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Kristen Motel
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October 16, 2019

VIA EMAIL & OVERNIGHT DELIVERY
Members of the Connecticut Siting Council
Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051

Re: Tower Sharing Request by New Cingular Wireless PCS, LLC
Premises: 39 Carmen Hill Road, Brookfield, Connecticut

Dear Members of the Siting Council:

Pursuant to Connecticut General Statutes (C.G.S.) § 16-50aa, New Cingular Wireless PCS, LLC ("AT&T" or "the Applicant") hereby requests an order from the Connecticut Siting Council (the "Council") to approve the proposed shared use of a communications tower and associated compound at the parcel identified as 39 Carmen Hill Road in the Town of Brookfield (the "Carmen Hill Road Facility"). The authorized owner of the tower facility is VB-S1 Assets, LLC ("Vertical Bridge"). AT&T and Vertical Bridge have agreed to share the use of the Carmen Hill Road Facility as detailed below. Additionally, annexed here as **Attachment 1** is the Letter of Authorization between the Applicant and Vertical Bridge authorizing the Applicant to prepare and file an application for the Applicant's use of the existing tower.

The Carmen Hill Road Facility

The Carmen Hill Road Facility consists of an approximately 457-foot (457') guyed tower (the "Tower") and associated equipment, with the appurtenance on the tower reaching a height of approximately 492-feet (492') above ground level ("AGL"). The tower and compound are located on an approximately 4.2-acre parcel owned by Vertical Bridge Towers LLC.

AT&T Wireless' Facility

As depicted on the enclosed plans annexed hereto as **Attachment 2** prepared by Ramaker & Associates, Inc., last updated September 13, 2019, including a site plan, compound and equipment layout and tower elevation, AT&T proposes shared use of the Carmen Hill Road Facility to provide FCC licensed services. AT&T will install 6 antennas and 9 remote radiohead units mounted on a sector frame mount at approximately the 165-foot level of the tower. As also depicted on the drawings, AT&T will install associated unmanned equipment on a concrete pad within AT&T's 10' x 20' leased area located within the existing fenced compound. Also, within the existing compound, AT&T will install a Generac 20kw backup diesel generator on an 8' 8" x 8' 8" concrete pad. Specifications of the generator are provided in **Attachment 5**.

Connecticut General Statutes § 16-50aa provides that, upon written request for shared use approval, an order approving such use shall be issued "if the Council finds that the proposed

shared use of the facility is technically, legally, environmentally and economically feasible and meets public safety concerns." (C.G.S. § 16-50aa(c)(1)). Further, upon approval of such shared use, it is exclusive, and no local zoning or land use approvals are required. (C.G.S. § 16-50x). Shared use of the Carmen Hill Road Facility satisfies the approval criteria set forth in C.G.S. § 16-50aa as follows:

A. Technical Feasibility: As evidenced in the structural analysis prepared by Vertical Bridge Engineering, LLC and dated October 7, 2019, annexed hereto as **Attachment 3**, AT&T confirmed that the tower is designed to support the addition of AT&T's antennas and tower mounted equipment in addition to the existing loading. The proposed shared use of this tower is therefore technically feasible.

B. Legal Feasibility: Pursuant to C.G.S. § 16-50aa, the Council is authorized to issue an order approving shared use of the existing Carmen Hill Road Facility. (C.G.S. § 16-50aa(c)(1)). Under the authority vested in the Council by C.G.S. § 16-50aa, an order by the Council approving the shared use of a tower would permit the Applicant to obtain a building permit for the proposed installation. Notably, this tower was not previously approved by the Council or subject to this Council's jurisdiction. However, the tower currently houses various equipment for transmitting and receiving signals in the electromagnetic spectrum.

C. Environmental Feasibility: The proposed shared use would have a minimal environmental effect, for the following reasons:

1. Given the height of the existing tower, AT&T's proposed installation would have a *de minimis* visual impact and would not cause any significant change or alteration in the physical or environmental characteristics of the facility;

2. The installation by AT&T will not increase the height of the tower;

3. The proposed installation will not increase the noise levels at the site boundaries by six decibels or more;

4. Operation of AT&T's antennas at this site will not exceed the total radio frequency electromagnetic radiation power density level adopted by the FCC and Connecticut Department of Health. Upon installation of RF signage, AT&T's proposed antenna installation along with the existing equipment is calculated to be less than 1% of the FCC Standard for General Public/Uncontrolled Maximum Permissible Exposure ("MPE") at ground level. Please see the assessment of RF power density dated August 20, 2019, prepared by Site Safe, LLC, annexed hereto as **Attachment 4**; and

5. The proposed shared use of the Carmen Hill Road Facility would not require any water or sanitary facilities or discharges into any waterbodies. The only air emissions would be from weekly testing of the emergency back-up generator and its use during a power outage. Further, the installation will not generate any traffic other than for periodic maintenance visits.

D. Economic Feasibility: The Applicant and the tower owner entered into a mutual agreement to share use of the Carmen Hill Road Facility on terms agreeable to both parties. The proposed tower sharing is therefore economically feasible.

E. Public Safety: As stated above and evidenced in attachments hereto the tower is structurally capable of supporting AT&T's installation and emissions are well within the maximum permitted by the FCC and the Connecticut Department of Health. Further, the addition of AT&T's telecommunications service in the Brookfield area through shared use of the Carmen Hill Road Facility is expected to enhance the safety and welfare of local residents and travelers through the Route 7- Route 202 corridor and the Candlewood Lake area resulting in an improvement to public safety in this area of the State.

Notice of Tower Share Filing

Pursuant to R.C.S.A. Section 16-50j-88 and the August 2013 Tower Share Filing Guide, copies of AT&T's tower share filing request were sent to the property owner, as well as the chief elected official of Brookfield and the Brookfield Planning and Zoning Department. FedEx confirmation that such copies were sent is included in **Attachment 6.**

Conclusion

As explained above, the proposed shared use of the Carmen Hill Road Facility satisfies the criteria set forth in C.G.S. §16-50aa and advances the General Assembly's and the Siting Council's goal of preventing the proliferation of towers in the State of Connecticut. AT&T therefore requests the Siting Council issue an order approving the proposed shared use of the Carmen Hill Road Facility.

Respectfully submitted,

Kristen Motel
On behalf of AT&T

Attachments

CUDDY +FEDER LLP

cc: Melanie Bachman, Executive Director
Stephen C. Dunn, Town of Brookfield First Selectman
Alice Dew, Town of Brookfield Land Use Director
VB-S1 Assets, LLC
Rawmaker & Associates, Inc.
AT&T
Smart Link LLC
Lucia Chiocchio, Esq.
Julie Durkin

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verticalbridge

LETTER OF AUTHORIZATION

June 18, 2019

SITE # / NAME: US-CT-5009 WRKI-FM
ADDRESS: 0.3 Mi. Sse Of Intersection of Carmen Hill Rd & Se Trail
Brookfield, CT 06804
CARRIER: NEW CINGULAR WIRELESS PCS, LLC

VB-S1 Assets, LLC ("Vertical Bridge"), the authorized owner of the tower facility located at the address identified above (the "Tower Facility"), do hereby authorize New Cingular Wireless PCS, LLC and or its representative (collectively, the "Authorized Party") to act as a representative of Vertical Bridge for the sole purpose of filing and consummating any land-use or building permit application(s) as may be required by the applicable permitting authorities for the Authorized Party's installation of telecommunications equipment at or on the Tower Facility.

We understand that this application may be denied, modified or approved with conditions. The above authorization is limited to the acceptance by the Authorized Party of only conditions related to the installation of its telecommunications equipment and any such conditions of approval or modifications will be the Authorized Party's sole responsibility.

Sincerely,

Timothy Tuck
Director
VB-S1 Assets, LLC

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PROJECT NOTES:

1. SITE INFORMATION OBTAINED FROM THE FOLLOWING:
   A. PLAN ENTITLED "CARMEN HILL ROAD" PREPARED BY PROTERRA DESIGN GROUP, LLC OF NORTHAMPTON, MA LAST REVISED 03/01/2011.
   B. LIMITED FIELD OBSERVATION BY RAMAKER & ASSOCIATES ON 04/25/2019.
2. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CODES, ORDINANCES, LAWS AND REGULATIONS OF ALL MUNICIPALITIES, UTILITY COMPANIES OR OTHER PUBLIC/GOVERNING AUTHORITIES.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS THAT MAY BE REQUIRED BY ANY FEDERAL, STATE, COUNTY OR MUNICIPAL AUTHORITIES.
4. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER, IN WRITING, OF ANY CONFLICTS, ERRORS OR OMISSIONS PRIOR TO THE SUBMISSION OF BIDS OR PERFORMANCE OF WORK.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING SITE IMPROVEMENTS PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL REPAIR ANY DAMAGE AS A RESULT OF CONSTRUCTION OF THIS FACILITY AT THE CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
6. THE SCOPE OF WORK FOR THIS PROJECT SHALL INCLUDE PROVIDING ALL MATERIALS, EQUIPMENT AND LABOR REQUIRED TO COMPLETE THIS PROJECT. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
7. THE CONTRACTOR SHALL VISIT THE PROJECT SITE PRIOR TO SUBMITTING THE BID TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND CONSTRUCTION DRAWINGS.
8. THE CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THESE DRAWINGS MUST BE VERIFIED. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
9. SINCE THE CELL SITE MAY BE 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 REQUIRED TO BE WORN TO ALERT OF ANY POTENTIALLY DANGEROUS EXPOSURE LEVELS.
10. THE PROPOSED FACILITY WILL CAUSE NO INCREASE IN STORM WATER RUNOFF, THEREFORE, NO DRAINAGE STRUCTURES ARE PROPOSED.
11. NO NOISE, SMOKE, DUST OR ODOR WILL RESULT FROM THIS FACILITY AS TO CAUSE A NUISANCE.
12. THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION (NO HANDICAP ACCESS IS REQUIRED).
13. THE FACILITY DOES NOT REQUIRE POTABLE WATER OR SANITARY SERVICE.
14. CONTRACTOR SHALL VERIFY ANTENNA ELEVATION AND AZIMUTHS WITH RF ENGINEERING PRIOR TO INSTALLATION.
15. THE TOWER, MOUNTS AND ANTENNAS SHALL BE DESIGNED TO MEET EIA/TIA-222-G AS PER IBC REQUIREMENTS.
16. ALL STRUCTURAL ELEMENTS SHALL BE HOT DIPPED GALVANIZED STEEL.
17. CONTRACTOR MUST FIELD LOCATE ALL EXISTING UNDERGROUND UTILITIES PRIOR TO ANY EXCAVATION.
18. CONSTRUCTION SHALL NOT COMMENCE UNTIL COMPLETION OF A PASSING STRUCTURAL ANALYSIS CERTIFIED BY A LICENSED PROFESSIONAL ENGINEER. THE STRUCTURAL ANALYSIS IS TO BE PERFORMED BY OTHERS.
19. CONTRACTOR SHALL CONTACT STATE SPECIFIC ONE CALL SYSTEM THREE WORKING DAYS PRIOR TO ANY EARTH MOVING ACTIVITIES.

at&t

SITE NAME: BROOKFIELD - CARMEN HILL ROAD
FA NUMBER: 10128690
SITE NUMBER: CT2586
ADDRESS: 39 CARMEN HILL ROAD
BROOKFIELD, CT 06804
SCOPE: 1C - MRCTB036751 (2051A0LEPL)
2C - MRCTB039277 (2051A0NNMH)
3C - MRCTB039271 (2051A0NMA9)
4C - MRCTB039272 (2051A0NM9C)
5C - MRCTB039270 (2051A0NNMM)

AERIAL MAP:

CODE COMPLIANCE:

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES.

1. INTERNATIONAL BUILDING CODE
2. ANSI/TIA-222 STRUCTURAL STANDARD FOR ANTENNA STRUCTURES
3. NFPA 780 - LIGHTNING PROTECTION CODE
4. NATIONAL ELECTRIC CODE

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PROJECT INFORMATION:

SITE INFORMATION:
LATITUDE: 41.4934380° N
LONGITUDE: -73.4288160° W
JURISDICTION: FAIRFIELD COUNTY

APPLICANT/LESSEE:
COMPANY: NEW CINGULULAR WIRELESS PCS, LLC
ADDRESS: 12555 CINGULAR WAY, SUITE 1300
CITY, STATE, ZIP: ALPHARETTA, GA 30004

PROPERTY OWNER:
PROPERTY OWNER: VERTICAL BRIDGE
ADDRESS: 750 PARK OF COMMERCE DRIVE
CITY, STATE, ZIP: BOCA RATON, FLORIDA 33487

REAL ESTATE SPECIALIST:
COMPANY: SMARTLINK, LLC
ADDRESS: 85 RANGEWAY ROAD
BUILDING 3, SUITE 102
CITY, STATE, ZIP: NORTH BILLERICA, MA 01862
CONTACT: HALELUYA HAILE
E-MAIL: HALELUYA.HAILE@SMARTLINKLLC.COM

CONSTRUCTION MANAGER:
COMPANY: SMARTLINK, LLC
ADDRESS: 85 RANGEWAY ROAD
BUILDING 3, SUITE 102
CITY, STATE, ZIP: NORTH BILLERICA, MA 01862
CONTACT: ROBERT PICARD
E-MAIL: ROBERT.PICARD@SMARTLINKLLC.COM

ENGINEER:
COMPANY: RAMAKER & ASSOCIATES, INC.
ADDRESS: 855 COMMUNITY DRIVE
CITY, STATE, ZIP: SAUK CITY, WI 53583
CONTACT: ANGELA KVALHEIM
E-MAIL: AKVALHEIM@RAMAKER.COM

PROJECT DESCRIPTION/ SCOPE OF WORK

- INSTALL (9) NEW RRUs, (3) PER SECTOR
- INSTALL (6) NEW ANTENNAS, (2) PER SECTOR
- INSTALL (3) NEW SECTOR MOUNTS, (1) PER SECTOR
- INSTALL (1) NEW ICE BRIDGE
- INSTALL (1) NEW 6'-8"x6'-8" AT&T W.I.C. ON CONCRETE PAD
- INSTALL (1) NEW GENERATOR ON CONCRETE PAD
- INSTALL (3) NEW DC-6 SURGE SUPPRESSION DOMES
- INSTALL (2) NEW FIBER TRUNKS
- INSTALL (5) NEW DC POWER CABLES

PROPOSED PROJECT SCOPE BASED ON RFDS ID# 2947738, VERSION 1.0, LAST UPDATED 4/1/2019. CONTRACTOR TO VERIFY IN FIELD.

SHEET INDEX

at&t

smartlink
85 RANGEWAY ROAD - BLDG 3, SUITE 102
NORTH BILLERICA, MA 01862
SMARTLINKLLC.COM

RAMAKER & ASSOCIATES, INC.
100% EMPLOYEE-OWNED
855 Community Dr, Sauk City, WI 53583
608-643-4100 www.Ramaker.com
Sauk City, WI • Willmar, MN
Woodcliff Lake, NJ • Bayamon, PR

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Connecticut.

STATE OF CONNECTICUT · JAMES R. SKOWRONSKI · 26266 · LICENSED PROFESSIONAL ENGINEER

James R. Skowronski 9/13/2019
Signature: Date:

MARK	DATE	DESCRIPTION
6	09/13/19	REVISED CDs ISSUED
4	08/09/19	REVISED PER COMMENTS
3	07/30/19	REVISED PER MOUNT AT GAMMA
2	07/03/19	FINAL CDs ISSUED
1	06/17/19	REVISED CDs ISSUED
0	06/11/19	ISSUED FOR REVIEW

ISSUE PHASE: FINAL
DATE ISSUED: 09/13/2019

PROJECT TITLE:
BROOKFIELD - CARMEN HILL ROAD
FA# 10128690
SITE# CT2586

PROJECT INFORMATION:
39 CARMEN HILL ROAD
BROOKFIELD, CT 06804
FAIRFIELD COUNTY

SHEET TITLE:
TITLE SHEET

SCALE: NONE

PROJECT NUMBER: 44031
SHEET NUMBER: T-1

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DRAWN BY: KJH CHECKED BY: AJK

GENERAL NOTES:

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING 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 TESTING (PER IEEE 1100 AND FOR GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5O HMS OR LESS.
4. THE SUBCONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT.
5. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
6. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
7. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE EQUIPMENT GROUND RING WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS; 2 AWG STRANDED COPPER FOR OUTDOOR BTS.
8. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED. BACK TO BACK CONNECTIONS ON OPPOSITE SIDES OF THE GROUND BUS ARE PERMITTED.
9. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING, SHALL BE #2 AWG SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
10. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
11. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED. ALL BENDS SHALL BE MADE WITH 12" RADIUS OR LARGER.
12. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
13. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS EXCEPT FOR GROUND BAR CONNECTION FROM MGB TO OUTSIDE EXTERIOR GROUND SHALL ALL BE CADWELD CONNECTIONS.
14. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
15. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED TO THE TOWER GROUND BAR.
16. APPROVED ANTIOXIDANT COATINGS (I.E. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
17. ALL EXTERIOR AND INTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
18. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
19. BOND ALL METALLIC OBJECTS WITHIN 6 FT OF MAIN GROUND WIRES WITH 1-#2 AWG TIN-PLATED COPPER GROUND CONDUCTOR.
20. GROUND CONDUCTORS USED IN THE FACILITY GROUND AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC PLASTIC CONDUIT SHALL BE WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (E.G. NON-METALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
21. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/4" 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.
22. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
    CONTRACTOR - SMARTLINK
    SUBCONTRACTOR - GENERAL CONTRACTOR (CONSTRUCTION)
    OWNER - AT&T (NEW CINGULAR WIRELESS PCS, LLC)
23. ALL SITE WORK SHALL BE COMPLETED AS INDICATED ON THE DRAWINGS AND PROJECT SPECIFICATIONS.
24. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
25. 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 LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK.
26. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
27. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
28. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
29. 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.
30. 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.
31. THE SUBCONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
32. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY THE RESPONSIBLE ENGINEER. EXTREME CAUTION SHOULD BE USED BY THE SUBCONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. SUBCONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING & EXCAVATION.
33. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, AS DIRECTED BY THE RESPONSIBLE ENGINEER, AND SUBJECT TO THE APPROVAL OF THE OWNER AND/OR LOCAL UTILITIES.
34. THE AREAS OF THE OWNER'S PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY SHALL BE GRADED TO A UNIFORM SLOPE AND STABILIZED TO PREVENT EROSION.
35. SUBCONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
36. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
37. THE SUBGRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
38. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE BTS EQUIPMENT AND TOWER AREAS.
39. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
40. THE SUBCONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE.
41. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
42. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF THE CONTRACTOR.
43. 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.
44. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.
45. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS.
46. ALL STRUCTURAL STEEL WORK 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 EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCHUP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.
47. CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T MOBILITY SITES."
48. 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.
49. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION, ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
50. 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 ALERT OF DANGEROUS EXPOSURE LEVELS.

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6	09/13/19	REVISED CDs ISSUED
4	08/09/19	REVISED PER COMMENTS
3	07/30/19	REVISED PER MOUNT AT GAMMA
2	07/03/19	FINAL CDs ISSUED
1	06/17/19	REVISED CDs ISSUED
0	06/11/19	ISSUED FOR REVIEW

ISSUE PHASE: FINAL — DATE ISSUED: 09/13/2019

PROJECT TITLE:
BROOKFIELD - CARMEN HILL ROAD
FA# 10128690
SITE# CT2586

PROJECT INFORMATION:
39 CARMEN HILL ROAD
BROOKFIELD, CT 06804
FAIRFIELD COUNTY

SHEET TITLE:
NOTES

SCALE: NONE

PROJECT NUMBER: 44031
SHEET NUMBER: GN-1

DRAWN BY: KJH CHECKED BY: AJK

NORTH

MAP B5, PARCEL 14

EXISTING EQUIPMENT SHED

EXISTING COMPOUND.
SEE C-2 FOR DETAILS

CARMEN HILL ROAD

MAP A5, PARCEL 46

EXISTING UTILITY POLE
WITH FIBER AND POWER

EXISTING METER BANK

EXISTING 10' WIDE ACCESS EASEMENT
FOLLOWING DRIVE TO PUBLIC R.O.W.

EXISTING TELCO AND
FIBER DEMARCS

EXISTING EQUIPMENT SHELTER

EXISTING 10' WIDE EASEMENT FOLLOWING
UNDERGROUND AND OVERHEAD UTILITIES TO
PUBLIC R.O.W.

MAP B5,
PARCEL 20

MAP B5,
PARCEL 10

MAP B5, PARCEL 11

MAP B5, PARCEL 12

SITE PLAN
SCALE: 1" = 60'
1

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FA# 10128690
SITE# CT2586

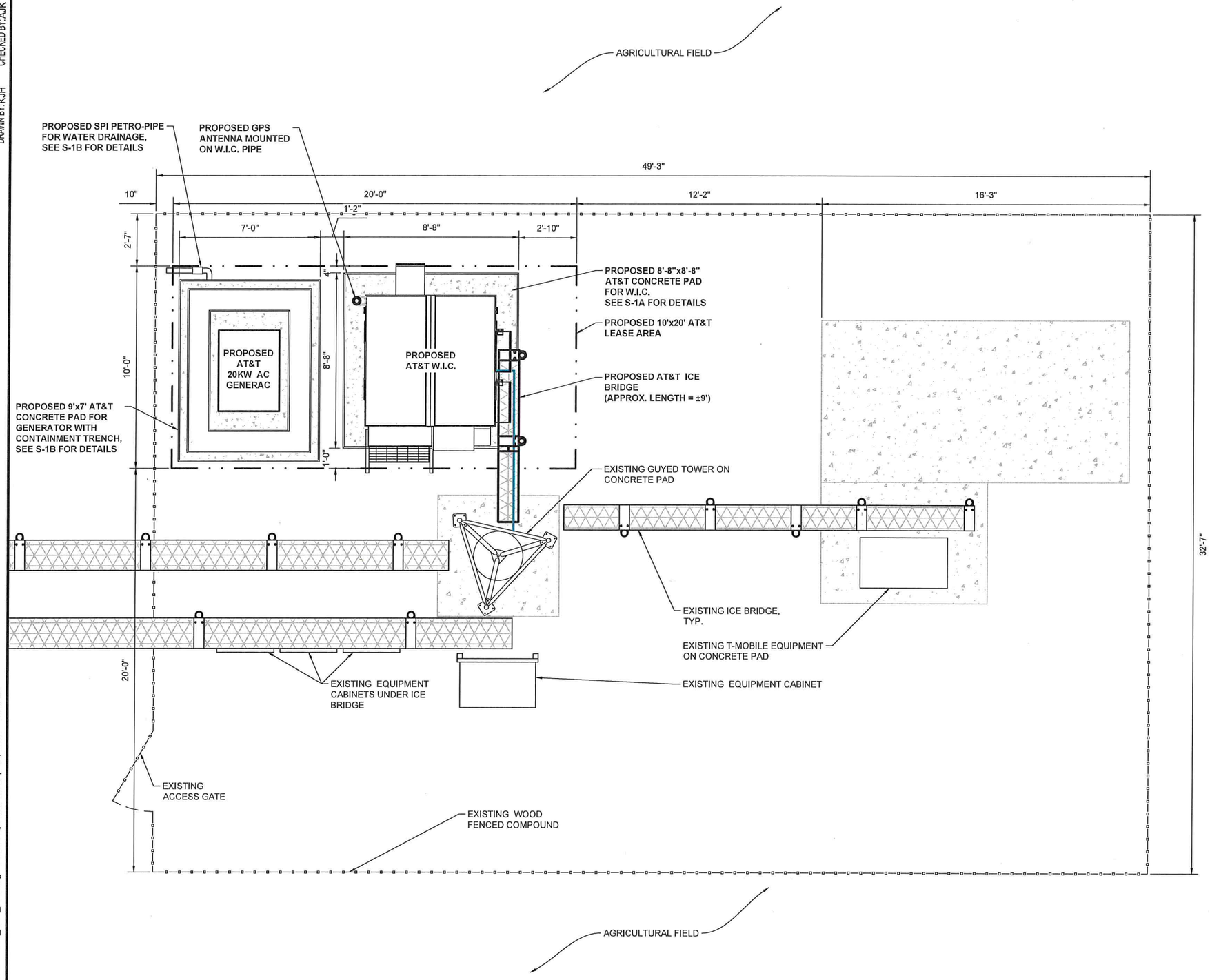
PROJECT INFORMATION:
39 CARMEN HILL ROAD
BROOKFIELD, CT 06804
FAIRFIELD COUNTY

SHEET TITLE:
SITE PLAN

0 30' 60' 120'
11" x 17" - 1" = 60'
22" x 34" - 1" = 30'

PROJECT NUMBER: 44031
SHEET NUMBER: C-1

DRAWN BY: KJH CHECKED BY: AJK



COMPOUND PLAN (1)
SCALE: 1" = 5'

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ISSUE PHASE: FINAL
DATE ISSUED: 09/13/2019

PROJECT TITLE:
BROOKFIELD - CARMEN HILL ROAD
FA# 10128690
SITE# CT2586

PROJECT INFORMATION:
39 CARMEN HILL ROAD
BROOKFIELD, CT 06804
FAIRFIELD COUNTY

SHEET TITLE:
COMPOUND PLAN

0 2.5' 5' 10'
11" X 17" - 1" = 5'
22" X 34" - 1" = 2.5'

PROJECT NUMBER: 44031
SHEET NUMBER: C-2

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DRAWN BY: KJH CHECKED BY: AJK

NORTH

PROPOSED SPI PETRO-PIPE FOR WATER DRAINAGE, SEE S-1B FOR DETAILS

PROPOSED GPS ANTENNA MOUNTED ON W.I.C. PIPE

PROPOSED AT&T 20KW AC GENERAC

PROPOSED AT&T W.I.C.

PROPOSED 8'-8"x8'-8" AT&T CONCRETE PAD FOR W.I.C. SEE S-1A FOR DETAILS

PROPOSED 10'x20' AT&T LEASE AREA

(2) PROPOSED AT&T DC 12 RAYCAP BOXES

PROPOSED AT&T ICE BRIDGE

(2) PROPOSED FIBER CABLES & (6) PROPOSED DC POWER CABLES TO BE INSTALL (CONTRACTOR TO VERIFY IN FIELD)

(2) PROPOSED FIBER STORAGE BOXES

EXISTING GUYED TOWER ON CONCRETE PAD

PROPOSED 9'x7' AT&T CONCRETE PAD FOR GENERATOR WITH CONTAINMENT TRENCH, SEE S-1B FOR DETAILS

EQUIPMENT LAYOUT (1)
SCALE: 1" = 3.75'

NOTE:
A POST MODIFICATION STRUCTURAL ANALYSIS OF THE EXISTING TOWER STRUCTURE HAS BEEN COMPLETED BY VERTICAL BRIDGE ENGINEERING, LLC. CONTRACTOR TO REFERENCE TOWER MODIFICATION DRAWINGS BY ENGINEERED TOWER SOLUTIONS, PLLC DATED 05/10/2019.

TOP OF APPURTENANCE @ ± 492'-0" AGL
TOP OF TOWER @ ± 457'-0" AGL
EXISTING BEACONS @ ± 358'-0" AGL
EXISTING GUY WIRE, TYP.
EXISTING T-MOBILE ANTENNAS @ ± 280'-0" AGL
EXISTING SPRINT ANTENNAS @ ± 257'-0" AGL
EXISTING BEACONS @ ± 237'-0" AGL
±67'-0" TO EXISTING BEACONS
PROPOSED AT&T ANTENNAS @ ± 165'-0" AGL
EXISTING DIPOLE ANTENNAS @ ± 129'-0" & 142'-0" AGL
EXISTING BEACONS @ ± 124'-0" AGL
(2) PROPOSED FIBER CABLES & (6) PROPOSED DC POWER CABLES TO BE INSTALLED (CONTRACTOR TO VERIFY IN FIELD)
±8'-0" TO TIP OF DIPOLE ANTENNA
GRADE @ ± 0'-0" AGL

ELEVATION VIEW (2)
SCALE: 1" = 60'

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PROJECT TITLE:
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FA# 10128690
SITE# CT2586

PROJECT INFORMATION:
39 CARMEN HILL ROAD
BROOKFIELD, CT 06804
FAIRFIELD COUNTY

SHEET TITLE:
EQUIPMENT LAYOUT AND ELEVATION VIEW

SCALE:
AS NOTED

PROJECT NUMBER: 44031
SHEET NUMBER: C-3

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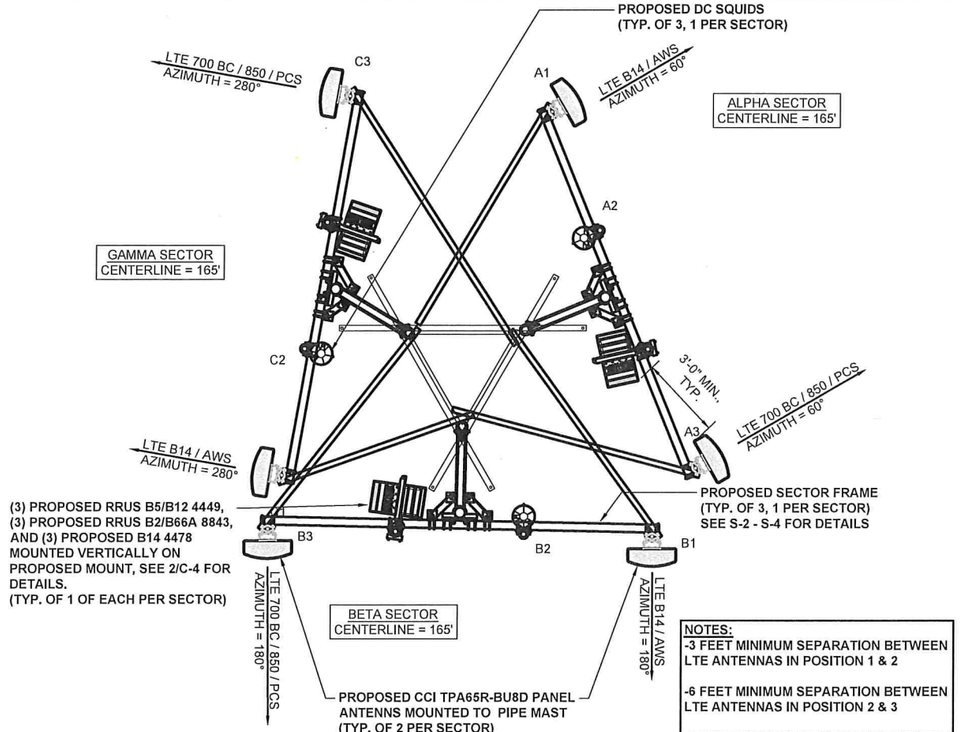
DRAWN BY: KJH CHECKED BY: AJK

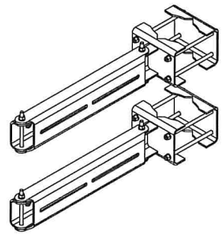


PROPOSED ANTENNA LAYOUT (1)
SCALE: 3/16" = 1'-0"

NOTES:
-3 FEET MINIMUM SEPARATION BETWEEN LTE ANTENNAS IN POSITION 1 & 2

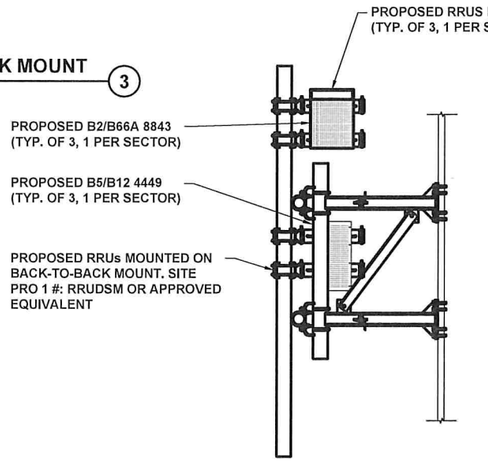
-6 FEET MINIMUM SEPARATION BETWEEN LTE ANTENNAS IN POSITION 2 & 3

-3 FEET MINIMUM SEPARATION BETWEEN BACK OF PANEL ANTENNA AND PROPOSED RRUs



RRU BACK-TO-BACK MOUNT (3)
SCALE: NTS

NOTE:
A MOUNT ASSESSMENT OF THE ANTENNA AND EQUIPMENT MOUNTING STRUCTURE HAS BEEN COMPLETED BY RAMAKER & ASSOCIATES, INC., DATED JULY 24, 2019. STRUCTURAL MODIFICATIONS TO THE PROPOSED MOUNTING STRUCTURE TO BE COMPLETED PRIOR TO ANTENNA AND EQUIPMENT INSTALLATION.



RRU MOUNT DETAIL - ELEVATION VIEW (2)
SCALE: 1" = 3.75'

BASED ON: RF ENGINEERING DESIGN ENTITLED "NEW-ENGLAND_CONNECTICUT_CT2586_2020-NEW-SITE_NEW_RA9161_2051A0LEPL_10128690_26997_03-11-2019_PRELIMINARY-IN-PROGRESS_V1.00" LAST REVISED 4/1/2019.

SECTOR		PROPOSED ANTENNA	TECHNOLOGY	ANTENNA STATUS	HEIGHT (IN.)	WIDTH (IN.)	DEPTH (IN.)	WEIGHT (LBS.)	ANTENNA AZIMUTH (DEG.)	ANT. C/L ELEV. (FT.)	REMOTE RADIO/TMA CONFIGURATION	TRANSMISSION CABLE		
												QUANTITY	TYPE	STATUS
SECTOR A	1	CCI ANTENNAS TPA65R-BU8D	LTE B14 / AWS	PROPOSED	96	21	7.8	83	60	165	B14 4478	1 2	FIBER DC POWER	PROPOSED PROPOSED
	2	- -	-	VACANT	-	-	-	-	-	-	-	-	-	-
	3	CCI ANTENNAS TPA65R-BU8D	LTE 700 BC / 850 / PCS	PROPOSED	96	21	7.8	83	60	165	B5/B12 4449 B2/B66A 8843	1 3	FIBER DC POWER	PROPOSED PROPOSED
SECTOR B	1	CCI ANTENNAS TPA65R-BU8D	LTE B14 / AWS	PROPOSED	96	21	7.8	83	180	165	B14 4478	(SHARED WITH ALPHA)		
	2	- -	-	VACANT	-	-	-	-	-	-	-	-	-	-
	3	CCI ANTENNAS TPA65R-BU8D	LTE 700 BC / 850 / PCS	PROPOSED	96	21	7.8	83	180	165	B5/B12 4449 B2/B66A 8843	(SHARED WITH ALPHA)		
SECTOR C	1	CCI ANTENNAS TPA65R-BU8D	LTE B14 / AWS	PROPOSED	96	21	7.8	83	280	165	B14 4478	(SHARED WITH ALPHA)		
	2	- -	-	VACANT	-	-	-	-	-	-	-	-	-	-
	3	CCI ANTENNAS TPA65R-BU8D	LTE 700 BC / 850 / PCS	PROPOSED	96	21	7.8	83	280	165	B5/B12 4449 B2/B66A 8843	(SHARED WITH ALPHA)		

ANTENNA SCHEDULE (3)
SCALE: NTS

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DATE ISSUED: 09/13/2019

PROJECT TITLE:
BROOKFIELD - CARMEN HILL ROAD
FA# 10128690
SITE# CT2586

PROJECT INFORMATION:
39 CARMEN HILL ROAD
BROOKFIELD, CT 06804
FAIRFIELD COUNTY

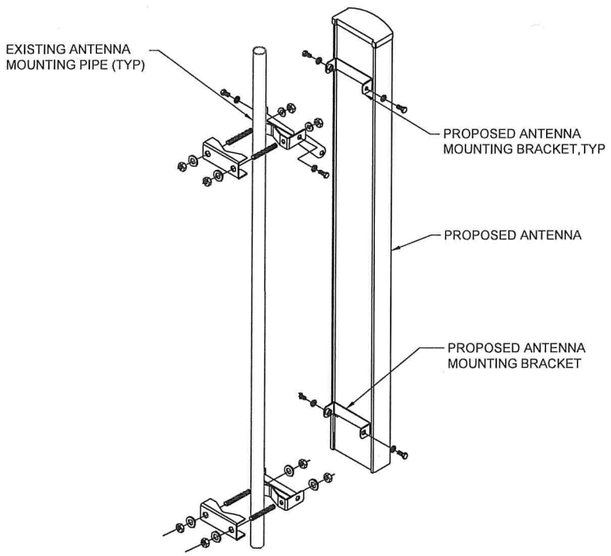
SHEET TITLE:
ANTENNA LAYOUTS AND ANTENNA SCHEDULE

SCALE: NONE

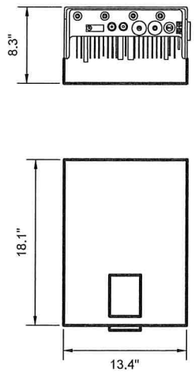
PROJECT NUMBER: 44031
SHEET NUMBER: C-4

NOTES:
-3 FEET MINIMUM SEPARATION BETWEEN LTE ANTENNAS

-3 FEET MINIMUM SEPARATION BETWEEN BACK OF PANEL ANTENNA AND EXISTING/PROPOSED EQUIPMENT



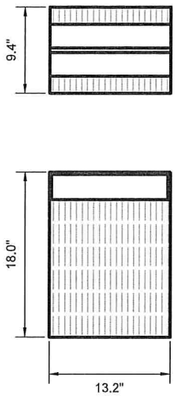
ANTENNA MOUNTING DETAIL (1)
SCALE: NTS



ERICSSON B14 4478

DIMENSIONS (HxWxD):
18.1"X13.4"X8.26"
WEIGHT (LBS): 59.4

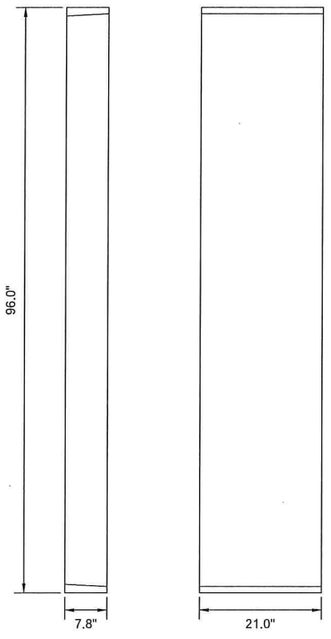
RRUS B14 4478 DETAIL (2)
SCALE: NTS



ERICSSON B5/B12 4449

DIMENSIONS (HxWxD):
18.0"x13.2"x9.4"
WEIGHT (LBS): 75

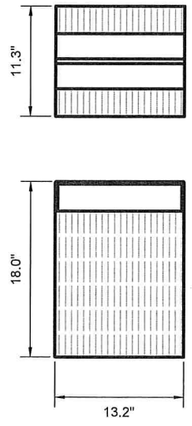
RRUS B5/B12 4449 DETAIL (3)
SCALE: NTS



TPA65R-BU8D

DIMENSIONS (HxWxD):
96.0"x21.0"x7.8"
WEIGHT (LBS): 83

ANTENNA DETAIL (4)
SCALE: NTS



ERICSSON B2/B66A 8843

DIMENSIONS (HxWxD):
18.0"x13.2"x11.3"
WEIGHT (LBS): 70

RRUS B2/B66A 8843 (5)
SCALE: NTS

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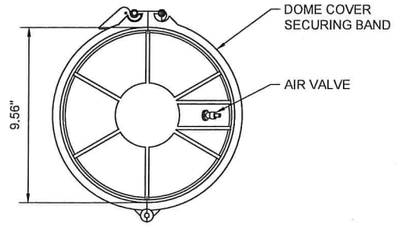
FA# 10128690
SITE# CT2586

PROJECT INFORMATION:
39 CARMEN HILL ROAD
BROOKFIELD, CT 06804
FAIRFIELD COUNTY

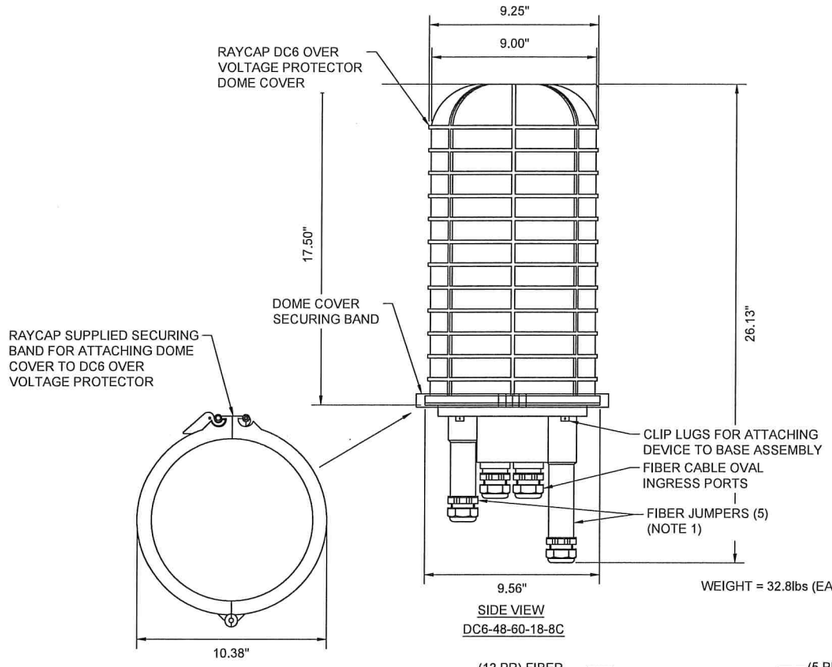
SHEET TITLE:
EQUIPMENT DETAILS

SCALE: NONE

PROJECT NUMBER: 44031
SHEET NUMBER: A-1

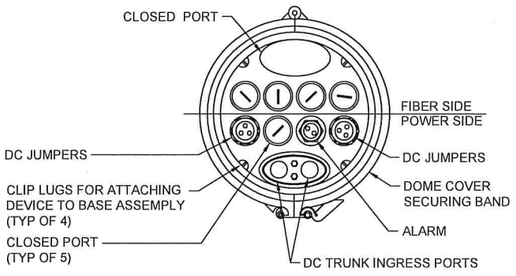


TOP VIEW

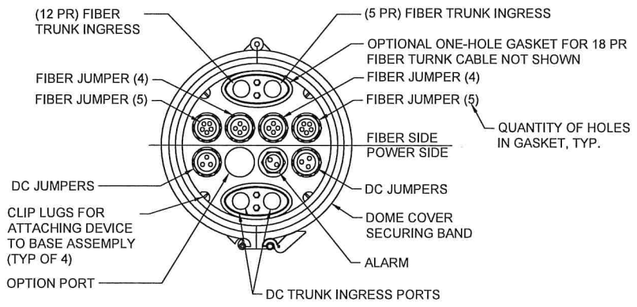


SIDE VIEW
DC6-48-60-18-8C

WEIGHT = 32.8lbs (EACH)



BOTTOM VIEW
DC6-48-60-18-8C

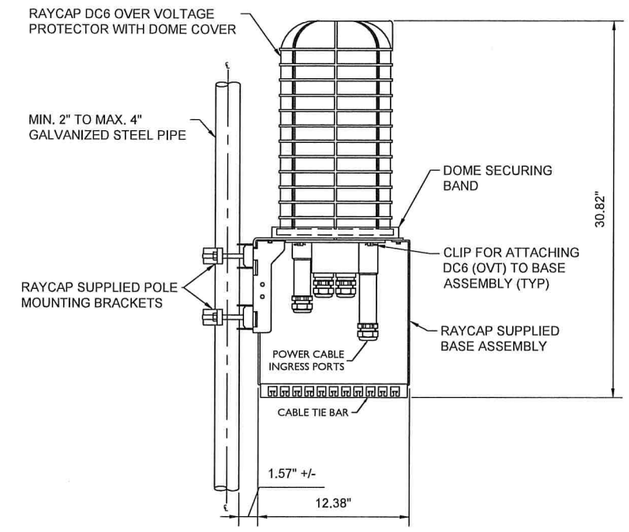


BOTTOM VIEW
DC6-48-60-18-8C

WEIGHT = 26.2 lbs

NOTE:
REMOVE CABLE SEALING GLAND & INSTALL M32x1.5 METRIC -TO-1" NPT ADAPTER (COOPER CROUSE-HINES P/N CAP 740 994 OR EQUIVALENT MFR) WHEN CONNECTING CONDUIT TO OVP

DC6 SURGE SUPPRESSION DOME
SCALE: NTS (1)



NOTE:
RAYCAP VIA AT&T SUPPLIES THE DC6 OVER VOLTAGE PROTECTOR AND PIPE MOUNTING BRACKETS. SUBCONTRACTOR SHALL SUPPLY THE PIPE

DC6 SURGE SUPPRESSION DOME
POLE MOUNT ASSEMBLY
NOT TO SCALE

DC6 SURGE SUPPRESSION DOME POLE MOUNT ASSEMBLY
SCALE: NTS (2)

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FA# 10128690
SITE# CT2586

PROJECT INFORMATION:
39 CARMEN HILL ROAD
BROOKFIELD, CT 06804
FAIRFIELD COUNTY

SHEET TITLE:
EQUIPMENT DETAILS

SCALE: NONE

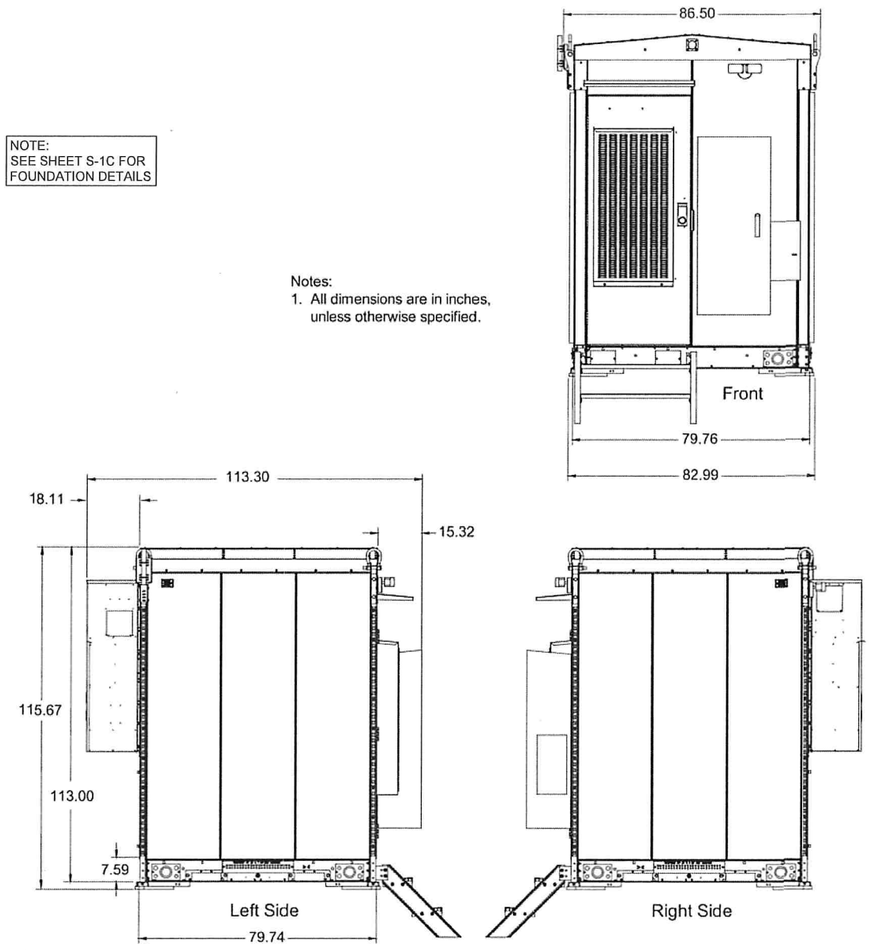
PROJECT NUMBER: 44031
SHEET NUMBER: A-2

- Color – Pebble-Gray, RAL7032.
- Finish – Standard finish is multistage dry powder polyester paint for maximum durability and performance against corrosion. Optional exterior finishes also available upon request.
- NetSure™ 7100 DC Power System in 23" rack with three (3) battery trays (Third Party Integrated).
- NCU system and generator control (Third Party Integrated).
- (2) 19" or 23" equipment welded frames installed. One with fiber patch panel and the other without. (Third Party Integrated.)

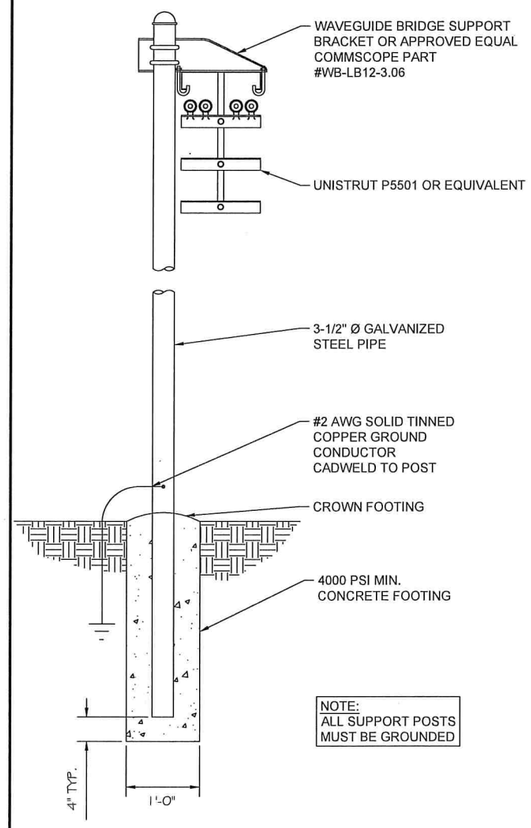
Figure 2: *WIC Overall Dimensions*

NOTE:
SEE SHEET S-1C FOR FOUNDATION DETAILS

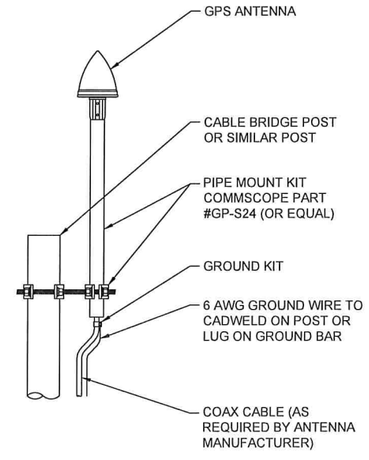
Notes:
1. All dimensions are in inches, unless otherwise specified.



WALK-IN CABINET DETAILS (1)
SCALE: NTS



ICE BRIDGE DETAIL (2)
SCALE: NTS



GPS MOUNTING DETAIL (3)
SCALE: NTS

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0	06/11/19	ISSUED FOR REVIEW

ISSUE PHASE: FINAL
DATE ISSUED: 09/13/2019

PROJECT TITLE:
BROOKFIELD - CARMEN HILL ROAD
FA# 10128690
SITE# CT2586

PROJECT INFORMATION:
39 CARMEN HILL ROAD
BROOKFIELD, CT 06804
FAIRFIELD COUNTY

SHEET TITLE:
EQUIPMENT DETAILS

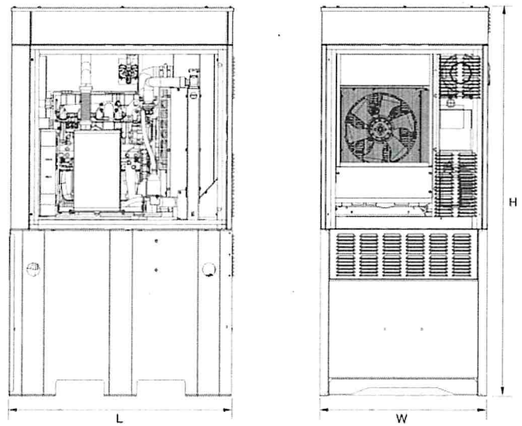
SCALE: NONE

PROJECT NUMBER: 44031
SHEET NUMBER: A-3

SDC20 | 2.5L | 20 kW - AC
INDUSTRIAL DIESEL GENERATOR SET
EPA Certified Stationary Emergency

GENERAC | INDUSTRIAL POWER
Model G007098-0 (Steel)

DIMENSIONS AND WEIGHTS*



Level 2 Sound Attenuation Enclosure

Run Time Hours	48
Usable Capacity Gal (L)	92 (348.2)
L x W x H in (mm)	48 x 36 x 90 (1219.2 x 914.4 x 2286)
Weight lbs (kg)	2400 (1089)
Sound Level	71 dBA

* All measurements are approximate and for estimation purposes only.

YOUR FACTORY RECOGNIZED GENERAC INDUSTRIAL DEALER

SPEC SHEET
5 of 5

Specification characteristics may change without notice. Dimensions and weights are for preliminary purposes only. Please consult a Generac Power Systems Industrial Dealer for detailed installation drawings.

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P: (262) 544-4811
Document No. 10000009019
Rev. WIP 11/04/16

STANDARD FEATURES

ENGINE SYSTEM
- Oil Drain Extension
- Air Cleaner with Service Indicator
- Fan Guard
- Stainless Steel Flexible Exhaust Connection
- Exhaust Silencer with Drain
- Factory Filled Oil & Coolant

Fuel System
- Primary Fuel Filter

Cooling System
- 120V AC Coolant Heater
- Closed Coolant Recovery System
- UV/Ozone Resistant Hoses
- Factory-Installed Radiator
- 50/50 Ethylene Glycol Antifreeze
- Radiator Drain Extension

Electrical System
- Battery Charging Alternator
- AGM Spill Proof Battery
- Battery Cables
- Sealed/Rubber-Booted Engine Electrical Connections
- Solenoid Activated Starter Motor
- Output Circuit Breaker

ALTERNATOR SYSTEM
- Class H Insulation Material
- Vented Rotor
- 2/3 Pitch
- Skewed Stator
- Amortisseur Winding
- Brushless Excitation
- Sealed Bearings
- Rotor Dynamically Spin Balanced
- Full Load Capacity Alternator
- Protective Thermal Shutdown

GENERATOR SET
- Single Side Service
- Internal Genset Vibration Isolators
- Separation of Circuits- High/Low Voltage
- Silencer Heat Shield
- High Heat Wrapped Exhaust Piping
- Silencer Enclosed Within Generator
- 5 Year Extended Warranty
- Extended Factory Testing
- 12 Gallon System Spill Containment
- 2.5 Gallon Fuel Fill Spill Containment

ENCLOSURE
- Serviceable Items Accessible Though Lift-Off Door
- High Performance Sound-Absorbing Material
- Gasketed Door
- Stamped Air-Intake Louvers
- Single Door Latch Lockable with Key & Padlock
- Rhino Coat™ - Textured Polyester Powder Coat
- 150 MPH Wind Rating
- 36" Snow Rating

FUEL TANK
- UL 142 Compliant
- Double Wall Construction
- Factory Pressure Tested (5 psi)
- Rupture Basin Alarm
- Fuel Level Gauge and Sender
- Check Valve in Supply Line
- Rhino Coat™ - Textured Polyester Powder Coat
- Stainless Steel Hardware
- Integrated Fork Pockets

GENERATOR DETAILS
SCALE: NTS
1

SDC20 | 2.5L | 20 kW - AC
INDUSTRIAL DIESEL GENERATOR SET
EPA Certified Stationary Emergency
GENERAC | INDUSTRIAL POWER
Model G007098-0 (Steel)

APPLICATION AND ENGINEERING DATA

ENGINE SPECIFICATIONS

General

Make	Mitsubishi
EPA Emissions Compliance	Interim Tier 4
Cylinder #	4
Type	In-Line
Displacement - L (Cu In)	2.5 (158)
Bore - mm (in)	88 (3.5)
Stroke - mm (in)	103 (4.1)
Compression Ratio	22:1
Intake Air Method	Naturally Aspirated

Engine Governing

Governor	Electronic Isochronous
Frequency Regulation (Steady State)	± 0.25%

Lubrication System

Oil Pump Type	Trochoid Gear Pump
Oil Filter Type	Filtering Paper, Full Flow
Crankcase Capacity - L (qts)	6.5 (6.9)

Cooling System

Cooling System Type	Forced Circulation
Water Pump Type	Centrifugal Pump
Fan Type	Pusher
Fan Speed (rpm)	2100
Fan Diameter - mm (in)	431.8 (17)
Coolant Heater Wattage	1000
Coolant Heater Voltage	120

Fuel System

Fuel Type	Ultra Low Sulfur Diesel #2
Fuel Specifications	ASTM
Fuel Filtering (microns)	6
Fuel Inject Pump Make	Bosch
Injector Type	Engine Driven Gear
Engine Type	Diesel
Fuel Supply Line - mm (in.)	6.6 (0.26)

Engine Electrical System

System Voltage	12 VDC
Battery Charger Alternator	12V-50A
Battery Size	650 CCA
Battery Group	35
Battery Voltage	12 VDC
Ground Polarity	Negative

ALTERNATOR SPECIFICATIONS

Standard Model	Mecc Alte ECP 28-2L/4	Bearings	Dual Sealed
Poles	4	Coupling	Belt, Pulley
Field Type	Revolving	Load Capacity - Standby	100%
Insulation Class - Rotor	H	Prototype Short Circuit Test	Yes
Insulation Class - Stator	H	Voltage Regulator Type	Digital
Total Harmonic Distortion	<5%	Number of Sensed Phases	All
Telephone Interference Factor (TIF)	<45	Regulation Accuracy (Steady State)	±0.5%
Standard Excitation	Brushless		

SPEC SHEET
3 of 5

RATING DEFINITIONS

Standby - Applicable for a varying emergency load for the duration of a utility power outage with no overload capability

SDC20 | 2.5L | 20 kW - AC
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OPERATING DATA

POWER RATINGS

Single-Phase 120/240 VAC @1.0pf	20 kW	Amps: 83
Circuit Breaker Size	100A	

FUEL CONSUMPTION RATES*

Diesel - gph (lph)	
Percent Load	Standby
25%	0.74 (2.80)
50%	0.99 (3.75)
75%	1.41 (5.30)
100%	1.90 (7.19)

* Fuel supply installation must accommodate fuel consumption rates at 100% load

COOLING

		Standby
Coolant Flow per Minute	gpm (lpm)	11.9 (45)
Coolant System Capacity	gal (L)	3.5 (13.2)
Heat Rejection to Coolant	BTU/hr	238,200
Inlet Air	cfm (m^3/min)	2365 (67)
Max. Operating Ambient Temperature (Before Derate)	°F (°C)	77° (25°)
Maximum Radiator Backpressure	in H_2O	0.50

COMBUSTION AIR REQUIREMENTS

	Standby
Flow at Rated Power cfm (m^3/min)	88 (2.49)

ENGINE

		Standby
Rated Engine Speed	rpm	1800
Horsepower at Rated kW**	hp	33.5
Piston Speed	ft/min	1220.47
BMEP	psi	99.5

EXHAUST

		Standby
Exhaust Flow (Rated Output)	cfm (m^3/min)	193 (328)
Max. Backpressure (Post Silencer)	inHg (kPa)	1.38 (4.67)
Exhaust Temp (Rated Output - Post Silencer)	°F (°C)	928 (497.7)

SPEC SHEET
4 of 5

** Refer to "Emissions Data Sheet" for maximum BHP for EPA and SCAQMD permitting purposes

Deration – Operational characteristics consider maximum ambient conditions. Derate factors may apply under atypical site conditions.
Please consult a Generac Power Systems Industrial Dealer for additional details. All performance ratings in accordance with ISO3046, BS5514, ISO8528 and DIN6271 standards.

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FA# 10128690
SITE# CT2586

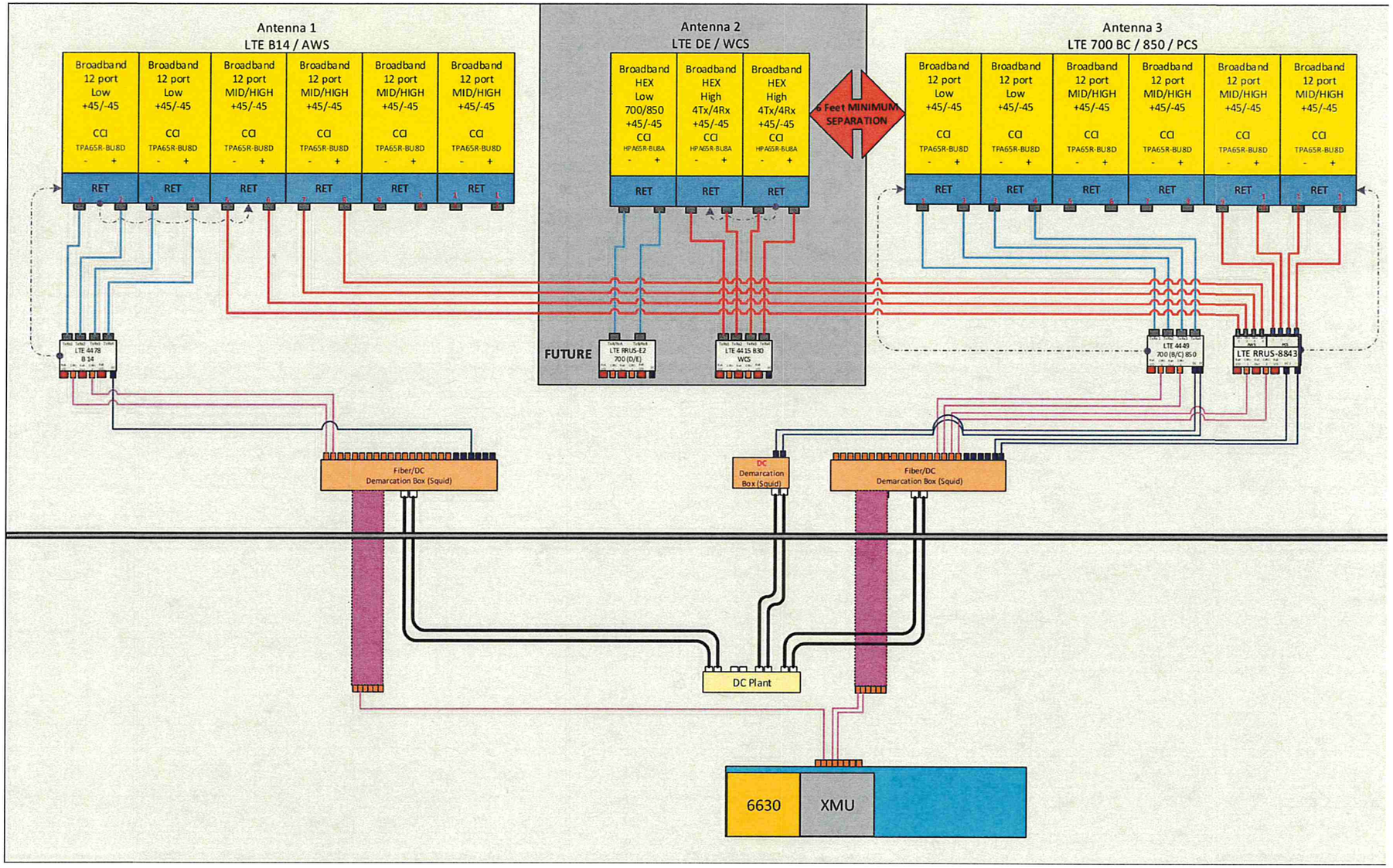
PROJECT INFORMATION:
39 CARMEN HILL ROAD
BROOKFIELD, CT 06804
FAIRFIELD COUNTY

SHEET TITLE:
GENERATOR DETAILS

SCALE: NONE

PROJECT NUMBER: 44031
SHEET NUMBER: A-4

Diagram - Sector	A	Diagram File Name - CT2586 3ANT 5C.vsd					
Stoll Site Name -	CT2586	Location Name -	CANDIDATE A	Market -	CONNECTICUT	Market Cluster -	NEW ENGLAND
Comments:							



BASED ON: RF ENGINEERING DESIGN ENTITLED" NEW-ENGLAND_CONNECTICUT_CT2586_2020-NEW-SITE_NEW_RA9161_2051A0LEPL_10128690_26997_03-11-2019_PRELIMINARY-IN-PROGRESS_v1.00" LAST REVISED 4/1/2019.

RF PLUMBING DIAGRAMS (1)
SCALE: NTS

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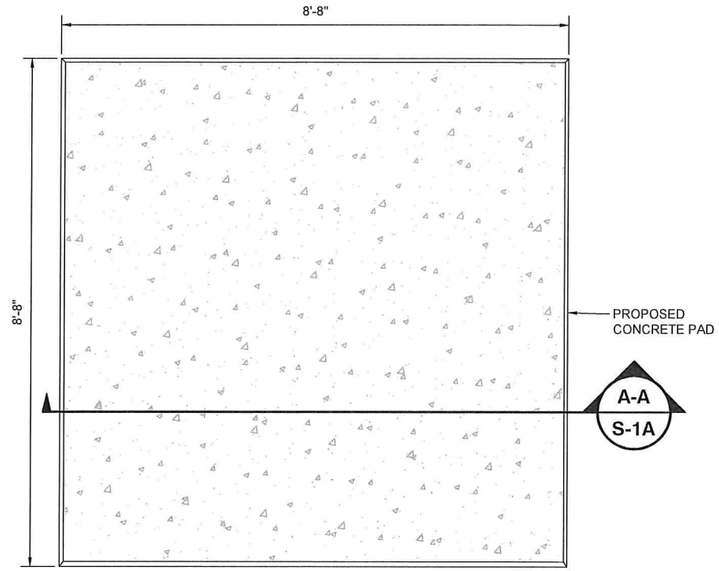
FAIRFIELD COUNTY

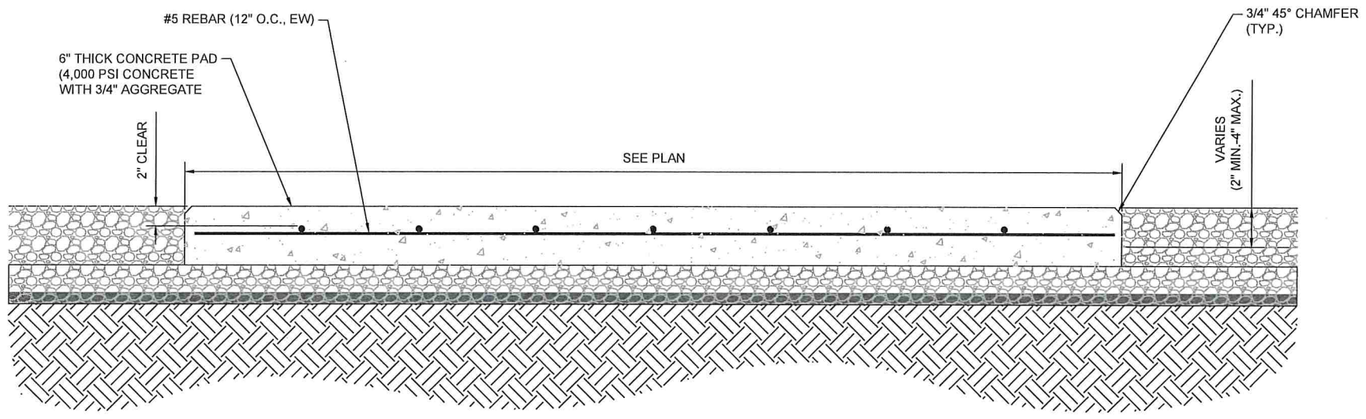
SHEET TITLE:
RF PLUMBING DIAGRAMS

SCALE: NONE

PROJECT NUMBER: 44031
SHEET NUMBER: A-5



WIC 8'-8"x8'-8" CONCRETE PAD



SECTION A-A

NOTE:

ANCHORS ARE TO BE INSTALLED A MINIMUM OF 4" FROM THE EDGE OF ANY SLAB.

