430	37.682
L2	33.1896	34.0621	4117.2196	11.0168	16.1186	255.4328	8342.6031	16.7643	7.4181	21.58
	43.3778	46.1270	10224.7729	14.9190	21.7648	469.7858	20718.1621	22.7023	10.3393	30.078
L3	42.7078	55.6871	11106.5977	14.1515	20.7029	536.4764	22504.9781	27.4075	9.5386	21.803
	57.1854	77.4086	29832.2154	19.6715	28.6899	1039.8157	60448.1564	38.0982	13.6709	31.248
L4	56.2712	83.9128	29095.0376	18.6589	27.2570	1067.4323	58954.4342	41.2993	12.7621	25.524
	67.0495	103.7407	54977.0855	23.0678	33.6364	1634.4501	111398.480	51.0580	16.0626	32.125

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A _f	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals	Double Angle Stitch Bolt Spacing Redundants
ft	ft ²	in					in	in	in
L1 160.50-126.92				1	1	1			
L2 126.92-89.00				1	1	1			
L3 89.00-37.83				1	1	1			
L4 37.83-0.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

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
*										
1 5/8" Coax (T-Mobile)	B	No	Surface Ar (CaAa)	123.00 - 0.00	8	6	-0.290 -0.210	1.9800		1.04
1 1/4" Hybrid Cable (T-Mobile)	B	No	Surface Ar (CaAa)	123.00 - 0.00	1	1	-0.230 -0.220	1.2500		0.95
1.10" Coax (T-Mobile)	B	No	Surface Ar (CaAa)	123.00 - 0.00	1	1	-0.280 -0.270	1.1000		0.52
7/8" Coax	B	No	Surface Ar	135.00 -	2	2	-0.280	1.1100		0.52

tnxTower Semaan Engineering Solutions 1047 N 205th Street Elkhorn, NE 68022 Phone: 402.289.1888 FAX:	Job	29173_Orange 1	Page	3 of 44
	Project	REV01	Date	08:20:57 08/26/22
	Client	KGI	Designed by	NathanW

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
(Cab A)			(CaAa)	0.00			-0.270			
0.40" Black Cable (Cab A)	B	No	Surface Ar (CaAa)	135.00 - 0.00	3	2	-0.280	0.4000		0.11
0.40" Black Cable (Cab A)	B	No	Surface Ar (CaAa)	135.00 - 0.00	1	1	-0.280	0.4000		0.11
0.40" Black Cable (Cab A)			(CaAa)	0.00			-0.270			

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C _A A _A ft ² /ft	Weight plf
1 5/8" Coax (Verizon)	C	No	No	Inside Pole	160.00 - 0.00	12	No Ice	0.00	1.04
							1/2" Ice	0.00	1.04
							1" Ice	0.00	1.04
1 1/4" Hybrid Cable (Verizon)	C	No	No	Inside Pole	160.00 - 0.00	1	No Ice	0.00	0.95
							1/2" Ice	0.00	0.95
							1" Ice	0.00	0.95
1 1/4" Hybrid Cable (Verizon)	C	No	No	Inside Pole	160.00 - 0.00	3	No Ice	0.00	0.95
							1/2" Ice	0.00	0.95
							1" Ice	0.00	0.95
*									
1 1/4" Coax (ATT)	C	No	No	Inside Pole	148.00 - 0.00	12	No Ice	0.00	0.66
							1/2" Ice	0.00	0.66
							1" Ice	0.00	0.66
3/8" Fiber (ATT)	C	No	No	Inside Pole	148.00 - 0.00	1	No Ice	0.00	0.06
							1/2" Ice	0.00	0.06
							1" Ice	0.00	0.06
RET Cable (ATT)	C	No	No	Inside Pole	148.00 - 0.00	1	No Ice	0.00	0.08
							1/2" Ice	0.00	0.08
							1" Ice	0.00	0.08
18 Count Fiber Cables (ATT)	C	No	No	Inside Pole	148.00 - 0.00	2	No Ice	0.00	0.95
							1/2" Ice	0.00	0.95
							1" Ice	0.00	0.95
7/8" DC (ATT)	C	No	No	Inside Pole	148.00 - 0.00	2	No Ice	0.00	0.70
							1/2" Ice	0.00	0.70
							1" Ice	0.00	0.70
6 AWG DC Trunk (ATT)	C	No	No	Inside Pole	148.00 - 0.00	4	No Ice	0.00	1.55
							1/2" Ice	0.00	1.55
							1" Ice	0.00	1.55

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
L1	160.50-126.92	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	2.763	0.000	0.01
		C	0.000	0.000	0.000	0.000	0.91
L2	126.92-89.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	61.351	0.000	0.39

tnxTower Semaan Engineering Solutions 1047 N 205th Street Elkhorn, NE 68022 Phone: 402.289.1888 FAX:	Job	29173_Orange 1	Page	4 of 44
	Project	REV01	Date	08:20:57 08/26/22
	Client	KGI	Designed by	NathanW

Tower Section	Tower Elevation ft	Face	A_R ft ²	A_F ft ²	$C_A A_A$ In Face ft ²	$C_A A_A$ Out Face ft ²	Weight K
L3	89.00-37.83	C	0.000	0.000	0.000	0.000	1.28
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	90.315	0.000	0.58
L4	37.83-0.00	C	0.000	0.000	0.000	0.000	1.73
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	66.770	0.000	0.43
		C	0.000	0.000	0.000	0.000	1.28

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	$C_A A_A$ In Face ft ²	$C_A A_A$ Out Face ft ²	Weight K
L1	160.50-126.92	A	1.158	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	9.921	0.000	0.10
		C		0.000	0.000	0.000	0.000	0.91
L2	126.92-89.00	A	1.125	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	130.625	0.000	1.71
		C		0.000	0.000	0.000	0.000	1.28
L3	89.00-37.83	A	1.067	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	187.104	0.000	2.44
		C		0.000	0.000	0.000	0.000	1.73
L4	37.83-0.00	A	0.943	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	135.337	0.000	1.73
		C		0.000	0.000	0.000	0.000	1.28

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	160.50-126.92	0.3307	-0.6491	0.8037	-1.5773
L2	126.92-89.00	3.7222	-6.6187	4.2576	-7.7212
L3	89.00-37.83	4.1267	-7.3204	4.8521	-8.7665
L4	37.83-0.00	4.2905	-7.6093	5.1917	-9.3711

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

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	15	7/8" Coax	126.92 - 135.00	1.0000	1.0000
L1	16	0.40" Black Cable	126.92 - 135.00	1.0000	1.0000
L1	17	0.40" Black Cable	126.92 -	1.0000	1.0000

tnxTower Semaan Engineering Solutions 1047 N 205th Street Elkhorn, NE 68022 Phone: 402.289.1888 FAX:	Job	29173_Orange 1	Page	5 of 44
	Project	REV01	Date	08:20:57 08/26/22
	Client	KGI	Designed by	NathanW

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
			135.00		
L2	12	1 5/8" Coax	89.00 - 123.00	1.0000	1.0000
L2	13	1 1/4" Hybrid Cable	89.00 - 123.00	1.0000	1.0000
L2	14	1.10" Coax	89.00 - 123.00	1.0000	1.0000
L2	15	7/8" Coax	89.00 - 126.92	1.0000	1.0000
L2	16	0.40" Black Cable	89.00 - 126.92	1.0000	1.0000
L2	17	0.40" Black Cable	89.00 - 126.92	1.0000	1.0000
L3	12	1 5/8" Coax	37.83 - 89.00	1.0000	1.0000
L3	13	1 1/4" Hybrid Cable	37.83 - 89.00	1.0000	1.0000
L3	14	1.10" Coax	37.83 - 89.00	1.0000	1.0000
L3	15	7/8" Coax	37.83 - 89.00	1.0000	1.0000
L3	16	0.40" Black Cable	37.83 - 89.00	1.0000	1.0000
L3	17	0.40" Black Cable	37.83 - 89.00	1.0000	1.0000
L4	12	1 5/8" Coax	0.00 - 37.83	1.0000	1.0000
L4	13	1 1/4" Hybrid Cable	0.00 - 37.83	1.0000	1.0000
L4	14	1.10" Coax	0.00 - 37.83	1.0000	1.0000
L4	15	7/8" Coax	0.00 - 37.83	1.0000	1.0000
L4	16	0.40" Black Cable	0.00 - 37.83	1.0000	1.0000
L4	17	0.40" Black Cable	0.00 - 37.83	1.0000	1.0000

User Defined Loads - Seismic

Description	Elevation	Offset From Centroid	Azimuth Angle	E_v	E_{hx}	E_{hz}	E_h
	ft	ft	°	K	K	K	K
CCISeismic Tower Section 1 - 1	158.71	0.00	0.0000	0.01	0.00	0.00	0.02
CCISeismic Tower Section 1 - 2	151.92	0.00	0.0000	0.02	0.00	0.00	0.04
CCISeismic Tower Section 1 - 3	141.92	0.00	0.0000	0.03	0.00	0.00	0.04
CCISeismic Tower Section 1 - 4	131.92	0.00	0.0000	0.03	0.00	0.00	0.04
CCISeismic Tower Section 2 - 1	130.00	0.00	0.0000	0.01	0.00	0.00	0.01
CCISeismic Tower Section 2 - 2	124.00	0.00	0.0000	0.05	0.00	0.00	0.06
CCISeismic Tower Section 2 - 3	114.00	0.00	0.0000	0.06	0.00	0.00	0.06
CCISeismic Tower Section 2 - 4	104.00	0.00	0.0000	0.06	0.00	0.00	0.05
CCISeismic Tower Section 2 - 5	94.00	0.00	0.0000	0.07	0.00	0.00	0.04
CCISeismic Tower Section 3 - 1	91.04	0.00	0.0000	0.05	0.00	0.00	0.03
CCISeismic Tower Section 3 - 2	82.83	0.00	0.0000	0.09	0.00	0.00	0.05
CCISeismic Tower Section 3 - 3	72.83	0.00	0.0000	0.09	0.00	0.00	0.04
CCISeismic Tower Section 3 - 4	62.83	0.00	0.0000	0.10	0.00	0.00	0.03
CCISeismic Tower Section 3 - 5	52.83	0.00	0.0000	0.10	0.00	0.00	0.02
CCISeismic Tower Section 3 - 6	42.83	0.00	0.0000	0.11	0.00	0.00	0.02
CCISeismic Tower Section 4 - 1	42.38	0.00	0.0000	0.06	0.00	0.00	0.01
CCISeismic Tower Section 4 - 2	35.00	0.00	0.0000	0.13	0.00	0.00	0.01
CCISeismic Tower Section 4 - 3	25.00	0.00	0.0000	0.14	0.00	0.00	0.01
CCISeismic Tower Section 4 - 4	15.00	0.00	0.0000	0.14	0.00	0.00	0.00
CCISeismic Tower Section 4 - 5	5.00	0.00	0.0000	0.15	0.00	0.00	0.00
CCISeismic 12' Platform w/Double Rail	157.00	0.00	0.0000	0.06	0.00	0.00	0.12
CCISeismic antel	157.00	0.00	0.0000	0.00	0.00	0.00	0.01
LPA-80060/8CF-EDIN-4 w/10' Mount Pipe							
CCISeismic antel	157.00	0.00	0.0000	0.00	0.00	0.00	0.01
LPA-80060/8CF-EDIN-4 w/10' Mount Pipe							
CCISeismic antel	157.00	0.00	0.0000	0.00	0.00	0.00	0.01

<i>tnxTower</i> <i>Semaan Engineering Solutions</i> 1047 N 205th Street Elkhorn, NE 68022 Phone: 402.289.1888 FAX:	Job	29173_Orange 1	Page	7 of 44
	Project	REV01	Date	08:20:57 08/26/22
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<i>Description</i>	<i>Elevation</i>	<i>Offset From Centroid</i>	<i>Azimuth Angle</i>	<i>E_v</i>	<i>E_{hx}</i>	<i>E_{hz}</i>	<i>E_h</i>
	<i>ft</i>	<i>ft</i>	<i>°</i>	<i>K</i>	<i>K</i>	<i>K</i>	<i>K</i>
CCISeismic tower mounts Extra 4' Mount Pipe	157.00	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic 4.5" x 6" x 1" TMA	157.00	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic 4.5" x 6" x 1" TMA	157.00	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic 4.5" x 6" x 1" TMA	157.00	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic 4.5" x 6" x 1" TMA	157.00	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic 4.5" x 6" x 1" TMA	157.00	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic 4.5" x 6" x 1" TMA	157.00	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (2) miscel 10"x7"x2" TMA	157.00	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (2) miscel 10"x7"x2" TMA	157.00	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (2) miscel 10"x7"x2" TMA	157.00	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic alcatel-lucent 9442 RRH2x40-AWS	157.00	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic alcatel-lucent 9442 RRH2x40-AWS	157.00	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic alcatel-lucent 9442 RRH2x40-AWS	157.00	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic semaan RRH 4x30-4T4R-B25	157.00	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic semaan RRH 4x30-4T4R-B25	157.00	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic semaan RRH 4x30-4T4R-B25	157.00	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic raycap	157.00	0.00	0.0000	0.00	0.00	0.00	0.00
RRFDC-3315-PF-48 w/4' Mount Pipe							
CCISeismic semaan OVP	157.00	0.00	0.0000	0.00	0.00	0.00	0.00
Junction Box w/4' Mount Pipe							
CCISeismic semaan OVP	157.00	0.00	0.0000	0.00	0.00	0.00	0.00
Junction Box w/4' Mount Pipe							
CCISeismic pole mounts	148.00	0.00	0.0000	0.03	0.00	0.00	0.06
SitePro1 MSFAA Adapter							
CCISeismic tower mounts	148.00	0.00	0.0000	0.03	0.00	0.00	0.05
SitePro1 VFA14-HD Sector							
Frame w/o Mount Pipe (SES)							
CCISeismic tower mounts	148.00	0.00	0.0000	0.03	0.00	0.00	0.05
SitePro1 VFA14-HD Sector							
Frame w/o Mount Pipe (SES)							
CCISeismic tower mounts	148.00	0.00	0.0000	0.03	0.00	0.00	0.05
SitePro1 VFA14-HD Sector							
Frame w/o Mount Pipe (SES)							
CCISeismic cci	148.00	0.00	0.0000	0.01	0.00	0.00	0.01
TPA65R-BU6DA-K w/10' Mount Pipe							
CCISeismic cci	148.00	0.00	0.0000	0.01	0.00	0.00	0.01
TPA65R-BU6DA-K w/10' Mount Pipe							
CCISeismic cci	148.00	0.00	0.0000	0.01	0.00	0.00	0.01
TPA65R-BU6DA-K w/10' Mount Pipe							
CCISeismic ericsson AIR 6419	148.00	0.00	0.0000	0.01	0.00	0.00	0.01

<i>tnxTower</i> <i>Semaan Engineering Solutions</i> 1047 N 205th Street Elkhorn, NE 68022 Phone: 402.289.1888 FAX:	Job	29173_Orange 1	Page	8 of 44
	Project	REV01	Date	08:20:57 08/26/22
	Client	KGI	Designed by	NathanW

<i>Description</i>	<i>Elevation</i>	<i>Offset From Centroid</i>	<i>Azimuth Angle</i>	<i>E_v</i>	<i>E_{hx}</i>	<i>E_{hz}</i>	<i>E_h</i>
	<i>ft</i>	<i>ft</i>	<i>°</i>	<i>K</i>	<i>K</i>	<i>K</i>	<i>K</i>
B77G w/10' Mount Pipe							
CCISeismic ericsson AIR 6419	148.00	0.00	0.0000	0.01	0.00	0.00	0.01
B77G w/10' Mount Pipe							
CCISeismic ericsson AIR 6419	148.00	0.00	0.0000	0.01	0.00	0.00	0.01
B77G w/10' Mount Pipe							
CCISeismic ericsson AIR 6449	148.00	0.00	0.0000	0.01	0.00	0.00	0.01
B77D w/10' Mount Pipe							
CCISeismic ericsson AIR 6449	148.00	0.00	0.0000	0.01	0.00	0.00	0.01
B77D w/10' Mount Pipe							
CCISeismic ericsson AIR 6449	148.00	0.00	0.0000	0.01	0.00	0.00	0.01
B77D w/10' Mount Pipe							
CCISeismic cci	148.00	0.00	0.0000	0.01	0.00	0.00	0.01
DMP65R-BU6DA w/10' Mount Pipe							
CCISeismic cci	148.00	0.00	0.0000	0.01	0.00	0.00	0.01
DMP65R-BU6DA w/10' Mount Pipe							
CCISeismic cci	148.00	0.00	0.0000	0.01	0.00	0.00	0.01
DMP65R-BU6DA w/10' Mount Pipe							
CCISeismic (4) semaan	148.00	0.00	0.0000	0.00	0.00	0.00	0.01
Powerwave LGP21401							
CCISeismic (4) semaan	148.00	0.00	0.0000	0.00	0.00	0.00	0.01
Powerwave LGP21401							
CCISeismic (4) semaan	148.00	0.00	0.0000	0.00	0.00	0.00	0.01
Powerwave LGP21401							
CCISeismic ericsson 4478 B14 RRU	148.00	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic ericsson 4478 B14 RRU	148.00	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic ericsson 4478 B14 RRU	148.00	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic ericsson 8843 B2/B66A RRU	148.00	0.00	0.0000	0.00	0.00	0.00	0.01
CCISeismic ericsson 8843 B2/B66A RRU	148.00	0.00	0.0000	0.00	0.00	0.00	0.01
CCISeismic ericsson 8843 B2/B66A RRU	148.00	0.00	0.0000	0.00	0.00	0.00	0.01
CCISeismic ericsson 4449 B5/B12 RRU	148.00	0.00	0.0000	0.00	0.00	0.00	0.01
CCISeismic ericsson 4449 B5/B12 RRU	148.00	0.00	0.0000	0.00	0.00	0.00	0.01
CCISeismic ericsson 4449 B5/B12 RRU	148.00	0.00	0.0000	0.00	0.00	0.00	0.01
CCISeismic raycap DC6-48-60-18	148.00	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic raycap DC6-48-60-18	148.00	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic raycap DC6-48-60-18	148.00	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic 8'x2" Pipe Mount	148.00	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic 8'x2" Pipe Mount	148.00	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic 8'x2" Pipe Mount	148.00	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic pole mounts 12' Platform w/ Rail	133.50	0.00	0.0000	0.06	0.00	0.00	0.09
CCISeismic tower mounts 6'x2" Pipe Mount	133.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic miscel Camera	133.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic cambium WB3221 w/4' Mount Pipe	133.50	0.00	0.0000	0.00	0.00	0.00	0.00

<i>tnxTower</i> <i>Semaan Engineering Solutions</i> 1047 N 205th Street Elkhorn, NE 68022 Phone: 402.289.1888 FAX:	Job	Page
	29173_Orange 1	9 of 44
	Project	Date
	REV01	08:20:57 08/26/22
	Client	Designed by
	KGI	NathanW

<i>Description</i>	<i>Elevation</i>	<i>Offset From Centroid</i>	<i>Azimuth Angle</i>	<i>E_v</i>	<i>E_{hx}</i>	<i>E_{hz}</i>	<i>E_h</i>
	<i>ft</i>	<i>ft</i>	<i>°</i>	<i>K</i>	<i>K</i>	<i>K</i>	<i>K</i>
CCISeismic cambium WB3221 w/4' Mount Pipe	133.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic 5" x 4" x 2.5" TMA	133.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic 5" x 4" x 2.5" TMA	133.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic cambium WB3222	133.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic decibel DB636-C	133.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic decibel DB636-C	133.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic tower mounts 4'x2" Pipe Mount	133.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic tower mounts 4'x2" Pipe Mount	133.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic tower mounts 4'x2" Pipe Mount	133.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic tower mounts 4'x2" Pipe Mount	133.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic tower mounts 4'x2" Pipe Mount	133.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic tower mounts 4'x2" Pipe Mount	133.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic tower mounts 4'x2" Pipe Mount	133.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic tower mounts 4'x2" Pipe Mount	133.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic tower mounts 4'x2" Pipe Mount	133.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic tower mounts 4'x2" Pipe Mount	133.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic pole mounts 12' Platform w/ Rail	121.50	0.00	0.0000	0.06	0.00	0.00	0.07
CCISeismic rfs	121.50	0.00	0.0000	0.00	0.00	0.00	0.00
APXVAALL24_43-U-NA20 w/4' Mount Pipe	121.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic rfs							
APXVAALL24_43-U-NA20 w/4' Mount Pipe	121.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic rfs							
APXVAALL24_43-U-NA20 w/4' Mount Pipe	121.50	0.00	0.0000	0.00	0.00	0.00	0.01
CCISeismic ericsson AIR 6449							
CCISeismic ericsson AIR 6449 w/4' Mount Pipe	121.50	0.00	0.0000	0.00	0.00	0.00	0.01
CCISeismic ericsson AIR 6449							
CCISeismic ericsson AIR 6449 w/4' Mount Pipe	121.50	0.00	0.0000	0.00	0.00	0.00	0.01
CCISeismic ericsson AIR 32							
B2A/B66AA w/4' Mount Pipe	121.50	0.00	0.0000	0.01	0.00	0.00	0.01
CCISeismic ericsson AIR 32							
B2A/B66AA w/4' Mount Pipe	121.50	0.00	0.0000	0.01	0.00	0.00	0.01
CCISeismic ericsson AIR 32							
B2A/B66AA w/4' Mount Pipe	121.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic ericsson 4449 RRU							
CCISeismic ericsson 4449 RRU w/4' Mount Pipe	121.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic ericsson 4449 RRU							
CCISeismic ericsson 4449 RRU w/4' Mount Pipe	121.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic ericsson 4415 RRU							
CCISeismic ericsson 4415 RRU	121.50	0.00	0.0000	0.00	0.00	0.00	0.00

<i>tnxTower</i> <i>Semaan Engineering Solutions</i> 1047 N 205th Street Elkhorn, NE 68022 Phone: 402.289.1888 FAX:	Job	29173_Orange 1	Page 10 of 44
	Project	REV01	Date 08:20:57 08/26/22
	Client	KGI	Designed by NathanW

<i>Description</i>	<i>Elevation</i>	<i>Offset From Centroid</i>	<i>Azimuth Angle</i>	<i>E_v</i>	<i>E_{hx}</i>	<i>E_{hz}</i>	<i>E_h</i>
	<i>ft</i>	<i>ft</i>	<i>°</i>	<i>K</i>	<i>K</i>	<i>K</i>	<i>K</i>
CCISeismic ericsson 4415 RRU	121.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic 6.5"x5"Ø Squid	121.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic 8.5" x 6.8" x 3.3" TMA	121.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic 8.5" x 6.8" x 3.3" TMA	121.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic 8.5" x 6.8" x 3.3" TMA	121.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic 5" x 7" x 3" TMA	121.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic 5" x 7" x 3" TMA	121.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic 5" x 7" x 3" TMA	121.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic 1' Standoff	83.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic 1' Standoff	83.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic general GPS	83.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic cambium WB2900D	133.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (12) general cable 1 5/8" Coax From 0 to 160 (150.5ft to 160ft)	155.25	0.00	0.0000	0.01	0.00	0.00	0.01
CCISeismic (12) general cable 1 5/8" Coax From 0 to 160 (140.5ft to 150.5ft)	145.50	0.00	0.0000	0.01	0.00	0.00	0.01
CCISeismic (12) general cable 1 5/8" Coax From 0 to 160 (130.5ft to 140.5ft)	135.50	0.00	0.0000	0.01	0.00	0.00	0.01
CCISeismic (12) general cable 1 5/8" Coax From 0 to 160 (120.5ft to 130.5ft)	125.50	0.00	0.0000	0.01	0.00	0.00	0.01
CCISeismic (12) general cable 1 5/8" Coax From 0 to 160 (110.5ft to 120.5ft)	115.50	0.00	0.0000	0.01	0.00	0.00	0.01
CCISeismic (12) general cable 1 5/8" Coax From 0 to 160 (100.5ft to 110.5ft)	105.50	0.00	0.0000	0.01	0.00	0.00	0.00
CCISeismic (12) general cable 1 5/8" Coax From 0 to 160 (90.5ft to 100.5ft)	95.50	0.00	0.0000	0.01	0.00	0.00	0.00
CCISeismic (12) general cable 1 5/8" Coax From 0 to 160 (80.5ft to 90.5ft)	85.50	0.00	0.0000	0.01	0.00	0.00	0.00
CCISeismic (12) general cable 1 5/8" Coax From 0 to 160 (70.5ft to 80.5ft)	75.50	0.00	0.0000	0.01	0.00	0.00	0.00
CCISeismic (12) general cable 1 5/8" Coax From 0 to 160 (60.5ft to 70.5ft)	65.50	0.00	0.0000	0.01	0.00	0.00	0.00
CCISeismic (12) general cable 1 5/8" Coax From 0 to 160 (50.5ft to 60.5ft)	55.50	0.00	0.0000	0.01	0.00	0.00	0.00
CCISeismic (12) general cable 1 5/8" Coax From 0 to 160 (40.5ft to 50.5ft)	45.50	0.00	0.0000	0.01	0.00	0.00	0.00
CCISeismic (12) general cable 1 5/8" Coax From 0 to 160 (30.5ft to 40.5ft)	35.50	0.00	0.0000	0.01	0.00	0.00	0.00
CCISeismic (12) general cable 1 5/8" Coax From 0 to 160 (20.5ft to 30.5ft)	25.50	0.00	0.0000	0.01	0.00	0.00	0.00
CCISeismic (12) general cable 1 5/8" Coax From 0 to 160 (10.5ft to 20.5ft)	15.50	0.00	0.0000	0.01	0.00	0.00	0.00

<i>tnxTower</i> <i>Semaan Engineering Solutions</i> 1047 N 205th Street Elkhorn, NE 68022 Phone: 402.289.1888 FAX:	Job	Page
	29173_Orange 1	11 of 44
	Project	Date
	REV01	08:20:57 08/26/22
	Client	Designed by
	KGI	NathanW

<i>Description</i>	<i>Elevation</i>	<i>Offset From Centroid</i>	<i>Azimuth Angle</i>	<i>E_v</i>	<i>E_{hx}</i>	<i>E_{hz}</i>	<i>E_h</i>
	<i>ft</i>	<i>ft</i>	<i>°</i>	<i>K</i>	<i>K</i>	<i>K</i>	<i>K</i>
CCISeismic (12) general cable 1 5/8" Coax From 0 to 160 (0.5ft to10.5ft)	5.50	0.00	0.0000	0.01	0.00	0.00	0.00
CCISeismic (12) general cable 1 5/8" Coax From 0 to 160 (0ft to0.5ft)	0.25	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic general cable 1 1/4" Hybrid Cable From 0 to 160 (150.5ft to160ft)	155.25	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic general cable 1 1/4" Hybrid Cable From 0 to 160 (140.5ft to150.5ft)	145.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic general cable 1 1/4" Hybrid Cable From 0 to 160 (130.5ft to140.5ft)	135.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic general cable 1 1/4" Hybrid Cable From 0 to 160 (120.5ft to130.5ft)	125.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic general cable 1 1/4" Hybrid Cable From 0 to 160 (110.5ft to120.5ft)	115.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic general cable 1 1/4" Hybrid Cable From 0 to 160 (100.5ft to110.5ft)	105.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic general cable 1 1/4" Hybrid Cable From 0 to 160 (90.5ft to100.5ft)	95.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic general cable 1 1/4" Hybrid Cable From 0 to 160 (80.5ft to90.5ft)	85.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic general cable 1 1/4" Hybrid Cable From 0 to 160 (70.5ft to80.5ft)	75.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic general cable 1 1/4" Hybrid Cable From 0 to 160 (60.5ft to70.5ft)	65.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic general cable 1 1/4" Hybrid Cable From 0 to 160 (50.5ft to60.5ft)	55.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic general cable 1 1/4" Hybrid Cable From 0 to 160 (40.5ft to50.5ft)	45.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic general cable 1 1/4" Hybrid Cable From 0 to 160 (30.5ft to40.5ft)	35.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic general cable 1 1/4" Hybrid Cable From 0 to 160 (20.5ft to30.5ft)	25.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic general cable 1 1/4" Hybrid Cable From 0 to 160 (10.5ft to20.5ft)	15.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic general cable 1 1/4" Hybrid Cable From 0 to 160 (0.5ft to10.5ft)	5.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (3) general cable 1 1/4" Hybrid Cable From 0 to 160 (150.5ft to160ft)	155.25	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (3) general cable 1 1/4" Hybrid Cable From 0 to 160 (140.5ft to150.5ft)	145.50	0.00	0.0000	0.00	0.00	0.00	0.00

<i>tnxTower</i> <i>Semaan Engineering Solutions</i> 1047 N 205th Street Elkhorn, NE 68022 Phone: 402.289.1888 FAX:	Job	29173_Orange 1	Page 12 of 44
	Project	REV01	Date 08:20:57 08/26/22
	Client	KGI	Designed by NathanW

