September 23, 2022

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

Regarding: Notice of Exempt Modification – AT&T Site CT5404 / FA# 10071289
Address: 319-321 New Britain Ave, Farmington, CT 06085

Dear Ms. Bachman:

New Cingular Wireless, PCS, LLC ("AT&T") currently maintains a wireless telecommunications facility on an existing +/- 190' monopole at the above-referenced address, latitude 41.7497919, longitude -72.8726989. Said monopole is owned by The Town of Farmington.

AT&T desires to modify its existing telecommunications facility by swapping nine (9) antennas, removing three (3) remote radio units (RRUS), and adding one (1) surge arrestor and accompanying feedlines, as more particularly detailed and described on the enclosed Construction Drawings prepared by Hudson Design Group, LLC, last revised August 15, 2022. The centerline height of the existing antennas is and will remain at 150 feet. This modification may include B2, B5, B17, B14, B29, B30, B66, & n77 hardware that is 4G(LTE) and/or 5GNR capable through remote software configuration and either or both services may be turned off at various times.

Please accept this letter as notification pursuant to R.C.S.A §16-50j-73 for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to the following individuals: The Honorable Kathleen Blonski, Town Manager of the Town of Farmington, as elected official, Bruce Cyr, Zoning Enforcement Officer, of the Town of Farmington, Shannon Rutherford, Town Planner of the Town of Farmington, and the Town of Farmington, as tower operator and property owner.

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

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

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

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

4. The operation of the modified facility will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. *Please see the RF emissions calculation for AT&T's modified facility enclosed herewith.*

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

6. The existing structure and its foundation can support the proposed loading. *Please see the structural analysis dated September 22, 2022, and prepared by Tower Engineering Professionals, enclosed herewith.*

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

Sincerely,

Evan Renwick

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

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

cc: The Honorable Kathleen Blonski, Town Manager, Town of Farmington, elected official
Bruce Cyr, Zoning Enforcement Officer, Town of Farmington
Shannon Rutherford, Town Planner, Town of Farmington
Town of Farmington, as tower operator and property owner

EXHIBIT 1

PROJECT INFORMATION

SCOPE OF WORK:

ITEMS TO BE MOUNTED ON THE EXISTING MONOPOLE:
- NEW AT&T ANTENNAS: DUAL AIR6419 B77G (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T ANTENNAS: DUAL AIR6449 B77D (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T ANTENNAS: TPA65R-BU8DA-K (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- EXISTING AT&T ANTENNAS: DMP65R-BU8DA-K (TYP. OF 1 PER SECTOR, TOTAL OF 3)(TO BE RELOCATED TO POS. 4).
- EXISTING AT&T RRU'S: RRUS-4478 B14 (700) (TYP. OF 1 PER SECTOR, TOTAL OF 3)(TO BE RELOCATED TO POS. 2).
- EXISTING AT&T RRU'S: RRUS-4449 B5/B12 (850/700) (TYP. OF 1 PER SECTOR, TOTAL OF 3)(TO BE RELOCATED TO POS. 4).
- NEW AT&T SURGE ARRESTOR: DC6-48-60-18-8F (TOTAL OF 1). (DC ONLY)
- NEW AT&T (1) 18 PAIR OF FIBER.

ITEMS TO BE MOUNTED IN EQUIPMENT LOCATION:
- INSTALL 6648 + XCEDE
- FINAL = 1X6601/1X5216/1XXMU03, 1X6630 MIXED-MODE+IDLE, 6648+XCEDE.
- INSTALL (4) NEW -48V RECTIFIERS FOR A TOTAL OF (10) -48V RECTIFIERS.
- INSTALL (1) NEW FIBER TRAY AND (1) FIBER BOX.

ITEMS TO BE REMOVED:
- EXISTING AT&T ANTENNA: 800-10121 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- EXISTING AT&T ANTENNA: OPA-65R-BU8DA (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- EXISTING AT&T ANTENNA: TPA-65R-LCUUU-H8 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- EXISTING AT&T SURGE ARRESTOR: DC6-48-60-08F (TOTAL OF 1) (DC ONLY).
- EXISTING AT&T TMAS: LGP21401 (TYP. OF 2 PER SECTOR, TOTAL OF 6).
- EXISTING AT&T DIPLEXERS: LGP21901 (TYP. OF 2 PER SECTOR, TOTAL OF 6).

ITEMS TO REMAIN:
- (3) ANTENNAS, (12) RRU'S, (2) SURGE ARRESTOR, (6) COAX, (6) 8AWG DC POWER & (2) FIBER.

SITE ADDRESS:	319-321 NEW BRITAIN AVENUE UNIONVILLE, CT 06085
LATITUDE:	41.7497919° N, 41° 44' 59.4" N
LONGITUDE:	-72.8726989° W, 72° 52' 21.7" W
TYPE OF SITE:	MONOPOLE / INDOOR EQUIPMENT
STRUCTURE HEIGHT:	190'-0"±
RAD CENTER:	150'-0"±
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY

DRAWING INDEX

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

SITE NUMBER: CTL05404

SITE NAME: UNIONVILLE-FARMINGTON

FA CODE: 10071289

PACE ID: MRCTB054979,MRCTB054956,MRCTB054613,MRCTB053541

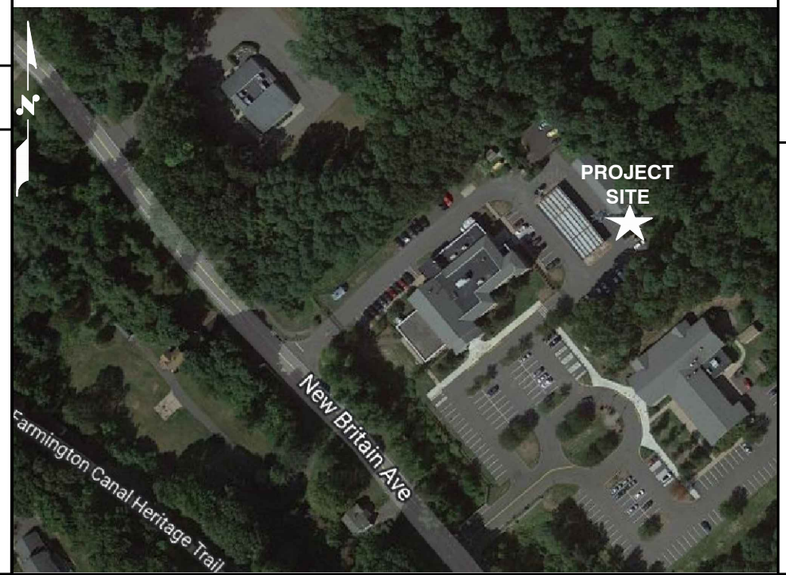
PROJECT: 5G NR 1SR CBAND, 5G NR 1 SR,, 2022 UPGRADE

ISSUED FOR PERMITTING

VICINITY MAP

DIRECTIONS TO SITE:

START OUT GOING EAST ON ENTERPRISE DR TOWARD CAPITAL BLVD.TURN LEFT ONTO CAPITAL BLVD.TURN LEFT ONTO WEST ST.MERGE ONTO I-91 S VIA THE RAMP ON THE LEFT TOWARD NEW HAVEN.MERGE ONTO CT-9 N VIA EXIT 22N TOWARD NEW BRITAIN.MERGE ONTO I-84 W/US-6 W VIA EXIT 32 ON THE LEFT TOWARD WATERBURY.MERGE ONTO FARMINGTON AVE/CT-508 VIA EXIT 39 TOWARD CT-4/FARMINGTON.STAY STRAIGHT TO GO ONTO FARMINGTON AVE/CT-4.TURN LEFT ONTO MAIN ST/CT-10.TURN RIGHT ONTO MEADOW RD.STAY STRAIGHT TO GO ONTO RED OAK HILL RD.TAKE THE 3RD RIGHT ONTO NEW BRITAIN AVE.319-321 NEW BRITAIN AVE IS ON THE RIGHT.



GENERAL NOTES

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

72 HOURS

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

UNDERGROUND SERVICE ALERT

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

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

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SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: MR

STATE OF CONNECTICUT · DANIEL P. HAMM · No. 24178 · LICENSED PROFESSIONAL ENGINEER

AT&T

TITLE SHEET

5G NR 1SR CBAND, 5G NR 1 SR,

SITE NUMBER	DRAWING NUMBER	REV
CTL05404	T-1	B

GROUNDING NOTES

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.

2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.

3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81 STANDARDS) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.

4. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND 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.

5. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS AND #2 AWG STRANDED COPPER FOR OUTDOOR BTS.

6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.

7. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.

8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO GROUND BAR.

9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.

10. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.

11. METAL CONDUIT SHALL BE MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.

12. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/2 IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50

GENERAL NOTES

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:

   CONTRACTOR – CENTERLINE
   SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
   OWNER – AT&T MOBILITY

2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.

3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.

5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.

7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.

9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.

10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.

11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.

12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.

13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.

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

15. ALL STRUCTURAL STEEL 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. TOUCH UP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.

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

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

18. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING 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.

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

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

    BUILDING CODE: IBC 2015 WITH 2018 CT STATE BUILDING CODE AMENDMENTS
    ELECTRICAL CODE: 2020 NATIONAL ELECTRICAL CODE (NFPA 70-2020)

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

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

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

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

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

ABBREVIATIONS

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

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
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TEL: (978) 557-5553
FAX: (978) 336-5586

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750 WEST CENTER STREET, SUITE #301
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SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: MR

STATE OF CONNECTICUT · DANIEL P. HAMM · NO. 24178 · LICENSED PROFESSIONAL ENGINEER

AT&T

GENERAL NOTES
5G NR 1SR CBAND, 5G NR 1 SR,

SITE NUMBER	DRAWING NUMBER	REV
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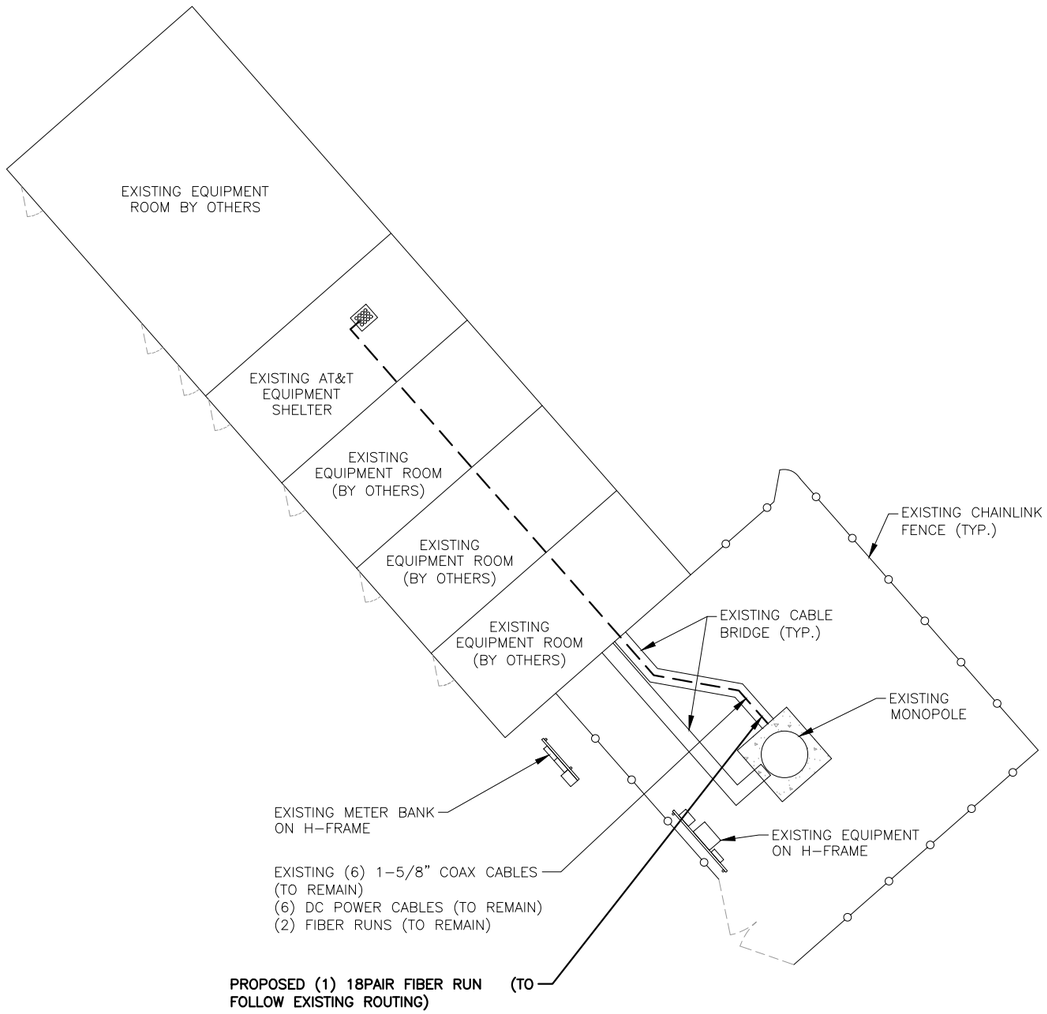
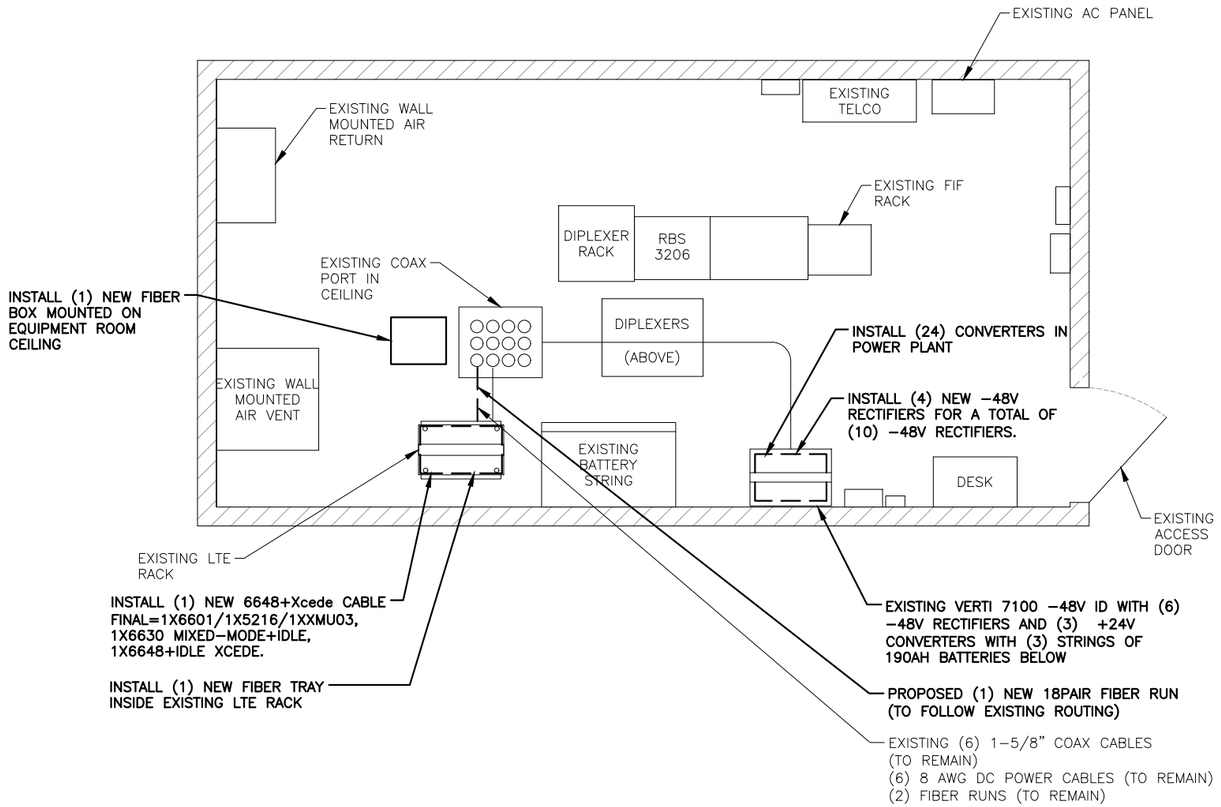
NOTE:

REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:

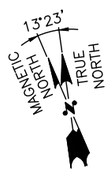
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION.





COMPOUND PLAN (1 / A-1)
22x34 SCALE: 1/8"=1'-0"
11x17 SCALE: 1/16"=1'-0"

0 4'-0" 8'-0" 16'-0" 24'-0"



EQUIPMENT PLAN (2 / A-1)
22x34 SCALE: 1/2"=1'-0"
11x17 SCALE: 1/4"=1'-0"

0 1'-0" 2'-0" 3'-0" 6'-0"

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STATE OF CONNECTICUT · DANIEL P. HAMM · No. 24178 · LICENSED PROFESSIONAL ENGINEER

AT&T

COMPOUND & EQUIPMENT PLANS
5G NR 1SR CBAND, 5G NR 1 SR,

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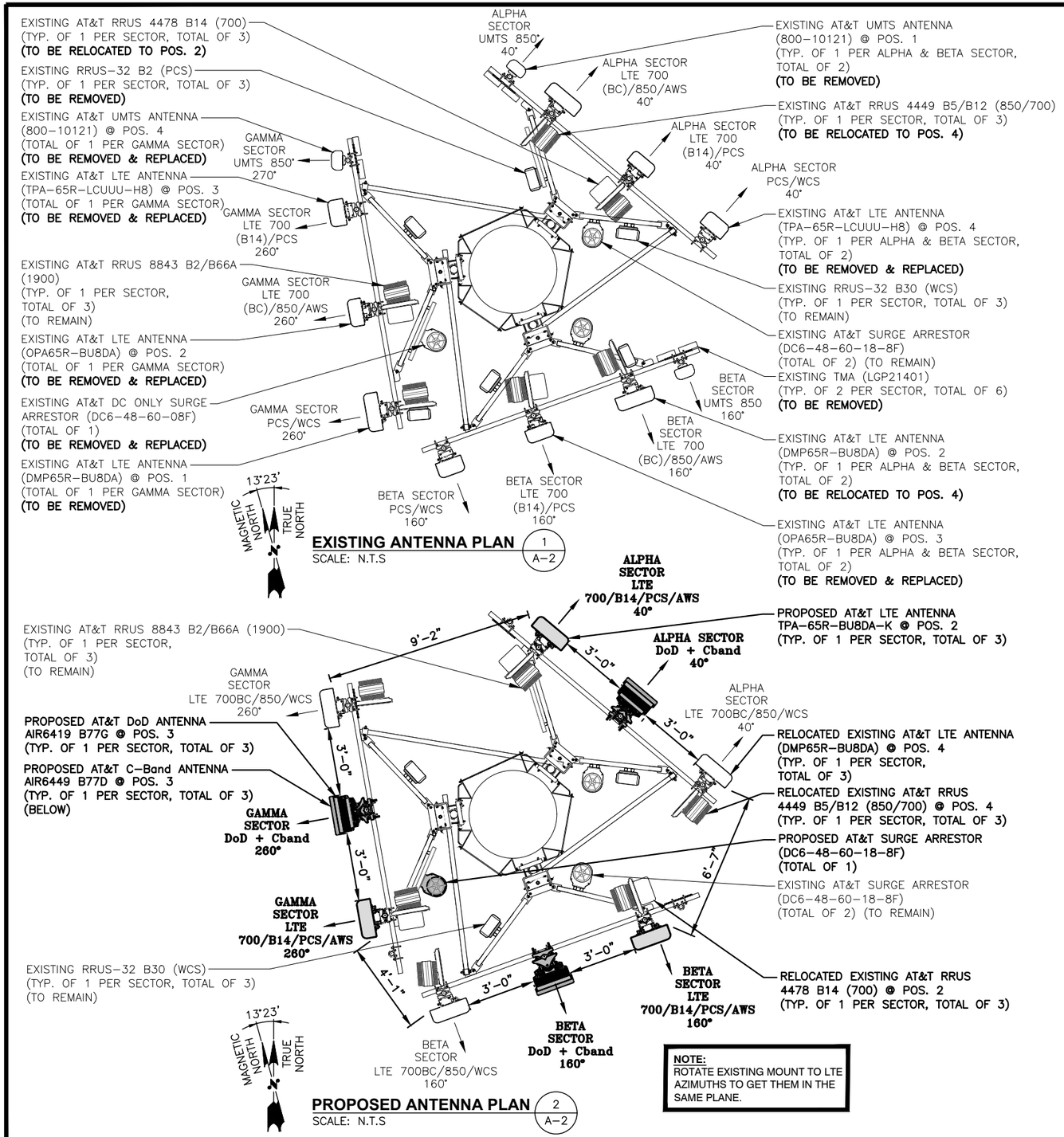
CTL05404	A-1	B



EXISTING ANTENNA PLAN

SCALE: N.T.S

(1 / A-2)

PROPOSED ANTENNA PLAN

SCALE: N.T.S

(2 / A-2)

NOTE:
ROTATE EXISTING MOUNT TO LTE AZIMUTHS TO GET THEM IN THE SAME PLANE.

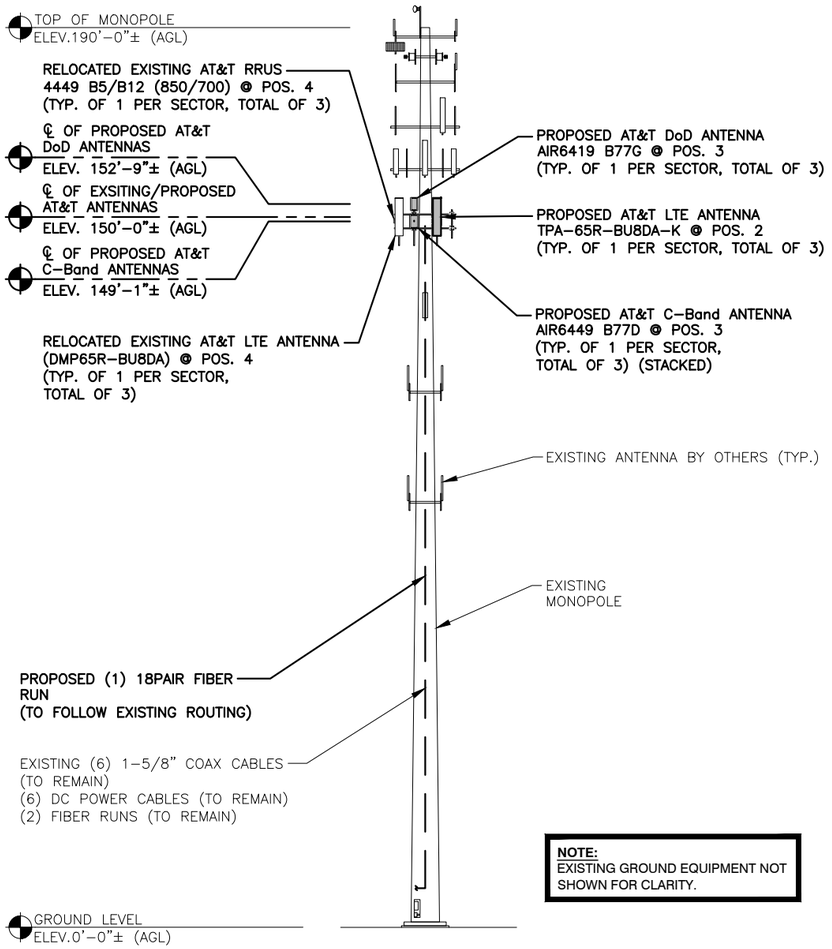
NOTE:

REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:

AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION.

NOTE:
ANTENNAS AND MOUNTS TO BE ADJUSTED AS REQUIRED TO ACHIEVE A 3'-0" MINIMUM SEPARATION BETWEEN ANTENNAS



NOTE:
EXISTING GROUND EQUIPMENT NOT SHOWN FOR CLARITY.

ELEVATION

22x34 SCALE: 1/16"=1'-0"
11x17 SCALE: 1/32"=1'-0"

(3 / A-2)

0' 8'-0" 16'-0" 32'-0" 48'-0"

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

at&t
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

SITE NUMBER: CTL05404
SITE NAME: UNIONVILLE-FARMINGTON

319-321 NEW BRITAIN AVENUE
UNIONVILLE, CT 06085
HARTFORD COUNTY

NO.	DATE	REVISIONS	BY	CHK	APP'D
B	08/15/22	ISSUED FOR PERMITTING	KW	AT	DPH
A	03/03/22	ISSUED FOR REVIEW	MR	AT	DPH

SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: MR

STATE OF CONNECTICUT
DANIEL P. HAMM
No. 24178
LICENSED PROFESSIONAL ENGINEER

AT&T

ANTENNA LAYOUT PLANS & ELEVATION
5G NR 1SR CBAND, 5G NR 1 SR,

SITE NUMBER	DRAWING NUMBER	REV
CTL05404	A-2	B

ANTENNA SCHEDULE

SECTOR	EXISTING/ PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA ℄ HEIGHT	AZIMUTH	TMA/ DIPLEXER	RRU	SIZE (INCHES) (L x W x D)	FEEDER	RAYCAP
A1	–	–	–	–	–	–	–	–	–	(2)1–5/8 COAX	(E) (1) RAYCAP DC6–48–60–18–8F
A2	**PROPOSED**	**LTE 700/B14/PCS/AWS**	**TPA65R–BU8DA–K**	**96"X20.7"X7.7"**	**150'–0"±**	**40°**	–	(E)(1)RRUS–4478 B14 (700) (E)(1)RRUS–8843 B2/B66A(1900/AWS)	–	(E)(2) DC POWER (1) FIBER	
A3	**PROPOSED**	**DoD C–BAND**	**AIR6419 B77G AIR6449 B77D (STACKED)**	**31.1"X16.1"X7.3" 30.4"X15.9"X8.1"**	**150'–0"±**	**40°**	–	–	–	–	
A4	EXSITING	LTE 700BC/850/WCS	DMP65R–BU8DA	96"X20.7"X7.7"	150'–0"±	40°	–	(E)(1)RRUS–4449 B5/B12 (850/700) (E)(1)RRUS–32 B30 (WCS)	–	(E)(2)(Y–CABLE)	
B1	–	–	–	–	–	–	–	–	–	(2)1–5/8 COAX	(E) (1) RAYCAP DC6–48–60–18–8F
B2	**PROPOSED**	**LTE 700/B14/PCS/AWS**	**TPA65R–BU8DA–K**	**96"X20.7"X7.7"**	**150'–0"±**	**160°**	–	(E)(1)RRUS–4478 B14 (700) (E)(1)RRUS–8843 B2/B66A(1900/AWS)	–	(E)(2) DC POWER (1) FIBER	
B3	**PROPOSED**	**DoD C–BAND**	**AIR6419 B77G AIR6449 B77D (STACKED)**	**31.1"X16.1"X7.3" 30.4"X15.9"X8.1"**	**150'–0"±**	**160°**	–	–	–	–	
B4	EXSITING	LTE 700BC/850/WCS	DMP65R–BU8DA	96"X20.7"X7.7"	150'–0"±	160°	–	(E)(1)RRUS–4449 B5/B12 (850/700) (E)(1)RRUS–32 B30 (WCS)	–	(E)(2)(Y–CABLE)	
C1	–	–	–	–	–	–	–	–	–	(2)1–5/8 COAX	**(P) (1) RAYCAP DC6–48–60–18–8F**
C2	**PROPOSED**	**LTE 700/B14/PCS/AWS**	**TPA65R–BU8DA–K**	**96"X20.7"X7.7"**	**150'–0"±**	**260°**	–	(E)(1)RRUS–4478 B14 (700) (E)(1)RRUS–8843 B2/B66A(1900/AWS)	–	(E)(2) DC POWER **(P)(1) FIBER**	
C3	**PROPOSED**	**DoD C–BAND**	**AIR6419 B77G AIR6449 B77D (STACKED)**	**31.1"X16.1"X7.3" 30.4"X15.9"X8.1"**	**150'–0"±**	**260°**	–	–	–	–	
C4	EXSITING	LTE 700BC/850/WCS	DMP65R–BU8DA	96"X20.7"X7.7"	150'–0"±	260°	–	(E)(1)RRUS–4449 B5/B12 (850/700) (E)(1)RRUS–32 B30 (WCS)	–	(E)(2)(Y–CABLE)	

RRU CHART

QUANTITY	MODEL	SIZE (L x W x D)
E(3)	4478 B14 (700)	18.1"x13.4"x8.3"
E(3)	RRUS–32 B30 (WCS)	27.2"x12.1"x7.0"
E(3)	4449 B5/B12 (850/700)	17.9"x13.2"x10.4"
E(3)	8843 (1900/AWS)	14.9"x13.2"x10.9"

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS

NOTE:

REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

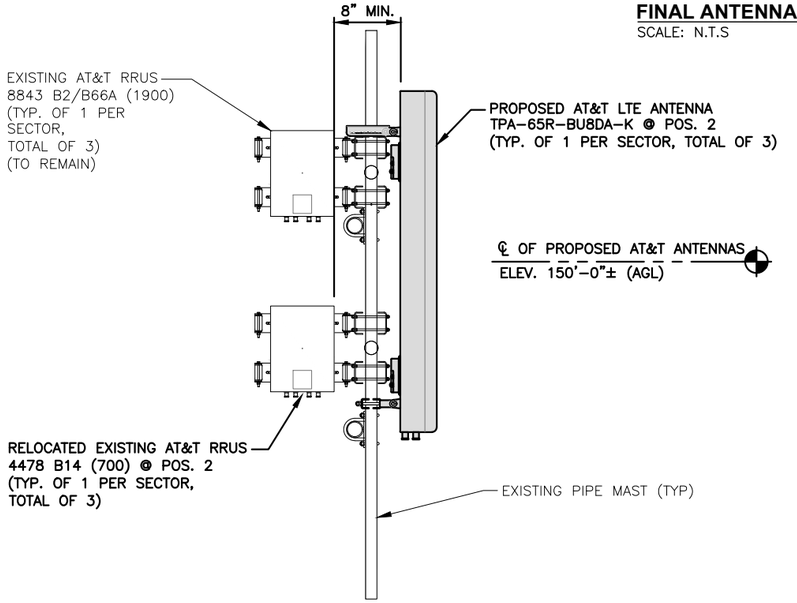
NOTE:

AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION.

FINAL ANTENNA SCHEDULE

1 / A–3

SCALE: N.T.S

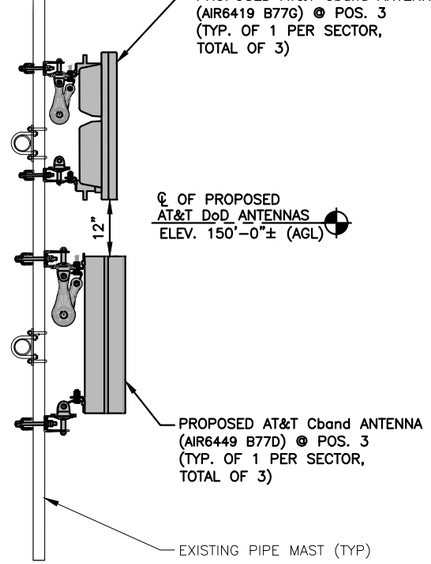


PROPOSED LTE ANTENNA MOUNTING DETAIL

2 / A–3

22x34 SCALE: 3/4"=1'–0"
11x17 SCALE: 3/8"=1'–0"

0 8" 1'–4" 2'–8" 4'–0"

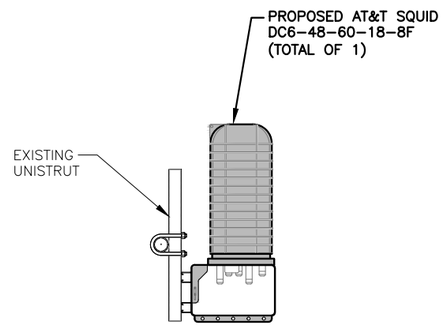


PROPOSED DoD + C-BAND ANTENNA MOUNTING DETAIL

3 / A–3

22x34 SCALE: 3/4"=1'–0"
11x17 SCALE: 3/8"=1'–0"

0 8" 1'–4" 2'–8" 4'–0"

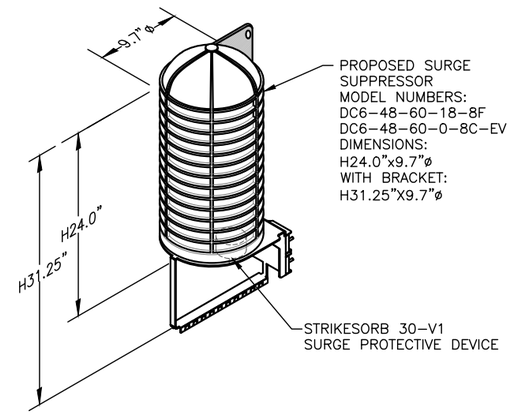


PROPOSED SURGE PROTECTOR MOUNTING DETAIL

4 / A–3

22x34 SCALE: 1"=1'–0"
11x17 SCALE: 1/2"=1'–0"

0 0'–6" 1'–0" 2'–0" 3'–0"



NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

DC SURGE SUPPRESSOR DETAIL

5 / A–3

SCALE: N.T.S

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

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

SITE NUMBER: CTL05404
SITE NAME: UNIONVILLE-FARMINGTON

319–321 NEW BRITAIN AVENUE
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500 ENTERPRISE DRIVE, SUITE 3A
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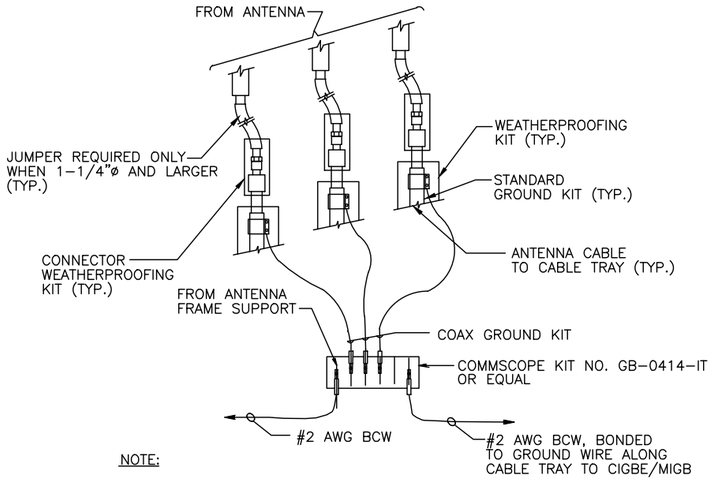
SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: MR

STATE OF CONNECTICUT · DANIEL P. HAMM · No. 24178 · LICENSED PROFESSIONAL ENGINEER

AT&T

DETAILS
5G NR 1SR CBAND, 5G NR 1 SR,

SITE NUMBER	DRAWING NUMBER	REV
CTL05404	A–3	B

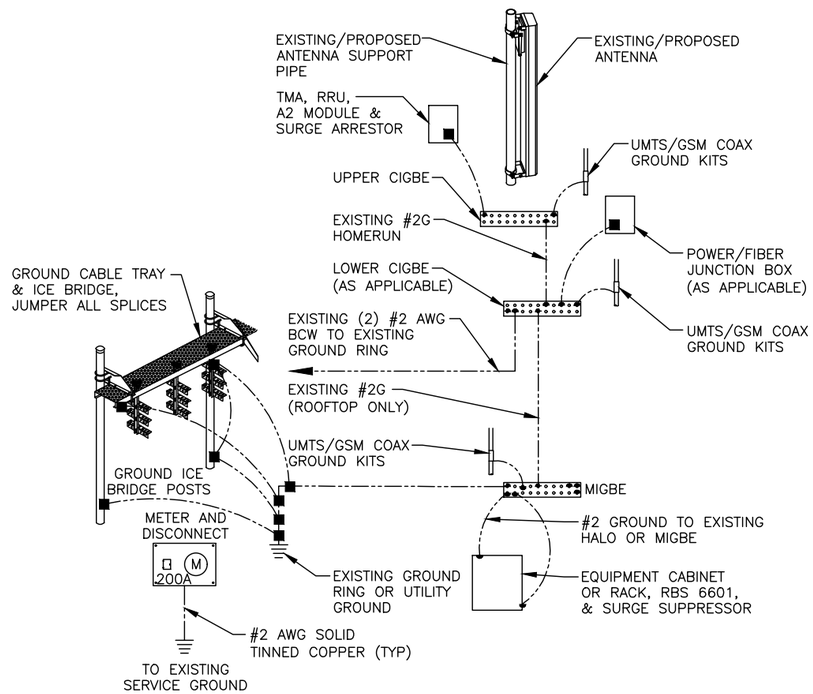


NOTE:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE.

