



QC Development

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December 11, 2020

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

Notice of Exempt Modification – New Cingular Wireless PCS, LLC (AT&T) – CT0968
303 Boxwood Lane, Danbury, CT 06811
N 41.39497222
W 73.48674167

Dear Ms. Bachman:

AT&T currently maintains nine (9) antennas at the 98-foot level of the existing 100-foot Self Support Tower at 303 Boxwood Lane, Danbury, CT. The tower and property are owned by the State of Connecticut (WCSU). AT&T now intends to remove (3) CCI antennas and replace them with three (3) CCI OPA-65R-BU4B antennas. AT&T will also remove (3) Ericsson RRUS-32 B2, (3) RRUS-E2 B29, (3) RRUS-11 B12 and (3) RRUS-32 B66 and install (3) Ericsson RRU 4478 B14, (3) RRU 8843 B2/B66A and (3) RRU 4449 B5/B12. The new antennas and RRUs will all be installed at the 98-foot level of the tower. This modification/proposal includes B2, B5, and B12 hardware that is both 4G (LTE) and 5GNR capable through remote software configuration and either or both services may be turned on or off at various times.

This facility was approved by the Siting Council in Docket # 176 on October 21, 1996. This approval included no condition(s) that could feasibly be violated by this modification, including total facility height or mounting restrictions. This modification therefore complies with the aforementioned approval.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 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 Honorable Mark D. Boughton, Mayor of the City of Danbury, and the Danbury Planning & Zoning Department, as well as the tower and property owner.

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

1. The proposed modifications will not result in an increase in the height of the existing structure.
2. The proposed modifications will not require the 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 replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading.

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).

Please feel free to call me at (860) 670-9068 with any questions regarding this matter. Thank you for your consideration.

Sincerely,



Mark Roberts
QC Development
Consultant for AT&T

Attachments

cc: Mark D. Boughton - as Elected Official
Sharon Calitro – Director of Planning & Zoning
John Murphy – WCSU, as Tower/Property Owner

Power Density

Existing Loading on Tower

Carrier	# of Channels	ERP/Ch (W)	Antenna Centerline Height (ft)	Power Density (mW/cm ²)	Freq. Band (MHz ^{**})	Limit S (mW/cm ²)	%MPE
Other Carriers*							37.05%
AT&T	2	391	98	0.0332	850	0.5667	0.59%
AT&T	4	875	98	0.1487	2300	1.0000	1.49%
AT&T	2	454	98	0.0386	700	0.4667	0.83%
AT&T	4	906	98	0.1540	1900	1.0000	1.54%
AT&T	2	521	98	0.0443	850	0.5667	0.78%
AT&T	2	487	98	0.0414	700	0.4667	0.89%
AT&T	4	875	98	0.1487	2100	1.0000	1.49%
Site Total							44.65%

*Per CSC Records (available upon request, includes calculation formulas)

** If a range of frequencies are used, such as 880-894, enter the lowest value, i.e. 880

Proposed Loading on Tower

Carrier	# of Channels	ERP/Ch (W)	Antenna Centerline Height (ft)	Power Density (mW/cm ²)	Freq. Band (MHz ^{**})	Limit S (mW/cm ²)	%MPE
Other Carriers*							37.05%
AT&T LTE	2	1476	98	0.1254	700	0.4667	2.69%
AT&T LTE	1	1476	98	0.0627	850	0.5667	1.11%
AT&T 5G	1	1476	98	0.0627	850	0.5667	1.11%
AT&T LTE	2	4842	98	0.4115	1900	1.0000	4.11%
AT&T LTE	1	4842	98	0.2057	2100	1.0000	2.06%
AT&T LTE	1	4842	98	0.2057	2300	1.0000	2.06%
Site Total							50.18%

*Per CSC Records (available upon request, includes calculation formulas)

** If a range of frequencies are used, such as 880-894, enter the lowest value, i.e. 880



SITE NAME: DANBURY BOXWOOD LANE

SITE NUMBER: CT0968

303 BOXWOOD LANE

DANBURY, CT 06811

FA CODE: 12684103

PACE ID: MRCTB034989, MRCTB034927, MRCTB035011

PROJECT: LTE 7C, 5G NR, 4TX4RX



500 ENTERPRISE DRIVE SUITE 3A
ROCKY HILL, CT 06067



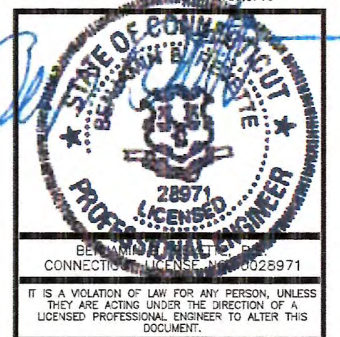
12 INDUSTRIAL WAY
SALEM, NH 03079

**CT0968
DANBURY BOXWOOD
LANE**

CONSTRUCTION DRAWINGS	
0	12/10/20 ISSUED AS FINAL
B	11/17/20 ISSUED FOR REVIEW
A	02/17/19 ISSUED FOR REVIEW



Dewberry Engineers Inc.
600 PARSIPPANY ROAD
SUITE 801
PARSIPPANY, NJ 07054
PHONE: 973.739.8400
FAX: 973.739.9710



DRAWN BY: LED

REVIEWED BY: BSH

CHECKED BY: GHN

PROJECT NUMBER: 50055106

JOB NUMBER: 50093835

SITE ADDRESS:

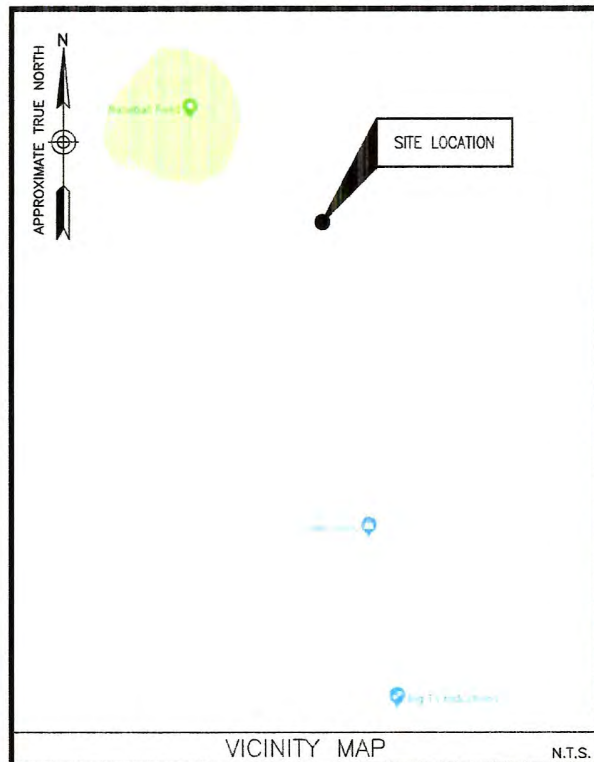
303 BOXWOOD LANE
DANBURY, CT 06811

SHEET TITLE

TITLE SHEET

SHEET NUMBER

T-1



VICINITY MAP N.T.S.

DIRECTIONS FROM 500 ENTERPRISE DRIVE, ROCKY HILL, CT:
START OUT GOING NORTHEAST ON ENTERPRISE DR TOWARD CAPITAL BLVD. TURN LEFT ONTO CAPITAL BLVD. TURN LEFT ONTO WEST ST. MERGE ONTO I-91 S VIA THE RAMP ON THE LEFT TOWARD NEW HAVEN. MERGE ONTO I-891 W VIA EXIT 18 TOWARD MERIDEN/WATERBURY. MERGE ONTO I-84 W VIA EXIT 1 ON THE LEFT TOWARD WATERBURY/DANBURY. TAKE THE US-6 W/LAKE AVE/US-202 W EXIT, EXIT 4. TURN RIGHT ONTO LAKE AVENUE EXT/US-6 W/US-202 W. TAKE THE 1ST RIGHT ONTO MILL RIDGE RD. TAKE THE 2ND RIGHT ONTO HIGH RIDGE RD. TAKE THE 1ST RIGHT TO STAY ON HIGH RIDGE RD. TURN LEFT ONTO SCUDDO RD. TAKE THE 1ST RIGHT ONTO BOXWOOD LN. DESTINATION IS ON THE RIGHT.

SITE INFORMATION	
SITE COORDINATES:	LATITUDE: 41°-23'-40.99" N LONGITUDE: 73°-29'-12.00" W (PER RFDS)
ELEVATION DATA:	GRADE ELEVATION AT TOWER = 732'± A.M.S.L. (PER GOOGLE EARTH)

- SWAP (3) EXISTING OPA-65R-LCUU-H4 ANTENNAS FOR (3) OPA65R-BU4B ANTENNAS AND MOVE TO POSITION 4.
- RELOCATE (3) SBNHH-1D65A ANTENNAS TO POSITION 2.
- REMOVE (3) EXISTING RRUS-11 B5.
- KEEP (3) EXISTING RRUS-32 B30.
- SWAP (3) EXISTING RRUS-11 B12, (3) EXISTING RRUS 4478 B5 & (3) EXISTING RRUS-32 B2 FOR (3) RRUS 4449 B5/B12 & (3) RRUS 8843 B2/B66A
- SWAP (3) EXISTING RRUS-E2 B29 & (3) EXISTING RRUS-32 B66A FOR (3) RRUS 4478 B14
- GROUND - ADD 5G RBS 6630
- GROUND - ADD (2) EMERSON RECTIFIERS 15930

PROJECT DESCRIPTION

PROJECT INFORMATION	
SITE NAME:	DANBURY BOXWOOD LANE
SITE NUMBER:	CT0968
SITE ADDRESS:	303 BOXWOOD LANE DANBURY, CT 06811
TOWER OWNER:	STATE OF CONNECTICUT 210 CAPITAL AVE STE 1 HARTFORD, CT 06106
APPLICANT/LESSEE:	AT&T MOBILITY 500 ENTERPRISE DRIVE, SUITE 3A ROCKY HILL, CT 06067

THIS DOCUMENT WAS DEVELOPED TO REFLECT A SPECIFIC SITE AND ITS SITE CONDITIONS AND IS NOT TO BE USED FOR ANOTHER SITE OR WHEN OTHER CONDITIONS PERTAIN. REUSE OF THIS DOCUMENT IS AT THE SOLE RISK OF THE USER.

A.D.A. COMPLIANCE:
FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION.

SHEET NUMBER	DESCRIPTION
T-1	TITLE SHEET
C-1	GENERAL NOTES
C-1	COMPOUND PLAN
C-2	EXISTING & PROPOSED SHELTER LAYOUTS
C-3	EXISTING & PROPOSED SOUTH ELEVATIONS
C-4	EXISTING & PROPOSED ANTENNA LAYOUTS
C-5	CONSTRUCTION DETAILS
C-6	PLUMBING DIAGRAM
E-1	GROUNDING NOTES & DETAILS

SHEET INDEX

GENERAL NOTES:

- FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
PROJECT MANAGEMENT - SAI COMMUNICATIONS, INC.
CONTRACTOR - GENERAL CONTRACTOR (CONSTRUCTION)
OWNER - AT&T MOBILITY
OEM - ORIGINAL EQUIPMENT MANUFACTURER
- PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR 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 PROJECT MANAGEMENT.
- ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. CONTRACTOR 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.
- DRAWINGS PROVIDED HERE ARE NOT TO SCALE UNLESS OTHERWISE NOTED AND ARE INTENDED TO SHOW OUTLINE ONLY.
- UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
- THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
- IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY PROJECT MANAGEMENT.
- CONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. CONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. CONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH PROJECT MANAGEMENT.
- THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
- CONTRACTOR 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.
- CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
- THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
- CONTRACTOR SHALL NOTIFY DEWBERRY 48 HOURS IN ADVANCE OF POURING CONCRETE, OR BACKFILLING TRENCHES, SEALING ROOF AND WALL PENETRATIONS & POST DOWNS, FINISHING NEW WALLS OR FINAL ELECTRICAL CONNECTIONS FOR ENGINEER REVIEW.
- CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. CONTRACTOR SHALL NOTIFY PROJECT MANAGEMENT OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
- THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY CONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH LAND LORD. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
- 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.
- CONTRACTOR, SUBCONTRACTORS AND ANY SITE SPECIFIC PART/ PRODUCT/ CONCEALMENT MANUFACTURER TO FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS PRIOR TO MANUFACTURING, FABRICATION OR CONSTRUCTION.

SITE WORK GENERAL NOTES:

- THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
- ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO:
A) FALL PROTECTION
B) CONFINED SPACE
C) ELECTRICAL SAFETY
D) TRENCHING & EXCAVATION.
- ALL SITE WORK SHALL BE AS INDICATED ON THE DRAWINGS AND PROJECT SPECIFICATIONS.
- IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES, TOP SOIL AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
- ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF CONTRACTOR, OWNER AND/OR LOCAL UTILITIES.
- CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION.
- THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE AT&T SPECIFICATION FOR SITE SIGNAGE.
- THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE TRANSMISSION EQUIPMENT AND TOWER AREAS.
- NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
- THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION, SEE SOIL COMPACTION NOTES.
- THE AREAS OF THE OWNER'S PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION.
- EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL JURISDICTION'S GUIDELINES FOR EROSION AND SEDIMENT CONTROL.

STRUCTURAL STEEL NOTES:

- ALL STEEL WORK SHALL BE PAINTED OR GALVANIZED IN ACCORDANCE WITH THE DRAWINGS UNLESS NOTED OTHERWISE. STRUCTURAL STEEL SHALL BE ASTM-A-36 UNLESS OTHERWISE NOTED ON THE SITE SPECIFIC DRAWINGS. STEEL DESIGN, INSTALLATION AND BOLTING SHALL BE PERFORMED IN ACCORDANCE WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) "MANUAL OF STEEL CONSTRUCTION".
- ALL WELDING SHALL BE PERFORMED USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION". PAINTED SURFACES SHALL BE TOUCHED UP.
- BOLTED CONNECTIONS SHALL BE ASTM A325 BEARING TYPE (3/4"Ø) CONNECTIONS AND SHALL HAVE MINIMUM OF TWO BOLTS UNLESS NOTED OTHERWISE.
- NON-STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE 5/8" DIA. ASTM A 307 BOLTS UNLESS NOTED OTHERWISE.
- INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHOR, SHALL BE PER MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO MANUFACTURER'S RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR CONTRACTOR APPROVAL WHEN DRILLING HOLES IN CONCRETE. SPECIAL INSPECTIONS, REQUIRED BY GOVERNING CODES, SHALL BE PERFORMED IN ORDER TO MAINTAIN MANUFACTURER'S MAXIMUM ALLOWABLE LOADS. ALL EXPANSION/WEDGE ANCHORS SHALL BE STAINLESS STEEL OR HOT DIPPED GALVANIZED. EXPANSION BOLTS SHALL BE PROVIDED BY RAMSET/REDHEAD OR APPROVED EQUAL.
- CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ENGINEER REVIEW & APPROVAL ON PROJECTS REQUIRING STRUCTURAL STEEL.
- ALL STRUCTURAL STEEL WORK SHALL BE DONE IN ACCORDANCE WITH AISC SPECIFICATIONS.

SOIL COMPACTION NOTES FOR SLAB ON GRADE:

- EXCAVATE AS REQUIRED TO REMOVE VEGETATION & TOPSOIL EXPOSE UNDISTURBED NATURAL SUBGRADE AND PLACE CRUSHED STONE AS REQUIRED.
- COMPACTION CERTIFICATION: AN INSPECTION AND WRITTEN CERTIFICATION BY A QUALIFIED GEOTECHNICAL TECHNICIAN OR ENGINEER IS ACCEPTABLE.
- AS AN ALTERNATIVE TO INSPECTION AND WRITTEN CERTIFICATION, THE "UNDISTURBED SOIL" BASE SHALL BE COMPACTED WITH "COMPACTION EQUIPMENT", LISTED BELOW, TO AT LEAST 90% MODIFIED PROCTOR MAXIMUM DENSITY PER ASTM D 1557 METHOD C.
- COMPACTED SUBBASE SHALL BE UNIFORM & LEVELED. PROVIDE 6" MINIMUM CRUSHED STONE OR GRAVEL COMPACTED IN 3" LIFTS ABOVE COMPACTED SOIL. GRAVEL SHALL BE NATURAL OR CRUSHED WITH 100% PASSING 1" SIEVE.
- AS AN ALTERNATIVE TO ITEMS 2 AND 3 PROOFROLL THE SUBGRADE SOILS WITH 5 PASSES OF A MEDIUM SIZED VIBRATORY PLATE COMPACTOR (SUCH AS BOMAG BPR 30/38) OR HAND-OPERATED SINGLE DRUM VIBRATORY ROLLER (SUCH AS BOMAG BW 55E). ANY SOFT AREAS THAT ARE ENCOUNTERED SHOULD BE REMOVED AND REPLACED WITH A WELL-GRADED GRANULAR FILL, AND COMPACTED AS STATED ABOVE.

COMPACTION EQUIPMENT:

- HAND OPERATED DOUBLE DRUM, VIBRATORY ROLLER, VIBRATORY PLATE COMPACTOR OR JUMPING JACK COMPACTOR.

CONSTRUCTION NOTES:

- FIELD VERIFICATION:
CONTRACTOR SHALL FIELD VERIFY SCOPE OF WORK, AT&T ANTENNA PLATFORM LOCATION AND ANTENNAS TO BE REPLACED.
- COORDINATION OF WORK:
CONTRACTOR SHALL COORDINATE RF WORK AND PROCEDURES WITH PROJECT MANAGEMENT.
- CABLE LADDER RACK:
CONTRACTOR SHALL FURNISH AND INSTALL CABLE LADDER RACK, CABLE TRAY, AND CONDUIT AS REQUIRED TO SUPPORT CABLES TO THE NEW BTS LOCATION.

ELECTRICAL INSTALLATION NOTES:

- ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE LOCAL CODES.
- CONTRACTOR SHALL MODIFY EXISTING CABLE TRAY SYSTEM AS REQUIRED TO SUPPORT RF AND TRANSPORT CABLEING TO THE NEW BTS EQUIPMENT. CONTRACTOR SHALL SUBMIT MODIFICATIONS TO PROJECT MANAGEMENT FOR APPROVAL.
- CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED.
- WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
- ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
- CABLES SHALL NOT BE ROUTED THROUGH LADDER-STYLE CABLE TRAY RUNGS.
- EACH END OF EVERY POWER, POWER PHASE CONDUCTOR (I.E., HOTS), GROUNDING, AND T1 CONDUCTOR AND CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2 INCH PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC & OSHA, AND MATCH EXISTING INSTALLATION REQUIREMENTS.
- ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS. ALL EQUIPMENT SHALL BE LABELED WITH THEIR VOLTAGE RATING, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING, AND BRANCH CIRCUIT ID NUMBERS (I.E., PANELBOARD AND CIRCUIT ID'S).
- PANELBOARDS (ID NUMBERS) AND INTERNAL CIRCUIT BREAKERS (CIRCUIT ID NUMBERS) SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS.
- ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
- POWER, CONTROL, AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE CONDUCTOR (SIZE 14 AWG OR LARGER), 600V, OIL RESISTANT THHN OR THWN-2, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.
- POWER PHASE CONDUCTORS (I.E., HOTS) SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2 INCH PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL.) PHASE CONDUCTOR COLOR CODES SHALL CONFORM WITH THE NEC & OSHA AND MATCH EXISTING INSTALLATION REQUIREMENTS.
- SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE CONDUCTOR (SIZE 6 AWG OR LARGER), 600V, OIL RESISTANT THHN OR THWN-2 GREEN INSULATION, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.
- SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED OUTDOORS, OR BELOW GRADE, SHALL BE SINGLE CONDUCTOR #2 AWG SOLID TINNED COPPER CABLE, UNLESS OTHERWISE SPECIFIED.
- POWER AND CONTROL WIRING, NOT IN TUBING OR CONDUIT, SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (SIZE 14 AWG OR LARGER), 600V, OIL RESISTANT THHN OR THWN-2, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; WITH OUTER JACKET; LISTED OR LABELED FOR THE LOCATION USED, UNLESS OTHERWISE SPECIFIED.
- ALL POWER AND POWER GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRENUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRENUTS SHALL BE RATED FOR OPERATION AT NO LESS THAN 75°C (90°C IF AVAILABLE).
- RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE, AND NEC.
- NEW RACEWAY OR CABLE TRAY WILL MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.
- ELECTRICAL METALLIC TUBING (EMT) OR RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40, OR RIGID PVC SCHEDULE 80 FOR LOCATIONS SUBJECT TO PHYSICAL DAMAGE) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
- ELECTRICAL METALLIC TUBING (EMT), ELECTRICAL NONMETALLIC TUBING (ENT), OR RIGID NONMETALLIC CONDUIT (RIGID PVC, SCHEDULE 40) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
- GALVANIZED STEEL INTERMEDIATE METALLIC CONDUIT (IMC) SHALL BE USED FOR OUTDOOR LOCATIONS ABOVE GRADE.
- RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80) SHALL BE USED UNDERGROUND; DIRECT BURIED, IN AREAS OF OCCASIONAL LIGHT VEHICLE TRAFFIC OR ENCASED IN REINFORCED CONCRETE IN AREAS OF HEAVY VEHICLE TRAFFIC.
- LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
- CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SETSCREW FITTINGS ARE NOT ACCEPTABLE.
- CABINETS, BOXES, AND WIREWAYS SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE, AND NEC.
- CABINETS, BOXES, AND WIREWAYS TO MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.
- WIREWAYS SHALL BE EPOXY-COATED (GRAY) AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARD; SHALL BE PANDUIT TYPE E (OR EQUAL); AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS.
- EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES, AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL, SHALL MEET OR EXCEED UL 50, AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS.
- METAL RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED, OR NON-CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
- NONMETALLIC RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
- THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM PROJECT MANAGEMENT BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
- THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD AGAINST LIFE AND PROPERTY.



500 ENTERPRISE DRIVE SUITE 3A
ROCKY HILL, CT 06067



12 INDUSTRIAL WAY
SALEM, NH 03079

**CT0968
DANBURY BOXWOOD
LANE**

CONSTRUCTION DRAWINGS

NO.	DATE	DESCRIPTION
0	12/10/20	ISSUED AS FINAL
B	11/17/20	ISSUED FOR REVIEW
A	02/17/19	ISSUED FOR REVIEW



Dewberry Engineers Inc.

600 PARSIPPANY ROAD
SUITE 301
PARSIPPANY, NJ 07054
PHONE: 973.739.9400
FAX: 973.739.9710



DRAWN BY: LED

REVIEWED BY: BSH

CHECKED BY: GHN

PROJECT NUMBER: 50055106

JOB NUMBER: 50093835

SITE ADDRESS:

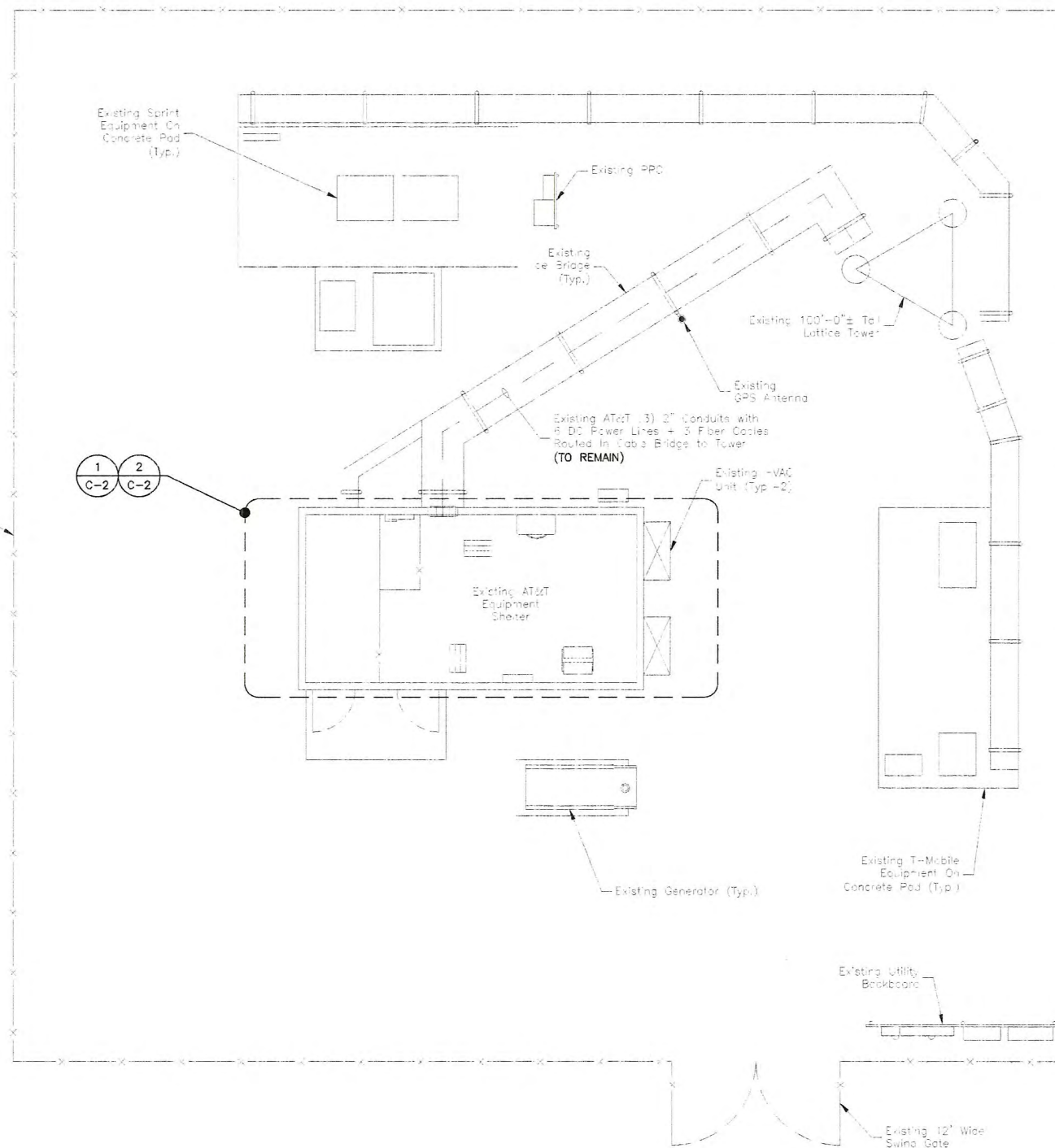
303 BOXWOOD LANE
DANBURY, CT 06811

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

G-1



- NOTES:**
1. NORTH SHOWN AS APPROXIMATE.
 2. NOT ALL INFORMATION IS SHOWN FOR CLARITY.
 3. COMPOUND PLAN BASED ON SITE VISIT CONDUCTED BY DEWBERRY ENGINEERS INC. ON 11/15/18 AND EXISTING PLANS BY DEWBERRY DATED 06/28/18.
 4. ALL PROPOSED EQUIPMENT AND TOWER MODIFICATIONS TO BE INSTALLED IN ACCORDANCE WITH TOWER STRUCTURAL ANALYSIS AND TOWER MODIFICATION DESIGN BY GPD DATED 09/25/20. ALL MODIFICATIONS TO BE INSTALLED PRIOR TO EQUIPMENT INSTALLATION.
 5. ALL PROPOSED EQUIPMENT AND MOUNT MODIFICATIONS TO BE INSTALLED IN ACCORDANCE WITH MOUNT ANALYSIS BY HUDSON DESIGN GROUP LLC DATED 07/26/20 AND MOUNT MODIFICATION DESIGN BY HUDSON DESIGN GROUP LLC DATED 10/15/20. ALL MODIFICATIONS TO BE INSTALLED PRIOR TO EQUIPMENT INSTALLATION.
 6. ALL TOWER MODIFICATIONS AND MOUNT MODIFICATIONS TO BE INSTALLED PRIOR TO EQUIPMENT INSTALLATION.

COMPOUND PLAN
 SCALE: 3/32"=1' FOR 11"x17"
 3/16"=1' FOR 22"x34"
 1
 C-3



500 ENTERPRISE DRIVE SUITE 3A
 ROCKY HILL, CT 06067



12 INDUSTRIAL WAY
 SALEM, NH 03079

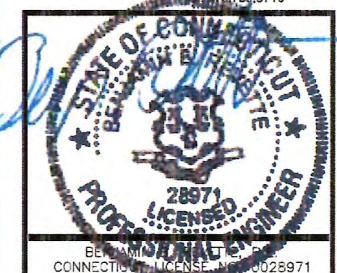
**CT0968
 DANBURY BOXWOOD
 LANE**

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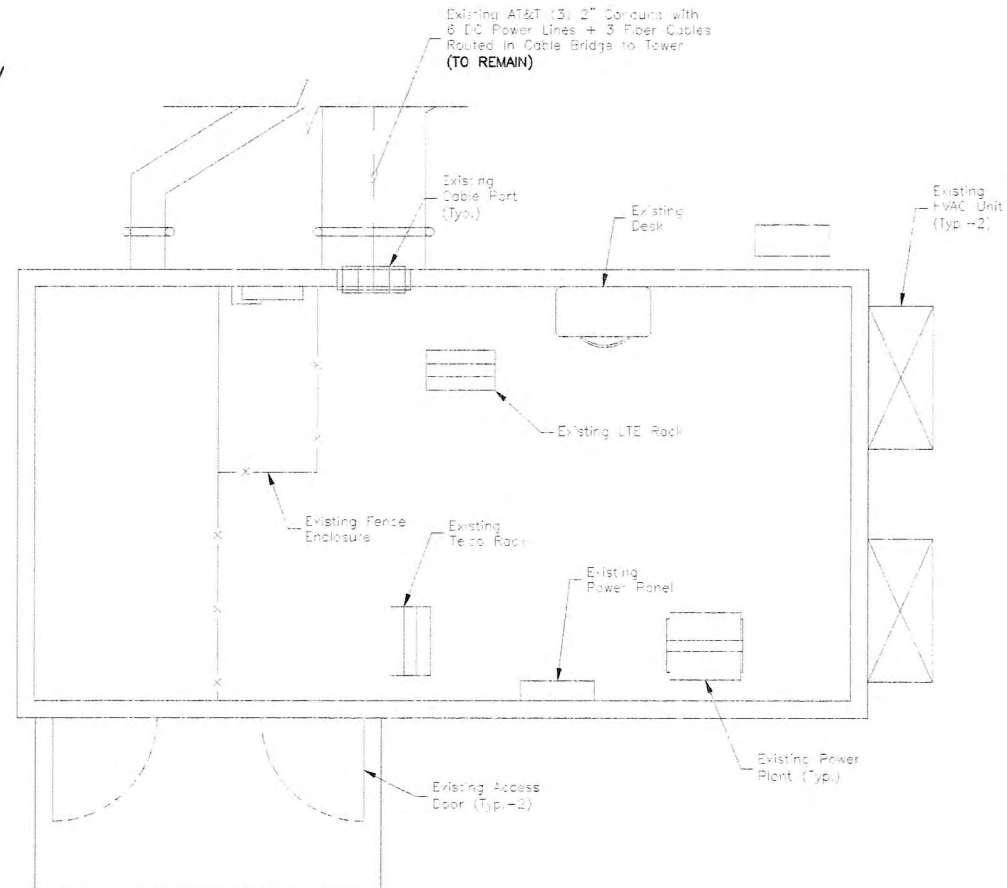
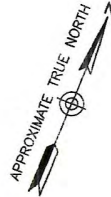
303 BOXWOOD LANE
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SHEET TITLE

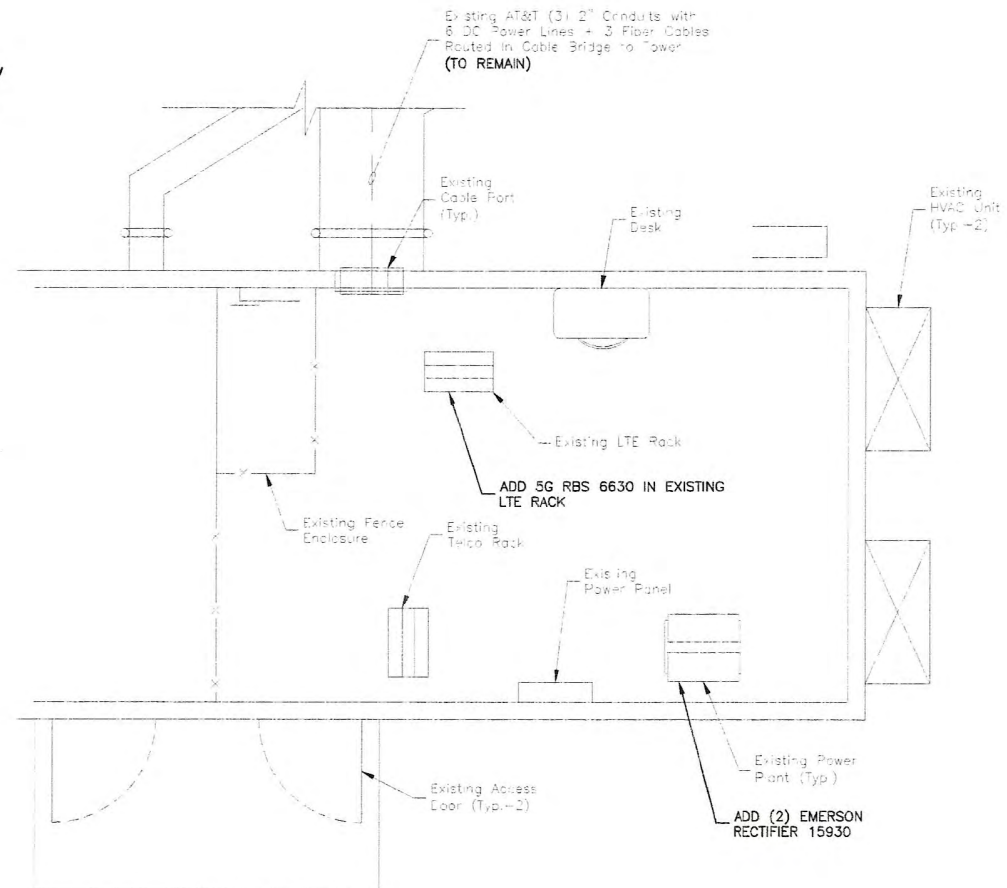
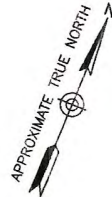
COMPOUND PLAN

SHEET NUMBER

C-1



EXISTING SHELTER LAYOUT ①
 SCALE: 3/16"=1' FOR 11"x17"
 3/8"=1' FOR 22"x34"
 0' 2' 4' 6'



PROPOSED SHELTER LAYOUT ②
 SCALE: 3/16"=1' FOR 11"x17"
 3/8"=1' FOR 22"x34"
 0' 2' 4' 6'



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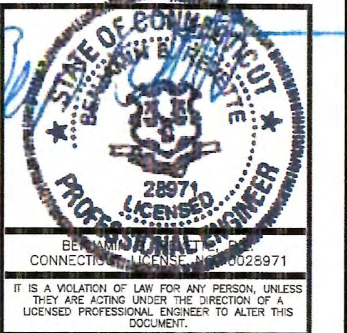
12 INDUSTRIAL WAY
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**CT0968
 DANBURY BOXWOOD
 LANE**

CONSTRUCTION DRAWINGS

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SHEET TITLE

EXISTING & PROPOSED
 SHELTER LAYOUTS

SHEET NUMBER



500 ENTERPRISE DRIVE SUITE 3A
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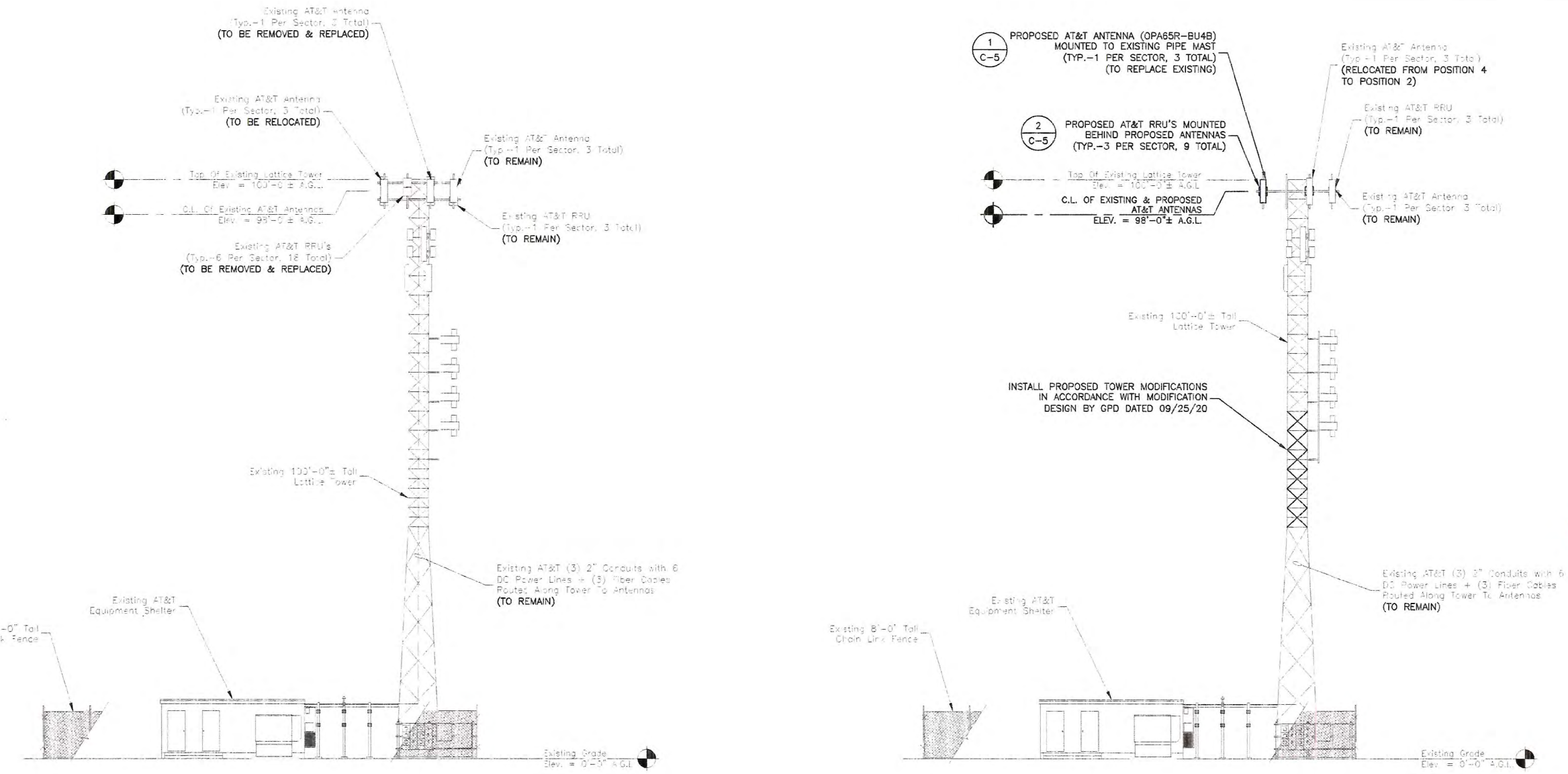
SHEET TITLE

EXISTING & PROPOSED
SOUTH ELEVATIONS

SHEET NUMBER

C-3

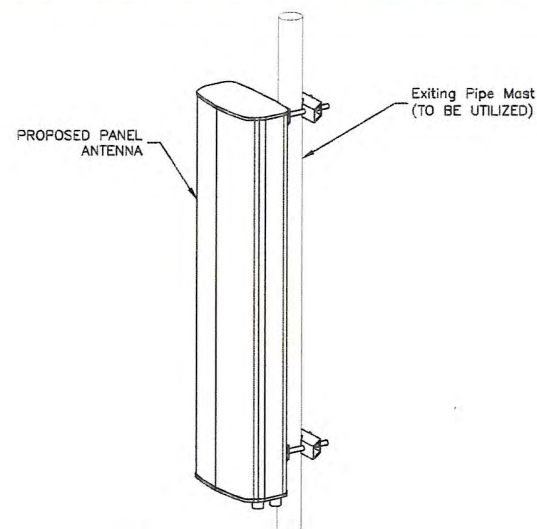
TOWER NOTE:
ALL PROPOSED EQUIPMENT AND TOWER MODIFICATIONS TO BE INSTALLED ACCORDING TO TOWER STRUCTURAL ANALYSIS AND TOWER MODIFICATION DESIGN BY GPD DATED 09/25/20. ALL MODIFICATIONS TO BE INSTALLED PRIOR TO EQUIPMENT INSTALLATION.



EXISTING SOUTH ELEVATION
SCALE: 3/64"=1' FOR 11"x17"
3/32"=1' FOR 22"x34"
0' 8' 16' 24'

PROPOSED SOUTH ELEVATION
SCALE: 3/64"=1' FOR 11"x17"
3/32"=1' FOR 22"x34"
0' 8' 16' 24'

- NOTES:**
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 - 6. ALL TOWER MODIFICATIONS AND MOUNT MODIFICATIONS TO BE INSTALLED PRIOR TO EQUIPMENT INSTALLATION.



NOTES:

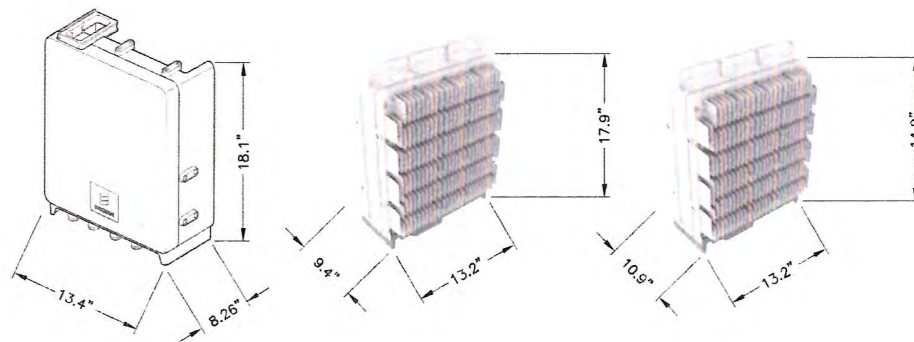
1. MOUNT ANTENNA PER MANUFACTURER'S RECOMMENDATIONS.
2. WEIGHT INCLUDES MOUNTING BRACKETS.

ANTENNA SPECIFICATIONS	
MANUFACTURER	CCI
MODEL NUMBER	OPA65R-BU4B
DIMENSIONS (HxWxD)	48.0" x 11.7" x 10.1"
WEIGHT	43.0 LBS

ANTENNA DETAIL

SCALE: N.T.S.

1



ERICSSON RRUS B14 4478

SPECIFICATIONS:
 HEIGHT: 18.1"
 WIDTH: 13.4"
 DEPTH: 8.26"
 WEIGHT: 59.4 LBS

ERICSSON RRUS B5/B12 4449

SPECIFICATIONS:
 HEIGHT: 17.9"
 WIDTH: 13.2"
 DEPTH: 9.4"
 WEIGHT: 70.4 LBS

ERICSSON RRUS B2/B66a 8843

SPECIFICATIONS:
 HEIGHT: 14.9"
 WIDTH: 13.2"
 DEPTH: 10.9"
 WEIGHT: 72.0 LBS

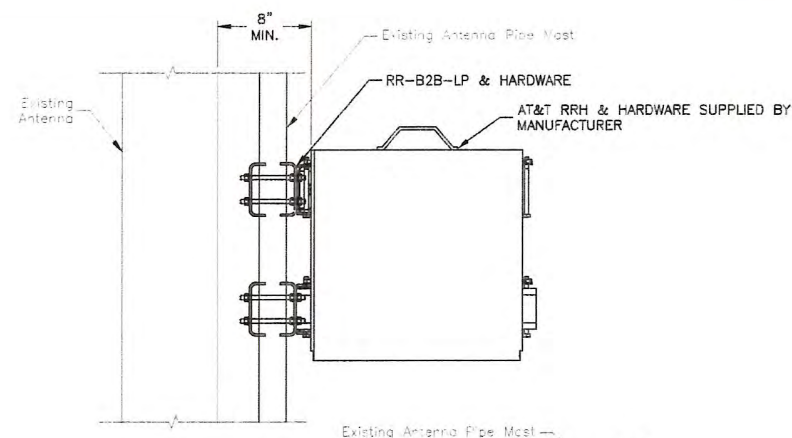
NOTES:

1. REMOTE RADIO UNITS SHALL BE MOUNTED TO A MINIMUM OF 8" FROM REAR OF ANTENNA.
2. INSTALL REMOTE RADIO UNITS IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
3. GROUND EQUIPMENT AND MOUNTS PER MANUFACTURER'S RECOMMENDATIONS & AT&T STANDARDS.
4. CONFIRM REQUIRED EQUIPMENT WITH THE LATEST RFDS.

REMOTE RADIO UNIT DETAILS

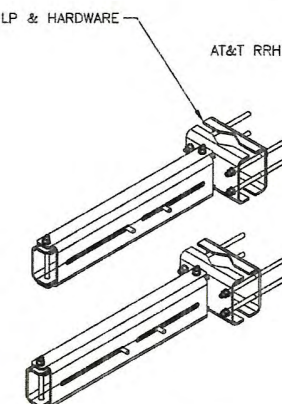
SCALE: N.T.S.

2



RR-B2B-LP & HARDWARE

AT&T RRH & HARDWARE SUPPLIED BY MANUFACTURER



RR-B2B-LP & HARDWARE

AT&T RRH & HARDWARE SUPPLIED BY MANUFACTURER

NOTES:

1. REMOTE RADIO UNITS SHALL BE MOUNTED TO A MINIMUM OF 8" FROM REAR OF ANTENNA.
2. INSTALL REMOTE RADIO UNITS IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
3. GROUND EQUIPMENT AND MOUNTS PER MANUFACTURER'S RECOMMENDATIONS & AT&T STANDARDS.
4. CONFIRM REQUIRED EQUIPMENT WITH THE LATEST RFDS.

RRH DUAL BRACKET MOUNT DETAIL

SCALE: N.T.S.