PLATFORM PAD DETAILS (1)
SCALE: NTS

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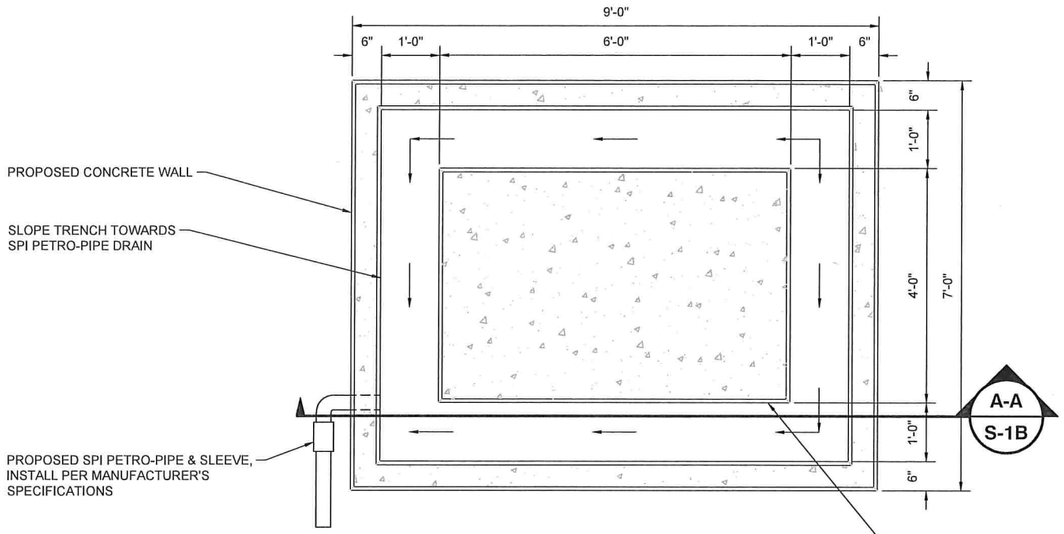
FAIRFIELD COUNTY

SHEET TITLE:
EQUIPMENT PAD DETAILS

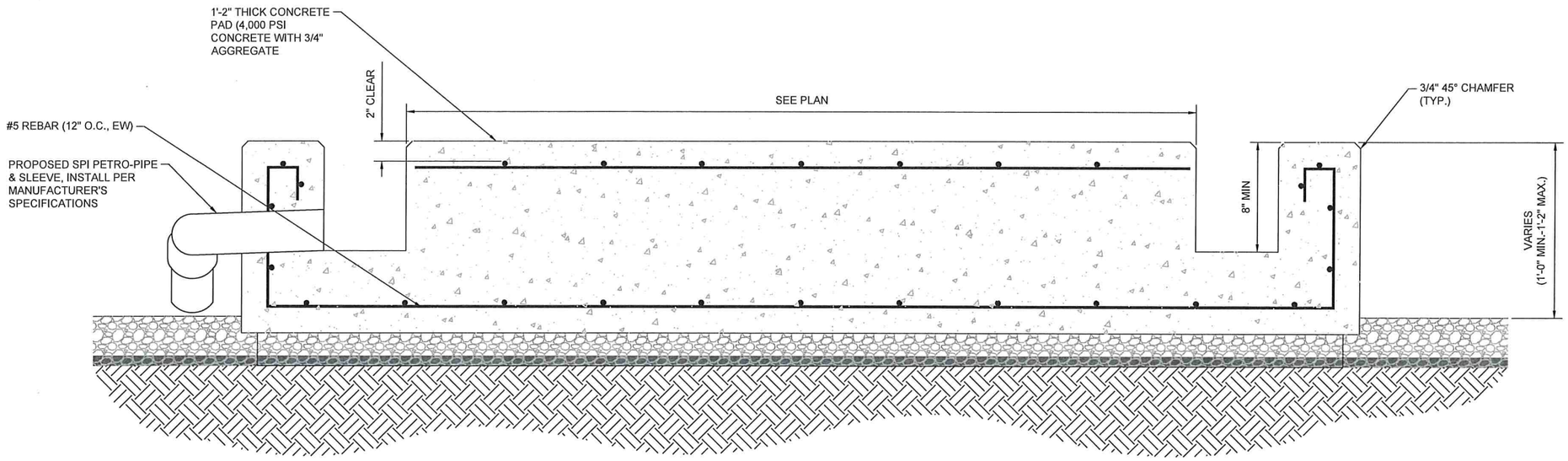
SCALE: NONE

PROJECT NUMBER: 44031
SHEET NUMBER: S-1A

DRAWN BY: KJH CHECKED BY: AJK



GENERATOR 9'x7' CONCRETE PAD WITH CONTAINMENT TRENCH



SECTION A-A

NOTE:

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CONCRETE PAD DETAILS (1)

SCALE: NTS

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FAIRFIELD COUNTY

SHEET TITLE:
GENERATOR PAD DETAILS

SCALE: NONE

PROJECT NUMBER: 44031
SHEET NUMBER: S-1B

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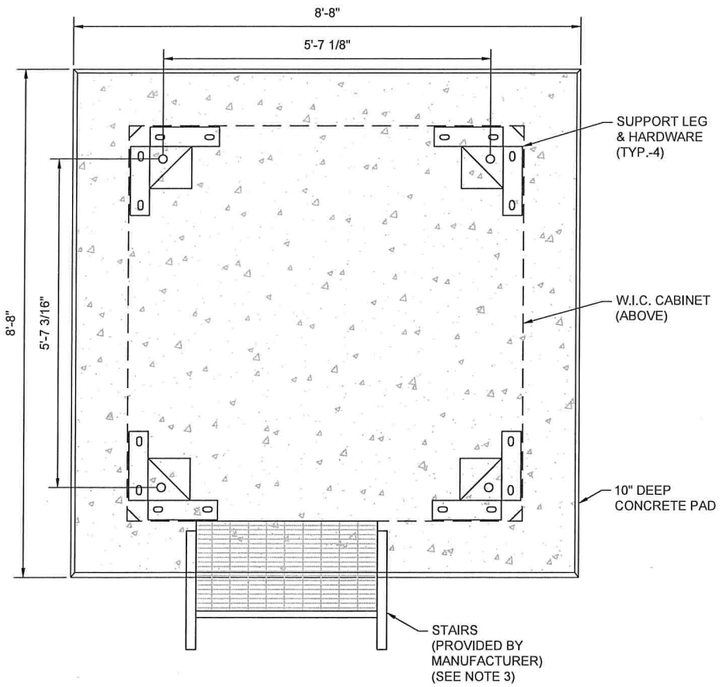
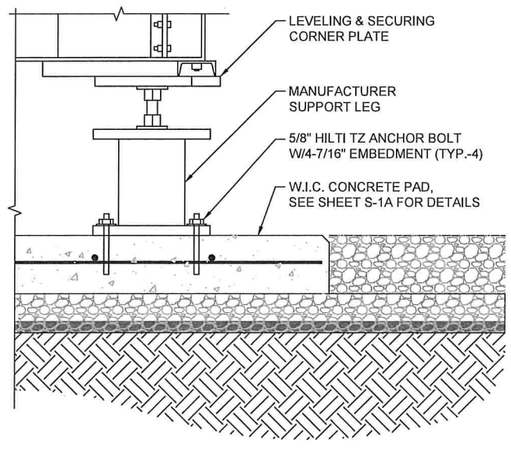
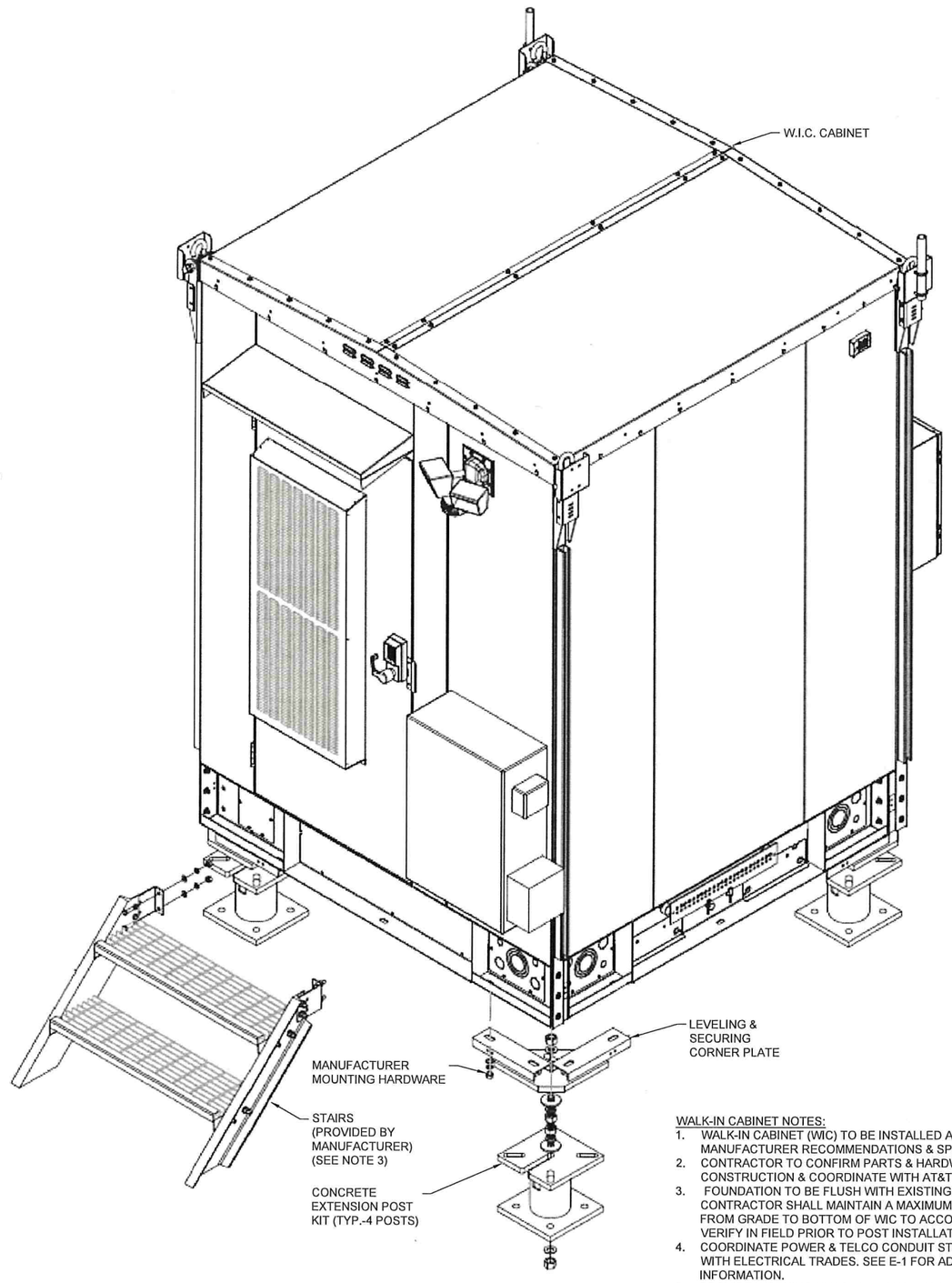


W.I.C. FOUNDATION DETAIL (1)
SCALE: NTS



W.I.C. BASE SECTION (2)
SCALE: NTS



W.I.C. ISOMETRIC (3)
SCALE: NTS

WALK-IN CABINET NOTES:
1. WALK-IN CABINET (WIC) TO BE INSTALLED ACCORDING TO MANUFACTURER RECOMMENDATIONS & SPECIFICATIONS.
2. CONTRACTOR TO CONFIRM PARTS & HARDWARE PRIOR TO CONSTRUCTION & COORDINATE WITH AT&T CM.
3. FOUNDATION TO BE FLUSH WITH EXISTING GRADE. CONTRACTOR SHALL MAINTAIN A MAXIMUM 18" CLEARANCE FROM GRADE TO BOTTOM OF WIC TO ACCOMMODATE STAIRS. VERIFY IN FIELD PRIOR TO POST INSTALLATION.
4. COORDINATE POWER & TELCO CONDUIT STUBUP PLACEMENT WITH ELECTRICAL TRADES. SEE E-1 FOR ADDITIONAL INFORMATION.
5. PROVIDE WORKING HVAC AND ELECTRICAL WORKING SPACE CLEARANCES PER MANUFACTURER RECOMMENDATIONS & CODE REQUIREMENTS.
6. WIC DIMENSIONS: 6'-8"Wx6'-8"Lx9'-6"TALL (NO BASE) WIC WEIGHT: 5500 LBS (EMPTY) 7500 LBS (FULLY INTEGRATED)
7. CONTRACTOR TO PROVIDE AND INSTALL SPECIFIED CONCRETE ANCHORS.

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FAIRFIELD COUNTY

SHEET TITLE:
W.I.C. FOUNDATION DETAILS

SCALE: NONE

PROJECT NUMBER: 44031
SHEET NUMBER: S-1C

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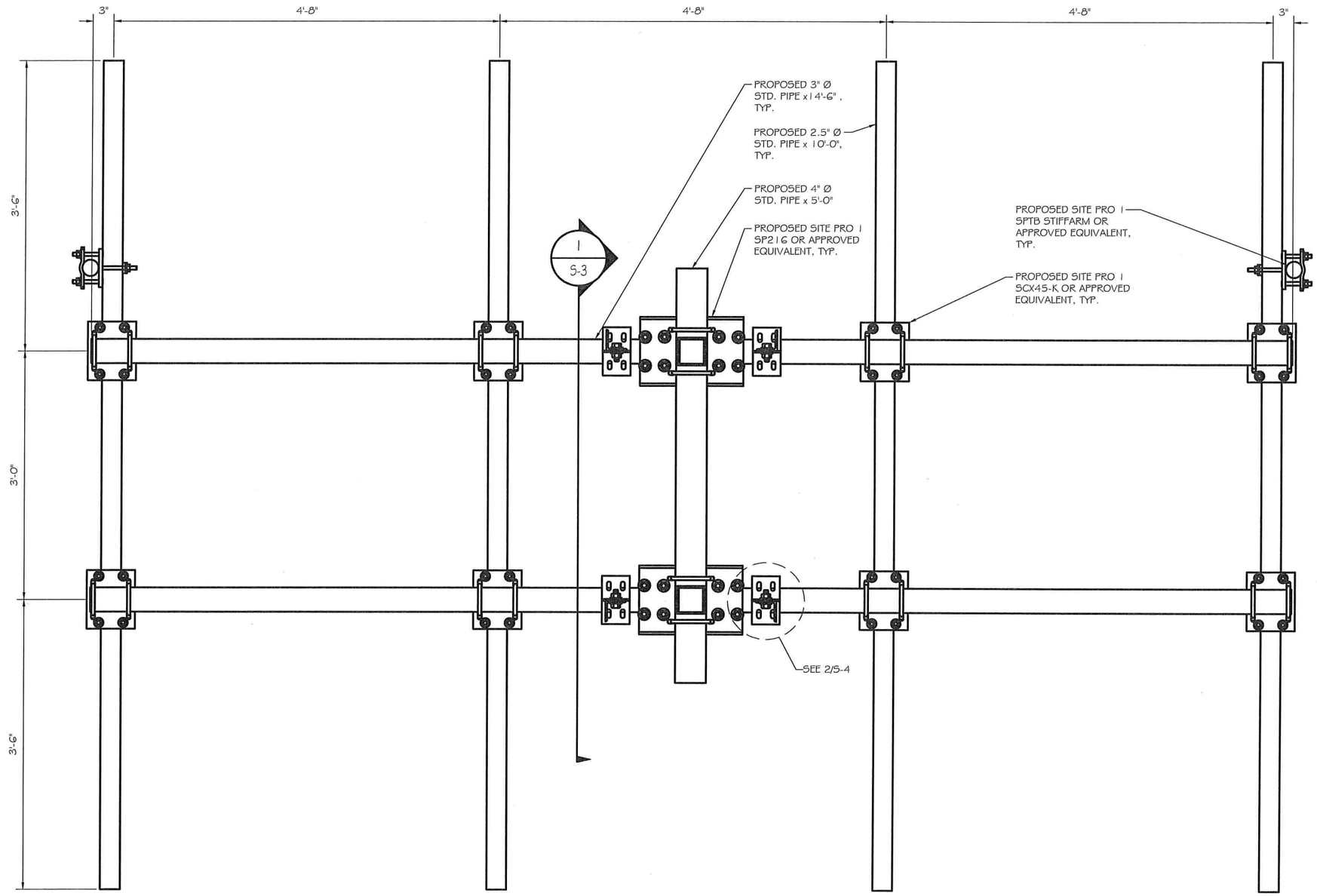
DRAWN BY: KJH CHECKED BY: AJK



MOUNT ELEVATION
SCALE: NTS
1

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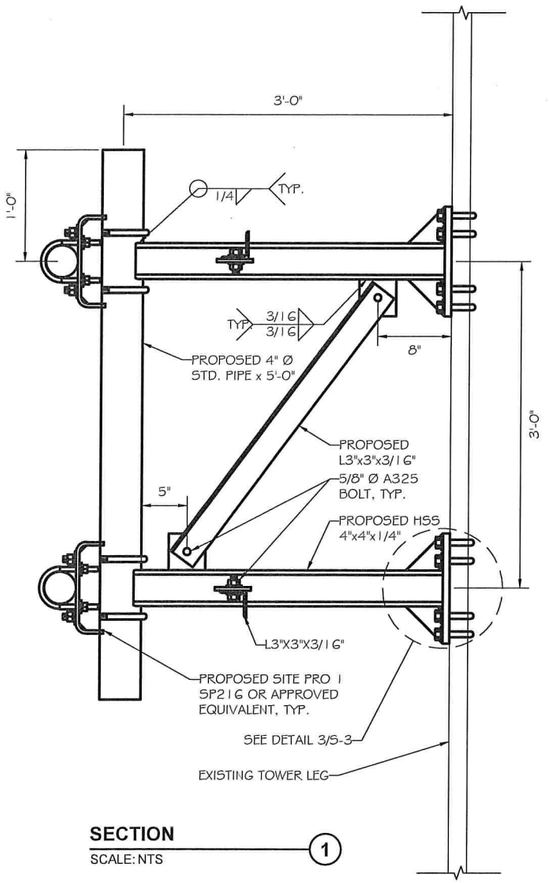
FAIRFIELD COUNTY

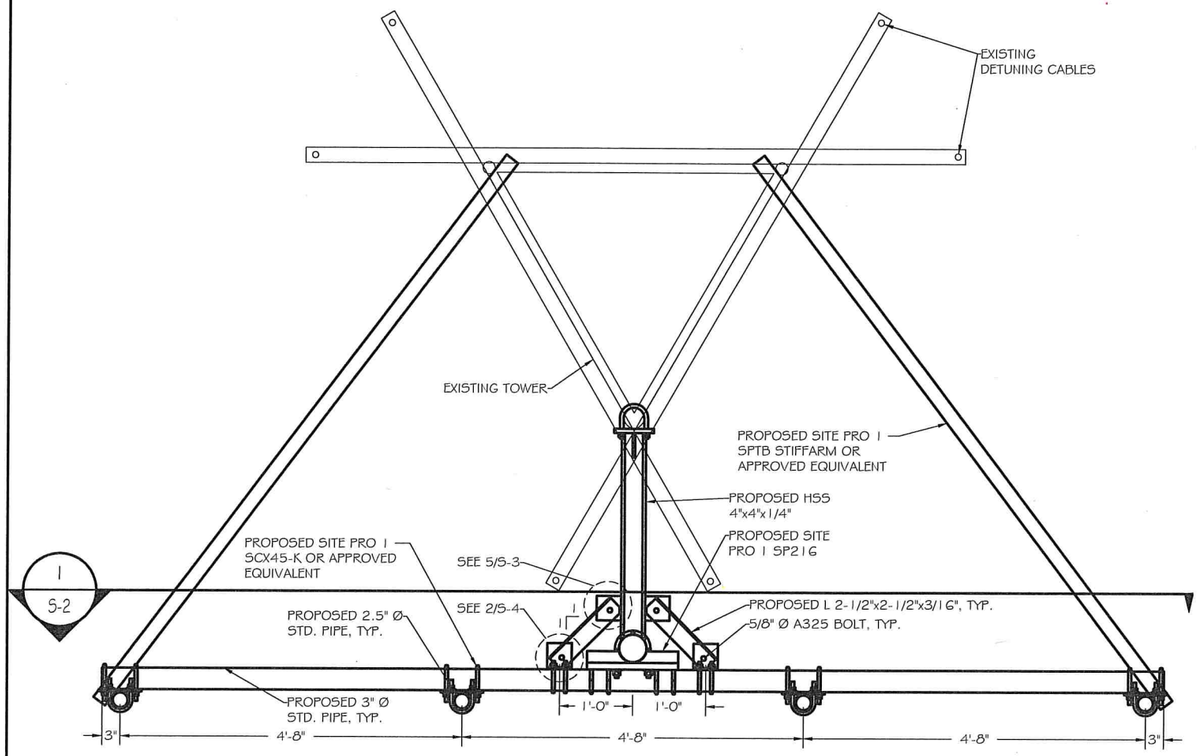
SHEET TITLE:
STRUCTURAL DETAILS

SCALE: NONE

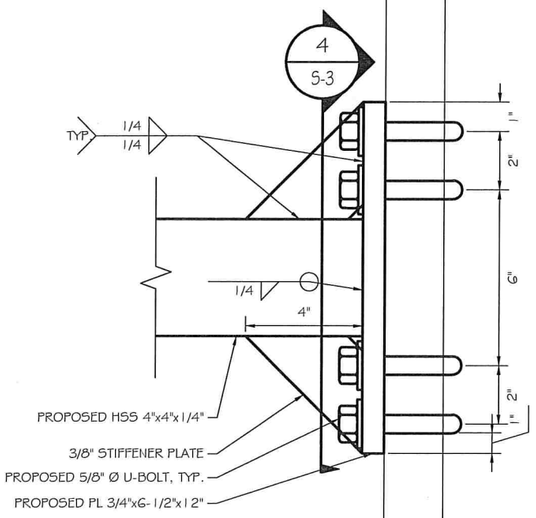
PROJECT NUMBER: 44031
SHEET NUMBER: S-2



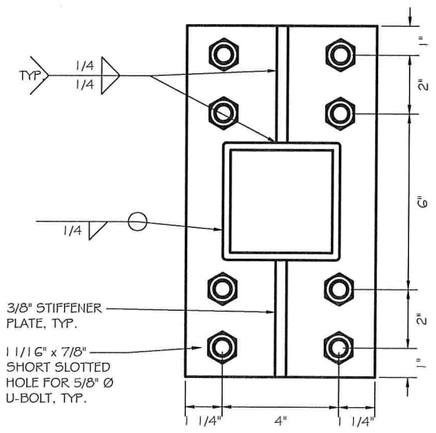
SECTION (1)
SCALE: NTS



MOUNT PLAN-ALPHA & BETA (2)
SCALE: NTS



TOWER LEG CONNECTION DETAIL (3)
SCALE: NTS



SECTION (4)
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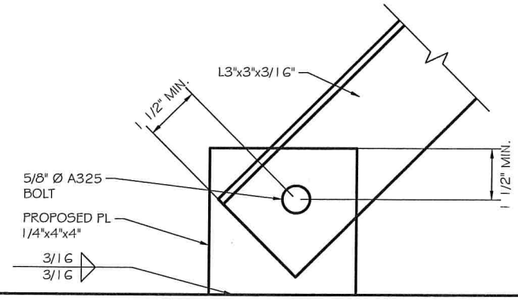

DETAIL (5)
SCALE: NTS

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0	06/11/19	ISSUED FOR REVIEW

ISSUE PHASE: FINAL
DATE ISSUED: 09/13/2019

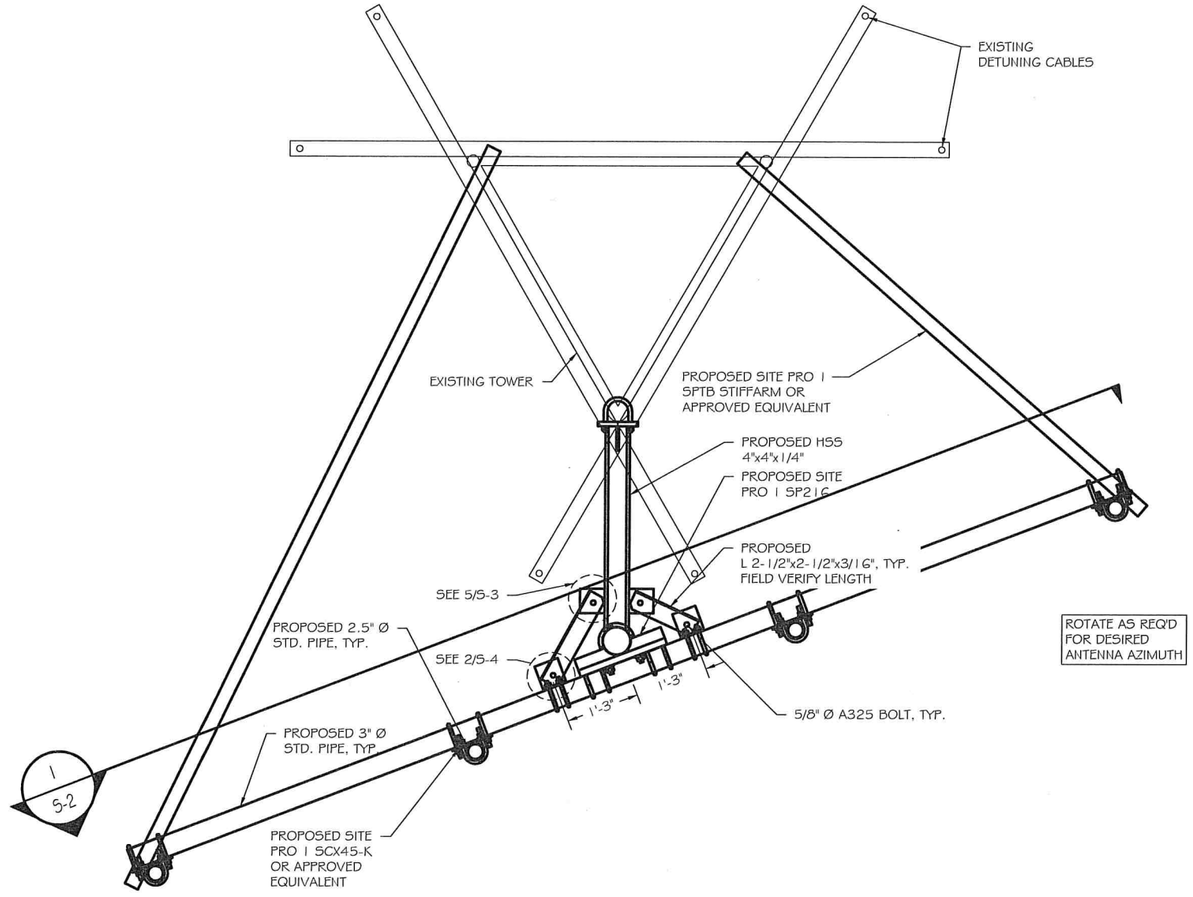
PROJECT TITLE:
BROOKFIELD - CARMEN HILL ROAD
FA# 10128690
SITE# CT2586

PROJECT INFORMATION:
39 CARMEN HILL ROAD
BROOKFIELD, CT 06804
FAIRFIELD COUNTY

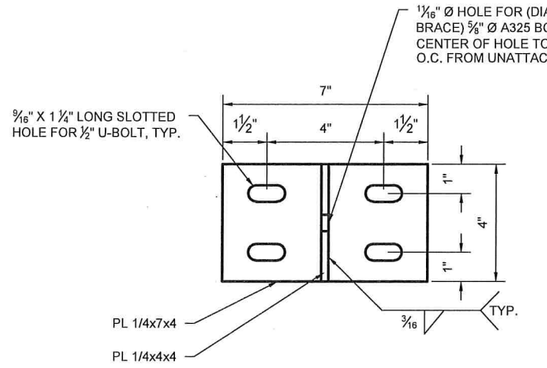
SHEET TITLE:
STRUCTURAL DETAILS

SCALE: NONE

PROJECT NUMBER: 44031
SHEET NUMBER: S-3



MOUNT PLAN-GAMMA (1)
SCALE: NTS



CONNECTION DETAIL (2)
SCALE: NTS

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ISSUE PHASE: FINAL
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PROJECT TITLE:
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FA# 10128690
SITE# CT2586

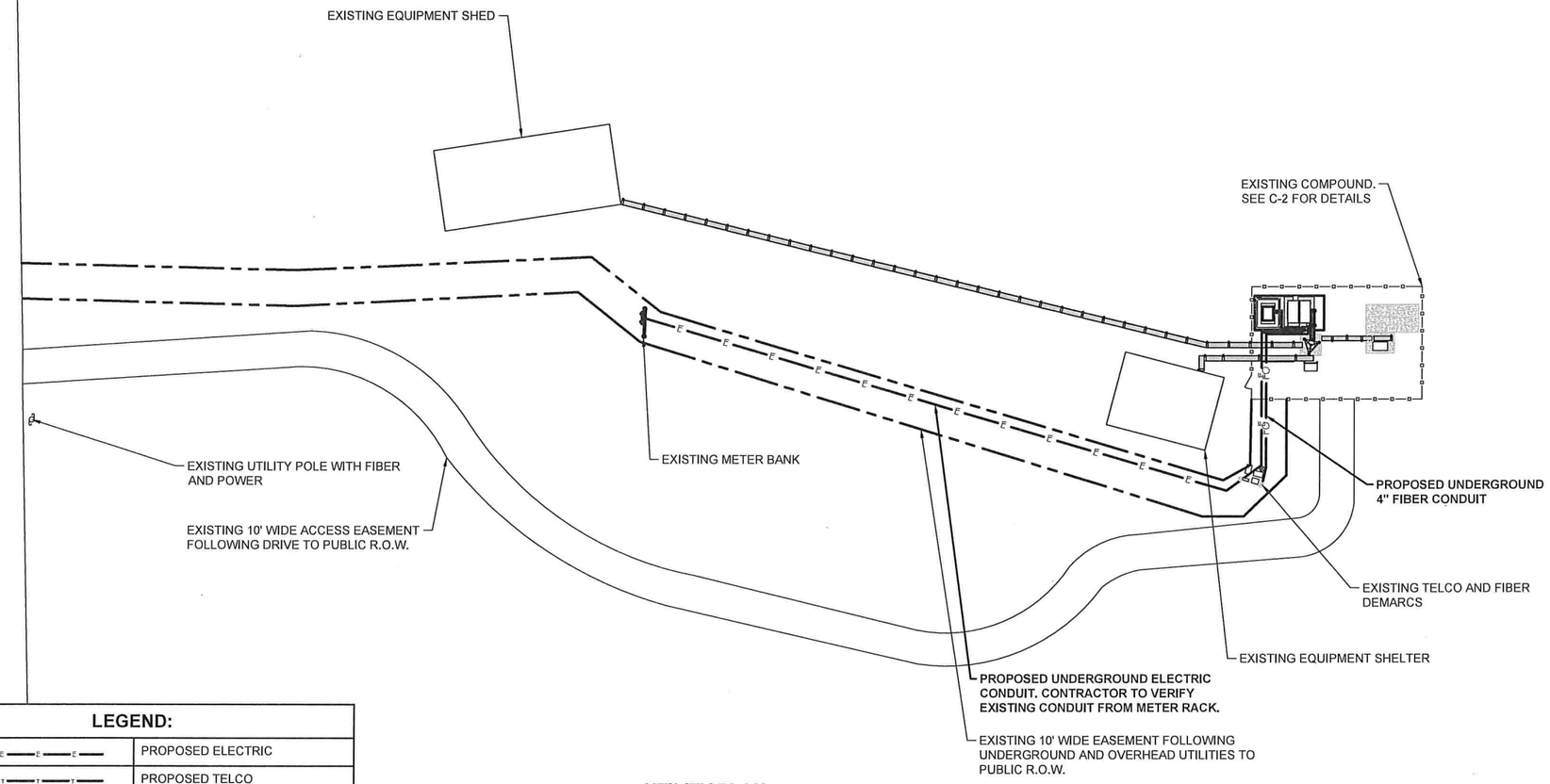
PROJECT INFORMATION:
39 CARMEN HILL ROAD
BROOKFIELD, CT 06804
FAIRFIELD COUNTY

SHEET TITLE:
STRUCTURAL DETAILS

SCALE: NONE

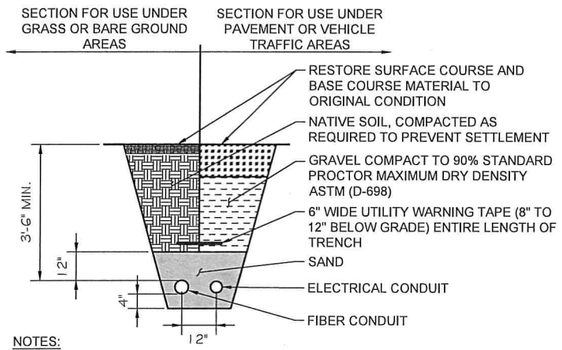
PROJECT NUMBER: 44031
SHEET NUMBER: S-4

DRAWN BY: KJH CHECKED BY: AJK



LEGEND:	
—E—E—E—E—	PROPOSED ELECTRIC
—T—T—T—T—	PROPOSED TELCO

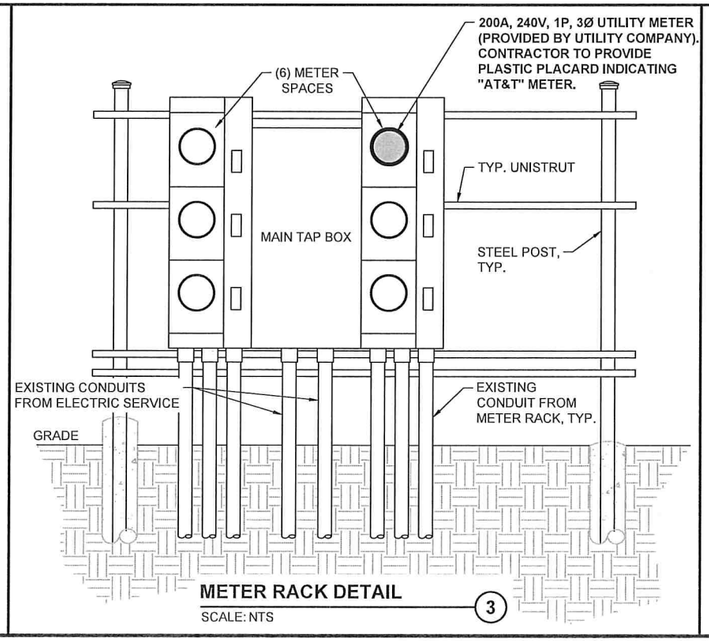
UTILITY PLAN
SCALE: 1" = 40'
1



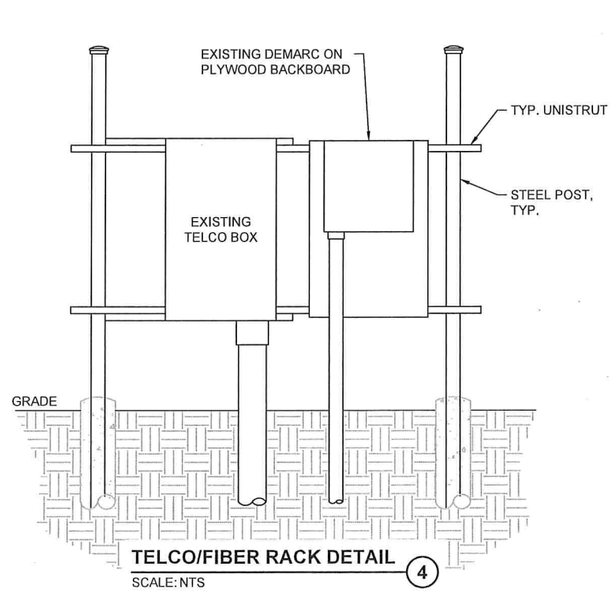
NOTES:

1. CONTRACTOR TO VERIFY LOCAL UTILITY REQUIREMENTS FOR DEPTH, SIZE, & SEPARATION OF CONDUITS PRIOR TO INSTALLATION. NOTIFY CONSTRUCTION MANAGER IMMEDIATELY OF ANY DISCREPANCIES.
2. CONTRACTOR TO CALL DIGGERS HOTLINE (1-800-242-8511) 48 HOURS PRIOR TO EXCAVATING FOR UNDERGROUND UTILITY LOCATIONS. LOCATION SURROUNDING EXCAVATED AREA MUST BE PRIVATELY LOCATED FOR NON-PUBLIC UTILITIES.

TYPICAL UTILILTY TRENCH DETAIL
SCALE: NTS
2



METER RACK DETAIL
SCALE: NTS
3



TELCO/FIBER RACK DETAIL
SCALE: NTS
4

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PROJECT TITLE:
BROOKFIELD - CARMEN HILL ROAD
FA# 10128690
SITE# CT2586

PROJECT INFORMATION:
39 CARMEN HILL ROAD
BROOKFIELD, CT 06804
FAIRFIELD COUNTY

SHEET TITLE:
UTILITY DETAILS

0 20' 40' 80'
11" x 17" - 1" = 40'
22" x 34" - 1" = 20'

PROJECT NUMBER: 44031
SHEET NUMBER: E-1

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DRAWN BY: KJH CHECKED BY: AJK

PROPOSED
AT&T
20KW AC
GENERAC

PROPOSED
AT&T W.I.C.

(2) #14 AWG AND GENERAL CABLE 12 PR 24 AWG COPPER SHIELDED FOR GENERATOR START

(2) #12 AWG & (1) #12 GND FOR BATTERY CHARGE & BLOCK HEATER

(3) #4/0 & (1) #4 GND FOR EMERGENCY POWER

PROPOSED 2" SCH 40 ELECTRICAL CONDUIT BETWEEN EXISTING METER AND PROPOSED AT&T W.I.C.

PROPOSED 4" SCH 40 FIBER CONDUIT BETWEEN FIBER DEMARC AND PROPOSED AT&T W.I.C.

UTILITY PLAN
SCALE: 1" = 1.25'
1

LEGEND:

E E E E	PROPOSED ELECTRIC
T T T T	PROPOSED TELCO

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ISSUE PHASE: FINAL
DATE ISSUED: 09/13/2019

PROJECT TITLE:
BROOKFIELD - CARMEN HILL ROAD
FA# 10128690
SITE# CT2586

PROJECT INFORMATION:
39 CARMEN HILL ROAD
BROOKFIELD, CT 06804
FAIRFIELD COUNTY

SHEET TITLE:
UTILITY DETAILS

0 1.875' 3.75' 7.5'
11" x 17" - 1" = 3.75'
22" x 34" - 1" = 1.875'

PROJECT NUMBER: 44031
SHEET NUMBER: E-2

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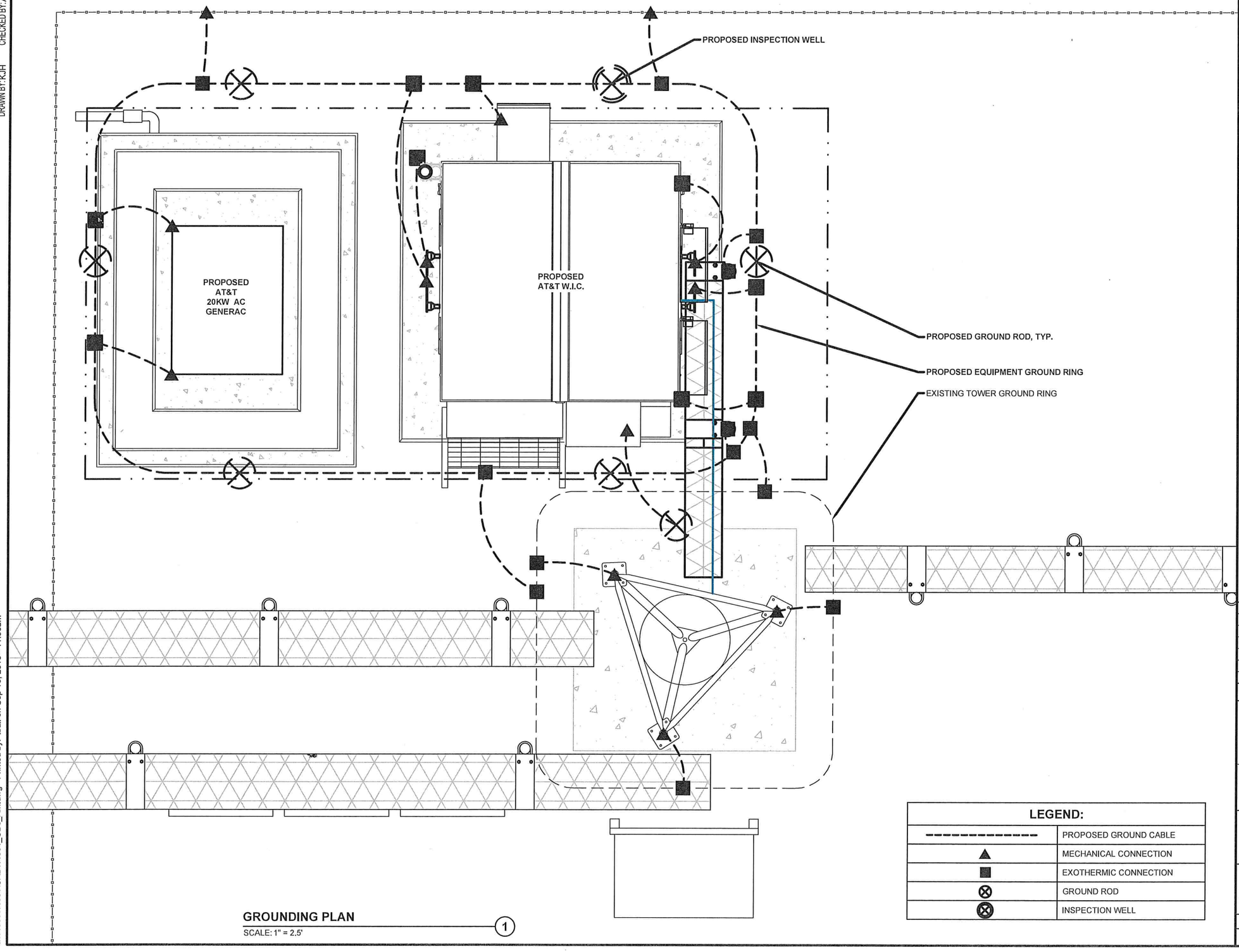

GROUNDING PLAN
SCALE: 1" = 2.5'
1

LEGEND:	
- - - - - - - - - - - -	PROPOSED GROUND CABLE
▲	MECHANICAL CONNECTION
■	EXOTHERMIC CONNECTION
⊗	GROUND ROD
⊗	INSPECTION WELL

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DATE ISSUED: 09/13/2019

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FA# 10128690
SITE# CT2586

PROJECT INFORMATION:
39 CARMEN HILL ROAD
BROOKFIELD, CT 06804
FAIRFIELD COUNTY

SHEET TITLE:
GROUNDING PLAN

0 1.25' 2.5' 5'
11" x 17" - 1" = 2.5'
22" x 34" - 1" = 1.25'

PROJECT NUMBER: 44031
SHEET NUMBER: G-1

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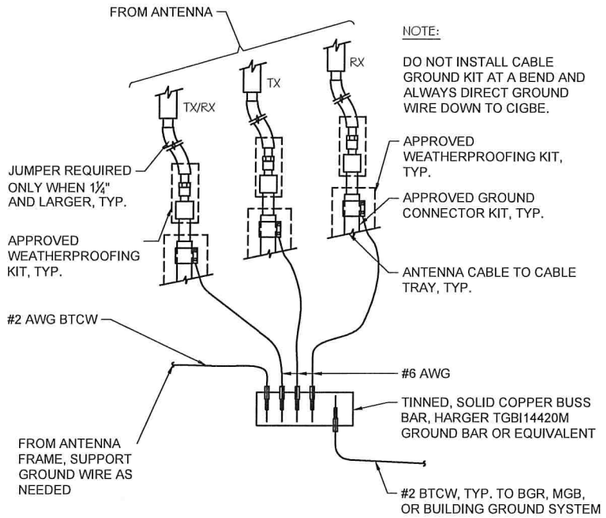
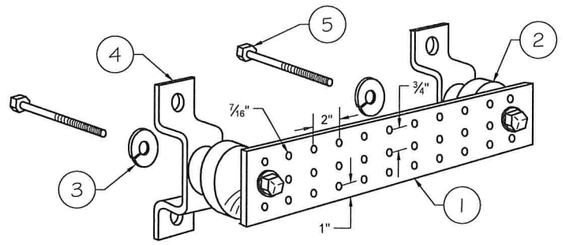
DRAWN BY: KJH CHECKED BY: AJK



GROUND WIRE TO GROUND BAR DETAIL (1)
SCALE: NTS

NOTES:

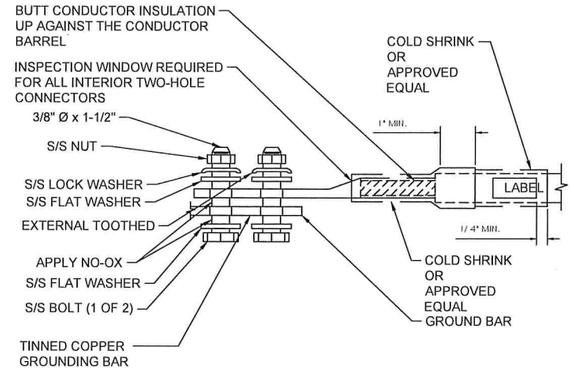
1. ALL MOUNTING HARDWARE CAN BE USED ON 6", 12", 18", ETC. GROUND BARS.
2. ENTIRE ASSEMBLY AVAILABLE FROM NEWTON INSTRUMENT CO. CAT. NO. 2106060010 OR AS HARGER TGBI14420M.



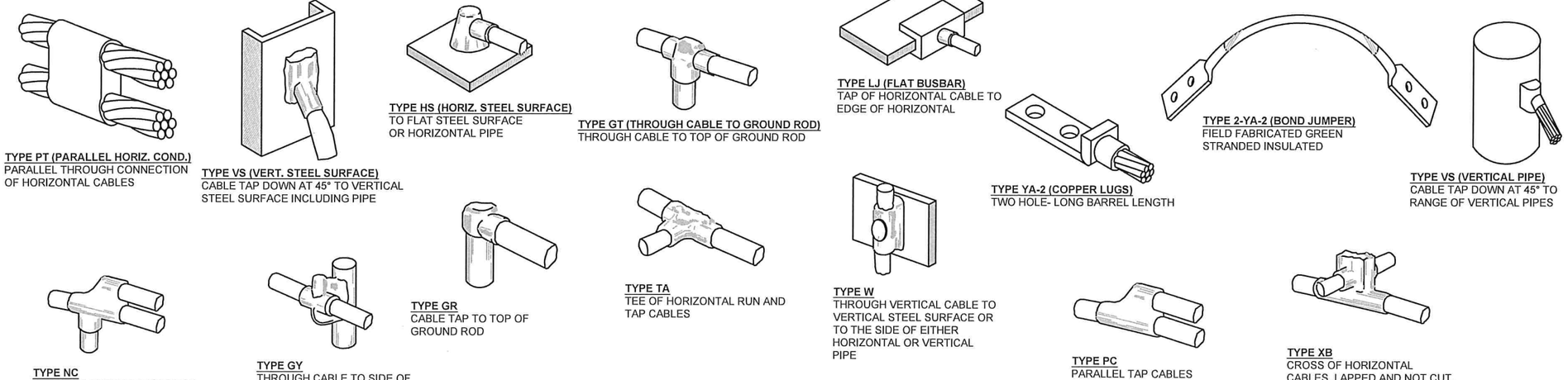
LEGEND

1. TINNED COPPER GROUND BAR, ¼" x 4" x 20", NEWTON CO., HARGER TGBI14420M, OR EQUIVALENT. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION.
2. INSULATORS. INSTRUMENT CO. CAT. NO. 3061-4 OR HARGER EQUIVALENT.
3. ⅝" LOCKWASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015-8 OR EQUIVALENT.
4. WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT. NO. A-6056 OR HARGER EQUIVALENT.
5. ⅝" x 1" H.H.C.S. BOLTS, NEWTON INSTRUMENT CO. CAT. NO. 3012-1 OR HARGER EQUIVALENT.

TYPICAL GROUND BAR DETAIL (2)
SCALE: NTS



TYPICAL GROUND BAR CONNECTION DETAIL (3)
SCALE: NTS



TYPICAL CADWELD TYPES DETAIL (4)
SCALE: NTS

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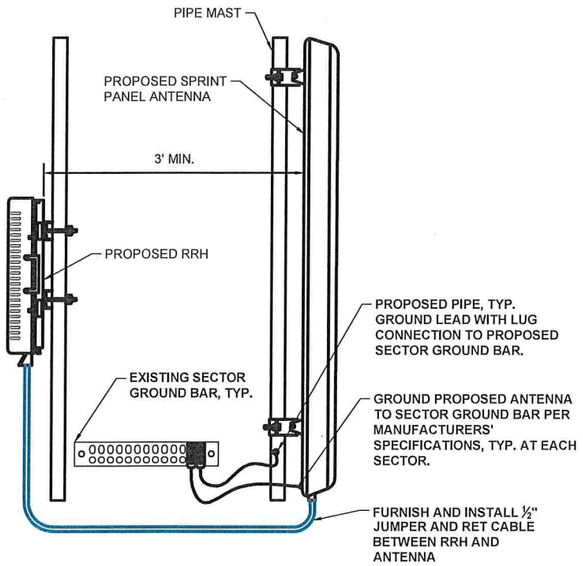
PROJECT INFORMATION:
39 CARMEN HILL ROAD
BROOKFIELD, CT 06804
FAIRFIELD COUNTY

SHEET TITLE:
GROUNDING DETAILS

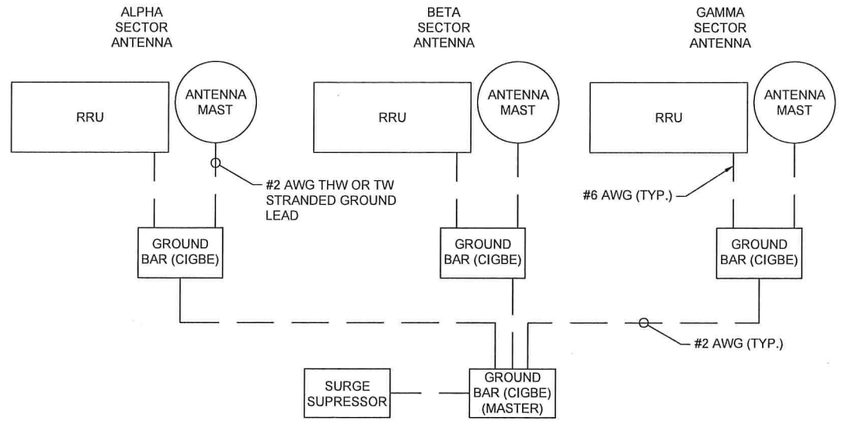
SCALE: NONE

PROJECT NUMBER: 44031
SHEET NUMBER: G-2

DRAWN BY: KJH CHECKED BY: AJK



ANTENNA & RRU GROUNDING DETAIL (1)
SCALE: NTS



SCHEMATIC DIAGRAM GROUNDING SYSTEM (2)
SCALE: NTS

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FA# 10128690
SITE# CT2586

PROJECT INFORMATION:
39 CARMEN HILL ROAD
BROOKFIELD, CT 06804
FAIRFIELD COUNTY

SHEET TITLE:
GROUNDING DETAILS

SCALE: NONE

PROJECT NUMBER: 44031
SHEET NUMBER: G-3

3

Post Modification

Structural Analysis Report

Structure	: 492 Foot Guyed Tower
VB Site Name	: WRKI-FM
VB Site Number	: US-CT-5009
Proposed Carrier	: AT&T
Carrier Site Name	: N/A
Carrier Site Number	: CT2586
Site Location	: 0.3 Mi. Sse of Intersection of Carmen Hill Rd. & Se Trail Brookfield, CT 06804 (Fairfield County) 41.4934, -73.4288
Date	: October 7, 2019
Max Member Stress Level	: 91%
Result	: **PASS (With Proposed Modifications)**

10/07/2019

Prepared by:

VERTICAL BRIDGE ENGINEERING, LLC

750 Park of Commerce Drive Suite 200 | Boca Raton, FL 33487 | 561-948-6367
VerticalBridge.com

Table of Contents

Introduction

We have completed our structural analysis of the proposed equipment installation on the foregoing tower to determine its ability to support the new loads proposed by **AT&T**. The objective of the analysis was to determine if the tower meets the current structural codes and standards with the proposed equipment installation.

Existing Structural Information

The following documents for the existing structure were made available for our structural analysis.

Tower Information	Structural Components Tower Mapping Dated June 12, 2015.
Foundation Information	Structural Components Foundation Mapping Dated April 7, 2016.
Geotechnical Information	Delta Oaks Group Job No. GEO16-00237-03 dated April 11, 2016.
Existing Equipment Information	Vertical Bridge Collocation Application dated March 28, 2019.
Tower Reinforcement Information	Tower has been reinforced and is included in this analysis. **ETS Modification Drawings Job No. 192640.14 dated May 10, 2019.**

Final Proposed Equipment Loading for AT&T

The following proposed loading was obtained from the Vertical Bridge Collocation Application:

Antenna/Equipment					Coax	
Mount (Ft.)	RAD (Ft.)	Qty.	Antenna	Type	Qty.	Size/Type
165.0	-	**3**	**Sector Frames**	Mount	**2** **6**	**3/8" Fiber** **5/8" DC Power**
	165.0	**6**	**CCI TPA65R-BU8DA-K**	Panel		
		3	**Ericsson RRUS-4478 B14**	RRU		
		3	**Ericsson RRUS-4449**	RRU		
		3	**Ericsson RRUS-8843**	RRU		
		3	**Raycap DC6-48-60-0-8C-EV**	Squid		

Note: Proposed equipment shown in bold.
Note: Other existing loading can be found on the tower profile attached.

Design Criteria

The tower was analyzed using tnxTower (Version 8.0.5.0) tower analysis software using the following design criteria.

State	Connecticut
City/County Building Code	Fairfield County (IBC 2015)
TIA/EIA Standard Code	TIA-222-G
Basic Wind Speed	89 MPH (V_{asd}) / 115 MPH (V_{ult})
Basic Wind Speed w/ Ice	50 MPH w/ 0.75" Ice
Steel Grade	50 ksi Legs / 36 ksi All Other Members / A325 Bolts
Exposure Category	C
Topographic Category (height)	1 (0.0 ft)
Risk Category	II

Analysis Results

Based on the foregoing information, our structural analysis determined that **the existing tower is structurally capable of supporting the proposed equipment loads with the proposed structural modifications per the ETS Modification Drawings Job No. 192640.14 dated May 10, 2019.** The existing tower base, inner, and outer anchor foundations have also been evaluated. The tower base, inner, and outer anchor foundations **are structurally capable of supporting the proposed equipment loads.**

Assumptions

The below assumptions are true, complete, and accurate.

1. The existing tower has been maintained to manufacturer's specifications and is in good condition.
2. Foundations are considered to have been properly designed for the original design loads.
3. All member connections are considered to have been designed to meet the load carrying capacity of the connected member.
4. Antenna mount loads have been estimated based on generally accepted industry standards.
5. The mounts for the proposed antennas have been analyzed and designed by others.
6. See additional assumptions contained in the report attached.
7. Tower is within acceptable engineering tolerance at 105%.
8. Foundations are within acceptable engineering tolerance at 110%.

Conclusions

The existing tower described above **has sufficient capacity to support the proposed loading after the proposed modifications are installed** based on the governing Building Code. The tower base, inner, and outer anchor foundations have also been evaluated and are acceptable.

We appreciate the opportunity of providing our continuing professional services to you. If you have any questions or need further assistance please call us anytime at 561-948-6367.

Sincerely,

Analysis by:

Jesse Wagner
Design Engineer

Reviewed by:

STATE OF CONNECTICUT
MICHAEL T. DE BOER
No. 18022
LICENSED PROFESSIONAL ENGINEER

Michael T. De Boer, PE
Vice President of Structural Engineering

10/07/2019

Standard Conditions

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

- Information supplied by the client regarding the structure itself, the antenna and transmission line loading on the structure and it components, or relevant information.

- Information from drawings in possession of Vertical Bridge Engineering, LLC, or generated by field inspections or measurements of the structure.

It is the responsibility of the client to ensure that the information provided to Vertical Bridge Engineering, LLC and used in the performance of our engineering services is correct and complete. In the absence of information contrary, we consider that all structures were constructed in accordance with the drawings and specifications and are in a un- corroded condition and have not deteriorated; and we, therefore consider that their capacity has not significantly changed from the original design condition.

All services will be performed to the codes and standards specified by the client, and we do not imply to meet any other code and standard requirements unless explicitly agreed to in writing. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes and standards, the client shall specify the exact requirements. In the absence of information to the contrary, all work will be performed in accordance with the revision of ANSI/TIA/EIA-222-G requested.

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

Disclaimer of Warranties

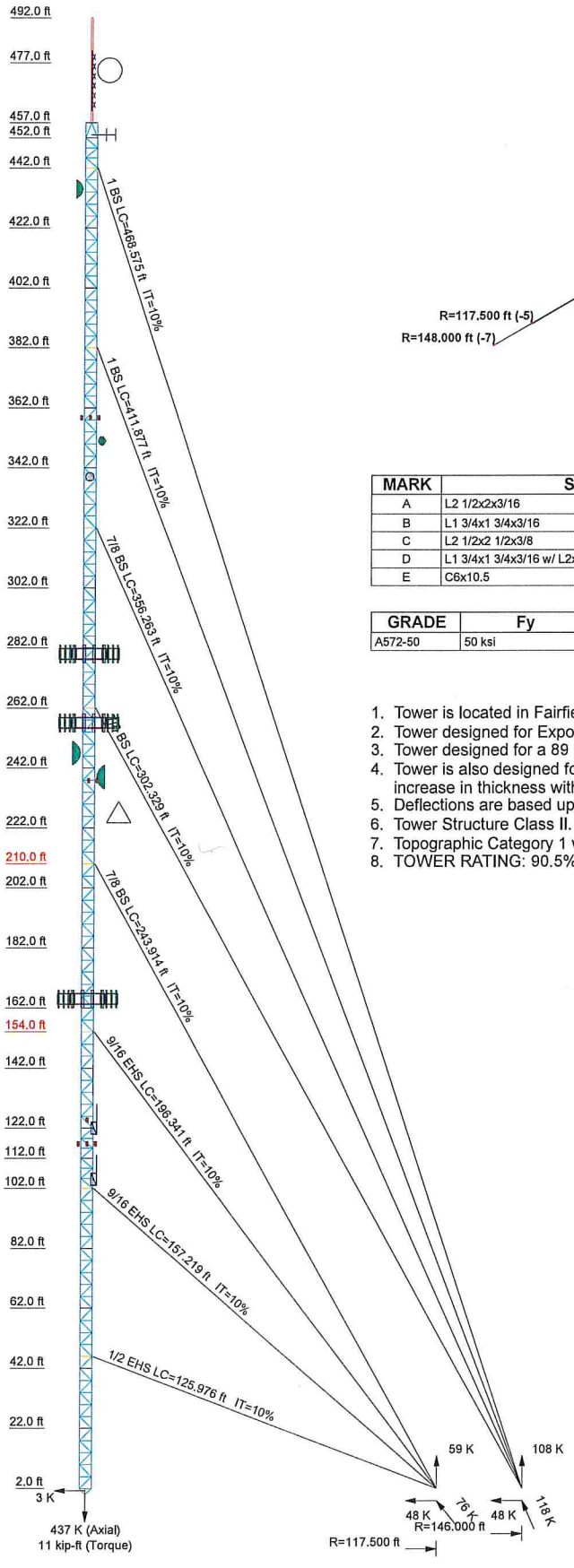
The engineering services by Vertical Bridge Engineering, LLC in connection with this Structural Analysis are limited to a computer analysis of the tower structure, size and capacity of its members. Vertical Bridge Engineering, LLC does not analyze the fabrication, including welding, except as may be expressly included in this report.

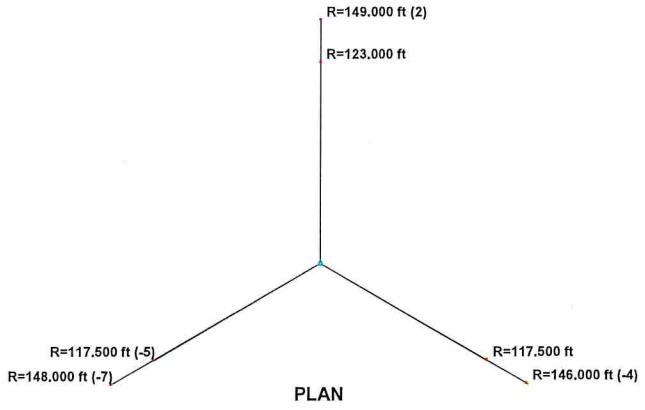
The purpose of this report is to assess the feasibility of adding appurtenances usually accompanied by transmission lines. Any mention of structural modifications are reasonable estimates and should not be used a precise construction document. Precise modification drawings are obtainable from Vertical Bridge Engineering, LLC but are beyond the scope of this report.

Vertical Bridge Engineering, LLC makes no warranties, express or implied, in connection with this report and disclaims any liability arising from material, fabrication and erection of this tower, or installation and compliance with legal and permitting requirements of the proposed equipment. Vertical Bridge Engineering, LLC will not be responsible whatsoever for or on account of, consequential or incidental damages sustained by any person, firm, or organization as a result of any data or conclusions contained in this report. The maximum liability of Vertical Bridge Engineering, LLC pursuant to this report will be limited to the total fee received for preparation of this report.