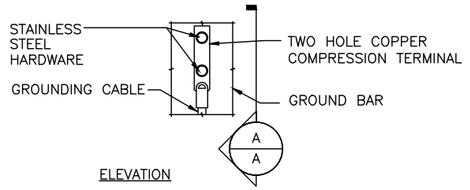
GROUND WIRE TO GROUND BAR CONNECTION DETAIL (1 / G-1)

SCALE: N.T.S



GROUNDING RISER DIAGRAM (2 / G-1)

SCALE: N.T.S



NOTES:

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

TYPICAL GROUND BAR CONNECTION DETAIL (3 / G-1)

SCALE: N.T.S

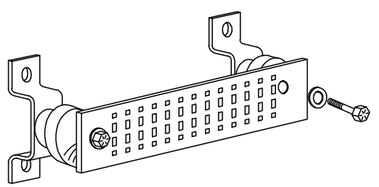
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" – SURGE PRODUCERS

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

SECTION "A" – SURGE ABSORBERS

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



GROUND BAR - DETAIL (AS REQUIRED)

SCALE: N.T.S

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
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TEL: (978) 557-5553
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STATE OF CONNECTICUT · DANIEL P. HAMM · No. 24178 · LICENSED PROFESSIONAL ENGINEER

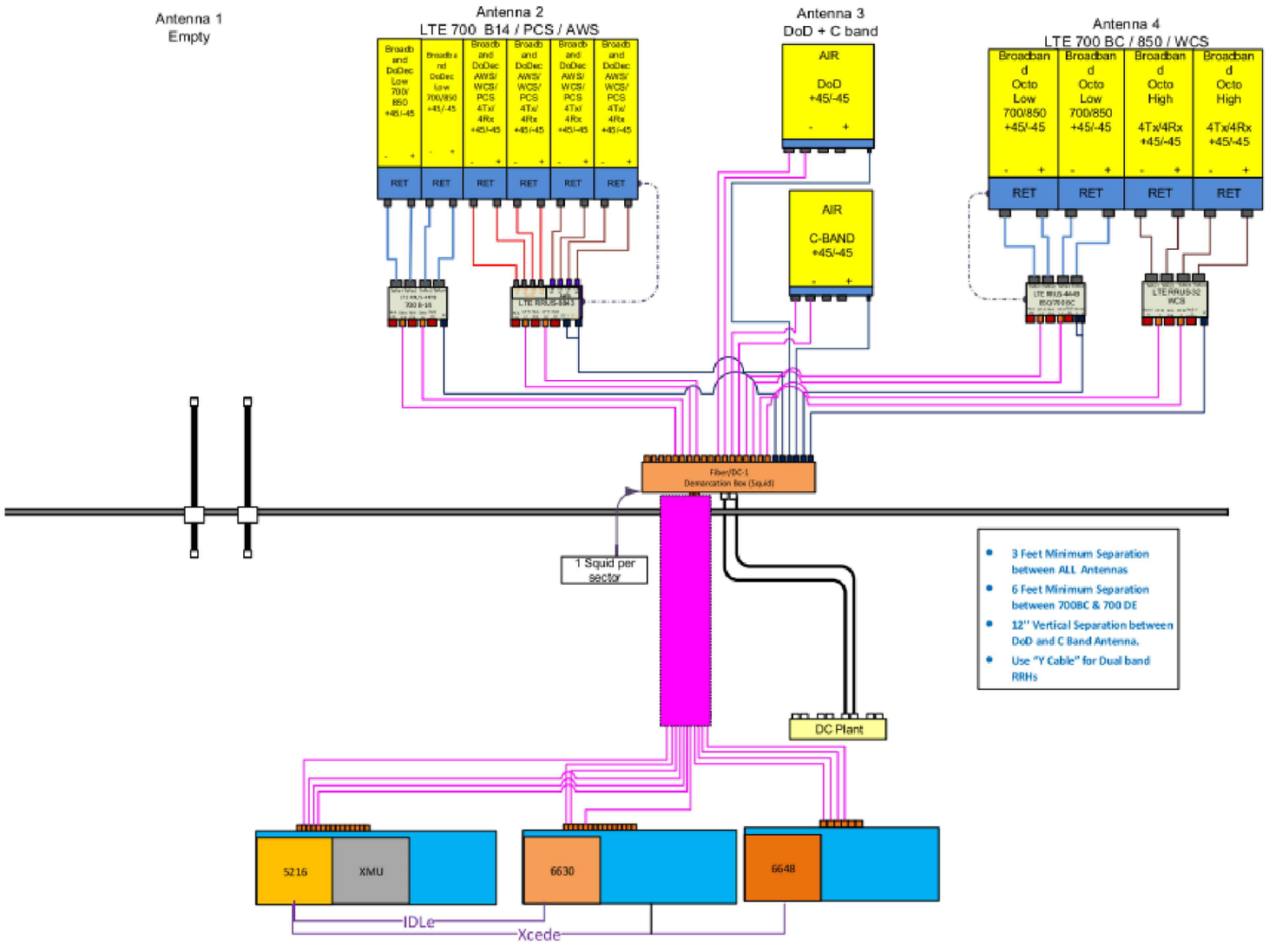
AT&T

GROUNDING DETAILS
5G NR 1SR CBAND, 5G NR 1 SR,

SITE NUMBER	DRAWING NUMBER	REV
CTL05404	G-1	B

Diagram - Sector	A	Diagram File Name - 4852157_CT5404_ABC_CBand_DOD_Rev.1.vsd					
Atoll Site Name -	CT5404	Location Name -	UNIONVILLE-FARMINGTON	Market -	CONNECTICUT	Market Cluster -	NEW ENGLAND

Comments: Important Note: For detailed radio to antenna wiring refer to the latest 4T4R Antenna/ radio Port connections Field Notice (RF-HW-2016-265)



RF PLUMBING DIAGRAM (1 / RF–1)
SCALE: N.T.S

NOTE:
1. CONTRACTOR TO CONFIRM ALL PARTS.
2. INSTALL ALL EQUIPMENT TO MANUFACTURER'S RECOMMENDATIONS

NOTE:

REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

HUDSON Design Group LLC
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SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: MR

AT&T

RF PLUMBING DIAGRAM
5G NR 1SR CBAND, 5G NR 1 SR,

SITE NUMBER	DRAWING NUMBER	REV
CTL05404	RF–1	B

EXHIBIT 2

Town of Farmington, CT

Property Listing Report

Map Block Lot	035 1-8	Building #	1	Unique Identifier	13200319321

Property Information

Property Location	319 NEW BRITAIN AV
Mailing Address	1 MONTEITH DR FARMINGTON CT 06032
Land Use	Governmental Building
Zoning Code	CR
Neighborhood	99

Owner	FAMINGTON TOWN OF
Co-Owner	NEW POLICE/COMMUNITY CENTER
Book / Page	0571/0159
Land Class	Commercial
Census Tract	4603
Acreage	13.2

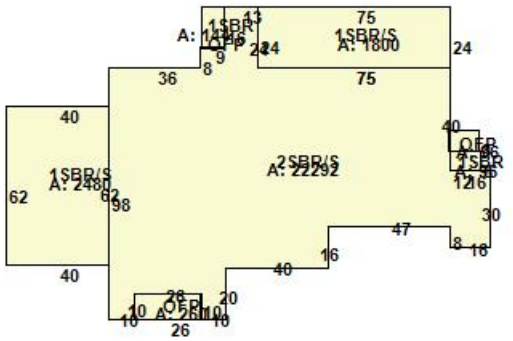
Valuation Summary

(Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings	17520375	12264260
Outbuildings	45322	31730
Land	1278240	894770
Total	18843937	13190760

Utility Information

Electric	No
Gas	No
Sewer	No
Public Water	No
Well	No



Primary Construction Details

Year Built	2001
Building Desc.	Commercial
Building Style	
Stories	2
Exterior Walls	Brick
Exterior Walls 2	
Interior Walls	Drywall
Interior Walls 2	
Interior Floors 1	Carpet
Interior Floors 2	Tile

Heating Fuel	Natural Gas
Heating Type	FHA
AC Type	Central
Bedrooms	0
Full Bathrooms	0
Half Bathrooms	0
Extra Fixtures	0
Total Rooms	0
Bath Style	NA
Kitchen Style	
Occupancy	0

Building Use	Jail - Police Station
Building Condition	Good
Frame Type	A
Fireplaces	0
Bsmt Gar	0
Fin Bsmt Area	
Fin Bsmt Quality	
Building Grade	0
Roof Style	
Roof Cover	Slate

Report Created On 2/28/2022

Town of Farmington, CT

Property Listing Report | Map Block Lot **035 1-8** | Building # **1** | Unique Identifier **13200319321**

Detached Outbuildings

Type	Description	Area (sq ft)	Condition	Year Built
Overhead Doors	Steel	2	Good	2001
Shed	Frame	336	Average	2016
Paving	Paving	30000	Average	2001
Overhead Doors	Steel	2	Good	2001
Canopy	Comm Canopy	626	Good	2001

Attached Extra Features

Type	Description	Area (sq ft)	Condition	Year Built
Porch	Open Frame	96	Good	2002
Porch	Open Frame	260	Good	2002
Porch	Open Frame	144	Good	2002

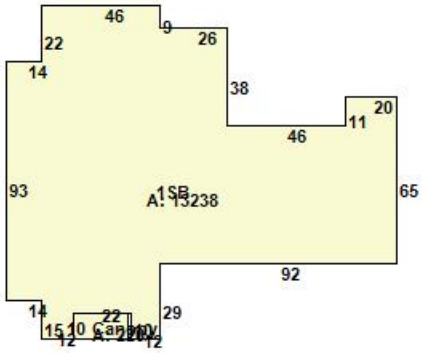
Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
FAMINGTON TOWN OF	0571_0159	1/1/1900	0

Report Created On **2/28/2022**

Town of Farmington, CT

Property Listing Report | Map Block Lot 035 1-8 | Building # 2 | Unique Identifier 13200319321



Primary Construction Details

Year Built	2001
Building Desc.	Community Recreation Center
Building Style	
Stories	1
Exterior Walls	Brick
Exterior Walls 2	
Interior Walls	Drywall
Interior Walls 2	
Interior Floors 1	Carpet
Interior Floors 2	Tile

Heating Fuel	Natural Gas
Heating Type	FHA
AC Type	Central
Bedrooms	0
Full Bathrooms	0
Half Bathrooms	0
Extra Fixtures	0
Total Rooms	0
Bath Style	NA
Kitchen Style	
Occupancy	0

Building Use	Commercial
Building Condition	Good
Frame Type	A
Fireplaces	0
Bsmt Gar	0
Fin Bsmt Area	
Fin Bsmt Quality	
Building Grade	0
Roof Style	
Roof Cover	Arch Shingles

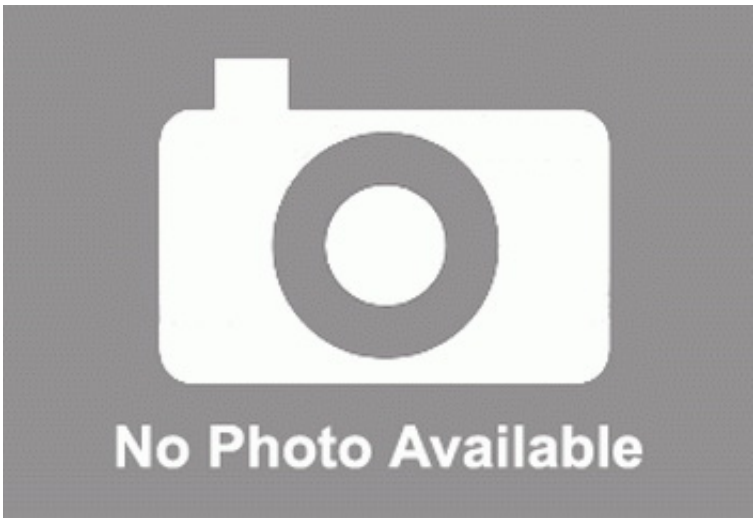
Attached Extra Features

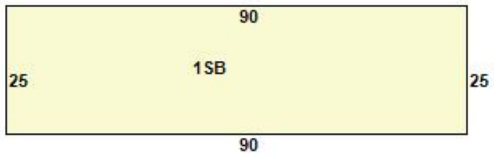
Type	Description	Area (sq ft)	Condition	Year Built
Canopy	Comm Canopy	220	Good	2001

Report Created On 2/28/2022

Town of Farmington, CT

Property Listing Report | Map Block Lot 035 1-8 | Building # 3 | Unique Identifier 13200319321





Primary Construction Details

Year Built	2002
Building Desc.	Utility Building
Building Style	
Stories	1
Exterior Walls	Brick
Exterior Walls 2	
Interior Walls	Painted Concrete Block
Interior Walls 2	
Interior Floors 1	Concrete
Interior Floors 2	

Heating Fuel	Natural Gas
Heating Type	FHA
AC Type	
Bedrooms	0
Full Bathrooms	0
Half Bathrooms	0
Extra Fixtures	0
Total Rooms	0
Bath Style	NA
Kitchen Style	
Occupancy	0

Building Use	Commercial
Building Condition	Good
Frame Type	A
Fireplaces	0
Bsmt Gar	0
Fin Bsmt Area	
Fin Bsmt Quality	
Building Grade	0
Roof Style	
Roof Cover	Arch Shingles

Attached Extra Features

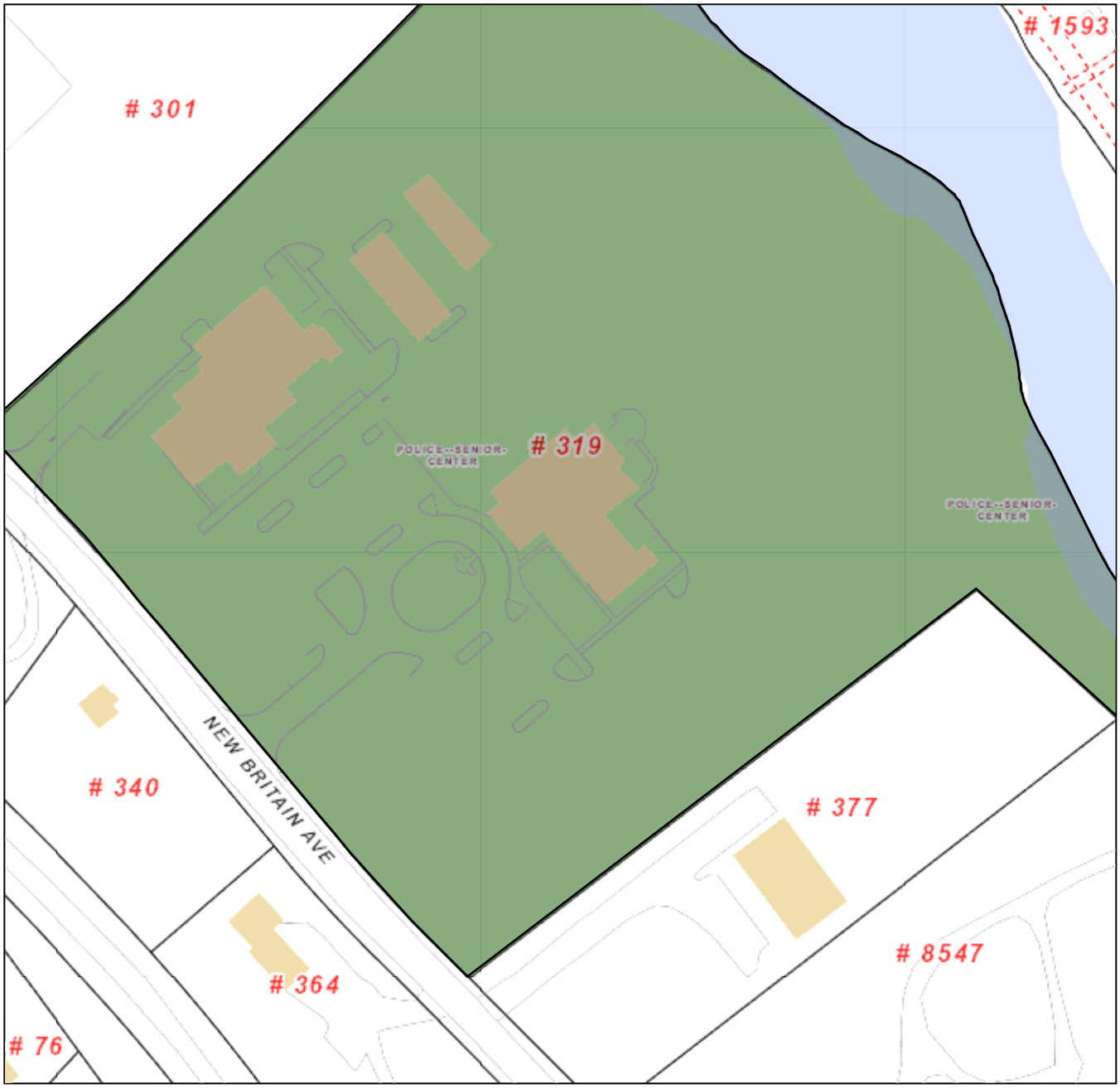
Type	Description	Area (sq ft)	Condition	Year Built

Report Created On 2/28/2022

Town of Farmington

Geographic Information System (GIS)

Date Printed: 2/28/2022



MAP DISCLAIMER - NOTICE OF LIABILITY

This map is for assessment purposes only. It is not for legal description or conveyances. All information is subject to verification by any user. The Town of Farmington and its mapping contractors assume no legal responsibility for the information contained herein.

Approximate Scale: 1 inch = 150 feet

0 150 Feet

N W E S

EXHIBIT 3

September 22, 2022

Tower Engineering Professionals
326 Tryon Road
Raleigh, NC 27603
(919) 661-6351
PHX_Structures@tepgroup.net

Centerline Communications
750 West Center St., Suite #301
West Bridgewater, MA 02379
(978) 557-5553

Subject: **Structural Analysis Report**

Carrier Designation:	***AT&T Mobility* Co-Locate**	
	Carrier Site Number:	CTL05404
	Carrier Site Name:	Unionville-Farmington
	FA Number:	10071289
Engineering Firm Designation:	**TEP Project Number:**	315911.739350
Site Data:	**319-321 New Britain Ave., Unionville, Hartford, CT 06085** **Latitude *41° 44' 59.40"*, Longitude *-72° 52' 21.7"*** **190.0± Foot - Monopole**	

Tower Engineering Professionals is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above-mentioned tower.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the stress level for the tower and foundation structure, under the following load case, to be:

LC1: Existing + Proposed + Reserved Loading **Sufficient Capacity**
Note: See Table 1 for the existing, proposed, and reserved loading

Structure Capacity	Foundation Capacity
68.1%	69.6%

The analysis has been performed in accordance with the ANSI/TIA-222-H Structural Standard for Antenna Supporting Structures, Antennas, and Small Wind Turbine Support Structures and the 2018 Connecticut Building Code.

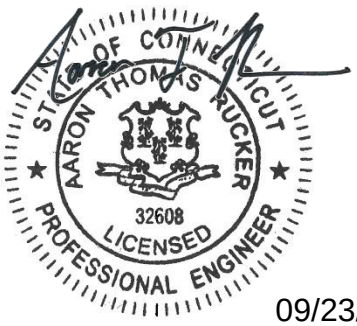
All modifications and equipment proposed in this report shall be installed in accordance with the appurtenances listed in Table 1 for the determined available structural capacity to be effective.

We at *Tower Engineering Professionals* appreciate the opportunity of providing our continuing professional services to you and *Centerline Communications.* If you have any questions or need further assistance on this or any other projects, please give us a call.

Structural analysis prepared by: Nicholas Martinez / PHX

Respectfully submitted by:

Aaron T. Rucker, P.E.



09/23/2022

TABLE OF CONTENTS

1) INTRODUCTION

The tower is a 190.0± Foot Monopole designed by Pirod inc. in October of 2001. The tower has been modified per reinforcement drawings prepared by Ramaker & Associates, inc. in October of 2017.

2) ANALYSIS CRITERIA

TIA-222 Revision: ANSI/TIA-222-H
Type of Analysis: Comprehensive
Risk Category: II
Wind Speed: 116 mph (Ultimate)
Exposure Category: C
Topographic Category: 1 (Kzt = 1.0)
Ice Thickness: 1.50 in
Wind Speed with Ice: 50 mph
Service Wind Speed: 60 mph

Table 1 - Existing, Proposed, and Reserved Antenna and Cable Information

Existing/ Proposed/ Reserved	Mount Level (ft)	Ant CL (ft)	Qty	Antenna Model	Mount Type	Qty Coax	Coax Size	Coax Location	Owner/ Tenant
Existing	188.0	193.0	2	6' Omni Antenna	Side Arm Mount	3 1	1/2 7/8	Inside	Unknown
		192.0	1	Radiowaves HP3-4.7	Pipe Mount				
		186.0	1	Kathrein PR-950	Side Arm Mount				
Existing	183.8	183.8	2	2' Yagi Antenna	Side Arm Mount	2	1/2	Inside	Unknown
Existing	178.5	180.0	1	3' Omni Antenna	Side Arm Mount	1	1/2	Inside	Unknown
Existing	175.0	175.0	3	-	Pipe Mount	-	-	-	Sprint
Existing[1]	160.5	160.5	3	Commscope FFVV-65C-R3-V1[1]	Platform Mount	6 1	1-5/8 1-1/2	External	T-Mobile
			3	Nokia AEHC[1]					
			3	Ericsson AIR 21 B4A/B2P[1]					
			3	Nokia AHLOA[1]		6 1	1-5/8 5/16	Inside	
			3	Nokia AHFIG[1]					
			3	Ericsson KRY 112 144/1[1]					
			1	Commscope HCS 2.0 Part 1[1]					
Proposed	***150.0***	***152.0***	***3***	***Ericsson AIR 6419 B77G***	Sector Mount	***-***	***-***	***-***	***AT&T Mobility***
		150.0	***3***	***CCI Antennas TPA65R-BU8DA-K***					
			1	***Raycap DC6-48-60-18-8F***					
		148.0	***3***	***Ericsson AIR6449 B77D***					
Existing	150.0	150.0	3	CCI Antennas DMP65R-BU8DA		6 6 2	1-5/8 DC Power Fiber	Inside	AT&T Mobility
			3	Ericsson 4449 B5/B12					
			3	Ericsson RRUS-32 B30					
			3	Ericsson 4478 B14					
			3	Ericsson 8843 B2/B66A					
			3	Raycap DC6-48-60-18-8F					

Existing/ Proposed/ Reserved	Mount Level (ft)	Ant CL (ft)	Qty	Antenna Model	Mount Type	Qty Coax	Coax Size	Coax Location	Owner/ Tenant
To Be Removed	*150.0*	*150.0*	*3*	*CCI Antennas TPA-65R-LCUUUU-H8*	-	-	-	-	*AT&T Mobility*
			3	*CCI Antennas OPA65R-BU8DA*					
			3	*Kathrein 800-10121*					
			6	*Kathrein 860-10025*					
			1	*Kathrein 860-10006*					
			3	*Ericsson RRUS-32 B2*					
			1	*Powerwave Tech LGP12104*					
			6	*Powerwave Tech LGP21401*					
			6	*Powerwave Tech LGP21901*					
Existing	113.0	118.0	3	4’ Omni Antenna	Side Arm Mount	3	1/2	Inside	Unknown
Existing	89.8	97.3	3	15’ Omni Antenna	Side Arm Mount	3	1/2	Inside	Unknown
Existing	52.0	52.0	1	GPS Antenna	Side Arm Mount	1	1/2	External	Unknown

Notes:
1) Equipment at the 160.5’ elevation estimated from recent photos

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Source
Tower and Foundation Design	PiRod Inc., dated November 7, 2001 Eng. File No. A-118703	Centerline Comm.
Tower Mapping Report	Tower Engineering Professionals, dated December 20, 2017 TEP# 79855.142398	TEP
Tower Reinforcement Drawings	Ramaker & Associates, Inc., dated October 31, 2017 Project Number 23009	Centerline Comm.
Previous Structural Analysis	Centerline Communications, dated February 2, 2021 Project LTE 4C/5C/5G NR, BWE & RETRO	Centerline Comm.
Correspondence	Correspondence in reference to the existing, proposed, and reserved loading, RFDS dated November 10, 2021	Centerline Comm.

3.1) Analysis Method

For analysis of monopole shaft reinforcements, the plates are modeled as linear appurtenances along the exterior of the pole. The loads calculated from tnxTower are then exported to a proprietary calculation sheet that analyzes each reinforcing element along each critical axis and presents percent capacities for each element and the pole shaft along each critical axis. The actual percent capacity of the tower structure including the reinforcing elements is reported in Table 3 - Section Capacity (Summary).

3.2) Analysis Assumptions

1) The tower and foundation were built and maintained in accordance with the manufacturer's specification.
2) The configuration of existing antennas, transmission cables, mounts and other appurtenances are as specified in the tower mapping report by TEP.
3) Unless specified by the client or tower mapping, the location of the existing and proposed coax is assumed by TEP and listed in Table 1.
4) All tower components are in sufficient condition to carry their full design capacity.
5) Serviceability with respect to antenna twist, tilt, roll, or lateral translation, is not checked and is left to the carrier or tower owner to ensure conformance.
6) All antenna mounts and mounting hardware are structurally sufficient to carry the full design capacity requirements of appurtenance wind area and weight as provided by the original manufacturer specifications. It is the carrier's responsibility to ensure compliance to the structural limitations of the existing and/or proposed antenna mounts. TEP did not perform a site visit to verify the size, condition or capacity of the antenna mounts and did not analyze antennas supporting mounts as part of this structural analysis report.
7) Presumptive soil values from TIA-222-H Annex F were used for the foundation analysis.
8) The modifications designed by Ramaker & Associates, Inc. dated October 31, 2017 were assumed to be installed as designed.

This analysis may be affected if any assumptions are not valid or have been made in error. Tower Engineering Professionals should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 3 - Section Capacity (Summary)[1]

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
190.08 - 185.08	Pole	TP20.813x19.563x0.25	Pole	1.4%	Pass
185.08 - 180.08	Pole	TP22.063x20.813x0.25	Pole	3.1%	Pass
180.08 - 175.08	Pole	TP23.313x22.063x0.25	Pole	5.1%	Pass
175.08 - 170.08	Pole	TP24.563x23.313x0.25	Pole	7.1%	Pass
170.08 - 167.25	Pole	TP26x24.563x0.25	Pole	8.2%	Pass
167.25 - 162.25	Pole	TP26.01x24.771x0.3125	Pole	8.2%	Pass
162.25 - 157.25	Pole	TP27.249x26.01x0.3125	Pole	12.0%	Pass
157.25 - 152.25	Pole	TP28.487x27.249x0.3125	Pole	15.2%	Pass
152.25 - 147.25	Pole	TP29.726x28.487x0.3125	Pole	19.7%	Pass
147.25 - 142.25	Pole	TP30.965x29.726x0.3125	Pole	24.7%	Pass
142.25 - 137.25	Pole	TP32.204x30.965x0.3125	Pole	29.1%	Pass
137.25 - 133.58	Pole	TP34.063x32.204x0.3125	Pole	32.0%	Pass
133.58 - 128.58	Pole	TP33.723x32.488x0.375	Pole	30.0%	Pass
128.58 - 123.58	Pole	TP34.958x33.723x0.375	Pole	32.5%	Pass
123.58 - 118.58	Pole	TP36.193x34.958x0.375	Pole	34.7%	Pass
118.58 - 113.58	Pole	TP37.428x36.193x0.375	Pole	36.9%	Pass
113.58 - 108.58	Pole	TP38.663x37.428x0.375	Pole	39.0%	Pass
108.58 - 103.58	Pole	TP39.898x38.663x0.375	Pole	40.9%	Pass
103.58 - 100.75	Pole	TP41.75x39.898x0.375	Pole	42.0%	Pass
100.75 - 95.75	Pole	TP41.076x39.847x0.375	Pole	45.1%	Pass
95.75 - 90.75	Pole	TP42.305x41.076x0.375	Pole	46.8%	Pass

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
90.75 - 85.75	Pole	TP43.533x42.305x0.375	Pole	48.5%	Pass
85.75 - 80.75	Pole	TP44.762x43.533x0.375	Pole	50.0%	Pass
80.75 - 75.75	Pole	TP45.991x44.762x0.375	Pole	51.5%	Pass
75.75 - 70.75	Pole	TP47.219x45.991x0.375	Pole	52.8%	Pass
70.75 - 68.75	Pole	TP49.063x47.219x0.375	Pole	53.4%	Pass
68.75 - 62.25	Pole	TP48.549x46.961x0.375	Pole	56.5%	Pass
62.25 - 57.25	Pole	TP49.771x48.549x0.375	Pole	57.7%	Pass
57.25 - 52.25	Pole	TP50.993x49.771x0.375	Pole	58.8%	Pass
52.25 - 47.25	Pole	TP52.215x50.993x0.375	Pole	59.9%	Pass
47.25 - 42.25	Pole	TP53.437x52.215x0.375	Pole	61.0%	Pass
42.25 - 38.25	Pole	TP54.414x53.437x0.375	Pole	61.8%	Pass
38.25 - 38	Pole + Reinf.	TP54.475x54.414x0.5813	Reinf. 2 Tension Rupture	54.2%	Pass
38 - 37.5	Pole + Reinf.	TP56.125x54.475x0.575	Reinf. 2 Tension Rupture	54.2%	Pass
37.5 - 30.25	Pole + Reinf.	TP55.605x53.848x0.575	Reinf. 2 Tension Rupture	56.7%	Pass
30.25 - 28.25	Pole + Reinf.	TP56.09x55.605x0.575	Reinf. 2 Tension Rupture	57.0%	Pass
28.25 - 28	Pole + Reinf.	TP56.15x56.09x0.575	Reinf. 1 Tension Rupture	57.0%	Pass
28 - 23	Pole + Reinf.	TP57.362x56.15x0.575	Reinf. 1 Tension Rupture	57.8%	Pass
23 - 18	Pole + Reinf.	TP58.574x57.362x0.5625	Reinf. 1 Tension Rupture	58.4%	Pass
18 - 13	Pole + Reinf.	TP59.786x58.574x0.5625	Reinf. 1 Tension Rupture	59.1%	Pass
13 - 8	Pole + Reinf.	TP60.998x59.786x0.5625	Reinf. 1 Tension Rupture	59.7%	Pass
8 - 3	Pole + Reinf.	TP62.21x60.998x0.55	Reinf. 1 Tension Rupture	60.2%	Pass
3 - 0	Pole + Reinf.	TP62.938x62.21x0.55	Reinf. 1 Tension Rupture	60.5%	Pass
				Summary	
			Pole	61.8%	Pass
			Reinforcement	60.5%	Pass
			Overall	**61.8%**	**Pass**

Table 4 - Tower Component Stresses vs. Capacity

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1,2	Anchor Rods	-	68.1	Pass
1,2	Base Plate	-	64.7	Pass
1,2	Base Foundation Structural	-	61.5	Pass
1,2	Base Foundation Soil Interaction	-	69.6	Pass

Structure Rating (max from all components) =	**69.6%**

Notes:
1) Rating per TIA-222-H, Section 15.5
2) See additional documentation in “Appendix B - Additional Calculations” for calculations supporting the % capacity listed.

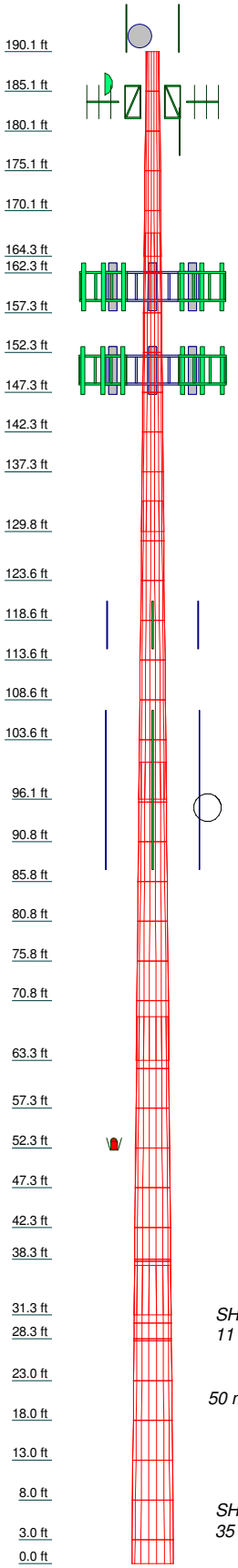
4.1) Recommendations

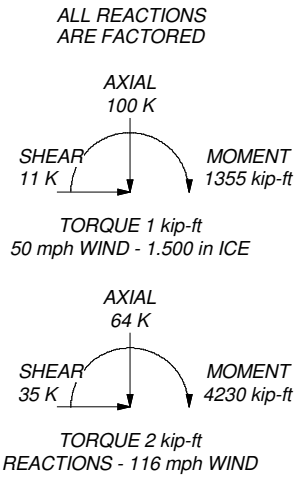
1) If the load differs from that described in Table 1 of this report or the provisions of this analysis are found to be invalid, another structural analysis should be performed.
2) The tower and its foundation have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

APPENDIX A

TNX TOWER OUTPUT

Section		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43
Length (ft)		5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	3.00
Number of Sides		18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
Thickness (in)		0.250	0.250	0.250	0.250	0.250	0.313	0.313	0.313	0.313	0.313	0.313	0.313	0.375	0.375	0.375	0.375	0.375	0.375	0.375	0.375	0.375	0.375	0.375	0.375	0.375	0.375	0.375	0.375	0.375	0.375	0.375	0.375	0.375	0.375	0.375	0.375	0.563	0.563	0.563	0.563	0.563	0.550	0.500
Socket Length (ft)						2.92							3.83							4.67							5.50									6.25										
Top Dia (in)		20.813	20.813	20.063	22.063	23.313	24.563	26.000	27.249	28.488	29.726	30.965	32.204	33.723	34.958	36.193	37.428	38.663	39.898	41.133	42.368	43.533	44.762	45.991	47.219	48.454	49.689	50.924	52.159	53.437	54.672	55.907	57.142	58.377	59.612	60.847	62.082	63.317	64.552	65.787	67.022	68.257	69.492	70.727
Bot Dia (in)		20.813	20.063	22.063	23.313	24.563	26.000	27.249	28.488	29.726	30.965	32.204	34.063	34.958	36.193	37.428	38.663	39.898	41.750	42.305	43.533	44.762	45.991	47.219	49.063	49.689	50.924	52.159	53.437	54.672	55.907	57.142	58.377	59.612	60.847	62.082	63.317	64.552	65.787	67.022	68.257	69.492	70.727	72.000
Grade																																												
Weight (K)		0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.8	0.7	0.7	0.7	0.7	0.8	1.2	0.8	0.8	0.9	0.9	0.9	1.5	1.2	1.0	1.0	1.0	1.1	0.9	1.0	1.0	2.3	2.4	1.7	1.7	1.7	1.8	1.8	1.1	1.1	1.1	1.1





MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower designed for Exposure C to the TIA-222-H Standard.
2. Tower designed for a 116 mph basic wind in accordance with the TIA-222-H Standard.
3. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 60 mph wind.
5. Tower Risk Category II.
6. Topographic Category 1 with Crest Height of 0.00 ft
7. Equivalent Thickness Model
8. TOWER RATING: 61.8%

Tower Engineering Professionals
326 Tryon Road
Raleigh, NC 27603
Phone: (919) 661-6351
FAX: (919) 661-6350

Job: **Unionville-Farmington (CT5404)**			
Project: ***TEP No. 315911.739350***			
Client: Centerline Communications	Drawn by: DAR	App'd:	
Code: TIA-222-H	Date: 09/22/22	Scale: NTS	
Path:		Dwg No. E-1	

Tower Input Data

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

Tower base elevation above sea level: 185.00 ft.
Basic wind speed of 116 mph.
Risk Category II.
Exposure Category C.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.00 ft.
Nominal ice thickness of 1.500 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
Equivalent Thickness Model.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.
Tower analysis based on target reliabilities in accordance with Annex S.
Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
Maximum demand-capacity ratio is: 1.05.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	190.08-185.08	5.00	0.000	18	19.563	20.813	0.250	1.000	A572-65 (65 ksi)
L2	185.08-180.08	5.00	0.000	18	20.813	22.063	0.250	1.000	A572-65 (65 ksi)
L3	180.08-175.08	5.00	0.000	18	22.063	23.313	0.250	1.000	A572-65 (65 ksi)
L4	175.08-170.08	5.00	0.000	18	23.313	24.563	0.250	1.000	A572-65 (65 ksi)
L5	170.08-164.33	5.75	2.917	18	24.563	26.000	0.250	1.000	A572-65 (65 ksi)
L6	164.33-162.25	5.00	0.000	18	24.771	26.010	0.313	1.250	A572-65 (65 ksi)
L7	162.25-157.25	5.00	0.000	18	26.010	27.249	0.313	1.250	A572-65 (65 ksi)
L8	157.25-152.25	5.00	0.000	18	27.249	28.488	0.313	1.250	A572-65 (65 ksi)
L9	152.25-147.25	5.00	0.000	18	28.488	29.726	0.313	1.250	A572-65 (65 ksi)
L10	147.25-142.25	5.00	0.000	18	29.726	30.965	0.313	1.250	A572-65 (65 ksi)
L11	142.25-137.25	5.00	0.000	18	30.965	32.204	0.313	1.250	A572-65 (65 ksi)
L12	137.25-129.75	7.50	3.833	18	32.204	34.063	0.313	1.250	A572-65 (65 ksi)
L13	129.75-128.58	5.00	0.000	18	32.488	33.723	0.375	1.500	A572-65 (65 ksi)
L14	128.58-123.58	5.00	0.000	18	33.723	34.958	0.375	1.500	A572-65 (65 ksi)
L15	123.58-118.58	5.00	0.000	18	34.958	36.193	0.375	1.500	A572-65 (65 ksi)
L16	118.58-113.58	5.00	0.000	18	36.193	37.428	0.375	1.500	A572-65 (65 ksi)
L17	113.58-108.58	5.00	0.000	18	37.428	38.663	0.375	1.500	A572-65 (65 ksi)
L18	108.58-103.58	5.00	0.000	18	38.663	39.898	0.375	1.500	A572-65 (65 ksi)
L19	103.58-96.08	7.50	4.667	18	39.898	41.750	0.375	1.500	A572-65 (65 ksi)
L20	96.08-95.75	5.00	0.000	18	39.847	41.076	0.375	1.500	A572-65 (65 ksi)
L21	95.75-90.75	5.00	0.000	18	41.076	42.305	0.375	1.500	A572-65 (65 ksi)
L22	90.75-85.75	5.00	0.000	18	42.305	43.533	0.375	1.500	A572-65 (65 ksi)
L23	85.75-80.75	5.00	0.000	18	43.533	44.762	0.375	1.500	A572-65 (65 ksi)
L24	80.75-75.75	5.00	0.000	18	44.762	45.991	0.375	1.500	A572-65 (65 ksi)
L25	75.75-70.75	5.00	0.000	18	45.991	47.219	0.375	1.500	A572-65 (65 ksi)
L26	70.75-63.25	7.50	5.500	18	47.219	49.063	0.375	1.500	A572-65 (65 ksi)
L27	63.25-62.25	6.50	0.000	18	46.961	48.549	0.375	1.500	A572-65 (65 ksi)
L28	62.25-57.25	5.00	0.000	18	48.549	49.771	0.375	1.500	A572-65 (65 ksi)
L29	57.25-52.25	5.00	0.000	18	49.771	50.993	0.375	1.500	A572-65 (65 ksi)

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L30	52.25-47.25	5.00	0.000	18	50.993	52.215	0.375	1.500	A572-65 (65 ksi)
L31	47.25-42.25	5.00	0.000	18	52.215	53.437	0.375	1.500	A572-65 (65 ksi)
L32	42.25-38.25	4.00	0.000	18	53.437	54.414	0.375	1.500	A572-65 (65 ksi)
L33	38.25-38.00	0.25	0.000	18	54.414	54.475	0.581	2.325	A572-65 (65 ksi)
L34	38.00-31.25	6.75	6.250	18	54.475	56.125	0.575	2.300	A572-65 (65 ksi)
L35	31.25-30.25	7.25	0.000	18	53.848	55.605	0.575	2.300	A572-65 (65 ksi)
L36	30.25-28.25	2.00	0.000	18	55.605	56.090	0.575	2.300	A572-65 (65 ksi)
L37	28.25-28.00	0.25	0.000	18	56.090	56.150	0.575	2.300	A572-65 (65 ksi)
L38	28.00-23.00	5.00	0.000	18	56.150	57.362	0.575	2.300	A572-65 (65 ksi)
L39	23.00-18.00	5.00	0.000	18	57.362	58.574	0.563	2.250	A572-65 (65 ksi)
L40	18.00-13.00	5.00	0.000	18	58.574	59.786	0.563	2.250	A572-65 (65 ksi)
L41	13.00-8.00	5.00	0.000	18	59.786	60.998	0.563	2.250	A572-65 (65 ksi)
L42	8.00-3.00	5.00	0.000	18	60.998	62.210	0.550	2.200	A572-65 (65 ksi)
L43	3.00-0.00	3.00		18	62.210	62.938	0.550	2.200	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	19.826	15.324	722.104	6.856	9.938	72.663	1445.159	7.664	3.003	12.012
	21.095	16.316	871.590	7.300	10.573	82.437	1744.326	8.160	3.223	12.892
L2	21.095	16.316	871.590	7.300	10.573	82.437	1744.326	8.160	3.223	12.892
	22.364	17.308	1040.401	7.743	11.208	92.829	2082.171	8.656	3.443	13.772
L3	22.364	17.308	1040.401	7.743	11.208	92.829	2082.171	8.656	3.443	13.772
	23.634	18.300	1229.712	8.187	11.843	103.837	2461.043	9.152	3.663	14.652
L4	23.634	18.300	1229.712	8.187	11.843	103.837	2461.043	9.152	3.663	14.652
	24.903	19.292	1440.699	8.631	12.478	115.461	2883.294	9.648	3.883	15.532
L5	24.903	19.292	1440.699	8.631	12.478	115.461	2883.294	9.648	3.883	15.532
	26.363	20.433	1711.654	9.141	13.208	129.592	3425.561	10.218	4.136	16.544
L6	25.839	24.260	1833.475	8.683	12.584	145.704	3669.362	12.132	3.810	12.191
	26.363	25.488	2126.439	9.123	13.213	160.936	4255.676	12.747	4.028	12.889
L7	26.363	25.488	2126.439	9.123	13.213	160.936	4255.676	12.747	4.028	12.889
	27.621	26.717	2449.058	9.562	13.842	176.926	4901.339	13.361	4.246	13.586
L8	27.621	26.717	2449.058	9.562	13.842	176.926	4901.339	13.361	4.246	13.586
	28.879	27.946	2802.762	10.002	14.472	193.673	5609.211	13.976	4.464	14.284
L9	28.879	27.946	2802.762	10.002	14.472	193.673	5609.211	13.976	4.464	14.284
	30.137	29.175	3188.980	10.442	15.101	211.177	6382.155	14.590	4.682	14.982
L10	30.137	29.175	3188.980	10.442	15.101	211.177	6382.155	14.590	4.682	14.982
	31.395	30.404	3609.141	10.882	15.730	229.438	7223.032	15.205	4.900	15.68
L11	31.395	30.404	3609.141	10.882	15.730	229.438	7223.032	15.205	4.900	15.68
	32.653	31.633	4064.677	11.322	16.360	248.456	8134.702	15.819	5.118	16.377
L12	32.653	31.633	4064.677	11.322	16.360	248.456	8134.702	15.819	5.118	16.377

Section	Tip Dia.	Area	I	r	C	I/C	J	It/Q	w	w/t
	in	in^2	in^4	in	in	in^3	in^4	in^2	in	
	34.540	33.476	4817.433	11.981	17.304	278.404	9641.206	16.741	5.445	17.424
L13	33.892	38.222	4979.727	11.400	16.504	301.733	9966.006	19.115	5.058	13.488
	34.185	39.692	5576.629	11.838	17.131	325.526	11160.596	19.850	5.275	14.067
L14	34.185	39.692	5576.629	11.838	17.131	325.526	11160.596	19.850	5.275	14.067
	35.439	41.162	6219.420	12.277	17.758	350.223	12447.025	20.585	5.493	14.647
L15	35.439	41.162	6219.420	12.277	17.758	350.223	12447.025	20.585	5.493	14.647
	36.693	42.632	6909.800	12.715	18.386	375.822	13828.693	21.320	5.710	15.226
L16	36.693	42.632	6909.800	12.715	18.386	375.822	13828.693	21.320	5.710	15.226
	37.947	44.102	7649.468	13.154	19.013	402.324	15309.001	22.055	5.927	15.806
L17	37.947	44.102	7649.468	13.154	19.013	402.324	15309.001	22.055	5.927	15.806
	39.201	45.572	8440.123	13.592	19.641	429.729	16891.352	22.790	6.145	16.386
L18	39.201	45.572	8440.123	13.592	19.641	429.729	16891.352	22.790	6.145	16.386
	40.455	47.042	9283.465	14.031	20.268	458.037	18579.145	23.525	6.362	16.965
L19	40.455	47.042	9283.465	14.031	20.268	458.037	18579.145	23.525	6.362	16.965
	42.336	49.247	10650.982	14.688	21.209	502.192	21315.979	24.628	6.688	17.835
L20	41.569	46.982	9248.149	14.013	20.242	456.869	18508.466	23.495	6.353	16.942
	41.652	48.444	10138.932	14.449	20.867	485.892	20291.206	24.227	6.569	17.518
L21	41.652	48.444	10138.932	14.449	20.867	485.892	20291.206	24.227	6.569	17.518
	42.899	49.907	11085.155	14.885	21.491	515.809	22184.896	24.958	6.786	18.095
L22	42.899	49.907	11085.155	14.885	21.491	515.809	22184.896	24.958	6.786	18.095
	44.147	51.369	12088.490	15.321	22.115	546.620	24192.887	25.690	7.002	18.672
L23	44.147	51.369	12088.490	15.321	22.115	546.620	24192.887	25.690	7.002	18.672
	45.395	52.832	13150.611	15.757	22.739	578.325	26318.527	26.421	7.218	19.248
L24	45.395	52.832	13150.611	15.757	22.739	578.325	26318.527	26.421	7.218	19.248
	46.642	54.294	14273.192	16.194	23.363	610.923	28565.165	27.152	7.434	19.825
L25	46.642	54.294	14273.192	16.194	23.363	610.923	28565.165	27.152	7.434	19.825
	47.890	55.757	15457.906	16.630	23.987	644.415	30936.152	27.884	7.651	20.402
L26	47.890	55.757	15457.906	16.630	23.987	644.415	30936.152	27.884	7.651	20.402
	49.762	57.950	17355.138	17.284	24.924	696.329	34733.112	28.981	7.975	21.267
L27	48.992	55.449	15203.388	16.538	23.856	637.294	30426.781	27.730	7.605	20.28
	49.240	57.340	16812.182	17.102	24.663	681.674	33646.486	28.675	7.885	21.026
L28	49.240	57.340	16812.182	17.102	24.663	681.674	33646.486	28.675	7.885	21.026
	50.481	58.794	18124.153	17.536	25.284	716.829	36272.155	29.403	8.100	21.599
L29	50.481	58.794	18124.153	17.536	25.284	716.829	36272.155	29.403	8.100	21.599
	51.722	60.248	19502.663	17.969	25.905	752.867	39030.988	30.130	8.315	22.173
L30	51.722	60.248	19502.663	17.969	25.905	752.867	39030.988	30.130	8.315	22.173
	52.963	61.703	20949.357	18.403	26.525	789.790	41926.280	30.857	8.530	22.746
L31	52.963	61.703	20949.357	18.403	26.525	789.790	41926.280	30.857	8.530	22.746
	54.203	63.157	22465.882	18.837	27.146	827.597	44961.325	31.584	8.745	23.32
L32	54.203	63.157	22465.882	18.837	27.146	827.597	44961.325	31.584	8.745	23.32
	55.196	64.320	23730.486	19.184	27.643	858.478	47492.197	32.166	8.917	23.778
L33	55.164	99.316	36362.702	19.111	27.643	1315.463	72773.251	49.667	8.554	14.716
	55.226	99.429	36486.644	19.132	27.674	1318.467	73021.298	49.724	8.565	14.735
L34	55.227	98.371	36106.873	19.135	27.674	1304.744	72261.256	49.195	8.576	14.914
	56.902	101.382	39524.320	19.720	28.511	1386.259	79100.647	50.700	8.866	15.419
L35	56.128	97.225	34859.833	18.912	27.355	1274.368	69765.536	48.622	8.465	14.722
	56.374	100.433	38424.781	19.536	28.247	1360.297	76900.122	50.226	8.774	15.26
L36	56.374	100.433	38424.781	19.536	28.247	1360.297	76900.122	50.226	8.774	15.26
	56.866	101.317	39449.272	19.708	28.494	1384.495	78950.453	50.668	8.860	15.408
L37	56.866	101.317	39449.272	19.708	28.494	1384.495	78950.453	50.668	8.860	15.408
	56.928	101.428	39578.600	19.729	28.524	1387.534	79209.278	50.724	8.870	15.427
L38	56.928	101.428	39578.600	19.729	28.524	1387.534	79209.278	50.724	8.870	15.427
	58.159	103.640	42224.848	20.160	29.140	1449.029	84505.257	51.830	9.084	15.798
L39	58.161	101.409	41334.200	20.164	29.140	1418.465	82722.789	50.714	9.106	16.188
	59.391	103.573	44036.989	20.594	29.756	1479.947	88131.924	51.796	9.319	16.567
L40	59.391	103.573	44036.989	20.594	29.756	1479.947	88131.924	51.796	9.319	16.567
	60.622	105.737	46855.104	21.024	30.371	1542.734	93771.862	52.878	9.532	16.946
L41	60.622	105.737	46855.104	21.024	30.371	1542.734	93771.862	52.878	9.532	16.946
	61.853	107.901	49790.954	21.455	30.987	1606.826	99647.425	53.961	9.746	17.326
L42	61.854	105.525	48714.703	21.459	30.987	1572.094	97493.507	52.772	9.768	17.759
	63.085	107.640	51704.010	21.889	31.603	1636.056	103476.054	53.830	9.981	18.147
L43	63.085	107.640	51704.010	21.889	31.603	1636.056	103476.054	53.830	9.981	18.147