3

ANTENNA SCHEDULE

SECTOR	EXISTING/PROPOSED	BAND	ANTENNA	ANTENNA CENTERLINE	AZIMUTH	TMA/DIPLEXER	RRU	FEEDER	SURGE ARRESTORS
A1	EXISTING	LTE AWS	CCI OPA-65R-LCUU-H4	98'-0"±	60°	-	(E) ERICSSON RRUS-32 B30	(1) FIBER/ (2) DC	(E) (3) RAYCAP DC6-48-60-18-8C
A2	EXISTING (RELOCATED)	LTE 700 B14/AWS	SBNHH-1D65A	98'-0"±	60°	(P) ERICSSON 4478 B14			
A3	-	-	-	-	-	-			
A4	PROPOSED	LTE 700BC/850/PCS	CCI OPA65R-BU4B	98'-0"±	60°	(P) ERICSSON 4449 B5/B12 (P) ERICSSON 8843 B2/B66a			
B1	EXISTING	LTE AWS	CCI OPA-65R-LCUU-H4	98'-0"±	170°	-	(E) ERICSSON RRUS-32 B30	(1) FIBER/ (2) DC	
B2	EXISTING (RELOCATED)	LTE 700 B14/AWS	SBNHH-1D65A	98'-0"±	170°	(P) ERICSSON 4478 B14			
B3	-	-	-	-	-	-			
B4	PROPOSED	LTE 700BC/850/PCS	CCI OPA65R-BU4B	98'-0"±	170°	(P) ERICSSON 4449 B5/B12 (P) ERICSSON 8843 B2/B66a			
C1	EXISTING	LTE AWS	CCI OPA-65R-LCUU-H4	98'-0"±	300°	-	(E) ERICSSON RRUS-32 B30	(1) FIBER/ (2) DC	
C2	EXISTING (RELOCATED)	LTE 700 B14/AWS	SBNHH-1D65A	98'-0"±	300°	(P) ERICSSON 4478 B14			
C3	-	-	-	-	-	-			
C4	PROPOSED	LTE 700BC/850/PCS	CCI OPA65R-BU4B	98'-0"±	300°	(P) ERICSSON 4449 B5/B12 (P) ERICSSON 8843 B2/B66a			



500 ENTERPRISE DRIVE SUITE 3A
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12 INDUSTRIAL WAY
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**CT0968
 DANBURY BOXWOOD
 LANE**

CONSTRUCTION DRAWINGS

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REVIEWED BY: BSH

CHECKED BY: GHN

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JOB NUMBER: 50093835

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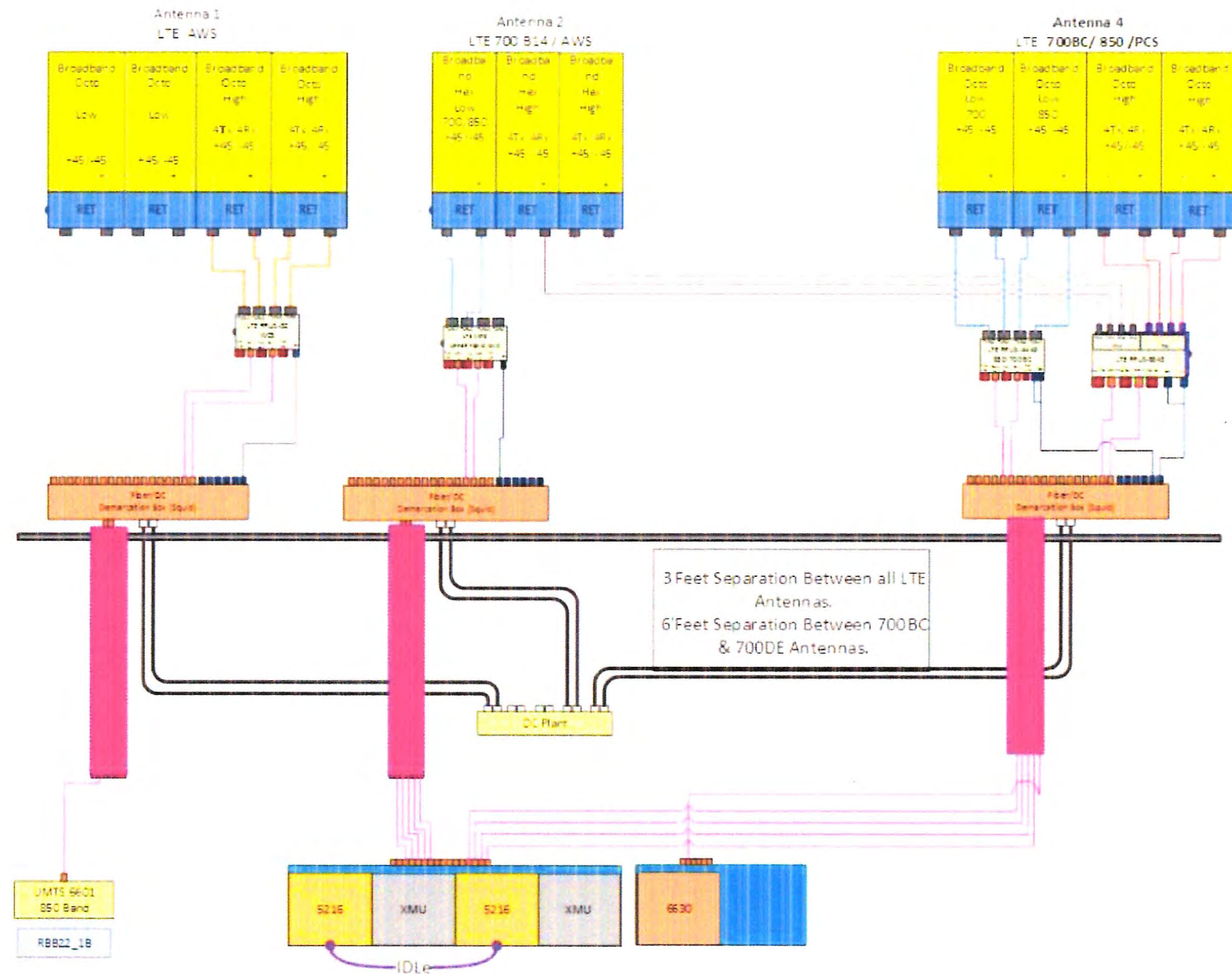
303 BOXWOOD LANE
 DANBURY, CT 06811

SHEET TITLE

CONSTRUCTION DETAILS

SHEET NUMBER

C-5



NOTE:
 1. PLUMBING DIAGRAM BASED ON RFDS V2.00 DATED 11/24/2020. CONFIRM FINAL PLUMBING DIAGRAM WITH THE LATEST RFDS.

PLUMBING DIAGRAM (1)
 SCALE: N.T.S.



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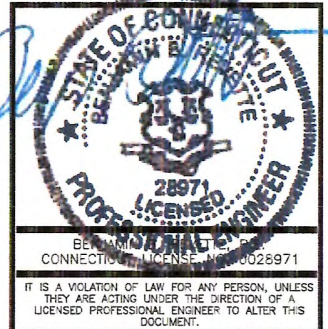
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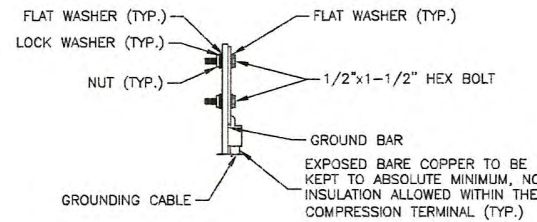
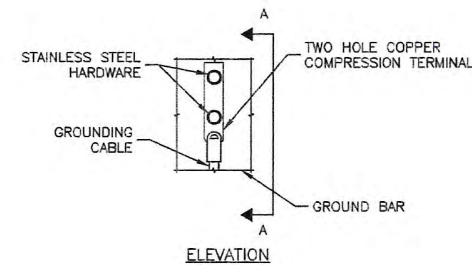
SHEET TITLE

PLUMBING DIAGRAM

SHEET NUMBER

GROUNDING NOTES:

1. THE CONTRACTOR 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) LIGHTNING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TERCORDIA AND TIA GROUNDING STANDARDS. THE CONTRACTOR 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 GE'S'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS. ALL AVAILABLE GROUNDING ELECTRODES SHALL BE CONNECTED TOGETHER IN ACCORDANCE WITH THE NEC.
3. THE CONTRACTOR SHALL PERFORM IEEE FALL-OFF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS. USE OF OTHER METHODS MUST BE PRE-APPROVED BY CONTRACTOR IN WRITING.
4. THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS ON TOWER SITES AND 10 OHMS OR LESS ON ROOFTOP SITES. WHEN ADDING ELECTRODES, CONTRACTOR SHALL MAINTAIN A MINIMUM DISTANCE BETWEEN THE ADDED ELECTRODE AND ANY OTHER EXISTING ELECTRODE EQUAL TO THE BURIED LENGTH OF THE ROD. IDEALLY, CONTRACTOR SHALL STRIVE TO KEEP THE SEPARATION DISTANCE EQUAL TO TWICE THE BURIED LENGTH OF THE RODS.
5. THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT.
6. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH 6 AWG COPPER WIRE AND UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
7. 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 TRANSMISSION EQUIPMENT.
8. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED. BACK-TO-BACK CONNECTIONS ON OPPOSITE SIDES OF THE GROUND BUS ARE PERMITTED.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED. IN ALL CASES, BENDS SHALL BE MADE WITH A MINIMUM BEND RADIUS OF 8 INCHES.
11. EACH INTERIOR TRANSMISSION CABINET FRAME/PLINTH SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH 6 AWG STRANDED, GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRE UNLESS NOTED OTHERWISE IN THE DETAILS. EACH OUTDOOR CABINET FRAME/PLINTH SHALL BE DIRECTLY CONNECTED TO THE BURIED GROUND RING WITH 2 AWG SOLID TIN-PLATED COPPER WIRE UNLESS NOTED OTHERWISE IN THE DETAILS.
12. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING, SHALL BE 2 AWG SOLID TIN-PLATED COPPER UNLESS OTHERWISE INDICATED.
13. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE. CONNECTIONS TO ABOVE GRADE UNITS SHALL BE MADE WITH EXOTHERMIC WELDS WHERE PRACTICAL OR WITH 2 HOLE MECHANICAL TYPE BRASS CONNECTORS WITH STAINLESS STEEL HARDWARE, INCLUDING SET SCREWS. HIGH PRESSURE CRIMP CONNECTORS MAY ONLY BE USED WITH WRITTEN PERMISSION FROM SAI COMMUNICATIONS MARKET REPRESENTATIVE.
14. EXOTHERMIC WELDS SHALL BE PERMITTED ON TOWERS ONLY WITH THE EXPRESS APPROVAL OF THE TOWER MANUFACTURER OR THE CONTRACTORS STRUCTURAL ENGINEER.
15. ALL WIRE TO WIRE GROUND CONNECTIONS TO THE INTERIOR GROUND RING SHALL BE FORMED USING HIGH PRESS CRIMPS OR SPLIT BOLT CONNECTORS WHERE INDICATED IN THE DETAILS.
16. ON ROOFTOP SITES WHERE EXOTHERMIC WELDS ARE A FIRE HAZARD COPPER COMPRESSION CAP CONNECTORS MAY BE USED FOR WIRE TO WIRE CONNECTORS. 2 HOLE MECHANICAL TYPE BRASS CONNECTORS WITH STAINLESS STEEL HARDWARE, INCLUDING SET SCREWS SHALL BE USED FOR CONNECTION TO ALL ROOFTOP TRANSMISSION EQUIPMENT AND STRUCTURAL STEEL.
17. COAX BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR USING TWO-HOLE MECHANICAL TYPE BRASS CONNECTORS AND STAINLESS STEEL HARDWARE.
18. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
19. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
20. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
21. BOND ALL METALLIC OBJECTS WITHIN 6 FT OF THE BURIED GROUND RING WITH 2 AWG SOLID TIN-PLATED COPPER GROUND CONDUCTOR. DURING EXCAVATION FOR NEW GROUND CONDUCTORS, IF EXISTING GROUND CONDUCTORS ARE ENCOUNTERED, BOND EXISTING GROUND CONDUCTORS TO NEW CONDUCTORS.
22. GROUND CONDUCTORS USED IN THE FACILITY GROUND AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC PLASTIC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (E.G., NON-METALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT WITH LISTED BONDING FITTINGS.



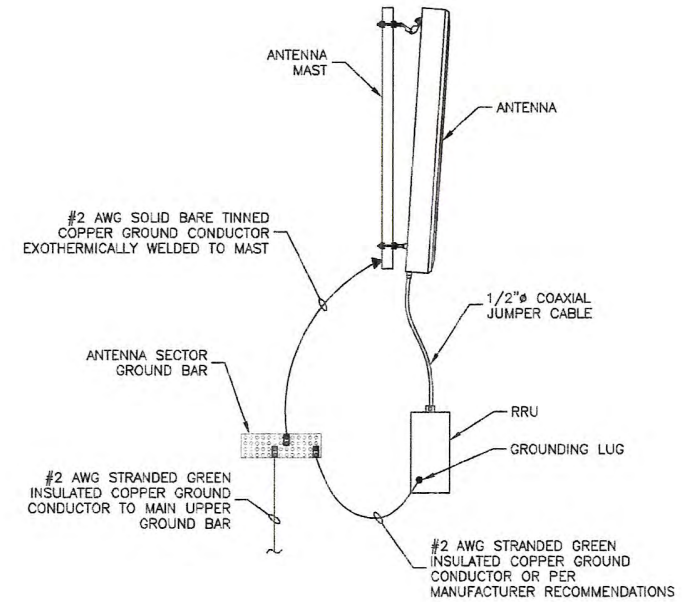
NOTES:

1. DOUBLING UP OR STACKING OF CONNECTIONS IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.

TYPICAL GROUND BAR MECHANICAL CONNECTION DETAIL

SCALE: N.T.S.

1



NOTES:

1. VERIFY EXISTING GROUNDING SYSTEM IS INSTALLED PER AT&T STANDARDS.
2. BOND NEW EQUIPMENT INTO EXISTING GROUND SYSTEM IN ACCORDANCE WITH AT&T STANDARDS & MANUFACTURER RECOMMENDATIONS..

TYPICAL ANTENNA/RRU GROUNDING DETAIL

SCALE: N.T.S.

2



500 ENTERPRISE DRIVE SUITE 3A
ROCKY HILL, CT 06067



12 INDUSTRIAL WAY
SALEM, NH 03079

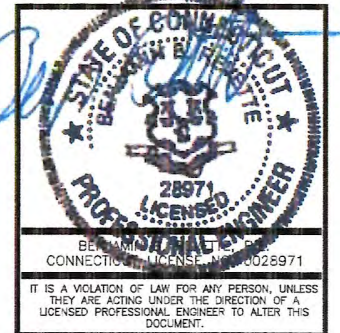
**CT0968
DANBURY BOXWOOD
LANE**

CONSTRUCTION DRAWINGS

0	12/10/20	ISSUED AS FINAL
B	11/17/20	ISSUED FOR REVIEW
A	02/17/19	ISSUED FOR REVIEW



Dewberry Engineers Inc.
600 PARSIPPANY ROAD
SUITE 301
PARSIPPANY, NJ 07054
PHONE: 973.739.9400
FAX: 973.739.9710



DRAWN BY:	LED
REVIEWED BY:	BSH
CHECKED BY:	GHN
PROJECT NUMBER:	50055106
JOB NUMBER:	50093835
SITE ADDRESS:	

303 BOXWOOD LANE
DANBURY, CT 06811

SHEET TITLE

GROUNDING NOTES
& DETAILS

SHEET NUMBER

STRUCTURAL NOTES:

- DESIGN REQUIREMENTS ARE PER STATE BUILDING CODE AND APPLICABLE SUPPLEMENTS, INTERNATIONAL BUILDING CODE, EIA/TIA-222-H STRUCTURAL STANDARDS FOR STEEL ANTENNA, TOWERS AND ANTENNA SUPPORTING STRUCTURES.
- CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. ANY UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ATTENTION OF THE CONSTRUCTION MANAGER AND ENGINEER OF RECORD.
- DESIGN AND CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".
- STRUCTURAL STEEL SHALL CONFORM TO ASTM A992 (Fy=50 ksi), MISCELLANEOUS STEEL SHALL CONFORM TO ASTM A36 UNLESS OTHERWISE INDICATED.
- STEEL PIPE SHALL CONFORM TO ASTM A500 "COLD-FORMED WELDED & SEAMLESS CARBON STEEL STRUCTURAL TUBING", GRADE B, OR ASTM A53 PIPE STEEL BLACK AND HOT-DIPPED ZINC-COATED WELDED AND SEAMLESS TYPE E OR S, GRADE B. PIPE SIZES INDICATED ARE NOMINAL. ACTUAL OUTSIDE DIAMETER IS LARGER.
- STRUCTURAL CONNECTION BOLTS SHALL BE HIGH STRENGTH BOLTS (BEARING TYPE) AND CONFORM TO ASTM A325 TYPE-X "HIGH STRENGTH BOLTS FOR STRUCTURAL JOINTS, INCLUDING SUITABLE NUTS AND PLAIN HARDENED WASHERS". ALL BOLTS SHALL BE 3/4" DIA UON.
- ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS OTHERWISE NOTED.
- ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC-COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS OTHERWISE NOTED.
- FIELD WELDS, DRILL HOLES, SAW CUTS AND ALL DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED WITH AN ORGANIC ZINC REPAIR PAINT COMPLYING WITH REQUIREMENTS OF ASTM A780. GALVANIZING REPAIR PAINT SHALL HAVE 65 PERCENT ZINC BY WEIGHT, ZIRP BY DUNCAN GALVANIZING, GALVA BRIGHT PREMIUM BY CROWN OR EQUAL. THICKNESS OF APPLIED GALVANIZING REPAIR PAINT SHALL BE NOT LESS THAN 4 COATS (ALLOW TIME TO DRY BETWEEN COATS) WITH A RESULTING COATING THICKNESS REQUIRED BY ASTM A123 OR A153 AS APPLICABLE.
- CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS, AND FOR METHODS USED IN CORRECTING WELDING. ALL WELDERS AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES". ALL WELDING SHALL BE DONE USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND D1.1. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "STEEL CONSTRUCTION MANUAL". 14TH EDITION.
- INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON-CONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE CONSTRUCTION MANAGER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE CONSTRUCTION MANAGER APPROVAL.
- UNISTRUT SHALL BE FORMED STEEL CHANNEL STRUT FRAMING AS MANUFACTURED BY UNISTRUT CORP., WAYNE, MI OR EQUAL. STRUT MEMBERS SHALL BE 1 5/8"x1 5/8"x12GA, UNLESS OTHERWISE NOTED, AND SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.
- EPOXY ANCHOR ASSEMBLY SHALL CONSIST OF STAINLESS STEEL ANCHOR ROD WITH NUTS & WASHERS, AN INTERNALLY THREADED INSERT, A SCREEN TUBE AND A EPOXY ADHESIVE. THE ANCHORING SYSTEM SHALL BE THE HILTI-HIT HY-270 AND OR HY-200 SYSTEMS (AS SPECIFIED IN DWG.) OR ENGINEERS APPROVED EQUAL.
- EXPANSION BOLTS SHALL CONFORM TO FEDERAL SPECIFICATION FF-S-325, GROUP II, TYPE 4, CLASS I, HILTI KWIK BOLT III OR APPROVED EQUAL. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- LUMBER SHALL COMPLY WITH THE REQUIREMENTS OF THE AMERICAN INSTITUTE OF TIMBER CONSTRUCTION AND THE NATIONAL FOREST PRODUCTS ASSOCIATION'S NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION. ALL LUMBER SHALL BE PRESSURE TREATED AND SHALL BE STRUCTURAL GRADE NO. 2 OR BETTER.
- WHERE ROOF PENETRATIONS ARE REQUIRED, THE CONTRACTOR SHALL CONTACT AND COORDINATE RELATED WORK WITH THE BUILDING OWNER AND THE EXISTING ROOF INSTALLER. WORK SHALL BE PERFORMED IN SUCH A MANNER AS TO NOT VOID THE EXISTING ROOF WARRANTY. ROOF SHALL BE WATERTIGHT.
- ALL FIBERGLASS MEMBERS USED ARE AS MANUFACTURED BY STRONGWELL COMPANY OF BRISTOL, VA 24203. ALL DESIGN CRITERIA FOR THESE MEMBERS IS BASED ON INFORMATION PROVIDED IN THE DESIGN MANUAL. ALL REQUIREMENTS PUBLISHED IN SAID MANUAL MUST BE STRICTLY ADHERED TO.
- NO MATERIALS TO BE ORDERED AND NO WORK TO BE COMPLETED UNTIL SHOP DRAWINGS HAVE BEEN REVIEWED AND APPROVED IN WRITING.
- SUBCONTRACTOR SHALL FIREPROOF ALL STEEL TO PRE-EXISTING CONDITIONS.

SPECIAL INSPECTIONS (REFERENCE IBC CHAPTER 17):

GENERAL: WHERE APPLICATION IS MADE FOR CONSTRUCTION, THE OWNER OR THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE ACTING AS THE OWNER'S AGENT SHALL EMPLOY ONE OR MORE APPROVED AGENCIES TO PERFORM INSPECTIONS DURING CONSTRUCTION ON THE TYPES OF WORK LISTED IN THE INSPECTION CHECKLIST ABOVE.

THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE AND ENGINEERS OF RECORD INVOLVED IN THE DESIGN OF THE PROJECT ARE PERMITTED TO ACT AS THE APPROVED AGENCY AND THEIR PERSONNEL ARE PERMITTED TO ACT AS THE SPECIAL INSPECTOR FOR THE WORK DESIGNED BY THEM, PROVIDED THOSE PERSONNEL MEET THE QUALIFICATION REQUIREMENTS.

STATEMENT OF SPECIAL INSPECTIONS: THE APPLICANT SHALL SUBMIT A STATEMENT OF SPECIAL INSPECTIONS PREPARED BY THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE IN ACCORDANCE WITH SECTION 107.1 AS A CONDITION FOR ISSUANCE. THIS STATEMENT SHALL BE IN ACCORDANCE WITH SECTION 1705.

REPORT REQUIREMENT: SPECIAL INSPECTORS SHALL KEEP RECORDS OF INSPECTIONS. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL, AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. REPORTS SHALL INDICATE THAT WORK INSPECTED WAS OR WAS NOT COMPLETED IN CONFORMANCE TO APPROVED CONSTRUCTION DOCUMENTS. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF THEY ARE NOT CORRECTED, THE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. A FINAL REPORT DOCUMENTING REQUIRED SPECIAL INSPECTIONS SHALL BE SUBMITTED.

SPECIAL INSPECTION CHECKLIST	
BEFORE CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
N/A	ENGINEER OF RECORD APPROVED SHOP DRAWINGS ¹
N/A	MATERIAL SPECIFICATIONS REPORT ²
N/A	FABRICATOR NDE INSPECTION
N/A	PACKING SLIPS ³
ADDITIONAL TESTING AND INSPECTIONS:	
DURING CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	STEEL INSPECTIONS
N/A	HIGH STRENGTH BOLT INSPECTIONS
N/A	HIGH WIND ZONE INSPECTIONS ⁴
N/A	FOUNDATION INSPECTIONS
N/A	CONCRETE COMP. STRENGTH, SLUMP TESTS AND PLACEMENT
N/A	POST INSTALLED ANCHOR VERIFICATION ⁵
N/A	GROUT VERIFICATION
N/A	CERTIFIED WELD INSPECTION
N/A	EARTHWORK: LIFT AND DENSITY
N/A	ON SITE COLD GALVANIZING VERIFICATION
N/A	GUY WIRE TENSION REPORT
ADDITIONAL TESTING AND INSPECTIONS:	
AFTER CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	MODIFICATION INSPECTOR REDLINE OR RECORD DRAWINGS ⁶
N/A	POST INSTALLED ANCHOR PULL-OUT TESTING
REQUIRED	PHOTOGRAPHS
ADDITIONAL TESTING AND INSPECTIONS:	




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



12 INDUSTRIAL WAY
SALEM, NH 03079

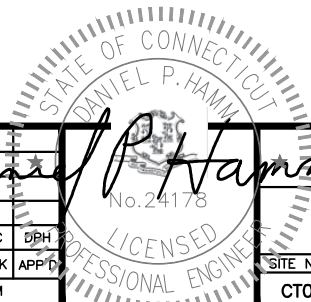
SITE NUMBER: CT0968
SITE NAME: DANBURY BOXWOOD LANE

303 BOXWOOD LANE
DANBURY, CT 06811
FAIRFIELD COUNTY



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

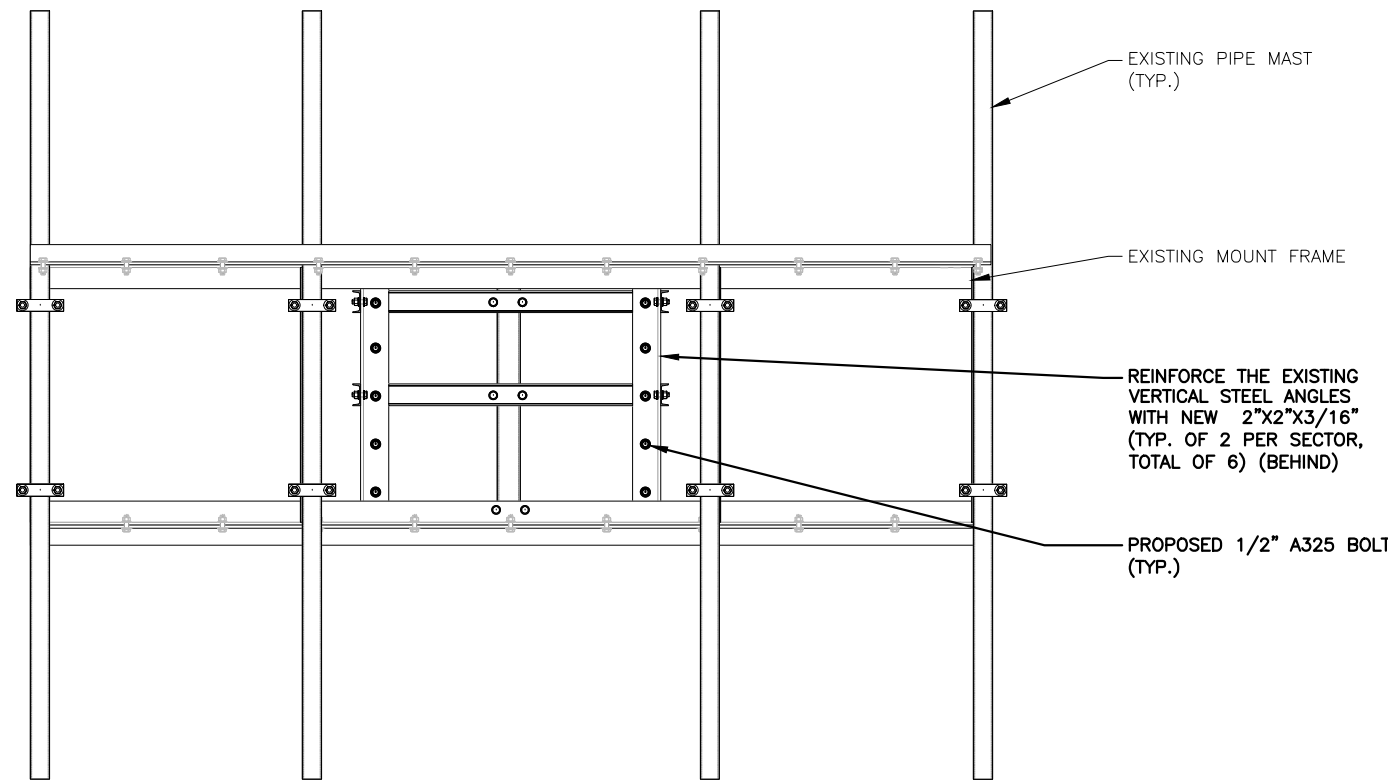
NO.	DATE	ISSUED FOR CONSTRUCTION	AM	HC	DPH
A	10/15/20	ISSUED FOR CONSTRUCTION			
		REVISIONS	BY	CHK	APP'D
SCALE: AS SHOWN		DESIGNED BY: HC	DRAWN BY: AM		



AT&T

STRUCTURAL NOTES
LTE 7C 2020 UPGRADE

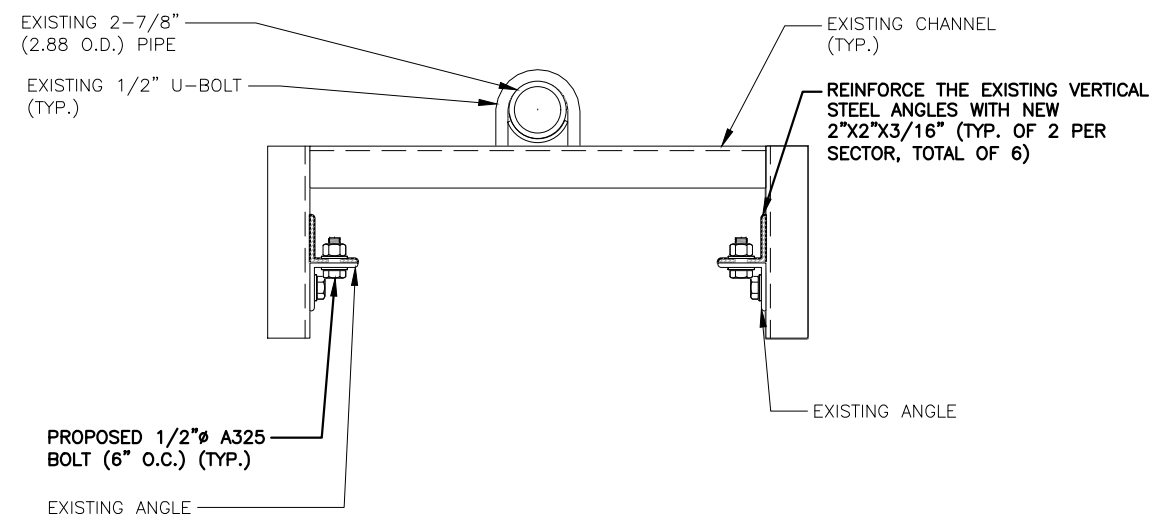
SITE NUMBER	DRAWING NUMBER	REV
CT0968	SN-1	A



PROPOSED MOUNT MODIFICATIONS DETAIL (FRONT)

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

1
S-1



PROPOSED CONNECTION DETAIL

22x34 SCALE: 3"=1'-0"
11x17 SCALE: 1-1/2"=1'-0"

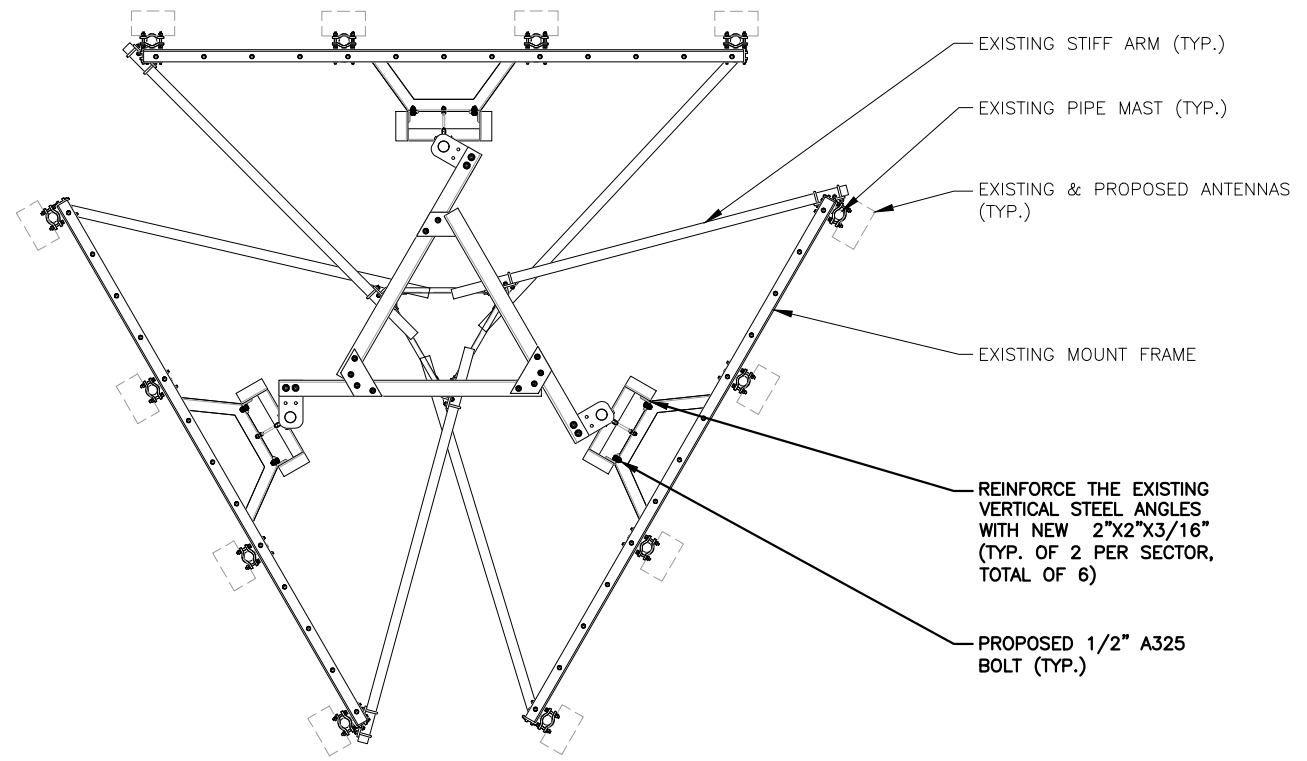
2
S-1



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

NOTE:
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING ANTENNA MOUNT TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: HUDSON DESIGN GROUP, LLC. DATED: JULY 26, 2020 (REV.1)

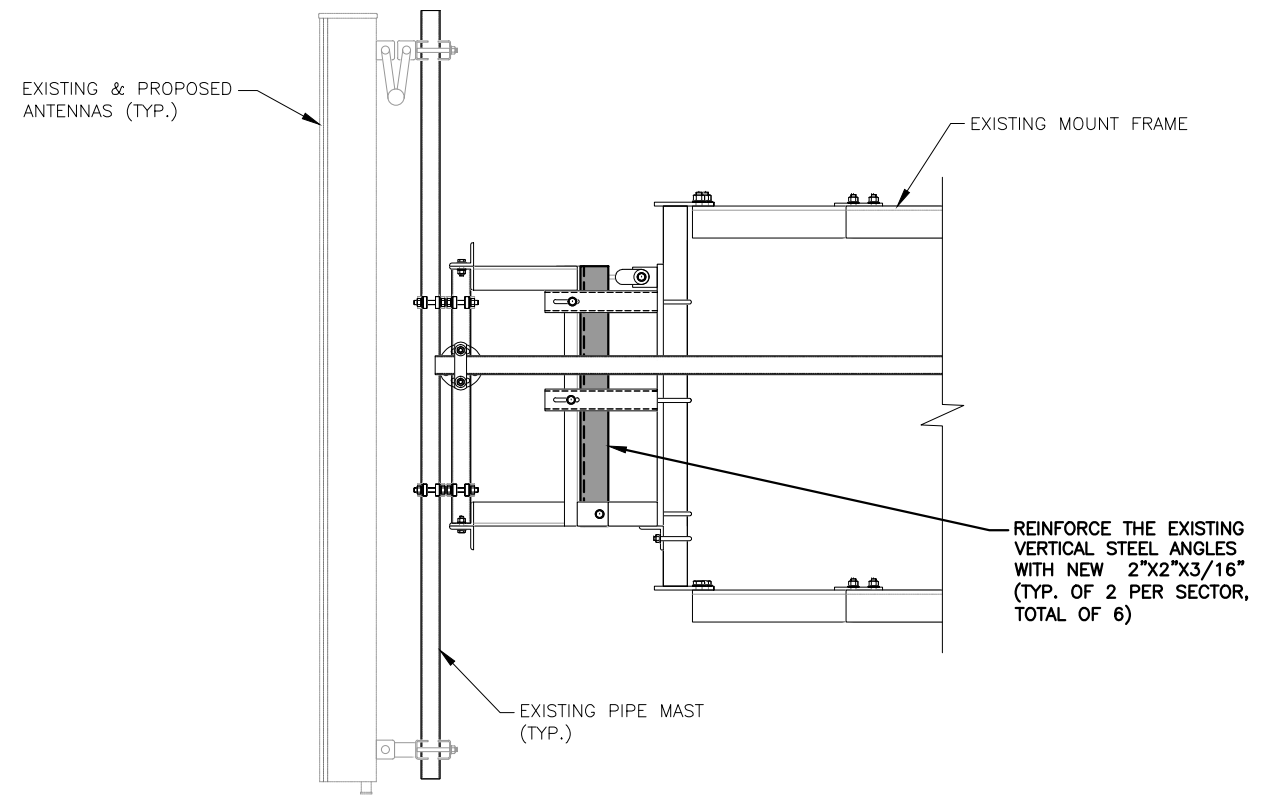
NOTE:
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION.



PROPOSED MOUNT REINFORCEMENT PLAN

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

3
S-1



PROPOSED MOUNT REINFORCEMENT DETAIL

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

4
S-1



45 BEECHWOOD DRIVE
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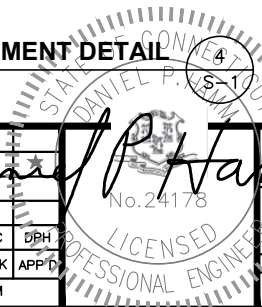
SITE NUMBER: CT0968
SITE NAME: DANBURY BOXWOOD LANE

303 BOXWOOD LANE
DANBURY, CT 06811
FAIRFIELD COUNTY



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

				AT&T		
				MOUNT MODIFICATION DESIGN LTE 7C 2020 UPGRADE		
NO.		DATE		REVISIONS		BY
A		10/15/20		ISSUED FOR CONSTRUCTION		AM
SCALE:		DESIGNED BY:		DRAWN BY:		
AS SHOWN		HC		AM		
SITE NUMBER		DRAWING NUMBER		REV		
CT0968		S-1		A		





SAI
 12 Industrial Way
 Salem, NH 03079
 (978) 807-2700



GPD Engineering and Architecture
 Professional Corporation

Chad Burton
 520 South Main Street, Suite 2531
 Akron, OH 44311
 (614) 859-1623
 cburton@gpdgroup.com

GPD# 2020723.13.170551.01
 September 25, 2020

RIGOROUS STRUCTURAL ANALYSIS REPORT WITH MODIFICAITON DESIGN

AT&T DESIGNATION: **USID #:** **170551**
 Site FA #: **12684103**
 Client #: **CT0968**
 Site Name: **DANBURY**

ANALYSIS CRITERIA: **Codes:** **TIA-222-G, 2015 IBC & 2018 Connecticut State Building Code**
 120 mph (ultimate 3-second gust) w/ 0" ice
 93 mph (nominal 3-second gust) w/ 0" ice
 50 mph (nominal 3-second gust) w/ 1" ice

SITE DATA: **303 Boxwood Lane, Danbury, CT 6811, Fairfield County**
 Latitude 41° 23' 40.99" N, Longitude 73° 29' 12.00" W
 Market: NEW ENGLAND
 100' Modified Nudd Self-Support Tower

Dear Warren Kelleher,

GPD is pleased to submit this Rigorous Structural Analysis Report to determine the structural integrity of the aforementioned tower. The purpose of the analysis is to determine the suitability of the tower with the existing and proposed loading configuration detailed in the analysis report.

Analysis Results

Tower Stress Level with Proposed Equipment:	96.8%	Pass
Foundation Ratio with Proposed Equipment:	77.1%	Pass

We at GPD appreciate the opportunity of providing our continuing professional services to you and SAI. If you have any questions or need further assistance on this or any other projects please do not hesitate to call.

Respectfully submitted,



Christopher J. Scheks, P.E.
 Connecticut #: 0030026

9/25/2020

SUMMARY & RESULTS

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

This analysis utilizes an ultimate 3-second gust wind speed of 120 mph (converted to an equivalent 93 mph nominal 3-second gust wind speed per Section 1609.3.1 for use with TIA-222 G) as required by the 2015 International Building Code & 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Appendices A & B.

Modifications designed by Centek Engineering (Job #: 10106, dated 8/13/2010) have been considered in this analysis. The flat plate modifications welded to the existing diagonals were found to be ineffective. Additional existing L3x3x5/16 modifications from 40' to 53' discovered in the tower mapping were found to be ineffective and were only included as wind area and weight.

Seismic loads were determined from spreadsheet calculations. It was concluded from these calculations that the wind loads control the maximum loading on the structure. The seismic loading case will not control.

The proposed coax shall be installed as shown in Appendices A & B for the analysis results to be valid.

In order for the analysis results to be valid for the existing, reserved, and proposed loading in Appendix A, the modifications referenced in the design drawings by GPD (Project #: 2020723.23.170551.01, dated 9/16/2020) must be installed.

TOWER SUMMARY AND RESULTS

Member	Capacity	Results
Legs	89.6%	Pass
Bracing	96.8%	Pass
Bolt Checks	64.2%	Pass
Anchor Rods	60.1%	Pass
Foundation	77.1%	Pass

RECOMMENDATIONS

The tower and its foundation will be sufficient for the loading configuration once the modifications designed by GPD (Project #: 2020723.23.170551.01, dated 9/16/2020, see Appendix D) are installed.

ANALYSIS METHOD

tnxTower (Version 8.0.7.5), a commercially available software program, was 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 the report appendices. The following table details the information provided to complete this structural analysis. This analysis is solely based on this information.

DOCUMENTS PROVIDED

Document	Remarks	Source
Proposed Loading	Email Correspondence with SAI, dated 4/29/2020	SAI
Tower Design	Fred A. Nudd Drawing #: 96-4992-1, dated 1/21/1997	SAI
Foundation Design	Fred A. Nudd Drawing #: 96-4992-2, dated 1/21/1997	SAI
Geotechnical Report	Not Provided	N/A
Previous Tower Analysis	Centek Project #: 19026.00, dated 5/17/2019	SAI
Tower Mapping	ETS Job #: 202609, dated 6/26/2020	SAI
Modification Design	Centek Job #: 10106, dated 8/13/2010	SAI
Modification Design	GPD Project #: 2020723.23.170551.01, dated 9/16/2020	GPD

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 appurtenance configuration is as supplied, determined from available photos, 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. 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.
4. The soil parameters are as per data supplied or as assumed and stated in the calculations.
5. Foundations are properly designed and constructed to resist the original design loads indicated in the documents provided.
6. The tower and structures have been properly maintained in accordance with TIA Standards and/or with manufacturer's specifications.
7. All welds and connections are assumed to develop at least the member capacity unless determined otherwise and explicitly stated in this report.
8. All prior structural modifications, if applicable, are assumed to be as per data supplied/available and to have been properly installed.
9. 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.
10. All existing and proposed loading has been taken from the available site photos as well as documents supplied to GPD at the time of generating this report. All such documents are listed in the Documents Provided Table and are assumed to be accurate. GPD is not responsible for loading scenarios outside those conveyed in the supplied documentation.

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 performed a 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 Comprehensive 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	DANBURY (CT0968)
Site Number	170551
FA Number	12684103
Date of Analysis	9/23/2020
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)	100'	
Tower Manufacturer	Fred A. Nudd Corporation	
Tower Model	100' S12BPA Cellular Tower	
Tower Design	Fred A. Nudd Drawing #: 96-4992-1	1/21/1997
Foundation Design	Fred A. Nudd Drawing #: 96-4992-2	1/21/1997
Geotechnical Report	Not Provided	1/0/1900
Previous Tower Analysis	Centek Project #: 19026.00	5/17/2019
Tower Mapping	ETS Job #: 202609	6/26/2020
Modification Design	Centek Job #: 10106	8/13/2010

Design Parameters

Design Code Used	TIA-222-G, 2015 IBC, & 2018 Connecticut State Building Code
Location of Tower (County, State)	Fairfield, CT
Wind Speed (mph)	93 (nominal 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 (%)	98.8%
Anchor Rods (%)	60.1%
Foundation (%)	77.1%
Foundation Adequate?	Yes

Steel Yield Strength (ksi)

Legs	50
Bracing	36
Bolts	A325
Anchor Rods	36

In order for the analysis results to be valid for the existing, reserved, and proposed loading in Appendix A, the modifications referenced in the design drawings by GPD (Project #: 2020723.23.170551.01, dated 9/16/2020) must be installed.

Existing / Reserved Loading

Antenna Owner	Mount Height (ft)	Antenna CL (ft)	Antenna				Mount			Transmission Line				
			Quantity	Type	Manufacturer	Model	Azimuth	Quantity	Manufacturer	Type	Quantity	Model	Size	Attachment Face/Leg
AT&T Mobility	98	98	3	Panel	Commscope	SBNHH-1D65A	60/190/300	3	Unknown	13' Sector Frames	6	DC Cable	3/4"	Face A
AT&T Mobility	98	98	6	Panel	CCI	OPA-65R-LCUU-H4	60/190/300			on the same mounts	3	Fiber Cable	3/8"	Face A
AT&T Mobility	98	98	6	RRU	Ericsson	RRUS 11				on the same mounts	1	RET	3/8"	Face A
AT&T Mobility	98	98	9	RRU	Ericsson	RRUS 32				on the same mounts				
AT&T Mobility	98	98	3	RRU	Ericsson	RRUS E2				on the same mounts				
AT&T Mobility	98	98	3	RRU	Ericsson	4478				on the same mounts				
AT&T Mobility	98	98	3	Squid	Raycap	DC6-48-60-18-8F				on the same mounts				
Unknown	94	94	1	Dish	Kathrein	Grid Dish	90			Direct Mounted	1	Unknown	1/2"	Face A
Sprint	89	89	3	Panel	RFS	APXVSP18-C-A20	30/150/270	3	Unknown	12.5' Sector Frames	4	Fiber	1-1/4"	Face B
Sprint	89	89	3	Panel	RFS	APXVTM14	30/150/270			on the same mounts				
Sprint	89	89	3	RRU	Alcatel Lucent	800 MHz RRH				on the same mounts				
Sprint	89	89	6	RRU	Alcatel Lucent	RRH 1900-4x45				on the same mounts				
Sprint	89	89	3	RRU	Alcatel Lucent	TD-RRH8x20				on the same mounts				
T-Mobile	81	83	3	Panel	Ericsson	Air 21	30/155/270	3	Unknown	9.5' Sector Frames	12	Unknown	1-5/8"	Face C
T-Mobile	81	83	3	Panel	Ericsson	Air 32	30/155/270			on the same mounts	2	Hybrid	1-5/8"	Face C
T-Mobile	81	81.5	3	Panel	Commscope	LNx-6515DS-A1M	30/155/270			on the same mounts				
T-Mobile	81	81	3	RRU	Ericsson	RRUS 11 B12				on the same mounts				
T-Mobile	81	81	3	TMA	Unknown	9"x10"x3" (TMA)				on the same mounts				
WCSU FM	62	62	1	FM	Shively Labs	6810 FM Antenna (4 Bays)	140	9	Unknown	1' Standoffs	1	Unknown	1-5/8"	Face A

Note: (3) CCI OPA-65R-LCUU-H4 Panels, (6) RRUS 11 RRUs, (6) RRUS 32 RRUs and (3) RRUS E2 RRUs at 98' shall be removed prior to the installation of the proposed loading and has not been considered in this analysis. All remaining existing/reserved equipment shall be reused.

