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

July 26, 2019

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

Notice of Exempt Modification – New Cingular Wireless PCS, LLC (AT&T) – CT1148
1021 Blue Hills Avenue, Bloomfield, CT 06002
N 41.82000000
W 72.69638889

Dear Ms. Bachman:

AT&T currently maintains nine (9) antennas at the 98-foot level of the existing 130-foot Self-Support Tower at 1021 Blue Hills Avenue, Bloomfield, CT. The structure is owned by SBA and the property is owned by the Blue Hills Fire District. AT&T now intends to remove three (3) Powerwave antennas and install four (4) Kathrein 800-10966 and two (2) Kathrein 800-10965 antennas. AT&T will also remove six (6) Ericsson Remote Radio Units (RRU) and install three (3) Ericsson 8843-B2/B66A, three (3) 4415-B30 and three (3) 4449-B5/B12 RRUs. The new antennas and RRUs will also be installed at the 98-foot level of the tower.

AT&T's use of this facility was approved by the Siting Council on March 16th, 1998. This approval included no condition(s) that could feasibly be violated by this modification, including total facility height or mounting restrictions. This modification therefore complies with the aforementioned approval.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to the Honorable Suzette DeBeatham-Brown, Mayor of the Town of Bloomfield, the Bloomfield Planning

and Zoning Department, and the property and 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.

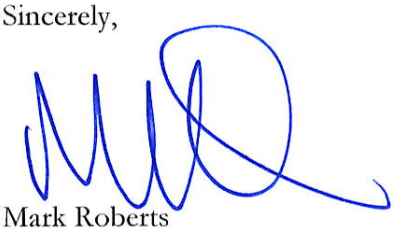
6. The existing structure and its foundation can support the proposed loading.

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: Mayor Suzette DeBeatham-Brown - Elected Official
Jose Giner – Director of Planning & Zoning
Blue Hills Fire District – 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*							17.47%
AT&T GSM	2	414	98	0.0352	850	0.5667	0.62%
AT&T GSM	2	656	98	0.0558	1900	1.0000	0.56%
AT&T UMTS	2	414	98	0.0352	850	0.5667	0.62%
AT&T UMTS	2	656	98	0.0558	1900	1.0000	0.56%
AT&T LTE	2	1239	98	0.1053	700	0.4667	2.26%
AT&T LTE	2	1876	98	0.1594	1900	1.0000	1.59%
Site Total							23.67%

*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*							17.47%
AT&T UMTS	1	287	98	0.0122	850	0.5667	0.22%
AT&T LTE	1	1476	98	0.0627	700	0.4667	1.34%
AT&T LTE	1	1000	98	0.0425	850	0.5667	0.75%
AT&T 5G	1	1000	98	0.0425	850	0.5667	0.75%
AT&T LTE	2	3664	98	0.3114	1900	1.0000	3.11%
AT&T LTE	1	3837	98	0.1630	2100	1.0000	1.63%
AT&T LTE	1	1285	98	0.0546	2300	1.0000	0.55%
Site Total							25.81%

*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

Note: Proposed Loading may also include corrections to certain Existing Loading values

SITE NAME: BLOOMFIELD EAST
SITE NUMBER: CT1148
1021 BLUE HILLS AVENUE
BLOOMFIELD, CT 06002
SBA SITE ID: CT01725-A
FA CODE: 10035110
PACE ID: MRCTB035276, MRCTB035126, MRCTB035145
PROJECT: LTE 3C, 4C, 5C

VICINITY MAP N.T.S.

DIRECTIONS FROM 500 ENTERPRISE DRIVE, ROCKY HILL, CT:

DEPART NORTHWESTERN DR TOWARD COMMERCIAL DR, TURN RIGHT ONTO COMMERCIAL DR, TURN LEFT ONTO PELHAM RD, TAKE RAMP RIGHT, BEAR RIGHT ONTO I-93 S, ENTERING MASSACHUSETTS, AT EXIT 44B, TAKE RAMP RIGHT FOR I-495 SOUTH TOWARD LOWELL, AT EXIT 22, TAKE RAMP RIGHT FOR I-90 WEST TOWARD ALBANY / SPRINGFIELD, AT EXIT 9, TAKE RAMP RIGHT FOR I-84 TOWARD HARTFORD / NEW YORK CITY, ENTERING CONNECTICUT, AT EXIT 61, TAKE RAMP RIGHT FOR I-291 WEST TOWARD WINDSOR, AT EXIT 1, TAKE RAMP RIGHT TOWARD BLOOMFIELD, BEAR LEFT ONTO CT-218 / PUTNAM HWY, TURN RIGHT ONTO CT-187 / BLUE HILLS AVE, 1021 BLUE HILLS AVE, BLOOMFIELD, CT 06002

SITE COORDINATES:
LATITUDE: 41°-49'-12.37" N
LONGITUDE: 72°-41'-47.50" W
(PER GOOGLE EARTH)

ELEVATION DATA:
GRADE ELEVATION AT TOWER = 118'±
(PER GOOGLE EARTH)

SITE INFORMATION

- SWAP (2) EXISTING GSM ANTENNAS FOR (2) 8' 800-10966 OCTO ANTENNAS (ALPHA & BETA).
- ADD (2) 8' 800-10966 OCTO ANTENNAS (ALPHA & BETA).
- SWAP (1) EXISTING GSM ANTENNA FOR (1) 6' 800-10965 OCTO ANTENNA (GAMMA).
- ADD (1) 6' 800-10965 OCTO ANTENNA (GAMMA).
- SWAP (3) EXISTING RRUS-32 B2 FOR (3) B2/B66-8843 UP TOP.
- SWAP (3) EXISTING RRUS-11 FOR (3) 700/850 B5/B12-4449 UP TOP.
- ADD (3) RRUS 4415 B30 UP TOP.
- ADD (1) DC ONLY SQUID W/ (2) DC LINES.
- ADD (1) SQUID W/ (2) DC LINES & (1) FIBER LINE.
- GROUND - SWAP EXISTING BB WITH RBS 6630 & ADD 5G RBS 6630.

PROJECT DESCRIPTION

SITE NAME:
BLOOMFIELD EAST

SITE NUMBER:
CT1148

SITE ADDRESS:
1021 BLUE HILLS AVENUE
BLOOMFIELD, CT 06002
HARTFORD COUNTY

TOWER OWNER:
SBA TOWERS LLC
134 FLANDERS ROAD, SUITE 125
WESTBOROUGH, MA 01581

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 SHELTER LAYOUTS
C-3	EXISTING & PROPOSED NORTH 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

CT1148
BLOOMFIELD EAST

CONSTRUCTION DRAWINGS

0	07/18/19	ISSUED AS FINAL
A	02/04/19	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
BENJAMIN B. REVETTE
28971
LICENSED
PROFESSIONAL ENGINEER

BENJAMIN B. REVETTE, P.E.
CONNECTICUT LICENSE NO. 0028971

DRAWN BY:	BJR
REVIEWED BY:	BSH
CHECKED BY:	GHN
PROJECT NUMBER:	50055106
JOB NUMBER:	50093839
SITE ADDRESS:	

1021 BLUE HILLS AVENUE
BLOOMFIELD, CT 06002
HARTFORD COUNTY

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.
18. CONTRACTOR, SUBCONTRACTORS AND ANY SITE SPECIFIC PART/ PRODUCT/ CONCEALMENT MANUFACTURER TO FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS PRIOR TO MANUFACTURING, FABRICATION OR CONSTRUCTION.

SITE WORK GENERAL NOTES:

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.

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 OR 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

0	07/18/19	ISSUED AS FINAL
A	02/04/19	ISSUED FOR REVIEW

Dewberry®
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STATE OF CONNECTICUT
BENJAMIN B. REVETTE
28971
LICENSED
PROFESSIONAL ENGINEER

BENJAMIN B. REVETTE, P.E.
CONNECTICUT LICENSE NO. 0028971

DRAWN BY:	BJR
REVIEWED BY:	BSH
CHECKED BY:	GHN
PROJECT NUMBER:	50055106
JOB NUMBER:	50093839
SITE ADDRESS:	

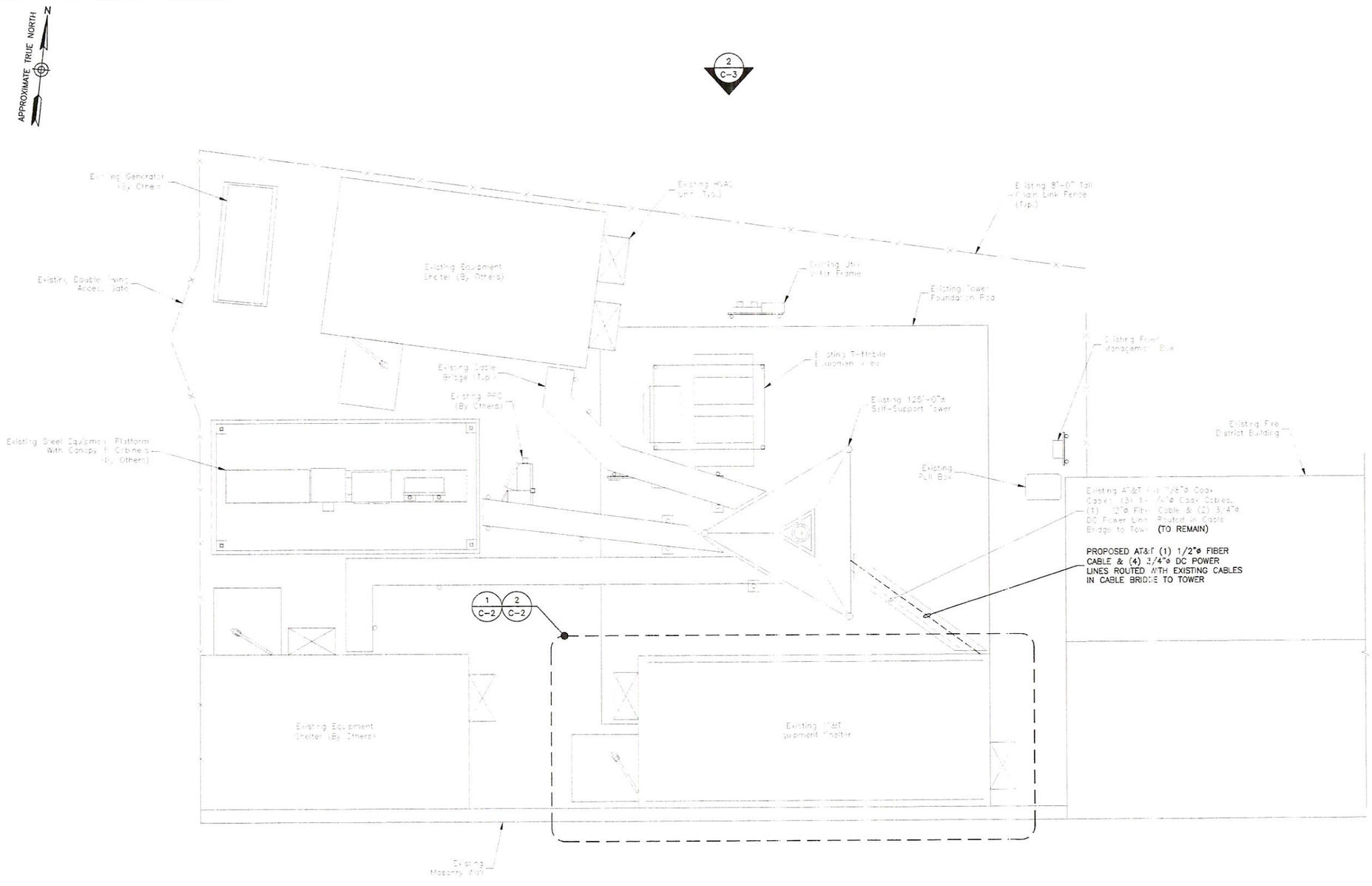
1021 BLUE HILLS AVENUE
BLOOMFIELD, CT 06002
HARTFORD COUNTY

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

G-1



NOTES:

1. NORTH SHOWN AS APPROXIMATE.
2. NOT ALL INFORMATION IS SHOWN FOR CLARITY.
3. ALL PROPOSED EQUIPMENT, INCLUDING ANTENNAS, COAX, SURGE ARRESTORS, TMA'S, RRU'S, ETC., SHALL BE MOUNTED IN ACCORDANCE WITH THE POST-MOD STRUCTURAL ANALYSIS REPORT BY TOWER ENGINEERING SOLUTIONS DATED 06/05/19 & APPURTENANCE MOUNT MODIFICATION REPORT BY B+T GROUP DATED 01/24/19.
4. NO WORK IS TO BE PERFORMED PRIOR TO ALL MODIFICATIONS BEING COMPLETED AS SHOWN IN THE TOWER MODIFICATION DRAWINGS BY TOWER ENGINEERING SOLUTIONS DATED 06/06/19 & APPURTENANCE MOUNT MODIFICATION REPORT BY B+T GROUP DATED 01/24/19

COMPOUND PLAN 1
SCALE: 1/8"=1' FOR 11"x17"
1/4"=1' FOR 22"x34"

0' 2' 4' 8'

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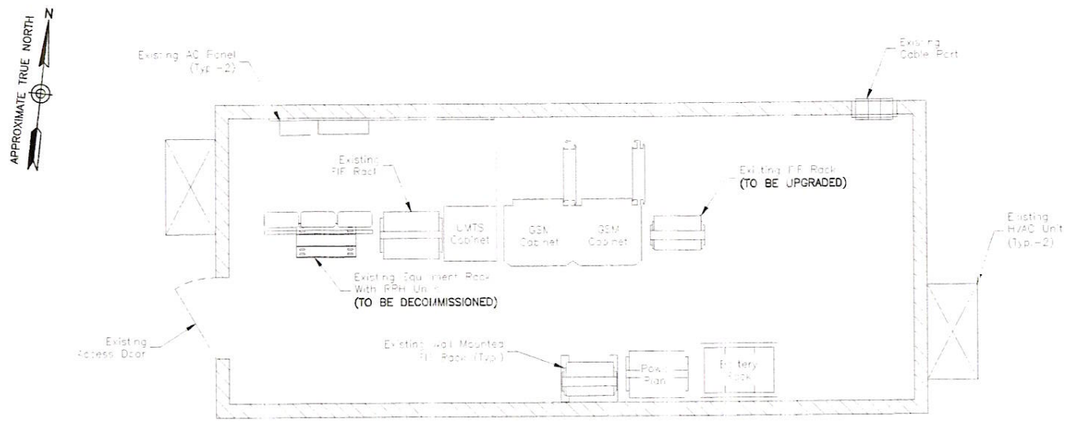
SHEET TITLE

COMPOUND PLAN

SHEET NUMBER

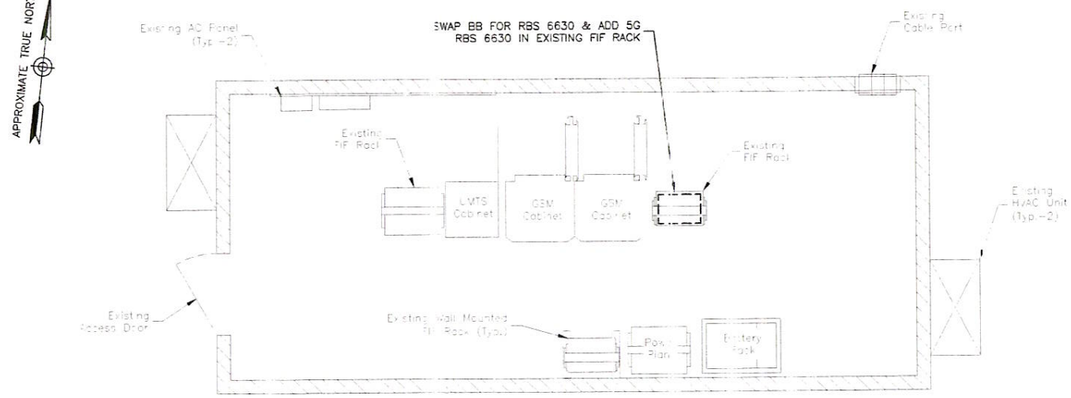
C-1



EXISTING SHELTER LAYOUT 1

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

0' 2' 4' 6'



PROPOSED SHELTER LAYOUT 2

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

0' 2' 4' 6'

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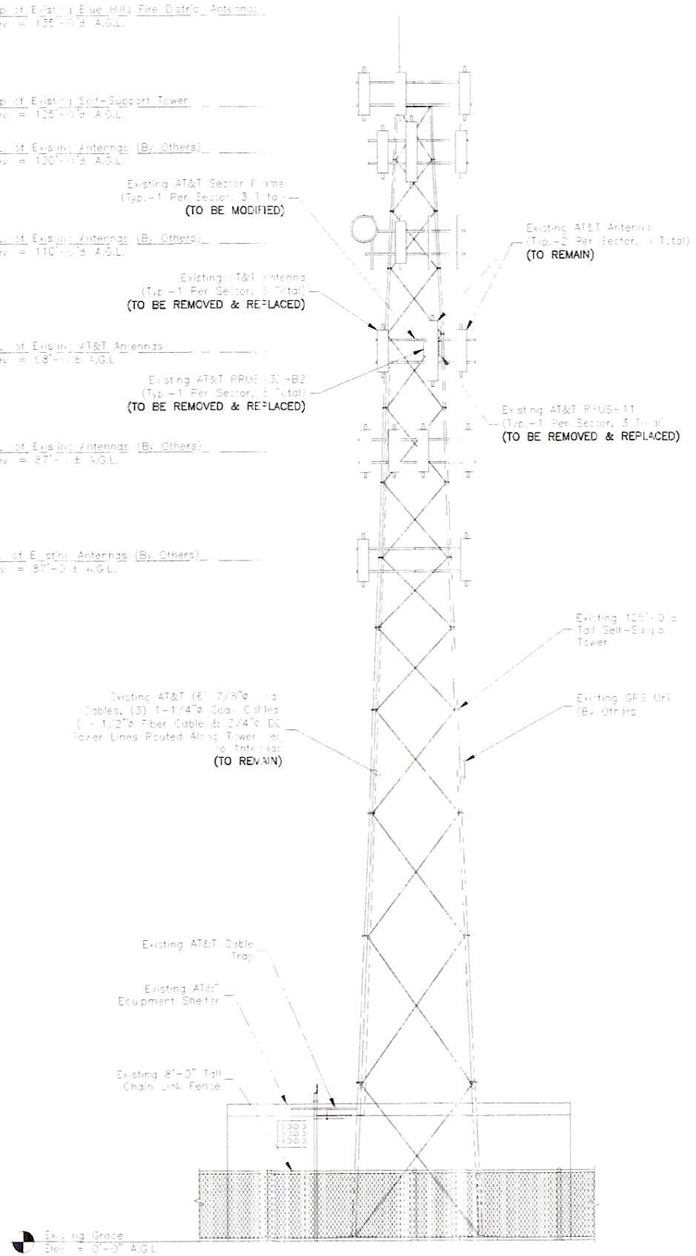
HARTFORD COUNTY

SHEET TITLE

EXISTING & PROPOSED SHELTER LAYOUTS

SHEET NUMBER

C-2



EXISTING NORTH ELEVATION 1

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

0' 4' 8' 16'

NOTES:

1. ALL PROPOSED EQUIPMENT, INCLUDING ANTENNAS, COAX, SURGE ARRESTORS, TMA'S, RRU'S, ETC., SHALL BE MOUNTED IN ACCORDANCE WITH THE POST-MOD STRUCTURAL ANALYSIS REPORT BY TOWER ENGINEERING SOLUTIONS DATED 06/05/19 & APPURTENANCE MOUNT MODIFICATION REPORT BY B+T GROUP DATED 01/24/19.
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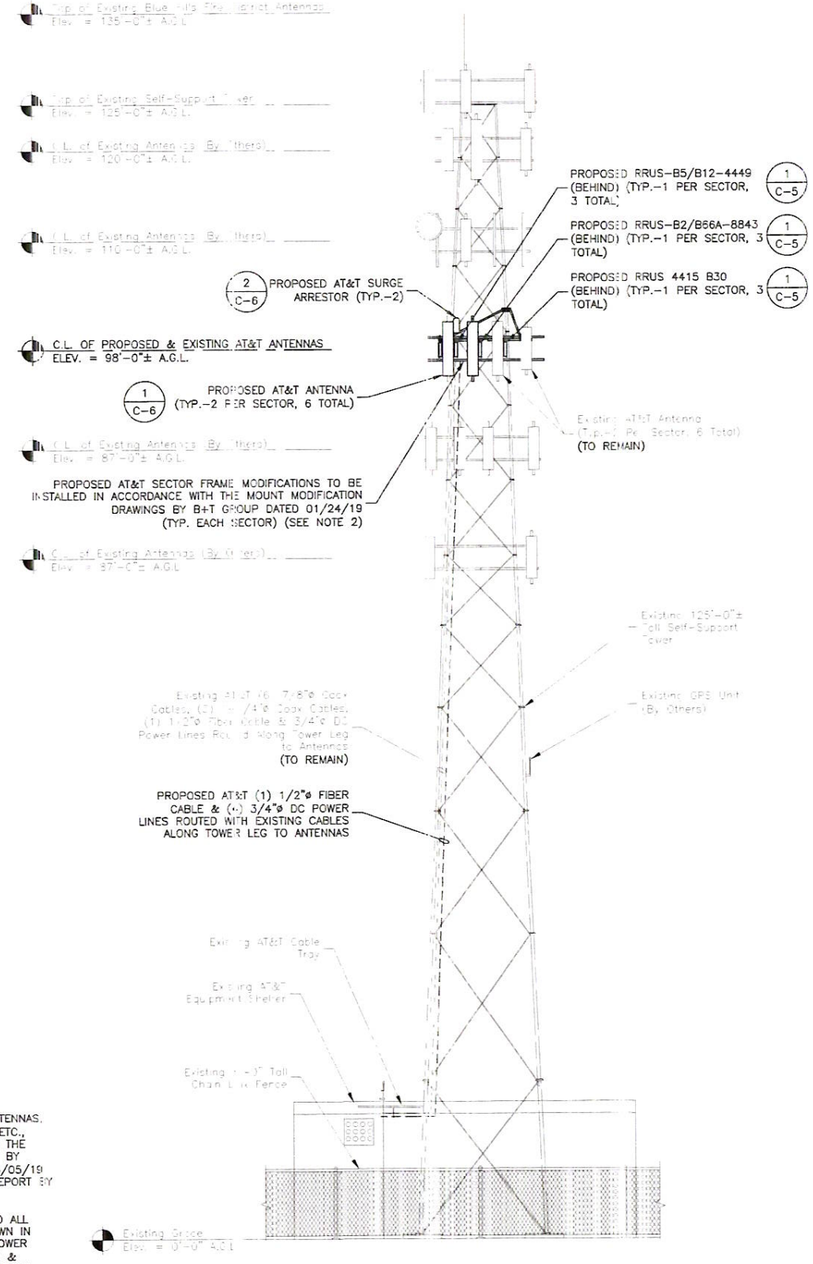

PROPOSED NORTH ELEVATION 2

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

0' 4' 8' 16'

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JOB NUMBER:	50093839
SITE ADDRESS:	

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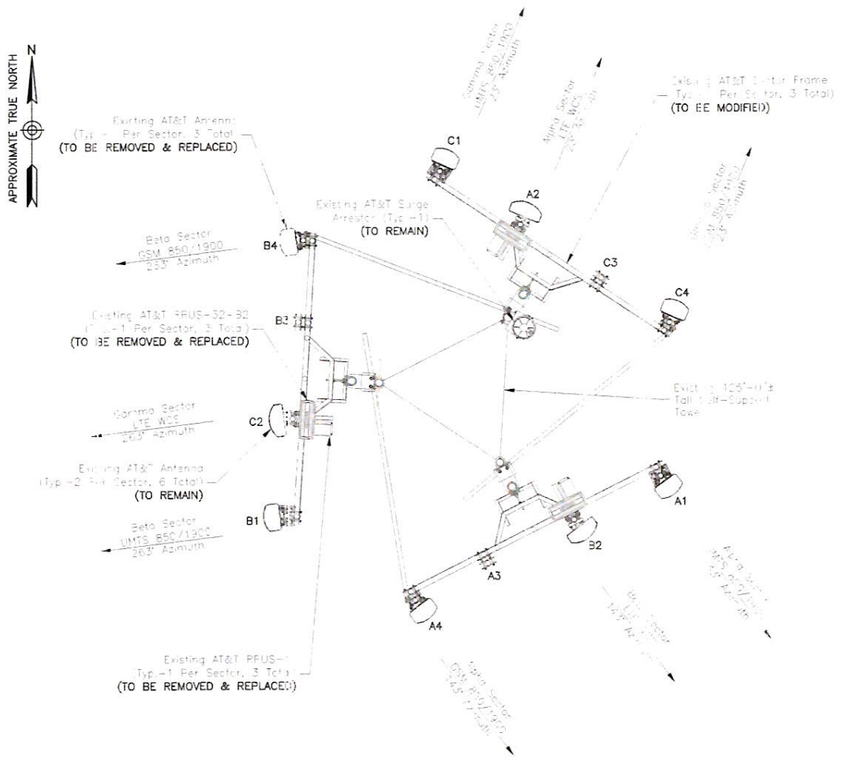
SHEET TITLE

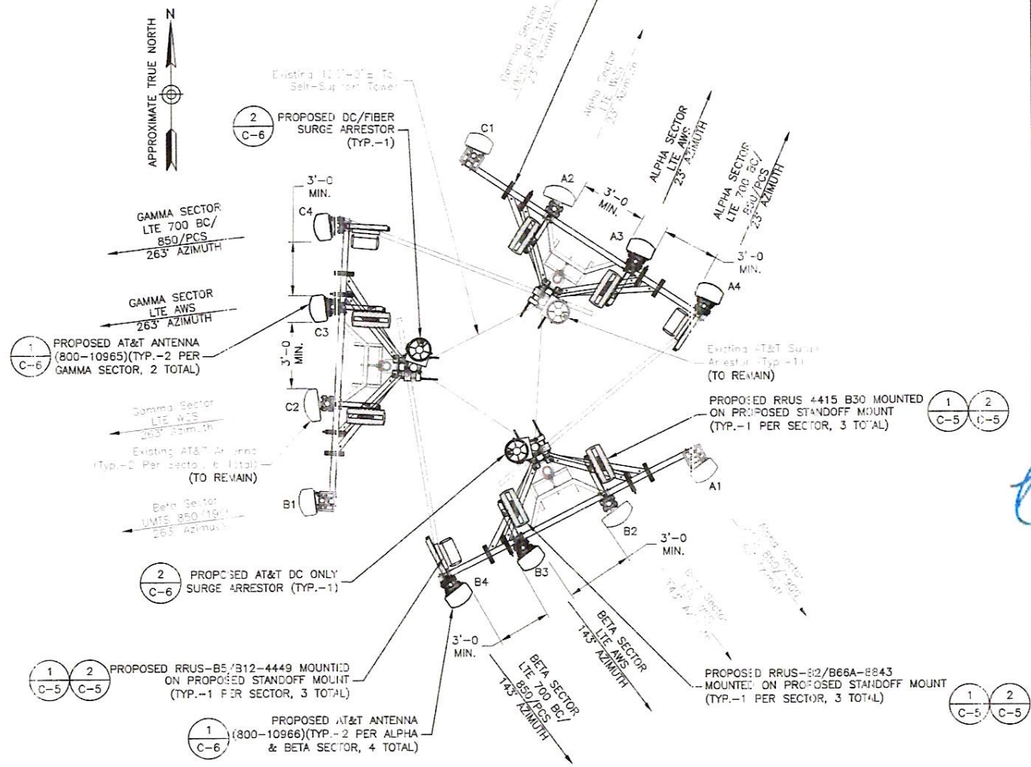
EXISTING & PROPOSED
NORTH ELEVATIONS

SHEET NUMBER

C-3



EXISTING ANTENNA LAYOUT (1)
SCALE: N.T.S.



