QC Development
PO Box 916
Storrs, CT 06268
860-670-9068
Mark.Roberts@QCDevelopment.net

March 8, 2019

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

Notice of Exempt Modification – New Cingular Wireless PCS, LLC (AT&T) – CT5425
54 Floydville Road, East Granby, CT 06026
N 41.92866667
W 72.77604444

Dear Ms. Bachman:

AT&T currently maintains nine (9) antennas at the 89-foot level of the existing 120-foot Monopole at 54 Floydville Road, East Granby, CT. The tower is owned by SBA and the property is owned by D I Paine & Sons LLC. AT&T now intends to swap (6) Powerwave antennas for three (3) Kathrien 800-10966 and three (3) CCI HPA-65R-BU8AA antennas. AT&T will also swap (3) Ericsson RRUS-11 for (3) B5/B12 4449 and add (3) B2/B66 8843 Remote Radio Units (RRU). The new antennas and RRUs will also be installed at the 89-foot level of the tower.

AT&T's use of this facility was approved by the Connecticut Siting Council on April 25, 2002. This approval included no condition(s) that could feasibly be violated by this modification, including total facility height or mounting restrictions. This modification therefore complies with the aforementioned approval.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to James Hayden, First Selectman of the Town of East Granby and the Town's Planning & Zoning

Department, as well as the property owner and the tower owner.

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

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

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

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

4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.

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

6. The existing structure and its foundation can support the proposed loading.

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

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

Sincerely,

Mark Roberts
QC Development
Consultant for AT&T

Attachments

cc: James Hayden - Elected Official
Gary Haynes – Director of Community Development
D I Paine & Sons LLC – Property Owner
SBA - Tower Owner (via e-mail)

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*							7.00%
AT&T GSM	1	283	89	0.0148	880	0.5867	0.25%
AT&T UMTS	2	565	89	0.0590	880	0.5867	1.01%
AT&T UMTS	4	525	89	0.1096	1900	1.0000	1.10%
AT&T LTE	1	1615	89	0.0843	734	0.4893	1.72%
AT&T LTE	2	875	89	0.0914	1900	1.0000	0.91%
Site Total							11.99%

*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

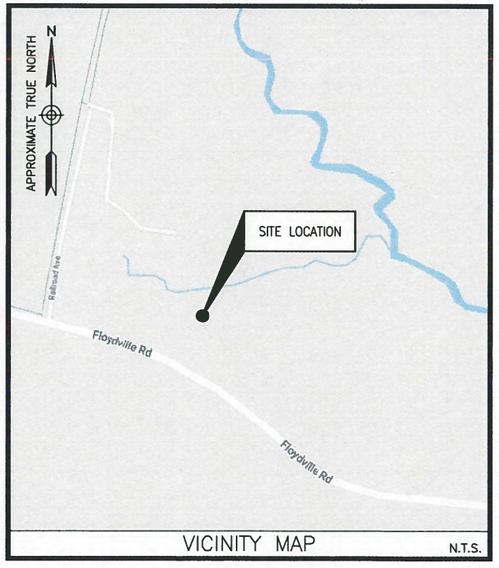
Proposed Loading on Tower

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*							7.00%
AT&T UMTS	1	565	89	0.0295	850	0.5667	0.52%
AT&T UMTS	1	525	89	0.0274	1900	1.0000	0.27%
AT&T LTE	1	1476	89	0.0771	700	0.4667	1.65%
AT&T LTE	1	1000	89	0.0522	850	0.5667	0.92%
AT&T 5G	1	1000	89	0.0522	850	0.5667	0.92%
AT&T LTE	2	3664	89	0.3825	1900	1.0000	3.83%
AT&T LTE	1	3837	89	0.2003	2100	1.0000	2.00%
Site Total							17.11%

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

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

SITE NAME: EAST GRANBY SW
SITE NUMBER: CT5425
56 FLOYDVILLE ROAD
EAST GRANBY, CT 06026
SBA ID: CT03801-S
FA CODE: 10090915
PACE ID: MRCTB035191, MRCTB035223, MRCTB035167, MRCTB035307
PROJECT: LTE 2C, 3C, 4C



VICINITY MAP N.T.S.

SITE COORDINATES:
LATITUDE: 41°-55'-42.9" N
LONGITUDE: -72°-46'-34" W
(PER EXISTING DRAWINGS PROVIDED)

ELEVATION DATA:
GRADE ELEVATION AT TOWER = 214'± A.M.S.L.
(PER GOOGLE EARTH)

SITE INFORMATION

- SWAP (3) EXISTING LTE ANTENNAS FOR (3) 8' HPA-65R-BUBAA HEX ANTENNAS
- SWAP (3) EXISTING GSM ANTENNAS FOR (3) 8' 800-10966 OCTO ANTENNAS
- SWAP (3) EXISTING RRUS-11S FOR (3) B5/B12-4449 RRUS UP TOP
- ADD (3) B2/B66A-8843 RRUS UP TOP
- ADD (1) DC6-48-60-18-8C SQUID WITH (1) 2" CONDUIT FOR 2 DC/1 FIBER
- SWAP DUS FOR RBS 6630 & ADD 5G RBS 6630

PROJECT DESCRIPTION

SITE NAME:
EAST GRANBY SW

SITE NUMBER:
CT5425

SITE ADDRESS:
56 FLOYDVILLE ROAD
EAST GRANBY, CT 06026

TOWER OWNER:
SBA COMMUNICATIONS CORPORATION
8051 CONGRESS AVENUE
BOCA RATON, FL 33487

APPLICANT/LESSEE:
AT&T MOBILITY
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

PROJECT INFORMATION

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

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

SHEET NUMBER	DESCRIPTION
T-1	TITLE SHEET
G-1	GENERAL NOTES
C-1	COMPOUND PLAN
C-2	EXISTING & PROPOSED EQUIPMENT LAYOUTS
C-3	EXISTING & PROPOSED WEST ELEVATIONS
C-4	EXISTING & PROPOSED ANTENNA LAYOUTS
C-5	CONSTRUCTION DETAILS I
C-6	CONSTRUCTION DETAILS II
C-7	PLUMBING DIAGRAM
E-1	GROUNDING NOTES & DETAILS

SHEET INDEX

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

SAI
12 INDUSTRIAL WAY
SALEM, NH 03079

CT5425
EAST GRANBY SW

CONSTRUCTION DRAWINGS

0	03/04/19	ISSUED AS FINAL
B	03/01/19	REVISED PER COMMENTS
A	02/17/19	ISSUED FOR REVIEW

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

STATE OF CONNECTICUT
JIANG YU
No. 23222
LICENSED
PROFESSIONAL ENGINEER

JIANG YU, P.E.
CONNECTICUT LICENSE NO. 0023222

DRAWN BY:	AMD
REVIEWED BY:	BSH
CHECKED BY:	GHN
PROJECT NUMBER:	50055106
JOB NUMBER:	50093841
SITE ADDRESS:	

56 FLOYDVILLE ROAD
EAST GRANBY, CT 06026

SHEET TITLE

TITLE SHEET

SHEET NUMBER

T-1

GENERAL NOTES:

1. 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
2. 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.
3. 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.
4. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
5. DRAWINGS PROVIDED HERE ARE NOT TO SCALE UNLESS OTHERWISE NOTED AND ARE INTENDED TO SHOW OUTLINE ONLY.
6. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
7. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY PROJECT MANAGEMENT.
9. 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.
10. 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.
11. 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.
12. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
13. 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.
14. 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.
15. 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.
16. 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.
17. 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:

1. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
2. 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.
3. ALL SITE WORK SHALL BE AS INDICATED ON THE DRAWINGS AND PROJECT SPECIFICATIONS.
4. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES, TOP SOIL AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
5. 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.
6. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION.
7. THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE AT&T SPECIFICATION FOR SITE SIGNAGE.
8. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE TRANSMISSION EQUIPMENT AND TOWER AREAS.
9. 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.
10. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION, SEE SOIL COMPACTION NOTES.
11. 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.
12. 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:

1. 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.
2. 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.
3. 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.
4. 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 LARGER .....2 IN.
   #5 AND SMALLER & WWF.....1 1/2 IN.
   CONCRETE NOT EXPOSED TO EARTH OR WEATHER OR NOT CAST AGAINST THE GROUND:
   SLAB AND WALL .....3/4 IN.
   BEAMS AND COLUMNS.....1 1/2 IN.
5. A CHAMFER 3/4" SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNO, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.
6. 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.
7. 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.
8. 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.
9. 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:

1. 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".
2. 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.
3. BOLTED CONNECTIONS SHALL BE ASTM A325 BEARING TYPE (3/4"Ø) CONNECTIONS AND SHALL HAVE MINIMUM OF TWO BOLTS UNLESS NOTED OTHERWISE.
4. NON-STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE 5/8" DIA. ASTM A 307 BOLTS UNLESS NOTED OTHERWISE.
5. 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.
6. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ENGINEER REVIEW & APPROVAL ON PROJECTS REQUIRING STRUCTURAL STEEL.
7. ALL STRUCTURAL STEEL WORK SHALL BE DONE IN ACCORDANCE WITH AISC SPECIFICATIONS.

SOIL COMPACTION NOTES FOR SLAB ON GRADE:

1. EXCAVATE AS REQUIRED TO REMOVE VEGETATION & TOPSOIL EXPOSE UNDISTURBED NATURAL SUBGRADE AND PLACE CRUSHED STONE AS REQUIRED.
2. COMPACTION CERTIFICATION: AN INSPECTION AND WRITTEN CERTIFICATION BY A QUALIFIED GEOTECHNICAL TECHNICIAN OR ENGINEER IS ACCEPTABLE.
3. 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.
4. 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.
5. 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:

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

CONSTRUCTION NOTES:

1. FIELD VERIFICATION:
   CONTRACTOR SHALL FIELD VERIFY SCOPE OF WORK, AT&T ANTENNA PLATFORM LOCATION AND ANTENNAS TO BE REPLACED.
2. COORDINATION OF WORK:
   CONTRACTOR SHALL COORDINATE RF WORK AND PROCEDURES WITH PROJECT MANAGEMENT.
3. 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:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE LOCAL CODES.
2. 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.
3. CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED.
4. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
5. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
6. CABLES SHALL NOT BE ROUTED THROUGH LADDER-STYLE CABLE TRAY RUNGS.
7. 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.
8. 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).
9. PANELBOARDS (ID NUMBERS) AND INTERNAL CIRCUIT BREAKERS (CIRCUIT ID NUMBERS) SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS.
10. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
11. 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.
12. 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.
13. 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.
14. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED OUTDOORS, OR BELOW GRADE, SHALL BE SINGLE CONDUCTOR #2 AWG SOLID TINNED COPPER CABLE, UNLESS OTHERWISE SPECIFIED.
15. 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.
16. 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).
17. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE, AND NEC.
18. NEW RACEWAY OR CABLE TRAY WILL MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.
19. 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.
20. ELECTRICAL METALLIC TUBING (EMT), ELECTRICAL NONMETALLIC TUBING (ENT), OR RIGID NONMETALLIC CONDUIT (RIGID PVC, SCHEDULE 40) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
21. GALVANIZED STEEL INTERMEDIATE METALLIC CONDUIT (IMC) SHALL BE USED FOR OUTDOOR LOCATIONS ABOVE GRADE.
22. 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.
23. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
24. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SETSCREW FITTINGS ARE NOT ACCEPTABLE.
25. CABINETS, BOXES, AND WIREWAYS SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE, AND NEC.
26. CABINETS, BOXES, AND WIREWAYS TO MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.
27. 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.
28. 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.
29. 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.
30. 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.
31. THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM PROJECT MANAGEMENT BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
32. 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.

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CONSTRUCTION DRAWINGS		
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SUITE 301
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PHONE: 973.739.9400
FAX: 973.739.9710

STATE OF CONNECTICUT
JIANG YU
No. 28222
LICENSED
PROFESSIONAL ENGINEER
JIANG YU, P.E.
CONNECTICUT LICENSE NO. 0023222

DRAWN BY:	AMD
REVIEWED BY:	BSH
CHECKED BY:	GHN
PROJECT NUMBER:	50055106
JOB NUMBER:	50093841
SITE ADDRESS:	

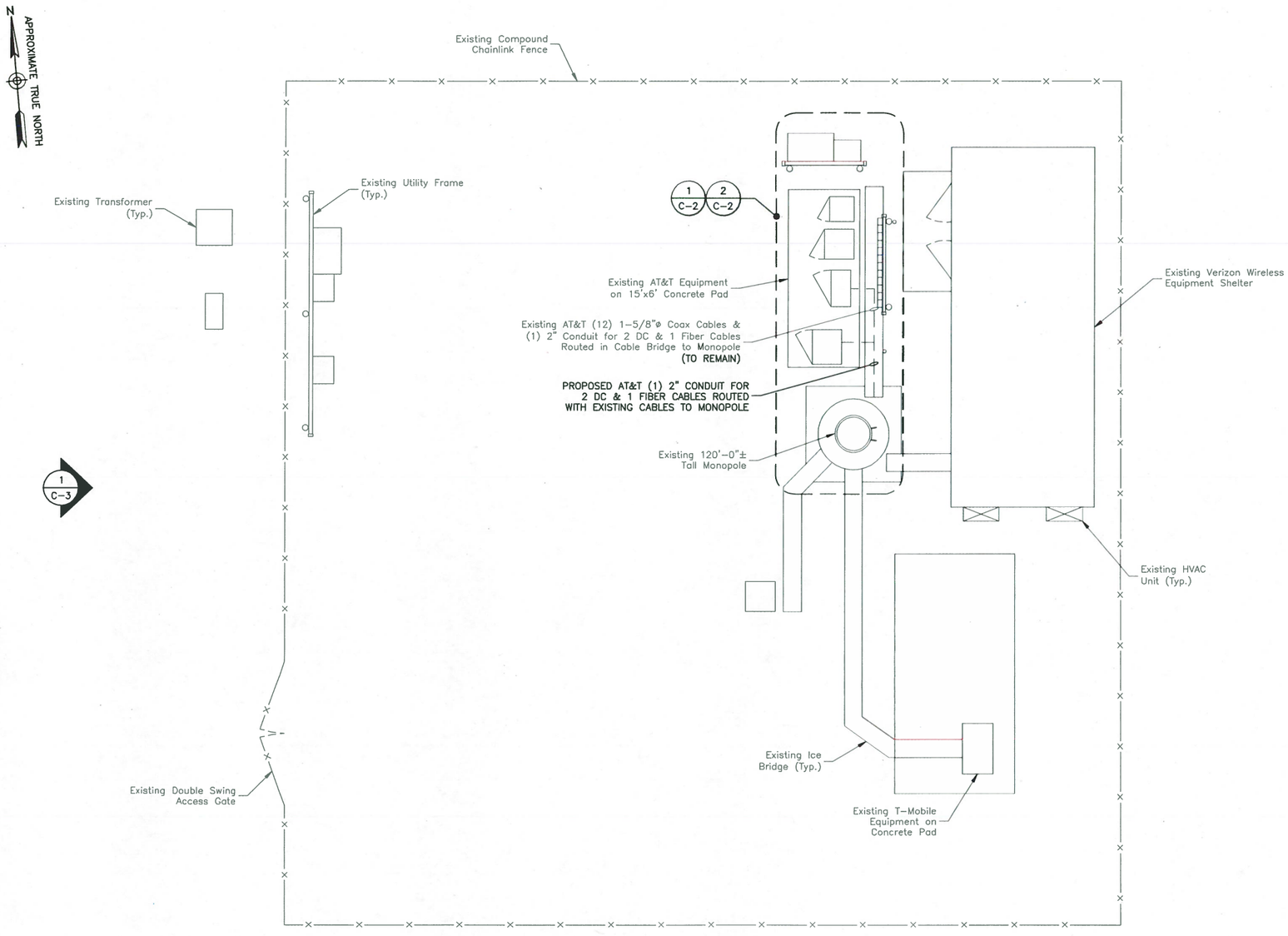
56 FLOYDVILLE ROAD
EAST GRANBY, CT 06026

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

G-1



COMPOUND PLAN 1

SCALE: 3/32"=1' FOR 11"x17"
3/16"=1' FOR 22"x34"

0' 4' 8' 12'

NOTES:

1. NORTH SHOWN AS APPROXIMATE.
2. NOT ALL INFORMATION IS SHOWN FOR CLARITY.
3. COMPOUND PLAN BASED ON SITE VISIT CONDUCTED BY DEWBERRY ENGINEERS INC. ON 12/10/18 AND EXISTING PLANS BY HUDSON DESIGN GROUP LLC DATED 04/10/12.
4. ALL PROPOSED EQUIPMENT, INCLUDING ANTENNAS, COAX, SURGE ARRESTORS, TMA'S, RRU'S, ETC., SHALL BE MOUNTED IN ACCORDANCE WITH THE TOWER STRUCTURAL ANALYSIS BY TOWER ENGINEERING SOLUTIONS DATED FEBRUARY 18, 2019 AND APPURTENANCE MOUNT ANALYSIS BY B+T GROUP DATED JANUARY 29, 2019.

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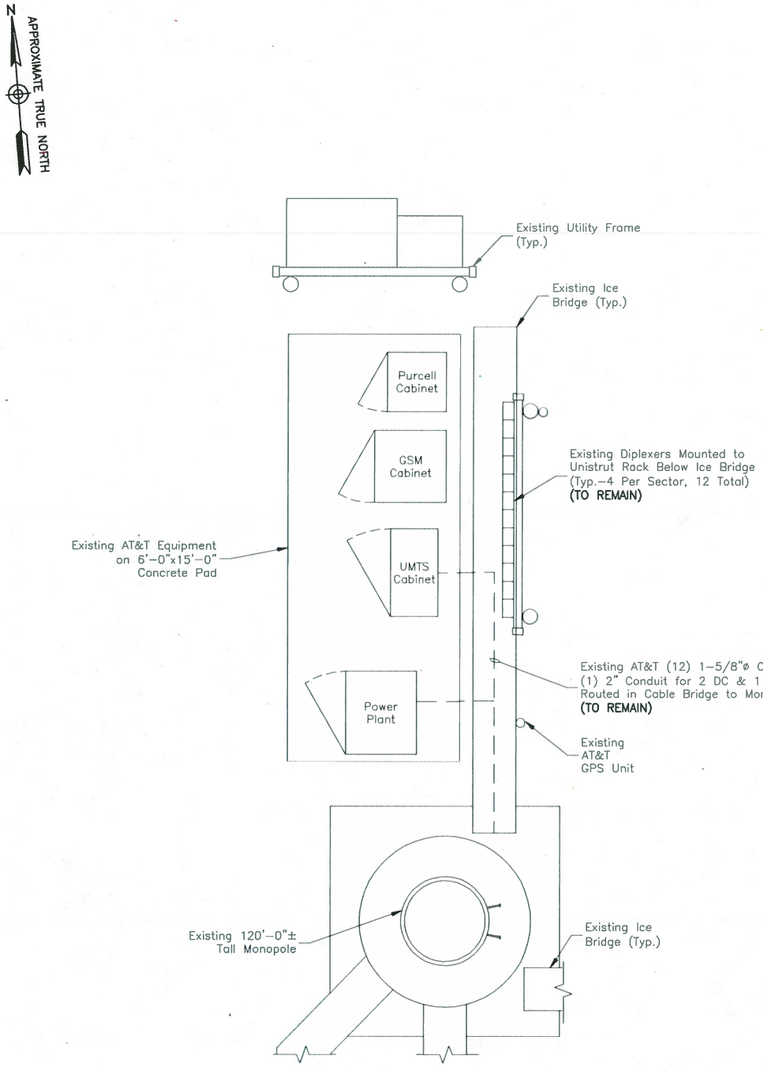
SHEET TITLE

COMPOUND PLAN

SHEET NUMBER

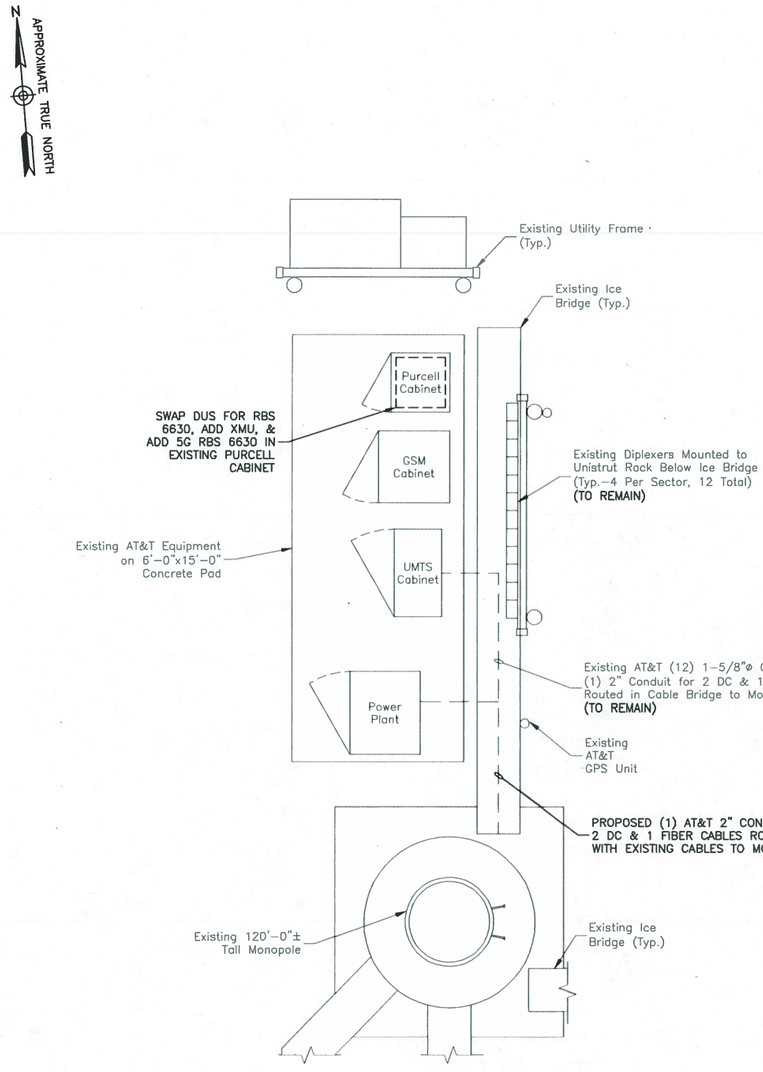
C-1



EXISTING EQUIPMENT LAYOUT 1

SCALE: 3/16"=1' FOR 11"x17"
3/8"=1' FOR 22"x34"

0' 2' 4' 6'



PROPOSED EQUIPMENT LAYOUT 2

SCALE: 3/16"=1' FOR 11"x17"
3/8"=1' FOR 22"x34"

0' 2' 4' 6'

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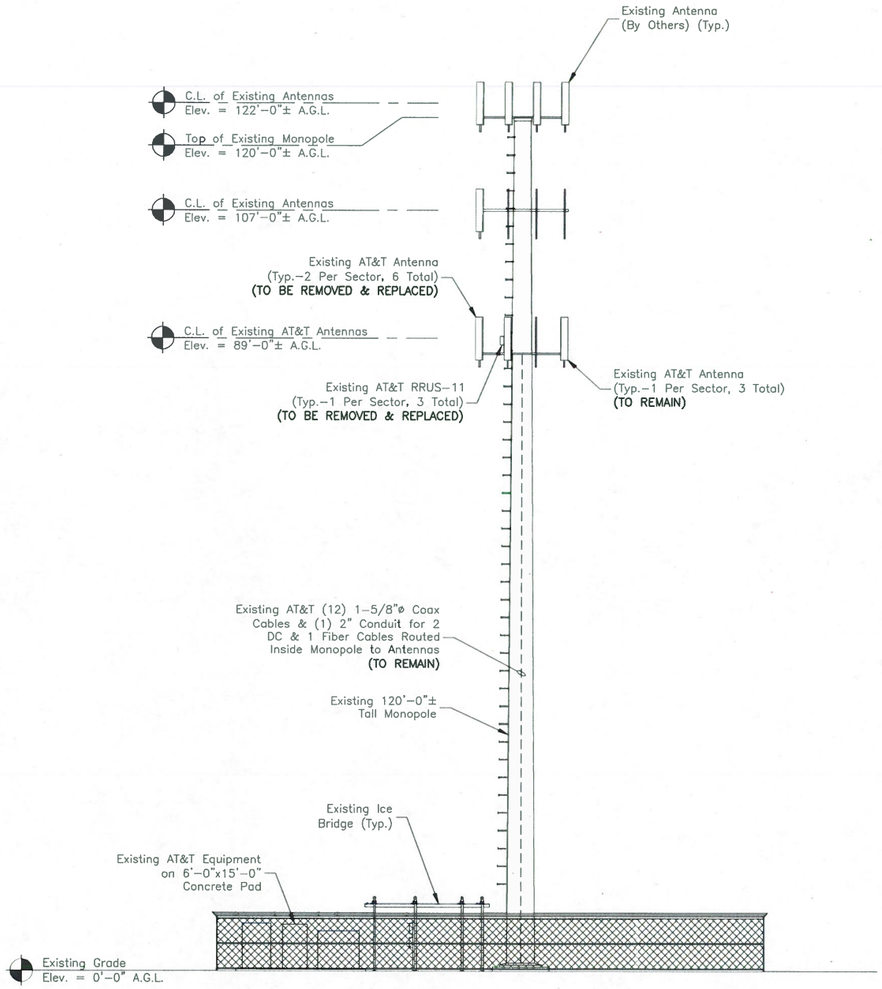
SHEET TITLE

EXISTING & PROPOSED EQUIPMENT LAYOUTS

SHEET NUMBER

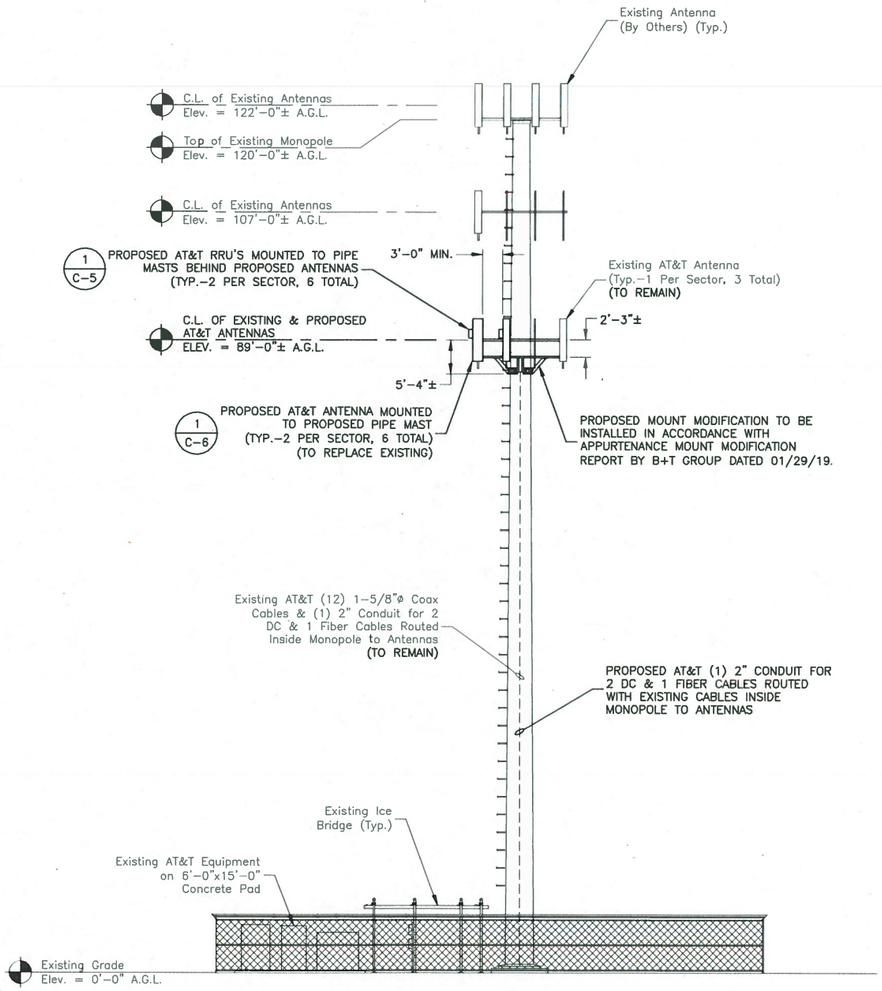
C–2



EXISTING WEST ELEVATION 1

SCALE: 3/64"=1' FOR 11"x17"
3/32"=1' FOR 22"x34"

0' 8' 16' 24'



PROPOSED WEST ELEVATION 2

SCALE: 3/64"=1' FOR 11"x17"
3/32"=1' FOR 22"x34"

0' 8' 16' 24'

NOTES:

1. NOT ALL INFORMATION IS SHOWN FOR CLARITY.
2. WEST ELEVATION BASED ON SITE VISIT CONDUCTED BY DEWBERRY ENGINEERS INC. ON 12/10/18 AND EXISTING PLANS BY HUDSON DESIGN GROUP LLC DATED 04/10/12.
3. ALL PROPOSED EQUIPMENT, INCLUDING ANTENNAS, COAX, SURGE ARRESTORS, TMA'S, RRU'S, ETC., SHALL BE MOUNTED IN ACCORDANCE WITH THE TOWER STRUCTURAL ANALYSIS BY TOWER ENGINEERING SOLUTIONS DATED FEBRUARY 18, 2019 AND APPURTENANCE MOUNT MODIFICATION REPORT BY B+T GROUP DATED JANUARY 29, 2019.

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JIANG YU
No. 28222
LICENSED PROFESSIONAL ENGINEER

J. JIANG, P.E.
CONNECTICUT LICENSE NO. 0023222

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REVIEWED BY:	BSH
CHECKED BY:	GHN
PROJECT NUMBER:	50055106
JOB NUMBER:	50093841
SITE ADDRESS:	

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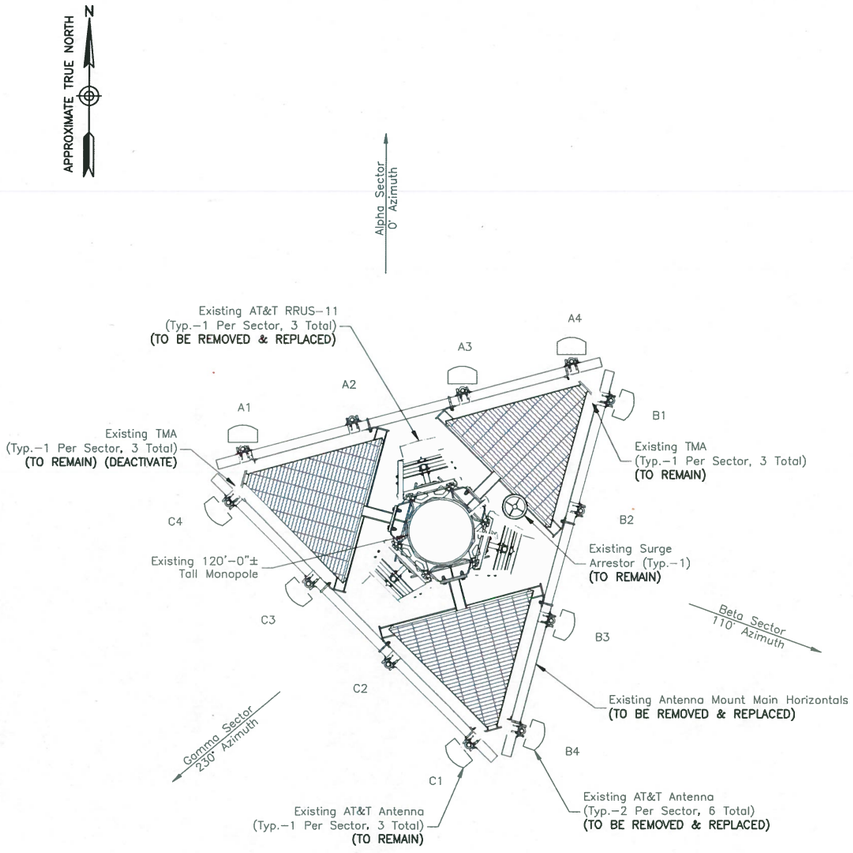
EAST GRANBY, CT 06026

SHEET TITLE

EXISTING & PROPOSED
WEST ELEVATIONS

SHEET NUMBER

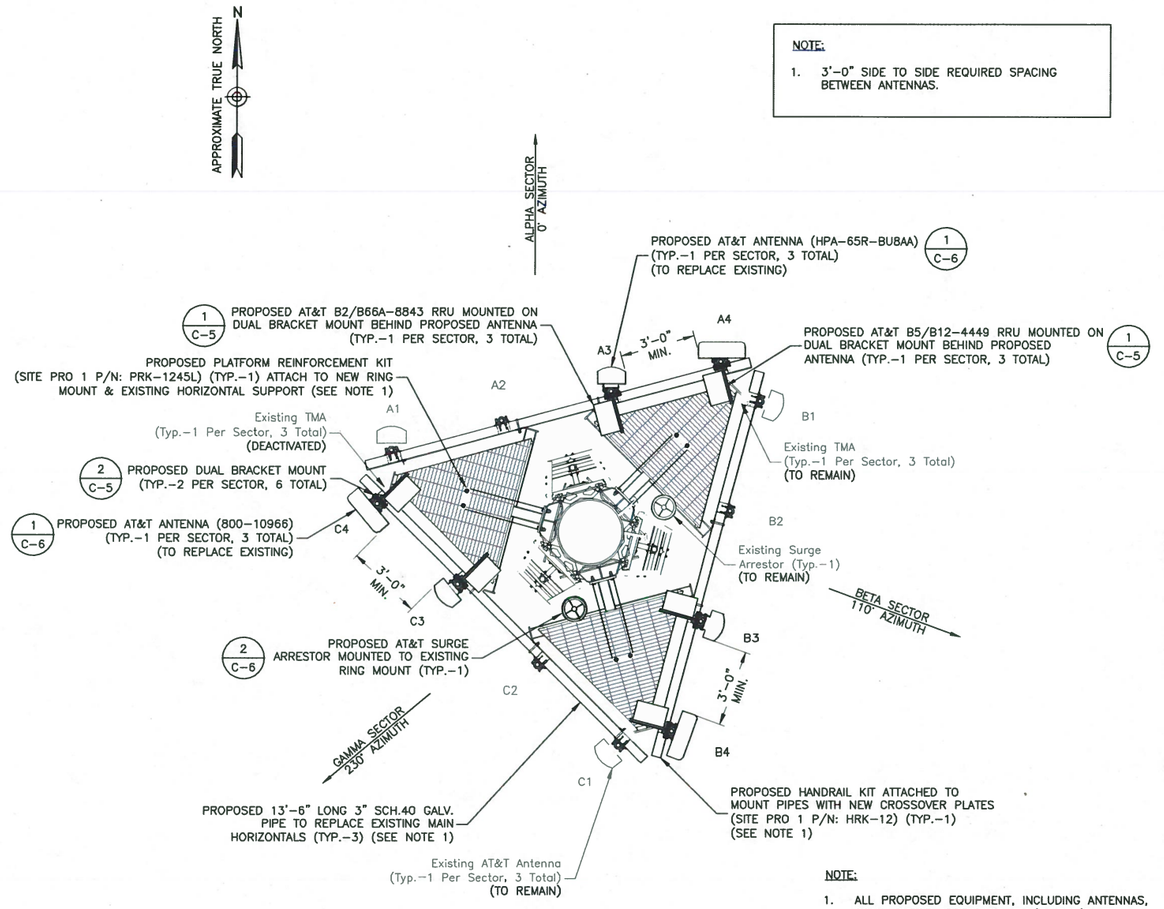
C-3



EXISTING ANTENNA LAYOUT (1)

SCALE: 3/16"=1' FOR 11"x17"
3/8"=1' FOR 22"x34"

0' 2' 4' 6'



NOTE:

1. 3'-0" SIDE TO SIDE REQUIRED SPACING BETWEEN ANTENNAS.

PROPOSED ANTENNA LAYOUT (2)

SCALE: 3/16"=1' FOR 11"x17"
3/8"=1' FOR 22"x34"

0' 2' 4' 6'

NOTE:

1. ALL PROPOSED EQUIPMENT, INCLUDING ANTENNAS, COAX, SURGE ARRESTORS, TMA'S, RRU'S, ETC., SHALL BE MOUNTED IN ACCORDANCE WITH THE TOWER STRUCTURAL ANALYSIS BY TOWER ENGINEERING SOLUTIONS DATED FEBRUARY 18, 2019 AND APPURTENANCE MOUNT MODIFICATION REPORT BY B+T GROUP DATED JANUARY 29, 2019.

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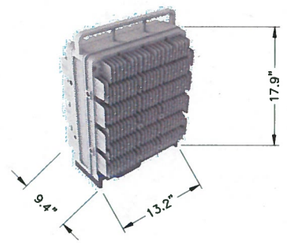
SHEET TITLE

EXISTING & PROPOSED ANTENNA LAYOUTS

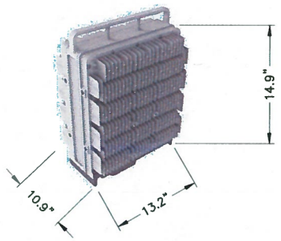
SHEET NUMBER

C-4



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

ERICSSON RRUS B5/B12 4449



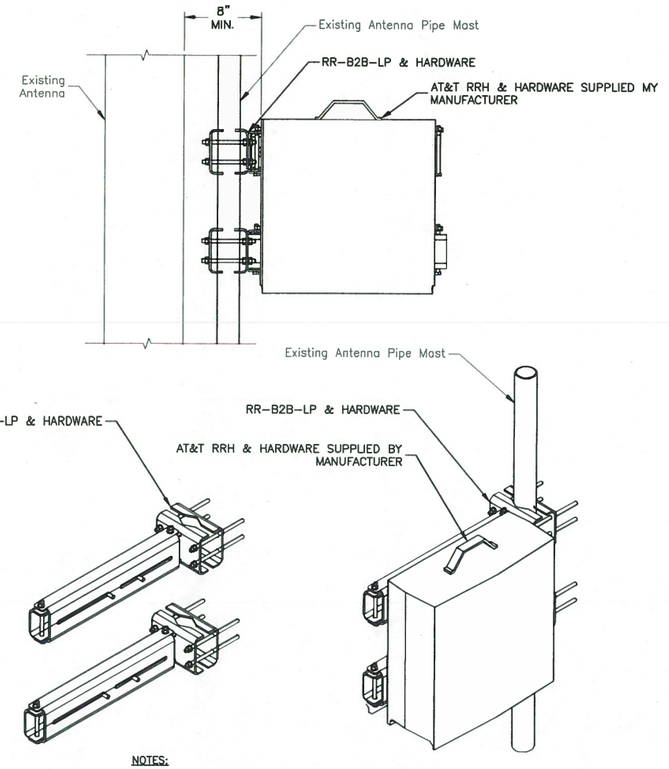
SPECIFICATIONS:
HEIGHT: 14.9"
WIDTH: 13.2"
DEPTH: 10.9"
WEIGHT: 72.0 LBS

ERICSSON RRUS B2/B66A 8843

RRU NOTES:

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

REMOTE RADIO UNIT DETAILS (1)
SCALE: N.T.S.