Proposed Loading

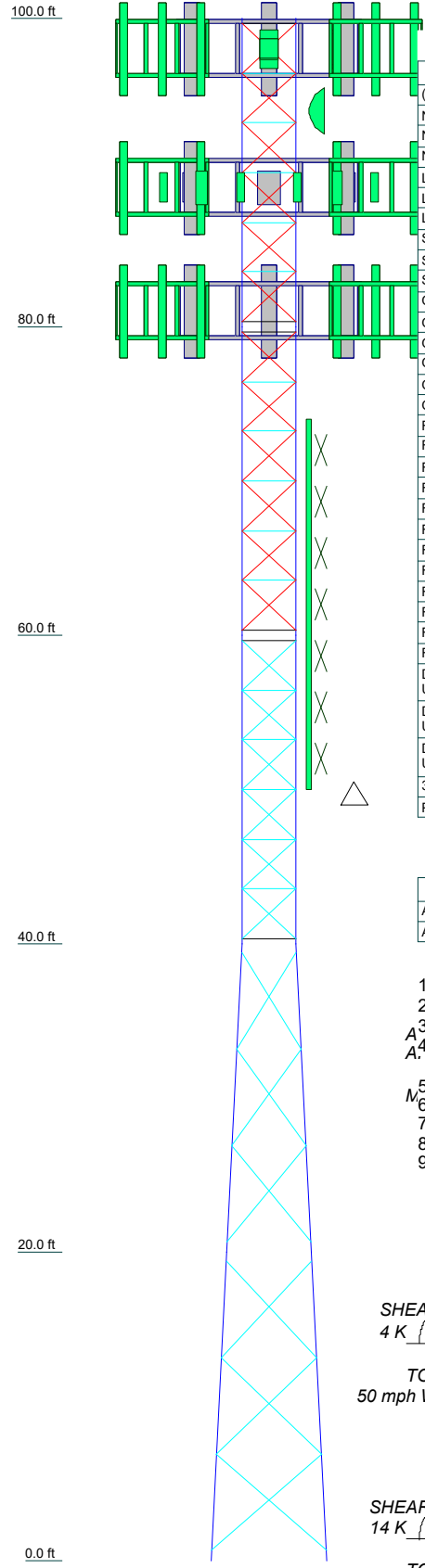
Antenna Owner	Mount Height (ft)	Antenna CL (ft)	Antenna				Mount			Transmission Line				
			Quantity	Type	Manufacturer	Model	Azimuth	Quantity	Manufacturer	Type	Quantity	Model	Size	Attachment Face/Leg
AT&T Mobility	98	98	3	Panel	CCI	OPA-65R-BU4B	Assumed			on the existing mounts				
AT&T Mobility	98	98	3	RRU	Ericsson	8843				on the existing mounts				
AT&T Mobility	98	98	3	RRU	Ericsson	4449				on the existing mounts				

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

APPENDIX B

Tower Analysis Output File

Section	T1	T2	T3	T4	T5
Legs	P 2-1/2 X-STR	P 2-1/2 X-STR (GR)	P 3 X-STR (GR)	P 5 STD (GR)	P 5 STD (GR)
Leg Grade	A500-50	A500M-61	A500M-61	A500-50	A500-50
Diagonals	SR 0.5/8	SR 0.625 w/ SR 0.75 (r Only) (GPD)	SR 0.625 w/ SR 0.75 (r Only) (GPD)	L2x2x3/16	L2-1/2x2-1/2x3/16
Diagonal Grade		A36	A36	N.A.	N.A.
Top Girts	L1-1/2x1-1/2x3/16	L1-1/2x1-1/2x3/16 (r-only) (GPD)	L1-1/2x1-1/2x3/16 w/ L1-1/2x1-1/2x3/16 (r-only) (GPD)	N.A.	N.A.
Bottom Girts	L1-1/2x1-1/2x3/16	L1-1/2x1-1/2x3/16 (r-only) (GPD)	L1-1/2x1-1/2x3/16 w/ L1-1/2x1-1/2x3/16 (r-only) (GPD)	N.A.	N.A.
Horizontals	L1-1/2x1-1/2x3/16	L1-1/2x1-1/2x3/16 (r-only) (GPD)	L1-1/2x1-1/2x3/16 w/ L1-1/2x1-1/2x3/16 (r-only) (GPD)	N.A.	N.A.
Face Width (ft)	3.5	18 @ 3.22222	18 @ 3.22222	5.5	5.5
# Panels @ (ft)				6 @ 6.25	6 @ 6.25
Weight (K)	0.8	1.0	1.3	2.4	2.6



DESIGNED APPURTENANCE LOADING

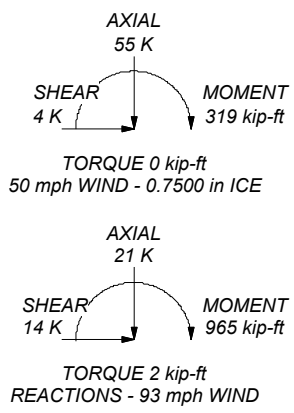
TYPE	ELEVATION	TYPE	ELEVATION
(2) Side Light	100	Pirod 12' Knockdown T-Frame	89
Nudd 12' Sector Mount	98	APXVSP18-C-A20 w/ Mount Pipe	89
Nudd 12' Sector Mount	98	APXVSP18-C-A20 w/ Mount Pipe	89
Nudd 12' Sector Mount	98	APXVSP18-C-A20 w/ Mount Pipe	89
L2.5x2.5x3/16 Mount Mods	98	APXVTM14-C-120 w/ Mount Pipe	89
L2.5x2.5x3/16 Mount Mods	98	APXVTM14-C-120 w/ Mount Pipe	89
L2.5x2.5x3/16 Mount Mods	98	APXVTM14-C-120 w/ Mount Pipe	89
SBNHH-1D65A w/ Mount Pipe	98	800 MHz RRH	89
SBNHH-1D65A w/ Mount Pipe	98	800 MHz RRH	89
SBNHH-1D65A w/ Mount Pipe	98	800 MHz RRH	89
OPA-65R-LCUU-H4 w/ Mount Pipe	98	(2) 1900MHz RRH	89
OPA-65R-LCUU-H4 w/ Mount Pipe	98	(2) 1900MHz RRH	89
OPA-65R-LCUU-H4 w/ Mount Pipe	98	(2) 1900MHz RRH	89
OPA65R-BU4B w/ Mount Pipe	98	TD-RRH8x20	89
OPA65R-BU4B w/ Mount Pipe	98	TD-RRH8x20	89
OPA65R-BU4B w/ Mount Pipe	98	TD-RRH8x20	89
RRUS 32	98	Pirod 12' Knockdown T-Frame	89
RRUS 32	98	Pirod 10' Lt. Wt. T-Frame	81
RRUS 32	98	Pirod 10' Lt. Wt. T-Frame	81
RRUS 4478	98	AIR 21 w/ Mount Pipe	81
RRUS 4478	98	AIR 21 w/ Mount Pipe	81
RRUS 4478	98	AIR 21 w/ Mount Pipe	81
RRUS 4478	98	AIR 32 w/ Mount Pipe	81
RRUS 4478	98	AIR 32 w/ Mount Pipe	81
RRUS 4478	98	AIR 32 w/ Mount Pipe	81
RRUS 4478	98	AIR 32 w/ Mount Pipe	81
RRUS 4478	98	AIR 32 w/ Mount Pipe	81
RRUS 8843	98	LNx-6515DS-A1M w/ Mount Pipe	81
RRUS 8843	98	LNx-6515DS-A1M w/ Mount Pipe	81
RRUS 8843	98	LNx-6515DS-A1M w/ Mount Pipe	81
DC6-48-60-18-8F Surge Suppression Unit	98	RRUS 11 B12	81
DC6-48-60-18-8F Surge Suppression Unit	98	RRUS 11 B12	81
DC6-48-60-18-8F Surge Suppression Unit	98	RRUS 11 B12	81
DC6-48-60-18-8F Surge Suppression Unit	98	KRY 112 76/1	81
DC6-48-60-18-8F Surge Suppression Unit	98	KRY 112 76/1	81
DC6-48-60-18-8F Surge Suppression Unit	98	KRY 112 76/1	81
3' Grid Dish	94	Pirod 10' Lt. Wt. T-Frame	81
Pirod 12' Knockdown T-Frame	89	6810 FM (4 Bay Half Wave)	74 - 50


MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A500-50	50 ksi	62 ksi	A500M-61	61 ksi	75 ksi
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-G Standard.
3. Tower designed for a 93 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. Grouted pipe f'c is 8,000 ksi
9. TOWER RATING: 96.8%
UPLIFT: -141 K
SHEAR: 9 K





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

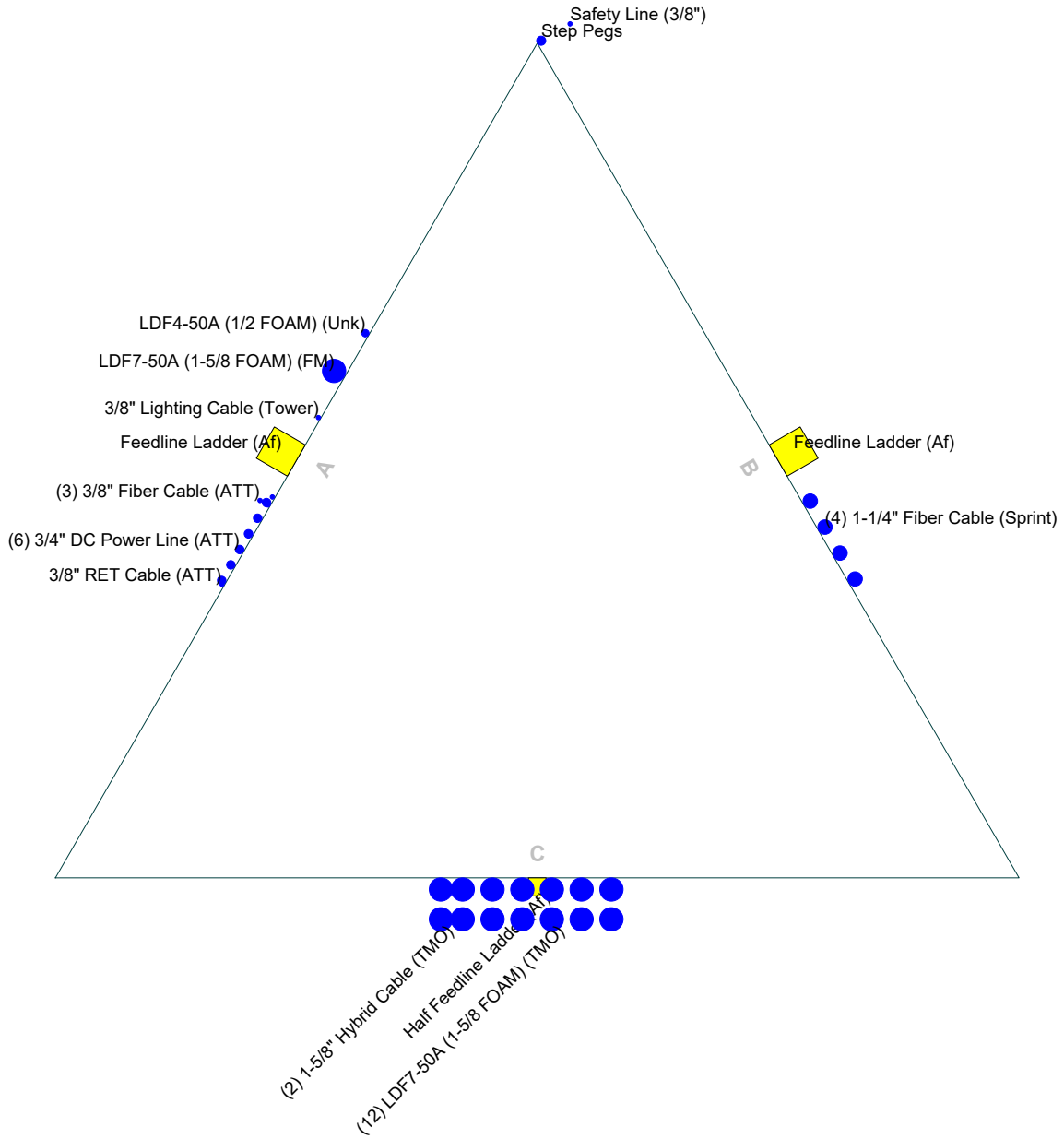
Job: **170551 (CT0968) - DANBURY**

Project: **2020723.13.170551.01**

Client: SAI	Drawn by: msteward	App'd:
Code: TIA-222-G	Date: 09/23/20	Scale: NTS
Path:		Dwg No. E-1

Feed Line Plan

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



GPD

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Akron, Ohio 44311
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FAX: (330) 572-2101

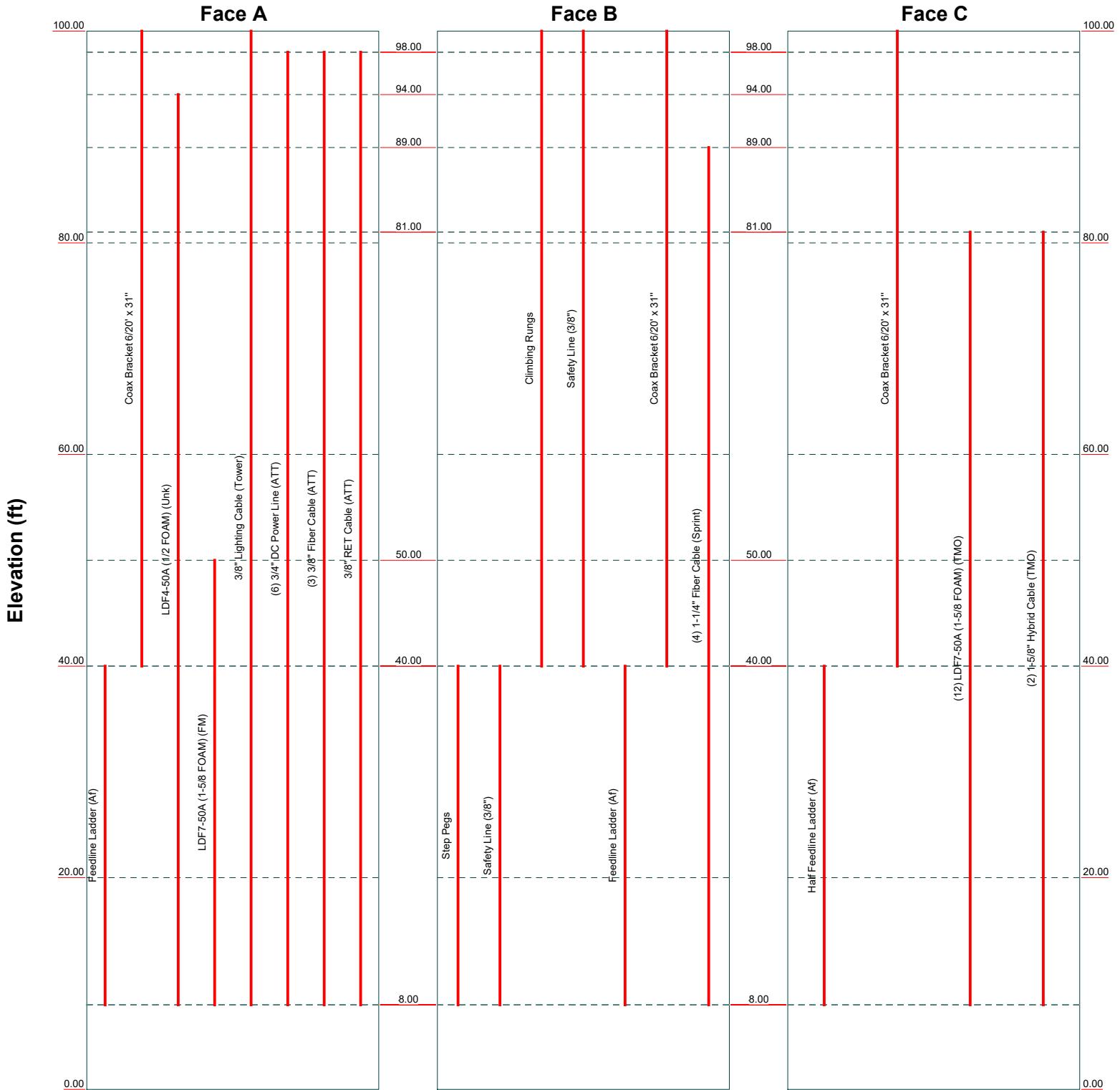
Job: 170551 (CT0968) - DANBURY		
Project: 2020723.13.170551.01		
Client: SAI	Drawn by: msteward	App'd:
Code: TIA-222-G	Date: 09/16/20	Scale: NTS
Path:	Dwg No. E-7	

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Feed Line Distribution Chart

0' - 100'

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



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	Project: 2020723.13.170551.01		
	Client: SAI	Drawn by: msteward	App'd:
	Code: TIA-222-G	Date: 09/16/20	Scale: NTS
	Path:		Dwg No. E-7

T:\ATrans\170551\01 2020723 13 170551 01 SAI Map_SA & MCD09_Structural\02_Modification\09_Riv 004_Modeling\170551.dwg

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	Project 2020723.13.170551.01	Date 09:03:03 09/23/20
	Client SAI	Designed by msteward

Tower Input Data

The main tower is a 3x free standing tower with an overall height of 100.00 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 3.50 ft at the top and 7.50 ft at the base.

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

The following design criteria apply:

Tower is located in Fairfield County, Connecticut.

ASCE 7-10 Wind Data is used (wind speeds converted to nominal values).

Basic wind speed of 93 mph.

Structure Class II.

Exposure Category B.

Topographic Category 1.

Crest Height 0.00 ft.

Nominal ice thickness of 0.7500 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.

Grouted pipe f_c is 8.000 ksi.

Pressures are calculated at each section.

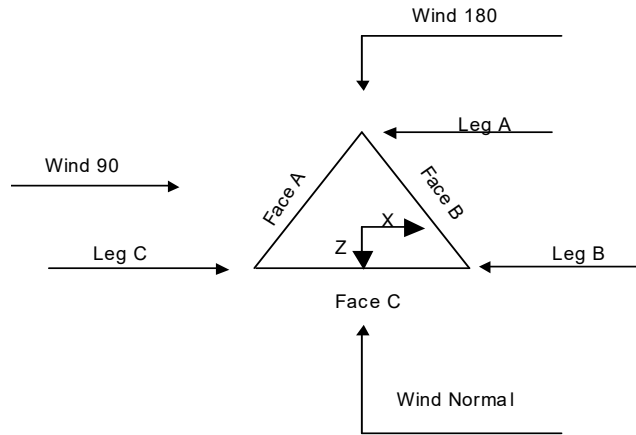
Stress ratio used in tower member design is 1.

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-G Bracing Resist. Exemption Use TIA-222-G 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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	Project 2020723.13.170551.01	Date 09:03:03 09/23/20
	Client SAI	Designed by msteward



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	<i>ft</i>			<i>ft</i>		<i>ft</i>
T1	100.00-80.00			3.50	1	20.00
T2	80.00-60.00			3.50	1	20.00
T3	60.00-40.00			3.50	1	20.00
T4	40.00-20.00			3.50	1	20.00
T5	20.00-0.00			5.50	1	20.00

Tower Section Geometry (cont'd)

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	<i>ft</i>	<i>ft</i>				<i>in</i>	<i>in</i>
T1	100.00-80.00	3.22	TX Brace	No	Yes	4.0000	4.0000
T2	80.00-60.00	3.22	TX Brace	No	Yes	4.0000	4.0000
T3	60.00-40.00	3.22	X Brace	No	Yes	4.0000	4.0000
T4	40.00-20.00	6.25	X Brace	No	No	7.5000	7.5000
T5	20.00-0.00	6.25	X Brace	No	No	7.5000	7.5000

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	Client	SAI	Designed by	msteward

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 100.00-80.00	Pipe	P 2-1/2 X-STR	A500-50 (50 ksi)	Solid Round	5/8	A36 (36 ksi)
T2 80.00-60.00	Grouted Pipe	P 2-1/2 X-STR	A500-50 (50 ksi)	Solid Round	5/8	A36 (36 ksi)
T3 60.00-40.00	Grouted Pipe	P 3 X-STR	A500M-61 (61 ksi)	Arbitrary Shape	SR 0.625 w/ SR 0.75 (r Only) (GPD)	A36 (36 ksi)
T4 40.00-20.00	Grouted Pipe	P 5 STD	A500-50 (50 ksi)	Equal Angle	L2x2x3/16	A36 (36 ksi)
T5 20.00-0.00	Grouted Pipe	P 5 STD	A500-50 (50 ksi)	Equal Angle	L2-1/2x2-1/2x3/16	A36 (36 ksi)

Tower Section Geometry (cont'd)

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 100.00-80.00	Equal Angle	L1-1/2x1-1/2x3/16	A36 (36 ksi)	Equal Angle	L1-1/2x1-1/2x3/16	A36 (36 ksi)
T2 80.00-60.00	Arbitrary Shape	L1-1/2x1-1/2x3/16 w/ L1-1/2x1-1/2x3/16 (r-only) (GPD)	A36 (36 ksi)	Arbitrary Shape	L1-1/2x1-1/2x3/16 w/ L1-1/2x1-1/2x3/16 (r-only) (GPD)	A36 (36 ksi)
T3 60.00-40.00	Arbitrary Shape	L1-1/2x1-1/2x3/16 w/ L1-1/2x1-1/2x3/16 (r-only) (GPD)	A36 (36 ksi)	Arbitrary Shape	L1-1/2x1-1/2x3/16 w/ L1-1/2x1-1/2x3/16 (r-only) (GPD)	A36 (36 ksi)

Tower Section Geometry (cont'd)

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 100.00-80.00	None	Flat Bar		A36 (36 ksi)	Equal Angle	L1-1/2x1-1/2x3/16	A36 (36 ksi)
T2 80.00-60.00	None	Flat Bar		A36 (36 ksi)	Arbitrary Shape	L1-1/2x1-1/2x3/16 w/ L1-1/2x1-1/2x3/16 (r-only) (GPD)	A36 (36 ksi)
T3 60.00-40.00	None	Flat Bar		A36 (36 ksi)	Arbitrary Shape	L1-1/2x1-1/2x3/16 w/ L1-1/2x1-1/2x3/16 (r-only) (GPD)	A36 (36 ksi)

Tower Section Geometry (cont'd)

Tower Elevation ft	Gusset Area (per face) ft ²	Gusset Thickness in	Gusset Grade	Adjust. Factor A _f	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T1	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000

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	Client	SAI	Designed by	msteward

Tower Section Geometry (cont'd)

Tower Elevation	Connection Offsets							
	Diagonal				K-Bracing			
	Vert. Top	Horiz. Top	Vert. Bot.	Horiz. Bot.	Vert. Top	Horiz. Top	Vert. Bot.	Horiz. Bot.
ft	in	in	in	in	in	in	in	in
T1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
100.00-80.00								
T2 80.00-60.00	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T3 60.00-40.00	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T4 40.00-20.00	2.0000	5.5000	2.0000	5.5000	0.0000	0.0000	0.0000	0.0000
T5 20.00-0.00	2.0000	5.5000	2.0000	5.5000	0.0000	0.0000	0.0000	0.0000

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg Connection Type	Leg Bolt Size in	Leg No.	Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
				Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1	Flange	0.7500	4	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
100.00-80.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T2 80.00-60.00	Flange	0.7500	4	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T3 60.00-40.00	Flange	1.0000	6	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T4 40.00-20.00	Flange	1.0000	6	0.6250	1	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T5 20.00-0.00	Flange	1.0000	0	0.6250	1	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
		A325N		A325N		A325N		A325N		A325N		A325N		A325N	

Grouted Pipe Properties

Size	F _y ksi	A _s in ²	A _c in ²	W _t plf	E _c ksi	E _m ksi	F _{ym} ksi
P 2-1/2 X-STR (GR)	50.000	2.2535	4.2383	16.498	5098.235	36670.663	62.789
P 3 X-STR (GR)	55.000	3.0159	6.6052	24.023	5098.235	37932.533	69.893
P 5 STD (GR)	50.000	4.2995	20.0019	56.301	5098.235	47974.321	81.635

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
Step Pegs	B	No	No	Ar (CaAa)	40.00 - 8.00	0.0000	-0.5	1	1	0.8000	0.8000		0.003
Safety Line (3/8")	B	No	No	Ar (CaAa)	40.00 - 8.00	3.0000	-0.5	1	1	0.3750	0.3750		0.000
Climbing Rungs	B	No	No	Ar (CaAa)	100.00 - 40.00	0.0000	-0.25	1	1	1.3330	0.1250		0.001
Safety Line	B	No	No	Ar (CaAa)	100.00 -	3.0000	-0.25	1	1	0.3750	0.3750		0.000

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	Client SAI	Designed by msteward

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
(3/8")					40.00								
Feedline Ladder (Af)	A	No	No	Af (CaAa)	40.00 - 8.00	0.0000	0	1	1	3.0000	3.0000		0.008
Feedline Ladder (Af)	B	No	No	Af (CaAa)	40.00 - 8.00	0.0000	0	1	1	3.0000	3.0000		0.008
Half Feedline Ladder (Af)	C	No	No	Af (CaAa)	40.00 - 8.00	0.0000	0	1	1	1.5000	1.5000		0.004
Coax Bracket 6/20' x 31"	A	No	No	Ar (CaAa)	100.00 - 40.00	0.0000	0	1	1	1.5500	1.5500		0.001
Coax Bracket 6/20' x 31"	B	No	No	Ar (CaAa)	100.00 - 40.00	0.0000	0	1	1	1.5500	1.5500		0.001
Coax Bracket 6/20' x 31"	C	No	No	Ar (CaAa)	100.00 - 40.00	0.0000	0	1	1	1.5500	1.5500		0.001
LDF4-50A (1/2 FOAM) (Unk)	A	No	No	Ar (CaAa)	94.00 - 8.00	0.0000	0.15	1	1	0.6300	0.6300		0.000
LDF7-50A (1-5/8 FOAM) (FM)	A	No	No	Ar (CaAa)	50.00 - 8.00	0.0000	0.1	1	1	1.9800	1.9800		0.001
3/8" Lighting Cable (Tower)	A	No	No	Ar (CaAa)	100.00 - 8.00	0.0000	0.05	1	1	0.6300	0.3800		0.000
3/4" DC Power Line (ATT)	A	No	No	Ar (CaAa)	98.00 - 8.00	0.0000	-0.1	6	6	0.7500	0.7500		0.000
3/8" Fiber Cable (ATT)	A	No	No	Ar (CaAa)	98.00 - 8.00	0.0000	-0.05	3	2	0.3750	0.3750		0.000
3/8" RET Cable (ATT)	A	No	No	Ar (CaAa)	98.00 - 8.00	0.0000	-0.15	1	1	0.3750	0.3750		0.000
1-1/4" Fiber Cable (Sprint)	B	No	No	Ar (CaAa)	89.00 - 8.00	0.0000	0.1	4	4	1.2500	1.2500		0.001
LDF7-50A (1-5/8 FOAM) (TMO)	C	No	No	Ar (CaAa)	81.00 - 8.00	0.0000	0	12	6	0.5000	1.9800		0.001
1-5/8" Hybrid Cable (TMO)	C	No	No	Ar (CaAa)	81.00 - 8.00	0.0000	0.1	2	1	0.5000	1.9800		0.001

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
(2) Side Light	A	From Leg	0.00	0.000	100.00	No Ice	0.33	0.007
			0.000			1/2" Ice	0.47	0.007
			1.000			1" Ice	0.60	0.007
Nudd 12' Sector Mount	A	From Centroid-Face	4.00	0.000	98.00	No Ice	14.48	0.310
			0.000			1/2" Ice	18.67	0.454
			0.000			1" Ice	22.86	0.598
Nudd 12' Sector Mount	B	From	4.00	0.000	98.00	No Ice	14.48	0.310

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
			Horz Lateral ft	Vert ft					
Nudd 12' Sector Mount	C	Centroid-Fa	0.000		0.000	98.00	1/2" Ice	9.23	0.454
		ce	0.000				1" Ice	11.24	0.598
		From	4.00				No Ice	7.22	0.310
L2.5x2.5x3/16 Mount Mods	A	Centroid-Fa	0.000		0.000	98.00	1/2" Ice	9.23	0.454
		ce	0.000				1" Ice	11.24	0.598
		From	4.00				No Ice	10.83	0.080
L2.5x2.5x3/16 Mount Mods	B	Centroid-Fa	0.000		0.000	98.00	1/2" Ice	0.20	0.084
		ce	0.000				1" Ice	0.30	0.088
		From	4.00				No Ice	0.10	0.080
L2.5x2.5x3/16 Mount Mods	C	Centroid-Fa	0.000		0.000	98.00	1/2" Ice	0.20	0.084
		ce	0.000				1" Ice	0.30	0.088
		From	4.00				No Ice	0.10	0.080
SBNHH-1D65A w/ Mount Pipe	A	Centroid-Fa	0.000		0.000	98.00	1/2" Ice	0.20	0.084
		ce	0.000				1" Ice	0.30	0.088
		From	5.00				No Ice	5.19	0.061
SBNHH-1D65A w/ Mount Pipe	B	Centroid-Fa	0.000		0.000	98.00	1/2" Ice	5.96	0.115
		ce	0.000				1" Ice	6.66	0.175
		From	5.00				No Ice	5.19	0.061
SBNHH-1D65A w/ Mount Pipe	C	Centroid-Fa	0.000		0.000	98.00	1/2" Ice	5.96	0.115
		ce	0.000				1" Ice	6.66	0.175
		From	5.00				No Ice	5.19	0.061
OPA-65R-LCUU-H4 w/ Mount Pipe	A	Centroid-Fa	0.000		0.000	98.00	1/2" Ice	5.40	0.126
		ce	0.000				1" Ice	5.97	0.186
		From	5.00				No Ice	4.84	0.072
OPA-65R-LCUU-H4 w/ Mount Pipe	B	Centroid-Fa	0.000		0.000	98.00	1/2" Ice	5.40	0.126
		ce	0.000				1" Ice	5.97	0.186
		From	5.00				No Ice	4.84	0.072
OPA-65R-LCUU-H4 w/ Mount Pipe	C	Centroid-Fa	0.000		0.000	98.00	1/2" Ice	5.40	0.126
		ce	0.000				1" Ice	5.97	0.186
		From	5.00				No Ice	4.84	0.072
OPA65R-BU4B w/ Mount Pipe	A	Centroid-Fa	0.000		0.000	98.00	1/2" Ice	5.80	0.123
		ce	0.000				1" Ice	6.38	0.180
		From	5.00				No Ice	5.24	0.072
OPA65R-BU4B w/ Mount Pipe	B	Centroid-Fa	0.000		0.000	98.00	1/2" Ice	5.80	0.123
		ce	0.000				1" Ice	6.38	0.180
		From	5.00				No Ice	5.24	0.072
OPA65R-BU4B w/ Mount Pipe	C	Centroid-Fa	0.000		0.000	98.00	1/2" Ice	5.80	0.123
		ce	0.000				1" Ice	6.38	0.180
		From	5.00				No Ice	5.24	0.072
RRUS 32	A	Centroid-Fa	0.000		0.000	98.00	1/2" Ice	2.64	0.105
		ce	0.000				1" Ice	2.86	0.136
		From	5.00				No Ice	2.42	0.077
RRUS 32	B	Centroid-Fa	0.000		0.000	98.00	1/2" Ice	2.64	0.105
		ce	0.000				1" Ice	2.86	0.136
		From	5.00				No Ice	2.42	0.077
RRUS 32	C	Centroid-Fa	0.000		0.000	98.00	1/2" Ice	2.64	0.105
		ce	0.000				1" Ice	2.86	0.136
		From	5.00				No Ice	2.42	0.077
RRUS 4478	A	Centroid-Fa	0.000		0.000	98.00	1/2" Ice	1.20	0.076
		ce	0.000				1" Ice	1.34	0.094
		From	5.00				No Ice	1.06	0.060
RRUS 4478	B	Centroid-Fa	0.000		0.000	98.00	1/2" Ice	1.20	0.076
		ce	0.000				1" Ice	1.34	0.094
		From	5.00				No Ice	1.06	0.060
RRUS 4478	C	Centroid-Fa	0.000		0.000	98.00	1/2" Ice	1.20	0.076
		ce	0.000				1" Ice	1.34	0.094
		From	5.00				No Ice	1.06	0.060

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight	
			Horz Lateral	Vert						
			ft	ft	°	ft	ft ²	ft ²	K	
RRUS 4449	A	Centroid-Fa	0.000		0.000	98.00	1/2" Ice	2.01	1.20	0.076
		ce	0.000				1" Ice	2.19	1.34	0.094
		From	5.00				No Ice	1.65	1.16	0.070
RRUS 4449	B	Centroid-Fa	0.000		0.000	98.00	1/2" Ice	1.81	1.30	0.086
		ce	0.000				1" Ice	1.98	1.45	0.105
		From	5.00				No Ice	1.65	1.16	0.070
RRUS 4449	C	Centroid-Fa	0.000		0.000	98.00	1/2" Ice	1.81	1.30	0.086
		ce	0.000				1" Ice	1.98	1.45	0.105
		From	5.00				No Ice	1.65	1.16	0.070
RRUS 8843	A	Centroid-Fa	0.000		0.000	98.00	1/2" Ice	1.81	1.30	0.086
		ce	0.000				1" Ice	1.98	1.45	0.105
		From	5.00				No Ice	1.98	1.70	0.075
RRUS 8843	B	Centroid-Fa	0.000		0.000	98.00	1/2" Ice	2.16	1.86	0.096
		ce	0.000				1" Ice	2.34	2.04	0.119
		From	5.00				No Ice	1.98	1.70	0.075
RRUS 8843	C	Centroid-Fa	0.000		0.000	98.00	1/2" Ice	2.16	1.86	0.096
		ce	0.000				1" Ice	2.34	2.04	0.119
		From	5.00				No Ice	1.98	1.70	0.075
DC6-48-60-18-8F Surge Suppression Unit	A	Centroid-Fa	0.000		0.000	98.00	1/2" Ice	2.16	1.86	0.096
		ce	0.000				1" Ice	2.34	2.04	0.119
		From	5.00				No Ice	0.92	0.92	0.019
DC6-48-60-18-8F Surge Suppression Unit	B	Centroid-Fa	0.000		0.000	98.00	1/2" Ice	1.46	1.46	0.037
		ce	0.000				1" Ice	1.64	1.64	0.057
		From	5.00				No Ice	0.92	0.92	0.019
DC6-48-60-18-8F Surge Suppression Unit	C	Centroid-Fa	0.000		0.000	98.00	1/2" Ice	1.46	1.46	0.037
		ce	0.000				1" Ice	1.64	1.64	0.057
		From	5.00				No Ice	0.92	0.92	0.019
Pirod 12' Knockdown T-Frame	A	From Leg	1.50		30.000	89.00	No Ice	9.76	7.05	0.284
			0.000				1/2" Ice	13.67	10.13	0.411
			0.000				1" Ice	17.58	13.21	0.539
Pirod 12' Knockdown T-Frame	B	From Leg	1.50		30.000	89.00	No Ice	9.76	7.05	0.284
			0.000				1/2" Ice	13.67	10.13	0.411
			0.000				1" Ice	17.58	13.21	0.539
Pirod 12' Knockdown T-Frame	C	From Leg	1.50		30.000	89.00	No Ice	9.76	7.05	0.284
			0.000				1/2" Ice	13.67	10.13	0.411
			0.000				1" Ice	17.58	13.21	0.539
APXVSPP18-C-A20 w/ Mount Pipe	A	From Leg	3.00		30.000	89.00	No Ice	8.02	6.71	0.079
			0.000				1/2" Ice	8.48	7.66	0.144
			0.000				1" Ice	8.94	8.49	0.217
APXVSPP18-C-A20 w/ Mount Pipe	B	From Leg	3.00		30.000	89.00	No Ice	8.02	6.71	0.079
			0.000				1/2" Ice	8.48	7.66	0.144
			0.000				1" Ice	8.94	8.49	0.217
APXVSPP18-C-A20 w/ Mount Pipe	C	From Leg	3.00		30.000	89.00	No Ice	8.02	6.71	0.079
			0.000				1/2" Ice	8.48	7.66	0.144
			0.000				1" Ice	8.94	8.49	0.217
APXVTM14-C-120 w/ Mount Pipe	A	From Leg	3.00		30.000	89.00	No Ice	6.58	4.96	0.077
			0.000				1/2" Ice	7.03	5.75	0.131
			0.000				1" Ice	7.47	6.47	0.193
APXVTM14-C-120 w/ Mount Pipe	B	From Leg	3.00		30.000	89.00	No Ice	6.58	4.96	0.077
			0.000				1/2" Ice	7.03	5.75	0.131
			0.000				1" Ice	7.47	6.47	0.193
APXVTM14-C-120 w/ Mount Pipe	C	From Leg	3.00		30.000	89.00	No Ice	6.58	4.96	0.077
			0.000				1/2" Ice	7.03	5.75	0.131
			0.000				1" Ice	7.47	6.47	0.193
800 MHz RRH	A	From Leg	3.00		30.000	89.00	No Ice	1.70	1.28	0.053

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<i>Description</i>	<i>Face or Leg</i>	<i>Offset Type</i>	<i>Offsets: Horz Lateral Vert</i>	<i>Azimuth Adjustment</i>	<i>Placement</i>	<i>C_{AA} Front</i>	<i>C_{AA} Side</i>	<i>Weight</i>
			<i>ft</i>	<i>°</i>	<i>ft</i>	<i>ft²</i>	<i>ft²</i>	<i>K</i>
			0.000			1/2" Ice	1.86	0.070
			0.000			1" Ice	2.03	0.090
800 MHz RRH	B	From Leg	3.00	30.000	89.00	No Ice	1.70	0.053
			0.000			1/2" Ice	1.86	0.070
			0.000			1" Ice	2.03	0.090
800 MHz RRH	C	From Leg	3.00	30.000	89.00	No Ice	1.70	0.053
			0.000			1/2" Ice	1.86	0.070
			0.000			1" Ice	2.03	0.090
(2) 1900MHz RRH	A	From Leg	3.00	30.000	89.00	No Ice	2.49	0.044
			0.000			1/2" Ice	2.70	0.075
			0.000			1" Ice	2.91	0.110
(2) 1900MHz RRH	B	From Leg	3.00	30.000	89.00	No Ice	2.49	0.044
			0.000			1/2" Ice	2.70	0.075
			0.000			1" Ice	2.91	0.110
(2) 1900MHz RRH	C	From Leg	3.00	30.000	89.00	No Ice	2.49	0.044
			0.000			1/2" Ice	2.70	0.075
			0.000			1" Ice	2.91	0.110
TD-RRH8x20	A	From Leg	3.00	30.000	89.00	No Ice	3.70	0.066
			0.000			1/2" Ice	3.95	0.090
			0.000			1" Ice	4.20	0.117
TD-RRH8x20	B	From Leg	3.00	30.000	89.00	No Ice	3.70	0.066
			0.000			1/2" Ice	3.95	0.090
			0.000			1" Ice	4.20	0.117
TD-RRH8x20	C	From Leg	3.00	30.000	89.00	No Ice	3.70	0.066
			0.000			1/2" Ice	3.95	0.090
			0.000			1" Ice	4.20	0.117
Pirod 10' Lt. Wt. T-Frame	A	From Leg	1.50	30.000	81.00	No Ice	8.27	0.287
			0.000			1/2" Ice	12.24	0.421
			0.000			1" Ice	16.21	0.555
Pirod 10' Lt. Wt. T-Frame	B	From Leg	1.50	30.000	81.00	No Ice	8.27	0.287
			0.000			1/2" Ice	12.24	0.421
			0.000			1" Ice	16.21	0.555
Pirod 10' Lt. Wt. T-Frame	C	From Leg	1.50	30.000	81.00	No Ice	8.27	0.287
			0.000			1/2" Ice	12.24	0.421
			0.000			1" Ice	16.21	0.555
AIR 21 w/ Mount Pipe	A	From Leg	1.50	30.000	81.00	No Ice	6.37	0.113
			0.000			1/2" Ice	6.85	0.171
			2.000			1" Ice	7.30	0.235
AIR 21 w/ Mount Pipe	B	From Leg	1.50	30.000	81.00	No Ice	6.37	0.113
			0.000			1/2" Ice	6.85	0.171
			2.000			1" Ice	7.30	0.235
AIR 21 w/ Mount Pipe	C	From Leg	1.50	30.000	81.00	No Ice	6.37	0.113
			0.000			1/2" Ice	6.85	0.171
			2.000			1" Ice	7.30	0.235
AIR 32 w/ Mount Pipe	A	From Leg	1.50	30.000	81.00	No Ice	6.63	0.138
			0.000			1/2" Ice	7.35	0.201
			2.000			1" Ice	8.01	0.271
AIR 32 w/ Mount Pipe	B	From Leg	1.50	30.000	81.00	No Ice	6.63	0.138
			0.000			1/2" Ice	7.35	0.201
			2.000			1" Ice	8.01	0.271
AIR 32 w/ Mount Pipe	C	From Leg	1.50	30.000	81.00	No Ice	6.63	0.138
			0.000			1/2" Ice	7.35	0.201
			2.000			1" Ice	8.01	0.271
LNx-6515DS-A1M w/ Mount Pipe	A	From Leg	1.50	30.000	81.00	No Ice	11.68	0.083
			0.000			1/2" Ice	12.40	0.173
			0.500			1" Ice	13.14	0.273
LNx-6515DS-A1M w/	B	From Leg	1.50	30.000	81.00	No Ice	11.68	0.083

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Lateral					
			ft	ft	°	ft	ft ²	ft ²	K
Mount Pipe			0.000			1/2" Ice	12.40	11.37	0.173
			0.500			1" Ice	13.14	12.91	0.273
LNx-6515DS-A1M w/ Mount Pipe	C	From Leg	1.50		30.000	No Ice	11.68	9.84	0.083
			0.000			1/2" Ice	12.40	11.37	0.173
			0.500			1" Ice	13.14	12.91	0.273
RRUS 11 B12	A	From Leg	1.50		30.000	No Ice	2.83	1.18	0.051
			0.000			1/2" Ice	3.04	1.33	0.072
			0.000			1" Ice	3.26	1.48	0.095
RRUS 11 B12	B	From Leg	1.50		30.000	No Ice	2.83	1.18	0.051
			0.000			1/2" Ice	3.04	1.33	0.072
			0.000			1" Ice	3.26	1.48	0.095
RRUS 11 B12	C	From Leg	1.50		30.000	No Ice	2.83	1.18	0.051
			0.000			1/2" Ice	3.04	1.33	0.072
			0.000			1" Ice	3.26	1.48	0.095
KRY 112 76/1	A	From Leg	1.50		30.000	No Ice	0.61	0.26	0.015
			0.000			1/2" Ice	0.71	0.33	0.021
			0.000			1" Ice	0.82	0.41	0.028
KRY 112 76/1	B	From Leg	1.50		30.000	No Ice	0.61	0.26	0.015
			0.000			1/2" Ice	0.71	0.33	0.021
			0.000			1" Ice	0.82	0.41	0.028
KRY 112 76/1	C	From Leg	1.50		30.000	No Ice	0.61	0.26	0.015
			0.000			1/2" Ice	0.71	0.33	0.021
			0.000			1" Ice	0.82	0.41	0.028
6810 FM (4 Bay Half Wave)	B	From Leg	1.00		10.000	No Ice	22.00	21.40	0.433
			0.000			1/2" Ice	25.40	24.20	1.015
			0.000			1" Ice	28.80	27.00	1.597

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets:		Azimuth Adjustment	3 dB Beam Width	Elevation	Outside Diameter	Aperture Area	Weight	
				Horz	Lateral							Vert
			ft	ft	°	°	ft	ft	ft ²	K		
3' Grid Dish	B	Grid	From Leg	1.00		-40.000		94.00	3.00	No Ice	7.07	0.049
				0.000						1/2" Ice	7.47	0.038
				0.000						1" Ice	7.86	0.000

Maximum Tower Deflections - Service Wind

Section No.	Elevation	Horz. Deflection	Gov. Load Comb.	Tilt	Twist
		in		°	°
		ft			
T1	100 - 80	5.5977	67	0.458	0.121
T2	80 - 60	3.6357	67	0.435	0.108
T3	60 - 40	1.8401	67	0.327	0.047
T4	40 - 20	0.7162	63	0.161	0.017
T5	20 - 0	0.1534	63	0.069	0.004

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Critical Deflections and Radius of Curvature - Service Wind

Elevation	Appurtenance	Gov. Load	Deflection	Tilt	Twist	Radius of Curvature
ft		Comb.	in	°	°	ft
100.00	(2) Side Light	67	5.5977	0.458	0.121	394115
98.00	Nudd 12' Sector Mount	67	5.4010	0.457	0.121	394115
94.00	3' Grid Dish	67	5.0076	0.456	0.122	328429
89.00	Pirod 12' Knockdown T-Frame	67	4.5165	0.452	0.120	179143
81.00	Pirod 10' Lt. Wt. T-Frame	67	3.7333	0.438	0.110	78499
74.00	6810 FM (4 Bay Half Wave)	67	3.0557	0.413	0.089	16966
68.00	6810 FM (4 Bay Half Wave)	67	2.5011	0.382	0.067	9017
62.00	6810 FM (4 Bay Half Wave)	67	1.9945	0.343	0.051	6225
56.00	6810 FM (4 Bay Half Wave)	69	1.5597	0.295	0.039	6045
50.00	6810 FM (4 Bay Half Wave)	69	1.1949	0.242	0.030	6968

Maximum Tower Deflections - Design Wind

Section No.	Elevation	Horz. Deflection	Gov. Load	Tilt	Twist
	ft	in	Comb.	°	°
T1	100 - 80	21.4443	2	1.751	0.430
T2	80 - 60	13.9588	2	1.663	0.380
T3	60 - 40	7.1068	2	1.255	0.177
T4	40 - 20	2.7683	2	0.622	0.065
T5	20 - 0	0.5926	2	0.267	0.014

Critical Deflections and Radius of Curvature - Design Wind

Elevation	Appurtenance	Gov. Load	Deflection	Tilt	Twist	Radius of Curvature
ft		Comb.	in	°	°	ft
100.00	(2) Side Light	2	21.4443	1.751	0.430	74408
98.00	Nudd 12' Sector Mount	2	20.6935	1.748	0.431	74408
94.00	3' Grid Dish	2	19.1924	1.742	0.430	62007
89.00	Pirod 12' Knockdown T-Frame	2	17.3184	1.727	0.424	33822
81.00	Pirod 10' Lt. Wt. T-Frame	2	14.3310	1.673	0.388	16184
74.00	6810 FM (4 Bay Half Wave)	2	11.7473	1.580	0.319	4398
68.00	6810 FM (4 Bay Half Wave)	2	9.6321	1.463	0.244	2378
62.00	6810 FM (4 Bay Half Wave)	2	7.6972	1.313	0.191	1648
56.00	6810 FM (4 Bay Half Wave)	2	6.0205	1.130	0.150	1599
50.00	6810 FM (4 Bay Half Wave)	2	4.6121	0.929	0.114	1835

Bolt Design Data

Section No.	Elevation	Component Type	Bolt Grade	Bolt Size	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load Allowable	Allowable Ratio	Criteria
	ft			in						
T1	100	Leg	A325N	0.7500	4	5.766	29.821	0.193	1	Bolt Tension
T2	80	Leg	A325N	0.7500	4	19.154	29.821	0.642	1	Bolt Tension
T3	60	Leg	A325N	1.0000	6	23.903	53.014	0.451	1	Bolt Tension
T4	40	Leg	A325N	1.0000	6	23.121	53.014	0.436	1	Bolt Tension

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Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load Allowable	Allowable Ratio	Criteria
		Diagonal	A325N	0.6250	1	4.008	7.875	0.509	1	Member Block Shear
T5	20	Diagonal	A325N	0.6250	1	1.498	9.914	0.151	1	Member Block Shear

