



July 14, 2020

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

Re: Notice of Exempt Modification New Cingular Wireless PCS LLC ("AT&T") Site CT5210
1542 Boston Post Road, Westbrook, CT 06498 (the "Property")
Latitude: 41-16-54.9197 N Longitude: 72-26-14.9183 W

Dear Ms. Bachman:

AT&T currently maintains (3) antennas at the 115-foot level on the existing 130' monopole tower ("Tower") at 1542 Boston Post Road, Westbrook, CT. The Tower is owned by MCM Holdings, LLC. ("MCM") and the property is owned the Connecticut Water Company. AT&T intends to modify its facility by adding (3) EPBQ-654L8H8-L2 & (3) HPA-65R-BU8AA panel antennas and adding (3) 4426 B66 RRUs & (3) 4415 B30 RRUs. The height of AT&Ts existing and proposed antennas & RRUs is 115'.

The facility received Connecticut Siting Council approval under Docker 485 on August 15, 2019. There were no conditions that could be feasibility be violated by this modification, including total facility height and mounting restrictions. The AT&T modification complies with the above-mentioned approval. AT&T received CT Siting Council Approval under TS-CING-154-200225.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies ("R.C.S.A") §16-50j-73 for construction that constitutes an exempt modification pursuant to R.C.S.A §16-50j-72(b)(2). In accordance with to R.C.S.A §16-50j-73, a copy of this letter is being sent the Honorable Noel Bishop, First Selectman, Town of Westbrook, Mr. Eric Knapp, Planning, Zoning and Development Coordinator, Town of Westbrook, the Connecticut Water Company as property owner & MCM Communications, LLC. as tower owner.

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

1. The proposed modifications will not result in an increase in the height of the existing structure.
2. The proposed modifications will not require an extension of the site boundary.
3. The proposed modification will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.

4. The operation of the modified facility will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.
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 foundation can support the proposed loading.

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

Sincerely,

Hollis M. Redding

Hollis M. Redding
SAI Communications, LLC
12 Industrial Way
Salem, NH 03079
Mobile: 860-834-6964
hredding@saigrp.com

Enclosures

Cc: Honorable Noel Bishop, First Selectman, Town of Westbrook
Mr. Eric Knapp, Planning, Zoning & Development Coordinator, Town of Westbrook
The Connecticut Water Company as property owner
MCM Holdings, LLC as tower 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*							10.35%
AT&T	1	1718	115	0.0520	722	0.4813	1.08%
AT&T	1	993	115	0.0301	851	0.5673	0.53%
AT&T	2	2723	115	0.1648	1930	1.0000	1.65%
AT&T	1	993	115	0.0301	851	0.5673	0.53%
Site Total							14.13%

*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*							10.35%
AT&T LTE AWS	1	5070	115	0.1535	2180	1.0000	1.53%
AT&T LTE WCS	1	1285	115	0.0389	2355	1.0000	0.39%
AT&T LTE	1	1476	115	0.0447	722	0.4813	0.93%
AT&T LTE	1	1000	115	0.0303	851	0.5673	0.53%
AT&T	1	1000	115	0.0303	851	0.5673	0.53%
AT&T	2	4842	115	0.2931	1930	1.0000	2.93%
Site Total							17.20%

*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

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.

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.

CONCRETE AND REINFORCING STEEL NOTES:

- ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.
- ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS, UNLESS NOTED OTHERWISE. A HIGHER STRENGTH (4000 PSI) MAY BE USED. ALL CONCRETING WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.
- REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60, DEFORMED UNLESS NOTED OTHERWISE. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A 185 WELDED STEEL WIRE FABRIC UNLESS NOTED OTHERWISE (UNO). SPLICES SHALL BE CLASS "B" AND ALL HOOKS SHALL BE STANDARD, UNO.
- THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
CONCRETE CAST AGAINST EARTH.....3 IN.
CONCRETE EXPOSED TO EARTH OR WEATHER:
#6 AND LARGER2 IN.
#5 AND SMALLER & WWF.....1 1/2 IN.
CONCRETE NOT EXPOSED TO EARTH OR WEATHER OR NOT CAST AGAINST THE GROUND:
SLAB AND WALL3/4 IN.
BEAMS AND COLUMNS.....1 1/2 IN.
- A CHAMFER 3/4" SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNO, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.
- 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.
- CONCRETE CYLINDER TEST IS NOT REQUIRED FOR SLAB ON GRADE WHEN CONCRETE IS LESS THAN 50 CUBIC YARDS (IBC 1905.6.2.3) IN THAT EVENT THE FOLLOWING RECORDS SHALL BE PROVIDED BY THE CONCRETE SUPPLIER:
(A) RESULTS OF CONCRETE CYLINDER TESTS PERFORMED AT THE SUPPLIER'S PLANT,
(B) CERTIFICATION OF MINIMUM COMPRESSIVE STRENGTH FOR THE CONCRETE GRADE SUPPLIED.
FOR GREATER THAN 50 CUBIC YARDS THE GC SHALL PERFORM THE CONCRETE CYLINDER TEST.
- AS AN ALTERNATIVE TO ITEM 7, TEST CYLINDERS SHALL BE TAKEN INITIALLY AND THEREAFTER FOR EVERY 50 YARDS OF CONCRETE FROM EACH DIFFERENT BATCH PLANT.
- EQUIPMENT SHALL NOT BE PLACED ON NEW PADS FOR SEVEN DAYS AFTER PAD IS POURED, UNLESS IT IS VERIFIED BY CYLINDER TESTS THAT COMPRESSIVE STRENGTH HAS BEEN ATTAINED.

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"x0) 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 CABLING 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.



84 DEERFIELD LANE
MERIDEN, CT 06450



12 INDUSTRIAL WAY
SALEM, NH 03079

**CT5210
WESTBROOK SOUTH**

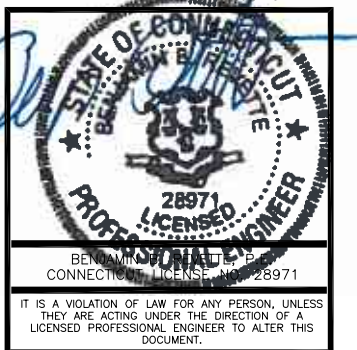
CONSTRUCTION DRAWINGS

NO.	DATE	DESCRIPTION
0	07/01/20	ISSUED AS FINAL
A	06/17/20	ISSUED FOR REVIEW



Dewberry Engineers Inc.

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



DRAWN BY: BJR

REVIEWED BY: BSH

CHECKED BY: GHN

PROJECT NUMBER: 50124789

JOB NUMBER: 50124793

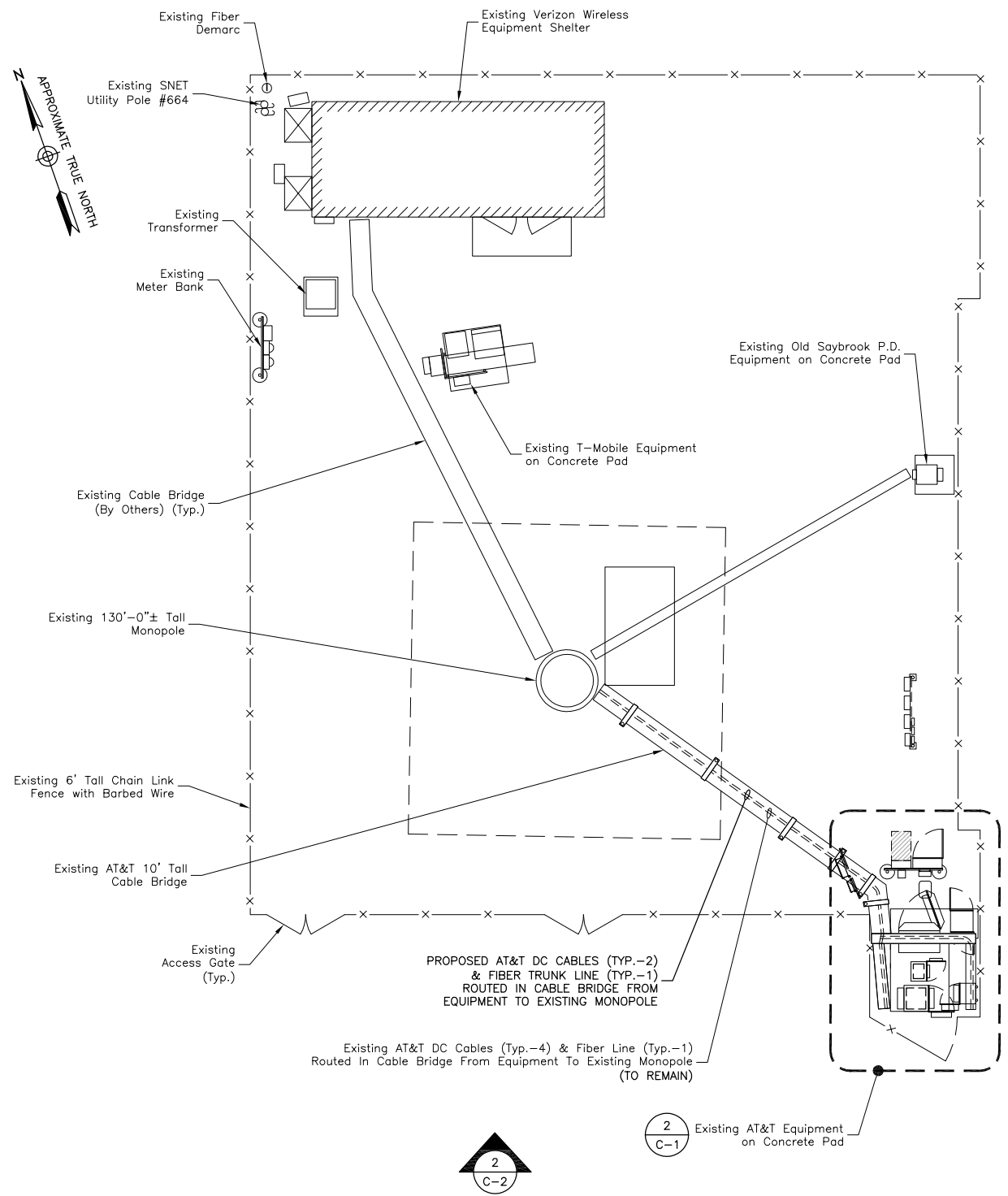
SITE ADDRESS:

1542 BOSTON POST ROAD
WESTBROOK, CT 06498
MIDDLESEX COUNTY

SHEET TITLE

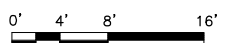
GENERAL NOTES

SHEET NUMBER



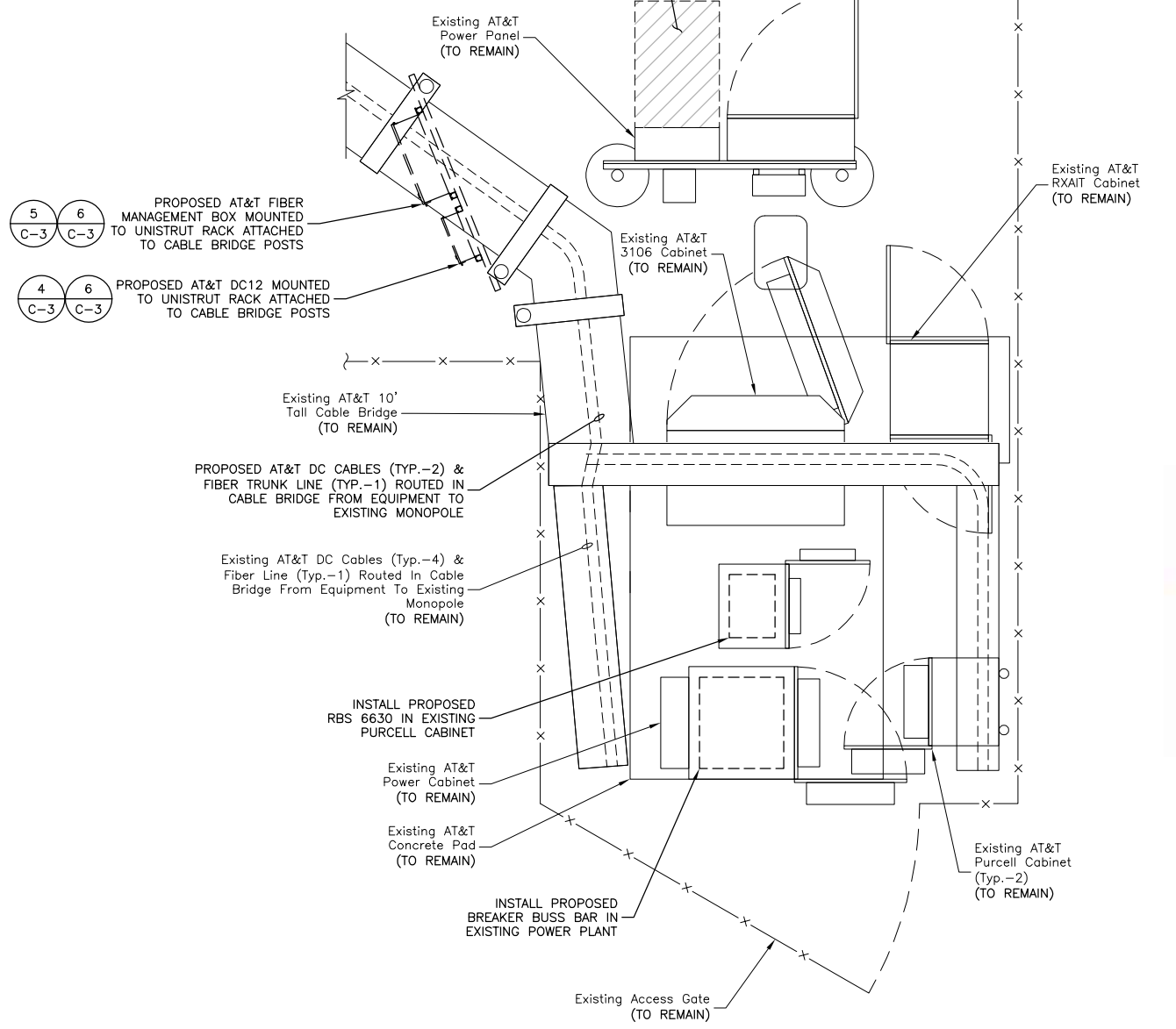
COMPOUND PLAN

SCALE: 1/16"=1' FOR 11"x17"
1/8"=1' FOR 22"x34"



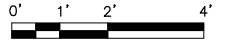
1

- NOTES:**
- NORTH SHOWN AS APPROXIMATE.
 - NOT ALL INFORMATION IS SHOWN FOR CLARITY.
 - COMPOUND PLAN & EQUIPMENT PLAN BASED ON CONSTRUCTION DRAWINGS BY ALL-POINTS TECHNOLOGY CORPORATION DATED 12/18/19 & A SITE VISIT BY DEWBERRY ENGINEERS INC. ON 06/16/20.
 - ALL PROPOSED EQUIPMENT INCLUDING ANTENNAS, COAX, SURGE ARRESTORS, RRUS, ETC., SHALL BE MOUNTED IN ACCORDANCE WITH THE TOWER STRUCTURAL ANALYSIS BY ALL-POINTS TECHNOLOGY CORPORATION DATED 06/08/20 & THE MOUNT ANALYSIS BY HUDSON DESIGN GROUP LLC DATED 05/29/20.
 - GC TO CONFIRM THE DC UNITS ARE FULLY POWERED/FIBERED AND ADD POWER/FIBER IF NECESSARY.



EQUIPMENT PLAN

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



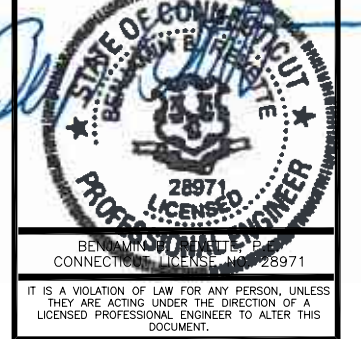
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**CT5210
WESTBROOK SOUTH**

CONSTRUCTION DRAWINGS	
0	07/01/20 ISSUED AS FINAL
A	06/17/20 ISSUED FOR REVIEW

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



DRAWN BY:	BJR
REVIEWED BY:	BSH
CHECKED BY:	GHN
PROJECT NUMBER:	50124789
JOB NUMBER:	50124793
SITE ADDRESS:	

1542 BOSTON POST ROAD
WESTBROOK, CT 06498
MIDDLESEX COUNTY

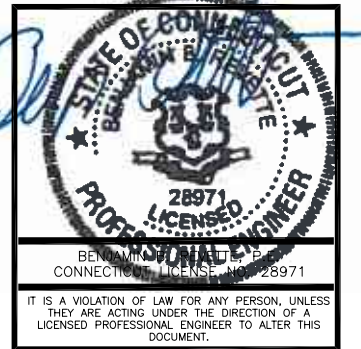
SHEET TITLE	COMPOUND PLAN & EQUIPMENT PLAN
SHEET NUMBER	

C-1

**CT5210
WESTBROOK SOUTH**

CONSTRUCTION DRAWINGS	
0 07/01/20	ISSUED AS FINAL
A 06/17/20	ISSUED FOR REVIEW

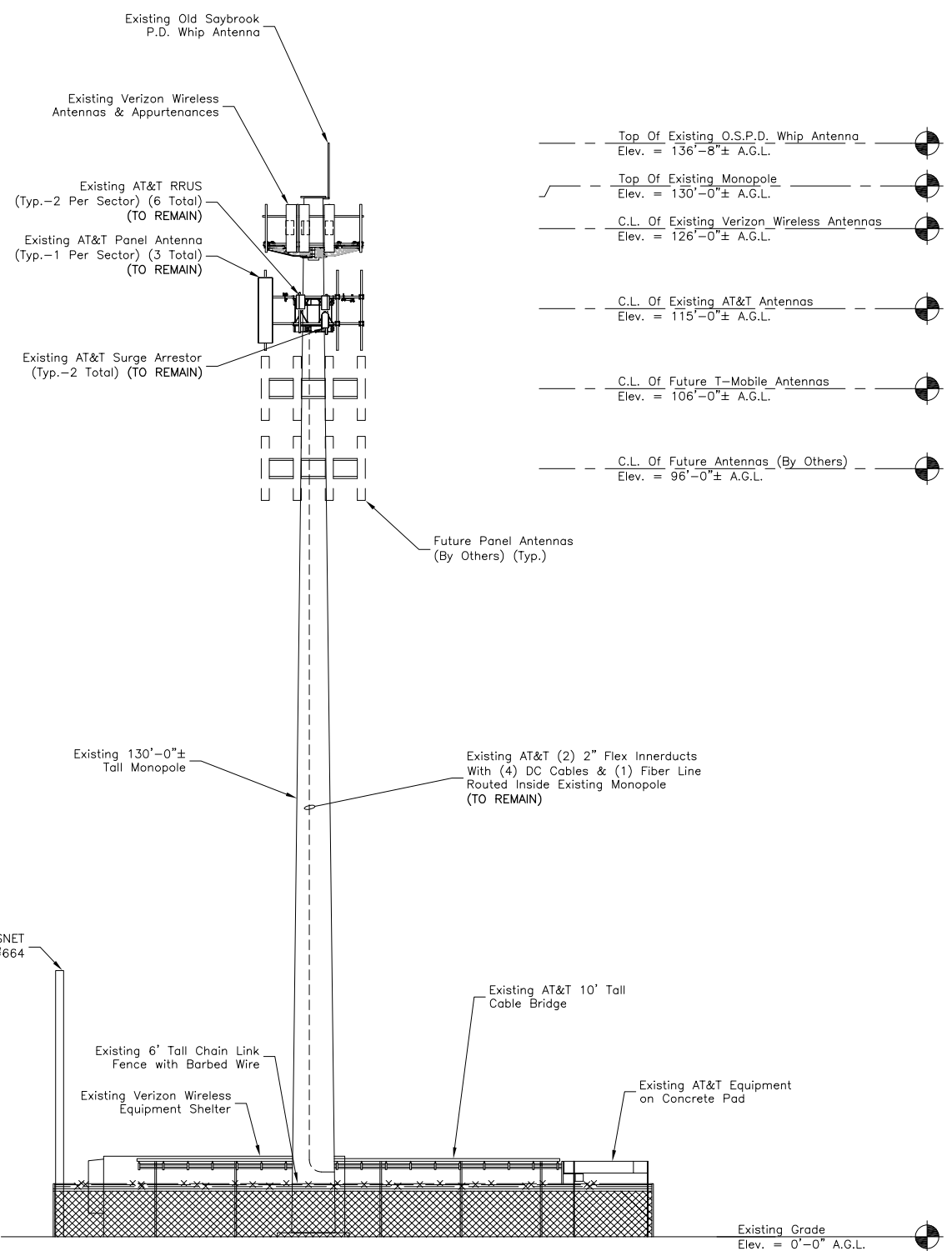
Dewberry[®]
Dewberry Engineers Inc.
600 PARSIPPANY ROAD
SUITE 301
PARSIPPANY, NJ 07054
PHONE: 973.739.9400
FAX: 973.739.9710



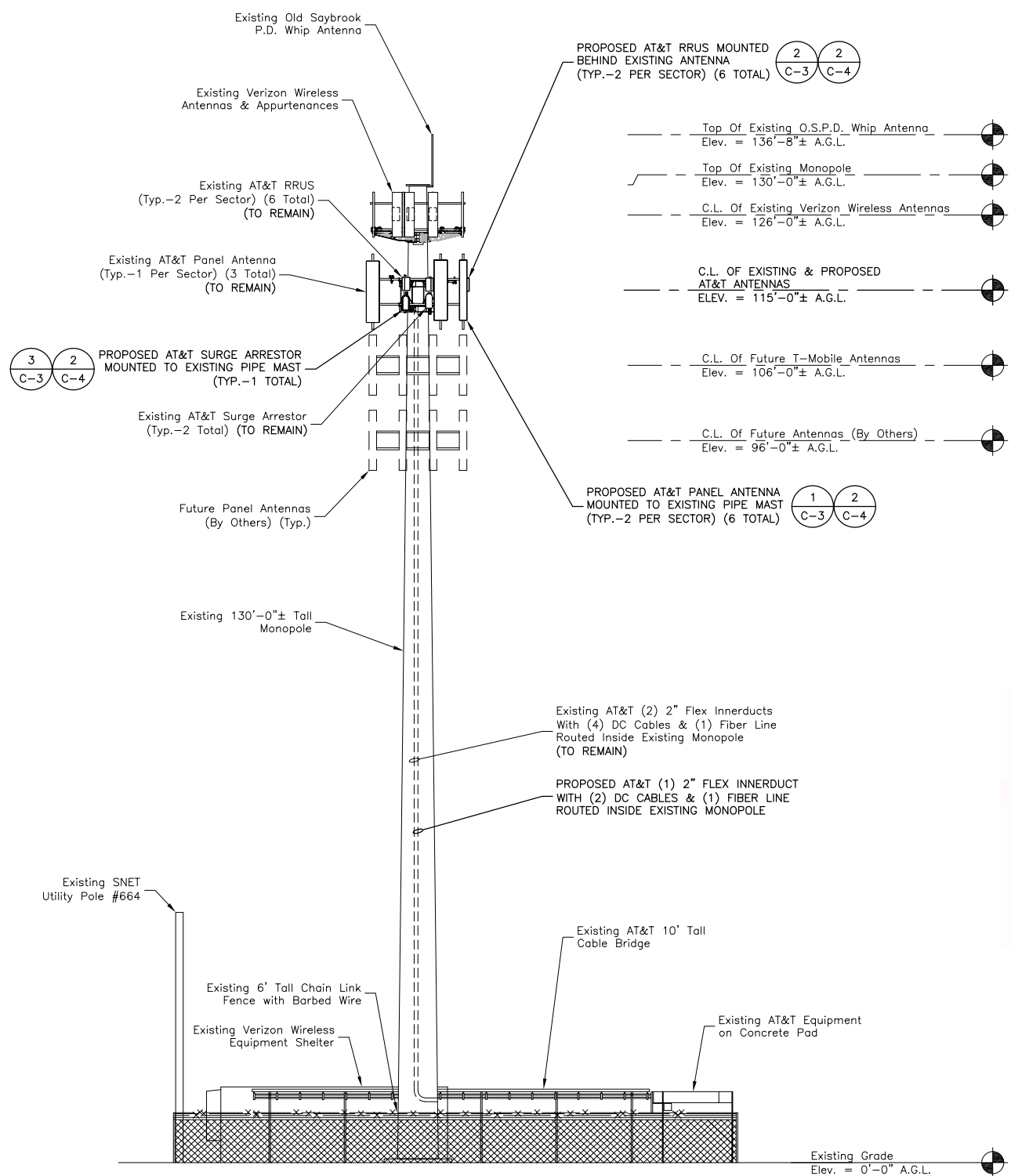
DRAWN BY:	BJR
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CHECKED BY:	GHN
PROJECT NUMBER:	50124789
JOB NUMBER:	50124793
SITE ADDRESS:	

1542 BOSTON POST ROAD
WESTBROOK, CT 06498
MIDDLESEX COUNTY

SHEET TITLE	EXISTING & PROPOSED SOUTH ELEVATIONS
SHEET NUMBER	

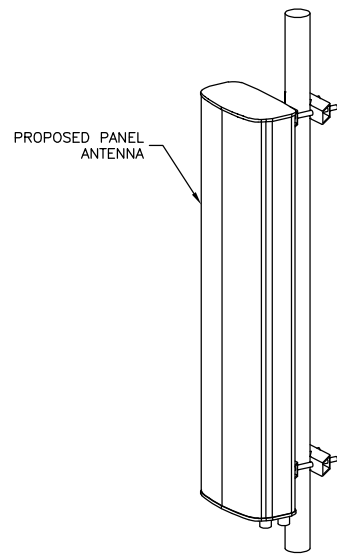


EXISTING SOUTH ELEVATION 1
SCALE: 1"=20' FOR 11"x17"
1"=10' FOR 22"x34"
0' 10' 20'



PROPOSED SOUTH ELEVATION 2
SCALE: 1"=20' FOR 11"x17"
1"=10' FOR 22"x34"
0' 10' 20'

- NOTES:**
- NOT ALL INFORMATION IS SHOWN FOR CLARITY.
 - SOUTH ELEVATION BASED ON CONSTRUCTION DRAWINGS BY ALL-POINTS TECHNOLOGY CORPORATION DATED 12/18/19 & A SITE VISIT BY DEWBERRY ENGINEERS INC. ON 06/16/20.
 - ALL PROPOSED EQUIPMENT INCLUDING ANTENNAS, COAX, SURGE ARRESTORS, RRUS, ETC., SHALL BE MOUNTED IN ACCORDANCE WITH THE TOWER STRUCTURAL ANALYSIS BY ALL-POINTS TECHNOLOGY CORPORATION DATED 06/08/20 & THE MOUNT ANALYSIS BY HUDSON DESIGN GROUP LLC DATED 05/29/20.
 - GC TO CONFIRM THE DC UNITS ARE FULLY POWERED/FIBERED AND ADD POWER/FIBER IF NECESSARY.



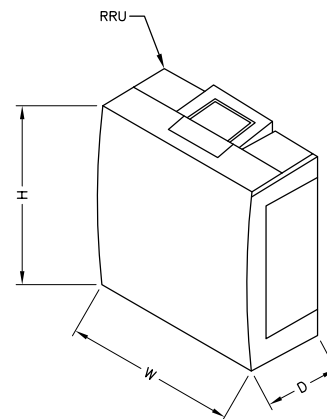
ANTENNA SPECIFICATIONS	
MANUFACTURER	KMW
MODEL NUMBER	EPBQ-654LH8-L2
DIMENSIONS (HxWxD)	96.0" x 21.0" x 6.3"
WEIGHT	97.0 LBS

ANTENNA SPECIFICATIONS	
MANUFACTURER	KMW
MODEL NUMBER	HPA65R-BU8AA
DIMENSIONS (HxWxD)	96.0" x 11.7" x 7.6"
WEIGHT	54.0 LBS

- NOTES:**
1. MOUNT ANTENNA PER MANUFACTURER'S RECOMMENDATIONS.
 2. GROUND ANTENNAS AND MOUNTS PER MANUFACTURER'S RECOMMENDATIONS AND AT&T STANDARDS.
 3. CONFIRM REQUIRED ANTENNAS WITH LATEST RFDS.

ANTENNA DETAIL
SCALE: N.T.S.

1



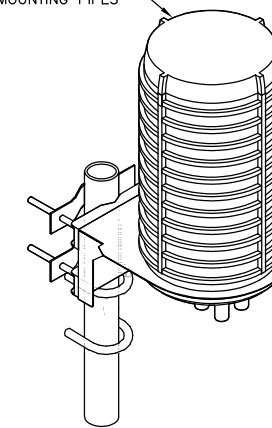
RRU MODEL & DIMENSIONS		
MODEL #	DIMENSIONS (HxWxD)	WEIGHT
4426 B66	14.9"x13.2"x5.8"	49 LBS
4415 B30	16.5"x13.4"x5.9"	46 LBS

- RRU NOTES:**
1. GROUND EQUIPMENT AND MOUNTS PER MANUFACTURER'S RECOMMENDATIONS AND AT&T STANDARDS.
 2. MOUNT EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS.
 3. CONFIRM REQUIRED EQUIPMENT WITH LATEST RFDS.

RRU DETAILS
SCALE: N.T.S.

2

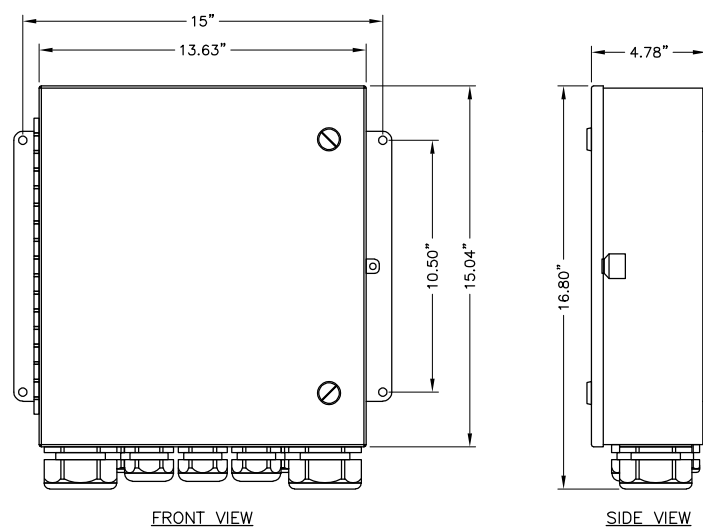
PROPOSED (1) FIBER/DC SQUID SURGE ARRESTOR (DC6-48-60-18-8C) MOUNTED TO Existing 2-1/2"Ø (2-7/8" O.D.) SCH 40 MOUNTING PIPES



- NOTES:**
1. ALL ANTENNAS, COAX AND ANTENNA SUPPORT EQUIPMENT TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS AND FINAL RF DATA SHEET.
 2. ALL PROPOSED EQUIPMENT TO BE INSTALLED IN ACCORDANCE WITH THE MOUNT ANALYSIS BY HUDSON DESIGN GROUP LLC DATED 01/14/20.
 3. GC TO CONFIRM THE DC UNITS ARE FULLY POWERED/FIBERED AND ADD POWER/FIBER IF NECESSARY.

SURGE ARRESTOR MOUNTING DETAIL
SCALE: N.T.S.

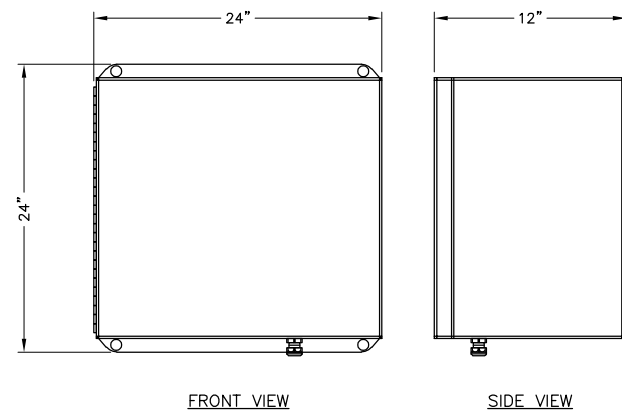
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- NOTES:**
1. GROUND EQUIPMENT AND MOUNTS PER MANUFACTURER'S RECOMMENDATIONS AND AT&T STANDARDS.
 2. MOUNT EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS.
 3. CONFIRM REQUIRED EQUIPMENT WITH LATEST RFDS.

DC12-48-60-0-25E DETAIL
SCALE: N.T.S.