NOTES:

1. 8" MIN. BETWEEN BACK OF ANTENNA & RRH UNIT.
2. CONTRACTOR TO COMPLY WITH MANUFACTURER'S INSTRUCTIONS TO ENSURE THAT ALL RRH UNITS RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING. DO NOT OPEN RRH UNITS IN THE RAIN.

RRH DUAL BRACKET MOUNT DETAIL (2)
SCALE: N.T.S.

ANTENNA SCHEDULE

SECTOR	EXISTING/PROPOSED	BAND	ANTENNA	ANTENNA CENTERLINE	AZIMUTH	TMA/DIPLEXERS ON TOWER	RRU'S ON TOWER	FEEDER	SURGE ARRESTORS ON TOWER
A1	EXISTING	UMTS 850	POWERWAVE 7770	89'-0"±	0°	(2) POWERWAVE/LGP 21901 (1) TT19-08BP111-001 TWIN	–	(2) 1-5/8" COAX	(E) (1) RAYCAP DC6-48-60-18-8F (P) (1) RAYCAP DC6-48-60-18-8C
A2	–	–	–	–	–	–	–	–	
A3	PROPOSED	LTE PCS	CCI HPA-65R-BU8AA	89'-0"±	0°	–	(P) ERICSSON RRUS B2/B66A 8843	(2) 1-5/8" COAX/ FIBER	
A4	PROPOSED	LTE 700 BC/850/AWS	KATHREIN 800-10966	89'-0"±	0°	–	(P) ERICSSON RRUS B5/B12 4449	FIBER	
B1	EXISTING	UMTS 850	POWERWAVE 7770	89'-0"±	110°	(2) POWERWAVE/LGP 21901 (1) TT19-08BP111-001 TWIN	–	(2) 1-5/8" COAX	
B2	–	–	–	–	–	–	–	–	
B3	PROPOSED	LTE PCS	CCI HPA-65R-BU8AA	89'-0"±	110°	–	(P) ERICSSON RRUS B2/B66A 8843	(2) 1-5/8" COAX/ FIBER	
B4	PROPOSED	LTE 700 BC/850/AWS	KATHREIN 800-10966	89'-0"±	110°	–	(P) ERICSSON RRUS B5/B12 4449	FIBER	
C1	EXISTING	UMTS 850	POWERWAVE 7770	89'-0"±	230°	(2) POWERWAVE/LGP 21901 (1) TT19-08BP111-001 TWIN	–	(2) 1-5/8" COAX	
C2	–	–	–	–	–	–	–	–	
C3	PROPOSED	LTE PCS	CCI HPA-65R-BU8AA	89'-0"±	230°	–	(P) ERICSSON RRUS B2/B66A 8843	(2) 1-5/8" COAX/ FIBER	
C4	PROPOSED	LTE 700 BC/850/AWS	KATHREIN 800-10966	89'-0"±	230°	–	(P) ERICSSON RRUS B5/B12 4449	FIBER	

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STATE OF CONNECTICUT
JIANG YU
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LICENSED
PROFESSIONAL ENGINEER

JIANG YU, P.E.
CONNECTICUT LICENSE NO. 0023222

DRAWN BY: AMD
REVIEWED BY: BSH
CHECKED BY: GHN
PROJECT NUMBER: 50055106
JOB NUMBER: 50093841
SITE ADDRESS:

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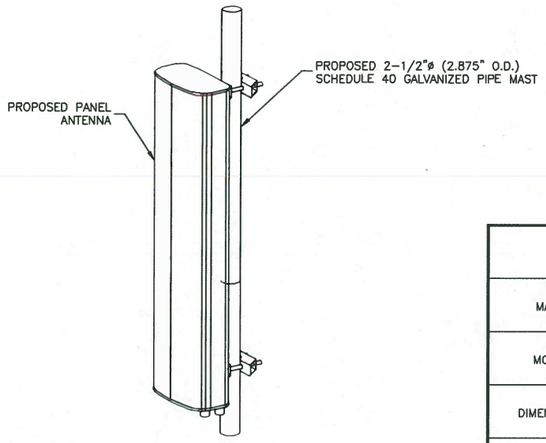
EAST GRANBY, CT 06026

SHEET TITLE
CONSTRUCTION DETAILS I

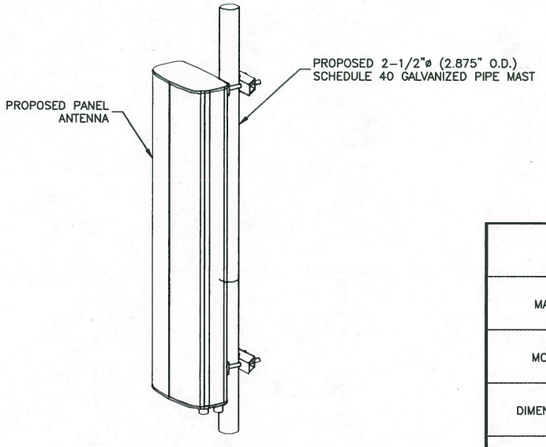
SHEET NUMBER
C-5



NOTES:

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

ANTENNA SPECIFICATIONS	
MANUFACTURER	CCI
MODEL NUMBER	HPA-65R-BU8AA
DIMENSIONS (HxWxD)	96.0" x 11.7" x 7.6"
WEIGHT	54 LBS



NOTES:

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

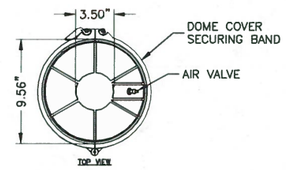
ANTENNA SPECIFICATIONS	
MANUFACTURER	KATHREIN
MODEL NUMBER	800-10966
DIMENSIONS (HxWxD)	96.0" x 20.0" x 6.9"
WEIGHT	114.6 LBS

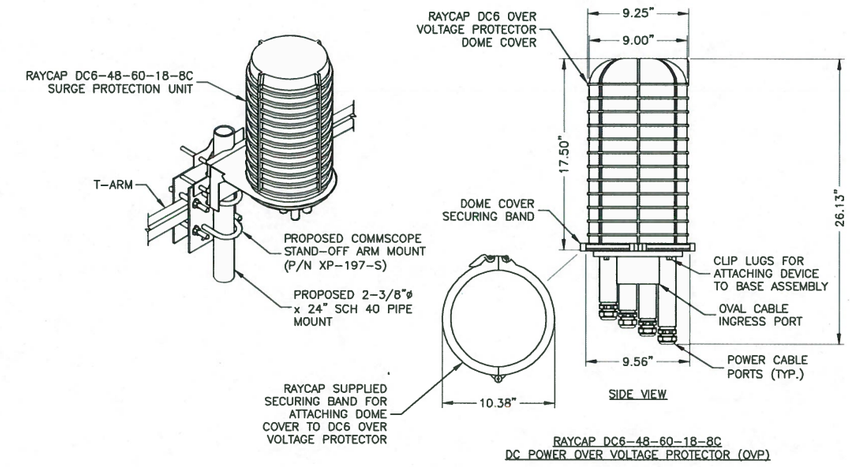
ANTENNA DETAILS
SCALE: N.T.S.

1

WEIGHT:
SYSTEM: 16.0 LBS (84.07 N)
MOUNT: 10.2 LBS (57.38 N)
TOTAL: 26.2 LBS (141.45 N)

COMBINED WIND LOADING:
150 MPH (SUSTAINED): 105.7 LBS (470 N)
195 MPH (GUST): 213.6 LBS (950 N)





RAYCAP DC6-48-60-18-8C
DC POWER OVER VOLTAGE PROTECTOR (OVP)

TOWER MOUNTED SURGE ARRESTOR DETAIL
SCALE: N.T.S.

2

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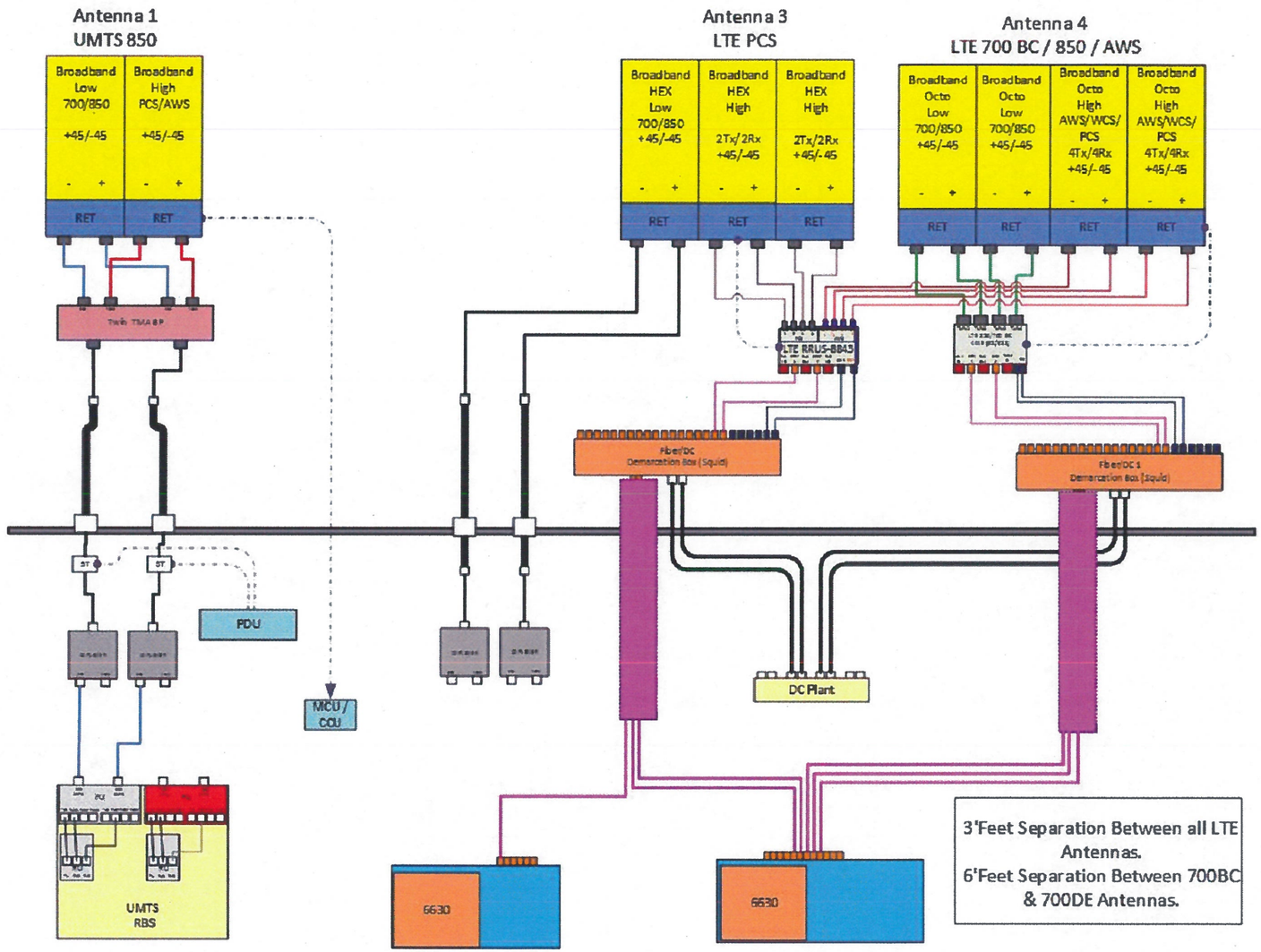
SHEET TITLE

CONSTRUCTION DETAILS II

SHEET NUMBER

C-6



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

NOTE:

1. PLUMBING DIAGRAM BASED ON RFDS V2.00 DATED 09/28/2018. CONFIRM FINAL PLUMBING DIAGRAM WITH THE LATEST RFDS.

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

SAI
12 INDUSTRIAL WAY
SALEM, NH 03079

CT5425
EAST GRANBY SW

CONSTRUCTION DRAWINGS

0	03/04/19	ISSUED AS FINAL
B	03/01/19	REVISED PER COMMENTS
A	02/17/19	ISSUED FOR REVIEW

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

STATE OF CONNECTICUT
JIANG YU
No. 23222
LICENSED PROFESSIONAL ENGINEER

JIANG YU, P.E.
CONNECTICUT LICENSE NO. 0023222

DRAWN BY:	AMD
REVIEWED BY:	BSH
CHECKED BY:	GHN
PROJECT NUMBER:	50055106
JOB NUMBER:	50093841
SITE ADDRESS:	

56 FLOYDVILLE ROAD
EAST GRANBY, CT 06026

SHEET TITLE

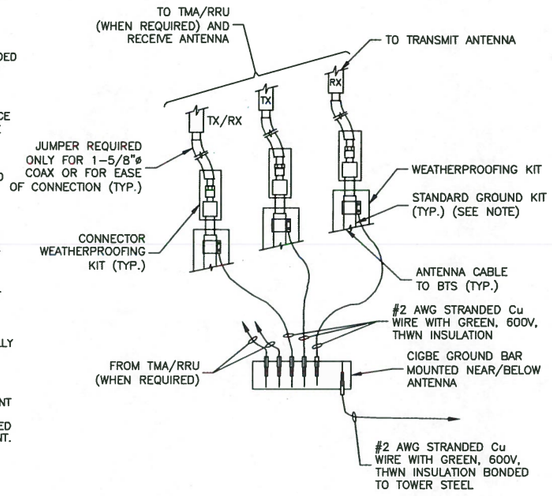
PLUMBING DIAGRAM

SHEET NUMBER

C-7

GROUNDING NOTES:

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

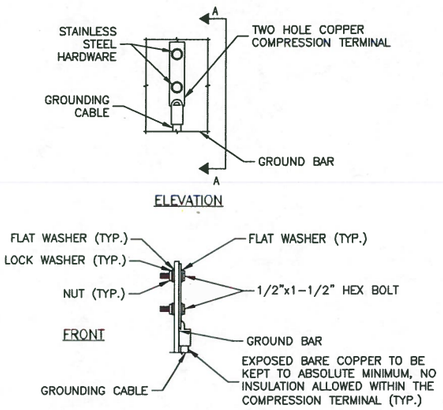


NOTE:

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

CONNECTION OF GROUND WIRES TO GROUNDING BAR (CIGBE) — 1

SCALE: N.T.S.

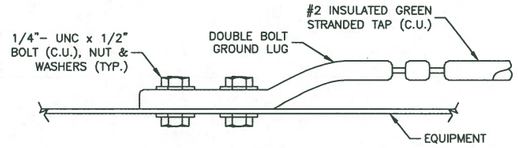


NOTES:

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

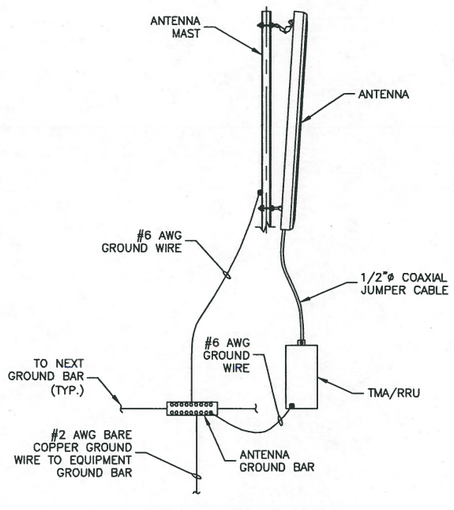
TYPICAL GROUND BAR MECHANICAL CONNECTION DETAIL — 2

SCALE: N.T.S.



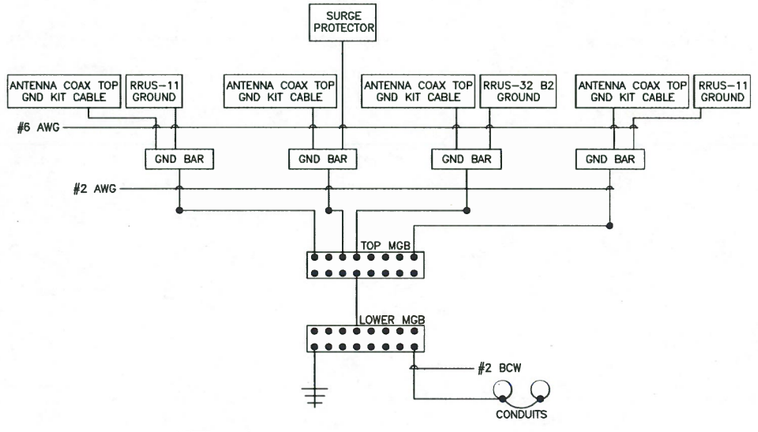
CONNECTION TO EQUIPMENT DETAIL — 3

SCALE: N.T.S.



TYPICAL ANTENNA GROUNDING DETAIL — 4

SCALE: N.T.S



NOTES:

1. BOND ANTENNA GROUNDING KIT CABLE TO TOP .CIGBE
2. BOND ANTENNA GROUNDING KIT CABLE TO BOTTOM CIGBE.
3. SCHEMATIC GROUNDING DIAGRAM IS TYPICAL FOR EACH SECTOR.
4. GROUND ALL EQUIPMENT PER MANUFACTURER RECOMMENDATIONS.

SCHEMATIC GROUNDING DIAGRAM — 5

SCALE: N.T.S.

at&t

500 ENTERPRISE DRIVE SUITE 3A
ROCKY HILL, CT 06067

SAI

12 INDUSTRIAL WAY
SALEM, NH 03079

CT5425
EAST GRANBY SW

CONSTRUCTION DRAWINGS

0	03/04/19	ISSUED AS FINAL
B	03/01/19	REVISED PER COMMENTS
A	02/17/19	ISSUED FOR REVIEW

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

JIANG YU, P.E.
CONNECTICUT LICENSE NO. 0023222

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER TO ALTER THIS DOCUMENT.

DRAWN BY:	AMD
REVIEWED BY:	BSH
CHECKED BY:	GHN
PROJECT NUMBER:	50055106
JOB NUMBER:	50093841
SITE ADDRESS:	

56 FLOYDVILLE ROAD
EAST GRANBY, CT 06026

SHEET TITLE

GROUNDING NOTES & DETAILS

SHEET NUMBER

E-1

Tower Engineering Solutions
Phone (972) 483-0607, Fax (972) 975-9615
1320 Greenway Drive, Suite 600, Irving, Texas 75038

Structural Analysis Report

Existing 120 ft Monopole

Customer Name: SBA Communications Corp

Customer Site Number: CT03801-S

Customer Site Name: East Granby

Carrier Name: AT&T (App#: 107552, V2)

Carrier Site ID / Name: CT5425 / East Granby SW

Site Location: 56 Floydville Road

East Granby, Connecticut

Hartford County

Latitude: 41.928649

Longitude: -72.776099

2/18/19

Analysis Result:

Max Structural Usage: 44.8% [Pass]

Max Foundation Usage: 38.0% [Pass]

Additional Usage Caused by Mount Modification: + 1.0%

Report Prepared By: Leonardo Klem

Tower Engineering Solutions
Phone (972) 483-0607, Fax (972) 975-9615
1320 Greenway Drive, Suite 600, Irving, Texas 75038

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Existing 120 ft Monopole

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Analysis Result:

Max Structural Usage: 44.8% [Pass]

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Additional Usage Caused by Mount Modification: + 1.0%

Report Prepared By: Leonardo Klem

Introduction

The purpose of this report is to summarize the analysis results on the 120 ft Monopole to support the proposed antennas and transmission lines in addition to those currently installed. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

Sources of Information

Tower Drawings	PiRod Engineering, File A-118, 413-1, on June 14, 2001.
Foundation Drawing	PiRod Engineering, File A-118, 413-1, on June 14, 2001.
Geotechnical Report	Jaworski Geotech, Inc., Project #00729G, on May 111, 2001.
Modification Drawings	N/A

Analysis Criteria

The rigorous analysis was performed in accordance with the requirements and stipulations of the ANSI/TIA-222-G**.** In accordance with this standard, the structure was analyzed using **TESPoles,** a proprietary analysis software. The program considers the structure as an elastic 3-D model with second-order effects and temperature effects incorporated in the analysis. The analysis was performed using multiple wind directions.

Wind Speed Used in the Analysis:	Ultimate Design Wind Speed V_{ult} = 120.0 mph (3-Sec. Gust)/ Nominal Design Wind Speed V_{asd} = 93.0 mph (3-Sec. Gust)
Wind Speed with Ice:	50 mph (3-Sec. Gust) with 1" radial ice concurrent
Operational Wind Speed:	60 mph + 0" Radial ice
Standard/Codes:	ANSI/TIA-222-G / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	C
Structure Class:	II
Topographic Category:	1
Crest Height:	0 ft
Seismic Parameters:	S_S = 0.177, S_1 = 0.065

This structural analysis is based upon the tower being classified as a Structure Class II; however, if a different classification is required subsequent to the date hereof, the tower classification will be changed to meet such requirement and a new structural analysis will be run.

Existing Antennas, Mounts and Transmission Lines

The table below summarizes the antennas, mounts and transmission lines that were considered in the analysis as existing on the tower.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	117.0	6	Andrew HBXX-6517DS-VTM - Panel	Low Profile Platform	(12) 1 5/8" (2) 1 5/8" Fiber (1) 1/2"	Verizon
2		3	Andrew LNX-6514DS-VTM - Panel			
3		6	Antel LPA-80080/4CF - Panel			
4		1	Lucent KS24019-L112A GPS			
5		6	RFS FD9R6004/2C-3L Diplexer			
6		3	ALU RRH 2x60-AWS			
7		3	ALU RRH 2x60W-PCS			
8		2	RFS DB-T1-6Z-8AB-0Z			
9	107.0	3	Thales P65Q56NS2B - Panel	Low Profile Platform	(12) 1 5/8"	T-Mobile
10		6	Remec TMA			
-	88.0	6	Ericsson RRUS 11	Low Profile Platform	(1) 3" Conduit* (2) 3/4" DC* (1) 1/2" Fiber* (12) 1 5/8"	AT&T
-		1	Raycap DC6-48-60-18-8F			
-	87.0	6	Powerwave 7770 - Panel			
-		3	Powerwave P65-17-XLH-RR - Panel			
-		6	Powerwave TT19-08BP111-001 TMA			
-		6	Powerwave 21903 TMA			

*(1) 3" Conduit housing Fiber and DC lines.

Proposed Carrier's Final Configuration of Antennas, Mounts and Transmission Lines

Information pertaining to the proposed carrier's final configuration of antennas and transmission lines was provided by SBA Communications Corp. The proposed antennas and lines are listed below.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
11	87.0	3	Powerwave 7770 - Panel	Low Profile Platform + SitePro1 PRK-1245L (reinforcement Kit) + SitePro1 HRK-12 (Hanrail Kit)	(12) 1 5/8" (2) 1/2" Fiber (1) 2" Conduit (1) 3" Conduit (4) 3/4" DC	AT&T
12		3	Cci HPA-65R-BU8AA - Panel			
13		3	Kathrein 800 10966 - Panel			
14		6	Powerwave TT19-08BP111-001 TMA			
15		6	Powerwave 21903 Diplexer			
16		3	Ericsson RRUS 8843 B2 B66A			
17		3	Ericsson RRUS 4449 B5			
18		1	Raycap DC6-48-60-18-8F			
19		1	Raycap DC6-48-60-18-8C			

*(1) 3" Conduit housing (2) 3/4" DC and (1) 1/2" Fiber; (1) 2" Conduit housing (2) 3/4" DC and (1) Fiber.

All transmission lines are considered running inside of the pole shafts.

Analysis Results

The results of the structural analysis, performed for the wind and ice loading and antenna equipment as defined above, are summarized as the following:

	Pole shafts
Max. Usage:	**44.8%**
Pass/Fail	**Pass**

Foundations

	Moment (Kip-Ft)	Shear (Kips)
Original Design Reactions	3719.4	37.0
Analysis Reactions	2128.9	25.4
Factored Reactions*	5021.1	50.0
% of Design Reactions	42.4%	50.8%

* Per section 15.5.1 of the TIA-222-G standard, factored reactions were obtained by multiplying a 1.35 factor to the original design reactions.

The foundation has been investigated using the supplied documents and soils report and was found adequate. Therefore, no modification to the foundation will be required.

Operational Condition (Rigidity):

Operational characteristics of the tower are found to be within the limits prescribed by ANSI/TIA-222-G for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 0.4963 degrees under the operational wind speed as specified in the Analysis Criteria.

Conclusions

Based on the analysis results, the existing structure and its foundation were found to be adequate to safely support the existing and proposed equipment and meet the minimum requirements per the ANSI/TIA-222-G Standard under the design basic wind speed as specified in the Analysis Criteria.

Standard Conditions

1. This analysis was performed based on the information supplied to **(TES) Tower Engineering Solutions, LLC.** Verification of the information provided was not included in the Scope of Work for **TES**. The accuracy of the analysis is dependent on the accuracy of the information provided.

2. The structural analysis was performance based upon the evidence available at the time of this report. All information provided by the client is considered to be accurate.

3. The analyses will be performed based on the codes as specified by the client or based on the best knowledge of the engineering staff of **TES**. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/TIA-222. If wind speed and/or ice loads are different from the minimum values recommended by the EIA/TIA-222 standard or other codes, **TES** should be notified in writing and the applicable minimum values provided by the client.

4. The configuration of the existing mounts, antennas, coax and other appurtenances were supplied by the customer for the current structural analysis. **TES** has not visited the tower site to verify the adequacy of the information provided. If there is any discrepancy found in the report regarding the existing conditions, **TES** should be notified immediately to evaluate the effect of the discrepancy on the analysis results.

5. The client will assume responsibility for rework associated with the differences in initially provided information, including tower and foundation information, existing and/or proposed equipment and transmission lines.

6. If a feasibility analysis was performed, final acceptance of changed conditions shall be based upon a rigorous structural analysis.

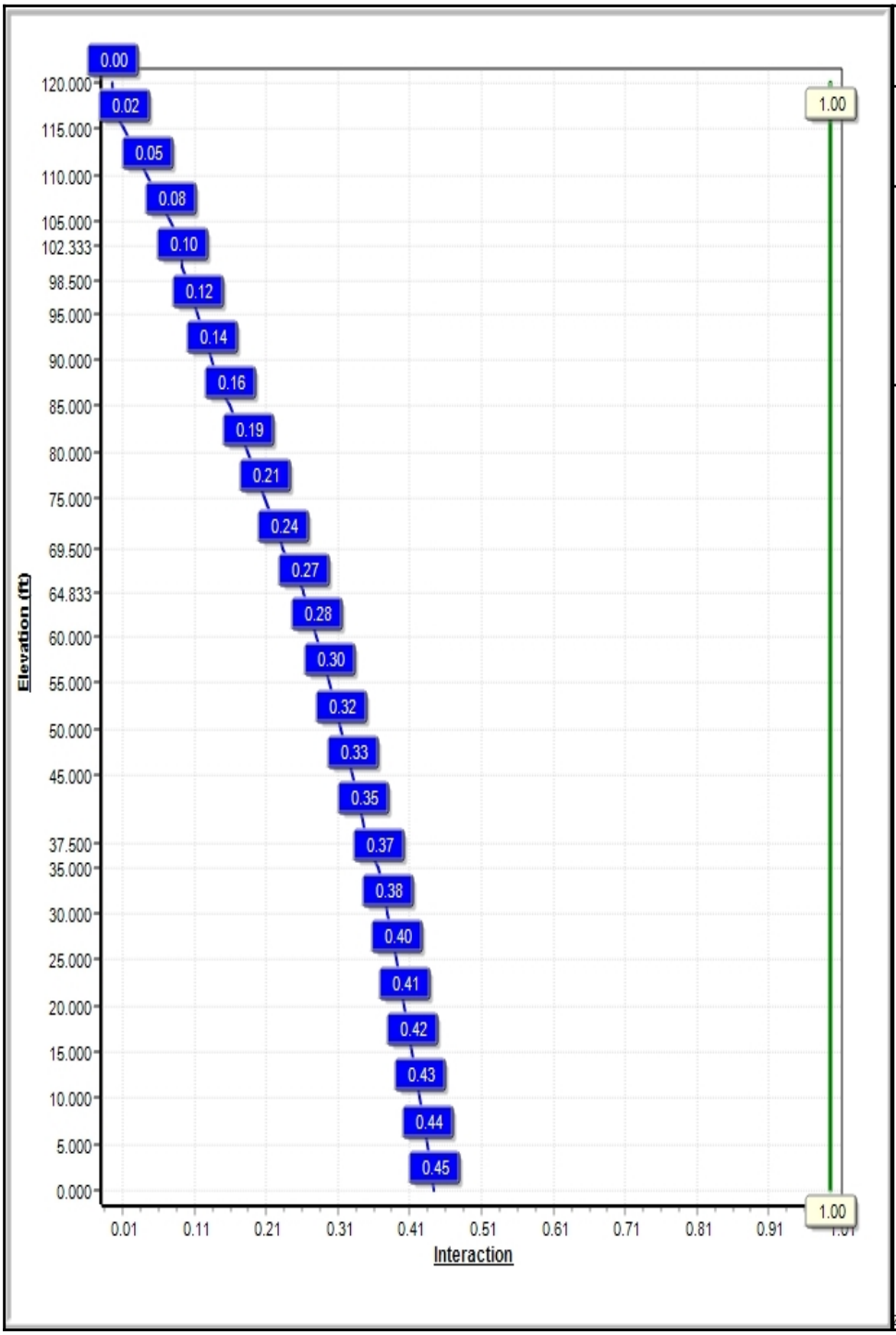
Usage Diagram - Max Ratio 44.83% at 0.0ft

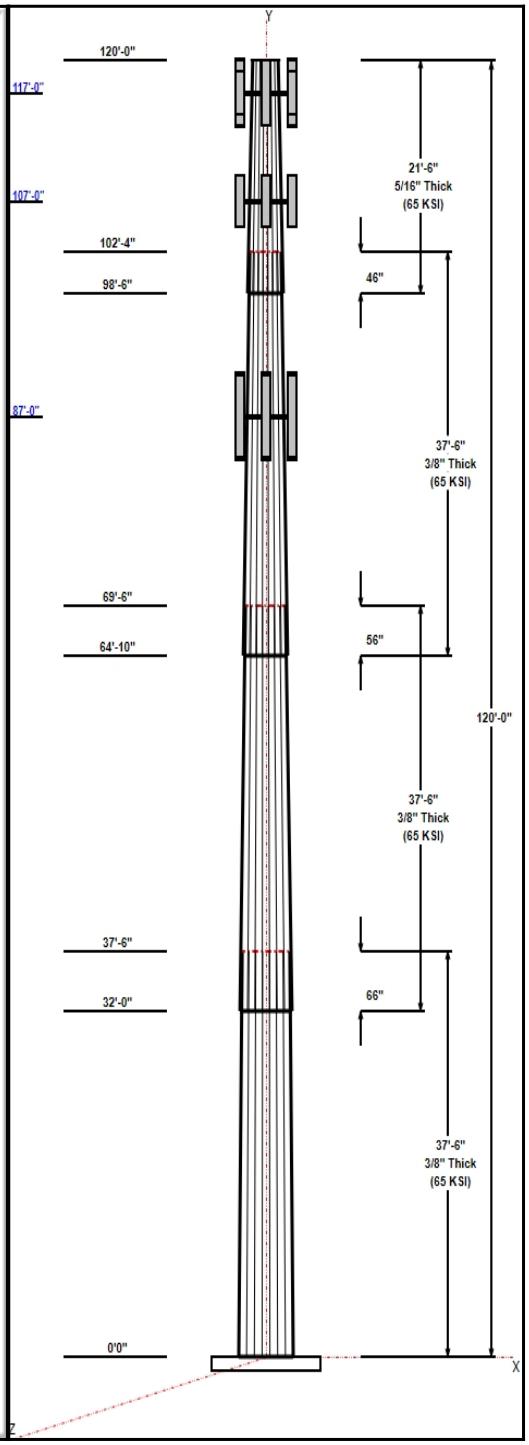
Structure:	CT03801-S-SBA	**Code:**	EIA/TIA-222-G	2/18/2019	
Site Name:	East Granby	**Exposure:**	C		
Height:	120.00 (ft)	**Gh:**	1.1		
Base Elev:	0.000 (ft)			Page: 1	

Tower Engineering Solutions

Dead Load Factor:	1.20	**Iterations:**	19
Wind Load Factor:	1.60		

Load Case : 1.2D + 1.6W 93 mph Wind





Structure: CT03801-S-SBA

Type: Tapered
Site Name: East Granby
Height: 120.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 16 Sided
Taper: 0.28333

2/18/2019

Tower Engineering Solutions

Shaft Properties

Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	37.50	45.50	56.13	0.375		0.28333	65
2	37.50	37.18	47.81	0.375	Slip	0.28333	65
3	37.50	28.63	39.26	0.375	Slip	0.28333	65
4	21.50	24.25	30.34	0.313	Slip	0.28333	65

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
117.00	117.00	6	HBXX-6517DS-VTM	Verizon
117.00	117.00	3	LNX-6514DS-VTM (72.7"	Verizon
117.00	117.00	6	LPA-80080/4CF ___	Verizon
117.00	117.00	1	GPS	Verizon
117.00	117.00	6	FD9R6004/2C-3L 3.1#	Verizon
117.00	117.00	3	RRH2X60-AWS	Verizon
117.00	117.00	3	RRH2X60-PCS	Verizon
117.00	117.00	2	DB-T1-6Z-8AB-0Z	Verizon
117.00	117.00	1	Low Profile	Verizon
107.00	107.00	1	Low Profile	T-Mobile
107.00	107.00	3	56" x 10" Panel	T-Mobile
107.00	107.00	6	G3SS-b	T-Mobile
87.00	87.00	3	7770.00	AT&T
87.00	87.00	3	HPA-65R-BUU-H8	AT&T
87.00	87.00	3	800 10966	AT&T
87.00	87.00	1	Low Profile	AT&T
87.00	87.00	1	PRK-1245 (kicker kit)	AT&T
87.00	87.00	1	HRK12 (Handrail Kit)	AT&T
87.00	87.00	6	TT19-08BP111-001	AT&T
87.00	87.00	6	LGP21903	AT&T
87.00	87.00	3	B2 B66A 8843	AT&T
87.00	87.00	3	4449 B5/B12	AT&T
87.00	87.00	1	DC6-48-60-18-8F(23.5"	AT&T
87.00	87.00	1	DC6-48-60-18-8C	AT&T

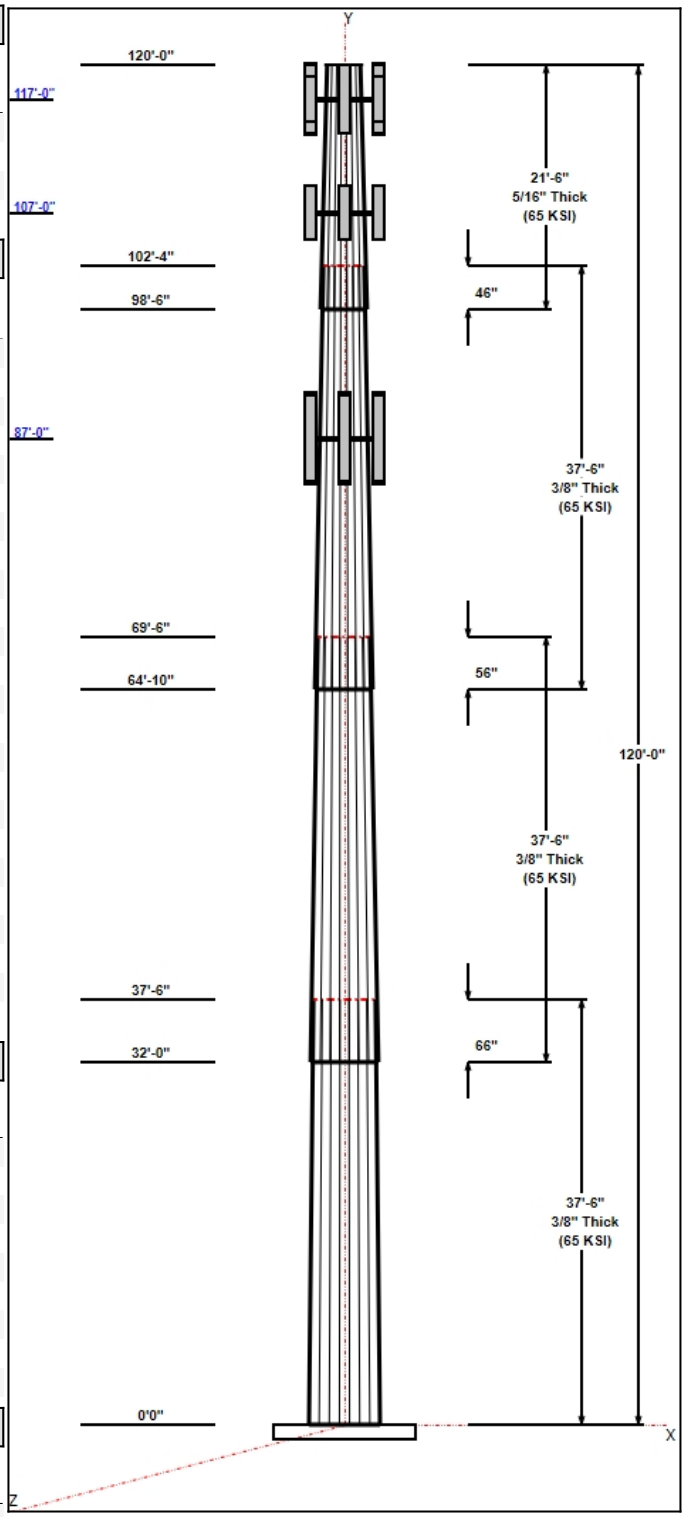
Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	117.00	Inside	1 5/8" Coax	Verizon
0.00	117.00	Inside	1 5/8" Fiber	Verizon
0.00	117.00	Inside	1/2" Coax	Verizon
0.00	107.00	Inside	1 5/8" Coax	T-Mobile
0.00	87.00	Inside	1 5/8" Coax	AT&T
0.00	87.00	Inside	1/2" Fiber	AT&T
0.00	87.00	Inside	2" Conduit	AT&T
0.00	87.00	Inside	3" Conduit	AT&T
0.00	87.00	Inside	3/4" DC	AT&T