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	100 - 80	P 2-1/2 X-STR	20.00	3.22	41.8 K=1.00	2.2535	-28.651	89.223	0.321 ¹
T2	80 - 60	P 2-1/2 X-STR (GR)	20.00	3.22	41.8 K=1.00	2.2535	-84.500	104.352	0.810 ¹
T3	60 - 40	P 3 X-STR (GR)	20.00	3.22	34.0 K=1.00	3.0159	-144.926	161.709	0.896 ¹
T4	40 - 20	P 5 STD (GR)	20.03	6.26	40.0 K=1.00	4.2995	-150.605	258.328	0.583 ¹
T5	20 - 0	P 5 STD (GR)	20.03	6.26	40.0 K=1.00	4.2995	-153.851	258.328	0.596 ¹

¹ P_u / φP_n controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T3	60 - 40	SR 0.625 w/ SR 0.75 (r Only) (GPD)	4.76	2.18	89.4 K=0.94	0.3068	-6.315	6.525	0.968 ¹
T4	40 - 20	L2x2x3/16	6.62	3.43	108.4 K=1.04	0.7148	-4.347	12.479	0.348 ¹
T5	20 - 0	L2-1/2x2-1/2x3/16	8.58	4.33	108.8 K=1.04	0.9023	-1.668	15.683	0.106 ¹

¹ P_u / φP_n controls

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	100 - 80	L1-1/2x1-1/2x3/16	3.50	3.26	128.2 K=0.96	0.5273	-3.941	7.190	0.548 ¹

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Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T2	80 - 60	L1-1/2x1-1/2x3/16 w/ L1-1/2x1-1/2x3/16 (r-only) (GPD)	3.50	3.26	83.1 K=0.97	0.5273	-6.307	11.878	0.531 ¹
T3	60 - 40	L1-1/2x1-1/2x3/16 w/ L1-1/2x1-1/2x3/16 (r-only) (GPD)	3.50	3.21	81.8 K=0.97	0.5273	-2.410	12.016	0.201 ¹

¹ P_u / φP_n controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	100 - 80	L1-1/2x1-1/2x3/16	3.50	3.26	128.2 K=0.96	0.5273	-0.452	7.190	0.063 ¹
T2	80 - 60	L1-1/2x1-1/2x3/16 w/ L1-1/2x1-1/2x3/16 (r-only) (GPD)	3.50	3.26	83.1 K=0.97	0.5273	-3.059	11.878	0.258 ¹
T3	60 - 40	L1-1/2x1-1/2x3/16 w/ L1-1/2x1-1/2x3/16 (r-only) (GPD)	3.50	3.21	81.8 K=0.97	0.5273	-0.637	12.016	0.053 ¹

¹ P_u / φP_n controls

Bottom Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	100 - 80	L1-1/2x1-1/2x3/16	3.50	3.26	128.2 K=0.96	0.5273	-2.362	7.190	0.329 ¹
T2	80 - 60	L1-1/2x1-1/2x3/16 w/ L1-1/2x1-1/2x3/16 (r-only) (GPD)	3.50	3.26	83.1 K=0.97	0.5273	-2.971	11.878	0.250 ¹
T3	60 - 40	L1-1/2x1-1/2x3/16 w/ L1-1/2x1-1/2x3/16 (r-only) (GPD)	3.50	3.21	81.8 K=0.97	0.5273	-1.318	12.016	0.110 ¹

¹ P_u / φP_n controls

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Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	100 - 80	P 2-1/2 X-STR	20.00	0.33	4.3	2.2535	23.063	101.409	0.227 ¹
T2	80 - 60	P 2-1/2 X-STR (GR)	20.00	0.33	4.3	2.2535	76.616	101.409	0.756 ¹
T3	60 - 40	P 3 X-STR (GR)	20.00	0.33	3.5	3.0159	143.417	165.575	0.866 ¹
T4	40 - 20	P 5 STD (GR)	20.03	0.63	4.0	4.2995	143.508	193.476	0.742 ¹
T5	20 - 0	P 5 STD (GR)	20.03	0.63	4.0	4.2995	141.159	193.476	0.730 ¹

¹ P_u / φP_n controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	100 - 80	5/8	4.76	4.43	340.4	0.3068	6.170	9.940	0.621 ¹
T2	80 - 60	5/8	4.76	4.43	340.4	0.3068	8.901	9.940	0.895 ¹
T3	60 - 40	SR 0.625 w/ SR 0.75 (r Only) (GPD)	4.76	2.18	95.5	0.3068	5.887	9.940	0.592 ¹
T4	40 - 20	L2x2x3/16	6.62	3.43	69.5	0.4307	4.008	18.734	0.214 ¹
T5	20 - 0	L2-1/2x2-1/2x3/16	8.58	4.33	69.0	0.5713	1.498	24.851	0.060 ¹

¹ P_u / φP_n controls

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	100 - 80	L1-1/2x1-1/2x3/16	3.50	3.26	85.7	0.5273	0.496	17.086	0.029 ¹
T2	80 - 60	L1-1/2x1-1/2x3/16 w/ L1-1/2x1-1/2x3/16 (r-only) (GPD)	3.50	3.26	85.7	0.5273	1.464	17.086	0.086 ¹
T3	60 - 40	L1-1/2x1-1/2x3/16 w/ L1-1/2x1-1/2x3/16 (r-only) (GPD)	3.50	3.21	84.3	0.5273	2.848	17.086	0.167 ¹

¹ P_u / φP_n controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	100 - 80	L1-1/2x1-1/2x3/16	3.50	3.26	85.7	0.5273	0.191	17.086	0.011 ¹

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Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T2	80 - 60	L1-1/2x1-1/2x3/16 w/ L1-1/2x1-1/2x3/16 (r-only) (GPD)	3.50	3.26	85.7	0.5273	0.702	17.086	0.041 ¹
T3	60 - 40	L1-1/2x1-1/2x3/16 w/ L1-1/2x1-1/2x3/16 (r-only) (GPD)	3.50	3.21	84.3	0.5273	0.324	17.086	0.019 ¹

¹ P_u / φP_n controls

Bottom Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	100 - 80	L1-1/2x1-1/2x3/16	3.50	3.26	85.7	0.5273	0.690	17.086	0.040 ¹
T2	80 - 60	L1-1/2x1-1/2x3/16 w/ L1-1/2x1-1/2x3/16 (r-only) (GPD)	3.50	3.26	85.7	0.5273	0.932	17.086	0.055 ¹
T3	60 - 40	L1-1/2x1-1/2x3/16 w/ L1-1/2x1-1/2x3/16 (r-only) (GPD)	3.50	3.21	84.3	0.5273	1.323	17.086	0.077 ¹

¹ P_u / φP_n controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	φP _{allow} K	% Capacity	Pass Fail
T1	100 - 80	Leg	P 2-1/2 X-STR	2	-28.651	89.223	32.1	Pass
T2	80 - 60	Leg	P 2-1/2 X-STR (GR)	62	-84.500	104.352	81.0	Pass
T3	60 - 40	Leg	P 3 X-STR (GR)	123	-144.926	161.709	89.6	Pass
T4	40 - 20	Leg	P 5 STD (GR)	183	143.508	193.476	74.2	Pass
T5	20 - 0	Leg	P 5 STD (GR)	204	141.159	193.476	73.0	Pass
T1	100 - 80	Diagonal	5/8	10	6.170	9.940	62.1	Pass
T2	80 - 60	Diagonal	5/8	70	8.901	9.940	89.5	Pass
T3	60 - 40	Diagonal	SR 0.625 w/ SR 0.75 (r Only) (GPD)	130	-6.315	6.525	96.8	Pass
T4	40 - 20	Diagonal	L2x2x3/16	199	-4.347	12.479	34.8	Pass
T5	20 - 0	Diagonal	L2-1/2x2-1/2x3/16	208	-1.668	15.683	10.6	Pass
T1	100 - 80	Horizontal	L1-1/2x1-1/2x3/16	16	-3.941	7.190	54.8	Pass
T2	80 - 60	Horizontal	L1-1/2x1-1/2x3/16 w/ L1-1/2x1-1/2x3/16 (r-only) (GPD)	76	-6.307	11.878	53.1	Pass
T3	60 - 40	Horizontal	L1-1/2x1-1/2x3/16 w/ L1-1/2x1-1/2x3/16 (r-only) (GPD)	138	-2.410	12.016	20.1	Pass
T1	100 - 80	Top Girt	L1-1/2x1-1/2x3/16	6	-0.452	7.190	6.3	Pass
T2	80 - 60	Top Girt	L1-1/2x1-1/2x3/16 w/ L1-1/2x1-1/2x3/16 (r-only) (GPD)	64	-3.059	11.878	25.8	Pass
T3	60 - 40	Top Girt	L1-1/2x1-1/2x3/16 w/ L1-1/2x1-1/2x3/16 (r-only) (GPD)	124	-0.637	12.016	5.3	Pass
T1	100 - 80	Bottom Girt	L1-1/2x1-1/2x3/16	7	-2.362	7.190	32.9	Pass

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Section No.	Elevation ft	Component Type	Size	Critical Element	P K	θP_{allow} K	% Capacity	Pass Fail
T2	80 - 60	Bottom Girt	L1-1/2x1-1/2x3/16 w/ L1-1/2x1-1/2x3/16 (r-only) (GPD)	67	-2.971	11.878	25.0	Pass
T3	60 - 40	Bottom Girt	L1-1/2x1-1/2x3/16 w/ L1-1/2x1-1/2x3/16 (r-only) (GPD)	127	-1.318	12.016	11.0	Pass
						Summary	ELC:	Proposed
						Leg (T3)	89.6	Pass
						Diagonal (T3)	96.8	Pass
						Horizontal (T1)	54.8	Pass
						Top Girt (T2)	25.8	Pass
						Bottom Girt (T1)	32.9	Pass
						Bolt Checks	64.2	Pass
						Rating =	96.8	Pass

APPENDIX C

Additional Calculations

BUILT-UP MEMBER ANALYSIS
 Danbury / CT0988
 2020723.333.170551.01

Steel Specification	AISC: 48th (Steel Book)
Analysis Method	LRFD
ASD	1
Mass Coefficient	100%
Number of Sections	1

X-X Axis																																	
Existing Member						Modification Member					Built-Up Member										Member Analysis				Modified Member								
Elevation	SR Diameter (in)	F _y (ksi)	Area (in ²)	I _x (in ⁴)	r _x (in)	a/r _x	SR Diameter (in)	F _y (ksi)	Area (in ²)	I _x (in ⁴)	r _x (in)	a/r _x	Connectors	K	L _c (in)	a (in)	b (in)	r _c (in)	(M _u /L _c)	r _u (in)	r _h (in)	ϕ	(M _u /F _u)	K _c	r _{u11} (in)	0.75(K _u /L _u)	(M _u /L _u)	M _u /F _u	Design met?	(M _u /L _u)	K Multiplier	F _u (ksi)	
40' - 00"	0.625	36	0.31	0.01	0.136	18.40	0.75	36	0.44	0.02	0.138	12.00	Weld	0.9	26.16	6	0	0.69	0.30	81.81	0.156	0.156	2.20	17.71	0.14	0.991	46.38	18.40	89.57	Yes	21.48	0.5420	36

Y-Y Axis																																
Existing Member						Modification Member					Built-Up Member										Member Analysis				Modified Member							
Elevation	SR Diameter (in)	F _y (ksi)	Area (in ²)	I _y (in ⁴)	r _y (in)	a/r _y	SR Diameter (in)	F _y (ksi)	Area (in ²)	I _y (in ⁴)	r _y (in)	a/r _y	Connectors	K	L _c (in)	a (in)	b (in)	r _c (in)	(M _u /L _c)	r _u (in)	r _h (in)	ϕ	(M _u /F _u)	K _c	r _{u11} (in)	0.75(K _u /L _u)	(M _u /L _u)	M _u /F _u	Design met?	(M _u /L _u)	K Multiplier	F _u (ksi)
40' - 00"	0.625	36	0.31	0.01	0.136	18.40	0.75	36	0.44	0.02	0.138	12.00	Weld	0.9	26.16	6	0	0.175	134.26	0.156	0.156	0.00	139.64	1.04	0.274	100.00	18.40	89.56	Yes	89.39	1.0401	36

Summary				
Elevation	Modified Member	Stiffness Only	κ	F _u (ksi)
40' - 00"	SR 0.625 w/ SR 0.75 (1)	Yes	0.9362	36

Reinforcement Termination				
Design Force (k)	Weld Type	Weld Size (1/16)	Weld L _{min} (in)	Unmodified Span (in)
N/A	Flare Bevel	5	0	0

Capacity Summary						
Compression (k)	Tension (k)	ϕP _n (k) - Buckling	ϕP _n (k) - Crushing	ϕP _n (k) - Tension	Controlling	Rating
6.315	5.887	6.53	8.75	9.94	Buckling	96.8%
Apply 10A.22.2.4 Section 15.57						



Self-Support Anchor Rod Analysis
170551 (CT0968) - DANBURY
2020723.13.170551.01

General Info	
Code	TIA-222-G
Modified Anchor Rods	No
Clear Distance > d _b	No
Leg Eccentricity	No
Max Capacity	1.00

Anchor Rod Results		
$(P_u + V_u/\eta) =$	39.3	kips
$\phi * R_{nt} = \phi * F_{ub} * A_n =$	65.4	kips
Anchor Rod Stress Ratio =	60.1%	OK

Tower Reactions		
Detail Type =	c	
Eta Factor, $\eta =$	0.55	
Uplift, P _u =	141.00	kips
Uplift Shear, V _u =	9.00	kips

Anchor Rods		
Number of Anchor Rods, N =	4	
Anchor Rod Grade =	A36	
Anchor Rod Diameter, d _b =	1.5	in
Bolt Circle, BC =	9.5	in
Yield, F _y =	36	ksi
Tensile, F _{ub} =	58	ksi

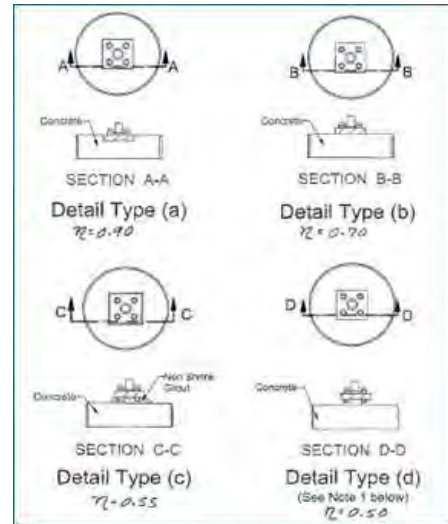


Figure 4-4 of TIA-222-G

SST Unit Base Foundation

Site #: 170551 (CT0968)
 Site Name: DANBURY
 Job #: 2020723.13.17055

TIA-222 Revision: G

Top & Bot. Pad Rein. Different?:	<input checked="" type="checkbox"/>
Tower Centroid Offset?:	<input type="checkbox"/>
Block Foundation?:	<input type="checkbox"/>

Superstructure Analysis Reactions		
Global Moment, M :	965	ft-kips
Global Axial, P :	21	kips
Global Shear, V :	14	kips
Leg Compression, P_{comp} :	156	kips
Leg Comp. Shear, V_{u,comp} :	10	kips
Leg Uplift, P_{uplift} :	141	kips
Leg Uplift. Shear, V_{u,uplift} :	9	kips
Tower Height, H :	100	ft
Base Face Width, BW :	7.5	ft
BP Dist. Above Fdn, bp_{dist} :	3	in

Foundation Analysis Checks				
	Capacity	Demand	Rating	Check
<i>Lateral (Sliding) (kips)</i>	117.88	14.00	11.9%	Pass
<i>Bearing Pressure (ksf)</i>	15.00	5.96	39.7%	Pass
<i>Overturing (kip*ft)</i>	1401.02	1080.50	77.1%	Pass
<i>Pier Flexure (Comp.) (kip*ft)</i>	290.17	50.00	17.2%	Pass
<i>Pier Flexure (Tension) (kip*ft)</i>	157.47	45.00	28.6%	Pass
<i>Pier Compression (kip)</i>	1999.56	158.83	7.9%	Pass
<i>Pad Flexure (kip*ft)</i>	1647.69	419.63	25.5%	Pass
<i>Pad Shear - 1-way (kips)</i>	519.97	97.61	18.8%	Pass
<i>Pad Shear - Comp 2-way (ksi)</i>	0.190	0.030	15.7%	Pass

Pier Properties		
Pier Shape:	Circular	
Pier Diameter, dpier :	2.0	ft
Ext. Above Grade, E :	1.00	ft
Pier Rebar Size, Sc :	8	
Pier Rebar Quantity, mc :	8	
Pier Tie/Spiral Size, St :	4	
Pier Tie/Spiral Quantity, mt :	6	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier} :	3	in

Soil Rating:	77.1%
Structural Rating:	28.6%

Pad Properties		
Depth, D :	7.00	ft
Pad Width, W :	14.50	ft
Pad Thickness, T :	3.00	ft
Pad Rebar Size (Top), Sp_{top} :	6	
Pad Rebar Quantity (Top), mp_{top} :	15	
Pad Rebar Size (Bottom), Sp :	8	
Pad Rebar Quantity (Bottom), mp :	15	
Pad Clear Cover, cc_{pad} :	3	in

Material Properties		
Rebar Grade, Fy :	60	ksi
Concrete Compressive Strength, F'c :	4	ksi
Dry Concrete Density, δc :	150	pcf

Soil Properties		
Total Soil Unit Weight, γ :	100	pcf
Ultimate Gross Bearing, Qult :	20.000	ksf
Cohesion, Cu :		ksf
Friction Angle, φ :	30	degrees
SPT Blow Count, N_{blows} :	1	
Base Friction, μ :	0.45	
Neglected Depth, N :	3.3	ft
Foundation Bearing on Rock?	Yes	
Groundwater Depth, gw :	99	ft

<-- Toggle between Gross and Net

APPENDIX D

Modification Drawings

DANBURY

FA #: 12684103

CLIENT #: CT0968

USID #: 170551



GPD Engineering and Architecture
Professional Corporation
520 South Main Street
Akron, OH 44311
330.572.2100 Fax 330.572.2102

at&t
DANBURY
USID #: 170551
DESIGN DRAWINGS
PREPARED FOR:
SAI
CLIENT #: CT0968

TOWER INFORMATION:

TOWER DESIGN: FRED A. NUDD/DWG #:96-4992-1
TOWER HEIGHT/TYPE: 100'-0" MODIFIED SELF SUPPORT TOWER
TOWER LOCATION:
LAT.: 41° 23' 40.99"
LONG.: -73° 29' 12.00"
STREET ADDRESS: 303 BOXWOOD LANE
CITY, STATE ZIP: DANBURY, CT 6811
COUNTY: FAIRFIELD
REFERENCED ANALYSIS: GPD/PROJ #: 2020723.13.170551.01
ANALYSIS DATE: 07/23/2020

CODE COMPLIANCE:

GOVERNING CODES: TIA-222-G, 2015 IBC, & 2018 CSBC
WIND SPEEDS: 120 MPH 3 SECOND GUST (ULTIMATE)
93 MPH 3 SECOND GUST (NOMINAL)
50 MPH 3 SECOND GUST (W/ ICE)
ICE THICKNESS: 1"
STRUCTURE CLASS: II
EXPOSURE CATEGORY: B
TOPO CATEGORY: 1

REV.	DATE	DESCRIPTION
0	9/25/20	INITIAL RELEASE

PROJECT CONTACTS:

CLIENT CONTACT:
WARREN KELLEHER
12 INDUSTRIAL WAY
SALEM, NH 03079
(978) 807-2700

ENGINEER CONTACT:
GPD ENGINEERING AND ARCHITECTURE
PROFESSIONAL CORPORATION
520 SOUTH MAIN STREET, SUITE 2531
AKRON, OH 44311
(330) 572-2100
FOR QUESTIONS PLEASE EMAIL:
GPDMODS@GPDGROUP.COM

SHEET INDEX:

T-01: TITLE SHEET
MI-01: MODIFICATION INSPECTION CHECKLIST
N-01: PROJECT NOTES
S-01: TOWER ELEVATION & MODIFICATION SCHEDULE
S-02: MODIFICATION DETAILS & SECTIONS

QUALIFIED ENGINEERING SERVICES ARE AVAILABLE FROM GPD TO ASSIST CONTRACTORS IN CLASS IV RIGGING PLAN REVIEWS. FOR REQUESTING QUALIFIED ENGINEERING SERVICES PLEASE CONTACT GPD AT GPDMODS@GPDGROUP.COM.



DANBURY
303 BOXWOOD LANE
DANBURY, CT 6811
TITLE SHEET

ISSUED FOR:	
PERMIT	9/25/2020
BID	-
CONSTRUCTION	-
RECORD	-

ENGINEER	DESIGNER
MS	JMJ
PROJECT MANAGER	APPROVED BY
CB	CJS

JOB NO.
2020723.13.170551.01

T-01

MODIFICATION INSPECTION NOTES

GENERAL

- THE MI IS AN ON-SITE VISUAL AND HANDS-ON INSPECTION OF TOWER MODIFICATIONS INCLUDING A REVIEW OF CONSTRUCTION REPORTS AND ADDITIONAL PERTINENT DOCUMENTATION PROVIDED BY THE GENERAL CONTRACTOR (GC), AS WELL AS ANY INSPECTION DOCUMENTS PROVIDED BY 3RD PARTY INSPECTORS. THE MI IS TO ENSURE THE INSTALLATION WAS CONSTRUCTED IN ACCORDANCE WITH THE MODIFICATION DRAWINGS; IN ACCORDANCE WITH APPLICABLE INDUSTRY STANDARDS; AND AS DESIGNED BY THE ENGINEER OF RECORD (EOR).
- NO DOCUMENT, CODE OR POLICY CAN ANTICIPATE EVERY SITUATION THAT MAY ARISE. ACCORDINGLY, THIS CHECKLIST IS INTENDED TO SERVE AS A SOURCE OF GUIDING PRINCIPLES IN ESTABLISHING GUIDELINES FOR MODIFICATION INSPECTION.
- THE MI IS TO CONFIRM INSTALLATION CONFIGURATION AND WORKMANSHIP ONLY AND IS NOT A REVIEW OF THE MODIFICATION DESIGN ITSELF, AND THE MI INSPECTOR DOES NOT TAKE OWNERSHIP OF THE MODIFICATION DESIGN. THE MI INSPECTOR SHALL INSPECT AND NOTE CONFORMANCE/NONCONFORMANCE AND PROVIDE TO THE TOWER/STRUCTURE OWNER AND EOR FOR EVALUATION.
- TO ENSURE THAT THE REQUIREMENTS OF THE MODIFICATION INSPECTION ARE MET, IT IS VITAL THAT THE GENERAL CONTRACTOR (GC) AND THE MI INSPECTOR BEGIN COMMUNICATING AND COORDINATING AS SOON AS A PO OR PAYMENT IS RECEIVED. IT IS EXPECTED THAT EACH PARTY WILL BE PROACTIVE IN REACHING OUT TO THE OTHER PARTY. CONTACT LISTED ON THE TITLE SHEET SHALL BE CONTACTED IF SPECIFIC INSPECTOR CONTACT INFORMATION IS NOT KNOWN.

FAILING INSPECTION CORRECTIONS

- IF THE MODIFICATION INSTALLATION WOULD FAIL THE MODIFICATION INSPECTION ("FAILED MODIFICATION INSPECTION"), THE GC SHALL WORK WITH MI INSPECTOR TO COORDINATE A REMEDIATION PLAN IN ONE OF TWO WAYS:
 - CORRECT FAILING ISSUES TO COMPLY WITH THE SPECIFICATIONS CONTAINED IN THE ORIGINAL MODIFICATION DRAWINGS AND COORDINATE A SUPPLEMENT MODIFICATION INSPECTION.
 - OR, WITH TOWER OWNER'S APPROVAL, THE GC MAY WORK WITH THE ENGINEER OF RECORD TO RE-ANALYZE THE MODIFICATION/REINFORCEMENT USING THE AS-BUILT CONDITION.

SERVICE LEVEL COMMITMENT

- THE FOLLOWING RECOMMENDATIONS AND SUGGESTIONS ARE OFFERED TO ENHANCE THE EFFICIENCY AND EFFECTIVENESS OF DELIVERING AN MI REPORT:
 - THE GC SHALL PROVIDE A MINIMUM OF 5 BUSINESS DAYS NOTICE, PREFERABLY 10, TO THE MI INSPECTOR AS TO WHEN THE SITE WILL BE READY FOR THE MI TO BE CONDUCTED.
 - THE GC AND MI INSPECTOR COORDINATE CLOSELY THROUGHOUT THE ENTIRE PROJECT.
 - WHEN POSSIBLE, IT IS PREFERRED TO HAVE THE GC AND MI INSPECTOR ON-SITE SIMULTANEOUSLY FOR ANY GUY WIRE TENSIONING OR RE-TENSIONING OPERATIONS.
 - WHEN POSSIBLE, IT IS PREFERRED TO HAVE THE GC AND MI INSPECTOR ON-SITE DURING THE MI TO HAVE ANY MINOR DEFICIENCIES CORRECTED DURING THE INITIAL MI. THEREFORE, THE GC MAY CHOOSE TO COORDINATE THE MI CAREFULLY TO ENSURE ALL CONSTRUCTION FACILITIES ARE AT THEIR DISPOSAL WHEN THE MI INSPECTOR IS ON SITE.
 - IT MAY BE BENEFICIAL TO INSTALL ALL TOWER MODIFICATIONS PRIOR TO CONDUCTING THE FOUNDATION INSPECTIONS TO ALLOW THE FOUNDATION AND MODIFICATION INSPECTION(S) TO COMMENCE WITH ONE SITE VISIT.

REQUIRED PHOTOS

- BETWEEN THE GC AND THE MI INSPECTOR THE FOLLOWING PHOTOGRAPHS, AT A MINIMUM, ARE TO BE TAKEN AND INCLUDED IN THE MI REPORT:
 - PRE-CONSTRUCTION GENERAL SITE CONDITION
 - PHOTOGRAPHS DURING THE REINFORCEMENT MODIFICATION CONSTRUCTION/ERECTION AND INSPECTION
 - RAW MATERIALS
 - PHOTOS OF ALL CRITICAL DETAILS
 - FOUNDATION MODIFICATIONS
 - WELD PREPARATION
 - BOLT INSTALLATION
 - FINAL INSTALLED CONDITION
 - SURFACE COATING REPAIR
 - POST CONSTRUCTION PHOTOGRAPHS
 - FINAL INFIELD CONDITION
 - ANY OTHER PHOTOS DEEMED RELEVANT TO SHOW COMPLETE DETAILS OF THE MODIFICATIONS.
- PHOTOS OF ELEVATED MODIFICATIONS TAKEN ONLY FROM THE GROUND SHALL BE CONSIDERED INADEQUATE.

MODIFICATION INSPECTION CHECKLIST

REQUIRED	REPORT ITEM	BRIEF DESCRIPTION
PRE-CONSTRUCTION		
X	MI CHECKLIST DRAWING	THIS CHECKLIST SERVES AS A GUIDELINE FOR THE REQUIRED CONSTRUCTION DOCUMENTS AND INSPECTIONS FOR THIS MODIFICATION
X	EOR APPROVED SHOP DRAWINGS	PRIOR TO FABRICATION, THE CONTRACTOR SHALL PROVIDE DETAILED ASSEMBLY DRAWINGS AND/OR SHOP DRAWINGS TO THE EOR FOR APPROVAL.
X	FABRICATION INSPECTION	A LETTER FROM THE FABRICATOR STATING THAT ALL FABRICATION (I.E. DRILLING, CUTTING, WELDING, SHEARING, MILLING, GALVANIZING, ETC) HAS BEEN DONE ACCORDING TO INDUSTRY STANDARDS AND ALL APPLICABLE ANSI/ASTM STANDARDS.
NA	FABRICATOR CERTIFIED WELD INSPECTION	A CWI SHALL INSPECT ALL FABRICATION WELDS IN ACCORDANCE WITH AWS D1.1 AND A REPORT DETAILING THE RESULTS SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
X	MATERIAL TEST REPORTS (MTR)	MATERIAL TEST REPORTS SHALL BE PROVIDED FOR ALL MATERIAL USED. MTR'S SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
NA	FABRICATOR NDE INSPECTION REPORT	CRITICAL SHOP WELDS THAT REQUIRE ADDITIONAL TESTING ARE NOTED WITHIN THE MODIFICATION DRAWINGS. A CERTIFIED NDT INSPECTOR SHALL PERFORM NON-DESTRUCTIVE EXAMINATION ON ALL PJP, CJP, AND FILLET WELDS >5/16" IN ACCORDANCE WITH AWS D1.1 AND A REPORT DETAILING THE RESULTS SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
NA	NDE OF MONOPOLE BASE PLATE	A NDE OF THE POLE TO BASE PLATE CONNECTION IS REQUIRED AND A WRITTEN REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
X	PACKING SLIPS	PACKING/SHIPPING LIST FOR ALL MATERIAL USED DURING CONSTRUCTION OF THE MODIFICATION SHALL BE PROVIDED.
DURING CONSTRUCTION		
NA	PRE-POUR REBAR INSPECTIONS	A 3 RD PARTY VISUAL OBSERVATION OF THE EXCAVATION AND REBAR SHALL BE PERFORMED BEFORE PLACING THE CONCRETE. A WRITTEN REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
NA	POST-INSTALLED REBAR AND/OR DOWEL INSPECTIONS	PHOTOGRAPHIC DOCUMENTATION OF DRILL HOLE SIZES AND DEPTHS SHALL BE RECORDED BEFORE SETTING THE POST INSTALLED REBAR AND DOWELS WITH EPOXY/GROUT.
NA	CONCRETE COMP. STRENGTH & SLUMP TEST	THE CONCRETE MIX DESIGN, SLUMP TEST, AND COMPRESSIVE STRENGTH TESTS SHALL BE PROVIDED AS PART OF THE MI REPORT.
NA	EARTHWORK: LIFT & DENSITY REPORT	REPORT DETAILING SOIL COMPACTION TEST RESULTS TO BE INCLUDED IN THE MI REPORT.
NA	MICROPILE/ROCK ANCHOR	MICROPILES AND ROCK ANCHORS SHALL BE INSPECTED BY A 3 RD PARTY. INSPECTION SHALL VERIFY ANCHOR SIZE, STEEL GRADE, AND HOLE DEPTHS. PHOTOGRAPHIC DOCUMENTATION OF ALL MEASUREMENTS ALONG WITH THE PULL TEST RESULTS SHALL BE INCLUDED IN THE MI REPORT.
NA	HELICAL ANCHOR	HELICAL INSTALLER SHALL SUBMIT FINAL SEALED HELICALS DESIGN, TORQUE LOGS, AND FINAL LOAD TEST RESULTS TO BE INCLUDED IN THE MODIFICATION INSPECTION REPORT.
NA	POST-INSTALLED ANCHOR ROD VERIFICATION	POST INSTALLED ANCHOR ROD VERIFICATION SHALL BE PERFORMED AND SHALL INCLUDE PHOTO VERIFICATION OF HOLE DEPTH, HOLE CLEANOUT AND ROUGHENING, AND EPOXY LABELING. REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
NA	3 RD PARTY FIELD CERTIFIED WELD INSPECTION	A CWI SHALL CONDUCT A VISUAL INSPECTION OF ALL FIELD WELDS IN ACCORDANCE WITH AWS D1.1. CRITICAL WELDS THAT REQUIRE ADDITIONAL TESTING ARE NOTED IN THE MODIFICATION DRAWINGS.
X	ON-SITE COLD GALVANIZING VERIFICATION	THE GENERAL CONTRACTOR SHALL PROVIDE WRITTEN AND PHOTOGRAPHIC DOCUMENTATION TO THE MI INSPECTOR VERIFYING THAT ANY ON-SITE COLD GALVANIZING WAS APPLIED PER MANUFACTURER SPECIFICATIONS.
NA	TENSION TWIST & PLUMB DELIVERABLES	THE GENERAL CONTRACTOR SHALL PROVIDE WRITTEN AND PHOTOGRAPHIC DOCUMENTATION TO THE MI INSPECTOR VERIFYING THE TOWER TWIST AND PLUMB CONDITION AS WELL AS THE WIRE TENSIONS (AS REQUIRED). REPORT SHALL INCLUDE PRE-TENSION, PLUMB & TWIST RESULTS, POST-TENSION REPORT, POST PLUMB AND TWIST REPORT, AND PHOTOS OF THE TENSION GAUGES FOR ALL GUY WIRES.
X	GC AS-BUILT DRAWINGS	THE GENERAL CONTRACTOR SHALL SUBMIT A LEGIBLE COPY OF THE ORIGINAL DESIGN DRAWINGS EITHER STATING "INSTALLED AS DESIGNED" OR NOTING ANY CHANGES THAT WERE REQUIRED AND APPROVED BY THE ENGINEER OF RECORD. EOR/RFI FORMS APPROVING ALL CHANGES SHALL BE SUBMITTED.
NA	BOLT PRE-TENSION VERIFICATION	TURN-OF-THE NUT METHOD IS THE DEFAULT METHOD FOR PRE-TENSIONING BOLTS. MATCH-MARKINGS SHALL BE PRESENT ON EACH FASTENER FOR INSPECTION PURPOSES AND SHALL BE APPLIED IN ACCORDANCE WITH THE REQUIREMENTS OF THE RCSC SPECIFICATION. ALTERNATIVE PRE-TENSIONING METHODS ARE NOT ALLOWED WITHOUT PRIOR EOR CONSENT.
POST-CONSTRUCTION		
X	CONSTRUCTION COMPLIANCE LETTER	A LETTER FROM THE GENERAL CONTRACTOR STATING THAT THE WORKMANSHIP WAS PERFORMED IN ACCORDANCE WITH INDUSTRY STANDARDS AND THESE MODIFICATION DRAWINGS, INCLUDING LISTING ADDITIONAL PARTIES TO THE MODIFICATION PROCESS.
NA	POST-INSTALLED ANCHOR ROD PULL TESTS	POST-INSTALLED ANCHOR RODS SHALL BE TESTED BY A PULL TEST INSPECTOR AND A REPORT SHALL BE PROVIDED INDICATING TESTING RESULTS.
X	PHOTOGRAPHS	PHOTOGRAPHS SHALL BE SUBMITTED TO THE MI INSPECTOR. PHOTOS SHALL DOCUMENT ALL PHASES OF THE CONSTRUCTION. THE PHOTOS SHALL BE ORGANIZED IN A MANNER THAT EASILY IDENTIFIES THE EXACT LOCATION OF THE PHOTO.
NA	FOUNDATION SEALER	PHOTOGRAPHIC DOCUMENTATION OF THE FOUNDATION SEALING SHALL BE INCLUDED IN THE MI REPORT.
NA	BOLT HOLE INSTALLATION VERIFICATION REPORT	THE MI INSPECTOR SHALL VERIFY THE INSTALLATION AND TIGHTNESS OF 10% OF ALL NON PRE-TENSIONED BOLTS INSTALLED AS PART OF THE MODIFICATION. THE MI INSPECTOR SHALL LOOSEN THE NUT AND VERIFY THE BOLT HOLE SIZE AND CONDITION. THE MI REPORT SHALL CONTAIN THE COMPLETED BOLT INSTALLATION VERIFICATION REPORT, INCLUDING THE SUPPORTING PHOTOGRAPHS.
X	MI INSPECTOR REDLINE OR RECORD DRAWING(S)	THE MI INSPECTOR SHALL OBSERVE AND REPORT ANY DISCREPANCIES BETWEEN THE CONTRACTOR'S REDLINE DRAWING AND THE ACTUAL COMPLETED INSTALLATION.

*THE MI CHECKLIST SHALL BE REVIEWED PRIOR TO THE START OF CONSTRUCTION. ALL PARTIES TO THE MODIFICATION SHALL UNDERSTAND ALL REQUIREMENTS AND INSPECTION/DOCUMENTATION THAT IS APPLICABLE TO THE SCOPE OF WORK THEY ARE PERFORMING. ERRORS ON THE MI CHECKLIST SHALL BE BROUGHT TO THE ATTENTION OF THE TOWER/STRUCTURE OWNER AND EOR AS SOON AS POSSIBLE.



520 South Main Street
Akron, OH 44311
330.572.2100 Fax 330.572.2102



DANBURY
USID #: 170551

DESIGN DRAWINGS
PREPARED FOR:



CLIENT #: CT0968

REV. DATE DESCRIPTION

INITIAL RELEASE

0 9/25/20

DANBURY
303 BOXWOOD LANE
DANBURY, CT 06811

MODIFICATION INSPECTION
CHECKLIST

ISSUED FOR:	
PERMIT	9/25/2020
BID	-
CONSTRUCTION	-
RECORD	-

ENGINEER	DESIGNER
MS	JMJ
PROJECT MANAGER	APPROVED BY
CB	CJS

JOB NO.
2020723.13.170551.01

MI-01



9/25/20

GENERAL NOTES

- THESE MODIFICATIONS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE GOVERNING PROVISIONS OF TIA/EIA-222, AWS, ANSI, TIA-322, AND AISC. MATERIALS, FABRICATION, INSTALLATION, AND ALL OTHER SERVICES PROVIDED BY THE CONTRACTOR SHALL CONFORM TO THE ABOVE MENTIONED CODES AND THE CONTRACT SPECIFICATIONS.
- THIS DESIGN ASSUMES THE TOWER AND FOUNDATIONS HAVE BEEN WELL MAINTAINED, IN GOOD CONDITION, AND ARE WITHOUT DEFECT. BENT MEMBERS, CORRODED MEMBERS, LOOSE BOLTS, CRACKED WELDS AND OTHER MEMBER DEFECTS HAVE NOT BEEN CONSIDERED. THE TOWER IS ASSUMED TO BE PLUMB AND THE SITE IS ASSUMED TO BE LEVEL. THIS DESIGN IS BEING PROVIDED WITHOUT THE BENEFIT OF A CONDITION ASSESSMENT BY GPD. CONTRACTOR SHALL COMMISSION A COMPLETE CONDITION ASSESSMENT PRIOR TO ORDERING ANY REINFORCING MATERIALS AND SUPPLY CONDITION ASSESSMENT TO ENGINEER FOR REVIEW. SEE CONTRACTOR NOTES.
- THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING; ANY PROBLEMS WITH ACCESS, INTERFERENCE, ETC. SHALL BE RESOLVED PRIOR TO MOBILIZATION. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND NOTE ANY EXISTING CONDITIONS THAT ARE NOT REPRESENTED ON THESE DRAWINGS OR THAT INTERFERE WITH THE CONTINUOUS INSTALLATION OF THE MODIFICATIONS. CONTRACTOR SHALL NOTE ALL ATTACHMENT POINTS, ANTENNAS, MOUNTS, COAX, LIGHTING, CLIMBING SUPPORTS, STEP BOLTS, PORT HOLES, AND ANY OTHER TOWER APPURTENANCES IN THE REGION OF THE MODIFICATIONS. GPD SHALL BE CONTACTED IMMEDIATELY TO EVALUATE THE SIGNIFICANCE OF ANY DEVIATION PRIOR TO ORDERING MATERIAL.
- ALL MATERIAL SPECIFIED FOR THIS PROJECT MUST BE NEW AND FREE OF ANY DEFECTS. ANY MATERIAL SUBSTITUTIONS, INCLUDING BUT NOT LIMITED TO ALTERED SIZES AND/OR STRENGTHS, MUST BE APPROVED BY THE OWNER AND ENGINEER IN WRITING. CONTRACTOR SHALL PROVIDE DOCUMENTATION TO ENGINEER FOR DETERMINING IF SUBSTITUTE IS SUITABLE FOR USE AND MEETS THE ORIGINAL DESIGN CRITERIA. DIFFERENCES FROM THE ORIGINAL DESIGN, INCLUDING MAINTENANCE, REPAIR AND REPLACEMENT, SHALL BE NOTED. ESTIMATES OF COSTS/CREDITS ASSOCIATED WITH THE SUBSTITUTION (INCLUDING RE-DESIGN COSTS AND COSTS TO SUB-CONTRACTORS) SHALL BE PROVIDED TO THE ENGINEER.
- CONTRACTOR IS RESPONSIBLE FOR ENGAGING A MODIFICATION INSPECTOR AT THE TIME OF AWARD TO COORDINATE AN INSPECTION SCHEDULE AND ENSURE PROPER DOCUMENTATION IS RETAINED THROUGHOUT THE PROJECT. FOUNDATION WORK REQUIRES INSPECTION PRIOR TO THE CONCRETE POUR AND MAY INVOLVE A SEPARATE INSPECTION VISIT. REFER TO SHEET MI-01 FOR MODIFICATION INSPECTION CHECKLIST. REFERENCE THE GPD CONTACT INFORMATION ON THE TITLE SHEET TO OBTAIN PRICING TO COMPLETE FINAL AND/OR FOUNDATION INSPECTION SERVICES, IF NOT ALREADY COORDINATED WITH THE TOWER OWNER / PROGRAM MANAGER / CARRIER. INSTALLATION OF PROPOSED LOADING PRIOR TO COMPLETION OF POST MODIFICATION INSPECTION IS PROHIBITED WITHOUT PRIOR APPROVAL FROM TOWER OWNER AND ENGINEER OF RECORD. INSTALLATION OF THE PROPOSED LOADING IS BY OTHERS AND IS BEYOND THE SCOPE OF THESE DRAWINGS.
- ALL CONTRACTORS AND LOWER TIER CONTRACTORS MUST ACKNOWLEDGE IN WRITING TO TOWER OWNER AND GPD THAT THEY HAVE OBTAINED, UNDERSTAND, AND WILL FOLLOW TOWER OWNER STANDARDS OF PRACTICE, CONSTRUCTION GUIDELINES, ALL SITE AND TOWER SAFETY PROCEDURES, ALL PRODUCT LIMITATIONS AND INSTALLATION PROCEDURES USED ON SITE, AND PROPOSED MODIFICATIONS DESCRIBED. RECEIPT OF ACKNOWLEDGMENT MUST OCCUR PRIOR TO BEGINNING CONSTRUCTION OR CLIMBING. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO PROVIDE THIS DOCUMENTATION FOR TOWER OWNER AND GPD ON COMPANY LETTERHEAD AND THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO OBTAIN THIS DOCUMENTATION FROM LOWER TIER SUBCONTRACTORS (ON SUBCONTRACTOR LETTERHEAD) AND DELIVER IT TO TOWER OWNER AND GPD.
- IT IS ASSUMED THAT ANY STRUCTURAL MODIFICATION WORK SPECIFIED ON THESE PLANS WILL BE ACCOMPLISHED BY KNOWLEDGEABLE WORKMEN WITH TOWER CONSTRUCTION EXPERIENCE. THIS INCLUDES PROVIDING THE NECESSARY CERTIFICATIONS TO THE TOWER OWNER AND ENGINEER.
- THESE DRAWINGS DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION METHODS, MEANS, TECHNIQUES, SEQUENCES, AND PROCEDURES.
- CONSTRUCTION WORK PRESENTS UNIQUE THREATS TO HEALTH AND SAFETY. THE CONTRACTOR IS RESPONSIBLE TO EDUCATE THEIR WORK FORCE OF THESE DANGERS AND LIMIT THEIR EXPOSURE TO HAZARDS. THIS EDUCATION SHALL INCLUDE BUT NOT BE LIMITED TO APPLICABLE TRAINING COURSES AND CERTIFICATIONS, PROPER PERSONAL PROTECTIVE EQUIPMENT USAGE, DAILY TAILGATE MEETINGS AND ANY OTHER PREVENTATIVE MEASURES WHICH MAY BE REASONABLY EXPECTED. THE CONTRACTOR AND ALL SUB-CONTRACTORS SHALL BE RESPONSIBLE FOR THE SAFETY OF THE WORK AREA, ADJACENT AREAS AND ANY PROPERTY OCCUPANTS WHO MAY BE AFFECTED BY THE WORK UNDER CONTRACT. THE CONTRACTOR SHALL REVIEW ALL LANDOWNER, PRIME CONTRACTOR, CARRIER, OSHA, AND LOCAL SAFETY GUIDELINES AND AT ALL TIMES SHALL CONFORM TO THE MOST RESTRICTIVE OF THESE STANDARDS TO ENSURE A SAFE WORKPLACE.
- TOWER WORK PRESENTS ADDITIONAL THREATS TO HEALTH AND SAFETY. ALL TOWER WORKERS WORKING ON A TOWER MUST BE ADEQUATELY TRAINED AND MONITORED TO ENSURE THAT SAFE WORK PRACTICES ARE LEARNED AND FOLLOWED. AS REQUIRED BY OSHA, WHEN WORKING ON EXISTING COMMUNICATION TOWERS, EMPLOYEES MUST BE PROVIDED WITH APPROPRIATE FALL PROTECTION, TRAINED TO USE THIS FALL PROTECTION PROPERLY, AND THE USE OF FALL PROTECTION MUST BE CONSISTENTLY SUPERVISED AND ENFORCED BY THE CONTRACTOR.
- ALL SAFETY EQUIPMENT SHALL BE INSPECTED ACCORDING TO ALL OSHA AND INDUSTRY SCHEDULED INTERVALS AND ALL INSPECTIONS SHALL BE DOCUMENTED PER APPLICABLE CODES AND STANDARDS.
- CONTRACTOR IS RESPONSIBLE FOR TEMPORARILY REMOVING ALL COAX, T-BRACKETS, ANTENNA MOUNTS, AND ANY OTHER TOWER APPURTENANCE THAT MAY INTERFERE WITH THE TOWER MODIFICATIONS. ALL TOWER APPURTENANCES MUST BE REPLACED AND/OR RESTORED TO ITS ORIGINAL LOCATION. SOME ATTACHMENTS MAY REQUIRE CUSTOM MODIFICATIONS TO PROPERLY FIT THE MODIFIED REGION OF THE STRUCTURE. THESE CUSTOMIZATIONS ARE DESIGNED BY OTHERS AND MUST BE APPROVED BY THE ENGINEER PRIOR TO REMOVING SUCH ATTACHMENTS. ANY CARRIER DOWNTIME MUST BE COORDINATED WITH THE TOWER OWNER IN WRITING.