Attachment 1:
Calculations

Section	T25	T24	T23	T22	T21	T20	T19	T18	T17	T16	T15	T14	T13	T12	T11	T10	T9	T8	T7	T6	T5	T4	T3	T2	T1	L2	L1
Legs					SR 3									SR 3 3/4			SR 2 1/2				SR 2 1/4						P8x.406
Leg Grade												A572-50															A53-B-35
Diagonals			L2x2x1/4			D			L2x2x1/4			C		L2x2x1/4	C	L2x2x1/4	B		L2x2x1/4				A			N.A.
Diagonal Grade												A36															N.A.
Top Girts			L2x2x3/16		N.A.				L2x2x3/16				N.A.		L2x2x3/16		N.A.		L2x2x3/16		N.A.		F	E		N.A.
Bottom Girts	L2x2x3/16												N.A.														
Horizontals												L2x2x3/16															N.A.
Top Guy Pull-Offs		N.A.	G	N.A.	G		N.A.		G		N.A.	G	N.A.	G	N.A.	G	N.A.	G		G	N.A.	G				N.A.	
Face Width (ft)												4														0.71875	
# Panels @ (ft)			25 @ 4				6 @ 3.33333								80 @ 4									I	H	N.A.	N.A.
Weight (K)	39.3	1.9	2.0	1.9	2.0	1.1	1.0	1.9	2.0	1.9	1.9	2.2	1.6	1.7	1.9	1.4	1.4	1.2	1.2	1.3	1.2	1.2	1.3	0.6	0.4	0.7	0.5





SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	L2 1/2x2x3/16	F	L2x2x3/16
B	L1 3/4x1 3/4x3/16	G	2L2 1/2x2 1/2x3/8x1/4
C	L2 1/2x2 1/2x3/8	H	1 @ 5
D	L1 3/4x1 3/4x3/16 w/ L2x2x1/4	I	3 @ 3.33333
E	C6x10.5		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

TOWER DESIGN NOTES

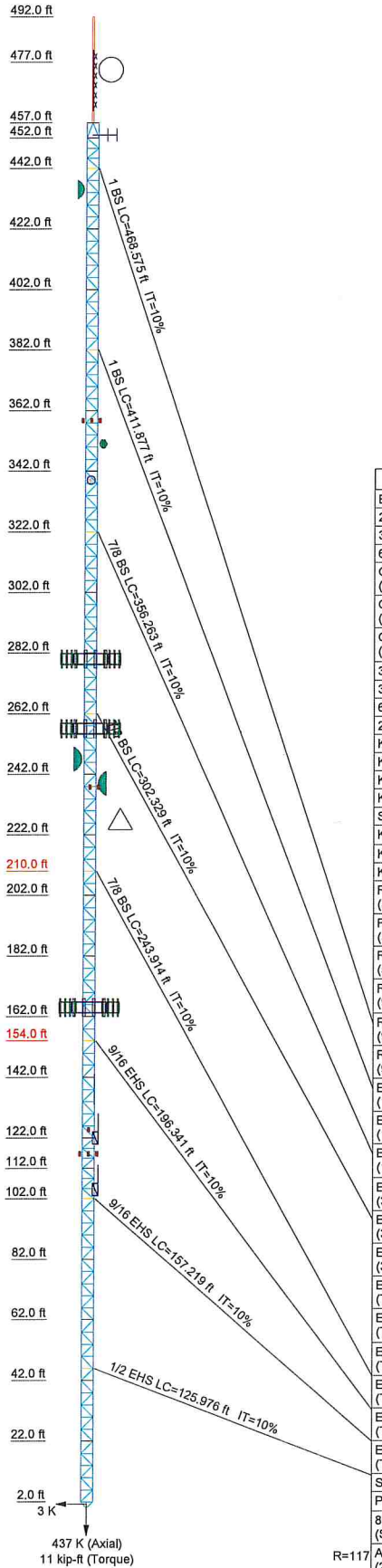
1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 89 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.000 ft
8. TOWER RATING: 90.5%

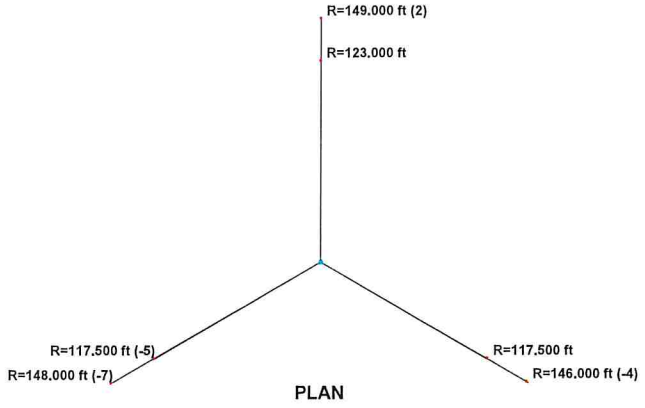
ALL REACTIONS ARE FACTORED

Vertical Bridge Engineering, LLC
550 River Dr.
North Sioux City, SD 57049
Phone: 605-540-4622
FAX: 605-540-4622

Job: ***US-CT-5009***		
Project: ***Guyed Tower Structural Analysis***		
Client:	Drawn by: Luke Myrick	App'd:
Code: TIA-222-G	Date: 05/10/19	Scale: NTS
Path: C:\Users\lmyrick\OneDrive - Vertical Bridge\Documents\Towers\US-CT-5009\Mod SA\US-CT-5009_PostMod SA_051019_ATT.eri		Dwg No. E-1

Section	T25	T24	T23	T22	T21	T20	T19	T18	T17	T16	T15	T14	T13	T12	T11	T10	T9	T8	T7	T6	T5	T4	T3	T2	T1	L2	L1
Legs				SR 3								A572-50		SR 2 3/4		SR 2 1/2					SR 2 1/4					P8x.406	
Leg Grade																										A53-B-35	
Diagonals			L2x2x1/4			D		L2x2x1/4			C	L2x2x1/4		C	L2x2x1/4	B					L2x2x1/4			A		N.A.	
Diagonal Grade												A36														N.A.	
Top Girts			L2x2x3/16		N.A.			L2x2x3/16					N.A.		L2x2x3/16	N.A.		L2x2x3/16	N.A.		L2x2x3/16	N.A.	F	E	N.A.	
Bottom Girts	L2x2x3/16													N.A.													
Horizontals													L2x2x3/16													N.A.	
Top Guy Pull-Offs		N.A.	G	N.A.	G		N.A.		G	N.A.		G	N.A.	G	N.A.		G	N.A.		G		N.A.				N.A.	
Face Width (ft)												4				80 @ 4										0.71875	
# Panels @ (ft)				25 @ 4			6 @ 3.33333																	I	H	N.A.	N.A.
Weight (K)	39.3	1.9	2.0	1.9	2.0	1.1	1.0	1.9	2.0	1.9	1.9	2.2	1.6	1.7	1.9	1.4	1.4	1.2	1.2	1.3	1.2	1.2	1.3	0.6	0.4	0.7	0.5





DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Beacon (.075k 2.250CAAA) (Tower)	490	Nokia AAHC MIMO (25.6x19.7x9.64) (Sprint)	257
2 Bay FM Antenna	471	Nokia AAHC MIMO (25.6x19.7x9.64) (Sprint)	257
3' Yagi(.03k,2.08CAAA)	453	Nokia AAHC MIMO (25.6x19.7x9.64) (Sprint)	257
6' Grid Dish	435	CommScope NNVV-65B-R4 (72x19.6x7.8) (Sprint)	257
Obstruction Light(.01k,.8CAAA) (Tower)	358	CommScope NNVV-65B-R4 (72x19.6x7.8) (Sprint)	257
Obstruction Light(.01k,.8CAAA) (Tower)	358	CommScope NNVV-65B-R4 (72x19.6x7.8) (Sprint)	257
Obstruction Light(.01k,.8CAAA) (Tower)	358	8' Grid Dish (140lbs 20.1CaAa)	247
3' Dish w/ Radomes	351	8' Grid Dish (140lbs 20.1CaAa)	239
3' Grid Dish	339	Beacon (.075k 2.250CAAA) (Tower)	237
6' Omni	302	Beacon (.075k 2.250CAAA) (Tower)	237
2' Side arm (25lbs 0.5CaAa)	302	Ericsson RRUS-4483 (15x13.2x9) (ATI)	165
Kathrein CA5-FM/CP/RM	300	Ericsson RRUS-4483 (15x13.2x9) (ATI)	165
KRY 112 89/4 (T-Mobile)	280	Raycap DC6-48-60-0-8C-EV (31.4x18.28x10.24) (ATI)	165
KRY 112 89/4 (T-Mobile)	280	Raycap DC6-48-60-0-8C-EV (31.4x18.28x10.24) (ATI)	165
KRY 112 89/4 (T-Mobile)	280	CCI TPR65R-BU8A (96x11.7x7.6) (ATI)	165
Sector Frames (T-Mobile)	280	Ericsson RRUS-4483 (15x13.2x9) (ATI)	165
KRY 112 144/1 (T-Mobile)	280	(2) CCI TPA65R-BU8D (96.0x21.0x7.8) (ATI)	165
KRY 112 144/1 (T-Mobile)	280	Ericsson 4478 B14 (18.1x13.4x8.3) (ATI)	165
KRY 112 144/1 (T-Mobile)	280	Ericsson 4478 B14 (18.1x13.4x8.3) (ATI)	165
RFS APX16DWV-16DWV-S-E-A20 (55.9x13.3x3.15) (T-Mobile)	280	Ericsson 4478 B14 (18.1x13.4x8.3) (ATI)	165
RFS APX16DWV-16DWV-S-E-A20 (55.9x13.3x3.15) (T-Mobile)	280	Ericsson RRUS E2 (20.4x18.5x7.5) (ATI)	165
RFS APX16DWV-16DWV-S-E-A20 (55.9x13.3x3.15) (T-Mobile)	280	Ericsson RRUS E2 (20.4x18.5x7.5) (ATI)	165
RFS APXVAARR24_43-U-NA20 (95.9x24x8.7) (T-Mobile)	280	Ericsson RRUS E2 (20.4x18.5x7.5) (ATI)	165
RFS APXVAARR24_43-U-NA20 (95.9x24x8.7) (T-Mobile)	280	Ericsson 4415 B30 (16.5x13.4x5.9) (ATI)	165
RFS APXVAARR24_43-U-NA20 (95.9x24x8.7) (T-Mobile)	280	Ericsson 4415 B30 (16.5x13.4x5.9) (ATI)	165
Ericsson RRU 4449 B71B12 (14.9x13.2x10.4) (T-Mobile)	280	Ericsson 4415 B30 (16.5x13.4x5.9) (ATI)	165
Ericsson RRU 4449 B71B12 (14.9x13.2x10.4) (T-Mobile)	280	Ericsson 4449 (18x13.2x9.4) (ATI)	165
Ericsson RRU 4449 B71B12 (14.9x13.2x10.4) (T-Mobile)	280	Ericsson 4449 (18x13.2x9.4) (ATI)	165
Ericsson AIR6488 2.5GHz (34.8x20.5x7.2) (T-Mobile)	280	Ericsson 4449 (18x13.2x9.4) (ATI)	165
Ericsson AIR6488 2.5GHz (34.8x20.5x7.2) (T-Mobile)	280	Sector Frames (ATI)	165
Ericsson AIR6488 2.5GHz (34.8x20.5x7.2) (T-Mobile)	280	(2) CCI TPA65R-BU8D (96.0x21.0x7.8) (ATI)	165
Ericsson AIR 3246 B66 (58.1x15.7x9.4) (T-Mobile)	280	(2) CCI TPA65R-BU8D (96.0x21.0x7.8) (ATI)	165
Ericsson AIR 3246 B66 (58.1x15.7x9.4) (T-Mobile)	280	CCI TPR65R-BU8A (96x11.7x7.6) (ATI)	165
Ericsson AIR 3246 B66 (58.1x15.7x9.4) (T-Mobile)	280	CCI TPR65R-BU8A (96x11.7x7.6) (ATI)	165
Ericsson 4415 B25 (15x13.2x5.4) (T-Mobile)	280	3' Side Arm	138
Ericsson 4415 B25 (15x13.2x5.4) (T-Mobile)	280	10' Dipole	138
Ericsson 4415 B25 (15x13.2x5.4) (T-Mobile)	280	10' Dipole	125
SM 408-3 (Sprint)	257	3' Side Arm	125
PCS 1900MHz 4x45W-65MHz (Sprint)	257	Beacon (.075k 2.250CAAA) (Tower)	124
800 EXTERNAL NOTCH FILTER (Sprint)	257	Obstruction Light(.01k,.8CAAA) (Tower)	116
Alcatel Lucent RRH-4x45-1900 (25x12x12) (Sprint)	257		
Alcatel Lucent RRH-4x45-1900 (25x12x12) (Sprint)	257		
Alcatel Lucent RRH 2x50-800 (16x13x10) (Sprint)	257		
Alcatel Lucent RRH 2x50-800 (16x13x10) (Sprint)	257		

R=117

ALL REACTIONS ARE FACT

Vertical Bridge Engineering, LLC
550 River Dr.
North Sioux City, SD 57049
Phone: 605-540-4622
FAX: 605-540-4622

Job: US-CT-5009		
Project: Guyed Tower Structural Analysis		
Client:	Drawn by: Luke Myrick	App'd:
Code: TIA-222-G	Date: 05/10/19	Scale: NTS
Path: C:\Users\lmyrick\OneDrive - Vertical Bridge\Documents\Towers\US-CT-5009\Mod SA\US-CT-5009_PostMod SA_051019_ATT.eri		Dwg No. E-1

tnxTower	Job	Page
	US-CT-5009	1 of 83
Vertical Bridge Engineering, LLC *550 River Dr.* *North Sioux City, SD 57049* *Phone: 605-540-4622* *FAX: 605-540-4622*	Project Guyed Tower Structural Analysis	Date 09:35:55 05/10/19
	Client	Designed by Luke Myrick

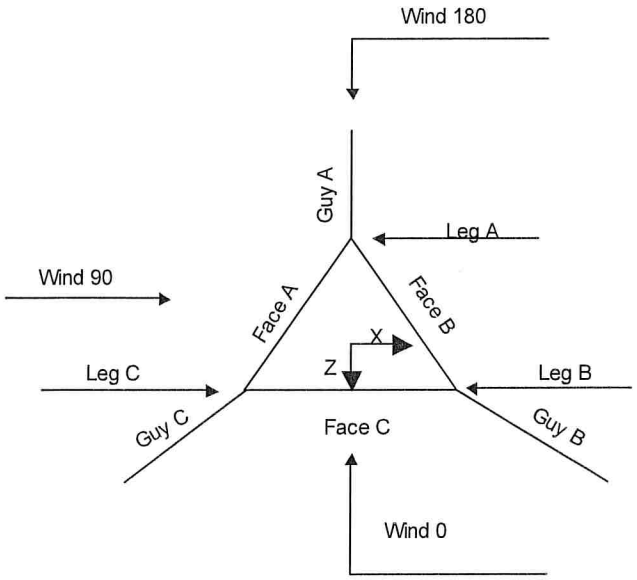
Tower Input Data

The main tower is a 3x guyed tower with an overall height of 492.000 ft above the ground line.
The base of the tower is set at an elevation of 0.000 ft above the ground line.
The face width of the tower is 4.000 ft at the top and 4.000 ft at the base.
An index plate is provided at the 3x guyed -tower connection.
There is a pole section.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

Tower is located in Fairfield County, Connecticut.
Basic wind speed of 89 mph.
Structure Class II.
Exposure Category C.
Topographic Category 1.
Crest Height 0.000 ft.
Nominal ice thickness of 0.7500 in.
Ice thickness is considered to increase with height.
Ice density of 56.000 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50.000 °F.
Deflections calculated using a wind speed of 60 mph.
I-Beam base is 2.000 ft above the pivot.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.
Safety factor used in guy design is 1.
Stress ratio used in tower member design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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



Corner & Starmount Guyed Tower

Pole Section Geometry

Section	*Elevation* *ft*	*Section Length* *ft*	*Pole Size*	*Pole Grade*	*Socket Length* *ft*
L1	492.000-477.000	15.000	P8x.406	A53-B-35 (35 ksi)	
L2	477.000-457.000	20.000	P8x.406	A53-B-35 (35 ksi)	

Tower Elevation *ft*	*Gusset Area (per face)* ft^2	*Gusset Thickness* *in*	*Gusset Grade*	*Adjust. Factor* A_f	*Adjust. Factor* A_r	*Weight Mult.*	*Double Angle Stitch Bolt Spacing Diagonals* *in*	*Double Angle Stitch Bolt Spacing Horizontals* *in*	*Double Angle Stitch Bolt Spacing Redundants* *in*
L1 492.000-477.000				1	1	1			
L2 477.000-457.000				1	1	1			

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	457.000-452.000			4.000	1	5.000
T2	452.000-442.000			4.000	1	10.000
T3	442.000-422.000			4.000	1	20.000
T4	422.000-402.000			4.000	1	20.000
T5	402.000-382.000			4.000	1	20.000
T6	382.000-362.000			4.000	1	20.000
T7	362.000-342.000			4.000	1	20.000
T8	342.000-322.000			4.000	1	20.000
T9	322.000-302.000			4.000	1	20.000
T10	302.000-282.000			4.000	1	20.000
T11	282.000-262.000			4.000	1	20.000
T12	262.000-242.000			4.000	1	20.000
T13	242.000-222.000			4.000	1	20.000
T14	222.000-202.000			4.000	1	20.000
T15	202.000-182.000			4.000	1	20.000
T16	182.000-162.000			4.000	1	20.000
T17	162.000-142.000			4.000	1	20.000
T18	142.000-122.000			4.000	1	20.000
T19	122.000-112.000			4.000	1	10.000
T20	112.000-102.000			4.000	1	10.000
T21	102.000-82.000			4.000	1	20.000
T22	82.000-62.000			4.000	1	20.000
T23	62.000-42.000			4.000	1	20.000
T24	42.000-22.000			4.000	1	20.000
T25	22.000-2.000			4.000	1	20.000

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	ft	ft				in	in
T1	457.000-452.000	5.000	K Brace Down	No	Yes	0.0000	0.0000
T2	452.000-442.000	3.333	K Brace Right	No	Yes	0.0000	0.0000
T3	442.000-422.000	4.000	K Brace Left	No	Yes	0.0000	0.0000
T4	422.000-402.000	4.000	K Brace Right	No	Yes	0.0000	0.0000
T5	402.000-382.000	4.000	K Brace Left	No	Yes	0.0000	0.0000
T6	382.000-362.000	4.000	K Brace Right	No	Yes	0.0000	0.0000
T7	362.000-342.000	4.000	K Brace Left	No	Yes	0.0000	0.0000
T8	342.000-322.000	4.000	K Brace Right	No	Yes	0.0000	0.0000
T9	322.000-302.000	4.000	K Brace Left	No	Yes	0.0000	0.0000
T10	302.000-282.000	4.000	K Brace Right	No	Yes	0.0000	0.0000
T11	282.000-262.000	4.000	K Brace Left	No	Yes	0.0000	0.0000
T12	262.000-242.000	4.000	K Brace Right	No	Yes	0.0000	0.0000
T13	242.000-222.000	4.000	K Brace Left	No	Yes	0.0000	0.0000
T14	222.000-202.000	4.000	K Brace Right	No	Yes	0.0000	0.0000
T15	202.000-182.000	4.000	K Brace Left	No	Yes	0.0000	0.0000
T16	182.000-162.000	4.000	K Brace Right	No	Yes	0.0000	0.0000
T17	162.000-142.000	4.000	K Brace Left	No	Yes	0.0000	0.0000
T18	142.000-122.000	4.000	K Brace Right	No	Yes	0.0000	0.0000
T19	122.000-112.000	3.333	K Brace Left	No	Yes	0.0000	0.0000
T20	112.000-102.000	3.333	K Brace Right	No	Yes	0.0000	0.0000

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T21	102.000-82.000	4.000	K Brace Left	No	Yes	0.0000	0.0000
T22	82.000-62.000	4.000	K Brace Right	No	Yes	0.0000	0.0000
T23	62.000-42.000	4.000	K Brace Left	No	Yes	0.0000	0.0000
T24	42.000-22.000	4.000	K Brace Right	No	Yes	0.0000	0.0000
T25	22.000-2.000	4.000	K Brace Left	No	Yes	0.0000	0.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 457.000-452.000	Solid Round	2 1/4	A572-50 (50 ksi)	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)
T2 452.000-442.000	Solid Round	2 1/4	A572-50 (50 ksi)	Single Angle	L2x2x1/4	A36 (36 ksi)
T3 442.000-422.000	Solid Round	2 1/4	A572-50 (50 ksi)	Single Angle	L2x2x1/4	A36 (36 ksi)
T4 422.000-402.000	Solid Round	2 1/4	A572-50 (50 ksi)	Single Angle	L2x2x1/4	A36 (36 ksi)
T5 402.000-382.000	Solid Round	2 1/4	A572-50 (50 ksi)	Single Angle	L2x2x1/4	A36 (36 ksi)
T6 382.000-362.000	Solid Round	2 1/4	A572-50 (50 ksi)	Single Angle	L2x2x1/4	A36 (36 ksi)
T7 362.000-342.000	Solid Round	2 1/4	A572-50 (50 ksi)	Single Angle	L2x2x1/4	A36 (36 ksi)
T8 342.000-322.000	Solid Round	2 1/4	A572-50 (50 ksi)	Single Angle	L2x2x1/4	A36 (36 ksi)
T9 322.000-302.000	Solid Round	2 1/2	A572-50 (50 ksi)	Single Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)
T10 302.000-282.000	Solid Round	2 1/2	A572-50 (50 ksi)	Single Angle	L2x2x1/4	A36 (36 ksi)
T11 282.000-262.000	Solid Round	2 3/4	A572-50 (50 ksi)	Single Angle	L2 1/2x2 1/2x3/8	A36 (36 ksi)
T12 262.000-242.000	Solid Round	2 3/4	A572-50 (50 ksi)	Single Angle	L2x2x1/4	A36 (36 ksi)
T13 242.000-222.000	Solid Round	2 3/4	A572-50 (50 ksi)	Single Angle	L2x2x1/4	A36 (36 ksi)
T14 222.000-202.000	Solid Round	3	A572-50 (50 ksi)	Single Angle	L2 1/2x2 1/2x3/8	A36 (36 ksi)
T15 202.000-182.000	Solid Round	3	A572-50 (50 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T16 182.000-162.000	Solid Round	3	A572-50 (50 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T17 162.000-142.000	Solid Round	3	A572-50 (50 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T18 142.000-122.000	Solid Round	3	A572-50 (50 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T19 122.000-112.000	Solid Round	3	A572-50 (50 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T20 112.000-102.000	Solid Round	3	A572-50 (50 ksi)	Arbitrary Shape	L1 3/4x1 3/4x3/16 w/ L2x2x1/4	A36 (36 ksi)
T21 102.000-82.000	Solid Round	3	A572-50 (50 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T22 82.000-62.000	Solid Round	3	A572-50 (50 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T23 62.000-42.000	Solid Round	3	A572-50 (50 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T24 42.000-22.000	Solid Round	3	A572-50 (50 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T25 22.000-2.000	Solid Round	3	A572-50 (50 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 457.000-452.000	Channel	C6x10.5	A36 (36 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T2 452.000-442.000	Single Angle	L2x2x3/16	A36 (36 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T3 442.000-422.000	Single Angle	L2x2x3/16	A36 (36 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T4 422.000-402.000	Single Angle	L2x2x3/16	A36 (36 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T5 402.000-382.000	Single Angle	L2x2x3/16	A36 (36 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T6 382.000-362.000	Single Angle	L2x2x3/16	A36 (36 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T7 362.000-342.000	Single Angle	L2x2x3/16	A36 (36 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T8 342.000-322.000	Single Angle	L2x2x3/16	A36 (36 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T9 322.000-302.000	Single Angle	L2x2x3/16	A36 (36 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T10 302.000-282.000	Single Angle	L2x2x3/16	A36 (36 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T11 282.000-262.000	Single Angle	L2x2x3/16	A36 (36 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T12 262.000-242.000	Single Angle	L2x2x3/16	A36 (36 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T13 242.000-222.000	Single Angle	L2x2x3/16	A36 (36 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T14 222.000-202.000	Single Angle	L2x2x3/16	A36 (36 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T15 202.000-182.000	Single Angle	L2x2x3/16	A36 (36 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T16 182.000-162.000	Single Angle	L2x2x3/16	A36 (36 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T17 162.000-142.000	Single Angle	L2x2x3/16	A36 (36 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T18 142.000-122.000	Single Angle	L2x2x3/16	A36 (36 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T19 122.000-112.000	Single Angle	L2x2x3/16	A36 (36 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T20 112.000-102.000	Single Angle	L2x2x3/16	A36 (36 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T21 102.000-82.000	Single Angle	L2x2x3/16	A36 (36 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T22 82.000-62.000	Single Angle	L2x2x3/16	A36 (36 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T23 62.000-42.000	Single Angle	L2x2x3/16	A36 (36 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T24 42.000-22.000	Single Angle	L2x2x3/16	A36 (36 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T25 22.000-2.000	Single Angle	L2x2x3/16	A36 (36 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 457.000-452.000	None	Solid Round		A572-50 (50 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T2 452.000-442.000	None	Solid Round		A572-50 (50 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T3 442.000-422.000	None	Solid Round		A572-50 (50 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T4 422.000-402.000	None	Solid Round		A572-50 (50 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T5 402.000-382.000	None	Solid Round		A572-50 (50 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T6 382.000-362.000	None	Solid Round		A572-50 (50 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T7 362.000-342.000	None	Solid Round		A572-50 (50 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T8 342.000-322.000	None	Solid Round		A572-50 (50 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T9 322.000-302.000	None	Solid Round		A572-50 (50 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T10 302.000-282.000	None	Solid Round		A572-50 (50 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T11 282.000-262.000	None	Solid Round		A572-50 (50 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T12 262.000-242.000	None	Solid Round		A572-50 (50 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T13 242.000-222.000	None	Solid Round		A572-50 (50 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T14 222.000-202.000	None	Solid Round		A572-50 (50 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T15 202.000-182.000	None	Solid Round		A572-50 (50 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T16 182.000-162.000	None	Solid Round		A572-50 (50 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T17 162.000-142.000	None	Solid Round		A572-50 (50 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T18 142.000-122.000	None	Solid Round		A572-50 (50 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T19 122.000-112.000	None	Solid Round		A572-50 (50 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T20 112.000-102.000	None	Solid Round		A572-50 (50 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T21 102.000-82.000	None	Solid Round		A572-50 (50 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T22 82.000-62.000	None	Solid Round		A572-50 (50 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T23	None	Solid Round		A572-50	Single Angle	L2x2x3/16	A36

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
62.000-42.000				(50 ksi)			(36 ksi)
T24	None	Solid Round		A572-50	Single Angle	L2x2x3/16	A36
42.000-22.000				(50 ksi)			(36 ksi)
T25 22.000-2.000	None	Solid Round		A572-50	Single Angle	L2x2x3/16	A36
				(50 ksi)			(36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T1 457.000-452.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T2 452.000-442.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T3 442.000-422.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T4 422.000-402.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T5 402.000-382.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T6 382.000-362.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T7 362.000-342.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T8 342.000-322.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T9 322.000-302.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T10 302.000-282.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T11 282.000-262.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T12 262.000-242.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T13 242.000-222.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T14 222.000-202.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000

Tower Elevation ft	Gusset Area (per face) ft²	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T15 202.000-182.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T16 182.000-162.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T17 162.000-142.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T18 142.000-122.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T19 122.000-112.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T20 112.000-102.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T21 102.000-82.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T22 82.000-62.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T23 62.000-42.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T24 42.000-22.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T25 22.000-2.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1 457.000-452.000	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T2 452.000-442.000	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T3 442.000-422.000	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T4 422.000-402.000	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T5 402.000-382.000	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T6 382.000-362.000	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
00										
T7	Yes	Yes	1	1	1	1	1	1	1	1
362.000-342.0				1	1	1	1	1	1	1
00										
T8	Yes	Yes	1	1	1	1	1	1	1	1
342.000-322.0				1	1	1	1	1	1	1
00										
T9	Yes	Yes	1	1	1	1	1	1	1	1
322.000-302.0				1	1	1	1	1	1	1
00										
T10	Yes	Yes	1	1	1	1	1	1	1	1
302.000-282.0				1	1	1	1	1	1	1
00										
T11	Yes	Yes	1	1	1	1	1	1	1	1
282.000-262.0				1	1	1	1	1	1	1
00										
T12	Yes	Yes	1	1	1	1	1	1	1	1
262.000-242.0				1	1	1	1	1	1	1
00										
T13	Yes	Yes	1	1	1	1	1	1	1	1
242.000-222.0				1	1	1	1	1	1	1
00										
T14	Yes	Yes	1	1	1	1	1	1	1	1
222.000-202.0				1	1	1	1	1	1	1
00										
T15	Yes	Yes	1	1	1	1	1	1	1	1
202.000-182.0				1	1	1	1	1	1	1
00										
T16	Yes	Yes	1	1	1	1	1	1	1	1
182.000-162.0				1	1	1	1	1	1	1
00										
T17	Yes	Yes	1	1	1	1	1	1	1	1
162.000-142.0				1	1	1	1	1	1	1
00										
T18	Yes	Yes	1	1	1	1	1	1	1	1
142.000-122.0				1	1	1	1	1	1	1
00										
T19	Yes	Yes	1	1	1	1	1	1	1	1
122.000-112.0				1	1	1	1	1	1	1
00										
T20	Yes	Yes	1	1	1	1	1	1	1	1
112.000-102.0				1	1	1	1	1	1	1
00										
T21	Yes	Yes	1	1	1	1	1	1	1	1
102.000-82.00				1	1	1	1	1	1	1
0										
T22	Yes	Yes	1	1	1	1	1	1	1	1
82.000-62.000				1	1	1	1	1	1	1
T23	Yes	Yes	1	1	1	1	1	1	1	1
62.000-42.000				1	1	1	1	1	1	1
T24	Yes	Yes	1	1	1	1	1	1	1	1
42.000-22.000				1	1	1	1	1	1	1
T25	Yes	Yes	1	1	1	1	1	1	1	1
22.000-2.000				1	1	1	1	1	1	1

[1]*Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.*

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 457.000-452.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T2 452.000-442.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 442.000-422.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T4 422.000-402.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T5 402.000-382.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T6 382.000-362.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T7 362.000-342.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T8 342.000-322.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T9 322.000-302.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T10 302.000-282.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T11 282.000-262.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T12 262.000-242.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T13 242.000-222.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T14 222.000-202.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T15 202.000-182.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T16 182.000-162.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T17 162.000-142.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T18 142.000-122.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T19 122.000-112.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T20 112.000-102.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T21 102.000-82.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T22 82.000-62.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T23 62.000-42.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T24 42.000-22.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T25 22.000-2.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 457.000-452.000	Sleeve DS	0.7500 A325N	0	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0
T2 452.000-442.000	Sleeve DS	0.7500 A325N	0	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0
T3 442.000-422.000	Sleeve DS	0.7500 A325N	0	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0
T4 422.000-402.000	Sleeve DS	0.7500 A325N	0	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0
T5 402.000-382.000	Sleeve DS	0.7500 A325N	0	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0
T6 382.000-362.000	Sleeve DS	0.7500 A325N	0	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0
T7 362.000-342.000	Sleeve DS	0.7500 A325N	0	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0
T8 342.000-322.000	Sleeve DS	0.7500 A325N	0	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T9 322.000-302.000	Sleeve DS	0.7500 A325N	0	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0
T10 302.000-282.000	Sleeve DS	0.7500 A325N	0	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0
T11 282.000-262.000	Sleeve DS	0.7500 A325N	0	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0
T12 262.000-242.000	Sleeve DS	0.7500 A325N	0	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0
T13 242.000-222.000	Sleeve DS	0.7500 A325N	0	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0
T14 222.000-202.000	Sleeve DS	0.7500 A325N	0	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0
T15 202.000-182.000	Sleeve DS	0.7500 A325N	0	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0
T16 182.000-162.000	Sleeve DS	0.7500 A325N	0	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0
T17 162.000-142.000	Sleeve DS	0.7500 A325N	0	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0
T18 142.000-122.000	Sleeve DS	0.7500 A325N	0	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0
T19 122.000-112.000	Sleeve DS	0.7500 A325N	0	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0
T20 112.000-102.000	Sleeve DS	0.7500 A325N	0	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0
T21 102.000-82.000	Sleeve DS	0.7500 A325N	0	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0
T22 82.000-62.000	Sleeve DS	0.7500 A325N	0	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0
T23 62.000-42.000	Sleeve DS	0.7500 A325N	0	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0
T24 42.000-22.000	Sleeve DS	0.7500 A325N	0	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0
T25 22.000-2.000	Sleeve DS	0.7500 A325N	0	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0

Guy Data

Guy Elevation ft	Guy Grade	Guy Size	Initial Tension K	%	Guy Modulus ksi	Guy Weight plf	L_u ft	Anchor Radius ft	Anchor Azimuth Adj. °	Anchor Elevation ft	End Fitting Efficiency %

442	BS	A	1	12.200	10%	24000.000	2.100	463.412	149.000	0.0000	2.000	100%
		B	1	12.200	10%	24000.000	2.100	468.175	146.000	0.0000	-4.000	100%
		C	1	12.200	10%	24000.000	2.100	471.642	148.000	0.0000	-7.000	100%
382	BS	A	1	12.200	10%	24000.000	2.100	406.985	149.000	0.0000	2.000	100%
		B	1	12.200	10%	24000.000	2.100	411.527	146.000	0.0000	-4.000	100%
		C	1	12.200	10%	24000.000	2.100	415.034	148.000	0.0000	-7.000	100%
322	BS	A	7/8	9.200	10%	24000.000	1.610	351.727	149.000	0.0000	2.000	100%
		B	7/8	9.200	10%	24000.000	1.610	355.966	146.000	0.0000	-4.000	100%
		C	7/8	9.200	10%	24000.000	1.610	359.515	148.000	0.0000	-7.000	100%
262	BS	A	7/8	9.200	10%	24000.000	1.610	298.280	149.000	0.0000	2.000	100%
		B	7/8	9.200	10%	24000.000	1.610	302.079	146.000	0.0000	-4.000	100%
		C	7/8	9.200	10%	24000.000	1.610	305.666	148.000	0.0000	-7.000	100%
210	BS	A	7/8	9.200	10%	24000.000	1.610	242.010	123.000	0.0000	0.000	100%
		B	7/8	9.200	10%	24000.000	1.610	239.318	117.500	0.0000	0.000	100%
		C	7/8	9.200	10%	24000.000	1.610	243.710	117.500	0.0000	-5.000	100%
154	EHS	A	9/16	3.500	10%	21000.000	0.671	195.493	123.000	0.0000	0.000	100%
		B	9/16	3.500	10%	21000.000	0.671	192.151	117.500	0.0000	0.000	100%
		C	9/16	3.500	10%	21000.000	0.671	196.174	117.500	0.0000	-5.000	100%
102	EHS	A	9/16	3.500	10%	21000.000	0.671	157.886	123.000	0.0000	0.000	100%
		B	9/16	3.500	10%	21000.000	0.671	153.730	117.500	0.0000	0.000	100%
		C	9/16	3.500	10%	21000.000	0.671	157.086	117.500	0.0000	-5.000	100%
46	EHS	A	1/2	2.690	10%	21000.000	0.517	129.052	123.000	0.0000	0.000	100%
		B	1/2	2.690	10%	21000.000	0.517	123.932	117.500	0.0000	0.000	100%
		C	1/2	2.690	10%	21000.000	0.517	125.870	117.500	0.0000	-5.000	100%

Guy Data *(cont'd)*

Guy Elevation ft	*Mount Type*	*Torque-Arm Spread ft*	*Torque-Arm Leg Angle °*	*Torque-Arm Style*	*Torque-Arm Grade*	*Torque-Arm Type*	*Torque-Arm Size*
442	Corner						
382	Corner						
322	Corner						
262	Corner						
210	Corner						
154	Corner						
102	Corner						
46	Corner						

Guy Data *(cont'd)*

Guy Elevation ft	*Diagonal Grade*	*Diagonal Type*	*Upper Diagonal Size*	*Lower Diagonal Size*	*Is Strap.*	*Pull-Off Grade*	*Pull-Off Type*	*Pull-Off Size*
442.000	A572-50 (50 ksi)	Solid Round			No	A36 (36 ksi)	Double Equal Angle	2L2 1/2x2 1/2x3/8x1/4
382.000	A572-50 (50 ksi)	Solid Round			No	A36 (36 ksi)	Double Equal Angle	2L2 1/2x2 1/2x3/8x1/4
322.000	A572-50 (50 ksi)	Solid Round			No	A36 (36 ksi)	Double Equal Angle	2L2 1/2x2 1/2x3/8x1/4
262.000	A572-50	Solid Round			No	A36	Double Equal	2L2 1/2x2

Guy Elevation ft	Diagonal Grade	Diagonal Type	Upper Diagonal Size	Lower Diagonal Size	Is Strap.	Pull-Off Grade	Pull-Off Type	Pull-Off Size
	(50 ksi)					(36 ksi)	Angle	1/2x3/8x1/4
210.000	A572-50 (50 ksi)	Solid Round			No	A36 (36 ksi)	Double Equal Angle	2L2 1/2x2 1/2x3/8x1/4
154.000	A572-50 (50 ksi)	Solid Round			No	A36 (36 ksi)	Double Equal Angle	2L2 1/2x2 1/2x3/8x1/4
102.000	A572-50 (50 ksi)	Solid Round			No	A36 (36 ksi)	Double Equal Angle	2L2 1/2x2 1/2x3/8x1/4
46.000	A572-50 (50 ksi)	Solid Round			No	A36 (36 ksi)	Double Equal Angle	2L2 1/2x2 1/2x3/8x1/4

Guy Data *(cont'd)*

Guy Elevation ft	Cable Weight A K	Cable Weight B K	Cable Weight C K	Cable Weight D K	Tower Intercept A ft	Tower Intercept B ft	Tower Intercept C ft	Tower Intercept D ft
442	0.973	0.983	0.990		17.825 7.3 sec/pulse	18.185 7.4 sec/pulse	18.450 7.4 sec/pulse	
382	0.855	0.864	0.872		13.817 6.4 sec/pulse	14.120 6.5 sec/pulse	14.359 6.5 sec/pulse	
322	0.566	0.573	0.579		10.540 5.6 sec/pulse	10.790 5.7 sec/pulse	11.003 5.7 sec/pulse	
262	0.480	0.486	0.492		7.619 4.8 sec/pulse	7.810 4.8 sec/pulse	7.995 4.9 sec/pulse	
210	0.390	0.385	0.392		5.037 3.9 sec/pulse	4.925 3.8 sec/pulse	5.106 3.9 sec/pulse	
154	0.131	0.129	0.132		3.613 3.3 sec/pulse	3.491 3.2 sec/pulse	3.637 3.3 sec/pulse	
102	0.106	0.103	0.105		2.369 2.7 sec/pulse	2.245 2.6 sec/pulse	2.344 2.6 sec/pulse	
46	0.067	0.064	0.065		1.595 2.2 sec/pulse	1.471 2.1 sec/pulse	1.516 2.1 sec/pulse	

Guy Data *(cont'd)*

Guy Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Torque Arm K_x	Torque Arm K_y	Pull Off K_x	Pull Off K_y	Diagonal K_x	Diagonal K_y
442	No	No			1	1	1	1
382	No	No			1	1	1	1
322	No	No			1	1	1	1
262	No	No			1	1	1	1
210	No	No			1	1	1	1
154	No	No			1	1	1	1
102	No	No			1	1	1	1
46	No	No			1	1	1	1

Guy Data *(cont'd)*

Guy Elevation ft	Torque-Arm				Pull Off				Diagonal			
	Bolt Size in	Number	Net Width Deduct in	U	Bolt Size in	Number	Net Width Deduct in	U	Bolt Size in	Number	Net Width Deduct in	U
442	0.0000 A325N	0	0.0000	1	0.7500 A325N	2	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
382	0.0000 A325N	0	0.0000	1	0.7500 A325N	2	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
322	0.0000 A325N	0	0.0000	1	0.7500 A325N	2	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
262	0.0000 A325N	0	0.0000	1	0.7500 A325N	2	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
210	0.0000 A325N	0	0.0000	1	0.7500 A325N	2	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
154	0.0000 A325N	0	0.0000	1	0.7500 A325N	2	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
102	0.0000 A325N	0	0.0000	1	0.7500 A325N	2	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
46	0.0000 A325N	0	0.0000	1	0.7500 A325N	2	0.0000	0.75	0.6250 A325N	0	0.0000	0.75

Guy Pressures

Guy Elevation ft	Guy Location	z ft	q_z ksf	q_z Ice ksf	Ice Thickness in
442	A	222.000	0.026	0.008	1.8150
	B	219.000	0.026	0.008	1.8125
	C	217.500	0.026	0.008	1.8113
382	A	192.000	0.025	0.008	1.7888
	B	189.000	0.025	0.008	1.7860
	C	187.500	0.025	0.008	1.7846
322	A	162.000	0.024	0.008	1.7587
	B	159.000	0.024	0.008	1.7554
	C	157.500	0.024	0.008	1.7538
262	A	132.000	0.023	0.007	1.7230
	B	129.000	0.023	0.007	1.7191
	C	127.500	0.023	0.007	1.7171
210	A	105.000	0.022	0.007	1.6841
	B	105.000	0.022	0.007	1.6841
	C	102.500	0.022	0.007	1.6800
154	A	77.000	0.021	0.007	1.6326
	B	77.000	0.021	0.007	1.6326
	C	74.500	0.021	0.006	1.6273
102	A	51.000	0.019	0.006	1.5667
	B	51.000	0.019	0.006	1.5667
	C	48.500	0.019	0.006	1.5589
46	A	23.000	0.016	0.005	1.4468
	B	23.000	0.016	0.005	1.4468
	C	20.500	0.016	0.005	1.4303

Guy-Tensioning Information

Guy Elevation ft		H ft	V ft	Temperature At Time Of Tensioning: 0 F Initial Tension K	0 F Intercept ft	20 F Initial Tension K	20 F Intercept ft	40 F Initial Tension K	40 F Intercept ft	60 F Initial Tension K	60 F Intercept ft	80 F Initial Tension K	80 F Intercept ft	100 F Initial Tension K	100 F Intercept ft	120 F Initial Tension K	120 F Intercept ft
442	A	146.69	440.00	12.735	17.10	12.556	17.33	12.378	17.58	12.200	17.83	12.023	18.08	11.846	18.34	11.670	18.61
	B	143.69	446.00	12.704	17.48	12.535	17.71	12.367	17.95	12.200	18.18	12.033	18.43	11.866	18.68	11.700	18.94
	C	145.69	449.00	12.709	17.73	12.539	17.96	12.369	18.20	12.200	18.45	12.031	18.70	11.862	18.96	11.694	19.22
382	A	146.69	380.00	12.893	13.09	12.662	13.33	12.430	13.57	12.200	13.82	11.970	14.08	11.741	14.34	11.513	14.62
	B	143.69	386.00	12.852	13.42	12.634	13.65	12.417	13.88	12.200	14.12	11.984	14.37	11.769	14.62	11.554	14.89
	C	145.69	389.00	12.858	13.64	12.638	13.87	12.419	14.11	12.200	14.36	11.982	14.61	11.765	14.88	11.548	15.15
322	A	146.69	320.00	9.909	9.80	9.672	10.04	9.435	10.28	9.200	10.54	8.966	10.81	8.733	11.09	8.501	11.39
	B	143.69	326.00	9.865	10.08	9.643	10.30	9.421	10.54	9.200	10.79	8.980	11.05	8.761	11.32	8.543	11.60
	C	145.69	329.00	9.869	10.27	9.645	10.51	9.422	10.75	9.200	11.00	8.979	11.27	8.758	11.54	8.539	11.83
262	A	146.69	260.00	10.187	6.89	9.856	7.12	9.527	7.36	9.200	7.62	8.875	7.89	8.552	8.18	8.232	8.50
	B	143.69	266.00	10.125	7.11	9.815	7.33	9.507	7.56	9.200	7.81	8.895	8.07	8.592	8.35	8.291	8.65
	C	145.69	269.00	10.127	7.28	9.817	7.50	9.507	7.74	9.200	7.99	8.894	8.26	8.591	8.55	8.289	8.85
210	A	120.69	210.00	10.231	4.54	9.886	4.69	9.542	4.86	9.200	5.04	8.859	5.23	8.520	5.43	8.184	5.65
	B	115.19	210.00	10.163	4.46	9.841	4.61	9.520	4.76	9.200	4.93	8.881	5.10	8.564	5.29	8.249	5.48
	C	115.19	215.00	10.129	4.64	9.818	4.79	9.508	4.94	9.200	5.11	8.893	5.28	8.587	5.46	8.282	5.66
154	A	120.69	154.00	4.083	3.10	3.887	3.26	3.693	3.43	3.500	3.61	3.308	3.82	3.119	4.05	2.931	4.30
	B	115.19	154.00	4.052	3.02	3.867	3.16	3.683	3.32	3.500	3.49	3.318	3.68	3.138	3.89	2.961	4.12
	C	115.19	159.00	4.029	3.16	3.852	3.31	3.675	3.47	3.500	3.64	3.326	3.83	3.153	4.03	2.981	4.26
102	A	120.69	102.00	4.397	1.89	4.096	2.03	3.796	2.18	3.500	2.37	3.207	2.58	2.919	2.84	2.638	3.13
	B	115.19	102.00	4.364	1.80	4.074	1.93	3.786	2.08	3.500	2.25	3.217	2.44	2.939	2.67	2.666	2.94
	C	115.19	107.00	4.328	1.90	4.050	2.03	3.774	2.17	3.500	2.34	3.229	2.54	2.962	2.76	2.700	3.03
46	A	120.69	46.00	3.729	1.15	3.379	1.27	3.033	1.42	2.690	1.59	2.354	1.82	2.027	2.11	1.717	2.49
	B	115.19	46.00	3.719	1.06	3.373	1.17	3.030	1.31	2.690	1.47	2.356	1.68	2.031	1.95	1.721	2.29
	C	115.19	51.00	3.687	1.11	3.352	1.22	3.019	1.35	2.690	1.52	2.366	1.72	2.051	1.99	1.749	2.33

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
3" Coax	B	No	No	Ar (CaAa)	435.000 - 8.000	-1.0000	-0.3	1	1	0.0000	3.0100		0.002
AVA5-50(7/8")	B	No	No	Ar (CaAa)	435.000 - 8.000	-1.0000	-0.2	1	1	0.0000	1.1020		0.000
1" Conduit (Tower)	C	No	No	Ar (CaAa)	435.000 - 8.000	-1.0000	-0.25	1	1	0.0000	1.1630		0.001
LDF4.5-50(5/ 8")	C	No	No	Ar (CaAa)	351.000 - 8.000	-1.0000	0	1	1	0.0000	0.8650		0.000
1 5/8" OD Conduit	C	No	No	Ar (CaAa)	430.000 - 8.000	-1.0000	0.4	1	1	0.0000	1.6250		0.001
LDF5-50A(7/ 8")	A	No	No	Ar (CaAa)	108.000 - 8.000	-1.0000	0.31	1	1	0.0000	1.0900		0.000
LDF5-50A(7/ 8")	A	No	No	Ar (CaAa)	124.000 - 8.000	-1.0000	0.38	1	1	0.0000	1.0900		0.000
LDF5-50A(7/ 8")	A	No	No	Ar (CaAa)	138.000 - 8.000	-1.0000	0.32	1	1	0.0000	1.0900		0.000
LDF5-50A(7/ 8")	A	No	No	Ar (CaAa)	239.000 - 8.000	-1.0000	0.33	1	1	0.0000	1.0900		0.000
LDF5-50A(7/ 8")	A	No	No	Ar (CaAa)	247.000 - 8.000	-1.0000	0.34	1	1	0.0000	1.0900		0.000
LDF5-50A(7/ 8")	A	No	No	Ar (CaAa)	339.000 - 8.000	-1.0000	0.37	1	1	0.0000	1.0900		0.000
LDF5-50A(7/ 8")	A	No	No	Ar (CaAa)	435.000 - 8.000	-1.0000	0.36	1	1	0.0000	1.0900		0.000
LDF5-50A(7/ 8")	A	No	No	Ar (CaAa)	435.000 - 8.000	-1.0000	0.35	1	1	0.0000	1.0900		0.000
LDF6-50A(1-	A	No	No	Ar (CaAa)	302.000 -	0.0000	0.35	1	1	0.0000	1.5500		0.001

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
1/4") (Berkshire)					8.000								
LDF2-50A(3/8") SC (Tower)	C	No	No	Ar (CaAa)	445.000 - 8.000	-5.0000	0.35	1	1	0.0000	0.4400		0.000
LDF4.5-50(5/8")	A	No	No	Ar (CaAa)	455.000 - 8.000	0.0000	0	1	1	0.0000	0.8650		0.000
LDF4-50A(1/2")	C	No	No	Ar (CaAa)	289.000 - 8.000	-1.0000	-0.35	1	1	0.0000	0.6300		0.000
LDF6-50A(1-1/4") (T-Mobile)	A	No	No	Ar (CaAa)	280.000 - 8.000	0.0000	0.25	5	5	0.0000	1.5500		0.001
LDF7-50A(1-5/8") (T-Mobile)	B	No	No	Ar (CaAa)	280.000 - 8.000	-1.0000	0	6	3	0.0000	1.9800		0.001
LDF7-50A(1-5/8") (T-Mobile)	A	No	No	Ar (CaAa)	280.000 - 8.000	0.0000	0.25	6	3	0.0000	1.9800		0.001
LDF7-50A(1-5/8") (T-Mobile)	C	No	No	Ar (CaAa)	280.000 - 8.000	0.0000	0	1	1	0.0000	1.9800		0.001
LDF6-50A(1-1/4") (Sprint)	C	No	No	Ar (CaAa)	257.000 - 8.000	-1.0000	-0.35	1	1	0.0000	1.5500		0.001
LDF6-50A(1-1/4") (Sprint)	C	No	No	Ar (CaAa)	257.000 - 8.000	-1.0000	0.35	3	3	0.0000	1.5500		0.001
LDF2-50(3/8") (AT&T)	C	No	No	Ar (CaAa)	165.000 - 8.000	0.0000	0.4	2	2	0.0000	0.4400		0.000
LDF4.5-50(5/8") (AT&T)	C	No	No	Ar (CaAa)	165.000 - 8.000	0.0000	0.1	6	3	0.0000	0.8650		0.000

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	492.000-477.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.000
L2	477.000-457.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.000
T1	457.000-452.000	A	0.000	0.000	0.260	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.000
T2	452.000-442.000	A	0.000	0.000	0.865	0.000	0.002
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.132	0.000	0.000
T3	442.000-422.000	A	0.000	0.000	4.564	0.000	0.012
		B	0.000	0.000	5.346	0.000	0.027
		C	0.000	0.000	3.692	0.000	0.017
T4	422.000-402.000	A	0.000	0.000	6.090	0.000	0.016
		B	0.000	0.000	8.224	0.000	0.042
		C	0.000	0.000	6.456	0.000	0.031

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T5	402.000-382.000	A	0.000	0.000	6.090	0.000	0.016
		B	0.000	0.000	8.224	0.000	0.042
		C	0.000	0.000	6.456	0.000	0.031
T6	382.000-362.000	A	0.000	0.000	6.090	0.000	0.016
		B	0.000	0.000	8.224	0.000	0.042
		C	0.000	0.000	6.456	0.000	0.031
T7	362.000-342.000	A	0.000	0.000	6.090	0.000	0.016
		B	0.000	0.000	8.224	0.000	0.042
		C	0.000	0.000	7.235	0.000	0.033
T8	342.000-322.000	A	0.000	0.000	7.943	0.000	0.022
		B	0.000	0.000	8.224	0.000	0.042
		C	0.000	0.000	8.186	0.000	0.034
T9	322.000-302.000	A	0.000	0.000	8.270	0.000	0.023
		B	0.000	0.000	8.224	0.000	0.042
		C	0.000	0.000	8.186	0.000	0.034
T10	302.000-282.000	A	0.000	0.000	11.370	0.000	0.036
		B	0.000	0.000	8.224	0.000	0.042
		C	0.000	0.000	8.627	0.000	0.035
T11	282.000-262.000	A	0.000	0.000	46.704	0.000	0.184
		B	0.000	0.000	29.608	0.000	0.130
		C	0.000	0.000	13.010	0.000	0.052
T12	262.000-242.000	A	0.000	0.000	51.175	0.000	0.202
		B	0.000	0.000	31.984	0.000	0.140
		C	0.000	0.000	22.706	0.000	0.093
T13	242.000-222.000	A	0.000	0.000	54.663	0.000	0.213
		B	0.000	0.000	31.984	0.000	0.140
		C	0.000	0.000	25.806	0.000	0.107
T14	222.000-202.000	A	0.000	0.000	54.990	0.000	0.214
		B	0.000	0.000	31.984	0.000	0.140
		C	0.000	0.000	25.806	0.000	0.107
T15	202.000-182.000	A	0.000	0.000	54.990	0.000	0.214
		B	0.000	0.000	31.984	0.000	0.140
		C	0.000	0.000	25.806	0.000	0.107
T16	182.000-162.000	A	0.000	0.000	54.990	0.000	0.214
		B	0.000	0.000	31.984	0.000	0.140
		C	0.000	0.000	27.627	0.000	0.110
T17	162.000-142.000	A	0.000	0.000	54.990	0.000	0.214
		B	0.000	0.000	31.984	0.000	0.140
		C	0.000	0.000	37.946	0.000	0.128
T18	142.000-122.000	A	0.000	0.000	56.952	0.000	0.220
		B	0.000	0.000	31.984	0.000	0.140
		C	0.000	0.000	37.946	0.000	0.128
T19	122.000-112.000	A	0.000	0.000	29.675	0.000	0.113
		B	0.000	0.000	15.992	0.000	0.070
		C	0.000	0.000	18.973	0.000	0.064
T20	112.000-102.000	A	0.000	0.000	30.329	0.000	0.115
		B	0.000	0.000	15.992	0.000	0.070
		C	0.000	0.000	18.973	0.000	0.064
T21	102.000-82.000	A	0.000	0.000	61.530	0.000	0.233
		B	0.000	0.000	31.984	0.000	0.140
		C	0.000	0.000	37.946	0.000	0.128
T22	82.000-62.000	A	0.000	0.000	61.530	0.000	0.233
		B	0.000	0.000	31.984	0.000	0.140
		C	0.000	0.000	37.946	0.000	0.128
T23	62.000-42.000	A	0.000	0.000	61.530	0.000	0.233
		B	0.000	0.000	31.984	0.000	0.140
		C	0.000	0.000	37.946	0.000	0.128
T24	42.000-22.000	A	0.000	0.000	61.530	0.000	0.233
		B	0.000	0.000	31.984	0.000	0.140
		C	0.000	0.000	37.946	0.000	0.128
T25	22.000-2.000	A	0.000	0.000	43.071	0.000	0.163

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		B	0.000	0.000	22.389	0.000	0.098
		C	0.000	0.000	26.562	0.000	0.089

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	492.000-477.000	A	1.962	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.000
L2	477.000-457.000	A	1.955	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.000
T1	457.000-452.000	A	1.950	0.000	0.000	1.429	0.000	0.021
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.000
T2	452.000-442.000	A	1.947	0.000	0.000	4.758	0.000	0.068
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	1.300	0.000	0.017
T3	442.000-422.000	A	1.940	0.000	0.000	22.411	0.000	0.331
		B		0.000	0.000	15.433	0.000	0.273
		C		0.000	0.000	19.599	0.000	0.293
T4	422.000-402.000	A	1.931	0.000	0.000	29.259	0.000	0.433
		B		0.000	0.000	23.670	0.000	0.418
		C		0.000	0.000	29.625	0.000	0.457
T5	402.000-382.000	A	1.921	0.000	0.000	29.144	0.000	0.430
		B		0.000	0.000	23.593	0.000	0.415
		C		0.000	0.000	29.510	0.000	0.453
T6	382.000-362.000	A	1.911	0.000	0.000	29.024	0.000	0.426
		B		0.000	0.000	23.513	0.000	0.412
		C		0.000	0.000	29.390	0.000	0.450
T7	362.000-342.000	A	1.901	0.000	0.000	28.897	0.000	0.422
		B		0.000	0.000	23.429	0.000	0.409
		C		0.000	0.000	33.463	0.000	0.505
T8	342.000-322.000	A	1.890	0.000	0.000	37.042	0.000	0.541
		B		0.000	0.000	23.340	0.000	0.406
		C		0.000	0.000	38.418	0.000	0.572
T9	322.000-302.000	A	1.878	0.000	0.000	38.315	0.000	0.557
		B		0.000	0.000	23.247	0.000	0.403
		C		0.000	0.000	38.231	0.000	0.567
T10	302.000-282.000	A	1.865	0.000	0.000	48.679	0.000	0.720
		B		0.000	0.000	23.147	0.000	0.399
		C		0.000	0.000	41.085	0.000	0.602
T11	282.000-262.000	A	1.852	0.000	0.000	104.488	0.000	1.514
		B		0.000	0.000	50.760	0.000	0.824
		C		0.000	0.000	56.723	0.000	0.841
T12	262.000-242.000	A	1.838	0.000	0.000	112.627	0.000	1.623
		B		0.000	0.000	53.628	0.000	0.864
		C		0.000	0.000	83.793	0.000	1.191
T13	242.000-222.000	A	1.823	0.000	0.000	127.258	0.000	1.825
		B		0.000	0.000	53.400	0.000	0.856
		C		0.000	0.000	92.022	0.000	1.289
T14	222.000-202.000	A	1.807	0.000	0.000	127.997	0.000	1.824
		B		0.000	0.000	53.155	0.000	0.848
		C		0.000	0.000	91.452	0.000	1.273
T15	202.000-182.000	A	1.789	0.000	0.000	127.255	0.000	1.802
		B		0.000	0.000	52.887	0.000	0.839

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C		0.000	0.000	90.830	0.000	1.255
T16	182.000-162.000	A	1.769	0.000	0.000	126.440	0.000	1.777
		B		0.000	0.000	52.593	0.000	0.829
		C		0.000	0.000	95.409	0.000	1.284
T17	162.000-142.000	A	1.748	0.000	0.000	125.535	0.000	1.751
		B		0.000	0.000	52.266	0.000	0.818
		C		0.000	0.000	124.161	0.000	1.530
T18	142.000-122.000	A	1.723	0.000	0.000	132.681	0.000	1.833
		B		0.000	0.000	51.899	0.000	0.806
		C		0.000	0.000	122.962	0.000	1.500
T19	122.000-112.000	A	1.702	0.000	0.000	70.818	0.000	0.970
		B		0.000	0.000	25.794	0.000	0.398
		C		0.000	0.000	60.975	0.000	0.738
T20	112.000-102.000	A	1.687	0.000	0.000	73.121	0.000	0.996
		B		0.000	0.000	25.680	0.000	0.394
		C		0.000	0.000	60.604	0.000	0.728
T21	102.000-82.000	A	1.662	0.000	0.000	148.457	0.000	2.001
		B		0.000	0.000	50.981	0.000	0.776
		C		0.000	0.000	119.969	0.000	1.427
T22	82.000-62.000	A	1.622	0.000	0.000	146.300	0.000	1.941
		B		0.000	0.000	50.376	0.000	0.757
		C		0.000	0.000	117.998	0.000	1.380
T23	62.000-42.000	A	1.570	0.000	0.000	143.517	0.000	1.864
		B		0.000	0.000	49.597	0.000	0.732
		C		0.000	0.000	115.455	0.000	1.320
T24	42.000-22.000	A	1.495	0.000	0.000	139.531	0.000	1.756
		B		0.000	0.000	48.479	0.000	0.697
		C		0.000	0.000	111.812	0.000	1.237
T25	22.000-2.000	A	1.356	0.000	0.000	92.435	0.000	1.094
		B		0.000	0.000	32.467	0.000	0.444
		C		0.000	0.000	73.482	0.000	0.762

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	492.000-477.000	0.0000	0.0000	0.0000	0.0000
L2	477.000-457.000	0.0000	0.0000	0.0000	0.0000
T1	457.000-452.000	-0.1574	-0.1028	-0.3306	-0.2014
T2	452.000-442.000	-0.4381	-0.1893	-1.1003	-0.3215
T3	442.000-422.000	-0.4524	-1.9605	-1.3458	-2.2711
T4	422.000-402.000	-0.6950	-2.4662	-1.5142	-2.8132
T5	402.000-382.000	-0.6950	-2.4662	-1.5150	-2.8168
T6	382.000-362.000	-0.6895	-2.4488	-1.5086	-2.8083
T7	362.000-342.000	-0.6877	-2.2993	-1.4846	-2.4961
T8	342.000-322.000	-0.7055	-2.5987	-1.4611	-2.8921
T9	322.000-302.000	-0.7106	-2.6748	-1.4602	-3.0152
T10	302.000-282.000	-0.7384	-3.3136	-1.3318	-3.6728
T11	282.000-262.000	-0.4987	-5.9451	-0.8094	-4.8301
T12	262.000-242.000	-1.0865	-5.6271	-1.1726	-4.2586
T13	242.000-222.000	-1.2985	-5.7880	-1.3397	-4.6913
T14	222.000-202.000	-1.2492	-5.6138	-1.3084	-4.6332
T15	202.000-182.000	-1.2892	-5.7620	-1.3401	-4.7358
T16	182.000-162.000	-1.3482	-5.6438	-1.4510	-4.5572
T17	162.000-142.000	-1.6571	-4.9831	-2.0163	-3.5489
T18	142.000-122.000	-1.6789	-5.1961	-2.0422	-3.9286

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
T19	122.000-112.000	-1.6395	-5.3450	-1.9602	-4.2400
T20	112.000-102.000	-1.6526	-5.4609	-2.0109	-4.5550
T21	102.000-82.000	-1.6969	-5.6370	-2.0667	-4.7565
T22	82.000-62.000	-1.7030	-5.6541	-2.0764	-4.7880
T23	62.000-42.000	-1.6969	-5.6370	-2.0780	-4.8067
T24	42.000-22.000	-1.7030	-5.6541	-2.0913	-4.8574
T25	22.000-2.000	-1.4410	-4.8523	-1.8411	-4.3363

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
T1	16	LDF4.5-50(5/8")	452.00 - 455.00	0.6000	0.3908
T2	15	LDF2-50A(3/8") SC	442.00 - 445.00	0.6000	0.4865
T2	16	LDF4.5-50(5/8")	442.00 - 452.00	0.6000	0.4865
T3	1	3" Coax	422.00 - 435.00	0.6000	0.5218
T3	2	AVA5-50(7/8")	422.00 - 435.00	0.6000	0.5218
T3	3	1" Conduit	422.00 - 435.00	0.6000	0.5218
T3	5	1 5/8" OD Conduit	422.00 - 430.00	0.6000	0.5218
T3	12	LDF5-50A(7/8")	422.00 - 435.00	0.6000	0.5218
T3	13	LDF5-50A(7/8")	422.00 - 435.00	0.6000	0.5218
T3	15	LDF2-50A(3/8") SC	422.00 - 442.00	0.6000	0.5218
T3	16	LDF4.5-50(5/8")	422.00 - 442.00	0.6000	0.5218
T4	1	3" Coax	402.00 - 422.00	0.6000	0.5249
T4	2	AVA5-50(7/8")	402.00 - 422.00	0.6000	0.5249
T4	3	1" Conduit	402.00 - 422.00	0.6000	0.5249
T4	5	1 5/8" OD Conduit	402.00 - 422.00	0.6000	0.5249
T4	12	LDF5-50A(7/8")	402.00 - 422.00	0.6000	0.5249
T4	13	LDF5-50A(7/8")	402.00 - 422.00	0.6000	0.5249
T4	15	LDF2-50A(3/8") SC	402.00 - 422.00	0.6000	0.5249
T4	16	LDF4.5-50(5/8")	402.00 - 422.00	0.6000	0.5249
T5	1	3" Coax	382.00 - 402.00	0.6000	0.5262

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T5	2	AVA5-50(7/8")	382.00 - 402.00	0.6000	0.5262
T5	3	1" Conduit	382.00 - 402.00	0.6000	0.5262
T5	5	1 5/8" OD Conduit	382.00 - 402.00	0.6000	0.5262
T5	12	LDF5-50A(7/8")	382.00 - 402.00	0.6000	0.5262
T5	13	LDF5-50A(7/8")	382.00 - 402.00	0.6000	0.5262
T5	15	LDF2-50A(3/8") SC	382.00 - 402.00	0.6000	0.5262
T5	16	LDF4.5-50(5/8")	382.00 - 402.00	0.6000	0.5262
T6	1	3" Coax	362.00 - 382.00	0.6000	0.5259
T6	2	AVA5-50(7/8")	362.00 - 382.00	0.6000	0.5259
T6	3	1" Conduit	362.00 - 382.00	0.6000	0.5259
T6	5	1 5/8" OD Conduit	362.00 - 382.00	0.6000	0.5259
T6	12	LDF5-50A(7/8")	362.00 - 382.00	0.6000	0.5259
T6	13	LDF5-50A(7/8")	362.00 - 382.00	0.6000	0.5259
T6	15	LDF2-50A(3/8") SC	362.00 - 382.00	0.6000	0.5259
T6	16	LDF4.5-50(5/8")	362.00 - 382.00	0.6000	0.5259
T7	1	3" Coax	342.00 - 362.00	0.6000	0.5291
T7	2	AVA5-50(7/8")	342.00 - 362.00	0.6000	0.5291
T7	3	1" Conduit	342.00 - 362.00	0.6000	0.5291
T7	4	LDF4.5-50(5/8")	342.00 - 351.00	0.6000	0.5291
T7	5	1 5/8" OD Conduit	342.00 - 362.00	0.6000	0.5291
T7	12	LDF5-50A(7/8")	342.00 - 362.00	0.6000	0.5291
T7	13	LDF5-50A(7/8")	342.00 - 362.00	0.6000	0.5291
T7	15	LDF2-50A(3/8") SC	342.00 - 362.00	0.6000	0.5291
T7	16	LDF4.5-50(5/8")	342.00 - 362.00	0.6000	0.5291
T8	1	3" Coax	322.00 - 342.00	0.6000	0.5307
T8	2	AVA5-50(7/8")	322.00 - 342.00	0.6000	0.5307
T8	3	1" Conduit	322.00 - 342.00	0.6000	0.5307
T8	4	LDF4.5-50(5/8")	322.00 - 342.00	0.6000	0.5307
T8	5	1 5/8" OD Conduit	322.00 - 342.00	0.6000	0.5307
T8	11	LDF5-50A(7/8")	322.00 - 339.00	0.6000	0.5307
T8	12	LDF5-50A(7/8")	322.00 - 342.00	0.6000	0.5307

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T8	13	LDF5-50A(7/8")	322.00 - 342.00	0.6000	0.5307
T8	15	LDF2-50A(3/8") SC	322.00 - 342.00	0.6000	0.5307
T8	16	LDF4.5-50(5/8")	322.00 - 342.00	0.6000	0.5307
T9	1	3" Coax	302.00 - 322.00	0.6000	0.5309
T9	2	AVA5-50(7/8")	302.00 - 322.00	0.6000	0.5309
T9	3	1" Conduit	302.00 - 322.00	0.6000	0.5309
T9	4	LDF4.5-50(5/8")	302.00 - 322.00	0.6000	0.5309
T9	5	1 5/8" OD Conduit	302.00 - 322.00	0.6000	0.5309
T9	11	LDF5-50A(7/8")	302.00 - 322.00	0.6000	0.5309
T9	12	LDF5-50A(7/8")	302.00 - 322.00	0.6000	0.5309
T9	13	LDF5-50A(7/8")	302.00 - 322.00	0.6000	0.5309
T9	15	LDF2-50A(3/8") SC	302.00 - 322.00	0.6000	0.5309
T9	16	LDF4.5-50(5/8")	302.00 - 322.00	0.6000	0.5309
T10	1	3" Coax	282.00 - 302.00	0.6000	0.5284
T10	2	AVA5-50(7/8")	282.00 - 302.00	0.6000	0.5284
T10	3	1" Conduit	282.00 - 302.00	0.6000	0.5284
T10	4	LDF4.5-50(5/8")	282.00 - 302.00	0.6000	0.5284
T10	5	1 5/8" OD Conduit	282.00 - 302.00	0.6000	0.5284
T10	11	LDF5-50A(7/8")	282.00 - 302.00	0.6000	0.5284
T10	12	LDF5-50A(7/8")	282.00 - 302.00	0.6000	0.5284
T10	13	LDF5-50A(7/8")	282.00 - 302.00	0.6000	0.5284
T10	14	LDF6-50A(1-1/4")	282.00 - 302.00	0.6000	0.5284
T10	15	LDF2-50A(3/8") SC	282.00 - 302.00	0.6000	0.5284
T10	16	LDF4.5-50(5/8")	282.00 - 302.00	0.6000	0.5284
T10	17	LDF4-50A(1/2")	282.00 - 289.00	0.6000	0.5284
T11	1	3" Coax	262.00 - 282.00	0.6000	0.5121
T11	2	AVA5-50(7/8")	262.00 - 282.00	0.6000	0.5121
T11	3	1" Conduit	262.00 - 282.00	0.6000	0.5121
T11	4	LDF4.5-50(5/8")	262.00 - 282.00	0.6000	0.5121
T11	5	1 5/8" OD Conduit	262.00 - 282.00	0.6000	0.5121
T11	11	LDF5-50A(7/8")	262.00 - 282.00	0.6000	0.5121

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T11	12	LDF5-50A(7/8")	262.00 - 282.00	0.6000	0.5121
T11	13	LDF5-50A(7/8")	262.00 - 282.00	0.6000	0.5121
T11	14	LDF6-50A(1-1/4")	262.00 - 282.00	0.6000	0.5121
T11	15	LDF2-50A(3/8") SC	262.00 - 282.00	0.6000	0.5121
T11	16	LDF4.5-50(5/8")	262.00 - 282.00	0.6000	0.5121
T11	17	LDF4-50A(1/2")	262.00 - 282.00	0.6000	0.5121
T11	21	LDF6-50A(1-1/4")	262.00 - 280.00	0.6000	0.5121
T11	22	LDF7-50A(1-5/8")	262.00 - 280.00	0.6000	0.5121
T11	23	LDF7-50A(1-5/8")	262.00 - 280.00	0.6000	0.5121
T11	24	LDF7-50A(1-5/8")	262.00 - 280.00	0.6000	0.5121
T12	1	3" Coax	242.00 - 262.00	0.6000	0.5248
T12	2	AVA5-50(7/8")	242.00 - 262.00	0.6000	0.5248
T12	3	1" Conduit	242.00 - 262.00	0.6000	0.5248
T12	4	LDF4.5-50(5/8")	242.00 - 262.00	0.6000	0.5248
T12	5	1 5/8" OD Conduit	242.00 - 262.00	0.6000	0.5248
T12	10	LDF5-50A(7/8")	242.00 - 247.00	0.6000	0.5248
T12	11	LDF5-50A(7/8")	242.00 - 262.00	0.6000	0.5248
T12	12	LDF5-50A(7/8")	242.00 - 262.00	0.6000	0.5248
T12	13	LDF5-50A(7/8")	242.00 - 262.00	0.6000	0.5248
T12	14	LDF6-50A(1-1/4")	242.00 - 262.00	0.6000	0.5248
T12	15	LDF2-50A(3/8") SC	242.00 - 262.00	0.6000	0.5248
T12	16	LDF4.5-50(5/8")	242.00 - 262.00	0.6000	0.5248
T12	17	LDF4-50A(1/2")	242.00 - 262.00	0.6000	0.5248
T12	21	LDF6-50A(1-1/4")	242.00 - 262.00	0.6000	0.5248
T12	22	LDF7-50A(1-5/8")	242.00 - 262.00	0.6000	0.5248
T12	23	LDF7-50A(1-5/8")	242.00 - 262.00	0.6000	0.5248
T12	24	LDF7-50A(1-5/8")	242.00 - 262.00	0.6000	0.5248
T12	25	LDF6-50A(1-1/4")	242.00 - 257.00	0.6000	0.5248
T12	26	LDF6-50A(1-1/4")	242.00 - 257.00	0.6000	0.5248
T13	1	3" Coax	222.00 - 242.00	0.6000	0.5286
T13	2	AVA5-50(7/8")	222.00 - 242.00	0.6000	0.5286

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T13	3	1" Conduit	222.00 - 242.00	0.6000	0.5286
T13	4	LDF4.5-50(5/8")	222.00 - 242.00	0.6000	0.5286
T13	5	1 5/8" OD Conduit	222.00 - 242.00	0.6000	0.5286
T13	9	LDF5-50A(7/8")	222.00 - 239.00	0.6000	0.5286
T13	10	LDF5-50A(7/8")	222.00 - 242.00	0.6000	0.5286
T13	11	LDF5-50A(7/8")	222.00 - 242.00	0.6000	0.5286
T13	12	LDF5-50A(7/8")	222.00 - 242.00	0.6000	0.5286
T13	13	LDF5-50A(7/8")	222.00 - 242.00	0.6000	0.5286
T13	14	LDF6-50A(1-1/4")	222.00 - 242.00	0.6000	0.5286
T13	15	LDF2-50A(3/8") SC	222.00 - 242.00	0.6000	0.5286
T13	16	LDF4.5-50(5/8")	222.00 - 242.00	0.6000	0.5286
T13	17	LDF4-50A(1/2")	222.00 - 242.00	0.6000	0.5286
T13	21	LDF6-50A(1-1/4")	222.00 - 242.00	0.6000	0.5286
T13	22	LDF7-50A(1-5/8")	222.00 - 242.00	0.6000	0.5286
T13	23	LDF7-50A(1-5/8")	222.00 - 242.00	0.6000	0.5286
T13	24	LDF7-50A(1-5/8")	222.00 - 242.00	0.6000	0.5286
T13	25	LDF6-50A(1-1/4")	222.00 - 242.00	0.6000	0.5286
T13	26	LDF6-50A(1-1/4")	222.00 - 242.00	0.6000	0.5286
T14	1	3" Coax	202.00 - 222.00	0.6000	0.5111
T14	2	AVA5-50(7/8")	202.00 - 222.00	0.6000	0.5111
T14	3	1" Conduit	202.00 - 222.00	0.6000	0.5111
T14	4	LDF4.5-50(5/8")	202.00 - 222.00	0.6000	0.5111
T14	5	1 5/8" OD Conduit	202.00 - 222.00	0.6000	0.5111
T14	9	LDF5-50A(7/8")	202.00 - 222.00	0.6000	0.5111
T14	10	LDF5-50A(7/8")	202.00 - 222.00	0.6000	0.5111
T14	11	LDF5-50A(7/8")	202.00 - 222.00	0.6000	0.5111
T14	12	LDF5-50A(7/8")	202.00 - 222.00	0.6000	0.5111
T14	13	LDF5-50A(7/8")	202.00 - 222.00	0.6000	0.5111
T14	14	LDF6-50A(1-1/4")	202.00 - 222.00	0.6000	0.5111
T14	15	LDF2-50A(3/8") SC	202.00 - 222.00	0.6000	0.5111
T14	16	LDF4.5-50(5/8")	202.00 - 222.00	0.6000	0.5111