Anchor Bolts

Qty	Specifications	Grade (ksi)	Arrangement
39	1.25" F1554-36	36.0	Radial

Base Plate



Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
1.5000	65.0	36.0	Round

Reactions

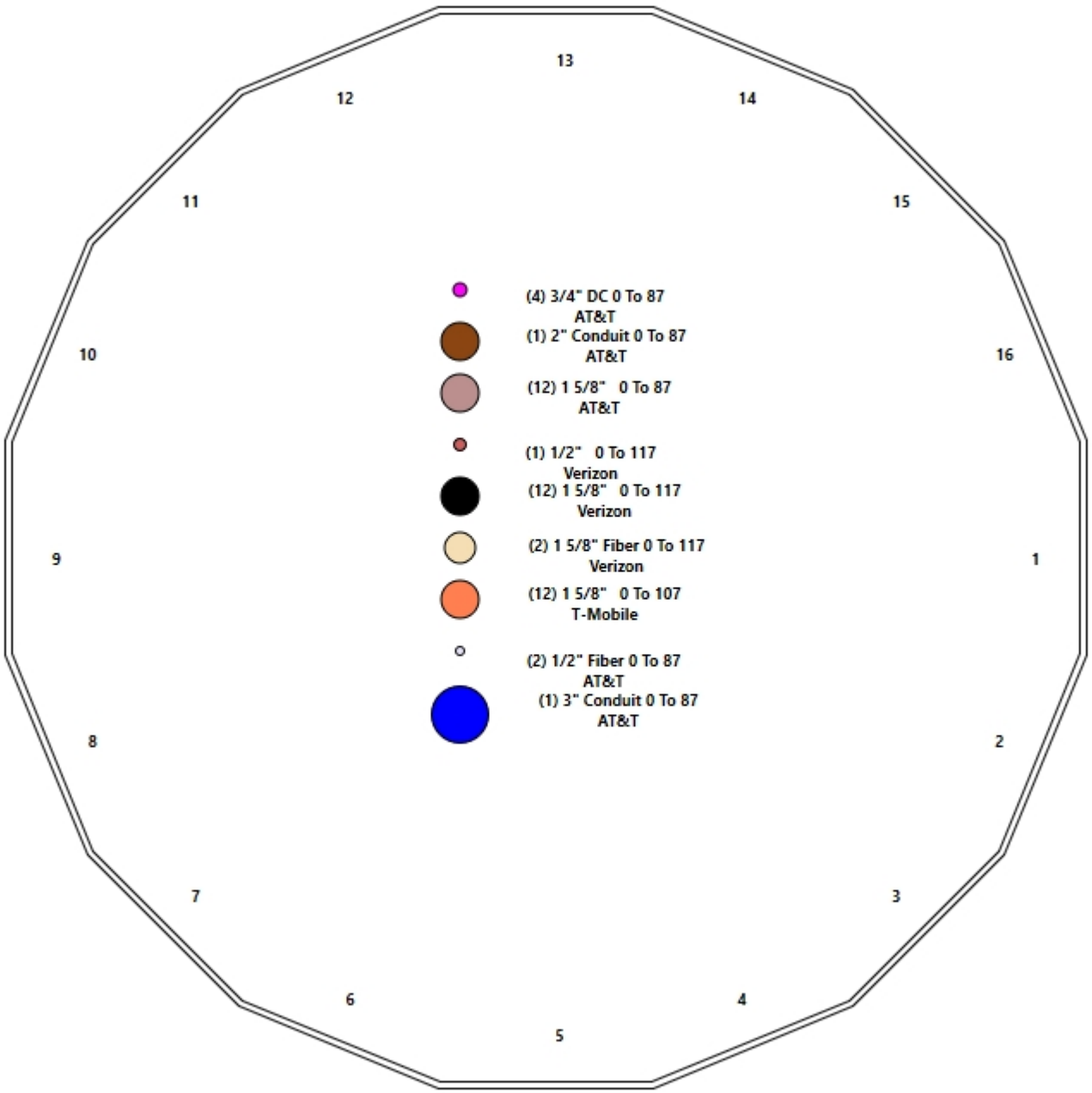
Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.6W 93 mph Wind	2128.9	25.4	39.8
0.9D + 1.6W 93 mph Wind	2118.1	25.4	29.9
1.2D + 1.0Di + 1.0Wi 50 mph Wind	657.1	7.8	65.9
1.2D + 1.0E	124.7	1.3	39.9
0.9D + 1.0E	123.9	1.3	29.9
1.0D + 1.0W 60 mph Wind	552.1	6.6	33.2

Structure: CT03801-S-SBA - Coax Line Placement

Type: Monopole
Site Name: East Granby
Height: 120.00 (ft)

2/18/2019

Tower Engineering Solutions



Shaft Properties

Structure:	CT03801-S-SBA		**Code:**	EIA/TIA-222-G	2/18/2019
Site Name:	East Granby		**Exposure:**	C	
Height:	120.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 5

Tower Engineering Solutions

Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	16	37.500	0.3750	65		0.00	7,699
2	16	37.500	0.3750	65	Slip	66.00	6,430
3	16	37.500	0.3750	65	Slip	56.00	5,124
4	16	21.500	0.3125	65	Slip	46.00	1,968
					Total Shaft Weight:		**21,221**

	Bottom						Top						
Sec. No.	**Dia (in)**	**Elev (ft)**	**Area (sqin)**	**Ix (in^4)**	**W/t Ratio**	**D/t Ratio**	**Dia (in)**	**Elev (ft)**	**Area (sqin)**	**Ix (in^4)**	**W/t Ratio**	**D/t Ratio**	**Taper**
1	56.13	0.00	66.69	26186.11	28.18	149.67	45.50	37.50	53.98	13886.3	22.54	121.3	0.283333
2	47.81	32.00	56.74	16128.25	23.77	127.49	37.18	69.50	44.03	7536.59	18.13	99.16	0.283333
3	39.26	64.83	46.51	8882.47	19.23	104.68	28.63	102.33	33.80	3409.16	13.60	76.35	0.283333
4	30.34	98.50	29.94	3410.24	17.72	97.09	24.25	120.00	23.86	1727.39	13.84	77.60	0.283333

Load Summary

Structure:	CT03801-S-SBA	**Code:**	EIA/TIA-222-G	2/18/2019	
Site Name:	East Granby	**Exposure:**	C		
Height:	120.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 6	

Tower Engineering Solutions

Discrete Appurtenances

				No Ice			Ice				
No.	Elev (ft)	Description	Qty	Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor	Hor. Ecc. (ft)	Vert Ecc (ft)
1	117.00	HBXX-6517DS-VTM	6	40.70	8.55	0.77	269.92	12.346	0.79	0.00	0.00
2	117.00	LNX-6514DS-VTM (72.7" height)	3	38.80	8.17	0.83	268.10	11.842	0.85	0.00	0.00
3	117.00	LPA-80080/4CF ___	6	12.00	2.61	1.70	199.58	3.745	1.70	0.00	0.00
4	117.00	GPS	1	10.00	1.00	0.50	48.13	1.926	0.52	0.00	0.00
5	117.00	FD9R6004/2C-3L 3.1#	6	3.10	0.36	1.00	13.54	0.937	1.00	0.00	0.00
6	117.00	RRH2X60-AWS	3	55.00	3.50	0.76	159.07	4.526	0.76	0.00	0.00
7	117.00	RRH2X60-PCS	3	55.00	2.20	0.89	172.88	3.050	0.91	0.00	0.00
8	117.00	DB-T1-6Z-8AB-0Z	2	18.90	4.80	0.71	216.03	5.959	0.73	0.00	0.00
9	117.00	Low Profile Platform-Round	1	1500.00	22.00	1.00	3202.39	44.971	1.00	0.00	0.00
10	107.00	Low Profile Platform-Round	1	1500.00	22.00	1.00	3187.25	44.767	1.00	0.00	0.00
11	107.00	56" x 10" Panel	3	30.00	5.21	0.75	170.27	8.014	0.77	0.00	0.00
12	107.00	G3SS-b	6	9.50	0.92	0.70	35.19	1.862	0.72	0.00	0.00
13	87.00	7770.00	3	35.00	5.50	0.73	216.01	6.868	0.75	0.00	0.00
14	87.00	HPA-65R-BUU-H8	3	68.00	12.98	0.79	451.53	15.052	0.81	0.00	0.00
15	87.00	800 10966	3	125.70	17.36	0.72	594.38	19.668	0.74	0.00	0.00
16	87.00	Low Profile Platform-Round	1	1500.00	22.00	1.00	3152.69	44.300	1.00	0.00	0.00
17	87.00	PRK-1245 (kicker kit)	1	464.91	9.50	1.00	874.70	22.061	1.00	0.00	0.00
18	87.00	HRK12 (Handrail Kit)	1	261.72	6.75	1.00	653.89	15.080	1.00	0.00	0.00
19	87.00	TT19-08BP111-001	6	16.00	0.64	0.90	41.55	1.389	0.92	0.00	0.00
20	87.00	LGP21903	6	5.50	0.27	0.84	16.14	0.772	0.86	0.00	0.00
21	87.00	B2 B66A 8843	3	70.00	1.64	0.85	128.06	2.292	0.87	0.00	0.00
22	87.00	4449 B5/B12	3	71.00	1.97	0.86	138.40	2.661	0.88	0.00	0.00
23	87.00	DC6-48-60-18-8F(23.5" Height)	1	20.00	1.26	1.00	86.62	2.093	1.00	0.00	0.00
24	87.00	DC6-48-60-18-8C	1	20.00	1.26	1.00	86.62	2.093	1.00	0.00	0.00
		Totals:	**73**	**7,480.73**			**22,075.95**				

Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
0.00	117.00	(12) 1 5/8" Coax	0.00	Inside
0.00	117.00	(2) 1 5/8" Fiber	0.00	Inside
0.00	117.00	(1) 1/2" Coax	0.00	Inside
0.00	107.00	(12) 1 5/8" Coax	0.00	Inside
0.00	87.00	(12) 1 5/8" Coax	0.00	Inside
0.00	87.00	(2) 1/2" Fiber	0.00	Inside
0.00	87.00	(1) 2" Conduit	0.00	Inside
0.00	87.00	(1) 3" Conduit	0.00	Inside
0.00	87.00	(4) 3/4" DC	0.00	Inside

Shaft Section Properties

Structure:	CT03801-S-SBA	**Code:**	EIA/TIA-222-G	2/18/2019	
Site Name:	East Granby	**Exposure:**	C		
Height:	120.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 7	

Increment Length: **5 (ft)**

Elev (ft)	Description	Thick (in)	Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fpy (ksi)	S (in^3)	Weight (lb)
0.00		0.3750	56.125	66.691	26186.1	28.18	149.67	70.7	915.2	0.0
5.00		0.3750	54.708	64.996	24240.2	27.43	145.89	71.5	869.1	1120.3
10.00		0.3750	53.292	63.302	22393.1	26.68	142.11	72.4	824.2	1091.4
15.00		0.3750	51.875	61.607	20642.3	25.92	138.33	73.2	780.6	1062.6
20.00		0.3750	50.458	59.912	18985.2	25.17	134.56	74.1	738.1	1033.8
25.00		0.3750	49.042	58.218	17419.3	24.42	130.78	74.9	696.7	1004.9
30.00		0.3750	47.625	56.523	15942.0	23.67	127.00	75.8	656.6	976.1
32.00	Bot - Section 2	0.3750	47.058	55.845	15375.2	23.37	125.49	76.1	640.9	382.4
35.00		0.3750	46.208	54.828	14550.6	22.92	123.22	76.6	617.7	1138.9
37.50	Top - Section 1	0.3750	46.250	54.878	14590.3	22.94	123.33	0.0	0.0	933.3
40.00		0.3750	45.542	54.031	13924.8	22.57	121.44	77.0	599.8	463.2
45.00		0.3750	44.125	52.336	12655.2	21.81	117.67	77.9	562.6	904.9
50.00		0.3750	42.708	50.641	11465.3	21.06	113.89	78.7	526.6	876.0
55.00		0.3750	41.292	48.947	10352.3	20.31	110.11	79.6	491.8	847.2
60.00		0.3750	39.875	47.252	9313.8	19.56	106.33	80.4	458.2	818.4
64.83	Bot - Section 3	0.3750	38.506	45.614	8378.3	18.83	102.68	81.3	426.8	763.7
65.00		0.3750	38.458	45.557	8347.2	18.81	102.56	81.3	425.7	52.2
69.50	Top - Section 2	0.3750	37.933	44.929	8006.7	18.53	101.16	0.0	0.0	1385.6
70.00		0.3750	37.792	44.760	7916.5	18.45	100.78	81.7	410.9	76.3
75.00		0.3750	36.375	43.065	7050.9	17.70	97.00	82.5	380.2	747.1
80.00		0.3750	34.958	41.370	6250.8	16.95	93.22	82.5	350.7	718.3
85.00		0.3750	33.542	39.676	5513.7	16.20	89.44	82.5	322.4	689.5
87.00		0.3750	32.975	38.998	5235.9	15.90	87.93	82.5	311.5	267.7
90.00		0.3750	32.125	37.981	4836.9	15.45	85.67	82.5	295.3	392.9
95.00		0.3750	30.708	36.286	4217.9	14.70	81.89	82.5	269.4	631.8
98.50	Bot - Section 4	0.3750	29.717	35.100	3817.6	14.17	79.24	82.5	252.0	425.1
100.00		0.3750	29.292	34.592	3654.1	13.95	78.11	82.5	244.7	329.6
102.33	Top - Section 3	0.3125	29.256	28.853	3053.4	17.03	93.62	0.0	0.0	503.2
105.00		0.3125	28.500	28.099	2820.5	16.55	91.20	82.5	194.1	258.4
107.00		0.3125	27.933	27.535	2653.8	16.19	89.39	82.5	186.4	189.3
110.00		0.3125	27.083	26.687	2416.2	15.65	86.67	82.5	175.0	276.8
115.00		0.3125	25.667	25.275	2052.6	14.75	82.13	82.5	156.9	442.0
117.00		0.3125	25.100	24.710	1918.0	14.39	80.32	82.5	149.9	170.1
120.00		0.3125	24.250	23.863	1727.4	13.84	77.60	82.5	139.7	247.9
										21220.7

Wind Loading - Shaft

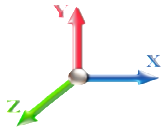
Structure:	CT03801-S-SBA	**Code:**	EIA/TIA-222-G	2/18/2019	
Site Name:	East Granby	**Exposure:**	C		
Height:	120.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 8	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 93 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 19

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	17.879	19.67	408.88	0.750	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	17.879	19.67	398.56	0.750	0.000	5.00	23.543	17.66	555.6	0.0	1344.3
10.00		1.00	0.85	17.879	19.67	388.24	0.750	0.000	5.00	22.941	17.21	541.4	0.0	1309.7
15.00		1.00	0.85	17.879	19.67	377.92	0.750	0.000	5.00	22.339	16.75	527.2	0.0	1275.1
20.00		1.00	0.90	18.971	20.87	378.65	0.750	0.000	5.00	21.737	16.30	544.3	0.0	1240.5
25.00		1.00	0.95	19.883	21.87	376.76	0.750	0.000	5.00	21.135	15.85	554.7	0.0	1205.9
30.00		1.00	0.98	20.661	22.73	372.97	0.750	0.000	5.00	20.533	15.40	560.0	0.0	1171.3
32.00	Bot - Section 2	1.00	1.00	20.944	23.04	371.04	0.750	0.000	2.00	8.045	6.03	222.4	0.0	458.8
35.00		1.00	1.01	21.343	23.48	367.80	0.750	0.000	3.00	12.078	9.06	340.3	0.0	1366.7
37.50	Top - Section 1	1.00	1.03	21.655	23.82	364.80	0.750	0.000	2.50	9.899	7.42	283.0	0.0	1119.9
40.00		1.00	1.04	21.951	24.15	367.62	0.750	0.000	2.50	9.749	7.31	282.5	0.0	555.9
45.00		1.00	1.07	22.502	24.75	360.63	0.750	0.000	5.00	19.047	14.28	565.7	0.0	1085.8
50.00		1.00	1.09	23.007	25.31	352.94	0.750	0.000	5.00	18.445	13.83	560.1	0.0	1051.2
55.00		1.00	1.12	23.473	25.82	344.68	0.750	0.000	5.00	17.843	13.38	552.9	0.0	1016.6
60.00		1.00	1.14	23.907	26.30	335.91	0.750	0.000	5.00	17.241	12.93	544.1	0.0	982.0
64.83	Bot - Section 3	1.00	1.16	24.300	26.73	327.03	0.750	0.000	4.83	16.094	12.07	516.2	0.0	916.4
65.00		1.00	1.16	24.313	26.74	326.72	0.750	0.000	0.17	0.556	0.42	17.8	0.0	62.7
69.50	Top - Section 2	1.00	1.17	24.658	27.12	318.12	0.750	0.000	4.50	14.747	11.06	480.0	0.0	1662.7
70.00		1.00	1.17	24.696	27.17	323.57	0.750	0.000	0.50	1.609	1.21	52.4	0.0	91.6
75.00		1.00	1.19	25.057	27.56	313.71	0.750	0.000	5.00	15.754	11.82	521.1	0.0	896.5
80.00		1.00	1.21	25.400	27.94	303.55	0.750	0.000	5.00	15.152	11.36	508.0	0.0	861.9
85.00		1.00	1.22	25.726	28.30	293.11	0.750	0.000	5.00	14.550	10.91	494.1	0.0	827.3
87.00	Appurtenance(s)	1.00	1.23	25.852	28.44	288.87	0.750	0.000	2.00	5.652	4.24	192.9	0.0	321.2
90.00		1.00	1.24	26.037	28.64	282.43	0.750	0.000	3.00	8.297	6.22	285.2	0.0	471.5
95.00		1.00	1.25	26.336	28.97	271.51	0.750	0.000	5.00	13.347	10.01	464.0	0.0	758.1
98.50	Bot - Section 4	1.00	1.26	26.537	29.19	263.75	0.750	0.000	3.50	8.985	6.74	314.7	0.0	510.1
100.00		1.00	1.27	26.621	29.28	260.39	0.750	0.000	1.50	3.840	2.88	134.9	0.0	395.5
102.33	Top - Section 3	1.00	1.27	26.751	29.43	255.13	0.750	0.000	2.33	5.866	4.40	207.1	0.0	603.9
105.00		1.00	1.28	26.896	29.59	254.66	0.750	0.000	2.67	6.543	4.91	232.3	0.0	310.1
107.00	Appurtenance(s)	1.00	1.28	27.003	29.70	250.09	0.750	0.000	2.00	4.795	3.60	170.9	0.0	227.2
110.00		1.00	1.29	27.161	29.88	243.19	0.750	0.000	3.00	7.012	5.26	251.4	0.0	332.1
115.00		1.00	1.30	27.416	30.16	231.55	0.750	0.000	5.00	11.205	8.40	405.5	0.0	530.4
117.00	Appurtenance(s)	1.00	1.31	27.516	30.27	226.85	0.750	0.000	2.00	4.313	3.24	156.7	0.0	204.1
120.00		1.00	1.32	27.663	30.43	219.75	0.750	0.000	3.00	6.290	4.72	229.7	0.0	297.5
								Totals:	**120.00**			**12,269.2**		**25,464.8**

Discrete Appurtenance Forces

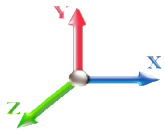
Structure:	CT03801-S-SBA	**Code:**	EIA/TIA-222-G	2/18/2019	
Site Name:	East Granby	**Exposure:**	C		
Height:	120.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 9	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 93 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 19

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	117.00	Low Profile	1	27.516	30.268	1.00	1.00	22.00	1800.00	0.000	0.000	1065.42	0.00	0.00
2	117.00	DB-T1-6Z-8AB-0Z	2	27.516	30.268	0.71	1.00	6.82	45.36	0.000	0.000	330.09	0.00	0.00
3	117.00	RRH2X60-PCS	3	27.516	30.268	0.89	1.00	5.87	198.00	0.000	0.000	284.47	0.00	0.00
4	117.00	RRH2X60-AWS	3	27.516	30.268	0.76	1.00	7.98	198.00	0.000	0.000	386.46	0.00	0.00
5	117.00	FD9R6004/2C-3L 3.1#	6	27.516	30.268	1.00	1.00	2.16	22.32	0.000	0.000	104.61	0.00	0.00
6	117.00	GPS	1	27.516	30.268	0.50	1.00	0.50	12.00	0.000	0.000	24.21	0.00	0.00
7	117.00	LPA-80080/4CF ___	6	27.516	30.268	1.70	1.00	26.62	86.40	0.000	0.000	1289.26	0.00	0.00
8	117.00	LNX-6514DS-VTM (72.7"	3	27.516	30.268	0.83	1.00	20.34	139.68	0.000	0.000	985.19	0.00	0.00
9	117.00	HBXX-6517DS-VTM	6	27.516	30.268	0.77	1.00	39.50	293.04	0.000	0.000	1912.97	0.00	0.00
10	107.00	Low Profile	1	27.003	29.704	1.00	1.00	22.00	1800.00	0.000	0.000	1045.57	0.00	0.00
11	107.00	56" x 10" Panel	3	27.003	29.704	0.60	0.80	9.38	108.00	0.000	0.000	445.70	0.00	0.00
12	107.00	G3SS-b	6	27.003	29.704	0.56	0.80	3.09	68.40	0.000	0.000	146.91	0.00	0.00
13	87.00	7770.00	3	25.852	28.438	0.55	0.75	9.03	126.00	0.000	0.000	411.04	0.00	0.00
14	87.00	DC6-48-60-18-8C	1	25.852	28.438	1.00	1.00	1.26	24.00	0.000	0.000	57.33	0.00	0.00
15	87.00	DC6-48-60-18-8F(23.5"	1	25.852	28.438	1.00	1.00	1.26	24.00	0.000	0.000	57.33	0.00	0.00
16	87.00	4449 B5/B12	3	25.852	28.438	0.65	0.75	3.81	255.60	0.000	0.000	173.44	0.00	0.00
17	87.00	B2 B66A 8843	3	25.852	28.438	0.64	0.75	3.14	252.00	0.000	0.000	142.71	0.00	0.00
18	87.00	LGP21903	6	25.852	28.438	0.63	0.75	1.02	39.60	0.000	0.000	46.44	0.00	0.00
19	87.00	TT19-08BP111-001	6	25.852	28.438	0.68	0.75	2.59	115.20	0.000	0.000	117.94	0.00	0.00
20	87.00	HRK12 (Handrail Kit)	1	25.852	28.438	1.00	1.00	6.75	314.06	0.000	0.000	307.13	0.00	0.00
21	87.00	PRK-1245 (kicker kit)	1	25.852	28.438	1.00	1.00	9.50	557.89	0.000	0.000	432.25	0.00	0.00
22	87.00	Low Profile	1	25.852	28.438	1.00	1.00	22.00	1800.00	0.000	0.000	1001.00	0.00	0.00
23	87.00	800 10966	3	25.852	28.438	0.54	0.75	28.12	452.52	0.000	0.000	1279.61	0.00	0.00
24	87.00	HPA-65R-BUU-H8	3	25.852	28.438	0.59	0.75	23.07	244.80	0.000	0.000	1049.78	0.00	0.00
							Totals:		**8,976.88**			**13,096.85**		

Total Applied Force Summary

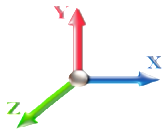
Structure:	CT03801-S-SBA		**Code:**	EIA/TIA-222-G	2/18/2019
Site Name:	East Granby		**Exposure:**	C	
Height:	120.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 10

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 93 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 19

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		555.62	1610.89	0.00	0.00
10.00		541.42	1576.29	0.00	0.00
15.00		527.21	1541.69	0.00	0.00
20.00		544.32	1507.09	0.00	0.00
25.00		554.71	1472.49	0.00	0.00
30.00		560.00	1437.89	0.00	0.00
32.00		222.41	565.47	0.00	0.00
35.00		340.26	1526.68	0.00	0.00
37.50		282.97	1253.21	0.00	0.00
40.00		282.48	689.18	0.00	0.00
45.00		565.74	1352.41	0.00	0.00
50.00		560.15	1317.81	0.00	0.00
55.00		552.85	1283.21	0.00	0.00
60.00		544.08	1248.61	0.00	0.00
64.83		516.24	1174.10	0.00	0.00
65.00		17.83	71.54	0.00	0.00
69.50		480.02	1902.61	0.00	0.00
70.00		52.43	118.22	0.00	0.00
75.00		521.07	1163.12	0.00	0.00
80.00		508.02	1128.52	0.00	0.00
85.00		494.11	1093.92	0.00	0.00
87.00	(32) attachments	5268.85	4633.56	0.00	0.00
90.00		285.16	565.53	0.00	0.00
95.00		463.97	914.86	0.00	0.00
98.50		314.72	619.82	0.00	0.00
100.00		134.94	442.50	0.00	0.00
102.33		207.12	676.99	0.00	0.00
105.00		232.30	393.66	0.00	0.00
107.00	(10) attachments	1809.09	2266.26	0.00	0.00
110.00		251.39	381.21	0.00	0.00
115.00		405.50	612.29	0.00	0.00
117.00	(31) attachments	6539.35	3031.64	0.00	0.00
120.00		229.67	297.51	0.00	0.00
	Totals:	**25,366.00**	**39,870.74**	**0.00**	**0.00**

Calculated Forces

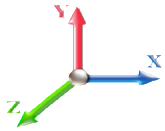
Structure:	CT03801-S-SBA	**Code:**	EIA/TIA-222-G	2/18/2019	
Site Name:	East Granby	**Exposure:**	C		
Height:	120.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 11	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 93 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 19

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-39.84	-25.41	0.00	-2128.9	0.00	2128.91	4242.75	2121.37	9773.47	4851.96	0.00	0.000	0.000	0.448
5.00	-38.19	-24.92	0.00	-2001.8	0.00	2001.89	4184.67	2092.33	9393.09	4663.13	0.06	-0.112	0.000	0.439
10.00	-36.56	-24.45	0.00	-1877.2	0.00	1877.27	4124.00	2062.00	9013.89	4474.88	0.24	-0.226	0.000	0.429
15.00	-34.97	-23.99	0.00	-1755.0	0.00	1755.02	4060.73	2030.37	8636.33	4287.44	0.54	-0.341	0.000	0.418
20.00	-33.42	-23.50	0.00	-1635.1	0.00	1635.10	3994.87	1997.44	8260.86	4101.04	0.96	-0.458	0.000	0.407
25.00	-31.91	-23.00	0.00	-1517.6	0.00	1517.60	3926.42	1963.21	7887.94	3915.90	1.50	-0.576	0.000	0.396
30.00	-30.44	-22.47	0.00	-1402.6	0.00	1402.61	3855.38	1927.69	7518.03	3732.27	2.17	-0.696	0.000	0.384
32.00	-29.86	-22.27	0.00	-1357.6	0.00	1357.67	3826.23	1913.12	7371.01	3659.28	2.48	-0.745	0.000	0.379
35.00	-28.31	-21.94	0.00	-1290.8	0.00	1290.87	3781.74	1890.87	7151.59	3550.35	2.97	-0.818	0.000	0.371
37.50	-27.04	-21.67	0.00	-1236.0	0.00	1236.01	3783.94	1891.97	7162.31	3555.67	3.41	-0.880	0.000	0.355
40.00	-26.32	-21.42	0.00	-1181.8	0.00	1181.84	3746.19	1873.09	6980.48	3465.40	3.89	-0.942	0.000	0.348
45.00	-24.94	-20.88	0.00	-1074.7	0.00	1074.76	3668.73	1834.37	6619.97	3286.43	4.94	-1.057	0.000	0.334
50.00	-23.59	-20.34	0.00	-970.37	0.00	970.37	3588.69	1794.34	6264.07	3109.75	6.11	-1.172	0.000	0.319
55.00	-22.28	-19.80	0.00	-868.68	0.00	868.68	3506.05	1753.02	5913.22	2935.57	7.40	-1.286	0.000	0.302
60.00	-21.01	-19.27	0.00	-769.66	0.00	769.66	3420.81	1710.41	5567.90	2764.14	8.81	-1.399	0.000	0.285
64.83	-19.83	-18.74	0.00	-676.52	0.00	676.52	3335.96	1667.98	5239.76	2601.24	10.28	-1.506	0.000	0.266
65.00	-19.74	-18.74	0.00	-673.40	0.00	673.40	3332.99	1666.49	5228.55	2595.67	10.33	-1.509	0.000	0.265
69.50	-17.83	-18.23	0.00	-589.07	0.00	589.07	3299.78	1649.89	5104.40	2534.04	11.80	-1.606	0.000	0.238
70.00	-17.70	-18.19	0.00	-579.95	0.00	579.95	3290.76	1645.38	5071.06	2517.49	11.97	-1.617	0.000	0.236
75.00	-16.52	-17.66	0.00	-489.02	0.00	489.02	3199.12	1599.56	4741.34	2353.80	13.72	-1.713	0.000	0.213
80.00	-15.39	-17.14	0.00	-400.72	0.00	400.72	3073.61	1536.80	4374.21	2171.54	15.56	-1.803	0.000	0.190
85.00	-14.29	-16.62	0.00	-315.03	0.00	315.03	2947.70	1473.85	4021.34	1996.36	17.50	-1.885	0.000	0.163
87.00	-9.83	-11.21	0.00	-281.78	0.00	281.78	2897.34	1448.67	3884.35	1928.35	18.30	-1.915	0.000	0.150
90.00	-9.26	-10.92	0.00	-248.14	0.00	248.14	2821.79	1410.90	3683.31	1828.55	19.51	-1.959	0.000	0.139
95.00	-8.35	-10.43	0.00	-193.56	0.00	193.56	2695.89	1347.94	3360.11	1668.10	21.60	-2.023	0.000	0.119
98.50	-7.74	-10.10	0.00	-157.06	0.00	157.06	2607.75	1303.88	3142.71	1560.17	23.10	-2.065	0.000	0.104
100.00	-7.30	-9.95	0.00	-141.92	0.00	141.92	2569.98	1284.99	3051.76	1515.02	23.75	-2.082	0.000	0.097
102.33	-6.63	-9.72	0.00	-118.71	0.00	118.71	2143.60	1071.80	2553.25	1267.54	24.77	-2.105	0.000	0.097
105.00	-6.24	-9.47	0.00	-92.80	0.00	92.80	2087.65	1043.82	2420.99	1201.88	25.96	-2.129	0.000	0.080
107.00	-4.04	-7.58	0.00	-73.85	0.00	73.85	2045.68	1022.84	2324.11	1153.79	26.85	-2.146	0.000	0.066
110.00	-3.67	-7.32	0.00	-51.10	0.00	51.10	1982.72	991.36	2182.49	1083.48	28.21	-2.166	0.000	0.049
115.00	-3.07	-6.89	0.00	-14.50	0.00	14.50	1877.80	938.90	1956.35	971.22	30.49	-2.185	0.000	0.017
117.00	-0.29	-0.24	0.00	-0.72	0.00	0.72	1835.83	917.92	1869.36	928.03	31.40	-2.187	0.000	0.001
120.00	0.00	-0.23	0.00	0.00	0.00	0.00	1772.88	886.44	1742.58	865.09	32.78	-2.187	0.000	0.000

Wind Loading - Shaft

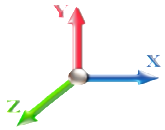
Structure:	CT03801-S-SBA	**Code:**	EIA/TIA-222-G	2/18/2019	
Site Name:	East Granby	**Exposure:**	C		
Height:	120.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 12	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 93 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 19

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	17.879	19.67	408.88	0.750	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	17.879	19.67	398.56	0.750	0.000	5.00	23.543	17.66	555.6	0.0	1008.2
10.00		1.00	0.85	17.879	19.67	388.24	0.750	0.000	5.00	22.941	17.21	541.4	0.0	982.3
15.00		1.00	0.85	17.879	19.67	377.92	0.750	0.000	5.00	22.339	16.75	527.2	0.0	956.3
20.00		1.00	0.90	18.971	20.87	378.65	0.750	0.000	5.00	21.737	16.30	544.3	0.0	930.4
25.00		1.00	0.95	19.883	21.87	376.76	0.750	0.000	5.00	21.135	15.85	554.7	0.0	904.4
30.00		1.00	0.98	20.661	22.73	372.97	0.750	0.000	5.00	20.533	15.40	560.0	0.0	878.5
32.00	Bot - Section 2	1.00	1.00	20.944	23.04	371.04	0.750	0.000	2.00	8.045	6.03	222.4	0.0	344.1
35.00		1.00	1.01	21.343	23.48	367.80	0.750	0.000	3.00	12.078	9.06	340.3	0.0	1025.1
37.50	Top - Section 1	1.00	1.03	21.655	23.82	364.80	0.750	0.000	2.50	9.899	7.42	283.0	0.0	839.9
40.00		1.00	1.04	21.951	24.15	367.62	0.750	0.000	2.50	9.749	7.31	282.5	0.0	416.9
45.00		1.00	1.07	22.502	24.75	360.63	0.750	0.000	5.00	19.047	14.28	565.7	0.0	814.4
50.00		1.00	1.09	23.007	25.31	352.94	0.750	0.000	5.00	18.445	13.83	560.1	0.0	788.4
55.00		1.00	1.12	23.473	25.82	344.68	0.750	0.000	5.00	17.843	13.38	552.9	0.0	762.5
60.00		1.00	1.14	23.907	26.30	335.91	0.750	0.000	5.00	17.241	12.93	544.1	0.0	736.5
64.83	Bot - Section 3	1.00	1.16	24.300	26.73	327.03	0.750	0.000	4.83	16.094	12.07	516.2	0.0	687.3
65.00		1.00	1.16	24.313	26.74	326.72	0.750	0.000	0.17	0.556	0.42	17.8	0.0	47.0
69.50	Top - Section 2	1.00	1.17	24.658	27.12	318.12	0.750	0.000	4.50	14.747	11.06	480.0	0.0	1247.0
70.00		1.00	1.17	24.696	27.17	323.57	0.750	0.000	0.50	1.609	1.21	52.4	0.0	68.7
75.00		1.00	1.19	25.057	27.56	313.71	0.750	0.000	5.00	15.754	11.82	521.1	0.0	672.4
80.00		1.00	1.21	25.400	27.94	303.55	0.750	0.000	5.00	15.152	11.36	508.0	0.0	646.5
85.00		1.00	1.22	25.726	28.30	293.11	0.750	0.000	5.00	14.550	10.91	494.1	0.0	620.5
87.00	Appurtenance(s)	1.00	1.23	25.852	28.44	288.87	0.750	0.000	2.00	5.652	4.24	192.9	0.0	240.9
90.00		1.00	1.24	26.037	28.64	282.43	0.750	0.000	3.00	8.297	6.22	285.2	0.0	353.6
95.00		1.00	1.25	26.336	28.97	271.51	0.750	0.000	5.00	13.347	10.01	464.0	0.0	568.6
98.50	Bot - Section 4	1.00	1.26	26.537	29.19	263.75	0.750	0.000	3.50	8.985	6.74	314.7	0.0	382.6
100.00		1.00	1.27	26.621	29.28	260.39	0.750	0.000	1.50	3.840	2.88	134.9	0.0	296.6
102.33	Top - Section 3	1.00	1.27	26.751	29.43	255.13	0.750	0.000	2.33	5.866	4.40	207.1	0.0	452.9
105.00		1.00	1.28	26.896	29.59	254.66	0.750	0.000	2.67	6.543	4.91	232.3	0.0	232.6
107.00	Appurtenance(s)	1.00	1.28	27.003	29.70	250.09	0.750	0.000	2.00	4.795	3.60	170.9	0.0	170.4
110.00		1.00	1.29	27.161	29.88	243.19	0.750	0.000	3.00	7.012	5.26	251.4	0.0	249.1
115.00		1.00	1.30	27.416	30.16	231.55	0.750	0.000	5.00	11.205	8.40	405.5	0.0	397.8
117.00	Appurtenance(s)	1.00	1.31	27.516	30.27	226.85	0.750	0.000	2.00	4.313	3.24	156.7	0.0	153.1
120.00		1.00	1.32	27.663	30.43	219.75	0.750	0.000	3.00	6.290	4.72	229.7	0.0	223.1
								Totals:	**120.00**			**12,269.2**		**19,098.6**

Discrete Appurtenance Forces

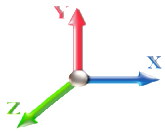
Structure:	CT03801-S-SBA	**Code:**	EIA/TIA-222-G	2/18/2019	
Site Name:	East Granby	**Exposure:**	C		
Height:	120.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 13	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 93 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 19

