NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

Northeast Site Solutions
420 Main Street, Unit 2
Sturbridge MA 01566

August 7, 2019

Members of the Siting Council
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: Notice of Exempt Modification
1030 New Britain Avenue, West Hartford, CT 06110
Latitude: 41.73130 N
Longitude: -72.72380 W
T-Mobile Site Number: CT11170C_Anchor

Dear Ms. Bachman:
T-Mobile currently maintains six (6) antennas at the 165-foot level of the existing 180-foot lattice tower at 1030 New Britain Avenue, West Hartford CT 06110. The tower is owned by Ten Thirty Building Co LLC. The property is owned by Ten Thirty Building Co LLC c/o Hirschfeld MGMT Inc. T-Mobile now intends to replace three (3) of its existing antennas with three (3) new 600/700 MHz antenna, replace (3) RRU and add (1) hybrid cable. The new antennas would be installed at the 165-foot level of the tower.

Planned Modifications:
Remove:
(6) 1-5/8" Coax
(3) Twin TMA

Remove and Replace:
(3)AIR21 B2A /B4P (REMOVE) - (3) AIR3246 B66 Antenna (REPLACE)

Install New:
(3) Hybrid Cable
(3) AIR6488
(3) RRU4415
(3)SITEPro 1 Reinforcement Kits

Existing to Remain:
(3)AIR32 B66Aa/B2a Antenna
(3) RFS-APXAARR24_43-U-NA20 Antenna

(3) RRU 4449
(1) 1-5/8" Coax
(5) 1-5/8" Hybrid Cable

Ground:
(1) New 6160 Site Support Cabinet
B160 Battery Cabinet
Remove (2) S8000 Cabinets
Internally Upgrading 6131 Cabinet

This facility was approved by Town of West Hartford PZC. Site plan approval was granted in 1997 for the construction of a 199 foot communication tower. Please see attached.
Also attached is most recent T-Mobile Exempt Modification.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies§ 16- SOj-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.SA. § 16-SOj-73, a copy of this letter is being sent to Mayor Shari Cantor, Elected Official and Todd Dumais, Town Planner for the Town of West Hartford, as well as the property owner and the tower owner.

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

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

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

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

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

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

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

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

Sincerely,

Denise Sabo
Mobile: 860-209-4690
Fax: 413-521-0558
Office: 199 Brickyard Rd, Farmington, CT 06032
Email: denise@northeastsitesolutions.com

Attachments
cc: Honorable Shari Cantor- Mayor of West Hartford
50 S Main Street
West Hartford CT 06107

Town of West Hartford
50 S Main Street
West Hartford CT 06107
Attn: Zoning Department
Todd Dumais– West Hartford Town Planner

Town of West Hartford
50 S Main Street
West Hartford, CT 06107
Attn: Matt Hart- Town Manager

Ten Thirty Building Co LLC c/o Hirschfeld MGMT Inc – as tower and property owner
c/o Hirschfeld Management Inc.
1030 New Britain Avenue
West Hartford CT 06110

Exhibit A

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square
New Britain, Connecticut 06051
Phone: (860) 827-2935
Fax: (860) 827-2950

June 23, 1999

Ronald C. Clark
Manager, Real Estate Operations
Nextel Communications
100 Corporate Place
Rocky Hill, CT 06067

RE: TS-NEXTEL-155-990527 – Nextel Communications request for an order to approve tower sharing at an existing telecommunications facility located at 1030 New Britain Avenue in West Hartford, Connecticut.

Dear Mr. Clark:

At a public meeting held June 16, 1999, the Connecticut Siting Council (Council) ruled that the shared use of this existing tower site is technically, legally, environmentally, and economically feasible and meets public safety concerns, and therefore, in compliance with General Statutes § 16-50aa, the Council has ordered the shared use of this facility to avoid the unnecessary proliferation of tower structures.

This facility has been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequency now used on this tower. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Any deviation from this format may result in the Council implementing enforcement proceedings pursuant to General Statutes § 16-50u including, without limitation, imposition of expenses resulting from such failure and of civil penalties in an amount not less than one thousand dollars per day for each day of construction or operation in material violation.

This decision applies only to this request for tower sharing and is not applicable to any other request or construction.

The proposed shared use is to be implemented as specified in your letter dated May 27, 1999. Please notify the Council when all work is complete.

Very truly yours,

Mortimer A. Gelston
Chairman

MAG/RKE/tsg

c: Barry M. Feldman, Town Manager, Town of West Hartford

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STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
www.ct.gov/csc

September 6, 2016

Denise Sabo
Northeast Site Solutions
199 Brickyard Road
Farmington, CT 06032

RE: **EM-T-MOBILE-155-160816** - T-Mobile notice of intent to modify an existing telecommunications facility located at 1030 New Britain Avenue, West Hartford, Connecticut.

Dear Ms. Sabo:

The Connecticut Siting Council (Council) hereby acknowledges your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies with the following conditions:

1. Fiber cables and feed lines to the 165-foot level shall be installed in accordance with the structural analysis report performed by Paul J. Ford & Company dated July 26, 2016 and stamped by Joseph Jacobs;

2. Within 45 days following completion of equipment installation, T-Mobile shall provide documentation that its installation complied with the recommendations of the structural analysis;

3. Any deviation from the proposed modification as specified in this notice and supporting materials with the Council shall render this acknowledgement invalid;

4. Any material changes to this modification as proposed shall require the filing of a new notice with the Council;

5. Within 45 days after completion of construction, the Council shall be notified in writing that construction has been completed;

6. Any nonfunctioning antenna and associated antenna mounting equipment on this facility owned and operated by T-Mobile shall be removed within 60 days of the date the antenna ceased to function;

7. The validity of this action shall expire one year from the date of this letter; and

8. The applicant may file a request for an extension of time beyond the one year deadline provided that such request is submitted to the Council not less than 60 days prior to the expiration.

The proposed modifications including the placement of all necessary equipment and shelters within the tower compound are to be implemented as specified here and in your notice dated August 15, 2016. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site by any dimension, increase noise levels at the tower site boundary by six decibels or more, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standards adopted by the Federal Communications Commission pursuant to Section 704 of the Telecommunications Act of 1996 and by the state Department of Energy and Environmental Protection pursuant to Connecticut General Statutes § 22a-162. This facility has also been

carefully modeled to ensure that radio frequency emissions are conservatively below state and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Thank you for your attention and cooperation.

Very truly yours,

Melanie A. Bachman
Acting Executive Director

MAB/FOC/lm

c: The Honorable Shari Cantor, Mayor, Town of West Hartford
Ronald Van Winkle, Town Manager, Town of West Hartford
Todd Dumais, Town Planner, Town of West Hartford
Ten Thirty Building Co. LLC c/o Hirschfeld MGMT Inc.

Exhibit B

1030 NEW BRITAIN AVENUE

Location	1030 NEW BRITAIN AVENUE	Mblu	H15/ 3771/ 1030/ /
Parcel ID	3771 2 1030 0001	Owner	TEN THIRTY BUILDING COMPANY LLC
Assessment	$1,088,220	Appraisal	$1,554,600
Vision Id #	18633	**Building Count**	2

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2013	$865,700	$688,900	$1,554,600
Assessment			
Valuation Year	Improvements	Land	Total
2013	$605,990	$482,230	$1,088,220

Owner of Record

Owner	TEN THIRTY BUILDING COMPANY LLC	Sale Price	$1
Co-Owner		Certificate	1
Address	C/O HIRSCHFELD MGMT INC #106 1030 NEW BRITAIN AVENUE W HARTFORD, CT 06110	Book & Page	2004/ 148
		Sale Date	04/21/1995
		Instrument	U

Ownership History

Ownership History					
Owner	Sale Price	Certificate	Book & Page	Instrument	Sale Date
TEN THIRTY BUILDING COMPANY LLC	$1	1	2004/ 148	U	04/21/1995
HIRSCHFELD HELENE FERN TR	$0	1	911/ 85	U	04/18/1984
RUBIN LUCILLE AND	$650,000	1	685/ 183	U	05/17/1979
LINCOLN ICE CREAM CO INC	$0	1	627/ 47	U	10/09/1978
	$0	1	534/ 67	U	

Building Information

Building 1 : Section 1

Year Built:	1957
Living Area:	11,520
Replacement Cost:	$425,877

Building Percent Good:	33
Replacement Cost Less Depreciation:	$140,500

Building Attributes	
Field	Description
STYLE	Distribution Whse
MODEL	Comm/Ind
Grade	D 0.75
Stories:	1
Occupancy	
Exterior Wall 1	Concrete Block
Exterior Wall 2	
Roof Structure	Curved Roof
Roof Cover	Metal Ribbed
Interior Wall 1	Typical
Interior Wall 2	
Floor Type	Concrete Slab
Floor Cover	Carpet
Heating Fuel	Typical
Heating Type	Forced Hot Air
AC Type	Central - Zone
As Built Use	TSGR
Bldg Use	Commercial
# of Bedrooms	
Total Baths	
Type	01
Wet Sprinkler	100
Dry Sprinkler	
1st Floor Use:	
Class	Class C
Frame Type	Rigid Steel
Plumbing	LIGHT
Ceiling	Acoustic Panel
Group	IND
Wall Height	15
Adjustment	

Building Photo

(http://images.vgsi.com/photos/WestHartfordCTPhotos//\00\01

Building Layout

Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
DST	DISTRIBUTION WHSE	11,520	11,520
COM	COMMERCIAL - NV	11,520	0
		23,040	11,520

Building 2 : Section 1

Year Built:	1960
Living Area:	24,386
Replacement Cost:	$1,988,911
Building Percent	34

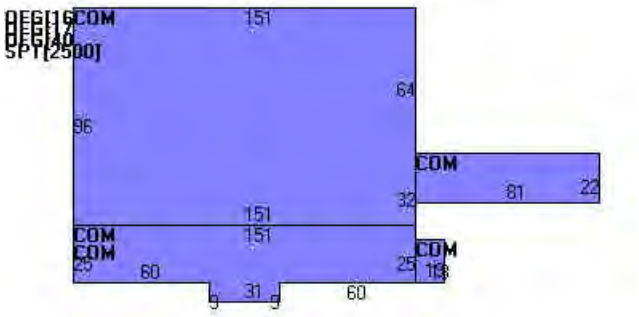
Good:
Replacement Cost
Less Depreciation: $676,200

Building Attributes : Bldg 2 of 2	
Field	Description
STYLE	Office Gen Lowrise
MODEL	Comm/Ind
Grade	D 0.75
Stories:	2
Occupancy	
Exterior Wall 1	Precast Panel
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	Built Up
Interior Wall 1	Typical
Interior Wall 2	
Floor Type	Concrete Slab
Floor Cover	None
Heating Fuel	Typical
Heating Type	None
AC Type	None
As Built Use	LNDP
Bldg Use	Commercial
# of Bedrooms	
Total Baths	
Type	01
Wet Sprinkler	
Dry Sprinkler	
1st Floor Use:	
Class	Class C
Frame Type	Rigid Steel
Plumbing	LIGHT
Ceiling	Not Applicable
Group	OFF
Wall Height	8
Adjustment	

Building Photo

(http://images.vgsi.com/photos/WestHartfordCTPhotos//default

Building Layout



Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
OFG	OFFICE GENERAL LOWRISE	21,886	21,886
SPT	MISC SPORT FACILITY	2,500	2,500
COM	COMMERCIAL - NV	24,633	0
		49,019	24,386

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	201
Description	Commercial
Zone	BG
Neighborhood	
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	2.82
Frontage	
Depth	
Assessed Value	$482,230
Appraised Value	$688,900

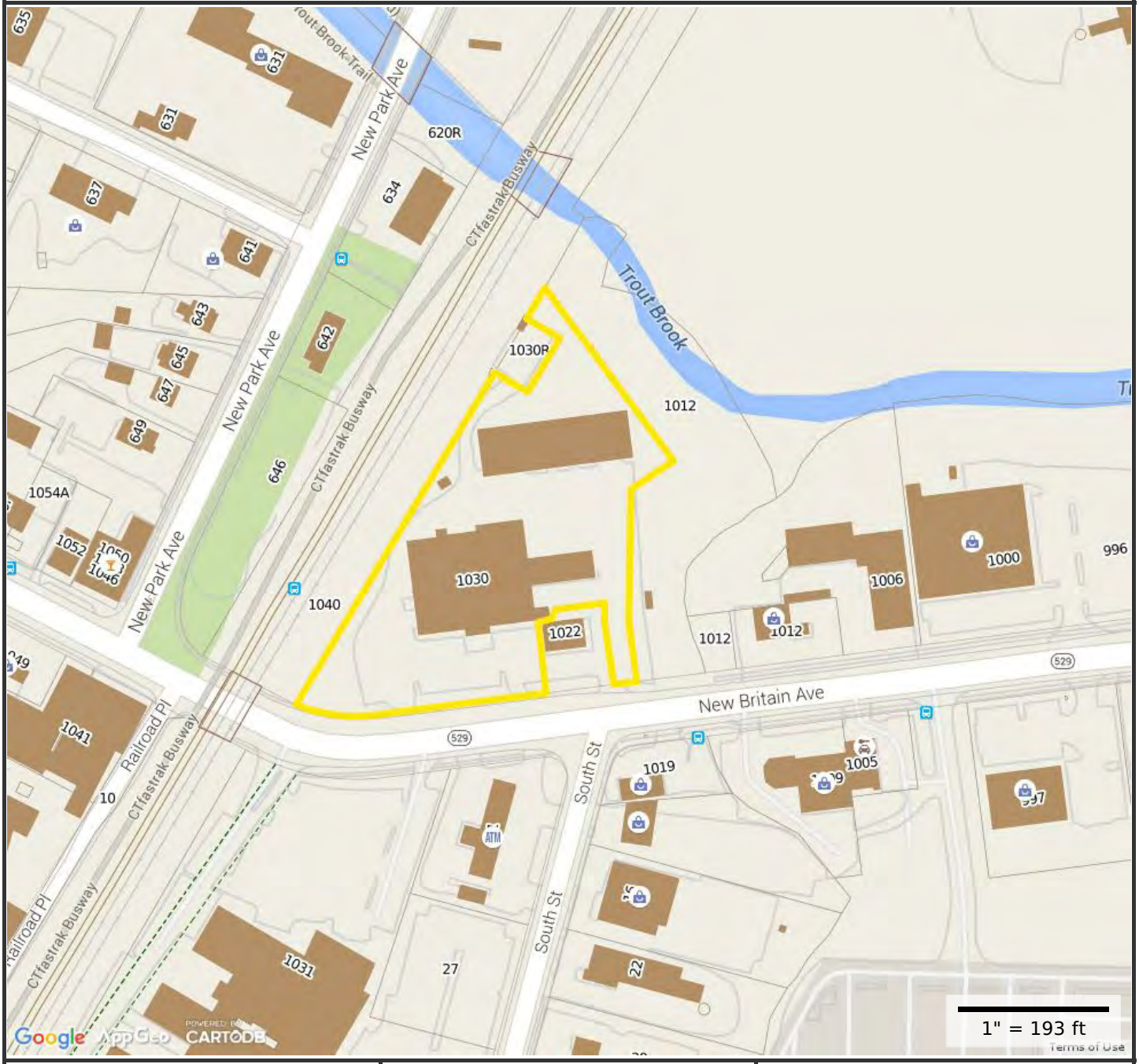
Outbuildings

Outbuildings						Legend
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
CLP4	Paving, Asphalt			5700 SF	$5,300	1
COH1	Overhead Door Commercial			100 UNIT	$400	1
COH3	Overhead Metal Door			330 UNIT	$2,000	1
CLP4	Paving, Asphalt			39375 SF	$36,800	1
CLD2	Loading Dock - Stl/Conc			330 SF	$1,100	1
CCP5	Canopy-roof only			594 SF	$3,000	1
CFC5	Shed - Concrete Block			169 SF	$400	1

Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2014	$865,700	$688,900	$1,554,600
2013	$865,700	$688,900	$1,554,600
2012	$865,700	$688,900	$1,554,600

Assessment			
Valuation Year	Improvements	Land	Total
2014	$605,990	$482,230	$1,088,220
2013	$605,990	$482,230	$1,088,220
2012	$605,990	$482,230	$1,088,220



Property Information

Property ID	3771 2 1030 0001
Location	1030 NEW BRITAIN AVENUE
Owner	TEN THIRTY BUILDING COMPANY LLC

TOWN OF WEST HARTFORD

MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT

Town of West Hartford, CT makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Parcels updated 5/22/2015
Properties updated Daily

Exhibit C

ANTENNA UPGRADES BY

T-Mobile

T-MOBILE NORTHEAST LLC

PROJECT: ANCHOR

SITE NUMBER: CT11170C

SITE NAME: HARTFORD/ N. BRITAIN AVE_1

SITE ADDRESS: 1030 NEW BRITAIN AVE

WEST HARTFORD, CT 06110

(RF CONFIGURATION 67D5992M_3XAIR+1OP)

PROJECT NOTES:

1. THIS IS AN UNMANNED TELECOMMUNICATION FACILITY AND NOT FOR HUMAN HABITATION:
   HANDICAPPED ACCESS IS NOT REQUIRED.
   POTABLE WATER OR SANITARY SERVICE IS NOT REQUIRED.
   NO OUTDOOR STORAGE OR ANY
   SOLID WASTE RECEPTACLES REQUIRED.
2. CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, AND CONDITIONS ON THE JOB SITE. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK. FAILURE TO NOTIFY THE ARCHITECT/ENGINEER PLACES THE RESPONSIBILITY ON THE CONTRACTOR TO CORRECT THE DISCREPANCIES AT THE CONTRACTOR'S EXPENSE.
3. DEVELOPMENT AND USE OF THE SITE WILL CONFORM TO ALL APPLICABLE CODES, ORDINANCES AND SPECIFICATIONS.

