

May 19, 2022

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

Regarding: Notice of Exempt Modification – AT&T Site CT2113 / FA# 10034975
Address: 219 Nells Rock Rd (a/k/a 161 Nells Rock Rd), Shelton, CT 06484

Dear Ms. Bachman:

New Cingular Wireless, PCS, LLC (“AT&T”) currently maintains a wireless telecommunications facility on an existing +/- 163’ Self Support Tower at the above-referenced address, latitude 41.3041861, longitude -73.1183050. Said Self Support Tower is operated by AT&T.

AT&T desires to modify its existing telecommunications facility by swapping nine (9) antennae, swapping six (6) remote radio units, adding one (1) surge arrestors and accompanying feedlines, and mount modifications as more particularly detailed and described on the enclosed Construction Drawings prepared by Hudson Design Group, LLC, last revised May 10, 2022 and Mount Analysis prepared by Hudson Design Group, LLC, dated March 7, 2022. The centerline height of the existing antennas is and will remain at 165 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 Mark A. Lauretti, Mayor of the City of Shelton, as elected official. Josh Oneill, Zoning Enforcement Officer and Alexander Rosetti, City Planner of the City of Shelton, and AT&T as tower operator/property owner. We reached out to both the Building and Zoning Departments for the City of Shelton who conducted a search and could not locate the original tower approval.

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 May 2, 2022, and prepared by GPD Engineering and Architecture Professional Corporation, 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 – Notice Delivery Confirmations

cc: The Honorable Mark A. Lauretti, Mayor of City of Shelton, as elected official
Josh Oneill, Zoning Enforcement, City of Shelton
Alexander Rosetti, City Planner, City of Shelton
AT&T Towers, as tower operator/property owner.

EXHIBIT 1

PROJECT INFORMATION

SCOPE OF WORK: **ITEMS TO BE MOUNTED ON THE EXISTING SELF SUPPORT:**

- NEW AT&T ANTENNAS: QD8616-7 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T ANTENNAS: AIR6419 B77G (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T ANTENNAS: AIR6449 B77D (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T RRUS: 4449 B5/B12 (700) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T RRUS: 2012 B29 (ADDITIONAL) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T SURGE ARRESTOR: DC6-48-60-18-8C-EV (TOTAL OF 1).
- NEW AT&T (3) Y-CABLES
- NEW AT&T (2) 6AWG DC POWER CABLES & (1) 18 PAIRS OF FIBER RUNS.

ITEMS TO BE MOUNTED IN EQUIPMENT LOCATION:

- INSTALL (1) FIBER TRAY IN LTE RACK.
- INSTALL (1) FIBER BOX ON ICE BRIDGE POST.
- INSTALL 6648 + IDLE XCEDE CABLE IN RACK.
- Add (5) -48V RECTIFIERS FOR A TOTAL OF (10) -48V RECTIFIERS
- FINAL = 1X6601 / 1X5216 / 2XXMU03 || XXXXX / 1X6630 MIXED-MODE / XXXXX + IDLE/6648+IDLE XCEDE.

ITEMS TO BE REMOVED:

- EXISTING AT&T ANTENNA: HPA-65R-BUU-H6 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- EXISTING AT&T ANTENNA: QS66512-2 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- EXISTING AT&T ANTENNA: 7770 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- EXISTING AT&T TRIPLEXER -TPX-070821 (TYP. OF 4 PER SECTOR, TOTAL OF 12).
- EXISTING AT&T LGP13519 TMAS (TYP. OF 2 PER SECTOR, TOTAL OF 6).
- EXISTING AT&T 78211054 DIPLEXERS (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- EXISTING AT&T E15V87P73 01 DIPLEXERS (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- EXISTING AT&T (12) 1-5/8" COAX CABLES.

ITEMS TO REMAIN:

- (3) ANTENNAS, (12) RRU'S, (3) SURGE ARRESTOR, (6) DC POWER & (3) FIBER.

SITE ADDRESS: 219 NELLS ROCK ROAD
SHELTON, CT 06484

LATITUDE: 41.3041944° N, 41° 18' 15.1" N
LONGITUDE: 73.118333° W, 73° 07' 6.0" W

TYPE OF SITE: SELF SUPPORT TOWER / INDOOR EQUIPMENT

STRUCTURE HEIGHT: 163'-0"±
RAD CENTER: 165'-3"±

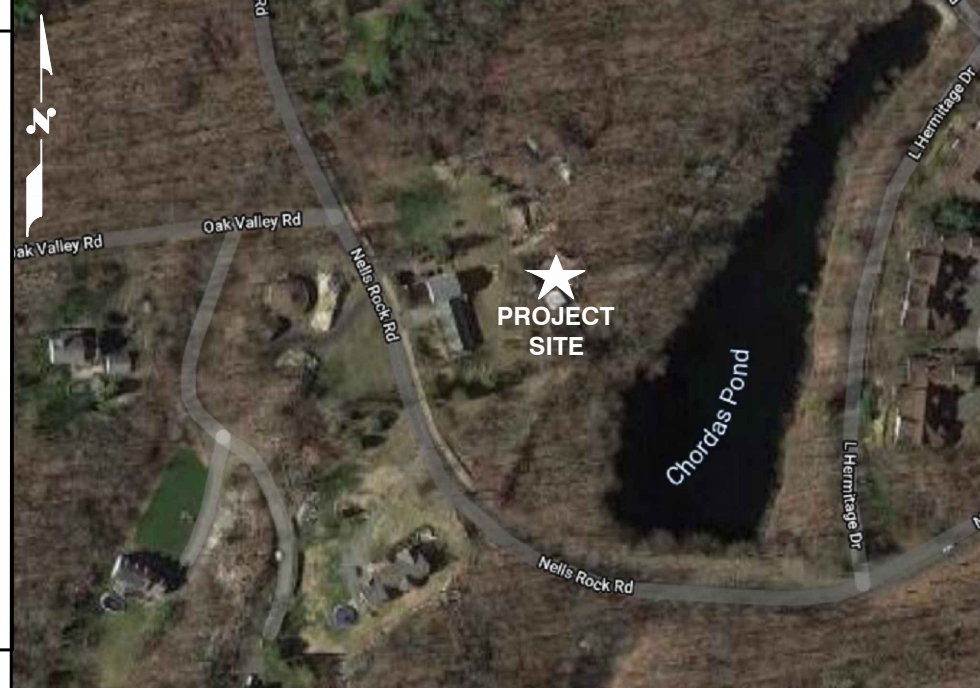
CURRENT USE: TELECOMMUNICATIONS FACILITY
PROPOSED USE: TELECOMMUNICATIONS FACILITY

DRAWING INDEX

SHEET NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	0
GN-1	GENERAL NOTES	0
A-1	COMPOUND & EQUIPMENT PLANS	0
A-2	ANTENNA LAYOUT PLANS & ELEVATION	0
A-3	DETAILS	0
G-1	GROUNDING DETAILS	0
RF-1	RF PLUMBING DIAGRAM	0

VICINITY MAP

DIRECTIONS TO SITE:
HEAD SOUTHWEST, TURN RIGHT TOWARD LEGGATT MCCALL CONN, TURN LEFT ONTO LEGGATT MCCALL CONN, CONTINUE ONTO BURR ST, TURN LEFT ONTO COCHITUATE RD, USE THE RIGHT LANE TO MERGE WITH I-90 W VIA THE RAMP TO SPRINGFIELD, MERGE WITH I-90 W, TAKE EXIT 78 TOWARD I-84 CONTINUE ONTO I-84, ENTERING CONNECTICUT, TAKE EXIT 57 ON THE LEFT FOR CT-15 S TOWARD I-91 S/CHARTER OAK BRIDGE/N.Y.CITY, CONTINUE ONTO CT-15 S, CONTINUE ONTO CT-15 S/US-5 S, TAKE EXIT 86 TO MERGE WITH I-91 S TOWARD NEW HAVEN/N.Y.CITY, TAKE EXIT 17 TO MERGE WITH CT-15 S, TAKE EXIT 58 TO MERGE WITH CT-34 W/DERBY AVE/DERBY TURNPIKE TOWARD DERBY, USE THE LEFT 2 LANES TO TURN LEFT ONTO MAIN ST, USE THE LEFT 2 LANES TO TURN LEFT TO MERGE WITH CT-8 S TOWARD BRIDGEPORT, TAKE EXIT 13 FOR BRIDGEPORT AVE, TURN LEFT ONTO BRIDGEPORT AVE, TURN RIGHT ONTO NELLS ROCK RD, DESTINATION WILL BE ON THE RIGHT.



SITE NUMBER: CT2113

SITE NAME: SHELTON EAST CENTRAL

FA CODE: 10034975

PACE ID: MRCTB054342, MRCTB054859, MRCTB054946, MRCTB055458, MRCTB055554, MRCTB056206, MRCTB053315, MRCTB053490

PROJECT: 5G NR 1SR CBAND, 5G NR 1DR-1, LTE 7C, BBU ADD , 2022 UPGRADE

ISSUED FOR PERMITTING

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

HGD 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: CT2113
SITE NAME: SHELTON EAST CENTRAL

219 NELLS ROCK ROAD
SHELTON, CT 06484
FAIRFIELD COUNTY

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP
0	05/10/22	ISSUED FOR PERMITTING	MR	MKT	DPA
A	04/13/22	ISSUED FOR REVIEW			

SCALE: AS SHOWN DESIGNED BY: AT DRAWN BY: GD

AT&T

TITLE SHEET
5G-NR 1SR CBAND, 5G NR 1DR-1,
LTE 7C, BBU ADD

SITE NUMBER	DRAWING NUMBER	REV
CT2113	T-1	0

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: 2017 NATIONAL ELECTRICAL CODE (NFPA 70-2017)**

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

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

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

TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-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	CL	CENTER LINE	VIF	VERIFY IN FIELD
EGR	EQUIPMENT GROUND RING	REF	REFERENCE		

HGD 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: CT2113
 SITE NAME: SHELTON EAST CENTRAL**
 219 NELLS ROCK ROAD SHELTON, CT 06484 FAIRFIELD COUNTY

at&t
 550 COCHITUATE ROAD FRAMINGHAM, MA 01701

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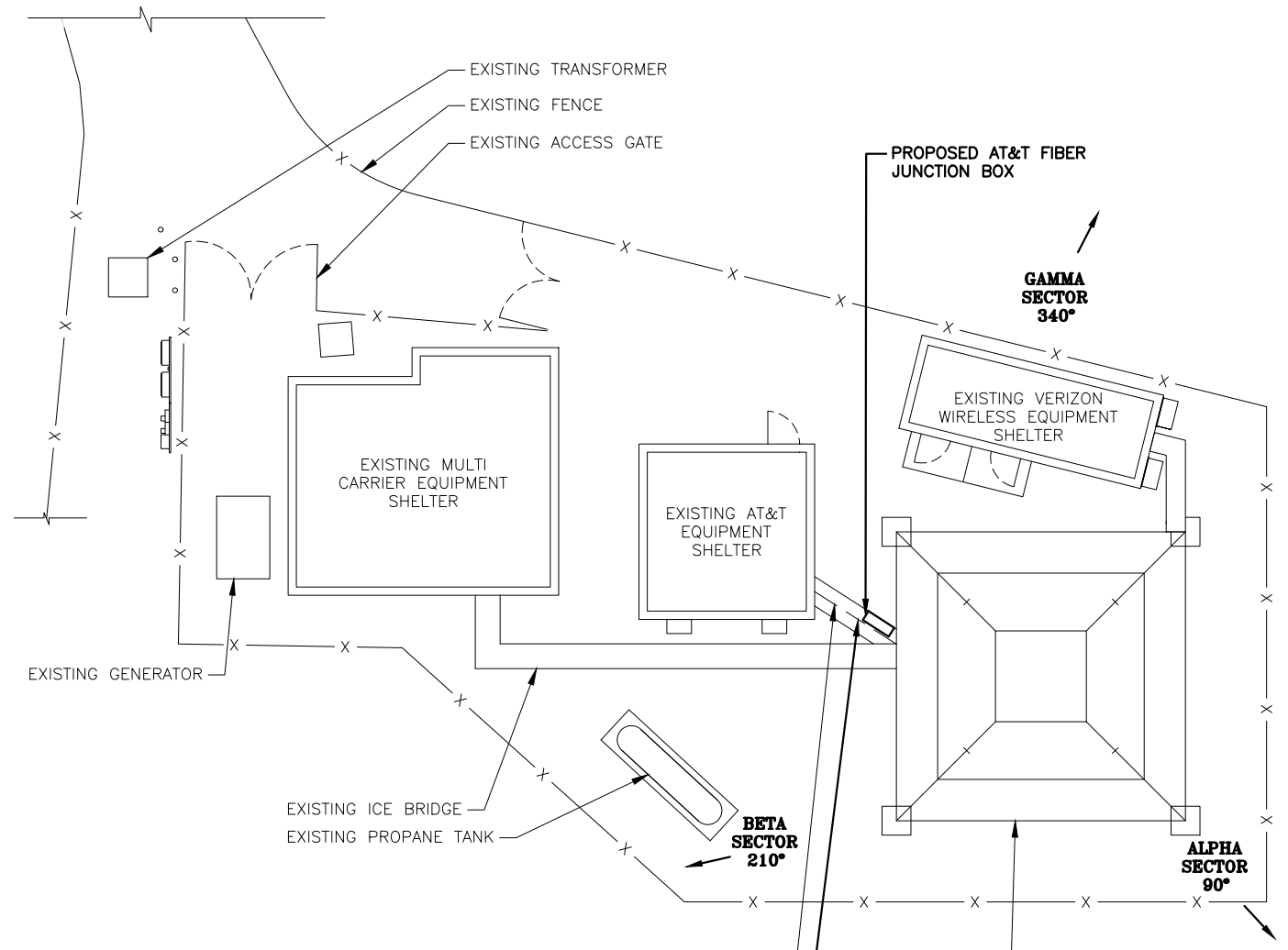
SCALE: AS SHOWN DESIGNED BY: AT DRAWN BY: GD

AT&T
 GENERAL NOTES
 5G-NR 1SR CBAND, 5G-NR 1DR-1, LTE 7C, BBU ADD
 SITE NUMBER: CT2113 DRAWING NUMBER: GN-1 REV: 0

NOTE:
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT HAS BEEN COMPLETED BY HUDSON DESIGN GROUP, LLC. DATED: 03/07/2022

NOTE:
REFER TO THE PRELIMINARY/APPROVED RFDS V1.0 DATED: 12/22/2021 DATA SHEET FOR FINAL ANTENNA SETTINGS.

3
A-2

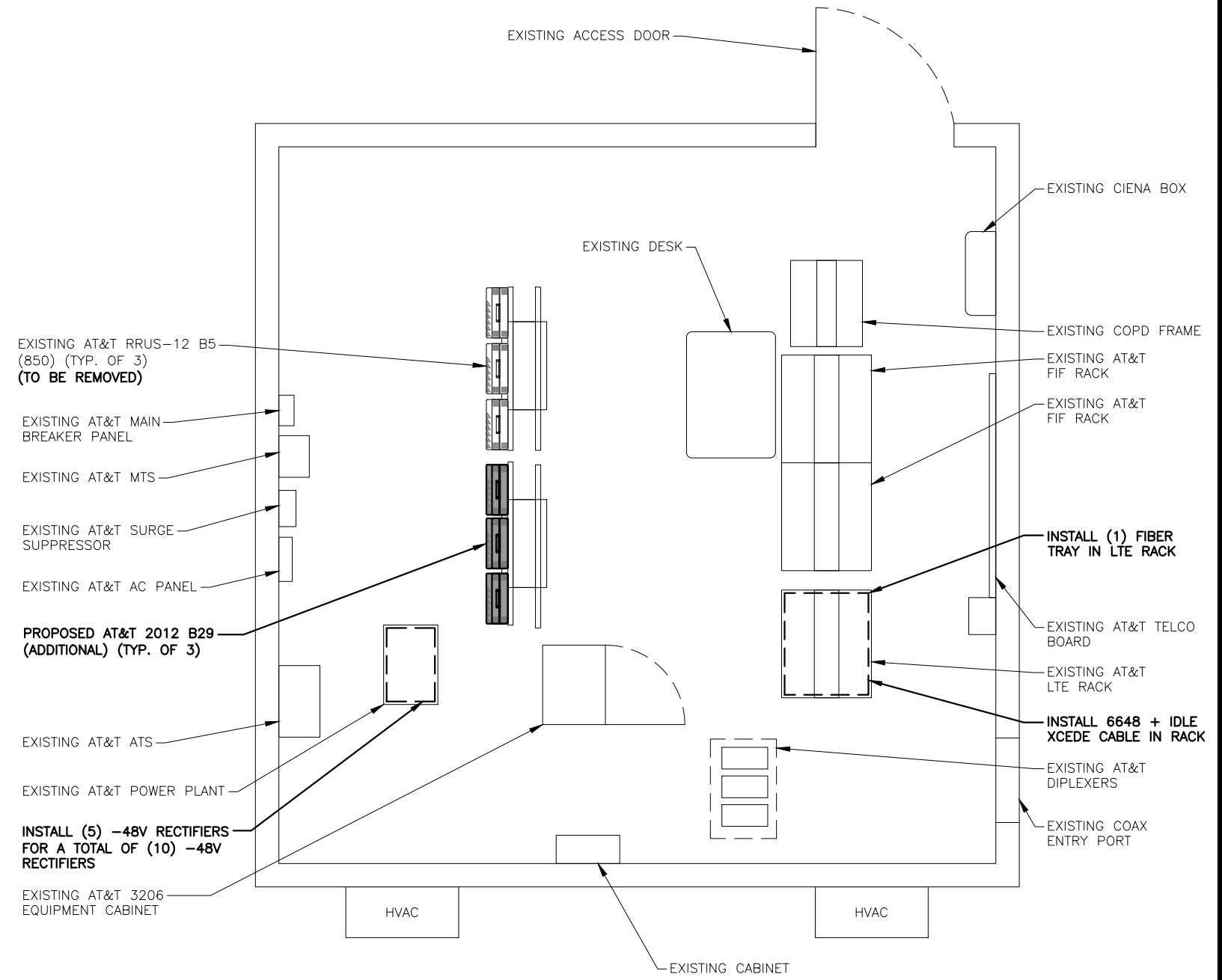
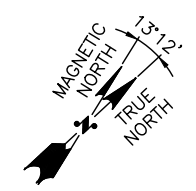


EXISTING TRANSFORMER
EXISTING FENCE
EXISTING ACCESS GATE
EXISTING MULTI CARRIER EQUIPMENT SHELTER
EXISTING AT&T EQUIPMENT SHELTER
EXISTING VERIZON WIRELESS EQUIPMENT SHELTER
EXISTING GENERATOR
EXISTING ICE BRIDGE
EXISTING PROPANE TANK
EXISTING SELF SUPPORT TOWER
PROPOSED AT&T FIBER JUNCTION BOX
GAMMA SECTOR 340°
BETA SECTOR 210°
ALPHA SECTOR 90°
EXISTING (12) 1-5/8" COAX CABLES (TO BE REMOVED)
(6) DC POWER CABLES & (3) FIBER RUNS (TO REMAIN)
PROPOSED (2) 6AWG DC POWER CABLES (1) 18 PAIR FIBER (TO FOLLOW EXISTING ROUTING)

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

1
A-1

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

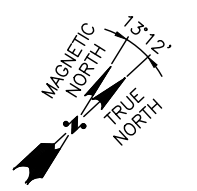


EXISTING ACCESS DOOR
EXISTING CIENA BOX
EXISTING COPD FRAME
EXISTING AT&T FIF RACK
EXISTING AT&T FIF RACK
INSTALL (1) FIBER TRAY IN LTE RACK
EXISTING AT&T TELCO BOARD
EXISTING AT&T LTE RACK
INSTALL 6648 + IDLE XCEDE CABLE IN RACK
EXISTING AT&T DIPLEXERS
EXISTING COAX ENTRY PORT
EXISTING AT&T RRUS-12 B5 (850) (TYP. OF 3) (TO BE REMOVED)
EXISTING AT&T MAIN BREAKER PANEL
EXISTING AT&T MTS
EXISTING AT&T SURGE SUPPRESSOR
EXISTING AT&T AC PANEL
PROPOSED AT&T 2012 B29 (ADDITIONAL) (TYP. OF 3)
EXISTING AT&T ATS
EXISTING AT&T POWER PLANT
INSTALL (5) -48V RECTIFIERS FOR A TOTAL OF (10) -48V RECTIFIERS
EXISTING AT&T 3206 EQUIPMENT CABINET
HVAC
EXISTING CABINET
EXISTING DESK

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

2
A-1

0 2'-0" 4'-0" 6'-0"



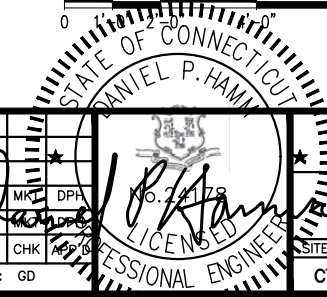
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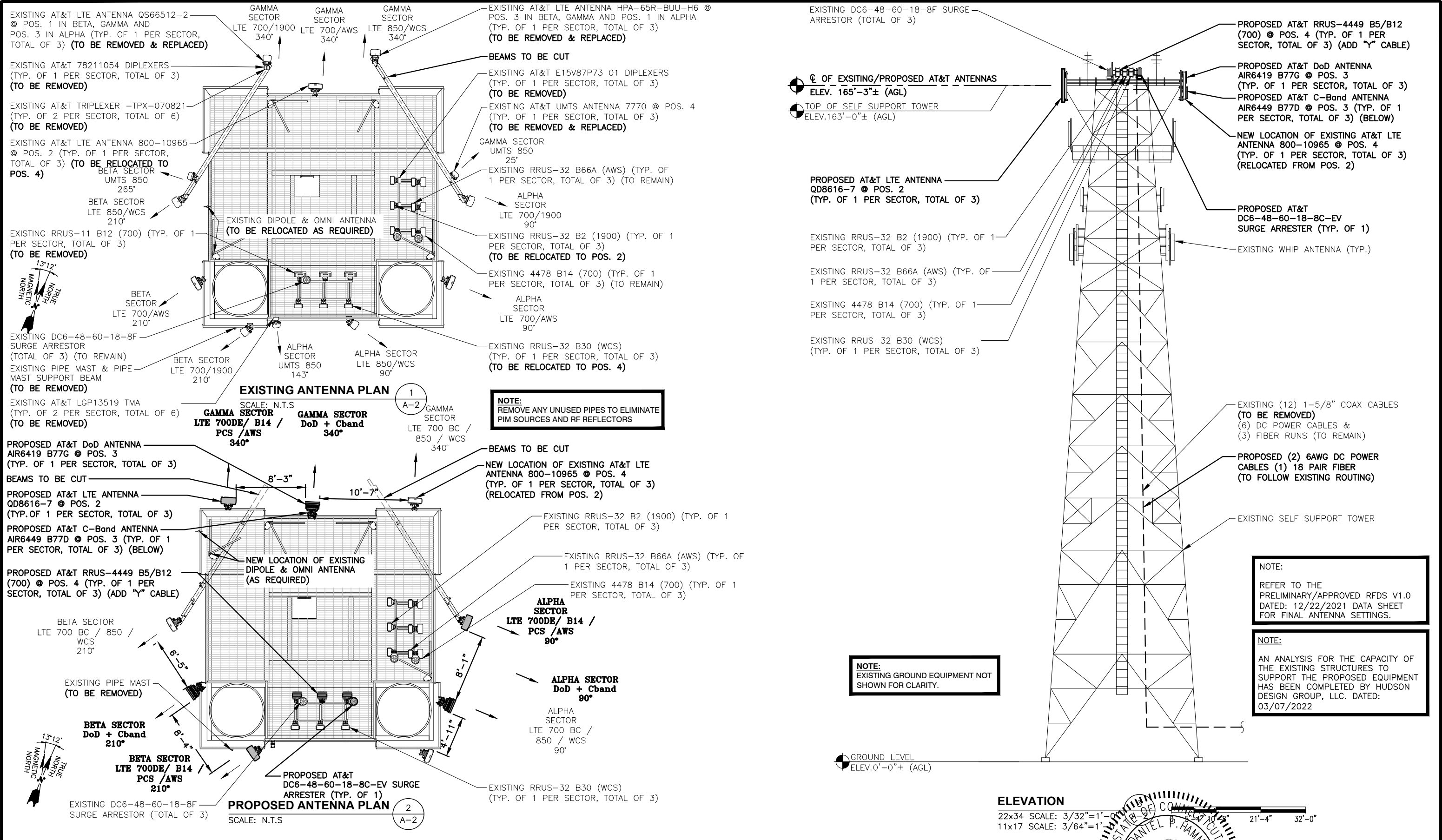
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0	05/10/22	ISSUED FOR PERMITTING	MR MKT DPA	No. 24128	
A	04/13/22	ISSUED FOR REVIEW	MR MKT DPA		
NO.	DATE	REVISIONS	BY	CHK	
SCALE:	AS SHOWN	DESIGNED BY:	AT	DRAWN BY:	GD



AT&T
COMPOUND & EQUIPMENT PLANS
5G NR 1SR CBAND, 5G NR 1DR-1,
LTE 7C, BBU ADD
SITE NUMBER: CT2113
DRAWING NUMBER: A-1
REV: 0



HGD 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: CT2113
SITE NAME: SHELTON EAST CENTRAL
219 NELLS ROCK ROAD
SHELTON, CT 06484
FAIRFIELD COUNTY

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP
0	05/10/22	ISSUED FOR PERMITTING	MR	MKT	DPA
A	04/13/22	ISSUED FOR REVIEW	MR	MKT	DPA

SCALE: AS SHOWN DESIGNED BY: AT DRAWN BY: GD

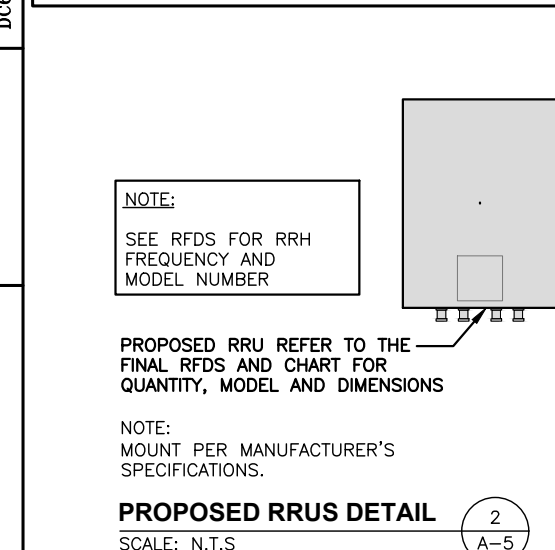
AT&T
ANTENNA LAYOUT PLANS & ELEVATION
5G-NR 15R CBAND, 5G-NR TDR-1,
LTE 7C, BBU ADD
SITE NUMBER: CT2113 DRAWING NUMBER: A-2 REV: 0