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T14	17	LDF4-50A(1/2")	202.00 - 222.00	0.6000	0.5111
T14	21	LDF6-50A(1-1/4")	202.00 - 222.00	0.6000	0.5111
T14	22	LDF7-50A(1-5/8")	202.00 - 222.00	0.6000	0.5111
T14	23	LDF7-50A(1-5/8")	202.00 - 222.00	0.6000	0.5111
T14	24	LDF7-50A(1-5/8")	202.00 - 222.00	0.6000	0.5111
T14	25	LDF6-50A(1-1/4")	202.00 - 222.00	0.6000	0.5111
T14	26	LDF6-50A(1-1/4")	202.00 - 222.00	0.6000	0.5111
T15	1	3" Coax	182.00 - 202.00	0.6000	0.5277
T15	2	AVA5-50(7/8")	182.00 - 202.00	0.6000	0.5277
T15	3	1" Conduit	182.00 - 202.00	0.6000	0.5277
T15	4	LDF4.5-50(5/8")	182.00 - 202.00	0.6000	0.5277
T15	5	1 5/8" OD Conduit	182.00 - 202.00	0.6000	0.5277
T15	9	LDF5-50A(7/8")	182.00 - 202.00	0.6000	0.5277
T15	10	LDF5-50A(7/8")	182.00 - 202.00	0.6000	0.5277
T15	11	LDF5-50A(7/8")	182.00 - 202.00	0.6000	0.5277
T15	12	LDF5-50A(7/8")	182.00 - 202.00	0.6000	0.5277
T15	13	LDF5-50A(7/8")	182.00 - 202.00	0.6000	0.5277
T15	14	LDF6-50A(1-1/4")	182.00 - 202.00	0.6000	0.5277
T15	15	LDF2-50A(3/8") SC	182.00 - 202.00	0.6000	0.5277
T15	16	LDF4.5-50(5/8")	182.00 - 202.00	0.6000	0.5277
T15	17	LDF4-50A(1/2")	182.00 - 202.00	0.6000	0.5277
T15	21	LDF6-50A(1-1/4")	182.00 - 202.00	0.6000	0.5277
T15	22	LDF7-50A(1-5/8")	182.00 - 202.00	0.6000	0.5277
T15	23	LDF7-50A(1-5/8")	182.00 - 202.00	0.6000	0.5277
T15	24	LDF7-50A(1-5/8")	182.00 - 202.00	0.6000	0.5277
T15	25	LDF6-50A(1-1/4")	182.00 - 202.00	0.6000	0.5277
T15	26	LDF6-50A(1-1/4")	182.00 - 202.00	0.6000	0.5277
T16	1	3" Coax	162.00 - 182.00	0.6000	0.5304
T16	2	AVA5-50(7/8")	162.00 - 182.00	0.6000	0.5304
T16	3	1" Conduit	162.00 - 182.00	0.6000	0.5304
T16	4	LDF4.5-50(5/8")	162.00 - 182.00	0.6000	0.5304

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T16	5	1 5/8" OD Conduit	162.00 - 182.00	0.6000	0.5304
T16	9	LDF5-50A(7/8")	162.00 - 182.00	0.6000	0.5304
T16	10	LDF5-50A(7/8")	162.00 - 182.00	0.6000	0.5304
T16	11	LDF5-50A(7/8")	162.00 - 182.00	0.6000	0.5304
T16	12	LDF5-50A(7/8")	162.00 - 182.00	0.6000	0.5304
T16	13	LDF5-50A(7/8")	162.00 - 182.00	0.6000	0.5304
T16	14	LDF6-50A(1-1/4")	162.00 - 182.00	0.6000	0.5304
T16	15	LDF2-50A(3/8") SC	162.00 - 182.00	0.6000	0.5304
T16	16	LDF4.5-50(5/8")	162.00 - 182.00	0.6000	0.5304
T16	17	LDF4-50A(1/2")	162.00 - 182.00	0.6000	0.5304
T16	21	LDF6-50A(1-1/4")	162.00 - 182.00	0.6000	0.5304
T16	22	LDF7-50A(1-5/8")	162.00 - 182.00	0.6000	0.5304
T16	23	LDF7-50A(1-5/8")	162.00 - 182.00	0.6000	0.5304
T16	24	LDF7-50A(1-5/8")	162.00 - 182.00	0.6000	0.5304
T16	25	LDF6-50A(1-1/4")	162.00 - 182.00	0.6000	0.5304
T16	26	LDF6-50A(1-1/4")	162.00 - 182.00	0.6000	0.5304
T16	27	LDF2-50(3/8")	162.00 - 165.00	0.6000	0.5304
T16	28	LDF4.5-50(5/8")	162.00 - 165.00	0.6000	0.5304
T17	1	3" Coax	142.00 - 162.00	0.6000	0.5317
T17	2	AVA5-50(7/8")	142.00 - 162.00	0.6000	0.5317
T17	3	1" Conduit	142.00 - 162.00	0.6000	0.5317
T17	4	LDF4.5-50(5/8")	142.00 - 162.00	0.6000	0.5317
T17	5	1 5/8" OD Conduit	142.00 - 162.00	0.6000	0.5317
T17	9	LDF5-50A(7/8")	142.00 - 162.00	0.6000	0.5317
T17	10	LDF5-50A(7/8")	142.00 - 162.00	0.6000	0.5317
T17	11	LDF5-50A(7/8")	142.00 - 162.00	0.6000	0.5317
T17	12	LDF5-50A(7/8")	142.00 - 162.00	0.6000	0.5317
T17	13	LDF5-50A(7/8")	142.00 - 162.00	0.6000	0.5317
T17	14	LDF6-50A(1-1/4")	142.00 - 162.00	0.6000	0.5317
T17	15	LDF2-50A(3/8") SC	142.00 - 162.00	0.6000	0.5317
T17	16	LDF4.5-50(5/8")	142.00 - 162.00	0.6000	0.5317

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T17	17	LDF4-50A(1/2")	142.00 - 162.00	0.6000	0.5317
T17	21	LDF6-50A(1-1/4")	142.00 - 162.00	0.6000	0.5317
T17	22	LDF7-50A(1-5/8")	142.00 - 162.00	0.6000	0.5317
T17	23	LDF7-50A(1-5/8")	142.00 - 162.00	0.6000	0.5317
T17	24	LDF7-50A(1-5/8")	142.00 - 162.00	0.6000	0.5317
T17	25	LDF6-50A(1-1/4")	142.00 - 162.00	0.6000	0.5317
T17	26	LDF6-50A(1-1/4")	142.00 - 162.00	0.6000	0.5317
T17	27	LDF2-50(3/8")	142.00 - 162.00	0.6000	0.5317
T17	28	LDF4.5-50(5/8")	142.00 - 162.00	0.6000	0.5317
T18	1	3" Coax	122.00 - 142.00	0.6000	0.5368
T18	2	AVA5-50(7/8")	122.00 - 142.00	0.6000	0.5368
T18	3	1" Conduit	122.00 - 142.00	0.6000	0.5368
T18	4	LDF4.5-50(5/8")	122.00 - 142.00	0.6000	0.5368
T18	5	1 5/8" OD Conduit	122.00 - 142.00	0.6000	0.5368
T18	7	LDF5-50A(7/8")	122.00 - 124.00	0.6000	0.5368
T18	8	LDF5-50A(7/8")	122.00 - 138.00	0.6000	0.5368
T18	9	LDF5-50A(7/8")	122.00 - 142.00	0.6000	0.5368
T18	10	LDF5-50A(7/8")	122.00 - 142.00	0.6000	0.5368
T18	11	LDF5-50A(7/8")	122.00 - 142.00	0.6000	0.5368
T18	12	LDF5-50A(7/8")	122.00 - 142.00	0.6000	0.5368
T18	13	LDF5-50A(7/8")	122.00 - 142.00	0.6000	0.5368
T18	14	LDF6-50A(1-1/4")	122.00 - 142.00	0.6000	0.5368
T18	15	LDF2-50A(3/8") SC	122.00 - 142.00	0.6000	0.5368
T18	16	LDF4.5-50(5/8")	122.00 - 142.00	0.6000	0.5368
T18	17	LDF4-50A(1/2")	122.00 - 142.00	0.6000	0.5368
T18	21	LDF6-50A(1-1/4")	122.00 - 142.00	0.6000	0.5368
T18	22	LDF7-50A(1-5/8")	122.00 - 142.00	0.6000	0.5368
T18	23	LDF7-50A(1-5/8")	122.00 - 142.00	0.6000	0.5368
T18	24	LDF7-50A(1-5/8")	122.00 - 142.00	0.6000	0.5368
T18	25	LDF6-50A(1-1/4")	122.00 - 142.00	0.6000	0.5368
T18	26	LDF6-50A(1-1/4")	122.00 - 142.00	0.6000	0.5368

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T18	27	LDF2-50(3/8")	122.00 - 142.00	0.6000	0.5368
T18	28	LDF4.5-50(5/8")	122.00 - 142.00	0.6000	0.5368
T19	1	3" Coax	112.00 - 122.00	0.6000	0.5073
T19	2	AVA5-50(7/8")	112.00 - 122.00	0.6000	0.5073
T19	3	1" Conduit	112.00 - 122.00	0.6000	0.5073
T19	4	LDF4.5-50(5/8")	112.00 - 122.00	0.6000	0.5073
T19	5	1 5/8" OD Conduit	112.00 - 122.00	0.6000	0.5073
T19	7	LDF5-50A(7/8")	112.00 - 122.00	0.6000	0.5073
T19	8	LDF5-50A(7/8")	112.00 - 122.00	0.6000	0.5073
T19	9	LDF5-50A(7/8")	112.00 - 122.00	0.6000	0.5073
T19	10	LDF5-50A(7/8")	112.00 - 122.00	0.6000	0.5073
T19	11	LDF5-50A(7/8")	112.00 - 122.00	0.6000	0.5073
T19	12	LDF5-50A(7/8")	112.00 - 122.00	0.6000	0.5073
T19	13	LDF5-50A(7/8")	112.00 - 122.00	0.6000	0.5073
T19	14	LDF6-50A(1-1/4")	112.00 - 122.00	0.6000	0.5073
T19	15	LDF2-50A(3/8") SC	112.00 - 122.00	0.6000	0.5073
T19	16	LDF4.5-50(5/8")	112.00 - 122.00	0.6000	0.5073
T19	17	LDF4-50A(1/2")	112.00 - 122.00	0.6000	0.5073
T19	21	LDF6-50A(1-1/4")	112.00 - 122.00	0.6000	0.5073
T19	22	LDF7-50A(1-5/8")	112.00 - 122.00	0.6000	0.5073
T19	23	LDF7-50A(1-5/8")	112.00 - 122.00	0.6000	0.5073
T19	24	LDF7-50A(1-5/8")	112.00 - 122.00	0.6000	0.5073
T19	25	LDF6-50A(1-1/4")	112.00 - 122.00	0.6000	0.5073
T19	26	LDF6-50A(1-1/4")	112.00 - 122.00	0.6000	0.5073
T19	27	LDF2-50(3/8")	112.00 - 122.00	0.6000	0.5073
T19	28	LDF4.5-50(5/8")	112.00 - 122.00	0.6000	0.5073
T20	1	3" Coax	102.00 - 112.00	0.6000	0.5398
T20	2	AVA5-50(7/8")	102.00 - 112.00	0.6000	0.5398
T20	3	1" Conduit	102.00 - 112.00	0.6000	0.5398
T20	4	LDF4.5-50(5/8")	102.00 - 112.00	0.6000	0.5398
T20	5	1 5/8" OD Conduit	102.00 - 112.00	0.6000	0.5398

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T20	6	LDF5-50A(7/8")	102.00 - 108.00	0.6000	0.5398
T20	7	LDF5-50A(7/8")	102.00 - 112.00	0.6000	0.5398
T20	8	LDF5-50A(7/8")	102.00 - 112.00	0.6000	0.5398
T20	9	LDF5-50A(7/8")	102.00 - 112.00	0.6000	0.5398
T20	10	LDF5-50A(7/8")	102.00 - 112.00	0.6000	0.5398
T20	11	LDF5-50A(7/8")	102.00 - 112.00	0.6000	0.5398
T20	12	LDF5-50A(7/8")	102.00 - 112.00	0.6000	0.5398
T20	13	LDF5-50A(7/8")	102.00 - 112.00	0.6000	0.5398
T20	14	LDF6-50A(1-1/4")	102.00 - 112.00	0.6000	0.5398
T20	15	LDF2-50A(3/8") SC	102.00 - 112.00	0.6000	0.5398
T20	16	LDF4.5-50(5/8")	102.00 - 112.00	0.6000	0.5398
T20	17	LDF4-50A(1/2")	102.00 - 112.00	0.6000	0.5398
T20	21	LDF6-50A(1-1/4")	102.00 - 112.00	0.6000	0.5398
T20	22	LDF7-50A(1-5/8")	102.00 - 112.00	0.6000	0.5398
T20	23	LDF7-50A(1-5/8")	102.00 - 112.00	0.6000	0.5398
T20	24	LDF7-50A(1-5/8")	102.00 - 112.00	0.6000	0.5398
T20	25	LDF6-50A(1-1/4")	102.00 - 112.00	0.6000	0.5398
T20	26	LDF6-50A(1-1/4")	102.00 - 112.00	0.6000	0.5398
T20	27	LDF2-50(3/8")	102.00 - 112.00	0.6000	0.5398
T20	28	LDF4.5-50(5/8")	102.00 - 112.00	0.6000	0.5398
T21	1	3" Coax	82.00 - 102.00	0.6000	0.5436
T21	2	AVA5-50(7/8")	82.00 - 102.00	0.6000	0.5436
T21	3	1" Conduit	82.00 - 102.00	0.6000	0.5436
T21	4	LDF4.5-50(5/8")	82.00 - 102.00	0.6000	0.5436
T21	5	1 5/8" OD Conduit	82.00 - 102.00	0.6000	0.5436
T21	6	LDF5-50A(7/8")	82.00 - 102.00	0.6000	0.5436
T21	7	LDF5-50A(7/8")	82.00 - 102.00	0.6000	0.5436
T21	8	LDF5-50A(7/8")	82.00 - 102.00	0.6000	0.5436
T21	9	LDF5-50A(7/8")	82.00 - 102.00	0.6000	0.5436
T21	10	LDF5-50A(7/8")	82.00 - 102.00	0.6000	0.5436
T21	11	LDF5-50A(7/8")	82.00 - 102.00	0.6000	0.5436
T21	12	LDF5-50A(7/8")	82.00 - 102.00	0.6000	0.5436
T21	13	LDF5-50A(7/8")	82.00 - 102.00	0.6000	0.5436
T21	14	LDF6-50A(1-1/4")	82.00 - 102.00	0.6000	0.5436
T21	15	LDF2-50A(3/8") SC	82.00 - 102.00	0.6000	0.5436
T21	16	LDF4.5-50(5/8")	82.00 - 102.00	0.6000	0.5436
T21	17	LDF4-50A(1/2")	82.00 - 102.00	0.6000	0.5436
T21	21	LDF6-50A(1-1/4")	82.00 - 102.00	0.6000	0.5436
T21	22	LDF7-50A(1-5/8")	82.00 - 102.00	0.6000	0.5436
T21	23	LDF7-50A(1-5/8")	82.00 - 102.00	0.6000	0.5436
T21	24	LDF7-50A(1-5/8")	82.00 - 102.00	0.6000	0.5436
T21	25	LDF6-50A(1-1/4")	82.00 - 102.00	0.6000	0.5436

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T21	26	LDF6-50A(1-1/4")	82.00 - 102.00	0.6000	0.5436
T21	27	LDF2-50(3/8")	82.00 - 102.00	0.6000	0.5436
T21	28	LDF4.5-50(5/8")	82.00 - 102.00	0.6000	0.5436
T22	1	3" Coax	62.00 - 82.00	0.6000	0.5510
T22	2	AVA5-50(7/8")	62.00 - 82.00	0.6000	0.5510
T22	3	1" Conduit	62.00 - 82.00	0.6000	0.5510
T22	4	LDF4.5-50(5/8")	62.00 - 82.00	0.6000	0.5510
T22	5	1 5/8" OD Conduit	62.00 - 82.00	0.6000	0.5510
T22	6	LDF5-50A(7/8")	62.00 - 82.00	0.6000	0.5510
T22	7	LDF5-50A(7/8")	62.00 - 82.00	0.6000	0.5510
T22	8	LDF5-50A(7/8")	62.00 - 82.00	0.6000	0.5510
T22	9	LDF5-50A(7/8")	62.00 - 82.00	0.6000	0.5510
T22	10	LDF5-50A(7/8")	62.00 - 82.00	0.6000	0.5510
T22	11	LDF5-50A(7/8")	62.00 - 82.00	0.6000	0.5510
T22	12	LDF5-50A(7/8")	62.00 - 82.00	0.6000	0.5510
T22	13	LDF5-50A(7/8")	62.00 - 82.00	0.6000	0.5510
T22	14	LDF6-50A(1-1/4")	62.00 - 82.00	0.6000	0.5510
T22	15	LDF2-50A(3/8") SC	62.00 - 82.00	0.6000	0.5510
T22	16	LDF4.5-50(5/8")	62.00 - 82.00	0.6000	0.5510
T22	17	LDF4-50A(1/2")	62.00 - 82.00	0.6000	0.5510
T22	21	LDF6-50A(1-1/4")	62.00 - 82.00	0.6000	0.5510
T22	22	LDF7-50A(1-5/8")	62.00 - 82.00	0.6000	0.5510
T22	23	LDF7-50A(1-5/8")	62.00 - 82.00	0.6000	0.5510
T22	24	LDF7-50A(1-5/8")	62.00 - 82.00	0.6000	0.5510
T22	25	LDF6-50A(1-1/4")	62.00 - 82.00	0.6000	0.5510
T22	26	LDF6-50A(1-1/4")	62.00 - 82.00	0.6000	0.5510
T22	27	LDF2-50(3/8")	62.00 - 82.00	0.6000	0.5510
T22	28	LDF4.5-50(5/8")	62.00 - 82.00	0.6000	0.5510
T23	1	3" Coax	42.00 - 62.00	0.6000	0.5566
T23	2	AVA5-50(7/8")	42.00 - 62.00	0.6000	0.5566
T23	3	1" Conduit	42.00 - 62.00	0.6000	0.5566
T23	4	LDF4.5-50(5/8")	42.00 - 62.00	0.6000	0.5566
T23	5	1 5/8" OD Conduit	42.00 - 62.00	0.6000	0.5566
T23	6	LDF5-50A(7/8")	42.00 - 62.00	0.6000	0.5566
T23	7	LDF5-50A(7/8")	42.00 - 62.00	0.6000	0.5566
T23	8	LDF5-50A(7/8")	42.00 - 62.00	0.6000	0.5566
T23	9	LDF5-50A(7/8")	42.00 - 62.00	0.6000	0.5566
T23	10	LDF5-50A(7/8")	42.00 - 62.00	0.6000	0.5566
T23	11	LDF5-50A(7/8")	42.00 - 62.00	0.6000	0.5566
T23	12	LDF5-50A(7/8")	42.00 - 62.00	0.6000	0.5566
T23	13	LDF5-50A(7/8")	42.00 - 62.00	0.6000	0.5566
T23	14	LDF6-50A(1-1/4")	42.00 - 62.00	0.6000	0.5566
T23	15	LDF2-50A(3/8") SC	42.00 - 62.00	0.6000	0.5566
T23	16	LDF4.5-50(5/8")	42.00 - 62.00	0.6000	0.5566
T23	17	LDF4-50A(1/2")	42.00 - 62.00	0.6000	0.5566
T23	21	LDF6-50A(1-1/4")	42.00 - 62.00	0.6000	0.5566
T23	22	LDF7-50A(1-5/8")	42.00 - 62.00	0.6000	0.5566
T23	23	LDF7-50A(1-5/8")	42.00 - 62.00	0.6000	0.5566
T23	24	LDF7-50A(1-5/8")	42.00 - 62.00	0.6000	0.5566
T23	25	LDF6-50A(1-1/4")	42.00 - 62.00	0.6000	0.5566
T23	26	LDF6-50A(1-1/4")	42.00 - 62.00	0.6000	0.5566
T23	27	LDF2-50(3/8")	42.00 - 62.00	0.6000	0.5566
T23	28	LDF4.5-50(5/8")	42.00 - 62.00	0.6000	0.5566
T24	1	3" Coax	22.00 - 42.00	0.6000	0.5689
T24	2	AVA5-50(7/8")	22.00 - 42.00	0.6000	0.5689
T24	3	1" Conduit	22.00 - 42.00	0.6000	0.5689
T24	4	LDF4.5-50(5/8")	22.00 - 42.00	0.6000	0.5689
T24	5	1 5/8" OD Conduit	22.00 - 42.00	0.6000	0.5689
T24	6	LDF5-50A(7/8")	22.00 - 42.00	0.6000	0.5689
T24	7	LDF5-50A(7/8")	22.00 - 42.00	0.6000	0.5689
T24	8	LDF5-50A(7/8")	22.00 - 42.00	0.6000	0.5689
T24	9	LDF5-50A(7/8")	22.00 - 42.00	0.6000	0.5689

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T24	10	LDF5-50A(7/8")	22.00 - 42.00	0.6000	0.5689
T24	11	LDF5-50A(7/8")	22.00 - 42.00	0.6000	0.5689
T24	12	LDF5-50A(7/8")	22.00 - 42.00	0.6000	0.5689
T24	13	LDF5-50A(7/8")	22.00 - 42.00	0.6000	0.5689
T24	14	LDF6-50A(1-1/4")	22.00 - 42.00	0.6000	0.5689
T24	15	LDF2-50A(3/8") SC	22.00 - 42.00	0.6000	0.5689
T24	16	LDF4.5-50(5/8")	22.00 - 42.00	0.6000	0.5689
T24	17	LDF4-50A(1/2")	22.00 - 42.00	0.6000	0.5689
T24	21	LDF6-50A(1-1/4")	22.00 - 42.00	0.6000	0.5689
T24	22	LDF7-50A(1-5/8")	22.00 - 42.00	0.6000	0.5689
T24	23	LDF7-50A(1-5/8")	22.00 - 42.00	0.6000	0.5689
T24	24	LDF7-50A(1-5/8")	22.00 - 42.00	0.6000	0.5689
T24	25	LDF6-50A(1-1/4")	22.00 - 42.00	0.6000	0.5689
T24	26	LDF6-50A(1-1/4")	22.00 - 42.00	0.6000	0.5689
T24	27	LDF2-50(3/8")	22.00 - 42.00	0.6000	0.5689
T24	28	LDF4.5-50(5/8")	22.00 - 42.00	0.6000	0.5689
T25	1	3" Coax	8.00 - 22.00	0.6000	0.5724
T25	2	AVA5-50(7/8")	8.00 - 22.00	0.6000	0.5724
T25	3	1" Conduit	8.00 - 22.00	0.6000	0.5724
T25	4	LDF4.5-50(5/8")	8.00 - 22.00	0.6000	0.5724
T25	5	1 5/8" OD Conduit	8.00 - 22.00	0.6000	0.5724
T25	6	LDF5-50A(7/8")	8.00 - 22.00	0.6000	0.5724
T25	7	LDF5-50A(7/8")	8.00 - 22.00	0.6000	0.5724
T25	8	LDF5-50A(7/8")	8.00 - 22.00	0.6000	0.5724
T25	9	LDF5-50A(7/8")	8.00 - 22.00	0.6000	0.5724
T25	10	LDF5-50A(7/8")	8.00 - 22.00	0.6000	0.5724
T25	11	LDF5-50A(7/8")	8.00 - 22.00	0.6000	0.5724
T25	12	LDF5-50A(7/8")	8.00 - 22.00	0.6000	0.5724
T25	13	LDF5-50A(7/8")	8.00 - 22.00	0.6000	0.5724
T25	14	LDF6-50A(1-1/4")	8.00 - 22.00	0.6000	0.5724
T25	15	LDF2-50A(3/8") SC	8.00 - 22.00	0.6000	0.5724
T25	16	LDF4.5-50(5/8")	8.00 - 22.00	0.6000	0.5724
T25	17	LDF4-50A(1/2")	8.00 - 22.00	0.6000	0.5724
T25	21	LDF6-50A(1-1/4")	8.00 - 22.00	0.6000	0.5724
T25	22	LDF7-50A(1-5/8")	8.00 - 22.00	0.6000	0.5724
T25	23	LDF7-50A(1-5/8")	8.00 - 22.00	0.6000	0.5724
T25	24	LDF7-50A(1-5/8")	8.00 - 22.00	0.6000	0.5724
T25	25	LDF6-50A(1-1/4")	8.00 - 22.00	0.6000	0.5724
T25	26	LDF6-50A(1-1/4")	8.00 - 22.00	0.6000	0.5724
T25	27	LDF2-50(3/8")	8.00 - 22.00	0.6000	0.5724
T25	28	LDF4.5-50(5/8")	8.00 - 22.00	0.6000	0.5724

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
10' Dipole	B	From Face	1.500 0.000 0.000	0.0000	108.000	No Ice 1/2" Ice 1" Ice	3.000 4.000 5.000	3.000 4.000 5.000	0.030 0.055 0.080
10' Dipole	B	From Face	1.500	0.0000	125.000	No Ice	3.000	3.000	0.030

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.000			1/2" Ice	4.000	4.000	0.055
			0.000			1" Ice	5.000	5.000	0.080
Obstruction	A	From Leg	1.000	0.0000	116.000	No Ice	0.800	0.800	0.010
Light(.01k,.8CAAA)			0.000			1/2" Ice	1.000	1.000	0.016
(Tower)			0.000			1" Ice	1.200	1.200	0.022
Obstruction	B	From Leg	1.000	0.0000	116.000	No Ice	0.800	0.800	0.010
Light(.01k,.8CAAA)			0.000			1/2" Ice	1.000	1.000	0.016
(Tower)			0.000			1" Ice	1.200	1.200	0.022
Obstruction	C	From Leg	1.000	0.0000	116.000	No Ice	0.800	0.800	0.010
Light(.01k,.8CAAA)			0.000			1/2" Ice	1.000	1.000	0.016
(Tower)			0.000			1" Ice	1.200	1.200	0.022
3' Side Arm	B	From Leg	1.500	0.0000	108.000	No Ice	0.450	2.750	0.040
			0.000			1/2" Ice	0.570	3.860	0.060
			0.000			1" Ice	0.690	4.970	0.080
3' Side Arm	B	From Leg	1.500	0.0000	125.000	No Ice	0.450	2.750	0.040
			0.000			1/2" Ice	0.570	3.860	0.060
			0.000			1" Ice	0.690	4.970	0.080
Beacon (.075k 2.250CAAA)	A	From Leg	1.000	0.0000	124.000	No Ice	2.250	2.250	0.075
(Tower)			0.000			1/2" Ice	2.500	2.500	0.100
			0.000			1" Ice	2.750	2.750	0.125
10' Dipole	A	From Leg	1.500	0.0000	138.000	No Ice	3.000	3.000	0.030
			0.000			1/2" Ice	4.000	4.000	0.055
			0.000			1" Ice	5.000	5.000	0.080
3' Side Arm	A	From Leg	1.500	0.0000	138.000	No Ice	0.450	2.750	0.040
			0.000			1/2" Ice	0.570	3.860	0.060
			0.000			1" Ice	0.690	4.970	0.080
Beacon (.075k 2.250CAAA)	A	From Leg	1.000	0.0000	237.000	No Ice	2.250	2.250	0.075
(Tower)			0.000			1/2" Ice	2.500	2.500	0.100
			0.000			1" Ice	2.750	2.750	0.125
Beacon (.075k 2.250CAAA)	B	From Leg	1.000	0.0000	237.000	No Ice	2.250	2.250	0.075
(Tower)			0.000			1/2" Ice	2.500	2.500	0.100
			0.000			1" Ice	2.750	2.750	0.125
6' Omni	A	From Leg	2.000	0.0000	302.000	No Ice	2.250	2.250	0.010
			0.000			1/2" Ice	2.619	2.619	0.029
			0.000			1" Ice	2.998	2.998	0.052
2' Side arm (25lbs 0.5CaAa)	A	From Leg	1.000	0.0000	302.000	No Ice	0.500	0.500	0.025
			0.000			1/2" Ice	0.000	0.000	0.033
			0.000			1" Ice	0.000	0.000	0.040
3' Yagi(.03k,2.08CAAA)	A	From Leg	2.000	0.0000	453.000	No Ice	2.080	2.080	0.030
			0.000			1/2" Ice	3.790	3.790	0.050
			0.000			1" Ice	5.500	5.500	0.070
2 Bay FM Antenna	A	From Leg	2.000	0.0000	471.000	No Ice	5.000	5.000	0.050
			0.000			1/2" Ice	8.000	8.000	0.090
			0.000			1" Ice	11.000	11.000	0.130
Beacon (.075k 2.250CAAA)	C	None		0.0000	490.000	No Ice	2.250	2.250	0.075
(Tower)						1/2" Ice	2.500	2.500	0.100
						1" Ice	2.750	2.750	0.125
Obstruction	A	From Leg	1.000	0.0000	358.000	No Ice	0.800	0.800	0.010
Light(.01k,.8CAAA)			0.000			1/2" Ice	1.000	1.000	0.016
(Tower)			0.000			1" Ice	1.200	1.200	0.022
Obstruction	B	From Leg	1.000	0.0000	358.000	No Ice	0.800	0.800	0.010
Light(.01k,.8CAAA)			0.000			1/2" Ice	1.000	1.000	0.016
(Tower)			0.000			1" Ice	1.200	1.200	0.022
Obstruction	C	From Leg	1.000	0.0000	358.000	No Ice	0.800	0.800	0.010
Light(.01k,.8CAAA)			0.000			1/2" Ice	1.000	1.000	0.016
(Tower)			0.000			1" Ice	1.200	1.200	0.022
Kathrein CA5-FM/CP/RM	C	From Leg	1.500	0.0000	300.000	No Ice	4.500	3.500	0.018

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.000			1/2" Ice	5.500	4.400	0.023
			0.000			1" Ice	6.500	5.300	0.029
SM 408-3	A	From Leg	2.000	0.0000	257.000	No Ice	22.450	22.450	1.000
(Sprint)			0.000			1/2" Ice	33.500	33.500	1.500
			0.000			1" Ice	44.550	44.550	2.000
PCS 1900MHz	A	From Leg	4.000	0.0000	257.000	No Ice	2.322	2.238	0.060
4x45W-65MHz			0.000			1/2" Ice	2.527	2.441	0.083
(Sprint)			0.000			1" Ice	2.739	2.651	0.110
800 EXTERNAL NOTCH	A	From Leg	4.000	0.0000	257.000	No Ice	0.660	0.321	0.011
FILTER			0.000			1/2" Ice	0.763	0.398	0.017
(Sprint)			0.000			1" Ice	0.873	0.483	0.024
Alcatel Lucent	B	From Leg	4.000	0.0000	257.000	No Ice	2.500	2.500	0.070
RRH-4x45-1900 (25x12x12)			0.000			1/2" Ice	2.709	2.709	0.095
(Sprint)			0.000			1" Ice	2.926	2.926	0.124
Alcatel Lucent	C	From Leg	4.000	0.0000	257.000	No Ice	2.500	2.500	0.070
RRH-4x45-1900 (25x12x12)			0.000			1/2" Ice	2.709	2.709	0.095
(Sprint)			0.000			1" Ice	2.926	2.926	0.124
Alcatel Lucent RRH	B	From Leg	4.000	0.0000	257.000	No Ice	1.701	1.282	0.053
2x50-800 (16x13x10)			0.000			1/2" Ice	1.864	1.428	0.070
(Sprint)			0.000			1" Ice	2.035	1.580	0.090
Alcatel Lucent RRH	C	From Leg	4.000	0.0000	257.000	No Ice	1.701	1.282	0.053
2x50-800 (16x13x10)			0.000			1/2" Ice	1.864	1.428	0.070
(Sprint)			0.000			1" Ice	2.035	1.580	0.090
Nokia AAHC MIMO	A	From Leg	4.000	0.0000	257.000	No Ice	4.203	2.068	0.103
(25.6x19.7x9.64)			0.000			1/2" Ice	4.458	2.260	0.135
(Sprint)			0.000			1" Ice	4.721	2.463	0.171
Nokia AAHC MIMO	B	From Leg	4.000	0.0000	257.000	No Ice	4.203	2.068	0.103
(25.6x19.7x9.64)			0.000			1/2" Ice	4.458	2.260	0.135
(Sprint)			0.000			1" Ice	4.721	2.463	0.171
Nokia AAHC MIMO	C	From Leg	4.000	0.0000	257.000	No Ice	4.203	2.068	0.103
(25.6x19.7x9.64)			0.000			1/2" Ice	4.458	2.260	0.135
(Sprint)			0.000			1" Ice	4.721	2.463	0.171
CommScope NNVV-65B-R4	A	From Leg	4.000	0.0000	257.000	No Ice	12.271	5.750	0.085
(72x19.6x7.8)			0.000			1/2" Ice	12.766	6.207	0.157
(Sprint)			0.000			1" Ice	13.268	6.671	0.236
CommScope NNVV-65B-R4	B	From Leg	4.000	0.0000	257.000	No Ice	12.271	5.750	0.085
(72x19.6x7.8)			0.000			1/2" Ice	12.766	6.207	0.157
(Sprint)			0.000			1" Ice	13.268	6.671	0.236
CommScope NNVV-65B-R4	C	From Leg	4.000	0.0000	257.000	No Ice	12.271	5.750	0.085
(72x19.6x7.8)			0.000			1/2" Ice	12.766	6.207	0.157
(Sprint)			0.000			1" Ice	13.268	6.671	0.236
Sector Frames	C	None		0.0000	165.000	No Ice	30.000	30.000	1.000
(AT&T)						1/2" Ice	35.000	35.000	1.250
						1" Ice	40.000	40.000	1.500
(2) CCI TPA65R-BU8D	A	From Leg	4.000	0.0000	165.000	No Ice	18.089	8.200	0.083
(96.0x21.0x7.8)			0.000			1/2" Ice	18.722	8.794	0.181
(AT&T)			0.000			1" Ice	19.362	9.395	0.289
(2) CCI TPA65R-BU8D	B	From Leg	4.000	0.0000	165.000	No Ice	18.089	8.200	0.083
(96.0x21.0x7.8)			0.000			1/2" Ice	18.722	8.794	0.181
(AT&T)			0.000			1" Ice	19.362	9.395	0.289
(2) CCI TPA65R-BU8D	C	From Leg	4.000	0.0000	165.000	No Ice	18.089	8.200	0.083
(96.0x21.0x7.8)			0.000			1/2" Ice	18.722	8.794	0.181
(AT&T)			0.000			1" Ice	19.362	9.395	0.289
Ericsson 4478 B14	A	From Leg	4.000	0.0000	165.000	No Ice	2.021	1.252	0.059
(18.1x13.4x8.3)			0.000			1/2" Ice	2.200	1.402	0.077
(AT&T)			0.000			1" Ice	2.386	1.560	0.097
Ericsson 4478 B14	B	From Leg	4.000	0.0000	165.000	No Ice	2.021	1.252	0.059

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(18.1x13.4x8.3)			0.000			1/2" Ice	2.200	1.402	0.077
(AT&T)			0.000			1" Ice	2.386	1.560	0.097
Ericsson 4478 B14	C	From Leg	4.000	0.0000	165.000	No Ice	2.021	1.252	0.059
(18.1x13.4x8.3)			0.000			1/2" Ice	2.200	1.402	0.077
(AT&T)			0.000			1" Ice	2.386	1.560	0.097
Ericsson RRUS E2	A	From Leg	4.000	0.0000	165.000	No Ice	3.145	1.285	0.060
(20.4x18.5x7.5)			0.000			1/2" Ice	3.365	1.438	0.083
(AT&T)			0.000			1" Ice	3.592	1.600	0.110
Ericsson RRUS E2	B	From Leg	4.000	0.0000	165.000	No Ice	3.145	1.285	0.060
(20.4x18.5x7.5)			0.000			1/2" Ice	3.365	1.438	0.083
(AT&T)			0.000			1" Ice	3.592	1.600	0.110
Ericsson RRUS E2	C	From Leg	4.000	0.0000	165.000	No Ice	3.145	1.285	0.060
(20.4x18.5x7.5)			0.000			1/2" Ice	3.365	1.438	0.083
(AT&T)			0.000			1" Ice	3.592	1.600	0.110
Ericsson 4415 B30	A	From Leg	4.000	0.0000	165.000	No Ice	1.843	0.820	0.046
(16.5x13.4x5.9)			0.000			1/2" Ice	2.012	0.943	0.060
(AT&T)			0.000			1" Ice	2.190	1.075	0.077
Ericsson 4415 B30	B	From Leg	4.000	0.0000	165.000	No Ice	1.843	0.820	0.046
(16.5x13.4x5.9)			0.000			1/2" Ice	2.012	0.943	0.060
(AT&T)			0.000			1" Ice	2.190	1.075	0.077
Ericsson 4415 B30	C	From Leg	4.000	0.0000	165.000	No Ice	1.843	0.820	0.046
(16.5x13.4x5.9)			0.000			1/2" Ice	2.012	0.943	0.060
(AT&T)			0.000			1" Ice	2.190	1.075	0.077
Ericsson 4449 (18x13.2x9.4)	A	From Leg	4.000	0.0000	165.000	No Ice	1.980	1.410	0.070
(AT&T)			0.000			1/2" Ice	2.157	1.566	0.089
			0.000			1" Ice	2.341	1.729	0.110
Ericsson 4449 (18x13.2x9.4)	B	From Leg	4.000	0.0000	165.000	No Ice	1.980	1.410	0.070
(AT&T)			0.000			1/2" Ice	2.157	1.566	0.089
			0.000			1" Ice	2.341	1.729	0.110
Ericsson 4449 (18x13.2x9.4)	C	From Leg	4.000	0.0000	165.000	No Ice	1.980	1.410	0.070
(AT&T)			0.000			1/2" Ice	2.157	1.566	0.089
			0.000			1" Ice	2.341	1.729	0.110
CCI TPR65R-BU8A	A	From Leg	4.000	0.0000	165.000	No Ice	11.233	8.044	0.054
(96x11.7x7.6)			0.000			1/2" Ice	11.848	8.637	0.121
(AT&T)			0.000			1" Ice	12.471	9.238	0.195
CCI TPR65R-BU8A	B	From Leg	4.000	0.0000	165.000	No Ice	11.233	8.044	0.054
(96x11.7x7.6)			0.000			1/2" Ice	11.848	8.637	0.121
(AT&T)			0.000			1" Ice	12.471	9.238	0.195
CCI TPR65R-BU8A	C	From Leg	4.000	0.0000	165.000	No Ice	11.233	8.044	0.054
(96x11.7x7.6)			0.000			1/2" Ice	11.848	8.637	0.121
(AT&T)			0.000			1" Ice	12.471	9.238	0.195
Ericsson RRUS-4483	A	From Leg	4.000	0.0000	165.000	No Ice	1.650	1.125	0.072
(15x13.2x9)			0.000			1/2" Ice	1.810	1.262	0.088
(AT&T)			0.000			1" Ice	1.978	1.406	0.106
Ericsson RRUS-4483	B	From Leg	4.000	0.0000	165.000	No Ice	1.650	1.125	0.072
(15x13.2x9)			0.000			1/2" Ice	1.810	1.262	0.088
(AT&T)			0.000			1" Ice	1.978	1.406	0.106
Ericsson RRUS-4483	C	From Leg	4.000	0.0000	165.000	No Ice	1.650	1.125	0.072
(15x13.2x9)			0.000			1/2" Ice	1.810	1.262	0.088
(AT&T)			0.000			1" Ice	1.978	1.406	0.106
Raycap DC6-48-60-0-8C-EV	A	From Leg	1.000	0.0000	165.000	No Ice	4.783	2.736	0.026
(31.4x18.28x10.24)			0.000			1/2" Ice	5.063	2.962	0.063
(AT&T)			0.000			1" Ice	5.350	3.195	0.104
Raycap DC6-48-60-0-8C-EV	B	From Leg	1.000	0.0000	165.000	No Ice	4.783	2.736	0.026
(31.4x18.28x10.24)			0.000			1/2" Ice	5.063	2.962	0.063
(AT&T)			0.000			1" Ice	5.350	3.195	0.104
Raycap DC6-48-60-0-8C-EV	C	From Leg	1.000	0.0000	165.000	No Ice	4.783	2.736	0.026

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Offsets: Vert ft	Offsets: ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(31.4x18.28x10.24)			0.000					1/2" Ice	5.063	2.962	0.063
(AT&T)			0.000					1" Ice	5.350	3.195	0.104
KRY 112 89/4	A	From Leg	4.000			0.0000	280.000	No Ice	0.559	0.362	0.015
(T-Mobile)			0.000					1/2" Ice	0.658	0.445	0.020
			0.000					1" Ice	0.764	0.538	0.027
KRY 112 89/4	B	From Leg	4.000			0.0000	280.000	No Ice	0.559	0.362	0.015
(T-Mobile)			0.000					1/2" Ice	0.658	0.445	0.020
			0.000					1" Ice	0.764	0.538	0.027
KRY 112 89/4	C	From Leg	4.000			0.0000	280.000	No Ice	0.559	0.362	0.015
(T-Mobile)			0.000					1/2" Ice	0.658	0.445	0.020
			0.000					1" Ice	0.764	0.538	0.027
Sector Frames	C	None				0.0000	280.000	No Ice	25.000	25.000	1.000
(T-Mobile)								1/2" Ice	30.000	30.000	1.250
								1" Ice	35.000	35.000	1.500
KRY 112 144/1	A	From Leg	4.000			0.0000	280.000	No Ice	0.350	0.175	0.011
(T-Mobile)			0.000					1/2" Ice	0.426	0.234	0.014
			0.000					1" Ice	0.509	0.301	0.019
KRY 112 144/1	B	From Leg	4.000			0.0000	280.000	No Ice	0.350	0.175	0.011
(T-Mobile)			0.000					1/2" Ice	0.426	0.234	0.014
			0.000					1" Ice	0.509	0.301	0.019
KRY 112 144/1	C	From Leg	4.000			0.0000	280.000	No Ice	0.350	0.175	0.011
(T-Mobile)			0.000					1/2" Ice	0.426	0.234	0.014
			0.000					1" Ice	0.509	0.301	0.019
RFS	A	From Leg	4.000			0.0000	280.000	No Ice	6.586	2.150	0.041
APX16DWV-16DWV-S-E-A			0.000					1/2" Ice	6.962	2.490	0.074
20 (55.9x13.3x3.15)			0.000					1" Ice	7.344	2.837	0.113
(T-Mobile)											
RFS	B	From Leg	4.000			0.0000	280.000	No Ice	6.586	2.150	0.041
APX16DWV-16DWV-S-E-A			0.000					1/2" Ice	6.962	2.490	0.074
20 (55.9x13.3x3.15)			0.000					1" Ice	7.344	2.837	0.113
(T-Mobile)											
RFS	C	From Leg	4.000			0.0000	280.000	No Ice	6.586	2.150	0.041
APX16DWV-16DWV-S-E-A			0.000					1/2" Ice	6.962	2.490	0.074
20 (55.9x13.3x3.15)			0.000					1" Ice	7.344	2.837	0.113
(T-Mobile)											
RFS	A	From Leg	4.000			0.0000	280.000	No Ice	20.267	8.744	0.101
APXVAARR24_43-U-NA20			0.000					1/2" Ice	20.915	9.342	0.213
(95.9x24x8.7)			0.000					1" Ice	21.570	9.947	0.334
(T-Mobile)											
RFS	B	From Leg	4.000			0.0000	280.000	No Ice	20.267	8.744	0.101
APXVAARR24_43-U-NA20			0.000					1/2" Ice	20.915	9.342	0.213
(95.9x24x8.7)			0.000					1" Ice	21.570	9.947	0.334
(T-Mobile)											
RFS	C	From Leg	4.000			0.0000	280.000	No Ice	20.267	8.744	0.101
APXVAARR24_43-U-NA20			0.000					1/2" Ice	20.915	9.342	0.213
(95.9x24x8.7)			0.000					1" Ice	21.570	9.947	0.334
(T-Mobile)											
Ericsson RRU 4449 B71B12	A	From Leg	4.000			0.0000	280.000	No Ice	1.639	1.291	0.074
(14.9x13.2x10.4)			0.000					1/2" Ice	1.799	1.436	0.091
(T-Mobile)			0.000					1" Ice	1.966	1.587	0.111
Ericsson RRU 4449 B71B12	B	From Leg	4.000			0.0000	280.000	No Ice	1.639	1.291	0.074
(14.9x13.2x10.4)			0.000					1/2" Ice	1.799	1.436	0.091
(T-Mobile)			0.000					1" Ice	1.966	1.587	0.111
Ericsson RRU 4449 B71B12	C	From Leg	4.000			0.0000	280.000	No Ice	1.639	1.291	0.074
(14.9x13.2x10.4)			0.000					1/2" Ice	1.799	1.436	0.091
(T-Mobile)			0.000					1" Ice	1.966	1.587	0.111
Ericsson AIR6488 2.5GHz	A	From Leg	4.000			0.0000	280.000	No Ice	5.945	2.268	0.128

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(34.8x20.5x7.2)			0.000			1/2" Ice	6.256	2.498	0.166
(T-Mobile)			0.000			1" Ice	6.574	2.735	0.208
Ericsson AIR6488 2.5GHz	B	From Leg	4.000	0.0000	280.000	No Ice	5.945	2.268	0.128
(34.8x20.5x7.2)			0.000			1/2" Ice	6.256	2.498	0.166
(T-Mobile)			0.000			1" Ice	6.574	2.735	0.208
Ericsson AIR6488 2.5GHz	C	From Leg	4.000	0.0000	280.000	No Ice	5.945	2.268	0.128
(34.8x20.5x7.2)			0.000			1/2" Ice	6.256	2.498	0.166
(T-Mobile)			0.000			1" Ice	6.574	2.735	0.208
Ericsson AIR 3246 B66	A	From Leg	4.000	0.0000	280.000	No Ice	7.939	5.172	0.180
(58.1x15.7x9.4)			0.000			1/2" Ice	8.339	5.539	0.235
(T-Mobile)			0.000			1" Ice	8.745	5.914	0.295
Ericsson AIR 3246 B66	B	From Leg	4.000	0.0000	280.000	No Ice	7.939	5.172	0.180
(58.1x15.7x9.4)			0.000			1/2" Ice	8.339	5.539	0.235
(T-Mobile)			0.000			1" Ice	8.745	5.914	0.295
Ericsson AIR 3246 B66	C	From Leg	4.000	0.0000	280.000	No Ice	7.939	5.172	0.180
(58.1x15.7x9.4)			0.000			1/2" Ice	8.339	5.539	0.235
(T-Mobile)			0.000			1" Ice	8.745	5.914	0.295
Ericsson 4415 B25	A	From Leg	4.000	0.0000	280.000	No Ice	1.650	0.682	0.000
(15x13.2x5.4)			0.000			1/2" Ice	1.810	0.794	0.013
(T-Mobile)			0.000			1" Ice	1.978	0.916	0.027
Ericsson 4415 B25	B	From Leg	4.000	0.0000	280.000	No Ice	1.650	0.682	0.000
(15x13.2x5.4)			0.000			1/2" Ice	1.810	0.794	0.013
(T-Mobile)			0.000			1" Ice	1.978	0.916	0.027
Ericsson 4415 B25	C	From Leg	4.000	0.0000	280.000	No Ice	1.650	0.682	0.000
(15x13.2x5.4)			0.000			1/2" Ice	1.810	0.794	0.013
(T-Mobile)			0.000			1" Ice	1.978	0.916	0.027

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
8' Grid Dish (140lbs	B	Grid	From	1.000	0.0000		239.000	8.000	No Ice	20.106	0.140
20.1CaAa)			Leg	0.000					1/2" Ice	23.000	0.320
				0.000					1" Ice	25.894	0.590
8' Grid Dish (140lbs	C	Grid	From	1.000	0.0000		247.000	8.000	No Ice	20.106	0.140
20.1CaAa)			Leg	0.000					1/2" Ice	23.000	0.320
				0.000					1" Ice	25.894	0.590
3' Grid Dish	A	Grid	From	1.000	0.0000		339.000	3.000	No Ice	2.830	0.030
			Leg	0.000					1/2" Ice	7.467	0.068
				0.000					1" Ice	12.103	0.107
3' Dish w/ Radomes	B	Paraboloid w/Radome	From	1.000	0.0000		351.000	3.000	No Ice	7.069	0.035
			Leg	0.000					1/2" Ice	7.467	0.073
				0.000					1" Ice	7.865	0.112
6' Grid Dish	C	Grid	From	1.000	0.0000		435.000	6.000	No Ice	11.000	0.250
			Leg	0.000					1/2" Ice	14.000	0.399
				0.000					1" Ice	18.000	0.548

Tower Pressures - No Ice

G_H = 0.850 (base tower), 1.350 (upper structure)

Section Elevation ft	z ft	K_Z	q_z ksf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1	484.500	1.764	0.030	10.781	A	0.000	10.781	10.781	100.00	0.000	0.000
492.000-477.0					B	0.000	10.781		100.00	0.000	0.000
00					C	0.000	10.781		100.00	0.000	0.000
L2	467.000	1.751	0.030	14.375	A	0.000	14.375	14.375	100.00	0.000	0.000
477.000-457.0					B	0.000	14.375		100.00	0.000	0.000
00					C	0.000	14.375		100.00	0.000	0.000
T1	454.500	1.741	0.030	20.938	A	4.045	1.875	1.875	31.67	0.260	0.000
457.000-452.0					B	4.045	1.875		31.67	0.000	0.000
00					C	4.045	1.875		31.67	0.000	0.000
T2	447.000	1.735	0.030	41.875	A	4.388	3.750	3.750	46.08	0.865	0.000
452.000-442.0					B	4.388	3.750		46.08	0.000	0.000
00					C	4.388	3.750		46.08	0.132	0.000
T3	432.000	1.722	0.030	83.750	A	7.829	7.500	7.500	48.93	4.564	0.000
442.000-422.0					B	7.829	7.500		48.93	5.346	0.000
00					C	7.829	7.500		48.93	3.692	0.000
T4	412.000	1.705	0.029	83.750	A	7.670	7.500	7.500	49.44	6.090	0.000
422.000-402.0					B	7.670	7.500		49.44	8.224	0.000
00					C	7.670	7.500		49.44	6.456	0.000
T5	392.000	1.687	0.029	83.750	A	7.670	7.500	7.500	49.44	6.090	0.000
402.000-382.0					B	7.670	7.500		49.44	8.224	0.000
00					C	7.670	7.500		49.44	6.456	0.000
T6	372.000	1.669	0.029	83.750	A	7.829	7.500	7.500	48.93	6.090	0.000
382.000-362.0					B	7.829	7.500		48.93	8.224	0.000
00					C	7.829	7.500		48.93	6.456	0.000
T7	352.000	1.65	0.028	83.750	A	7.670	7.500	7.500	49.44	6.090	0.000
362.000-342.0					B	7.670	7.500		49.44	8.224	0.000
00					C	7.670	7.500		49.44	7.235	0.000
T8	332.000	1.629	0.028	83.750	A	7.670	7.500	7.500	49.44	7.943	0.000
342.000-322.0					B	7.670	7.500		49.44	8.224	0.000
00					C	7.670	7.500		49.44	8.186	0.000
T9	312.000	1.608	0.028	84.167	A	7.234	8.333	8.333	53.53	8.270	0.000
322.000-302.0					B	7.234	8.333		53.53	8.224	0.000
00					C	7.234	8.333		53.53	8.186	0.000
T10	292.000	1.586	0.027	84.167	A	7.628	8.333	8.333	52.21	11.370	0.000
302.000-282.0					B	7.628	8.333		52.21	8.224	0.000
00					C	7.628	8.333		52.21	8.627	0.000
T11	272.000	1.562	0.027	84.583	A	8.704	9.167	9.167	51.29	46.704	0.000
282.000-262.0					B	8.704	9.167		51.29	29.608	0.000
00					C	8.704	9.167		51.29	13.010	0.000
T12	252.000	1.537	0.027	84.583	A	7.743	9.167	9.167	54.21	51.175	0.000
262.000-242.0					B	7.743	9.167		54.21	31.984	0.000
00					C	7.743	9.167		54.21	22.706	0.000
T13	232.000	1.511	0.026	84.583	A	7.586	9.167	9.167	54.72	54.663	0.000
242.000-222.0					B	7.586	9.167		54.72	31.984	0.000
00					C	7.586	9.167		54.72	25.806	0.000
T14	212.000	1.483	0.026	85.000	A	8.812	10.000	10.000	53.16	54.990	0.000
222.000-202.0					B	8.812	10.000		53.16	31.984	0.000
00					C	8.812	10.000		53.16	25.806	0.000
T15	192.000	1.452	0.025	85.000	A	7.544	10.000	10.000	57.00	54.990	0.000
202.000-182.0					B	7.544	10.000		57.00	31.984	0.000
00					C	7.544	10.000		57.00	25.806	0.000
T16	172.000	1.419	0.024	85.000	A	7.544	10.000	10.000	57.00	54.990	0.000
182.000-162.0					B	7.544	10.000		57.00	31.984	0.000

Section Elevation ft	z ft	K_Z	q_z ksf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
00					C	7.544	10.000		57.00	27.627	0.000
T17	152.000	1.382	0.024	85.000	A	7.701	10.000	10.000	56.50	54.990	0.000
162.000-142.0					B	7.701	10.000		56.50	31.984	0.000
00					C	7.701	10.000		56.50	37.946	0.000
T18	132.000	1.342	0.023	85.000	A	7.544	10.000	10.000	57.00	56.952	0.000
142.000-122.0					B	7.544	10.000		57.00	31.984	0.000
00					C	7.544	10.000		57.00	37.946	0.000
T19	117.000	1.308	0.023	42.500	A	4.316	5.000	5.000	53.67	29.675	0.000
122.000-112.0					B	4.316	5.000		53.67	15.992	0.000
00					C	4.316	5.000		53.67	18.973	0.000
T20	107.000	1.284	0.022	42.500	A	4.319	5.000	5.000	53.65	30.329	0.000
112.000-102.0					B	4.319	5.000		53.65	15.992	0.000
00					C	4.319	5.000		53.65	18.973	0.000
T21	92.000	1.244	0.021	85.000	A	7.701	10.000	10.000	56.50	61.530	0.000
102.000-82.00					B	7.701	10.000		56.50	31.984	0.000
0					C	7.701	10.000		56.50	37.946	0.000
T22	72.000	1.181	0.020	85.000	A	7.544	10.000	10.000	57.00	61.530	0.000
82.000-62.000					B	7.544	10.000		57.00	31.984	0.000
					C	7.544	10.000		57.00	37.946	0.000
T23	52.000	1.103	0.019	85.000	A	7.701	10.000	10.000	56.50	61.530	0.000
62.000-42.000					B	7.701	10.000		56.50	31.984	0.000
					C	7.701	10.000		56.50	37.946	0.000
T24	32.000	0.996	0.017	85.000	A	7.544	10.000	10.000	57.00	61.530	0.000
42.000-22.000					B	7.544	10.000		57.00	31.984	0.000
					C	7.544	10.000		57.00	37.946	0.000
T25	12.000	0.85	0.015	85.000	A	8.169	10.000	10.000	55.04	43.071	0.000
22.000-2.000					B	8.169	10.000		55.04	22.389	0.000
					C	8.169	10.000		55.04	26.562	0.000

Tower Pressure - With Ice

G_H = 0.850 (base tower), 1.350 (upper structure)

Section Elevation ft	z ft	K_Z	q_z ksf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1	484.500	1.764	0.010	1.9623	15.687	A	0.000	15.687	15.687	100.00	0.000	0.000
492.000-477.000						B	0.000	15.687		100.00	0.000	0.000
						C	0.000	15.687		100.00	0.000	0.000
L2	467.000	1.751	0.010	1.9551	20.892	A	0.000	20.892	20.892	100.00	0.000	0.000
477.000-457.000						B	0.000	20.892		100.00	0.000	0.000
						C	0.000	20.892		100.00	0.000	0.000
T1	454.500	1.741	0.009	1.9498	22.562	A	4.045	9.700	5.125	37.29	1.429	0.000
457.000-452.000						B	4.045	9.700		37.29	0.000	0.000
						C	4.045	9.700		37.29	0.000	0.000
T2	447.000	1.735	0.009	1.9466	45.119	A	4.388	18.779	10.239	44.19	4.758	0.000
452.000-442.000						B	4.388	18.779		44.19	0.000	0.000
						C	4.388	18.779		44.19	1.300	0.000
T3	432.000	1.722	0.009	1.9399	90.216	A	7.829	35.313	20.433	47.36	22.411	0.000
442.000-422.000						B	7.829	35.313		47.36	15.433	0.000
						C	7.829	35.313		47.36	19.599	0.000
T4	412.000	1.705	0.009	1.9308	90.186	A	7.670	35.181	20.372	47.54	29.259	0.000
422.000-402.000						B	7.670	35.181		47.54	23.670	0.000
						C	7.670	35.181		47.54	29.625	0.000
T5	392.000	1.687	0.009	1.9212	90.154	A	7.670	35.044	20.308	47.54	29.144	0.000

Section Elevation ft	z ft	K_Z	q_z ksf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
402.000-382.000						B	7.670	35.044		47.54	23.593	0.000
						C	7.670	35.044		47.54	29.510	0.000
T6	372.000	1.669	0.009	1.9111	90.120	A	7.829	34.900	20.241	47.37	29.024	0.000
382.000-362.000						B	7.829	34.900		47.37	23.513	0.000
						C	7.829	34.900		47.37	29.390	0.000
T7	352.000	1.65	0.009	1.9006	90.085	A	7.670	34.749	20.171	47.55	28.897	0.000
362.000-342.000						B	7.670	34.749		47.55	23.429	0.000
						C	7.670	34.749		47.55	33.463	0.000
T8	332.000	1.629	0.009	1.8895	90.048	A	7.670	34.590	20.097	47.56	37.042	0.000
342.000-322.000						B	7.670	34.590		47.56	23.340	0.000
						C	7.670	34.590		47.56	38.418	0.000
T9	312.000	1.608	0.009	1.8778	90.426	A	7.234	35.188	20.852	49.15	38.315	0.000
322.000-302.000						B	7.234	35.188		49.15	23.247	0.000
						C	7.234	35.188		49.15	38.231	0.000
T10	292.000	1.586	0.009	1.8654	90.385	A	7.628	34.999	20.770	48.72	48.679	0.000
302.000-282.000						B	7.628	34.999		48.72	23.147	0.000
						C	7.628	34.999		48.72	41.085	0.000
T11	272.000	1.562	0.008	1.8522	90.757	A	8.704	35.578	21.515	48.59	104.488	0.000
282.000-262.000						B	8.704	35.578		48.59	50.760	0.000
						C	8.704	35.578		48.59	56.723	0.000
T12	252.000	1.537	0.008	1.8381	90.710	A	7.743	35.366	21.421	49.69	112.627	0.000
262.000-242.000						B	7.743	35.366		49.69	53.628	0.000
						C	7.743	35.366		49.69	83.793	0.000
T13	232.000	1.511	0.008	1.8230	90.660	A	7.586	35.150	21.320	49.89	127.258	0.000
242.000-222.000						B	7.586	35.150		49.89	53.400	0.000
						C	7.586	35.150		49.89	92.022	0.000
T14	212.000	1.483	0.008	1.8066	91.022	A	8.812	35.685	22.044	49.54	127.997	0.000
222.000-202.000						B	8.812	35.685		49.54	53.155	0.000
						C	8.812	35.685		49.54	91.452	0.000
T15	192.000	1.452	0.008	1.7888	90.963	A	7.544	35.421	21.926	51.03	127.255	0.000
202.000-182.000						B	7.544	35.421		51.03	52.887	0.000
						C	7.544	35.421		51.03	90.830	0.000
T16	172.000	1.419	0.008	1.7693	90.898	A	7.544	35.143	21.795	51.06	126.440	0.000
182.000-162.000						B	7.544	35.143		51.06	52.593	0.000
						C	7.544	35.143		51.06	95.409	0.000
T17	152.000	1.382	0.008	1.7475	90.825	A	7.701	34.834	21.650	50.90	125.535	0.000
162.000-142.000						B	7.701	34.834		50.90	52.266	0.000
						C	7.701	34.834		50.90	124.161	0.000
T18	132.000	1.342	0.007	1.7230	90.743	A	7.544	34.486	21.487	51.12	132.681	0.000
142.000-122.000						B	7.544	34.486		51.12	51.899	0.000
						C	7.544	34.486		51.12	122.962	0.000
T19	117.000	1.308	0.007	1.7024	45.337	A	4.316	18.022	10.675	47.79	70.818	0.000
122.000-112.000						B	4.316	18.022		47.79	25.794	0.000
						C	4.316	18.022		47.79	60.975	0.000
T20	107.000	1.284	0.007	1.6872	45.312	A	7.065	13.788	10.624	50.95	73.121	0.000
112.000-102.000						B	7.065	13.788		50.95	25.680	0.000
						C	7.065	13.788		50.95	60.604	0.000
T21	92.000	1.244	0.007	1.6620	90.540	A	7.701	33.618	21.080	51.02	148.457	0.000
102.000-82.000						B	7.701	33.618		51.02	50.981	0.000
						C	7.701	33.618		51.02	119.969	0.000
T22	72.000	1.181	0.006	1.6217	90.406	A	7.544	33.046	20.811	51.27	146.300	0.000
82.000-62.000						B	7.544	33.046		51.27	50.376	0.000
						C	7.544	33.046		51.27	117.998	0.000
T23	52.000	1.103	0.006	1.5698	90.233	A	7.701	32.308	20.465	51.15	143.517	0.000
62.000-42.000						B	7.701	32.308		51.15	49.597	0.000
						C	7.701	32.308		51.15	115.455	0.000
T24	32.000	0.996	0.005	1.4954	89.985	A	7.544	31.251	19.969	51.47	139.531	0.000
42.000-22.000						B	7.544	31.251		51.47	48.479	0.000
						C	7.544	31.251		51.47	111.812	0.000
T25	12.000	0.85	0.005	1.3557	89.519	A	8.169	30.113	19.038	49.73	92.435	0.000

Section Elevation ft	z ft	K_Z	q_z ksf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
22.000-2.000						B	8.169	30.113		49.73	32.467	0.000
						C	8.169	30.113		49.73	73.482	0.000

Tower Pressure - Service

G_H = 0.850 (base tower), 1.350 (upper structure)

Section Elevation ft	z ft	K_Z	q_z ksf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1	484.500	1.764	0.014	10.781	A	0.000	10.781	10.781	100.00	0.000	0.000
492.000-477.0					B	0.000	10.781		100.00	0.000	0.000
00					C	0.000	10.781		100.00	0.000	0.000
L2	467.000	1.751	0.014	14.375	A	0.000	14.375	14.375	100.00	0.000	0.000
477.000-457.0					B	0.000	14.375		100.00	0.000	0.000
00					C	0.000	14.375		100.00	0.000	0.000
T1	454.500	1.741	0.014	20.938	A	4.045	1.875	1.875	31.67	0.260	0.000
457.000-452.0					B	4.045	1.875		31.67	0.000	0.000
00					C	4.045	1.875		31.67	0.000	0.000
T2	447.000	1.735	0.014	41.875	A	4.388	3.750	3.750	46.08	0.865	0.000
452.000-442.0					B	4.388	3.750		46.08	0.000	0.000
00					C	4.388	3.750		46.08	0.132	0.000
T3	432.000	1.722	0.013	83.750	A	7.829	7.500	7.500	48.93	4.564	0.000
442.000-422.0					B	7.829	7.500		48.93	5.346	0.000
00					C	7.829	7.500		48.93	3.692	0.000
T4	412.000	1.705	0.013	83.750	A	7.670	7.500	7.500	49.44	6.090	0.000
422.000-402.0					B	7.670	7.500		49.44	8.224	0.000
00					C	7.670	7.500		49.44	6.456	0.000
T5	392.000	1.687	0.013	83.750	A	7.670	7.500	7.500	49.44	6.090	0.000
402.000-382.0					B	7.670	7.500		49.44	8.224	0.000
00					C	7.670	7.500		49.44	6.456	0.000
T6	372.000	1.669	0.013	83.750	A	7.829	7.500	7.500	48.93	6.090	0.000
382.000-362.0					B	7.829	7.500		48.93	8.224	0.000
00					C	7.829	7.500		48.93	6.456	0.000
T7	352.000	1.65	0.013	83.750	A	7.670	7.500	7.500	49.44	6.090	0.000
362.000-342.0					B	7.670	7.500		49.44	8.224	0.000
00					C	7.670	7.500		49.44	7.235	0.000
T8	332.000	1.629	0.013	83.750	A	7.670	7.500	7.500	49.44	7.943	0.000
342.000-322.0					B	7.670	7.500		49.44	8.224	0.000
00					C	7.670	7.500		49.44	8.186	0.000
T9	312.000	1.608	0.013	84.167	A	7.234	8.333	8.333	53.53	8.270	0.000
322.000-302.0					B	7.234	8.333		53.53	8.224	0.000
00					C	7.234	8.333		53.53	8.186	0.000
T10	292.000	1.586	0.012	84.167	A	7.628	8.333	8.333	52.21	11.370	0.000
302.000-282.0					B	7.628	8.333		52.21	8.224	0.000
00					C	7.628	8.333		52.21	8.627	0.000
T11	272.000	1.562	0.012	84.583	A	8.704	9.167	9.167	51.29	46.704	0.000
282.000-262.0					B	8.704	9.167		51.29	29.608	0.000
00					C	8.704	9.167		51.29	13.010	0.000
T12	252.000	1.537	0.012	84.583	A	7.743	9.167	9.167	54.21	51.175	0.000
262.000-242.0					B	7.743	9.167		54.21	31.984	0.000
00					C	7.743	9.167		54.21	22.706	0.000
T13	232.000	1.511	0.012	84.583	A	7.586	9.167	9.167	54.72	54.663	0.000
242.000-222.0					B	7.586	9.167		54.72	31.984	0.000