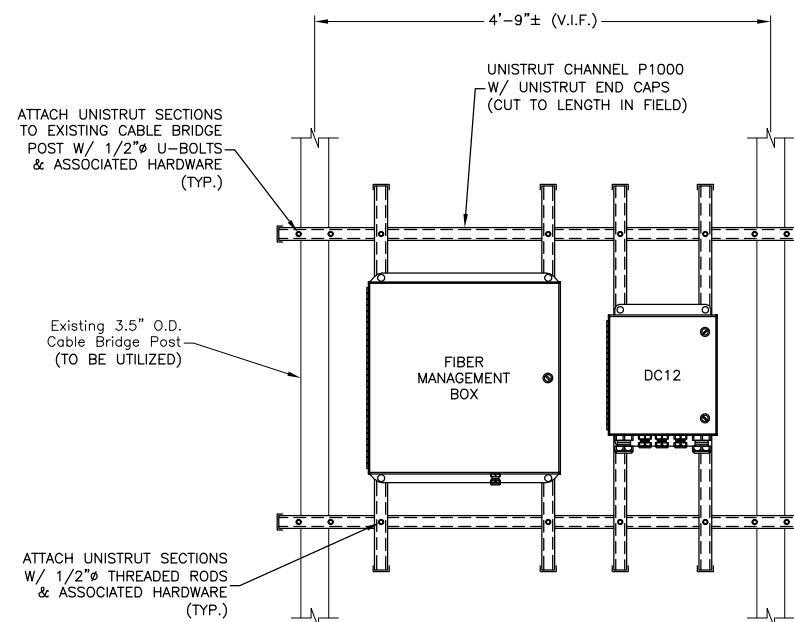
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- NOTES:**
1. GROUND EQUIPMENT AND MOUNTS PER MANUFACTURER'S RECOMMENDATIONS AND AT&T STANDARDS.
 2. MOUNT EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS.
 3. CONFIRM REQUIRED EQUIPMENT WITH LATEST RFDS.

FIBER MANAGEMENT BOX DETAIL
SCALE: N.T.S.

5



- NOTES:**
1. GROUND EQUIPMENT AND MOUNTS PER MANUFACTURER'S RECOMMENDATIONS AND AT&T STANDARDS.
 2. MOUNT EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS.
 3. CONFIRM REQUIRED EQUIPMENT WITH LATEST RFDS.

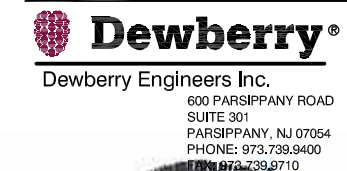
FMB & DC12 MOUNTING DETAIL
SCALE: N.T.S.

6



**CT5210
WESTBROOK SOUTH**

CONSTRUCTION DRAWINGS	
0	07/01/20 ISSUED AS FINAL
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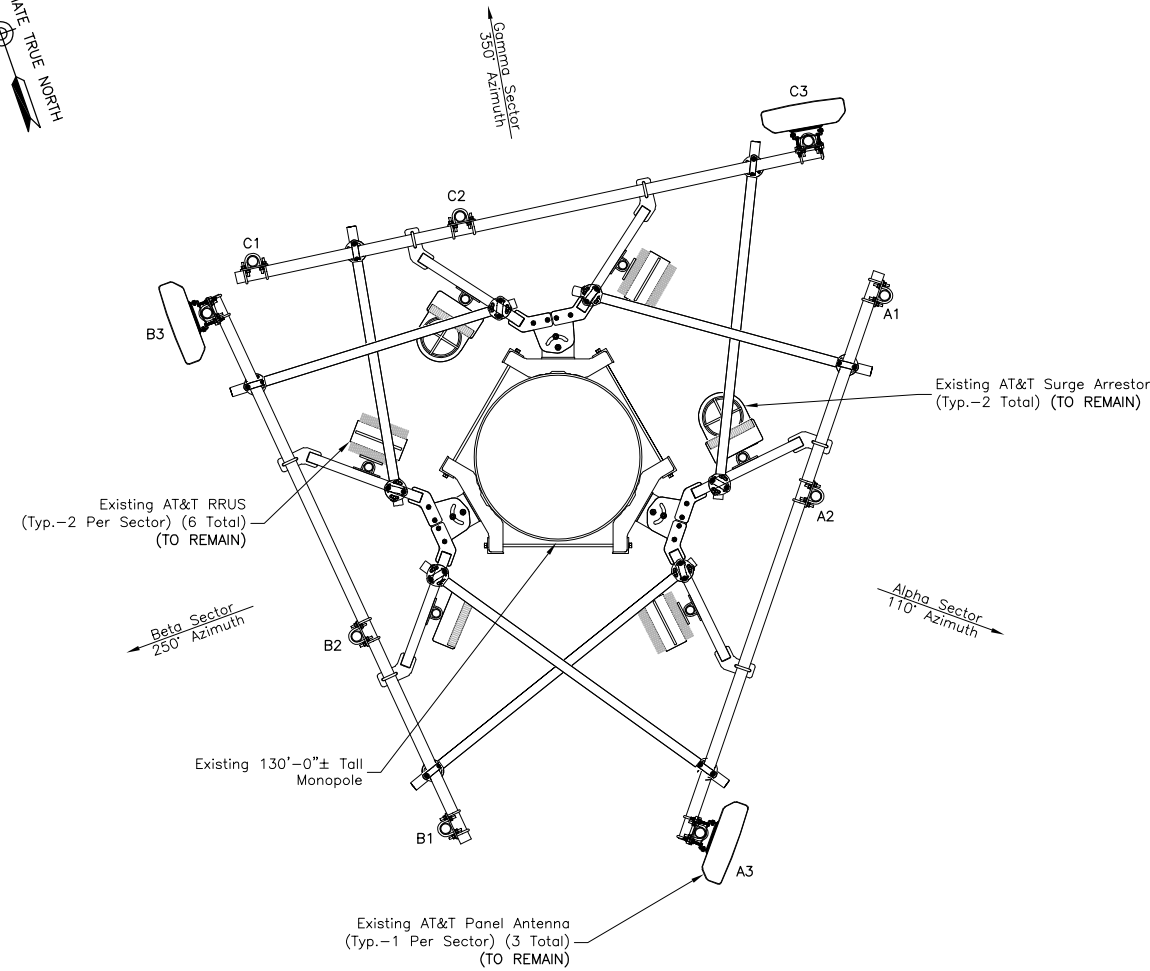
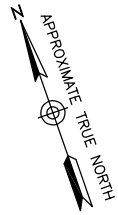
DRAWN BY:	BJR
REVIEWED BY:	BSH
CHECKED BY:	GHN
PROJECT NUMBER:	50124789
JOB NUMBER:	50124793
SITE ADDRESS:	

1542 BOSTON POST ROAD
WESTBROOK, CT 06498
MIDDLESEX COUNTY

SHEET TITLE

CONSTRUCTION DETAILS

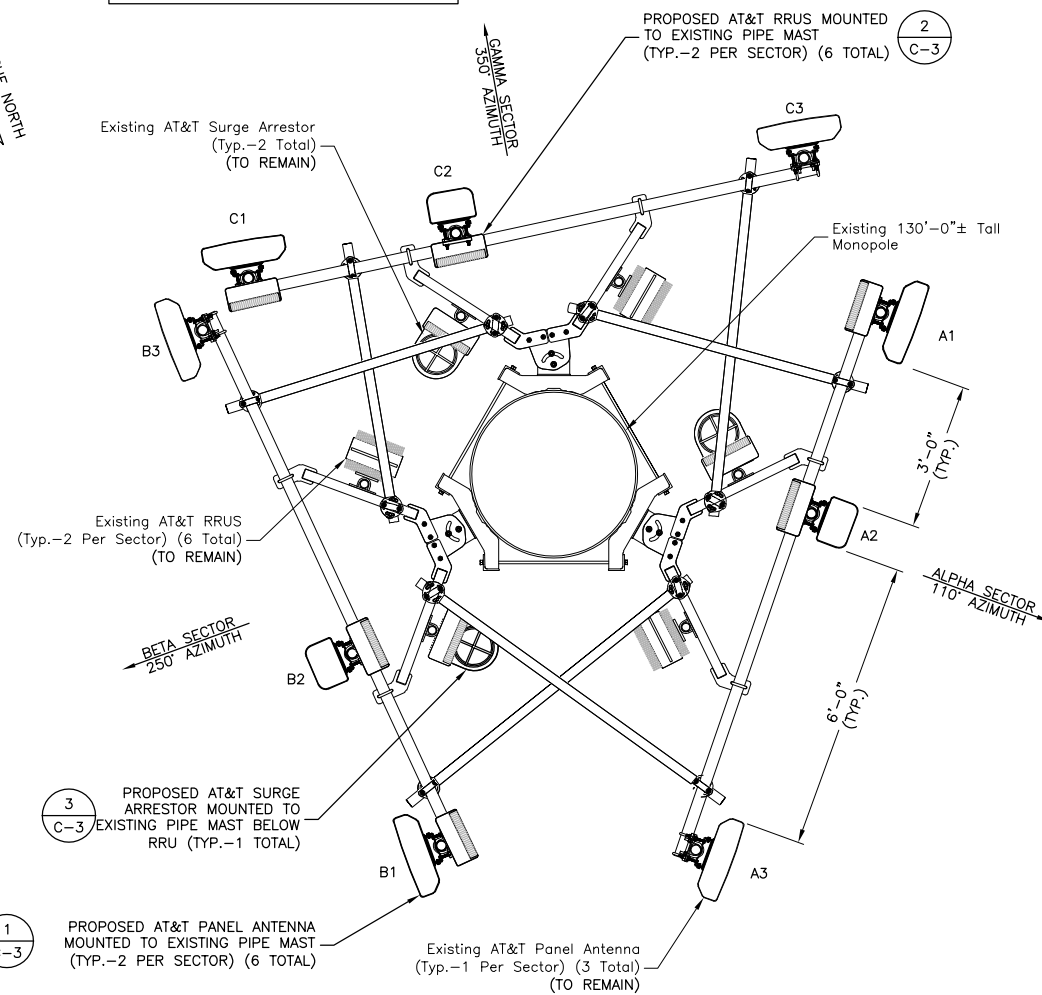
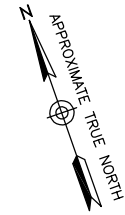
SHEET NUMBER



EXISTING ANTENNA ORIENTATION PLAN

SCALE: N.T.S.

1



PROPOSED ANTENNA ORIENTATION PLAN

SCALE: N.T.S.

2

ANTENNA SCHEDULE

SECTOR	BAND	ANTENNA	AZIMUTH (TRUE NORTH)	RAD CENTER	RRU	SURGE	FIBER	DC LINES
A1	LTE B14/AWS	(P) KMW EPBQ-654L8H8-L2	110°	115'-0"	(1) (P) LTE 4426 AWS	(1) EXISTING FIBER/DC SQUID SURGE ARRESTOR (DC6-48-60-18-8C)	(1) EXISTING TRUNK LINE	(4) EXISTING DC CABLES
A2	LTE 700 DE/WCS	(P) CCI HPA-65R-BU8AA	110°	115'-0"	(1) (P) LTE 4415 B30			
A3	LTE 700 BC/850/PCS	(E) KMW EPBQ-654L8H8-L2	110°	115'-0"	(1) (E) LTE 4449 700 BC/850 (1) (E) LTE 4415 PCS			
B1	LTE B14/AWS	(P) KMW EPBQ-654L8H8-L2	250°	115'-0"	(1) (P) LTE 4426 AWS	(1) EXISTING DC ONLY SQUID SURGE ARRESTOR (DC6-48-60-0-8C-EV)	(1) PROPOSED TRUNK LINE	(2) PROPOSED DC CABLES
B2	LTE 700 DE/WCS	(P) CCI HPA-65R-BU8AA	250°	115'-0"	(1) (P) LTE 4415 B30			
B3	LTE 700 BC/850/PCS	(E) KMW EPBQ-654L8H8-L2	250°	115'-0"	(1) (E) LTE 4449 700 BC/850 (1) (E) LTE 4415 PCS			
C1	LTE B14/AWS	(P) KMW EPBQ-654L8H8-L2	350°	115'-0"	(1) (P) LTE 4426 AWS	(1) PROPOSED FIBER/DC SQUID SURGE ARRESTOR (DC6-48-60-18-8C)		
C2	LTE 700 DE/WCS	(P) CCI HPA-65R-BU8AA	350°	115'-0"	(1) (P) LTE 4415 B30			
C3	LTE 700 BC/850/PCS	(E) KMW EPBQ-654L8H8-L2	350°	115'-0"	(1) (E) LTE 4449 700 BC/850 (1) (E) LTE 4415 PCS			

*RF SCHEDULE BASED ON CT5210 RFDS V5.00 DATED 05/18/2020.
CONTRACTOR TO VERIFY FINAL ANTENNA DESIGN WITH AT&T C.M. PRIOR TO CONSTRUCTION.

ANTENNA SCHEDULE

SCALE: N.T.S.

3

NOTES:

- NORTH ARROW SHOWN AS APPROXIMATE.
- ALL PROPOSED EQUIPMENT INCLUDING ANTENNAS, COAX, SURGE ARRESTORS, RRUS, ETC., SHALL BE MOUNTED IN ACCORDANCE WITH THE TOWER STRUCTURAL ANALYSIS BY ALL-POINTS TECHNOLOGY CORPORATION DATED 06/08/20 & THE MOUNT ANALYSIS BY HUDSON DESIGN GROUP LLC DATED 05/29/20.
- ALL SPACING REQUIREMENTS FOR PROPOSED MOUNTS SHALL BE CONFIRMED & SHALL NOT IMPEDE CLIMBING PEGS, TIE OFF FEATURES, OR OTHER EXISTING SAFETY FEATURES. ALL MOUNTS SHALL MAINTAIN EXISTING/PROPOSED MANUFACTURER REQUIREMENTS & SHALL NOT INTERFERE WITH OTHER RAD CENTERS.
- LABEL MODEL & MANUFACTURER ON FRONT & TOP OF RRH & ANTENNA.
- PROPOSED SECTOR FRAME TO BE ROTATED TO MATCH ANTENNA AZIMUTH.
- GC TO CONFIRM THE DC UNITS ARE FULLY POWERED/FIBERED AND ADD POWER/FIBER IF NECESSARY.



12 INDUSTRIAL WAY
SALEM, NH 03079

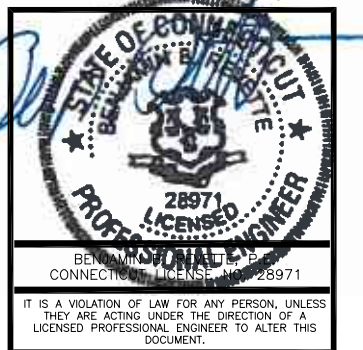
**CT5210
WESTBROOK SOUTH**

CONSTRUCTION DRAWINGS

NO.	DATE	DESCRIPTION
0	07/01/20	ISSUED AS FINAL
A	06/17/20	ISSUED FOR REVIEW



Dewberry Engineers Inc.
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PARSIPPANY, NJ 07054
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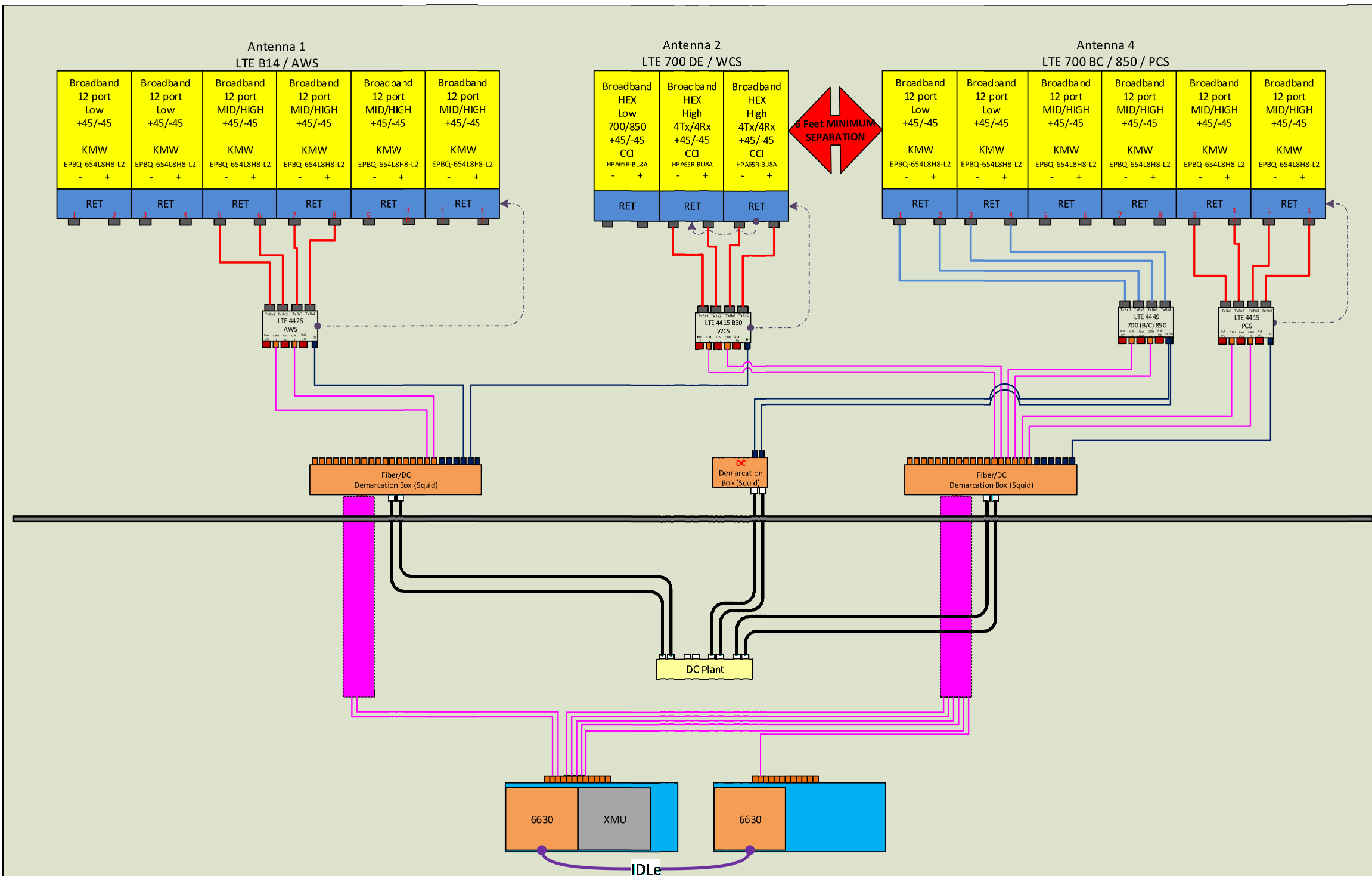


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1542 BOSTON POST ROAD
WESTBROOK, CT 06498
MIDDLESEX COUNTY

SHEET TITLE	EXISTING & PROPOSED ANTENNA PLANS & ANTENNA SCHEDULE
SHEET NUMBER	

C-4



RF PLUMBING DIAGRAM ①
SCALE: N.T.S.

NOTE:

1. PLUMBING DIAGRAM BASED ON RFDS V5.00 DATED 05/18/2020. CONFIRM FINAL PLUMBING DIAGRAM WITH THE LATEST RFDS.



**CT5210
WESTBROOK SOUTH**

CONSTRUCTION DRAWINGS

REV	DATE	DESCRIPTION
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1542 BOSTON POST ROAD
WESTBROOK, CT 06498
MIDDLESEX COUNTY

SHEET TITLE

RF PLUMBING DIAGRAM

SHEET NUMBER



**STRUCTURAL ANALYSIS REPORT
130' MONOPOLE TOWER
WESTBROOK, CONNECTICUT**

Prepared for
SAI Communications, Inc.

AT&T Site #CT5210; Westbrook

June 8, 2020



APT Project #CT1931592

**STRUCTURAL ANALYSIS REPORT
130' MONOPOLE TOWER
WESTBROOK, CONNECTICUT
prepared for
SAI Communications, Inc.**

EXECUTIVE SUMMARY:

All-Points Technology Corporation, P.C. (APT) performed a structural analysis of this 130-foot monopole tower. The analysis was performed for AT&T's proposed installation of six additional panel antennas, six additional remote radio heads (RRHs) and one additional power-fiber distribution box (D-box) fed by six power & two fiber lines to 115' as detailed below.

Our analysis indicates the tower and foundation meet the requirements of the Connecticut State Building Code and TIA-222 with AT&T's proposed equipment changes. Usage values are as follows:

Pole	35%
Base Plate	60%
Foundation	30%

The tower foundations were evaluated by comparing calculated base reactions with original reactions shown on ROHN tower & foundation drawings (drawing #231452-01-D2 dated August 30, 2019). Calculated reactions with the proposed equipment changes are less than original design values, indicating the foundations are adequately sized.

INTRODUCTION:

A structural analysis was performed on the above-mentioned communications tower by APT for SAI Communications, Inc. The tower is located at 1542 Boston Post Road in Westbrook, Connecticut. APT did not visit the site for this particular analysis. This analysis relied solely on information provided by others including ROHN tower drawings, a mount structural analysis by Hudson Design Group, LLC (project: Westbrook South dated November 20, 2019), a structural analysis report by APT (project #CT1931591 dated January 17, 2020), a mount analysis by Hudson Design Group (dated May 29, 2020) and a listing of AT&T's proposed equipment changes.

The structure is a 130-foot, 18-sided monopole tower manufactured by ROHN. The analysis was performed for the following antenna inventory (proposed equipment shown in **bold** text):

Carrier	Antenna	Elev.	Mount	Feed lines
-	PCTEL 430-470	130'	Leg	7/8"
Verizon	(9) NHH-65B-R2B panels, (9) RRHs, (2) Raycap D-boxes	126'	12' platform with rails (RMQP-496-HK or equal)	(9) 1-5/8"
AT&T	(6) KMW EPBQ-654L8H8-L2 & (3) HPA-65R-BU8AA panels, (3) 4426 B66 RRHs, (3) 4415 B30 RRHs, (3) 4449 B5/B12 RRHs, (3) 4415 B25 RRHs, (2) DC6-48-60-18-8C & (1) DC6-48-60-0-8C-EV "squid" D-boxes	115'	(3) 12' sector mounts (VFA12-M3-WLL)	(6) power, (2) fiber
T-Mobile	(3) AIR32 KRD901146-1 B66a & (3) APXVAARR24-43-U-NA20 panels, (3) 4449 RRHs	106'	12' platform with rails (RMQP-496-HK or equal)	(3) 1-5/8"

STRUCTURAL ANALYSIS:

Methodology:

The structural analysis was done in accordance with TIA-222, Revision G (TIA), Structural Standards for Antenna Supporting Structures and Antennas.

The analysis was conducted using a 3-second gust wind speed of 135 miles per hour (Ultimate) with no ice and 50-mph with 3/4" radial ice in accordance with the TIA-222-G standard for this location in Connecticut. The following additional design criteria were used:

Structure Class: II
 Topographic Category: 1
 Exposure Category: D

Analysis Results:

Our analysis determined the tower meets applicable Code requirements with the proposed and future equipment. The following table summarizes the capacity of the tower based on combined axial and bending stresses:

Elevation	Capacity
84'-130'	35%
41'-84'	26%
0'-41'	27%
Base plate	60%

The mat and pier base foundation was evaluated from ROHN design drawings. The foundation was determined to be adequate. Factored base reactions imposed with the proposed antennas were calculated to be as follows:

Compression:	65.3 kips
Total Shear:	42.0 kips
Overturning Moment:	3828 ft-kips

CONCLUSIONS AND RECOMMENDATIONS:

Our structural analysis indicates the 130-foot monopole tower and foundation located at 1542 Boston Post Road in Westbrook, Connecticut meet the requirements of the Connecticut State Building Code and TIA-222 with AT&T's proposed equipment changes.

LIMITATIONS:

This report is based on the following:

1. Tower is properly installed and maintained.
2. All members are in an undeteriorated condition.
3. All required members are in place.
4. All bolts are in place and are properly tightened.
5. Tower is in plumb condition.
6. All tower members were properly designed, detailed, fabricated, and installed and have been properly maintained since erection.

All-Points Technology Corp., P.C. (APT) is not responsible for any modifications completed prior to or hereafter which APT is not or was not directly involved. Modifications include but are not limited to:

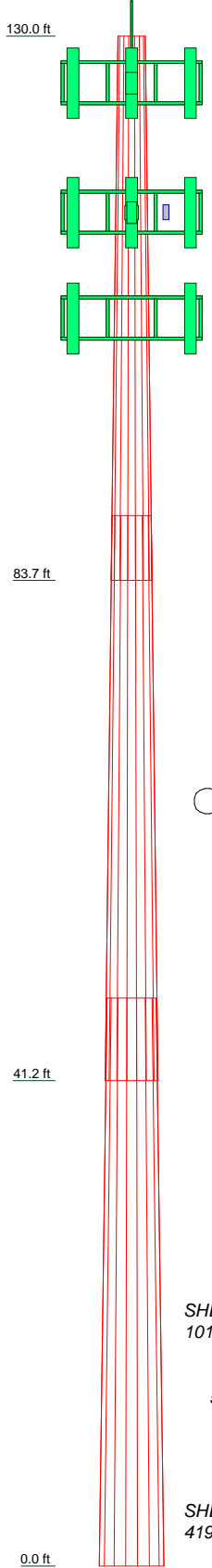
1. Replacing or strengthening bracing members.
2. Reinforcing vertical members in any manner.
3. Adding or relocating stabilizers.
4. Installing antenna mounting gates or side arms.
5. Extending tower.

APT hereby states that this document represents the entire report and that it assumes no liability for any factual changes that may occur after the date of this report. All representations, recommendations, and conclusions are based upon the information contained and set forth herein. If you are aware of any information which is contrary to that which is contained herein, or you are aware of any defects arising from the original design, material, fabrication and erection deficiencies, you should disregard this report and immediately contact APT. APT disclaims all liability for any representation, recommendation, or conclusion not expressly stated herein.

Appendix A

Tower Schematic

Section	1	2	3
Length (ft)	46.29	48.00	48.21
Number of Sides	18	18	18
Thickness (in)	0.3125	0.6250	0.7500
Socket Length (ft)	5.50	7.00	
Top Dia (in)	28.0000	39.2974	50.4180
Bot Dia (in)	41.5300	53.7800	65.0000
Grade		A572-65	
Weight (lb)	5382.7	14876.7	22243.5
			42502.9



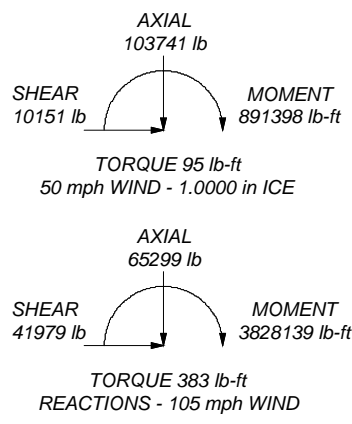
DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
PCTEL 430-470	130	Radio 4415 B30 (AT&T)	115
(3) NHH-65B-R2B (Verizon Wireless)	126	Radio 4415 B30 (AT&T)	115
(3) NHH-65B-R2B (Verizon Wireless)	126	Radio 4415 B30 (AT&T)	115
(3) NHH-65B-R2B (Verizon Wireless)	126	Radio 4449 (AT&T)	115
B2/B66A RRHBR049 (Verizon Wireless)	126	Radio 4449 (AT&T)	115
B2/B66A RRHBR049 (Verizon Wireless)	126	Radio 4426 (AT&T)	115
B2/B66A RRHBR049 (Verizon Wireless)	126	Radio 4426 (AT&T)	115
B5/B13 RRHBR04C (Verizon Wireless)	126	Radio 4415 B25 (AT&T)	115
B5/B13 RRHBR04C (Verizon Wireless)	126	Radio 4415 B25 (AT&T)	115
B5/B13 RRHBR04C (Verizon Wireless)	126	Radio 4415 B25 (AT&T)	115
B25 RRH4x30-4R (Verizon Wireless)	126	DC6-48-60-0-8C (AT&T)	115
B25 RRH4x30-4R (Verizon Wireless)	126	DC6-48-60-0-8C (AT&T)	115
B25 RRH4x30-4R (Verizon Wireless)	126	DC6-48-60-0-8C-EV (AT&T)	115
Raycap RVZDC-6627-PF-48 (Verizon Wireless)	126	SitePro VFA12-RRU (AT&T)	115
Raycap RVZDC-6627-PF-48 (Verizon Wireless)	126	SitePro VFA12-RRU (AT&T)	115
Site Pro RMQP-496-HK (Verizon Wireless)	126	AIR32 B66Aa/B2a (T-Mobile)	106
(2) EPBQ-654L8H8-L2 (AT&T)	115	AIR32 B66Aa/B2a (T-Mobile)	106
(2) EPBQ-654L8H8-L2 (AT&T)	115	APXVARR24_43-C-NA20 (T-Mobile)	106
(2) EPBQ-654L8H8-L2 (AT&T)	115	APXVARR24_43-C-NA20 (T-Mobile)	106
HPA65R-BU8A (AT&T)	115	Radio 4449 (T-Mobile)	106
HPA65R-BU8A (AT&T)	115	Radio 4449 (T-Mobile)	106
HPA65R-BU8A (AT&T)	115	Radio 4449 (T-Mobile)	106
		Site Pro RMQP-496-HK (T-Mobile)	106

MATERIAL STRENGTH

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

ALL REACTIONS ARE FACTORED



All Points Technology		Job: 130' Monopole Tower	
116 Grandview Road		Project: CT1931592 Westbrook	
Conway, NH 03818		Client: SAI Comm; AT&T Site #CT5210	Drawn by: AMA
Phone: (603) 496-5853		Code: TIA-222-G	Date: 06/08/20
FAX: (603) 447-2124		Scale: NTS	Dwg No. E-1

Appendix B

Calculations

tnxTower All Points Technology 116 Grandview Road Conway, NH 03818 Phone: (603) 496-5853 FAX: (603) 447-2124	Job	130' Monopole Tower	Page	1 of 6
	Project	CT1931592 Westbrook	Date	10:50:02 06/08/20
	Client	SAI Comm; AT&T Site #CT5210	Designed by	AMA

Tower Input Data

The tower is a monopole.

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

The following design criteria apply:

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

Basic wind speed of 105 mph.

Ultimate wind speed of 135 mph.

Structure Class II.

Exposure Category D.

Topographic Category 1.

Crest Height 0.00 ft.

Nominal ice thickness of 1.0000 in.

Ice thickness is considered to increase with height.

Ice density of 56 pcf.

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

Temperature drop of 50 °F.

Deflections calculated using a wind speed of 60 mph.

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

Pressures are calculated at each section.

Stress ratio used in pole design is 1.

