December 2, 2020

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

Re:	**Notice of Exempt Modification – Antenna and RRU Add**
Property Address:	**2074 Park Street Hartford, CT 06106**
Applicant:	**AT&T Mobility, LLC**

Dear Ms. Bachman:

On behalf of AT&T, please accept this application as notification pursuant to R.C.S.A. §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. §16- 50j-72(b) (2).

AT&T currently maintains a wireless telecommunications facility consisting of nine (12) wireless telecommunication antennas at an antenna center line height of 83-feet on an existing 85-foot Smokestack, owned by 2074-2100 Park Street LLC, Located 2074 Park Street, STE 100. AT&T now intends to remove three (3) Powerwave 7750 Antennas, (2) CCI HPA-65R-BUU-H8 Antennas, and (1) CCI HPA-65R-BUU-H6 Panel Antennas, each currently installed in position [1], position [3], and position [4] and swap these for two (2) CCI DMP65R-BU8DA Panel Antennas, to be installed in position [1], one (1) CCI DMP65R-BU6A Panel Antennas to be installed in position [2], and two (2) CCI OPA65-R-BU8DA panel antennas to be installed in position [1] and [2]. In addition, AT&T intends to remove (3) RRUS-11 B12, (3) RRUS-32 B2, and (3) RRUS-32 B66A's. AT&T is also proposing to add three (3) 4449 B5/B12 RRUS, (3) RRUS-E2 B29's, (3) 449 B5/B12, and (3) 8843 B2/B66A. AT&T is also proposing to add (1) DC6-48-60-0-8F Squid with (2) DC Cables.

Attached is a summary of the planned modifications including power density calculations reflecting the change in AT&T's operations at the site. Also included is documentation of the structural sufficiency of the tower to accommodate the revised antenna configuration.

Please accept this letter pursuant to Regulation of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-5I0j-72(b) (2). In accordance with R.C.S.A., a copy of this letter is being sent to Charles Mathews – Acting Director, City of Hartford, CT at 550 Main Street, Hartford CT 06103 and Luke Bronin – First Selectman, City of Hartford, CT at 550 Main Street, Hartford CT 06103. A copy of this letter is being sent to the property owner, 2074-2100 Park Street, LLC located at 2074 Park Street, Suite 100 Hartford, CT 06106.

The following is a list of subsequent decisions by the Connecticut Siting Council:

- **EM-CING-064-090227** - New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 2074 Park Street, **Hartford**, Connecticut.
- **EM-CING-064-120612 -** New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 2074 Park Street, **Hartford**, Connecticut.
- **EM-CING-064-170417** – New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 2074 Park Street, **Hartford**, Connecticut.
- **EM-AT&T-064-180201** – AT&T notice of intent to modify an existing telecommunications facility located at 2074 Park Street, **Hartford**, Connecticut

The planned modifications to AT&T's 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 tower. AT&T's

replacement antennas will be installed at the 83-foot level of the 85-foot Smokestack.

2. The proposed modifications will not involve any changes to ground-mounted equipment and, therefore, will not require and extension of the site boundary.
3. The proposed modifications will not increase the noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the modified facility will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. A cumulative worst-case RF emissions calculation for AT&T's modified facility is provided in the RF Emissions Compliance Report, included in Tab 2.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The tower and its foundation can support AT&T's proposed modifications. (See Structural Analysis Report included in Tab 3).

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

Sincerely,

Will Noel

CC w/enclosures:
Charles Mathews – Acting Director, City of Hartford
Luke Bronin – First Selectman, City of Hartford
2074-2100 Park Street, LLC– Property Owners

PROJECT NOTES:

1. SITE INFORMATION OBTAINED FROM THE FOLLOWING:
   A. PLAN ENTITLED "HARTFORD PARK STREET" PREPARED BY MASER CONSULTING CONNECTICUT OF RED BANK, NJ LAST REVISED 03/22/2018.
   B. LIMITED FIELD OBSERVATION BY RAMAKER & ASSOCIATES ON 09/16/2020.
2. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CODES, ORDINANCES, LAWS AND REGULATIONS OF ALL MUNICIPALITIES, UTILITY COMPANIES OR OTHER PUBLIC/GOVERNING AUTHORITIES.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS THAT MAY BE REQUIRED BY ANY FEDERAL, STATE, COUNTY OR MUNICIPAL AUTHORITIES.
4. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER, IN WRITING, OF ANY CONFLICTS, ERRORS OR OMISSIONS PRIOR TO THE SUBMISSION OF BIDS OR PERFORMANCE OF WORK.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING SITE IMPROVEMENTS PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL REPAIR ANY DAMAGE AS A RESULT OF CONSTRUCTION OF THIS FACILITY AT THE CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
6. THE SCOPE OF WORK FOR THIS PROJECT SHALL INCLUDE PROVIDING ALL MATERIALS, EQUIPMENT AND LABOR REQUIRED TO COMPLETE THIS PROJECT. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
7. THE CONTRACTOR SHALL VISIT THE PROJECT SITE PRIOR TO SUBMITTING THE BID TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND CONSTRUCTION DRAWINGS.
8. THE CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THESE DRAWINGS MUST BE VERIFIED. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
9. SINCE THE CELL SITE MAY BE 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 REQUIRED TO BE WORN TO ALERT OF ANY POTENTIALLY DANGEROUS EXPOSURE LEVELS.
10. THE PROPOSED FACILITY WILL CAUSE NO INCREASE IN STORM WATER RUNOFF, THEREFORE, NO DRAINAGE STRUCTURES ARE PROPOSED.
11. NO NOISE, SMOKE, DUST OR ODOR WILL RESULT FROM THIS FACILITY AS TO CAUSE A NUISANCE.
12. THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION (NO HANDICAP ACCESS IS REQUIRED).
13. THE FACILITY DOES NOT REQUIRE POTABLE WATER OR SANITARY SERVICE.
14. CONTRACTOR SHALL VERIFY ANTENNA ELEVATION AND AZIMUTHS WITH RF ENGINEERING PRIOR TO INSTALLATION.
15. THE TOWER, MOUNTS AND ANTENNAS SHALL BE DESIGNED TO MEET EIA/TIA-222-G AS PER IBC REQUIREMENTS.
16. ALL STRUCTURAL ELEMENTS SHALL BE HOT DIPPED GALVANIZED STEEL.
17. CONTRACTOR MUST FIELD LOCATE ALL EXISTING UNDERGROUND UTILITIES PRIOR TO ANY EXCAVATION.
18. CONSTRUCTION SHALL NOT COMMENCE UNTIL COMPLETION OF A PASSING STRUCTURAL ANALYSIS CERTIFIED BY A LICENSED PROFESSIONAL ENGINEER.
19. CONTRACTOR SHALL CONTACT STATE SPECIFIC ONE CALL SYSTEM THREE WORKING DAYS PRIOR TO ANY EARTH MOVING ACTIVITIES.

at&t

SITE NAME: HARTFORD PARK ST
FA NUMBER: 10035106
SITE NUMBER: CTL01199
ADDRESS: 2074 PARK STREET
HARTFORD, CT 06106

SCOPE: 5C - MRCTB048656 (2051A0WGRA), 6C - MRCTB048677 (2051A0WGM4), 5G NR - MRCTB048715 (2051A0WGY1), 4TX4RX SOFTWARE RETROFIT - MRCTB048689 (2051A0WH21), BWE TOWER TOP RRH SWAP - MRCTB048683 (2051A0WGSR)

AERIAL MAP:

CODE COMPLIANCE:

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES.

1. INTERNATIONAL BUILDING CODE
2. ANSI/TIA-222 STRUCTURAL STANDARD FOR ANTENNA STRUCTURES
3. NFPA 780 - LIGHTNING PROTECTION CODE
4. NATIONAL ELECTRIC CODE

811 Know what's below. Call before you dig. www.call811.com

PROJECT INFORMATION:

SITE INFORMATION:
LATITUDE: 41.7567700° N
LONGITUDE: -72.7138881° W
JURISDICTION: HARTFORD COUNTY

APPLICANT/LESSEE:
COMPANY: AT&T
ADDRESS: NEW ENGLAND MARKET

PROPERTY OWNER:
PROPERTY OWNER: 2074-2100 PARK STREET, LLC
2074 PARK ST. SUITE 100
HARTFORD, CT 06106

REAL ESTATE:
COMPANY: SMARTLINK, LLC
ADDRESS: 85 RANGEWAY ROAD
BUILDING 3, SUITE 102
CITY, STATE, ZIP: NORTH BILLERICA, MA 01862
CONTACT: WILLIAM NOEL
E-MAIL: WILLIAM.NOEL
@SMARTLINKGROUP.COM

CONSTRUCTION MANAGER:
COMPANY: SMARTLINK, LLC
ADDRESS: 85 RANGEWAY ROAD
BUILDING 3, SUITE 102
CITY, STATE, ZIP: NORTH BILLERICA, MA 01862
CONTACT: MARK DONNELLY
E-MAIL: MARK.DONNELLY
@SMARTLINKGROUP.COM

ENGINEER:
COMPANY: RAMAKER & ASSOCIATES, INC.
ADDRESS: 855 COMMUNITY DRIVE
CITY, STATE, ZIP: SAUK CITY, WI 53583
CONTACT: ANGELA KVALHEIM
E-MAIL: AKVALHEIM@RAMAKER.COM

PROJECT DESCRIPTION/ SCOPE OF WORK

- REMOVE (3) EXISTING RRUS-11 B12s, (1) PER SECTOR
- REMOVE (3) EXISTING RRUS-32 B2s, (1) PER SECTOR
- REMOVE (3) EXISTING RRUS-32 B66As, (1) PER SECTOR
- REMOVE (6) EXISTING LGP-21401 TMAs, (2) PER SECTOR
- REMOVE ALL EXISTING RRUWs IN EXISTING SHELTER
- INSTALL (3) NEW 4449 B5/B12 RRUs, (1) PER SECTOR
- INSTALL (3) NEW 4478 B14 RRUs, (1) PER SECTOR
- INSTALL (3) NEW 8843 B2/B66A RRUs, (1) PER SECTOR
- INSTALL (3) NEW RRUS-E2 B29s, (1) PER SECTOR
- REMOVE (3) EXISTING POWERWAVE 7750 ANTENNAS, (1) PER SECTOR
- REMOVE (2) EXISTING CCI HPA-65R-BUU-H8 ANTENNAS, (1) PER ALPHA & GAMMA SECTOR
- REMOVE (1) EXISTING CCI HPA-65R-BUU-H6 ANTENNAS, (1) PER BETA SECTOR
- INSTALL (2) NEW CCI DMP65R-BU8DA ANTENNAS, (1) PER ALPHA & GAMMA SECTOR
- INSTALL (1) NEW CCI DMP65R-BU8DA ANTENNAS, (1) PER BETA SECTOR
- INSTALL (2) NEW CCI OPA65R-BU8DA ANTENNAS, (1) PER ALPHA & GAMMA SECTOR
- INSTALL (1) NEW CCI OPA65R-BU8DA ANTENNAS, (1) PER BETA SECTOR
- INSTALL (1) NEW DC6-48-60-0-8F ONLY SQUID
- INSTALL (2) NEW DC POWER CABLES
- REMOVE UNUSED GSM COAX, UMTS AND GSM LINE ELEMENTS
- ADD (6) Y CABLES FOR DUAL BAND RRHs, (2) PER SECTOR
- INSTALL PROPOSED SITE PRO 1 RCM-911 WITH (3) FIXED PIPE MOUNTS AND (3) ADJUSTABLE PIPE MOUNTS (RC-PM23)
- INSTALL (3) PROPOSED SECTOR FRAME MOUNT (SITE PRO 1 VFA12-HD-NLB), (1) PER SECTOR
- ADD (1) 6630 + IDLe

PROPOSED PROJECT SCOPE BASED ON RFDS
ID# 4093555, VERSION 2.0, LAST UPDATED 10/22/2020.

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A-1	CONSTRUCTION DETAILS
A-2	CONSTRUCTION DETAILS
A-3	CONSTRUCTION DETAILS
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at&t

smartlink
85 RANGEWAY ROAD - BLDG 3, SUITE 102
NORTH BILLERICA, MA 01862
SMARTLINKLLC.COM

RAMAKER
employee-owned
(608) 643-4100 www.ramaker.com

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Connecticut.

STATE OF CONNECTICUT · JAMES R. SKOWRONSKI · 26266 · LICENSED PROFESSIONAL ENGINEER

Signature: James R. Skowronski Date: 12/15/2020

MARK	DATE	DESCRIPTION
2	12/15/20	REVISED PER COMMENTS
1	11/19/20	FINAL CDs ISSUED
0	11/10/20	CDs ISSUED FOR REVIEW

ISSUE PHASE: FINAL
DATE ISSUED: 12/15/2020

PROJECT TITLE:
HARTFORD PARK ST
FA# 10035106
SITE# CTL01199

PROJECT INFORMATION:
2074 PARK STREET
HARTFORD, CT 06106
HARTFORD COUNTY

SHEET TITLE:
TITLE SHEET

SCALE: NONE

PROJECT NUMBER: 49451
SHEET NUMBER: T-1

GENERAL NOTES:

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.
2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND FOR GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5O HMS OR LESS.
4. THE SUBCONTRACTOR 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.
5. 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 UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
6. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
7. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE EQUIPMENT GROUND RING WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS; 2 AWG STRANDED COPPER FOR OUTDOOR BTS.
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. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING, SHALL BE #2 AWG SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
10. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
11. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED. ALL BENDS SHALL BE MADE WITH 12" RADIUS OR LARGER.
12. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
13. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS EXCEPT FOR GROUND BAR CONNECTION FROM MGB TO OUTSIDE EXTERIOR GROUND SHALL ALL BE CADWELD CONNECTIONS.
14. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
15. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED TO THE TOWER GROUND BAR.
16. APPROVED ANTIOXIDANT COATINGS (I.E. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
17. ALL EXTERIOR AND INTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
18. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
19. BOND ALL METALLIC OBJECTS WITHIN 6 FT OF MAIN GROUND WIRES WITH 1-#2 AWG TIN-PLATED COPPER GROUND CONDUCTOR.
20. 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 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.
21. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/4" IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50.
22. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
    CONTRACTOR - SMARTLINK
    SUBCONTRACTOR - GENERAL CONTRACTOR (CONSTRUCTION)
    OWNER - AT&T (NEW CINGULAR WIRELESS PCS, LLC)
23. ALL SITE WORK SHALL BE COMPLETED AS INDICATED ON THE DRAWINGS AND PROJECT SPECIFICATIONS.
24. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
25. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK.
26. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
27. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
28. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
29. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.
30. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
31. THE SUBCONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
32. 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 THE RESPONSIBLE ENGINEER. EXTREME CAUTION SHOULD BE USED BY THE SUBCONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. SUBCONTRACTOR 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.
33. 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, AS DIRECTED BY THE RESPONSIBLE ENGINEER, AND SUBJECT TO THE APPROVAL OF THE OWNER AND/OR LOCAL UTILITIES.
34. 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.
35. SUBCONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
36. 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.
37. THE SUBGRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
38. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE BTS EQUIPMENT AND TOWER AREAS.
39. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
40. THE SUBCONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE.
41. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
42. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF THE CONTRACTOR.
43. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.
44. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.
45. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS.
46. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (FY = 36 KSI) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (FY = 35 KSI). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCHUP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.
47. CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T MOBILITY SITES."
48. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
49. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION, ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
50. 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 ALERT OF DANGEROUS EXPOSURE LEVELS.

at&t

smartlink
85 RANGEWAY ROAD - BLDG 3, SUITE 102
NORTH BILLERICA, MA 01862
SMARTLINKLLC.COM

RAMAKER
employee-owned
(608) 643-4100 www.ramaker.com

Certification & Seal:

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Connecticut.

STATE OF CONNECTICUT
JAMES R. SKOWRONSKI
26266
LICENSED
PROFESSIONAL ENGINEER

Signature: Date: 12/15/2020

MARK	DATE	DESCRIPTION
2	12/15/20	REVISED PER COMMENTS
1	11/19/20	FINAL CDs ISSUED
0	11/10/20	CDs ISSUED FOR REVIEW

ISSUE PHASE: FINAL
DATE ISSUED: 12/15/2020

PROJECT TITLE:
HARTFORD PARK ST
FA# 10035106
SITE# CTL01199

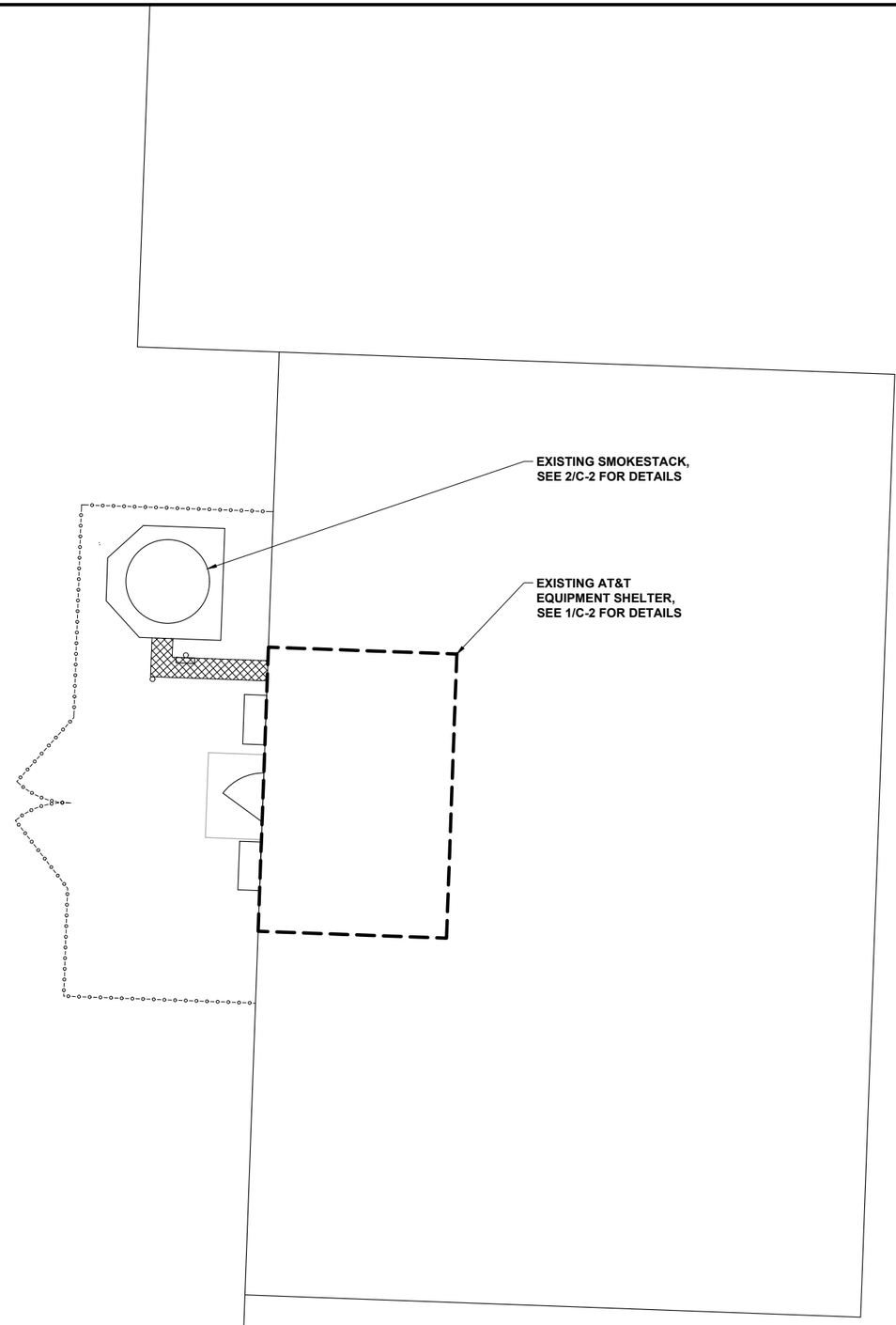
PROJECT INFORMATION:
2074 PARK STREET
HARTFORD, CT 06106
HARTFORD COUNTY

SHEET TITLE:
NOTES

SCALE: NONE

PROJECT NUMBER: 49451
SHEET NUMBER: GN-1

DRAWN BY: AEM CHECKED BY: AJK



NORTH

COMPOUND PLAN
SCALE: 1" = 10'
1

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85 RANGEWAY ROAD - BLDG 3, SUITE 102
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STATE OF CONNECTICUT
JAMES R. SKOWRONSKI
26266
LICENSED
PROFESSIONAL ENGINEER

Signature: James R Skowronski Date: 12/15/2020

MARK	DATE	DESCRIPTION
2	12/15/20	REVISED PER COMMENTS
1	11/19/20	FINAL CDs ISSUED
0	11/10/20	CDs ISSUED FOR REVIEW

ISSUE PHASE: FINAL
DATE ISSUED: 12/15/2020

PROJECT TITLE:
HARTFORD PARK ST
FA# 10035106
SITE# CTL01199

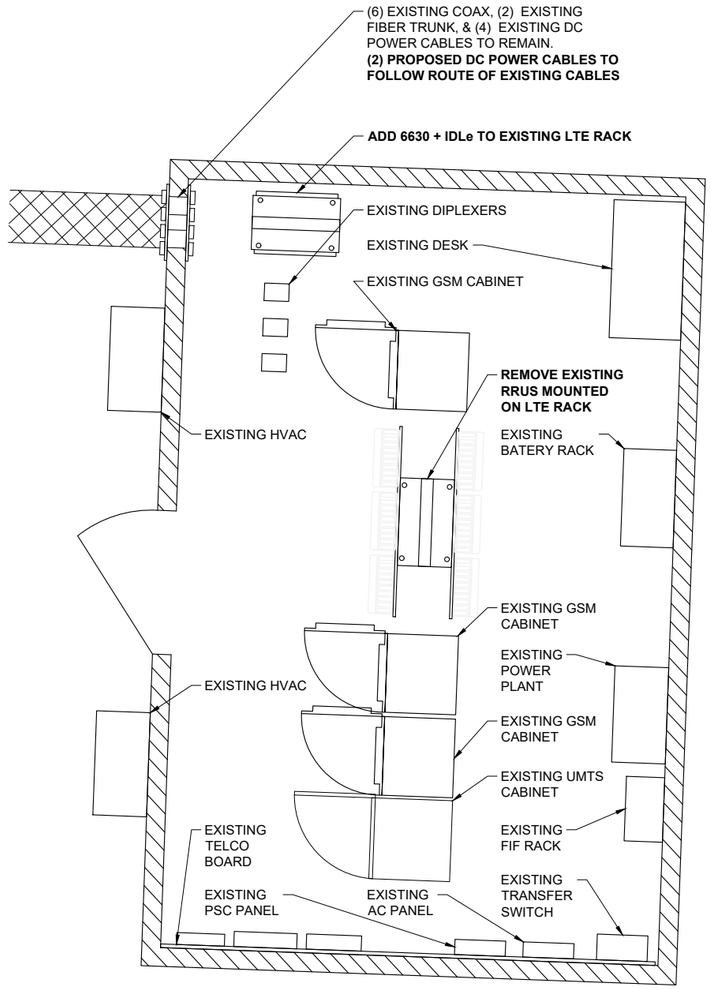
PROJECT INFORMATION:
2074 PARK STREET
HARTFORD, CT 06106
HARTFORD COUNTY

SHEET TITLE:
COMPOUND PLAN

0 5' 10' 20'
11" x 17" - 1" = 10'
22" x 34" - 1" = 5'

PROJECT NUMBER: 49451
SHEET NUMBER: C-1

NORTH

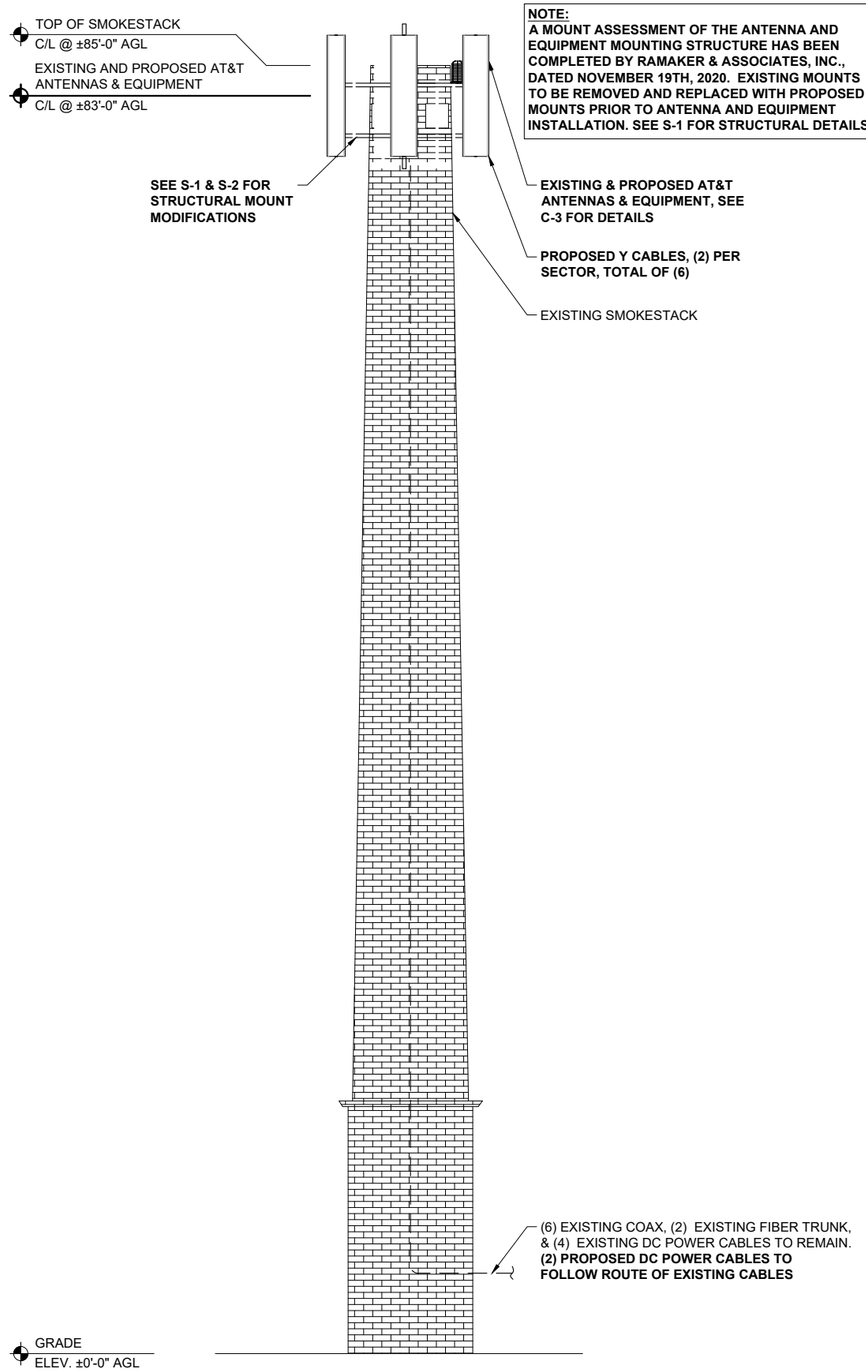


EQUIPMENT LAYOUT (1)

SCALE: 1" = 3.75'

NOTE:
A STRUCTURAL ASSESSMENT OF THE ANTENNA AND EQUIPMENT MOUNTING STRUCTURE HAS BEEN COMPLETED BY RAMAKER & ASSOCIATES, INC., DATED NOVEMBER 10TH, 2020.

NOTE:
A MOUNT ASSESSMENT OF THE ANTENNA AND EQUIPMENT MOUNTING STRUCTURE HAS BEEN COMPLETED BY RAMAKER & ASSOCIATES, INC., DATED NOVEMBER 19TH, 2020. EXISTING MOUNTS TO BE REMOVED AND REPLACED WITH PROPOSED MOUNTS PRIOR TO ANTENNA AND EQUIPMENT INSTALLATION. SEE S-1 FOR STRUCTURAL DETAILS.



ELEVATION VIEW (2)

SCALE: 1" = 10'

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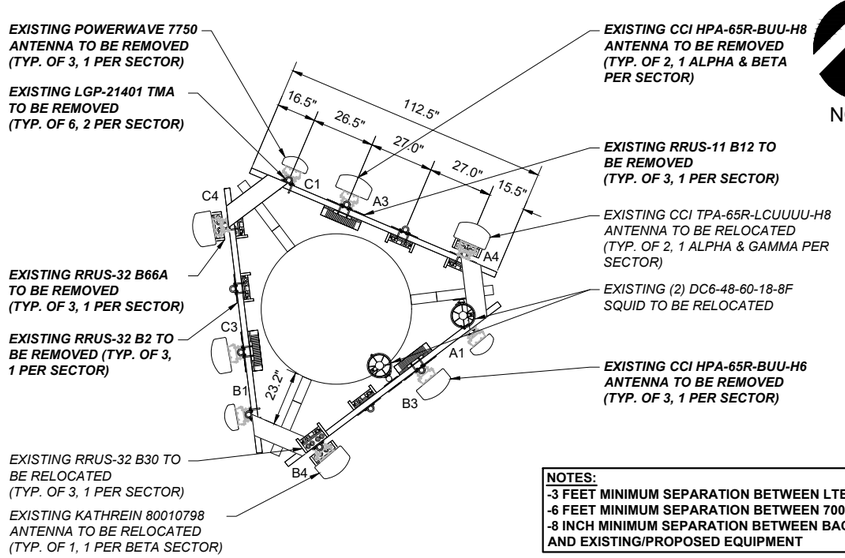
HARTFORD PARK ST
FA# 10035106
SITE# CTL01199

PROJECT INFORMATION:
2074 PARK STREET
HARTFORD, CT 06106
HARTFORD COUNTY

SHEET TITLE:
EQUIPMENT LAYOUT AND ELEVATION VIEW

SCALE:
AS NOTED

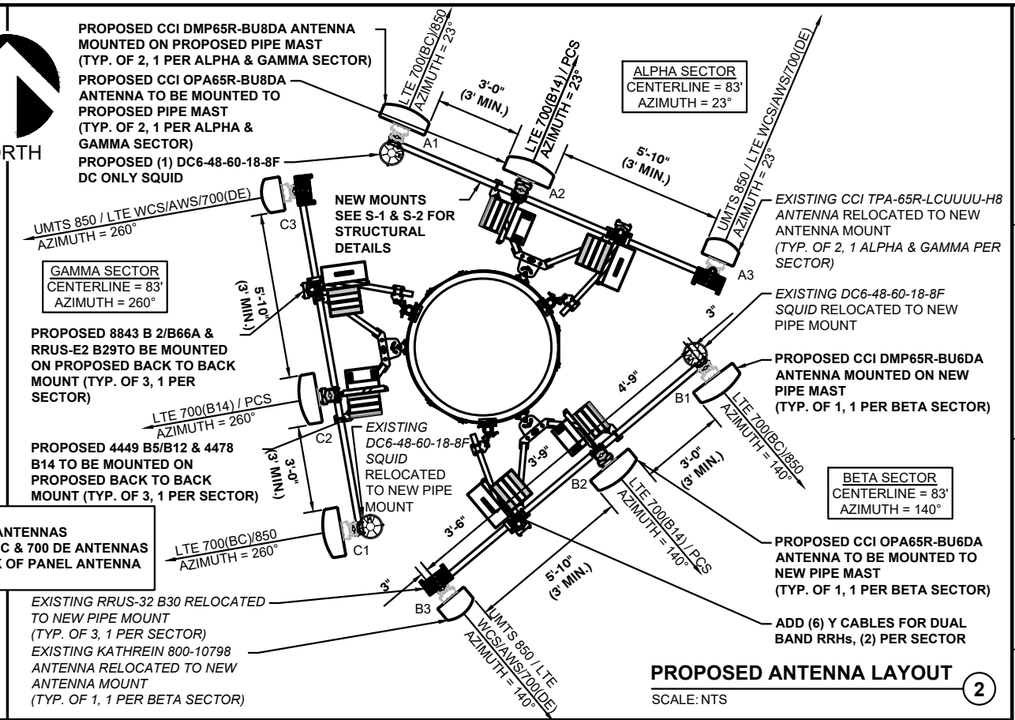
PROJECT NUMBER: 49451
SHEET NUMBER: C-2



EXISTING ANTENNA LAYOUT (1)

SCALE: NTS

NORTH



PROPOSED ANTENNA LAYOUT (2)

SCALE: NTS

NOTES:
-3 FEET MINIMUM SEPARATION BETWEEN LTE ANTENNAS
-6 FEET MINIMUM SEPARATION BETWEEN 700 BC & 700 DE ANTENNAS
-8 INCH MINIMUM SEPARATION BETWEEN BACK OF PANEL ANTENNA AND EXISTING/PROPOSED EQUIPMENT

SECTOR		EXISTING ANTENNA	PROPOSED ANTENNA	TECHNOLOGY	ANTENNA STATUS	HEIGHT (IN.)	WIDTH (IN.)	DEPTH (IN.)	WEIGHT (LBS.)	ANTENNA AZIMUTH (DEG.)	ANT. C/L ELEV. (FT.)	REMOTE RADIO/TMA CONFIGURATION	TRANSMISSION CABLE QUANTITY	TRANSMISSION CABLE TYPE	TRANSMISSION CABLE STATUS	RAYCAP UNIT
SECTOR 1	1	*POWERWAVE 7750*	**CCI DMP65R-BU8DA**	**LTE 700(BC)/850**	**PROPOSED**	**96**	**20.7**	**7.7**	**95.7**	**23**	83	**(1) 4449 B5/B12**	2	COAX	EXISTING	(2) EXISTING DC/FIBER SQUIDS (1) PROPOSED DC ONLY SQUID
	2	-	**CCI OPA65R-BU8DA**	**LTE 700(B14) / PCS**	**PROPOSED**	**96.0**	**21.0**	**7.8**	**76**	**23**	**83**	**(1) 4478 B14 (1) 8843 B2/B66A**	1 2	FIBER TRUNK DC POWER	EXISTING	
	3	*CCI HPA-65R-BUU-H8*	***CCI TPA-65R-LCUUUU-H8***	UMTS 850 GAMMA / LTE WCS / AWS / 700(DE)	EXISTING	96.0	14.4	8.6	75	**23**	**83**	(1) RRUS-32 B30 **(1) RRUS-E2 B29**	**2**	**DC POWER**	**PROPOSED**	
	4	***CCI TPA-65R-LCUUUU-H8***	- -	-	-	-	-	-	-	-	-	-	1 2	FIBER TRUNK DC POWER	EXISTING	
SECTOR 2	1	*POWERWAVE 7750*	**CCI DMP65R-BU6DA**	**LTE 700(BC)/850**	**PROPOSED**	**71.2**	**20.7**	**7.7**	**79.4**	**140**	**83**	**(1) 4449 B5/B12**	2	COAX	EXISTING	
	2	-	**CCI OPA65R-BU6DA**	**LTE 700(B14) / PCS**	**PROPOSED**	**71.2**	**21.0**	**7.8**	**60**	**140**	**83**	**(1) 4478 B14 (1) 8843 B2/B66A**	(SHARED)			
	3	*CCI HPA-65R-BUU-H6*	***KATHREIN 80010798***	UMTS 850 ALPHA / LTE WCS / AWS / 700(DE)	EXISTING	78.5	14.8	6.7	81	**140**	**83**	(1) RRUS-32 B30 **(1) RRUS-E2 B29**	**(SHARED)**			
	4	***KATHREIN 80010798***	- -	-	-	-	-	-	-	-	-	-	(SHARED)			
SECTOR 3	1	*POWERWAVE 7750*	**CCI DMP65R-BU8DA**	**LTE 700(BC)/850**	**PROPOSED**	**96**	**20.7**	**7.7**	**95.7**	260	83	**(1) 4449 B5/B12**	2	COAX	EXISTING	
	2	-	**CCI OPA65R-BU8DA**	**LTE 700(B14) / PCS**	**PROPOSED**	**96.0**	**21.0**	**7.8**	**76**	**260**	**83**	**(1) 4478 B14 (1) 8843 B2/B66A**	(SHARED)			
	3	*CCI HPA-65R-BUU-H8*	***CCI TPA-65R-LCUUUU-H8***	UMTS 850 BETA / LTE WCS / AWS / 700(DE)	EXISTING	96.0	14.4	8.6	75	**260**	**83**	(1) RRUS-32 B30 **(1) RRUS-E2 B29**	**(SHARED)**			
	4	***CCI TPA-65R-LCUUUU-H8***	- -	-	-	-	-	-	-	-	-	-	(SHARED)			

ANTENNA SCHEDULE (3)

SCALE: NTS

BASED ON: RF ENGINEERING DESIGN ENTITLED "NEW-ENGLAND_CONNECTICUT_CT1199_2020-LTE-NEXT-CARRIER_LTE_MH705R_2051A0WGRA_10035106_59402_08-04-2020_FINAL-APPROVED_V2.00" LAST REVISED 10/22/2020.

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HARTFORD PARK ST
FA# 10035106
SITE# CTL01199

PROJECT INFORMATION:
2074 PARK STREET
HARTFORD, CT 06106
HARTFORD COUNTY

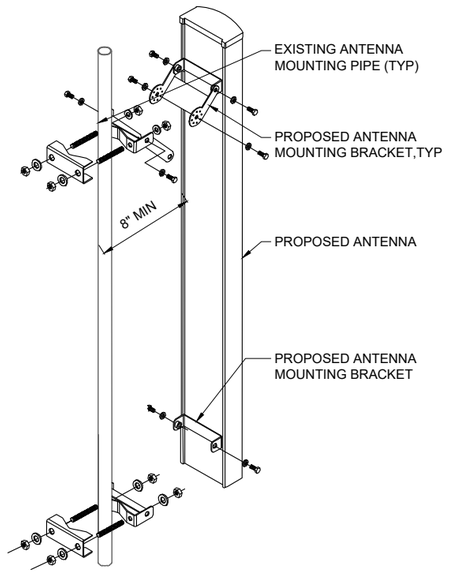
SHEET TITLE:
ANTENNA LAYOUTS AND ANTENNA SCHEDULE

SCALE: NONE

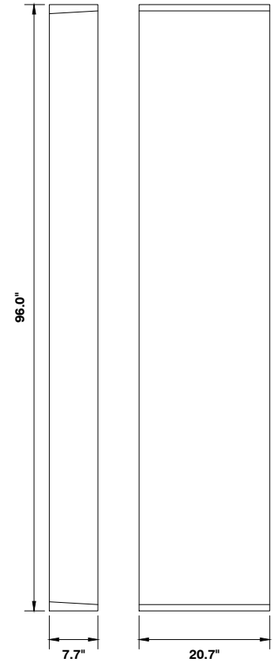
PROJECT NUMBER: 49451
SHEET NUMBER: C-3

NOTES:
-3 FEET MINIMUM SEPARATION BETWEEN LTE ANTENNAS

-8 INCH MINIMUM SEPARATION BETWEEN BACK OF PANEL ANTENNA AND EXISTING/PROPOSED EQUIPMENT



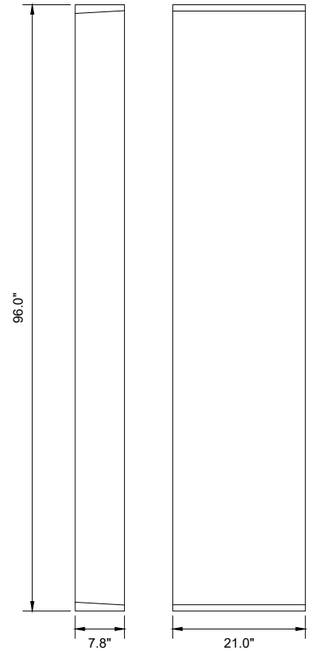
ANTENNA MOUNTING DETAIL 1
SCALE: NTS



CCI DMP65R-BU8DA

DIMENSIONS (HxWxD):
96"x20.7"x7.7"
WEIGHT (LBS): 95.7

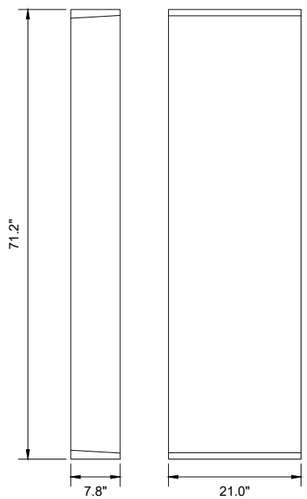
ANTENNA DETAIL 2
SCALE: NTS



CCI OPA65R-BU8DA

DIMENSIONS (HxWxD):
96.0"x21.0"x7.8"
WEIGHT (LBS): 76.5

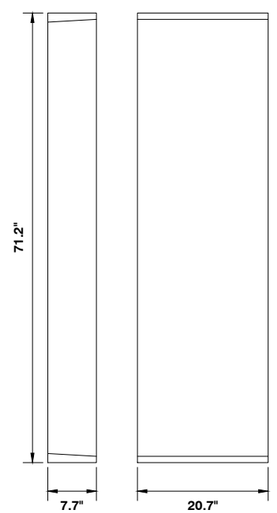
ANTENNA DETAIL 3
SCALE: NTS



CCI OPA65R-BU6DA

DIMENSIONS (HxWxD):
71.2"x21.0"x7.8"
WEIGHT (LBS): 60

ANTENNA DETAIL 4
SCALE: NTS



CCI DMP65R-BU6DA

DIMENSIONS (HxWxD):
71.2"x20.7"x7.7"
WEIGHT (LBS): 79.4

ANTENNA DETAIL 5
SCALE: NTS

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PROFESSIONAL ENGINEER

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ISSUE PHASE: FINAL
DATE ISSUED: 12/15/2020

PROJECT TITLE:
HARTFORD PARK ST
FA# 10035106
SITE# CTL01199

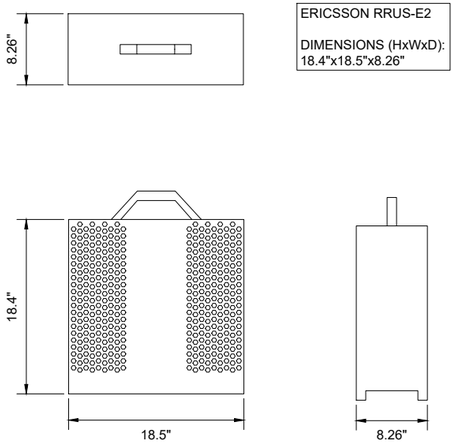
PROJECT INFORMATION:
2074 PARK STREET
HARTFORD, CT 06106
HARTFORD COUNTY

SHEET TITLE:
CONSTRUCTION DETAILS

SCALE: NONE

PROJECT NUMBER: 49451
SHEET NUMBER: A-1

DRAWN BY: AEM CHECKED BY: AJK

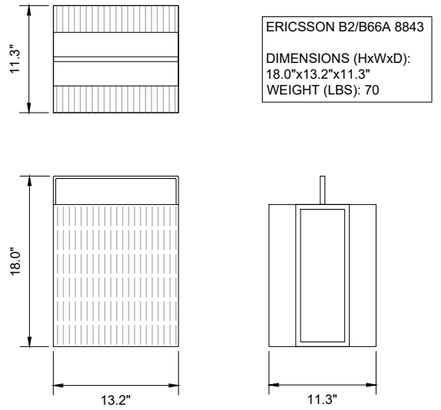


ERICSSON RRUS-E2

DIMENSIONS (HxWxD):
18.4"x18.5"x8.26"