GENERAL NOTES CONTINUED

- CONTRACTOR SHALL ONLY WORK WITHIN THE LIMITS OF THE TOWER OWNER'S PROPERTY OR LEASE AREA AND APPROVED EASEMENTS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY WORK IS WITHIN THESE BOUNDARIES. CONTRACTOR SHALL EMPLOY A SURVEYOR AS REQUIRED. ANY WORK OUTSIDE THESE BOUNDARIES SHALL BE APPROVED IN WRITING BY THE LAND OWNER PRIOR TO MOBILIZATION. CONSTRUCTION STAKING AND BOUNDARY MARKING IS THE RESPONSIBILITY OF THE CONTRACTOR.
- 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 UN-BRACED 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 UN-BRACED LENGTH THAT IMMEDIATELY REDUCES ITS LOAD CARRYING CAPACITY. IF A DIAGONAL IS ALSO REMOVED IN ADDITION TO THE CONNECTION, THE UN-BRACED 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.
- WORK SHALL ONLY BE PERFORMED DURING CALM DRY DAYS (WINDS LESS THAN 10-MPH). CONTRACTOR IS RESPONSIBLE FOR ALL TEMPORARY LOCAL TOWER SHORING, TEMPORARY GLOBAL TOWER SHORING, AND ALL SHORING OF SURROUNDING BUILDINGS, PADS, AND OTHER OUTDOOR SITE OBSTRUCTIONS. ALL SHORING, TEMPORARY BRACING, AND TEMPORARY SUPPORTS ARE THE RESPONSIBILITY OF THE CONTRACTOR.
- MODIFICATIONS SHOWN SHALL BE INSTALLED ON ALL THREE (3) TOWER LEGS/FACES.
- ABSOLUTELY NO WELDING, TORCH CUTTING, OR OPEN FLAME OF ANY TYPE IS PERMITTED ON THIS STRUCTURE AND ON THIS CONSTRUCTION SITE UNLESS DIRECTLY SPECIFIED WITHIN THESE DRAWINGS.
- FAA/FCC FILING AND LIGHTING MAY BE REQUIRED. ALL GOVERNMENTAL REGULATORY DETERMINATIONS AND FILINGS BY OTHERS, NOT GPD.
- VERIFY IF THIS STRUCTURE IS AN FM TOWER AND TAKE NECESSARY ACTIONS TO PROVIDE SAFE WORKING CONDITIONS INCLUDING, BUT NOT LIMITED TO, HAVING FM SIGNAL TURNED OFF. CONTRACTOR SHALL HAVE PROPER RADMAN FOR NOTIFICATION OF EXCESSIVE RF EXPOSURE FOR ALL INDIVIDUALS WORKING ON SITE IF FM ANTENNAS ARE PRESENT.
- ALL MANUFACTURERS HARDWARE AND ASSEMBLY INSTRUCTIONS SHALL BE FOLLOWED EXACTLY. DEVIATION FROM THE INSTRUCTIONS IS UNACCEPTABLE AND REQUIRES WRITTEN APPROVAL FROM ENGINEER.
- DO NOT SCALE DRAWINGS.
- THE CLIMBING FACILITIES, SAFETY CLIMB AND ALL ASSOCIATED HARDWARE SHALL NOT BE IMPEDED OR MODIFIED WITHOUT THE WRITTEN CONSENT OF GPD.
- ANY WORK PERFORMED WITHOUT A PREFABRICATION MAPPING IS DONE AT THE RISK OF THE GC AND/OR FABRICATOR.
- IMPROPER FIT-UP OF NEW BOLTED HARDWARE DUE TO OVERSIZED DOUBLE-PUNCHED OR SLOTTED HOLES FOUND ON THE EXISTING STRUCTURE SHALL BE REPORTED TO GPD AND THE TOWER OWNER IMMEDIATELY. INSTALLATION OF SUCH HARDWARE WILL NOT BE ACCEPTABLE AND ALL COSTS ASSOCIATED WITH REMEDYING THE INSTALLATION WILL BE THE RESPONSIBILITY OF THE GC.

STRUCTURAL STEEL NOTES

- ALL NEW STEEL SHALL BE HOT-DIPPED GALVANIZED PER ASTM A123, ASTM A153/A153M, OR ASTM A653 G90, AS APPLICABLE FOR FULL WEATHER PROTECTION. FOR HIGH STRENGTH STEEL FASTENERS WHERE HOT-DIPPED GALVANIZING IS NOT PERMITTED MAGNI 565 COATING (OR ENGINEER APPROVED EQUIVALENT) SHALL BE USED. IN ADDITION ALL NEW STEEL SHALL BE PAINTED TO MATCH EXISTING TOWER STEEL. CONTRACTOR SHALL OBTAIN WRITTEN PERMISSION TO PROTECT STEEL BY ANY OTHER MEANS.
- ALL EXISTING PAINTED/GALVANIZED SURFACES DAMAGED DURING REHAB SHALL BE WIRE BRUSHED CLEAN, REPAIRED BY COLD GALVANIZING BRUSH APPLIED PAINT (ZRC OR EQUAL), AND REPAINTED TO MATCH THE EXISTING FINISH (IF APPLICABLE).
- ALL STRUCTURAL STEEL SHALL CONFORM TO THE LISTED REQUIREMENTS U.N.O. IN THESE DRAWINGS:

SOLID ROUND	ASTM A36
BOLTS	ASTM A325
NUTS	ASTM A563 GRADE DH
WASHERS	ASTM F436
LOCKING DEVICE	SPLIT WASHER/PAL-NUT
- ALL BOLT ASSEMBLIES FOR STRUCTURAL MEMBERS REPRESENTED IN THIS DRAWING REQUIRE LOCKING DEVICES TO BE INSTALLED IN ACCORDANCE WITH THE GOVERNING PROVISIONS OF TIA/EIA-222 REQUIREMENTS.
- ALL BOLTS, INCLUDING U-BOLTS, SHALL BE TIGHTENED IN ACCORDANCE WITH AISC "SNUG TIGHT" REQUIREMENTS, U.N.O.
- ALL SUBSTITUTES PROPOSED BY THE CONTRACTOR SHALL BE APPROVED IN WRITING BY THE ENGINEER. CONTRACTOR SHALL PROVIDE DOCUMENTATION TO ENGINEER FOR DETERMINING IF SUBSTITUTE IS SUITABLE FOR USE AND MEETS THE ORIGINAL DESIGN CRITERIA. DIFFERENCES FROM THE ORIGINAL DESIGN, INCLUDING MAINTENANCE, REPAIR AND REPLACEMENT, SHALL BE NOTED. ESTIMATES OF COSTS/CREDITS ASSOCIATED WITH THE SUBSTITUTION (INCLUDING RE-DESIGN COSTS AND COSTS TO SUB-CONTRACTORS) SHALL BE PROVIDED TO THE ENGINEER. CONTRACTOR SHALL PROVIDE ADDITIONAL DOCUMENTATION AND/OR SPECIFICATIONS TO THE ENGINEER AS REQUESTED.
- STRUCTURAL STEEL SHOP DRAWINGS SHALL BE PROVIDED TO ENGINEER FOR APPROVAL PRIOR TO FABRICATION.
- UNLESS NOTED OTHERWISE, ALL NEW MEMBERS SHALL MAINTAIN THE EXISTING MEMBER WORK LINES AND NOT INTRODUCE ECCENTRICITIES INTO THE STRUCTURE
- FOR ALL SHOP WELDING, USE E70XX ELECTRODES FOR SMAW PROCESS AND E7XT-XX ELECTRODES FOR FCAW PROCESS, UNO.
- ALL EXPOSED STRUCTURAL STEEL AS THE RESULT OF THIS SCOPE OF WORK INCLUDING, BUT NOT LIMITED TO, FIELD WELDS, FIELD CUT MEMBERS, FIELD DRILLED HOLES, AND SHAFT INTERIORS (WHERE APPLICABLE), SHALL BE SOLVENT CLEANED AND HAVE TWO (2) COATS OF BRUSHED ON ZRC ZINC RICH COLD GALVANIZING PAINT APPLIED.



520 South Main Street
Akron, OH 44311
330.572.2100 Fax 330.572.2102



DANBURY
USID #: 170551

DESIGN DRAWINGS
PREPARED FOR:



CLIENT #: CT0968

REV.	DATE	DESCRIPTION
0	9/25/20	INITIAL RELEASE

DANBURY
303 BOXWOOD LANE
DANBURY, CT 06811

PROJECT NOTES



9/25/20

ISSUED FOR:	
PERMIT	9/25/2020
BID	-
CONSTRUCTION	-
RECORD	-

ENGINEER	DESIGNER
MS	JMJ
PROJECT MANAGER	APPROVED BY
CB	CJS

JOB NO.
2020723.13.170551.01

N-01

REV.	DATE	DESCRIPTION
0	9/25/20	INITIAL RELEASE

DANBURY
303 BOXWOOD LANE
DANBURY, CT 06811
TOWER ELEVATION &
MODIFICATION SCHEDULE

ISSUED FOR:	
PERMIT	9/25/2020
BID	-
CONSTRUCTION	-
RECORD	-

ENGINEER	DESIGNER
MS	JMJ
PROJECT MANAGER	APPROVED BY
CB	CJS

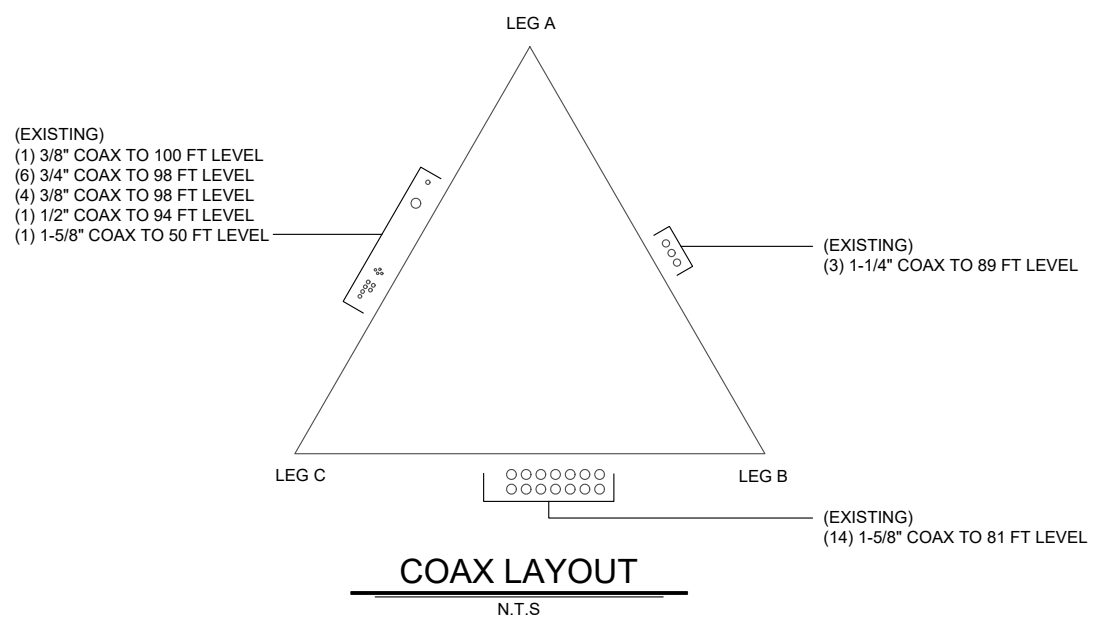
JOB NO.
2020723.13.170551.01

S-01

MODIFICATION SCHEDULE

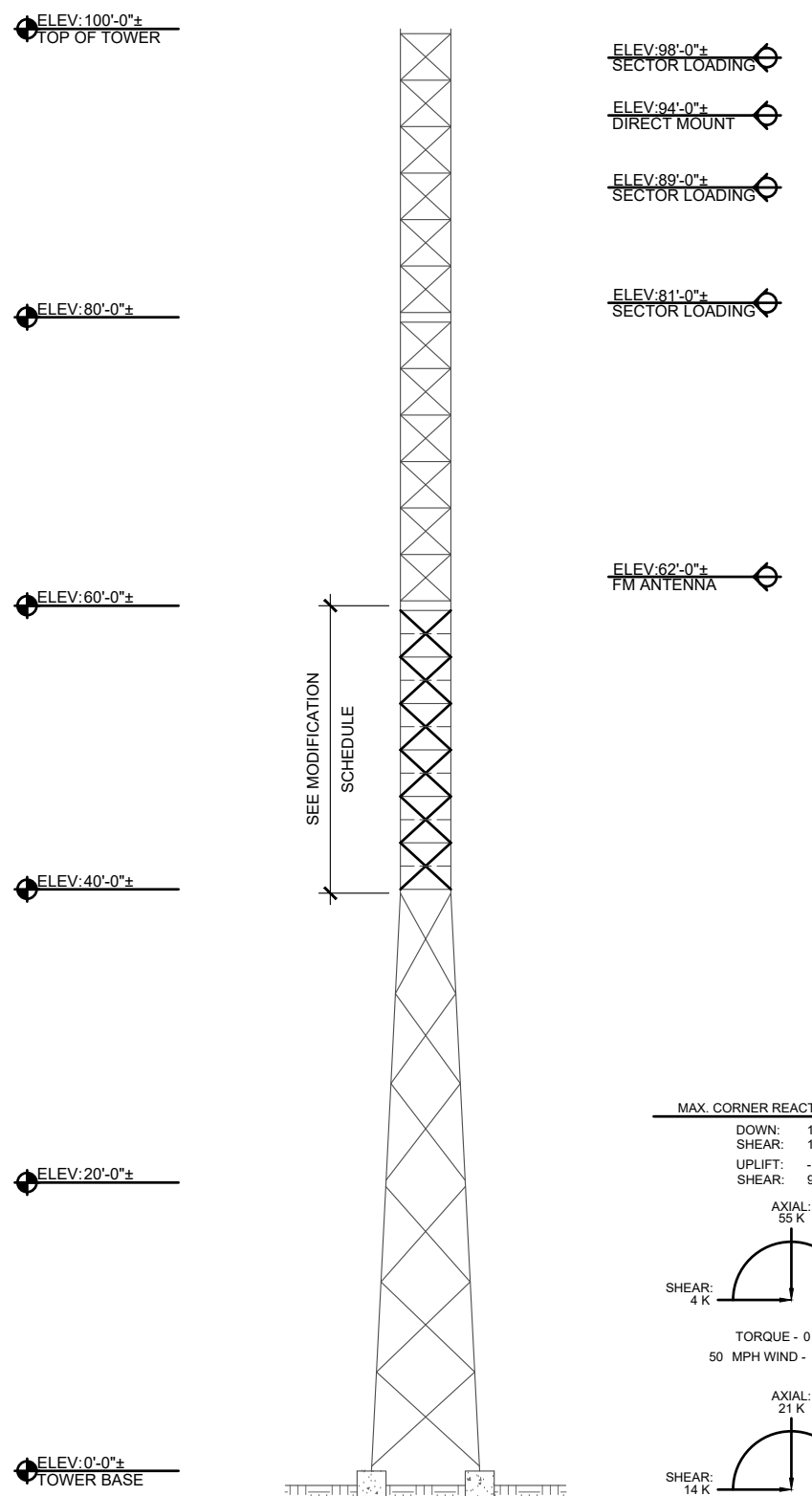
MEMBER TYPE	ELEVATION	EXISTING MEMBER	NEW MEMBER	REFERENCE DETAIL/SHEET	NOTES
DIAGONALS	40'-0"± - 60'-0"±	5/8"Ø SR W/ FLAT PLATE REINFORCEMENT	- 3/4"Ø SR	1/S-02	REMOVE THE EXISTING FLAT WELDED PLATE REINFORCEMENT FROM THE EXISTING DIAGONAL BRACING. INSTALL NEW SOLID ROUND REINFORCEMENT TO THE EXISTING DIAGONAL BRACING.
SECONDARY HORIZONTALS	40'-0"± - 53'-3"±	L3x3x5/16	-		REMOVE THE EXISTING BOLT-ON SECONDARY HORIZONTAL BRACING FROM THE TOWER.

- NOTES:
- ALL MATERIAL REMOVED FROM THE TOWER SHALL BE DISPOSED OF BY THE CONTRACTOR OFF SITE.
 - CONTRACTOR SHALL TAKE CARE NOT TO DAMAGE THE EXISTING DIAGONALS DURING THE REMOVAL OF THE EXISTING REINFORCEMENT.
 - ALL EXPOSED STEEL SHALL BE SOLVENT CLEANED AND TOUCHED UP WITH TWO COATS OF BRUSH APPLIED ZRC ZINC RICH COLD GALVANIZING COMPOUND.

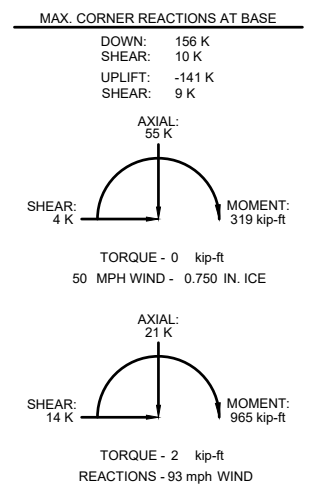


COAX LAYOUT
N.T.S.

NOTE: FOR FULL ANTENNA CONFIGURATION SEE ASSOCIATED PASSING ANALYSIS.



TOWER ELEVATION
N.T.S.



STATE OF CONNECTICUT
CHRISTOPHER J. SCHEKTS
No. 30020
PROFESSIONAL ENGINEER
9/25/20

REV.	DATE	DESCRIPTION
0	9/25/20	INITIAL RELEASE

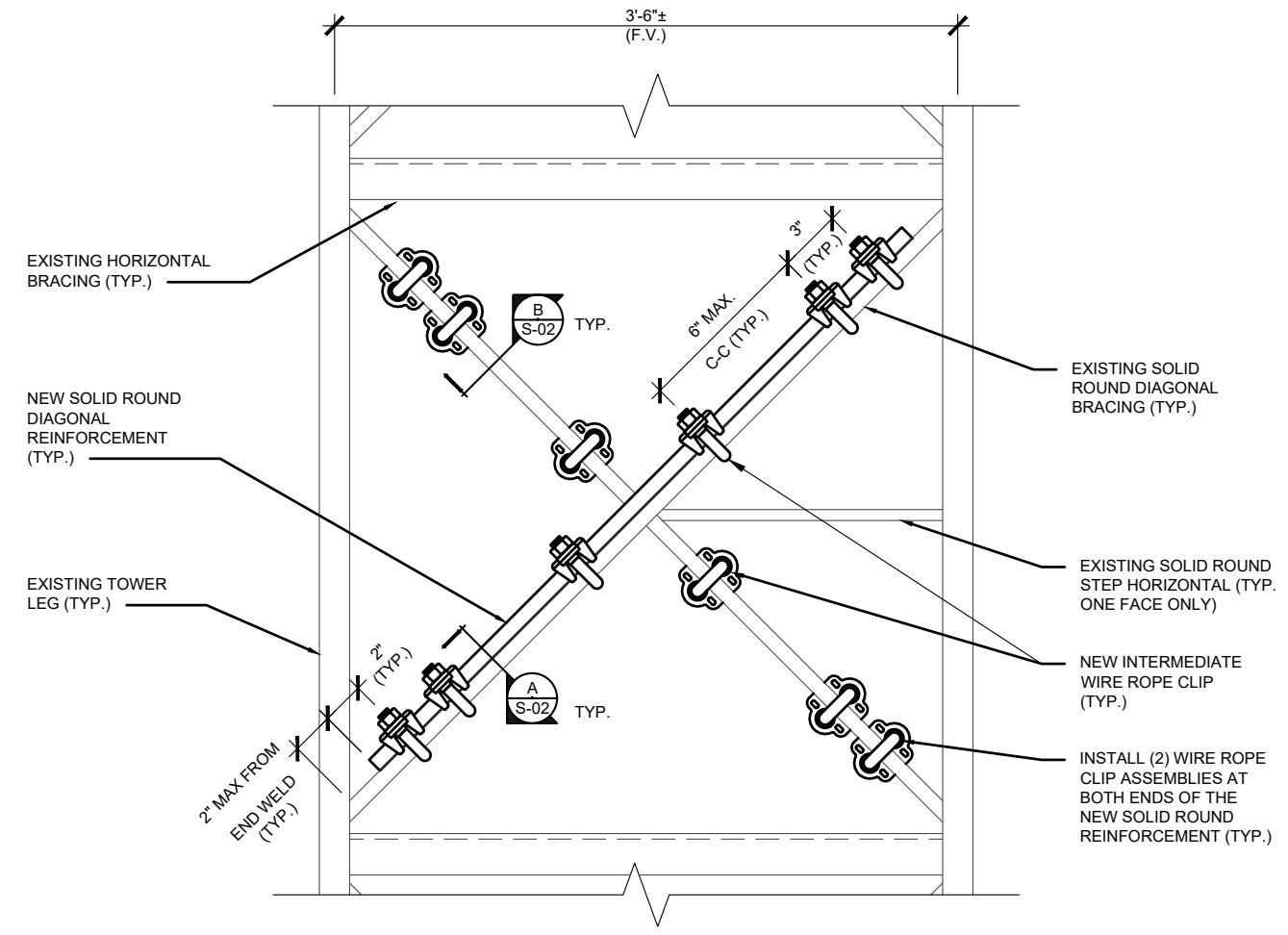
DANBURY
303 BOXWOOD LANE
DANBURY, CT 06811
MODIFICATION DETAILS
& SECTIONS

ISSUED FOR:	
PERMIT	9/25/2020
BID	-
CONSTRUCTION	-
RECORD	-

ENGINEER	DESIGNER
MS	JMJ
PROJECT MANAGER	APPROVED BY
CB	CJS

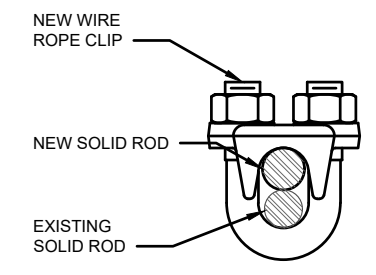
JOB NO.
2020723.13.170551.01

S-02

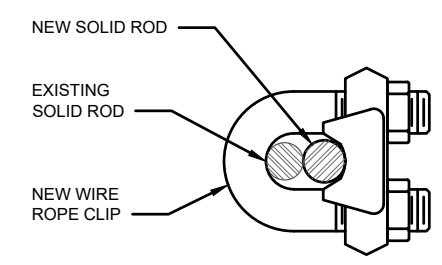


1 DETAIL
S-02 SCALE: 1-1/2"=1'-0"

- NOTES:**
1. DETAIL TYPICAL FOR ALL DIAGONAL BAYS IN THE MODIFIED REGION FROM 40'-0" TO 60'-0".
 2. EXISTING SECONDARY HORIZONTALS AND FLAT PLATES TO BE REMOVED NOT SHOWN FOR CLARITY.
 3. CONTRACTOR TO REMOVE ALL EXISTING BOLT ON SECONDARY HORIZONTAL BRACING AND ALL ASSOCIATED HARDWARE.
 4. CONTRACTOR SHALL REMOVE THE EXISTING WELDED DIAGONAL FLAT PLATE REINFORCEMENT. CONTRACTOR TO TAKE CARE NOT TO DAMAGE THE EXISTING BRACING DURING THE REMOVAL OF THE EXISTING WELDED FLAT PLATE REINFORCEMENT.



A SOLID ROUND CONNECTION
S-02 OPTION 1



B SOLID ROUND CONNECTION
S-02 OPTION 2

- NOTES:**
1. IF EXISTING SOLID ROD MEMBERS ARE BENT, THEY WILL NEED STRAIGHTENING PRIOR TO ATTACHMENT OF NEW MEMBERS. USE PROPER TOOLS & AVOID STRESSING OTHER TOWER MEMBERS & WELDS OF BENT MEMBERS.
 2. NEW SOLID ROD SHALL BE INSTALLED PARALLEL & STRAIGHT AGAINST EXISTING SOLID ROD MEMBER.
 3. SOLID ROD CONNECTION: OPTION 1 IS THE DEFAULT OPTION.
 4. THE WIRE CLIP SIZE SHALL MATCH THE ROD SIZE, UNLESS NOTED OTHERWISE.
 5. THE WIRE CLIP MUST BE SNUG TIGHT AND IS NOT REQUIRED TO BE DOMESTICALLY MANUFACTURED.



9/25/20

March 27, 2020
July 26, 2020 (Rev. 1)



SAI Communications
12 Industrial Way
Salem NH, 03079

RE: Site Number: CT0968 (LTE 7C/5G)
 FA Number: 12684103
 PACE Number: MRCTB034989
 PT Number: 2051A0KGBN
 Site Name: DANBURY BOXWOOD LANE
 Site Address: 303 Boxwood Lane
 Danbury, CT 06811

To Whom It May Concern:

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

- (3) OPA-65R-LCUU-H4 Antennas (48.0"x14.4"x7.3" – Wt. = 57 lbs. /each)
- (3) SBNHH-1D65A Antennas (55.6"x11.9"x7.1" - Wt. = 34 lbs. /each)
- (3) RRUS-32 RRH's (27.2"x12.1"x7.0" – Wt. = 60 lbs. /each)
- (3) Squid Surge Arrestors (24.0"x9.7"Ø – Wt. = 33 lbs.) (tower mounted)
- **(3) OPA-65R-BU4B Antennas (48.0"x11.7"x10.1" – Wt. = 43 lbs. /each)**
- **(3) 4449 B5/B12 RRH's (17.9"x13.2"x9.5" – Wt. = 71 lbs. /each)**
- **(3) 8843 B2/B66A RRH's (14.9"x13.2"x10.9" – Wt. = 72 lbs. /each)**
- **(3) B14 4478 RRH's (18.1"x13.4"x8.3" – Wt. = 60 lbs. /each)**

**Proposed equipment shown in bold*

No original structural design documents or fabrication drawings were available for the existing mounts. B+T Group conducted a survey climb and mapping of the existing AT&T antenna mounts on December 13, 2018.

Mount Analysis Methods:

- This analysis was conducted in accordance with EIA/TIA-222-H, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, the International Building Code 2015 with 2018 Connecticut State Building Code, and AT&T Mount Technical Directive – R13.
- HDG considers this mount to be asymmetrical and has applied wind loads in 30 degree increments all around the mount. Per TIA-222-H and Appendix N of the Connecticut State Building Code, the max basic wind speed for this site is equal to 120 mph with a max basic wind speed with ice of 50 mph and a max ice thickness of 1.0 in. An escalated ice thickness of 1.24 in was used for this analysis.
- HDG considers this site to be exposure category B; tower is located in an urban/suburban or wooded area with numerous closely spaced obstructions.
- HDG considers this site to be topographic category 3; tower is located at the upper half of a hill.
- The mount has been analyzed with load combinations consisting of 250 lbs live load using a service wind speed of 30 mph wind on the worst case antenna. Analysis performed on each antenna pipe to determine worst case location; worst case location was antenna position 1.
- The mount has been analyzed with load combinations consisting of a 250 lbs live load in a worst case location on the mount.
- The existing mount is secured to the existing tower with U-Bolts. The connection is considered OK by visual inspection.

Based on our evaluation, we have determined that the existing mounts **ARE NOT CAPABLE** of supporting the proposed installation. HDG recommends the following modifications:

- Reinforce existing vertical steel angles with new 2x2x3/16 steel angles (typ. of 2 per sector, total of 6)

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
Existing (LTE 7C/5G) Mount Rating	52	LC16	116%	FAIL
Modified (LTE 7C/5G) Mount Rating	1	LC12	73%	PASS

Reference Documents:

- Mount mapping report prepared by B+T Group

This determination was based on the following limitations and assumptions:

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

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

Respectfully Submitted,
Hudson Design Group LLC



Michael Cabral
Vice President



Daniel P. Hamm, PE
Principal

FIELD PHOTOS:







HUDSON
Design Group LLC

Wind & Ice Calculations

Date: 7/26/2020
 Project Name: DANBURY BOXWOOD LANE
 Project No.: CT0968
 Designed By: LBW Checked By: MSC



2.6.5.2 Velocity Pressure Coeff:

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

$K_z =$ **0.988**

$z =$ 100 (ft)
 $z_g =$ 1200 (ft)
 $\alpha =$ 7.0

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

Table 2-4

Exposure	Z_g	α	K_{zmin}	K_c
B	1200 ft	7.0	0.70	0.9
C	900 ft	9.5	0.85	1.0
D	700 ft	11.5	1.03	1.1

2.6.6.2 Topographic Factor:

Table 2-5

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

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

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

$K_{zt} =$ #DIV/0!

$K_h =$ #DIV/0!

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

$K_c =$ 0.9 (from Table 2-4)

$K_t =$ 0 (from Table 2-5)

$f =$ 0 (from Table 2-5)

$z =$ 100

$z_s =$ 0 (Mean elevation of base of structure above sea level)

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

$K_{zt} =$ 1.00 (from 2.6.6.2.1)

$K_e =$ 1.00 (from 2.6.8)

Category = **1**

2.6.10 Design Ice Thickness

Max Ice Thickness =

$t_i =$ 1.00 in

Importance Factor =

$I =$ 1.0 (from Table 2-3)

$K_{iz} =$ 1.12 (from Sec. 2.6.10)

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

$t_{iz} =$ 1.12 in

Date: 7/26/2020
 Project Name: DANBURY BOXWOOD LANE
 Project No.: CT0968
 Designed By: LBW Checked By: MSC



2.6.9 Gust Effect Factor

2.6.9.1 Self Supporting Lattice Structures

$G_h = 1.0$ Latticed Structures > 600 ft

$G_h = 0.85$ Latticed Structures 450 ft or less

$G_h = 0.85 + 0.15 [h/150 - 3.0]$ $h =$ ht. of structure

$h =$ 100

$G_h =$ 0.85

2.6.9.2 Guyed Masts

$G_h =$ 0.85

2.6.9.3 Pole Structures

$G_h =$ 1.1

2.6.9 Appurtenances

$G_h =$ 1.0

2.6.9.4 Structures Supported on Other Structures

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

$G_h =$ 1.35

$G_h =$ 1.00

2.6.11.2 Design Wind Force on Appurtenances

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

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

$q_z =$	30.97
$q_{z(ice)} =$	5.38
$q_{z(30)} =$	1.94

$K_z =$	0.988 (from 2.6.5.2)
$K_{zt} =$	1.0 (from 2.6.6.2.1)
$K_s =$	1.0 (from 2.6.7)
$K_e =$	1.00 (from 2.6.8)
$K_d =$	0.85 (from Table 2-2)
$V_{max} =$	120 mph (Ultimate Wind Speed)
$V_{max(ice)} =$	50 mph
$V_{30} =$	30 mph

Table 2-2

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

Date: 7/26/2020
 Project Name: DANBURY BOXWOOD LANE
 Project No.: CT0968
 Designed By: LBW Checked By: MSC



Determine Ca:

Table 2-9

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

Aspect Ratio is the overall length/width ratio in the plane normal to the wind direction.
 (Aspect ratio is independent of the spacing between support points of a linear appurtenance,
 Note: Linear interpolation may be used for aspect ratios other than those shown.

Ice Thickness = **1.12 in** **Angle = 0 (deg)** **Equivalent Angle = 180 (deg)**

Appurtenances	Height	Width	Depth	Flat Area	Aspect Ratio	Ca	Force (lbs)	Force (lbs) (w/ Ice)	Force (lbs) (30 mph)
OPA-65R-LCUU-H4 Antenna	48.0	14.4	7.3	4.80	3.33	1.24	184	39	11
OPA-65R-BU4B Antenna	48.0	11.7	10.1	3.90	4.10	1.27	154	33	10
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	4.67	1.30	184	40	12
4449 B5/B12 RRH	17.9	9.5	13.2	1.18	1.88	1.20	44	11	3
4449 B5/B12 RRH (Shielded)	17.9	4.8	13.2	0.59	3.77	1.26	23	7	1
8843 B2/B66A RRH	14.9	10.9	13.2	1.13	1.37	1.20	42	10	3
8843 B2/B66A RRH (Shielded)	14.9	5.5	13.2	0.56	2.73	1.21	21	6	1
RRUS-32 RRH	27.2	12.1	7.0	2.29	2.25	1.20	85	19	5
B14 4478 RRH	18.1	13.4	8.3	1.68	1.35	1.20	63	14	4
B14 4478 RRH (Shielded)	18.1	1.3	8.3	0.16	13.92	1.63	8	4	1
Surge Arrestor	24.0	9.7	9.7	1.62	2.47	0.70	35	8	2
L 2x2 Angles	2.0	12.0		0.17	0.17	2.00	10	5	1
L 2-1/2x2-1/2 Angles	2.5	12.0		0.21	0.21	2.00	13	5	1
L 3x2 Angles	3.0	12.0		0.25	0.25	2.00	15	6	1
L 4x4 Angles	4.0	12.0		0.33	0.33	2.00	21	7	1
PL 3x3/8	3.0	12.0		0.25	0.25	2.00	15	6	1
PL 6x1/2	0.5	12.0		0.04	0.04	2.00	3	3	0
C 3x5	3.0	12.0		0.25	0.25	2.00	15	6	1
3/4" Round Bar	0.8	12.0		0.06	0.06	1.20	2	2	0
2" pipe	2.4	12.0		0.20	0.20	1.20	7	3	0
2-1/2" pipe	2.9	12.0		0.24	0.24	1.20	9	3	1

Date: 7/26/2020
 Project Name: DANBURY BOXWOOD LANE
 Project No.: CT0968
 Designed By: LBW Checked By: MSC



WIND LOADS

Angle = **30** (deg)

Ice Thickness = **1.12** in.

Equivalent Angle = **210** (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Aspect Ratio	Aspect Ratio	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
OPA-65R-LCUU-H4 Antenna	48.0	14.4	7.3	4.80	2.43	3.33	6.58	1.24	1.38	184	104	164
OPA-65R-BU4B Antenna	48.0	11.7	10.1	3.90	3.37	4.10	4.75	1.27	1.30	154	136	149
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	184	121	169
4449 B5/B12 RRH	17.9	9.5	13.2	1.18	1.64	1.88	1.36	1.20	1.20	44	61	48
4449 B5/B12 RRH (Shielded)	17.9	4.8	13.2	0.59	1.64	3.77	1.36	1.26	1.20	23	61	32
8843 B2/B66A RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	42	51	44
8843 B2/B66A RRH (Shielded)	14.9	5.5	13.2	0.56	1.37	2.73	1.13	1.21	1.20	21	51	29
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	85	52	77
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	63	39	57
B14 4478 RRH (Shielded)	18.1	6.7	8.3	0.84	1.04	2.70	2.18	1.21	1.20	32	39	33

WIND LOADS WITH ICE:

OPA-65R-LCUU-H4 Antenna	50.2	16.6	9.5	5.80	3.33	3.02	5.27	1.22	1.32	38	24	35
OPA-65R-BU4B Antenna	50.2	13.9	12.3	4.86	4.30	3.61	4.07	1.25	1.27	33	29	32
SBNHH-1D65A Antenna	57.8	14.1	9.3	5.68	3.75	4.09	6.20	1.27	1.36	39	27	36
4449 B5/B12 RRH	20.1	11.7	15.4	1.64	2.16	1.72	1.30	1.20	1.20	11	14	11
4449 B5/B12 RRH (Shielded)	20.1	5.9	15.4	0.82	2.16	3.43	1.30	1.24	1.20	5	14	8
8843 B2/B66A RRH	17.1	13.1	15.4	1.56	1.84	1.30	1.11	1.20	1.20	10	12	11
8843 B2/B66A RRH (Shielded)	17.1	6.6	15.4	0.78	1.84	2.61	1.11	1.20	1.20	5	12	7
RRUS-32 RRH	29.4	14.3	9.2	2.93	1.89	2.05	3.19	1.20	1.23	19	12	17
B14 4478 RRH	20.3	15.6	10.5	2.21	1.49	1.30	1.93	1.20	1.20	14	10	13
B14 4478 RRH (Shielded)	20.3	7.8	10.5	1.10	1.49	2.60	1.93	1.20	1.20	7	10	8

WIND LOADS AT 30 MPH:

OPA-65R-LCUU-H4 Antenna	48.0	14.4	7.3	4.80	2.43	3.33	6.58	1.24	1.38	11	7	10
OPA-65R-BU4B Antenna	48.0	11.7	10.1	3.90	3.37	4.10	4.75	1.27	1.30	10	8	9
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	12	8	11
4449 B5/B12 RRH	17.9	9.5	13.2	1.18	1.64	1.88	1.36	1.20	1.20	3	4	3
4449 B5/B12 RRH (Shielded)	17.9	4.8	13.2	0.59	1.64	3.77	1.36	1.26	1.20	1	4	2
8843 B2/B66A RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	3	3	3
8843 B2/B66A RRH (Shielded)	14.9	5.5	13.2	0.56	1.37	2.73	1.13	1.21	1.20	1	3	2
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	5	3	5
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	4	2	4
B14 4478 RRH (Shielded)	18.1	6.7	8.3	0.84	1.04	2.70	2.18	1.21	1.20	2	2	2

Date: 7/26/2020
 Project Name: DANBURY BOXWOOD LANE
 Project No.: CT0968
 Designed By: LBW Checked By: MSC



WIND LOADS

Angle = **60** (deg) Ice Thickness = **1.12** in. Equivalent Angle = **240** (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
OPA-65R-LCUU-H4 Antenna	48.0	14.4	7.3	4.80	2.43	3.33	6.58	1.24	1.38	184	104	124
OPA-65R-BU4B Antenna	48.0	11.7	10.1	3.90	3.37	4.10	4.75	1.27	1.30	154	136	140
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	184	121	137
4449 B5/B12 RRH	17.9	9.5	13.2	1.18	1.64	1.88	1.36	1.20	1.20	44	61	57
4449 B5/B12 RRH (Shielded)	17.9	7.1	13.2	0.89	1.64	2.51	1.36	1.20	1.20	33	61	54
8843 B2/B66A RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	42	51	49
8843 B2/B66A RRH (Shielded)	14.9	8.2	13.2	0.85	1.37	1.82	1.13	1.20	1.20	31	51	46
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	85	52	60
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	63	39	45
B14 4478 RRH (Shielded)	18.1	10.1	8.3	1.26	1.04	1.80	2.18	1.20	1.20	47	39	41

WIND LOADS WITH ICE:

OPA-65R-LCUU-H4 Antenna	50.2	16.6	9.5	5.80	3.33	3.02	5.27	1.22	1.32	38	24	27
OPA-65R-BU4B Antenna	50.2	13.9	12.3	4.86	4.30	3.61	4.07	1.25	1.27	33	29	30
SBNHH-1D65A Antenna	57.8	14.1	9.3	5.68	3.75	4.09	6.20	1.27	1.36	39	27	30
4449 B5/B12 RRH	20.1	11.7	15.4	1.64	2.16	1.72	1.30	1.20	1.20	11	14	13
4449 B5/B12 RRH (Shielded)	20.1	8.8	15.4	1.23	2.16	2.29	1.30	1.20	1.20	8	14	12
8843 B2/B66A RRH	17.1	13.1	15.4	1.56	1.84	1.30	1.11	1.20	1.20	10	12	11
8843 B2/B66A RRH (Shielded)	17.1	9.9	15.4	1.17	1.84	1.74	1.11	1.20	1.20	8	12	11
RRUS-32 RRH	29.4	14.3	9.2	2.93	1.89	2.05	3.19	1.20	1.23	19	12	14
B14 4478 RRH	20.3	15.6	10.5	2.21	1.49	1.30	1.93	1.20	1.20	14	10	11
B14 4478 RRH (Shielded)	20.3	11.7	10.5	1.66	1.49	1.73	1.93	1.20	1.20	11	10	10

WIND LOADS AT 30 MPH:

OPA-65R-LCUU-H4 Antenna	48.0	14.4	7.3	4.80	2.43	3.33	6.58	1.24	1.38	11	7	8
OPA-65R-BU4B Antenna	48.0	11.7	10.1	3.90	3.37	4.10	4.75	1.27	1.30	10	8	9
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	12	8	9
4449 B5/B12 RRH	17.9	9.5	13.2	1.18	1.64	1.88	1.36	1.20	1.20	3	4	4
4449 B5/B12 RRH (Shielded)	17.9	7.1	13.2	0.89	1.64	2.51	1.36	1.20	1.20	2	4	3
8843 B2/B66A RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	3	3	3
8843 B2/B66A RRH (Shielded)	14.9	8.2	13.2	0.85	1.37	1.82	1.13	1.20	1.20	2	3	3
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	5	3	4
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	4	2	3
B14 4478 RRH (Shielded)	18.1	10.1	8.3	1.26	1.04	1.80	2.18	1.20	1.20	3	2	3

Date: 7/26/2020
 Project Name: DANBURY BOXWOOD LANE
 Project No.: CT0968
 Designed By: LBW Checked By: MSC



WIND LOADS

Angle = 90 (deg) Ice Thickness = 1.12 in. Equivalent Angle = 270 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
OPA-65R-LCUU-H4 Antenna	48.0	14.4	7.3	4.80	2.43	3.33	6.58	1.24	1.38	184	104	104
OPA-65R-BU4B Antenna	48.0	11.7	10.1	3.90	3.37	4.10	4.75	1.27	1.30	154	136	136
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	184	121	121
4449 B5/B12 RRH	17.9	9.5	13.2	1.18	1.64	1.88	1.36	1.20	1.20	44	61	61
4449 B5/B12 RRH (Shielded)	17.9	4.8	13.2	0.59	1.64	3.77	1.36	1.26	1.20	23	61	61
8843 B2/B66A RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	42	51	51
8843 B2/B66A RRH (Shielded)	14.9	5.5	13.2	0.56	1.37	2.73	1.13	1.21	1.20	21	51	51
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	85	52	52
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	63	39	39
B14 4478 RRH (Shielded)	18.1	1.3	8.3	0.16	1.04	13.92	2.18	1.63	1.20	8	39	39

WIND LOADS WITH ICE:

OPA-65R-LCUU-H4 Antenna	50.2	16.6	9.5	5.80	3.33	3.02	5.27	1.22	1.32	38	24	24
OPA-65R-BU4B Antenna	50.2	13.9	12.3	4.86	4.30	3.61	4.07	1.25	1.27	33	29	29
SBNHH-1D65A Antenna	57.8	14.1	9.3	5.68	3.75	4.09	6.20	1.27	1.36	39	27	27
4449 B5/B12 RRH	20.1	11.7	15.4	1.64	2.16	1.72	1.30	1.20	1.20	11	14	14
4449 B5/B12 RRH (Shielded)	20.1	7.0	15.4	0.98	2.16	2.88	1.30	1.22	1.20	6	14	14
8843 B2/B66A RRH	17.1	13.1	15.4	1.56	1.84	1.30	1.11	1.20	1.20	10	12	12
8843 B2/B66A RRH (Shielded)	17.1	7.7	15.4	0.91	1.84	2.23	1.11	1.20	1.20	6	12	12
RRUS-32 RRH	29.4	14.3	9.2	2.93	1.89	2.05	3.19	1.20	1.23	19	12	12
B14 4478 RRH	20.3	15.6	10.5	2.21	1.49	1.30	1.93	1.20	1.20	14	10	10
B14 4478 RRH (Shielded)	20.3	3.5	10.5	0.50	1.49	5.75	1.93	1.34	1.20	4	10	10

WIND LOADS AT 30 MPH:

OPA-65R-LCUU-H4 Antenna	48.0	14.4	7.3	4.80	2.43	3.33	6.58	1.24	1.38	11	7	7
OPA-65R-BU4B Antenna	48.0	11.7	10.1	3.90	3.37	4.10	4.75	1.27	1.30	10	8	8
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	12	8	8
4449 B5/B12 RRH	17.9	9.5	13.2	1.18	1.64	1.88	1.36	1.20	1.20	3	4	4
4449 B5/B12 RRH (Shielded)	17.9	4.8	13.2	0.59	1.64	3.77	1.36	1.26	1.20	1	4	4
8843 B2/B66A RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	3	3	3
8843 B2/B66A RRH (Shielded)	14.9	5.5	13.2	0.56	1.37	2.73	1.13	1.21	1.20	1	3	3
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	5	3	3
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	4	2	2
B14 4478 RRH (Shielded)	18.1	1.3	8.3	0.16	1.04	13.92	2.18	1.63	1.20	1	2	2

Date: 7/26/2020
 Project Name: DANBURY BOXWOOD LANE
 Project No.: CT0968
 Designed By: LBW Checked By: MSC



WIND LOADS

Angle = 120 (deg) Ice Thickness = 1.12 in. Equivalent Angle = 300 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
OPA-65R-LCUU-H4 Antenna	48.0	14.4	7.3	4.80	2.43	3.33	6.58	1.24	1.38	184	104	124
OPA-65R-BU4B Antenna	48.0	11.7	10.1	3.90	3.37	4.10	4.75	1.27	1.30	154	136	140
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	184	121	137
4449 B5/B12 RRH	17.9	9.5	13.2	1.18	1.64	1.88	1.36	1.20	1.20	44	61	57
4449 B5/B12 RRH (Shielded)	17.9	7.1	13.2	0.89	1.64	2.51	1.36	1.20	1.20	33	61	54
8843 B2/B66A RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	42	51	49
8843 B2/B66A RRH (Shielded)	14.9	8.2	13.2	0.85	1.37	1.82	1.13	1.20	1.20	31	51	46
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	85	52	60
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	63	39	45
B14 4478 RRH (Shielded)	18.1	10.1	8.3	1.26	1.04	1.80	2.18	1.20	1.20	47	39	41

WIND LOADS WITH ICE:

OPA-65R-LCUU-H4 Antenna	50.2	16.6	9.5	5.80	3.33	3.02	5.27	1.22	1.32	38	24	27
OPA-65R-BU4B Antenna	50.2	13.9	12.3	4.86	4.30	3.61	4.07	1.25	1.27	33	29	30
SBNHH-1D65A Antenna	57.8	14.1	9.3	5.68	3.75	4.09	6.20	1.27	1.36	39	27	30
4449 B5/B12 RRH	20.1	11.7	15.4	1.64	2.16	1.72	1.30	1.20	1.20	11	14	13
4449 B5/B12 RRH (Shielded)	20.1	8.8	15.4	1.23	2.16	2.29	1.30	1.20	1.20	8	14	12
8843 B2/B66A RRH	17.1	13.1	15.4	1.56	1.84	1.30	1.11	1.20	1.20	10	12	11
8843 B2/B66A RRH (Shielded)	17.1	9.9	15.4	1.17	1.84	1.74	1.11	1.20	1.20	8	12	11
RRUS-32 RRH	29.4	14.3	9.2	2.93	1.89	2.05	3.19	1.20	1.23	19	12	14
B14 4478 RRH	20.3	15.6	10.5	2.21	1.49	1.30	1.93	1.20	1.20	14	10	11
B14 4478 RRH (Shielded)	20.3	11.7	10.5	1.66	1.49	1.73	1.93	1.20	1.20	11	10	10

WIND LOADS AT 30 MPH:

OPA-65R-LCUU-H4 Antenna	48.0	14.4	7.3	4.80	2.43	3.33	6.58	1.24	1.38	11	7	8
OPA-65R-BU4B Antenna	48.0	11.7	10.1	3.90	3.37	4.10	4.75	1.27	1.30	10	8	9
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	12	8	9
4449 B5/B12 RRH	17.9	9.5	13.2	1.18	1.64	1.88	1.36	1.20	1.20	3	4	4
4449 B5/B12 RRH (Shielded)	17.9	7.1	13.2	0.89	1.64	2.51	1.36	1.20	1.20	2	4	3
8843 B2/B66A RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	3	3	3
8843 B2/B66A RRH (Shielded)	14.9	8.2	13.2	0.85	1.37	1.82	1.13	1.20	1.20	2	3	3
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	5	3	4
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	4	2	3
B14 4478 RRH (Shielded)	18.1	10.1	8.3	1.26	1.04	1.80	2.18	1.20	1.20	3	2	3

Date: 7/26/2020
 Project Name: DANBURY BOXWOOD LANE
 Project No.: CT0968
 Designed By: LBW Checked By: MSC



WIND LOADS

Angle = 150 (deg) Ice Thickness = 1.12 in. Equivalent Angle = 330 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
OPA-65R-LCUU-H4 Antenna	48.0	14.4	7.3	4.80	2.43	3.33	6.58	1.24	1.38	184	104	164
OPA-65R-BU4B Antenna	48.0	11.7	10.1	3.90	3.37	4.10	4.75	1.27	1.30	154	136	149
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	184	121	169
4449 B5/B12 RRH	17.9	9.5	13.2	1.18	1.64	1.88	1.36	1.20	1.20	44	61	48
4449 B5/B12 RRH (Shielded)	17.9	4.8	13.2	0.59	1.64	3.77	1.36	1.26	1.20	23	61	32
8843 B2/B66A RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	42	51	44
8843 B2/B66A RRH (Shielded)	14.9	5.5	13.2	0.56	1.37	2.73	1.13	1.21	1.20	21	51	29
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	85	52	77
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	63	39	57
B14 4478 RRH (Shielded)	18.1	6.7	8.3	0.84	1.04	2.70	2.18	1.21	1.20	32	39	33

WIND LOADS WITH ICE:

OPA-65R-LCUU-H4 Antenna	50.2	16.6	9.5	5.80	3.33	3.02	5.27	1.22	1.32	38	24	35
OPA-65R-BU4B Antenna	50.2	13.9	12.3	4.86	4.30	3.61	4.07	1.25	1.27	33	29	32
SBNHH-1D65A Antenna	57.8	14.1	9.3	5.68	3.75	4.09	6.20	1.27	1.36	39	27	36
4449 B5/B12 RRH	20.1	11.7	15.4	1.64	2.16	1.72	1.30	1.20	1.20	11	14	11
4449 B5/B12 RRH (Shielded)	20.1	5.9	15.4	0.82	2.16	3.43	1.30	1.24	1.20	5	14	8
8843 B2/B66A RRH	17.1	13.1	15.4	1.56	1.84	1.30	1.11	1.20	1.20	10	12	11
8843 B2/B66A RRH (Shielded)	17.1	6.6	15.4	0.78	1.84	2.61	1.11	1.20	1.20	5	12	7
RRUS-32 RRH	29.4	14.3	9.2	2.93	1.89	2.05	3.19	1.20	1.23	19	12	17
B14 4478 RRH	20.3	15.6	10.5	2.21	1.49	1.30	1.93	1.20	1.20	14	10	13
B14 4478 RRH (Shielded)	20.3	7.8	10.5	1.10	1.49	2.60	1.93	1.20	1.20	7	10	8

WIND LOADS AT 30 MPH:

OPA-65R-LCUU-H4 Antenna	48.0	14.4	7.3	4.80	2.43	3.33	6.58	1.24	1.38	11	7	10
OPA-65R-BU4B Antenna	48.0	11.7	10.1	3.90	3.37	4.10	4.75	1.27	1.30	10	8	9
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	12	8	11
4449 B5/B12 RRH	17.9	9.5	13.2	1.18	1.64	1.88	1.36	1.20	1.20	3	4	3
4449 B5/B12 RRH (Shielded)	17.9	4.8	13.2	0.59	1.64	3.77	1.36	1.26	1.20	1	4	2
8843 B2/B66A RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	3	3	3
8843 B2/B66A RRH (Shielded)	14.9	5.5	13.2	0.56	1.37	2.73	1.13	1.21	1.20	1	3	2
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	5	3	5
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	4	2	4
B14 4478 RRH (Shielded)	18.1	6.7	8.3	0.84	1.04	2.70	2.18	1.21	1.20	2	2	2

Date: 7/26/2020

Project Name: DANBURY BOXWOOD LANE

Project No.: CT0968

Designed By: LBW Checked By: MSC



HUDSON
Design Group LLC

ICE WEIGHT CALCULATIONS

Thickness of ice: 1.12 in.