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	117.00	Low Profile	1	27.516	30.268	1.00	1.00	22.00	1350.00	0.000	0.000	1065.42	0.00	0.00
2	117.00	DB-T1-6Z-8AB-0Z	2	27.516	30.268	0.71	1.00	6.82	34.02	0.000	0.000	330.09	0.00	0.00
3	117.00	RRH2X60-PCS	3	27.516	30.268	0.89	1.00	5.87	148.50	0.000	0.000	284.47	0.00	0.00
4	117.00	RRH2X60-AWS	3	27.516	30.268	0.76	1.00	7.98	148.50	0.000	0.000	386.46	0.00	0.00
5	117.00	FD9R6004/2C-3L 3.1#	6	27.516	30.268	1.00	1.00	2.16	16.74	0.000	0.000	104.61	0.00	0.00
6	117.00	GPS	1	27.516	30.268	0.50	1.00	0.50	9.00	0.000	0.000	24.21	0.00	0.00
7	117.00	LPA-80080/4CF ___	6	27.516	30.268	1.70	1.00	26.62	64.80	0.000	0.000	1289.26	0.00	0.00
8	117.00	LNX-6514DS-VTM (72.7"	3	27.516	30.268	0.83	1.00	20.34	104.76	0.000	0.000	985.19	0.00	0.00
9	117.00	HBXX-6517DS-VTM	6	27.516	30.268	0.77	1.00	39.50	219.78	0.000	0.000	1912.97	0.00	0.00
10	107.00	Low Profile	1	27.003	29.704	1.00	1.00	22.00	1350.00	0.000	0.000	1045.57	0.00	0.00
11	107.00	56" x 10" Panel	3	27.003	29.704	0.60	0.80	9.38	81.00	0.000	0.000	445.70	0.00	0.00
12	107.00	G3SS-b	6	27.003	29.704	0.56	0.80	3.09	51.30	0.000	0.000	146.91	0.00	0.00
13	87.00	7770.00	3	25.852	28.438	0.55	0.75	9.03	94.50	0.000	0.000	411.04	0.00	0.00
14	87.00	DC6-48-60-18-8C	1	25.852	28.438	1.00	1.00	1.26	18.00	0.000	0.000	57.33	0.00	0.00
15	87.00	DC6-48-60-18-8F(23.5"	1	25.852	28.438	1.00	1.00	1.26	18.00	0.000	0.000	57.33	0.00	0.00
16	87.00	4449 B5/B12	3	25.852	28.438	0.65	0.75	3.81	191.70	0.000	0.000	173.44	0.00	0.00
17	87.00	B2 B66A 8843	3	25.852	28.438	0.64	0.75	3.14	189.00	0.000	0.000	142.71	0.00	0.00
18	87.00	LGP21903	6	25.852	28.438	0.63	0.75	1.02	29.70	0.000	0.000	46.44	0.00	0.00
19	87.00	TT19-08BP111-001	6	25.852	28.438	0.68	0.75	2.59	86.40	0.000	0.000	117.94	0.00	0.00
20	87.00	HRK12 (Handrail Kit)	1	25.852	28.438	1.00	1.00	6.75	235.55	0.000	0.000	307.13	0.00	0.00
21	87.00	PRK-1245 (kicker kit)	1	25.852	28.438	1.00	1.00	9.50	418.42	0.000	0.000	432.25	0.00	0.00
22	87.00	Low Profile	1	25.852	28.438	1.00	1.00	22.00	1350.00	0.000	0.000	1001.00	0.00	0.00
23	87.00	800 10966	3	25.852	28.438	0.54	0.75	28.12	339.39	0.000	0.000	1279.61	0.00	0.00
24	87.00	HPA-65R-BUU-H8	3	25.852	28.438	0.59	0.75	23.07	183.60	0.000	0.000	1049.78	0.00	0.00
							Totals:		**6,732.66**			**13,096.85**		

Total Applied Force Summary

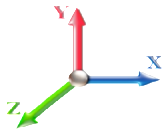
Structure:	CT03801-S-SBA		**Code:**	EIA/TIA-222-G	2/18/2019
Site Name:	East Granby		**Exposure:**	C	
Height:	120.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 14

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 93 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 19

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		555.62	1208.17	0.00	0.00
10.00		541.42	1182.22	0.00	0.00
15.00		527.21	1156.27	0.00	0.00
20.00		544.32	1130.32	0.00	0.00
25.00		554.71	1104.37	0.00	0.00
30.00		560.00	1078.42	0.00	0.00
32.00		222.41	424.10	0.00	0.00
35.00		340.26	1145.01	0.00	0.00
37.50		282.97	939.90	0.00	0.00
40.00		282.48	516.88	0.00	0.00
45.00		565.74	1014.30	0.00	0.00
50.00		560.15	988.35	0.00	0.00
55.00		552.85	962.40	0.00	0.00
60.00		544.08	936.45	0.00	0.00
64.83		516.24	880.57	0.00	0.00
65.00		17.83	53.66	0.00	0.00
69.50		480.02	1426.96	0.00	0.00
70.00		52.43	88.66	0.00	0.00
75.00		521.07	872.34	0.00	0.00
80.00		508.02	846.39	0.00	0.00
85.00		494.11	820.44	0.00	0.00
87.00	(32) attachments	5268.85	3475.17	0.00	0.00
90.00		285.16	424.14	0.00	0.00
95.00		463.97	686.15	0.00	0.00
98.50		314.72	464.86	0.00	0.00
100.00		134.94	331.88	0.00	0.00
102.33		207.12	507.74	0.00	0.00
105.00		232.30	295.24	0.00	0.00
107.00	(10) attachments	1809.09	1699.69	0.00	0.00
110.00		251.39	285.91	0.00	0.00
115.00		405.50	459.21	0.00	0.00
117.00	(31) attachments	6539.35	2273.73	0.00	0.00
120.00		229.67	223.13	0.00	0.00
	Totals:	**25,366.00**	**29,903.05**	**0.00**	**0.00**

Calculated Forces

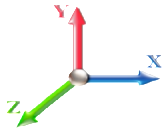
Structure:	CT03801-S-SBA	**Code:**	EIA/TIA-222-G	2/18/2019	
Site Name:	East Granby	**Exposure:**	C		
Height:	120.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 15	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 93 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 19

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-29.88	-25.39	0.00	-2118.1	0.00	2118.14	4242.75	2121.37	9773.47	4851.96	0.00	0.000	0.000	0.444
5.00	-28.62	-24.89	0.00	-1991.1	0.00	1991.17	4184.67	2092.33	9393.09	4663.13	0.06	-0.112	0.000	0.434
10.00	-27.39	-24.40	0.00	-1866.7	0.00	1866.70	4124.00	2062.00	9013.89	4474.88	0.24	-0.225	0.000	0.424
15.00	-26.19	-23.92	0.00	-1744.6	0.00	1744.68	4060.73	2030.37	8636.33	4287.44	0.54	-0.340	0.000	0.414
20.00	-25.02	-23.42	0.00	-1625.0	0.00	1625.07	3994.87	1997.44	8260.86	4101.04	0.96	-0.456	0.000	0.403
25.00	-23.87	-22.91	0.00	-1507.9	0.00	1507.95	3926.42	1963.21	7887.94	3915.90	1.50	-0.573	0.000	0.391
30.00	-22.76	-22.37	0.00	-1393.4	0.00	1393.42	3855.38	1927.69	7518.03	3732.27	2.16	-0.691	0.000	0.379
32.00	-22.32	-22.16	0.00	-1348.6	0.00	1348.68	3826.23	1913.12	7371.01	3659.28	2.46	-0.740	0.000	0.375
35.00	-21.15	-21.83	0.00	-1282.1	0.00	1282.19	3781.74	1890.87	7151.59	3550.35	2.95	-0.813	0.000	0.367
37.50	-20.20	-21.56	0.00	-1227.6	0.00	1227.61	3783.94	1891.97	7162.31	3555.67	3.39	-0.875	0.000	0.351
40.00	-19.65	-21.30	0.00	-1173.7	0.00	1173.71	3746.19	1873.09	6980.48	3465.40	3.87	-0.936	0.000	0.344
45.00	-18.60	-20.75	0.00	-1067.2	0.00	1067.22	3668.73	1834.37	6619.97	3286.43	4.91	-1.051	0.000	0.330
50.00	-17.59	-20.21	0.00	-963.46	0.00	963.46	3588.69	1794.34	6264.07	3109.75	6.07	-1.165	0.000	0.315
55.00	-16.60	-19.67	0.00	-862.43	0.00	862.43	3506.05	1753.02	5913.22	2935.57	7.36	-1.278	0.000	0.299
60.00	-15.64	-19.13	0.00	-764.09	0.00	764.09	3420.81	1710.41	5567.90	2764.14	8.76	-1.390	0.000	0.281
64.83	-14.75	-18.61	0.00	-671.62	0.00	671.62	3335.96	1667.98	5239.76	2601.24	10.22	-1.496	0.000	0.263
65.00	-14.68	-18.60	0.00	-668.52	0.00	668.52	3332.99	1666.49	5228.55	2595.67	10.27	-1.500	0.000	0.262
69.50	-13.25	-18.09	0.00	-584.82	0.00	584.82	3299.78	1649.89	5104.40	2534.04	11.73	-1.596	0.000	0.235
70.00	-13.15	-18.05	0.00	-575.77	0.00	575.77	3290.76	1645.38	5071.06	2517.49	11.90	-1.607	0.000	0.233
75.00	-12.26	-17.53	0.00	-485.51	0.00	485.51	3199.12	1599.56	4741.34	2353.80	13.64	-1.702	0.000	0.210
80.00	-11.41	-17.01	0.00	-397.89	0.00	397.89	3073.61	1536.80	4374.21	2171.54	15.47	-1.791	0.000	0.187
85.00	-10.59	-16.50	0.00	-312.84	0.00	312.84	2947.70	1473.85	4021.34	1996.36	17.39	-1.872	0.000	0.160
87.00	-7.28	-11.12	0.00	-279.84	0.00	279.84	2897.34	1448.67	3884.35	1928.35	18.18	-1.903	0.000	0.148
90.00	-6.86	-10.83	0.00	-246.47	0.00	246.47	2821.79	1410.90	3683.31	1828.55	19.39	-1.946	0.000	0.137
95.00	-6.18	-10.35	0.00	-192.32	0.00	192.32	2695.89	1347.94	3360.11	1668.10	21.46	-2.010	0.000	0.118
98.50	-5.72	-10.02	0.00	-156.10	0.00	156.10	2607.75	1303.88	3142.71	1560.17	22.95	-2.051	0.000	0.102
100.00	-5.39	-9.88	0.00	-141.07	0.00	141.07	2569.98	1284.99	3051.76	1515.02	23.60	-2.068	0.000	0.095
102.33	-4.89	-9.65	0.00	-118.02	0.00	118.02	2143.60	1071.80	2553.25	1267.54	24.62	-2.091	0.000	0.095
105.00	-4.60	-9.41	0.00	-92.28	0.00	92.28	2087.65	1043.82	2420.99	1201.88	25.79	-2.115	0.000	0.079
107.00	-2.96	-7.54	0.00	-73.46	0.00	73.46	2045.68	1022.84	2324.11	1153.79	26.68	-2.131	0.000	0.065
110.00	-2.68	-7.28	0.00	-50.83	0.00	50.83	1982.72	991.36	2182.49	1083.48	28.03	-2.151	0.000	0.048
115.00	-2.24	-6.86	0.00	-14.43	0.00	14.43	1877.80	938.90	1956.35	971.22	30.29	-2.171	0.000	0.016
117.00	-0.21	-0.24	0.00	-0.71	0.00	0.71	1835.83	917.92	1869.36	928.03	31.20	-2.173	0.000	0.001
120.00	0.00	-0.23	0.00	0.00	0.00	0.00	1772.88	886.44	1742.58	865.09	32.57	-2.173	0.000	0.000

Wind Loading - Shaft

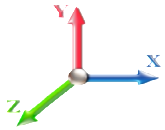
Structure:	CT03801-S-SBA	**Code:**	EIA/TIA-222-G	2/18/2019	
Site Name:	East Granby	**Exposure:**	C		
Height:	120.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 16	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 19

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	5.168	5.68	0.00	1.200	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	5.168	5.68	0.00	1.200	1.656	5.00	24.923	29.91	170.0	590.0	1934.3
10.00		1.00	0.85	5.168	5.68	0.00	1.200	1.775	5.00	24.420	29.30	166.6	617.7	1927.5
15.00		1.00	0.85	5.168	5.68	0.00	1.200	1.848	5.00	23.879	28.66	162.9	627.6	1902.7
20.00		1.00	0.90	5.483	6.03	0.00	1.200	1.902	5.00	23.322	27.99	168.8	629.5	1870.0
25.00		1.00	0.95	5.747	6.32	0.00	1.200	1.945	5.00	22.756	27.31	172.6	626.8	1832.7
30.00		1.00	0.98	5.972	6.57	0.00	1.200	1.981	5.00	22.184	26.62	174.9	621.0	1792.3
32.00	Bot - Section 2	1.00	1.00	6.054	6.66	0.00	1.200	1.994	2.00	8.709	10.45	69.6	247.2	706.1
35.00		1.00	1.01	6.169	6.79	0.00	1.200	2.012	3.00	13.084	15.70	106.5	373.5	1740.3
37.50	Top - Section 1	1.00	1.03	6.259	6.89	0.00	1.200	2.026	2.50	10.743	12.89	88.8	309.0	1428.9
40.00		1.00	1.04	6.345	6.98	0.00	1.200	2.039	2.50	10.598	12.72	88.8	306.5	862.4
45.00		1.00	1.07	6.504	7.15	0.00	1.200	2.063	5.00	20.766	24.92	178.3	602.1	1687.9
50.00		1.00	1.09	6.650	7.32	0.00	1.200	2.085	5.00	20.182	24.22	177.2	590.1	1641.3
55.00		1.00	1.12	6.785	7.46	0.00	1.200	2.105	5.00	19.597	23.52	175.5	577.1	1593.8
60.00		1.00	1.14	6.910	7.60	0.00	1.200	2.123	5.00	19.010	22.81	173.4	563.4	1545.4
64.83	Bot - Section 3	1.00	1.16	7.024	7.73	0.00	1.200	2.140	4.83	17.818	21.38	165.2	531.2	1447.6
65.00		1.00	1.16	7.028	7.73	0.00	1.200	2.140	0.17	0.615	0.74	5.7	18.6	81.3
69.50	Top - Section 2	1.00	1.17	7.128	7.84	0.00	1.200	2.155	4.50	16.363	19.64	154.0	491.1	2153.8
70.00		1.00	1.17	7.138	7.85	0.00	1.200	2.156	0.50	1.788	2.15	16.8	54.4	146.0
75.00		1.00	1.19	7.243	7.97	0.00	1.200	2.171	5.00	17.563	21.08	167.9	528.7	1425.2
80.00		1.00	1.21	7.342	8.08	0.00	1.200	2.185	5.00	16.973	20.37	164.5	512.7	1374.7
85.00		1.00	1.22	7.436	8.18	0.00	1.200	2.198	5.00	16.382	19.66	160.8	496.3	1323.7
87.00	Appurtenance(s)	1.00	1.23	7.473	8.22	0.00	1.200	2.204	2.00	6.386	7.66	63.0	195.9	517.1
90.00		1.00	1.24	7.526	8.28	0.00	1.200	2.211	3.00	9.402	11.28	93.4	287.7	759.2
95.00		1.00	1.25	7.612	8.37	0.00	1.200	2.223	5.00	15.199	18.24	152.7	462.4	1220.5
98.50	Bot - Section 4	1.00	1.26	7.671	8.44	0.00	1.200	2.231	3.50	10.286	12.34	104.1	315.1	825.2
100.00		1.00	1.27	7.695	8.46	0.00	1.200	2.234	1.50	4.399	5.28	44.7	136.1	531.6
102.33	Top - Section 3	1.00	1.27	7.732	8.51	0.00	1.200	2.240	2.33	6.737	8.08	68.8	207.9	811.8
105.00		1.00	1.28	7.774	8.55	0.00	1.200	2.245	2.67	7.541	9.05	77.4	232.5	542.6
107.00	Appurtenance(s)	1.00	1.28	7.805	8.59	0.00	1.200	2.250	2.00	5.545	6.65	57.1	171.5	398.7
110.00		1.00	1.29	7.851	8.64	0.00	1.200	2.256	3.00	8.140	9.77	84.4	250.8	582.9
115.00		1.00	1.30	7.925	8.72	0.00	1.200	2.266	5.00	13.093	15.71	137.0	399.7	930.1
117.00	Appurtenance(s)	1.00	1.31	7.954	8.75	0.00	1.200	2.270	2.00	5.070	6.08	53.2	156.9	361.0
120.00		1.00	1.32	7.996	8.80	0.00	1.200	2.276	3.00	7.427	8.91	78.4	228.7	526.2
								Totals:	**120.00**			**3,923.0**		**38,424.7**

Discrete Appurtenance Forces

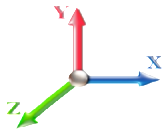
Structure:	CT03801-S-SBA	**Code:**	EIA/TIA-222-G	2/18/2019	
Site Name:	East Granby	**Exposure:**	C		
Height:	120.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 17	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 19

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	117.00	Low Profile	1	7.954	8.749	1.00	1.00	44.97	3202.39	0.000	0.000	393.45	0.00	0.00
2	117.00	DB-T1-6Z-8AB-0Z	2	7.954	8.749	0.73	1.00	8.70	439.62	0.000	0.000	76.12	0.00	0.00
3	117.00	RRH2X60-PCS	3	7.954	8.749	0.91	1.00	8.33	551.63	0.000	0.000	72.86	0.00	0.00
4	117.00	RRH2X60-AWS	3	7.954	8.749	0.76	1.00	10.32	449.90	0.000	0.000	90.29	0.00	0.00
5	117.00	FD9R6004/2C-3L 3.1#	6	7.954	8.749	1.00	1.00	5.62	71.16	0.000	0.000	49.16	0.00	0.00
6	117.00	GPS	1	7.954	8.749	0.52	1.00	1.00	42.13	0.000	0.000	8.76	0.00	0.00
7	117.00	LPA-80080/4CF ___	6	7.954	8.749	1.70	1.00	38.20	1211.88	0.000	0.000	334.25	0.00	0.00
8	117.00	LNX-6514DS-VTM (72.7"	3	7.954	8.749	0.85	1.00	30.20	676.08	0.000	0.000	264.19	0.00	0.00
9	117.00	HBXX-6517DS-VTM	6	7.954	8.749	0.79	1.00	58.52	1361.16	0.000	0.000	511.99	0.00	0.00
10	107.00	Low Profile	1	7.805	8.586	1.00	1.00	44.77	3187.25	0.000	0.000	384.36	0.00	0.00
11	107.00	56" x 10" Panel	3	7.805	8.586	0.62	0.80	14.81	435.21	0.000	0.000	127.15	0.00	0.00
12	107.00	G3SS-b	6	7.805	8.586	0.58	0.80	6.44	188.33	0.000	0.000	55.25	0.00	0.00
13	87.00	7770.00	3	7.473	8.220	0.56	0.75	11.59	669.02	0.000	0.000	95.27	0.00	0.00
14	87.00	DC6-48-60-18-8C	1	7.473	8.220	1.00	1.00	2.09	75.52	0.000	0.000	17.20	0.00	0.00
15	87.00	DC6-48-60-18-8F(23.5"	1	7.473	8.220	1.00	1.00	2.09	75.52	0.000	0.000	17.20	0.00	0.00
16	87.00	4449 B5/B12	3	7.473	8.220	0.66	0.75	5.27	417.00	0.000	0.000	43.31	0.00	0.00
17	87.00	B2 B66A 8843	3	7.473	8.220	0.65	0.75	4.49	392.28	0.000	0.000	36.88	0.00	0.00
18	87.00	LGP21903	6	7.473	8.220	0.65	0.75	2.99	89.05	0.000	0.000	24.56	0.00	0.00
19	87.00	TT19-08BP111-001	6	7.473	8.220	0.69	0.75	5.75	233.73	0.000	0.000	47.25	0.00	0.00
20	87.00	HRK12 (Handrail Kit)	1	7.473	8.220	1.00	1.00	15.08	967.96	0.000	0.000	123.95	0.00	0.00
21	87.00	PRK-1245 (kicker kit)	1	7.473	8.220	1.00	1.00	22.06	872.59	0.000	0.000	181.33	0.00	0.00
22	87.00	Low Profile	1	7.473	8.220	1.00	1.00	44.30	3152.69	0.000	0.000	364.14	0.00	0.00
23	87.00	800 10966	3	7.473	8.220	0.55	0.75	32.75	1858.55	0.000	0.000	269.18	0.00	0.00
24	87.00	HPA-65R-BUU-H8	3	7.473	8.220	0.61	0.75	27.43	1395.38	0.000	0.000	225.49	0.00	0.00
							Totals:		**22,016.02**			**3,813.62**		

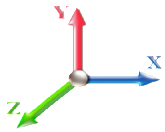
Total Applied Force Summary

Structure:	CT03801-S-SBA		**Code:**	EIA/TIA-222-G	2/18/2019
Site Name:	East Granby		**Exposure:**	C	
Height:	120.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 18

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 19

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		170.02	2200.88	0.00	0.00
10.00		166.59	2194.03	0.00	0.00
15.00		162.90	2169.28	0.00	0.00
20.00		168.81	2136.59	0.00	0.00
25.00		172.64	2099.28	0.00	0.00
30.00		174.88	2058.91	0.00	0.00
32.00		69.60	812.69	0.00	0.00
35.00		106.54	1900.22	0.00	0.00
37.50		88.77	1562.20	0.00	0.00
40.00		88.77	995.68	0.00	0.00
45.00		178.29	1954.51	0.00	0.00
50.00		177.16	1907.89	0.00	0.00
55.00		175.51	1860.34	0.00	0.00
60.00		173.41	1812.00	0.00	0.00
64.83		165.20	1705.25	0.00	0.00
65.00		5.71	90.18	0.00	0.00
69.50		153.95	2393.74	0.00	0.00
70.00		16.85	172.63	0.00	0.00
75.00		167.91	1691.82	0.00	0.00
80.00		164.49	1641.26	0.00	0.00
85.00		160.81	1590.26	0.00	0.00
87.00	(32) attachments	1508.78	10823.03	0.00	0.00
90.00		93.41	853.25	0.00	0.00
95.00		152.73	1377.26	0.00	0.00
98.50		104.15	934.95	0.00	0.00
100.00		44.68	578.62	0.00	0.00
102.33		68.76	884.89	0.00	0.00
105.00		77.39	626.19	0.00	0.00
107.00	(10) attachments	623.89	4272.18	0.00	0.00
110.00		84.35	631.99	0.00	0.00
115.00		136.96	1011.95	0.00	0.00
117.00	(31) attachments	1854.30	8399.70	0.00	0.00
120.00		78.39	526.18	0.00	0.00
	Totals:	**7,736.58**	**65,869.81**	**0.00**	**0.00**

Calculated Forces

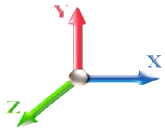
Structure:	CT03801-S-SBA	**Code:**	EIA/TIA-222-G	2/18/2019	
Site Name:	East Granby	**Exposure:**	C		
Height:	120.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 19	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 19

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-65.87	-7.76	0.00	-657.14	0.00	657.14	4242.75	2121.37	9773.47	4851.96	0.00	0.000	0.000	0.151
5.00	-63.66	-7.62	0.00	-618.35	0.00	618.35	4184.67	2092.33	9393.09	4663.13	0.02	-0.035	0.000	0.148
10.00	-61.46	-7.49	0.00	-580.23	0.00	580.23	4124.00	2062.00	9013.89	4474.88	0.07	-0.070	0.000	0.145
15.00	-59.29	-7.37	0.00	-542.76	0.00	542.76	4060.73	2030.37	8636.33	4287.44	0.17	-0.105	0.000	0.141
20.00	-57.15	-7.23	0.00	-505.94	0.00	505.94	3994.87	1997.44	8260.86	4101.04	0.30	-0.142	0.000	0.138
25.00	-55.05	-7.08	0.00	-469.80	0.00	469.80	3926.42	1963.21	7887.94	3915.90	0.46	-0.178	0.000	0.134
30.00	-52.98	-6.93	0.00	-434.37	0.00	434.37	3855.38	1927.69	7518.03	3732.27	0.67	-0.215	0.000	0.130
32.00	-52.17	-6.87	0.00	-420.52	0.00	420.52	3826.23	1913.12	7371.01	3659.28	0.77	-0.230	0.000	0.129
35.00	-50.27	-6.78	0.00	-399.91	0.00	399.91	3781.74	1890.87	7151.59	3550.35	0.92	-0.253	0.000	0.126
37.50	-48.70	-6.70	0.00	-382.97	0.00	382.97	3783.94	1891.97	7162.31	3555.67	1.06	-0.272	0.000	0.121
40.00	-47.70	-6.62	0.00	-366.23	0.00	366.23	3746.19	1873.09	6980.48	3465.40	1.20	-0.291	0.000	0.118
45.00	-45.75	-6.46	0.00	-333.11	0.00	333.11	3668.73	1834.37	6619.97	3286.43	1.53	-0.327	0.000	0.114
50.00	-43.84	-6.30	0.00	-300.79	0.00	300.79	3588.69	1794.34	6264.07	3109.75	1.89	-0.363	0.000	0.109
55.00	-41.97	-6.14	0.00	-269.27	0.00	269.27	3506.05	1753.02	5913.22	2935.57	2.29	-0.398	0.000	0.104
60.00	-40.16	-5.98	0.00	-238.57	0.00	238.57	3420.81	1710.41	5567.90	2764.14	2.73	-0.433	0.000	0.098
64.83	-38.45	-5.81	0.00	-209.67	0.00	209.67	3335.96	1667.98	5239.76	2601.24	3.18	-0.466	0.000	0.092
65.00	-38.36	-5.82	0.00	-208.71	0.00	208.71	3332.99	1666.49	5228.55	2595.67	3.20	-0.467	0.000	0.092
69.50	-35.97	-5.65	0.00	-182.54	0.00	182.54	3299.78	1649.89	5104.40	2534.04	3.65	-0.497	0.000	0.083
70.00	-35.79	-5.64	0.00	-179.71	0.00	179.71	3290.76	1645.38	5071.06	2517.49	3.71	-0.501	0.000	0.082
75.00	-34.10	-5.48	0.00	-151.50	0.00	151.50	3199.12	1599.56	4741.34	2353.80	4.25	-0.530	0.000	0.075
80.00	-32.46	-5.31	0.00	-124.11	0.00	124.11	3073.61	1536.80	4374.21	2171.54	4.82	-0.558	0.000	0.068
85.00	-30.87	-5.15	0.00	-97.55	0.00	97.55	2947.70	1473.85	4021.34	1996.36	5.42	-0.584	0.000	0.059
87.00	-20.06	-3.53	0.00	-87.26	0.00	87.26	2897.34	1448.67	3884.35	1928.35	5.66	-0.593	0.000	0.052
90.00	-19.21	-3.43	0.00	-76.67	0.00	76.67	2821.79	1410.90	3683.31	1828.55	6.04	-0.606	0.000	0.049
95.00	-17.83	-3.27	0.00	-59.51	0.00	59.51	2695.89	1347.94	3360.11	1668.10	6.69	-0.626	0.000	0.042
98.50	-16.90	-3.16	0.00	-48.06	0.00	48.06	2607.75	1303.88	3142.71	1560.17	7.15	-0.639	0.000	0.037
100.00	-16.32	-3.11	0.00	-43.33	0.00	43.33	2569.98	1284.99	3051.76	1515.02	7.35	-0.644	0.000	0.035
102.33	-15.43	-3.03	0.00	-36.07	0.00	36.07	2143.60	1071.80	2553.25	1267.54	7.67	-0.651	0.000	0.036
105.00	-14.81	-2.95	0.00	-27.99	0.00	27.99	2087.65	1043.82	2420.99	1201.88	8.03	-0.659	0.000	0.030
107.00	-10.54	-2.28	0.00	-22.09	0.00	22.09	2045.68	1022.84	2324.11	1153.79	8.31	-0.664	0.000	0.024
110.00	-9.91	-2.19	0.00	-15.26	0.00	15.26	1982.72	991.36	2182.49	1083.48	8.73	-0.670	0.000	0.019
115.00	-8.90	-2.04	0.00	-4.33	0.00	4.33	1877.80	938.90	1956.35	971.22	9.44	-0.675	0.000	0.009
117.00	-0.53	-0.08	0.00	-0.25	0.00	0.25	1835.83	917.92	1869.36	928.03	9.72	-0.676	0.000	0.001
120.00	0.00	-0.08	0.00	0.00	0.00	0.00	1772.88	886.44	1742.58	865.09	10.14	-0.676	0.000	0.000

Seismic Segment Forces (Factored)

Structure:	CT03801-S-SBA	**Code:**	EIA/TIA-222-G	2/18/2019	
Site Name:	East Granby	**Exposure:**	C		
Height:	120.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 20	

Tower Engineering Solutions

Load Case:	1.2D + 1.0E							**Iterations**	18
Gust Response Factor	1.10				**Sds**	0.19		**Ss**	0.18
Dead Load Factor	1.20	**Seismic Load Factor**	1.00		**Sd1**	0.10		**S1**	0.07
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.56		**SA**	0.06	**Seismic Importance Factor**		1.00

Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		1120.2	0.00	0.04	0.02	15.97	
10.00		1091.4	0.01	0.06	0.03	22.82	
15.00		1062.5	0.03	0.07	0.04	25.64	
20.00		1033.7	0.05	0.07	0.04	26.76	
25.00		1004.9	0.08	0.07	0.04	27.29	
30.00		976.09	0.12	0.07	0.03	27.66	
32.00	Bot - Section 2	382.36	0.13	0.07	0.03	11.01	
35.00		1138.9	0.16	0.07	0.03	33.46	
37.50	Top - Section 1	933.26	0.18	0.06	0.03	27.76	
40.00		463.24	0.21	0.06	0.02	13.86	
45.00		904.85	0.27	0.05	0.02	26.58	
50.00		876.02	0.33	0.04	0.01	23.72	
55.00		847.19	0.40	0.02	0.01	19.02	
60.00		818.35	0.47	-0.01	0.01	12.61	
64.83	Bot - Section 3	763.67	0.55	-0.04	0.01	5.27	
65.00		52.21	0.55	-0.04	0.01	0.34	
69.50	Top - Section 2	1385.5	0.63	-0.07	0.02	-2.14	
70.00		76.30	0.64	-0.07	0.02	-0.18	
75.00		747.12	0.74	-0.10	0.04	-6.91	
80.00		718.29	0.84	-0.12	0.07	-8.38	
85.00		689.45	0.95	-0.12	0.11	-5.39	
87.00	Appurtenance(s)	3772.4	0.99	-0.11	0.13	-16.05	
90.00		392.91	1.06	-0.09	0.17	1.34	
95.00		631.79	1.18	-0.01	0.24	14.26	
98.50	Bot - Section 4	425.10	1.27	0.09	0.31	17.38	
100.00		329.57	1.31	0.14	0.35	16.47	
102.33	Top - Section 3	503.21	1.37	0.24	0.41	33.02	
105.00		258.39	1.45	0.38	0.48	22.16	
107.00	Appurtenance(s)	1836.3	1.50	0.51	0.55	188.10	
110.00		276.76	1.59	0.74	0.65	35.99	
115.00		442.04	1.74	1.26	0.87	80.88	
117.00	Appurtenance(s)	2499.0	1.80	1.52	0.97	516.33	
120.00		247.92	1.89	1.98	1.14	60.67	
	Totals:	**28,701.4**				**1,267.3**	**Total Wind:** **25,366.0**

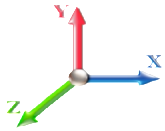
Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

Calculated Forces

Structure:	CT03801-S-SBA	**Code:**	EIA/TIA-222-G	2/18/2019	
Site Name:	East Granby	**Exposure:**	C		
Height:	120.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 21	

Tower Engineering Solutions

Load Case: 1.2D + 1.0E



Gust Response Factor	1.10			**Sds**	0.19	**Iterations**	18		
Dead Load Factor	1.20	**Seismic Load Factor**	1.00	**Sd1**	0.10	**Ss**	0.18		
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.56	**SA**	0.06	**S1**	0.07	**Seismic Importance Factor**	1.00

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-39.87	-1.31	0.00	-124.68	0.00	124.68	4242.75	2121.37	9773.47	4851.96		0.00	0.00	0.035
5.00	-38.26	-1.30	0.00	-118.13	0.00	118.13	4184.67	2092.33	9393.09	4663.13		0.00	-0.01	0.034
10.00	-36.68	-1.28	0.00	-111.65	0.00	111.65	4124.00	2062.00	9013.89	4474.88		0.01	-0.01	0.034
15.00	-35.14	-1.26	0.00	-105.26	0.00	105.26	4060.73	2030.37	8636.33	4287.44		0.03	-0.02	0.033
20.00	-33.63	-1.23	0.00	-98.98	0.00	98.98	3994.87	1997.44	8260.86	4101.04		0.06	-0.03	0.033
25.00	-32.16	-1.21	0.00	-92.81	0.00	92.81	3926.42	1963.21	7887.94	3915.90		0.09	-0.03	0.032
30.00	-30.72	-1.18	0.00	-86.77	0.00	86.77	3855.38	1927.69	7518.03	3732.27		0.13	-0.04	0.031
32.00	-30.16	-1.17	0.00	-84.40	0.00	84.40	3826.23	1913.12	7371.01	3659.28		0.15	-0.04	0.031
35.00	-28.63	-1.14	0.00	-80.88	0.00	80.88	3781.74	1890.87	7151.59	3550.35		0.18	-0.05	0.030
37.50	-27.38	-1.11	0.00	-78.03	0.00	78.03	3783.94	1891.97	7162.31	3555.67		0.20	-0.05	0.029
40.00	-26.69	-1.10	0.00	-75.24	0.00	75.24	3746.19	1873.09	6980.48	3465.40		0.23	-0.06	0.029
45.00	-25.34	-1.08	0.00	-69.73	0.00	69.73	3668.73	1834.37	6619.97	3286.43		0.30	-0.06	0.028
50.00	-24.02	-1.06	0.00	-64.35	0.00	64.35	3588.69	1794.34	6264.07	3109.75		0.37	-0.07	0.027
55.00	-22.73	-1.04	0.00	-59.07	0.00	59.07	3506.05	1753.02	5913.22	2935.57		0.45	-0.08	0.027
60.00	-21.49	-1.03	0.00	-53.88	0.00	53.88	3420.81	1710.41	5567.90	2764.14		0.54	-0.09	0.026
64.83	-20.31	-1.02	0.00	-48.92	0.00	48.92	3335.96	1667.98	5239.76	2601.24		0.63	-0.10	0.025
65.00	-20.24	-1.02	0.00	-48.75	0.00	48.75	3332.99	1666.49	5228.55	2595.67		0.63	-0.10	0.025
69.50	-18.34	-1.02	0.00	-44.15	0.00	44.15	3299.78	1649.89	5104.40	2534.04		0.73	-0.10	0.023
70.00	-18.22	-1.02	0.00	-43.64	0.00	43.64	3290.76	1645.38	5071.06	2517.49		0.74	-0.10	0.023
75.00	-17.06	-1.02	0.00	-38.54	0.00	38.54	3199.12	1599.56	4741.34	2353.80		0.85	-0.11	0.022
80.00	-15.93	-1.02	0.00	-33.44	0.00	33.44	3073.61	1536.80	4374.21	2171.54		0.97	-0.12	0.021
85.00	-14.83	-1.02	0.00	-28.34	0.00	28.34	2947.70	1473.85	4021.34	1996.36		1.10	-0.13	0.019
87.00	-10.20	-1.01	0.00	-26.30	0.00	26.30	2897.34	1448.67	3884.35	1928.35		1.15	-0.13	0.017
90.00	-9.63	-1.01	0.00	-23.27	0.00	23.27	2821.79	1410.90	3683.31	1828.55		1.23	-0.13	0.016
95.00	-8.72	-0.99	0.00	-18.23	0.00	18.23	2695.89	1347.94	3360.11	1668.10		1.37	-0.14	0.014
98.50	-8.10	-0.97	0.00	-14.76	0.00	14.76	2607.75	1303.88	3142.71	1560.17		1.48	-0.14	0.013
100.00	-7.66	-0.96	0.00	-13.30	0.00	13.30	2569.98	1284.99	3051.76	1515.02		1.52	-0.14	0.012
102.33	-6.98	-0.92	0.00	-11.07	0.00	11.07	2143.60	1071.80	2553.25	1267.54		1.59	-0.15	0.012
105.00	-6.59	-0.90	0.00	-8.61	0.00	8.61	2087.65	1043.82	2420.99	1201.88		1.67	-0.15	0.010
107.00	-4.32	-0.71	0.00	-6.81	0.00	6.81	2045.68	1022.84	2324.11	1153.79		1.74	-0.15	0.008
110.00	-3.94	-0.67	0.00	-4.70	0.00	4.70	1982.72	991.36	2182.49	1083.48		1.83	-0.15	0.006
115.00	-3.33	-0.59	0.00	-1.36	0.00	1.36	1877.80	938.90	1956.35	971.22		1.99	-0.15	0.003
117.00	-0.30	-0.06	0.00	-0.18	0.00	0.18	1835.83	917.92	1869.36	928.03		2.05	-0.15	0.000
120.00	0.00	-0.06	0.00	0.00	0.00	0.00	1772.88	886.44	1742.58	865.09		2.15	-0.15	0.000

Seismic Segment Forces (Factored)

Structure:	CT03801-S-SBA	**Code:**	EIA/TIA-222-G	2/18/2019	
Site Name:	East Granby	**Exposure:**	C		
Height:	120.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 22	

Tower Engineering Solutions

Load Case:	0.9D + 1.0E							**Iterations**	17
Gust Response Factor	1.10				**Sds**	0.19		**Ss**	0.18
Dead Load Factor	0.90	**Seismic Load Factor**	1.00		**Sd1**	0.10		**S1**	0.07
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.56		**SA**	0.06	**Seismic Importance Factor**		1.00

Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		1120.2	0.00	0.04	0.02	15.97	
10.00		1091.4	0.01	0.06	0.03	22.82	
15.00		1062.5	0.03	0.07	0.04	25.64	
20.00		1033.7	0.05	0.07	0.04	26.76	
25.00		1004.9	0.08	0.07	0.04	27.29	
30.00		976.09	0.12	0.07	0.03	27.66	
32.00	Bot - Section 2	382.36	0.13	0.07	0.03	11.01	
35.00		1138.9	0.16	0.07	0.03	33.46	
37.50	Top - Section 1	933.26	0.18	0.06	0.03	27.76	
40.00		463.24	0.21	0.06	0.02	13.86	
45.00		904.85	0.27	0.05	0.02	26.58	
50.00		876.02	0.33	0.04	0.01	23.72	
55.00		847.19	0.40	0.02	0.01	19.02	
60.00		818.35	0.47	-0.01	0.01	12.61	
64.83	Bot - Section 3	763.67	0.55	-0.04	0.01	5.27	
65.00		52.21	0.55	-0.04	0.01	0.34	
69.50	Top - Section 2	1385.5	0.63	-0.07	0.02	-2.14	
70.00		76.30	0.64	-0.07	0.02	-0.18	
75.00		747.12	0.74	-0.10	0.04	-6.91	
80.00		718.29	0.84	-0.12	0.07	-8.38	
85.00		689.45	0.95	-0.12	0.11	-5.39	
87.00	Appurtenance(s)	3772.4	0.99	-0.11	0.13	-16.05	
90.00		392.91	1.06	-0.09	0.17	1.34	
95.00		631.79	1.18	-0.01	0.24	14.26	
98.50	Bot - Section 4	425.10	1.27	0.09	0.31	17.38	
100.00		329.57	1.31	0.14	0.35	16.47	
102.33	Top - Section 3	503.21	1.37	0.24	0.41	33.02	
105.00		258.39	1.45	0.38	0.48	22.16	
107.00	Appurtenance(s)	1836.3	1.50	0.51	0.55	188.10	
110.00		276.76	1.59	0.74	0.65	35.99	
115.00		442.04	1.74	1.26	0.87	80.88	
117.00	Appurtenance(s)	2499.0	1.80	1.52	0.97	516.33	
120.00		247.92	1.89	1.98	1.14	60.67	
	Totals:	**28,701.4**				**1,267.3**	**Total Wind:** **25,366.0**

Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

Calculated Forces

Structure:	CT03801-S-SBA	**Code:**	EIA/TIA-222-G	2/18/2019	
Site Name:	East Granby	**Exposure:**	C		
Height:	120.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 23	

Tower Engineering Solutions

Load Case: 0.9D + 1.0E

Iterations 17

Gust Response Factor	1.10			**Sds**	0.19			**Ss**	0.18
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.10			**S1**	0.07
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.56	**SA**	0.06			**Seismic Importance Factor**	1.00

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-29.90	-1.31	0.00	-123.90	0.00	123.90	4242.75	2121.37	9773.47	4851.96		0.00	0.00	0.033
5.00	-28.69	-1.29	0.00	-117.36	0.00	117.36	4184.67	2092.33	9393.09	4663.13		0.00	-0.01	0.032
10.00	-27.51	-1.27	0.00	-110.89	0.00	110.89	4124.00	2062.00	9013.89	4474.88		0.01	-0.01	0.031
15.00	-26.36	-1.25	0.00	-104.52	0.00	104.52	4060.73	2030.37	8636.33	4287.44		0.03	-0.02	0.031
20.00	-25.23	-1.23	0.00	-98.26	0.00	98.26	3994.87	1997.44	8260.86	4101.04		0.06	-0.03	0.030
25.00	-24.12	-1.20	0.00	-92.13	0.00	92.13	3926.42	1963.21	7887.94	3915.90		0.09	-0.03	0.030
30.00	-23.04	-1.18	0.00	-86.12	0.00	86.12	3855.38	1927.69	7518.03	3732.27		0.13	-0.04	0.029
32.00	-22.62	-1.17	0.00	-83.76	0.00	83.76	3826.23	1913.12	7371.01	3659.28		0.15	-0.04	0.029
35.00	-21.47	-1.13	0.00	-80.26	0.00	80.26	3781.74	1890.87	7151.59	3550.35		0.18	-0.05	0.028
37.50	-20.53	-1.11	0.00	-77.43	0.00	77.43	3783.94	1891.97	7162.31	3555.67		0.20	-0.05	0.027
40.00	-20.02	-1.09	0.00	-74.66	0.00	74.66	3746.19	1873.09	6980.48	3465.40		0.23	-0.06	0.027
45.00	-19.00	-1.07	0.00	-69.19	0.00	69.19	3668.73	1834.37	6619.97	3286.43		0.29	-0.06	0.026
50.00	-18.01	-1.05	0.00	-63.85	0.00	63.85	3588.69	1794.34	6264.07	3109.75		0.37	-0.07	0.026
55.00	-17.05	-1.03	0.00	-58.62	0.00	58.62	3506.05	1753.02	5913.22	2935.57		0.45	-0.08	0.025
60.00	-16.11	-1.02	0.00	-53.48	0.00	53.48	3420.81	1710.41	5567.90	2764.14		0.53	-0.09	0.024
64.83	-15.23	-1.01	0.00	-48.56	0.00	48.56	3335.96	1667.98	5239.76	2601.24		0.62	-0.09	0.023
65.00	-15.18	-1.01	0.00	-48.39	0.00	48.39	3332.99	1666.49	5228.55	2595.67		0.63	-0.09	0.023
69.50	-13.75	-1.01	0.00	-43.84	0.00	43.84	3299.78	1649.89	5104.40	2534.04		0.72	-0.10	0.021
70.00	-13.66	-1.01	0.00	-43.34	0.00	43.34	3290.76	1645.38	5071.06	2517.49		0.73	-0.10	0.021
75.00	-12.79	-1.01	0.00	-38.28	0.00	38.28	3199.12	1599.56	4741.34	2353.80		0.84	-0.11	0.020
80.00	-11.95	-1.01	0.00	-33.23	0.00	33.23	3073.61	1536.80	4374.21	2171.54		0.96	-0.12	0.019
85.00	-11.12	-1.01	0.00	-28.17	0.00	28.17	2947.70	1473.85	4021.34	1996.36		1.09	-0.12	0.018
87.00	-7.65	-1.00	0.00	-26.15	0.00	26.15	2897.34	1448.67	3884.35	1928.35		1.14	-0.13	0.016
90.00	-7.23	-1.00	0.00	-23.15	0.00	23.15	2821.79	1410.90	3683.31	1828.55		1.22	-0.13	0.015
95.00	-6.54	-0.99	0.00	-18.14	0.00	18.14	2695.89	1347.94	3360.11	1668.10		1.36	-0.14	0.013
98.50	-6.07	-0.97	0.00	-14.69	0.00	14.69	2607.75	1303.88	3142.71	1560.17		1.46	-0.14	0.012
100.00	-5.74	-0.95	0.00	-13.24	0.00	13.24	2569.98	1284.99	3051.76	1515.02		1.51	-0.14	0.011
102.33	-5.23	-0.92	0.00	-11.02	0.00	11.02	2143.60	1071.80	2553.25	1267.54		1.58	-0.14	0.011
105.00	-4.94	-0.89	0.00	-8.57	0.00	8.57	2087.65	1043.82	2420.99	1201.88		1.66	-0.15	0.009
107.00	-3.24	-0.70	0.00	-6.78	0.00	6.78	2045.68	1022.84	2324.11	1153.79		1.72	-0.15	0.007
110.00	-2.95	-0.67	0.00	-4.68	0.00	4.68	1982.72	991.36	2182.49	1083.48		1.82	-0.15	0.006
115.00	-2.50	-0.58	0.00	-1.35	0.00	1.35	1877.80	938.90	1956.35	971.22		1.98	-0.15	0.003
117.00	-0.22	-0.06	0.00	-0.18	0.00	0.18	1835.83	917.92	1869.36	928.03		2.04	-0.15	0.000
120.00	0.00	-0.06	0.00	0.00	0.00	0.00	1772.88	886.44	1742.58	865.09		2.14	-0.15	0.000

Wind Loading - Shaft

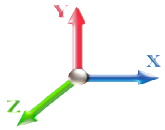
Structure:	CT03801-S-SBA	**Code:**	EIA/TIA-222-G	2/18/2019	
Site Name:	East Granby	**Exposure:**	C		
Height:	120.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 24	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 19

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	7.442	8.19	263.79	0.750	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	7.442	8.19	257.13	0.750	0.000	5.00	23.543	17.66	144.5	0.0	1120.3
10.00		1.00	0.85	7.442	8.19	250.48	0.750	0.000	5.00	22.941	17.21	140.8	0.0	1091.4
15.00		1.00	0.85	7.442	8.19	243.82	0.750	0.000	5.00	22.339	16.75	137.2	0.0	1062.6
20.00		1.00	0.90	7.896	8.69	244.29	0.750	0.000	5.00	21.737	16.30	141.6	0.0	1033.8
25.00		1.00	0.95	8.276	9.10	243.07	0.750	0.000	5.00	21.135	15.85	144.3	0.0	1004.9
30.00		1.00	0.98	8.600	9.46	240.63	0.750	0.000	5.00	20.533	15.40	145.7	0.0	976.1
32.00	Bot - Section 2	1.00	1.00	8.717	9.59	239.38	0.750	0.000	2.00	8.045	6.03	57.9	0.0	382.4
35.00		1.00	1.01	8.883	9.77	237.29	0.750	0.000	3.00	12.078	9.06	88.5	0.0	1138.9
37.50	Top - Section 1	1.00	1.03	9.013	9.91	235.35	0.750	0.000	2.50	9.899	7.42	73.6	0.0	933.3
40.00		1.00	1.04	9.137	10.05	237.17	0.750	0.000	2.50	9.749	7.31	73.5	0.0	463.2
45.00		1.00	1.07	9.366	10.30	232.66	0.750	0.000	5.00	19.047	14.28	147.2	0.0	904.9
50.00		1.00	1.09	9.576	10.53	227.71	0.750	0.000	5.00	18.445	13.83	145.7	0.0	876.0
55.00		1.00	1.12	9.770	10.75	222.37	0.750	0.000	5.00	17.843	13.38	143.8	0.0	847.2
60.00		1.00	1.14	9.951	10.95	216.72	0.750	0.000	5.00	17.241	12.93	141.5	0.0	818.4
64.83	Bot - Section 3	1.00	1.16	10.115	11.13	210.99	0.750	0.000	4.83	16.094	12.07	134.3	0.0	763.7
65.00		1.00	1.16	10.120	11.13	210.79	0.750	0.000	0.17	0.556	0.42	4.6	0.0	52.2
69.50	Top - Section 2	1.00	1.17	10.264	11.29	205.24	0.750	0.000	4.50	14.747	11.06	124.9	0.0	1385.6
70.00		1.00	1.17	10.279	11.31	208.76	0.750	0.000	0.50	1.609	1.21	13.6	0.0	76.3
75.00		1.00	1.19	10.430	11.47	202.39	0.750	0.000	5.00	15.754	11.82	135.6	0.0	747.1
80.00		1.00	1.21	10.572	11.63	195.84	0.750	0.000	5.00	15.152	11.36	132.2	0.0	718.3
85.00		1.00	1.22	10.708	11.78	189.10	0.750	0.000	5.00	14.550	10.91	128.5	0.0	689.5
87.00	Appurtenance(s)	1.00	1.23	10.761	11.84	186.37	0.750	0.000	2.00	5.652	4.24	50.2	0.0	267.7
90.00		1.00	1.24	10.838	11.92	182.21	0.750	0.000	3.00	8.297	6.22	74.2	0.0	392.9
95.00		1.00	1.25	10.962	12.06	175.17	0.750	0.000	5.00	13.347	10.01	120.7	0.0	631.8
98.50	Bot - Section 4	1.00	1.26	11.046	12.15	170.16	0.750	0.000	3.50	8.985	6.74	81.9	0.0	425.1
100.00		1.00	1.27	11.081	12.19	167.99	0.750	0.000	1.50	3.840	2.88	35.1	0.0	329.6
102.33	Top - Section 3	1.00	1.27	11.135	12.25	164.60	0.750	0.000	2.33	5.866	4.40	53.9	0.0	503.2
105.00		1.00	1.28	11.195	12.31	164.29	0.750	0.000	2.67	6.543	4.91	60.4	0.0	258.4
107.00	Appurtenance(s)	1.00	1.28	11.240	12.36	161.35	0.750	0.000	2.00	4.795	3.60	44.5	0.0	189.3
110.00		1.00	1.29	11.305	12.44	156.89	0.750	0.000	3.00	7.012	5.26	65.4	0.0	276.8
115.00		1.00	1.30	11.412	12.55	149.38	0.750	0.000	5.00	11.205	8.40	105.5	0.0	442.0
117.00	Appurtenance(s)	1.00	1.31	11.453	12.60	146.35	0.750	0.000	2.00	4.313	3.24	40.8	0.0	170.1
120.00		1.00	1.32	11.514	12.67	141.77	0.750	0.000	3.00	6.290	4.72	59.7	0.0	247.9
								Totals:	**120.00**			**3,191.8**		**21,220.7**

Discrete Appurtenance Forces

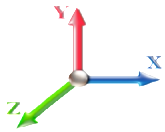
Structure:	CT03801-S-SBA	**Code:**	EIA/TIA-222-G	2/18/2019	
Site Name:	East Granby	**Exposure:**	C		
Height:	120.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 25	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 19

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	117.00	Low Profile	1	11.453	12.598	1.00	1.00	22.00	1500.00	0.000	0.000	277.17	0.00	0.00
2	117.00	DB-T1-6Z-8AB-0Z	2	11.453	12.598	0.71	1.00	6.82	37.80	0.000	0.000	85.87	0.00	0.00
3	117.00	RRH2X60-PCS	3	11.453	12.598	0.89	1.00	5.87	165.00	0.000	0.000	74.00	0.00	0.00
4	117.00	RRH2X60-AWS	3	11.453	12.598	0.76	1.00	7.98	165.00	0.000	0.000	100.54	0.00	0.00
5	117.00	FD9R6004/2C-3L 3.1#	6	11.453	12.598	1.00	1.00	2.16	18.60	0.000	0.000	27.21	0.00	0.00
6	117.00	GPS	1	11.453	12.598	0.50	1.00	0.50	10.00	0.000	0.000	6.30	0.00	0.00
7	117.00	LPA-80080/4CF ___	6	11.453	12.598	1.70	1.00	26.62	72.00	0.000	0.000	335.40	0.00	0.00
8	117.00	LNX-6514DS-VTM (72.7"	3	11.453	12.598	0.83	1.00	20.34	116.40	0.000	0.000	256.29	0.00	0.00
9	117.00	HBXX-6517DS-VTM	6	11.453	12.598	0.77	1.00	39.50	244.20	0.000	0.000	497.65	0.00	0.00
10	107.00	Low Profile	1	11.240	12.364	1.00	1.00	22.00	1500.00	0.000	0.000	272.00	0.00	0.00
11	107.00	56" x 10" Panel	3	11.240	12.364	0.60	0.80	9.38	90.00	0.000	0.000	115.95	0.00	0.00
12	107.00	G3SS-b	6	11.240	12.364	0.56	0.80	3.09	57.00	0.000	0.000	38.22	0.00	0.00
13	87.00	7770.00	3	10.761	11.837	0.55	0.75	9.03	105.00	0.000	0.000	106.93	0.00	0.00
14	87.00	DC6-48-60-18-8C	1	10.761	11.837	1.00	1.00	1.26	20.00	0.000	0.000	14.91	0.00	0.00
15	87.00	DC6-48-60-18-8F(23.5"	1	10.761	11.837	1.00	1.00	1.26	20.00	0.000	0.000	14.91	0.00	0.00
16	87.00	4449 B5/B12	3	10.761	11.837	0.65	0.75	3.81	213.00	0.000	0.000	45.12	0.00	0.00
17	87.00	B2 B66A 8843	3	10.761	11.837	0.64	0.75	3.14	210.00	0.000	0.000	37.13	0.00	0.00
18	87.00	LGP21903	6	10.761	11.837	0.63	0.75	1.02	33.00	0.000	0.000	12.08	0.00	0.00
19	87.00	TT19-08BP111-001	6	10.761	11.837	0.68	0.75	2.59	96.00	0.000	0.000	30.68	0.00	0.00
20	87.00	HRK12 (Handrail Kit)	1	10.761	11.837	1.00	1.00	6.75	261.72	0.000	0.000	79.90	0.00	0.00
21	87.00	PRK-1245 (kicker kit)	1	10.761	11.837	1.00	1.00	9.50	464.91	0.000	0.000	112.45	0.00	0.00
22	87.00	Low Profile	1	10.761	11.837	1.00	1.00	22.00	1500.00	0.000	0.000	260.41	0.00	0.00
23	87.00	800 10966	3	10.761	11.837	0.54	0.75	28.12	377.10	0.000	0.000	332.88	0.00	0.00
24	87.00	HPA-65R-BUU-H8	3	10.761	11.837	0.59	0.75	23.07	204.00	0.000	0.000	273.09	0.00	0.00
							Totals:		**7,480.73**			**3,407.09**		

Total Applied Force Summary

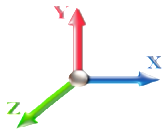
Structure:	CT03801-S-SBA		**Code:**	EIA/TIA-222-G	2/18/2019
Site Name:	East Granby		**Exposure:**	C	
Height:	120.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 26

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 19

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		144.54	1342.41	0.00	0.00
10.00		140.85	1313.57	0.00	0.00
15.00		137.15	1284.74	0.00	0.00
20.00		141.60	1255.91	0.00	0.00
25.00		144.30	1227.07	0.00	0.00
30.00		145.68	1198.24	0.00	0.00
32.00		57.86	471.22	0.00	0.00
35.00		88.52	1272.24	0.00	0.00
37.50		73.61	1044.34	0.00	0.00
40.00		73.49	574.31	0.00	0.00
45.00		147.17	1127.00	0.00	0.00
50.00		145.72	1098.17	0.00	0.00
55.00		143.82	1069.34	0.00	0.00
60.00		141.54	1040.50	0.00	0.00
64.83		134.30	978.41	0.00	0.00
65.00		4.64	59.62	0.00	0.00
69.50		124.87	1585.51	0.00	0.00
70.00		13.64	98.51	0.00	0.00
75.00		135.55	969.27	0.00	0.00
80.00		132.16	940.44	0.00	0.00
85.00		128.54	911.60	0.00	0.00
87.00	(32) attachments	1370.67	3861.30	0.00	0.00
90.00		74.18	471.27	0.00	0.00
95.00		120.70	762.39	0.00	0.00
98.50		81.87	516.52	0.00	0.00
100.00		35.10	368.75	0.00	0.00
102.33		53.88	564.16	0.00	0.00
105.00		60.43	328.05	0.00	0.00
107.00	(10) attachments	470.63	1888.55	0.00	0.00
110.00		65.40	317.68	0.00	0.00
115.00		105.49	510.24	0.00	0.00
117.00	(31) attachments	1701.18	2526.37	0.00	0.00
120.00		59.75	247.92	0.00	0.00
	Totals:	**6,598.86**	**33,225.61**	**0.00**	**0.00**

Calculated Forces

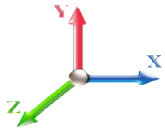
Structure:	CT03801-S-SBA	**Code:**	EIA/TIA-222-G	2/18/2019	
Site Name:	East Granby	**Exposure:**	C		
Height:	120.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 27	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 19

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-33.22	-6.61	0.00	-552.08	0.00	552.08	4242.75	2121.37	9773.47	4851.96	0.00	0.000	0.000	0.122
5.00	-31.88	-6.48	0.00	-519.05	0.00	519.05	4184.67	2092.33	9393.09	4663.13	0.02	-0.029	0.000	0.119
10.00	-30.56	-6.35	0.00	-486.65	0.00	486.65	4124.00	2062.00	9013.89	4474.88	0.06	-0.059	0.000	0.116
15.00	-29.27	-6.23	0.00	-454.89	0.00	454.89	4060.73	2030.37	8636.33	4287.44	0.14	-0.089	0.000	0.113
20.00	-28.01	-6.10	0.00	-423.74	0.00	423.74	3994.87	1997.44	8260.86	4101.04	0.25	-0.119	0.000	0.110
25.00	-26.78	-5.97	0.00	-393.24	0.00	393.24	3926.42	1963.21	7887.94	3915.90	0.39	-0.149	0.000	0.107
30.00	-25.58	-5.83	0.00	-363.41	0.00	363.41	3855.38	1927.69	7518.03	3732.27	0.56	-0.180	0.000	0.104
32.00	-25.11	-5.78	0.00	-351.75	0.00	351.75	3826.23	1913.12	7371.01	3659.28	0.64	-0.193	0.000	0.103
35.00	-23.84	-5.69	0.00	-334.42	0.00	334.42	3781.74	1890.87	7151.59	3550.35	0.77	-0.212	0.000	0.101
37.50	-22.79	-5.62	0.00	-320.20	0.00	320.20	3783.94	1891.97	7162.31	3555.67	0.88	-0.228	0.000	0.096
40.00	-22.22	-5.55	0.00	-306.15	0.00	306.15	3746.19	1873.09	6980.48	3465.40	1.01	-0.244	0.000	0.094
45.00	-21.09	-5.41	0.00	-278.40	0.00	278.40	3668.73	1834.37	6619.97	3286.43	1.28	-0.274	0.000	0.090
50.00	-19.99	-5.27	0.00	-251.34	0.00	251.34	3588.69	1794.34	6264.07	3109.75	1.58	-0.304	0.000	0.086
55.00	-18.92	-5.13	0.00	-225.00	0.00	225.00	3506.05	1753.02	5913.22	2935.57	1.92	-0.333	0.000	0.082
60.00	-17.87	-4.99	0.00	-199.35	0.00	199.35	3420.81	1710.41	5567.90	2764.14	2.28	-0.362	0.000	0.077
64.83	-16.90	-4.85	0.00	-175.23	0.00	175.23	3335.96	1667.98	5239.76	2601.24	2.66	-0.390	0.000	0.072
65.00	-16.83	-4.85	0.00	-174.42	0.00	174.42	3332.99	1666.49	5228.55	2595.67	2.68	-0.391	0.000	0.072
69.50	-15.25	-4.72	0.00	-152.58	0.00	152.58	3299.78	1649.89	5104.40	2534.04	3.06	-0.416	0.000	0.065
70.00	-15.15	-4.71	0.00	-150.22	0.00	150.22	3290.76	1645.38	5071.06	2517.49	3.10	-0.419	0.000	0.064
75.00	-14.18	-4.57	0.00	-126.68	0.00	126.68	3199.12	1599.56	4741.34	2353.80	3.56	-0.444	0.000	0.058
80.00	-13.24	-4.44	0.00	-103.81	0.00	103.81	3073.61	1536.80	4374.21	2171.54	4.03	-0.467	0.000	0.052
85.00	-12.33	-4.31	0.00	-81.62	0.00	81.62	2947.70	1473.85	4021.34	1996.36	4.53	-0.488	0.000	0.045
87.00	-8.48	-2.90	0.00	-73.01	0.00	73.01	2897.34	1448.67	3884.35	1928.35	4.74	-0.496	0.000	0.041
90.00	-8.01	-2.83	0.00	-64.30	0.00	64.30	2821.79	1410.90	3683.31	1828.55	5.06	-0.507	0.000	0.038
95.00	-7.24	-2.70	0.00	-50.17	0.00	50.17	2695.89	1347.94	3360.11	1668.10	5.60	-0.524	0.000	0.033
98.50	-6.73	-2.61	0.00	-40.72	0.00	40.72	2607.75	1303.88	3142.71	1560.17	5.99	-0.535	0.000	0.029
100.00	-6.36	-2.58	0.00	-36.80	0.00	36.80	2569.98	1284.99	3051.76	1515.02	6.16	-0.539	0.000	0.027
102.33	-5.79	-2.52	0.00	-30.78	0.00	30.78	2143.60	1071.80	2553.25	1267.54	6.42	-0.545	0.000	0.027
105.00	-5.47	-2.46	0.00	-24.07	0.00	24.07	2087.65	1043.82	2420.99	1201.88	6.73	-0.552	0.000	0.023
107.00	-3.58	-1.97	0.00	-19.16	0.00	19.16	2045.68	1022.84	2324.11	1153.79	6.96	-0.556	0.000	0.018
110.00	-3.27	-1.90	0.00	-13.26	0.00	13.26	1982.72	991.36	2182.49	1083.48	7.31	-0.561	0.000	0.014
115.00	-2.76	-1.79	0.00	-3.76	0.00	3.76	1877.80	938.90	1956.35	971.22	7.90	-0.566	0.000	0.005
117.00	-0.25	-0.06	0.00	-0.19	0.00	0.19	1835.83	917.92	1869.36	928.03	8.14	-0.567	0.000	0.000
120.00	0.00	-0.06	0.00	0.00	0.00	0.00	1772.88	886.44	1742.58	865.09	8.49	-0.567	0.000	0.000

Final Analysis Summary

Structure:	CT03801-S-SBA	**Code:**	EIA/TIA-222-G	2/18/2019	
Site Name:	East Granby	**Exposure:**	C		
Height:	120.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 28	

Tower Engineering Solutions

Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
1.2D + 1.6W 93 mph Wind	25.4	0.00	39.84	0.00	0.00	2128.91
0.9D + 1.6W 93 mph Wind	25.4	0.00	29.88	0.00	0.00	2118.14
1.2D + 1.0Di + 1.0Wi 50 mph Wind	7.8	0.00	65.87	0.00	0.00	657.14
1.2D + 1.0E	1.3	0.00	39.87	0.00	0.00	124.68
0.9D + 1.0E	1.3	0.00	29.90	0.00	0.00	123.90
1.0D + 1.0W 60 mph Wind	6.6	0.00	33.22	0.00	0.00	552.08

Max Stresses

Load Case	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Elev (ft)	Stress Ratio
1.2D + 1.6W 93 mph Wind	-39.84	-25.41	0.00	-2128.9	0.00	-2128.9	4242.75	2121.3	9773.47	4851.96	0.00	0.448
0.9D + 1.6W 93 mph Wind	-29.88	-25.39	0.00	-2118.1	0.00	-2118.1	4242.75	2121.3	9773.47	4851.96	0.00	0.444
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-65.87	-7.76	0.00	-657.14	0.00	-657.14	4242.75	2121.3	9773.47	4851.96	0.00	0.151
1.2D + 1.0E	-39.87	-1.31	0.00	-124.68	0.00	-124.68	4242.75	2121.3	9773.47	4851.96	0.00	0.035
0.9D + 1.0E	-29.90	-1.31	0.00	-123.90	0.00	-123.90	4242.75	2121.3	9773.47	4851.96	0.00	0.033
1.0D + 1.0W 60 mph Wind	-33.22	-6.61	0.00	-552.08	0.00	-552.08	4242.75	2121.3	9773.47	4851.96	0.00	0.122

Monopole Mat Foundation Design

				Date
				2/18/2019
Customer Name:	AT&T	**EIA/TIA Standard:**	EIA-222-G
Site Name:		**Structure Height (Ft.):**	120
Site Number:	CT03801-S-SBA	**Engineer Name:**	J. Chen
Engr. Number:	69814	**Engineer Login ID:**	

Foundation Info Obtained from: Drawings/Calculations

Structure Type: Monopole

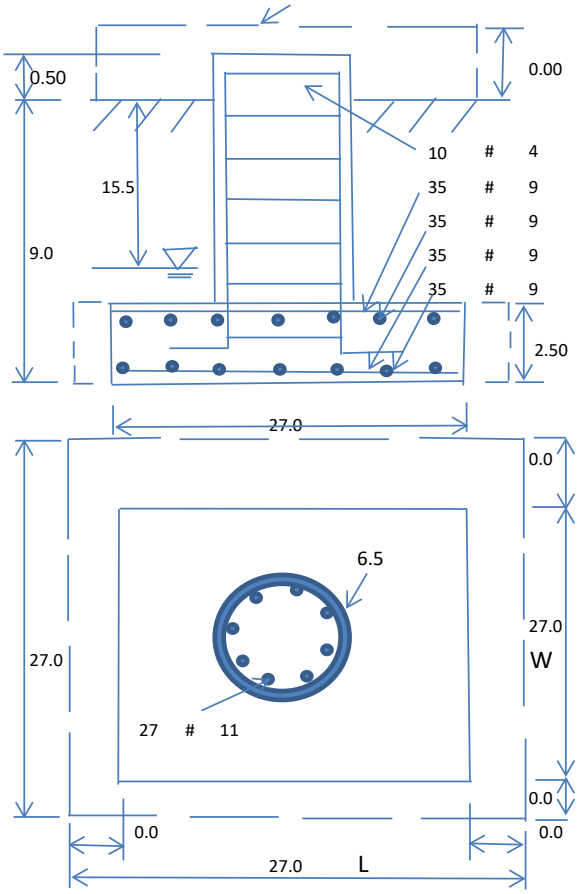
Analysis or Design? Analysis

Base Reactions (Factored):

Axial Load (Kips):	39.8	Shear Force (Kips):	25.4
Uplift Force (Kips):	0.0	Moment (Kips-ft):	2128.9
Allowable overstress %:	5.0%		

Foundation Geometries:

		Mods required -Yes/No ?:	No
Diameter of Pier (ft.):	6.5	Depth of Base BG (ft.):	9.0
Pier Height A. G. (ft.):	0.50	Thickness of Pad (ft):	2.50
Length of Pad (ft.):	27	Width of Pad (ft.):	27
Final Length of pad (ft)	27.0	Final width of pad (ft):	27.0
Control Value for Cell D18:	0	Control Value for Cell F18:	0



Material Properties and Reabr Info:

Concrete Strength (psi):	3000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield (ksi):	60	
Vertical Rebar Size #:	11	Tie / Stirrup Size #:	4	
Qty. of Vertical Rebars:	27	Tie Spacing (in):	12.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	9	
Concrete Cover (in.):	3	Unit Weight of Concrete:	150.0	pcf
Rebar at the bottom of the concrete pad:				
Qty. of Rebar in Pad (L):	35	Qty. of Rebar in Pad (W):	35	
Rebar at the top of the concrete pad:				
Qty. of Rebar in Pad (L):	35	Qty. of Rebar in Pad (W):	35	
Apply 1.35 factor for e/w Per G:	1.35			

Soil Design Parameters:

Soil Unit Weight (pcf):	110.0	Soil Buoyant Weight:	37.6	Pcf		
Water Table B.G.S. (ft):	15.5	Unit Weight of Water:	62.4	pcf	Angle from Top of Pad:	30
Ultimate Bearing Pressure (psf):	5000	Ultimate Skin Friction:	0	Psf	Angle from Bottm of Pad:	25
Consider Friction for O.T.M. (Y/N):	No	Consider Friction for bearing (Y/N):	No		Angle from Bottm of Pad:	25
Consider soil hor. resist. for OTM.:	Yes	Reduction factor on the maximum soil bearing pressure:	1.00			

Foundation Analysis and Design: Uplift Strength Reduction Factor: 0.75 Compression Strength Reduction Factor: 0.75

Total Dry Soil Volume (cu. Ft.):	4522.81	Total Dry Soil Weight (Kips):	497.51
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	497.51	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	2054.78	Total Dry Concrete Weight (Kips):	308.22
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	308.22	Total Vertical Load on Base (Kips):	845.57

Check Soil Capacities:

				Load/ Capacity Ratio	
Calculated Maxium Net Soil Pressure under the base (psf):	1421	<	Allowable Factored Soil Bearing (psf): 3750	0.38	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	10327.4	>	Design Factored Momont (kips-ft): 2062	0.20	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	5.01	OK!			

Check the capacities of Reinforceing Concrete:

Strength reduction factor (Flexure and axial tension):	0.90	Strength reduction factor (Shear):	0.75		
Strength reduction factor (Axial compresion):	0.65	Wind Load Factor on Concrete Design:	1.00		

(1) Concrete Pier:

				Load/ Capacity Ratio	
Vertical Steel Rebar Area (sq. in./each):	1.56		Tie / Stirrup Area (sq. in./each): 0.20		
Calculated Moment Capacity (Mn,Kips-Ft):	6114.3	>	Design Factored Moment (Mu, Kips-F 2306.7	0.38	OK!
Calculated Shear Capacity (Kips):	517.4	>	Design Factored Shear (Kips): 25.4	0.05	OK!
Calculated Tension Capacity (Tn, Kips):	2274.5	>	Design Factored Tension (Tu Kips): 0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	6280.3	>	Design Factored Axial Load (Pu Kips): 39.8	0.01	OK!
Moment & Axial Strength Combination:	0.38	OK!	Check Tie Spacing (Design/Required):	1	OK!
Pier Reinforcement Ratio:	0.009		Reinforcement Ratio is satisfied per ACI		

(2).Concrete Pad:

One-Way Design Shear Capacity (L-Direction, Kips):	703.7	>	One-Way Factored Shear (L-D. Kips): 187.3	0.27	OK!
One-Way Design Shear Capacity (W-Direction, Kips):	703.7	>	One-Way Factored Shear (W-D., Kips) 187.3	0.27	OK!
One-Way Design Shear Capacity (Corner-Corner. Kips):	711.0	>	One-Way Factored Shear (C-C, Kips): 157.6	0.22	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct.):	0.0041	OK!	Lower Steel Pad Reinf. Ratio (W-Direc 0.0041		
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	3963.7	>	Moment at Bottom (L-Dir. K-Ft): 1097.0	0.28	OK!
Lower Steel Pad Moment Capacity (W-Direction. Kips-ft):	3963.7	>	Moment at Bottom (W-Dir. K-Ft): 1097.0	0.28	OK!
Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):	5547.5	>	Moment at Bottom (C-C Dir. K-Ft): 1551.3	0.28	OK!
Upper Steel Pad Reinforcement Ratio (L-Direct.):	0.0041	OK!	Upper Steel Reinf. Ratio (W-Dir.): 0.0041		
Upper Steel Pad Moment Capacity (L-Direc. Kips-ft):	3963.7	>	Moment at the top (L-Dir K-Ft): 370.3	0.09	OK!
Upper Steel Pad Moment Capacity (W-Direc. Kips-ft):	3963.7	>	Moment at the top (W-Dir K-Ft): 370.3	0.09	OK!
Upper Steel Pad Moment Capacity (Corner-Corner. K-ft):	5547.5	>	Moment at the top (C-C Dir. K-Ft): 346.0	0.06	OK!

(3).Check Punching Shear Capacity due to Moment in the Pier:

Moment transferred by punching shear:	851.6	k-ft.	Max. factored shear stress v_{u_CD}:	2.1	Psi
Max. factored shear stress v_{u_AB}:	9.4	Psi	Factored shear Strength ϕv_n:	164.3	Psi
Max. factored shear stress v_u:	9.4	Psi	Check Usage of Punching Shear Capacity:	0.06	OK!

January 29, 2019

Tarah Nolan
SAI Communications, LLC.
12 Industrial Way
Salem NH 03079
(603) 212-5049

B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630
btwo@btgrp.com

Subject:	**Appurtenance Mount Modification Report**	
Carrier Designation:	**Site Number:**	10090915
	Site Name:	East Granby SW
Engineering Firm Designation:	**B+T Group Project Number:**	130655.003.01
Site Data:	**56 Floydville Road, East Granby, CT 06026, Hartford County** **Latitude *41.92859*°, Longitude *-72.77609*°** **Monopole** **13.5' Platform Mount**	

Dear Nolan,

B+T Group is pleased to submit this **"Appurtenance Mount Modification Report"** to determine the structural integrity of the antenna mount on the above-mentioned structure.

The purpose of the analysis is to determine acceptability of the mount's stress level. Based on our analysis we have determined the stress level for the mount under the following load case to be:

Existing + Proposed Equipment Note: See Table 1 for the final loading configuration	**Sufficient Capacity** (Passing at 57.3%)

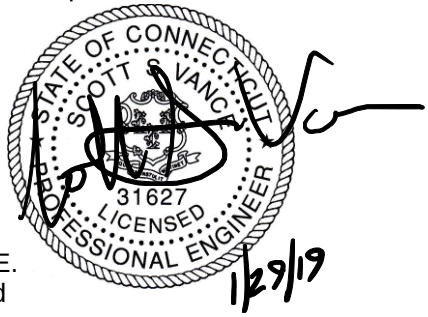
The analysis has been performed in accordance with the ANSITIA-222-G Standard. This analysis utilizes an ultimate 3-second gust wind speed of 120 mph (converted to an equivalent 93 mph nominal 3-second gust wind speed per Section 1609.3.1 for use with ANSI/TIA-222 G) as required by the 2018 Connecticut State Building Code. Exposure Category C and Risk Category II were used in this analysis.

All modifications and equipment proposed in this report shall be installed in accordance with the attached drawings for the determined available structural capacity to be effective.

We at *B+T Group* appreciate the opportunity of providing our continuing professional services to you and *SAI Communications, LLC*. If you have any questions or need further assistance on this or any other projects, please give us a call.

Mount structural modification prepared by: Phanindra Kosaraju, E.I.T.

Respectfully submitted by: B&T Engineering, Inc.
COA: PEC.0001564 Expires: 02/10/2020



Scott S. Vance, P.E.
Engineer of Record

TABLE OF CONTENTS

1) INTRODUCTION

The appurtenance mount consists of platform Mount at 89 ft., attached to monopole at 56 Floydville Road, East Granby, CT 06026 in Hartford County. The proposed antenna loading information was obtained from SAI Communications, LLC. All information provided to B+T Group was assumed accurate and complete.

2) ANALYSIS CRITERIA

The structural analysis was performed for this mount in accordance with the ANSI/TIA-222-G-2-2005 Structural Standard for Antenna Supporting Structures and Antennas – Addendum 2 using a 3-second gust wind speed of 93 mph with no ice and 50 mph with 1 inch escalated ice thickness. Exposure Category C, Topographic Category 1 & Risk Category II were used in this analysis. In addition, the platform mount has been analyzed for various live loading conditions consisting of a 250-lb man live load applied individually at the midpoint and cantilevered ends of horizontal members as well as a 250-pound man live load applied individually at mount pipe locations using a 3-second gust of 30mph. The mount was analyzed under 30º increments in the wind direction. The analyzed loading is detailed in Table 1.

Table 1 – Proposed and Existing Equipment Information

Loading	RAD Center Elev. (ft)	Position	Qty.	Manufacturer	Model / Type	Note
Proposed	89	3	3	CCI	HPA65R-BU8AA	1
		4	3	Kathrein	800-10966	
		3	3	Ericsson	B2/B66A 8843	2
		4	3	Ericsson	B5/B12 4449	
		--	1	Raycap	DC6-48-60-18-8F	3
Existing	89	1	3	Kathrein	7770	4
			3	Powerwave	TT19-08BP111-001	
		--	1	Raycap	DC6-48-60-18-8F	5

Note:
(1) Proposed Antenna to be installed on the existing Mount Pipe.
(2) Proposed Equipment to be installed directly behind the Antenna.
(3) Proposed Equipment to be installed on the Mount.
(4) Existing Equipment installed on the Mount.
(5) Existing Equipment installed on the Tower.