STRUCTURAL NOTES:

PRIOR TO INSTALLATION OF THE PROPOSED EQUIPMENT CONTRACTOR SHOULD REVIEW THE STRUCTURAL ANALYSIS REPORT DATED JULY 9, 2019 PREPARED BY PAUL J. FORD & COMPANY AND THE MOUNT EVALUATION REPORT DATED JULY 14, 2019 PREPARED BY DESTEK ENGINEERING, LLC. AND ADHERE TO THE REPORTS FULLY AND ALL THE RECOMMENDATIONS THEREIN, INCLUDING BUT NOT LIMITED TO ANTENNA PLACEMENT, COAX ROUTING, STRUCTURAL IMPROVEMENTS, ETC.

APPLICABLE STATE ADOPTED CODES:

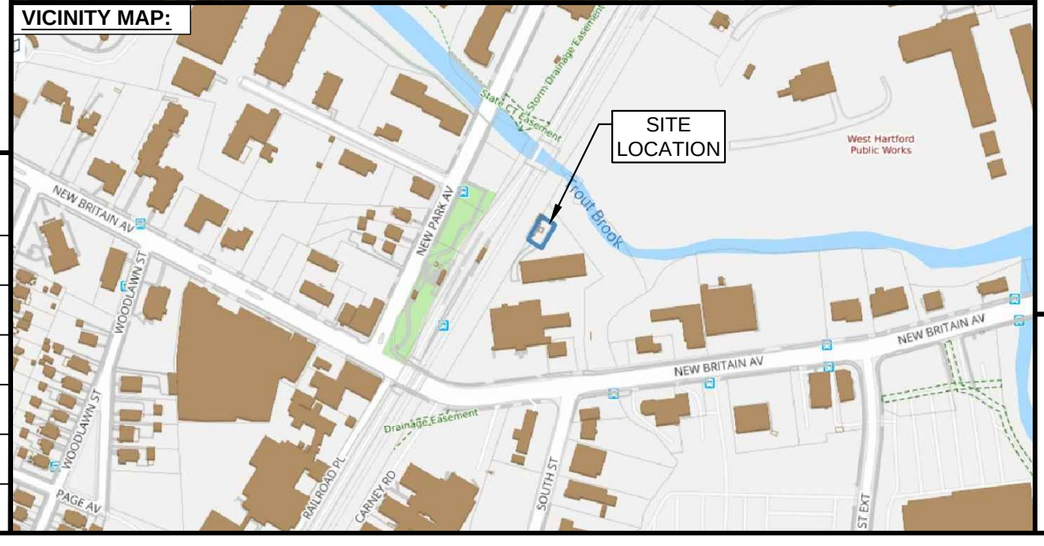
LATEST EDITION OF:
CONNECTICUT STATE BUILDING CODE (CSBC).
ANSI/TIA-222-G STRUCTURAL STANDARD FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS.
NATIONAL ELECTRICAL CODE (NEC) FOR POWER AND GROUNDING REQUIREMENTS.
OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA).
NFPA - NATIONAL FIRE PROTECTION ASSOCIATION.

APPROVALS:

FSA CM	DATE
RF ENGINEER	DATE
FOPS	DATE
T-MOBILE ENGINEERING AND DEVELOPMENT	DATE
	DATE
	DATE

SITE IMAGE:

VICINITY MAP:



PROJECT SCOPE:

UPGRADE OF EXISTING WIRELESS FACILITY AS FOLLOWS:

UPGRADE EXISTING RBS 6131 CABINET INTERNALLY.
UPGRADE EXISTING ANTENNA MOUNT.
REPLACE (3) OF (9) EXISTING ANTENNAS AND ADD (3) NEW ANTENNAS.
ADD (1) 6160 AND (1) B160 CABINETS.
ADD (3) REMOTE RADIO UNITS AT ANTENNAS FOR A TOTAL OF (6).
REMOVE (3) TOWER MOUNTED AMPLIFIERS (TMA) AT ANTENNAS.
ANTENNA FEED LINES, EXISTING CONFIGURATION: (9) 1-5/8",
FINAL CONFIGURATION: (1) 1-5/8" AND (5) 1-1/4".

PROJECT INFORMATION:

ADDRESS:	1030 NEW BRITAIN AVE WEST HARTFORD, CT 06110
STRUCTURE TYPE:	LATTICE TOWER
COORDINATES:	41.73130 N -72.72380 W

PROJECT TEAM:

APPLICANT:	T-MOBILE NORTHEAST, LLC. 35 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002 860-692-7100
LANDLORD:	HIRSCHFELD COMMUNICATIONS LLC 1030 NEW BRITAIN AVENUE WEST HARTFORD, CONNECTICUT 06110 860.953.7000 FAX 860.953.9300
PROJECT MANAGER:	NORTHEAST SITE SOLUTIONS 420 MAIN STREET, BLDG 4 STURBRIDGE, MA 01566 SHELDON FREINCLE SHELDON@NORTHEASTSITESOLUTIONS.COM 201-776-8521
CONSULTANTS:	FORESITE LLC 462 WALNUT ST NEWTON, MA 02460 SAEED MOSSAVAT SMOSSAVAT@FORESITELLC.COM 617-212-3123

SHEET INDEX:

APPLICANT:

T-Mobile

T-MOBILE NORTHEAST LLC

35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
860-692-7100

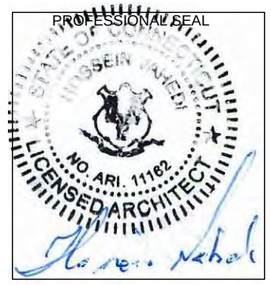
PROJECT MANAGER

NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development
420 MAIN STREET, BLDG 4
STURBRIDGE, MA 01566
203-275-6669

CONSULTANT:

FORESITE LLC
Architects . Engineers . Surveyors
462 WALNUT STREET
NEWTON, MA 02460
617-212-3123

PROFESSIONAL SEAL



DRAWING SCALES ARE INTENDED FOR 11"x17" SIZE PRINTED MEDIA ONLY. ALL OTHER PRINTED SIZES ARE DEEMED "NOT TO SCALE".

REV	DESCRIPTION	DATE
A	PRELIMINARY	04/13/19
B	REVISED PER COMMENTS	05/18/19
C	REVISED CABLE CONFIG.	05/27/19
0	SIGNED AND SEALED ISSUED	05/28/19
1	INCORPORATED MOUNT MODS	06/25/19
2	ANTENNA MODEL CORRECTED	07/25/19
3	REVISED PER COMMENTS	07/31/19

SITE NUMBER: CT11170C
SITE NAME: HARTFORD/ N. BRITAIN AVE_1
SITE ADDRESS: 1030 NEW BRITAIN AVE
WEST HARTFORD, CT 06110

SHEET TITLE:

T-1: TITLE SHEET

GENERAL NOTES:

1. THE CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY, MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS, AND LOCAL AND STATE JURISDICTIONAL CODES BEARING ON THE PERFORMANCE OF THE WORK. THE WORK PERFORMED ON THE PROJECT AND THE MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES.

2. THE ARCHITECT/ENGINEER HAS MADE EVERY EFFORT TO SET FORTH IN THE CONSTRUCTION AND CONTRACT DOCUMENTS THE COMPLETE SCOPE OF WORK. THE CONTRACTOR BIDDING THE JOB IS NEVERTHELESS CAUTIONED THAT MINOR OMISSIONS OR ERRORS IN THE DRAWINGS AND OR SPECIFICATIONS SHALL NOT EXCUSE SAID CONTRACTOR FROM COMPLETING THE PROJECT AND IMPROVEMENTS IN ACCORDANCE WITH THE INTENT OF THESE DOCUMENTS.

3. THE CONTRACTOR OR BIDDER SHALL BEAR THE RESPONSIBILITY OF NOTIFYING (IN WRITING) THE CLIENT'S REPRESENTATIVE OF ANY CONFLICTS, ERRORS, OR OMISSIONS PRIOR TO THE SUBMISSION OF CONTRACTOR'S PROPOSAL OR PERFORMANCE OF WORK.

5. THE CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO THE SUBMISSION OF BIDS OR PERFORMING WORK TO FAMILIARIZE HIMSELF WITH THE FIELD CONDITIONS AND TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS.

6. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS ACCORDING TO THE MANUFACTURER'S / VENDOR'S SPECIFICATIONS UNLESS NOTED OTHERWISE OR WHERE LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.

7. THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS DURING CONSTRUCTION.

8. THE CONTRACTOR SHALL COMPLY WITH ALL PERTINENT SECTIONS OF THE BASIC STATE BUILDING CODE, LATEST EDITION, AND ALL OSHA REQUIREMENTS AS THEY APPLY TO THIS PROJEC

9. THE CONTRACTOR SHALL NOTIFY THE CLIENT'S REPRESENTATIVE IN WRITING WHERE A CONFLICT OCCURS ON ANY OF THE CONTRACT DOCUMENTS. THE CONTRACTOR IS NOT TO ORDER MATERIAL OR CONSTRUCT ANY PORTION OF THE WORK THAT IS IN CONFLICT UNTIL CONFLICT IS RESOLVED BY THE CLIENT'S REPRESENTATIVE.

10. THE WORK SHALL CONFORM TO THE CODES AND STANDARDS OF THE FOLLOWING AGENCIES AS FURTHER CITED HEREIN:

A. ASTM: AMERICAN SOCIETY FOR TESTING AND MATERIALS, AS PUBLISHED IN "COMPILATION OF ASTM STANDARDS BUILDING CODES" OR LATEST EDITION.

B. AWS: AMERICAN WELDING SOCIETY INC. AS PUBLISHED IN "STANDARD D1.1–08, STRUCTURAL WELDING CODE" OR LATEST EDITION.

C. AISC: AMERICAN INSTITUTE FOR STEEL CONSTRUCTION AS PUBLISHED IN "CODE FOR STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES"; "SPECIFICATIONS FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS" (LATEST EDITION).

11. BOLTING:

A. BOLTS SHALL BE CONFORMING TO ASTM A325 HIGH STRENGTH, HOT DIP GALVANIZED WITH ASTM A153 HEAVY HEX TYPE NUTS.

B. BOLTS SHALL BE 3/4"ø MINIMUM (UNLESS OTHERWISE NOTED)

C. ALL CONNECTIONS SHALL BE 2 BOLTS MINIMUM.

12. FABRICATION:

A. FABRICATION OF STEEL SHALL CONFORM TO THE AISC AND AWS STANDARDS AND CODES (LATEST EDITION).

B. ALL STRUCTURAL STEEL SHALL BE HOT–DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 (LATEST EDITION), UNLESS OTHERWISE NOTED.

13. ERECTION OF STEEL:

A. PROVIDE ALL ERECTION EQUIPMENT, BRACING, PLANKING, FIELD BOLTS, NUTS, WASHERS, DRIFT PINS, AND SIMILAR MATERIALS WHICH DO NOT FORM A PART OF THE COMPLETED CONSTRUCTION BUT ARE NECESSARY FOR ITS PROPER ERECTION.

B. ERECT AND ANCHOR ALL STRUCTURAL STEEL IN ACCORDANCE WITH AISC REFERENCE STANDARDS. ALL WORK SHALL BE ACCURATELY SET TO ESTABLISHED LINES AND ELEVATIONS AND RIGIDLY FASTENED IN PLACE WITH SUITABLE ATTACHMENTS TO THE CONSTRUCTION OF THE BUILDING.

C. TEMPORARY BRACING, GUYING AND SUPPORT SHALL BE PROVIDED TO KEEP THE STRUCTURE SAFE AND ALIGNED AT ALL TIMES DURING CONSTRUCTION, AND TO PREVENT DANGER TO PERSONS AND PROPERTY. CHECK ALL TEMPORARY LOADS AND STAY WITHIN SAFE CAPACITY OF ALL BUILDING COMPONENTS.

14. ANTENNA INSTALLATION:

A. INSTALL ANTENNAS AS INDICATED ON DRAWINGS AND CLIENT'S REPRESENTATIVE SPECIFICATIONS.

B. INSTALL GALVANIZED STEEL ANTENNA MOUNTS AS INDICATED ON DRAWINGS.

C. INSTALL COAXIAL / FIBER CABLES AND TERMINATIONS BETWEEN ANTENNAS AND EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS. WEATHERPROOF ALL CONNECTORS BETWEEN THE ANTENNA AND EQUIPMENT PER MANUFACTURER'S REQUIREMENTS.

15. ANTENNA AND COAXIAL / FIBER CABLE GROUNDING:

A. ALL EXTERIOR #6 GREEN GROUND WIRE "DAISY CHAIN" CONNECTIONS ARE TO BE WEATHER SEALED WITH ANDREWS CONNECTOR/SPLICE WEATHERPROOFING KIT TYPE #221213 OR EQUAL.

B. ALL COAXIAL / FIBER CABLE GROUNDING KITS ARE TO BE INSTALLED ON STRAIGHT RUNS OF COAXIAL / FIBER CABLE (NOT WITHIN BENDS).

16. RELATED WORK, FURNISH THE FOLLOWING WORK AS SPECIFIED UNDER CONSTRUCTION DOCUMENTS, BUT COORDINATE WITH OTHER TRADES PRIOR TO BID:

A. FLASHING OF OPENING INTO OUTSIDE WALLS

B. SEALING AND CAULKING ALL OPENINGS

C. PAINTING

D. CUTTING AND PATCHING

17. REQUIREMENTS OF REGULATORY AGENCIES:

A. FURNISH U.L. LISTED EQUIPMENT WHERE SUCH LABEL IS AVAILABLE. INSTALL IN CONFORMANCE WITH U.L. STANDARDS WHERE APPLICABLE.

B. INSTALL ANTENNA, ANTENNA CABLES, GROUNDING SYSTEM IN ACCORDANCE WITH DRAWINGS AND SPECIFICATION IN EFFECT AT PROJECT LOCATION AND RECOMMENDATIONS OF STATE AND LOCAL BUILDING CODES, AND SPECIAL CODES HAVING JURISDICTION OVER SPECIFIC PORTIONS OF WORK. THIS WORK INCLUDES BUT IS NOT LIMITED TO THE FOLLOWING:

C. TIA–EIA – 222 (LATEST EDITION). STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES.

D. FAA – FEDERAL AVIATION ADMINISTRATION ADVISORY CIRCULAR AC 70/7460–IH, OBSTRUCTION MARKING AND LIGHTING.

E. FCC – FEDERAL COMMUNICATIONS COMMISSION RULES AND REGULATIONS FORM 715, OBSTRUCTION MARKING AND LIGHTING SPECIFICATION FOR ANTENNA STRUCTURES AND FORM 715A, HIGH INTENSITY OBSTRUCTION LIGHTING SPECIFICATIONS FOR ANTENNA STRUCTURES.

F. AISC – AMERICAN INSTITUTE OF STEEL CONSTRUCTION SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 BOLTS (LATEST EDITION).

G. NEC – NATIONAL ELECTRICAL CODE – ON TOWER LIGHTING KITS.

H. UL – UNDERWRITER'S LABORATORIES APPROVED ELECTRICAL PRODUCTS.

I. IN ALL CASES, PART 77 OF THE FAA RULES AND PARTS 17 AND 22 OF THE FCC RULES ARE APPLICABLE AND IN THE EVENT OF CONFLICT, SUPERSEDE ANY OTHER STANDARDS OR SPECIFICATIONS.

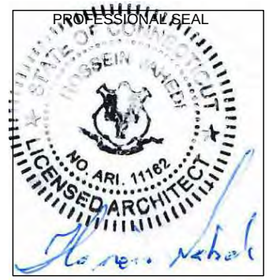
J. 2009 LIFE SAFETY CODE NFPA – 101.