Density of ice: 56 pcf

OPA-65R-LCUU-H4 Antenna

Weight of ice based on total radial SF area:

Height (in): 48.0

Width (in): 14.4

Depth (in): 7.3

Total weight of ice on object: 94 lbs

Weight of object: 57.0 lbs

Combined weight of ice and object: 151 lbs

OPA-65R-BU4B Antenna

Weight of ice based on total radial SF area:

Height (in): 48.0

Width (in): 11.7

Depth (in): 10.1

Total weight of ice on object: 91 lbs

Weight of object: 43.0 lbs

Combined weight of ice and object: 134 lbs

SBNHH-1D65A Antenna

Weight of ice based on total radial SF area:

Height (in): 55.6

Width (in): 11.9

Depth (in): 7.1

Total weight of ice on object: 95 lbs

Weight of object: 34.0 lbs

Combined weight of ice and object: 129 lbs

4449 B5/B12 RRH

Weight of ice based on total radial SF area:

Height (in): 17.9

Width (in): 13.2

Depth (in): 9.5

Total weight of ice on object: 35 lbs

Weight of object: 71.0 lbs

Combined weight of ice and object: 106 lbs

8843 B2/B66A RRH

Weight of ice based on total radial SF area:

Height (in): 14.9

Width (in): 13.2

Depth (in): 10.9

Total weight of ice on object: 31 lbs

Weight of object: 72.0 lbs

Combined weight of ice and object: 103 lbs

RRUS-32 RRH

Weight of ice based on total radial SF area:

Height (in): 27.2

Width (in): 12.1

Depth (in): 7.0

Total weight of ice on object: 47 lbs

Weight of object: 60.0 lbs

Combined weight of ice and object: 107 lbs

B14 4478 RRH

Weight of ice based on total radial SF area:

Height (in): 18.1

Width (in): 13.4

Depth (in): 8.3

Total weight of ice on object: 35 lbs

Weight of object: 60.0 lbs

Combined weight of ice and object: 95 lbs

Squid Surge Arrestor

Weight of ice based on total radial SF area:

Depth (in): 24.0

Diameter(in): 9.7

Total weight of ice on object: 30 lbs

Weight of object: 33 lbs

Combined weight of ice and object: 63 lbs

Date: 7/26/2020

Project Name: DANBURY BOXWOOD LANE

Project No.: CT0968

Designed By: LBW Checked By: MSC



HUDSON
Design Group LLC

L 2x2 Angles

Weight of ice based on total radial SF area:

Height (in): 2

Width (in): 2

Per foot weight of ice on object: 5 plf

L 3x2 Angles

Weight of ice based on total radial SF area:

Height (in): 3

Width (in): 2

Per foot weight of ice on object: 6 plf

PL 3x3/8

Weight of ice based on total radial SF area:

Height (in): 3

Width (in): 0.375

Per foot weight of ice on object: 6 plf

C 3x5

Weight of ice based on total radial SF area:

Height (in): 3

Width (in): 5

Per foot weight of ice on object: 10 plf

2" pipe

Per foot weight of ice:

diameter (in): 2.38

Per foot weight of ice on object: 5 plf

L 2-1/2x2-1/2 Angles

Weight of ice based on total radial SF area:

Height (in): 2.5

Width (in): 2.5

Per foot weight of ice on object: 6 plf

L 4x4 Angles

Weight of ice based on total radial SF area:

Height (in): 4

Width (in): 4

Per foot weight of ice on object: 9 plf

PL 6x1/2

Weight of ice based on total radial SF area:

Height (in): 6

Width (in): 0.5

Per foot weight of ice on object: 10 plf

3/4" Round Bar

Per foot weight of ice:

diameter (in): 0.75

Per foot weight of ice on object: 3 plf

2-1/2" pipe

Per foot weight of ice:

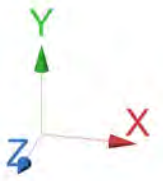
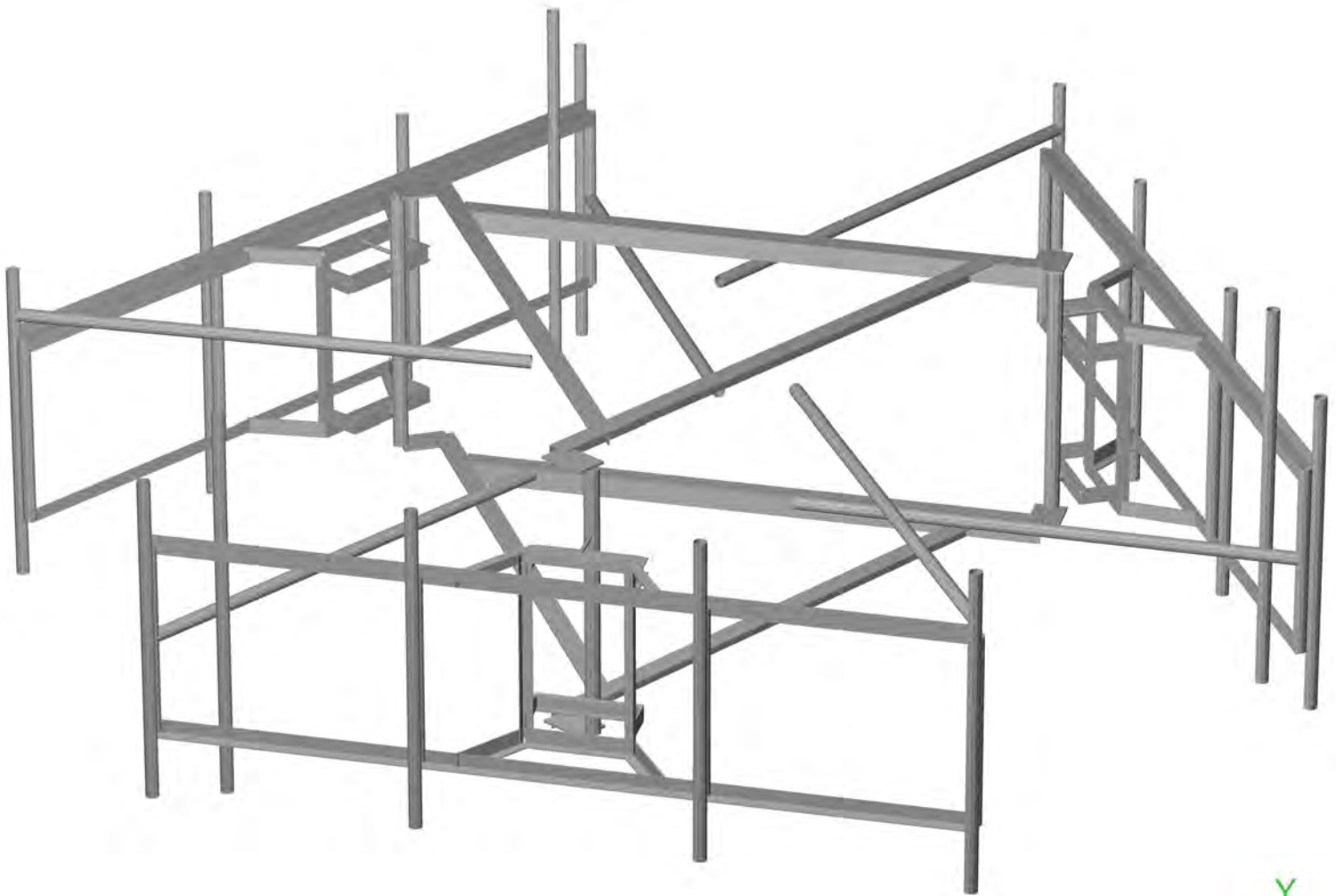
diameter (in): 2.88

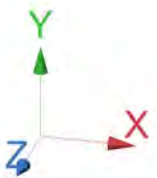
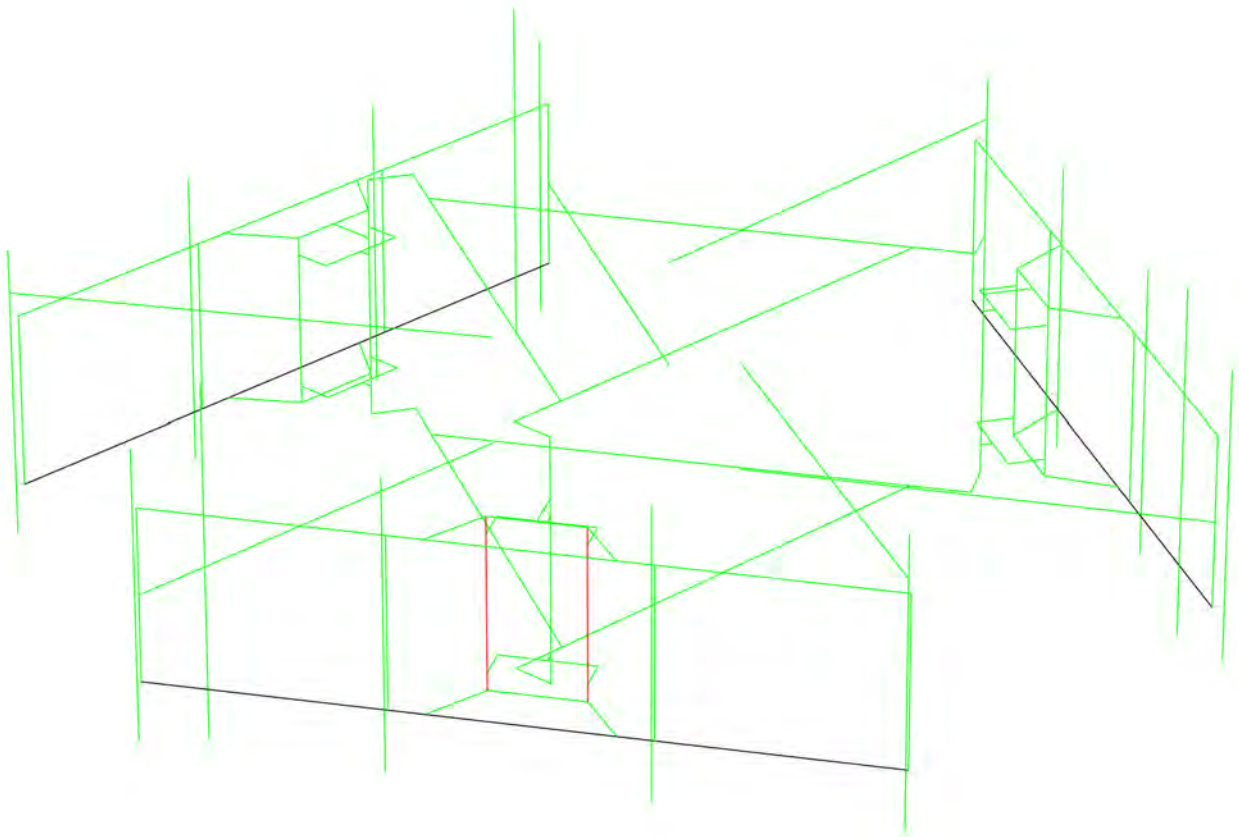
Per foot weight of ice on object: 5 plf

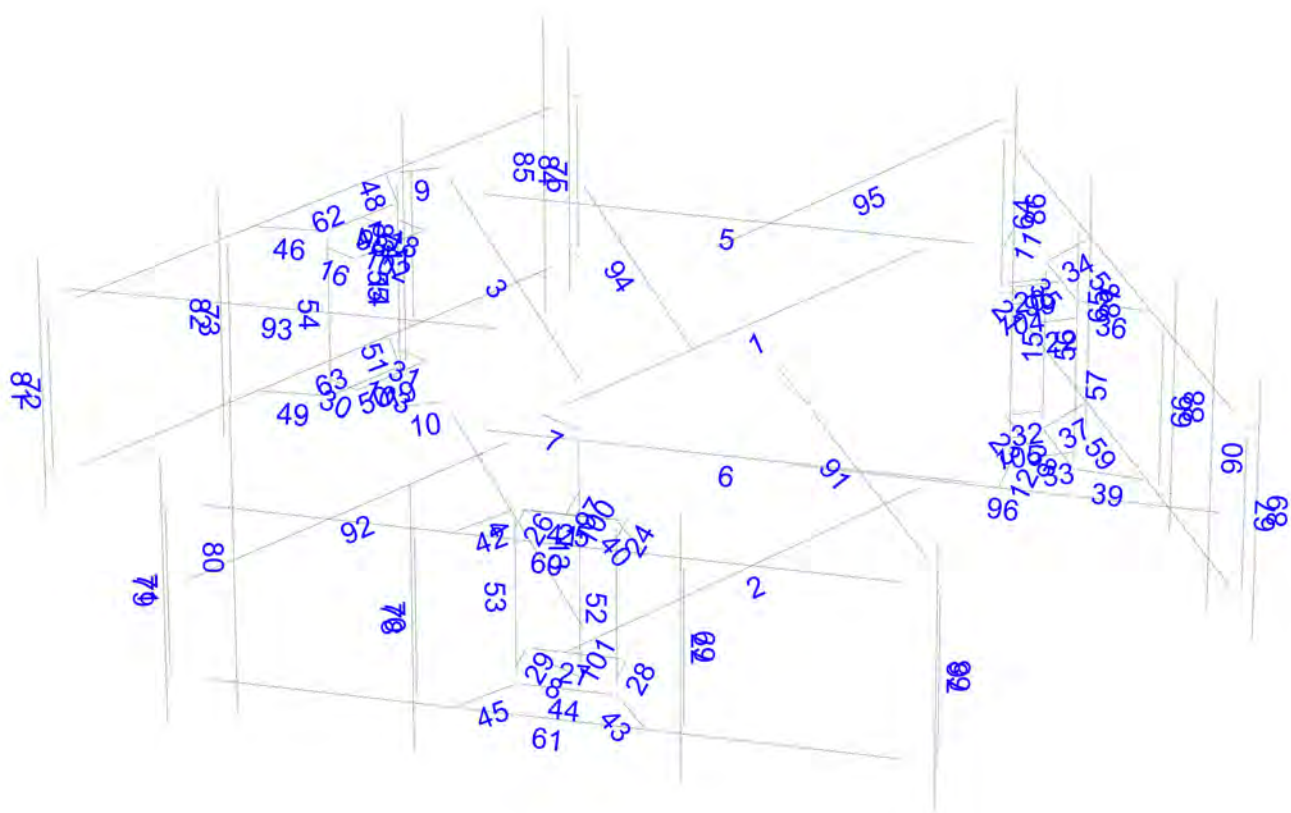


HUDSON
Design Group LLC

**Mount Calculations
(Existing Conditions)**







Current Date: 11/25/2020 3:46 PM

Units system: English

File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT0968\7C-5G\2020\Rev. 1\CT0968 (LTE 7C-5G)(Rev. 1).retx

Load data

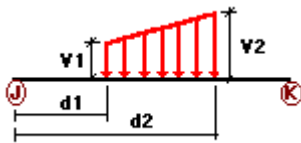
GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

Condition	Description	Comb.	Category
DL	Dead Load	No	DL
W0	Wind Load 0/60/120 deg	No	WIND
W30	Wind Load 30/90/150 deg	No	WIND
Di	Ice Load	No	LL
Wi0	Ice Wind Load 0/60/120 deg	No	WIND
Wi30	Ice Wind Load 30/90/150 deg	No	WIND
WL0	WL 30 mph 0/60/120 deg	No	WIND
WL30	WL 30 mph 30/90/150 deg	No	WIND
LL1	250 lb Live Load Center of Mount	No	LL
LL2	250 lb Live Load End of Mount	No	LL
LLa1	250 lb Live Load Antenna 1	No	LL
LLa2	250 lb Live Load Antenna 2	No	LL
LLa3	250 lb Live Load Antenna 3	No	LL
LLa4	250 lb Live Load Antenna 4	No	LL

Distributed force on members



Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
W0	1	z	-0.021	0.00	0.00	No	0.00	No
	2	z	-0.021	0.00	0.00	No	0.00	No
	3	z	-0.021	0.00	0.00	No	0.00	No
	4	z	-0.021	0.00	0.00	No	0.00	No
	5	z	-0.021	0.00	0.00	No	0.00	No
	6	z	-0.021	0.00	0.00	No	0.00	No
	13	z	-0.009	0.00	0.00	No	0.00	No
	14	z	-0.009	0.00	0.00	No	0.00	No
	15	z	-0.009	0.00	0.00	No	0.00	No
	16	z	-0.015	0.00	0.00	No	0.00	No
	17	z	-0.015	0.00	0.00	No	0.00	No
	18	z	-0.015	0.00	0.00	No	0.00	No
	19	z	-0.015	0.00	0.00	No	0.00	No
	20	z	-0.015	0.00	0.00	No	0.00	No

21	z	-0.015	0.00	0.00	No	0.00	No
22	z	-0.015	0.00	0.00	No	0.00	No
23	z	-0.015	0.00	0.00	No	0.00	No
24	z	-0.015	0.00	0.00	No	0.00	No
25	z	-0.015	0.00	0.00	No	0.00	No
26	z	-0.015	0.00	0.00	No	0.00	No
27	z	-0.021	0.00	0.00	No	0.00	No
30	z	-0.015	0.00	0.00	No	0.00	No
31	z	-0.015	0.00	0.00	No	0.00	No
32	z	-0.015	0.00	0.00	No	0.00	No
33	z	-0.015	0.00	0.00	No	0.00	No
34	z	-0.015	0.00	0.00	No	0.00	No
35	z	-0.015	0.00	0.00	No	0.00	No
36	z	-0.015	0.00	0.00	No	0.00	No
37	z	-0.015	0.00	0.00	No	0.00	No
38	z	-0.015	0.00	0.00	No	0.00	No
39	z	-0.015	0.00	0.00	No	0.00	No
40	z	-0.015	0.00	0.00	No	0.00	No
41	z	-0.015	0.00	0.00	No	0.00	No
42	z	-0.015	0.00	0.00	No	0.00	No
43	z	-0.015	0.00	0.00	No	0.00	No
44	z	-0.015	0.00	0.00	No	0.00	No
45	z	-0.015	0.00	0.00	No	0.00	No
46	z	-0.015	0.00	0.00	No	0.00	No
47	z	-0.015	0.00	0.00	No	0.00	No
48	z	-0.015	0.00	0.00	No	0.00	No
49	z	-0.015	0.00	0.00	No	0.00	No
50	z	-0.015	0.00	0.00	No	0.00	No
51	z	-0.015	0.00	0.00	No	0.00	No
52	z	-0.01	0.00	0.00	No	0.00	No
53	z	-0.01	0.00	0.00	No	0.00	No
54	z	-0.01	0.00	0.00	No	0.00	No
55	z	-0.01	0.00	0.00	No	0.00	No
56	z	-0.01	0.00	0.00	No	0.00	No
57	z	-0.01	0.00	0.00	No	0.00	No
58	z	-0.013	0.00	0.00	No	0.00	No
59	z	-0.013	0.00	0.00	No	0.00	No
60	z	-0.013	0.00	0.00	No	0.00	No
61	z	-0.013	0.00	0.00	No	0.00	No
62	z	-0.013	0.00	0.00	No	0.00	No
63	z	-0.013	0.00	0.00	No	0.00	No
64	z	-0.007	0.00	0.00	No	0.00	No
65	z	-0.007	0.00	0.00	No	0.00	No
66	z	-0.007	0.00	0.00	No	0.00	No
67	z	-0.007	0.00	0.00	No	0.00	No
72	z	-0.007	0.00	0.00	No	0.00	No
73	z	-0.007	0.00	0.00	No	0.00	No
74	z	-0.007	0.00	0.00	No	0.00	No
75	z	-0.007	0.00	0.00	No	0.00	No
78	z	-0.01	0.00	0.00	No	0.00	No
80	z	-0.01	0.00	0.00	No	0.00	No
81	z	-0.007	0.00	0.00	No	0.00	No
82	z	-0.007	0.00	0.00	No	0.00	No
83	z	-0.007	0.00	0.00	No	0.00	No
84	z	-0.007	0.00	0.00	No	0.00	No
85	z	-0.007	0.00	0.00	No	0.00	No
86	z	-0.007	0.00	0.00	No	0.00	No
87	z	-0.007	0.00	0.00	No	0.00	No
88	z	-0.007	0.00	0.00	No	0.00	No
89	z	-0.007	0.00	0.00	No	0.00	No

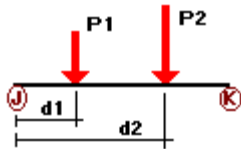
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	91	z	-0.007	0.00	0.00	No	0.00	No
	92	z	-0.007	0.00	0.00	No	0.00	No
	93	z	-0.007	0.00	0.00	No	0.00	No
	94	z	-0.007	0.00	0.00	No	0.00	No
	95	z	-0.007	0.00	0.00	No	0.00	No
	96	z	-0.007	0.00	0.00	No	0.00	No
	98	z	-0.002	0.00	0.00	No	0.00	No
	99	z	-0.002	0.00	0.00	No	0.00	No
W30	1	x	-0.021	0.00	0.00	No	0.00	No
	2	x	-0.021	0.00	0.00	No	0.00	No
	3	x	-0.021	0.00	0.00	No	0.00	No
	4	x	-0.021	0.00	0.00	No	0.00	No
	5	x	-0.021	0.00	0.00	No	0.00	No
	6	x	-0.021	0.00	0.00	No	0.00	No
	13	x	-0.009	0.00	0.00	No	0.00	No
	14	x	-0.009	0.00	0.00	No	0.00	No
	15	x	-0.009	0.00	0.00	No	0.00	No
	16	x	-0.015	0.00	0.00	No	0.00	No
	17	x	-0.015	0.00	0.00	No	0.00	No
	18	x	-0.015	0.00	0.00	No	0.00	No
	19	x	-0.015	0.00	0.00	No	0.00	No
	20	x	-0.015	0.00	0.00	No	0.00	No
	21	x	-0.015	0.00	0.00	No	0.00	No
	22	x	-0.015	0.00	0.00	No	0.00	No
	23	x	-0.015	0.00	0.00	No	0.00	No
	24	x	-0.015	0.00	0.00	No	0.00	No
	25	x	-0.015	0.00	0.00	No	0.00	No
	26	x	-0.015	0.00	0.00	No	0.00	No
	27	x	-0.021	0.00	0.00	No	0.00	No
	30	x	-0.015	0.00	0.00	No	0.00	No
	31	x	-0.015	0.00	0.00	No	0.00	No
	32	x	-0.015	0.00	0.00	No	0.00	No
	33	x	-0.015	0.00	0.00	No	0.00	No
	34	x	-0.015	0.00	0.00	No	0.00	No
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	57	x	-0.01	0.00	0.00	No	0.00	No
	58	x	-0.013	0.00	0.00	No	0.00	No
	59	x	-0.013	0.00	0.00	No	0.00	No

	60	x	-0.013	0.00	0.00	No	0.00	No
	61	x	-0.013	0.00	0.00	No	0.00	No
	62	x	-0.013	0.00	0.00	No	0.00	No
	63	x	-0.013	0.00	0.00	No	0.00	No
	64	x	-0.007	0.00	0.00	No	0.00	No
	65	x	-0.007	0.00	0.00	No	0.00	No
	66	x	-0.007	0.00	0.00	No	0.00	No
	67	x	-0.007	0.00	0.00	No	0.00	No
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	69	x	-0.01	0.00	0.00	No	0.00	No
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	87	x	-0.007	0.00	0.00	No	0.00	No
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	91	x	-0.007	0.00	0.00	No	0.00	No
	92	x	-0.007	0.00	0.00	No	0.00	No
	93	x	-0.007	0.00	0.00	No	0.00	No
	94	x	-0.007	0.00	0.00	No	0.00	No
	95	x	-0.007	0.00	0.00	No	0.00	No
	96	x	-0.007	0.00	0.00	No	0.00	No
	98	x	-0.002	0.00	0.00	No	0.00	No
	99	x	-0.002	0.00	0.00	No	0.00	No
Di	1	y	-0.009	0.00	0.00	No	0.00	No
	2	y	-0.009	0.00	0.00	No	0.00	No
	3	y	-0.009	0.00	0.00	No	0.00	No
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	8	y	-0.01	0.00	0.00	No	0.00	No
	9	y	-0.01	0.00	0.00	No	0.00	No
	10	y	-0.01	0.00	0.00	No	0.00	No
	11	y	-0.01	0.00	0.00	No	0.00	No
	12	y	-0.01	0.00	0.00	No	0.00	No
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	19	y	-0.01	0.00	0.00	No	0.00	No
	20	y	-0.01	0.00	0.00	No	0.00	No
	21	y	-0.01	0.00	0.00	No	0.00	No

22	y	-0.01	0.00	0.00	No	0.00	No
23	y	-0.01	0.00	0.00	No	0.00	No
24	y	-0.01	0.00	0.00	No	0.00	No
25	y	-0.01	0.00	0.00	No	0.00	No
26	y	-0.01	0.00	0.00	No	0.00	No
27	y	-0.01	0.00	0.00	No	0.00	No
28	y	-0.006	0.00	0.00	No	0.00	No
29	y	-0.006	0.00	0.00	No	0.00	No
30	y	-0.006	0.00	0.00	No	0.00	No
31	y	-0.006	0.00	0.00	No	0.00	No
32	y	-0.006	0.00	0.00	No	0.00	No
33	y	-0.006	0.00	0.00	No	0.00	No
34	y	-0.006	0.00	0.00	No	0.00	No
35	y	-0.006	0.00	0.00	No	0.00	No
36	y	-0.006	0.00	0.00	No	0.00	No
37	y	-0.006	0.00	0.00	No	0.00	No
38	y	-0.006	0.00	0.00	No	0.00	No
39	y	-0.006	0.00	0.00	No	0.00	No
40	y	-0.006	0.00	0.00	No	0.00	No
41	y	-0.006	0.00	0.00	No	0.00	No
42	y	-0.006	0.00	0.00	No	0.00	No
43	y	-0.006	0.00	0.00	No	0.00	No
44	y	-0.006	0.00	0.00	No	0.00	No
45	y	-0.006	0.00	0.00	No	0.00	No
46	y	-0.006	0.00	0.00	No	0.00	No
47	y	-0.006	0.00	0.00	No	0.00	No
48	y	-0.006	0.00	0.00	No	0.00	No
49	y	-0.006	0.00	0.00	No	0.00	No
50	y	-0.006	0.00	0.00	No	0.00	No
51	y	-0.006	0.00	0.00	No	0.00	No
52	y	-0.005	0.00	0.00	No	0.00	No
53	y	-0.005	0.00	0.00	No	0.00	No
54	y	-0.005	0.00	0.00	No	0.00	No
55	y	-0.005	0.00	0.00	No	0.00	No
56	y	-0.005	0.00	0.00	No	0.00	No
57	y	-0.005	0.00	0.00	No	0.00	No
58	y	-0.006	0.00	0.00	No	0.00	No
59	y	-0.006	0.00	0.00	No	0.00	No
60	y	-0.006	0.00	0.00	No	0.00	No
61	y	-0.006	0.00	0.00	No	0.00	No
62	y	-0.006	0.00	0.00	No	0.00	No
63	y	-0.006	0.00	0.00	No	0.00	No
64	y	-0.005	0.00	0.00	No	0.00	No
65	y	-0.005	0.00	0.00	No	0.00	No
66	y	-0.005	0.00	0.00	No	0.00	No
67	y	-0.005	0.00	0.00	No	0.00	No
68	y	-0.005	0.00	0.00	No	0.00	No
69	y	-0.005	0.00	0.00	No	0.00	No
70	y	-0.005	0.00	0.00	No	0.00	No
71	y	-0.005	0.00	0.00	No	0.00	No
72	y	-0.005	0.00	0.00	No	0.00	No
73	y	-0.005	0.00	0.00	No	0.00	No
74	y	-0.005	0.00	0.00	No	0.00	No
75	y	-0.005	0.00	0.00	No	0.00	No
76	y	-0.005	0.00	0.00	No	0.00	No
77	y	-0.005	0.00	0.00	No	0.00	No
78	y	-0.005	0.00	0.00	No	0.00	No
79	y	-0.005	0.00	0.00	No	0.00	No
80	y	-0.005	0.00	0.00	No	0.00	No
81	y	-0.005	0.00	0.00	No	0.00	No

82	y	-0.005	0.00	0.00	No	0.00	No
83	y	-0.005	0.00	0.00	No	0.00	No
84	y	-0.005	0.00	0.00	No	0.00	No
85	y	-0.005	0.00	0.00	No	0.00	No
86	y	-0.005	0.00	0.00	No	0.00	No
87	y	-0.005	0.00	0.00	No	0.00	No
88	y	-0.005	0.00	0.00	No	0.00	No
89	y	-0.005	0.00	0.00	No	0.00	No
90	y	-0.005	0.00	0.00	No	0.00	No
91	y	-0.005	0.00	0.00	No	0.00	No
92	y	-0.005	0.00	0.00	No	0.00	No
93	y	-0.005	0.00	0.00	No	0.00	No
94	y	-0.005	0.00	0.00	No	0.00	No
95	y	-0.005	0.00	0.00	No	0.00	No
96	y	-0.005	0.00	0.00	No	0.00	No
97	y	-0.003	0.00	0.00	No	0.00	No
98	y	-0.003	0.00	0.00	No	0.00	No
99	y	-0.003	0.00	0.00	No	0.00	No

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
DL	65	y	-0.071	1.50	No
		y	-0.072	1.50	No
	66	y	-0.06	1.50	No
		69	y	-0.071	1.50
	y		-0.072	1.50	No
	70	y	-0.06	1.50	No
		73	y	-0.071	1.50
	y		-0.072	1.50	No
	74	y	-0.06	1.50	No
		76	y	-0.029	0.50
	77		y	-0.029	4.50
		78	y	-0.022	0.50
	79		y	-0.022	4.50
		81	y	-0.06	2.50
	82		y	-0.017	0.50
		83	y	-0.017	4.50
	84		y	-0.029	0.50
		86	y	-0.029	4.50
	87		y	-0.022	0.50
			y	-0.022	4.50

	88	y	-0.06	2.50	No
	89	y	-0.017	0.50	No
		y	-0.017	4.50	No
W0	65	z	-0.054	1.50	No
	66	z	-0.041	1.50	No
	69	z	-0.023	1.50	No
		z	-0.021	1.50	No
	70	z	-0.008	1.50	No
	73	z	-0.054	1.50	No
	74	z	-0.041	1.50	No
	76	z	-0.092	0.50	No
		z	-0.092	4.50	No
	77	z	-0.077	0.50	No
		z	-0.077	4.50	No
	78	z	-0.085	2.50	No
	79	z	-0.093	0.50	No
		z	-0.093	4.50	No
	81	z	-0.063	0.50	No
		z	-0.063	4.50	No
	82	z	-0.071	0.50	No
		z	-0.071	4.50	No
	83	z	-0.06	2.50	No
	84	z	-0.069	0.50	No
		z	-0.069	4.50	No
	86	z	-0.063	0.50	No
		z	-0.063	4.50	No
	87	z	-0.071	0.50	No
		z	-0.071	4.50	No
	88	z	-0.06	2.50	No
	89	z	-0.069	0.50	No
		z	-0.069	4.50	No
W30	65	x	-0.032	1.50	No
	66	x	-0.033	1.50	No
	69	x	-0.061	1.50	No
	70	x	-0.039	1.50	No
	73	x	-0.032	1.50	No
	74	x	-0.033	1.50	No
	76	x	-0.053	0.50	No
		x	-0.053	4.50	No
	77	x	-0.068	0.50	No
		x	-0.068	4.50	No
	78	x	-0.052	2.50	No
	79	x	-0.061	0.50	No
		x	-0.061	4.50	No
	81	x	-0.082	0.50	No
		x	-0.082	4.50	No
	82	x	-0.075	0.50	No
		x	-0.075	4.50	No
	83	x	-0.077	2.50	No
	84	x	-0.085	0.50	No
		x	-0.085	4.50	No
	86	x	-0.082	0.50	No
		x	-0.082	4.50	No
	87	x	-0.075	0.50	No
		x	-0.075	4.50	No
	88	x	-0.077	2.50	No
	89	x	-0.085	0.50	No
		x	-0.085	4.50	No
Di	65	y	-0.035	1.50	No
		y	-0.031	1.50	No

	66	y	-0.035	1.50	No
	69	y	-0.035	1.50	No
		y	-0.031	1.50	No
	70	y	-0.035	1.50	No
	73	y	-0.035	1.50	No
		y	-0.031	1.50	No
	74	y	-0.035	1.50	No
	76	y	-0.047	0.50	No
		y	-0.047	4.50	No
	77	y	-0.045	0.50	No
		y	-0.045	4.50	No
	78	y	-0.047	2.50	No
	79	y	-0.047	0.50	No
		y	-0.047	4.50	No
	81	y	-0.047	0.50	No
		y	-0.047	4.50	No
	82	y	-0.045	0.50	No
		y	-0.045	4.50	No
	83	y	-0.047	2.50	No
	84	y	-0.047	0.50	No
		y	-0.047	4.50	No
	86	y	-0.047	0.50	No
		y	-0.047	4.50	No
	87	y	-0.045	0.50	No
		y	-0.045	4.50	No
	88	y	-0.047	2.50	No
	89	y	-0.047	0.50	No
		y	-0.047	4.50	No
Wi0	65	z	-0.012	1.50	No
	66	z	-0.01	1.50	No
	69	z	-0.007	1.50	No
		z	-0.006	1.50	No
	70	z	-0.004	1.50	No
	73	z	-0.012	1.50	No
	74	z	-0.01	1.50	No
	76	z	-0.02	0.50	No
		z	-0.02	4.50	No
	77	z	-0.017	0.50	No
		z	-0.017	4.50	No
	78	z	-0.019	2.50	No
	79	z	-0.02	0.50	No
		z	-0.02	4.50	No
	81	z	-0.014	0.50	No
		z	-0.014	4.50	No
	82	z	-0.016	0.50	No
		z	-0.016	4.50	No
	83	z	-0.014	2.50	No
	84	z	-0.016	0.50	No
		z	-0.016	4.50	No
	86	z	-0.014	0.50	No
		z	-0.014	4.50	No
	87	z	-0.016	0.50	No
		z	-0.016	4.50	No
	88	z	-0.014	2.50	No
	89	z	-0.016	0.50	No
		z	-0.016	4.50	No
Wi30	65	x	-0.008	1.50	No
	66	x	-0.008	1.50	No
	69	x	-0.014	1.50	No
	70	x	-0.01	1.50	No

	73	x	-0.008	1.50	No
	74	x	-0.008	1.50	No
	76	x	-0.012	0.50	No
		x	-0.012	4.50	No
	77	x	-0.015	0.50	No
		x	-0.015	4.50	No
	78	x	-0.012	2.50	No
	79	x	-0.014	0.50	No
		x	-0.014	4.50	No
	81	x	-0.018	0.50	No
		x	-0.018	4.50	No
	82	x	-0.016	0.50	No
		x	-0.016	4.50	No
	83	x	-0.017	2.50	No
	84	x	-0.018	0.50	No
		x	-0.018	4.50	No
	86	x	-0.018	0.50	No
		x	-0.018	4.50	No
	87	x	-0.016	0.50	No
		x	-0.016	4.50	No
	88	x	-0.017	2.50	No
	89	x	-0.018	0.50	No
		x	-0.018	4.50	No
WLO	65	z	-0.003	1.50	No
	66	z	-0.003	1.50	No
	69	z	-0.001	1.50	No
		z	-0.001	1.50	No
	70	z	-0.001	1.50	No
	73	z	-0.003	1.50	No
	74	z	-0.003	1.50	No
	76	z	-0.006	0.50	No
		z	-0.006	4.50	No
	77	z	-0.005	0.50	No
		z	-0.005	4.50	No
	78	z	-0.005	2.50	No
	79	z	-0.006	0.50	No
		z	-0.006	4.50	No
	81	z	-0.004	0.50	No
		z	-0.004	4.50	No
	82	z	-0.005	0.50	No
		z	-0.005	4.50	No
	83	z	-0.004	2.50	No
	84	z	-0.005	0.50	No
		z	-0.005	4.50	No
	86	z	-0.004	0.50	No
		z	-0.004	4.50	No
	87	z	-0.005	0.50	No
		z	-0.005	4.50	No
	88	z	-0.004	2.50	No
	89	z	-0.005	0.50	No
		z	-0.005	4.50	No
WL30	65	x	-0.002	1.50	No
	66	x	-0.002	1.50	No
	69	x	-0.004	1.50	No
	70	x	-0.002	1.50	No
	73	x	-0.002	1.50	No
	74	x	-0.002	1.50	No
	76	x	-0.004	0.50	No
		x	-0.004	4.50	No
	77	x	-0.005	0.50	No

		x	-0.005	4.50	No
78		x	-0.003	2.50	No
79		x	-0.005	0.50	No
		x	-0.005	4.50	No
81		x	-0.006	0.50	No
		x	-0.006	4.50	No
82		x	-0.005	0.50	No
		x	-0.005	4.50	No
83		x	-0.005	2.50	No
84		x	-0.006	0.50	No
		x	-0.006	4.50	No
86		x	-0.006	0.50	No
		x	-0.006	4.50	No
87		x	-0.005	0.50	No
		x	-0.005	4.50	No
88		x	-0.005	2.50	No
89		x	-0.006	0.50	No
		x	-0.006	4.50	No
LL1	60	y	-0.25	50.00	Yes
LL2	60	y	-0.25	0.00	Yes
LLa1	76	y	-0.25	50.00	Yes
LLa2	77	y	-0.25	50.00	Yes
LLa3	78	y	-0.25	50.00	Yes
LLa4	79	y	-0.25	50.00	Yes

Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
DL	Dead Load	No	0.00	-1.00	0.00
W0	Wind Load 0/60/120 deg	No	0.00	0.00	0.00
W30	Wind Load 30/90/150 deg	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00
Wi0	Ice Wind Load 0/60/120 deg	No	0.00	0.00	0.00
Wi30	Ice Wind Load 30/90/150 deg	No	0.00	0.00	0.00
WL0	WL 30 mph 0/60/120 deg	No	0.00	0.00	0.00
WL30	WL 30 mph 30/90/150 deg	No	0.00	0.00	0.00
LL1	250 lb Live Load Center of Mount	No	0.00	0.00	0.00
LL2	250 lb Live Load End of Mount	No	0.00	0.00	0.00
LLa1	250 lb Live Load Antenna 1	No	0.00	0.00	0.00
LLa2	250 lb Live Load Antenna 2	No	0.00	0.00	0.00
LLa3	250 lb Live Load Antenna 3	No	0.00	0.00	0.00
LLa4	250 lb Live Load Antenna 4	No	0.00	0.00	0.00

Earthquake (Dynamic analysis only)

Condition	a/g	Ang. [Deg]	Damp. [%]
DL	0.00	0.00	0.00
W0	0.00	0.00	0.00
W30	0.00	0.00	0.00
Di	0.00	0.00	0.00
Wi0	0.00	0.00	0.00
Wi30	0.00	0.00	0.00
WL0	0.00	0.00	0.00
WL30	0.00	0.00	0.00
LL1	0.00	0.00	0.00
LL2	0.00	0.00	0.00
LLa1	0.00	0.00	0.00
LLa2	0.00	0.00	0.00
LLa3	0.00	0.00	0.00
LLa4	0.00	0.00	0.00



Current Date: 11/25/2020 3:47 PM

Units system: English

File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT0968\7C-5G\2020\Rev. 1\CT0968 (LTE 7C-5G)(Rev. 1).retx

Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

- LC1=1.2DL+W0
- LC2=1.2DL+W30
- LC3=1.2DL-W0
- LC4=1.2DL-W30
- LC5=0.9DL+W0
- LC6=0.9DL+W30
- LC7=0.9DL-W0
- LC8=0.9DL-W30
- LC9=1.2DL+Di+Wi0
- LC10=1.2DL+Di+Wi30
- LC11=1.2DL+Di-Wi0
- LC12=1.2DL+Di-Wi30
- LC13=1.2DL
- LC15=1.2DL+1.5LL1
- LC16=1.2DL+1.5LL2
- LC17=1.2DL+WL0+1.5LLa1
- LC18=1.2DL+WL30+1.5LLa1
- LC19=1.2DL-WL0+1.5LLa1
- LC20=1.2DL-WL30+1.5LLa1
- LC21=1.2DL+WL0+1.5LLa2
- LC22=1.2DL+WL30+1.5LLa2
- LC23=1.2DL-WL0+1.5LLa2
- LC24=1.2DL-WL30+1.5LLa2
- LC25=1.2DL+WL0+1.5LLa3
- LC26=1.2DL+WL30+1.5LLa3
- LC27=1.2DL-WL0+1.5LLa3
- LC28=1.2DL-WL30+1.5LLa3
- LC29=1.2DL+WL0+1.5LLa4
- LC30=1.2DL+WL30+1.5LLa4
- LC31=1.2DL-WL0+1.5LLa4
- LC32=1.2DL-WL30+1.5LLa4

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	C 3X5	16	LC1 at 100.00%	0.27	OK	
		17	LC3 at 100.00%	0.29	OK	
		18	LC3 at 0.00%	0.29	OK	
		19	LC4 at 46.88%	0.39	OK	
		20	LC3 at 100.00%	0.25	OK	
		21	LC9 at 46.88%	0.27	OK	
		22	LC1 at 0.00%	0.26	OK	
		23	LC2 at 46.88%	0.47	OK	
		24	LC2 at 100.00%	0.27	OK	
		25	LC16 at 46.88%	0.37	OK	
		26	LC4 at 0.00%	0.29	OK	
		27	LC1 at 46.88%	0.44	OK	
	L 2-1_2X2-1_2X3_16	59	LC2 at 100.00%	0.38	With warnings	
		61	LC31 at 32.14%	0.54	With warnings	
		63	LC4 at 67.86%	0.38	With warnings	

<i>L 2X2X3_16</i>	52	LC16 at 10.42%	1.16	N.G.
	53	LC29 at 10.42%	1.05	N.G.
	54	LC9 at 10.42%	0.84	OK
	55	LC11 at 89.58%	0.69	OK
	56	LC11 at 10.42%	0.84	OK
	57	LC10 at 89.58%	0.69	OK
	<hr/>			
<i>L 4X4X1_4</i>	1	LC12 at 43.75%	0.72	OK
	2	LC11 at 43.75%	0.73	OK
	3	LC11 at 43.75%	0.72	OK
	4	LC9 at 43.75%	0.73	OK
	5	LC10 at 43.75%	0.72	OK
	6	LC12 at 43.75%	0.73	OK
<hr/>				
<i>LU 3X2X1_4</i>	34	LC3 at 100.00%	0.31	OK
	35	LC12 at 50.00%	0.38	OK
	36	LC2 at 0.00%	0.29	OK
	37	LC9 at 0.00%	0.31	OK
	38	LC2 at 0.00%	0.13	OK
	39	LC2 at 0.00%	0.25	OK
	40	LC20 at 100.00%	0.34	OK
	41	LC20 at 0.00%	0.42	OK
	42	LC31 at 0.00%	0.34	OK
	43	LC16 at 0.00%	0.34	OK
	44	LC16 at 100.00%	0.22	OK
	45	LC30 at 100.00%	0.29	OK
	46	LC11 at 100.00%	0.28	OK
	47	LC10 at 50.00%	0.38	OK
	48	LC3 at 0.00%	0.30	OK
	49	LC10 at 0.00%	0.31	OK
	50	LC3 at 0.00%	0.13	OK
51	LC9 at 100.00%	0.24	OK	
<hr/>				
<i>PIPE 2-1_2x0.203</i>	13	LC30 at 25.00%	0.28	OK
	14	LC3 at 31.25%	0.27	OK
	15	LC3 at 31.25%	0.26	OK
<hr/>				
<i>PIPE 2x0.154</i>	64	LC9 at 0.00%	0.14	OK
	65	LC10 at 0.00%	0.20	OK
	66	LC12 at 0.00%	0.16	OK
	67	LC3 at 0.00%	0.12	OK
	68	LC20 at 0.00%	0.21	OK
	69	LC20 at 0.00%	0.20	OK
	70	LC31 at 0.00%	0.17	OK
	71	LC30 at 0.00%	0.12	OK
	72	LC11 at 0.00%	0.15	OK
	73	LC11 at 0.00%	0.21	OK
	74	LC9 at 0.00%	0.15	OK
	75	LC2 at 50.00%	0.15	OK
	76	LC20 at 21.88%	0.10	OK
	77	LC20 at 22.92%	0.09	OK
	78	LC31 at 22.92%	0.08	OK
	79	LC30 at 22.92%	0.07	OK
	80	LC30 at 35.42%	0.16	OK
	81	LC3 at 21.88%	0.10	OK
	82	LC11 at 22.92%	0.10	OK
	83	LC9 at 22.92%	0.07	OK
	84	LC2 at 22.92%	0.04	OK
	85	LC9 at 35.42%	0.10	OK
86	LC2 at 21.88%	0.09	OK	
87	LC10 at 22.92%	0.09	OK	
88	LC12 at 22.92%	0.08	OK	
89	LC4 at 22.92%	0.04	OK	
90	LC12 at 35.42%	0.10	OK	