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

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	130.00-83.71	46.29	5.50	18	28.0000	41.5300	0.3125	1.2500	A572-65 (65 ksi)
L2	83.71-41.21	48.00	7.00	18	39.2974	53.7800	0.6250	2.5000	A572-65 (65 ksi)
L3	41.21-0.00	48.21		18	50.4180	65.0000	0.7500	3.0000	A572-65 (65 ksi)

Monopole Base Plate Data

Base Plate Data

Base plate is square	
Base plate is grouted	
Anchor bolt grade	A615-75
Anchor bolt size	2.2500 in
Number of bolts	20
Embedment length	84.0000 in
f_c	4 ksi
Grout space	2.0000 in
Base plate grade	A572-50
Base plate thickness	2.5000 in
Bolt circle diameter	71.5000 in
Outer diameter	76.5000 in
Inner diameter	32.0000 in
Base plate type	Plain Plate

tnxTower All Points Technology 116 Grandview Road Conway, NH 03818 Phone: (603) 496-5853 FAX: (603) 447-2124	Job	130' Monopole Tower	Page	2 of 6
	Project	CT1931592 Westbrook	Date	10:50:02 06/08/20
	Client	SAI Comm; AT&T Site #CT5210	Designed by	AMA

Feed Line/Linear Appurtenances

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
3/8" safety cable	C	No	Surface Ar (CaAa)	130.00 - 5.00	1	1	0.000 0.000	0.3750		0.22

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C _A A _A ft ² /ft	Weight plf
7/8	C	No	No	Inside Pole	130.00 - 5.00	1	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.54 0.54 0.54
1 5/8 (Verizon Wireless)	C	No	No	Inside Pole	126.00 - 5.00	9	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	1.04 1.04 1.04
3/4" power (AT&T)	C	No	No	Inside Pole	116.00 - 5.00	6	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.58 0.58 0.58
5/16" Fiberoptic cable (AT&T)	C	No	No	Inside Pole	116.00 - 5.00	2	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.25 0.25 0.25
1 5/8 (T-Mobile)	C	No	No	Inside Pole	106.00 - 5.00	3	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	1.04 1.04 1.04

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight lb
PCTEL 430-470	C	None		0.0000	130.00	No Ice 1/2" Ice 1" Ice	0.69 1.40 2.13	0.69 1.40 2.13	10.00 16.44 27.36
(3) NHH-65B-R2B (Verizon Wireless)	A	From Face	4.00 0.00 0.00	0.0000	126.00	No Ice 1/2" Ice 1" Ice	8.08 8.53 9.00	5.34 5.79 6.26	44.00 94.05 150.20
(3) NHH-65B-R2B (Verizon Wireless)	B	From Face	4.00 0.00 0.00	0.0000	126.00	No Ice 1/2" Ice 1" Ice	8.08 8.53 9.00	5.34 5.79 6.26	44.00 94.05 150.20
(3) NHH-65B-R2B (Verizon Wireless)	C	From Face	4.00 0.00 0.00	0.0000	126.00	No Ice 1/2" Ice 1" Ice	8.08 8.53 9.00	5.34 5.79 6.26	44.00 94.05 150.20
B2/B66A RRHBR049 (Verizon Wireless)	A	From Face	2.00 0.00 0.00	0.0000	126.00	No Ice 1/2" Ice 1" Ice	1.88 2.05 2.22	1.25 1.39 1.54	85.00 103.34 124.47
B2/B66A RRHBR049 (Verizon Wireless)	B	From Face	2.00 0.00 0.00	0.0000	126.00	No Ice 1/2" Ice 1" Ice	1.88 2.05 2.22	1.25 1.39 1.54	85.00 103.34 124.47
B2/B66A RRHBR049 (Verizon Wireless)	C	From Face	2.00 0.00 0.00	0.0000	126.00	No Ice 1/2" Ice 1" Ice	1.88 2.05 2.22	1.25 1.39 1.54	85.00 103.34 124.47
B5/B13 RRHBR04C	A	From Face	2.00	0.0000	126.00	No Ice	1.88	1.01	100.00

tnxTower All Points Technology 116 Grandview Road Conway, NH 03818 Phone: (603) 496-5853 FAX: (603) 447-2124	Job	130' Monopole Tower	Page	3 of 6
	Project	CT1931592 Westbrook	Date	10:50:02 06/08/20
	Client	SAI Comm; AT&T Site #CT5210	Designed by	AMA

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight lb
			Horz ft	Vert ft					
(Verizon Wireless)			0.00			1/2" Ice	2.05	1.14	116.43
			0.00			1" Ice	2.22	1.28	135.53
B5/B13 RRHBR04C (Verizon Wireless)	B	From Face	2.00	0.0000	126.00	No Ice	1.88	1.01	100.00
			0.00			1/2" Ice	2.05	1.14	116.43
			0.00			1" Ice	2.22	1.28	135.53
B5/B13 RRHBR04C (Verizon Wireless)	C	From Face	2.00	0.0000	126.00	No Ice	1.88	1.01	100.00
			0.00			1/2" Ice	2.05	1.14	116.43
			0.00			1" Ice	2.22	1.28	135.53
B25 RRH4x30-4R (Verizon Wireless)	A	From Face	2.00	0.0000	126.00	No Ice	2.11	1.29	56.00
			0.00			1/2" Ice	2.30	1.45	73.28
			0.00			1" Ice	2.50	1.61	93.37
B25 RRH4x30-4R (Verizon Wireless)	B	From Face	2.00	0.0000	126.00	No Ice	2.11	1.29	56.00
			0.00			1/2" Ice	2.30	1.45	73.28
			0.00			1" Ice	2.50	1.61	93.37
B25 RRH4x30-4R (Verizon Wireless)	C	From Face	2.00	0.0000	126.00	No Ice	2.11	1.29	56.00
			0.00			1/2" Ice	2.30	1.45	73.28
			0.00			1" Ice	2.50	1.61	93.37
Raycap RVZDC-6627-PF-48 (Verizon Wireless)	A	None		0.0000	126.00	No Ice	2.53	0.94	20.00
						1/2" Ice	2.73	1.08	37.79
						1" Ice	2.93	1.22	58.42
Raycap RVZDC-6627-PF-48 (Verizon Wireless)	C	None		0.0000	126.00	No Ice	2.53	0.94	20.00
						1/2" Ice	2.73	1.08	37.79
						1" Ice	2.93	1.22	58.42
Site Pro RMQP-496-HK (Verizon Wireless)	C	None		0.0000	126.00	No Ice	11.25	9.74	2500.00
						1/2" Ice	12.14	10.52	3222.49
						1" Ice	13.03	11.30	3963.90
(2) EPBQ-654L8H8-L2 (AT&T)	A	From Face	4.00	0.0000	115.00	No Ice	18.09	7.03	86.00
			0.00			1/2" Ice	18.72	7.62	179.25
			0.00			1" Ice	19.36	8.21	280.68
(2) EPBQ-654L8H8-L2 (AT&T)	B	From Face	4.00	0.0000	115.00	No Ice	18.09	7.03	86.00
			0.00			1/2" Ice	18.72	7.62	179.25
			0.00			1" Ice	19.36	8.21	280.68
(2) EPBQ-654L8H8-L2 (AT&T)	C	From Face	4.00	0.0000	115.00	No Ice	18.09	7.03	86.00
			0.00			1/2" Ice	18.72	7.62	179.25
			0.00			1" Ice	19.36	8.21	280.68
HPA65R-BU8A (AT&T)	A	From Face	4.00	0.0000	115.00	No Ice	11.23	7.89	58.00
			0.00			1/2" Ice	11.85	8.48	123.99
			0.00			1" Ice	12.47	9.08	197.64
HPA65R-BU8A (AT&T)	B	From Face	4.00	0.0000	115.00	No Ice	11.23	7.89	58.00
			0.00			1/2" Ice	11.85	8.48	123.99
			0.00			1" Ice	12.47	9.08	197.64
HPA65R-BU8A (AT&T)	C	From Face	4.00	0.0000	115.00	No Ice	11.23	7.89	58.00
			0.00			1/2" Ice	11.85	8.48	123.99
			0.00			1" Ice	12.47	9.08	197.64
Radio 4415 B30 (AT&T)	A	From Face	2.00	0.0000	115.00	No Ice	1.84	0.82	50.00
			0.00			1/2" Ice	2.01	0.94	64.07
			0.00			1" Ice	2.19	1.07	80.66
Radio 4415 B30 (AT&T)	B	From Face	2.00	0.0000	115.00	No Ice	1.84	0.82	50.00
			0.00			1/2" Ice	2.01	0.94	64.07
			0.00			1" Ice	2.19	1.07	80.66
Radio 4415 B30 (AT&T)	C	From Face	2.00	0.0000	115.00	No Ice	1.84	0.82	50.00
			0.00			1/2" Ice	2.01	0.94	64.07
			0.00			1" Ice	2.19	1.07	80.66
Radio 4449 (AT&T)	A	From Face	2.00	0.0000	115.00	No Ice	1.65	0.93	60.00
			0.00			1/2" Ice	1.81	1.05	74.37
			0.00			1" Ice	1.98	1.19	91.23
Radio 4449	A	From Face	2.00	0.0000	115.00	No Ice	1.65	0.93	60.00

tnxTower All Points Technology 116 Grandview Road Conway, NH 03818 Phone: (603) 496-5853 FAX: (603) 447-2124	Job		130' Monopole Tower					Page		4 of 6
	Project		CT1931592 Westbrook					Date		10:50:02 06/08/20
	Client		SAI Comm; AT&T Site #CT5210					Designed by		AMA

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	CAAA Front	CAAA Side	Weight
			Horz	Lateral					
(AT&T)			0.00						74.37
			0.00			1/2" Ice	1.81	1.05	91.23
			0.00			1" Ice	1.98	1.19	91.23
Radio 4449 (AT&T)	B	From Face	2.00		0.0000	115.00	No Ice	1.65	60.00
			0.00				1/2" Ice	1.81	74.37
			0.00				1" Ice	1.98	91.23
Radio 4426 (AT&T)	A	From Face	2.00		0.0000	115.00	No Ice	1.63	50.00
			0.00				1/2" Ice	1.79	62.72
			0.00				1" Ice	1.95	77.82
Radio 4426 (AT&T)	B	From Face	2.00		0.0000	115.00	No Ice	1.63	50.00
			0.00				1/2" Ice	1.79	62.72
			0.00				1" Ice	1.95	77.82
Radio 4426 (AT&T)	C	From Face	2.00		0.0000	115.00	No Ice	1.63	50.00
			0.00				1/2" Ice	1.79	62.72
			0.00				1" Ice	1.95	77.82
Radio 4415 B25 (AT&T)	A	From Face	2.00		0.0000	115.00	No Ice	1.63	50.00
			0.00				1/2" Ice	1.79	62.72
			0.00				1" Ice	1.95	77.82
Radio 4415 B25 (AT&T)	B	From Face	2.00		0.0000	115.00	No Ice	1.63	50.00
			0.00				1/2" Ice	1.79	62.72
			0.00				1" Ice	1.95	77.82
Radio 4415 B25 (AT&T)	C	From Face	2.00		0.0000	115.00	No Ice	1.63	50.00
			0.00				1/2" Ice	1.79	62.72
			0.00				1" Ice	1.95	77.82
DC6-48-60-0-8C (AT&T)	A	None			0.0000	115.00	No Ice	0.74	30.00
							1/2" Ice	1.20	44.34
							1" Ice	1.37	60.93
DC6-48-60-0-8C (AT&T)	B	None			0.0000	115.00	No Ice	0.74	30.00
							1/2" Ice	1.20	44.34
							1" Ice	1.37	60.93
DC6-48-60-0-8C-EV (AT&T)	C	None			0.0000	115.00	No Ice	0.74	30.00
							1/2" Ice	1.20	44.34
							1" Ice	1.37	60.93
SitePro VFA12-RRU (AT&T)	A	None			0.0000	115.00	No Ice	12.13	500.00
							1/2" Ice	15.16	575.00
							1" Ice	19.20	650.00
SitePro VFA12-RRU (AT&T)	B	None			0.0000	115.00	No Ice	12.13	500.00
							1/2" Ice	15.16	575.00
							1" Ice	19.20	650.00
SitePro VFA12-RRU (AT&T)	C	None			0.0000	115.00	No Ice	12.13	500.00
							1/2" Ice	15.16	575.00
							1" Ice	19.20	650.00
AIR32 B66Aa/B2a (T-Mobile)	A	From Face	4.00		0.0000	106.00	No Ice	6.51	133.00
			0.00				1/2" Ice	6.89	178.82
			0.00				1" Ice	7.27	229.91
AIR32 B66Aa/B2a (T-Mobile)	B	From Face	4.00		0.0000	106.00	No Ice	6.51	133.00
			0.00				1/2" Ice	6.89	178.82
			0.00				1" Ice	7.27	229.91
AIR32 B66Aa/B2a (T-Mobile)	C	From Face	4.00		0.0000	106.00	No Ice	6.51	133.00
			0.00				1/2" Ice	6.89	178.82
			0.00				1" Ice	7.27	229.91
APXVARR24_43-C-NA20 (T-Mobile)	A	From Face	4.00		0.0000	106.00	No Ice	17.15	89.30
			0.00				1/2" Ice	17.77	186.52
			0.00				1" Ice	18.40	291.98
APXVARR24_43-C-NA20 (T-Mobile)	B	From Face	4.00		0.0000	106.00	No Ice	17.15	89.30
			0.00				1/2" Ice	17.77	186.52
			0.00				1" Ice	18.40	291.98
APXVARR24_43-C-NA20	C	From Face	4.00		0.0000	106.00	No Ice	17.15	89.30

tnxTower All Points Technology 116 Grandview Road Conway, NH 03818 Phone: (603) 496-5853 FAX: (603) 447-2124	Job	130' Monopole Tower	Page	5 of 6
	Project	CT1931592 Westbrook	Date	10:50:02 06/08/20
	Client	SAI Comm; AT&T Site #CT5210	Designed by	AMA

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			ft ft ft	°	ft	ft ²	ft ²	lb
(T-Mobile)			0.00		1/2" Ice	17.77	9.34	186.52
			0.00		1" Ice	18.40	9.95	291.98
Radio 4449 (T-Mobile)	A	From Face	2.00	0.0000	106.00	No Ice	1.65	60.00
			0.00		1/2" Ice	1.81	1.05	74.37
			0.00		1" Ice	1.98	1.19	91.23
Radio 4449 (T-Mobile)	B	From Face	2.00	0.0000	106.00	No Ice	1.65	60.00
			0.00		1/2" Ice	1.81	1.05	74.37
			0.00		1" Ice	1.98	1.19	91.23
Radio 4449 (T-Mobile)	C	From Face	2.00	0.0000	106.00	No Ice	1.65	60.00
			0.00		1/2" Ice	1.81	1.05	74.37
			0.00		1" Ice	1.98	1.19	91.23
Site Pro RMQP-496-HK (T-Mobile)	A	None		0.0000	106.00	No Ice	11.25	2500.00
						1/2" Ice	12.14	3222.49
						1" Ice	13.03	3963.90

Load Combinations

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	130 - 83.71	4.728	49	0.3236	0.0002
L2	89.21 - 41.21	2.182	49	0.2351	0.0001
L3	48.21 - 0	0.628	49	0.1190	0.0000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
130.00	PCTEL 430-470	49	4.728	0.3236	0.0002	133820
126.00	(3) NHH-65B-R2B	49	4.458	0.3157	0.0002	133820
115.00	(2) EPBQ-654L8H8-L2	49	3.727	0.2936	0.0001	44607
106.00	AIR32 B66Aa/B2a	49	3.152	0.2746	0.0001	27879

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	φP _{allow} lb	% Capacity	Pass/Fail
L1	130 - 83.71	Pole	TP41.53x28x0.3125	1	-17500.50	721134.00	34.6	Pass
L2	83.71 - 41.21	Pole	TP53.78x39.2974x0.625	2	-34360.00	3074750.00	26.4	Pass
L3	41.21 - 0	Pole	TP65x50.418x0.75	3	-65288.10	6460370.00	26.6	Pass
Summary								
Pole (L1)							34.6	Pass
Base Plate							59.6	Pass
RATING =							59.6	Pass

All-Points Technology Corp., P.C.

116 Grandview Road
Conway, NH 03818
(603) 496-5853

Client: **SAI Communications**
Job: **Westbrook, CT**
Calculated By: **A. Adair**

Site No.: **CT5210**
Job No.: **CT1931592**
Date: **08-Jun-20**

Program assumes:

Mat is square in plan view.
Water table is below bottom of mat.
Unit weight of concrete = 150 pcf
Unit weight of soil = 100 pcf
Monopole tower with center pier

Information to be provided:

Pier is round or square in plan dimension ("R" or "S")	Shape =	R
OTM = Overturning Moment to be resisted	OTM =	3828 ft-kips
H = Height from ground surface to top of mat (if buried)	H =	4.00 ft.
P _M = Projection of pier above mat	P _M =	4.50 ft.
y = Thickness of mat	y =	2.00 ft.
x = Width of mat	x =	32.00 ft.
d = Diameter of round pier	d =	8.3 ft.
S = Size of tension bars	S =	11

Mass of tower and appurtenances (below)

Results:

<u>Component</u>	<u>Mass</u>	<u>Moment Arm</u>	<u>Moment Resist.</u>
Pier	36.1 kips	16 ft.	577.3 ft-kips
Overburden	451.6 kips	16 ft.	7225.0 ft-kips
Mat	307.2 kips	16 ft.	4915.2 ft-kips

Overturning Moment Resistance = 12717.55 ft-kips
Factor of Safety = 3.32 SATISFACTORY
Concrete Quantity = 102.6 c.y.

May 29, 2020



SAI Communications
12 Industrial Way
Salem NH, 03079

RE: Site Number: CT5210 (LTE 3C 4C 5C)
 FA Number: 10071317
 PACE Number: MRCTB033840
 PT Number: 2051A0JD2T
 Site Name: WESTBROOK SOUTH
 Site Address: 1542 Boston Post Road
 Westbrook, CT 06498

To Whom It May Concern:

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

- (3) EPBQ-654L8H8-L2 Antennas (96.0"x21.0"x6.3" – Wt. = 97 lbs. /each)
- (3) B5/B12 4449 RRH's (17.9"x13.2"x9.5" – Wt. = 71 lbs. /each)
- (3) 4415 B25 RRH's (16.5"x13.4"x5.9" – Wt. = 46 lbs. /each)
- (2) Squid Surge Arrestors (31.4"x10.3" Φ – Wt. = 29 lbs. /each)
- **(3) EPBQ-654L8H8-L2 Antennas (96.0"x21.0"x6.3" – Wt. = 97 lbs. /each)**
- **(3) HPA65R-BU8AA Antennas (96.0"x11.7"x7.6" – Wt. = 54 lbs. /each)**
- **(3) 4426 B66 RRH's (14.9"x13.2"x5.8" – Wt. = 49 lbs. /each)**
- **(3) 4415 B30 RRH's (16.5"x13.4"x5.9" – Wt. = 46 lbs. /each)**
- **(1) Squid Surge Arrestors (31.4"x10.3" Φ – Wt. = 29 lbs. /each)**

**Proposed equipment shown in bold*

Mount fabrication drawings prepared by SitePro1 P/N VFA12-M3-WLL, dated May 3, 2018 were used to perform this analysis.

Mount Analysis Methods:

- This analysis was conducted in accordance with EIA/TIA-222-H, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, the International Building Code 2015 with 2018 Connecticut State Building Code, and AT&T Mount Technical Directive – 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 135 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 1.13 in was used for this analysis.
- HDG considers this site to be exposure category D; tower is located on flat, unobstructed, shorelines.
- HDG considers this site to be topographic category 1; tower is located on flat terrain or the bottom of a hill or ridge.
- 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 3.
- The mount has been analyzed with load combinations consisting of a 250 lbs live load in a worst case location on the mount.

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

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
Existing (LTE-3C-4C-5C) Mount Rating	279	LC1	95%	PASS

Reference Documents:

- Fabrication drawings prepared by SitePro1 P/N VFA12- M3- WLL, dated May 3, 2018.

This determination was based on the following limitations and assumptions:

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

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

Respectfully Submitted,
Hudson Design Group LLC



Michael Cabral
Vice President



Daniel P. Hamm, PE
Principal



HUDSON
Design Group LLC

Wind & Ice Calculations

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 Project Name: WESTBROOK SOUTH
 Project No.: CT5210
 Designed By: KM Checked By: MSC



HUDSON
 Design Group LLC

2.6.5.2 Velocity Pressure Coeff:

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

K_z = 1.468

z = 115 (ft)
 z_g = 700 (ft)
 α = 11.5

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

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_{zt} = #DIV/0!

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

Category = 1

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

K_h = #DIV/0!

K_c = 1.1 (from Table 2-4)

K_t = 0 (from Table 2-5)

f = 0 (from Table 2-5)

z = 115

z_s = 50 (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)

2.6.10 Design Ice Thickness

Max Ice Thickness =

Importance Factor =

t_i = 1.00 in

I = 1.0 (from Table 2-3)

K_{iz} = 1.13 (from Sec. 2.6.10)

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

t_{iz} = 1.13 in

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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

$h = 150$ $G_h = 0.85$

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

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

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

$q_z =$	64.96
$q_{z(ice)} =$	8.91
$q_{z(30)} =$	3.21

$K_z =$	1.468 (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)
$K_d =$	0.95 (from Table 2-2)
$V_{max} =$	135 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

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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 = **1.13 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)
EPBQ-654L8H8-L2 Antenna	96.0	21.0	6.3	14.00	4.57	1.29	1173	182	58
HPA65R-BU8AA Antenna	96.0	11.7	7.6	7.80	8.21	1.29	654	110	32
4426 B66 RRH	14.9	13.2	5.8	1.37	1.13	1.20	106	20	5
4426 B66 RRH (Side)	14.9	5.8	13.2	0.60	2.57	1.20	47	10	2
4415 B30 RRH	16.5	13.4	5.9	1.54	1.23	1.20	120	22	6
4415 B30 RRH (Side)	16.5	5.9	13.4	0.68	2.80	1.21	53	12	3
4449 B5/B12 RRH	17.9	13.2	9.5	1.64	1.36	1.20	128	23	6
4449 B5/B12 RRH (Side)	17.9	9.5	13.2	1.18	1.88	1.20	92	18	5
4415 B25 RRH	16.5	13.4	5.9	1.54	1.23	1.20	120	22	6
4415 B25 RRH (Side)	16.5	5.9	13.4	0.68	2.80	1.21	53	12	3
Surge Arrestor	24.0	9.7	9.7	1.62	2.47	0.70	74	14	4
PL 3-1/2x5/8	3.5	0.6	-	0.02	5.60	1.20	1		
PL 11-1/4x5/8	11.3	0.5	-	0.04	22.50	1.20	3		
5/8" Round Bar	0.6	12.0	-	0.05	0.05	1.20	4		
3/4" Round Bar	0.8	12.0	-	0.06	0.06	1.20	5		
2" Pipe	2.4	12.0	-	0.20	0.20	1.20	15		
2-1/2" Pipe	2.9	12.0	-	0.24	0.24	1.20	19		
2-1/2"x2-1/2" Angle	2.5	12.0	-	0.21	0.21	1.20	16		

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WIND LOADS

Angle = 30 (deg) Ice Thickness = 1.13 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)
EPBQ-654L8H8-L2 Antenna	96.0	21.0	6.3	14.00	4.20	4.57	15.24	1.29	1.67	1175	457	995
HPA65R-BU8AA Antenna	96.0	11.7	7.6	7.80	5.07	8.21	12.63	1.44	1.59	730	523	678
4426 B66 RRH	14.9	13.2	5.8	1.37	0.60	1.13	2.57	1.20	1.20	106	47	92
4426 B66 RRH (Side)	14.9	5.8	13.2	0.60	1.37	2.57	1.13	1.20	1.20	47	106	62
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	120	53	103
4415 B30 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	53	120	70
4449 B5/B12 RRH	17.9	13.2	9.5	1.64	1.18	1.36	1.88	1.20	1.20	128	92	119
4449 B5/B12 RRH (Side)	17.9	9.5	13.2	1.18	1.64	1.88	1.36	1.20	1.20	92	128	101
4415 B25 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	120	53	103
4415 B25 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	53	120	70

WIND LOADS WITH ICE:

EPBQ-654L8H8-L2 Antenna	98.3	23.3	8.6	15.88	5.85	4.22	11.47	1.28	1.55	181	81	156
HPA65R-BU8AA Antenna	98.3	14.0	9.9	9.53	6.73	7.04	9.96	1.40	1.50	119	90	112
4426 B66 RRH	17.2	15.5	8.1	1.84	0.96	1.11	2.13	1.20	1.20	20	10	17
4426 B66 RRH (Side)	17.2	8.1	15.5	0.96	1.84	2.13	1.11	1.20	1.20	10	20	13
4415 B30 RRH	18.8	15.7	8.2	2.04	1.06	1.20	2.30	1.20	1.20	22	11	19
4415 B30 RRH (Side)	18.8	8.2	15.7	1.06	2.04	2.30	1.20	1.20	1.20	11	22	14
4449 B5/B12 RRH	20.2	15.5	11.8	2.17	1.65	1.30	1.71	1.20	1.20	23	18	22
4449 B5/B12 RRH (Side)	20.2	11.8	15.5	1.65	2.17	1.71	1.30	1.20	1.20	18	23	19
4415 B25 RRH	18.8	15.7	8.2	2.04	1.06	1.20	2.30	1.20	1.20	22	11	19
4415 B25 RRH (Side)	18.8	8.2	15.7	1.06	2.04	2.30	1.20	1.20	1.20	11	22	14

WIND LOADS AT 30 MPH:

EPBQ-654L8H8-L2 Antenna	96.0	21.0	6.3	14.00	4.20	4.57	15.24	1.29	1.67	58	23	49
HPA65R-BU8AA Antenna	96.0	11.7	7.6	7.80	5.07	8.21	12.63	1.44	1.59	36	26	33
4426 B66 RRH	14.9	13.2	5.8	1.37	0.60	1.13	2.57	1.20	1.20	5	2	5
4426 B66 RRH (Side)	14.9	5.8	13.2	0.60	1.37	2.57	1.13	1.20	1.20	2	5	3
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	6	3	5
4415 B30 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	3	6	3
4449 B5/B12 RRH	17.9	13.2	9.5	1.64	1.18	1.36	1.88	1.20	1.20	6	5	6
4449 B5/B12 RRH (Side)	17.9	9.5	13.2	1.18	1.64	1.88	1.36	1.20	1.20	5	6	5
4415 B25 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	6	3	5
4415 B25 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	3	6	3

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WIND LOADS

Angle = 60 (deg) Ice Thickness = 1.13 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)
EPBQ-654L8H8-L2 Antenna	96.0	21.0	6.3	14.00	4.20	4.57	15.24	1.29	1.67	1175	457	636
HPA65R-BU8AA Antenna	96.0	11.7	7.6	7.80	5.07	8.21	12.63	1.44	1.59	730	523	574
4426 B66 RRH	14.9	13.2	5.8	1.37	0.60	1.13	2.57	1.20	1.20	106	47	62
4426 B66 RRH (Side)	14.9	5.8	13.2	0.60	1.37	2.57	1.13	1.20	1.20	47	106	92
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	120	53	70
4415 B30 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	53	120	103
4449 B5/B12 RRH	17.9	13.2	9.5	1.64	1.18	1.36	1.88	1.20	1.20	128	92	101
4449 B5/B12 RRH (Side)	17.9	9.5	13.2	1.18	1.64	1.88	1.36	1.20	1.20	92	128	119
4415 B25 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	120	53	70
4415 B25 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	53	120	103

WIND LOADS WITH ICE:

EPBQ-654L8H8-L2 Antenna	98.3	23.3	8.6	15.88	5.85	4.22	11.47	1.28	1.55	181	81	106
HPA65R-BU8AA Antenna	98.3	14.0	9.9	9.53	6.73	7.04	9.96	1.40	1.50	119	90	97
4426 B66 RRH	17.2	15.5	8.1	1.84	0.96	1.11	2.13	1.20	1.20	20	10	13
4426 B66 RRH (Side)	17.2	8.1	15.5	0.96	1.84	2.13	1.11	1.20	1.20	10	20	17
4415 B30 RRH	18.8	15.7	8.2	2.04	1.06	1.20	2.30	1.20	1.20	22	11	14
4415 B30 RRH (Side)	18.8	8.2	15.7	1.06	2.04	2.30	1.20	1.20	1.20	11	22	19
4449 B5/B12 RRH	20.2	15.5	11.8	2.17	1.65	1.30	1.71	1.20	1.20	23	18	19
4449 B5/B12 RRH (Side)	20.2	11.8	15.5	1.65	2.17	1.71	1.30	1.20	1.20	18	23	22
4415 B25 RRH	18.8	15.7	8.2	2.04	1.06	1.20	2.30	1.20	1.20	22	11	14
4415 B25 RRH (Side)	18.8	8.2	15.7	1.06	2.04	2.30	1.20	1.20	1.20	11	22	19

WIND LOADS AT 30 MPH:

EPBQ-654L8H8-L2 Antenna	96.0	21.0	6.3	14.00	4.20	4.57	15.24	1.29	1.67	58	23	31
HPA65R-BU8AA Antenna	96.0	11.7	7.6	7.80	5.07	8.21	12.63	1.44	1.59	36	26	28
4426 B66 RRH	14.9	13.2	5.8	1.37	0.60	1.13	2.57	1.20	1.20	5	2	3
4426 B66 RRH (Side)	14.9	5.8	13.2	0.60	1.37	2.57	1.13	1.20	1.20	2	5	5
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	6	3	3
4415 B30 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	3	6	5
4449 B5/B12 RRH	17.9	13.2	9.5	1.64	1.18	1.36	1.88	1.20	1.20	6	5	5
4449 B5/B12 RRH (Side)	17.9	9.5	13.2	1.18	1.64	1.88	1.36	1.20	1.20	5	6	6
4415 B25 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	6	3	3
4415 B25 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	3	6	5

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WIND LOADS

Angle = **90** (deg) Ice Thickness = **1.13** 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)
EPBQ-654L8H8-L2 Antenna	96.0	21.0	6.3	14.00	4.20	4.57	15.24	1.29	1.67	1175	457	457
HPA65R-BU8AA Antenna	96.0	11.7	7.6	7.80	5.07	8.21	12.63	1.44	1.59	730	523	523
4426 B66 RRH	14.9	13.2	5.8	1.37	0.60	1.13	2.57	1.20	1.20	106	47	47
4426 B66 RRH (Side)	14.9	5.8	13.2	0.60	1.37	2.57	1.13	1.20	1.20	47	106	106
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	120	53	53
4415 B30 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	53	120	120
4449 B5/B12 RRH	17.9	13.2	9.5	1.64	1.18	1.36	1.88	1.20	1.20	128	92	101
4449 B5/B12 RRH (Side)	17.9	9.5	13.2	1.18	1.64	1.88	1.36	1.20	1.20	92	128	119
4415 B25 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	120	53	70
4415 B25 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	53	120	103

WIND LOADS WITH ICE:

EPBQ-654L8H8-L2 Antenna	98.3	23.3	8.6	15.88	5.85	4.22	11.47	1.28	1.55	181	81	81
HPA65R-BU8AA Antenna	98.3	14.0	9.9	9.53	6.73	7.04	9.96	1.40	1.50	119	90	90
4426 B66 RRH	17.2	15.5	8.1	1.84	0.96	1.11	2.13	1.20	1.20	20	10	10
4426 B66 RRH (Side)	17.2	8.1	15.5	0.96	1.84	2.13	1.11	1.20	1.20	10	20	20
4415 B30 RRH	18.8	15.7	8.2	2.04	1.06	1.20	2.30	1.20	1.20	22	11	11
4415 B30 RRH (Side)	18.8	8.2	15.7	1.06	2.04	2.30	1.20	1.20	1.20	11	22	22
4449 B5/B12 RRH	20.2	15.5	11.8	2.17	1.65	1.30	1.71	1.20	1.20	23	18	19
4449 B5/B12 RRH (Side)	20.2	11.8	15.5	1.65	2.17	1.71	1.30	1.20	1.20	18	23	22
4415 B25 RRH	18.8	15.7	8.2	2.04	1.06	1.20	2.30	1.20	1.20	22	11	14
4415 B25 RRH (Side)	18.8	8.2	15.7	1.06	2.04	2.30	1.20	1.20	1.20	11	22	19

WIND LOADS AT 30 MPH:

EPBQ-654L8H8-L2 Antenna	96.0	21.0	6.3	14.00	4.20	4.57	15.24	1.29	1.67	58	23	23
HPA65R-BU8AA Antenna	96.0	11.7	7.6	7.80	5.07	8.21	12.63	1.44	1.59	36	26	26
4426 B66 RRH	14.9	13.2	5.8	1.37	0.60	1.13	2.57	1.20	1.20	5	2	2
4426 B66 RRH (Side)	14.9	5.8	13.2	0.60	1.37	2.57	1.13	1.20	1.20	2	5	5
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	6	3	3
4415 B30 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	3	6	6
4449 B5/B12 RRH	17.9	13.2	9.5	1.64	1.18	1.36	1.88	1.20	1.20	6	5	5
4449 B5/B12 RRH (Side)	17.9	9.5	13.2	1.18	1.64	1.88	1.36	1.20	1.20	5	6	6
4415 B25 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	6	3	3
4415 B25 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	3	6	5

Date: 6/4/2020
 Project Name: WESTBROOK SOUTH
 Project No.: CT5210
 Designed By: KM Checked By: MSC



WIND LOADS

Angle = 120 (deg) Ice Thickness = 1.13 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)
EPBQ-654L8H8-L2 Antenna	96.0	21.0	6.3	14.00	4.20	4.57	15.24	1.29	1.67	1175	457	636
HPA65R-BU8AA Antenna	96.0	11.7	7.6	7.80	5.07	8.21	12.63	1.44	1.59	730	523	574
4426 B66 RRH	14.9	13.2	5.8	1.37	0.60	1.13	2.57	1.20	1.20	106	47	62
4426 B66 RRH (Side)	14.9	5.8	13.2	0.60	1.37	2.57	1.13	1.20	1.20	47	106	92
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	120	53	70
4415 B30 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	53	120	103
4449 B5/B12 RRH	17.9	13.2	9.5	1.64	1.18	1.36	1.88	1.20	1.20	128	92	101
4449 B5/B12 RRH (Side)	17.9	9.5	13.2	1.18	1.64	1.88	1.36	1.20	1.20	92	128	119
4415 B25 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	120	53	70
4415 B25 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	53	120	103

WIND LOADS WITH ICE:

EPBQ-654L8H8-L2 Antenna	98.3	23.3	8.6	15.88	5.85	4.22	11.47	1.28	1.55	181	81	106
HPA65R-BU8AA Antenna	98.3	14.0	9.9	9.53	6.73	7.04	9.96	1.40	1.50	119	90	97
4426 B66 RRH	17.2	15.5	8.1	1.84	0.96	1.11	2.13	1.20	1.20	20	10	13
4426 B66 RRH (Side)	17.2	8.1	15.5	0.96	1.84	2.13	1.11	1.20	1.20	10	20	17
4415 B30 RRH	18.8	15.7	8.2	2.04	1.06	1.20	2.30	1.20	1.20	22	11	14
4415 B30 RRH (Side)	18.8	8.2	15.7	1.06	2.04	2.30	1.20	1.20	1.20	11	22	19
4449 B5/B12 RRH	20.2	15.5	11.8	2.17	1.65	1.30	1.71	1.20	1.20	23	18	19
4449 B5/B12 RRH (Side)	20.2	11.8	15.5	1.65	2.17	1.71	1.30	1.20	1.20	18	23	22
4415 B25 RRH	18.8	15.7	8.2	2.04	1.06	1.20	2.30	1.20	1.20	22	11	14
4415 B25 RRH (Side)	18.8	8.2	15.7	1.06	2.04	2.30	1.20	1.20	1.20	11	22	19