Section	Tip Dia.	Area	I	r	C	I/C	J	It/Q	w	w/t
	in	in^2	in^4	in	in	in^3	in^4	in^2	in	
	63.824	108.910	53554.974	22.148	31.972	1675.046	107180.417	54.465	10.109	18.38

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals	Double Angle Stitch Bolt Spacing Redundants
ft	ft^2	in					in	in	in
L1 190.08-185.08				1	1	1			
L2 185.08-180.08				1	1	1			
L3 180.08-175.08				1	1	1			
L4 175.08-170.08				1	1	1			
L5 170.08-164.33				1	1	1			
L6 164.33-162.25				1	1	1			
L7 162.25-157.25				1	1	1			
L8 157.25-152.25				1	1	1			
L9 152.25-147.25				1	1	1			
L10 147.25-142.25				1	1	1			
L11 142.25-137.25				1	1	1			
L12 137.25-129.75				1	1	1			
L13 129.75-128.58				1	1	1			
L14 128.58-123.58				1	1	1			
L15 123.58-118.58				1	1	1			
L16 118.58-113.58				1	1	1			
L17 113.58-108.58				1	1	1			
L18 108.58-103.58				1	1	1			
L19 103.58-96.08				1	1	1			
L20 96.08-95.75				1	1	1			
L21 95.75-90.75				1	1	1			
L22 90.75-85.75				1	1	1			
L23 85.75-80.75				1	1	1			
L24 80.75-75.75				1	1	1			
L25 75.75-70.75				1	1	1			
L26 70.75-63.25				1	1	1			
L27 63.25-62.25				1	1	1			

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
L28 62.25-57.25				1	1	1			
L29 57.25-52.25				1	1	1			
L30 52.25-47.25				1	1	1			
L31 47.25-42.25				1	1	1			
L32 42.25-38.25				1	1	1			
L33 38.25-38.00				1	1	0.974509			
L34 38.00-31.25				1	1	0.984235			
L35 31.25-30.25				1	1	0.978156			
L36 30.25-28.25				1	1	0.975309			
L37 28.25-28.00				1	1	0.974957			
L38 28.00-23.00				1	1	0.968068			
L39 23.00-18.00				1	1	0.982621			
L40 18.00-13.00				1	1	0.976155			
L41 13.00-8.00				1	1	0.969949			
L42 8.00-3.00				1	1	0.985695			
L43 3.00-0.00				1	1	0.982153			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
Misc										
Safety Line 3/8	C	No	Surface Ar (CaAa)	190.00 - 0.00	1	1	0.000 0.000	0.375		0.220
LDF7-50A(1-5/8")	A	No	Surface Ar (CaAa)	160.50 - 0.00	6	6	0.167 0.167	1.980		0.820
HCS 2.0 Part 3(1-1/2)	A	No	Surface Ar (CaAa)	160.50 - 0.00	1	1	0.167 0.167	1.550		1.710
LDF4-50A(1/2)	A	No	Surface Af (CaAa)	52.00 - 0.00	1	1	-0.250 -0.250	0.625	1.964	0.150
Mods										
(Area) Sabre MS650 (1.25x6.50)	C	No	Surface Af (CaAa)	41.00 - 1.00	1	1	-0.333 -0.333	1.250	15.500	0.000
(Area) Sabre MS650 (1.25x6.50)	B	No	Surface Af (CaAa)	41.00 - 1.00	1	1	-0.167 -0.167	1.250	15.500	0.000
(Area) Sabre MS650 (1.25x6.50)	A	No	Surface Af (CaAa)	41.00 - 1.00	1	1	0.167 0.167	1.250	15.500	0.000
(Area) Sabre MS650 (1.25x6.50)	C	No	Surface Af (CaAa)	41.00 - 1.00	1	1	0.333 0.333	1.250	15.500	0.000
***										

Feed Line/Linear Appurtenances - Entered As Area

Description	*Face or Leg*	*Allow Shield*	*Exclude From Torque Calculation*	*Component Type*	*Placement* *ft*	*Total Number*		C_AA_A *ft²/ft*	*Weight* *plf*
PiRod Ladder	C	No	No	Inside Pole	0.00 - 0.00	1	No Ice	0.05	2.000
							1/2" Ice	0.15	2.635
							1" Ice	0.25	3.881
							2" Ice	0.45	8.206
Feedlines									
AVA5-50(7/8)	C	No	No	Inside Pole	188.00 - 0.00	1	No Ice	0.00	0.300
							1/2" Ice	0.00	0.300
							1" Ice	0.00	0.300
							2" Ice	0.00	0.300
LDF4-50A(1/2)	C	No	No	Inside Pole	188.00 - 0.00	3	No Ice	0.00	0.150
							1/2" Ice	0.00	0.150
							1" Ice	0.00	0.150
							2" Ice	0.00	0.150
LDF4-50A(1/2)	C	No	No	Inside Pole	183.75 - 0.00	2	No Ice	0.00	0.150
							1/2" Ice	0.00	0.150
							1" Ice	0.00	0.150
							2" Ice	0.00	0.150
LDF4-50A(1/2)	C	No	No	Inside Pole	178.50 - 0.00	1	No Ice	0.00	0.150
							1/2" Ice	0.00	0.150
							1" Ice	0.00	0.150
							2" Ice	0.00	0.150
LDF7-50A(1-5/8)	C	No	No	Inside Pole	160.50 - 0.00	6	No Ice	0.00	0.820
							1/2" Ice	0.00	0.820
							1" Ice	0.00	0.820
							2" Ice	0.00	0.820
ATCB-B01-001(5/16)	C	No	No	Inside Pole	160.50 - 0.00	1	No Ice	0.00	0.075
							1/2" Ice	0.00	0.075
							1" Ice	0.00	0.075
							2" Ice	0.00	0.075
LDF7-50A(1-5/8)	C	No	No	Inside Pole	150.00 - 0.00	6	No Ice	0.00	0.820
							1/2" Ice	0.00	0.820
							1" Ice	0.00	0.820
							2" Ice	0.00	0.820
1 1/4 Hybrid	C	No	No	Inside Pole	150.00 - 0.00	1	No Ice	0.00	2.050
							1/2" Ice	0.00	2.050
							1" Ice	0.00	2.050
							2" Ice	0.00	2.050
.820 DC Power Cable	C	No	No	Inside Pole	150.00 - 0.00	6	No Ice	0.00	0.662
							1/2" Ice	0.00	0.662
							1" Ice	0.00	0.662
							2" Ice	0.00	0.662
0.28" Fiber Cable	C	No	No	Inside Pole	150.00 - 0.00	2	No Ice	0.00	0.211
							1/2" Ice	0.00	0.211
							1" Ice	0.00	0.211
							2" Ice	0.00	0.211
LDF4-50A(1/2)	C	No	No	Inside Pole	113.00 - 0.00	3	No Ice	0.00	0.150
							1/2" Ice	0.00	0.150
							1" Ice	0.00	0.150
							2" Ice	0.00	0.150
LDF4-50A(1/2)	C	No	No	Inside Pole	89.75 - 0.00	3	No Ice	0.00	0.150
							1/2" Ice	0.00	0.150
							1" Ice	0.00	0.150
							2" Ice	0.00	0.150
***									

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	190.08-185.08	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.184	0.000	0.00
L2	185.08-180.08	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.188	0.000	0.01
L3	180.08-175.08	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.188	0.000	0.01
L4	175.08-170.08	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.188	0.000	0.01
L5	170.08-164.33	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.216	0.000	0.01
L6	164.33-162.25	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.078	0.000	0.00
L7	162.25-157.25	A	0.000	0.000	4.365	0.000	0.02
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.188	0.000	0.02
L8	157.25-152.25	A	0.000	0.000	6.715	0.000	0.03
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.188	0.000	0.03
L9	152.25-147.25	A	0.000	0.000	6.715	0.000	0.03
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.188	0.000	0.06
L10	147.25-142.25	A	0.000	0.000	6.715	0.000	0.03
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.188	0.000	0.09
L11	142.25-137.25	A	0.000	0.000	6.715	0.000	0.03
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.188	0.000	0.09
L12	137.25-129.75	A	0.000	0.000	10.073	0.000	0.05
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.281	0.000	0.13
L13	129.75-128.58	A	0.000	0.000	1.567	0.000	0.01
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.044	0.000	0.02
L14	128.58-123.58	A	0.000	0.000	6.715	0.000	0.03
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.188	0.000	0.09
L15	123.58-118.58	A	0.000	0.000	6.715	0.000	0.03
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.188	0.000	0.09
L16	118.58-113.58	A	0.000	0.000	6.715	0.000	0.03
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.188	0.000	0.09
L17	113.58-108.58	A	0.000	0.000	6.715	0.000	0.03
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.188	0.000	0.09
L18	108.58-103.58	A	0.000	0.000	6.715	0.000	0.03

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.188	0.000	0.09
L19	103.58-96.08	A	0.000	0.000	10.073	0.000	0.05
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.281	0.000	0.14
L20	96.08-95.75	A	0.000	0.000	0.448	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.013	0.000	0.01
L21	95.75-90.75	A	0.000	0.000	6.715	0.000	0.03
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.188	0.000	0.09
L22	90.75-85.75	A	0.000	0.000	6.715	0.000	0.03
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.188	0.000	0.09
L23	85.75-80.75	A	0.000	0.000	6.715	0.000	0.03
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.188	0.000	0.09
L24	80.75-75.75	A	0.000	0.000	6.715	0.000	0.03
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.188	0.000	0.09
L25	75.75-70.75	A	0.000	0.000	6.715	0.000	0.03
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.188	0.000	0.09
L26	70.75-63.25	A	0.000	0.000	10.073	0.000	0.05
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.281	0.000	0.14
L27	63.25-62.25	A	0.000	0.000	1.343	0.000	0.01
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.037	0.000	0.02
L28	62.25-57.25	A	0.000	0.000	6.715	0.000	0.03
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.188	0.000	0.09
L29	57.25-52.25	A	0.000	0.000	6.715	0.000	0.03
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.188	0.000	0.09
L30	52.25-47.25	A	0.000	0.000	7.210	0.000	0.03
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.188	0.000	0.09
L31	47.25-42.25	A	0.000	0.000	7.236	0.000	0.03
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.188	0.000	0.09
L32	42.25-38.25	A	0.000	0.000	6.362	0.000	0.03
		B	0.000	0.000	0.573	0.000	0.00
		C	0.000	0.000	1.296	0.000	0.07
L33	38.25-38.00	A	0.000	0.000	0.414	0.000	0.00
		B	0.000	0.000	0.052	0.000	0.00
		C	0.000	0.000	0.114	0.000	0.00
L34	38.00-31.25	A	0.000	0.000	11.175	0.000	0.05
		B	0.000	0.000	1.406	0.000	0.00
		C	0.000	0.000	3.066	0.000	0.13
L35	31.25-30.25	A	0.000	0.000	1.656	0.000	0.01
		B	0.000	0.000	0.208	0.000	0.00
		C	0.000	0.000	0.454	0.000	0.02
L36	30.25-28.25	A	0.000	0.000	3.311	0.000	0.01
		B	0.000	0.000	0.417	0.000	0.00
		C	0.000	0.000	0.908	0.000	0.04
L37	28.25-28.00	A	0.000	0.000	0.414	0.000	0.00
		B	0.000	0.000	0.052	0.000	0.00
		C	0.000	0.000	0.114	0.000	0.00
L38	28.00-23.00	A	0.000	0.000	8.277	0.000	0.03
		B	0.000	0.000	1.042	0.000	0.00

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C	0.000	0.000	2.271	0.000	0.09
L39	23.00-18.00	A	0.000	0.000	8.277	0.000	0.03
		B	0.000	0.000	1.042	0.000	0.00
		C	0.000	0.000	2.271	0.000	0.09
L40	18.00-13.00	A	0.000	0.000	8.277	0.000	0.03
		B	0.000	0.000	1.042	0.000	0.00
		C	0.000	0.000	2.271	0.000	0.09
L41	13.00-8.00	A	0.000	0.000	8.277	0.000	0.03
		B	0.000	0.000	1.042	0.000	0.00
		C	0.000	0.000	2.271	0.000	0.09
L42	8.00-3.00	A	0.000	0.000	8.277	0.000	0.03
		B	0.000	0.000	1.042	0.000	0.00
		C	0.000	0.000	2.271	0.000	0.09
L43	3.00-0.00	A	0.000	0.000	4.758	0.000	0.02
		B	0.000	0.000	0.417	0.000	0.00
		C	0.000	0.000	0.946	0.000	0.06

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	190.08-185.08	A	1.517	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	1.676	0.000	0.02
L2	185.08-180.08	A	1.513	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	1.700	0.000	0.02
L3	180.08-175.08	A	1.509	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	1.696	0.000	0.02
L4	175.08-170.08	A	1.504	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	1.692	0.000	0.02
L5	170.08-164.33	A	1.500	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	1.940	0.000	0.03
L6	164.33-162.25	A	1.496	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.703	0.000	0.01
L7	162.25-157.25	A	1.493	0.000	0.000	7.513	0.000	0.10
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	1.680	0.000	0.04
L8	157.25-152.25	A	1.488	0.000	0.000	11.548	0.000	0.16
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	1.676	0.000	0.05
L9	152.25-147.25	A	1.483	0.000	0.000	11.537	0.000	0.16
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	1.671	0.000	0.08
L10	147.25-142.25	A	1.478	0.000	0.000	11.526	0.000	0.16
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	1.666	0.000	0.11
L11	142.25-137.25	A	1.473	0.000	0.000	11.514	0.000	0.16
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	1.660	0.000	0.11
L12	137.25-129.75	A	1.466	0.000	0.000	17.248	0.000	0.23
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	2.481	0.000	0.16

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
L13	129.75-128.58	A	1.461	0.000	0.000	2.683	0.000	0.04
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.386	0.000	0.02
L14	128.58-123.58	A	1.458	0.000	0.000	11.480	0.000	0.15
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	1.645	0.000	0.11
L15	123.58-118.58	A	1.452	0.000	0.000	11.467	0.000	0.15
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	1.639	0.000	0.11
L16	118.58-113.58	A	1.446	0.000	0.000	11.453	0.000	0.15
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	1.633	0.000	0.10
L17	113.58-108.58	A	1.440	0.000	0.000	11.439	0.000	0.15
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	1.627	0.000	0.11
L18	108.58-103.58	A	1.433	0.000	0.000	11.424	0.000	0.15
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	1.620	0.000	0.11
L19	103.58-96.08	A	1.424	0.000	0.000	17.107	0.000	0.23
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	2.418	0.000	0.16
L20	96.08-95.75	A	1.419	0.000	0.000	0.760	0.000	0.01
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.107	0.000	0.01
L21	95.75-90.75	A	1.415	0.000	0.000	11.383	0.000	0.15
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	1.602	0.000	0.11
L22	90.75-85.75	A	1.407	0.000	0.000	11.365	0.000	0.15
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	1.594	0.000	0.11
L23	85.75-80.75	A	1.399	0.000	0.000	11.347	0.000	0.15
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	1.586	0.000	0.11
L24	80.75-75.75	A	1.390	0.000	0.000	11.327	0.000	0.15
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	1.577	0.000	0.11
L25	75.75-70.75	A	1.381	0.000	0.000	11.307	0.000	0.15
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	1.568	0.000	0.11
L26	70.75-63.25	A	1.369	0.000	0.000	16.919	0.000	0.22
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	2.334	0.000	0.16
L27	63.25-62.25	A	1.360	0.000	0.000	2.256	0.000	0.03
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.311	0.000	0.02
L28	62.25-57.25	A	1.353	0.000	0.000	11.244	0.000	0.14
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	1.540	0.000	0.11
L29	57.25-52.25	A	1.341	0.000	0.000	11.218	0.000	0.14
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	1.529	0.000	0.11
L30	52.25-47.25	A	1.328	0.000	0.000	12.946	0.000	0.16
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	1.516	0.000	0.11
L31	47.25-42.25	A	1.314	0.000	0.000	12.993	0.000	0.16
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	1.502	0.000	0.11
L32	42.25-38.25	A	1.301	0.000	0.000	11.646	0.000	0.16
		B		0.000	0.000	1.288	0.000	0.03
		C		0.000	0.000	3.767	0.000	0.14
L33	38.25-38.00	A	1.294	0.000	0.000	0.763	0.000	0.01

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		B		0.000	0.000	0.117	0.000	0.00
		C		0.000	0.000	0.308	0.000	0.01
L34	38.00-31.25	A	1.281	0.000	0.000	20.530	0.000	0.28
		B		0.000	0.000	3.136	0.000	0.07
		C		0.000	0.000	8.254	0.000	0.28
L35	31.25-30.25	A	1.266	0.000	0.000	3.041	0.000	0.04
		B		0.000	0.000	0.465	0.000	0.01
		C		0.000	0.000	1.223	0.000	0.04
L36	30.25-28.25	A	1.260	0.000	0.000	6.047	0.000	0.08
		B		0.000	0.000	0.921	0.000	0.02
		C		0.000	0.000	2.420	0.000	0.08
L37	28.25-28.00	A	1.255	0.000	0.000	0.755	0.000	0.01
		B		0.000	0.000	0.115	0.000	0.00
		C		0.000	0.000	0.302	0.000	0.01
L38	28.00-23.00	A	1.243	0.000	0.000	15.043	0.000	0.20
		B		0.000	0.000	2.284	0.000	0.05
		C		0.000	0.000	5.998	0.000	0.20
L39	23.00-18.00	A	1.216	0.000	0.000	14.929	0.000	0.20
		B		0.000	0.000	2.257	0.000	0.05
		C		0.000	0.000	5.918	0.000	0.20
L40	18.00-13.00	A	1.182	0.000	0.000	14.787	0.000	0.19
		B		0.000	0.000	2.224	0.000	0.05
		C		0.000	0.000	5.817	0.000	0.20
L41	13.00-8.00	A	1.137	0.000	0.000	14.595	0.000	0.18
		B		0.000	0.000	2.179	0.000	0.04
		C		0.000	0.000	5.682	0.000	0.19
L42	8.00-3.00	A	1.066	0.000	0.000	14.292	0.000	0.17
		B		0.000	0.000	2.107	0.000	0.04
		C		0.000	0.000	5.468	0.000	0.18
L43	3.00-0.00	A	0.936	0.000	0.000	7.848	0.000	0.09
		B		0.000	0.000	0.791	0.000	0.01
		C		0.000	0.000	2.256	0.000	0.09

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	190.08-185.08	0.000	0.296	0.000	1.284
L2	185.08-180.08	0.000	0.301	0.000	1.317
L3	180.08-175.08	0.000	0.301	0.000	1.330
L4	175.08-170.08	0.000	0.301	0.000	1.342
L5	170.08-164.33	0.000	0.301	0.000	1.352
L6	164.33-162.25	0.000	0.301	0.000	1.358
L7	162.25-157.25	-3.160	-3.573	-2.647	-2.293
L8	157.25-152.25	-4.147	-4.778	-3.456	-3.384
L9	152.25-147.25	-4.215	-4.857	-3.530	-3.456
L10	147.25-142.25	-4.280	-4.931	-3.601	-3.526
L11	142.25-137.25	-4.342	-5.002	-3.669	-3.593
L12	137.25-129.75	-4.416	-5.087	-3.751	-3.673
L13	129.75-128.58	-4.437	-5.111	-3.775	-3.696
L14	128.58-123.58	-4.472	-5.150	-3.811	-3.734
L15	123.58-118.58	-4.525	-5.212	-3.871	-3.793
L16	118.58-113.58	-4.576	-5.271	-3.929	-3.850
L17	113.58-108.58	-4.626	-5.327	-3.984	-3.906
L18	108.58-103.58	-4.673	-5.381	-4.037	-3.959
L19	103.58-96.08	-4.729	-5.446	-4.100	-4.024

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L20	96.08-95.75	-4.737	-5.455	-4.110	-4.033
L21	95.75-90.75	-4.760	-5.481	-4.134	-4.059
L22	90.75-85.75	-4.802	-5.529	-4.181	-4.107
L23	85.75-80.75	-4.842	-5.575	-4.226	-4.154
L24	80.75-75.75	-4.881	-5.620	-4.269	-4.199
L25	75.75-70.75	-4.918	-5.663	-4.311	-4.243
L26	70.75-63.25	-4.963	-5.714	-4.361	-4.296
L27	63.25-62.25	-4.972	-5.724	-4.371	-4.306
L28	62.25-57.25	-4.992	-5.747	-4.390	-4.331
L29	57.25-52.25	-5.026	-5.786	-4.426	-4.370
L30	52.25-47.25	-5.502	-5.425	-5.303	-3.731
L31	47.25-42.25	-5.561	-5.440	-5.384	-3.734
L32	42.25-38.25	-4.998	-5.813	-4.751	-4.371
L33	38.25-38.00	-4.787	-5.965	-4.519	-4.618
L34	38.00-31.25	-4.815	-6.000	-4.547	-4.654
L35	31.25-30.25	-4.821	-6.008	-4.555	-4.662
L36	30.25-28.25	-4.832	-6.022	-4.560	-4.677
L37	28.25-28.00	-4.841	-6.033	-4.568	-4.688
L38	28.00-23.00	-4.861	-6.058	-4.587	-4.714
L39	23.00-18.00	-4.899	-6.105	-4.620	-4.761
L40	18.00-13.00	-4.935	-6.151	-4.649	-4.808
L41	13.00-8.00	-4.971	-6.196	-4.670	-4.855
L42	8.00-3.00	-5.006	-6.240	-4.676	-4.901
L43	3.00-0.00	-5.270	-6.095	-4.870	-4.686

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

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	2	Safety Line 3/8	185.08 - 190.00	1.0000	1.0000
L2	2	Safety Line 3/8	180.08 - 185.08	1.0000	1.0000
L3	2	Safety Line 3/8	175.08 - 180.08	1.0000	1.0000
L4	2	Safety Line 3/8	170.08 - 175.08	1.0000	1.0000
L5	2	Safety Line 3/8	164.33 - 170.08	1.0000	1.0000
L6	2	Safety Line 3/8	162.25 - 164.33	1.0000	1.0000
L7	2	Safety Line 3/8	157.25 - 162.25	1.0000	1.0000
L7	12	LDF7-50A(1-5/8")	157.25 - 160.50	1.0000	1.0000
L7	14	HCS 2.0 Part 3(1-1/2)	157.25 - 160.50	1.0000	1.0000
L8	2	Safety Line 3/8	152.25 - 157.25	1.0000	1.0000
L8	12	LDF7-50A(1-5/8")	152.25 - 157.25	1.0000	1.0000
L8	14	HCS 2.0 Part 3(1-1/2)	152.25 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L9	2	Safety Line 3/8	147.25 - 157.25	1.0000	1.0000
L9	12	LDF7-50A(1-5/8")	147.25 - 152.25	1.0000	1.0000
L9	14	HCS 2.0 Part 3(1-1/2)	147.25 - 152.25	1.0000	1.0000
L10	2	Safety Line 3/8	142.25 - 147.25	1.0000	1.0000
L10	12	LDF7-50A(1-5/8")	142.25 - 147.25	1.0000	1.0000
L10	14	HCS 2.0 Part 3(1-1/2)	142.25 - 147.25	1.0000	1.0000
L11	2	Safety Line 3/8	137.25 - 142.25	1.0000	1.0000
L11	12	LDF7-50A(1-5/8")	137.25 - 142.25	1.0000	1.0000
L11	14	HCS 2.0 Part 3(1-1/2)	137.25 - 142.25	1.0000	1.0000
L12	2	Safety Line 3/8	129.75 - 137.25	1.0000	1.0000
L12	12	LDF7-50A(1-5/8")	129.75 - 137.25	1.0000	1.0000
L12	14	HCS 2.0 Part 3(1-1/2)	129.75 - 137.25	1.0000	1.0000
L13	2	Safety Line 3/8	128.58 - 129.75	1.0000	1.0000
L13	12	LDF7-50A(1-5/8")	128.58 - 129.75	1.0000	1.0000
L13	14	HCS 2.0 Part 3(1-1/2)	128.58 - 129.75	1.0000	1.0000
L14	2	Safety Line 3/8	123.58 - 128.58	1.0000	1.0000
L14	12	LDF7-50A(1-5/8")	123.58 - 128.58	1.0000	1.0000
L14	14	HCS 2.0 Part 3(1-1/2)	123.58 - 128.58	1.0000	1.0000
L15	2	Safety Line 3/8	118.58 - 123.58	1.0000	1.0000
L15	12	LDF7-50A(1-5/8")	118.58 - 123.58	1.0000	1.0000
L15	14	HCS 2.0 Part 3(1-1/2)	118.58 - 123.58	1.0000	1.0000
L16	2	Safety Line 3/8	113.58 - 118.58	1.0000	1.0000
L16	12	LDF7-50A(1-5/8")	113.58 - 118.58	1.0000	1.0000
L16	14	HCS 2.0 Part 3(1-1/2)	113.58 - 118.58	1.0000	1.0000
L17	2	Safety Line 3/8	108.58 - 113.58	1.0000	1.0000
L17	12	LDF7-50A(1-5/8")	108.58 - 113.58	1.0000	1.0000
L17	14	HCS 2.0 Part 3(1-1/2)	108.58 - 113.58	1.0000	1.0000
L18	2	Safety Line 3/8	103.58 - 108.58	1.0000	1.0000
L18	12	LDF7-50A(1-5/8")	103.58 - 108.58	1.0000	1.0000
L18	14	HCS 2.0 Part 3(1-1/2)	103.58 - 108.58	1.0000	1.0000
L19	2	Safety Line 3/8	96.08 - 103.58	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L19	12	LDF7-50A(1-5/8")	96.08 - 103.58	1.0000	1.0000
L19	14	HCS 2.0 Part 3(1-1/2)	96.08 - 103.58	1.0000	1.0000
L20	2	Safety Line 3/8	95.75 - 96.08	1.0000	1.0000
L20	12	LDF7-50A(1-5/8")	95.75 - 96.08	1.0000	1.0000
L20	14	HCS 2.0 Part 3(1-1/2)	95.75 - 96.08	1.0000	1.0000
L21	2	Safety Line 3/8	90.75 - 95.75	1.0000	1.0000
L21	12	LDF7-50A(1-5/8")	90.75 - 95.75	1.0000	1.0000
L21	14	HCS 2.0 Part 3(1-1/2)	90.75 - 95.75	1.0000	1.0000
L22	2	Safety Line 3/8	85.75 - 90.75	1.0000	1.0000
L22	12	LDF7-50A(1-5/8")	85.75 - 90.75	1.0000	1.0000
L22	14	HCS 2.0 Part 3(1-1/2)	85.75 - 90.75	1.0000	1.0000
L23	2	Safety Line 3/8	80.75 - 85.75	1.0000	1.0000
L23	12	LDF7-50A(1-5/8")	80.75 - 85.75	1.0000	1.0000
L23	14	HCS 2.0 Part 3(1-1/2)	80.75 - 85.75	1.0000	1.0000
L24	2	Safety Line 3/8	75.75 - 80.75	1.0000	1.0000
L24	12	LDF7-50A(1-5/8")	75.75 - 80.75	1.0000	1.0000
L24	14	HCS 2.0 Part 3(1-1/2)	75.75 - 80.75	1.0000	1.0000
L25	2	Safety Line 3/8	70.75 - 75.75	1.0000	1.0000
L25	12	LDF7-50A(1-5/8")	70.75 - 75.75	1.0000	1.0000
L25	14	HCS 2.0 Part 3(1-1/2)	70.75 - 75.75	1.0000	1.0000
L26	2	Safety Line 3/8	63.25 - 70.75	1.0000	1.0000
L26	12	LDF7-50A(1-5/8")	63.25 - 70.75	1.0000	1.0000
L26	14	HCS 2.0 Part 3(1-1/2)	63.25 - 70.75	1.0000	1.0000
L27	2	Safety Line 3/8	62.25 - 63.25	1.0000	1.0000
L27	12	LDF7-50A(1-5/8")	62.25 - 63.25	1.0000	1.0000
L27	14	HCS 2.0 Part 3(1-1/2)	62.25 - 63.25	1.0000	1.0000
L28	2	Safety Line 3/8	57.25 - 62.25	1.0000	1.0000
L28	12	LDF7-50A(1-5/8")	57.25 - 62.25	1.0000	1.0000
L28	14	HCS 2.0 Part 3(1-1/2)	57.25 - 62.25	1.0000	1.0000
L29	2	Safety Line 3/8	52.25 - 57.25	1.0000	1.0000
L29	12	LDF7-50A(1-5/8")	52.25 - 57.25	1.0000	1.0000
L29	14	HCS 2.0 Part 3(1-1/2)	52.25 - 57.25	1.0000	1.0000
L30	2	Safety Line 3/8	47.25 - 52.25	1.0000	1.0000
L30	12	LDF7-50A(1-5/8")	47.25 - 52.25	1.0000	1.0000
L30	14	HCS 2.0 Part 3(1-1/2)	47.25 - 52.25	1.0000	1.0000
L30	21	LDF4-50A(1/2)	47.25 - 52.00	1.0000	1.0000
L31	2	Safety Line 3/8	42.25 - 47.25	1.0000	1.0000
L31	12	LDF7-50A(1-5/8")	42.25 - 47.25	1.0000	1.0000
L31	14	HCS 2.0 Part 3(1-1/2)	42.25 - 47.25	1.0000	1.0000
L31	21	LDF4-50A(1/2)	42.25 - 47.25	1.0000	1.0000
L32	2	Safety Line 3/8	38.25 - 42.25	1.0000	1.0000
L32	12	LDF7-50A(1-5/8")	38.25 - 42.25	1.0000	1.0000
L32	14	HCS 2.0 Part 3(1-1/2)	38.25 - 42.25	1.0000	1.0000
L32	21	LDF4-50A(1/2)	38.25 - 42.25	1.0000	1.0000
L32	23	(Area) Sabre MS650 (1.25x6.50)	38.25 - 41.00	1.0000	1.0000
L32	24	(Area) Sabre MS650 (1.25x6.50)	38.25 - 41.00	1.0000	1.0000
L32	25	(Area) Sabre MS650 (1.25x6.50)	38.25 - 41.00	1.0000	1.0000
L32	26	(Area) Sabre MS650 (1.25x6.50)	38.25 - 41.00	1.0000	1.0000
L33	2	Safety Line 3/8	38.00 - 38.25	1.0000	1.0000
L33	12	LDF7-50A(1-5/8")	38.00 - 38.25	1.0000	1.0000
L33	14	HCS 2.0 Part 3(1-1/2)	38.00 - 38.25	1.0000	1.0000
L33	21	LDF4-50A(1/2)	38.00 - 38.25	1.0000	1.0000
L33	23	(Area) Sabre MS650 (1.25x6.50)	38.00 - 38.25	1.0000	1.0000
L33	24	(Area) Sabre MS650 (1.25x6.50)	38.00 - 38.25	1.0000	1.0000
L33	25	(Area) Sabre MS650 (1.25x6.50)	38.00 - 38.25	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L33	26	(Area) Sabre MS650 (1.25x6.50)	38.00 - 38.25	1.0000	1.0000
L34	2	Safety Line 3/8	31.25 - 38.00	1.0000	1.0000
L34	12	LDF7-50A(1-5/8")	31.25 - 38.00	1.0000	1.0000
L34	14	HCS 2.0 Part 3(1-1/2)	31.25 - 38.00	1.0000	1.0000
L34	21	LDF4-50A(1/2)	31.25 - 38.00	1.0000	1.0000
L34	23	(Area) Sabre MS650 (1.25x6.50)	31.25 - 38.00	1.0000	1.0000
L34	24	(Area) Sabre MS650 (1.25x6.50)	31.25 - 38.00	1.0000	1.0000
L34	25	(Area) Sabre MS650 (1.25x6.50)	31.25 - 38.00	1.0000	1.0000
L34	26	(Area) Sabre MS650 (1.25x6.50)	31.25 - 38.00	1.0000	1.0000
L35	2	Safety Line 3/8	30.25 - 31.25	1.0000	1.0000
L35	12	LDF7-50A(1-5/8")	30.25 - 31.25	1.0000	1.0000
L35	14	HCS 2.0 Part 3(1-1/2)	30.25 - 31.25	1.0000	1.0000
L35	21	LDF4-50A(1/2)	30.25 - 31.25	1.0000	1.0000
L35	23	(Area) Sabre MS650 (1.25x6.50)	30.25 - 31.25	1.0000	1.0000
L35	24	(Area) Sabre MS650 (1.25x6.50)	30.25 - 31.25	1.0000	1.0000
L35	25	(Area) Sabre MS650 (1.25x6.50)	30.25 - 31.25	1.0000	1.0000
L35	26	(Area) Sabre MS650 (1.25x6.50)	30.25 - 31.25	1.0000	1.0000
L36	2	Safety Line 3/8	28.25 - 30.25	1.0000	1.0000
L36	12	LDF7-50A(1-5/8")	28.25 - 30.25	1.0000	1.0000
L36	14	HCS 2.0 Part 3(1-1/2)	28.25 - 30.25	1.0000	1.0000
L36	21	LDF4-50A(1/2)	28.25 - 30.25	1.0000	1.0000
L36	23	(Area) Sabre MS650 (1.25x6.50)	28.25 - 30.25	1.0000	1.0000
L36	24	(Area) Sabre MS650 (1.25x6.50)	28.25 - 30.25	1.0000	1.0000
L36	25	(Area) Sabre MS650 (1.25x6.50)	28.25 - 30.25	1.0000	1.0000
L36	26	(Area) Sabre MS650 (1.25x6.50)	28.25 - 30.25	1.0000	1.0000
L37	2	Safety Line 3/8	28.00 - 28.25	1.0000	1.0000
L37	12	LDF7-50A(1-5/8")	28.00 - 28.25	1.0000	1.0000
L37	14	HCS 2.0 Part 3(1-1/2)	28.00 - 28.25	1.0000	1.0000
L37	21	LDF4-50A(1/2)	28.00 - 28.25	1.0000	1.0000
L37	23	(Area) Sabre MS650 (1.25x6.50)	28.00 - 28.25	1.0000	1.0000
L37	24	(Area) Sabre MS650 (1.25x6.50)	28.00 - 28.25	1.0000	1.0000
L37	25	(Area) Sabre MS650 (1.25x6.50)	28.00 - 28.25	1.0000	1.0000
L37	26	(Area) Sabre MS650 (1.25x6.50)	28.00 - 28.25	1.0000	1.0000
L38	2	Safety Line 3/8	23.00 - 28.00	1.0000	1.0000
L38	12	LDF7-50A(1-5/8")	23.00 - 28.00	1.0000	1.0000
L38	14	HCS 2.0 Part 3(1-1/2)	23.00 - 28.00	1.0000	1.0000
L38	21	LDF4-50A(1/2)	23.00 - 28.00	1.0000	1.0000
L38	23	(Area) Sabre MS650 (1.25x6.50)	23.00 - 28.00	1.0000	1.0000
L38	24	(Area) Sabre MS650 (1.25x6.50)	23.00 - 28.00	1.0000	1.0000
L38	25	(Area) Sabre MS650 (1.25x6.50)	23.00 - 28.00	1.0000	1.0000
L38	26	(Area) Sabre MS650 (1.25x6.50)	23.00 - 28.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L39	2	Safety Line 3/8	18.00 - 23.00	1.0000	1.0000
L39	12	LDF7-50A(1-5/8")	18.00 - 23.00	1.0000	1.0000
L39	14	HCS 2.0 Part 3(1-1/2)	18.00 - 23.00	1.0000	1.0000
L39	21	LDF4-50A(1/2)	18.00 - 23.00	1.0000	1.0000
L39	23	(Area) Sabre MS650 (1.25x6.50)	18.00 - 23.00	1.0000	1.0000
L39	24	(Area) Sabre MS650 (1.25x6.50)	18.00 - 23.00	1.0000	1.0000
L39	25	(Area) Sabre MS650 (1.25x6.50)	18.00 - 23.00	1.0000	1.0000
L39	26	(Area) Sabre MS650 (1.25x6.50)	18.00 - 23.00	1.0000	1.0000
L40	2	Safety Line 3/8	13.00 - 18.00	1.0000	1.0000
L40	12	LDF7-50A(1-5/8")	13.00 - 18.00	1.0000	1.0000
L40	14	HCS 2.0 Part 3(1-1/2)	13.00 - 18.00	1.0000	1.0000
L40	21	LDF4-50A(1/2)	13.00 - 18.00	1.0000	1.0000
L40	23	(Area) Sabre MS650 (1.25x6.50)	13.00 - 18.00	1.0000	1.0000
L40	24	(Area) Sabre MS650 (1.25x6.50)	13.00 - 18.00	1.0000	1.0000
L40	25	(Area) Sabre MS650 (1.25x6.50)	13.00 - 18.00	1.0000	1.0000
L40	26	(Area) Sabre MS650 (1.25x6.50)	13.00 - 18.00	1.0000	1.0000
L41	2	Safety Line 3/8	8.00 - 13.00	1.0000	1.0000
L41	12	LDF7-50A(1-5/8")	8.00 - 13.00	1.0000	1.0000
L41	14	HCS 2.0 Part 3(1-1/2)	8.00 - 13.00	1.0000	1.0000
L41	21	LDF4-50A(1/2)	8.00 - 13.00	1.0000	1.0000
L41	23	(Area) Sabre MS650 (1.25x6.50)	8.00 - 13.00	1.0000	1.0000
L41	24	(Area) Sabre MS650 (1.25x6.50)	8.00 - 13.00	1.0000	1.0000
L41	25	(Area) Sabre MS650 (1.25x6.50)	8.00 - 13.00	1.0000	1.0000
L41	26	(Area) Sabre MS650 (1.25x6.50)	8.00 - 13.00	1.0000	1.0000
L42	2	Safety Line 3/8	3.00 - 8.00	1.0000	1.0000
L42	12	LDF7-50A(1-5/8")	3.00 - 8.00	1.0000	1.0000
L42	14	HCS 2.0 Part 3(1-1/2)	3.00 - 8.00	1.0000	1.0000
L42	21	LDF4-50A(1/2)	3.00 - 8.00	1.0000	1.0000
L42	23	(Area) Sabre MS650 (1.25x6.50)	3.00 - 8.00	1.0000	1.0000
L42	24	(Area) Sabre MS650 (1.25x6.50)	3.00 - 8.00	1.0000	1.0000
L42	25	(Area) Sabre MS650 (1.25x6.50)	3.00 - 8.00	1.0000	1.0000
L42	26	(Area) Sabre MS650 (1.25x6.50)	3.00 - 8.00	1.0000	1.0000
L43	2	Safety Line 3/8	0.00 - 3.00	1.0000	1.0000
L43	12	LDF7-50A(1-5/8")	0.00 - 3.00	1.0000	1.0000
L43	14	HCS 2.0 Part 3(1-1/2)	0.00 - 3.00	1.0000	1.0000
L43	21	LDF4-50A(1/2)	0.00 - 3.00	1.0000	1.0000
L43	23	(Area) Sabre MS650 (1.25x6.50)	1.00 - 3.00	1.0000	1.0000
L43	24	(Area) Sabre MS650 (1.25x6.50)	1.00 - 3.00	1.0000	1.0000
L43	25	(Area) Sabre MS650 (1.25x6.50)	1.00 - 3.00	1.0000	1.0000
L43	26	(Area) Sabre MS650 (1.25x6.50)	1.00 - 3.00	1.0000	1.0000