	91	LC4 at 50.00%	0.04	OK
	92	LC2 at 50.00%	0.04	OK
	93	LC3 at 50.00%	0.05	OK
	94	LC4 at 50.00%	0.05	OK
	95	LC2 at 50.00%	0.05	OK
	96	LC3 at 50.00%	0.05	OK
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PL 3x3/8	28	LC18 at 100.00%	0.57	OK
	29	LC32 at 100.00%	0.52	OK
	30	LC4 at 100.00%	0.53	OK
	31	LC3 at 100.00%	0.40	OK
	32	LC3 at 100.00%	0.56	OK
	33	LC1 at 100.00%	0.43	OK
<hr/>				
PL 6x1/2	7	LC12 at 0.00%	0.57	OK
	8	LC10 at 0.00%	0.57	OK
	9	LC11 at 0.00%	0.57	OK
	10	LC9 at 100.00%	0.57	OK
	11	LC9 at 0.00%	0.57	OK
	12	LC11 at 0.00%	0.57	OK
<hr/>				
RndBar 2	100	LC20 at 100.00%	0.14	OK
	101	LC16 at 100.00%	0.11	OK
	102	LC3 at 100.00%	0.10	OK
	103	LC1 at 100.00%	0.11	OK
	104	LC1 at 100.00%	0.10	OK
	105	LC2 at 100.00%	0.11	OK
<hr/>				
RndBar 3_4	97	LC20 at 0.00%	0.61	OK
	98	LC3 at 100.00%	0.50	OK
	99	LC1 at 100.00%	0.51	OK
<hr/>				
Z 2-1/2x2-1/2x3/16	58	LC3 at 36.61%	0.40	OK
	60	LC4 at 62.50%	0.43	OK
	62	LC3 at 63.39%	0.45	OK



Current Date: 11/25/2020 3:47 PM

Units system: English

File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT0968\7C-5G\2020\Rev. 1\CT0968 (LTE 7C-5G)(Rev. 1).retx

Geometry data

GLOSSARY

- Cb22, Cb33 : Moment gradient coefficients
- Cm22, Cm33 : Coefficients applied to bending term in interaction formula
- d0 : Tapered member section depth at J end of member
- DJX : Rigid end offset distance measured from J node in axis X
- DJY : Rigid end offset distance measured from J node in axis Y
- DJZ : Rigid end offset distance measured from J node in axis Z
- DKX : Rigid end offset distance measured from K node in axis X
- DKY : Rigid end offset distance measured from K node in axis Y
- DKZ : Rigid end offset distance measured from K node in axis Z
- dL : Tapered member section depth at K end of member
- Ig factor : Inertia reduction factor (Effective Inertia/Gross Inertia) for reinforced concrete members
- K22 : Effective length factor about axis 2
- K33 : Effective length factor about axis 3
- L22 : Member length for calculation of axial capacity
- L33 : Member length for calculation of axial capacity
- LB pos : Lateral unbraced length of the compression flange in the positive side of local axis 2
- LB neg : Lateral unbraced length of the compression flange in the negative side of local axis 2
- RX : Rotation about X
- RY : Rotation about Y
- RZ : Rotation about Z
- TO : 1 = Tension only member 0 = Normal member
- TX : Translation in X
- TY : Translation in Y
- TZ : Translation in Z

Nodes

Node	X [ft]	Y [ft]	Z [ft]	Rigid Floor
1	-2.0009	4.00	1.1552	0
2	0.00	4.00	-2.3073	0
3	1.9991	4.00	1.1552	0
4	0.00	-0.20	-2.3073	0
5	1.9991	-0.20	1.1552	0
6	-2.0009	-0.20	1.1552	0
7	1.9991	1.48	1.1552	0
8	0.00	3.30	-2.3073	0
9	0.00	1.48	-2.3073	0
10	-2.0009	3.30	1.1552	0
11	-2.0009	1.48	1.1552	0
12	1.9991	3.30	1.1552	0
15	7.3297	0.00	-2.6721	0
16	5.8297	0.00	-5.2702	0
17	6.1096	0.00	-2.7855	0
18	5.3179	0.00	-4.1567	0
25	7.3297	2.96	-2.6721	0
26	5.8297	2.96	-5.2702	0
27	6.1096	2.96	-2.7855	0
28	5.3179	2.96	-4.1567	0
33	7.7954	4.04	-2.2655	0

34	3.7529	4.04	-9.2673	0
35	7.7954	-0.96	-2.2655	0
36	3.7529	-0.96	-9.2673	0
37	9.5797	1.48	1.225	0
40	5.3179	2.66	-4.1567	0
41	6.1096	2.66	-2.7855	0
42	5.3179	0.30	-4.1567	0
43	6.1096	0.30	-2.7855	0
44	4.7766	0.30	-3.8442	0
45	5.5683	0.30	-2.473	0
46	4.7766	2.66	-3.8442	0
47	5.5683	2.66	-2.473	0
48	5.1724	2.66	-3.1586	0
49	5.1724	0.30	-3.1586	0
50	4.9992	4.00	-3.0586	0
51	4.9992	-0.20	-3.0586	0
52	6.5797	2.96	-3.9711	0
53	6.5797	0.00	-3.9711	0
54	5.7104	4.04	-5.8768	0
55	5.7104	-0.96	-5.8768	0
56	9.7529	-0.96	1.125	0
58	3.7529	3.30	-9.2673	0
65	8.9065	5.04	0.459	0
66	8.9065	-0.96	0.459	0
67	-4.00	4.00	-2.3073	0
68	-4.00	-0.20	-2.3073	0
69	-0.0018	4.00	4.6178	0
70	-0.0018	-0.20	4.6178	0
72	5.7137	2.96	-3.4711	0
73	4.9992	2.96	-3.0586	0
74	5.00	4.00	-2.3073	0
75	5.00	-0.20	-2.3073	0
78	4.9992	2.66	-3.0586	0
79	4.9992	0.30	-3.0586	0
80	4.00	4.00	-2.3073	0
81	4.00	-0.20	-2.3073	0
84	-5.979	0.00	-5.0117	0
85	-7.479	0.00	-2.4136	0
86	-5.4671	0.00	-3.8983	0
87	-6.2588	0.00	-2.527	0
94	-5.979	2.96	-5.0117	0
95	-7.479	2.96	-2.4136	0
96	-5.4671	2.96	-3.8983	0
97	-6.2588	2.96	-2.527	0
102	-5.8597	4.04	-5.6183	0
103	-9.9022	4.04	1.3835	0
104	-5.8597	-0.96	-5.6183	0
105	-9.9022	-0.96	1.3835	0
106	-3.729	1.48	-8.9088	0
109	-6.2588	2.66	-2.527	0
110	-5.4671	2.66	-3.8983	0
111	-6.2588	0.30	-2.527	0
112	-5.4671	0.30	-3.8983	0
113	-5.7175	0.30	-2.2145	0
114	-4.9258	0.30	-3.5858	0
115	-5.7175	2.66	-2.2145	0
116	-4.9258	2.66	-3.5858	0
117	-5.3217	2.66	-2.9002	0
118	-5.3217	0.30	-2.9002	0
119	-5.1485	4.00	-2.8002	0

120	-5.1485	-0.20	-2.8002	0
121	-6.729	2.96	-3.7127	0
122	-6.729	0.00	-3.7127	0
123	-7.9447	4.04	-2.007	0
124	-7.9447	-0.96	-2.007	0
125	-3.9022	-0.96	-9.0088	0
126	-3.9022	4.04	-9.0088	0
127	-9.9022	3.30	1.3835	0
134	-4.0557	5.04	-7.9428	0
135	-4.0557	-0.96	-7.9428	0
136	-5.8629	2.96	-3.2127	0
137	-5.1485	2.96	-2.8002	0
138	-4.4982	4.00	-3.1765	0
139	-4.4982	-0.20	-3.1765	0
140	-5.1485	2.66	-2.8002	0
141	-5.1485	0.30	-2.8002	0
144	-1.3508	0.00	7.6838	0
145	1.6492	0.00	7.6838	0
146	-0.6425	0.00	6.6838	0
147	0.9409	0.00	6.6838	0
154	-1.3508	2.96	7.6838	0
155	1.6492	2.96	7.6838	0
156	-0.6425	2.96	6.6838	0
157	0.9409	2.96	6.6838	0
162	-1.9358	4.04	7.8838	0
163	6.1492	4.04	7.8838	0
164	-1.9358	-0.96	7.8838	0
165	6.1492	-0.96	7.8838	0
166	-5.8508	1.48	7.6838	0
169	0.9409	2.66	6.6838	0
170	-0.6425	2.66	6.6838	0
171	0.9409	0.30	6.6838	0
172	-0.6425	0.30	6.6838	0
173	0.9409	0.30	6.0588	0
174	-0.6425	0.30	6.0588	0
175	0.9409	2.66	6.0588	0
176	-0.6425	2.66	6.0588	0
177	0.1492	2.66	6.0588	0
178	0.1492	0.30	6.0588	0
179	0.1492	4.00	5.8588	0
180	0.1492	-0.20	5.8588	0
181	0.1492	2.96	7.6838	0
182	0.1492	0.00	7.6838	0
183	2.2342	4.04	7.8838	0
184	2.2342	-0.96	7.8838	0
185	-5.8508	-0.96	7.8838	0
186	-5.8508	4.04	7.8838	0
194	-4.8508	5.04	7.4838	0
195	-4.8508	-0.96	7.4838	0
196	0.1492	2.96	6.6838	0
197	0.1492	2.96	5.8588	0
198	-0.5018	4.00	5.4838	0
199	-0.5018	-0.20	5.4838	0
200	0.1492	2.66	5.8588	0
201	0.1492	0.30	5.8588	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
1	1	1	1	0	0	0
2	1	1	1	0	0	0
3	1	1	1	0	0	0
4	1	1	1	0	0	0
5	1	1	1	0	0	0
6	1	1	1	0	0	0
7	1	1	1	0	0	0
8	1	1	1	0	0	0
9	1	1	1	0	0	0
10	1	1	1	0	0	0
11	1	1	1	0	0	0
12	1	1	1	0	0	0

Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	Ig factor
1	80	198		L 4X4X1_4	A36	0.00	0.00	0.00
2	81	199		L 4X4X1_4	A36	0.00	0.00	0.00
3	69	138		L 4X4X1_4	A36	0.00	0.00	0.00
4	70	139		L 4X4X1_4	A36	0.00	0.00	0.00
5	67	74		L 4X4X1_4	A36	0.00	0.00	0.00
6	68	75		L 4X4X1_4	A36	0.00	0.00	0.00
7	179	198		PL 6x1/2	A36	0.00	0.00	0.00
8	180	199		PL 6x1/2	A36	0.00	0.00	0.00
9	119	138		PL 6x1/2	A36	0.00	0.00	0.00
10	139	120		PL 6x1/2	A36	0.00	0.00	0.00
11	50	74		PL 6x1/2	A36	0.00	0.00	0.00
12	51	75		PL 6x1/2	A36	0.00	0.00	0.00
13	179	180		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
14	119	120		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
15	50	51		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
16	109	115		C 3X5	A36	0.00	0.00	0.00
17	115	116		C 3X5	A36	0.00	0.00	0.00
18	116	110		C 3X5	A36	0.00	0.00	0.00
19	113	114		C 3X5	A36	0.00	0.00	0.00
20	40	46		C 3X5	A36	0.00	0.00	0.00
21	46	47		C 3X5	A36	0.00	0.00	0.00
22	47	41		C 3X5	A36	0.00	0.00	0.00
23	44	45		C 3X5	A36	0.00	0.00	0.00
24	169	175		C 3X5	A36	0.00	0.00	0.00
25	175	176		C 3X5	A36	0.00	0.00	0.00
26	176	170		C 3X5	A36	0.00	0.00	0.00
27	173	174		C 3X5	A36	0.00	0.00	0.00
28	171	173		PL 3x3/8	A36	0.00	0.00	0.00
29	172	174		PL 3x3/8	A36	0.00	0.00	0.00
30	111	113		PL 3x3/8	A36	0.00	0.00	0.00
31	112	114		PL 3x3/8	A36	0.00	0.00	0.00
32	42	44		PL 3x3/8	A36	0.00	0.00	0.00
33	43	45		PL 3x3/8	A36	0.00	0.00	0.00
34	26	28		LU 3X2X1_4	A36	0.00	0.00	0.00
35	28	27		LU 3X2X1_4	A36	0.00	0.00	0.00
36	27	25		LU 3X2X1_4	A36	0.00	0.00	0.00
37	18	16		LU 3X2X1_4	A36	0.00	0.00	0.00
38	17	18		LU 3X2X1_4	A36	0.00	0.00	0.00
39	15	17		LU 3X2X1_4	A36	0.00	0.00	0.00

40	155	157	LU 3X2X1_4	A36	0.00	0.00	0.00
41	157	156	LU 3X2X1_4	A36	0.00	0.00	0.00
42	156	154	LU 3X2X1_4	A36	0.00	0.00	0.00
43	147	145	LU 3X2X1_4	A36	0.00	0.00	0.00
44	146	147	LU 3X2X1_4	A36	0.00	0.00	0.00
45	144	146	LU 3X2X1_4	A36	0.00	0.00	0.00
46	95	97	LU 3X2X1_4	A36	0.00	0.00	0.00
47	97	96	LU 3X2X1_4	A36	0.00	0.00	0.00
48	96	94	LU 3X2X1_4	A36	0.00	0.00	0.00
49	87	85	LU 3X2X1_4	A36	0.00	0.00	0.00
50	86	87	LU 3X2X1_4	A36	0.00	0.00	0.00
51	84	86	LU 3X2X1_4	A36	0.00	0.00	0.00
52	157	147	L 2X2X3_16	A36	0.00	0.00	0.00
53	156	146	L 2X2X3_16	A36	0.00	0.00	0.00
54	97	87	L 2X2X3_16	A36	0.00	0.00	0.00
55	96	86	L 2X2X3_16	A36	0.00	0.00	0.00
56	28	18	L 2X2X3_16	A36	0.00	0.00	0.00
57	27	17	L 2X2X3_16	A36	0.00	0.00	0.00
58	23	24	Z 2-1/2x2-1/2x3/16	A36	0.00	0.00	0.00
59	14	13	L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
60	152	153	Z 2-1/2x2-1/2x3/16	A36	0.00	0.00	0.00
61	143	142	L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
62	92	93	Z 2-1/2x2-1/2x3/16	A36	0.00	0.00	0.00
63	83	82	L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
64	23	13	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
65	30	20	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
66	29	19	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
67	24	14	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
68	152	142	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
69	159	149	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
70	158	148	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
71	153	143	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
72	92	82	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
73	99	89	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
74	98	88	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
75	93	83	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
76	163	165	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
77	183	184	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
78	162	164	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
79	186	185	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
80	194	195	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
81	103	105	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
82	123	124	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
83	102	104	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
84	126	125	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
85	134	135	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
86	34	36	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
87	54	55	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
88	33	35	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
89	57	56	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
90	65	66	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
91	187	12	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
92	166	11	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
93	127	10	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
94	106	9	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
95	58	8	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
96	37	7	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
97	197	196	RndBar 3_4	A36	0.00	0.00	0.00
98	136	137	RndBar 3_4	A36	0.00	0.00	0.00
99	72	73	RndBar 3_4	A36	0.00	0.00	0.00

100	177	200	RndBar 2	A36	0.00	0.00	0.00
101	178	201	RndBar 2	A36	0.00	0.00	0.00
102	117	140	RndBar 2	A36	0.00	0.00	0.00
103	118	141	RndBar 2	A36	0.00	0.00	0.00
104	48	78	RndBar 2	A36	0.00	0.00	0.00
105	49	79	RndBar 2	A36	0.00	0.00	0.00

Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
1	180.00	0	0.00	0.00	0.00
2	180.00	0	0.00	0.00	0.00
3	180.00	0	0.00	0.00	0.00
4	180.00	0	0.00	0.00	0.00
5	180.00	0	0.00	0.00	0.00
6	180.00	0	0.00	0.00	0.00
7	90.00	0	0.00	0.00	0.00
8	90.00	0	0.00	0.00	0.00
9	90.00	0	0.00	0.00	0.00
10	90.00	0	0.00	0.00	0.00
11	90.00	0	0.00	0.00	0.00
12	90.00	0	0.00	0.00	0.00
17	180.00	0	0.00	0.00	0.00
19	180.00	0	0.00	0.00	0.00
21	180.00	0	0.00	0.00	0.00
23	180.00	0	0.00	0.00	0.00
25	180.00	0	0.00	0.00	0.00
27	180.00	0	0.00	0.00	0.00
34	180.00	0	0.00	0.00	0.00
35	180.00	0	0.00	0.00	0.00
36	180.00	0	0.00	0.00	0.00
40	180.00	0	0.00	0.00	0.00
41	180.00	0	0.00	0.00	0.00
42	180.00	0	0.00	0.00	0.00
46	180.00	0	0.00	0.00	0.00
47	180.00	0	0.00	0.00	0.00
48	180.00	0	0.00	0.00	0.00
52	90.00	0	0.00	0.00	0.00
54	210.00	0	0.00	0.00	0.00
55	120.00	0	0.00	0.00	0.00
56	330.00	0	0.00	0.00	0.00
57	240.00	0	0.00	0.00	0.00
58	90.00	0	0.00	0.00	0.00
60	90.00	0	0.00	0.00	0.00
62	90.00	0	0.00	0.00	0.00

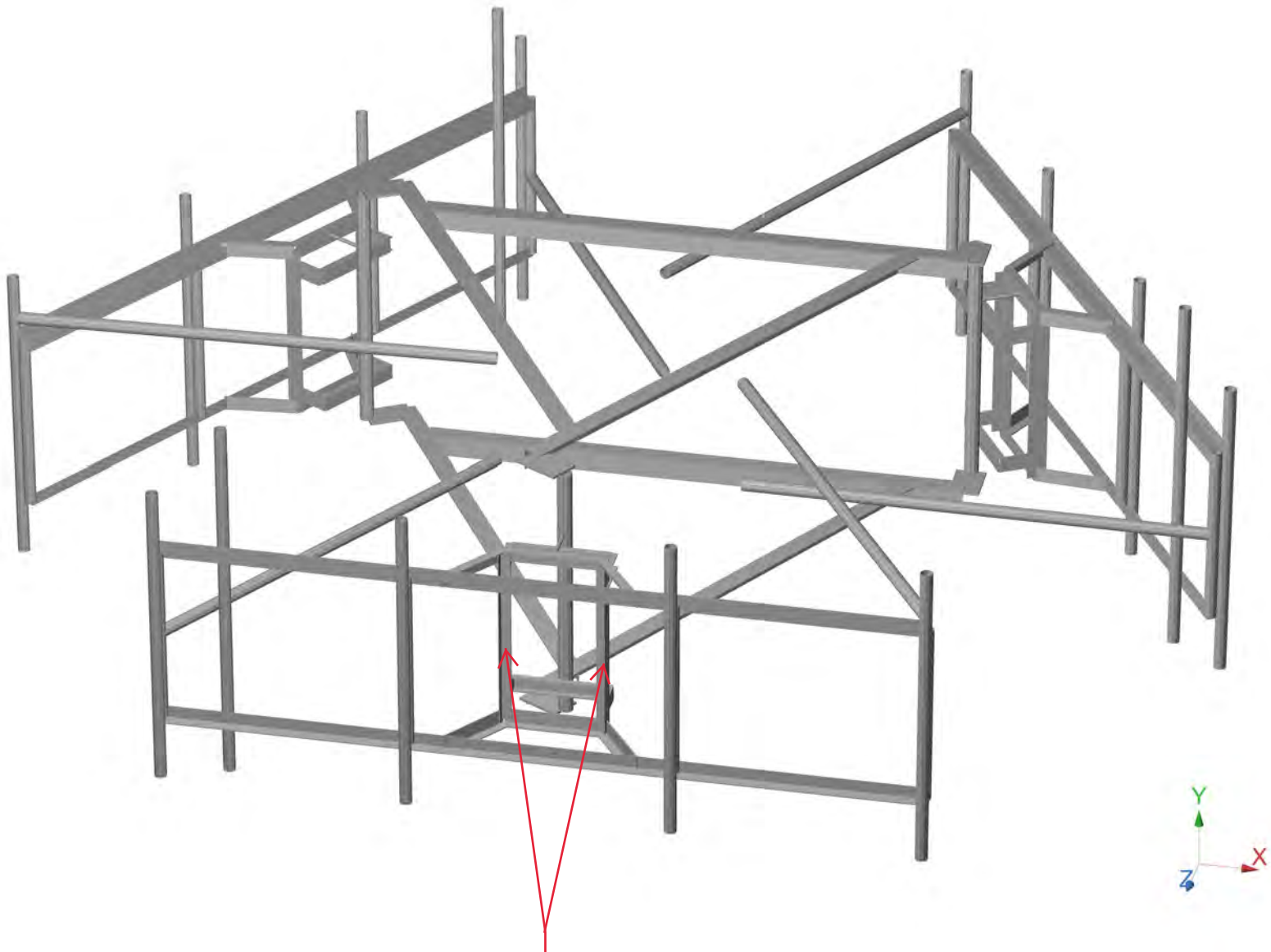
Hinges

Member	Node-J				Node-K				TOR	AXL	Axial rigidity
	M33	M22	V3	V2	M33	M22	V3	V2			
91	1	1	0	0	0	0	0	0	0	0	Full
92	1	1	0	0	0	0	0	0	0	0	Full
93	1	1	0	0	0	0	0	0	0	0	Full
94	1	1	0	0	0	0	0	0	0	0	Full
95	1	1	0	0	0	0	0	0	0	0	Full
96	1	1	0	0	0	0	0	0	0	0	Full
97	0	0	0	0	0	0	0	0	0	0	Tension only
98	0	0	0	0	0	0	0	0	0	0	Tension only
99	0	0	0	0	0	0	0	0	0	0	Tension only

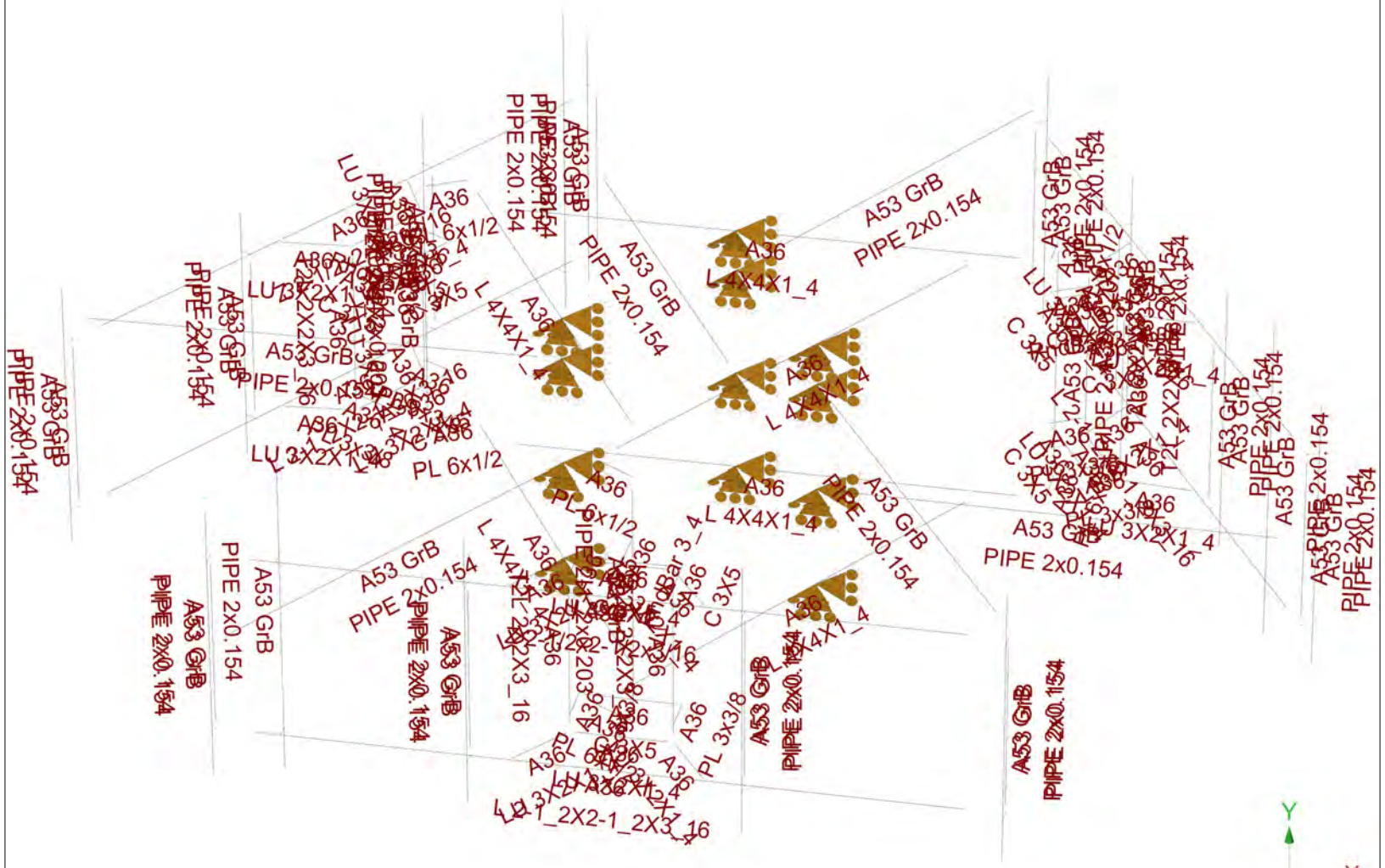


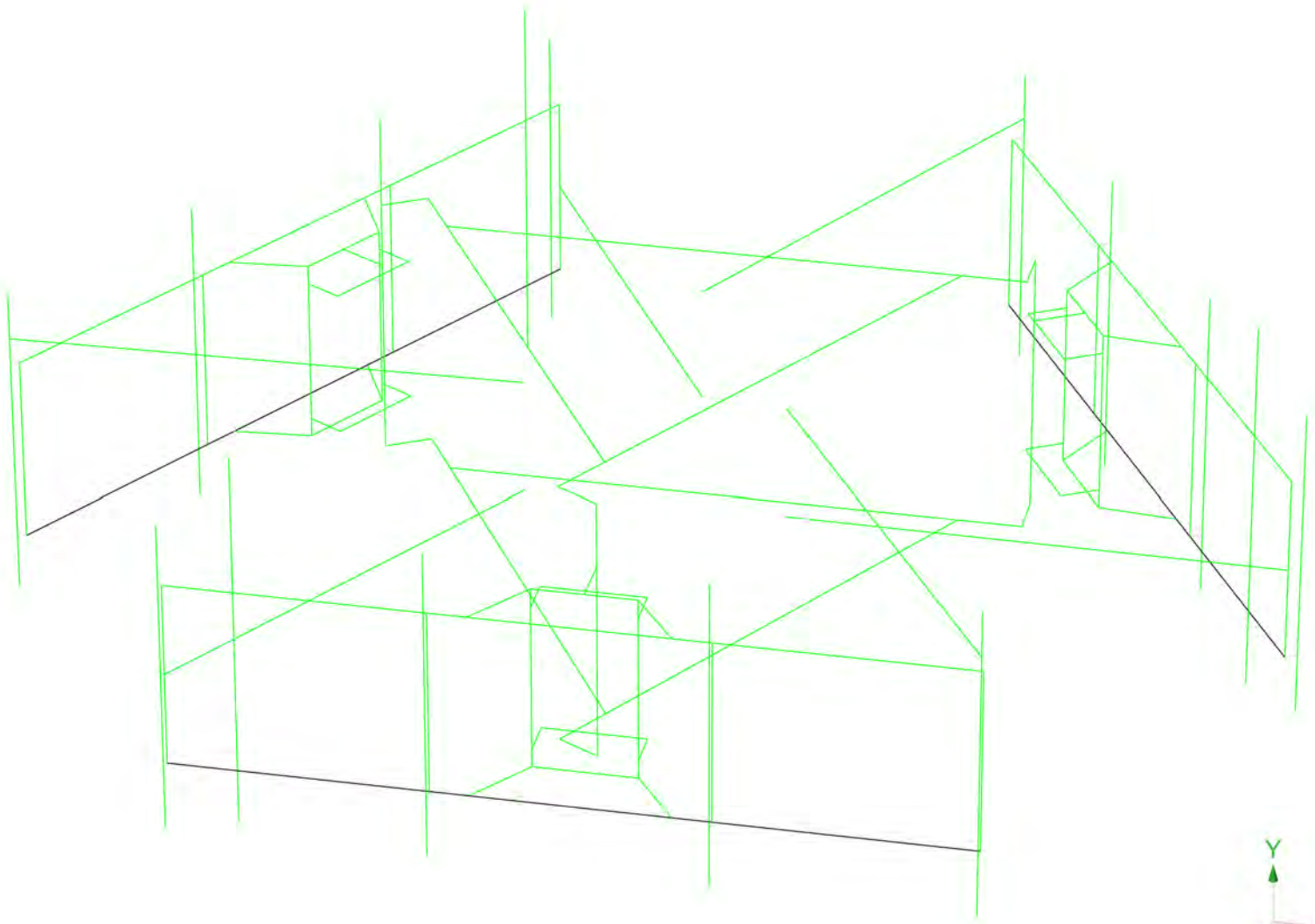
HUDSON
Design Group LLC

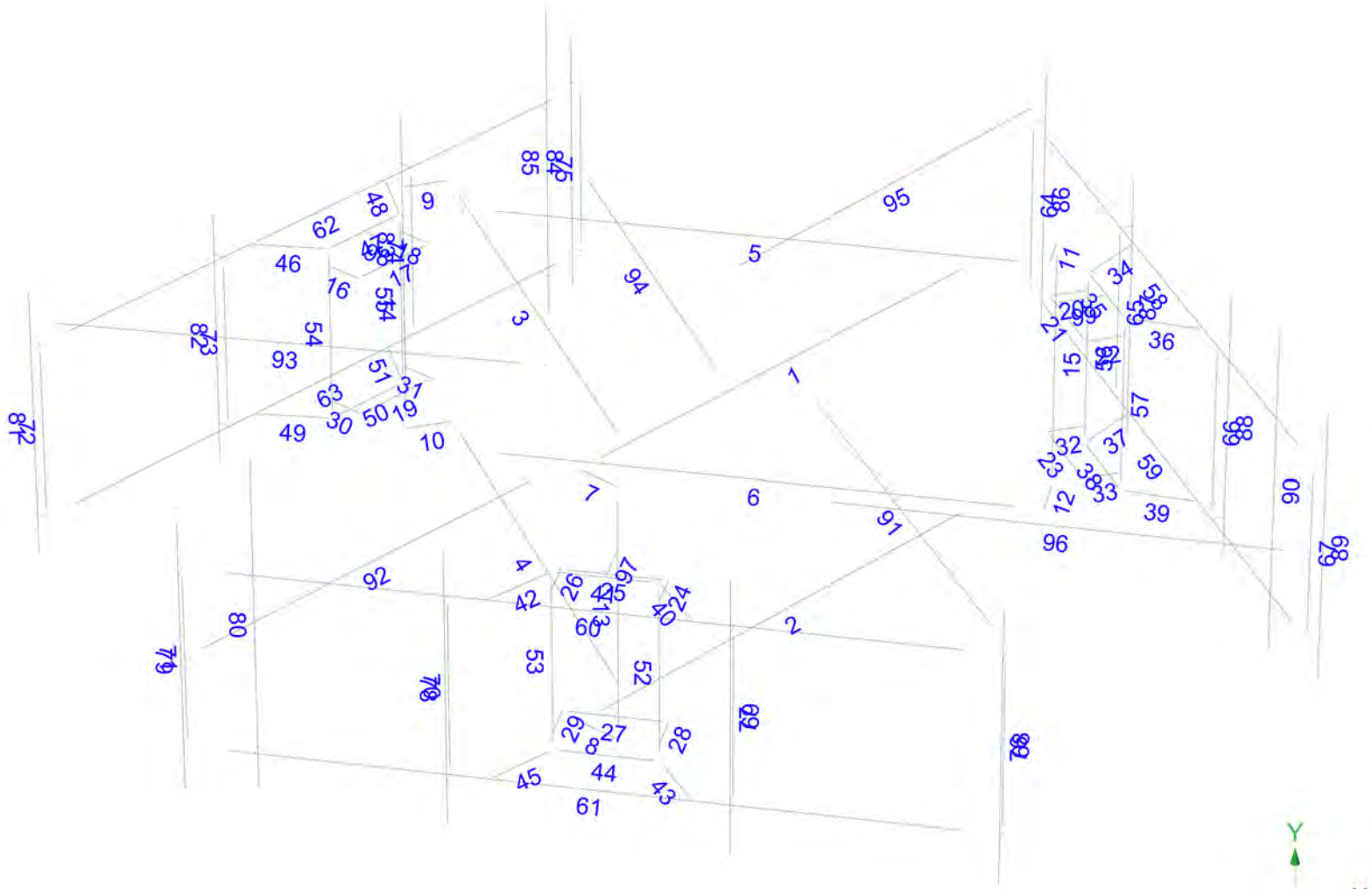
**Mount Calculations
(Modified Conditions)**



Reinforce the existing vertical steel angles with new 2x2x3/16 steel angles (typ. of 2 per sector, total of 6)







Load data

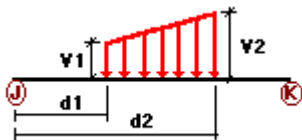
GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

Condition	Description	Comb.	Category
DL	Dead Load	No	DL
W0	Wind Load 0/60/120 deg	No	WIND
W30	Wind Load 30/90/150 deg	No	WIND
Di	Ice Load	No	LL
Wi0	Ice Wind Load 0/60/120 deg	No	WIND
Wi30	Ice Wind Load 30/90/150 deg	No	WIND
WL0	WL 30 mph 0/60/120 deg	No	WIND
WL30	WL 30 mph 30/90/150 deg	No	WIND
LL1	250 lb Live Load Center of Mount	No	LL
LL2	250 lb Live Load End of Mount	No	LL
LLa1	250 lb Live Load Antenna 1	No	LL
LLa2	250 lb Live Load Antenna 2	No	LL
LLa3	250 lb Live Load Antenna 3	No	LL
LLa4	250 lb Live Load Antenna 4	No	LL

Distributed force on members



Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
W0	1	z	-0.021	0.00	0.00	No	0.00	No
	2	z	-0.021	0.00	0.00	No	0.00	No
	3	z	-0.021	0.00	0.00	No	0.00	No
	4	z	-0.021	0.00	0.00	No	0.00	No
	5	z	-0.021	0.00	0.00	No	0.00	No
	6	z	-0.021	0.00	0.00	No	0.00	No
	13	z	-0.009	0.00	0.00	No	0.00	No
	14	z	-0.009	0.00	0.00	No	0.00	No
	15	z	-0.009	0.00	0.00	No	0.00	No
	16	z	-0.015	0.00	0.00	No	0.00	No
	17	z	-0.015	0.00	0.00	No	0.00	No
	18	z	-0.015	0.00	0.00	No	0.00	No
	19	z	-0.015	0.00	0.00	No	0.00	No
	20	z	-0.015	0.00	0.00	No	0.00	No

21	z	-0.015	0.00	0.00	No	0.00	No
22	z	-0.015	0.00	0.00	No	0.00	No
23	z	-0.015	0.00	0.00	No	0.00	No
24	z	-0.015	0.00	0.00	No	0.00	No
25	z	-0.015	0.00	0.00	No	0.00	No
26	z	-0.015	0.00	0.00	No	0.00	No
27	z	-0.021	0.00	0.00	No	0.00	No
30	z	-0.015	0.00	0.00	No	0.00	No
31	z	-0.015	0.00	0.00	No	0.00	No
32	z	-0.015	0.00	0.00	No	0.00	No
33	z	-0.015	0.00	0.00	No	0.00	No
34	z	-0.015	0.00	0.00	No	0.00	No
35	z	-0.015	0.00	0.00	No	0.00	No
36	z	-0.015	0.00	0.00	No	0.00	No
37	z	-0.015	0.00	0.00	No	0.00	No
38	z	-0.015	0.00	0.00	No	0.00	No
39	z	-0.015	0.00	0.00	No	0.00	No
40	z	-0.015	0.00	0.00	No	0.00	No
41	z	-0.015	0.00	0.00	No	0.00	No
42	z	-0.015	0.00	0.00	No	0.00	No
43	z	-0.015	0.00	0.00	No	0.00	No
44	z	-0.015	0.00	0.00	No	0.00	No
45	z	-0.015	0.00	0.00	No	0.00	No
46	z	-0.015	0.00	0.00	No	0.00	No
47	z	-0.015	0.00	0.00	No	0.00	No
48	z	-0.015	0.00	0.00	No	0.00	No
49	z	-0.015	0.00	0.00	No	0.00	No
50	z	-0.015	0.00	0.00	No	0.00	No
51	z	-0.015	0.00	0.00	No	0.00	No
52	z	-0.01	0.00	0.00	No	0.00	No
53	z	-0.01	0.00	0.00	No	0.00	No
54	z	-0.01	0.00	0.00	No	0.00	No
55	z	-0.01	0.00	0.00	No	0.00	No
56	z	-0.01	0.00	0.00	No	0.00	No
57	z	-0.01	0.00	0.00	No	0.00	No
58	z	-0.013	0.00	0.00	No	0.00	No
59	z	-0.013	0.00	0.00	No	0.00	No
60	z	-0.013	0.00	0.00	No	0.00	No
61	z	-0.013	0.00	0.00	No	0.00	No
62	z	-0.013	0.00	0.00	No	0.00	No
63	z	-0.013	0.00	0.00	No	0.00	No
64	z	-0.007	0.00	0.00	No	0.00	No
65	z	-0.007	0.00	0.00	No	0.00	No
66	z	-0.007	0.00	0.00	No	0.00	No
67	z	-0.007	0.00	0.00	No	0.00	No
72	z	-0.007	0.00	0.00	No	0.00	No
73	z	-0.007	0.00	0.00	No	0.00	No
74	z	-0.007	0.00	0.00	No	0.00	No
75	z	-0.007	0.00	0.00	No	0.00	No
78	z	-0.01	0.00	0.00	No	0.00	No
80	z	-0.01	0.00	0.00	No	0.00	No
81	z	-0.007	0.00	0.00	No	0.00	No
82	z	-0.007	0.00	0.00	No	0.00	No
83	z	-0.007	0.00	0.00	No	0.00	No
84	z	-0.007	0.00	0.00	No	0.00	No
85	z	-0.007	0.00	0.00	No	0.00	No
86	z	-0.007	0.00	0.00	No	0.00	No
87	z	-0.007	0.00	0.00	No	0.00	No
88	z	-0.007	0.00	0.00	No	0.00	No
89	z	-0.007	0.00	0.00	No	0.00	No

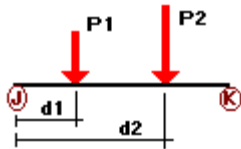
	90	z	-0.007	0.00	0.00	No	0.00	No
	91	z	-0.007	0.00	0.00	No	0.00	No
	92	z	-0.007	0.00	0.00	No	0.00	No
	93	z	-0.007	0.00	0.00	No	0.00	No
	94	z	-0.007	0.00	0.00	No	0.00	No
	95	z	-0.007	0.00	0.00	No	0.00	No
	96	z	-0.007	0.00	0.00	No	0.00	No
	98	z	-0.002	0.00	0.00	No	0.00	No
	99	z	-0.002	0.00	0.00	No	0.00	No
W30	1	x	-0.021	0.00	0.00	No	0.00	No
	2	x	-0.021	0.00	0.00	No	0.00	No
	3	x	-0.021	0.00	0.00	No	0.00	No
	4	x	-0.021	0.00	0.00	No	0.00	No
	5	x	-0.021	0.00	0.00	No	0.00	No
	6	x	-0.021	0.00	0.00	No	0.00	No
	13	x	-0.009	0.00	0.00	No	0.00	No
	14	x	-0.009	0.00	0.00	No	0.00	No
	15	x	-0.009	0.00	0.00	No	0.00	No
	16	x	-0.015	0.00	0.00	No	0.00	No
	17	x	-0.015	0.00	0.00	No	0.00	No
	18	x	-0.015	0.00	0.00	No	0.00	No
	19	x	-0.015	0.00	0.00	No	0.00	No
	20	x	-0.015	0.00	0.00	No	0.00	No
	21	x	-0.015	0.00	0.00	No	0.00	No
	22	x	-0.015	0.00	0.00	No	0.00	No
	23	x	-0.015	0.00	0.00	No	0.00	No
	24	x	-0.015	0.00	0.00	No	0.00	No
	25	x	-0.015	0.00	0.00	No	0.00	No
	26	x	-0.015	0.00	0.00	No	0.00	No
	27	x	-0.021	0.00	0.00	No	0.00	No
	30	x	-0.015	0.00	0.00	No	0.00	No
	31	x	-0.015	0.00	0.00	No	0.00	No
	32	x	-0.015	0.00	0.00	No	0.00	No
	33	x	-0.015	0.00	0.00	No	0.00	No
	34	x	-0.015	0.00	0.00	No	0.00	No
	35	x	-0.015	0.00	0.00	No	0.00	No
	36	x	-0.015	0.00	0.00	No	0.00	No
	37	x	-0.015	0.00	0.00	No	0.00	No
	38	x	-0.015	0.00	0.00	No	0.00	No
	39	x	-0.015	0.00	0.00	No	0.00	No
	40	x	-0.015	0.00	0.00	No	0.00	No
	41	x	-0.015	0.00	0.00	No	0.00	No
	42	x	-0.015	0.00	0.00	No	0.00	No
	43	x	-0.015	0.00	0.00	No	0.00	No
	44	x	-0.015	0.00	0.00	No	0.00	No
	45	x	-0.015	0.00	0.00	No	0.00	No
	46	x	-0.015	0.00	0.00	No	0.00	No
	47	x	-0.015	0.00	0.00	No	0.00	No
	48	x	-0.015	0.00	0.00	No	0.00	No
	49	x	-0.015	0.00	0.00	No	0.00	No
	50	x	-0.015	0.00	0.00	No	0.00	No
	51	x	-0.015	0.00	0.00	No	0.00	No
	52	x	-0.01	0.00	0.00	No	0.00	No
	53	x	-0.01	0.00	0.00	No	0.00	No
	54	x	-0.01	0.00	0.00	No	0.00	No
	55	x	-0.01	0.00	0.00	No	0.00	No
	56	x	-0.01	0.00	0.00	No	0.00	No
	57	x	-0.01	0.00	0.00	No	0.00	No
	58	x	-0.013	0.00	0.00	No	0.00	No
	59	x	-0.013	0.00	0.00	No	0.00	No

	60	x	-0.013	0.00	0.00	No	0.00	No
	61	x	-0.013	0.00	0.00	No	0.00	No
	62	x	-0.013	0.00	0.00	No	0.00	No
	63	x	-0.013	0.00	0.00	No	0.00	No
	64	x	-0.007	0.00	0.00	No	0.00	No
	65	x	-0.007	0.00	0.00	No	0.00	No
	66	x	-0.007	0.00	0.00	No	0.00	No
	67	x	-0.007	0.00	0.00	No	0.00	No
	68	x	-0.01	0.00	0.00	No	0.00	No
	69	x	-0.01	0.00	0.00	No	0.00	No
	70	x	-0.01	0.00	0.00	No	0.00	No
	71	x	-0.01	0.00	0.00	No	0.00	No
	72	x	-0.007	0.00	0.00	No	0.00	No
	73	x	-0.007	0.00	0.00	No	0.00	No
	74	x	-0.007	0.00	0.00	No	0.00	No
	75	x	-0.007	0.00	0.00	No	0.00	No
	76	x	-0.01	0.00	0.00	No	0.00	No
	77	x	-0.01	0.00	0.00	No	0.00	No
	78	x	-0.01	0.00	0.00	No	0.00	No
	79	x	-0.01	0.00	0.00	No	0.00	No
	80	x	-0.01	0.00	0.00	No	0.00	No
	81	x	-0.007	0.00	0.00	No	0.00	No
	82	x	-0.007	0.00	0.00	No	0.00	No
	83	x	-0.007	0.00	0.00	No	0.00	No
	84	x	-0.007	0.00	0.00	No	0.00	No
	85	x	-0.007	0.00	0.00	No	0.00	No
	86	x	-0.007	0.00	0.00	No	0.00	No
	87	x	-0.007	0.00	0.00	No	0.00	No
	88	x	-0.007	0.00	0.00	No	0.00	No
	89	x	-0.007	0.00	0.00	No	0.00	No
	90	x	-0.007	0.00	0.00	No	0.00	No
	91	x	-0.007	0.00	0.00	No	0.00	No
	92	x	-0.007	0.00	0.00	No	0.00	No
	93	x	-0.007	0.00	0.00	No	0.00	No
	94	x	-0.007	0.00	0.00	No	0.00	No
	95	x	-0.007	0.00	0.00	No	0.00	No
	96	x	-0.007	0.00	0.00	No	0.00	No
	98	x	-0.002	0.00	0.00	No	0.00	No
	99	x	-0.002	0.00	0.00	No	0.00	No
Di	1	y	-0.009	0.00	0.00	No	0.00	No
	2	y	-0.009	0.00	0.00	No	0.00	No
	3	y	-0.009	0.00	0.00	No	0.00	No
	4	y	-0.009	0.00	0.00	No	0.00	No
	5	y	-0.009	0.00	0.00	No	0.00	No
	6	y	-0.009	0.00	0.00	No	0.00	No
	7	y	-0.01	0.00	0.00	No	0.00	No
	8	y	-0.01	0.00	0.00	No	0.00	No
	9	y	-0.01	0.00	0.00	No	0.00	No
	10	y	-0.01	0.00	0.00	No	0.00	No
	11	y	-0.01	0.00	0.00	No	0.00	No
	12	y	-0.01	0.00	0.00	No	0.00	No
	13	y	-0.005	0.00	0.00	No	0.00	No
	14	y	-0.005	0.00	0.00	No	0.00	No
	15	y	-0.005	0.00	0.00	No	0.00	No
	16	y	-0.01	0.00	0.00	No	0.00	No
	17	y	-0.01	0.00	0.00	No	0.00	No
	18	y	-0.01	0.00	0.00	No	0.00	No
	19	y	-0.01	0.00	0.00	No	0.00	No
	20	y	-0.01	0.00	0.00	No	0.00	No
	21	y	-0.01	0.00	0.00	No	0.00	No