WIND LOADS AT 30 MPH:

EPBQ-654L8H8-L2 Antenna	96.0	21.0	6.3	14.00	4.20	4.57	15.24	1.29	1.67	58	23	31
HPA65R-BU8AA Antenna	96.0	11.7	7.6	7.80	5.07	8.21	12.63	1.44	1.59	36	26	28
4426 B66 RRH	14.9	13.2	5.8	1.37	0.60	1.13	2.57	1.20	1.20	5	2	3
4426 B66 RRH (Side)	14.9	5.8	13.2	0.60	1.37	2.57	1.13	1.20	1.20	2	5	5
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	6	3	3
4415 B30 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	3	6	5
4449 B5/B12 RRH	17.9	13.2	9.5	1.64	1.18	1.36	1.88	1.20	1.20	6	5	5
4449 B5/B12 RRH (Side)	17.9	9.5	13.2	1.18	1.64	1.88	1.36	1.20	1.20	5	6	6
4415 B25 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	6	3	3
4415 B25 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	3	6	5

Date: 6/4/2020
 Project Name: WESTBROOK SOUTH
 Project No.: CT5210
 Designed By: KM Checked By: MSC



WIND LOADS

Angle = 150 (deg) Ice Thickness = 1.13 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)
EPBQ-654L8H8-L2 Antenna	96.0	21.0	6.3	14.00	4.20	4.57	15.24	1.29	1.67	1175	457	995
HPA65R-BU8AA Antenna	96.0	11.7	7.6	7.80	5.07	8.21	12.63	1.44	1.59	730	523	678
4426 B66 RRH	14.9	13.2	5.8	1.37	0.60	1.13	2.57	1.20	1.20	106	47	92
4426 B66 RRH (Side)	14.9	5.8	13.2	0.60	1.37	2.57	1.13	1.20	1.20	47	106	62
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	120	53	103
4415 B30 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	53	120	70
4449 B5/B12 RRH	17.9	13.2	9.5	1.64	1.18	1.36	1.88	1.20	1.20	128	92	101
4449 B5/B12 RRH (Side)	17.9	9.5	13.2	1.18	1.64	1.88	1.36	1.20	1.20	92	128	119
4415 B25 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	120	53	70
4415 B25 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	53	120	103

WIND LOADS WITH ICE:

EPBQ-654L8H8-L2 Antenna	98.3	23.3	8.6	15.88	5.85	4.22	11.47	1.28	1.55	181	81	156
HPA65R-BU8AA Antenna	98.3	14.0	9.9	9.53	6.73	7.04	9.96	1.40	1.50	119	90	112
4426 B66 RRH	17.2	15.5	8.1	1.84	0.96	1.11	2.13	1.20	1.20	20	10	17
4426 B66 RRH (Side)	17.2	8.1	15.5	0.96	1.84	2.13	1.11	1.20	1.20	10	20	13
4415 B30 RRH	18.8	15.7	8.2	2.04	1.06	1.20	2.30	1.20	1.20	22	11	19
4415 B30 RRH (Side)	18.8	8.2	15.7	1.06	2.04	2.30	1.20	1.20	1.20	11	22	14
4449 B5/B12 RRH	20.2	15.5	11.8	2.17	1.65	1.30	1.71	1.20	1.20	23	18	19
4449 B5/B12 RRH (Side)	20.2	11.8	15.5	1.65	2.17	1.71	1.30	1.20	1.20	18	23	22
4415 B25 RRH	18.8	15.7	8.2	2.04	1.06	1.20	2.30	1.20	1.20	22	11	14
4415 B25 RRH (Side)	18.8	8.2	15.7	1.06	2.04	2.30	1.20	1.20	1.20	11	22	19

WIND LOADS AT 30 MPH:

EPBQ-654L8H8-L2 Antenna	96.0	21.0	6.3	14.00	4.20	4.57	15.24	1.29	1.67	58	23	49
HPA65R-BU8AA Antenna	96.0	11.7	7.6	7.80	5.07	8.21	12.63	1.44	1.59	36	26	33
4426 B66 RRH	14.9	13.2	5.8	1.37	0.60	1.13	2.57	1.20	1.20	5	2	5
4426 B66 RRH (Side)	14.9	5.8	13.2	0.60	1.37	2.57	1.13	1.20	1.20	2	5	3
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	6	3	5
4415 B30 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	3	6	3
4449 B5/B12 RRH	17.9	13.2	9.5	1.64	1.18	1.36	1.88	1.20	1.20	6	5	5
4449 B5/B12 RRH (Side)	17.9	9.5	13.2	1.18	1.64	1.88	1.36	1.20	1.20	5	6	6
4415 B25 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	6	3	3
4415 B25 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	3	6	5

Date: 6/4/2020

Project Name: WESTBROOK SOUTH

Project No.: CT5210

Designed By: KM Checked By: MSC



HUDSON Design Group LLC

ICE WEIGHT CALCULATIONS

Thickness of ice: 1.13 in.
Density of ice: 56 pcf

EPBQ-654L8H8-L2 Antenna

Weight of ice based on total radial SF area:
Height (in): 96.0
Width (in): 21.0
Depth (in): 6.3
Total weight of ice on object: 255 lbs
Weight of object: 97.0 lbs
Combined weight of ice and object: 352 lbs

HPA65R-BU8AA Antenna

Weight of ice based on total radial SF area:
Height (in): 96.0
Width (in): 11.7
Depth (in): 7.6
Total weight of ice on object: 167 lbs
Weight of object: 54.0 lbs
Combined weight of ice and object: 221 lbs

4426 B66 RRH

Weight of ice based on total radial SF area:
Height (in): 14.9
Width (in): 13.2
Depth (in): 5.8
Total weight of ice on object: 27 lbs
Weight of object: 49.0 lbs
Combined weight of ice and object: 76 lbs

4415 B30 RRH

Weight of ice based on total radial SF area:
Height (in): 16.5
Width (in): 13.4
Depth (in): 5.9
Total weight of ice on object: 30 lbs
Weight of object: 46.0 lbs
Combined weight of ice and object: 76 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: 36 lbs
Weight of object: 71.0 lbs
Combined weight of ice and object: 107 lbs

4415 B25 RRH

Weight of ice based on total radial SF area:
Height (in): 16.5
Width (in): 13.4
Depth (in): 5.9
Total weight of ice on object: 30 lbs
Weight of object: 46.0 lbs
Combined weight of ice and object: 76 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

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

PL 11-1/4x5/8

Weight of ice based on total radial SF area:
Height (in): 11.25
Width (in): 0.625
Per foot weight of ice on object: 17 plf

PL 3-1/2x5/8

Weight of ice based on total radial SF area:
Height (in): 3.5
Width (in): 0.625
Per foot weight of ice on object: 6 plf

3/4" Round Bar

Per foot weight of ice:
diameter (in): 0.75
Per foot weight of ice on object: 3 plf

5/8" Round Bar

Per foot weight of ice:
diameter (in): 0.625
Per foot weight of ice on object: 2 plf

2-1/2" pipe

Per foot weight of ice:
diameter (in): 2.88
Per foot weight of ice on object: 6 plf

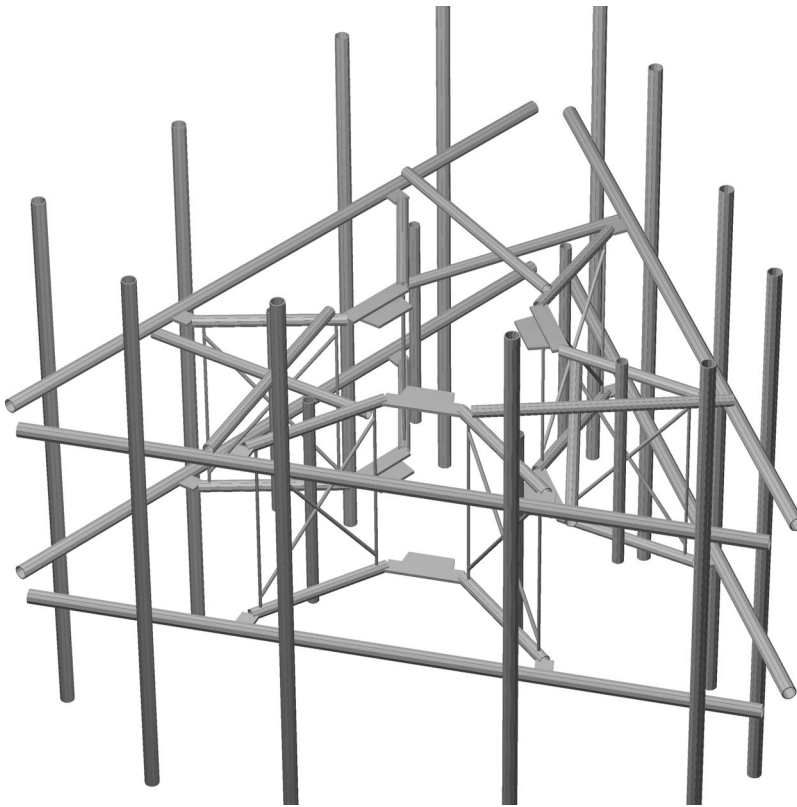
2" pipe

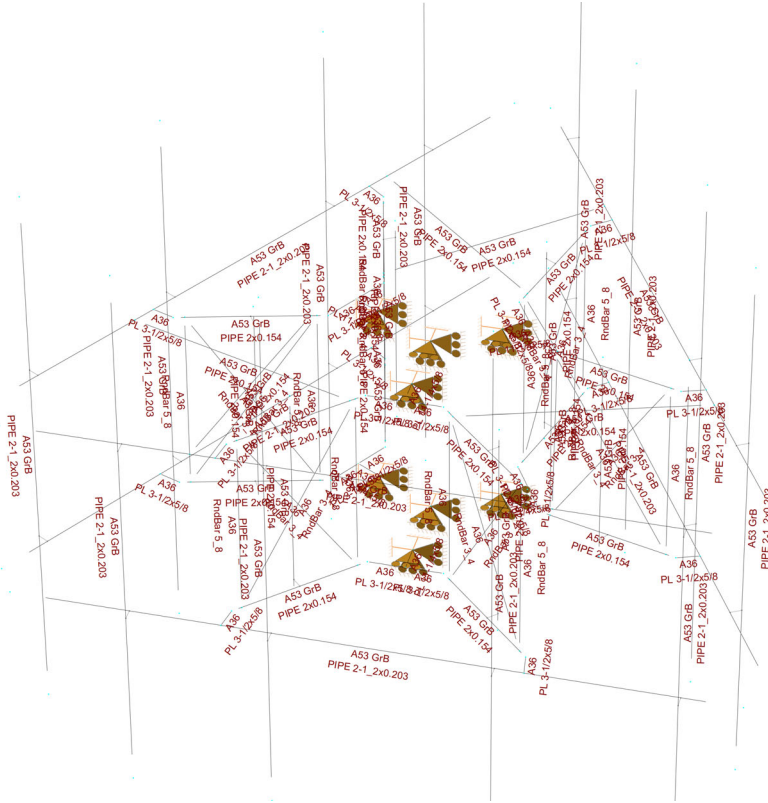
Per foot weight of ice:
diameter (in): 2.38
Per foot weight of ice on object: 5 plf

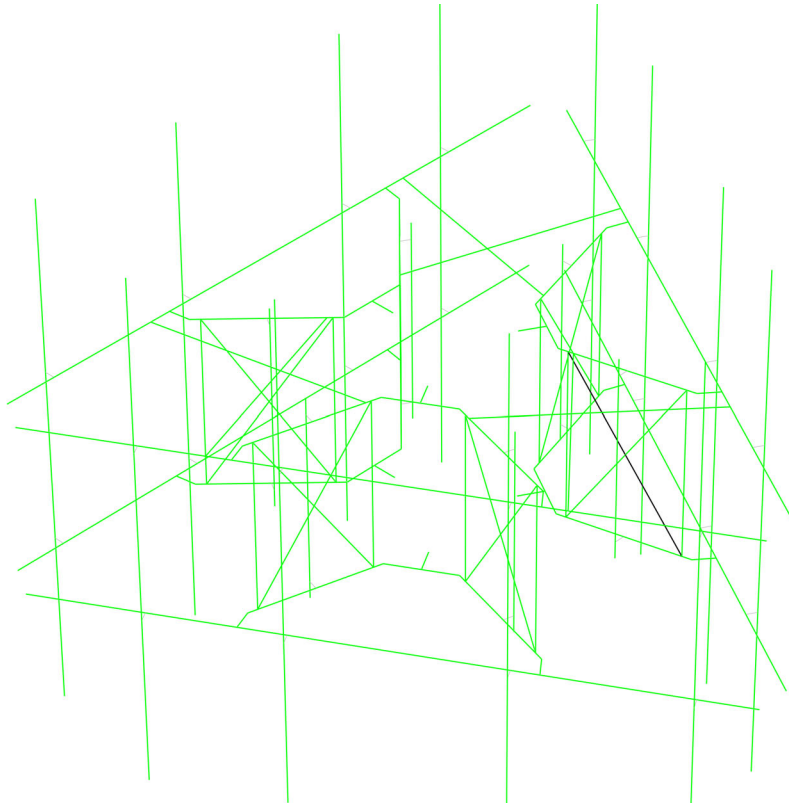


HUDSON
Design Group LLC

**Mount Calculations
(Existing Conditions)**







Current Date: 6/4/2020 11:00 AM

Units system: English

File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT5210\LTE-3C-4C-5C\CT5210 (LTE-2C-3C-4C)_ABC.ret

Load data

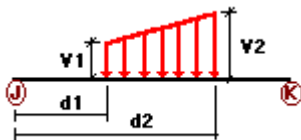
GLOSSARY

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	181	z	-0.015	-0.015	0.00	No	100.00	Yes
	182	z	-0.019	-0.019	0.00	No	100.00	Yes
	183	z	-0.019	-0.019	0.00	No	100.00	Yes
	184	z	-0.015	-0.015	0.00	No	100.00	Yes
	185	z	-0.015	-0.015	0.00	No	100.00	Yes
	186	z	-0.015	-0.015	0.00	No	100.00	Yes
	187	z	-0.015	-0.015	0.00	No	100.00	Yes
	188	z	-0.004	-0.004	0.00	No	100.00	Yes
	189	z	-0.004	-0.004	0.00	No	100.00	Yes
	190	z	-0.004	-0.004	0.00	No	100.00	Yes
	191	z	-0.004	-0.004	0.00	No	100.00	Yes
	192	z	-0.005	-0.005	0.00	No	100.00	Yes
	193	z	-0.005	-0.005	0.00	No	100.00	Yes
	194	z	-0.005	-0.005	0.00	No	100.00	Yes

195	z	-0.005	-0.005	0.00	No	100.00	Yes
196	z	-0.015	-0.015	0.00	No	100.00	Yes
197	z	-0.001	-0.001	0.00	No	100.00	Yes
198	z	-0.001	-0.001	0.00	No	100.00	Yes
199	z	-0.001	-0.001	0.00	No	100.00	Yes
200	z	-0.001	-0.001	0.00	No	100.00	Yes
211	z	-0.001	-0.001	0.00	No	100.00	Yes
212	z	-0.001	-0.001	0.00	No	100.00	Yes
213	z	-0.001	-0.001	0.00	No	100.00	Yes
214	z	-0.001	-0.001	0.00	No	100.00	Yes
215	z	-0.002	-0.002	0.00	No	100.00	Yes
216	z	-0.002	-0.002	0.00	No	100.00	Yes
225	z	-0.015	-0.015	0.00	No	100.00	Yes
226	z	-0.019	-0.019	0.00	No	100.00	Yes
227	z	-0.019	-0.019	0.00	No	100.00	Yes
228	z	-0.015	-0.015	0.00	No	100.00	Yes
229	z	-0.015	-0.015	0.00	No	100.00	Yes
230	z	-0.015	-0.015	0.00	No	100.00	Yes
231	z	-0.015	-0.015	0.00	No	100.00	Yes
232	z	-0.004	-0.004	0.00	No	100.00	Yes
233	z	-0.004	-0.004	0.00	No	100.00	Yes
234	z	-0.004	-0.004	0.00	No	100.00	Yes
235	z	-0.004	-0.004	0.00	No	100.00	Yes
236	z	-0.005	-0.005	0.00	No	100.00	Yes
237	z	-0.005	-0.005	0.00	No	100.00	Yes
238	z	-0.005	-0.005	0.00	No	100.00	Yes
239	z	-0.005	-0.005	0.00	No	100.00	Yes
240	z	-0.015	-0.015	0.00	No	100.00	Yes
241	z	-0.001	-0.001	0.00	No	100.00	Yes
242	z	-0.001	-0.001	0.00	No	100.00	Yes
243	z	-0.001	-0.001	0.00	No	100.00	Yes
244	z	-0.001	-0.001	0.00	No	100.00	Yes
255	z	-0.001	-0.001	0.00	No	100.00	Yes
256	z	-0.001	-0.001	0.00	No	100.00	Yes
257	z	-0.001	-0.001	0.00	No	100.00	Yes
258	z	-0.001	-0.001	0.00	No	100.00	Yes
259	z	-0.002	-0.002	0.00	No	100.00	Yes
260	z	-0.002	-0.002	0.00	No	100.00	Yes
269	z	-0.015	-0.015	0.00	No	100.00	Yes
270	z	-0.019	-0.019	0.00	No	100.00	Yes
271	z	-0.019	-0.019	0.00	No	100.00	Yes
272	z	-0.015	-0.015	0.00	No	100.00	Yes
273	z	-0.015	-0.015	0.00	No	100.00	Yes
274	z	-0.015	-0.015	0.00	No	100.00	Yes
275	z	-0.015	-0.015	0.00	No	100.00	Yes
276	z	-0.004	-0.004	0.00	No	100.00	Yes
277	z	-0.004	-0.004	0.00	No	100.00	Yes
278	z	-0.004	-0.004	0.00	No	100.00	Yes
279	z	-0.004	-0.004	0.00	No	100.00	Yes
280	z	-0.005	-0.005	0.00	No	100.00	Yes
281	z	-0.005	-0.005	0.00	No	100.00	Yes
282	z	-0.005	-0.005	0.00	No	100.00	Yes
283	z	-0.005	-0.005	0.00	No	100.00	Yes
284	z	-0.015	-0.015	0.00	No	100.00	Yes
285	z	-0.001	-0.001	0.00	No	100.00	Yes
286	z	-0.001	-0.001	0.00	No	100.00	Yes
287	z	-0.001	-0.001	0.00	No	100.00	Yes
288	z	-0.001	-0.001	0.00	No	100.00	Yes
299	z	-0.001	-0.001	0.00	No	100.00	Yes
300	z	-0.001	-0.001	0.00	No	100.00	Yes

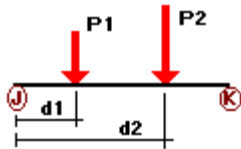
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	302	z	-0.001	-0.001	0.00	No	100.00	Yes
	303	z	-0.002	-0.002	0.00	No	100.00	Yes
	304	z	-0.002	-0.002	0.00	No	100.00	Yes
	317	z	-0.015	-0.015	0.00	No	100.00	Yes
	318	z	-0.015	-0.015	0.00	No	100.00	Yes
	319	z	-0.015	-0.015	0.00	No	100.00	Yes
	320	z	-0.015	-0.015	0.00	No	100.00	Yes
	321	z	-0.015	-0.015	0.00	No	100.00	Yes
	322	z	-0.015	-0.015	0.00	No	100.00	Yes
	325	z	-0.019	-0.019	0.00	No	100.00	Yes
	353	z	-0.019	-0.019	0.00	No	100.00	Yes
	356	z	-0.019	-0.019	0.00	No	100.00	Yes
	357	z	-0.019	-0.019	0.00	No	100.00	Yes
	373	z	-0.019	-0.019	0.00	No	100.00	Yes
	374	z	-0.019	-0.019	0.00	No	100.00	Yes
	375	z	-0.019	-0.019	0.00	No	100.00	Yes
	376	z	-0.019	-0.019	0.00	No	100.00	Yes
	381	z	-0.019	-0.019	0.00	No	100.00	Yes
	382	z	-0.019	-0.019	0.00	No	100.00	Yes
	383	z	-0.019	-0.019	0.00	No	100.00	Yes
W30	181	x	-0.015	-0.015	0.00	No	100.00	Yes
	182	x	-0.019	-0.019	0.00	No	100.00	Yes
	183	x	-0.019	-0.019	0.00	No	100.00	Yes
	184	x	-0.015	-0.015	0.00	No	100.00	Yes
	185	x	-0.015	-0.015	0.00	No	100.00	Yes
	186	x	-0.015	-0.015	0.00	No	100.00	Yes
	187	x	-0.015	-0.015	0.00	No	100.00	Yes
	188	x	-0.004	-0.004	0.00	No	100.00	Yes
	189	x	-0.004	-0.004	0.00	No	100.00	Yes
	190	x	-0.004	-0.004	0.00	No	100.00	Yes
	191	x	-0.004	-0.004	0.00	No	100.00	Yes
	192	x	-0.005	-0.005	0.00	No	100.00	Yes
	193	x	-0.005	-0.005	0.00	No	100.00	Yes
	194	x	-0.005	-0.005	0.00	No	100.00	Yes
	195	x	-0.005	-0.005	0.00	No	100.00	Yes
	196	x	-0.015	-0.015	0.00	No	100.00	Yes
	197	x	-0.001	-0.001	0.00	No	100.00	Yes
	198	x	-0.001	-0.001	0.00	No	100.00	Yes
	199	x	-0.001	-0.001	0.00	No	100.00	Yes
	200	x	-0.001	-0.001	0.00	No	100.00	Yes
	211	x	-0.001	-0.001	0.00	No	100.00	Yes
	212	x	-0.001	-0.001	0.00	No	100.00	Yes
	213	x	-0.001	-0.001	0.00	No	100.00	Yes
	214	x	-0.001	-0.001	0.00	No	100.00	Yes
	215	x	-0.003	-0.003	0.00	No	100.00	Yes
	216	x	-0.003	-0.003	0.00	No	100.00	Yes
	225	x	-0.015	-0.015	0.00	No	100.00	Yes
	226	x	-0.019	-0.019	0.00	No	100.00	Yes
	227	x	-0.019	-0.019	0.00	No	100.00	Yes
	228	x	-0.015	-0.015	0.00	No	100.00	Yes
	229	x	-0.015	-0.015	0.00	No	100.00	Yes
	230	x	-0.015	-0.015	0.00	No	100.00	Yes
	231	x	-0.015	-0.015	0.00	No	100.00	Yes
	232	x	-0.004	-0.004	0.00	No	100.00	Yes
	233	x	-0.004	-0.004	0.00	No	100.00	Yes
	234	x	-0.004	-0.004	0.00	No	100.00	Yes
	235	x	-0.004	-0.004	0.00	No	100.00	Yes
	236	x	-0.005	-0.005	0.00	No	100.00	Yes
	237	x	-0.005	-0.005	0.00	No	100.00	Yes

238	x	-0.005	-0.005	0.00	No	100.00	Yes
239	x	-0.005	-0.005	0.00	No	100.00	Yes
240	x	-0.015	-0.015	0.00	No	100.00	Yes
241	x	-0.001	-0.001	0.00	No	100.00	Yes
242	x	-0.001	-0.001	0.00	No	100.00	Yes
243	x	-0.001	-0.001	0.00	No	100.00	Yes
244	x	-0.001	-0.001	0.00	No	100.00	Yes
255	x	-0.001	-0.001	0.00	No	100.00	Yes
256	x	-0.001	-0.001	0.00	No	100.00	Yes
257	x	-0.001	-0.001	0.00	No	100.00	Yes
258	x	-0.001	-0.001	0.00	No	100.00	Yes
259	x	-0.003	-0.003	0.00	No	100.00	Yes
260	x	-0.003	-0.003	0.00	No	100.00	Yes
269	x	-0.015	-0.015	0.00	No	100.00	Yes
270	x	-0.019	-0.019	0.00	No	100.00	Yes
271	x	-0.019	-0.019	0.00	No	100.00	Yes
272	x	-0.015	-0.015	0.00	No	100.00	Yes
273	x	-0.015	-0.015	0.00	No	100.00	Yes
274	x	-0.015	-0.015	0.00	No	100.00	Yes
275	x	-0.015	-0.015	0.00	No	100.00	Yes
276	x	-0.004	-0.004	0.00	No	100.00	Yes
277	x	-0.004	-0.004	0.00	No	100.00	Yes
278	x	-0.004	-0.004	0.00	No	100.00	Yes
279	x	-0.004	-0.004	0.00	No	100.00	Yes
280	x	-0.005	-0.005	0.00	No	100.00	Yes
281	x	-0.005	-0.005	0.00	No	100.00	Yes
282	x	-0.005	-0.005	0.00	No	100.00	Yes
283	x	-0.005	-0.005	0.00	No	100.00	Yes
284	x	-0.015	-0.015	0.00	No	100.00	Yes
285	x	-0.001	-0.001	0.00	No	100.00	Yes
286	x	-0.001	-0.001	0.00	No	100.00	Yes
287	x	-0.001	-0.001	0.00	No	100.00	Yes
288	x	-0.001	-0.001	0.00	No	100.00	Yes
299	x	-0.001	-0.001	0.00	No	100.00	Yes
300	x	-0.001	-0.001	0.00	No	100.00	Yes
301	x	-0.001	-0.001	0.00	No	100.00	Yes
302	x	-0.001	-0.001	0.00	No	100.00	Yes
303	x	-0.003	-0.003	0.00	No	100.00	Yes
304	x	-0.003	-0.003	0.00	No	100.00	Yes
317	x	-0.015	-0.015	0.00	No	100.00	Yes
318	x	-0.015	-0.015	0.00	No	100.00	Yes
319	x	-0.015	-0.015	0.00	No	100.00	Yes
320	x	-0.015	-0.015	0.00	No	100.00	Yes
321	x	-0.015	-0.015	0.00	No	100.00	Yes
322	x	-0.015	-0.015	0.00	No	100.00	Yes
325	x	-0.019	-0.019	0.00	No	100.00	Yes
353	x	-0.019	-0.019	0.00	No	100.00	Yes
356	x	-0.019	-0.019	0.00	No	100.00	Yes
357	x	-0.019	-0.019	0.00	No	100.00	Yes
373	x	-0.019	-0.019	0.00	No	100.00	Yes
374	x	-0.019	-0.019	0.00	No	100.00	Yes
375	x	-0.019	-0.019	0.00	No	100.00	Yes
376	x	-0.019	-0.019	0.00	No	100.00	Yes
381	x	-0.019	-0.019	0.00	No	100.00	Yes
382	x	-0.019	-0.019	0.00	No	100.00	Yes
383	x	-0.019	-0.019	0.00	No	100.00	Yes
Di 181	y	-0.005	-0.005	0.00	No	100.00	Yes
182	y	-0.006	-0.006	0.00	No	100.00	Yes
183	y	-0.006	-0.006	0.00	No	100.00	Yes
184	y	-0.005	-0.005	0.00	No	100.00	Yes

185	y	-0.005	-0.005	0.00	No	100.00	Yes
186	y	-0.005	-0.005	0.00	No	100.00	Yes
187	y	-0.005	-0.005	0.00	No	100.00	Yes
188	y	-0.002	-0.002	0.00	No	100.00	Yes
189	y	-0.002	-0.002	0.00	No	100.00	Yes
190	y	-0.002	-0.002	0.00	No	100.00	Yes
191	y	-0.002	-0.002	0.00	No	100.00	Yes
192	y	-0.003	-0.003	0.00	No	100.00	Yes
193	y	-0.003	-0.003	0.00	No	100.00	Yes
194	y	-0.003	-0.003	0.00	No	100.00	Yes
195	y	-0.003	-0.003	0.00	No	100.00	Yes
196	y	-0.005	-0.005	0.00	No	100.00	Yes
197	y	-0.006	-0.006	0.00	No	100.00	Yes
198	y	-0.006	-0.006	0.00	No	100.00	Yes
199	y	-0.006	-0.006	0.00	No	100.00	Yes
200	y	-0.006	-0.006	0.00	No	100.00	Yes
211	y	-0.006	-0.006	0.00	No	100.00	Yes
212	y	-0.006	-0.006	0.00	No	100.00	Yes
213	y	-0.006	-0.006	0.00	No	100.00	Yes
214	y	-0.006	-0.006	0.00	No	100.00	Yes
215	y	-0.017	-0.017	0.00	No	100.00	Yes
216	y	-0.017	-0.017	0.00	No	100.00	Yes
225	y	-0.005	-0.005	0.00	No	100.00	Yes
226	y	-0.006	-0.006	0.00	No	100.00	Yes
227	y	-0.006	-0.006	0.00	No	100.00	Yes
228	y	-0.005	-0.005	0.00	No	100.00	Yes
229	y	-0.005	-0.005	0.00	No	100.00	Yes
230	y	-0.005	-0.005	0.00	No	100.00	Yes
231	y	-0.005	-0.005	0.00	No	100.00	Yes
232	y	-0.002	-0.002	0.00	No	100.00	Yes
233	y	-0.002	-0.002	0.00	No	100.00	Yes
234	y	-0.002	-0.002	0.00	No	100.00	Yes
235	y	-0.002	-0.002	0.00	No	100.00	Yes
236	y	-0.003	-0.003	0.00	No	100.00	Yes
237	y	-0.003	-0.003	0.00	No	100.00	Yes
238	y	-0.003	-0.003	0.00	No	100.00	Yes
239	y	-0.003	-0.003	0.00	No	100.00	Yes
240	y	-0.005	-0.005	0.00	No	100.00	Yes
241	y	-0.006	-0.006	0.00	No	100.00	Yes
242	y	-0.006	-0.006	0.00	No	100.00	Yes
243	y	-0.006	-0.006	0.00	No	100.00	Yes
244	y	-0.006	-0.006	0.00	No	100.00	Yes
255	y	-0.006	-0.006	0.00	No	100.00	Yes
256	y	-0.006	-0.006	0.00	No	100.00	Yes
257	y	-0.006	-0.006	0.00	No	100.00	Yes
258	y	-0.006	-0.006	0.00	No	100.00	Yes
259	y	-0.017	-0.017	0.00	No	100.00	Yes
260	y	-0.017	-0.017	0.00	No	100.00	Yes
269	y	-0.005	-0.005	0.00	No	100.00	Yes
270	y	-0.006	-0.006	0.00	No	100.00	Yes
271	y	-0.006	-0.006	0.00	No	100.00	Yes
272	y	-0.005	-0.005	0.00	No	100.00	Yes
273	y	-0.005	-0.005	0.00	No	100.00	Yes
274	y	-0.005	-0.005	0.00	No	100.00	Yes
275	y	-0.005	-0.005	0.00	No	100.00	Yes
276	y	-0.002	-0.002	0.00	No	100.00	Yes
277	y	-0.002	-0.002	0.00	No	100.00	Yes
278	y	-0.002	-0.002	0.00	No	100.00	Yes
279	y	-0.002	-0.002	0.00	No	100.00	Yes
280	y	-0.003	-0.003	0.00	No	100.00	Yes

281	y	-0.003	-0.003	0.00	No	100.00	Yes
282	y	-0.003	-0.003	0.00	No	100.00	Yes
283	y	-0.003	-0.003	0.00	No	100.00	Yes
284	y	-0.005	-0.005	0.00	No	100.00	Yes
285	y	-0.006	-0.006	0.00	No	100.00	Yes
286	y	-0.006	-0.006	0.00	No	100.00	Yes
287	y	-0.006	-0.006	0.00	No	100.00	Yes
288	y	-0.006	-0.006	0.00	No	100.00	Yes
299	y	-0.006	-0.006	0.00	No	100.00	Yes
300	y	-0.006	-0.006	0.00	No	100.00	Yes
301	y	-0.006	-0.006	0.00	No	100.00	Yes
302	y	-0.006	-0.006	0.00	No	100.00	Yes
303	y	-0.017	-0.017	0.00	No	100.00	Yes
304	y	-0.017	-0.017	0.00	No	100.00	Yes
317	y	-0.005	-0.005	0.00	No	100.00	Yes
318	y	-0.005	-0.005	0.00	No	100.00	Yes
319	y	-0.005	-0.005	0.00	No	100.00	Yes
320	y	-0.005	-0.005	0.00	No	100.00	Yes
321	y	-0.005	-0.005	0.00	No	100.00	Yes
322	y	-0.005	-0.005	0.00	No	100.00	Yes
325	y	-0.006	-0.006	0.00	No	100.00	Yes
353	y	-0.006	-0.006	0.00	No	100.00	Yes
356	y	-0.006	-0.006	0.00	No	100.00	Yes
357	y	-0.006	-0.006	0.00	No	100.00	Yes
373	y	-0.006	-0.006	0.00	No	100.00	Yes
374	y	-0.006	-0.006	0.00	No	100.00	Yes
375	y	-0.006	-0.006	0.00	No	100.00	Yes
376	y	-0.006	-0.006	0.00	No	100.00	Yes
381	y	-0.006	-0.006	0.00	No	100.00	Yes
382	y	-0.006	-0.006	0.00	No	100.00	Yes
383	y	-0.006	-0.006	0.00	No	100.00	Yes