<i>Description</i>	<i>Elevation</i>	<i>Offset From Centroid</i>	<i>Azimuth Angle</i>	<i>E_v</i>	<i>E_{hx}</i>	<i>E_{hz}</i>	<i>E_h</i>
	<i>ft</i>	<i>ft</i>	<i>°</i>	<i>K</i>	<i>K</i>	<i>K</i>	<i>K</i>
CCISeismic (3) general cable 1 1/4" Hybrid Cable From 0 to 160 (130.5ft to140.5ft)	135.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (3) general cable 1 1/4" Hybrid Cable From 0 to 160 (120.5ft to130.5ft)	125.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (3) general cable 1 1/4" Hybrid Cable From 0 to 160 (110.5ft to120.5ft)	115.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (3) general cable 1 1/4" Hybrid Cable From 0 to 160 (100.5ft to110.5ft)	105.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (3) general cable 1 1/4" Hybrid Cable From 0 to 160 (90.5ft to100.5ft)	95.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (3) general cable 1 1/4" Hybrid Cable From 0 to 160 (80.5ft to90.5ft)	85.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (3) general cable 1 1/4" Hybrid Cable From 0 to 160 (70.5ft to80.5ft)	75.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (3) general cable 1 1/4" Hybrid Cable From 0 to 160 (60.5ft to70.5ft)	65.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (3) general cable 1 1/4" Hybrid Cable From 0 to 160 (50.5ft to60.5ft)	55.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (3) general cable 1 1/4" Hybrid Cable From 0 to 160 (40.5ft to50.5ft)	45.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (3) general cable 1 1/4" Hybrid Cable From 0 to 160 (30.5ft to40.5ft)	35.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (3) general cable 1 1/4" Hybrid Cable From 0 to 160 (20.5ft to30.5ft)	25.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (3) general cable 1 1/4" Hybrid Cable From 0 to 160 (10.5ft to20.5ft)	15.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (3) general cable 1 1/4" Hybrid Cable From 0 to 160 (0.5ft to10.5ft)	5.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (3) general cable 1 1/4" Hybrid Cable From 0 to 160 (0ft to0.5ft)	0.25	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (12) general cable 1 1/4" Coax From 0 to 148 (140.5ft to148ft)	144.25	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (12) general cable 1 1/4" Coax From 0 to 148 (130.5ft to140.5ft)	135.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (12) general cable 1 1/4" Coax From 0 to 148 (120.5ft to130.5ft)	125.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (12) general cable 1 1/4" Coax From 0 to 148 (110.5ft to120.5ft)	115.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (12) general cable 1 1/4" Coax From 0 to 148 (100.5ft to110.5ft)	105.50	0.00	0.0000	0.00	0.00	0.00	0.00

<i>tnxTower</i> <i>Semaan Engineering Solutions</i> 1047 N 205th Street Elkhorn, NE 68022 Phone: 402.289.1888 FAX:	Job	Page
	29173_Orange 1	13 of 44
	Project	Date
	REV01	08:20:57 08/26/22
	Client	Designed by
	KGI	NathanW

<i>Description</i>	<i>Elevation</i>	<i>Offset From Centroid</i>	<i>Azimuth Angle</i>	<i>E_v</i>	<i>E_{hx}</i>	<i>E_{hz}</i>	<i>E_h</i>
	<i>ft</i>	<i>ft</i>	<i>°</i>	<i>K</i>	<i>K</i>	<i>K</i>	<i>K</i>
CCISeismic (12) general cable 1 1/4" Coax From 0 to 148 (90.5ft to100.5ft)	95.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (12) general cable 1 1/4" Coax From 0 to 148 (80.5ft to90.5ft)	85.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (12) general cable 1 1/4" Coax From 0 to 148 (70.5ft to80.5ft)	75.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (12) general cable 1 1/4" Coax From 0 to 148 (60.5ft to70.5ft)	65.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (12) general cable 1 1/4" Coax From 0 to 148 (50.5ft to60.5ft)	55.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (12) general cable 1 1/4" Coax From 0 to 148 (40.5ft to50.5ft)	45.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (12) general cable 1 1/4" Coax From 0 to 148 (30.5ft to40.5ft)	35.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (12) general cable 1 1/4" Coax From 0 to 148 (20.5ft to30.5ft)	25.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (12) general cable 1 1/4" Coax From 0 to 148 (10.5ft to20.5ft)	15.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (12) general cable 1 1/4" Coax From 0 to 148 (0.5ft to10.5ft)	5.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (12) general cable 1 1/4" Coax From 0 to 148 (0ft to0.5ft)	0.25	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (2) 18 Count Fiber Cables From 0 to 148 (140.5ft to148ft)	144.25	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (2) 18 Count Fiber Cables From 0 to 148 (130.5ft to140.5ft)	135.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (2) 18 Count Fiber Cables From 0 to 148 (120.5ft to130.5ft)	125.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (2) 18 Count Fiber Cables From 0 to 148 (110.5ft to120.5ft)	115.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (2) 18 Count Fiber Cables From 0 to 148 (100.5ft to110.5ft)	105.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (2) 18 Count Fiber Cables From 0 to 148 (90.5ft to100.5ft)	95.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (2) 18 Count Fiber Cables From 0 to 148 (80.5ft to90.5ft)	85.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (2) 18 Count Fiber Cables From 0 to 148 (70.5ft to80.5ft)	75.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (2) 18 Count Fiber Cables From 0 to 148 (60.5ft to70.5ft)	65.50	0.00	0.0000	0.00	0.00	0.00	0.00

<i>tnxTower</i> <i>Semaan Engineering Solutions</i> 1047 N 205th Street Elkhorn, NE 68022 Phone: 402.289.1888 FAX:	Job	29173_Orange 1	Page 14 of 44
	Project	REV01	Date 08:20:57 08/26/22
	Client	KGI	Designed by NathanW

<i>Description</i>	<i>Elevation</i>	<i>Offset From Centroid</i>	<i>Azimuth Angle</i>	<i>E_v</i>	<i>E_{hx}</i>	<i>E_{hz}</i>	<i>E_h</i>
	<i>ft</i>	<i>ft</i>	<i>°</i>	<i>K</i>	<i>K</i>	<i>K</i>	<i>K</i>
CCISeismic (2) 18 Count Fiber Cables From 0 to 148 (50.5ft to 60.5ft)	55.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (2) 18 Count Fiber Cables From 0 to 148 (40.5ft to 50.5ft)	45.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (2) 18 Count Fiber Cables From 0 to 148 (30.5ft to 40.5ft)	35.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (2) 18 Count Fiber Cables From 0 to 148 (20.5ft to 30.5ft)	25.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (2) 18 Count Fiber Cables From 0 to 148 (10.5ft to 20.5ft)	15.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (2) 18 Count Fiber Cables From 0 to 148 (0.5ft to 10.5ft)	5.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (2) general cable 7/8" DC From 0 to 148 (140.5ft to 148ft)	144.25	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (2) general cable 7/8" DC From 0 to 148 (130.5ft to 140.5ft)	135.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (2) general cable 7/8" DC From 0 to 148 (120.5ft to 130.5ft)	125.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (2) general cable 7/8" DC From 0 to 148 (110.5ft to 120.5ft)	115.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (2) general cable 7/8" DC From 0 to 148 (100.5ft to 110.5ft)	105.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (2) general cable 7/8" DC From 0 to 148 (90.5ft to 100.5ft)	95.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (2) general cable 7/8" DC From 0 to 148 (80.5ft to 90.5ft)	85.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (2) general cable 7/8" DC From 0 to 148 (70.5ft to 80.5ft)	75.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (2) general cable 7/8" DC From 0 to 148 (60.5ft to 70.5ft)	65.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (2) general cable 7/8" DC From 0 to 148 (50.5ft to 60.5ft)	55.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (2) general cable 7/8" DC From 0 to 148 (40.5ft to 50.5ft)	45.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (2) general cable 7/8" DC From 0 to 148 (30.5ft to 40.5ft)	35.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (2) general cable 7/8" DC From 0 to 148 (20.5ft to 30.5ft)	25.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (2) general cable 7/8" DC From 0 to 148 (10.5ft to 20.5ft)	15.50	0.00	0.0000	0.00	0.00	0.00	0.00

<i>tnxTower</i> <i>Semaan Engineering Solutions</i> 1047 N 205th Street Elkhorn, NE 68022 Phone: 402.289.1888 FAX:	Job	29173_Orange 1	Page 15 of 44
	Project	REV01	Date 08:20:57 08/26/22
	Client	KGI	Designed by NathanW

<i>Description</i>	<i>Elevation</i>	<i>Offset From Centroid</i>	<i>Azimuth Angle</i>	<i>E_v</i>	<i>E_{hx}</i>	<i>E_{hz}</i>	<i>E_h</i>
	<i>ft</i>	<i>ft</i>	<i>°</i>	<i>K</i>	<i>K</i>	<i>K</i>	<i>K</i>
CCISeismic (2) general cable 7/8" DC From 0 to 148 (0.5ft to 10.5ft)	5.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (4) general cable 6 AWG DC Trunk From 0 to 148 (140.5ft to 148ft)	144.25	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (4) general cable 6 AWG DC Trunk From 0 to 148 (130.5ft to 140.5ft)	135.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (4) general cable 6 AWG DC Trunk From 0 to 148 (120.5ft to 130.5ft)	125.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (4) general cable 6 AWG DC Trunk From 0 to 148 (110.5ft to 120.5ft)	115.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (4) general cable 6 AWG DC Trunk From 0 to 148 (100.5ft to 110.5ft)	105.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (4) general cable 6 AWG DC Trunk From 0 to 148 (90.5ft to 100.5ft)	95.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (4) general cable 6 AWG DC Trunk From 0 to 148 (80.5ft to 90.5ft)	85.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (4) general cable 6 AWG DC Trunk From 0 to 148 (70.5ft to 80.5ft)	75.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (4) general cable 6 AWG DC Trunk From 0 to 148 (60.5ft to 70.5ft)	65.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (4) general cable 6 AWG DC Trunk From 0 to 148 (50.5ft to 60.5ft)	55.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (4) general cable 6 AWG DC Trunk From 0 to 148 (40.5ft to 50.5ft)	45.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (4) general cable 6 AWG DC Trunk From 0 to 148 (30.5ft to 40.5ft)	35.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (4) general cable 6 AWG DC Trunk From 0 to 148 (20.5ft to 30.5ft)	25.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (4) general cable 6 AWG DC Trunk From 0 to 148 (10.5ft to 20.5ft)	15.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (4) general cable 6 AWG DC Trunk From 0 to 148 (0.5ft to 10.5ft)	5.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (4) general cable 6 AWG DC Trunk From 0 to 148 (0ft to 0.5ft)	0.25	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (8) general cable 1 5/8" Coax From 0 to 123 (120.5ft to 123ft)	121.75	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (8) general cable 1 5/8" Coax From 0 to 123 (110.5ft to 120.5ft)	115.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (8) general cable 1 5/8" Coax From 0 to 123 (100.5ft to 110.5ft)	105.50	0.00	0.0000	0.00	0.00	0.00	0.00

<i>tnxTower</i> <i>Semaan Engineering Solutions</i> 1047 N 205th Street Elkhorn, NE 68022 Phone: 402.289.1888 FAX:	Job	29173_Orange 1	Page 16 of 44
	Project	REV01	Date 08:20:57 08/26/22
	Client	KGI	Designed by NathanW

<i>Description</i>	<i>Elevation</i>	<i>Offset From Centroid</i>	<i>Azimuth Angle</i>	<i>E_v</i>	<i>E_{hx}</i>	<i>E_{hz}</i>	<i>E_h</i>
	<i>ft</i>	<i>ft</i>	<i>°</i>	<i>K</i>	<i>K</i>	<i>K</i>	<i>K</i>
CCISeismic (8) general cable 1 5/8" Coax From 0 to 123 (90.5ft to100.5ft)	95.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (8) general cable 1 5/8" Coax From 0 to 123 (80.5ft to90.5ft)	85.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (8) general cable 1 5/8" Coax From 0 to 123 (70.5ft to80.5ft)	75.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (8) general cable 1 5/8" Coax From 0 to 123 (60.5ft to70.5ft)	65.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (8) general cable 1 5/8" Coax From 0 to 123 (50.5ft to60.5ft)	55.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (8) general cable 1 5/8" Coax From 0 to 123 (40.5ft to50.5ft)	45.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (8) general cable 1 5/8" Coax From 0 to 123 (30.5ft to40.5ft)	35.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (8) general cable 1 5/8" Coax From 0 to 123 (20.5ft to30.5ft)	25.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (8) general cable 1 5/8" Coax From 0 to 123 (10.5ft to20.5ft)	15.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (8) general cable 1 5/8" Coax From 0 to 123 (0.5ft to10.5ft)	5.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (8) general cable 1 5/8" Coax From 0 to 123 (0ft to0.5ft)	0.25	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic general cable 1 1/4" Hybrid Cable From 0 to 123 (120.5ft to123ft)	121.75	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic general cable 1 1/4" Hybrid Cable From 0 to 123 (110.5ft to120.5ft)	115.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic general cable 1 1/4" Hybrid Cable From 0 to 123 (100.5ft to110.5ft)	105.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic general cable 1 1/4" Hybrid Cable From 0 to 123 (90.5ft to100.5ft)	95.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic general cable 1 1/4" Hybrid Cable From 0 to 123 (80.5ft to90.5ft)	85.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic general cable 1 1/4" Hybrid Cable From 0 to 123 (70.5ft to80.5ft)	75.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic general cable 1 1/4" Hybrid Cable From 0 to 123 (60.5ft to70.5ft)	65.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic general cable 1 1/4" Hybrid Cable From 0 to 123 (50.5ft to60.5ft)	55.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic general cable 1 1/4" Hybrid Cable From 0 to 123 (40.5ft to50.5ft)	45.50	0.00	0.0000	0.00	0.00	0.00	0.00

<i>tnxTower</i> <i>Semaan Engineering Solutions</i> 1047 N 205th Street Elkhorn, NE 68022 Phone: 402.289.1888 FAX:	Job	29173_Orange 1	Page 17 of 44
	Project	REV01	Date 08:20:57 08/26/22
	Client	KGI	Designed by NathanW

<i>Description</i>	<i>Elevation</i>	<i>Offset From Centroid</i>	<i>Azimuth Angle</i>	<i>E_v</i>	<i>E_{hx}</i>	<i>E_{hz}</i>	<i>E_h</i>
	<i>ft</i>	<i>ft</i>	<i>°</i>	<i>K</i>	<i>K</i>	<i>K</i>	<i>K</i>
CCISeismic general cable 1 1/4" Hybrid Cable From 0 to 123 (30.5ft to40.5ft)	35.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic general cable 1 1/4" Hybrid Cable From 0 to 123 (20.5ft to30.5ft)	25.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic general cable 1 1/4" Hybrid Cable From 0 to 123 (10.5ft to20.5ft)	15.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic general cable 1 1/4" Hybrid Cable From 0 to 123 (0.5ft to10.5ft)	5.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic 1.10" Coax From 0 to 123 (120.5ft to123ft)	121.75	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic 1.10" Coax From 0 to 123 (110.5ft to120.5ft)	115.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic 1.10" Coax From 0 to 123 (100.5ft to110.5ft)	105.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic 1.10" Coax From 0 to 123 (90.5ft to100.5ft)	95.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic 1.10" Coax From 0 to 123 (80.5ft to90.5ft)	85.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic 1.10" Coax From 0 to 123 (70.5ft to80.5ft)	75.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic 1.10" Coax From 0 to 123 (60.5ft to70.5ft)	65.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic 1.10" Coax From 0 to 123 (50.5ft to60.5ft)	55.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic 1.10" Coax From 0 to 123 (40.5ft to50.5ft)	45.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic 1.10" Coax From 0 to 123 (30.5ft to40.5ft)	35.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic 1.10" Coax From 0 to 123 (20.5ft to30.5ft)	25.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic 1.10" Coax From 0 to 123 (10.5ft to20.5ft)	15.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic 1.10" Coax From 0 to 123 (0.5ft to10.5ft)	5.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (2) general cable 7/8" Coax From 0 to 135 (130.5ft to135ft)	132.75	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (2) general cable 7/8" Coax From 0 to 135 (120.5ft to130.5ft)	125.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (2) general cable 7/8" Coax From 0 to 135 (110.5ft to120.5ft)	115.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (2) general cable 7/8" Coax From 0 to 135 (100.5ft to110.5ft)	105.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (2) general cable 7/8" Coax From 0 to 135 (90.5ft to100.5ft)	95.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (2) general cable 7/8" Coax From 0 to 135 (80.5ft to90.5ft)	85.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (2) general cable 7/8" Coax From 0 to 135 (70.5ft to80.5ft)	75.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (2) general cable	65.50	0.00	0.0000	0.00	0.00	0.00	0.00

<i>tnxTower</i> <i>Semaan Engineering Solutions</i> 1047 N 205th Street Elkhorn, NE 68022 Phone: 402.289.1888 FAX:	Job	29173_Orange 1	Page 18 of 44
	Project	REV01	Date 08:20:57 08/26/22
	Client	KGI	Designed by NathanW

<i>Description</i>	<i>Elevation</i>	<i>Offset From Centroid</i>	<i>Azimuth Angle</i>	<i>E_v</i>	<i>E_{hx}</i>	<i>E_{hz}</i>	<i>E_h</i>
	<i>ft</i>	<i>ft</i>	<i>°</i>	<i>K</i>	<i>K</i>	<i>K</i>	<i>K</i>
7/8" Coax From 0 to 135 (60.5ft to 70.5ft)							
CCISeismic (2) general cable	55.50	0.00	0.0000	0.00	0.00	0.00	0.00
7/8" Coax From 0 to 135 (50.5ft to 60.5ft)							
CCISeismic (2) general cable	45.50	0.00	0.0000	0.00	0.00	0.00	0.00
7/8" Coax From 0 to 135 (40.5ft to 50.5ft)							
CCISeismic (2) general cable	35.50	0.00	0.0000	0.00	0.00	0.00	0.00
7/8" Coax From 0 to 135 (30.5ft to 40.5ft)							
CCISeismic (2) general cable	25.50	0.00	0.0000	0.00	0.00	0.00	0.00
7/8" Coax From 0 to 135 (20.5ft to 30.5ft)							
CCISeismic (2) general cable	15.50	0.00	0.0000	0.00	0.00	0.00	0.00
7/8" Coax From 0 to 135 (10.5ft to 20.5ft)							
CCISeismic (2) general cable	5.50	0.00	0.0000	0.00	0.00	0.00	0.00
7/8" Coax From 0 to 135 (0.5ft to 10.5ft)							
CCISeismic (3) 0.40" Black Cable From 0 to 135 (130.5ft to 135ft)	132.75	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (3) 0.40" Black Cable From 0 to 135 (120.5ft to 130.5ft)	125.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (3) 0.40" Black Cable From 0 to 135 (110.5ft to 120.5ft)	115.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (3) 0.40" Black Cable From 0 to 135 (100.5ft to 110.5ft)	105.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (3) 0.40" Black Cable From 0 to 135 (90.5ft to 100.5ft)	95.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (3) 0.40" Black Cable From 0 to 135 (80.5ft to 90.5ft)	85.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (3) 0.40" Black Cable From 0 to 135 (70.5ft to 80.5ft)	75.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (3) 0.40" Black Cable From 0 to 135 (60.5ft to 70.5ft)	65.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (3) 0.40" Black Cable From 0 to 135 (50.5ft to 60.5ft)	55.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (3) 0.40" Black Cable From 0 to 135 (40.5ft to 50.5ft)	45.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (3) 0.40" Black Cable From 0 to 135 (30.5ft to 40.5ft)	35.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (3) 0.40" Black Cable From 0 to 135 (20.5ft to 30.5ft)	25.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (3) 0.40" Black Cable From 0 to 135 (10.5ft to 20.5ft)	15.50	0.00	0.0000	0.00	0.00	0.00	0.00
CCISeismic (3) 0.40" Black	5.50	0.00	0.0000	0.00	0.00	0.00	0.00

tnxTower Semaan Engineering Solutions 1047 N 205th Street Elkhorn, NE 68022 Phone: 402.289.1888 FAX:	Job	29173_Orange 1	Page	19 of 44
	Project	REV01	Date	08:20:57 08/26/22
	Client	KGI	Designed by	NathanW

Description	Elevation	Offset From Centroid	Azimuth Angle	E_v	E_{hx}	E_{hz}	E_h
	ft	ft	°	K	K	K	K
Cable From 0 to 135 (0.5ft to 10.5ft)							
CCISeismic 0.40" Black Cable From 0 to 135 (120.5ft to 130.5ft)	125.50	0.00	0.0000	0.00	0.00	0.00	0.00

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment	Placement	$C_A A_A$ Front	$C_A A_A$ Side	Weight
			°		ft	ft ²	ft ²	K
12' Platform w/Double Rail (Verizon)	C	From Centroid-Fa ce	0.00 0.00 3.50	0.0000	157.00	No Ice 1/2" Ice 1" Ice	37.23 46.94 56.65	1.47 1.83 2.19
LPA-80060/8CF-EDIN-4 w/10' Mount Pipe (Verizon)	A	From Centroid-Fa ce	3.50 6.00 2.50	0.0000	157.00	No Ice 1/2" Ice 1" Ice	8.45 9.29 10.15	0.08 0.14 0.20
LPA-80060/8CF-EDIN-4 w/10' Mount Pipe (Verizon)	B	From Centroid-Fa ce	3.50 6.00 2.50	0.0000	157.00	No Ice 1/2" Ice 1" Ice	8.45 9.29 10.15	0.08 0.14 0.20
LPA-80060/8CF-EDIN-4 w/10' Mount Pipe (Verizon)	C	From Centroid-Fa ce	3.50 6.00 2.50	0.0000	157.00	No Ice 1/2" Ice 1" Ice	8.45 9.29 10.15	0.08 0.14 0.20
BXA-171063-12CF-EDIN-2 w/10' Mount Pipe (Verizon)	A	From Centroid-Fa ce	3.50 2.00 2.50	0.0000	157.00	No Ice 1/2" Ice 1" Ice	5.94 6.80 7.67	0.07 0.13 0.20
BXA-171063-12CF-EDIN-2 w/10' Mount Pipe (Verizon)	B	From Centroid-Fa ce	3.50 2.00 2.50	0.0000	157.00	No Ice 1/2" Ice 1" Ice	5.94 6.80 7.67	0.07 0.13 0.20
BXA-171063-12CF-EDIN-2 w/10' Mount Pipe (Verizon)	C	From Centroid-Fa ce	3.50 2.00 2.50	0.0000	157.00	No Ice 1/2" Ice 1" Ice	5.94 6.80 7.67	0.07 0.13 0.20
BXA-171063-12CF-EDIN-2 w/6' Mount Pipe (Verizon)	A	From Centroid-Fa ce	3.50 0.00 2.50	0.0000	157.00	No Ice 1/2" Ice 1" Ice	4.80 5.25 5.71	0.03 0.08 0.13
BXA-171063-12CF-EDIN-2 w/6' Mount Pipe (Verizon)	B	From Centroid-Fa ce	3.50 0.00 2.50	0.0000	157.00	No Ice 1/2" Ice 1" Ice	4.80 5.25 5.71	0.03 0.08 0.13
BXA-171063-12CF-EDIN-2 w/6' Mount Pipe (Verizon)	C	From Centroid-Fa ce	3.50 0.00 2.50	0.0000	157.00	No Ice 1/2" Ice 1" Ice	4.80 5.25 5.71	0.03 0.08 0.13
BXA-70063-6CF-EDIN-5 w/10' Mount Pipe (Verizon)	A	From Centroid-Fa ce	3.50 -2.00 2.50	0.0000	157.00	No Ice 1/2" Ice 1" Ice	8.80 9.67 10.55	0.09 0.17 0.25
BXA-70063-6CF-EDIN-5 w/10' Mount Pipe (Verizon)	B	From Centroid-Fa ce	3.50 -2.00 2.50	0.0000	157.00	No Ice 1/2" Ice 1" Ice	8.80 9.67 10.55	0.09 0.17 0.25
BXA-70063-6CF-EDIN-5 w/10' Mount Pipe (Verizon)	C	From Centroid-Fa ce	3.50 -2.00 2.50	0.0000	157.00	No Ice 1/2" Ice 1" Ice	8.80 9.67 10.55	0.09 0.17 0.25
LPA-80060/8CF-EDIN-4 w/10' Mount Pipe	A	From Centroid-Fa	3.50 -6.00	0.0000	157.00	No Ice 1/2" Ice	8.45 9.29	0.08 0.14

<i>tnxTower</i> <i>Semaan Engineering Solutions</i> 1047 N 205th Street Elkhorn, NE 68022 Phone: 402.289.1888 FAX:	Job	29173_Orange 1	Page	20 of 44
	Project	REV01	Date	08:20:57 08/26/22
	Client	KGI	Designed by	NathanW

<i>Description</i>	<i>Face or Leg</i>	<i>Offset Type</i>	<i>Offsets: Horz Lateral Vert ft ft ft</i>	<i>Azimuth Adjustment °</i>	<i>Placement ft</i>	<i>C_{AA} Front ft²</i>	<i>C_{AA} Side ft²</i>	<i>Weight K</i>	
(Verizon)		ce	2.50			1" Ice	10.15	12.19	0.20
LPA-80060/8CF-EDIN-4	B	From	3.50	0.0000	157.00	No Ice	8.45	9.08	0.08
w/10' Mount Pipe		Centroid-Fa	-6.00			1/2" Ice	9.29	10.62	0.14
(Verizon)		ce	2.50			1" Ice	10.15	12.19	0.20
LPA-80060/8CF-EDIN-4	C	From	3.50	0.0000	157.00	No Ice	8.45	9.08	0.08
w/10' Mount Pipe		Centroid-Fa	-6.00			1/2" Ice	9.29	10.62	0.14
(Verizon)		ce	2.50			1" Ice	10.15	12.19	0.20
Extra 4' Mount Pipe	A	From	3.50	0.0000	157.00	No Ice	0.97	0.97	0.02
(Verizon)		Centroid-Fa	6.00			1/2" Ice	1.22	1.22	0.03
		ce	11.00			1" Ice	1.48	1.48	0.04
Extra 4' Mount Pipe	B	From	3.50	0.0000	157.00	No Ice	0.97	0.97	0.02
(Verizon)		Centroid-Fa	6.00			1/2" Ice	1.22	1.22	0.03
		ce	11.00			1" Ice	1.48	1.48	0.04
Extra 4' Mount Pipe	C	From	3.50	0.0000	157.00	No Ice	0.97	0.97	0.02
(Verizon)		Centroid-Fa	6.00			1/2" Ice	1.22	1.22	0.03
		ce	11.00			1" Ice	1.48	1.48	0.04
Extra 4' Mount Pipe	A	From	3.50	0.0000	157.00	No Ice	0.97	0.97	0.02
(Verizon)		Centroid-Fa	2.00			1/2" Ice	1.22	1.22	0.03
		ce	11.00			1" Ice	1.48	1.48	0.04
Extra 4' Mount Pipe	B	From	3.50	0.0000	157.00	No Ice	0.97	0.97	0.02
(Verizon)		Centroid-Fa	2.00			1/2" Ice	1.22	1.22	0.03
		ce	11.00			1" Ice	1.48	1.48	0.04
Extra 4' Mount Pipe	C	From	3.50	0.0000	157.00	No Ice	0.97	0.97	0.02
(Verizon)		Centroid-Fa	2.00			1/2" Ice	1.22	1.22	0.03
		ce	11.00			1" Ice	1.48	1.48	0.04
Extra 4' Mount Pipe	A	From	3.50	0.0000	157.00	No Ice	0.97	0.97	0.02
(Verizon)		Centroid-Fa	-2.00			1/2" Ice	1.22	1.22	0.03
		ce	11.00			1" Ice	1.48	1.48	0.04
Extra 4' Mount Pipe	B	From	3.50	0.0000	157.00	No Ice	0.97	0.97	0.02
(Verizon)		Centroid-Fa	-2.00			1/2" Ice	1.22	1.22	0.03
		ce	11.00			1" Ice	1.48	1.48	0.04
Extra 4' Mount Pipe	C	From	3.50	0.0000	157.00	No Ice	0.97	0.97	0.02
(Verizon)		Centroid-Fa	-2.00			1/2" Ice	1.22	1.22	0.03
		ce	11.00			1" Ice	1.48	1.48	0.04
Extra 4' Mount Pipe	A	From	3.50	0.0000	157.00	No Ice	0.97	0.97	0.02
(Verizon)		Centroid-Fa	-6.00			1/2" Ice	1.22	1.22	0.03
		ce	11.00			1" Ice	1.48	1.48	0.04
Extra 4' Mount Pipe	B	From	3.50	0.0000	157.00	No Ice	0.97	0.97	0.02
(Verizon)		Centroid-Fa	-6.00			1/2" Ice	1.22	1.22	0.03
		ce	11.00			1" Ice	1.48	1.48	0.04
Extra 4' Mount Pipe	C	From	3.50	0.0000	157.00	No Ice	0.97	0.97	0.02
(Verizon)		Centroid-Fa	-6.00			1/2" Ice	1.22	1.22	0.03
		ce	11.00			1" Ice	1.48	1.48	0.04
4.5" x 6" x 1" TMA	A	From	3.50	0.0000	157.00	No Ice	0.23	0.04	0.01
(Verizon)		Centroid-Fa	6.00			1/2" Ice	0.29	0.07	0.01
		ce	2.50			1" Ice	0.35	0.11	0.01
4.5" x 6" x 1" TMA	B	From	3.50	0.0000	157.00	No Ice	0.23	0.04	0.01
(Verizon)		Centroid-Fa	6.00			1/2" Ice	0.29	0.07	0.01
		ce	2.50			1" Ice	0.35	0.11	0.01
4.5" x 6" x 1" TMA	C	From	3.50	0.0000	157.00	No Ice	0.23	0.04	0.01
(Verizon)		Centroid-Fa	6.00			1/2" Ice	0.29	0.07	0.01
		ce	2.50			1" Ice	0.35	0.11	0.01
4.5" x 6" x 1" TMA	A	From	3.50	0.0000	157.00	No Ice	0.23	0.04	0.01
(Verizon)		Centroid-Fa	-6.00			1/2" Ice	0.29	0.07	0.01
		ce	2.50			1" Ice	0.35	0.11	0.01
4.5" x 6" x 1" TMA	B	From	3.50	0.0000	157.00	No Ice	0.23	0.04	0.01
(Verizon)		Centroid-Fa	-6.00			1/2" Ice	0.29	0.07	0.01

tnxTower Semaan Engineering Solutions 1047 N 205th Street Elkhorn, NE 68022 Phone: 402.289.1888 FAX:	Job	29173_Orange 1	Page	21 of 44
	Project	REV01	Date	08:20:57 08/26/22
	Client	KGI	Designed by	NathanW