PROPOSED ANTENNA LAYOUT (2)
SCALE: N.T.S.

NOTES:

1. ALL PROPOSED EQUIPMENT, INCLUDING ANTENNAS, COAX, SURGE ARRESTORS, TMA'S, RRU'S, ETC., SHALL BE MOUNTED IN ACCORDANCE WITH THE POST-MOD STRUCTURAL ANALYSIS REPORT BY TOWER ENGINEERING SOLUTIONS DATED 06/05/19 & APPURTENANCE MOUNT MODIFICATION REPORT BY B+T GROUP DATED 01/24/19.
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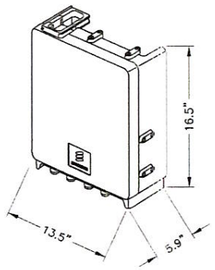
BLOOMFIELD, CT 06002
HARTFORD COUNTY

SHEET TITLE

EXISTING & PROPOSED ANTENNA LAYOUTS

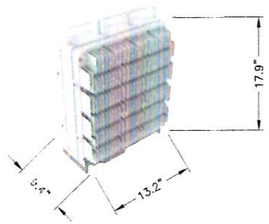
SHEET NUMBER

C-4



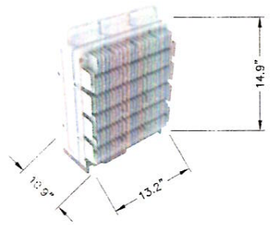
ERICSSON RRUS B30 4415

SPECIFICATIONS:
HEIGHT: 16.5"
WIDTH: 13.5"
DEPTH: 5.9"
WEIGHT: 44.1 LBS



ERICSSON RRUS B5/B12 4449

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



ERICSSON RRUS B2/B66a 8843

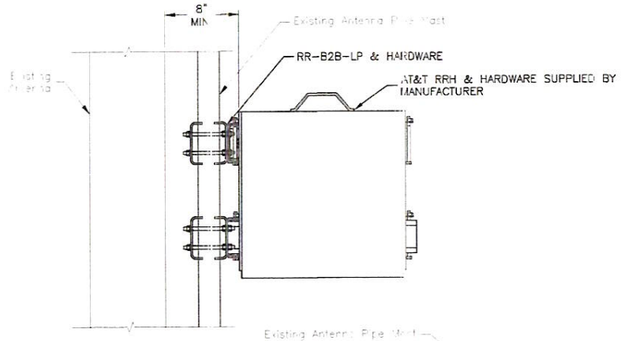
SPECIFICATIONS:
HEIGHT: 14.9"
WIDTH: 13.2"
DEPTH: 10.9"
WEIGHT: 72.0 LBS

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/DIPLEXER	RRU	FEEDER	SURGE ARRESTORS
A1	EXISTING	UMTS 850/1900	POWERWAVE 7770	98'-0"±	143°	(E) (2) POWERWAVE/LGP 21901 (E) (2) 21401 (DB – 850 BYPASS)	–	COAX	(E) (1) RAYCAP DC6-48-60-18-8C (P) (1) RAYCAP DC6-48-60-0-8C-EV (P) (1) RAYCAP DC6-48-60-18-8C
A2	EXISTING	LTE WCS	CCI HPA-65R-BUU-H8	98'-0"±	23°	–	(P) (1) ERICSSON RRUS 4415 B30	FIBER	
A3	PROPOSED	LTE AWS	KATHREIN 800-10966	98'-0"±	23°	–	(P) (1) ERICSSON RRUS B2/B66A 8843	FIBER	
A4	PROPOSED	LTE 700 BC/850/PCS	KATHREIN 800-10966	98'-0"±	23°	–	(P) (1) ERICSSON RRUS B5/B12 4449	FIBER	
B1	EXISTING	UMTS 850/1900	POWERWAVE 7770	98'-0"±	263°	(E) (2) POWERWAVE/LGP 21901 (E) (2) 21401 (DB – 850 BYPASS)	–	COAX	
B2	EXISTING	LTE WCS	CCI HPA-65R-BUU-H8	98'-0"±	143°	–	(P) (1) ERICSSON RRUS 4415 B30	FIBER	
B3	PROPOSED	LTE AWS	KATHREIN 800-10966	98'-0"±	143°	–	(P) (1) ERICSSON RRUS B2/B66A 8843	FIBER	
B4	PROPOSED	LTE 700 BC/850/PCS	KATHREIN 800-10966	98'-0"±	143°	–	(P) (1) ERICSSON RRUS B5/B12 4449	FIBER	
C1	EXISTING	UMTS 850/1900	POWERWAVE 7770	98'-0"±	23°	(E) (2) POWERWAVE/LGP 21901 (E) (2) 21401 (DB – 850 BYPASS)	–	COAX	
C2	EXISTING	LTE WCS	CCI HPA-65R-BUU-H8	98'-0"±	263°	–	(P) (1) ERICSSON RRUS 4415 B30	FIBER	
C3	PROPOSED	LTE AWS	KATHREIN 800-10966	98'-0"±	263°	–	(P) (1) ERICSSON RRUS B2/B66A 8843	FIBER	
C4	PROPOSED	LTE 700 BC/850/PCS	KATHREIN 800-10966	98'-0"±	263°	–	(P) (1) ERICSSON RRUS B5/B12 4449	FIBER	

NOTE:

1. ANTENNA SCHEDULE BASED ON RFDS V3.00 DATED 02/05/2019. CONFIRM FINAL ANTENNA SCHEDULE WITH THE LATEST RFDS.

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CONSTRUCTION DRAWINGS

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PROFESSIONAL ENGINEER

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CONNECTICUT LICENSE NO. 0028971

DRAWN BY:	BJR
REVIEWED BY:	BSH
CHECKED BY:	GHN
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JOB NUMBER:	50093839
SITE ADDRESS:	

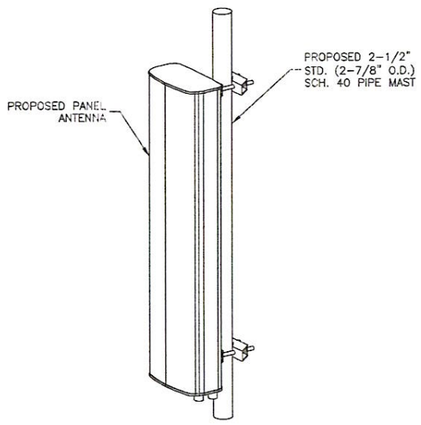
1021 BLUE HILLS AVENUE
BLOOMFIELD, CT 06002
HARTFORD COUNTY

SHEET TITLE

CONSTRUCTION DETAILS I

SHEET NUMBER

C-5



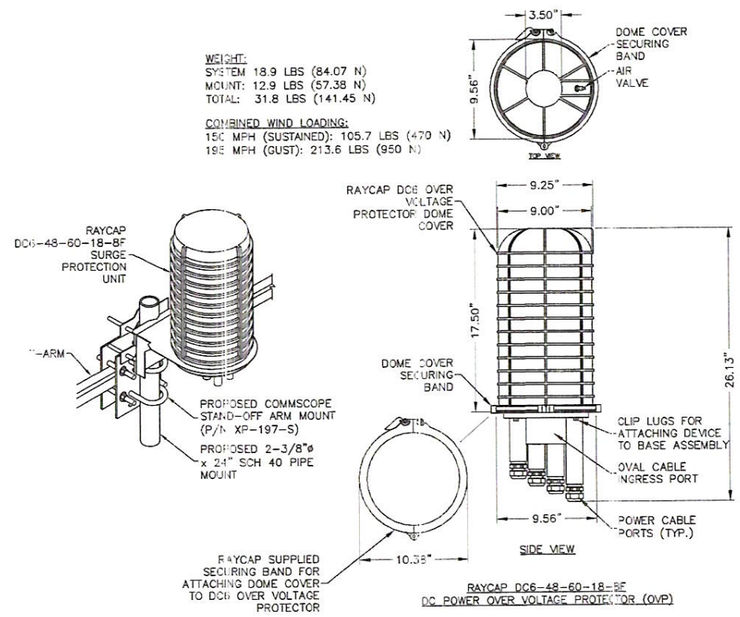
ANTENNA SPECIFICATIONS	
MANUFACTURER	KATHREIN
MODEL NUMBER	800-10966
DIMENSIONS (HxWxD)	96.0" x 20.0" x 6.9"
WEIGHT	125.7 LBS

ANTENNA SPECIFICATIONS	
MANUFACTURER	KATHREIN
MODEL NUMBER	800-10965
DIMENSIONS (HxWxD)	78.7" x 20.0" x 6.9"
WEIGHT	108.6 LBS

NOTES:

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

ANTENNA DETAIL 1
SCALE: N.T.S.



TOWER MOUNTED SURGE ARRESTOR DETAIL 2
SCALE: N.T.S.

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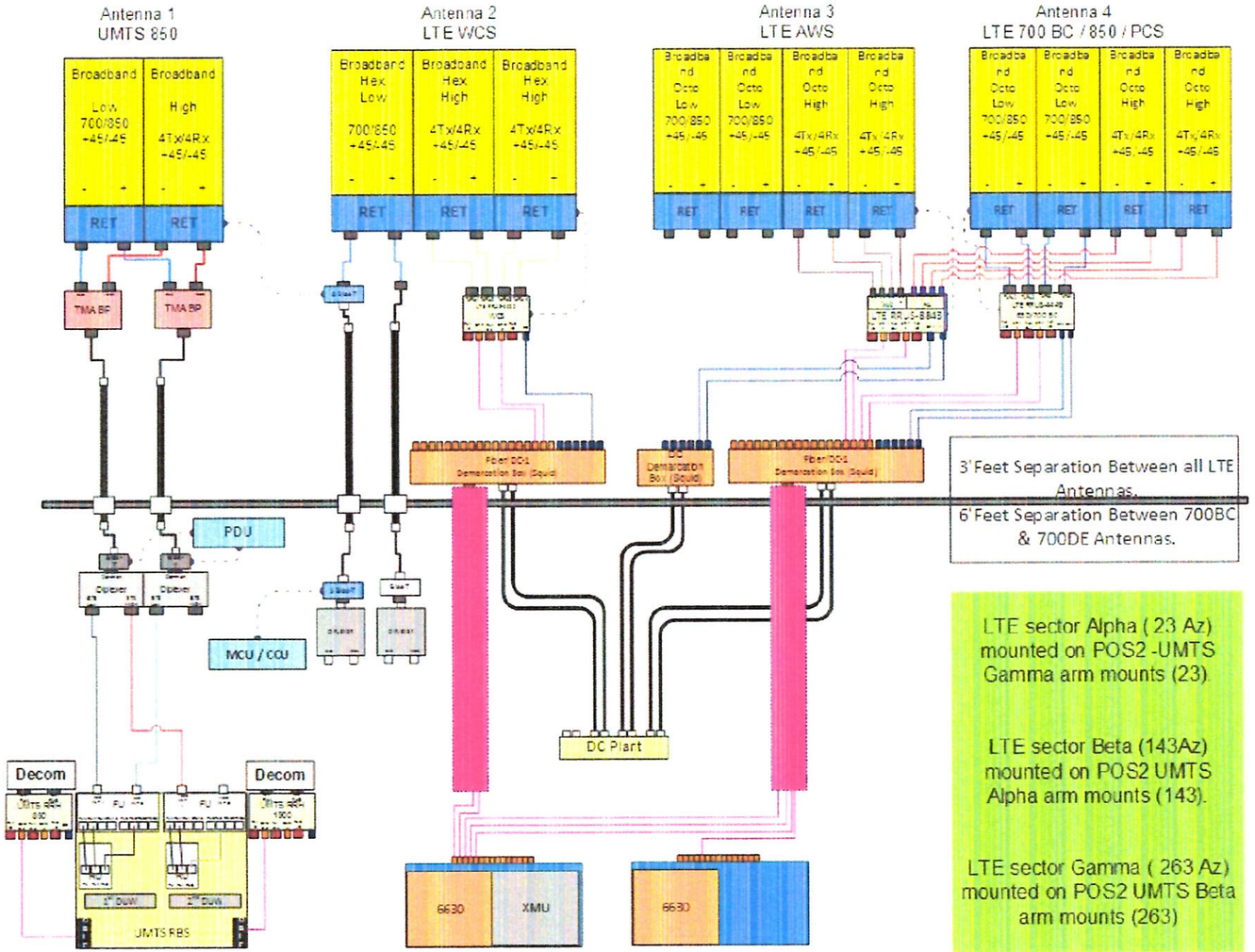
HARTFORD COUNTY

SHEET TITLE

CONSTRUCTION DETAILS II

SHEET NUMBER

C-6



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

NOTE:

1. PLUMBING DIAGRAM BASED ON RFDS V3.00 DATED 02/05/2019. CONFIRM FINAL PLUMBING DIAGRAM WITH THE LATEST RFDS.

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BLOOMFIELD, CT 06002
HARTFORD COUNTY

SHEET TITLE

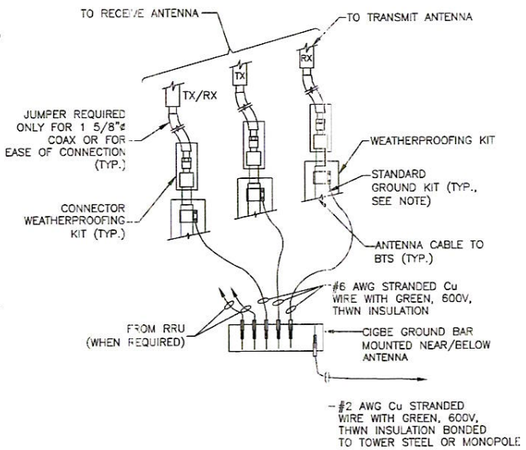
PLUMBING DIAGRAM

SHEET NUMBER

C-7

GROUNDING NOTES:

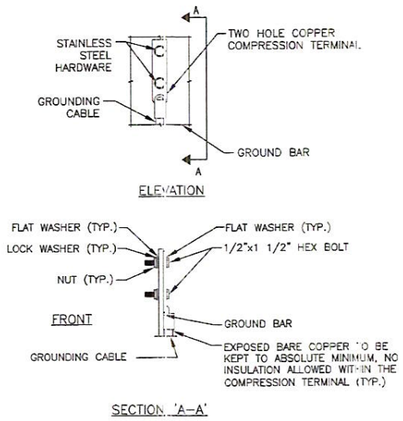
1. THE CONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ). THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA 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

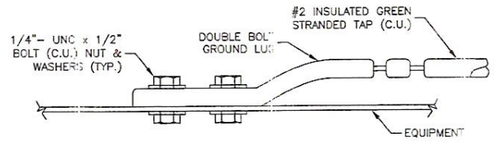


NOTES:

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

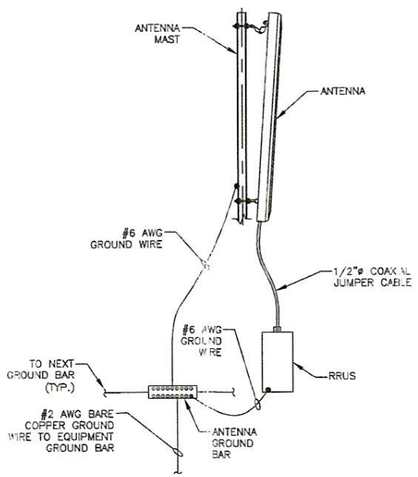
TYPICAL GROUND BAR MECHANICAL CONNECTION DETAIL 2

SCALE: N.T.S.



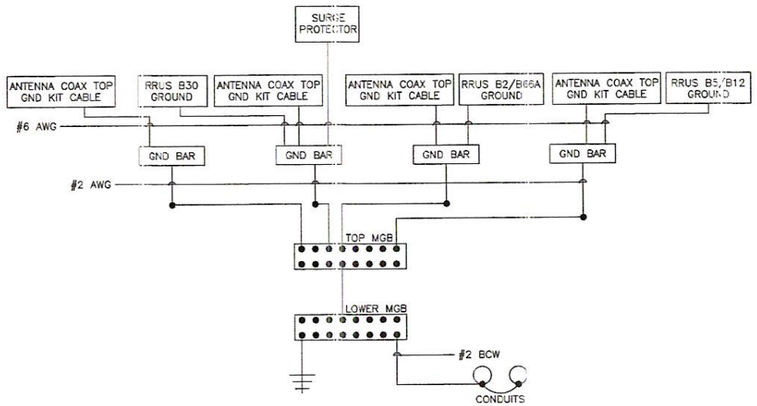
CONNECTION TO EQUIPMENT DETAIL 3

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

CT1148
BLOOMFIELD EAST

CONSTRUCTION DRAWINGS

0	07/18/19	ISSUED AS FINAL
A	02/04/19	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
BENJAMIN B. REVETTE
28971
LICENSED
PROFESSIONAL ENGINEER

BENJAMIN B. REVETTE, P.E.
CONNECTICUT LICENSE NO. 0028971

DRAWN BY:	BJR
REVIEWED BY:	BSH
CHECKED BY:	GHN
PROJECT NUMBER:	50055106
JOB NUMBER:	50093839
SITE ADDRESS:	

1021 BLUE HILLS AVENUE
BLOOMFIELD, CT 06002
HARTFORD COUNTY

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

Post-Mod Structural Analysis Report

Existing 125 ft Nudd Corporation Self Supporting Tower

Customer Name: SBA Communications Corp

Customer Site Number: CT01725-A

Customer Site Name: Bloomfield

Carrier Name: AT&T (App#: 106446, V1)

Carrier Site ID / Name: CT1148 / Bloomfield East

Site Location: 1021 Blue Hills Avenue

Bloomfield, Connecticut

Hartford County

Latitude: 41.820119

Longitude: -72.696514

6/5/19

Analysis Result:

Max Structural Usage: 99.8% [Pass]

Max Foundation Usage: 44.0% [Pass]

Report Prepared By : Fabiyaye Arinyedokiari

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Max Foundation Usage: 44.0% [Pass]

Report Prepared By : Fabiyaye Arinyedokiari

Introduction

The purpose of this report is to summarize the analysis results on the 125 ft Nudd Corporation Self Supporting Tower to support the proposed antennas and transmission lines in addition to those currently installed. Any existing modification listed under Sources of Information was assumed completed and was included in this analysis.

The proposed modification by **TES** listed under Sources of Information was considered completed and was included in this analysis.

Sources of Information

Tower Drawings	Fred A. Nudd Corporation, Project# 97-5566A-1 dated March 11, 1998
Foundation Drawing	Fred A. Nudd Corporation, Drawing #97-5566-2 dated 12/18/1997 commissioned by CDT
Geotechnical Report	FDH Engineering Project #1206690EG1 dated 08/10/2012
Modification Drawings	N/A
Proposed Modification	TES Job #70654

Analysis Criteria

The rigorous analysis was performed in accordance with the requirements and stipulations of the ANSI/TIA/EIA 222-G**.** In accordance with this standard, the structure was analyzed using **TESTowers,** 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} = 125.0 mph (3-Sec. Gust)/ Nominal Design Wind Speed V_{asd} = 97.0 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/EIA 222-G / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	B
Structure Class:	II
Topographic Category:	1
Crest Height:	0 ft
Seismic Parameters:	S_S = 0.18, S_1 = 0.064

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	135.0	2	Cellwave PD455	Platform w/ Hand Rails w/ (3) PRK-FMA Mount Reinforcement Kit	(1) 1 1/4" (2) 1/2" (2) 7/8"	Blue Hills Fire & PD
2		1	Cellwave AS MONR 31			
3	125.0	1	Cellwave PD165S			
4		5	Cellwave PD455			
5		3	Ericsson AIR 21 B2A/B4P - Panel		(11) 1 5/8" (2) 1-1/4" Hybrid	T-Mobile
6		3	RFS APXVAARR24_43-U-NA20 - Panel			
7		3	Ericsson AIR32 KRD901146-1_B66A			
8		3	Ericsson KRY 112 144/2 - TMA			
9		3	Ericsson Radio 4449 B71+B12 RRU			
10	120.0	2	Samsung U-RAS Flexible	(3) Sector Frame	(3) 1/2" (7) 5/16"	Clearwire
11		2	Dragonwave Horizon DUO			
12		3	Kathrein 840 10054 - Panel			
13		2	Andrew VHLP2.5 - Dish			
14		1	Motorola Timing 2000			
15	110.0	3	Amphenol BXA-70063-4CF-EDIN-6	(3) Sector Frame	(18) 1 5/8" (2) 1 5/8" Hybrid (2) 1/2" GPS	Verizon
16		9	Andrew SBNHH-1D65B - Panel			
17		3	Alcatel Lucent RRH2X60-AWS radio			
18		3	Alcatel Lucent RRH2x60-700 radio			
19		3	Alcatel Lucent RRH 4x45-PCS radio			
20		2	Andrew GPS			
21		1	RFS Cellwave DB-T1-6Z-8AB-0Z distribution box			
-	98.0	6	Powerwave 7770	(3) Sector Frame	(12) 7/8" (2) 3/4" DC & (1) 1/2" Fiber Inside (1) 3" conduits	AT&T
-		2	CCI HPA-65R-BUU-H8			
-		1	CCI HPA-65R-BUU-H6			
-		6	Powerwave LGP21401 TMA			
-		12	Powerwave 7020 RET			
-		6	Ericsson RRUS 11			
-		3	Ericsson RRUS 32 B2			
-		6	Powerwave LGP21903 diplexer			
-		3	Kathrein 782 10253			
-		1	Raycap DC6-48-60-18-8F			
37	87.0	3	Alcatel Lucent 1900MHz RRH	(3) Sector Frame	(1) 0.7" (3) 1 1/4"	Sprint
38		3	Alcatel Lucent 800MHZ RRH			
39		3	Alcatel Lucent TD-RRH8x20-25			
40		4	RFS ACU-A20-N			
41		3	RFS APXVSPP18-C-A20 - Panel			
42		3	RFS APXVTM14-C-120 - Panel			
43		3	Samsung 800MHz Filter			
44	75.0	3	RFS Cellwave APXV18-206517S-C	Direct Mount	(6) 1 5/8"	Metro
-	65.0	1	Nokia CS72188.01 LMU - Omni	(1) Standoff Mount	(1) ½"	AT&T

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
22	98.0	3	Powerwave 7770.00	(3) Modified Sector Frame (3) Stiff Arm Kit (3) Site Pro SFR-K-L (3) Site Pro SFS-H-L	(12) 7/8" (2) 1/2" Fiber (6) 3/4" DC (1) 3" Conduit	AT&T
23		2	CCI HPA-65R-BUU-H8			
24		1	CCI HPA-65R-BUU-H6			
25		4	Kathrein 800 10966 - Panel			
26		2	Kathrein 800 10965 - Panel			
27		6	Powerwave LGP21401 - TMA			
28		6	Powerwave LGP21901 Diplexer			
29		12	Powerwave 7020.00 RET			
30		3	Ericsson RRUS 8843 B2 B66A			
31		3	Ericsson RRUS 4449 B5/B12			
32		3	Ericsson RRUS 4415 B30			
33		1	Raycap DC6-48-60-18-8F			
34		1	Raycap DC6-48-60-0-18-8C-EV			
35		1	Raycap DC6-48-60-18-8C			
36		3	Kathrein 782 10253			
45	65.0	1	Nokia CS72188.01 LMU - Omni	(1) Standoff Mount	(1) 1/2"	

See the attached coax layout for the line placement considered in the analysis. (1) ½" Fiber and (2) ¾" DC cables are considered to be installed inside of the 2" Conduit.