Table 2 - Documents Provided

Documents	Remarks	Reference	Source
RFDS	Existing Loading Proposed Loading	Date: 12/26/2018	SAI Communications, LLC.
Mount Mapping	By B+T Group	Date: 12/18/2018	On File
Appurtenance Mount Analysis Report		Date: 01/21/2018	

3) ANALYSIS PROCEDURE

3.1) Analysis Method

RISA-3D (Version 17.0.2), a commercially available analysis software package, was used to create a three-dimensional model of the mount and calculate member stresses and deflections for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

1. The mount was built in accordance with the manufacturer's specifications.

2. The mount has been maintained in accordance with the manufacturer's specifications and is free of damage.
3. The configuration of antennas and other appurtenances are as specified in Table 1.
4. All mount components have been assumed to be in sufficient condition to carry their full design capacity for the analysis.
5. Mount areas and weights are determined from field measurements, standard material properties, and/or manufacturer product data.
6. Serviceability with respect to antenna twist, tilt, roll or lateral translation is not checked and is left to the carrier or tower owner to ensure conformance.
7. All prior structural modifications, if any are assumed to be correctly installed and fully effective.
8. All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.
9. The following material grades were assumed (Unless Noted Otherwise):
   a. Channels — ASTM A36 (GR 36)
   b. Solid Rods — ASTM A36 (GR 36)
   c. Angles — ASTM A36 (GR 36)
   d. Plates — ASTM A36 (GR 36)
   e. HSS (Rectangular) — ASTM 500 (GR B-46)
   f. HSS (Round) — ASTM 500 (GR B-42)
   g. Pipes — ASTM A53 (GR 35)
   h. Connection Bolts — ASTM A325

This analysis may be affected if any assumptions are not valid or have been made in error. B+T Group should be notified to determine the effect on the structural integrity of the antenna mounting system.

4) ANALYSIS RESULTS

Table 3 – Mount Component Stresses vs. Capacity

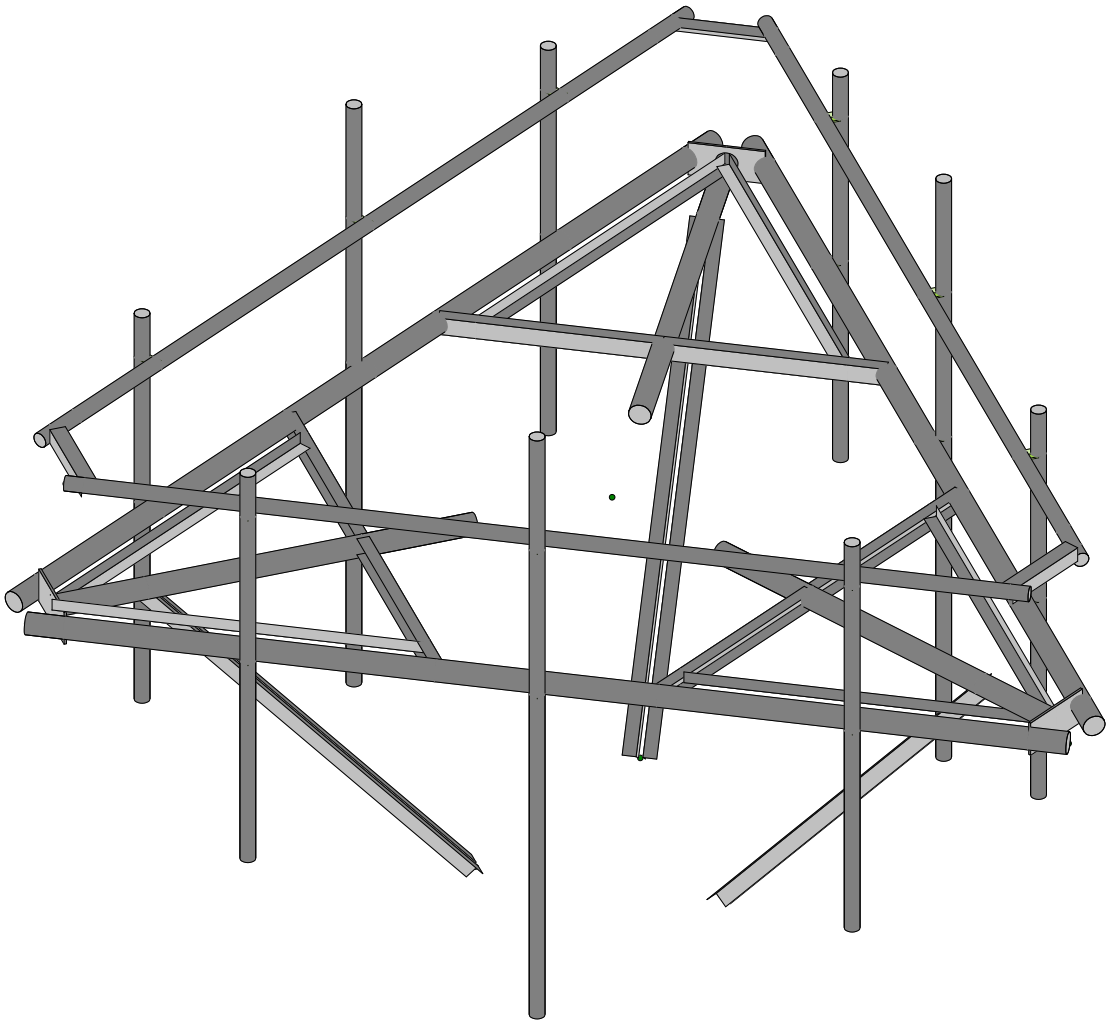
Notes	Component	Elevation (ft.)	% Capacity	Pass / Fail
-	Supporting Pipes	89	32.1	Pass
-	Support Channels	89	57.1	Pass
-	Support Angles	89	47.9	Pass
-	Mount Pipes	89	57.3	Pass
-	Connection Plates	89	28.4	Pass
Proposed	**Handrail**	**89**	**21.0**	**Pass**
Proposed	**Handrail Corner Angle**	**89**	**14.1**	**Pass**
Proposed	**Kicker Support**	**89**	**22.1**	**Pass**
Proposed	**Main Horizontals**	**89**	**23.4**	**Pass**

4.1) Structural Notes:

1) All modifications proposed in this report shall be installed in accordance with the attached drawing for the determined available structural capacity to be effective.
2) If the loading differs from that described in Table 1 of this report or the provisions of this analysis are found to be invalid, another structural analysis should be performed.
3) B+T Group certifies that carrier's entire antenna structure will support the equipment deployment.
4) No erection or modification of the structure shall be made without approval of the structural engineer.

APPENDIX A

(RISA-3D Output)



Envelope Only Solution

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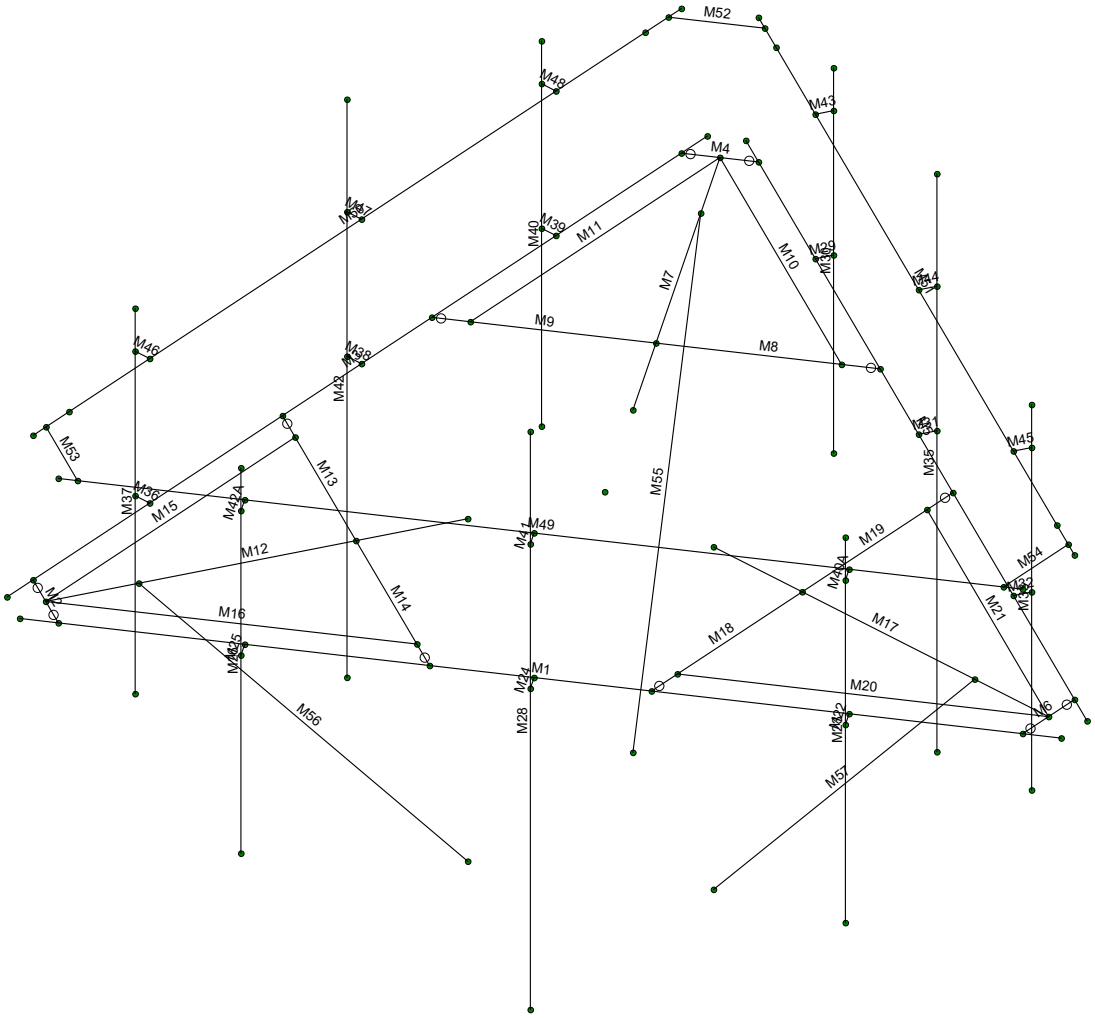

Envelope Only Solution

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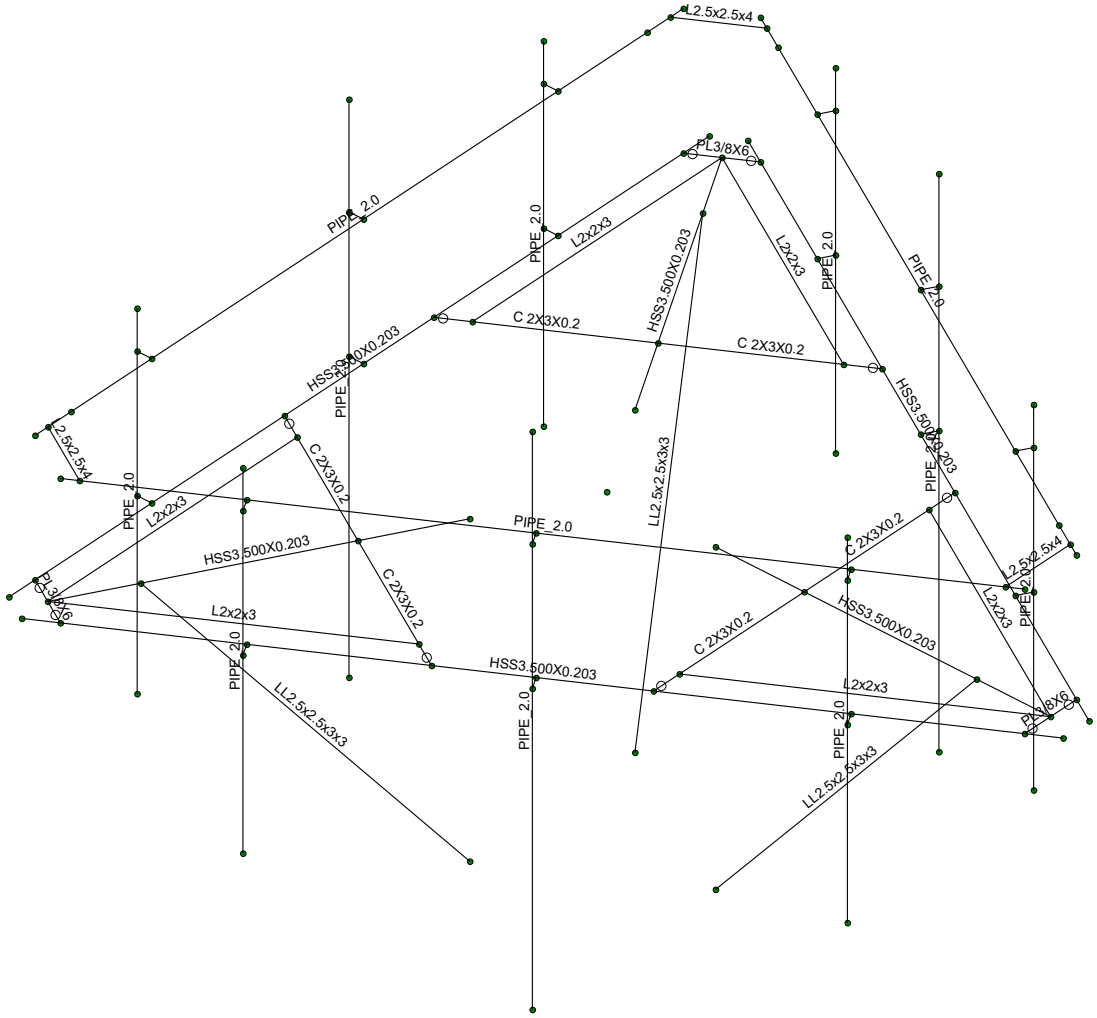

Envelope Only Solution

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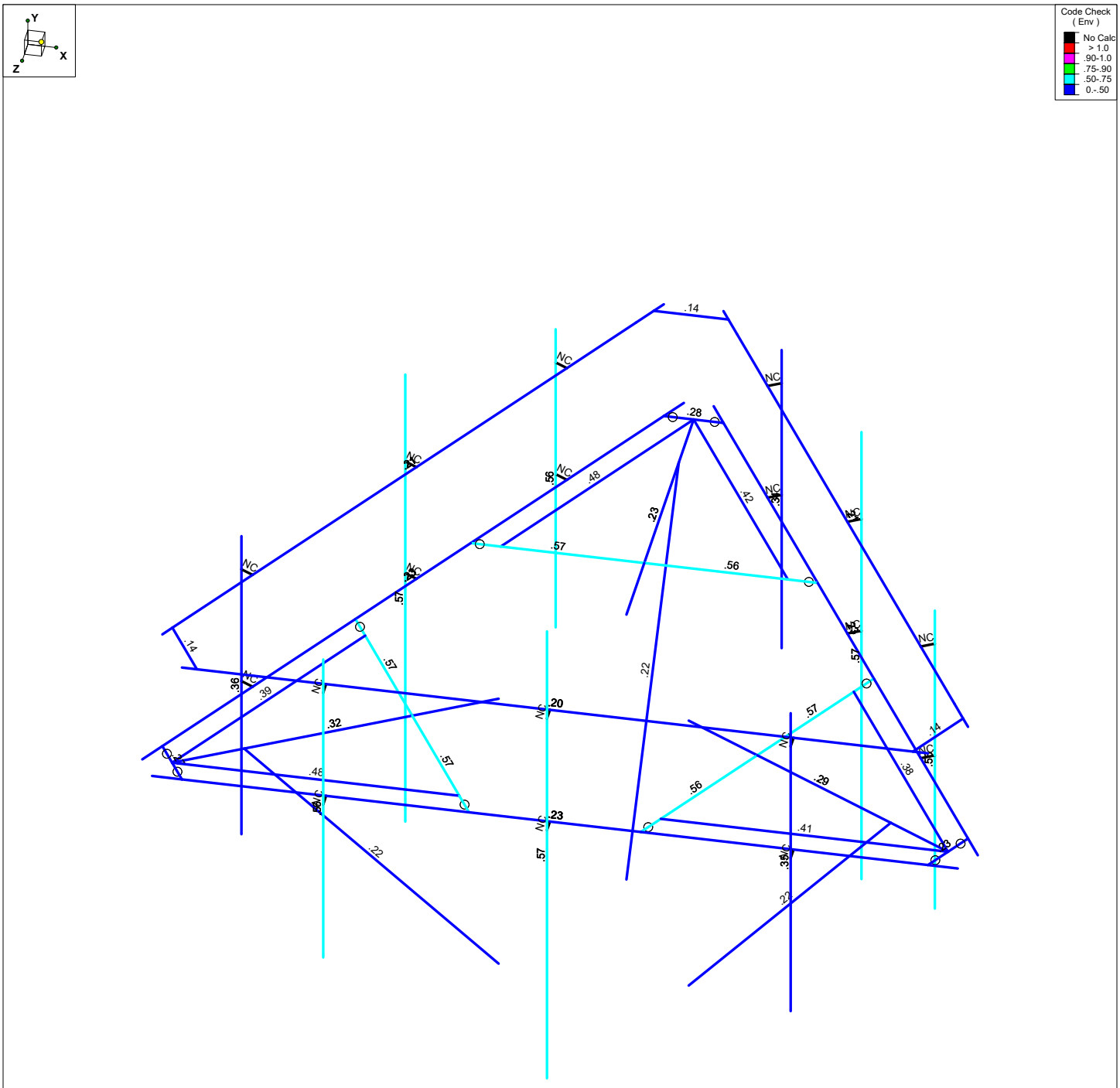

Member Code Checks Displayed (Enveloped)
Envelope Only Solution

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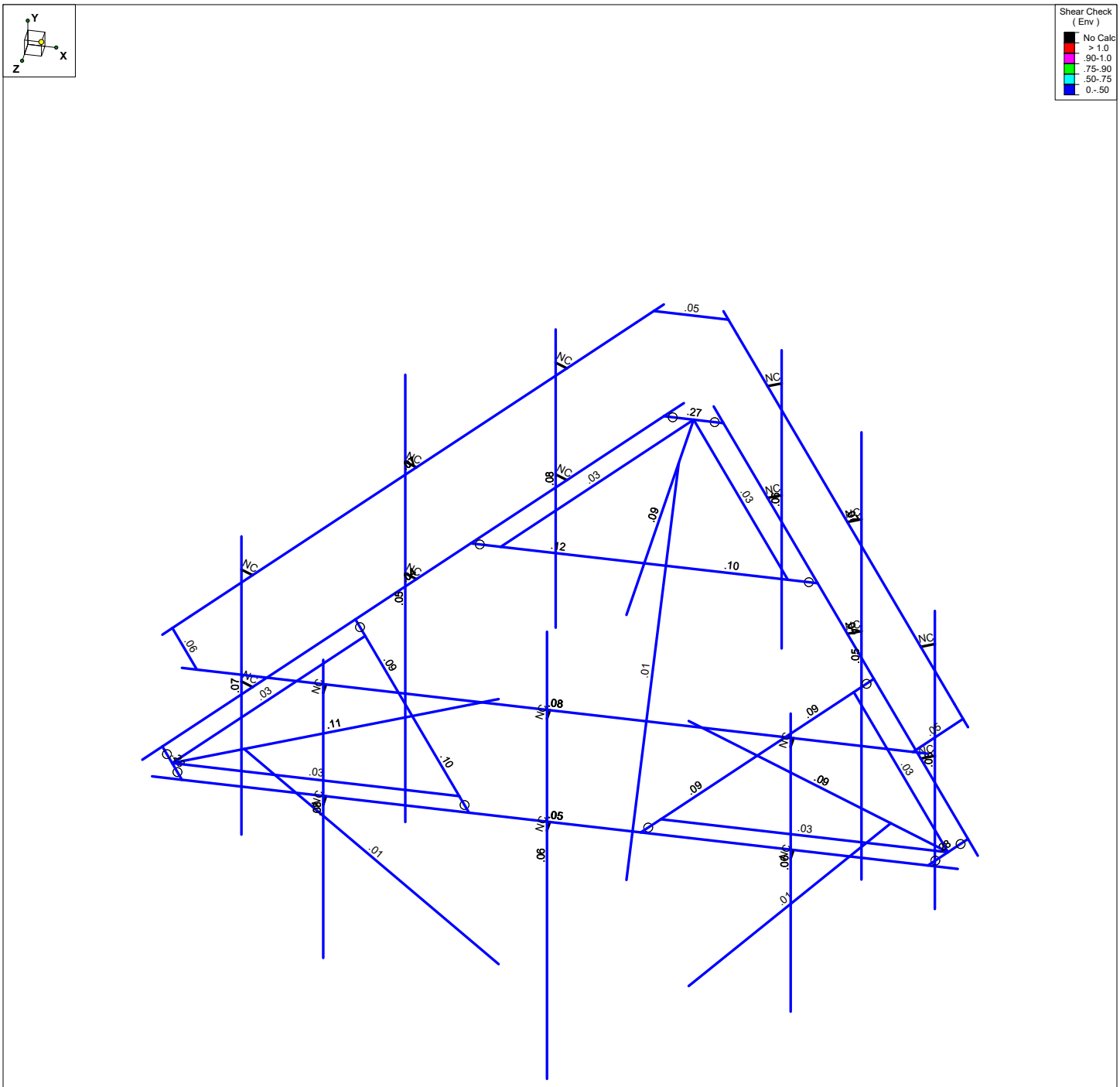

Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

B+T Group	10090915 - East Granby SW	SK - 5
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Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rul...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	MF-H1	HSS3.500X0.203	Beam	HSS Pipe	A500 Gr.B R...	Typical	1.97	2.7	2.7	5.41
2	MF-P1	PIPE_2.0	Column	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
3	F1-S1	HSS3.500X0.203	Beam	HSS Pipe	A500 Gr.B R...	Typical	1.97	2.7	2.7	5.41
4	F1-CH1	C 2X3X0.2	Beam	Channel	A36 Gr.36	Typical	1.32	.524	1.864	.017
5	F1-SA1	L2x2x3	Beam	Single Angle	A36 Gr.36	Typical	.722	.271	.271	.009
6	F1-CP1	PL3/8X6	Beam	RECT	A36 Gr.36	Typical	2.28	.027	6.84	.105
7	SF-P1_Mod	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
8	CA Mod	L2.5x2.5x4	Beam	Single Angle	A36 Gr.36	Typical	1.19	.692	.692	.026
9	Kicker Mod	LL2.5x2.5x3x3	Beam	Double Angle ...	A36 Gr.36	Typical	1.8	2.46	1.07	.023

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N96	N95			MF-H1	Beam	HSS Pipe	A500 Gr.B...	Typical
2	M2	N1	N2			F1-CP1	Beam	RECT	A36 Gr.36	Typical
3	M3	N99	N100			MF-H1	Beam	HSS Pipe	A500 Gr.B...	Typical
4	M4	N3	N4			F1-CP1	Beam	RECT	A36 Gr.36	Typical
5	M5	N97	N98			MF-H1	Beam	HSS Pipe	A500 Gr.B...	Typical
6	M6	N5	N6			F1-CP1	Beam	RECT	A36 Gr.36	Typical
7	M7	N14	N8			F1-S1	Beam	HSS Pipe	A500 Gr.B...	Typical
8	M8	N10	N9		180	F1-CH1	Beam	Channel	A36 Gr.36	Typical
9	M9	N10	N11			F1-CH1	Beam	Channel	A36 Gr.36	Typical
10	M10	N12	N14		270	F1-SA1	Beam	Single Angle	A36 Gr.36	Typical
11	M11	N13	N14			F1-SA1	Beam	Single Angle	A36 Gr.36	Typical
12	M12	N21	N15			F1-S1	Beam	HSS Pipe	A500 Gr.B...	Typical
13	M13	N17	N16		180	F1-CH1	Beam	Channel	A36 Gr.36	Typical
14	M14	N17	N18			F1-CH1	Beam	Channel	A36 Gr.36	Typical
15	M15	N19	N21		270	F1-SA1	Beam	Single Angle	A36 Gr.36	Typical
16	M16	N20	N21			F1-SA1	Beam	Single Angle	A36 Gr.36	Typical
17	M17	N28	N22			F1-S1	Beam	HSS Pipe	A500 Gr.B...	Typical
18	M18	N24	N23		180	F1-CH1	Beam	Channel	A36 Gr.36	Typical
19	M19	N24	N25			F1-CH1	Beam	Channel	A36 Gr.36	Typical
20	M20	N26	N28		270	F1-SA1	Beam	Single Angle	A36 Gr.36	Typical
21	M21	N27	N28			F1-SA1	Beam	Single Angle	A36 Gr.36	Typical
22	M22	N29	N30			RIGID	None	None	RIGID	Typical
23	M23	N31	N32			MF-P1	Column	Pipe	A53 Gr.B	Typical
24	M24	N33	N38			RIGID	None	None	RIGID	Typical
25	M25	N34	N35			RIGID	None	None	RIGID	Typical
26	M26	N36	N37			MF-P1	Column	Pipe	A53 Gr.B	Typical
27	M28	N39	N40			MF-P1	Column	Pipe	A53 Gr.B	Typical
28	M29	N41	N42			RIGID	None	None	RIGID	Typical
29	M30	N43	N44			MF-P1	Column	Pipe	A53 Gr.B	Typical
30	M31	N45	N50			RIGID	None	None	RIGID	Typical
31	M32	N46	N47			RIGID	None	None	RIGID	Typical
32	M33	N48	N49			MF-P1	Column	Pipe	A53 Gr.B	Typical
33	M35	N51	N52			MF-P1	Column	Pipe	A53 Gr.B	Typical
34	M36	N53	N54			RIGID	None	None	RIGID	Typical
35	M37	N55	N56			MF-P1	Column	Pipe	A53 Gr.B	Typical
36	M38	N57	N62			RIGID	None	None	RIGID	Typical
37	M39	N58	N59			RIGID	None	None	RIGID	Typical
38	M40	N60	N61			MF-P1	Column	Pipe	A53 Gr.B	Typical
39	M42	N63	N64			MF-P1	Column	Pipe	A53 Gr.B	Typical
40	M40A	N71	N72			RIGID	None	None	RIGID	Typical
41	M41	N73	N76			RIGID	None	None	RIGID	Typical
42	M42A	N74	N75			RIGID	None	None	RIGID	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
43	M43	N77	N78			RIGID	None	None	RIGID	Typical
44	M44	N79	N82			RIGID	None	None	RIGID	Typical
45	M45	N80	N81			RIGID	None	None	RIGID	Typical
46	M46	N83	N84			RIGID	None	None	RIGID	Typical
47	M47	N85	N88			RIGID	None	None	RIGID	Typical
48	M48	N86	N87			RIGID	None	None	RIGID	Typical
49	M49	N65	N70			SF-P1 Mod	Beam	Pipe	A53 Gr.B	Typical
50	M50	N66	N67			SF-P1 Mod	Beam	Pipe	A53 Gr.B	Typical
51	M51	N68	N69			SF-P1 Mod	Beam	Pipe	A53 Gr.B	Typical
52	M52	N102	N103		180	CA Mod	Beam	Single Angle	A36 Gr.36	Typical
53	M53	N104	N91		180	CA Mod	Beam	Single Angle	A36 Gr.36	Typical
54	M54	N94A	N101		180	CA Mod	Beam	Single Angle	A36 Gr.36	Typical
55	M55	N105	N106			Kicker Mod	Beam	Double Angle (...	A36 Gr.36	Typical
56	M56	N107	N108			Kicker Mod	Beam	Double Angle (...	A36 Gr.36	Typical
57	M57	N109	N110			Kicker Mod	Beam	Double Angle (...	A36 Gr.36	Typical

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
1	Dead	DL		-1			50		3	
2	0 Wind - No Ice	WLZ					50	39		
3	90 Wind - No Ice	WLX					50	39		
4	0 Wind - Ice	WLZ					50	39		
5	90 Wind - Ice	WLX					50	39		
6	0 Wind - Service	WLZ					50	39		
7	90 Wind - Service	WLX					50	39		
8	Ice	OL1					50	39	3	
9	Live Load a	LL				3				
10	Live Load b	LL				3				
11	Live Load c	LL				3				
12	Live Load d	LL								
13	Maint LL 1	LL					1			
14	Maint LL 2	LL					1			
15	Maint LL 3	LL					1			
16	Maint LL 4	LL					1			
17	Maint LL 5	LL					1			
18	Maint LL 6	LL					1			
19	Maint LL 7	LL					1			
20	Maint LL 8	LL					1			
21	Maint LL 9	LL					1			
22	BLC 1 Transient Area...	None						21		
23	BLC 8 Transient Area...	None						21		

Load Combinations

	Description	So..	P...	S...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...
1	1.4 Dead	Yes	Y		1	1.4																		
2	0.9 D + 1.6 - 0 W	Yes	Y		1	.9	2	1.6																
3	0.9 D + 1.6 - 30 W	Yes	Y		1	.9	2	1.3...	3	.8														
4	0.9 D + 1.6 - 60 W	Yes	Y		1	.9	3	1.3...	2	.8														
5	0.9 D + 1.6 - 90 W	Yes	Y		1	.9	3	1.6																
6	0.9 D + 1.6 - 120 W	Yes	Y		1	.9	3	1.3...	2	-.8														
7	0.9 D + 1.6 - 150 W	Yes	Y		1	.9	2	-1....	3	.8														
8	0.9 D + 1.6 - 180 W	Yes	Y		1	.9	2	-1.6																
9	0.9 D + 1.6 - 210 W	Yes	Y		1	.9	2	-1....	3	-.8														
10	0.9 D + 1.6 - 240 W	Yes	Y		1	.9	3	-1....	2	-.8														

Load Combinations (Continued)

	Description	So..	P...	S...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...
11	0.9 D + 1.6 - 270 W	Yes	Y		1	.9	3	-1.6																
12	0.9 D + 1.6 - 300 W	Yes	Y		1	.9	3	-1....	2	.8														
13	0.9 D + 1.6 - 330 W	Yes	Y		1	.9	2	1.3...	3	-.8														
14	1.2 D + 1.6 - 0 W	Yes	Y		1	1.2	2	1.6																
15	1.2 D + 1.6 - 30 W	Yes	Y		1	1.2	2	1.3...	3	.8														
16	1.2 D + 1.6 - 60 W	Yes	Y		1	1.2	3	1.3...	2	.8														
17	1.2 D + 1.6 - 90 W	Yes	Y		1	1.2	3	1.6																
18	1.2 D + 1.6 - 120 W	Yes	Y		1	1.2	3	1.3...	2	-.8														
19	1.2 D + 1.6 - 150 W	Yes	Y		1	1.2	2	-1....	3	.8														
20	1.2 D + 1.6 - 180 W	Yes	Y		1	1.2	2	-1.6																
21	1.2 D + 1.6 - 210 W	Yes	Y		1	1.2	2	-1....	3	-.8														
22	1.2 D + 1.6 - 240 W	Yes	Y		1	1.2	3	-1....	2	-.8														
23	1.2 D + 1.6 - 270 W	Yes	Y		1	1.2	3	-1.6																
24	1.2 D + 1.6 - 300 W	Yes	Y		1	1.2	3	-1....	2	.8														
25	1.2 D + 1.6 - 330 W	Yes	Y		1	1.2	2	1.3...	3	-.8														
26	0.9 D + 1.6 - 0 W/Ice	Yes	Y		1	.9	4	1.6			8	1												
27	0.9 D + 1.6 - 30 W/Ice	Yes	Y		1	.9	4	1.3...	5	.8	8	1												
28	0.9 D + 1.6 - 60 W/Ice	Yes	Y		1	.9	5	1.3...	4	.8	8	1												
29	0.9 D + 1.6 - 90 W/Ice	Yes	Y		1	.9	5	1.6			8	1												
30	0.9 D + 1.6 - 120 W/Ice	Yes	Y		1	.9	5	1.3...	4	-.8	8	1												
31	0.9 D + 1.6 - 150 W/Ice	Yes	Y		1	.9	4	-1....	5	.8	8	1												
32	0.9 D + 1.6 - 180 W/Ice	Yes	Y		1	.9	4	-1.6			8	1												
33	0.9 D + 1.6 - 210 W/Ice	Yes	Y		1	.9	4	-1....	5	-.8	8	1												
34	0.9 D + 1.6 - 240 W/Ice	Yes	Y		1	.9	5	-1....	4	-.8	8	1												
35	0.9 D + 1.6 - 270 W/Ice	Yes	Y		1	.9	5	-1.6			8	1												
36	0.9 D + 1.6 - 300 W/Ice	Yes	Y		1	.9	5	-1....	4	.8	8	1												
37	0.9 D + 1.6 - 330 W/Ice	Yes	Y		1	.9	4	1.3...	5	-.8	8	1												
38	1.2 D + 1.0 - 0 W/Ice	Yes	Y		1	1.2	4	1			8	1												
39	1.2 D + 1.0 - 30 W/Ice	Yes	Y		1	1.2	4	.866	5	.5	8	1												
40	1.2 D + 1.0 - 60 W/Ice	Yes	Y		1	1.2	5	.866	4	.5	8	1												
41	1.2 D + 1.0 - 90 W/Ice	Yes	Y		1	1.2	5	1			8	1												
42	1.2 D + 1.0 - 120 W/Ice	Yes	Y		1	1.2	5	.866	4	-.5	8	1												
43	1.2 D + 1.0 - 150 W/Ice	Yes	Y		1	1.2	4	-.866	5	.5	8	1												
44	1.2 D + 1.0 - 180 W/Ice	Yes	Y		1	1.2	4	-1			8	1												
45	1.2 D + 1.0 - 210 W/Ice	Yes	Y		1	1.2	4	-.866	5	-.5	8	1												
46	1.2 D + 1.0 - 240 W/Ice	Yes	Y		1	1.2	5	-.866	4	-.5	8	1												
47	1.2 D + 1.0 - 270 W/Ice	Yes	Y		1	1.2	5	-1			8	1												
48	1.2 D + 1.0 - 300 W/Ice	Yes	Y		1	1.2	5	-.866	4	.5	8	1												
49	1.2 D + 1.0 - 330 W/Ice	Yes	Y		1	1.2	4	.866	5	-.5	8	1												
50	1.2 D + 1.5 LL a + Service...	Yes	Y		1	1.2	6	1			9	1.5												
51	1.2 D + 1.5 LL a + Service...	Yes	Y		1	1.2	6	.866	7	.5	9	1.5												
52	1.2 D + 1.5 LL a + Service...	Yes	Y		1	1.2	7	.866	6	.5	9	1.5												
53	1.2 D + 1.5 LL a + Service...	Yes	Y		1	1.2	7	1			9	1.5												
54	1.2 D + 1.5 LL a + Service...	Yes	Y		1	1.2	7	.866	6	-.5	9	1.5												
55	1.2 D + 1.5 LL a + Service...	Yes	Y		1	1.2	6	-.866	7	.5	9	1.5												
56	1.2 D + 1.5 LL a + Service...	Yes	Y		1	1.2	6	-1			9	1.5												
57	1.2 D + 1.5 LL a + Service...	Yes	Y		1	1.2	6	-.866	7	-.5	9	1.5												
58	1.2 D + 1.5 LL a + Service...	Yes	Y		1	1.2	7	-.866	6	-.5	9	1.5												
59	1.2 D + 1.5 LL a + Service...	Yes	Y		1	1.2	7	-1			9	1.5												
60	1.2 D + 1.5 LL a + Service...	Yes	Y		1	1.2	7	-.866	6	.5	9	1.5												
61	1.2 D + 1.5 LL a + Service...	Yes	Y		1	1.2	6	.866	7	-.5	9	1.5												
62	1.2 D + 1.5 LL b + Service...	Yes	Y		1	1.2	6	1			10	1.5												
63	1.2 D + 1.5 LL b + Service...	Yes	Y		1	1.2	6	.866	7	.5	10	1.5												
64	1.2 D + 1.5 LL b + Service...	Yes	Y		1	1.2	7	.866	6	.5	10	1.5												
65	1.2 D + 1.5 LL b + Service...	Yes	Y		1	1.2	7	1			10	1.5												
66	1.2 D + 1.5 LL b + Service...	Yes	Y		1	1.2	7	.866	6	-.5	10	1.5												
67	1.2 D + 1.5 LL b + Service...	Yes	Y		1	1.2	6	-.866	7	.5	10	1.5												

Load Combinations (Continued)