APPLICANT:
T-MOBILE NORTHEAST LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
860-692-7100

PROJECT MANAGER
NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development
420 MAIN STREET, BLDG 4
STURBRIDGE, MA 01566
203-275-6669

CONSULTANT:
FORESITE LLC
Architects . Engineers . Surveyors
462 WALNUT STREET
NEWTON, MA 02460
617-212-3123

PROFESSIONAL SEAL



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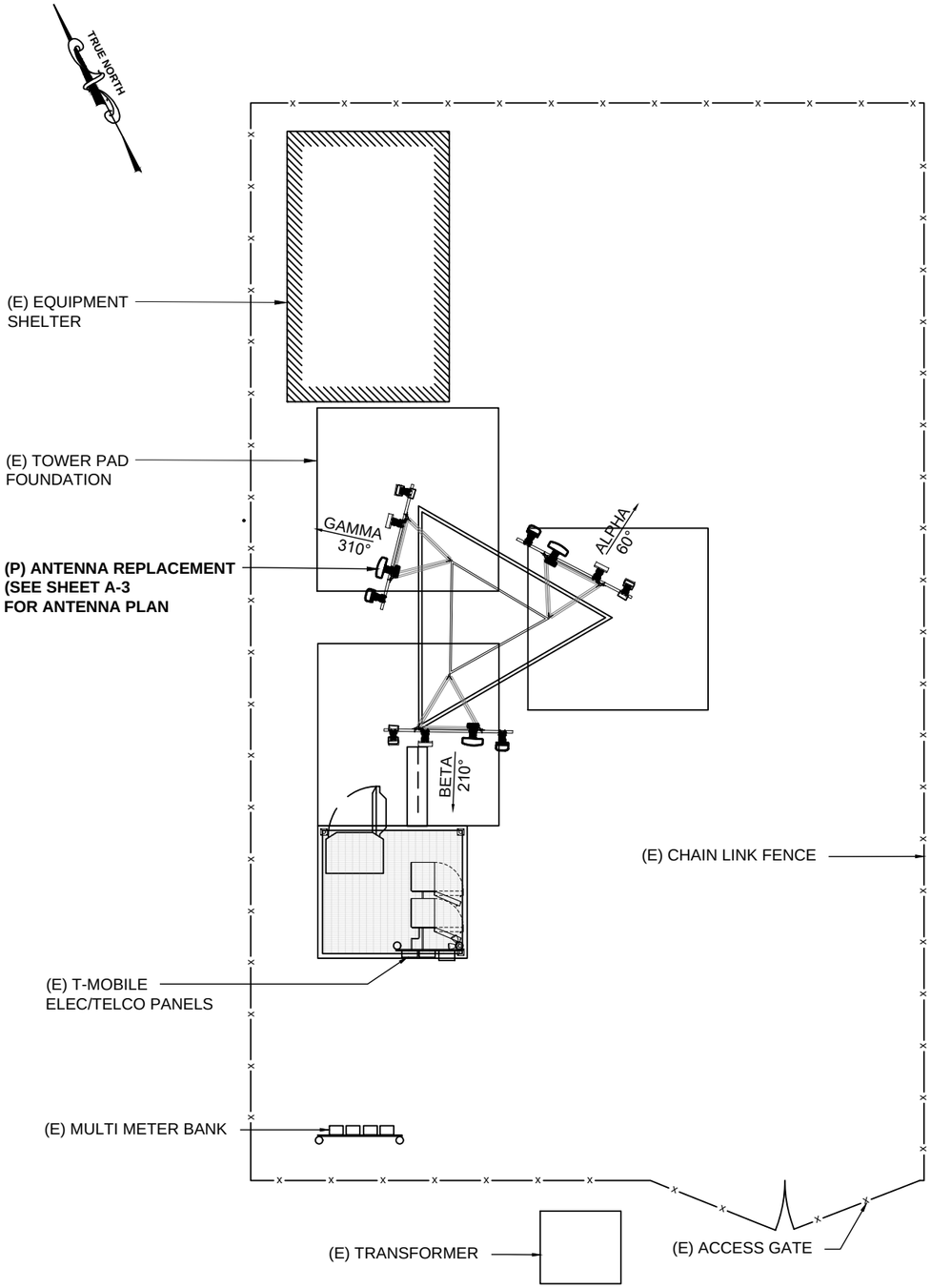
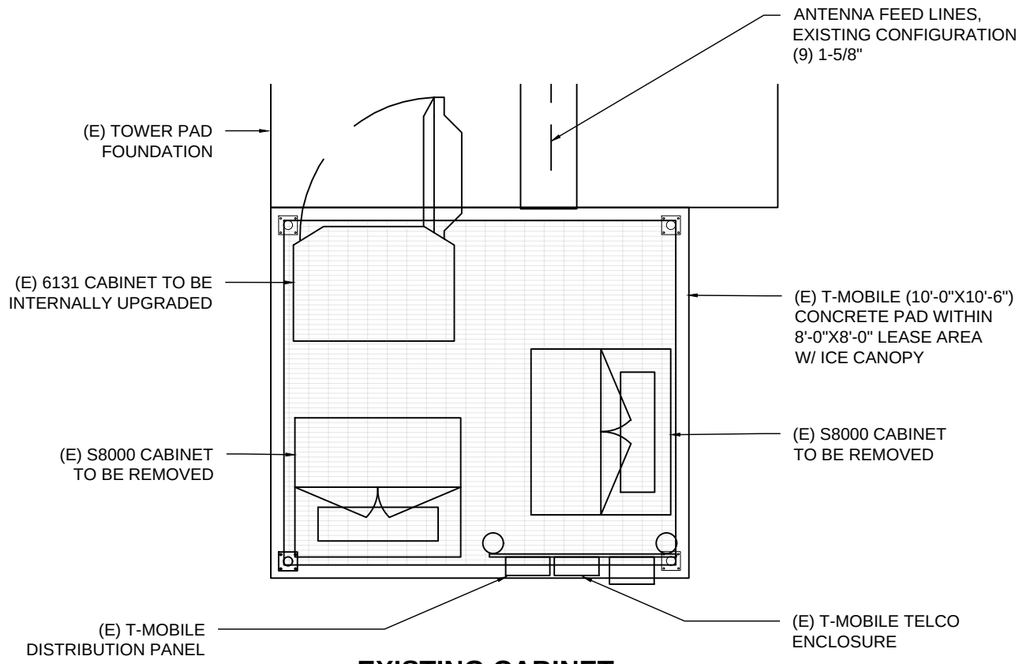
1	INCORPORATED MOUNT MODS	06/25/19
2	ANTENNA MODEL CORRECTED	07/25/19
3	REVISED PER COMMENTS	07/31/19

SITE NUMBER: CT11170C
SITE NAME: HARTFORD/ N. BRITAIN AVE_1
SITE ADDRESS: 1030 NEW BRITAIN AVE
WEST HARTFORD, CT 06110

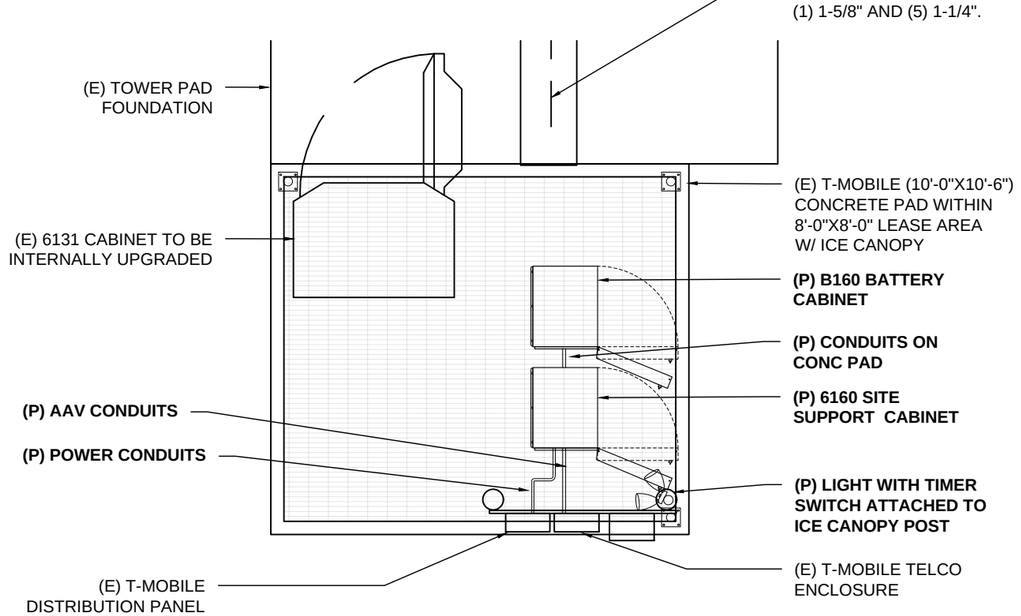
SHEET TITLE:
N-1: NOTES AND DISCLAIMERS



SITE PLAN
SCALE: 3/32" = 1'-0" (1 / A-1)



EXISTING CABINET LAYOUT PLAN
SCALE: 1/4" = 1'-0" (2 / A-1)



PROPOSED CABINET LAYOUT PLAN
SCALE: 1/4" = 1'-0" (3 / A-1)

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PROFESSIONAL SEAL

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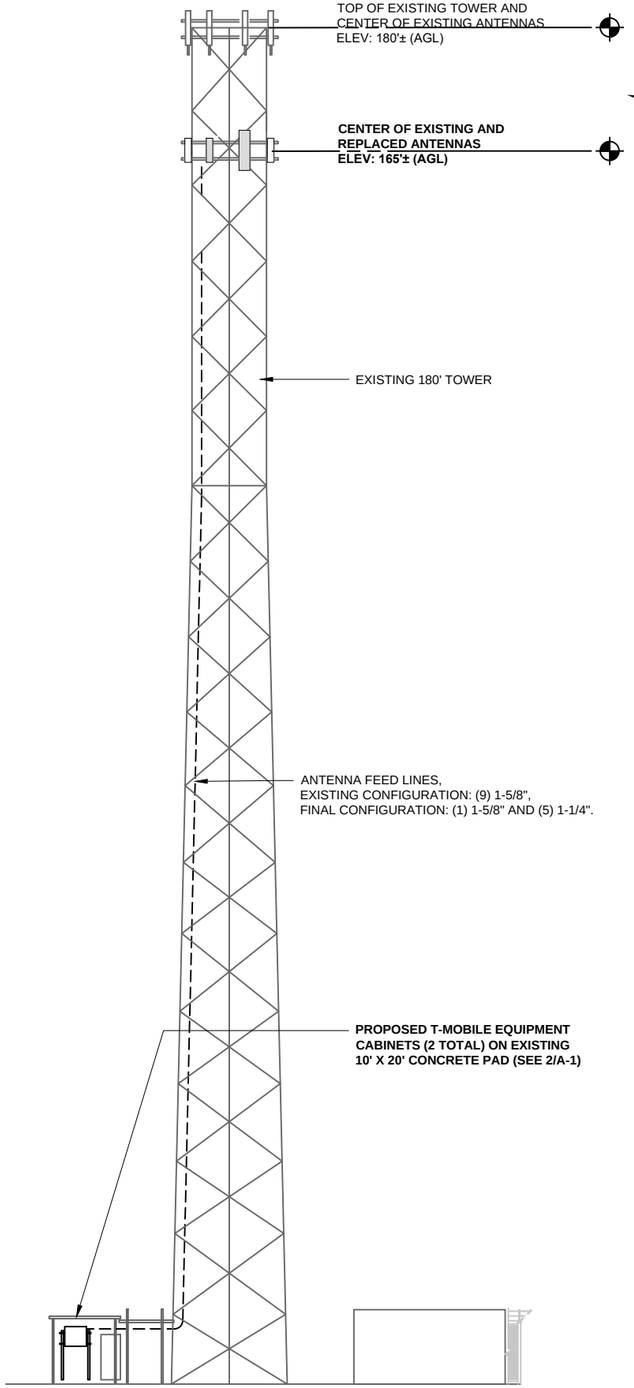
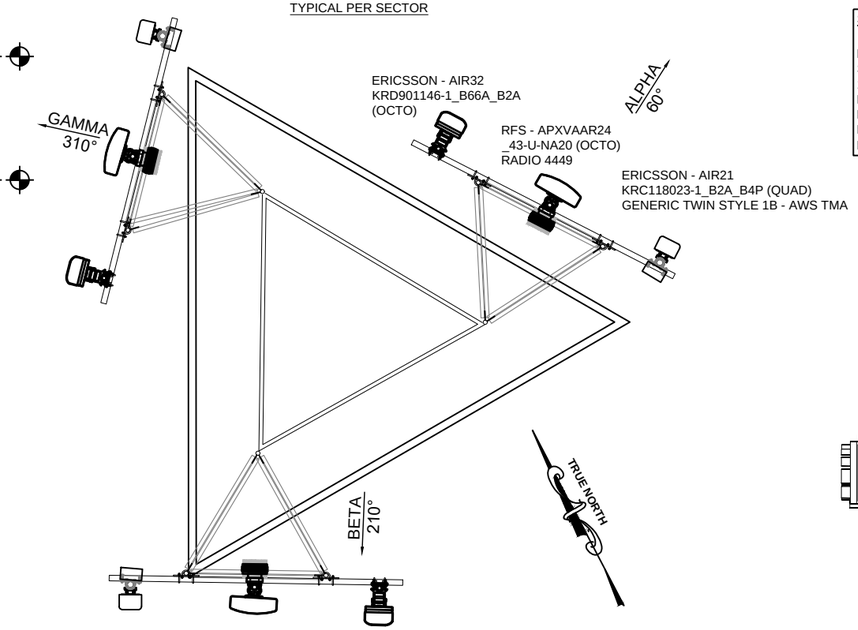
SHEET TITLE:
A-1: PLAN



ELEVATION
SCALE: 1" = 20'

1 / A-2

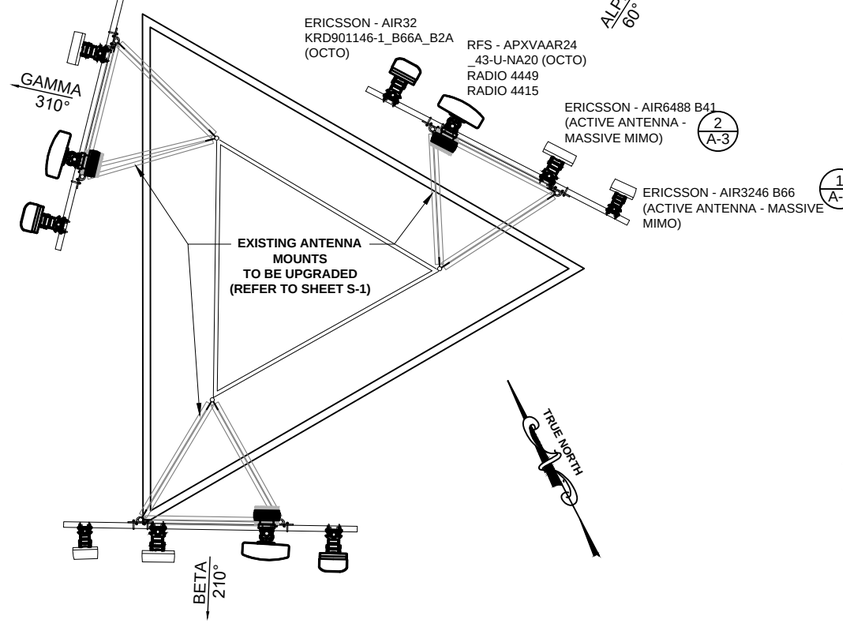
TYPICAL PER SECTOR



EXISTING ANTENNA PLAN
N.T.S.

2 / A-2

TYPICAL PER SECTOR

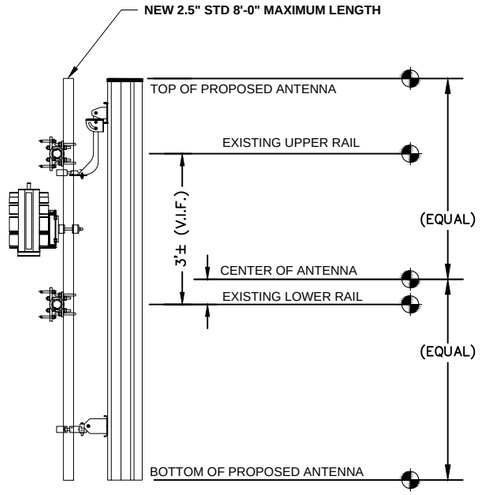


FINAL ANTENNA PLAN
N.T.S.

3 / A-2

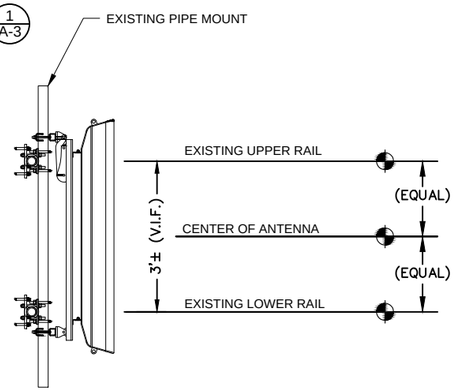
STRUCTURAL NOTES:

PRIOR TO INSTALLATION OF THE PROPOSED EQUIPMENT CONTRACTOR SHOULD REVIEW THE STRUCTURAL ANALYSIS REPORT DATED JULY 9, 2019 PREPARED BY PAUL J. FORD & COMPANY AND THE MOUNT EVALUATION REPORT DATED JULY 14, 2019 PREPARED BY DESTEK ENGINEERING, LLC. AND ADHERE TO THE REPORTS FULLY AND ALL THE RECOMMENDATIONS THEREIN, INCLUDING BUT NOT LIMITED TO ANTENNA PLACEMENT, COAX ROUTING, STRUCTURAL IMPROVEMENTS, ETC.