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
4.5" x 6" x 1" TMA (Verizon)	C	ce From Centroid-Fa	2.50 3.50 -6.00	0.0000	157.00	1" Ice No Ice 1/2" Ice	0.35 0.23 0.29	0.11 0.04 0.07	0.01 0.01 0.01
(2) 10"x7"x2" TMA (Verizon)	A	ce From Centroid-Fa	2.50 3.50 0.00	0.0000	157.00	1" Ice No Ice 1/2" Ice	0.35 0.58 0.68	0.11 0.18 0.25	0.01 0.02 0.02
(2) 10"x7"x2" TMA (Verizon)	B	ce From Centroid-Fa	3.00 3.50 0.00	0.0000	157.00	1" Ice No Ice 1/2" Ice	0.79 0.58 0.68	0.33 0.18 0.25	0.02 0.02 0.02
(2) 10"x7"x2" TMA (Verizon)	C	ce From Centroid-Fa	3.00 3.50 0.00	0.0000	157.00	1" Ice No Ice 1/2" Ice	0.79 0.58 0.68	0.33 0.18 0.25	0.02 0.02 0.02
9442 RRH2x40-AWS (Verizon)	A	ce From Centroid-Fa	3.00 3.50 0.00	0.0000	157.00	1" Ice No Ice 1/2" Ice	0.79 2.50 2.71	0.33 1.89 2.08	0.02 0.05 0.07
9442 RRH2x40-AWS (Verizon)	B	ce From Centroid-Fa	3.50 3.50 0.00	0.0000	157.00	1" Ice No Ice 1/2" Ice	2.93 2.50 2.71	2.27 1.89 2.08	0.10 0.05 0.07
9442 RRH2x40-AWS (Verizon)	C	ce From Centroid-Fa	3.50 3.50 0.00	0.0000	157.00	1" Ice No Ice 1/2" Ice	2.93 2.50 2.71	2.27 1.89 2.08	0.10 0.05 0.07
RRH 4x30-4T4R-B25 (Verizon)	A	ce From Centroid-Fa	3.50 3.50 2.00	0.0000	157.00	1" Ice No Ice 1/2" Ice	2.93 2.14 2.33	2.27 1.30 1.46	0.10 0.05 0.07
RRH 4x30-4T4R-B25 (Verizon)	B	ce From Centroid-Fa	1.00 3.50 2.00	0.0000	157.00	1" Ice No Ice 1/2" Ice	2.52 2.14 2.33	1.62 1.30 1.46	0.09 0.05 0.07
RRH 4x30-4T4R-B25 (Verizon)	C	ce From Centroid-Fa	1.00 3.50 2.00	0.0000	157.00	1" Ice No Ice 1/2" Ice	2.52 2.14 2.33	1.62 1.30 1.46	0.09 0.05 0.07
RRFDC-3315-PF-48 w/4' Mount Pipe (Verizon)	A	g From Centroid-Le	0.50 3.50 0.00	0.0000	157.00	1" Ice No Ice 1/2" Ice	2.56 1.93 2.24	4.28 3.38 3.82	0.12 0.05 0.08
OVP Junction Box w/4' Mount Pipe (Verizon)	B	g From Centroid-Le	3.00 3.50 0.00	0.0000	157.00	1" Ice No Ice 1/2" Ice	6.96 6.14 6.54	4.04 3.13 3.58	0.14 0.03 0.09
OVP Junction Box w/4' Mount Pipe (Verizon)	C	g From Centroid-Le	3.00 3.50 0.00	0.0000	157.00	1" Ice No Ice 1/2" Ice	6.96 6.14 6.54	4.04 3.13 3.58	0.14 0.03 0.09
* SitePro1 MSFAA Adapter (ATT)	C	None		0.0000	148.00	No Ice 1/2" Ice 1" Ice	6.00 7.44 8.88	4.50 5.58 6.66	0.79 1.02 1.25
SitePro1 VFA14-HD Sector Frame w/o Mount Pipe (SES) (ATT)	A	From Face	2.00 0.00 0.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice	14.40 21.40 27.70	9.20 14.60 19.50	0.67 0.83 1.05
SitePro1 VFA14-HD Sector Frame w/o Mount Pipe (SES) (ATT)	B	From Face	2.00 0.00 0.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice	14.40 21.40 27.70	9.20 14.60 19.50	0.67 0.83 1.05
SitePro1 VFA14-HD Sector Frame w/o Mount Pipe (SES) (ATT)	C	From Face	2.00 0.00 0.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice	14.40 21.40 27.70	9.20 14.60 19.50	0.67 0.83 1.05
TPA65R-BU6DA-K w/10' Mount Pipe (ATT)	A	From Face	3.00 7.00 0.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice	13.88 14.79 15.72	8.49 9.97 11.48	0.13 0.23 0.35
TPA65R-BU6DA-K w/10'	B	From Face	3.00	0.0000	148.00	No Ice	13.88	8.49	0.13

tnxTower Semaan Engineering Solutions 1047 N 205th Street Elkhorn, NE 68022 Phone: 402.289.1888 FAX:	Job		29173_Orange 1		Page		22 of 44	
	Project		REV01		Date		08:20:57 08/26/22	
	Client		KGI		Designed by		NathanW	

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
Mount Pipe (ATT)			7.00 0.00			1/2" Ice 1" Ice	14.79 15.72	9.97 11.48	0.23 0.35
TPA65R-BU6DA-K w/10' Mount Pipe (ATT)	C	From Face	3.00 7.00 0.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice	13.88 14.79 15.72	8.49 9.97 11.48	0.13 0.23 0.35
AIR 6419 B77G w/10' Mount Pipe (ATT)	A	From Face	3.00 3.00 0.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice	5.87 6.91 7.97	4.53 5.75 7.00	0.12 0.18 0.24
AIR 6419 B77G w/10' Mount Pipe (ATT)	B	From Face	3.00 3.00 0.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice	5.87 6.91 7.97	4.53 5.75 7.00	0.12 0.18 0.24
AIR 6419 B77G w/10' Mount Pipe (ATT)	C	From Face	3.00 3.00 0.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice	5.87 6.91 7.97	4.53 5.75 7.00	0.12 0.18 0.24
AIR 6449 B77D w/10' Mount Pipe (ATT)	A	From Face	3.00 -3.00 0.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice	6.17 7.20 8.25	5.59 6.85 8.13	0.14 0.21 0.28
AIR 6449 B77D w/10' Mount Pipe (ATT)	B	From Face	3.00 -3.00 0.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice	6.17 7.20 8.25	5.59 6.85 8.13	0.14 0.21 0.28
AIR 6449 B77D w/10' Mount Pipe (ATT)	C	From Face	3.00 -3.00 0.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice	6.17 7.20 8.25	5.59 6.85 8.13	0.14 0.21 0.28
DMP65R-BU6DA w/10' Mount Pipe (ATT)	A	From Face	3.00 -7.00 0.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice	13.88 14.79 15.72	8.49 9.97 11.48	0.15 0.26 0.37
DMP65R-BU6DA w/10' Mount Pipe (ATT)	B	From Face	3.00 -7.00 0.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice	13.88 14.79 15.72	8.49 9.97 11.48	0.15 0.26 0.37
DMP65R-BU6DA w/10' Mount Pipe (ATT)	C	From Face	3.00 -7.00 0.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice	13.88 14.79 15.72	8.49 9.97 11.48	0.15 0.26 0.37
(4) Powerwave LGP21401 (ATT)	A	From Face	3.00 0.00 0.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice	1.08 1.21 1.35	0.36 0.45 0.56	0.02 0.03 0.04
(4) Powerwave LGP21401 (ATT)	B	From Face	3.00 0.00 0.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice	1.08 1.21 1.35	0.36 0.45 0.56	0.02 0.03 0.04
(4) Powerwave LGP21401 (ATT)	C	From Face	3.00 0.00 0.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice	1.08 1.21 1.35	0.36 0.45 0.56	0.02 0.03 0.04
4478 B14 RRU (ATT)	A	From Face	3.00 0.00 0.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice	2.02 2.20 2.39	1.25 1.40 1.55	0.06 0.08 0.10
4478 B14 RRU (ATT)	B	From Face	3.00 0.00 0.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice	2.02 2.20 2.39	1.25 1.40 1.55	0.06 0.08 0.10
4478 B14 RRU (ATT)	C	From Face	3.00 0.00 0.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice	2.02 2.20 2.39	1.25 1.40 1.55	0.06 0.08 0.10
8843 B2/B66A RRU (ATT)	A	From Face	3.00 0.00 0.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice	1.64 1.80 1.97	1.35 1.50 1.65	0.07 0.09 0.11
8843 B2/B66A RRU (ATT)	B	From Face	3.00 0.00 0.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice	1.64 1.80 1.97	1.35 1.50 1.65	0.07 0.09 0.11
8843 B2/B66A RRU	C	From Face	3.00	0.0000	148.00	No Ice	1.64	1.35	0.07

<i>tnxTower</i> <i>Semaan Engineering Solutions</i> 1047 N 205th Street Elkhorn, NE 68022 Phone: 402.289.1888 FAX:	Job	29173_Orange 1	Page	23 of 44
	Project	REV01	Date	08:20:57 08/26/22
	Client	KGI	Designed by	NathanW

<i>Description</i>	<i>Face or Leg</i>	<i>Offset Type</i>	<i>Offsets: Horz Lateral Vert ft ft ft</i>	<i>Azimuth Adjustment °</i>	<i>Placement ft</i>		<i>C_{AA} Front ft²</i>	<i>C_{AA} Side ft²</i>	<i>Weight K</i>
(ATT)			0.00			1/2" Ice	1.80	1.50	0.09
			0.00			1" Ice	1.97	1.65	0.11
4449 B5/B12 RRU (ATT)	A	From Face	3.00	0.0000	148.00	No Ice	1.97	1.41	0.07
			0.00			1/2" Ice	2.14	1.56	0.09
			0.00			1" Ice	2.33	1.73	0.11
4449 B5/B12 RRU (ATT)	B	From Face	3.00	0.0000	148.00	No Ice	1.97	1.41	0.07
			0.00			1/2" Ice	2.14	1.56	0.09
			0.00			1" Ice	2.33	1.73	0.11
4449 B5/B12 RRU (ATT)	C	From Face	3.00	0.0000	148.00	No Ice	1.97	1.41	0.07
			0.00			1/2" Ice	2.14	1.56	0.09
			0.00			1" Ice	2.33	1.73	0.11
DC6-48-60-18 (ATT)	C	From Face	2.00	0.0000	148.00	No Ice	1.11	1.06	0.03
			0.00			1/2" Ice	1.27	1.22	0.06
			0.00			1" Ice	1.43	1.37	0.09
DC6-48-60-18 (ATT)	A	From Face	2.00	0.0000	148.00	No Ice	1.11	1.06	0.03
			0.00			1/2" Ice	1.27	1.22	0.06
			0.00			1" Ice	1.43	1.37	0.09
DC6-48-60-18 (ATT)	B	From Face	2.00	0.0000	148.00	No Ice	1.11	1.06	0.03
			0.00			1/2" Ice	1.27	1.22	0.06
			0.00			1" Ice	1.43	1.37	0.09
8'x2" Pipe Mount (ATT)	A	From Face	2.00	0.0000	148.00	No Ice	0.87	1.90	0.03
			0.00			1/2" Ice	1.11	2.73	0.05
			0.00			1" Ice	1.36	3.40	0.07
8'x2" Pipe Mount (ATT)	B	From Face	2.00	0.0000	148.00	No Ice	0.87	1.90	0.03
			0.00			1/2" Ice	1.11	2.73	0.05
			0.00			1" Ice	1.36	3.40	0.07
8'x2" Pipe Mount (ATT)	C	From Face	2.00	0.0000	148.00	No Ice	0.87	1.90	0.03
			0.00			1/2" Ice	1.11	2.73	0.05
			0.00			1" Ice	1.36	3.40	0.07
*									
12' Platform w/ Rail (Cab A)	C	From Centroid-Fa ce	0.00 0.00 2.00	0.0000	133.50	No Ice	31.27	31.27	1.51
						1/2" Ice	39.68	39.68	1.93
						1" Ice	48.09	48.09	2.35
6'x2" Pipe Mount (Cab A)	C	From Centroid-Le g	3.50 6.00 4.50	0.0000	133.50	No Ice	1.43	1.43	0.02
						1/2" Ice	1.92	1.92	0.03
						1" Ice	2.29	2.29	0.05
Camera (Cab A)	C	From Centroid-Le g	3.50 6.00 7.50	0.0000	133.50	No Ice	0.14	0.14	0.00
						1/2" Ice	0.24	0.24	0.01
						1" Ice	0.31	0.31	0.01
WB3221 w/4' Mount Pipe (Cab A)	A	From Centroid-Le g	3.50 6.00 3.50	70.0000	133.50	No Ice	2.36	1.42	0.02
						1/2" Ice	2.69	1.77	0.05
						1" Ice	3.04	2.14	0.07
WB3221 w/4' Mount Pipe (Cab A)	C	From Centroid-Le g	3.50 6.00 3.50	80.0000	133.50	No Ice	2.36	1.42	0.02
						1/2" Ice	2.69	1.77	0.05
						1" Ice	3.04	2.14	0.07
5" x 4" x 2.5" TMA (Cab A)	A	From Centroid-Le g	3.50 6.00 3.50	70.0000	133.50	No Ice	0.17	0.10	0.01
						1/2" Ice	0.22	0.15	0.01
						1" Ice	0.27	0.19	0.01
5" x 4" x 2.5" TMA (Cab A)	C	From Centroid-Le g	3.50 6.00 3.50	80.0000	133.50	No Ice	0.17	0.10	0.01
						1/2" Ice	0.22	0.15	0.01
						1" Ice	0.27	0.19	0.01
WB3222 (Cab A)	B	From Centroid-Le g	3.50 -2.00 1.00	-60.0000	133.50	No Ice	1.20	0.41	0.01
						1/2" Ice	1.34	0.50	0.02
						1" Ice	1.48	0.59	0.03
DB636-C (Cab A)	A	From Centroid-Le g	3.50 2.00 6.50	0.0000	133.50	No Ice	2.38	2.38	0.03
						1/2" Ice	3.35	3.35	0.05
						1" Ice	4.35	4.35	0.07

<i>tnxTower</i> <i>Semaan Engineering Solutions</i> 1047 N 205th Street Elkhorn, NE 68022 Phone: 402.289.1888 FAX:	Job	29173_Orange 1	Page	24 of 44
	Project	REV01	Date	08:20:57 08/26/22
	Client	KGI	Designed by	NathanW

<i>Description</i>	<i>Face or Leg</i>	<i>Offset Type</i>	<i>Offsets: Horz Lateral Vert ft ft ft</i>	<i>Azimuth Adjustment °</i>	<i>Placement ft</i>		<i>C_{AA} Front ft²</i>	<i>C_{AA} Side ft²</i>	<i>Weight K</i>
DB636-C (Cab A)	B	From Centroid-Le g	3.50 2.00 6.50	0.0000	133.50	No Ice 1/2" Ice 1" Ice	2.38 3.35 4.35	2.38 3.35 4.35	0.03 0.05 0.07
4'x2" Pipe Mount (Cab A)	B	From Centroid-Le g	3.50 6.00 1.50	0.0000	133.50	No Ice 1/2" Ice 1" Ice	0.87 1.11 1.36	0.87 1.11 1.36	0.02 0.02 0.03
4'x2" Pipe Mount (Cab A)	C	From Centroid-Le g	3.50 2.00 1.50	0.0000	133.50	No Ice 1/2" Ice 1" Ice	0.87 1.11 1.36	0.87 1.11 1.36	0.02 0.02 0.03
4'x2" Pipe Mount (Cab A)	A	From Centroid-Le g	3.50 -2.00 1.50	0.0000	133.50	No Ice 1/2" Ice 1" Ice	0.87 1.11 1.36	0.87 1.11 1.36	0.02 0.02 0.03
4'x2" Pipe Mount (Cab A)	B	From Centroid-Le g	3.50 -2.00 1.50	0.0000	133.50	No Ice 1/2" Ice 1" Ice	0.87 1.11 1.36	0.87 1.11 1.36	0.02 0.02 0.03
4'x2" Pipe Mount (Cab A)	A	From Centroid-Le g	3.50 -6.00 1.50	0.0000	133.50	No Ice 1/2" Ice 1" Ice	0.87 1.11 1.36	0.87 1.11 1.36	0.02 0.02 0.03
4'x2" Pipe Mount (Cab A)	B	From Centroid-Le g	3.50 -6.00 1.50	0.0000	133.50	No Ice 1/2" Ice 1" Ice	0.87 1.11 1.36	0.87 1.11 1.36	0.02 0.02 0.03
4'x2" Pipe Mount (Cab A)	C	From Centroid-Le g	3.50 -6.00 1.50	0.0000	133.50	No Ice 1/2" Ice 1" Ice	0.87 1.11 1.36	0.87 1.11 1.36	0.02 0.02 0.03
4'x2" Pipe Mount (Cab A)	A	From Centroid-Le g	3.50 2.00 1.50	0.0000	133.50	No Ice 1/2" Ice 1" Ice	0.87 1.11 1.36	0.87 1.11 1.36	0.02 0.02 0.03
4'x2" Pipe Mount (Cab A)	B	From Centroid-Le g	3.50 2.00 1.50	0.0000	133.50	No Ice 1/2" Ice 1" Ice	0.87 1.11 1.36	0.87 1.11 1.36	0.02 0.02 0.03
4'x2" Pipe Mount (Cab A)	B	From Centroid-Le g	3.50 -2.00 1.50	0.0000	133.50	No Ice 1/2" Ice 1" Ice	0.87 1.11 1.36	0.87 1.11 1.36	0.02 0.02 0.03
*									
12' Platform w/ Rail (T-Mobile)	C	From Centroid-Fa ce	0.00 0.00 1.50	0.0000	121.50	No Ice 1/2" Ice 1" Ice	31.27 39.68 48.09	31.27 39.68 48.09	1.51 1.93 2.35
APXVAALL24_43-U-NA20 w/4' Mount Pipe (T-Mobile)	A	From Centroid-Le g	3.50 6.00 2.00	0.0000	121.50	No Ice 1/2" Ice 1" Ice	20.24 20.89 21.54	9.60 10.44 11.30	0.07 0.19 0.33
APXVAALL24_43-U-NA20 w/4' Mount Pipe (T-Mobile)	B	From Centroid-Le g	3.50 6.00 2.00	0.0000	121.50	No Ice 1/2" Ice 1" Ice	20.24 20.89 21.54	9.60 10.44 11.30	0.07 0.19 0.33
APXVAALL24_43-U-NA20 w/4' Mount Pipe (T-Mobile)	C	From Centroid-Le g	3.50 6.00 2.00	0.0000	121.50	No Ice 1/2" Ice 1" Ice	20.24 20.89 21.54	9.60 10.44 11.30	0.07 0.19 0.33
AIR 6449 w/4' Mount Pipe (T-Mobile)	A	From Centroid-Le g	3.50 2.00 3.00	0.0000	121.50	No Ice 1/2" Ice 1" Ice	4.38 4.74 5.10	3.12 3.58 4.05	0.10 0.15 0.19
AIR 6449 w/4' Mount Pipe (T-Mobile)	B	From Centroid-Le g	3.50 2.00 3.00	0.0000	121.50	No Ice 1/2" Ice 1" Ice	4.38 4.74 5.10	3.12 3.58 4.05	0.10 0.15 0.19
AIR 6449 w/4' Mount Pipe (T-Mobile)	C	From Centroid-Le g	3.50 2.00 3.00	0.0000	121.50	No Ice 1/2" Ice 1" Ice	4.38 4.74 5.10	3.12 3.58 4.05	0.10 0.15 0.19
AIR 32 B2A/B66AA w/4' Mount Pipe	A	From Centroid-Le	3.50 -2.00	0.0000	121.50	No Ice 1/2" Ice	6.54 6.91	5.60 6.20	0.15 0.20

tnxTower Semaan Engineering Solutions 1047 N 205th Street Elkhorn, NE 68022 Phone: 402.289.1888 FAX:	Job	29173_Orange 1	Page	26 of 44
	Project	REV01	Date	08:20:57 08/26/22
	Client	KGI	Designed by	NathanW

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft	Aperture Area ft ²	Weight K
WB2900D (Cab A)	B	Paraboloid w/Radome	From Centroid -Leg	3.50 -2.00 2.50	60.0000		133.50	3.00	No Ice 1/2" Ice 1" Ice	7.07 7.47 7.86
										0.07 0.11 0.15

Tower Pressures - No Ice

$$G_H = 1.100$$

Section Elevation ft	z ft	K _Z	q _z psf	A _G ft ²	F a c e	A _F ft ²	A _R ft ²	A _{leg} ft ²	Leg %	C _A A _A In Face ft ²	C _A A _A Out Face ft ²
L1 160.50-126.92	142.67	1.094	38	78.649	A	0.000	78.649	78.649	100.00	0.000	0.000
					B	0.000	78.649		100.00	2.763	0.000
					C	0.000	78.649		100.00	0.000	0.000
L2 126.92-89.00	107.36	1.008	35	120.977	A	0.000	120.977	120.977	100.00	0.000	0.000
					B	0.000	120.977		100.00	61.351	0.000
					C	0.000	120.977		100.00	0.000	0.000
L3 89.00-37.83	62.93	0.866	30	212.981	A	0.000	212.981	212.981	100.00	0.000	0.000
					B	0.000	212.981		100.00	90.315	0.000
					C	0.000	212.981		100.00	0.000	0.000
L4 37.83-0.00	18.36	0.7	24	194.384	A	0.000	194.384	194.384	100.00	0.000	0.000
					B	0.000	194.384		100.00	66.770	0.000
					C	0.000	194.384		100.00	0.000	0.000

Tower Pressure - With Ice

$$G_H = 1.100$$

Section Elevation ft	z ft	K _Z	q _z psf	t _Z in	A _G ft ²	F a c e	A _F ft ²	A _R ft ²	A _{leg} ft ²	Leg %	C _A A _A In Face ft ²	C _A A _A Out Face ft ²
L1 160.50-126.92	142.67	1.094	7	1.1577	85.128	A	0.000	85.128	85.128	100.00	0.000	0.000
						B	0.000	85.128		100.00	9.921	0.000
						C	0.000	85.128		100.00	0.000	0.000
L2 126.92-89.00	107.36	1.008	6	1.1252	128.293	A	0.000	128.293	128.293	100.00	0.000	0.000
						B	0.000	128.293		100.00	130.625	0.000
						C	0.000	128.293		100.00	0.000	0.000
L3 89.00-37.83	62.93	0.866	5	1.0667	222.577	A	0.000	222.577	222.577	100.00	0.000	0.000
						B	0.000	222.577		100.00	187.104	0.000
						C	0.000	222.577		100.00	0.000	0.000
L4 37.83-0.00	18.36	0.7	4	0.9431	201.110	A	0.000	201.110	201.110	100.00	0.000	0.000

tnxTower Semaan Engineering Solutions 1047 N 205th Street Elkhorn, NE 68022 Phone: 402.289.1888 FAX:	Job	29173_Orange 1	Page	27 of 44
	Project	REV01	Date	08:20:57 08/26/22
	Client	KGI	Designed by	NathanW

Section Elevation	z	K _Z	q _z	t _Z	A _G	F _{a c e}	A _F	A _R	A _{leg}	Leg %	C _{A A} In Face	C _{A A} Out Face
ft	ft		psf	in	ft ²		ft ²	ft ²	ft ²		ft ²	ft ²
						B	0.000	201.110		100.00	135.337	0.000
						C	0.000	201.110		100.00	0.000	0.000

Tower Pressure - Service

$$G_H = 1.100$$

Section Elevation	z	K _Z	q _z	A _G	F _{a c e}	A _F	A _R	A _{leg}	Leg %	C _{A A} In Face	C _{A A} Out Face
ft	ft		psf	ft ²		ft ²	ft ²	ft ²		ft ²	ft ²
L1 160.50-126.92	142.67	1.094	9	78.649	A	0.000	78.649	78.649	100.00	0.000	0.000
					B	0.000	78.649		100.00	2.763	0.000
					C	0.000	78.649		100.00	0.000	0.000
L2 126.92-89.00	107.36	1.008	8	120.977	A	0.000	120.977	120.977	100.00	0.000	0.000
					B	0.000	120.977		100.00	61.351	0.000
					C	0.000	120.977		100.00	0.000	0.000
L3 89.00-37.83	62.93	0.866	7	212.981	A	0.000	212.981	212.981	100.00	0.000	0.000
					B	0.000	212.981		100.00	90.315	0.000
					C	0.000	212.981		100.00	0.000	0.000
L4 37.83-0.00	18.36	0.7	5	194.384	A	0.000	194.384	194.384	100.00	0.000	0.000
					B	0.000	194.384		100.00	66.770	0.000
					C	0.000	194.384		100.00	0.000	0.000

Tower Forces - No Ice - Wind Normal To Face

Section Elevation	Add Weight	Self Weight	F _{a c e}	e	C _F	q _z	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K				psf			ft ²	K	plf	
L1 160.50-126.92	0.92	2.17	A	1	0.95	38	1	1	78.649	3.13	93.11	C
			B	1	0.95		1	1	78.649			
			C	1	0.95		1	1	78.649			
L2 126.92-89.00	1.67	5.73	A	1	1.2	35	1	1	120.977	7.45	196.35	A
			B	1	0.95		1	1	120.977			
			C	1	0.95		1	1	120.977			
L3 89.00-37.83	2.31	12.78	A	1	1.2	30	1	1	212.981	10.68	208.76	A
			B	1	0.95		1	1	212.981			
			C	1	0.95		1	1	212.981			
L4 37.83-0.00	1.71	14.29	A	1	1.2	24	1	1	194.384	6.25	165.22	A
			B	1	0.95		1	1	194.384			
			C	1	0.95		1	1	194.384			
Sum Weight:	6.61	34.97						OTM	2032.37 kip-ft	27.50		

Tower Forces - No Ice - Wind 60 To Face

tnxTower Semaan Engineering Solutions 1047 N 205th Street Elkhorn, NE 68022 Phone: 402.289.1888 FAX:	Job	29173_Orange 1	Page	28 of 44
	Project	REV01	Date	08:20:57 08/26/22
	Client	KGI	Designed by	NathanW

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K				psf			ft ²	K	plf	
L1 160.50-126.92	0.92	2.17	A	1	0.95	38	1	1	78.649	3.13	93.11	C
			B	1	0.95		1	1	78.649			
			C	1	0.95		1	1	78.649			
L2 126.92-89.00	1.67	5.73	A	1	0.95	35	1	1	120.977	7.45	196.35	B
			B	1	1.2		1	1	120.977			
			C	1	0.95		1	1	120.977			
L3 89.00-37.83	2.31	12.78	A	1	0.95	30	1	1	212.981	10.68	208.76	B
			B	1	1.2		1	1	212.981			
			C	1	0.95		1	1	212.981			
L4 37.83-0.00	1.71	14.29	A	1	0.95	24	1	1	194.384	6.25	165.22	B
			B	1	1.2		1	1	194.384			
			C	1	0.95		1	1	194.384			
Sum Weight:	6.61	34.97						OTM	2032.37 kip-ft	27.50		