Effective Width of Flat Linear Attachments / Feed Lines

Tower Section	*Attachment Record No.*	*Description*	*Attachment Segment Elev.*	*Ratio Calculation Method*	*Effective Width Ratio*
L30	21	LDF4-50A(1/2)	47.25 - 52.00	Manual	1.0000
L31	21	LDF4-50A(1/2)	42.25 - 47.25	Manual	1.0000
L32	21	LDF4-50A(1/2)	38.25 - 42.25	Manual	1.0000
L32	23	(Area) Sabre MS650 (1.25x6.50)	38.25 - 41.00	Auto	0.0000
L32	24	(Area) Sabre MS650 (1.25x6.50)	38.25 - 41.00	Auto	0.0000
L32	25	(Area) Sabre MS650 (1.25x6.50)	38.25 - 41.00	Auto	0.0000
L32	26	(Area) Sabre MS650 (1.25x6.50)	38.25 - 41.00	Auto	0.0000
L33	21	LDF4-50A(1/2)	38.00 - 38.25	Manual	1.0000
L33	23	(Area) Sabre MS650 (1.25x6.50)	38.00 - 38.25	Auto	0.0000
L33	24	(Area) Sabre MS650 (1.25x6.50)	38.00 - 38.25	Auto	0.0000
L33	25	(Area) Sabre MS650 (1.25x6.50)	38.00 - 38.25	Auto	0.0000
L33	26	(Area) Sabre MS650 (1.25x6.50)	38.00 - 38.25	Auto	0.0000
L34	21	LDF4-50A(1/2)	31.25 - 38.00	Manual	1.0000
L34	23	(Area) Sabre MS650 (1.25x6.50)	31.25 - 38.00	Auto	0.0000
L34	24	(Area) Sabre MS650 (1.25x6.50)	31.25 - 38.00	Auto	0.0000
L34	25	(Area) Sabre MS650 (1.25x6.50)	31.25 - 38.00	Auto	0.0000
L34	26	(Area) Sabre MS650 (1.25x6.50)	31.25 - 38.00	Auto	0.0000
L35	21	LDF4-50A(1/2)	30.25 - 31.25	Manual	1.0000
L35	23	(Area) Sabre MS650 (1.25x6.50)	30.25 - 31.25	Auto	0.0000
L35	24	(Area) Sabre MS650 (1.25x6.50)	30.25 - 31.25	Auto	0.0000
L35	25	(Area) Sabre MS650 (1.25x6.50)	30.25 - 31.25	Auto	0.0000
L35	26	(Area) Sabre MS650 (1.25x6.50)	30.25 - 31.25	Auto	0.0000
L36	21	LDF4-50A(1/2)	28.25 - 30.25	Manual	1.0000
L36	23	(Area) Sabre MS650 (1.25x6.50)	28.25 - 30.25	Auto	0.0000
L36	24	(Area) Sabre MS650 (1.25x6.50)	28.25 - 30.25	Auto	0.0000
L36	25	(Area) Sabre MS650 (1.25x6.50)	28.25 - 30.25	Auto	0.0000
L36	26	(Area) Sabre MS650 (1.25x6.50)	28.25 - 30.25	Auto	0.0000
L37	21	LDF4-50A(1/2)	28.00 - 28.25	Manual	1.0000
L37	23	(Area) Sabre MS650 (1.25x6.50)	28.00 - 28.25	Auto	0.0000
L37	24	(Area) Sabre MS650	28.00 - 28.25	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
		(1.25x6.50)			
L37	25	(Area) Sabre MS650 (1.25x6.50)	28.00 - 28.25	Auto	0.0000
L37	26	(Area) Sabre MS650 (1.25x6.50)	28.00 - 28.25	Auto	0.0000
L38	21	LDF4-50A(1/2)	23.00 - 28.00	Manual	1.0000
L38	23	(Area) Sabre MS650 (1.25x6.50)	23.00 - 28.00	Auto	0.0000
L38	24	(Area) Sabre MS650 (1.25x6.50)	23.00 - 28.00	Auto	0.0000
L38	25	(Area) Sabre MS650 (1.25x6.50)	23.00 - 28.00	Auto	0.0000
L38	26	(Area) Sabre MS650 (1.25x6.50)	23.00 - 28.00	Auto	0.0000
L39	21	LDF4-50A(1/2)	18.00 - 23.00	Manual	1.0000
L39	23	(Area) Sabre MS650 (1.25x6.50)	18.00 - 23.00	Auto	0.0000
L39	24	(Area) Sabre MS650 (1.25x6.50)	18.00 - 23.00	Auto	0.0000
L39	25	(Area) Sabre MS650 (1.25x6.50)	18.00 - 23.00	Auto	0.0000
L39	26	(Area) Sabre MS650 (1.25x6.50)	18.00 - 23.00	Auto	0.0000
L40	21	LDF4-50A(1/2)	13.00 - 18.00	Manual	1.0000
L40	23	(Area) Sabre MS650 (1.25x6.50)	13.00 - 18.00	Auto	0.0000
L40	24	(Area) Sabre MS650 (1.25x6.50)	13.00 - 18.00	Auto	0.0000
L40	25	(Area) Sabre MS650 (1.25x6.50)	13.00 - 18.00	Auto	0.0000
L40	26	(Area) Sabre MS650 (1.25x6.50)	13.00 - 18.00	Auto	0.0000
L41	21	LDF4-50A(1/2)	8.00 - 13.00	Manual	1.0000
L41	23	(Area) Sabre MS650 (1.25x6.50)	8.00 - 13.00	Auto	0.0000
L41	24	(Area) Sabre MS650 (1.25x6.50)	8.00 - 13.00	Auto	0.0000
L41	25	(Area) Sabre MS650 (1.25x6.50)	8.00 - 13.00	Auto	0.0000
L41	26	(Area) Sabre MS650 (1.25x6.50)	8.00 - 13.00	Auto	0.0000
L42	21	LDF4-50A(1/2)	3.00 - 8.00	Manual	1.0000
L42	23	(Area) Sabre MS650 (1.25x6.50)	3.00 - 8.00	Auto	0.0000
L42	24	(Area) Sabre MS650 (1.25x6.50)	3.00 - 8.00	Auto	0.0000
L42	25	(Area) Sabre MS650 (1.25x6.50)	3.00 - 8.00	Auto	0.0000
L42	26	(Area) Sabre MS650 (1.25x6.50)	3.00 - 8.00	Auto	0.0000
L43	21	LDF4-50A(1/2)	0.00 - 3.00	Manual	1.0000
L43	23	(Area) Sabre MS650 (1.25x6.50)	1.00 - 3.00	Auto	0.0000
L43	24	(Area) Sabre MS650 (1.25x6.50)	1.00 - 3.00	Auto	0.0000
L43	25	(Area) Sabre MS650 (1.25x6.50)	1.00 - 3.00	Auto	0.0000
L43	26	(Area) Sabre MS650 (1.25x6.50)	1.00 - 3.00	Auto	0.0000

Discrete Tower Loads

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
188									
3" x 6' Omni	B	From Leg	3.00 0.000 5.000	0.000	188.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.77 2.13 2.50 3.27	1.77 2.13 2.50 3.27	0.05 0.06 0.08 0.13
3" x 6' Omni	C	From Leg	3.00 0.000 5.000	0.000	188.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.77 2.13 2.50 3.27	1.77 2.13 2.50 3.27	0.05 0.06 0.08 0.13
2.4" Dia. x 9-ft Mount Pipe	A	From Face	0.50 0.000 0.000	0.000	188.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.16 3.09 4.03 5.14	2.16 3.09 4.03 5.14	0.03 0.05 0.07 0.13
2.4" x 7-ft Pipe	A	From Leg	0.50 0.000 0.000	0.000	188.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.66 2.39 2.83 3.71	1.66 2.39 2.83 3.71	0.03 0.04 0.06 0.10
2.4" x 3.5' pipe	B	From Leg	0.50 0.000 0.000	0.000	188.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.72 0.94 1.17 1.64	0.72 0.94 1.17 1.64	0.01 0.02 0.03 0.05
2.4" x 7-ft Pipe	C	From Leg	0.50 0.000 0.000	0.000	188.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.66 2.39 2.83 3.71	1.66 2.39 2.83 3.71	0.03 0.04 0.06 0.10
(2) Side Arm Mount [SO 701-3]	C	None		0.000	188.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.02 4.18 5.33 7.63	3.02 4.18 5.33 7.63	0.20 0.24 0.28 0.36
183.75									
2-FT Yagi	B	From Leg	4.00 0.000 0.000	0.000	183.75	No Ice 1/2" Ice 1" Ice 2" Ice	0.80 0.96 1.13 1.48	0.13 0.18 0.24 0.37	0.00 0.01 0.02 0.05
2-FT Yagi	C	From Leg	4.00 0.000 0.000	0.000	183.75	No Ice 1/2" Ice 1" Ice 2" Ice	0.80 0.96 1.13 1.48	0.13 0.18 0.24 0.37	0.00 0.01 0.02 0.05
2.4" x 7-ft Pipe	B	From Leg	3.00 0.000 0.000	0.000	183.75	No Ice 1/2" Ice 1" Ice 2" Ice	1.66 2.39 2.83 3.71	1.66 2.39 2.83 3.71	0.03 0.04 0.06 0.10
2.4" x 7-ft Pipe	C	From Leg	3.00 0.000 0.000	0.000	183.75	No Ice 1/2" Ice 1" Ice 2" Ice	1.66 2.39 2.83 3.71	1.66 2.39 2.83 3.71	0.03 0.04 0.06 0.10
(2) L 1 1/2" x 1 1/2" x 1/8" (3 ft Long)	B	From Leg	2.00 0.000 0.000	0.000	183.75	No Ice 1/2" Ice 1" Ice	0.45 0.66 0.88	0.02 0.04 0.07	0.01 0.01 0.02

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
						2" Ice	1.34	0.14	0.04
(2) L 1 1/2" x 1 1/2" x 1/8" (3 ft Long)	C	From Leg	2.00 0.000 0.000	0.000	183.75	No Ice 1/2" Ice 1" Ice 2" Ice	0.45 0.66 0.88 1.34	0.02 0.04 0.07 0.14	0.01 0.01 0.02 0.04
1.5" x 3'-8" Mount Pipe	B	From Leg	3.50 0.000 0.000	0.000	183.75	No Ice 1/2" Ice 1" Ice 2" Ice	0.55 0.82 1.05 1.54	0.55 0.82 1.05 1.54	0.01 0.01 0.02 0.04
1.5" x 3'-8" Mount Pipe	C	From Leg	3.50 0.000 0.000	0.000	183.75	No Ice 1/2" Ice 1" Ice 2" Ice	0.55 0.82 1.05 1.54	0.55 0.82 1.05 1.54	0.01 0.01 0.02 0.04
Side Arm Mount [SO 701-1]	B	From Leg	0.50 0.000 0.000	0.000	183.75	No Ice 1/2" Ice 1" Ice 2" Ice	0.85 1.14 1.43 2.01	1.67 2.34 3.01 4.35	0.07 0.08 0.09 0.12
Side Arm Mount [SO 701-1]	C	From Leg	0.50 0.000 0.000	0.000	183.75	No Ice 1/2" Ice 1" Ice 2" Ice	0.85 1.14 1.43 2.01	1.67 2.34 3.01 4.35	0.07 0.08 0.09 0.12
178.5 3-ft x 2.5-in Omni	B	From Leg	3.00 0.000 1.500	0.000	178.50	No Ice 1/2" Ice 1" Ice 2" Ice	0.60 0.79 0.99 1.41	0.60 0.79 0.99 1.41	0.01 0.01 0.02 0.04
2.4" x 3.5' pipe	B	From Leg	3.00 0.000 0.000	0.000	178.50	No Ice 1/2" Ice 1" Ice 2" Ice	0.72 0.94 1.17 1.64	0.72 0.94 1.17 1.64	0.01 0.02 0.03 0.05
2.4" x 7-ft Pipe	C	From Leg	3.00 0.000 0.000	0.000	178.50	No Ice 1/2" Ice 1" Ice 2" Ice	1.66 2.39 2.83 3.71	1.66 2.39 2.83 3.71	0.03 0.04 0.06 0.10
(2) Side Arm Mount [SO 701-1]	B	From Leg	0.50 0.000 0.000	0.000	178.50	No Ice 1/2" Ice 1" Ice 2" Ice	0.85 1.14 1.43 2.01	1.67 2.34 3.01 4.35	0.07 0.08 0.09 0.12
(2) Side Arm Mount [SO 701-1]	C	From Leg	0.50 0.000 0.000	0.000	178.50	No Ice 1/2" Ice 1" Ice 2" Ice	0.85 1.14 1.43 2.01	1.67 2.34 3.01 4.35	0.07 0.08 0.09 0.12
175 Pipe Mount [PM 601-3]	C	None		0.000	175.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.17 3.79 4.42 5.76	3.17 3.79 4.42 5.76	0.20 0.23 0.28 0.40
173.75 **160.5** AEHC w/ 8' Mount Pipe	A	From Centroid-Leg	4.00 0.000 2.000	0.000	160.50	No Ice 1/2" Ice 1" Ice 2" Ice	7.94 8.79 9.55 10.87	4.50 5.57 6.48 7.99	0.13 0.19 0.27 0.43
AEHC w/ 8' Mount Pipe	B	From Centroid-Leg	4.00 0.000 2.000	0.000	160.50	No Ice 1/2" Ice 1" Ice 2" Ice	7.94 8.79 9.55 10.87	4.50 5.57 6.48 7.99	0.13 0.19 0.27 0.43

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
AEHC w/ 8' Mount Pipe	C	From Centroid-Leg	4.00 0.000 2.000	0.000	160.50	No Ice 1/2" Ice 1" Ice 2" Ice	7.94 8.79 9.55 10.87	4.50 5.57 6.48 7.99	0.13 0.19 0.27 0.43
FFVV-65C-R3-V1_TMO w/ Mount Pipe	A	From Centroid-Leg	4.00 0.000 2.000	0.000	160.50	No Ice 1/2" Ice 1" Ice 2" Ice	21.35 22.11 22.87 24.34	11.49 13.02 14.57 16.93	0.16 0.30 0.45 0.80
FFVV-65C-R3-V1_TMO w/ Mount Pipe	B	From Centroid-Leg	4.00 0.000 2.000	0.000	160.50	No Ice 1/2" Ice 1" Ice 2" Ice	21.35 22.11 22.87 24.34	11.49 13.02 14.57 16.93	0.16 0.30 0.45 0.80
FFVV-65C-R3-V1_TMO w/ Mount Pipe	C	From Centroid-Leg	4.00 0.000 2.000	0.000	160.50	No Ice 1/2" Ice 1" Ice 2" Ice	21.35 22.11 22.87 24.34	11.49 13.02 14.57 16.93	0.16 0.30 0.45 0.80
AHLOA_T-MOBILE	A	From Centroid-Leg	4.00 0.000 2.000	0.000	160.50	No Ice 1/2" Ice 1" Ice 2" Ice	2.86 3.08 3.31 3.80	1.85 2.04 2.23 2.65	0.08 0.11 0.13 0.20
AHLOA_T-MOBILE	B	From Centroid-Leg	4.00 0.000 2.000	0.000	160.50	No Ice 1/2" Ice 1" Ice 2" Ice	2.86 3.08 3.31 3.80	1.85 2.04 2.23 2.65	0.08 0.11 0.13 0.20
AHLOA_T-MOBILE	C	From Centroid-Leg	4.00 0.000 2.000	0.000	160.50	No Ice 1/2" Ice 1" Ice 2" Ice	2.86 3.08 3.31 3.80	1.85 2.04 2.23 2.65	0.08 0.11 0.13 0.20
AHFIG_TMO	A	From Centroid-Leg	4.00 0.000 2.000	0.000	160.50	No Ice 1/2" Ice 1" Ice 2" Ice	3.08 3.32 3.56 4.07	1.47 1.66 1.85 2.27	0.07 0.09 0.12 0.18
AHFIG_TMO	B	From Centroid-Leg	4.00 0.000 2.000	0.000	160.50	No Ice 1/2" Ice 1" Ice 2" Ice	3.08 3.32 3.56 4.07	1.47 1.66 1.85 2.27	0.07 0.09 0.12 0.18
AHFIG_TMO	C	From Centroid-Leg	4.00 0.000 2.000	0.000	160.50	No Ice 1/2" Ice 1" Ice 2" Ice	3.08 3.32 3.56 4.07	1.47 1.66 1.85 2.27	0.07 0.09 0.12 0.18
HCS 2.0 Part 1	A	From Centroid-Leg	4.00 0.000 2.000	0.000	160.50	No Ice 1/2" Ice 1" Ice 2" Ice	1.87 2.04 2.21 2.59	0.93 1.06 1.19 1.48	0.02 0.04 0.06 0.11
AIR 21 B4A/B2P w/ Mount Pipe	A	From Centroid-Leg	4.00 0.000 2.000	0.000	160.50	No Ice 1/2" Ice 1" Ice 2" Ice	6.16 6.60 7.03 7.92	5.55 6.30 7.00 8.44	0.10 0.16 0.22 0.37
AIR 21 B4A/B2P w/ Mount Pipe	B	From Centroid-Leg	4.00 0.000 2.000	0.000	160.50	No Ice 1/2" Ice 1" Ice 2" Ice	6.16 6.60 7.03 7.92	5.55 6.30 7.00 8.44	0.10 0.16 0.22 0.37
AIR 21 B4A/B2P w/ Mount Pipe	C	From Centroid-Leg	4.00 0.000 2.000	0.000	160.50	No Ice 1/2" Ice 1" Ice 2" Ice	6.16 6.60 7.03 7.92	5.55 6.30 7.00 8.44	0.10 0.16 0.22 0.37
KRY 112 144/1	A	From	4.00	0.000	160.50	No Ice	0.35	0.17	0.01

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*
		Centroid-Leg	0.000 2.000			1/2" Ice 1" Ice 2" Ice	0.43 0.51 0.70	0.23 0.30 0.46	0.01 0.02 0.03
KRY 112 144/1	B	From Centroid-Leg	4.00 0.000 2.000	0.000	160.50	No Ice 1/2" Ice 1" Ice 2" Ice	0.35 0.43 0.51 0.70	0.17 0.23 0.30 0.46	0.01 0.01 0.02 0.03
KRY 112 144/1	C	From Centroid-Leg	4.00 0.000 2.000	0.000	160.50	No Ice 1/2" Ice 1" Ice 2" Ice	0.35 0.43 0.51 0.70	0.17 0.23 0.30 0.46	0.01 0.01 0.02 0.03
2.4" Dia x 6-ft Pipe	A	From Centroid-Leg	4.00 0.000 2.000	0.000	160.50	No Ice 1/2" Ice 1" Ice 2" Ice	1.44 1.93 2.30 3.07	1.44 1.93 2.30 3.07	0.02 0.03 0.05 0.09
2.4" Dia x 6-ft Pipe	B	From Centroid-Leg	4.00 0.000 2.000	0.000	160.50	No Ice 1/2" Ice 1" Ice 2" Ice	1.44 1.93 2.30 3.07	1.44 1.93 2.30 3.07	0.02 0.03 0.05 0.09
2.4" Dia x 6-ft Pipe	C	From Centroid-Leg	4.00 0.000 2.000	0.000	160.50	No Ice 1/2" Ice 1" Ice 2" Ice	1.44 1.93 2.30 3.07	1.44 1.93 2.30 3.07	0.02 0.03 0.05 0.09
Platform Mount [LP 303-1_HR-1]	C	None		0.000	160.50	No Ice 1/2" Ice 1" Ice 2" Ice	17.09 21.47 25.72 33.96	17.09 21.47 25.72 33.96	1.50 1.88 2.35 3.52
150									
TPA-65R-BU8DA-K w/ Mount Pipe	A	From Face	4.00 0.000 0.000	0.000	150.00	No Ice 1/2" Ice 1" Ice 2" Ice	19.60 20.36 21.13 22.70	10.50 11.93 13.02 15.24	0.13 0.25 0.39 0.69
TPA-65R-BU8DA-K w/ Mount Pipe	B	From Face	4.00 0.000 0.000	0.000	150.00	No Ice 1/2" Ice 1" Ice 2" Ice	19.60 20.36 21.13 22.70	10.50 11.93 13.02 15.24	0.13 0.25 0.39 0.69
TPA-65R-BU8DA-K w/ Mount Pipe	C	From Face	4.00 0.000 0.000	0.000	150.00	No Ice 1/2" Ice 1" Ice 2" Ice	19.60 20.36 21.13 22.70	10.50 11.93 13.02 15.24	0.13 0.25 0.39 0.69
AIR 6449 B77D w/ Mount Pipe	A	From Face	4.00 0.000 -2.000	0.000	150.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.23 4.55 4.88 5.58	2.87 3.30 3.74 4.68	0.09 0.13 0.18 0.28
AIR 6449 B77D w/ Mount Pipe	B	From Face	4.00 0.000 -2.000	0.000	150.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.23 4.55 4.88 5.58	2.87 3.30 3.74 4.68	0.09 0.13 0.18 0.28
AIR 6449 B77D w/ Mount Pipe	C	From Face	4.00 0.000 -2.000	0.000	150.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.23 4.55 4.88 5.58	2.87 3.30 3.74 4.68	0.09 0.13 0.18 0.28
AIR 6419 B77G w/Mount Pipe	A	From Face	4.00 0.000 2.000	0.000	150.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.64 5.03 5.43 6.28	2.68 3.15 3.65 4.68	0.08 0.12 0.16 0.26
AIR 6419 B77G w/Mount	B	From Face	4.00	0.000	150.00	No Ice	4.64	2.68	0.08

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
Pipe			0.000			1/2" Ice	5.03	3.15	0.12
			2.000			1" Ice	5.43	3.65	0.16
						2" Ice	6.28	4.68	0.26
AIR 6419 B77G w/Mount Pipe	C	From Face	4.00 0.000	0.000	150.00	No Ice 1/2" Ice	4.64 5.03	2.68 3.15	0.08 0.12
			2.000			1" Ice	5.43	3.65	0.16
						2" Ice	6.28	4.68	0.26
DMP65R-BU8D w/ Mount Pipe	A	From Face	4.00 0.000	0.000	150.00	No Ice 1/2" Ice	18.11 18.84	10.26 11.78	0.14 0.26
			0.000			1" Ice	19.59	13.33	0.39
						2" Ice	21.01	15.67	0.69
DMP65R-BU8D w/ Mount Pipe	B	From Face	4.00 0.000	0.000	150.00	No Ice 1/2" Ice	18.11 18.84	10.26 11.78	0.14 0.26
			0.000			1" Ice	19.59	13.33	0.39
						2" Ice	21.01	15.67	0.69
DMP65R-BU8D w/ Mount Pipe	C	From Face	4.00 0.000	0.000	150.00	No Ice 1/2" Ice	18.11 18.84	10.26 11.78	0.14 0.26
			0.000			1" Ice	19.59	13.33	0.39
						2" Ice	21.01	15.67	0.69
DC6-48-60-18-8F	A	From Face	4.00 0.000	0.000	150.00	No Ice 1/2" Ice	0.85 1.36	0.85 1.36	0.02 0.04
			0.000			1" Ice	1.53	1.53	0.05
						2" Ice	1.91	1.91	0.10
DC6-48-60-18-8F	B	From Face	4.00 0.000	0.000	150.00	No Ice 1/2" Ice	0.85 1.36	0.85 1.36	0.02 0.04
			0.000			1" Ice	1.53	1.53	0.05
						2" Ice	1.91	1.91	0.10
DC6-48-60-18-8F	C	From Face	4.00 0.000	0.000	150.00	No Ice 1/2" Ice	0.85 1.36	0.85 1.36	0.02 0.04
			0.000			1" Ice	1.53	1.53	0.05
						2" Ice	1.91	1.91	0.10
RADIO 4478 B14	A	From Face	4.00 0.000	0.000	150.00	No Ice 1/2" Ice	2.02 2.20	1.25 1.40	0.06 0.08
			0.000			1" Ice	2.39	1.55	0.10
						2" Ice	2.78	1.89	0.15
RADIO 4478 B14	B	From Face	4.00 0.000	0.000	150.00	No Ice 1/2" Ice	2.02 2.20	1.25 1.40	0.06 0.08
			0.000			1" Ice	2.39	1.55	0.10
						2" Ice	2.78	1.89	0.15
RADIO 4478 B14	C	From Face	4.00 0.000	0.000	150.00	No Ice 1/2" Ice	2.02 2.20	1.25 1.40	0.06 0.08
			0.000			1" Ice	2.39	1.55	0.10
						2" Ice	2.78	1.89	0.15
RADIO 8843 B2/B66A	A	From Face	4.00 0.000	0.000	150.00	No Ice 1/2" Ice	1.64 1.80	1.38 1.53	0.08 0.09
			0.000			1" Ice	1.97	1.69	0.11
						2" Ice	2.33	2.02	0.16
RADIO 8843 B2/B66A	B	From Face	4.00 0.000	0.000	150.00	No Ice 1/2" Ice	1.64 1.80	1.38 1.53	0.08 0.09
			0.000			1" Ice	1.97	1.69	0.11
						2" Ice	2.33	2.02	0.16
RADIO 8843 B2/B66A	C	From Face	4.00 0.000	0.000	150.00	No Ice 1/2" Ice	1.64 1.80	1.38 1.53	0.08 0.09
			0.000			1" Ice	1.97	1.69	0.11
						2" Ice	2.33	2.02	0.16
RADIO 4449 B5/B12	A	From Face	4.00 0.000	0.000	150.00	No Ice 1/2" Ice	1.64 1.80	1.30 1.45	0.07 0.09

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" Ice	1.97	1.60	0.11
						2" Ice	2.33	1.92	0.16
RADIO 4449 B5/B12	B	From Face	4.00	0.000	150.00	No Ice	1.64	1.30	0.07
			0.000			1/2" Ice	1.80	1.45	0.09
			0.000			1" Ice	1.97	1.60	0.11
						2" Ice	2.33	1.92	0.16
RADIO 4449 B5/B12	C	From Face	4.00	0.000	150.00	No Ice	1.64	1.30	0.07
			0.000			1/2" Ice	1.80	1.45	0.09
			0.000			1" Ice	1.97	1.60	0.11
						2" Ice	2.33	1.92	0.16
RRUS-32 B30	A	From Face	4.00	0.000	150.00	No Ice	3.31	2.42	0.08
			0.000			1/2" Ice	3.56	2.64	0.10
			0.000			1" Ice	3.81	2.86	0.14
						2" Ice	4.33	3.32	0.21
RRUS-32 B30	B	From Face	4.00	0.000	150.00	No Ice	3.31	2.42	0.08
			0.000			1/2" Ice	3.56	2.64	0.10
			0.000			1" Ice	3.81	2.86	0.14
						2" Ice	4.33	3.32	0.21
RRUS-32 B30	C	From Face	4.00	0.000	150.00	No Ice	3.31	2.42	0.08
			0.000			1/2" Ice	3.56	2.64	0.10
			0.000			1" Ice	3.81	2.86	0.14
						2" Ice	4.33	3.32	0.21
(8) 1 5/8 x 6' unistrut	A	From Face	0.00	0.000	150.00	No Ice	0.97	0.02	0.01
			0.000			1/2" Ice	1.39	0.04	0.02
			0.000			1" Ice	1.81	0.07	0.04
						2" Ice	2.67	0.15	0.08
(8) 1 5/8 x 6' unistrut	B	From Face	0.00	0.000	150.00	No Ice	0.97	0.02	0.01
			0.000			1/2" Ice	1.39	0.04	0.02
			0.000			1" Ice	1.81	0.07	0.04
						2" Ice	2.67	0.15	0.08
(8) 1 5/8 x 6' unistrut	C	From Face	0.00	0.000	150.00	No Ice	0.97	0.02	0.01
			0.000			1/2" Ice	1.39	0.04	0.02
			0.000			1" Ice	1.81	0.07	0.04
						2" Ice	2.67	0.15	0.08
Pipe Mount [PM 601-3]	C	None		0.000	150.00	No Ice	3.17	3.17	0.20
						1/2" Ice	3.79	3.79	0.23
						1" Ice	4.42	4.42	0.28
						2" Ice	5.76	5.76	0.40
Sector Mount [SM 502-3]	C	None		0.000	150.00	No Ice	29.82	29.82	1.67
						1/2" Ice	42.21	42.21	2.27
						1" Ice	54.43	54.43	3.05
						2" Ice	78.49	78.49	5.18
113									
4-ft x 3.5" Omni	A	From Face	5.00	0.000	113.00	No Ice	1.11	1.11	0.01
			0.000			1/2" Ice	1.36	1.36	0.02
			5.000			1" Ice	1.62	1.62	0.04
						2" Ice	2.16	2.16	0.07
4-ft x 3.5" Omni	B	From Face	5.00	0.000	113.00	No Ice	1.11	1.11	0.01
			0.000			1/2" Ice	1.36	1.36	0.02
			5.000			1" Ice	1.62	1.62	0.04
						2" Ice	2.16	2.16	0.07
4-ft x 3.5" Omni	C	From Face	5.00	0.000	113.00	No Ice	1.11	1.11	0.01
			0.000			1/2" Ice	1.36	1.36	0.02
			5.000			1" Ice	1.62	1.62	0.04
						2" Ice	2.16	2.16	0.07
2.4" x 7-ft Pipe	A	From Leg	0.50	0.000	113.00	No Ice	1.66	1.66	0.03
			0.000			1/2" Ice	2.39	2.39	0.04

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.000			1" Ice	2.83	2.83	0.06
						2" Ice	3.71	3.71	0.10
2.4" x 7-ft Pipe	B	From Leg	0.50	0.000	113.00	No Ice	1.66	1.66	0.03
			0.000			1/2" Ice	2.39	2.39	0.04
			0.000			1" Ice	2.83	2.83	0.06
						2" Ice	3.71	3.71	0.10
2.4" x 7-ft Pipe	C	From Leg	0.50	0.000	113.00	No Ice	1.66	1.66	0.03
			0.000			1/2" Ice	2.39	2.39	0.04
			0.000			1" Ice	2.83	2.83	0.06
						2" Ice	3.71	3.71	0.10
(2) Side Arm Mount [SO 701-3]	C	None		0.000	113.00	No Ice	3.02	3.02	0.20
						1/2" Ice	4.18	4.18	0.24
						1" Ice	5.33	5.33	0.28
						2" Ice	7.63	7.63	0.36
89.75									
15-ft x 3" Omni	A	From Face	5.00	0.000	89.75	No Ice	4.50	4.50	0.02
			0.000			1/2" Ice	6.03	6.03	0.05
			7.500			1" Ice	7.58	7.58	0.09
						2" Ice	10.73	10.73	0.21
15-ft x 3" Omni	B	From Face	5.00	0.000	89.75	No Ice	4.50	4.50	0.02
			0.000			1/2" Ice	6.03	6.03	0.05
			7.500			1" Ice	7.58	7.58	0.09
						2" Ice	10.73	10.73	0.21
15-ft x 3" Omni	C	From Face	5.00	0.000	89.75	No Ice	4.50	4.50	0.02
			0.000			1/2" Ice	6.03	6.03	0.05
			7.500			1" Ice	7.58	7.58	0.09
						2" Ice	10.73	10.73	0.21
2.4" x 7-ft Pipe	A	From Leg	0.50	0.000	89.75	No Ice	1.66	1.66	0.03
			0.000			1/2" Ice	2.39	2.39	0.04
			0.000			1" Ice	2.83	2.83	0.06
						2" Ice	3.71	3.71	0.10
2.4" x 7-ft Pipe	B	From Leg	0.50	0.000	89.75	No Ice	1.66	1.66	0.03
			0.000			1/2" Ice	2.39	2.39	0.04
			0.000			1" Ice	2.83	2.83	0.06
						2" Ice	3.71	3.71	0.10
2.4" x 7-ft Pipe	C	From Leg	0.50	0.000	89.75	No Ice	1.66	1.66	0.03
			0.000			1/2" Ice	2.39	2.39	0.04
			0.000			1" Ice	2.83	2.83	0.06
						2" Ice	3.71	3.71	0.10
(2) Side Arm Mount [SO 701-3]	C	None		0.000	89.75	No Ice	3.02	3.02	0.20
						1/2" Ice	4.18	4.18	0.24
						1" Ice	5.33	5.33	0.28
						2" Ice	7.63	7.63	0.36
52									
GPS_A	C	From Leg	3.50	0.000	52.00	No Ice	0.12	0.12	0.00
			0.000			1/2" Ice	0.21	0.21	0.00
			0.000			1" Ice	0.28	0.28	0.01
						2" Ice	0.44	0.44	0.02
1.5" Dia. x 2' Pipe	C	From Leg	3.00	0.000	52.00	No Ice	0.25	0.25	0.00
			0.000			1/2" Ice	0.38	0.38	0.00
			0.000			1" Ice	0.51	0.51	0.01
						2" Ice	0.81	0.81	0.02
Side Arm Mount [SO 702-1]	C	From Leg	2.00	0.000	52.00	No Ice	0.62	1.49	0.03
			0.000			1/2" Ice	0.74	2.07	0.04
			0.000			1" Ice	0.89	2.54	0.06
						2" Ice	1.25	3.55	0.12
***									

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
**								

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
188											
HP3-4.7	A	Paraboloid w/Shroud (HP)	From Face	1.00 0.000 4.000	-90.000		188.00	3.00	No Ice 1/2" Ice 1" Ice 2" Ice	7.07 7.47 7.86 8.66	0.05 0.04 0.00 0.00
PR-950	C	Grid	From Leg	5.00 0.000 -2.000	-60.000		188.00	2.84	No Ice 1/2" Ice 1" Ice 2" Ice	6.35 6.73 7.11 7.86	0.04 0.13 0.22 0.40
***											

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 90 deg - No Ice
5	0.9 Dead+1.0 Wind 90 deg - No Ice
6	1.2 Dead+1.0 Wind 180 deg - No Ice
7	0.9 Dead+1.0 Wind 180 deg - No Ice
8	1.2 Dead+1.0 Ice+1.0 Temp
9	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
10	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
11	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
12	Dead+Wind 0 deg - Service
13	Dead+Wind 90 deg - Service
14	Dead+Wind 180 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	190.083 -	Pole	Max Tension	13	0.00	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
	185.083						
			Max. Compression	8	-2.16	1.82	-1.29
			Max. Mx	5	-0.74	-5.65	1.31
			Max. My	2	-1.00	-0.71	6.74
			Max. Vy	4	1.49	-5.62	1.24
			Max. Vx	2	-1.71	-0.71	6.74
			Max. Torque	6			-1.80
L2	185.083 - 180.083	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-3.42	1.83	-2.33
			Max. Mx	4	-1.60	-15.66	1.96
			Max. My	6	-1.58	1.63	-17.76
			Max. Vy	4	2.31	-15.66	1.96
			Max. Vx	2	-2.50	-1.41	17.42
			Max. Torque	6			-1.80
L3	180.083 - 175.083	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-4.68	1.89	-3.01
			Max. Mx	4	-2.28	-29.40	2.72
			Max. My	6	-2.26	2.27	-32.77
			Max. Vy	4	3.06	-29.40	2.72
			Max. Vx	2	-3.33	-2.06	32.11
			Max. Torque	6			-1.85
L4	175.083 - 170.083	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-5.71	1.90	-3.04
			Max. Mx	4	-2.86	-46.48	3.76
			Max. My	6	-2.84	2.86	-50.87
			Max. Vy	4	3.61	-46.48	3.76
			Max. Vx	2	-3.89	-2.77	50.55
			Max. Torque	6			-1.85
L5	170.083 - 164.333	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-6.09	1.90	-3.06
			Max. Mx	4	-3.08	-57.04	4.36
			Max. My	6	-3.06	3.19	-62.00
			Max. Vy	4	3.84	-57.04	4.36
			Max. Vx	2	-4.11	-3.18	61.88
			Max. Torque	6			-1.85
L6	164.333 - 162.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-7.26	1.92	-3.08
			Max. Mx	4	-3.81	-77.34	5.40
			Max. My	2	-3.78	-3.89	83.54
			Max. Vy	4	4.27	-77.34	5.40
			Max. Vx	2	-4.55	-3.89	83.54
			Max. Torque	6			-1.85
L7	162.25 - 157.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-16.87	2.05	-2.71
			Max. Mx	4	-7.84	-124.38	6.57
			Max. My	2	-7.80	-4.58	132.29
			Max. Vy	4	9.82	-124.38	6.57
			Max. Vx	2	-10.14	-4.58	132.29
			Max. Torque	6			-1.85
L8	157.25 - 152.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-17.91	2.26	-2.64
			Max. Mx	4	-8.46	-174.53	7.67
			Max. My	2	-8.42	-5.27	184.08
			Max. Vy	4	10.26	-174.53	7.67

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	2	-10.58	-5.27	184.08
			Max. Torque	6			-1.85
L9	152.25 - 147.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-32.18	2.48	-2.57
			Max. Mx	4	-13.83	-247.23	8.79
			Max. My	2	-13.78	-5.96	258.45
			Max. Vy	4	18.09	-247.23	8.79
			Max. Vx	2	-18.41	-5.96	258.45
			Max. Torque	6			-1.85
L10	147.25 - 142.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-33.37	2.72	-2.50
			Max. Mx	4	-14.59	-338.76	9.92
			Max. My	2	-14.54	-6.66	351.68
			Max. Vy	4	18.55	-338.76	9.92
			Max. Vx	2	-18.87	-6.66	351.68
			Max. Torque	6			-1.85
L11	142.25 - 137.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-34.59	2.96	-2.43
			Max. Mx	4	-15.38	-432.61	11.05
			Max. My	2	-15.33	-7.36	447.22
			Max. Vy	4	19.02	-432.61	11.05
			Max. Vx	2	-19.34	-7.36	447.22
			Max. Torque	6			-1.85
L12	137.25 - 129.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-35.50	3.14	-2.37
			Max. Mx	4	-15.98	-502.92	11.88
			Max. My	2	-15.93	-7.86	518.77
			Max. Vy	4	19.36	-502.92	11.88
			Max. Vx	2	-19.69	-7.86	518.77
			Max. Torque	6			-1.85
L13	129.75 - 128.583	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-37.66	3.39	-2.29
			Max. Mx	4	-17.44	-601.05	13.01
			Max. My	2	-17.39	-8.56	618.61
			Max. Vy	4	19.91	-601.05	13.01
			Max. Vx	2	-20.23	-8.56	618.61
			Max. Torque	6			-1.85
L14	128.583 - 123.583	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-39.09	3.65	-2.20
			Max. Mx	4	-18.43	-701.73	14.15
			Max. My	2	-18.39	-9.26	720.99
			Max. Vy	4	20.40	-701.73	14.15
			Max. Vx	2	-20.72	-9.26	720.99
			Max. Torque	6			-1.85
L15	123.583 - 118.583	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-40.56	3.91	-2.11
			Max. Mx	4	-19.46	-804.88	15.29
			Max. My	2	-19.42	-9.95	825.85
			Max. Vy	4	20.90	-804.88	15.29
			Max. Vx	2	-21.22	-9.95	825.85
			Max. Torque	6			-1.85
L16	118.583 - 113.583	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-42.07	4.18	-2.02

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	4	-20.52	-910.54	16.42
			Max. My	2	-20.48	-10.64	933.22
			Max. Vy	4	21.40	-910.54	16.42
			Max. Vx	2	-21.73	-10.64	933.22
			Max. Torque	6			-1.85
L17	113.583 - 108.583	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-44.74	4.45	-1.92
			Max. Mx	4	-22.20	-1021.97	17.56
			Max. My	2	-22.16	-11.33	1046.35
			Max. Vy	4	22.51	-1021.97	17.56
			Max. Vx	2	-22.84	-11.33	1046.35
			Max. Torque	6			-1.85
L18	108.583 - 103.583	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-46.33	4.73	-1.82
			Max. Mx	4	-23.33	-1135.71	18.70
			Max. My	2	-23.29	-12.02	1161.81
			Max. Vy	4	23.03	-1135.71	18.70
			Max. Vx	2	-23.35	-12.02	1161.81
			Max. Torque	6			-1.85
L19	103.583 - 96.0833	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-47.25	4.89	-1.76
			Max. Mx	4	-23.99	-1201.32	19.35
			Max. My	2	-23.95	-12.41	1228.39
			Max. Vy	4	23.32	-1201.32	19.35
			Max. Vx	2	-23.65	-12.41	1228.39
			Max. Torque	6			-1.85
L20	96.0833 - 95.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-50.15	5.17	-1.65
			Max. Mx	4	-26.05	-1319.35	20.48
			Max. My	2	-26.02	-13.09	1348.14
			Max. Vy	4	23.92	-1319.35	20.48
			Max. Vx	2	-24.25	-13.09	1348.14
			Max. Torque	6			-1.85
L21	95.75 - 90.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-51.82	5.46	-1.54
			Max. Mx	4	-27.25	-1440.16	21.62
			Max. My	2	-27.22	-13.78	1470.67
			Max. Vy	4	24.44	-1440.16	21.62
			Max. Vx	2	-24.76	-13.78	1470.67
			Max. Torque	6			-1.85
L22	90.75 - 85.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-54.91	5.75	-1.43
			Max. Mx	4	-29.10	-1570.64	22.76
			Max. My	2	-29.07	-14.46	1602.87
			Max. Vy	4	25.87	-1570.64	22.76
			Max. Vx	2	-26.19	-14.46	1602.87
			Max. Torque	6			-1.85
L23	85.75 - 80.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-56.65	6.05	-1.31
			Max. Mx	4	-30.38	-1701.14	23.90
			Max. My	2	-30.35	-15.14	1735.09
			Max. Vy	4	26.38	-1701.14	23.90
			Max. Vx	2	-26.71	-15.14	1735.09
			Max. Torque	6			-1.85
L24	80.75 - 75.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-58.42	6.34	-1.19
			Max. Mx	4	-31.68	-1834.24	25.03