APXVAAR24_43-U-NA20 ANTENNA MOUNTING
N.T.S.

4 / A-2



AIR32 KRD901146-1_B66A_B2A ANTENNA MOUNTING
N.T.S.

5 / A-2

APPLICANT:

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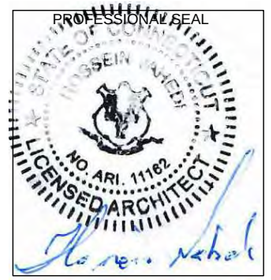

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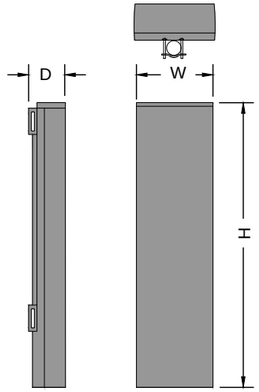
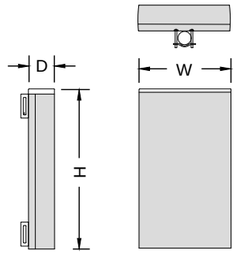
SHEET TITLE:
A-2: ELEVATIONS, ANTENNA PLANS AND DETAILS



ERICSSON ANTENNA SPECIFICATIONS	
MODEL #	AIR3246 B66
MANUF.	ERICSSON
HEIGHT	58.1"
WIDTH	15.7"
DEPTH	9.4"
WEIGHT	180 LB

AIR3246 B66 ANTENNA
N.T.S.

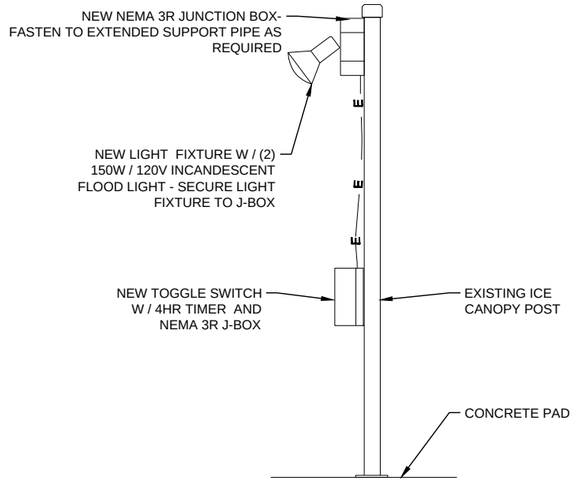
1 A-3



ERICSON ANTENNA SPECIFICATIONS	
MODEL #	AIR6488 B41
MANUF.	ERICSSON
HEIGHT	34.8"
WIDTH	20.5"
DEPTH	7.2"
WEIGHT	128 LB

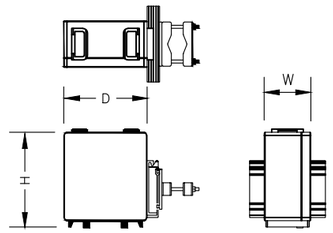
AIR6488 ANTENNA
N.T.S.

2 A-3



SERVICE LIGHT DETAILS
N.T.S.

7 A-3



REMOTE RADIO UNIT SPECIFICATIONS	
MODEL #	RADIO 4449 B71+B12
MANUF.	ERICSSON
HEIGHT	14.9"
WIDTH	13.2"
DEPTH	10.4"
WEIGHT	74 LB

REMOTE RADIO UNIT
N.T.S.

3 A-3

REMOTE RADIO UNIT SPECIFICATIONS	
MODEL #	RADIO 4415 B25
MANUF.	ERICSSON
HEIGHT	14.9"
WIDTH	13.2"
DEPTH	5.4"
WEIGHT	46.3 LB

REMOTE RADIO UNIT
N.T.S.

4 A-3

SITE SUPPORT CABINET SPECIFICATIONS	
MODEL #	6160
MANUF.	ERICSSON
HEIGHT	63"
WIDTH	25.6"
DEPTH	25.6"
WEIGHT	

SITE SUPPORT CABINET
N.T.S.

5 A-3

BATTERY CABINET SPECIFICATIONS	
MODEL #	B160
MANUF.	ERICSSON
HEIGHT	63"
WIDTH	26"
DEPTH	26"
WEIGHT	

BATTERY CABINET
N.T.S.

6 A-3

APPLICANT:
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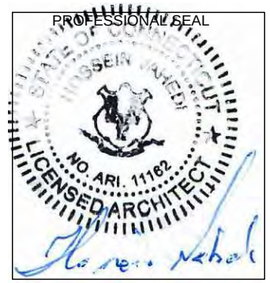

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SHEET TITLE:
A-3: ANTENNA AND EQUIPMENT SPECIFICATIONS

1.0 DESIGN INFORMATION AND GENERAL REQUIREMENTS

1.0 GENERAL
a. ALL DIMENSIONS ARE APPROXIMATE, CONTRACTOR SHOULD VERIFY ALL DIMENSIONS BEFORE FABRICATION OF STEEL MEMBERS AND COMMENCEMENT OF WORK.

1.1 CODES
a. 2018 CONNECTICUT STATE BUILDING CODE,
b. MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES, ASCE/SEI 7–10, AMERICAN SOCIETY OF CIVIL ENGINEERS
c. STEEL CONSTRUCTION MANUAL, 14TH EDITION, AMERICAN INSTITUTE OF STEEL CONSTRUCTION
d. STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND SUPPORTING STRUCTURES, ANSI/TIA–222–G, TELECOMMUNICATIONS INDUSTRY ASSOCIATION

1.2 LOADS AND DESIGN CRITERIA
a. WIND LOADING: V: 125 MPH (ULTIMATE) / 97 MPH (NOMINAL), EXPOSURE C, RISK CATEGORY II
b. EQUIPMENT AS LISTED IN MOUNT STRUCTURAL ANALYSIS REPORT PREPARED BY DESTEK ENGINEERING, LLC, DATED 06/14/2019.

1.3 NOTES
a. PRIOR TO PURCHASE OR FABRICATION OF MATERIAL, THE CONTRACTOR SHALL PERFORM AN INSPECTION VERIFYING MEMBER AND BOLT SIZES. SHOULD THE CONTRACTOR DISCOVER ANY DAMAGED OR MISSING MEMBERS OR THE MEMBER OR BOLT SIZES DO NOT MATCH THOSE LISTED, DESTEK SHALL BE NOTIFIED IMMEDIATELY.
b. CONTRACTOR TO REPLACE ALL MEMBERS AND BOLTS REMOVED WITH NEW MEMBERS AND BOLTS OF SAME TYPE, UNLESS NOTED OTHERWISE.

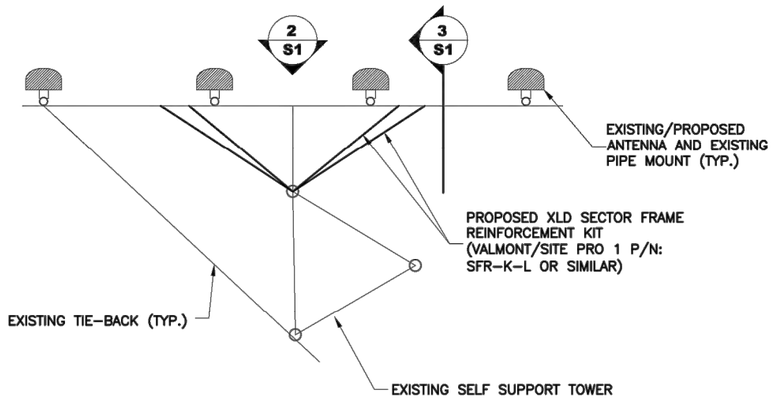
2.0 STRUCTURAL STEEL

2.1 MATERIALS
a. STRUCTURAL STEEL . . . . . ASTM A992
MISC ANGLE & PLATE . . . . ASTM A36
PIPE . . . . . ASTM A53 GR. B
RODS . . . . . ASTM A572–50 (MINIMUM)
HSS. . . . . ASTM A500, GR. B, Fy=46 KSI
b. BOLTS . . . . . ASTM A325 U.N.O.
c. WELDING ELECTRODES . . . . . AWS A5.1 (E70XX)
d. STEEL CONSTRUCTION SHALL CONFORM TO "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS, ANSI/AISC 360–10"
e. WELDING SHALL CONFORM TO AWS D1.1/D1.3/D1.7 AS APPLICABLE.
f. THE FABRICATOR SHALL FURNISH CHECKED SHOP AND ERECTION DRAWINGS TO THE ENGINEER, AND OBTAIN APPROVAL PRIOR TO FABRICATING ANY STRUCTURAL STEEL. SHOP DRAWINGS SHALL CONFORM TO "DETAILING FOR STEEL CONSTRUCTION, 2ND EDITION"
g. POOR MATCHING OF HOLES SHALL BE CORRECTED BY DRILLING TO THE NEXT LARGER SIZE. WELDING FOR REDRILLING WILL NOT BE PERMITTED.

2.2 CONNECTIONS
a. SHOP CONNECTIONS MAY BE BOLTED OR WELDED
b. CONNECTIONS WHERE THE BEAM SHEAR (V) IS NOT NOTED ON THE DRAWINGS, SIMPLE SHEAR CONNECTIONS SHALL BE DESIGNED TO DEVELOP 1/2 OF THE MAXIMUM TOTAL UNIFORM LOAD CAPACITY OF THE BEAM.
c. FIELD CONNECTIONS SHALL BE MADE WITH A325 BOLTS AND HARDENED WASHERS EXCEPT AS INDICATED ON THE DESIGN DRAWINGS
d. CONNECTIONS NOT SHOWN ON DRAWINGS SHALL BE DESIGNED BY THE STEEL FABRICATOR. CONNECTIONS SHALL BE DESIGNED IN ACCORDANCE WITH AISC "SPECIFICATIONS FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS" AND "AISC CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES".
e. DO NOT FIELD CUT OR ALTER STRUCTURAL MEMBERS WITHOUT PRIOR WRITTEN APPROVAL OF ENGINEER.
f. BOLT HOLES SHALL BE CUT, DRILLED OR PUNCHED AT RIGHT ANGLES TO THE SURFACE OF THE METAL AND SHALL NOT BE MADE OR ENLARGED BY BURNING. HOLES SHALL BE CLEAN CUT WITHOUT TORN OR RAGGED EDGES. OUTSIDE BURRS RESULTING FROM DRILLING OR REAMING OPERATION SHALL BE REMOVED WITH A TOOL MAKING A 1/16 INCH BEVEL. BOLT HOLES SHALL BE 1/16 INCH OVERSIZE.

2.3 FINISHES
a. STRUCTURAL STEEL SHALL BE HOT DIP GALVANIZED AFTER FABRICATION PER ASTM A123
b. BOLTS AND NUTS SHALL BE HOT DIP GALVANIZED PER ASTM A153.
c. ALL SURFACES DAMAGED BY FIELD WELDING OR CUTTING SHALL BE PAINTED WITH COLD GALVANIZING COMPOUND TWICE. THE PAINT SHOULD BE AT LEAST 93% PURE ZINC. RUST–OLEUM PROFESSIONAL, (MODEL# 7585838) OR SIMILAR.

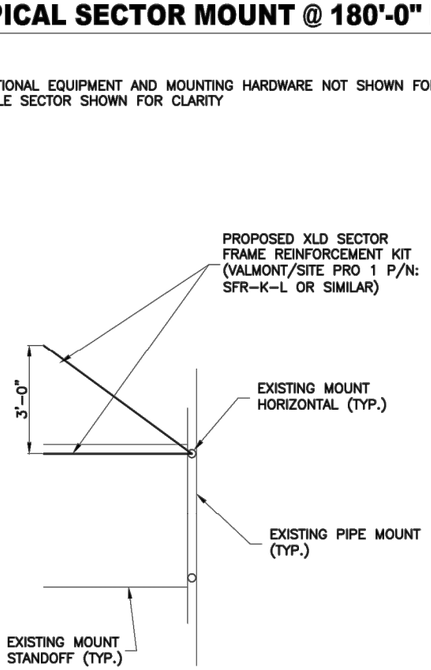
2.4 WELDING
a. CONTRACTOR TO TAKE ALL NECESSARY PRECAUTIONS FOR FIRE PREVENTION DURING WELDING, SUCH AS; INSTALLING 3000 (NFPA 701) FIRE BLANKET AROUND COAX. MORE SPLATTER AND SPARKS SHOULD BE ANTICIPATED WHILE WELDING ON GALVANIZED SURFACE. COAX IS FLAMMABLE AND SHALL CATCH FIRE IF NOT PROTECTED. WATER SHALL BE ON SITE OF ADEQUATE AMOUNT AND AVAILABLE AT SHORT NOTICE AT ALL TIMES DURING WELDING ACTIVITY. CONTRACTOR SHOULD BE ABLE TO TRANSPORT THE WATER TO THE HEIGHT WELDING BEING PERFORMED.
b. WELDING ON GALVANIZED SURFACE SHOULD BE DONE WITH EXTREME CAUTION. IF THE WELD MATERIAL IS CONTAMINATED WITH ZINC, IT DOES NOT PROVIDE A STRUCTURAL WELD. GROUND GALVANIZING BEFORE WELDING.
c. WELDING CERTIFICATE MUST BE PROVIDED PRIOR TO WELDING. ALL WELDING SHALL BE PERFORMED BY AWS QUALIFIED WELDER WHO HAS EXPERIENCE WITH GALVANIZED SURFACES.



1 S1 TYPICAL SECTOR MOUNT @ 180'-0" PLAN

N.T.S.

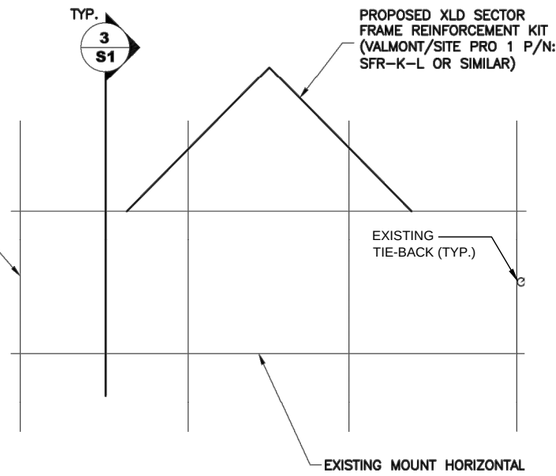
NOTE:
– ADDITIONAL EQUIPMENT AND MOUNTING HARDWARE NOT SHOWN FOR CLARITY
– SINGLE SECTOR SHOWN FOR CLARITY



3 S1 SECTOR MOUNT SIDE VIEW

1/4" = 1'-0"

NOTE:
– ADDITIONAL EQUIPMENT, MOUNTING HARDWARE, AND TIE–BACKS NOT SHOWN FOR CLARITY



2 S1 SECTOR MOUNT ELEVATION

1/4" = 1'-0"

NOTE:
– ANTENNAS, ADDITIONAL EQUIPMENT, MOUNTING HARDWARE, AND EXISTING STANDOFF ARMS NOT SHOWN FOR CLARITY

PROPOSED MODIFICATION TO BE INSTALLED AT ALL THREE SECTORS.