RRUS-E2 B29 DETAIL 1

SCALE: NTS

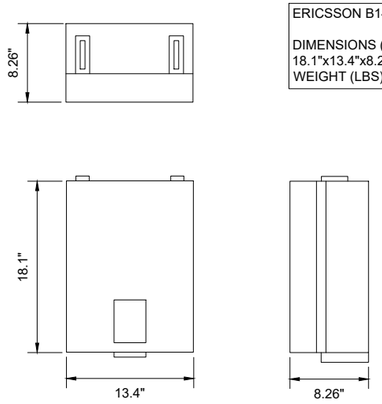


ERICSSON B2/B66A 8843

DIMENSIONS (HxWxD):
18.0"x13.2"x11.3"
WEIGHT (LBS): 70

RRUS B2/B66A 8843 DETAIL 2

SCALE: NTS

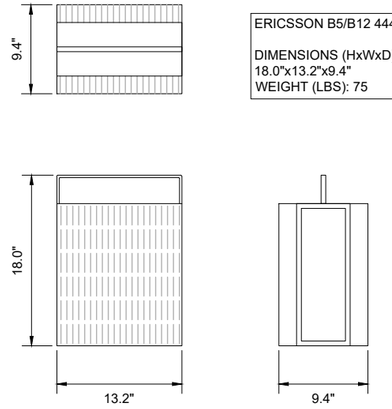


ERICSSON B14 4478

DIMENSIONS (HxWxD):
18.1"x13.4"x8.26"
WEIGHT (LBS): 59.4

RRUS B14 4478 DETAIL 3

SCALE: NTS



ERICSSON B5/B12 4449

DIMENSIONS (HxWxD):
18.0"x13.2"x9.4"
WEIGHT (LBS): 75

RRUS B5/B12 4449 DETAIL 4

SCALE: NTS

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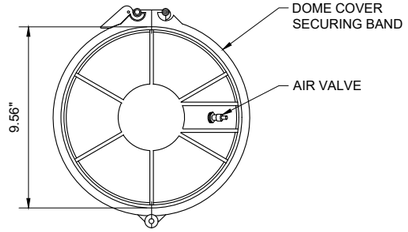
HARTFORD COUNTY

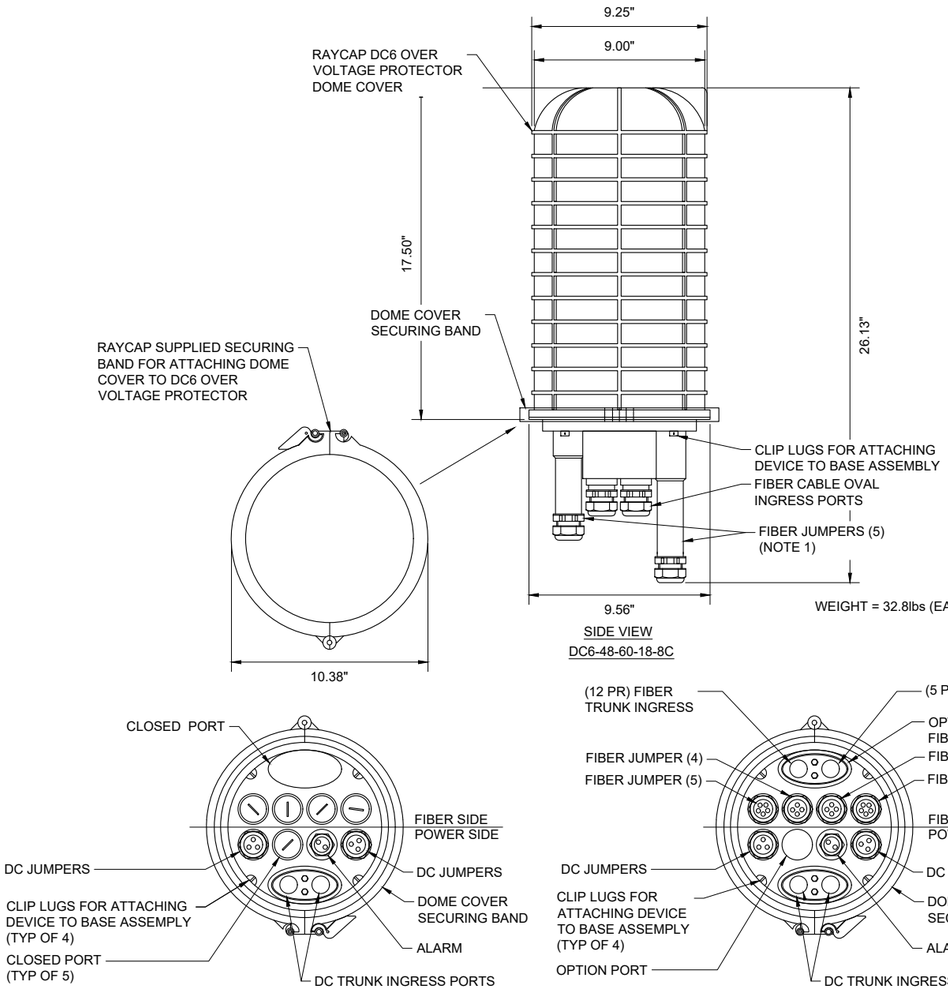
SHEET TITLE:
CONSTRUCTION DETAILS

SCALE: NONE

PROJECT NUMBER: 49451
SHEET NUMBER: A-2



TOP VIEW



SIDE VIEW
DC6-48-60-18-8C

WEIGHT = 32.8lbs (EACH)

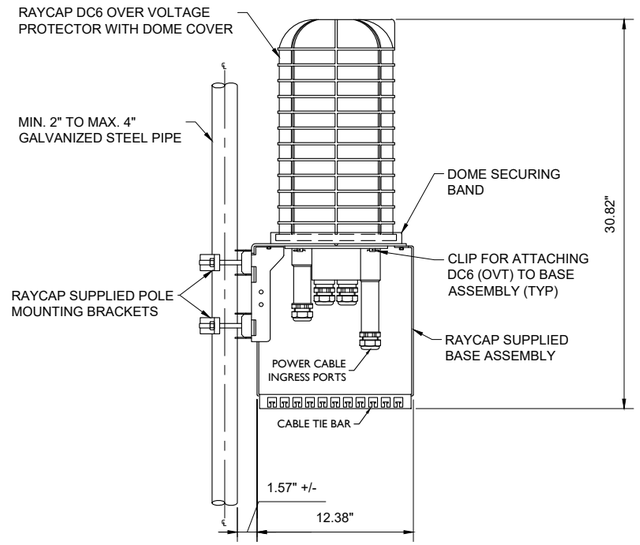
BOTTOM VIEW
DC6-48-60-18-8C

WEIGHT = 26.2 lbs

BOTTOM VIEW
DC6-48-60-18-8C

NOTE:
REMOVE CABLE SEALING GLAND & INSTALL M32x1.5 METRIC -TO-1" NPT ADAPTER (COOPER CROUSE-HINES P/N CAP 740 994 OR EQUIVALENT MFR) WHEN CONNECTING CONDUIT TO OVP

DC6 SURGE SUPPRESSION DOME
SCALE: NTS
1



NOTE:
RAYCAP VIA AT&T SUPPLIES THE DC6 OVER VOLTAGE PROTECTOR AND PIPE MOUNTING BRACKETS. SUBCONTRACTOR SHALL SUPPLY THE PIPE

DC6 SURGE SUPPRESSION DOME
POLE MOUNT ASSEMBLY
NOT TO SCALE

DC6 SURGE SUPPRESSION DOME
POLE MOUNT ASSEMBLY
SCALE: NTS
2

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HARTFORD COUNTY

SHEET TITLE:
CONSTRUCTION DETAILS

SCALE: NONE

PROJECT NUMBER: 49451
SHEET NUMBER: A-3

DRAWN BY: AEM CHECKED BY: AJK

Printed by: akvalheim on Dec 15, 2020 - 8:58am

C:\Users\akvalheim\appdata\local\temp\AcPublish_26532\49451_10035106_AE201_200903_CTL01199_Rev0_3C-4C-5G.dwg

Diagram - Sector: A | Diagram File Name - CT1199_A_B_C_LTE Multi Carrier_Rev.2.vsd
Atoll Site Name - CT1199 | Location Name - HARTFORD PARK ST | Market - CONNECTICUT | Market Cluster - NEW ENGLAND
Comments: "Important Note: For detailed radio to antenna wiring refer to the latest field notice - Antenna_Radio Connection Drawings Playbook v8.0_Ericsson"

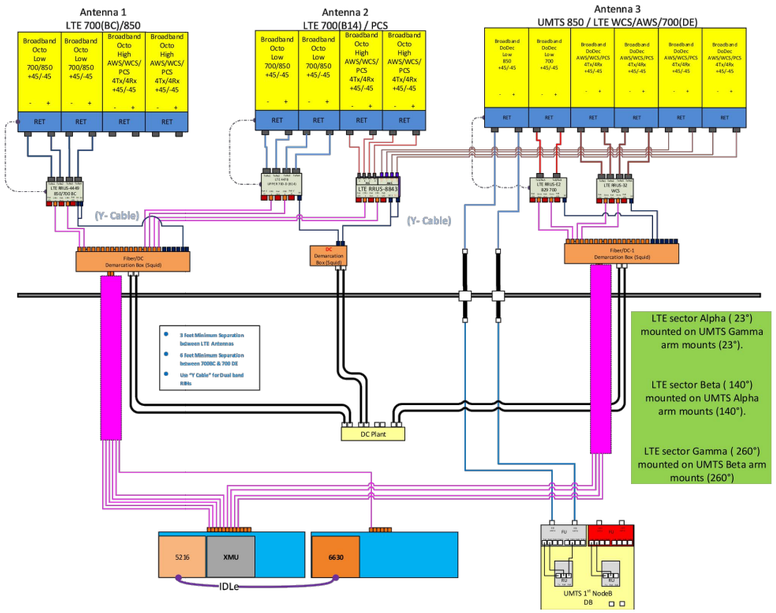


Diagram - Sector: B | Diagram File Name - CT1199_A_B_C_LTE Multi Carrier_Rev.2.vsd
Atoll Site Name - CT1199 | Location Name - HARTFORD PARK ST | Market - CONNECTICUT | Market Cluster - NEW ENGLAND
Comments: "Important Note: For detailed radio to antenna wiring refer to the latest field notice - Antenna_Radio Connection Drawings Playbook v8.0_Ericsson"

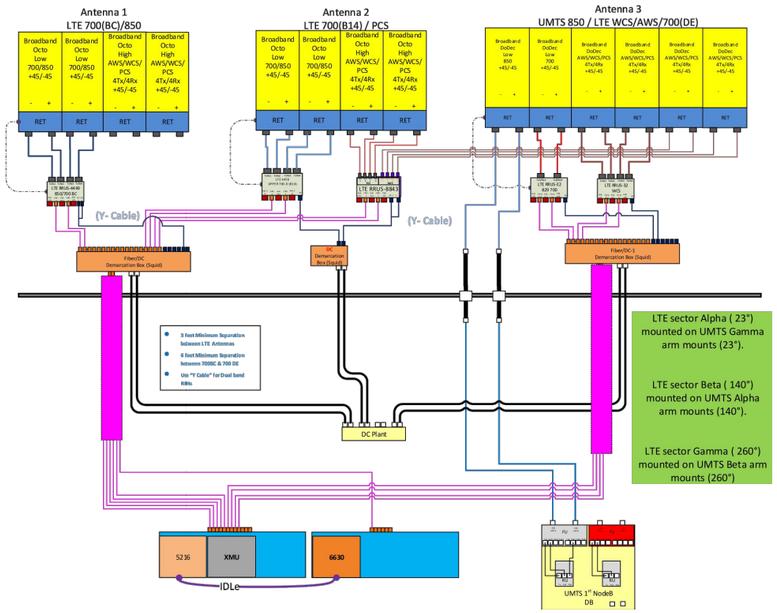
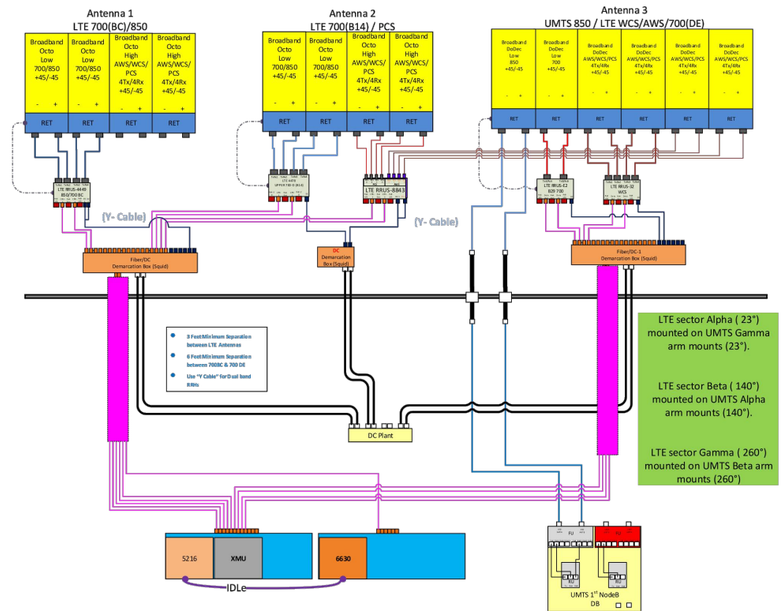


Diagram - Sector: C | Diagram File Name - CT1199_A_B_C_LTE Multi Carrier_Rev.2.vsd
Atoll Site Name - CT1199 | Location Name - HARTFORD PARK ST | Market - CONNECTICUT | Market Cluster - NEW ENGLAND
Comments: "Important Note: For detailed radio to antenna wiring refer to the latest field notice - Antenna_Radio Connection Drawings Playbook v8.0_Ericsson"



BASED ON: RF ENGINEERING DESIGN ENTITLED "NEW-ENGLAND_CONNECTICUT_CT1199_2020-LTE-NEXT-CARRIER_LTE_MH705R_2051A0WGRA_10035106_59402_08-04-2020_FINAL-APPROVED_V2.00" LAST REVISED 10/22/2020.

RF PLUMBING DIAGRAMS

SCALE: NTS

1

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ISSUE PHASE: FINAL | DATE ISSUED: 12/15/2020

PROJECT TITLE:
HARTFORD PARK ST
FA# 10035106
SITE# CTL01199

PROJECT INFORMATION:
2074 PARK STREET
HARTFORD, CT 06106
HARTFORD COUNTY

SHEET TITLE:
RF PLUMBING DIAGRAMS

SCALE: NONE

PROJECT NUMBER: 49451

SHEET NUMBER: A-4

DRAWN BY: AEM CHECKED BY: AJK

Printed by: akvalheim on Dec 15, 2020 - 8:58am

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3.0 GENERAL NOTES:

3.1 STRUCTURAL DRAWINGS ARE INTENDED TO BE USED WITH ARCHITECTURAL DRAWINGS. CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE REQUIREMENTS OF ALL DRAWINGS INTO THEIR SHOP DRAWINGS AND WORK. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ENGINEER REVIEW.

3.2 NO CHANGE IN SIZE OR DIMENSION OF STRUCTURAL MEMBERS SHALL BE MADE WITHOUT THE WRITTEN APPROVAL OF THE ENGINEER. THE CONTRACTOR IS RESPONSIBLE FOR LIMITING THE AMOUNT OF CONSTRUCTION LOAD IMPOSED UPON STRUCTURAL FRAMING. CONSTRUCTION LOADS SHALL NOT EXCEED THE CAPACITY OF THE FRAMING AT THE TIME THE LOADS ARE IMPOSED.

3.3 THE STRUCTURE IS DESIGNED TO FUNCTION AS A UNIT UPON COMPLETION. THE CONTRACTOR SHALL FURNISH ALL TEMPORARY BRACING AND/OR SUPPORTS REQUIRED AS THE RESULT OF THE CONTRACTOR'S CONSTRUCTION METHODS AND/OR SEQUENCES.

3.4 DO NOT SCALE THESE DRAWINGS, USE DIMENSIONS.

3.5 THE CONTRACTOR SHALL INFORM THE ENGINEER IN WRITING OF ANY DEVIATION FROM THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL NOT BE RELIEVED OF THE RESPONSIBILITY FOR SUCH DEVIATION BY THE ENGINEER'S APPROVAL OF SHOP DRAWINGS, PRODUCT DATE, ETC., UNLESS THE CONTRACTOR HAS SPECIFICALLY INFORMED THE ENGINEER OF SUCH DEVIATION AT THE TIME OF SUBMISSION, AND THE ENGINEER HAS GIVEN WRITTEN APPROVAL TO THE SPECIFIC DEVIATION.

3.6 ALL THINGS WHICH, IN THE OPINION OF THE CONTRACTOR, APPEAR TO BE DEFICIENCIES, OMISSIONS, CONTRADICTIONS AND AMBIGUITIES, IN THE PLANS AND SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER. PLANS AND/OR SPECIFICATIONS WILL BE CORRECTED, OR A WRITTEN INTERPRETATION OF THE ALLEGED DEFICIENCY, OMISSION, CONTRADICTION OR AMBIGUITY WILL BE MADE BY THE ENGINEER BEFORE THE AFFECTED WORK PROCEEDS.

4.0 STRUCTURAL STEEL NOTES:

4.1 ALL STRUCTURAL STEEL WORK SHALL CONFORM TO THE AISC "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS", THE AISC "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES", LATEST EDITION.

4.2 ALL STRUCTURAL STEEL PLATES, SHAPES AND BARS SHALL CONFORM TO ASTM A992 OR A36, UNLESS NOTED OTHERWISE. COLD FORMED TUBING SHALL CONFORM TO ASTM A500 GRADE B. PIPES SHALL CONFORM TO ASTM A53 TYPE E OR S. ANCHOR BOLTS SHALL CONFORM TO ASTM A307 OR ASTM A36.

4.3 ALL BOLTS (OTHER THAN ANCHOR BOLTS), NUTS AND WASHERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A325. ALL BOLTS SHALL BE ¾ INCH DIAMETER, MINIMUM. BOLTS USED IN LATERAL LOAD RESISTING CONNECTIONS SHALL BE FRICTION TYPE, DESIGNED FOR INDICATED FORCES WITHOUT STRESS INCREASES.

4.4 ALL WELDING SHALL BE DONE BY QUALIFIED WELDERS AND SHALL CONFORM TO AWS D1.1 "STRUCTURAL WELDING CODE", LATEST EDITION. ALL WELDING ELECTRODES SHALL BE E70XX.

4.5 ALL BEAMS SHALL BE FABRICATED WITH THE NATURAL CAMBER UP.

4.6 THERE SHALL BE NO FIELD CUTTING OF STRUCTURAL STEEL MEMBERS FOR THE WORK OF OTHER TRADES WITHOUT THE PRIOR APPROVAL OF THE STRUCTURAL ENGINEER.

4.7 GRATING SHALL BE CAPABLE OF SUPPORTING INDICATED LOADS. USE STANDARD J-BOLTS AND CLIPS FOR ATTACHMENT. GRATING SADDLE CLIP FASTENERS SHALL BE ASTM A570 GRADE 36 WITH MINIMUM THICKNESS OF 14 GA. SELF TAPPING GRATING FASTENER BOLTS MINIMUM THICKNESS OF 14 GA. SELF TAPPING GRATING FASTENER BOLTS SHALL BE STAINLESS STEEL PER ASTM A240, TYPE 410.

4.8 GUARD RAILS, LADDERS/STAIRS SHALL BE CONSTRUCTED IN ACCORDANCE WITH OSHA AND LOCAL REQUIREMENTS.

4.9 A. ALL STEEL SHALL BE HOT DIPPED GALVANIZED.

B. FIELD TOUCH UP ALL PAINTED AND GALVANIZED SURFACES.

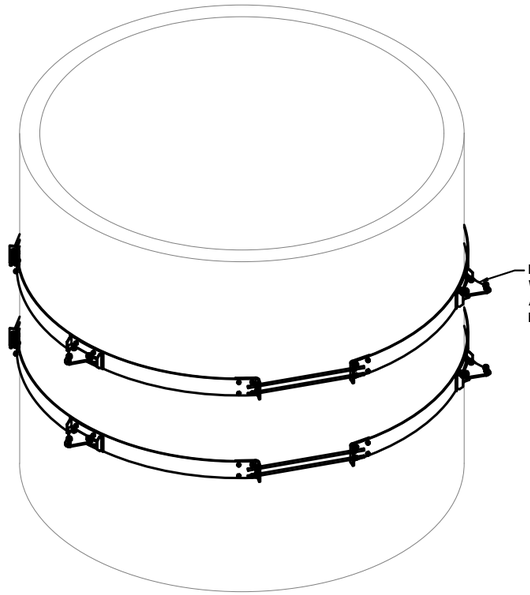
C. GRIND ALL WELDS TO A SMOOTH FINISH.

4.10 MINIMUM SHEAR CAPACITIES: PROVIDE AT LEAST ONE HALF OF THE UNIFORM LOAD CARRYING CAPACITY OF THE BEAM WITH THE ASSUMPTION OF FULLY BRACED COMPRESSION FLANGE.

4.11 THE DEPTH OF A SIMPLE SHEAR CONNECTION SHALL NOT BE LESS THAN ONE HALF OF THE NOMINAL DEPTH OF THE BEAM. THE MINIMUM NUMBER OF BOLTS PER CONNECTION SHALL BE TWO (2).

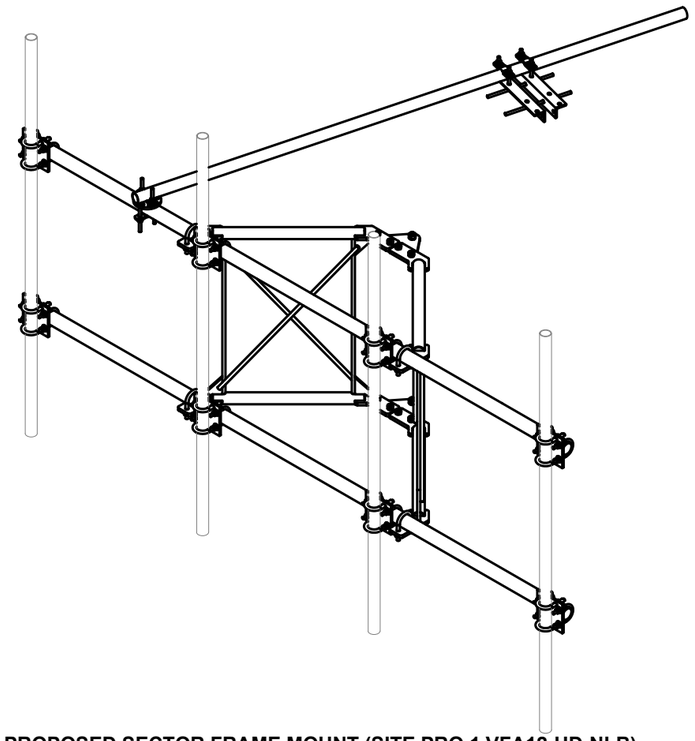
NOTES:

1. ALL EXISTING DIMENSIONS AND CONDITIONS MUST BE FIELD VERIFIED PRIOR TO FABRICATION.
2. USE MASONRY BITS FOR DRILLING OF CONCRETE & NO CUTTING/DAMAGING OF REBAR IS ALLOWED.



PROPOSED ROUND CHIMNEY MOUNT (SITE PRO 1 RCM-911) 1

SCALE: NTS



PROPOSED SECTOR FRAME MOUNT (SITE PRO 1 VFA12-HD-NLB) 2

SCALE: NTS

at&t

smartlink
85 RANGEWAY ROAD - BLDG 3, SUITE 102
NORTH BILLERICA, MA 01862
SMARTLINKLLC.COM

RAMAKER
employee-owned
(608) 643-4100 www.ramaker.com

Certification & Seal:

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Connecticut.

STATE OF CONNECTICUT · JAMES R. SKOWRONSKI · 26266 · LICENSED PROFESSIONAL ENGINEER

Signature: Date: 12/15/2020

MARK	DATE	DESCRIPTION
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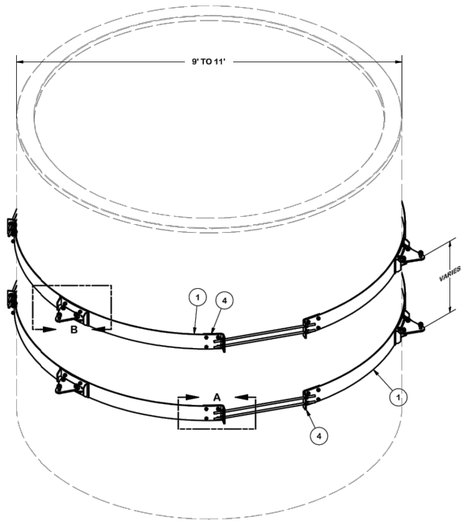
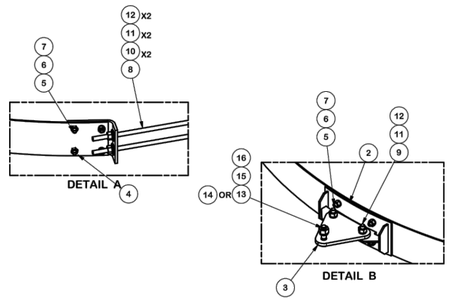
HARTFORD COUNTY

SHEET TITLE:
STRUCTURAL DETAILS

SCALE: NONE

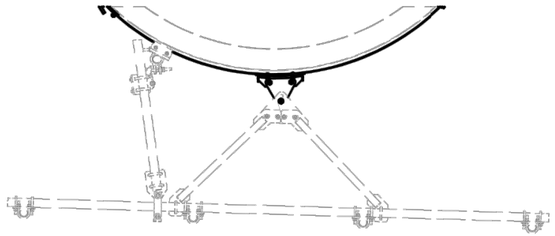
PROJECT NUMBER: 49451
SHEET NUMBER: S-1



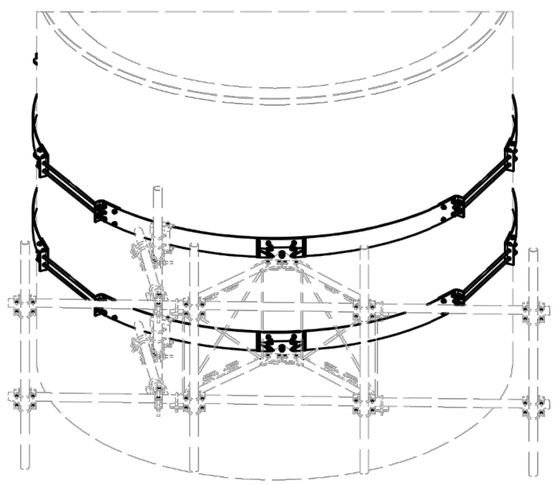


PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	6	X-114178	CHIMNEY STRAP		37.01	222.07
2	6	X-115582	ANTENNA MOUNTING PLATE		9.42	56.53
3	6	X-RCMSIP	RCM SECTOR FRAME INTERFACE PLATE	8 1/4 in	5.96	35.77
4	12	X-114170	FORMED END PLATE	9 in	5.84	70.02
5	72	CB12112	1/2" X 1-1/2" CARRIAGE BOLT		0.13	9.29
6	72	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	1.00
7	72	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	5.16
8	12	G58R-36	5/8" x 36" THREADED ROD (HDG.)		0.40	4.79
9	12	G5802	5/8" x 2" HDG HEX BOLT GR5		0.27	3.24
10	24	G58FW	5/8" HDG USS FLATWASHER	1/8 in	0.07	1.69
11	36	G58LW	5/8" HDG LOCKWASHER		0.03	0.94
12	36	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	4.68
13	6	A34234	3/4"-10 X 2-3/4" A325 BOLT WITH 1-3/8" THREAD	2 3/4 in	0.54	3.22
14	6	A34212	3/4" x 2-1/2" UNC HEX BOLT (A325)	2 1/2 in	0.48	2.87
15	6	G34LW	3/4" HDG LOCKWASHER		0.04	0.26
16	6	G34NUT	3/4" HDG HEAVY 2H HEX NUT		0.21	1.27
					TOTAL WT. #	455.65

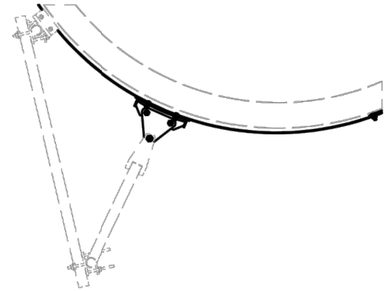
SECTOR FRAMES



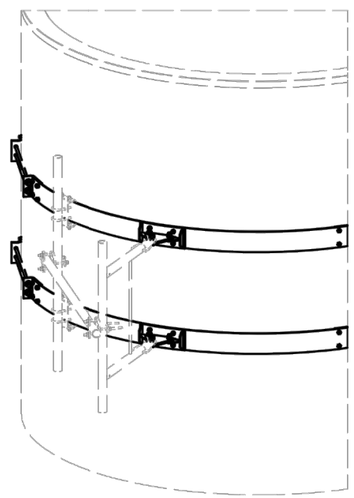
VFAxx-SD
VFAxx-HD



PIVOT SIDE ARMS

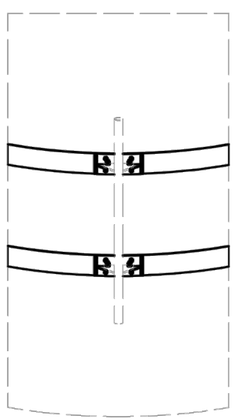


PSA6
PSA3



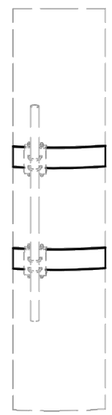
FIXED PIPEMOUNTS

X-B1161 - 2-3/8" O.D. X 60" PIPE - STRAIGHT
X-B965 - 4-1/2" O.D. X 60" PIPE - STRAIGHT
X-B967 - 4-1/2" O.D. X 60" PIPE - TAPERED



ADJUSTABLE PIPE MOUNTS

RC-PM23 &
2-3/8" O.D. PIPE



PROPOSED ROUND CHIMNEY MOUNT (SITE PRO 1 RCM-911) (1)

SCALE: NTS

at&t

smartlink

85 RANGEWAY ROAD - BLDG 3, SUITE 102
NORTH BILLERICA, MA 01862
SMARTLINKLLC.COM

RAMAKER
employee-owned
(608) 643-4100 www.ramaker.com

Certification & Seal:

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Connecticut.

STATE OF CONNECTICUT
JAMES R. SKOWRONSKI
26266
LICENSED
PROFESSIONAL ENGINEER

Signature: Date: 12/15/2020

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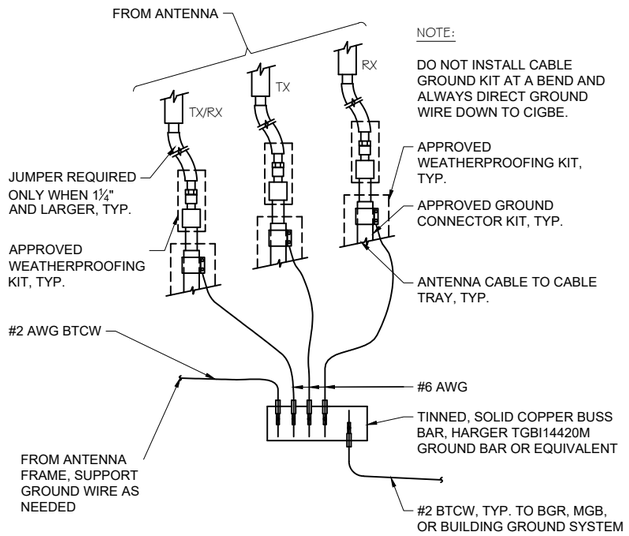
HARTFORD COUNTY

SHEET TITLE:
STRUCTURAL DETAILS

SCALE: NONE

PROJECT NUMBER: 49451
SHEET NUMBER: S-2

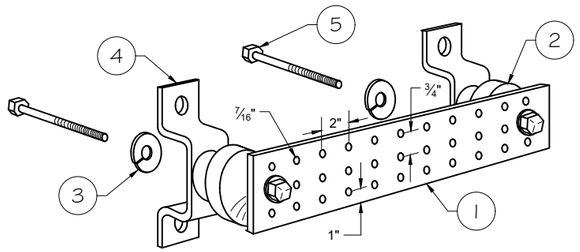


GROUND WIRE TO GROUND BAR DETAIL (1)

SCALE: NTS

NOTES:

1. ALL MOUNTING HARDWARE CAN BE USED ON 6", 12", 18", ETC. GROUND BARS.
2. ENTIRE ASSEMBLY AVAILABLE FROM NEWTON INSTRUMENT CO. CAT. NO. 2106060010 OR AS HARGER TGBI14420M.

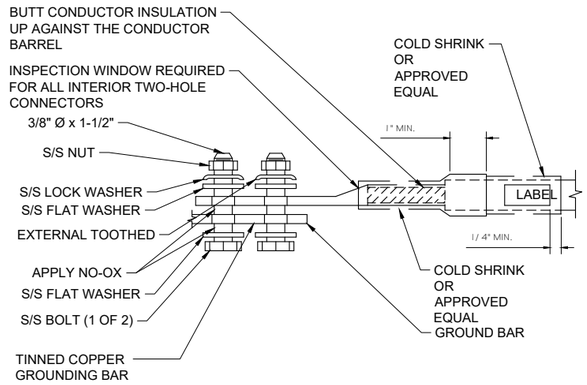


LEGEND

1. TINNED COPPER GROUND BAR, ¼" x 4" x 20", NEWTON CO., HARGER TGBI14420M, OR EQUIVALENT. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION.
2. INSULATORS. INSTRUMENT CO. CAT. NO. 3061-4 OR HARGER EQUIVALENT.
3. ⅝" LOCKWASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015-8 OR EQUIVALENT.
4. WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT. NO. A-6056 OR HARGER EQUIVALENT.
5. ⅝" x 1" H.H.C.S. BOLTS, NEWTON INSTRUMENT CO. CAT. NO. 3012-1 OR HARGER EQUIVALENT.

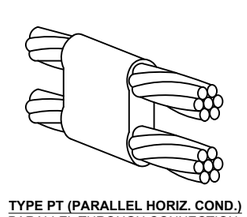
TYPICAL GROUND BAR DETAIL (2)

SCALE: NTS

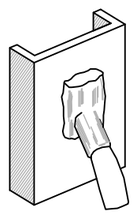


TYPICAL GROUND BAR CONNECTION DETAIL (3)

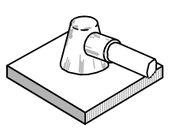
SCALE: NTS



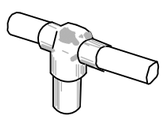
TYPE PT (PARALLEL HORIZ. COND.)
PARALLEL THROUGH CONNECTION OF HORIZONTAL CABLES



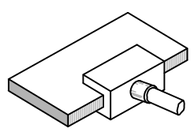
TYPE VS (VERT. STEEL SURFACE)
CABLE TAP DOWN AT 45° TO VERTICAL STEEL SURFACE INCLUDING PIPE



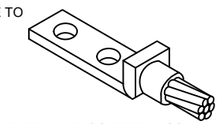
TYPE HS (HORIZ. STEEL SURFACE)
TO FLAT STEEL SURFACE OR HORIZONTAL PIPE



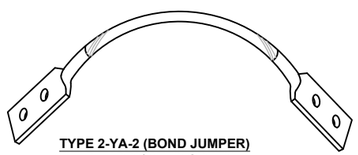
TYPE GT (THROUGH CABLE TO GROUND ROD)
THROUGH CABLE TO TOP OF GROUND ROD



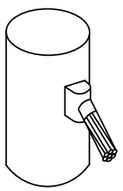
TYPE LJ (FLAT BUSBAR)
TAP OF HORIZONTAL CABLE TO EDGE OF HORIZONTAL



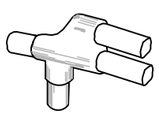
TYPE YA-2 (COPPER LUGS)
TWO HOLE- LONG BARREL LENGTH



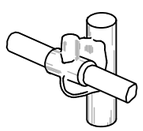
TYPE 2-YA-2 (BOND JUMPER)
FIELD FABRICATED GREEN STRANDED INSULATED



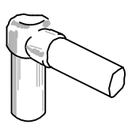
TYPE VS (VERTICAL PIPE)
CABLE TAP DOWN AT 45° TO RANGE OF VERTICAL PIPES



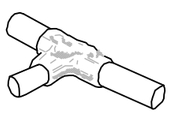
TYPE NC
THROUGH AND TAP CABLES TO GROUND ROD



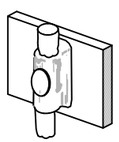
TYPE GY
THROUGH CABLE TO SIDE OF GROUND ROD



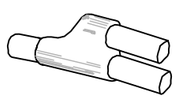
TYPE GR
CABLE TAP TO TOP OF GROUND ROD



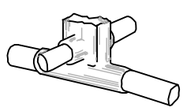
TYPE TA
TEE OF HORIZONTAL RUN AND TAP CABLES



TYPE W
THROUGH VERTICAL CABLE TO VERTICAL STEEL SURFACE OR TO THE SIDE OF EITHER HORIZONTAL OR VERTICAL PIPE



TYPE PC
PARALLEL TAP CABLES



TYPE XB
CROSS OF HORIZONTAL CABLES. LAPPED AND NOT CUT.

TYPICAL CADWELD TYPES DETAIL (4)

SCALE: NTS

at&t

smartlink
85 RANGEWAY ROAD - BLDG 3, SUITE 102
NORTH BILLERICA, MA 01862
SMARTLINKLLC.COM

RAMAKER
employee-owned
(608) 643-4100 www.ramaker.com

Certification & Seal:

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Connecticut.

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JAMES R. SKOWRONSKI
26266
LICENSED
PROFESSIONAL ENGINEER

Signature: Date: 12/15/2020

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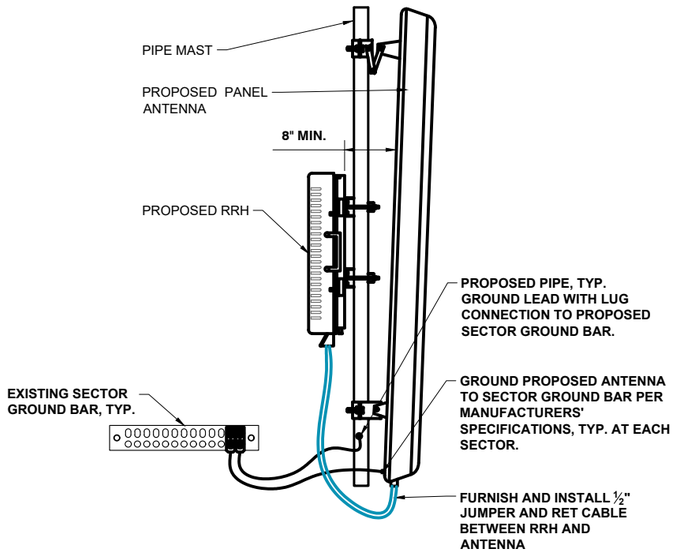
HARTFORD, CT 06106
HARTFORD COUNTY

SHEET TITLE:
GROUNDING DETAILS

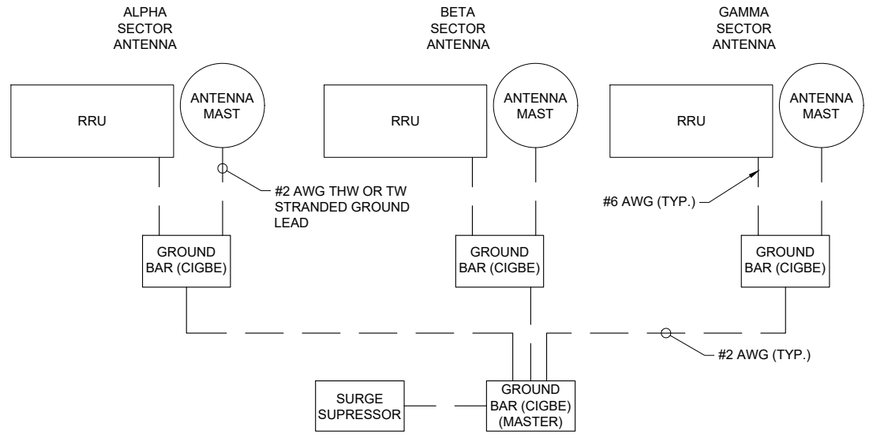
SCALE: NONE

PROJECT NUMBER: 49451
SHEET NUMBER: G-1

DRAWN BY: AEM
CHECKED BY: AJK



ANTENNA & RRU GROUNDING DETAIL (1)
SCALE: NTS



SCHEMATIC DIAGRAM GROUNDING SYSTEM (2)
SCALE: NTS

at&t

smartlink
85 RANGEWAY ROAD - BLDG 3, SUITE 102
NORTH BILLERICA, MA 01862
SMARTLINKLLC.COM

RAMAKER
employee-owned
(608) 643-4100 www.ramaker.com

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Connecticut.

STATE OF CONNECTICUT
JAMES R. SKOWRONSKI
26266
LICENSED
PROFESSIONAL ENGINEER

Signature: Date: 12/15/2020

MARK	DATE	DESCRIPTION
2	12/15/20	REVISED PER COMMENTS
1	11/19/20	FINAL CDs ISSUED
0	11/10/20	CDs ISSUED FOR REVIEW

ISSUE PHASE: FINAL
DATE ISSUED: 12/15/2020

PROJECT TITLE:
HARTFORD PARK ST
FA# 10035106
SITE# CTL01199

PROJECT INFORMATION:
2074 PARK STREET
HARTFORD, CT 06106
HARTFORD COUNTY

SHEET TITLE:
GROUNDING DETAILS

SCALE: NONE

PROJECT NUMBER: 49451
SHEET NUMBER: G-2

SiteSafe
A QUALTEK Company

8618 Westwood Center Drive, Suite 315, Vienna, VA 22182
703.276.1100 ● 703.276.1169 fax
info@sitesafe.com ● www.sitesafe.com

Smartlink on behalf of AT&T Mobility, LLC
Site FA – 10035106
Site ID – CT1199
USID – 59402
Site Name – HARTFORD PARK ST MRCTB048656

2074 PARK STREET
HARTFORD, CT 06106

Latitude: N41-45-24.37
Longitude: W72-42-50.00
Structure Type: Rooftop

Report generated date: December 16, 2020
Report by: Scott Broyles
Customer Contact: William Noel

AT&T Mobility, LLC is compliant based on FCC Rules and Regulations.