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:

Tower Component	Legs	Diagonals	Horizontals
Max. Usage:	**99.8%**	**89.9%**	**42.1%**
Pass/Fail	**Pass**	**Pass**	**Pass**

Foundations

	Compression (Kips)	Uplift (Kips)	Shear (Kips)
Analysis Reactions	310.6	280.2	26.6

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):

The maximum twist and sway of the microwave dishes under the operational wind speed as specified in the Analysis Criteria are listed in the table below:

Elevation (ft)	Antenna / Dish	Carrier	Twist (deg)	Sway (deg)
120.0	VHLP2.5 - Dish	Clearwire	0.050	0.407

It is recommended that the carriers review the twist and sway values of the microwave dishes.

Conclusions

Based on the analysis results, the structure and its foundation will be adequate to safely support the existing and proposed equipment and meet the minimum requirements per the design ANSI/TIA/EIA 222-G standards under a basic wind speed of 97 mph no ice and 50 mph with 1" radial ice after the following proposed modification is successfully completed.

- Proposed modification design drawing by **TES** Job # 70654

Pre-Mod Installation Determination

We have also checked this tower to determine if the proposed AT&T equipment loading can be installed prior to the completion of the required modifications. We ran a reduced wind loading case as required by TIA-322 considering a construction period of no more than 6 months.

The tower and foundations passed, so the Carrier can proceed and install their proposed loading prior to the mods completion. Please be aware that this approval is being provided and is based on the method outlined in TIA-322. This approval is not a blanket approval and there is still a risk that the tower will experience a wind event that cannot be predicted by TIA-322 or our Engineers. In the event of an unforeseen wind event, Tower Engineering Solutions will not be liable nor responsible for damage to the tower or the Carriers equipment. Additionally, the tower cannot go beyond the 6 month construction period without the modifications being completed. If the modifications cannot be completed within 6 months from the completed installation of the Carrier's proposed equipment, TES must be notified immediately for further review.

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.

Structure: CT01725-A-SBA

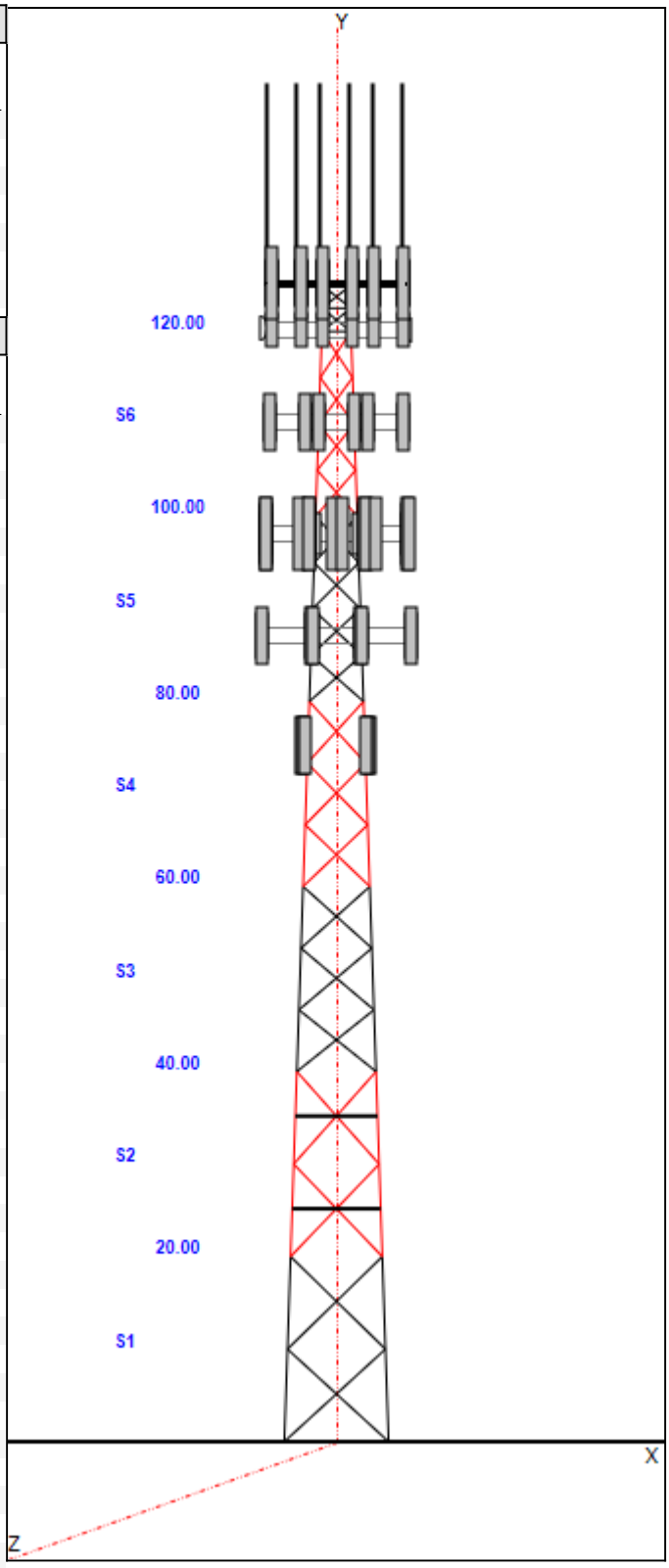
Site Name:	Bloomfield			**Code:**	EIA/TIA-222-G	6/5/2019
Type:	Self Support	**Base Shape:**	Triangle	**Basic WS:**	97.00	
Height:	125.00 (ft)	**Base Width:**	12.50	**Basic Ice WS:**	50.00	
Base Elev:	0.00 (ft)	**Top Width:**	3.50	**Operational WS:**	60.00	Page: 1

Section Properties

Sect	Leg Members	Diagonal Members	Horizontal Members
1	PST 8" DIA PIPE	SAE 3.5X3.5X0.25	
2	PST 6" DIA PIPE	SAE 3X3X0.25	
3	PST 6" DIA PIPE	SAE 2.5X2.5X0.1875	
4	PST 5" DIA PIPE	SAE 2.5X2.5X0.1875	
5	PST 3-1/2" DIA PIPE	SAE 2X2X0.1875	
6	PST 2-1/2" DIA PIPE	SAE 1.5X1.5X0.1875	
7	PST 2-1/2" DIA PIPE	SOL 5/8" SOLID	SAE 1.5X1.5X0.1875

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description
125.00	125.00	1	Lightning Rod
125.00	125.00	1	Beacon
125.00	127.00	1	PD165S
125.00	127.00	1	Cellwave AS MONR 31
125.00	125.00	3	AIR 21 B2A/B4P
125.00	125.00	3	APXVAARR24_43-U-NA20
125.00	125.00	3	AIR32 KRD901146-1_B66A
125.00	125.00	3	KRY 112 144/2
125.00	125.00	3	Radio 4449 B71+B12 RRU
125.00	135.75	2	PD455
125.00	135.75	5	PD455
125.00	125.00	1	Platform w/ HR + (3) PRK-FMA Mount
120.00	120.00	1	(3) Sector Frame (SM 402-3)
120.00	120.00	2	U-RAS Flexible
120.00	120.00	2	Horizon DUO
120.00	120.00	3	840 10054
120.00	120.10	2	VHLP2.5
120.00	120.00	1	Timing2000
110.00	110.00	3	BXA-70063-4CF-EDIN-6
110.00	110.00	9	SBNHH-1D65B
110.00	110.00	3	RRH2X60-AWS radio
110.00	110.00	3	RRH2x60-700 radio
110.00	110.00	3	RRH 4x45-PCS radio
110.00	110.00	2	Andrew GPS
110.00	110.00	1	DB-T1-6Z-8AB-0Z
110.00	110.00	1	(3) Sector Frame (SM 802-3)
98.00	98.00	1	(3) SFR-K-L
98.00	98.00	1	DC6-48-60-18-8C
98.00	98.00	3	782 10253
98.00	98.00	1	(3) SFS-H-L (V-Braces)
98.00	98.00	1	(3) Modifed Sector Frame (SM 802-3)
98.00	98.00	4	800 10966
98.00	98.00	2	80010965
98.00	98.00	6	LGP21401
98.00	98.00	6	LGP21901 Diplexer
98.00	98.00	12	7020.00 RET
98.00	98.00	3	8843 B2 B66A
98.00	98.00	3	4449 B5/B12
98.00	98.00	3	4415 B30
98.00	98.00	1	DC6-48-60-18-8F
98.00	98.00	1	DC6-48-60-0-18-8C-EV
98.00	98.00	3	7770.00



98.00	98.00	2	HPA-65R-BUU-H8
98.00	98.00	1	HPA-65R-BUU-H6
87.00	87.00	3	1900MHz RRH
87.00	87.00	3	800MHZ RRH
87.00	87.00	3	TD-RRH8x20-25
87.00	87.00	4	ACU-A20-N
87.00	87.00	3	APXVSPP18-C-A20
87.00	87.00	1	(3) Sector Frame (SM 502-3)
87.00	87.00	3	APXVTM14-C-120
87.00	87.00	3	800MHz Filter
75.00	75.00	3	APXV18-206517S-C
65.00	65.00	1	Standoff Mount
65.00	65.00	1	CS72188.01 LMU

Linear Appurtenances

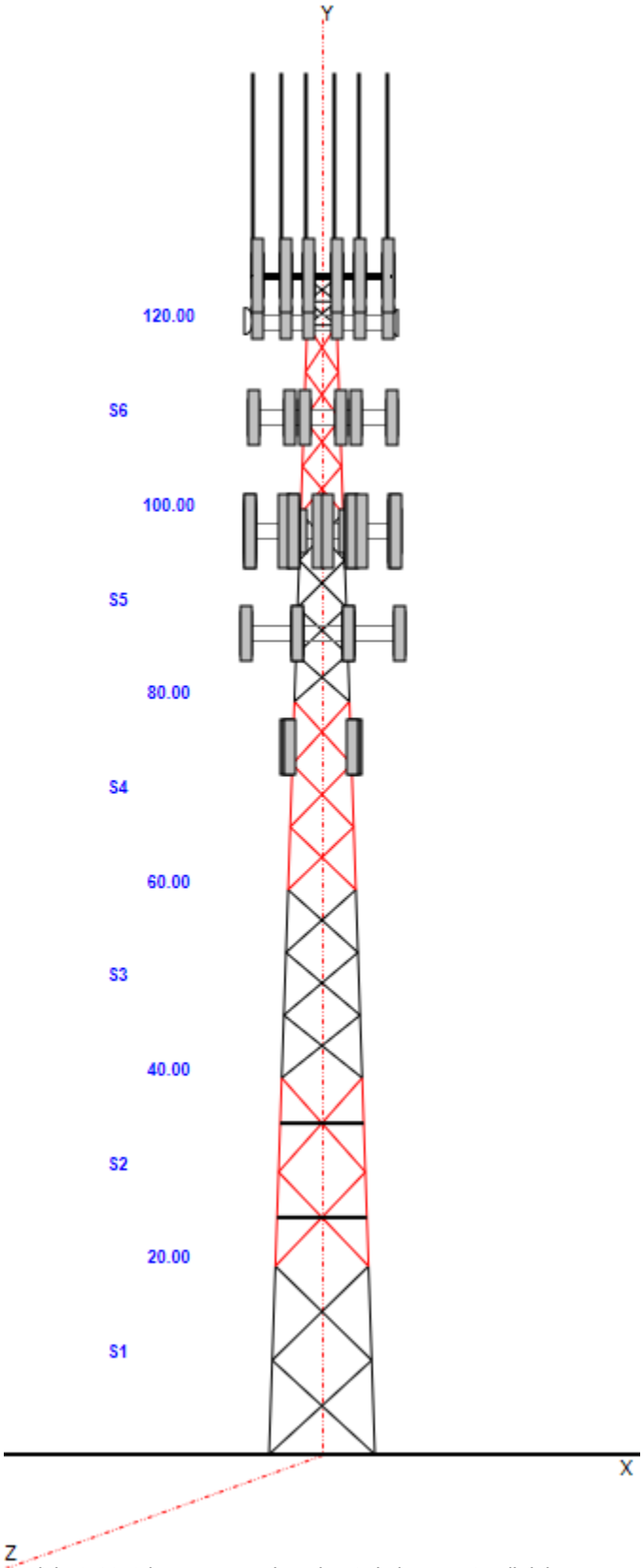
Elev From (ft)	Elev To (ft)	Qty	Description
0.00	125.00	1	1 1/4" Coax
0.00	125.00	11	1 5/8" Coax
0.00	125.00	2	1-1/4" Hybrid
0.00	125.00	2	1/2" Coax
0.00	125.00	2	7/8" Coax
0.00	125.00	1	W/G Ladder
0.00	125.00	1	W/G Ladder
0.00	120.00	3	1/2" Coax
0.00	120.00	7	5/16" Coax
0.00	120.00	1	W/G Ladder
0.00	110.00	18	1 5/8" Coax
0.00	110.00	2	1 5/8" Hybrid
0.00	110.00	2	1/2" GPS
0.00	110.00	1	W/G Ladder
0.00	98.00	2	1/2" Fiber
0.00	98.00	1	3" Conduit
0.00	98.00	6	3/4" DC
0.00	98.00	12	7/8" Coax
0.00	98.00	1	W/G Ladder
0.00	87.00	1	0.7"
0.00	87.00	3	1 1/4" Coax
0.00	87.00	1	W/G Ladder
0.00	75.00	6	1 5/8" Coax
0.00	65.00	1	1/2" Coax

Base Reactions

Leg		Overturning	
Max Uplift:	-280.23 (kips	Moment:	3220.11 (ft-kips)
Max Down:	310.58 (kips	Total Down:	39.36 (kips)
Max Shear:	26.65 (kips	Total Shear:	41.16 (kips)

Structure: CT01725-A-SBA

Site Name:	Bloomfield			**Code:**	EIA/TIA-222-G	6/5/2019
Type:	Self Support	**Base Shape:**	Triangle	**Basic WS:**	97.00	
Height:	125.00 (ft)	**Base Width:**	12.50	**Basic Ice WS:**	50.00	
Base Elev:	0.00 (ft)	**Top Width:**	3.50	**Operational WS:**	60.00	Page: 3

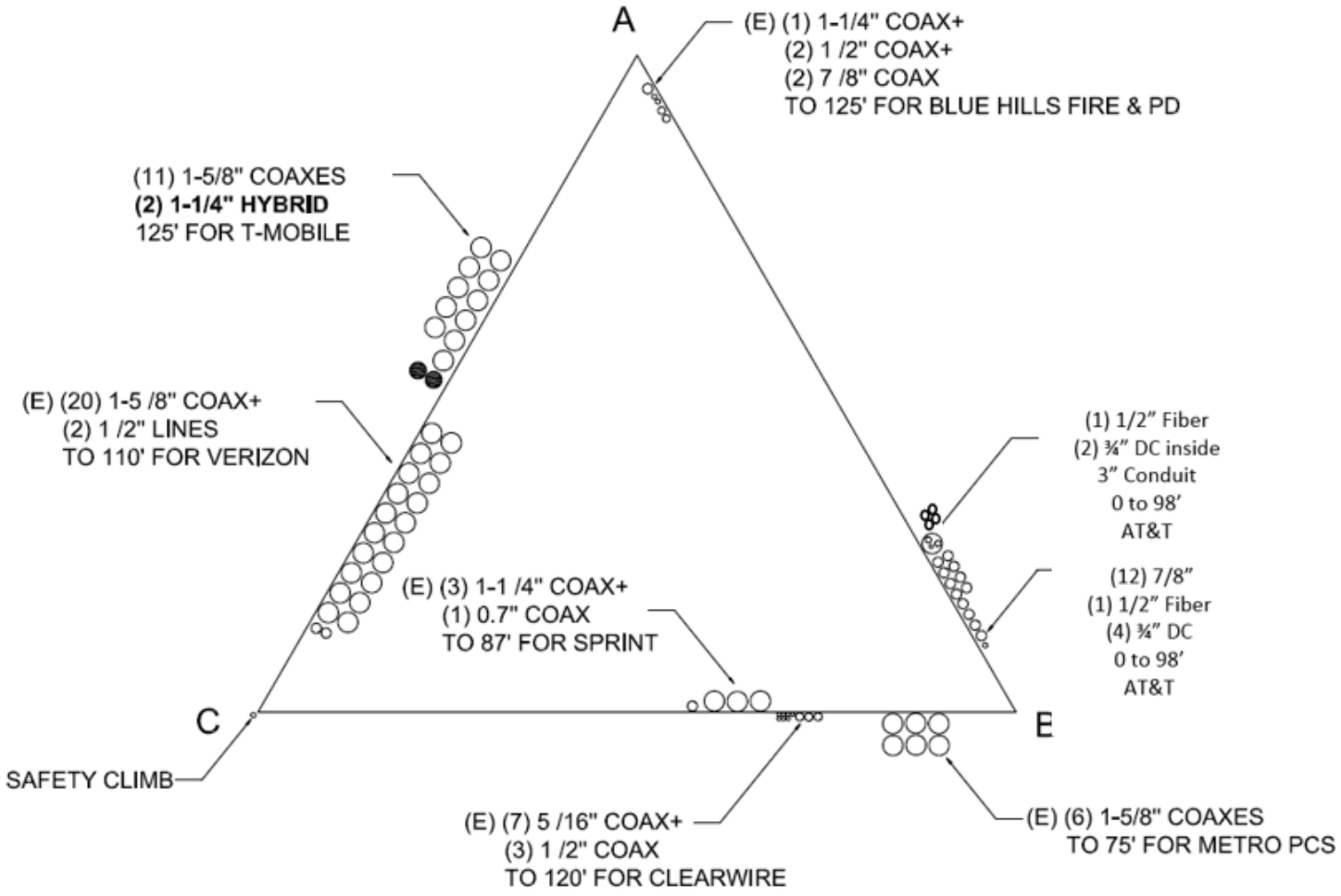


Structure: CT01725-A-SBA - Coax Line Placement

Type: Self Support
Site Name: Bloomfield
Height: 125.00 (ft)

6/5/2019

Tower Engineering Solutions



Loading Summary

Structure:	CT01725-A-SBA	**Code:**	EIA/TIA-222-G	6/5/2019	
Site Name:	Bloomfield	**Exposure:**	B		
Height:	125.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 1	

Tower Engineering Solutions

Discrete Appurtenances Properties

Attach Elev (ft)	Description	Qty	No Ice Weight (lb)	No Ice CaAa (sf)	Ice Weight (lb)	Ice CaAa (sf)	Len (in)	Width (in)	Depth (in)	Ka	Orientation Factor	Vert Ecc (ft)
125.00	Lightning Rod	1	5.00	0.500	32.36	2.780	72.000	1.000	1.000	1.00	1.00	0.000
125.00	Beacon	1	36.00	2.720	210.03	3.961	28.000	17.500	17.500	1.00	1.00	0.000
125.00	PD165S	1	22.00	1.810	529.93	22.822	0.700	39.000	50.000	1.00	1.00	2.000
125.00	Cellwave AS MONR 31	1	22.00	0.940	529.93	11.852	0.700	39.000	50.000	1.00	1.00	2.000
125.00	AIR 21 B2A/B4P	3	91.50	6.090	325.46	7.553	56.000	12.100	7.900	0.75	0.86	0.000
125.00	APXVAARR24_43-U-NA20	3	128.00	20.240	695.54	22.751	95.900	24.000	7.800	0.75	0.70	0.000
125.00	AIR32 KRD901146-1_B66A	3	132.20	6.510	385.26	8.005	56.600	12.900	8.700	0.75	0.87	0.000
125.00	KRY 112 144/2	3	11.00	0.410	25.09	1.031	6.900	6.100	2.700	0.75	0.67	0.000
125.00	Radio 4449 B71+B12 RRU	3	70.00	1.650	166.38	2.376	15.000	13.200	9.300	0.75	0.67	0.000
125.00	PD455	2	24.00	6.020	223.34	15.970	58.000	2.800	2.800	1.00	1.00	10.75
125.00	PD455	5	24.00	6.020	223.34	15.970	58.000	2.800	2.800	1.00	1.00	10.75
125.00	Platform w/ HR + (3) PRK-FMA	1	1800.0	38.840	4262.73	65.410	0.000	0.000	0.000	1.00	1.00	0.000
120.00	(3) Sector Frame (SM 402-3)	1	850.60	18.910	2385.69	38.362	0.000	0.000	0.000	0.75	0.75	0.000
120.00	U-RAS Flexible	2	33.00	1.820	86.84	3.080	16.100	11.600	5.300	0.80	0.73	0.000
120.00	Horizon DUO	2	10.60	0.430	39.73	1.091	4.700	9.300	9.300	0.80	0.67	0.000
120.00	840 10054	3	35.00	4.590	143.93	6.752	42.000	12.700	2.800	0.80	0.61	0.000
120.00	VHLP2.5	2	47.60	8.430	270.82	10.636	35.000	35.000	0.000	1.00	1.00	0.100
120.00	Timing2000	1	0.70	0.070	7.04	0.271	3.200	4.000	4.000	0.80	0.50	0.000
110.00	BXA-70063-4CF-EDIN-6	3	9.90	4.720	141.55	7.109	47.400	11.200	5.200	0.80	0.73	0.000
110.00	SBNHH-1D65B	9	40.60	8.080	315.98	9.784	72.000	11.900	7.100	0.80	0.83	0.000
110.00	RRH2X60-AWS radio	3	55.00	3.500	158.43	4.520	37.000	11.000	6.000	0.80	0.67	0.000
110.00	RRH2x60-700 radio	3	55.00	3.500	158.43	4.520	37.000	11.000	6.000	0.80	0.67	0.000
110.00	RRH 4x45-PCS radio	3	64.00	2.600	179.93	3.532	26.000	12.000	6.800	0.80	0.67	0.000
110.00	Andrew GPS	2	10.00	1.000	47.90	1.920	12.000	9.000	6.000	0.80	0.50	0.000
110.00	DB-T1-6Z-8AB-0Z	1	18.90	4.800	214.54	5.952	24.000	24.000	10.000	0.80	0.71	0.000
110.00	(3) Sector Frame (SM 802-3)	1	929.70	24.410	2607.54	49.520	0.000	0.000	0.000	0.75	0.75	0.000
98.00	(3) SFR-K-L	1	394.00	16.600	1311.16	32.016	0.000	0.000	0.000	0.75	1.00	0.000
98.00	DC6-48-60-18-8C	1	20.00	1.900	101.83	2.690	23.500	9.700	9.700	0.80	1.00	0.000
98.00	782 10253	3	2.90	0.120	8.12	0.463	2.900	4.200	1.800	0.80	0.50	0.000
98.00	(3) SFS-H-L (V-Braces)	1	230.00	6.700	636.84	15.588	0.000	0.000	0.000	0.75	1.00	0.000
98.00	(3) Modifed Sector Frame (SM	1	1109.0	29.750	3070.66	59.745	0.000	0.000	0.000	0.75	0.75	0.000
98.00	800 10966	4	125.70	17.360	596.25	19.676	96.000	20.000	6.900	0.80	0.72	0.000
98.00	80010965	2	108.60	13.810	501.49	15.836	78.700	20.000	6.900	0.80	0.71	0.000
98.00	LGP21401	6	14.10	1.290	45.77	2.349	14.400	9.200	2.600	0.80	0.67	0.000
98.00	LGP21901 Diplexer	6	5.50	0.230	15.24	0.696	4.000	6.000	3.000	0.80	0.67	0.000
98.00	7020.00 RET	12	2.20	0.400	15.16	1.013	4.900	8.300	2.400	0.80	0.50	0.000
98.00	8843 B2 B66A	3	72.00	1.640	131.35	2.269	14.900	13.200	10.900	0.80	0.67	0.000
98.00	4449 B5/B12	3	71.00	1.970	138.63	2.663	17.900	13.200	9.400	0.80	0.67	0.000
98.00	4415 B30	3	44.10	1.860	104.20	2.586	13.500	16.500	4.800	0.80	0.67	0.000
98.00	DC6-48-60-18-8F	1	31.80	2.200	110.13	3.527	24.000	11.000	18.500	0.80	1.00	0.000
98.00	DC6-48-60-0-18-8C-EV	1	20.00	1.900	101.83	2.690	23.500	9.700	9.700	0.80	1.00	0.000
98.00	7770.00	3	35.00	5.500	216.79	6.873	55.000	11.000	5.000	0.80	0.73	0.000
98.00	HPA-65R-BUU-H8	2	68.00	12.980	453.09	15.060	92.400	14.800	7.400	0.80	0.79	0.000
98.00	HPA-65R-BUU-H6	1	51.00	9.660	379.18	11.418	72.000	14.800	9.000	0.80	0.85	0.000
87.00	1900MHz RRH	3	60.00	2.770	165.71	4.377	25.000	11.100	11.400	0.80	0.67	0.000
87.00	800MHZ RRH	3	59.50	2.640	158.33	4.106	18.000	15.100	11.300	0.80	0.50	0.000
87.00	TD-RRH8x20-25	3	70.00	4.050	217.87	5.101	26.100	18.600	6.700	0.80	0.69	0.000
87.00	ACU-A20-N	4	1.00	0.140	6.44	0.516	4.000	2.000	3.500	0.80	0.50	0.000

Loading Summary

Structure:	CT01725-A-SBA	**Code:**	EIA/TIA-222-G	6/5/2019	
Site Name:	Bloomfield	**Exposure:**	B		
Height:	125.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85	**Topography:** 1	**Struct Class:**	II	Page: 2