Section Elevation ft	z ft	K_Z	q_z ksf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
00					C	7.586	9.167		54.72	25.806	0.000
T14	212.000	1.483	0.012	85.000	A	8.812	10.000	10.000	53.16	54.990	0.000
222.000-202.0					B	8.812	10.000		53.16	31.984	0.000
00					C	8.812	10.000		53.16	25.806	0.000
T15	192.000	1.452	0.011	85.000	A	7.544	10.000	10.000	57.00	54.990	0.000
202.000-182.0					B	7.544	10.000		57.00	31.984	0.000
00					C	7.544	10.000		57.00	25.806	0.000
T16	172.000	1.419	0.011	85.000	A	7.544	10.000	10.000	57.00	54.990	0.000
182.000-162.0					B	7.544	10.000		57.00	31.984	0.000
00					C	7.544	10.000		57.00	27.627	0.000
T17	152.000	1.382	0.011	85.000	A	7.701	10.000	10.000	56.50	54.990	0.000
162.000-142.0					B	7.701	10.000		56.50	31.984	0.000
00					C	7.701	10.000		56.50	37.946	0.000
T18	132.000	1.342	0.011	85.000	A	7.544	10.000	10.000	57.00	56.952	0.000
142.000-122.0					B	7.544	10.000		57.00	31.984	0.000
00					C	7.544	10.000		57.00	37.946	0.000
T19	117.000	1.308	0.010	42.500	A	4.316	5.000	5.000	53.67	29.675	0.000
122.000-112.0					B	4.316	5.000		53.67	15.992	0.000
00					C	4.316	5.000		53.67	18.973	0.000
T20	107.000	1.284	0.010	42.500	A	4.319	5.000	5.000	53.65	30.329	0.000
112.000-102.0					B	4.319	5.000		53.65	15.992	0.000
00					C	4.319	5.000		53.65	18.973	0.000
T21	92.000	1.244	0.010	85.000	A	7.701	10.000	10.000	56.50	61.530	0.000
102.000-82.00					B	7.701	10.000		56.50	31.984	0.000
0					C	7.701	10.000		56.50	37.946	0.000
T22	72.000	1.181	0.009	85.000	A	7.544	10.000	10.000	57.00	61.530	0.000
82.000-62.000					B	7.544	10.000		57.00	31.984	0.000
					C	7.544	10.000		57.00	37.946	0.000
T23	52.000	1.103	0.009	85.000	A	7.701	10.000	10.000	56.50	61.530	0.000
62.000-42.000					B	7.701	10.000		56.50	31.984	0.000
					C	7.701	10.000		56.50	37.946	0.000
T24	32.000	0.996	0.008	85.000	A	7.544	10.000	10.000	57.00	61.530	0.000
42.000-22.000					B	7.544	10.000		57.00	31.984	0.000
					C	7.544	10.000		57.00	37.946	0.000
T25	12.000	0.85	0.007	85.000	A	8.169	10.000	10.000	55.04	43.071	0.000
22.000-2.000					B	8.169	10.000		55.04	22.389	0.000
					C	8.169	10.000		55.04	26.562	0.000

Tower Forces - No Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
L1	0.000	0.535	A	1	0.6	0.030	1	1	10.781	0.266	0.018	C
492.000-477.0			B	1	0.6		1	1	10.781			
00			C	1	0.6		1	1	10.781			
L2	0.000	0.713	A	1	0.6	0.030	1	1	14.375	0.351	0.018	C
477.000-457.0			B	1	0.6		1	1	14.375			
00			C	1	0.6		1	1	14.375			
T1	0.000	0.418	A	0.283	2.343	0.030	1	1	5.158	0.312	0.062	C
457.000-452.0			B	0.283	2.343		1	1	5.158			
00			C	0.283	2.343		1	1	5.158			
T2	0.002	0.643	A	0.194	2.615	0.030	1	1	6.538	0.450	0.045	C
452.000-442.0			B	0.194	2.615		1	1	6.538			
00			C	0.194	2.615		1	1	6.538			
T3	0.055	1.341	A	0.183	2.654	0.030	1	1	12.117	1.017	0.051	C

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
442.000-422.0			B	0.183	2.654		1	1	12.117			
00			C	0.183	2.654		1	1	12.117			
T4	0.089	1.229	A	0.181	2.66	0.029	1	1	11.956	1.106	0.055	C
422.000-402.0			B	0.181	2.66		1	1	11.956			
00			C	0.181	2.66		1	1	11.956			
T5	0.089	1.229	A	0.181	2.66	0.029	1	1	11.956	1.094	0.055	C
402.000-382.0			B	0.181	2.66		1	1	11.956			
00			C	0.181	2.66		1	1	11.956			
T6	0.089	1.341	A	0.183	2.654	0.029	1	1	12.117	1.091	0.055	C
382.000-362.0			B	0.183	2.654		1	1	12.117			
00			C	0.183	2.654		1	1	12.117			
T7	0.091	1.229	A	0.181	2.66	0.028	1	1	11.956	1.081	0.054	C
362.000-342.0			B	0.181	2.66		1	1	11.956			
00			C	0.181	2.66		1	1	11.956			
T8	0.098	1.229	A	0.181	2.66	0.028	1	1	11.956	1.108	0.055	C
342.000-322.0			B	0.181	2.66		1	1	11.956			
00			C	0.181	2.66		1	1	11.956			
T9	0.099	1.440	A	0.185	2.647	0.028	1	1	12.001	1.097	0.055	C
322.000-302.0			B	0.185	2.647		1	1	12.001			
00			C	0.185	2.647		1	1	12.001			
T10	0.113	1.419	A	0.19	2.631	0.027	1	1	12.401	1.151	0.058	C
302.000-282.0			B	0.19	2.631		1	1	12.401			
00			C	0.19	2.631		1	1	12.401			
T11	0.366	1.858	A	0.211	2.559	0.027	1	1	13.989	1.780	0.089	A
282.000-262.0			B	0.211	2.559		1	1	13.989			
00			C	0.211	2.559		1	1	13.989			
T12	0.435	1.742	A	0.2	2.596	0.027	1	1	13.009	1.865	0.093	A
262.000-242.0			B	0.2	2.596		1	1	13.009			
00			C	0.2	2.596		1	1	13.009			
T13	0.459	1.629	A	0.198	2.602	0.026	1	1	12.849	1.902	0.095	A
242.000-222.0			B	0.198	2.602		1	1	12.849			
00			C	0.198	2.602		1	1	12.849			
T14	0.460	2.201	A	0.221	2.526	0.026	1	1	14.597	1.945	0.097	A
222.000-202.0			B	0.221	2.526		1	1	14.597			
00			C	0.221	2.526		1	1	14.597			
T15	0.460	1.860	A	0.206	2.575	0.025	1	1	13.301	1.849	0.092	A
202.000-182.0			B	0.206	2.575		1	1	13.301			
00			C	0.206	2.575		1	1	13.301			
T16	0.463	1.860	A	0.206	2.575	0.024	1	1	13.301	1.818	0.091	A
182.000-162.0			B	0.206	2.575		1	1	13.301			
00			C	0.206	2.575		1	1	13.301			
T17	0.481	1.972	A	0.208	2.569	0.024	1	1	13.460	1.842	0.092	A
162.000-142.0			B	0.208	2.569		1	1	13.460			
00			C	0.208	2.569		1	1	13.460			
T18	0.487	1.860	A	0.206	2.575	0.023	1	1	13.301	1.805	0.090	A
142.000-122.0			B	0.206	2.575		1	1	13.301			
00			C	0.206	2.575		1	1	13.301			
T19	0.247	0.959	A	0.219	2.533	0.023	1	1	7.206	0.915	0.092	A
122.000-112.0			B	0.219	2.533		1	1	7.206			
00			C	0.219	2.533		1	1	7.206			
T20	0.249	1.060	A	0.219	2.533	0.022	1	1	7.210	0.906	0.091	A
112.000-102.0			B	0.219	2.533		1	1	7.210			
00			C	0.219	2.533		1	1	7.210			
T21	0.501	1.972	A	0.208	2.569	0.021	1	1	13.460	1.729	0.086	A
102.000-82.00			B	0.208	2.569		1	1	13.460			
0			C	0.208	2.569		1	1	13.460			
T22	0.501	1.860	A	0.206	2.575	0.020	1	1	13.301	1.636	0.082	A
82.000-62.000			B	0.206	2.575		1	1	13.301			
			C	0.206	2.575		1	1	13.301			
T23	0.501	1.972	A	0.208	2.569	0.019	1	1	13.460	1.533	0.077	A

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
62.000-42.000			B	0.208	2.569		1	1	13.460			
			C	0.208	2.569		1	1	13.460			
T24	0.501	1.860	A	0.206	2.575	0.017	1	1	13.301	1.380	0.069	A
42.000-22.000			B	0.206	2.575		1	1	13.301			
			C	0.206	2.575		1	1	13.301			
T25	0.351	1.889	A	0.214	2.551	0.015	1	1	13.940	0.969	0.048	A
22.000-2.000			B	0.214	2.551		1	1	13.940			
			C	0.214	2.551		1	1	13.940			
Sum Weight:	7.191	39.321								33.998		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
L1	0.000	0.535	A	1	0.6	0.030	1	1	10.781	0.266	0.018	C
492.000-477.0			B	1	0.6		1	1	10.781			
00			C	1	0.6		1	1	10.781			
L2	0.000	0.713	A	1	0.6	0.030	1	1	14.375	0.351	0.018	C
477.000-457.0			B	1	0.6		1	1	14.375			
00			C	1	0.6		1	1	14.375			
T1	0.000	0.418	A	0.283	2.343	0.030	0.8	1	4.349	0.264	0.053	C
457.000-452.0			B	0.283	2.343		0.8	1	4.349			
00			C	0.283	2.343		0.8	1	4.349			
T2	0.002	0.643	A	0.194	2.615	0.030	0.8	1	5.661	0.391	0.039	C
452.000-442.0			B	0.194	2.615		0.8	1	5.661			
00			C	0.194	2.615		0.8	1	5.661			
T3	0.055	1.341	A	0.183	2.654	0.030	0.8	1	10.551	0.912	0.046	C
442.000-422.0			B	0.183	2.654		0.8	1	10.551			
00			C	0.183	2.654		0.8	1	10.551			
T4	0.089	1.229	A	0.181	2.66	0.029	0.8	1	10.422	1.004	0.050	C
422.000-402.0			B	0.181	2.66		0.8	1	10.422			
00			C	0.181	2.66		0.8	1	10.422			
T5	0.089	1.229	A	0.181	2.66	0.029	0.8	1	10.422	0.993	0.050	C
402.000-382.0			B	0.181	2.66		0.8	1	10.422			
00			C	0.181	2.66		0.8	1	10.422			
T6	0.089	1.341	A	0.183	2.654	0.029	0.8	1	10.551	0.989	0.049	C
382.000-362.0			B	0.183	2.654		0.8	1	10.551			
00			C	0.183	2.654		0.8	1	10.551			
T7	0.091	1.229	A	0.181	2.66	0.028	0.8	1	10.422	0.982	0.049	C
362.000-342.0			B	0.181	2.66		0.8	1	10.422			
00			C	0.181	2.66		0.8	1	10.422			
T8	0.098	1.229	A	0.181	2.66	0.028	0.8	1	10.422	1.011	0.051	C
342.000-322.0			B	0.181	2.66		0.8	1	10.422			
00			C	0.181	2.66		0.8	1	10.422			
T9	0.099	1.440	A	0.185	2.647	0.028	0.8	1	10.554	1.007	0.050	C
322.000-302.0			B	0.185	2.647		0.8	1	10.554			
00			C	0.185	2.647		0.8	1	10.554			
T10	0.113	1.419	A	0.19	2.631	0.027	0.8	1	10.875	1.058	0.053	C
302.000-282.0			B	0.19	2.631		0.8	1	10.875			
00			C	0.19	2.631		0.8	1	10.875			
T11	0.366	1.858	A	0.211	2.559	0.027	0.8	1	12.248	1.678	0.084	B
282.000-262.0			B	0.211	2.559		0.8	1	12.248			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
00			C	0.211	2.559		0.8	1	12.248			
T12	0.435	1.742	A	0.2	2.596	0.027	0.8	1	11.461	1.775	0.089	B
262.000-242.0			B	0.2	2.596		0.8	1	11.461			
00			C	0.2	2.596		0.8	1	11.461			
T13	0.459	1.629	A	0.198	2.602	0.026	0.8	1	11.332	1.814	0.091	B
242.000-222.0			B	0.198	2.602		0.8	1	11.332			
00			C	0.198	2.602		0.8	1	11.332			
T14	0.460	2.201	A	0.221	2.526	0.026	0.8	1	12.835	1.848	0.092	B
222.000-202.0			B	0.221	2.526		0.8	1	12.835			
00			C	0.221	2.526		0.8	1	12.835			
T15	0.460	1.860	A	0.206	2.575	0.025	0.8	1	11.792	1.766	0.088	B
202.000-182.0			B	0.206	2.575		0.8	1	11.792			
00			C	0.206	2.575		0.8	1	11.792			
T16	0.463	1.860	A	0.206	2.575	0.024	0.8	1	11.792	1.737	0.087	B
182.000-162.0			B	0.206	2.575		0.8	1	11.792			
00			C	0.206	2.575		0.8	1	11.792			
T17	0.481	1.972	A	0.208	2.569	0.024	0.8	1	11.920	1.762	0.088	B
162.000-142.0			B	0.208	2.569		0.8	1	11.920			
00			C	0.208	2.569		0.8	1	11.920			
T18	0.487	1.860	A	0.206	2.575	0.023	0.8	1	11.792	1.729	0.086	B
142.000-122.0			B	0.206	2.575		0.8	1	11.792			
00			C	0.206	2.575		0.8	1	11.792			
T19	0.247	0.959	A	0.219	2.533	0.023	0.8	1	6.343	0.873	0.087	B
122.000-112.0			B	0.219	2.533		0.8	1	6.343			
00			C	0.219	2.533		0.8	1	6.343			
T20	0.249	1.060	A	0.219	2.533	0.022	0.8	1	6.346	0.865	0.086	B
112.000-102.0			B	0.219	2.533		0.8	1	6.346			
00			C	0.219	2.533		0.8	1	6.346			
T21	0.501	1.972	A	0.208	2.569	0.021	0.8	1	11.920	1.657	0.083	B
102.000-82.00			B	0.208	2.569		0.8	1	11.920			
0			C	0.208	2.569		0.8	1	11.920			
T22	0.501	1.860	A	0.206	2.575	0.020	0.8	1	11.792	1.569	0.078	B
82.000-62.000			B	0.206	2.575		0.8	1	11.792			
			C	0.206	2.575		0.8	1	11.792			
T23	0.501	1.972	A	0.208	2.569	0.019	0.8	1	11.920	1.469	0.073	B
62.000-42.000			B	0.208	2.569		0.8	1	11.920			
			C	0.208	2.569		0.8	1	11.920			
T24	0.501	1.860	A	0.206	2.575	0.017	0.8	1	11.792	1.323	0.066	B
42.000-22.000			B	0.206	2.575		0.8	1	11.792			
			C	0.206	2.575		0.8	1	11.792			
T25	0.351	1.889	A	0.214	2.551	0.015	0.8	1	12.306	0.917	0.046	B
22.000-2.000			B	0.214	2.551		0.8	1	12.306			
			C	0.214	2.551		0.8	1	12.306			
Sum Weight:	7.191	39.321								32.012		

Tower Forces - No Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
L1	0.000	0.535	A	1	0.6	0.030	1	1	10.781	0.266	0.018	C
492.000-477.0			B	1	0.6		1	1	10.781			
00			C	1	0.6		1	1	10.781			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
L2	0.000	0.713	A	1	0.6	0.030	1	1	14.375	0.351	0.018	C
477.000-457.0			B	1	0.6		1	1	14.375			
00			C	1	0.6		1	1	14.375			
T1	0.000	0.418	A	0.283	2.343	0.030	0.85	1	4.551	0.276	0.055	C
457.000-452.0			B	0.283	2.343		0.85	1	4.551			
00			C	0.283	2.343		0.85	1	4.551			
T2	0.002	0.643	A	0.194	2.615	0.030	0.85	1	5.880	0.406	0.041	C
452.000-442.0			B	0.194	2.615		0.85	1	5.880			
00			C	0.194	2.615		0.85	1	5.880			
T3	0.055	1.341	A	0.183	2.654	0.030	0.85	1	10.943	0.939	0.047	C
442.000-422.0			B	0.183	2.654		0.85	1	10.943			
00			C	0.183	2.654		0.85	1	10.943			
T4	0.089	1.229	A	0.181	2.66	0.029	0.85	1	10.805	1.029	0.051	C
422.000-402.0			B	0.181	2.66		0.85	1	10.805			
00			C	0.181	2.66		0.85	1	10.805			
T5	0.089	1.229	A	0.181	2.66	0.029	0.85	1	10.805	1.019	0.051	C
402.000-382.0			B	0.181	2.66		0.85	1	10.805			
00			C	0.181	2.66		0.85	1	10.805			
T6	0.089	1.341	A	0.183	2.654	0.029	0.85	1	10.943	1.015	0.051	C
382.000-362.0			B	0.183	2.654		0.85	1	10.943			
00			C	0.183	2.654		0.85	1	10.943			
T7	0.091	1.229	A	0.181	2.66	0.028	0.85	1	10.805	1.007	0.050	C
362.000-342.0			B	0.181	2.66		0.85	1	10.805			
00			C	0.181	2.66		0.85	1	10.805			
T8	0.098	1.229	A	0.181	2.66	0.028	0.85	1	10.805	1.035	0.052	C
342.000-322.0			B	0.181	2.66		0.85	1	10.805			
00			C	0.181	2.66		0.85	1	10.805			
T9	0.099	1.440	A	0.185	2.647	0.028	0.85	1	10.916	1.030	0.051	C
322.000-302.0			B	0.185	2.647		0.85	1	10.916			
00			C	0.185	2.647		0.85	1	10.916			
T10	0.113	1.419	A	0.19	2.631	0.027	0.85	1	11.257	1.082	0.054	C
302.000-282.0			B	0.19	2.631		0.85	1	11.257			
00			C	0.19	2.631		0.85	1	11.257			
T11	0.366	1.858	A	0.211	2.559	0.027	0.85	1	12.683	1.719	0.086	C
282.000-262.0			B	0.211	2.559		0.85	1	12.683			
00			C	0.211	2.559		0.85	1	12.683			
T12	0.435	1.742	A	0.2	2.596	0.027	0.85	1	11.848	1.799	0.090	B
262.000-242.0			B	0.2	2.596		0.85	1	11.848			
00			C	0.2	2.596		0.85	1	11.848			
T13	0.459	1.629	A	0.198	2.602	0.026	0.85	1	11.711	1.849	0.092	B
242.000-222.0			B	0.198	2.602		0.85	1	11.711			
00			C	0.198	2.602		0.85	1	11.711			
T14	0.460	2.201	A	0.221	2.526	0.026	0.85	1	13.276	1.885	0.094	B
222.000-202.0			B	0.221	2.526		0.85	1	13.276			
00			C	0.221	2.526		0.85	1	13.276			
T15	0.460	1.860	A	0.206	2.575	0.025	0.85	1	12.169	1.799	0.090	B
202.000-182.0			B	0.206	2.575		0.85	1	12.169			
00			C	0.206	2.575		0.85	1	12.169			
T16	0.463	1.860	A	0.206	2.575	0.024	0.85	1	12.169	1.773	0.089	B
182.000-162.0			B	0.206	2.575		0.85	1	12.169			
00			C	0.206	2.575		0.85	1	12.169			
T17	0.481	1.972	A	0.208	2.569	0.024	0.85	1	12.305	1.812	0.091	B
162.000-142.0			B	0.208	2.569		0.85	1	12.305			
00			C	0.208	2.569		0.85	1	12.305			
T18	0.487	1.860	A	0.206	2.575	0.023	0.85	1	12.169	1.777	0.089	B
142.000-122.0			B	0.206	2.575		0.85	1	12.169			
00			C	0.206	2.575		0.85	1	12.169			
T19	0.247	0.959	A	0.219	2.533	0.023	0.85	1	6.559	0.898	0.090	B
122.000-112.0			B	0.219	2.533		0.85	1	6.559			
00			C	0.219	2.533		0.85	1	6.559			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
T20	0.249	1.060	A	0.219	2.533	0.022	0.85	1	6.562	0.889	0.089	B
112.000-102.0			B	0.219	2.533		0.85	1	6.562			
00			C	0.219	2.533		0.85	1	6.562			
T21	0.501	1.972	A	0.208	2.569	0.021	0.85	1	12.305	1.702	0.085	B
102.000-82.00			B	0.208	2.569		0.85	1	12.305			
0			C	0.208	2.569		0.85	1	12.305			
T22	0.501	1.860	A	0.206	2.575	0.020	0.85	1	12.169	1.612	0.081	B
82.000-62.000			B	0.206	2.575		0.85	1	12.169			
			C	0.206	2.575		0.85	1	12.169			
T23	0.501	1.972	A	0.208	2.569	0.019	0.85	1	12.305	1.509	0.075	B
62.000-42.000			B	0.208	2.569		0.85	1	12.305			
			C	0.208	2.569		0.85	1	12.305			
T24	0.501	1.860	A	0.206	2.575	0.017	0.85	1	12.169	1.359	0.068	B
42.000-22.000			B	0.206	2.575		0.85	1	12.169			
			C	0.206	2.575		0.85	1	12.169			
T25	0.351	1.889	A	0.214	2.551	0.015	0.85	1	12.714	0.943	0.047	B
22.000-2.000			B	0.214	2.551		0.85	1	12.714			
			C	0.214	2.551		0.85	1	12.714			
Sum Weight:	7.191	39.321								32.780		

Tower Forces - With Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
L1	0.000	0.916	A	1	1.2	0.010	1	1	15.687	0.244	0.016	C
492.000-477.0			B	1	1.2		1	1	15.687			
00			C	1	1.2		1	1	15.687			
L2	0.000	1.219	A	1	1.2	0.010	1	1	20.892	0.322	0.016	C
477.000-457.0			B	1	1.2		1	1	20.892			
00			C	1	1.2		1	1	20.892			
T1	0.021	1.201	A	0.609	1.799	0.009	1	1	11.316	0.168	0.034	C
457.000-452.0			B	0.609	1.799		1	1	11.316			
00			C	0.609	1.799		1	1	11.316			
T2	0.086	1.883	A	0.513	1.883	0.009	1	1	17.390	0.286	0.029	C
452.000-442.0			B	0.513	1.883		1	1	17.390			
00			C	0.513	1.883		1	1	17.390			
T3	0.897	3.643	A	0.478	1.93	0.009	1	1	31.611	0.725	0.036	C
442.000-422.0			B	0.478	1.93		1	1	31.611			
00			C	0.478	1.93		1	1	31.611			
T4	1.308	3.446	A	0.475	1.934	0.009	1	1	31.308	0.819	0.041	C
422.000-402.0			B	0.475	1.934		1	1	31.308			
00			C	0.475	1.934		1	1	31.308			
T5	1.298	3.431	A	0.474	1.936	0.009	1	1	31.191	0.809	0.040	C
402.000-382.0			B	0.474	1.936		1	1	31.191			
00			C	0.474	1.936		1	1	31.191			
T6	1.288	3.595	A	0.474	1.936	0.009	1	1	31.260	0.799	0.040	C
382.000-362.0			B	0.474	1.936		1	1	31.260			
00			C	0.474	1.936		1	1	31.260			
T7	1.337	3.398	A	0.471	1.941	0.009	1	1	30.942	0.804	0.040	C
362.000-342.0			B	0.471	1.941		1	1	30.942			
00			C	0.471	1.941		1	1	30.942			
T8	1.519	3.380	A	0.469	1.943	0.009	1	1	30.807	0.846	0.042	C

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
342.000-322.0			B	0.469	1.943		1	1	30.807			
00			C	0.469	1.943		1	1	30.807			
T9	1.527	3.604	A	0.469	1.943	0.009	1	1	30.768	0.839	0.042	C
322.000-302.0			B	0.469	1.943		1	1	30.768			
00			C	0.469	1.943		1	1	30.768			
T10	1.721	3.566	A	0.472	1.94	0.009	1	1	31.081	0.880	0.044	C
302.000-282.0			B	0.472	1.94		1	1	31.081			
00			C	0.472	1.94		1	1	31.081			
T11	3.178	4.153	A	0.488	1.916	0.008	1	1	32.845	1.172	0.059	A
282.000-262.0			B	0.488	1.916		1	1	32.845			
00			C	0.488	1.916		1	1	32.845			
T12	3.677	3.943	A	0.475	1.934	0.008	1	1	31.507	1.265	0.063	A
262.000-242.0			B	0.475	1.934		1	1	31.507			
00			C	0.475	1.934		1	1	31.507			
T13	3.970	3.741	A	0.471	1.94	0.008	1	1	31.136	1.321	0.066	A
242.000-222.0			B	0.471	1.94		1	1	31.136			
00			C	0.471	1.94		1	1	31.136			
T14	3.945	4.516	A	0.489	1.915	0.008	1	1	33.044	1.287	0.064	A
222.000-202.0			B	0.489	1.915		1	1	33.044			
00			C	0.489	1.915		1	1	33.044			
T15	3.896	3.950	A	0.472	1.939	0.008	1	1	31.293	1.264	0.063	A
202.000-182.0			B	0.472	1.939		1	1	31.293			
00			C	0.472	1.939		1	1	31.293			
T16	3.890	3.918	A	0.47	1.943	0.008	1	1	31.057	1.244	0.062	A
182.000-162.0			B	0.47	1.943		1	1	31.057			
00			C	0.47	1.943		1	1	31.057			
T17	4.098	4.058	A	0.468	1.945	0.008	1	1	30.984	1.219*	0.061	C
162.000-142.0			B	0.468	1.945		1	1	30.984			
00			C	0.468	1.945		1	1	30.984			
T18	4.139	3.844	A	0.463	1.952	0.007	1	1	30.506	1.182*	0.059	C
142.000-122.0			B	0.463	1.952		1	1	30.506			
00			C	0.463	1.952		1	1	30.506			
T19	2.106	2.033	A	0.493	1.91	0.007	1	1	16.590	0.576*	0.058	C
122.000-112.0			B	0.493	1.91		1	1	16.590			
00			C	0.493	1.91		1	1	16.590			
T20	2.119	1.931	A	0.46	1.957	0.007	1	1	16.224	0.565*	0.056	C
112.000-102.0			B	0.46	1.957		1	1	16.224			
00			C	0.46	1.957		1	1	16.224			
T21	4.205	3.920	A	0.456	1.963	0.007	1	1	29.970	1.093*	0.055	C
102.000-82.00			B	0.456	1.963		1	1	29.970			
0			C	0.456	1.963		1	1	29.970			
T22	4.077	3.687	A	0.449	1.975	0.006	1	1	29.315	1.037*	0.052	C
82.000-62.000			B	0.449	1.975		1	1	29.315			
			C	0.449	1.975		1	1	29.315			
T23	3.916	3.776	A	0.443	1.984	0.006	1	1	28.898	0.966*	0.048	C
62.000-42.000			B	0.443	1.984		1	1	28.898			
			C	0.443	1.984		1	1	28.898			
T24	3.691	3.497	A	0.431	2.006	0.005	1	1	27.866	0.870*	0.044	C
42.000-22.000			B	0.431	2.006		1	1	27.866			
			C	0.431	2.006		1	1	27.866			
T25	2.300	3.409	A	0.428	2.012	0.005	1	1	27.702	0.610	0.030	A
22.000-2.000			B	0.428	2.012		1	1	27.702			
			C	0.428	2.012		1	1	27.702			
Sum Weight:	64.208	87.658			*2.1A_g limit					23.213		

Tower Forces - With Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
L1	0.000	0.916	A	1	1.2	0.010	1	1	15.687	0.244	0.016	C
492.000-477.0			B	1	1.2		1	1	15.687			
00			C	1	1.2		1	1	15.687			
L2	0.000	1.219	A	1	1.2	0.010	1	1	20.892	0.322	0.016	C
477.000-457.0			B	1	1.2		1	1	20.892			
00			C	1	1.2		1	1	20.892			
T1	0.021	1.201	A	0.609	1.799	0.009	0.8	1	10.507	0.157	0.031	C
457.000-452.0			B	0.609	1.799		0.8	1	10.507			
00			C	0.609	1.799		0.8	1	10.507			
T2	0.086	1.883	A	0.513	1.883	0.009	0.8	1	16.512	0.273	0.027	C
452.000-442.0			B	0.513	1.883		0.8	1	16.512			
00			C	0.513	1.883		0.8	1	16.512			
T3	0.897	3.643	A	0.478	1.93	0.009	0.8	1	30.045	0.700	0.035	C
442.000-422.0			B	0.478	1.93		0.8	1	30.045			
00			C	0.478	1.93		0.8	1	30.045			
T4	1.308	3.446	A	0.475	1.934	0.009	0.8	1	29.774	0.796	0.040	C
422.000-402.0			B	0.475	1.934		0.8	1	29.774			
00			C	0.475	1.934		0.8	1	29.774			
T5	1.298	3.431	A	0.474	1.936	0.009	0.8	1	29.657	0.786	0.039	C
402.000-382.0			B	0.474	1.936		0.8	1	29.657			
00			C	0.474	1.936		0.8	1	29.657			
T6	1.288	3.595	A	0.474	1.936	0.009	0.8	1	29.694	0.776	0.039	C
382.000-362.0			B	0.474	1.936		0.8	1	29.694			
00			C	0.474	1.936		0.8	1	29.694			
T7	1.337	3.398	A	0.471	1.941	0.009	0.8	1	29.407	0.782	0.039	C
362.000-342.0			B	0.471	1.941		0.8	1	29.407			
00			C	0.471	1.941		0.8	1	29.407			
T8	1.519	3.380	A	0.469	1.943	0.009	0.8	1	29.273	0.824	0.041	C
342.000-322.0			B	0.469	1.943		0.8	1	29.273			
00			C	0.469	1.943		0.8	1	29.273			
T9	1.527	3.604	A	0.469	1.943	0.009	0.8	1	29.321	0.818	0.041	C
322.000-302.0			B	0.469	1.943		0.8	1	29.321			
00			C	0.469	1.943		0.8	1	29.321			
T10	1.721	3.566	A	0.472	1.94	0.009	0.8	1	29.555	0.858	0.043	C
302.000-282.0			B	0.472	1.94		0.8	1	29.555			
00			C	0.472	1.94		0.8	1	29.555			
T11	3.178	4.153	A	0.488	1.916	0.008	0.8	1	31.104	1.148	0.057	B
282.000-262.0			B	0.488	1.916		0.8	1	31.104			
00			C	0.488	1.916		0.8	1	31.104			
T12	3.677	3.943	A	0.475	1.934	0.008	0.8	1	29.958	1.244	0.062	B
262.000-242.0			B	0.475	1.934		0.8	1	29.958			
00			C	0.475	1.934		0.8	1	29.958			
T13	3.970	3.741	A	0.471	1.94	0.008	0.8	1	29.618	1.300	0.065	B
242.000-222.0			B	0.471	1.94		0.8	1	29.618			
00			C	0.471	1.94		0.8	1	29.618			
T14	3.945	4.516	A	0.489	1.915	0.008	0.8	1	31.282	1.263	0.063	B
222.000-202.0			B	0.489	1.915		0.8	1	31.282			
00			C	0.489	1.915		0.8	1	31.282			
T15	3.896	3.950	A	0.472	1.939	0.008	0.8	1	29.784	1.245	0.062	B
202.000-182.0			B	0.472	1.939		0.8	1	29.784			
00			C	0.472	1.939		0.8	1	29.784			
T16	3.890	3.918	A	0.47	1.943	0.008	0.8	1	29.549	1.225	0.061	B
182.000-162.0			B	0.47	1.943		0.8	1	29.549			
00			C	0.47	1.943		0.8	1	29.549			
T17	4.098	4.058	A	0.468	1.945	0.008	0.8	1	29.444	1.219'	0.061	B
162.000-142.0			B	0.468	1.945		0.8	1	29.444			
00			C	0.468	1.945		0.8	1	29.444			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
T18	4.139	3.844	A	0.463	1.952	0.007	0.8	1	28.997	1.182*	0.059	C
142.000-122.0			B	0.463	1.952		0.8	1	28.997			
00			C	0.463	1.952		0.8	1	28.997			
T19	2.106	2.033	A	0.493	1.91	0.007	0.8	1	15.727	0.576*	0.058	C
122.000-112.0			B	0.493	1.91		0.8	1	15.727			
00			C	0.493	1.91		0.8	1	15.727			
T20	2.119	1.931	A	0.46	1.957	0.007	0.8	1	14.811	0.565*	0.056	C
112.000-102.0			B	0.46	1.957		0.8	1	14.811			
00			C	0.46	1.957		0.8	1	14.811			
T21	4.205	3.920	A	0.456	1.963	0.007	0.8	1	28.429	1.093*	0.055	C
102.000-82.00			B	0.456	1.963		0.8	1	28.429			
0			C	0.456	1.963		0.8	1	28.429			
T22	4.077	3.687	A	0.449	1.975	0.006	0.8	1	27.806	1.037*	0.052	C
82.000-62.000			B	0.449	1.975		0.8	1	27.806			
			C	0.449	1.975		0.8	1	27.806			
T23	3.916	3.776	A	0.443	1.984	0.006	0.8	1	27.357	0.966*	0.048	C
62.000-42.000			B	0.443	1.984		0.8	1	27.357			
			C	0.443	1.984		0.8	1	27.357			
T24	3.691	3.497	A	0.431	2.006	0.005	0.8	1	26.357	0.870*	0.044	C
42.000-22.000			B	0.431	2.006		0.8	1	26.357			
			C	0.431	2.006		0.8	1	26.357			
T25	2.300	3.409	A	0.428	2.012	0.005	0.8	1	26.068	0.597	0.030	B
22.000-2.000			B	0.428	2.012		0.8	1	26.068			
			C	0.428	2.012		0.8	1	26.068			
Sum Weight:	64.208	87.658			*2.1A_g limit					22.866		

Tower Forces - With Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
L1	0.000	0.916	A	1	1.2	0.010	1	1	15.687	0.244	0.016	C
492.000-477.0			B	1	1.2		1	1	15.687			
00			C	1	1.2		1	1	15.687			
L2	0.000	1.219	A	1	1.2	0.010	1	1	20.892	0.322	0.016	C
477.000-457.0			B	1	1.2		1	1	20.892			
00			C	1	1.2		1	1	20.892			
T1	0.021	1.201	A	0.609	1.799	0.009	0.85	1	10.709	0.160	0.032	C
457.000-452.0			B	0.609	1.799		0.85	1	10.709			
00			C	0.609	1.799		0.85	1	10.709			
T2	0.086	1.883	A	0.513	1.883	0.009	0.85	1	16.732	0.276	0.028	C
452.000-442.0			B	0.513	1.883		0.85	1	16.732			
00			C	0.513	1.883		0.85	1	16.732			
T3	0.897	3.643	A	0.478	1.93	0.009	0.85	1	30.437	0.706	0.035	C
442.000-422.0			B	0.478	1.93		0.85	1	30.437			
00			C	0.478	1.93		0.85	1	30.437			
T4	1.308	3.446	A	0.475	1.934	0.009	0.85	1	30.157	0.802	0.040	C
422.000-402.0			B	0.475	1.934		0.85	1	30.157			
00			C	0.475	1.934		0.85	1	30.157			
T5	1.298	3.431	A	0.474	1.936	0.009	0.85	1	30.041	0.792	0.040	C
402.000-382.0			B	0.474	1.936		0.85	1	30.041			
00			C	0.474	1.936		0.85	1	30.041			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
T6	1.288	3.595	A	0.474	1.936	0.009	0.85	1	30.085	0.782	0.039	C
382.000-362.0			B	0.474	1.936		0.85	1	30.085			
00			C	0.474	1.936		0.85	1	30.085			
T7	1.337	3.398	A	0.471	1.941	0.009	0.85	1	29.791	0.787	0.039	C
362.000-342.0			B	0.471	1.941		0.85	1	29.791			
00			C	0.471	1.941		0.85	1	29.791			
T8	1.519	3.380	A	0.469	1.943	0.009	0.85	1	29.657	0.829	0.041	C
342.000-322.0			B	0.469	1.943		0.85	1	29.657			
00			C	0.469	1.943		0.85	1	29.657			
T9	1.527	3.604	A	0.469	1.943	0.009	0.85	1	29.683	0.823	0.041	C
322.000-302.0			B	0.469	1.943		0.85	1	29.683			
00			C	0.469	1.943		0.85	1	29.683			
T10	1.721	3.566	A	0.472	1.94	0.009	0.85	1	29.937	0.863	0.043	C
302.000-282.0			B	0.472	1.94		0.85	1	29.937			
00			C	0.472	1.94		0.85	1	29.937			
T11	3.178	4.153	A	0.488	1.916	0.008	0.85	1	31.539	1.146	0.057	C
282.000-262.0			B	0.488	1.916		0.85	1	31.539			
00			C	0.488	1.916		0.85	1	31.539			
T12	3.677	3.943	A	0.475	1.934	0.008	0.85	1	30.346	1.236	0.062	B
262.000-242.0			B	0.475	1.934		0.85	1	30.346			
00			C	0.475	1.934		0.85	1	30.346			
T13	3.970	3.741	A	0.471	1.94	0.008	0.85	1	29.998	1.296	0.065	B
242.000-222.0			B	0.471	1.94		0.85	1	29.998			
00			C	0.471	1.94		0.85	1	29.998			
T14	3.945	4.516	A	0.489	1.915	0.008	0.85	1	31.722	1.261	0.063	B
222.000-202.0			B	0.489	1.915		0.85	1	31.722			
00			C	0.489	1.915		0.85	1	31.722			
T15	3.896	3.950	A	0.472	1.939	0.008	0.85	1	30.161	1.241	0.062	B
202.000-182.0			B	0.472	1.939		0.85	1	30.161			
00			C	0.472	1.939		0.85	1	30.161			
T16	3.890	3.918	A	0.47	1.943	0.008	0.85	1	29.926	1.222	0.061	B
182.000-162.0			B	0.47	1.943		0.85	1	29.926			
00			C	0.47	1.943		0.85	1	29.926			
T17	4.098	4.058	A	0.468	1.945	0.008	0.85	1	29.829	1.219*	0.061	C
162.000-142.0			B	0.468	1.945		0.85	1	29.829			
00			C	0.468	1.945		0.85	1	29.829			
T18	4.139	3.844	A	0.463	1.952	0.007	0.85	1	29.374	1.182*	0.059	C
142.000-122.0			B	0.463	1.952		0.85	1	29.374			
00			C	0.463	1.952		0.85	1	29.374			
T19	2.106	2.033	A	0.493	1.91	0.007	0.85	1	15.943	0.576*	0.058	C
122.000-112.0			B	0.493	1.91		0.85	1	15.943			
00			C	0.493	1.91		0.85	1	15.943			
T20	2.119	1.931	A	0.46	1.957	0.007	0.85	1	15.164	0.565*	0.056	C
112.000-102.0			B	0.46	1.957		0.85	1	15.164			
00			C	0.46	1.957		0.85	1	15.164			
T21	4.205	3.920	A	0.456	1.963	0.007	0.85	1	28.814	1.093*	0.055	C
102.000-82.00			B	0.456	1.963		0.85	1	28.814			
0			C	0.456	1.963		0.85	1	28.814			
T22	4.077	3.687	A	0.449	1.975	0.006	0.85	1	28.183	1.037*	0.052	C
82.000-62.000			B	0.449	1.975		0.85	1	28.183			
			C	0.449	1.975		0.85	1	28.183			
T23	3.916	3.776	A	0.443	1.984	0.006	0.85	1	27.742	0.966*	0.048	C
62.000-42.000			B	0.443	1.984		0.85	1	27.742			
			C	0.443	1.984		0.85	1	27.742			
T24	3.691	3.497	A	0.431	2.006	0.005	0.85	1	26.734	0.870*	0.044	C
42.000-22.000			B	0.431	2.006		0.85	1	26.734			
			C	0.431	2.006		0.85	1	26.734			
T25	2.300	3.409	A	0.428	2.012	0.005	0.85	1	26.476	0.599	0.030	B
22.000-2.000			B	0.428	2.012		0.85	1	26.476			
			C	0.428	2.012		0.85	1	26.476			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
Sum Weight:	64.208	87.658			*2.1A_g limit					22.895		

Tower Forces - Service - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
L1	0.000	0.535	A	1	0.67	0.014	1	1	10.781	0.135	0.009	C
492.000-477.0			B	1	0.67		1	1	10.781			
00			C	1	0.67		1	1	10.781			
L2	0.000	0.713	A	1	0.673	0.014	1	1	14.375	0.179	0.009	C
477.000-457.0			B	1	0.673		1	1	14.375			
00			C	1	0.673		1	1	14.375			
T1	0.000	0.418	A	0.283	2.343	0.014	1	1	5.158	0.142	0.028	C
457.000-452.0			B	0.283	2.343		1	1	5.158			
00			C	0.283	2.343		1	1	5.158			
T2	0.002	0.643	A	0.194	2.615	0.014	1	1	6.538	0.204	0.020	C
452.000-442.0			B	0.194	2.615		1	1	6.538			
00			C	0.194	2.615		1	1	6.538			
T3	0.055	1.341	A	0.183	2.654	0.013	1	1	12.117	0.462	0.023	C
442.000-422.0			B	0.183	2.654		1	1	12.117			
00			C	0.183	2.654		1	1	12.117			
T4	0.089	1.229	A	0.181	2.66	0.013	1	1	11.956	0.503	0.025	C
422.000-402.0			B	0.181	2.66		1	1	11.956			
00			C	0.181	2.66		1	1	11.956			
T5	0.089	1.229	A	0.181	2.66	0.013	1	1	11.956	0.497	0.025	C
402.000-382.0			B	0.181	2.66		1	1	11.956			
00			C	0.181	2.66		1	1	11.956			
T6	0.089	1.341	A	0.183	2.654	0.013	1	1	12.117	0.496	0.025	C
382.000-362.0			B	0.183	2.654		1	1	12.117			
00			C	0.183	2.654		1	1	12.117			
T7	0.091	1.229	A	0.181	2.66	0.013	1	1	11.956	0.491	0.025	C
362.000-342.0			B	0.181	2.66		1	1	11.956			
00			C	0.181	2.66		1	1	11.956			
T8	0.098	1.229	A	0.181	2.66	0.013	1	1	11.956	0.504	0.025	C
342.000-322.0			B	0.181	2.66		1	1	11.956			
00			C	0.181	2.66		1	1	11.956			
T9	0.099	1.440	A	0.185	2.647	0.013	1	1	12.001	0.499	0.025	C
322.000-302.0			B	0.185	2.647		1	1	12.001			
00			C	0.185	2.647		1	1	12.001			
T10	0.113	1.419	A	0.19	2.631	0.012	1	1	12.401	0.523	0.026	C
302.000-282.0			B	0.19	2.631		1	1	12.401			
00			C	0.19	2.631		1	1	12.401			
T11	0.366	1.858	A	0.211	2.559	0.012	1	1	13.989	0.809	0.040	A
282.000-262.0			B	0.211	2.559		1	1	13.989			
00			C	0.211	2.559		1	1	13.989			
T12	0.435	1.742	A	0.2	2.596	0.012	1	1	13.009	0.848	0.042	A
262.000-242.0			B	0.2	2.596		1	1	13.009			
00			C	0.2	2.596		1	1	13.009			
T13	0.459	1.629	A	0.198	2.602	0.012	1	1	12.849	0.864	0.043	A
242.000-222.0			B	0.198	2.602		1	1	12.849			
00			C	0.198	2.602		1	1	12.849			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
T14	0.460	2.201	A	0.221	2.526	0.012	1	1	14.597	0.884	0.044	A
222.000-202.0			B	0.221	2.526		1	1	14.597			
00			C	0.221	2.526		1	1	14.597			
T15	0.460	1.860	A	0.206	2.575	0.011	1	1	13.301	0.840	0.042	A
202.000-182.0			B	0.206	2.575		1	1	13.301			
00			C	0.206	2.575		1	1	13.301			
T16	0.463	1.860	A	0.206	2.575	0.011	1	1	13.301	0.826	0.041	A
182.000-162.0			B	0.206	2.575		1	1	13.301			
00			C	0.206	2.575		1	1	13.301			
T17	0.481	1.972	A	0.208	2.569	0.011	1	1	13.460	0.837	0.042	A
162.000-142.0			B	0.208	2.569		1	1	13.460			
00			C	0.208	2.569		1	1	13.460			
T18	0.487	1.860	A	0.206	2.575	0.011	1	1	13.301	0.820	0.041	A
142.000-122.0			B	0.206	2.575		1	1	13.301			
00			C	0.206	2.575		1	1	13.301			
T19	0.247	0.959	A	0.219	2.533	0.010	1	1	7.206	0.416	0.042	A
122.000-112.0			B	0.219	2.533		1	1	7.206			
00			C	0.219	2.533		1	1	7.206			
T20	0.249	1.060	A	0.219	2.533	0.010	1	1	7.210	0.412	0.041	A
112.000-102.0			B	0.219	2.533		1	1	7.210			
00			C	0.219	2.533		1	1	7.210			
T21	0.501	1.972	A	0.208	2.569	0.010	1	1	13.460	0.786	0.039	A
102.000-82.00			B	0.208	2.569		1	1	13.460			
0			C	0.208	2.569		1	1	13.460			
T22	0.501	1.860	A	0.206	2.575	0.009	1	1	13.301	0.744	0.037	A
82.000-62.000			B	0.206	2.575		1	1	13.301			
			C	0.206	2.575		1	1	13.301			
T23	0.501	1.972	A	0.208	2.569	0.009	1	1	13.460	0.697	0.035	A
62.000-42.000			B	0.208	2.569		1	1	13.460			
			C	0.208	2.569		1	1	13.460			
T24	0.501	1.860	A	0.206	2.575	0.008	1	1	13.301	0.627	0.031	A
42.000-22.000			B	0.206	2.575		1	1	13.301			
			C	0.206	2.575		1	1	13.301			
T25	0.351	1.889	A	0.214	2.551	0.007	1	1	13.940	0.440	0.022	A
22.000-2.000			B	0.214	2.551		1	1	13.940			
			C	0.214	2.551		1	1	13.940			
Sum Weight:	7.191	39.321								15.485		

Tower Forces - Service - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
L1	0.000	0.535	A	1	0.67	0.014	1	1	10.781	0.135	0.009	C
492.000-477.0			B	1	0.67		1	1	10.781			
00			C	1	0.67		1	1	10.781			
L2	0.000	0.713	A	1	0.673	0.014	1	1	14.375	0.179	0.009	C
477.000-457.0			B	1	0.673		1	1	14.375			
00			C	1	0.673		1	1	14.375			
T1	0.000	0.418	A	0.283	2.343	0.014	0.8	1	4.349	0.120	0.024	C
457.000-452.0			B	0.283	2.343		0.8	1	4.349			
00			C	0.283	2.343		0.8	1	4.349			
T2	0.002	0.643	A	0.194	2.615	0.014	0.8	1	5.661	0.178	0.018	C

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
452.000-442.0			B	0.194	2.615		0.8	1	5.661			
00			C	0.194	2.615		0.8	1	5.661			
T3	0.055	1.341	A	0.183	2.654	0.013	0.8	1	10.551	0.415	0.021	C
442.000-422.0			B	0.183	2.654		0.8	1	10.551			
00			C	0.183	2.654		0.8	1	10.551			
T4	0.089	1.229	A	0.181	2.66	0.013	0.8	1	10.422	0.456	0.023	C
422.000-402.0			B	0.181	2.66		0.8	1	10.422			
00			C	0.181	2.66		0.8	1	10.422			
T5	0.089	1.229	A	0.181	2.66	0.013	0.8	1	10.422	0.452	0.023	C
402.000-382.0			B	0.181	2.66		0.8	1	10.422			
00			C	0.181	2.66		0.8	1	10.422			
T6	0.089	1.341	A	0.183	2.654	0.013	0.8	1	10.551	0.450	0.022	C
382.000-362.0			B	0.183	2.654		0.8	1	10.551			
00			C	0.183	2.654		0.8	1	10.551			
T7	0.091	1.229	A	0.181	2.66	0.013	0.8	1	10.422	0.447	0.022	C
362.000-342.0			B	0.181	2.66		0.8	1	10.422			
00			C	0.181	2.66		0.8	1	10.422			
T8	0.098	1.229	A	0.181	2.66	0.013	0.8	1	10.422	0.459	0.023	C
342.000-322.0			B	0.181	2.66		0.8	1	10.422			
00			C	0.181	2.66		0.8	1	10.422			
T9	0.099	1.440	A	0.185	2.647	0.013	0.8	1	10.554	0.458	0.023	C
322.000-302.0			B	0.185	2.647		0.8	1	10.554			
00			C	0.185	2.647		0.8	1	10.554			
T10	0.113	1.419	A	0.19	2.631	0.012	0.8	1	10.875	0.481	0.024	C
302.000-282.0			B	0.19	2.631		0.8	1	10.875			
00			C	0.19	2.631		0.8	1	10.875			
T11	0.366	1.858	A	0.211	2.559	0.012	0.8	1	12.248	0.763	0.038	B
282.000-262.0			B	0.211	2.559		0.8	1	12.248			
00			C	0.211	2.559		0.8	1	12.248			
T12	0.435	1.742	A	0.2	2.596	0.012	0.8	1	11.461	0.807	0.040	B
262.000-242.0			B	0.2	2.596		0.8	1	11.461			
00			C	0.2	2.596		0.8	1	11.461			
T13	0.459	1.629	A	0.198	2.602	0.012	0.8	1	11.332	0.824	0.041	B
242.000-222.0			B	0.198	2.602		0.8	1	11.332			
00			C	0.198	2.602		0.8	1	11.332			
T14	0.460	2.201	A	0.221	2.526	0.012	0.8	1	12.835	0.840	0.042	B
222.000-202.0			B	0.221	2.526		0.8	1	12.835			
00			C	0.221	2.526		0.8	1	12.835			
T15	0.460	1.860	A	0.206	2.575	0.011	0.8	1	11.792	0.803	0.040	B
202.000-182.0			B	0.206	2.575		0.8	1	11.792			
00			C	0.206	2.575		0.8	1	11.792			
T16	0.463	1.860	A	0.206	2.575	0.011	0.8	1	11.792	0.790	0.039	B
182.000-162.0			B	0.206	2.575		0.8	1	11.792			
00			C	0.206	2.575		0.8	1	11.792			
T17	0.481	1.972	A	0.208	2.569	0.011	0.8	1	11.920	0.801	0.040	B
162.000-142.0			B	0.208	2.569		0.8	1	11.920			
00			C	0.208	2.569		0.8	1	11.920			
T18	0.487	1.860	A	0.206	2.575	0.011	0.8	1	11.792	0.786	0.039	B
142.000-122.0			B	0.206	2.575		0.8	1	11.792			
00			C	0.206	2.575		0.8	1	11.792			
T19	0.247	0.959	A	0.219	2.533	0.010	0.8	1	6.343	0.397	0.040	B
122.000-112.0			B	0.219	2.533		0.8	1	6.343			
00			C	0.219	2.533		0.8	1	6.343			
T20	0.249	1.060	A	0.219	2.533	0.010	0.8	1	6.346	0.393	0.039	B
112.000-102.0			B	0.219	2.533		0.8	1	6.346			
00			C	0.219	2.533		0.8	1	6.346			
T21	0.501	1.972	A	0.208	2.569	0.010	0.8	1	11.920	0.753	0.038	B
102.000-82.00			B	0.208	2.569		0.8	1	11.920			
0			C	0.208	2.569		0.8	1	11.920			
T22	0.501	1.860	A	0.206	2.575	0.009	0.8	1	11.792	0.713	0.036	B

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
82.000-62.000			B	0.206	2.575		0.8	1	11.792			
			C	0.206	2.575		0.8	1	11.792			
T23	0.501	1.972	A	0.208	2.569	0.009	0.8	1	11.920	0.668	0.033	B
62.000-42.000			B	0.208	2.569		0.8	1	11.920			
			C	0.208	2.569		0.8	1	11.920			
T24	0.501	1.860	A	0.206	2.575	0.008	0.8	1	11.792	0.601	0.030	B
42.000-22.000			B	0.206	2.575		0.8	1	11.792			
			C	0.206	2.575		0.8	1	11.792			
T25	0.351	1.889	A	0.214	2.551	0.007	0.8	1	12.306	0.417	0.021	B
22.000-2.000			B	0.214	2.551		0.8	1	12.306			
			C	0.214	2.551		0.8	1	12.306			
Sum Weight:	7.191	39.321								14.582		

Tower Forces - Service - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
L1	0.000	0.535	A	1	0.67	0.014	1	1	10.781	0.135	0.009	C
492.000-477.0			B	1	0.67		1	1	10.781			
00			C	1	0.67		1	1	10.781			
L2	0.000	0.713	A	1	0.673	0.014	1	1	14.375	0.179	0.009	C
477.000-457.0			B	1	0.673		1	1	14.375			
00			C	1	0.673		1	1	14.375			
T1	0.000	0.418	A	0.283	2.343	0.014	0.85	1	4.551	0.125	0.025	C
457.000-452.0			B	0.283	2.343		0.85	1	4.551			
00			C	0.283	2.343		0.85	1	4.551			
T2	0.002	0.643	A	0.194	2.615	0.014	0.85	1	5.880	0.185	0.018	C
452.000-442.0			B	0.194	2.615		0.85	1	5.880			
00			C	0.194	2.615		0.85	1	5.880			
T3	0.055	1.341	A	0.183	2.654	0.013	0.85	1	10.943	0.427	0.021	C
442.000-422.0			B	0.183	2.654		0.85	1	10.943			
00			C	0.183	2.654		0.85	1	10.943			
T4	0.089	1.229	A	0.181	2.66	0.013	0.85	1	10.805	0.468	0.023	C
422.000-402.0			B	0.181	2.66		0.85	1	10.805			
00			C	0.181	2.66		0.85	1	10.805			
T5	0.089	1.229	A	0.181	2.66	0.013	0.85	1	10.805	0.463	0.023	C
402.000-382.0			B	0.181	2.66		0.85	1	10.805			
00			C	0.181	2.66		0.85	1	10.805			
T6	0.089	1.341	A	0.183	2.654	0.013	0.85	1	10.943	0.461	0.023	C
382.000-362.0			B	0.183	2.654		0.85	1	10.943			
00			C	0.183	2.654		0.85	1	10.943			
T7	0.091	1.229	A	0.181	2.66	0.013	0.85	1	10.805	0.458	0.023	C
362.000-342.0			B	0.181	2.66		0.85	1	10.805			
00			C	0.181	2.66		0.85	1	10.805			
T8	0.098	1.229	A	0.181	2.66	0.013	0.85	1	10.805	0.470	0.024	C
342.000-322.0			B	0.181	2.66		0.85	1	10.805			
00			C	0.181	2.66		0.85	1	10.805			
T9	0.099	1.440	A	0.185	2.647	0.013	0.85	1	10.916	0.468	0.023	C
322.000-302.0			B	0.185	2.647		0.85	1	10.916			
00			C	0.185	2.647		0.85	1	10.916			
T10	0.113	1.419	A	0.19	2.631	0.012	0.85	1	11.257	0.492	0.025	C
302.000-282.0			B	0.19	2.631		0.85	1	11.257			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
00			C	0.19	2.631		0.85	1	11.257			
T11	0.366	1.858	A	0.211	2.559	0.012	0.85	1	12.683	0.781	0.039	C
282.000-262.0			B	0.211	2.559		0.85	1	12.683			
00			C	0.211	2.559		0.85	1	12.683			
T12	0.435	1.742	A	0.2	2.596	0.012	0.85	1	11.848	0.818	0.041	B
262.000-242.0			B	0.2	2.596		0.85	1	11.848			
00			C	0.2	2.596		0.85	1	11.848			
T13	0.459	1.629	A	0.198	2.602	0.012	0.85	1	11.711	0.841	0.042	B
242.000-222.0			B	0.198	2.602		0.85	1	11.711			
00			C	0.198	2.602		0.85	1	11.711			
T14	0.460	2.201	A	0.221	2.526	0.012	0.85	1	13.276	0.857	0.043	B
222.000-202.0			B	0.221	2.526		0.85	1	13.276			
00			C	0.221	2.526		0.85	1	13.276			
T15	0.460	1.860	A	0.206	2.575	0.011	0.85	1	12.169	0.818	0.041	B
202.000-182.0			B	0.206	2.575		0.85	1	12.169			
00			C	0.206	2.575		0.85	1	12.169			
T16	0.463	1.860	A	0.206	2.575	0.011	0.85	1	12.169	0.806	0.040	B
182.000-162.0			B	0.206	2.575		0.85	1	12.169			
00			C	0.206	2.575		0.85	1	12.169			
T17	0.481	1.972	A	0.208	2.569	0.011	0.85	1	12.305	0.824	0.041	B
162.000-142.0			B	0.208	2.569		0.85	1	12.305			
00			C	0.208	2.569		0.85	1	12.305			
T18	0.487	1.860	A	0.206	2.575	0.011	0.85	1	12.169	0.808	0.040	B
142.000-122.0			B	0.206	2.575		0.85	1	12.169			
00			C	0.206	2.575		0.85	1	12.169			
T19	0.247	0.959	A	0.219	2.533	0.010	0.85	1	6.559	0.408	0.041	B
122.000-112.0			B	0.219	2.533		0.85	1	6.559			
00			C	0.219	2.533		0.85	1	6.559			
T20	0.249	1.060	A	0.219	2.533	0.010	0.85	1	6.562	0.404	0.040	B
112.000-102.0			B	0.219	2.533		0.85	1	6.562			
00			C	0.219	2.533		0.85	1	6.562			
T21	0.501	1.972	A	0.208	2.569	0.010	0.85	1	12.305	0.774	0.039	B
102.000-82.00			B	0.208	2.569		0.85	1	12.305			
0			C	0.208	2.569		0.85	1	12.305			
T22	0.501	1.860	A	0.206	2.575	0.009	0.85	1	12.169	0.732	0.037	B
82.000-62.000			B	0.206	2.575		0.85	1	12.169			
			C	0.206	2.575		0.85	1	12.169			
T23	0.501	1.972	A	0.208	2.569	0.009	0.85	1	12.305	0.686	0.034	B
62.000-42.000			B	0.208	2.569		0.85	1	12.305			
			C	0.208	2.569		0.85	1	12.305			
T24	0.501	1.860	A	0.206	2.575	0.008	0.85	1	12.169	0.618	0.031	B
42.000-22.000			B	0.206	2.575		0.85	1	12.169			
			C	0.206	2.575		0.85	1	12.169			
T25	0.351	1.889	A	0.214	2.551	0.007	0.85	1	12.714	0.428	0.021	B
22.000-2.000			B	0.214	2.551		0.85	1	12.714			
			C	0.214	2.551		0.85	1	12.714			
Sum Weight:	7.191	39.321								14.931		

Force Totals (Does not include forces on guys)

Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Torques kip-ft

Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Torques kip-ft
Leg Weight	28.245			
Bracing Weight	11.075			
Total Member Self-Weight	39.321			
Guy Weight	10.784			
Total Weight	65.784			
Wind 0 deg - No Ice		0.037	-40.722	-2.872
Wind 30 deg - No Ice		19.448	-33.599	-6.986
Wind 60 deg - No Ice		33.590	-19.375	-10.803
Wind 90 deg - No Ice		40.394	-0.033	-13.897
Wind 120 deg - No Ice		36.357	20.914	-10.522
Wind 150 deg - No Ice		20.253	35.122	-3.431
Wind 180 deg - No Ice		-0.070	38.702	2.870
Wind 210 deg - No Ice		-19.470	33.586	6.921
Wind 240 deg - No Ice		-35.387	20.397	10.788
Wind 270 deg - No Ice		-40.441	0.063	13.929
Wind 300 deg - No Ice		-34.657	-19.911	10.539
Wind 330 deg - No Ice		-20.327	-35.134	3.465
Member Ice	48.338			
Guy Ice	36.771			
Total Weight Ice	226.116			
Wind 0 deg - Ice		0.231	-27.330	-2.539
Wind 30 deg - Ice		13.718	-23.145	-5.811
Wind 60 deg - Ice		23.380	-13.492	-8.651
Wind 90 deg - Ice		27.179	-0.314	-9.698
Wind 120 deg - Ice		24.032	13.510	-7.297
Wind 150 deg - Ice		13.378	23.410	-2.000
Wind 180 deg - Ice		-0.041	26.793	2.939
Wind 210 deg - Ice		-13.316	23.249	6.491
Wind 240 deg - Ice		-23.701	13.586	8.922
Wind 270 deg - Ice		-27.116	-0.149	9.295
Wind 300 deg - Ice		-23.505	-13.517	6.637
Wind 330 deg - Ice		-13.652	-23.306	1.722
Total Weight	65.784			
Wind 0 deg - Service		0.017	-18.541	-1.305
Wind 30 deg - Service		8.856	-15.299	-3.175
Wind 60 deg - Service		15.295	-8.823	-4.910
Wind 90 deg - Service		18.392	-0.015	-6.316
Wind 120 deg - Service		16.553	9.522	-4.782
Wind 150 deg - Service		9.222	15.991	-1.560
Wind 180 deg - Service		-0.032	17.623	1.304
Wind 210 deg - Service		-8.866	15.294	3.145
Wind 240 deg - Service		-16.112	9.287	4.903
Wind 270 deg - Service		-18.414	0.028	6.330
Wind 300 deg - Service		-15.780	-9.066	4.790
Wind 330 deg - Service		-9.255	-15.997	1.575

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice+1.0 Guy
3	1.2 Dead+1.6 Wind 30 deg - No Ice+1.0 Guy
4	1.2 Dead+1.6 Wind 60 deg - No Ice+1.0 Guy

Comb. No.	Description
5	1.2 Dead+1.6 Wind 90 deg - No Ice+1.0 Guy
6	1.2 Dead+1.6 Wind 120 deg - No Ice+1.0 Guy
7	1.2 Dead+1.6 Wind 150 deg - No Ice+1.0 Guy
8	1.2 Dead+1.6 Wind 180 deg - No Ice+1.0 Guy
9	1.2 Dead+1.6 Wind 210 deg - No Ice+1.0 Guy
10	1.2 Dead+1.6 Wind 240 deg - No Ice+1.0 Guy
11	1.2 Dead+1.6 Wind 270 deg - No Ice+1.0 Guy
12	1.2 Dead+1.6 Wind 300 deg - No Ice+1.0 Guy
13	1.2 Dead+1.6 Wind 330 deg - No Ice+1.0 Guy
14	1.2 Dead+1.0 Ice+1.0 Temp+Guy
15	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy
16	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy
17	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy
18	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy
19	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy
20	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy
21	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy
22	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp+1.0 Guy
23	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp+1.0 Guy
24	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp+1.0 Guy
25	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp+1.0 Guy
26	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp+1.0 Guy
27	Dead+Wind 0 deg - Service+Guy
28	Dead+Wind 30 deg - Service+Guy
29	Dead+Wind 60 deg - Service+Guy
30	Dead+Wind 90 deg - Service+Guy
31	Dead+Wind 120 deg - Service+Guy
32	Dead+Wind 150 deg - Service+Guy
33	Dead+Wind 180 deg - Service+Guy
34	Dead+Wind 210 deg - Service+Guy
35	Dead+Wind 240 deg - Service+Guy
36	Dead+Wind 270 deg - Service+Guy
37	Dead+Wind 300 deg - Service+Guy
38	Dead+Wind 330 deg - Service+Guy

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Guy C @ 148 ft Elev -7 ft Azimuth 240 deg	Max. Vert	10	-13.384	-2.939	1.697
	Max. H_x	10	-13.384	-2.939	1.697
	Max. H_z	3	-105.514	-40.025	24.921
	Min. Vert	5	-107.110	-42.291	22.653
	Min. H_x	5	-107.110	-42.291	22.653
	Min. H_z	9	-17.513	-5.162	1.634
Guy B @ 146 ft Elev -4 ft Azimuth 120 deg	Max. Vert	6	-13.423	2.918	1.685
	Max. H_x	11	-107.796	42.286	22.648
	Max. H_z	13	-106.696	40.346	25.104
	Min. Vert	12	-108.029	41.604	24.042
	Min. H_x	6	-13.423	2.918	1.685
	Min. H_z	7	-17.569	5.123	1.620
Guy A @ 149 ft Elev 2 ft Azimuth 0 deg	Max. Vert	2	-12.429	-0.000	-3.214

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
	Max. H_x	11	-59.958	2.772	-26.349
	Max. H_z	2	-12.429	-0.000	-3.214
	Min. Vert	8	-103.712	0.012	-47.756
	Min. H_x	5	-59.637	-2.768	-26.218
	Min. H_z	8	-103.712	0.012	-47.756
Guy C @ 117.5 ft Elev -5 ft Azimuth 240 deg	Max. Vert	10	-1.318	-0.544	0.314
	Max. H_x	10	-1.318	-0.544	0.314
	Max. H_z	5	-58.606	-41.874	23.481
	Min. Vert	5	-58.606	-41.874	23.481
	Min. H_x	5	-58.606	-41.874	23.481
	Min. H_z	10	-1.318	-0.544	0.314
Guy B @ 117.5 ft Elev 0 ft Azimuth 120 deg	Max. Vert	6	-1.156	0.487	0.281
	Max. H_x	11	-56.852	41.839	23.479
	Max. H_z	13	-57.201	41.669	24.804
	Min. Vert	13	-57.201	41.669	24.804
	Min. H_x	6	-1.156	0.487	0.281
	Min. H_z	6	-1.156	0.487	0.281
Guy A @ 123 ft Elev 0 ft Azimuth 0 deg	Max. Vert	2	-1.079	-0.000	-0.574
	Max. H_x	10	-46.356	0.952	-40.939
	Max. H_z	2	-1.079	-0.000	-0.574
	Min. Vert	7	-54.598	-0.621	-48.333
	Min. H_x	6	-48.131	-1.007	-42.624
	Min. H_z	7	-54.598	-0.621	-48.333
Mast	Max. Vert	25	436.962	-0.618	-0.497
	Max. H_x	6	376.792	3.109	1.529
	Max. H_z	6	376.792	3.109	1.529
	Max. M_x	1	0.000	0.001	-0.031
	Max. M_z	1	0.000	0.001	-0.031
	Max. Torsion	5	11.361	2.534	0.896
	Min. Vert	1	225.694	0.001	-0.031
	Min. H_x	10	371.806	-2.751	1.447
	Min. H_z	2	374.957	0.113	-3.399
	Min. M_x	1	0.000	0.001	-0.031
	Min. M_z	1	0.000	0.001	-0.031
	Min. Torsion	11	-11.082	-2.351	0.928

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	225.694	-0.001	0.031	0.000	0.000	-0.059
1.2 Dead+1.6 Wind 0 deg - No Ice+1.0 Guy	374.957	-0.113	3.399	0.000	0.000	-2.405
1.2 Dead+1.6 Wind 30 deg - No Ice+1.0 Guy	345.349	-0.400	2.483	0.000	0.000	-4.976
1.2 Dead+1.6 Wind 60 deg - No Ice+1.0 Guy	308.070	-0.934	0.532	0.000	0.000	-9.054
1.2 Dead+1.6 Wind 90 deg - No Ice+1.0 Guy	349.493	-2.534	-0.896	0.000	0.000	-11.361
1.2 Dead+1.6 Wind 120 deg -	376.792	-3.109	-1.529	0.000	0.000	-7.866