Table of Contents

1 General Site Summary

1.1 Report Summary

AT&T Mobility, LLC	Summary
Max Cumulative Simulated RFE Level on the Smokestack	<1% General Public Limit
Max Cumulative Simulated RFE Level on the Adjacent Rooftop Walking Surface	<1% General Public Limit
Max Cumulative Simulated RFE Level on the Ground	<1% General Public Limit
Compliant per FCC Rules and Regulations?	Yes
Compliant per AT&T Mobility, LLC's Policy?	No

The following documents were provided by the client and were utilized to create this report:

RFDS: NEW-ENGLAND_CONNECTICUT_CT1199_2020-LTE-Next-Carrier_LTE_mh705r_2051A0WGRA_10035106_59402_08-04-2020_Final-Approved_v2.00

CD's: 10035106_AE201_201119_CTL01199_Rev1_5C-6C-5GNR-Retrofit

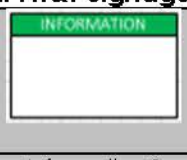
RF Powers Used: AT&T Max RRU Powers

1.2 Fall Arrest Anchor Point Summary

Fall Arrest Anchor & Parapet Info	Parapet Available (Y/N)	Parapet Height (inches)	Fall Arrest Anchor Available (Y/N)
Roof Safety Info	N	N/A	N

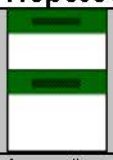
1.3 Signage Summary

a. Pre-Site Visit AT&T Signage (Existing Signage)

AT&T Signage Locations	 Information 1	 Information 2	 Notice	 Notice 2	 Caution	 Caution 2	 Warning	 Warning 2	 Barriers
Access Point(s)						1			
Alpha									
Beta									
Gamma									
Gate	1								
Equipment	1								

Note: All existing signage was documented during a previous site visit 06/08/2016.

b. Proposed AT&T Signage

AT&T Signage Locations	 Information 1	 Information 2	 Notice	 Notice 2	 Caution	 Caution 2	 Warning	 Warning 2	 Barriers
Access Point(s)									
Alpha									
Beta									
Gamma									
Delta									
Epsilon									

2 Scale Maps of Site

The following diagrams are included:

- Site Scale Map
- RF Exposure Diagram

Site Scale Map For: HARTFORD PARK ST

BUILDING Z=10' AGL
NO ACCESS

SLOPED ROOF Z =20' AGL
NO ACCESS

SMOKESTACK
Z=85' AGL

L Door

GATE

L Door

AT&

BUILDING Z=10' AGL
NO ACCESS

(Feet)

0 8.4 16.8

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Carrier Identification

AT&T MOBILITY LLC | VERIZON WIRELESS | T-MOBILE | SPRINT | UNKNOWN CARRIER

Sign Legend

Notice | Notice 2 | Caution | Caution 2 | Warning | Warning 2 | Info | Info 2 | RF Emissions Diagram | Locked Ladder

Existing Barrier

Proposed Barrier/Sign

Remove Sign X

3 Antenna Inventory

The following antenna inventory was obtained by the customer and was utilized to create the site model diagrams:

Ant ID	Operator	Antenna Make & Model	Type	TX Freq (MHz)	Technology	Az (Deg)	Hor BW (Deg)	Ant Len (ft)	Power	Power Type	Power Unit	Misc Loss	TX Count	Total ERP (Watts)	Ant Gain (dBd)	Z AGL	MDT	EDT
1	AT&T MOBILITY LLC (Proposed)	Cci DMP65R-BU8D	Panel	737	LTE	23	70.6	8	160	TPO	Watt	0	1	2692.3	12.26	79'	0°	9°
1	AT&T MOBILITY LLC (Proposed)	Cci DMP65R-BU8D	Panel	850	LTE	23	71.4	8	80	TPO	Watt	0	1	1442.4	12.56	79'	0°	9°
1	AT&T MOBILITY LLC (Proposed)	Cci DMP65R-BU8D	Panel	850	5G	23	71.4	8	80	TPO	Watt	0	1	1442.4	12.56	79'	0°	9°
2	AT&T MOBILITY LLC (Proposed)	Cci OPA65R-BU8D	Panel	763	LTE	23	65.9	8	160	TPO	Watt	0	1	3229.4	13.05	79'	0°	9°
2	AT&T MOBILITY LLC (Proposed)	Cci OPA65R-BU8D	Panel	1900	LTE	23	66.8	8	160	TPO	Watt	0	1	4457.8	14.45	79'	0°	0°
3	AT&T MOBILITY LLC	CCI Antennas TPA-65R-LCUUUU-H8	Panel	850	UMTS	23	63.0	8	40	TPO	Watt	0	1	907.9	13.56	79'	0°	2°
3	AT&T MOBILITY LLC	CCI Antennas TPA-65R-LCUUUU-H8	Panel	722	LTE	23	61.9	8	80	TPO	Watt	0	1	1815.9	13.56	79'	0°	3°
3	AT&T MOBILITY LLC	CCI Antennas TPA-65R-LCUUUU-H8	Panel	2100	LTE/AWS-1	23	65.2	8	160	TPO	Watt	0	1	3982.2	13.96	79'	0°	0°
3	AT&T MOBILITY LLC	CCI Antennas TPA-65R-LCUUUU-H8	Panel	2300	LTE	23	65.0	8	100	TPO	Watt	0	1	2729	14.36	79'	0°	3°
4	AT&T MOBILITY LLC (Proposed)	Cci DMP65R-BU6D	Panel	850	LTE	140	70.9	5.9	80	TPO	Watt	0	1	1119.7	11.46	80'	0°	9°
4	AT&T MOBILITY LLC (Proposed)	Cci DMP65R-BU6D	Panel	737	LTE	140	65.7	5.9	160	TPO	Watt	0	1	2399.5	11.76	80'	0°	9°
4	AT&T MOBILITY LLC (Proposed)	Cci DMP65R-BU6D	Panel	850	5G	140	70.9	5.9	80	TPO	Watt	0	1	1119.7	11.46	80'	0°	9°
5	AT&T MOBILITY LLC (Proposed)	CCI Antennas OPA65R-BU6A	Panel	763	LTE	140	64.5	5.9	160	TPO	Watt	0	1	2692.3	12.26	80'	0°	9°
5	AT&T MOBILITY LLC (Proposed)	CCI Antennas OPA65R-BU6A	Panel	1900	LTE	140	64.7	5.9	160	TPO	Watt	0	1	5013.3	14.96	80'	0°	2°
6	AT&T MOBILITY LLC	Kathrein-Scala 800-10798	Panel	2100	LTE/AWS-1	140	62.0	6.5	160	TPO	Watt	0	1	4056.2	14.04	79.7'	0°	2°
6	AT&T MOBILITY LLC	Kathrein-Scala 800-10798	Panel	2300	LTE	140	64.0	6.5	100	TPO	Watt	0	1	2098.9	13.22	79.7'	0°	3°
6	AT&T MOBILITY LLC	Kathrein-Scala 800-10798	Panel	850	UMTS	140	62.0	6.5	40	TPO	Watt	0	1	798.1	13.00	79.7'	0°	2°
6	AT&T MOBILITY LLC	Kathrein-Scala 800-10798	Panel	722	LTE	140	66.0	6.5	80	TPO	Watt	0	1	1452.4	12.59	79.7'	0°	3°
7	AT&T MOBILITY LLC	Cci DMP65R-BU8D	Panel	850	LTE	260	71.4	8	80	TPO	Watt	0	1	1442.4	12.56	79'	0°	9°

Ant ID	Operator	Antenna Make & Model	Type	TX Freq (MHz)	Technology	Az (Deg)	Hor BW (Deg)	Ant Len (ft)	Power	Power Type	Power Unit	Misc Loss	TX Count	Total ERP (Watts)	Ant Gain (dBd)	Z AGL	MDT	EDT
	(Proposed)																	
7	AT&T MOBILITY LLC (Proposed)	Cci DMP65R-BU8D	Panel	737	LTE	260	70.6	8	160	TPO	Watt	0	1	2692.3	12.26	79'	0°	9°
7	AT&T MOBILITY LLC (Proposed)	Cci DMP65R-BU8D	Panel	850	5G	260	71.4	8	80	TPO	Watt	0	1	1442.4	12.56	79'	0°	9°
8	AT&T MOBILITY LLC (Proposed)	Cci OPA65R-BU8D	Panel	763	LTE	260	65.9	8	160	TPO	Watt	0	1	3229.4	13.05	79'	0°	9°
8	AT&T MOBILITY LLC (Proposed)	Cci OPA65R-BU8D	Panel	1900	LTE	260	66.8	8	160	TPO	Watt	0	1	4457.8	14.45	79'	0°	7°
9	AT&T MOBILITY LLC	CCI Antennas TPA-65R-LCUUUU-H8	Panel	850	UMTS	260	63.0	8	40	TPO	Watt	0	1	907.9	13.56	79'	0°	2°
9	AT&T MOBILITY LLC	CCI Antennas TPA-65R-LCUUUU-H8	Panel	2100	LTE/AWS-1	260	65.2	8	160	TPO	Watt	0	1	3982.2	13.96	79'	0°	0°
9	AT&T MOBILITY LLC	CCI Antennas TPA-65R-LCUUUU-H8	Panel	2300	LTE	260	65.0	8	100	TPO	Watt	0	1	2729	14.36	79'	0°	3°
9	AT&T MOBILITY LLC	CCI Antennas TPA-65R-LCUUUU-H8	Panel	722	LTE	260	61.9	8	80	TPO	Watt	0	1	1815.9	13.56	79'	0°	3°

Note: The Z reference indicates the bottom of the antenna height above the ground level unless otherwise indicated. Effective Radiated Power (ERP) is provided by the operator or based on Sitesafe experience. The values used in the modeling may be greater than are currently deployed.

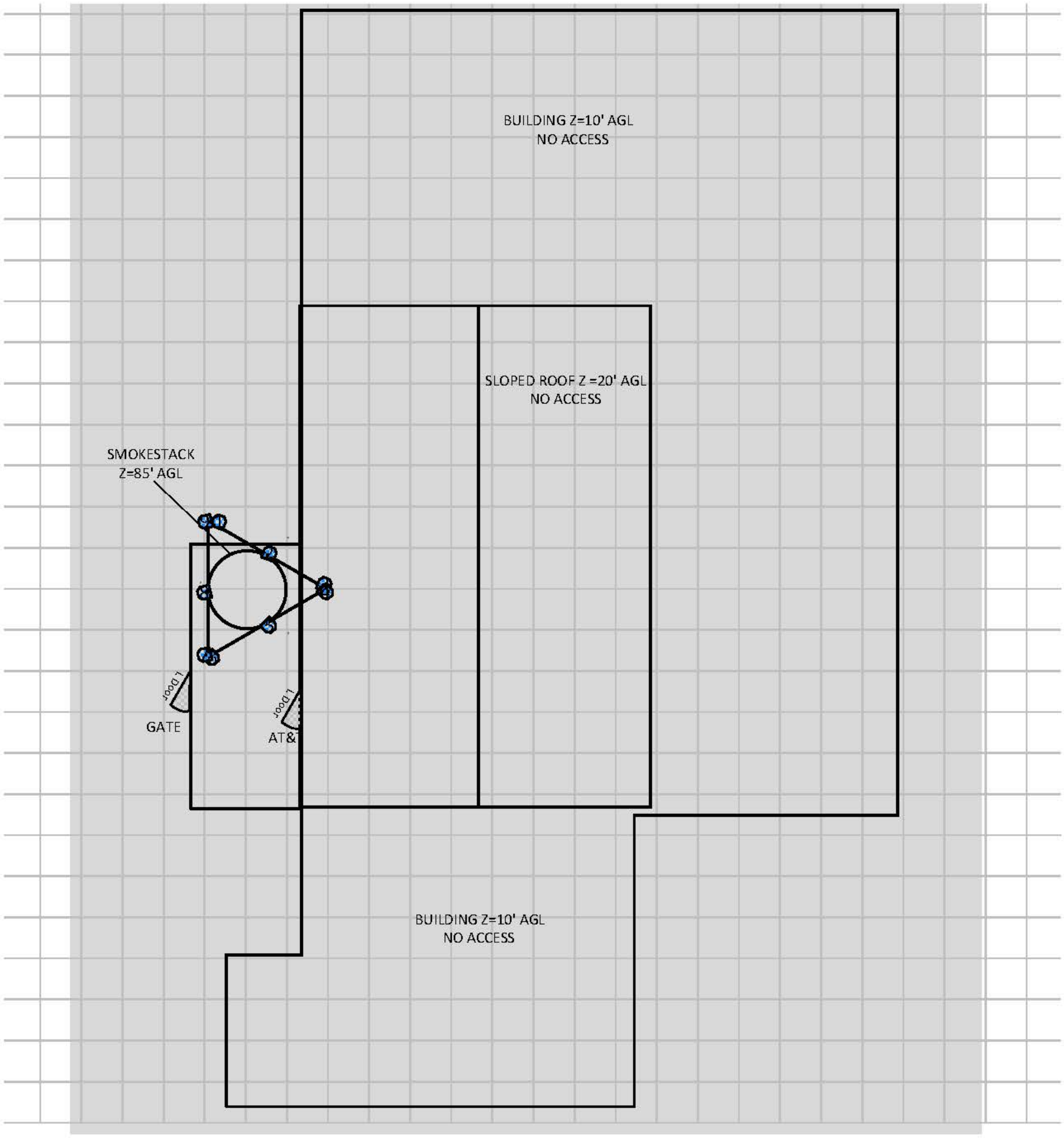
4 Emission Predictions

In the RF Exposure Simulations below all heights are reflected with respect to main site level. In most rooftop cases this is the height of the main rooftop and in other cases this can be ground level. Each different height area, rooftop, or platform level is labeled with its height relative to the main site level. Emissions are calculated appropriately based on the relative height and location of that area to all antennas. The total analyzed elevations in the below RF Exposure Simulations are listed below.

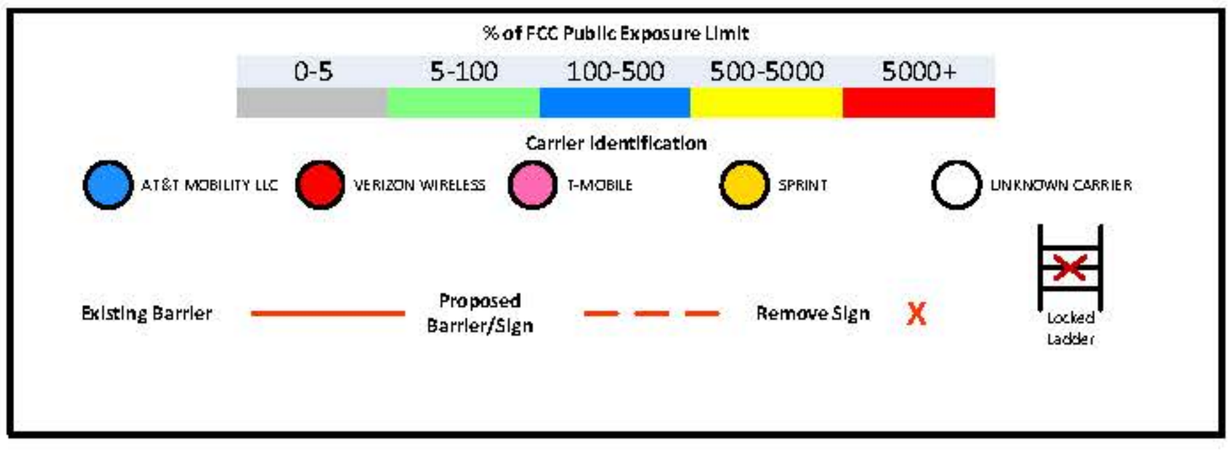
- Ground = 0'
- Adjacent Building = 10' AGL
- Sloped Roof = 20' AGL
- Smokestack = 85' AGL

The Antenna Inventory heights are referenced to the same level.

RF Exposure Simulation For: HARTFORD PARK ST
Composite View



% of FCC Public Exposure Limit
Spatially Averaged



(Feet)

0 9.1 18.3

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Sitesafe OET-65 Model
Near Field Boundary:
1.5 * Aperture
Reflection Factor: 1
Spatially Averaged

5 Site Compliance

5.1 Site Compliance Statement

Upon evaluation of the cumulative RF emission levels from all operators at this site, RF hazard signage and antenna locations, Sitesafe has determined that:

AT&T Mobility, LLC is compliant with the FCC rules and regulations, as described in OET Bulletin 65.

The compliance determination is based on General Public RFE levels derived from theoretical modeling, RF signage placement, proposed antenna inventory and the level of restricted access to the antennas at the site. Any deviation from the AT&T Mobility, LLC's proposed deployment plan could result in the site being rendered non-compliant.

Modeling is used for determining compliance and the percentage of MPE contribution.

5.2 Actions for Site Compliance

Based on FCC regulations, common industry practice, and our understanding of AT&T Mobility, LLC RF Safety Policy requirements, this section provides a statement of recommendations for site compliance. Recommendations have been proposed based on our understanding of existing access restrictions, signage, and an analysis of predicted RFE levels.

AT&T Mobility, LLC is compliant with the FCC rules and regulations.

Recommended per AT&T Mobility, LLC's Policy:

Gate and Equipment Access Location

Remove the existing Information sign(s) from the Gate and the Equipment.

Notes:

- Any existing signage that conflicts with the proposed signage in this report should be removed per AT&T Signage Posting Rules.
- Ensure all existing signage and barriers documented in this report still exist at the site, unless otherwise indicated.

6 Reviewer Certification

The reviewer whose signature appears below hereby certifies and affirms:

That I am an employee of Site Safe, LLC, in Vienna, Virginia, at which place the staff and I provide RF compliance services to clients in the wireless communications industry; and

That I am thoroughly familiar with the Rules and Regulations of the Federal Communications Commission (FCC) as well as the regulations of the Occupational Safety and Health Administration (OSHA), both in general and specifically as they apply to the FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields; and

That I have thoroughly reviewed this Site Compliance Report and believe it to be true and accurate to the best of my knowledge as assembled by and attested to by Scott Broyles.

December 16, 2020

Yasir Alqadhili

Appendix A – Statement of Limiting Conditions

Sitesafe has provided computer generated model(s) in this Site Compliance Report to show approximate dimensions of the site, and the model is included to assist the reader of the compliance report to visualize the site area, and to provide supporting documentation for Sitesafe's recommendations.

Sitesafe may note in the Site Compliance Report any adverse physical conditions, such as needed repairs, that Sitesafe became aware of during the normal research involved in creating this report. Sitesafe will not be responsible for any such conditions that do exist or for any engineering or testing that might be required to discover whether such conditions exist. Because Sitesafe is not an expert in the field of mechanical engineering or building maintenance, the Site Compliance Report must not be considered a structural or physical engineering report.

Sitesafe obtained information used in this Site Compliance Report from sources that Sitesafe considers reliable and believes them to be true and correct. Sitesafe does not assume any responsibility for the accuracy of such items that were furnished by other parties. When conflicts in information occur between data collected by Sitesafe provided by a second party and data collected by Sitesafe, the data will be used.

Appendix B – Regulatory Background Information

FCC Rules and Regulations

In 1996, the Federal Communications Commission (FCC) adopted regulations for the evaluating of the effects of RF emissions in 47 CFR § 1.1307 and 1.1310. The guideline from the FCC Office of Engineering and Technology is Bulletin 65 ("OET Bulletin 65"), *Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields*, Edition 97-01, published August 1997. Since 1996 the FCC periodically reviews these rules and regulations as per their congressional mandate.

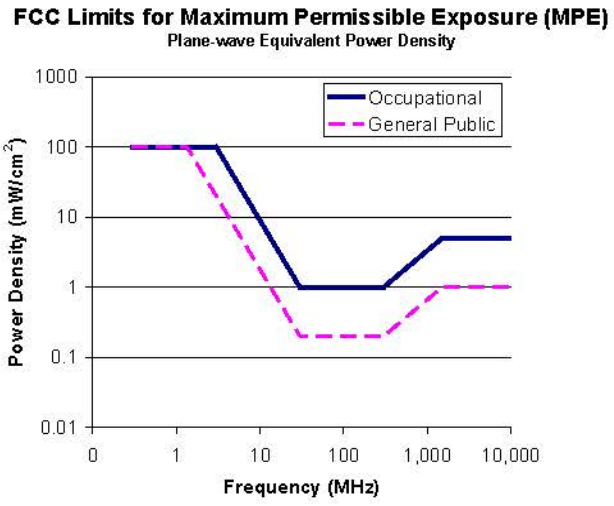
FCC regulations define two separate tiers of exposure limits: Occupational or "Controlled environment" and General Public or "Uncontrolled environment". The General Public limits are generally five times more conservative or restrictive than the Occupational limit. These limits apply to *accessible* areas where workers or the general public may be exposed to Radio Frequency (RF) electromagnetic fields.

Occupational or Controlled limits apply in situations in which persons are exposed as a consequence of their employment and where those persons exposed have been made fully aware of the potential for exposure and can exercise control over their exposure.

An area is considered a Controlled environment when access is limited to these aware personnel. Typical criteria are restricted access (i.e. locked or alarmed doors, barriers, etc.) to the areas where antennas are located coupled with proper RF warning signage. A site with Controlled environments is evaluated with Occupational limits.

All other areas are considered Uncontrolled environments. If a site has no access controls or no RF warning signage it is evaluated with General Public limits.

The theoretical modeling of the RF electromagnetic fields has been performed in accordance with OET Bulletin 65. The Maximum Permissible Exposure (MPE) limits utilized in this analysis are outlined in the following diagram:



Limits for Occupational/Controlled Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	($900/f^2$)*	6
30-300	61.4	0.163	1.0	6
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6

Limits for General Population/Uncontrolled Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	($180/f^2$)*	30
30-300	27.5	0.073	0.2	30
300-1500	--	--	f/1500	30
1500-100,000	--	--	1.0	30

f = frequency in MHz *Plane-wave equivalent power density

OSHA Statement

The General Duty clause of the OSHA Act (Section 5) outlines the occupational safety and health responsibilities of the employer and employee. The General Duty clause in Section 5 states:

(a) Each employer –

(1) shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees;
(2) shall comply with occupational safety and health standards promulgated under this Act.

(b) Each employee shall comply with occupational safety and health standards and all rules, regulations, and orders issued pursuant to this Act which are applicable to his own actions and conduct.

OSHA has defined Radiofrequency and Microwave Radiation safety standards for workers who may enter hazardous RF areas. Regulation Standards 29 CFR § 1910.147 identify a generic Lockout/Tagout procedure aimed to control the unexpected energization or startup of machines when maintenance or service is being performed.

Appendix C – Safety Plan and Procedures

The following items are general safety recommendations that should be administered on a site by site basis as needed by the carrier.

General Maintenance Work: Any maintenance personnel required to work immediately in front of antennas and / or in areas indicated as above 100% of the Occupational MPE limits should coordinate with the wireless operators to disable transmitters during their work activities.

Training and Qualification Verification: All personnel accessing areas indicated as exceeding the General Population MPE limits should have a basic understanding of EME awareness and RF Safety procedures when working around transmitting antennas. Awareness training increases a worker's understanding to potential RF exposure scenarios. Awareness can be achieved in a number of ways (e.g. videos, formal classroom lecture or internet-based courses).

Physical Access Control: Access restrictions to transmitting antennas locations is the primary element in a site safety plan. Examples of access restrictions are as follows:

- Locked door or gate
- Alarmed door
- Locked ladder access
- Restrictive Barrier at antenna (e.g. Chain link with posted RF Sign)

RF Signage: Everyone should obey all posted signs at all times. RF signs play an important role in properly warning a worker prior to entering into a potential RF Exposure area.

Assume all antennas are active: Due to the nature of telecommunications transmissions, an antenna transmits intermittently. Always assume an antenna is transmitting. Never stop in front of an antenna. If you have to pass by an antenna, move through as quickly and safely as possible thereby reducing any exposure to a minimum.

Maintain a 3 foot clearance from all antennas: There is a direct correlation between the strength of an EME field and the distance from the transmitting antenna. The further away from an antenna, the lower the corresponding EME field is.

Site RF Emissions Diagram: Section 4 of this report contains an RF Diagram that outlines various theoretical Maximum Permissible Exposure (MPE) areas at the site. The modeling is a worst-case scenario assuming a duty cycle of 100% for each transmitting antenna at full power. This analysis is based on one of two access control criteria: General Public criteria means the access to the site is uncontrolled and anyone can gain access. Occupational criteria means the access is restricted and only properly trained individuals can gain access to the antenna locations.

Appendix D – RF Emissions

The RF Emissions Simulation(s) in this report display theoretical spatially averaged percentage of the Maximum Permissible Exposure for all systems at the site unless otherwise noted. These diagrams use modeling as prescribed in OET Bulletin 65 and assumptions detailed in Appendix E.

The key at the bottom of each RF Emissions Simulation indicates percentages displayed referenced to FCC General Public Maximum Permissible Exposure (MPE) limits. Color coding on the diagram is as follows:

- Areas indicated as Gray are predicted to be below 5% of the MPE limits. Gray represents areas more than 20 times below the most conservative exposure limit. **Gray areas are accessible to anyone**.
- Green represents areas are predicted to be between 5% and 100% of the MPE limits. **Green areas are accessible to anyone.**
- Blue represents areas predicted to exceed the General Public MPE limits but are less than Occupational limits. **Blue areas should be accessible only to RF trained workers**.
- Yellow represents areas predicted to exceed Occupational MPE limits. **Yellow areas should be accessible only to RF trained workers able to assess current exposure levels.**
- Red represents areas predicted to have exposure more than 10 times the Occupational MPE limits. **Red indicates that the RF levels must be reduced prior to access.** An RF Safety Plan is required which outlines how to reduce the RF energy in these areas prior to access.

If trained occupational personnel require access to areas that are delineated as above 100% of the limit, Sitesafe recommends that they utilize the proper personal protection equipment (RF monitors), coordinate with the carriers to reduce or shutdown power, or make real-time power density measurements with the appropriate power density meter to determine real-time MPE levels. This will allow the personnel to ensure that their work area is within exposure limits.

Appendix E – Assumptions and Definitions

General Model Assumptions

In this site compliance report, it is assumed that all antennas are operating at **full power at all times**. Software modeling was performed for all transmitting antennas located on the site. Sitesafe has further assumed a 100% duty cycle and maximum radiated power.

The modeling is based on recommendations from the FCC's OET-65 bulletin with the following variances per AT&T guidance. Reflection has not been considered in the modeling, i.e. the reflection factor is 1.0. The near / far field boundary has been set to 1.5 times the aperture height of the antenna and modeling beyond that point is the lesser of the near field cylindrical model and the far field model taking into account the gain of the antenna.

The site has been modeled with these assumptions to show the maximum RF energy density. Areas modeled with exposure greater than 100% of the General Public MPE level may not actually occur but are shown as a prediction that could be realized. Sitesafe believes these areas to be safe for entry by occupationally trained personnel utilizing appropriate personal protective equipment (in most cases, a personal monitor).

Use of Generic Antennas

For the purposes of this report, the use of "Generic" as an antenna model, or "Unknown" for an operator means the information about a carrier, their FCC license and/or antenna information was not provided and could not be obtained while on site. In the event of unknown information, Sitesafe will use our industry specific knowledge of equipment, antenna models, and transmit power to model the site. If more specific information can be obtained for the unknown measurement criteria, Sitesafe recommends remodeling of the site utilizing the more complete and accurate data. Information about similar facilities is used when the service is identified and associated with a particular antenna. If no information is available regarding the transmitting service associated with an unidentified antenna, using the antenna manufacturer's published data regarding the antenna's physical characteristics makes more conservative assumptions.

Where the frequency is unknown, Sitesafe uses the closest frequency in the antenna's range that corresponds to the highest Maximum Permissible Exposure (MPE), resulting in a conservative analysis.

Appendix F – Definitions

5% Rule – The rules adopted by the FCC specify that, in general, at multiple transmitter sites actions necessary to bring the area into compliance with the guidelines are the shared responsibility of all licensees whose transmitters produce field strengths or power density levels at the area in question in excess of 5% of the exposure limits. In other words, any wireless operator that contributes 5% or greater of the MPE limit in an area that is identified to be greater than 100% of the MPE limit is responsible for taking corrective actions to bring the site into compliance.

Compliance – The determination of whether a site complies with FCC standards with regards to Human Exposure to Radio Frequency Electromagnetic Fields from transmitting antennas.

Decibel (dB) – A unit for measuring power or strength of a signal.

Duty Cycle – The percent of pulse duration to the pulse period of a periodic pulse train. Also, may be a measure of the temporal transmission characteristic of an intermittently transmitting RF source such as a paging antenna by dividing average transmission duration by the average period for transmission. A duty cycle of 100% corresponds to continuous operation.

Effective (or Equivalent) Isotropic Radiated Power (EIRP) – The product of the power supplied to the antenna and the antenna gain in a given direction relative to an isotropic antenna.

Effective Radiated Power (ERP) – The product of the power supplied to the antenna and the antenna gain in a given direction relative to a half-wave dipole antenna.

Gain (of an antenna) – The ratio of the maximum power in a given direction to the maximum power in the same direction from an isotropic radiator. Gain is a measure of the relative efficiency of a directional antenna as compared to an omnidirectional antenna.

General Population/Uncontrolled Environment – Defined by the FCC as an area where RF exposure may occur to persons who are **unaware** of the potential for exposure and who have no control over their exposure. General Population is also referenced as General Public.

Generic Antenna – For the purposes of this report, the use of "Generic" as an antenna model means the antenna information was not provided and could not be obtained while on site. In the event of unknown information, Sitesafe will use its industry specific knowledge of antenna models to select a worst-case scenario antenna to model the site.

Isotropic Antenna – An antenna that is completely non-directional. In other words, an antenna that radiates energy equally in all directions.

Maximum Measurement – This measurement represents the single largest measurement recorded when performing a spatial average measurement.

Maximum Permissible Exposure (MPE) – The rms and peak electric and magnetic field strength, their squares, or the plane-wave equivalent power densities associated with these fields to which a person may be exposed without harmful effect and with acceptable safety factor.

Occupational/Controlled Environment – Defined by the FCC as an area where RF exposure may occur to persons who are **aware** of the potential for exposure as a condition of employment or specific activity and can exercise control over their exposure.

OET Bulletin 65 – Technical guideline developed by the FCC's Office of Engineering and Technology to determine the impact of RF exposure on humans. The guideline was published in August 1997.

OSHA (Occupational Safety and Health Administration) – Under the Occupational Safety and Health Act of 1970, employers are responsible for providing a safe and healthy workplace for their employees. OSHA's role is to promote the safety and health of America's working men and women by setting and enforcing standards; providing training, outreach and education; establishing partnerships; and encouraging continual process improvement in workplace safety and health. For more information, visit www.osha.gov.

Radio Frequency Exposure or Electromagnetic Fields – Electromagnetic waves that are propagated from antennas through space.

Spatial Average Measurement – A technique used to average a minimum of ten (10) measurements taken in a ten (10) second interval from zero (0) to six (6) feet. This measurement is intended to model the average energy a 6-foot tall human body will absorb while present in an electromagnetic field of energy.

Transmitter Power Output (TPO) – The radio frequency output power of a transmitter's final radio frequency stage as measured at the output terminal while connected to a load.

Appendix G – References

The following references can be followed for further information about RF Health and Safety.

Site Safe, LLC
http://www.sitesafe.com
FCC Radio Frequency Safety
http://www.fcc.gov/encyclopedia/radio-frequency-safety
National Council on Radiation Protection and Measurements (NCRP)
http://www.ncrponline.org
Institute of Electrical and Electronics Engineers, Inc., (IEEE)
http://www.ieee.org
American National Standards Institute (ANSI)
http://www.ansi.org
Environmental Protection Agency (EPA)
http://www.epa.gov/radtown/wireless-tech.html
National Institutes of Health (NIH)
http://www.niehs.nih.gov/health/topics/agents/emf/
Occupational Safety and Health Agency (OSHA)
http://www.osha.gov/SLTC/radiofrequencyradiation/
International Commission on Non-Ionizing Radiation Protection (ICNIRP)
http://www.icnirp.org
World Health Organization (WHO)
http://www.who.int/peh-emf/en/
National Cancer Institute
http://www.cancer.gov/cancertopics/factsheet/Risk/cellphones
American Cancer Society (ACS)
http://www.cancer.org/docroot/PED/content/PED_1_3X_Cellular_Phone_Towers.asp?siteareа=PED
European Commission Scientific Committee on Emerging and Newly Identified Health Risks
http://ec.europa.eu/health/ph_risk/committees/04_scenihr/docs/scenihr_o_022.pdf
Fairfax County, Virginia Public School Survey
http://www.fcps.edu/fts/safety-security/RFEESurvey/
UK Health Protection Agency Advisory Group on Non-Ionizing Radiation
http://www.hpa.org.uk/webw/HPAweb&HPAwebStandard/HPAweb_C/1317133826368
Norwegian Institute of Public Health
http://www.fhi.no/dokumenter/545eea7147.pdf

November 10, 2020

Mark Donnelly
SmartLink
85 Rangeway Road, Bldg. # 3, Suite 102
North Billerica, MA 01862

SUBJECT:	**STRUCTURAL ASSESSMENT** **85-FOOT SMOKESTACK**
CARRIER:	**AT&T MOBILITY**
SITE:	**HARTFORD PARK ST (CTL01199)**
ADDRESS:	**2074 PARK STREET** **HARTFORD, HARTFORD COUNTY, CONNECTICUT 06106**
LATITUDE:	**41.7567700°**
LONGITUDE:	**-72.7138881°**
FA LOCATION CODE:	**10035106**
SCOPE:	**5C / 6C**
PACE NUMBER:	**MRCTB048656 / MRCTB048677 / MRCTB048715 / MRCTB048689 / MRCTB048683**
PTN NUMBER:	**2051A0WGRA / 2051A0WGM4 / 2051A0WGY1 / 2051A0WH21 / 2051A0WGSR**

RAMAKER & ASSOCIATES PROJECT NUMBER: 49451

RESULTS:	**TOWER:**	**48.2%**	**PASS**
	FOUNDATION:		**NOT ANALYZED**

Dear Mark Donnelly:

Ramaker & Associates, Inc. (RAMAKER) respectfully submits this structural assessment for the above-mentioned site. The purpose of this report is to determine the structural integrity of the existing structure with the existing and proposed loading. Engineering recommendations regarding the analysis results are provided in the following pages.

RAMAKER developed a model of the structure using accepted engineering practices. All information contained herein is valid only for the described structure configuration and loading conditions. RAMAKER reserves the right to modify our recommendations should alterations to the tower loading occur.

If you have any questions or comments, please do not hesitate to contact our office.

Sincerely,

RAMAKER & ASSOCIATES, INC.

Thomas E. Moore
Project Engineer

James R. Skowronski, P.E.
Supervising Engineer

STATE OF CONNECTICUT
JAMES R. SKOWRONSKI
26266
LICENSED
PROFESSIONAL ENGINEER

(608) 643-4100
ramaker.com
855 Community Drive
Sauk City, WI 53583

TABLE OF CONTENTS

ANALYSIS CRITERIA

State Code	2018 CT State Building Code
Building Code	2015 IBC
TIA-222 Revision	TIA-222-G
Structure Class	II
Ultimate Design Wind Speed, V_{ult}	125 mph (3 sec. gust)
Exposure Category	B
Topographic Feature	None

SUPPORTING DOCUMENTATION

- Mount mapping by HighTower Solutions, site number 10035106, dated 9/30/2020
- Structural analysis by Maser Consulting, job number 17946065A, dated 1/11/2018
- Construction drawings by RAMAKER, project number 49451
- Site visit(s) conducted by RAMAKER
- Other pertinent data procured or assumed by RAMAKER during site due diligence activities

TOWER LOADING

RAMAKER understands that the loading to be used for this analysis will consist of the antenna equipment, mount, and cable configurations as shown in the following chart:

Elevation	Appurtenance	Mount	Coax	Owner	Status
83	**(2) CCI HPA-65R-BUU-H8**	(1) Platform w/Handrail	(12) 7/8 (3) Innerduct (2) Fiber (4) Power **(2) Power**	AT&T	**Remove**
	(1) CCI HPA-65R-BUU-H6				
	(3) Powerwave 7750.00				
	(6) Powerwave LGP-21401				
	(3) Ericsson RRUS-11 B12				
	(3) Ericsson RRUS-32 B66A				
	(3) Ericsson RRUS-32 B2				
	(2) CCI TPA-65R-LCUUUU-H8				Existing
	(1) Kathrein 800-10798				
	(3) Ericsson RRUS-32 B30				
	(2) Raycap DC6-48-60-18-8F				
	(2) CCI DMP65R-BU8DA				**Proposed**
	(1) CCI DMP65R-BU6DA				
	(2) CCI OPA65R-BU8DA				
	(1) CCI OPA65R-BU6DA				
	(3) Ericsson 4449 B5/B12				
	(3) Ericsson 8843 B2/B66A				
	(3) Ericsson 4478 B14				
	(3) Ericsson RRUS-E2 B29				
	(1) Raycap DC6-48-60-18-8C				

TOWER RESULTS

The maximum tower member stress capacities under the loading conditions previously described are as follows:

Component Type	Percent Capacity	Pass/Fail
Section 1	7.0	Pass
Section 2	26.3	Pass
Section 3	48.2	Pass
Section 4	45.1	Pass
Section 5	37.9	Pass
Section 6	45.0	Pass
RATING	**48.2**	**PASS**

Results of the analysis show that the existing tower will be stressed to a maximum of 48.2 percent of capacity. Therefore, the existing tower will pass the ACI 530-13 and TIA-222-G analysis requirements under proposed loading conditions.

FOUNDATION REACTIONS

The maximum tower reactions correlated to maximum moment are as follows:

Load Type	Original Design	Proposed Model
Axial (k)	--	238.9
Shear (k)	--	13.45
Moment (k-ft)	--	633.1

Foundation and soils data were not available for this analysis. Therefore, the foundation was not analyzed. However, the safety factor for overturning is 1.79, and with a required safety factor of 1.50, the result at the base would be 83.7 percent of capacity.

ASSUMPTIONS

This analysis is based on the theoretical design capacity of the members and is not a condition assessment of the structure. This analysis is based on the information supplied and the results are only as accurate as the data obtained from this information. The Scope of Work for RAMAKER did not require verification of the provided information. The following assumptions were made for this structural analysis.

1) The structures were built and maintained in accordance with the manufacturer's drawings and specifications and including the TIA Standards.
2) All structural members and foundations are in good condition and can achieve their full design capacity. All welds and connections can develop the full member capacity unless determined otherwise and explicitly stated in this report.
3) No physical deterioration has occurred in any of the structural and foundation components. No allowance was made for any damaged, missing, or rusted members, nor loose bolts or cracked welds.
4) All prior structural modifications, if any, are assumed to be properly installed and fully effective.
5) All structural material grades conform to the documentation as supplied, or meet the values as stated.
6) Information provided by the client regarding the structure, appurtenances, transmission cables, and other relevant information is assumed to be current and correct. Appurtenance sizes and weights as specified in the loading tables are best estimates and based on available information, if explicit documentation is not provided to RAMAKER. If the loading configuration is different than stated, then this analysis is invalid.
7) All antenna mounts are considered adequate to support the applied loading. No analysis of the mounts is performed, as this analysis is limited to analyzing the tower only.

This analysis may be affected if any assumptions are not valid or have been made in error. RAMAKER should be notified to determine the effect on the structural integrity of the tower.

SCOPE AND LIMITATIONS

The engineering services performed by RAMAKER regarding this report are limited to an analysis of the tower and the capacity of its members. RAMAKER will accept no liability which may arise due to any existing deficiency in design, material, fabrication, erection, construction, or lack of maintenance. RAMAKER makes no warranties, expressed or implied in connection with this report and disclaims any liability arising from original design, material, fabrication and erection deficiencies or the "as-built" condition of this structure.

ATTACHMENTS

- Analysis Calculations

RAMAKER employee-owned

Job:	Hartford Part St (10035106 / CTL01199)
Project:	49451
By:	TEM
Date:	11/10/2020

Appurtenance Code :	TIA-222-G	
Occupancy :	II	
Exposure Category:	B	
Wind Speed, V:	125	mph

Appurtenance	Qty.	Elev.	Height	Width	Depth	Indiv. Weight	% Wind Applied	(Front) Total Wind Z	(Side) Total Wind X	Z,X,Avg Wind	Total Shear	Total OTM
		ft	*in*	*in*	*in*	*lb*		*lb*	*lb*		*lb*	*lb-ft*
DMP65R-BU8D	2	83.0	96.0	20.7	7.7	95.7	0.67	937.9	426.3	Avg	682.1	56,615
DMP65R-BU6D	1	83.0	71.2	20.7	7.7	79.4	0.67	333.5	147.4	Avg	240.4	19,956
OPA65R-BU8D	2	83.0	96.0	21.0	7.8	76.5	0.67	949.4	430.4	Avg	689.9	57,258
OPA65R-BU6D	1	83.0	71.2	21.0	7.8	63.2	0.67	337.8	148.9	Avg	243.3	20,195
TPA-65R-LCUUUU-H8	2	83.0	96.0	14.4	8.6	94.2	0.67	697.9	463.0	Avg	580.5	48,178
800-10798	1	83.0	78.5	14.8	6.7	81.4	0.67	280.4	149.3	Avg	214.8	17,832
4449	3	83.0	17.9	13.2	9.5	70.0	0.67	155.0	111.0	Avg	133.0	11,039
RRUS 4478 B14	3	83.0	16.5	13.4	7.7	59.9	0.67	145.1	83.3	Avg	114.2	9,479
8843	3	83.0	17.9	13.2	11.3	75.0	0.67	155.0	132.8	Avg	143.9	11,942
RRUS-32 B30	3	83.0	27.2	12.1	7.0	53.0	0.67	215.9	131.3	Avg	173.6	14,410
RRUS E2 B29	3	83.0	20.4	18.5	7.5	60.0	0.67	247.6	101.2	Avg	174.4	14,474
DC6-48-60-18-8F	2	83.0	24.0	11.0	11.0	32.8	0.67	48.1	48.1	Avg	48.1	3,993
DC9-48-60-18-8C-EV	1	83.0	18.3	9.3	9.3	28.7	0.67	15.4	15.4	Avg	15.4	1,279
Pipe2STD x 4.5 ft	12	83.0	54.0	2.4	2.4	16.5	0.67	322.4	322.4	Z	322.4	26,763
Pipe2STD x 7 ft	3	83.0	84.0	2.4	2.4	25.6	0.67	130.9	130.9	Z	130.9	10,863
Pipe2STD x 8 ft	3	83.0	96.0	2.4	2.4	29.3	0.67	149.6	149.6	Z	149.6	12,415
Pipe2STD x 10 ft	3	83.0	120.0	2.4	2.4	36.6	0.67	187.0	187.0	Z	187.0	15,519
Pipe2STD x 13 ft	3	83.0	156.0	2.4	2.4	47.6	0.67	243.1	243.1	Z	243.1	20,174
T-Arm Mount [TA 601-3]	2	83.0	0.0	0.0	0.0	726.0	1.00	983.9	983.9	Z	983.9	81,660
	53					3.87 k		6.54 k	4.41 k		5.47 k	454 k-ft

RAMAKER employee-owned

Job:	Hartford Part St (10035106 / CTL01199)
Project:	49451
By:	TEM
Date:	11/10/2020

Wind Load on Antennas TIA-222-G

Occupancy:	II		Classification of Structures (Table 2-1)
Exposure:	B		Exposure Category
V:	125	mph	Basic Wind Speed (Annex B)
I:	1.00		Importance Factor (Table 2-3)
K_d:	0.95		Wind Direction Probability Factor (Table 2-2)
G_h:	1.10		Gust Effect Factor (2.6.7)

$q_z = 0.00256\ K_z\ K_{zt}\ K_d\ V^2\ I$

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

Mount & Antenna Wind Loads

Appurtenance	Qty	Elev.	Height	Width	h/D	Shape	C_a	A_A	q_z	Indiv. F_Z	Total F_Z	Total OTM_Z
		ft	*in*	*in*				*sq ft*	*psf*	*lb*	*lb*	*lb-ft*
DMP65R-BU8D	2	83	96.0	20.7	4.6	Flat	1.30	13.80	35.61	699.9	1,399.9	116,191
DMP65R-BU6D	1	83	71.2	20.7	3.4	Flat	1.24	10.24	35.61	497.8	497.8	41,316
OPA65R-BU8D	2	83	96.0	21.0	4.6	Flat	1.29	14.00	35.61	708.5	1,417.0	117,607
OPA65R-BU6D	1	83	71.2	21.0	3.4	Flat	1.24	10.38	35.61	504.1	504.1	41,841
TPA-65R-LCUUUU-H8	2	83	96.0	14.4	6.7	Flat	1.39	9.60	35.61	520.8	1,041.7	86,457
800-10798	1	83	78.5	14.8	5.3	Flat	1.32	8.07	35.61	418.6	418.6	34,742
4449	3	83	17.9	13.2	1.4	Flat	1.20	1.64	35.61	77.1	231.3	19,199
RRUS 4478 B14	3	83	16.5	13.4	1.2	Flat	1.20	1.54	35.61	72.2	216.5	17,969
8843	3	83	17.9	13.2	1.4	Flat	1.20	1.64	35.61	77.1	231.3	19,199
RRUS-32 B30	3	83	27.2	12.1	2.2	Flat	1.20	2.29	35.61	107.4	322.3	26,748
RRUS E2 B29	3	83	20.4	18.5	1.1	Flat	1.20	2.62	35.61	123.2	369.5	30,671
DC6-48-60-18-8F	2	83	24.0	11.0	2.2	Round	0.50	1.83	35.61	35.9	71.8	5,960
DC9-48-60-18-8C-EV	1	83	18.3	9.3	2.0	Round	0.50	1.17	35.61	23.0	23.0	1,909
Pipe2STD x 4.5 ft	12	83	54.0	2.4	22.7	Round	1.15	0.89	35.61	40.1	481.3	39,944
Pipe2STD x 7 ft	3	83	84.0	2.4	35.4	Round	1.20	1.39	35.61	65.1	195.3	16,213
Pipe2STD x 8 ft	3	83	96.0	2.4	40.4	Round	1.20	1.58	35.61	74.4	223.2	18,530
Pipe2STD x 10 ft	3	83	120.0	2.4	50.5	Round	1.20	1.98	35.61	93.0	279.1	23,162
Pipe2STD x 13 ft	3	83	156.0	2.4	65.7	Round	1.20	2.57	35.61	120.9	362.8	30,111
T-Arm Mount [TA 601-3]	2	83	0.0	0.0	0.0	Generic	1.00	12.56	35.61	491.9	983.9	81,660

RAMAKER employee-owned

Job:	Hartford Part St (10035106 / CTL01199)
Project:	49451
By:	TEM
Date:	11/10/2020

Wind Load on Antennas TIA-222-G

Occupancy:	II		Classification of Structures (Table 2-1)
Exposure:	B		Exposure Category
V:	125	mph	Basic Wind Speed (Annex B)
I:	1.00		Importance Factor (Table 2-3)
K_d:	0.95		Wind Direction Probability Factor (Table 2-2)
G_h:	1.10		Gust Effect Factor (2.6.7)