Tower Forces - No Ice - Wind 90 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K				psf			ft ²	K	plf	
L1 160.50-126.92	0.92	2.17	A	1	0.95	38	1	1	78.649	3.13	93.11	C
			B	1	0.95		1	1	78.649			
			C	1	0.95		1	1	78.649			
L2 126.92-89.00	1.67	5.73	A	1	0.95	35	1	1	120.977	5.57	147.01	C
			B	1	1.028		1	1	120.977			
			C	1	1.195		1	1	120.977			
L3 89.00-37.83	2.31	12.78	A	1	0.95	30	1	1	212.981	7.64	149.30	C
			B	1	0.962		1	1	212.981			
			C	1	1.091		1	1	212.981			
L4 37.83-0.00	1.71	14.29	A	1	0.95	24	1	1	194.384	5.26	139.05	C
			B	1	0.95		1	1	194.384			
			C	1	1.01		1	1	194.384			
Sum Weight:	6.61	34.97						OTM	1621.88 kip-ft	21.60		

Tower Forces - With Ice - Wind Normal To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K				psf			ft ²	K	plf	
L1 160.50-126.92	1.00	3.55	A	1	1.2	7	1	1	85.128	0.74	22.10	C
			B	1	1.2		1	1	85.128			
			C	1	1.2		1	1	85.128			
L2 126.92-89.00	2.99	7.77	A	1	1.2	6	1	1	128.088	1.75	46.21	A
			B	1	1.2		1	1	128.088			
			C	1	1.2		1	1	128.088			
L3	4.17	16.16	A	1	1.2	5	1	1	222.078	2.39	46.61	A

tnxTower Semaan Engineering Solutions 1047 N 205th Street Elkhorn, NE 68022 Phone: 402.289.1888 FAX:	Job	29173_Orange 1	Page	29 of 44
	Project	REV01	Date	08:20:57 08/26/22
	Client	KGI	Designed by	NathanW

Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C _F	q _z psf	D _F	D _R	A _E ft ²	F K	w plf	Ctrl. Face
89.00-37.83			B	1	1.2		1	1	222.078			
L4 37.83-0.00	3.01	17.00	C	1	1.2		1	1	222.078			
			A	1	1.2	4	1	1	200.330	1.12	29.56	C
			B	1	1.2		1	1	200.330			
			C	1	1.2		1	1	200.330			
Sum Weight:	11.17	44.48						OTM	464.61 kip-ft	6.00		

Tower Forces - With Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C _F	q _z psf	D _F	D _R	A _E ft ²	F K	w plf	Ctrl. Face
L1	1.00	3.55	A	1	1.2	7	1	1	85.128	0.74	22.10	C
160.50-126.92			B	1	1.2		1	1	85.128			
			C	1	1.2		1	1	85.128			
L2	2.99	7.77	A	1	1.2	6	1	1	128.088	1.75	46.21	B
126.92-89.00			B	1	1.2		1	1	128.088			
			C	1	1.2		1	1	128.088			
L3	4.17	16.16	A	1	1.2	5	1	1	222.078	2.39	46.61	B
89.00-37.83			B	1	1.2		1	1	222.078			
			C	1	1.2		1	1	222.078			
L4 37.83-0.00	3.01	17.00	A	1	1.2	4	1	1	200.330	1.12	29.56	C
			B	1	1.2		1	1	200.330			
			C	1	1.2		1	1	200.330			
Sum Weight:	11.17	44.48						OTM	464.61 kip-ft	6.00		

Tower Forces - With Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C _F	q _z psf	D _F	D _R	A _E ft ²	F K	w plf	Ctrl. Face
L1	1.00	3.55	A	1	1.2	7	1	1	85.128	0.74	22.10	C
160.50-126.92			B	1	1.2		1	1	85.128			
			C	1	1.2		1	1	85.128			
L2	2.99	7.77	A	1	1.2	6	1	1	128.088	1.03	27.13	C
126.92-89.00			B	1	1.2		1	1	128.088			
			C	1	1.2		1	1	128.088			
L3	4.17	16.16	A	1	1.2	5	1	1	222.078	1.52	29.73	C
89.00-37.83			B	1	1.2		1	1	222.078			
			C	1	1.2		1	1	222.078			
L4 37.83-0.00	3.01	17.00	A	1	1.2	4	1	1	200.330	1.12	29.56	C
			B	1	1.2		1	1	200.330			
			C	1	1.2		1	1	200.330			
Sum Weight:	11.17	44.48						OTM	332.59 kip-ft	4.41		

tnxTower Semaan Engineering Solutions 1047 N 205th Street Elkhorn, NE 68022 Phone: 402.289.1888 FAX:	Job	29173_Orange 1	Page	30 of 44
	Project	REV01	Date	08:20:57 08/26/22
	Client	KGI	Designed by	NathanW

Tower Forces - Service - Wind Normal To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K				psf			ft ²	K	plf	
L1 160.50-126.92	0.92	2.17	A	1	0.95	9	1	1	78.649	0.70	20.83	C
			B	1	0.95		1	1	78.649			
			C	1	0.95		1	1	78.649			
L2 126.92-89.00	1.67	5.73	A	1	1.2	8	1	1	120.977	1.67	43.92	A
			B	1	0.95		1	1	120.977			
			C	1	0.95		1	1	120.977			
L3 89.00-37.83	2.31	12.78	A	1	1.2	7	1	1	212.981	2.39	46.70	A
			B	1	0.95		1	1	212.981			
			C	1	0.95		1	1	212.981			
L4 37.83-0.00	1.71	14.29	A	1	1.2	5	1	1	194.384	1.40	36.96	A
			B	1	0.95		1	1	194.384			
			C	1	0.95		1	1	194.384			
Sum Weight:	6.61	34.97						OTM	454.61 kip-ft	6.15		

Tower Forces - Service - Wind 60 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K				psf			ft ²	K	plf	
L1 160.50-126.92	0.92	2.17	A	1	0.95	9	1	1	78.649	0.70	20.83	C
			B	1	0.95		1	1	78.649			
			C	1	0.95		1	1	78.649			
L2 126.92-89.00	1.67	5.73	A	1	0.95	8	1	1	120.977	1.67	43.92	B
			B	1	1.2		1	1	120.977			
			C	1	0.95		1	1	120.977			
L3 89.00-37.83	2.31	12.78	A	1	0.95	7	1	1	212.981	2.39	46.70	B
			B	1	1.2		1	1	212.981			
			C	1	0.95		1	1	212.981			
L4 37.83-0.00	1.71	14.29	A	1	0.95	5	1	1	194.384	1.40	36.96	B
			B	1	1.2		1	1	194.384			
			C	1	0.95		1	1	194.384			
Sum Weight:	6.61	34.97						OTM	454.61 kip-ft	6.15		

Tower Forces - Service - Wind 90 To Face

tnxTower Semaan Engineering Solutions 1047 N 205th Street Elkhorn, NE 68022 Phone: 402.289.1888 FAX:	Job	29173_Orange 1	Page	31 of 44
	Project	REV01	Date	08:20:57 08/26/22
	Client	KGI	Designed by	NathanW

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z psf	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
L1 160.50-126.92	0.92	2.17	A	1	0.95	9	1	1	78.649	0.70	20.83	C
			B	1	0.95		1	1	78.649			
			C	1	0.95		1	1	78.649			
L2 126.92-89.00	1.67	5.73	A	1	0.95	8	1	1	120.977	1.25	32.88	C
			B	1	1.028		1	1	120.977			
			C	1	1.195		1	1	120.977			
L3 89.00-37.83	2.31	12.78	A	1	0.95	7	1	1	212.981	1.71	33.40	C
			B	1	0.962		1	1	212.981			
			C	1	1.091		1	1	212.981			
L4 37.83-0.00	1.71	14.29	A	1	0.95	5	1	1	194.384	1.18	31.10	C
			B	1	0.95		1	1	194.384			
			C	1	1.01		1	1	194.384			
Sum Weight:	6.61	34.97						OTM	362.79 kip-ft	4.83		

Force Totals

Load Case	Vertical Forces	Sum of Forces X	Sum of Forces Z	Sum of Overturning Moments, M _x	Sum of Overturning Moments, M _z	Sum of Torques
	K	K	K	kip-ft	kip-ft	kip-ft
Leg Weight	34.97					
Bracing Weight	0.00					
Total Member Self-Weight	34.97			-1.63	-3.31	
Total Weight	55.41			-1.63	-3.31	
Wind 0 deg - No Ice		0.00	-37.88	-4164.58	-3.86	1.29
Wind 30 deg - No Ice		19.02	-32.81	-3607.68	-2098.16	0.92
Wind 60 deg - No Ice		32.87	-18.94	-2083.04	-3622.79	0.42
Wind 90 deg - No Ice		40.35	-0.04	-7.46	-4366.25	0.04
Wind 120 deg - No Ice		40.05	23.03	2369.30	-4136.78	-8.94
Wind 150 deg - No Ice		19.19	33.12	3632.46	-2113.83	-0.93
Wind 180 deg - No Ice		-0.00	37.83	4154.50	-2.75	-1.09
Wind 210 deg - No Ice		-18.98	32.74	3594.81	2086.12	-0.77
Wind 240 deg - No Ice		-32.83	18.86	2069.70	3610.13	-0.25
Wind 270 deg - No Ice		-40.35	-0.03	-6.35	4359.64	0.27
Wind 300 deg - No Ice		-40.10	-23.10	-2382.64	4136.21	9.38
Wind 330 deg - No Ice		-19.23	-33.19	-3645.33	2112.64	1.35
Member Ice	9.51					
Total Weight Ice	83.55			-7.16	-12.92	
Wind 0 deg - Ice		0.00	-9.11	-1026.24	-13.07	0.30
Wind 30 deg - Ice		4.57	-7.89	-889.89	-524.80	0.21
Wind 60 deg - Ice		7.90	-4.55	-516.72	-897.74	0.08
Wind 90 deg - Ice		9.11	-0.01	-8.34	-1033.20	-0.02
Wind 120 deg - Ice		9.26	5.33	566.18	-1010.73	-2.60
Wind 150 deg - Ice		4.56	7.87	873.54	-523.47	-0.23
Wind 180 deg - Ice		-0.00	9.10	1010.59	-12.76	-0.26
Wind 210 deg - Ice		-4.56	7.88	873.70	497.90	-0.18
Wind 240 deg - Ice		-7.89	4.54	500.44	870.72	-0.05
Wind 270 deg - Ice		-9.11	-0.01	-8.03	1007.36	0.08
Wind 300 deg - Ice		-9.27	-5.35	-582.47	986.08	2.68
Wind 330 deg - Ice		-4.57	-7.89	-889.74	498.70	0.32
Total Weight	55.41			-1.63	-3.31	
Wind 0 deg - Service		0.00	-8.47	-931.25	-0.67	0.29
Wind 30 deg - Service		4.25	-7.34	-806.68	-469.15	0.20

tnxTower Semaan Engineering Solutions 1047 N 205th Street Elkhorn, NE 68022 Phone: 402.289.1888 FAX:	Job	29173_Orange 1	Page	32 of 44
	Project	REV01	Date	08:20:57 08/26/22
	Client	KGI	Designed by	NathanW

Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Overturning Moments, M_x kip-ft	Sum of Overturning Moments, M_z kip-ft	Sum of Torques kip-ft
Wind 60 deg - Service		7.35	-4.24	-465.63	-810.20	0.09
Wind 90 deg - Service		9.03	-0.01	-1.34	-976.50	0.01
Wind 120 deg - Service		8.96	5.15	530.32	-925.17	-2.00
Wind 150 deg - Service		4.29	7.41	812.88	-472.65	-0.21
Wind 180 deg - Service		-0.00	8.46	929.66	-0.42	-0.24
Wind 210 deg - Service		-4.25	7.32	804.46	466.84	-0.17
Wind 240 deg - Service		-7.34	4.22	463.31	807.75	-0.06
Wind 270 deg - Service		-9.03	-0.01	-1.09	975.41	0.06
Wind 300 deg - Service		-8.97	-5.17	-532.65	925.43	2.10
Wind 330 deg - Service		-4.30	-7.42	-815.10	472.78	0.30
Seismic Vertical	2.37					
Seismic Horizontal 0 deg		0.00	-1.66	-211.05	0.00	0.00
Seismic Horizontal 30 deg		0.83	-1.44	-182.77	-105.52	0.00
Seismic Horizontal 60 deg		1.44	-0.83	-105.52	-182.77	0.00
Seismic Horizontal 90 deg		1.66	0.00	0.00	-211.05	0.00
Seismic Horizontal 120 deg		1.44	0.83	105.52	-182.77	0.00
Seismic Horizontal 150 deg		0.83	1.44	182.77	-105.52	0.00
Seismic Horizontal 180 deg		0.00	1.66	211.05	0.00	0.00
Seismic Horizontal 210 deg		-0.83	1.44	182.77	105.52	0.00
Seismic Horizontal 240 deg		-1.44	0.83	105.52	182.77	0.00
Seismic Horizontal 270 deg		-1.66	0.00	0.00	211.05	0.00
Seismic Horizontal 300 deg		-1.44	-0.83	-105.52	182.77	0.00
Seismic Horizontal 330 deg		-0.83	-1.44	-182.77	105.52	0.00

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 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

tnxTower Semaan Engineering Solutions 1047 N 205th Street Elkhorn, NE 68022 Phone: 402.289.1888 FAX:	Job	29173_Orange 1	Page	33 of 44
	Project	REV01	Date	08:20:57 08/26/22
	Client	KGI	Designed by	NathanW

Comb. No.	Description
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
51	1.2 Dead+1.0 Ev+1.0 Eh 0 deg
52	0.9 Dead-1.0 Ev+1.0 Eh 0 deg
53	1.2 Dead+1.0 Ev+1.0 Eh 30 deg
54	0.9 Dead-1.0 Ev+1.0 Eh 30 deg
55	1.2 Dead+1.0 Ev+1.0 Eh 60 deg
56	0.9 Dead-1.0 Ev+1.0 Eh 60 deg
57	1.2 Dead+1.0 Ev+1.0 Eh 90 deg
58	0.9 Dead-1.0 Ev+1.0 Eh 90 deg
59	1.2 Dead+1.0 Ev+1.0 Eh 120 deg
60	0.9 Dead-1.0 Ev+1.0 Eh 120 deg
61	1.2 Dead+1.0 Ev+1.0 Eh 150 deg
62	0.9 Dead-1.0 Ev+1.0 Eh 150 deg
63	1.2 Dead+1.0 Ev+1.0 Eh 180 deg
64	0.9 Dead-1.0 Ev+1.0 Eh 180 deg
65	1.2 Dead+1.0 Ev+1.0 Eh 210 deg
66	0.9 Dead-1.0 Ev+1.0 Eh 210 deg
67	1.2 Dead+1.0 Ev+1.0 Eh 240 deg
68	0.9 Dead-1.0 Ev+1.0 Eh 240 deg
69	1.2 Dead+1.0 Ev+1.0 Eh 270 deg
70	0.9 Dead-1.0 Ev+1.0 Eh 270 deg
71	1.2 Dead+1.0 Ev+1.0 Eh 300 deg
72	0.9 Dead-1.0 Ev+1.0 Eh 300 deg
73	1.2 Dead+1.0 Ev+1.0 Eh 330 deg
74	0.9 Dead-1.0 Ev+1.0 Eh 330 deg

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
L1	160.5 - 126.92	Pole	Max Tension	8	0.00	0.00	-0.00
			Max. Compression	26	-28.38	-1.26	0.81
			Max. Mx	8	-14.88	-371.58	0.54
			Max. My	2	-14.92	-0.50	366.78
			Max. Vy	8	18.56	-371.58	0.54
			Max. Vx	2	-18.47	-0.50	366.78
			Max. Torque	25			-1.37

tnxTower Semaan Engineering Solutions 1047 N 205th Street Elkhorn, NE 68022 Phone: 402.289.1888 FAX:	Job	29173_Orange 1	Page	34 of 44
	Project	REV01	Date	08:20:57 08/26/22
	Client	KGI	Designed by	NathanW

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L2	126.92 - 89	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-46.36	-3.94	2.30
			Max. Mx	8	-26.57	-1264.84	2.50
			Max. My	2	-26.65	-1.34	1240.80
			Max. Vy	8	27.80	-1264.84	2.50
			Max. Vx	2	-26.73	-1.34	1240.80
			Max. Torque	23			-3.71
L3	89 - 37.83	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-68.76	-9.12	4.89
			Max. Mx	8	-44.12	-2819.61	5.27
			Max. My	2	-44.18	-3.06	2716.30
			Max. Vy	8	34.85	-2819.61	5.27
			Max. Vx	2	-32.79	-3.06	2716.30
			Max. Torque	23			-8.61
L4	37.83 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-95.69	-14.14	7.79
			Max. Mx	8	-66.47	-4506.49	8.04
			Max. My	2	-66.47	-4.67	4299.76
			Max. Vy	8	40.38	-4506.49	8.04
			Max. Vx	2	-37.90	-4.67	4299.76
			Max. Torque	23			-9.34

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	31	95.69	-9.26	-5.33
	Max. H _x	20	66.49	40.35	0.03
	Max. H _z	2	66.49	-0.00	37.88
	Max. M _x	2	4299.76	-0.00	37.88
	Max. M _z	8	4506.49	-40.35	0.04
	Max. Torsion	11	8.90	-40.05	-23.03
	Min. Vert	56	47.49	-1.44	0.83
	Min. H _x	8	66.49	-40.35	0.04
	Min. H _z	14	66.49	0.00	-37.83
	Min. M _x	14	-4288.69	0.00	-37.83
	Min. M _z	20	-4498.30	40.35	0.03
	Min. Torsion	23	-9.34	40.10	23.10

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	55.41	0.00	0.00	-1.63	-3.31	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	66.49	0.00	-37.88	-4299.76	-4.67	1.28
0.9 Dead+1.0 Wind 0 deg - No Ice	49.86	0.00	-37.88	-4263.79	-3.61	1.28
1.2 Dead+1.0 Wind 30 deg - No Ice	66.49	19.02	-32.81	-3724.83	-2166.88	0.91
0.9 Dead+1.0 Wind 30 deg - No Ice	49.86	19.02	-32.81	-3693.60	-2147.96	0.91

tnxTower Semaan Engineering Solutions 1047 N 205th Street Elkhorn, NE 68022 Phone: 402.289.1888 FAX:	Job	29173_Orange 1	Page	35 of 44
	Project	REV01	Date	08:20:57 08/26/22
	Client	KGI	Designed by	NathanW

<i>Load Combination</i>	<i>Vertical K</i>	<i>Shear_x K</i>	<i>Shear_z K</i>	<i>Overturning Moment, M_x kip-ft</i>	<i>Overturning Moment, M_z kip-ft</i>	<i>Torque kip-ft</i>
Ice						
1.2 Dead+1.0 Wind 60 deg - No Ice	66.49	32.87	-18.94	-2150.81	-3740.93	0.41
0.9 Dead+1.0 Wind 60 deg - No Ice	49.86	32.87	-18.94	-2132.57	-3709.00	0.41
1.2 Dead+1.0 Wind 90 deg - No Ice	66.49	40.35	-0.04	-8.04	-4506.49	0.05
0.9 Dead+1.0 Wind 90 deg - No Ice	49.86	40.35	-0.04	-7.47	-4468.73	0.05
1.2 Dead+1.0 Wind 120 deg - No Ice	66.49	40.05	23.03	2442.22	-4265.51	-8.89
0.9 Dead+1.0 Wind 120 deg - No Ice	49.86	40.05	23.03	2423.41	-4230.73	-8.90
1.2 Dead+1.0 Wind 150 deg - No Ice	66.49	19.19	33.12	3749.45	-2182.89	-0.91
0.9 Dead+1.0 Wind 150 deg - No Ice	49.86	19.19	33.12	3719.08	-2163.87	-0.91
1.2 Dead+1.0 Wind 180 deg - No Ice	66.49	-0.00	37.83	4288.69	-3.52	-1.08
0.9 Dead+1.0 Wind 180 deg - No Ice	49.86	-0.00	37.83	4253.81	-2.48	-1.08
1.2 Dead+1.0 Wind 210 deg - No Ice	66.49	-18.98	32.74	3710.88	2153.09	-0.77
0.9 Dead+1.0 Wind 210 deg - No Ice	49.86	-18.98	32.74	3680.77	2136.32	-0.77
1.2 Dead+1.0 Wind 240 deg - No Ice	66.49	-32.83	18.86	2136.37	3726.50	-0.26
0.9 Dead+1.0 Wind 240 deg - No Ice	49.86	-32.83	18.86	2119.25	3696.73	-0.26
1.2 Dead+1.0 Wind 270 deg - No Ice	66.49	-40.35	-0.03	-6.89	4498.30	0.26
0.9 Dead+1.0 Wind 270 deg - No Ice	49.86	-40.35	-0.03	-6.33	4462.64	0.26
1.2 Dead+1.0 Wind 300 deg - No Ice	66.49	-40.10	-23.10	-2456.61	4263.59	9.33
0.9 Dead+1.0 Wind 300 deg - No Ice	49.86	-40.10	-23.10	-2436.69	4230.84	9.34
1.2 Dead+1.0 Wind 330 deg - No Ice	66.49	-19.23	-33.19	-3763.40	2180.30	1.34
0.9 Dead+1.0 Wind 330 deg - No Ice	49.86	-19.23	-33.19	-3731.92	2163.34	1.34
1.2 Dead+1.0 Ice+1.0 Temp	95.69	0.00	-0.00	-7.79	-14.14	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	95.69	0.00	-9.11	-1084.82	-14.50	0.30
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	95.69	4.57	-7.89	-940.73	-555.31	0.21
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	95.69	7.90	-4.55	-546.38	-949.43	0.08
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	95.69	9.11	-0.01	-9.15	-1092.59	-0.01
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	95.69	9.26	5.33	596.77	-1066.74	-2.59
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	95.69	4.56	7.87	922.79	-553.90	-0.23
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	95.69	-0.00	9.10	1067.62	-14.17	-0.26
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	95.69	-4.56	7.88	922.96	525.52	-0.18
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	95.69	-7.89	4.54	528.51	919.51	-0.05
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	95.69	-9.11	-0.01	-8.82	1063.92	0.07

tnxTower Semaan Engineering Solutions 1047 N 205th Street Elkhorn, NE 68022 Phone: 402.289.1888 FAX:	Job	29173_Orange 1	Page 36 of 44
	Project	REV01	Date 08:20:57 08/26/22
	Client	KGI	Designed by NathanW

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
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 300	95.69	-9.27	-5.35	-614.64	1039.33	2.68
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 330	95.69	-4.57	-7.89	-940.57	526.36	0.31
deg+1.0 Ice+1.0 Temp						
Dead+Wind 0 deg - Service	55.41	0.00	-8.47	-958.35	-3.53	0.29
Dead+Wind 30 deg - Service	55.41	4.25	-7.34	-830.37	-484.84	0.20
Dead+Wind 60 deg - Service	55.41	7.35	-4.24	-480.00	-835.22	0.09
Dead+Wind 90 deg - Service	55.41	9.03	-0.01	-3.01	-1005.73	0.01
Dead+Wind 120 deg - Service	55.41	8.96	5.15	542.57	-952.26	-2.00
Dead+Wind 150 deg - Service	55.41	4.29	7.41	833.42	-488.41	-0.20
Dead+Wind 180 deg - Service	55.41	-0.00	8.46	953.44	-3.27	-0.24
Dead+Wind 210 deg - Service	55.41	-4.25	7.32	824.82	476.79	-0.17
Dead+Wind 240 deg - Service	55.41	-7.34	4.22	474.34	827.03	-0.06
Dead+Wind 270 deg - Service	55.41	-9.03	-0.01	-2.76	998.93	0.06
Dead+Wind 300 deg - Service	55.41	-8.97	-5.17	-548.23	946.85	2.09
Dead+Wind 330 deg - Service	55.41	-4.30	-7.42	-838.98	482.85	0.30
1.2 Dead+1.0 Ev+1.0 Eh 0 deg	68.86	0.00	-1.66	-220.48	-4.11	-0.00
0.9 Dead-1.0 Ev+1.0 Eh 0 deg	47.49	0.00	-1.66	-217.58	-3.05	-0.00
1.2 Dead+1.0 Ev+1.0 Eh 30 deg	68.86	0.83	-1.44	-191.21	-113.34	-0.00
0.9 Dead-1.0 Ev+1.0 Eh 30 deg	47.49	0.83	-1.44	-188.63	-111.09	-0.00
1.2 Dead+1.0 Ev+1.0 Eh 60 deg	68.86	1.44	-0.83	-111.25	-193.30	0.00
0.9 Dead-1.0 Ev+1.0 Eh 60 deg	47.49	1.44	-0.83	-109.54	-190.19	0.00
1.2 Dead+1.0 Ev+1.0 Eh 90 deg	68.86	1.66	0.00	-2.02	-222.57	0.00
0.9 Dead-1.0 Ev+1.0 Eh 90 deg	47.49	1.66	0.00	-1.50	-219.13	0.00
1.2 Dead+1.0 Ev+1.0 Eh 120	68.86	1.44	0.83	107.21	-193.30	0.00
deg						
0.9 Dead-1.0 Ev+1.0 Eh 120	47.49	1.44	0.83	106.54	-190.18	0.00
deg						
1.2 Dead+1.0 Ev+1.0 Eh 150	68.86	0.83	1.44	187.17	-113.33	0.00
deg						
0.9 Dead-1.0 Ev+1.0 Eh 150	47.49	0.83	1.44	185.63	-111.09	0.00
deg						
1.2 Dead+1.0 Ev+1.0 Eh 180	68.86	0.00	1.66	216.43	-4.11	0.00
deg						
0.9 Dead-1.0 Ev+1.0 Eh 180	47.49	0.00	1.66	214.58	-3.05	0.00
deg						
1.2 Dead+1.0 Ev+1.0 Eh 210	68.86	-0.83	1.44	187.17	105.12	0.00
deg						
0.9 Dead-1.0 Ev+1.0 Eh 210	47.49	-0.83	1.44	185.63	104.99	0.00
deg						
1.2 Dead+1.0 Ev+1.0 Eh 240	68.86	-1.44	0.83	107.21	185.07	-0.00
deg						
0.9 Dead-1.0 Ev+1.0 Eh 240	47.49	-1.44	0.83	106.54	184.08	-0.00
deg						
1.2 Dead+1.0 Ev+1.0 Eh 270	68.86	-1.66	0.00	-2.02	214.34	-0.00
deg						
0.9 Dead-1.0 Ev+1.0 Eh 270	47.49	-1.66	0.00	-1.50	213.03	-0.00
deg						
1.2 Dead+1.0 Ev+1.0 Eh 300	68.86	-1.44	-0.83	-111.24	185.07	-0.00
deg						
0.9 Dead-1.0 Ev+1.0 Eh 300	47.49	-1.44	-0.83	-109.54	184.08	-0.00
deg						
1.2 Dead+1.0 Ev+1.0 Eh 330	68.86	-0.83	-1.44	-191.20	105.12	-0.00
deg						
0.9 Dead-1.0 Ev+1.0 Eh 330	47.49	-0.83	-1.44	-188.63	104.99	-0.00
deg						

tnxTower Semaan Engineering Solutions 1047 N 205th Street Elkhorn, NE 68022 Phone: 402.289.1888 FAX:	Job	29173_Orange 1	Page	37 of 44
	Project	REV01	Date	08:20:57 08/26/22
	Client	KGI	Designed by	NathanW