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	2	-31.66	-15.81	1869.90
			Max. Vy	4	26.90	-1834.24	25.03
			Max. Vx	2	-27.22	-15.81	1869.90
			Max. Torque	6			-1.85
L25	75.75 - 70.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-60.24	6.64	-1.07
			Max. Mx	4	-33.02	-1969.92	26.16
			Max. My	2	-33.00	-16.48	2007.30
			Max. Vy	4	27.42	-1969.92	26.16
			Max. Vx	2	-27.74	-16.48	2007.30
			Max. Torque	6			-1.85
L26	70.75 - 63.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-60.97	6.76	-1.02
			Max. Mx	4	-33.57	-2024.92	26.61
			Max. My	2	-33.55	-16.75	2062.99
			Max. Vy	4	27.63	-2024.92	26.61
			Max. Vx	2	-27.95	-16.75	2062.99
			Max. Torque	6			-1.84
L27	63.25 - 62.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-65.12	7.12	-0.86
			Max. Mx	4	-36.59	-2206.91	28.08
			Max. My	2	-36.57	-17.61	2247.20
			Max. Vy	4	28.40	-2206.91	28.08
			Max. Vx	2	-28.72	-17.61	2247.20
			Max. Torque	6			-1.84
L28	62.25 - 57.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-67.00	7.40	-0.73
			Max. Mx	4	-38.00	-2350.02	29.20
			Max. My	2	-37.98	-18.28	2392.02
			Max. Vy	4	28.90	-2350.02	29.20
			Max. Vx	2	-29.22	-18.28	2392.02
			Max. Torque	6			-1.84
L29	57.25 - 52.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-68.92	7.68	-0.60
			Max. Mx	4	-39.45	-2495.63	30.33
			Max. My	2	-39.43	-18.93	2539.34
			Max. Vy	4	29.40	-2495.63	30.33
			Max. Vx	2	-29.72	-18.93	2539.34
			Max. Torque	6			-1.84
L30	52.25 - 47.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-71.01	8.45	-0.71
			Max. Mx	4	-40.96	-2643.81	31.30
			Max. My	2	-40.95	-19.39	2689.35
			Max. Vy	4	29.94	-2643.81	31.30
			Max. Vx	2	-30.27	-19.39	2689.35
			Max. Torque	6			-2.11
L31	47.25 - 42.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-73.02	8.79	-0.57
			Max. Mx	4	-42.47	-2794.57	32.34
			Max. My	2	-42.46	-19.97	2841.89
			Max. Vy	4	30.43	-2794.57	32.34
			Max. Vx	2	-30.76	-19.97	2841.89
			Max. Torque	6			-2.11
L32	42.25 - 38.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-74.76	9.06	-0.49
			Max. Mx	4	-43.70	-2916.93	33.17
			Max. My	2	-43.69	-20.42	2965.66
			Max. Vy	4	30.81	-2916.93	33.17
			Max. Vx	2	-31.14	-20.42	2965.66
			Max. Torque	6			-2.11
L33	38.25 - 38	Pole	Max Tension	1	0.00	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	8	-74.90	9.08	-0.49
			Max. Mx	4	-43.82	-2924.63	33.22
			Max. My	2	-43.81	-20.45	2973.45
			Max. Vy	4	30.83	-2924.63	33.22
			Max. Vx	2	-31.16	-20.45	2973.45
			Max. Torque	6			-2.11
L34	38 - 31.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-75.20	9.11	-0.48
			Max. Mx	4	-44.04	-2940.04	33.33
			Max. My	2	-44.03	-20.51	2989.04
			Max. Vy	4	30.88	-2940.04	33.33
			Max. Vx	2	-31.21	-20.51	2989.04
			Max. Torque	6			-2.11
L35	31.25 - 30.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-82.48	9.61	-0.37
			Max. Mx	4	-49.67	-3166.89	34.83
			Max. My	2	-49.66	-21.33	3218.45
			Max. Vy	4	31.73	-3166.89	34.83
			Max. Vx	2	-32.06	-21.33	3218.45
			Max. Torque	6			-2.11
L36	30.25 - 28.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-83.66	9.75	-0.33
			Max. Mx	4	-50.56	-3230.49	35.24
			Max. My	2	-50.55	-21.55	3282.76
			Max. Vy	4	31.93	-3230.49	35.24
			Max. Vx	2	-32.25	-21.55	3282.76
			Max. Torque	6			-2.11
L37	28.25 - 28	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-83.80	9.77	-0.33
			Max. Mx	4	-50.68	-3238.46	35.29
			Max. My	2	-50.67	-21.58	3290.83
			Max. Vy	4	31.94	-3238.46	35.29
			Max. Vx	2	-32.27	-21.58	3290.83
			Max. Torque	6			-2.10
L38	28 - 23	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-86.75	10.11	-0.25
			Max. Mx	4	-52.91	-3399.28	36.32
			Max. My	2	-52.90	-22.14	3453.41
			Max. Vy	4	32.43	-3399.28	36.32
			Max. Vx	2	-32.76	-22.14	3453.41
			Max. Torque	6			-2.10
L39	23 - 18	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-89.72	10.46	-0.17
			Max. Mx	4	-55.18	-3562.45	37.35
			Max. My	2	-55.17	-22.70	3618.35
			Max. Vy	4	32.89	-3562.45	37.35
			Max. Vx	2	-33.22	-22.70	3618.35
			Max. Torque	6			-2.10
L40	18 - 13	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-92.71	10.80	-0.08
			Max. Mx	4	-57.48	-3727.85	38.37
			Max. My	2	-57.48	-23.25	3785.50
			Max. Vy	4	33.32	-3727.85	38.37
			Max. Vx	2	-33.65	-23.25	3785.50
			Max. Torque	6			-2.10
L41	13 - 8	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-95.70	11.14	0.00
			Max. Mx	4	-59.81	-3895.40	39.39
			Max. My	2	-59.81	-23.80	3954.80
			Max. Vy	4	33.76	-3895.40	39.39
			Max. Vx	2	-34.08	-23.80	3954.80

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Torque	6			-2.10
L42	8 - 3	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-98.68	11.46	0.09
			Max. Mx	4	-62.17	-4065.11	40.40
			Max. My	2	-62.17	-24.34	4126.26
			Max. Vy	4	34.19	-4065.11	40.40
			Max. Vx	2	-34.51	-24.34	4126.26
			Max. Torque	6			-2.10
L43	3 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-100.40	11.64	0.15
			Max. Mx	4	-63.61	-4167.99	41.01
			Max. My	2	-63.61	-24.67	4230.18
			Max. Vy	4	34.45	-4167.99	41.01
			Max. Vx	2	-34.77	-24.67	4230.18
			Max. Torque	6			-2.10

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	8	100.40	0.00	-0.00
	Max. H_x	7	47.71	0.10	-34.69
	Max. H_z	2	63.62	-0.13	34.76
	Max. M_x	2	4230.18	-0.13	34.76
	Max. M_z	4	4167.99	-34.44	0.19
	Max. Torsion	2	2.01	-0.13	34.76
	Min. Vert	5	47.71	-34.44	0.19
	Min. H_x	4	63.62	-34.44	0.19
	Min. H_z	6	63.62	0.10	-34.69
	Min. M_x	6	-4215.89	0.10	-34.69
	Min. M_z	6	-25.08	0.10	-34.69
	Min. Torsion	6	-2.10	0.10	-34.69

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	53.01	0.00	0.00	-0.17	2.32	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	63.62	0.13	-34.76	-4230.18	-24.67	-2.01
0.9 Dead+1.0 Wind 0 deg - No Ice	47.71	0.13	-34.76	-4188.90	-25.05	-2.01
1.2 Dead+1.0 Wind 90 deg - No Ice	63.62	34.44	-0.19	-41.01	-4167.99	1.03
0.9 Dead+1.0 Wind 90 deg - No Ice	47.71	34.44	-0.19	-40.44	-4128.21	1.04
1.2 Dead+1.0 Wind 180 deg - No Ice	63.62	-0.10	34.69	4215.89	25.08	2.10
0.9 Dead+1.0 Wind 180 deg - No Ice	47.71	-0.10	34.69	4174.87	24.04	2.10
1.2 Dead+1.0 Ice+1.0 Temp	100.40	-0.00	0.00	-0.15	11.64	0.00

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
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	100.40	0.02	-10.85	-1355.18	5.71	-0.90
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	100.40	10.70	-0.04	-9.87	-1313.61	0.49
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	100.40	-0.02	10.80	1343.97	16.81	0.72
Dead+Wind 0 deg - Service	53.01	0.03	-8.76	-1060.35	-4.49	-0.52
Dead+Wind 90 deg - Service	53.01	8.68	-0.05	-10.36	-1042.97	0.27
Dead+Wind 180 deg - Service	53.01	-0.03	8.74	1056.55	7.95	0.53

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
1	0.00	-53.01	0.00	0.00	53.01	0.00	0.000%
2	0.13	-63.62	-34.76	-0.13	63.62	34.76	0.000%
3	0.13	-47.71	-34.76	-0.13	47.71	34.76	0.000%
4	34.44	-63.62	-0.19	-34.44	63.62	0.19	0.000%
5	34.44	-47.71	-0.19	-34.44	47.71	0.19	0.000%
6	-0.10	-63.62	34.69	0.10	63.62	-34.69	0.000%
7	-0.10	-47.71	34.69	0.10	47.71	-34.69	0.000%
8	0.00	-100.40	0.00	0.00	100.40	-0.00	0.000%
9	0.02	-100.40	-10.85	-0.02	100.40	10.85	0.000%
10	10.70	-100.40	-0.04	-10.70	100.40	0.04	0.000%
11	-0.02	-100.40	10.80	0.02	100.40	-10.80	0.000%
12	0.03	-53.01	-8.76	-0.03	53.01	8.76	0.000%
13	8.68	-53.01	-0.05	-8.68	53.01	0.05	0.000%
14	-0.03	-53.01	8.74	0.03	53.01	-8.74	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	5	0.00000001	0.00017546
3	Yes	5	0.00000001	0.00007976
4	Yes	5	0.00000001	0.00009742
5	Yes	5	0.00000001	0.00003679
6	Yes	5	0.00000001	0.00029732
7	Yes	5	0.00000001	0.00013980
8	Yes	4	0.00000001	0.00035613
9	Yes	6	0.00000001	0.00032558
10	Yes	6	0.00000001	0.00031340
11	Yes	6	0.00000001	0.00032395
12	Yes	4	0.00000001	0.00050974
13	Yes	4	0.00000001	0.00043637
14	Yes	4	0.00000001	0.00053839

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	190.083 - 185.083	26.668	12	1.205	0.006
L2	185.083 - 180.083	25.412	12	1.203	0.006
L3	180.083 - 175.083	24.158	12	1.198	0.005
L4	175.083 - 170.083	22.909	12	1.190	0.004
L5	170.083 - 164.333	21.670	12	1.178	0.004
L6	167.25 - 162.25	20.973	12	1.171	0.003
L7	162.25 - 157.25	19.751	12	1.161	0.003
L8	157.25 - 152.25	18.543	12	1.145	0.003
L9	152.25 - 147.25	17.355	12	1.124	0.002
L10	147.25 - 142.25	16.190	12	1.099	0.002
L11	142.25 - 137.25	15.056	12	1.067	0.002
L12	137.25 - 129.75	13.957	12	1.030	0.002
L13	133.583 - 128.583	13.177	12	1.001	0.002
L14	128.583 - 123.583	12.140	12	0.976	0.001
L15	123.583 - 118.583	11.139	12	0.936	0.001
L16	118.583 - 113.583	10.181	12	0.894	0.001
L17	113.583 - 108.583	9.267	12	0.851	0.001
L18	108.583 - 103.583	8.398	12	0.808	0.001
L19	103.583 - 96.0833	7.576	12	0.763	0.001
L20	100.75 - 95.75	7.130	12	0.738	0.001
L21	95.75 - 90.75	6.369	12	0.714	0.001
L22	90.75 - 85.75	5.647	12	0.666	0.001
L23	85.75 - 80.75	4.974	12	0.619	0.001
L24	80.75 - 75.75	4.350	12	0.572	0.001
L25	75.75 - 70.75	3.775	12	0.525	0.000
L26	70.75 - 63.25	3.249	12	0.479	0.000
L27	68.75 - 62.25	3.053	12	0.461	0.000
L28	62.25 - 57.25	2.447	12	0.425	0.000
L29	57.25 - 52.25	2.026	12	0.378	0.000
L30	52.25 - 47.25	1.655	12	0.331	0.000
L31	47.25 - 42.25	1.332	12	0.285	0.000
L32	42.25 - 38.25	1.056	12	0.240	0.000
L33	38.25 - 38	0.870	12	0.204	0.000
L34	38 - 31.25	0.860	12	0.203	0.000
L35	37.5 - 30.25	0.838	12	0.200	0.000
L36	30.25 - 28.25	0.551	12	0.176	0.000
L37	28.25 - 28	0.480	12	0.164	0.000
L38	28 - 23	0.472	12	0.162	0.000
L39	23 - 18	0.317	12	0.133	0.000
L40	18 - 13	0.194	12	0.103	0.000
L41	13 - 8	0.101	12	0.074	0.000
L42	8 - 3	0.038	12	0.046	0.000
L43	3 - 0	0.005	12	0.017	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
192.00	HP3-4.7	12	26.668	1.205	0.006	92708
188.00	3" x 6' Omni	12	26.144	1.204	0.006	92708
186.00	PR-950	12	25.642	1.204	0.006	92708
183.75	2-FT Yagi	12	25.077	1.202	0.006	71254
178.50	3-ft x 2.5-in Omni	12	23.762	1.196	0.005	37043

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
175.00	Pipe Mount [PM 601-3]	12	22.889	1.190	0.004	28148
160.50	AEHC w/ 8' Mount Pipe	12	19.327	1.157	0.003	18249
150.00	TPA-65R-BU8DA-K w/ Mount Pipe	12	16.827	1.113	0.002	11122
113.00	4-ft x 3.5" Omni	12	9.163	0.846	0.001	6611
89.75	15-ft x 3" Omni	12	5.508	0.656	0.001	5989
52.00	GPS_A	12	1.637	0.329	0.000	6196

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	190.083 - 185.083	106.664	2	4.818	0.025
L2	185.083 - 180.083	101.627	2	4.812	0.023
L3	180.083 - 175.083	96.601	2	4.795	0.019
L4	175.083 - 170.083	91.600	2	4.765	0.016
L5	170.083 - 164.333	86.638	2	4.721	0.014
L6	167.25 - 162.25	83.848	2	4.691	0.013
L7	162.25 - 157.25	78.958	2	4.652	0.012
L8	157.25 - 152.25	74.123	2	4.587	0.010
L9	152.25 - 147.25	69.369	2	4.501	0.009
L10	147.25 - 142.25	64.711	2	4.398	0.008
L11	142.25 - 137.25	60.174	2	4.271	0.007
L12	137.25 - 129.75	55.782	2	4.123	0.006
L13	133.583 - 128.583	52.663	2	4.004	0.006
L14	128.583 - 123.583	48.517	2	3.906	0.006
L15	123.583 - 118.583	44.514	2	3.744	0.005
L16	118.583 - 113.583	40.683	2	3.577	0.005
L17	113.583 - 108.583	37.029	2	3.405	0.004
L18	108.583 - 103.583	33.557	2	3.230	0.004
L19	103.583 - 96.0833	30.269	2	3.052	0.003
L20	100.75 - 95.75	28.488	2	2.951	0.003
L21	95.75 - 90.75	25.447	2	2.853	0.003
L22	90.75 - 85.75	22.559	2	2.664	0.003
L23	85.75 - 80.75	19.869	2	2.475	0.002
L24	80.75 - 75.75	17.376	2	2.287	0.002
L25	75.75 - 70.75	15.080	2	2.100	0.002
L26	70.75 - 63.25	12.978	2	1.914	0.002
L27	68.75 - 62.25	12.192	2	1.841	0.002
L28	62.25 - 57.25	9.771	2	1.700	0.001
L29	57.25 - 52.25	8.090	2	1.511	0.001
L30	52.25 - 47.25	6.606	2	1.324	0.001
L31	47.25 - 42.25	5.316	2	1.140	0.001
L32	42.25 - 38.25	4.217	2	0.959	0.001
L33	38.25 - 38	3.474	2	0.816	0.001
L34	38 - 31.25	3.431	2	0.810	0.001
L35	37.5 - 30.25	3.347	2	0.798	0.001
L36	30.25 - 28.25	2.200	2	0.701	0.001
L37	28.25 - 28	1.917	2	0.653	0.000
L38	28 - 23	1.883	2	0.647	0.000
L39	23 - 18	1.266	2	0.530	0.000
L40	18 - 13	0.773	2	0.412	0.000
L41	13 - 8	0.402	2	0.296	0.000
L42	8 - 3	0.152	2	0.182	0.000
L43	3 - 0	0.021	2	0.068	0.000

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
192.00	HP3-4.7	2	106.664	4.818	0.027	25966
188.00	3" x 6' Omni	2	104.565	4.816	0.026	25966
186.00	PR-950	2	102.550	4.814	0.025	25966
183.75	2-FT Yagi	2	100.285	4.809	0.024	19917
178.50	3-ft x 2.5-in Omni	2	95.014	4.787	0.020	10200
175.00	Pipe Mount [PM 601-3]	2	91.517	4.764	0.018	7620
160.50	AEHC w/ 8' Mount Pipe	2	77.258	4.633	0.013	4697
150.00	TPA-65R-BU8DA-K w/ Mount Pipe	2	67.260	4.458	0.010	2819
113.00	4-ft x 3.5" Omni	2	36.614	3.384	0.004	1661
89.75	15-ft x 3" Omni	2	22.005	2.624	0.003	1502
52.00	GPS_A	2	6.537	1.315	0.001	1551

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	190.083 - 185.083 (1)	TP20.813x19.563x0.25	5.00	0.00	0.0	16.316	-1.01	954.51	0.001
L2	185.083 - 180.083 (2)	TP22.063x20.813x0.25	5.00	0.00	0.0	17.308	-1.58	1012.53	0.002
L3	180.083 - 175.083 (3)	TP23.313x22.063x0.25	5.00	0.00	0.0	18.300	-2.26	1070.56	0.002
L4	175.083 - 170.083 (4)	TP24.563x23.313x0.25	5.00	0.00	0.0	19.292	-2.84	1128.58	0.003
L5	170.083 - 164.333 (5)	TP26x24.563x0.25	5.75	0.00	0.0	19.854	-3.06	1161.46	0.003
L6	164.333 - 162.25 (6)	TP26.01x24.771x0.313	5.00	0.00	0.0	25.488	-3.78	1491.07	0.003
L7	162.25 - 157.25 (7)	TP27.249x26.01x0.313	5.00	0.00	0.0	26.717	-7.80	1562.96	0.005
L8	157.25 - 152.25 (8)	TP28.487x27.249x0.313	5.00	0.00	0.0	27.946	-8.42	1634.85	0.005
L9	152.25 - 147.25 (9)	TP29.726x28.487x0.313	5.00	0.00	0.0	29.175	-13.78	1706.73	0.008
L10	147.25 - 142.25 (10)	TP30.965x29.726x0.313	5.00	0.00	0.0	30.404	-14.54	1778.62	0.008
L11	142.25 - 137.25 (11)	TP32.204x30.965x0.313	5.00	0.00	0.0	31.632	-15.33	1850.50	0.008
L12	137.25 - 129.75 (12)	TP34.063x32.204x0.313	7.50	0.00	0.0	32.534	-15.93	1903.22	0.008
L13	129.75 - 128.583 (13)	TP33.723x32.488x0.375	5.00	0.00	0.0	39.692	-17.39	2321.99	0.007
L14	128.583 - 123.583 (14)	TP34.958x33.723x0.375	5.00	0.00	0.0	41.162	-18.39	2407.98	0.008
L15	123.583 -	TP36.193x34.958x0.375	5.00	0.00	0.0	42.632	-19.42	2493.97	0.008

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
	118.583 (15)								
L16	118.583 - 113.583 (16)	TP37.428x36.193x0.375	5.00	0.00	0.0	44.102	-20.48	2579.96	0.008
L17	113.583 - 108.583 (17)	TP38.663x37.428x0.375	5.00	0.00	0.0	45.572	-22.16	2665.95	0.008
L18	108.583 - 103.583 (18)	TP39.898x38.663x0.375	5.00	0.00	0.0	47.042	-23.29	2751.94	0.008
L19	103.583 - 96.0833 (19)	TP41.75x39.898x0.375	7.50	0.00	0.0	47.875	-23.95	2800.67	0.009
L20	96.0833 - 95.75 (20)	TP41.076x39.847x0.375	5.00	0.00	0.0	48.444	-26.02	2834.00	0.009
L21	95.75 - 90.75 (21)	TP42.305x41.076x0.375	5.00	0.00	0.0	49.907	-27.22	2919.55	0.009
L22	90.75 - 85.75 (22)	TP43.533x42.305x0.375	5.00	0.00	0.0	51.369	-29.07	3005.10	0.010
L23	85.75 - 80.75 (23)	TP44.762x43.533x0.375	5.00	0.00	0.0	52.832	-30.35	3090.66	0.010
L24	80.75 - 75.75 (24)	TP45.991x44.762x0.375	5.00	0.00	0.0	54.294	-31.66	3176.21	0.010
L25	75.75 - 70.75 (25)	TP47.219x45.991x0.375	5.00	0.00	0.0	55.757	-33.00	3261.76	0.010
L26	70.75 - 63.25 (26)	TP49.063x47.219x0.375	7.50	0.00	0.0	56.342	-33.55	3295.98	0.010
L27	63.25 - 62.25 (27)	TP48.549x46.961x0.375	6.50	0.00	0.0	57.340	-36.57	3354.36	0.011
L28	62.25 - 57.25 (28)	TP49.771x48.549x0.375	5.00	0.00	0.0	58.794	-37.98	3439.44	0.011
L29	57.25 - 52.25 (29)	TP50.993x49.771x0.375	5.00	0.00	0.0	60.248	-39.43	3524.52	0.011
L30	52.25 - 47.25 (30)	TP52.215x50.993x0.375	5.00	0.00	0.0	61.703	-40.95	3609.60	0.011
L31	47.25 - 42.25 (31)	TP53.437x52.215x0.375	5.00	0.00	0.0	63.157	-42.46	3694.68	0.011
L32	42.25 - 38.25 (32)	TP54.414x53.437x0.375	4.00	0.00	0.0	64.320	-43.69	3762.74	0.012
L33	38.25 - 38 (33)	TP54.475x54.414x0.581	0.25	0.00	0.0	99.429	-43.81	5816.58	0.008
L34	38 - 31.25 (34)	TP56.125x54.475x0.575	6.75	0.00	0.0	98.594	-44.03	5767.75	0.008
L35	31.25 - 30.25 (35)	TP55.605x53.848x0.575	7.25	0.00	0.0	100.433	-49.66	5875.30	0.008
L36	30.25 - 28.25 (36)	TP56.09x55.605x0.575	2.00	0.00	0.0	101.317	-50.55	5927.06	0.009
L37	28.25 - 28 (37)	TP56.15x56.09x0.575	0.25	0.00	0.0	101.428	-50.67	5933.53	0.009
L38	28 - 23 (38)	TP57.362x56.15x0.575	5.00	0.00	0.0	103.640	-52.90	6062.93	0.009
L39	23 - 18 (39)	TP58.574x57.362x0.563	5.00	0.00	0.0	103.573	-55.17	6059.02	0.009
L40	18 - 13 (40)	TP59.786x58.574x0.563	5.00	0.00	0.0	105.737	-57.48	6185.60	0.009
L41	13 - 8 (41)	TP60.998x59.786x0.563	5.00	0.00	0.0	107.901	-59.81	6312.19	0.009
L42	8 - 3 (42)	TP62.21x60.998x0.55	5.00	0.00	0.0	107.640	-62.17	6296.96	0.010
L43	3 - 0 (43)	TP62.938x62.21x0.55	3.00	0.00	0.0	108.910	-63.61	6371.23	0.010

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	190.083 - 185.083 (1)	TP20.813x19.563x0.25	6.79	510.39	0.013	0.00	510.39	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L2	185.083 - 180.083 (2)	TP22.063x20.813x0.25	17.84	574.73	0.031	0.00	574.73	0.000
L3	180.083 - 175.083 (3)	TP23.313x22.063x0.25	32.85	642.88	0.051	0.00	642.88	0.000
L4	175.083 - 170.083 (4)	TP24.563x23.313x0.25	50.95	710.93	0.072	0.00	710.93	0.000
L5	170.083 - 164.333 (5)	TP26x24.563x0.25	62.08	747.79	0.083	0.00	747.79	0.000
L6	164.333 - 162.25 (6)	TP26.01x24.771x0.313	83.63	996.39	0.084	0.00	996.39	0.000
L7	162.25 - 157.25 (7)	TP27.249x26.01x0.313	132.37	1095.39	0.121	0.00	1095.39	0.000
L8	157.25 - 152.25 (8)	TP28.487x27.249x0.313	184.16	1199.08	0.154	0.00	1199.08	0.000
L9	152.25 - 147.25 (9)	TP29.726x28.487x0.313	258.52	1307.45	0.198	0.00	1307.45	0.000
L10	147.25 - 142.25 (10)	TP30.965x29.726x0.313	351.74	1409.72	0.250	0.00	1409.72	0.000
L11	142.25 - 137.25 (11)	TP32.204x30.965x0.313	447.28	1511.29	0.296	0.00	1511.29	0.000
L12	137.25 - 129.75 (12)	TP34.063x32.204x0.313	518.83	1587.18	0.327	0.00	1587.18	0.000
L13	129.75 - 128.583 (13)	TP33.723x32.488x0.375	618.66	2015.42	0.307	0.00	2015.42	0.000
L14	128.583 - 123.583 (14)	TP34.958x33.723x0.375	721.05	2168.32	0.333	0.00	2168.32	0.000
L15	123.583 - 118.583 (15)	TP36.193x34.958x0.375	825.91	2324.18	0.355	0.00	2324.18	0.000
L16	118.583 - 113.583 (16)	TP37.428x36.193x0.375	933.28	2467.49	0.378	0.00	2467.49	0.000
L17	113.583 - 108.583 (17)	TP38.663x37.428x0.375	1046.42	2613.60	0.400	0.00	2613.60	0.000
L18	108.583 - 103.583 (18)	TP39.898x38.663x0.375	1161.88	2762.35	0.421	0.00	2762.35	0.000
L19	103.583 - 96.0833 (19)	TP41.75x39.898x0.375	1228.45	2847.77	0.431	0.00	2847.77	0.000
L20	96.0833 - 95.75 (20)	TP41.076x39.847x0.375	1348.21	2906.63	0.464	0.00	2906.63	0.000
L21	95.75 - 90.75 (21)	TP42.305x41.076x0.375	1470.73	3059.37	0.481	0.00	3059.37	0.000
L22	90.75 - 85.75 (22)	TP43.533x42.305x0.375	1602.93	3214.31	0.499	0.00	3214.31	0.000
L23	85.75 - 80.75 (23)	TP44.762x43.533x0.375	1735.16	3371.32	0.515	0.00	3371.32	0.000
L24	80.75 - 75.75 (24)	TP45.991x44.762x0.375	1869.97	3530.28	0.530	0.00	3530.28	0.000
L25	75.75 - 70.75 (25)	TP47.219x45.991x0.375	2007.37	3691.03	0.544	0.00	3691.03	0.000
L26	70.75 - 63.25 (26)	TP49.063x47.219x0.375	2063.06	3755.81	0.549	0.00	3755.81	0.000
L27	63.25 - 62.25 (27)	TP48.549x46.961x0.375	2247.27	3866.91	0.581	0.00	3866.91	0.000
L28	62.25 - 57.25 (28)	TP49.771x48.549x0.375	2392.09	4030.07	0.594	0.00	4030.07	0.000
L29	57.25 - 52.25 (29)	TP50.993x49.771x0.375	2539.41	4194.59	0.605	0.00	4194.59	0.000
L30	52.25 - 47.25 (30)	TP52.215x50.993x0.375	2689.42	4360.36	0.617	0.00	4360.36	0.000
L31	47.25 - 42.25 (31)	TP53.437x52.215x0.375	2841.96	4527.22	0.628	0.00	4527.22	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L32	42.25 - 38.25 (32)	TP54.414x53.437x0.375	2965.73	4661.41	0.636	0.00	4661.41	0.000
L33	38.25 - 38 (33)	TP54.475x54.414x0.581	2973.52	8162.96	0.364	0.00	8162.96	0.000
L34	38 - 31.25 (34)	TP56.125x54.475x0.575	2989.12	8114.85	0.368	0.00	8114.85	0.000
L35	31.25 - 30.25 (35)	TP55.605x53.848x0.575	3218.53	8408.33	0.383	0.00	8408.33	0.000
L36	30.25 - 28.25 (36)	TP56.09x55.605x0.575	3282.83	8539.83	0.384	0.00	8539.83	0.000
L37	28.25 - 28 (37)	TP56.15x56.09x0.575	3290.90	8556.33	0.385	0.00	8556.33	0.000
L38	28 - 23 (38)	TP57.362x56.15x0.575	3453.48	8888.08	0.389	0.00	8888.08	0.000
L39	23 - 18 (39)	TP58.574x57.362x0.563	3618.42	8977.33	0.403	0.00	8977.33	0.000
L40	18 - 13 (40)	TP59.786x58.574x0.563	3785.57	9306.58	0.407	0.00	9306.58	0.000
L41	13 - 8 (41)	TP60.998x59.786x0.563	3954.88	9639.42	0.410	0.00	9639.42	0.000
L42	8 - 3 (42)	TP62.21x60.998x0.55	4126.33	9696.25	0.426	0.00	9696.25	0.000
L43	3 - 0 (43)	TP62.938x62.21x0.55	4230.25	9892.92	0.428	0.00	9892.92	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	190.083 - 185.083 (1)	TP20.813x19.563x0.25	1.65	286.35	0.006	1.80	515.65	0.003
L2	185.083 - 180.083 (2)	TP22.063x20.813x0.25	2.43	303.76	0.008	1.80	580.25	0.003
L3	180.083 - 175.083 (3)	TP23.313x22.063x0.25	3.26	321.17	0.010	1.85	648.66	0.003
L4	175.083 - 170.083 (4)	TP24.563x23.313x0.25	3.82	338.57	0.011	1.85	720.88	0.003
L5	170.083 - 164.333 (5)	TP26x24.563x0.25	4.04	348.44	0.012	1.85	763.50	0.002
L6	164.333 - 162.25 (6)	TP26.01x24.771x0.313	4.55	447.32	0.010	1.76	1006.67	0.002
L7	162.25 - 157.25 (7)	TP27.249x26.01x0.313	10.14	468.89	0.022	1.76	1106.08	0.002
L8	157.25 - 152.25 (8)	TP28.487x27.249x0.313	10.58	490.45	0.022	1.76	1210.16	0.001
L9	152.25 - 147.25 (9)	TP29.726x28.487x0.313	18.41	512.02	0.036	1.76	1318.93	0.001
L10	147.25 - 142.25 (10)	TP30.965x29.726x0.313	18.87	533.59	0.035	1.76	1432.37	0.001
L11	142.25 - 137.25 (11)	TP32.204x30.965x0.313	19.34	555.15	0.035	1.76	1550.49	0.001
L12	137.25 - 129.75 (12)	TP34.063x32.204x0.313	19.69	570.97	0.034	1.76	1640.08	0.001
L13	129.75 - 128.583 (13)	TP33.723x32.488x0.375	20.23	696.60	0.029	1.76	2034.35	0.001
L14	128.583 - 123.583 (14)	TP34.958x33.723x0.375	20.72	722.39	0.029	1.76	2187.82	0.001
L15	123.583 - 118.583 (15)	TP36.193x34.958x0.375	21.22	748.19	0.028	1.76	2346.87	0.001
L16	118.583 - 113.583 (16)	TP37.428x36.193x0.375	21.73	773.99	0.028	1.76	2511.49	0.001
L17	113.583 - 108.583 (17)	TP38.663x37.428x0.375	22.84	799.78	0.029	1.76	2681.70	0.001
L18	108.583 -	TP39.898x38.663x0.375	23.35	825.58	0.028	1.76	2857.49	0.001

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
	103.583 (18)							
L19	103.583 - 96.0833 (19)	TP41.75x39.898x0.375	23.65	840.20	0.028	1.76	2959.58	0.001
L20	96.0833 - 95.75 (20)	TP41.076x39.847x0.375	24.25	850.20	0.029	1.76	3030.44	0.001
L21	95.75 - 90.75 (21)	TP42.305x41.076x0.375	24.76	875.87	0.028	1.76	3216.18	0.001
L22	90.75 - 85.75 (22)	TP43.533x42.305x0.375	26.19	901.53	0.029	1.76	3407.43	0.001
L23	85.75 - 80.75 (23)	TP44.762x43.533x0.375	26.71	927.20	0.029	1.76	3604.20	0.000
L24	80.75 - 75.75 (24)	TP45.991x44.762x0.375	27.22	952.86	0.029	1.76	3806.50	0.000
L25	75.75 - 70.75 (25)	TP47.219x45.991x0.375	27.74	978.53	0.028	1.75	4014.32	0.000
L26	70.75 - 63.25 (26)	TP49.063x47.219x0.375	27.95	988.79	0.028	1.75	4098.99	0.000
L27	63.25 - 62.25 (27)	TP48.549x46.961x0.375	28.72	1006.31	0.029	1.75	4245.49	0.000
L28	62.25 - 57.25 (28)	TP49.771x48.549x0.375	29.22	1031.83	0.028	1.75	4463.58	0.000
L29	57.25 - 52.25 (29)	TP50.993x49.771x0.375	29.72	1057.36	0.028	1.75	4687.13	0.000
L30	52.25 - 47.25 (30)	TP52.215x50.993x0.375	30.27	1082.88	0.028	2.02	4916.15	0.000
L31	47.25 - 42.25 (31)	TP53.437x52.215x0.375	30.76	1108.40	0.028	2.02	5150.63	0.000
L32	42.25 - 38.25 (32)	TP54.414x53.437x0.375	31.14	1128.82	0.028	2.02	5342.15	0.000
L33	38.25 - 38 (33)	TP54.475x54.414x0.581	31.16	1744.98	0.018	2.02	8235.91	0.000
L34	38 - 31.25 (34)	TP56.125x54.475x0.575	31.21	1730.33	0.018	2.02	8186.22	0.000
L35	31.25 - 30.25 (35)	TP55.605x53.848x0.575	32.06	1762.59	0.018	2.02	8494.33	0.000
L36	30.25 - 28.25 (36)	TP56.09x55.605x0.575	32.25	1778.12	0.018	2.02	8644.67	0.000
L37	28.25 - 28 (37)	TP56.15x56.09x0.575	32.27	1780.06	0.018	2.02	8663.58	0.000
L38	28 - 23 (38)	TP57.362x56.15x0.575	32.76	1818.88	0.018	2.01	9045.58	0.000
L39	23 - 18 (39)	TP58.574x57.362x0.563	33.22	1817.71	0.018	2.01	9234.67	0.000
L40	18 - 13 (40)	TP59.786x58.574x0.563	33.65	1855.68	0.018	2.01	9624.50	0.000
L41	13 - 8 (41)	TP60.998x59.786x0.563	34.08	1893.66	0.018	2.01	10022.50	0.000
L42	8 - 3 (42)	TP62.21x60.998x0.55	34.51	1889.09	0.018	2.01	10200.92	0.000
L43	3 - 0 (43)	TP62.938x62.21x0.55	34.77	1911.37	0.018	2.01	10442.92	0.000

APPENDIX B

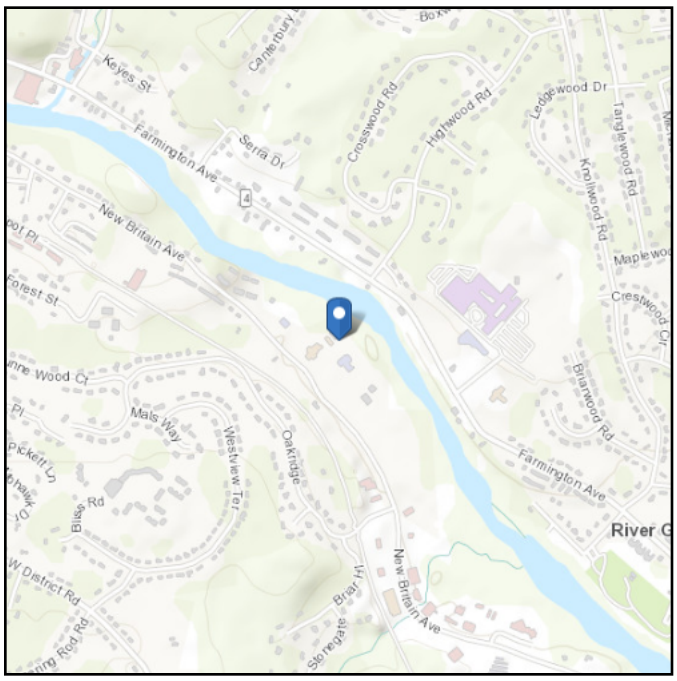
ADDITIONAL CALCULATIONS

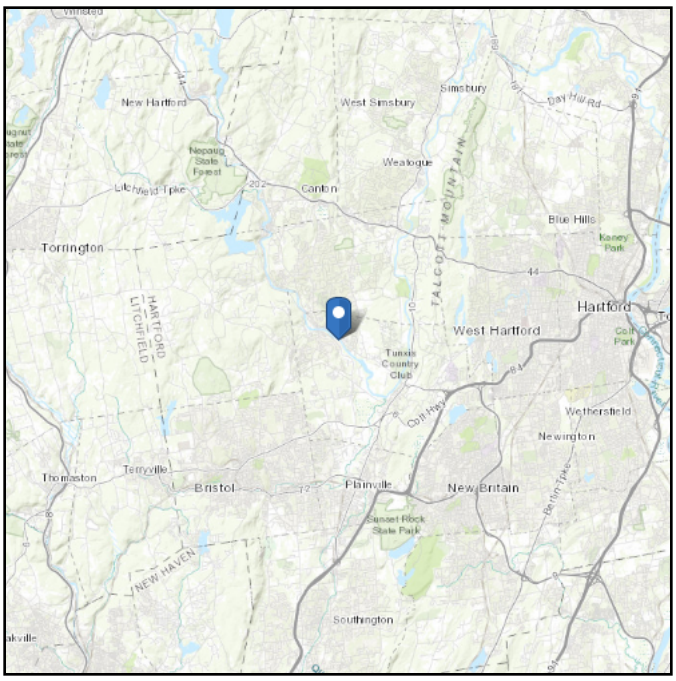
ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 185.49 ft (NAVD 88)
Latitude: 41.749792
Longitude: -72.872699





Wind

Results:

Wind Speed	116 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	90 Vmph
100-year MRI	96 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed: Fri Sep 02 2022

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

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

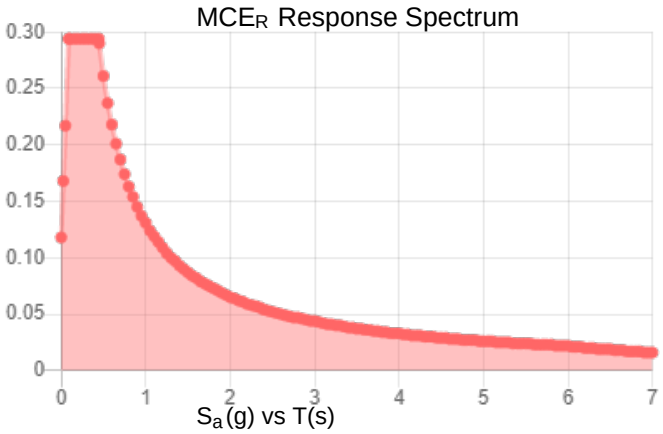
Seismic

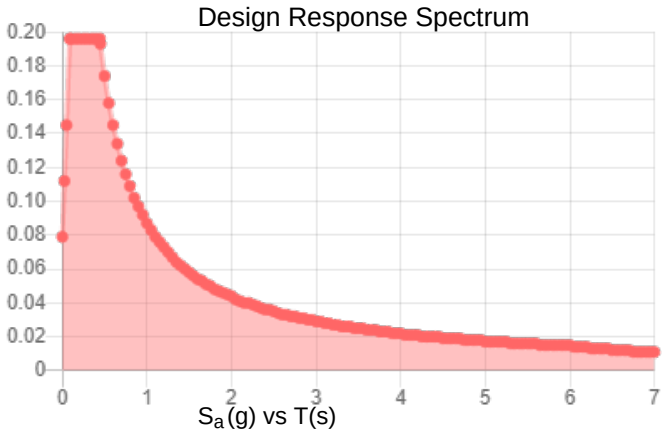
Site Soil Class: D - Default (see Section 11.4.3)

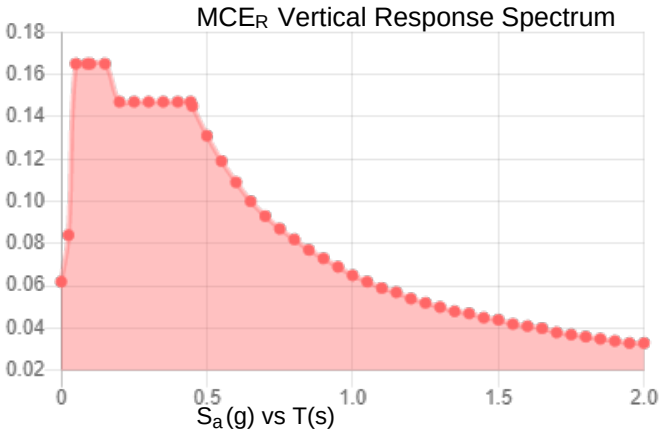
Results:

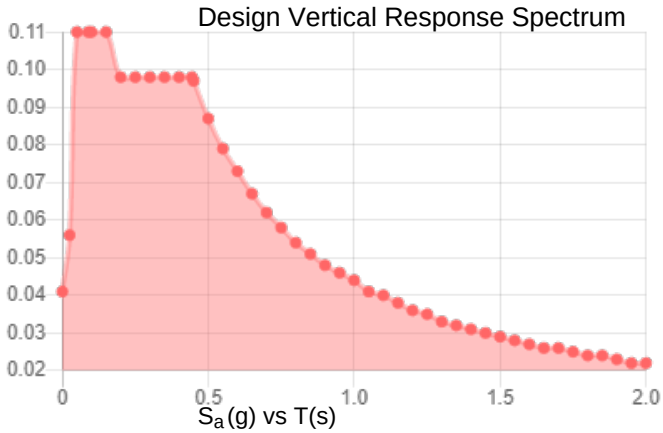
S_S :	0.184	S_{D1} :	0.087
S_1 :	0.054	T_L :	6
F_a :	1.6	PGA :	0.099
F_v :	2.4	PGA_M :	0.158
S_{MS} :	0.294	F_{PGA} :	1.6
S_{M1} :	0.131	I_e :	1
S_{DS} :	0.196	C_v :	0.7

Seismic Design Category B









Data Accessed: **Fri Sep 02 2022**

Date Source:

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

Ice

Results:

Ice Thickness:	1.50 in.
Concurrent Temperature:	5 F
Gust Speed	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Fri Sep 02 2022

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

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

Pole Geometry

	Pole Height Above Base (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Bend Radius (in)	Pole Material
1	190.083333	25.75	2.916667	18	19.5625	26	0.25	Auto	A572-65
2	167.25	37.5	3.833333	18	24.77	34.0625	0.3125	Auto	A572-65
3	133.583333	37.5	4.666667	18	32.49	41.75	0.375	Auto	A572-65
4	100.75	37.5	5.5	18	39.85	49.0625	0.375	Auto	A572-65
5	68.75	37.5	6.25	18	46.96	56.125	0.375	Auto	A572-65
6	37.5	37.5	0	18	53.85	62.9375	0.375	Auto	A572-65

Reinforcement Configuration

	Bottom Effective Elevation (ft)	Top Effective Elevation (ft)	Type	Model	Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	0	28.25	plate	MS-650 (1.1875")	4			x					x				x					x	
2	28.25	38.25	plate	MS-650 (1.1875")	4			x					x				x					x	
3																							
4																							
5																							
6																							
7																							
8																							
9																							
10																							

Reinforcement Details

	B (in)	H (in)	Gross Area (in^2)	Pole Face to Centroid (in)	Bottom Termination Type	Bottom Termination Length (in)	Top Termination Type	Top Termination Length (in)	Lu (in)	Net Area (in2)	Bolt Hole Size (in)	Reinforcement Material
1	6.5	1.25	8.125	0.625	PC 8.8 - M20 (100)	33	PC 8.8 - M20 (100)	33.000	19.250	6.563	1.1875	A572-65
2	6.5	1.25	8.125	0.625	PC 8.8 - M20 (100)	33	PC 8.8 - M20 (100)	33.000	19.250	6.563	1.1875	A572-65

TNX Geometry Input

Increment (ft): 5 Export to TNX

	Section Height (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Tapered Pole Grade	Weight Multiplier
1	190.0833 - 185.0833	5		18	19.563	20.813	0.25	A572-65	1.000
2	185.0833 - 180.0833	5		18	20.813	22.063	0.25	A572-65	1.000
3	180.0833 - 175.0833	5		18	22.063	23.313	0.25	A572-65	1.000
4	175.0833 - 170.0833	5		18	23.313	24.563	0.25	A572-65	1.000
5	170.0833 - 167.25	5.75	2.916667	18	24.563	26.000	0.25	A572-65	1.000
6	167.25 - 162.25	5		18	24.771	26.010	0.3125	A572-65	1.000
7	162.25 - 157.25	5		18	26.010	27.249	0.3125	A572-65	1.000
8	157.25 - 152.25	5		18	27.249	28.487	0.3125	A572-65	1.000
9	152.25 - 147.25	5		18	28.487	29.726	0.3125	A572-65	1.000
10	147.25 - 142.25	5		18	29.726	30.965	0.3125	A572-65	1.000
11	142.25 - 137.25	5		18	30.965	32.204	0.3125	A572-65	1.000
12	137.25 - 133.5833	7.5	3.833333	18	32.204	34.063	0.3125	A572-65	1.000
13	133.5833 - 128.5833	5		18	32.488	33.723	0.375	A572-65	1.000
14	128.5833 - 123.5833	5		18	33.723	34.958	0.375	A572-65	1.000
15	123.5833 - 118.5833	5		18	34.958	36.193	0.375	A572-65	1.000
16	118.5833 - 113.5833	5		18	36.193	37.428	0.375	A572-65	1.000
17	113.5833 - 108.5833	5		18	37.428	38.663	0.375	A572-65	1.000
18	108.5833 - 103.5833	5		18	38.663	39.898	0.375	A572-65	1.000
19	103.5833 - 100.75	7.5	4.666667	18	39.898	41.750	0.375	A572-65	1.000
20	100.75 - 95.75	5		18	39.847	41.076	0.375	A572-65	1.000
21	95.75 - 90.75	5		18	41.076	42.305	0.375	A572-65	1.000
22	90.75 - 85.75	5		18	42.305	43.533	0.375	A572-65	1.000
23	85.75 - 80.75	5		18	43.533	44.762	0.375	A572-65	1.000
24	80.75 - 75.75	5		18	44.762	45.991	0.375	A572-65	1.000
25	75.75 - 70.75	5		18	45.991	47.219	0.375	A572-65	1.000
26	70.75 - 68.75	7.5	5.5	18	47.219	49.063	0.375	A572-65	1.000
27	68.75 - 62.25	6.5		18	46.961	48.549	0.375	A572-65	1.000
28	62.25 - 57.25	5		18	48.549	49.771	0.375	A572-65	1.000
29	57.25 - 52.25	5		18	49.771	50.993	0.375	A572-65	1.000
30	52.25 - 47.25	5		18	50.993	52.215	0.375	A572-65	1.000
31	47.25 - 42.25	5		18	52.215	53.437	0.375	A572-65	1.000
32	42.25 - 38.25	4		18	53.437	54.414	0.375	A572-65	1.000
33	38.25 - 38	0.25		18	54.414	54.475	0.58125	A572-65	0.975
34	38 - 37.5	6.75	6.25	18	54.475	56.125	0.575	A572-65	0.984
35	37.5 - 30.25	7.25		18	53.848	55.605	0.575	A572-65	0.978
36	30.25 - 28.25	2		18	55.605	56.090	0.575	A572-65	0.975
37	28.25 - 28	0.25		18	56.090	56.150	0.575	A572-65	0.975
38	28 - 23	5		18	56.150	57.362	0.575	A572-65	0.968
39	23 - 18	5		18	57.362	58.574	0.5625	A572-65	0.983
40	18 - 13	5		18	58.574	59.786	0.5625	A572-65	0.976
41	13 - 8	5		18	59.786	60.998	0.5625	A572-65	0.970
42	8 - 3	5		18	60.998	62.210	0.55	A572-65	0.986
43	3 - 0	3		18	62.210	62.938	0.55	A572-65	0.982

TNX Section Forces

Increment (ft):	5	TNX Output		
	Section Height (ft)	P_u (K)	M_{ux} (kip-ft)	V_u (K)
1	190.083 - 185.083	1.01	6.79	1.65
2	185.083 - 180.083	1.58	17.84	2.43
3	180.083 - 175.083	2.26	32.85	3.26
4	175.083 - 170.083	2.84	50.95	3.82
5	170.083 - 167.25	3.06	62.08	4.04
6	167.25 - 162.25	3.78	83.63	4.55
7	162.25 - 157.25	7.80	132.37	10.14
8	157.25 - 152.25	8.42	184.16	10.58
9	152.25 - 147.25	13.78	258.52	18.41
10	147.25 - 142.25	14.54	351.74	18.87
11	142.25 - 137.25	15.33	447.28	19.34
12	137.25 - 133.583	15.93	518.83	19.69
13	133.583 - 128.583	17.39	618.66	20.23
14	128.583 - 123.583	18.39	721.05	20.72
15	123.583 - 118.583	19.42	825.91	21.22
16	118.583 - 113.583	20.48	933.28	21.73
17	113.583 - 108.583	22.16	1046.42	22.84
18	108.583 - 103.583	23.29	1161.88	23.35
19	103.583 - 100.75	23.95	1228.45	23.65
20	100.75 - 95.75	26.02	1348.21	24.25
21	95.75 - 90.75	27.22	1470.73	24.76
22	90.75 - 85.75	29.07	1602.93	26.19
23	85.75 - 80.75	30.35	1735.16	26.71
24	80.75 - 75.75	31.66	1869.97	27.22
25	75.75 - 70.75	33.00	2007.37	27.74
26	70.75 - 68.75	33.55	2063.05	27.95
27	68.75 - 62.25	36.57	2247.26	28.72
28	62.25 - 57.25	37.98	2392.09	29.22
29	57.25 - 52.25	39.43	2539.41	29.72
30	52.25 - 47.25	40.95	2689.42	30.27
31	47.25 - 42.25	42.46	2841.96	30.76
32	42.25 - 38.25	43.69	2965.73	31.14
33	38.25 - 38	43.81	2973.52	31.16
34	38 - 37.5	44.03	2989.11	31.21
35	37.5 - 30.25	49.66	3218.52	32.06
36	30.25 - 28.25	50.55	3282.83	32.25
37	28.25 - 28	50.67	3290.90	32.27
38	28 - 23	52.90	3453.48	32.76
39	23 - 18	55.17	3618.42	33.22
40	18 - 13	57.48	3785.57	33.65
41	13 - 8	59.81	3954.87	34.08
42	8 - 3	62.17	4126.34	34.51
43	3 - 0	63.61	4230.25	34.77

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
190.08 - 185.08	Pole	TP20.813x19.563x0.25	Pole	1.4%	Pass
185.08 - 180.08	Pole	TP22.063x20.813x0.25	Pole	3.1%	Pass
180.08 - 175.08	Pole	TP23.313x22.063x0.25	Pole	5.1%	Pass
175.08 - 170.08	Pole	TP24.563x23.313x0.25	Pole	7.1%	Pass
170.08 - 167.25	Pole	TP26x24.563x0.25	Pole	8.2%	Pass
167.25 - 162.25	Pole	TP26.01x24.771x0.3125	Pole	8.2%	Pass
162.25 - 157.25	Pole	TP27.249x26.01x0.3125	Pole	12.0%	Pass
157.25 - 152.25	Pole	TP28.487x27.249x0.3125	Pole	15.2%	Pass
152.25 - 147.25	Pole	TP29.726x28.487x0.3125	Pole	19.7%	Pass
147.25 - 142.25	Pole	TP30.965x29.726x0.3125	Pole	24.7%	Pass
142.25 - 137.25	Pole	TP32.204x30.965x0.3125	Pole	29.1%	Pass
137.25 - 133.58	Pole	TP34.063x32.204x0.3125	Pole	32.0%	Pass
133.58 - 128.58	Pole	TP33.723x32.488x0.375	Pole	30.0%	Pass
128.58 - 123.58	Pole	TP34.958x33.723x0.375	Pole	32.5%	Pass
123.58 - 118.58	Pole	TP36.193x34.958x0.375	Pole	34.7%	Pass
118.58 - 113.58	Pole	TP37.428x36.193x0.375	Pole	36.9%	Pass
113.58 - 108.58	Pole	TP38.663x37.428x0.375	Pole	39.0%	Pass
108.58 - 103.58	Pole	TP39.898x38.663x0.375	Pole	40.9%	Pass
103.58 - 100.75	Pole	TP41.75x39.898x0.375	Pole	42.0%	Pass
100.75 - 95.75	Pole	TP41.076x39.847x0.375	Pole	45.1%	Pass
95.75 - 90.75	Pole	TP42.305x41.076x0.375	Pole	46.8%	Pass
90.75 - 85.75	Pole	TP43.533x42.305x0.375	Pole	48.5%	Pass
85.75 - 80.75	Pole	TP44.762x43.533x0.375	Pole	50.0%	Pass
80.75 - 75.75	Pole	TP45.991x44.762x0.375	Pole	51.5%	Pass
75.75 - 70.75	Pole	TP47.219x45.991x0.375	Pole	52.8%	Pass
70.75 - 68.75	Pole	TP49.063x47.219x0.375	Pole	53.4%	Pass
68.75 - 62.25	Pole	TP48.549x46.961x0.375	Pole	56.5%	Pass
62.25 - 57.25	Pole	TP49.771x48.549x0.375	Pole	57.7%	Pass
57.25 - 52.25	Pole	TP50.993x49.771x0.375	Pole	58.8%	Pass
52.25 - 47.25	Pole	TP52.215x50.993x0.375	Pole	59.9%	Pass
47.25 - 42.25	Pole	TP53.437x52.215x0.375	Pole	61.0%	Pass
42.25 - 38.25	Pole	TP54.414x53.437x0.375	Pole	61.8%	Pass
38.25 - 38	Pole + Reinf.	TP54.475x54.414x0.5813	Reinf. 2 Tension Rupture	54.2%	Pass
38 - 37.5	Pole + Reinf.	TP56.125x54.475x0.575	Reinf. 2 Tension Rupture	54.2%	Pass
37.5 - 30.25	Pole + Reinf.	TP55.605x53.848x0.575	Reinf. 2 Tension Rupture	56.7%	Pass
30.25 - 28.25	Pole + Reinf.	TP56.09x55.605x0.575	Reinf. 2 Tension Rupture	57.0%	Pass
28.25 - 28	Pole + Reinf.	TP56.15x56.09x0.575	Reinf. 1 Tension Rupture	57.0%	Pass
28 - 23	Pole + Reinf.	TP57.362x56.15x0.575	Reinf. 1 Tension Rupture	57.8%	Pass
23 - 18	Pole + Reinf.	TP58.574x57.362x0.5625	Reinf. 1 Tension Rupture	58.4%	Pass
18 - 13	Pole + Reinf.	TP59.786x58.574x0.5625	Reinf. 1 Tension Rupture	59.1%	Pass
13 - 8	Pole + Reinf.	TP60.998x59.786x0.5625	Reinf. 1 Tension Rupture	59.7%	Pass
8 - 3	Pole + Reinf.	TP62.21x60.998x0.55	Reinf. 1 Tension Rupture	60.2%	Pass
3 - 0	Pole + Reinf.	TP62.938x62.21x0.55	Reinf. 1 Tension Rupture	60.5%	Pass
				Summary	
			Pole	61.8%	Pass
			Reinforcement	60.5%	Pass
			Overall	61.8%	Pass

Additional Calculations

Section Elevation (ft)	Moment of Inertia (in^4)			Area (in^2)			% Capacity* (100% Max. Allowable)		
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2
190.08 - 185.08	871	n/a	871	16.32	n/a	16.32	1.4%		
185.08 - 180.08	1040	n/a	1040	17.31	n/a	17.31	3.1%		
180.08 - 175.08	1229	n/a	1229	18.30	n/a	18.30	5.1%		
175.08 - 170.08	1440	n/a	1440	19.29	n/a	19.29	7.1%		
170.08 - 167.25	1570	n/a	1570	19.85	n/a	19.85	8.2%		
167.25 - 162.25	2126	n/a	2126	25.49	n/a	25.49	8.2%		
162.25 - 157.25	2448	n/a	2448	26.72	n/a	26.72	12.0%		
157.25 - 152.25	2802	n/a	2802	27.95	n/a	27.95	15.2%		
152.25 - 147.25	3188	n/a	3188	29.17	n/a	29.17	19.7%		
147.25 - 142.25	3608	n/a	3608	30.40	n/a	30.40	24.7%		
142.25 - 137.25	4063	n/a	4063	31.63	n/a	31.63	29.1%		
137.25 - 133.58	4420	n/a	4420	32.53	n/a	32.53	32.0%		
133.58 - 128.58	5575	n/a	5575	39.69	n/a	39.69	30.0%		
128.58 - 123.58	6217	n/a	6217	41.16	n/a	41.16	32.5%		
123.58 - 118.58	6907	n/a	6907	42.63	n/a	42.63	34.7%		
118.58 - 113.58	7647	n/a	7647	44.10	n/a	44.10	36.9%		
113.58 - 108.58	8437	n/a	8437	45.57	n/a	45.57	39.0%		
108.58 - 103.58	9280	n/a	9280	47.04	n/a	47.04	40.9%		
103.58 - 100.75	9782	n/a	9782	47.87	n/a	47.87	42.0%		
100.75 - 95.75	10135	n/a	10135	48.44	n/a	48.44	45.1%		
95.75 - 90.75	11081	n/a	11081	49.91	n/a	49.91	46.8%		
90.75 - 85.75	12084	n/a	12084	51.37	n/a	51.37	48.5%		
85.75 - 80.75	13146	n/a	13146	52.83	n/a	52.83	50.0%		
80.75 - 75.75	14268	n/a	14268	54.29	n/a	54.29	51.5%		
75.75 - 70.75	15452	n/a	15452	55.75	n/a	55.75	52.8%		
70.75 - 68.75	15944	n/a	15944	56.34	n/a	56.34	53.4%		
68.75 - 62.25	16806	n/a	16806	57.34	n/a	57.34	56.5%		
62.25 - 57.25	18118	n/a	18118	58.79	n/a	58.79	57.7%		
57.25 - 52.25	19496	n/a	19496	60.25	n/a	60.25	58.8%		
52.25 - 47.25	20942	n/a	20942	61.70	n/a	61.70	59.9%		
47.25 - 42.25	22458	n/a	22458	63.15	n/a	63.15	61.0%		
42.25 - 38.25	23722	n/a	23722	64.32	n/a	64.32	61.8%		
38.25 - 38	23802	12675	36477	64.39	32.50	96.89	40.2%		54.2%
38 - 37.5	23964	12730	36694	64.54	32.50	97.04	40.3%		54.2%
37.5 - 30.25	25325	13191	38516	65.74	32.50	98.24	42.5%		56.7%
30.25 - 28.25	25997	13416	39414	66.31	32.50	98.81	42.9%		57.0%
28.25 - 28	26082	13444	39527	66.38	32.50	98.88	43.0%	57.0%	
28 - 23	27820	14016	41835	67.83	32.50	100.33	43.9%	57.8%	
23 - 18	29633	14599	44232	69.27	32.50	101.77	44.9%	58.4%	
18 - 13	31523	15194	46717	70.71	32.50	103.21	45.8%	59.1%	
13 - 8	33492	15801	49292	72.15	32.50	104.65	46.7%	59.7%	
8 - 3	35541	16420	51961	73.60	32.50	106.10	47.7%	60.2%	
3 - 0	36809	16797	53606	74.46	32.50	106.96	48.2%	60.5%	

Note: Section capacity checked using 5 degree increments.

**Rating per TIA-222-H Section 15.5.*

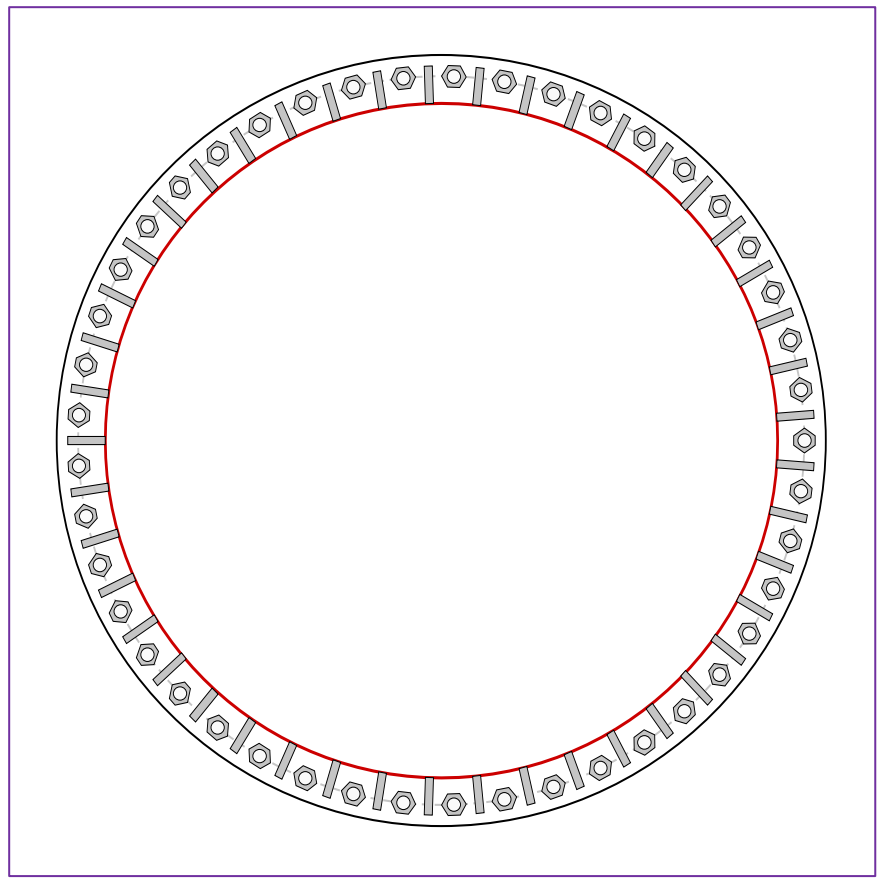
Monopole Base Plate Connection

Site Info	
Site Name	Unionville-Farmington

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	Yes
l_{ar} (in)	0.75

Applied Loads	
Moment (kip-ft)	4230.25
Axial Force (kips)	63.61
Shear Force (kips)	34.77

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

(45) 1-1/4" ø bolts (A687 N; Fy=105 ksi, Fu=125 ksi) on 68" BC

Base Plate Data

72" OD x 1.5" Plate (A572-50; Fy=50 ksi, Fu=65 ksi)

Stiffener Data

(45) 12"H x 3.5"W x 0.75"T, Notch: 0.75"
plate: Fy= 50 ksi ; weld: Fy= 70 ksi
horiz. weld: 0.5" fillet
vert. weld: 0.5" fillet

Pole Data

62.9375" x 0.375" 18-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

Anchor Rod Summary		*(units of kips, kip-in)*
Pu_t = 64.93	ϕPn_t = 90.84	**Stress Rating**
Vu = 0.77	ϕVn = 57.52	**68.1%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary		
Max Stress (ksi):	6.45	(Shear)
Allowable Stress (ksi):	29.25	
Stress Rating:	**21.0%**	**Pass**

Stiffener Summary		
Horizontal Weld:	**64.7%**	**Pass**
Vertical Weld:	**17.1%**	**Pass**
Plate Flexure+Shear:	**7.4%**	**Pass**
Plate Tension+Shear:	**44.1%**	**Pass**
Plate Compression:	**38.1%**	**Pass**
Pole Summary		
Punching Shear:	**5.8%**	**Pass**

Analysis Date: 9/22/2022

Pier and Pad Foundation

Site Name:	Unionville-Farmingt

TIA-222 Revision:	H
Tower Type:	Monopole

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

Superstructure Analysis Reactions		
Compression, P_{comp}:	63.62	kips
Base Shear, Vu_comp:	34.76	kips
Moment, M_u:	4230.25	ft-kips
Tower Height, **H**:	190.08	ft
BP Dist. Above Fdn, bp_{dist}:	2	in

Pier Properties		
Pier Shape:	Square	
Pier Diameter, **dpier**:	7.5	ft
Ext. Above Grade, **E**:	0.5	ft
Pier Rebar Size, **Sc**:	9	
Pier Rebar Quantity, **mc**:	40	
Pier Tie/Spiral Size, **St**:	4	
Pier Tie/Spiral Quantity, **mt**:	10	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	3	in

Pad Properties		
Depth, **D**:	7.5	ft
Pad Width, W_1:	29	ft
Pad Thickness, **T**:	2.5	ft
Pad Rebar Size (Bottom dir. 2), Sp_2:	9	
Pad Rebar Quantity (Bottom dir. 2), mp_2:	37	
Pad Clear Cover, cc_{pad}:	3	in

Material Properties		
Rebar Grade, **Fy**:	60	ksi
Concrete Compressive Strength, **F'c**:	3	ksi
Dry Concrete Density, δ**c**:	150	pcf

Soil Properties		
Total Soil Unit Weight, γ:	110	pcf
Ultimate Net Bearing, Qnet:	4.000	ksf
Cohesion, **Cu**:	0.000	ksf
Friction Angle, φ:	30	degrees
SPT Blow Count, N_{blows}:	10	
Base Friction, μ:		
Neglected Depth, **N**:	3.75	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, **gw**:	3	ft

<--Toggle between Gross and Net

Foundation Analysis Checks	Capacity	Demand	Rating*	Check
Lateral (Sliding) (kips)	237.34	34.76	**13.9%**	**Pass**
Bearing Pressure (ksf)	3.41	1.68	**49.3%**	**Pass**
*Overturning (kip*ft)*	6485.02	4514.12	**69.6%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	6843.07	4421.43	**61.5%**	**Pass**
Pier Compression (kip)	26851.50	110.88	**0.4%**	**Pass**
*Pad Flexure (kip*ft)*	4005.52	1756.31	**41.8%**	**Pass**
Pad Shear - 1-way (kips)	723.58	242.94	**32.0%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.164	0.055	**31.6%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	4117.38	2652.86	**61.4%**	**Pass**

**Rating per TIA-222-H Section 15.5*

Structural Rating*:	**61.5%**
Soil Rating*:	**69.6%**

EXHIBIT 4

April 15, 2022

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

RE:		
	Site Number:	CT5404
	FA Number:	10071289
	PACE Number:	MRCTB053541
	PT Number:	2051A11L0A
	Site Name:	UNIONVILLE-FARMINGTON
	Site Address:	319-321 New Britain Avenue Unionville, CT 06085

To Whom It May Concern:

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

- (3) DMP65R-BU8DA Antennas (96.0"x20.7"x7.7" – Wt. = 119 lbs. /each)
- (3) 4478 B14 RRH's (18.1"x13.4"x8.2" – Wt. = 60 lbs. /each)
- (3) 8843 B2/B66A RRH's (14.9"x13.2"x10.9" – Wt. = 72 lbs. /each)
- (3) RRUS-32 B30 RRH's (27.2"x12.1"x7.0" – Wt. = 60 lbs. /each)
- (3) 4449 B5/B12 RRH's (17.9"x13.2"x9.4" – Wt. = 73 lbs. /each)
- (2) DC6-48-60-18-8F Surge Arrestors (24.0"x9.7"Ø – Wt. = 33 lbs. /each)
- **(3) TPA65R-BU8DA-K Antennas (96.0"x20.7"x7.7" – Wt. = 87 lbs. /each)**
- **(3) AIR6419 Antennas (31.1"X16.1"X7.3"– Wt. = 66 lbs. /each)**
- **(3) AIR6449 Antennas (30.6"X15.9"X10.6" – Wt. = 82 lbs. /each)**
- **(1) DC6-48-60-18-8F Surge Arrestors (24.0"x9.7"Ø – Wt. = 33 lbs. /each)**

**Proposed equipment shown in bold.*

No original structural design documents or fabrication drawings were available for the existing mounts. HDG's subconsultants, ProVertic LLC, conducted a survey climb and mapping of the existing AT&T antenna mounts on March 8, 2022.

Mount Analysis Methods:

- This analysis was conducted in accordance with EIA/TIA-222-H, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, the International Building Code 2015 with 2018 Connecticut State Building Code, and AT&T Mount Technical Directive – R16.

- HDG considers this mount to be asymmetrical and has applied wind loads in 30 degree increments all around the mount. Per TIA-222-H and Appendix N of the Connecticut State Building Code, the max basic wind speed for this site is equal to 125 mph with a max basic wind speed with ice of 50 mph and a max ice thickness of 1.5 in. An escalated ice thickness of 1.75 in was used for this analysis.

- HDG considers this site to be exposure category C; tower is located in an urban/suburban or wooded area with numerous closely spaced obstructions.

- HDG considers this site to be topographic category 1; tower is located on flat terrain or the bottom of a hill or ridge.

- HDG considers this site to have a spectral response acceleration parameter at short periods, S_S, of 0.183 and a spectral response acceleration parameter at a period of 1 second, S_1, of 0.064.

- The mount has been analyzed with load combinations consisting of 500 lbs live load using a service wind speed of 50 mph wind on the worst case antenna. Analysis performed on each antenna pipe to determine worst case location; worst case location was antenna position 1.

- The mount has been analyzed with load combinations consisting of a 250 lbs live load in a worst case location on the mount.

- The existing mounts are secured to the existing monopole with ring mounts and threaded rods. HDG considers the threaded rods to be the governing connection member.

  Based on our evaluation, we have determined that the existing mounts **ARE CAPABLE** of supporting the proposed installation.

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
Existing Mount Rating	110	LC8	80%	**PASS**

Reference Documents:

- Mount mapping report prepared by ProVertic LLC.

This determination was based on the following limitations and assumptions:

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

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

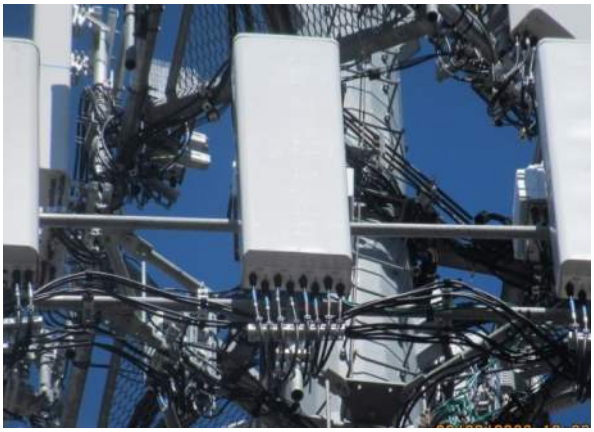
Respectfully Submitted,
Hudson Design Group LLC

Michael Cabral
Vice President

Daniel P. Hamm, PE
Principal

FIELD PHOTOS:


03/08/

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Wind & Ice
Calculations

ANSI/TIA-222H - WIND, ICE & SEISMIC LOAD CALCULATIONS

Site Code/Name		CT5404 - UNIONVILLE-FARMINGTON		
State		Connecticut		
County		Hartford		*Reference*
Structure Class		II		*Table 2-1*
Exposure Category		C		*Section 2.6.5.1.2*
Topographic Category		1 - Kzt = 1		*Section 2.6.6.2.1*
Mean Elevation of base of structure	z_s	185.49	ft	*ASCE7-16 Hazards*
Height Above Ground	z	150	ft	

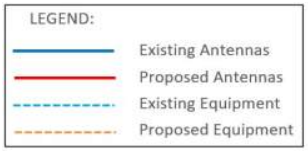
Wind Parameters				
Basic wind speed	V	125	mph	*Appendix N of Connecticut Building Code*
Wind direction probability factor	K_d	0.95		*Section 16.6*
Gust effect factor	G_h	1		*Section 16.6*
Velocity Pressure (Ka = 0.9)		46.83	psf	*Section 2.6.11.6*

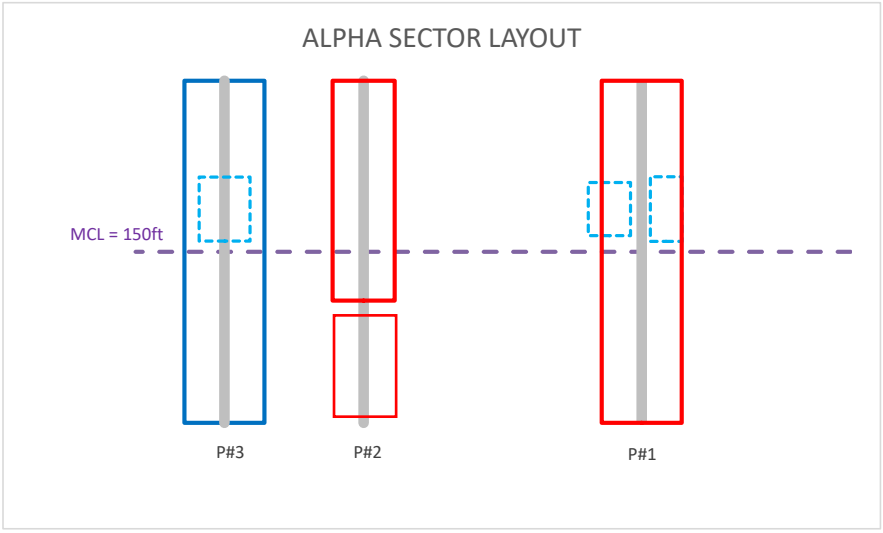
Wind & Ice Parameters				
Base windspeed in conjunction with ice, V_i		50	mph	*ASCE7-16 Hazards Tool*
Base Ice thickness	t_i	1.50	in	*ASCE7-16 Hazards Tool*
Ice Velocity Pressure (Ka = 0.9)	q_{ice}	7.49	psf	*Section 2.6.11.6*
Design Ice Thickness	t_{iz}	1.75	in	*Section 2.6.10*

Seismic Parameters				
Site Soil Class		D - Default		*Table 2-10*
Seismic Design Category		B		*ASCE7-16 Hazards Tool*
Spectral Response at Short Periods	S_s	0.183		*Appendix N of Connecticut Building Code*
Spectral Response at 1sec	S_1	0.064		*Appendix N of Connecticut Building Code*
Long Period Transition Period	T_L	6		*ASCE7-16 Hazards Tool*
Seismic Importance Factor	I_s	1		*Table 2-3*
Response modification coefficient	R	2		*Section 16.7*
Short-Period Site Coefficient	F_a	1.6		*Table 2-11*
Design Spectral Response at Short Periods	S_{DS}	0.195		*Section 2.7.5*
Seismic Response Coefficient	C_s	0.098		*Section 2.7.7.1*

ALPHA SECTOR

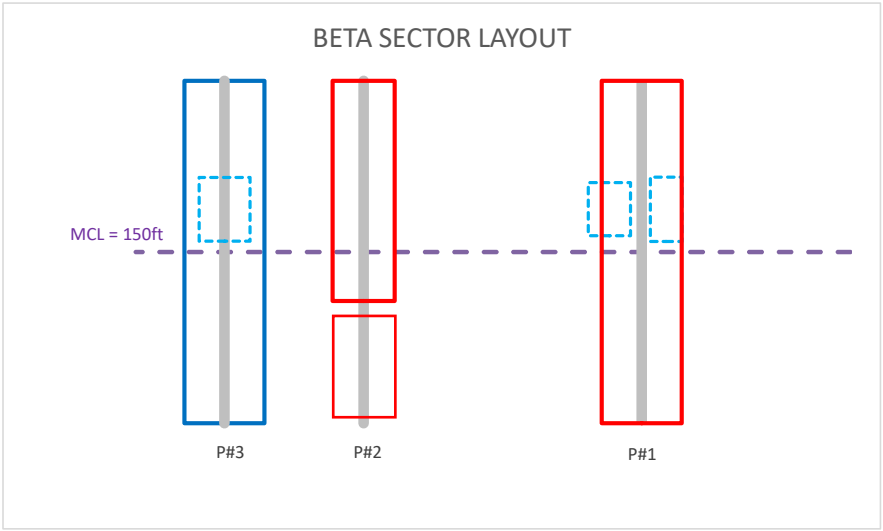
Position	Appurtenance properties						Wind		Ice	Seismic
	Manufacturer	Model	L [in]	W [in]	D [in]	Weight [lbs]	0^o [lbs]	90^o [lbs]	IceWeight [lbs]	E_H [lbs]
1	CCI	TPA65R-BU8DA-K	96.0	20.7	7.7	87.0	836.8	380.3	413.9	8.5
2	Ericsson	AIR6449 +AIR6419(Stacked)	61.7	16.1	10.6	148.0	406.8	286.6	237.0	14.4
3	CCI	DMP65R-BU8DA	96.0	20.7	7.7	119.0	836.8	380.3	413.9	11.6
1	Ericsson	4478 B14	18.1	13.4	8.2	60.0	57.9	94.6	61.5	5.9
1	Ericsson	8843 B2/B66A	14.9	13.2	10.9	72.0	63.4	76.7	55.8	7.0
3	Ericsson	4449 B5/B12	17.9	13.2	9.4	73.0	92.2	65.7	62.7	7.1
-	Ericsson	RRUS 32 B30A	27.2	12.1	7.0	60.0	128.4	78.1	80.9	5.9
-	Raycap	DC6-48-60-18 -8F	24.0	9.7	9.7	33.0	90.8	90.8	70.7	3.2

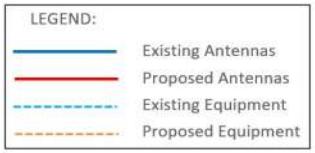




BETA SECTOR

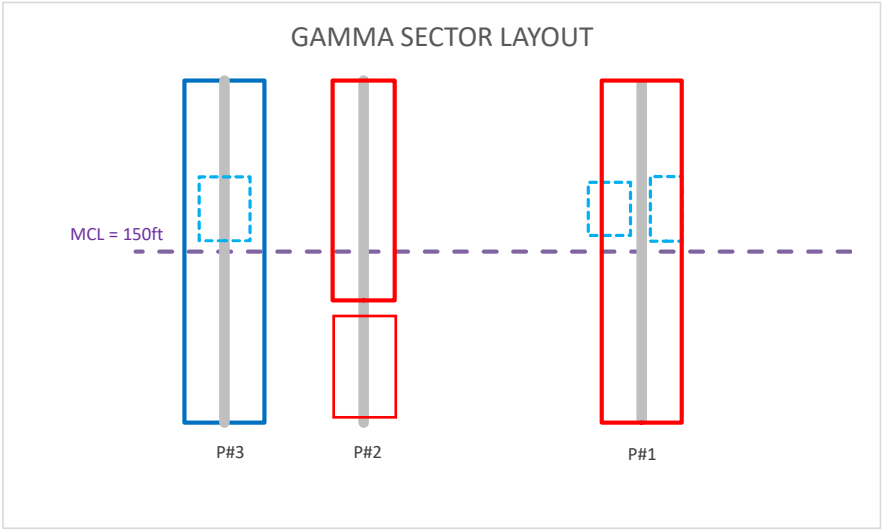
Position	Appurtenance properties						Wind		Ice	Seismic
	Manufacturer	Model	L [in]	W [in]	D [in]	Weight [lbs]	0^o [lbs]	90^o [lbs]	IceWeight [lbs]	E_H [lbs]
1	CCI	TPA65R-BU8DA-K	96.0	20.7	7.7	87.0	836.8	380.3	413.9	8.5
2	Ericsson	AIR6449 +AIR6419(Stacked)	61.7	16.1	10.6	148.0	406.8	286.6	237.0	14.4
3	CCI	DMP65R-BU8DA	96.0	20.7	7.7	119.0	836.8	380.3	413.9	11.6
1	Ericsson	4478 B14	18.1	13.4	8.2	60.0	85.5	67.1	61.5	5.9
1	Ericsson	8843 B2/B66A	14.9	13.2	10.9	72.0	73.4	66.7	55.8	7.0
3	Ericsson	4449 B5/B12	17.9	13.2	9.4	73.0	72.3	85.6	62.7	7.1
-	Ericsson	RRUS 32 B30A	24.0	12.1	7.0	33.0	86.9	104.5	71.9	3.2
-	Raycap	DC6-48-60-18 -8F	24.0	9.7	9.7	33.0	90.8	90.8	70.7	3.2





GAMMA SECTOR

Position	Appurtenance properties						Wind		Ice	Seismic
	Manufacturer	Model	L [in]	W [in]	D [in]	Weight [lbs]	0^o [lbs]	90^o [lbs]	IceWeight [lbs]	E_H [lbs]
1	CCI	TPA65R-BU8DA-K	96.0	20.7	7.7	87.0	836.8	380.3	413.9	8.5
2	Ericsson	AIR6449 +AIR6419(Stacked)	61.7	16.1	10.6	148.0	406.8	286.6	237.0	14.4
3	CCI	DMP65R-BU8DA	96.0	20.7	7.7	119.0	836.8	380.3	413.9	11.6
1	Ericsson	4478 B14	18.1	13.4	8.2	60.0	85.5	67.1	61.5	5.9
1	Ericsson	8843 B2/B66A	14.9	13.2	10.9	72.0	73.4	66.7	55.8	7.0
3	Ericsson	4449 B5/B12	17.9	13.2	9.4	73.0	72.3	85.6	62.7	7.1
-	Ericsson	RRUS 32 B30A	24.0	12.1	7.0	33.0	86.9	104.5	71.9	3.2
-	Raycap	DC6-48-60-18 -8F	24.0	9.7	9.7	33.0	90.8	90.8	70.7	3.2



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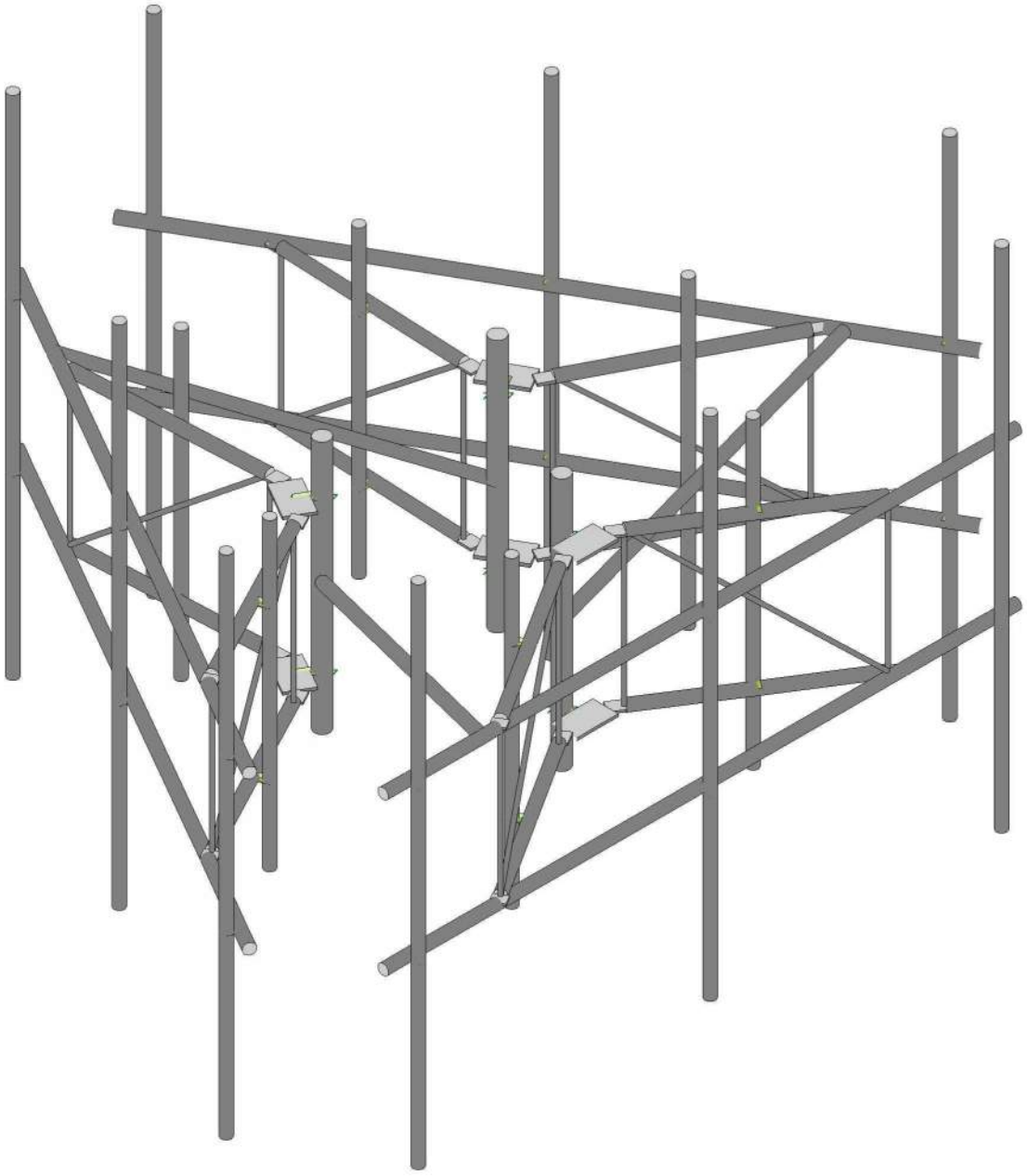
Mount Calculations
(Existing Conditions)