$q_z = 0.00256\ K_z\ K_{zt}\ K_d\ V^2\ I$

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

Mount & Antenna Wind Loads

Appurtenance	Qty	Elev.	Height	Depth	h/D	Shape	C_a	A_f	q_z	Indiv. F_X	Total F_X	Total OTM_X
		ft	*in*	*in*				*sq ft*	*psf*	*lb*	*lb*	*lb-ft*
DMP65R-BU8D	2	83	96.0	7.7	12.5	Flat	1.58	5.13	35.61	318.1	636.2	52,808
DMP65R-BU6D	1	83	71.2	7.7	9.2	Flat	1.47	3.81	35.61	219.9	219.9	18,254
OPA65R-BU8D	2	83	96.0	7.8	12.3	Flat	1.58	5.20	35.61	321.2	642.3	53,313
OPA65R-BU6D	1	83	71.2	7.8	9.1	Flat	1.47	3.86	35.61	222.2	222.2	18,442
TPA-65R-LCUUUU-H8	2	83	96.0	8.6	11.2	Flat	1.54	5.73	35.61	345.5	691.1	57,359
800-10798	1	83	78.5	6.7	11.7	Flat	1.56	3.65	35.61	222.8	222.8	18,489
4449	3	83	17.9	9.5	1.9	Flat	1.20	1.18	35.61	55.2	165.7	13,755
RRUS 4478 B14	3	83	16.5	7.7	2.1	Flat	1.20	0.88	35.61	41.5	124.4	10,325
8843	3	83	17.9	11.3	1.6	Flat	1.20	1.41	35.61	66.1	198.2	16,448
RRUS-32 B30	3	83	27.2	7.0	3.9	Flat	1.26	1.32	35.61	65.3	196.0	16,268
RRUS E2 B29	3	83	20.4	7.5	2.7	Flat	1.21	1.06	35.61	50.3	151.0	12,536
DC6-48-60-18-8F	2	83	24.0	11.0	2.2	Round	0.50	1.83	35.61	35.9	71.8	5,960
DC9-48-60-18-8C-EV	1	83	18.3	9.3	2.0	Round	0.50	1.17	35.61	23.0	23.0	1,909
Pipe2STD x 4.5 ft	12	83	54.0	2.4	22.7	Round	1.15	0.89	35.61	40.1	481.3	39,944
Pipe2STD x 7 ft	3	83	84.0	2.4	35.4	Round	1.20	1.39	35.61	65.1	195.3	16,213
Pipe2STD x 8 ft	3	83	96.0	2.4	40.4	Round	1.20	1.58	35.61	74.4	223.2	18,530
Pipe2STD x 10 ft	3	83	120.0	2.4	50.5	Round	1.20	1.98	35.61	93.0	279.1	23,162
Pipe2STD x 13 ft	3	83	156.0	2.4	65.7	Round	1.20	2.57	35.61	120.9	362.8	30,111
T-Arm Mount [TA 601-3]	2	83	0.0	0.0	0.0	Generic	1.00	12.56	35.61	491.9	983.9	81,660

RAMAKER employee-owned

Job:	Hartford Part St (10035106 / CTL01199)
Project:	49451
By:	TEM
Date:	11/10/2020

Appurtenance Loading Data

Code:	TIA-222-G
Occupancy:	II
Exposure Category:	B
Wind Speed, V:	125 mph

Structure Loading Data

Importance Factor:	1.00		Ground Elevation:	ft
Exposure Category:	B		K_e:	1.00
Wind Speed, V:	125	mph	K_s:	1.00
Gust Effect Factor, G_h:	1.10		ASCE 7:	2010
Directionality Factor, K_d:	0.95			

Appurtenance	Elev.	Type	Total Qty.	Height	Width	Depth	Indiv. Weight	% Wind Applied	Total Wind Z	Total Wind X	Z,X,Avg Wind	Total Shear	Total OTM
	ft			*in*	*in*	*in*	*lb*		*lb*	*lb*		*k*	*k-ft*
DMP65R-BU8D	83	Prop	2	96.0	20.7	7.7	95.7	0.67	937.9	426.3	Avg	0.682	56.6
DMP65R-BU6D	83	Prop	1	71.2	20.7	7.7	79.4	0.67	333.5	147.4	Avg	0.240	20.0
OPA65R-BU8D	83	Prop	2	96.0	21.0	7.8	76.5	0.67	949.4	430.4	Avg	0.690	57.3
OPA65R-BU6D	83	Prop	1	71.2	21.0	7.8	63.2	0.67	337.8	148.9	Avg	0.243	20.2
TPA-65R-LCUUUU-H8	83	Exist	2	96.0	14.4	8.6	94.2	0.67	697.9	463.0	Avg	0.580	48.2
800-10798	83	Exist	1	78.5	14.8	6.7	81.4	0.67	280.4	149.3	Avg	0.215	17.8
4449	83	Prop	3	17.9	13.2	9.5	70.0	0.67	155.0	111.0	Avg	0.133	11.0
RRUS 4478 B14	83	Prop	3	16.5	13.4	7.7	59.9	0.67	145.1	83.3	Avg	0.114	9.5
8843	83	Prop	3	17.9	13.2	11.3	75.0	0.67	155.0	132.8	Avg	0.144	11.9
RRUS-32 B30	83	Exist	3	27.2	12.1	7.0	53.0	0.67	215.9	131.3	Avg	0.174	14.4
RRUS E2 B29	83	Prop	3	20.4	18.5	7.5	60.0	0.67	247.6	101.2	Avg	0.174	14.5
DC6-48-60-18-8F	83	Exist	2	24.0	11.0	11.0	32.8	0.67	48.1	48.1	Avg	0.048	4.0
DC9-48-60-18-8C-EV	83	Prop	1	18.3	9.3	9.3	28.7	0.67	15.4	15.4	Avg	0.015	1.3
Pipe2STD x 4.5 ft	83	Exist	12	54.0	2.4	2.4	16.5	0.67	322.4	322.4	Z	0.322	26.8
Pipe2STD x 7 ft	83	Exist	3	84.0	2.4	2.4	25.6	0.67	130.9	130.9	Z	0.131	10.9
Pipe2STD x 8 ft	83	Exist	3	96.0	2.4	2.4	29.3	0.67	149.6	149.6	Z	0.150	12.4
Pipe2STD x 10 ft	83	Exist	3	120.0	2.4	2.4	36.6	0.67	187.0	187.0	Z	0.187	15.5
Pipe2STD x 13 ft	83	Exist	3	156.0	2.4	2.4	47.6	0.67	243.1	243.1	Z	0.243	20.2
T-Arm Mount [TA 601-3]	83	Exist	2	0.0	0.0	0.0	726.0	1.00	983.9	983.9	Z	0.984	81.7
												5.470	454.0

Structure Description	Qty	Centroid Elev.	Code	Shape	Height	Width	h/D	Area	K_z	K_{zt}	C_f	q_z	Total Shear	Total OTM
		ft			*ft*	*ft*		*sq ft*				*psf*	*k*	*k-ft*
Section 1	1	82.49	ASCE 7	R. Smo	5	6.105	10.5	30.5	0.94	1.00	0.62	35.54	0.739	61.0
Section 2	1	72.35	ASCE 7	R. Smo	15	6.605	10.5	99.1	0.90	1.00	0.62	34.24	2.311	167.2
Section 3	1	57.36	ASCE 7	R. Smo	15	7.4	10.5	111.0	0.84	1.00	0.62	32.04	2.423	139.0
Section 4	1	39.79	ASCE 7	R. Smo	20	8.33	10.5	166.6	0.76	1.00	0.62	28.86	3.276	130.3
Section 5	1	23.93	ASCE 7	R. Smo	12	9.18	10.5	110.2	0.70	1.00	0.62	26.62	1.998	47.8
Section 6	1	9.00	ASCE 7	Hex/Oct	18	9.5	10.5	171.0	0.70	1.00	1.24	26.62	6.204	55.8
					85								16.952	601.2

RAMAKER employee-owned

Job:	Hartford Part St (10035106 / CTL01199)
Project:	49451
By:	TEM
Date:	11/10/2020

Appurtenance Loading Data

Code:	TIA-222-G	
Occupancy:	II	
Exposure Category:	B	
Wind Speed, V:	125	mph

Structure Loading Data

Importance Factor:	1.00		Ground Elevation:	ft
Exposure Category:	B		K_e:	1.00
Wind Speed, V:	125	mph	K_s:	1.00
Gust Effect Factor, G_h:	1.10		ASCE 7:	2010
Directionality Factor, K_d:	0.95			

Appurt. Type	Qty.	0.6 W Shear		% Increase on Structure	% of Total	0.6 W OTM		% Increase on Structure	% of Total
Existing	34	1.82	k	17.9%	13.5%	151.1	k-ft	41.9%	23.9%
Proposed	19	1.46	k	14.4%	10.9%	121.3	k-ft	33.6%	19.2%
Exist. + Prop.	53	3.28	k	32.3%	24.4%	272.4	k-ft	75.5%	43.0%
Structure	6	10.17	k			360.7	k-ft		
Total	59	13.45	k			633.1	k-ft		

Aspect Ratio of Smokestack: 10.50

RAMAKER employee-owned

Job:	Hartford Part St (10035106 / CTL01199)
Project:	49451
By:	TEM
Date:	11/10/2020

Appurtenance Loading Data

Code:	TIA-222-G	
Occupancy:	II	
Exposure Category:	B	
Wind Speed, V:	125	mph

Structure Loading Data

Importance Factor:	1.00		Ground Elevation:	ft
Exposure Category:	B		K_e:	1.00
Wind Speed, V:	125	mph	K_s:	1.00
Gust Effect Factor, G_h:	1.10		ASCE 7:	2010
Directionality Factor, K_d:	0.95			

Structure Description	Top	Bottom	Top Thick.	Bottom Thick.	Top Width	Bottom Width	Bottom Area	1.0 D Appurt Weight	1.0 D Chimney Weight	1.0 D Total Weight	0.6 W Total Shear	0.6 W Total OTM
	ft	*ft*	*ft*	*ft*	*ft*	*ft*	*ft^2*	*k*	*k*	*k*	*k*	*k-ft*
Section 1	85	80	0.667	0.667	6.00	6.21	11.61	3.87	6.8	10.7	3.73	10.9
Section 2	80	65	0.667	0.667	6.21	7.00	13.26	3.87	29.2	33.1	5.11	77.0
Section 3	65	50	0.667	0.667	7.00	7.80	14.94	3.87	54.6	58.4	6.57	164.4
Section 4	50	30	1.000	1.000	7.80	8.86	24.69	3.87	109.8	113.7	8.53	315.0
Section 5	30	18	1.333	1.333	8.86	9.50	34.21	3.87	157.1	161.0	9.73	424.5
Section 6	18	0	1.333	1.333	9.50	9.50	36.08	3.87	235.0	238.9	13.45	633.1

Determine ASD Capacities per ACI 530-13:

Structure Description	Bottom R. of Gyr.	Bottom Sect. M.	Bottom Inertia	h	h/r	1.0 D e	1.0 D fa	0.6 W fb	0.6 W fv	Fa	Fb
	ft	*ft^3*	*ft^4*	*ft*		*ft*	*psi*	*psi*	*psi*	*psi*	*psi*
Section 1	1.97	14.6	45.2	5	2.53	1.023	6.40	5.22	3.34	249.9	333.3
Section 2	2.25	19.2	67.2	20	8.88	2.329	17.32	27.84	4.01	249.0	333.3
Section 3	2.53	24.6	95.9	35	13.82	2.813	27.17	46.46	4.58	247.6	333.3
Section 4	2.80	43.7	193.8	55	19.63	2.771	31.97	50.01	3.60	245.1	333.3
Section 5	2.93	61.6	292.8	67	22.90	2.637	32.68	47.82	2.96	243.3	333.3
Section 6	3.01	68.7	326.5	85	28.26	2.650	45.98	63.97	3.88	239.8	333.3

RAMAKER employee-owned

Job:	Hartford Part St (10035106 / CTL01199)
Project:	49451
By:	TEM
Date:	11/10/2020

Appurtenance Loading Data

Code:	TIA-222-G	
Occupancy:	II	
Exposure Category:	B	
Wind Speed, V:	125	mph

Structure Loading Data

Importance Factor:	1.00	
Exposure Category:	B	
Wind Speed, V:	125	mph
Gust Effect Factor, G_h:	1.10	
Directionality Factor, K_d:	0.95	
Ground Elevation:		ft
K_e:	1.00	
K_s:	1.00	
ASCE 7:	2010	

Determine ASD Capacities per ACI 530-13:

Structure Description	1.0 D Pe	1.0 D fa - fb	1.0 D Tensile Capacity	1.0 D Compr. Capacity	1.0 D 1/4 P_e Capacity	0.6 W Shear Capacity	Structural Capacity
	kip	*psi*					
Section 1	620240	1.18	-	4.1%	0.0%	7.0%	7.0%
Section 2	10961	-10.53	26.3%	15.3%	1.2%	8.5%	26.3%
Section 3	3606	-19.29	48.2%	24.9%	6.5%	9.7%	48.2%
Section 4	5038	-18.04	45.1%	28.0%	9.0%	7.6%	45.1%
Section 5	7174	-15.14	37.9%	27.8%	9.0%	6.2%	37.9%
Section 6	5344	-17.98	45.0%	38.4%	17.9%	8.2%	45.0%
			48.2%	38.4%	17.9%	9.7%	
			< 1.0, OK	< 1.0, OK	< 1.0, OK	< 1.0, OK	

Base Overturning:	633.1	k-ft	
Overturning Resistance:	1134.9	k-ft	
Safety Factor:	1.79	> 1.5, OK	83.7%

Masonry Weight:	120	pcf
Masonry Strength, f'm:	1000	psi
Modulus of Elasticity, Em:	700000	psi
Modulus of Elasticity, Em:	100800	ksf
Flexural Tensile Stress, Fb:	40	psi

ACI 530-16 -- Table 8.2.4.2
Normal / Solid / Mortar / Type N

Shear Capacity, Fv:	47.4	psi
Shear Stress, fv:	3V/2A	
a)	47.4	psi
b)	120	psi
e)	60 + 0.45 x Nv/An	psi

Running bond masonry fully grouted

(APPENDIX N) MUNICIPALITY - SPECIFIC STRUCTURAL DESIGN PARAMETERS												
				Wind Design Parameters								
Municipality	**Ground Snow Load** (psf)	**MCE Spectral Accelerations** (%g)		**Ultimate Design Wind Speeds,** V_{ult} (mph)			**Nominal Design Wind Speeds,** V_{asd} (mph)			**Wind-Borne Debris Regions**[1]		**Hurricane-Prone Regions**
		S_s	S_1	Risk Cat.I	Risk Cat.II	Risk Cat III-IV	Risk Cat. I	Risk Cat. II	Risk Cat. III-IV	Risk Cat. II & III except Occup I-2	Risk Cat III Occup I-2 & Risk Cat. IV	
East Hampton	30	0.177	0.062	120	130	140	93	101	108			Yes
East Hartford	30	0.180	0.064	115	125	135	89	97	105			Yes
East Haven	30	0.182	0.062	120	130	140	93	101	108		Type B	Yes
East Lyme	30	0.164	0.059	125	135	145	97	105	112	Type B	Type A	Yes
Easton	30	0.215	0.066	110	120	130	85	93	101			Yes
East Windsor	35	0.177	0.064	115	125	135	89	97	105			Yes
Ellington	35	0.176	0.064	115	125	135	89	97	105			Yes
Enfield	35	0.176	0.065	110	125	130	85	97	101			Yes
Essex	30	0.168	0.059	120	135	145	93	105	112		Type A	Yes
Fairfield	30	0.215	0.065	115	125	135	89	97	105		Type B	Yes
Farmington	35	0.183	0.064	115	125	135	89	97	105			Yes
Franklin	30	0.171	0.061	120	130	140	93	101	108		Type A	Yes
Glastonbury	30	0.180	0.063	115	125	135	89	97	105			Yes
Goshen	40	0.181	0.065	105	115	125	81	89	97			
Granby	35	0.176	0.065	110	120	130	85	93	101			Yes
Greenwich	30	0.259	0.070	110	120	130	85	93	101			Yes
Griswold	30	0.168	0.060	125	135	145	97	105	112		Type A	Yes
Groton	30	0.160	0.058	125	135	145	97	105	112	Type B	Type A	Yes
Guilford	30	0.176	0.061	120	130	140	93	101	108		Type B	Yes
Haddam	30	0.175	0.061	120	130	140	93	101	108			Yes
Hamden	30	0.185	0.063	115	125	135	89	97	105			Yes
Hampton	35	0.172	0.062	120	130	140	93	101	108			Yes
Hartford	30	0.181	0.064	115	125	135	89	97	105			Yes
Hartland	40	0.175	0.065	110	120	125	85	93	97			Yes
Harwinton	35	0.183	0.065	110	120	130	85	93	101			Yes
Hebron	30	0.177	0.063	120	130	140	93	101	108			Yes
Kent	40	0.188	0.065	105	115	120	81	89	93			
Killingly	40	0.171	0.062	120	130	140	93	101	108			Yes
Killingworth	30	0.173	0.061	120	130	140	93	101	108			Yes
Lebanon	30	0.173	0.062	120	130	140	93	101	108			Yes
Ledyard	30	0.163	0.059	125	135	145	97	105	112		Type A	Yes
Lisbon	30	0.169	0.061	125	135	145	97	105	112		Type A	Yes
Litchfield	40	0.184	0.065	110	120	125	85	93	97			Yes
Lyme	30	0.164	0.059	125	135	145	97	105	112		Type A	Yes
Madison	30	0.173	0.060	120	130	140	93	101	108		Type B	Yes
Manchester	30	0.178	0.064	115	125	135	89	97	105			Yes
Mansfield	35	0.173	0.062	120	130	140	93	101	108			Yes
Marlborough	30	0.177	0.062	120	130	140	93	101	108			Yes
Meriden	30	0.183	0.063	115	125	135	89	97	105			Yes
Middlebury	35	0.191	0.064	110	120	130	85	93	101			Yes
Middlefield	30	0.181	0.063	115	125	135	89	97	105			Yes
Middletown	30	0.180	0.063	115	130	135	89	101	105			Yes
Milford	30	0.194	0.063	115	125	135	89	97	105		Type B	Yes
Monroe	30	0.205	0.065	110	120	130	85	93	101			Yes

November 10, 2020

Mark Donnelly
Smartlink
85 Rangeway Road, Bldg. # 3, Suite 102
North Billerica, MA 01862

Ramaker & Associates, Inc.
855 Community Drive
Sauk City, WI 53583

SUBJECT: **MOUNT ASSESSMENT**

CARRIER: **AT&T**

SITE: **HARTFORD PARK ST (CTL01199)**
ADDRESS: **2074 PARK STREET**
HARTFORD, HARTFORD COUNTY, CONNECTICUT 06106
LATITUDE: **41.7567700°**
LONGITUDE: **-72.7138881°**
FA LOCATION CODE: **10035106**
SCOPE: **5C / 6C / 5G NR / SOFTWARE RETROFIT / BWE TOWER TOP RRH SWAP**
PACE NUMBER: **MRCTB048656 / MRCTB048677 / MRCTB048715 / MRCTB048689 / MRCTB048683**
PTN NUMBER: **2051A0WGRA / 2051A0WGM4 / 2051A0WGY1 / 2051A0WH21 / 2051A0WGSR**

RAMAKER & ASSOCIATES PROJECT NUMBER: 49451

RESULTS: **MOUNT:** **FAIL** **>200.0%**

Dear Mark Donnelly:

Ramaker & Associates, Inc. (RAMAKER) respectfully submits this mount assessment for the above-mentioned site. The purpose of this report is to determine the structural integrity of the mounting structure with the proposed loading configurations. Engineering recommendations regarding the analysis results are provided in the following pages.

RAMAKER developed a finite element model of the mount(s) using RISA analysis software. All information contained herein is valid only for the described structure configuration and loading conditions. RAMAKER reserves the right to modify our recommendations should alterations to the mount loading occur.

If you have any questions or comments, please do not hesitate to contact our office.

Sincerely,

RAMAKER & ASSOCIATES, INC.

Simon V. Breunig
Structural Designer

James R. Skowronski, P.E.
Supervising Engineer

STATE OF CONNECTICUT
JAMES R. SKOWRONSKI
26266
LICENSED
PROFESSIONAL ENGINEER

TABLE OF CONTENTS

ANALYSIS CRITERIA

State Code	2018 CT State Building Code
Building Code	2015 IBC
TIA-222 Revision	TIA-222-G
Structure Class	II
Ultimate Design Wind Speed, V_{ult}	125 mph (3 sec. gust)
Exposure Category	B
Topographic Feature	None

SUPPORTING DOCUMENTATION

- Mount mapping by HighTower Solutions, site number 10035106, dated 9/30/2020
- Structural analysis by Maser Consulting, job number 17946065A, dated 1/11/2018
- Construction drawings by RAMAKER, project number 49451
- Site visit(s) conducted by RAMAKER
- Other pertinent data procured or assumed by RAMAKER during site due diligence activities

MOUNT LOADING

RAMAKER understands that the loading to be used for this analysis will consist of the antennas and equipment configurations as shown in the following chart(s):

Equipment Loading Summary			
Elevation	**Appurtenance**	**Mount Type**	**Status**
83	**(2) CCI HPA-65R-BUU-H8**	Sector Frame	**Remove**
	(1) CCI HPA-65R-BUU-H6		
	(6) Powerwave LGP-21401		
	(3) Ericsson RRUS-11 B12		
	(3) Ericsson RRUS-32 B66A		
	(3) Ericsson RRUS-32 B2		
	(3) Powerwave 7750.00		Existing
	(2) CCI TPA-65R-LCUUUU-H8		
	(1) Kathrein 800-10798		
	(3) Ericsson RRUS-32 B30		
	(1) Raycap DC6-48-60-18-8F		
	(1) Raycap DC6-48-60-18-8C-EV		
	(2) CCI DMP65R-BU8DA		**Proposed**
	(1) CCI DMP65R-BU6DA		
	(2) CCI OPA65R-BU8DA		
	(1) CCI OPA65R-BU6DA		
	(3) Ericsson 4449 B5/B12		
	(3) Ericsson 8843 B2/B66A		
	(3) Ericsson 4478 B14		
	(3) Ericsson RRUS-E2 B29		
	(1) Raycap DC6-48-60-18-8C		

MOUNT RESULTS

The maximum mount member stress capacities under the loading conditions previously described are as follows:

Component Type	Percent Capacity	Pass/Fail
Mount Pipe	30.0	Pass
Standoff Arm	39.2	Pass
Top Horizontal	33.0	Pass
Bottom Horizontal	32.6	Pass
Corner Plate	159.7	Fail
Vertical	31.0	Pass
Solid Rod	>200.0	Fail
RATING	**>200.0**	**FAIL**

By engineering calculation and inspection, the antenna and equipment mounting structure(s) are NOT capable of supporting the proposed loading configurations without causing an overstress condition in the antenna and equipment mounting structure(s). Antenna and equipment mounting structure modifications or mount replacements are required but are beyond the scope of this report.

RAMAKER recommends a mount replacement.

ASSUMPTIONS

This analysis is based on the theoretical design capacity of the members and is not a condition assessment of the structure. This analysis is based on the information supplied and the results are only as accurate as the data obtained from this information. The Scope of Work for RAMAKER did not require verification of the provided information. The following assumptions were made for this structural analysis.

1) The mounts were built and maintained in accordance with the manufacturer's drawings and specifications and including the TIA Standards.
2) All structural members are in good condition and can achieve their full design capacity. All welds and connections can develop the full member capacity unless determined otherwise and explicitly stated in this report.
3) No physical deterioration has occurred in any of the structural components. No allowance was made for any damaged, missing, or rusted members, nor loose bolts or cracked welds.
4) All prior structural modifications, if any, are assumed to be properly installed and fully effective.
5) Information provided by the client regarding the structure, appurtenances, transmission cables, and other relevant information is assumed to be current and correct. Appurtenance sizes and weights as specified in the loading tables are best estimates and based on available information, if explicit documentation is not provided to RAMAKER. If the loading configuration is different than stated, then this analysis is invalid.
6) Mount steel grades meet the values as stated, unless noted otherwise:
    - Channel, Solid Round, Angle, Plate — ASTM A36 (GR 36)
    - HSS (Rectangular) — ASTM 500 (GR B-46)
    - Pipe — ASTM A53 (GR 35)
    - Unistrut — ASTM A653 SS (GR 33)
    - Threaded Rod — ASTM F1554 (GR 36)
    - Connection Bolt — ASTM A325

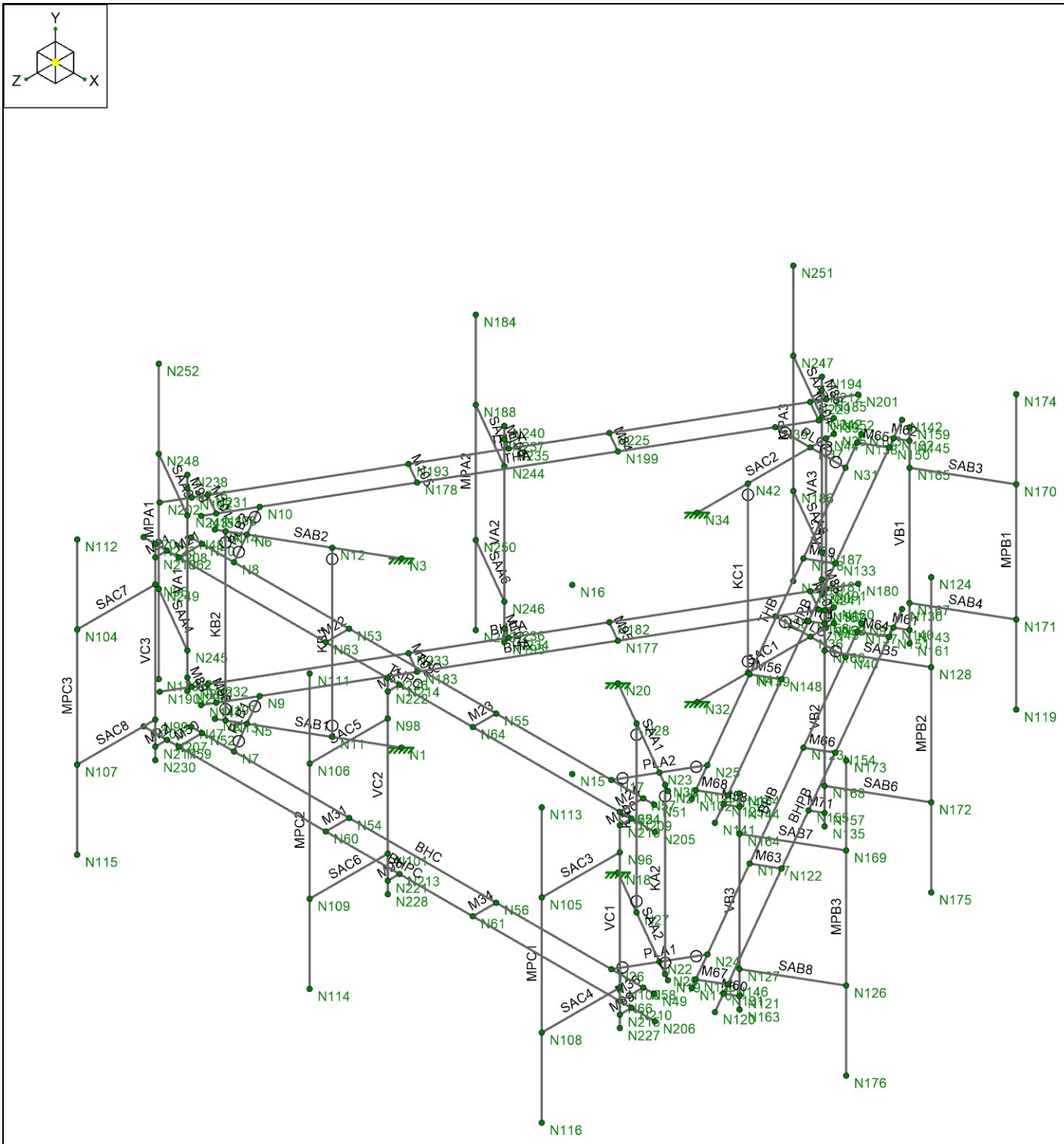
This analysis may be affected if any assumptions are not valid or have been made in error. RAMAKER should be notified to determine the effect on the structural integrity of the mount.

SCOPE AND LIMITATIONS

The engineering services performed by RAMAKER regarding this report are limited to an analysis of the mount and the capacity of its members. RAMAKER will accept no liability which may arise due to any existing deficiency in design, material, fabrication, erection, construction, or lack of maintenance. RAMAKER makes no warranties, expressed or implied in connection with this report and disclaims any liability arising from original design, material, fabrication and erection deficiencies or the "as-built" condition of this structure.

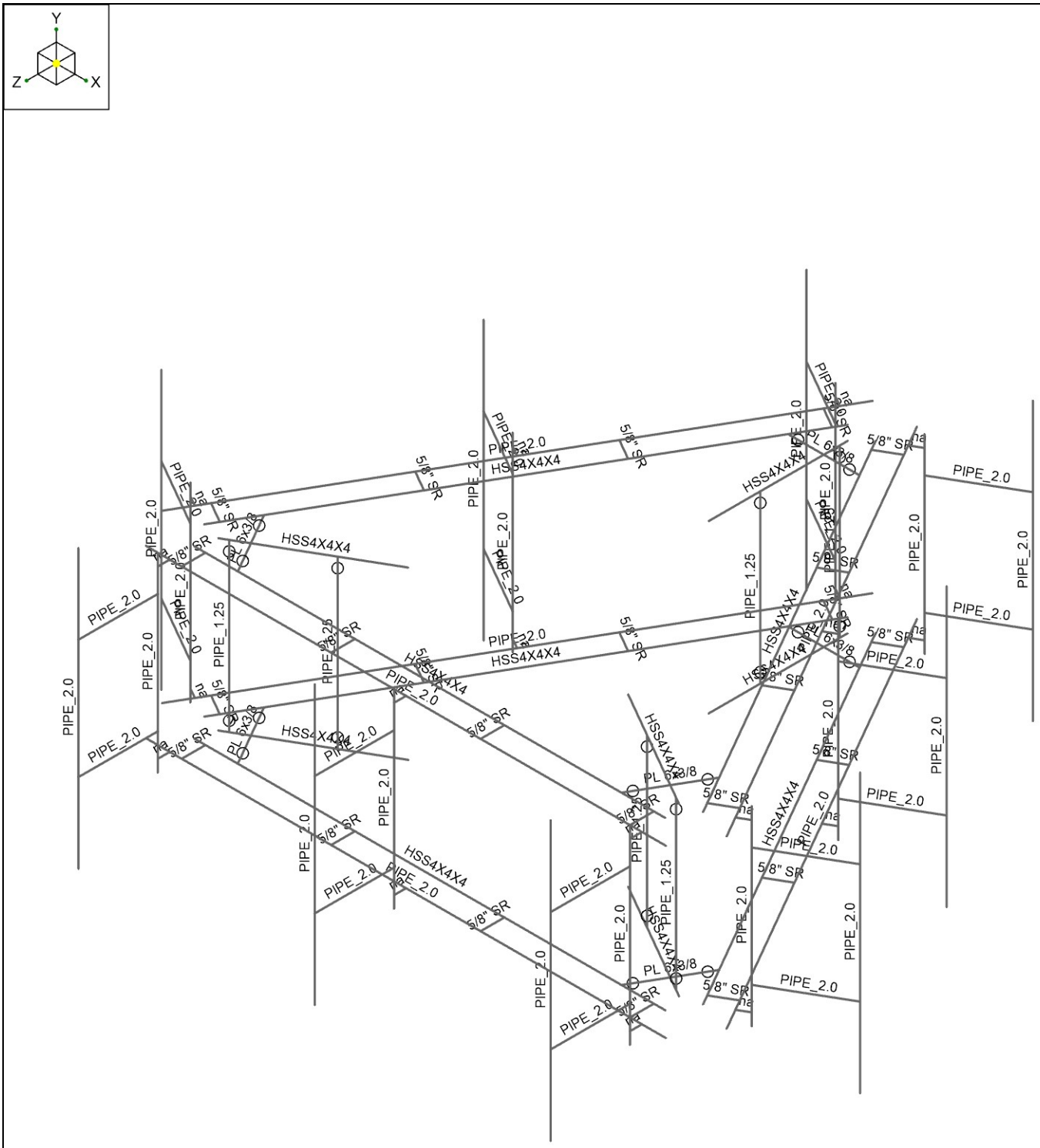
ATTACHMENTS

- Analysis Figures
- Analysis Calculations



Envelope Only Solution

Ramaker & Associates	Hartford Park St	SK-1
SVB		Nov 06, 2020
49451		49451 Mount_2' Standoff.r3d



Envelope Only Solution

Ramaker & Associates	Hartford Park St	SK-2
SVB		Nov 06, 2020
49451		49451 Mount_2' Standoff.r3d

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [1e⁵°F⁻¹]	Density [k/ft³]	Yield [ksi]	Ry	Fu [ksi]	Rt
1	A36 Gr.36	29000	11154	0.3	0.65	0.49	36	1.5	58	1.2
2	A572 Gr.50	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
3	A992	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
4	A500 Gr.42	29000	11154	0.3	0.65	0.49	42	1.4	58	1.3
5	A500 Gr.46	29000	11154	0.3	0.65	0.49	46	1.4	58	1.3
6	A53 Gr. B	29000	11154	0.3	0.65	0.49	35	1.5	60	1.2

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rule	Area [in²]	Iyy [in⁴]	Izz [in⁴]	J [in⁴]
1	HSS 4x4x1/4	HSS4X4X4	Beam	Tube	A500 Gr.46	Typical	3.37	7.8	7.8	12.8
2	Pipe 2.0	PIPE_2.0	Beam	HSS Pipe	A53 Gr. B	Typical	1.02	0.627	0.627	1.25
3	Pipe 1.25	PIPE_1.25	Beam	HSS Pipe	A53 Gr. B	Typical	0.625	0.184	0.184	0.368
4	PL6X3/8	PL 6x3/8	Beam	RECT	A36 Gr.36	Typical	2.25	0.026	6.75	0.101
5	5/8 SR	5/8" SR	Beam	BAR	A36 Gr.36	Typical	0.307	0.007	0.007	0.015

Member Primary Data

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
1	SAB2	N3	N4		HSS 4x4x1/4	Beam	Tube	A500 Gr.46	Typical
2	SAB1	N1	N2		HSS 4x4x1/4	Beam	Tube	A500 Gr.46	Typical
3	KB2	N13	N14	300	Pipe 1.25	Beam	HSS Pipe	A53 Gr. B	Typical
4	KB1	N11	N12	300	Pipe 1.25	Beam	HSS Pipe	A53 Gr. B	Typical
5	PLB2	N10	N8	90	PL6X3/8	Beam	RECT	A36 Gr.36	Typical
6	PLB1	N9	N7	90	PL6X3/8	Beam	RECT	A36 Gr.36	Typical
7	SAA1	N20	N21		HSS 4x4x1/4	Beam	Tube	A500 Gr.46	Typical
8	SAA2	N18	N19		HSS 4x4x1/4	Beam	Tube	A500 Gr.46	Typical
9	KA2	N29	N30	300	Pipe 1.25	Beam	HSS Pipe	A53 Gr. B	Typical
10	KA1	N27	N28	300	Pipe 1.25	Beam	HSS Pipe	A53 Gr. B	Typical
11	PLA2	N17	N25	90	PL6X3/8	Beam	RECT	A36 Gr.36	Typical
12	PLA1	N26	N24	90	PL6X3/8	Beam	RECT	A36 Gr.36	Typical
13	SAC2	N34	N35		HSS 4x4x1/4	Beam	Tube	A500 Gr.46	Typical
14	SAC1	N32	N33		HSS 4x4x1/4	Beam	Tube	A500 Gr.46	Typical
15	KC2	N43	N44	300	Pipe 1.25	Beam	HSS Pipe	A53 Gr. B	Typical
16	KC1	N41	N42	300	Pipe 1.25	Beam	HSS Pipe	A53 Gr. B	Typical
17	PLC2	N31	N39	90	PL6X3/8	Beam	RECT	A36 Gr.36	Typical
18	PLC1	N40	N38	90	PL6X3/8	Beam	RECT	A36 Gr.36	Typical
19	THC	N48	N51		HSS 4x4x1/4	Beam	Tube	A500 Gr.46	Typical
20	BHC	N47	N49		HSS 4x4x1/4	Beam	Tube	A500 Gr.46	Typical
21	M21	N62	N50		5/8 SR	Beam	BAR	A36 Gr.36	Typical
22	M22	N63	N53		5/8 SR	Beam	BAR	A36 Gr.36	Typical
23	M23	N64	N55		5/8 SR	Beam	BAR	A36 Gr.36	Typical
24	M24	N65	N57		5/8 SR	Beam	BAR	A36 Gr.36	Typical
25	M30	N59	N52		5/8 SR	Beam	BAR	A36 Gr.36	Typical
26	M31	N60	N54		5/8 SR	Beam	BAR	A36 Gr.36	Typical
27	M34	N61	N56		5/8 SR	Beam	BAR	A36 Gr.36	Typical
28	M36	N66	N58		5/8 SR	Beam	BAR	A36 Gr.36	Typical
29	THB	N102	N103		HSS 4x4x1/4	Beam	Tube	A500 Gr.46	Typical
30	BHB	N110	N97		HSS 4x4x1/4	Beam	Tube	A500 Gr.46	Typical
31	THA	N152	N153		HSS 4x4x1/4	Beam	Tube	A500 Gr.46	Typical
32	BHA	N160	N147		HSS 4x4x1/4	Beam	Tube	A500 Gr.46	Typical
33	THPC	N204	N205		Pipe 2.0	Beam	HSS Pipe	A53 Gr. B	Typical
34	BHPC	N203	N206		Pipe 2.0	Beam	HSS Pipe	A53 Gr. B	Typical
35	M91	N218	N208		RIGID	None	None	RIGID	Typical
36	M92	N217	N207		RIGID	None	None	RIGID	Typical
37	M97	N222	N214		RIGID	None	None	RIGID	Typical
38	M98	N221	N213		RIGID	None	None	RIGID	Typical
39	M99	N215	N210		RIGID	None	None	RIGID	Typical
40	M100	N219	N209		RIGID	None	None	RIGID	Typical

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
41	VC3	N230	N223		Pipe 2.0	Beam	HSS Pipe	A53 Gr. B	Typical
42	VC2	N228	N226		Pipe 2.0	Beam	HSS Pipe	A53 Gr. B	Typical
43	VC1	N227	N224		Pipe 2.0	Beam	HSS Pipe	A53 Gr. B	Typical
44	MPC3	N115	N112		Pipe 2.0	Beam	HSS Pipe	A53 Gr. B	Typical
45	MPC2	N114	N111		Pipe 2.0	Beam	HSS Pipe	A53 Gr. B	Typical
46	MPC1	N116	N113		Pipe 2.0	Beam	HSS Pipe	A53 Gr. B	Typical
47	SAC3	N105	N96		Pipe 2.0	Beam	HSS Pipe	A53 Gr. B	Typical
48	SAC4	N108	N100		Pipe 2.0	Beam	HSS Pipe	A53 Gr. B	Typical
49	SAC6	N109	N101		Pipe 2.0	Beam	HSS Pipe	A53 Gr. B	Typical
50	SAC5	N106	N98		Pipe 2.0	Beam	HSS Pipe	A53 Gr. B	Typical
51	SAC7	N104	N95		Pipe 2.0	Beam	HSS Pipe	A53 Gr. B	Typical
52	SAC8	N107	N99		Pipe 2.0	Beam	HSS Pipe	A53 Gr. B	Typical
53	M56	N148	N139		5/8 SR	Beam	BAR	A36 Gr.36	Typical
54	BHPB	N120	N130		Pipe 2.0	Beam	HSS Pipe	A53 Gr. B	Typical
55	M58	N144	N125		RIGID	None	None	RIGID	Typical
56	THPB	N141	N142		Pipe 2.0	Beam	HSS Pipe	A53 Gr. B	Typical
57	M60	N121	N131		RIGID	None	None	RIGID	Typical
58	M61	N143	N140		RIGID	None	None	RIGID	Typical
59	M62	N145	N132		RIGID	None	None	RIGID	Typical
60	M63	N122	N117		5/8 SR	Beam	BAR	A36 Gr.36	Typical
61	M64	N151	N137		5/8 SR	Beam	BAR	A36 Gr.36	Typical
62	M65	N150	N138		5/8 SR	Beam	BAR	A36 Gr.36	Typical
63	M66	N154	N123		5/8 SR	Beam	BAR	A36 Gr.36	Typical
64	M67	N146	N136		5/8 SR	Beam	BAR	A36 Gr.36	Typical
65	M68	N149	N129		5/8 SR	Beam	BAR	A36 Gr.36	Typical
66	M69	N133	N118		5/8 SR	Beam	BAR	A36 Gr.36	Typical
67	M70	N158	N156		RIGID	None	None	RIGID	Typical
68	M71	N157	N155		RIGID	None	None	RIGID	Typical
69	SAB3	N170	N165		Pipe 2.0	Beam	HSS Pipe	A53 Gr. B	Typical
70	SAB4	N171	N167		Pipe 2.0	Beam	HSS Pipe	A53 Gr. B	Typical
71	SAB6	N172	N168		Pipe 2.0	Beam	HSS Pipe	A53 Gr. B	Typical
72	SAB5	N128	N166		Pipe 2.0	Beam	HSS Pipe	A53 Gr. B	Typical
73	SAB7	N169	N164		Pipe 2.0	Beam	HSS Pipe	A53 Gr. B	Typical
74	SAB8	N126	N127		Pipe 2.0	Beam	HSS Pipe	A53 Gr. B	Typical
75	MPB1	N119	N174		Pipe 2.0	Beam	HSS Pipe	A53 Gr. B	Typical
76	MPB2	N175	N124		Pipe 2.0	Beam	HSS Pipe	A53 Gr. B	Typical
77	MPB3	N176	N173		Pipe 2.0	Beam	HSS Pipe	A53 Gr. B	Typical
78	VB1	N161	N159		Pipe 2.0	Beam	HSS Pipe	A53 Gr. B	Typical
79	VB2	N135	N162		Pipe 2.0	Beam	HSS Pipe	A53 Gr. B	Typical
80	VB3	N163	N134		Pipe 2.0	Beam	HSS Pipe	A53 Gr. B	Typical
81	M84	N225	N199		5/8 SR	Beam	BAR	A36 Gr.36	Typical
82	BHPA	N180	N190		Pipe 2.0	Beam	HSS Pipe	A53 Gr. B	Typical
83	M86	N212	N185		RIGID	None	None	RIGID	Typical
84	THPA	N201	N202		Pipe 2.0	Beam	HSS Pipe	A53 Gr. B	Typical
85	M88	N181	N191		RIGID	None	None	RIGID	Typical
86	M89	N211	N200		RIGID	None	None	RIGID	Typical
87	M90	N216	N192		RIGID	None	None	RIGID	Typical
88	M95	N182	N177		5/8 SR	Beam	BAR	A36 Gr.36	Typical
89	M96	N232	N197		5/8 SR	Beam	BAR	A36 Gr.36	Typical
90	M101	N231	N198		5/8 SR	Beam	BAR	A36 Gr.36	Typical
91	M102	N233	N183		5/8 SR	Beam	BAR	A36 Gr.36	Typical
92	M103	N220	N196		5/8 SR	Beam	BAR	A36 Gr.36	Typical
93	M104	N229	N189		5/8 SR	Beam	BAR	A36 Gr.36	Typical
94	M105	N193	N178		5/8 SR	Beam	BAR	A36 Gr.36	Typical
95	M106	N237	N235		RIGID	None	None	RIGID	Typical
96	M107	N236	N234		RIGID	None	None	RIGID	Typical
97	SAA3	N248	N243		Pipe 2.0	Beam	HSS Pipe	A53 Gr. B	Typical
98	SAA4	N249	N245		Pipe 2.0	Beam	HSS Pipe	A53 Gr. B	Typical