ANTENNA SCHEDULE											
SECTOR	EXISTING/PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA CL HEIGHT	AZIMUTH	TMA/ DIPLEXER	RRU	SIZE (INCHES) (L x W x D)	FEEDER	RAYCAP
A1	-	-	-	-	-	-	-	-	-	-	(E) (1) RAYCAP DC6-48-60-18-8F
A2	PROPOSED	LTE 700DE/ B14 / PCS /AWS	QD8616-7	96"x22"x9.6"	165'-3"±	90°	-	(E)(1)RRUS-4478 B14 (700) (E)(1)RRUS-32 B2 (1900) (E)(1)RRUS-32 B66A (AWS) (E)(1)2012 B29 (700) (SHELTER)	20.4"x18.5"x7.5"	(E)(2) DC POWER (1) FIBER (P)(2) DC POWER	(E) (1) RAYCAP DC6-48-60-18-8F (P) (1) RAYCAP DC6-48-60-18-8C-EV
A3	PROPOSED	DoD C-BAND	AIR6419 B77G AIR6449 B77D	31.1"x16.1"x7.3" 30.4"x15.9"x8.1"	165'-3"±	90°	-	-	-	(P)(1) FIBER	(E) (1) RAYCAP DC6-48-60-18-8F
A4	EXISTING	LTE 700 BC / 850 / WCS	800-10965	78.7"x20"x6.9"	165'-3"±	90°	-	(E)(1)RRUS-4449 B5/B12 (850/700) (E)(1)RRUS-32 B30 (WCS)	17.9"x13.2"x10.4"	(P)(1)(Y-CABLE)	(E) (1) RAYCAP DC6-48-60-18-8F
B1	-	-	-	-	-	-	-	-	-	-	(E) (1) RAYCAP DC6-48-60-18-8F
B2	PROPOSED	LTE 700DE/ B14 / PCS /AWS	QD8616-7	96"x22"x9.6"	165'-3"±	210°	-	(E)(1)RRUS-4478 B14 (700) (E)(1)RRUS-32 B2 (1900) (E)(1)RRUS-32 B66A (AWS) (E)(1)2012 B29 (700) (SHELTER)	20.4"x18.5"x7.5"	(E)(2) DC POWER (1) FIBER	(E) (1) RAYCAP DC6-48-60-18-8F
B3	PROPOSED	DoD C-BAND	AIR6419 B77G AIR6449 B77D	31.1"x16.1"x7.3" 30.4"x15.9"x8.1"	165'-3"±	210°	-	-	-	-	(E) (1) RAYCAP DC6-48-60-18-8F
B4	EXISTING	LTE 700 BC / 850 / WCS	800-10965	78.7"x20"x6.9"	165'-3"±	210°	-	(E)(1)RRUS-4449 B5/B12 (850/700) (E)(1)RRUS-32 B30 (WCS)	17.9"x13.2"x10.4"	(P)(1)(Y-CABLE)	(E) (1) RAYCAP DC6-48-60-18-8F
C1	-	-	-	-	-	-	-	-	-	-	(E) (1) RAYCAP DC6-48-60-18-8F
C2	PROPOSED	LTE 700DE/ B14 / PCS /AWS	QD8616-7	96"x22"x9.6"	165'-3"±	340°	-	(E)(1)RRUS-4478 B14 (700) (E)(1)RRUS-32 B2 (1900) (E)(1)RRUS-32 B66A (AWS) (E)(1)2012 B29 (700) (SHELTER)	20.4"x18.5"x7.5"	(E)(2) DC POWER (1) FIBER	(E) (1) RAYCAP DC6-48-60-18-8F
C3	PROPOSED	DoD C-BAND	AIR6419 B77G AIR6449 B77D	31.1"x16.1"x7.3" 30.4"x15.9"x8.1"	165'-3"±	340°	-	-	-	-	(E) (1) RAYCAP DC6-48-60-18-8F
C4	EXISTING	LTE 700 BC / 850 / WCS	800-10965	78.7"x20"x6.9"	165'-3"±	340°	-	(E)(1)RRUS-4449 B5/B12 (850/700) (E)(1)RRUS-32 B30 (WCS)	17.9"x13.2"x10.4"	(P)(1)(Y-CABLE)	(E) (1) RAYCAP DC6-48-60-18-8F

RRU CHART		
QUANTITY	MODEL	SIZE (L x W x D)
P(3)	4449 B5/B12 (700)	17.9"x13.2"x10.4"
P(3)	RRUS-E2 B29 (700)	20.4"x18.5"x7.5"
E(3)	RRUS-32 B2 (1900)	27.2"x12.1"x7.0"
E(3)	RRUS-32 B66 (AWS)	27.2"x12.1"x7.0"
E(3)	RRUS-32 B30 (WCS)	27.2"x12.1"x7.0"
E(3)	4478 B14 (700)	18.1"x13.4"x8.3"

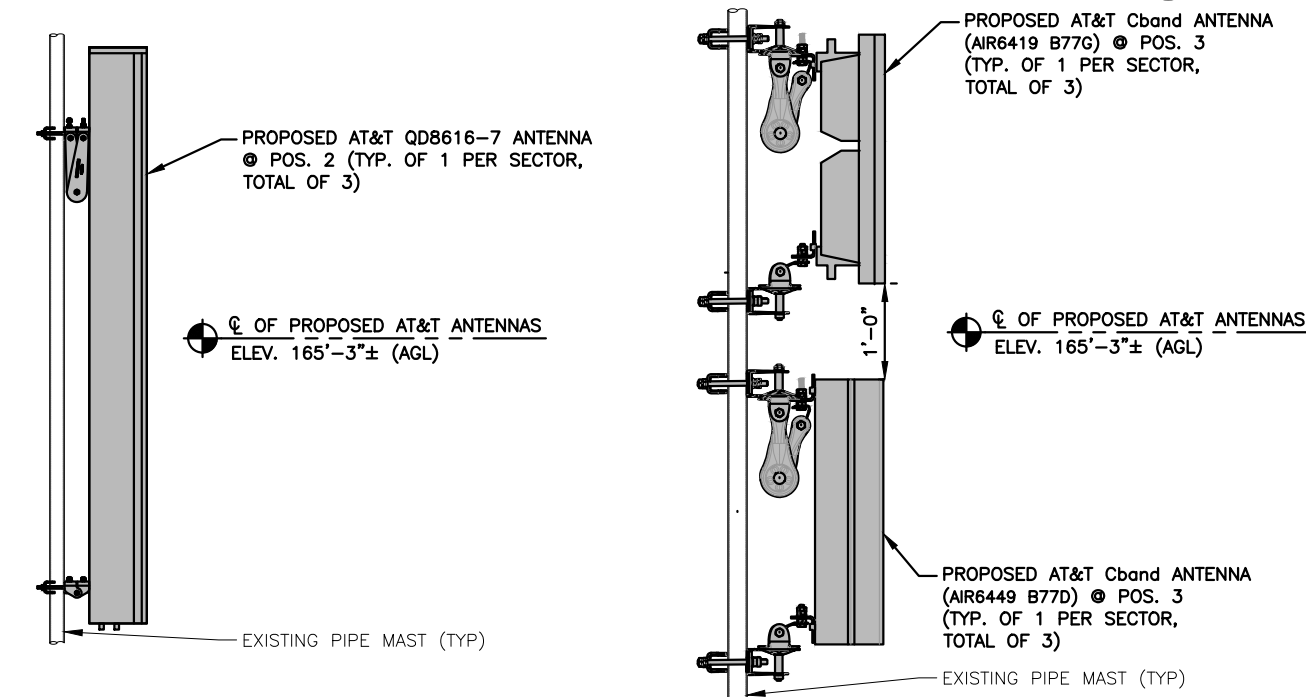
NOTE:
REFER TO THE
PRELIMINARY/APPROVED RFDS V1.0
DATED: 12/22/2021 DATA SHEET
FOR FINAL ANTENNA SETTINGS.

NOTE:
AN ANALYSIS FOR THE CAPACITY OF
THE EXISTING STRUCTURES TO
SUPPORT THE PROPOSED EQUIPMENT
HAS BEEN COMPLETED BY HUDSON
DESIGN GROUP, LLC. DATED:
03/07/2022



FINAL ANTENNA SCHEDULE
SCALE: N.T.S.

1
A-3

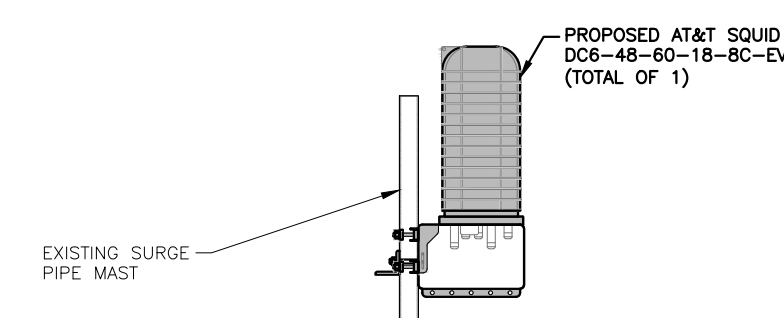


PROPOSED ANTENNA @ POS. 2
22x34 SCALE: 3/4"=1'-0"
11x17 SCALE: 3/8"=1'-0"

2
A-3

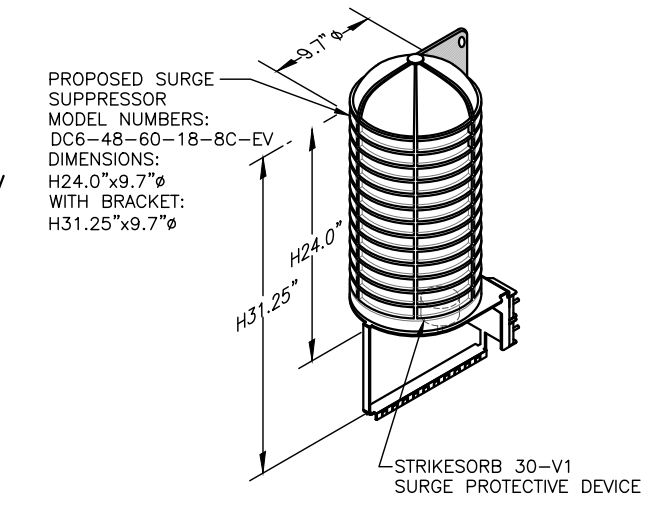
PROPOSED ANTENNA @ POS. 3
22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"

3
A-3



PROPOSED SURGE PROTECTOR MOUNTING DETAIL
22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"

5
A-3



DC SURGE SUPPRESSOR DETAIL
NOTE: MOUNT PER MANUFACTURER'S SPECIFICATIONS.

1
A-6

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

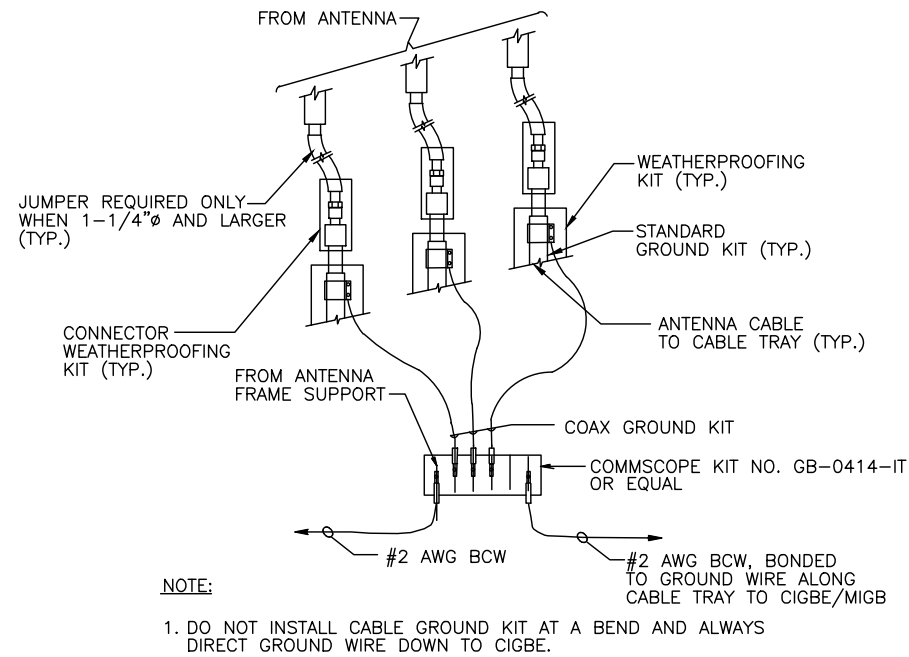
CENTERLINE COMMUNICATIONS
750 WEST CENTER STREET, SUITE #301
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SITE NUMBER: CT2113
SITE NAME: SHELTON EAST CENTRAL
219 NELLS ROCK ROAD
SHELTON, CT 06484
FAIRFIELD COUNTY

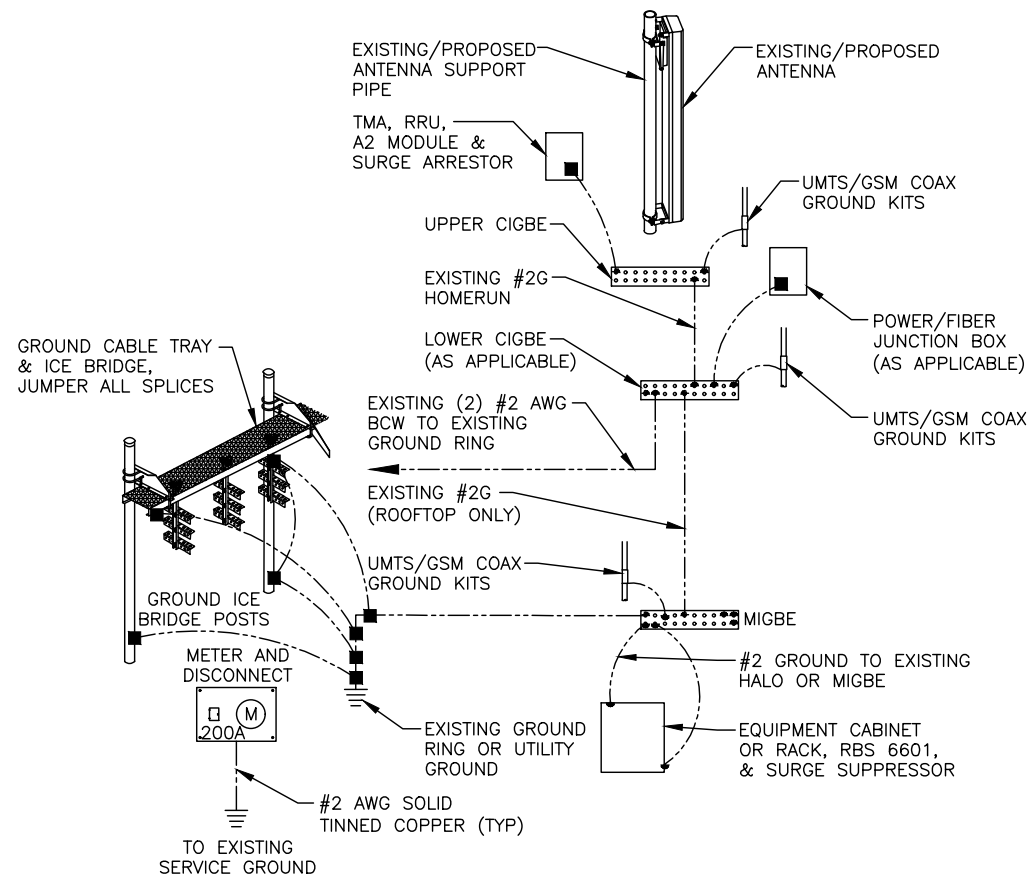
at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

0 05/10/22 ISSUED FOR PERMITTING
A 04/13/22 ISSUED FOR REVIEW
NO. DATE REVISIONS BY CHK APP. DATE
SCALE: AS SHOWN DESIGNED BY: AT DRAWN BY: GD

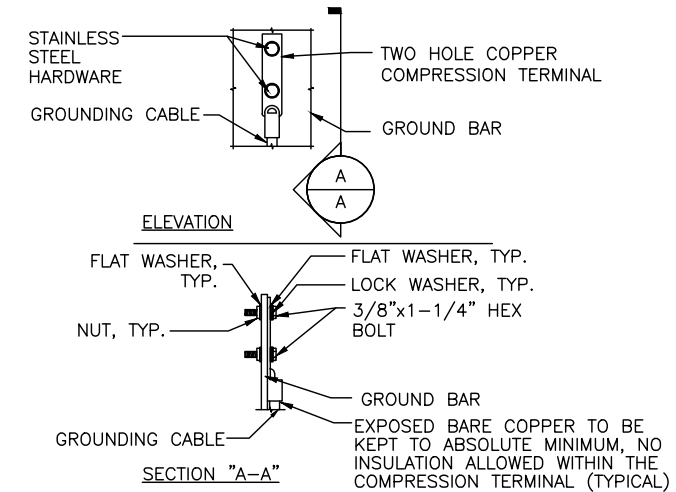
AT&T
DETAILS
5G-NR 1SR CBAND, 5G NR 1DR-1,
LTE 7C, BBU ADD
SITE NUMBER: CT2113
DRAWING NUMBER: A-3
REV: 0



GROUND WIRE TO GROUND BAR CONNECTION DETAIL 1
SCALE: N.T.S G-1



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



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

TYPICAL GROUND BAR CONNECTION DETAIL 3
SCALE: N.T.S G-1

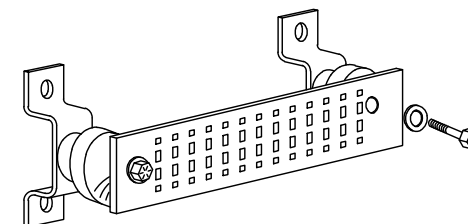
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

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

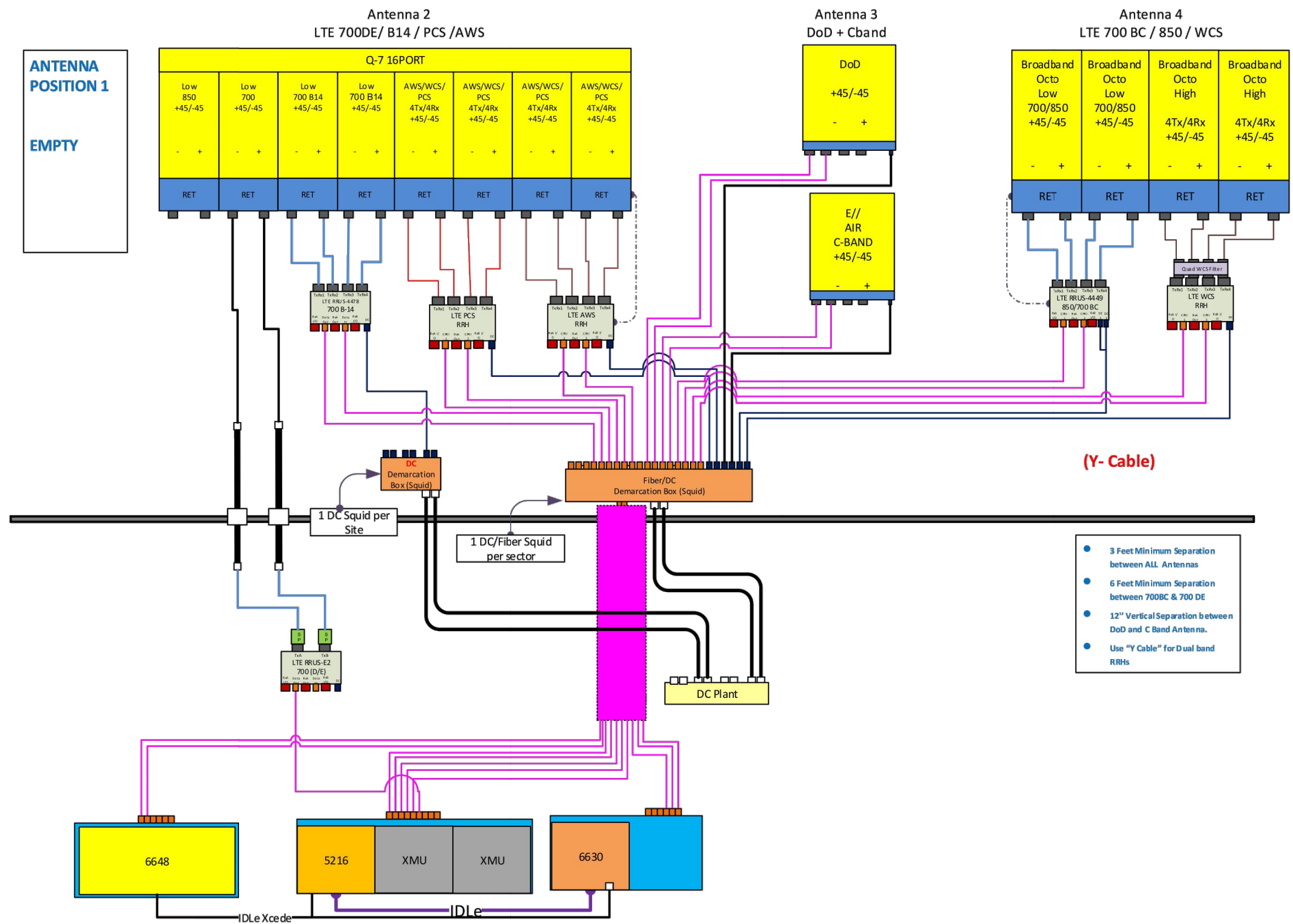
- INTERIOR GROUND RING (#2 AWG)
- EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2 AWG)
- METALLIC COLD WATER PIPE (IF AVAILABLE) (#2 AWG)
- BUILDING STEEL (IF AVAILABLE) (#2 AWG)



GROUND BAR - DETAIL (AS REQUIRED)
SCALE: N.T.S

NO.	DATE	REVISIONS	BY	CHK	APP	SCALE:
0	05/10/22	ISSUED FOR PERMITTING	NE	MKT	DPA	AS SHOWN
A	04/13/22	ISSUED FOR REVIEW				DESIGNED BY: AT
						DRAWN BY: GD

AT&T		
GROUNDING DETAILS 5G-NR 1SR CBAND, 5G-NR 1DR-1, LTE 7C, BBU ADD		
SITE NUMBER	DRAWING NUMBER	REV
CT2113	G-1	0



RF PLUMBING DIAGRAM 1
SCALE: N.T.S. RF-1

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

NOTE:
REFER TO THE PRELIMINARY/APPROVED RFDS V1.0 DATED: 12/22/2021 DATA SHEET FOR FINAL ANTENNA SETTINGS.

0	05/10/22	ISSUED FOR PERMITTING	MB	MKT	DPH
A	04/13/22	ISSUED FOR REVIEW	VS	MKT	DPH
NO.	DATE	REVISIONS	BY	CHK	APP'D
SCALE: AS SHOWN		DESIGNED BY: AT	DRAWN BY: GD		

AT&T		
RF PLUMBING DIAGRAM 5G NR 1SR CBAND, 5G NR 1DR-1, LTE 7C, BBU ADD		
SITE NUMBER	DRAWING NUMBER	REV
CT2113	RF-1	0

EXHIBIT 2



Property Information

Property Location	161 NELLS ROCK RD
Mailing Address	1010 PINE ST LOUIS, MO 63101
Land Use	Radio/TV Trans
Zoning Code	R-1
Neighborhood	23000

Owner	NEW CINGULAR WIRELESS PCS LLC
Co-Owner	
Book / Page	3564/0303
Land Class	Public Utility
Census Tract	
Acreage	1.3

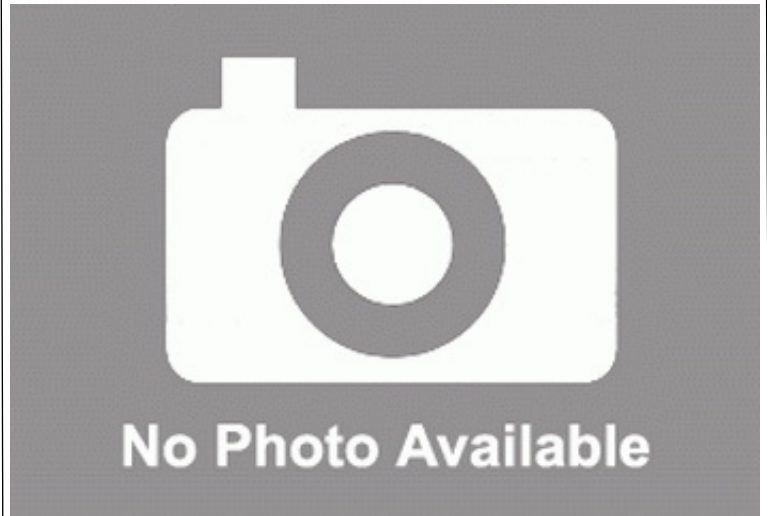
Valuation Summary

(Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings	94060	65840
Outbuildings	16320	11420
Land	91000	63710
Total	201380	140970

Utility Information

Electric	NA
Gas	NA
Sewer	NA
Public Water	NA
Well	NA



Primary Construction Details

Year Built	1955
Building Desc.	Commercial
Building Style	
Stories	1
Exterior Walls	Concrete Block
Exterior Walls 2	
Interior Walls	
Interior Walls 2	
Interior Floors 1	
Interior Floors 2	

Heating Fuel	
Heating Type	
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	Radio/TV Trans
Building Condition	Average
Frame Type	III
Fireplaces	0
Bsmt Gar	0
Fin Bsmt Area	0
Fin Bsmt Quality	
Building Grade	0
Roof Style	Flat
Roof Cover	Composite Built Up

EXHIBIT 3

SUMMARY & RESULTS

The purpose of this analysis was to verify whether the existing modified structure is capable of carrying the proposed/future loading configuration as specified by AT&T Mobility and commissioned by AT&T Towers.

The analysis has been performed in accordance with the TIA-222-H Standard based upon a 3-second gust wind speed of 119 mph. Applicable Standard references and design criteria are listed in Appendices A & B.

TOWER SUMMARY AND RESULTS

Member	Capacity	Results
Legs	35.7%	Pass
Leg Bolts	37.5%	Pass
Diagonals	67.6%	Pass
Horizontals	54.6%	Pass
Redundant Members	62.8%	Pass
Inner Bracing	20.2%	Pass
Member Bolts	37.5%	Pass
Anchor Rods	30.2%	Pass
Foundations	38.7%	Pass

ANALYSIS METHOD

RISA-3D (Version 17.0.4) and tnxTower (Version 8.1.1.0), commercially available software programs, were used to create a three-dimensional model of the tower and calculate primary member stresses for various load cases. Selected output from the analysis is included in the report appendices. The following table details the information provided to complete this structural analysis. The analysis is solely based on this information.