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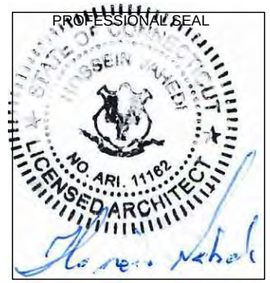

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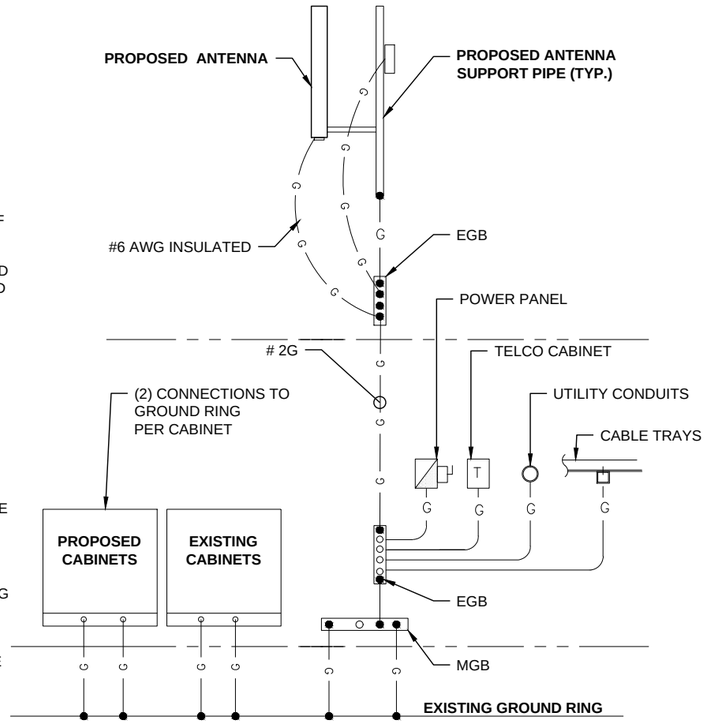
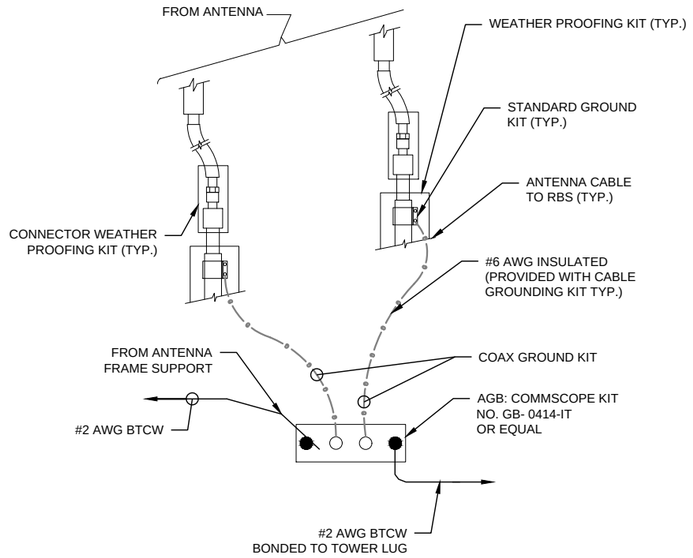
SHEET TITLE:
S-1: STRUCTURAL MOUNT UPGRADE DETAILS

ELECTRICAL & GROUNDING NOTES

1. ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
2. ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PRODUCED PER SPECIFICATION REQUIREMENTS.
3. THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL DESCRIBED BY DRAWINGS AND SPECIFICATION INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.
4. GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, AND RESPONSIBLE FOR OBTAINING SAID PERMITS AND COORDINATION OF INSPECTIONS.
5. ELECTRICAL AND TELCO WIRING OUTSIDE A BUILDING AND EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS OR SCHEDULE 80 PVC (AS PERMITTED BY CODE) ND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.
6. RIGID STEEL CONDUITS SHALL BE GROUNDED AT BOTH ENDS.
7. ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THWN, OR THIN INSULATION.
8. RUN ELECTRICAL CONDUIT OR CABLING BETWEEN ELECTRICAL ROOM AND PROPOSED CELL SITE ARE PEDESTAL AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE. COORDINATE INSTALLATION WITH UTILITY COMPANY.
9. RUN TELCO CONDUIT OR CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT AND PROPOSED CELL SITE TELECOM CABINET AND RBS CABINET AS INDICATED ON DRAWING A -1. PROVIDE FULL LENGTH PULL ROPE INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.
10. ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NAME 3R ENCLOSURE.
11. GROUNDING SHALL COMPLY WITH NEC ART. 250.
12. GROUNDING COAX CABLE SHIELDS MINIMUM AT BOTH ENDS USING MANUFACTURES COAX CABLE GROUNDING KITS SUPPLIED BY PROJECT OWNER.
13. USE #6 COPPER STRANDED WIRE WITH GREEN COLOR INSTALLATION FOR ABOVE GRADE GROUNDING (UNLESS OTHERWISE SPECIFIED) AND #2 SOLID TINNED BARE COPPER WIRE FOR BELOW GRADE GROUNDING AS INDICATED ON THE GROUND.
14. ALL GROUND CONNECTION TO BE BURNDY HYGROUND COMPRESSION TYPE CONNECTORS OR CADWELD EXOTHERMIC WELD. DO NOT ALLOW BARE COPPER WIRE TO BE IN CONTACT WITH GALVANIZED STEEL.
15. ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE, EXCEPT AS OTHERWISE INDICATED. GROUNDING LEADS SHOULD NEVER BE BENT AS RIGHT ANGLE. ALWAYS MAKE AT LEAST 12" RADIUS BENDS. #6 WIRE CAN BE BENT AT 6" RADIUS WHEN NECESSARY BOND ANY METER OBJECTS WITHIN 7 FEET OF PROPOSED EQUIPMENT OR CABINET TO MASTER GROUND BAR.
16. CONNECTIONS TO MGB SHALL BE ARRANGED IN THREE MAIN GROUPS: SURGE PROCEDURES (COAXIAL CABLE GROUND KITS, TELCO AND POWER PANEL GROUND); (GROUNDING ELECTRODE RING OR BUILDING STEEL); NON-SURGING OBJECTS (EGB GROUND IN RBS UNIT).
17. CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LUGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS.
18. APPLY OXIDE INHIBITING COMPOUND TO ALL COMPRESSION TYPE GROUND CONNECTION.
19. BOND ANTENNA MOUNTING BRACKETS, COAXIAL CABLE GROUND KITS, AND ALNA TO EGB PLACED NEAR THE ANTENNA LOCATION.
20 BOND ANTENNA EGB'S AND MGB TO WATER MAIN.
21. TEST COMPLETED GROUND SYSTEM AND RECORD RESULTS FOR PROJECT CLOSE-OUT DOCUMENTATION.
22. BOND ANY METAL OBJECTS WITHIN 7 FEET OF PROPOSED EQUIPMENT OR CABINET TO MASTER GROUND BAR.
23. VERIFY PROPOSED SERVICE UPGRADE WITH LOCAL UTILITY COMPANY PRIOR TO CONSTRUCTION.



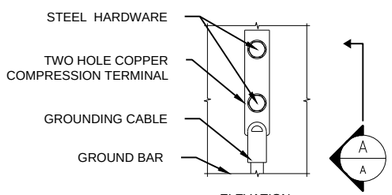
GROUNDING RISER DIAGRAM
N.T.S.
1 / E-1



NOTES:
INSTALL CABLE GROUND KIT ABOVE HORIZONTAL BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO AGB/EGB

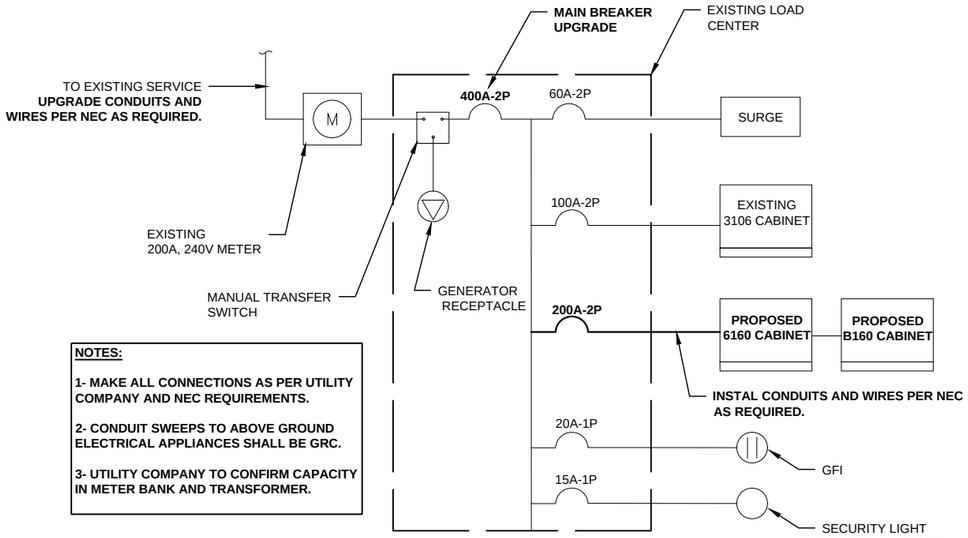
ANTENNA CABLE GROUNDING
N.T.S.
2 / E-1

NOTE:
CONTRACTOR TO VERIFY THE POWER FEED & PHASE OF METER BANK AND THAT THE EXISTING AND PROPOSED CONDUITS AND WIRE SIZES ARE ADEQUATE FOR THE PROPOSED LOADING IN ACCORDANCE WITH NEC AND INCLUDE ELECTRICAL UPGRADES IN THE SCOPE OF WORK AS REQUIRED.



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

GROUND BAR CONNECTIONS
N.T.S.
3 / E-1



NOTES:

1- MAKE ALL CONNECTIONS AS PER UTILITY COMPANY AND NEC REQUIREMENTS.

2- CONDUIT SWEEPS TO ABOVE GROUND ELECTRICAL APPLIANCES SHALL BE GRC.

3- UTILITY COMPANY TO CONFIRM CAPACITY IN METER BANK AND TRANSFORMER.

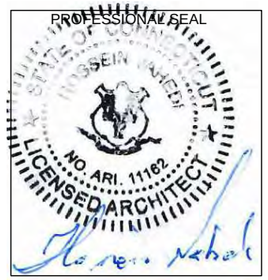
TYPICAL ONE LINE DIAGRAM
N.T.S.
4 / E-1

APPLICANT:
T-MOBILE NORTHEAST LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
860-692-7100

PROJECT MANAGER
NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development
420 MAIN STREET, BLDG 4
STURBRIDGE, MA 01566
203-275-6669

CONSULTANT:
FORESITE LLC
Architects . Engineers . Surveyors
462 WALNUT STREET
NEWTON, MA 02460
617-212-3123

PROFESSIONAL SEAL



DRAWING SCALES ARE INTENDED FOR 11"x17" SIZE PRINTED MEDIA ONLY. ALL OTHER PRINTED SIZES ARE DEEMED "NOT TO SCALE".

REV	DESCRIPTION	DATE
A	PRELIMINARY	04/13/19
B	REVISED PER COMMENTS	05/18/19
C	REVISED CABLE CONFIG.	05/27/19
0	SIGNED AND SEALED ISSUED	05/28/19
1	INCORPORATED MOUNT MODS	06/25/19
2	ANTENNA MODEL CORRECTED	07/25/19
3	REVISED PER COMMENTS	07/31/19

SITE NUMBER: CT11170C
SITE NAME: HARTFORD/ N. BRITAIN AVE_1
SITE ADDRESS: 1030 NEW BRITAIN AVE
WEST HARTFORD, CT 06110

SHEET TITLE:
E-1: GROUNDING DETAILS AND ONE LINE DIAGRAM

Exhibit D

PAUL J. FORD & COMPANY

Report Date:	July 9, 2019
Client:	Hirschfeld Communications LLC 1030 New Britain Avenue West Hartford, CT 06110 Attn: Ian Ormesher (703) 447-1350 iormesher@hirschfeldcos.com
Structure:	Existing 180-ft Self Support
Site Name:	WestHartford_DEXTERST
Site Reference #:	CT001
Site Address:	1030 New Britain Ave
City, County, State:	West Hartford, Hartford County, CT
Latitude, Longitude:	41.77313, -72.723795
PJF Project:	A64118-0001.004.8700

Paul J. Ford and Company is pleased to submit this "**Structural Analysis Report**" to determine the tower stress level.

Analysis Criteria:

Reference Standard:	2018 Connecticut State Building Code with the ANSI/TIA-222-G-2005 Standard, "Structural Standard for Antenna Supporting Structures and Antennas", with ANSI/TIA-222-G-1-2007 and ANSI/TIA-222-G-2-2009 Addenda per Exception #5 of Section 1609.1.1.
Ultimate Wind Speed:	125 mph 3-second gust wind speed without ice
Nominal Wind Speed:	97 mph 3-second gust wind speed without ice
Ice Wind Speed:	50 mph 3-second gust wind speed with 1.0" ice
Service Wind Speed:	60 mph (Serviceability) without ice
IBC Site Criteria:	Risk Category II, Topographic Category 1, Exposure Category C

Proposed Appurtenance Loads:

The structure was analyzed with the addition of the proposed appurtenance loads shown in Table 1 combined with the existing and reserved loads shown in Table 2 of this report.

Summary of Analysis Results:

Existing Structure:	99.7% Pass
Existing Foundation:	34.0% Pass

We at Paul J. Ford and Company appreciate the opportunity of providing our continuing professional services to you and Hirschfeld Communications LLC. If you have any questions or need further assistance on this or any other projects please give us a call.

Respectfully Submitted by:
Paul J. Ford and Company

Michael T Bange

Michael Bange, EI
Structural Designer
mbange@pauljford.com

JRS

07/09/2019

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 180 ft Self Support tower designed by PiRod in June of 1998.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-G
Risk Category:	II
Nominal Wind Speed:	97 mph
Exposure Category:	C
Topographic Factor:	1
Ice Thickness:	1 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
165.0	165.0	3	ericsson	RRUS 4415 B25	1 5	1-5/8 1-1/4
		3	ericsson	AIR 3246 B66		
		3	ericsson	AIR 6488 B41		
		3	ericsson	AIR32 KRD901146-1_B66_B2A w/ Mount Pipe		
		3	ericsson	RADIO 4449 B12/B71		
		3	rfs celwave	APXVAARR24_43-U-NA20 w/ Mount Pipe		
		3	Sitepro1	SFR-K-L Reinforcement Kit		
		3	tower mounts	Sector Mount		

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
180.0	180.0	3	ericsson	RRUS 4478 B14	12 2 4	1-5/8 1/2 3/4
		6	cci antennas	OPA-65R-LCUU-H6 w/ Mount Pipe		
		3	ericsson	RRUS 11		
		3	ericsson	RRUS 12		
		3	ericsson	RRUS 32		
		3	ericsson	RRUS 32 B2		
		3	ericsson	RRUS 32 B66		
		3	ericsson	RRUS A2 MODULE		
		3	kathrein	80010965 w/ Mount Pipe		
		1	miscl	GPS		
		3	powerwave technologies	7770.00 w/ Mount Pipe		
		6	powerwave technologies	LGP21401		
		6	powerwave technologies	LGP21901		
		3	raycap	DC6-48-60-18-8F		
		1	tower mounts	Platform Mount		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks
Manufacturer Drawings	PiROD Inc., 203949-B, 6/10/1998
Geotechnical Report	PiROD Inc., 6/5/1998
Pile Driving Report	Simeon Beer, 7/13/1998
Mount Structural Analysis	Destek, 6/14/2019
Site Application	Hirschfeld Communications, 7/1/2019

3.1) Analysis Method

tnxTower (version 8.0.5.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

1) Tower and structures were built in accordance with the manufacturer's specifications.
2) The tower and structures have been maintained in accordance with the manufacturer's specification.
3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
4) The existing base plate grout was considered in this analysis. Grout must be maintained and inspected periodically, and must be replaced if damaged or cracked.