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.00	-55.41	0.00	0.00	55.41	0.00	0.000%
2	0.00	-66.49	-37.88	-0.00	66.49	37.88	0.000%
3	0.00	-49.86	-37.88	-0.00	49.86	37.88	0.000%
4	19.02	-66.49	-32.81	-19.02	66.49	32.81	0.000%
5	19.02	-49.86	-32.81	-19.02	49.86	32.81	0.000%
6	32.87	-66.49	-18.94	-32.87	66.49	18.94	0.000%
7	32.87	-49.86	-18.94	-32.87	49.86	18.94	0.000%
8	40.35	-66.49	-0.04	-40.35	66.49	0.04	0.000%
9	40.35	-49.86	-0.04	-40.35	49.86	0.04	0.000%
10	40.05	-66.49	23.03	-40.05	66.49	-23.03	0.000%
11	40.05	-49.86	23.03	-40.05	49.86	-23.03	0.000%
12	19.19	-66.49	33.12	-19.19	66.49	-33.12	0.000%
13	19.19	-49.86	33.12	-19.19	49.86	-33.12	0.000%
14	-0.00	-66.49	37.83	0.00	66.49	-37.83	0.000%
15	-0.00	-49.86	37.83	0.00	49.86	-37.83	0.000%
16	-18.98	-66.49	32.74	18.98	66.49	-32.74	0.000%
17	-18.98	-49.86	32.74	18.98	49.86	-32.74	0.000%
18	-32.83	-66.49	18.86	32.83	66.49	-18.86	0.000%
19	-32.83	-49.86	18.86	32.83	49.86	-18.86	0.000%
20	-40.35	-66.49	-0.03	40.35	66.49	0.03	0.000%
21	-40.35	-49.86	-0.03	40.35	49.86	0.03	0.000%
22	-40.10	-66.49	-23.10	40.10	66.49	23.10	0.000%
23	-40.10	-49.86	-23.10	40.10	49.86	23.10	0.000%
24	-19.23	-66.49	-33.19	19.23	66.49	33.19	0.000%
25	-19.23	-49.86	-33.19	19.23	49.86	33.19	0.000%
26	0.00	-95.69	0.00	-0.00	95.69	0.00	0.000%
27	0.00	-95.69	-9.11	-0.00	95.69	9.11	0.000%
28	4.57	-95.69	-7.89	-4.57	95.69	7.89	0.000%
29	7.90	-95.69	-4.55	-7.90	95.69	4.55	0.000%
30	9.11	-95.69	-0.01	-9.11	95.69	0.01	0.000%
31	9.26	-95.69	5.33	-9.26	95.69	-5.33	0.000%
32	4.56	-95.69	7.87	-4.56	95.69	-7.87	0.000%
33	-0.00	-95.69	9.10	0.00	95.69	-9.10	0.000%
34	-4.56	-95.69	7.88	4.56	95.69	-7.88	0.000%
35	-7.89	-95.69	4.54	7.89	95.69	-4.54	0.000%
36	-9.11	-95.69	-0.01	9.11	95.69	0.01	0.000%
37	-9.27	-95.69	-5.35	9.27	95.69	5.35	0.000%
38	-4.57	-95.69	-7.89	4.57	95.69	7.89	0.000%
39	0.00	-55.41	-8.47	-0.00	55.41	8.47	0.000%
40	4.25	-55.41	-7.34	-4.25	55.41	7.34	0.000%
41	7.35	-55.41	-4.24	-7.35	55.41	4.24	0.000%
42	9.03	-55.41	-0.01	-9.03	55.41	0.01	0.000%
43	8.96	-55.41	5.15	-8.96	55.41	-5.15	0.000%
44	4.29	-55.41	7.41	-4.29	55.41	-7.41	0.000%
45	-0.00	-55.41	8.46	0.00	55.41	-8.46	0.000%
46	-4.25	-55.41	7.32	4.25	55.41	-7.32	0.000%
47	-7.34	-55.41	4.22	7.34	55.41	-4.22	0.000%
48	-9.03	-55.41	-0.01	9.03	55.41	0.01	0.000%
49	-8.97	-55.41	-5.17	8.97	55.41	5.17	0.000%
50	-4.30	-55.41	-7.42	4.30	55.41	7.42	0.000%
51	0.00	-68.86	-1.66	-0.00	68.86	1.66	0.000%
52	0.00	-47.49	-1.66	0.00	47.49	1.66	0.000%
53	0.83	-68.86	-1.44	-0.83	68.86	1.44	0.000%
54	0.83	-47.49	-1.44	-0.83	47.49	1.44	0.000%
55	1.44	-68.86	-0.83	-1.44	68.86	0.83	0.000%
56	1.44	-47.49	-0.83	-1.44	47.49	0.83	0.000%
57	1.66	-68.86	0.00	-1.66	68.86	0.00	0.000%
58	1.66	-47.49	0.00	-1.66	47.49	0.00	0.000%

tnxTower Semaan Engineering Solutions 1047 N 205th Street Elkhorn, NE 68022 Phone: 402.289.1888 FAX:	Job	29173_Orange 1	Page	38 of 44
	Project	REV01	Date	08:20:57 08/26/22
	Client	KGI	Designed by	NathanW

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
59	1.44	-68.86	0.83	-1.44	68.86	-0.83	0.000%
60	1.44	-47.49	0.83	-1.44	47.49	-0.83	0.000%
61	0.83	-68.86	1.44	-0.83	68.86	-1.44	0.000%
62	0.83	-47.49	1.44	-0.83	47.49	-1.44	0.000%
63	0.00	-68.86	1.66	-0.00	68.86	-1.66	0.000%
64	0.00	-47.49	1.66	0.00	47.49	-1.66	0.000%
65	-0.83	-68.86	1.44	0.83	68.86	-1.44	0.000%
66	-0.83	-47.49	1.44	0.83	47.49	-1.44	0.000%
67	-1.44	-68.86	0.83	1.44	68.86	-0.83	0.000%
68	-1.44	-47.49	0.83	1.44	47.49	-0.83	0.000%
69	-1.66	-68.86	0.00	1.66	68.86	0.00	0.000%
70	-1.66	-47.49	0.00	1.66	47.49	0.00	0.000%
71	-1.44	-68.86	-0.83	1.44	68.86	0.83	0.000%
72	-1.44	-47.49	-0.83	1.44	47.49	0.83	0.000%
73	-0.83	-68.86	-1.44	0.83	68.86	1.44	0.000%
74	-0.83	-47.49	-1.44	0.83	47.49	1.44	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	4	0.00000001	0.00034891
3	Yes	4	0.00000001	0.00022095
4	Yes	5	0.00000001	0.00030816
5	Yes	5	0.00000001	0.00014271
6	Yes	5	0.00000001	0.00030111
7	Yes	5	0.00000001	0.00013920
8	Yes	4	0.00000001	0.00011961
9	Yes	4	0.00000001	0.00005450
10	Yes	5	0.00000001	0.00032573
11	Yes	5	0.00000001	0.00014591
12	Yes	5	0.00000001	0.00031021
13	Yes	5	0.00000001	0.00014353
14	Yes	4	0.00000001	0.00029757
15	Yes	4	0.00000001	0.00018611
16	Yes	5	0.00000001	0.00029584
17	Yes	5	0.00000001	0.00013703
18	Yes	5	0.00000001	0.00030078
19	Yes	5	0.00000001	0.00013949
20	Yes	4	0.00000001	0.00015174
21	Yes	4	0.00000001	0.00008126
22	Yes	5	0.00000001	0.00037561
23	Yes	5	0.00000001	0.00017016
24	Yes	5	0.00000001	0.00029958
25	Yes	5	0.00000001	0.00013820
26	Yes	4	0.00000001	0.00002110
27	Yes	5	0.00000001	0.00010583
28	Yes	5	0.00000001	0.00012452
29	Yes	5	0.00000001	0.00012432
30	Yes	5	0.00000001	0.00010663
31	Yes	5	0.00000001	0.00013358
32	Yes	5	0.00000001	0.00012251
33	Yes	5	0.00000001	0.00010421
34	Yes	5	0.00000001	0.00011936
35	Yes	5	0.00000001	0.00011955

tnxTower Semaan Engineering Solutions 1047 N 205th Street Elkhorn, NE 68022 Phone: 402.289.1888 FAX:	Job	29173_Orange 1	Page	39 of 44
	Project	REV01	Date	08:20:57 08/26/22
	Client	KGI	Designed by	NathanW

36	Yes	5	0.00000001	0.00010395
37	Yes	5	0.00000001	0.00013550
38	Yes	5	0.00000001	0.00012116
39	Yes	4	0.00000001	0.00002779
40	Yes	4	0.00000001	0.00011378
41	Yes	4	0.00000001	0.00010599
42	Yes	4	0.00000001	0.00002225
43	Yes	4	0.00000001	0.00011662
44	Yes	4	0.00000001	0.00011434
45	Yes	4	0.00000001	0.00002601
46	Yes	4	0.00000001	0.00010130
47	Yes	4	0.00000001	0.00010641
48	Yes	4	0.00000001	0.00002253
49	Yes	4	0.00000001	0.00016909
50	Yes	4	0.00000001	0.00010206
51	Yes	4	0.00000001	0.00000788
52	Yes	4	0.00000001	0.00000379
53	Yes	4	0.00000001	0.00000904
54	Yes	4	0.00000001	0.00000457
55	Yes	4	0.00000001	0.00000905
56	Yes	4	0.00000001	0.00002031
57	Yes	4	0.00000001	0.00000795
58	Yes	4	0.00000001	0.00000382
59	Yes	4	0.00000001	0.00000892
60	Yes	4	0.00000001	0.00000451
61	Yes	4	0.00000001	0.00000886
62	Yes	4	0.00000001	0.00000451
63	Yes	4	0.00000001	0.00000771
64	Yes	4	0.00000001	0.00000374
65	Yes	4	0.00000001	0.00000858
66	Yes	4	0.00000001	0.00000438
67	Yes	4	0.00000001	0.00000857
68	Yes	4	0.00000001	0.00000438
69	Yes	4	0.00000001	0.00000763
70	Yes	4	0.00000001	0.00000371
71	Yes	4	0.00000001	0.00000870
72	Yes	4	0.00000001	0.00000444
73	Yes	4	0.00000001	0.00000873
74	Yes	4	0.00000001	0.00000444

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	160.5 - 126.92	17.353	43	1.0060	0.0030
L2	131 - 89	11.435	43	0.8658	0.0030
L3	94.25 - 37.83	5.699	43	0.5966	0.0021
L4	44.75 - 0	1.235	43	0.2516	0.0008

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
158.71	CCISismic Tower Section 1 - 1	43	16.980	0.9986	0.0030	44022

<i>tnxTower</i> <i>Semaan Engineering Solutions</i> 1047 N 205th Street Elkhorn, NE 68022 Phone: 402.289.1888 FAX:	Job	29173_Orange 1	Page	40 of 44
	Project	REV01	Date	08:20:57 08/26/22
	Client	KGI	Designed by	NathanW

<i>Elevation</i>	<i>Appurtenance</i>	<i>Gov. Load Comb.</i>	<i>Deflection</i>	<i>Tilt</i>	<i>Twist</i>	<i>Radius of Curvature</i>
<i>ft</i>			<i>in</i>	<i>°</i>	<i>°</i>	<i>ft</i>
157.00	12' Platform w/Double Rail	43	16.624	0.9915	0.0030	44022
155.25	CCISeismic (12) general cable 1 5/8" Coax From 0 to 160 (150.5ft to160ft)	43	16.260	0.9842	0.0031	41926
151.92	CCISeismic Tower Section 1 - 2	43	15.570	0.9701	0.0031	25654
148.00	SitePro1 MSFAA Adapter	43	14.765	0.9529	0.0031	17609
145.50	CCISeismic (12) general cable 1 5/8" Coax From 0 to 160 (140.5ft to150.5ft)	43	14.256	0.9415	0.0031	14674
144.25	CCISeismic (12) general cable 1 1/4" Coax From 0 to 148 (140.5ft to148ft)	43	14.004	0.9357	0.0031	13545
141.92	CCISeismic Tower Section 1 - 3	43	13.538	0.9246	0.0031	11846
136.00	WB2900D	43	12.378	0.8942	0.0030	8984
135.50	CCISeismic (12) general cable 1 5/8" Coax From 0 to 160 (130.5ft to140.5ft)	43	12.282	0.8915	0.0030	8804
133.50	12' Platform w/ Rail	43	11.902	0.8804	0.0030	8185
132.75	CCISeismic (2) general cable 7/8" Coax From 0 to 135 (130.5ft to135ft)	43	11.761	0.8761	0.0030	8002
131.92	CCISeismic Tower Section 1 - 4	43	11.606	0.8713	0.0030	7834
130.00	CCISeismic Tower Section 2 - 1	43	11.251	0.8598	0.0030	7596
125.50	CCISeismic (12) general cable 1 5/8" Coax From 0 to 160 (120.5ft to130.5ft)	43	10.443	0.8312	0.0029	7557
124.00	CCISeismic Tower Section 2 - 2	43	10.180	0.8212	0.0029	7584
121.75	CCISeismic (8) general cable 1 5/8" Coax From 0 to 123 (120.5ft to123ft)	43	9.794	0.8057	0.0028	7624
121.50	12' Platform w/ Rail	43	9.751	0.8040	0.0028	7629
115.50	CCISeismic (12) general cable 1 5/8" Coax From 0 to 160 (110.5ft to120.5ft)	43	8.761	0.7608	0.0027	7718
114.00	CCISeismic Tower Section 2 - 3	43	8.522	0.7496	0.0026	7740
105.50	CCISeismic (12) general cable 1 5/8" Coax From 0 to 160 (100.5ft to110.5ft)	43	7.234	0.6844	0.0024	7868
104.00	CCISeismic Tower Section 2 - 4	43	7.018	0.6727	0.0024	7891
95.50	CCISeismic (12) general cable 1 5/8" Coax From 0 to 160 (90.5ft to100.5ft)	43	5.860	0.6062	0.0021	8014
94.00	CCISeismic Tower Section 2 - 5	43	5.667	0.5946	0.0021	8021
91.04	CCISeismic Tower Section 3 - 1	43	5.296	0.5719	0.0020	8005
85.50	CCISeismic (12) general cable 1 5/8" Coax From 0 to 160 (80.5ft to90.5ft)	43	4.636	0.5300	0.0018	7942
83.50	1' Standoff	43	4.409	0.5151	0.0018	7919
82.83	CCISeismic Tower Section 3 - 2	43	4.335	0.5101	0.0017	7911
75.50	CCISeismic (12) general cable 1 5/8" Coax From 0 to 160 (70.5ft to80.5ft)	43	3.563	0.4567	0.0015	7828
72.83	CCISeismic Tower Section 3 - 3	43	3.303	0.4377	0.0015	7798
65.50	CCISeismic (12) general cable 1 5/8" Coax From 0 to 160 (60.5ft to70.5ft)	43	2.644	0.3866	0.0013	7717
62.83	CCISeismic Tower Section 3 - 4	43	2.425	0.3684	0.0012	7688
55.50	CCISeismic (12) general cable 1 5/8" Coax From 0 to 160 (50.5ft to60.5ft)	43	1.880	0.3197	0.0010	7610
52.83	CCISeismic Tower Section 3 - 5	43	1.703	0.3024	0.0009	7582

<i>tnxTower</i> <i>Semaan Engineering Solutions</i> 1047 N 205th Street Elkhorn, NE 68022 Phone: 402.289.1888 FAX:	Job	29173_Orange 1	Page	41 of 44
	Project	REV01	Date	08:20:57 08/26/22
	Client	KGI	Designed by	NathanW

<i>Elevation</i>	<i>Appurtenance</i>	<i>Gov. Load Comb.</i>	<i>Deflection</i>	<i>Tilt</i>	<i>Twist</i>	<i>Radius of Curvature</i>
<i>ft</i>			<i>in</i>	<i>°</i>	<i>°</i>	<i>ft</i>
45.50	CCISismic (12) general cable 1 5/8" Coax From 0 to 160 (40.5ft to 50.5ft)	43	1.274	0.2562	0.0008	7598
42.83	CCISismic Tower Section 3 - 6	43	1.139	0.2398	0.0007	7872
42.38	CCISismic Tower Section 4 - 1	43	1.117	0.2371	0.0007	7942
35.50	CCISismic (12) general cable 1 5/8" Coax From 0 to 160 (30.5ft to 40.5ft)	43	0.822	0.1961	0.0006	9451
35.00	CCISismic Tower Section 4 - 2	43	0.803	0.1932	0.0006	9586
25.50	CCISismic (12) general cable 1 5/8" Coax From 0 to 160 (20.5ft to 30.5ft)	43	0.498	0.1388	0.0004	13158
25.00	CCISismic Tower Section 4 - 3	43	0.485	0.1360	0.0004	13421
15.50	CCISismic (12) general cable 1 5/8" Coax From 0 to 160 (10.5ft to 20.5ft)	43	0.265	0.0836	0.0002	21647
15.00	CCISismic Tower Section 4 - 4	43	0.255	0.0808	0.0002	22368
5.50	CCISismic (12) general cable 1 5/8" Coax From 0 to 160 (0.5ft to 10.5ft)	43	0.087	0.0295	0.0001	61004
5.00	CCISismic Tower Section 4 - 5	43	0.079	0.0268	0.0001	67104
0.25	CCISismic (12) general cable 1 5/8" Coax From 0 to 160 (0ft to 0.5ft)	43	0.004	0.0013	0.0000	67104

Maximum Tower Deflections - Design Wind

<i>Section No.</i>	<i>Elevation</i>	<i>Horz. Deflection</i>	<i>Gov. Load Comb.</i>	<i>Tilt</i>	<i>Twist</i>
	<i>ft</i>	<i>in</i>		<i>°</i>	<i>°</i>
L1	160.5 - 126.92	77.951	22	4.5240	0.0137
L2	131 - 89	51.381	22	3.8940	0.0133
L3	94.25 - 37.83	25.607	22	2.6825	0.0092
L4	44.75 - 0	5.546	22	1.1305	0.0034

Critical Deflections and Radius of Curvature - Design Wind

<i>Elevation</i>	<i>Appurtenance</i>	<i>Gov. Load Comb.</i>	<i>Deflection</i>	<i>Tilt</i>	<i>Twist</i>	<i>Radius of Curvature</i>
<i>ft</i>			<i>in</i>	<i>°</i>	<i>°</i>	<i>ft</i>
158.71	CCISismic Tower Section 1 - 1	22	76.276	4.4907	0.0138	9913
157.00	12' Platform w/Double Rail	22	74.677	4.4588	0.0138	9913
155.25	CCISismic (12) general cable 1 5/8" Coax From 0 to 160 (150.5ft to 160ft)	22	73.043	4.4259	0.0138	9441
151.92	CCISismic Tower Section 1 - 2	22	69.946	4.3624	0.0138	5776
148.00	SitePro I MSFAA Adapter	22	66.331	4.2854	0.0138	3964
145.50	CCISismic (12) general cable 1 5/8" Coax From 0 to 160 (140.5ft to 150.5ft)	22	64.049	4.2344	0.0138	3303
144.25	CCISismic (12) general cable 1 1/4" Coax From 0 to 148 (140.5ft to 148.5ft)	22	62.916	4.2082	0.0138	3048

<i>tnxTower</i> <i>Semaan Engineering Solutions</i> 1047 N 205th Street Elkhorn, NE 68022 Phone: 402.289.1888 FAX:	Job	29173_Orange 1	Page	42 of 44
	Project	REV01	Date	08:20:57 08/26/22
	Client	KGI	Designed by	NathanW

<i>Elevation</i>	<i>Appurtenance</i>	<i>Gov. Load Comb.</i>	<i>Deflection</i>	<i>Tilt</i>	<i>Twist</i>	<i>Radius of Curvature</i>
<i>ft</i>			<i>in</i>	<i>°</i>	<i>°</i>	<i>ft</i>
	to148ft)					
141.92	CCISeismic Tower Section 1 - 3	22	60.822	4.1581	0.0137	2666
136.00	WB2900D	22	55.617	4.0218	0.0136	2020
135.50	CCISeismic (12) general cable 1	22	55.186	4.0095	0.0135	1980
	5/8" Coax From 0 to 160 (130.5ft					
	to140.5ft)					
133.50	12' Platform w/ Rail	22	53.478	3.9595	0.0134	1840
132.75	CCISeismic (2) general cable 7/8"	22	52.845	3.9402	0.0134	1799
	Coax From 0 to 135 (130.5ft					
	to135ft)					
131.92	CCISeismic Tower Section 1 - 4	22	52.148	3.9185	0.0134	1761
130.00	CCISeismic Tower Section 2 - 1	22	50.555	3.8668	0.0133	1707
125.50	CCISeismic (12) general cable 1	22	46.923	3.7382	0.0129	1697
	5/8" Coax From 0 to 160 (120.5ft					
	to130.5ft)					
124.00	CCISeismic Tower Section 2 - 2	22	45.745	3.6931	0.0128	1703
121.75	CCISeismic (8) general cable 1 5/8"	22	44.007	3.6238	0.0126	1711
	Coax From 0 to 123 (120.5ft					
	to123ft)					
121.50	12' Platform w/ Rail	22	43.816	3.6160	0.0126	1712
115.50	CCISeismic (12) general cable 1	22	39.366	3.4215	0.0119	1730
	5/8" Coax From 0 to 160 (110.5ft					
	to120.5ft)					
114.00	CCISeismic Tower Section 2 - 3	22	38.293	3.3713	0.0118	1735
105.50	CCISeismic (12) general cable 1	22	32.506	3.0779	0.0107	1760
	5/8" Coax From 0 to 160 (100.5ft					
	to110.5ft)					
104.00	CCISeismic Tower Section 2 - 4	22	31.536	3.0252	0.0105	1765
95.50	CCISeismic (12) general cable 1	22	26.331	2.7261	0.0094	1789
	5/8" Coax From 0 to 160 (90.5ft					
	to100.5ft)					
94.00	CCISeismic Tower Section 2 - 5	22	25.463	2.6738	0.0092	1790
91.04	CCISeismic Tower Section 3 - 1	22	23.795	2.5714	0.0088	1786
85.50	CCISeismic (12) general cable 1	22	20.831	2.3829	0.0081	1771
	5/8" Coax From 0 to 160 (80.5ft					
	to90.5ft)					
83.50	1' Standoff	22	19.812	2.3159	0.0078	1766
82.83	CCISeismic Tower Section 3 - 2	22	19.477	2.2935	0.0077	1764
75.50	CCISeismic (12) general cable 1	22	16.010	2.0532	0.0068	1745
	5/8" Coax From 0 to 160 (70.5ft					
	to80.5ft)					
72.83	CCISeismic Tower Section 3 - 3	22	14.839	1.9675	0.0065	1738
65.50	CCISeismic (12) general cable 1	22	11.878	1.7376	0.0056	1719
	5/8" Coax From 0 to 160 (60.5ft					
	to70.5ft)					
62.83	CCISeismic Tower Section 3 - 4	22	10.893	1.6558	0.0053	1713
55.50	CCISeismic (12) general cable 1	22	8.446	1.4368	0.0045	1695
	5/8" Coax From 0 to 160 (50.5ft					
	to60.5ft)					
52.83	CCISeismic Tower Section 3 - 5	22	7.649	1.3590	0.0042	1688
45.50	CCISeismic (12) general cable 1	22	5.722	1.1512	0.0035	1692
	5/8" Coax From 0 to 160 (40.5ft					
	to50.5ft)					
42.83	CCISeismic Tower Section 3 - 6	22	5.116	1.0777	0.0033	1752
42.38	CCISeismic Tower Section 4 - 1	22	5.017	1.0652	0.0032	1768
35.50	CCISeismic (12) general cable 1	22	3.694	0.8811	0.0026	2104
	5/8" Coax From 0 to 160 (30.5ft					
	to40.5ft)					
35.00	CCISeismic Tower Section 4 - 2	22	3.609	0.8680	0.0026	2134
25.50	CCISeismic (12) general cable 1	22	2.237	0.6236	0.0018	2928
	5/8" Coax From 0 to 160 (20.5ft					

tnxTower Semaan Engineering Solutions 1047 N 205th Street Elkhorn, NE 68022 Phone: 402.289.1888 FAX:	Job	29173_Orange 1	Page	43 of 44
	Project	REV01	Date	08:20:57 08/26/22
	Client	KGI	Designed by	NathanW

Elevation	Appurtenance	Gov. Load Comb.	Deflection	Tilt	Twist	Radius of Curvature
ft			in	°	°	ft
25.00	to30.5ft)					
15.50	CCISeismic Tower Section 4 - 3	22	2.176	0.6110	0.0018	2987
	CCISeismic (12) general cable 1	22	1.189	0.3753	0.0011	4817
	5/8" Coax From 0 to 160 (10.5ft to20.5ft)					
15.00	CCISeismic Tower Section 4 - 4	22	1.145	0.3631	0.0010	4978
5.50	CCISeismic (12) general cable 1	22	0.391	0.1325	0.0004	13575
	5/8" Coax From 0 to 160 (0.5ft to10.5ft)					
5.00	CCISeismic Tower Section 4 - 5	22	0.355	0.1204	0.0003	14933
0.25	CCISeismic (12) general cable 1	22	0.018	0.0060	0.0000	14933
	5/8" Coax From 0 to 160 (0ft to0.5ft)					

Compression Checks

Pole Design Data

Section No.	Elevation	Size	L	L _u	Kl/r	A	P _u	φP _n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in ²	K	K	
L1	160.5 - 126.92 (1)	TP32.9451x21.5x0.2188	33.58	0.00	0.0	22.0721	-14.88	1271.61	0.012
L2	126.92 - 89 (2)	TP42.0169x31.117x0.3438	42.00	0.00	0.0	44.6189	-26.42	2610.20	0.010
L3	89 - 37.83 (3)	TP55.3859x39.9669x0.4375	56.42	0.00	0.0	74.7444	-43.97	4372.55	0.010
L4	37.83 - 0 (4)	TP64.9352x52.6198x0.5	44.75	0.00	0.0	103.7410	-66.47	6068.83	0.011

Pole Bending Design Data

Section No.	Elevation	Size	M _{ux}	φM _{rx}	Ratio $\frac{M_{ux}}{\phi M_{rx}}$	M _{uy}	φM _{ny}	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
	ft		kip-ft	kip-ft		kip-ft	kip-ft	
L1	160.5 - 126.92 (1)	TP32.9451x21.5x0.2188	371.58	812.55	0.457	0.00	812.55	0.000
L2	126.92 - 89 (2)	TP42.0169x31.117x0.3438	1290.79	2360.07	0.547	0.00	2360.07	0.000
L3	89 - 37.83 (3)	TP55.3859x39.9669x0.4375	2996.48	5120.01	0.585	0.00	5120.01	0.000
L4	37.83 - 0 (4)	TP64.9352x52.6198x0.5	4920.68	8362.17	0.588	0.00	8362.17	0.000

Pole Shear Design Data

Section No.	Elevation	Size	Actual V _u	φV _n	Ratio $\frac{V_u}{\phi V_n}$	Actual T _u	φT _n	Ratio $\frac{T_u}{\phi T_n}$
	ft		K	K		kip-ft	kip-ft	
L1	160.5 - 126.92 (1)	TP32.9451x21.5x0.2188	18.56	387.37	0.048	0.01	1067.72	0.000

tnxTower Semaan Engineering Solutions 1047 N 205th Street Elkhorn, NE 68022 Phone: 402.289.1888 FAX:	Job	29173_Orange 1	Page	44 of 44
	Project	REV01	Date	08:20:57 08/26/22
	Client	KGI	Designed by	NathanW

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 $\frac{T_u}{\phi T_n}$
L2	126.92 - 89 (2)	TP42.0169x31.117x0.3438	29.47	783.06	0.038	3.71	2776.62	0.001
L3	89 - 37.83 (3)	TP55.3859x39.9669x0.4375	39.42	1311.76	0.030	8.60	6122.10	0.001
L4	37.83 - 0 (4)	TP64.9352x52.6198x0.5	46.31	1820.65	0.025	9.33	10319.25	0.001

Pole Interaction Design Data

Section No.	Elevation ft	Ratio P_u ϕP_n	Ratio M_{ux} ϕM_{nx}	Ratio M_{uy} ϕM_{ny}	Ratio V_u ϕV_n	Ratio T_u ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	160.5 - 126.92 (1)	0.012	0.457	0.000	0.048	0.000	0.471 ✓	1.000	4.8.2 ✓
L2	126.92 - 89 (2)	0.010	0.547	0.000	0.038	0.001	0.559 ✓	1.000	4.8.2 ✓
L3	89 - 37.83 (3)	0.010	0.585	0.000	0.030	0.001	0.596 ✓	1.000	4.8.2 ✓
L4	37.83 - 0 (4)	0.011	0.588	0.000	0.025	0.001	0.600 ✓	1.000	4.8.2 ✓

Section Capacity Table

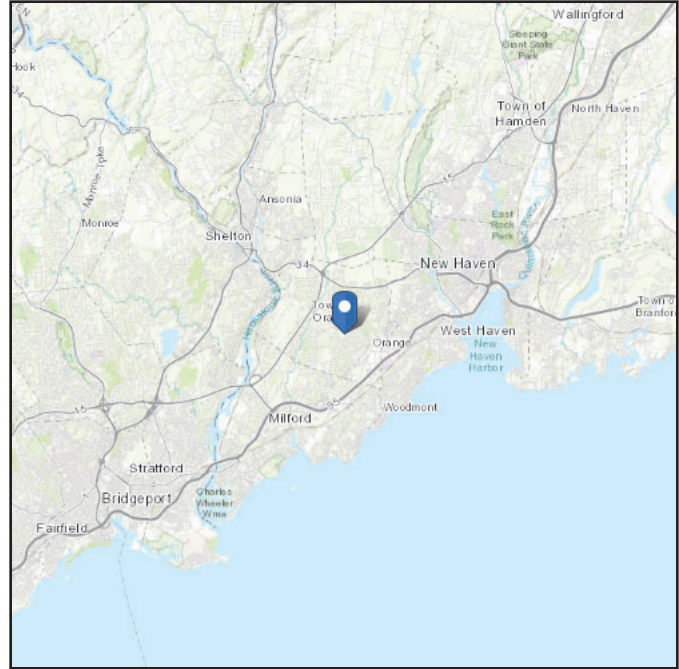
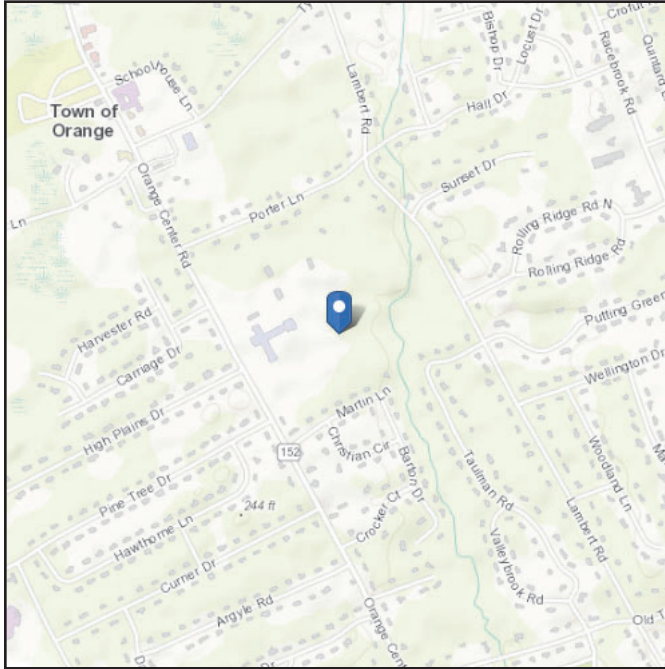
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	160.5 - 126.92	Pole	TP32.9451x21.5x0.2188	1	-14.88	1271.61	47.1	Pass
L2	126.92 - 89	Pole	TP42.0169x31.117x0.3438	2	-26.42	2610.20	55.9	Pass
L3	89 - 37.83	Pole	TP55.3859x39.9669x0.4375	3	-43.97	4372.55	59.6	Pass
L4	37.83 - 0	Pole	TP64.9352x52.6198x0.5	4	-66.47	6068.83	60.0	Pass
							Summary	
							Pole (L4)	Pass
							RATING = 60.0	Pass