DOCUMENTS PROVIDED

Document	Remarks	Source
RF Data Sheet	RFDS Name: CTL02113, dated 3/22/2022	AT&T
Tower Design	Not Provided	N/A
Foundation Design	Not Provided	N/A
Tower Sketch	AT&T Tower Sketch Issue 6, dated 6/6/2010	AT&T
Modification Drawings	GPD Project #: 2013723.01.SNET025.01, dated 3/1/2013	AT&T
Post Modification Inspection	GPD Project #: 2013723.01.SNET025.03, dated 9/26/2013	AT&T
Modification Drawings	GPD Project #: 2014701.02, dated 2/10/2014	AT&T
Post Modification Inspection	GPD Project #: 2014723.01.SNET025.07, dated 6/4/2014	AT&T
Foundation Mapping	GPD Project #: 2016713.69, dated 9/28/2016	AT&T
Geotechnical Report	GPD Project #: 2016713.69, dated 9/28/2016	AT&T
Tower Mapping	GPD Project #: 2016713.69, dated 10/14/2016	AT&T
Previous Structural Analysis	GPD Project #: 2022723.01.SNET025.13, dated 2/25/2022	AT&T
Mount Analysis	HDG Project #: CT2113, dated 3/7/2022	AT&T

ASSUMPTIONS

This structural analysis is based on the theoretical capacity of the members and is not a condition assessment of the tower. This analysis is from information supplied, and therefore, its results are based on and are as accurate as that supplied data. GPD has made no independent determination, nor is it required to, of its accuracy. The following assumptions were made for this structural analysis.

1. The tower member sizes and shapes are considered accurate as supplied. The material grade is as per data supplied and/or as assumed and as stated in the materials section.
2. The antenna configuration is as supplied and/or as modeled in the analysis. It is assumed to be complete and accurate. All antennas, mounts, coax and waveguides are assumed to be properly installed and supported as per manufacturer requirements.
3. Some assumptions are made regarding antennas and mount sizes and their projected areas based on best interpretation of data supplied and of best knowledge of antenna type and industry practice.
4. All mounts, if applicable, are considered adequate to support the loading. No actual analysis of the mount(s) is performed. This analysis is limited to analyzing the tower only.
5. The soil parameters are as per data supplied or as assumed and stated in the calculations.
6. Foundations are properly designed and constructed to resist the original design loads indicated in the documents provided.
7. The tower and structures have been properly maintained in accordance with TIA Standards and/or with manufacturer's specifications.
8. All welds and connections are assumed to develop at least the member capacity unless determined otherwise and explicitly stated in this report.
9. All prior structural modifications are assumed to be as per data supplied/available and to have been properly installed.
10. Foundation steel was not able to be determined through testing. Therefore, it was assumed that the foundation steel in place is equal to or in excess of the code required minimums.
11. Loading interpreted from photos is accurate to $\pm 5'$ AGL, antenna size accurate to ± 3.3 sf, and coax equal to the number of existing antennas without reserve.
12. Face A is assumed to be at an azimuth of 57° based on the AT&T Tower Sketch Issue 6, dated 6/6/2010.
13. All existing loading was obtained from the previous analysis by GPD (Project #: 2022723.01.SNET025.13, dated 2/25/2022), RF Data Sheet, and site photos and is assumed to be accurate.
14. The proposed loading was obtained from the provided RF Data Sheet and is assumed to be accurate.

If any of these assumptions are not valid or have been made in error, this analysis may be affected, and GPD should be allowed to review any new information to determine its effect on the structural integrity of the tower.

DISCLAIMER OF WARRANTIES

GPD has not performed a recent site visit to the tower to verify the member sizes or antenna/coax loading. If the existing conditions are not as represented on the tower elevation contained in this report, we should be contacted immediately to evaluate the significance of the discrepancy. This is not a condition assessment of the tower or foundation. This report does not replace a full tower inspection. The tower and foundations are assumed to have been properly fabricated, erected, maintained, in good condition, twist free, and plumb.

The engineering services rendered by GPD in connection with this Structural Analysis are limited to a computer analysis of the tower structure and theoretical capacity of its main structural members. No allowance was made for any damaged, bent, missing, loose, or rusted members (above and below ground). No allowance was made for loose bolts or cracked welds.

This analysis is limited to the designated maximum wind and seismic conditions per the governing tower standards and code. Wind forces resulting in tower vibrations near the structure's resonant frequencies were not considered in this analysis and are outside the scope of this analysis. Lateral loading from any dynamic response was not evaluated under a time-domain based fatigue analysis.

GPD does not analyze the fabrication of the structure (including welding). It is not possible to have all the very detailed information needed to perform a thorough analysis of every structural sub-component and connection of an existing tower. GPD provides a limited scope of service in that we cannot verify the adequacy of every weld, plate connection detail, etc. The purpose of this report is to assess the capability of adding appurtenances usually accompanied by transmission lines to the structure.

It is the owner's responsibility to determine the amount of ice accumulation in excess of the code specified amount, if any, that should be considered in the structural analysis.

The attached sketches are a schematic representation of the analyzed tower. If any material is fabricated from these sketches, the contractor shall be responsible for field verifying the existing conditions, proper fit, and clearance in the field. Any mentions of structural modifications are reasonable estimates and should not be used as a precise construction document. Precise modification drawings are obtainable from GPD, but are beyond the scope of this report.

Miscellaneous items such as antenna mounts, etc., have not been designed or detailed as a part of our work. We recommend that material of adequate size and strength be purchased from a reputable tower manufacturer.

Towers are designed to carry gravity, wind, and ice loads. All members, legs, diagonals, struts, and redundant members provide structural stability to the tower with little redundancy. Absence or removal of a member can trigger catastrophic failure unless a substitute is provided before any removal. Legs carry axial loads and derive their strength from shorter unbraced lengths by the presence of redundant members and their connection to the diagonals with bolts or welds. If the bolts or welds are removed without providing any substitute to the frame, the leg is subjected to a higher unbraced length that immediately reduces its load carrying capacity. If a diagonal is also removed in addition to the connection, the unbraced length of the leg is greatly increased, jeopardizing its load carrying capacity. Failure of one leg can result in a tower collapse because there is no redundancy. Redundant members and diagonals are critical to the stability of the tower.

GPD makes no warranties, expressed and/or implied, in connection with this report and disclaims any liability arising from material, fabrication, and erection of this tower. GPD will not be responsible whatsoever for, or on account of, consequential or incidental damages sustained by any person, firm, or organization as a result of any data or conclusions contained in this report. The maximum liability of GPD pursuant to this report will be limited to the total fee received for preparation of this report.

APPENDIX A

Tower Analysis Summary Form

Tower Analysis Summary Form

General Info

Site Name	SHELTON EAST CENTRAL
Site Number	SNET025 (27016)
FA Number	10034975
Date of Analysis	5/12/2022
Company Performing Analysis	GPD

The information contained in this summary report is not to be used independently from the PE stamped tower analysis.

Tower Info	Description	Date
Tower Type (G, SST, MP)	SST	
Tower Height (top of steel AGL)	162.5'	
Tower Manufacturer	n/a	
Tower Model	n/a	
Tower Design	n/a	
Foundation Design	n/a	
Geotech Report	GPD Project #: 2016713.69	9/28/2016
Tower Mapping	GPD Project #: 2016713.69	10/14/2016
Previous Structural Analysis	GPD Project #: SNET025.13 (27016)	2/25/2022
Modification Drawings	GPD Project #: 2013723.01.SNET025.01	3/1/2013
Modification Drawings	GPD Project #: 2014701.02	2/10/2014
Post Modification Inspection	GPD Project #: 2013723.01.SNET025.03	9/26/2013
Post Modification Inspection	GPD Project #: 2014723.01.SNET025.07	6/4/2014
Foundation Mapping	GPD Project #: 2016713.69	9/28/2016

Design Parameters

Design Code Used	TIA-222-H
Location of Tower (County, State)	Fairfield, CT
Nominal Wind Speed (mph)	119 (3-second gust)
Ice Thickness (in)	1
Risk Category (I, II, III)	II
Exposure Category (B, C, D)	B
Topographic Category (1 to 5)	1

Analysis Results (% Maximum Usage)

Existing/Reserved + Future + Proposed Condition	
Tower (%)	67.6%
Anchor Rods (%)	30.2%
Foundation (%)	38.7%
Tower Adequate?	Yes
Foundation Adequate?	Yes

Existing / Reserved Loading

Antenna Owner	Mount Height (ft)	Antenna					Azimuth	Mount			Transmission Line			
		Antenna CL (ft)	Quantity	Type	Manufacturer	Model		Quantity	Manufacturer	Type	Quantity	Model	Size	Attachment Leg/Face
Unknown	162.5	170	1	Dipole	Unknown	10' Dipole		1	Unknown	28' Sq. Platform w/ Rails	1	Unknown	1/2"	Face D
Unknown	162.5	156	1	Dipole	Unknown	15' Dipole		1	Unknown	on the same mount	1	Conduit	1-1/2"	Face D
Misc.	162.5	175	1	Light	Unknown	Beacon		1	Unknown	13' W5 x 13' Post	2	Unknown	7/8"	Face D
Unknown	162.5	184	1	Dipole	Unknown	15' Dipole		2	Unknown	14' Post w/ (2) 2' Side Arms	1	Unknown	3/4"	Face D
Unknown	162.5	183	1	Omni	Unknown	10' Omni			Unknown	on the same mounts	1	Unknown	7/8"	Face C
AT&T Mobility	163	165	3*	Panel	Quintel	QS66512-2	90/210/340	2	Unknown	W8 x 19' Beams	6	Unknown	1-5/8"	Face D
AT&T Mobility	163	165	3*	Panel	CCI	HPA-65R-BUU-H6	90/210/340			on the same mounts	6*	Unknown	1-5/8"	Face D
AT&T Mobility	163	165	3*	Panel	Powerwave	7770	25/143/265			on the same mounts				
AT&T Mobility	163	165	3	Panel	Kathrein	80010965	90/210/340			on the same mounts				
AT&T Mobility	163	165	6*	RET	Powerwave	7020				on the same mounts				
AT&T Mobility	163	165	12*	Triplexer	CCI	TPX-070821				on the same mounts				
AT&T Mobility	163	165	6*	TMA	Powerwave	LGP 21401				on the same mounts				
AT&T Mobility	163	165	6*	Diplexer	Powerwave	LGP 13519				on the same mounts				
AT&T Mobility	163	165	2	Filter	Commscope	WCS-JMFQ-AMT				on the same mounts				
AT&T Mobility	163	165	3*	RRU	Ericsson	RRUS-11 B12		1	Unknown	RRU Mount	2	DC Power	7/8"	Face D
AT&T Mobility	163	165	3*	RRU	Ericsson	RRUS-12 B5				on the same mount	1	Fiber	1/2"	Face D
AT&T Mobility	163	165	3	RRU	Ericsson	RRUS 4478 B14				on the same mount				
AT&T Mobility	163	165	3	RRU	Ericsson	RRUS-32 B30				on the same mount				
AT&T Mobility	163	165	3	RRU	Ericsson	RRUS-32 B2				on the same mount				
AT&T Mobility	163	165	3	RRU	Ericsson	RRUS-32 B66A				on the same mount				
AT&T Mobility	163	165	6	Surge	Commscope	APTDC-BDFDM-DB				on the same mount				
AT&T Mobility	163	167	2	Surge	Raycap	DC6-48-60-18-8C-EV				on the same mount				
Sprint	153	152	3	RRH	Alcatel Lucent	RRH2X50-800		3	Unknown	Dual Standoff Mounts	3	Hybriflex	1-1/4"	Face B
Sprint	153	152	3	RRH	Alcatel Lucent	RRH1900-4X40				on the same mounts				
Sprint	153	152	3	RRH	Alcatel Lucent	TD-RRH8X20-25				on the same mounts				
Sprint	153	152	3	RRH	Alcatel Lucent	RRH-2x50-800				on the same mounts				
Sprint	148	149	3	Panel	RFS	APXVSP18	50/270/250	3	Unknown	14' Sector Frames	3	Hybrid	1/2"	Face B
Sprint	148	149	3	Panel	Nokia	AAHC	50/270/250			on the same mounts	3	RET	3/8"	Face B
Misc.	144							1	Unknown	30' x 30' Cross Catwalk w/ Rails				
T-Mobile	135	135	3	Panel	Ericsson	AIR 32 KRD901146-1_B66A_B2A	60/180/300	3	Unknown	2' Standoffs	6	Unknown	1-5/8"	Face D
T-Mobile	135	135	3	Panel	RFS	APXVAARR24_43-U-NA20	60/180/300			on the same mounts	6	Hybrid	1-3/8"	Face D
T-Mobile	135	135	3	Panel	Ericsson	AIR6449 B41	60/180/300			on the same mounts				
T-Mobile	135	135	3	RRU	Ericsson	RRU4449 B71+B12				on the same mounts				
T-Mobile	135	135	3	RRU	Ericsson	Radio 4415				on the same mounts				
T-Mobile	135	135	3	RRU	Ericsson	SDX				on the same mounts				
T-Mobile	135	135	3	TMA	Ericsson	KRY 112 144				on the same mounts				
Verizon	124.5	125	6	Panel	Andrew	DB846F65ZAXY	20/190/270	3	Unknown	12' Sector Frames	17	Unknown	1-5/8"	Face C
Verizon	124.5	127	3	Panel	Samsung	RT4401-48A	20/190/270			on the same mounts	2	Hybrid	1-5/8"	Face C
Verizon	124.5	125	6	Panel	JMA	MX06FRO660-03	20/190/270			on the same mounts				
Verizon	124.5	125	3	RRU	Samsung	RF4439D-26A				on the same mounts				
Verizon	124.5	125	3	RRU	Samsung	RF4440D-13A				on the same mounts				
Verizon	124.5	123	3	Panel	Samsung	MT6407-77A	20/190/270			on the same mounts				
Verizon	124.5	125	2	ODU	RFS	DB-T1-6Z-8AB-OZ				on the same mounts				
Misc.	112.5							1	Unknown	4.25' x 7' Catwalk				
Misc.	87.5							2	Unknown	23' x 3' Catwalks				
Sprint	65	65	1	GPS	PCTEL	GPS-TMG-HR-26NCM				Leg Mounted	1	Unknown	1/2"	Face D
Misc.	62.5							1	Unknown	13' x 4.25' Catwalk				
Misc.	25							1	Unknown	13' x 4.25' Catwalk				

*Indicates equipment to be removed

Proposed Loading

Antenna Owner	Mount Height (ft)	Antenna					Azimuth	Mount			Transmission Line			
		Antenna CL (ft)	Quantity	Type	Manufacturer	Model		Quantity	Manufacturer	Type	Quantity	Model	Size	Attachment Leg/Face
AT&T Mobility	163	165	3	Panel	Quintel	QD8616-7	90/210/340			on the existing W8 x 19' Beams	2	DC Power	7/8"	Face D
AT&T Mobility	163	165	3	Panel	Ericsson	AIR6449 B77D+AIR6419 B77G	90/210/340			on the existing W8 x 19' Beams	1	Fiber Line	1/2"	Face D
AT&T Mobility	163	165	3	RRU	Ericsson	4449 B5/B12				on the existing RRU mount				
AT&T Mobility	163	165	1	Surge	Raycap	DC6-48-60-18-8C-EV				on the existing RRU mount				
AT&T Mobility	163	165	1	Surge	Raycap	DC6-48-60-18				on the existing RRU mount				

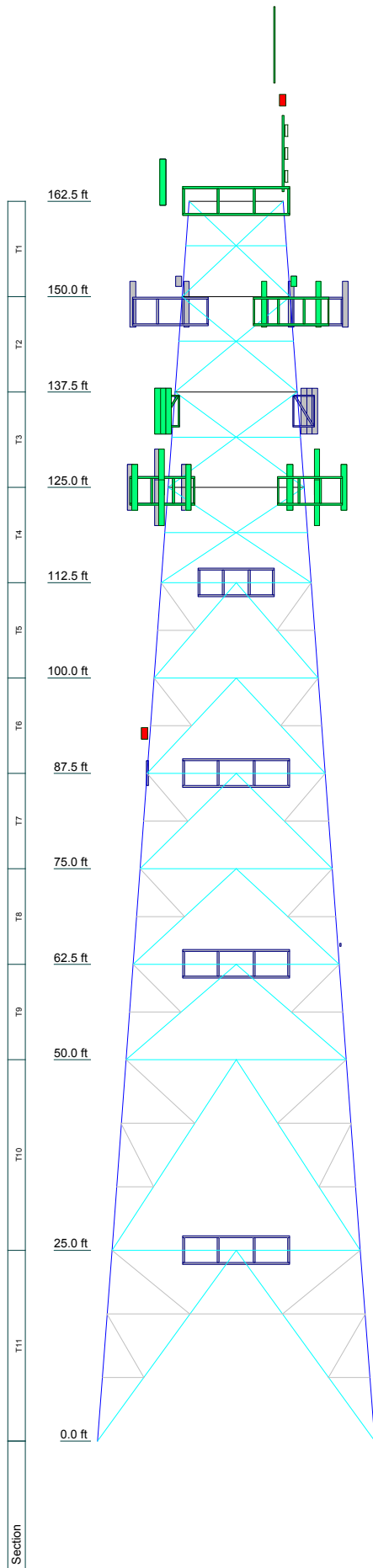
Note: The proposed loading shall be installed in addition to the remaining existing loading at the same elevation.

Note: The proposed coax shall be installed on Face D with AT&T Mobility's existing coax, as illustrated in Appendix B.

APPENDIX B

Software Output Files and Calculations

DESIGNED APPURTENANCE LOADING



TYPE	ELEVATION	TYPE	ELEVATION
(3) DC6-48-60-18-8C-EV	167	APXVSP18 w/ Mount Pipe	148
(3) RRUS 4478 B14	165	30' x 30' Cross Catwalk w/ Handrails	144
(3) RRUS-32 B30	165	2' Standoff	135
(3) RRUS-32 B2	165	2' Standoff	135
(3) RRUS-32 B66A	165	2' Standoff	135
(3) 4449 B5/B12	165	AIR 32 KRD901146-1 B66A/B2A w/ Mount Pipe	135
DC6-48-60-18	165	AIR 32 KRD901146-1 B66A/B2A w/ Mount Pipe	135
DC6-48-60-18	165	AIR 32 KRD901146-1 B66A/B2A w/ Mount Pipe	135
DC6-48-60-18	165	AIR 32 KRD901146-1 B66A/B2A w/ Mount Pipe	135
W8 x 19' Beams	163	APXVAARR24_43-U-NA20 w/ Mount Pipe	135
W8 x 19' Beams	163	APXVAARR24_43-U-NA20 w/ Mount Pipe	135
QD8616-7 w/ Mount Pipe	163	APXVAARR24_43-U-NA20 w/ Mount Pipe	135
QD8616-7 w/ Mount Pipe	163	APXVAARR24_43-U-NA20 w/ Mount Pipe	135
QD8616-7 w/ Mount Pipe	163	APXVAARR24_43-U-NA20 w/ Mount Pipe	135
AIR6449 B77D+AIR6419 B77G (Stacked) w/ Mount Pipe	163	AIR6449 B41 w/ Mount Pipe	135
AIR6449 B77D+AIR6419 B77G (Stacked) w/ Mount Pipe	163	AIR6449 B41 w/ Mount Pipe	135
AIR6449 B77D+AIR6419 B77G (Stacked) w/ Mount Pipe	163	AIR6449 B41 w/ Mount Pipe	135
80010965 w/ Mount Pipe	163	RRU4449 B71+B12	135
80010965 w/ Mount Pipe	163	RRU4449 B71+B12	135
80010965 w/ Mount Pipe	163	RRU4449 B71+B12	135
(2) APTDC-BDFDM-DB	163	Radio 4415	135
(2) APTDC-BDFDM-DB	163	Radio 4415	135
(2) APTDC-BDFDM-DB	163	Radio 4415	135
WCS-IMFQ-AMT	163	SDX	135
WCS-IMFQ-AMT	163	SDX	135
Pipe Mount 14"x2.875"	162.5	SDX	135
2' Standoff	162.5	KRY 112 144	135
Flash Beacon Lighting	162.5	KRY 112 144	135
W5 x 13' Mount	162.5	KRY 112 144	135
15' Dipole	162.5	Sector Mount [SM 302-1]	124.5
10' Dipole	162.5	Sector Mount [SM 302-1]	124.5
Pipe Mount 14"x2.875"	162.5	Sector Mount [SM 302-1]	124.5
2' Standoff	162.5	(2) DB846F65ZAXY w/Mount Pipe	124.5
2' Standoff	162.5	(2) DB846F65ZAXY w/Mount Pipe	124.5
15' Dipole	162.5	(2) DB846F65ZAXY w/Mount Pipe	124.5
2' Standoff	162.5	RT4401-48A w/ Mount Pipe	124.5
10' Omni	162.5	RT4401-48A w/ Mount Pipe	124.5
28' Square Platform w/ Rails	162.5	RT4401-48A w/ Mount Pipe	124.5
(2) 2.5" x 3.5" Mount Pipe	153	(2) MX06FRO660-03 w/ Mount Pipe	124.5
(2) 2.5" x 3.5" Mount Pipe	153	(2) MX06FRO660-03 w/ Mount Pipe	124.5
(2) 2.5" x 3.5" Mount Pipe	153	(2) MX06FRO660-03 w/ Mount Pipe	124.5
RRH2X50-800	153	MT6407-77A w/ Mount Pipe	124.5
RRH2X50-800	153	MT6407-77A w/ Mount Pipe	124.5
RRH2X50-800	153	MT6407-77A w/ Mount Pipe	124.5
1900MHz 4X40W RRH	153	RF4439D-25A	124.5
1900MHz 4X40W RRH	153	RF4439D-25A	124.5
1900MHz 4X40W RRH	153	RF4439D-25A	124.5
1900MHz 4X40W RRH	153	RF4440D-13A	124.5
TD-RRH8x20-25	153	RF4440D-13A	124.5
TD-RRH8x20-25	153	RF4440D-13A	124.5
TD-RRH8x20-25	153	RF4440D-13A	124.5
RRH 2x50 800 MHz	153	DB-T1-6Z-8AB-0Z	124.5
RRH 2x50 800 MHz	153	DB-T1-6Z-8AB-0Z	124.5
RRH 2x50 800 MHz	153	4.25' x 7' Catwalk	112.5
14' Sector Frame	148	Side Light	92
14' Sector Frame	148	Side Light	92
14' Sector Frame	148	23' x 3' Catwalk	87.5
Pipe Mount 6"x2.375"	148	23' x 3' Catwalk	87.5
Pipe Mount 6"x2.375"	148	GPS-TMG-HR-26N	65
Pipe Mount 6"x2.375"	148	13' x 4.25' Catwalk	62.5
AAHC w/ Mount Pipe	148	13' x 4.25' Catwalk	25
AAHC w/ Mount Pipe	148	Feedline Raceway	8.33
AAHC w/ Mount Pipe	148	Feedline Raceway	8.33
AAHC w/ Mount Pipe	148	Feedline Raceway	8.33
APXVSP18 w/ Mount Pipe	148		
APXVSP18 w/ Mount Pipe	148		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A36	36 ksi	58 ksi			

TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 119 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.