	Description	So..	P...	S...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...
68	1.2 D + 1.5 LL b + Service..	Yes	Y		1	1.2	6	-1			10	1.5												
69	1.2 D + 1.5 LL b + Service..	Yes	Y		1	1.2	6	-.866	7	-.5	10	1.5												
70	1.2 D + 1.5 LL b + Service..	Yes	Y		1	1.2	7	-.866	6	-.5	10	1.5												
71	1.2 D + 1.5 LL b + Service..	Yes	Y		1	1.2	7	-1			10	1.5												
72	1.2 D + 1.5 LL b + Service..	Yes	Y		1	1.2	7	-.866	6	.5	10	1.5												
73	1.2 D + 1.5 LL b + Service..	Yes	Y		1	1.2	6	.866	7	-.5	10	1.5												
74	1.2 D + 1.5 LL c + Service..	Yes	Y		1	1.2	6	1			11	1.5												
75	1.2 D + 1.5 LL c + Service..	Yes	Y		1	1.2	6	.866	7	.5	11	1.5												
76	1.2 D + 1.5 LL c + Service..	Yes	Y		1	1.2	7	.866	6	.5	11	1.5												
77	1.2 D + 1.5 LL c + Service..	Yes	Y		1	1.2	7	1			11	1.5												
78	1.2 D + 1.5 LL c + Service..	Yes	Y		1	1.2	7	.866	6	-.5	11	1.5												
79	1.2 D + 1.5 LL c + Service..	Yes	Y		1	1.2	6	-.866	7	.5	11	1.5												
80	1.2 D + 1.5 LL c + Service..	Yes	Y		1	1.2	6	-1			11	1.5												
81	1.2 D + 1.5 LL c + Service..	Yes	Y		1	1.2	6	-.866	7	-.5	11	1.5												
82	1.2 D + 1.5 LL c + Service..	Yes	Y		1	1.2	7	-.866	6	-.5	11	1.5												
83	1.2 D + 1.5 LL c + Service..	Yes	Y		1	1.2	7	-1			11	1.5												
84	1.2 D + 1.5 LL c + Service..	Yes	Y		1	1.2	7	-.866	6	.5	11	1.5												
85	1.2 D + 1.5 LL c + Service..	Yes	Y		1	1.2	6	.866	7	-.5	11	1.5												
86	1.2 D + 1.5 LL d + Service..	Yes	Y		1	1.2	6	1			12	1.5												
87	1.2 D + 1.5 LL d + Service..	Yes	Y		1	1.2	6	.866	7	.5	12	1.5												
88	1.2 D + 1.5 LL d + Service..	Yes	Y		1	1.2	7	.866	6	.5	12	1.5												
89	1.2 D + 1.5 LL d + Service..	Yes	Y		1	1.2	7	1			12	1.5												
90	1.2 D + 1.5 LL d + Service..	Yes	Y		1	1.2	7	.866	6	-.5	12	1.5												
91	1.2 D + 1.5 LL d + Service..	Yes	Y		1	1.2	6	-.866	7	.5	12	1.5												
92	1.2 D + 1.5 LL d + Service..	Yes	Y		1	1.2	6	-1			12	1.5												
93	1.2 D + 1.5 LL d + Service..	Yes	Y		1	1.2	6	-.866	7	-.5	12	1.5												
94	1.2 D + 1.5 LL d + Service..	Yes	Y		1	1.2	7	-.866	6	-.5	12	1.5												
95	1.2 D + 1.5 LL d + Service..	Yes	Y		1	1.2	7	-1			12	1.5												
96	1.2 D + 1.5 LL d + Service..	Yes	Y		1	1.2	7	-.866	6	.5	12	1.5												
97	1.2 D + 1.5 LL d + Service..	Yes	Y		1	1.2	6	.866	7	-.5	12	1.5												
98	1.2 D + 1.5 LL Maint (1)	Yes	Y		1	1.2					13	1.5												
99	1.2 D + 1.5 LL Maint (2)	Yes	Y		1	1.2					14	1.5												
100	1.2 D + 1.5 LL Maint (3)	Yes	Y		1	1.2					15	1.5												
101	1.2 D + 1.5 LL Maint (4)	Yes	Y		1	1.2					16	1.5												
102	1.2 D + 1.5 LL Maint (5)	Yes	Y		1	1.2					17	1.5												
103	1.2 D + 1.5 LL Maint (6)	Yes	Y		1	1.2					18	1.5												
104	1.2 D + 1.5 LL Maint (7)	Yes	Y		1	1.2					19	1.5												
105	1.2 D + 1.5 LL Maint (8)	Yes	Y		1	1.2					20	1.5												
106	1.2 D + 1.5 LL Maint (9)	Yes	Y		1	1.2					21	1.5												

Member Point Loads (BLC 1 : Dead)

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
1	M23	Y	-.018	%15
2	M23	Y	-.018	%90
3	M23	Y	-.016	%60
4	M23	Y	0	0
5	M23	Y	0	0
6	M28	Y	-.027	%5
7	M28	Y	-.027	%90
8	M28	Y	-.072	%30
9	M28	Y	0	0
10	M28	Y	0	0
11	M26	Y	-.057	%5
12	M26	Y	-.057	%95
13	M26	Y	-.073	%25

Member Point Loads (BLC 1 : Dead) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
14	M26	Y	0	0
15	M26	Y	0	0
16	M37	Y	-.018	%15
17	M37	Y	-.018	%90
18	M37	Y	-.016	%60
19	M37	Y	0	0
20	M37	Y	0	0
21	M42	Y	-.027	%5
22	M42	Y	-.027	%90
23	M42	Y	-.072	%30
24	M42	Y	0	0
25	M42	Y	0	0
26	M40	Y	-.057	%5
27	M40	Y	-.057	%95
28	M40	Y	-.073	%25
29	M40	Y	0	0
30	M40	Y	0	0
31	M30	Y	-.018	%15
32	M30	Y	-.018	%90
33	M30	Y	-.016	%60
34	M30	Y	0	0
35	M30	Y	0	0
36	M35	Y	-.027	%5
37	M35	Y	-.027	%90
38	M35	Y	-.072	%30
39	M35	Y	0	0
40	M35	Y	0	0
41	M33	Y	-.057	%5
42	M33	Y	-.057	%95
43	M33	Y	-.073	%25
44	M33	Y	0	0
45	M33	Y	0	0
46	M12	Y	-.033	%85
47	M12	Y	0	0
48	M12	Y	0	0
49	M12	Y	0	0
50	M12	Y	0	0

Member Point Loads (BLC 2 : 0 Wind - No Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
1	M23	Z	-.071	%15
2	M23	Z	-.071	%90
3	M23	Z	-.014	%60
4	M23	Z	0	0
5	M23	Z	0	0
6	M28	Z	-.146	%5
7	M28	Z	-.146	%90
8	M28	Z	-.043	%30
9	M28	Z	0	0
10	M28	Z	0	0
11	M26	Z	-.226	%5
12	M26	Z	-.226	%95
13	M26	Z	-.043	%25
14	M26	Z	0	0
15	M26	Z	0	0
16	M37	Z	-.071	%15

Member Point Loads (BLC 2 : 0 Wind - No Ice) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
17	M37	Z	-.071	%90
18	M37	Z	-.014	%60
19	M37	Z	0	0
20	M37	Z	0	0
21	M42	Z	-.146	%5
22	M42	Z	-.146	%90
23	M42	Z	-.043	%30
24	M42	Z	0	0
25	M42	Z	0	0
26	M40	Z	-.226	%5
27	M40	Z	-.226	%95
28	M40	Z	-.043	%25
29	M40	Z	0	0
30	M40	Z	0	0
31	M30	Z	-.071	%15
32	M30	Z	-.071	%90
33	M30	Z	-.014	%60
34	M30	Z	0	0
35	M30	Z	0	0
36	M35	Z	-.146	%5
37	M35	Z	-.146	%90
38	M35	Z	-.043	%30
39	M35	Z	0	0
40	M35	Z	0	0
41	M33	Z	-.226	%5
42	M33	Z	-.226	%95
43	M33	Z	-.043	%25
44	M33	Z	0	0
45	M33	Z	0	0
46	M12	Z	-.032	%85
47	M12	Z	0	0
48	M12	Z	0	0
49	M12	Z	0	0
50	M12	Z	0	0

Member Point Loads (BLC 3 : 90 Wind - No Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
1	M23	X	-.033	%15
2	M23	X	-.033	%90
3	M23	X	-.012	%60
4	M23	X	0	0
5	M23	X	0	0
6	M28	X	-.095	%5
7	M28	X	-.095	%90
8	M28	X	-.035	%30
9	M28	X	0	0
10	M28	X	0	0
11	M26	X	-.078	%5
12	M26	X	-.078	%95
13	M26	X	-.034	%25
14	M26	X	0	0
15	M26	X	0	0
16	M37	X	-.033	%15
17	M37	X	-.033	%90
18	M37	X	-.012	%60
19	M37	X	0	0

Member Point Loads (BLC 3 : 90 Wind - No Ice) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
20	M37	X	0	0
21	M42	X	-.095	%5
22	M42	X	-.095	%90
23	M42	X	-.035	%30
24	M42	X	0	0
25	M42	X	0	0
26	M40	X	-.078	%5
27	M40	X	-.078	%95
28	M40	X	-.034	%25
29	M40	X	0	0
30	M40	X	0	0
31	M30	X	-.033	%15
32	M30	X	-.033	%90
33	M30	X	-.012	%60
34	M30	X	0	0
35	M30	X	0	0
36	M35	X	-.095	%5
37	M35	X	-.095	%90
38	M35	X	-.035	%30
39	M35	X	0	0
40	M35	X	0	0
41	M33	X	-.078	%5
42	M33	X	-.078	%95
43	M33	X	-.034	%25
44	M33	X	0	0
45	M33	X	0	0
46	M12	X	-.032	%85
47	M12	X	0	0
48	M12	X	0	0
49	M12	X	0	0
50	M12	X	0	0

Member Point Loads (BLC 4 : 0 Wind - Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
1	M23	Z	-.031	%15
2	M23	Z	-.031	%90
3	M23	Z	-.01	%60
4	M23	Z	0	0
5	M23	Z	0	0
6	M28	Z	-.059	%5
7	M28	Z	-.059	%90
8	M28	Z	-.021	%30
9	M28	Z	0	0
10	M28	Z	0	0
11	M26	Z	-.082	%5
12	M26	Z	-.082	%95
13	M26	Z	-.021	%25
14	M26	Z	0	0
15	M26	Z	0	0
16	M37	Z	-.031	%15
17	M37	Z	-.031	%90
18	M37	Z	-.01	%60
19	M37	Z	0	0
20	M37	Z	0	0
21	M42	Z	-.059	%5
22	M42	Z	-.059	%90

Member Point Loads (BLC 4 : 0 Wind - Ice) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
23	M42	Z	-.021	%30
24	M42	Z	0	0
25	M42	Z	0	0
26	M40	Z	-.082	%5
27	M40	Z	-.082	%95
28	M40	Z	-.021	%25
29	M40	Z	0	0
30	M40	Z	0	0
31	M30	Z	-.031	%15
32	M30	Z	-.031	%90
33	M30	Z	-.01	%60
34	M30	Z	0	0
35	M30	Z	0	0
36	M35	Z	-.059	%5
37	M35	Z	-.059	%90
38	M35	Z	-.021	%30
39	M35	Z	0	0
40	M35	Z	0	0
41	M33	Z	-.082	%5
42	M33	Z	-.082	%95
43	M33	Z	-.021	%25
44	M33	Z	0	0
45	M33	Z	0	0
46	M12	Z	-.014	%85
47	M12	Z	0	0
48	M12	Z	0	0
49	M12	Z	0	0
50	M12	Z	0	0

Member Point Loads (BLC 5 : 90 Wind - Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
1	M23	X	-.019	%15
2	M23	X	-.019	%90
3	M23	X	-.009	%60
4	M23	X	0	0
5	M23	X	0	0
6	M28	X	-.044	%5
7	M28	X	-.044	%90
8	M28	X	-.018	%30
9	M28	X	0	0
10	M28	X	0	0
11	M26	X	-.038	%5
12	M26	X	-.038	%95
13	M26	X	-.018	%25
14	M26	X	0	0
15	M26	X	0	0
16	M37	X	-.019	%15
17	M37	X	-.019	%90
18	M37	X	-.009	%60
19	M37	X	0	0
20	M37	X	0	0
21	M42	X	-.044	%5
22	M42	X	-.044	%90
23	M42	X	-.018	%30
24	M42	X	0	0
25	M42	X	0	0

Member Point Loads (BLC 5 : 90 Wind - Ice) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
26	M40	X	-.038	%5
27	M40	X	-.038	%95
28	M40	X	-.018	%25
29	M40	X	0	0
30	M40	X	0	0
31	M30	X	-.019	%15
32	M30	X	-.019	%90
33	M30	X	-.009	%60
34	M30	X	0	0
35	M30	X	0	0
36	M35	X	-.044	%5
37	M35	X	-.044	%90
38	M35	X	-.018	%30
39	M35	X	0	0
40	M35	X	0	0
41	M33	X	-.038	%5
42	M33	X	-.038	%95
43	M33	X	-.018	%25
44	M33	X	0	0
45	M33	X	0	0
46	M12	X	-.014	%85
47	M12	X	0	0
48	M12	X	0	0
49	M12	X	0	0
50	M12	X	0	0

Member Point Loads (BLC 6 : 0 Wind - Service)

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
1	M23	Z	-.007	%15
2	M23	Z	-.007	%90
3	M23	Z	-.002	%60
4	M23	Z	0	0
5	M23	Z	0	0
6	M28	Z	-.015	%5
7	M28	Z	-.015	%90
8	M28	Z	-.004	%30
9	M28	Z	0	0
10	M28	Z	0	0
11	M26	Z	-.023	%5
12	M26	Z	-.023	%95
13	M26	Z	-.004	%25
14	M26	Z	0	0
15	M26	Z	0	0
16	M37	Z	-.007	%15
17	M37	Z	-.007	%90
18	M37	Z	-.002	%60
19	M37	Z	0	0
20	M37	Z	0	0
21	M42	Z	-.015	%5
22	M42	Z	-.015	%90
23	M42	Z	-.004	%30
24	M42	Z	0	0
25	M42	Z	0	0
26	M40	Z	-.023	%5
27	M40	Z	-.023	%95
28	M40	Z	-.004	%25

Member Point Loads (BLC 6 : 0 Wind - Service) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
29	M40	Z	0	0
30	M40	Z	0	0
31	M30	Z	-.007	%15
32	M30	Z	-.007	%90
33	M30	Z	-.002	%60
34	M30	Z	0	0
35	M30	Z	0	0
36	M35	Z	-.015	%5
37	M35	Z	-.015	%90
38	M35	Z	-.004	%30
39	M35	Z	0	0
40	M35	Z	0	0
41	M33	Z	-.023	%5
42	M33	Z	-.023	%95
43	M33	Z	-.004	%25
44	M33	Z	0	0
45	M33	Z	0	0
46	M12	Z	-.003	%85
47	M12	Z	0	0
48	M12	Z	0	0
49	M12	Z	0	0
50	M12	Z	0	0

Member Point Loads (BLC 7 : 90 Wind - Service)

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
1	M23	X	-.003	%15
2	M23	X	-.003	%90
3	M23	X	-.001	%60
4	M23	X	0	0
5	M23	X	0	0
6	M28	X	-.01	%5
7	M28	X	-.01	%90
8	M28	X	-.004	%30
9	M28	X	0	0
10	M28	X	0	0
11	M26	X	-.008	%5
12	M26	X	-.008	%95
13	M26	X	-.004	%25
14	M26	X	0	0
15	M26	X	0	0
16	M37	X	-.003	%15
17	M37	X	-.003	%90
18	M37	X	-.001	%60
19	M37	X	0	0
20	M37	X	0	0
21	M42	X	-.01	%5
22	M42	X	-.01	%90
23	M42	X	-.004	%30
24	M42	X	0	0
25	M42	X	0	0
26	M40	X	-.008	%5
27	M40	X	-.008	%95
28	M40	X	-.004	%25
29	M40	X	0	0
30	M40	X	0	0
31	M30	X	-.003	%15

Member Point Loads (BLC 7 : 90 Wind - Service) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
32	M30	X	-.003	%90
33	M30	X	-.001	%60
34	M30	X	0	0
35	M30	X	0	0
36	M35	X	-.01	%5
37	M35	X	-.01	%90
38	M35	X	-.004	%30
39	M35	X	0	0
40	M35	X	0	0
41	M33	X	-.008	%5
42	M33	X	-.008	%95
43	M33	X	-.004	%25
44	M33	X	0	0
45	M33	X	0	0
46	M12	X	-.003	%85
47	M12	X	0	0
48	M12	X	0	0
49	M12	X	0	0
50	M12	X	0	0

Member Point Loads (BLC 8 : Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
1	M23	Y	-.088	%15
2	M23	Y	-.088	%90
3	M23	Y	-.024	%60
4	M23	Y	0	0
5	M23	Y	0	0
6	M28	Y	-.174	%5
7	M28	Y	-.174	%90
8	M28	Y	-.065	%30
9	M28	Y	0	0
10	M28	Y	0	0
11	M26	Y	-.252	%5
12	M26	Y	-.252	%95
13	M26	Y	-.064	%25
14	M26	Y	0	0
15	M26	Y	0	0
16	M37	Y	-.088	%15
17	M37	Y	-.088	%90
18	M37	Y	-.024	%60
19	M37	Y	0	0
20	M37	Y	0	0
21	M42	Y	-.174	%5
22	M42	Y	-.174	%90
23	M42	Y	-.065	%30
24	M42	Y	0	0
25	M42	Y	0	0
26	M40	Y	-.252	%5
27	M40	Y	-.252	%95
28	M40	Y	-.064	%25
29	M40	Y	0	0
30	M40	Y	0	0
31	M30	Y	-.088	%15
32	M30	Y	-.088	%90
33	M30	Y	-.024	%60
34	M30	Y	0	0

Member Point Loads (BLC 8 : Ice) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
35	M30	Y	0	0
36	M35	Y	-.174	%5
37	M35	Y	-.174	%90
38	M35	Y	-.065	%30
39	M35	Y	0	0
40	M35	Y	0	0
41	M33	Y	-.252	%5
42	M33	Y	-.252	%95
43	M33	Y	-.064	%25
44	M33	Y	0	0
45	M33	Y	0	0
46	M12	Y	-.093	%85
47	M12	Y	0	0
48	M12	Y	0	0
49	M12	Y	0	0
50	M12	Y	0	0

Member Point Loads (BLC 13 : Maint LL 1)

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
1	M1	Y	-.25	%5

Member Point Loads (BLC 14 : Maint LL 2)

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
1	M3	Y	-.25	%5

Member Point Loads (BLC 15 : Maint LL 3)

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
1	M5	Y	-.25	%5

Member Point Loads (BLC 16 : Maint LL 4)

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
1	M1	Y	-.25	%95

Member Point Loads (BLC 17 : Maint LL 5)

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
1	M3	Y	-.25	%95

Member Point Loads (BLC 18 : Maint LL 6)

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
1	M5	Y	-.25	%95

Member Point Loads (BLC 19 : Maint LL 7)

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
1	M12	Y	-.25	%10

Member Point Loads (BLC 20 : Maint LL 8)

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
1	M7	Y	-.25	%10

Member Point Loads (BLC 21 : Maint LL 9)

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
1	M17	Y	-.25	%10

Member Distributed Loads (BLC 2 : 0 Wind - No Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[in,%]	End Location[in,%]
1	M1	Z	-.009	-.009	0	0
2	M2	Z	-.016	-.016	0	0
3	M3	Z	-.009	-.009	0	0
4	M4	Z	-.016	-.016	0	0
5	M5	Z	-.009	-.009	0	0
6	M6	Z	-.016	-.016	0	0
7	M7	Z	-.008	-.008	0	0
8	M8	Z	-.01	-.01	0	0
9	M9	Z	-.01	-.01	0	0
10	M10	Z	-.009	-.009	0	0
11	M11	Z	-.009	-.009	0	0
12	M12	Z	-.008	-.008	0	0
13	M13	Z	-.01	-.01	0	0
14	M14	Z	-.01	-.01	0	0
15	M15	Z	-.009	-.009	0	0
16	M16	Z	-.009	-.009	0	0
17	M17	Z	-.008	-.008	0	0
18	M18	Z	-.01	-.01	0	0
19	M19	Z	-.01	-.01	0	0
20	M20	Z	-.009	-.009	0	0
21	M21	Z	-.009	-.009	0	0
22	M23	Z	-.006	-.006	0	0
23	M26	Z	-.006	-.006	0	0
24	M28	Z	-.006	-.006	0	0
25	M30	Z	-.006	-.006	0	0
26	M33	Z	-.006	-.006	0	0
27	M35	Z	-.006	-.006	0	0
28	M37	Z	-.006	-.006	0	0
29	M40	Z	-.006	-.006	0	0
30	M42	Z	-.006	-.006	0	0
31	M49	Z	-.006	-.006	0	0
32	M50	Z	-.006	-.006	0	0
33	M51	Z	-.006	-.006	0	0
34	M52	Z	-.007	-.007	0	0
35	M53	Z	-.007	-.007	0	0
36	M54	Z	-.007	-.007	0	0
37	M55	Z	-.011	-.011	0	0
38	M56	Z	-.011	-.011	0	0
39	M57	Z	-.011	-.011	0	0

Member Distributed Loads (BLC 3 : 90 Wind - No Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[in,%]	End Location[in,%]
1	M1	X	-.009	-.009	0	0
2	M2	X	-.016	-.016	0	0
3	M3	X	-.009	-.009	0	0
4	M4	X	-.016	-.016	0	0
5	M5	X	-.009	-.009	0	0
6	M6	X	-.016	-.016	0	0
7	M7	X	-.008	-.008	0	0
8	M8	X	-.01	-.01	0	0
9	M9	X	-.01	-.01	0	0
10	M10	X	-.009	-.009	0	0
11	M11	X	-.009	-.009	0	0
12	M12	X	-.008	-.008	0	0
13	M13	X	-.01	-.01	0	0

Member Distributed Loads (BLC 3 : 90 Wind - No Ice) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[in,%]	End Location[in,%]
14	M14	X	-.01	-.01	0	0
15	M15	X	-.009	-.009	0	0
16	M16	X	-.009	-.009	0	0
17	M17	X	-.008	-.008	0	0
18	M18	X	-.01	-.01	0	0
19	M19	X	-.01	-.01	0	0
20	M20	X	-.009	-.009	0	0
21	M21	X	-.009	-.009	0	0
22	M23	X	-.006	-.006	0	0
23	M26	X	-.006	-.006	0	0
24	M28	X	-.006	-.006	0	0
25	M30	X	-.006	-.006	0	0
26	M33	X	-.006	-.006	0	0
27	M35	X	-.006	-.006	0	0
28	M37	X	-.006	-.006	0	0
29	M40	X	-.006	-.006	0	0
30	M42	X	-.006	-.006	0	0
31	M49	X	-.006	-.006	0	0
32	M50	X	-.006	-.006	0	0
33	M51	X	-.006	-.006	0	0
34	M52	X	-.007	-.007	0	0
35	M53	X	-.007	-.007	0	0
36	M54	X	-.007	-.007	0	0
37	M55	X	-.011	-.011	0	0
38	M56	X	-.011	-.011	0	0
39	M57	X	-.011	-.011	0	0

Member Distributed Loads (BLC 4 : 0 Wind - Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[in,%]	End Location[in,%]
1	M1	Z	-.003	-.003	0	0
2	M2	Z	-.011	-.011	0	0
3	M3	Z	-.003	-.003	0	0
4	M4	Z	-.011	-.011	0	0
5	M5	Z	-.003	-.003	0	0
6	M6	Z	-.011	-.011	0	0
7	M7	Z	-.003	-.003	0	0
8	M8	Z	-.008	-.008	0	0
9	M9	Z	-.008	-.008	0	0
10	M10	Z	-.009	-.009	0	0
11	M11	Z	-.009	-.009	0	0
12	M12	Z	-.003	-.003	0	0
13	M13	Z	-.008	-.008	0	0
14	M14	Z	-.008	-.008	0	0
15	M15	Z	-.009	-.009	0	0
16	M16	Z	-.009	-.009	0	0
17	M17	Z	-.003	-.003	0	0
18	M18	Z	-.008	-.008	0	0
19	M19	Z	-.008	-.008	0	0
20	M20	Z	-.009	-.009	0	0
21	M21	Z	-.009	-.009	0	0
22	M23	Z	-.003	-.003	0	0
23	M26	Z	-.003	-.003	0	0
24	M28	Z	-.003	-.003	0	0
25	M30	Z	-.003	-.003	0	0
26	M33	Z	-.003	-.003	0	0
27	M35	Z	-.003	-.003	0	0

Member Distributed Loads (BLC 4 : 0 Wind - Ice) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[in,%]	End Location[in,%]
28	M37	Z	-.003	-.003	0	0
29	M40	Z	-.003	-.003	0	0
30	M42	Z	-.003	-.003	0	0
31	M49	Z	-.003	-.003	0	0
32	M50	Z	-.003	-.003	0	0
33	M51	Z	-.003	-.003	0	0
34	M52	Z	-.007	-.007	0	0
35	M53	Z	-.007	-.007	0	0
36	M54	Z	-.007	-.007	0	0
37	M55	Z	-.009	-.009	0	0
38	M56	Z	-.009	-.009	0	0
39	M57	Z	-.009	-.009	0	0

Member Distributed Loads (BLC 5 : 90 Wind - Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[in,%]	End Location[in,%]
1	M1	X	-.003	-.003	0	0
2	M2	X	-.011	-.011	0	0
3	M3	X	-.003	-.003	0	0
4	M4	X	-.011	-.011	0	0
5	M5	X	-.003	-.003	0	0
6	M6	X	-.011	-.011	0	0
7	M7	X	-.003	-.003	0	0
8	M8	X	-.008	-.008	0	0
9	M9	X	-.008	-.008	0	0
10	M10	X	-.009	-.009	0	0
11	M11	X	-.009	-.009	0	0
12	M12	X	-.003	-.003	0	0
13	M13	X	-.008	-.008	0	0
14	M14	X	-.008	-.008	0	0
15	M15	X	-.009	-.009	0	0
16	M16	X	-.009	-.009	0	0
17	M17	X	-.003	-.003	0	0
18	M18	X	-.008	-.008	0	0
19	M19	X	-.008	-.008	0	0
20	M20	X	-.009	-.009	0	0
21	M21	X	-.009	-.009	0	0
22	M23	X	-.003	-.003	0	0
23	M26	X	-.003	-.003	0	0
24	M28	X	-.003	-.003	0	0
25	M30	X	-.003	-.003	0	0
26	M33	X	-.003	-.003	0	0
27	M35	X	-.003	-.003	0	0
28	M37	X	-.003	-.003	0	0
29	M40	X	-.003	-.003	0	0
30	M42	X	-.003	-.003	0	0
31	M49	X	-.003	-.003	0	0
32	M50	X	-.003	-.003	0	0
33	M51	X	-.003	-.003	0	0
34	M52	X	-.007	-.007	0	0
35	M53	X	-.007	-.007	0	0
36	M54	X	-.007	-.007	0	0
37	M55	X	-.009	-.009	0	0
38	M56	X	-.009	-.009	0	0
39	M57	X	-.009	-.009	0	0

Member Distributed Loads (BLC 6 : 0 Wind - Service)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[in,%]	End Location[in,%]
1	M1	Z	-.0005	-.0005	0	0
2	M2	Z	-.002	-.002	0	0
3	M3	Z	-.0005	-.0005	0	0
4	M4	Z	-.002	-.002	0	0
5	M5	Z	-.0005	-.0005	0	0
6	M6	Z	-.002	-.002	0	0
7	M7	Z	-.0005	-.0005	0	0
8	M8	Z	-.001	-.001	0	0
9	M9	Z	-.001	-.001	0	0
10	M10	Z	-.0009	-.0009	0	0
11	M11	Z	-.0009	-.0009	0	0
12	M12	Z	-.0005	-.0005	0	0
13	M13	Z	-.001	-.001	0	0
14	M14	Z	-.001	-.001	0	0
15	M15	Z	-.0009	-.0009	0	0
16	M16	Z	-.0009	-.0009	0	0
17	M17	Z	-.0005	-.0005	0	0
18	M18	Z	-.001	-.001	0	0
19	M19	Z	-.001	-.001	0	0
20	M20	Z	-.0009	-.0009	0	0
21	M21	Z	-.0009	-.0009	0	0
22	M23	Z	-.0003	-.0003	0	0
23	M26	Z	-.0003	-.0003	0	0
24	M28	Z	-.0003	-.0003	0	0
25	M30	Z	-.0003	-.0003	0	0
26	M33	Z	-.0003	-.0003	0	0
27	M35	Z	-.0003	-.0003	0	0
28	M37	Z	-.0003	-.0003	0	0
29	M40	Z	-.0003	-.0003	0	0
30	M42	Z	-.0003	-.0003	0	0
31	M49	Z	-.0003	-.0003	0	0
32	M50	Z	-.0003	-.0003	0	0
33	M51	Z	-.0003	-.0003	0	0
34	M52	Z	-.0007	-.0007	0	0
35	M53	Z	-.0007	-.0007	0	0
36	M54	Z	-.0007	-.0007	0	0
37	M55	Z	-.001	-.001	0	0
38	M56	Z	-.001	-.001	0	0
39	M57	Z	-.001	-.001	0	0

Member Distributed Loads (BLC 7 : 90 Wind - Service)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[in,%]	End Location[in,%]
1	M1	X	-.0005	-.0005	0	0
2	M2	X	-.002	-.002	0	0
3	M3	X	-.0005	-.0005	0	0
4	M4	X	-.002	-.002	0	0
5	M5	X	-.0005	-.0005	0	0
6	M6	X	-.002	-.002	0	0
7	M7	X	-.0005	-.0005	0	0
8	M8	X	-.001	-.001	0	0
9	M9	X	-.001	-.001	0	0
10	M10	X	-.0009	-.0009	0	0
11	M11	X	-.0009	-.0009	0	0
12	M12	X	-.0005	-.0005	0	0
13	M13	X	-.001	-.001	0	0
14	M14	X	-.001	-.001	0	0

Member Distributed Loads (BLC 7 : 90 Wind - Service) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[in,%]	End Location[in,%]
15	M15	X	-.0009	-.0009	0	0
16	M16	X	-.0009	-.0009	0	0
17	M17	X	-.0005	-.0005	0	0
18	M18	X	-.001	-.001	0	0
19	M19	X	-.001	-.001	0	0
20	M20	X	-.0009	-.0009	0	0
21	M21	X	-.0009	-.0009	0	0
22	M23	X	-.0003	-.0003	0	0
23	M26	X	-.0003	-.0003	0	0
24	M28	X	-.0003	-.0003	0	0
25	M30	X	-.0003	-.0003	0	0
26	M33	X	-.0003	-.0003	0	0
27	M35	X	-.0003	-.0003	0	0
28	M37	X	-.0003	-.0003	0	0
29	M40	X	-.0003	-.0003	0	0
30	M42	X	-.0003	-.0003	0	0
31	M49	X	-.0003	-.0003	0	0
32	M50	X	-.0003	-.0003	0	0
33	M51	X	-.0003	-.0003	0	0
34	M52	X	-.0007	-.0007	0	0
35	M53	X	-.0007	-.0007	0	0
36	M54	X	-.0007	-.0007	0	0
37	M55	X	-.001	-.001	0	0
38	M56	X	-.001	-.001	0	0
39	M57	X	-.001	-.001	0	0

Member Distributed Loads (BLC 8 : Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[in,%]	End Location[in,%]
1	M1	Y	-.015	-.015	0	0
2	M2	Y	-.022	-.022	0	0
3	M3	Y	-.015	-.015	0	0
4	M4	Y	-.022	-.022	0	0
5	M5	Y	-.015	-.015	0	0
6	M6	Y	-.022	-.022	0	0
7	M7	Y	-.015	-.015	0	0
8	M8	Y	-.016	-.016	0	0
9	M9	Y	-.016	-.016	0	0
10	M10	Y	-.014	-.014	0	0
11	M11	Y	-.014	-.014	0	0
12	M12	Y	-.015	-.015	0	0
13	M13	Y	-.016	-.016	0	0
14	M14	Y	-.016	-.016	0	0
15	M15	Y	-.014	-.014	0	0
16	M16	Y	-.014	-.014	0	0
17	M17	Y	-.015	-.015	0	0
18	M18	Y	-.016	-.016	0	0
19	M19	Y	-.016	-.016	0	0
20	M20	Y	-.014	-.014	0	0
21	M21	Y	-.014	-.014	0	0
22	M23	Y	-.012	-.012	0	0
23	M26	Y	-.012	-.012	0	0
24	M28	Y	-.012	-.012	0	0
25	M30	Y	-.012	-.012	0	0
26	M33	Y	-.012	-.012	0	0
27	M35	Y	-.012	-.012	0	0
28	M37	Y	-.012	-.012	0	0

Member Distributed Loads (BLC 8 : Ice) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[in,%]	End Location[in,%]
29	M40	Y	-.012	-.012	0	0
30	M42	Y	-.012	-.012	0	0
31	M49	Y	-.012	-.012	0	0
32	M50	Y	-.012	-.012	0	0
33	M51	Y	-.012	-.012	0	0
34	M52	Y	-.015	-.015	0	0
35	M53	Y	-.015	-.015	0	0
36	M54	Y	-.015	-.015	0	0
37	M55	Y	-.019	-.019	0	0
38	M56	Y	-.019	-.019	0	0
39	M57	Y	-.019	-.019	0	0

Member Distributed Loads (BLC 22 : BLC 1 Transient Area Loads)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[in,%]	End Location[in,%]
1	M12	Y	-.013	-.013	14.222	37.128
2	M13	Y	-.011	-.011	.319	12.319
3	M14	Y	-.011	-.011	.319	12.319
4	M15	Y	-.01	-.006	0	28.868
5	M15	Y	-.006	-.001	28.868	57.735
6	M16	Y	-.01	-.006	0	28.868
7	M16	Y	-.006	-.001	28.868	57.735
8	M7	Y	-.013	-.013	14.223	37.128
9	M8	Y	-.011	-.011	.32	12.32
10	M9	Y	-.011	-.011	.32	12.32
11	M10	Y	-.01	-.006	0	28.868
12	M10	Y	-.006	-.001	28.868	57.735
13	M11	Y	-.01	-.006	0	28.868
14	M11	Y	-.006	-.001	28.868	57.735
15	M17	Y	-.013	-.013	14.223	37.128
16	M18	Y	-.011	-.011	.32	12.32
17	M19	Y	-.011	-.011	.32	12.32
18	M20	Y	-.01	-.006	0	28.868
19	M20	Y	-.006	-.001	28.868	57.735
20	M21	Y	-.01	-.006	0	28.868
21	M21	Y	-.006	-.001	28.868	57.735

Member Distributed Loads (BLC 23 : BLC 8 Transient Area Loads)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[in,%]	End Location[in,%]
1	M12	Y	-.013	-.013	14.223	37.128
2	M13	Y	-.012	-.012	.32	12.32
3	M14	Y	-.012	-.012	.32	12.32
4	M15	Y	-.01	-.006	0	28.868
5	M15	Y	-.006	-.001	28.868	57.735
6	M16	Y	-.01	-.006	0	28.868
7	M16	Y	-.006	-.001	28.868	57.735
8	M7	Y	-.014	-.014	14.223	37.128
9	M8	Y	-.012	-.012	.32	12.32
10	M9	Y	-.012	-.012	.32	12.32
11	M10	Y	-.011	-.006	0	28.868
12	M10	Y	-.006	-.002	28.868	57.735
13	M11	Y	-.011	-.006	0	28.868
14	M11	Y	-.006	-.002	28.868	57.735
15	M17	Y	-.014	-.014	14.222	37.128
16	M18	Y	-.012	-.012	.319	12.319
17	M19	Y	-.012	-.012	.319	12.319
18	M20	Y	-.011	-.006	0	28.868

Member Distributed Loads (BLC 23 : BLC 8 Transient Area Loads) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[in,%]	End Location[in,%]
19	M20	Y	-.006	-.002	28.868	57.735
20	M21	Y	-.011	-.006	0	28.868
21	M21	Y	-.006	-.002	28.868	57.735

Member Area Loads (BLC 1 : Dead)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[ksf]
1	N21	N19	N20		Y	Two Way	-.01
2	N13	N14	N12		Y	Two Way	-.01
3	N26	N27	N28		Y	Two Way	-.01

Member Area Loads (BLC 8 : Ice)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[ksf]
1	N21	N19	N20		Y	Two Way	-.011
2	N13	N14	N12		Y	Two Way	-.011
3	N26	N27	N28		Y	Two Way	-.011

Joint Loads and Enforced Displacements (BLC 9 : Live Load a)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/i...
1	N34	L	Y	-.25
2	N46	L	Y	-.25
3	N58	L	Y	-.25

Joint Loads and Enforced Displacements (BLC 10 : Live Load b)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/i...
1	N33	L	Y	-.25
2	N45	L	Y	-.25
3	N57	L	Y	-.25

Joint Loads and Enforced Displacements (BLC 11 : Live Load c)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/i...
1	N29	L	Y	-.25
2	N41	L	Y	-.25
3	N53	L	Y	-.25

Envelope Joint Reactions

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N22	max	1.709	5	1.035	45	1.746	2	.009	103	1.834	7	.794	46
2		min	-2.596	35	.162	2	-2.22	20	-.354	43	-1.843	25	.105	101
3	N15	max	2.573	30	1.147	41	2.281	2	-.016	2	2.018	3	-.091	9
4		min	-1.683	12	.228	9	-2.762	20	-.564	44	-2.023	21	-.759	40
5	N8	max	1.281	17	1.034	38	3.704	14	.861	38	1.408	11	.091	9
6		min	-1.278	11	.181	7	-2.752	8	.124	8	-1.415	17	-.142	15
7	N106	max	.053	5	2.357	40	-.376	2	0	106	0	106	0	106
8		min	-.06	23	.504	10	-1.936	44	0	1	0	1	0	1
9	N108	max	-.327	3	2.37	42	.993	38	0	106	0	106	0	106
10		min	-1.676	46	.467	12	.168	9	0	1	0	1	0	1
11	N110	max	1.68	41	2.365	48	.976	38	0	106	0	106	0	106
12		min	.343	9	.459	6	.137	7	0	1	0	1	0	1
13	Totals:	max	5.371	5	10.242	44	7.746	2						
14		min	-5.371	23	2.255	2	-7.746	20						