ASCE 7 Hazards Report

Address:
No Address at This
Location

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Default (see
Section 11.4.3)

Elevation: 175.28 ft (NAVD 88)
Latitude: 41.2737
Longitude: -73.0187



Wind

Results:

Wind Speed	120 Vmph
10-year MRI	75 Vmph
25-year MRI	85 Vmph
50-year MRI	91 Vmph
100-year MRI	98 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed: Wed Aug 24 2022

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

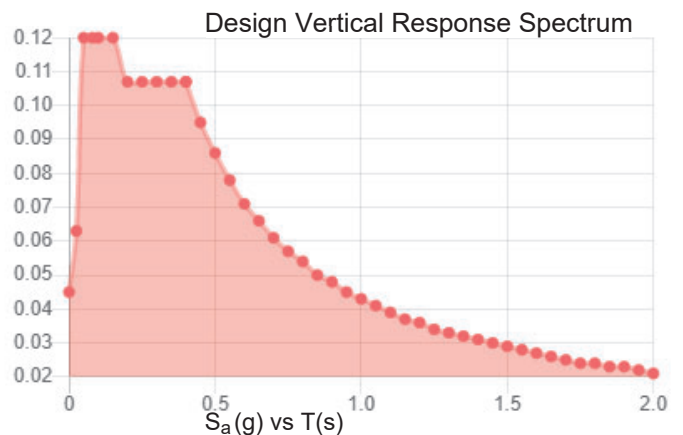
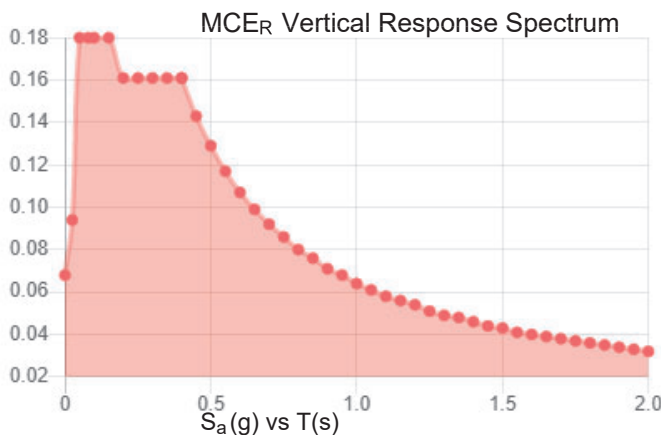
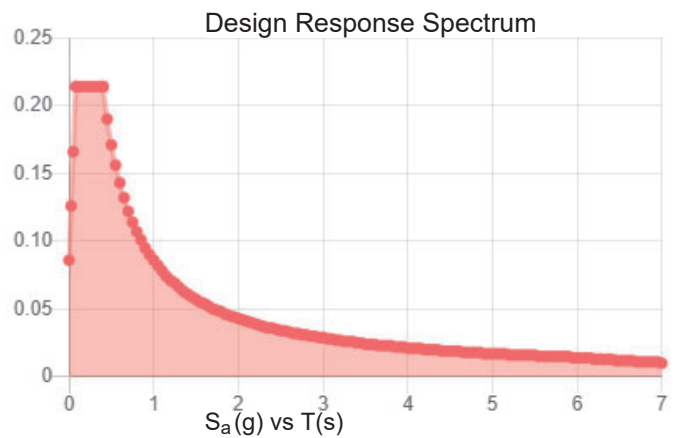
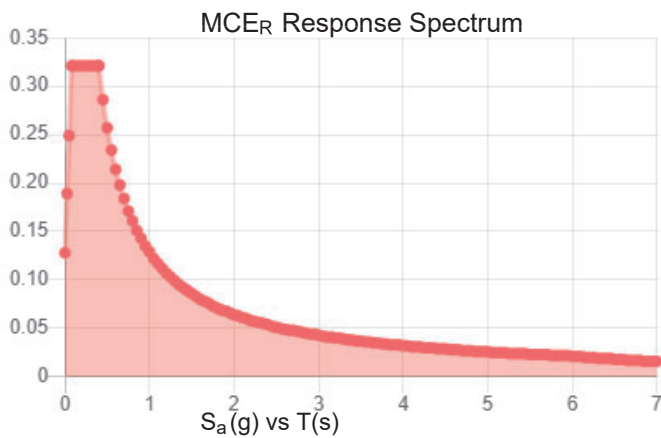
Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

Site Soil Class: D - Default (see Section 11.4.3)

Results:

S_S :	0.201	S_{D1} :	0.086
S_1 :	0.054	T_L :	6
F_a :	1.6	PGA :	0.113
F_v :	2.4	PGA _M :	0.177
S_{MS} :	0.321	F_{PGA} :	1.575
S_{M1} :	0.129	I_e :	1
S_{DS} :	0.214	C_v :	0.701

Seismic Design Category B



Data Accessed: Wed Aug 24 2022

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-16 and ASCE/SEI 7-16 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-16 Ch. 21 are available from USGS.

Results:

Ice Thickness: 1.00 in.
Concurrent Temperature: 15 F
Gust Speed 50 mph

Data Source: Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8

Date Accessed: Wed Aug 24 2022

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

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Site ID: 29173
 Site Name: Orange 1
 Engineer: NDW
 Date: 8/24/2022

Exposure Determination

per Section C26.7 in ASCE7

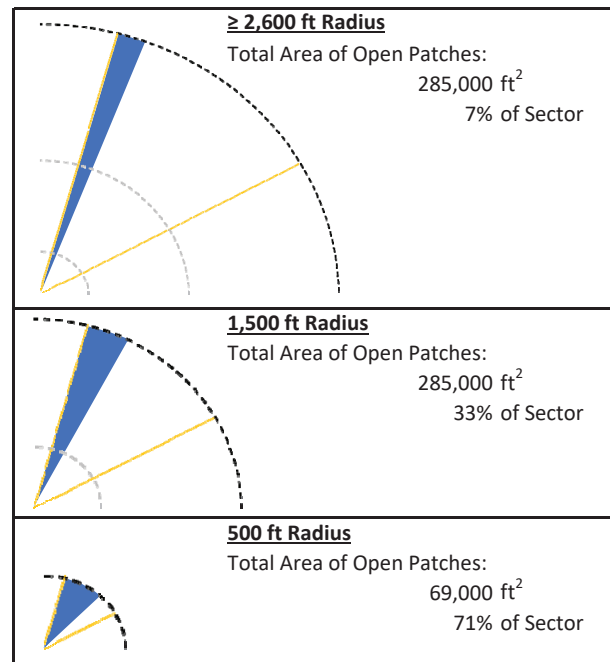
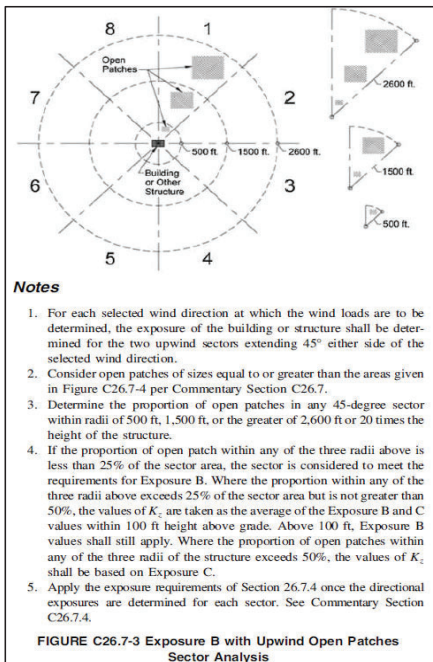
Tower Height 160 ft
 Radius 3,200 ft

Result:

Use Exposure B

32.5% of the 1,500ft Radius Sector Area.

Open Areas (Exp C)	Open Area (x1000 ft ²)	Length (ft)	Distance From Tower (ft)	Width (ft) (equivalent)	Defined as "Open Patch":
1	102	502	113	203	Yes: Open Patch
2	68	356	600	191	Not an Open Patch
3	183	661	520	277	Yes: Open Patch
4	50	150	1,218	330	Not an Open Patch
5	174	480	1,872	363	Not an Open Patch
6	181	544	2,608	333	Not an Open Patch
7	351	695	2,056	505	Not an Open Patch

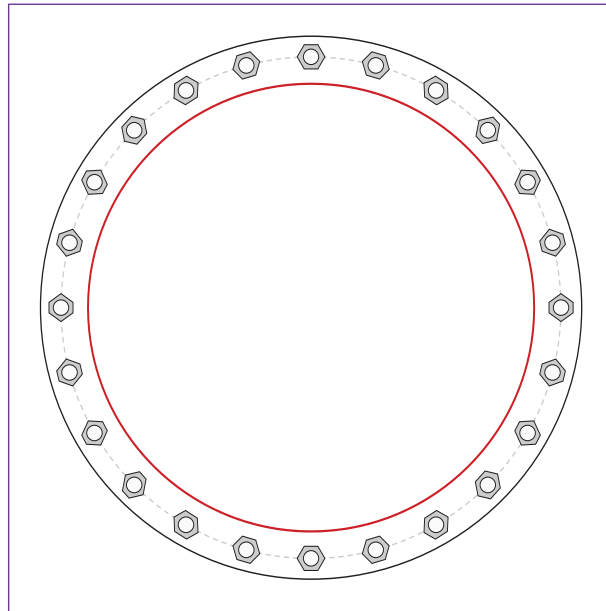


Monopole Base Plate Connection

Site Info	
BU #	29173
Site Name	Orange 1
Order #	REV01

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
I_{gr} (in)	1.25

Applied Loads	
Moment (kip-ft)	4920.68
Axial Force (kips)	66.47
Shear Force (kips)	46.31



Connection Properties		Analysis Results	
Anchor Rod Data		Anchor Rod Summary <i>(units of kips, kip-in)</i>	
(24) 2-1/4" ϕ bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 72.76" BC		Pu_t = 132.44	ϕPn_t = 243.75 Stress Rating
Base Plate Data		Vu = 1.93	ϕVn = 149.1 54.3%
78.76" OD x 3.5" Plate (A572-60; Fy=60 ksi, Fu=75 ksi)		Mu = n/a	ϕMn = n/a Pass
Stiffener Data		Base Plate Summary	
N/A		Max Stress (ksi):	12.71 (Flexural)
Pole Data		Allowable Stress (ksi):	54
64.935217" x 0.5" 12-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)		Stress Rating:	23.5% Pass

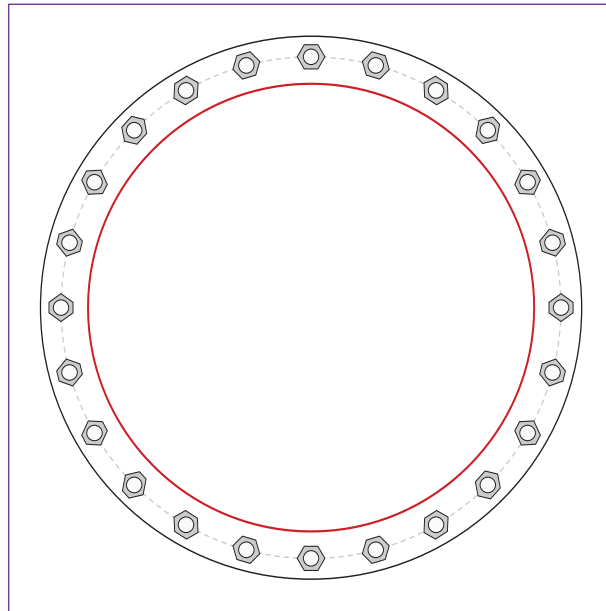
Monopole Base Plate Connection - Seismic

Site Info	
BU #	29173
Site Name	Orange 1
Order #	REV01

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
I_{gr} (in)	1.25

Applied Loads	
Moment (kip-ft)	223.03
Axial Force (kips)	68.86
Shear Force (kips)	1.66

*1.5 Overstrength Factor Applied



Connection Properties		Analysis Results	
Anchor Rod Data		Anchor Rod Summary <i>(units of kips, kip-in)</i>	
(24) 2-1/4" ϕ bolts (A615-75 N; $F_y=75$ ksi, $F_u=100$ ksi) on 72.76" BC		$Pu_c = 12.06$	$\phi Pn_c = 268.39$ Stress Rating
Base Plate Data		$Vu = 0.1$	$\phi Vn = 120.77$ 4.5%
78.76" OD x 3.5" Plate (A572-60; $F_y=60$ ksi, $F_u=75$ ksi)		$Mu = n/a$	$\phi Mn = n/a$ Pass
Stiffener Data		Base Plate Summary	
N/A		Max Stress (ksi):	0.83 (Flexural)
Pole Data		Allowable Stress (ksi):	54
64.935217" x 0.5" 12-sided pole (A572-65; $F_y=65$ ksi, $F_u=80$ ksi)		Stress Rating:	1.5% Pass

Pier and Pad Foundation

Site Number: 29173
 Site Name: Orange 1
 Order Number: REV01

TIA-222 Revision: H
 Tower Type: Monopole

Top & Bot. Pad Rein. Different?: ☒
 Block Foundation?: ☐
 Rectangular Pad?: ☐

Superstructure Analysis Reactions		
Compression, P_{comp} :	66.5	kips
Base Shear, V_{u_comp} :	46.3	kips
Moment, M_u :	4920.7	ft-kips
Tower Height, H :	160.5	ft
BP Dist. Above Fdn, bp_{dist} :	3.5	in

Pier Properties		
Pier Shape:	Square	
Pier Diameter, d_{pier} :	8	ft
Ext. Above Grade, E :	1	ft
Pier Rebar Size, S_c :	11	
Pier Rebar Quantity, mc :	31	
Pier Tie/Spiral Size, S_t :	5	
Pier Tie/Spiral Quantity, mt :	18	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier} :	3	in

Pad Properties		
Depth, D :	13.5	ft
Pad Width, W_1 :	22	ft
Pad Thickness, T :	4.0	ft
Pad Rebar Size (Top dir.2), Sp_{top2} :	9	
Pad Rebar Quantity (Top dir. 2), mp_{top2} :	35	
Pad Rebar Size (Bottom dir. 2), Sp_2 :	10	
Pad Rebar Quantity (Bottom dir. 2), mp_2 :	35	
Pad Clear Cover, cc_{pad} :	3	in

Material Properties		
Rebar Grade, F_y :	60	ksi
Concrete Compressive Strength, F'_c :	3.5	ksi
Dry Concrete Density, δ_c :	150	pcf

Soil Properties		
Total Soil Unit Weight, γ :	125	pcf
Ultimate Net Bearing, Q_{net} :	20.000	ksf
Cohesion, C_u :	0.000	ksf
Friction Angle, ϕ :	36	degrees
SPT Blow Count, N_{blows} :		
Base Friction, μ :		
Neglected Depth, N :	3.00	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, gw :	8	ft

Foundation Analysis Checks				
	Capacity	Demand	Rating	Check
Lateral (Sliding) (kips)	659.85	46.28	7.0%	Pass
Bearing Pressure (ksf)	16.01	4.03	25.2%	Pass
Overturning (kip*ft)	10528.30	5605.24	53.2%	Pass
Pier Flexure (Comp.) (kip*ft)	8870.00	5406.62	61.0%	Pass
Pier Compression (kip)	35642.88	180.26	0.5%	Pass
Pad Flexure (kip*ft)	8280.46	2123.08	25.6%	Pass
Pad Shear - 1-way (kips)	1009.62	332.33	32.9%	Pass
Pad Shear - 2-way (Comp) (ksi)	0.177	0.000	0.0%	Pass
Flexural 2-way (Comp) (kip*ft)	13520.12	3243.97	24.0%	Pass

Structural Rating:	61.0%
Soil Rating:	53.2%

<--Toggle between Gross and Net

Seismic Analysis

BU: 29173
WO: Orange 1
Order: REV01

Structure: A
Rev: H

Location				
	Decimal Degrees	Deg	Min	Sec
Lat:	41.273700	+	41	16
Long:	-73.018700	-	73	1
Code and Site Parameters				
Seismic Design Code:		TIA-222-H-1		
Site Soil:		D (Default) Stiff Soil (Default)		
Risk Category:		II		
<u>USGS Seismic Reference</u>				
	S _s :	0.2010	g	
	S ₁ :	0.0540	g	
	T _L :	6	s	
Seismic Design Category Determination				
Importance Factor, I _e :		1		
Acceleration-based site coefficient, F _a :		1.6000		
Velocity-based site coefficient, F _v :		2.4000		
Design spectral response acceleration short period, S _{DS} :		0.2144 g		
Design spectral response acceleration 1 s period, S _{D1} :		0.0864 g		
T _s :		0.4030		
Seismic Design Category Based on S _{DS} :		B		
Seismic Design Category Based on S _{D1} :		B		
Seismic Design Category Based on S ₁ :		N/A		
Controlling Seismic Design Category:		B		

Seismic Analysis

BU: 29173
WO: Orange 1
Order: REV01

Structure: A
Rev: H

Tower Details		
Tower Type:	Tapered Monopole	
Height, h:	160.5	ft
Effective Seismic Weight, W:	55.41	kips
Amplification Factor, A_s :	1.0	2.7.8.1
Seismic Base Shear		
Response Modification Factor, R:	1.5	
Discrete Appurtenance Weight in Top 1/3 of Structure, W_u :	13.754461	kips
W_L :	41.65416441	kips
E:	29000.0	ksi
g:	386.088	in/s ²
Average Moment of Inertia, I_{avg} :	18660.38314	in ⁴
F_a :	0.306960336	hz
Approximate Fundamental Period Monopole, T_a :	3.2577	s
		2.7.7.1.3.3
Seismic Response Coefficient, C_s :	0.1429	2.7.7.1.1
Seismic Response Coefficient Max 1, C_{smax} :	0.0177	2.7.7.1.1
Seismic Response Coefficient Max 2, C_{smax} :	N/A	2.7.7.1.1
Seismic Response Coefficient Min 1, C_{smin} :	0.0300	2.7.7.1.1
Seismic Response Coefficient Min 2, C_{smin} :	N/A	2.7.7.1.1
Controlling Seismic Response Coefficient, C_{sc} :	0.0300	
Seismic Base Shear, V:	1.662	kips
		2.7.7.1.1
Vertical Distribution Factors		
Period Related Exponent, k:	2.000	
Sum of $w_i h_i^k$:	509425.72	

Tower Section Loads								
Section Number	Length	Top Height	Mid Height, h_x	Section Weight, w_x	$w_x h_x^k$	C_{vx}	F_{sh}	F_{sv}
1 - 1	3.58	160.50	158.71	0.1876	4724.75	0.0093	0.0154	0.0080
1 - 2	10.00	156.92	151.92	0.5793	13370.90	0.0262	0.0436	0.0248
1 - 3	10.00	146.92	141.92	0.6609	13311.59	0.0261	0.0434	0.0283
1 - 4	10.00	136.92	131.92	0.7425	12921.38	0.0254	0.0422	0.0318
2 - 1	2.00	131.00	130.00	0.2334	3945.00	0.0077	0.0129	0.0100
2 - 2	10.00	129.00	124.00	1.2257	18846.74	0.0370	0.0615	0.0526
2 - 3	10.00	119.00	114.00	1.3233	17198.03	0.0338	0.0561	0.0567
2 - 4	10.00	109.00	104.00	1.4209	15368.89	0.0302	0.0501	0.0609
2 - 5	10.00	99.00	94.00	1.5185	13417.89	0.0263	0.0438	0.0651
3 - 1	6.42	94.25	91.04	1.2417	10291.96	0.0202	0.0336	0.0532
3 - 2	10.00	87.83	82.83	2.0416	14006.95	0.0275	0.0457	0.0875
3 - 3	10.00	77.83	72.83	2.1724	11522.90	0.0226	0.0376	0.0932
3 - 4	10.00	67.83	62.83	2.3032	9092.23	0.0178	0.0297	0.0988
3 - 5	10.00	57.83	52.83	2.4340	6793.44	0.0133	0.0222	0.1044
3 - 6	10.00	47.83	42.83	2.5649	4705.01	0.0092	0.0154	0.1100
4 - 1	4.75	44.75	42.38	1.3713	2462.44	0.0048	0.0080	0.0588
4 - 2	10.00	40.00	35.00	2.9981	3672.64	0.0072	0.0120	0.1286
4 - 3	10.00	30.00	25.00	3.1486	1967.89	0.0039	0.0064	0.1350
4 - 4	10.00	20.00	15.00	3.2992	742.32	0.0015	0.0024	0.1415
4 - 5	10.00	10.00	5.00	3.4497	86.24	0.0002	0.0003	0.1479
Sum				34.9171	178449.17			

Discrete Loads						
Name	h_x	w_x	$w_x h_x^k$	C_{vx}	F_{xh}	F_{xv}
12' Platform w/Double Rail	157.00	1.4708	36253.03	0.0712	0.1183	0.0631
antel LPA-80060/8CF-EDIN-4 w/10' Mount Pipe	157.00	0.0829	2043.40	0.0040	0.0067	0.0036
antel LPA-80060/8CF-EDIN-4 w/10' Mount Pipe	157.00	0.0829	2043.40	0.0040	0.0067	0.0036
antel LPA-80060/8CF-EDIN-4 w/10' Mount Pipe	157.00	0.0829	2043.40	0.0040	0.0067	0.0036
amphenol BXA-171063-12CF-EDIN-2 w/10' Mount Pipe	157.00	0.0707	1742.68	0.0034	0.0057	0.0030
amphenol BXA-171063-12CF-EDIN-2 w/10' Mount Pipe	157.00	0.0707	1742.68	0.0034	0.0057	0.0030
amphenol BXA-171063-12CF-EDIN-2 w/10' Mount Pipe	157.00	0.0707	1742.68	0.0034	0.0057	0.0030
amphenol BXA-171063-12CF-EDIN-2 w/6' Mount Pipe	157.00	0.0347	855.32	0.0017	0.0028	0.0015
amphenol BXA-171063-12CF-EDIN-2 w/6' Mount Pipe	157.00	0.0347	855.32	0.0017	0.0028	0.0015
amphenol BXA-171063-12CF-EDIN-2 w/6' Mount Pipe	157.00	0.0347	855.32	0.0017	0.0028	0.0015
amphenol BXA-70063-6CF-EDIN-5 w/10' Mount Pipe	157.00	0.0901	2220.87	0.0044	0.0072	0.0039
amphenol BXA-70063-6CF-EDIN-5 w/10' Mount Pipe	157.00	0.0901	2220.87	0.0044	0.0072	0.0039
amphenol BXA-70063-6CF-EDIN-5 w/10' Mount Pipe	157.00	0.0901	2220.87	0.0044	0.0072	0.0039
antel LPA-80060/8CF-EDIN-4 w/10' Mount Pipe	157.00	0.0829	2043.40	0.0040	0.0067	0.0036
antel LPA-80060/8CF-EDIN-4 w/10' Mount Pipe	157.00	0.0829	2043.40	0.0040	0.0067	0.0036
antel LPA-80060/8CF-EDIN-4 w/10' Mount Pipe	157.00	0.0829	2043.40	0.0040	0.0067	0.0036
tower mounts Extra 4' Mount Pipe	157.00	0.0232	571.12	0.0011	0.0019	0.0010
tower mounts Extra 4' Mount Pipe	157.00	0.0232	571.12	0.0011	0.0019	0.0010
tower mounts Extra 4' Mount Pipe	157.00	0.0232	571.12	0.0011	0.0019	0.0010
tower mounts Extra 4' Mount Pipe	157.00	0.0232	571.12	0.0011	0.0019	0.0010
tower mounts Extra 4' Mount Pipe	157.00	0.0232	571.12	0.0011	0.0019	0.0010
tower mounts Extra 4' Mount Pipe	157.00	0.0232	571.12	0.0011	0.0019	0.0010
tower mounts Extra 4' Mount Pipe	157.00	0.0232	571.12	0.0011	0.0019	0.0010
tower mounts Extra 4' Mount Pipe	157.00	0.0232	571.12	0.0011	0.0019	0.0010
tower mounts Extra 4' Mount Pipe	157.00	0.0232	571.12	0.0011	0.0019	0.0010
tower mounts Extra 4' Mount Pipe	157.00	0.0232	571.12	0.0011	0.0019	0.0010
tower mounts Extra 4' Mount Pipe	157.00	0.0232	571.12	0.0011	0.0019	0.0010
tower mounts Extra 4' Mount Pipe	157.00	0.0232	571.12	0.0011	0.0019	0.0010
tower mounts Extra 4' Mount Pipe	157.00	0.0232	571.12	0.0011	0.0019	0.0010
tower mounts Extra 4' Mount Pipe	157.00	0.0232	571.12	0.0011	0.0019	0.0010
4.5" x 6" x 1" TMA	157.00	0.0100	246.49	0.0005	0.0008	0.0004
4.5" x 6" x 1" TMA	157.00	0.0100	246.49	0.0005	0.0008	0.0004
4.5" x 6" x 1" TMA	157.00	0.0100	246.49	0.0005	0.0008	0.0004
4.5" x 6" x 1" TMA	157.00	0.0100	246.49	0.0005	0.0008	0.0004
4.5" x 6" x 1" TMA	157.00	0.0100	246.49	0.0005	0.0008	0.0004
4.5" x 6" x 1" TMA	157.00	0.0100	246.49	0.0005	0.0008	0.0004
(2) misc1 10"x7"x2" TMA	157.00	0.0300	739.47	0.0015	0.0024	0.0013
(2) misc1 10"x7"x2" TMA	157.00	0.0300	739.47	0.0015	0.0024	0.0013
(2) misc1 10"x7"x2" TMA	157.00	0.0300	739.47	0.0015	0.0024	0.0013
alcatel-lucent 9442 RRH2x40-AWS	157.00	0.0490	1207.80	0.0024	0.0039	0.0021
alcatel-lucent 9442 RRH2x40-AWS	157.00	0.0490	1207.80	0.0024	0.0039	0.0021
alcatel-lucent 9442 RRH2x40-AWS	157.00	0.0490	1207.80	0.0024	0.0039	0.0021
semaan RRH 4x30-4T4R-B25	157.00	0.0510	1257.10	0.0025	0.0041	0.0022
semaan RRH 4x30-4T4R-B25	157.00	0.0510	1257.10	0.0025	0.0041	0.0022
semaan RRH 4x30-4T4R-B25	157.00	0.0510	1257.10	0.0025	0.0041	0.0022
raycap RRFDC-3315-PF-48 w/4' Mount Pipe	157.00	0.0466	1148.64	0.0023	0.0037	0.0020
semaan OVP Junction Box w/4' Mount Pipe	157.00	0.0346	852.86	0.0017	0.0028	0.0015
semaan OVP Junction Box w/4' Mount Pipe	157.00	0.0346	852.86	0.0017	0.0028	0.0015
pole mounts SitePro1 MSFAA Adapter	148.00	0.7885	17271.96	0.0339	0.0564	0.0338
tower mounts SitePro1 VFA14-HD Sector Frame w/o Mount Pipe (SES)	148.00	0.6720	14719.49	0.0289	0.0480	0.0288
tower mounts SitePro1 VFA14-HD Sector Frame w/o Mount Pipe (SES)	148.00	0.6720	14719.49	0.0289	0.0480	0.0288
tower mounts SitePro1 VFA14-HD Sector Frame w/o Mount Pipe (SES)	148.00	0.6720	14719.49	0.0289	0.0480	0.0288
cci TPA65R-BU6DA-K w/10' Mount Pipe	148.00	0.1269	2779.62	0.0055	0.0091	0.0054
cci TPA65R-BU6DA-K w/10' Mount Pipe	148.00	0.1269	2779.62	0.0055	0.0091	0.0054
cci TPA65R-BU6DA-K w/10' Mount Pipe	148.00	0.1269	2779.62	0.0055	0.0091	0.0054
ericsson AIR 6419 B77G w/10' Mount Pipe	148.00	0.1240	2716.97	0.0053	0.0089	0.0053
ericsson AIR 6419 B77G w/10' Mount Pipe	148.00	0.1240	2716.97	0.0053	0.0089	0.0053
ericsson AIR 6419 B77G w/10' Mount Pipe	148.00	0.1240	2716.97	0.0053	0.0089	0.0053
ericsson AIR 6449 B77D w/10' Mount Pipe	148.00	0.1416	3101.61	0.0061	0.0101	0.0061
ericsson AIR 6449 B77D w/10' Mount Pipe	148.00	0.1416	3101.61	0.0061	0.0101	0.0061
ericsson AIR 6449 B77D w/10' Mount Pipe	148.00	0.1416	3101.61	0.0061	0.0101	0.0061
cci DMP65R-BU6DA w/10' Mount Pipe	148.00	0.1539	3371.03	0.0066	0.0110	0.0066
cci DMP65R-BU6DA w/10' Mount Pipe	148.00	0.1539	3371.03	0.0066	0.0110	0.0066
cci DMP65R-BU6DA w/10' Mount Pipe	148.00	0.1539	3371.03	0.0066	0.0110	0.0066
(4) semaan Powerwave LGP21401	148.00	0.0800	1752.32	0.0034	0.0057	0.0034
(4) semaan Powerwave LGP21401	148.00	0.0800	1752.32	0.0034	0.0057	0.0034
(4) semaan Powerwave LGP21401	148.00	0.0800	1752.32	0.0034	0.0057	0.0034
ericsson 4478 B14 RRU	148.00	0.0594	1301.10	0.0026	0.0042	0.0025
ericsson 4478 B14 RRU	148.00	0.0594	1301.10	0.0026	0.0042	0.0025
ericsson 4478 B14 RRU	148.00	0.0594	1301.10	0.0026	0.0042	0.0025
ericsson 8843 B2/B66A RRU	148.00	0.0720	1577.09	0.0031	0.0051	0.0031
ericsson 8843 B2/B66A RRU	148.00	0.0720	1577.09	0.0031	0.0051	0.0031
ericsson 8843 B2/B66A RRU	148.00	0.0720	1577.09	0.0031	0.0051	0.0031
ericsson 4449 B5/B12 RRU	148.00	0.0710	1555.18	0.0031	0.0051	0.0030
ericsson 4449 B5/B12 RRU	148.00	0.0710	1555.18	0.0031	0.0051	0.0030
ericsson 4449 B5/B12 RRU	148.00	0.0710	1555.18	0.0031	0.0051	0.0030
raycap DC6-48-60-18	148.00	0.0349	764.45	0.0015	0.0025	0.0015
raycap DC6-48-60-18	148.00	0.0349	764.45	0.0015	0.0025	0.0015
raycap DC6-48-60-18	148.00	0.0349	764.45	0.0015	0.0025	0.0015
8"x2" Pipe Mount	148.00	0.0313	685.38	0.0013	0.0022	0.0013
8"x2" Pipe Mount	148.00	0.0313	685.38	0.0013	0.0022	0.0013
8"x2" Pipe Mount	148.00	0.0313	685.38	0.0013	0.0022	0.0013
pole mounts 12' Platform w/ Rail	133.50	1.5100	26911.60	0.0528	0.0878	0.0647