GPD
520 South Main Street Suite 2531
Akron, Ohio 44311
Phone: (330) 572-2100
FAX: (330) 572-2101

Job: SNET025 (10034975) SHELTON EAST CENTRAL

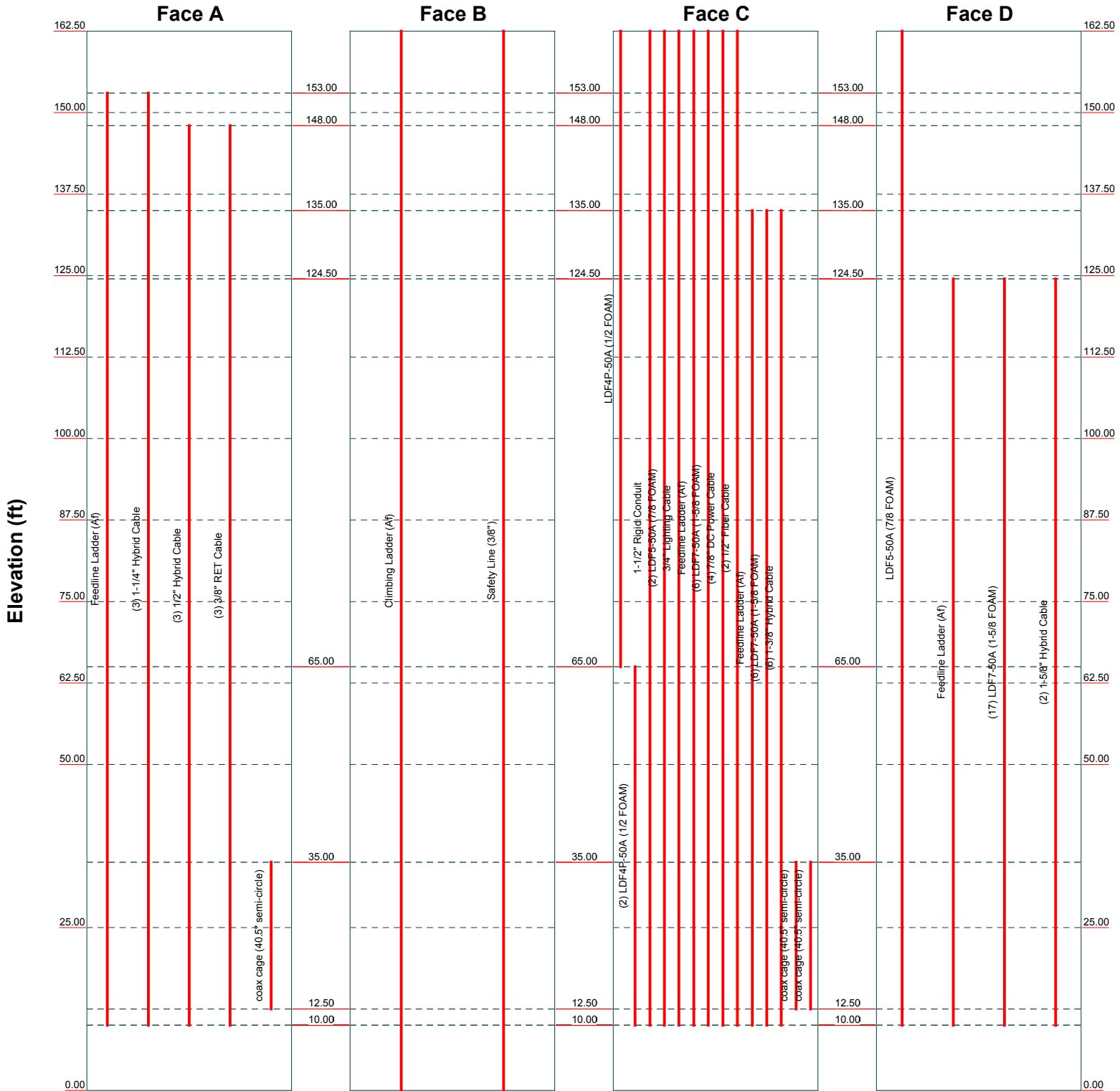
Project: **2022702.64**

Client: AT&T Towers	Drawn by: CKuhn	App'd:
Code: TIA-222-H	Date: 05/11/22	Scale: NTS
Path: T:\Towers\NET\2022702.64\Central\Wireline\545_Structure\03_Structure\00_Rev 003_Motiv\Drawings\NET025.dwg		Dwg No: E-1

Feed Line Distribution Chart

0' - 162'6"

— Round
 — Flat
 — App In Face
 — App Out Face
 — Truss Leg



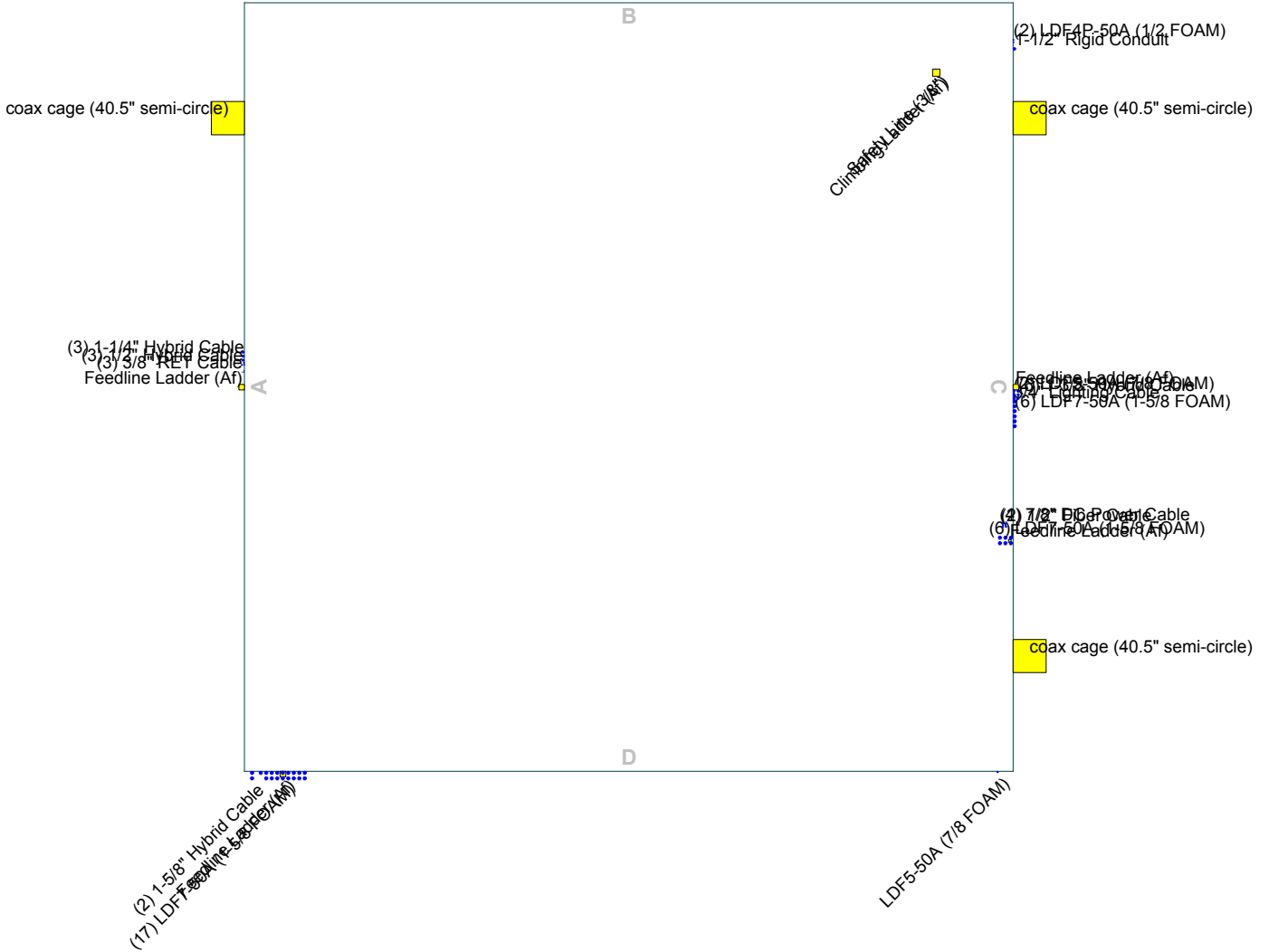
GPD
 520 South Main Street Suite 2531
 Akron, Ohio 44311
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Job: SNET025 (10034975) SHELTON EAST CENTRAL		
Project: 2022702.64		
Client: AT&T Towers	Drawn by: CKuhn	App'd:
Code: TIA-222-H	Date: 05/11/22	Scale: NTS
Path:		Dwg No: E-7

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Feed Line Plan

— Round
 — Flat
 — App In Face
 — App Out Face



GPD
 520 South Main Street Suite 2531
 Akron, Ohio 44311
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 FAX: (330) 572-2101

Job: SNET025 (10034975) SHELTON EAST CENTRAL		
Project: 2022702.64		
Client: AT&T Towers	Drawn by: CKuhn	App'd:
Code: TIA-222-H	Date: 05/11/22	Scale: NTS
Path:		Dwg No: E-7

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<p>tnxTower</p> <p>GPD</p> <p>520 South Main Street Suite 2531 Akron, Ohio 44311 Phone: (330) 572-2100 FAX: (330) 572-2101</p>	<p>Job</p> <p>SNET025 (10034975) SHELTON EAST CENTRAL</p>	<p>Page</p> <p>1 of 10</p>
	<p>Project</p> <p>2022702.64</p>	<p>Date</p> <p>14:32:57 05/11/22</p>
	<p>Client</p> <p>AT&T Towers</p>	<p>Designed by</p> <p>CKuhn</p>

Tower Input Data

The main tower is a 4x free standing tower with an overall height of 162.50 ft above the ground line.

The base of the tower is set at an elevation of 0.00 ft above the ground line.

The face width of the tower is 12.25 ft at the top and 36.25 ft at the base.

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

The following design criteria apply:

Tower is located in Fairfield County, Connecticut.

Tower base elevation above sea level: 457.00 ft.

Basic wind speed of 119 mph.

Risk Category II.

Exposure Category B.

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

Topographic Category: 1.

Crest Height: 0.00 ft.

Nominal ice thickness of 1.0000 in.

Ice thickness is considered to increase with height.

Ice density of 56 pcf.

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

Temperature drop of 50 °F.

Deflections calculated using a wind speed of 60 mph.

A non-linear (P-delta) analysis was used.

Pressures are calculated at each section.

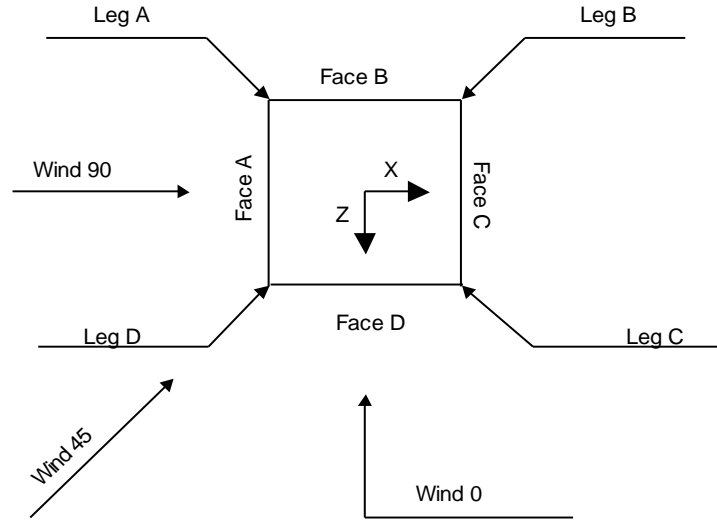
Stress ratio used in tower member design is 1.

Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

<ul style="list-style-type: none"> Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification √ Use Code Stress Ratios √ Use Code Safety Factors - Guys Escalate Ice Always Use Max Kz Use Special Wind Profile Include Bolts In Member Capacity Leg Bolts Are At Top Of Section √ Secondary Horizontal Braces Leg √ Use Diamond Inner Bracing (4 Sided) SR Members Have Cut Ends SR Members Are Concentric 	<ul style="list-style-type: none"> Distribute Leg Loads As Uniform Assume Legs Pinned √ Assume Rigid Index Plate √ Use Clear Spans For Wind Area √ Use Clear Spans For KL/r Retension Guys To Initial Tension √ Bypass Mast Stability Checks √ Use Azimuth Dish Coefficients √ Project Wind Area of Appurt. Autocalc Torque Arm Areas Add IBC .6D+W Combination √ Sort Capacity Reports By Component √ Triangulate Diamond Inner Bracing Treat Feed Line Bundles As Cylinder Ignore KL/ry For 60 Deg. Angle Legs 	<ul style="list-style-type: none"> Use ASCE 10 X-Brace Ly Rules √ Calculate Redundant Bracing Forces Ignore Redundant Members in FEA SR Leg Bolts Resist Compression All Leg Panels Have Same Allowable Offset Girt At Foundation √ Consider Feed Line Torque √ Include Angle Block Shear Check Use TIA-222-H Bracing Resist. Exemption Use TIA-222-H Tension Splice Exemption <li style="text-align: center;">Poles Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets Pole Without Linear Attachments Pole With Shroud Or No Appurtenances Outside and Inside Corner Radii Are Known
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Job	SNET025 (10034975) SHELTON EAST CENTRAL	Page	2 of 10
Project	2022702.64	Date	14:32:57 05/11/22
Client	AT&T Towers	Designed by	CKuhn



Square Tower

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
Climbing Ladder (Af)	B	No	No	Af (CaAa)	162.50 - 0.00	-36.000	0.4	1	1	3.8400	3.8400		4.81
Safety Line (3/8")	B	No	No	Ar (CaAa)	162.50 - 0.00	-36.000	0.4	1	1	0.3750	0.3750		0.22
LDF4P-50A (1/2 FOAM)	C	No	No	Ar (CaAa)	162.50 - 65.00	0.0000	-0.45	1	1	0.6300	0.6300		0.15
LDF4P-50A (1/2 FOAM)	C	No	No	Ar (CaAa)	65.00 - 10.00	0.0000	-0.45	2	2	0.6300	0.6300		0.15
1-1/2" Rigid Conduit	C	No	No	Ar (CaAa)	162.50 - 10.00	0.0000	-0.44	1	1	1.5000	1.5000		1.00
LDF5-50A (7/8 FOAM)	C	No	No	Ar (CaAa)	162.50 - 10.00	0.0000	0.01	2	2	1.0000	1.0900		0.33
3/4" Lighting Cable	C	No	No	Ar (CaAa)	162.50 - 10.00	0.0000	0.02	1	1	0.7500	0.7500		0.35
LDF5-50A (7/8 FOAM)	D	No	No	Ar (CaAa)	162.50 - 10.00	0.0000	-0.48	1	1	1.0000	1.0900		0.33
Feedline Ladder (Af)	C	No	No	Af (CaAa)	162.50 - 10.00	-1.0000	0.2	1	1	1.5000	1.5000		4.20
LDF7-50A (1-5/8 FOAM)	C	No	No	Ar (CaAa)	162.50 - 10.00	-6.0000	0.2	6	2	1.0000	1.9800		0.82
7/8" DC Power Cable	C	No	No	Ar (CaAa)	162.50 - 10.00	-5.0000	0.18	4	2	0.8750	0.8750		0.60
1/2" Fiber Cable	C	No	No	Ar (CaAa)	162.50 - 10.00	-5.0000	0.18	2	1	0.6300	0.6300		0.15
Feedline Ladder (Af)	A	No	No	Af (CaAa)	153.00 - 10.00	0.0000	0	1	1	3.0000	3.0000		8.40
1-1/4" Hybrid Cable	A	No	No	Ar (CaAa)	153.00 - 10.00	0.0000	0.04	3	3	1.0000	1.2500		1.00

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
1/2" Hybrid Cable	A	No	No	Ar (CaAa)	148.00 - 10.00	0.0000	0.03	3	2	0.5000	0.5000		30.00
3/8" RET Cable	A	No	No	Ar (CaAa)	148.00 - 10.00	0.0000	0.02	3	2	0.3750	0.3750		0.10
Feedline Ladder (Af)	C	No	No	Af (CaAa)	135.00 - 10.00	0.0000	0	1	1	3.0000	3.0000		8.40
LDF7-50A (1-5/8 FOAM)	C	No	No	Ar (CaAa)	135.00 - 10.00	0.0000	0.035	6	6	0.7500	1.9800		0.82
1-3/8" Hybrid Cable	C	No	No	Ar (CaAa)	135.00 - 10.00	0.0000	0.01	6	3	0.7500	1.3750		0.65
Feedline Ladder (Af)	D	No	No	Af (CaAa)	124.50 - 10.00	0.0000	0.45	1	1	3.0000	3.0000		8.40
LDF7-50A (1-5/8 FOAM)	D	No	No	Ar (CaAa)	124.50 - 10.00	0.0000	0.45	17	9	1.0000	1.9800		0.82
1-5/8" Hybrid Cable	D	No	No	Ar (CaAa)	124.50 - 10.00	0.0000	0.49	2	1	1.0000	1.9800		0.82
coax cage (40.5" semi-circle)	C	No	No	Af (CaAa)	35.00 - 12.50	0.0000	0.35	1	1	18.0000	18.0000		20.00
coax cage (40.5" semi-circle)	C	No	No	Af (CaAa)	35.00 - 12.50	0.0000	-0.35	1	1	18.0000	18.0000		20.00
coax cage (40.5" semi-circle)	A	No	No	Af (CaAa)	35.00 - 12.50	0.0000	0.35	1	1	18.0000	18.0000		20.00

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
28' Square Platform w/ Rails	C	None		0.0000	162.50	No Ice 106.70 1/2" Ice 117.80 1" Ice 122.40	106.70 111.80 122.40	12.170 15.923 19.375
Flash Beacon Lighting	C	From Leg	0.00 0.00 12.50	0.0000	162.50	No Ice 2.70 1/2" Ice 3.10 1" Ice 3.50	2.70 3.10 3.50	0.050 0.070 0.090
W5 x 13' Mount	C	From Leg	0.00 0.00 6.25	0.0000	162.50	No Ice 5.42 1/2" Ice 7.00 1" Ice 8.58	5.42 7.00 8.58	0.210 0.280 0.350
15' Dipole	B	From Face	7.00 -3.00 -6.50	0.0000	162.50	No Ice 3.00 1/2" Ice 4.53 1" Ice 6.07	3.00 4.53 6.07	0.040 0.063 0.096
10' Dipole	D	From Face	7.00 5.00 7.50	0.0000	162.50	No Ice 2.00 1/2" Ice 3.02 1" Ice 4.07	2.00 3.02 4.07	0.020 0.036 0.057
Pipe Mount 14'x2.875"	B	From Face	7.00 -5.00 5.50	0.0000	162.50	No Ice 4.03 1/2" Ice 5.46 1" Ice 6.91	4.03 5.46 6.91	0.090 0.119 0.157
2' Standoff	B	From Face	6.50 -5.00 9.50	0.0000	162.50	No Ice 1.14 1/2" Ice 1.79 1" Ice 2.44	1.62 2.41 3.20	0.037 0.055 0.073

tnxTower GPD 520 South Main Street Suite 2531 Akron, Ohio 44311 Phone: (330) 572-2100 FAX: (330) 572-2101	Job SNET025 (10034975) SHELTON EAST CENTRAL	Page 4 of 10
	Project 2022702.64	Date 14:32:57 05/11/22
	Client AT&T Towers	Designed by CKuhn

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment °	Placement ft	CAAA Front ft ²	CAAA Side ft ²	Weight K
			Horz Lateral ft	Vert ft					
2' Standoff	B	From Face	7.50	0.0000	162.50	No Ice	1.14	1.62	0.037
			-5.00			1/2" Ice	1.79	2.41	0.055
			9.50			1" Ice	2.44	3.20	0.073
15' Dipole	B	From Face	7.00	0.0000	162.50	No Ice	3.00	3.00	0.040
			5.00			1/2" Ice	4.53	4.53	0.063
			21.50			1" Ice	6.07	6.07	0.096
Pipe Mount 14'x2.875"	D	From Face	7.00	0.0000	162.50	No Ice	4.03	4.03	0.090
			-5.00			1/2" Ice	5.46	5.46	0.119
			5.50			1" Ice	6.91	6.91	0.157
2' Standoff	D	From Face	6.50	0.0000	162.50	No Ice	1.14	1.62	0.037
			-5.00			1/2" Ice	1.79	2.41	0.055
			9.50			1" Ice	2.44	3.20	0.073
2' Standoff	D	From Face	7.50	0.0000	162.50	No Ice	1.14	1.62	0.037
			-5.00			1/2" Ice	1.79	2.41	0.055
			9.50			1" Ice	2.44	3.20	0.073
10' Omni	D	From Face	8.00	0.0000	162.50	No Ice	2.00	2.00	0.025
			-5.00			1/2" Ice	3.02	3.02	0.041
			20.50			1" Ice	4.07	4.07	0.062

W8 x 19' Beams	A	From Leg	5.00	0.0000	163.00	No Ice	17.00	1.00	0.290
			0.00			1/2" Ice	19.00	1.50	0.340
			0.00			1" Ice	21.00	2.00	0.330
W8 x 19' Beams	D	From Leg	5.00	0.0000	163.00	No Ice	17.00	1.00	0.290
			0.00			1/2" Ice	19.00	1.50	0.340
			0.00			1" Ice	21.00	2.00	0.330
QD8616-7 w/ Mount Pipe	A	From Leg	5.00	70.0000	163.00	No Ice	18.81	11.50	0.029
			0.00			1/2" Ice	19.45	12.93	0.160
			2.00			1" Ice	20.10	14.22	0.301
QD8616-7 w/ Mount Pipe	D	From Leg	5.00	50.0000	163.00	No Ice	18.81	11.50	0.029
			0.00			1/2" Ice	19.45	12.93	0.160
			2.00			1" Ice	20.10	14.22	0.301
QD8616-7 w/ Mount Pipe	C	From Face	7.00	55.0000	163.00	No Ice	18.81	11.50	0.029
			0.00			1/2" Ice	19.45	12.93	0.160
			2.00			1" Ice	20.10	14.22	0.301
AIR6449 B77D+AIR6419 B77G (Stacked) w/ Mount Pipe	A	From Leg	5.00	70.0000	163.00	No Ice	8.81	6.13	0.148
			0.00			1/2" Ice	9.30	7.02	0.217
			2.00			1" Ice	9.78	7.79	0.295
AIR6449 B77D+AIR6419 B77G (Stacked) w/ Mount Pipe	D	From Leg	5.00	50.0000	163.00	No Ice	8.81	6.13	0.148
			0.00			1/2" Ice	9.30	7.02	0.217
			2.00			1" Ice	9.78	7.79	0.295
AIR6449 B77D+AIR6419 B77G (Stacked) w/ Mount Pipe	C	From Face	7.00	55.0000	163.00	No Ice	8.81	6.13	0.148
			0.00			1/2" Ice	9.30	7.02	0.217
			2.00			1" Ice	9.78	7.79	0.295
80010965 w/ Mount Pipe	A	From Leg	5.00	70.0000	163.00	No Ice	14.05	7.63	0.125
			0.00			1/2" Ice	14.69	8.90	0.222
			2.00			1" Ice	15.30	9.96	0.327
80010965 w/ Mount Pipe	D	From Leg	5.00	50.0000	163.00	No Ice	14.05	7.63	0.125
			0.00			1/2" Ice	14.69	8.90	0.222
			2.00			1" Ice	15.30	9.96	0.327
80010965 w/ Mount Pipe	C	From Face	7.00	55.0000	163.00	No Ice	14.05	7.63	0.125
			0.00			1/2" Ice	14.69	8.90	0.222
			2.00			1" Ice	15.30	9.96	0.327
(2) APTDC-BDFDM-DB	A	From Leg	5.00	0.0000	163.00	No Ice	0.05	0.10	0.001
			0.00			1/2" Ice	0.08	0.14	0.002
			2.00			1" Ice	0.12	0.19	0.004
(2) APTDC-BDFDM-DB	D	From Leg	5.00	0.0000	163.00	No Ice	0.05	0.10	0.001
			0.00			1/2" Ice	0.08	0.14	0.002

tnxTower GPD 520 South Main Street Suite 2531 Akron, Ohio 44311 Phone: (330) 572-2100 FAX: (330) 572-2101	Job		SNET025 (10034975) SHELTON EAST CENTRAL		Page		5 of 10	
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	Client		AT&T Towers		Designed by		CKuhn	

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	CAAA Front	CAAA Side	Weight					
			Horz	Lateral						Vert	°	ft	ft ²	ft ²
(2) APTDC-BDFDM-DB	C	From Face	2.00		0.0000	163.00	1" Ice	0.12	0.19	0.004				
			7.00								No Ice	0.05	0.10	0.001
			0.00								1/2" Ice	0.08	0.14	0.002
(3) RRUS 4478 B14	A	From Leg	2.00		0.0000	165.00	1" Ice	0.12	0.19	0.004				
			5.00								No Ice	1.84	1.06	0.060
			0.00								1/2" Ice	2.01	1.20	0.076
(3) RRUS-32 B30	A	From Leg	2.00		0.0000	165.00	1" Ice	2.19	1.34	0.094				
			5.00								No Ice	3.31	2.42	0.077
			0.00								1/2" Ice	3.56	2.64	0.105
(3) RRUS-32 B2	A	From Leg	2.00		0.0000	165.00	1" Ice	3.81	2.86	0.136				
			5.00								No Ice	2.73	1.67	0.053
			0.00								1/2" Ice	2.95	1.86	0.074
(3) RRUS-32 B66A	A	From Leg	2.00		0.0000	165.00	1" Ice	3.18	2.05	0.098				
			5.00								No Ice	2.86	1.78	0.055
			0.00								1/2" Ice	3.09	1.97	0.077
(3) 4449 B5/B12	A	From Leg	2.00		0.0000	165.00	1" Ice	3.32	2.17	0.103				
			5.00								No Ice	1.97	1.41	0.071
			0.00								1/2" Ice	2.14	1.56	0.090
DC6-48-60-18	A	None	2.00		0.0000	165.00	1" Ice	2.33	1.73	0.111				
			No Ice	3.81							1.37	0.048		
			1/2" Ice	4.06							1.55	0.072		
DC6-48-60-18	D	None			0.0000	165.00	1" Ice	4.32	1.74	0.100				
			No Ice	3.81							1.37	0.048		
			1/2" Ice	4.06							1.55	0.072		
DC6-48-60-18	C	None			0.0000	165.00	1" Ice	4.32	1.74	0.100				
			No Ice	3.81							1.37	0.048		
			1/2" Ice	4.06							1.55	0.072		
WCS-IMFQ-AMT	A	None			0.0000	163.00	1" Ice	4.32	1.74	0.100				
			No Ice	0.99							0.64	0.030		
			1/2" Ice	1.11							0.75	0.039		
WCS-IMFQ-AMT	D	None			0.0000	163.00	1" Ice	1.25	0.86	0.051				
			No Ice	0.99							0.64	0.030		
			1/2" Ice	1.11							0.75	0.039		
(3) DC6-48-60-18-8C-EV	A	None			0.0000	167.00	1" Ice	1.25	0.86	0.051				
			No Ice	1.14							1.14	0.026		
			1/2" Ice	1.79							1.79	0.047		
***							2.00	2.00	0.070					
(2) 2.5" x 3.5' Mount Pipe	A	From Leg	0.50		0.0000	153.00	No Ice	0.74	0.74	0.020				
			0.00								1/2" Ice	0.96	0.96	0.027
			0.00								1" Ice	1.18	1.18	0.036
(2) 2.5" x 3.5' Mount Pipe	B	From Leg	0.50		0.0000	153.00	No Ice	0.74	0.74	0.020				
			0.00								1/2" Ice	0.96	0.96	0.027
			0.00								1" Ice	1.18	1.18	0.036
(2) 2.5" x 3.5' Mount Pipe	C	From Leg	0.50		0.0000	153.00	No Ice	0.74	0.74	0.020				
			0.00								1/2" Ice	0.96	0.96	0.027
			0.00								1" Ice	1.18	1.18	0.036
RRH2X50-800	A	From Leg	1.00		0.0000	153.00	No Ice	1.70	1.28	0.053				
			0.00								1/2" Ice	1.86	1.43	0.070
			-1.00								1" Ice	2.03	1.58	0.090
RRH2X50-800	B	From Leg	1.00		0.0000	153.00	No Ice	1.70	1.28	0.053				
			0.00								1/2" Ice	1.86	1.43	0.070
			-1.00								1" Ice	2.03	1.58	0.090
RRH2X50-800	C	From Leg	1.00		0.0000	153.00	No Ice	1.70	1.28	0.053				
			0.00								1/2" Ice	1.86	1.43	0.070
			-1.00								1" Ice	2.03	1.58	0.090
1900MHz 4X40W RRH	A	From Leg	1.00		0.0000	153.00	No Ice	2.32	2.24	0.060				

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	Client		AT&T Towers		Designed by		CKuhn	