87.00	APXVSPP18-C-A20	3	57.00	8.020	275.99	11.559	72.000	11.800	7.000	0.80	0.83	0.000
87.00	(3) Sector Frame (SM 502-3)	1	1673.1	33.020	4632.58	66.312	0.000	0.000	0.000	0.75	0.75	0.000
87.00	APXVTM14-C-120	3	56.00	6.340	270.33	7.775	56.300	12.600	6.300	0.80	0.79	0.000
87.00	800MHz Filter	3	10.00	0.490	30.33	1.201	4.600	11.000	4.500	0.80	0.70	0.000
75.00	APXV18-206517S-C	3	26.40	5.170	141.11	8.104	72.000	6.800	3.200	1.00	1.00	0.000
65.00	Standoff Mount	1	40.00	1.500	74.50	2.794	0.000	0.000	0.000	1.00	1.00	0.000
65.00	CS72188.01 LMU	1	0.31	0.170	1.14	0.403	4.500	4.500	4.500	1.00	1.00	0.000
	Totals:	**145**	**12,640.41**		**44,081.65**						**Number of Appurtenances :**	**55**

Linear Appurtenances Properties

Elev. From (ft)	Elev. To (ft)	Description	Qty	Width (in)	Weight (lb/ft)	Pct In Block	Spread On Faces	Bundling Arrangement	Cluster Dia (in)	Out of Zone	Spacing (in)	Orientation Factor	Ka Override
0.00	125.00	1 1/4" Coax	1	1.55	0.66	100.00	2	Individual NR		N	1.00	1.00	
0.00	125.00	1 5/8" Coax	11	1.98	1.04	50.00	3	Block		N	1.00	1.00	
0.00	125.00	1-1/4" Hybrid	2	1.25	0.95	50.00	3	Block		N	1.00	1.00	
0.00	125.00	1/2" Coax	2	0.65	0.16	100.00	2	Individual NR		N	1.00	1.00	
0.00	125.00	7/8" Coax	2	1.11	0.52	100.00	2	Individual NR		N	1.00	1.00	
0.00	125.00	W/G Ladder	1	2.50	6.00	100.00	3	Individual NR		N	1.00	1.00	
0.00	125.00	W/G Ladder	1	2.00	6.00	100.00	2	Individual NR		N	1.00	1.00	
0.00	120.00	1/2" Coax	3	0.65	0.16	100.00	1	Individual NR		N	1.00	1.00	
0.00	120.00	5/16" Coax	7	0.44	0.08	50.00	1	Block		N	1.00	1.00	
0.00	120.00	W/G Ladder	1	2.00	6.00	100.00	1	Individual NR		N	1.00	1.00	
0.00	110.00	1 5/8" Coax	18	1.98	1.04	50.00	3	Block		N	1.00	1.00	
0.00	110.00	1 5/8" Hybrid	2	2.00	1.10	50.00	3	Block		N	1.00	1.00	
0.00	110.00	1/2" GPS	2	0.65	0.16	50.00	3	Block		N	1.00	1.00	
0.00	110.00	W/G Ladder	1	2.00	6.00	100.00	3	Individual NR		N	1.00	1.00	
0.00	98.00	1/2" Fiber	2	0.65	0.16	50.00	2	Block		N	1.00	1.00	
0.00	98.00	3" Conduit	1	3.00	1.61	100.00	2	Individual NR		N	1.00	1.00	
0.00	98.00	3/4" DC	6	0.75	0.40	50.00	2	Block		N	1.00	1.00	
0.00	98.00	7/8" Coax	12	1.11	0.52	50.00	2	Block		N	1.00	1.00	
0.00	98.00	W/G Ladder	1	2.00	6.00	100.00	2	Individual NR		N	1.00	1.00	
0.00	87.00	0.7"	1	0.75	0.40	100.00	1	Individual NR		N	1.00	1.00	
0.00	87.00	1 1/4" Coax	3	1.55	0.66	100.00	1	Individual NR		N	1.00	1.00	
0.00	87.00	W/G Ladder	1	2.00	6.00	100.00	1	Individual NR		N	1.00	1.00	
0.00	75.00	1 5/8" Coax	6	1.98	1.04	50.00	1	Block		N	1.00	1.00	
0.00	65.00	1/2" Coax	1	0.65	0.16	100.00	2	Individual NR		N	1.00	1.00	

Section Forces

Structure:	CT01725-A-SBA	**Code:**	EIA/TIA-222-G	6/5/2019	
Site Name:	Bloomfield	**Exposure:**	B		
Height:	125.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 1	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W Normal Wind — 1.2D + 1.6W 97 mph Wind at Normal To Face

Wind Load Factor: 1.60
Dead Load Factor: 1.20
Ice Dead Load Factor: 0.00
Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	14.33	17.166	28.78	0.00	0.18	2.65	1.00	1.00	0.00	30.43	174.43	0.00	5,578.4	0.0	1571.30	2965.57	4,536.88
2	30.0	14.34	18.848	22.10	0.00	0.19	2.63	1.00	1.00	0.00	30.33	174.43	0.00	4,970.9	0.0	1556.88	2968.08	4,524.95
3	50.0	16.60	13.065	22.10	0.00	0.19	2.63	1.00	1.00	0.00	24.23	174.43	0.00	4,328.8	0.0	1440.23	3434.47	4,874.71
4	70.0	18.27	11.720	18.56	0.00	0.20	2.61	1.00	1.00	0.00	21.58	170.31	0.00	3,898.7	0.0	1398.82	3692.51	5,091.32
5	90.0	19.63	9.701	13.35	0.00	0.19	2.63	1.00	1.00	0.00	17.34	148.19	0.00	3,100.3	0.0	1218.78	3461.80	4,680.58
6	110.0	20.79	6.320	9.59	0.00	0.18	2.67	1.00	1.00	0.00	11.80	83.27	0.00	1,910.6	0.0	891.84	2139.62	3,031.45
7	122.5	21.44	1.223	3.24	0.00	0.24	2.47	1.00	1.00	0.00	3.14	11.54	0.00	401.1	0.0	226.28	308.21	534.49
														24,188.8	**0.0**			**27,274.38**

Load Case: 1.2D + 1.6W 60° Wind — 1.2D + 1.6W 97 mph Wind at 60° From Face

Wind Load Factor: 1.60
Dead Load Factor: 1.20
Ice Dead Load Factor: 0.00
Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	14.33	17.166	28.78	0.00	0.18	2.65	0.80	1.00	0.00	26.99	174.43	0.00	5,578.4	0.0	1394.00	2965.57	4,359.58
2	30.0	14.34	18.848	22.10	0.00	0.19	2.63	0.80	1.00	0.00	26.56	174.43	0.00	4,970.9	0.0	1363.38	2968.08	4,331.46
3	50.0	16.60	13.065	22.10	0.00	0.19	2.63	0.80	1.00	0.00	21.62	174.43	0.00	4,328.8	0.0	1284.93	3434.47	4,719.40
4	70.0	18.27	11.720	18.56	0.00	0.20	2.61	0.80	1.00	0.00	19.24	170.31	0.00	3,898.7	0.0	1246.87	3692.51	4,939.38
5	90.0	19.63	9.701	13.35	0.00	0.19	2.63	0.80	1.00	0.00	15.40	148.19	0.00	3,100.3	0.0	1082.44	3461.80	4,544.24
6	110.0	20.79	6.320	9.59	0.00	0.18	2.67	0.80	1.00	0.00	10.53	83.27	0.00	1,910.6	0.0	796.27	2139.62	2,935.89
7	122.5	21.44	1.223	3.24	0.00	0.24	2.47	0.80	1.00	0.00	2.90	11.54	0.00	401.1	0.0	208.65	308.21	516.86
														24,188.8	**0.0**			**26,346.81**

Section Forces

Structure:	CT01725-A-SBA	**Code:**	EIA/TIA-222-G	6/5/2019	
Site Name:	Bloomfield	**Exposure:**	B		
Height:	125.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 2	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 90° Wind — 1.2D + 1.6W 97 mph Wind at 90° From Face

Wind Load Factor: 1.60 — **Wind Importance Factor:** 1.00

Dead Load Factor: 1.20

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	14.33	17.166	28.78	0.00	0.18	2.65	0.85	1.00	0.00	27.85	174.43	0.00	5,578.4	0.0	1438.33	2965.57	4,403.90
2	30.0	14.34	18.848	22.10	0.00	0.19	2.63	0.85	1.00	0.00	27.50	174.43	0.00	4,970.9	0.0	1411.75	2968.08	4,379.83
3	50.0	16.60	13.065	22.10	0.00	0.19	2.63	0.85	1.00	0.00	22.27	174.43	0.00	4,328.8	0.0	1323.75	3434.47	4,758.23
4	70.0	18.27	11.720	18.56	0.00	0.20	2.61	0.85	1.00	0.00	19.82	170.31	0.00	3,898.7	0.0	1284.86	3692.51	4,977.37
5	90.0	19.63	9.701	13.35	0.00	0.19	2.63	0.85	1.00	0.00	15.89	148.19	0.00	3,100.3	0.0	1116.52	3461.80	4,578.33
6	110.0	20.79	6.320	9.59	0.00	0.18	2.67	0.85	1.00	0.00	10.85	83.27	0.00	1,910.6	0.0	820.16	2139.62	2,959.78
7	122.5	21.44	1.223	3.24	0.00	0.24	2.47	0.85	1.00	0.00	2.96	11.54	0.00	401.1	0.0	213.06	308.21	521.27
														24,188.8	**0.0**			**26,578.70**

Load Case: 0.9D + 1.6W Normal Wind — 0.9D + 1.6W 97 mph Wind at Normal To Face

Wind Load Factor: 1.60 — **Wind Importance Factor:** 1.00

Dead Load Factor: 0.90

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	14.33	17.166	28.78	0.00	0.18	2.65	1.00	1.00	0.00	30.43	174.43	0.00	4,183.8	0.0	1571.30	2965.57	4,536.88
2	30.0	14.34	18.848	22.10	0.00	0.19	2.63	1.00	1.00	0.00	30.33	174.43	0.00	3,728.2	0.0	1556.88	2968.08	4,524.95
3	50.0	16.60	13.065	22.10	0.00	0.19	2.63	1.00	1.00	0.00	24.23	174.43	0.00	3,246.6	0.0	1440.23	3434.47	4,874.71
4	70.0	18.27	11.720	18.56	0.00	0.20	2.61	1.00	1.00	0.00	21.58	170.31	0.00	2,924.0	0.0	1398.82	3692.51	5,091.32
5	90.0	19.63	9.701	13.35	0.00	0.19	2.63	1.00	1.00	0.00	17.34	148.19	0.00	2,325.2	0.0	1218.78	3461.80	4,680.58
6	110.0	20.79	6.320	9.59	0.00	0.18	2.67	1.00	1.00	0.00	11.80	83.27	0.00	1,432.9	0.0	891.84	2139.62	3,031.45
7	122.5	21.44	1.223	3.24	0.00	0.24	2.47	1.00	1.00	0.00	3.14	11.54	0.00	300.8	0.0	226.28	308.21	534.49
														18,141.6	**0.0**			**27,274.38**

Section Forces

Structure:	CT01725-A-SBA	**Code:**	EIA/TIA-222-G	6/5/2019	
Site Name:	Bloomfield	**Exposure:**	B		
Height:	125.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 3	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 60° Wind — 0.9D + 1.6W 97 mph Wind at 60° From Face

Wind Load Factor: 1.60 — **Wind Importance Factor:** 1.00

Dead Load Factor: 0.90

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	14.33	17.166	28.78	0.00	0.18	2.65	0.80	1.00	0.00	26.99	174.43	0.00	4,183.8	0.0	1394.00	2965.57	4,359.58
2	30.0	14.34	18.848	22.10	0.00	0.19	2.63	0.80	1.00	0.00	26.56	174.43	0.00	3,728.2	0.0	1363.38	2968.08	4,331.46
3	50.0	16.60	13.065	22.10	0.00	0.19	2.63	0.80	1.00	0.00	21.62	174.43	0.00	3,246.6	0.0	1284.93	3434.47	4,719.40
4	70.0	18.27	11.720	18.56	0.00	0.20	2.61	0.80	1.00	0.00	19.24	170.31	0.00	2,924.0	0.0	1246.87	3692.51	4,939.38
5	90.0	19.63	9.701	13.35	0.00	0.19	2.63	0.80	1.00	0.00	15.40	148.19	0.00	2,325.2	0.0	1082.44	3461.80	4,544.24
6	110.0	20.79	6.320	9.59	0.00	0.18	2.67	0.80	1.00	0.00	10.53	83.27	0.00	1,432.9	0.0	796.27	2139.62	2,935.89
7	122.5	21.44	1.223	3.24	0.00	0.24	2.47	0.80	1.00	0.00	2.90	11.54	0.00	300.8	0.0	208.65	308.21	516.86
														18,141.6	**0.0**			**26,346.81**

Load Case: 0.9D + 1.6W 90° Wind — 0.9D + 1.6W 97 mph Wind at 90° From Face

Wind Load Factor: 1.60 — **Wind Importance Factor:** 1.00

Dead Load Factor: 0.90

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	14.33	17.166	28.78	0.00	0.18	2.65	0.85	1.00	0.00	27.85	174.43	0.00	4,183.8	0.0	1438.33	2965.57	4,403.90
2	30.0	14.34	18.848	22.10	0.00	0.19	2.63	0.85	1.00	0.00	27.50	174.43	0.00	3,728.2	0.0	1411.75	2968.08	4,379.83
3	50.0	16.60	13.065	22.10	0.00	0.19	2.63	0.85	1.00	0.00	22.27	174.43	0.00	3,246.6	0.0	1323.75	3434.47	4,758.23
4	70.0	18.27	11.720	18.56	0.00	0.20	2.61	0.85	1.00	0.00	19.82	170.31	0.00	2,924.0	0.0	1284.86	3692.51	4,977.37
5	90.0	19.63	9.701	13.35	0.00	0.19	2.63	0.85	1.00	0.00	15.89	148.19	0.00	2,325.2	0.0	1116.52	3461.80	4,578.33
6	110.0	20.79	6.320	9.59	0.00	0.18	2.67	0.85	1.00	0.00	10.85	83.27	0.00	1,432.9	0.0	820.16	2139.62	2,959.78
7	122.5	21.44	1.223	3.24	0.00	0.24	2.47	0.85	1.00	0.00	2.96	11.54	0.00	300.8	0.0	213.06	308.21	521.27
														18,141.6	**0.0**			**26,578.70**

Section Forces

Structure:	CT01725-A-SBA	**Code:**	EIA/TIA-222-G	6/5/2019	
Site Name:	Bloomfield	**Exposure:**	B		
Height:	125.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 4	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi Normal Wind — 1.2D + 1.0Di + 1.0Wi 50 mph Wind at Normal From Face

Wind Load Factor: 1.00
Dead Load Factor: 1.20
Ice Dead Load Factor: 1.00
Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	3.81	17.166	58.88	30.11	0.30	2.30	1.00	1.00	1.77	52.39	268.71	82.83	16,299.	10721.3	390.33	1058.40	1,448.72
2	30.0	3.81	18.848	54.24	32.14	0.33	2.22	1.00	1.00	1.98	51.84	279.70	92.45	17,294.	12324.0	373.40	1107.51	1,480.92
3	50.0	4.41	13.065	58.96	36.85	0.37	2.12	1.00	1.00	2.08	49.92	285.24	97.29	16,710.	12382.0	396.60	1292.13	1,519.23
4	70.0	4.86	11.720	54.20	35.64	0.41	2.05	1.00	1.00	2.16	46.40	283.13	95.23	16,152.	12253.7	392.12	1375.27	1,767.39
5	90.0	5.22	9.701	50.58	37.24	0.47	1.95	1.00	1.00	2.21	43.48	250.94	75.91	13,903.	10803.0	375.25	1158.17	1,533.42
6	110.0	5.52	6.320	44.41	34.82	0.52	1.87	1.00	1.00	2.26	37.26	146.23	60.16	8,994.1	7083.5	327.86	691.05	1,018.92
7	122.5	5.70	1.223	17.57	14.33	0.91	1.94	1.00	1.00	2.28	18.42	19.14	9.50	1,966.8	1565.7	173.23	17.95	191.18
														91,322.1	**67133.3**			**8,959.77**

Load Case: 1.2D + 1.0Di + 1.0Wi 60° Wind — 1.2D + 1.0Di + 1.0Wi 50 mph Wind at 60° From Face

Wind Load Factor: 1.00
Dead Load Factor: 1.20
Ice Dead Load Factor: 1.00
Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	3.81	17.166	58.88	30.11	0.30	2.30	0.80	1.00	1.77	48.96	268.71	82.83	16,299.	10721.3	364.75	1058.40	1,423.14
2	30.0	3.81	18.848	54.24	32.14	0.33	2.22	0.80	1.00	1.98	48.07	279.70	92.45	17,294.	12324.0	346.25	1107.51	1,453.76
3	50.0	4.41	13.065	58.96	36.85	0.37	2.12	0.80	1.00	2.08	47.30	285.24	97.29	16,710.	12382.0	375.84	1292.13	1,667.97
4	70.0	4.86	11.720	54.20	35.64	0.41	2.05	0.80	1.00	2.16	44.05	283.13	95.23	16,152.	12253.7	372.31	1375.27	1,747.58
5	90.0	5.22	9.701	50.58	37.24	0.47	1.95	0.80	1.00	2.21	41.54	250.94	75.91	13,903.	10803.0	358.50	1158.17	1,516.67
6	110.0	5.52	6.320	44.41	34.82	0.52	1.87	0.80	1.00	2.26	36.00	146.23	60.16	8,994.1	7083.5	316.74	691.05	1,007.80
7	122.5	5.70	1.223	17.57	14.33	0.91	1.94	0.80	1.00	2.28	18.18	19.14	9.50	1,966.8	1565.7	170.93	17.95	188.88
														91,322.1	**67133.3**			**9,005.80**

Section Forces

Structure:	CT01725-A-SBA	**Code:**	EIA/TIA-222-G	6/5/2019	
Site Name:	Bloomfield	**Exposure:**	B		
Height:	125.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 5	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 90° Wind — 1.2D + 1.0Di + 1.0Wi 50 mph Wind at 90° From Face

Wind Load Factor: 1.00 — **Wind Importance Factor:** 1.00

Dead Load Factor: 1.20

Ice Dead Load Factor: 1.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	3.81	17.166	58.88	30.11	0.30	2.30	0.85	1.00	1.77	49.82	268.71	82.83	16,299.	10721.3	371.14	1058.40	1,429.54
2	30.0	3.81	18.848	54.24	32.14	0.33	2.22	0.85	1.00	1.98	49.01	279.70	92.45	17,294.	12324.0	353.04	1107.51	1,460.55
3	50.0	4.41	13.065	58.96	36.85	0.37	2.12	0.85	1.00	2.08	47.96	285.24	97.29	16,710.	12382.0	381.03	1292.13	1,673.16
4	70.0	4.86	11.720	54.20	35.64	0.41	2.05	0.85	1.00	2.16	44.64	283.13	95.23	16,152.	12253.7	377.26	1375.27	1,752.53
5	90.0	5.22	9.701	50.58	37.24	0.47	1.95	0.85	1.00	2.21	42.03	250.94	75.91	13,903.	10803.0	362.69	1158.17	1,520.86
6	110.0	5.52	6.320	44.41	34.82	0.52	1.87	0.85	1.00	2.26	36.31	146.23	60.16	8,994.1	7083.5	319.52	691.05	1,010.58
7	122.5	5.70	1.223	17.57	14.33	0.91	1.94	0.85	1.00	2.28	18.24	19.14	9.50	1,966.8	1565.7	171.51	17.95	189.46
														91,322.1	**67133.3**			**9,036.67**

Load Case: 1.0D + 1.0W Normal Wind — 1.0D + 1.0W 60 mph Wind at Normal To Face

Wind Load Factor: 1.00 — **Wind Importance Factor:** 1.00

Dead Load Factor: 1.00

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	5.48	17.166	28.78	0.00	0.18	2.65	1.00	1.00	0.00	33.13	174.43	0.00	4,648.7	0.0	409.11	709.17	1,118.28
2	30.0	5.49	18.848	22.10	0.00	0.19	2.63	1.00	1.00	0.00	31.51	174.43	0.00	4,142.4	0.0	386.75	709.76	1,096.51
3	50.0	6.35	13.065	22.10	0.00	0.19	2.63	1.00	1.00	0.00	25.72	174.43	0.00	3,607.3	0.0	365.60	821.30	1,186.89
4	70.0	6.99	11.720	18.56	0.00	0.20	2.61	1.00	1.00	0.00	22.37	170.31	0.00	3,248.9	0.0	346.77	883.00	1,229.77
5	90.0	7.51	9.701	13.35	0.00	0.19	2.63	1.00	1.00	0.00	17.34	148.19	0.00	2,583.5	0.0	291.45	827.83	1,119.28
6	110.0	7.96	6.320	9.59	0.00	0.18	2.67	1.00	1.00	0.00	11.80	83.27	0.00	1,592.1	0.0	213.27	511.65	724.92
7	122.5	8.20	1.223	3.24	0.00	0.24	2.47	1.00	1.00	0.00	3.14	11.54	0.00	334.3	0.0	54.11	73.70	127.81
														20,157.3	**0.0**			**6,603.47**

Section Forces

Structure:	CT01725-A-SBA	**Code:**	EIA/TIA-222-G	6/5/2019	
Site Name:	Bloomfield	**Exposure:**	B		
Height:	125.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 6	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60° Wind — 1.0D + 1.0W 60 mph Wind at 60° From Face

Wind Load Factor: 1.00 — **Wind Importance Factor:** 1.00

Dead Load Factor: 1.00

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	5.48	17.166	28.78	0.00	0.18	2.65	0.80	1.00	0.00	29.69	174.43	0.00	4,648.7	0.0	366.71	709.17	1,075.88
2	30.0	5.49	18.848	22.10	0.00	0.19	2.63	0.80	1.00	0.00	27.74	174.43	0.00	4,142.4	0.0	340.48	709.76	1,050.24
3	50.0	6.35	13.065	22.10	0.00	0.19	2.63	0.80	1.00	0.00	23.11	174.43	0.00	3,607.3	0.0	328.46	821.30	1,149.75
4	70.0	6.99	11.720	18.56	0.00	0.20	2.61	0.80	1.00	0.00	20.03	170.31	0.00	3,248.9	0.0	310.44	883.00	1,193.44
5	90.0	7.51	9.701	13.35	0.00	0.19	2.63	0.80	1.00	0.00	15.40	148.19	0.00	2,583.5	0.0	258.85	827.83	1,086.68
6	110.0	7.96	6.320	9.59	0.00	0.18	2.67	0.80	1.00	0.00	10.53	83.27	0.00	1,592.1	0.0	190.41	511.65	702.07
7	122.5	8.20	1.223	3.24	0.00	0.24	2.47	0.80	1.00	0.00	2.90	11.54	0.00	334.3	0.0	49.90	73.70	123.60
														20,157.3	**0.0**			**6,381.65**

Load Case: 1.0D + 1.0W 90° Wind — 1.0D + 1.0W 60 mph Wind at 90° From Face

Wind Load Factor: 1.00 — **Wind Importance Factor:** 1.00

Dead Load Factor: 1.00

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	5.48	17.166	28.78	0.00	0.18	2.65	0.85	1.00	0.00	30.55	174.43	0.00	4,648.7	0.0	377.31	709.17	1,086.48
2	30.0	5.49	18.848	22.10	0.00	0.19	2.63	0.85	1.00	0.00	28.68	174.43	0.00	4,142.4	0.0	352.04	709.76	1,061.81
3	50.0	6.35	13.065	22.10	0.00	0.19	2.63	0.85	1.00	0.00	23.76	174.43	0.00	3,607.3	0.0	337.74	821.30	1,159.04
4	70.0	6.99	11.720	18.56	0.00	0.20	2.61	0.85	1.00	0.00	20.61	170.31	0.00	3,248.9	0.0	319.52	883.00	1,202.52
5	90.0	7.51	9.701	13.35	0.00	0.19	2.63	0.85	1.00	0.00	15.89	148.19	0.00	2,583.5	0.0	267.00	827.83	1,094.83
6	110.0	7.96	6.320	9.59	0.00	0.18	2.67	0.85	1.00	0.00	10.85	83.27	0.00	1,592.1	0.0	196.13	511.65	707.78
7	122.5	8.20	1.223	3.24	0.00	0.24	2.47	0.85	1.00	0.00	2.96	11.54	0.00	334.3	0.0	50.95	73.70	124.65
														20,157.3	**0.0**			**6,437.11**

Force/Stress Compression Summary

Structure:	CT01725-A-SBA	**Code:**	EIA/TIA-222-G	6/5/2019	
Site Name:	Bloomfield	**Exposure:**	B		
Height:	125.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 1	

Tower Engineering Solutions

LEG MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fy (ksi)	Mem Cap (kips)	Leg Use %	Controls
1	20	PST - 8" DIA PIPE	-297.79	1.2D + 1.6W Normal Wind	10.01	100	100	100	40.85	54.00	357.83	83.2	Member X
2	40	PST - 6" DIA PIPE	-255.72	1.2D + 1.6W Normal Wind	10.01	50	50	50	26.69	54.00	256.35	99.8	Member X
3	60	PST - 6" DIA PIPE	-212.09	1.2D + 1.6W Normal Wind	6.67	100	100	100	35.59	54.00	245.38	86.4	Member X
4	80	PST - 5" DIA PIPE	-160.17	1.2D + 1.6W Normal Wind	6.67	100	100	100	42.59	54.00	181.09	88.4	Member X
5	100	PST - 3-1/2" DIA PIPE	-106.75	1.2D + 1.6W Normal Wind	5.00	100	100	100	44.82	54.00	111.14	96.0	Member X
6	120	PST - 2-1/2" DIA PIPE	-49.49	1.2D + 1.6W Normal Wind	5.00	100	100	100	63.42	54.00	60.28	82.1	Member X
7	125	PST - 2-1/2" DIA PIPE	-11.52	1.2D + 1.6W Normal Wind	2.50	100	100	100	31.68	54.00	76.50	15.1	Member X