tower mounts 6'x2" Pipe Mount	133.50	0.0235	418.29	0.0008	0.0014	0.0010
misc Camera	133.50	0.0020	35.64	0.0001	0.0001	0.0001
cambium WB3221 w/4' Mount Pipe	133.50	0.0246	438.43	0.0009	0.0014	0.0011
cambium WB3221 w/4' Mount Pipe	133.50	0.0246	438.43	0.0009	0.0014	0.0011
5" x 4" x 2.5" TMA	133.50	0.0050	89.11	0.0002	0.0003	0.0002
5" x 4" x 2.5" TMA	133.50	0.0050	89.11	0.0002	0.0003	0.0002
cambium WB3222	133.50	0.0100	178.22	0.0003	0.0006	0.0004
decibel DB636-C	133.50	0.0300	534.67	0.0010	0.0017	0.0013
decibel DB636-C	133.50	0.0300	534.67	0.0010	0.0017	0.0013
tower mounts 4'x2" Pipe Mount	133.50	0.0156	278.74	0.0005	0.0009	0.0007
tower mounts 4'x2" Pipe Mount	133.50	0.0156	278.74	0.0005	0.0009	0.0007
tower mounts 4'x2" Pipe Mount	133.50	0.0156	278.74	0.0005	0.0009	0.0007
tower mounts 4'x2" Pipe Mount	133.50	0.0156	278.74	0.0005	0.0009	0.0007
tower mounts 4'x2" Pipe Mount	133.50	0.0156	278.74	0.0005	0.0009	0.0007
tower mounts 4'x2" Pipe Mount	133.50	0.0156	278.74	0.0005	0.0009	0.0007
tower mounts 4'x2" Pipe Mount	133.50	0.0156	278.74	0.0005	0.0009	0.0007
tower mounts 4'x2" Pipe Mount	133.50	0.0156	278.74	0.0005	0.0009	0.0007
tower mounts 4'x2" Pipe Mount	133.50	0.0156	278.74	0.0005	0.0009	0.0007
tower mounts 4'x2" Pipe Mount	133.50	0.0156	278.74	0.0005	0.0009	0.0007
pole mounts 12' Platform w/ Rail	121.50	1.5100	22291.00	0.0438	0.0727	0.0647
rfs APXVAALL24 43-U-NA20 w/4' Mount Pipe	121.50	0.0703	1037.79	0.0020	0.0034	0.0030
rfs APXVAALL24 43-U-NA20 w/4' Mount Pipe	121.50	0.0703	1037.79	0.0020	0.0034	0.0030
rfs APXVAALL24 43-U-NA20 w/4' Mount Pipe	121.50	0.0703	1037.79	0.0020	0.0034	0.0030
ericsson AIR 6449 w/4' Mount Pipe	121.50	0.1048	1546.49	0.0030	0.0050	0.0045
ericsson AIR 6449 w/4' Mount Pipe	121.50	0.1048	1546.49	0.0030	0.0050	0.0045
ericsson AIR 6449 w/4' Mount Pipe	121.50	0.1048	1546.49	0.0030	0.0050	0.0045
ericsson AIR 6449 w/4' Mount Pipe	121.50	0.1048	1546.49	0.0030	0.0050	0.0045
ericsson AIR 32 B2A/B66AA w/4' Mount Pipe	121.50	0.1468	2167.10	0.0043	0.0071	0.0063
ericsson AIR 32 B2A/B66AA w/4' Mount Pipe	121.50	0.1468	2167.10	0.0043	0.0071	0.0063
ericsson AIR 32 B2A/B66AA w/4' Mount Pipe	121.50	0.1468	2167.10	0.0043	0.0071	0.0063
ericsson 4449 RRU w/4' Mount Pipe	121.50	0.0896	1322.70	0.0026	0.0043	0.0038
ericsson 4449 RRU w/4' Mount Pipe	121.50	0.0896	1322.70	0.0026	0.0043	0.0038
ericsson 4449 RRU w/4' Mount Pipe	121.50	0.0896	1322.70	0.0026	0.0043	0.0038
ericsson 4449 RRU w/4' Mount Pipe	121.50	0.0896	1322.70	0.0026	0.0043	0.0038
ericsson 4415 RRU	121.50	0.0470	693.24	0.0014	0.0023	0.0020
ericsson 4415 RRU	121.50	0.0470	693.24	0.0014	0.0023	0.0020
ericsson 4415 RRU	121.50	0.0470	693.24	0.0014	0.0023	0.0020
6.5"x5"Ø Squid	121.50	0.0150	221.43	0.0004	0.0007	0.0006
8.5" x 6.8" x 3.3" TMA	121.50	0.0150	221.43	0.0004	0.0007	0.0006
8.5" x 6.8" x 3.3" TMA	121.50	0.0150	221.43	0.0004	0.0007	0.0006
8.5" x 6.8" x 3.3" TMA	121.50	0.0150	221.43	0.0004	0.0007	0.0006
5" x 7" x 3" TMA	121.50	0.0100	147.62	0.0003	0.0005	0.0004
5" x 7" x 3" TMA	121.50	0.0100	147.62	0.0003	0.0005	0.0004
5" x 7" x 3" TMA	121.50	0.0100	147.62	0.0003	0.0005	0.0004
1' Standoff	83.50	0.0350	244.03	0.0005	0.0008	0.0015
1' Standoff	83.50	0.0350	244.03	0.0005	0.0008	0.0015
general GPS	83.50	0.0600	418.34	0.0008	0.0014	0.0026
cambium WB2900D	133.50	0.0700	1247.56	0.0024	0.0041	0.0030
Sum		13.8845	282545.58			

Linear Loads								
Name	Start Height	End Height	h_x	w_x	$w_x h_x^k$	C_{rx}	F_{xh}	F_{xv}
(12) general cable 1 5/8" Coax From 0 to 160	150.50	160.00	155.25	0.1186	2857.60	0.0056	0.0093	0.0051
(12) general cable 1 5/8" Coax From 0 to 160	140.50	150.50	145.50	0.1248	2642.05	0.0052	0.0086	0.0054
(12) general cable 1 5/8" Coax From 0 to 160	130.50	140.50	135.50	0.1248	2291.36	0.0045	0.0075	0.0054
(12) general cable 1 5/8" Coax From 0 to 160	120.50	130.50	125.50	0.1248	1965.63	0.0039	0.0064	0.0054
(12) general cable 1 5/8" Coax From 0 to 160	110.50	120.50	115.50	0.1248	1664.86	0.0033	0.0054	0.0054
(12) general cable 1 5/8" Coax From 0 to 160	100.50	110.50	105.50	0.1248	1389.06	0.0027	0.0045	0.0054
(12) general cable 1 5/8" Coax From 0 to 160	90.50	100.50	95.50	0.1248	1138.21	0.0022	0.0037	0.0054
(12) general cable 1 5/8" Coax From 0 to 160	80.50	90.50	85.50	0.1248	912.32	0.0018	0.0030	0.0054
(12) general cable 1 5/8" Coax From 0 to 160	70.50	80.50	75.50	0.1248	711.39	0.0014	0.0023	0.0054
(12) general cable 1 5/8" Coax From 0 to 160	60.50	70.50	65.50	0.1248	535.42	0.0011	0.0017	0.0054
(12) general cable 1 5/8" Coax From 0 to 160	50.50	60.50	55.50	0.1248	384.42	0.0008	0.0013	0.0054
(12) general cable 1 5/8" Coax From 0 to 160	40.50	50.50	45.50	0.1248	258.37	0.0005	0.0008	0.0054
(12) general cable 1 5/8" Coax From 0 to 160	30.50	40.50	35.50	0.1248	157.28	0.0003	0.0005	0.0054
(12) general cable 1 5/8" Coax From 0 to 160	20.50	30.50	25.50	0.1248	81.15	0.0002	0.0003	0.0054
(12) general cable 1 5/8" Coax From 0 to 160	10.50	20.50	15.50	0.1248	29.98	0.0001	0.0001	0.0054
(12) general cable 1 5/8" Coax From 0 to 160	0.50	10.50	5.50	0.1248	3.78	0.0000	0.0000	0.0054
(12) general cable 1 5/8" Coax From 0 to 160	0.00	0.50	0.25	0.0062	0.00	0.0000	0.0000	0.0003
general cable 1 1/4" Hybrid Cable From 0 to 160	150.50	160.00	155.25	0.0090	217.53	0.0004	0.0007	0.0004
general cable 1 1/4" Hybrid Cable From 0 to 160	140.50	150.50	145.50	0.0095	201.12	0.0004	0.0007	0.0004
general cable 1 1/4" Hybrid Cable From 0 to 160	130.50	140.50	135.50	0.0095	174.42	0.0003	0.0006	0.0004
general cable 1 1/4" Hybrid Cable From 0 to 160	120.50	130.50	125.50	0.0095	149.63	0.0003	0.0005	0.0004
general cable 1 1/4" Hybrid Cable From 0 to 160	110.50	120.50	115.50	0.0095	126.73	0.0002	0.0004	0.0004
general cable 1 1/4" Hybrid Cable From 0 to 160	100.50	110.50	105.50	0.0095	105.74	0.0002	0.0003	0.0004
general cable 1 1/4" Hybrid Cable From 0 to 160	90.50	100.50	95.50	0.0095	86.64	0.0002	0.0003	0.0004
general cable 1 1/4" Hybrid Cable From 0 to 160	80.50	90.50	85.50	0.0095	69.45	0.0001	0.0002	0.0004
general cable 1 1/4" Hybrid Cable From 0 to 160	70.50	80.50	75.50	0.0095	54.15	0.0001	0.0002	0.0004
general cable 1 1/4" Hybrid Cable From 0 to 160	60.50	70.50	65.50	0.0095	40.76	0.0001	0.0001	0.0004
general cable 1 1/4" Hybrid Cable From 0 to 160	50.50	60.50	55.50	0.0095	29.26	0.0001	0.0001	0.0004
general cable 1 1/4" Hybrid Cable From 0 to 160	40.50	50.50	45.50	0.0095	19.67	0.0000	0.0001	0.0004
general cable 1 1/4" Hybrid Cable From 0 to 160	30.50	40.50	35.50	0.0095	11.97	0.0000	0.0000	0.0004
general cable 1 1/4" Hybrid Cable From 0 to 160	20.50	30.50	25.50	0.0095	6.18	0.0000	0.0000	0.0004
general cable 1 1/4" Hybrid Cable From 0 to 160	10.50	20.50	15.50	0.0095	2.28	0.0000	0.0000	0.0004
general cable 1 1/4" Hybrid Cable From 0 to 160	0.50	10.50	5.50	0.0095	0.29	0.0000	0.0000	0.0004
general cable 1 1/4" Hybrid Cable From 0 to 160	0.00	0.50	0.25	0.0005	0.00	0.0000	0.0000	0.0000
(3) general cable 1 1/4" Hybrid Cable From 0 to 160	150.50	160.00	155.25	0.0271	652.58	0.0013	0.0021	0.0012
(3) general cable 1 1/4" Hybrid Cable From 0 to 160	140.50	150.50	145.50	0.0285	603.35	0.0012	0.0020	0.0012
(3) general cable 1 1/4" Hybrid Cable From 0 to 160	130.50	140.50	135.50	0.0285	523.27	0.0010	0.0017	0.0012
(3) general cable 1 1/4" Hybrid Cable From 0 to 160	120.50	130.50	125.50	0.0285	448.88	0.0009	0.0015	0.0012
(3) general cable 1 1/4" Hybrid Cable From 0 to 160	110.50	120.50	115.50	0.0285	380.20	0.0007	0.0012	0.0012
(3) general cable 1 1/4" Hybrid Cable From 0 to 160	100.50	110.50	105.50	0.0285	317.21	0.0006	0.0010	0.0012
(3) general cable 1 1/4" Hybrid Cable From 0 to 160	90.50	100.50	95.50	0.0285	259.93	0.0005	0.0008	0.0012
(3) general cable 1 1/4" Hybrid Cable From 0 to 160	80.50	90.50	85.50	0.0285	208.34	0.0004	0.0007	0.0012
(3) general cable 1 1/4" Hybrid Cable From 0 to 160	70.50	80.50	75.50	0.0285	162.46	0.0003	0.0005	0.0012
(3) general cable 1 1/4" Hybrid Cable From 0 to 160	60.50	70.50	65.50	0.0285	122.27	0.0002	0.0004	0.0012
(3) general cable 1 1/4" Hybrid Cable From 0 to 160	50.50	60.50	55.50	0.0285	87.79	0.0002	0.0003	0.0012
(3) general cable 1 1/4" Hybrid Cable From 0 to 160	40.50	50.50	45.50	0.0285	59.00	0.0001	0.0002	0.0012
(3) general cable 1 1/4" Hybrid Cable From 0 to 160	30.50	40.50	35.50	0.0285	35.92	0.0001	0.0001	0.0012
(3) general cable 1 1/4" Hybrid Cable From 0 to 160	20.50	30.50	25.50	0.0285	18.53	0.0000	0.0001	0.0012
(3) general cable 1 1/4" Hybrid Cable From 0 to 160	10.50	20.50	15.50	0.0285	6.85	0.0000	0.0000	0.0012
(3) general cable 1 1/4" Hybrid Cable From 0 to 160	0.50	10.50	5.50	0.0285	0.86	0.0000	0.0000	0.0012
(3) general cable 1 1/4" Hybrid Cable From 0 to 160	0.00	0.50	0.25	0.0014	0.00	0.0000	0.0000	0.0001
(12) general cable 1 1/4" Coax From 0 to 148	140.50	148.00	144.25	0.0594	1236.00	0.0024	0.0040	0.0025
(12) general cable 1 1/4" Coax From 0 to 148	130.50	140.50	135.50	0.0792	1454.13	0.0029	0.0047	0.0034
(12) general cable 1 1/4" Coax From 0 to 148	120.50	130.50	125.50	0.0792	1247.42	0.0024	0.0041	0.0034
(12) general cable 1 1/4" Coax From 0 to 148	110.50	120.50	115.50	0.0792	1056.55	0.0021	0.0034	0.0034
(12) general cable 1 1/4" Coax From 0 to 148	100.50	110.50	105.50	0.0792	881.52	0.0017	0.0029	0.0034
(12) general cable 1 1/4" Coax From 0 to 148	90.50	100.50	95.50	0.0792	722.32	0.0014	0.0024	0.0034
(12) general cable 1 1/4" Coax From 0 to 148	80.50	90.50	85.50	0.0792	578.97	0.0011	0.0019	0.0034
(12) general cable 1 1/4" Coax From 0 to 148	70.50	80.50	75.50	0.0792	451.46	0.0009	0.0015	0.0034
(12) general cable 1 1/4" Coax From 0 to 148	60.50	70.50	65.50	0.0792	339.79	0.0007	0.0011	0.0034
(12) general cable 1 1/4" Coax From 0 to 148	50.50	60.50	55.50	0.0792	243.96	0.0005	0.0008	0.0034
(12) general cable 1 1/4" Coax From 0 to 148	40.50	50.50	45.50	0.0792	163.96	0.0003	0.0005	0.0034
(12) general cable 1 1/4" Coax From 0 to 148	30.50	40.50	35.50	0.0792	99.81	0.0002	0.0003	0.0034
(12) general cable 1 1/4" Coax From 0 to 148	20.50	30.50	25.50	0.0792	51.50	0.0001	0.0002	0.0034
(12) general cable 1 1/4" Coax From 0 to 148	10.50	20.50	15.50	0.0792	19.03	0.0000	0.0001	0.0034
(12) general cable 1 1/4" Coax From 0 to 148	0.50	10.50	5.50	0.0792	2.40	0.0000	0.0000	0.0034
(12) general cable 1 1/4" Coax From 0 to 148	0.00	0.50	0.25	0.0040	0.00	0.0000	0.0000	0.0002
general cable 3/8" Fiber From 0 to 148	140.50	148.00	144.25	0.0005	9.36	0.0000	0.0000	0.0000
general cable 3/8" Fiber From 0 to 148	130.50	140.50	135.50	0.0006	11.02	0.0000	0.0000	0.0000
general cable 3/8" Fiber From 0 to 148	120.50	130.50	125.50	0.0006	9.45	0.0000	0.0000	0.0000
general cable 3/8" Fiber From 0 to 148	110.50	120.50	115.50	0.0006	8.00	0.0000	0.0000	0.0000
general cable 3/8" Fiber From 0 to 148	100.50	110.50	105.50	0.0006	6.68	0.0000	0.0000	0.0000
general cable 3/8" Fiber From 0 to 148	90.50	100.50	95.50	0.0006	5.47	0.0000	0.0000	0.0000
general cable 3/8" Fiber From 0 to 148	80.50	90.50	85.50	0.0006	4.39	0.0000	0.0000	0.0000
general cable 3/8" Fiber From 0 to 148	70.50	80.50	75.50	0.0006	3.42	0.0000	0.0000	0.0000
general cable 3/8" Fiber From 0 to 148	60.50	70.50	65.50	0.0006	2.57	0.0000	0.0000	0.0000
general cable 3/8" Fiber From 0 to 148	50.50	60.50	55.50	0.0006	1.85	0.0000	0.0000	0.0000
general cable 3/8" Fiber From 0 to 148	40.50	50.50	45.50	0.0006	1.24	0.0000	0.0000	0.0000
general cable 3/8" Fiber From 0 to 148	30.50	40.50	35.50	0.0006	0.76	0.0000	0.0000	0.0000
general cable 3/8" Fiber From 0 to 148	20.50	30.50	25.50	0.0006	0.39	0.0000	0.0000	0.0000
general cable 3/8" Fiber From 0 to 148	10.50	20.50	15.50	0.0006	0.14	0.0000	0.0000	0.0000

general cable 3/8" Fiber From 0 to 148	0.50	10.50	5.50	0.0006	0.02	0.0000	0.0000	0.0000
general cable 3/8" Fiber From 0 to 148	0.00	0.50	0.25	0.0000	0.00	0.0000	0.0000	0.0000
general cable RET Cable From 0 to 148	140.50	148.00	144.25	0.0006	12.48	0.0000	0.0000	0.0000
general cable RET Cable From 0 to 148	130.50	140.50	135.50	0.0008	14.69	0.0000	0.0000	0.0000
general cable RET Cable From 0 to 148	120.50	130.50	125.50	0.0008	12.60	0.0000	0.0000	0.0000
general cable RET Cable From 0 to 148	110.50	120.50	115.50	0.0008	10.67	0.0000	0.0000	0.0000
general cable RET Cable From 0 to 148	100.50	110.50	105.50	0.0008	8.90	0.0000	0.0000	0.0000
general cable RET Cable From 0 to 148	90.50	100.50	95.50	0.0008	7.30	0.0000	0.0000	0.0000
general cable RET Cable From 0 to 148	80.50	90.50	85.50	0.0008	5.85	0.0000	0.0000	0.0000
general cable RET Cable From 0 to 148	70.50	80.50	75.50	0.0008	4.56	0.0000	0.0000	0.0000
general cable RET Cable From 0 to 148	60.50	70.50	65.50	0.0008	3.43	0.0000	0.0000	0.0000
general cable RET Cable From 0 to 148	50.50	60.50	55.50	0.0008	2.46	0.0000	0.0000	0.0000
general cable RET Cable From 0 to 148	40.50	50.50	45.50	0.0008	1.66	0.0000	0.0000	0.0000
general cable RET Cable From 0 to 148	30.50	40.50	35.50	0.0008	1.01	0.0000	0.0000	0.0000
general cable RET Cable From 0 to 148	20.50	30.50	25.50	0.0008	0.52	0.0000	0.0000	0.0000
general cable RET Cable From 0 to 148	10.50	20.50	15.50	0.0008	0.19	0.0000	0.0000	0.0000
general cable RET Cable From 0 to 148	0.50	10.50	5.50	0.0008	0.02	0.0000	0.0000	0.0000
general cable RET Cable From 0 to 148	0.00	0.50	0.25	0.0000	0.00	0.0000	0.0000	0.0000
(2) 18 Count Fiber Cables From 0 to 148	140.50	148.00	144.25	0.0143	296.51	0.0006	0.0010	0.0006
(2) 18 Count Fiber Cables From 0 to 148	130.50	140.50	135.50	0.0190	348.84	0.0007	0.0011	0.0008
(2) 18 Count Fiber Cables From 0 to 148	120.50	130.50	125.50	0.0190	299.25	0.0006	0.0010	0.0008
(2) 18 Count Fiber Cables From 0 to 148	110.50	120.50	115.50	0.0190	253.46	0.0005	0.0008	0.0008
(2) 18 Count Fiber Cables From 0 to 148	100.50	110.50	105.50	0.0190	211.47	0.0004	0.0007	0.0008
(2) 18 Count Fiber Cables From 0 to 148	90.50	100.50	95.50	0.0190	173.28	0.0003	0.0006	0.0008
(2) 18 Count Fiber Cables From 0 to 148	80.50	90.50	85.50	0.0190	138.89	0.0003	0.0005	0.0008
(2) 18 Count Fiber Cables From 0 to 148	70.50	80.50	75.50	0.0190	108.30	0.0002	0.0004	0.0008
(2) 18 Count Fiber Cables From 0 to 148	60.50	70.50	65.50	0.0190	81.51	0.0002	0.0003	0.0008
(2) 18 Count Fiber Cables From 0 to 148	50.50	60.50	55.50	0.0190	58.52	0.0001	0.0002	0.0008
(2) 18 Count Fiber Cables From 0 to 148	40.50	50.50	45.50	0.0190	39.33	0.0001	0.0001	0.0008
(2) 18 Count Fiber Cables From 0 to 148	30.50	40.50	35.50	0.0190	23.94	0.0000	0.0001	0.0008
(2) 18 Count Fiber Cables From 0 to 148	20.50	30.50	25.50	0.0190	12.35	0.0000	0.0000	0.0008
(2) 18 Count Fiber Cables From 0 to 148	10.50	20.50	15.50	0.0190	4.56	0.0000	0.0000	0.0008
(2) 18 Count Fiber Cables From 0 to 148	0.50	10.50	5.50	0.0190	0.57	0.0000	0.0000	0.0008
(2) 18 Count Fiber Cables From 0 to 148	0.00	0.50	0.25	0.0010	0.00	0.0000	0.0000	0.0000
(2) general cable 7/8" DC From 0 to 148	140.50	148.00	144.25	0.0105	218.48	0.0004	0.0007	0.0005
(2) general cable 7/8" DC From 0 to 148	130.50	140.50	135.50	0.0140	257.04	0.0005	0.0008	0.0006
(2) general cable 7/8" DC From 0 to 148	120.50	130.50	125.50	0.0140	220.50	0.0004	0.0007	0.0006
(2) general cable 7/8" DC From 0 to 148	110.50	120.50	115.50	0.0140	186.76	0.0004	0.0006	0.0006
(2) general cable 7/8" DC From 0 to 148	100.50	110.50	105.50	0.0140	155.82	0.0003	0.0005	0.0006
(2) general cable 7/8" DC From 0 to 148	90.50	100.50	95.50	0.0140	127.68	0.0003	0.0004	0.0006
(2) general cable 7/8" DC From 0 to 148	80.50	90.50	85.50	0.0140	102.34	0.0002	0.0003	0.0006
(2) general cable 7/8" DC From 0 to 148	70.50	80.50	75.50	0.0140	79.80	0.0002	0.0003	0.0006
(2) general cable 7/8" DC From 0 to 148	60.50	70.50	65.50	0.0140	60.06	0.0001	0.0002	0.0006
(2) general cable 7/8" DC From 0 to 148	50.50	60.50	55.50	0.0140	43.12	0.0001	0.0001	0.0006
(2) general cable 7/8" DC From 0 to 148	40.50	50.50	45.50	0.0140	28.98	0.0001	0.0001	0.0006
(2) general cable 7/8" DC From 0 to 148	30.50	40.50	35.50	0.0140	17.64	0.0000	0.0001	0.0006
(2) general cable 7/8" DC From 0 to 148	20.50	30.50	25.50	0.0140	9.10	0.0000	0.0000	0.0006
(2) general cable 7/8" DC From 0 to 148	10.50	20.50	15.50	0.0140	3.36	0.0000	0.0000	0.0006
(2) general cable 7/8" DC From 0 to 148	0.50	10.50	5.50	0.0140	0.42	0.0000	0.0000	0.0006
(2) general cable 7/8" DC From 0 to 148	0.00	0.50	0.25	0.0007	0.00	0.0000	0.0000	0.0000
(4) general cable 6 AWG DC Trunk From 0 to 148	140.50	148.00	144.25	0.0465	966.95	0.0019	0.0032	0.0020
(4) general cable 6 AWG DC Trunk From 0 to 148	130.50	140.50	135.50	0.0620	1137.60	0.0022	0.0037	0.0027
(4) general cable 6 AWG DC Trunk From 0 to 148	120.50	130.50	125.50	0.0620	975.89	0.0019	0.0032	0.0027
(4) general cable 6 AWG DC Trunk From 0 to 148	110.50	120.50	115.50	0.0620	826.56	0.0016	0.0027	0.0027
(4) general cable 6 AWG DC Trunk From 0 to 148	100.50	110.50	105.50	0.0620	689.63	0.0014	0.0023	0.0027
(4) general cable 6 AWG DC Trunk From 0 to 148	90.50	100.50	95.50	0.0620	565.09	0.0011	0.0018	0.0027
(4) general cable 6 AWG DC Trunk From 0 to 148	80.50	90.50	85.50	0.0620	452.94	0.0009	0.0015	0.0027
(4) general cable 6 AWG DC Trunk From 0 to 148	70.50	80.50	75.50	0.0620	353.19	0.0007	0.0012	0.0027
(4) general cable 6 AWG DC Trunk From 0 to 148	60.50	70.50	65.50	0.0620	265.82	0.0005	0.0009	0.0027
(4) general cable 6 AWG DC Trunk From 0 to 148	50.50	60.50	55.50	0.0620	190.85	0.0004	0.0006	0.0027
(4) general cable 6 AWG DC Trunk From 0 to 148	40.50	50.50	45.50	0.0620	128.27	0.0003	0.0004	0.0027
(4) general cable 6 AWG DC Trunk From 0 to 148	30.50	40.50	35.50	0.0620	78.09	0.0002	0.0003	0.0027
(4) general cable 6 AWG DC Trunk From 0 to 148	20.50	30.50	25.50	0.0620	40.29	0.0001	0.0001	0.0027
(4) general cable 6 AWG DC Trunk From 0 to 148	10.50	20.50	15.50	0.0620	14.89	0.0000	0.0000	0.0027
(4) general cable 6 AWG DC Trunk From 0 to 148	0.50	10.50	5.50	0.0620	1.87	0.0000	0.0000	0.0027
(4) general cable 6 AWG DC Trunk From 0 to 148	0.00	0.50	0.25	0.0031	0.00	0.0000	0.0000	0.0001
(8) general cable 1 5/8" Coax From 0 to 123	120.50	123.00	121.75	0.0208	308.32	0.0006	0.0010	0.0009
(8) general cable 1 5/8" Coax From 0 to 123	110.50	120.50	115.50	0.0832	1109.91	0.0022	0.0036	0.0036
(8) general cable 1 5/8" Coax From 0 to 123	100.50	110.50	105.50	0.0832	926.04	0.0018	0.0030	0.0036
(8) general cable 1 5/8" Coax From 0 to 123	90.50	100.50	95.50	0.0832	758.80	0.0015	0.0025	0.0036
(8) general cable 1 5/8" Coax From 0 to 123	80.50	90.50	85.50	0.0832	608.21	0.0012	0.0020	0.0036
(8) general cable 1 5/8" Coax From 0 to 123	70.50	80.50	75.50	0.0832	474.26	0.0009	0.0015	0.0036
(8) general cable 1 5/8" Coax From 0 to 123	60.50	70.50	65.50	0.0832	356.95	0.0007	0.0012	0.0036
(8) general cable 1 5/8" Coax From 0 to 123	50.50	60.50	55.50	0.0832	256.28	0.0005	0.0008	0.0036
(8) general cable 1 5/8" Coax From 0 to 123	40.50	50.50	45.50	0.0832	172.24	0.0003	0.0006	0.0036
(8) general cable 1 5/8" Coax From 0 to 123	30.50	40.50	35.50	0.0832	104.85	0.0002	0.0003	0.0036
(8) general cable 1 5/8" Coax From 0 to 123	20.50	30.50	25.50	0.0832	54.10	0.0001	0.0002	0.0036
(8) general cable 1 5/8" Coax From 0 to 123	10.50	20.50	15.50	0.0832	19.99	0.0000	0.0001	0.0036
(8) general cable 1 5/8" Coax From 0 to 123	0.50	10.50	5.50	0.0832	2.52	0.0000	0.0000	0.0036
(8) general cable 1 5/8" Coax From 0 to 123	0.00	0.50	0.25	0.0042	0.00	0.0000	0.0000	0.0002
general cable 1 1/4" Hybrid Cable From 0 to 123	120.50	123.00	121.75	0.0024	35.20	0.0001	0.0001	0.0001
general cable 1 1/4" Hybrid Cable From 0 to 123	110.50	120.50	115.50	0.0095	126.73	0.0002	0.0004	0.0004
general cable 1 1/4" Hybrid Cable From 0 to 123	100.50	110.50	105.50	0.0095	105.74	0.0002	0.0003	0.0004
general cable 1 1/4" Hybrid Cable From 0 to 123	90.50	100.50	95.50	0.0095	86.64	0.0002	0.0003	0.0004
general cable 1 1/4" Hybrid Cable From 0 to 123	80.50	90.50	85.50	0.0095	69.45	0.0001	0.0002	0.0004