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	CAAA Front	CAAA Side	Weight
			Horz	Vert					
			ft	ft	°	ft	ft ²	ft ²	K
			0.00			1/2" Ice	2.53	2.44	0.083
			-1.00			1" Ice	2.74	2.65	0.109
1900MHz 4X40W RRH	B	From Leg	1.00	0.0000	153.00	No Ice	2.32	2.24	0.060
			0.00			1/2" Ice	2.53	2.44	0.083
			-1.00			1" Ice	2.74	2.65	0.109
1900MHz 4X40W RRH	C	From Leg	1.00	0.0000	153.00	No Ice	2.32	2.24	0.060
			0.00			1/2" Ice	2.53	2.44	0.083
			-1.00			1" Ice	2.74	2.65	0.109
TD-RRH8x20-25	A	From Leg	1.00	0.0000	153.00	No Ice	3.70	1.29	0.066
			0.00			1/2" Ice	3.95	1.46	0.090
			-1.00			1" Ice	4.20	1.64	0.117
TD-RRH8x20-25	B	From Leg	1.00	0.0000	153.00	No Ice	3.70	1.29	0.066
			0.00			1/2" Ice	3.95	1.46	0.090
			-1.00			1" Ice	4.20	1.64	0.117
TD-RRH8x20-25	C	From Leg	1.00	0.0000	153.00	No Ice	3.70	1.29	0.066
			0.00			1/2" Ice	3.95	1.46	0.090
			-1.00			1" Ice	4.20	1.64	0.117
RRH 2x50 800 MHz	A	From Leg	1.00	0.0000	153.00	No Ice	1.73	1.33	0.053
			0.00			1/2" Ice	1.90	1.48	0.070
			-1.00			1" Ice	2.07	1.64	0.091
RRH 2x50 800 MHz	B	From Leg	1.00	0.0000	153.00	No Ice	1.73	1.33	0.053
			0.00			1/2" Ice	1.90	1.48	0.070
			-1.00			1" Ice	2.07	1.64	0.091
RRH 2x50 800 MHz	C	From Leg	1.00	0.0000	153.00	No Ice	1.73	1.33	0.053
			0.00			1/2" Ice	1.90	1.48	0.070
			-1.00			1" Ice	2.07	1.64	0.091

14' Sector Frame	A	From Leg	2.00	-2.0000	148.00	No Ice	23.00	13.66	0.380
			0.00			1/2" Ice	29.50	18.25	0.557
			0.00			1" Ice	36.00	22.84	0.733
14' Sector Frame	B	From Leg	1.90	18.0000	148.00	No Ice	23.00	13.66	0.380
			0.62			1/2" Ice	29.50	18.25	0.557
			0.00			1" Ice	36.00	22.84	0.733
14' Sector Frame	C	From Leg	1.41	45.0000	148.00	No Ice	23.00	13.66	0.380
			1.41			1/2" Ice	29.50	18.25	0.557
			0.00			1" Ice	36.00	22.84	0.733
Pipe Mount 6'x2.375"	A	From Leg	4.00	-2.0000	148.00	No Ice	1.43	1.43	0.026
			0.00			1/2" Ice	1.92	1.92	0.037
			1.00			1" Ice	2.29	2.29	0.052
Pipe Mount 6'x2.375"	B	From Leg	3.80	18.0000	148.00	No Ice	1.43	1.43	0.026
			1.24			1/2" Ice	1.92	1.92	0.037
			1.00			1" Ice	2.29	2.29	0.052
Pipe Mount 6'x2.375"	C	From Leg	2.82	45.0000	148.00	No Ice	1.43	1.43	0.026
			2.82			1/2" Ice	1.92	1.92	0.037
			1.00			1" Ice	2.29	2.29	0.052
AAHC w/ Mount Pipe	A	From Leg	4.00	-2.0000	148.00	No Ice	4.89	3.26	0.122
			0.00			1/2" Ice	5.32	3.76	0.168
			1.00			1" Ice	5.77	4.28	0.218
AAHC w/ Mount Pipe	B	From Leg	3.80	18.0000	148.00	No Ice	4.89	3.26	0.122
			1.24			1/2" Ice	5.32	3.76	0.168
			1.00			1" Ice	5.77	4.28	0.218
AAHC w/ Mount Pipe	C	From Leg	2.82	58.0000	148.00	No Ice	4.89	3.26	0.122
			2.82			1/2" Ice	5.32	3.76	0.168
			1.00			1" Ice	5.77	4.28	0.218
APXVSP18 w/ Mount Pipe	A	From Leg	4.00	-2.0000	148.00	No Ice	8.02	6.71	0.079
			0.00			1/2" Ice	8.48	7.66	0.144
			1.00			1" Ice	8.94	8.49	0.217

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	Client		AT&T Towers				Designed by		CKuhn

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	CAAA Front	CAAA Side	Weight	
			Horz	Vert						ft
			ft	ft	°	ft	ft ²	ft ²	K	
APXVSP18 w/ Mount Pipe	B	From Leg	3.80	1.24	18.0000	148.00	No Ice	8.02	6.71	0.079
			1.00				1/2" Ice	8.48	7.66	0.144
							1" Ice	8.94	8.49	0.217
APXVSP18 w/ Mount Pipe	C	From Leg	2.82	2.82	58.0000	148.00	No Ice	8.02	6.71	0.079
			1.00				1/2" Ice	8.48	7.66	0.144
							1" Ice	8.94	8.49	0.217

30' x 30' Cross Catwalk w/ Handrails	C	None			0.0000	144.00	No Ice	78.00	78.00	5.664
							1/2" Ice	84.00	84.00	7.807
							1" Ice	90.00	90.00	9.950

2' Standoff	A	From Leg	1.00	0.00	0.0000	135.00	No Ice	2.78	2.23	0.113
			0.00				1/2" Ice	3.39	2.43	0.143
			0.00				1" Ice	4.00	2.63	0.173
2' Standoff	B	From Leg	1.00	0.00	0.0000	135.00	No Ice	2.78	2.23	0.113
			0.00				1/2" Ice	3.39	2.43	0.143
			0.00				1" Ice	4.00	2.63	0.173
2' Standoff	D	From Leg	1.00	0.00	0.0000	135.00	No Ice	2.78	2.23	0.113
			0.00				1/2" Ice	3.39	2.43	0.143
			0.00				1" Ice	4.00	2.63	0.173
AIR 32 KR901146-1 B66A/B2A w/ Mount Pipe	A	From Leg	2.00	1.00	40.0000	135.00	No Ice	6.58	5.90	0.150
			0.00				1/2" Ice	6.97	6.56	0.210
			0.00				1" Ice	7.37	7.24	0.275
AIR 32 KR901146-1 B66A/B2A w/ Mount Pipe	B	From Leg	2.00	1.00	70.0000	135.00	No Ice	6.58	5.90	0.150
			0.00				1/2" Ice	6.97	6.56	0.210
			0.00				1" Ice	7.37	7.24	0.275
AIR 32 KR901146-1 B66A/B2A w/ Mount Pipe	D	From Leg	2.00	1.00	10.0000	135.00	No Ice	6.58	5.90	0.150
			0.00				1/2" Ice	6.97	6.56	0.210
			0.00				1" Ice	7.37	7.24	0.275
APXVAARR24_43-U-NA20 w/ Mount Pipe	A	From Leg	2.00	-1.00	-80.0000	135.00	No Ice	20.24	10.79	0.157
			0.00				1/2" Ice	20.89	12.21	0.291
			0.00				1" Ice	21.55	13.49	0.435
APXVAARR24_43-U-NA20 w/ Mount Pipe	B	From Leg	2.00	-1.00	-50.0000	135.00	No Ice	20.24	10.79	0.157
			0.00				1/2" Ice	20.89	12.21	0.291
			0.00				1" Ice	21.55	13.49	0.435
APXVAARR24_43-U-NA20 w/ Mount Pipe	D	From Leg	2.00	-1.00	-90.0000	135.00	No Ice	20.24	10.79	0.157
			0.00				1/2" Ice	20.89	12.21	0.291
			0.00				1" Ice	21.55	13.49	0.435
AIR6449 B41 w/ Mount Pipe	A	From Leg	2.00	0.00	40.0000	135.00	No Ice	6.45	3.92	0.126
			0.00				1/2" Ice	7.02	4.64	0.181
			0.00				1" Ice	7.53	5.25	0.242
AIR6449 B41 w/ Mount Pipe	B	From Leg	2.00	0.00	70.0000	135.00	No Ice	6.45	3.92	0.126
			0.00				1/2" Ice	7.02	4.64	0.181
			0.00				1" Ice	7.53	5.25	0.242
AIR6449 B41 w/ Mount Pipe	D	From Leg	2.00	0.00	10.0000	135.00	No Ice	6.45	3.92	0.126
			0.00				1/2" Ice	7.02	4.64	0.181
			0.00				1" Ice	7.53	5.25	0.242
RRU4449 B71+B12	A	From Leg	2.00	0.00	0.0000	135.00	No Ice	1.65	1.16	0.070
			0.00				1/2" Ice	1.81	1.30	0.086
			0.00				1" Ice	1.98	1.45	0.105
RRU4449 B71+B12	B	From Leg	2.00	0.00	0.0000	135.00	No Ice	1.65	1.16	0.070
			0.00				1/2" Ice	1.81	1.30	0.086
			0.00				1" Ice	1.98	1.45	0.105
RRU4449 B71+B12	D	From Leg	2.00	0.00	0.0000	135.00	No Ice	1.65	1.16	0.070
			0.00				1/2" Ice	1.81	1.30	0.086
			0.00				1" Ice	1.98	1.45	0.105
Radio 4415	A	From Leg	2.00	0.00	0.0000	135.00	No Ice	1.86	0.87	0.047

<p>tnxTower</p> <p>GPD 520 South Main Street Suite 2531 Akron, Ohio 44311 Phone: (330) 572-2100 FAX: (330) 572-2101</p>	Job		SNET025 (10034975) SHELTON EAST CENTRAL		Page		8 of 10	
	Project		2022702.64		Date		14:32:57 05/11/22	
	Client		AT&T Towers		Designed by		CKuhn	

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	CAAA Front	CAAA Side	Weight	
			Horz	Lateral						Vert
			0.00				1/2" Ice	2.03	1.00	0.062
			0.00				1" Ice	2.20	1.14	0.079
Radio 4415	B	From Leg	2.00	0.0000	135.00		No Ice	1.86	0.87	0.047
			0.00				1/2" Ice	2.03	1.00	0.062
			0.00				1" Ice	2.20	1.14	0.079
Radio 4415	D	From Leg	2.00	0.0000	135.00		No Ice	1.86	0.87	0.047
			0.00				1/2" Ice	2.03	1.00	0.062
			0.00				1" Ice	2.20	1.14	0.079
SDX	A	From Leg	2.00	0.0000	135.00		No Ice	0.24	0.10	0.006
			0.00				1/2" Ice	0.31	0.14	0.009
			0.00				1" Ice	0.38	0.19	0.012
SDX	B	From Leg	2.00	0.0000	135.00		No Ice	0.24	0.10	0.006
			0.00				1/2" Ice	0.31	0.14	0.009
			0.00				1" Ice	0.38	0.19	0.012
SDX	D	From Leg	2.00	0.0000	135.00		No Ice	0.24	0.10	0.006
			0.00				1/2" Ice	0.31	0.14	0.009
			0.00				1" Ice	0.38	0.19	0.012
KRY 112 144	A	From Leg	2.00	0.0000	135.00		No Ice	0.35	0.17	0.011
			0.00				1/2" Ice	0.43	0.23	0.014
			0.00				1" Ice	0.51	0.30	0.019
KRY 112 144	B	From Leg	2.00	0.0000	135.00		No Ice	0.35	0.17	0.011
			0.00				1/2" Ice	0.43	0.23	0.014
			0.00				1" Ice	0.51	0.30	0.019
KRY 112 144	D	From Leg	2.00	0.0000	135.00		No Ice	0.35	0.17	0.011
			0.00				1/2" Ice	0.43	0.23	0.014
			0.00				1" Ice	0.51	0.30	0.019

Sector Mount [SM 302-1]	A	From Leg	1.00	0.0000	124.50		No Ice	18.13	10.84	0.492
			0.00				1/2" Ice	21.75	14.39	0.682
			0.00				1" Ice	25.54	17.91	0.920
Sector Mount [SM 302-1]	C	From Leg	1.00	0.0000	124.50		No Ice	18.13	10.84	0.492
			0.00				1/2" Ice	21.75	14.39	0.682
			0.00				1" Ice	25.54	17.91	0.920
Sector Mount [SM 302-1]	D	From Leg	1.00	0.0000	124.50		No Ice	18.13	10.84	0.492
			0.00				1/2" Ice	21.75	14.39	0.682
			0.00				1" Ice	25.54	17.91	0.920
(2) DB846F65ZAXY w/ Mount Pipe	A	From Leg	2.00	0.0000	124.50		No Ice	7.27	7.82	0.047
			0.00				1/2" Ice	7.88	9.01	0.114
			0.50				1" Ice	8.48	9.91	0.189
(2) DB846F65ZAXY w/ Mount Pipe	C	From Leg	1.97	-10.0000	124.50		No Ice	7.27	7.82	0.047
			-0.35				1/2" Ice	7.88	9.01	0.114
			0.50				1" Ice	8.48	9.91	0.189
(2) DB846F65ZAXY w/ Mount Pipe	D	From Leg	1.88	-20.0000	124.50		No Ice	7.27	7.82	0.047
			-0.68				1/2" Ice	7.88	9.01	0.114
			0.50				1" Ice	8.48	9.91	0.189
RT4401-48A w/ Mount Pipe	A	From Leg	2.00	0.0000	124.50		No Ice	2.64	2.17	0.045
			0.00				1/2" Ice	3.18	2.79	0.073
			2.50				1" Ice	3.63	3.29	0.105
RT4401-48A w/ Mount Pipe	C	From Leg	1.97	-10.0000	124.50		No Ice	2.64	2.17	0.045
			-0.35				1/2" Ice	3.18	2.79	0.073
			2.50				1" Ice	3.63	3.29	0.105
RT4401-48A w/ Mount Pipe	D	From Leg	1.88	-20.0000	124.50		No Ice	2.64	2.17	0.045
			-0.68				1/2" Ice	3.18	2.79	0.073
			2.50				1" Ice	3.63	3.29	0.105
(2) MX06FRO660-03 w/ Mount Pipe	A	From Leg	2.00	0.0000	124.50		No Ice	10.11	8.99	0.085
			0.00				1/2" Ice	10.68	10.15	0.173
			0.50				1" Ice	11.22	11.03	0.268

tnxTower GPD 520 South Main Street Suite 2531 Akron, Ohio 44311 Phone: (330) 572-2100 FAX: (330) 572-2101	Job		SNET025 (10034975) SHELTON EAST CENTRAL		Page		9 of 10	
	Project		2022702.64		Date		14:32:57 05/11/22	
	Client		AT&T Towers		Designed by		CKuhn	

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	CAAA Front ft ²	CAAA Side ft ²	Weight K
(2) MX06FRO660-03 w/ Mount Pipe	C	From Leg	1.97 -0.35 0.50	-10.0000	124.50	No Ice 10.11 1/2" Ice 10.68 1" Ice 11.22	8.99 10.15 11.03	0.085 0.173 0.268
(2) MX06FRO660-03 w/ Mount Pipe	D	From Leg	1.88 -0.68 0.50	-20.0000	124.50	No Ice 10.11 1/2" Ice 10.68 1" Ice 11.22	8.99 10.15 11.03	0.085 0.173 0.268
MT6407-77A w/ Mount Pipe	A	From Leg	2.00 0.00 -1.50	0.0000	124.50	No Ice 4.91 1/2" Ice 5.26 1" Ice 5.61	2.68 3.14 3.62	0.096 0.136 0.180
MT6407-77A w/ Mount Pipe	C	From Leg	1.97 -0.35 -1.50	-10.0000	124.50	No Ice 4.91 1/2" Ice 5.26 1" Ice 5.61	2.68 3.14 3.62	0.096 0.136 0.180
MT6407-77A w/ Mount Pipe	D	From Leg	1.88 -0.68 -1.50	-20.0000	124.50	No Ice 4.91 1/2" Ice 5.26 1" Ice 5.61	2.68 3.14 3.62	0.096 0.136 0.180
RF4439D-25A	A	From Leg	2.00 0.00 -1.50	0.0000	124.50	No Ice 1.87 1/2" Ice 2.03 1" Ice 2.21	1.25 1.39 1.54	0.075 0.093 0.114
RF4439D-25A	C	From Leg	2.00 0.00 -1.50	0.0000	124.50	No Ice 1.87 1/2" Ice 2.03 1" Ice 2.21	1.25 1.39 1.54	0.075 0.093 0.114
RF4439D-25A	D	From Leg	2.00 0.00 -1.50	0.0000	124.50	No Ice 1.87 1/2" Ice 2.03 1" Ice 2.21	1.25 1.39 1.54	0.075 0.093 0.114
RF4440D-13A	A	From Leg	2.00 0.00 -1.50	0.0000	124.50	No Ice 1.87 1/2" Ice 2.03 1" Ice 2.21	1.13 1.27 1.41	0.073 0.090 0.110
RF4440D-13A	C	From Leg	2.00 0.00 -1.50	0.0000	124.50	No Ice 1.87 1/2" Ice 2.03 1" Ice 2.21	1.13 1.27 1.41	0.073 0.090 0.110
RF4440D-13A	D	From Leg	2.00 0.00 -1.50	0.0000	124.50	No Ice 1.87 1/2" Ice 2.03 1" Ice 2.21	1.13 1.27 1.41	0.073 0.090 0.110
DB-T1-6Z-8AB-0Z	A	From Leg	2.00 0.00 0.50	0.0000	124.50	No Ice 4.80 1/2" Ice 5.07 1" Ice 5.35	2.00 2.19 2.39	0.044 0.080 0.120
DB-T1-6Z-8AB-0Z	C	From Leg	2.00 0.00 0.50	0.0000	124.50	No Ice 4.80 1/2" Ice 5.07 1" Ice 5.35	2.00 2.19 2.39	0.044 0.080 0.120
*** 4.25' x 7' Catwalk	B	From Face	0.00 0.00 0.00	0.0000	112.50	No Ice 11.50 1/2" Ice 13.40 1" Ice 15.30	8.90 10.50 12.10	0.750 1.000 1.250
*** Side Light	A	From Leg	1.00 0.00 0.00	0.0000	92.00	No Ice 0.33 1/2" Ice 0.47 1" Ice 0.60	0.33 0.47 0.60	0.007 0.007 0.007
*** Side Light	D	From Leg	1.00 0.00 0.00	0.0000	92.00	No Ice 0.33 1/2" Ice 0.47 1" Ice 0.60	0.33 0.47 0.60	0.007 0.007 0.007
*** 23' x 3' Catwalk	A	From Face	0.00 0.00 0.00	0.0000	87.50	No Ice 31.40 1/2" Ice 36.80 1" Ice 42.20	12.80 15.70 18.60	1.784 2.514 3.244
*** 23' x 3' Catwalk	B	From Face	0.00 0.00 0.00	0.0000	87.50	No Ice 31.40 1/2" Ice 36.80 1" Ice 42.20	12.80 15.70 18.60	1.784 2.514 3.244

tnxTower

GPD
 520 South Main Street Suite 2531
 Akron, Ohio 44311
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Job
 SNET025 (10034975) SHELTON EAST CENTRAL

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Project
 2022702.64

Date
 14:32:57 05/11/22

Client
 AT&T Towers

Designed by
 CKuhn

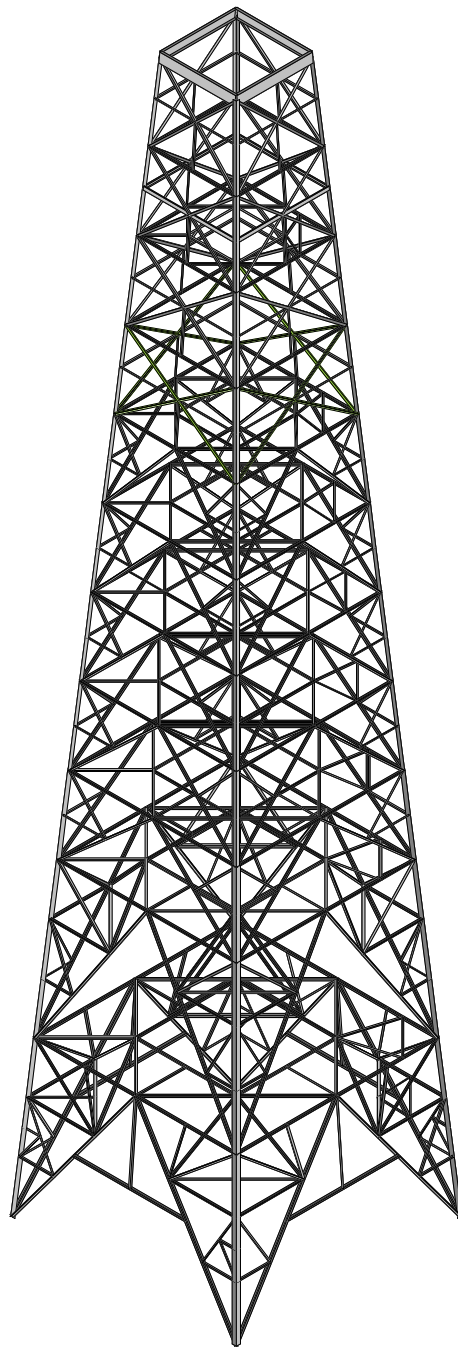
Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz Lateral	Vert					

GPS-TMG-HR-26N	B	From Leg	0.50	0.0000	65.00	No Ice	0.13	0.13	0.001
			0.00			1/2" Ice	0.18	0.18	0.002
			0.00			1" Ice	0.24	0.24	0.005

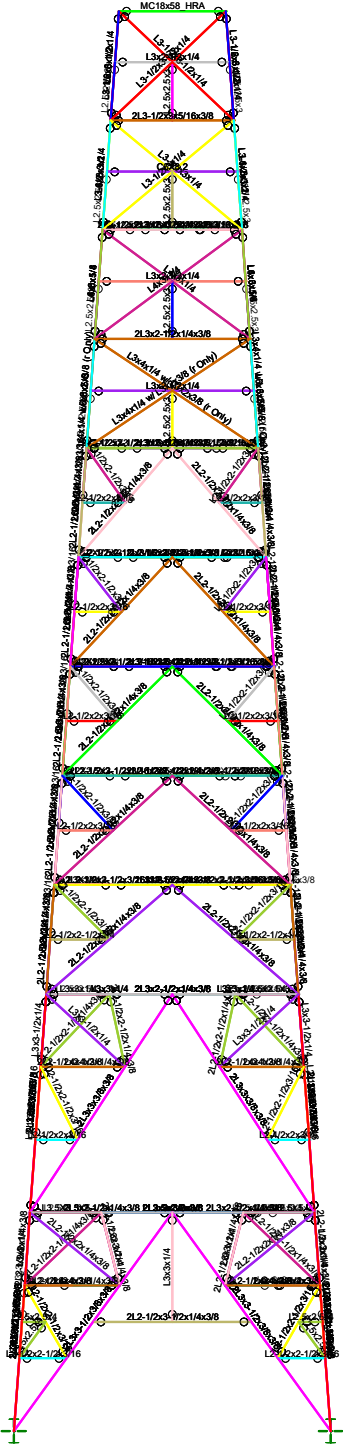
13' x 4.25' Catwalk	B	From Face	0.00	0.0000	62.50	No Ice	18.85	7.00	1.250
			0.00			1/2" Ice	26.00	8.00	1.750
			0.00			1" Ice	33.15	9.00	2.250

13' x 4.25' Catwalk	B	From Face	0.00	0.0000	25.00	No Ice	18.85	7.00	1.250
			0.00			1/2" Ice	26.00	8.00	1.750
			0.00			1" Ice	33.15	9.00	2.250

Feedline Raceway	B	From Face	1.00	0.0000	8.33	No Ice	93.50	11.05	1.280
			0.00			1/2" Ice	112.20	13.26	1.540
			0.00			1" Ice	130.90	15.47	1.800
Feedline Raceway	D	From Face	1.00	0.0000	8.33	No Ice	93.50	11.05	1.280
			0.00			1/2" Ice	112.20	13.26	1.540
			0.00			1" Ice	130.90	15.47	1.800
Feedline Raceway	A	None		0.0000	8.33	No Ice	93.50	11.05	1.280
						1/2" Ice	112.20	13.26	1.540
						1" Ice	130.90	15.47	1.800



GPD	SNET025 (10034975) SHELTON EAST CENTRAL 162.5' Modified Self Support Tower	SK - 1
C.Kuhn		May 11, 2022 at 2:41 PM
2022702.64		SNET025.r3d

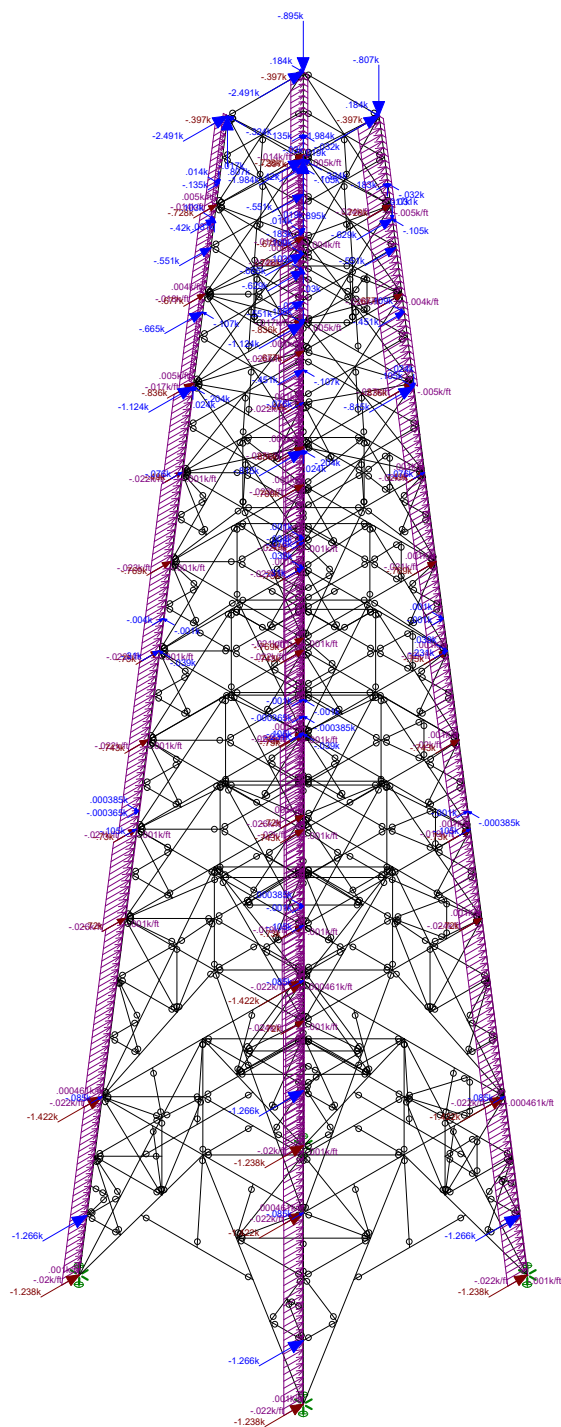


- Section Sets
- TWR_LEG_T1
 - TWR_TOP_GIRT_T1
 - TWR_DIAG_T1
 - TWR_STEP_T1
 - TWR_RED_VERT_T1
 - TWR_LEG_T2
 - TWR_TOP_GIRT_T2
 - TWR_DIAG_T2
 - TWR_STEP_T2
 - TWR_RED_VERT_T2
 - TWR_LEG_T3
 - TWR_TOP_GIRT_T3
 - TWR_INNER_SUPP_T3
 - TWR_DIAG_T3
 - TWR_STEP_T3
 - TWR_RED_VERT_T3
 - TWR_INNER_CORNER_T3
 - TWR_INNER_CORNER_T3
 - TWR_INNER_LADDER_T3
 - TWR_LEG_T4
 - TWR_TOP_GIRT_T4
 - TWR_RED_VERT_T4
 - TWR_STEP_T4
 - TWR_LEG_T5
 - TWR_HORZ_T5
 - TWR_DIAG_T5
 - TWR_RED_HORZ_T5
 - TWR_INNER_SUPP_T5
 - TWR_INNER_CORNER_T5
 - TWR_INNER_TRI_T5
 - TWR_INNER_LADDER_T5
 - TWR_LEG_T6
 - TWR_HORZ_T6
 - TWR_DIAG_T6
 - TWR_RED_HORZ_T6
 - TWR_INNER_SUPP_T6
 - TWR_INNER_CORNER_T6
 - TWR_INNER_TRI_T6
 - TWR_INNER_LADDER_T6
 - TWR_LEG_T7
 - TWR_HORZ_T7
 - TWR_DIAG_T7
 - TWR_RED_HORZ_T7
 - TWR_INNER_CORNER_T7
 - TWR_INNER_BRACE_T7
 - TWR_INNER_GIRT_T7
 - TWR_INNER_TRI_T7
 - TWR_INNER_LADDER_T7
 - TWR_LEG_T8
 - TWR_DIAG_T8
 - TWR_RED_HORZ_T8
 - TWR_RED_DIAG_T8
 - TWR_INNER_SUPP_T8
 - TWR_INNER_CORNER_T8
 - TWR_INNER_TRI_T8
 - TWR_INNER_LADDER_T8
 - TWR_LEG_T9
 - TWR_HORZ_T9
 - TWR_DIAG_T9
 - TWR_RED_HORZ_T9
 - TWR_RED_DIAG_T9
 - TWR_INNER_SUPP_T9
 - TWR_INNER_CORNER_T9
 - TWR_INNER_BRACE_T9
 - TWR_INNER_TRI_T9
 - TWR_INNER_LADDER_T9
 - TWR_LEG_T10
 - TWR_DIAG_T10
 - TWR_RED_HORZ_T10
 - TWR_RED_HORZ_2_T10
 - TWR_RED_DIAG_2_T10
 - TWR_INNER_SUPP_T10
 - TWR_INNER_CORNER_T10
 - TWR_INNER_TRI_T10
 - TWR_INNER_LADDER_T10
 - TWR_LEG_T11
 - TWR_DIAG_T11
 - TWR_RED_HORZ_T11
 - TWR_RED_HORZ_2_T11
 - TWR_RED_DIAG_2_T11
 - TWR_INNER_SUPP_T11
 - TWR_INNER_CORNER_T11
 - TWR_INNER_TRI_T11
 - TWR_INNER_LADDER_T11
 - TWR_DIAG_T4