Splices

		Top Splice					Bottom Splice				
Sect	Top Elev	Load Case	Force (kips)	Cap (kips)	Use %	Bolt Type	Num Bolts	Load Case	Force (kips)	Cap (kips)	Use %	Bolt Type	Num Bolts
1	20	1.2D + 1.6W Normal Wind	268.22	0.00	0.0			1.2D + 1.6W Normal Wind	310.79	0.00			
2	40	1.2D + 1.6W Normal Wind	220.47	0.00	0.0			1.2D + 1.6W Normal Wind	268.22	0.00		1/4 A325	8
3	60	1.2D + 1.6W Normal Wind	169.48	0.00	0.0			1.2D + 1.6W Normal Wind	220.47	0.00		1 A325	8
4	80	1.2D + 1.6W Normal Wind	114.10	0.00	0.0			1.2D + 1.6W Normal Wind	169.48	0.00		1 A325	8
5	100	1.2D + 1.6W Normal Wind	56.34	0.00	0.0			1.2D + 1.6W Normal Wind	114.10	0.00		1 A325	6
6	120	1.2D + 1.6W Normal Wind	14.36	0.00	0.0			1.2D + 1.6W Normal Wind	56.34	0.00		3/4 A325	6
7	125	1.2D + 1.0Di + 1.0Wi 90° Wind	4.13	0.00	0.0			1.2D + 1.6W Normal Wind	14.36	0.00		3/4 A325	4

HORIZONTAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	Use %	Controls
1	20										0.00	0	0				
2	40										0.00	0	0				
3	60										0.00	0	0				
4	80										0.00	0	0				
5	100										0.00	0	0				
6	120										0.00	0	0				
7	125	SAE - 1.5X1.5X0.1875	-4.25	1.2D + 1.6W Normal Wind	3.50	100	100	100	100.34	36.00	10.11	2	1	35.78	27.73	42	Member Z

DIAGONAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	Use %	Controls
1	20	SAE - 3.5X3.5X0.25	-9.80	1.2D + 1.6W Normal Wind	15.72	50	50	50	135.89	36.00	20.67	1	1	12.43	13.0	79	Bolt Shear
2	40	SAE - 3X3X0.25	-9.87	1.2D + 1.6W 90° Wind	14.59	50	50	50	147.90	36.00	14.87	1	1	12.43	13.0	79	Bolt Shear
3	60	SAE - 2.5X2.5X0.1875	-7.99	1.2D + 1.6W 90° Wind	11.00	50	50	50	133.35	36.00	11.46	1	1	12.43	9.79	82	Bolt Bear
4	80	SAE - 2.5X2.5X0.1875	-7.91	1.2D + 1.6W 90° Wind	10.22	50	50	50	123.93	36.00	13.02	2	1	15.90	18.6	61	Member Z
5	100	SAE - 2X2X0.1875	-6.70	1.2D + 1.6W 90° Wind	8.05	50	50	50	122.64	36.00	10.42	1	1	7.95	7.50	89	Bolt Bear
6	120	SAE - 1.5X1.5X0.1875	-4.36	1.2D + 1.6W 90° Wind	6.94	50	50	50	142.13	36.00	5.93	1	1	7.95	7.50	74	Member Z
7	125	SOL - 5/8" SOLID	-2.02	1.2D + 1.6W Normal Wind	4.30	50	50	50	148.89	36.00	3.13	0	0				T-Only

Force/Stress Tension Summary

Structure:	CT01725-A-SBA	**Code:**	EIA/TIA-222-G	6/5/2019	
Site Name:	Bloomfield	**Exposure:**	B		
Height:	125.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 2	

Tower Engineering Solutions

LEG MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Leg Use %	Controls
1	20	PST - 8" DIA PIPE	269.60	0.9D + 1.6W 60° Wind	54	408.24	66.0	Member
2	40	PST - 6" DIA PIPE	230.65	0.9D + 1.6W 60° Wind	54	271.19	85.1	Member
3	60	PST - 6" DIA PIPE	189.98	0.9D + 1.6W 60° Wind	54	271.19	70.1	Member
4	80	PST - 5" DIA PIPE	141.19	0.9D + 1.6W 60° Wind	54	208.98	67.6	Member
5	100	PST - 3-1/2" DIA PIPE	90.15	0.9D + 1.6W 60° Wind	54	130.25	69.2	Member
6	120	PST - 2-1/2" DIA PIPE	38.35	0.9D + 1.6W 60° Wind	54	82.81	46.3	Member
7	125	PST - 2-1/2" DIA PIPE	4.58	0.9D + 1.6W Normal Wind	54	82.81	5.5	Member

Splices

		Top Splice					Bottom Splice					
Sect	Top Elev	Load Case	Force (kips)	Cap (kips)	Use %	Bolt Type	Num Bolts	Load Case	Force (kips)	Cap (kips)	Use %	Bolt Type	Num Bolts
1	20	0.9D + 1.6W 60° Wind	240.97	0.00	0.0			0.9D + 1.6W 60° Wind	281.5	0.00			
2	40	0.9D + 1.6W 60° Wind	196.55	0.00	0.0			0.9D + 1.6W 60° Wind	240.9	610.56	39.5	1 1/4 A325	8
3	60	0.9D + 1.6W 60° Wind	149.24	0.00	0.0			0.9D + 1.6W 60° Wind	196.5	424.08	46.3	1 A325	8
4	80	0.9D + 1.6W 60° Wind	96.57	0.00	0.0			0.9D + 1.6W 60° Wind	149.2	424.08	35.2	1 A325	8
5	100	0.9D + 1.6W 60° Wind	42.41	0.00	0.0			0.9D + 1.6W 60° Wind	96.57	318.06	30.4	1 A325	6
6	120	0.9D + 1.6W Normal Wind	4.65	0.00	0.0			0.9D + 1.6W 60° Wind	42.41	180.60	23.5	3/4 A325	6
7	125		0.00	0.00	0.0			0.9D + 1.6W Normal Wind	4.65	120.40	3.9	3/4 A325	4

HORIZONTAL MEMBERS

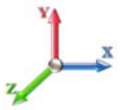
Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	B.S. Cap (kips)	Use %	Controls
1	20	-			36	0.00	0	0					
2	40	-			36	0.00	0	0					
3	60	-			36	0.00	0	0					
4	80	-			36	0.00	0	0					
5	100	-			36	0.00	0	0					
6	120	-			36	0.00	0	0					
7	125	SAE - 1.5X1.5X0.1875	2.06	1.2D + 1.6W Normal W	36	15.92	2	1	35.78	27.73	13.18	15.6	Blck Shear

DIAGONAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	B.S. Cap (kips)	Use %	Controls
1	20	SAE - 3.5X3.5X0.25	8.98	0.9D + 1.6W 60° Wind	36	54.76	1	1	12.43	13.05	16.79	72.2	Bolt Shear
2	40	SAE - 3X3X0.25	9.14	0.9D + 1.6W 90° Wind	36	46.66	1	1	12.43	13.05	14.07	73.5	Bolt Shear
3	60	SAE - 2.5X2.5X0.1875	7.67	1.2D + 1.6W 90° Wind	36	29.22	1	1	12.43	9.79	9.53	80.5	Blck Shear
4	80	SAE - 2.5X2.5X0.1875	7.63	1.2D + 1.6W 90° Wind	36	29.22	2	1	15.90	18.60	13.66	55.8	Blck Shear
5	100	SAE - 2X2X0.1875	6.51	1.2D + 1.6W 90° Wind	36	23.00	1	1	7.95	7.50	7.25	89.9	Blck Shear
6	120	SAE - 1.5X1.5X0.1875	4.38	1.2D + 1.6W 90° Wind	36	17.17	1	1	7.95	7.50	5.21	84.1	Blck Shear
7	125	SOL - 5/8" SOLID	7.86	1.2D + 1.6W Normal W	36	9.94	0	0				79.0	Member

Seismic Section Forces

Structure:	CT01725-A-SBA	**Code:**	EIA/TIA-222-G	6/5/2019	
Site Name:	Bloomfield	**Exposure:**	B		
Height:	125.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 1	



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Load Case: 1.2D + 1.0E

Dead Load Factor	1.20	**Sds**	0.192	**Ss**	0.1800	**Fa**	1.6000	**Ke**	0.0000
Seismic Load Factor	1.00	**Sd1**	0.102	**S1**	0.0640	**Fv**	2.4000	**Kg**	0.0000
Seismic Importance Factor	1.00	**SA**	0.192	**R**	3.0000	**Vs**	2.5201	**f1**	2.0131

Sect #	Elev (ft)	Wz (lb)	a	b	c	Lateral Fsz (lb)
1	10.00	4648.6	0.01	0.06	0.03	20.40
2	30.00	4142.4	0.11	0.07	0.04	46.76
3	50.00	3607.3	0.30	0.04	0.01	79.71
4	70.00	3368.4	0.59	-0.05	0.01	116.20
5	90.00	8728.9	0.98	-0.11	0.12	456.74
6	110.00	4616.5	1.46	0.42	0.50	453.44
7	122.50	3685.3	1.82	1.61	1.00	570.74

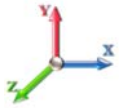
Load Case: 0.9D + 1.0E

Dead Load Factor	0.90	**Sds**	0.192	**Ss**	0.1800	**Fa**	1.6000	**Ke**	0.0000
Seismic Load Factor	1.00	**Sd1**	0.102	**S1**	0.0640	**Fv**	2.4000	**Kg**	0.0000
Seismic Importance Factor	1.00	**SA**	0.192	**R**	3.0000	**Vs**	2.5201	**f1**	2.0131

Sect #	Elev (ft)	Wz (lb)	a	b	c	Lateral Fsz (lb)
1	10.00	4648.6	0.01	0.06	0.03	20.40
2	30.00	4142.4	0.11	0.07	0.04	46.76
3	50.00	3607.3	0.30	0.04	0.01	79.71
4	70.00	3368.4	0.59	-0.05	0.01	116.20
5	90.00	8728.9	0.98	-0.11	0.12	456.74
6	110.00	4616.5	1.46	0.42	0.50	453.44
7	122.50	3685.3	1.82	1.61	1.00	570.74

Support Forces Summary

Structure:	CT01725-A-SBA	**Code:**	EIA/TIA-222-G	6/5/2019	
Site Name:	Bloomfield	**Exposure:**	B		
Height:	125.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 1	



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Load Case	Node	FX (kips)	FY (kips)	FZ (kips)	(-) = Uplift (+) = Down
1.2D + 1.6W Normal Wind	1	0.02	310.58	-26.65	
	1a	10.09	-135.60	-7.27	
	1b	-10.11	-135.62	-7.24	
1.2D + 1.6W 60° Wind	1	-1.24	159.48	-13.37	
	1a	-12.15	157.52	5.61	
	1b	-21.47	-277.65	-12.37	
1.2D + 1.6W 90° Wind	1	-1.45	13.14	-0.63	
	1a	-20.07	265.25	10.76	
	1b	-18.94	-239.04	-10.13	
0.9D + 1.6W Normal Wind	1	0.02	306.59	-26.44	
	1a	10.25	-138.53	-7.38	
	1b	-10.27	-138.54	-7.34	
0.9D + 1.6W 60° Wind	1	-1.25	155.85	-13.16	
	1a	-11.98	153.90	5.50	
	1b	-21.63	-280.23	-12.46	
0.9D + 1.6W 90° Wind	1	-1.46	9.86	-0.43	
	1a	-19.89	261.37	10.65	
	1b	-19.11	-241.72	-10.22	
1.2D + 1.0Di + 1.0Wi Normal Wind	1	0.01	138.74	-9.55	
	1a	2.01	-0.75	-1.58	
	1b	-2.01	-0.82	-1.58	
1.2D + 1.0Di + 1.0Wi 60° Wind	1	-0.39	92.35	-5.54	
	1a	-4.97	91.39	2.43	
	1b	-5.69	-46.56	-3.27	
1.2D + 1.0Di + 1.0Wi 90° Wind	1	-0.46	45.75	-1.50	
	1a	-7.46	125.49	4.05	
	1b	-4.87	-34.07	-2.55	
1.2D + 1.0E	1	0.00	29.60	0.77	
	1a	2.22	4.88	-1.25	
	1b	-2.22	4.88	-1.25	
0.9D + 1.0E	1	0.00	26.28	0.97	
	1a	2.39	1.62	-1.35	
	1b	-2.39	1.62	-1.35	
1.0D + 1.0W Normal Wind	1	0.00	82.16	-6.91	
	1a	1.99	-24.68	-1.51	
	1b	-1.99	-24.69	-1.50	
1.0D + 1.0W 60° Wind	1	-0.30	45.88	-3.71	
	1a	-3.36	45.42	1.59	
	1b	-4.72	-58.51	-2.72	
1.0D + 1.0W 90° Wind	1	-0.36	10.94	-0.65	
	1a	-5.26	71.31	2.84	
	1b	-4.13	-49.45	-2.18	

Max Reactions

	Leg			Overturning	
Max Uplift:	-280.23	(kips)	Moment:	3220.11	(ft-kips)
Max Down:	310.58	(kips)	Total Down:	39.36	(kips)
Max Shear:	26.65	(kips)	Total Shear:	41.16	(kips)

Analysis Summary

Structure:	CT01725-A-SBA	**Code:**	EIA/TIA-222-G	6/5/2019	
Site Name:	Bloomfield	**Exposure:**	B		
Height:	125.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 1	

Tower Engineering Solutions

Max Reactions

Leg			Overturning		
Max Uplift:	-280.23	(kips)	Moment:	3220.11	(ft-kips)
Max Down:	310.58	(kips)	Total Down:	39.36	(kips)
Max Shear:	26.65	(kips)	Total Shear:	41.16	(kips)

Anchor Bolts

Bolt Size (in.):	1.50	Number Bolts:	8
Yield Strength (Ksi):	36.00	Tensile Strength (Ksi):	58.00
Detail Type:	C		

Interaction Ratio: 0.63

Max Usages

Max Leg: 99.8% (1.2D + 1.6W Normal Wind - Sect 2)
Max Diag: 89.9% (1.2D + 1.6W 90° Wind - Sect 5)
Max Horiz: 42.1% (1.2D + 1.6W Normal Wind - Sect 7)

Max Deflection, Twist and Sway

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)
0.9D + 1.0E - Normal To Face	66.67	0.0288	0.0019	0.0541
	73.33	0.0354	0.0022	0.0610
	85.00	0.0490	0.0026	0.0759
	100.00	0.0713	0.0032	0.0946
	110.00	0.0892	0.0035	0.1100
	120.00	0.1092	0.0036	0.1196
	125.00	0.1195	0.0036	0.1177
0.9D + 1.6W 97 mph Wind at 60° From Face	66.67	0.4663	0.1164	0.8350
	73.33	0.5685	0.1376	0.9306
	85.00	0.7737	0.2038	1.1182
	100.00	1.0942	0.3369	1.3340
	110.00	1.3396	0.6059	1.4974
	120.00	1.6034	0.8722	1.5452
	125.00	1.7378	0.9896	1.4127
0.9D + 1.6W 97 mph Wind at 90° From Face	66.67	0.4646	-0.0410	0.8302
	73.33	0.5666	-0.0462	0.9255
	85.00	0.7712	-0.0578	1.1103
	100.00	1.0901	-0.0746	1.3163
	110.00	1.3335	-0.0984	1.4642
	120.00	1.5929	-0.1176	1.4826
	125.00	1.7238	-0.1169	0.8368

0.9D + 1.6W 97 mph Wind at Normal To Face	66.67	0.4754	0.0307	0.8508
	73.33	0.5797	0.0342	0.9492
	85.00	0.7897	0.0407	1.1428
	100.00	1.1206	0.0474	1.3690
	110.00	1.3765	0.0510	1.5493
	120.00	1.6548	0.0532	1.6922
	125.00	1.8053	0.0542	2.4635
1.0D + 1.0W 60 mph Wind at 60° From Face	66.67	0.1111	0.0105	0.1987
	73.33	0.1356	0.0120	0.2213
	85.00	0.1845	0.0159	0.2652
	100.00	0.2610	0.0229	0.3160
	110.00	0.3197	0.0359	0.3533
	120.00	0.3826	0.0496	0.3655
	125.00	0.4147	0.0556	0.3299
1.0D + 1.0W 60 mph Wind at 90° From Face	66.67	0.1115	-0.0097	0.1990
	73.33	0.1359	-0.0109	0.2218
	85.00	0.1849	-0.0136	0.2660
	100.00	0.2612	-0.0175	0.3154
	110.00	0.3196	-0.0230	0.3509
	120.00	0.3818	-0.0274	0.3554
	125.00	0.4132	-0.0272	0.2012
1.0D + 1.0W 60 mph Wind at Normal To Face	66.67	0.1144	0.0072	0.2041
	73.33	0.1394	0.0079	0.2278
	85.00	0.1898	0.0093	0.2745
	100.00	0.2688	0.0107	0.3286
	110.00	0.3302	0.0109	0.3718
	120.00	0.3969	0.0108	0.4075
	125.00	0.4320	0.0108	0.5656
1.2D + 1.0Di + 1.0Wi 50 mph Wind at 60° From Face	66.67	0.1480	0.0189	0.2642
	73.33	0.1805	0.0219	0.2938
	85.00	0.2454	0.0306	0.3538
	100.00	0.3472	0.0474	0.4214
	110.00	0.4255	0.0812	0.4736
	120.00	0.5101	0.1165	0.4905
	125.00	0.5532	0.1327	0.4609
1.2D + 1.0Di + 1.0Wi 50 mph Wind at 90° From Face	66.67	0.1472	-0.0132	0.2625
	73.33	0.1795	-0.0149	0.2925
	85.00	0.2440	-0.0187	0.3511
	100.00	0.3448	-0.0244	0.4162
	110.00	0.4220	-0.0329	0.4644
	120.00	0.5045	-0.0398	0.4655
	125.00	0.5459	-0.0396	0.1695
1.2D + 1.0Di + 1.0Wi 50 mph Wind at Normal From Face	66.67	0.1498	0.0091	0.2687
	73.33	0.1827	0.0100	0.3007
	85.00	0.2491	0.0116	0.3638
	100.00	0.3542	0.0129	0.4374
	110.00	0.4364	0.0122	0.5013
	120.00	0.5268	0.0113	0.5616
	125.00	0.5749	0.0116	0.8648
1.2D + 1.0E - Normal To Face	66.67	0.0288	0.0019	0.0543
	73.33	0.0355	0.0022	0.0613
	85.00	0.0492	0.0026	0.0762
	100.00	0.0715	0.0032	0.0950
	110.00	0.0895	0.0035	0.1105
	120.00	0.1096	0.0036	0.1202
	125.00	0.1200	0.0036	0.1182
1.2D + 1.6W 97 mph Wind at 60° From Face	66.67	0.4676	0.1169	0.8380
	73.33	0.5702	0.1382	0.9340
	85.00	0.7762	0.2047	1.1225
	100.00	1.0980	0.3384	1.3396
	110.00	1.3446	0.6088	1.5041
	120.00	1.6095	0.8763	1.5523
	125.00	1.7446	0.9943	1.4194

1.2D + 1.6W 97 mph Wind at 90° From Face	66.67	0.4659	-0.0412	0.8331
	73.33	0.5683	-0.0464	0.9289
	85.00	0.7737	-0.0580	1.1147
	100.00	1.0940	-0.0749	1.3220
	110.00	1.3384	-0.0988	1.4708
	120.00	1.5990	-0.1180	1.4898
	125.00	1.7305	-0.1174	0.8440
1.2D + 1.6W 97 mph Wind at Normal To Face	66.67	0.4768	0.0309	0.8538
	73.33	0.5816	0.0344	0.9528
	85.00	0.7924	0.0409	1.1475
	100.00	1.1246	0.0476	1.3749
	110.00	1.3816	0.0514	1.5562
	120.00	1.6611	0.0536	1.6998
	125.00	1.8122	0.0547	2.4717

Last revised on June 29, 2018

Mat Foundation Design for Self Supporting Tower

			Date: 6/5/2019
Customer Name:	**SBA Communications Corp**	**EIA/TIA Standard:**	EIA-222-G
Site Name:		**Structure Height (Ft.):**	125
Site Nmber:	CT01725-A-SBA	**Engineer Name:**	. Arinyedokia
Engr. Number:	70654	**Engineer Login ID:**	

Foundation Info Obtained from: Drawings/Calculations

Analysis or Design? Analysis

Number of Tower Legs: 3 Legs

Base Reactions (Factored):

(1). Individual Leg:

Axial Load (Kips):	310.6	Uplift Force (Kips):	280.2
Shear Force (Kips):	26.6		

(2). Tower Base:

Total Vertical Load (Kips):	39.4	Total Shear Force (Kips):	41.2
Moment (Kips-ft):	3220.1		

Foundation Geometries:

Leg distance (Center-to-Center ft.):		12.5	Mods required -Yes/No ?:	No	
Diameter of Pier (ft.):	Square	1.5	Pier Height A. G. (ft.):	0.00	
Tower center to mat center (ft):		0.00	Depth of Base BG (ft.):	4.3	
Length of Pad (ft.):		29	Width of Pad (ft.):	29	
Thickness of Pad (ft):		4.25			

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:	8	Tie Spacing (in):	45.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	8	
Concrete Cover (in.):	3	Unit Weight of Concrete:	150.0	pcf

Rebar at the bottom of the concrete pad:

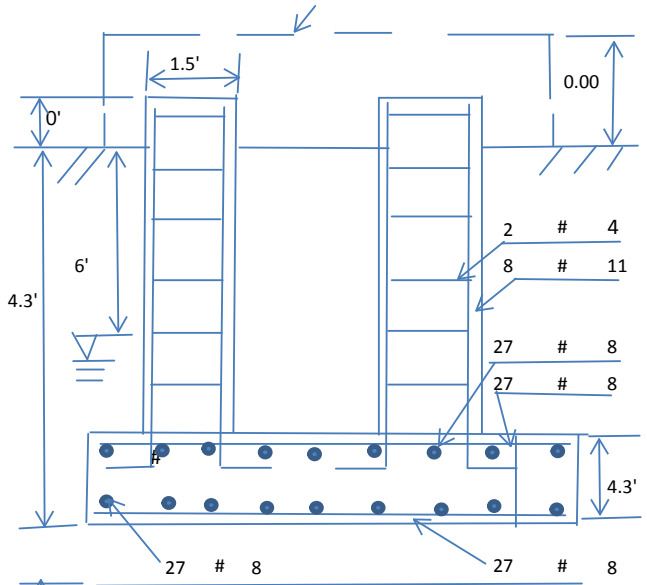
Qty. of Rebar in Pad (L):	27	Qty. of Rebar in Pad (W):	27

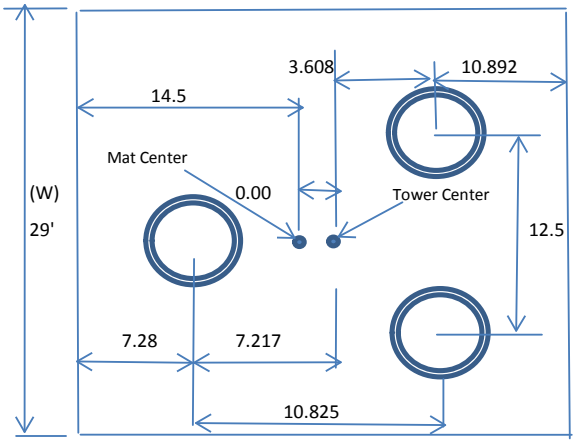
Rebar at the top of the concrete pad:

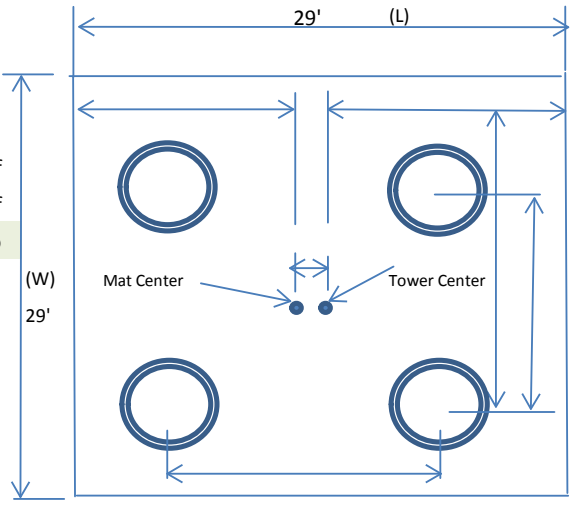
Qty. of Rebar in Pad (L):	27	Qty. of Rebar in Pad (W):	27

Soil Design Parameters:

Soil Unit Weight (pcf):	100.0	Soil Buoyant Weight:	50.0	Pcf
Water Table B.G.S. (ft):	6.0	Unit Weight of Water:	62.4	pcf
Ultimate Bearing Pressure (psf):	10000	Consider ties in concrete shear strength:	No	







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

Total Dry Soil Volume (cu. Ft.):	0.00	Total Dry Soil Weight (Kips):	0.00
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	0.00	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	3574.28	Total Dry Concrete Weight (Kips):	536.14
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	536.14	Total Vertical Load on Base (Kips):	575.50

Check Soil Capacities:

					Load/ Capacity Ratio	
Calculated Maxium Net Soil Pressure under the base (psf):	1491.05	<	Allowable Factored Soil Bearing (psf):	7500	0.20	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	7567.3	>	Design Factored Momont (kips-ft):	3367	0.44	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	2.25	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

(2).Concrete Pad:

One-Way Design Shear Capacity (L or W Direction, Kips):	1358.1	>	One-Way Factored Shear (L/W-Dir Kips	309.5	0.23	OK!
One-Way Design Shear Capacity (Diagonal Dir., Kips):	1048.6	>	One-Way Factored Shear (Dia. Dir, Kips	277.9	0.27	OK!
Lower Steel Pad Reinforcement Ratio (L or W-Direct.):	0.0013		Lower Steel Reinf. Ratio (Dia. Dir.):	0.0011		
Lower Steel Pad Moment Capacity (L or W-Dir. Kips-ft):	4490.1	>	Moment at Bottom (L-Direct. K-Ft):	1887.9	0.42	OK!
Lower Steel Pad Moment Capacity (Dia. Direction,K-ft):	4499.3	>	Moment at Bottom (Dia. Dir. K-Ft):	1381.8	0.31	OK!
Upper Steel Pad Reinforcement Ratio (L or W -Direction):	0.0013		Upper Steel Reinf. Ratio (Dia. Dir.):	0.0011		
Upper Steel Pad Moment Capacity (L or W-Dir., Kips-ft):	4490.1	>	Moment at the top (L-Dir Kips-Ft):	991.2	0.22	OK!
Upper Steel Pad Moment Capacity (Dia. Direction, K-ft):	4499.3	>	Moment at the top (Dia. Dir., K-Ft):	557.6	0.12	OK!
Punching Failure Capacity (Kips):	1662.7	>	Punch. Failure Factored Shear (K):	310.6	0.19	OK!