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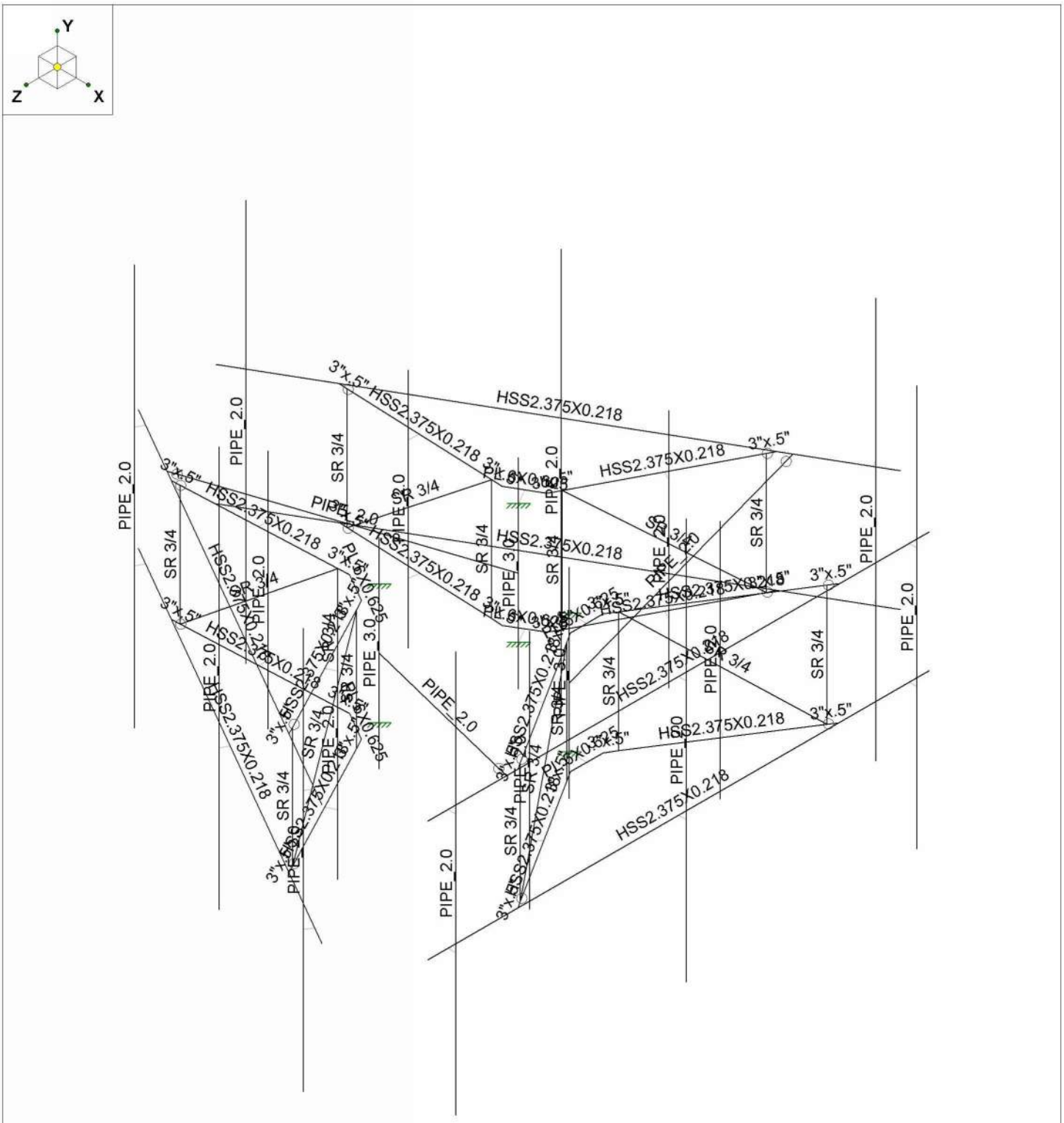

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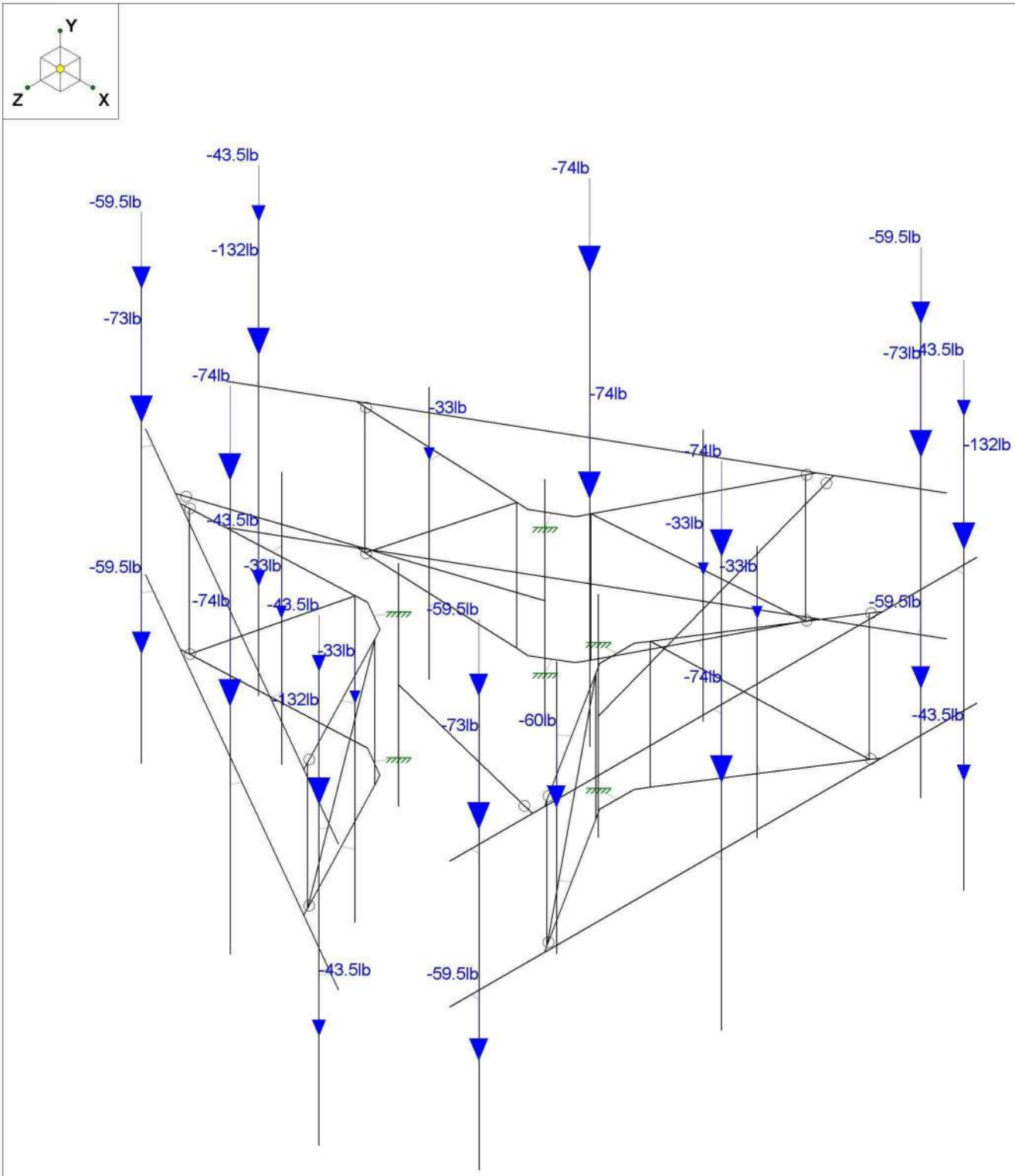

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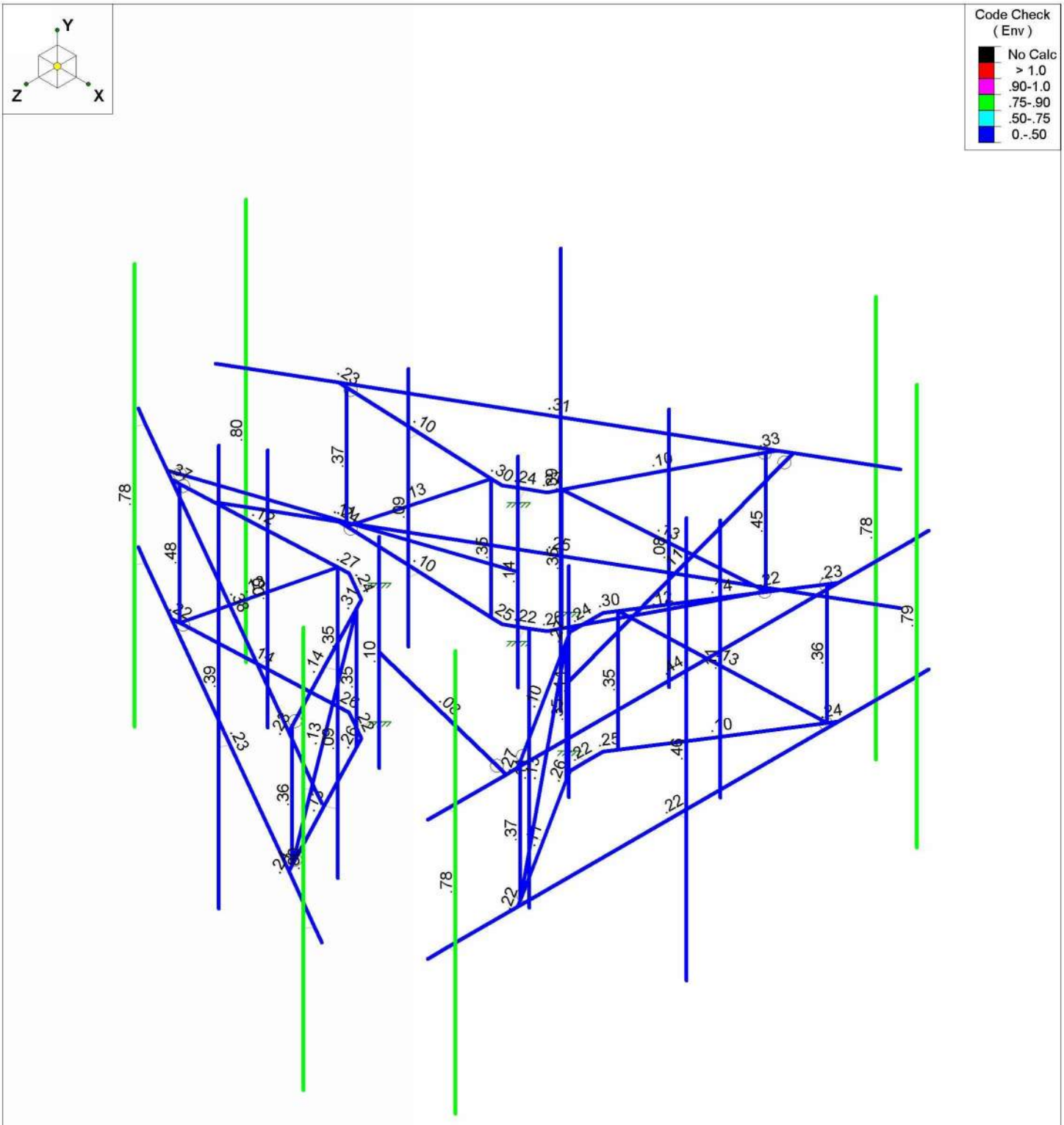

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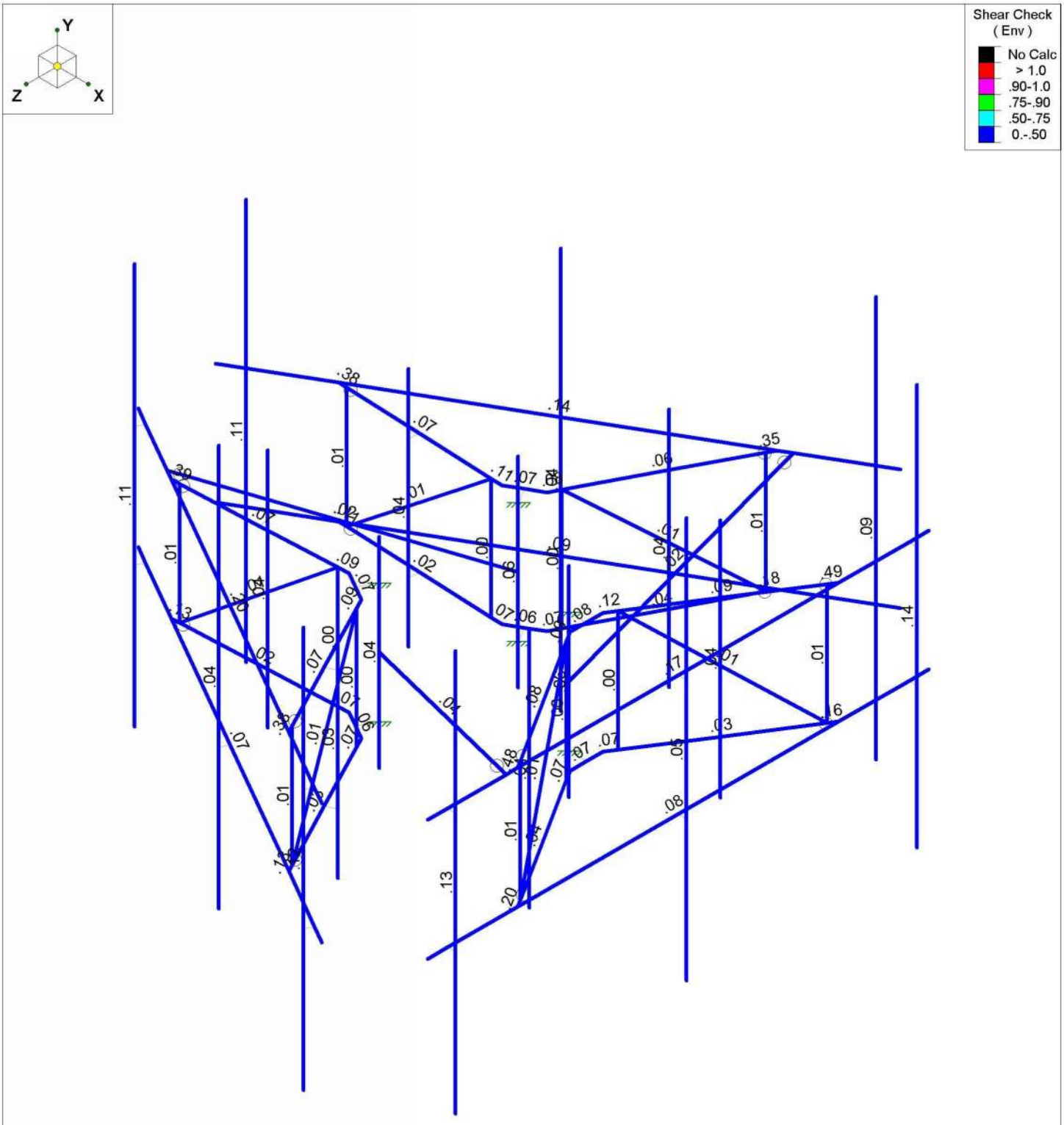

Member Shear Checks Displayed (Enveloped)
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(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	Yes
Max Iterations for Wall Stiffness	3
Gravity Acceleration (in/sec^2)	386.4
Wall Mesh Size (in)	12
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 15th(360-16): LRFD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	None
Cold Formed Steel Code	AISI S100-16: LRFD
Wood Code	None
Wood Temperature	< 100F
Concrete Code	None
Masonry Code	None
Aluminum Code	None - Building
Stainless Steel Code	None

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parme Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	No
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR_SET_ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8

(Global) Model Settings, Continued

Seismic Code	ASCE 7-16
Seismic Base Elevation (in)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Risk Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	4
Cd X	4
Rho Z	1
Rho X	1

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1...	Density[k/ft^3]	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	.3	.65	.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65	.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	.49	50	1.4	65	1.3
8	A500 Gr.C	29000	11154	.3	.65	.527	46	1.4	62	1.3

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rules	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Mount Pipes	PIPE_2.0	None	None	A53 Gr.B	Typical	1.02	.627	.627	1.25
2	Tie Back	PIPE_2.0	None	None	A53 Gr.B	Typical	1.02	.627	.627	1.25
3	Bracing	SR 3/4	None	None	A572 Gr.50	Typical	.442	.016	.016	.031
4	Standoff	HSS2.375X0.218	None	None	A500 Gr.C	Typical	1.39	.824	.824	1.65
5	Horizontal	HSS2.375X0.218	None	None	A500 Gr.C	Typical	1.39	.824	.824	1.65
6	Plate	3"x.5"	None	None	A572 Gr.50	Typical	1.5	.031	1.125	.112
7	End Plate	PL 6X0.625	None	None	A572 Gr.50	Typical	3.75	.122	11.25	.456
8	Vertical	PIPE_3.0	None	None	A53 Gr.B	Typical	2.07	2.85	2.85	5.69

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N28	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	N29	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	N46						
4	N87	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
5	N88	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Joint Boundary Conditions (Continued)

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
6	N47						
7	N144	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
8	N145	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
9	N176						
10	N179						

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(...	Section/Shape	Type	Design List	Material	Design R...
1	M1	N3	N6			Standoff	None	None	A500 Gr.C	Typical
2	M2	N4	N5			Standoff	None	None	A500 Gr.C	Typical
3	M3	N6	N5			Bracing	None	None	A572 Gr.50	Typical
4	M4	N3	N4			Bracing	None	None	A572 Gr.50	Typical
5	M5	N4	N6			Bracing	None	None	A572 Gr.50	Typical
6	M6	N12	N10			Horizontal	None	None	A500 Gr.C	Typical
7	M7	N11	N9			Horizontal	None	None	A500 Gr.C	Typical
8	M8	N5	N13		90	Plate	None	None	A572 Gr.50	Typical
9	M9	N6	N14		90	Plate	None	None	A572 Gr.50	Typical
10	M10	N2	N4		90	Plate	None	None	A572 Gr.50	Typical
11	M11	N1	N3		90	Plate	None	None	A572 Gr.50	Typical
12	M12	N15	N18			Standoff	None	None	A500 Gr.C	Typical
13	M13	N16	N17			Standoff	None	None	A500 Gr.C	Typical
14	M14	N18	N17			Bracing	None	None	A572 Gr.50	Typical
15	M15	N15	N16			Bracing	None	None	A572 Gr.50	Typical
16	M16	N16	N18			Bracing	None	None	A572 Gr.50	Typical
17	M17	N17	N19		90	Plate	None	None	A572 Gr.50	Typical
18	M18	N18	N20		90	Plate	None	None	A572 Gr.50	Typical
19	M19	N8	N16		90	Plate	None	None	A572 Gr.50	Typical
20	M20	N7	N15		90	Plate	None	None	A572 Gr.50	Typical
21	M21	N179	N21			Tie Back	None	None	A53 Gr.B	Typical
22	M22	N25	N24			Mount Pipes	None	None	A53 Gr.B	Typical
23	M23	N8	N2		90	End Plate	None	None	A572 Gr.50	Typical
24	M24	N7	N1		90	End Plate	None	None	A572 Gr.50	Typical
25	M25	N26	N28			RIGID	None	None	RIGID	Typical
26	M26	N27	N29			RIGID	None	None	RIGID	Typical
27	M27	N22	N30			RIGID	None	None	RIGID	Typical
28	M28	N23	N31			RIGID	None	None	RIGID	Typical
29	M29	N35	N34			Mount Pipes	None	None	A53 Gr.B	Typical
30	M30	N32	N36			RIGID	None	None	RIGID	Typical
31	M31	N33	N37			RIGID	None	None	RIGID	Typical
32	M32	N41	N40			Mount Pipes	None	None	A53 Gr.B	Typical
33	M33	N38	N42			RIGID	None	None	RIGID	Typical
34	M34	N39	N43			RIGID	None	None	RIGID	Typical
35	M35	N44	N45			Vertical	None	None	A53 Gr.B	Typical
36	M36	N57	N59			Mount Pipes	None	None	A53 Gr.B	Typical
37	M37	N56	N58			Mount Pipes	None	None	A53 Gr.B	Typical
38	M38	N50	N54			RIGID	None	None	RIGID	Typical
39	M39	N51	N55			RIGID	None	None	RIGID	Typical
40	M40	N49	N53			RIGID	None	None	RIGID	Typical
41	M41	N48	N52			RIGID	None	None	RIGID	Typical
42	M42	N62	N65			Standoff	None	None	A500 Gr.C	Typical
43	M43	N63	N64			Standoff	None	None	A500 Gr.C	Typical
44	M44	N65	N64			Bracing	None	None	A572 Gr.50	Typical
45	M45	N62	N63			Bracing	None	None	A572 Gr.50	Typical
46	M46	N63	N65			Bracing	None	None	A572 Gr.50	Typical
47	M47	N71	N69			Horizontal	None	None	A500 Gr.C	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(...	Section/Shape	Type	Design List	Material	Design R...
48	M48	N70	N68			Horizontal	None	None	A500 Gr.C	Typical
49	M49	N64	N72		90	Plate	None	None	A572 Gr.50	Typical
50	M50	N65	N73		90	Plate	None	None	A572 Gr.50	Typical
51	M51	N61	N63		90	Plate	None	None	A572 Gr.50	Typical
52	M52	N60	N62		90	Plate	None	None	A572 Gr.50	Typical
53	M53	N74	N77			Standoff	None	None	A500 Gr.C	Typical
54	M54	N75	N76			Standoff	None	None	A500 Gr.C	Typical
55	M55	N77	N76			Bracing	None	None	A572 Gr.50	Typical
56	M56	N74	N75			Bracing	None	None	A572 Gr.50	Typical
57	M57	N75	N77			Bracing	None	None	A572 Gr.50	Typical
58	M58	N76	N78		90	Plate	None	None	A572 Gr.50	Typical
59	M59	N77	N79		90	Plate	None	None	A572 Gr.50	Typical
60	M60	N67	N75		90	Plate	None	None	A572 Gr.50	Typical
61	M61	N66	N74		90	Plate	None	None	A572 Gr.50	Typical
62	M62	N47	N80			Tie Back	None	None	A53 Gr.B	Typical
63	M63	N84	N83			Mount Pipes	None	None	A53 Gr.B	Typical
64	M64	N67	N61		90	End Plate	None	None	A572 Gr.50	Typical
65	M65	N66	N60		90	End Plate	None	None	A572 Gr.50	Typical
66	M66	N85	N87			RIGID	None	None	RIGID	Typical
67	M67	N86	N88			RIGID	None	None	RIGID	Typical
68	M68	N81	N89			RIGID	None	None	RIGID	Typical
69	M69	N82	N90			RIGID	None	None	RIGID	Typical
70	M70	N94	N93			Mount Pipes	None	None	A53 Gr.B	Typical
71	M71	N91	N95			RIGID	None	None	RIGID	Typical
72	M72	N92	N96			RIGID	None	None	RIGID	Typical
73	M73	N100	N99			Mount Pipes	None	None	A53 Gr.B	Typical
74	M74	N97	N101			RIGID	None	None	RIGID	Typical
75	M75	N98	N102			RIGID	None	None	RIGID	Typical
76	M76	N114	N116			Mount Pipes	None	None	A53 Gr.B	Typical
77	M77	N113	N115			Mount Pipes	None	None	A53 Gr.B	Typical
78	M78	N107	N111			RIGID	None	None	RIGID	Typical
79	M79	N108	N112			RIGID	None	None	RIGID	Typical
80	M80	N106	N110			RIGID	None	None	RIGID	Typical
81	M81	N105	N109			RIGID	None	None	RIGID	Typical
82	M82	N119	N122			Standoff	None	None	A500 Gr.C	Typical
83	M83	N120	N121			Standoff	None	None	A500 Gr.C	Typical
84	M84	N122	N121			Bracing	None	None	A572 Gr.50	Typical
85	M85	N119	N120			Bracing	None	None	A572 Gr.50	Typical
86	M86	N120	N122			Bracing	None	None	A572 Gr.50	Typical
87	M87	N128	N126			Horizontal	None	None	A500 Gr.C	Typical
88	M88	N127	N125			Horizontal	None	None	A500 Gr.C	Typical
89	M89	N121	N129		90	Plate	None	None	A572 Gr.50	Typical
90	M90	N122	N130		90	Plate	None	None	A572 Gr.50	Typical
91	M91	N118	N120		90	Plate	None	None	A572 Gr.50	Typical
92	M92	N117	N119		90	Plate	None	None	A572 Gr.50	Typical
93	M93	N131	N134			Standoff	None	None	A500 Gr.C	Typical
94	M94	N132	N133			Standoff	None	None	A500 Gr.C	Typical
95	M95	N134	N133			Bracing	None	None	A572 Gr.50	Typical
96	M96	N131	N132			Bracing	None	None	A572 Gr.50	Typical
97	M97	N132	N134			Bracing	None	None	A572 Gr.50	Typical
98	M98	N133	N135		90	Plate	None	None	A572 Gr.50	Typical
99	M99	N134	N136		90	Plate	None	None	A572 Gr.50	Typical
100	M100	N124	N132		90	Plate	None	None	A572 Gr.50	Typical
101	M101	N123	N131		90	Plate	None	None	A572 Gr.50	Typical
102	M102	N176	N137			Tie Back	None	None	A53 Gr.B	Typical
103	M103	N141	N140			Mount Pipes	None	None	A53 Gr.B	Typical
104	M104	N124	N118		90	End Plate	None	None	A572 Gr.50	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(...	Section/Shape	Type	Design List	Material	Design R...
105	M105	N123	N117		90	End Plate	None	None	A572 Gr.50	Typical
106	M106	N142	N144			RIGID	None	None	RIGID	Typical
107	M107	N143	N145			RIGID	None	None	RIGID	Typical
108	M108	N138	N146			RIGID	None	None	RIGID	Typical
109	M109	N139	N147			RIGID	None	None	RIGID	Typical
110	M110	N151	N150			Mount Pipes	None	None	A53 Gr.B	Typical
111	M111	N148	N152			RIGID	None	None	RIGID	Typical
112	M112	N149	N153			RIGID	None	None	RIGID	Typical
113	M113	N157	N156			Mount Pipes	None	None	A53 Gr.B	Typical
114	M114	N154	N158			RIGID	None	None	RIGID	Typical
115	M115	N155	N159			RIGID	None	None	RIGID	Typical
116	M116	N171	N173			Mount Pipes	None	None	A53 Gr.B	Typical
117	M117	N170	N172			Mount Pipes	None	None	A53 Gr.B	Typical
118	M118	N164	N168			RIGID	None	None	RIGID	Typical
119	M119	N165	N169			RIGID	None	None	RIGID	Typical
120	M120	N163	N167			RIGID	None	None	RIGID	Typical
121	M121	N162	N166			RIGID	None	None	RIGID	Typical
122	M122	N174	N175			Vertical	None	None	A53 Gr.B	Typical
123	M123	N177	N178			Vertical	None	None	A53 Gr.B	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rati..	Analysis ...	Inactive	Seismic ...
1	M1						Yes	** NA **			None
2	M2						Yes	** NA **			None
3	M3						Yes	** NA **			None
4	M4						Yes	** NA **			None
5	M5						Yes	** NA **			None
6	M6						Yes	** NA **			None
7	M7						Yes	** NA **			None
8	M8		BenPIN				Yes	** NA **			None
9	M9		BenPIN				Yes	** NA **			None
10	M10						Yes	** NA **			None
11	M11						Yes	** NA **			None
12	M12						Yes	** NA **			None
13	M13						Yes	** NA **			None
14	M14						Yes	** NA **			None
15	M15						Yes	** NA **			None
16	M16						Yes	** NA **			None
17	M17		BenPIN				Yes	** NA **			None
18	M18		BenPIN				Yes	** NA **			None
19	M19						Yes	** NA **			None
20	M20						Yes	** NA **			None
21	M21		BenPIN				Yes	** NA **			None
22	M22						Yes	** NA **			None
23	M23						Yes	** NA **			None
24	M24						Yes	** NA **			None
25	M25						Yes	** NA **			None
26	M26						Yes	** NA **			None
27	M27						Yes	** NA **			None
28	M28						Yes	** NA **			None
29	M29						Yes	** NA **			None
30	M30						Yes	** NA **			None
31	M31						Yes	** NA **			None
32	M32						Yes	** NA **			None
33	M33						Yes	** NA **			None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rati..	Analysis ...	Inactive	Seismic ...
34	M34						Yes	** NA **			None
35	M35						Yes	** NA **			None
36	M36						Yes	** NA **			None
37	M37						Yes	** NA **			None
38	M38						Yes	** NA **			None
39	M39						Yes	** NA **			None
40	M40						Yes	** NA **			None
41	M41						Yes	** NA **			None
42	M42						Yes	** NA **			None
43	M43						Yes	** NA **			None
44	M44						Yes	** NA **			None
45	M45						Yes	** NA **			None
46	M46						Yes	** NA **			None
47	M47						Yes	** NA **			None
48	M48						Yes	** NA **			None
49	M49		BenPIN				Yes	** NA **			None
50	M50		BenPIN				Yes	** NA **			None
51	M51						Yes	** NA **			None
52	M52						Yes	** NA **			None
53	M53						Yes	** NA **			None
54	M54						Yes	** NA **			None
55	M55						Yes	** NA **			None
56	M56						Yes	** NA **			None
57	M57						Yes	** NA **			None
58	M58		BenPIN				Yes	** NA **			None
59	M59		BenPIN				Yes	** NA **			None
60	M60						Yes	** NA **			None
61	M61						Yes	** NA **			None
62	M62		BenPIN				Yes	** NA **			None
63	M63						Yes	** NA **			None
64	M64						Yes	** NA **			None
65	M65						Yes	** NA **			None
66	M66						Yes	** NA **			None
67	M67						Yes	** NA **			None
68	M68						Yes	** NA **			None
69	M69						Yes	** NA **			None
70	M70						Yes	** NA **			None
71	M71						Yes	** NA **			None
72	M72						Yes	** NA **			None
73	M73						Yes	** NA **			None
74	M74						Yes	** NA **			None
75	M75						Yes	** NA **			None
76	M76						Yes	** NA **			None
77	M77						Yes	** NA **			None
78	M78						Yes	** NA **			None
79	M79						Yes	** NA **			None
80	M80						Yes	** NA **			None
81	M81						Yes	** NA **			None
82	M82						Yes	** NA **			None
83	M83						Yes	** NA **			None
84	M84						Yes	** NA **			None
85	M85						Yes	** NA **			None
86	M86						Yes	** NA **			None
87	M87						Yes	** NA **			None
88	M88						Yes	** NA **			None
89	M89		BenPIN				Yes	** NA **			None
90	M90		BenPIN				Yes	** NA **			None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rati..	Analysis ...	Inactive	Seismic ...
91	M91						Yes	** NA **			None
92	M92						Yes	** NA **			None
93	M93						Yes	** NA **			None
94	M94						Yes	** NA **			None
95	M95						Yes	** NA **			None
96	M96						Yes	** NA **			None
97	M97						Yes	** NA **			None
98	M98		BenPIN				Yes	** NA **			None
99	M99		BenPIN				Yes	** NA **			None
100	M100						Yes	** NA **			None
101	M101						Yes	** NA **			None
102	M102		BenPIN				Yes	** NA **			None
103	M103						Yes	** NA **			None
104	M104						Yes	** NA **			None
105	M105						Yes	** NA **			None
106	M106						Yes	** NA **			None
107	M107						Yes	** NA **			None
108	M108						Yes	** NA **			None
109	M109						Yes	** NA **			None
110	M110						Yes	** NA **			None
111	M111						Yes	** NA **			None
112	M112						Yes	** NA **			None
113	M113						Yes	** NA **			None
114	M114						Yes	** NA **			None
115	M115						Yes	** NA **			None
116	M116						Yes	** NA **			None
117	M117						Yes	** NA **			None
118	M118						Yes	** NA **			None
119	M119						Yes	** NA **			None
120	M120						Yes	** NA **			None
121	M121						Yes	** NA **			None
122	M122						Yes	** NA **			None
123	M123						Yes	** NA **			None

Hot Rolled Steel Design Parameters

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torq...	Kyy	Kzz	Cb	Functi...
1	M1	Standoff	45.25			Lbyy						Lateral
2	M2	Standoff	45.25			Lbyy						Lateral
3	M3	Bracing	36									Lateral
4	M4	Bracing	36									Lateral
5	M5	Bracing	57.824									Lateral
6	M6	Horizontal	150	96	96	Lbyy						Lateral
7	M7	Horizontal	150	96	96	Lbyy						Lateral
8	M8	Plate	2.5			Lbyy						Lateral
9	M9	Plate	2.5			Lbyy						Lateral
10	M10	Plate	3.313			Lbyy						Lateral
11	M11	Plate	3.313			Lbyy						Lateral
12	M12	Standoff	45.25			Lbyy						Lateral
13	M13	Standoff	45.25			Lbyy						Lateral
14	M14	Bracing	36									Lateral
15	M15	Bracing	36									Lateral
16	M16	Bracing	57.824									Lateral
17	M17	Plate	2.5			Lbyy						Lateral
18	M18	Plate	2.5			Lbyy						Lateral
19	M19	Plate	3.313			Lbyy						Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torq...	Kyy	Kzz	Cb	Functi...
20	M20	Plate	3.313			Lbyy						Lateral
21	M21	Tie Back	77.365									Lateral
22	M22	Mount Pipes	120									Lateral
23	M23	End Plate	9.869									Lateral
24	M24	End Plate	9.869									Lateral
25	M29	Mount Pipes	120									Lateral
26	M32	Mount Pipes	120									Lateral
27	M35	Vertical	60									Lateral
28	M36	Mount Pipes	72									Lateral
29	M37	Mount Pipes	72									Lateral
30	M42	Standoff	45.25			Lbyy						Lateral
31	M43	Standoff	45.25			Lbyy						Lateral
32	M44	Bracing	36									Lateral
33	M45	Bracing	36									Lateral
34	M46	Bracing	57.824									Lateral
35	M47	Horizontal	150	96	96	Lbyy						Lateral
36	M48	Horizontal	150	96	96	Lbyy						Lateral
37	M49	Plate	2.5			Lbyy						Lateral
38	M50	Plate	2.5			Lbyy						Lateral
39	M51	Plate	3.313			Lbyy						Lateral
40	M52	Plate	3.313			Lbyy						Lateral
41	M53	Standoff	45.25			Lbyy						Lateral
42	M54	Standoff	45.25			Lbyy						Lateral
43	M55	Bracing	36									Lateral
44	M56	Bracing	36									Lateral
45	M57	Bracing	57.824									Lateral
46	M58	Plate	2.5			Lbyy						Lateral
47	M59	Plate	2.5			Lbyy						Lateral
48	M60	Plate	3.313			Lbyy						Lateral
49	M61	Plate	3.313			Lbyy						Lateral
50	M62	Tie Back	77.365									Lateral
51	M63	Mount Pipes	120									Lateral
52	M64	End Plate	9.869									Lateral
53	M65	End Plate	9.869									Lateral
54	M70	Mount Pipes	120									Lateral
55	M73	Mount Pipes	120									Lateral
56	M76	Mount Pipes	72									Lateral
57	M77	Mount Pipes	72									Lateral
58	M82	Standoff	45.25			Lbyy						Lateral
59	M83	Standoff	45.25			Lbyy						Lateral
60	M84	Bracing	36									Lateral
61	M85	Bracing	36									Lateral
62	M86	Bracing	57.824									Lateral
63	M87	Horizontal	150	96	96	Lbyy						Lateral
64	M88	Horizontal	150	96	96	Lbyy						Lateral
65	M89	Plate	2.5			Lbyy						Lateral
66	M90	Plate	2.5			Lbyy						Lateral
67	M91	Plate	3.313			Lbyy						Lateral
68	M92	Plate	3.313			Lbyy						Lateral
69	M93	Standoff	45.25			Lbyy						Lateral
70	M94	Standoff	45.25			Lbyy						Lateral
71	M95	Bracing	36									Lateral
72	M96	Bracing	36									Lateral
73	M97	Bracing	57.824									Lateral
74	M98	Plate	2.5			Lbyy						Lateral
75	M99	Plate	2.5			Lbyy						Lateral
76	M100	Plate	3.313			Lbyy						Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torq...	Kyy	Kzz	Cb	Functi...
77	M101	Plate	3.313			Lbyy						Lateral
78	M102	Tie Back	77.365									Lateral
79	M103	Mount Pipes	120									Lateral
80	M104	End Plate	9.869									Lateral
81	M105	End Plate	9.869									Lateral
82	M110	Mount Pipes	120									Lateral
83	M113	Mount Pipes	120									Lateral
84	M116	Mount Pipes	72									Lateral
85	M117	Mount Pipes	72									Lateral
86	M122	Vertical	60									Lateral
87	M123	Vertical	60									Lateral

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(...
1	Self We	DL		-1.1						
2	We	DL					33			
3	Ice We	DL					33	57		
4	W0	WL					33	57		
5	W30	WL					66	114		
6	W60	WL					66	114		
7	W90	WL					33	57		
8	W120	WL					66	114		
9	W150	WL					66	114		
10	W0 + Ice	WL					33	57		
11	W30 + Ice	WL					66	114		
12	W60 + Ice	WL					66	114		
13	W90 + Ice	WL					33	57		
14	W120 + Ice	WL					66	114		
15	W150 + Ice	WL					66	114		
16	500lbs LM 1	LL				1				
17	500lbs LM 2	LL				1				
18	500lbs LM 3	LL				1				
19	500lbs LM 4	LL								
20	250lbs LV 5	LL				1				
21	250lbs LV 6	LL				1				
22	E0	EL	-.1				33			
23	E90	EL			.1		33			

Load Combinations

	Description	S...	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	Dead	Yes	Y		1	1.4	2	1.4	0		0													
2	Dead + Wind 0	Yes	Y		1	1.2	2	1.2	4	1	0													
3	Dead + Wind 30	Yes	Y		1	1.2	2	1.2	5	1	0													
4	Dead + Wind 60	Yes	Y		1	1.2	2	1.2	6	1	0													
5	Dead + Wind 90	Yes	Y		1	1.2	2	1.2	7	1	0													
6	Dead + Wind 120	Yes	Y		1	1.2	2	1.2	8	1	0													
7	Dead + Wind 150	Yes	Y		1	1.2	2	1.2	9	1	0													
8	Dead + Wind 180	Yes	Y		1	1.2	2	1.2	4	-1	0													
9	Dead + Wind 210	Yes	Y		1	1.2	2	1.2	5	-1	0													
10	Dead + Wind 240	Yes	Y		1	1.2	2	1.2	6	-1	0													
11	Dead + Wind 270	Yes	Y		1	1.2	2	1.2	7	-1	0													
12	Dead + Wind 300	Yes	Y		1	1.2	2	1.2	8	-1	0													
13	Dead + Wind 330	Yes	Y		1	1.2	2	1.2	9	-1	0													
14	Dead + Ice + Wind Ice 0	Yes	Y		1	1.2	2	1.2	10	1	3	1												

Load Combinations (Continued)

	Description	S...	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
15	Dead + Ice + Wind Ice 30	Yes	Y		1	1.2	2	1.2	11	1	3	1												
16	Dead + Ice + Wind Ice 60	Yes	Y		1	1.2	2	1.2	12	1	3	1												
17	Dead + Ice + Wind Ice 90	Yes	Y		1	1.2	2	1.2	13	1	3	1												
18	Dead + Ice + Wind Ice 120	Yes	Y		1	1.2	2	1.2	14	1	3	1												
19	Dead + Ice + Wind Ice 150	Yes	Y		1	1.2	2	1.2	15	1	3	1												
20	Dead + Ice + Wind Ice 180	Yes	Y		1	1.2	2	1.2	10	-1	3	1												
21	Dead + Ice + Wind Ice 210	Yes	Y		1	1.2	2	1.2	11	-1	3	1												
22	Dead + Ice + Wind Ice 240	Yes	Y		1	1.2	2	1.2	12	-1	3	1												
23	Dead + Ice + Wind Ice 270	Yes	Y		1	1.2	2	1.2	13	-1	3	1												
24	Dead + Ice + Wind Ice 300	Yes	Y		1	1.2	2	1.2	14	-1	3	1												
25	Dead + Ice + Wind Ice 330	Yes	Y		1	1.2	2	1.2	15	-1	3	1												
26	Dead + LM5001 + Wred 0	Yes	Y		1	1.2	2	1.2	16	1.5	4	.058												
27	Dead + LM5001 + Wred 30	Yes	Y		1	1.2	2	1.2	16	1.5	5	.058												
28	Dead + LM5001 + Wred 60	Yes	Y		1	1.2	2	1.2	16	1.5	6	.058												
29	Dead + LM5001 + Wred 90	Yes	Y		1	1.2	2	1.2	16	1.5	7	.058												
30	Dead + LM5001 + Wred 120	Yes	Y		1	1.2	2	1.2	16	1.5	8	.058												
31	Dead + LM5001 + Wred 150	Yes	Y		1	1.2	2	1.2	16	1.5	9	.058												
32	Dead + LM5001 + Wred 180	Yes	Y		1	1.2	2	1.2	16	1.5	4	-.0...												
33	Dead + LM5001 + Wred 210	Yes	Y		1	1.2	2	1.2	16	1.5	5	-.0...												
34	Dead + LM5001 + Wred 240	Yes	Y		1	1.2	2	1.2	16	1.5	6	-.0...												
35	Dead + LM5001 + Wred 270	Yes	Y		1	1.2	2	1.2	16	1.5	7	-.0...												
36	Dead + LM5001 + Wred 300	Yes	Y		1	1.2	2	1.2	16	1.5	8	-.0...												
37	Dead + LM5001 + Wred 330	Yes	Y		1	1.2	2	1.2	16	1.5	9	-.0...												
38	Dead + LM5002 + Wred 0	Yes	Y		1	1.2	2	1.2	17	1.5	4	.058												
39	Dead + LM5002 + Wred 30	Yes	Y		1	1.2	2	1.2	17	1.5	5	.058												
40	Dead + LM5002 + Wred 60	Yes	Y		1	1.2	2	1.2	17	1.5	6	.058												
41	Dead + LM5002 + Wred 90	Yes	Y		1	1.2	2	1.2	17	1.5	7	.058												
42	Dead + LM5002 + Wred 120	Yes	Y		1	1.2	2	1.2	17	1.5	8	.058												
43	Dead + LM5002 + Wred 150	Yes	Y		1	1.2	2	1.2	17	1.5	9	.058												
44	Dead + LM5002 + Wred 180	Yes	Y		1	1.2	2	1.2	17	1.5	4	-.0...												
45	Dead + LM5002 + Wred 210	Yes	Y		1	1.2	2	1.2	17	1.5	5	-.0...												
46	Dead + LM5002 + Wred 240	Yes	Y		1	1.2	2	1.2	17	1.5	6	-.0...												
47	Dead + LM5002 + Wred 270	Yes	Y		1	1.2	2	1.2	17	1.5	7	-.0...												
48	Dead + LM5002 + Wred 300	Yes	Y		1	1.2	2	1.2	17	1.5	8	-.0...												
49	Dead + LM5002 + Wred 330	Yes	Y		1	1.2	2	1.2	17	1.5	9	-.0...												
50	Dead + LM5003 + Wred 0	Yes	Y		1	1.2	2	1.2	18	1.5	4	.058												
51	Dead + LM5003 + Wred 30	Yes	Y		1	1.2	2	1.2	18	1.5	5	.058												
52	Dead + LM5003 + Wred 60	Yes	Y		1	1.2	2	1.2	18	1.5	6	.058												
53	Dead + LM5003 + Wred 90	Yes	Y		1	1.2	2	1.2	18	1.5	7	.058												
54	Dead + LM5003 + Wred 120	Yes	Y		1	1.2	2	1.2	18	1.5	8	.058												
55	Dead + LM5003 + Wred 150	Yes	Y		1	1.2	2	1.2	18	1.5	9	.058												
56	Dead + LM5003 + Wred 180	Yes	Y		1	1.2	2	1.2	18	1.5	4	-.0...												
57	Dead + LM5003 + Wred 210	Yes	Y		1	1.2	2	1.2	18	1.5	5	-.0...												
58	Dead + LM5003 + Wred 240	Yes	Y		1	1.2	2	1.2	18	1.5	6	-.0...												
59	Dead + LM5003 + Wred 270	Yes	Y		1	1.2	2	1.2	18	1.5	7	-.0...												
60	Dead + LM5003 + Wred 300	Yes	Y		1	1.2	2	1.2	18	1.5	8	-.0...												
61	Dead + LM5003 + Wred 330	Yes	Y		1	1.2	2	1.2	18	1.5	9	-.0...												
62	Dead + LM5004 + Wred 0	Yes	Y		1	1.2	2	1.2	19	1.5	4	.058												
63	Dead + LM5004 + Wred 30	Yes	Y		1	1.2	2	1.2	19	1.5	5	.058												
64	Dead + LM5004 + Wred 60	Yes	Y		1	1.2	2	1.2	19	1.5	6	.058												
65	Dead + LM5004 + Wred 90	Yes	Y		1	1.2	2	1.2	19	1.5	7	.058												
66	Dead + LM5004 + Wred 120	Yes	Y		1	1.2	2	1.2	19	1.5	8	.058												
67	Dead + LM5004 + Wred 150	Yes	Y		1	1.2	2	1.2	19	1.5	9	.058												
68	Dead + LM5004 + Wred 180	Yes	Y		1	1.2	2	1.2	19	1.5	4	-.0...												
69	Dead + LM5004 + Wred 210	Yes	Y		1	1.2	2	1.2	19	1.5	5	-.0...												
70	Dead + LM5004 + Wred 240	Yes	Y		1	1.2	2	1.2	19	1.5	6	-.0...												
71	Dead + LM5004 + Wred 270	Yes	Y		1	1.2	2	1.2	19	1.5	7	-.0...												