general cable 1 1/4" Hybrid Cable From 0 to 123	70.50	80.50	75.50	0.0095	54.15	0.0001	0.0002	0.0004
general cable 1 1/4" Hybrid Cable From 0 to 123	60.50	70.50	65.50	0.0095	40.76	0.0001	0.0001	0.0004
general cable 1 1/4" Hybrid Cable From 0 to 123	50.50	60.50	55.50	0.0095	29.26	0.0001	0.0001	0.0004
general cable 1 1/4" Hybrid Cable From 0 to 123	40.50	50.50	45.50	0.0095	19.67	0.0000	0.0001	0.0004
general cable 1 1/4" Hybrid Cable From 0 to 123	30.50	40.50	35.50	0.0095	11.97	0.0000	0.0000	0.0004
general cable 1 1/4" Hybrid Cable From 0 to 123	20.50	30.50	25.50	0.0095	6.18	0.0000	0.0000	0.0004
general cable 1 1/4" Hybrid Cable From 0 to 123	10.50	20.50	15.50	0.0095	2.28	0.0000	0.0000	0.0004
general cable 1 1/4" Hybrid Cable From 0 to 123	0.50	10.50	5.50	0.0095	0.29	0.0000	0.0000	0.0004
general cable 1 1/4" Hybrid Cable From 0 to 123	0.00	0.50	0.25	0.0005	0.00	0.0000	0.0000	0.0000
1.10" Coax From 0 to 123	120.50	123.00	121.75	0.0013	19.27	0.0000	0.0001	0.0001
1.10" Coax From 0 to 123	110.50	120.50	115.50	0.0052	69.37	0.0001	0.0002	0.0002
1.10" Coax From 0 to 123	100.50	110.50	105.50	0.0052	57.88	0.0001	0.0002	0.0002
1.10" Coax From 0 to 123	90.50	100.50	95.50	0.0052	47.43	0.0001	0.0002	0.0002
1.10" Coax From 0 to 123	80.50	90.50	85.50	0.0052	38.01	0.0001	0.0001	0.0002
1.10" Coax From 0 to 123	70.50	80.50	75.50	0.0052	29.64	0.0001	0.0001	0.0002
1.10" Coax From 0 to 123	60.50	70.50	65.50	0.0052	22.31	0.0000	0.0001	0.0002
1.10" Coax From 0 to 123	50.50	60.50	55.50	0.0052	16.02	0.0000	0.0001	0.0002
1.10" Coax From 0 to 123	40.50	50.50	45.50	0.0052	10.77	0.0000	0.0000	0.0002
1.10" Coax From 0 to 123	30.50	40.50	35.50	0.0052	6.55	0.0000	0.0000	0.0002
1.10" Coax From 0 to 123	20.50	30.50	25.50	0.0052	3.38	0.0000	0.0000	0.0002
1.10" Coax From 0 to 123	10.50	20.50	15.50	0.0052	1.25	0.0000	0.0000	0.0002
1.10" Coax From 0 to 123	0.50	10.50	5.50	0.0052	0.16	0.0000	0.0000	0.0002
1.10" Coax From 0 to 123	0.00	0.50	0.25	0.0003	0.00	0.0000	0.0000	0.0000
(2) general cable 7/8" Coax From 0 to 135	130.50	135.00	132.75	0.0047	82.47	0.0002	0.0003	0.0002
(2) general cable 7/8" Coax From 0 to 135	120.50	130.50	125.50	0.0104	163.80	0.0003	0.0005	0.0004
(2) general cable 7/8" Coax From 0 to 135	110.50	120.50	115.50	0.0104	138.74	0.0003	0.0005	0.0004
(2) general cable 7/8" Coax From 0 to 135	100.50	110.50	105.50	0.0104	115.75	0.0002	0.0004	0.0004
(2) general cable 7/8" Coax From 0 to 135	90.50	100.50	95.50	0.0104	94.85	0.0002	0.0003	0.0004
(2) general cable 7/8" Coax From 0 to 135	80.50	90.50	85.50	0.0104	76.03	0.0001	0.0002	0.0004
(2) general cable 7/8" Coax From 0 to 135	70.50	80.50	75.50	0.0104	59.28	0.0001	0.0002	0.0004
(2) general cable 7/8" Coax From 0 to 135	60.50	70.50	65.50	0.0104	44.62	0.0001	0.0001	0.0004
(2) general cable 7/8" Coax From 0 to 135	50.50	60.50	55.50	0.0104	32.03	0.0001	0.0001	0.0004
(2) general cable 7/8" Coax From 0 to 135	40.50	50.50	45.50	0.0104	21.53	0.0000	0.0001	0.0004
(2) general cable 7/8" Coax From 0 to 135	30.50	40.50	35.50	0.0104	13.11	0.0000	0.0000	0.0004
(2) general cable 7/8" Coax From 0 to 135	20.50	30.50	25.50	0.0104	6.76	0.0000	0.0000	0.0004
(2) general cable 7/8" Coax From 0 to 135	10.50	20.50	15.50	0.0104	2.50	0.0000	0.0000	0.0004
(2) general cable 7/8" Coax From 0 to 135	0.50	10.50	5.50	0.0104	0.31	0.0000	0.0000	0.0004
(2) general cable 7/8" Coax From 0 to 135	0.00	0.50	0.25	0.0005	0.00	0.0000	0.0000	0.0000
(3) 0.40" Black Cable From 0 to 135	130.50	135.00	132.75	0.0015	26.17	0.0001	0.0001	0.0001
(3) 0.40" Black Cable From 0 to 135	120.50	130.50	125.50	0.0033	51.98	0.0001	0.0002	0.0001
(3) 0.40" Black Cable From 0 to 135	110.50	120.50	115.50	0.0033	44.02	0.0001	0.0001	0.0001
(3) 0.40" Black Cable From 0 to 135	100.50	110.50	105.50	0.0033	36.73	0.0001	0.0001	0.0001
(3) 0.40" Black Cable From 0 to 135	90.50	100.50	95.50	0.0033	30.10	0.0001	0.0001	0.0001
(3) 0.40" Black Cable From 0 to 135	80.50	90.50	85.50	0.0033	24.12	0.0000	0.0001	0.0001
(3) 0.40" Black Cable From 0 to 135	70.50	80.50	75.50	0.0033	18.81	0.0000	0.0001	0.0001
(3) 0.40" Black Cable From 0 to 135	60.50	70.50	65.50	0.0033	14.16	0.0000	0.0000	0.0001
(3) 0.40" Black Cable From 0 to 135	50.50	60.50	55.50	0.0033	10.16	0.0000	0.0000	0.0001
(3) 0.40" Black Cable From 0 to 135	40.50	50.50	45.50	0.0033	6.83	0.0000	0.0000	0.0001
(3) 0.40" Black Cable From 0 to 135	30.50	40.50	35.50	0.0033	4.16	0.0000	0.0000	0.0001
(3) 0.40" Black Cable From 0 to 135	20.50	30.50	25.50	0.0033	2.15	0.0000	0.0000	0.0001
(3) 0.40" Black Cable From 0 to 135	10.50	20.50	15.50	0.0033	0.79	0.0000	0.0000	0.0001
(3) 0.40" Black Cable From 0 to 135	0.50	10.50	5.50	0.0033	0.10	0.0000	0.0000	0.0001
(3) 0.40" Black Cable From 0 to 135	0.00	0.50	0.25	0.0002	0.00	0.0000	0.0000	0.0000
0.40" Black Cable From 0 to 135	130.50	135.00	132.75	0.0005	8.72	0.0000	0.0000	0.0000
0.40" Black Cable From 0 to 135	120.50	130.50	125.50	0.0011	17.33	0.0000	0.0001	0.0000
0.40" Black Cable From 0 to 135	110.50	120.50	115.50	0.0011	14.67	0.0000	0.0000	0.0000
0.40" Black Cable From 0 to 135	100.50	110.50	105.50	0.0011	12.24	0.0000	0.0000	0.0000
0.40" Black Cable From 0 to 135	90.50	100.50	95.50	0.0011	10.03	0.0000	0.0000	0.0000
0.40" Black Cable From 0 to 135	80.50	90.50	85.50	0.0011	8.04	0.0000	0.0000	0.0000
0.40" Black Cable From 0 to 135	70.50	80.50	75.50	0.0011	6.27	0.0000	0.0000	0.0000
0.40" Black Cable From 0 to 135	60.50	70.50	65.50	0.0011	4.72	0.0000	0.0000	0.0000
0.40" Black Cable From 0 to 135	50.50	60.50	55.50	0.0011	3.39	0.0000	0.0000	0.0000
0.40" Black Cable From 0 to 135	40.50	50.50	45.50	0.0011	2.28	0.0000	0.0000	0.0000
0.40" Black Cable From 0 to 135	30.50	40.50	35.50	0.0011	1.39	0.0000	0.0000	0.0000
0.40" Black Cable From 0 to 135	20.50	30.50	25.50	0.0011	0.72	0.0000	0.0000	0.0000
0.40" Black Cable From 0 to 135	10.50	20.50	15.50	0.0011	0.26	0.0000	0.0000	0.0000
0.40" Black Cable From 0 to 135	0.50	10.50	5.50	0.0011	0.03	0.0000	0.0000	0.0000
0.40" Black Cable From 0 to 135	0.00	0.50	0.25	0.0001	0.00	0.0000	0.0000	0.0000
Sum				6.6071	48430.98			

EXHIBIT 4

January 17, 2022
February 24, 2022 (Rev.1)



Centerline Communications
750 West Center Street, Suite #301
West Bridgewater, MA 02379

RE:	Site Number:	CT2174
	FA Number:	10035120
	PACE Number:	MRCTB056016
	PT Number:	2051A11L88
	Site Name:	GEORGES CELLAR HILL SOUTH
	Site Address:	525 Orange Center Road Orange, CT 06477

To Whom It May Concern:

Hudson Design Group LLC (HDG) has been authorized by Centerline Communications to perform a mount analysis on the proposed AT&T antenna/RRH mounts to determine its capability of supporting the following additional loading:

- (1) DC6-48-60-18 Surge Arrestor (31.4"x10.2" Ø – Wt. = 33 lbs.)
- **(3) TPA65R-BU6DA-K Antennas (71.2"x20.7"x7.7" – Wt. = 69 lbs. /each)**
- **(3) AIR6419 Antennas (31.0"x16.1"x7.3" – Wt. = 66 lbs. /each)**
- **(3) AIR6449 Antennas (30.6"x15.9"x10.6" – Wt. = 82 lbs. /each)**
- **(3) DMP65R-BU6DA Antennas (71.2"x20.7"x7.7" – Wt. = 80 lbs. /each)**
- **(3) 4478 B14 RRH's (18.1"x13.4"x8.3" – Wt. = 60 lbs. /each)**
- **(3) 8843 B2/B66A RRH's (14.9"x13.2"x10.9" – Wt. = 72 lbs. /each)**
- **(3) 4449 B5/B12 RRH's (17.9"x13.2"x9.4" – Wt. = 73 lbs. /each)**
- **(2) DC6-48-60-18 Surge Arrestors (31.4"x10.2" Ø – Wt. = 33 lbs.)**

*Proposed equipment shown in bold.

Mount fabrication drawings prepared by SitePro1, P/N VFA14-H10-2120, dated December 14, 2017, P/N MM01 dated May 10, 2010, and P/N LWRM dated August 24, 2012, were used to perform this analysis.

Mount Analysis Methods:

- This analysis was conducted in accordance with EIA/TIA-222-H, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, the International Building Code 2015 with 2018 Connecticut State Building Code, and AT&T Mount Technical Directive – R16.
- HDG considers this mount to be asymmetrical and has applied wind loads in 30 degree increments all around the mount. Per TIA-222-H and Appendix N of the Connecticut State Building Code, the max basic wind speed for this site is equal to 125 mph with a max basic wind speed with ice of 50 mph and a max ice thickness of 1.0 in. An escalated ice thickness of 1.16 in was used for this analysis.
- HDG considers this site to be exposure category C; tower is located near large, flat, open, terrain/grasslands.
- HDG considers this site to be topographic category 1; tower is located on flat terrain or the bottom of a hill or ridge.
- HDG considers this site to have a spectral response acceleration parameter at short periods, S_s , of 0.192 and a spectral response acceleration parameter at a period of 1 second, S_1 , of 0.063.
- The mounts have been analyzed with load combinations consisting of 500 lbs live load using a service wind speed of 30 mph wind on the worst case antenna. Analysis performed on each antenna pipe to determine worst case location; worst case location was antenna position 4.
- The mounts have been analyzed with load combinations consisting of a 250 lbs live load in a worst case location on the mount.
- The proposed mounts are to be secured to the existing monopole with ring mounts and threaded rods. HDG considers the threaded rods to be the governing connection member.

Based on our evaluation, we have determined that the (3) Proposed SitePro1 VFA12-WLL-30120 mounts, (6) Proposed SitePro1 MM01 standoffs, and (2) Proposed SitePro1 LWRM collar mounts **ARE CAPABLE** of supporting the proposed installation.

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
Proposed Mount Rating	9	LC83	65%	PASS

Reference Documents:

- Fabrication drawings prepared by SitePro1, P/N VFA14-H10-2120, dated December 14, 2017.
- Fabrication drawings prepared by SitePro1 P/N MM01, dated May 10, 2010
- Fabrication drawings prepared by SitePro1 LWRM, dated August 24, 2012

This determination was based on the following limitations and assumptions:

1. HDG is not responsible for any modifications completed prior to and hereafter which HDG was not directly involved.
2. All structural members and their connections are assumed to be in good condition and are free from defects with no deterioration to its member capacities.
3. All antennas, coax cables and waveguide cables are assumed to be properly installed and supported as per the manufacturer's requirements.
4. The proposed mounts will be adequately secured to the tower structure per the mount manufacturer's specifications.
5. All components pertaining to AT&T's mounts must be tightened and re-plumbed prior to the installation of new appurtenances.
6. HDG performed a localized analysis on the mount itself and not on the supporting tower structure.

Please feel free to contact our office should you have any questions.

Respectfully Submitted,
Hudson Design Group LLC



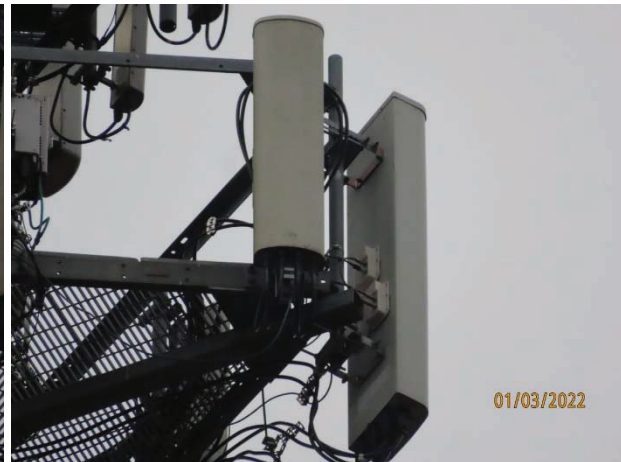
Michael Cabral
Vice President



Daniel P. Hamm, PE
Principal

FIELD PHOTOS:

*Note: Existing mount to be removed.



FIELD PHOTOS (CONT.):

*Note: Existing mount to be removed.





HUDSON
Design Group LLC

Wind & Ice Calculations

Date: 2/24/2022
 Project Name: GEORGES CELLAR HILL SOUTH
 Project No.: CT2174
 Designed By: KSBM Checked By: MSC



HUDSON
 Design Group LLC

2.6.5.2 Velocity Pressure Coeff:

$$K_z = 2.01 (z/z_g)^{2/\alpha}$$

z = 150 (ft)
 z_g = 900 (ft)
 α = 9.5

K_z = 1.378

$$K_{zmin} \leq K_z \leq 2.01$$

Table 2-4

Exposure	Z _g	α	K _{zmin}	K _c
B	1200 ft	7.0	0.70	0.9
C	900 ft	9.5	0.85	1.0
D	700 ft	11.5	1.03	1.1

2.6.6.2 Topographic Factor:

Table 2-5

Topo. Category	K _t	f
2	0.43	1.25
3	0.53	2.0
4	0.72	1.5

$$K_{zt} = [1 + (K_c K_t / K_h)]^2$$

$$K_h = e^{(fz/H)}$$

K_{zt} = 1

K_h = 1

K_c = 1.0 (from Table 2-4)

K_t = 0 (from Table 2-5)

f = 0 (from Table 2-5)

z = 150

z_s = 188 (Mean elevation of base of structure above sea level)

H = 0 (Ht. of the crest above surrounding terrain)

K_{zt} = 1.00 (from 2.6.6.2.1)

K_e = 0.99 (from 2.6.8)

(If Category 1 then K_{zt} = 1.0)

Category = 1

2.6.10 Design Ice Thickness

Max Ice Thickness =

t_i = 1.00 in

Importance Factor =

I = 1.00 (from Table 2-3)

K_{iz} = 1.16 (from Sec. 2.6.10)

$$t_{iz} = t_i * I * K_{iz} * (K_{zt})^{0.35}$$

t_{iz} = 1.16 in

Date: 2/24/2022
 Project Name: GEORGES CELLAR HILL SOUTH
 Project No.: CT2174
 Designed By: KSBM Checked By: MSC



2.6.9 Gust Effect Factor

2.6.9.1 Self Supporting Lattice Structures

$G_h = 1.0$ Latticed Structures > 600 ft

$G_h = 0.85$ Latticed Structures 450 ft or less

$G_h = 0.85 + 0.15 [h/150 - 3.0]$

$h =$ ht. of structure

$h =$ 160

$G_h =$ 0.85

2.6.9.2 Guyed Masts

$G_h =$ 0.85

2.6.9.3 Pole Structures

$G_h =$ 1.1

2.6.9 Appurtenances

$G_h =$ 1.0

2.6.9.4 Structures Supported on Other Structures

(Cantilevered tubular or latticed spines, pole, structures on buildings ($ht. : width$ ratio > 5))

$G_h =$ 1.35

$G_h =$ 1.00

2.6.11.2 Design Wind Force on Appurtenances

$$F = q_z * G_h * (EPA)_A$$

$$q_z = 0.00256 * K_z * K_{zt} * K_s * K_e * K_d * V_{max}^2$$

$q_z =$ 52.02

$q_{z(ice)} =$ 8.32

$q_{z(30)} =$ 3.00

$K_z =$ 1.378 (from 2.6.5.2)

$K_{zt} =$ 1.0 (from 2.6.6.2.1)

$K_s =$ 1.0 (from 2.6.7)

$K_e =$ 0.99 (from 2.6.8)

$K_d =$ 0.95 (from Table 2-2)

$V_{max} =$ 125 mph (Ultimate Wind Speed)

$V_{max(ice)} =$ 50 mph

$V_{30} =$ 30 mph

Table 2-2

Structure Type	Wind Direction Probability Factor, K_d
Latticed structures with triangular, square or rectangular cross sections	0.85
Tubular pole structures, latticed structures with other cross sections, appurtenances	0.95
Tubular pole structures supporting antennas enclosed within a cylindrical shroud	1.00

Date: 2/25/2022
 Project Name: GEORGES CELLAR HILL SOUTH
 Project No.: CT2174
 Designed By: KSBM Checked By: MSC



Determine Ca:

Table 2-9

Force Coefficients (Ca) for Appurtenances				
Member Type		Aspect Ratio ≤ 2.5	Aspect Ratio = 7	Aspect Ratio ≥ 25
		Ca	Ca	Ca
Flat		1.2	1.4	2.0
Square/Rectangular HSS		$1.2 - 2.8(r_s) \geq 0.85$	$1.4 - 4.0(r_s) \geq 0.90$	$2.0 - 6.0(r_s) \geq 1.25$
Round	C < 39 (Subcritical)	0.7	0.8	1.2
	$39 \leq C \leq 78$ (Transitional)	$4.14/(C^{0.485})$	$3.66/(C^{0.415})$	$46.8/(C^{1.0})$
	C > 78 (Supercritical)	0.5	0.6	0.6

Aspect Ratio is the overall length/width ratio in the plane normal to the wind direction.
 (Aspect ratio is independent of the spacing between support points of a linear appurtenance.)

Note: Linear interpolation may be used for aspect ratios other than those shown.

Ice Thickness = 1.16 in Angle = 0 (deg) Equivalent Angle = 180 (deg)

Appurtenances	Height	Width	Depth	Flat Area	Aspect Ratio	Ca	Force (lbs)	Force (lbs) (w/ Ice)	Force (lbs) (30 mph)
TPA65R-BU6DA-K Antenna	71.2	20.7	7.7	10.24	3.44	1.24	661	122	38
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.93	1.20	216	43	12
AIR6449 Antenna	30.6	15.9	10.6	3.38	1.92	1.20	211	42	12
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.44	1.24	661	122	38
4478 B14 RRH (Side)	18.1	8.3	13.4	1.04	2.18	1.20	65	15	4
8843 B2/B66A RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.20	70	16	4
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.36	1.20	102	22	6
DC6-48-60-18 Surge Arrestor	31.4	10.2	10.2	2.22	3.08	0.70	81	17	5
Plate 11-1/4x5/8	0.6	12.0		0.05	0.05	2.00	5		
Plate 3-1/2x5/8	0.6	12.0		0.05	0.05	2.00	5		
3/4" RoundBar	0.8	12.0		0.06	0.06	1.20	4		
5/8" RoundBar	0.6	12.0		0.05	0.05	1.20	3		
2" Pipe	2.4	12.0		0.20	0.20	1.20	12		
2-1/2" Pipe	2.9	12.0		0.24	0.24	1.20	15		
3" Pipe	3.5	12.0		0.29	0.29	1.20	18		
HSS 4x4	4.0	12.0		0.33	0.33	1.25	22		

Date: 2/24/2022
 Project Name: GEORGES CELLAR HILL SOUTH
 Project No.: CT2174
 Designed By: KS8M Checked By: MSC



WIND LOADS

Angle = 30 (deg)

Ice Thickness = 1.16 in.

Equivalent Angle = 210 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Aspect Ratio	Aspect Ratio	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
TPA65R-BU6DA-K Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	661	292	569
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	216	104	188
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	211	143	194
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	661	292	569
4478 B14 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	65	105	75
8843 B2/B66A RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	70	85	74
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	102	73	95

WIND LOADS WITH ICE:

TPA65R-BU6DA-K Antenna	73.5	23.0	10.0	11.76	5.12	3.19	7.33	1.23	1.41	120	60	105
AIR6419 Antenna	33.3	18.4	9.6	4.26	2.23	1.81	3.46	1.20	1.24	43	23	38
AIR6449 Antenna	32.9	18.2	12.9	4.17	2.96	1.81	2.55	1.20	1.20	42	30	39
DMP65R-BU6DA Antenna	73.5	23.0	10.0	11.76	5.12	3.19	7.33	1.23	1.41	120	60	105
4478 B14 RRH (Side)	20.4	10.6	15.7	1.51	2.23	1.92	1.30	1.20	1.20	15	22	17
8843 B2/B66A RRH (Side)	17.2	13.2	15.5	1.58	1.86	1.30	1.11	1.20	1.20	16	19	16
4449 B5/B12 RRH	20.2	15.5	11.7	2.18	1.65	1.30	1.72	1.20	1.20	22	16	20

WIND LOADS AT 30 MPH:

TPA65R-BU6DA-K Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	38	17	33
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	12	6	11
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	12	8	11
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	38	17	33
4478 B14 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	4	6	4
8843 B2/B66A RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	4	5	4
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	6	4	5

Date: 2/24/2022
 Project Name: GEORGES CELLAR HILL SOUTH
 Project No.: CT2174
 Designed By: KS8M Checked By: MSC



WIND LOADS

Angle = 60 (deg)

Ice Thickness = 1.16 in.

Equivalent Angle = 240 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
TPA65R-BU6DA-K Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	661	292	384
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	216	104	132
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	211	143	160
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	661	292	384
4478 B14 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	65	105	95
8843 B2/B66A RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	70	85	82
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	102	73	80

WIND LOADS WITH ICE:

TPA65R-BU6DA-K Antenna	73.5	23.0	10.0	11.76	5.12	3.19	7.33	1.23	1.41	120	60	75
AIR6419 Antenna	33.3	18.4	9.6	4.26	2.23	1.81	3.46	1.20	1.24	43	23	28
AIR6449 Antenna	32.9	18.2	12.9	4.17	2.96	1.81	2.55	1.20	1.20	42	30	33
DMP65R-BU6DA Antenna	73.5	23.0	10.0	11.76	5.12	3.19	7.33	1.23	1.41	120	60	75
4478 B14 RRH (Side)	20.4	10.6	15.7	1.51	2.23	1.92	1.30	1.20	1.20	15	22	20
8843 B2/B66A RRH (Side)	17.2	13.2	15.5	1.58	1.86	1.30	1.11	1.20	1.20	16	19	18
4449 B5/B12 RRH	20.2	15.5	11.7	2.18	1.65	1.30	1.72	1.20	1.20	22	16	18

WIND LOADS AT 30 MPH:

TPA65R-BU6DA-K Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	38	17	22
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	12	6	8
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	12	8	9
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	38	17	22
4478 B14 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	4	6	5
8843 B2/B66A RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	4	5	5
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	6	4	5