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
99	SAA6	N250	N246		Pipe 2.0	Beam	HSS Pipe	A53 Gr. B	Typical
100	SAA5	N188	N244		Pipe 2.0	Beam	HSS Pipe	A53 Gr. B	Typical
101	SAA7	N247	N242		Pipe 2.0	Beam	HSS Pipe	A53 Gr. B	Typical
102	SAA8	N186	N187		Pipe 2.0	Beam	HSS Pipe	A53 Gr. B	Typical
103	MPA1	N179	N252		Pipe 2.0	Beam	HSS Pipe	A53 Gr. B	Typical
104	MPA2	N253	N184		Pipe 2.0	Beam	HSS Pipe	A53 Gr. B	Typical
105	MPA3	N254	N251		Pipe 2.0	Beam	HSS Pipe	A53 Gr. B	Typical
106	VA1	N239	N238		Pipe 2.0	Beam	HSS Pipe	A53 Gr. B	Typical
107	VA2	N195	N240		Pipe 2.0	Beam	HSS Pipe	A53 Gr. B	Typical
108	VA3	N241	N194		Pipe 2.0	Beam	HSS Pipe	A53 Gr. B	Typical

Basic Load Cases

	BLC Description	Category	Y Gravity	Point	Distributed
1	Antenna Dead	None		36	
2	Antenna Wind 0	None		72	
3	Antenna Wind 30	None		72	
4	Antenna Wind 45	None		72	
5	Antenna Wind 60	None		72	
6	Antenna Wind 90	None		72	
7	Antenna Wind 120	None		72	
8	Antenna Wind 135	None		72	
9	Antenna Wind 150	None		72	
10	Antenna Wind 180	None		72	
11	Antenna Wind 210	None		72	
12	Antenna Wind 225	None		72	
13	Antenna Wind 240	None		72	
14	Antenna Wind 270	None		72	
15	Antenna Wind 300	None		72	
16	Antenna Wind 315	None		72	
17	Antenna Wind 330	None		72	
18	Antenna Ice Dead	None		36	
19	Antenna Wind w/Ice 0	None		72	
20	Antenna Wind w/Ice 30	None		72	
21	Antenna Wind w/Ice 45	None		72	
22	Antenna Wind w/Ice 60	None		72	
23	Antenna Wind w/Ice 90	None		72	
24	Antenna Wind w/Ice 120	None		72	
25	Antenna Wind w/Ice 135	None		72	
26	Antenna Wind w/Ice 150	None		72	
27	Antenna Wind w/Ice 180	None		72	
28	Antenna Wind w/Ice 210	None		72	
29	Antenna Wind w/Ice 225	None		72	
30	Antenna Wind w/Ice 240	None		72	
31	Antenna Wind w/Ice 270	None		72	
32	Antenna Wind w/Ice 300	None		72	
33	Antenna Wind w/Ice 315	None		72	
34	Antenna Wind w/Ice 330	None		72	
35	Member Dead	None	-1		
36	Member Wind 0	None			132
37	Member Wind 30	None			132
38	Member Wind 45	None			132
39	Member Wind 60	None			132
40	Member Wind 90	None			132
41	Member Wind 120	None			132
42	Member Wind 135	None			132
43	Member Wind 150	None			132
44	Member Wind 180	None			132
45	Member Wind 210	None			132

Basic Load Cases (Continued)

	BLC Description	Category	Y Gravity	Point	Distributed
46	Member Wind 225	None			132
47	Member Wind 240	None			132
48	Member Wind 270	None			132
49	Member Wind 300	None			132
50	Member Wind 315	None			132
51	Member Wind 330	None			132
52	Member Ice Dead	None			66
53	Member Wind w/Ice 0	None			132
54	Member Wind w/Ice 30	None			132
55	Member Wind w/Ice 45	None			132
56	Member Wind w/Ice 60	None			132
57	Member Wind w/Ice 90	None			132
58	Member Wind w/Ice 120	None			132
59	Member Wind w/Ice 135	None			132
60	Member Wind w/Ice 150	None			132
61	Member Wind w/Ice 180	None			132
62	Member Wind w/Ice 210	None			132
63	Member Wind w/Ice 225	None			132
64	Member Wind w/Ice 240	None			132
65	Member Wind w/Ice 270	None			132
66	Member Wind w/Ice 300	None			132
67	Member Wind w/Ice 315	None			132
68	Member Wind w/Ice 330	None			132
69	LV-1	None		1	
70	LV-2	None		1	
71	LV-3	None		1	
72	LV-4	None		1	
73	LV-5	None		1	
74	LV-6	None		1	
75	LV-7	None		1	
76	LV-8	None		1	
77	LV-9	None		1	
78	LV-10	None		1	
79	LV-11	None		1	
80	LV-12	None		1	
81	LV-13	None			
82	LV-14	None			
83	LV-15	None			
84	LM-1	None		1	
85	LM-2	None		1	
86	LM-3	None		1	
87	LM-4	None		1	
88	LM-5	None		1	
89	LM-6	None		1	
90	LM-7	None		1	
91	LM-8	None		1	
92	LM-9	None		1	
93	LM-10	None			
94	LM-11	None			
95	LM-12	None			
96	LM-13	None			
97	LM-14	None			
98	LM-15	None			

Load Combinations

	Description	Solve	PDelta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	1.4D	Yes	Y	1	1.4	35	1.4								
2	0.9D + 1.6 (0-Wind)	Yes	Y	1	0.9	35	0.9	2	1.6	36	1.6				

Load Combinations (Continued)

	Description	Solve	PDelta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
3	0.9D + 1.6 (30-Wind)	Yes	Y	1	0.9	35	0.9	3	1.6	37	1.6				
4	0.9D + 1.6 (45-Wind)	Yes	Y	1	0.9	35	0.9	4	1.6	38	1.6				
5	0.9D + 1.6 (60-Wind)	Yes	Y	1	0.9	35	0.9	5	1.6	39	1.6				
6	0.9D + 1.6 (90-Wind)	Yes	Y	1	0.9	35	0.9	6	1.6	40	1.6				
7	0.9D + 1.6 (120-Wind)	Yes	Y	1	0.9	35	0.9	7	1.6	41	1.6				
8	0.9D + 1.6 (135-Wind)	Yes	Y	1	0.9	35	0.9	8	1.6	42	1.6				
9	0.9D + 1.6 (150-Wind)	Yes	Y	1	0.9	35	0.9	9	1.6	43	1.6				
10	0.9D + 1.6 (180-Wind)	Yes	Y	1	0.9	35	0.9	10	1.6	44	1.6				
11	0.9D + 1.6 (210-Wind)	Yes	Y	1	0.9	35	0.9	11	1.6	45	1.6				
12	0.9D + 1.6 (225-Wind)	Yes	Y	1	0.9	35	0.9	12	1.6	46	1.6				
13	0.9D + 1.6 (240-Wind)	Yes	Y	1	0.9	35	0.9	13	1.6	47	1.6				
14	0.9D + 1.6 (270-Wind)	Yes	Y	1	0.9	35	0.9	14	1.6	48	1.6				
15	0.9D + 1.6 (300-Wind)	Yes	Y	1	0.9	35	0.9	15	1.6	49	1.6				
16	0.9D + 1.6 (315-Wind)	Yes	Y	1	0.9	35	0.9	16	1.6	50	1.6				
17	0.9D + 1.6 (330-Wind)	Yes	Y	1	0.9	35	0.9	17	1.6	51	1.6				
18	1.2D + 1.6 (0-Wind)	Yes	Y	1	1.2	35	1.2	2	1.6	36	1.6				
19	1.2D + 1.6 (30-Wind)	Yes	Y	1	1.2	35	1.2	3	1.6	37	1.6				
20	1.2D + 1.6 (45-Wind)	Yes	Y	1	1.2	35	1.2	4	1.6	38	1.6				
21	1.2D + 1.6 (60-Wind)	Yes	Y	1	1.2	35	1.2	5	1.6	39	1.6				
22	1.2D + 1.6 (90-Wind)	Yes	Y	1	1.2	35	1.2	6	1.6	40	1.6				
23	1.2D + 1.6 (120-Wind)	Yes	Y	1	1.2	35	1.2	7	1.6	41	1.6				
24	1.2D + 1.6 (135-Wind)	Yes	Y	1	1.2	35	1.2	8	1.6	42	1.6				
25	1.2D + 1.6 (150-Wind)	Yes	Y	1	1.2	35	1.2	9	1.6	43	1.6				
26	1.2D + 1.6 (180-Wind)	Yes	Y	1	1.2	35	1.2	10	1.6	44	1.6				
27	1.2D + 1.6 (210-Wind)	Yes	Y	1	1.2	35	1.2	11	1.6	45	1.6				
28	1.2D + 1.6 (225-Wind)	Yes	Y	1	1.2	35	1.2	12	1.6	46	1.6				
29	1.2D + 1.6 (240-Wind)	Yes	Y	1	1.2	35	1.2	13	1.6	47	1.6				
30	1.2D + 1.6 (270-Wind)	Yes	Y	1	1.2	35	1.2	14	1.6	48	1.6				
31	1.2D + 1.6 (300-Wind)	Yes	Y	1	1.2	35	1.2	15	1.6	49	1.6				
32	1.2D + 1.6 (315-Wind)	Yes	Y	1	1.2	35	1.2	16	1.6	50	1.6				
33	1.2D + 1.6 (330-Wind)	Yes	Y	1	1.2	35	1.2	17	1.6	51	1.6				
34	1.2D + 1.0Di + 1.0 (0-Wind Ice)	Yes	Y	1	1.2	35	1.2	18	1	52	1	19	1	53	1
35	1.2D + 1.0Di + 1.0 (30-Wind Ice)	Yes	Y	1	1.2	35	1.2	18	1	52	1	20	1	54	1
36	1.2D + 1.0Di + 1.0 (45-Wind Ice)	Yes	Y	1	1.2	35	1.2	18	1	52	1	21	1	55	1
37	1.2D + 1.0Di + 1.0 (60-Wind Ice)	Yes	Y	1	1.2	35	1.2	18	1	52	1	22	1	56	1
38	1.2D + 1.0Di + 1.0 (90-Wind Ice)	Yes	Y	1	1.2	35	1.2	18	1	52	1	23	1	57	1
39	1.2D + 1.0Di + 1.0 (120-Wind Ice)	Yes	Y	1	1.2	35	1.2	18	1	52	1	24	1	58	1
40	1.2D + 1.0Di + 1.0 (135-Wind Ice)	Yes	Y	1	1.2	35	1.2	18	1	52	1	25	1	59	1
41	1.2D + 1.0Di + 1.0 (150-Wind Ice)	Yes	Y	1	1.2	35	1.2	18	1	52	1	26	1	60	1
42	1.2D + 1.0Di + 1.0 (180-Wind Ice)	Yes	Y	1	1.2	35	1.2	18	1	52	1	27	1	61	1
43	1.2D + 1.0Di + 1.0 (210-Wind Ice)	Yes	Y	1	1.2	35	1.2	18	1	52	1	28	1	62	1
44	1.2D + 1.0Di + 1.0 (225-Wind Ice)	Yes	Y	1	1.2	35	1.2	18	1	52	1	29	1	63	1
45	1.2D + 1.0Di + 1.0 (240-Wind Ice)	Yes	Y	1	1.2	35	1.2	18	1	52	1	30	1	64	1
46	1.2D + 1.0Di + 1.0 (270-Wind Ice)	Yes	Y	1	1.2	35	1.2	18	1	52	1	31	1	65	1
47	1.2D + 1.0Di + 1.0 (300-Wind Ice)	Yes	Y	1	1.2	35	1.2	18	1	52	1	32	1	66	1
48	1.2D + 1.0Di + 1.0 (315-Wind Ice)	Yes	Y	1	1.2	35	1.2	18	1	52	1	33	1	67	1
49	1.2D + 1.0Di + 1.0 (330-Wind Ice)	Yes	Y	1	1.2	35	1.2	18	1	52	1	34	1	68	1
50	1.2D + 1.5LV-1	Yes	Y	1	1.2	35	1.2	69	1.5						
51	1.2D + 1.5LV-2	Yes	Y	1	1.2	35	1.2	70	1.5						
52	1.2D + 1.5LV-3	Yes	Y	1	1.2	35	1.2	71	1.5						
53	1.2D + 1.5LV-4	Yes	Y	1	1.2	35	1.2	72	1.5						
54	1.2D + 1.5LV-5	Yes	Y	1	1.2	35	1.2	73	1.5						
55	1.2D + 1.5LV-6	Yes	Y	1	1.2	35	1.2	74	1.5						
56	1.2D + 1.5LV-7	Yes	Y	1	1.2	35	1.2	75	1.5						
57	1.2D + 1.5LV-8	Yes	Y	1	1.2	35	1.2	76	1.5						
58	1.2D + 1.5LV-9	Yes	Y	1	1.2	35	1.2	77	1.5						
59	1.2D + 1.5LV-10	Yes	Y	1	1.2	35	1.2	78	1.5						
60	1.2D + 1.5LV-11	Yes	Y	1	1.2	35	1.2	79	1.5						

Load Combinations (Continued)

	Description	Solve	PDelta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
61	1.2D + 1.5LV-12	Yes	Y	1	1.2	35	1.2	80	1.5						
62	1.2D + 1.5LV-13	Yes	Y	1	1.2	35	1.2	81	1.5						
63	1.2D + 1.5LV-14	Yes	Y	1	1.2	35	1.2	82	1.5						
64	1.2D + 1.5LV-15	Yes	Y	1	1.2	35	1.2	83	1.5						
65	1.2D + 1.5LM-1 + Maintenance (0-Wind)	Yes	Y	1	1.2	35	1.2	84	1.5	2	0.096	36	0.096		
66	1.2D + 1.5LM-1 + Maintenance (30-Wind)	Yes	Y	1	1.2	35	1.2	84	1.5	3	0.096	37	0.096		
67	1.2D + 1.5LM-1 + Maintenance (45-Wind)	Yes	Y	1	1.2	35	1.2	84	1.5	4	0.096	38	0.096		
68	1.2D + 1.5LM-1 + Maintenance (60-Wind)	Yes	Y	1	1.2	35	1.2	84	1.5	5	0.096	39	0.096		
69	1.2D + 1.5LM-1 + Maintenance (90-Wind)	Yes	Y	1	1.2	35	1.2	84	1.5	6	0.096	40	0.096		
70	1.2D + 1.5LM-1 + Maintenance (120-Wind)	Yes	Y	1	1.2	35	1.2	84	1.5	7	0.096	41	0.096		
71	1.2D + 1.5LM-1 + Maintenance (135-Wind)	Yes	Y	1	1.2	35	1.2	84	1.5	8	0.096	42	0.096		
72	1.2D + 1.5LM-1 + Maintenance (150-Wind)	Yes	Y	1	1.2	35	1.2	84	1.5	9	0.096	43	0.096		
73	1.2D + 1.5LM-1 + Maintenance (180-Wind)	Yes	Y	1	1.2	35	1.2	84	1.5	10	0.096	44	0.096		
74	1.2D + 1.5LM-1 + Maintenance (210-Wind)	Yes	Y	1	1.2	35	1.2	84	1.5	11	0.096	45	0.096		
75	1.2D + 1.5LM-1 + Maintenance (225-Wind)	Yes	Y	1	1.2	35	1.2	84	1.5	12	0.096	46	0.096		
76	1.2D + 1.5LM-1 + Maintenance (240-Wind)	Yes	Y	1	1.2	35	1.2	84	1.5	13	0.096	47	0.096		
77	1.2D + 1.5LM-1 + Maintenance (270-Wind)	Yes	Y	1	1.2	35	1.2	84	1.5	14	0.096	48	0.096		
78	1.2D + 1.5LM-1 + Maintenance (300-Wind)	Yes	Y	1	1.2	35	1.2	84	1.5	15	0.096	49	0.096		
79	1.2D + 1.5LM-1 + Maintenance (315-Wind)	Yes	Y	1	1.2	35	1.2	84	1.5	16	0.096	50	0.096		
80	1.2D + 1.5LM-1 + Maintenance (330-Wind)	Yes	Y	1	1.2	35	1.2	84	1.5	17	0.096	51	0.096		
81	1.2D + 1.5LM-2 + Maintenance (0-Wind)	Yes	Y	1	1.2	35	1.2	85	1.5	2	0.096	36	0.096		
82	1.2D + 1.5LM-2 + Maintenance (30-Wind)	Yes	Y	1	1.2	35	1.2	85	1.5	3	0.096	37	0.096		
83	1.2D + 1.5LM-2 + Maintenance (45-Wind)	Yes	Y	1	1.2	35	1.2	85	1.5	4	0.096	38	0.096		
84	1.2D + 1.5LM-2 + Maintenance (60-Wind)	Yes	Y	1	1.2	35	1.2	85	1.5	5	0.096	39	0.096		
85	1.2D + 1.5LM-2 + Maintenance (90-Wind)	Yes	Y	1	1.2	35	1.2	85	1.5	6	0.096	40	0.096		
86	1.2D + 1.5LM-2 + Maintenance (120-Wind)	Yes	Y	1	1.2	35	1.2	85	1.5	7	0.096	41	0.096		
87	1.2D + 1.5LM-2 + Maintenance (135-Wind)	Yes	Y	1	1.2	35	1.2	85	1.5	8	0.096	42	0.096		
88	1.2D + 1.5LM-2 + Maintenance (150-Wind)	Yes	Y	1	1.2	35	1.2	85	1.5	9	0.096	43	0.096		
89	1.2D + 1.5LM-2 + Maintenance (180-Wind)	Yes	Y	1	1.2	35	1.2	85	1.5	10	0.096	44	0.096		
90	1.2D + 1.5LM-2 + Maintenance (210-Wind)	Yes	Y	1	1.2	35	1.2	85	1.5	11	0.096	45	0.096		
91	1.2D + 1.5LM-2 + Maintenance (225-Wind)	Yes	Y	1	1.2	35	1.2	85	1.5	12	0.096	46	0.096		
92	1.2D + 1.5LM-2 + Maintenance (240-Wind)	Yes	Y	1	1.2	35	1.2	85	1.5	13	0.096	47	0.096		
93	1.2D + 1.5LM-2 + Maintenance (270-Wind)	Yes	Y	1	1.2	35	1.2	85	1.5	14	0.096	48	0.096		
94	1.2D + 1.5LM-2 + Maintenance (300-Wind)	Yes	Y	1	1.2	35	1.2	85	1.5	15	0.096	49	0.096		
95	1.2D + 1.5LM-2 + Maintenance (315-Wind)	Yes	Y	1	1.2	35	1.2	85	1.5	16	0.096	50	0.096		
96	1.2D + 1.5LM-2 + Maintenance (330-Wind)	Yes	Y	1	1.2	35	1.2	85	1.5	17	0.096	51	0.096		
97	1.2D + 1.5LM-3 + Maintenance (0-Wind)	Yes	Y	1	1.2	35	1.2	86	1.5	2	0.096	36	0.096		
98	1.2D + 1.5LM-3 + Maintenance (30-Wind)	Yes	Y	1	1.2	35	1.2	86	1.5	3	0.096	37	0.096		
99	1.2D + 1.5LM-3 + Maintenance (45-Wind)	Yes	Y	1	1.2	35	1.2	86	1.5	4	0.096	38	0.096		
100	1.2D + 1.5LM-3 + Maintenance (60-Wind)	Yes	Y	1	1.2	35	1.2	86	1.5	5	0.096	39	0.096		
101	1.2D + 1.5LM-3 + Maintenance (90-Wind)	Yes	Y	1	1.2	35	1.2	86	1.5	6	0.096	40	0.096		
102	1.2D + 1.5LM-3 + Maintenance (120-Wind)	Yes	Y	1	1.2	35	1.2	86	1.5	7	0.096	41	0.096		
103	1.2D + 1.5LM-3 + Maintenance (135-Wind)	Yes	Y	1	1.2	35	1.2	86	1.5	8	0.096	42	0.096		
104	1.2D + 1.5LM-3 + Maintenance (150-Wind)	Yes	Y	1	1.2	35	1.2	86	1.5	9	0.096	43	0.096		
105	1.2D + 1.5LM-3 + Maintenance (180-Wind)	Yes	Y	1	1.2	35	1.2	86	1.5	10	0.096	44	0.096		
106	1.2D + 1.5LM-3 + Maintenance (210-Wind)	Yes	Y	1	1.2	35	1.2	86	1.5	11	0.096	45	0.096		
107	1.2D + 1.5LM-3 + Maintenance (225-Wind)	Yes	Y	1	1.2	35	1.2	86	1.5	12	0.096	46	0.096		
108	1.2D + 1.5LM-3 + Maintenance (240-Wind)	Yes	Y	1	1.2	35	1.2	86	1.5	13	0.096	47	0.096		
109	1.2D + 1.5LM-3 + Maintenance (270-Wind)	Yes	Y	1	1.2	35	1.2	86	1.5	14	0.096	48	0.096		
110	1.2D + 1.5LM-3 + Maintenance (300-Wind)	Yes	Y	1	1.2	35	1.2	86	1.5	15	0.096	49	0.096		
111	1.2D + 1.5LM-3 + Maintenance (315-Wind)	Yes	Y	1	1.2	35	1.2	86	1.5	16	0.096	50	0.096		
112	1.2D + 1.5LM-3 + Maintenance (330-Wind)	Yes	Y	1	1.2	35	1.2	86	1.5	17	0.096	51	0.096		
113	1.2D + 1.5LM-4 + Maintenance (0-Wind)	Yes	Y	1	1.2	35	1.2	87	1.5	2	0.096	36	0.096		
114	1.2D + 1.5LM-4 + Maintenance (30-Wind)	Yes	Y	1	1.2	35	1.2	87	1.5	3	0.096	37	0.096		
115	1.2D + 1.5LM-4 + Maintenance (45-Wind)	Yes	Y	1	1.2	35	1.2	87	1.5	4	0.096	38	0.096		
116	1.2D + 1.5LM-4 + Maintenance (60-Wind)	Yes	Y	1	1.2	35	1.2	87	1.5	5	0.096	39	0.096		
117	1.2D + 1.5LM-4 + Maintenance (90-Wind)	Yes	Y	1	1.2	35	1.2	87	1.5	6	0.096	40	0.096		
118	1.2D + 1.5LM-4 + Maintenance (120-Wind)	Yes	Y	1	1.2	35	1.2	87	1.5	7	0.096	41	0.096		

Load Combinations (Continued)

	Description	Solve	PDelta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
119	1.2D + 1.5LM-4 + Maintenance (135-Wind)	Yes	Y	1	1.2	35	1.2	87	1.5	8	0.096	42	0.096		
120	1.2D + 1.5LM-4 + Maintenance (150-Wind)	Yes	Y	1	1.2	35	1.2	87	1.5	9	0.096	43	0.096		
121	1.2D + 1.5LM-4 + Maintenance (180-Wind)	Yes	Y	1	1.2	35	1.2	87	1.5	10	0.096	44	0.096		
122	1.2D + 1.5LM-4 + Maintenance (210-Wind)	Yes	Y	1	1.2	35	1.2	87	1.5	11	0.096	45	0.096		
123	1.2D + 1.5LM-4 + Maintenance (225-Wind)	Yes	Y	1	1.2	35	1.2	87	1.5	12	0.096	46	0.096		
124	1.2D + 1.5LM-4 + Maintenance (240-Wind)	Yes	Y	1	1.2	35	1.2	87	1.5	13	0.096	47	0.096		
125	1.2D + 1.5LM-4 + Maintenance (270-Wind)	Yes	Y	1	1.2	35	1.2	87	1.5	14	0.096	48	0.096		
126	1.2D + 1.5LM-4 + Maintenance (300-Wind)	Yes	Y	1	1.2	35	1.2	87	1.5	15	0.096	49	0.096		
127	1.2D + 1.5LM-4 + Maintenance (315-Wind)	Yes	Y	1	1.2	35	1.2	87	1.5	16	0.096	50	0.096		
128	1.2D + 1.5LM-4 + Maintenance (330-Wind)	Yes	Y	1	1.2	35	1.2	87	1.5	17	0.096	51	0.096		
129	1.2D + 1.5LM-5 + Maintenance (0-Wind)	Yes	Y	1	1.2	35	1.2	88	1.5	2	0.096	36	0.096		
130	1.2D + 1.5LM-5 + Maintenance (30-Wind)	Yes	Y	1	1.2	35	1.2	88	1.5	3	0.096	37	0.096		
131	1.2D + 1.5LM-5 + Maintenance (45-Wind)	Yes	Y	1	1.2	35	1.2	88	1.5	4	0.096	38	0.096		
132	1.2D + 1.5LM-5 + Maintenance (60-Wind)	Yes	Y	1	1.2	35	1.2	88	1.5	5	0.096	39	0.096		
133	1.2D + 1.5LM-5 + Maintenance (90-Wind)	Yes	Y	1	1.2	35	1.2	88	1.5	6	0.096	40	0.096		
134	1.2D + 1.5LM-5 + Maintenance (120-Wind)	Yes	Y	1	1.2	35	1.2	88	1.5	7	0.096	41	0.096		
135	1.2D + 1.5LM-5 + Maintenance (135-Wind)	Yes	Y	1	1.2	35	1.2	88	1.5	8	0.096	42	0.096		
136	1.2D + 1.5LM-5 + Maintenance (150-Wind)	Yes	Y	1	1.2	35	1.2	88	1.5	9	0.096	43	0.096		
137	1.2D + 1.5LM-5 + Maintenance (180-Wind)	Yes	Y	1	1.2	35	1.2	88	1.5	10	0.096	44	0.096		
138	1.2D + 1.5LM-5 + Maintenance (210-Wind)	Yes	Y	1	1.2	35	1.2	88	1.5	11	0.096	45	0.096		
139	1.2D + 1.5LM-5 + Maintenance (225-Wind)	Yes	Y	1	1.2	35	1.2	88	1.5	12	0.096	46	0.096		
140	1.2D + 1.5LM-5 + Maintenance (240-Wind)	Yes	Y	1	1.2	35	1.2	88	1.5	13	0.096	47	0.096		
141	1.2D + 1.5LM-5 + Maintenance (270-Wind)	Yes	Y	1	1.2	35	1.2	88	1.5	14	0.096	48	0.096		
142	1.2D + 1.5LM-5 + Maintenance (300-Wind)	Yes	Y	1	1.2	35	1.2	88	1.5	15	0.096	49	0.096		
143	1.2D + 1.5LM-5 + Maintenance (315-Wind)	Yes	Y	1	1.2	35	1.2	88	1.5	16	0.096	50	0.096		
144	1.2D + 1.5LM-5 + Maintenance (330-Wind)	Yes	Y	1	1.2	35	1.2	88	1.5	17	0.096	51	0.096		
145	1.2D + 1.5LM-6 + Maintenance (0-Wind)	Yes	Y	1	1.2	35	1.2	89	1.5	2	0.096	36	0.096		
146	1.2D + 1.5LM-6 + Maintenance (30-Wind)	Yes	Y	1	1.2	35	1.2	89	1.5	3	0.096	37	0.096		
147	1.2D + 1.5LM-6 + Maintenance (45-Wind)	Yes	Y	1	1.2	35	1.2	89	1.5	4	0.096	38	0.096		
148	1.2D + 1.5LM-6 + Maintenance (60-Wind)	Yes	Y	1	1.2	35	1.2	89	1.5	5	0.096	39	0.096		
149	1.2D + 1.5LM-6 + Maintenance (90-Wind)	Yes	Y	1	1.2	35	1.2	89	1.5	6	0.096	40	0.096		
150	1.2D + 1.5LM-6 + Maintenance (120-Wind)	Yes	Y	1	1.2	35	1.2	89	1.5	7	0.096	41	0.096		
151	1.2D + 1.5LM-6 + Maintenance (135-Wind)	Yes	Y	1	1.2	35	1.2	89	1.5	8	0.096	42	0.096		
152	1.2D + 1.5LM-6 + Maintenance (150-Wind)	Yes	Y	1	1.2	35	1.2	89	1.5	9	0.096	43	0.096		
153	1.2D + 1.5LM-6 + Maintenance (180-Wind)	Yes	Y	1	1.2	35	1.2	89	1.5	10	0.096	44	0.096		
154	1.2D + 1.5LM-6 + Maintenance (210-Wind)	Yes	Y	1	1.2	35	1.2	89	1.5	11	0.096	45	0.096		
155	1.2D + 1.5LM-6 + Maintenance (225-Wind)	Yes	Y	1	1.2	35	1.2	89	1.5	12	0.096	46	0.096		
156	1.2D + 1.5LM-6 + Maintenance (240-Wind)	Yes	Y	1	1.2	35	1.2	89	1.5	13	0.096	47	0.096		
157	1.2D + 1.5LM-6 + Maintenance (270-Wind)	Yes	Y	1	1.2	35	1.2	89	1.5	14	0.096	48	0.096		
158	1.2D + 1.5LM-6 + Maintenance (300-Wind)	Yes	Y	1	1.2	35	1.2	89	1.5	15	0.096	49	0.096		
159	1.2D + 1.5LM-6 + Maintenance (315-Wind)	Yes	Y	1	1.2	35	1.2	89	1.5	16	0.096	50	0.096		
160	1.2D + 1.5LM-6 + Maintenance (330-Wind)	Yes	Y	1	1.2	35	1.2	89	1.5	17	0.096	51	0.096		
161	1.2D + 1.5LM-7 + Maintenance (0-Wind)	Yes	Y	1	1.2	35	1.2	90	1.5	2	0.096	36	0.096		
162	1.2D + 1.5LM-7 + Maintenance (30-Wind)	Yes	Y	1	1.2	35	1.2	90	1.5	3	0.096	37	0.096		
163	1.2D + 1.5LM-7 + Maintenance (45-Wind)	Yes	Y	1	1.2	35	1.2	90	1.5	4	0.096	38	0.096		
164	1.2D + 1.5LM-7 + Maintenance (60-Wind)	Yes	Y	1	1.2	35	1.2	90	1.5	5	0.096	39	0.096		
165	1.2D + 1.5LM-7 + Maintenance (90-Wind)	Yes	Y	1	1.2	35	1.2	90	1.5	6	0.096	40	0.096		
166	1.2D + 1.5LM-7 + Maintenance (120-Wind)	Yes	Y	1	1.2	35	1.2	90	1.5	7	0.096	41	0.096		
167	1.2D + 1.5LM-7 + Maintenance (135-Wind)	Yes	Y	1	1.2	35	1.2	90	1.5	8	0.096	42	0.096		
168	1.2D + 1.5LM-7 + Maintenance (150-Wind)	Yes	Y	1	1.2	35	1.2	90	1.5	9	0.096	43	0.096		
169	1.2D + 1.5LM-7 + Maintenance (180-Wind)	Yes	Y	1	1.2	35	1.2	90	1.5	10	0.096	44	0.096		
170	1.2D + 1.5LM-7 + Maintenance (210-Wind)	Yes	Y	1	1.2	35	1.2	90	1.5	11	0.096	45	0.096		
171	1.2D + 1.5LM-7 + Maintenance (225-Wind)	Yes	Y	1	1.2	35	1.2	90	1.5	12	0.096	46	0.096		
172	1.2D + 1.5LM-7 + Maintenance (240-Wind)	Yes	Y	1	1.2	35	1.2	90	1.5	13	0.096	47	0.096		
173	1.2D + 1.5LM-7 + Maintenance (270-Wind)	Yes	Y	1	1.2	35	1.2	90	1.5	14	0.096	48	0.096		
174	1.2D + 1.5LM-7 + Maintenance (300-Wind)	Yes	Y	1	1.2	35	1.2	90	1.5	15	0.096	49	0.096		
175	1.2D + 1.5LM-7 + Maintenance (315-Wind)	Yes	Y	1	1.2	35	1.2	90	1.5	16	0.096	50	0.096		
176	1.2D + 1.5LM-7 + Maintenance (330-Wind)	Yes	Y	1	1.2	35	1.2	90	1.5	17	0.096	51	0.096		

Load Combinations (Continued)

	Description	Solve	PDelta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
177	1.2D + 1.5LM-8 + Maintenance (0-Wind)	Yes	Y	1	1.2	35	1.2	91	1.5	2	0.096	36	0.096		
178	1.2D + 1.5LM-8 + Maintenance (30-Wind)	Yes	Y	1	1.2	35	1.2	91	1.5	3	0.096	37	0.096		
179	1.2D + 1.5LM-8 + Maintenance (45-Wind)	Yes	Y	1	1.2	35	1.2	91	1.5	4	0.096	38	0.096		
180	1.2D + 1.5LM-8 + Maintenance (60-Wind)	Yes	Y	1	1.2	35	1.2	91	1.5	5	0.096	39	0.096		
181	1.2D + 1.5LM-8 + Maintenance (90-Wind)	Yes	Y	1	1.2	35	1.2	91	1.5	6	0.096	40	0.096		
182	1.2D + 1.5LM-8 + Maintenance (120-Wind)	Yes	Y	1	1.2	35	1.2	91	1.5	7	0.096	41	0.096		
183	1.2D + 1.5LM-8 + Maintenance (135-Wind)	Yes	Y	1	1.2	35	1.2	91	1.5	8	0.096	42	0.096		
184	1.2D + 1.5LM-8 + Maintenance (150-Wind)	Yes	Y	1	1.2	35	1.2	91	1.5	9	0.096	43	0.096		
185	1.2D + 1.5LM-8 + Maintenance (180-Wind)	Yes	Y	1	1.2	35	1.2	91	1.5	10	0.096	44	0.096		
186	1.2D + 1.5LM-8 + Maintenance (210-Wind)	Yes	Y	1	1.2	35	1.2	91	1.5	11	0.096	45	0.096		
187	1.2D + 1.5LM-8 + Maintenance (225-Wind)	Yes	Y	1	1.2	35	1.2	91	1.5	12	0.096	46	0.096		
188	1.2D + 1.5LM-8 + Maintenance (240-Wind)	Yes	Y	1	1.2	35	1.2	91	1.5	13	0.096	47	0.096		
189	1.2D + 1.5LM-8 + Maintenance (270-Wind)	Yes	Y	1	1.2	35	1.2	91	1.5	14	0.096	48	0.096		
190	1.2D + 1.5LM-8 + Maintenance (300-Wind)	Yes	Y	1	1.2	35	1.2	91	1.5	15	0.096	49	0.096		
191	1.2D + 1.5LM-8 + Maintenance (315-Wind)	Yes	Y	1	1.2	35	1.2	91	1.5	16	0.096	50	0.096		
192	1.2D + 1.5LM-8 + Maintenance (330-Wind)	Yes	Y	1	1.2	35	1.2	91	1.5	17	0.096	51	0.096		
193	1.2D + 1.5LM-9 + Maintenance (0-Wind)	Yes	Y	1	1.2	35	1.2	92	1.5	2	0.096	36	0.096		
194	1.2D + 1.5LM-9 + Maintenance (30-Wind)	Yes	Y	1	1.2	35	1.2	92	1.5	3	0.096	37	0.096		
195	1.2D + 1.5LM-9 + Maintenance (45-Wind)	Yes	Y	1	1.2	35	1.2	92	1.5	4	0.096	38	0.096		
196	1.2D + 1.5LM-9 + Maintenance (60-Wind)	Yes	Y	1	1.2	35	1.2	92	1.5	5	0.096	39	0.096		
197	1.2D + 1.5LM-9 + Maintenance (90-Wind)	Yes	Y	1	1.2	35	1.2	92	1.5	6	0.096	40	0.096		
198	1.2D + 1.5LM-9 + Maintenance (120-Wind)	Yes	Y	1	1.2	35	1.2	92	1.5	7	0.096	41	0.096		
199	1.2D + 1.5LM-9 + Maintenance (135-Wind)	Yes	Y	1	1.2	35	1.2	92	1.5	8	0.096	42	0.096		
200	1.2D + 1.5LM-9 + Maintenance (150-Wind)	Yes	Y	1	1.2	35	1.2	92	1.5	9	0.096	43	0.096		
201	1.2D + 1.5LM-9 + Maintenance (180-Wind)	Yes	Y	1	1.2	35	1.2	92	1.5	10	0.096	44	0.096		
202	1.2D + 1.5LM-9 + Maintenance (210-Wind)	Yes	Y	1	1.2	35	1.2	92	1.5	11	0.096	45	0.096		
203	1.2D + 1.5LM-9 + Maintenance (225-Wind)	Yes	Y	1	1.2	35	1.2	92	1.5	12	0.096	46	0.096		
204	1.2D + 1.5LM-9 + Maintenance (240-Wind)	Yes	Y	1	1.2	35	1.2	92	1.5	13	0.096	47	0.096		
205	1.2D + 1.5LM-9 + Maintenance (270-Wind)	Yes	Y	1	1.2	35	1.2	92	1.5	14	0.096	48	0.096		
206	1.2D + 1.5LM-9 + Maintenance (300-Wind)	Yes	Y	1	1.2	35	1.2	92	1.5	15	0.096	49	0.096		
207	1.2D + 1.5LM-9 + Maintenance (315-Wind)	Yes	Y	1	1.2	35	1.2	92	1.5	16	0.096	50	0.096		
208	1.2D + 1.5LM-9 + Maintenance (330-Wind)	Yes	Y	1	1.2	35	1.2	92	1.5	17	0.096	51	0.096		
209	1.2D + 1.5LM-10 + Maintenance (0-Wind)	Yes	Y	1	1.2	35	1.2	93	1.5	2	0.096	36	0.096		
210	1.2D + 1.5LM-10 + Maintenance (30-Wind)	Yes	Y	1	1.2	35	1.2	93	1.5	3	0.096	37	0.096		
211	1.2D + 1.5LM-10 + Maintenance (45-Wind)	Yes	Y	1	1.2	35	1.2	93	1.5	4	0.096	38	0.096		
212	1.2D + 1.5LM-10 + Maintenance (60-Wind)	Yes	Y	1	1.2	35	1.2	93	1.5	5	0.096	39	0.096		
213	1.2D + 1.5LM-10 + Maintenance (90-Wind)	Yes	Y	1	1.2	35	1.2	93	1.5	6	0.096	40	0.096		
214	1.2D + 1.5LM-10 + Maintenance (120-Wind)	Yes	Y	1	1.2	35	1.2	93	1.5	7	0.096	41	0.096		
215	1.2D + 1.5LM-10 + Maintenance (135-Wind)	Yes	Y	1	1.2	35	1.2	93	1.5	8	0.096	42	0.096		
216	1.2D + 1.5LM-10 + Maintenance (150-Wind)	Yes	Y	1	1.2	35	1.2	93	1.5	9	0.096	43	0.096		
217	1.2D + 1.5LM-10 + Maintenance (180-Wind)	Yes	Y	1	1.2	35	1.2	93	1.5	10	0.096	44	0.096		
218	1.2D + 1.5LM-10 + Maintenance (210-Wind)	Yes	Y	1	1.2	35	1.2	93	1.5	11	0.096	45	0.096		
219	1.2D + 1.5LM-10 + Maintenance (225-Wind)	Yes	Y	1	1.2	35	1.2	93	1.5	12	0.096	46	0.096		
220	1.2D + 1.5LM-10 + Maintenance (240-Wind)	Yes	Y	1	1.2	35	1.2	93	1.5	13	0.096	47	0.096		
221	1.2D + 1.5LM-10 + Maintenance (270-Wind)	Yes	Y	1	1.2	35	1.2	93	1.5	14	0.096	48	0.096		
222	1.2D + 1.5LM-10 + Maintenance (300-Wind)	Yes	Y	1	1.2	35	1.2	93	1.5	15	0.096	49	0.096		
223	1.2D + 1.5LM-10 + Maintenance (315-Wind)	Yes	Y	1	1.2	35	1.2	93	1.5	16	0.096	50	0.096		
224	1.2D + 1.5LM-10 + Maintenance (330-Wind)	Yes	Y	1	1.2	35	1.2	93	1.5	17	0.096	51	0.096		
225	1.2D + 1.5LM-11 + Maintenance (0-Wind)	Yes	Y	1	1.2	35	1.2	94	1.5	2	0.096	36	0.096		
226	1.2D + 1.5LM-11 + Maintenance (30-Wind)	Yes	Y	1	1.2	35	1.2	94	1.5	3	0.096	37	0.096		
227	1.2D + 1.5LM-11 + Maintenance (45-Wind)	Yes	Y	1	1.2	35	1.2	94	1.5	4	0.096	38	0.096		
228	1.2D + 1.5LM-11 + Maintenance (60-Wind)	Yes	Y	1	1.2	35	1.2	94	1.5	5	0.096	39	0.096		
229	1.2D + 1.5LM-11 + Maintenance (90-Wind)	Yes	Y	1	1.2	35	1.2	94	1.5	6	0.096	40	0.096		
230	1.2D + 1.5LM-11 + Maintenance (120-Wind)	Yes	Y	1	1.2	35	1.2	94	1.5	7	0.096	41	0.096		
231	1.2D + 1.5LM-11 + Maintenance (135-Wind)	Yes	Y	1	1.2	35	1.2	94	1.5	8	0.096	42	0.096		
232	1.2D + 1.5LM-11 + Maintenance (150-Wind)	Yes	Y	1	1.2	35	1.2	94	1.5	9	0.096	43	0.096		
233	1.2D + 1.5LM-11 + Maintenance (180-Wind)	Yes	Y	1	1.2	35	1.2	94	1.5	10	0.096	44	0.096		
234	1.2D + 1.5LM-11 + Maintenance (210-Wind)	Yes	Y	1	1.2	35	1.2	94	1.5	11	0.096	45	0.096		

Load Combinations (Continued)