Load Combinations (Continued)

	Description	S...	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
72	Dead + LM5004 + Wred 300	Yes	Y		1	1.2	2	1.2	19	1.5	8	-.0...												
73	Dead + LM5004 + Wred 330	Yes	Y		1	1.2	2	1.2	19	1.5	9	-.0...												
74	Dead + LV2505	Yes	Y		1	1.2	2	1.2	20	1.5	0													
75	Dead + LV2506	Yes	Y		1	1.2	2	1.2	21	1.5	0													
76	Service 60mph Wind 0	Yes	Y		1	1	2	1	4	.23	0													
77	(1.2 + 0.2SDS)Dead + 1.0E 0	Yes	Y		1	1.2...	2	1.2...	22	1	23													
78	(1.2 + 0.2SDS)Dead + 1.0E 30	Yes	Y		1	1.2...	2	1.2...	22	.866	23	.5												
79	(1.2 + 0.2SDS)Dead + 1.0E 60	Yes	Y		1	1.2...	2	1.2...	22	.5	23	.866												
80	(1.2 + 0.2SDS)Dead + 1.0E 90	Yes	Y		1	1.2...	2	1.2...	22		23	1												
81	(1.2 + 0.2SDS)Dead + 1.0E 120	Yes	Y		1	1.2...	2	1.2...	22	-.5	23	.866												
82	(1.2 + 0.2SDS)Dead + 1.0E 150	Yes	Y		1	1.2...	2	1.2...	22	-.8...	23	.5												
83	(1.2 + 0.2SDS)Dead + 1.0E 180	Yes	Y		1	1.2...	2	1.2...	22	-1	23													
84	(1.2 + 0.2SDS)Dead + 1.0E 210	Yes	Y		1	1.2...	2	1.2...	22	-.8...	23	-.5												
85	(1.2 + 0.2SDS)Dead + 1.0E 240	Yes	Y		1	1.2...	2	1.2...	22	-.5	23	-.8...												
86	(1.2 + 0.2SDS)Dead + 1.0E 270	Yes	Y		1	1.2...	2	1.2...	22		23	-1												
87	(1.2 + 0.2SDS)Dead + 1.0E 300	Yes	Y		1	1.2...	2	1.2...	22	.5	23	-.8...												
88	(1.2 + 0.2SDS)Dead + 1.0E 330	Yes	Y		1	1.2...	2	1.2...	22	.866	23	-.5												

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-in]	LC	MY [k-in]	LC	MZ [k-in]	LC
1	N28	max	2089.866	13	2084.413	21	2068.297	13	8.842	8	11.435	7	12.14	24
2		min	-3875.407	7	332.06	3	-1996.73	7	-8.888	2	-11.965	13	3.393	6
3	N29	max	2643.218	14	1833.174	21	1258.604	61	9.763	3	10.072	6	10.867	22
4		min	129.542	7	284.726	3	-1416.672	31	-10.161	9	-10.433	12	2.31	4
5	N87	max	1852.825	2	2079.449	14	3552.023	10	10.857	18	10.763	9	4.935	7
6		min	-878.667	8	232.378	8	-2067.726	4	.171	13	-11.806	3	-9.438	13
7	N88	max	49.528	4	1829.317	14	268.817	11	10.646	14	11.421	9	6.017	13
8		min	-1555.238	22	195.524	8	-2276.95	17	-3.39	8	-11.617	3	-9.67	7
9	N144	max	4143.201	2	2057.594	18	772.76	9	-.65	12	14.389	2	3.925	3
10		min	-3352.025	8	358.529	13	-2588.353	15	-11.071	18	-15.037	8	-8.089	9
11	N145	max	1059.141	3	1809.558	18	2301.564	23	-.375	3	13.709	2	5.078	12
12		min	-1797.604	9	312.537	13	580.633	5	-9.489	22	-13.648	8	-9.062	6
13	Totals:	max	10035.889	2	11127.862	21	6921.26	11						
14		min	-10035.884	8	3455.257	76	-6921.261	5						

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

	Member	Shape	Code Check	Loc[in]	LC	Shear Ch...	Loc[...	Dir	LC	phi*Pnc...	phi*Pnt...	phi*Mn ...	phi*Mn ...	Cb	Eqn
1	M110	PIPE_2.0	.802	41.25	8	.119	42.5		3	9836.597	32130	22.459	22.459	2...	H1-1b
2	M70	PIPE_2.0	.801	41.25	2	.107	42.5		13	9836.597	32130	22.459	22.459	2...	H1-1b
3	M29	PIPE_2.0	.795	41.25	8	.137	42.5		8	9836.597	32130	22.459	22.459	1...	H1-1b
4	M22	PIPE_2.0	.783	41.25	8	.128	42.5		8	9836.597	32130	22.459	22.459	1...	H1-1b
5	M103	PIPE_2.0	.777	41.25	2	.113	42.5		3	9836.597	32130	22.459	22.459	2...	H1-1b
6	M63	PIPE_2.0	.777	41.25	8	.091	42.5		13	9836.597	32130	22.459	22.459	2...	H1-1b
7	M95	SR 3/4	.482	0	8	.012	36		13	2707.461	19880.37	2.982	2.982	1...	H1-1a
8	M32	PIPE_2.0	.460	42.5	8	.045	42.5		9	9836.597	32130	22.459	22.459	2...	H1-1b
9	M55	SR 3/4	.452	0	3	.015	36		8	2707.461	19880.37	2.982	2.982	1...	H1-1a
10	M7	HSS2.375X0.218	.436	121.875	8	.167	26.5...		7	20198....	57546	39.744	39.744	2...	H1-1b
11	M113	PIPE_2.0	.390	42.5	3	.042	42.5		2	9836.597	32130	22.459	22.459	2...	H1-1b
12	M73	PIPE_2.0	.387	41.25	2	.045	42.5		8	9836.597	32130	22.459	22.459	2...	H1-1b
13	M88	HSS2.375X0.218	.385	28.125	3	.197	26.5..		8	20198....	57546	39.744	39.744	2...	H1-1b
14	M14	SR 3/4	.369	0	24	.012	36		3	2707.461	19880.37	2.982	2.982	2...	H1-1a
15	M98	3"x.5"	.369	0	8	.390	0	y	3	66023....	67500	8.46	50.625	1...	H1-1b
16	M44	SR 3/4	.367	0	20	.012	36		2	2707.461	19880.37	2.982	2.982	2...	H1-1a
17	M84	SR 3/4	.358	0	25	.010	36		7	2707.461	19880.37	2.982	2.982	2...	H1-1a

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

	Member	Shape	Code Check	Loc[in]	LC	Shear Ch...	Loc[...	Dir	LC	phi*Pnc...	phi*Pnt...	phi*Mn ...	phi*Mn ...	Cb	Eqn
18	M3	SR 3/4	.356	0	15	.009	36		9	2707.461	19880.37	2.982	2.982	3...	H1-1a
19	M15	SR 3/4	.355	0	22	.002	0		12	2707.461	19880.37	2.982	2.982	2...	H1-1a
20	M4	SR 3/4	.355	0	16	.003	36		9	2707.461	19880.37	2.982	2.982	2...	H1-1a
21	M85	SR 3/4	.355	0	24	.002	36		5	2707.461	19880.37	2.982	2.982	2...	H1-1a
22	M45	SR 3/4	.354	0	20	.003	36		13	2707.461	19880.37	2.982	2.982	2...	H1-1a
23	M56	SR 3/4	.354	0	14	.003	0		3	2707.461	19880.37	2.982	2.982	2...	H1-1a
24	M96	SR 3/4	.353	0	19	.003	0		8	2707.461	19880.37	2.982	2.982	2...	H1-1a
25	M58	3"x.5"	.334	0	3	.354	0	y	13	66023....	67500	8.46	50.625	1...	H1-1b
26	M48	HSS2.375X0.218	.310	23.437	7	.138	26.5...		3	20198....	57546	39.744	39.744	2...	H1-1b
27	M91	3"x.5"	.306	3.313	20	.088	0	y	18	64929....	67500	8.46	50.625	1...	H1-1b
28	M10	3"x.5"	.304	3.313	25	.115	0	y	8	64929....	67500	8.46	50.625	1...	H1-1b
29	M51	3"x.5"	.302	3.313	16	.107	0	y	13	64929....	67500	8.46	50.625	1...	H1-1b
30	M19	3"x.5"	.274	3.313	22	.088	0	y	19	64929....	67500	8.46	50.625	1...	H1-1b
31	M100	3"x.5"	.274	3.313	20	.087	0	y	14	64929....	67500	8.46	50.625	1...	H1-1b
32	M60	3"x.5"	.274	3.313	15	.085	0	y	22	64929....	67500	8.46	50.625	1...	H1-1b
33	M17	3"x.5"	.271	0	12	.484	0	y	8	66023....	67500	8.46	50.625	1...	H1-1b
34	M101	3"x.5"	.264	3.313	20	.072	0	y	20	64929....	67500	8.46	50.625	1...	H1-1b
35	M61	3"x.5"	.263	3.313	15	.070	0	y	16	64929....	67500	8.46	50.625	1...	H1-1b
36	M20	3"x.5"	.262	3.313	24	.072	0	y	25	64929....	67500	8.46	50.625	1...	H1-1b
37	M92	3"x.5"	.258	3.313	20	.069	0	y	21	64929....	67500	8.46	50.625	1...	H1-1b
38	M11	3"x.5"	.254	3.313	25	.069	0	y	25	64929....	67500	8.46	50.625	1...	H1-1b
39	M52	3"x.5"	.254	3.313	16	.067	0	y	16	64929....	67500	8.46	50.625	1...	H1-1b
40	M47	HSS2.375X0.218	.249	143.75	2	.094	26.5...		8	20198....	57546	39.744	39.744	1	H1-1b
41	M50	3"x.5"	.244	0	14	.115	0	y	7	66023....	67500	8.46	50.625	1...	H1-1b
42	M104	PL 6X0.625	.242	4.934	14	.074	4.934	y	15	135594...	168750	26.367	253.125	1...	H1-1b
43	M23	PL 6X0.625	.242	4.934	19	.075	4.934	y	20	135594...	168750	26.367	253.125	1...	H1-1b
44	M64	PL 6X0.625	.241	4.934	22	.074	4.934	y	25	135594...	168750	26.367	253.125	1...	H1-1b
45	M90	3"x.5"	.240	0	19	.131	0	y	9	66023....	67500	8.46	50.625	1...	H1-1b
46	M9	3"x.5"	.236	0	21	.161	0	y	2	66023....	67500	8.46	50.625	1...	H1-1b
47	M49	3"x.5"	.235	0	20	.378	0	y	13	66023....	67500	8.46	50.625	1...	H1-1b
48	M87	HSS2.375X0.218	.229	143.75	7	.069	26.5...		13	20198....	57546	39.744	39.744	1	H1-1b
49	M8	3"x.5"	.229	0	15	.487	0	y	8	66023....	67500	8.46	50.625	1...	H1-1b
50	M89	3"x.5"	.229	0	25	.379	0	y	3	66023....	67500	8.46	50.625	1...	H1-1b
51	M24	PL 6X0.625	.222	4.934	24	.066	4.934	y	25	135594...	168750	26.367	253.125	1...	H1-1b
52	M99	3"x.5"	.222	0	14	.132	0	y	10	66023....	67500	8.46	50.625	1...	H1-1b
53	M6	HSS2.375X0.218	.221	75	8	.084	26.5...		3	20198....	57546	39.744	39.744	1	H1-1b
54	M105	PL 6X0.625	.221	4.934	21	.065	4.934	y	21	135594...	168750	26.367	253.125	1...	H1-1b
55	M65	PL 6X0.625	.220	4.934	17	.064	4.934	y	18	135594...	168750	26.367	253.125	1...	H1-1b
56	M18	3"x.5"	.216	0	19	.201	0	y	2	66023....	67500	8.46	50.625	1...	H1-1b
57	M59	3"x.5"	.216	0	21	.184	0	y	7	66023....	67500	8.46	50.625	1...	H1-1b
58	M93	HSS2.375X0.218	.142	0	8	.024	45.25		10	45615....	57546	39.744	39.744	1...	H1-1b
59	M35	PIPE_3.0	.142	30	2	.057	12.5		2	57037....	65205	68.985	68.985	1...	H1-1b
60	M2	HSS2.375X0.218	.140	0	13	.089	22.6...		2	45615....	57546	39.744	39.744	1...	H1-1b
61	M83	HSS2.375X0.218	.140	0	9	.071	22.6...		3	45615....	57546	39.744	39.744	1...	H1-1b
62	M122	PIPE_3.0	.138	30	7	.057	30		7	57037....	65205	68.985	68.985	1...	H1-1b
63	M5	SR 3/4	.134	57.824	16	.009	0		3	1049.44	19880.37	2.982	2.982	2...	H1-1b
64	M86	SR 3/4	.134	57.824	24	.008	57.8...		13	1049.44	19880.37	2.982	2.982	2...	H1-1b
65	M46	SR 3/4	.134	57.824	20	.010	0		8	1049.44	19880.37	2.982	2.982	2...	H1-1b
66	M97	SR 3/4	.133	57.824	19	.015	57.8...		8	1049.44	19880.37	2.982	2.982	2...	H1-1b
67	M57	SR 3/4	.133	57.824	15	.011	57.8...		4	1049.44	19880.37	2.982	2.982	2...	H1-1b
68	M16	SR 3/4	.132	57.824	24	.015	57.8...		13	1049.44	19880.37	2.982	2.982	2...	H1-1b
69	M82	HSS2.375X0.218	.127	0	8	.027	22.6...		9	45615....	57546	39.744	39.744	1...	H1-1b
70	M94	HSS2.375X0.218	.124	0	8	.069	45.25		9	45615....	57546	39.744	39.744	2...	H1-1b
71	M53	HSS2.375X0.218	.122	0	3	.035	45.25		7	45615....	57546	39.744	39.744	1...	H1-1b
72	M36	PIPE_2.0	.114	18	2	.038	18		3	20866....	32130	22.459	22.459	1...	H1-1b
73	M62	PIPE_2.0	.110	0	8	.023	0		16	19519....	32130	22.459	22.459	1...	H1-1b*
74	M12	HSS2.375X0.218	.108	0	12	.037	45.25		2	45615....	57546	39.744	39.744	1...	H1-1b

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

	Member	Shape	Code Check	Loc[in]	LC	Shear Ch...	Loc[...	Dir	LC	phi*Pnc...	phi*Pnt...	phi*Mn ...	phi*Mn ...	Cb	Eqn
75	M102	PIPE_2.0	.108	0	13	.024	0		20	19519....	32130	22.459	22.459	1...	H1-1b*
76	M37	PIPE_2.0	.108	18	2	.036	54		3	20866....	32130	22.459	22.459	1...	H1-1b
77	M1	HSS2.375X0.218	.104	0	13	.029	45.25		2	45615....	57546	39.744	39.744	1...	H1-1b
78	M43	HSS2.375X0.218	.104	0	5	.068	22.6...		7	45615....	57546	39.744	39.744	1...	H1-1b
79	M42	HSS2.375X0.218	.102	0	9	.020	45.25		13	45615....	57546	39.744	39.744	1...	H1-1b
80	M54	HSS2.375X0.218	.101	45.25	3	.062	45.25		13	45615....	57546	39.744	39.744	2...	H1-1b
81	M123	PIPE_3.0	.101	30	4	.042	30		12	57037....	65205	68.985	68.985	1...	H1-1b
82	M13	HSS2.375X0.218	.098	0	13	.084	45.25		8	45615....	57546	39.744	39.744	2...	H1-1b
83	M116	PIPE_2.0	.094	18	9	.038	54		13	20866....	32130	22.459	22.459	1...	H1-1b
84	M77	PIPE_2.0	.086	18	7	.040	54		8	20866....	32130	22.459	22.459	1...	H1-1b
85	M117	PIPE_2.0	.085	18	9	.031	54		12	20866....	32130	22.459	22.459	1...	H1-1b
86	M76	PIPE_2.0	.081	18	7	.043	18		8	20866....	32130	22.459	22.459	1...	H1-1b
87	M21	PIPE_2.0	.079	0	4	.037	0		61	19519....	32130	22.459	22.459	2...	H1-1b*

HUDSON
Design Group LLC

Connection Check

SITE DETAILS

Site Name/Code	UNIONVILLE-FARMINGTON
Date	4/15/2022
Engineer	AD

CONNECTION PARAMETERS

Loadcase #		**7**	
Number of bolts		**4**	
B		**4**	*in*
D		**10**	*in*
Bolt Diameter	d	**5/8**	*in*
Tensile Area	A_b	0.31	in^2
Tensile Area	A_n	0.23	in^2
Grade		G. 36	
Bolt Ultimate Strength	F_{ub}	58	*ksi*
Connection length reduction factor	Rb	1	

FLANGE LOADS

Bending Moment	Mzz	**3.54**	*kips-in*
Bending Moment	Myy	**11.44**	*kips-in*
Torsional Moment	Mxx	**6.38**	*kips-in*
Shear Force	Vy	**0.79**	*kips*
Shear Force	Vz	**2.00**	*kips*
Axial Force	Px	**3.88**	*kips*

SOFTWARE REACTIONS TABLE

7	N28	-3875.407	786.054	-1996.73	6.378	11.435	3.539
7	N144	-2235.384	1089.107	-650.982	-5.975	-11.808	-.335
7	N145	-1067.892	978.036	741.197	-2.324	-11.619	-7.305
7	N87	-551.372	315.945	-242.144	7.191	.446	4.935
7	N88	-416.448	269.94	-1205.584	-2.971	4.252	-9.67
7	N29	129.542	707.23	-1274.312	-5.577	9.61	3.715
7	Totals:	-8016.961	4146.312	-4628.555			
7	COG (in):	X: -23.682	Y: 28.853	Z: -6.933			

BOLT CHECK

Bolt Tension Capacity

$\phi R_{nt} = 0.75 * F_{ub} * A_n$

ϕR_{nt} = **9.8** *kips*

Bolt Shear Capacity

$\phi R_{nv} = 0.75 * 0.45 * Fub * Ab * Rb$

ϕR_{nv} = **6.7** *kips*

Maximum Bolt Tension

$T_{ub} = F_{Mxx} + F_{Mzz} + T_y/4$

T_{ub} = **2.58** *kips*

Maximum Bolt Shear

$V_{ub} = \text{sqrt}((V_x/4)^2 + (V_y/4)^2) + F_{Myy}$

V_{ub} = **0.83** *kips*

Tension Ratio: **26.2 %** PASS

Shear Ratio: **12.5 %** PASS

$(T_{ub} / \phi R_{nt})^2 + (V_{ub} / \phi R_{nv})^2 < 1.0$ **OK** Ratio **8.4%** PASS

EXHIBIT 5

Radio Frequency Exposure Analysis Report

August 25, 2022

Centerline on behalf of AT&T

AT&T Site Name: UNIONVILLE-FARMINGTON
Site Number: CT5404
FA#: 10071289
USID: 25996

Site Address: 319-321 NEW BRITAIN AVENUE, UNIONVILLE, CT 06085

Michael Fischer, P.E.
Registered Professional Engineer (Electrical)
Connecticut License Number 33928
Expires January 31, 2023

Signed 26 August 2022

Site Compliance Summary

AT&T Compliance Status:	Compliant
Cumulative Calculated Power Density (Ground Level):	2.02432 µW/cm^2
Cumulative General Population % MPE (Ground Level):	0.2407%

August 25, 2022

Centerline
Attn: Jennifer Iliades, Project Manager
750 W Center St, Suite 301
West Bridgewater, MA 02379

RF Exposure Analysis for Site: **UNIONVILLE-FARMINGTON**

Centerline Communications, LLC ("Centerline") was contracted to analyze the proposed AT&T facility at **319-321 NEW BRITAIN AVENUE, UNIONVILLE, CT 06085** for the purpose of determining whether the predictive exposure from the proposed facility is within specified federal limits.

All information used in this report was analyzed as a percentage of the Maximum Permissible Exposure (% MPE) limits as detailed in 47 CFR § 1.1310 as well as Federal Communications Commission (FCC) OET Bulletin 65 Edition 97-01. The FCC MPE limits are typically expressed in units of milliwatts per square centimeter (mW/cm^2) or microwatts per square centimeter ($\mu W/cm^2$). The exposure limits vary depending upon the frequencies being utilized. The General Population/Uncontrolled MPE limit (in mW/cm^2) for frequencies between 300 and 1500 is defined as frequency (in MHz) divided by 1500 ($f_{MHz}/1500$). Frequencies between 1500 and 100,000 MHz have a General Population/Uncontrolled MPE limit of 1 mW/cm^2 (1000 $\mu W/cm^2$). The calculated power density at each sample point divided by the limit at each calculated frequency provides a result in % MPE. Summing the calculated % MPE from all contributors provides a cumulative % MPE at a particular sample point. Wireless carriers use different frequency bands with varying MPE limits; therefore, it is useful to report results in terms of % MPE as opposed to power density.

All results were compared to the FCC radio frequency exposure rules as detailed in 47 CFR § 1.1307(b) to determine compliance with the MPE limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general population may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general population would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/ controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits, as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means. Additional details can be found in FCC OET 65.

Calculation Methodology

Centerline Communications, LLC has performed theoretical modeling of the site using a software tool, RoofMaster®, which incorporates calculation methodologies detailed in FCC OET 65. RoofMaster® uses a cylindrical model for conservative power density predictions within the near field of the antenna where the antenna pattern has not truly formed yet. Within this area power density values tend to decrease based upon an inverse distance function. At the point where it is appropriate for modeling to change from near-field calculations to far-field calculations, the power decreases inversely with the square of the distance. The modeling is based on worst-case assumptions in terms of transmitter power and duty cycle. No losses were included in the power calculations unless they were specifically provided for the project.

In OET 65, a far field model is presented to calculate the spatial peak power density. The RoofMaster® implementation of this model incorporates antenna manufacturer's horizontal and vertical pattern data to determine the power density in all directions. This model yields the power density at a single point in space. In order to determine the spatial power density for comparison to the FCC limits, the average of several points calculated within the human profile (0-6') must be conducted. RoofMaster® calculates seven power density values between 0-6' above the specified study plane and performs a linear spatial average.

Data & Results

The following table details the antennas and operating parameters for the AT&T antenna system as well as any other antenna systems at the site. This is based on antenna information provided by the client and data compiled from other sources where necessary. The data below was input into Roofmaster® to perform the theoretical exposure calculations at ground level.

The theoretical calculations performed in Roofmaster® determine the cumulative exposure at all sample points at ground level (0-6' spatial average). The results from highest cumulative sample point at ground level surrounding the site are displayed in the table below. The contribution from directional antennas to the maximum cumulative totals varies greatly depending on location; therefore, the contribution from one antenna sector at the highest calculated exposure point may be greater or less than other sectors since sectorized directional antennas are pointed in different directions and there is not much overlapping exposure.

The contribution to the cumulative power density and % MPE for each antenna/frequency band is listed in the table. The cumulative power density and cumulative % MPE are displayed at the bottom of the table.

Maximum Calculated Cumulative Power Density @ Ground Level (Location: approximately 6' southeast of site)

Antenna ID	Make / Model	Frequency Band (MHz)	Antenna Gain (dBd)	Antenna Centerline (ft)	Channel Count	TX Power/ Channel (watts)	ERP (watts)	Calculated Power Density ($\mu W/cm^2$)	General Population MPE Limit ($\mu W/cm^2$)	General Population % MPE
AT&T A 1	CCI TPA65R-BU8D	700	13.05	150.00	4.00	30.00	2422.04	0.00012	466.67	0.00003
AT&T A 1	CCI TPA65R-BU8D	1900	15.15	150.00	4.00	30.00	3928.09	0.00001	1000.00	0.00000
AT&T A 1	CCI TPA65R-BU8D	2100	15.75	150.00	4.00	30.00	4510.05	0.00001	1000.00	0.00000
AT&T A 2	AIR6419	3450	23.55	151.50	1.00	108.40	24548.74	0.00506	1000.00	0.00051
AT&T A 3	AIR6449	3700	23.55	148.50	1.00	108.40	24548.74	0.00527	1000.00	0.00053
AT&T A 4	CCI DMP65R-BU8D	700	12.25	150.00	4.00	30.00	2014.56	0.00000	466.67	0.00000
AT&T A 4	CCI DMP65R-BU8D	850	12.55	150.00	4.00	30.00	2158.65	0.00002	566.67	0.00000
AT&T A 4	CCI DMP65R-BU8D	2300	14.65	150.00	4.00	18.75	2188.07	0.00001	1000.00	0.00000
AT&T B 5	CCI TPA65R-BU8D	700	13.05	150.00	4.00	30.00	2422.04	0.04518	466.67	0.00968
AT&T B 5	CCI TPA65R-BU8D	1900	15.15	150.00	4.00	30.00	3928.09	0.04470	1000.00	0.00447
AT&T B 5	CCI TPA65R-BU8D	2100	15.75	150.00	4.00	30.00	4510.05	0.04449	1000.00	0.00445
AT&T B 6	AIR6419	3450	23.55	151.50	1.00	108.40	24548.74	0.62258	1000.00	0.06226
AT&T B 7	AIR6449	3700	23.55	148.50	1.00	108.40	24548.74	0.64888	1000.00	0.06489
AT&T B 8	CCI DMP65R-BU8D	700	12.25	150.00	4.00	30.00	2014.56	0.03900	466.67	0.00836
AT&T B 8	CCI DMP65R-BU8D	850	12.55	150.00	4.00	30.00	2158.65	0.03742	566.67	0.00660
AT&T B 8	CCI DMP65R-BU8D	2300	14.65	150.00	4.00	18.75	2188.07	0.03086	1000.00	0.00309
AT&T C 9	CCI TPA65R-BU8D	700	13.05	150.00	4.00	30.00	2422.04	0.00060	466.67	0.00013
AT&T C 9	CCI TPA65R-BU8D	1900	15.15	150.00	4.00	30.00	3928.09	0.00034	1000.00	0.00003
AT&T C 9	CCI TPA65R-BU8D	2100	15.75	150.00	4.00	30.00	4510.05	0.00022	1000.00	0.00002
AT&T C 10	AIR6419	3450	23.55	151.50	1.00	108.40	24548.74	0.01790	1000.00	0.00179
AT&T C 11	AIR6449	3700	23.55	148.50	1.00	108.40	24548.74	0.01866	1000.00	0.00187
AT&T C 12	CCI DMP65R-BU8D	700	12.25	150.00	4.00	30.00	2014.56	0.00051	466.67	0.00011
AT&T C 12	CCI DMP65R-BU8D	850	12.55	150.00	4.00	30.00	2158.65	0.00002	566.67	0.00000
AT&T C 12	CCI DMP65R-BU8D	2300	14.65	150.00	4.00	18.75	2188.07	0.00015	1000.00	0.00002
Unknown A 13	GENERIC PANEL 6FT	700	12.33	162.00	4.00	40.00	2736.02	0.00014	466.67	0.00003
Unknown A 13	GENERIC PANEL 6FT	850	12.62	162.00	4.00	40.00	2924.96	0.00017	566.67	0.00003
Unknown A 14	GENERIC PANEL 6FT	1900	15.84	162.00	4.00	40.00	6139.32	0.00009	1000.00	0.00001
Unknown A 15	GENERIC PANEL 6FT	2100	16.39	162.00	4.00	40.00	6968.19	0.00006	1000.00	0.00001
Unknown B 16	GENERIC PANEL 6FT	700	12.33	162.00	4.00	40.00	2736.02	0.06024	466.67	0.01291
Unknown B 16	GENERIC PANEL 6FT	850	12.62	162.00	4.00	40.00	2924.96	0.06207	566.67	0.01095
Unknown B 17	GENERIC PANEL 6FT	1900	15.84	162.00	4.00	40.00	6139.32	0.06205	1000.00	0.00620
Unknown B 18	GENERIC PANEL 6FT	2100	16.39	162.00	4.00	40.00	6968.19	0.06530	1000.00	0.00653
Unknown C 19	GENERIC PANEL 6FT	700	12.33	162.00	4.00	40.00	2736.02	0.00044	466.67	0.00009
Unknown C 19	GENERIC PANEL 6FT	850	12.62	162.00	4.00	40.00	2924.96	0.00008	566.67	0.00001
Unknown C 20	GENERIC PANEL 6FT	1900	15.84	162.00	4.00	40.00	6139.32	0.00010	1000.00	0.00001

Antenna ID	Make / Model	Frequency Band (MHz)	Antenna Gain (dBd)	Antenna Centerline (ft)	Channel Count	TX Power/ Channel (watts)	ERP (watts)	Calculated Power Density (µW/cm²)	General Population MPE Limit (µW/cm²)	General Population % MPE
Unknown C 21	GENERIC PANEL 6FT	2100	16.39	162.00	4.00	40.00	6968.19	0.00008	1000.00	0.00001
Unknown A 22	GENERIC PANEL 6FT	700	12.33	170.00	4.00	40.00	2736.02	0.00012	466.67	0.00003
Unknown A 22	GENERIC PANEL 6FT	850	12.62	170.00	4.00	40.00	2924.96	0.00015	566.67	0.00003
Unknown A 22	GENERIC PANEL 6FT	1900	15.84	170.00	4.00	40.00	6139.32	0.00009	1000.00	0.00001
Unknown B 23	GENERIC PANEL 6FT	700	12.33	170.00	4.00	40.00	2736.02	0.05451	466.67	0.01168
Unknown B 23	GENERIC PANEL 6FT	850	12.62	170.00	4.00	40.00	2924.96	0.05616	566.67	0.00991
Unknown B 23	GENERIC PANEL 6FT	1900	15.84	170.00	4.00	40.00	6139.32	0.05614	1000.00	0.00561
Unknown C 24	GENERIC PANEL 6FT	700	12.33	170.00	4.00	40.00	2736.02	0.00040	466.67	0.00009
Unknown C 24	GENERIC PANEL 6FT	850	12.62	170.00	4.00	40.00	2924.96	0.00007	566.67	0.00001
Unknown C 24	GENERIC PANEL 6FT	1900	15.84	170.00	4.00	40.00	6139.32	0.00009	1000.00	0.00001
Unknown A 25	GENERIC OMNI 5FT	850	5.96	85.00	1.00	25.25	99.60	0.00839	566.67	0.00148
Unknown A 26	GENERIC OMNI 5FT	850	5.96	85.00	1.00	25.25	99.60	0.00839	566.67	0.00148
Unknown A 27	GENERIC OMNI 5FT	850	5.96	100.00	1.00	25.25	99.60	0.00594	566.67	0.00105
Unknown A 28	GENERIC OMNI 5FT	850	5.96	100.00	1.00	25.25	99.60	0.00594	566.67	0.00105
Unknown A 29	GENERIC OMNI 5FT	850	5.96	162.00	1.00	25.25	99.60	0.00217	566.67	0.00038
Unknown A 30	GENERIC OMNI 5FT	850	5.96	162.00	1.00	25.25	99.60	0.00217	566.67	0.00038
Unknown A 31	GENERIC OMNI 5FT	850	5.96	170.00	1.00	25.25	99.60	0.00196	566.67	0.00035
Unknown A 32	GENERIC OMNI 5FT	850	5.96	170.00	1.00	25.25	99.60	0.00196	566.67	0.00035
Unknown A 33	GENERIC OMNI 5FT	850	5.96	180.00	1.00	25.25	99.60	0.00174	566.67	0.00031
Unknown A 34	GENERIC OMNI 5FT	850	5.96	180.00	1.00	25.25	99.60	0.00174	566.67	0.00031
Unknown A 35	GENERIC OMNI 5FT	850	5.96	190.00	1.00	25.25	99.60	0.00156	566.67	0.00028
Unknown A 36	GENERIC OMNI 5FT	850	5.96	190.00	1.00	25.25	99.60	0.00156	566.67	0.00028
Unknown A 37	GENERIC MICROWAVE 2FT	18000	36.95	195.00	1.00	0.10	495.45	0.00030	1000.00	0.00003
							Cumulative Power Density:	**2.02432 µW/cm²**	**Cumulative % MPE:**	**0.24070%**

Summary

The theoretical calculations performed for this analysis yielded cumulative power density totals in all areas at ground level that are within the allowable federal limits for public exposure to RF energy. Therefore, the site is **compliant** with FCC rules and regulations.

Matt Schulzinger
RF EME Technical Writer
Centerline Communications, LLC

EXHIBIT 6

TOWN OF FARMINGTON PERMIT#: 37515

**** BUILDING PERMIT ****

DATE: 22-Feb-2002 EST. COST: 300,000.00 BUILD FEES: .00 WAIV

DEV SEW PER: .00

OWNER: TOWN OF FARMINGTON LOT#: MISC SEW: .00

LOC: 0319 NEW BRITAIN AV TOTAL FEE:

NAME & ADDRESS OF APPLICANT	DESCRIPTION OF WORK TO BE DONE
SPRINT PCS	Commercial
541 SPRING ST	Tower
WINDSOR LOCKS, CT 06096	

Build.Area: Lot Area: No.Stories: Height:

NOTE: ALL WORK TO BE DONE IN ACCORDANCE WITH THE APPLICATION AND PLANS APPROVED BY THE BUILDING DEPARTMENT.

C.O. FEE	ZONE FEE	DEV.PERMIT FEE	CBYD#
10.00	12.00		

Applicant

Building Official

ELEC 37728 PLB_____ HTG/AC_____ SPRINKLER_____ SEWER_____ AS BUILT_____

TOWN OF FARMINGTON PERMIT#: 37516

**** BUILDING PERMIT ****

DATE: 22-Feb-2002 EST. COST: 50,000.00 BUILD FEES: .00 WAIV

DEV SEW PER: .00

OWNER: TOWN OF FARMINGTON LOT#: MISC SEW: .00

LOC: 0319 NEW BRITAIN AV TOTAL FEE:

NAME & ADDRESS OF APPLICANT	DESCRIPTION OF WORK TO BE DONE
SPRINT PCS	Commercial
541 SPRING ST	Antenna
WINDSOR LOCKS, CT 06096	

Build.Area: Lot Area: No.Stories: Height:

NOTE: ALL WORK TO BE DONE IN ACCORDANCE WITH THE APPLICATION AND PLANS APPROVED BY THE BUILDING DEPARTMENT.

C.O. FEE	ZONE FEE	DEV.PERMIT FEE	CBYD#
10.00	12.00		

Applicant

Building Official

ELEC_____ PLB_____ HTG/AC_____ SPRINKLER_____ SEWER_____ AS BUILT_____

EXHIBIT 7

Proof of Delivery

Dear Customer,

This notice serves as proof of delivery for the shipment listed below.

Tracking Number

1Z9Y45030300884489

Weight

1.00 LBS

Service

UPS Ground

Shipped / Billed On

08/18/2022

Delivered On

09/27/2022 12:14 P.M.

Delivered To

1 MONTIETH DR
FARMINGTON, CT, 06032, US

Received By

MOSES

Left At

Front Desk

Reference Number(s)

CT5404-CSC_TOWN MANAGER

Thank you for giving us this opportunity to serve you. Details are only available for shipments delivered within the last 120 days. Please print for your records if you require this information after 120 days.

Sincerely,

UPS

Tracking results provided by UPS: 09/28/2022 9:19 A.M. EST

Proof of Delivery

Dear Customer,

This notice serves as proof of delivery for the shipment listed below.

Tracking Number

1Z9Y45030338398612

Weight

1.00 LBS

Service

UPS Ground

Shipped / Billed On

08/18/2022

Delivered On

09/27/2022 12:14 P.M.

Delivered To

1 MONTIETH DR
FARMINGTON, CT, 06032, US

Received By

MOSES

Left At

Front Desk

Reference Number(s)

CT5404_CSC_TOWN PLANNER

Thank you for giving us this opportunity to serve you. Details are only available for shipments delivered within the last 120 days. Please print for your records if you require this information after 120 days.

Sincerely,

UPS

Tracking results provided by UPS: 09/28/2022 9:20 A.M. EST

Proof of Delivery

Dear Customer,

This notice serves as proof of delivery for the shipment listed below.

Tracking Number

1Z9Y45030317783495

Weight

1.00 LBS

Service

UPS Ground

Shipped / Billed On

08/18/2022

Delivered On

09/27/2022 12:14 P.M.

Delivered To

1 MONTIETH DR
FARMINGTON, CT, 06032, US

Received By

MOSES

Left At

Front Desk

Reference Number(s)

CT5404-CSC_ZEO

Thank you for giving us this opportunity to serve you. Details are only available for shipments delivered within the last 120 days. Please print for your records if you require this information after 120 days.

Sincerely,

UPS

Tracking results provided by UPS: 09/28/2022 10:59 A.M. EST