22	y	-0.01	0.00	0.00	No	0.00	No
23	y	-0.01	0.00	0.00	No	0.00	No
24	y	-0.01	0.00	0.00	No	0.00	No
25	y	-0.01	0.00	0.00	No	0.00	No
26	y	-0.01	0.00	0.00	No	0.00	No
27	y	-0.01	0.00	0.00	No	0.00	No
28	y	-0.006	0.00	0.00	No	0.00	No
29	y	-0.006	0.00	0.00	No	0.00	No
30	y	-0.006	0.00	0.00	No	0.00	No
31	y	-0.006	0.00	0.00	No	0.00	No
32	y	-0.006	0.00	0.00	No	0.00	No
33	y	-0.006	0.00	0.00	No	0.00	No
34	y	-0.006	0.00	0.00	No	0.00	No
35	y	-0.006	0.00	0.00	No	0.00	No
36	y	-0.006	0.00	0.00	No	0.00	No
37	y	-0.006	0.00	0.00	No	0.00	No
38	y	-0.006	0.00	0.00	No	0.00	No
39	y	-0.006	0.00	0.00	No	0.00	No
40	y	-0.006	0.00	0.00	No	0.00	No
41	y	-0.006	0.00	0.00	No	0.00	No
42	y	-0.006	0.00	0.00	No	0.00	No
43	y	-0.006	0.00	0.00	No	0.00	No
44	y	-0.006	0.00	0.00	No	0.00	No
45	y	-0.006	0.00	0.00	No	0.00	No
46	y	-0.006	0.00	0.00	No	0.00	No
47	y	-0.006	0.00	0.00	No	0.00	No
48	y	-0.006	0.00	0.00	No	0.00	No
49	y	-0.006	0.00	0.00	No	0.00	No
50	y	-0.006	0.00	0.00	No	0.00	No
51	y	-0.006	0.00	0.00	No	0.00	No
52	y	-0.005	0.00	0.00	No	0.00	No
53	y	-0.005	0.00	0.00	No	0.00	No
54	y	-0.005	0.00	0.00	No	0.00	No
55	y	-0.005	0.00	0.00	No	0.00	No
56	y	-0.005	0.00	0.00	No	0.00	No
57	y	-0.005	0.00	0.00	No	0.00	No
58	y	-0.006	0.00	0.00	No	0.00	No
59	y	-0.006	0.00	0.00	No	0.00	No
60	y	-0.006	0.00	0.00	No	0.00	No
61	y	-0.006	0.00	0.00	No	0.00	No
62	y	-0.006	0.00	0.00	No	0.00	No
63	y	-0.006	0.00	0.00	No	0.00	No
64	y	-0.005	0.00	0.00	No	0.00	No
65	y	-0.005	0.00	0.00	No	0.00	No
66	y	-0.005	0.00	0.00	No	0.00	No
67	y	-0.005	0.00	0.00	No	0.00	No
68	y	-0.005	0.00	0.00	No	0.00	No
69	y	-0.005	0.00	0.00	No	0.00	No
70	y	-0.005	0.00	0.00	No	0.00	No
71	y	-0.005	0.00	0.00	No	0.00	No
72	y	-0.005	0.00	0.00	No	0.00	No
73	y	-0.005	0.00	0.00	No	0.00	No
74	y	-0.005	0.00	0.00	No	0.00	No
75	y	-0.005	0.00	0.00	No	0.00	No
76	y	-0.005	0.00	0.00	No	0.00	No
77	y	-0.005	0.00	0.00	No	0.00	No
78	y	-0.005	0.00	0.00	No	0.00	No
79	y	-0.005	0.00	0.00	No	0.00	No
80	y	-0.005	0.00	0.00	No	0.00	No
81	y	-0.005	0.00	0.00	No	0.00	No

82	y	-0.005	0.00	0.00	No	0.00	No
83	y	-0.005	0.00	0.00	No	0.00	No
84	y	-0.005	0.00	0.00	No	0.00	No
85	y	-0.005	0.00	0.00	No	0.00	No
86	y	-0.005	0.00	0.00	No	0.00	No
87	y	-0.005	0.00	0.00	No	0.00	No
88	y	-0.005	0.00	0.00	No	0.00	No
89	y	-0.005	0.00	0.00	No	0.00	No
90	y	-0.005	0.00	0.00	No	0.00	No
91	y	-0.005	0.00	0.00	No	0.00	No
92	y	-0.005	0.00	0.00	No	0.00	No
93	y	-0.005	0.00	0.00	No	0.00	No
94	y	-0.005	0.00	0.00	No	0.00	No
95	y	-0.005	0.00	0.00	No	0.00	No
96	y	-0.005	0.00	0.00	No	0.00	No
97	y	-0.003	0.00	0.00	No	0.00	No
98	y	-0.003	0.00	0.00	No	0.00	No
99	y	-0.003	0.00	0.00	No	0.00	No

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
DL	65	y	-0.071	1.50	No
		y	-0.072	1.50	No
	66	y	-0.06	1.50	No
		69	y	-0.071	1.50
	y		-0.072	1.50	No
	70	y	-0.06	1.50	No
		73	y	-0.071	1.50
	y		-0.072	1.50	No
	74	y	-0.06	1.50	No
		76	y	-0.029	0.50
	77		y	-0.029	4.50
		78	y	-0.022	0.50
	79		y	-0.022	4.50
		81	y	-0.06	2.50
	82		y	-0.017	0.50
		83	y	-0.017	4.50
	84		y	-0.029	0.50
		86	y	-0.029	4.50
	87		y	-0.022	0.50
			y	-0.022	4.50

	88	y	-0.06	2.50	No
	89	y	-0.017	0.50	No
		y	-0.017	4.50	No
W0	65	z	-0.054	1.50	No
	66	z	-0.041	1.50	No
	69	z	-0.023	1.50	No
		z	-0.021	1.50	No
	70	z	-0.008	1.50	No
	73	z	-0.054	1.50	No
	74	z	-0.041	1.50	No
	76	z	-0.092	0.50	No
		z	-0.092	4.50	No
	77	z	-0.077	0.50	No
		z	-0.077	4.50	No
	78	z	-0.085	2.50	No
	79	z	-0.093	0.50	No
		z	-0.093	4.50	No
	81	z	-0.063	0.50	No
		z	-0.063	4.50	No
	82	z	-0.071	0.50	No
		z	-0.071	4.50	No
	83	z	-0.06	2.50	No
	84	z	-0.069	0.50	No
		z	-0.069	4.50	No
	86	z	-0.063	0.50	No
		z	-0.063	4.50	No
	87	z	-0.071	0.50	No
		z	-0.071	4.50	No
	88	z	-0.06	2.50	No
	89	z	-0.069	0.50	No
		z	-0.069	4.50	No
W30	65	x	-0.032	1.50	No
	66	x	-0.033	1.50	No
	69	x	-0.061	1.50	No
	70	x	-0.039	1.50	No
	73	x	-0.032	1.50	No
	74	x	-0.033	1.50	No
	76	x	-0.053	0.50	No
		x	-0.053	4.50	No
	77	x	-0.068	0.50	No
		x	-0.068	4.50	No
	78	x	-0.052	2.50	No
	79	x	-0.061	0.50	No
		x	-0.061	4.50	No
	81	x	-0.082	0.50	No
		x	-0.082	4.50	No
	82	x	-0.075	0.50	No
		x	-0.075	4.50	No
	83	x	-0.077	2.50	No
	84	x	-0.085	0.50	No
		x	-0.085	4.50	No
	86	x	-0.082	0.50	No
		x	-0.082	4.50	No
	87	x	-0.075	0.50	No
		x	-0.075	4.50	No
	88	x	-0.077	2.50	No
	89	x	-0.085	0.50	No
		x	-0.085	4.50	No
Di	65	y	-0.035	1.50	No
		y	-0.031	1.50	No

	66	y	-0.035	1.50	No
	69	y	-0.035	1.50	No
		y	-0.031	1.50	No
	70	y	-0.035	1.50	No
	73	y	-0.035	1.50	No
		y	-0.031	1.50	No
	74	y	-0.035	1.50	No
	76	y	-0.047	0.50	No
		y	-0.047	4.50	No
	77	y	-0.045	0.50	No
		y	-0.045	4.50	No
	78	y	-0.047	2.50	No
	79	y	-0.047	0.50	No
		y	-0.047	4.50	No
	81	y	-0.047	0.50	No
		y	-0.047	4.50	No
	82	y	-0.045	0.50	No
		y	-0.045	4.50	No
	83	y	-0.047	2.50	No
	84	y	-0.047	0.50	No
		y	-0.047	4.50	No
	86	y	-0.047	0.50	No
		y	-0.047	4.50	No
	87	y	-0.045	0.50	No
		y	-0.045	4.50	No
	88	y	-0.047	2.50	No
	89	y	-0.047	0.50	No
		y	-0.047	4.50	No
Wi0	65	z	-0.012	1.50	No
	66	z	-0.01	1.50	No
	69	z	-0.007	1.50	No
		z	-0.006	1.50	No
	70	z	-0.004	1.50	No
	73	z	-0.012	1.50	No
	74	z	-0.01	1.50	No
	76	z	-0.02	0.50	No
		z	-0.02	4.50	No
	77	z	-0.017	0.50	No
		z	-0.017	4.50	No
	78	z	-0.019	2.50	No
	79	z	-0.02	0.50	No
		z	-0.02	4.50	No
	81	z	-0.014	0.50	No
		z	-0.014	4.50	No
	82	z	-0.016	0.50	No
		z	-0.016	4.50	No
	83	z	-0.014	2.50	No
	84	z	-0.016	0.50	No
		z	-0.016	4.50	No
	86	z	-0.014	0.50	No
		z	-0.014	4.50	No
	87	z	-0.016	0.50	No
		z	-0.016	4.50	No
	88	z	-0.014	2.50	No
	89	z	-0.016	0.50	No
		z	-0.016	4.50	No
Wi30	65	x	-0.008	1.50	No
	66	x	-0.008	1.50	No
	69	x	-0.014	1.50	No
	70	x	-0.01	1.50	No

	73	x	-0.008	1.50	No
	74	x	-0.008	1.50	No
	76	x	-0.012	0.50	No
		x	-0.012	4.50	No
	77	x	-0.015	0.50	No
		x	-0.015	4.50	No
	78	x	-0.012	2.50	No
	79	x	-0.014	0.50	No
		x	-0.014	4.50	No
	81	x	-0.018	0.50	No
		x	-0.018	4.50	No
	82	x	-0.016	0.50	No
		x	-0.016	4.50	No
	83	x	-0.017	2.50	No
	84	x	-0.018	0.50	No
		x	-0.018	4.50	No
	86	x	-0.018	0.50	No
		x	-0.018	4.50	No
	87	x	-0.016	0.50	No
		x	-0.016	4.50	No
	88	x	-0.017	2.50	No
	89	x	-0.018	0.50	No
		x	-0.018	4.50	No
WLO	65	z	-0.003	1.50	No
	66	z	-0.003	1.50	No
	69	z	-0.001	1.50	No
		z	-0.001	1.50	No
	70	z	-0.001	1.50	No
	73	z	-0.003	1.50	No
	74	z	-0.003	1.50	No
	76	z	-0.006	0.50	No
		z	-0.006	4.50	No
	77	z	-0.005	0.50	No
		z	-0.005	4.50	No
	78	z	-0.005	2.50	No
	79	z	-0.006	0.50	No
		z	-0.006	4.50	No
	81	z	-0.004	0.50	No
		z	-0.004	4.50	No
	82	z	-0.005	0.50	No
		z	-0.005	4.50	No
	83	z	-0.004	2.50	No
	84	z	-0.005	0.50	No
		z	-0.005	4.50	No
	86	z	-0.004	0.50	No
		z	-0.004	4.50	No
	87	z	-0.005	0.50	No
		z	-0.005	4.50	No
	88	z	-0.004	2.50	No
	89	z	-0.005	0.50	No
		z	-0.005	4.50	No
WL30	65	x	-0.002	1.50	No
	66	x	-0.002	1.50	No
	69	x	-0.004	1.50	No
	70	x	-0.002	1.50	No
	73	x	-0.002	1.50	No
	74	x	-0.002	1.50	No
	76	x	-0.004	0.50	No
		x	-0.004	4.50	No
	77	x	-0.005	0.50	No

		x	-0.005	4.50	No
	78	x	-0.003	2.50	No
	79	x	-0.005	0.50	No
		x	-0.005	4.50	No
	81	x	-0.006	0.50	No
		x	-0.006	4.50	No
	82	x	-0.005	0.50	No
		x	-0.005	4.50	No
	83	x	-0.005	2.50	No
	84	x	-0.006	0.50	No
		x	-0.006	4.50	No
	86	x	-0.006	0.50	No
		x	-0.006	4.50	No
	87	x	-0.005	0.50	No
		x	-0.005	4.50	No
	88	x	-0.005	2.50	No
	89	x	-0.006	0.50	No
		x	-0.006	4.50	No
LL1	60	y	-0.25	50.00	Yes
LL2	60	y	-0.25	0.00	Yes
LLa1	76	y	-0.25	50.00	Yes
LLa2	77	y	-0.25	50.00	Yes
LLa3	78	y	-0.25	50.00	Yes
LLa4	79	y	-0.25	50.00	Yes

Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
DL	Dead Load	No	0.00	-1.00	0.00
W0	Wind Load 0/60/120 deg	No	0.00	0.00	0.00
W30	Wind Load 30/90/150 deg	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00
Wi0	Ice Wind Load 0/60/120 deg	No	0.00	0.00	0.00
Wi30	Ice Wind Load 30/90/150 deg	No	0.00	0.00	0.00
WL0	WL 30 mph 0/60/120 deg	No	0.00	0.00	0.00
WL30	WL 30 mph 30/90/150 deg	No	0.00	0.00	0.00
LL1	250 lb Live Load Center of Mount	No	0.00	0.00	0.00
LL2	250 lb Live Load End of Mount	No	0.00	0.00	0.00
LLa1	250 lb Live Load Antenna 1	No	0.00	0.00	0.00
LLa2	250 lb Live Load Antenna 2	No	0.00	0.00	0.00
LLa3	250 lb Live Load Antenna 3	No	0.00	0.00	0.00
LLa4	250 lb Live Load Antenna 4	No	0.00	0.00	0.00

Earthquake (Dynamic analysis only)

Condition	a/g	Ang. [Deg]	Damp. [%]
DL	0.00	0.00	0.00
W0	0.00	0.00	0.00
W30	0.00	0.00	0.00
Di	0.00	0.00	0.00
Wi0	0.00	0.00	0.00
Wi30	0.00	0.00	0.00
WL0	0.00	0.00	0.00
WL30	0.00	0.00	0.00
LL1	0.00	0.00	0.00
LL2	0.00	0.00	0.00
LLa1	0.00	0.00	0.00
LLa2	0.00	0.00	0.00
LLa3	0.00	0.00	0.00
LLa4	0.00	0.00	0.00



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Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

- LC1=1.2DL+W0
- LC2=1.2DL+W30
- LC3=1.2DL-W0
- LC4=1.2DL-W30
- LC5=0.9DL+W0
- LC6=0.9DL+W30
- LC7=0.9DL-W0
- LC8=0.9DL-W30
- LC9=1.2DL+Di+Wi0
- LC10=1.2DL+Di+Wi30
- LC11=1.2DL+Di-Wi0
- LC12=1.2DL+Di-Wi30
- LC13=1.2DL
- LC15=1.2DL+1.5LL1
- LC16=1.2DL+1.5LL2
- LC17=1.2DL+WL0+1.5LLa1
- LC18=1.2DL+WL30+1.5LLa1
- LC19=1.2DL-WL0+1.5LLa1
- LC20=1.2DL-WL30+1.5LLa1
- LC21=1.2DL+WL0+1.5LLa2
- LC22=1.2DL+WL30+1.5LLa2
- LC23=1.2DL-WL0+1.5LLa2
- LC24=1.2DL-WL30+1.5LLa2
- LC25=1.2DL+WL0+1.5LLa3
- LC26=1.2DL+WL30+1.5LLa3
- LC27=1.2DL-WL0+1.5LLa3
- LC28=1.2DL-WL30+1.5LLa3
- LC29=1.2DL+WL0+1.5LLa4
- LC30=1.2DL+WL30+1.5LLa4
- LC31=1.2DL-WL0+1.5LLa4
- LC32=1.2DL-WL30+1.5LLa4

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	C 3X5	16	LC1 at 100.00%	0.24	OK	
		17	LC3 at 100.00%	0.25	OK	
		18	LC3 at 0.00%	0.25	OK	
		19	LC4 at 46.88%	0.44	OK	
		20	LC3 at 100.00%	0.21	OK	
		21	LC1 at 100.00%	0.23	OK	
		22	LC1 at 0.00%	0.23	OK	
		23	LC2 at 46.88%	0.48	OK	
		24	LC2 at 100.00%	0.24	OK	
		25	LC4 at 100.00%	0.25	OK	
		26	LC4 at 0.00%	0.25	OK	
		27	LC1 at 46.88%	0.47	OK	
	L 2-1_2X2-1_2X3_16	59	LC4 at 36.61%	0.44	With warnings	
		61	LC31 at 32.14%	0.53	With warnings	
		63	LC4 at 67.86%	0.38	With warnings	

<i>L 4X4X1_4</i>	1	LC12 at 43.75%	0.73	OK
	2	LC11 at 43.75%	0.73	OK
	3	LC11 at 43.75%	0.73	OK
	4	LC9 at 43.75%	0.73	OK
	5	LC9 at 43.75%	0.73	OK
	6	LC12 at 43.75%	0.73	OK
<hr/>				
<i>LU 3X2X1_4</i>	34	LC3 at 100.00%	0.30	OK
	35	LC9 at 0.00%	0.30	OK
	36	LC2 at 0.00%	0.28	OK
	37	LC9 at 0.00%	0.31	OK
	38	LC2 at 0.00%	0.15	OK
	39	LC2 at 0.00%	0.26	OK
	40	LC20 at 100.00%	0.34	OK
	41	LC20 at 0.00%	0.38	OK
	42	LC31 at 0.00%	0.34	OK
	43	LC16 at 0.00%	0.33	OK
	44	LC16 at 100.00%	0.26	OK
	45	LC30 at 100.00%	0.28	OK
	46	LC1 at 100.00%	0.27	OK
	47	LC10 at 0.00%	0.30	OK
	48	LC3 at 0.00%	0.29	OK
	49	LC10 at 0.00%	0.31	OK
	50	LC3 at 0.00%	0.15	OK
51	LC3 at 0.00%	0.24	OK	
<hr/>				
<i>PIPE 2-1_2x0.203</i>	13	LC30 at 31.25%	0.29	OK
	14	LC3 at 31.25%	0.28	OK
	15	LC3 at 31.25%	0.27	OK
<hr/>				
<i>PIPE 2x0.154</i>	64	LC9 at 0.00%	0.14	OK
	65	LC10 at 0.00%	0.20	OK
	66	LC12 at 0.00%	0.15	OK
	67	LC3 at 0.00%	0.12	OK
	68	LC20 at 0.00%	0.20	OK
	69	LC20 at 0.00%	0.19	OK
	70	LC31 at 0.00%	0.16	OK
	71	LC30 at 0.00%	0.12	OK
	72	LC11 at 0.00%	0.15	OK
	73	LC11 at 0.00%	0.20	OK
	74	LC9 at 0.00%	0.15	OK
	75	LC2 at 50.00%	0.15	OK
	76	LC20 at 21.88%	0.10	OK
	77	LC20 at 22.92%	0.08	OK
	78	LC31 at 22.92%	0.08	OK
	79	LC30 at 22.92%	0.07	OK
	80	LC30 at 35.42%	0.16	OK
	81	LC3 at 21.88%	0.10	OK
	82	LC11 at 22.92%	0.09	OK
	83	LC9 at 22.92%	0.07	OK
	84	LC2 at 22.92%	0.04	OK
	85	LC9 at 35.42%	0.10	OK
	86	LC2 at 21.88%	0.09	OK
	87	LC10 at 22.92%	0.09	OK
	88	LC12 at 22.92%	0.08	OK
	89	LC4 at 22.92%	0.04	OK
	90	LC12 at 35.42%	0.10	OK
91	LC4 at 50.00%	0.04	OK	
92	LC2 at 50.00%	0.04	OK	
93	LC3 at 50.00%	0.05	OK	
94	LC4 at 50.00%	0.05	OK	
95	LC2 at 50.00%	0.05	OK	
96	LC3 at 50.00%	0.05	OK	

PL 3x3/8	28	LC2 at 100.00%	0.42	OK
	29	LC4 at 100.00%	0.39	OK
	30	LC4 at 100.00%	0.47	OK
	31	LC3 at 100.00%	0.37	OK
	32	LC3 at 100.00%	0.49	OK
	33	LC1 at 100.00%	0.39	OK
<hr/>				
PL 6x1/2	7	LC12 at 0.00%	0.58	OK
	8	LC10 at 0.00%	0.57	OK
	9	LC11 at 0.00%	0.58	OK
	10	LC9 at 100.00%	0.57	OK
	11	LC9 at 0.00%	0.58	OK
	12	LC11 at 0.00%	0.57	OK
<hr/>				
RndBar 3_4	97	LC4 at 0.00%	0.46	OK
	98	LC3 at 100.00%	0.43	OK
	99	LC1 at 100.00%	0.45	OK
<hr/>				
T2L 2X2X3_16	52	LC16 at 10.42%	0.44	OK
	53	LC29 at 10.42%	0.38	OK
	54	LC10 at 10.42%	0.35	OK
	55	LC3 at 0.00%	0.27	OK
	56	LC9 at 10.42%	0.35	OK
	57	LC2 at 0.00%	0.26	OK
<hr/>				
Z 2-1/2x2-1/2x3/16	58	LC2 at 63.39%	0.41	OK
	60	LC4 at 62.50%	0.43	OK
	62	LC3 at 63.39%	0.46	OK



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Geometry data

GLOSSARY

Cb22, Cb33	: Moment gradient coefficients
Cm22, Cm33	: Coefficients applied to bending term in interaction formula
d0	: Tapered member section depth at J end of member
DJX	: Rigid end offset distance measured from J node in axis X
DJY	: Rigid end offset distance measured from J node in axis Y
DJZ	: Rigid end offset distance measured from J node in axis Z
DKX	: Rigid end offset distance measured from K node in axis X
DKY	: Rigid end offset distance measured from K node in axis Y
DKZ	: Rigid end offset distance measured from K node in axis Z
dL	: Tapered member section depth at K end of member
Ig factor	: Inertia reduction factor (Effective Inertia/Gross Inertia) for reinforced concrete members
K22	: Effective length factor about axis 2
K33	: Effective length factor about axis 3
L22	: Member length for calculation of axial capacity
L33	: Member length for calculation of axial capacity
LB pos	: Lateral unbraced length of the compression flange in the positive side of local axis 2
LB neg	: Lateral unbraced length of the compression flange in the negative side of local axis 2
RX	: Rotation about X
RY	: Rotation about Y
RZ	: Rotation about Z
TO	: 1 = Tension only member 0 = Normal member
TX	: Translation in X
TY	: Translation in Y
TZ	: Translation in Z

Nodes

Node	X [ft]	Y [ft]	Z [ft]	Rigid Floor
1	-2.0009	4.00	1.1552	0
2	0.00	4.00	-2.3073	0
3	1.9991	4.00	1.1552	0
4	0.00	-0.20	-2.3073	0
5	1.9991	-0.20	1.1552	0
6	-2.0009	-0.20	1.1552	0
7	1.9991	1.48	1.1552	0
8	0.00	3.30	-2.3073	0
9	0.00	1.48	-2.3073	0
10	-2.0009	3.30	1.1552	0
11	-2.0009	1.48	1.1552	0
12	1.9991	3.30	1.1552	0
15	7.3297	0.00	-2.6721	0
16	5.8297	0.00	-5.2702	0
17	6.1096	0.00	-2.7855	0
18	5.3179	0.00	-4.1567	0
25	7.3297	2.96	-2.6721	0
26	5.8297	2.96	-5.2702	0
27	6.1096	2.96	-2.7855	0
28	5.3179	2.96	-4.1567	0
33	7.7954	4.04	-2.2655	0

34	3.7529	4.04	-9.2673	0
35	7.7954	-0.96	-2.2655	0
36	3.7529	-0.96	-9.2673	0
37	9.5797	1.48	1.225	0
40	5.3179	2.66	-4.1567	0
41	6.1096	2.66	-2.7855	0
42	5.3179	0.30	-4.1567	0
43	6.1096	0.30	-2.7855	0
44	4.7766	0.30	-3.8442	0
45	5.5683	0.30	-2.473	0
46	4.7766	2.66	-3.8442	0
47	5.5683	2.66	-2.473	0
50	4.9992	4.00	-3.0586	0
51	4.9992	-0.20	-3.0586	0
52	6.5797	2.96	-3.9711	0
53	6.5797	0.00	-3.9711	0
54	5.7104	4.04	-5.8768	0
55	5.7104	-0.96	-5.8768	0
56	9.7529	-0.96	1.125	0
57	9.7529	4.04	1.125	0
58	3.7529	3.30	-9.2673	0
65	8.9065	5.04	0.459	0
66	8.9065	-0.96	0.459	0
67	-4.00	4.00	-2.3073	0
68	-4.00	-0.20	-2.3073	0
69	-0.0018	4.00	4.6178	0
70	-0.0018	-0.20	4.6178	0
72	5.7137	2.96	-3.4711	0
74	5.00	4.00	-2.3073	0
75	5.00	-0.20	-2.3073	0
80	4.00	4.00	-2.3073	0
81	4.00	-0.20	-2.3073	0
84	-5.979	0.00	-5.0117	0
85	-7.479	0.00	-2.4136	0
86	-5.4671	0.00	-3.8983	0
87	-6.2588	0.00	-2.527	0
94	-5.979	2.96	-5.0117	0
95	-7.479	2.96	-2.4136	0
96	-5.4671	2.96	-3.8983	0
97	-6.2588	2.96	-2.527	0
102	-5.8597	4.04	-5.6183	0
103	-9.9022	4.04	1.3835	0
104	-5.8597	-0.96	-5.6183	0
105	-9.9022	-0.96	1.3835	0
109	-6.2588	2.66	-2.527	0
110	-5.4671	2.66	-3.8983	0
111	-6.2588	0.30	-2.527	0
112	-5.4671	0.30	-3.8983	0
113	-5.7175	0.30	-2.2145	0
114	-4.9258	0.30	-3.5858	0
115	-5.7175	2.66	-2.2145	0
116	-4.9258	2.66	-3.5858	0
119	-5.1485	4.00	-2.8002	0
120	-5.1485	-0.20	-2.8002	0
121	-6.729	2.96	-3.7127	0
123	-7.9447	4.04	-2.007	0
124	-7.9447	-0.96	-2.007	0
126	-3.9022	4.04	-9.0088	0
127	-9.9022	3.30	1.3835	0
134	-4.0557	5.04	-7.9428	0

135	-4.0557	-0.96	-7.9428	0
136	-5.8629	2.96	-3.2127	0
137	-5.1485	2.96	-2.8002	0
138	-4.4982	4.00	-3.1765	0
139	-4.4982	-0.20	-3.1765	0
144	-1.3508	0.00	7.6838	0
145	1.6492	0.00	7.6838	0
146	-0.6425	0.00	6.6838	0
147	0.9409	0.00	6.6838	0
154	-1.3508	2.96	7.6838	0
155	1.6492	2.96	7.6838	0
156	-0.6425	2.96	6.6838	0
157	0.9409	2.96	6.6838	0
162	-1.9358	4.04	7.8838	0
163	6.1492	4.04	7.8838	0
164	-1.9358	-0.96	7.8838	0
165	6.1492	-0.96	7.8838	0
166	-5.8508	1.48	7.6838	0
169	0.9409	2.66	6.6838	0
170	-0.6425	2.66	6.6838	0
171	0.9409	0.30	6.6838	0
172	-0.6425	0.30	6.6838	0
173	0.9409	0.30	6.0588	0
174	-0.6425	0.30	6.0588	0
175	0.9409	2.66	6.0588	0
176	-0.6425	2.66	6.0588	0
179	0.1492	4.00	5.8588	0
181	0.1492	2.96	7.6838	0
182	0.1492	0.00	7.6838	0
183	2.2342	4.04	7.8838	0
184	2.2342	-0.96	7.8838	0
185	-5.8508	-0.96	7.8838	0
186	-5.8508	4.04	7.8838	0
194	-4.8508	5.04	7.4838	0
195	-4.8508	-0.96	7.4838	0
196	0.1492	2.96	6.6838	0
197	0.1492	2.96	5.8588	0
198	-0.5018	4.00	5.4838	0
199	-0.5018	-0.20	5.4838	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
1	1	1	1	0	0	0
2	1	1	1	0	0	0
3	1	1	1	0	0	0
4	1	1	1	0	0	0
5	1	1	1	0	0	0
6	1	1	1	0	0	0
7	1	1	1	0	0	0
8	1	1	1	0	0	0
9	1	1	1	0	0	0
10	1	1	1	0	0	0
11	1	1	1	0	0	0
12	1	1	1	0	0	0

Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	Ig factor
1	80	198		L 4X4X1_4	A36	0.00	0.00	0.00
2	81	199		L 4X4X1_4	A36	0.00	0.00	0.00
3	69	138		L 4X4X1_4	A36	0.00	0.00	0.00
4	70	139		L 4X4X1_4	A36	0.00	0.00	0.00
5	67	74		L 4X4X1_4	A36	0.00	0.00	0.00
6	68	75		L 4X4X1_4	A36	0.00	0.00	0.00
7	179	198		PL 6x1/2	A36	0.00	0.00	0.00
8	180	199		PL 6x1/2	A36	0.00	0.00	0.00
9	119	138		PL 6x1/2	A36	0.00	0.00	0.00
10	139	120		PL 6x1/2	A36	0.00	0.00	0.00
11	50	74		PL 6x1/2	A36	0.00	0.00	0.00
12	51	75		PL 6x1/2	A36	0.00	0.00	0.00
13	179	180		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
14	119	120		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
15	50	51		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
16	109	115		C 3X5	A36	0.00	0.00	0.00
17	115	116		C 3X5	A36	0.00	0.00	0.00
18	116	110		C 3X5	A36	0.00	0.00	0.00
19	113	114		C 3X5	A36	0.00	0.00	0.00
20	40	46		C 3X5	A36	0.00	0.00	0.00
21	46	47		C 3X5	A36	0.00	0.00	0.00
22	47	41		C 3X5	A36	0.00	0.00	0.00
23	44	45		C 3X5	A36	0.00	0.00	0.00
24	169	175		C 3X5	A36	0.00	0.00	0.00
25	175	176		C 3X5	A36	0.00	0.00	0.00
26	176	170		C 3X5	A36	0.00	0.00	0.00
27	173	174		C 3X5	A36	0.00	0.00	0.00
28	171	173		PL 3x3/8	A36	0.00	0.00	0.00
29	172	174		PL 3x3/8	A36	0.00	0.00	0.00
30	111	113		PL 3x3/8	A36	0.00	0.00	0.00
31	112	114		PL 3x3/8	A36	0.00	0.00	0.00
32	42	44		PL 3x3/8	A36	0.00	0.00	0.00
33	43	45		PL 3x3/8	A36	0.00	0.00	0.00
34	26	28		LU 3X2X1_4	A36	0.00	0.00	0.00
35	28	27		LU 3X2X1_4	A36	0.00	0.00	0.00
36	27	25		LU 3X2X1_4	A36	0.00	0.00	0.00
37	18	16		LU 3X2X1_4	A36	0.00	0.00	0.00
38	17	18		LU 3X2X1_4	A36	0.00	0.00	0.00
39	15	17		LU 3X2X1_4	A36	0.00	0.00	0.00
40	155	157		LU 3X2X1_4	A36	0.00	0.00	0.00
41	157	156		LU 3X2X1_4	A36	0.00	0.00	0.00
42	156	154		LU 3X2X1_4	A36	0.00	0.00	0.00
43	147	145		LU 3X2X1_4	A36	0.00	0.00	0.00
44	146	147		LU 3X2X1_4	A36	0.00	0.00	0.00
45	144	146		LU 3X2X1_4	A36	0.00	0.00	0.00
46	95	97		LU 3X2X1_4	A36	0.00	0.00	0.00
47	97	96		LU 3X2X1_4	A36	0.00	0.00	0.00
48	96	94		LU 3X2X1_4	A36	0.00	0.00	0.00
49	87	85		LU 3X2X1_4	A36	0.00	0.00	0.00
50	86	87		LU 3X2X1_4	A36	0.00	0.00	0.00
51	84	86		LU 3X2X1_4	A36	0.00	0.00	0.00

52	157	147	T2L 2X2X3_16	A36	0.00	0.00	0.00
53	156	146	T2L 2X2X3_16	A36	0.00	0.00	0.00
54	97	87	T2L 2X2X3_16	A36	0.00	0.00	0.00
55	96	86	T2L 2X2X3_16	A36	0.00	0.00	0.00
56	28	18	T2L 2X2X3_16	A36	0.00	0.00	0.00
57	27	17	T2L 2X2X3_16	A36	0.00	0.00	0.00
58	23	24	Z 2-1/2x2-1/2x3/16	A36	0.00	0.00	0.00
59	14	13	L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
60	152	153	Z 2-1/2x2-1/2x3/16	A36	0.00	0.00	0.00
61	143	142	L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
62	92	93	Z 2-1/2x2-1/2x3/16	A36	0.00	0.00	0.00
63	83	82	L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
64	23	13	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
65	30	20	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
66	29	19	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
67	24	14	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
68	152	142	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
69	159	149	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
70	158	148	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
71	153	143	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
72	92	82	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
73	99	89	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
74	98	88	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
75	93	83	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
76	163	165	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
77	183	184	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
78	162	164	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
79	186	185	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
80	194	195	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
81	103	105	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
82	123	124	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
83	102	104	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
84	126	125	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
85	134	135	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
86	34	36	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
87	54	55	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
88	33	35	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
89	57	56	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
90	65	66	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
91	187	12	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
92	166	11	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
93	127	10	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
94	106	9	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
95	58	8	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
96	37	7	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
97	197	196	RndBar 3_4	A36	0.00	0.00	0.00
98	136	137	RndBar 3_4	A36	0.00	0.00	0.00
99	72	73	RndBar 3_4	A36	0.00	0.00	0.00

Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
1	180.00	0	0.00	0.00	0.00
2	180.00	0	0.00	0.00	0.00
3	180.00	0	0.00	0.00	0.00
4	180.00	0	0.00	0.00	0.00
5	180.00	0	0.00	0.00	0.00
6	180.00	0	0.00	0.00	0.00
7	90.00	0	0.00	0.00	0.00
8	90.00	0	0.00	0.00	0.00
9	90.00	0	0.00	0.00	0.00
10	90.00	0	0.00	0.00	0.00
11	90.00	0	0.00	0.00	0.00
12	90.00	0	0.00	0.00	0.00
17	180.00	0	0.00	0.00	0.00
19	180.00	0	0.00	0.00	0.00
21	180.00	0	0.00	0.00	0.00
23	180.00	0	0.00	0.00	0.00
25	180.00	0	0.00	0.00	0.00
27	180.00	0	0.00	0.00	0.00
34	180.00	0	0.00	0.00	0.00
35	180.00	0	0.00	0.00	0.00
36	180.00	0	0.00	0.00	0.00
40	180.00	0	0.00	0.00	0.00
41	180.00	0	0.00	0.00	0.00
42	180.00	0	0.00	0.00	0.00
46	180.00	0	0.00	0.00	0.00
47	180.00	0	0.00	0.00	0.00
48	180.00	0	0.00	0.00	0.00
53	180.00	0	0.00	0.00	0.00
54	120.00	0	0.00	0.00	0.00
55	300.00	0	0.00	0.00	0.00
56	240.00	0	0.00	0.00	0.00
57	60.00	0	0.00	0.00	0.00
58	90.00	0	0.00	0.00	0.00
60	90.00	0	0.00	0.00	0.00
62	90.00	0	0.00	0.00	0.00

Hinges

Member	Node-J				Node-K				TOR	AXL	Axial rigidity
	M33	M22	V3	V2	M33	M22	V3	V2			
91	1	1	0	0	0	0	0	0	0	0	Full
92	1	1	0	0	0	0	0	0	0	0	Full
93	1	1	0	0	0	0	0	0	0	0	Full
94	1	1	0	0	0	0	0	0	0	0	Full
95	1	1	0	0	0	0	0	0	0	0	Full
96	1	1	0	0	0	0	0	0	0	0	Full
97	0	0	0	0	0	0	0	0	0	0	Tension only
98	0	0	0	0	0	0	0	0	0	0	Tension only
99	0	0	0	0	0	0	0	0	0	0	Tension only

LAKE AVE EXT

Location LAKE AVE EXT

Mblu E12/ / 40/ /

Acct#

Owner STATE OF CONNECTICUT

Assessment \$192,087,200

Appraisal \$274,410,200

PID 24558

Building Count 11

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2017	\$224,010,100	\$50,400,100	\$274,410,200
Assessment			
Valuation Year	Improvements	Land	Total
2017	\$156,807,100	\$35,280,100	\$192,087,200

Owner of Record

Owner STATE OF CONNECTICUT
Co-Owner C/O WCSU - LUIGI MARCONE
Address 181 WHITE ST
 DANBURY, CT 06810

Sale Price \$0
Book & Page 0552/0585
Sale Date 05/08/1974

Ownership History

Ownership History			
Owner	Sale Price	Book & Page	Sale Date
STATE OF CONNECTICUT	\$0	0552/0585	05/08/1974

Building Information

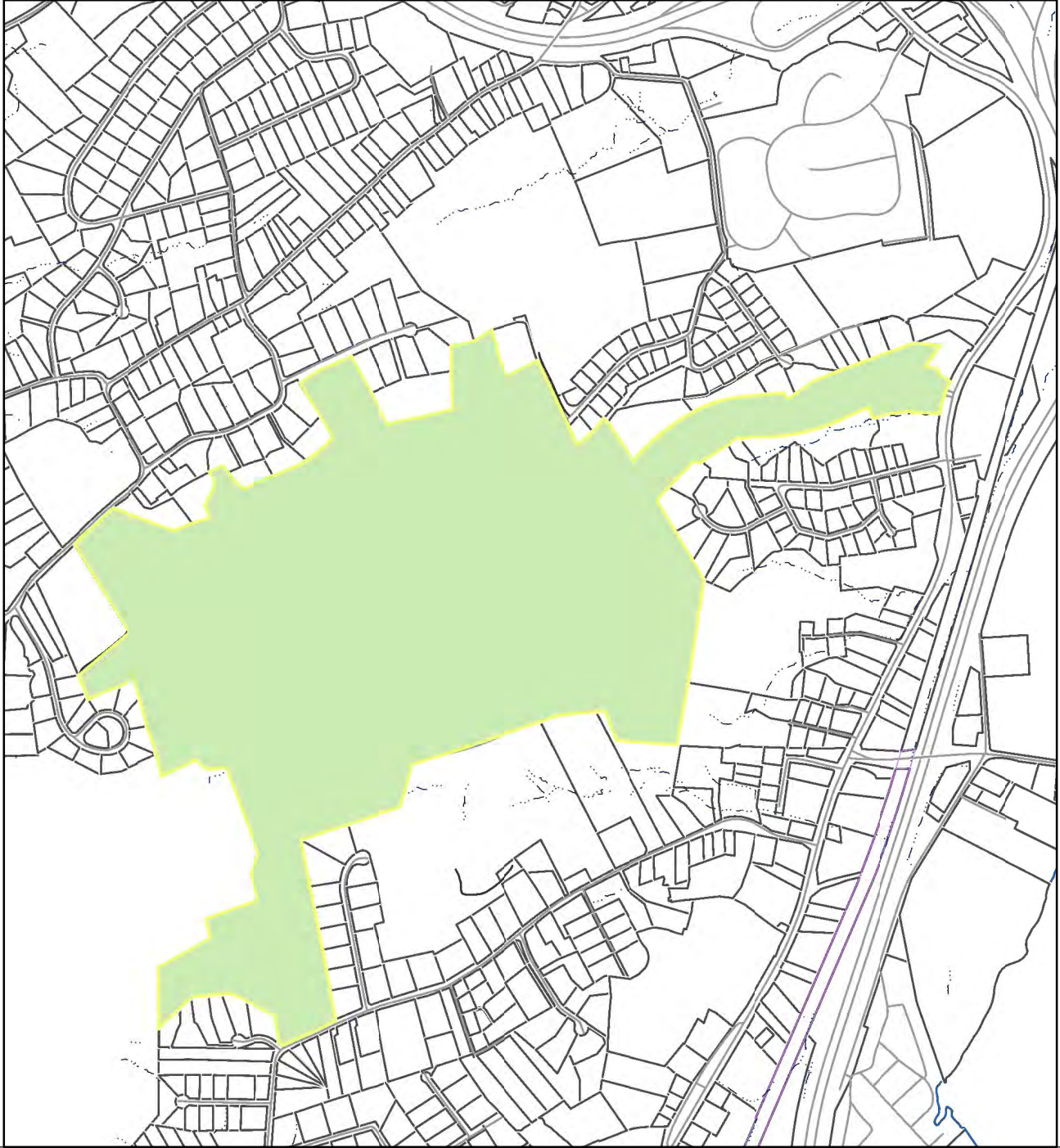
Building 1 : Section 1

Year Built: 1979
Living Area: 96,100
Replacement Cost: \$23,344,766
Building Percent Good: 75
Replacement Cost Less Depreciation: \$17,508,600

Building Photo

Building Attributes	
Field	Description
STYLE	School/College
MODEL	Commercial
Grade	Good+

WCSU - 303 BOXWOOD LANE



Not a legal survey.



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Chairman

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DOCKET NO. 176 - An application of Western Connecticut State University for a Certificate of Environmental Compatibility and Public Need for the construction, operation, and maintenance of a telecommunications facility to be located at Western Connecticut State University Westside Campus in Danbury, Connecticut.

Connecticut Siting Council

October 21, 1996

DECISION AND ORDER

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, operation, and maintenance of a telecommunications facility at the proposed site in Danbury, Connecticut, including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate either alone or cumulatively with other effects when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reasons to deny the application and therefore directs that a Certificate of Environmental Compatibility and Public Need as provided by General Statutes § 16-50k be issued to Western Connecticut State University for the construction, operation, and maintenance of a telecommunications facility at the proposed site, off Boxwood Lane Extension, Danbury, Connecticut.

The facility shall be constructed, operated, and maintained substantially as specified in the Council's record in this matter, and subject to the following conditions:

1. The Certificate Holder shall construct the lattice tower not to exceed 100 feet above ground level.
2. The Certificate Holder shall submit to the Council scaled plans and specifications including cross-sectional drawings for the tower's foundation prior to the construction of the tower foundation.
3. The Certificate Holder shall submit plans to the Council for the construction of the alternate driveway from Boxwood Lane Extension prior to construction if this route becomes available and is proposed for use as the primary accessway to the tower site.
4. The Certificate Holder shall seek alternative obstruction marking using directional lighting. The tower shall not be obstruction painted unless recommended by the Federal Aviation Administration (FAA), ordered by the Federal Communications Commission, or requested by the Airport Administrator of the Danbury Municipal Airport.
5. Consistent with Section 16-50j-77 of the Regulations of Connecticut State Agencies, the Certificate Holder shall provide the Council notification of:
 - a. commencement of construction;
 - b. completion of construction;
 - c. completion of site rehabilitation;
 - d. commencement of operation;
 - e. final construction cost; and
 - f. compliance with FAA recommendations for tower marking and lighting.
6. The Certificate Holder shall provide the Council a recalculated report of electromagnetic radio frequency power density if and when circumstances in operation cause a change in power density above the levels originally calculated and provided in the application.
7. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.
8. If the facility does not initially provide, or permanently ceases to provide telecommunications services following completion of construction, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapplication for any continued or new use shall be made to the Council before any such use is made.

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9. Unless otherwise approved by the Council, this Decision and Order shall be void if all construction authorized herein is not completed within three years of the effective date of this Decision and Order or within three years after all appeals to this Decision and Order have been resolved.

Pursuant to General Statutes § 16-50p, we hereby direct that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below, and notice of issuance shall be published in The Danbury News-Times.

By this Decision and Order, the Council disposes of the legal rights, duties, and privileges of each party named or admitted to the proceeding in accordance with Section 16-50j-17 of the Regulations of Connecticut State Agencies.

The party to this proceeding is:

APPLICANT

Western Connecticut State University

ITS REPRESENTATIVES

Mr. Thomas P. Carlone

Associate Director of Planning & Engineering

Western Connecticut State University

181 White Street, Room 203

Danbury, CT 06810

(203) 837-8681

Andrew A. Glickson, Esq.

Counsel to Smart SMR of New York, Inc.

4 Berkeley Street

Norwalk, CT 06850

(203) 853-8001

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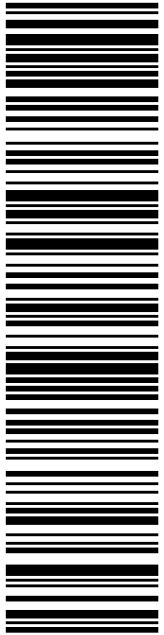
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2. Place your label so it does not wrap around the edge of the package.
3. Adhere your label to the package. A self-adhesive label is recommended. If tape or glue is used, DO NOT TAPE OVER BARCODE. Be sure all edges are secure.
4. To mail your package with PC Postage®, you may schedule a Package Pickup online, hand to your letter carrier, take to a Post Office™, or drop in a USPS collection box.
5. Mail your package on the "Ship Date" you selected when creating this label.

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0171 0942 65

Trans. #: 517047185	Priority Mail® Postage: \$7.75
Print Date: 12/11/2020	Total: \$7.75
Ship Date: 12/12/2020	
Expected Delivery Date: 12/15/2020	

From: QC DEVELOPMENT
 PO BOX 916
 STORRS CT 06268-0916

To: MAYOR MARK BOUGHTON
 CITY OF DANBURY
 155 DEER HILL AVE
 CC: MS SHARON CALITRO, P&Z DIRECTOR
 DANBURY CT 06810-7726

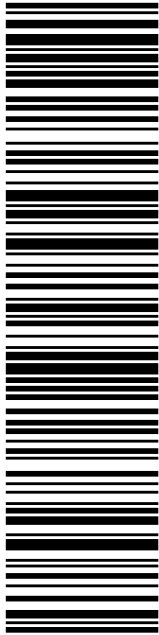
* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.



Thank you for shipping with the United States Postal Service!
 Check the status of your shipment on the USPS Tracking® page at usps.com

SHIP TO: MR. JOHN MURPHY
WESTERN CT STATE UNIVERSITY
181 WHITE ST
O'NEILL CENTER 205
DANBURY CT 06810-6826

USPS TRACKING #




9405 5036 9930 0171 0942 96

P

12/12/2020

USPS.com
US POSTAGE
Flat Rate Env
\$7.75



Mailed from 06268 062S0000001310

PRIORITY MAIL 2-DAY™

QC DEVELOPMENT Expected Delivery Date: 12/15/20

PO BOX 916 0004

STORRS CT 06268-0916

C007

Electronic Rate Approved #038555749



Cut on dotted line.

Instructions

1. Each Click-N-Ship® label is unique. Labels are to be used as printed and used only once. DO NOT PHOTO COPY OR ALTER LABEL.
2. Place your label so it does not wrap around the edge of the package.
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