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T1	180 - 170	Leg	1 1/2" solid	2	-19.01	54.43	34.9	Pass
T2	170 - 150	Leg	2" solid	38	76.58	106.69	71.8	Pass
T3	150 - 130	Leg	2 1/4" solid	102	-140.82	148.69	94.7	Pass
T4	130 - 120	Leg	Pirod 105244 (12x1.25)	166	-142.10	142.49	99.7	Pass
T5	120 - 100	Leg	Pirod 105217 (12x1.5)	175	-169.60	214.86	78.9	Pass
T6	100 - 80	Leg	Pirod 105217 (12x1.5)	190	-191.86	214.86	89.3	Pass
T7	80 - 60	Leg	Pirod 105218 (12x1.75)	205	-214.65	300.68	71.4	Pass
T8	60 - 40	Leg	Pirod 105218 (12x1.75)	220	-237.49	300.68	79.0	Pass
T9	40 - 20	Leg	Pirod 105219 (12x2)	235	-261.25	399.87	65.3	Pass
T10	20 - 0	Leg	Pirod 105219 (12x2)	250	-283.78	399.87	71.0	Pass
T1	180 - 170	Diagonal	3/4" solid	32	-3.33	6.09	54.7	Pass
T2	170 - 150	Diagonal	7/8" solid	47	-5.59	9.34	59.9	Pass
T3	150 - 130	Diagonal	1" solid	160	-6.15	15.16	40.6	Pass
T4	130 - 120	Diagonal	L 2.5 x 2.5 x 3/16	170	-7.47	13.56	55.1 64.8 (b)	Pass
T5	120 - 100	Diagonal	L 2.5 x 2.5 x 3/16	186	-4.82	11.92	40.4 47.4 (b)	Pass
T6	100 - 80	Diagonal	L 2.5 x 2.5 x 3/16	194	-4.40	8.66	50.8	Pass
T7	80 - 60	Diagonal	L 3 x 3 x 3/16	209	-4.79	12.12	39.5 39.9 (b)	Pass
T8	60 - 40	Diagonal	L 3 x 3 x 3/16	225	-5.23	9.79	53.4	Pass
T9	40 - 20	Diagonal	L 3 x 3 x 5/16	240	-5.90	12.87	45.9	Pass
T10	20 - 0	Diagonal	L 3 x 3 x 5/16	254	-7.69	10.64	72.2	Pass
T1	180 - 170	Horizontal	3/4" solid	30	-0.50	3.31	15.2	Pass
T2	170 - 150	Horizontal	3/4" solid	59	-0.93	2.82	32.8	Pass
T3	150 - 130	Horizontal	7/8" solid	158	-1.92	4.79	40.1	Pass
T1	180 - 170	Top Girt	7/8" solid	5	-1.75	6.14	28.5	Pass
T2	170 - 150	Top Girt	7/8" solid	42	-1.99	6.22	32.0	Pass
T3	150 - 130	Top Girt	1" solid	106	-2.34	8.40	27.9	Pass
T1	180 - 170	Bottom Girt	7/8" solid	7	-1.42	6.14	23.1	Pass
T2	170 - 150	Bottom Girt	7/8" solid	45	-2.65	4.94	53.6	Pass
T3	150 - 130	Bottom Girt	1" solid	107	-2.83	6.83	41.5	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
							Summary	
						Leg (T4)	99.7	Pass
						Diagonal (T10)	72.2	Pass
						Horizontal (T3)	40.1	Pass
						Top Girt (T2)	32.0	Pass
						Bottom Girt (T2)	53.6	Pass
						Bolt Checks	68.1	Pass
						Rating =	99.7	Pass

Table 5 - Tower Component Stresses vs. Capacity

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	43.2	Pass
1	Base Foundation Structural	0	9.1	Pass
1	Base Foundation Soil Interaction	0	34.0	Pass

Structure Rating (max from all components) =	99.7%

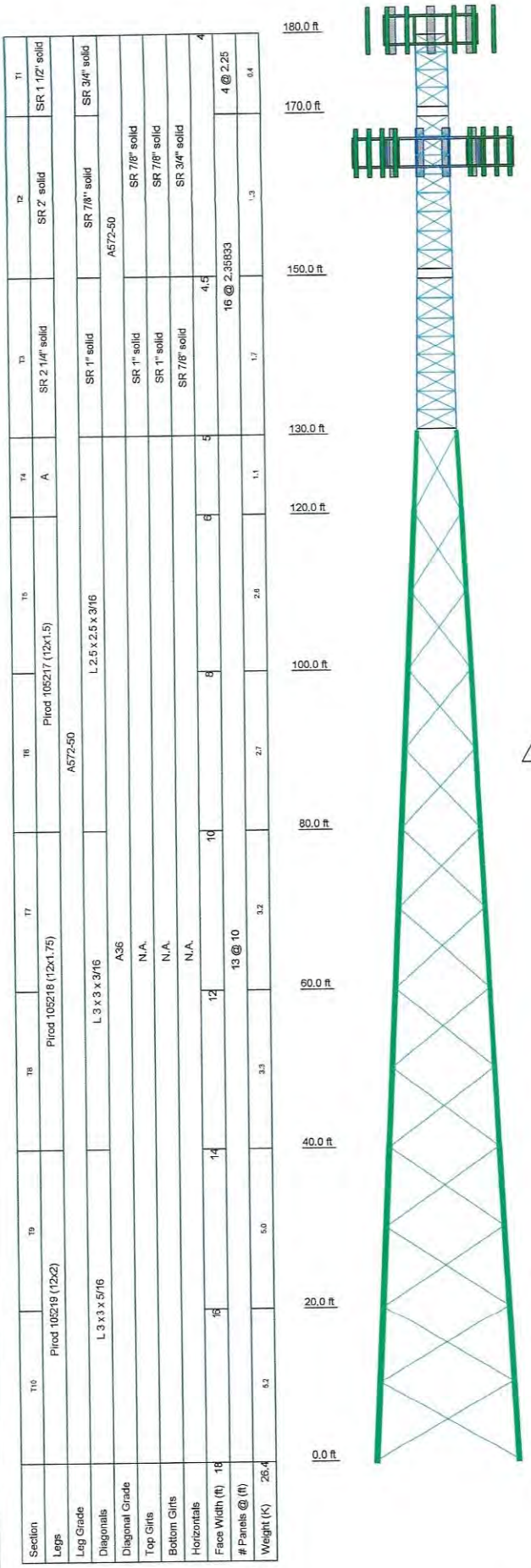
Notes:
1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.

4.1) Recommendations

The tower and its foundation(s) have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

APPENDIX A

TNXTOWER OUTPUT



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Platform Mount [LP 405-1]	180	RRUS 32 B2	180
7770.00 w/ Mount Pipe	180	RRUS 32 B2	180
7770.00 w/ Mount Pipe	180	RRUS 32 B2	180
7770.00 w/ Mount Pipe	180	(2) LGP21901	180
(2) OPA-65R-LCUU-H6 w/ Mount Pipe	180	(2) LGP21901	180
(2) OPA-65R-LCUU-H6 w/ Mount Pipe	180	(2) LGP21901	180
(2) OPA-65R-LCUU-H6 w/ Mount Pipe	180	APXVAARR24_43-U-NA20_TIA w/ Mount Pipe	165
(2) LGP21401	180	APXVAARR24_43-U-NA20_TIA w/ Mount Pipe	165
(2) LGP21401	180		
(2) LGP21401	180	APXVAARR24_43-U-NA20_TIA w/ Mount Pipe	165
RRUS 32	180		
RRUS 32	180	AIR32 KRD901146-1_B66_B2A w/ Mount Pipe	165
RRUS 32	180		
RRUS 11	180	AIR32 KRD901146-1_B66_B2A w/ Mount Pipe	165
RRUS 11	180		
RRUS 11	180	AIR32 KRD901146-1_B66_B2A w/ Mount Pipe	165
DC6-48-60-18-8F	180		
DC6-48-60-18-8F	180	RADIO 4449 B12/B71	165
RRUS 12	180	RADIO 4449 B12/B71	165
RRUS 12	180	RADIO 4449 B12/B71	165
RRUS 12	180	AIR 6488 B41	165
RRUS A2 MODULE	180	AIR 6488 B41	165
RRUS A2 MODULE	180	AIR 6488 B41	165
RRUS A2 MODULE	180	AIR 3246 B66	165
GPS	180	AIR 3246 B66	165
80010965 w/ Mount Pipe	180	AIR 3246 B66	165
80010965 w/ Mount Pipe	180	RRUS 4415 B25	165
80010965 w/ Mount Pipe	180	RRUS 4415 B25	165
DC6-48-60-18-8F	180	RRUS 4415 B25	165
RRUS 4478 B14	180	Sector Mount [SM 402-3]	165
RRUS 4478 B14	180	(2) L 2 x 2 x 3/16 x 6.5' Mount Angle	165
RRUS 4478 B14	180	(2) L 2 x 2 x 3/16 x 6.5' Mount Angle	165
RRUS 32 B66	180	(2) L 2 x 2 x 3/16 x 6.5' Mount Angle	165
RRUS 32 B66	180		
RRUS 32 B66	180		

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	Pirod 105244 (12x1.25)		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

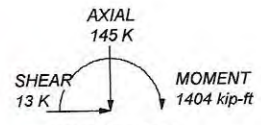
TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 97.0 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50.0 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60.0 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 99.7%

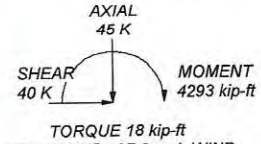
ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 291 K
SHEAR: 27 K

UPLIFT: -258 K
SHEAR: 24 K



TORQUE 4 kip-ft
50.0 mph WIND - 1.00 in ICE



TORQUE 18 kip-ft
REACTIONS - 97.0 mph WIND

Paul J. Ford and Company
250 East Broad st., Suite 600
Columbus, OH 43215
Phone: (614) 221-6679
FAX:

Job:	180-ft Self-Support Tower / WESTHARTFORD_DEXTERS
Project:	PJF# 64118-0001 / CT0001
Client: Hirschfeld Communications, LLC	Drawn by: mbange / App'd:
Code: TIA-222-G	Date: 07/02/19 / Scale: NTS
Path:	Dwg No. E-1

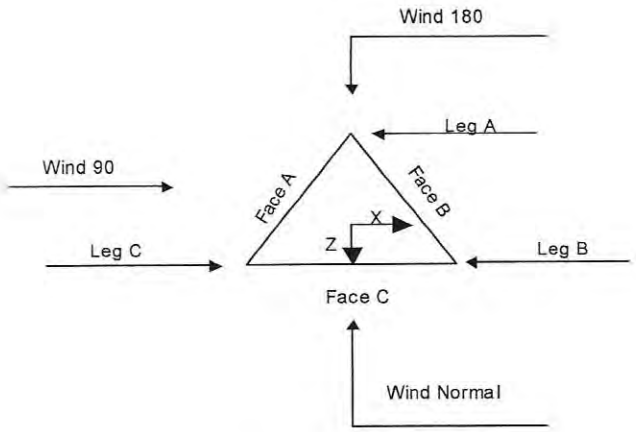
Tower Input Data

The main tower is a 3x free standing tower with an overall height of 180.00 ft above the ground line.
The base of the tower is set at an elevation of 0.00 ft above the ground line.
The face width of the tower is 4.00 ft at the top and 18.00 ft at the base.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

1) Tower is located in Hartford County, Connecticut.
2) ASCE 7-10 Wind Data is used (wind speeds converted to nominal values).
3) Basic wind speed of 97.0 mph.
4) Structure Class II.
5) Exposure Category C.
6) Topographic Category 1.
7) Crest Height 0.00 ft.
8) Nominal ice thickness of 1.00 in.
9) Ice thickness is considered to increase with height.
10) Ice density of 56 pcf.
11) A wind speed of 50.0 mph is used in combination with ice.
12) Deflections calculated using a wind speed of 60.0 mph.
13) Pressures are calculated at each section.
14) Stress ratio used in tower member design is 1.
15) Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

	Consider Moments - Legs		Distribute Leg Loads As Uniform		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Horizontals		Assume Legs Pinned	√	Calculate Redundant Bracing Forces
	Consider Moments - Diagonals		Assume Rigid Index Plate		Ignore Redundant Members in FEA
	Use Moment Magnification	√	Use Clear Spans For Wind Area	√	SR Leg Bolts Resist Compression
√	Use Code Stress Ratios	√	Use Clear Spans For KL/r		All Leg Panels Have Same Allowable
√	Use Code Safety Factors - Guys		Retension Guys To Initial Tension		Offset Girt At Foundation
	Escalate Ice		Bypass Mast Stability Checks	√	Consider Feed Line Torque
	Always Use Max Kz	√	Use Azimuth Dish Coefficients	√	Include Angle Block Shear Check
	Use Special Wind Profile	√	Project Wind Area of Appurt.		Use TIA-222-G Bracing Resist. Exemption
√	Include Bolts In Member Capacity		Autocalc Torque Arm Areas		Use TIA-222-G Tension Splice Exemption
	Leg Bolts Are At Top Of Section		Add IBC .6D+W Combination		Poles
√	Secondary Horizontal Braces Leg	√	Sort Capacity Reports By Component		Include Shear-Torsion Interaction
	Use Diamond Inner Bracing (4 Sided)		Triangulate Diamond Inner Bracing		Always Use Sub-Critical Flow
√	SR Members Have Cut Ends		Treat Feed Line Bundles As Cylinder		Use Top Mounted Sockets
	SR Members Are Concentric		Ignore KL/ry For 60 Deg. Angle Legs		Pole Without Linear Attachments
					Pole With Shroud Or No Appurtenances
					Outside and Inside Corner Radii Are Known



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	180.00-170.00		106778 (48)	4.00	1	10.00
T2	170.00-150.00		100246 (48/54)	4.00	1	20.00
T3	150.00-130.00		119703 (54/60)	4.50	1	20.00
T4	130.00-120.00		U06 105218 [L2.5 x 3/16]	5.00	1	10.00
T5	120.00-100.00		U08 105217 [L2.5 x 3/16]	6.00	1	20.00
T6	100.00-80.00		U10 105217 [L2.5 x 3/16]	8.00	1	20.00
T7	80.00-60.00		U12 105218 [L3 x 3/16]	10.00	1	20.00
T8	60.00-40.00		U14 105218 [L3 x 3/16]	12.00	1	20.00
T9	40.00-20.00		U16 105219 [L3 x 5/16]	14.00	1	20.00
T10	20.00-0.00		U18 105219 [L3 x 5/16]	16.00	1	20.00

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	ft	ft				in	in
T1	180.00-170.00	2.25	X Brace	No	Steps	6.00	6.00
T2	170.00-150.00	2.36	X Brace	No	Steps	6.80	6.80
T3	150.00-130.00	2.36	X Brace	No	Steps	6.80	6.80
T4	130.00-120.00	10.00	X Brace	No	No	0.00	0.00
T5	120.00-100.00	10.00	X Brace	No	No	0.00	0.00
T6	100.00-80.00	10.00	X Brace	No	No	0.00	0.00
T7	80.00-60.00	10.00	X Brace	No	No	0.00	0.00
T8	60.00-40.00	10.00	X Brace	No	No	0.00	0.00
T9	40.00-20.00	10.00	X Brace	No	No	0.00	0.00
T10	20.00-0.00	10.00	X Brace	No	No	0.00	0.00

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 180.00-170.00	Solid Round	1 1/2" solid	A572-50 (50 ksi)	Solid Round	3/4" solid	A572-50 (50 ksi)
T2 170.00-150.00	Solid Round	2" solid	A572-50 (50 ksi)	Solid Round	7/8" solid	A572-50 (50 ksi)
T3 150.00-130.00	Solid Round	2 1/4" solid	A572-50 (50 ksi)	Solid Round	1" solid	A572-50 (50 ksi)
T4 130.00-120.00	Truss Leg	Pirod 105244 (12x1.25)	A572-50 (50 ksi)	Single Angle	L 2.5 x 2.5 x 3/16	A36 (36 ksi)
T5 120.00-100.00	Truss Leg	Pirod 105217 (12x1.5)	A572-50 (50 ksi)	Single Angle	L 2.5 x 2.5 x 3/16	A36 (36 ksi)
T6 100.00-80.00	Truss Leg	Pirod 105217 (12x1.5)	A572-50 (50 ksi)	Single Angle	L 2.5 x 2.5 x 3/16	A36 (36 ksi)
T7 80.00-60.00	Truss Leg	Pirod 105218 (12x1.75)	A572-50 (50 ksi)	Single Angle	L 3 x 3 x 3/16	A36 (36 ksi)
T8 60.00-40.00	Truss Leg	Pirod 105218 (12x1.75)	A572-50 (50 ksi)	Single Angle	L 3 x 3 x 3/16	A36 (36 ksi)
T9 40.00-20.00	Truss Leg	Pirod 105219 (12x2)	A572-50 (50 ksi)	Single Angle	L 3 x 3 x 5/16	A36 (36 ksi)
T10 20.00-0.00	Truss Leg	Pirod 105219 (12x2)	A572-50 (50 ksi)	Single Angle	L 3 x 3 x 5/16	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 180.00-170.00	Solid Round	7/8" solid	A572-50 (50 ksi)	Solid Round	7/8" solid	A572-50 (50 ksi)
T2 170.00-150.00	Solid Round	7/8" solid	A572-50 (50 ksi)	Solid Round	7/8" solid	A572-50 (50 ksi)
T3 150.00-130.00	Solid Round	1" solid	A572-50 (50 ksi)	Solid Round	1" solid	A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 180.00-170.00	None	Solid Round		A572-50 (50 ksi)	Solid Round	3/4" solid	A572-50 (50 ksi)
T2 170.00-150.00	None	Solid Round		A36 (36 ksi)	Solid Round	3/4" solid	A572-50 (50 ksi)
T3 150.00-130.00	None	Solid Round		A572-50 (50 ksi)	Solid Round	7/8" solid	A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals	Double Angle Stitch Bolt Spacing Redundants
ft	ft^2	in					in	in	in
T1 180.00-170.00	0.00	0.00	A36 (36 ksi)	1	1	1.02	Mid-Pt	Mid-Pt	Mid-Pt
T2 170.00-150.00	0.00	0.00	A36 (36 ksi)	1	1	1.03	Mid-Pt	Mid-Pt	Mid-Pt
T3 150.00-130.00	0.00	0.00	A36 (36 ksi)	1	1	1.03	Mid-Pt	Mid-Pt	Mid-Pt
T4 130.00-120.00	0.00	0.50	A36 (36 ksi)	1	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T5 120.00-100.00	0.00	0.50	A36 (36 ksi)	1	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T6 100.00-80.00	0.00	0.50	A36 (36 ksi)	1	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T7 80.00-60.00	0.00	0.50	A36 (36 ksi)	1	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T8 60.00-40.00	0.00	0.50	A36 (36 ksi)	1	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T9 40.00-20.00	0.00	0.50	A36 (36 ksi)	1	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T10 20.00-0.00	0.00	0.75	A36 (36 ksi)	1	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt