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
DL	317	y	-0.071	2.50	No
		y	-0.046	2.50	No
	318	y	-0.049	2.50	No
		y	-0.046	2.50	No
	319	y	-0.049	2.50	No
		y	-0.046	2.50	No
	320	y	-0.071	2.50	No
		y	-0.046	2.50	No
	321	y	-0.049	2.50	No
		y	-0.046	2.50	No
	322	y	-0.071	2.50	No
		y	-0.046	2.50	No
	325	y	-0.029	50.00	Yes
	353	y	-0.049	1.50	No

		y	-0.049	8.50	No
	356	y	-0.037	1.50	No
		y	-0.037	8.50	No
	357	y	-0.049	1.50	No
		y	-0.049	8.50	No
	373	y	-0.029	50.00	Yes
	374	y	-0.037	1.50	No
		y	-0.037	8.50	No
	375	y	-0.049	1.50	No
		y	-0.049	8.50	No
	376	y	-0.049	1.50	No
		y	-0.049	8.50	No
	381	y	-0.037	1.50	No
		y	-0.037	8.50	No
	382	y	-0.049	1.50	No
		y	-0.049	8.50	No
	383	y	-0.029	50.00	Yes
WO	317	z	-0.047	2.50	No
		z	-0.053	2.50	No
	318	z	-0.092	2.50	No
		z	-0.053	2.50	No
	319	z	-0.119	2.50	No
		z	-0.103	2.50	No
	320	z	-0.092	2.50	No
		z	-0.103	2.50	No
	321	z	-0.119	2.50	No
		z	-0.103	2.50	No
	322	z	-0.092	2.50	No
		z	-0.103	2.50	No
	325	z	-0.074	50.00	Yes
	353	z	-0.587	1.50	No
		z	-0.587	8.50	No
	356	z	-0.327	1.50	No
		z	-0.327	8.50	No
	357	z	-0.587	1.50	No
		z	-0.587	8.50	No
	373	z	-0.074	50.00	Yes
	374	z	-0.287	1.50	No
		z	-0.287	8.50	No
	375	z	-0.318	1.50	No
		z	-0.318	8.50	No
	376	z	-0.318	1.50	No
		z	-0.318	8.50	No
	381	z	-0.287	1.50	No
		z	-0.287	8.50	No
	382	z	-0.318	1.50	No
		z	-0.318	8.50	No
	383	z	-0.074	50.00	Yes
W30	317	x	-0.106	2.50	No
		x	-0.12	2.50	No
	318	x	-0.119	2.50	No
		x	-0.103	2.50	No
	319	x	-0.101	2.50	No
		x	-0.07	2.50	No
	320	x	-0.062	2.50	No
		x	-0.07	2.50	No
	321	x	-0.101	2.50	No
		x	-0.07	2.50	No
	322	x	-0.062	2.50	No
		x	-0.07	2.50	No

	325	x	-0.074	50.00	Yes
	353	x	-0.229	1.50	No
		x	-0.229	8.50	No
	356	x	-0.262	1.50	No
		x	-0.262	8.50	No
	357	x	-0.229	1.50	No
		x	-0.229	8.50	No
	373	x	-0.074	50.00	Yes
	374	x	-0.339	1.50	No
		x	-0.339	8.50	No
	375	x	-0.498	1.50	No
		x	-0.498	8.50	No
	376	x	-0.498	1.50	No
		x	-0.498	8.50	No
	381	x	-0.339	1.50	No
		x	-0.339	8.50	No
	382	x	-0.498	1.50	No
		x	-0.498	8.50	No
	383	x	-0.074	50.00	Yes
Di	317	y	-0.027	2.50	No
		y	-0.03	2.50	No
	318	y	-0.036	2.50	No
		y	-0.03	2.50	No
	319	y	-0.036	2.50	No
		y	-0.03	2.50	No
	320	y	-0.027	2.50	No
		y	-0.03	2.50	No
	321	y	-0.036	2.50	No
		y	-0.03	2.50	No
	322	y	-0.027	2.50	No
		y	-0.03	2.50	No
	325	y	-0.03	50.00	Yes
	353	y	-0.128	1.50	No
		y	-0.128	8.50	No
	356	y	-0.084	1.50	No
		y	-0.084	8.50	No
	357	y	-0.128	1.50	No
		y	-0.128	8.50	No
	373	y	-0.03	50.00	Yes
	374	y	-0.084	1.50	No
		y	-0.084	8.50	No
	375	y	-0.128	1.50	No
		y	-0.128	8.50	No
	376	y	-0.128	1.50	No
		y	-0.128	8.50	No
	381	y	-0.084	1.50	No
		y	-0.084	8.50	No
	382	y	-0.128	1.50	No
		y	-0.128	8.50	No
	383	y	-0.03	50.00	Yes
Wi0	317	z	-0.01	2.50	No
		z	-0.012	2.50	No
	318	z	-0.018	2.50	No
		z	-0.012	2.50	No
	319	z	-0.022	2.50	No
		z	-0.019	2.50	No
	320	z	-0.017	2.50	No
		z	-0.019	2.50	No
	321	z	-0.022	2.50	No
		z	-0.019	2.50	No

	322	z	-0.017	2.50	No
		z	-0.019	2.50	No
	325	z	-0.014	50.00	Yes
	353	z	-0.091	1.50	No
		z	-0.091	8.50	No
	356	z	-0.055	1.50	No
		z	-0.055	8.50	No
	357	z	-0.091	1.50	No
		z	-0.091	8.50	No
	373	z	-0.014	50.00	Yes
	374	z	-0.049	1.50	No
		z	-0.049	8.50	No
	375	z	-0.053	1.50	No
		z	-0.053	8.50	No
	376	z	-0.053	1.50	No
		z	-0.053	8.50	No
	381	z	-0.049	1.50	No
		z	-0.049	8.50	No
	382	z	-0.053	1.50	No
		z	-0.053	8.50	No
	383	z	-0.014	50.00	Yes
Wi30	317	x	-0.02	2.50	No
		x	-0.022	2.50	No
	318	x	-0.022	2.50	No
		x	-0.019	2.50	No
	319	x	-0.019	2.50	No
		x	-0.014	2.50	No
	320	x	-0.013	2.50	No
		x	-0.014	2.50	No
	321	x	-0.019	2.50	No
		x	-0.014	2.50	No
	322	x	-0.013	2.50	No
		x	-0.014	2.50	No
	325	x	-0.014	50.00	Yes
	353	x	-0.041	1.50	No
		x	-0.041	8.50	No
	356	x	-0.045	1.50	No
		x	-0.045	8.50	No
	357	x	-0.041	1.50	No
		x	-0.041	8.50	No
	373	x	-0.014	50.00	Yes
	374	x	-0.056	1.50	No
		x	-0.056	8.50	No
	375	x	-0.078	1.50	No
		x	-0.078	8.50	No
	376	x	-0.078	1.50	No
		x	-0.078	8.50	No
	381	x	-0.056	1.50	No
		x	-0.056	8.50	No
	382	x	-0.078	1.50	No
		x	-0.078	8.50	No
	383	x	-0.014	50.00	Yes
WLO	317	z	-0.002	2.50	No
		z	-0.003	2.50	No
	318	z	-0.005	2.50	No
		z	-0.003	2.50	No
	319	z	-0.006	2.50	No
		z	-0.005	2.50	No
	320	z	-0.005	2.50	No
		z	-0.005	2.50	No

	321	z	-0.006	2.50	No
		z	-0.005	2.50	No
	322	z	-0.005	2.50	No
		z	-0.005	2.50	No
	325	z	-0.004	50.00	Yes
	353	z	-0.029	1.50	No
		z	-0.029	8.50	No
	356	z	-0.016	1.50	No
		z	-0.016	8.50	No
	357	z	-0.029	1.50	No
		z	-0.029	8.50	No
	373	z	-0.004	50.00	Yes
	374	z	-0.014	1.50	No
		z	-0.014	8.50	No
	375	z	-0.016	1.50	No
		z	-0.016	8.50	No
	376	z	-0.016	1.50	No
		z	-0.016	8.50	No
	381	z	-0.014	1.50	No
		z	-0.014	8.50	No
	382	z	-0.016	1.50	No
		z	-0.016	8.50	No
	383	z	-0.004	50.00	Yes
WL30	317	x	-0.005	2.50	No
		x	-0.006	2.50	No
	318	x	-0.006	2.50	No
		x	-0.005	2.50	No
	319	x	-0.005	2.50	No
		x	-0.003	2.50	No
	320	x	-0.003	2.50	No
		x	-0.003	2.50	No
	321	x	-0.005	2.50	No
		x	-0.003	2.50	No
	322	x	-0.003	2.50	No
		x	-0.003	2.50	No
	325	x	-0.004	50.00	Yes
	353	x	-0.012	1.50	No
		x	-0.012	8.50	No
	356	x	-0.013	1.50	No
		x	-0.013	8.50	No
	357	x	-0.012	1.50	No
		x	-0.012	8.50	No
	373	x	-0.004	50.00	Yes
	374	x	-0.017	1.50	No
		x	-0.017	8.50	No
	375	x	-0.025	1.50	No
		x	-0.025	8.50	No
	376	x	-0.025	1.50	No
		x	-0.025	8.50	No
	381	x	-0.017	1.50	No
		x	-0.017	8.50	No
	382	x	-0.025	1.50	No
		x	-0.025	8.50	No
	383	x	-0.004	50.00	Yes
LL1	270	y	-0.25	50.00	Yes
LL2	270	y	-0.25	100.00	Yes
LLa1	353	y	-0.25	50.00	Yes
LLa2	356	y	-0.25	50.00	Yes
LLa4	357	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+W0+1.5LLa1
- LC18=1.2DL+W30+1.5LLa1
- LC19=1.2DL-W0+1.5LLa1
- LC20=1.2DL-W30+1.5LLa1
- LC21=1.2DL+W0+1.5LLa2
- LC22=1.2DL+W30+1.5LLa2
- LC23=1.2DL-W0+1.5LLa2
- LC24=1.2DL-W30+1.5LLa2
- LC25=1.2DL+W0+1.5LLa3
- LC26=1.2DL+W30+1.5LLa3
- LC27=1.2DL-W0+1.5LLa3
- LC28=1.2DL-W30+1.5LLa3
- LC29=1.2DL+W0+1.5LLa4
- LC30=1.2DL+W30+1.5LLa4
- LC31=1.2DL-W0+1.5LLa4
- LC32=1.2DL-W30+1.5LLa4

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	<i>PIPE 2-1_2x0.203</i>	182	LC4 at 73.61%	0.74	OK	Eq. H1-1b
		183	LC4 at 71.43%	0.57	OK	Eq. H1-1b
		226	LC4 at 70.83%	0.71	OK	Eq. H1-1b
		227	LC2 at 71.43%	0.68	OK	Eq. H1-1b
		270	LC1 at 74.31%	0.76	OK	Eq. H1-1b
		271	LC3 at 71.43%	0.81	OK	Eq. H1-1b
		325	LC2 at 33.33%	0.27	OK	Eq. H1-1b
		353	LC3 at 66.67%	0.70	OK	Eq. H1-1b
		356	LC3 at 33.33%	0.43	OK	Eq. H1-1b
		357	LC3 at 66.67%	0.70	OK	Eq. H1-1b
		373	LC4 at 66.67%	0.28	OK	Eq. H1-1b
		374	LC2 at 33.33%	0.43	OK	Eq. H1-1b
		375	LC4 at 66.67%	0.56	OK	Eq. H1-1b
		376	LC2 at 66.67%	0.43	OK	Eq. H1-1b
		381	LC1 at 66.67%	0.45	OK	Eq. H1-1b
		382	LC1 at 33.33%	0.43	OK	Eq. H1-1b
		383	LC1 at 33.33%	0.28	OK	Eq. H1-1b

PIPE 2x0.154

181	LC4 at 100.00%	0.66	OK	Eq. H1-1b
184	LC1 at 93.75%	0.36	OK	Eq. H1-1b
185	LC2 at 93.75%	0.32	OK	Eq. H1-1b
186	LC2 at 50.00%	0.26	OK	Eq. H1-1b
187	LC4 at 93.75%	0.40	OK	Eq. H1-1b
196	LC2 at 100.00%	0.36	OK	Eq. H1-1b
225	LC1 at 100.00%	0.31	OK	Eq. H1-1b
228	LC4 at 90.00%	0.71	OK	Eq. H1-1b
229	LC2 at 50.00%	0.30	OK	Eq. H1-1b
230	LC4 at 93.75%	0.31	OK	Eq. H1-1b
231	LC4 at 100.00%	0.48	OK	Eq. H1-1b
240	LC2 at 62.50%	0.36	OK	Eq. H1-1b
269	LC3 at 100.00%	0.48	OK	Eq. H1-1b
272	LC1 at 90.00%	0.44	OK	Eq. H1-1b
273	LC1 at 93.75%	0.33	OK	Eq. H1-1b
274	LC1 at 93.75%	0.33	OK	Eq. H1-1b
275	LC2 at 93.75%	0.48	OK	Eq. H1-1b
284	LC4 at 100.00%	0.33	OK	Eq. H1-1b
317	LC1 at 8.33%	0.19	OK	Eq. H1-1b
318	LC2 at 8.33%	0.17	OK	Eq. H1-1b
319	LC3 at 62.50%	0.14	OK	Eq. H1-1b
320	LC2 at 8.33%	0.21	OK	Eq. H1-1b
321	LC1 at 8.33%	0.17	OK	Eq. H1-1b
322	LC3 at 8.33%	0.21	OK	Eq. H1-1b

PL 11-1/4x5/8

215	LC9 at 100.00%	0.32	OK	Eq. H1-1b
216	LC9 at 100.00%	0.24	OK	Eq. H1-1b
259	LC11 at 100.00%	0.32	OK	Eq. H1-1b
260	LC10 at 100.00%	0.24	OK	Eq. H1-1b
303	LC12 at 100.00%	0.32	OK	Eq. H1-1b
304	LC12 at 100.00%	0.24	OK	Eq. H1-1b

PL 3-1/2x5/8

197	LC2 at 100.00%	0.64	OK	Eq. H1-1b
198	LC2 at 100.00%	0.57	OK	Eq. H1-1b
199	LC4 at 100.00%	0.84	OK	Eq. H1-1b
200	LC4 at 100.00%	0.36	OK	Eq. H1-1b
211	LC2 at 100.00%	0.72	OK	Eq. H1-1b
212	LC3 at 0.00%	0.70	OK	Eq. H1-1b
213	LC2 at 100.00%	0.57	OK	Eq. H1-1b
214	LC3 at 0.00%	0.58	OK	Eq. H1-1b
241	LC3 at 100.00%	0.58	OK	Eq. H1-1b
242	LC4 at 100.00%	0.66	OK	Eq. H1-1b
243	LC1 at 100.00%	0.60	OK	Eq. H1-1b
244	LC2 at 100.00%	0.43	OK	Eq. H1-1b
255	LC3 at 100.00%	0.65	OK	Eq. H1-1b
256	LC4 at 0.00%	0.75	OK	Eq. H1-1b
257	LC3 at 100.00%	0.55	OK	Eq. H1-1b
258	LC4 at 0.00%	0.61	OK	Eq. H1-1b
285	LC1 at 100.00%	0.44	OK	Eq. H1-1b
286	LC1 at 100.00%	0.59	OK	Eq. H1-1b
287	LC3 at 100.00%	0.81	OK	Eq. H1-1b
288	LC3 at 100.00%	0.47	OK	Eq. H1-1b
299	LC1 at 100.00%	0.43	OK	Eq. H1-1b
300	LC11 at 0.00%	0.48	OK	Eq. H1-1b
301	LC1 at 100.00%	0.46	OK	Eq. H1-1b
302	LC9 at 0.00%	0.54	OK	Eq. H1-1b

RndBar 3_4

192	LC2 at 0.00%	0.20	OK	Eq. H1-1b
193	LC10 at 0.00%	0.19	OK	Eq. H1-1b
194	LC2 at 46.88%	0.16	With warnings	Eq. H1-1b
195	LC10 at 100.00%	0.16	OK	Eq. H1-1b
236	LC3 at 0.00%	0.21	OK	Eq. H1-1b
237	LC12 at 0.00%	0.19	OK	Eq. H1-1b

238	LC2 at 100.00%	0.16	OK	Eq. H1-1b
239	LC11 at 100.00%	0.16	OK	Eq. H1-1b
280	LC1 at 0.00%	0.18	OK	Eq. H1-1b
281	LC9 at 0.00%	0.20	OK	Eq. H1-1b
282	LC2 at 100.00%	0.16	OK	Eq. H1-1b
283	LC9 at 100.00%	0.16	OK	Eq. H1-1b

RndBar 5_8

188	LC2 at 87.50%	0.87	OK	Eq. H1-1a
189	LC10 at 87.50%	0.47	OK	Eq. H1-1a
190	LC11 at 87.50%	0.53	OK	Eq. H1-1a
191	LC2 at 18.75%	0.83	OK	Eq. H1-1a
232	LC3 at 87.50%	0.77	OK	Eq. H1-1a
233	LC11 at 87.50%	0.46	OK	Eq. H1-1a
234	LC12 at 87.50%	0.53	OK	Eq. H1-1a
235	LC4 at 50.00%	0.85	OK	Eq. H1-1a
276	LC1 at 50.00%	0.72	OK	Eq. H1-1a
277	LC12 at 87.50%	0.46	OK	Eq. H1-1a
278	LC10 at 87.50%	0.53	OK	Eq. H1-1a
279	LC1 at 62.50%	0.95	OK	Eq. H1-1a



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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
290	1.0392	0.00	-0.60	0
291	1.7716	0.00	-0.2882	0
292	1.0392	-3.3333	-0.60	0
293	1.7716	-3.3333	-0.2882	0
294	1.1354	-3.3333	-1.3901	0
295	1.1354	0.00	-1.3901	0
300	1.869	0.00	-4.4229	0
302	6.3169	0.00	3.2812	0
303	0.3169	0.00	-7.1112	0
304	6.3169	-3.3333	3.2812	0
305	0.3169	-3.3333	-7.1112	0
306	4.1832	0.00	0.3707	0
307	4.1832	-3.3333	0.3707	0
308	1.7706	-3.3333	-3.8081	0
309	1.7706	0.00	-3.8081	0
310	4.0079	0.00	0.3228	0
311	4.0079	-3.3333	0.3228	0
312	1.9468	0.00	-0.2404	0
313	1.9468	-3.3333	-0.2404	0
314	1.1816	0.00	-1.5658	0
315	1.1816	-3.3333	-1.5658	0

316	1.7244	0.00	-3.6324	0
318	4.7648	0.00	0.5929	0
324	4.5565	0.00	0.232	0
325	2.0773	0.00	-4.062	0
326	2.0773	-3.3333	-4.062	0
327	4.5565	-3.3333	0.232	0
346	1.4535	0.00	-0.8392	0
347	1.4535	-3.3333	-0.8392	0
356	-1.0392	0.00	-0.60	0
357	-1.1354	0.00	-1.3901	0
358	-1.0392	-3.3333	-0.60	0
359	-1.1354	-3.3333	-1.3901	0
360	-1.7716	-3.3333	-0.2882	0
361	-1.7716	0.00	-0.2882	0
366	-4.7648	0.00	0.5929	0
368	-0.3169	0.00	-7.1112	0
369	-6.3169	0.00	3.2812	0
370	-0.3169	-3.3333	-7.1112	0
371	-6.3169	-3.3333	3.2812	0
372	-1.7706	0.00	-3.8081	0
373	-1.7706	-3.3333	-3.8081	0
374	-4.1832	-3.3333	0.3707	0
375	-4.1832	0.00	0.3707	0
376	-1.7244	0.00	-3.6324	0
377	-1.7244	-3.3333	-3.6324	0
378	-1.1816	0.00	-1.5658	0
379	-1.1816	-3.3333	-1.5658	0
380	-1.9468	0.00	-0.2404	0
381	-1.9468	-3.3333	-0.2404	0
382	-4.0079	0.00	0.3228	0
383	-4.0079	-3.3333	0.3228	0
384	-1.869	0.00	-4.4229	0
390	-2.0773	0.00	-4.062	0
391	-4.5565	0.00	0.232	0
392	-4.5565	-3.3333	0.232	0
393	-2.0773	-3.3333	-4.062	0
412	-1.4535	0.00	-0.8392	0
413	-1.4535	-3.3333	-0.8392	0
422	0.00	0.00	1.20	0
423	-0.6362	0.00	1.6783	0
424	0.00	-3.3333	1.20	0
425	-0.6362	-3.3333	1.6783	0
426	0.6362	-3.3333	1.6783	0
427	0.6362	0.00	1.6783	0
432	2.8958	0.00	3.83	0
434	-6.00	0.00	3.83	0
435	6.00	0.00	3.83	0
436	-6.00	-3.3333	3.83	0
437	6.00	-3.3333	3.83	0
438	-2.4126	0.00	3.4374	0
439	-2.4126	-3.3333	3.4374	0
440	2.4126	-3.3333	3.4374	0
441	2.4126	0.00	3.4374	0
442	-2.2835	0.00	3.3096	0
443	-2.2835	-3.3333	3.3096	0
444	-0.7653	0.00	1.8062	0
445	-0.7653	-3.3333	1.8062	0
446	0.7653	0.00	1.8062	0
447	0.7653	-3.3333	1.8062	0
448	2.2835	0.00	3.3096	0

449	2.2835	-3.3333	3.3096	0
450	-2.8958	0.00	3.83	0
456	-2.4792	0.00	3.83	0
457	2.4792	0.00	3.83	0
458	2.4792	-3.3333	3.83	0
459	-2.4792	-3.3333	3.83	0
478	0.00	0.00	1.6783	0
479	0.00	-3.3333	1.6783	0
492	1.7303	-3.6667	2.4804	0
511	2.8774	-3.6667	0.2144	0
512	1.2798	-3.6667	-2.699	0
515	-1.6658	-3.6667	2.4165	0
516	2.8774	0.3333	0.2144	0
517	1.2798	0.3333	-2.699	0
518	-1.2798	0.3333	-2.699	0
519	-2.8774	0.3333	0.2144	0
520	-1.6658	0.3333	2.4165	0
521	1.7303	0.3333	2.4804	0
531	-0.8343	0.00	1.8745	0
541	-2.0405	0.00	-0.2148	0
542	-1.2062	0.00	-1.6597	0
543	1.2062	0.00	-1.6597	0
544	2.0405	0.00	-0.2148	0
563	0.8401	0.00	1.8803	0
568	-1.65	-6.6667	4.03	0
569	-1.65	3.3333	4.03	0
580	0.00	0.00	0.00	0
581	0.00	-3.3333	0.00	0
582	0.00	-1.6667	0.00	0
622	5.00	3.3333	4.03	0
627	5.00	-6.6667	4.03	0
632	2.00	-6.6667	4.03	0
633	2.00	3.3333	4.03	0
634	-4.00	-6.6667	4.03	0
635	-4.00	3.3333	4.03	0
648	0.9901	-6.6667	-6.3451	0
649	-5.9901	-6.6667	2.3151	0
658	2.4901	-6.6667	-3.7471	0
659	-4.4901	-6.6667	-0.2829	0
660	2.4901	3.3333	-3.7471	0
661	-4.4901	3.3333	-0.2829	0
662	0.9901	3.3333	-6.3451	0
663	-5.9901	3.3333	2.3151	0
672	4.3151	3.3333	-0.5861	0
673	-2.6651	3.3333	-3.4439	0
674	4.3151	-6.6667	-0.5861	0
675	5.4901	-6.6667	1.4491	0
676	-1.4901	-6.6667	-5.4791	0
685	5.4901	3.3333	1.4491	0
686	-1.4901	3.3333	-5.4791	0
687	-2.6651	-6.6667	-3.4439	0
317	1.7244	-3.3333	-3.6324	0
514	-2.8774	-3.6667	0.2144	0
513	-1.2798	-3.6667	-2.699	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
290	1	1	1	1	0	1
292	1	1	1	1	0	1
356	1	1	1	1	0	1
358	1	1	1	1	0	1
422	1	1	1	1	0	1
424	1	1	1	1	0	1
580	1	1	1	1	0	1
581	1	1	1	1	0	1

Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	Ig factor
181	300	542		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
182	302	303		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
183	304	305		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
184	306	291		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
185	307	293		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
186	308	294		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
187	309	295		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
188	310	311		RndBar 5_8	A36	0.00	0.00	0.00
189	312	313		RndBar 5_8	A36	0.00	0.00	0.00
190	314	315		RndBar 5_8	A36	0.00	0.00	0.00
191	316	317		RndBar 5_8	A36	0.00	0.00	0.00
192	314	317		RndBar 3_4	A36	0.00	0.00	0.00
193	315	316		RndBar 3_4	A36	0.00	0.00	0.00
194	311	312		RndBar 3_4	A36	0.00	0.00	0.00
195	310	313		RndBar 3_4	A36	0.00	0.00	0.00
196	318	563		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
197	306	324		PL 3-1/2x5/8	A36	0.00	0.00	0.00
198	309	325		PL 3-1/2x5/8	A36	0.00	0.00	0.00
199	308	326		PL 3-1/2x5/8	A36	0.00	0.00	0.00
200	307	327		PL 3-1/2x5/8	A36	0.00	0.00	0.00
211	291	346		PL 3-1/2x5/8	A36	0.00	0.00	0.00
212	346	295		PL 3-1/2x5/8	A36	0.00	0.00	0.00
213	293	347		PL 3-1/2x5/8	A36	0.00	0.00	0.00
214	347	294		PL 3-1/2x5/8	A36	0.00	0.00	0.00
215	346	290		PL 11-1/4x5/8	A36	11.25	9.25	0.00
216	347	292		PL 11-1/4x5/8	A36	11.25	9.25	0.00
225	366	531		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
226	368	369		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
227	370	371		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
228	372	357		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
229	373	359		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
230	374	360		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
231	375	361		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
232	376	377		RndBar 5_8	A36	0.00	0.00	0.00
233	378	379		RndBar 5_8	A36	0.00	0.00	0.00
234	380	381		RndBar 5_8	A36	0.00	0.00	0.00
235	382	383		RndBar 5_8	A36	0.00	0.00	0.00
236	380	383		RndBar 3_4	A36	0.00	0.00	0.00
237	381	382		RndBar 3_4	A36	0.00	0.00	0.00
238	377	378		RndBar 3_4	A36	0.00	0.00	0.00
239	376	379		RndBar 3_4	A36	0.00	0.00	0.00
240	384	543		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
241	372	390		PL 3-1/2x5/8	A36	0.00	0.00	0.00

242	375	391	PL 3-1/2x5/8	A36	0.00	0.00	0.00
243	374	392	PL 3-1/2x5/8	A36	0.00	0.00	0.00
244	373	393	PL 3-1/2x5/8	A36	0.00	0.00	0.00
255	357	412	PL 3-1/2x5/8	A36	0.00	0.00	0.00
256	412	361	PL 3-1/2x5/8	A36	0.00	0.00	0.00
257	359	413	PL 3-1/2x5/8	A36	0.00	0.00	0.00
258	413	360	PL 3-1/2x5/8	A36	0.00	0.00	0.00
259	412	356	PL 11-1/4x5/8	A36	11.25	9.25	0.00
260	413	358	PL 11-1/4x5/8	A36	11.25	9.25	0.00
269	432	544	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
270	434	435	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
271	436	437	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
272	438	423	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
273	439	425	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
274	440	426	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
275	441	427	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
276	442	443	RndBar 5_8	A36	0.00	0.00	0.00
277	444	445	RndBar 5_8	A36	0.00	0.00	0.00
278	446	447	RndBar 5_8	A36	0.00	0.00	0.00
279	448	449	RndBar 5_8	A36	0.00	0.00	0.00
280	446	449	RndBar 3_4	A36	0.00	0.00	0.00
281	447	448	RndBar 3_4	A36	0.00	0.00	0.00
282	443	444	RndBar 3_4	A36	0.00	0.00	0.00
283	442	445	RndBar 3_4	A36	0.00	0.00	0.00
284	450	541	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
285	438	456	PL 3-1/2x5/8	A36	0.00	0.00	0.00
286	441	457	PL 3-1/2x5/8	A36	0.00	0.00	0.00
287	440	458	PL 3-1/2x5/8	A36	0.00	0.00	0.00
288	439	459	PL 3-1/2x5/8	A36	0.00	0.00	0.00
299	423	478	PL 3-1/2x5/8	A36	0.00	0.00	0.00
300	478	427	PL 3-1/2x5/8	A36	0.00	0.00	0.00
301	425	479	PL 3-1/2x5/8	A36	0.00	0.00	0.00
302	479	426	PL 3-1/2x5/8	A36	0.00	0.00	0.00
303	478	422	PL 11-1/4x5/8	A36	11.25	9.25	0.00
304	479	424	PL 11-1/4x5/8	A36	11.25	9.25	0.00
317	521	492	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
318	520	515	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
319	516	511	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
320	517	512	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
321	518	513	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
322	519	514	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
325	569	568	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
353	622	627	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
356	633	632	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
357	635	634	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
373	674	672	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
374	660	658	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
375	648	662	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
376	686	676	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
381	659	661	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
382	663	649	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
383	673	687	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00

Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
188	0.00	2	0.866	0.00	-0.50
189	0.00	2	0.866	0.00	-0.50
190	0.00	2	0.866	0.00	-0.50
191	0.00	2	0.866	0.00	-0.50
197	90.00	0	0.00	0.00	0.00
198	90.00	0	0.00	0.00	0.00
199	90.00	0	0.00	0.00	0.00
200	90.00	0	0.00	0.00	0.00
211	90.00	0	0.00	0.00	0.00
212	90.00	0	0.00	0.00	0.00
213	90.00	0	0.00	0.00	0.00
214	90.00	0	0.00	0.00	0.00
215	90.00	0	0.00	0.00	0.00
216	90.00	0	0.00	0.00	0.00
232	0.00	2	-0.866	0.00	-0.50
233	0.00	2	-0.866	0.00	-0.50
234	0.00	2	-0.866	0.00	-0.50
235	0.00	2	-0.866	0.00	-0.50
241	90.00	0	0.00	0.00	0.00
242	90.00	0	0.00	0.00	0.00
243	90.00	0	0.00	0.00	0.00
244	90.00	0	0.00	0.00	0.00
255	90.00	0	0.00	0.00	0.00
256	90.00	0	0.00	0.00	0.00
257	90.00	0	0.00	0.00	0.00
258	90.00	0	0.00	0.00	0.00
259	90.00	0	0.00	0.00	0.00
260	90.00	0	0.00	0.00	0.00
276	0.00	2	0.00	0.00	1.00
277	0.00	2	0.00	0.00	1.00
278	0.00	2	0.00	0.00	1.00
279	0.00	2	0.00	0.00	1.00
285	90.00	0	0.00	0.00	0.00
286	90.00	0	0.00	0.00	0.00
287	90.00	0	0.00	0.00	0.00
288	90.00	0	0.00	0.00	0.00
299	90.00	0	0.00	0.00	0.00
300	90.00	0	0.00	0.00	0.00
301	90.00	0	0.00	0.00	0.00
302	90.00	0	0.00	0.00	0.00
303	90.00	0	0.00	0.00	0.00
304	90.00	0	0.00	0.00	0.00
325	315.00	0	0.00	0.00	0.00
353	315.00	0	0.00	0.00	0.00
356	315.00	0	0.00	0.00	0.00
357	315.00	0	0.00	0.00	0.00

Rigid end offsets

Member	DJX [in]	DJY [in]	DJZ [in]	DKX [in]	DKY [in]	DKZ [in]
181	0.00	-2.00	0.00	0.00	-2.00	0.00
192	0.00	-3.50	0.00	0.00	3.50	0.00
193	0.00	3.50	0.00	0.00	-3.50	0.00
194	0.00	3.50	0.00	0.00	-3.50	0.00
195	0.00	-3.50	0.00	0.00	3.50	0.00

196	0.00	2.00	0.00	0.00	2.00	0.00
215	0.00	-0.625	0.00	0.00	-0.625	0.00
216	0.00	-0.625	0.00	0.00	-0.625	0.00
225	0.00	-2.00	0.00	0.00	-2.00	0.00
236	0.00	-3.50	0.00	0.00	3.50	0.00
237	0.00	3.50	0.00	0.00	-3.50	0.00
238	0.00	3.50	0.00	0.00	-3.50	0.00
239	0.00	-3.50	0.00	0.00	3.50	0.00
240	0.00	2.00	0.00	0.00	2.00	0.00
259	0.00	-0.625	0.00	0.00	-0.625	0.00
260	0.00	-0.625	0.00	0.00	-0.625	0.00
269	0.00	-2.00	0.00	0.00	-2.00	0.00
280	0.00	-3.50	0.00	0.00	3.50	0.00
281	0.00	3.50	0.00	0.00	-3.50	0.00
282	0.00	3.50	0.00	0.00	-3.50	0.00
283	0.00	-3.50	0.00	0.00	3.50	0.00
284	0.00	2.00	0.00	0.00	2.00	0.00
303	0.00	-0.625	0.00	0.00	-0.625	0.00
304	0.00	-0.625	0.00	0.00	-0.625	0.00

Hinges

Member	Node-J				Node-K				TOR	AXL	Axial rigidity
	M33	M22	V3	V2	M33	M22	V3	V2			
181	1	1	0	0	0	0	0	0	0	0	Full
193	0	0	0	0	0	0	0	0	0	0	Tension only
195	0	0	0	0	0	0	0	0	0	0	Tension only
196	1	1	0	0	0	0	0	0	0	0	Full
197	1	1	0	0	0	0	0	0	0	0	Full
198	1	1	0	0	0	0	0	0	0	0	Full
199	1	1	0	0	0	0	0	0	0	0	Full
200	1	1	0	0	0	0	0	0	0	0	Full
225	1	1	0	0	0	0	0	0	0	0	Full
237	0	0	0	0	0	0	0	0	0	0	Tension only
239	0	0	0	0	0	0	0	0	0	0	Tension only
240	1	1	0	0	0	0	0	0	0	0	Full
241	1	1	0	0	0	0	0	0	0	0	Full
242	1	1	0	0	0	0	0	0	0	0	Full
243	1	1	0	0	0	0	0	0	0	0	Full
244	1	1	0	0	0	0	0	0	0	0	Full
269	1	1	0	0	0	0	0	0	0	0	Full
281	0	0	0	0	0	0	0	0	0	0	Tension only
283	0	0	0	0	0	0	0	0	0	0	Tension only
284	1	1	0	0	0	0	0	0	0	0	Full
285	1	1	0	0	0	0	0	0	0	0	Full
286	1	1	0	0	0	0	0	0	0	0	Full
287	1	1	0	0	0	0	0	0	0	0	Full
288	1	1	0	0	0	0	0	0	0	0	Full

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 135 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 1.13 in was used for this analysis.
- HDG considers this site to be exposure category D; tower is located on flat, unobstructed, shorelines.
- HDG considers this site to be topographic category 1; tower is located on flat terrain or the bottom of a hill or ridge.
- 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 3.
- The mount has been analyzed with load combinations consisting of a 250 lbs live load in a worst case location on the mount.