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
No Ice+1.0 Guy						
1.2 Dead+1.6 Wind 150 deg - No Ice+1.0 Guy	346.598	-2.032	-1.297	0.000	0.000	-2.132
1.2 Dead+1.6 Wind 180 deg - No Ice+1.0 Guy	305.348	0.035	-0.716	0.000	0.000	2.379
1.2 Dead+1.6 Wind 210 deg - No Ice+1.0 Guy	341.195	1.792	-1.187	0.000	0.000	4.656
1.2 Dead+1.6 Wind 240 deg - No Ice+1.0 Guy	371.806	2.751	-1.447	0.000	0.000	7.624
1.2 Dead+1.6 Wind 270 deg - No Ice+1.0 Guy	348.941	2.351	-0.928	0.000	0.000	11.082
1.2 Dead+1.6 Wind 300 deg - No Ice+1.0 Guy	309.562	0.857	0.463	0.000	0.000	8.787
1.2 Dead+1.6 Wind 330 deg - No Ice+1.0 Guy	350.550	0.249	2.658	0.000	0.000	1.831
1.2 Dead+1.0 Ice+1.0 Temp+Guy	414.996	0.017	0.156	0.000	0.000	-0.142
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy	427.870	-0.006	1.099	0.000	0.000	-1.512
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy	433.487	-0.324	0.912	0.000	0.000	-2.786
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy	436.780	-0.625	0.524	0.000	0.000	-4.462
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy	432.988	-0.817	0.075	0.000	0.000	-5.312
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy	426.812	-0.791	-0.252	0.000	0.000	-3.793
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy	432.197	-0.460	-0.421	0.000	0.000	-0.818
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy	435.486	0.028	-0.477	0.000	0.000	1.313
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp+1.0 Guy	431.695	0.479	-0.412	0.000	0.000	2.721
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp+1.0 Guy	425.854	0.770	-0.238	0.000	0.000	4.295
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp+1.0 Guy	432.699	0.801	0.061	0.000	0.000	4.874
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp+1.0 Guy	436.962	0.618	0.497	0.000	0.000	3.212
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp+1.0 Guy	433.758	0.310	0.905	0.000	0.000	0.363
Dead+Wind 0 deg - Service+Guy	227.834	-0.011	-0.009	0.000	0.000	-0.862
Dead+Wind 30 deg - Service+Guy	228.374	-0.023	0.021	0.000	0.000	-1.804
Dead+Wind 60 deg - Service+Guy	228.989	-0.036	0.037	0.000	0.000	-2.955
Dead+Wind 90 deg - Service+Guy	228.717	-0.026	0.041	0.000	0.000	-3.982
Dead+Wind 120 deg - Service+Guy	228.348	0.007	0.058	0.000	0.000	-2.939
Dead+Wind 150 deg - Service+Guy	229.075	0.003	0.051	0.000	0.000	-0.833
Dead+Wind 180 deg - Service+Guy	229.602	0.009	0.039	0.000	0.000	0.735
Dead+Wind 210 deg - Service+Guy	229.133	0.012	0.040	0.000	0.000	1.659
Dead+Wind 240 deg - Service+Guy	228.511	0.001	0.045	0.000	0.000	2.828
Dead+Wind 270 deg - Service+Guy	229.004	0.022	0.028	0.000	0.000	3.860

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+Wind 300 deg - Service+Guy	229.309	0.021	0.022	0.000	0.000	2.815
Dead+Wind 330 deg - Service+Guy	228.616	0.002	0.011	0.000	0.000	0.725

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
1	0.000	-65.781	0.000	0.000	65.781	-0.013	0.019%
2	0.060	-76.963	-81.124	-0.060	76.961	81.056	0.061%
3	39.130	-76.775	-67.589	-39.138	76.774	67.535	0.050%
4	67.646	-76.590	-38.992	-67.619	76.589	38.963	0.036%
5	80.690	-76.802	-0.051	-80.646	76.802	0.085	0.049%
6	72.076	-77.010	41.455	-72.018	77.008	-41.423	0.058%
7	40.419	-76.809	70.024	-40.370	76.808	-70.006	0.047%
8	-0.112	-76.599	77.891	0.104	76.599	-77.856	0.033%
9	-39.165	-76.787	67.569	39.116	76.786	-67.550	0.048%
10	-70.522	-76.972	40.627	70.464	76.971	-40.595	0.059%
11	-80.766	-76.760	0.099	80.722	76.759	-0.065	0.050%
12	-69.356	-76.552	-39.849	69.325	76.552	39.826	0.035%
13	-40.538	-76.753	-70.044	40.546	76.753	69.988	0.051%
14	0.000	-237.105	0.000	-0.013	237.105	-0.037	0.017%
15	0.235	-237.303	-42.793	-0.233	237.303	42.803	0.004%
16	21.483	-237.096	-36.540	-21.468	237.096	36.528	0.008%
17	36.854	-236.893	-21.233	-36.837	236.893	21.220	0.009%
18	42.743	-237.125	-0.314	-42.728	237.124	0.303	0.008%
19	37.504	-237.351	21.246	-37.510	237.351	-21.256	0.005%
20	21.138	-237.133	36.798	-21.139	237.133	-36.782	0.007%
21	-0.044	-236.906	42.256	0.042	236.906	-42.237	0.008%
22	-21.081	-237.113	36.644	21.077	237.113	-36.628	0.007%
23	-37.174	-237.316	21.327	37.180	237.316	-21.336	0.005%
24	-42.679	-237.085	-0.148	42.663	237.085	0.140	0.008%
25	-36.977	-236.858	-21.253	36.958	236.858	21.243	0.009%
26	-21.412	-237.076	-36.694	21.396	237.076	36.685	0.008%
27	0.017	-65.833	-23.076	-0.018	65.833	23.067	0.012%
28	11.132	-65.779	-19.228	-11.125	65.779	19.223	0.012%
29	19.244	-65.727	-11.093	-19.237	65.727	11.088	0.012%
30	22.954	-65.787	-0.015	-22.947	65.787	0.011	0.012%
31	20.503	-65.846	11.792	-20.495	65.846	-11.789	0.012%
32	11.498	-65.789	19.920	-11.498	65.789	-19.912	0.011%
33	-0.032	-65.729	22.159	0.032	65.729	-22.151	0.011%
34	-11.142	-65.783	19.222	11.140	65.783	-19.215	0.011%
35	-20.061	-65.835	11.557	20.054	65.835	-11.554	0.012%
36	-22.976	-65.775	0.028	22.968	65.775	-0.032	0.012%
37	-19.730	-65.716	-11.336	19.722	65.716	11.332	0.013%
38	-11.532	-65.773	-19.925	11.524	65.773	19.921	0.012%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance

1	Yes	22	0.00020000	0.00001043
2	Yes	155	0.00019786	0.00007006
3	Yes	141	0.00019573	0.00006042
4	Yes	66	0.00019537	0.00006314
5	Yes	132	0.00019563	0.00006122
6	Yes	147	0.00019610	0.00006881
7	Yes	131	0.00019774	0.00005809
8	Yes	63	0.00019573	0.00005722
9	Yes	137	0.00019916	0.00005944
10	Yes	151	0.00019793	0.00007008
11	Yes	135	0.00019616	0.00006174
12	Yes	66	0.00019221	0.00006252
13	Yes	137	0.00019874	0.00006076
14	Yes	24	0.00020000	0.00001832
15	Yes	70	0.00019183	0.00001754
16	Yes	97	0.00019830	0.00002118
17	Yes	103	0.00019869	0.00002468
18	Yes	97	0.00019774	0.00002137
19	Yes	71	0.00019432	0.00001634
20	Yes	94	0.00019522	0.00001863
21	Yes	101	0.00019647	0.00002180
22	Yes	96	0.00019529	0.00001907
23	Yes	66	0.00019359	0.00001657
24	Yes	98	0.00019542	0.00002137
25	Yes	103	0.00019744	0.00002463
26	Yes	97	0.00019587	0.00002089
27	Yes	26	0.00019738	0.00001944
28	Yes	40	0.00019855	0.00001808
29	Yes	46	0.00019272	0.00001847
30	Yes	39	0.00019522	0.00001789
31	Yes	25	0.00019792	0.00002248
32	Yes	39	0.00019860	0.00001665
33	Yes	46	0.00019609	0.00001679
34	Yes	41	0.00019217	0.00001638
35	Yes	28	0.00019824	0.00001903
36	Yes	40	0.00019803	0.00001849
37	Yes	46	0.00019644	0.00001906
38	Yes	40	0.00019953	0.00001823

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	492 - 477	7.294	37	0.3944	0.7988
L2	477 - 457	6.078	37	0.3666	0.7988
T1	457 - 452	4.985	37	0.0822	0.7860
T2	452 - 442	4.898	37	0.0799	0.7836
T3	442 - 422	4.734	37	0.0714	0.7770
T4	422 - 402	4.445	37	0.0683	0.7877
T5	402 - 382	4.163	37	0.0620	0.7855
T6	382 - 362	3.927	37	0.0416	0.7878
T7	362 - 342	3.779	37	0.0332	0.8160
T8	342 - 322	3.648	37	0.0281	0.8089
T9	322 - 302	3.545	37	0.0135	0.8280
T10	302 - 282	3.510	37	0.0156	0.8366
T11	282 - 262	3.426	37	0.0278	0.8609
T12	262 - 242	3.286	37	0.0296	0.8369
T13	242 - 222	3.160	37	0.0341	0.8557
T14	222 - 202	3.025	30	0.0338	0.8053

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T15	202 - 182	2.937	30	0.0248	0.8130
T16	182 - 162	2.860	30	0.0352	0.7606
T17	162 - 142	2.689	30	0.0552	0.7394
T18	142 - 122	2.425	30	0.0699	0.6658
T19	122 - 112	2.092	30	0.0837	0.6238
T20	112 - 102	1.906	31	0.0863	0.5592
T21	102 - 82	1.729	31	0.0836	0.5707
T22	82 - 62	1.409	31	0.0818	0.4519
T23	62 - 42	1.064	31	0.0834	0.3904
T24	42 - 22	0.710	31	0.0807	0.2455
T25	22 - 2	0.380	31	0.0808	0.1712

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
490.000	Beacon (.075k 2.250CAAA)	37	7.126	0.3993	0.7991	32937
471.000	2 Bay FM Antenna	37	5.650	0.2792	0.7957	5974
453.000	3' Yagi(.03k,2.08CAAA)	37	4.913	0.0791	0.7841	15526
442.000	Guy	37	4.734	0.0714	0.7770	50463
435.000	6' Grid Dish	37	4.626	0.0667	0.7719	62819
382.000	Guy	37	3.927	0.0416	0.7878	39817
358.000	Obstruction Light(.01k,.8CAAA)	37	3.753	0.0326	0.8127	326885
351.000	3' Dish w/ Radomes	37	3.707	0.0315	0.7951	501121
339.000	3' Grid Dish	37	3.629	0.0261	0.8067	128437
322.000	Guy	37	3.545	0.0135	0.8280	41918
302.000	6' Omni	37	3.510	0.0156	0.8366	63956
300.000	Kathrein CA5-FM/CP/RM	37	3.506	0.0168	0.8368	59015
280.000	KRY 112 89/4	37	3.413	0.0284	0.8605	75526
262.000	Guy	37	3.286	0.0296	0.8369	77277
257.000	SM 408-3	37	3.254	0.0303	0.8289	125674
247.000	8' Grid Dish (140lbs 20.1CaAa)	37	3.193	0.0328	0.8535	86401
239.000	8' Grid Dish (140lbs 20.1CaAa)	37	3.137	0.0347	0.8497	66922
237.000	Beacon (.075k 2.250CAAA)	37	3.122	0.0351	0.8431	85138
210.000	Guy	30	2.967	0.0275	0.8054	87823
165.000	Sector Frames	30	2.721	0.0524	0.7444	49456
154.000	Guy	30	2.593	0.0616	0.7006	59988
138.000	10' Dipole	30	2.363	0.0728	0.6460	72529
125.000	10' Dipole	30	2.146	0.0820	0.6361	64662
124.000	Beacon (.075k 2.250CAAA)	30	2.128	0.0826	0.6330	64947
116.000	Obstruction Light(.01k,.8CAAA)	30	1.980	0.0859	0.5801	137356
108.000	10' Dipole	31	1.834	0.0855	0.5603	103149
102.000	Guy	31	1.729	0.0836	0.5707	53666
46.000	Guy	31	0.779	0.0813	0.2632	111868

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	492 - 477	43.467	10	1.4135	2.0969

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L2	477 - 457	39.114	10	1.3216	2.0969
T1	457 - 452	35.112	2	0.4087	2.0525
T2	452 - 442	34.722	2	0.4011	2.0439
T3	442 - 422	33.969	2	0.3729	2.0243
T4	422 - 402	32.591	2	0.3648	2.0522
T5	402 - 382	31.226	2	0.3417	2.0507
T6	382 - 362	30.021	2	0.2607	2.0576
T7	362 - 342	29.171	2	0.2191	2.1154
T8	342 - 322	28.398	2	0.1900	2.1294
T9	322 - 302	27.751	2	0.1266	2.1640
T10	302 - 282	27.376	2	0.1273	2.2395
T11	282 - 262	26.819	2	0.1701	2.2912
T12	262 - 242	26.177	6	0.1783	2.2676
T13	242 - 222	25.647	6	0.2071	2.2860
T14	222 - 202	24.865	6	0.2278	2.1979
T15	202 - 182	24.068	6	0.2205	2.1868
T16	182 - 162	23.165	6	0.2969	2.0985
T17	162 - 142	21.720	6	0.4166	2.0081
T18	142 - 122	19.717	6	0.5253	1.8555
T19	122 - 112	17.254	6	0.6235	1.7055
T20	112 - 102	15.873	6	0.6518	1.5625
T21	102 - 82	14.464	6	0.6579	1.5486
T22	82 - 62	11.710	6	0.6746	1.2824
T23	62 - 42	8.818	6	0.6932	1.0575
T24	42 - 22	5.895	6	0.6779	0.7020
T25	22 - 2	3.109	6	0.6717	0.4294

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
490.000	Beacon (.075k 2.250CAAA)	10	42.869	1.4291	2.0981	9987
471.000	2 Bay FM Antenna	2	37.571	1.0401	2.0863	1844
453.000	3' Yagi(.03k,2.08CAAA)	2	34.791	0.3985	2.0456	4821
442.000	Guy	2	33.969	0.3729	2.0243	15669
435.000	6' Grid Dish	2	33.466	0.3585	2.0211	19227
382.000	Guy	2	30.021	0.2607	2.0576	9950
358.000	Obstruction Light(.01k,.8CAAA)	2	29.015	0.2150	2.1158	115603
351.000	3' Dish w/ Radomes	2	28.742	0.2072	2.0987	64955
339.000	3' Grid Dish	2	28.287	0.1812	2.1275	28151
322.000	Guy	2	27.751	0.1266	2.1640	10755
302.000	6' Omni	2	27.376	0.1273	2.2395	17033
300.000	Kathrein CA5-FM/CP/RM	2	27.334	0.1312	2.2444	15667
280.000	KRY 112 89/4	2	26.746	0.1723	2.2916	18890
262.000	Guy	6	26.177	0.1783	2.2676	20678
257.000	SM 408-3	6	26.050	0.1829	2.2536	33712
247.000	8' Grid Dish (140lbs 20.1CaAa)	6	25.796	0.1982	2.2858	16602
239.000	8' Grid Dish (140lbs 20.1CaAa)	6	25.546	0.2122	2.2746	12951
237.000	Beacon (.075k 2.250CAAA)	6	25.473	0.2154	2.2629	15063
210.000	Guy	6	24.383	0.2195	2.1815	23528
165.000	Sector Frames	6	21.975	0.3990	2.0236	8338
154.000	Guy	6	20.979	0.4605	1.9279	9372
138.000	10' Dipole	6	19.259	0.5467	1.8127	10916
125.000	10' Dipole	6	17.651	0.6111	1.7373	11129
124.000	Beacon (.075k 2.250CAAA)	6	17.520	0.6154	1.7283	11245
116.000	Obstruction Light(.01k,.8CAAA)	6	16.433	0.6434	1.6109	19745

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
108.000	10' Dipole	6	15.308	0.6558	1.5510	29612
102.000	Guy	6	14.464	0.6579	1.5486	15304
46.000	Guy	6	6.469	0.6814	0.7589	24120

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	457	Diagonal	A325N	0.6250	1	1.762	9.914	0.178 ✔	1	Member Block Shear
		Top Girt	A325N	0.6250	1	0.000	12.425	0.000 ✔	1	Bolt Shear
T2	452	Diagonal	A325N	0.6250	1	2.319	10.500	0.221 ✔	1	Member Block Shear
		Horizontal	A325N	0.6250	1	0.287	7.875	0.036 ✔	1	Member Block Shear
		Top Girt	A325N	0.6250	1	0.804	7.875	0.102 ✔	1	Member Block Shear
T3	442	Diagonal	A325N	0.6250	1	1.186	12.425	0.095 ✔	1	Bolt Shear
		Horizontal	A325N	0.6250	1	0.403	7.875	0.051 ✔	1	Member Block Shear
		Top Guy Pull-Off@442	A325N	0.7500	2	2.851	32.477	0.088 ✔	1	Member Block Shear
T4	422	Diagonal	A325N	0.6250	1	2.007	10.500	0.191 ✔	1	Member Block Shear
		Horizontal	A325N	0.6250	1	0.526	7.875	0.067 ✔	1	Member Block Shear
		Top Girt	A325N	0.6250	1	0.227	7.875	0.029 ✔	1	Member Block Shear
T5	402	Diagonal	A325N	0.6250	1	3.454	10.500	0.329 ✔	1	Member Block Shear
		Horizontal	A325N	0.6250	1	0.838	7.875	0.106 ✔	1	Member Block Shear
		Top Girt	A325N	0.6250	1	0.234	7.875	0.030 ✔	1	Member Block Shear
T6	382	Diagonal	A325N	0.6250	1	2.324	12.425	0.187 ✔	1	Bolt Shear
		Horizontal	A325N	0.6250	1	0.937	7.875	0.119 ✔	1	Member Block Shear
		Top Guy Pull-Off@382	A325N	0.7500	2	3.361	32.477	0.103 ✔	1	Member Block Shear
T7	362	Diagonal	A325N	0.6250	1	1.777	12.425	0.143 ✔	1	Bolt Shear
		Horizontal	A325N	0.6250	1	0.863	7.875	0.110 ✔	1	Member Block Shear
		Top Girt	A325N	0.6250	1	0.307	7.875	0.039 ✔	1	Member Block Shear
T8	342	Diagonal	A325N	0.6250	1	3.051	12.425	0.246 ✔	1	Bolt Shear
		Horizontal	A325N	0.6250	1	1.084	7.875	0.138 ✔	1	Member Block Shear
		Top Girt	A325N	0.6250	1	0.316	7.875	0.040 ✔	1	Member Block Shear
T9	322	Diagonal	A325N	0.6250	1	3.359	6.855	0.490 ✔	1	Member Block Shear

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load / Allowable	Allowable Ratio	Criteria
		Horizontal	A325N	0.6250	1	1.123	7.875	0.143 ✓	1	Member Block Shear
		Top Guy Pull-Off@322	A325N	0.7500	2	3.359	32.477	0.103 ✓	1	Member Block Shear
T10	302	Diagonal	A325N	0.6250	1	2.499	12.425	0.201 ✓	1	Bolt Shear
		Horizontal	A325N	0.6250	1	1.170	7.875	0.149 ✓	1	Member Block Shear
		Top Girt	A325N	0.6250	1	0.547	7.875	0.069 ✓	1	Member Block Shear
T11	282	Diagonal	A325N	0.6250	1	6.394	12.425	0.515 ✓	1	Bolt Shear
		Horizontal	A325N	0.6250	1	1.472	7.875	0.187 ✓	1	Member Block Shear
		Top Girt	A325N	0.6250	1	1.307	7.875	0.166 ✓	1	Member Block Shear
T12	262	Diagonal	A325N	0.6250	1	5.277	12.425	0.425 ✓	1	Bolt Shear
		Horizontal	A325N	0.6250	1	1.530	7.875	0.194 ✓	1	Member Block Shear
		Top Guy Pull-Off@262	A325N	0.7500	2	4.798	32.477	0.148 ✓	1	Member Block Shear
T13	242	Diagonal	A325N	0.6250	1	4.644	12.425	0.374 ✓	1	Bolt Shear
		Horizontal	A325N	0.6250	1	1.619	7.875	0.206 ✓	1	Member Block Shear
		Top Girt	A325N	0.6250	1	0.750	7.875	0.095 ✓	1	Member Block Shear
T14	222	Diagonal	A325N	0.6250	1	7.869	12.425	0.633 ✓	1	Bolt Shear
		Horizontal	A325N	0.6250	1	1.910	7.875	0.243 ✓	1	Member Block Shear
		Top Girt	A325N	0.6250	1	0.814	7.875	0.103 ✓	1	Member Block Shear
		Top Guy Pull-Off@210	A325N	0.7500	2	5.363	32.477	0.165 ✓	1	Member Block Shear
T15	202	Diagonal	A325N	0.6250	1	7.092	12.425	0.571 ✓	1	Bolt Shear
		Horizontal	A325N	0.6250	1	2.144	7.875	0.272 ✓	1	Member Block Shear
		Top Girt	A325N	0.6250	1	1.020	7.875	0.130 ✓	1	Member Block Shear
T16	182	Diagonal	A325N	0.6250	1	5.307	12.425	0.427 ✓	1	Bolt Shear
		Horizontal	A325N	0.6250	1	2.373	7.875	0.301 ✓	1	Member Block Shear
		Top Girt	A325N	0.6250	1	1.016	7.875	0.129 ✓	1	Member Block Shear
T17	162	Diagonal	A325N	0.6250	1	7.233	12.425	0.582 ✓	1	Bolt Shear
		Horizontal	A325N	0.6250	1	2.347	7.875	0.298 ✓	1	Member Block Shear
		Top Girt	A325N	0.6250	1	1.499	7.875	0.190 ✓	1	Member Block Shear
		Top Guy Pull-Off@154	A325N	0.7500	2	3.288	32.477	0.101 ✓	1	Member Block Shear
T18	142	Diagonal	A325N	0.6250	1	6.049	12.425	0.487 ✓	1	Bolt Shear
		Horizontal	A325N	0.6250	1	2.334	7.875	0.296 ✓	1	Member Block Shear
		Top Girt	A325N	0.6250	1	1.067	7.875	0.136 ✓	1	Member Block Shear
T19	122	Diagonal	A325N	0.6250	1	7.506	12.425	0.604 ✓	1	Bolt Shear

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load / Allowable	Allowable Ratio	Criteria
		Horizontal	A325N	0.6250	1	2.254	7.875	0.286 ✔	1	Member Block Shear
		Top Girt	A325N	0.6250	1	1.132	7.875	0.144 ✔	1	Member Block Shear
T20	112	Diagonal	A325N	0.6250	1	8.662	12.425	0.697 ✔	1	Bolt Shear
		Horizontal	A325N	0.6250	1	2.226	7.875	0.283 ✔	1	Member Block Shear
		Top Girt	A325N	0.6250	1	1.163	7.875	0.148 ✔	1	Member Block Shear
T21	102	Diagonal	A325N	0.6250	1	6.245	12.425	0.503 ✔	1	Bolt Shear
		Horizontal	A325N	0.6250	1	2.355	7.875	0.299 ✔	1	Member Block Shear
		Top Guy Pull-Off@102	A325N	0.7500	2	4.179	32.477	0.129 ✔	1	Member Block Shear
T22	82	Diagonal	A325N	0.6250	1	6.148	12.425	0.495 ✔	1	Bolt Shear
		Horizontal	A325N	0.6250	1	2.400	7.875	0.305 ✔	1	Member Block Shear
		Top Girt	A325N	0.6250	1	1.041	7.875	0.132 ✔	1	Member Block Shear
T23	62	Diagonal	A325N	0.6250	1	8.103	12.425	0.652 ✔	1	Bolt Shear
		Horizontal	A325N	0.6250	1	2.479	7.875	0.315 ✔	1	Member Block Shear
		Top Girt	A325N	0.6250	1	1.054	7.875	0.134 ✔	1	Member Block Shear
		Top Guy Pull-Off@46	A325N	0.7500	2	2.997	32.477	0.092 ✔	1	Member Block Shear
T24	42	Diagonal	A325N	0.6250	1	7.897	12.425	0.636 ✔	1	Bolt Shear
		Horizontal	A325N	0.6250	1	2.512	7.875	0.319 ✔	1	Member Block Shear
		Top Girt	A325N	0.6250	1	1.028	7.875	0.131 ✔	1	Member Block Shear
T25	22	Diagonal	A325N	0.6250	1	6.411	12.425	0.516 ✔	1	Bolt Shear
		Horizontal	A325N	0.6250	1	2.536	7.875	0.322 ✔	1	Member Block Shear
		Top Girt	A325N	0.6250	1	1.067	7.875	0.136 ✔	1	Member Block Shear

Guy Design Data

Section No.	Elevation ft	Size	Initial Tension K	Breaking Load K	Actual T_u K	Allowable f T_n K	Required S.F.	Actual S.F.
T3	442.000 (A) (776)	1 BS	12.200	122.000	31.482	73.200	1.000	2.325 ✔
	442.000 (B) (775)	1 BS	12.200	122.000	32.035	73.200	1.000	2.285 ✔
	442.000 (C) (774)	1 BS	12.200	122.000	31.932	73.200	1.000	2.292 ✔
T6	382.000 (A) (779)	1 BS	12.200	122.000	31.385	73.200	1.000	2.332 ✔
	382.000 (B)	1 BS	12.200	122.000	32.318	73.200	1.000	2.265 ✔

Section No.	Elevation ft	Size	Initial Tension K	Breaking Load K	Actual T_u K	Allowable f T_n K	Required S.F.	Actual S.F.
	(778)							
	382.000 (C)	1 BS	12.200	122.000	32.073	73.200	1.000	2.282 ✔
	(777)							
T9	322.000 (A)	7/8 BS	9.200	92.000	25.556	55.200	1.000	2.160 ✔
	(782)							
	322.000 (B)	7/8 BS	9.200	92.000	26.704	55.200	1.000	2.067 ✔
	(781)							
	322.000 (C)	7/8 BS	9.200	92.000	26.536	55.200	1.000	2.080 ✔
	(780)							
T12	262.000 (A)	7/8 BS	9.200	92.000	30.276	55.200	1.000	1.823 ✔
	(785)							
	262.000 (B)	7/8 BS	9.200	92.000	31.426	55.200	1.000	1.757 ✔
	(784)							
	262.000 (C)	7/8 BS	9.200	92.000	31.655	55.200	1.000	1.744 ✔
	(783)							
T14	210.000 (A)	7/8 BS	9.200	92.000	33.432	55.200	1.000	1.651 ✔
	(788)							
	210.000 (B)	7/8 BS	9.200	92.000	34.600	55.200	1.000	1.595 ✔
	(787)							
	210.000 (C)	7/8 BS	9.200	92.000	34.820	55.200	1.000	1.585 ✔
	(786)							
T17	154.000 (A)	9/16 EHS	3.500	35.000	15.778	21.000	1.000	1.331 ✔
	(791)							
	154.000 (B)	9/16 EHS	3.500	35.000	16.171	21.000	1.000	1.299 ✔
	(790)							
	154.000 (C)	9/16 EHS	3.500	35.000	16.315	21.000	1.000	1.287 ✔
	(789)							
T21	102.000 (A)	9/16 EHS	3.500	35.000	16.615	21.000	1.000	1.264 ✔
	(794)							
	102.000 (B)	9/16 EHS	3.500	35.000	17.000	21.000	1.000	1.235 ✔
	(793)							
	102.000 (C)	9/16 EHS	3.500	35.000	17.128	21.000	1.000	1.226 ✔
	(792)							
T23	46.000 (A)	1/2 EHS	2.690	26.900	9.532	16.140	1.000	1.693 ✔
	(797)							
	46.000 (B)	1/2 EHS	2.690	26.900	9.775	16.140	1.000	1.651 ✔
	(796)							
	46.000 (C)	1/2 EHS	2.690	26.900	9.877	16.140	1.000	1.634 ✔
	(795)							

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	f P_n K	Ratio $\frac{P_u}{f P_n}$
L1	492 - 477 (1)	P8x.406	15.000	35.000	144.4	10.4832	-0.720	113.643	0.006
L2	477 - 457 (2)	P8x.406	20.000	35.000	144.4	10.4832	-1.638	113.643	0.014

Pole Bending Design Data

Section No.	Elevation	Size	M_{ux}	f M_{nx}	Ratio $\frac{M_{ux}}{f M_{nx}}$	M_{uy}	f M_{ny}	Ratio $\frac{M_{uy}}{f M_{ny}}$
	ft		kip-ft	kip-ft		kip-ft	kip-ft	
L1	492 - 477 (1)	P8x.406	5.195	72.052	0.072	0.000	72.052	0.000
L2	477 - 457 (2)	P8x.406	26.935	72.052	0.374	0.000	72.052	0.000

Pole Shear Design Data

Section No.	Elevation	Size	Actual V_u	f V_n	Ratio $\frac{V_u}{f V_n}$	Actual T_u	f T_n	Ratio $\frac{T_u}{f T_n}$
	ft		K	K		kip-ft	kip-ft	
L1	492 - 477 (1)	P8x.406	0.667	165.111	0.004	0.000	108.027	0.000
L2	477 - 457 (2)	P8x.406	1.432	165.111	0.009	0.379	108.027	0.004

Pole Interaction Design Data

Section No.	Elevation	Ratio $\frac{P_u}{f P_n}$	Ratio $\frac{M_{ux}}{f M_{nx}}$	Ratio $\frac{M_{uy}}{f M_{ny}}$	Ratio $\frac{V_u}{f V_n}$	Ratio $\frac{T_u}{f T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	ft								
L1	492 - 477 (1)	0.006	0.072	0.000	0.004	0.000	0.078 ✔	1.000	4.8.2 ✔
L2	477 - 457 (2)	0.014	0.374	0.000	0.009	0.004	0.388 ✔	1.000	4.8.2 ✔

Leg Design Data (Compression)

Section No.	Elevation	Size	L	L_u	Kl/r	A	Mast Stability Index	P_u	f P_n	Ratio $\frac{P_u}{f P_n}$
	ft		ft	ft		in^2		K	K	
T1	457 - 452	2 1/4	5.000	5.000	106.7 K=1.00	3.9761	1.00	-7.726	77.870	0.099 [1]
T2	452 - 442	2 1/4	10.000	3.333	71.1 K=1.00	3.9761	1.00	-16.546	123.621	0.134 [1]
T3	442 - 422	2 1/4	20.000	4.000	85.3 K=1.00	3.9761	1.00	-23.270	105.060	0.221 [1]
T4	422 - 402	2 1/4	20.000	4.000	85.3 K=1.00	3.9761	1.00	-30.343	105.060	0.289 [1]
T5	402 - 382	2 1/4	20.000	4.000	85.3 K=1.00	3.9761	1.00	-48.401	105.060	0.461 [1]
T6	382 - 362	2 1/4	20.000	4.000	85.3 K=1.00	3.9761	1.00	-54.099	105.060	0.515 [1]
T7	362 - 342	2 1/4	20.000	4.000	85.3 K=1.00	3.9761	1.00	-49.850	105.060	0.474 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	Mast Stability Index	P_u K	f P_n K	Ratio $\frac{P_u}{f P_n}$
T8	342 - 322	2 1/4	20.000	4.000	85.3 K=1.00	3.9761	1.00	-62.589	105.060	0.596 [1]
T9	322 - 302	2 1/2	20.000	4.000	76.8 K=1.00	4.9087	1.00	-64.846	143.512	0.452 [1]
T10	302 - 282	2 1/2	20.000	4.000	76.8 K=1.00	4.9087	1.00	-67.543	143.512	0.471 [1]
T11	282 - 262	2 3/4	20.000	4.000	69.8 K=1.00	5.9396	1.00	-75.843	187.145	0.405 [1]
T12	262 - 242	2 3/4	20.000	4.000	69.8 K=1.00	5.9396	1.00	-88.343	187.145	0.472 [1]
T13	242 - 222	2 3/4	20.000	4.000	69.8 K=1.00	5.9396	1.00	-93.473	187.145	0.499 [1]
T14	222 - 202	3	20.000	4.000	64.0 K=1.00	7.0686	1.00	-110.275	235.765	0.468 [1]
T15	202 - 182	3	20.000	4.000	64.0 K=1.00	7.0686	1.00	-123.776	235.765	0.525 [1]
T16	182 - 162	3	20.000	4.000	64.0 K=1.00	7.0686	1.00	-132.380	235.765	0.561 [1]
T17	162 - 142	3	20.000	4.000	64.0 K=1.00	7.0686	1.00	-135.509	235.765	0.575 [1]
T18	142 - 122	3	20.000	4.000	64.0 K=1.00	7.0686	1.00	-134.775	235.765	0.572 [1]
T19	122 - 112	3	10.000	3.333	53.3 K=1.00	7.0686	1.00	-130.136	258.358	0.504 [1]
T20	112 - 102	3	10.000	3.333	53.3 K=1.00	7.0686	1.00	-128.546	258.358	0.498 [1]
T21	102 - 82	3	20.000	4.000	64.0 K=1.00	7.0686	1.00	-135.984	235.765	0.577 [1]
T22	82 - 62	3	20.000	4.000	64.0 K=1.00	7.0686	1.00	-138.563	235.765	0.588 [1]
T23	62 - 42	3	20.000	4.000	64.0 K=1.00	7.0686	1.00	-143.116	235.765	0.607 [1]
T24	42 - 22	3	20.000	4.000	64.0 K=1.00	7.0686	1.00	-145.037	235.765	0.615 [1]
T25	22 - 2	3	20.000	4.000	64.0 K=1.00	7.0686	1.00	-146.423	235.765	0.621 [1]

[1] P_u / f P_n controls

Leg Bending Design Data (Compression)

Section No.	Elevation ft	Size	M_{ux} kip-ft	f M_{nx} kip-ft	Ratio $\frac{M_{ux}}{f M_{nx}}$	M_{uy} kip-ft	f M_{ny} kip-ft	Ratio $\frac{M_{uy}}{f M_{ny}}$
T1	457 - 452	2 1/4	0.000	7.119	0.000	0.000	7.119	0.000
T2	452 - 442	2 1/4	0.000	7.119	0.000	0.000	7.119	0.000
T3	442 - 422	2 1/4	0.000	7.119	0.000	0.000	7.119	0.000
T4	422 - 402	2 1/4	0.000	7.119	0.000	0.000	7.119	0.000
T5	402 - 382	2 1/4	0.000	7.119	0.000	0.000	7.119	0.000
T6	382 - 362	2 1/4	0.000	7.119	0.000	0.000	7.119	0.000
T7	362 - 342	2 1/4	0.000	7.119	0.000	0.000	7.119	0.000
T8	342 - 322	2 1/4	0.000	7.119	0.000	0.000	7.119	0.000
T9	322 - 302	2 1/2	0.000	9.766	0.000	0.000	9.766	0.000
T10	302 - 282	2 1/2	0.000	9.766	0.000	0.000	9.766	0.000
T11	282 - 262	2 3/4	0.000	12.998	0.000	0.000	12.998	0.000
T12	262 - 242	2 3/4	0.000	12.998	0.000	0.000	12.998	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	f M_{nx} kip-ft	Ratio $\frac{M_{ux}}{f M_{nx}}$	M_{uy} kip-ft	f M_{ny} kip-ft	Ratio $\frac{M_{uy}}{f M_{ny}}$
T13	242 - 222	2 3/4	0.000	12.998	0.000	0.000	12.998	0.000
T14	222 - 202	3	0.000	16.875	0.000	0.000	16.875	0.000
T15	202 - 182	3	0.000	16.875	0.000	0.000	16.875	0.000
T16	182 - 162	3	0.000	16.875	0.000	0.000	16.875	0.000
T17	162 - 142	3	0.000	16.875	0.000	0.000	16.875	0.000
T18	142 - 122	3	0.000	16.875	0.000	0.000	16.875	0.000
T19	122 - 112	3	0.000	16.875	0.000	0.000	16.875	0.000
T20	112 - 102	3	0.000	16.875	0.000	0.000	16.875	0.000
T21	102 - 82	3	0.000	16.875	0.000	0.000	16.875	0.000
T22	82 - 62	3	0.000	16.875	0.000	0.000	16.875	0.000
T23	62 - 42	3	0.000	16.875	0.000	0.000	16.875	0.000
T24	42 - 22	3	0.000	16.875	0.000	0.000	16.875	0.000
T25	22 - 2	3	0.000	16.875	0.000	0.000	16.875	0.000

Leg Interaction Design Data (Compression)

Section No.	Elevation ft	Size	Ratio $\frac{P_u}{f P_n}$	Ratio $\frac{M_{ux}}{f M_{nx}}$	Ratio $\frac{M_{uy}}{f M_{ny}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	457 - 452	2 1/4	0.099	0.000	0.000	0.099 [1] ✔	1.000	4.8.1 ✔
T2	452 - 442	2 1/4	0.134	0.000	0.000	0.134 [1] ✔	1.000	4.8.1 ✔
T3	442 - 422	2 1/4	0.221	0.000	0.000	0.221 [1] ✔	1.000	4.8.1 ✔
T4	422 - 402	2 1/4	0.289	0.000	0.000	0.289 [1] ✔	1.000	4.8.1 ✔
T5	402 - 382	2 1/4	0.461	0.000	0.000	0.461 [1] ✔	1.000	4.8.1 ✔
T6	382 - 362	2 1/4	0.515	0.000	0.000	0.515 [1] ✔	1.000	4.8.1 ✔
T7	362 - 342	2 1/4	0.474	0.000	0.000	0.474 [1] ✔	1.000	4.8.1 ✔
T8	342 - 322	2 1/4	0.596	0.000	0.000	0.596 [1] ✔	1.000	4.8.1 ✔
T9	322 - 302	2 1/2	0.452	0.000	0.000	0.452 [1] ✔	1.000	4.8.1 ✔
T10	302 - 282	2 1/2	0.471	0.000	0.000	0.471 [1] ✔	1.000	4.8.1 ✔
T11	282 - 262	2 3/4	0.405	0.000	0.000	0.405 [1] ✔	1.000	4.8.1 ✔
T12	262 - 242	2 3/4	0.472	0.000	0.000	0.472 [1] ✔	1.000	4.8.1 ✔
T13	242 - 222	2 3/4	0.499	0.000	0.000	0.499 [1] ✔	1.000	4.8.1 ✔
T14	222 - 202	3	0.468	0.000	0.000	0.468 [1] ✔	1.000	4.8.1 ✔
T15	202 - 182	3	0.525	0.000	0.000	0.525 [1] ✔	1.000	4.8.1 ✔
T16	182 - 162	3	0.561	0.000	0.000	0.561 [1] ✔	1.000	4.8.1 ✔

Section No.	Elevation ft	Size	Ratio P_u / f P_n	Ratio M_{ux} / f M_{nx}	Ratio M_{uy} / f M_{ny}	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T17	162 - 142	3	0.575	0.000	0.000	0.575 [1] ✓	1.000	4.8.1 ✓
T18	142 - 122	3	0.572	0.000	0.000	0.572 [1] ✓	1.000	4.8.1 ✓
T19	122 - 112	3	0.504	0.000	0.000	0.504 [1] ✓	1.000	4.8.1 ✓
T20	112 - 102	3	0.498	0.000	0.000	0.498 [1] ✓	1.000	4.8.1 ✓
T21	102 - 82	3	0.577	0.000	0.000	0.577 [1] ✓	1.000	4.8.1 ✓
T22	82 - 62	3	0.588	0.000	0.000	0.588 [1] ✓	1.000	4.8.1 ✓
T23	62 - 42	3	0.607	0.000	0.000	0.607 [1] ✓	1.000	4.8.1 ✓
T24	42 - 22	3	0.615	0.000	0.000	0.615 [1] ✓	1.000	4.8.1 ✓
T25	22 - 2	3	0.621	0.000	0.000	0.621 [1] ✓	1.000	4.8.1 ✓

[1] P_u / f P_n controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in²	P_u K	f P_n K	Ratio P_u / f P_n
T1	457 - 452	L2 1/2x2x3/16	5.385	4.841	136.0 K=1.00	0.8090	-2.036	9.874	0.206 [1] ✓
T2	452 - 442	L2x2x1/4	5.207	4.671	143.4 K=1.00	0.9380	-2.424	10.311	0.235 [1] ✓
T3	442 - 422	L2x2x1/4	5.657	5.100	156.5 K=1.00	0.9380	-1.186	8.649	0.137 [1] ✓
T4	422 - 402	L2x2x1/4	5.657	5.100	156.5 K=1.00	0.9380	-2.264	8.649	0.262 [1] ✓
T5	402 - 382	L2x2x1/4	5.657	5.100	156.5 K=1.00	0.9380	-3.893	8.649	0.450 [1] ✓
T6	382 - 362	L2x2x1/4	5.657	5.100	156.5 K=1.00	0.9380	-2.324	8.649	0.269 [1] ✓
T7	362 - 342	L2x2x1/4	5.657	5.100	156.5 K=1.00	0.9380	-1.777	8.649	0.205 [1] ✓
T8	342 - 322	L2x2x1/4	5.657	5.100	156.5 K=1.00	0.9380	-3.051	8.649	0.353 [1] ✓
T9	322 - 302	L1 3/4x1 3/4x3/16	5.657	5.071	177.2 K=1.00	0.6211	-4.021	4.470	0.900 [1] ✓
T10	302 - 282	L2x2x1/4	5.657	5.071	155.6 K=1.00	0.9380	-2.499	8.750	0.286 [1] ✓
T11	282 - 262	L2 1/2x2 1/2x3/8	5.657	5.041	124.2 K=1.00	1.7300	-6.394	24.878	0.257 [1] ✓
T12	262 - 242	L2x2x1/4	5.657	5.041	154.7 K=1.00	0.9380	-5.277	8.853	0.596 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	f P_n K	Ratio $\frac{P_u}{f P_n}$
T13	242 - 222	L2x2x1/4	5.657	5.041	154.7 K=1.00	0.9380	-4.644	8.853	0.525 [1]
T14	222 - 202	L2 1/2x2 1/2x3/8	5.657	5.012	123.5 K=1.00	1.7300	-7.869	25.115	0.313 [1]
T15	202 - 182	L2x2x1/4	5.657	5.012	153.8 K=1.00	0.9380	-7.092	8.957	0.792 [1]
T16	182 - 162	L2x2x1/4	5.657	5.012	153.8 K=1.00	0.9380	-5.307	8.957	0.592 [1]
T17	162 - 142	L2x2x1/4	5.657	5.012	153.8 K=1.00	0.9380	-7.233	8.957	0.808 [1]
T18	142 - 122	L2x2x1/4	5.657	5.012	153.8 K=1.00	0.9380	-6.049	8.957	0.675 [1]
T19	122 - 112	L2x2x1/4	5.207	4.590	140.9 K=1.00	0.9380	-7.506	10.680	0.703 [1]
T20	112 - 102	L1 3/4x1 3/4x3/16 w/ L2x2x1/4	5.207	4.881	99.8 K=1.00	1.5710	-8.662	30.133	0.287 [1]
T21	102 - 82	L2x2x1/4	5.657	5.012	153.8 K=1.00	0.9380	-6.245	8.957	0.697 [1]
T22	82 - 62	L2x2x1/4	5.657	5.012	153.8 K=1.00	0.9380	-6.148	8.957	0.686 [1]
T23	62 - 42	L2x2x1/4	5.657	5.012	153.8 K=1.00	0.9380	-8.103	8.957	0.905 [1]
T24	42 - 22	L2x2x1/4	5.657	5.012	153.8 K=1.00	0.9380	-7.897	8.957	0.882 [1]
T25	22 - 2	L2x2x1/4	5.657	5.012	153.8 K=1.00	0.9380	-6.411	8.957	0.716 [1]

[1] P_u / f P_n controls

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	f P_n K	Ratio $\frac{P_u}{f P_n}$
T2	452 - 442	L2x2x3/16	4.000	3.521	113.6 K=1.06	0.7150	-0.287	11.741	0.024 [1]
T3	442 - 422	L2x2x3/16	4.000	3.521	113.6 K=1.06	0.7150	-0.403	11.741	0.034 [1]
T4	422 - 402	L2x2x3/16	4.000	3.521	113.6 K=1.06	0.7150	-0.526	11.741	0.045 [1]
T5	402 - 382	L2x2x3/16	4.000	3.521	113.6 K=1.06	0.7150	-0.838	11.741	0.071 [1]
T6	382 - 362	L2x2x3/16	4.000	3.521	113.6 K=1.06	0.7150	-0.937	11.741	0.080 [1]
T7	362 - 342	L2x2x3/16	4.000	3.521	113.6 K=1.06	0.7150	-0.863	11.741	0.074 [1]
T8	342 - 322	L2x2x3/16	4.000	3.521	113.6 K=1.06	0.7150	-1.084	11.741	0.092 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	f P_n K	Ratio $\frac{P_u}{f P_n}$
T9	322 - 302	L2x2x3/16	4.000	3.500	113.3 K=1.06	0.7150	-1.123	11.786	0.095 [1] ✔
T10	302 - 282	L2x2x3/16	4.000	3.500	113.3 K=1.06	0.7150	-1.170	11.786	0.099 [1] ✔
T11	282 - 262	L2x2x3/16	4.000	3.479	113.0 K=1.07	0.7150	-1.314	11.831	0.111 [1] ✔
T12	262 - 242	L2x2x3/16	4.000	3.479	113.0 K=1.07	0.7150	-1.530	11.831	0.129 [1] ✔
T13	242 - 222	L2x2x3/16	4.000	3.479	113.0 K=1.07	0.7150	-1.619	11.831	0.137 [1] ✔
T14	222 - 202	L2x2x3/16	4.000	3.458	112.7 K=1.07	0.7150	-1.910	11.875	0.161 [1] ✔
T15	202 - 182	L2x2x3/16	4.000	3.458	112.7 K=1.07	0.7150	-2.144	11.875	0.181 [1] ✔
T16	182 - 162	L2x2x3/16	4.000	3.458	112.7 K=1.07	0.7150	-2.293	11.875	0.193 [1] ✔
T17	162 - 142	L2x2x3/16	4.000	3.458	112.7 K=1.07	0.7150	-2.347	11.875	0.198 [1] ✔
T18	142 - 122	L2x2x3/16	4.000	3.458	112.7 K=1.07	0.7150	-2.334	11.875	0.197 [1] ✔
T19	122 - 112	L2x2x3/16	4.000	3.458	112.7 K=1.07	0.7150	-2.254	11.875	0.190 [1] ✔
T20	112 - 102	L2x2x3/16	4.000	3.458	112.7 K=1.07	0.7150	-2.226	11.875	0.187 [1] ✔
T21	102 - 82	L2x2x3/16	4.000	3.458	112.7 K=1.07	0.7150	-2.355	11.875	0.198 [1] ✔
T22	82 - 62	L2x2x3/16	4.000	3.458	112.7 K=1.07	0.7150	-2.400	11.875	0.202 [1] ✔
T23	62 - 42	L2x2x3/16	4.000	3.458	112.7 K=1.07	0.7150	-2.479	11.875	0.209 [1] ✔
T24	42 - 22	L2x2x3/16	4.000	3.458	112.7 K=1.07	0.7150	-2.512	11.875	0.212 [1] ✔
T25	22 - 2	L2x2x3/16	4.000	3.458	112.7 K=1.07	0.7150	-2.536	11.875	0.214 [1] ✔

[1] P_u / f P_n controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	f P_n K	Ratio $\frac{P_u}{f P_n}$
T1	457 - 452	C6x10.5	4.000	2.859	64.9 K=1.00	3.0900	-0.000	80.226	0.000 [1] ✔
T2	452 - 442	L2x2x3/16	4.000	3.521	113.6 K=1.06	0.7150	-0.733	11.741	0.062 [1] ✔
T4	422 - 402	L2x2x3/16	4.000	3.521	113.6 K=1.06	0.7150	-0.026	11.741	0.002 [1] ✔
T5	402 - 382	L2x2x3/16	4.000	3.521	113.6 K=1.06	0.7150	-0.025	11.741	0.002 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	f P_n K	Ratio $\frac{P_u}{f P_n}$
T11	282 - 262	L2x2x3/16	4.000	3.500	113.3 K=1.06	0.7150	-0.610	11.786	0.052 [1]
T17	162 - 142	L2x2x3/16	4.000	3.458	112.7 K=1.07	0.7150	-0.103	11.875	0.009 [1]

[1] P_u / f P_n controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	f P_n K	Ratio $\frac{P_u}{f P_n}$
T1	457 - 452	2 1/4	5.000	5.000	106.7	3.9761	6.749	178.924	0.038 [1]
T2	452 - 442	2 1/4	10.000	3.333	71.1	3.9761	14.660	178.924	0.082 [1]
T5	402 - 382	2 1/4	20.000	4.000	85.3	3.9761	4.797	178.924	0.027 [1]

[1] P_u / f P_n controls

Leg Bending Design Data (Tension)

Section No.	Elevation ft	Size	M_{ux} kip-ft	f M_{nx} kip-ft	Ratio $\frac{M_{ux}}{f M_{nx}}$	M_{uy} kip-ft	f M_{ny} kip-ft	Ratio $\frac{M_{uy}}{f M_{ny}}$
T1	457 - 452	2 1/4	0.000	7.119	0.000	0.000	7.119	0.000
T2	452 - 442	2 1/4	0.000	7.119	0.000	0.000	7.119	0.000
T5	402 - 382	2 1/4	0.000	7.119	0.000	0.000	7.119	0.000

Leg Interaction Design Data (Tension)

Section No.	Elevation ft	Size	Ratio $\frac{P_u}{f P_n}$	Ratio $\frac{M_{ux}}{f M_{nx}}$	Ratio $\frac{M_{uy}}{f M_{ny}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	457 - 452	2 1/4	0.038	0.000	0.000	0.038 [1]	1.000	4.8.1
T2	452 - 442	2 1/4	0.082	0.000	0.000	0.082 [1]	1.000	4.8.1
T5	402 - 382	2 1/4	0.027	0.000	0.000	0.027 [1]	1.000	4.8.1

[1] P_u / f P_n controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	f P_n K	Ratio $\frac{P_u}{f P_n}$
T1	457 - 452	L2 1/2x2x3/16	5.385	4.841	102.7	0.5013	1.762	21.806	0.081 [1] ✔
T2	452 - 442	L2x2x1/4	5.207	4.671	97.8	0.5629	2.319	24.485	0.095 [1] ✔
T3	442 - 422	L2x2x1/4	5.657	5.100	106.2	0.5629	0.970	24.485	0.040 [1] ✔
T4	422 - 402	L2x2x1/4	5.657	5.100	106.2	0.5629	2.007	24.485	0.082 [1] ✔
T5	402 - 382	L2x2x1/4	5.657	5.100	106.2	0.5629	3.454	24.485	0.141 [1] ✔
T6	382 - 362	L2x2x1/4	5.657	5.100	106.2	0.5629	1.871	24.485	0.076 [1] ✔
T7	362 - 342	L2x2x1/4	5.657	5.100	106.2	0.5629	1.245	24.485	0.051 [1] ✔
T8	342 - 322	L2x2x1/4	5.657	5.100	106.2	0.5629	2.454	24.485	0.100 [1] ✔
T9	322 - 302	L1 3/4x1 3/4x3/16	5.657	5.071	119.8	0.3604	3.359	15.675	0.214 [1] ✔
T10	302 - 282	L2x2x1/4	5.657	5.071	105.7	0.5629	1.539	24.485	0.063 [1] ✔
T11	282 - 262	L2 1/2x2 1/2x3/8	5.657	5.041	85.0	1.0866	5.213	47.266	0.110 [1] ✔
T12	262 - 242	L2x2x1/4	5.657	5.041	105.1	0.5629	4.036	24.485	0.165 [1] ✔
T13	242 - 222	L2x2x1/4	5.657	5.041	105.1	0.5629	3.349	24.485	0.137 [1] ✔
T14	222 - 202	L2 1/2x2 1/2x3/8	5.657	5.012	84.5	1.0866	5.884	47.266	0.124 [1] ✔
T15	202 - 182	L2x2x1/4	5.657	5.012	104.5	0.5629	5.045	24.485	0.206 [1] ✔
T16	182 - 162	L2x2x1/4	5.657	5.012	104.5	0.5629	3.500	24.485	0.143 [1] ✔
T17	162 - 142	L2x2x1/4	5.657	5.012	104.5	0.5629	5.332	24.485	0.218 [1] ✔
T18	142 - 122	L2x2x1/4	5.657	5.012	104.5	0.5629	4.123	24.485	0.168 [1] ✔
T19	122 - 112	L2x2x1/4	5.207	4.590	96.2	0.5629	4.937	24.485	0.202 [1] ✔
T20	112 - 102	L1 3/4x1 3/4x3/16 w/ L2x2x1/4	5.207	4.881	99.8	1.5710	6.311	50.900	0.124 [1] ✔
T21	102 - 82	L2x2x1/4	5.657	5.012	104.5	0.5629	4.100	24.485	0.167 [1] ✔
T22	82 - 62	L2x2x1/4	5.657	5.012	104.5	0.5629	3.968	24.485	0.162 [1] ✔
T23	62 - 42	L2x2x1/4	5.657	5.012	104.5	0.5629	5.679	24.485	0.232 [1] ✔
T24	42 - 22	L2x2x1/4	5.657	5.012	104.5	0.5629	5.638	24.485	0.230 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	f P_n K	Ratio $\frac{P_u}{f P_n}$
T25	22 - 2	L2x2x1/4	5.657	5.012	104.5	0.5629	3.958	24.485	0.162 [1]

[1] P_u / f P_n controls

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	f P_n K	Ratio $\frac{P_u}{f P_n}$
T2	452 - 442	L2x2x3/16	4.000	3.521	74.1	0.4308	0.287	18.739	0.015 [1]
T3	442 - 422	L2x2x3/16	4.000	3.521	74.1	0.4308	0.403	18.739	0.022 [1]
T4	422 - 402	L2x2x3/16	4.000	3.521	74.1	0.4308	0.526	18.739	0.028 [1]
T5	402 - 382	L2x2x3/16	4.000	3.521	74.1	0.4308	0.838	18.739	0.045 [1]
T6	382 - 362	L2x2x3/16	4.000	3.521	74.1	0.4308	0.937	18.739	0.050 [1]
T7	362 - 342	L2x2x3/16	4.000	3.521	74.1	0.4308	0.863	18.739	0.046 [1]
T8	342 - 322	L2x2x3/16	4.000	3.521	74.1	0.4308	1.084	18.739	0.058 [1]
T9	322 - 302	L2x2x3/16	4.000	3.500	73.7	0.4308	1.123	18.739	0.060 [1]
T10	302 - 282	L2x2x3/16	4.000	3.500	73.7	0.4308	1.170	18.739	0.062 [1]
T11	282 - 262	L2x2x3/16	4.000	3.479	73.3	0.4308	1.472	18.739	0.079 [1]
T12	262 - 242	L2x2x3/16	4.000	3.479	73.3	0.4308	1.530	18.739	0.082 [1]
T13	242 - 222	L2x2x3/16	4.000	3.479	73.3	0.4308	1.619	18.739	0.086 [1]
T14	222 - 202	L2x2x3/16	4.000	3.458	72.9	0.4308	1.910	18.739	0.102 [1]
T15	202 - 182	L2x2x3/16	4.000	3.458	72.9	0.4308	2.144	18.739	0.114 [1]
T16	182 - 162	L2x2x3/16	4.000	3.458	72.9	0.4308	2.373	18.739	0.127 [1]
T17	162 - 142	L2x2x3/16	4.000	3.458	72.9	0.4308	2.347	18.739	0.125 [1]
T18	142 - 122	L2x2x3/16	4.000	3.458	72.9	0.4308	2.334	18.739	0.125 [1]
T19	122 - 112	L2x2x3/16	4.000	3.458	72.9	0.4308	2.254	18.739	0.120 [1]
T20	112 - 102	L2x2x3/16	4.000	3.458	72.9	0.4308	2.226	18.739	0.119 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	f P_n K	Ratio $\frac{P_u}{f P_n}$
T21	102 - 82	L2x2x3/16	4.000	3.458	72.9	0.4308	2.355	18.739	0.126 [1] ✔
T22	82 - 62	L2x2x3/16	4.000	3.458	72.9	0.4308	2.400	18.739	0.128 [1] ✔
T23	62 - 42	L2x2x3/16	4.000	3.458	72.9	0.4308	2.479	18.739	0.132 [1] ✔
T24	42 - 22	L2x2x3/16	4.000	3.458	72.9	0.4308	2.512	18.739	0.134 [1] ✔
T25	22 - 2	L2x2x3/16	4.000	3.458	72.9	0.4308	2.536	18.739	0.135 [1] ✔

[1] P_u / f P_n controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	f P_n K	Ratio $\frac{P_u}{f P_n}$
T1	457 - 452	C6x10.5	4.000	2.859	64.9	2.1409	0.000	93.128	0.000 [1] ✔
T2	452 - 442	L2x2x3/16	4.000	3.521	74.1	0.4308	0.804	18.739	0.043 [1] ✔
T4	422 - 402	L2x2x3/16	4.000	3.521	74.1	0.4308	0.227	18.739	0.012 [1] ✔
T5	402 - 382	L2x2x3/16	4.000	3.521	74.1	0.4308	0.234	18.739	0.012 [1] ✔
T7	362 - 342	L2x2x3/16	4.000	3.521	74.1	0.4308	0.307	18.739	0.016 [1] ✔
T8	342 - 322	L2x2x3/16	4.000	3.521	74.1	0.4308	0.316	18.739	0.017 [1] ✔
T10	302 - 282	L2x2x3/16	4.000	3.500	73.7	0.4308	0.547	18.739	0.029 [1] ✔
T11	282 - 262	L2x2x3/16	4.000	3.500	73.7	0.4308	1.307	18.739	0.070 [1] ✔
T13	242 - 222	L2x2x3/16	4.000	3.479	73.3	0.4308	0.750	18.739	0.040 [1] ✔
T14	222 - 202	L2x2x3/16	4.000	3.479	73.3	0.4308	0.814	18.739	0.043 [1] ✔
T15	202 - 182	L2x2x3/16	4.000	3.458	72.9	0.4308	1.020	18.739	0.054 [1] ✔
T16	182 - 162	L2x2x3/16	4.000	3.458	72.9	0.4308	1.016	18.739	0.054 [1] ✔
T17	162 - 142	L2x2x3/16	4.000	3.458	72.9	0.4308	1.499	18.739	0.080 [1] ✔
T18	142 - 122	L2x2x3/16	4.000	3.458	72.9	0.4308	1.067	18.739	0.057 [1] ✔
T19	122 - 112	L2x2x3/16	4.000	3.458	72.9	0.4308	1.132	18.739	0.060 [1] ✔
T20	112 - 102	L2x2x3/16	4.000	3.458	72.9	0.4308	1.163	18.739	0.062 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	f P_n K	Ratio $\frac{P_u}{f P_n}$
T22	82 - 62	L2x2x3/16	4.000	3.458	72.9	0.4308	1.041	18.739	0.056 [1]
T23	62 - 42	L2x2x3/16	4.000	3.458	72.9	0.4308	1.054	18.739	0.056 [1]
T24	42 - 22	L2x2x3/16	4.000	3.458	72.9	0.4308	1.028	18.739	0.055 [1]
T25	22 - 2	L2x2x3/16	4.000	3.458	72.9	0.4308	1.067	18.739	0.057 [1]

[1] P_u / f P_n controls

Bottom Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	f P_n K	Ratio $\frac{P_u}{f P_n}$
T25	22 - 2	L2x2x3/16	4.000	3.750	72.9	0.7150	3.111	23.166	0.134 [1]

[1] P_u / f P_n controls

Top Guy Pull-Off Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	f P_n K	Ratio $\frac{P_u}{f P_n}$
T3	442 - 422	2L2 1/2x2 1/2x3/8x1/4	4.000	3.813	60.7	2.1094	5.702	91.758	0.062 [1]
T6	382 - 362	2L 'a' > 22.1987 in - 22 2L2 1/2x2 1/2x3/8x1/4	4.000	3.813	60.7	2.1094	6.722	91.758	0.073 [1]
T9	322 - 302	2L 'a' > 22.1987 in - 110 2L2 1/2x2 1/2x3/8x1/4	4.000	3.813	60.7	2.1094	6.718	91.758	0.073 [1]
T12	262 - 242	2L 'a' > 22.1987 in - 208 2L2 1/2x2 1/2x3/8x1/4	4.000	3.771	60.1	2.1094	9.596	91.758	0.105 [1]
T14	222 - 202	2L 'a' > 21.9560 in - 308 2L2 1/2x2 1/2x3/8x1/4	4.000	3.750	59.7	2.1094	10.725	91.758	0.117 [1]
T17	162 - 142	2L 'a' > 21.8347 in - 418 2L2 1/2x2 1/2x3/8x1/4	4.000	3.750	59.7	2.1094	6.575	91.758	0.072 [1]
T21	102 - 82	2L 'a' > 21.8347 in - 523 2L2 1/2x2 1/2x3/8x1/4	4.000	3.750	59.7	2.1094	8.357	91.758	0.091 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	f P_n K	Ratio $\frac{P_u}{f P_n}$
T23	62 - 42	2L 'a' > 21.8347 in - 592 2L2 1/2x2 1/2x3/8x1/4 2L 'a' > 21.8347 in - 685	4.000	3.750	59.7	2.1094	5.995	91.758	0.065 [1] ✔

[1] P_u / f P_n controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	492 - 477	Pole	P8x.406	1	-0.720	113.643	7.8	Pass
L2	477 - 457	Pole	P8x.406	2	-1.638	113.643	38.8	Pass
T1	457 - 452	Leg	2 1/4	5	-7.726	77.870	9.9	Pass
T2	452 - 442	Leg	2 1/4	19	-16.546	123.621	13.4	Pass
T3	442 - 422	Leg	2 1/4	40	-23.270	105.060	22.1	Pass
T4	422 - 402	Leg	2 1/4	72	-30.343	105.060	28.9	Pass
T5	402 - 382	Leg	2 1/4	105	-48.401	105.060	46.1	Pass
T6	382 - 362	Leg	2 1/4	138	-54.099	105.060	51.5	Pass
T7	362 - 342	Leg	2 1/4	172	-49.850	105.060	47.4	Pass
T8	342 - 322	Leg	2 1/4	204	-62.589	105.060	59.6	Pass
T9	322 - 302	Leg	2 1/2	238	-64.846	143.512	45.2	Pass
T10	302 - 282	Leg	2 1/2	271	-67.543	143.512	47.1	Pass
T11	282 - 262	Leg	2 3/4	303	-75.843	187.145	40.5	Pass
T12	262 - 242	Leg	2 3/4	338	-88.343	187.145	47.2	Pass
T13	242 - 222	Leg	2 3/4	371	-93.473	187.145	49.9	Pass
T14	222 - 202	Leg	3	402	-110.275	235.765	46.8	Pass
T15	202 - 182	Leg	3	435	-123.776	235.765	52.5	Pass
T16	182 - 162	Leg	3	468	-132.380	235.765	56.1	Pass
T17	162 - 142	Leg	3	501	-135.509	235.765	57.5	Pass
T18	142 - 122	Leg	3	534	-134.775	235.765	57.2	Pass
T19	122 - 112	Leg	3	567	-130.136	258.358	50.4	Pass
T20	112 - 102	Leg	3	588	-128.546	258.358	49.8	Pass
T21	102 - 82	Leg	3	611	-135.984	235.765	57.7	Pass
T22	82 - 62	Leg	3	642	-138.563	235.765	58.8	Pass
T23	62 - 42	Leg	3	675	-143.116	235.765	60.7	Pass
T24	42 - 22	Leg	3	708	-145.037	235.765	61.5	Pass
T25	22 - 2	Leg	3	741	-146.423	235.765	62.1	Pass
T1	457 - 452	Diagonal	L2 1/2x2x3/16	14	-2.036	9.874	20.6	Pass
T2	452 - 442	Diagonal	L2x2x1/4	26	-2.424	10.311	23.5	Pass
T3	442 - 422	Diagonal	L2x2x1/4	71	-1.186	8.649	13.7	Pass
T4	422 - 402	Diagonal	L2x2x1/4	80	-2.264	8.649	26.2	Pass
T5	402 - 382	Diagonal	L2x2x1/4	113	-3.893	8.649	45.0	Pass
T6	382 - 362	Diagonal	L2x2x1/4	169	-2.324	8.649	26.9	Pass
T7	362 - 342	Diagonal	L2x2x1/4	177	-1.777	8.649	20.5	Pass
T8	342 - 322	Diagonal	L2x2x1/4	210	-3.051	8.649	35.3	Pass
T9	322 - 302	Diagonal	L1 3/4x1 3/4x3/16	268	-4.021	4.470	90.0	Pass
T10	302 - 282	Diagonal	L2x2x1/4	301	-2.499	8.750	28.6	Pass
T11	282 - 262	Diagonal	L2 1/2x2 1/2x3/8	311	-6.394	24.878	25.7 51.5 (b)	Pass
T12	262 - 242	Diagonal	L2x2x1/4	367	-5.277	8.853	59.6	Pass
T13	242 - 222	Diagonal	L2x2x1/4	377	-4.644	8.853	52.5	Pass
T14	222 - 202	Diagonal	L2 1/2x2 1/2x3/8	414	-7.869	25.115	31.3 63.3 (b)	Pass
T15	202 - 182	Diagonal	L2x2x1/4	465	-7.092	8.957	79.2	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T16	182 - 162	Diagonal	L2x2x1/4	475	-5.307	8.957	59.2	Pass
T17	162 - 142	Diagonal	L2x2x1/4	526	-7.233	8.957	80.8	Pass
T18	142 - 122	Diagonal	L2x2x1/4	542	-6.049	8.957	67.5	Pass
T19	122 - 112	Diagonal	L2x2x1/4	574	-7.506	10.680	70.3	Pass
T20	112 - 102	Diagonal	L1 3/4x1 3/4x3/16 w/ L2x2x1/4	601	-8.662	30.133	28.7 69.7 (b)	Pass
T21	102 - 82	Diagonal	L2x2x1/4	639	-6.245	8.957	69.7	Pass
T22	82 - 62	Diagonal	L2x2x1/4	650	-6.148	8.957	68.6	Pass
T23	62 - 42	Diagonal	L2x2x1/4	681	-8.103	8.957	90.5	Pass
T24	42 - 22	Diagonal	L2x2x1/4	738	-7.897	8.957	88.2	Pass
T25	22 - 2	Diagonal	L2x2x1/4	771	-6.411	8.957	71.6	Pass
T2	452 - 442	Horizontal	L2x2x3/16	27	-0.287	11.741	2.4 3.6 (b)	Pass
T3	442 - 422	Horizontal	L2x2x3/16	54	-0.403	11.741	3.4 5.1 (b)	Pass
T4	422 - 402	Horizontal	L2x2x3/16	83	-0.526	11.741	4.5 6.7 (b)	Pass
T5	402 - 382	Horizontal	L2x2x3/16	114	-0.838	11.741	7.1 10.6 (b)	Pass
T6	382 - 362	Horizontal	L2x2x3/16	155	-0.937	11.741	8.0 11.9 (b)	Pass
T7	362 - 342	Horizontal	L2x2x3/16	180	-0.863	11.741	7.4 11.0 (b)	Pass
T8	342 - 322	Horizontal	L2x2x3/16	213	-1.084	11.741	9.2 13.8 (b)	Pass
T9	322 - 302	Horizontal	L2x2x3/16	246	-1.123	11.786	9.5 14.3 (b)	Pass
T10	302 - 282	Horizontal	L2x2x3/16	279	-1.170	11.786	9.9 14.9 (b)	Pass
T11	282 - 262	Horizontal	L2x2x3/16	312	-1.314	11.831	11.1 18.7 (b)	Pass
T12	262 - 242	Horizontal	L2x2x3/16	346	-1.530	11.831	12.9 19.4 (b)	Pass
T13	242 - 222	Horizontal	L2x2x3/16	385	-1.619	11.831	13.7 20.6 (b)	Pass
T14	222 - 202	Horizontal	L2x2x3/16	411	-1.910	11.875	16.1 24.3 (b)	Pass
T15	202 - 182	Horizontal	L2x2x3/16	450	-2.144	11.875	18.1 27.2 (b)	Pass
T16	182 - 162	Horizontal	L2x2x3/16	477	-2.293	11.875	19.3 30.1 (b)	Pass
T17	162 - 142	Horizontal	L2x2x3/16	516	-2.347	11.875	19.8 29.8 (b)	Pass
T18	142 - 122	Horizontal	L2x2x3/16	549	-2.334	11.875	19.7 29.6 (b)	Pass
T19	122 - 112	Horizontal	L2x2x3/16	582	-2.254	11.875	19.0 28.6 (b)	Pass
T20	112 - 102	Horizontal	L2x2x3/16	597	-2.226	11.875	18.7 28.3 (b)	Pass
T21	102 - 82	Horizontal	L2x2x3/16	625	-2.355	11.875	19.8 29.9 (b)	Pass
T22	82 - 62	Horizontal	L2x2x3/16	653	-2.400	11.875	20.2 30.5 (b)	Pass
T23	62 - 42	Horizontal	L2x2x3/16	696	-2.479	11.875	20.9 31.5 (b)	Pass
T24	42 - 22	Horizontal	L2x2x3/16	725	-2.512	11.875	21.2 31.9 (b)	Pass
T25	22 - 2	Horizontal	L2x2x3/16	750	-2.536	11.875	21.4 32.2 (b)	Pass
T1	457 - 452	Top Girt	C6x10.5	7	-0.000	80.226	1.9	Pass
T2	452 - 442	Top Girt	L2x2x3/16	11	-0.733	11.741	6.2	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T4	422 - 402	Top Girt	L2x2x3/16	43	0.227	18.739	10.2 (b) 1.2	Pass
T5	402 - 382	Top Girt	L2x2x3/16	77	0.234	18.739	2.9 (b) 1.2	Pass
T7	362 - 342	Top Girt	L2x2x3/16	143	0.307	18.739	3.0 (b) 1.6	Pass
T8	342 - 322	Top Girt	L2x2x3/16	175	0.316	18.739	3.9 (b) 1.7	Pass
T10	302 - 282	Top Girt	L2x2x3/16	241	0.547	18.739	4.0 (b) 2.9	Pass
T11	282 - 262	Top Girt	L2x2x3/16	275	1.307	18.739	6.9 (b) 7.0	Pass
T13	242 - 222	Top Girt	L2x2x3/16	341	0.750	18.739	16.6 (b) 4.0	Pass
T14	222 - 202	Top Girt	L2x2x3/16	373	0.814	18.739	9.5 (b) 4.3	Pass
T15	202 - 182	Top Girt	L2x2x3/16	407	1.020	18.739	10.3 (b) 5.4	Pass
T16	182 - 162	Top Girt	L2x2x3/16	439	1.016	18.739	13.0 (b) 5.4	Pass
T17	162 - 142	Top Girt	L2x2x3/16	473	1.499	18.739	12.9 (b) 8.0	Pass
T18	142 - 122	Top Girt	L2x2x3/16	505	1.067	18.739	19.0 (b) 5.7	Pass
T19	122 - 112	Top Girt	L2x2x3/16	539	1.132	18.739	13.6 (b) 6.0	Pass
T20	112 - 102	Top Girt	L2x2x3/16	571	1.163	18.739	14.4 (b) 6.2	Pass
T22	82 - 62	Top Girt	L2x2x3/16	613	1.041	18.739	14.8 (b) 5.6	Pass
T23	62 - 42	Top Girt	L2x2x3/16	647	1.054	18.739	13.2 (b) 5.6	Pass
T24	42 - 22	Top Girt	L2x2x3/16	679	1.028	18.739	13.4 (b) 5.5	Pass
T25	22 - 2	Top Girt	L2x2x3/16	713	1.067	18.739	13.1 (b) 5.7	Pass
T25	22 - 2	Bottom Girt	L2x2x3/16	746	3.111	23.166	13.6 (b) 13.4	Pass
T3	442 - 422	Guy A@442	1	776	31.482	73.200	43.0	Pass
T6	382 - 362	Guy A@382	1	779	31.385	73.200	42.9	Pass
T9	322 - 302	Guy A@322	7/8	782	25.556	55.200	46.3	Pass
T12	262 - 242	Guy A@262	7/8	785	30.276	55.200	54.8	Pass
T14	222 - 202	Guy A@210	7/8	788	33.432	55.200	60.6	Pass
T17	162 - 142	Guy A@154	9/16	791	15.778	21.000	75.1	Pass
T21	102 - 82	Guy A@102	9/16	794	16.615	21.000	79.1	Pass
T23	62 - 42	Guy A@46	1/2	797	9.532	16.140	59.1	Pass
T3	442 - 422	Guy B@442	1	775	32.035	73.200	43.8	Pass
T6	382 - 362	Guy B@382	1	778	32.318	73.200	44.2	Pass
T9	322 - 302	Guy B@322	7/8	781	26.704	55.200	48.4	Pass
T12	262 - 242	Guy B@262	7/8	784	31.426	55.200	56.9	Pass
T14	222 - 202	Guy B@210	7/8	787	34.600	55.200	62.7	Pass
T17	162 - 142	Guy B@154	9/16	790	16.171	21.000	77.0	Pass
T21	102 - 82	Guy B@102	9/16	793	17.000	21.000	81.0	Pass
T23	62 - 42	Guy B@46	1/2	796	9.775	16.140	60.6	Pass
T3	442 - 422	Guy C@442	1	774	31.932	73.200	43.6	Pass
T6	382 - 362	Guy C@382	1	777	32.073	73.200	43.8	Pass
T9	322 - 302	Guy C@322	7/8	780	26.536	55.200	48.1	Pass
T12	262 - 242	Guy C@262	7/8	783	31.655	55.200	57.3	Pass
T14	222 - 202	Guy C@210	7/8	786	34.820	55.200	63.1	Pass
T17	162 - 142	Guy C@154	9/16	789	16.315	21.000	77.7	Pass
T21	102 - 82	Guy C@102	9/16	792	17.128	21.000	81.6	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T23	62 - 42	Guy C@46	1/2	795	9.877	16.140	61.2	Pass
T3	442 - 422	Top Guy Pull-Off@442	2L2 1/2x2 1/2x3/8x1/4	22	5.702	91.758	6.2 8.8 (b)	Pass
T6	382 - 362	Top Guy Pull-Off@382	2L2 1/2x2 1/2x3/8x1/4	110	6.722	91.758	7.3 10.3 (b)	Pass
T9	322 - 302	Top Guy Pull-Off@322	2L2 1/2x2 1/2x3/8x1/4	208	6.718	91.758	7.3 10.3 (b)	Pass
T12	262 - 242	Top Guy Pull-Off@262	2L2 1/2x2 1/2x3/8x1/4	308	9.596	91.758	10.5 14.8 (b)	Pass
T14	222 - 202	Top Guy Pull-Off@210	2L2 1/2x2 1/2x3/8x1/4	418	10.725	91.758	11.7 16.5 (b)	Pass
T17	162 - 142	Top Guy Pull-Off@154	2L2 1/2x2 1/2x3/8x1/4	523	6.575	91.758	7.2 10.1 (b)	Pass
T21	102 - 82	Top Guy Pull-Off@102	2L2 1/2x2 1/2x3/8x1/4	592	8.357	91.758	9.1 12.9 (b)	Pass
T23	62 - 42	Top Guy Pull-Off@46	2L2 1/2x2 1/2x3/8x1/4	685	5.995	91.758	6.5 9.2 (b)	Pass
							Summary	
						Pole (L2)	38.8	Pass
						Leg (T25)	62.1	Pass
						Diagonal (T23)	90.5	Pass
						Horizontal (T25)	32.2	Pass
						Top Girt (T17)	19.0	Pass
						Bottom Girt (T25)	13.4	Pass
						Guy A (T21)	79.1	Pass
						Guy B (T21)	81.0	Pass
						Guy C (T21)	81.6	Pass
						Top Guy Pull-Off (T14)	16.5	Pass
						Bolt Checks	69.7	Pass
						RATING =	**90.5**	**Pass**