Tower Section Geometry *(cont'd)*

Tower Elevation	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags	K Brace Diags	Single Diags	Girts	Horiz.	Sec. Horiz.	Inner Brace
ft				X Y	X Y	X Y	X Y	X Y	X Y	X Y
T1 180.00-170.00	No	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T2 170.00-150.00	No	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T3 150.00-130.00	No	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T4 130.00-120.00	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T5 120.00-100.00	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T6 100.00-80.00	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T7 80.00-60.00	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T8 60.00-40.00	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T9 40.00-20.00	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T10 20.00-0.00	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1

[1]*Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.*

Tower Section Geometry *(cont'd)*

	Truss-Leg K Factors					
	Truss-Legs Used As Leg Members			Truss-Legs Used As Inner Members		
Tower Elevation ft	Leg Panels	X Brace Diagonals	Z Brace Diagonals	Leg Panels	X Brace Diagonals	Z Brace Diagonals
T4 130.00-120.00	1	0.5	0.85	1	0.5	0.85
T5 120.00-100.00	1	0.5	0.85	1	0.5	0.85
T6 100.00-80.00	1	0.5	0.85	1	0.5	0.85
T7 80.00-60.00	1	0.5	0.85	1	0.5	0.85
T8 60.00-40.00	1	0.5	0.85	1	0.5	0.85
T9 40.00-20.00	1	0.5	0.85	1	0.5	0.85
T10 20.00-0.00	1	0.5	0.85	1	0.5	0.85

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 180.00-170.00	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
T2 170.00-150.00	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
T3 150.00-130.00	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1	0.00	1
T4 130.00-120.00	0.00	1	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T5 120.00-100.00	0.00	1	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T6 100.00-80.00	0.00	1	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T7 80.00-60.00	0.00	1	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T8 60.00-40.00	0.00	1	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T9 40.00-20.00	0.00	1	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T10 20.00-0.00	0.00	1	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 180.00-170.00	Sleeve DS	0.63 A325N	5	0.00 A325N	0	0.00 A325N	0	0.00 A325N	0	0.63 A325N	0	0.00 A325N	0	0.63 A325N	0
T2 170.00-150.00	Sleeve DS	0.75 A325N	5	0.00 A325N	0	0.00 A325N	0	0.00 A325N	0	0.00 A325N	0	0.00 A325N	0	0.00 A325N	0
T3 150.00-130.00	Flange	1.00 A325N	6	0.00 A325N	0	0.00 A325N	0	0.00 A325N	0	0.50 A325N	0	0.00 A325N	0	0.50 A325N	0

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T4 130.00-120.00	Flange	1.00 A325N	6	1.00 A325N	1	0.00 A325N	0	0.00 A325N	0	1.00 A325N	0	1.00 A325N	0	1.00 A325N	0
T5 120.00-100.00	Flange	1.00 A325N	6	1.00 A325N	1	0.00 A325N	0	0.00 A325N	0	1.00 A325N	0	1.00 A325N	0	1.00 A325N	0
T6 100.00-80.00	Flange	1.00 A325N	6	1.00 A325N	1	0.00 A325N	0	0.00 A325N	0	0.00 A325N	0	0.00 A325N	0	0.00 A325N	0
T7 80.00-60.00	Flange	1.00 A325N	6	1.00 A325N	1	0.00 A325N	0	0.00 A325N	0	0.00 A325N	0	0.00 A325N	0	0.00 A325N	0
T8 60.00-40.00	Flange	1.00 A325N	6	1.00 A325N	1	0.00 A325N	0	0.00 A325N	0	0.00 A325N	0	0.00 A325N	0	0.00 A325N	0
T9 40.00-20.00	Flange	1.25 A325N	6	1.25 A325N	1	0.00 A325N	0	0.00 A325N	0	1.25 A325N	0	1.25 A325N	0	1.25 A325N	0
T10 20.00-0.00	Flange	1.25 F1554-105	0	1.25 A325N	1	0.00 A325N	0	0.00 A325N	0	1.00 A325N	0	1.00 A325N	0	1.00 A325N	0

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
LDF7-50A (1 5/8" foam)	A	No	No	Ar (CaAa)	180.00 - 8.00	0.00	0.2	12	6	1.00 0.50	1.98		0.92
FSJ4-50B(1/2")	A	No	No	Ar (CaAa)	180.00 - 8.00	0.00	0.2	2	2	1.00 0.50	0.52		0.14
9776(3/4") ***	A	No	No	Ar (CaAa)	180.00 - 8.00	0.00	0.2	4	4	1.00 0.50	0.73		0.31
T-Brackets (Af)	C	No	No	Ar (CaAa)	165.00 - 8.00	-6.00	-0.45	1	1	1.00	1.00		8.40
LDF6-50 (1 1/4" foam) ******	C	No	No	Ar (CaAa)	165.00 - 8.00	-6.00	-0.45	6	6	1.00	1.55		0.66

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Platform Mount [LP 405-1]	C	None		0.000	180.00	No Ice 1/2" Ice 1" Ice	20.80 28.10 35.40	20.80 28.10 35.40	1.80 2.07 2.33
7770.00 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.000	180.00	No Ice 1/2" Ice 1" Ice	5.75 6.18 6.61	4.25 5.01 5.71	0.06 0.10 0.16
7770.00 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.000	180.00	No Ice 1/2" Ice 1" Ice	5.75 6.18 6.61	4.25 5.01 5.71	0.06 0.10 0.16
7770.00 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.000	180.00	No Ice 1/2" Ice 1" Ice	5.75 6.18 6.61	4.25 5.01 5.71	0.06 0.10 0.16

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(2) OPA-65R-LCUU-H6 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.000	180.00	No Ice 1/2" Ice 1" Ice	9.90 10.47 11.01	7.18 8.36 9.26	0.10 0.18 0.26
(2) OPA-65R-LCUU-H6 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.000	180.00	No Ice 1/2" Ice 1" Ice	9.90 10.47 11.01	7.18 8.36 9.26	0.10 0.18 0.26
(2) OPA-65R-LCUU-H6 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.000	180.00	No Ice 1/2" Ice 1" Ice	9.90 10.47 11.01	7.18 8.36 9.26	0.10 0.18 0.26
(2) LGP21401	A	From Leg	4.00 0.00 0.00	0.000	180.00	No Ice 1/2" Ice 1" Ice	1.10 1.24 1.38	0.35 0.44 0.54	0.01 0.02 0.03
(2) LGP21401	B	From Leg	4.00 0.00 0.00	0.000	180.00	No Ice 1/2" Ice 1" Ice	1.10 1.24 1.38	0.35 0.44 0.54	0.01 0.02 0.03
(2) LGP21401	C	From Leg	4.00 0.00 0.00	0.000	180.00	No Ice 1/2" Ice 1" Ice	1.10 1.24 1.38	0.35 0.44 0.54	0.01 0.02 0.03
RRUS 32	A	From Leg	4.00 0.00 0.00	0.000	180.00	No Ice 1/2" Ice 1" Ice	2.86 3.08 3.32	1.78 1.97 2.17	0.06 0.08 0.10
RRUS 32	B	From Leg	4.00 0.00 0.00	0.000	180.00	No Ice 1/2" Ice 1" Ice	2.86 3.08 3.32	1.78 1.97 2.17	0.06 0.08 0.10
RRUS 32	C	From Leg	4.00 0.00 0.00	0.000	180.00	No Ice 1/2" Ice 1" Ice	2.86 3.08 3.32	1.78 1.97 2.17	0.06 0.08 0.10
RRUS 11	A	From Leg	4.00 0.00 0.00	0.000	180.00	No Ice 1/2" Ice 1" Ice	2.79 3.00 3.21	1.19 1.34 1.50	0.05 0.07 0.10
RRUS 11	B	From Leg	4.00 0.00 0.00	0.000	180.00	No Ice 1/2" Ice 1" Ice	2.79 3.00 3.21	1.19 1.34 1.50	0.05 0.07 0.10
RRUS 11	C	From Leg	4.00 0.00 0.00	0.000	180.00	No Ice 1/2" Ice 1" Ice	2.79 3.00 3.21	1.19 1.34 1.50	0.05 0.07 0.10
DC6-48-60-18-8F	A	From Leg	4.00 0.00 0.00	0.000	180.00	No Ice 1/2" Ice 1" Ice	1.21 1.89 2.11	1.21 1.89 2.11	0.03 0.05 0.08
DC6-48-60-18-8F	B	From Leg	4.00 0.00 0.00	0.000	180.00	No Ice 1/2" Ice 1" Ice	1.21 1.89 2.11	1.21 1.89 2.11	0.03 0.05 0.08
RRUS 12	A	From Leg	4.00 0.00 0.00	0.000	180.00	No Ice 1/2" Ice 1" Ice	3.15 3.36 3.59	1.29 1.44 1.60	0.06 0.08 0.11
RRUS 12	B	From Leg	4.00 0.00 0.00	0.000	180.00	No Ice 1/2" Ice 1" Ice	3.15 3.36 3.59	1.29 1.44 1.60	0.06 0.08 0.11
RRUS 12	C	From Leg	4.00	0.000	180.00	No Ice	3.15	1.29	0.06

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00 0.00			1/2" Ice 1" Ice	3.36 3.59	1.44 1.60	0.08 0.11
RRUS A2 MODULE	A	From Leg	4.00 0.00 0.00	0.000	180.00	No Ice 1/2" Ice 1" Ice	1.60 1.76 1.92	0.38 0.47 0.57	0.02 0.03 0.04
RRUS A2 MODULE	B	From Leg	4.00 0.00 0.00	0.000	180.00	No Ice 1/2" Ice 1" Ice	1.60 1.76 1.92	0.38 0.47 0.57	0.02 0.03 0.04
RRUS A2 MODULE	C	From Leg	4.00 0.00 0.00	0.000	180.00	No Ice 1/2" Ice 1" Ice	1.60 1.76 1.92	0.38 0.47 0.57	0.02 0.03 0.04
GPS	C	From Leg	4.00 0.00 0.00	0.000	180.00	No Ice 1/2" Ice 1" Ice	0.13 0.24 0.31	0.13 0.24 0.31	0.02 0.02 0.02
80010965 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.000	180.00	No Ice 1/2" Ice 1" Ice	14.05 14.69 15.30	7.63 8.90 9.96	0.13 0.22 0.33
80010965 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.000	180.00	No Ice 1/2" Ice 1" Ice	14.05 14.69 15.30	7.63 8.90 9.96	0.13 0.22 0.33
80010965 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.000	180.00	No Ice 1/2" Ice 1" Ice	14.05 14.69 15.30	7.63 8.90 9.96	0.13 0.22 0.33
DC6-48-60-18-8F	C	From Leg	4.00 0.00 0.00	0.000	180.00	No Ice 1/2" Ice 1" Ice	1.21 1.89 2.11	1.21 1.89 2.11	0.03 0.05 0.08
RRUS 4478 B14	A	From Leg	4.00 0.00 0.00	0.000	180.00	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	1.25 1.40 1.55	0.06 0.08 0.10
RRUS 4478 B14	B	From Leg	4.00 0.00 0.00	0.000	180.00	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	1.25 1.40 1.55	0.06 0.08 0.10
RRUS 4478 B14	C	From Leg	4.00 0.00 0.00	0.000	180.00	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	1.25 1.40 1.55	0.06 0.08 0.10
RRUS 32 B66	A	From Leg	4.00 0.00 0.00	0.000	180.00	No Ice 1/2" Ice 1" Ice	2.74 2.96 3.19	1.67 1.86 2.05	0.05 0.07 0.10
RRUS 32 B66	B	From Leg	4.00 0.00 0.00	0.000	180.00	No Ice 1/2" Ice 1" Ice	2.74 2.96 3.19	1.67 1.86 2.05	0.05 0.07 0.10
RRUS 32 B66	C	From Leg	4.00 0.00 0.00	0.000	180.00	No Ice 1/2" Ice 1" Ice	2.74 2.96 3.19	1.67 1.86 2.05	0.05 0.07 0.10
RRUS 32 B2	A	From Leg	4.00 0.00 0.00	0.000	180.00	No Ice 1/2" Ice 1" Ice	2.74 2.96 3.19	1.67 1.86 2.05	0.05 0.07 0.10
RRUS 32 B2	B	From Leg	4.00 0.00	0.000	180.00	No Ice	2.74 2.96	1.67 1.86	0.05 0.07

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1/2" Ice	3.19	2.05	0.10
						1" Ice			
RRUS 32 B2	C	From Leg	4.00	0.000	180.00	No Ice	2.74	1.67	0.05
			0.00			1/2" Ice	2.96	1.86	0.07
			0.00			1" Ice	3.19	2.05	0.10
(2) LGP21901	A	From Leg	4.00	0.000	180.00	No Ice	0.23	0.16	0.01
			0.00			1/2" Ice	0.29	0.21	0.01
			0.00			1" Ice	0.36	0.28	0.01
(2) LGP21901	B	From Leg	4.00	0.000	180.00	No Ice	0.23	0.16	0.01
			0.00			1/2" Ice	0.29	0.21	0.01
			0.00			1" Ice	0.36	0.28	0.01
(2) LGP21901	C	From Leg	4.00	0.000	180.00	No Ice	0.23	0.16	0.01
			0.00			1/2" Ice	0.29	0.21	0.01
			0.00			1" Ice	0.36	0.28	0.01
***									
APXVAARR24_43-U-NA20_TIA w/ Mount Pipe	A	From Leg	4.00	0.000	165.00	No Ice	20.48	11.02	0.19
			0.00			1/2" Ice	21.23	12.55	0.32
			0.00			1" Ice	21.99	14.10	0.47
APXVAARR24_43-U-NA20_TIA w/ Mount Pipe	B	From Leg	4.00	0.000	165.00	No Ice	20.48	11.02	0.19
			0.00			1/2" Ice	21.23	12.55	0.32
			0.00			1" Ice	21.99	14.10	0.47
APXVAARR24_43-U-NA20_TIA w/ Mount Pipe	C	From Leg	4.00	0.000	165.00	No Ice	20.48	11.02	0.19
			0.00			1/2" Ice	21.23	12.55	0.32
			0.00			1" Ice	21.99	14.10	0.47
AIR32 KRD901146-1_B66_B2A w/ Mount Pipe	A	From Leg	4.00	0.000	165.00	No Ice	11.39	5.90	0.11
			0.00			1/2" Ice	11.86	6.56	0.19
			0.00			1" Ice	12.33	7.24	0.28
AIR32 KRD901146-1_B66_B2A w/ Mount Pipe	B	From Leg	4.00	0.000	165.00	No Ice	11.39	5.90	0.11
			0.00			1/2" Ice	11.86	6.56	0.19
			0.00			1" Ice	12.33	7.24	0.28
AIR32 KRD901146-1_B66_B2A w/ Mount Pipe	C	From Leg	4.00	0.000	165.00	No Ice	11.39	5.90	0.11
			0.00			1/2" Ice	11.86	6.56	0.19
			0.00			1" Ice	12.33	7.24	0.28
RADIO 4449 B12/B71	A	From Leg	4.00	0.000	165.00	No Ice	1.65	1.16	0.07
			0.00			1/2" Ice	1.81	1.30	0.09
			0.00			1" Ice	1.98	1.45	0.11
RADIO 4449 B12/B71	B	From Leg	4.00	0.000	165.00	No Ice	1.65	1.16	0.07
			0.00			1/2" Ice	1.81	1.30	0.09
			0.00			1" Ice	1.98	1.45	0.11
RADIO 4449 B12/B71	C	From Leg	4.00	0.000	165.00	No Ice	1.65	1.16	0.07
			0.00			1/2" Ice	1.81	1.30	0.09
			0.00			1" Ice	1.98	1.45	0.11
AIR 6488 B41	A	From Leg	4.00	0.000	165.00	No Ice	5.99	2.69	0.11
			0.00			1/2" Ice	6.30	2.93	0.15
			0.00			1" Ice	6.62	3.18	0.20
AIR 6488 B41	B	From Leg	4.00	0.000	165.00	No Ice	5.99	2.69	0.11
			0.00			1/2" Ice	6.30	2.93	0.15
			0.00			1" Ice	6.62	3.18	0.20
AIR 6488 B41	C	From Leg	4.00	0.000	165.00	No Ice	5.99	2.69	0.11