	Description	Solve	PDelta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
235	1.2D + 1.5LM-11 + Maintenance (225-Wind)	Yes	Y	1	1.2	35	1.2	94	1.5	12	0.096	46	0.096		
236	1.2D + 1.5LM-11 + Maintenance (240-Wind)	Yes	Y	1	1.2	35	1.2	94	1.5	13	0.096	47	0.096		
237	1.2D + 1.5LM-11 + Maintenance (270-Wind)	Yes	Y	1	1.2	35	1.2	94	1.5	14	0.096	48	0.096		
238	1.2D + 1.5LM-11 + Maintenance (300-Wind)	Yes	Y	1	1.2	35	1.2	94	1.5	15	0.096	49	0.096		
239	1.2D + 1.5LM-11 + Maintenance (315-Wind)	Yes	Y	1	1.2	35	1.2	94	1.5	16	0.096	50	0.096		
240	1.2D + 1.5LM-11 + Maintenance (330-Wind)	Yes	Y	1	1.2	35	1.2	94	1.5	17	0.096	51	0.096		
241	1.2D + 1.5LM-12 + Maintenance (0-Wind)	Yes	Y	1	1.2	35	1.2	95	1.5	2	0.096	36	0.096		
242	1.2D + 1.5LM-12 + Maintenance (30-Wind)	Yes	Y	1	1.2	35	1.2	95	1.5	3	0.096	37	0.096		
243	1.2D + 1.5LM-12 + Maintenance (45-Wind)	Yes	Y	1	1.2	35	1.2	95	1.5	4	0.096	38	0.096		
244	1.2D + 1.5LM-12 + Maintenance (60-Wind)	Yes	Y	1	1.2	35	1.2	95	1.5	5	0.096	39	0.096		
245	1.2D + 1.5LM-12 + Maintenance (90-Wind)	Yes	Y	1	1.2	35	1.2	95	1.5	6	0.096	40	0.096		
246	1.2D + 1.5LM-12 + Maintenance (120-Wind)	Yes	Y	1	1.2	35	1.2	95	1.5	7	0.096	41	0.096		
247	1.2D + 1.5LM-12 + Maintenance (135-Wind)	Yes	Y	1	1.2	35	1.2	95	1.5	8	0.096	42	0.096		
248	1.2D + 1.5LM-12 + Maintenance (150-Wind)	Yes	Y	1	1.2	35	1.2	95	1.5	9	0.096	43	0.096		
249	1.2D + 1.5LM-12 + Maintenance (180-Wind)	Yes	Y	1	1.2	35	1.2	95	1.5	10	0.096	44	0.096		
250	1.2D + 1.5LM-12 + Maintenance (210-Wind)	Yes	Y	1	1.2	35	1.2	95	1.5	11	0.096	45	0.096		
251	1.2D + 1.5LM-12 + Maintenance (225-Wind)	Yes	Y	1	1.2	35	1.2	95	1.5	12	0.096	46	0.096		
252	1.2D + 1.5LM-12 + Maintenance (240-Wind)	Yes	Y	1	1.2	35	1.2	95	1.5	13	0.096	47	0.096		
253	1.2D + 1.5LM-12 + Maintenance (270-Wind)	Yes	Y	1	1.2	35	1.2	95	1.5	14	0.096	48	0.096		
254	1.2D + 1.5LM-12 + Maintenance (300-Wind)	Yes	Y	1	1.2	35	1.2	95	1.5	15	0.096	49	0.096		
255	1.2D + 1.5LM-12 + Maintenance (315-Wind)	Yes	Y	1	1.2	35	1.2	95	1.5	16	0.096	50	0.096		
256	1.2D + 1.5LM-12 + Maintenance (330-Wind)	Yes	Y	1	1.2	35	1.2	95	1.5	17	0.096	51	0.096		
257	1.2D + 1.5LM-13 + Maintenance (0-Wind)	Yes	Y	1	1.2	35	1.2	96	1.5	2	0.096	36	0.096		
258	1.2D + 1.5LM-13 + Maintenance (30-Wind)	Yes	Y	1	1.2	35	1.2	96	1.5	3	0.096	37	0.096		
259	1.2D + 1.5LM-13 + Maintenance (45-Wind)	Yes	Y	1	1.2	35	1.2	96	1.5	4	0.096	38	0.096		
260	1.2D + 1.5LM-13 + Maintenance (60-Wind)	Yes	Y	1	1.2	35	1.2	96	1.5	5	0.096	39	0.096		
261	1.2D + 1.5LM-13 + Maintenance (90-Wind)	Yes	Y	1	1.2	35	1.2	96	1.5	6	0.096	40	0.096		
262	1.2D + 1.5LM-13 + Maintenance (120-Wind)	Yes	Y	1	1.2	35	1.2	96	1.5	7	0.096	41	0.096		
263	1.2D + 1.5LM-13 + Maintenance (135-Wind)	Yes	Y	1	1.2	35	1.2	96	1.5	8	0.096	42	0.096		
264	1.2D + 1.5LM-13 + Maintenance (150-Wind)	Yes	Y	1	1.2	35	1.2	96	1.5	9	0.096	43	0.096		
265	1.2D + 1.5LM-13 + Maintenance (180-Wind)	Yes	Y	1	1.2	35	1.2	96	1.5	10	0.096	44	0.096		
266	1.2D + 1.5LM-13 + Maintenance (210-Wind)	Yes	Y	1	1.2	35	1.2	96	1.5	11	0.096	45	0.096		
267	1.2D + 1.5LM-13 + Maintenance (225-Wind)	Yes	Y	1	1.2	35	1.2	96	1.5	12	0.096	46	0.096		
268	1.2D + 1.5LM-13 + Maintenance (240-Wind)	Yes	Y	1	1.2	35	1.2	96	1.5	13	0.096	47	0.096		
269	1.2D + 1.5LM-13 + Maintenance (270-Wind)	Yes	Y	1	1.2	35	1.2	96	1.5	14	0.096	48	0.096		
270	1.2D + 1.5LM-13 + Maintenance (300-Wind)	Yes	Y	1	1.2	35	1.2	96	1.5	15	0.096	49	0.096		
271	1.2D + 1.5LM-13 + Maintenance (315-Wind)	Yes	Y	1	1.2	35	1.2	96	1.5	16	0.096	50	0.096		
272	1.2D + 1.5LM-13 + Maintenance (330-Wind)	Yes	Y	1	1.2	35	1.2	96	1.5	17	0.096	51	0.096		
273	1.2D + 1.5LM-14 + Maintenance (0-Wind)	Yes	Y	1	1.2	35	1.2	97	1.5	2	0.096	36	0.096		
274	1.2D + 1.5LM-14 + Maintenance (30-Wind)	Yes	Y	1	1.2	35	1.2	97	1.5	3	0.096	37	0.096		
275	1.2D + 1.5LM-14 + Maintenance (45-Wind)	Yes	Y	1	1.2	35	1.2	97	1.5	4	0.096	38	0.096		
276	1.2D + 1.5LM-14 + Maintenance (60-Wind)	Yes	Y	1	1.2	35	1.2	97	1.5	5	0.096	39	0.096		
277	1.2D + 1.5LM-14 + Maintenance (90-Wind)	Yes	Y	1	1.2	35	1.2	97	1.5	6	0.096	40	0.096		
278	1.2D + 1.5LM-14 + Maintenance (120-Wind)	Yes	Y	1	1.2	35	1.2	97	1.5	7	0.096	41	0.096		
279	1.2D + 1.5LM-14 + Maintenance (135-Wind)	Yes	Y	1	1.2	35	1.2	97	1.5	8	0.096	42	0.096		
280	1.2D + 1.5LM-14 + Maintenance (150-Wind)	Yes	Y	1	1.2	35	1.2	97	1.5	9	0.096	43	0.096		
281	1.2D + 1.5LM-14 + Maintenance (180-Wind)	Yes	Y	1	1.2	35	1.2	97	1.5	10	0.096	44	0.096		
282	1.2D + 1.5LM-14 + Maintenance (210-Wind)	Yes	Y	1	1.2	35	1.2	97	1.5	11	0.096	45	0.096		
283	1.2D + 1.5LM-14 + Maintenance (225-Wind)	Yes	Y	1	1.2	35	1.2	97	1.5	12	0.096	46	0.096		
284	1.2D + 1.5LM-14 + Maintenance (240-Wind)	Yes	Y	1	1.2	35	1.2	97	1.5	13	0.096	47	0.096		
285	1.2D + 1.5LM-14 + Maintenance (270-Wind)	Yes	Y	1	1.2	35	1.2	97	1.5	14	0.096	48	0.096		
286	1.2D + 1.5LM-14 + Maintenance (300-Wind)	Yes	Y	1	1.2	35	1.2	97	1.5	15	0.096	49	0.096		
287	1.2D + 1.5LM-14 + Maintenance (315-Wind)	Yes	Y	1	1.2	35	1.2	97	1.5	16	0.096	50	0.096		
288	1.2D + 1.5LM-14 + Maintenance (330-Wind)	Yes	Y	1	1.2	35	1.2	97	1.5	17	0.096	51	0.096		
289	1.2D + 1.5LM-15 + Maintenance (0-Wind)	Yes	Y	1	1.2	35	1.2	98	1.5	2	0.096	36	0.096		
290	1.2D + 1.5LM-15 + Maintenance (30-Wind)	Yes	Y	1	1.2	35	1.2	98	1.5	3	0.096	37	0.096		
291	1.2D + 1.5LM-15 + Maintenance (45-Wind)	Yes	Y	1	1.2	35	1.2	98	1.5	4	0.096	38	0.096		
292	1.2D + 1.5LM-15 + Maintenance (60-Wind)	Yes	Y	1	1.2	35	1.2	98	1.5	5	0.096	39	0.096		

Load Combinations (Continued)

	Description	Solve	PDelta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
293	1.2D + 1.5LM-15 + Maintenance (90-Wind)	Yes	Y	1	1.2	35	1.2	98	1.5	6	0.096	40	0.096		
294	1.2D + 1.5LM-15 + Maintenance (120-Wind)	Yes	Y	1	1.2	35	1.2	98	1.5	7	0.096	41	0.096		
295	1.2D + 1.5LM-15 + Maintenance (135-Wind)	Yes	Y	1	1.2	35	1.2	98	1.5	8	0.096	42	0.096		
296	1.2D + 1.5LM-15 + Maintenance (150-Wind)	Yes	Y	1	1.2	35	1.2	98	1.5	9	0.096	43	0.096		
297	1.2D + 1.5LM-15 + Maintenance (180-Wind)	Yes	Y	1	1.2	35	1.2	98	1.5	10	0.096	44	0.096		
298	1.2D + 1.5LM-15 + Maintenance (210-Wind)	Yes	Y	1	1.2	35	1.2	98	1.5	11	0.096	45	0.096		
299	1.2D + 1.5LM-15 + Maintenance (225-Wind)	Yes	Y	1	1.2	35	1.2	98	1.5	12	0.096	46	0.096		
300	1.2D + 1.5LM-15 + Maintenance (240-Wind)	Yes	Y	1	1.2	35	1.2	98	1.5	13	0.096	47	0.096		
301	1.2D + 1.5LM-15 + Maintenance (270-Wind)	Yes	Y	1	1.2	35	1.2	98	1.5	14	0.096	48	0.096		
302	1.2D + 1.5LM-15 + Maintenance (300-Wind)	Yes	Y	1	1.2	35	1.2	98	1.5	15	0.096	49	0.096		
303	1.2D + 1.5LM-15 + Maintenance (315-Wind)	Yes	Y	1	1.2	35	1.2	98	1.5	16	0.096	50	0.096		
304	1.2D + 1.5LM-15 + Maintenance (330-Wind)	Yes	Y	1	1.2	35	1.2	98	1.5	17	0.096	51	0.096		

Envelope Node Reactions

	Node Label		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N1	max	1503.996	14	2379.86	37	1231.714	18	-633.159	9	1590.006	33	-1079.47	15
2		min	-1585.584	22	522.951	13	-1168.18	10	-3022.73	34	-1582.093	9	-5065.218	38
3	N34	max	1113.212	30	2295.676	42	1825.805	18	5689.67	42	1451.123	6	259.257	164
4		min	-1083.072	6	500.47	2	-1731.119	10	1223.551	2	-1475.54	30	-282.624	159
5	N32	max	1085.569	14	2297.972	42	1730.169	2	5681.819	42	1481.247	22	262.282	173
6		min	-1116.059	22	501.035	2	-1820.742	26	1220.003	2	-1456.877	14	-285.723	149
7	N3	max	1599.107	30	2377.742	37	1157.711	2	-645.758	16	1575.289	17	-1088.87	10
8		min	-1514.275	6	522.388	13	-1222.364	26	-3017.413	37	-1583.547	25	-5070.629	37
9	N18	max	1619.206	31	2379.247	47	1248.94	18	-618.088	11	1494.268	11	5080.2	46
10		min	-1506.248	7	522.678	7	-1162.319	10	-2992.994	34	-1520.24	19	1089.369	4
11	N20	max	1514.286	15	2377.204	47	1161.476	2	-631.054	3	1519.163	27	5086.095	47
12		min	-1631.219	23	522.143	7	-1249.137	26	-2988.342	47	-1493.25	3	1096.91	10
13	Totals:	max	8332.254	14	14094.381	36	8320.001	18						
14		min	-8332.254	22	3102.247	10	-8320	10						

Envelope AISC 15th (360-16): LRFD Steel Code Checks

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [lb-ft]	phi*Mn z-z [lb-ft]	Cb	Eqn
1	SAB2	HSS4X4X4	0.39	0	49	0.068	0	y	49	134638.207	139518	16180.5	16180.5	1.867	H1-1b
2	SAB1	HSS4X4X4	0.389	0	41	0.069	0	y	49	134638.207	139518	16180.5	16180.5	1.864	H1-1b
3	KB2	PIPE_1.25	0.015	1.75	30	0.003	3.5		50	14487.825	19687.5	800.625	800.625	1.136	H1-1b
4	KB1	PIPE_1.25	0.014	1.75	30	0.003	3.5		97	14487.825	19687.5	800.625	800.625	1.136	H1-1b
5	PLB2	PL 6x3/8	**1.57**	0.75	43	0.336	0.75	y	43	50663.601	72900	569.533	8440.526	1	H1-1b
6	PLB1	PL 6x3/8	**1.597**	0.75	34	0.327	0.75	y	35	50663.601	72900	569.533	9112.5	1.53	H1-1b
7	SAA1	HSS4X4X4	0.392	0	43	0.066	0	y	35	134638.207	139518	16180.5	16180.5	1.868	H1-1b
8	SAA2	HSS4X4X4	0.392	0	35	0.067	0	y	35	134638.207	139518	16180.5	16180.5	1.864	H1-1b
9	KA2	PIPE_1.25	0.015	1.75	25	0.002	3.5		52	14487.825	19687.5	800.625	800.625	1.136	H1-1b
10	KA1	PIPE_1.25	0.014	1.75	25	0.003	3.5		78	14487.825	19687.5	800.625	800.625	1.136	H1-1b
11	PLA2	PL 6x3/8	**1.544**	0.75	41	0.333	0.75	y	37	50663.601	72900	569.533	8440.526	1	H1-1b
12	PLA1	PL 6x3/8	**1.571**	0.75	34	0.323	0.75	y	49	50663.601	72900	569.533	9112.5	1.531	H1-1b
13	SAC2	HSS4X4X4	0.374	0	38	0.061	0	y	43	134638.207	139518	16180.5	16180.5	1.869	H1-1b
14	SAC1	HSS4X4X4	0.373	0	46	0.062	0	y	38	134638.207	139518	16180.5	16180.5	1.865	H1-1b
15	KC2	PIPE_1.25	0.015	1.75	19	0.003	3.5		51	14487.825	19687.5	800.625	800.625	1.136	H1-1b
16	KC1	PIPE_1.25	0.014	1.75	19	0.003	3.5		150	14487.825	19687.5	800.625	800.625	1.136	H1-1b
17	PLC2	PL 6x3/8	**1.461**	0.75	49	0.306	0.75	y	36	50663.601	72900	569.533	8440.526	1	H1-1b
18	PLC1	PL 6x3/8	**1.485**	0.75	39	0.296	0.75	y	40	50663.601	72900	569.533	9112.5	1.542	H1-1b
19	THC	HSS4X4X4	0.083	4.839	42	0.026	9.061	z	43	92691.57	139518	16180.5	16180.5	1.326	H1-1b
20	BHC	HSS4X4X4	0.082	4.839	34	0.026	9.061	z	35	92691.57	139518	16180.5	16180.5	1.313	H1-1b
21	M21	5/8" SR	**2.421**	0	43	0.193	0.5		38	9197.736	9940.19	103.542	103.542	2.021	H1-1b
22	M22	5/8" SR	**1.772**	0	39	0.129	0.5		38	9197.736	9940.19	103.542	103.542	1.711	H1-1b
23	M23	5/8" SR	**1.775**	0	45	0.13	0.5		46	9197.736	9940.19	103.542	103.542	1.711	H1-1b
24	M24	5/8" SR	**2.376**	0	41	0.188	0.5		46	9197.736	9940.19	103.542	103.542	1	H1-1b
25	M30	5/8" SR	**2.383**	0	34	0.185	0.5		47	9197.736	9940.19	103.542	103.542	2.012	H1-1b

Envelope AISC 15th (360-16): LRFD Steel Code Checks (Continued)

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [lb-ft]	phi*Mn z-z [lb-ft]	Cb	Eqn
26	M31	5/8" SR	1.751	0	48	0.125	0.5		47	9197.736	9940.19	103.542	103.542	1.714	H1-1b
27	M34	5/8" SR	1.754	0	36	0.126	0.5		38	9197.736	9940.19	103.542	103.542	1.714	H1-1b
28	M36	5/8" SR	2.337	0	34	0.18	0.5		37	9197.736	9940.19	103.542	103.542	1	H1-1b
29	THB	HSS4X4X4	0.08	5.045	37	0.024	0.824	z	35	92691.57	139518	16180.5	16180.5	1.324	H1-1b
30	BHB	HSS4X4X4	0.08	5.045	45	0.023	0.824	z	43	92691.57	139518	16180.5	16180.5	1.312	H1-1b
31	THA	HSS4X4X4	0.08	5.045	47	0.024	0.824	z	46	92691.57	139518	16180.5	16180.5	1.324	H1-1b
32	BHA	HSS4X4X4	0.079	4.942	39	0.023	0.824	z	38	92691.57	139518	16180.5	16180.5	1.312	H1-1b
33	THPC	PIPE_2.0	0.33	5.457	40	0.291	10.231		42	8258.738	32130	1871.625	1871.625	1.628	H1-1b
34	BHPC	PIPE_2.0	0.326	5.457	48	0.286	10.231		34	8258.738	32130	1871.625	1871.625	1.638	H1-1b
35	VC3	PIPE_2.0	0.267	3.75	45	0.304	0.25		22	26521.424	32130	1871.625	1871.625	2.926	H1-1b
36	VC2	PIPE_2.0	0.238	3.25	34	0.29	0.25		21	26521.424	32130	1871.625	1871.625	2.307	H1-1b
37	VC1	PIPE_2.0	0.275	3.25	34	0.309	0.25		31	26521.424	32130	1871.625	1871.625	3	H1-1b
38	MPC3	PIPE_2.0	0.221	4.193	26	0.033	4.132		45	21366.041	32130	1871.625	1871.625	3	H1-1b
39	MPC2	PIPE_2.0	0.3	4.193	26	0.042	5.53		26	21366.041	32130	1871.625	1871.625	3	H1-1b
40	MPC1	PIPE_2.0	0.296	4.193	26	0.041	5.53		26	21366.041	32130	1871.625	1871.625	3	H1-1b
41	SAC3	PIPE_2.0	0.258	0	18	0.105	1.667		31	31077.527	32130	1871.625	1871.625	1.654	H1-1b
42	SAC4	PIPE_2.0	0.257	0	26	0.106	1.667		23	31077.527	32130	1871.625	1871.625	1.658	H1-1b
43	SAC6	PIPE_2.0	0.245	0	26	0.101	1.667		29	31077.527	32130	1871.625	1871.625	1.55	H1-1b
44	SAC5	PIPE_2.0	0.245	0	18	0.101	1.667		21	31077.527	32130	1871.625	1871.625	1.549	H1-1b
45	SAC7	PIPE_2.0	0.233	1.667	30	0.105	1.667		22	31077.527	32130	1871.625	1871.625	2.196	H1-1b
46	SAC8	PIPE_2.0	0.234	1.667	22	0.105	1.667		30	31077.527	32130	1871.625	1871.625	2.198	H1-1b
47	M56	5/8" SR	1.635	0	34	0.119	0.5		49	9197.736	9940.19	103.542	103.542	1	H1-1b
48	BHPB	PIPE_2.0	0.311	5.457	43	0.267	0.682		45	8258.738	32130	1871.625	1871.625	1.643	H1-1b
49	THPB	PIPE_2.0	0.313	5.457	35	0.273	0.682		37	8258.738	32130	1871.625	1871.625	1.632	H1-1b
50	M63	5/8" SR	1.613	0	42	0.115	0.5		42	9197.736	9940.19	103.542	103.542	1	H1-1b
51	M64	5/8" SR	2.145	0	45	0.165	0.5		47	9197.736	9940.19	103.542	103.542	1	H1-1b
52	M65	5/8" SR	2.181	0	36	0.173	0.5		41	9197.736	9940.19	103.542	103.542	1	H1-1b
53	M66	5/8" SR	1.616	0	47	0.117	0.5		48	9197.736	9940.19	103.542	103.542	1	H1-1b
54	M67	5/8" SR	2.186	0	45	0.168	0.5		42	9197.736	9940.19	103.542	103.542	1	H1-1b
55	M68	5/8" SR	2.226	0	38	0.176	0.5		49	9197.736	9940.19	103.542	103.542	1	H1-1b
56	M69	5/8" SR	1.637	0	39	0.12	0.5		40	9197.736	9940.19	103.542	103.542	1	H1-1b
57	SAB3	PIPE_2.0	0.239	0	29	0.104	1.667		26	31077.527	32130	1871.625	1871.625	1.527	H1-1b
58	SAB4	PIPE_2.0	0.239	0	21	0.104	1.667		18	31077.527	32130	1871.625	1871.625	1.531	H1-1b
59	SAB6	PIPE_2.0	0.25	0	21	0.102	1.667		23	31077.527	32130	1871.625	1871.625	1.602	H1-1b
60	SAB5	PIPE_2.0	0.251	0	29	0.101	1.667		31	31077.527	32130	1871.625	1871.625	1.6	H1-1b
61	SAB7	PIPE_2.0	0.242	1.667	25	0.105	1.667		33	31077.527	32130	1871.625	1871.625	2.218	H1-1b
62	SAB8	PIPE_2.0	0.242	1.667	33	0.106	1.667		25	31077.527	32130	1871.625	1871.625	2.22	H1-1b
63	MPB1	PIPE_2.0	0.296	4.193	21	0.041	5.53		21	21366.041	32130	1871.625	1871.625	1.374	H1-1b
64	MPB2	PIPE_2.0	0.3	4.193	21	0.042	5.53		21	21366.041	32130	1871.625	1871.625	1.374	H1-1b
65	MPB3	PIPE_2.0	0.221	4.193	21	0.035	4.132		39	21366.041	32130	1871.625	1871.625	1.385	H1-1b
66	VB1	PIPE_2.0	0.242	3.25	45	0.279	0.25		26	26521.424	32130	1871.625	1871.625	1.685	H1-1b
67	VB2	PIPE_2.0	0.227	3.25	45	0.289	0.25		31	26521.424	32130	1871.625	1871.625	1.688	H1-1b
68	VB3	PIPE_2.0	0.248	3.25	45	0.31	3.75		25	26521.424	32130	1871.625	1871.625	1.696	H1-1b
69	M84	5/8" SR	1.636	0	45	0.119	0.5		44	9197.736	9940.19	103.542	103.542	1	H1-1b
70	BHPA	PIPE_2.0	0.311	5.457	38	0.267	0.682		39	8258.738	32130	1871.625	1871.625	1.644	H1-1b
71	THPA	PIPE_2.0	0.314	5.457	46	0.273	0.682		47	8258.738	32130	1871.625	1871.625	1.633	H1-1b
72	M95	5/8" SR	1.615	0	37	0.116	0.5		36	9197.736	9940.19	103.542	103.542	1	H1-1b
73	M96	5/8" SR	2.145	0	39	0.164	0.5		42	9197.736	9940.19	103.542	103.542	1	H1-1b
74	M101	5/8" SR	2.178	0	47	0.172	0.5		35	9197.736	9940.19	103.542	103.542	1	H1-1b
75	M102	5/8" SR	1.615	0	42	0.117	0.5		42	9197.736	9940.19	103.542	103.542	1	H1-1b
76	M103	5/8" SR	2.188	0	39	0.169	0.5		36	9197.736	9940.19	103.542	103.542	1	H1-1b
77	M104	5/8" SR	2.227	0	49	0.177	0.5		43	9197.736	9940.19	103.542	103.542	1	H1-1b
78	M105	5/8" SR	1.635	0	34	0.12	0.5		35	9197.736	9940.19	103.542	103.542	1	H1-1b
79	SAA3	PIPE_2.0	0.239	0	23	0.104	1.667		21	31077.527	32130	1871.625	1871.625	1.527	H1-1b
80	SAA4	PIPE_2.0	0.239	0	31	0.104	1.667		29	31077.527	32130	1871.625	1871.625	1.531	H1-1b
81	SAA6	PIPE_2.0	0.25	0	31	0.102	1.667		18	31077.527	32130	1871.625	1871.625	1.602	H1-1b
82	SAA5	PIPE_2.0	0.251	0	23	0.101	1.667		26	31077.527	32130	1871.625	1871.625	1.6	H1-1b
83	SAA7	PIPE_2.0	0.242	1.667	19	0.105	1.667		27	31077.527	32130	1871.625	1871.625	2.218	H1-1b

Envelope AISC 15th (360-16): LRFD Steel Code Checks (Continued)

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [lb-ft]	phi*Mn z-z [lb-ft]	Cb	Eqn
84	SAA8	PIPE_2.0	0.242	1.667	27	0.106	1.667		19	31077.527	32130	1871.625	1871.625	2.22	H1-1b
85	MPA1	PIPE_2.0	0.296	4.193	31	0.041	5.53		31	21366.041	32130	1871.625	1871.625	1.373	H1-1b
86	MPA2	PIPE_2.0	0.3	4.193	31	0.042	5.53		31	21366.041	32130	1871.625	1871.625	1.374	H1-1b
87	MPA3	PIPE_2.0	0.221	4.193	31	0.035	4.132		34	21366.041	32130	1871.625	1871.625	1.386	H1-1b
88	VA1	PIPE_2.0	0.242	3.25	39	0.279	0.25		21	26521.424	32130	1871.625	1871.625	1.695	H1-1b
89	VA2	PIPE_2.0	0.227	3.25	39	0.289	0.25		26	26521.424	32130	1871.625	1871.625	1.688	H1-1b
90	VA3	PIPE_2.0	0.248	3.25	39	0.31	3.75		19	26521.424	32130	1871.625	1871.625	1.674	H1-1b

RAMAKER employee-owned

Job	Hartford Park St
Project	49451
By	SVB
Date	11/10/20

Wind Load on Antennas TIA-222-G

$q_z = 0.00256\ K_z\ K_{zt}\ K_d\ V^2\ I$

$F = q_z\ G_h\ C_a\ A_a$

Occupancy :	II		Classification of Structures (Table 2-1)
Exposure :	C		Exposure Category
V :	97	mph	Basic Wind Speed (Annex B)
z :	83	ft	Height above ground level to the center of the antenna
I :	1.00		Importance Factor (Table 2-3)
K_z :	1.22		Velocity Pressure Coefficient (2.6.5.2)
K_{zt} :	1.00		Topographic Factor (2.6.6.4)
K_d :	0.95		Wind Direction Probability Factor (Table 2-2)
q_z :	27.7	psf	Velocity Pressure at Height z
G_h :	1.00		Strength Design of Appurtenances and their Connections

Mount & Antenna Wind Loads

Appurtenance	Height	Width	h/D	Shape	C_a	A_a	Force	Force
	in	*in*				*sq ft*	*lb*	*plf*
DMP65R-BU8D	96.0	20.7	4.6	Flat	1.295	13.80	495.9	
OPA65R-BU8DA	96.0	21.0	4.6	Flat	1.292	14.00	501.9	
TPA-65R-LCUUUU-H8	96.0	14.4	6.7	Flat	1.385	9.60	369.0	
LGP219nn	6.3	4.4	1.4	Flat	1.200	0.19	6.4	
DC6-48-60-18-8F	24.0	11.0	2.2	Round	0.500	1.83	25.4	
RRUS 4449 B5/B12	17.9	13.2	1.4	Flat	1.200	1.64	54.6	
RRUS 4478 B14	16.5	13.4	1.2	Flat	1.200	1.54	51.1	
TME-RRUS 32 B30	27.2	12.1	2.2	Flat	1.200	2.29	76.1	
RRUS E2 B29	20.4	18.5	1.1	Flat	1.200	2.62	87.3	
RRUS 8843 B2 B66A	15.0	13.2	1.1	Flat	1.200	1.37	45.6	
HSS4X4X1/4 x 9.88 ft	118.6	4.0	29.6	Flat	2.000	3.29	182.8	18.5
HSS4X4X1/4 x 2.917 ft	35.0	4.0	8.8	Flat	1.458	0.97	39.3	13.5
Pipe2STD x 4 ft	48.0	2.4	20.2	Round	1.094	0.79	24.0	6.0
Pipe2STD x 5.83 ft	70.0	2.4	29.5	Round	1.200	1.15	38.4	6.6
Pipe2STD x 1.667 ft	20.0	2.4	8.4	Round	0.832	0.33	7.6	4.6
Pipe2STD x 10.91 ft	130.9	2.4	55.1	Round	1.200	2.16	71.9	6.6
Pipe1-1/4STD x 3.5 ft	42.0	1.7	25.3	Round	1.200	0.48	16.1	4.6
PL 6x3/8 x 1.5 ft	18.0	6.0	3.0	Flat	1.222	0.75	25.4	17.0

RAMAKER employee-owned

Job	Hartford Park St
Project	49451
By	SVB
Date	11/10/20

Wind Load on Antennas TIA-222-G

$q_z = 0.00256\ K_z\ K_{zt}\ K_d\ V^2\ I$

$F = q_z\ G_h\ C_a\ A_a$

Occupancy :	II		Classification of Structures (Table 2-1)
Exposure :	C		Exposure Category
V :	97	mph	Basic Wind Speed (Annex B)
z :	83	ft	Height above ground level to the center of the antenna
I :	1.00		Importance Factor (Table 2-3)
K_z :	1.22		Velocity Pressure Coefficient (2.6.5.2)
K_{zt} :	1.00		Topographic Factor (2.6.6.4)
K_d :	0.95		Wind Direction Probability Factor (Table 2-2)
q_z :	27.7	psf	Velocity Pressure at Height z
G_h :	1.00		Strength Design of Appurtenances and their Connections

Mount & Antenna Wind Loads

Appurtenance	Height	Depth	h/D	Shape	C_a	A_a	Force	Force
	in	*in*				*sq ft*	*lb*	*plf*
DMP65R-BU8D	96.0	7.7	12.5	Flat	1.582	5.13	225.4	
OPA65R-BU8DA	96.0	7.8	12.3	Flat	1.577	5.20	227.5	
TPA-65R-LCUUUU-H8	96.0	8.6	11.2	Flat	1.539	5.73	244.8	
LGP219nn	6.3	3.0	2.1	Flat	1.200	0.13	4.4	
DC6-48-60-18-8F	24.0	11.0	2.2	Round	0.500	1.83	25.4	
RRUS 4449 B5/B12	17.9	9.4	1.9	Flat	1.200	1.17	39.1	
RRUS 4478 B14	16.5	7.7	2.1	Flat	1.200	0.88	29.4	
TME-RRUS 32 B30	27.2	7.0	3.9	Flat	1.262	1.32	46.3	
RRUS E2 B29	20.4	7.5	2.7	Flat	1.210	1.06	35.7	
RRUS 8843 B2 B66A	15.0	9.3	1.6	Flat	1.200	0.96	32.0	
HSS4X4X1/4 x 9.88 ft	118.6	4.0	29.6	Flat	2.000	3.29	182.8	18.5
HSS4X4X1/4 x 2.917 ft	35.0	4.0	8.8	Flat	1.458	0.97	39.3	13.5
Pipe2STD x 4 ft	48.0	2.4	20.2	Round	1.094	0.79	24.0	6.0
Pipe2STD x 5.83 ft	70.0	2.4	29.5	Round	1.200	1.15	38.4	6.6
Pipe2STD x 1.667 ft	20.0	2.4	8.4	Round	0.832	0.33	7.6	4.6
Pipe2STD x 10.91 ft	130.9	2.4	55.1	Round	1.200	2.16	71.9	6.6
Pipe1-1/4STD x 3.5 ft	42.0	1.7	25.3	Round	1.200	0.48	16.1	4.6
PL 6x3/8 x 1.5 ft	18.0	0.4	48.0	Flat	2.000	0.05	2.6	1.7

RAMAKER employee-owned

Job	Hartford Park St
Project	49451
By	SVB
Date	11/10/20

Ice Wind Load on Antennas TIA-222-G

$q_z = 0.00256\ K_z\ K_{zt}\ K_d\ V^2\ I$

$F = q_z\ G_h\ C_a\ A_a$

Occupancy :	II		Classification of Structures (Table 2-1)
Exposure :	C		Exposure Category
V_i :	50	mph	Basic Wind Speed (Annex B)
z :	83	ft	Height above ground level to the center of the antenna
I :	1.00		Importance Factor (Table 2-3)
K_z :	1.22		Velocity Pressure Coefficient (2.6.5.2)
K_{zt} :	1.00		Topographic Factor (2.6.6.4)
K_d :	0.95		Wind Direction Probability Factor (Table 2-2)
q_z :	7.40	psf	Velocity Pressure at Height z
G_h :	1.00		Strength Design of Appurtenances and their Connections
t_{iz} :	2.19	in	Design Thickness of Radial Ice at Height z (2.6.8)

Mount & Antenna Ice Wind Loads

Appurtenance	Height	Width	h/D	Shape	C_a	A_a	Force	Force
	in	*in*				*sq ft*	*lb*	*plf*
DMP65R-BU8D	100.4	25.1	4.0	Flat	1.267	17.49	163.9	
OPA65R-BU8DA	100.4	25.4	4.0	Flat	1.265	17.70	165.6	
TPA-65R-LCUUUU-H8	100.4	18.8	5.3	Flat	1.326	13.10	128.5	
LGP219nn	10.7	8.8	1.2	Flat	1.200	0.65	5.8	
DC6-48-60-18-8F	28.4	15.4	1.8	Round	0.700	3.03	15.7	
RRUS 4449 B5/B12	22.3	17.6	1.3	Flat	1.200	2.72	24.2	
RRUS 4478 B14	20.9	17.8	1.2	Flat	1.200	2.58	22.9	
TME-RRUS 32 B30	31.6	16.5	1.9	Flat	1.200	3.62	32.1	
RRUS E2 B29	24.8	22.9	1.1	Flat	1.200	3.94	35.0	
RRUS 8843 B2 B66A	19.3	17.6	1.1	Flat	1.200	2.36	21.0	
HSS4X4X1/4 x 9.88 ft	122.9	8.4	14.7	Flat	1.655	7.16	87.7	8.6
HSS4X4X1/4 x 2.917 ft	39.4	8.4	4.7	Flat	1.298	2.29	22.0	6.7
Pipe2STD x 4 ft	52.4	6.8	7.7	Round	0.817	2.46	14.9	3.4
Pipe2STD x 5.83 ft	74.3	6.8	11.0	Round	0.889	3.49	23.0	3.7
Pipe2STD x 1.667 ft	24.4	6.8	3.6	Round	0.725	1.15	6.1	3.0
Pipe2STD x 10.91 ft	135.3	6.8	20.0	Round	1.089	6.35	51.2	4.5
Pipe1-1/4STD x 3.5 ft	46.4	6.0	7.7	Round	0.815	1.95	11.7	3.0
PL 6x3/8 x 1.5 ft	22.4	10.4	2.2	Flat	1.200	1.61	14.3	7.7

RAMAKER employee-owned

Job	Hartford Park St
Project	49451
By	SVB
Date	11/10/20

Ice Wind Load on Antennas TIA-222-G

$q_z = 0.00256\ K_z\ K_{zt}\ K_d\ V^2\ I$

$F = q_z\ G_h\ C_a\ A_a$

Occupancy :	II		Classification of Structures (Table 2-1)
Exposure :	C		Exposure Category
V_i :	50	mph	Basic Wind Speed (Annex B)
z :	83	ft	Height above ground level to the center of the antenna
I :	1.00		Importance Factor (Table 2-3)
K_z :	1.22		Velocity Pressure Coefficient (2.6.5.2)
K_{zt} :	1.00		Topographic Factor (2.6.6.4)
K_d :	0.95		Wind Direction Probability Factor (Table 2-2)
q_z :	7.40	psf	Velocity Pressure at Height z
G_h :	1.00		Strength Design of Appurtenances and their Connections
t_{iz} :	2.19	in	Design Thickness of Radial Ice at Height z (2.6.8)

Mount & Antenna Ice Wind Loads

Appurtenance	Height	Depth	h/D	Shape	C_a	A_a	Force	Force
	in	*in*				*sq ft*	*lb*	*plf*
DMP65R-BU8D	100.4	12.1	8.3	Flat	1.444	8.43	90.0	
OPA65R-BU8DA	100.4	12.2	8.2	Flat	1.441	8.50	90.6	
TPA-65R-LCUUUU-H8	100.4	13.0	7.7	Flat	1.424	9.05	95.4	
LGP219nn	10.7	7.4	1.4	Flat	1.200	0.55	4.9	
DC6-48-60-18-8F	28.4	15.4	1.8	Round	0.700	3.03	15.7	
RRUS 4449 B5/B12	22.3	13.8	1.6	Flat	1.200	2.14	19.0	
RRUS 4478 B14	20.9	12.1	1.7	Flat	1.200	1.75	15.6	
TME-RRUS 32 B30	31.6	11.4	2.8	Flat	1.212	2.50	22.4	
RRUS E2 B29	24.8	11.9	2.1	Flat	1.200	2.05	18.2	
RRUS 8843 B2 B66A	19.3	13.6	1.4	Flat	1.200	1.83	16.3	
HSS4X4X1/4 x 9.88 ft	122.9	8.4	14.7	Flat	1.655	7.16	87.7	8.6
HSS4X4X1/4 x 2.917 ft	39.4	8.4	4.7	Flat	1.298	2.29	22.0	6.7
Pipe2STD x 4 ft	52.4	6.8	7.7	Round	0.817	2.46	14.9	3.4
Pipe2STD x 5.83 ft	74.3	6.8	11.0	Round	0.889	3.49	23.0	3.7
Pipe2STD x 1.667 ft	24.4	6.8	3.6	Round	0.725	1.15	6.1	3.0
Pipe2STD x 10.91 ft	135.3	6.8	20.0	Round	1.089	6.35	51.2	4.5
Pipe1-1/4STD x 3.5 ft	46.4	6.0	7.7	Round	0.815	1.95	11.7	3.0
PL 6x3/8 x 1.5 ft	22.4	4.8	4.7	Flat	1.298	0.74	7.1	3.8

RAMAKER employee-owned

Job	Hartford Park St
Project	49451
By	SVB
Date	11/10/20

Ice Load on Antennas TIA-222-G

Ice Weight :	56	pcf	Ice Density
t_i :	1.00		Design Ice Thickness
Occupancy :	II		Classification of Structures (Table 2-1)
Exposure :	C		Exposure Category
V_i :	50	mph	Basic Wind Speed (Annex B)
z :	83	ft	Height above ground level to the center of the antenna
I :	1.00		Importance Factor (Table 2-3)
K_{iz} :	1.10		Height Escalation Factor for Ice Thickness
K_{zt} :	1.00		Topographic Factor (2.6.6.4)
t_{iz} :	2.19	in	Design Thickness of Radial Ice at Height z (2.6.8)

Platform Grating :	None
Ice Load :	psf

Mount & Antenna Ice Wind Loads

Appurtenance	Height	Width	Depth	Diam.	Area	Perim.	Ice Weight	
	in	*in*	*in*	*in*	*sq in*	*in*	*lb*	*plf*
DMP65R-BU8D	100.4	25.1	12.1	22.09	167.29	65.57	520.5	
OPA65R-BU8DA	100.4	25.4	12.2	22.40	169.47	66.37	527.2	
TPA-65R-LCUUUU-H8	100.4	18.8	13.0	16.77	130.68	54.77	406.6	
LGP219nn	10.7	8.8	7.4	5.33	51.81	23.57	10.6	
DC6-48-60-18-8F	28.4	15.4	15.4	11.00	90.91	41.45	70.7	
RRUS 4449 B5/B12	22.3	17.6	13.8	16.22	126.87	54.03	73.6	
RRUS 4478 B14	20.9	17.8	12.1	15.45	121.60	50.97	65.0	
TME-RRUS 32 B30	31.6	16.5	11.4	13.98	111.43	46.97	98.2	
RRUS E2 B29	24.8	22.9	11.9	19.96	152.66	60.77	100.9	
RRUS 8843 B2 B66A	19.3	17.6	13.6	16.11	126.12	53.65	61.1	
HSS4X4X1/4 x 9.88 ft	122.9	8.4	8.4	5.19	50.88	30.54	195.5	19.8
HSS4X4X1/4 x 2.917 ft	39.4	8.4	8.4	5.19	50.88	30.54	57.7	19.8
Pipe2STD x 4 ft	52.4	6.8	6.8	2.38	31.48	14.35	49.0	12.2
Pipe2STD x 5.83 ft	74.3	6.8	6.8	2.38	31.48	14.35	71.4	12.2
Pipe2STD x 1.667 ft	24.4	6.8	6.8	2.38	31.48	14.35	20.4	12.2
Pipe2STD x 10.91 ft	135.3	6.8	6.8	2.38	31.48	14.35	133.5	12.2
Pipe1-1/4STD x 3.5 ft	46.4	6.0	6.0	1.66	26.55	12.11	36.1	10.3
PL 6x3/8 x 1.5 ft	22.4	10.4	4.8	6.01	56.53	21.52	33.0	22.0

November 19, 2020

Mark Donnelly
Smartlink
85 Rangeway Road, Bldg. # 3, Suite 102
North Billerica, MA 01862

Ramaker & Associates, Inc.
855 Community Drive
Sauk City, WI 53583

SUBJECT: **POST MOD MOUNT ANALYSIS REPORT**

CARRIER: **AT&T**

SITE: **HARTFORD PARK ST (CTL01199)**
ADDRESS: **2074 PARK STREET**
HARTFORD, HARTFORD COUNTY, CONNECTICUT 06106
LATITUDE: **41.7567700°**
LONGITUDE: **-72.7138881°**
FA LOCATION CODE: **10035106**
SCOPE: **5C / 6C / 5G NR / SOFTWARE RETROFIT / BWE TOWER TOP RRH SWAP**
PACE NUMBER: **MRCTB048656 / MRCTB048677 / MRCTB048715 / MRCTB048689 / MRCTB048683**
PTN NUMBER: **2051A0WGRA / 2051A0WGM4 / 2051A0WGY1 / 2051A0WH21 / 2051A0WGSR**

RAMAKER & ASSOCIATES PROJECT NUMBER: 49451

RESULTS: **MOUNT:** **PASS WITH REPLACEMENT** **62.6%**

Dear Mark Donnelly:

Ramaker & Associates, Inc. (RAMAKER) respectfully submits this mount assessment for the above-mentioned site. The purpose of this report is to determine the structural integrity of the mounting structure with the proposed loading configurations. Engineering recommendations regarding the analysis results are provided in the following pages.

RAMAKER developed a finite element model of the mount(s) using RISA analysis software. All information contained herein is valid only for the described structure configuration and loading conditions. RAMAKER reserves the right to modify our recommendations should alterations to the mount loading occur.

If you have any questions or comments, please do not hesitate to contact our office.

Sincerely,

RAMAKER & ASSOCIATES, INC.

Gerardo Nunez Jr.
Structural Designer

James R. Skowronski, P.E.
Supervising Engineer

STATE OF CONNECTICUT
JAMES R. SKOWRONSKI
26266
LICENSED
PROFESSIONAL ENGINEER

TABLE OF CONTENTS

ANALYSIS CRITERIA

State Code	2018 CT State Building Code
Building Code	2015 IBC
TIA-222 Revision	TIA-222-G
Structure Class	II
Ultimate Design Wind Speed, V_{ult}	125 mph (3 sec. gust)
Nominal Design Wind Speed, V_{asd}	97 mph (3 sec. gust)
Design Wind Speed w/ Ice	40 mph (3 sec. gust)
Ice Thickness	1 inch
Exposure Category	B
Topographic Feature	None

SUPPORTING DOCUMENTATION

- Mount mapping by HighTower Solutions, site number 10035106, dated 9/30/2020
- Structural analysis by Maser Consulting, job number 17946065A, dated 1/11/2018
- Construction drawings by RAMAKER, project number 49451
- Site visit(s) conducted by RAMAKER
- Other pertinent data procured or assumed by RAMAKER during site due diligence activities

MOUNT LOADING

RAMAKER understands that the loading to be used for this analysis will consist of the antennas and equipment configurations as shown in the following chart(s):

Equipment Loading Summary			
Elevation	**Appurtenance**	**Mount Type**	**Status**
83	**(2) CCI HPA-65R-BUU-H8**	**(3) Site Pro VFA12-HD-NLB w/ (2) Site Pro1 RCM911**	**Remove**
	(1) CCI HPA-65R-BUU-H6		
	(6) Powerwave LGP-21401		
	(3) Ericsson RRUS-11 B12		
	(3) Ericsson RRUS-32 B66A		
	(3) Ericsson RRUS-32 B2		
	(2) CCI TPA-65R-LCUUUU-H8		Existing
	(1) Kathrein 800-10798		
	(3) Ericsson RRUS-32 B30		
	(2) Raycap Squid		
	(2) CCI DMP65R-BU8DA		**Proposed**
	(1) CCI DMP65R-BU6DA		
	(2) CCI OPA65R-BU8DA		
	(1) CCI OPA65R-BU6DA		
	(3) Ericsson 4449 B5/B12		
	(3) Ericsson 8843 B2/B66A		
	(3) Ericsson 4478 B14		
	(3) Ericsson RRUS-E2 B29		
	(1) Raycap DC6-48-60-18-8C		

MOUNT RESULTS

The maximum mount member stress capacities under the loading conditions previously described are as follows:

Component Type	Percent Capacity	Pass/Fail
Mount Pipe	43.8	Pass
Standoff Arm	58.2	Pass
Horizontal	41.9	Pass
Diagonal	62.6	Pass
Vertical	8.3	Pass
Tie Back	8.7	Pass
RATING	**62.6**	**PASS**

By engineering calculation and inspection, the proposed antenna and equipment mounting structure(s) are capable of supporting the proposed loading configurations without causing an overstress condition in the antenna and equipment mounting structure(s). The existing antenna and equipment mounting structure(s) shall be removed and replaced with the proposed antenna and equipment mounting structure(s) prior to antenna and equipment installation. See attached details for the proposed mounting structures.

ASSUMPTIONS

This analysis is based on the theoretical design capacity of the members and is not a condition assessment of the structure. This analysis is based on the information supplied and the results are only as accurate as the data obtained from this information. The Scope of Work for RAMAKER did not require verification of the provided information. The following assumptions were made for this structural analysis.