GPD
C.Kuhn
2022702.64

SNET025 (10034975) SHELTON EAST CENTRAL
Members

SK - 2
May 11, 2022 at 2:45 PM
SNET025.r3d



Loads: BLC 2, No Ice Wind 0 deg

GPD
C.Kuhn
2022702.64

SNET025 (10034975) SHELTON EAST CENTRAL
Example Forces

SK - 3
May 11, 2022 at 2:46 PM
SNET025.r3d



TIA-222-H Code Angle Bracing Member Checks
 SNET025 (10034975) SHELTON EAST CENTRAL
 2022702.64

Section Set	Member	Comp. (K)	$\Phi P_{n,Comp}$ (K)	Ten (K)	$\Phi P_{n,Ten}$ (K)	Capacity	Pass/Fail
TWR_DIAG_T1	M9	4.093	20.21	2.94	48.00	20.3%	Pass
TWR_DIAG_T1	M10	4.233	20.21	2.88	48.00	20.9%	Pass
TWR_DIAG_T1	M11	4.099	20.21	2.83	48.00	20.3%	Pass
TWR_DIAG_T1	M12	4	20.21	2.86	48.00	19.8%	Pass
TWR_DIAG_T1	M13	4.67	20.21	3.15	48.00	23.1%	Pass
TWR_DIAG_T1	M14	4.568	20.21	3.27	48.00	22.6%	Pass
TWR_DIAG_T1	M15	4.69	20.21	3.30	48.00	23.2%	Pass
TWR_DIAG_T1	M16	4.741	20.21	3.22	48.00	23.5%	Pass
TWR_DIAG_T2	M29	6.174	13.18	4.80	43.86	46.8%	Pass
TWR_DIAG_T2	M30	6.285	13.18	4.77	43.86	47.7%	Pass
TWR_DIAG_T2	M31	6.649	13.18	5.09	43.86	50.4%	Pass
TWR_DIAG_T2	M32	6.49	13.18	5.13	43.86	49.2%	Pass
TWR_DIAG_T2	M33	6.886	13.18	5.22	43.86	52.2%	Pass
TWR_DIAG_T2	M34	6.849	13.18	5.33	43.86	51.9%	Pass
TWR_DIAG_T2	M35	6.556	13.18	5.07	43.86	49.7%	Pass
TWR_DIAG_T2	M36	6.631	13.18	4.96	43.86	50.3%	Pass
TWR_DIAG_T3	M54	6.864	13.01	5.88	47.93	52.7%	Pass
TWR_DIAG_T3	M55	7.05	13.01	5.79	47.93	54.2%	Pass
TWR_DIAG_T3	M56	7.398	13.01	6.18	47.93	56.8%	Pass
TWR_DIAG_T3	M57	7.22	13.01	6.25	47.93	55.5%	Pass
TWR_DIAG_T3	M58	7.813	13.01	6.44	47.93	60.0%	Pass
TWR_DIAG_T3	M59	7.678	13.01	6.61	47.93	59.0%	Pass
TWR_DIAG_T3	M60	7.433	13.01	6.32	47.93	57.1%	Pass
TWR_DIAG_T3	M61	7.555	13.01	6.18	47.93	58.1%	Pass
TWR_DIAG_T5	M91	11.932	24.57	9.93	63.37	48.6%	Pass
TWR_DIAG_T5	M94	12.372	24.57	9.71	63.37	50.3%	Pass
TWR_DIAG_T5	M98	12.138	24.57	9.84	63.37	49.4%	Pass
TWR_DIAG_T5	M101	11.952	24.57	9.85	63.37	48.6%	Pass
TWR_DIAG_T5	M105	12.525	24.57	9.78	63.37	51.0%	Pass
TWR_DIAG_T5	M108	12.247	24.57	10.13	63.37	49.8%	Pass
TWR_DIAG_T5	M112	12.778	24.57	10.30	63.37	52.0%	Pass
TWR_DIAG_T5	M115	12.804	24.57	10.17	63.37	52.1%	Pass
TWR_DIAG_T6	M128	11.118	23.15	10.75	63.37	48.0%	Pass
TWR_DIAG_T6	M131	11.531	23.15	10.46	63.37	49.8%	Pass
TWR_DIAG_T6	M135	11.376	23.15	10.56	63.37	49.1%	Pass
TWR_DIAG_T6	M138	11.285	23.15	10.61	63.37	48.7%	Pass
TWR_DIAG_T6	M142	11.575	23.15	10.49	63.37	50.0%	Pass
TWR_DIAG_T6	M145	11.203	23.15	10.79	63.37	48.4%	Pass
TWR_DIAG_T6	M149	11.807	23.15	11.14	63.37	51.0%	Pass
TWR_DIAG_T6	M152	11.858	23.15	11.08	63.37	51.2%	Pass
TWR_DIAG_T7	M165	11.537	21.41	11.21	63.37	53.9%	Pass
TWR_DIAG_T7	M168	12.083	21.41	10.82	63.37	56.4%	Pass
TWR_DIAG_T7	M172	11.916	21.41	10.95	63.37	55.7%	Pass
TWR_DIAG_T7	M175	11.734	21.41	11.06	63.37	54.8%	Pass
TWR_DIAG_T7	M179	12.141	21.41	10.82	63.37	56.7%	Pass
TWR_DIAG_T7	M182	11.64	21.41	11.21	63.37	54.4%	Pass
TWR_DIAG_T7	M186	12.387	21.41	11.65	63.37	57.9%	Pass
TWR_DIAG_T7	M189	12.521	21.41	11.53	63.37	58.5%	Pass
TWR_DIAG_T8	M202	11.659	19.79	11.27	63.37	58.9%	Pass
TWR_DIAG_T8	M205	12.216	19.79	10.87	63.37	61.7%	Pass
TWR_DIAG_T8	M209	12.057	19.79	11.04	63.37	60.9%	Pass
TWR_DIAG_T8	M212	11.9	19.79	11.13	63.37	60.1%	Pass
TWR_DIAG_T8	M216	12.16	19.79	10.81	63.37	61.4%	Pass
TWR_DIAG_T8	M219	11.659	19.79	11.20	63.37	58.9%	Pass
TWR_DIAG_T8	M223	12.498	19.79	11.72	63.37	63.2%	Pass
TWR_DIAG_T8	M226	12.597	19.79	11.63	63.37	63.7%	Pass



TIA-222-H Code Angle Bracing Member Checks
 SNET025 (10034975) SHELTON EAST CENTRAL
 2022702.64

Section Set	Member	Comp. (K)	$\Phi P_{n,Comp}$ (K)	Ten (K)	$\Phi P_{n,Ten}$ (K)	Capacity	Pass/Fail
TWR_DIAG_T9	M239	11.731	18.92	11.13	63.37	62.0%	Pass
TWR_DIAG_T9	M242	12.294	18.92	10.73	63.37	65.0%	Pass
TWR_DIAG_T9	M246	12.291	18.92	11.00	63.37	65.0%	Pass
TWR_DIAG_T9	M249	12.085	18.92	11.12	63.37	63.9%	Pass
TWR_DIAG_T9	M253	12.232	18.92	10.64	63.37	64.6%	Pass
TWR_DIAG_T9	M256	11.737	18.92	11.04	63.37	62.0%	Pass
TWR_DIAG_T9	M260	12.652	18.92	11.68	63.37	66.9%	Pass
TWR_DIAG_T9	M263	12.789	18.92	11.55	63.37	67.6%	Pass
TWR_DIAG_T10	M276	17.815	43.56	17.12	116.27	40.9%	Pass
TWR_DIAG_T10	M281	18.694	43.56	16.48	116.27	42.9%	Pass
TWR_DIAG_T10	M287	18.717	43.56	16.97	116.27	43.0%	Pass
TWR_DIAG_T10	M292	18.477	43.56	17.13	116.27	42.4%	Pass
TWR_DIAG_T10	M300	18.527	43.56	16.30	116.27	42.5%	Pass
TWR_DIAG_T10	M305	17.712	43.56	16.94	116.27	40.7%	Pass
TWR_DIAG_T10	M313	19.156	43.56	17.88	116.27	44.0%	Pass
TWR_DIAG_T10	M318	19.331	43.56	17.72	116.27	44.4%	Pass
TWR_DIAG_T11	M337	19.522	64.14	18.01	128.34	30.4%	Pass
TWR_DIAG_T11	M342	20.366	64.14	17.41	128.34	31.8%	Pass
TWR_DIAG_T11	M349	22.166	64.14	19.59	128.34	34.6%	Pass
TWR_DIAG_T11	M354	21.888	64.14	19.76	128.34	34.1%	Pass
TWR_DIAG_T11	M363	20.285	64.14	17.30	128.34	31.6%	Pass
TWR_DIAG_T11	M368	19.468	64.14	17.92	128.34	30.4%	Pass
TWR_DIAG_T11	M377	22.412	64.14	20.27	128.34	34.9%	Pass
TWR_DIAG_T11	M382	22.654	64.14	20.07	128.34	35.3%	Pass
TWR_HORZ_T5	M90	7.126	39.79	6.31	71.53	17.9%	Pass
TWR_HORZ_T5	M97	6.993	39.79	6.48	71.53	17.6%	Pass
TWR_HORZ_T5	M104	7.08	39.79	7.37	71.53	17.8%	Pass
TWR_HORZ_T5	M111	7.405	39.79	7.03	71.53	18.6%	Pass
TWR_HORZ_T6	M127	7.143	21.61	6.87	63.37	33.1%	Pass
TWR_HORZ_T6	M134	7.072	21.61	7.11	63.37	32.7%	Pass
TWR_HORZ_T6	M141	6.96	21.61	8.30	63.37	32.2%	Pass
TWR_HORZ_T6	M148	7.407	21.61	7.84	63.37	34.3%	Pass
TWR_HORZ_T7	M164	8.316	18.87	7.07	63.37	44.1%	Pass
TWR_HORZ_T7	M171	8.063	18.87	7.42	63.37	42.7%	Pass
TWR_HORZ_T7	M178	8.078	18.87	8.30	63.37	42.8%	Pass
TWR_HORZ_T7	M185	8.727	18.87	7.84	63.37	46.2%	Pass
TWR_HORZ_T8	M201	8.63	16.38	7.41	63.37	52.7%	Pass
TWR_HORZ_T8	M208	8.403	16.38	7.82	63.37	51.3%	Pass
TWR_HORZ_T8	M215	8.251	16.38	8.77	63.37	50.4%	Pass
TWR_HORZ_T8	M222	8.938	16.38	8.27	63.37	54.6%	Pass
TWR_HORZ_T9	M238	8.975	23.16	7.57	71.53	38.8%	Pass
TWR_HORZ_T9	M245	8.842	23.16	8.10	71.53	38.2%	Pass
TWR_HORZ_T9	M252	8.618	23.16	9.07	71.53	37.2%	Pass
TWR_HORZ_T9	M259	9.429	23.16	8.45	71.53	40.7%	Pass
TWR_HORZ_T10	M275	9.79	21.09	7.90	71.53	46.4%	Pass
TWR_HORZ_T10	M286	9.601	21.09	8.50	71.53	45.5%	Pass
TWR_HORZ_T10	M299	9.274	21.09	9.58	71.53	44.0%	Pass
TWR_HORZ_T10	M312	10.199	21.09	8.82	71.53	48.4%	Pass
TWR_HORZ_T11	M336	11.053	62.02	8.86	116.27	17.8%	Pass
TWR_HORZ_T11	M348	11.268	62.02	9.83	116.27	18.2%	Pass
TWR_HORZ_T11	M362	10.556	62.02	10.36	116.27	17.0%	Pass
TWR_HORZ_T11	M376	11.81	62.02	10.11	116.27	19.0%	Pass
TWR_INNER_BRACE_T7	M490	0.023	16.16	0.00	31.69	0.1%	Pass
TWR_INNER_BRACE_T7	M491	0.023	16.16	0.00	31.69	0.1%	Pass
TWR_INNER_BRACE_T9	M466	0.018	12.04	0.00	31.69	0.1%	Pass
TWR_INNER_BRACE_T9	M467	0.018	12.04	0.00	31.69	0.1%	Pass



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TWR_INNER_BRACE_T9	M468	0.018	12.04	0.00	31.69	0.1%	Pass
TWR_INNER_BRACE_T9	M469	0.018	12.04	0.00	31.69	0.1%	Pass
TWR_INNER_BRACE_T10	M452	0.035	7.99	0.00	24.04	0.4%	Pass
TWR_INNER_BRACE_T10	M453	0.035	7.99	0.00	24.04	0.4%	Pass
TWR_INNER_BRACE_T10	M454	0.035	7.99	0.00	24.04	0.4%	Pass
TWR_INNER_BRACE_T10	M455	0.035	7.99	0.00	24.04	0.4%	Pass
TWR_INNER_BRACE_T11	M420	0.016	6.28	0.00	24.04	0.3%	Pass
TWR_INNER_BRACE_T11	M421	0.016	6.28	0.00	24.04	0.3%	Pass
TWR_INNER_BRACE_T11	M422	0.016	6.28	0.00	24.04	0.3%	Pass
TWR_INNER_BRACE_T11	M423	0.016	6.28	0.00	24.04	0.3%	Pass
TWR_INNER_CORNER_T3	M530	0	13.10	0.34	24.04	1.4%	Pass
TWR_INNER_CORNER_T3	M531	0	13.10	0.46	24.04	1.9%	Pass
TWR_INNER_CORNER_T3	M532	0	13.10	0.36	24.04	1.5%	Pass
TWR_INNER_CORNER_T5	M512	0	6.06	1.04	21.04	5.0%	Pass
TWR_INNER_CORNER_T5	M513	0	6.06	1.15	21.04	5.5%	Pass
TWR_INNER_CORNER_T5	M514	0	6.06	1.01	21.04	4.8%	Pass
TWR_INNER_CORNER_T6	M502	0	5.06	1.60	21.04	7.6%	Pass
TWR_INNER_CORNER_T6	M503	0	5.06	1.75	21.04	8.3%	Pass
TWR_INNER_CORNER_T6	M504	0	5.06	1.57	21.04	7.5%	Pass
TWR_INNER_CORNER_T7	M487	0	4.29	1.35	21.04	6.4%	Pass
TWR_INNER_CORNER_T7	M488	0	4.29	1.45	21.04	6.9%	Pass
TWR_INNER_CORNER_T7	M489	0	4.29	1.29	21.04	6.1%	Pass
TWR_INNER_CORNER_T8	M477	0	3.68	1.46	21.04	7.0%	Pass
TWR_INNER_CORNER_T8	M478	0	3.68	1.57	21.04	7.5%	Pass
TWR_INNER_CORNER_T8	M479	0	3.68	1.41	21.04	6.7%	Pass
TWR_INNER_CORNER_T9	M463	0	10.73	1.88	39.84	4.7%	Pass
TWR_INNER_CORNER_T9	M464	0	10.73	1.85	39.84	4.6%	Pass
TWR_INNER_CORNER_T9	M465	0	10.73	1.76	39.84	4.4%	Pass
TWR_INNER_CORNER_T10	M449	0	9.39	2.12	39.78	5.3%	Pass
TWR_INNER_CORNER_T10	M450	0	9.39	2.13	39.78	5.4%	Pass
TWR_INNER_CORNER_T10	M451	0	9.39	2.03	39.78	5.1%	Pass
TWR_INNER_CORNER_T11	M417	0	14.78	1.94	59.59	3.3%	Pass
TWR_INNER_CORNER_T11	M418	0	14.78	2.05	59.59	3.4%	Pass
TWR_INNER_CORNER_T11	M419	0	14.78	1.86	59.59	3.1%	Pass
TWR_INNER_GIRT_T7	M492	0.126	8.58	0.02	21.04	1.5%	Pass
TWR_INNER_GIRT_T7	M493	0.197	8.58	0.02	21.04	2.3%	Pass
TWR_INNER_GIRT_T7	M494	0.197	8.58	0.02	21.04	2.3%	Pass
TWR_INNER_LADDER_T3	M535	0.3	4.56	0.00	21.04	6.6%	Pass
TWR_INNER_LADDER_T5	M517	0.659	4.56	0.50	21.04	14.5%	Pass
TWR_INNER_LADDER_T6	M507	1.006	4.56	0.67	21.04	22.1%	Pass
TWR_INNER_LADDER_T7	M497	0.861	4.56	0.81	21.04	18.9%	Pass
TWR_INNER_LADDER_T8	M482	0.923	4.56	0.87	21.04	20.2%	Pass
TWR_INNER_LADDER_T9	M472	1.144	25.16	1.06	48.02	4.5%	Pass
TWR_INNER_LADDER_T10	M458	1.285	53.79	1.22	82.60	2.4%	Pass



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TWR_INNER_LADDER_T11	M426	1.087	8.59	1.05	31.69	12.7%	Pass
TWR_INNER_SQ_T3	M526	0.082	11.17	0.15	35.93	0.7%	Pass
TWR_INNER_SQ_T3	M527	0.069	11.17	0.17	35.93	0.6%	Pass
TWR_INNER_SQ_T3	M528	0.003	11.17	0.38	35.93	1.0%	Pass
TWR_INNER_SQ_T3	M529	0.003	11.17	0.36	35.93	1.0%	Pass
TWR_INNER_SQ_T5	M508	0.404	15.63	0.66	42.80	2.6%	Pass
TWR_INNER_SQ_T5	M509	0.411	15.63	0.64	42.80	2.6%	Pass
TWR_INNER_SQ_T5	M510	0.2	15.63	1.08	42.80	2.5%	Pass
TWR_INNER_SQ_T5	M511	0.196	15.63	1.12	42.80	2.6%	Pass
TWR_INNER_SQ_T6	M498	0.582	13.52	1.04	42.80	4.3%	Pass
TWR_INNER_SQ_T6	M499	0.593	13.52	1.03	42.80	4.4%	Pass
TWR_INNER_SQ_T6	M500	0.341	13.52	1.58	42.80	3.7%	Pass
TWR_INNER_SQ_T6	M501	0.342	13.52	1.62	42.80	3.8%	Pass
TWR_INNER_SQ_T7	M483	0.615	11.88	0.94	42.80	5.2%	Pass
TWR_INNER_SQ_T7	M484	0.326	11.88	1.31	42.80	3.0%	Pass
TWR_INNER_SQ_T7	M485	0.309	11.88	1.37	42.80	3.2%	Pass
TWR_INNER_SQ_T7	M486	0.558	11.88	0.96	42.80	4.7%	Pass
TWR_INNER_SQ_T8	M473	0.654	10.58	1.10	42.80	6.2%	Pass
TWR_INNER_SQ_T8	M474	0.694	10.58	1.09	42.80	6.6%	Pass
TWR_INNER_SQ_T8	M475	0.364	10.58	1.39	42.80	3.4%	Pass
TWR_INNER_SQ_T8	M476	0.362	10.58	1.47	42.80	3.4%	Pass
TWR_INNER_SQ_T9	M459	0.839	12.65	1.42	42.80	6.6%	Pass
TWR_INNER_SQ_T9	M460	0.904	12.65	1.41	42.80	7.1%	Pass
TWR_INNER_SQ_T9	M461	0.472	12.65	1.67	42.80	3.9%	Pass
TWR_INNER_SQ_T9	M462	0.469	12.65	1.79	42.80	4.2%	Pass
TWR_INNER_SQ_T10	M441	0.691	28.11	1.91	71.53	2.7%	Pass
TWR_INNER_SQ_T10	M442	0.692	28.11	1.79	71.53	2.5%	Pass
TWR_INNER_SQ_T10	M443	1.217	28.11	1.56	71.53	4.3%	Pass
TWR_INNER_SQ_T10	M444	1.132	28.11	1.54	71.53	4.0%	Pass
TWR_INNER_SQ_T11	M409	0.698	22.95	1.82	63.37	3.0%	Pass
TWR_INNER_SQ_T11	M410	0.685	22.95	1.65	63.37	3.0%	Pass
TWR_INNER_SQ_T11	M411	1.248	22.95	1.37	63.37	5.4%	Pass
TWR_INNER_SQ_T11	M412	1.129	22.95	1.31	63.37	4.9%	Pass
TWR_INNER_SUPP_T3	M49	0.175	17.19	0.02	42.05	1.0%	Pass
TWR_INNER_SUPP_T3	M50	0.155	17.19	0.27	42.05	0.9%	Pass
TWR_INNER_SUPP_T3	M51	0.046	17.19	0.14	42.05	0.3%	Pass
TWR_INNER_SUPP_T3	M52	0.036	17.19	0.14	42.05	0.3%	Pass
TWR_INNER_SUPP_T5	M118	0.553	22.93	0.28	48.02	2.4%	Pass
TWR_INNER_SUPP_T5	M119	0.58	22.93	0.25	48.02	2.5%	Pass
TWR_INNER_SUPP_T5	M120	0.302	22.93	0.51	48.02	1.3%	Pass



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TWR_INNER_SUPP_T5	M121	0.319	22.93	0.52	48.02	1.4%	Pass
TWR_INNER_SUPP_T6	M155	0.797	19.53	0.46	48.02	4.1%	Pass
TWR_INNER_SUPP_T6	M156	0.824	19.53	0.45	48.02	4.2%	Pass
TWR_INNER_SUPP_T6	M157	0.51	19.53	0.74	48.02	2.6%	Pass
TWR_INNER_SUPP_T6	M158	0.516	19.53	0.76	48.02	2.6%	Pass
TWR_INNER_SUPP_T7	M192	0.678	16.88	0.44	48.02	4.0%	Pass
TWR_INNER_SUPP_T7	M193	0.724	16.88	0.41	48.02	4.3%	Pass
TWR_INNER_SUPP_T7	M194	0.485	16.88	0.63	48.02	2.9%	Pass
TWR_INNER_SUPP_T7	M195	0.485	16.88	0.66	48.02	2.9%	Pass
TWR_INNER_SUPP_T8	M229	0.732	14.49	0.49	48.02	5.1%	Pass
TWR_INNER_SUPP_T8	M230	0.776	14.49	0.48	48.02	5.4%	Pass
TWR_INNER_SUPP_T8	M231	0.542	14.49	0.67	48.02	3.7%	Pass
TWR_INNER_SUPP_T8	M232	0.551	14.49	0.71	48.02	3.8%	Pass
TWR_INNER_SUPP_T9	M266	0.876	12.83	0.64	48.02	6.8%	Pass
TWR_INNER_SUPP_T9	M267	0.935	12.83	0.63	48.02	7.3%	Pass
TWR_INNER_SUPP_T9	M268	0.703	12.83	0.81	48.02	5.5%	Pass
TWR_INNER_SUPP_T9	M269	0.706	12.83	0.87	48.02	5.5%	Pass
TWR_INNER_SUPP_T10	M327	0.962	9.39	0.76	39.78	10.2%	Pass
TWR_INNER_SUPP_T10	M328	1.032	9.39	0.78	39.78	11.0%	Pass
TWR_INNER_SUPP_T10	M329	0.811	9.39	0.94	39.78	8.6%	Pass
TWR_INNER_SUPP_T10	M330	0.79	9.39	1.00	39.78	8.4%	Pass
TWR_INNER_SUPP_T11	M392	0.927	28.61	0.67	71.53	3.2%	Pass
TWR_INNER_SUPP_T11	M393	1.02	28.61	0.71	71.53	3.6%	Pass
TWR_INNER_SUPP_T11	M394	0.724	28.61	0.89	71.53	2.5%	Pass
TWR_INNER_SUPP_T11	M395	0.734	28.61	0.98	71.53	2.6%	Pass
TWR_INNER_TRI_T3	M533	0.044	15.55	0.11	21.04	0.5%	Pass
TWR_INNER_TRI_T3	M534	0.044	15.55	0.11	21.04	0.5%	Pass
TWR_INNER_TRI_T5	M515	0.36	11.84	0.49	21.04	3.0%	Pass
TWR_INNER_TRI_T5	M516	0.36	11.84	0.47	21.04	3.0%	Pass
TWR_INNER_TRI_T6	M505	0.476	10.09	0.73	21.04	4.7%	Pass
TWR_INNER_TRI_T6	M506	0.476	10.09	0.73	21.04	4.7%	Pass
TWR_INNER_TRI_T7	M495	0.568	8.57	0.61	21.04	6.6%	Pass
TWR_INNER_TRI_T7	M496	0.567	8.57	0.63	21.04	6.6%	Pass
TWR_INNER_TRI_T8	M480	0.615	7.29	0.67	21.04	8.4%	Pass
TWR_INNER_TRI_T8	M481	0.616	7.29	0.67	21.04	8.4%	Pass