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TIA-222-G

TOWER BASE CHECKS - GUYED TOWER

Tower Reactions		Factored Loads		Factored Resistance		% Capacity	Column Rebar
(●) TIA-G	Download	437.00 kips	Bearing Capacity	2847.10 kips	pass	15.3%	PCA COL
( ) EIA-F	Horizontal	3.00 kips	Horizontal Capacity	66.31 kips	pass	4.5%	437.0 kips
	Overturning Check (q_{max})	3.71 ksf	Overturning Capacity	14.53 ksf	pass	25.5% [GOVERNS]	
	Punching Shear Check	266.30 kips	2-way Capacity	2277.43 kips	pass	11.7%	
	Flexural Shear Check	39.02 kips	1-way Capacity	455.49 kips	pass	8.6%	19.5 k-ft
							Max. Pier Moment @ 6.5 ft
	Pier Rebar Required	(minimum only, use PCACOL for total quantity)		#N/A			
	Mat Rebar Required	(checked rebar for 6" min to 24" max spacing)		#N/A		SF=7.84	

Soil Parameters	Soils Report		Foundation Geometry	FDN Dwgs
ϕ	28 °		B (width)	14.00 ft
water level	8.00 ft	(2.44 m)	T (thickness)	3.00 ft
Soil Dry Density (γ_{dry})	0.105 kcf	(16.5 kN/m^3)	L (length)	14.00 ft
Soil Sub Density (γ_{sub})	0.050 kcf	(7.85 kN/m^3)	D (depth to bottom surface)	9.00 ft
Passive earth coefficient	2.770		ϕ (pier diameter)	6.00 ft
Allowable bearing pressure	12.105 ksf	(579.6 kPa)	☑ Check if Square Pier	

Concrete parameters

f'c =	3.000 ksi	(20.7 MPa)
Dry Density (γ_{dry})	0.150 kcf	
Sub Density (γ_{sub})	0.087 kcf	

Passive Earth pressure resistance

press. - top of concrete	1.74	--	ksf
press. - bottom of concr.	2.47	--	ksf
Total resistance =	88.41	--	kips
Horizontal resistance =	66.31 (x 0.75, Cl 9.4.1)	--	kips

Bearing capacity

contact area =	196.00	--	ft²
allowable net pressure =	12.105	--	ksf
Download resistance =	2847.10 (2 • 0.60, Cl 9.4)	--	kips

Overturning - Bearing

	Moment = Shear x Arm	21.000	--	k-ft
ORTHO	q_{max} = P/A + M/S *(S=b³/6)*	3.687	--	ksf
DIAG	q_{max} = P/A + M/S *(S=b³/6√2)*	3.706 (not factored)	--	ksf

Check for 2-Way Shear

d=33.000"

Shear Area (b_o x d) =	96.25	--	ft²
Factored bearing stress =	2.230	--	ksf
Factored shear force =	266.30	--	kips
Factored shear resistance	2277.4	--	kips
Check for 2-way shear	Pass	--	

Check for 1-Way Shear

d=33.000"

Shear Area (b x d) =	38.50	--	ft²
Factored bearing stress =	2.230	--	ksf
Factored shear force =	39.02	--	kips
Factored shear resistance	455.5	--	kips
Check for 2-way shear	Pass	--	

Volume of concrete

822.0 cuft (30.5 cuyd)

Mat	d (dry)	2.00 ft	392.00
	d (sub)	1.00 ft	196.00
Pier	d (above)	0.50 ft	18.00
	d (dry)	6.00 ft	216.00
	d (sub)	0.00 ft	0.00

Depth of Soil

d (overall)	6.00	2.D.Tanϕ	Area
d (dry)	6.00	6.381	415.37
d (submerged)	0.00	0.000	196.00
			196.00

Volume of Soil

Vol (total)	1577.4 ft^3	*Frustum Volume Method*
Vol (dry)	1577.4 ft^3	
Vol (submerged)	0.0 ft^3	

Concrete Reinforcing

(Already Factored Loads)

		PIER
f'c	3.00 ksi	
fy	60 ksi	
Steel (Metric/ASTM)	ASTM	ASTM
Bar size	0 #	0
Bar area	#N/A in²	#N/A

Wgt of Rebar: #N/A lbs

Slab Reinforcing	Download	
w	2.23	ksf
lv	4.0	ft
Mu = ½ wL•lv²	249.71	kip-ft
Ku	16.3790	
ρ	0.00030	choose larger of ρ or ρ min
ρ min ≥ 0.0018	0.00180	
4/3•ρ if ρ < ρ min	0.00041	
As Required	9.9792	in²
Number of bars	#N/A	bars
spacing =	#N/A	in

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TIA-222-G

GUY ANCHOR - DEADMAN CHECKS

Tower Reactions		Factored Loads			Factored Resistance		% Capacity	SF=3.09
(◉) TIA-G	Uplift	59.0	kips	Uplift Capacity	128.69 kips	pass	45.8%	
( ) EIA-F	Horizontal	48.0	kips	Horizontal Capacity	74.25 kips	pass	64.6% [GOVERNS]	

Soil Parameters *From Soils Report*

	Depth (ft)	ϕ (°)	c (psf)	γ (pcf)
Layer 1	4.0	28.0	0.0	105.0
Layer 2	6.0	0.0	1250.0	110.0
Layer 3	8.0	0.0	400.0	105.0
Layer 4	9.5	0.0	750.0	105.0
Layer 5				

All. Top Friction	138	psf *(FS=2)*	
All. Side Friction	138	psf *(FS=2)*	
Frost Depth	4.00	ft	Depth is taken to bottom of layer
Ignored Depth	0.00	ft	

Dead-man geometry *From Fdn Dwgs*

B (width)	4.50	ft
T (thickness / height)	2.50	ft
L (length)	15.00	ft
D (depth to bottom surface)	9.50	ft
f'c (compressive strength)	3.00	ksi (20.7 MPa)
Water Table	30.00	ft (9.15 m)

Depth (ft)	Kp	½Cu (psf)	tan (⅔ϕ)	Ca (Kulhawy)	γ·d (psf)	Kp Pressure	Cu Pressure	Total Layer Pressure	Front of Block Area	½Cu Thickness	½Cu Area	½Cu Area
0.00	2.770	0.0	0.338	0.000	0.0	0.000	0.000	0.000	0.00	0.00	0.000	0.000
4.00					420.0	1.163	0.000	1.163				
4.00	1.000	625.0	0.000	0.582	420.0	0.420	2.500	2.920	0.00	2.00	78.000	48.750
6.00					640.0	0.640	2.500	3.140				
6.00	1.000	200.0	0.000	1.000	640.0	0.640	0.800	1.440	15.00	1.00	39.000	7.800
8.00					850.0	0.850	0.800	1.650				
8.00	1.000	375.0	0.000	0.763	850.0	0.850	1.500	2.350	22.50	0.00	0.000	0.000
9.50					1007.5	1.008	1.500	2.508				
9.50												

Uplift Resistance

	Factored		
Weight of concrete	25.31 (x 0.90, Cl 2.3.2)	--	kips
Weight of soil (all layers)	69.92 (x 0.75, Cl 9.4.1)	--	kips
½Cu Resistance	56.55 (x 0.75, Cl 9.4.1)	--	kips
Total Side Friction (2 x BT)	4.39 (x 0.75, Cl 9.4.1)	--	kips
Total Front Friction (T x L)	10.35 (x 0.75, Cl 9.4.1)	--	kips
Total Uplift Resistance	166.52	--	kips
Factored Uplift Resistance	128.69	--	kips

Horizontal Pressure Resistance

Total Front Pressure (P x L)	75.98	--	kips
Total Side Friction (2 x BT)	4.39	--	kips
Total Top Friction (B x L)	18.63	--	kips
Total Horiz Resistance	99.01	--	kips
Factored Horiz Resistance	74.25 (x 0.75, Cl 9.4.1)	--	kips

Concrete Parameters

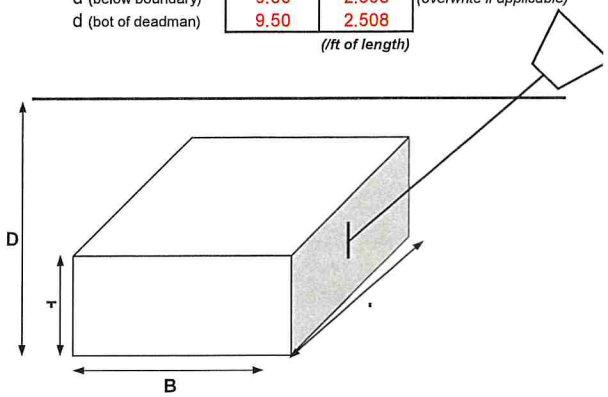
		Depth	Weight	Volume
Dry Density (γ_{dry})	0.150	2.50	25.31	168.75
Sub Density (γ_{sub})	0.087	0.00	0.00	0.00
			168.8 cuft (6.3 cuyd)	

Depth of Soil

		2·D·Tan ϕ	Area	Volume
d (top of layer 1)	0.00	4.254	168.54	456.9
d (top of layer 2)	4.00	0.000	67.50	135.0
d (top of layer 3)	6.00	0.000	67.50	67.5
d (top of layer 4)		0.000	0.00	0.0
d (top of layer 5)		0.000	0.00	0.0
d (top of deadman)	7.00		67.50	659.4
			Frustum Volume Method	

Depth of Deadman

	Depth	Pressure	
d (top of deadman)	7.00	1.545	
d (above boundary)	7.00	1.545	*(overwrite if applicable)*
d (below boundary)	9.50	2.508	*(overwrite if applicable)*
d (bot of deadman)	9.50	2.508	
		(/ft of length)	



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TIA-222-G

GUY ANCHOR - DEADMAN CHECKS

Tower Reactions		*Factored Loads*			Factored Resistance		% Capacity	SF=9.49
(●) TIA-G	Uplift	108.0	kips	Uplift Capacity	512.45 kips	pass	21.1% [GOVERNS]	
( ) EIA-F	Horizontal	48.0	kips	Horizontal Capacity	279.65 kips	pass	17.2%	

Soil Parameters *From Soils Report*

	Depth (ft)	ϕ (°)	c (psf)	γ (pcf)
Layer 1	4.0	28.0	0.0	105.0
Layer 2	6.0	0.0	1250.0	110.0
Layer 3	8.0	0.0	400.0	105.0
Layer 4	11.5	0.0	750.0	105.0
Layer 5				

All. Top Friction 138 psf *(FS=2)*
All. Side Friction 138 psf *(FS=2)*
Frost Depth 3.33 ft
Ignored Depth 0.00 ft
Depth is taken to bottom of layer

Dead-man geometry *From Fdn Dwgs*

B (width) 11.00 ft
T (thickness / height) 4.50 ft
L (length) 28.00 ft
D (depth to bottom surface) 11.50 ft
f'c (compressive strength) 3.00 ksi (20.7 MPa)
Water Table 30.00 ft (9.15 m)

Depth (ft)	Kp	½Cu (psf)	tan (⅔ϕ)	Ca (Kulhawy)	γ·d (psf)	Kp Pressure	Cu Pressure	Total Layer Pressure	Front of Block Area	½Cu Thickness	½Cu Area	½Cu Area
0.00	2.770	0.0	0.338	0.000	0.0	0.000	0.000	0.000	0.00	0.67	52.260	0.000
4.00					420.0	1.163	0.000	1.163				
4.00	1.000	625.0	0.000	0.582	420.0	0.420	2.500	2.920	0.00	2.00	156.000	97.500
6.00					640.0	0.640	2.500	3.140				
6.00	1.000	200.0	0.000	1.000	640.0	0.640	0.800	1.440	28.00	1.00	78.000	15.600
8.00					850.0	0.850	0.800	1.650				
8.00	1.000	375.0	0.000	0.763	850.0	0.850	1.500	2.350	98.00	0.00	0.000	0.000
11.50					1217.5	1.218	1.500	2.718				
11.50												

Uplift Resistance

	Factored		
Weight of concrete	207.90 (x 0.90, Cl 2.3.2)	--	kips
Weight of soil (all layers)	266.60 (x 0.75, Cl 9.4.1)	--	kips
½Cu Resistance	113.10 (x 0.75, Cl 9.4.1)	--	kips
Total Side Friction (2 x BT)	19.32 (x 0.75, Cl 9.4.1)	--	kips
Total Front Friction (T x L)	34.78 (x 0.75, Cl 9.4.1)	--	kips
Total Uplift Resistance	641.69	--	kips
Factored Uplift Resistance	512.45	--	kips

Horizontal Pressure Resistance

Total Front Pressure (P x L)	268.54	--	kips
Total Side Friction (2 x BT)	19.32	--	kips
Total Top Friction (B x L)	85.01	--	kips
Total Horiz Resistance	372.87	--	kips
Factored Horiz Resistance	279.65 (x 0.75, Cl 9.4.1)	--	kips

Concrete Parameters

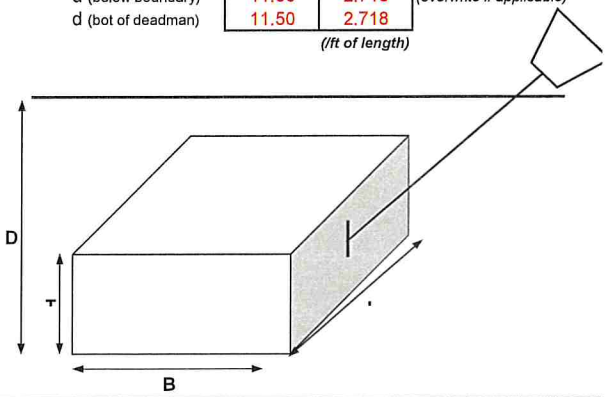
		Depth	Weight	Volume
Dry Density (γ_{dry})	0.150	4.50	207.90	1386.00
Sub Density (γ_{sub})	0.087	0.00	0.00	0.00
			1386.0 cuft (51.4 cuyd)	

Depth of Soil

		2·D·Tan ϕ	Area	Volume
d (top of layer 1)	0.00	4.254	491.99	1585.7
d (top of layer 2)	4.00	0.000	308.00	616.0
d (top of layer 3)	6.00	0.000	308.00	308.0
d (top of layer 4)		0.000	0.00	0.0
d (top of layer 5)		0.000	0.00	0.0
d (top of deadman)	7.00		308.00	2509.7
			Frustum Volume Method	

Depth of Deadman

	Depth	Pressure	
d (top of deadman)	7.00	1.545	
d (above boundary)	7.00	1.545	*(overwrite if applicable)*
d (below boundary)	11.50	2.718	*(overwrite if applicable)*
d (bot of deadman)	11.50	2.718	
		(/ft of length)	

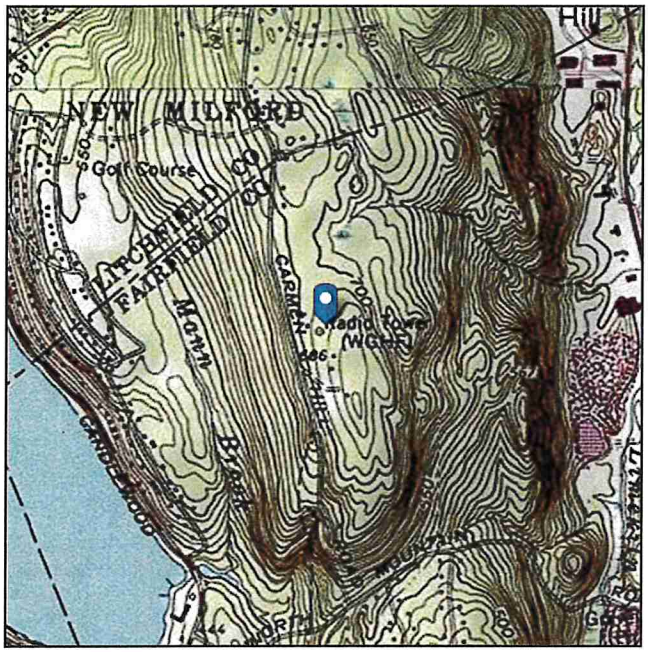


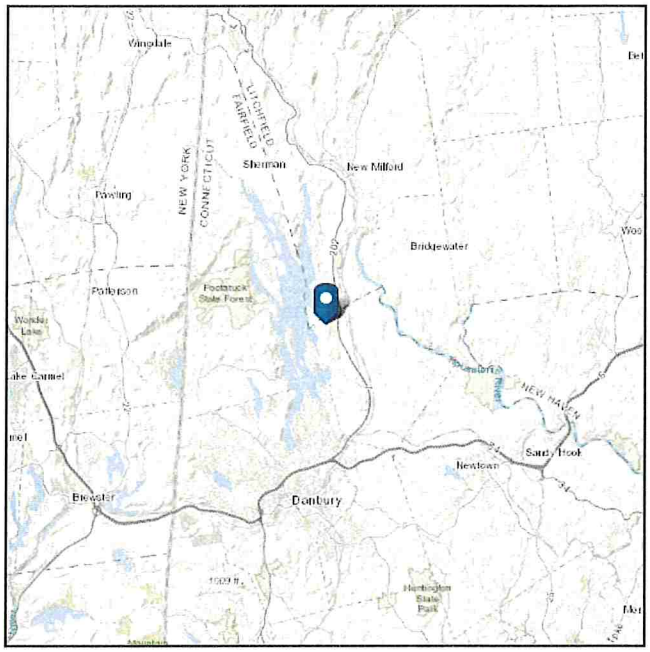
ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-10
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 718.96 ft (NAVD 88)
Latitude: 41.493439
Longitude: -73.428817





Wind

Results:

Wind Speed:	115 Vmph
10-year MRI	76 Vmph
25-year MRI	85 Vmph
50-year MRI	90 Vmph
100-year MRI	96 Vmph
Data Source:	ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, incorporating errata of March 12, 2014
Date Accessed:	Wed Apr 24 2019

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 7-10 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 7-10 Section 26.2. Glazed openings need not be protected against wind-borne debris.

Mountainous terrain, gorges, ocean promontories, and special wind regions should be examined for unusual wind conditions.

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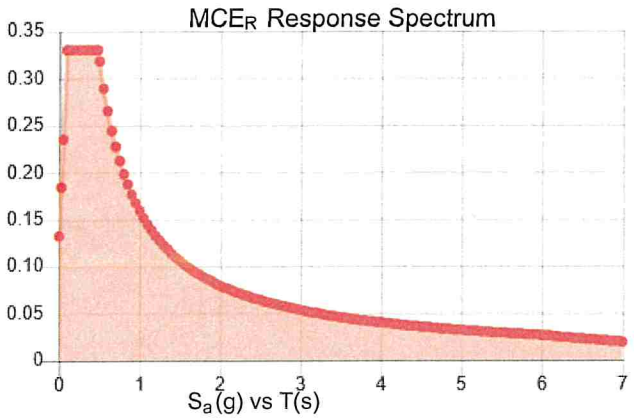
Seismic

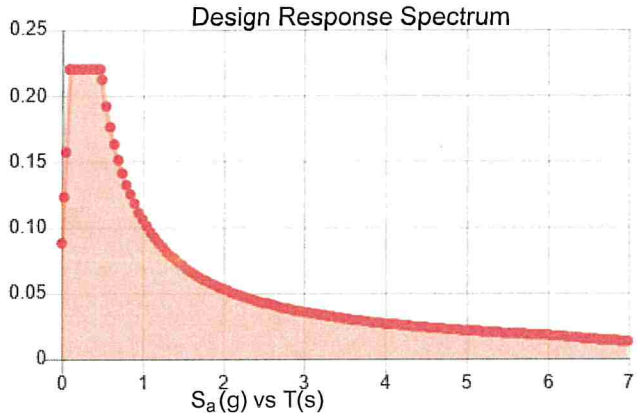
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.207	S_{DS} :	0.22
S_1 :	0.066	S_{D1} :	0.106
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.111
S_{MS} :	0.33	PGA_M :	0.175
S_{M1} :	0.159	F_{PGA} :	1.579
		I_e :	1

Seismic Design Category B





Data Accessed: Wed Apr 24 2019

Date Source: USGS Seismic Design Maps based on ASCE/SEI 7-10, incorporating Supplement 1 and errata of March 31, 2013, and ASCE/SEI 7-10 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-10 Ch. 21 are available from USGS.

ASCE
AMERICAN SOCIETY OF CIVIL ENGINEERS

Ice

Results:

Ice Thickness:	0.75 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Wed Apr 24 2019

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

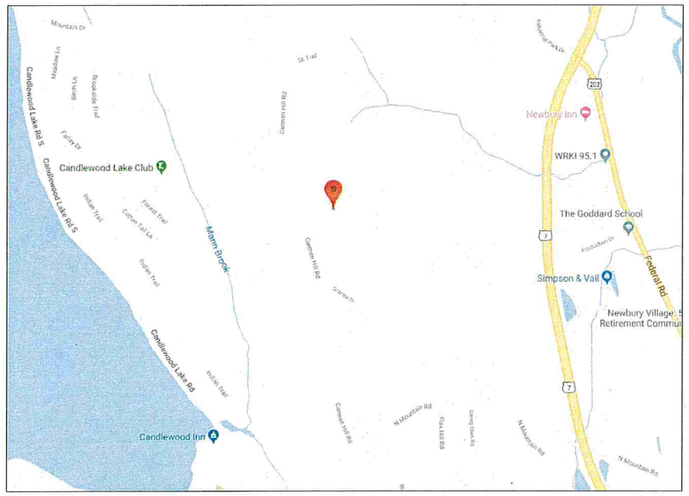
Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 50-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from 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.

Attachment 2:
Modification Drawings

TOWER MODIFICATION DRAWINGS

SITE INFORMATION

SITE NAME:	WRKI-FM
SITE NUMBER:	US-CT-5009
SITE ADDRESS:	0.3 MI. SSE OF INTERSECTION OF CARMEN HILL RD & SE TRAIL BROOKFIELD, CT 06804 FAIRFIELD COUNTY
COORDINATES:	N 41° 29' 36.38" W 73° 25' 43.74"
ETS JOB #:	192640.14 – TOWER MODIFICATION DRAWINGS



DRIVING DIRECTIONS

FROM BROOKFIELD, HEAD SOUTH ON US-202 W TOWARD CT-25S. TURN RIGHT ONTO STATION RD (0.2 MI). TURN RIGHT ONTO LAUREL HILL RD (0.2 MI). KEEP LEFT ONTO N MOUNTAIN RD (0.8 MI). TURN RIGHT ONTO CARMEN HILL RD (0.5 MI). TOWER WILL BE ON THE RIGHT.

PROJECT CONTACTS

1. CLIENT REPRESENTATIVE

   MICHAEL T. DEBOER, P.E.
   SENIOR DIRECTOR OF ENGINEERING

   VERTICAL BRIDGE ENGINEERING, LLC
   750 PARK OF COMMERCE DR., SUITE 200
   BOCA RATON, FL 33487
   OFFICE: (605) 540-4621

   MDEBOER@VERTICALBRIDGE.COM

2. CONSTRUCTION MANAGER
   TBD

3. ENGINEER OF RECORD (EOR)

   FREDERIC BOST, P.E.

   3227 WELLINGTON CT.
   RALEIGH, NC 27615
   OFFICE: (919) 782-2710

   GEOFF.BOST@ETS-PLLC.COM

TOWER INFORMATION

TOWER MANUFACTURER:	UNKNOWN
TOWER TYPE:	GUYED TOWER
TOWER HEIGHT:	492 FT

CODE COMPLIANCE

THIS REINFORCEMENT DESIGN IS BASED ON THE REQUIREMENTS OF TIA STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES USING:

BUILDING CODE:	2015 INTERNATIONAL BUILDING CODE
TIA CODE:	TIA-222-G
ULTIMATE WIND SPEED:	115 MPH
ICE THICKNESS:	0.75 IN
WIND SPEED WITH ICE:	50 MPH
SERVICE LOAD WIND SPEED:	60 MPH
EXPOSURE CATEGORY:	C
STRUCTURE CLASS:	II
TOPOGRAPHIC CATEGORY:	I

SHEET INDEX

SHEET #	REV. (DATE)	DESCRIPTION
T-1	0 - 05/10/2019	TITLE PAGE
N-1	0 - 05/10/2019	PROJECT NOTES
S-1	0 - 05/10/2019	TOWER ELEVATION AND MODIFICATION SCHEDULE
S-2	0 - 05/10/2019	DIAGONAL REPLACEMENT DETAILS

PLANS PREPARED BY:

ETS
ENGINEERED TOWER SOLUTIONS, PLLC

3227 WELLINGTON CT.
RALEIGH, NC 27615
OFFICE: (919) 782-2710
www.engineeredtowersolutions.com

PLANS PREPARED FOR:

verticalbridge

SITE NAME:

WRKI-FM

SITE NUMBER:

US-CT-5009

SITE ADDRESS:
0.3 MI. SSE OF INTERSECTION OF CARMEN HILL RD & SE TRAIL
BROOKFIELD, CT 06804
(FAIRFIELD COUNTY)

SEAL:

05/10/2019

REV	DATE	ISSUED FOR:
0	05/10/2019	CONSTRUCTION

DRAWN BY: GT | CHECKED BY: JSH

SHEET TITLE:

TITLE PAGE

SHEET NUMBER: **T-1**

REVISION: 0

ETS #: 192640.14

GENERAL NOTES:

1. ALL REFERENCES TO THE OWNER IN THESE DOCUMENTS SHALL BE CONSIDERED VERTICAL BRIDGE OR ITS DESIGNATED REPRESENTATIVE.
2. ALL WORK PRESENTED ON THESE DRAWINGS MUST BE COMPLETED BY THE CONTRACTOR UNLESS NOTED OTHERWISE. THE CONTRACTOR MUST HAVE CONSIDERABLE EXPERIENCE IN PERFORMANCE OF WORK SIMILAR TO THAT DESCRIBED HEREIN. BY ACCEPTANCE OF THIS ASSIGNMENT, THE CONTRACTOR IS ATTESTING THAT HE DOES HAVE SUFFICIENT EXPERIENCE AND ABILITY, THAT HE IS KNOWLEDGEABLE OF THE WORK TO BE PERFORMED AND THAT HE IS PROPERLY LICENSED AND PROPERLY REGISTERED TO DO THIS WORK IN THE STATE OF CONNECTICUT.
3. WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE, 2015 EDITION.
4. UNLESS SHOWN OR NOTED OTHERWISE ON THE CONTRACT DRAWINGS, OR IN THE SPECIFICATIONS, THE FOLLOWING NOTES SHALL APPLY TO THE MATERIALS LISTED HEREIN, AND TO THE PROCEDURES TO BE USED ON THIS PROJECT.
5. ALL HARDWARE ASSEMBLY MANUFACTURER'S INSTRUCTIONS SHALL BE FOLLOWED EXACTLY AND SHALL SUPERSEDE ANY CONFLICTING NOTES ENCLOSED HEREIN.
6. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE TO INSURE THE SAFETY OF THE STRUCTURE AND IT'S COMPONENT PARTS DURING ERECTION AND/OR FIELD MODIFICATIONS. THIS INCLUDES, BUT IS NOT LIMITED TO, THE ADDITION OF TEMPORARY BRACING, GUYS OR TIE DOWNS THAT MAY BE NECESSARY. SUCH MATERIAL SHALL BE REMOVED AND SHALL REMAIN THE PROPERTY OF THE CONTRACTOR AFTER THE COMPLETION OF THE PROJECT.
7. ALL DIMENSIONS, ELEVATIONS, AND EXISTING CONDITIONS SHOWN ON THE DRAWINGS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO BEGINNING ANY MATERIALS ORDERING, FABRICATION OR CONSTRUCTION WORK ON THIS PROJECT. CONTRACTOR SHALL NOT SCALE CONTRACT DRAWINGS IN LIEU OF FIELD VERIFICATIONS. ANY DISCREPANCIES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE OWNER AND THE OWNER'S ENGINEER. THE DISCREPANCIES MUST BE RESOLVED BEFORE THE CONTRACTOR IS TO PROCEED WITH THE WORK. THE CONTRACT DOCUMENTS DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. OBSERVATION VISITS TO THE SITE BY THE OWNER AND/OR THE ENGINEER SHALL NOT INCLUDE INSPECTION OF THE PROTECTIVE MEASURES OR THE PROCEDURES.
8. ALL MATERIALS AND EQUIPMENT FURNISHED SHALL BE NEW AND OF GOOD QUALITY, FREE FROM FAULTS AND DEFECTS AND IN CONFORMANCE WITH THE CONTRACT DOCUMENTS. ANY AND ALL SUBSTITUTIONS MUST BE PROPERLY APPROVED AND AUTHORIZED IN WRITING BY THE OWNER AND ENGINEER PRIOR TO INSTALLATION. THE CONTRACTOR SHALL FURNISH SATISFACTORY EVIDENCE AS TO THE KIND AND QUALITY OF THE MATERIALS AND EQUIPMENT BEING SUBSTITUTED.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT THIS PROJECT AND RELATED WORK COMPLIES WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL SAFETY CODES AND REGULATIONS GOVERNING THIS WORK.
10. ACCESS TO THE PROPOSED WORK SITE MAY BE RESTRICTED. THE CONTRACTOR SHALL COORDINATE INTENDED CONSTRUCTION ACTIVITY, INCLUDING WORK SCHEDULE AND MATERIALS ACCESS, WITH THE RESIDENT LEASING AGENT FOR APPROVAL.
11. ALL PERMITS THAT MUST BE OBTAINED ARE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE RESPONSIBLE FOR ABIDING BY ALL CONDITIONS AND REQUIREMENTS OF THE PERMITS.
12. IF APPLICABLE, ALL CONCRETE WORK SHALL COMPLY TO LOCAL CODES AND THE ACI 318-14, "BUILDING REQUIREMENTS FOR STRUCTURAL CONCRETE".
13. 24 HOURS PRIOR TO THE BEGINNING OF ANY CONSTRUCTION, THE CONTRACTOR MUST NOTIFY THE APPLICABLE JURISDICTIONAL (STATE, COUNTY OR CITY) ENGINEER.

STRUCTURAL STEEL NOTES:

1. THE FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AISC SPECIFICATION FOR MANUAL OF STEEL CONSTRUCTION, LOAD AND RESISTANCE FACTOR DESIGN, 13TH EDITION.
2. UNLESS OTHERWISE NOTED, ALL STRUCTURAL ELEMENTS SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:
   STRUCTURAL STEEL:
   - ANGLE: ASTM A36
   - PIPE/TUBE: ASTM A500-50
   - PLATE: ASTM A36 (SELF SUPPORTING AND GUYED TOWERS)
   - PLATE: ASTM A572-65 (MONOPOLE)

   A. ALL BOLTS, ASTM A325 TYPE I GALVANIZED HIGH STRENGTH BOLTS.
   B. ALL U-BOLTS, ASTM A193 GRADE B7
   C. ALL NUTS, ASTM A563 CARBON AND ALLOY STEEL NUTS.
   D. ALL WASHERS, ASTM F436 HARDENED STEEL WASHERS.
3. ALL CONNECTIONS NOT FULLY DETAILED ON THESE PLANS SHALL BE DETAILED BY THE STEEL FABRICATOR IN ACCORDANCE WITH AISC SPECIFICATION FOR MANUAL OF STEEL CONSTRUCTION, LOAD AND RESISTANCE FACTOR DESIGN, 13TH EDITION.
4. HOLES SHALL NOT BE FLAME CUT THRU STEEL UNLESS APPROVED BY THE ENGINEER.
5. HOT-DIP GALVANIZE ALL ITEMS UNLESS OTHERWISE NOTED, AFTER FABRICATION WHERE PRACTICABLE. GALVANIZING: ASTM A123, ASTM, A153/A153M OR ASTM A653/A653M, G90, AS APPLICABLE.
6. REPAIR DAMAGED SURFACES WITH GALVANIZING REPAIR METHOD AND PAINT CONFORMING TO ASTM A780 OR BY APPLICATION OF STICK OR THICK PASTED MATERIAL SPECIFICALLY DESIGNED FOR REPAIR OF GALVANIZING. CLEAN AREAS TO BE REPAIRED AND REMOVE SLAG FROM WELDS. HEAT SURFACES TO WHICH STICK OR PASTE MATERIAL IS APPLIED, WITH A TORCH TO A TEMPERATURE SUFFICIENT TO MELT THE METALLICS IN STICK OR PASTED; SPREAD MOLTEN MATERIAL UNIFORMLY OVER SURFACES TO BE COATED AND WIPE OFF EXCESS MATERIAL.
7. A NUT LOCKING DEVICE SHALL BE INSTALLED ON ALL PROPOSED AND/OR REPLACED BOLTS.
8. ALL PROPOSED AND/OR REPLACED BOLTS SHALL BE OF SUFFICIENT LENGTH TO EXCLUDE THE THREADS FROM THE SHEAR PLANE.
9. ALL PROPOSED AND/OR REPLACED BOLTS SHALL BE OF SUFFICIENT LENGTH SUCH THAT THE END OF THE BOLT BE AT LEAST FLUSH WITH THE FACE OF THE NUT. IT IS NOT PERMITTED FOR THE BOLT END TO BE BELOW THE FACE OF THE NUT AFTER TIGHTENING IS COMPLETED.
10. GALVANIZED ASTM A325 BOLTS SHALL NOT BE REUSED.

BOLT TIGHTENING PROCEDURE:

1. TIGHTEN CONNECTION BOLTS BY AISC – "TURN OF THE NUT" METHOD, USING THE CHART BELOW.

BOLT LENGTHS UP TO AND INCLUDING FOUR DIA.		
½"	BOLTS UP TO AND INCLUDING 2.0 INCH LENGTH	+⅓ TURN BEYOND SNUG TIGHT
⅝"	BOLTS UP TO AND INCLUDING 2.5 INCH LENGTH	+⅓ TURN BEYOND SNUG TIGHT
¾"	BOLTS UP TO AND INCLUDING 3.0 INCH LENGTH	+⅓ TURN BEYOND SNUG TIGHT
⅞"	BOLTS UP TO AND INCLUDING 3.5 INCH LENGTH	+⅓ TURN BEYOND SNUG TIGHT
1"	BOLTS UP TO AND INCLUDING 4.0 INCH LENGTH	+⅓ TURN BEYOND SNUG TIGHT
BOLT LENGTHS OVER FOUR DIA. BUT NOT EXCEEDING EIGHT DIA.		
½"	BOLTS 2.25 TO 4.0 INCH LENGTH	+½ TURN BEYOND SNUG TIGHT
⅝"	BOLTS 2.75 TO 5.0 INCH LENGTH	+½ TURN BEYOND SNUG TIGHT
¾"	BOLTS 3.25 TO 6.0 INCH LENGTH	+½ TURN BEYOND SNUG TIGHT
⅞"	BOLTS 3.75 TO 7.0 INCH LENGTH	+½ TURN BEYOND SNUG TIGHT
1"	BOLTS 4.25 TO 8.0 INCH LENGTH	+½ TURN BEYOND SNUG TIGHT

2. CONNECTION BOLTS SUBJECT TO DIRECT TENSION SHALL BE INSTALLED AND TIGHTENED AS PER SECTION 8.2.1 OF THE AISC SPECIFICATION FOR STRUCTURAL JOINTS USING A325 OR A490 BOLTS, LOCATED IN THE AISC MANUAL OF STEEL CONSTRUCTION. THE INSTALLATION PROCEDURE IS PARAPHRASED AS FOLLOWS:
3. FASTENERS SHALL BE INSTALLED IN PROPERLY ALIGNED HOLES AND TIGHTENED BY ONE OF THE METHODS DESCRIBED IN SUBSECTION 8.2.1 THROUGH 8.2.4.

   8.2.1 TURN-OF-THE-NUT TIGHTENING

   BOLTS SHALL BE INSTALLED IN ALL HOLES OF THE CONNECTION AND BROUGHT TO A SNUG TIGHT CONDITION AS DEFINED IN SECTION 8.1, UNTIL ALL THE BOLTS ARE SIMULTANEOUSLY SNUG TIGHT AND THE CONNECTION IS FULLY COMPACTED. FOLLOWING THIS INITIAL OPERATION ALL BOLTS IN THE CONNECTION SHALL BE TIGHTENED FURTHER BY THE APPLICABLE AMOUNT OF ROTATION SPECIFIED ABOVE. DURING THE TIGHTENING OPERATION THERE SHALL BE NO ROTATION OF THE PART NOT TURNED BY THE WRENCH. TIGHTENING SHALL PROGRESS SYSTEMATICALLY FROM THE MOST RIGID PART OF THE JOINT IN A MANNER THAT WILL MINIMIZE RELAXATION OF PREVIOUSLY PRETENSIONED BOLTS.
4. ALL OTHER BOLTED CONNECTIONS SHALL BE BROUGHT TO A SNUG TIGHT CONDITION AS DEFINED IN SECTION 8.1 OF THE SPECIFICATION.

PLANS PREPARED BY:

ETS
ENGINEERED TOWER SOLUTIONS, PLLC
3227 WELLINGTON CT.
RALEIGH, NC 27615
OFFICE: (919) 782-2710
www.engineeredtowersolutions.com

PLANS PREPARED FOR:

vertical bridge

SITE NAME:

WRKI-FM

SITE NUMBER:

US-CT-5009

SITE ADDRESS:
0.3 MI. SSE OF INTERSECTION OF CARMEN HILL RD & SE TRAIL
BROOKFIELD, CT 06804
(FAIRFIELD COUNTY)

SEAL:

05/10/2019

REV	DATE	ISSUED FOR:
0	05/10/2019	CONSTRUCTION

DRAWN BY: GT | CHECKED BY: JSH

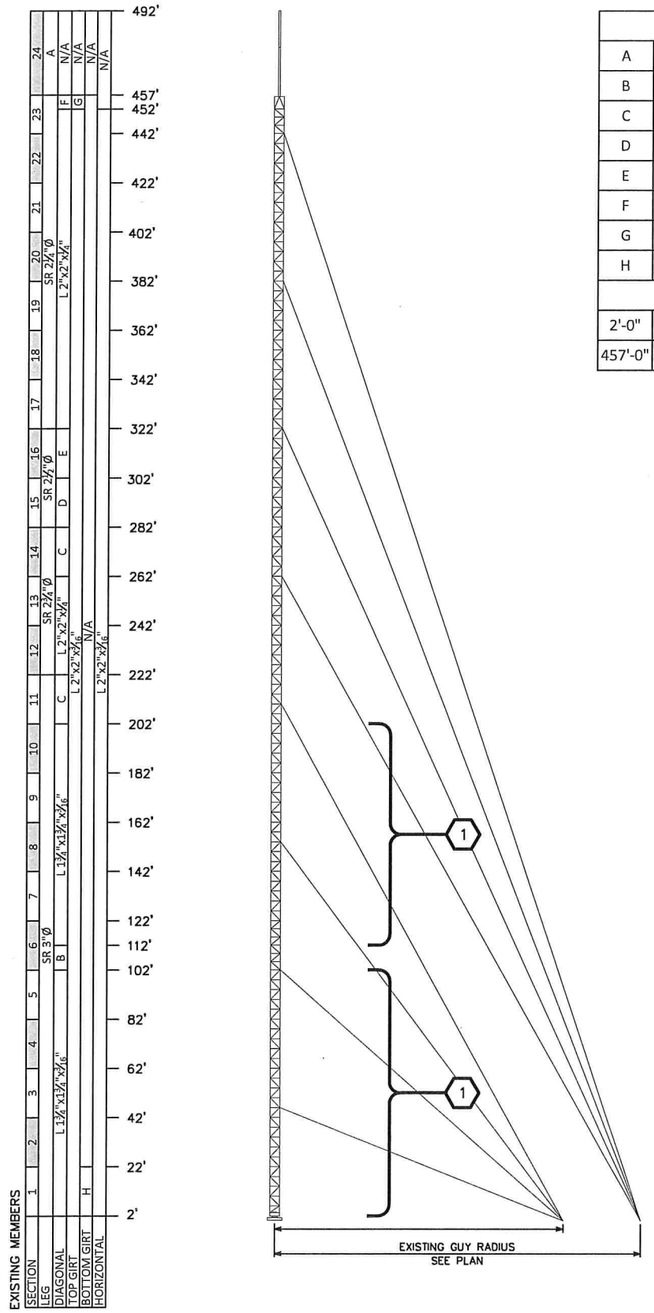
SHEET TITLE:

PROJECT NOTES

SHEET NUMBER: **N-1**

REVISION: 0

ETS #: 192640.14



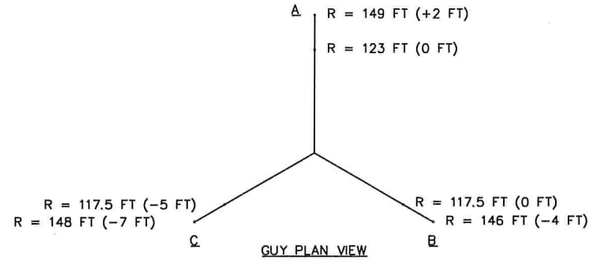
MATERIAL KEY	
A	P 8x0.406"
B	L 1¾"x1¾"x3/16" w/ L 2"x2"x¼"
C	L 2½"x2½"x⅜"
D	L 2"x2"x¼"
E	L 1¾"x1¾"x3/16"
F	L 2½"x2"x3/16"
G	C 6x10.5
H	L 2"x2"x3/16"
FACEWIDTH	
2'-0"	4'-0"
457'-0"	4'-0"

MODIFICATION SCHEDULE

NO.	MODIFICATION DESCRIPTION	ELEVATION (FT.)
1	REPLACE EXISTING DIAGONALS (SEE SHEET S-2)	2' – 102' 112' – 202'

NOTES:

1. ANTENNAS AND OTHER APPURTENANCES MAY NEED TO BE TEMPORARILY REMOVED OR MOVED DURING MODIFICATION INSTALLATION.
2. FIELD VERIFICATION OF ALL MEASUREMENTS REQUIRED PRIOR TO FABRICATION.
3. ETS, PLLC DID NOT ANALYZE THIS STRUCTURE. VERTICAL BRIDGE ENGINEERING, LLC TAKES RESPONSIBILITY FOR ALL TOWER ANALYSIS AND MODIFICATION DESIGN WORK HEREIN.



GUY PLAN VIEW

TOWER ELEVATION

SCALE: 1" = 60'

0 60 120

SCALE IN FEET

PLANS PREPARED BY:
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vertical bridge

SITE NAME:
WRKI-FM

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US-CT-5009

SITE ADDRESS:
0.3 MI. SSE OF INTERSECTION OF CARMEN HILL RD & SE TRAIL
BROOKFIELD, CT 06804
(FAIRFIELD COUNTY)

SEAL:
STATE OF CONNECTICUT
FREDERIC BOST
PEN.0029529
LICENSED PROFESSIONAL ENGINEER
05/10/2019

REV	DATE	ISSUED FOR:
0	05/10/2019	CONSTRUCTION

DRAWN BY: GT | CHECKED BY: JSH

SHEET TITLE:
TOWER ELEVATION AND MODIFICATION SCHEDULE

SHEET NUMBER: **S-1**

REVISION: 0

ETS #: 192640.14

DIAGONAL REPLACEMENT SCHEDULE

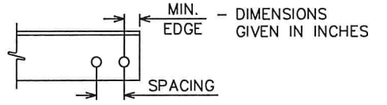
SECTION	ELEVATION	PROPOSED MEMBER					END BOLTS	
		SIZE	ESTIMATED LENGTH	QTY.	MIN EDGE	GAGE LINE	SIZE	QTY.
1	2'–22'	L 2"x2"x ¼"	BAY 1: 4'–7 9/16"± BAYS 2–5: 5'–6 3/16"±	BAY 1: 3 BAYS 2–5: 12	1⅛"	1⅛"	⅝"ø A325N	30 PER SECTION
2,3,4,5	22'–102'	L 2"x2"x ¼"	5'–6 3/16"±	15 PER SECTION	1⅛"	1⅛"	⅝"ø A325N	30 PER SECTION
6	112'–122'	L 2"x2"x ¼"	5'–6 3/16"±	9 PER SECTION	1⅛"	1⅛"	⅝"ø A325N	18 PER SECTION
7,8,9,10	122'–202'	L 2"x2"x ¼"	5'–6 3/16"±	15 PER SECTION	1⅛"	1⅛"	⅝"ø A325N	30 PER SECTION

NOTES:

1. IT IS THE CONTRACTORS RESPONSIBILITY TO MEASURE ALL RELEVANT EXISTING MEMBERS PRIOR TO ORDERING MATERIALS.
2. PRIOR TO FABRICATION AND INSTALLATION, CONTRACTOR SHALL FIELD VERIFY ALL LENGTHS.
3. ALL CONNECTIONS NOT FULLY DETAILED ON THESE PLANS SHALL BE DETAILED BY THE STEEL FABRICATOR IN ACCORDANCE WITH AISC SPECIFICATION FOR MANUAL OF STEEL CONSTRUCTION, LOAD AND RESISTANCE FACTOR DESIGN 13TH EDITION.

BOLT EDGE AND SPACING

BOLT DIAMETER	MIN. EDGE	SPACING
½	⅞	1½
⅝	1⅛	1⅞
¾	1¼	2¼
⅞	1½	2⅝
1	1¾	3



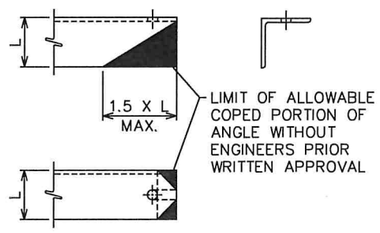
– DIMENSIONS GIVEN IN INCHES

NOMINAL HOLE DIMENSIONS

BOLT DIAMETER	STANDARD HOLE	SHORT SLOT
½	9/16	9/16 X 1/16
⅝	11/16	11/16 X ⅞
¾	13/16	13/16 X 1
⅞	15/16	15/16 X 1⅛
1	1 1/16	1 1/16 X 1 5/16

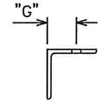
– DIMENSIONS GIVEN IN INCHES

ALLOWABLE ANGLE COPE



WORKABLE GAGES

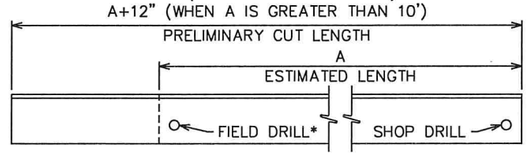
LEG	4	3½	3	2½	2	1¾
G	2½	2	1¾	1⅜	1⅛	1



– WORKABLE GAGES GIVEN IN INCHES

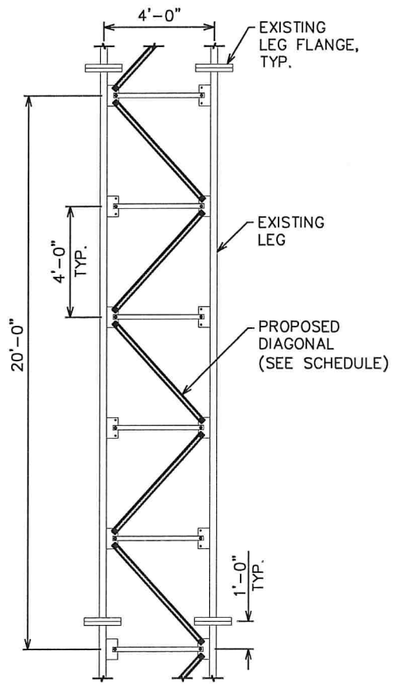
– MATCH EXISTING WHEN APPLICABLE

FABRICATED ANGLE LENGTH



*CONTRACTOR TO FIELD VERIFY LOCATION OF THIS HOLE PRIOR TO DRILLING HOLE TO ENSURE PROPER FIT. CONTRACTOR TO FIELD CUT EXCESS MATERIAL AFTER HOLE LOCATION IS VERIFIED.

SECTIONS 2-5, 7-10



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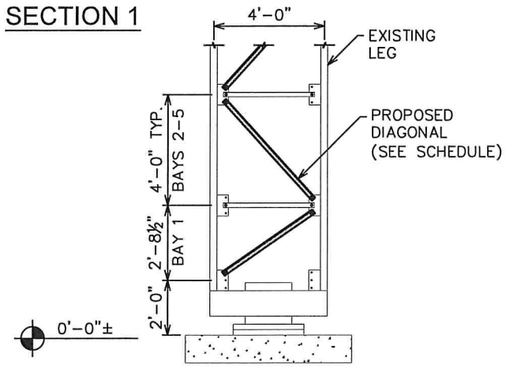

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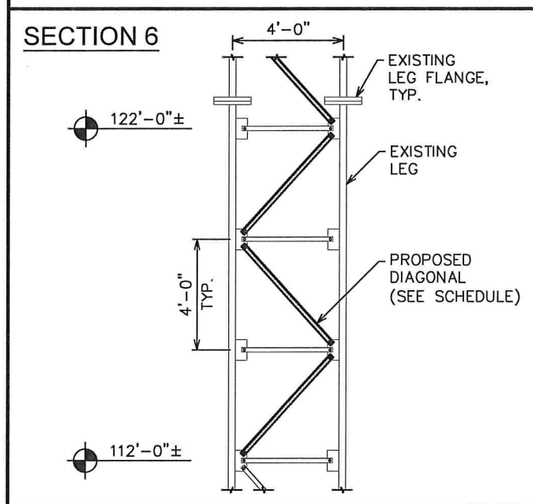
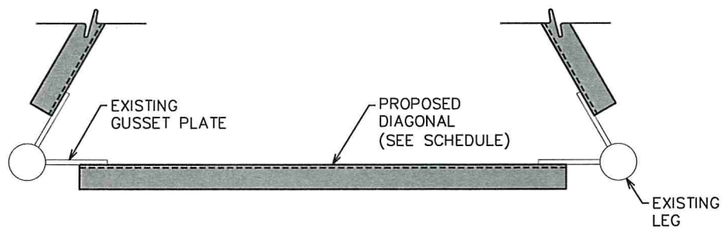




BRACING DETAIL (ELEVATION VIEW)

SCALE: 3/16" = 1'–0"

BRACING DETAIL (PLAN VIEW)

SCALE: 1" = 1'–0"

PLANS PREPARED BY:

ETS
ENGINEERED TOWER SOLUTIONS, PLLC
3227 WELLINGTON CT.
RALEIGH, NC 27615
OFFICE: (919) 782-2710
www.engineeredtowersolutions.com

PLANS PREPARED FOR:

vertical bridge

SITE NAME:

WRKI-FM

SITE NUMBER:

US-CT-5009

SITE ADDRESS:
0.3 MI. SSE OF INTERSECTION OF CARMEN HILL RD & SE TRAIL
BROOKFIELD, CT 06804
(FAIRFIELD COUNTY)

SEAL:

05/10/2019

REV	DATE	ISSUED FOR:
0	05/10/2019	CONSTRUCTION

DRAWN BY: GT | CHECKED BY: JSH

SHEET TITLE:

DIAGONAL REPLACEMENT DETAILS

SHEET NUMBER: **S-2**

REVISION: 0

ETS #: 192640.14

Attachment 3:
Collocation Application

verticalbridge

☑ NEW LEASE	☐ AMENDMENT TO EXISTING LEASE	☐ RECONTRACT	☐ BTS ANCHOR TENANT

INTERNAL USE ONLY	
APP VERSION #	
LEASE #	
AMENDMENT #	

PLEASE RETURN THIS APPLICATION VIA EMAIL TO:			
Vertical Bridge 750 Park of Commerce Drive Suite 200 Boca Raton, FL 33487 Attn: Regional Leasing Manager	E-Mail: Phone:	VB Site Number:	CT-5009
		VB Site Name:	
		Application Date:	3/28/2019
		Revision Dates:	
		RSM Approval:	

APPLICANT / CARRIER INFORMATION			
Carrier Name:	AT&T	**Contact Name:**	Haleluya Haile
Carrier Site Number:	CT2586	**Contact Number:**	978-235-6131
Carrier Site Name:		**Contact Fax:**	
Carrier Legal Entity Name:	New Cingular Wireless PCS, LLC	**Contact Address:**	85 Rangeway Road Building 3, Suite 102 North Billerica, MA 01862
State of registration:	Delaware		
Type of entity (LP, LLC, Corp) d/b/a (If applicable)	LLC		
Notice Address for Lease:	575 Morosgo Drive Atlanta, GA 30324	**Contact E-mail:**	Haleluya.Haile@smartlinkllc.com
With copies to:	208 S. Akard Street Dallas, TX 75202	**Additional E-mail:**	
Carrier Invoice Address:	85 Rangeway Rd. Bldg 3, Sut. 102 N. Billerica, MA	**Other:**	
Carrier Invoice Contact - Name, Title, Phone No.		**Carrier NOC#**	

ADDITIONAL CONTACT INFORMATION	
Leasing Contact Name/Number:	Haleluya Haile / 978-235-6131 / Haleluya.Haile@smartlinkllc.com
RF Contact Name/Number:	
Construction Contact Name/Number:	Robert Picard / 603-209-5505 / Robert.Picard@smartlinkllc.com
Emergency Contact Name/Number:	

SITE INFORMATION – This information can be found and should match the information on www.verticalbridge.com				
Latitude:	41.49343889	N	**Existing Structure Type:**	Guyed
Longitude:	-73.42881667	W	**Existing Structure Height:**	499'
Site Address:	.3 Mi Sse Of Intersection of Carmen Hil Rd. & Se Trail Brookfield, CT 06804 - (39 Carmen Hill Rd. Brookfield, CT 06804)			

FREQUENCY/TECHNOLOGY INFORMATION		
Type of Technology for all equipment (i.e., 3G, LTE, CMDA, MW, WiFi, TV, etc.)		LTE
TX Frequency (MHz)	Licensed	698-806, 1695-1880, 1920-2180, 758-768, 717-728, 1850-1910, 2500-2570, 2500-2560, 1850-1915, 824-849, 777-787, 1850-1910
RX Frequency (MHz)	Licensed	824-896, 1850-1990, 2300-2400, 788-798,N/A, 1710-1785, 2620-2690, 2620-2680, 1930-1995, 869-894, 746-756, 1930-1990
Tenants using an unlicensed band must provide exact Frequency Channels and Call Sign(s) to be utilized. (Providing the band range only will not be accepted.)		

PLEASE PROVIDE BRIEF DESCRIPTION OF GENERAL SCOPE OF WORK
[On Tower] - Add (9) antennas. Add (15) RRUS. Add (3) Squids. Add (2) Fiber Trunks. Add (6) DC cables. [At Grade] - Add (1) Walk in Cabinet. Add (1) Generator. All ground equipment to remain within 10'x20' Leased area.

vertical bridge

EXISTING EQUIPMENT Applicant's Existing Equipment Configuration and Specifications										
Equipment Type (ex: panel, TMA, RRU)	RAD (feet)	Mount Height (feet)	Mount Type	Equip Qty	Equipment Manufacturer	Equipment Model #	Equip Dim (HxWxD) (ft or in)	Equip Weight (lbs)	Az	Remain

EXISTING LINES Applicant's Existing Lines and Specifications					
Line Type	Line Size (Inches)	Total # of Lines	Coax interior or exterior (for monopoles)	Remain	Comments:

verticalbridge

PROPOSED EQUIPMENT Applicant's Proposed Equipment Configuration and Specifications									
Equipment Type (ex: panel, TMA, RRU, ice shields)	**RAD (feet)**	**Mount Height (feet)**	**Mount Type**	**Equip Qty**	**Equipment Manufacturer**	**Equipment Model #**	**Equip Dim (HxWxD) (ft or in)**	**Equip Weight (lbs)**	**Azimuth**
Panel	165	165	Pipe Mount	6	CCI	TPA65R-BU8D	96"x21"x7.8"	83	60, 180, 220
Panel	165	165	Pipe Mount	3	CCI	TPR65R-BU8A	96"x11.7"x7.6"	54	60, 180, 220
RRUS	165	165	Pipe Mount	3	Ericsson	RRUS-4478 B14	18.1"x13.4"x8.26"	59.4	N/A
RRUS	165	165	Pipe Mount	3	Ericsson	RRUS-E2	20.4"x18.5"x7.5"	60	N/A
RRUS	165	165	Pipe Mount	3	Ericsson	RRUS-4415 B30	16.5"x13.4"x5.9"	48.4	N/A
RRUS	165	165	Pipe Mount	3	Ericsson	RRUS-4449	17.91"x13.2"x9.5"	71	N/A
RRUS	165	165	Pipe Mount	3	Ericsson	RRUS-4483	15"x13.2"x9"	72	N/A
Surge Suppressor	165	165	Pipe Mount	3	Raycap	DC6-48-60-0-8C-EV	18.28"x10.24"x31.4"	26.2	N/A

PROPOSED LINES Applicant's Proposed Lines and Specifications				
Line Type	**Line Size (Inches)**	**Total # of Lines**	**Coax interior or exterior (for monopoles)**	**Comments:**
Coax				
RET Home Run Cable				
Fiber	3/8"	2	Exterior	
DC Power	5/8"	6	Exterior	

vertical bridge

PROPOSED FINAL CONFIGURATION TOTALS	
EQUIPMENT TYPE	TOTAL
Panel Antennas	9
Omni/Whip Antennas	
RRU	15
TMA	
Diplexer / Triplexer	
Bias T	
Surge Suppressor	3
MW Dish	
Ice Shield	
ODU	
Filter	
Combiner	
Junction Box	
RET	
Equipment Cabinets	1
Other (Please specify)	
Other (Please specify)	
Other (Please specify)	
Other (Please specify)	
Other (Please specify)	

PROPOSED FINAL CONFIGURATION TOTALS	
LINE TYPE	TOTAL
Coax	
Hybrid	
CAT5	
DC/Power	6
RET	
Fiber	2

ADDITIONAL EQUIPMENT INFORMATION
• RRUs, TMAs and ODUs are required to be installed directly behind the antennas / MW dish. Otherwise there will be an additional charge. • All equipment lines are required to be installed inside the tower when space is available. Carriers will be charged an additional $25.00 per line per month if equipment lines are installed on the outside of the tower even though there is available space inside the tower. Vertical Bridge must approve any installation of lines on the outside of the tower. • All tenant equipment must be installed within one continuous 10 ft vertical envelope. Exceeding this vertical space will be subject to additional rent.

verticalbridge

GROUND / INTERIOR SPACE REQUIREMENTS						
Total Ground / Interior Area Dimensions: **L' x W' = Total Square Feet Required**	10 X 20	(Including all Equipment (i.e., Shelter, Equipment Platform or Pad, Generator Pad, Generator Fuel Tank Pad, Antenna Sleds, etc. – provide details below)				
Cabinet Area Dimensions (Pad/Platform)	X	Cabinet Installation Type				
Shelter Pad Dimensions	X	Shelter Manufacturer				
Rooftop Antenna Total Area Required	X	Antenna Sled Dimensions (per sector)	X	Antenna Wall Mount Dimensions (per sector)	X	

EQUIPMENT CABINET REQUIREMENTS (Required for rooftops or Vertical Bridge interior space)					
Number of Cabinets Required		Cabinet Dimensions (L' x W' x H')		Manufacturer:	
Number of Cabinets Required		Cabinet Dimensions (L' x W' x H')		Manufacturer:	
Number of Cabinets Required		Cabinet Dimensions (L' x W' x H')		Manufacturer:	
Equipment Cabinet Comments					

GENERATOR REQUIREMENTS					
Generator Required?:	New	Generator Fuel Type	Diesel	Generator Size	20Kw
Generator Pad Dimensions			Generator Manufacturer	Generac	
Generator Fuel Tank Pad Dimensions			Fuel Tank Manufacturer		

AC POWER REQUIREMENTS			
Meter Type		Estimated Monthly Utility Usage Amount	
Voltage		Total Amperage	

FIBER / BACKHAUL					
Fiber Installation Status		Fiber Provider			
Cable Type		Number of Points of Entry		Conduit/Riser Size (in inches)	

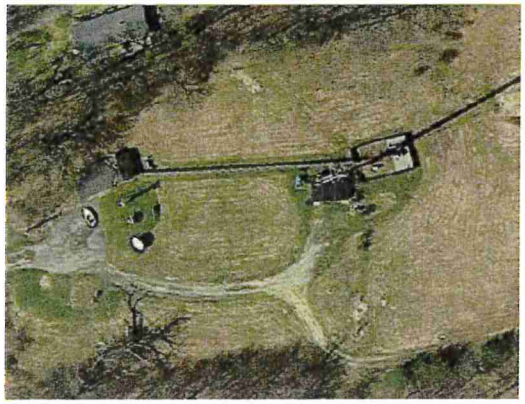
STRUCTURAL ANALYSIS DETAILS			
Structural Hardcopies Required?		If wet seals required, please provide address:	

ADDITIONAL COMMENTS

4

SITESAFE
RF COMPLIANCE EXPERTS

8618 Westwood Center Drive, Suite 315, Vienna, VA 22182
703.276.1100 • 703.276.1169 fax
info@sitesafe.com • www.sitesafe.com



Smartlink on behalf of AT&T Mobility, LLC
Site FA – 10128690
Site ID – CT2586 (MRCTB036751)
USID – 26997
Site Name – BROOKFIELD

39 CARMEN HILL ROAD
BROOKFIELD, CT 06804

Latitude: N41-29-36.38
Longitude: W73-25-43.74
Structure Type: Guyed

Report generated date: August 20, 2019
Report by: Yasir Alqadhili
Customer Contact: Haleluya Haile

AT&T Mobility, LLC will be compliant when the remediation recommended in Section 5.2 or other appropriate remediation is implemented.