January 24, 2019

Carl Aquilina
SAI Communications, LLC.
12 Industrial Way
Salem, NH 03079
(603) 560-6185

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:**	10035110
	Site Name:	CT1148
Engineering Firm Designation:	**B+T Group Project Number:**	130654.003.01
Site Data:	**1021 Blue Hills Avenue, Bloomfield, CT 06002 in Hartford County** **Latitude *41.82010°*, Longitude *-72.69652°*** **Self-Support Tower** **(3) 10.5' Sector Mount**	

Dear Mr. Aquilina,

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 78.0%)

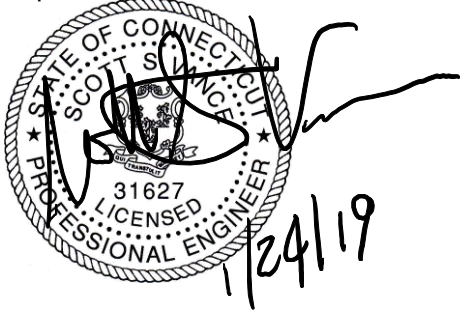
The analysis has been performed in accordance with the ANSI/TIA-222-G Standard. This analysis utilizes an ultimate 3-second gust wind speed of 125 mph (converted to an equivalent 97 mph nominal 3-second gust wind speed per Section 1609.3.1 for use with ANSI/TIA-222 G) as required by the 2018 Connecticut 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 sector mount at 99 ft. attached to self-support tower at 1021 Blue Hills Avenue, Bloomfield, CT 06002, 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 97 mph with no ice and 50 mph with 1 inch escalated ice thickness. Exposure Category C, Topographic Category 1 and Risk Category II were used in this analysis. In addition, the sector 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 Ctr. Elev. (ft.)	Position	Qty.	Manufacturer	Model / Type	Note
Proposed	98	4,5,4,5	4	Kathrein	800-10966	1
		4,5	2	Kathrein	800-10965	
		2	3	Ericsson	4415 B30	2
		4	3	Ericsson	B2/B66A 8843	
		5	3	Ericsson	B5/B12 4449	
		-	2	Raycap	DC6-48-60-18-8F	3
Existing	100	1	3	Powerwave	7770	4
		2	2	CCI	HPA-65R-BUU-H8	
			1	CCI	HPA-65R-BUU-H6	
		1	6	Powerwave	LGP 21401	
		-	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 with RRUS Support, 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 leg.

Table 2 - Documents Provided

Documents	Remarks	Reference	Source
RFDS	Existing Loading Proposed Loading	Date: 10/18/2018	SAI Communications, LLC.
Mount Mapping	By B+T Group	Date: 12/13/2018	On File
Appurtenance Mount analysis Report		Date: 01/14/2019	

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
-	Face Horizontals	99	71.9	Pass
-	Support Arms	99	23.9	Pass
-	Vertical Angles	99	23.3	Pass
-	Vertical Channel	99	22.4	Pass
-	Vertical Pipes	99	32.3	Pass
-	Connection Pipe	99	46.9	Pass
-	Supporting Channels	99	59.3	Pass
-	Connection Plates	99	78.0	Pass
-	Mount Pipes	99	50.2	Pass
-	Tieback	99	10.1	Pass
Proposed	**Reinforcement Kit**	**99**	**47.7**	**Pass**
Proposed	**Stabilizer Kit**	**99**	**25.5**	**Pass**

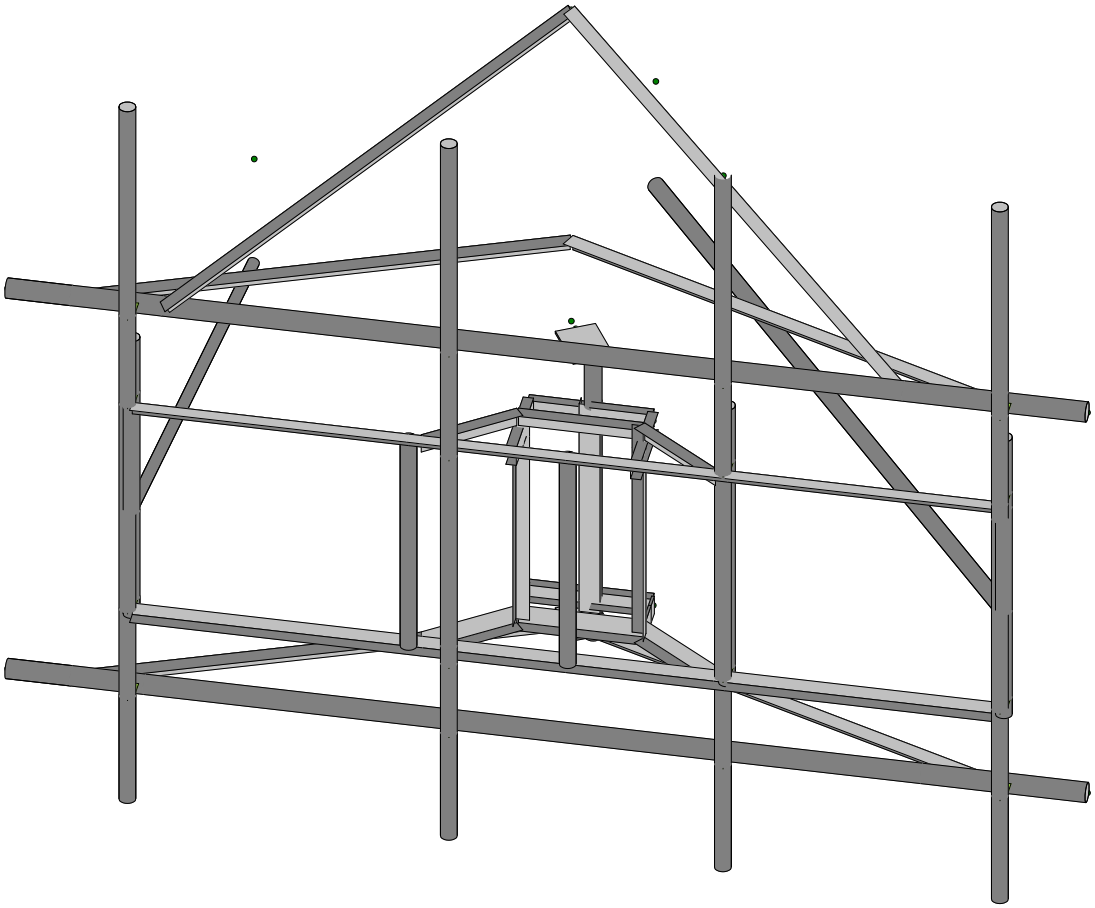
Notes	Component	Elevation (ft.)	% Capacity	Pass / Fail
Proposed	**Horizontal Pipes**	**99**	**42.7**	**Pass**
Proposed	**Vertical Pipes**	**99**	**63.7**	**Pass**
Proposed	**Stiff Arm Kit**	**99**	**12.1**	**Pass**

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)



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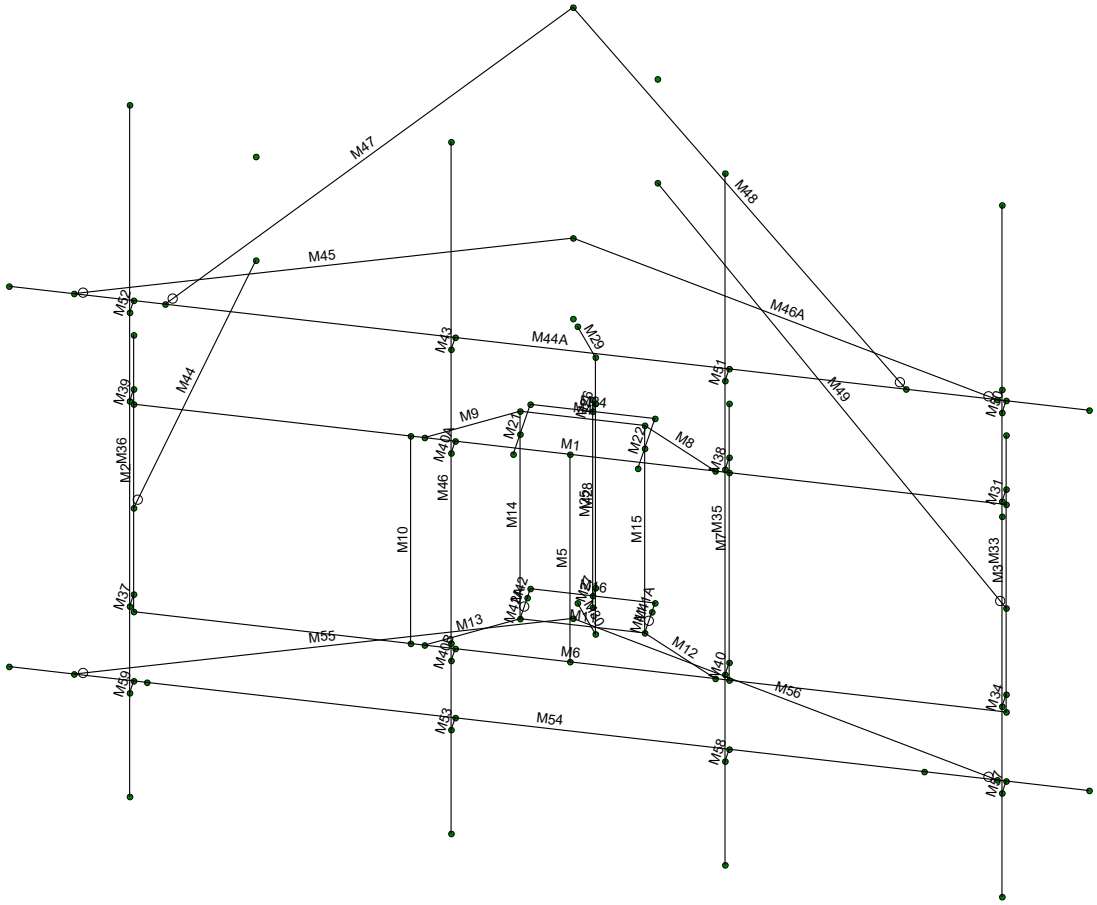

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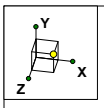

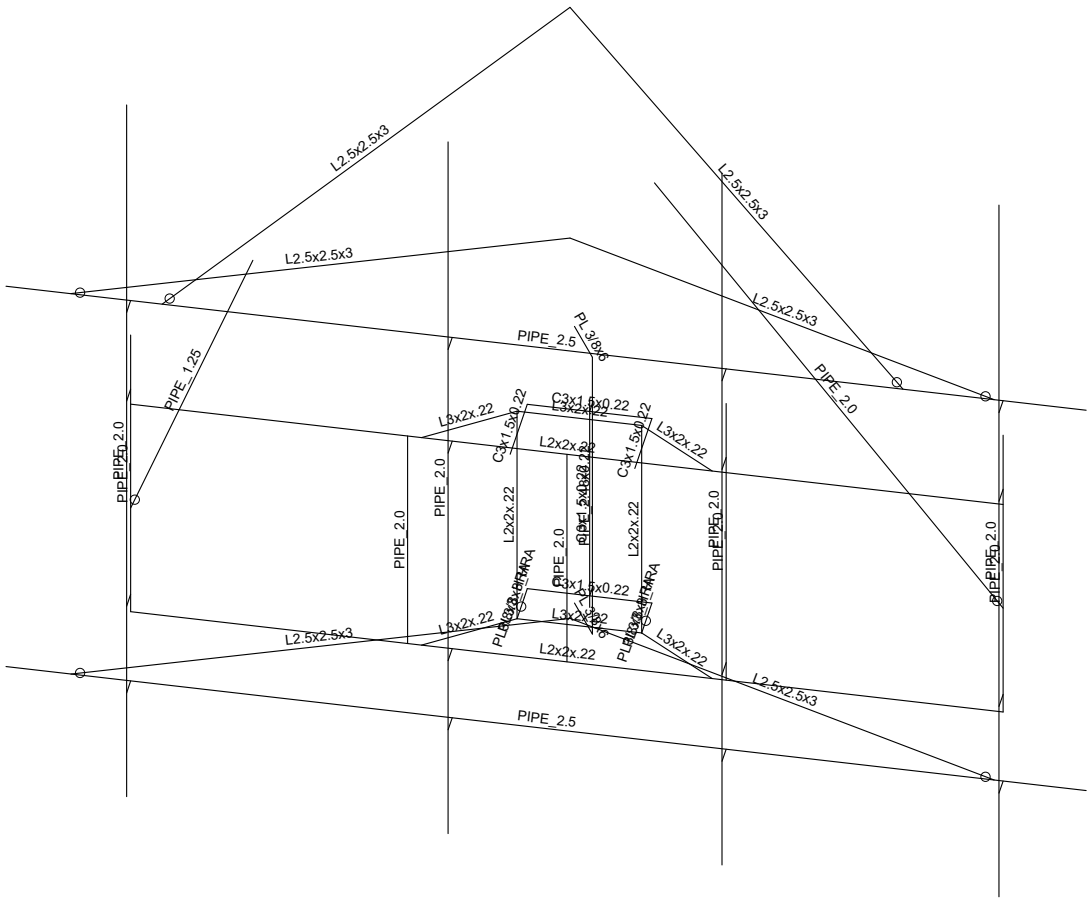

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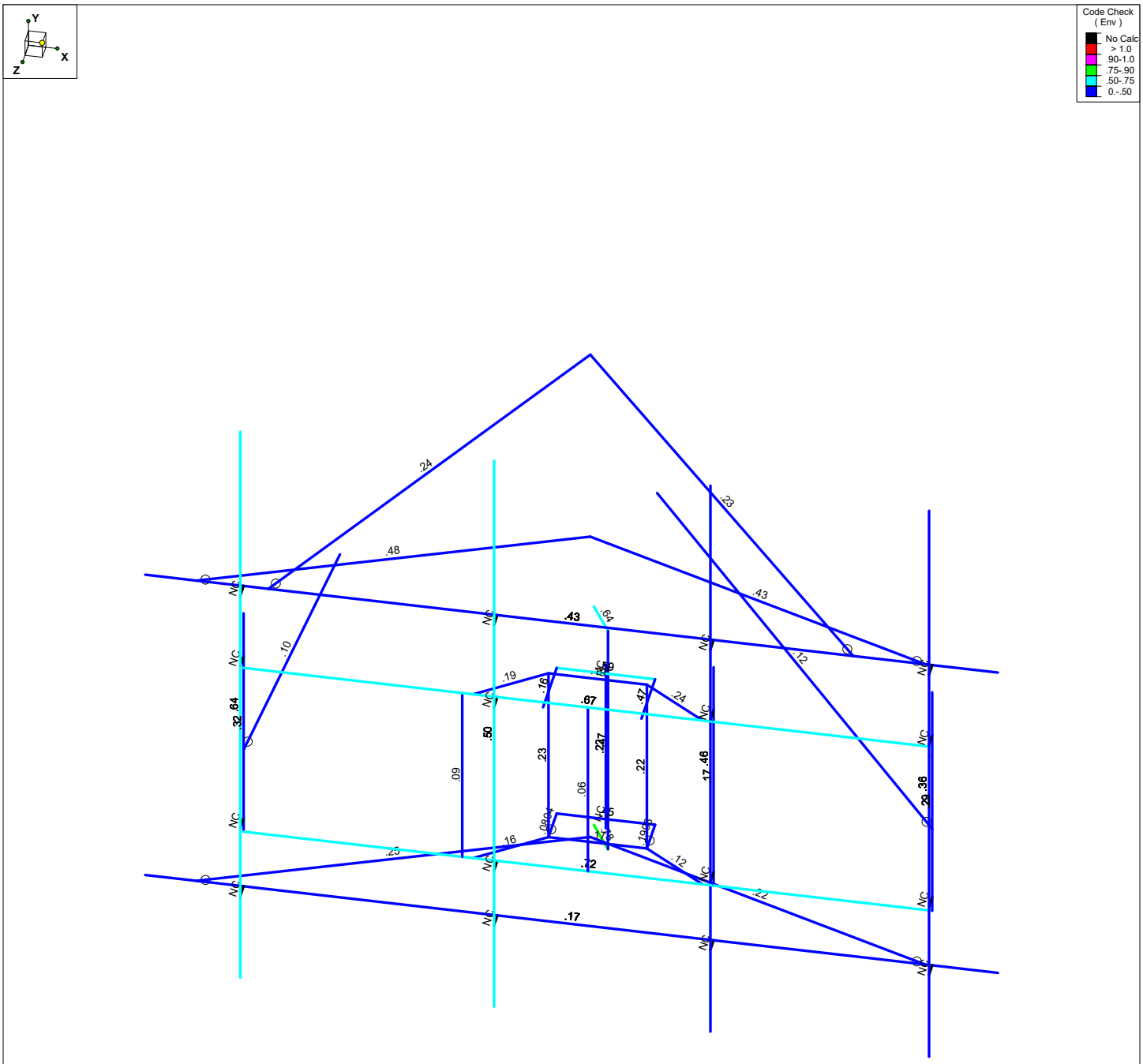

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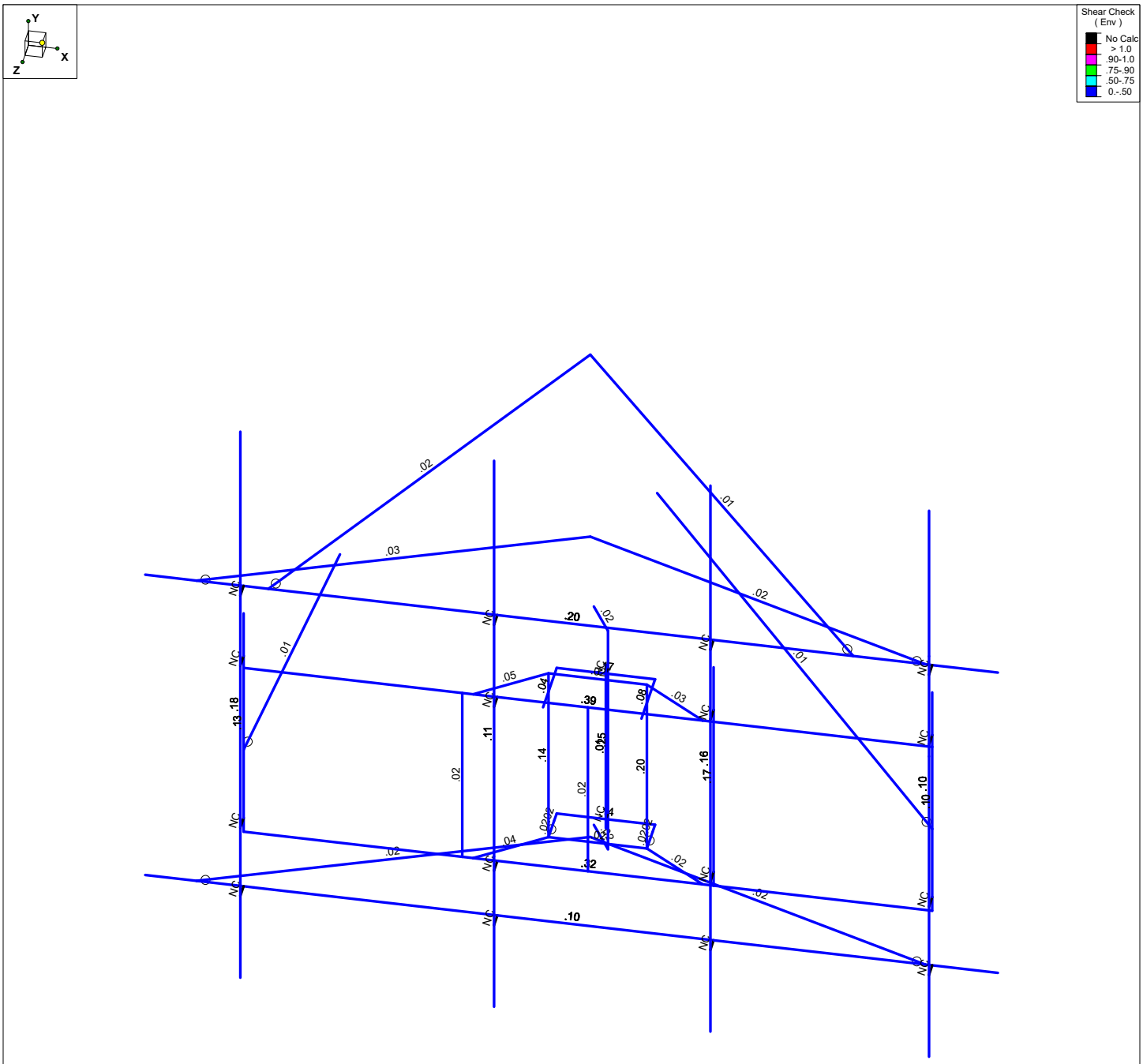

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Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rul...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	MF-H1	L2x2x.22	Beam	Single Angle	A36 Gr.36	Typical	.832	.312	.312	.012
2	F1-SA1	L3x2x.22	Beam	Single Angle	A36 Gr.36	Typical	1.052	.352	.971	.016
3	F1-CH1	C3x1.5x0.22	Beam	Channel	A36 Gr.36	Typical	1.223	.25	1.585	.018
4	F1-V1	L2x2x.22	Column	Single Angle	A36 Gr.36	Typical	.832	.312	.312	.012
5	F1-V2	C3x1.5x0.22	Column	Channel	A36 Gr.36	Typical	1.223	.25	1.585	.018
6	F1-P1	PIPE_2.48x0.22	Column	Pipe	A53 Gr.B	Typical	1.562	1.007	1.007	2.013
7	Tieback	PIPE_1.25	Beam	Pipe	A53 Gr.B	Typical	.625	.184	.184	.368
8	MF-P1	PIPE_2.0	Column	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
9	F1-CP1	PL 3/8x6	Beam	RECT	A36 Gr.36	Typical	2.25	.026	6.75	.101
10	F1-CP2	PL3/8x3_HRA	Beam	RECT	A36 Gr.36	Typical	1.125	.013	.844	.049
11	SF-P1	PIPE_2.5	Beam	Pipe	A53 Gr.B	Typical	1.61	1.45	1.45	2.89
12	SF-H1	L2.5x2.5x3	Beam	Single Angle	A36 Gr.36	Typical	.901	.535	.535	.011
13	Tieback1	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N1	N2		90	MF-H1	Beam	Single Angle	A36 Gr.36	Typical
2	M2	N3	N7			MF-P1	Column	Pipe	A53 Gr.B	Typical
3	M3	N4	N8			MF-P1	Column	Pipe	A53 Gr.B	Typical
4	M4	N18	N17		180	F1-SA1	Beam	Single Angle	A36 Gr.36	Typical
5	M5	N5	N6			MF-P1	Column	Pipe	A53 Gr.B	Typical
6	M6	N7	N8			MF-H1	Beam	Single Angle	A36 Gr.36	Typical
7	M7	N9	N10			MF-P1	Column	Pipe	A53 Gr.B	Typical
8	M8	N11	N18		180	F1-SA1	Beam	Single Angle	A36 Gr.36	Typical
9	M9	N17	N12		180	F1-SA1	Beam	Single Angle	A36 Gr.36	Typical
10	M10	N13	N14			MF-P1	Column	Pipe	A53 Gr.B	Typical
11	M11	N20	N22			F1-SA1	Beam	Single Angle	A36 Gr.36	Typical
12	M12	N22	N15			F1-SA1	Beam	Single Angle	A36 Gr.36	Typical
13	M13	N16	N20			F1-SA1	Beam	Single Angle	A36 Gr.36	Typical
14	M14	N17	N20		180	F1-V1	Column	Single Angle	A36 Gr.36	Typical
15	M15	N18	N22		270	F1-V1	Column	Single Angle	A36 Gr.36	Typical
16	M16	N27	N21			F1-CH1	Beam	Channel	A36 Gr.36	Typical
17	M21	N28	N24			F1-CH1	Beam	Channel	A36 Gr.36	Typical
18	M22	N29	N25		180	F1-CH1	Beam	Channel	A36 Gr.36	Typical
19	M24	N28	N29			F1-CH1	Beam	Channel	A36 Gr.36	Typical
20	M25	N30	N31			F1-V2	Column	Channel	A36 Gr.36	Typical
21	M26	N32	N33			RIGID	None	None	RIGID	Typical
22	M27	N34	N35			RIGID	None	None	RIGID	Typical
23	M28	N38	N36			F1-P1	Column	Pipe	A53 Gr.B	Typical
24	M29	N36	N37		90	F1-CP1	Beam	RECT	A36 Gr.36	Typical
25	M30	N38	N39		90	F1-CP1	Beam	RECT	A36 Gr.36	Typical
26	M31	N40	N41			RIGID	None	None	RIGID	Typical
27	M33	N44	N45			MF-P1	Column	Pipe	A53 Gr.B	Typical
28	M34	N46	N47			RIGID	None	None	RIGID	Typical
29	M35	N48	N49			MF-P1	Column	Pipe	A53 Gr.B	Typical
30	M36	N50	N51			MF-P1	Column	Pipe	A53 Gr.B	Typical
31	M37	N52	N53			RIGID	None	None	RIGID	Typical
32	M38	N54	N55			RIGID	None	None	RIGID	Typical
33	M39	N56	N57			RIGID	None	None	RIGID	Typical
34	M40	N58	N59			RIGID	None	None	RIGID	Typical
35	M44	N63	N64			Tieback	Beam	Pipe	A53 Gr.B	Typical
36	M46	N67	N68			MF-P1	Column	Pipe	A53 Gr.B	Typical
37	M42	N27	N74A		180	F1-CP2	Beam	RECT	A36 Gr.36	Typical
38	M41	N22	N73C		180	F1-CP2	Beam	RECT	A36 Gr.36	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
39	M40A	N74	N73A			RIGID	None	None	RIGID	Typical
40	M40B	N66	N73B			RIGID	None	None	RIGID	Typical
41	M41A	N73C	N21		180	F1-CP2	Beam	RECT	A36 Gr.36	Typical
42	M42A	N74A	N20		180	F1-CP2	Beam	RECT	A36 Gr.36	Typical
43	M43	N78	N79			RIGID	None	None	RIGID	Typical
44	M44A	N74B	N75A			SF-P1	Beam	Pipe	A53 Gr.B	Typical
45	M45	N76A	N81		180	SF-H1	Beam	Single Angle	A36 Gr.36	Typical
46	M46A	N76A	N80		90	SF-H1	Beam	Single Angle	A36 Gr.36	Typical
47	M47	N83	N85		180	SF-H1	Beam	Single Angle	A36 Gr.36	Typical
48	M48	N83	N84		90	SF-H1	Beam	Single Angle	A36 Gr.36	Typical
49	M49	N86	N87			Tieback1	Beam	Pipe	A53 Gr.B	Typical
50	M50	N91	N88			RIGID	None	None	RIGID	Typical
51	M51	N89	N77			RIGID	None	None	RIGID	Typical
52	M52	N90	N82			RIGID	None	None	RIGID	Typical
53	M53	N96	N97			RIGID	None	None	RIGID	Typical
54	M54	N92	N93			SF-P1	Beam	Pipe	A53 Gr.B	Typical
55	M55	N94	N99		180	SF-H1	Beam	Single Angle	A36 Gr.36	Typical
56	M56	N94	N98		90	SF-H1	Beam	Single Angle	A36 Gr.36	Typical
57	M57	N106	N103			RIGID	None	None	RIGID	Typical
58	M58	N104	N95			RIGID	None	None	RIGID	Typical
59	M59	N105	N100			RIGID	None	None	RIGID	Typical