1) The mounts were built and maintained in accordance with the manufacturer's drawings and specifications and including the TIA Standards.
2) All structural members are in good condition and can achieve their full design capacity. All welds and connections can develop the full member capacity unless determined otherwise and explicitly stated in this report.
3) No physical deterioration has occurred in any of the structural components. No allowance was made for any damaged, missing, or rusted members, nor loose bolts or cracked welds.
4) All prior structural modifications, if any, are assumed to be properly installed and fully effective.
5) Information provided by the client regarding the structure, appurtenances, transmission cables, and other relevant information is assumed to be current and correct. Appurtenance sizes and weights as specified in the loading tables are best estimates and based on available information, if explicit documentation is not provided to RAMAKER. If the loading configuration is different than stated, then this analysis is invalid.
6) Mount steel grades meet the values as stated, unless noted otherwise:
    - Channel, Solid Round, Angle, Plate — ASTM A36 (GR 36)
    - HSS (Rectangular) — ASTM 500 (GR B-46)
    - Pipe — ASTM A53 (GR 35)
    - Unistrut — ASTM A653 SS (GR 33)
    - Threaded Rod — ASTM F1554 (GR 36)
    - Connection Bolt — ASTM A325

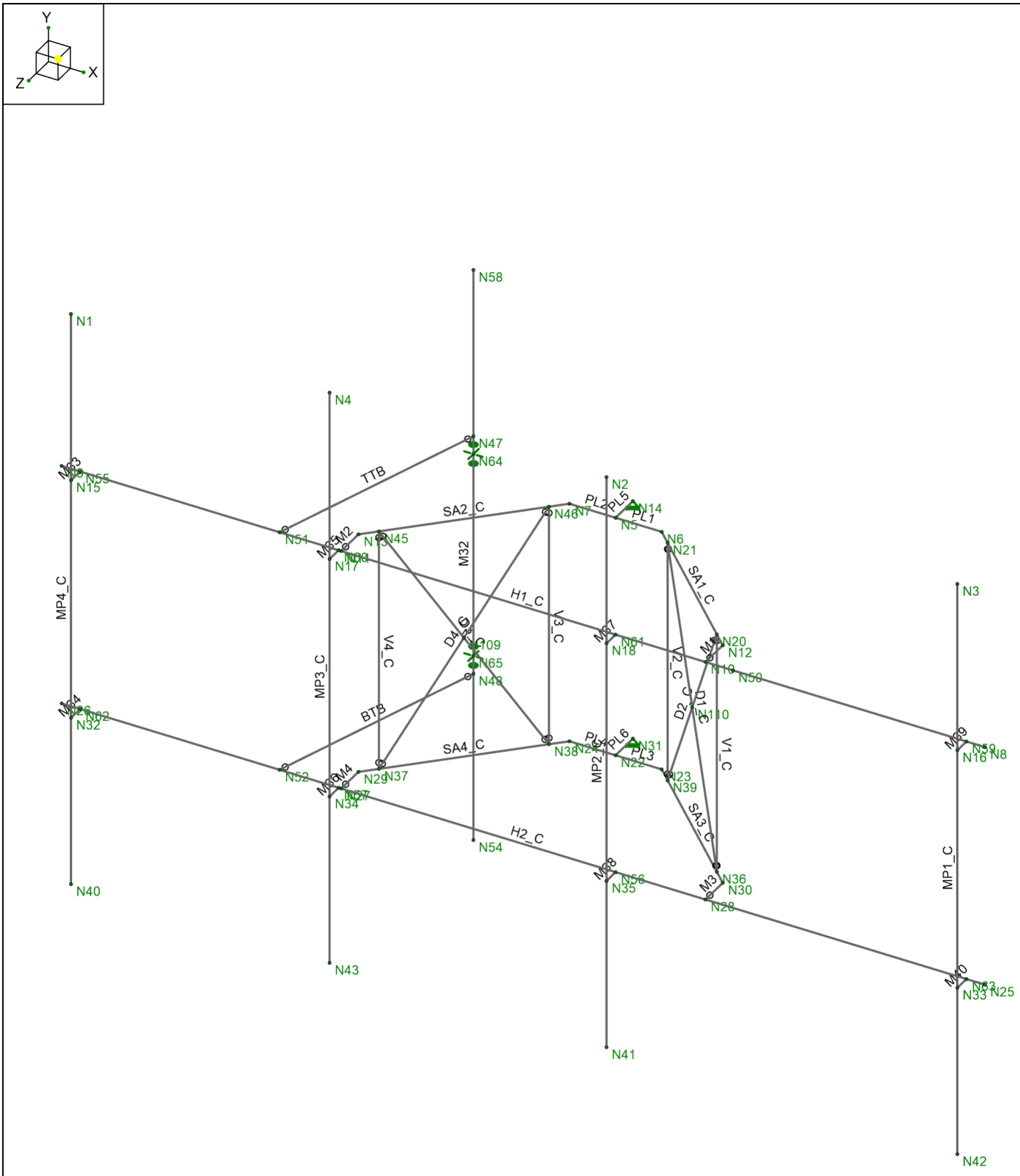
This analysis may be affected if any assumptions are not valid or have been made in error. RAMAKER should be notified to determine the effect on the structural integrity of the mount.

SCOPE AND LIMITATIONS

The engineering services performed by RAMAKER regarding this report are limited to an analysis of the mount and the capacity of its members. RAMAKER will accept no liability which may arise due to any existing deficiency in design, material, fabrication, erection, construction, or lack of maintenance. RAMAKER makes no warranties, expressed or implied in connection with this report and disclaims any liability arising from original design, material, fabrication and erection deficiencies or the "as-built" condition of this structure.

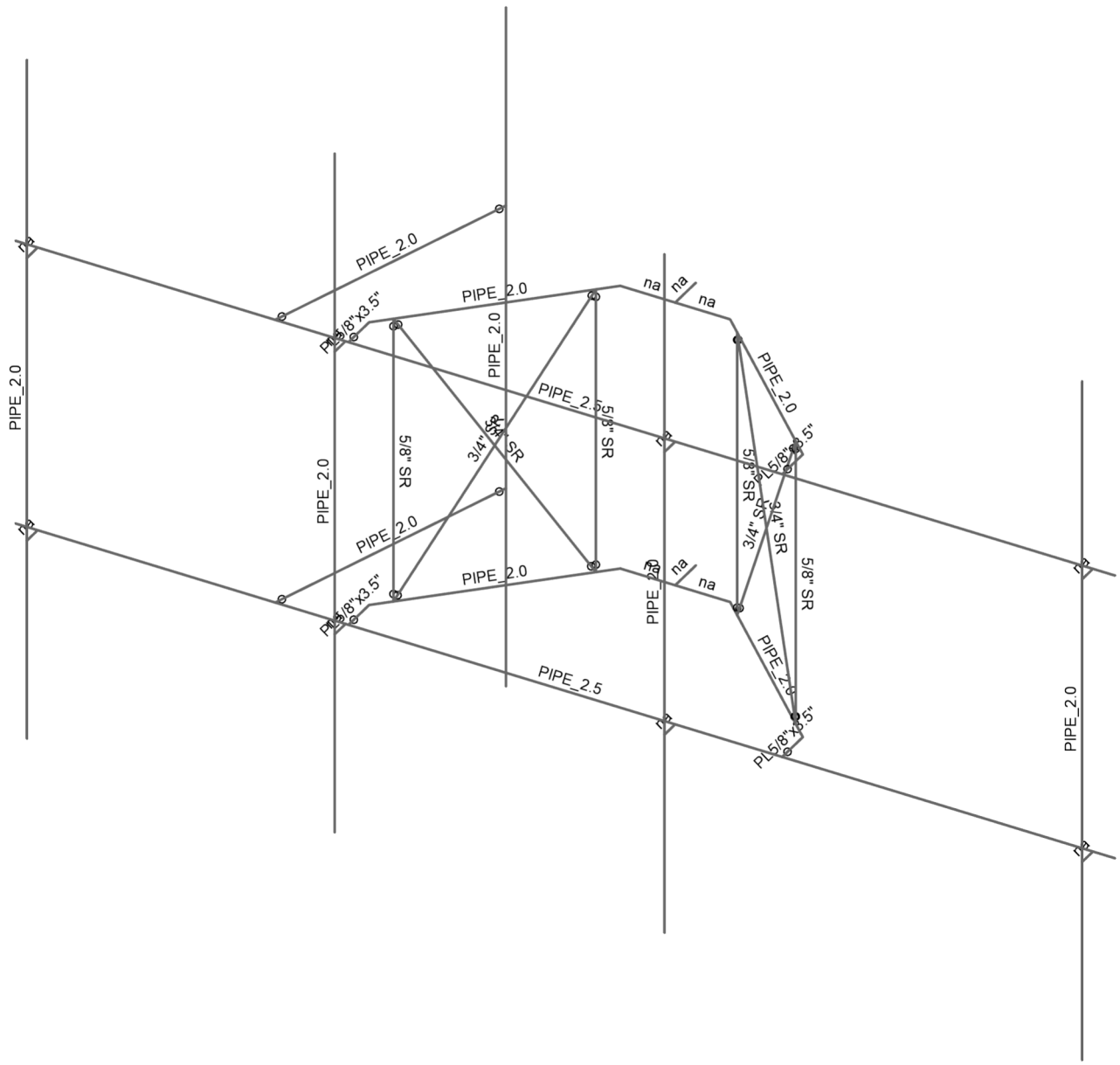
ATTACHMENTS

- Analysis Figures
- Analysis Calculations



Envelope Only Solution

Ramaker & Associates	Hartford Park St (CTL01199)	SK-1
GN		Nov 19, 2020
49451		49451 VFA12 HD Mount Rev1.r3d



Envelope Only Solution

Ramaker & Associates	Hartford Park St (CTL01199)	SK-2
GN		Nov 19, 2020
49451		49451 VFA12 HD Mount Rev1.r3d

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [1e⁵°F⁻¹]	Density [k/ft³]	Yield [ksi]	Ry	Fu [ksi]	Rt
1	A36 Gr.36	29000	11154	0.3	0.65	0.49	36	1.5	58	1.2
2	Gr. 33	29000	11154	0.3	0.65	0.49	33	1.5	58	1.2
3	A572 Gr.50	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
4	A992	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
5	A500 Gr.B RND	29000	11154	0.3	0.65	0.49	42	1.4	58	1.3
6	A500 Gr.B Rect	29000	11154	0.3	0.65	0.49	46	1.4	58	1.3
7	A53 Gr.B	29000	11154	0.3	0.65	0.49	35	1.6	60	1.2
8	A1085	29000	11154	0.3	0.65	0.49	50	1.4	65	1.3

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rule	Area [in²]	Iyy [in⁴]	Izz [in⁴]	J [in⁴]
1	Pipe 2.5	PIPE_2.5	Beam	Pipe	A53 Gr.B	Typical	1.61	1.45	1.45	2.89
2	PL5/8"x3.5"	PL5/8"x3.5"	Beam	RECT	A36 Gr.36	Typical	2.188	0.071	2.233	0.253
3	PL5/8"x7.5"	PL5/8"x7.5"	Beam	RECT	A36 Gr.36	Typical	4.688	0.153	21.973	0.578
4	Pipe 2.0	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	0.627	0.627	1.25
5	SR3/4"	3/4" SR	Beam	BAR	A36 Gr.36	Typical	0.442	0.016	0.016	0.031
6	SR5/8"	5/8" SR	Beam	BAR	A36 Gr.36	Typical	0.307	0.007	0.007	0.015

Member Primary Data

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
1	H1_C	N8	N9		Pipe 2.5	Beam	Pipe	A53 Gr.B	Typical
2	H2_C	N25	N26		Pipe 2.5	Beam	Pipe	A53 Gr.B	Typical
3	PL5	N5	N14	90	RIGID	None	None	RIGID	Typical
4	PL6	N22	N31	90	RIGID	None	None	RIGID	Typical
5	PL2	N7	N5	90	RIGID	None	None	RIGID	Typical
6	PL1	N5	N6	90	RIGID	None	None	RIGID	Typical
7	PL4	N24	N22	90	RIGID	None	None	RIGID	Typical
8	PL3	N22	N23	90	RIGID	None	None	RIGID	Typical
9	SA4_C	N29	N24		Pipe 2.0	Beam	Pipe	A53 Gr.B	Typical
10	SA1_C	N12	N6		Pipe 2.0	Beam	Pipe	A53 Gr.B	Typical
11	SA3_C	N30	N23		Pipe 2.0	Beam	Pipe	A53 Gr.B	Typical
12	M2	N11	N13	90	PL5/8"x3.5"	Beam	RECT	A36 Gr.36	Typical
13	M4	N27	N29	90	PL5/8"x3.5"	Beam	RECT	A36 Gr.36	Typical
14	M1	N10	N12	90	PL5/8"x3.5"	Beam	RECT	A36 Gr.36	Typical
15	M3	N28	N30	90	PL5/8"x3.5"	Beam	RECT	A36 Gr.36	Typical
16	V4_C	N45	N37		SR5/8"	Beam	BAR	A36 Gr.36	Typical
17	V3_C	N46	N38		SR5/8"	Beam	BAR	A36 Gr.36	Typical
18	V1_C	N20	N36		SR5/8"	Beam	BAR	A36 Gr.36	Typical
19	V2_C	N21	N39		SR5/8"	Beam	BAR	A36 Gr.36	Typical
20	D3_C	N45	N38		SR3/4"	Beam	BAR	A36 Gr.36	Typical
21	D4_C	N46	N37		SR3/4"	Beam	BAR	A36 Gr.36	Typical
22	D1_C	N21	N36		SR3/4"	Beam	BAR	A36 Gr.36	Typical
23	D2_C	N20	N39		SR3/4"	Beam	BAR	A36 Gr.36	Typical
24	MP4_C	N40	N1		Pipe 2.0	Beam	Pipe	A53 Gr.B	Typical
25	MP3_C	N43	N4		Pipe 2.0	Beam	Pipe	A53 Gr.B	Typical
26	MP2_C	N41	N2		Pipe 2.0	Beam	Pipe	A53 Gr.B	Typical
27	MP1_C	N42	N3		Pipe 2.0	Beam	Pipe	A53 Gr.B	Typical
28	SA2_C	N13	N7		Pipe 2.0	Beam	Pipe	A53 Gr.B	Typical
29	TTB	N47	N51		Pipe 2.0	Beam	Pipe	A53 Gr.B	Typical
30	M32	N54	N58		Pipe 2.0	Beam	Pipe	A53 Gr.B	Typical
31	BTB	N52	N48		Pipe 2.0	Beam	Pipe	A53 Gr.B	Typical
32	M33	N55	N15		RIGID	None	None	RIGID	Typical
33	M34	N62	N32		RIGID	None	None	RIGID	Typical
34	M35	N60	N17		RIGID	None	None	RIGID	Typical
35	M36	N57	N34		RIGID	None	None	RIGID	Typical
36	M37	N61	N18		RIGID	None	None	RIGID	Typical
37	M38	N56	N35		RIGID	None	None	RIGID	Typical

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
38	M39	N59	N16		RIGID	None	None	RIGID	Typical
39	M40	N63	N33		RIGID	None	None	RIGID	Typical

Basic Load Cases

	BLC Description	Category	Y Gravity	Point	Distributed
1	Antenna Dead	None		12	
2	Antenna Wind 0	None		24	
3	Antenna Wind 30	None		24	
4	Antenna Wind 45	None		24	
5	Antenna Wind 60	None		24	
6	Antenna Wind 90	None		24	
7	Antenna Wind 120	None		24	
8	Antenna Wind 135	None		24	
9	Antenna Wind 150	None		24	
10	Antenna Wind 180	None		24	
11	Antenna Wind 210	None		24	
12	Antenna Wind 225	None		24	
13	Antenna Wind 240	None		24	
14	Antenna Wind 270	None		24	
15	Antenna Wind 300	None		24	
16	Antenna Wind 315	None		24	
17	Antenna Wind 330	None		24	
18	Antenna Ice Dead	None		12	
19	Antenna Wind w/Ice 0	None		24	
20	Antenna Wind w/Ice 30	None		24	
21	Antenna Wind w/Ice 45	None		24	
22	Antenna Wind w/Ice 60	None		24	
23	Antenna Wind w/Ice 90	None		24	
24	Antenna Wind w/Ice 120	None		24	
25	Antenna Wind w/Ice 135	None		24	
26	Antenna Wind w/Ice 150	None		24	
27	Antenna Wind w/Ice 180	None		24	
28	Antenna Wind w/Ice 210	None		24	
29	Antenna Wind w/Ice 225	None		24	
30	Antenna Wind w/Ice 240	None		24	
31	Antenna Wind w/Ice 270	None		24	
32	Antenna Wind w/Ice 300	None		24	
33	Antenna Wind w/Ice 315	None		24	
34	Antenna Wind w/Ice 330	None		24	
35	Member Dead	None	-1		
36	Member Wind 0	None			42
37	Member Wind 30	None			42
38	Member Wind 45	None			42
39	Member Wind 60	None			42
40	Member Wind 90	None			42
41	Member Wind 120	None			42
42	Member Wind 135	None			42
43	Member Wind 150	None			42
44	Member Wind 180	None			42
45	Member Wind 210	None			42
46	Member Wind 225	None			42
47	Member Wind 240	None			42
48	Member Wind 270	None			42
49	Member Wind 300	None			42
50	Member Wind 315	None			42
51	Member Wind 330	None			42
52	Member Ice Dead	None			21
53	Member Wind w/Ice 0	None			42

Basic Load Cases (Continued)

	BLC Description	Category	Y Gravity	Point	Distributed
54	Member Wind w/Ice 30	None			42
55	Member Wind w/Ice 45	None			42
56	Member Wind w/Ice 60	None			42
57	Member Wind w/Ice 90	None			42
58	Member Wind w/Ice 120	None			42
59	Member Wind w/Ice 135	None			42
60	Member Wind w/Ice 150	None			42
61	Member Wind w/Ice 180	None			42
62	Member Wind w/Ice 210	None			42
63	Member Wind w/Ice 225	None			42
64	Member Wind w/Ice 240	None			42
65	Member Wind w/Ice 270	None			42
66	Member Wind w/Ice 300	None			42
67	Member Wind w/Ice 315	None			42
68	Member Wind w/Ice 330	None			42
69	LV-1	None		1	
70	LV-2	None		1	
71	LV-3	None		1	
72	LV-4	None		1	
73	LV-5	None		1	
74	LV-6	None		1	
75	LV-7	None			
76	LV-8	None			
77	LV-9	None			
78	LV-10	None			
79	LV-11	None			
80	LV-12	None			
81	LV-13	None			
82	LV-14	None			
83	LV-15	None		1	
84	LM-1	None		1	
85	LM-2	None		1	
86	LM-3	None		1	
87	LM-4	None			
88	LM-5	None			
89	LM-6	None			
90	LM-7	None			
91	LM-8	None			
92	LM-9	None			
93	LM-10	None			
94	LM-11	None			
95	LM-12	None			
96	LM-13	None			
97	LM-14	None			
98	LM-15	None			

Load Combinations

	Description	Solve	PDelta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC
1	1.4D	Yes	Y	1	1.4	35	1.4							
2	0.9D + 1.6 (0-Wind)	Yes	Y	1	0.9	35	0.9	2	1.6	36	1.6			
3	0.9D + 1.6 (30-Wind)	Yes	Y	1	0.9	35	0.9	3	1.6	37	1.6			
4	0.9D + 1.6 (45-Wind)	Yes	Y	1	0.9	35	0.9	4	1.6	38	1.6			
5	0.9D + 1.6 (60-Wind)	Yes	Y	1	0.9	35	0.9	5	1.6	39	1.6			
6	0.9D + 1.6 (90-Wind)	Yes	Y	1	0.9	35	0.9	6	1.6	40	1.6			
7	0.9D + 1.6 (120-Wind)	Yes	Y	1	0.9	35	0.9	7	1.6	41	1.6			
8	0.9D + 1.6 (135-Wind)	Yes	Y	1	0.9	35	0.9	8	1.6	42	1.6			
9	0.9D + 1.6 (150-Wind)	Yes	Y	1	0.9	35	0.9	9	1.6	43	1.6			
10	0.9D + 1.6 (180-Wind)	Yes	Y	1	0.9	35	0.9	10	1.6	44	1.6			

Load Combinations (Continued)

	Description	Solve	PDelta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC
11	0.9D + 1.6 (210-Wind)	Yes	Y	1	0.9	35	0.9	11	1.6	45	1.6			
12	0.9D + 1.6 (225-Wind)	Yes	Y	1	0.9	35	0.9	12	1.6	46	1.6			
13	0.9D + 1.6 (240-Wind)	Yes	Y	1	0.9	35	0.9	13	1.6	47	1.6			
14	0.9D + 1.6 (270-Wind)	Yes	Y	1	0.9	35	0.9	14	1.6	48	1.6			
15	0.9D + 1.6 (300-Wind)	Yes	Y	1	0.9	35	0.9	15	1.6	49	1.6			
16	0.9D + 1.6 (315-Wind)	Yes	Y	1	0.9	35	0.9	16	1.6	50	1.6			
17	0.9D + 1.6 (330-Wind)	Yes	Y	1	0.9	35	0.9	17	1.6	51	1.6			
18	1.2D + 1.6 (0-Wind)	Yes	Y	1	1.2	35	1.2	2	1.6	36	1.6			
19	1.2D + 1.6 (30-Wind)	Yes	Y	1	1.2	35	1.2	3	1.6	37	1.6			
20	1.2D + 1.6 (45-Wind)	Yes	Y	1	1.2	35	1.2	4	1.6	38	1.6			
21	1.2D + 1.6 (60-Wind)	Yes	Y	1	1.2	35	1.2	5	1.6	39	1.6			
22	1.2D + 1.6 (90-Wind)	Yes	Y	1	1.2	35	1.2	6	1.6	40	1.6			
23	1.2D + 1.6 (120-Wind)	Yes	Y	1	1.2	35	1.2	7	1.6	41	1.6			
24	1.2D + 1.6 (135-Wind)	Yes	Y	1	1.2	35	1.2	8	1.6	42	1.6			
25	1.2D + 1.6 (150-Wind)	Yes	Y	1	1.2	35	1.2	9	1.6	43	1.6			
26	1.2D + 1.6 (180-Wind)	Yes	Y	1	1.2	35	1.2	10	1.6	44	1.6			
27	1.2D + 1.6 (210-Wind)	Yes	Y	1	1.2	35	1.2	11	1.6	45	1.6			
28	1.2D + 1.6 (225-Wind)	Yes	Y	1	1.2	35	1.2	12	1.6	46	1.6			
29	1.2D + 1.6 (240-Wind)	Yes	Y	1	1.2	35	1.2	13	1.6	47	1.6			
30	1.2D + 1.6 (270-Wind)	Yes	Y	1	1.2	35	1.2	14	1.6	48	1.6			
31	1.2D + 1.6 (300-Wind)	Yes	Y	1	1.2	35	1.2	15	1.6	49	1.6			
32	1.2D + 1.6 (315-Wind)	Yes	Y	1	1.2	35	1.2	16	1.6	50	1.6			
33	1.2D + 1.6 (330-Wind)	Yes	Y	1	1.2	35	1.2	17	1.6	51	1.6			
34	1.2D + 1.0Di + 1.0 (0-Wind Ice)	Yes	Y	1	1.2	35	1.2	18	1	52	1	19	1	53
35	1.2D + 1.0Di + 1.0 (30-Wind Ice)	Yes	Y	1	1.2	35	1.2	18	1	52	1	20	1	54
36	1.2D + 1.0Di + 1.0 (45-Wind Ice)	Yes	Y	1	1.2	35	1.2	18	1	52	1	21	1	55
37	1.2D + 1.0Di + 1.0 (60-Wind Ice)	Yes	Y	1	1.2	35	1.2	18	1	52	1	22	1	56
38	1.2D + 1.0Di + 1.0 (90-Wind Ice)	Yes	Y	1	1.2	35	1.2	18	1	52	1	23	1	57
39	1.2D + 1.0Di + 1.0 (120-Wind Ice)	Yes	Y	1	1.2	35	1.2	18	1	52	1	24	1	58
40	1.2D + 1.0Di + 1.0 (135-Wind Ice)	Yes	Y	1	1.2	35	1.2	18	1	52	1	25	1	59
41	1.2D + 1.0Di + 1.0 (150-Wind Ice)	Yes	Y	1	1.2	35	1.2	18	1	52	1	26	1	60
42	1.2D + 1.0Di + 1.0 (180-Wind Ice)	Yes	Y	1	1.2	35	1.2	18	1	52	1	27	1	61
43	1.2D + 1.0Di + 1.0 (210-Wind Ice)	Yes	Y	1	1.2	35	1.2	18	1	52	1	28	1	62
44	1.2D + 1.0Di + 1.0 (225-Wind Ice)	Yes	Y	1	1.2	35	1.2	18	1	52	1	29	1	63
45	1.2D + 1.0Di + 1.0 (240-Wind Ice)	Yes	Y	1	1.2	35	1.2	18	1	52	1	30	1	64
46	1.2D + 1.0Di + 1.0 (270-Wind Ice)	Yes	Y	1	1.2	35	1.2	18	1	52	1	31	1	65
47	1.2D + 1.0Di + 1.0 (300-Wind Ice)	Yes	Y	1	1.2	35	1.2	18	1	52	1	32	1	66
48	1.2D + 1.0Di + 1.0 (315-Wind Ice)	Yes	Y	1	1.2	35	1.2	18	1	52	1	33	1	67
49	1.2D + 1.0Di + 1.0 (330-Wind Ice)	Yes	Y	1	1.2	35	1.2	18	1	52	1	34	1	68
50	1.2D + 1.5LV-1	Yes	Y	1	1.2	35	1.2	69	1.5					
51	1.2D + 1.5LV-2	Yes	Y	1	1.2	35	1.2	70	1.5					
52	1.2D + 1.5LV-3	Yes	Y	1	1.2	35	1.2	71	1.5					
53	1.2D + 1.5LV-4	Yes	Y	1	1.2	35	1.2	72	1.5					
54	1.2D + 1.5LV-5	Yes	Y	1	1.2	35	1.2	73	1.5					
55	1.2D + 1.5LV-6	Yes	Y	1	1.2	35	1.2	74	1.5					
56	1.2D + 1.5LV-7	Yes	Y	1	1.2	35	1.2	75	1.5					
57	1.2D + 1.5LV-8	Yes	Y	1	1.2	35	1.2	76	1.5					
58	1.2D + 1.5LV-9	Yes	Y	1	1.2	35	1.2	77	1.5					
59	1.2D + 1.5LV-10	Yes	Y	1	1.2	35	1.2	78	1.5					
60	1.2D + 1.5LV-11	Yes	Y	1	1.2	35	1.2	79	1.5					
61	1.2D + 1.5LV-12	Yes	Y	1	1.2	35	1.2	80	1.5					
62	1.2D + 1.5LV-13	Yes	Y	1	1.2	35	1.2	81	1.5					
63	1.2D + 1.5LV-14	Yes	Y	1	1.2	35	1.2	82	1.5					
64	1.2D + 1.5LV-15	Yes	Y	1	1.2	35	1.2	83	1.5					
65	1.2D + 1.5LM-1 + Maintenance (0-Wind)	Yes	Y	1	1.2	35	1.2	84	1.5	2	0.096	36	0.096	
66	1.2D + 1.5LM-1 + Maintenance (30-Wind)	Yes	Y	1	1.2	35	1.2	84	1.5	3	0.096	37	0.096	
67	1.2D + 1.5LM-1 + Maintenance (45-Wind)	Yes	Y	1	1.2	35	1.2	84	1.5	4	0.096	38	0.096	
68	1.2D + 1.5LM-1 + Maintenance (60-Wind)	Yes	Y	1	1.2	35	1.2	84	1.5	5	0.096	39	0.096	

Load Combinations (Continued)

	Description	Solve	PDelta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC
69	1.2D + 1.5LM-1 + Maintenance (90-Wind)	Yes	Y	1	1.2	35	1.2	84	1.5	6	0.096	40	0.096	
70	1.2D + 1.5LM-1 + Maintenance (120-Wind)	Yes	Y	1	1.2	35	1.2	84	1.5	7	0.096	41	0.096	
71	1.2D + 1.5LM-1 + Maintenance (135-Wind)	Yes	Y	1	1.2	35	1.2	84	1.5	8	0.096	42	0.096	
72	1.2D + 1.5LM-1 + Maintenance (150-Wind)	Yes	Y	1	1.2	35	1.2	84	1.5	9	0.096	43	0.096	
73	1.2D + 1.5LM-1 + Maintenance (180-Wind)	Yes	Y	1	1.2	35	1.2	84	1.5	10	0.096	44	0.096	
74	1.2D + 1.5LM-1 + Maintenance (210-Wind)	Yes	Y	1	1.2	35	1.2	84	1.5	11	0.096	45	0.096	
75	1.2D + 1.5LM-1 + Maintenance (225-Wind)	Yes	Y	1	1.2	35	1.2	84	1.5	12	0.096	46	0.096	
76	1.2D + 1.5LM-1 + Maintenance (240-Wind)	Yes	Y	1	1.2	35	1.2	84	1.5	13	0.096	47	0.096	
77	1.2D + 1.5LM-1 + Maintenance (270-Wind)	Yes	Y	1	1.2	35	1.2	84	1.5	14	0.096	48	0.096	
78	1.2D + 1.5LM-1 + Maintenance (300-Wind)	Yes	Y	1	1.2	35	1.2	84	1.5	15	0.096	49	0.096	
79	1.2D + 1.5LM-1 + Maintenance (315-Wind)	Yes	Y	1	1.2	35	1.2	84	1.5	16	0.096	50	0.096	
80	1.2D + 1.5LM-1 + Maintenance (330-Wind)	Yes	Y	1	1.2	35	1.2	84	1.5	17	0.096	51	0.096	
81	1.2D + 1.5LM-2 + Maintenance (0-Wind)	Yes	Y	1	1.2	35	1.2	85	1.5	2	0.096	36	0.096	
82	1.2D + 1.5LM-2 + Maintenance (30-Wind)	Yes	Y	1	1.2	35	1.2	85	1.5	3	0.096	37	0.096	
83	1.2D + 1.5LM-2 + Maintenance (45-Wind)	Yes	Y	1	1.2	35	1.2	85	1.5	4	0.096	38	0.096	
84	1.2D + 1.5LM-2 + Maintenance (60-Wind)	Yes	Y	1	1.2	35	1.2	85	1.5	5	0.096	39	0.096	
85	1.2D + 1.5LM-2 + Maintenance (90-Wind)	Yes	Y	1	1.2	35	1.2	85	1.5	6	0.096	40	0.096	
86	1.2D + 1.5LM-2 + Maintenance (120-Wind)	Yes	Y	1	1.2	35	1.2	85	1.5	7	0.096	41	0.096	
87	1.2D + 1.5LM-2 + Maintenance (135-Wind)	Yes	Y	1	1.2	35	1.2	85	1.5	8	0.096	42	0.096	
88	1.2D + 1.5LM-2 + Maintenance (150-Wind)	Yes	Y	1	1.2	35	1.2	85	1.5	9	0.096	43	0.096	
89	1.2D + 1.5LM-2 + Maintenance (180-Wind)	Yes	Y	1	1.2	35	1.2	85	1.5	10	0.096	44	0.096	
90	1.2D + 1.5LM-2 + Maintenance (210-Wind)	Yes	Y	1	1.2	35	1.2	85	1.5	11	0.096	45	0.096	
91	1.2D + 1.5LM-2 + Maintenance (225-Wind)	Yes	Y	1	1.2	35	1.2	85	1.5	12	0.096	46	0.096	
92	1.2D + 1.5LM-2 + Maintenance (240-Wind)	Yes	Y	1	1.2	35	1.2	85	1.5	13	0.096	47	0.096	
93	1.2D + 1.5LM-2 + Maintenance (270-Wind)	Yes	Y	1	1.2	35	1.2	85	1.5	14	0.096	48	0.096	
94	1.2D + 1.5LM-2 + Maintenance (300-Wind)	Yes	Y	1	1.2	35	1.2	85	1.5	15	0.096	49	0.096	
95	1.2D + 1.5LM-2 + Maintenance (315-Wind)	Yes	Y	1	1.2	35	1.2	85	1.5	16	0.096	50	0.096	
96	1.2D + 1.5LM-2 + Maintenance (330-Wind)	Yes	Y	1	1.2	35	1.2	85	1.5	17	0.096	51	0.096	
97	1.2D + 1.5LM-3 + Maintenance (0-Wind)	Yes	Y	1	1.2	35	1.2	86	1.5	2	0.096	36	0.096	
98	1.2D + 1.5LM-3 + Maintenance (30-Wind)	Yes	Y	1	1.2	35	1.2	86	1.5	3	0.096	37	0.096	
99	1.2D + 1.5LM-3 + Maintenance (45-Wind)	Yes	Y	1	1.2	35	1.2	86	1.5	4	0.096	38	0.096	
100	1.2D + 1.5LM-3 + Maintenance (60-Wind)	Yes	Y	1	1.2	35	1.2	86	1.5	5	0.096	39	0.096	
101	1.2D + 1.5LM-3 + Maintenance (90-Wind)	Yes	Y	1	1.2	35	1.2	86	1.5	6	0.096	40	0.096	
102	1.2D + 1.5LM-3 + Maintenance (120-Wind)	Yes	Y	1	1.2	35	1.2	86	1.5	7	0.096	41	0.096	
103	1.2D + 1.5LM-3 + Maintenance (135-Wind)	Yes	Y	1	1.2	35	1.2	86	1.5	8	0.096	42	0.096	
104	1.2D + 1.5LM-3 + Maintenance (150-Wind)	Yes	Y	1	1.2	35	1.2	86	1.5	9	0.096	43	0.096	
105	1.2D + 1.5LM-3 + Maintenance (180-Wind)	Yes	Y	1	1.2	35	1.2	86	1.5	10	0.096	44	0.096	
106	1.2D + 1.5LM-3 + Maintenance (210-Wind)	Yes	Y	1	1.2	35	1.2	86	1.5	11	0.096	45	0.096	
107	1.2D + 1.5LM-3 + Maintenance (225-Wind)	Yes	Y	1	1.2	35	1.2	86	1.5	12	0.096	46	0.096	
108	1.2D + 1.5LM-3 + Maintenance (240-Wind)	Yes	Y	1	1.2	35	1.2	86	1.5	13	0.096	47	0.096	
109	1.2D + 1.5LM-3 + Maintenance (270-Wind)	Yes	Y	1	1.2	35	1.2	86	1.5	14	0.096	48	0.096	
110	1.2D + 1.5LM-3 + Maintenance (300-Wind)	Yes	Y	1	1.2	35	1.2	86	1.5	15	0.096	49	0.096	
111	1.2D + 1.5LM-3 + Maintenance (315-Wind)	Yes	Y	1	1.2	35	1.2	86	1.5	16	0.096	50	0.096	
112	1.2D + 1.5LM-3 + Maintenance (330-Wind)	Yes	Y	1	1.2	35	1.2	86	1.5	17	0.096	51	0.096	
113	1.2D + 1.5LM-4 + Maintenance (0-Wind)	Yes	Y	1	1.2	35	1.2	87	1.5	2	0.096	36	0.096	
114	1.2D + 1.5LM-4 + Maintenance (30-Wind)	Yes	Y	1	1.2	35	1.2	87	1.5	3	0.096	37	0.096	
115	1.2D + 1.5LM-4 + Maintenance (45-Wind)	Yes	Y	1	1.2	35	1.2	87	1.5	4	0.096	38	0.096	
116	1.2D + 1.5LM-4 + Maintenance (60-Wind)	Yes	Y	1	1.2	35	1.2	87	1.5	5	0.096	39	0.096	
117	1.2D + 1.5LM-4 + Maintenance (90-Wind)	Yes	Y	1	1.2	35	1.2	87	1.5	6	0.096	40	0.096	
118	1.2D + 1.5LM-4 + Maintenance (120-Wind)	Yes	Y	1	1.2	35	1.2	87	1.5	7	0.096	41	0.096	
119	1.2D + 1.5LM-4 + Maintenance (135-Wind)	Yes	Y	1	1.2	35	1.2	87	1.5	8	0.096	42	0.096	
120	1.2D + 1.5LM-4 + Maintenance (150-Wind)	Yes	Y	1	1.2	35	1.2	87	1.5	9	0.096	43	0.096	
121	1.2D + 1.5LM-4 + Maintenance (180-Wind)	Yes	Y	1	1.2	35	1.2	87	1.5	10	0.096	44	0.096	
122	1.2D + 1.5LM-4 + Maintenance (210-Wind)	Yes	Y	1	1.2	35	1.2	87	1.5	11	0.096	45	0.096	
123	1.2D + 1.5LM-4 + Maintenance (225-Wind)	Yes	Y	1	1.2	35	1.2	87	1.5	12	0.096	46	0.096	
124	1.2D + 1.5LM-4 + Maintenance (240-Wind)	Yes	Y	1	1.2	35	1.2	87	1.5	13	0.096	47	0.096	
125	1.2D + 1.5LM-4 + Maintenance (270-Wind)	Yes	Y	1	1.2	35	1.2	87	1.5	14	0.096	48	0.096	
126	1.2D + 1.5LM-4 + Maintenance (300-Wind)	Yes	Y	1	1.2	35	1.2	87	1.5	15	0.096	49	0.096	

Load Combinations (Continued)

	Description	Solve	PDelta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC
127	1.2D + 1.5LM-4 + Maintenance (315-Wind)	Yes	Y	1	1.2	35	1.2	87	1.5	16	0.096	50	0.096	
128	1.2D + 1.5LM-4 + Maintenance (330-Wind)	Yes	Y	1	1.2	35	1.2	87	1.5	17	0.096	51	0.096	
129	1.2D + 1.5LM-5 + Maintenance (0-Wind)	Yes	Y	1	1.2	35	1.2	88	1.5	2	0.096	36	0.096	
130	1.2D + 1.5LM-5 + Maintenance (30-Wind)	Yes	Y	1	1.2	35	1.2	88	1.5	3	0.096	37	0.096	
131	1.2D + 1.5LM-5 + Maintenance (45-Wind)	Yes	Y	1	1.2	35	1.2	88	1.5	4	0.096	38	0.096	
132	1.2D + 1.5LM-5 + Maintenance (60-Wind)	Yes	Y	1	1.2	35	1.2	88	1.5	5	0.096	39	0.096	
133	1.2D + 1.5LM-5 + Maintenance (90-Wind)	Yes	Y	1	1.2	35	1.2	88	1.5	6	0.096	40	0.096	
134	1.2D + 1.5LM-5 + Maintenance (120-Wind)	Yes	Y	1	1.2	35	1.2	88	1.5	7	0.096	41	0.096	
135	1.2D + 1.5LM-5 + Maintenance (135-Wind)	Yes	Y	1	1.2	35	1.2	88	1.5	8	0.096	42	0.096	
136	1.2D + 1.5LM-5 + Maintenance (150-Wind)	Yes	Y	1	1.2	35	1.2	88	1.5	9	0.096	43	0.096	
137	1.2D + 1.5LM-5 + Maintenance (180-Wind)	Yes	Y	1	1.2	35	1.2	88	1.5	10	0.096	44	0.096	
138	1.2D + 1.5LM-5 + Maintenance (210-Wind)	Yes	Y	1	1.2	35	1.2	88	1.5	11	0.096	45	0.096	
139	1.2D + 1.5LM-5 + Maintenance (225-Wind)	Yes	Y	1	1.2	35	1.2	88	1.5	12	0.096	46	0.096	
140	1.2D + 1.5LM-5 + Maintenance (240-Wind)	Yes	Y	1	1.2	35	1.2	88	1.5	13	0.096	47	0.096	
141	1.2D + 1.5LM-5 + Maintenance (270-Wind)	Yes	Y	1	1.2	35	1.2	88	1.5	14	0.096	48	0.096	
142	1.2D + 1.5LM-5 + Maintenance (300-Wind)	Yes	Y	1	1.2	35	1.2	88	1.5	15	0.096	49	0.096	
143	1.2D + 1.5LM-5 + Maintenance (315-Wind)	Yes	Y	1	1.2	35	1.2	88	1.5	16	0.096	50	0.096	
144	1.2D + 1.5LM-5 + Maintenance (330-Wind)	Yes	Y	1	1.2	35	1.2	88	1.5	17	0.096	51	0.096	
145	1.2D + 1.5LM-6 + Maintenance (0-Wind)	Yes	Y	1	1.2	35	1.2	89	1.5	2	0.096	36	0.096	
146	1.2D + 1.5LM-6 + Maintenance (30-Wind)	Yes	Y	1	1.2	35	1.2	89	1.5	3	0.096	37	0.096	
147	1.2D + 1.5LM-6 + Maintenance (45-Wind)	Yes	Y	1	1.2	35	1.2	89	1.5	4	0.096	38	0.096	
148	1.2D + 1.5LM-6 + Maintenance (60-Wind)	Yes	Y	1	1.2	35	1.2	89	1.5	5	0.096	39	0.096	
149	1.2D + 1.5LM-6 + Maintenance (90-Wind)	Yes	Y	1	1.2	35	1.2	89	1.5	6	0.096	40	0.096	
150	1.2D + 1.5LM-6 + Maintenance (120-Wind)	Yes	Y	1	1.2	35	1.2	89	1.5	7	0.096	41	0.096	
151	1.2D + 1.5LM-6 + Maintenance (135-Wind)	Yes	Y	1	1.2	35	1.2	89	1.5	8	0.096	42	0.096	
152	1.2D + 1.5LM-6 + Maintenance (150-Wind)	Yes	Y	1	1.2	35	1.2	89	1.5	9	0.096	43	0.096	
153	1.2D + 1.5LM-6 + Maintenance (180-Wind)	Yes	Y	1	1.2	35	1.2	89	1.5	10	0.096	44	0.096	
154	1.2D + 1.5LM-6 + Maintenance (210-Wind)	Yes	Y	1	1.2	35	1.2	89	1.5	11	0.096	45	0.096	
155	1.2D + 1.5LM-6 + Maintenance (225-Wind)	Yes	Y	1	1.2	35	1.2	89	1.5	12	0.096	46	0.096	
156	1.2D + 1.5LM-6 + Maintenance (240-Wind)	Yes	Y	1	1.2	35	1.2	89	1.5	13	0.096	47	0.096	
157	1.2D + 1.5LM-6 + Maintenance (270-Wind)	Yes	Y	1	1.2	35	1.2	89	1.5	14	0.096	48	0.096	
158	1.2D + 1.5LM-6 + Maintenance (300-Wind)	Yes	Y	1	1.2	35	1.2	89	1.5	15	0.096	49	0.096	
159	1.2D + 1.5LM-6 + Maintenance (315-Wind)	Yes	Y	1	1.2	35	1.2	89	1.5	16	0.096	50	0.096	
160	1.2D + 1.5LM-6 + Maintenance (330-Wind)	Yes	Y	1	1.2	35	1.2	89	1.5	17	0.096	51	0.096	
161	1.2D + 1.5LM-7 + Maintenance (0-Wind)	Yes	Y	1	1.2	35	1.2	90	1.5	2	0.096	36	0.096	
162	1.2D + 1.5LM-7 + Maintenance (30-Wind)	Yes	Y	1	1.2	35	1.2	90	1.5	3	0.096	37	0.096	
163	1.2D + 1.5LM-7 + Maintenance (45-Wind)	Yes	Y	1	1.2	35	1.2	90	1.5	4	0.096	38	0.096	
164	1.2D + 1.5LM-7 + Maintenance (60-Wind)	Yes	Y	1	1.2	35	1.2	90	1.5	5	0.096	39	0.096	
165	1.2D + 1.5LM-7 + Maintenance (90-Wind)	Yes	Y	1	1.2	35	1.2	90	1.5	6	0.096	40	0.096	
166	1.2D + 1.5LM-7 + Maintenance (120-Wind)	Yes	Y	1	1.2	35	1.2	90	1.5	7	0.096	41	0.096	
167	1.2D + 1.5LM-7 + Maintenance (135-Wind)	Yes	Y	1	1.2	35	1.2	90	1.5	8	0.096	42	0.096	
168	1.2D + 1.5LM-7 + Maintenance (150-Wind)	Yes	Y	1	1.2	35	1.2	90	1.5	9	0.096	43	0.096	
169	1.2D + 1.5LM-7 + Maintenance (180-Wind)	Yes	Y	1	1.2	35	1.2	90	1.5	10	0.096	44	0.096	
170	1.2D + 1.5LM-7 + Maintenance (210-Wind)	Yes	Y	1	1.2	35	1.2	90	1.5	11	0.096	45	0.096	
171	1.2D + 1.5LM-7 + Maintenance (225-Wind)	Yes	Y	1	1.2	35	1.2	90	1.5	12	0.096	46	0.096	
172	1.2D + 1.5LM-7 + Maintenance (240-Wind)	Yes	Y	1	1.2	35	1.2	90	1.5	13	0.096	47	0.096	
173	1.2D + 1.5LM-7 + Maintenance (270-Wind)	Yes	Y	1	1.2	35	1.2	90	1.5	14	0.096	48	0.096	
174	1.2D + 1.5LM-7 + Maintenance (300-Wind)	Yes	Y	1	1.2	35	1.2	90	1.5	15	0.096	49	0.096	
175	1.2D + 1.5LM-7 + Maintenance (315-Wind)	Yes	Y	1	1.2	35	1.2	90	1.5	16	0.096	50	0.096	
176	1.2D + 1.5LM-7 + Maintenance (330-Wind)	Yes	Y	1	1.2	35	1.2	90	1.5	17	0.096	51	0.096	
177	1.2D + 1.5LM-8 + Maintenance (0-Wind)	Yes	Y	1	1.2	35	1.2	91	1.5	2	0.096	36	0.096	
178	1.2D + 1.5LM-8 + Maintenance (30-Wind)	Yes	Y	1	1.2	35	1.2	91	1.5	3	0.096	37	0.096	
179	1.2D + 1.5LM-8 + Maintenance (45-Wind)	Yes	Y	1	1.2	35	1.2	91	1.5	4	0.096	38	0.096	
180	1.2D + 1.5LM-8 + Maintenance (60-Wind)	Yes	Y	1	1.2	35	1.2	91	1.5	5	0.096	39	0.096	
181	1.2D + 1.5LM-8 + Maintenance (90-Wind)	Yes	Y	1	1.2	35	1.2	91	1.5	6	0.096	40	0.096	
182	1.2D + 1.5LM-8 + Maintenance (120-Wind)	Yes	Y	1	1.2	35	1.2	91	1.5	7	0.096	41	0.096	
183	1.2D + 1.5LM-8 + Maintenance (135-Wind)	Yes	Y	1	1.2	35	1.2	91	1.5	8	0.096	42	0.096	
184	1.2D + 1.5LM-8 + Maintenance (150-Wind)	Yes	Y	1	1.2	35	1.2	91	1.5	9	0.096	43	0.096	