Table of Contents

1 General Site Summary

1.1 Report Summary

AT&T Mobility, LLC	Summary
Max Cumulative Simulated RFE Level at Antenna Level	13,335.1% General Public Limit in front of AT&T Mobility, LLC's Gamma Sector Antenna 6
Max Cumulative Simulated RFE Level on the Ground	<1% General Public Limit
Compliant per FCC Rules and Regulations?	Will Be Compliant
Compliant per AT&T Mobility, LLC's Policy?	No

The following documents were provided by the client and were utilized to create this report:

RFDS: NEW-ENGLAND_CONNECTICUT_CT2586_2020-New-Site_New_ra9161_2051A0NNMH_10128690_26997_03-11-2019_Preliminary-In-Progress_v1.00

CD's: 10128690_LE_190509_CT2586S_RevB 1C Rp_HH Reviewed

RF Powers Used: AT&T Mobility, LLC Default Approved Power.

1.2 Fall Arrest Anchor Point Summary

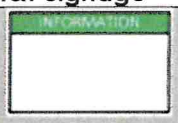
Fall Arrest Anchor & Parapet Info	Parapet Available (Y/N)	Parapet Height (inches)	Fall Arrest Anchor Available (Y/N)
Roof Safety Info	N	NA	N

1.3 Signage Summary

a. Pre-Site Visit AT&T Signage (Existing Signage)

AT&T Signage Locations	 Information 1	 Information 2	 Notice	 Notice 2	 Caution	 Caution 2	 Warning	 Warning 2	 Barriers
Access Point(s)									
Alpha									
Beta									
Gamma									
Delta									
Epsilon									

b. Proposed AT&T Signage

AT&T Signage Locations	 Information 1	 Information 2	 Notice	 Notice 2	 Caution	 Caution 2	 Warning	 Warning 2	 Barriers
Access Point(s)						1			
Alpha									
Beta									
Gamma									
Delta									
Epsilon									

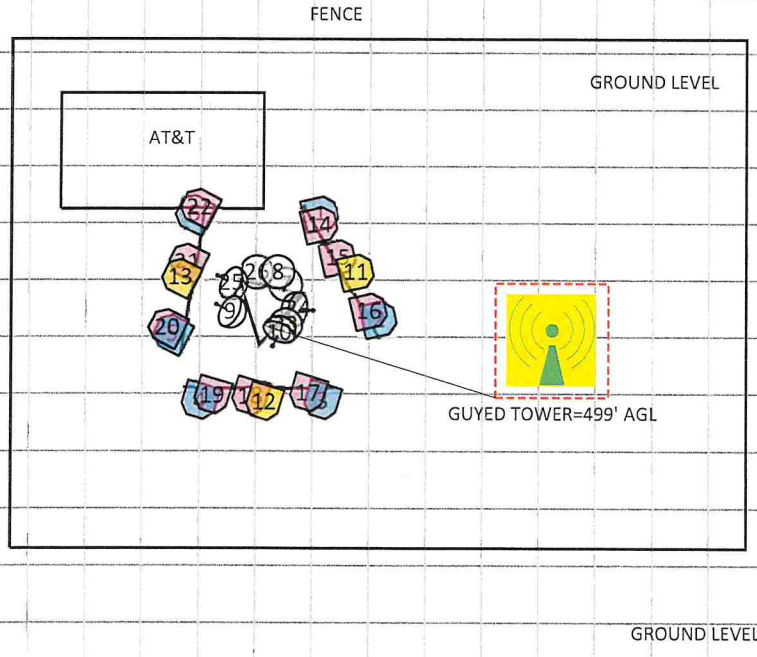
Note: Caution 2B at Tower Ladder Access.

2 Scale Maps of Site

The following diagrams are included:

- Site Scale Map
- RF Exposure Diagram
- RF Exposure Diagram – Elevation View
- RF Exposure Diagram – Elevation View – AT&T Mobility, LLC Contribution
- AT&T Mobility, LLC Contribution

Site Scale Map For: BROOKFIELD



(Feet)

0 6.1 12.1

www.sitesafe.com
Site Name:BROOKFIELD
8/20/2019 9:32:19 AM

Carrier Identification

AT&T MOBILITY LLC | VERIZON WIRELESS | T-MOBILE | SPRINT | UNKNOWN CARRIER

Sign Legend

Caution 1 | Notice 2 | Notice 1 | Warning | Caution 2 | Info 1 | Info 2 | Warning 2 | RF Safety Plan

Barrier

Proposed Barriers/ Signs

3 Antenna Inventory

The following antenna inventory was obtained by the customer and was utilized to create the site model diagrams:

Ant ID	Operator	Antenna Make & Model	Type	TX Freq (MHz)	Technology	Az (Deg)	Hor BW (Deg)	Ant Len (ft)	Power	Power Type	Power Unit	Misc Loss	TX Count	Total ERP (Watts)	Ant Gain (dBd)	Z (AGL)	MDT	EDT
1	AT&T MOBILITY LLC (Proposed)	CCI Antennas TPA65R-BU8D	Panel	722	LTE	60	73	8	160	TPO	Watt	0	1	3549.1	13.46	161'	0°	2°
1	AT&T MOBILITY LLC (Proposed)	CCI Antennas TPA65R-BU8D	Panel	2100	LTE	60	66	8	160	TPO	Watt	0	1	6608.8	16.16	161'	0°	2°
2	AT&T MOBILITY LLC (Proposed)	CCI Antennas TPA65R-BU8D	Panel	737	LTE	60	73	8	160	TPO	Watt	0	1	3549.1	13.46	161'	0°	2°
2	AT&T MOBILITY LLC (Proposed)	CCI Antennas TPA65R-BU8D	Panel	850	LTE	60	64	8	160	TPO	Watt	0	1	4267	14.26	161'	0°	2°
2	AT&T MOBILITY LLC (Proposed)	CCI Antennas TPA65R-BU8D	Panel	1900	LTE	60	66	8	160	TPO	Watt	0	1	6311.3	15.96	161'	0°	2°
3	AT&T MOBILITY LLC (Proposed)	CCI Antennas TPA65R-BU8D	Panel	2100	LTE	180	66	8	160	TPO	Watt	0	1	6608.8	16.16	161'	0°	2°
3	AT&T MOBILITY LLC (Proposed)	CCI Antennas TPA65R-BU8D	Panel	722	LTE	180	73	8	160	TPO	Watt	0	1	3549.1	13.46	161'	0°	2°
4	AT&T MOBILITY LLC (Proposed)	CCI Antennas TPA65R-BU8D	Panel	737	LTE	180	73	8	160	TPO	Watt	0	1	3549.1	13.46	161'	0°	2°
4	AT&T MOBILITY LLC (Proposed)	CCI Antennas TPA65R-BU8D	Panel	850	LTE	180	64	8	160	TPO	Watt	0	1	4267	14.26	161'	0°	2°
4	AT&T MOBILITY LLC (Proposed)	CCI Antennas TPA65R-BU8D	Panel	1900	LTE	180	66	8	160	TPO	Watt	0	1	6311.3	15.96	161'	0°	2°
5	AT&T MOBILITY LLC (Proposed)	CCI Antennas TPA65R-BU8D	Panel	2100	LTE	280	66	8	160	TPO	Watt	0	1	6608.8	16.16	161'	0°	2°
5	AT&T MOBILITY LLC (Proposed)	CCI Antennas TPA65R-BU8D	Panel	722	LTE	280	73	8	160	TPO	Watt	0	1	3549.1	13.46	161'	0°	4°
6	AT&T MOBILITY LLC (Proposed)	CCI Antennas TPA65R-BU8D	Panel	850	LTE	280	64	8	160	TPO	Watt	0	1	4267	14.26	161'	0°	4°
6	AT&T MOBILITY LLC (Proposed)	CCI Antennas TPA65R-BU8D	Panel	737	LTE	280	73	8	160	TPO	Watt	0	1	3549.1	13.46	161'	0°	4°
6	AT&T MOBILITY LLC (Proposed)	CCI Antennas TPA65R-BU8D	Panel	1900	LTE	280	66	8	160	TPO	Watt	0	1	6311.3	15.96	161'	0°	2°
7	UNKNOWN CARRIER	10' Dipole	Omni	150		0	360	10	100	ERP	Watt	0	0	100	0	120'	0°	0°
8	UNKNOWN CARRIER	10' Dipole	Omni	150		0	360	10	100	ERP	Watt	0	0	100	0	133'	0°	0°
9	UNKNOWN CARRIER	8' Grid Dish	Panel	950		280.5	28.05	3	55.1	EIRP	dBmW	0	0	197	15.8	237.5'	0°	0°
10	UNKNOWN CARRIER	8' Grid Dish	Panel	950		188.3	28.05	3	49.2	EIRP	dBmW	0	0	50.6	15.8	245.5'	0°	0°
11	SPRINT	Commscope NNVV-65B-R4	Panel	862		60	64	6	100	TPO	Watt	0	0	1888	12.76	254'	0°	0°
11	SPRINT	Commscope NNVV-65B-R4	Panel	1900		60	60	6	180	TPO	Watt	0	0	5771.3	15.06	254'	0°	0°
12	SPRINT	Commscope NNVV-65B-R4	Panel	862		180	64	6	100	TPO	Watt	0	0	1888	12.76	254'	0°	0°
12	SPRINT	Commscope NNVV-65B-R4	Panel	1900		180	60	6	180	TPO	Watt	0	0	5771.3	15.06	254'	0°	0°
13	SPRINT	Commscope NNVV-65B-R4	Panel	862		280	64	6	100	TPO	Watt	0	0	1888	12.76	254'	0°	0°
13	SPRINT	Commscope NNVV-65B-R4	Panel	1900		280	60	6	180	TPO	Watt	0	0	5771.3	15.06	254'	0°	0°
14	T-MOBILE	Ericsson AIR 6488	Panel	2500		60	62.95	3.2	200	TPO	Watt	0	0	5984.5	14.76	278.4'	0°	0°
15	T-MOBILE	RFS APXVAARR24_43-U-NA20	Panel	600		60	62.76	8	120	TPO	Watt	0	0	2507.2	13.2	276'	0°	0°
15	T-MOBILE	RFS APXVAARR24_43-U-NA20	Panel	700		60	62	8	160	TPO	Watt	0	0	3492.4	13.39	276'	0°	0°
16	T-MOBILE	RFS APX16DWV-16DWVS-C	Panel	1900		60	65	4.7	120	TPO	Watt	0	0	5083.7	16.27	277.7'	0°	0°
16	T-MOBILE	RFS APX16DWV-16DWVS-C	Panel	2100		60	65	4.7	120	TPO	Watt	0	0	5083.7	16.27	277.7'	0°	0°
17	T-MOBILE	Ericsson AIR 6488	Panel	2500		180	62.95	3.2	200	TPO	Watt	0	0	5984.5	14.76	278.4'	0°	0°
18	T-MOBILE	RFS APXVAARR24_43-U-NA20	Panel	600		180	62.76	8	120	TPO	Watt	0	0	2507.2	13.2	276'	0°	0°

Ant ID	Operator	Antenna Make & Model	Type	TX Freq (MHz)	Technology	Az (Deg)	Hor BW (Deg)	Ant Len (ft)	Power	Power Type	Power Unit	Misc Loss	TX Count	Total ERP (Watts)	Ant Gain (dBd)	Z (AGL)	MDT	EDT
18	T-MOBILE	RFS APXVAARR24_43-U-NA20	Panel	700		180	62	8	160	TPO	Watt	0	0	3492.4	13.39	276'	0°	0°
19	T-MOBILE	RFS APX16DWV-16DWVS-C	Panel	1900		180	65	4.7	120	TPO	Watt	0	0	5083.7	16.27	277.7'	0°	0°
19	T-MOBILE	RFS APX16DWV-16DWVS-C	Panel	2100		180	65	4.7	120	TPO	Watt	0	0	5083.7	16.27	277.7'	0°	0°
20	T-MOBILE	Ericsson AIR 6488	Panel	2500		280	62.95	3.2	200	TPO	Watt	0	0	5984.5	14.76	278.4'	0°	0°
21	T-MOBILE	RFS APXVAARR24_43-U-NA20	Panel	600		280	62.76	8	120	TPO	Watt	0	0	2507.2	13.2	276'	0°	0°
21	T-MOBILE	RFS APXVAARR24_43-U-NA20	Panel	700		280	62	8	160	TPO	Watt	0	0	3492.4	13.39	276'	0°	0°
22	T-MOBILE	RFS APX16DWV-16DWVS-C	Panel	1900		280	65	4.7	120	TPO	Watt	0	0	5083.7	16.27	277.7'	0°	0°
22	T-MOBILE	RFS APX16DWV-16DWVS-C	Panel	2100		280	65	4.7	120	TPO	Watt	0	0	5083.7	16.27	277.7'	0°	0°
23	UNKNOWN CARRIER	6' Omni	Omni	150		0	360	8	100	ERP	Watt	0	0	100	2.61	298'	0°	0°
24	UNKNOWN CARRIER	3' Grid Dish	Aperture	2400		80	61	4.6	4	ERP	Watt	0	0	4	19.16	336.7'	0°	0°
25	UNKNOWN CARRIER	6' Grid Dish	Panel	950		280.5	28.05	3	55	EIRP	dBmW	0	0	192.7	15.8	433.5'	0°	0°
26	UNKNOWN CARRIER	3' Yagi	Yagi	150		0	76	3	20	ERP	Watt	0	0	20	9.11	451.5'	0°	0°

Note: The Z reference indicates the bottom of the antenna height above the main site level unless otherwise indicated. Effective Radiated Power (ERP) is provided by the operator or based on Sitesafe experience. The values used in the modeling may be greater than are currently deployed. For other operators at this site the use of "Generic" as an antenna model or "Unknown" for a wireless operator means the information with regard to operator, their FCC license and/or antenna information was not available nor could it be secured while on site. Other operator's equipment, antenna models and powers used for modeling are based on obtained information or Sitesafe experience.

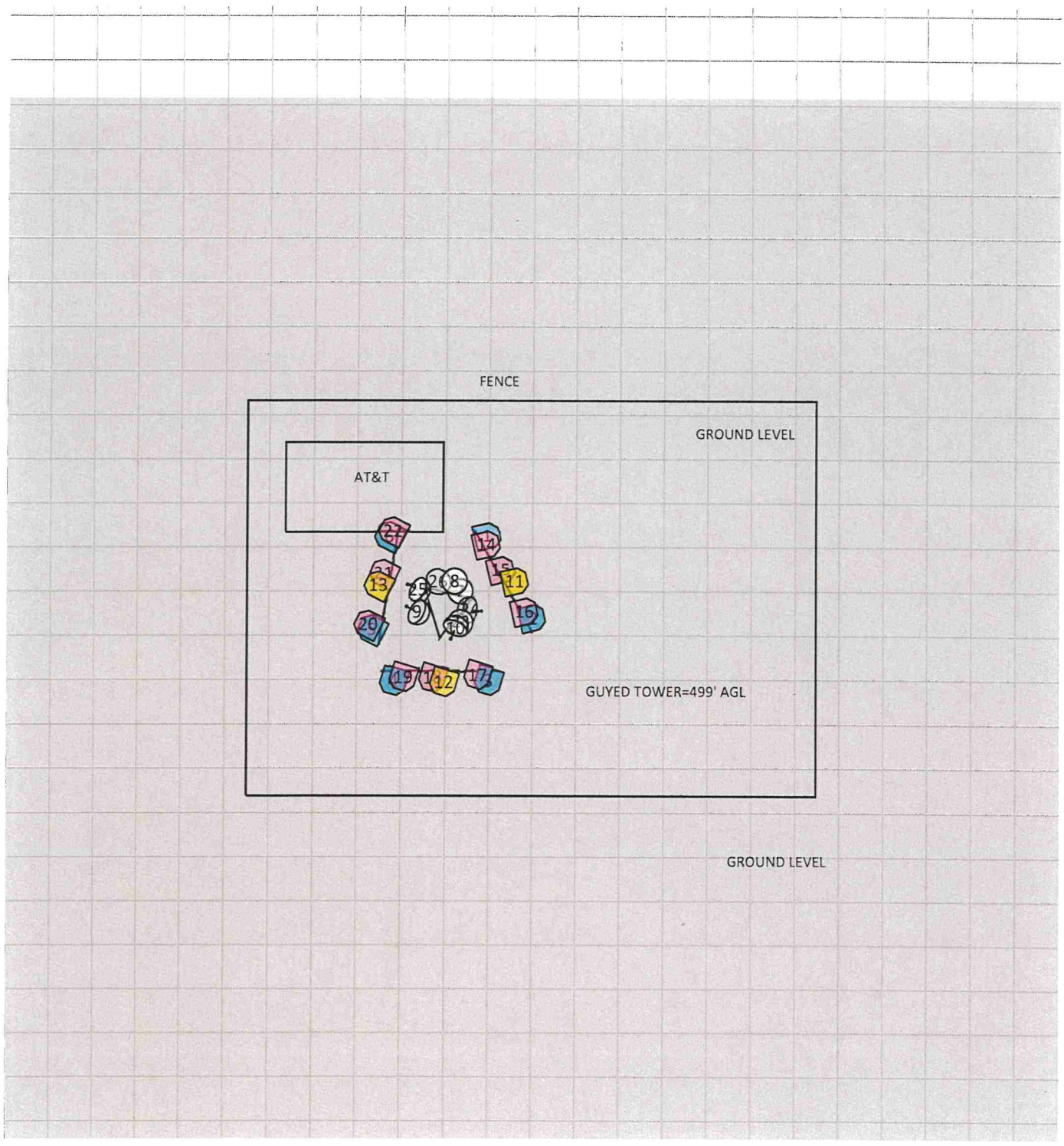
4 Emission Predictions

In the RF Exposure Simulations below all heights are reflected with respect to main site level. In most rooftop cases this is the height of the main rooftop and in other cases this can be ground level. Each different height area, rooftop, or platform level is labeled with its height relative to the main site level. Emissions are calculated appropriately based on the relative height and location of that area to all antennas. The total analyzed elevations in the below RF Exposure Simulations are listed below.

- GROUND LEVEL = 0'

The Antenna Inventory heights are referenced to the same level.

RF Exposure Simulation For: BROOKFIELD
Composite View



% of FCC Public Exposure Limit

% of FCC Public Exposure Limit
>= 5000 >= 500 >= 100 >= 5 < 5

Carrier Identification
AT&T MOBILITY LLC VERIZON WIRELESS T-MOBILE SPRINT UNKNOWN CARRIER

Barrier

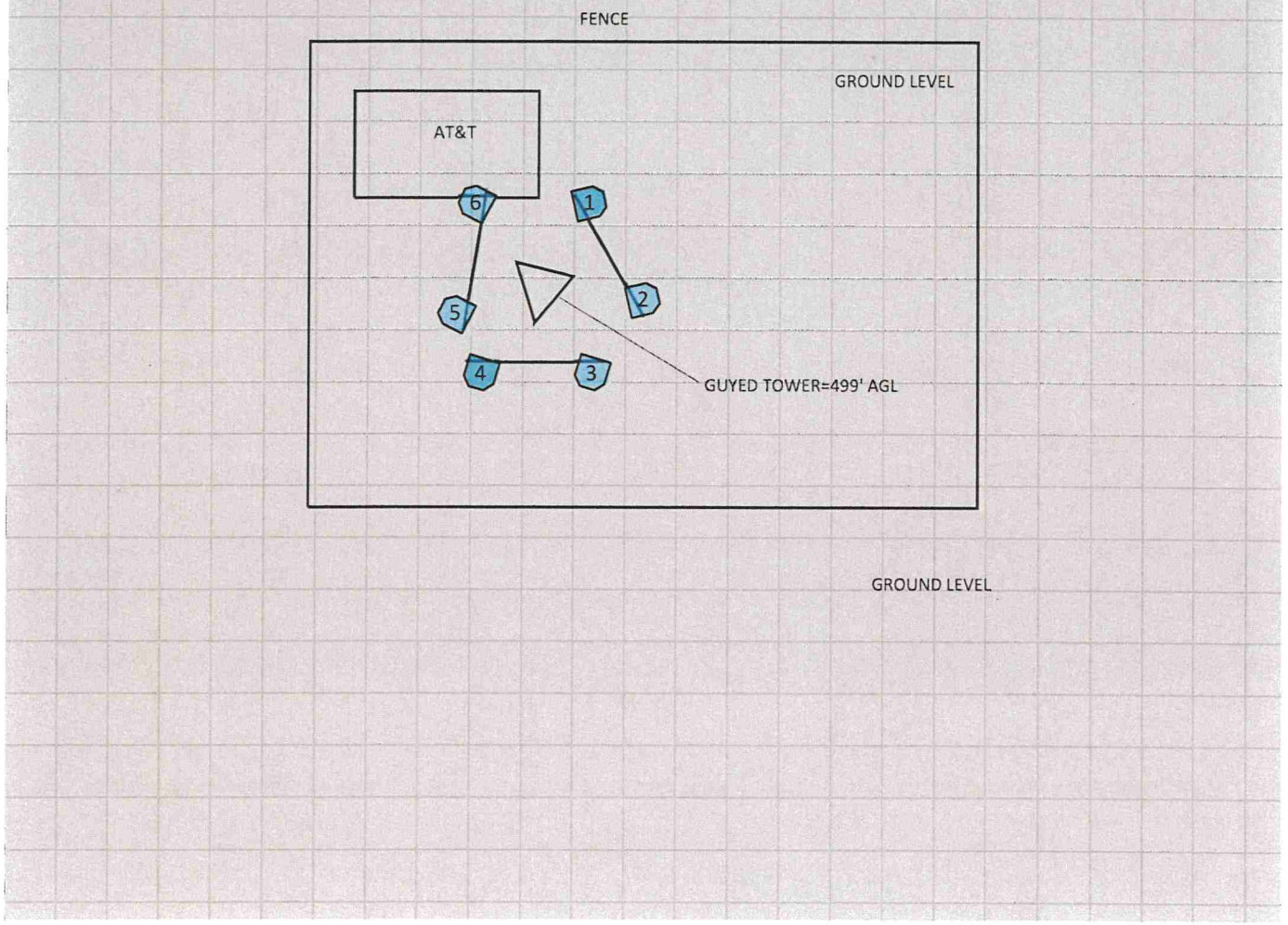
Proposed Barriers/ Signs

(Feet)

0 6 12

www.sitesafe.com
Site Name:BROOKFIELD
8/20/2019 9:36:41 AM

RF Exposure Simulation For: BROOKFIELD
AT&T Mobility, LLC Contribution



% of FCC Public Exposure Limit

(Feet)

0 6.2 12.4

www.sitesafe.com
Site Name:BROOKFIELD
8/20/2019 9:38:05 AM

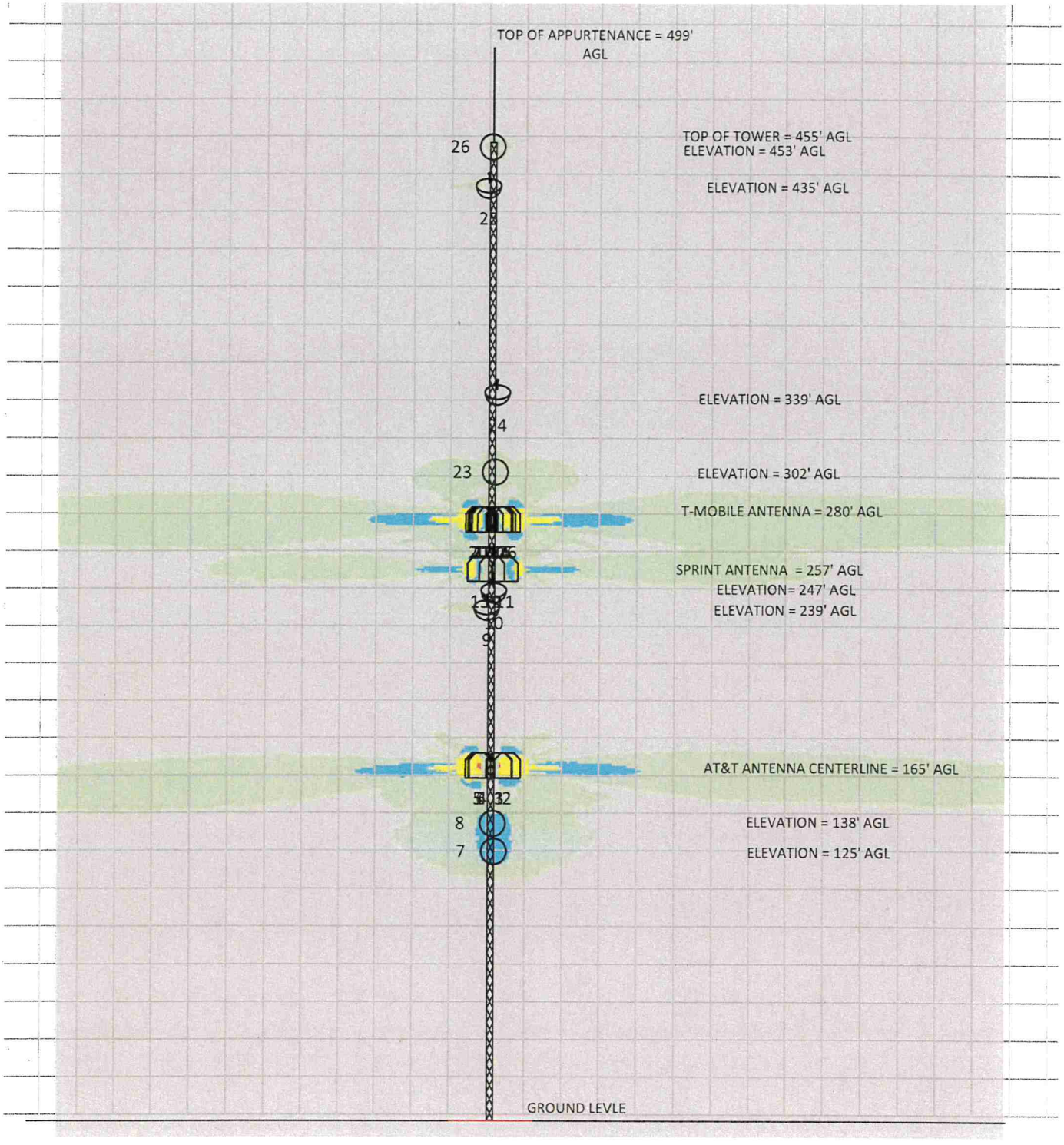
% of FCC Public Exposure Limit
>= 5000 >= 500 >= 100 >= 5 < 5

Carrier Identification
AT&T MOBILITY LLC VERIZON WIRELESS T-MOBILE SPRINT UNKNOWN CARRIER

Barrier

Proposed Barriers/ Signs

RF Exposure Simulation For: BROOKFIELD
Elevation View



% of FCC Public Exposure Limit

% of FCC Public Exposure Limit

>= 5000	>= 500	>= 100	>= 5	< 5

Carrier Identification

AT&T MOBILITY LLC | VERIZON WIRELESS | T-MOBILE | SPRINT | UNKNOWN CARRIER

Barrier

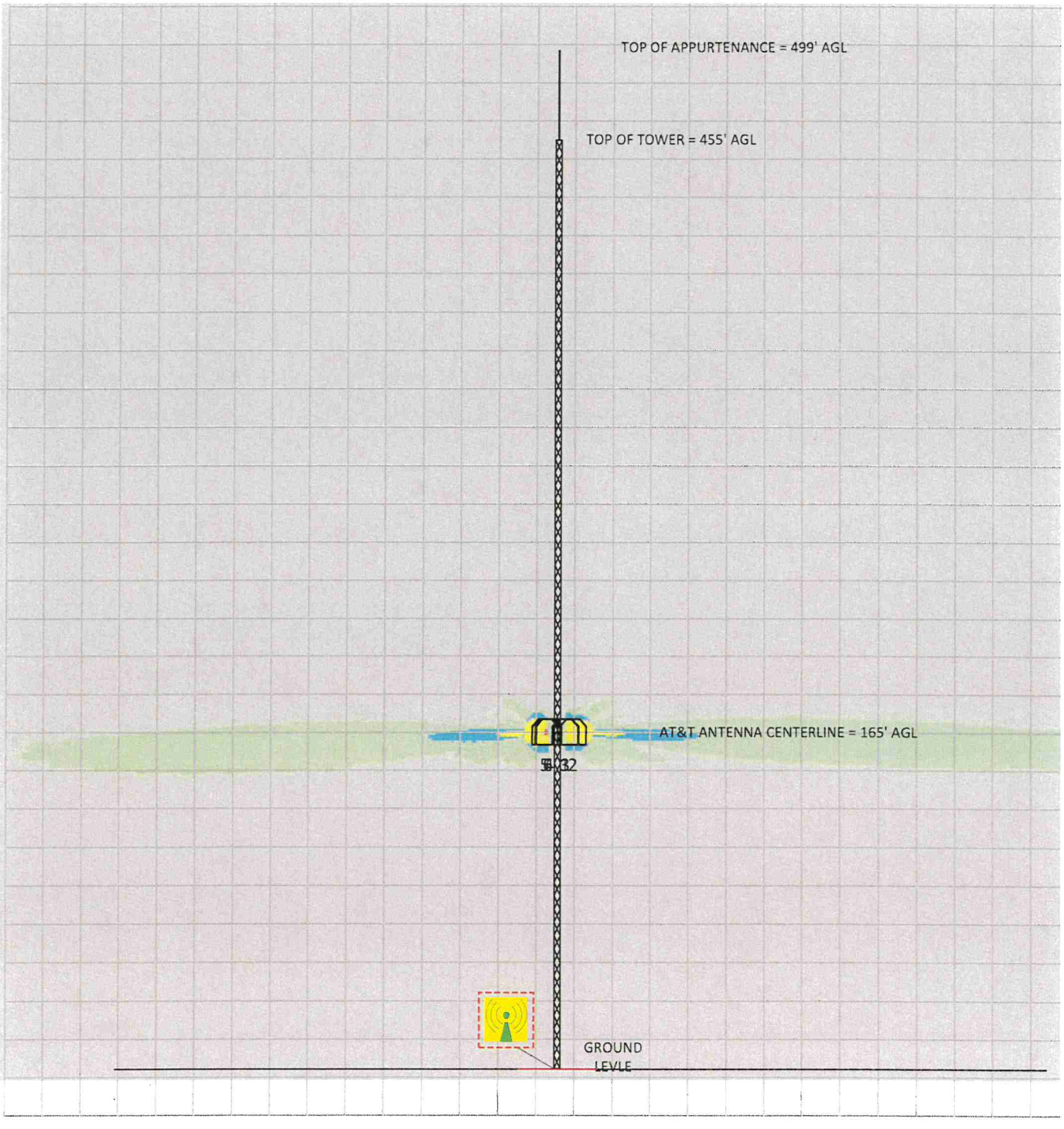
Proposed Barriers/ Signs

(Feet)

0 35.1 70.2

www.sitesafe.com
Site Name:BROOKFIELD
8/20/2019 9:54:30 AM

RF Exposure Simulation For: BROOKFIELD
Elevation View – AT&T Mobility, LLC Contribution



% of FCC Public Exposure Limit

% of FCC Public Exposure Limit
>= 5000 | >= 500 | >= 100 | >= 5 | < 5

Carrier Identification
AT&T MOBILITY LLC | VERIZON WIRELESS | T-MOBILE | SPRINT | UNKNOWN CARRIER

Barrier

Proposed Barriers/ Signs

(Feet)
0 35 70

www.sitesafe.com
Site Name:BROOKFIELD
8/20/2019 9:41:41 AM

5 Site Compliance

5.1 Site Compliance Statement

Upon evaluation of the cumulative RF emission levels from all operators at this site, RF hazard signage and antenna locations, Sitesafe has determined that:

AT&T Mobility, LLC will be compliant when the remediation recommended in Section 5.2 or other appropriate remediation is implemented.

The compliance determination is based on General Public RFE levels derived from theoretical modeling, RF signage placement, proposed antenna inventory and the level of restricted access to the antennas at the site. Any deviation from the AT&T Mobility, LLC's proposed deployment plan could result in the site being rendered non-compliant.

Modeling is used for determining compliance and the percentage of MPE contribution.

5.2 Actions for Site Compliance

Based on FCC regulations, common industry practice, and our understanding of AT&T Mobility, LLC RF Safety Policy requirements, this section provides a statement of recommendations for site compliance. Recommendations have been proposed based on our understanding of existing access restrictions, signage, and an analysis of predicted RFE levels.

AT&T Mobility, LLC will be made compliant if the following changes are implemented:

Guyed Tower Ladder Access Location

(1) Yellow Caution 2B sign required.

6 Reviewer Certification

The reviewer whose signature appears below hereby certifies and affirms:

That I am an employee of Site Safe, LLC, in Vienna, Virginia, at which place the staff and I provide RF compliance services to clients in the wireless communications industry; and

That I am thoroughly familiar with the Rules and Regulations of the Federal Communications Commission (FCC) as well as the regulations of the Occupational Safety and Health Administration (OSHA), both in general and specifically as they apply to the FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields; and

That I have thoroughly reviewed this Site Compliance Report and believe it to be true and accurate to the best of my knowledge as assembled by and attested to by Yasir Alqadhili.

August 20, 2019

Young Min Kim

Appendix A – Statement of Limiting Conditions

Sitesafe has provided computer generated model(s) in this Site Compliance Report to show approximate dimensions of the site, and the model is included to assist the reader of the compliance report to visualize the site area, and to provide supporting documentation for Sitesafe's recommendations.

Sitesafe may note in the Site Compliance Report any adverse physical conditions, such as needed repairs, that Sitesafe became aware of during the normal research involved in creating this report. Sitesafe will not be responsible for any such conditions that do exist or for any engineering or testing that might be required to discover whether such conditions exist. Because Sitesafe is not an expert in the field of mechanical engineering or building maintenance, the Site Compliance Report must not be considered a structural or physical engineering report.

Sitesafe obtained information used in this Site Compliance Report from sources that Sitesafe considers reliable and believes them to be true and correct. Sitesafe does not assume any responsibility for the accuracy of such items that were furnished by other parties. When conflicts in information occur between data collected by Sitesafe provided by a second party and data collected by Sitesafe, the data will be used.

Appendix B – Regulatory Background Information

FCC Rules and Regulations

In 1996, the Federal Communications Commission (FCC) adopted regulations for the evaluating of the effects of RF emissions in 47 CFR § 1.1307 and 1.1310. The guideline from the FCC Office of Engineering and Technology is Bulletin 65 ("OET Bulletin 65"), *Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields*, Edition 97-01, published August 1997. Since 1996 the FCC periodically reviews these rules and regulations as per their congressional mandate.

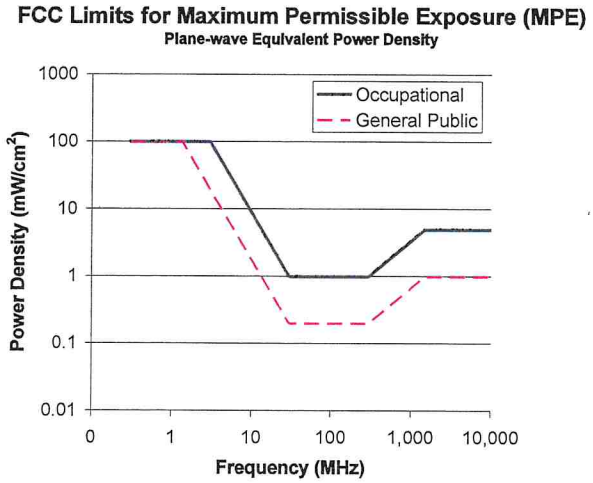
FCC regulations define two separate tiers of exposure limits: Occupational or "Controlled environment" and General Public or "Uncontrolled environment". The General Public limits are generally five times more conservative or restrictive than the Occupational limit. These limits apply to *accessible* areas where workers or the general public may be exposed to Radio Frequency (RF) electromagnetic fields.

Occupational or Controlled limits apply in situations in which persons are exposed as a consequence of their employment and where those persons exposed have been made fully aware of the potential for exposure and can exercise control over their exposure.

An area is considered a Controlled environment when access is limited to these aware personnel. Typical criteria are restricted access (i.e. locked or alarmed doors, barriers, etc.) to the areas where antennas are located coupled with proper RF warning signage. A site with Controlled environments is evaluated with Occupational limits.

All other areas are considered Uncontrolled environments. If a site has no access controls or no RF warning signage it is evaluated with General Public limits.

The theoretical modeling of the RF electromagnetic fields has been performed in accordance with OET Bulletin 65. The Maximum Permissible Exposure (MPE) limits utilized in this analysis are outlined in the following diagram:



Limits for Occupational/Controlled Exposure (MPE)

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

Limits for General Population/Uncontrolled Exposure (MPE)

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

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

OSHA Statement

The General Duty clause of the OSHA Act (Section 5) outlines the occupational safety and health responsibilities of the employer and employee. The General Duty clause in Section 5 states:

(a) Each employer –

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

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

OSHA has defined Radiofrequency and Microwave Radiation safety standards for workers who may enter hazardous RF areas. Regulation Standards 29 CFR § 1910.147 identify a generic Lockout/Tagout procedure aimed to control the unexpected energization or startup of machines when maintenance or service is being performed.

Appendix C – Safety Plan and Procedures

The following items are general safety recommendations that should be administered on a site by site basis as needed by the carrier.

General Maintenance Work: Any maintenance personnel required to work immediately in front of antennas and / or in areas indicated as above 100% of the Occupational MPE limits should coordinate with the wireless operators to disable transmitters during their work activities.

Training and Qualification Verification: All personnel accessing areas indicated as exceeding the General Population MPE limits should have a basic understanding of EME awareness and RF Safety procedures when working around transmitting antennas. Awareness training increases a worker's understanding to potential RF exposure scenarios. Awareness can be achieved in a number of ways (e.g. videos, formal classroom lecture or internet-based courses).

Physical Access Control: Access restrictions to transmitting antennas locations is the primary element in a site safety plan. Examples of access restrictions are as follows:

- Locked door or gate
- Alarmed door
- Locked ladder access
- Restrictive Barrier at antenna (e.g. Chain link with posted RF Sign)

RF Signage: Everyone should obey all posted signs at all times. RF signs play an important role in properly warning a worker prior to entering into a potential RF Exposure area.

Assume all antennas are active: Due to the nature of telecommunications transmissions, an antenna transmits intermittently. Always assume an antenna is transmitting. Never stop in front of an antenna. If you have to pass by an antenna, move through as quickly and safely as possible thereby reducing any exposure to a minimum.

Maintain a 3 foot clearance from all antennas: There is a direct correlation between the strength of an EME field and the distance from the transmitting antenna. The further away from an antenna, the lower the corresponding EME field is.

Site RF Emissions Diagram: Section 4 of this report contains an RF Diagram that outlines various theoretical Maximum Permissible Exposure (MPE) areas at the site. The modeling is a worst-case scenario assuming a duty cycle of 100% for each transmitting antenna at full power. This analysis is based on one of two access control criteria: General Public criteria means the access to the site is uncontrolled and anyone can gain access. Occupational criteria means the access is restricted and only properly trained individuals can gain access to the antenna locations.

Appendix D – RF Emissions

The RF Emissions Simulation(s) in this report display theoretical spatially averaged percentage of the Maximum Permissible Exposure for all systems at the site unless otherwise noted. These diagrams use modeling as prescribed in OET Bulletin 65 and assumptions detailed in Appendix E.

The key at the bottom of each RF Emissions Simulation indicates percentages displayed referenced to FCC General Public Maximum Permissible Exposure (MPE) limits. Color coding on the diagram is as follows:

- Areas indicated as Gray are predicted to be below 5% of the MPE limits. Gray represents areas more than 20 times below the most conservative exposure limit. **Gray areas are accessible to anyone.**
- Green represents areas are predicted to be between 5% and 100% of the MPE limits. **Green areas are accessible to anyone.**
- Blue represents areas predicted to exceed the General Public MPE limits but are less than Occupational limits. **Blue areas should be accessible only to RF trained workers.**
- Yellow represents areas predicted to exceed Occupational MPE limits. **Yellow areas should be accessible only to RF trained workers able to assess current exposure levels.**
- Red represents areas predicted to have exposure more than 10 times the Occupational MPE limits. **Red indicates that the RF levels must be reduced prior to access.** An RF Safety Plan is required which outlines how to reduce the RF energy in these areas prior to access.

If trained occupational personnel require access to areas that are delineated as above 100% of the limit, Sitesafe recommends that they utilize the proper personal protection equipment (RF monitors), coordinate with the carriers to reduce or shutdown power, or make real-time power density measurements with the appropriate power density meter to determine real-time MPE levels. This will allow the personnel to ensure that their work area is within exposure limits.

Appendix E – Assumptions and Definitions

General Model Assumptions

In this site compliance report, it is assumed that all antennas are operating at **full power at all times**. Software modeling was performed for all transmitting antennas located on the site. Sitesafe has further assumed a 100% duty cycle and maximum radiated power.

The modeling is based on recommendations from the FCC's OET-65 bulletin with the following variances per AT&T guidance. Reflection has not been considered in the modeling, i.e. the reflection factor is 1.0. The near / far field boundary has been set to 1.5 times the aperture height of the antenna and modeling beyond that point is the lesser of the near field cylindrical model and the far field model taking into account the gain of the antenna.

The site has been modeled with these assumptions to show the maximum RF energy density. Areas modeled with exposure greater than 100% of the General Public MPE level may not actually occur but are shown as a prediction that could be realized. Sitesafe believes these areas to be safe for entry by occupationally trained personnel utilizing appropriate personal protective equipment (in most cases, a personal monitor).

Use of Generic Antennas

For the purposes of this report, the use of "Generic" as an antenna model, or "Unknown" for an operator means the information about a carrier, their FCC license and/or antenna information was not provided and could not be obtained while on site. In the event of unknown information, Sitesafe will use our industry specific knowledge of equipment, antenna models, and transmit power to model the site. If more specific information can be obtained for the unknown measurement criteria, Sitesafe recommends remodeling of the site utilizing the more complete and accurate data. Information about similar facilities is used when the service is identified and associated with a particular antenna. If no information is available regarding the transmitting service associated with an unidentified antenna, using the antenna manufacturer's published data regarding the antenna's physical characteristics makes more conservative assumptions.

Where the frequency is unknown, Sitesafe uses the closest frequency in the antenna's range that corresponds to the highest Maximum Permissible Exposure (MPE), resulting in a conservative analysis.

Appendix F – Definitions

5% Rule – The rules adopted by the FCC specify that, in general, at multiple transmitter sites actions necessary to bring the area into compliance with the guidelines are the shared responsibility of all licensees whose transmitters produce field strengths or power density levels at the area in question in excess of 5% of the exposure limits. In other words, any wireless operator that contributes 5% or greater of the MPE limit in an area that is identified to be greater than 100% of the MPE limit is responsible for taking corrective actions to bring the site into compliance.

Compliance – The determination of whether a site complies with FCC standards with regards to Human Exposure to Radio Frequency Electromagnetic Fields from transmitting antennas.

Decibel (dB) – A unit for measuring power or strength of a signal.

Duty Cycle – The percent of pulse duration to the pulse period of a periodic pulse train. Also, may be a measure of the temporal transmission characteristic of an intermittently transmitting RF source such as a paging antenna by dividing average transmission duration by the average period for transmission. A duty cycle of 100% corresponds to continuous operation.

Effective (or Equivalent) Isotropic Radiated Power (EIRP) – The product of the power supplied to the antenna and the antenna gain in a given direction relative to an isotropic antenna.

Effective Radiated Power (ERP) – The product of the power supplied to the antenna and the antenna gain in a given direction relative to a half-wave dipole antenna.

Gain (of an antenna) – The ratio of the maximum power in a given direction to the maximum power in the same direction from an isotropic radiator. Gain is a measure of the relative efficiency of a directional antenna as compared to an omnidirectional antenna.

General Population/Uncontrolled Environment – Defined by the FCC as an area where RF exposure may occur to persons who are **unaware** of the potential for exposure and who have no control over their exposure. General Population is also referenced as General Public.

Generic Antenna – For the purposes of this report, the use of "Generic" as an antenna model means the antenna information was not provided and could not be obtained while on site. In the event of unknown information, Sitesafe will use its industry specific knowledge of antenna models to select a worst-case scenario antenna to model the site.

Isotropic Antenna – An antenna that is completely non-directional. In other words, an antenna that radiates energy equally in all directions.

Maximum Measurement – This measurement represents the single largest measurement recorded when performing a spatial average measurement.

Maximum Permissible Exposure (MPE) – The rms and peak electric and magnetic field strength, their squares, or the plane-wave equivalent power densities associated with these fields to which a person may be exposed without harmful effect and with acceptable safety factor.

Occupational/Controlled Environment – Defined by the FCC as an area where RF exposure may occur to persons who are **aware** of the potential for exposure as a condition of employment or specific activity and can exercise control over their exposure.

OET Bulletin 65 – Technical guideline developed by the FCC's Office of Engineering and Technology to determine the impact of RF exposure on humans. The guideline was published in August 1997.

OSHA (Occupational Safety and Health Administration) – Under the Occupational Safety and Health Act of 1970, employers are responsible for providing a safe and healthy workplace for their employees. OSHA's role is to promote the safety and health of America's working men and women by setting and enforcing standards; providing training, outreach and education; establishing partnerships; and encouraging continual process improvement in workplace safety and health. For more information, visit www.osha.gov.

Radio Frequency Exposure or Electromagnetic Fields – Electromagnetic waves that are propagated from antennas through space.

Spatial Average Measurement – A technique used to average a minimum of ten (10) measurements taken in a ten (10) second interval from zero (0) to six (6) feet. This measurement is intended to model the average energy a 6-foot tall human body will absorb while present in an electromagnetic field of energy.

Transmitter Power Output (TPO) – The radio frequency output power of a transmitter's final radio frequency stage as measured at the output terminal while connected to a load.

Appendix G – References

The following references can be followed for further information about RF Health and Safety.

Site Safe, LLC
http://www.sitesafe.com
FCC Radio Frequency Safety
http://www.fcc.gov/encyclopedia/radio-frequency-safety
National Council on Radiation Protection and Measurements (NCRP)
http://www.ncrponline.org
Institute of Electrical and Electronics Engineers, Inc., (IEEE)
http://www.ieee.org
American National Standards Institute (ANSI)
http://www.ansi.org
Environmental Protection Agency (EPA)
http://www.epa.gov/radtown/wireless-tech.html
National Institutes of Health (NIH)
http://www.niehs.nih.gov/health/topics/agents/emf/
Occupational Safety and Health Agency (OSHA)
http://www.osha.gov/SLTC/radiofrequencyradiation/
International Commission on Non-Ionizing Radiation Protection (ICNIRP)
http://www.icnirp.org
World Health Organization (WHO)
http://www.who.int/peh-emf/en/
National Cancer Institute
http://www.cancer.gov/cancertopics/factsheet/Risk/cellphones
American Cancer Society (ACS)
http://www.cancer.org/docroot/PED/content/PED_1_3X_Cellular_Phone_Towers.asp?siteareа=PED
European Commission Scientific Committee on Emerging and Newly Identified Health Risks
http://ec.europa.eu/health/ph_risk/committees/04_scenihr/docs/scenihr_o_022.pdf
Fairfax County, Virginia Public School Survey
http://www.fcps.edu/fts/safety-security/RFEESurvey/
UK Health Protection Agency Advisory Group on Non-Ionizing Radiation
http://www.hpa.org.uk/webw/HPAweb&HPAwebStandard/HPAweb_C/1317133826368
Norwegian Institute of Public Health
http://www.fhi.no/dokumenter/545eea7147.pdf

5

SDC20 | 2.5L | 20 kW - AC
INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

GENERAC | INDUSTRIAL POWER

Model G007098-0 (Steel)

Standby Power Rating
20 kW AC, 60 Hz

ISO 9001:2008

USA ENGINEERED & BUILT*
*Built in the USA using domestic and foreign parts

Image used for illustration purposes only

Codes and Standards

Generac products are designed to the following standards:

- UL2200, UL508, UL142, UL489
- NFPA 37, 70, 99, 110
- NEC700, 701, 702, 708
- ISO 3046, 7637, 8528, 9001
- NEMA ICS10, MG1, 250, ICS6, AB1
- ANSI C62.41

Powering Ahead

For over 50 years, Generac has provided innovative design and superior manufacturing.

Generac ensures superior quality by designing and manufacturing most of its generator components, including alternators, enclosures and base tanks, control systems and communications software.

Generac gensets utilize a wide variety of options, configurations and arrangements, allowing us to meet the standby power needs of practically every application.

Generac searched globally to ensure the most reliable engines power our generators. We choose only engines that have already been proven in heavy-duty industrial applications under adverse conditions.

Generac is committed to ensuring our customers' service support continues after their generator purchase.

SDC20 | 2.5L | 20 kW - AC

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

GENERAC | INDUSTRIAL POWER

Model G007098-0 (Steel)

STANDARD FEATURES

ENGINE SYSTEM

- Oil Drain Extension
- Air Cleaner with Service Indicator
- Fan Guard
- Stainless Steel Flexible Exhaust Connection
- Exhaust Silencer with Drain
- Factory Filled Oil & Coolant

Fuel System

- Primary Fuel Filter

Cooling System

- 120V AC Coolant Heater
- Closed Coolant Recovery System
- UV/Ozone Resistant Hoses
- Factory-Installed Radiator
- 50/50 Ethylene Glycol Antifreeze
- Radiator Drain Extension

Electrical System

- Battery Charging Alternator
- AGM Spill Proof Battery
- Battery Cables
- Sealed/Rubber-Booted Engine Electrical Connections
- Solenoid Activated Starter Motor
- Output Circuit Breaker

ALTERNATOR SYSTEM

- Class H Insulation Material
- Vented Rotor
- 2/3 Pitch
- Skewed Stator
- Amortisseur Winding
- Brushless Excitation
- Sealed Bearings
- Rotor Dynamically Spin Balanced
- Full Load Capacity Alternator
- Protective Thermal Shutdown

GENERATOR SET

- Single Side Service
- Internal Genset Vibration Isolators
- Separation of Circuits- High/Low Voltage
- Silencer Heat Shield
- High Heat Wrapped Exhaust Piping
- Silencer Enclosed Within Generator
- 5 Year Extended Warranty
- Extended Factory Testing
- 12 Gallon System Spill Containment
- 2.5 Gallon Fuel Fill Spill Containment

ENCLOSURE

- Serviceable Items Accessible Though Lift-Off Door
- High Performance Sound-Absorbing Material
- Gasketed Door
- Stamped Air-Intake Louvers
- Single Door Latch Lockable with Key & Padlock
- Rhino Coat™ - Textured Polyester Powder Coat
- 150 MPH Wind Rating
- 36" Snow Rating

FUEL TANK

- UL 142 Compliant
- Double Wall Construction
- Factory Pressure Tested (5 psi)
- Rupture Basin Alarm
- Fuel Level Gauge and Sender
- Check Valve in Supply Line
- Rhino Coat™ - Textured Polyester Powder Coat
- Stainless Steel Hardware
- Integrated Fork Pockets

CONTROL SYSTEM

- Digital H Control Panel - Dual 4x20 Display
- Programmable Crank Limiter
- 7-Day Programmable Exerciser
- Special Applications Programmable PLC
- RS-232/485 Communications
- All-Phase Sensing Voltage Regulator
- Full System Status
- 2-Wire Start Compatible
- Power Output (kW)
- Power Factor
- kW Hours, Total & Last Run
- Real/Reactive/Apparent Power
- All Phase AC Voltage
- All Phase Currents
- Oil Pressure
- Coolant Temperature
- Coolant Level
- Engine Speed
- Battery Voltage
- Frequency
- Date/Time Fault History (Event Log)
- Isochronous Governor Control
- Waterproof/Sealed Connectors
- Audible Alarms and Shutdowns
- Not in Auto (Flashing Light)
- Auto/Off/Manual Switch
- E-Stop (Red Mushroom-Type)
- NFPA110 Level I and II (Programmable)
- Customizable Alarms, Warnings, and Events
- Modbus protocol
- Predictive Maintenance Algorithm
- Sealed Boards
- Password Parameter Adjustment Protection
- Single Point Ground Connections
- 15 Channel Data Logging
- 0.2 msec High Speed Data Logging
- Alarm Information Automatically Comes Up On the Display

Alarms

- Generator Run- Dry Contact
- Major Alarm- Dry Contact
- Minor Alarm- Dry Contact
- Low Fuel Alarm- Dry Contact
- Rupture Basin Alarm- Dry Contact
- Alarms & Warnings Time and Date Stamped
- Alarms & Warnings for Transient and Steady State Conditions
- Snap Shots of Key Operation Parameters During Alarms & Warnings
- Alarms and Warnings Spelled Out (No Alarm Codes)

MODEL OPTIONS

CONTROL SYSTEM

- ○ 21 Light Annunciator- Shipped Loose Kit and Field Installed
- ○ External E-Stop-Shipped Loose Kit and Field Installed

ENCLOSURE

- ○ Aluminum Enclosure
- ○ Extreme Cold Weather Kit - Shipped Loose Kit and Field Installed

TANKS

- ○ External Fuel Vent- Shipped Loose Kit and Field Installed

SDC20 | 2.5L | 20 kW - AC
INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

GENERAC | INDUSTRIAL POWER

Model G007098-0 (Steel)

APPLICATION AND ENGINEERING DATA

ENGINE SPECIFICATIONS

General

Make	Mitsubishi
EPA Emissions Compliance	Interim Tier 4
Cylinder #	4
Type	In-Line
Displacement - L (Cu In)	2.5 (158)
Bore - mm (in)	88 (3.5)
Stroke - mm (in)	103 (4.1)
Compression Ratio	22:1
Intake Air Method	Naturally Aspirated

Engine Governing

Governor	Electronic Isochronous
Frequency Regulation (Steady State)	± 0.25%

Lubrication System

Oil Pump Type	Trochoid Gear Pump
Oil Filter Type	Filtering Paper, Full Flow
Crankcase Capacity - L (qts)	6.5 (6.9)

Cooling System

Cooling System Type	Forced Circulation
Water Pump Type	Centrifugal Pump
Fan Type	Pusher
Fan Speed (rpm)	2100
Fan Diameter - mm (in)	431.8 (17)
Coolant Heater Wattage	1000
Coolant Heater Voltage	120

Fuel System

Fuel Type	Ultra Low Sulfur Diesel #2
Fuel Specifications	ASTM
Fuel Filtering (microns)	6
Fuel Inject Pump Make	Bosch
Injector Type	Engine Driven Gear
Engine Type	Diesel
Fuel Supply Line - mm (in.)	6.6 (0.26)

Engine Electrical System

System Voltage	12 VDC
Battery Charger Alternator	12V-50A
Battery Size	650 CCA
Battery Group	35
Battery Voltage	12 VDC
Ground Polarity	Negative

ALTERNATOR SPECIFICATIONS

Standard Model	Mecc Alte ECP 28-2L/4
Poles	4
Field Type	Revolving
Insulation Class - Rotor	H
Insulation Class - Stator	H
Total Harmonic Distortion	<5%
Telephone Interference Factor (TIF)	<45
Standard Excitation	Brushless

Bearings	Dual Sealed
Coupling	Belt, Pulley
Load Capacity - Standby	100%
Prototype Short Circuit Test	Yes
Voltage Regulator Type	Digital
Number of Sensed Phases	All
Regulation Accuracy (Steady State)	±0.5%

RATING DEFINITIONS

Standby - Applicable for a varying emergency load for the duration of a utility power outage with no overload capability.

SDC20 | 2.5L | 20 kW - AC

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

GENERAC | INDUSTRIAL POWER

Model G007098-0 (Steel)

OPERATING DATA

POWER RATINGS

Single-Phase 120/240 VAC @1.0pf	20 kW	Amps: 83
Circuit Breaker Size	100A	

FUEL CONSUMPTION RATES*

Diesel - gph (lph)

Percent Load	Standby
25%	0.74 (2.80)
50%	0.99 (3.75)
75%	1.41 (5.30)
100%	1.90 (7.19)

* Fuel supply installation must accommodate fuel consumption rates at 100% load.

COOLING

		Standby
Coolant Flow per Minute	gpm (lpm)	11.9 (45)
Coolant System Capacity	gal (L)	3.5 (13.2)
Heat Rejection to Coolant	BTU/hr	238,200
Inlet Air	cfm (m^3/min)	2365 (67)
Max. Operating Ambient Temperature (Before Derate)	°F (°C)	77° (25°)
Maximum Radiator Backpressure	in H_2O	0.50

COMBUSTION AIR REQUIREMENTS

	Standby
Flow at Rated Power cfm (m^3/min)	88 (2.49)

ENGINE

		Standby
Rated Engine Speed	rpm	1800
Horsepower at Rated kW**	hp	33.5
Piston Speed	ft/min	1220.47
BMEP	psi	96.5

EXHAUST

		Standby
Exhaust Flow (Rated Output)	cfm (m^3/min)	193 (328)
Max. Backpressure (Post Silencer)	inHg (kPa)	1.38 (4.67)
Exhaust Temp (Rated Output - Post Silencer)	°F (°C)	928 (497.7)

** Refer to "Emissions Data Sheet" for maximum bHP for EPA and SCAQMD permitting purposes.

Deration – Operational characteristics consider maximum ambient conditions. Derate factors may apply under atypical site conditions.
Please consult a Generac Power Systems Industrial Dealer for additional details. All performance ratings in accordance with ISO3046, BS5514, ISO8528 and DIN6271 standards.

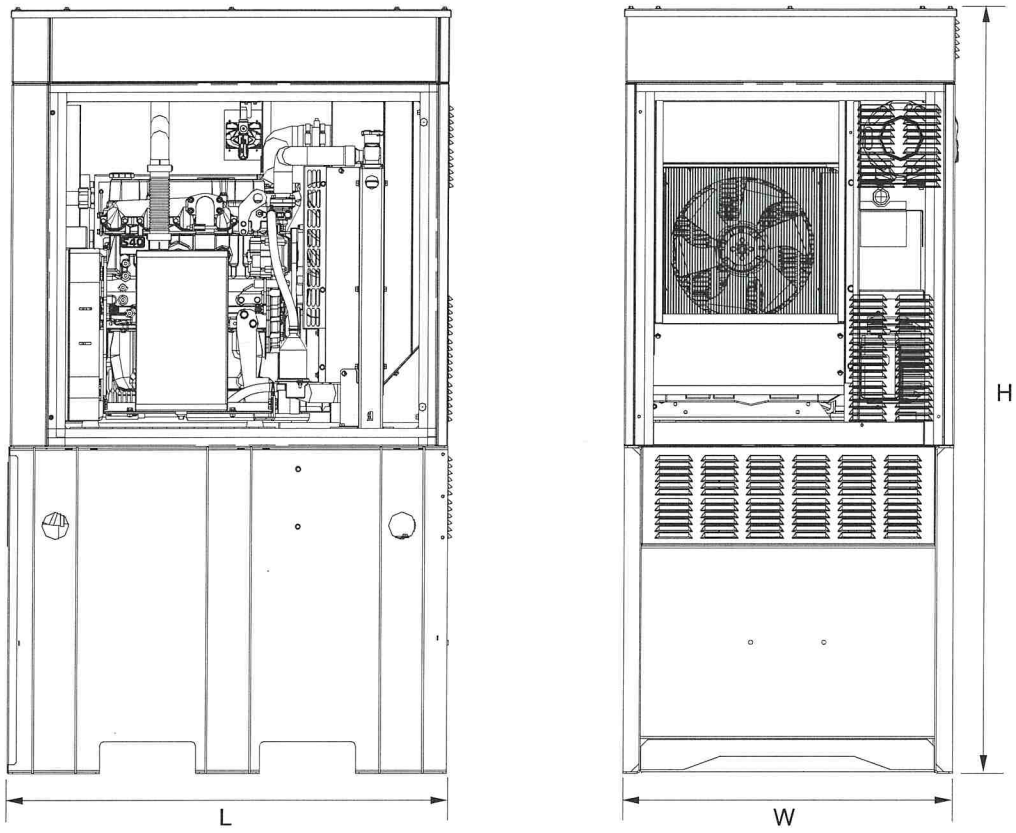
SDC20 | 2.5L | 20 kW - AC
INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

GENERAC | INDUSTRIAL POWER

Model G007098-0 (Steel)

DIMENSIONS AND WEIGHTS*



Level 2 Sound Attenuation Enclosure

Run Time Hours	48
Usable Capacity Gal (L)	92 (348.2)
L x W x H in (mm)	48 x 36 x 90 (1219.2 x 914.4 x 2286)
Weight lbs (kg)	2400 (1089)
Sound Level	71 dBA

* All measurements are approximate and for estimation purposes only.

YOUR FACTORY RECOGNIZED GENERAC INDUSTRIAL DEALER

SPEC SHEET

5 of 5

Specification characteristics may change without notice. Dimensions and weights are for preliminary purposes only. Please consult a Generac Power Systems Industrial Dealer for detailed installation drawings.

Generac Power Systems, Inc. | P.O.Box 8 | Waukesha, WI 53189
P: (262) 544-4811

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Rev. WIP 11/04/16

6

CUDDY
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LLP

445 Hamilton Avenue, 14th Floor
White Plains, New York 10601
T 914 761 1300
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cuddyfeder.com

Kristen Motel
kmotel@cuddyfeder.com

October 16, 2019

FEDERAL EXPRESS
Stephen C. Dunn, First Selectman
Town of Brookfield
100 Pocono Road
Brookfield, CT 06804

Re: Tower Sharing Request by New Cingular Wireless PCS, LLC
TS-CING-105-190808
Premises: 39 Carmen Hill Road, Brookfield, Connecticut

Dear First Selectman Dunn:

We are writing to you on behalf of our client New Cingular Wireless PCS, LLC ("AT&T") with respect to the above referenced request to the Connecticut Siting Council ("Council") for shared use approval to allow AT&T to install its wireless communications equipment on the existing communications tower and at the associated compound at 39 Carmen Hill Road in the Town of Brookfield. AT&T proposes to install 6 antennas, 9 remote radiohead units, and associated equipment mounted to pipe masts on the existing antenna at the 165-foot level of the existing 457-foot tower.

Enclosed herein is a copy of the submission made to the Council requesting approval of the tower share which includes information regarding the technical, legal, environmental, and economic feasibility of AT&T's proposed installation.

Should you have any questions please feel free to contact me at the address above or the Council at 860.827.2935.

Very truly yours,

Kristen Motel
Enclosure

FedEx. Shipment Receipt

Address Information

Ship to:	**Ship from:**
Stephen C. Dunn, First Selectman	Kristen Motel
Town of Brookfield	Cuddy & Feder LLP
100 Pocono Road	445 Hamilton Avenue
	Suite 1400
BROOKFIELD, CT	White Plains, NY
06804	10601
US	US
914 761 1300	9147611300

Shipment Information:
Tracking no.: 776732816661
Ship date: 10/16/2019
Estimated shipping charges: 15.21 USD

Package Information
Pricing option: FedEx Standard Rate
Service type: Priority Overnight
Package type: FedEx Pak
Number of packages: 1
Total weight: 1 LBS
Declared Value: 0.00 USD
Special Services:
Pickup/Drop-off: Use an already scheduled pickup at my location

Billing Information:
Bill transportation to: CuddyFeder-963
Your reference: 1844-3375
P.O. no.:
Invoice no.:
Department no.:

Thank you for shipping online with FedEx ShipManager at fedex.com.

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kmotel@cuddyfeder.com

October 16, 2019

FEDERAL EXPRESS
Alice Dew, Land Use Director
Town of Brookfield
100 Pocono Road
Brookfield, CT 06804

Re: Tower Sharing Request by New Cingular Wireless PCS, LLC
TS-CING-105-190808
Premises: 39 Carmen Hill Road, Brookfield, Connecticut

Dear Ms. Dew:

We are writing to you on behalf of our client New Cingular Wireless PCS, LLC ("AT&T") with respect to the above referenced request to the Connecticut Siting Council ("Council") for shared use approval to allow AT&T to install its wireless communications equipment on the existing communications tower and at the associated compound at 39 Carmen Hill Road in the Town of Brookfield. AT&T proposes to install 6 antennas, 9 remote radiohead units, and associated equipment mounted to pipe masts on the existing antenna at the 165-foot level of the existing 457-foot tower.

Enclosed herein is a copy of the submission made to the Council requesting approval of the tower share which includes information regarding the technical, legal, environmental, and economic feasibility of AT&T's proposed installation.

Should you have any questions please feel free to contact me at the address above or the Council at 860.827.2935.

Very truly yours,

Kristen Motel
Enclosure

FedEx Shipment Receipt

Address Information

Ship to:	**Ship from:**
Alice Dew, Land Use Director	Kristen Motel
Town of Brookfield	Cuddy & Feder LLP
100 Pocono Road	445 Hamilton Avenue
	Suite 1400
BROOKFIELD, CT	White Plains, NY
06804	10601
US	US
914 761 1300	9147611300

Shipment Information:
Tracking no.: 776732840508
Ship date: 10/16/2019
Estimated shipping charges: 15.21 USD

Package Information
Pricing option: FedEx Standard Rate
Service type: Priority Overnight
Package type: FedEx Pak
Number of packages: 1
Total weight: 1 LBS
Declared Value: 0.00 USD
Special Services:
Pickup/Drop-off: Use an already scheduled pickup at my location

Billing Information:
Bill transportation to: CuddyFeder-963
Your reference: 1844-3375
P.O. no.:
Invoice no.:
Department no.:

Thank you for shipping online with FedEx ShipManager at fedex.com.

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Kristen Motel
kmotel@cuddyfeder.com

October 16, 2019

FEDERAL EXPRESS
Vertical Bridge Towers, LLC
2800 Post Oak BLVD
Suite 3700
Houston, TX 77056

Re: Tower Sharing Request by New Cingular Wireless PCS, LLC
TS-CING-105-190808
Premises: 39 Carmen Hill Road, Brookfield, Connecticut

Dear Sir or Madam:

We are writing to you on behalf of our client New Cingular Wireless PCS, LLC ("AT&T") with respect to the above referenced request to the Connecticut Siting Council ("Council") for shared use approval to allow AT&T to install its wireless communications equipment on the existing communications tower and at the associated compound at 39 Carmen Hill Road in the Town of Brookfield. AT&T proposes to install 6 antennas, 9 remote radiohead units, and associated equipment mounted to pipe masts on the existing antenna at the 165-foot level of the existing 457-foot tower.

Enclosed herein is a copy of the submission made to the Council requesting approval of the tower share which includes information regarding the technical, legal, environmental, and economic feasibility of AT&T's proposed installation.

Should you have any questions please feel free to contact me at the address above or the Council at 860.827.2935.

Very truly yours,

Kristen Motel
Enclosure

FedEx Shipment Receipt

Address Information

Ship to:	**Ship from:**
Vertical Bridge Towers, LLC	Kristen Motel
	Cuddy & Feder LLP
2800 Post Oak BLVD	445 Hamilton Avenue
Suite 3700	Suite 1400
HOUSTON, TX	White Plains, NY
77056	10601
US	US
914 761 1300	9147611300

Shipment Information:
Tracking no.: 776732895240
Ship date: 10/16/2019
Estimated shipping charges: 18.94 USD

Package Information
Pricing option: FedEx Standard Rate
Service type: Priority Overnight
Package type: FedEx Pak
Number of packages: 1
Total weight: 1 LBS
Declared Value: 0.00 USD
Special Services:
Pickup/Drop-off: Use an already scheduled pickup at my location

Billing Information:
Bill transportation to: CuddyFeder-963
Your reference: 1844-3375
P.O. no.:
Invoice no.:
Department no.:

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