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

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
Existing (LTE-3C-4C-5C) Mount Rating	279	LC1	95%	PASS

Reference Documents:

- Fabrication drawings prepared by SitePro1 P/N VFA12- M3- WLL, dated May 3, 2018.

This determination was based on the following limitations and assumptions:

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

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

Respectfully Submitted,
Hudson Design Group LLC



Michael Cabral
Vice President



Daniel P. Hamm, PE
Principal



HUDSON
Design Group LLC

Wind & Ice Calculations

Date: 6/4/2020
 Project Name: WESTBROOK SOUTH
 Project No.: CT5210
 Designed By: KM Checked By: MSC



HUDSON
 Design Group LLC

2.6.5.2 Velocity Pressure Coeff:

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

K_z = 1.468

z = 115 (ft)
 z_g = 700 (ft)
 α = 11.5

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

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_{zt} = #DIV/0!

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

Category = 1

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

K_h = #DIV/0!
 K_c = 1.1 (from Table 2-4)
 K_t = 0 (from Table 2-5)
 f = 0 (from Table 2-5)
 z = 115
 z_s = 50 (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)

2.6.10 Design Ice Thickness

Max Ice Thickness =
 Importance Factor =

t_i = 1.00 in
 I = 1.0 (from Table 2-3)
 K_{iz} = 1.13 (from Sec. 2.6.10)

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

t_{iz} = 1.13 in

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 Designed By: KM 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

$h = 150$ $G_h = 0.85$

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

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

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

$q_z =$	64.96
$q_{z(ice)} =$	8.91
$q_{z(30)} =$	3.21

$K_z =$	1.468 (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)
$K_d =$	0.95 (from Table 2-2)
$V_{max} =$	135 mph (Ultimate Wind Speed)
$V_{max(ice)} =$	50 mph
$V_{30} =$	30 mph

Table 2-2

Structure Type	Wind Direction Probability Factor, Kd
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

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 Designed By: KM 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 = **1.13 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)
EPBQ-654L8H8-L2 Antenna	96.0	21.0	6.3	14.00	4.57	1.29	1173	182	58
HPA65R-BU8AA Antenna	96.0	11.7	7.6	7.80	8.21	1.29	654	110	32
4426 B66 RRH	14.9	13.2	5.8	1.37	1.13	1.20	106	20	5
4426 B66 RRH (Side)	14.9	5.8	13.2	0.60	2.57	1.20	47	10	2
4415 B30 RRH	16.5	13.4	5.9	1.54	1.23	1.20	120	22	6
4415 B30 RRH (Side)	16.5	5.9	13.4	0.68	2.80	1.21	53	12	3
4449 B5/B12 RRH	17.9	13.2	9.5	1.64	1.36	1.20	128	23	6
4449 B5/B12 RRH (Side)	17.9	9.5	13.2	1.18	1.88	1.20	92	18	5
4415 B25 RRH	16.5	13.4	5.9	1.54	1.23	1.20	120	22	6
4415 B25 RRH (Side)	16.5	5.9	13.4	0.68	2.80	1.21	53	12	3
Surge Arrestor	24.0	9.7	9.7	1.62	2.47	0.70	74	14	4
PL 3-1/2x5/8	3.5	0.6	-	0.02	5.60	1.20	1		
PL 11-1/4x5/8	11.3	0.5	-	0.04	22.50	1.20	3		
5/8" Round Bar	0.6	12.0	-	0.05	0.05	1.20	4		
3/4" Round Bar	0.8	12.0	-	0.06	0.06	1.20	5		
2" Pipe	2.4	12.0	-	0.20	0.20	1.20	15		
2-1/2" Pipe	2.9	12.0	-	0.24	0.24	1.20	19		
2-1/2"x2-1/2" Angle	2.5	12.0	-	0.21	0.21	1.20	16		

Date: 6/4/2020
 Project Name: WESTBROOK SOUTH
 Project No.: CT5210
 Designed By: KM Checked By: MSC



WIND LOADS

Angle = 30 (deg)

Ice Thickness = 1.13 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)
EPBQ-654L8H8-L2 Antenna	96.0	21.0	6.3	14.00	4.20	4.57	15.24	1.29	1.67	1175	457	995
HPA65R-BU8AA Antenna	96.0	11.7	7.6	7.80	5.07	8.21	12.63	1.44	1.59	730	523	678
4426 B66 RRH	14.9	13.2	5.8	1.37	0.60	1.13	2.57	1.20	1.20	106	47	92
4426 B66 RRH (Side)	14.9	5.8	13.2	0.60	1.37	2.57	1.13	1.20	1.20	47	106	62
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	120	53	103
4415 B30 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	53	120	70
4449 B5/B12 RRH	17.9	13.2	9.5	1.64	1.18	1.36	1.88	1.20	1.20	128	92	119
4449 B5/B12 RRH (Side)	17.9	9.5	13.2	1.18	1.64	1.88	1.36	1.20	1.20	92	128	101
4415 B25 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	120	53	103
4415 B25 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	53	120	70

WIND LOADS WITH ICE:

EPBQ-654L8H8-L2 Antenna	98.3	23.3	8.6	15.88	5.85	4.22	11.47	1.28	1.55	181	81	156
HPA65R-BU8AA Antenna	98.3	14.0	9.9	9.53	6.73	7.04	9.96	1.40	1.50	119	90	112
4426 B66 RRH	17.2	15.5	8.1	1.84	0.96	1.11	2.13	1.20	1.20	20	10	17
4426 B66 RRH (Side)	17.2	8.1	15.5	0.96	1.84	2.13	1.11	1.20	1.20	10	20	13
4415 B30 RRH	18.8	15.7	8.2	2.04	1.06	1.20	2.30	1.20	1.20	22	11	19
4415 B30 RRH (Side)	18.8	8.2	15.7	1.06	2.04	2.30	1.20	1.20	1.20	11	22	14
4449 B5/B12 RRH	20.2	15.5	11.8	2.17	1.65	1.30	1.71	1.20	1.20	23	18	22
4449 B5/B12 RRH (Side)	20.2	11.8	15.5	1.65	2.17	1.71	1.30	1.20	1.20	18	23	19
4415 B25 RRH	18.8	15.7	8.2	2.04	1.06	1.20	2.30	1.20	1.20	22	11	19
4415 B25 RRH (Side)	18.8	8.2	15.7	1.06	2.04	2.30	1.20	1.20	1.20	11	22	14

WIND LOADS AT 30 MPH:

EPBQ-654L8H8-L2 Antenna	96.0	21.0	6.3	14.00	4.20	4.57	15.24	1.29	1.67	58	23	49
HPA65R-BU8AA Antenna	96.0	11.7	7.6	7.80	5.07	8.21	12.63	1.44	1.59	36	26	33
4426 B66 RRH	14.9	13.2	5.8	1.37	0.60	1.13	2.57	1.20	1.20	5	2	5
4426 B66 RRH (Side)	14.9	5.8	13.2	0.60	1.37	2.57	1.13	1.20	1.20	2	5	3
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	6	3	5
4415 B30 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	3	6	3
4449 B5/B12 RRH	17.9	13.2	9.5	1.64	1.18	1.36	1.88	1.20	1.20	6	5	6
4449 B5/B12 RRH (Side)	17.9	9.5	13.2	1.18	1.64	1.88	1.36	1.20	1.20	5	6	5
4415 B25 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	6	3	5
4415 B25 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	3	6	3

Date: 6/4/2020
 Project Name: WESTBROOK SOUTH
 Project No.: CT5210
 Designed By: KM Checked By: MSC



WIND LOADS

Angle = 60 (deg) Ice Thickness = 1.13 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)
EPBQ-654L8H8-L2 Antenna	96.0	21.0	6.3	14.00	4.20	4.57	15.24	1.29	1.67	1175	457	636
HPA65R-BU8AA Antenna	96.0	11.7	7.6	7.80	5.07	8.21	12.63	1.44	1.59	730	523	574
4426 B66 RRH	14.9	13.2	5.8	1.37	0.60	1.13	2.57	1.20	1.20	106	47	62
4426 B66 RRH (Side)	14.9	5.8	13.2	0.60	1.37	2.57	1.13	1.20	1.20	47	106	92
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	120	53	70
4415 B30 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	53	120	103
4449 B5/B12 RRH	17.9	13.2	9.5	1.64	1.18	1.36	1.88	1.20	1.20	128	92	101
4449 B5/B12 RRH (Side)	17.9	9.5	13.2	1.18	1.64	1.88	1.36	1.20	1.20	92	128	119
4415 B25 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	120	53	70
4415 B25 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	53	120	103

WIND LOADS WITH ICE:

EPBQ-654L8H8-L2 Antenna	98.3	23.3	8.6	15.88	5.85	4.22	11.47	1.28	1.55	181	81	106
HPA65R-BU8AA Antenna	98.3	14.0	9.9	9.53	6.73	7.04	9.96	1.40	1.50	119	90	97
4426 B66 RRH	17.2	15.5	8.1	1.84	0.96	1.11	2.13	1.20	1.20	20	10	13
4426 B66 RRH (Side)	17.2	8.1	15.5	0.96	1.84	2.13	1.11	1.20	1.20	10	20	17
4415 B30 RRH	18.8	15.7	8.2	2.04	1.06	1.20	2.30	1.20	1.20	22	11	14
4415 B30 RRH (Side)	18.8	8.2	15.7	1.06	2.04	2.30	1.20	1.20	1.20	11	22	19
4449 B5/B12 RRH	20.2	15.5	11.8	2.17	1.65	1.30	1.71	1.20	1.20	23	18	19
4449 B5/B12 RRH (Side)	20.2	11.8	15.5	1.65	2.17	1.71	1.30	1.20	1.20	18	23	22
4415 B25 RRH	18.8	15.7	8.2	2.04	1.06	1.20	2.30	1.20	1.20	22	11	14
4415 B25 RRH (Side)	18.8	8.2	15.7	1.06	2.04	2.30	1.20	1.20	1.20	11	22	19

WIND LOADS AT 30 MPH:

EPBQ-654L8H8-L2 Antenna	96.0	21.0	6.3	14.00	4.20	4.57	15.24	1.29	1.67	58	23	31
HPA65R-BU8AA Antenna	96.0	11.7	7.6	7.80	5.07	8.21	12.63	1.44	1.59	36	26	28
4426 B66 RRH	14.9	13.2	5.8	1.37	0.60	1.13	2.57	1.20	1.20	5	2	3
4426 B66 RRH (Side)	14.9	5.8	13.2	0.60	1.37	2.57	1.13	1.20	1.20	2	5	5
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	6	3	3
4415 B30 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	3	6	5
4449 B5/B12 RRH	17.9	13.2	9.5	1.64	1.18	1.36	1.88	1.20	1.20	6	5	5
4449 B5/B12 RRH (Side)	17.9	9.5	13.2	1.18	1.64	1.88	1.36	1.20	1.20	5	6	6
4415 B25 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	6	3	3
4415 B25 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	3	6	5

Date: 6/4/2020
 Project Name: WESTBROOK SOUTH
 Project No.: CT5210
 Designed By: KM Checked By: MSC



WIND LOADS

Angle = 90 (deg) Ice Thickness = 1.13 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)
EPBQ-654L8H8-L2 Antenna	96.0	21.0	6.3	14.00	4.20	4.57	15.24	1.29	1.67	1175	457	457
HPA65R-BU8AA Antenna	96.0	11.7	7.6	7.80	5.07	8.21	12.63	1.44	1.59	730	523	523
4426 B66 RRH	14.9	13.2	5.8	1.37	0.60	1.13	2.57	1.20	1.20	106	47	47
4426 B66 RRH (Side)	14.9	5.8	13.2	0.60	1.37	2.57	1.13	1.20	1.20	47	106	106
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	120	53	53
4415 B30 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	53	120	120
4449 B5/B12 RRH	17.9	13.2	9.5	1.64	1.18	1.36	1.88	1.20	1.20	128	92	101
4449 B5/B12 RRH (Side)	17.9	9.5	13.2	1.18	1.64	1.88	1.36	1.20	1.20	92	128	119
4415 B25 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	120	53	70
4415 B25 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	53	120	103

WIND LOADS WITH ICE:

EPBQ-654L8H8-L2 Antenna	98.3	23.3	8.6	15.88	5.85	4.22	11.47	1.28	1.55	181	81	81
HPA65R-BU8AA Antenna	98.3	14.0	9.9	9.53	6.73	7.04	9.96	1.40	1.50	119	90	90
4426 B66 RRH	17.2	15.5	8.1	1.84	0.96	1.11	2.13	1.20	1.20	20	10	10
4426 B66 RRH (Side)	17.2	8.1	15.5	0.96	1.84	2.13	1.11	1.20	1.20	10	20	20
4415 B30 RRH	18.8	15.7	8.2	2.04	1.06	1.20	2.30	1.20	1.20	22	11	11
4415 B30 RRH (Side)	18.8	8.2	15.7	1.06	2.04	2.30	1.20	1.20	1.20	11	22	22
4449 B5/B12 RRH	20.2	15.5	11.8	2.17	1.65	1.30	1.71	1.20	1.20	23	18	19
4449 B5/B12 RRH (Side)	20.2	11.8	15.5	1.65	2.17	1.71	1.30	1.20	1.20	18	23	22
4415 B25 RRH	18.8	15.7	8.2	2.04	1.06	1.20	2.30	1.20	1.20	22	11	14
4415 B25 RRH (Side)	18.8	8.2	15.7	1.06	2.04	2.30	1.20	1.20	1.20	11	22	19

WIND LOADS AT 30 MPH:

EPBQ-654L8H8-L2 Antenna	96.0	21.0	6.3	14.00	4.20	4.57	15.24	1.29	1.67	58	23	23
HPA65R-BU8AA Antenna	96.0	11.7	7.6	7.80	5.07	8.21	12.63	1.44	1.59	36	26	26
4426 B66 RRH	14.9	13.2	5.8	1.37	0.60	1.13	2.57	1.20	1.20	5	2	2
4426 B66 RRH (Side)	14.9	5.8	13.2	0.60	1.37	2.57	1.13	1.20	1.20	2	5	5
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	6	3	3
4415 B30 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	3	6	6
4449 B5/B12 RRH	17.9	13.2	9.5	1.64	1.18	1.36	1.88	1.20	1.20	6	5	5
4449 B5/B12 RRH (Side)	17.9	9.5	13.2	1.18	1.64	1.88	1.36	1.20	1.20	5	6	6
4415 B25 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	6	3	3
4415 B25 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	3	6	5

Date: 6/4/2020
 Project Name: WESTBROOK SOUTH
 Project No.: CT5210
 Designed By: KM Checked By: MSC



WIND LOADS

Angle = 120 (deg) Ice Thickness = 1.13 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)
EPBQ-654L8H8-L2 Antenna	96.0	21.0	6.3	14.00	4.20	4.57	15.24	1.29	1.67	1175	457	636
HPA65R-BU8AA Antenna	96.0	11.7	7.6	7.80	5.07	8.21	12.63	1.44	1.59	730	523	574
4426 B66 RRH	14.9	13.2	5.8	1.37	0.60	1.13	2.57	1.20	1.20	106	47	62
4426 B66 RRH (Side)	14.9	5.8	13.2	0.60	1.37	2.57	1.13	1.20	1.20	47	106	92
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	120	53	70
4415 B30 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	53	120	103
4449 B5/B12 RRH	17.9	13.2	9.5	1.64	1.18	1.36	1.88	1.20	1.20	128	92	101
4449 B5/B12 RRH (Side)	17.9	9.5	13.2	1.18	1.64	1.88	1.36	1.20	1.20	92	128	119
4415 B25 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	120	53	70
4415 B25 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	53	120	103

WIND LOADS WITH ICE:

EPBQ-654L8H8-L2 Antenna	98.3	23.3	8.6	15.88	5.85	4.22	11.47	1.28	1.55	181	81	106
HPA65R-BU8AA Antenna	98.3	14.0	9.9	9.53	6.73	7.04	9.96	1.40	1.50	119	90	97
4426 B66 RRH	17.2	15.5	8.1	1.84	0.96	1.11	2.13	1.20	1.20	20	10	13
4426 B66 RRH (Side)	17.2	8.1	15.5	0.96	1.84	2.13	1.11	1.20	1.20	10	20	17
4415 B30 RRH	18.8	15.7	8.2	2.04	1.06	1.20	2.30	1.20	1.20	22	11	14
4415 B30 RRH (Side)	18.8	8.2	15.7	1.06	2.04	2.30	1.20	1.20	1.20	11	22	19
4449 B5/B12 RRH	20.2	15.5	11.8	2.17	1.65	1.30	1.71	1.20	1.20	23	18	19
4449 B5/B12 RRH (Side)	20.2	11.8	15.5	1.65	2.17	1.71	1.30	1.20	1.20	18	23	22
4415 B25 RRH	18.8	15.7	8.2	2.04	1.06	1.20	2.30	1.20	1.20	22	11	14
4415 B25 RRH (Side)	18.8	8.2	15.7	1.06	2.04	2.30	1.20	1.20	1.20	11	22	19

WIND LOADS AT 30 MPH:

EPBQ-654L8H8-L2 Antenna	96.0	21.0	6.3	14.00	4.20	4.57	15.24	1.29	1.67	58	23	31
HPA65R-BU8AA Antenna	96.0	11.7	7.6	7.80	5.07	8.21	12.63	1.44	1.59	36	26	28
4426 B66 RRH	14.9	13.2	5.8	1.37	0.60	1.13	2.57	1.20	1.20	5	2	3
4426 B66 RRH (Side)	14.9	5.8	13.2	0.60	1.37	2.57	1.13	1.20	1.20	2	5	5
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	6	3	3
4415 B30 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	3	6	5
4449 B5/B12 RRH	17.9	13.2	9.5	1.64	1.18	1.36	1.88	1.20	1.20	6	5	5
4449 B5/B12 RRH (Side)	17.9	9.5	13.2	1.18	1.64	1.88	1.36	1.20	1.20	5	6	6
4415 B25 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	6	3	3
4415 B25 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	3	6	5

Date: 6/4/2020
 Project Name: WESTBROOK SOUTH
 Project No.: CT5210
 Designed By: KM Checked By: MSC



WIND LOADS

Angle = 150 (deg) Ice Thickness = 1.13 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)
EPBQ-654L8H8-L2 Antenna	96.0	21.0	6.3	14.00	4.20	4.57	15.24	1.29	1.67	1175	457	995
HPA65R-BU8AA Antenna	96.0	11.7	7.6	7.80	5.07	8.21	12.63	1.44	1.59	730	523	678
4426 B66 RRH	14.9	13.2	5.8	1.37	0.60	1.13	2.57	1.20	1.20	106	47	92
4426 B66 RRH (Side)	14.9	5.8	13.2	0.60	1.37	2.57	1.13	1.20	1.20	47	106	62
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	120	53	103
4415 B30 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	53	120	70
4449 B5/B12 RRH	17.9	13.2	9.5	1.64	1.18	1.36	1.88	1.20	1.20	128	92	101
4449 B5/B12 RRH (Side)	17.9	9.5	13.2	1.18	1.64	1.88	1.36	1.20	1.20	92	128	119
4415 B25 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	120	53	70
4415 B25 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	53	120	103

WIND LOADS WITH ICE:

EPBQ-654L8H8-L2 Antenna	98.3	23.3	8.6	15.88	5.85	4.22	11.47	1.28	1.55	181	81	156
HPA65R-BU8AA Antenna	98.3	14.0	9.9	9.53	6.73	7.04	9.96	1.40	1.50	119	90	112
4426 B66 RRH	17.2	15.5	8.1	1.84	0.96	1.11	2.13	1.20	1.20	20	10	17
4426 B66 RRH (Side)	17.2	8.1	15.5	0.96	1.84	2.13	1.11	1.20	1.20	10	20	13
4415 B30 RRH	18.8	15.7	8.2	2.04	1.06	1.20	2.30	1.20	1.20	22	11	19
4415 B30 RRH (Side)	18.8	8.2	15.7	1.06	2.04	2.30	1.20	1.20	1.20	11	22	14
4449 B5/B12 RRH	20.2	15.5	11.8	2.17	1.65	1.30	1.71	1.20	1.20	23	18	19
4449 B5/B12 RRH (Side)	20.2	11.8	15.5	1.65	2.17	1.71	1.30	1.20	1.20	18	23	22
4415 B25 RRH	18.8	15.7	8.2	2.04	1.06	1.20	2.30	1.20	1.20	22	11	14
4415 B25 RRH (Side)	18.8	8.2	15.7	1.06	2.04	2.30	1.20	1.20	1.20	11	22	19

WIND LOADS AT 30 MPH:

EPBQ-654L8H8-L2 Antenna	96.0	21.0	6.3	14.00	4.20	4.57	15.24	1.29	1.67	58	23	49
HPA65R-BU8AA Antenna	96.0	11.7	7.6	7.80	5.07	8.21	12.63	1.44	1.59	36	26	33
4426 B66 RRH	14.9	13.2	5.8	1.37	0.60	1.13	2.57	1.20	1.20	5	2	5
4426 B66 RRH (Side)	14.9	5.8	13.2	0.60	1.37	2.57	1.13	1.20	1.20	2	5	3
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	6	3	5
4415 B30 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	3	6	3
4449 B5/B12 RRH	17.9	13.2	9.5	1.64	1.18	1.36	1.88	1.20	1.20	6	5	5
4449 B5/B12 RRH (Side)	17.9	9.5	13.2	1.18	1.64	1.88	1.36	1.20	1.20	5	6	6
4415 B25 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	6	3	3
4415 B25 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	3	6	5

Date: 6/4/2020

Project Name: WESTBROOK SOUTH

Project No.: CT5210

Designed By: KM Checked By: MSC



HUDSON
Design Group LLC

ICE WEIGHT CALCULATIONS

Thickness of ice: 1.13 in.
Density of ice: 56 pcf

EPBQ-654L8H8-L2 Antenna

Weight of ice based on total radial SF area:
Height (in): 96.0
Width (in): 21.0
Depth (in): 6.3
Total weight of ice on object: 255 lbs
Weight of object: 97.0 lbs
Combined weight of ice and object: 352 lbs

HPA65R-BU8AA Antenna

Weight of ice based on total radial SF area:
Height (in): 96.0
Width (in): 11.7
Depth (in): 7.6
Total weight of ice on object: 167 lbs
Weight of object: 54.0 lbs
Combined weight of ice and object: 221 lbs

4426 B66 RRH

Weight of ice based on total radial SF area:
Height (in): 14.9
Width (in): 13.2
Depth (in): 5.8
Total weight of ice on object: 27 lbs
Weight of object: 49.0 lbs
Combined weight of ice and object: 76 lbs

4415 B30 RRH

Weight of ice based on total radial SF area:
Height (in): 16.5
Width (in): 13.4
Depth (in): 5.9
Total weight of ice on object: 30 lbs
Weight of object: 46.0 lbs
Combined weight of ice and object: 76 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: 36 lbs
Weight of object: 71.0 lbs
Combined weight of ice and object: 107 lbs

4415 B25 RRH

Weight of ice based on total radial SF area:
Height (in): 16.5
Width (in): 13.4
Depth (in): 5.9
Total weight of ice on object: 30 lbs
Weight of object: 46.0 lbs
Combined weight of ice and object: 76 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

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

PL 11-1/4x5/8

Weight of ice based on total radial SF area:
Height (in): 11.25
Width (in): 0.625
Per foot weight of ice on object: 17 plf

PL 3-1/2x5/8

Weight of ice based on total radial SF area:
Height (in): 3.5
Width (in): 0.625
Per foot weight of ice on object: 6 plf

3/4" Round Bar

Per foot weight of ice:
diameter (in): 0.75
Per foot weight of ice on object: 3 plf

5/8" Round Bar

Per foot weight of ice:
diameter (in): 0.625
Per foot weight of ice on object: 2 plf

2-1/2" pipe

Per foot weight of ice:
diameter (in): 2.88
Per foot weight of ice on object: 6 plf

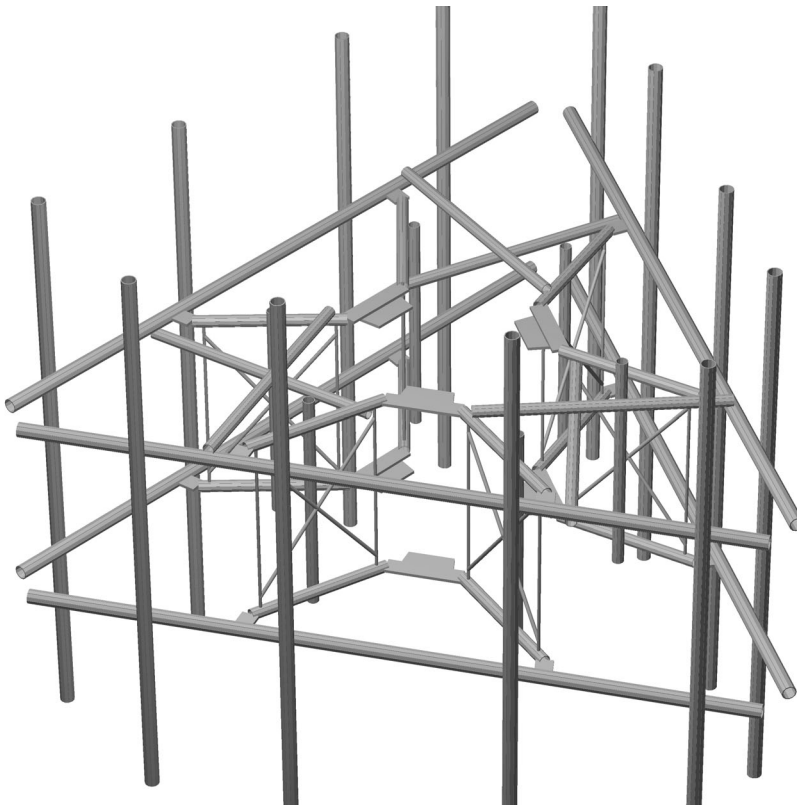
2" pipe

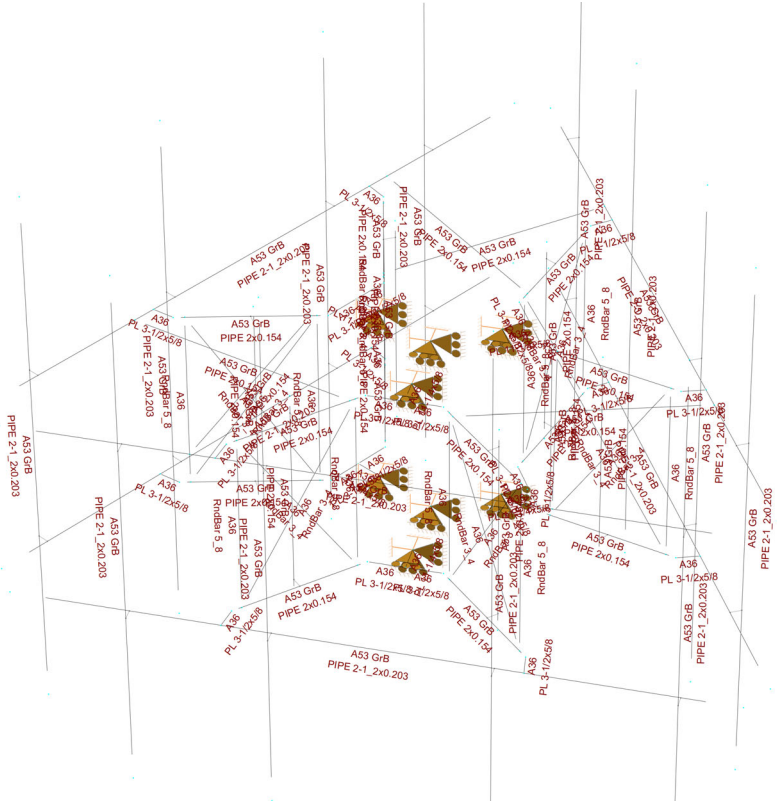
Per foot weight of ice:
diameter (in): 2.38
Per foot weight of ice on object: 5 plf

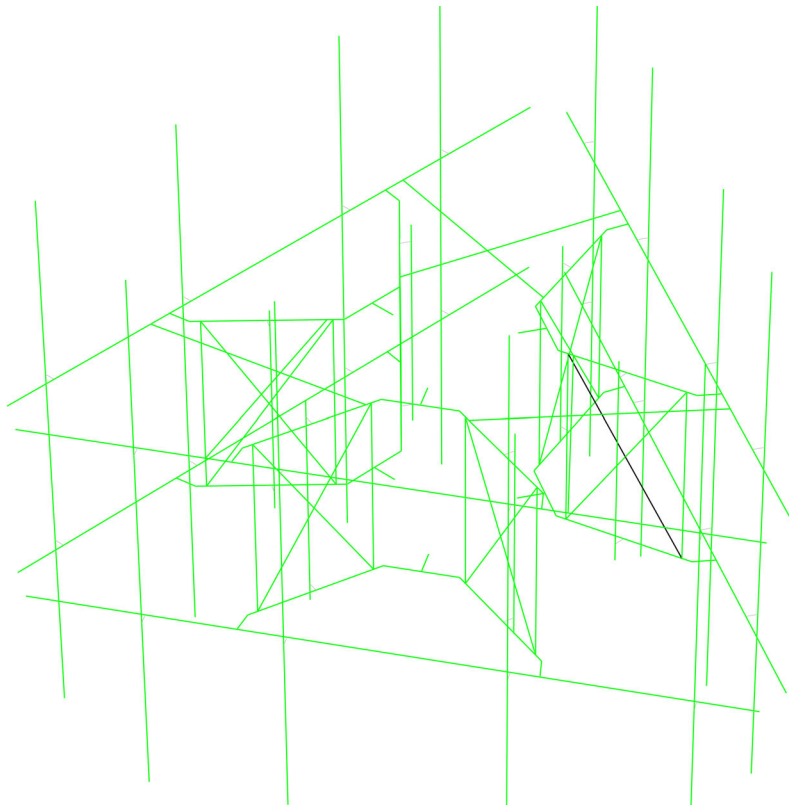


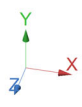
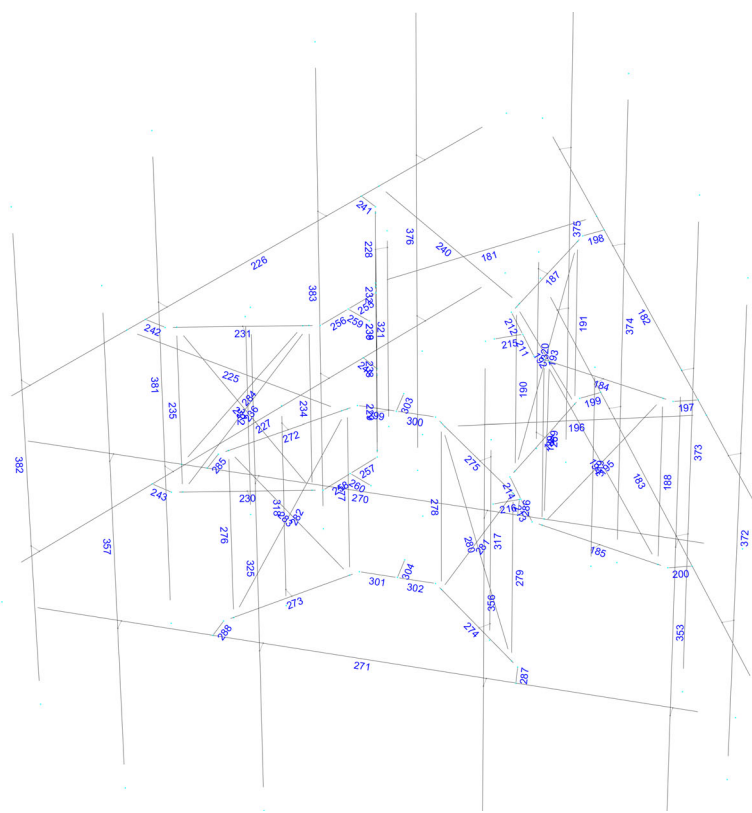
HUDSON
Design Group LLC