Envelope AISC 13th(360-05): LRFD Steel Code Checks

	Member	Shape	Code Check	Loc[in]	LC	Shear ...	Loc[in]	Dir	LC	phi*Pn...	phi*Pnt...	phi*Mn...	phi*Mn...	Cb	Eqn
1	M1	HSS3.500X0....	.234	33.75	43	.047	99.563		14	23.242	74.466	6.521	6.521	1.969	H1-1b
2	M2	PL3/8X6	.272	6	25	.281	6	y	44	34.335	73.872	.586	9.234	1.375	H1-1b
3	M3	HSS3.500X0....	.232	128.25	39	.041	155.25		40	23.242	74.466	6.521	6.521	1.931	H1-1b
4	M4	PL3/8X6	.284	6	20	.269	6	y	39	34.335	73.872	.586	9.234	1.448	H1-1b
5	M5	HSS3.500X0....	.234	128.25	48	.042	155.25		49	23.242	74.466	6.521	6.521	2.014	H1-1b
6	M6	PL3/8X6	.227	6	15	.278	6	y	38	34.335	73.872	.586	9.234	1.467	H1-1b
7	M7	HSS3.500X0....	.227	68	16	.087	14.875		41	60.529	74.466	6.521	6.521	2.107	H1-1b
8	M8	C 2X3X0.2	.564	0	45	.096	29.056	z	19	36.4	42.768	1.671	3.937	1.707	H1-1b
9	M9	C 2X3X0.2	.571	0	43	.123	29.056	z	21	36.4	42.768	1.671	3.937	1.707	H1-1b
10	M10	L2x2x3	.424	0	25	.028	57.735	z	44	7.405	23.393	.558	1.212	2.253	H2-1
11	M11	L2x2x3	.475	0	15	.026	57.735	y	45	7.405	23.393	.558	1.21	2.226	H2-1
12	M12	HSS3.500X0....	.321	68	21	.109	68		21	60.529	74.466	6.521	6.521	1.968	H1-1b
13	M13	C 2X3X0.2	.567	0	38	.089	29.056	y	47	36.4	42.768	1.671	3.937	1.706	H1-1b
14	M14	C 2X3X0.2	.567	0	46	.100	29.056	z	25	36.4	42.768	1.671	3.937	1.706	H1-1b
15	M15	L2x2x3	.394	57.735	29	.028	57.735	z	48	7.405	23.393	.558	1.221	2.357	H2-1
16	M16	L2x2x3	.479	0	19	.026	57.735	y	38	7.405	23.393	.558	1.209	2.215	H2-1
17	M17	HSS3.500X0....	.290	68	19	.090	68		25	60.529	74.466	6.521	6.521	1.88	H1-1b
18	M18	C 2X3X0.2	.558	0	42	.086	29.056	y	38	36.4	42.768	1.671	3.937	1.707	H1-1b
19	M19	C 2X3X0.2	.571	0	38	.094	29.056	z	16	36.4	42.768	1.671	3.937	1.707	H1-1b
20	M20	L2x2x3	.409	0	21	.028	57.735	z	39	7.405	23.393	.558	1.203	2.148	H2-1
21	M21	L2x2x3	.378	57.735	35	.027	57.735	y	43	7.405	23.393	.558	1.222	2.381	H2-1
22	M23	PIPE_2.0	.346	34.5	37	.062	34.5		45	20.867	32.13	1.872	1.872	3	H1-1b
23	M26	PIPE_2.0	.558	35.25	20	.077	34.5		30	20.867	32.13	1.872	1.872	3	H1-1b
24	M28	PIPE_2.0	.573	48.375	8	.057	47.25		21	12.144	32.13	1.872	1.872	3	H1-1b
25	M30	PIPE_2.0	.338	34.5	28	.063	11.25		36	20.867	32.13	1.872	1.872	2.975	H1-1b
26	M33	PIPE_2.0	.558	35.25	14	.082	34.5		34	20.867	32.13	1.872	1.872	2.363	H1-1b
27	M35	PIPE_2.0	.573	48.375	2	.054	47.25		14	12.144	32.13	1.872	1.872	2.371	H1-1b
28	M37	PIPE_2.0	.359	34.5	32	.066	34.5		29	20.867	32.13	1.872	1.872	2.801	H1-1b
29	M40	PIPE_2.0	.558	35.25	20	.082	34.5		26	20.867	32.13	1.872	1.872	2.88	H1-1b
30	M42	PIPE_2.0	.573	48.375	2	.049	47.25		21	12.144	32.13	1.872	1.872	2.437	H1-1b
31	M49	PIPE_2.0	.202	121.875	35	.083	121.875		20	6.295	32.13	1.872	1.872	1.594	H1-1b
32	M50	PIPE_2.0	.209	28.125	31	.072	28.125		16	6.295	32.13	1.872	1.872	1.627	H1-1b
33	M51	PIPE_2.0	.210	28.125	26	.071	28.125		37	6.295	32.13	1.872	1.872	1.616	H1-1b
34	M52	L2.5x2.5x4	.138	0	28	.054	0	z	22	36.64	38.556	1.114	2.537	1.219	H2-1
35	M53	L2.5x2.5x4	.140	0	32	.062	0	y	15	36.64	38.556	1.114	2.537	1.186	H2-1
36	M54	L2.5x2.5x4	.141	0	36	.053	0	y	19	36.64	38.556	1.114	2.537	1.179	H2-1
37	M55	LL2.5x2.5x3x3	.220	0	26	.007	0	y	26	31.427	58.32	3.954	1.593	1.667	H1-1b
38	M56	LL2.5x2.5x3x3	.221	0	30	.007	0	y	30	31.427	58.32	3.954	1.593	1.666	H1-1b
39	M57	LL2.5x2.5x3x3	.221	0	34	.007	0	y	34	31.427	58.32	3.954	1.593	1.667	H1-1b

APPENDIX B

(Modification Drawings)

MI CHECKLIST

REQUIRED	REPORT ITEM	BRIEF DESCRIPTION
		PRE-CONSTRUCTION
X	MI CHECKLIST DRAWING	THIS CHECKLIST SHALL BE INCLUDED IN THE MI REPORT.
N/A	EOR APPROVED SHOP DRAWINGS	FABRICATION DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER OF RECORD FOR REVIEW. THE CONTRACTOR SHALL PROVIDE APPROVED SHOP DRAWINGS TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
N/A	ASSEMBLY DRAWINGS	ONCE THE PRE-MODIFICATION MAPPING IS COMPLETE, PRIOR TO FABRICATION, THE CONTRACTOR SHALL PROVIDE DETAILED ASSEMBLY DRAWINGS. THESE ARE TO INCLUDE, BUT ARE NOT LIMITED TO, A VISUAL LAYOUT OF NEW REINFORCEMENT, EXISTING REINFORCEMENT CONFIGURATION, PORTHOLES, MOUNTS, STEP PEGS, SAFETY CLIMBS AND ANY OTHER MISCELLANEOUS ITEMS WHICH MAY AFFECT SUCCESSFUL INSTALLATION OF MODIFICATIONS ON THE TOWER. THESE DRAWINGS SHALL BE SUBMITTED TO THE EOR FOR APPROVAL. APPROVED ASSEMBLY DRAWINGS SHALL BE SUBMITTED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
X	FABRICATION INSPECTION	A LETTER FROM THE FABRICATOR, STATING THAT THE WORK WAS PERFORMED IN ACCORDANCE WITH INDUSTRY STANDARDS AND THE CONTRACT DOCUMENTS SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
X	FABRICATOR CERTIFIED WELD INSPECTION	A VISUAL OBSERVATION BY CWI OF A PORTION OF WELDING ON THE PROPOSED STRUCTURAL MEMBERS IS REQUIRED AND A WRITTEN REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
X	MATERIAL TEST REPORT (MTR)	MILL CERTIFICATION SHALL BE PROVIDED FOR ALL STEEL AS SPECIFIED IN THE MODIFICATION DRAWINGS AND THIS DOCUMENTATION SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
N/A	FABRICATOR NDE INSPECTION	CRITICAL SHOP WELDS THAT REQUIRE TESTING ARE NOTED ON THESE CONTRACT DRAWINGS. A CERTIFIED WELD INSPECTOR SHALL PERFORM NON-DESTRUCTIVE EXAMINATION AND A REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
X	PACKING SLIPS	THE MATERIAL SHIPPING LIST SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
		CONSTRUCTION (PERFORMED BY CONTRACTOR)
X	CONSTRUCTION INSPECTIONS	A LETTER FROM THE GENERAL CONTRACTOR STATING THAT THE WORKMANSHIP WAS PERFORMED IN ACCORDANCE WITH INDUSTRY STANDARDS AND THESE CONTRACT DRAWINGS SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
N/A	CONTRACTOR'S CERTIFIED WELD INSPECTION	A CERTIFIED WELD INSPECTOR SHALL INSPECT AND TEST AS NECESSARY ALL FIELD WELDS. A REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
N/A	ON SITE COLD GALVANIZING VERIFICATION	THE GENERAL CONTRACTOR SHALL PROVIDE DOCUMENTATION TO THE MI INSPECTOR VERIFYING THAT ANY ON-SITE COLD GALVANIZING WAS APPLIED AS SPECIFIED IN THE MODIFICATION DRAWINGS.
X	GC AS-BUILT DOCUMENTS	THE GENERAL CONTRACTOR SHALL SUBMIT A COPY OF THE CONTRACT DRAWINGS EITHER STATING "INSTALLED AS DESIGNED" OR NOTING ANY CHANGES THAT WERE REQUIRED AND APPROVED BY THE ENGINEER OF RECORD DUE TO FIELD CONDITIONS.
		POST-CONSTRUCTION
X	MI INSPECTOR REDLINE OR RECORD DRAWING(S)	THE MI INSPECTOR SHALL OBSERVE AND REPORT ANY DISCREPANCIES BETWEEN THE CONTRACTORS REDLINE DRAWING AND THE ACTUAL COMPLETED INSTALLATION.
X	PHOTOGRAPHS	PHOTOGRAPHS SHALL BE SUBMITTED TO THE MI WHICH DOCUMENT ALL PHASES OF THE CONSTRUCTION. THE PHOTOS SHALL BE ORGANIZED IN A MANNER THAT EASILY IDENTIFIES THE EXACT LOCATION OF THE PHOTO.
ADDITIONAL TESTING AND INSPECTIONS:		
NOTE: X DENOTES A DOCUMENT NEEDED FOR THE MI REPORT AND N/A DENOTES A DOCUMENT THAT IS NOT REQUIRED FOR THE MI REPORT		

MODIFICATION INSPECTION NOTES:

GENERAL

THE MODIFICATION INSPECTION (MI) IS A VISUAL INSPECTION OF TOWER MODIFICATIONS AND A REVIEW OF CONSTRUCTION INSPECTIONS AND OTHER REPORTS TO ENSURE THE INSTALLATION WAS CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, NAMELY THE MODIFICATION DRAWINGS, AS DESIGNED BY THE ENGINEER OF RECORD (EOR).

THE MI IS TO CONFIRM INSTALLATION CONFIGURATION AND WORKMANSHIP ONLY AND IS NOT A REVIEW OF THE MODIFICATION DESIGN ITSELF, NOR DOES THE MI INSPECTOR TAKE OWNERSHIP OF THE MODIFICATION DESIGN. OWNERSHIP OF THE STRUCTURAL MODIFICATION DESIGN EFFECTIVENESS AND INTEGRITY RESIDES WITH THE EOR AT ALL TIMES.

TO ENSURE THAT THE REQUIREMENTS OF THE MI ARE MET, IT IS VITAL THAT THE GENERAL CONTRACTOR (GC) AND THE MI INSPECTOR BEGIN COMMUNICATING AND COORDINATING AS SOON AS A PO IS RECEIVED. IT IS EXPECTED THAT EACH PARTY WILL BE PROACTIVE IN REACHING OUT TO THE OTHER PARTY. IF CONTACT INFORMATION IS NOT KNOWN, CONTACT B+T GROUP.

MI INSPECTOR

THE MI INSPECTOR IS REQUIRED TO CONTACT THE GC AS SOON AS RECEIVING A PO FOR THE MI TO, AT A MINIMUM:

- REVIEW THE REQUIREMENTS OF THE MI CHECKLIST
- WORK WITH THE GC TO DEVELOP A SCHEDULE TO CONDUCT ONSITE INSPECTIONS, INCLUDING FOUNDATION INSPECTIONS

THE MI INSPECTOR IS RESPONSIBLE FOR COLLECTING ALL GENERAL CONTRACTOR (GC) INSPECTION AND TEST REPORTS, REVIEWING THE DOCUMENTS FOR ADHERENCE TO THE CONTRACT DOCUMENTS, CONDUCTING THE IN-FIELD INSPECTIONS, AND SUBMITTING THE MI REPORT.

GENERAL CONTRACTOR

THE GC IS REQUIRED TO CONTACT THE MI INSPECTOR AS SOON AS RECEIVING A PO FOR THE MODIFICATION INSTALLATION OR TURNKEY PROJECT TO, AT A MINIMUM:

- REVIEW THE REQUIREMENTS OF THE MI CHECKLIST
- WORK WITH THE MI INSPECTOR TO DEVELOP A SCHEDULE TO CONDUCT ON-SITE MI INSPECTIONS
- BETTER UNDERSTAND ALL INSPECTION AND TESTING REQUIREMENTS

THE GC SHALL PERFORM AND RECORD THE TEST AND INSPECTION RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE MI CHECKLIST.

RECOMMENDATIONS

THE FOLLOWING RECOMMENDATIONS AND SUGGESTIONS ARE OFFERED TO ENHANCE THE EFFICIENCY AND EFFECTIVENESS OF DELIVERING A MI REPORT:

- IT IS SUGGESTED THAT THE GC PROVIDE A MINIMUM OF 5 BUSINESS DAYS NOTICE, PREFERABLY 10, TO THE MI INSPECTOR AS TO WHEN THE SITE WILL BE READY FOR THE MI TO BE CONDUCTED.
- THE GC AND MI INSPECTOR COORDINATE CLOSELY THROUGHOUT THE ENTIRE PROJECT.
- WHEN POSSIBLE, IT IS PREFERRED TO HAVE THE GC AND MI INSPECTOR ON-SITE DURING THE MI TO HAVE ANY DEFICIENCIES CORRECTED DURING THE INITIAL MI. THEREFORE, THE GC MAY CHOOSE TO COORDINATE THE MI CAREFULLY TO ENSURE ALL CONSTRUCTION FACILITIES ARE AT THEIR DISPOSAL WHEN THE MI INSPECTOR IS ON SITE.

CANCELLATION OR DELAYS IN SCHEDULED MI

IF THE GC AND MI INSPECTOR AGREE TO A DATE ON WHICH THE MI WILL BE CONDUCTED, AND EITHER PARTY CANCELS OR DELAYS, CARRIER SHALL NOT BE RESPONSIBLE FOR ANY COSTS, FEES, LOSS OF DEPOSITS AND/OR OTHER PENALTIES RELATED TO THE CANCELLATION OR DELAY INCURRED BY EITHER PARTY FOR ANY TIME (E.G. TRAVEL AND LODGING, COSTS OF KEEPING EQUIPMENT ON-SITE, ETC.). IF CARRIER CONTRACTS DIRECTLY FOR A THIRD PARTY MI, EXCEPTIONS MAY BE MADE IN THE EVENT THAT THE DELAY/CANCELLATION IS CAUSED BY WEATHER OR OTHER CONDITIONS THAT MAY COMPROMISE THE SAFETY OF THE PARTIES INVOLVED.

CORRECTION OF FAILING MI'S

IF THE MODIFICATION INSPECTOR FAILS THE MI ("FAILED MI"), THE GC SHALL WORK WITH CARRIER TO COORDINATE A REMEDIATION PLAN IN ONE OF TWO WAYS:

- CORRECT FAILING ISSUES TO COMPLY WITH THE SPECIFICATIONS CONTAINED IN THE ORIGINAL CONTRACT DOCUMENTS AND COORDINATE A SUPPLEMENT MI.
- OR, WITH CARRIER'S APPROVAL, THE GC MAY WORK WITH THE EOR TO RE-ANALYZE THE MODIFICATION/REINFORCEMENT USING THE AS-BUILT CONDITION
- THE ADDITIONAL COST INCURRED IN THE SECOND SUPERVISION PROCESS WOULD BE BORNE BY THE GENERAL CONTRACTOR.

MI VERIFICATION INSPECTIONS

CARRIER RESERVES THE RIGHT TO CONDUCT A MI VERIFICATION INSPECTION TO VERIFY THE ACCURACY AND COMPLETENESS OF PREVIOUSLY COMPLETED MI INSPECTION(S) ON TOWER MODIFICATION PROJECTS.

ALL VERIFICATION INSPECTIONS SHALL BE HELD TO THE SAME SPECIFICATIONS AND REQUIREMENTS IN THE CONTRACT DOCUMENTS.

VERIFICATION INSPECTION MAY BE CONDUCTED BY AN INDEPENDENT FIRM AFTER A MODIFICATION PROJECT IS COMPLETED, AS MARKED BY THE DATE OF AN ACCEPTED "PASSING MI" OR "PASS AS NOTED MI" REPORT FOR THE ORIGINAL PROJECT.

REQUIRED PHOTOS

BETWEEN THE GC AND THE MI INSPECTOR THE FOLLOWING PHOTOGRAPHS, AT A MINIMUM, ARE TO BE TAKEN AND INCLUDED IN THE MI REPORT:

- PRE-CONSTRUCTION GENERAL SITE CONDITION
- PHOTOGRAPHS DURING THE REINFORCEMENT MODIFICATION CONSTRUCTION/ERECTION AND INSPECTION
  - RAW MATERIALS
  - PHOTOS OF ALL CRITICAL DETAILS
  - FOUNDATION MODIFICATIONS
  - WELD PREPARATION
  - BOLT INSTALLATION AND TORQUE
  - FINAL INSTALLED CONDITION
  - SURFACE COATING REPAIR
- POST CONSTRUCTION PHOTOGRAPHS
  - PHOTOS OF MODIFIED SECTIONS INDIVIDUALLY INDICATING ELEVATION
  - FINAL INFIELD CONDITION

PHOTOS OF ELEVATED MODIFICATIONS TAKEN FROM THE GROUND SHALL BE CONSIDERED INADEQUATE.

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

AT&T

SAI

EAST GRANBY SW
56 FLOYDVILLE ROAD
EAST GRANBY, CT 06026
HARTFORD
EXISTING PLATFORM
AT 89'-00"

PROJECT NO:	130655.003.01
CHECKED BY:	PKK

ISSUED FOR:

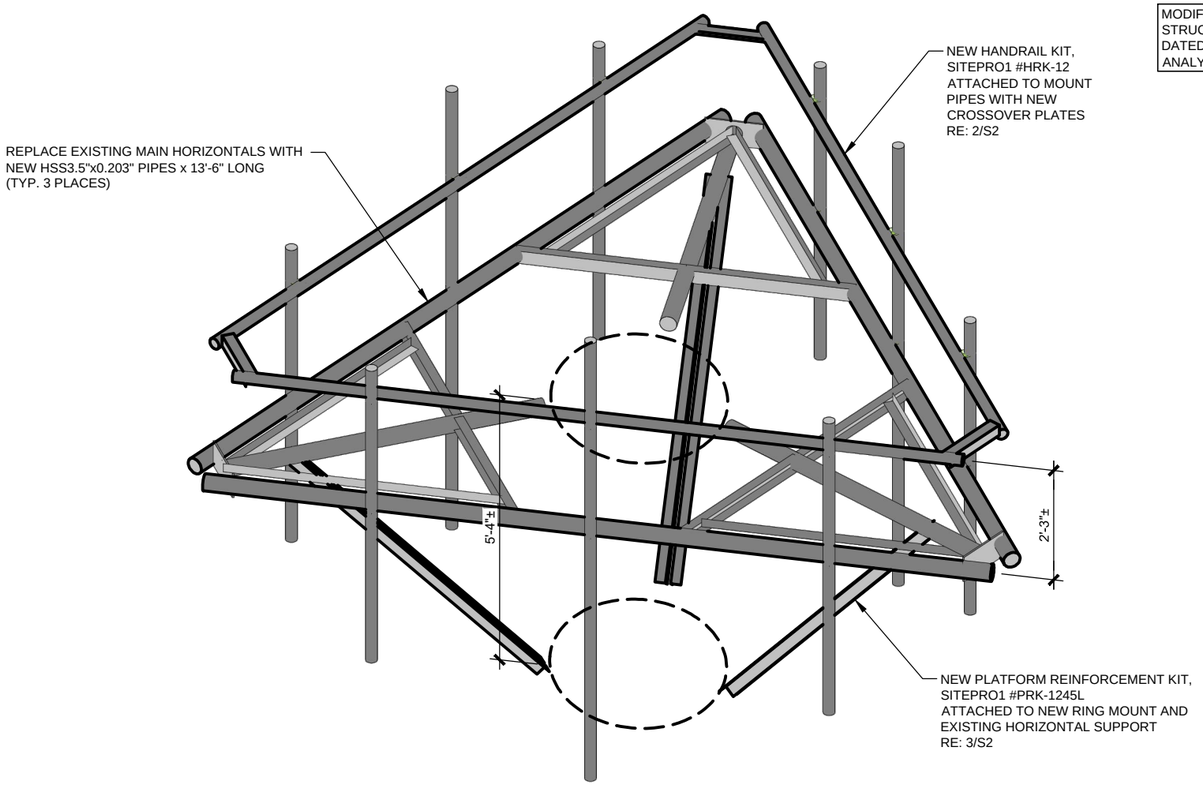
REV	DATE	DRWN	DESCRIPTION
0	01/29/19	PMS	CONSTRUCTION

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/20

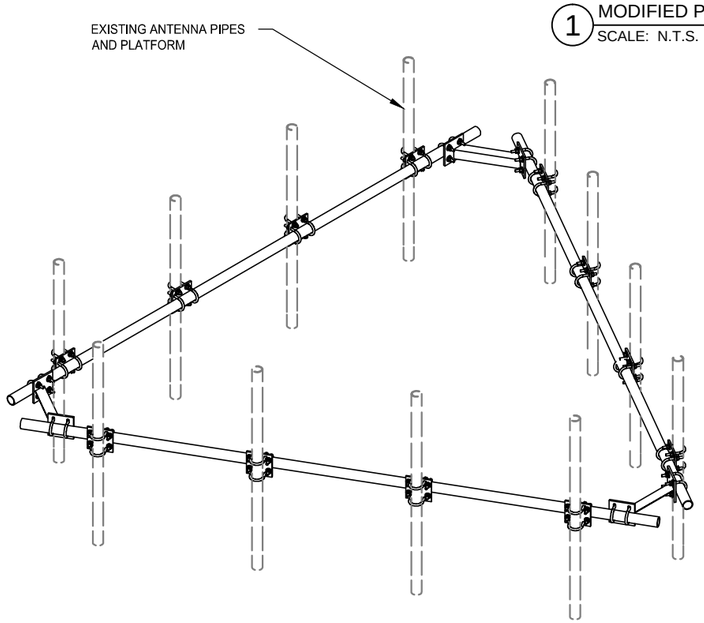
STATE OF CONNECTICUT
SCOTT S VANCE
31627
LICENSED
PROFESSIONAL ENGINEER

SHEET NUMBER:	REVISION:
S1	0

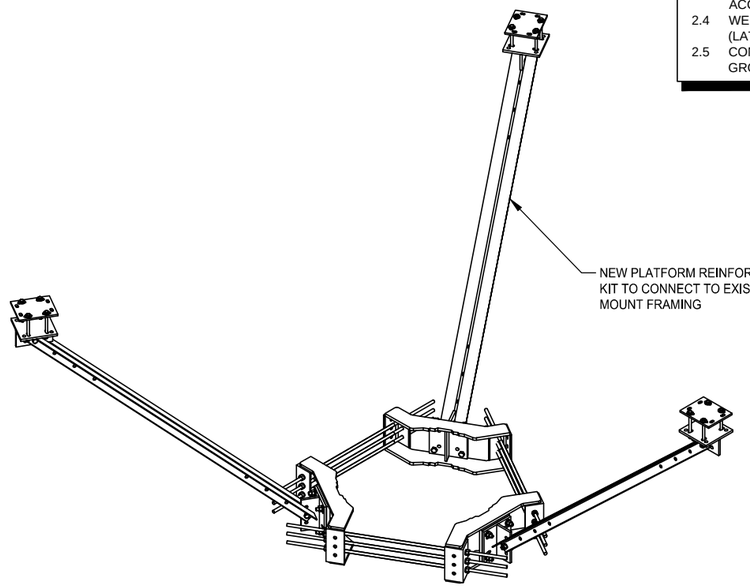
MODIFICATIONS BASED ON THE FAILING STRUCTURAL ANALYSIS FROM B+T GROUP DATED 01/21/19 AND ACCOMPANIED BY ANALYSIS FROM B+T GROUP DATED 01/29/19



1 MODIFIED PLATFORM
SCALE: N.T.S.



2 SITE PRO1 HRK-12 HANDRAIL KIT
SCALE: N.T.S.



3 SITE PRO1 PRK-1245L PLATFORM REINFORCEMENT KIT
SCALE: N.T.S.

GENERAL NOTES

1.1 CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND DIMENSIONS PRIOR TO THE MOBILIZING ON THE SITE FOR INSTALLATION OF THE MOUNT MODIFICATION AND SHALL NOTIFY THE ENGINEER OF RECORD IF THE FIELD CONDITIONS VARY FROM WHAT IS SHOWN ON THE DRAWINGS. IN ADDITION, THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF RECORD PRIOR TO MOBILIZING AT THE SITE IF THE MOUNT REINFORCEMENT SHOWN WILL NEED TO BE REVISED TO SATISFY FIELD CONDITIONS

1.2 CONTRACTOR SHALL RELOCATE NON-ANTENNA EQUIPMENT ALONG THE EXISTING PIPE MOUNT THAT IT IS MOUNTED TO, TO ALLOW FOR INSTALLATION OF MOUNT REINFORCEMENT. ENGINEER OF RECORD WILL BE NOTIFIED IF NON-ANTENNA EQUIPMENT NEEDS TO BE RELOCATED TO ANY OTHER EXISTING MEMBERS TO ALLOW FOR INSTALLATION OF MOUNT MODIFICATION.

1.3 MODIFICATION SHALL BE COMPLETED PRIOR TO ADDING THE PROPOSED APPURTENANCES.

1.4 ALL WORK SHALL COMPLY WITH THE TIA-222-G STANDARD, TIA-1019-A STANDARD, AS WELL AS ANY OTHER GOVERNING BUILDING CODES.

1.5 FIELD WORK WILL BE DONE AROUND EXISTING COAXIAL CABLE AND EQUIPMENT. ALL WORK SHALL BE DONE IN A MANNER SUCH THAT NO DAMAGE OCCURS TO THE EXISTING EQUIPMENT OR THE STRUCTURE.

1.6 A MINIMUM OF TWO COATS OF ZINGA COLD GALVANIZING COMPOUND (OR APPROVED EQUIVALENT) SHALL BE APPLIED TO ANY FIELD CUTS OR FIELD DRILLED HOLES.

1.7 THE USE OF A GAS TORCH OR WELDER WILL NOT BE PERMITTED ON THE TOWER WITHOUT THE CONSENT OF THE OWNER.

1.8 ALL FIELD CONNECTIONS SHALL BE MADE WITH A325N BOLTS, U.N.O.

1.9 IN LIEU OF TEMPORARY BRACING, CONTRACTOR MAY HAVE A STABILITY ANALYSIS PERFORMED BY AN ENGINEER LICENSED IN THE STATE THE TOWER IS LOCATED. THE ANALYSIS SHALL USE A MINIMUM WIND SPEED OF 45 mph (3-SEC) PER TIA-1019.

1.10 ALL CUTTING AND WELDING ACTIVITIES SHALL BE CONDUCTED IN ACCORDANCE WITH CCUSA POLICY "CUTTING AND WELDING PLAN" (DOC #ENG-PLN-10015) ON AN ONGOING BASIS THROUGHOUT THE ENTIRE LIFE OF THE PROJECT.

1.11 DIMENSIONS WITH "±" MUST BE WITHIN 3" OF THE INDICATED DIMENSION.

FABRICATION

2.1 ALL WORK SHALL BE DONE IN ACCORDANCE WITH A.I.S.C. "SPECIFICATIONS FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS."

2.2 STRUCTURAL STEEL SHALL MEET THE FOLLOWING SPECIFICATIONS:

	YIELD	ASTM SPECS
STEEL PIPE, U.N.O.	35ksi	A53 GR.B

2.3 ALL NEW MATERIAL INCLUDING STRUCTURAL STEEL AND FASTENERS SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 AND A153.

2.4 WELDING SHALL MEET ANSI/AWS D1.1 STRUCTURAL WELDING CODE (LATEST REVISION). ELECTRODES SHALL BE E80 SERIES.

2.5 CONTRACTOR SHALL PROVIDE SHOP FABRICATION DRAWINGS TO B+T GROUP 5 DAYS PRIOR TO FABRICATION.

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SAI

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PROJECT NO:	130655.003.01
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B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/20

STATE OF CONNECTICUT
SCOTT S. VANE
31627
LICENSED PROFESSIONAL ENGINEER
1/29/19

SHEET NUMBER: S2
REVISION: 0

54 FLOYDVILLE ROAD

Location	54 FLOYDVILLE ROAD	**Mblu**	15/ 10/ / /
Acct#	100469	**Owner**	D I PAINE & SONS LLC
Assessment	$1,222,600	**Appraisal**	$1,746,400
PID	649	**Building Count**	2

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$1,230,400	$516,000	$1,746,400
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$861,400	$361,200	$1,222,600

Owner of Record

Owner	D I PAINE & SONS LLC	**Sale Price**	$0
Co-Owner		**Certificate**	
Address	54 FLOYDVILLE ROAD EAST GRANBY, CT 06026	**Book & Page**	0160/0707
		Sale Date	01/03/2006
		Instrument	CN

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
D I PAINE & SONS LLC	$0		0160/0707	CN	01/03/2006
D I PAINE & SONS	$0		0129/0622		08/01/2001
TYLER RUSSELL	$0		0129/0616		08/01/2001
D I PAINE & SONS	$0		0108/0546		12/05/1995

Building Information

Building 1 : Section 1

Year Built:	1986
Living Area:	24,900
Replacement Cost:	$1,292,584
Building Percent Good:	73
Replacement Cost Less Depreciation:	$943,600

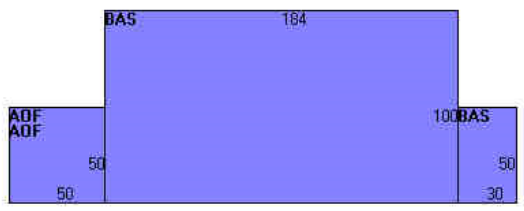
Building Attributes	
Field	**Description**
STYLE	Light Indust
MODEL	Industrial
Grade	Average +10
Stories:	1
Occupancy	2
Exterior Wall A	Concr/Cinder
Exterior Wall B	Pre-finsh Metl
Roof Structure	Gable/Hip
Roof Cover	Metal/Tin
Interior Wall A	Unfin/Minimum
Interior Wall B	Drywall
Interior Floor A	Concr-Finished
Interior Floor B	Vinyl/Asphalt
Heating Fuel	Gas
Heating Type	Forced Air-Duc
AC Type	Partial
Bldg Use	Industrial C
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	3-1
Heat/AC	HEAT/AC SPLIT
Frame Type	STEEL
Baths/Plumbing	AVERAGE
Ceiling/Wall	-DESCRIPTION-
Rooms/Prtns	AVERAGE

Building Photo

Building Photo

(http://images.vgsi.com/photos/EastGranbyCTPhotos//\00\01\17/69.jpg)

Building Layout



(http://images.vgsi.com/photos/EastGranbyCTPhotos//Sketche

Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	19,900	19,900
AOF	Office, (Average)	5,000	5,000
		24,900	24,900

Wall Height	16
% Comn Wall	0

Building 2 : Section 1

Year Built: 2017
Living Area: 10,200
Replacement Cost: $210,146
Building Percent Good: 74
Replacement Cost Less Depreciation: $155,500

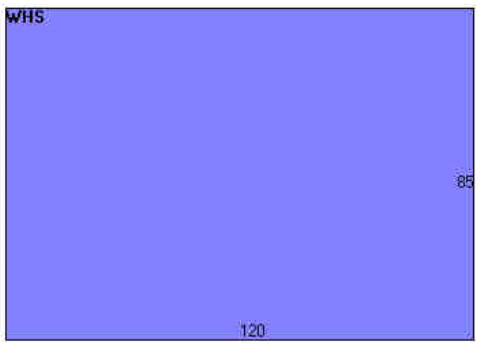
Building Attributes : Bldg 2 of 2	
Field	**Description**
STYLE	Warehouse
MODEL	Industrial
Grade	Minimum
Stories:	1
Occupancy	1
Exterior Wall A	VinylPolyester
Exterior Wall B	
Roof Structure	Irregular
Roof Cover	Rubber Mem
Interior Wall A	Unfin/Minimum
Interior Wall B	
Interior Floor A	Concr Abv Grad
Interior Floor B	
Heating Fuel	None
Heating Type	None
AC Type	None
Bldg Use	Industrial C
Total Rooms	
Total Bedrms	
Total Baths	0
1st Floor Use:	
Heat/AC	NONE
Frame Type	NONE
Baths/Plumbing	NONE
Ceiling/Wall	NONE
Rooms/Prtns	LIGHT
Wall Height	
% Comn Wall	

Building Photo

Building Photo

(http://images.vgsi.com/photos/EastGranbyCTPhotos//\00\01\17/70.jpg)

Building Layout



(http://images.vgsi.com/photos/EastGranbyCTPhotos//Sketches/

Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
WHS	Warehouse	10,200	10,200
		10,200	10,200

Extra Features

Extra Features				Legend
Code	**Description**	**Size**	**Value**	**Bldg #**
MEZ	Mezzanine	2000 S.F.	$21,900	1
A/C	Air Condition	5000 S.F.	$9,100	1

Land

Land Use

Use Code 3-1
Description Industrial C
Zone CP
Neighborhood
Alt Land Appr No
Category

Land Line Valuation

Size (Acres) 17.3
Frontage 0
Depth 0
Assessed Value $361,200
Appraised Value $516,000

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
SHED	Shed	A	Average	280 S.F.	$3,500	2
FNC	Chain Link Fence	08	8 Ft. Height	420 L.F.	$4,100	2
SHED	Shed	A	Average	96 S.F.	$900	1
PAV	Paving	A	Asphalt	73445 S.F.	$91,800	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$939,700	$685,800	$1,625,500
2012	$750,900	$502,100	$1,253,000
2007	$547,900	$506,100	$1,054,000

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$657,800	$480,000	$1,137,800
2012	$525,700	$351,500	$877,200
2007	$383,500	$354,400	$737,900

Google Maps 54 Floydville Rd

Map data ©2019 Google 200 ft

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usps.com
$7.35
US POSTAGE
Flat Rate Env

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03/09/2019 Mailed from 06268 062S0000000311

PRIORITY MAIL 1-DAY™

Expected Delivery Date: 03/11/19

MARK J ROBERTS
QC DEVELOPMENT
PO BOX 916
STORRS CT 06268-0916

0024

Carrier -- Leave if No Response

B005

SHIP TO: THE HONORABLE JAMES HAYDEN
TOWN OF EAST GRANBY
PO BOX 1858
CC: GARY HAYNES, COMMUNITY DEVT
EAST GRANBY CT 06026-1858

USPS TRACKING #

9405 5036 9930 0439 8394 30

Electronic Rate Approved #038555749

Cut on dotted line.

Instructions

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2. **Place your label so it does not wrap around the edge of the package.**
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4. **To mail your package with PC Postage®, you may schedule a Package Pickup online, hand to your letter carrier, take to a Post Office™, or drop in a USPS collection box.**
5. **Mail your package on the "Ship Date" you selected when creating this label.**

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0439 8394 30

Trans. #:	458524297
Print Date:	03/06/2019
Ship Date:	03/09/2019
Expected Delivery Date:	03/11/2019

Priority Mail® Postage:	**$7.35**
Total	**$7.35**

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

To: THE HONORABLE JAMES HAYDEN
TOWN OF EAST GRANBY
PO BOX 1858
CC: GARY HAYNES, COMMUNITY DEVT
EAST GRANBY CT 06026-1858

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

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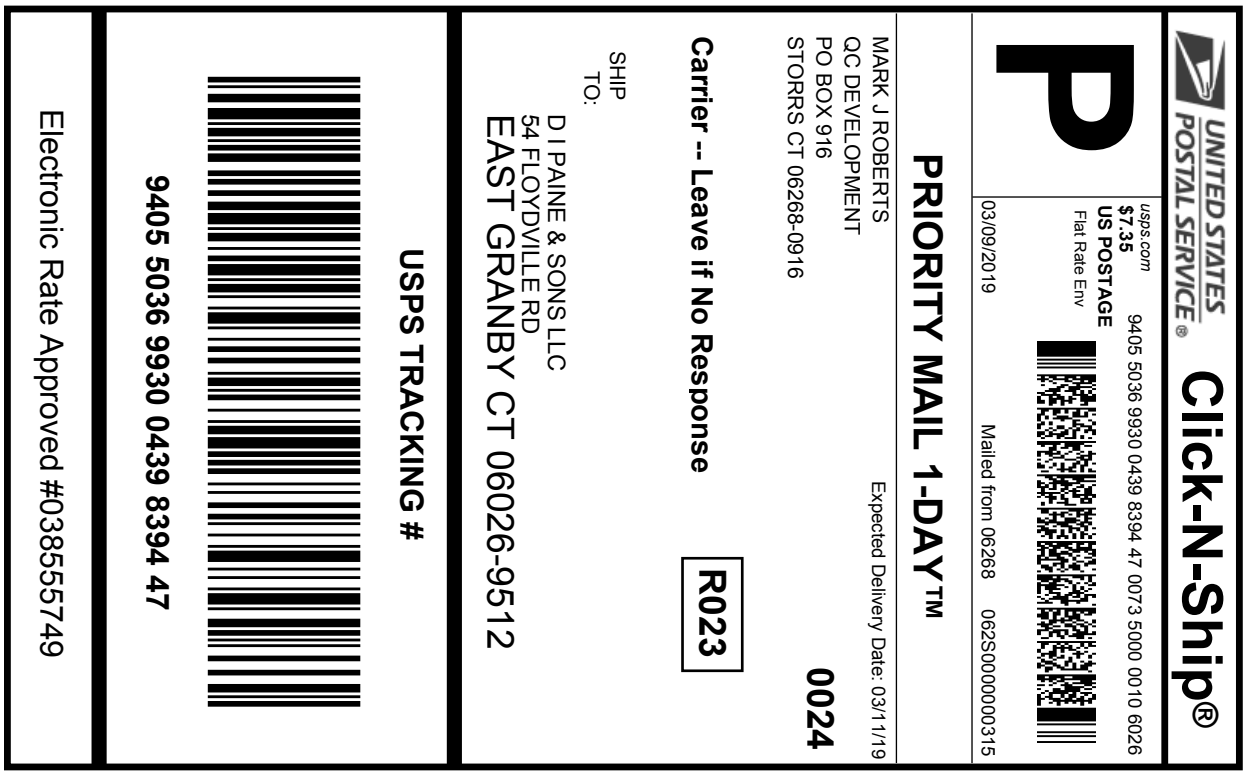

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Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0439 8394 47

Trans. #:	458524297
Print Date:	03/06/2019
Ship Date:	03/09/2019
Expected Delivery Date:	03/11/2019

Priority Mail® Postage:	**$7.35**
Total	**$7.35**

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

To: D I PAINE & SONS LLC
54 FLOYDVILLE RD
EAST GRANBY CT 06026-9512

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