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TWR_INNER_TRI_T9	M470	0.759	11.74	0.83	31.69	6.5%	Pass
TWR_INNER_TRI_T9	M471	0.76	11.74	0.82	31.69	6.5%	Pass
TWR_INNER_TRI_T10	M456	0.881	7.63	0.94	24.04	11.5%	Pass
TWR_INNER_TRI_T10	M457	0.882	7.63	0.94	24.04	11.6%	Pass
TWR_INNER_TRI_T11	M424	0.797	7.59	0.80	31.69	10.5%	Pass
TWR_INNER_TRI_T11	M425	0.797	7.59	0.83	31.69	10.5%	Pass
TWR_LEG_T1	M1	10.257	176.57	0.09	173.32	5.8%	Pass
TWR_LEG_T1	M2	9.03	176.57	1.27	173.32	5.1%	Pass
TWR_LEG_T1	M3	10.346	176.57	0.50	173.32	5.9%	Pass
TWR_LEG_T1	M4	11.752	176.57	0.00	173.32	6.7%	Pass
TWR_LEG_T2	M21	20.836	177.05	5.32	173.32	11.8%	Pass
TWR_LEG_T2	M22	20.367	177.05	6.53	173.32	11.5%	Pass
TWR_LEG_T2	M23	20.946	177.05	5.08	173.32	11.8%	Pass
TWR_LEG_T2	M24	22.582	177.05	5.06	173.32	12.8%	Pass
TWR_LEG_T3	M41	34.376	218.74	14.35	214.09	15.7%	Pass
TWR_LEG_T3	M42	33.328	218.74	16.50	214.09	15.2%	Pass
TWR_LEG_T3	M43	34.009	218.74	14.49	214.09	15.5%	Pass
TWR_LEG_T3	M44	36.811	218.74	14.09	214.09	16.8%	Pass
TWR_LEG_T4	M66	47.985	219.12	23.41	214.09	21.9%	Pass
TWR_LEG_T4	M67	46.196	219.12	26.56	214.09	21.1%	Pass
TWR_LEG_T4	M68	45.743	219.12	24.96	214.09	20.9%	Pass
TWR_LEG_T4	M69	49.705	219.12	24.11	214.09	22.7%	Pass
TWR_LEG_T5	M86	56.255	264.09	28.67	253.88	21.3%	Pass
TWR_LEG_T5	M87	54.114	264.09	32.41	253.88	20.5%	Pass
TWR_LEG_T5	M88	53.683	264.09	30.42	253.88	20.3%	Pass
TWR_LEG_T5	M89	58.412	264.09	29.36	253.88	22.1%	Pass
TWR_LEG_T6	M123	74.452	264.09	40.34	253.88	28.2%	Pass
TWR_LEG_T6	M124	72.146	264.09	44.84	253.88	27.3%	Pass
TWR_LEG_T6	M125	71.105	264.09	42.63	253.88	26.9%	Pass
TWR_LEG_T6	M126	76.798	264.09	41.53	253.88	29.1%	Pass
TWR_LEG_T7	M160	90.021	304.65	50.07	292.59	29.5%	Pass
TWR_LEG_T7	M161	86.538	304.65	55.91	292.59	28.4%	Pass
TWR_LEG_T7	M162	86.097	304.65	52.77	292.59	28.3%	Pass
TWR_LEG_T7	M163	93.51	304.65	50.85	292.59	30.7%	Pass
TWR_LEG_T8	M197	104.669	304.65	60.63	292.59	34.4%	Pass
TWR_LEG_T8	M198	101.108	304.65	66.89	292.59	33.2%	Pass
TWR_LEG_T8	M199	100.18	304.65	63.71	292.59	32.9%	Pass
TWR_LEG_T8	M200	108.137	304.65	61.79	292.59	35.5%	Pass
TWR_LEG_T9	M234	119.066	381.90	70.79	351.75	31.2%	Pass
TWR_LEG_T9	M235	115.418	381.90	77.42	351.75	30.2%	Pass



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TWR_LEG_T9	M236	114.794	381.90	73.65	351.75	30.1%	Pass
TWR_LEG_T9	M237	123.236	381.90	71.73	351.75	32.3%	Pass
TWR_LEG_T10	M271	134.563	414.98	78.75	406.78	32.4%	Pass
TWR_LEG_T10	M272	130.169	414.98	85.95	406.78	31.4%	Pass
TWR_LEG_T10	M273	129.087	414.98	82.21	406.78	31.1%	Pass
TWR_LEG_T10	M274	138.593	414.98	80.02	406.78	33.4%	Pass
TWR_LEG_T11	M332	162.942	469.46	95.00	460.83	34.7%	Pass
TWR_LEG_T11	M333	158.968	469.46	102.60	460.83	33.9%	Pass
TWR_LEG_T11	M334	158.126	469.46	98.20	460.83	33.7%	Pass
TWR_LEG_T11	M335	167.789	469.46	96.17	460.83	35.7%	Pass
TWR_RED_BRACE_T11	M401	1.636	20.67	1.10	31.69	7.9%	Pass
TWR_RED_BRACE_T11	M402	1.173	36.69	1.65	31.69	5.2%	Pass
TWR_RED_BRACE_T11	M403	1.647	20.67	1.06	31.69	8.0%	Pass
TWR_RED_BRACE_T11	M404	1.125	36.69	1.67	31.69	5.3%	Pass
TWR_RED_BRACE_T11	M405	1.626	20.67	1.05	31.69	7.9%	Pass
TWR_RED_BRACE_T11	M406	1.118	36.69	1.64	31.69	5.2%	Pass
TWR_RED_BRACE_T11	M407	1.678	20.67	1.05	31.69	8.1%	Pass
TWR_RED_BRACE_T11	M408	1.124	36.69	1.69	31.69	5.3%	Pass
TWR_RED_DIAG_2_T10	M280	0.209	8.75	0.79	43.86	2.4%	Pass
TWR_RED_DIAG_2_T10	M285	0.174	8.75	0.73	43.86	2.0%	Pass
TWR_RED_DIAG_2_T10	M291	0.178	8.75	0.73	43.86	2.0%	Pass
TWR_RED_DIAG_2_T10	M296	0.214	8.75	0.74	43.86	2.4%	Pass
TWR_RED_DIAG_2_T10	M304	0.213	8.75	0.73	43.86	2.4%	Pass
TWR_RED_DIAG_2_T10	M309	0.232	8.75	0.77	43.86	2.6%	Pass
TWR_RED_DIAG_2_T10	M317	0.228	8.75	0.76	43.86	2.6%	Pass
TWR_RED_DIAG_2_T10	M322	0.207	8.75	0.75	43.86	2.4%	Pass
TWR_RED_DIAG_2_T11	M341	0.205	13.18	1.12	55.22	2.0%	Pass
TWR_RED_DIAG_2_T11	M346	0.164	13.18	1.19	55.22	2.2%	Pass
TWR_RED_DIAG_2_T11	M353	0.463	13.18	1.27	55.22	3.5%	Pass
TWR_RED_DIAG_2_T11	M358	0.437	13.18	1.29	55.22	3.3%	Pass
TWR_RED_DIAG_2_T11	M367	0.15	13.18	1.14	55.22	2.1%	Pass
TWR_RED_DIAG_2_T11	M372	0.202	13.18	1.19	55.22	2.2%	Pass
TWR_RED_DIAG_2_T11	M381	0.436	13.18	1.21	55.22	3.3%	Pass
TWR_RED_DIAG_2_T11	M386	0.426	13.18	1.20	55.22	3.2%	Pass
TWR_RED_DIAG_T5	M93	0.238	7.92	0.32	24.08	3.0%	Pass
TWR_RED_DIAG_T5	M96	0.224	7.92	0.30	24.08	2.8%	Pass



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Section Set	Member	Comp. (K)	$\Phi P_{n,Comp}$ (K)	Ten (K)	$\Phi P_{n,Ten}$ (K)	Capacity	Pass/Fail
TWR_RED_DIAG_T5	M100	0.215	7.92	0.29	24.08	2.7%	Pass
TWR_RED_DIAG_T5	M103	0.263	7.92	0.31	24.08	3.3%	Pass
TWR_RED_DIAG_T5	M107	0.259	7.92	0.31	24.08	3.3%	Pass
TWR_RED_DIAG_T5	M110	0.265	7.92	0.32	24.08	3.3%	Pass
TWR_RED_DIAG_T5	M114	0.263	7.92	0.32	24.08	3.3%	Pass
TWR_RED_DIAG_T5	M117	0.232	7.92	0.31	24.08	2.9%	Pass
TWR_RED_DIAG_T6	M130	0.367	7.29	0.40	24.08	5.0%	Pass
TWR_RED_DIAG_T6	M133	0.337	7.29	0.38	24.08	4.6%	Pass
TWR_RED_DIAG_T6	M137	0.337	7.29	0.37	24.08	4.6%	Pass
TWR_RED_DIAG_T6	M140	0.376	7.29	0.40	24.08	5.2%	Pass
TWR_RED_DIAG_T6	M144	0.374	7.29	0.40	24.08	5.1%	Pass
TWR_RED_DIAG_T6	M147	0.383	7.29	0.41	24.08	5.3%	Pass
TWR_RED_DIAG_T6	M151	0.383	7.29	0.41	24.08	5.3%	Pass
TWR_RED_DIAG_T6	M154	0.366	7.29	0.40	24.08	5.0%	Pass
TWR_RED_DIAG_T7	M167	0.392	6.72	0.43	24.08	5.8%	Pass
TWR_RED_DIAG_T7	M170	0.359	6.72	0.41	24.08	5.3%	Pass
TWR_RED_DIAG_T7	M174	0.359	6.72	0.41	24.08	5.3%	Pass
TWR_RED_DIAG_T7	M177	0.394	6.72	0.42	24.08	5.9%	Pass
TWR_RED_DIAG_T7	M181	0.39	6.72	0.43	24.08	5.8%	Pass
TWR_RED_DIAG_T7	M184	0.403	6.72	0.43	24.08	6.0%	Pass
TWR_RED_DIAG_T7	M188	0.402	6.72	0.43	24.08	6.0%	Pass
TWR_RED_DIAG_T7	M191	0.387	6.72	0.43	24.08	5.8%	Pass
TWR_RED_DIAG_T8	M204	0.442	6.21	0.47	24.08	7.1%	Pass
TWR_RED_DIAG_T8	M207	0.407	6.21	0.46	24.08	6.6%	Pass
TWR_RED_DIAG_T8	M211	0.408	6.21	0.46	24.08	6.6%	Pass
TWR_RED_DIAG_T8	M214	0.438	6.21	0.47	24.08	7.1%	Pass
TWR_RED_DIAG_T8	M218	0.434	6.21	0.47	24.08	7.0%	Pass
TWR_RED_DIAG_T8	M221	0.449	6.21	0.47	24.08	7.2%	Pass
TWR_RED_DIAG_T8	M225	0.447	6.21	0.47	24.08	7.2%	Pass
TWR_RED_DIAG_T8	M228	0.436	6.21	0.48	24.08	7.0%	Pass
TWR_RED_DIAG_T9	M241	0.752	5.72	0.74	24.08	13.1%	Pass
TWR_RED_DIAG_T9	M244	0.711	5.72	0.74	24.08	12.4%	Pass
TWR_RED_DIAG_T9	M248	0.714	5.72	0.74	24.08	12.5%	Pass
TWR_RED_DIAG_T9	M251	0.735	5.72	0.73	24.08	12.8%	Pass
TWR_RED_DIAG_T9	M255	0.727	5.72	0.74	24.08	12.7%	Pass
TWR_RED_DIAG_T9	M258	0.743	5.72	0.72	24.08	13.0%	Pass
TWR_RED_DIAG_T9	M262	0.74	5.72	0.72	24.08	12.9%	Pass
TWR_RED_DIAG_T9	M265	0.743	5.72	0.75	24.08	13.0%	Pass
TWR_RED_DIAG_T10	M279	0.557	5.61	0.66	24.08	9.9%	Pass
TWR_RED_DIAG_T10	M284	0.522	5.61	0.65	24.08	9.3%	Pass
TWR_RED_DIAG_T10	M290	0.533	5.61	0.64	24.08	9.5%	Pass
TWR_RED_DIAG_T10	M295	0.549	5.61	0.64	24.08	9.8%	Pass
TWR_RED_DIAG_T10	M303	0.528	5.61	0.64	24.08	9.4%	Pass
TWR_RED_DIAG_T10	M308	0.562	5.61	0.65	24.08	10.0%	Pass
TWR_RED_DIAG_T10	M316	0.544	5.61	0.63	24.08	9.7%	Pass
TWR_RED_DIAG_T10	M321	0.527	5.61	0.64	24.08	9.4%	Pass
TWR_RED_DIAG_T11	M340	0.45	5.17	0.83	24.08	8.7%	Pass
TWR_RED_DIAG_T11	M345	0.435	5.17	0.82	24.08	8.4%	Pass
TWR_RED_DIAG_T11	M352	1.1	5.17	1.35	24.08	21.3%	Pass
TWR_RED_DIAG_T11	M357	1.097	5.17	1.34	24.08	21.2%	Pass
TWR_RED_DIAG_T11	M366	0.424	5.17	0.80	24.08	8.2%	Pass
TWR_RED_DIAG_T11	M371	0.445	5.17	0.82	24.08	8.6%	Pass
TWR_RED_DIAG_T11	M380	1.085	5.17	1.32	24.08	21.0%	Pass
TWR_RED_DIAG_T11	M385	1.076	5.17	1.32	24.08	20.8%	Pass
TWR_RED_HIPBRACE_T11	M427	0.132	3.69	0.00	18.20	3.6%	Pass
TWR_RED_HIPBRACE_T11	M428	0	3.69	0.09	18.20	0.5%	Pass



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TWR_RED_HIPBRACE_T11	M429	0.132	3.69	0.00	18.20	3.6%	Pass
TWR_RED_HIPBRACE_T11	M430	0.085	7.36	0.00	18.20	1.2%	Pass
TWR_RED_HIPBRACE_T11	M431	0.085	7.36	0.00	18.20	1.2%	Pass
TWR_RED_HIPBRACE_T11	M432	0	3.39	0.11	18.20	0.6%	Pass
TWR_RED_HIPDIA_2_T10	M298	0.431	17.93	0.00	63.37	2.4%	Pass
TWR_RED_HIPDIA_2_T10	M311	0.421	17.93	0.00	63.37	2.3%	Pass
TWR_RED_HIPDIA_2_T10	M324	0.431	17.93	0.00	63.37	2.4%	Pass
TWR_RED_HIPDIA_2_T10	M326	0.422	17.93	0.00	63.37	2.4%	Pass
TWR_RED_HIPDIA_2_T10	M445	0.429	17.93	0.00	63.37	2.4%	Pass
TWR_RED_HIPDIA_2_T10	M446	0.419	17.93	0.00	63.37	2.3%	Pass
TWR_RED_HIPDIA_2_T10	M447	0.421	17.93	0.00	63.37	2.3%	Pass
TWR_RED_HIPDIA_2_T10	M448	0.43	17.93	0.00	63.37	2.4%	Pass
TWR_RED_HIPDIA_2_T11	M361	0.487	16.26	0.00	63.37	3.0%	Pass
TWR_RED_HIPDIA_2_T11	M375	0.468	16.26	0.00	63.37	2.9%	Pass
TWR_RED_HIPDIA_2_T11	M389	0.472	16.26	0.00	63.37	2.9%	Pass
TWR_RED_HIPDIA_2_T11	M391	0.473	16.26	0.00	63.37	2.9%	Pass
TWR_RED_HIPDIA_2_T11	M413	0.542	16.26	0.00	63.37	3.3%	Pass
TWR_RED_HIPDIA_2_T11	M414	0.613	16.26	0.00	63.37	3.8%	Pass
TWR_RED_HIPDIA_2_T11	M415	0.589	16.26	0.00	63.37	3.6%	Pass
TWR_RED_HIPDIA_2_T11	M416	0.597	16.26	0.00	63.37	3.7%	Pass
TWR_RED_HIP_2_T10	M297	0	18.63	0.24	82.57	0.3%	Pass
TWR_RED_HIP_2_T10	M310	0	18.63	0.23	82.57	0.3%	Pass
TWR_RED_HIP_2_T10	M323	0	18.63	0.24	82.57	0.3%	Pass
TWR_RED_HIP_2_T10	M325	0	18.63	0.23	82.57	0.3%	Pass
TWR_RED_HIP_2_T11	M360	0	14.64	0.27	82.57	0.3%	Pass
TWR_RED_HIP_2_T11	M374	0	14.64	0.31	82.57	0.4%	Pass
TWR_RED_HIP_2_T11	M388	0	14.64	0.27	82.57	0.3%	Pass
TWR_RED_HIP_2_T11	M390	0	14.64	0.38	82.57	0.5%	Pass
TWR_RED_HORZ_2_T10	M278	0.622	25.43	0.44	63.37	2.4%	Pass
TWR_RED_HORZ_2_T10	M283	0.557	25.43	0.42	63.37	2.2%	Pass
TWR_RED_HORZ_2_T10	M289	0.554	25.43	0.42	63.37	2.2%	Pass
TWR_RED_HORZ_2_T10	M294	0.566	25.43	0.46	63.37	2.2%	Pass
TWR_RED_HORZ_2_T10	M302	0.55	25.43	0.45	63.37	2.2%	Pass
TWR_RED_HORZ_2_T10	M307	0.605	25.43	0.47	63.37	2.4%	Pass
TWR_RED_HORZ_2_T10	M315	0.585	25.43	0.47	63.37	2.3%	Pass
TWR_RED_HORZ_2_T10	M320	0.582	25.43	0.44	63.37	2.3%	Pass
TWR_RED_HORZ_2_T11	M339	0.643	20.93	0.31	63.37	3.1%	Pass
TWR_RED_HORZ_2_T11	M344	0.494	20.93	0.34	63.37	2.4%	Pass
TWR_RED_HORZ_2_T11	M351	0.918	20.93	0.79	63.37	4.4%	Pass
TWR_RED_HORZ_2_T11	M356	0.901	20.93	0.80	63.37	4.3%	Pass
TWR_RED_HORZ_2_T11	M365	0.544	20.93	0.31	63.37	2.6%	Pass
TWR_RED_HORZ_2_T11	M370	0.531	20.93	0.38	63.37	2.5%	Pass
TWR_RED_HORZ_2_T11	M379	0.866	20.93	0.74	63.37	4.1%	Pass
TWR_RED_HORZ_2_T11	M384	0.958	20.93	0.66	63.37	4.6%	Pass
TWR_RED_HORZ_T5	M92	0.312	13.44	0.38	21.04	2.3%	Pass
TWR_RED_HORZ_T5	M95	0.291	13.44	0.36	21.04	2.2%	Pass
TWR_RED_HORZ_T5	M99	0.273	13.44	0.35	21.04	2.0%	Pass
TWR_RED_HORZ_T5	M102	0.31	13.44	0.41	21.04	2.3%	Pass
TWR_RED_HORZ_T5	M106	0.308	13.44	0.40	21.04	2.3%	Pass
TWR_RED_HORZ_T5	M109	0.319	13.44	0.41	21.04	2.4%	Pass
TWR_RED_HORZ_T5	M113	0.321	13.44	0.41	21.04	2.4%	Pass
TWR_RED_HORZ_T5	M116	0.299	13.44	0.36	21.04	2.2%	Pass
TWR_RED_HORZ_T6	M129	0.442	11.13	0.58	21.04	4.0%	Pass
TWR_RED_HORZ_T6	M132	0.414	11.13	0.54	21.04	3.7%	Pass
TWR_RED_HORZ_T6	M136	0.405	11.13	0.54	21.04	3.6%	Pass
TWR_RED_HORZ_T6	M139	0.439	11.13	0.59	21.04	3.9%	Pass
TWR_RED_HORZ_T6	M143	0.441	11.13	0.59	21.04	4.0%	Pass



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TWR_RED_HORZ_T6	M146	0.45	11.13	0.60	21.04	4.0%	Pass
TWR_RED_HORZ_T6	M150	0.451	11.13	0.60	21.04	4.1%	Pass
TWR_RED_HORZ_T6	M153	0.444	11.13	0.58	21.04	4.0%	Pass
TWR_RED_HORZ_T7	M166	0.492	9.37	0.65	21.04	5.2%	Pass
TWR_RED_HORZ_T7	M169	0.463	9.37	0.60	21.04	4.9%	Pass
TWR_RED_HORZ_T7	M173	0.461	9.37	0.60	21.04	4.9%	Pass
TWR_RED_HORZ_T7	M176	0.487	9.37	0.65	21.04	5.2%	Pass
TWR_RED_HORZ_T7	M180	0.493	9.37	0.65	21.04	5.3%	Pass
TWR_RED_HORZ_T7	M183	0.496	9.37	0.67	21.04	5.3%	Pass
TWR_RED_HORZ_T7	M187	0.497	9.37	0.66	21.04	5.3%	Pass
TWR_RED_HORZ_T7	M190	0.497	9.37	0.64	21.04	5.3%	Pass
TWR_RED_HORZ_T8	M203	0.575	8.00	0.76	21.04	7.2%	Pass
TWR_RED_HORZ_T8	M206	0.55	8.00	0.71	21.04	6.9%	Pass
TWR_RED_HORZ_T8	M210	0.548	8.00	0.71	21.04	6.9%	Pass
TWR_RED_HORZ_T8	M213	0.567	8.00	0.76	21.04	7.1%	Pass
TWR_RED_HORZ_T8	M217	0.574	8.00	0.75	21.04	7.2%	Pass
TWR_RED_HORZ_T8	M220	0.572	8.00	0.77	21.04	7.2%	Pass
TWR_RED_HORZ_T8	M224	0.573	8.00	0.77	21.04	7.2%	Pass
TWR_RED_HORZ_T8	M227	0.58	8.00	0.75	21.04	7.3%	Pass
TWR_RED_HORZ_T9	M240	0.999	13.31	1.28	31.62	7.5%	Pass
TWR_RED_HORZ_T9	M243	0.993	13.31	1.22	31.62	7.5%	Pass
TWR_RED_HORZ_T9	M247	0.987	13.31	1.22	31.62	7.4%	Pass
TWR_RED_HORZ_T9	M250	0.986	13.31	1.26	31.62	7.4%	Pass
TWR_RED_HORZ_T9	M254	0.996	13.31	1.24	31.62	7.5%	Pass
TWR_RED_HORZ_T9	M257	0.962	13.31	1.27	31.62	7.2%	Pass
TWR_RED_HORZ_T9	M261	0.969	13.31	1.26	31.62	7.3%	Pass
TWR_RED_HORZ_T9	M264	1.01	13.31	1.27	31.62	7.6%	Pass
TWR_RED_HORZ_T10	M277	0.563	14.54	0.66	21.04	3.9%	Pass
TWR_RED_HORZ_T10	M282	0.552	14.54	0.63	21.04	3.8%	Pass
TWR_RED_HORZ_T10	M288	0.546	14.54	0.64	21.04	3.8%	Pass
TWR_RED_HORZ_T10	M293	0.542	14.54	0.66	21.04	3.7%	Pass
TWR_RED_HORZ_T10	M301	0.543	14.54	0.64	21.04	3.7%	Pass
TWR_RED_HORZ_T10	M306	0.557	14.54	0.67	21.04	3.8%	Pass
TWR_RED_HORZ_T10	M314	0.54	14.54	0.65	21.04	3.7%	Pass
TWR_RED_HORZ_T10	M319	0.541	14.54	0.63	21.04	3.7%	Pass
TWR_RED_HORZ_T11	M338	0.716	16.08	0.45	24.08	4.5%	Pass
TWR_RED_HORZ_T11	M343	0.706	16.08	0.45	24.08	4.4%	Pass
TWR_RED_HORZ_T11	M350	1.452	16.08	1.25	24.08	9.0%	Pass
TWR_RED_HORZ_T11	M355	1.441	16.08	1.26	24.08	9.0%	Pass
TWR_RED_HORZ_T11	M364	0.709	16.08	0.46	24.08	4.4%	Pass



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TWR_RED_HORZ_T11	M369	0.706	16.08	0.45	24.08	4.4%	Pass
TWR_RED_HORZ_T11	M378	1.433	16.08	1.22	24.08	8.9%	Pass
TWR_RED_HORZ_T11	M383	1.439	16.08	1.22	24.08	9.0%	Pass
TWR_RED_SUBHOR_T11	M347	0.538	9.01	0.17	79.69	6.0%	Pass
TWR_RED_SUBHOR_T11	M359	0.524	9.01	0.18	79.69	5.8%	Pass
TWR_RED_SUBHOR_T11	M373	0.544	9.01	0.17	79.69	6.0%	Pass
TWR_RED_SUBHOR_T11	M387	0.554	9.01	0.16	79.69	6.1%	Pass
TWR_RED_VERT_T1	M540	0	9.25	0.21	24.04	0.9%	Pass
TWR_RED_VERT_T1	M541	0	9.25	0.21	24.04	0.9%	Pass
TWR_RED_VERT_T1	M542	0	9.25	0.21	24.04	0.9%	Pass
TWR_RED_VERT_T1	M543	0	9.25	0.21	24.04	0.9%	Pass
TWR_RED_VERT_T2	M536	0	9.40	0.44	24.04	1.8%	Pass
TWR_RED_VERT_T2	M537	0	9.40	0.46	24.04	1.9%	Pass
TWR_RED_VERT_T2	M538	0	9.40	0.46	24.04	1.9%	Pass
TWR_RED_VERT_T2	M539	0	9.40	0.44	24.04	1.8%	Pass
TWR_RED_VERT_T3	M522	0	9.52	0.23	24.04	1.0%	Pass
TWR_RED_VERT_T3	M523	0	9.52	0.23	24.04	1.0%	Pass
TWR_RED_VERT_T3	M524	0	9.52	0.23	24.04	1.0%	Pass
TWR_RED_VERT_T3	M525	0	9.52	0.23	24.04	1.0%	Pass
TWR_RED_VERT_T4	M518	5.83	9.62	1.66	24.04	60.6%	Pass
TWR_RED_VERT_T4	M519	5.661	9.62	1.75	24.04	58.8%	Pass
TWR_RED_VERT_T4	M520	5.866	9.62	1.61	24.04	61.0%	Pass
TWR_RED_VERT_T4	M521	6.041	9.62	1.50	24.04	62.8%	Pass
TWR_RED_VERT_T11	M397	0	6.23	0.23	39.78	0.6%	Pass
TWR_RED_VERT_T11	M398	0	6.23	0.23	39.78	0.6%	Pass
TWR_RED_VERT_T11	M399	0	6.23	0.23	39.78	0.6%	Pass
TWR_RED_VERT_T11	M400	0	6.23	0.23	39.78	0.6%	Pass
TWR_RED_VERT_T11	M433	0.369	13.18	0.00	39.78	2.8%	Pass
TWR_RED_VERT_T11	M434	0.37	13.18	0.00	39.78	2.8%	Pass
TWR_RED_VERT_T11	M435	0.37	13.18	0.00	39.78	2.8%	Pass
TWR_RED_VERT_T11	M436	0.37	13.18	0.00	39.78	2.8%	Pass
TWR_RED_VERT_T11	M437	0.37	13.18	0.00	39.78	2.8%	Pass
TWR_RED_VERT_T11	M438	0.371	13.18	0.00	39.78	2.8%	Pass
TWR_RED_VERT_T11	M439	0.412	13.18	0.00	39.78	3.1%	Pass
TWR_RED_VERT_T11	M440	0.409	13.18	0.00	39.78	3.1%	Pass
TWR_STEP_T1	M17	0.186	19.12	0.17	35.70	1.0%	Pass
TWR_STEP_T1	M18	0.231	19.12	0.19	35.70	1.2%	Pass
TWR_STEP_T1	M19	0.203	19.12	0.15	35.70	1.1%	Pass
TWR_STEP_T1	M20	0.151	19.12	0.12	35.70	0.8%	Pass
TWR_STEP_T3	M62	0.327	11.22	0.29	35.70	2.9%	Pass
TWR_STEP_T3	M63	0.349	11.22	0.36	35.70	3.1%	Pass
TWR_STEP_T3	M64	0.409	11.22	0.39	35.70	3.6%	Pass
TWR_STEP_T3	M65	0.421	11.22	0.35	35.70	3.8%	Pass
TWR_STEP_T4	M82	0.258	9.00	0.22	35.70	2.9%	Pass