**Mount Calculations
(Existing Conditions)**









Current Date: 6/4/2020 11:00 AM

Units system: English

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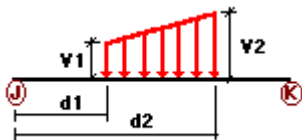
GLOSSARY

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	181	z	-0.015	-0.015	0.00	No	100.00	Yes
	182	z	-0.019	-0.019	0.00	No	100.00	Yes
	183	z	-0.019	-0.019	0.00	No	100.00	Yes
	184	z	-0.015	-0.015	0.00	No	100.00	Yes
	185	z	-0.015	-0.015	0.00	No	100.00	Yes
	186	z	-0.015	-0.015	0.00	No	100.00	Yes
	187	z	-0.015	-0.015	0.00	No	100.00	Yes
	188	z	-0.004	-0.004	0.00	No	100.00	Yes
	189	z	-0.004	-0.004	0.00	No	100.00	Yes
	190	z	-0.004	-0.004	0.00	No	100.00	Yes
	191	z	-0.004	-0.004	0.00	No	100.00	Yes
	192	z	-0.005	-0.005	0.00	No	100.00	Yes
	193	z	-0.005	-0.005	0.00	No	100.00	Yes
	194	z	-0.005	-0.005	0.00	No	100.00	Yes

195	z	-0.005	-0.005	0.00	No	100.00	Yes
196	z	-0.015	-0.015	0.00	No	100.00	Yes
197	z	-0.001	-0.001	0.00	No	100.00	Yes
198	z	-0.001	-0.001	0.00	No	100.00	Yes
199	z	-0.001	-0.001	0.00	No	100.00	Yes
200	z	-0.001	-0.001	0.00	No	100.00	Yes
211	z	-0.001	-0.001	0.00	No	100.00	Yes
212	z	-0.001	-0.001	0.00	No	100.00	Yes
213	z	-0.001	-0.001	0.00	No	100.00	Yes
214	z	-0.001	-0.001	0.00	No	100.00	Yes
215	z	-0.002	-0.002	0.00	No	100.00	Yes
216	z	-0.002	-0.002	0.00	No	100.00	Yes
225	z	-0.015	-0.015	0.00	No	100.00	Yes
226	z	-0.019	-0.019	0.00	No	100.00	Yes
227	z	-0.019	-0.019	0.00	No	100.00	Yes
228	z	-0.015	-0.015	0.00	No	100.00	Yes
229	z	-0.015	-0.015	0.00	No	100.00	Yes
230	z	-0.015	-0.015	0.00	No	100.00	Yes
231	z	-0.015	-0.015	0.00	No	100.00	Yes
232	z	-0.004	-0.004	0.00	No	100.00	Yes
233	z	-0.004	-0.004	0.00	No	100.00	Yes
234	z	-0.004	-0.004	0.00	No	100.00	Yes
235	z	-0.004	-0.004	0.00	No	100.00	Yes
236	z	-0.005	-0.005	0.00	No	100.00	Yes
237	z	-0.005	-0.005	0.00	No	100.00	Yes
238	z	-0.005	-0.005	0.00	No	100.00	Yes
239	z	-0.005	-0.005	0.00	No	100.00	Yes
240	z	-0.015	-0.015	0.00	No	100.00	Yes
241	z	-0.001	-0.001	0.00	No	100.00	Yes
242	z	-0.001	-0.001	0.00	No	100.00	Yes
243	z	-0.001	-0.001	0.00	No	100.00	Yes
244	z	-0.001	-0.001	0.00	No	100.00	Yes
255	z	-0.001	-0.001	0.00	No	100.00	Yes
256	z	-0.001	-0.001	0.00	No	100.00	Yes
257	z	-0.001	-0.001	0.00	No	100.00	Yes
258	z	-0.001	-0.001	0.00	No	100.00	Yes
259	z	-0.002	-0.002	0.00	No	100.00	Yes
260	z	-0.002	-0.002	0.00	No	100.00	Yes
269	z	-0.015	-0.015	0.00	No	100.00	Yes
270	z	-0.019	-0.019	0.00	No	100.00	Yes
271	z	-0.019	-0.019	0.00	No	100.00	Yes
272	z	-0.015	-0.015	0.00	No	100.00	Yes
273	z	-0.015	-0.015	0.00	No	100.00	Yes
274	z	-0.015	-0.015	0.00	No	100.00	Yes
275	z	-0.015	-0.015	0.00	No	100.00	Yes
276	z	-0.004	-0.004	0.00	No	100.00	Yes
277	z	-0.004	-0.004	0.00	No	100.00	Yes
278	z	-0.004	-0.004	0.00	No	100.00	Yes
279	z	-0.004	-0.004	0.00	No	100.00	Yes
280	z	-0.005	-0.005	0.00	No	100.00	Yes
281	z	-0.005	-0.005	0.00	No	100.00	Yes
282	z	-0.005	-0.005	0.00	No	100.00	Yes
283	z	-0.005	-0.005	0.00	No	100.00	Yes
284	z	-0.015	-0.015	0.00	No	100.00	Yes
285	z	-0.001	-0.001	0.00	No	100.00	Yes
286	z	-0.001	-0.001	0.00	No	100.00	Yes
287	z	-0.001	-0.001	0.00	No	100.00	Yes
288	z	-0.001	-0.001	0.00	No	100.00	Yes
299	z	-0.001	-0.001	0.00	No	100.00	Yes
300	z	-0.001	-0.001	0.00	No	100.00	Yes

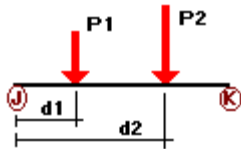
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	302	z	-0.001	-0.001	0.00	No	100.00	Yes
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	304	z	-0.002	-0.002	0.00	No	100.00	Yes
	317	z	-0.015	-0.015	0.00	No	100.00	Yes
	318	z	-0.015	-0.015	0.00	No	100.00	Yes
	319	z	-0.015	-0.015	0.00	No	100.00	Yes
	320	z	-0.015	-0.015	0.00	No	100.00	Yes
	321	z	-0.015	-0.015	0.00	No	100.00	Yes
	322	z	-0.015	-0.015	0.00	No	100.00	Yes
	325	z	-0.019	-0.019	0.00	No	100.00	Yes
	353	z	-0.019	-0.019	0.00	No	100.00	Yes
	356	z	-0.019	-0.019	0.00	No	100.00	Yes
	357	z	-0.019	-0.019	0.00	No	100.00	Yes
	373	z	-0.019	-0.019	0.00	No	100.00	Yes
	374	z	-0.019	-0.019	0.00	No	100.00	Yes
	375	z	-0.019	-0.019	0.00	No	100.00	Yes
	376	z	-0.019	-0.019	0.00	No	100.00	Yes
	381	z	-0.019	-0.019	0.00	No	100.00	Yes
	382	z	-0.019	-0.019	0.00	No	100.00	Yes
	383	z	-0.019	-0.019	0.00	No	100.00	Yes
W30	181	x	-0.015	-0.015	0.00	No	100.00	Yes
	182	x	-0.019	-0.019	0.00	No	100.00	Yes
	183	x	-0.019	-0.019	0.00	No	100.00	Yes
	184	x	-0.015	-0.015	0.00	No	100.00	Yes
	185	x	-0.015	-0.015	0.00	No	100.00	Yes
	186	x	-0.015	-0.015	0.00	No	100.00	Yes
	187	x	-0.015	-0.015	0.00	No	100.00	Yes
	188	x	-0.004	-0.004	0.00	No	100.00	Yes
	189	x	-0.004	-0.004	0.00	No	100.00	Yes
	190	x	-0.004	-0.004	0.00	No	100.00	Yes
	191	x	-0.004	-0.004	0.00	No	100.00	Yes
	192	x	-0.005	-0.005	0.00	No	100.00	Yes
	193	x	-0.005	-0.005	0.00	No	100.00	Yes
	194	x	-0.005	-0.005	0.00	No	100.00	Yes
	195	x	-0.005	-0.005	0.00	No	100.00	Yes
	196	x	-0.015	-0.015	0.00	No	100.00	Yes
	197	x	-0.001	-0.001	0.00	No	100.00	Yes
	198	x	-0.001	-0.001	0.00	No	100.00	Yes
	199	x	-0.001	-0.001	0.00	No	100.00	Yes
	200	x	-0.001	-0.001	0.00	No	100.00	Yes
	211	x	-0.001	-0.001	0.00	No	100.00	Yes
	212	x	-0.001	-0.001	0.00	No	100.00	Yes
	213	x	-0.001	-0.001	0.00	No	100.00	Yes
	214	x	-0.001	-0.001	0.00	No	100.00	Yes
	215	x	-0.003	-0.003	0.00	No	100.00	Yes
	216	x	-0.003	-0.003	0.00	No	100.00	Yes
	225	x	-0.015	-0.015	0.00	No	100.00	Yes
	226	x	-0.019	-0.019	0.00	No	100.00	Yes
	227	x	-0.019	-0.019	0.00	No	100.00	Yes
	228	x	-0.015	-0.015	0.00	No	100.00	Yes
	229	x	-0.015	-0.015	0.00	No	100.00	Yes
	230	x	-0.015	-0.015	0.00	No	100.00	Yes
	231	x	-0.015	-0.015	0.00	No	100.00	Yes
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	233	x	-0.004	-0.004	0.00	No	100.00	Yes
	234	x	-0.004	-0.004	0.00	No	100.00	Yes
	235	x	-0.004	-0.004	0.00	No	100.00	Yes
	236	x	-0.005	-0.005	0.00	No	100.00	Yes
	237	x	-0.005	-0.005	0.00	No	100.00	Yes

238	x	-0.005	-0.005	0.00	No	100.00	Yes
239	x	-0.005	-0.005	0.00	No	100.00	Yes
240	x	-0.015	-0.015	0.00	No	100.00	Yes
241	x	-0.001	-0.001	0.00	No	100.00	Yes
242	x	-0.001	-0.001	0.00	No	100.00	Yes
243	x	-0.001	-0.001	0.00	No	100.00	Yes
244	x	-0.001	-0.001	0.00	No	100.00	Yes
255	x	-0.001	-0.001	0.00	No	100.00	Yes
256	x	-0.001	-0.001	0.00	No	100.00	Yes
257	x	-0.001	-0.001	0.00	No	100.00	Yes
258	x	-0.001	-0.001	0.00	No	100.00	Yes
259	x	-0.003	-0.003	0.00	No	100.00	Yes
260	x	-0.003	-0.003	0.00	No	100.00	Yes
269	x	-0.015	-0.015	0.00	No	100.00	Yes
270	x	-0.019	-0.019	0.00	No	100.00	Yes
271	x	-0.019	-0.019	0.00	No	100.00	Yes
272	x	-0.015	-0.015	0.00	No	100.00	Yes
273	x	-0.015	-0.015	0.00	No	100.00	Yes
274	x	-0.015	-0.015	0.00	No	100.00	Yes
275	x	-0.015	-0.015	0.00	No	100.00	Yes
276	x	-0.004	-0.004	0.00	No	100.00	Yes
277	x	-0.004	-0.004	0.00	No	100.00	Yes
278	x	-0.004	-0.004	0.00	No	100.00	Yes
279	x	-0.004	-0.004	0.00	No	100.00	Yes
280	x	-0.005	-0.005	0.00	No	100.00	Yes
281	x	-0.005	-0.005	0.00	No	100.00	Yes
282	x	-0.005	-0.005	0.00	No	100.00	Yes
283	x	-0.005	-0.005	0.00	No	100.00	Yes
284	x	-0.015	-0.015	0.00	No	100.00	Yes
285	x	-0.001	-0.001	0.00	No	100.00	Yes
286	x	-0.001	-0.001	0.00	No	100.00	Yes
287	x	-0.001	-0.001	0.00	No	100.00	Yes
288	x	-0.001	-0.001	0.00	No	100.00	Yes
299	x	-0.001	-0.001	0.00	No	100.00	Yes
300	x	-0.001	-0.001	0.00	No	100.00	Yes
301	x	-0.001	-0.001	0.00	No	100.00	Yes
302	x	-0.001	-0.001	0.00	No	100.00	Yes
303	x	-0.003	-0.003	0.00	No	100.00	Yes
304	x	-0.003	-0.003	0.00	No	100.00	Yes
317	x	-0.015	-0.015	0.00	No	100.00	Yes
318	x	-0.015	-0.015	0.00	No	100.00	Yes
319	x	-0.015	-0.015	0.00	No	100.00	Yes
320	x	-0.015	-0.015	0.00	No	100.00	Yes
321	x	-0.015	-0.015	0.00	No	100.00	Yes
322	x	-0.015	-0.015	0.00	No	100.00	Yes
325	x	-0.019	-0.019	0.00	No	100.00	Yes
353	x	-0.019	-0.019	0.00	No	100.00	Yes
356	x	-0.019	-0.019	0.00	No	100.00	Yes
357	x	-0.019	-0.019	0.00	No	100.00	Yes
373	x	-0.019	-0.019	0.00	No	100.00	Yes
374	x	-0.019	-0.019	0.00	No	100.00	Yes
375	x	-0.019	-0.019	0.00	No	100.00	Yes
376	x	-0.019	-0.019	0.00	No	100.00	Yes
381	x	-0.019	-0.019	0.00	No	100.00	Yes
382	x	-0.019	-0.019	0.00	No	100.00	Yes
383	x	-0.019	-0.019	0.00	No	100.00	Yes
Di 181	y	-0.005	-0.005	0.00	No	100.00	Yes
182	y	-0.006	-0.006	0.00	No	100.00	Yes
183	y	-0.006	-0.006	0.00	No	100.00	Yes
184	y	-0.005	-0.005	0.00	No	100.00	Yes

185	y	-0.005	-0.005	0.00	No	100.00	Yes
186	y	-0.005	-0.005	0.00	No	100.00	Yes
187	y	-0.005	-0.005	0.00	No	100.00	Yes
188	y	-0.002	-0.002	0.00	No	100.00	Yes
189	y	-0.002	-0.002	0.00	No	100.00	Yes
190	y	-0.002	-0.002	0.00	No	100.00	Yes
191	y	-0.002	-0.002	0.00	No	100.00	Yes
192	y	-0.003	-0.003	0.00	No	100.00	Yes
193	y	-0.003	-0.003	0.00	No	100.00	Yes
194	y	-0.003	-0.003	0.00	No	100.00	Yes
195	y	-0.003	-0.003	0.00	No	100.00	Yes
196	y	-0.005	-0.005	0.00	No	100.00	Yes
197	y	-0.006	-0.006	0.00	No	100.00	Yes
198	y	-0.006	-0.006	0.00	No	100.00	Yes
199	y	-0.006	-0.006	0.00	No	100.00	Yes
200	y	-0.006	-0.006	0.00	No	100.00	Yes
211	y	-0.006	-0.006	0.00	No	100.00	Yes
212	y	-0.006	-0.006	0.00	No	100.00	Yes
213	y	-0.006	-0.006	0.00	No	100.00	Yes
214	y	-0.006	-0.006	0.00	No	100.00	Yes
215	y	-0.017	-0.017	0.00	No	100.00	Yes
216	y	-0.017	-0.017	0.00	No	100.00	Yes
225	y	-0.005	-0.005	0.00	No	100.00	Yes
226	y	-0.006	-0.006	0.00	No	100.00	Yes
227	y	-0.006	-0.006	0.00	No	100.00	Yes
228	y	-0.005	-0.005	0.00	No	100.00	Yes
229	y	-0.005	-0.005	0.00	No	100.00	Yes
230	y	-0.005	-0.005	0.00	No	100.00	Yes
231	y	-0.005	-0.005	0.00	No	100.00	Yes
232	y	-0.002	-0.002	0.00	No	100.00	Yes
233	y	-0.002	-0.002	0.00	No	100.00	Yes
234	y	-0.002	-0.002	0.00	No	100.00	Yes
235	y	-0.002	-0.002	0.00	No	100.00	Yes
236	y	-0.003	-0.003	0.00	No	100.00	Yes
237	y	-0.003	-0.003	0.00	No	100.00	Yes
238	y	-0.003	-0.003	0.00	No	100.00	Yes
239	y	-0.003	-0.003	0.00	No	100.00	Yes
240	y	-0.005	-0.005	0.00	No	100.00	Yes
241	y	-0.006	-0.006	0.00	No	100.00	Yes
242	y	-0.006	-0.006	0.00	No	100.00	Yes
243	y	-0.006	-0.006	0.00	No	100.00	Yes
244	y	-0.006	-0.006	0.00	No	100.00	Yes
255	y	-0.006	-0.006	0.00	No	100.00	Yes
256	y	-0.006	-0.006	0.00	No	100.00	Yes
257	y	-0.006	-0.006	0.00	No	100.00	Yes
258	y	-0.006	-0.006	0.00	No	100.00	Yes
259	y	-0.017	-0.017	0.00	No	100.00	Yes
260	y	-0.017	-0.017	0.00	No	100.00	Yes
269	y	-0.005	-0.005	0.00	No	100.00	Yes
270	y	-0.006	-0.006	0.00	No	100.00	Yes
271	y	-0.006	-0.006	0.00	No	100.00	Yes
272	y	-0.005	-0.005	0.00	No	100.00	Yes
273	y	-0.005	-0.005	0.00	No	100.00	Yes
274	y	-0.005	-0.005	0.00	No	100.00	Yes
275	y	-0.005	-0.005	0.00	No	100.00	Yes
276	y	-0.002	-0.002	0.00	No	100.00	Yes
277	y	-0.002	-0.002	0.00	No	100.00	Yes
278	y	-0.002	-0.002	0.00	No	100.00	Yes
279	y	-0.002	-0.002	0.00	No	100.00	Yes
280	y	-0.003	-0.003	0.00	No	100.00	Yes

281	y	-0.003	-0.003	0.00	No	100.00	Yes
282	y	-0.003	-0.003	0.00	No	100.00	Yes
283	y	-0.003	-0.003	0.00	No	100.00	Yes
284	y	-0.005	-0.005	0.00	No	100.00	Yes
285	y	-0.006	-0.006	0.00	No	100.00	Yes
286	y	-0.006	-0.006	0.00	No	100.00	Yes
287	y	-0.006	-0.006	0.00	No	100.00	Yes
288	y	-0.006	-0.006	0.00	No	100.00	Yes
299	y	-0.006	-0.006	0.00	No	100.00	Yes
300	y	-0.006	-0.006	0.00	No	100.00	Yes
301	y	-0.006	-0.006	0.00	No	100.00	Yes
302	y	-0.006	-0.006	0.00	No	100.00	Yes
303	y	-0.017	-0.017	0.00	No	100.00	Yes
304	y	-0.017	-0.017	0.00	No	100.00	Yes
317	y	-0.005	-0.005	0.00	No	100.00	Yes
318	y	-0.005	-0.005	0.00	No	100.00	Yes
319	y	-0.005	-0.005	0.00	No	100.00	Yes
320	y	-0.005	-0.005	0.00	No	100.00	Yes
321	y	-0.005	-0.005	0.00	No	100.00	Yes
322	y	-0.005	-0.005	0.00	No	100.00	Yes
325	y	-0.006	-0.006	0.00	No	100.00	Yes
353	y	-0.006	-0.006	0.00	No	100.00	Yes
356	y	-0.006	-0.006	0.00	No	100.00	Yes
357	y	-0.006	-0.006	0.00	No	100.00	Yes
373	y	-0.006	-0.006	0.00	No	100.00	Yes
374	y	-0.006	-0.006	0.00	No	100.00	Yes
375	y	-0.006	-0.006	0.00	No	100.00	Yes
376	y	-0.006	-0.006	0.00	No	100.00	Yes
381	y	-0.006	-0.006	0.00	No	100.00	Yes
382	y	-0.006	-0.006	0.00	No	100.00	Yes
383	y	-0.006	-0.006	0.00	No	100.00	Yes

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
DL	317	y	-0.071	2.50	No
		y	-0.046	2.50	No
	318	y	-0.049	2.50	No
		y	-0.046	2.50	No
	319	y	-0.049	2.50	No
		y	-0.046	2.50	No
	320	y	-0.071	2.50	No
		y	-0.046	2.50	No
	321	y	-0.049	2.50	No
		y	-0.046	2.50	No
	322	y	-0.071	2.50	No
		y	-0.046	2.50	No
	325	y	-0.029	50.00	Yes
	353	y	-0.049	1.50	No

		y	-0.049	8.50	No
	356	y	-0.037	1.50	No
		y	-0.037	8.50	No
	357	y	-0.049	1.50	No
		y	-0.049	8.50	No
	373	y	-0.029	50.00	Yes
	374	y	-0.037	1.50	No
		y	-0.037	8.50	No
	375	y	-0.049	1.50	No
		y	-0.049	8.50	No
	376	y	-0.049	1.50	No
		y	-0.049	8.50	No
	381	y	-0.037	1.50	No
		y	-0.037	8.50	No
	382	y	-0.049	1.50	No
		y	-0.049	8.50	No
	383	y	-0.029	50.00	Yes
WO	317	z	-0.047	2.50	No
		z	-0.053	2.50	No
	318	z	-0.092	2.50	No
		z	-0.053	2.50	No
	319	z	-0.119	2.50	No
		z	-0.103	2.50	No
	320	z	-0.092	2.50	No
		z	-0.103	2.50	No
	321	z	-0.119	2.50	No
		z	-0.103	2.50	No
	322	z	-0.092	2.50	No
		z	-0.103	2.50	No
	325	z	-0.074	50.00	Yes
	353	z	-0.587	1.50	No
		z	-0.587	8.50	No
	356	z	-0.327	1.50	No
		z	-0.327	8.50	No
	357	z	-0.587	1.50	No
		z	-0.587	8.50	No
	373	z	-0.074	50.00	Yes
	374	z	-0.287	1.50	No
		z	-0.287	8.50	No
	375	z	-0.318	1.50	No
		z	-0.318	8.50	No
	376	z	-0.318	1.50	No
		z	-0.318	8.50	No
	381	z	-0.287	1.50	No
		z	-0.287	8.50	No
	382	z	-0.318	1.50	No
		z	-0.318	8.50	No
	383	z	-0.074	50.00	Yes
W30	317	x	-0.106	2.50	No
		x	-0.12	2.50	No
	318	x	-0.119	2.50	No
		x	-0.103	2.50	No
	319	x	-0.101	2.50	No
		x	-0.07	2.50	No
	320	x	-0.062	2.50	No
		x	-0.07	2.50	No
	321	x	-0.101	2.50	No
		x	-0.07	2.50	No
	322	x	-0.062	2.50	No
		x	-0.07	2.50	No

	325	x	-0.074	50.00	Yes
	353	x	-0.229	1.50	No
		x	-0.229	8.50	No
	356	x	-0.262	1.50	No
		x	-0.262	8.50	No
	357	x	-0.229	1.50	No
		x	-0.229	8.50	No
	373	x	-0.074	50.00	Yes
	374	x	-0.339	1.50	No
		x	-0.339	8.50	No
	375	x	-0.498	1.50	No
		x	-0.498	8.50	No
	376	x	-0.498	1.50	No
		x	-0.498	8.50	No
	381	x	-0.339	1.50	No
		x	-0.339	8.50	No
	382	x	-0.498	1.50	No
		x	-0.498	8.50	No
	383	x	-0.074	50.00	Yes
Di	317	y	-0.027	2.50	No
		y	-0.03	2.50	No
	318	y	-0.036	2.50	No
		y	-0.03	2.50	No
	319	y	-0.036	2.50	No
		y	-0.03	2.50	No
	320	y	-0.027	2.50	No
		y	-0.03	2.50	No
	321	y	-0.036	2.50	No
		y	-0.03	2.50	No
	322	y	-0.027	2.50	No
		y	-0.03	2.50	No
	325	y	-0.03	50.00	Yes
	353	y	-0.128	1.50	No
		y	-0.128	8.50	No
	356	y	-0.084	1.50	No
		y	-0.084	8.50	No
	357	y	-0.128	1.50	No
		y	-0.128	8.50	No
	373	y	-0.03	50.00	Yes
	374	y	-0.084	1.50	No
		y	-0.084	8.50	No
	375	y	-0.128	1.50	No
		y	-0.128	8.50	No
	376	y	-0.128	1.50	No
		y	-0.128	8.50	No
	381	y	-0.084	1.50	No
		y	-0.084	8.50	No
	382	y	-0.128	1.50	No
		y	-0.128	8.50	No
	383	y	-0.03	50.00	Yes
Wi0	317	z	-0.01	2.50	No
		z	-0.012	2.50	No
	318	z	-0.018	2.50	No
		z	-0.012	2.50	No
	319	z	-0.022	2.50	No
		z	-0.019	2.50	No
	320	z	-0.017	2.50	No
		z	-0.019	2.50	No
	321	z	-0.022	2.50	No
		z	-0.019	2.50	No

	322	z	-0.017	2.50	No
		z	-0.019	2.50	No
	325	z	-0.014	50.00	Yes
	353	z	-0.091	1.50	No
		z	-0.091	8.50	No
	356	z	-0.055	1.50	No
		z	-0.055	8.50	No
	357	z	-0.091	1.50	No
		z	-0.091	8.50	No
	373	z	-0.014	50.00	Yes
	374	z	-0.049	1.50	No
		z	-0.049	8.50	No
	375	z	-0.053	1.50	No
		z	-0.053	8.50	No
	376	z	-0.053	1.50	No
		z	-0.053	8.50	No
	381	z	-0.049	1.50	No
		z	-0.049	8.50	No
	382	z	-0.053	1.50	No
		z	-0.053	8.50	No
	383	z	-0.014	50.00	Yes
Wi30	317	x	-0.02	2.50	No
		x	-0.022	2.50	No
	318	x	-0.022	2.50	No
		x	-0.019	2.50	No
	319	x	-0.019	2.50	No
		x	-0.014	2.50	No
	320	x	-0.013	2.50	No
		x	-0.014	2.50	No
	321	x	-0.019	2.50	No
		x	-0.014	2.50	No
	322	x	-0.013	2.50	No
		x	-0.014	2.50	No
	325	x	-0.014	50.00	Yes
	353	x	-0.041	1.50	No
		x	-0.041	8.50	No
	356	x	-0.045	1.50	No
		x	-0.045	8.50	No
	357	x	-0.041	1.50	No
		x	-0.041	8.50	No
	373	x	-0.014	50.00	Yes
	374	x	-0.056	1.50	No
		x	-0.056	8.50	No
	375	x	-0.078	1.50	No
		x	-0.078	8.50	No
	376	x	-0.078	1.50	No
		x	-0.078	8.50	No
	381	x	-0.056	1.50	No
		x	-0.056	8.50	No
	382	x	-0.078	1.50	No
		x	-0.078	8.50	No
	383	x	-0.014	50.00	Yes
WLO	317	z	-0.002	2.50	No
		z	-0.003	2.50	No
	318	z	-0.005	2.50	No
		z	-0.003	2.50	No
	319	z	-0.006	2.50	No
		z	-0.005	2.50	No
	320	z	-0.005	2.50	No
		z	-0.005	2.50	No

	321	z	-0.006	2.50	No
		z	-0.005	2.50	No
	322	z	-0.005	2.50	No
		z	-0.005	2.50	No
	325	z	-0.004	50.00	Yes
	353	z	-0.029	1.50	No
		z	-0.029	8.50	No
	356	z	-0.016	1.50	No
		z	-0.016	8.50	No
	357	z	-0.029	1.50	No
		z	-0.029	8.50	No
	373	z	-0.004	50.00	Yes
	374	z	-0.014	1.50	No
		z	-0.014	8.50	No
	375	z	-0.016	1.50	No
		z	-0.016	8.50	No
	376	z	-0.016	1.50	No
		z	-0.016	8.50	No
	381	z	-0.014	1.50	No
		z	-0.014	8.50	No
	382	z	-0.016	1.50	No
		z	-0.016	8.50	No
	383	z	-0.004	50.00	Yes
WL30	317	x	-0.005	2.50	No
		x	-0.006	2.50	No
	318	x	-0.006	2.50	No
		x	-0.005	2.50	No
	319	x	-0.005	2.50	No
		x	-0.003	2.50	No
	320	x	-0.003	2.50	No
		x	-0.003	2.50	No
	321	x	-0.005	2.50	No
		x	-0.003	2.50	No
	322	x	-0.003	2.50	No
		x	-0.003	2.50	No
	325	x	-0.004	50.00	Yes
	353	x	-0.012	1.50	No
		x	-0.012	8.50	No
	356	x	-0.013	1.50	No
		x	-0.013	8.50	No
	357	x	-0.012	1.50	No
		x	-0.012	8.50	No
	373	x	-0.004	50.00	Yes
	374	x	-0.017	1.50	No
		x	-0.017	8.50	No
	375	x	-0.025	1.50	No
		x	-0.025	8.50	No
	376	x	-0.025	1.50	No
		x	-0.025	8.50	No
	381	x	-0.017	1.50	No
		x	-0.017	8.50	No
	382	x	-0.025	1.50	No
		x	-0.025	8.50	No
	383	x	-0.004	50.00	Yes
LL1	270	y	-0.25	50.00	Yes
LL2	270	y	-0.25	100.00	Yes
LLa1	353	y	-0.25	50.00	Yes
LLa2	356	y	-0.25	50.00	Yes
LLa4	357	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: 6/4/2020 11:00 AM

Units system: English

File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT5210\LTE-3C-4C-5C\CT5210 (LTE-2C-3C-4C)_ABC.ret

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+W0+1.5LLa1
- LC18=1.2DL+W30+1.5LLa1
- LC19=1.2DL-W0+1.5LLa1
- LC20=1.2DL-W30+1.5LLa1
- LC21=1.2DL+W0+1.5LLa2
- LC22=1.2DL+W30+1.5LLa2
- LC23=1.2DL-W0+1.5LLa2
- LC24=1.2DL-W30+1.5LLa2
- LC25=1.2DL+W0+1.5LLa3
- LC26=1.2DL+W30+1.5LLa3
- LC27=1.2DL-W0+1.5LLa3
- LC28=1.2DL-W30+1.5LLa3
- LC29=1.2DL+W0+1.5LLa4
- LC30=1.2DL+W30+1.5LLa4
- LC31=1.2DL-W0+1.5LLa4
- LC32=1.2DL-W30+1.5LLa4

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	<i>PIPE 2-1_2x0.203</i>	182	LC4 at 73.61%	0.74	OK	Eq. H1-1b
		183	LC4 at 71.43%	0.57	OK	Eq. H1-1b
		226	LC4 at 70.83%	0.71	OK	Eq. H1-1b
		227	LC2 at 71.43%	0.68	OK	Eq. H1-1b
		270	LC1 at 74.31%	0.76	OK	Eq. H1-1b
		271	LC3 at 71.43%	0.81	OK	Eq. H1-1b
		325	LC2 at 33.33%	0.27	OK	Eq. H1-1b
		353	LC3 at 66.67%	0.70	OK	Eq. H1-1b
		356	LC3 at 33.33%	0.43	OK	Eq. H1-1b
		357	LC3 at 66.67%	0.70	OK	Eq. H1-1b
		373	LC4 at 66.67%	0.28	OK	Eq. H1-1b
		374	LC2 at 33.33%	0.43	OK	Eq. H1-1b
		375	LC4 at 66.67%	0.56	OK	Eq. H1-1b
		376	LC2 at 66.67%	0.43	OK	Eq. H1-1b
		381	LC1 at 66.67%	0.45	OK	Eq. H1-1b
		382	LC1 at 33.33%	0.43	OK	Eq. H1-1b
		383	LC1 at 33.33%	0.28	OK	Eq. H1-1b