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
1	Dead	DL		-1			35			
2	0 Wind - No Ice	WLZ					35	41		
3	90 Wind - No Ice	WLX					35	41		
4	0 Wind - Ice	WLZ					35	41		
5	90 Wind - Ice	WLX					35	41		
6	0 Wind - Service	WLZ					35	41		
7	90 Wind - Service	WLX					35	41		
8	Ice	OL1					35	41		
9	Live Load a	LL				1				
10	Live Load b	LL				1				
11	Live Load c	LL				1				
12	Live Load d	LL				1				
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								
20	Maint LL 8	LL								
21	Maint LL 9	LL								

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														

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...
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														
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												

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...
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												
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												

Member Point Loads (BLC 1 : Dead)

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
1	M33	Y	-.018	%5
2	M33	Y	-.018	%80
3	M33	Y	0	0
4	M33	Y	0	0
5	M33	Y	0	0
6	M3	Y	-.014	%50
7	M3	Y	0	0
8	M3	Y	0	0
9	M3	Y	0	0
10	M3	Y	0	0
11	M35	Y	-.034	%35
12	M35	Y	-.034	%75

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
13	M35	Y	-.044	%20
14	M35	Y	0	0
15	M35	Y	0	0
16	M46	Y	-.057	%15
17	M46	Y	-.057	%95
18	M46	Y	-.072	%25
19	M46	Y	0	0
20	M46	Y	0	0
21	M36	Y	-.057	%5
22	M36	Y	-.057	%95
23	M36	Y	0	0
24	M36	Y	0	0
25	M36	Y	0	0
26	M28	Y	-.033	%50
27	M28	Y	0	0
28	M28	Y	0	0
29	M28	Y	0	0
30	M28	Y	0	0
31	M2	Y	-.073	%35
32	M2	Y	0	0
33	M2	Y	0	0
34	M2	Y	0	0
35	M2	Y	0	0

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
1	M33	Z	-.08	%5
2	M33	Z	-.08	%80
3	M33	Z	0	0
4	M33	Z	0	0
5	M33	Z	0	0
6	M3	Z	-.01	%50
7	M3	Z	0	0
8	M3	Z	0	0
9	M3	Z	0	0
10	M3	Z	0	0
11	M35	Z	-.188	%35
12	M35	Z	-.188	%75
13	M35	Z	-.048	%20
14	M35	Z	0	0
15	M35	Z	0	0
16	M46	Z	-.251	%15
17	M46	Z	-.251	%95
18	M46	Z	-.048	%25
19	M46	Z	0	0
20	M46	Z	0	0
21	M36	Z	-.251	%5
22	M36	Z	-.251	%95
23	M36	Z	0	0
24	M36	Z	0	0
25	M36	Z	0	0
26	M28	Z	-.035	%50
27	M28	Z	0	0
28	M28	Z	0	0
29	M28	Z	0	0
30	M28	Z	0	0

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
31	M2	Z	-.048	%35
32	M2	Z	0	0
33	M2	Z	0	0
34	M2	Z	0	0
35	M2	Z	0	0

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
1	M33	X	-.036	%5
2	M33	X	-.036	%80
3	M33	X	0	0
4	M33	X	0	0
5	M33	X	0	0
6	M3	X	-.036	%50
7	M3	X	0	0
8	M3	X	0	0
9	M3	X	0	0
10	M3	X	0	0
11	M35	X	-.094	%35
12	M35	X	-.094	%75
13	M35	X	-.019	%20
14	M35	X	0	0
15	M35	X	0	0
16	M46	X	-.087	%15
17	M46	X	-.087	%95
18	M46	X	-.039	%25
19	M46	X	0	0
20	M46	X	0	0
21	M36	X	-.087	%5
22	M36	X	-.087	%95
23	M36	X	0	0
24	M36	X	0	0
25	M36	X	0	0
26	M28	X	-.035	%50
27	M28	X	0	0
28	M28	X	0	0
29	M28	X	0	0
30	M28	X	0	0
31	M2	X	-.038	%35
32	M2	X	0	0
33	M2	X	0	0
34	M2	X	0	0
35	M2	X	0	0

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
1	M33	Z	-.032	%5
2	M33	Z	-.032	%80
3	M33	Z	0	0
4	M33	Z	0	0
5	M33	Z	0	0
6	M3	Z	-.009	%50
7	M3	Z	0	0
8	M3	Z	0	0
9	M3	Z	0	0
10	M3	Z	0	0

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
11	M35	Z	-.067	%35
12	M35	Z	-.067	%75
13	M35	Z	-.022	%20
14	M35	Z	0	0
15	M35	Z	0	0
16	M46	Z	-.084	%15
17	M46	Z	-.084	%95
18	M46	Z	-.022	%25
19	M46	Z	0	0
20	M46	Z	0	0
21	M36	Z	-.084	%5
22	M36	Z	-.084	%95
23	M36	Z	0	0
24	M36	Z	0	0
25	M36	Z	0	0
26	M28	Z	-.015	%50
27	M28	Z	0	0
28	M28	Z	0	0
29	M28	Z	0	0
30	M28	Z	0	0
31	M2	Z	-.022	%35
32	M2	Z	0	0
33	M2	Z	0	0
34	M2	Z	0	0
35	M2	Z	0	0

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
1	M33	X	-.019	%5
2	M33	X	-.019	%80
3	M33	X	0	0
4	M33	X	0	0
5	M33	X	0	0
6	M3	X	-.018	%50
7	M3	X	0	0
8	M3	X	0	0
9	M3	X	0	0
10	M3	X	0	0
11	M35	X	-.041	%35
12	M35	X	-.041	%75
13	M35	X	-.012	%20
14	M35	X	0	0
15	M35	X	0	0
16	M46	X	-.039	%15
17	M46	X	-.039	%95
18	M46	X	-.019	%25
19	M46	X	0	0
20	M46	X	0	0
21	M36	X	-.039	%5
22	M36	X	-.039	%95
23	M36	X	0	0
24	M36	X	0	0
25	M36	X	0	0
26	M28	X	-.015	%50
27	M28	X	0	0
28	M28	X	0	0

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
29	M28	X	0	0
30	M28	X	0	0
31	M2	X	-.019	%35
32	M2	X	0	0
33	M2	X	0	0
34	M2	X	0	0
35	M2	X	0	0

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
1	M33	Z	-.007	%5
2	M33	Z	-.007	%80
3	M33	Z	0	0
4	M33	Z	0	0
5	M33	Z	0	0
6	M3	Z	-.0009	%50
7	M3	Z	0	0
8	M3	Z	0	0
9	M3	Z	0	0
10	M3	Z	0	0
11	M35	Z	-.018	%35
12	M35	Z	-.018	%75
13	M35	Z	-.005	%20
14	M35	Z	0	0
15	M35	Z	0	0
16	M46	Z	-.024	%15
17	M46	Z	-.024	%95
18	M46	Z	-.004	%25
19	M46	Z	0	0
20	M46	Z	0	0
21	M36	Z	-.024	%5
22	M36	Z	-.024	%95
23	M36	Z	0	0
24	M36	Z	0	0
25	M36	Z	0	0
26	M28	Z	-.003	%50
27	M28	Z	0	0
28	M28	Z	0	0
29	M28	Z	0	0
30	M28	Z	0	0
31	M2	Z	-.005	%35
32	M2	Z	0	0
33	M2	Z	0	0
34	M2	Z	0	0
35	M2	Z	0	0

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
1	M33	X	-.003	%5
2	M33	X	-.003	%80
3	M33	X	0	0
4	M33	X	0	0
5	M33	X	0	0
6	M3	X	-.003	%50
7	M3	X	0	0
8	M3	X	0	0

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
9	M3	X	0	0
10	M3	X	0	0
11	M35	X	-.009	%35
12	M35	X	-.009	%75
13	M35	X	-.002	%20
14	M35	X	0	0
15	M35	X	0	0
16	M46	X	-.008	%15
17	M46	X	-.008	%95
18	M46	X	-.004	%25
19	M46	X	0	0
20	M46	X	0	0
21	M36	X	-.008	%5
22	M36	X	-.008	%95
23	M36	X	0	0
24	M36	X	0	0
25	M36	X	0	0
26	M28	X	-.003	%50
27	M28	X	0	0
28	M28	X	0	0
29	M28	X	0	0
30	M28	X	0	0
31	M2	X	-.004	%35
32	M2	X	0	0
33	M2	X	0	0
34	M2	X	0	0
35	M2	X	0	0

Member Point Loads (BLC 8 : Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
1	M33	Y	-.09	%5
2	M33	Y	-.09	%80
3	M33	Y	0	0
4	M33	Y	0	0
5	M33	Y	0	0
6	M3	Y	-.039	%50
7	M3	Y	0	0
8	M3	Y	0	0
9	M3	Y	0	0
10	M3	Y	0	0
11	M35	Y	-.197	%35
12	M35	Y	-.197	%75
13	M35	Y	-.056	%20
14	M35	Y	0	0
15	M35	Y	0	0
16	M46	Y	-.255	%15
17	M46	Y	-.255	%95
18	M46	Y	-.066	%25
19	M46	Y	0	0
20	M46	Y	0	0
21	M36	Y	-.255	%5
22	M36	Y	-.255	%95
23	M36	Y	0	0
24	M36	Y	0	0
25	M36	Y	0	0
26	M28	Y	-.094	%50

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
27	M28	Y	0	0
28	M28	Y	0	0
29	M28	Y	0	0
30	M28	Y	0	0
31	M2	Y	-.065	%35
32	M2	Y	0	0
33	M2	Y	0	0
34	M2	Y	0	0
35	M2	Y	0	0

Member Point Loads (BLC 13 : Maint LL 1)

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

Member Point Loads (BLC 14 : Maint LL 2)

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
1	M6	Y	-.25	%95

Member Point Loads (BLC 15 : Maint LL 3)

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
1	M9	Y	-.25	%50

Member Point Loads (BLC 16 : Maint LL 4)

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
1	M13	Y	-.25	%50

Member Point Loads (BLC 17 : Maint LL 5)

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
1	M8	Y	-.25	%50

Member Point Loads (BLC 18 : Maint LL 6)

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
1	M12	Y	-.25	%50

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	-.01	-.01	0	0
2	M2	Z	-.006	-.006	0	0
3	M3	Z	-.006	-.006	0	0
4	M4	Z	-.01	-.01	0	0
5	M5	Z	-.006	-.006	0	0
6	M6	Z	-.01	-.01	0	0
7	M7	Z	-.006	-.006	0	0
8	M8	Z	-.009	-.009	0	0
9	M9	Z	-.009	-.009	0	0
10	M10	Z	-.006	-.006	0	0
11	M11	Z	-.01	-.01	0	0
12	M12	Z	-.009	-.009	0	0
13	M13	Z	-.009	-.009	0	0
14	M14	Z	-.009	-.009	0	0
15	M15	Z	-.009	-.009	0	0
16	M16	Z	-.01	-.01	0	0

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[in,%]	End Location[in,%]
17	M21	Z	-.009	-.009	0	0
18	M22	Z	-.009	-.009	0	0
19	M24	Z	-.01	-.01	0	0
20	M25	Z	-.011	-.011	0	0
21	M28	Z	-.006	-.006	0	0
22	M29	Z	-.002	-.002	0	0
23	M30	Z	-.002	-.002	0	0
24	M33	Z	-.007	-.007	0	0
25	M35	Z	-.007	-.007	0	0
26	M36	Z	-.007	-.007	0	0
27	M44	Z	-.005	-.005	0	0
28	M46	Z	-.007	-.007	0	0
29	M42	Z	-.009	-.009	0	0
30	M41	Z	-.009	-.009	0	0
31	M41A	Z	-.009	-.009	0	0
32	M42A	Z	-.009	-.009	0	0
33	M44A	Z	-.008	-.008	0	0
34	M45	Z	-.012	-.012	0	0
35	M46A	Z	-.012	-.012	0	0
36	M47	Z	-.012	-.012	0	0
37	M48	Z	-.012	-.012	0	0
38	M49	Z	-.007	-.007	0	0
39	M54	Z	-.008	-.008	0	0
40	M55	Z	-.012	-.012	0	0
41	M56	Z	-.012	-.012	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	-.01	-.01	0	0
2	M2	X	-.006	-.006	0	0
3	M3	X	-.006	-.006	0	0
4	M4	X	-.01	-.01	0	0
5	M5	X	-.006	-.006	0	0
6	M6	X	-.01	-.01	0	0
7	M7	X	-.006	-.006	0	0
8	M8	X	-.009	-.009	0	0
9	M9	X	-.009	-.009	0	0
10	M10	X	-.006	-.006	0	0
11	M11	X	-.01	-.01	0	0
12	M12	X	-.009	-.009	0	0
13	M13	X	-.009	-.009	0	0
14	M14	X	-.009	-.009	0	0
15	M15	X	-.009	-.009	0	0
16	M16	X	-.01	-.01	0	0
17	M21	X	-.009	-.009	0	0
18	M22	X	-.009	-.009	0	0
19	M24	X	-.01	-.01	0	0
20	M25	X	-.011	-.011	0	0
21	M28	X	-.006	-.006	0	0
22	M29	X	-.002	-.002	0	0
23	M30	X	-.002	-.002	0	0
24	M33	X	-.007	-.007	0	0
25	M35	X	-.007	-.007	0	0
26	M36	X	-.007	-.007	0	0
27	M44	X	-.005	-.005	0	0
28	M46	X	-.007	-.007	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,%]
29	M42	X	-.009	-.009	0	0
30	M41	X	-.009	-.009	0	0
31	M41A	X	-.009	-.009	0	2.25
32	M42A	X	-.009	-.009	0	5.25
33	M44A	X	-.008	-.008	0	0
34	M45	X	-.012	-.012	0	0
35	M46A	X	-.012	-.012	0	0
36	M47	X	-.012	-.012	0	0
37	M48	X	-.012	-.012	0	0
38	M49	X	-.007	-.007	0	0
39	M54	X	-.008	-.008	0	0
40	M55	X	-.012	-.012	0	0
41	M56	X	-.012	-.012	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	-.009	-.009	0	0
2	M2	Z	-.003	-.003	0	0
3	M3	Z	-.003	-.003	0	0
4	M4	Z	-.008	-.008	0	0
5	M5	Z	-.003	-.003	0	0
6	M6	Z	-.009	-.009	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	-.003	-.003	0	0
11	M11	Z	-.008	-.008	0	0
12	M12	Z	-.008	-.008	0	0
13	M13	Z	-.008	-.008	0	0
14	M14	Z	-.008	-.008	0	0
15	M15	Z	-.008	-.008	0	0
16	M16	Z	-.008	-.008	0	0
17	M21	Z	-.008	-.008	0	0
18	M22	Z	-.008	-.008	0	0
19	M24	Z	-.008	-.008	0	0
20	M25	Z	-.008	-.008	0	0
21	M28	Z	-.003	-.003	0	0
22	M29	Z	-.009	-.009	0	0
23	M30	Z	-.009	-.009	0	0
24	M33	Z	-.003	-.003	0	0
25	M35	Z	-.003	-.003	0	0
26	M36	Z	-.003	-.003	0	0
27	M44	Z	-.003	-.003	0	0
28	M46	Z	-.003	-.003	0	0
29	M42	Z	-.017	-.017	0	0
30	M41	Z	-.011	-.011	0	0
31	M41A	Z	-.017	-.017	0	2.25
32	M42A	Z	-.011	-.011	0	5.25
33	M44A	Z	-.003	-.003	0	0
34	M45	Z	-.009	-.009	0	0
35	M46A	Z	-.009	-.009	0	0
36	M47	Z	-.009	-.009	0	0
37	M48	Z	-.009	-.009	0	0
38	M49	Z	-.003	-.003	0	0
39	M54	Z	-.003	-.003	0	0
40	M55	Z	-.009	-.009	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,%]
41	M56	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	-.009	-.009	0	0
2	M2	X	-.003	-.003	0	0
3	M3	X	-.003	-.003	0	0
4	M4	X	-.008	-.008	0	0
5	M5	X	-.003	-.003	0	0
6	M6	X	-.009	-.009	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	-.003	-.003	0	0
11	M11	X	-.008	-.008	0	0
12	M12	X	-.008	-.008	0	0
13	M13	X	-.008	-.008	0	0
14	M14	X	-.008	-.008	0	0
15	M15	X	-.008	-.008	0	0
16	M16	X	-.008	-.008	0	0
17	M21	X	-.008	-.008	0	0
18	M22	X	-.008	-.008	0	0
19	M24	X	-.008	-.008	0	0
20	M25	X	-.008	-.008	0	0
21	M28	X	-.003	-.003	0	0
22	M29	X	-.009	-.009	0	0
23	M30	X	-.009	-.009	0	0
24	M33	X	-.003	-.003	0	0
25	M35	X	-.003	-.003	0	0
26	M36	X	-.003	-.003	0	0
27	M44	X	-.003	-.003	0	0
28	M46	X	-.003	-.003	0	0
29	M42	X	-.017	-.017	0	0
30	M41	X	-.011	-.011	0	0
31	M41A	X	-.017	-.017	0	2.25
32	M42A	X	-.011	-.011	0	5.25
33	M44A	X	-.003	-.003	0	0
34	M45	X	-.009	-.009	0	0
35	M46A	X	-.009	-.009	0	0
36	M47	X	-.009	-.009	0	0
37	M48	X	-.009	-.009	0	0
38	M49	X	-.003	-.003	0	0
39	M54	X	-.003	-.003	0	0
40	M55	X	-.009	-.009	0	0
41	M56	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	-.0009	-.0009	0	0
2	M2	Z	-.0003	-.0003	0	0
3	M3	Z	-.0003	-.0003	0	0
4	M4	Z	-.0009	-.0009	0	0
5	M5	Z	-.0003	-.0003	0	0
6	M6	Z	-.0009	-.0009	0	0
7	M7	Z	-.0003	-.0003	0	0
8	M8	Z	-.0009	-.0009	0	0

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[in,%]	End Location[in,%]
9	M9	Z	-.0009	-.0009	0	0
10	M10	Z	-.0003	-.0003	0	0
11	M11	Z	-.0009	-.0009	0	0
12	M12	Z	-.0009	-.0009	0	0
13	M13	Z	-.0009	-.0009	0	0
14	M14	Z	-.0008	-.0008	0	0
15	M15	Z	-.0008	-.0008	0	0
16	M16	Z	-.0009	-.0009	0	0
17	M21	Z	-.0009	-.0009	0	0
18	M22	Z	-.0009	-.0009	0	0
19	M24	Z	-.0009	-.0009	0	0
20	M25	Z	-.001	-.001	0	0
21	M28	Z	-.0003	-.0003	0	0
22	M29	Z	-.0002	-.0002	0	0
23	M30	Z	-.0002	-.0002	0	0
24	M33	Z	-.0003	-.0003	0	0
25	M35	Z	-.0003	-.0003	0	0
26	M36	Z	-.0003	-.0003	0	0
27	M44	Z	-.0002	-.0002	0	0
28	M46	Z	-.0003	-.0003	0	0
29	M42	Z	-.0008	-.0008	0	0
30	M41	Z	-.0008	-.0008	0	0
31	M41A	Z	-.0008	-.0008	0	2.25
32	M42A	Z	-.0008	-.0008	0	5.25
33	M44A	Z	-.0004	-.0004	0	0
34	M45	Z	-.001	-.001	0	0
35	M46A	Z	-.001	-.001	0	0
36	M47	Z	-.001	-.001	0	0
37	M48	Z	-.001	-.001	0	0
38	M49	Z	-.0003	-.0003	0	0
39	M54	Z	-.0004	-.0004	0	0
40	M55	Z	-.001	-.001	0	0
41	M56	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	-.0009	-.0009	0	0
2	M2	X	-.0003	-.0003	0	0
3	M3	X	-.0003	-.0003	0	0
4	M4	X	-.0009	-.0009	0	0
5	M5	X	-.0003	-.0003	0	0
6	M6	X	-.0009	-.0009	0	0
7	M7	X	-.0003	-.0003	0	0
8	M8	X	-.0009	-.0009	0	0
9	M9	X	-.0009	-.0009	0	0
10	M10	X	-.0003	-.0003	0	0
11	M11	X	-.0009	-.0009	0	0
12	M12	X	-.0009	-.0009	0	0
13	M13	X	-.0009	-.0009	0	0
14	M14	X	-.0008	-.0008	0	0
15	M15	X	-.0008	-.0008	0	0
16	M16	X	-.0009	-.0009	0	0
17	M21	X	-.0009	-.0009	0	0
18	M22	X	-.0009	-.0009	0	0
19	M24	X	-.0009	-.0009	0	0
20	M25	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,%]
21	M28	X	-.0003	-.0003	0	0
22	M29	X	-.0002	-.0002	0	0
23	M30	X	-.0002	-.0002	0	0
24	M33	X	-.0003	-.0003	0	0
25	M35	X	-.0003	-.0003	0	0
26	M36	X	-.0003	-.0003	0	0
27	M44	X	-.0002	-.0002	0	0
28	M46	X	-.0003	-.0003	0	0
29	M42	X	-.0008	-.0008	0	0
30	M41	X	-.0008	-.0008	0	0
31	M41A	X	-.0008	-.0008	0	2.25
32	M42A	X	-.0008	-.0008	0	5.25
33	M44A	X	-.0004	-.0004	0	0
34	M45	X	-.001	-.001	0	0
35	M46A	X	-.001	-.001	0	0
36	M47	X	-.001	-.001	0	0
37	M48	X	-.001	-.001	0	0
38	M49	X	-.0003	-.0003	0	0
39	M54	X	-.0004	-.0004	0	0
40	M55	X	-.001	-.001	0	0
41	M56	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	-.014	-.014	0	0
2	M2	Y	-.013	-.013	0	0
3	M3	Y	-.013	-.013	0	0
4	M4	Y	-.016	-.016	0	0
5	M5	Y	-.013	-.013	0	0
6	M6	Y	-.014	-.014	0	0
7	M7	Y	-.013	-.013	0	0
8	M8	Y	-.016	-.016	0	0
9	M9	Y	-.016	-.016	0	0
10	M10	Y	-.013	-.013	0	0
11	M11	Y	-.016	-.016	0	0
12	M12	Y	-.016	-.016	0	0
13	M13	Y	-.016	-.016	0	0
14	M14	Y	-.014	-.014	0	0
15	M15	Y	-.014	-.014	0	0
16	M16	Y	-.015	-.015	0	0
17	M21	Y	-.015	-.015	0	0
18	M22	Y	-.015	-.015	0	0
19	M24	Y	-.015	-.015	0	0
20	M25	Y	-.015	-.015	0	0
21	M28	Y	-.013	-.013	0	0
22	M29	Y	-.023	-.023	0	0
23	M30	Y	-.023	-.023	0	0
24	M33	Y	-.013	-.013	0	0
25	M35	Y	-.013	-.013	0	0
26	M36	Y	-.013	-.013	0	0
27	M44	Y	-.011	-.011	0	0
28	M46	Y	-.013	-.013	0	0
29	M42	Y	-.014	-.014	0	0
30	M41	Y	-.014	-.014	0	0
31	M41A	Y	-.014	-.014	0	2.25
32	M42A	Y	-.014	-.014	0	5.25