TIA-222-H Code Angle Bracing Member Checks
 SNET025 (10034975) SHELTON EAST CENTRAL
 2022702.64

Section Set	Member	Comp. (K)	$\Phi P_{n,Comp}$ (K)	Ten (K)	$\Phi P_{n,Ten}$ (K)	Capacity	Pass/Fail
TWR_STEP_T4	M83	0.179	9.00	0.18	35.70	2.0%	Pass
TWR_STEP_T4	M84	0.162	9.00	0.18	35.70	1.8%	Pass
TWR_STEP_T4	M85	0.255	9.00	0.23	35.70	2.8%	Pass
TWR_TOP_GIRT_T2	M25	0.203	69.04	1.51	108.42	1.4%	Pass
TWR_TOP_GIRT_T2	M26	0.241	69.04	1.45	108.42	1.3%	Pass
TWR_TOP_GIRT_T2	M27	0.134	69.04	1.58	108.42	1.5%	Pass
TWR_TOP_GIRT_T2	M28	0.102	69.04	1.65	108.42	1.5%	Pass
TWR_TOP_GIRT_T3	M45	0.506	53.29	1.45	71.53	2.0%	Pass
TWR_TOP_GIRT_T3	M46	0.429	53.29	1.56	71.53	2.2%	Pass
TWR_TOP_GIRT_T3	M47	0.342	53.29	1.81	71.53	2.5%	Pass
TWR_TOP_GIRT_T3	M48	0.334	53.29	1.57	71.53	2.2%	Pass
TWR_TOP_GIRT_T4	M70	1.606	21.47	3.90	71.53	7.5%	Pass
TWR_TOP_GIRT_T4	M71	1.638	21.47	3.76	71.53	7.6%	Pass
TWR_TOP_GIRT_T4	M72	1.498	21.47	3.97	71.53	7.0%	Pass
TWR_TOP_GIRT_T4	M73	1.45	21.47	4.08	71.53	6.8%	Pass
TWR_INNER_SUPP_T3	M53	0	7.08	0.00	42.05	0.0%	Pass
TWR_INNER_SUPP_T5	M122	0	5.30	0.00	48.02	0.0%	Pass
TWR_INNER_SUPP_T6	M159	0	4.51	0.00	48.02	0.0%	Pass
TWR_INNER_SUPP_T7	M196	0	3.83	0.00	48.02	0.0%	Pass
TWR_INNER_SUPP_T8	M233	0	3.29	0.00	48.02	0.0%	Pass
TWR_INNER_SUPP_T9	M270	0	2.85	0.00	48.02	0.0%	Pass
TWR_INNER_SUPP_T10	M331	0	1.17	0.00	39.78	0.0%	Pass
TWR_INNER_SUPP_T11	M396	0	4.32	0.00	71.53	0.0%	Pass



TIA-222-H Code Bolt Checks
 SNET025 (10034975) SHELTON EAST CENTRAL
 2022702.64

Section #	Elevation (Ft.)	Section Set	Member	Bolt Grade	Bolt Size (in)	# of Bolts	Comp. (K)	Ten. (K)	Maximum Load (K)	Allowable Load (K)	% Capacity
T1	162.5	TWR_TOP_GIRT T1	MC18x58	A307	0.75	3	0.226	0.168	0.226	37.275	0.6%
T1	162.5	TWR_DIAG T1	L3-1/2x3-1/2x1/4	A307	0.75	5	4.741	3.297	4.741	62.125	7.6%
T1	162.5	TWR_STEP T1	L3x2-1/2x1/4	A307	0.75	2	0.231	0.19	0.231	24.850	0.9%
T1	162.5	TWR_RED_VERT T1	L2.5x2.5x3	A307	0.75	1	0	0.213	0.213	8.972	2.4%
T2	150	TWR_LEG T2	L6x6x1/2	A307	0.75	16	22.582	6.526	22.582	198.808	11.4%
T2	150	TWR_TOP_GIRT T2	2L3-1/2x3x5/16x3/8	A307	0.75	3	0.241	1.645	1.645	74.551	2.2%
T2	150	TWR_DIAG T2	L3-1/2x3x1/4	A307	0.75	4	6.886	5.328	6.886	49.700	13.9%
T2	150	TWR_STEP T2	C6x8.2	A307	0.75	2	0.994	0.761	0.994	24.850	4.0%
T2	150	TWR_RED_VERT T2	L2.5x2.5x3	A307	0.75	1	0	0.462	0.462	8.972	5.1%
T3	137.5	TWR_TOP_GIRT T3	2L3x2-1/2x1/4x3/8	A307	0.75	2	0.506	1.812	1.812	44.588	4.1%
T3	137.5	TWR_INNER_SUPP T3	2L2-1/2x2x3/16x3/8	A307	0.75	2	0.175	0.27	0.270	31.402	0.9%
T3	137.5	TWR_DIAG T3	L4x3x1/4	A307	0.75	4	7.813	6.605	7.813	49.700	15.7%
T3	137.5	TWR_STEP T3	L3x2-1/2x1/4	A307	0.75	2	0.421	0.385	0.421	22.294	1.9%
T3	137.5	TWR_RED_VERT T3	L2.5x2.5x3	A307	0.75	1	0	0.229	0.229	8.972	2.6%
T3	137.5	TWR_INNER_SQ T3	L3x2.5x4	A307	0.75	2	0.082	0.375	0.375	22.294	1.7%
T3	137.5	TWR_INNER_CORNER T3	L2.5x2.5x3	A307	0.75	2	0	0.455	0.455	15.701	2.9%
T3	137.5	TWR_INNER_TRI T3	L2X2.5X3	A307	0.75	2	0.044	0.106	0.106	13.662	0.8%
T3	137.5	TWR_INNER_LADDER T3	L2X2.5X3	A307	0.75	2	0.3	0	0.300	13.662	2.2%
T4	125	TWR_LEG T4	L6x6x5/8	A307	0.75	16	49.705	26.561	49.705	198.808	25.0%
T4	125	TWR_TOP_GIRT T4	2L3x2-1/2x1/4x3/8	A307	0.75	2	1.638	4.083	4.083	44.588	9.2%
T4	125	TWR_RED_VERT T4	L2.5x2.5x3	A307	0.75	1	6.041	1.748	6.041	8.972	67.3%
T4	125	TWR_STEP T4	L3x2-1/2x1/4	A307	0.75	2	0.258	0.234	0.258	22.294	1.2%
T5	112.5	TWR_DIAG T5	2L3x2-1/2x1/4x3/8	A307	0.75	2	7.405	7.365	7.405	44.588	16.6%
T5	112.5	TWR_RED_VERT T5	2L2-1/2x2-1/2x1/4x3/8	A307	0.75	2	12.804	10.295	12.804	41.868	30.6%
T5	112.5	TWR_RED_DIAG T5	L2-1/2x2x3/16	A307	0.75	2	0.321	0.409	0.409	15.700	2.6%
T5	112.5	TWR_RED_DIAG T5	L2-1/2x2-1/2x3/16	A307	0.75	2	0.265	0.323	0.323	15.700	2.1%
T5	112.5	TWR_INNER_SUPP T5	2L2-1/2x2-1/2x3/16x3/8	A307	0.75	2	0.58	0.523	0.580	31.402	1.8%
T5	112.5	TWR_INNER_SQ T5	LL2.5x2x3x3	A307	0.75	2	0.411	1.117	1.117	31.402	3.6%
T5	112.5	TWR_INNER_CORNER T5	L2X2.5X3	A307	0.75	2	0	1.152	1.152	13.662	8.4%
T5	112.5	TWR_INNER_TRI T5	L2X2.5X3	A307	0.75	2	0.36	0.486	0.486	13.662	3.6%
T5	112.5	TWR_INNER_LADDER T5	L2X2.5X3	A307	0.75	2	0.659	0.502	0.659	13.662	4.8%
T6	100	TWR_LEG T6	L6x6x3/4	A307	0.75	20	76.798	44.838	76.798	248.510	30.9%
T6	100	TWR_HORZ T6	2L2-1/2x2-1/2x1/4x3/8	A307	0.75	2	7.407	8.304	8.304	41.868	19.8%
T6	100	TWR_DIAG T6	2L2-1/2x2-1/2x1/4x3/8	A307	0.75	2	11.858	11.137	11.858	41.868	28.3%
T6	100	TWR_RED_HORZ T6	L2-1/2x2x3/16	A307	0.75	2	0.451	0.601	0.601	15.700	3.8%
T6	100	TWR_RED_DIAG T6	L2-1/2x2-1/2x3/16	A307	0.75	2	0.383	0.405	0.405	15.700	2.6%
T6	100	TWR_INNER_SUPP T6	2L2-1/2x2-1/2x3/16x3/8	A307	0.75	2	0.824	0.762	0.824	31.402	2.6%
T6	100	TWR_INNER_SQ T6	LL2.5x2x3x3	A307	0.75	2	0.593	1.624	1.624	31.402	5.2%
T6	100	TWR_INNER_CORNER T6	L2X2.5X3	A307	0.75	2	0	1.75	1.750	13.662	12.8%
T6	100	TWR_INNER_TRI T6	L2X2.5X3	A307	0.75	2	0.476	0.729	0.729	13.662	5.3%
T6	100	TWR_INNER_LADDER T6	L2X2.5X3	A307	0.75	2	1.006	0.674	1.006	13.662	7.4%
T7	87.5	TWR_HORZ T7	2L2-1/2x2-1/2x1/4x3/8	A307	0.75	2	8.727	8.3	8.727	41.868	20.8%
T7	87.5	TWR_DIAG T7	2L2-1/2x2-1/2x1/4x3/8	A307	0.75	2	12.521	11.65	12.521	41.868	29.9%
T7	87.5	TWR_RED_HORZ T7	L2-1/2x2x3/16	A307	0.75	2	0.497	0.665	0.665	15.700	4.2%
T7	87.5	TWR_RED_DIAG T7	L2-1/2x2-1/2x3/16	A307	0.75	2	0.403	0.431	0.431	15.700	2.7%
T7	87.5	TWR_INNER_SUPP T7	2L2-1/2x2-1/2x3/16x3/8	A307	0.75	2	0.724	0.664	0.724	31.402	2.3%
T7	87.5	TWR_INNER_SQ T7	LL2.5x2x3x3	A307	0.75	2	0.615	1.372	1.372	31.402	4.4%
T7	87.5	TWR_INNER_CORNER T7	L2X2.5X3	A307	0.75	2	0	1.445	1.445	13.662	10.6%
T7	87.5	TWR_INNER_BRACE T7	L2.5x2.5x4	A307	0.75	2	0.023	0	0.023	20.934	0.1%
T7	87.5	TWR_INNER_GIRT T7	L2X2.5X3	A307	0.75	2	0.197	0.021	0.197	13.662	1.4%
T7	87.5	TWR_INNER_TRI T7	L2X2.5X3	A307	0.75	2	0.568	0.625	0.625	13.662	4.6%
T7	87.5	TWR_INNER_LADDER T7	L2X2.5X3	A307	0.75	2	0.861	0.806	0.861	13.662	6.3%
T8	75	TWR_LEG T8	L6x6x7/8	A307	0.75	28	108.137	66.889	108.137	347.914	31.1%
T8	75	TWR_HORZ T8	2L2-1/2x2-1/2x1/4x3/8	A307	0.75	2	8.938	8.774	8.938	41.868	21.3%
T8	75	TWR_DIAG T8	2L2-1/2x2-1/2x1/4x3/8	A307	0.75	2	12.597	11.715	12.597	41.868	30.1%
T8	75	TWR_RED_HORZ T8	L2-1/2x2x3/16	A307	0.75	2	0.58	0.77	0.770	15.700	4.9%
T8	75	TWR_RED_DIAG T8	L2-1/2x2-1/2x3/16	A307	0.75	2	0.449	0.478	0.478	15.700	3.0%
T8	75	TWR_INNER_SUPP T8	2L2-1/2x2-1/2x3/16x3/8	A307	0.75	2	0.776	0.71	0.776	31.402	2.5%
T8	75	TWR_INNER_SQ T8	LL2.5x2x3x3	A307	0.75	2	0.694	1.468	1.468	31.402	4.7%
T8	75	TWR_INNER_CORNER T8	L2X2.5X3	A307	0.75	2	0	1.569	1.569	13.662	11.5%
T8	75	TWR_INNER_TRI T8	L2X2.5X3	A307	0.75	2	0.616	0.672	0.672	13.662	4.9%
T8	75	TWR_INNER_LADDER T8	L2X2.5X3	A307	0.75	2	0.923	0.871	0.923	13.662	6.8%
T9	62.5	TWR_LEG T9	L8x8x3/4	A307	0.75	28	123.236	77.42	123.236	347.914	35.4%

Section #	Elevation (Ft.)	Section Set	Member	Bolt Grade	Bolt Size (in)	# of Bolts	Comp. (K)	Ten. (K)	Maximum Load (K)	Allowable Load (K)	% Capacity
T9	62.5	TWR_HORZ T9	2L3x2-1/2x1/4x3/8	A307	0.75	2	9.429	9.069	9.429	44.588	21.1%
T9	62.5	TWR_DIAG T9	2L2-1/2x2-1/2x1/4x3/8	A307	0.75	3	12.789	11.681	12.789	59.814	21.4%
T9	62.5	TWR_RED_HORZ T9	L2-1/2x2-1/2x1/4	A307	0.75	2	1.01	1.282	1.282	20.934	6.1%
T9	62.5	TWR_RED_DIAG T9	L2-1/2x2-1/2x3/16	A307	0.75	2	0.752	0.751	0.752	15.700	4.8%
T9	62.5	TWR_INNER_SUPP T9	2L2-1/2x2-1/2x3/16x3/8	A307	0.75	2	0.935	0.866	0.935	31.402	3.0%
T9	62.5	TWR_INNER_SQ T9	L2.5x2x3x3	A307	0.75	2	0.904	1.788	1.788	31.402	5.7%
T9	62.5	TWR_INNER_CORNER T9	L3X3X4	A307	0.75	2	0	1.884	1.884	22.294	8.5%
T9	62.5	TWR_INNER_BRACE T9	L2.5x2.5x4	A307	0.75	2	0.018	0	0.018	20.934	0.1%
T9	62.5	TWR_INNER_TRI T9	L2.5x2.5x4	A307	0.75	2	0.76	0.829	0.829	20.934	4.0%
T9	62.5	TWR_INNER_LADDER T9	2L2-1/2x2-1/2x3/16x3/8	A307	0.75	2	1.144	1.063	1.144	31.402	3.6%
T10	50	TWR_LEG T10	L8x8x7/8	A307	0.75	32	138.593	85.949	138.593	397.616	34.9%
T10	50	TWR_HORZ T10	2L3x2-1/2x1/4x3/8	A307	0.75	2	10.199	9.577	10.199	44.588	22.9%
T10	50	TWR_DIAG T10	2L3x3x3/8x3/8	A325N	0.75	3	19.331	17.879	19.331	81.564	23.7%
T10	50	TWR_RED_HORZ T10	L2-1/2x2x3/16	A307	0.75	2	0.563	0.669	0.669	31.402	2.1%
T10	50	TWR_RED_HORZ_2 T10	2L2-1/2x2-1/2x1/4x3/8	A307	0.75	2	0.622	0.47	0.622	41.868	1.5%
T10	50	TWR_RED_DIAG T10	L2-1/2x2-1/2x3/16	A307	0.75	2	0.562	0.657	0.657	15.700	4.2%
T10	50	TWR_RED_DIAG_2 T10	L3x3-1/2x1/4	A307	0.75	2	0.232	0.788	0.788	22.294	3.5%
T10	50	TWR_RED_HIP_2 T10	L4x4x3/8	A307	0.75	2	0	0.24	0.240	24.850	1.0%
T10	50	TWR_RED_HIPDIA_2 T10	2L2-1/2x2-1/2x1/4x3/8	A307	0.75	2	0.431	0	0.431	41.869	1.0%
T10	50	TWR_INNER_SUPP T10	L3x3x1/4	A307	0.75	2	1.032	1.003	1.032	22.294	4.6%
T10	50	TWR_INNER_SQ T10	2L3x2-1/2x1/4x3/8	A307	0.75	2	1.217	1.912	1.912	44.588	4.3%
T10	50	TWR_INNER_CORNER T10	L3x3x1/4	A307	0.75	2	0	2.134	2.134	22.294	9.6%
T10	50	TWR_INNER_BRACE T10	L2.5x2.5x3	A307	0.75	2	0.035	0	0.035	15.701	0.2%
T10	50	TWR_INNER_TRI T10	L2.5x2.5x3	A307	0.75	2	0.882	0.938	0.938	15.701	6.0%
T10	50	TWR_INNER_LADDER T10	L4X4X6	A307	0.75	2	1.285	1.222	1.285	24.850	5.2%
T11	25	TWR_LEG T11	L8X8X1	A307	0.75	36	167.789	102.602	167.789	447.318	37.5%
T11	25	TWR_HORZ T11	2L3x3x3/8x3/8	A307	0.75	3	11.81	10.357	11.810	74.553	15.8%
T11	25	TWR_DIAG T11	2L3x3-1/2x3/8x3/8	A307	0.75	5	22.654	20.273	22.654	124.255	18.2%
T11	25	TWR_RED_HORZ T11	L2-1/2x2-1/2x3/16	A307	0.75	2	1.452	1.255	1.452	31.402	4.6%
T11	25	TWR_RED_HORZ_2 T11	2L2-1/2x2-1/2x1/4x3/8	A307	0.75	2	0.958	0.798	0.958	41.868	2.3%
T11	25	TWR_RED_DIAG T11	L2-1/2x2-1/2x3/16	A307	0.75	2	1.1	1.352	1.352	31.402	4.3%
T11	25	TWR_RED_DIAG_2 T11	2L2-1/2x2x1/4x3/8	A307	0.75	2	0.463	1.287	1.287	49.702	2.6%
T11	25	TWR_RED_SUBHOR T11	2L2-1/2x3-1/2x1/4x3/8	A307	0.75	2	0.554	0.179	0.554	49.702	1.1%
T11	25	TWR_RED_BRACE T11	L2.5x2.5x4	A307	0.75	2	1.678	1.69	1.690	20.934	8.1%
T11	25	TWR_RED_VERT T11	L3x3x1/4	A307	0.75	2	0.412	0.234	0.412	22.294	1.8%
T11	25	TWR_RED_HIP_2 T11	L4x4x3/8	A307	0.75	2	0	0.38	0.380	24.850	1.5%
T11	25	TWR_RED_HIPDIA_2 T11	2L2-1/2x2-1/2x1/4x3/8	A307	0.75	2	0.613	0	0.613	41.869	1.5%
T11	25	TWR_RED_HIPBRACE T11	L2x2x3	A307	0.75	2	0.132	0.105	0.132	13.662	1.0%
T11	25	TWR_INNER_SUPP T11	2L3x2-1/2x1/4x3/8	A307	0.75	2	1.02	0.98	1.020	44.588	2.3%
T11	25	TWR_INNER_SQ T11	L2.5x2.5x4x3	A307	0.75	2	1.248	1.822	1.822	41.869	4.4%
T11	25	TWR_INNER_CORNER T11	L3.5X3.5X5	A307	0.75	2	0	2.046	2.046	24.850	8.2%
T11	25	TWR_INNER_BRACE T11	L2.5x2.5x3	A307	0.75	2	0.016	0	0.016	15.701	0.1%
T11	25	TWR_INNER_TRI T11	L2.5x2.5x4	A307	0.75	2	0.797	0.825	0.825	20.934	3.9%
T11	25	TWR_INNER_LADDER T11	L2.5x2.5x4	A307	0.75	2	1.087	1.046	1.087	20.934	5.2%
T4	125	TWR_DIAG T4	L3x4x1/4 w/ L3x2x3/8 (r Only)	A307	0.75	4	9.564	8.264	9.564	49.700	19.2%

APPENDIX C

Additional Calculations



Self-Support Anchor Rod Analysis - TIA-222-H-1
SNET025 (10034975) SHELTON EAST CENTR
2022702.64.SNET025.14

General Info	
Apply TIA-222-H Section 15.5	No
Modified Anchor Rods	No
Leg Eccentricity	No
Overstrength	No
Max Capacity	105%

Tower Reactions		
Compression, P_u =	194.63	kips
Compression Shear, V_u =	33.76	kips
Uplift, P_u =	123.35	kips
Uplift Shear, V_u =	25.00	kips
Number of Tower Legs =	4	
Tower Axial Force =	273.41	kips

Anchor Rods		
Number of Anchor Rods, n =	4	
Anchor Rod Grade =	C-1015	
Anchor Rod Diameter, d =	2.25	in
Bolt Circle Diameter, BC =	N/A	in
Rod Clear Span, l_{ar} =	0	in
Is grout present?	No	
Yield Strength, F_y =	47	ksi
Tensile Strength, F_u =	56	ksi
Rod Compression, P_{uc} =	48.66	kips
Rod Shear, V_u =	8.44	kips
Rod Moment, M_u =	0.00	k-in
Rod Tension, P_{ut} =	30.84	kips
Rod Shear, V_u =	6.25	kips
Rod Moment, M_u =	0.00	k-in

Anchor Rod Results		
$\phi_t R_{nt}$ =	136.50	kips
$\phi_c R_{nc}$ =	168.19	kips
$\phi_c R_{nb}$ =	168.19	kips
$\phi_v R_{nv}$ =	83.50	kips
$\phi_c R_{nvc}$ =	75.68	kips
$\phi_f M_n$ =	80.30	k-in
Tension Interaction	5.7%	OK
Compression Interaction	30.2%	OK

Pier and Pad Foundation

TIA-222 Revision:
 Tower Type:

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

Superstructure Analysis Reactions		
Compression, P_{comp} :	194.63	kips
Compression Shear, V_{u_comp} :	33.76	kips
Uplift, P_{uplift} :	123.35	kips
Uplift Shear, V_{u_uplift} :	25.003	kips
Tower Height, H :	162.5	ft
Base Face Width, BW :	36.25	ft
BP Dist. Above Fdn, bp_{dist} :	2	in

Foundation Analysis Checks				
	Capacity	Demand	Rating	Check
<i>Uplift (kips)</i>	318.49	123.35	38.7%	Pass
<i>Lateral (Sliding) (kips)</i>	142.24	25.00	17.6%	Pass
<i>Bearing Pressure (ksf)</i>	14.25	2.19	15.3%	Pass
<i>Pier Flexure (Comp.) (kip*ft)</i>	3193.57	219.44	6.9%	Pass
<i>Pier Flexure (Tension) (kip*ft)</i>	2374.82	162.52	6.8%	Pass
<i>Pier Compression (kip)</i>	24233.48	254.03	1.0%	Pass
<i>Pad Flexure (kip*ft)</i>	998.54	107.67	10.8%	Pass
<i>Pad Shear - 1-way (kips)</i>	288.38	32.12	11.1%	Pass
<i>Pad Shear - 2-way (Comp) (ksi)</i>	0.164	0.026	15.7%	Pass
<i>Flexural 2-way (Comp) (kip*ft)</i>	1698.96	131.66	7.7%	Pass
<i>Pad Shear - 2-way (Uplift) (ksi)</i>	0.164	0.015	9.0%	Pass
<i>Flexural 2-way (Tension) (kip*ft)</i>	1698.96	97.51	5.7%	Pass

Pier Properties		
Pier Shape:	Square	
Pier Diameter, $dpier$:	7.125	ft
Ext. Above Grade, E :	0.5	ft
Pier Rebar Size, Sc :	9	
Pier Rebar Quantity, mc :	16	
Pier Tie/Spiral Size, St :	4	
Pier Tie/Spiral Quantity, mt :	9	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier} :	3	in

Structural Rating: **15.7%**
 Soil Rating: **38.7%**

Pad Properties		
Depth, D :	8	ft
Pad Width, W_1 :	15	ft
Pad Thickness, T :	2	ft
Pad Rebar Size (Bottom dir. 2), Sp_2 :	8	
Pad Rebar Quantity (Bottom dir. 2), mp_2 :	15	
Pad Clear Cover, cc_{pad} :	3	in

Material Properties		
Rebar Grade, F_y :	60	ksi
Concrete Compressive Strength, F'_c :	3	ksi
Dry Concrete Density, δ_c :	150	pcf

Soil Properties		
Total Soil Unit Weight, γ :	125	pcf
Ultimate Net Bearing, Q_{net} :	18.000	ksf
Cohesion, C_u :		ksf
Friction Angle, ϕ :	38	degrees
SPT Blow Count, N_{blows} :		
Base Friction, μ :	0.35	
Neglected Depth, N :	3.50	ft
Foundation Bearing on Rock?	Yes	
Groundwater Depth, gw :	N/A	ft

<--Toggle between Gross and Net