PIPE 2x0.154

181	LC4 at 100.00%	0.66	OK	Eq. H1-1b
184	LC1 at 93.75%	0.36	OK	Eq. H1-1b
185	LC2 at 93.75%	0.32	OK	Eq. H1-1b
186	LC2 at 50.00%	0.26	OK	Eq. H1-1b
187	LC4 at 93.75%	0.40	OK	Eq. H1-1b
196	LC2 at 100.00%	0.36	OK	Eq. H1-1b
225	LC1 at 100.00%	0.31	OK	Eq. H1-1b
228	LC4 at 90.00%	0.71	OK	Eq. H1-1b
229	LC2 at 50.00%	0.30	OK	Eq. H1-1b
230	LC4 at 93.75%	0.31	OK	Eq. H1-1b
231	LC4 at 100.00%	0.48	OK	Eq. H1-1b
240	LC2 at 62.50%	0.36	OK	Eq. H1-1b
269	LC3 at 100.00%	0.48	OK	Eq. H1-1b
272	LC1 at 90.00%	0.44	OK	Eq. H1-1b
273	LC1 at 93.75%	0.33	OK	Eq. H1-1b
274	LC1 at 93.75%	0.33	OK	Eq. H1-1b
275	LC2 at 93.75%	0.48	OK	Eq. H1-1b
284	LC4 at 100.00%	0.33	OK	Eq. H1-1b
317	LC1 at 8.33%	0.19	OK	Eq. H1-1b
318	LC2 at 8.33%	0.17	OK	Eq. H1-1b
319	LC3 at 62.50%	0.14	OK	Eq. H1-1b
320	LC2 at 8.33%	0.21	OK	Eq. H1-1b
321	LC1 at 8.33%	0.17	OK	Eq. H1-1b
322	LC3 at 8.33%	0.21	OK	Eq. H1-1b

PL 11-1/4x5/8

215	LC9 at 100.00%	0.32	OK	Eq. H1-1b
216	LC9 at 100.00%	0.24	OK	Eq. H1-1b
259	LC11 at 100.00%	0.32	OK	Eq. H1-1b
260	LC10 at 100.00%	0.24	OK	Eq. H1-1b
303	LC12 at 100.00%	0.32	OK	Eq. H1-1b
304	LC12 at 100.00%	0.24	OK	Eq. H1-1b

PL 3-1/2x5/8

197	LC2 at 100.00%	0.64	OK	Eq. H1-1b
198	LC2 at 100.00%	0.57	OK	Eq. H1-1b
199	LC4 at 100.00%	0.84	OK	Eq. H1-1b
200	LC4 at 100.00%	0.36	OK	Eq. H1-1b
211	LC2 at 100.00%	0.72	OK	Eq. H1-1b
212	LC3 at 0.00%	0.70	OK	Eq. H1-1b
213	LC2 at 100.00%	0.57	OK	Eq. H1-1b
214	LC3 at 0.00%	0.58	OK	Eq. H1-1b
241	LC3 at 100.00%	0.58	OK	Eq. H1-1b
242	LC4 at 100.00%	0.66	OK	Eq. H1-1b
243	LC1 at 100.00%	0.60	OK	Eq. H1-1b
244	LC2 at 100.00%	0.43	OK	Eq. H1-1b
255	LC3 at 100.00%	0.65	OK	Eq. H1-1b
256	LC4 at 0.00%	0.75	OK	Eq. H1-1b
257	LC3 at 100.00%	0.55	OK	Eq. H1-1b
258	LC4 at 0.00%	0.61	OK	Eq. H1-1b
285	LC1 at 100.00%	0.44	OK	Eq. H1-1b
286	LC1 at 100.00%	0.59	OK	Eq. H1-1b
287	LC3 at 100.00%	0.81	OK	Eq. H1-1b
288	LC3 at 100.00%	0.47	OK	Eq. H1-1b
299	LC1 at 100.00%	0.43	OK	Eq. H1-1b
300	LC11 at 0.00%	0.48	OK	Eq. H1-1b
301	LC1 at 100.00%	0.46	OK	Eq. H1-1b
302	LC9 at 0.00%	0.54	OK	Eq. H1-1b

RndBar 3_4

192	LC2 at 0.00%	0.20	OK	Eq. H1-1b
193	LC10 at 0.00%	0.19	OK	Eq. H1-1b
194	LC2 at 46.88%	0.16	With warnings	Eq. H1-1b
195	LC10 at 100.00%	0.16	OK	Eq. H1-1b
236	LC3 at 0.00%	0.21	OK	Eq. H1-1b
237	LC12 at 0.00%	0.19	OK	Eq. H1-1b

238	LC2 at 100.00%	0.16	OK	Eq. H1-1b
239	LC11 at 100.00%	0.16	OK	Eq. H1-1b
280	LC1 at 0.00%	0.18	OK	Eq. H1-1b
281	LC9 at 0.00%	0.20	OK	Eq. H1-1b
282	LC2 at 100.00%	0.16	OK	Eq. H1-1b
283	LC9 at 100.00%	0.16	OK	Eq. H1-1b

RndBar 5_8

188	LC2 at 87.50%	0.87	OK	Eq. H1-1a
189	LC10 at 87.50%	0.47	OK	Eq. H1-1a
190	LC11 at 87.50%	0.53	OK	Eq. H1-1a
191	LC2 at 18.75%	0.83	OK	Eq. H1-1a
232	LC3 at 87.50%	0.77	OK	Eq. H1-1a
233	LC11 at 87.50%	0.46	OK	Eq. H1-1a
234	LC12 at 87.50%	0.53	OK	Eq. H1-1a
235	LC4 at 50.00%	0.85	OK	Eq. H1-1a
276	LC1 at 50.00%	0.72	OK	Eq. H1-1a
277	LC12 at 87.50%	0.46	OK	Eq. H1-1a
278	LC10 at 87.50%	0.53	OK	Eq. H1-1a
279	LC1 at 62.50%	0.95	OK	Eq. H1-1a



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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
290	1.0392	0.00	-0.60	0
291	1.7716	0.00	-0.2882	0
292	1.0392	-3.3333	-0.60	0
293	1.7716	-3.3333	-0.2882	0
294	1.1354	-3.3333	-1.3901	0
295	1.1354	0.00	-1.3901	0
300	1.869	0.00	-4.4229	0
302	6.3169	0.00	3.2812	0
303	0.3169	0.00	-7.1112	0
304	6.3169	-3.3333	3.2812	0
305	0.3169	-3.3333	-7.1112	0
306	4.1832	0.00	0.3707	0
307	4.1832	-3.3333	0.3707	0
308	1.7706	-3.3333	-3.8081	0
309	1.7706	0.00	-3.8081	0
310	4.0079	0.00	0.3228	0
311	4.0079	-3.3333	0.3228	0
312	1.9468	0.00	-0.2404	0
313	1.9468	-3.3333	-0.2404	0
314	1.1816	0.00	-1.5658	0
315	1.1816	-3.3333	-1.5658	0

316	1.7244	0.00	-3.6324	0
318	4.7648	0.00	0.5929	0
324	4.5565	0.00	0.232	0
325	2.0773	0.00	-4.062	0
326	2.0773	-3.3333	-4.062	0
327	4.5565	-3.3333	0.232	0
346	1.4535	0.00	-0.8392	0
347	1.4535	-3.3333	-0.8392	0
356	-1.0392	0.00	-0.60	0
357	-1.1354	0.00	-1.3901	0
358	-1.0392	-3.3333	-0.60	0
359	-1.1354	-3.3333	-1.3901	0
360	-1.7716	-3.3333	-0.2882	0
361	-1.7716	0.00	-0.2882	0
366	-4.7648	0.00	0.5929	0
368	-0.3169	0.00	-7.1112	0
369	-6.3169	0.00	3.2812	0
370	-0.3169	-3.3333	-7.1112	0
371	-6.3169	-3.3333	3.2812	0
372	-1.7706	0.00	-3.8081	0
373	-1.7706	-3.3333	-3.8081	0
374	-4.1832	-3.3333	0.3707	0
375	-4.1832	0.00	0.3707	0
376	-1.7244	0.00	-3.6324	0
377	-1.7244	-3.3333	-3.6324	0
378	-1.1816	0.00	-1.5658	0
379	-1.1816	-3.3333	-1.5658	0
380	-1.9468	0.00	-0.2404	0
381	-1.9468	-3.3333	-0.2404	0
382	-4.0079	0.00	0.3228	0
383	-4.0079	-3.3333	0.3228	0
384	-1.869	0.00	-4.4229	0
390	-2.0773	0.00	-4.062	0
391	-4.5565	0.00	0.232	0
392	-4.5565	-3.3333	0.232	0
393	-2.0773	-3.3333	-4.062	0
412	-1.4535	0.00	-0.8392	0
413	-1.4535	-3.3333	-0.8392	0
422	0.00	0.00	1.20	0
423	-0.6362	0.00	1.6783	0
424	0.00	-3.3333	1.20	0
425	-0.6362	-3.3333	1.6783	0
426	0.6362	-3.3333	1.6783	0
427	0.6362	0.00	1.6783	0
432	2.8958	0.00	3.83	0
434	-6.00	0.00	3.83	0
435	6.00	0.00	3.83	0
436	-6.00	-3.3333	3.83	0
437	6.00	-3.3333	3.83	0
438	-2.4126	0.00	3.4374	0
439	-2.4126	-3.3333	3.4374	0
440	2.4126	-3.3333	3.4374	0
441	2.4126	0.00	3.4374	0
442	-2.2835	0.00	3.3096	0
443	-2.2835	-3.3333	3.3096	0
444	-0.7653	0.00	1.8062	0
445	-0.7653	-3.3333	1.8062	0
446	0.7653	0.00	1.8062	0
447	0.7653	-3.3333	1.8062	0
448	2.2835	0.00	3.3096	0

449	2.2835	-3.3333	3.3096	0
450	-2.8958	0.00	3.83	0
456	-2.4792	0.00	3.83	0
457	2.4792	0.00	3.83	0
458	2.4792	-3.3333	3.83	0
459	-2.4792	-3.3333	3.83	0
478	0.00	0.00	1.6783	0
479	0.00	-3.3333	1.6783	0
492	1.7303	-3.6667	2.4804	0
511	2.8774	-3.6667	0.2144	0
512	1.2798	-3.6667	-2.699	0
515	-1.6658	-3.6667	2.4165	0
516	2.8774	0.3333	0.2144	0
517	1.2798	0.3333	-2.699	0
518	-1.2798	0.3333	-2.699	0
519	-2.8774	0.3333	0.2144	0
520	-1.6658	0.3333	2.4165	0
521	1.7303	0.3333	2.4804	0
531	-0.8343	0.00	1.8745	0
541	-2.0405	0.00	-0.2148	0
542	-1.2062	0.00	-1.6597	0
543	1.2062	0.00	-1.6597	0
544	2.0405	0.00	-0.2148	0
563	0.8401	0.00	1.8803	0
568	-1.65	-6.6667	4.03	0
569	-1.65	3.3333	4.03	0
580	0.00	0.00	0.00	0
581	0.00	-3.3333	0.00	0
582	0.00	-1.6667	0.00	0
622	5.00	3.3333	4.03	0
627	5.00	-6.6667	4.03	0
632	2.00	-6.6667	4.03	0
633	2.00	3.3333	4.03	0
634	-4.00	-6.6667	4.03	0
635	-4.00	3.3333	4.03	0
648	0.9901	-6.6667	-6.3451	0
649	-5.9901	-6.6667	2.3151	0
658	2.4901	-6.6667	-3.7471	0
659	-4.4901	-6.6667	-0.2829	0
660	2.4901	3.3333	-3.7471	0
661	-4.4901	3.3333	-0.2829	0
662	0.9901	3.3333	-6.3451	0
663	-5.9901	3.3333	2.3151	0
672	4.3151	3.3333	-0.5861	0
673	-2.6651	3.3333	-3.4439	0
674	4.3151	-6.6667	-0.5861	0
675	5.4901	-6.6667	1.4491	0
676	-1.4901	-6.6667	-5.4791	0
685	5.4901	3.3333	1.4491	0
686	-1.4901	3.3333	-5.4791	0
687	-2.6651	-6.6667	-3.4439	0
317	1.7244	-3.3333	-3.6324	0
514	-2.8774	-3.6667	0.2144	0
513	-1.2798	-3.6667	-2.699	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
290	1	1	1	1	0	1
292	1	1	1	1	0	1
356	1	1	1	1	0	1
358	1	1	1	1	0	1
422	1	1	1	1	0	1
424	1	1	1	1	0	1
580	1	1	1	1	0	1
581	1	1	1	1	0	1

Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	Ig factor
181	300	542		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
182	302	303		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
183	304	305		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
184	306	291		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
185	307	293		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
186	308	294		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
187	309	295		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
188	310	311		RndBar 5_8	A36	0.00	0.00	0.00
189	312	313		RndBar 5_8	A36	0.00	0.00	0.00
190	314	315		RndBar 5_8	A36	0.00	0.00	0.00
191	316	317		RndBar 5_8	A36	0.00	0.00	0.00
192	314	317		RndBar 3_4	A36	0.00	0.00	0.00
193	315	316		RndBar 3_4	A36	0.00	0.00	0.00
194	311	312		RndBar 3_4	A36	0.00	0.00	0.00
195	310	313		RndBar 3_4	A36	0.00	0.00	0.00
196	318	563		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
197	306	324		PL 3-1/2x5/8	A36	0.00	0.00	0.00
198	309	325		PL 3-1/2x5/8	A36	0.00	0.00	0.00
199	308	326		PL 3-1/2x5/8	A36	0.00	0.00	0.00
200	307	327		PL 3-1/2x5/8	A36	0.00	0.00	0.00
211	291	346		PL 3-1/2x5/8	A36	0.00	0.00	0.00
212	346	295		PL 3-1/2x5/8	A36	0.00	0.00	0.00
213	293	347		PL 3-1/2x5/8	A36	0.00	0.00	0.00
214	347	294		PL 3-1/2x5/8	A36	0.00	0.00	0.00
215	346	290		PL 11-1/4x5/8	A36	11.25	9.25	0.00
216	347	292		PL 11-1/4x5/8	A36	11.25	9.25	0.00
225	366	531		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
226	368	369		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
227	370	371		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
228	372	357		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
229	373	359		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
230	374	360		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
231	375	361		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
232	376	377		RndBar 5_8	A36	0.00	0.00	0.00
233	378	379		RndBar 5_8	A36	0.00	0.00	0.00
234	380	381		RndBar 5_8	A36	0.00	0.00	0.00
235	382	383		RndBar 5_8	A36	0.00	0.00	0.00
236	380	383		RndBar 3_4	A36	0.00	0.00	0.00
237	381	382		RndBar 3_4	A36	0.00	0.00	0.00
238	377	378		RndBar 3_4	A36	0.00	0.00	0.00
239	376	379		RndBar 3_4	A36	0.00	0.00	0.00
240	384	543		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
241	372	390		PL 3-1/2x5/8	A36	0.00	0.00	0.00

242	375	391	PL 3-1/2x5/8	A36	0.00	0.00	0.00
243	374	392	PL 3-1/2x5/8	A36	0.00	0.00	0.00
244	373	393	PL 3-1/2x5/8	A36	0.00	0.00	0.00
255	357	412	PL 3-1/2x5/8	A36	0.00	0.00	0.00
256	412	361	PL 3-1/2x5/8	A36	0.00	0.00	0.00
257	359	413	PL 3-1/2x5/8	A36	0.00	0.00	0.00
258	413	360	PL 3-1/2x5/8	A36	0.00	0.00	0.00
259	412	356	PL 11-1/4x5/8	A36	11.25	9.25	0.00
260	413	358	PL 11-1/4x5/8	A36	11.25	9.25	0.00
269	432	544	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
270	434	435	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
271	436	437	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
272	438	423	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
273	439	425	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
274	440	426	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
275	441	427	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
276	442	443	RndBar 5_8	A36	0.00	0.00	0.00
277	444	445	RndBar 5_8	A36	0.00	0.00	0.00
278	446	447	RndBar 5_8	A36	0.00	0.00	0.00
279	448	449	RndBar 5_8	A36	0.00	0.00	0.00
280	446	449	RndBar 3_4	A36	0.00	0.00	0.00
281	447	448	RndBar 3_4	A36	0.00	0.00	0.00
282	443	444	RndBar 3_4	A36	0.00	0.00	0.00
283	442	445	RndBar 3_4	A36	0.00	0.00	0.00
284	450	541	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
285	438	456	PL 3-1/2x5/8	A36	0.00	0.00	0.00
286	441	457	PL 3-1/2x5/8	A36	0.00	0.00	0.00
287	440	458	PL 3-1/2x5/8	A36	0.00	0.00	0.00
288	439	459	PL 3-1/2x5/8	A36	0.00	0.00	0.00
299	423	478	PL 3-1/2x5/8	A36	0.00	0.00	0.00
300	478	427	PL 3-1/2x5/8	A36	0.00	0.00	0.00
301	425	479	PL 3-1/2x5/8	A36	0.00	0.00	0.00
302	479	426	PL 3-1/2x5/8	A36	0.00	0.00	0.00
303	478	422	PL 11-1/4x5/8	A36	11.25	9.25	0.00
304	479	424	PL 11-1/4x5/8	A36	11.25	9.25	0.00
317	521	492	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
318	520	515	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
319	516	511	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
320	517	512	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
321	518	513	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
322	519	514	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
325	569	568	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
353	622	627	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
356	633	632	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
357	635	634	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
373	674	672	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
374	660	658	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
375	648	662	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
376	686	676	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
381	659	661	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
382	663	649	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
383	673	687	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00

Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
188	0.00	2	0.866	0.00	-0.50
189	0.00	2	0.866	0.00	-0.50
190	0.00	2	0.866	0.00	-0.50
191	0.00	2	0.866	0.00	-0.50
197	90.00	0	0.00	0.00	0.00
198	90.00	0	0.00	0.00	0.00
199	90.00	0	0.00	0.00	0.00
200	90.00	0	0.00	0.00	0.00
211	90.00	0	0.00	0.00	0.00
212	90.00	0	0.00	0.00	0.00
213	90.00	0	0.00	0.00	0.00
214	90.00	0	0.00	0.00	0.00
215	90.00	0	0.00	0.00	0.00
216	90.00	0	0.00	0.00	0.00
232	0.00	2	-0.866	0.00	-0.50
233	0.00	2	-0.866	0.00	-0.50
234	0.00	2	-0.866	0.00	-0.50
235	0.00	2	-0.866	0.00	-0.50
241	90.00	0	0.00	0.00	0.00
242	90.00	0	0.00	0.00	0.00
243	90.00	0	0.00	0.00	0.00
244	90.00	0	0.00	0.00	0.00
255	90.00	0	0.00	0.00	0.00
256	90.00	0	0.00	0.00	0.00
257	90.00	0	0.00	0.00	0.00
258	90.00	0	0.00	0.00	0.00
259	90.00	0	0.00	0.00	0.00
260	90.00	0	0.00	0.00	0.00
276	0.00	2	0.00	0.00	1.00
277	0.00	2	0.00	0.00	1.00
278	0.00	2	0.00	0.00	1.00
279	0.00	2	0.00	0.00	1.00
285	90.00	0	0.00	0.00	0.00
286	90.00	0	0.00	0.00	0.00
287	90.00	0	0.00	0.00	0.00
288	90.00	0	0.00	0.00	0.00
299	90.00	0	0.00	0.00	0.00
300	90.00	0	0.00	0.00	0.00
301	90.00	0	0.00	0.00	0.00
302	90.00	0	0.00	0.00	0.00
303	90.00	0	0.00	0.00	0.00
304	90.00	0	0.00	0.00	0.00
325	315.00	0	0.00	0.00	0.00
353	315.00	0	0.00	0.00	0.00
356	315.00	0	0.00	0.00	0.00
357	315.00	0	0.00	0.00	0.00

Rigid end offsets

Member	DJX [in]	DJY [in]	DJZ [in]	DKX [in]	DKY [in]	DKZ [in]
181	0.00	-2.00	0.00	0.00	-2.00	0.00
192	0.00	-3.50	0.00	0.00	3.50	0.00
193	0.00	3.50	0.00	0.00	-3.50	0.00
194	0.00	3.50	0.00	0.00	-3.50	0.00
195	0.00	-3.50	0.00	0.00	3.50	0.00

196	0.00	2.00	0.00	0.00	2.00	0.00
215	0.00	-0.625	0.00	0.00	-0.625	0.00
216	0.00	-0.625	0.00	0.00	-0.625	0.00
225	0.00	-2.00	0.00	0.00	-2.00	0.00
236	0.00	-3.50	0.00	0.00	3.50	0.00
237	0.00	3.50	0.00	0.00	-3.50	0.00
238	0.00	3.50	0.00	0.00	-3.50	0.00
239	0.00	-3.50	0.00	0.00	3.50	0.00
240	0.00	2.00	0.00	0.00	2.00	0.00
259	0.00	-0.625	0.00	0.00	-0.625	0.00
260	0.00	-0.625	0.00	0.00	-0.625	0.00
269	0.00	-2.00	0.00	0.00	-2.00	0.00
280	0.00	-3.50	0.00	0.00	3.50	0.00
281	0.00	3.50	0.00	0.00	-3.50	0.00
282	0.00	3.50	0.00	0.00	-3.50	0.00
283	0.00	-3.50	0.00	0.00	3.50	0.00
284	0.00	2.00	0.00	0.00	2.00	0.00
303	0.00	-0.625	0.00	0.00	-0.625	0.00
304	0.00	-0.625	0.00	0.00	-0.625	0.00

Hinges

Member	Node-J				Node-K				TOR	AXL	Axial rigidity
	M33	M22	V3	V2	M33	M22	V3	V2			
181	1	1	0	0	0	0	0	0	0	0	Full
193	0	0	0	0	0	0	0	0	0	0	Tension only
195	0	0	0	0	0	0	0	0	0	0	Tension only
196	1	1	0	0	0	0	0	0	0	0	Full
197	1	1	0	0	0	0	0	0	0	0	Full
198	1	1	0	0	0	0	0	0	0	0	Full
199	1	1	0	0	0	0	0	0	0	0	Full
200	1	1	0	0	0	0	0	0	0	0	Full
225	1	1	0	0	0	0	0	0	0	0	Full
237	0	0	0	0	0	0	0	0	0	0	Tension only
239	0	0	0	0	0	0	0	0	0	0	Tension only
240	1	1	0	0	0	0	0	0	0	0	Full
241	1	1	0	0	0	0	0	0	0	0	Full
242	1	1	0	0	0	0	0	0	0	0	Full
243	1	1	0	0	0	0	0	0	0	0	Full
244	1	1	0	0	0	0	0	0	0	0	Full
269	1	1	0	0	0	0	0	0	0	0	Full
281	0	0	0	0	0	0	0	0	0	0	Tension only
283	0	0	0	0	0	0	0	0	0	0	Tension only
284	1	1	0	0	0	0	0	0	0	0	Full
285	1	1	0	0	0	0	0	0	0	0	Full
286	1	1	0	0	0	0	0	0	0	0	Full
287	1	1	0	0	0	0	0	0	0	0	Full
288	1	1	0	0	0	0	0	0	0	0	Full

1542 BOSTON POST RD

Location 1542 BOSTON POST RD

Mblu 182 / / 007 / /

Acct# C0071600

Owner CONN WATER CO

Assessment \$325,720

Appraisal \$465,300

PID 770

Building Count 1

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2016	\$64,020	\$401,280	\$465,300

Assessment			
Valuation Year	Improvements	Land	Total
2016	\$44,820	\$280,900	\$325,720

Owner of Record

Owner CONN WATER CO
Co-Owner
Address 93 W MAIN ST
CLINTON, CT 06413

Sale Price \$0
Certificate
Book & Page 15/287
Sale Date 01/01/1901
Instrument 25

Ownership History

Ownership History					
Owner	Sale Price	Certificate	Book & Page	Instrument	Sale Date
CONN WATER CO	\$0		15/287	25	01/01/1901

Building Information

Building 1 : Section 1

Year Built:
Living Area: 0
Replacement Cost: \$0
Building Percent Good:
Replacement Cost
Less Depreciation: \$0

Building Attributes

Field	Description
Style	Vacant Commercial
Model	
Grade:	
Stories	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Full Bthrms:	
Half Baths:	
Extra Fixtures	
Total Rooms:	
Bath Style:	
Kitchen Style:	
Extra Kitchens	
Fireplace(s)	
Usrflid 103	
Gas Fireplace(s)	
Stacks	
Bsmt Garage(s)	
Usrflid 107	
Callback	
Fireplaces	
Fin Bsmnt	
Fin Bsmnt Qual	
Bsmt Heat	
Int Vs Ext	
Usrflid 300	
Usrflid 301	

Building Photo



(<http://images.vgsi.com/photos2/WestbrookCTPhotos/\00\00\84\50.jpg>)

Building Layout

(http://images.vgsi.com/photos2/WestbrookCTPhotos//Sketches/770_770.j)

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

Extra Features	<u>Legend</u>
No Data for Extra Features	

Land

Land Use

Use Code 200
Description Comm Land
Zone NCD
Neighborhood BP
Alt Land Appr No
Category

Land Line Valuation

Size (Acres) 0.61
Depth
Assessed Value \$280,900
Appraised Value \$401,280

Outbuildings

Outbuildings							<u>Legend</u>
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #	Comment
TCM	Telecomm			360.00 S.F.&HGT	\$10,710	1	
TCS	Telecomm Site			1.00 UNITS	\$540	1	
TCS	Telecomm Site			1.00 UNITS	\$540	1	
TCS	Telecomm Site			1.00 UNITS	\$540	1	
TCM	Telecomm			1.00 S.F.&HGT	\$20	1	
TCS	Telecomm Site			0.00 UNITS	\$51,670	1	

Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2019	\$64,020	\$401,280	\$465,300
2018	\$64,020	\$401,280	\$465,300
2017	\$587,350	\$401,280	\$988,630

Assessment			
Valuation Year	Improvements	Land	Total
2019	\$44,820	\$280,900	\$325,720
2018	\$44,820	\$280,900	\$325,720
2017	\$411,150	\$280,900	\$692,050

Town of Westbrook, CT

Property



1542 boston post rd



Search

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Zoom To Results

Download Results

All Results

Showing 1-1 results. Scroll to see more.



1542 BOSTON POST RD
CONN WATER CO
182/007



Google (https://www.google.com/maps/@41.34,-72.571128,19z?hl=en-US)
MapGeo (http://www.mapgeo.io)
Map data ©2020



STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: siting.council@ct.gov

www.ct.gov/csc

August 16, 2019

Christopher B. Fisher, Esq.
Cuddy & Feder LLP
445 Hamilton Avenue, 14th Floor
White Plains, New York 10601

RE: **DOCKET NO. 485** – MCM Holdings, LLC and Celco Partnership d/b/a Verizon
Wireless application for a Certificate of Environmental Compatibility and Public Need for
the construction, maintenance, and operation of a telecommunications facility at one of two
sites: 1542 Boston Post Road or at the end of Kirtland Street, Westbrook, Connecticut.

Dear Attorney Fisher:

By its Decision and Order dated August 15, 2019, the Connecticut Siting Council (Council) granted a
Certificate of Environmental Compatibility and Public Need (Certificate) for the construction,
maintenance, and operation of a telecommunications facility at proposed Site A, located at 1542
Boston Post Road, Westbrook, Connecticut.

Enclosed are the Council's Certificate, Findings of Fact, Opinion, and Decision and Order.

Sincerely,

Melanie A. Bachman, Esq.
Executive Director

MAB/RDM/lm

Enclosures (4)

c: Parties and Intervenors
State Documents Librarian (via email)

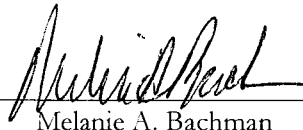
STATE OF CONNECTICUT)

: ss. New Britain, Connecticut August 16, 2019

COUNTY OF HARTFORD)

I hereby certify that the foregoing is a true and correct copy of the Findings of Fact, Opinion, and Decision and Order issued by the Connecticut Siting Council, State of Connecticut.

ATTEST:



Melanie A. Bachman
Executive Director
Connecticut Siting Council

I certify that a copy of the Findings of Fact, Opinion, and Decision and Order in Docket No. 485 has been forwarded by Certified First Class Return Receipt Requested mail, on August 16, 2019, to all parties and intervenors of record as listed on the attached service list, dated April 4, 2019.

ATTEST:



Lisa A. Mathews
Office Assistant
Connecticut Siting Council



STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: siting.council@ct.gov

www.ct.gov/csc

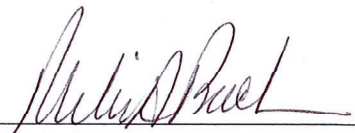
**CERTIFICATE
OF
ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED
DOCKET NO. 485**

Pursuant to General Statutes § 16-50k, as amended, the Connecticut Siting Council hereby issues a Certificate of Environmental Compatibility and Public Need to MCM Holdings, LLC for the construction, maintenance, and operation of a telecommunications facility at proposed Site A, located at 1542 Boston Post Road, Westbrook, Connecticut. This Certificate is issued in accordance with and subject to the terms and conditions set forth in the Decision and Order of the Council on August 15, 2019.



August 15, 2019

By order of the Council,



Melanie A. Bachman, Executive Director



July 7th , 2020

Re: Letter of Authorization

Applicant: AT&T Mobility

Site Address: 1542 Boston Post Road, Westbrook, CT 06498

To Whom it May Concern:

AT&T Mobility is seeking to install an antenna facility at the above referenced location. As the owner of the tower, permission is hereby granted to AT&T Mobility and its agents for the purpose of consummating any applications necessary to gain the required land use approvals or permits on the above-referenced structure from the CT Siting Council and/or Town of Westbrook.





Any fees or charges associated with all applications or permits and any conditions placed on the Applicant shall be the responsibility of AT&T Mobility, its subsidiaries and agents.

Sincerely,





By:  _____

Name: Matthew Bandle

Title: Project Manager
Hereunto Duly Authorized

 UNITED STATES POSTAL SERVICE®	Click-N-Ship®	
		<small>usps.com</small> US POSTAGE <small>Flat Rate Env</small> 9405 5036 9930 0454 2745 20 0077 5000 0010 6498 
<small>07/14/2020</small>		<small>Mailed from 06450 062S0000001308</small>
PRIORITY MAIL 1-DAY™		
<small>HOLLIS REDDING 39 WESTVIEW DR MERIDEN CT 06450-4723</small>		
<small>Expected Delivery Date: 07/15/20</small>		0005
<div style="border: 1px solid black; padding: 5px; display: inline-block;"> R003 </div>		
<small>SHIP TO:</small> NOEL BISHOP ERIC KNAPP TOWN OF WESTBROOK 866 BOSTON POST RD WESTBROOK CT 06498-1881		
USPS TRACKING #		
		
9405 5036 9930 0454 2745 20		
Electronic Rate Approved #038555749		

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<small>07/14/2020</small>		<small>Mailed from 06450 062S00000001309</small>
PRIORITY MAIL 1-DAY™		
<small>HOLLIS REDDING 39 WESTVIEW DR MERIDEN CT 06450-4723</small>		
<small>Expected Delivery Date: 07/15/20</small>		0005
<div style="border: 1px solid black; padding: 5px; display: inline-block;"> C006 </div>		
<small>SHIP TO:</small> MELANIE BACHMAN CONNECTICUT SITING COUNCIL 10 FRANKLIN SQ NEW BRITAIN CT 06051-2655		
USPS TRACKING #		
		
9405 5036 9930 0453 1007 45		
Electronic Rate Approved #038555749		





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07/14/2020

Mailed from 06450 062S0000001309

P

PRIORITY MAIL 1-DAY™

HOLLIS REDDING

Expected Delivery Date: 07/15/20

39 WESTVIEW DR
MERIDEN CT 06450-4723

0005

Carrier -- Leave if No Response

C008

SHIP TO:

CONNECTICUT WATER COMPANY
93 W MAIN ST
CLINTON CT 06413-1645

USPS TRACKING #



9405 5036 9930 0453 1007 76

Electronic Rate Approved #038555749



UNITED STATES
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9405 5036 9930 0453 1007 90 0077 5000 0010 6105

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Flat Rate Env



07/13/2020

Mailed from 06450 062S0000001310

P

PRIORITY MAIL 1-DAY™

HOLLIS REDDING

Expected Delivery Date: 07/14/20

39 WESTVIEW DR
MERIDEN CT 06450-4723

0005

Carrier -- Leave if No Response

C011

SHIP TO:

MATT BANDLE
MESSAGE CENTER MANAGEMENT
40 WOODLAND ST
HARTFORD CT 06105-2331

USPS TRACKING #



9405 5036 9930 0453 1007 90

Electronic Rate Approved #038555749

Cut on dotted line.