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,%]
33	M44A	Y	-.014	-.014	0	0
34	M45	Y	-.016	-.016	0	0
35	M46A	Y	-.016	-.016	0	0
36	M47	Y	-.016	-.016	0	0
37	M48	Y	-.016	-.016	0	0
38	M49	Y	-.013	-.013	0	0
39	M54	Y	-.014	-.014	0	0
40	M55	Y	-.016	-.016	0	0
41	M56	Y	-.016	-.016	0	0

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	N7	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	N66	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	N10	L	Y	-.25

Joint Loads and Enforced Displacements (BLC 12 : Live Load d)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/i...
1	N47	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	N37	max	.485	15	.525	45	1.735	14	0	103	0	103	0	103
2		min	-.45	9	.086	4	-1.507	8	0	1	0	1	0	1
3	N64	max	.091	11	.077	23	1.096	17	0	103	0	103	0	103
4		min	-.101	17	-.071	5	-1.023	11	0	1	0	1	0	1
5	N39	max	.275	15	.637	38	1.204	14	0	103	0	103	0	103
6		min	-.236	9	-.084	8	-1.039	8	0	1	0	1	0	1
7	N76A	max	1.09	5	.115	44	2.566	26	0	103	0	103	0	103
8		min	-1.293	23	.013	2	-1.201	8	0	1	0	1	0	1
9	N83	max	.852	17	4.622	43	-.318	2	0	103	0	103	0	103
10		min	-.693	11	.651	13	-3.101	44	0	1	0	1	0	1
11	N87	max	.559	22	.083	29	.75	22	0	103	0	103	0	103
12		min	-.496	4	-.021	10	-.671	4	0	1	0	1	0	1
13	N94	max	1.933	5	.12	44	.948	2	0	103	0	103	0	103
14		min	-2.021	23	.015	2	-1.064	20	0	1	0	1	0	1
15	Totals:	max	3.748	5	5.997	44	5.275	2						
16		min	-3.748	23	1.115	2	-5.275	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	L2x2x.22	.675	45.938	8	.390	42	z	14	1.819	26.957	.63	1.316	3	H2-1
2	M2	PIPE_2.0	.323	30	17	.135	12		25	26.521	32.13	1.872	1.872	1.644	H1-1b
3	M3	PIPE_2.0	.293	30	22	.101	9.5		36	26.521	32.13	1.872	1.872	1.755	H1-1b
4	M4	L3x2x.22	.185	18	25	.022	18	z	25	30.441	34.072	.753	2.229	1.76	H2-1

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

	Member	Shape	Code Check	Loc[in]	LC	Shear ...	Loc[in]	Dir	LC	phi*Pn...	phi*Pnt...	phi*Mn...	phi*Mn...	Cb	Eqn
5	M5	PIPE_2.0	.055	0	36	.016	36		17	28.843	32.13	1.872	1.872	2.175	H1-1b
6	M6	L2x2x.22	.719	45.938	20	.316	42	y	20	1.819	26.957	.63	1.316	3	H2-1
7	M7	PIPE_2.0	.174	12	14	.174	12		20	26.521	32.13	1.872	1.872	2.558	H1-1b
8	M8	L3x2x.22	.239	15	14	.029	15	y	14	31.263	34.072	.753	2.229	1.949	H2-1
9	M9	L3x2x.22	.186	0	37	.054	0	y	14	31.263	34.072	.753	2.229	2.015	H2-1
10	M10	PIPE_2.0	.092	36	19	.019	0		36	28.843	32.13	1.872	1.872	1.423	H1-1b
11	M11	L3x2x.22	.171	0	25	.023	0	z	25	30.441	34.072	.753	2.229	2.197	H2-1
12	M12	L3x2x.22	.118	0	24	.020	15	z	35	31.263	34.072	.753	2.229	2.18	H2-1
13	M13	L3x2x.22	.162	15	25	.041	15	z	20	31.263	34.072	.753	2.229	2.172	H2-1
14	M14	L2x2x.22	.233	4.125	31	.136	3.75	z	14	17.292	26.957	.63	1.421	2.015	H2-1
15	M15	L2x2x.22	.219	3.75	14	.197	3.75	y	14	17.292	26.957	.63	1.421	2.378	H2-1
16	M16	C3x1.5x0.22	.453	9	25	.136	9	z	37	36.464	39.632	1.036	3.45	1.496	H1-1b
17	M21	C3x1.5x0.22	.162	0	37	.040	6.12	y	46	38.071	39.632	1.036	3.45	1.729	H1-1b
18	M22	C3x1.5x0.22	.470	0	14	.083	6.25	z	26	38.071	39.632	1.036	3.45	1.586	H1-1b
19	M24	C3x1.5x0.22	.593	9	14	.168	9	z	14	36.464	39.632	1.036	3.45	1.474	H1-1b
20	M25	C3x1.5x0.22	.224	2.25	26	.009	27	z	37	28.402	39.632	1.036	3.45	1.849	H1-1b
21	M28	PIPE_2.48x0....	.469	40	14	.254	48		25	40.976	49.203	2.959	2.959	2.998	H1-1b
22	M29	PL 3/8x6	.643	0	49	.019	8	y	25	54.379	72.9	.57	9.113	1.663	H1-1b
23	M30	PL 3/8x6	.780	0	26	.016	8	y	25	54.379	72.9	.57	9.113	1.663	H1-1b
24	M33	PIPE_2.0	.359	36.25	21	.104	101.25		35	9.837	32.13	1.872	1.872	2.426	H1-1b
25	M35	PIPE_2.0	.456	51.25	14	.159	51.25		14	9.837	32.13	1.872	1.872	3	H1-1b
26	M36	PIPE_2.0	.637	36.25	20	.176	36.25		25	9.837	32.13	1.872	1.872	3	H1-1b
27	M44	PIPE_1.25	.101	0	17	.006	0		40	10.996	19.688	.801	.801	1.136	H1-1b*
28	M46	PIPE_2.0	.502	53.75	14	.111	53.75		27	9.837	32.13	1.872	1.872	2.349	H1-1b
29	M42	PL3/8x3_HRA	.039	0	27	.023	0	y	34	35.619	36.45	.284	2.279	1.673	H1-1b
30	M41	PL3/8x3_HRA	.186	0	14	.020	5.25	y	35	32.149	36.45	.284	2.279	1.653	H1-1b
31	M41A	PL3/8x3_HRA	.081	2.25	14	.020	2.25	y	35	35.619	36.45	.284	2.279	1.672	H1-1b
32	M42A	PL3/8x3_HRA	.082	5.25	27	.023	0	y	34	32.149	36.45	.284	2.279	1.65	H1-1b
33	M44A	PIPE_2.5	.427	130	47	.203	21.125		48	13.46	50.715	3.596	3.596	2.82	H1-1b
34	M45	L2.5x2.5x3	.477	35.25	37	.028	0	z	15	9.122	29.192	.873	1.586	1.15	H2-1
35	M46A	L2.5x2.5x3	.434	35.25	27	.019	0	z	37	9.122	29.192	.873	1.586	1.15	H2-1
36	M47	L2.5x2.5x3	.236	39.062	36	.018	0	z	21	9.093	29.192	.873	1.58	1.138	H2-1
37	M48	L2.5x2.5x3	.233	39.062	28	.014	0	y	19	9.093	29.192	.873	1.58	1.138	H2-1
38	M49	PIPE_2.0	.121	55.219	35	.008	110.439		42	11.614	32.13	1.872	1.872	1.136	H1-1b
39	M54	PIPE_2.5	.172	19.5	19	.098	104		20	13.46	50.715	3.596	3.596	3	H1-1b
40	M55	L2.5x2.5x3	.255	0	13	.019	0	z	33	9.122	29.192	.873	1.828	2.09	H2-1
41	M56	L2.5x2.5x3	.225	0	3	.015	0	z	38	9.122	29.192	.873	1.819	2.039	H2-1

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.

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www.btgrp.com

AT&T

SAI

CT1148

1021 BLUE HILLS AVENUE
BLOOMFIELD, CT 06002
HARTFORD

EXISTING SECTOR
AT 99'-00"

PROJECT NO:	130654.003.01
CHECKED BY:	PKK

ISSUED FOR:

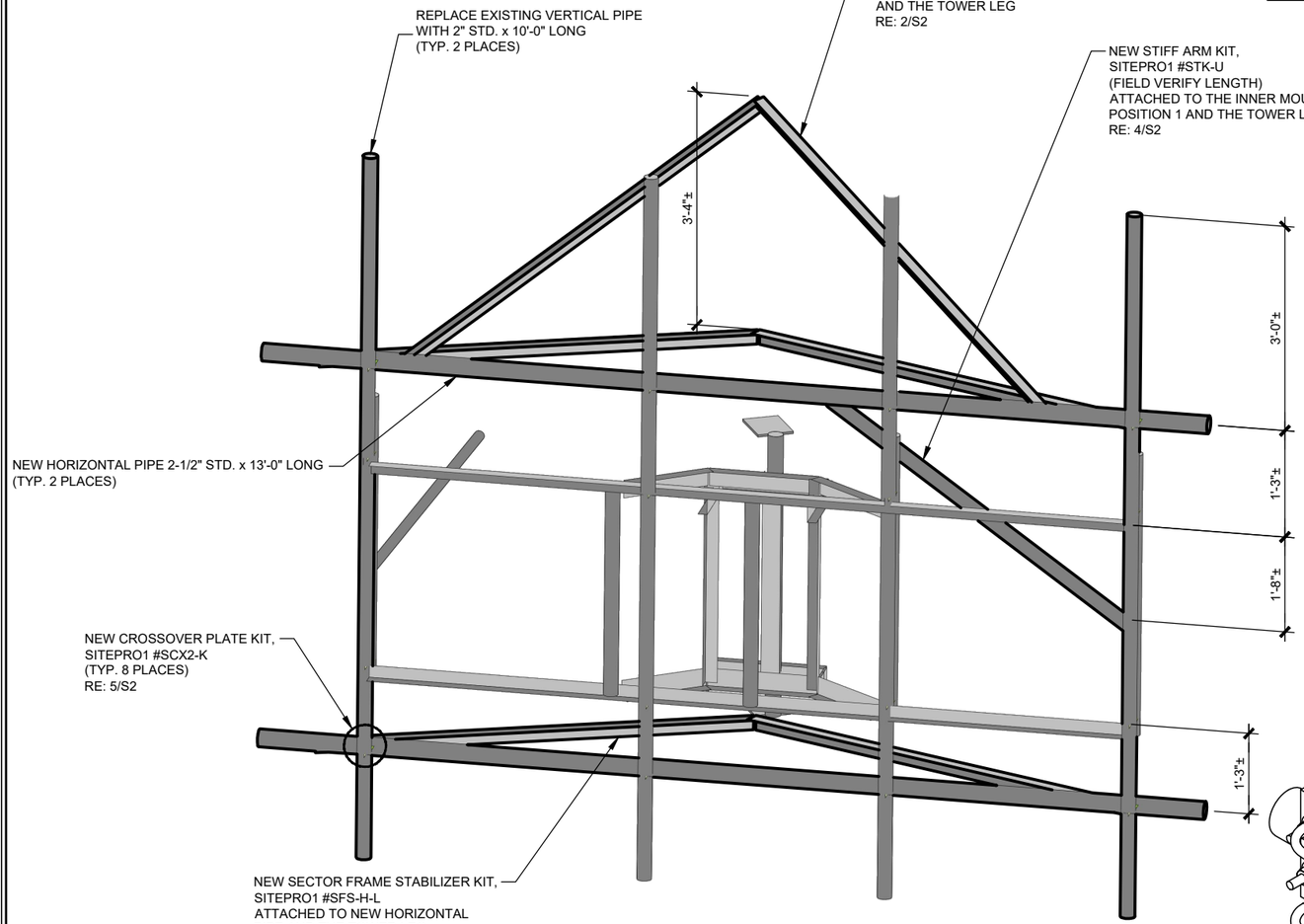
REV	DATE	DRWN	DESCRIPTION
0	01/24/19	PMS	CONSTRUCTION

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

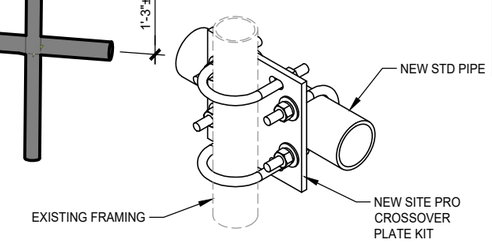
STATE OF CONNECTICUT
SCOTT S VANCE
31627
LICENSED
PROFESSIONAL ENGINEER
1/24/19

SHEET NUMBER:	REVISION:
S1	0

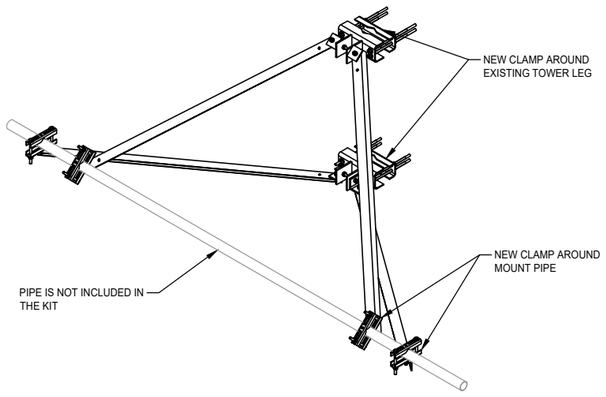
MODIFICATIONS BASED ON THE FAILING STRUCTURAL ANALYSIS FROM B+T GROUP DATED 01/14/19 AND ACCOMPANIED BY ANALYSIS FROM B+T GROUP DATED 01/24/19



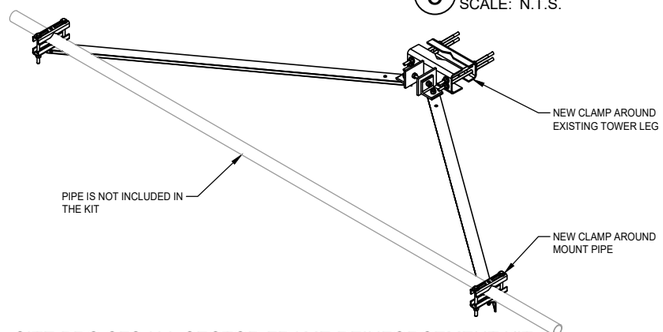
1 MODIFIED SECTOR FRAME (TYP. ALL SECTORS)
SCALE: N.T.S.



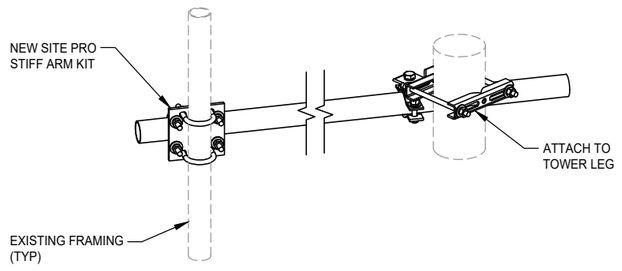
5 SITE PRO SCX2-K CROSSOVER PLATE KIT
SCALE: N.T.S.



2 SITE PRO SFR-K-L SECTOR FRAME REINFORCEMENT KIT
SCALE: N.T.S.



3 SITE PRO SFS-H-L SECTOR FRAME REINFORCEMENT KIT
SCALE: N.T.S.



4 SITE PRO STK-U STIFF ARM 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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AT&T

SAI

CT1148

1021 BLUE HILLS AVENUE
BLOOMFIELD, CT 06002
HARTFORD

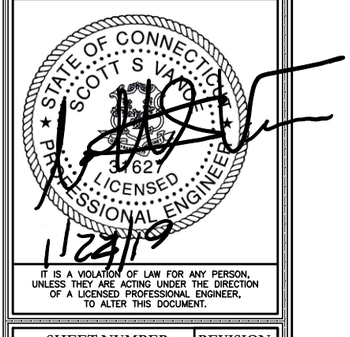
EXISTING SECTOR
AT 99'-00"

PROJECT NO:	130654.003.01
CHECKED BY:	PKK

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION
0	01/24/19	PMS	CONSTRUCTION

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



SHEET NUMBER:	REVISION:
S2	0

Town of Bloomfield, CT

Property Listing Report

Map Block Lot	130-2-14	Building #	1	PID	7809	Account	R90158

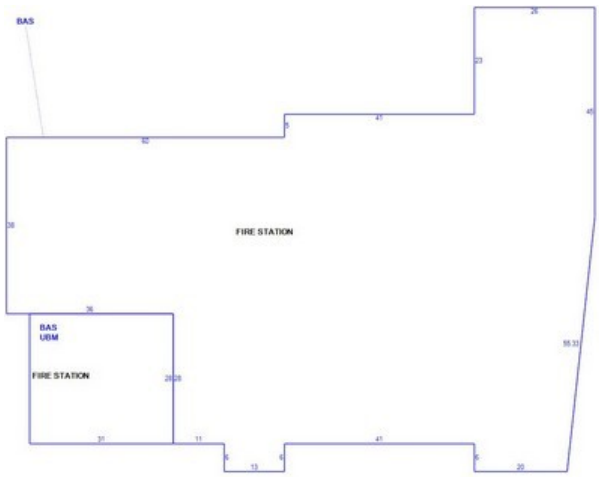
Property Information

Property Location	1021 BLUE HILLS AVE
Owner	BLUE HILLS FIRE DIST
Co-Owner	
Mailing Address	NA NA NA NA
Land Use	922 Mun Bldg Com
Land Class	E
Zoning Code	GWB
Census Tract	4712

Neighborhood	
Acreage	1.23
Utilities	
Lot Setting/Desc	
Fire District	B
Book / Page	

Photo

Sketch



Primary Construction Details

Year Built	1962
Building Desc.	Commercial
Building Style	Fire Station
Building Grade	D
Stories	1
Occupancy	1.00
Exterior Walls	Brick Veneer
Exterior Walls 2	NA
Roof Style	Gable
Roof Cover	Arch Shingles
Interior Walls	Drywall
Interior Walls 2	NA
Interior Floors 1	Carpet
Interior Floors 2	

Heating Fuel	Gas
Heating Type	Hot Water
AC Type	0
Bedrooms	0
Full Bathrooms	0
Half Bathrooms	0
Extra Fixtures	0
Total Rooms	0
Bath Style	NA
Kitchen Style	NA
Bsmt Fin Area	0
Rec Rm Area	0
Bsmt Gar	0
Fireplaces	0

(*Industrial / Commercial Details)

Building Use	Commercial
Building Condition	G
Sprinkler %	0
Heat / AC	None
Frame Type	Masonry
Baths / Plumbing	Average
Ceiling / Wall	Ceil & Wall
Rooms / Prtns	Average
Wall Height	12.00
First Floor Use	NA
Foundation	

Report Created On 7/24/2019

Town of Bloomfield, CT

Property Listing Report

Map Block Lot	130-2-14	Building #	1	PID	7809	Account	R90158

Valuation Summary

(Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings	459900	321930
Extras	0	0
Improvements		
Outbuildings	22700	15890
Land	396800	277760
Total	879400	615580

Outbuilding and Extra Features

Type	Description
Shed	288 S.F.
Shed	260 S.F.
Shed	200 S.F.
Shed	200 S.F.

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
First Floor	9244	9244
Basement	868	0
Total Area	10112	9244

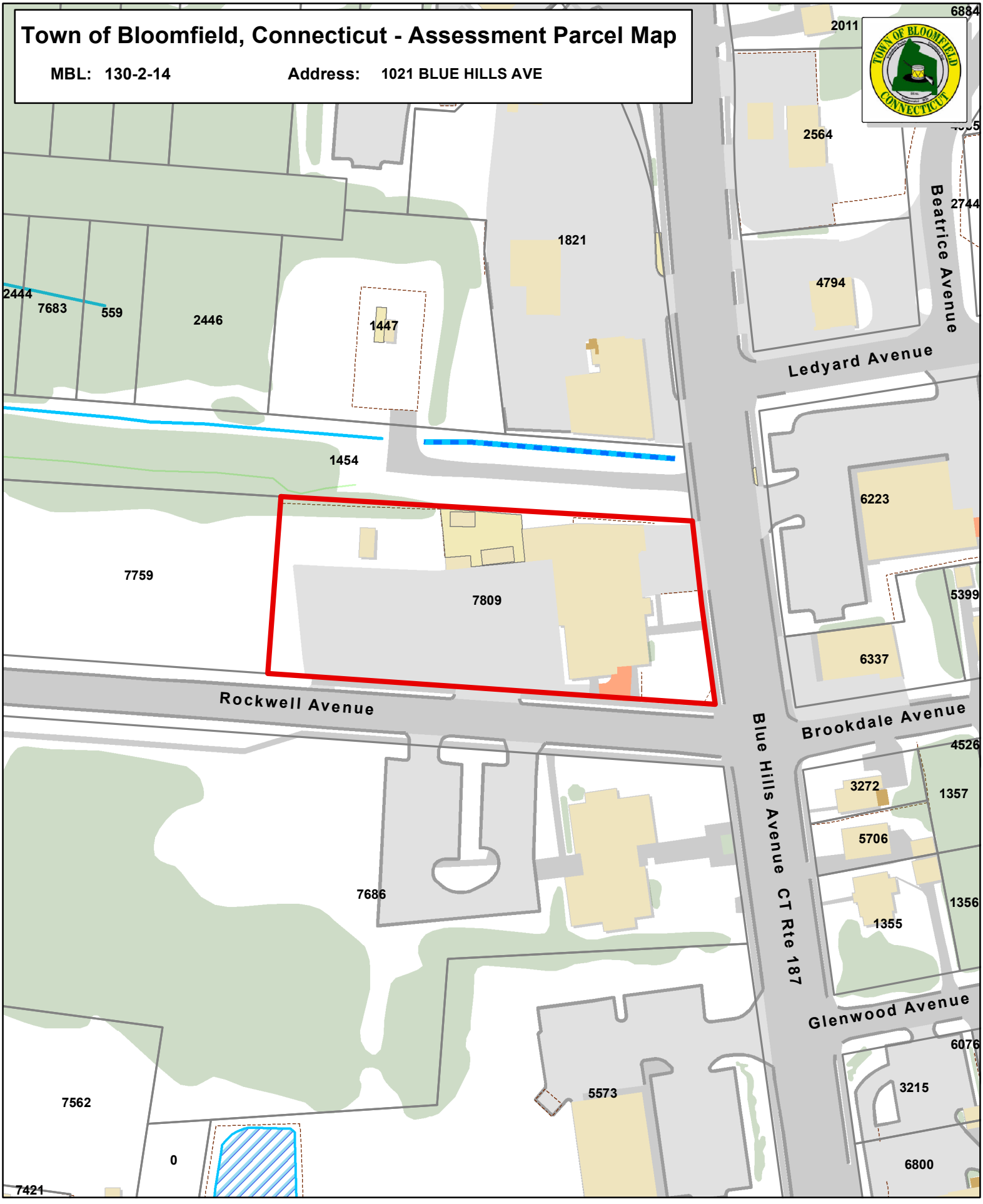
Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
BLUE HILLS FIRE DIST	0091/0376		0

Report Created On 7/24/2019

Town of Bloomfield, Connecticut - Assessment Parcel Map

MBL: 130-2-14 **Address:** 1021 BLUE HILLS AVE



Approximate Scale:

1 inch = 100 feet

Disclaimer:
This map is for informational purposes only.
All information is subject to verification by any user.
The Town of Bloomfield and its mapping contractors
assume no legal responsibility for the information contained herein.

Map Produced July 2017

Parcels labeled by Unique ID

UNITED STATES POSTAL SERVICE®

Click-N-Ship®

9405 5036 9930 0068 8344 86 0073 5000 0010 6002

usps.com
$7.35
US POSTAGE
Flat Rate Env

07/27/2019 Mailed from 06268 062S0000000315

P

PRIORITY MAIL 1-DAY™

Expected Delivery Date: 07/29/19

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

0024

Carrier -- Leave if No Response

C017

SHIP TO: MAYOR SUZETTE DEBEATHAM BROWN
TOWN OF BLOOMFIELD
800 BLOOMFIELD AVE
CC: MR JOSE GINER, DIR PLANNING & Z
BLOOMFIELD CT 06002-2460

USPS TRACKING #

9405 5036 9930 0068 8344 86

Electronic Rate Approved #038555749

Cut on dotted line.

Instructions

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

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0068 8344 86

Trans. #:	469042930
Print Date:	07/26/2019
Ship Date:	07/27/2019
Expected Delivery Date:	07/29/2019

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

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

To: MAYOR SUZETTE DEBEATHAM BROWN
TOWN OF BLOOMFIELD
800 BLOOMFIELD AVE
CC: MR JOSE GINER, DIR PLANNING & Z
BLOOMFIELD CT 06002-2460

* 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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Check the status of your shipment on the USPS Tracking® page at usps.com

UNITED STATES POSTAL SERVICE®

Click-N-Ship®

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usps.com
$7.35
US POSTAGE
Flat Rate Env

07/27/2019 Mailed from 06268 062S0000000312

P

PRIORITY MAIL 1-DAY™

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

Expected Delivery Date: 07/29/19

0024

Carrier -- Leave if No Response

C002

SHIP TO:

BLOOMFIELD FIRE DISTRICT
1021 BLUE HILLS AVE
BLOOMFIELD CT 06002-3715

USPS TRACKING #

9405 5036 9930 0068 8344 93

Electronic Rate Approved #038555749

Cut on dotted line.

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USPS TRACKING # :
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STORRS CT 06268-0916

To: BLOOMFIELD FIRE DISTRICT
1021 BLUE HILLS AVE
BLOOMFIELD CT 06002-3715

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