Load Combinations (Continued)

	Description	Solve	PDelta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC
185	1.2D + 1.5LM-8 + Maintenance (180-Wind)	Yes	Y	1	1.2	35	1.2	91	1.5	10	0.096	44	0.096	
186	1.2D + 1.5LM-8 + Maintenance (210-Wind)	Yes	Y	1	1.2	35	1.2	91	1.5	11	0.096	45	0.096	
187	1.2D + 1.5LM-8 + Maintenance (225-Wind)	Yes	Y	1	1.2	35	1.2	91	1.5	12	0.096	46	0.096	
188	1.2D + 1.5LM-8 + Maintenance (240-Wind)	Yes	Y	1	1.2	35	1.2	91	1.5	13	0.096	47	0.096	
189	1.2D + 1.5LM-8 + Maintenance (270-Wind)	Yes	Y	1	1.2	35	1.2	91	1.5	14	0.096	48	0.096	
190	1.2D + 1.5LM-8 + Maintenance (300-Wind)	Yes	Y	1	1.2	35	1.2	91	1.5	15	0.096	49	0.096	
191	1.2D + 1.5LM-8 + Maintenance (315-Wind)	Yes	Y	1	1.2	35	1.2	91	1.5	16	0.096	50	0.096	
192	1.2D + 1.5LM-8 + Maintenance (330-Wind)	Yes	Y	1	1.2	35	1.2	91	1.5	17	0.096	51	0.096	
193	1.2D + 1.5LM-9 + Maintenance (0-Wind)	Yes	Y	1	1.2	35	1.2	92	1.5	2	0.096	36	0.096	
194	1.2D + 1.5LM-9 + Maintenance (30-Wind)	Yes	Y	1	1.2	35	1.2	92	1.5	3	0.096	37	0.096	
195	1.2D + 1.5LM-9 + Maintenance (45-Wind)	Yes	Y	1	1.2	35	1.2	92	1.5	4	0.096	38	0.096	
196	1.2D + 1.5LM-9 + Maintenance (60-Wind)	Yes	Y	1	1.2	35	1.2	92	1.5	5	0.096	39	0.096	
197	1.2D + 1.5LM-9 + Maintenance (90-Wind)	Yes	Y	1	1.2	35	1.2	92	1.5	6	0.096	40	0.096	
198	1.2D + 1.5LM-9 + Maintenance (120-Wind)	Yes	Y	1	1.2	35	1.2	92	1.5	7	0.096	41	0.096	
199	1.2D + 1.5LM-9 + Maintenance (135-Wind)	Yes	Y	1	1.2	35	1.2	92	1.5	8	0.096	42	0.096	
200	1.2D + 1.5LM-9 + Maintenance (150-Wind)	Yes	Y	1	1.2	35	1.2	92	1.5	9	0.096	43	0.096	
201	1.2D + 1.5LM-9 + Maintenance (180-Wind)	Yes	Y	1	1.2	35	1.2	92	1.5	10	0.096	44	0.096	
202	1.2D + 1.5LM-9 + Maintenance (210-Wind)	Yes	Y	1	1.2	35	1.2	92	1.5	11	0.096	45	0.096	
203	1.2D + 1.5LM-9 + Maintenance (225-Wind)	Yes	Y	1	1.2	35	1.2	92	1.5	12	0.096	46	0.096	
204	1.2D + 1.5LM-9 + Maintenance (240-Wind)	Yes	Y	1	1.2	35	1.2	92	1.5	13	0.096	47	0.096	
205	1.2D + 1.5LM-9 + Maintenance (270-Wind)	Yes	Y	1	1.2	35	1.2	92	1.5	14	0.096	48	0.096	
206	1.2D + 1.5LM-9 + Maintenance (300-Wind)	Yes	Y	1	1.2	35	1.2	92	1.5	15	0.096	49	0.096	
207	1.2D + 1.5LM-9 + Maintenance (315-Wind)	Yes	Y	1	1.2	35	1.2	92	1.5	16	0.096	50	0.096	
208	1.2D + 1.5LM-9 + Maintenance (330-Wind)	Yes	Y	1	1.2	35	1.2	92	1.5	17	0.096	51	0.096	
209	1.2D + 1.5LM-10 + Maintenance (0-Wind)	Yes	Y	1	1.2	35	1.2	93	1.5	2	0.096	36	0.096	
210	1.2D + 1.5LM-10 + Maintenance (30-Wind)	Yes	Y	1	1.2	35	1.2	93	1.5	3	0.096	37	0.096	
211	1.2D + 1.5LM-10 + Maintenance (45-Wind)	Yes	Y	1	1.2	35	1.2	93	1.5	4	0.096	38	0.096	
212	1.2D + 1.5LM-10 + Maintenance (60-Wind)	Yes	Y	1	1.2	35	1.2	93	1.5	5	0.096	39	0.096	
213	1.2D + 1.5LM-10 + Maintenance (90-Wind)	Yes	Y	1	1.2	35	1.2	93	1.5	6	0.096	40	0.096	
214	1.2D + 1.5LM-10 + Maintenance (120-Wind)	Yes	Y	1	1.2	35	1.2	93	1.5	7	0.096	41	0.096	
215	1.2D + 1.5LM-10 + Maintenance (135-Wind)	Yes	Y	1	1.2	35	1.2	93	1.5	8	0.096	42	0.096	
216	1.2D + 1.5LM-10 + Maintenance (150-Wind)	Yes	Y	1	1.2	35	1.2	93	1.5	9	0.096	43	0.096	
217	1.2D + 1.5LM-10 + Maintenance (180-Wind)	Yes	Y	1	1.2	35	1.2	93	1.5	10	0.096	44	0.096	
218	1.2D + 1.5LM-10 + Maintenance (210-Wind)	Yes	Y	1	1.2	35	1.2	93	1.5	11	0.096	45	0.096	
219	1.2D + 1.5LM-10 + Maintenance (225-Wind)	Yes	Y	1	1.2	35	1.2	93	1.5	12	0.096	46	0.096	
220	1.2D + 1.5LM-10 + Maintenance (240-Wind)	Yes	Y	1	1.2	35	1.2	93	1.5	13	0.096	47	0.096	
221	1.2D + 1.5LM-10 + Maintenance (270-Wind)	Yes	Y	1	1.2	35	1.2	93	1.5	14	0.096	48	0.096	
222	1.2D + 1.5LM-10 + Maintenance (300-Wind)	Yes	Y	1	1.2	35	1.2	93	1.5	15	0.096	49	0.096	
223	1.2D + 1.5LM-10 + Maintenance (315-Wind)	Yes	Y	1	1.2	35	1.2	93	1.5	16	0.096	50	0.096	
224	1.2D + 1.5LM-10 + Maintenance (330-Wind)	Yes	Y	1	1.2	35	1.2	93	1.5	17	0.096	51	0.096	
225	1.2D + 1.5LM-11 + Maintenance (0-Wind)	Yes	Y	1	1.2	35	1.2	94	1.5	2	0.096	36	0.096	
226	1.2D + 1.5LM-11 + Maintenance (30-Wind)	Yes	Y	1	1.2	35	1.2	94	1.5	3	0.096	37	0.096	
227	1.2D + 1.5LM-11 + Maintenance (45-Wind)	Yes	Y	1	1.2	35	1.2	94	1.5	4	0.096	38	0.096	
228	1.2D + 1.5LM-11 + Maintenance (60-Wind)	Yes	Y	1	1.2	35	1.2	94	1.5	5	0.096	39	0.096	
229	1.2D + 1.5LM-11 + Maintenance (90-Wind)	Yes	Y	1	1.2	35	1.2	94	1.5	6	0.096	40	0.096	
230	1.2D + 1.5LM-11 + Maintenance (120-Wind)	Yes	Y	1	1.2	35	1.2	94	1.5	7	0.096	41	0.096	
231	1.2D + 1.5LM-11 + Maintenance (135-Wind)	Yes	Y	1	1.2	35	1.2	94	1.5	8	0.096	42	0.096	
232	1.2D + 1.5LM-11 + Maintenance (150-Wind)	Yes	Y	1	1.2	35	1.2	94	1.5	9	0.096	43	0.096	
233	1.2D + 1.5LM-11 + Maintenance (180-Wind)	Yes	Y	1	1.2	35	1.2	94	1.5	10	0.096	44	0.096	
234	1.2D + 1.5LM-11 + Maintenance (210-Wind)	Yes	Y	1	1.2	35	1.2	94	1.5	11	0.096	45	0.096	
235	1.2D + 1.5LM-11 + Maintenance (225-Wind)	Yes	Y	1	1.2	35	1.2	94	1.5	12	0.096	46	0.096	
236	1.2D + 1.5LM-11 + Maintenance (240-Wind)	Yes	Y	1	1.2	35	1.2	94	1.5	13	0.096	47	0.096	
237	1.2D + 1.5LM-11 + Maintenance (270-Wind)	Yes	Y	1	1.2	35	1.2	94	1.5	14	0.096	48	0.096	
238	1.2D + 1.5LM-11 + Maintenance (300-Wind)	Yes	Y	1	1.2	35	1.2	94	1.5	15	0.096	49	0.096	
239	1.2D + 1.5LM-11 + Maintenance (315-Wind)	Yes	Y	1	1.2	35	1.2	94	1.5	16	0.096	50	0.096	
240	1.2D + 1.5LM-11 + Maintenance (330-Wind)	Yes	Y	1	1.2	35	1.2	94	1.5	17	0.096	51	0.096	
241	1.2D + 1.5LM-12 + Maintenance (0-Wind)	Yes	Y	1	1.2	35	1.2	95	1.5	2	0.096	36	0.096	
242	1.2D + 1.5LM-12 + Maintenance (30-Wind)	Yes	Y	1	1.2	35	1.2	95	1.5	3	0.096	37	0.096	

Load Combinations (Continued)

	Description	Solve	PDelta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC
243	1.2D + 1.5LM-12 + Maintenance (45-Wind)	Yes	Y	1	1.2	35	1.2	95	1.5	4	0.096	38	0.096	
244	1.2D + 1.5LM-12 + Maintenance (60-Wind)	Yes	Y	1	1.2	35	1.2	95	1.5	5	0.096	39	0.096	
245	1.2D + 1.5LM-12 + Maintenance (90-Wind)	Yes	Y	1	1.2	35	1.2	95	1.5	6	0.096	40	0.096	
246	1.2D + 1.5LM-12 + Maintenance (120-Wind)	Yes	Y	1	1.2	35	1.2	95	1.5	7	0.096	41	0.096	
247	1.2D + 1.5LM-12 + Maintenance (135-Wind)	Yes	Y	1	1.2	35	1.2	95	1.5	8	0.096	42	0.096	
248	1.2D + 1.5LM-12 + Maintenance (150-Wind)	Yes	Y	1	1.2	35	1.2	95	1.5	9	0.096	43	0.096	
249	1.2D + 1.5LM-12 + Maintenance (180-Wind)	Yes	Y	1	1.2	35	1.2	95	1.5	10	0.096	44	0.096	
250	1.2D + 1.5LM-12 + Maintenance (210-Wind)	Yes	Y	1	1.2	35	1.2	95	1.5	11	0.096	45	0.096	
251	1.2D + 1.5LM-12 + Maintenance (225-Wind)	Yes	Y	1	1.2	35	1.2	95	1.5	12	0.096	46	0.096	
252	1.2D + 1.5LM-12 + Maintenance (240-Wind)	Yes	Y	1	1.2	35	1.2	95	1.5	13	0.096	47	0.096	
253	1.2D + 1.5LM-12 + Maintenance (270-Wind)	Yes	Y	1	1.2	35	1.2	95	1.5	14	0.096	48	0.096	
254	1.2D + 1.5LM-12 + Maintenance (300-Wind)	Yes	Y	1	1.2	35	1.2	95	1.5	15	0.096	49	0.096	
255	1.2D + 1.5LM-12 + Maintenance (315-Wind)	Yes	Y	1	1.2	35	1.2	95	1.5	16	0.096	50	0.096	
256	1.2D + 1.5LM-12 + Maintenance (330-Wind)	Yes	Y	1	1.2	35	1.2	95	1.5	17	0.096	51	0.096	
257	1.2D + 1.5LM-13 + Maintenance (0-Wind)	Yes	Y	1	1.2	35	1.2	96	1.5	2	0.096	36	0.096	
258	1.2D + 1.5LM-13 + Maintenance (30-Wind)	Yes	Y	1	1.2	35	1.2	96	1.5	3	0.096	37	0.096	
259	1.2D + 1.5LM-13 + Maintenance (45-Wind)	Yes	Y	1	1.2	35	1.2	96	1.5	4	0.096	38	0.096	
260	1.2D + 1.5LM-13 + Maintenance (60-Wind)	Yes	Y	1	1.2	35	1.2	96	1.5	5	0.096	39	0.096	
261	1.2D + 1.5LM-13 + Maintenance (90-Wind)	Yes	Y	1	1.2	35	1.2	96	1.5	6	0.096	40	0.096	
262	1.2D + 1.5LM-13 + Maintenance (120-Wind)	Yes	Y	1	1.2	35	1.2	96	1.5	7	0.096	41	0.096	
263	1.2D + 1.5LM-13 + Maintenance (135-Wind)	Yes	Y	1	1.2	35	1.2	96	1.5	8	0.096	42	0.096	
264	1.2D + 1.5LM-13 + Maintenance (150-Wind)	Yes	Y	1	1.2	35	1.2	96	1.5	9	0.096	43	0.096	
265	1.2D + 1.5LM-13 + Maintenance (180-Wind)	Yes	Y	1	1.2	35	1.2	96	1.5	10	0.096	44	0.096	
266	1.2D + 1.5LM-13 + Maintenance (210-Wind)	Yes	Y	1	1.2	35	1.2	96	1.5	11	0.096	45	0.096	
267	1.2D + 1.5LM-13 + Maintenance (225-Wind)	Yes	Y	1	1.2	35	1.2	96	1.5	12	0.096	46	0.096	
268	1.2D + 1.5LM-13 + Maintenance (240-Wind)	Yes	Y	1	1.2	35	1.2	96	1.5	13	0.096	47	0.096	
269	1.2D + 1.5LM-13 + Maintenance (270-Wind)	Yes	Y	1	1.2	35	1.2	96	1.5	14	0.096	48	0.096	
270	1.2D + 1.5LM-13 + Maintenance (300-Wind)	Yes	Y	1	1.2	35	1.2	96	1.5	15	0.096	49	0.096	
271	1.2D + 1.5LM-13 + Maintenance (315-Wind)	Yes	Y	1	1.2	35	1.2	96	1.5	16	0.096	50	0.096	
272	1.2D + 1.5LM-13 + Maintenance (330-Wind)	Yes	Y	1	1.2	35	1.2	96	1.5	17	0.096	51	0.096	
273	1.2D + 1.5LM-14 + Maintenance (0-Wind)	Yes	Y	1	1.2	35	1.2	97	1.5	2	0.096	36	0.096	
274	1.2D + 1.5LM-14 + Maintenance (30-Wind)	Yes	Y	1	1.2	35	1.2	97	1.5	3	0.096	37	0.096	
275	1.2D + 1.5LM-14 + Maintenance (45-Wind)	Yes	Y	1	1.2	35	1.2	97	1.5	4	0.096	38	0.096	
276	1.2D + 1.5LM-14 + Maintenance (60-Wind)	Yes	Y	1	1.2	35	1.2	97	1.5	5	0.096	39	0.096	
277	1.2D + 1.5LM-14 + Maintenance (90-Wind)	Yes	Y	1	1.2	35	1.2	97	1.5	6	0.096	40	0.096	
278	1.2D + 1.5LM-14 + Maintenance (120-Wind)	Yes	Y	1	1.2	35	1.2	97	1.5	7	0.096	41	0.096	
279	1.2D + 1.5LM-14 + Maintenance (135-Wind)	Yes	Y	1	1.2	35	1.2	97	1.5	8	0.096	42	0.096	
280	1.2D + 1.5LM-14 + Maintenance (150-Wind)	Yes	Y	1	1.2	35	1.2	97	1.5	9	0.096	43	0.096	
281	1.2D + 1.5LM-14 + Maintenance (180-Wind)	Yes	Y	1	1.2	35	1.2	97	1.5	10	0.096	44	0.096	
282	1.2D + 1.5LM-14 + Maintenance (210-Wind)	Yes	Y	1	1.2	35	1.2	97	1.5	11	0.096	45	0.096	
283	1.2D + 1.5LM-14 + Maintenance (225-Wind)	Yes	Y	1	1.2	35	1.2	97	1.5	12	0.096	46	0.096	
284	1.2D + 1.5LM-14 + Maintenance (240-Wind)	Yes	Y	1	1.2	35	1.2	97	1.5	13	0.096	47	0.096	
285	1.2D + 1.5LM-14 + Maintenance (270-Wind)	Yes	Y	1	1.2	35	1.2	97	1.5	14	0.096	48	0.096	
286	1.2D + 1.5LM-14 + Maintenance (300-Wind)	Yes	Y	1	1.2	35	1.2	97	1.5	15	0.096	49	0.096	
287	1.2D + 1.5LM-14 + Maintenance (315-Wind)	Yes	Y	1	1.2	35	1.2	97	1.5	16	0.096	50	0.096	
288	1.2D + 1.5LM-14 + Maintenance (330-Wind)	Yes	Y	1	1.2	35	1.2	97	1.5	17	0.096	51	0.096	
289	1.2D + 1.5LM-15 + Maintenance (0-Wind)	Yes	Y	1	1.2	35	1.2	98	1.5	2	0.096	36	0.096	
290	1.2D + 1.5LM-15 + Maintenance (30-Wind)	Yes	Y	1	1.2	35	1.2	98	1.5	3	0.096	37	0.096	
291	1.2D + 1.5LM-15 + Maintenance (45-Wind)	Yes	Y	1	1.2	35	1.2	98	1.5	4	0.096	38	0.096	
292	1.2D + 1.5LM-15 + Maintenance (60-Wind)	Yes	Y	1	1.2	35	1.2	98	1.5	5	0.096	39	0.096	
293	1.2D + 1.5LM-15 + Maintenance (90-Wind)	Yes	Y	1	1.2	35	1.2	98	1.5	6	0.096	40	0.096	
294	1.2D + 1.5LM-15 + Maintenance (120-Wind)	Yes	Y	1	1.2	35	1.2	98	1.5	7	0.096	41	0.096	
295	1.2D + 1.5LM-15 + Maintenance (135-Wind)	Yes	Y	1	1.2	35	1.2	98	1.5	8	0.096	42	0.096	
296	1.2D + 1.5LM-15 + Maintenance (150-Wind)	Yes	Y	1	1.2	35	1.2	98	1.5	9	0.096	43	0.096	
297	1.2D + 1.5LM-15 + Maintenance (180-Wind)	Yes	Y	1	1.2	35	1.2	98	1.5	10	0.096	44	0.096	
298	1.2D + 1.5LM-15 + Maintenance (210-Wind)	Yes	Y	1	1.2	35	1.2	98	1.5	11	0.096	45	0.096	
299	1.2D + 1.5LM-15 + Maintenance (225-Wind)	Yes	Y	1	1.2	35	1.2	98	1.5	12	0.096	46	0.096	
300	1.2D + 1.5LM-15 + Maintenance (240-Wind)	Yes	Y	1	1.2	35	1.2	98	1.5	13	0.096	47	0.096	

Load Combinations (Continued)

	Description	Solve	PDelta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC
301	1.2D + 1.5LM-15 + Maintenance (270-Wind)	Yes	Y	1	1.2	35	1.2	98	1.5	14	0.096	48	0.096	
302	1.2D + 1.5LM-15 + Maintenance (300-Wind)	Yes	Y	1	1.2	35	1.2	98	1.5	15	0.096	49	0.096	
303	1.2D + 1.5LM-15 + Maintenance (315-Wind)	Yes	Y	1	1.2	35	1.2	98	1.5	16	0.096	50	0.096	
304	1.2D + 1.5LM-15 + Maintenance (330-Wind)	Yes	Y	1	1.2	35	1.2	98	1.5	17	0.096	51	0.096	

Envelope Node Reactions

	Node Label		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N14	max	1475.773	109	2126.781	42	1022.007	3	0	304	0	304	0	304
2		min	-1355.58	64	370.136	2	-3541.761	43	0	1	0	1	0	1
3	N31	max	1356.094	64	2066.142	34	3500.777	35	0	304	0	304	0	304
4		min	-1445.363	100	368.433	10	-846.084	11	0	1	0	1	0	1
5	N64	max	300.702	23	91.843	39	1037.195	31	0	304	0	3	0	304
6		min	-276.072	15	15.961	15	-1028.627	7	0	1	0	27	0	1
7	N65	max	239.654	4	91.443	36	830.525	12	0	304	0	3	0	304
8		min	-279.101	28	15.946	12	-834.578	20	0	1	0	27	0	1
9	Totals:	max	1610.204	14	4359.952	41	2342.536	18						
10		min	-1610.204	22	885.197	11	-2342.536	10						

Envelope AISC 14th (360-10): LRFD Steel Code Checks

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [lb-ft]	phi*Mn z-z [lb-ft]	Cb	Eqn
1	H1_C	PIPE_2.5	0.419	8.712	27	0.1	8.838		27	14558.792	50715	3596.25	3596.25	3	H1-1b
2	H2_C	PIPE_2.5	0.398	8.712	27	0.084	8.838		19	14558.792	50715	3596.25	3596.25	2.219	H1-1b
3	SA4_C	PIPE_2.0	0.513	2.343	46	0.145	2.577		42	29670.214	32130	1871.625	1871.625	1.978	H1-1b
4	SA1_C	PIPE_2.0	0.58	2.343	38	0.173	2.577		34	29670.214	32130	1871.625	1871.625	1.979	H1-1b
5	SA3_C	PIPE_2.0	0.582	2.343	38	0.173	2.577		42	29670.214	32130	1871.625	1871.625	1.979	H1-1b
6	M2	PL5/8"x3.5"	0.415	0.417	47	0.418	0.417	y	46	68062.221	70875	922.852	5167.97	1.678	H1-1b
7	M4	PL5/8"x3.5"	0.408	0.417	40	0.417	0.417	y	44	68062.221	70875	922.852	5167.97	1.678	H1-1b
8	M1	PL5/8"x3.5"	0.467	0.417	35	0.447	0.417	y	38	68062.221	70875	922.852	5167.97	1.678	H1-1b
9	M3	PL5/8"x3.5"	0.466	0.417	42	0.449	0.417	y	37	68062.221	70875	922.852	5167.97	1.678	H1-1b
10	V4_C	5/8" SR	0.069	3.333	33	0.021	3.333		109	2503.582	9940.19	103.542	103.542	1.14	H1-1b*
11	V3_C	5/8" SR	0.059	3.333	27	0.003	3.333		64	2503.582	9940.19	103.542	103.542	1.14	H1-1b*
12	V1_C	5/8" SR	0.083	3.333	18	0.019	3.333		109	2503.582	9940.19	103.542	103.542	1	H1-1b*
13	V2_C	5/8" SR	0.062	3.333	26	0.003	3.333		64	2503.582	9940.19	103.542	103.542	1	H1-1b*
14	D3_C	3/4" SR	0.553	1.983	34	0.045	1.944		46	3739.506	14313.866	178.929	178.929	1.342	H1-1a
15	D4_C	3/4" SR	0.092	1.944	45	0.043	1.983		39	3739.506	14313.866	178.929	178.929	1.333	H1-1b
16	D1_C	3/4" SR	0.1	1.983	41	0.039	1.983		44	3739.506	14313.866	178.929	178.929	1.338	H1-1b
17	D2_C	3/4" SR	0.626	1.983	35	0.04	1.944		38	3739.506	14313.866	178.929	178.929	1.344	H1-1a
18	MP4_C	PIPE_2.0	0.38	2.343	100	0.049	5.657		105	14916.096	32130	1871.625	1871.625	3	H1-1b
19	MP3_C	PIPE_2.0	0.266	5.657	26	0.029	5.657		106	14916.096	32130	1871.625	1871.625	3	H1-1b
20	MP2_C	PIPE_2.0	0.385	5.737	26	0.035	2.343		109	14916.096	32130	1871.625	1871.625	2.982	H1-1b
21	MP1_C	PIPE_2.0	0.438	2.343	64	0.054	5.657		64	14916.096	32130	1871.625	1871.625	3	H1-1b
22	SA2_C	PIPE_2.0	0.515	2.343	46	0.146	2.577		34	29670.214	32130	1871.625	1871.625	1.978	H1-1b
23	TTB	PIPE_2.0	0.036	0	31	0.087	3.101		97	28631.858	32130	1871.625	1871.625	1.14	H1-1b*
24	M32	PIPE_2.0	0.146	5.414	31	0.108	5.495		31	14916.096	32130	1871.625	1871.625	1.826	H1-1b
25	BTB	PIPE_2.0	0.032	0	12	0.087	3.101		106	28631.858	32130	1871.625	1871.625	1.14	H1-1b*

Job	Hartford Park St (CTL01199)
Project	49451
By	GN
Date	11/19/20

Wind Load on Antennas TIA-222-G

$q_z = 0.00256\ K_z\ K_{zt}\ K_d\ V^2\ I$

$F = q_z\ G_h\ C_a\ A_a$

Occupancy :	II		Classification of Structures (Table 2-1)
Exposure :	B		Exposure Category
V :	97	mph	Basic Wind Speed (Annex B)
z :	83	ft	Height above ground level to the center of the antenna
I :	1.00		Importance Factor (Table 2-3)
K_z :	0.94		Velocity Pressure Coefficient (2.6.5.2)
K_{zt} :	1.00		Topographic Factor (2.6.6.4)
K_d :	0.95		Wind Direction Probability Factor (Table 2-2)
q_z :	21.4	psf	Velocity Pressure at Height z
G_h :	1.00		Strength Design of Appurtenances and their Connections

Mount & Antenna Wind Loads

Appurtenance	Height	Width	h/D	Shape	C_a	A_a	Force	Force
	in	*in*				*sq ft*	*lb*	*plf*
DMP65R-BU8D	96.0	20.7	4.6	Flat	1.295	13.80	381.8	
OPA65R-BU8DA	96.0	21.0	4.6	Flat	1.292	14.00	386.4	
TPA-65R-LCUUUU-H8	96.0	14.4	6.7	Flat	1.385	9.60	284.1	
LGP219nn	6.3	4.4	1.4	Flat	1.200	0.19	4.9	
DC6-48-60-18-8F	24.0	11.0	2.2	Round	0.500	1.83	19.6	
RRUS 4449 B5/B12	17.9	13.2	1.4	Flat	1.200	1.64	42.0	
RRUS 4478 B14	16.5	13.4	1.2	Flat	1.200	1.54	39.4	
TME-RRUS 32 B30	27.2	12.1	2.2	Flat	1.200	2.29	58.6	
RRUS E2 B29	20.4	18.5	1.1	Flat	1.200	2.62	67.2	
RRUS 8843 B2 B66A	15.0	13.2	1.1	Flat	1.200	1.37	35.1	
Pipe2-1/2STD x 12.5 ft	150.0	2.9	52.2	Round	1.200	2.99	76.8	6.1
Pipe2STD x 8 ft	96.0	2.4	40.4	Round	1.200	1.58	40.6	5.1
Pipe2STD x 8.5 ft	102.0	2.4	42.9	Round	1.200	1.68	43.1	5.1
Pipe2STD x 2.577 ft	30.9	2.4	13.0	Round	0.934	0.51	10.2	3.9
SR 3/4 x 3.927 ft	47.1	0.8	62.8	Round	1.200	0.25	6.3	1.6
SR 5/8 x 3.333 ft	40.0	0.6	64.0	Round	1.200	0.17	4.5	1.3
Pipe2STD x 5.323 ft	63.9	2.4	26.9	Round	1.200	1.05	27.0	5.1
PL 5/8x3.5 x 0.625 ft	7.5	3.5	2.1	Flat	1.200	0.18	4.7	7.5
PL 5/8x3.5 x 0.417 ft	5.0	3.5	1.4	Flat	1.200	0.12	3.1	7.5

Job	Hartford Park St (CTL01199)
Project	49451
By	GN
Date	11/19/20

Wind Load on Antennas TIA-222-G

$q_z = 0.00256\ K_z\ K_{zt}\ K_d\ V^2\ I$

$F = q_z\ G_h\ C_a\ A_a$

Occupancy :	II		Classification of Structures (Table 2-1)
Exposure :	B		Exposure Category
V :	97	mph	Basic Wind Speed (Annex B)
z :	83	ft	Height above ground level to the center of the antenna
I :	1.00		Importance Factor (Table 2-3)
K_z :	0.94		Velocity Pressure Coefficient (2.6.5.2)
K_{zt} :	1.00		Topographic Factor (2.6.6.4)
K_d :	0.95		Wind Direction Probability Factor (Table 2-2)
q_z :	21.4	psf	Velocity Pressure at Height z
G_h :	1.00		Strength Design of Appurtenances and their Connections

Mount & Antenna Wind Loads

Appurtenance	Height	Depth	h/D	Shape	C_a	A_a	Force	Force
	in	*in*				*sq ft*	*lb*	*plf*
DMP65R-BU8D	96.0	7.7	12.5	Flat	1.582	5.13	173.5	
OPA65R-BU8DA	96.0	7.8	12.3	Flat	1.577	5.20	175.2	
TPA-65R-LCUUUU-H8	96.0	8.6	11.2	Flat	1.539	5.73	188.5	
LGP219nn	6.3	3.0	2.1	Flat	1.200	0.13	3.4	
DC6-48-60-18-8F	24.0	11.0	2.2	Round	0.500	1.83	19.6	
RRUS 4449 B5/B12	17.9	9.4	1.9	Flat	1.200	1.17	30.1	
RRUS 4478 B14	16.5	7.7	2.1	Flat	1.200	0.88	22.6	
TME-RRUS 32 B30	27.2	7.0	3.9	Flat	1.262	1.32	35.6	
RRUS E2 B29	20.4	7.5	2.7	Flat	1.210	1.06	27.5	
RRUS 8843 B2 B66A	15.0	9.3	1.6	Flat	1.200	0.96	24.6	
Pipe2-1/2STD x 12.5 ft	150.0	2.9	52.2	Round	1.200	2.99	76.8	6.1
Pipe2STD x 8 ft	96.0	2.4	40.4	Round	1.200	1.58	40.6	5.1
Pipe2STD x 8.5 ft	102.0	2.4	42.9	Round	1.200	1.68	43.1	5.1
Pipe2STD x 2.577 ft	30.9	2.4	13.0	Round	0.934	0.51	10.2	3.9
SR 3/4 x 3.927 ft	47.1	0.8	62.8	Round	1.200	0.25	6.3	1.6
SR 5/8 x 3.333 ft	40.0	0.6	64.0	Round	1.200	0.17	4.5	1.3
Pipe2STD x 5.323 ft	63.9	2.4	26.9	Round	1.200	1.05	27.0	5.1
PL 5/8x3.5 x 0.625 ft	7.5	0.0	0.0	Flat	1.200	0.00	0.0	0.0
PL 5/8x3.5 x 0.417 ft	5.0	0.0	0.0	Flat	1.200	0.00	0.0	0.0

Job	Hartford Park St (CTL01199)
Project	49451
By	GN
Date	11/19/20

Ice Wind Load on Antennas TIA-222-G

$q_z = 0.00256\ K_z\ K_{zt}\ K_d\ V^2\ I$

$F = q_z\ G_h\ C_a\ A_a$

Occupancy :	II		Classification of Structures (Table 2-1)
Exposure :	B		Exposure Category
V_i :	40	mph	Basic Wind Speed (Annex B)
z :	83	ft	Height above ground level to the center of the antenna
I :	1.00		Importance Factor (Table 2-3)
K_z :	0.94		Velocity Pressure Coefficient (2.6.5.2)
K_{zt} :	1.00		Topographic Factor (2.6.6.4)
K_d :	0.95		Wind Direction Probability Factor (Table 2-2)
q_z :	3.65	psf	Velocity Pressure at Height z
G_h :	1.00		Strength Design of Appurtenances and their Connections
t_{iz} :	2.19	in	Design Thickness of Radial Ice at Height z (2.6.8)

Mount & Antenna Ice Wind Loads

Appurtenance	Height	Width	h/D	Shape	C_a	A_a	Force	Force
	in	*in*				*sq ft*	*lb*	*plf*
DMP65R-BU8D	100.4	25.1	4.0	Flat	1.267	17.49	80.8	
OPA65R-BU8DA	100.4	25.4	4.0	Flat	1.265	17.70	81.6	
TPA-65R-LCUUUU-H8	100.4	18.8	5.3	Flat	1.326	13.10	63.3	
LGP219nn	10.7	8.8	1.2	Flat	1.200	0.65	2.9	
DC6-48-60-18-8F	28.4	15.4	1.8	Round	0.700	3.03	7.7	
RRUS 4449 B5/B12	22.3	17.6	1.3	Flat	1.200	2.72	11.9	
RRUS 4478 B14	20.9	17.8	1.2	Flat	1.200	2.58	11.3	
TME-RRUS 32 B30	31.6	16.5	1.9	Flat	1.200	3.62	15.8	
RRUS E2 B29	24.8	22.9	1.1	Flat	1.200	3.94	17.2	
RRUS 8843 B2 B66A	19.3	17.6	1.1	Flat	1.200	2.36	10.3	
Pipe2-1/2STD x 12.5 ft	154.4	7.3	21.3	Round	1.117	7.79	31.7	2.5
Pipe2STD x 8 ft	100.4	6.8	14.8	Round	0.974	4.71	16.7	2.0
Pipe2STD x 8.5 ft	106.4	6.8	15.7	Round	0.994	5.00	18.1	2.0
Pipe2STD x 2.577 ft	35.3	6.8	5.2	Round	0.760	1.66	4.6	1.6
SR 3/4 x 3.927 ft	51.5	5.1	10.0	Round	0.867	1.84	5.8	1.4
SR 5/8 x 3.333 ft	44.4	5.0	8.9	Round	0.841	1.54	4.7	1.3
Pipe2STD x 5.323 ft	68.3	6.8	10.1	Round	0.869	3.21	10.2	1.8
PL 5/8x3.5 x 0.625 ft	11.9	7.9	1.5	Flat	1.200	0.65	2.8	2.9
PL 5/8x3.5 x 0.417 ft	9.4	7.9	1.2	Flat	1.200	0.51	2.3	2.9

Job	Hartford Park St (CTL01199)
Project	49451
By	GN
Date	11/19/20

Ice Wind Load on Antennas TIA-222-G

$q_z = 0.00256\ K_z\ K_{zt}\ K_d\ V^2\ I$

$F = q_z\ G_h\ C_a\ A_a$

Occupancy :	II		Classification of Structures (Table 2-1)
Exposure :	B		Exposure Category
V_i :	40	mph	Basic Wind Speed (Annex B)
z :	83	ft	Height above ground level to the center of the antenna
I :	1.00		Importance Factor (Table 2-3)
K_z :	0.94		Velocity Pressure Coefficient (2.6.5.2)
K_{zt} :	1.00		Topographic Factor (2.6.6.4)
K_d :	0.95		Wind Direction Probability Factor (Table 2-2)
q_z :	3.65	psf	Velocity Pressure at Height z
G_h :	1.00		Strength Design of Appurtenances and their Connections
t_{iz} :	2.19	in	Design Thickness of Radial Ice at Height z (2.6.8)

Mount & Antenna Ice Wind Loads

Appurtenance	Height	Depth	h/D	Shape	C_a	A_a	Force	Force
	in	*in*				*sq ft*	*lb*	*plf*
DMP65R-BU8D	100.4	12.1	8.3	Flat	1.444	8.43	44.3	
OPA65R-BU8DA	100.4	12.2	8.2	Flat	1.441	8.50	44.6	
TPA-65R-LCUUUU-H8	100.4	13.0	7.7	Flat	1.424	9.05	47.0	
LGP219nn	10.7	7.4	1.4	Flat	1.200	0.55	2.4	
DC6-48-60-18-8F	28.4	15.4	1.8	Round	0.700	3.03	7.7	
RRUS 4449 B5/B12	22.3	13.8	1.6	Flat	1.200	2.14	9.4	
RRUS 4478 B14	20.9	12.1	1.7	Flat	1.200	1.75	7.7	
TME-RRUS 32 B30	31.6	11.4	2.8	Flat	1.212	2.50	11.0	
RRUS E2 B29	24.8	11.9	2.1	Flat	1.200	2.05	9.0	
RRUS 8843 B2 B66A	19.3	13.6	1.4	Flat	1.200	1.83	8.0	
Pipe2-1/2STD x 12.5 ft	154.4	7.3	21.3	Round	1.117	7.79	31.7	2.5
Pipe2STD x 8 ft	100.4	6.8	14.8	Round	0.974	4.71	16.7	2.0
Pipe2STD x 8.5 ft	106.4	6.8	15.7	Round	0.994	5.00	18.1	2.0
Pipe2STD x 2.577 ft	35.3	6.8	5.2	Round	0.760	1.66	4.6	1.6
SR 3/4 x 3.927 ft	51.5	5.1	10.0	Round	0.867	1.84	5.8	1.4
SR 5/8 x 3.333 ft	44.4	5.0	8.9	Round	0.841	1.54	4.7	1.3
Pipe2STD x 5.323 ft	68.3	6.8	10.1	Round	0.869	3.21	10.2	1.8
PL 5/8x3.5 x 0.625 ft	11.9	4.4	2.7	Flat	1.209	0.36	1.6	1.6
PL 5/8x3.5 x 0.417 ft	9.4	4.4	2.1	Flat	1.200	0.29	1.3	1.6

RAMAKER employee-owned

Job	Hartford Park St (CTL01199)
Project	49451
By	GN
Date	11/19/20

Ice Load on Antennas TIA-222-G

Ice Weight :	56	pcf	Ice Density
t_i :	1.00		Design Ice Thickness
Occupancy :	II		Classification of Structures (Table 2-1)
Exposure :	B		Exposure Category
V_i :	40	mph	Basic Wind Speed (Annex B)
z :	83	ft	Height above ground level to the center of the antenna
I :	1.00		Importance Factor (Table 2-3)
K_{iz} :	1.10		Height Escalation Factor for Ice Thickness
K_{zt} :	1.00		Topographic Factor (2.6.6.4)
t_{iz} :	2.19	in	Design Thickness of Radial Ice at Height z (2.6.8)

Platform Grating :	None	
Ice Load :		psf

Mount & Antenna Ice Wind Loads

Appurtenance	Height	Width	Depth	Diam.	Area	Perim.	Ice Weight	
	in	*in*	*in*	*in*	*sq in*	*in*	*lb*	*plf*
DMP65R-BU8D	100.4	25.1	12.1	22.09	167.29	65.57	520.5	
OPA65R-BU8DA	100.4	25.4	12.2	22.40	169.47	66.37	527.2	
TPA-65R-LCUUUU-H8	100.4	18.8	13.0	16.77	130.68	54.77	406.6	
LGP219nn	10.7	8.8	7.4	5.33	51.81	23.57	10.6	
DC6-48-60-18-8F	28.4	15.4	15.4	11.00	90.91	41.45	70.7	
RRUS 4449 B5/B12	22.3	17.6	13.8	16.22	126.87	54.03	73.6	
RRUS 4478 B14	20.9	17.8	12.1	15.45	121.60	50.97	65.0	
TME-RRUS 32 B30	31.6	16.5	11.4	13.98	111.43	46.97	98.2	
RRUS E2 B29	24.8	22.9	11.9	19.96	152.66	60.77	100.9	
RRUS 8843 B2 B66A	19.3	17.6	13.6	16.11	126.12	53.65	61.1	
Pipe2-1/2STD x 12.5 ft	154.4	7.3	7.3	2.88	34.92	15.92	169.8	13.6
Pipe2STD x 8 ft	100.4	6.8	6.8	2.38	31.48	14.35	97.9	12.2
Pipe2STD x 8.5 ft	106.4	6.8	6.8	2.38	31.48	14.35	104.0	12.2
Pipe2STD x 2.577 ft	35.3	6.8	6.8	2.38	31.48	14.35	31.5	12.2
SR 3/4 x 3.927 ft	51.5	5.1	5.1	0.75	20.28	9.25	31.0	7.9
SR 5/8 x 3.333 ft	44.4	5.0	5.0	0.63	19.42	8.85	25.2	7.6
Pipe2STD x 5.323 ft	68.3	6.8	6.8	2.38	31.48	14.35	65.2	12.2
PL 5/8x3.5 x 0.625 ft	11.9	7.9	4.4	3.55	39.58	16.97	9.6	15.4
PL 5/8x3.5 x 0.417 ft	9.4	7.9	4.4	3.55	39.58	16.97	6.4	15.4

DELIVERED

Signed for by: Signature on File

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FROM

Smartlink LLC
Will Noel
85 Rangeway Road
Bldg. 3 - Suite 102
North Billerica, MA US 01821
978 799-1886

TO

City of Hartford First Selectman
Luke Bronin
500 MAIN ST
FL 2
HARTFORD, CT US 06103300300
860 757-9500

Travel History | Shipment Facts

Local Scan Time

Tuesday , 12/29/2020			
	8:53 am	Hartford, CT	Delivered Signature on file

Expand History

Wednesday , 12/16/2020			
	4:26 pm		Shipment information sent to FedEx

Delivered
Monday 12/21/2020 at 1:32 pm

DELIVERED

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FROM

Smartlink LLC
Will Noel
85 Rangeway Road
Bldg. 3 - Suite 102
North Billerica, MA US 01821
978 799-1886

TO

2074-2100 Park Street, LLC
ATTN: Property Management
2074 PARK ST
STE 100
HARTFORD, CT US 06106206025
978 799-1886

Travel History | Shipment Facts

Local Scan Time

772396155322

Delivered
Monday 12/21/2020 at 1:32 pm

DELIVERED

Signature Not Req

GET STATUS UPDATES

OBTAIN PROOF OF DELIVERY

FROM

Smartlink LLC
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North Billerica, MA US 01821
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