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1/2" Ice	6.30	2.93	0.15
			0.00			1" Ice	6.62	3.18	0.20
AIR 3246 B66	A	From Leg	4.00	0.000	165.00	No Ice	7.94	5.17	0.18
			0.00			1/2" Ice	8.34	5.54	0.23
			0.00			1" Ice	8.75	5.91	0.30
AIR 3246 B66	B	From Leg	4.00	0.000	165.00	No Ice	7.94	5.17	0.18
			0.00			1/2" Ice	8.34	5.54	0.23
			0.00			1" Ice	8.75	5.91	0.30
AIR 3246 B66	C	From Leg	4.00	0.000	165.00	No Ice	7.94	5.17	0.18
			0.00			1/2" Ice	8.34	5.54	0.23
			0.00			1" Ice	8.75	5.91	0.30
RRUS 4415 B25	A	From Leg	4.00	0.000	165.00	No Ice	0.00	0.68	0.04
			0.00			1/2" Ice	0.00	0.79	0.06
			0.00			1" Ice	0.00	0.91	0.07
RRUS 4415 B25	B	From Leg	4.00	0.000	165.00	No Ice	0.00	0.68	0.04
			0.00			1/2" Ice	0.00	0.79	0.06
			0.00			1" Ice	0.00	0.91	0.07
RRUS 4415 B25	C	From Leg	4.00	0.000	165.00	No Ice	0.00	0.68	0.04
			0.00			1/2" Ice	0.00	0.79	0.06
			0.00			1" Ice	0.00	0.91	0.07
Sector Mount [SM 402-3]	C	From Leg	0.00	0.000	165.00	No Ice	18.91	18.91	0.85
			0.00			1/2" Ice	26.78	26.78	1.23
			0.00			1" Ice	34.65	34.65	1.62
(2) L 2 x 2 x 3/16 x 6.5' Mount Angle	A	From Leg	2.00	0.000	165.00	No Ice	1.30	0.03	0.02
			0.00			1/2" Ice	1.75	0.06	0.03
			0.00			1" Ice	2.20	0.09	0.05
(2) L 2 x 2 x 3/16 x 6.5' Mount Angle	B	From Leg	2.00	0.000	165.00	No Ice	1.30	0.03	0.02
			0.00			1/2" Ice	1.75	0.06	0.03
			0.00			1" Ice	2.20	0.09	0.05
(2) L 2 x 2 x 3/16 x 6.5' Mount Angle	C	From Leg	2.00	0.000	165.00	No Ice	1.30	0.03	0.02
			0.00			1/2" Ice	1.75	0.06	0.03
			0.00			1" Ice	2.20	0.09	0.05
****									

Truss-Leg Properties

Section Designation	Area in^2	Area Ice in^2	Self Weight K	Ice Weight K	Equiv. Diameter in	Equiv. Diameter Ice in	Leg Area in^2
Pirod 105244 (12x1.25)	1026.86	3397.26	0.56	0.95	7.13	23.59	3.68
Pirod 105217 (12x1.5)	2303.92	6585.93	0.71	1.94	8.00	22.87	5.30
Pirod 105217 (12x1.5)	2303.92	6554.05	0.71	1.88	8.00	22.76	5.30

Section Designation	Area	Area Ice	Self Weight	Ice Weight	Equiv. Diameter	Equiv. Diameter Ice	Leg Area
	in^2	in^2	K	K	in	in	in^2
Pirod 105218 (12x1.75)	2432.86	6587.02	0.85	1.83	8.45	22.87	7.22
Pirod 105218 (12x1.75)	2432.86	6536.27	0.85	1.74	8.45	22.70	7.22
Pirod 105219 (12x2)	2608.79	6534.42	1.22	1.70	9.06	22.69	9.42
Pirod 105219 (12x2)	2608.79	6387.80	1.22	1.38	9.06	22.18	9.42

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 30 deg - No Ice
5	0.9 Dead+1.6 Wind 30 deg - No Ice
6	1.2 Dead+1.6 Wind 60 deg - No Ice
7	0.9 Dead+1.6 Wind 60 deg - No Ice
8	1.2 Dead+1.6 Wind 90 deg - No Ice
9	0.9 Dead+1.6 Wind 90 deg - No Ice
10	1.2 Dead+1.6 Wind 120 deg - No Ice
11	0.9 Dead+1.6 Wind 120 deg - No Ice
12	1.2 Dead+1.6 Wind 150 deg - No Ice
13	0.9 Dead+1.6 Wind 150 deg - No Ice
14	1.2 Dead+1.6 Wind 180 deg - No Ice
15	0.9 Dead+1.6 Wind 180 deg - No Ice
16	1.2 Dead+1.6 Wind 210 deg - No Ice
17	0.9 Dead+1.6 Wind 210 deg - No Ice
18	1.2 Dead+1.6 Wind 240 deg - No Ice
19	0.9 Dead+1.6 Wind 240 deg - No Ice
20	1.2 Dead+1.6 Wind 270 deg - No Ice
21	0.9 Dead+1.6 Wind 270 deg - No Ice
22	1.2 Dead+1.6 Wind 300 deg - No Ice
23	0.9 Dead+1.6 Wind 300 deg - No Ice
24	1.2 Dead+1.6 Wind 330 deg - No Ice
25	0.9 Dead+1.6 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	180 - 170	7.94	43	0.483	0.042
T2	170 - 150	6.88	43	0.471	0.040
T3	150 - 130	4.95	43	0.414	0.034
T4	130 - 120	3.35	43	0.319	0.027
T5	120 - 100	2.73	43	0.263	0.022
T6	100 - 80	1.76	43	0.194	0.015
T7	80 - 60	1.06	43	0.134	0.010
T8	60 - 40	0.58	43	0.093	0.007
T9	40 - 20	0.25	43	0.055	0.003
T10	20 - 0	0.07	43	0.027	0.002

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
180.00	Platform Mount [LP 405-1]	43	7.94	0.483	0.042	37463
165.00	APXVAARR24_43-U-NA20_TIA w/ Mount Pipe	43	6.37	0.461	0.038	17711

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	180 - 170	33.25	11	2.011	0.176
T2	170 - 150	28.82	11	1.963	0.166
T3	150 - 130	20.70	11	1.730	0.141
T4	130 - 120	14.00	10	1.337	0.113
T5	120 - 100	11.41	10	1.099	0.091
T6	100 - 80	7.36	10	0.812	0.063
T7	80 - 60	4.44	10	0.558	0.042
T8	60 - 40	2.40	10	0.387	0.027
T9	40 - 20	1.05	10	0.228	0.015
T10	20 - 0	0.28	10	0.111	0.007

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
180.00	Platform Mount [LP 405-1]	11	33.25	2.011	0.176	9095
165.00	APXVAARR24_43-U-NA20_TIA w/ Mount Pipe	11	26.68	1.922	0.160	4311

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	180	Leg	A325N	0.63	5	4.39	24.85	0.177	1	Bolt DS
T2	170	Leg	A325N	0.75	5	16.52	35.78	0.462	1	Bolt DS
T3	150	Leg	A325N	1.00	6	22.88	53.01	0.432	1	Bolt Tension
T4	130	Leg	A325N	1.00	6	22.45	53.01	0.423	1	Bolt Tension
		Diagonal	A325N	1.00	1	6.91	10.66	0.648	1	Member Block Shear
T5	120	Leg	A325N	1.00	6	26.47	53.01	0.499	1	Bolt Tension
		Diagonal	A325N	1.00	1	5.05	10.66	0.474	1	Member Block Shear
T6	100	Leg	A325N	1.00	6	29.67	53.01	0.560	1	Bolt Tension
		Diagonal	A325N	1.00	1	4.19	10.66	0.393	1	Member Block Shear
T7	80	Leg	A325N	1.00	6	32.89	53.01	0.620	1	Bolt Tension
		Diagonal	A325N	1.00	1	4.67	11.68	0.399	1	Member Block Shear
T8	60	Leg	A325N	1.00	6	36.08	53.01	0.681	1	Bolt Tension
		Diagonal	A325N	1.00	1	5.12	11.68	0.438	1	Member Block Shear
T9	40	Leg	A325N	1.25	6	39.25	82.83	0.474	1	Bolt Tension
		Diagonal	A325N	1.25	1	5.75	20.30	0.283	1	Member Block Shear
T10	20	Diagonal	A325N	1.25	1	7.01	20.30	0.345	1	Member Block Shear

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	180 - 170	1 1/2" solid	10.00	2.25	72.0 K=1.00	1.77	-19.01	54.43	0.349 [1]
T2	170 - 150	2" solid	20.00	2.36	56.6 K=1.00	3.14	-77.55	111.84	0.693 [1]
T3	150 - 130	2 1/4" solid	20.00	2.36	50.3 K=1.00	3.98	-140.82	148.69	0.947 [1]
T4	130 - 120	Pirod 105244 (12x1.25)	10.02	10.02	45.4 K=1.00	3.68	-142.10	142.49	0.997 [1]
T5	120 - 100	Pirod 105217 (12x1.5)	20.03	10.02	37.8 K=1.00	5.30	-169.60	214.86	0.789 [1]
T6	100 - 80	Pirod 105217 (12x1.5)	20.03	10.02	37.8 K=1.00	5.30	-191.86	214.86	0.893 [1]
T7	80 - 60	Pirod 105218 (12x1.75)	20.03	10.02	32.4 K=1.00	7.22	-214.65	300.68	0.714 [1]
T8	60 - 40	Pirod 105218 (12x1.75)	20.03	10.02	32.4 K=1.00	7.22	-237.49	300.68	0.790 [1]
T9	40 - 20	Pirod 105219 (12x2)	20.03	10.02	28.4 K=1.00	9.42	-261.25	399.87	0.653 [1]
T10	20 - 0	Pirod 105219 (12x2)	20.03	10.02	28.4 K=1.00	9.42	-283.78	399.87	0.710 [1]

[1] P_u / ϕP_n controls

Truss-Leg Diagonal Data

Section No.	Elevation ft	Diagonal Size	L_d ft	Kl/r	ϕP_n K	A in^2	V_u K	ϕV_n K	Stress Ratio
T4	130 - 120	0.5	1.48	121.0	165.67	0.20	1.17	3.39	0.345
T5	120 - 100	0.5	1.47	120.0	238.57	0.20	0.95	3.34	0.287
T6	100 - 80	0.5	1.47	120.0	238.57	0.20	0.28	3.34	0.086
T7	80 - 60	0.5	1.46	119.0	324.71	0.20	0.23	3.38	0.070
T8	60 - 40	0.5	1.46	119.0	324.71	0.20	0.25	3.38	0.073
T9	40 - 20	0.625	1.45	94.4	424.12	0.31	0.27	6.96	0.040
T10	20 - 0	0.625	1.45	94.4	424.12	0.31	0.93	6.96	0.134

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	180 - 170	3/4" solid	4.59	2.22	128.0 K=0.90	0.44	-3.33	6.09	0.547 [1]
T2	170 - 150	7/8" solid	5.04	2.44	120.6 K=0.90	0.60	-5.59	9.34	0.599 [1]
T3	150 - 130	1" solid	5.12	2.47	107.6 K=0.91	0.79	-6.15	15.16	0.406 [1]
T4	130 - 120	L 2.5 x 2.5 x 3/16	11.42	4.98	120.8 K=1.00	0.90	-7.47	13.56	0.551 [1]
T5	120 - 100	L 2.5 x 2.5 x 3/16	11.93	5.38	130.5 K=1.00	0.90	-4.82	11.92	0.404 [1]
T6	100 - 80	L 2.5 x 2.5 x 3/16	13.80	6.33	153.4 K=1.00	0.90	-4.40	8.66	0.508 [1]
T7	80 - 60	L 3 x 3 x 3/16	15.24	7.08	142.5 K=1.00	1.09	-4.79	12.12	0.395 [1]
T8	60 - 40	L 3 x 3 x 3/16	16.80	7.88	158.6 K=1.00	1.09	-5.23	9.79	0.534 [1]
T9	40 - 20	L 3 x 3 x 5/16	18.45	8.68	176.8 K=1.00	1.78	-5.90	12.87	0.459 [1]
T10	20 - 0	L 3 x 3 x 5/16	20.16	9.54	194.4 K=1.00	1.78	-7.69	10.64	0.722 [1]

[1] $P_u / \phi P_n$ controls

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	180 - 170	3/4" solid	4.00	3.88	173.6 K=0.70	0.44	-0.50	3.31	0.152 [1]
T2	170 - 150	3/4" solid	4.37	4.20	188.2 K=0.70	0.44	-0.93	2.82	0.328 [1]
T3	150 - 130	7/8" solid	4.57	4.39	168.4 K=0.70	0.60	-1.92	4.79	0.401 [1]

[1] $P_u / \phi P_n$ controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	180 - 170	7/8" solid	4.00	3.88	148.8 K=0.70	0.60	-1.75	6.14	0.285 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T2	170 - 150	7/8" solid	4.01	3.85	147.7 K=0.70	0.60	-1.99	6.22	0.320 [1]
T3	150 - 130	1" solid	4.51	4.33	145.4 K=0.70	0.79	-2.34	8.40	0.279 [1]

[1] $P_u / \phi P_n$ controls

Bottom Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	180 - 170	7/8" solid	4.00	3.88	148.8 K=0.70	0.60	-1.42	6.14	0.231 [1]
T2	170 - 150	7/8" solid	4.49	4.32	165.9 K=0.70	0.60	-2.65	4.94	0.536 [1]
T3	150 - 130	1" solid	4.99	4.80	161.2 K=0.70	0.79	-2.83	6.83	0.415 [1]

[1] $P_u / \phi P_n$ controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	180 - 170	1 1/2" solid	10.00	0.50	16.0	1.77	18.73	79.52	0.236 [1]
T2	170 - 150	2" solid	20.00	0.57	13.6	2.19	76.58	106.69	0.718 [1] #
T3	150 - 130	2 1/4" solid	20.00	0.57	12.1	3.98	137.27	178.92	0.767 [1]
T4	130 - 120	Pirod 105244 (12x1.25)	10.02	10.02	45.4	3.68	134.70	165.67	0.813 [1]
T5	120 - 100	Pirod 105217 (12x1.5)	20.03	10.02	37.8	5.30	158.81	238.57	0.666 [1]
T6	100 - 80	Pirod 105217 (12x1.5)	20.03	10.02	37.8	5.30	178.02	238.57	0.746 [1]
T7	80 - 60	Pirod 105218 (12x1.75)	20.03	10.02	32.4	7.22	197.35	324.71	0.608 [1]
T8	60 - 40	Pirod 105218 (12x1.75)	20.03	10.02	32.4	7.22	216.49	324.71	0.667 [1]
T9	40 - 20	Pirod 105219 (12x2)	20.03	10.02	28.4	9.42	235.48	424.12	0.555 [1]
T10	20 - 0	Pirod 105219 (12x2)	20.03	10.02	28.4	9.42	253.10	424.12	0.597 [1]

[1] $P_u / \phi P_n$ controls
Based on net area of leg in section below

Truss-Leg Diagonal Data

Section No.	Elevation ft	Diagonal Size	L_d ft	Kl/r	ϕP_n K	A in^2	V_u K	ϕV_n K	Stress Ratio
T4	130 - 120	0.5	1.48	121.0	165.67	0.20	1.17	3.39	0.345
T5	120 - 100	0.5	1.47	120.0	238.57	0.20	0.95	3.34	0.287
T6	100 - 80	0.5	1.47	120.0	238.57	0.20	0.28	3.34	0.086
T7	80 - 60	0.5	1.46	119.0	324.71	0.20	0.23	3.38	0.070
T8	60 - 40	0.5	1.46	119.0	324.71	0.20	0.25	3.38	0.073
T9	40 - 20	0.625	1.45	94.4	424.12	0.31	0.27	6.96	0.040

Section No.	Elevation ft	Diagonal Size	L_d ft	Kl/r	ϕP_n K	A in^2	V_u K	ϕV_n K	Stress Ratio
T10	20 - 0	0.625	1.45	94.4	424.12	0.31	0.93	6.96	0.134

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	180 - 170	3/4" solid	4.59	2.22	142.3	0.44	3.32	19.88	0.167 [1]
T2	170 - 150	7/8" solid	5.04	2.44	134.0	0.60	5.54	27.06	0.205 [1]
T3	150 - 130	1" solid	5.12	2.47	118.7	0.79	6.03	35.34	0.170 [1]
T4	130 - 120	L 2.5 x 2.5 x 3/16	11.42	4.98	80.0	0.52	6.91	22.55	0.307 [1]
T5	120 - 100	L 2.5 x 2.5 x 3/16	11.93	5.38	86.2	0.52	5.05	22.55	0.224 [1]
T6	100 - 80	L 2.5 x 2.5 x 3/16	13.80	6.33	100.7	0.52	4.19	22.55	0.186 [1]
T7	80 - 60	L 3 x 3 x 3/16	15.24	7.08	93.1	0.66	4.67	28.67	0.163 [1]
T8	60 - 40	L 3 x 3 x 3/16	16.80	7.88	103.4	0.66	5.12	28.67	0.179 [1]
T9	40 - 20	L 3 x 3 x 5/16	18.45	8.68	116.3	1.01	5.75	44.05	0.130 [1]
T10	20 - 0	L 3 x 3 x 5/16	20.16	9.54	127.6	1.01	7.01	44.05	0.159 [1]

[1] $P_u / \phi P_n$ controls

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	180 - 170	3/4" solid	4.00	3.88	248.0	0.44	0.66	19.88	0.033 [1]
T2	170 - 150	3/4" solid	4.37	4.20	268.9	0.44	1.08	19.88	0.054 [1]
T3	150 - 130	7/8" solid	4.57	4.39	240.6	0.60	2.12	27.06	0.078 [1]

[1] $P_u / \phi P_n$ controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	180 - 170	7/8" solid	4.00	3.88	212.6	0.60	1.75	27.06	0.065 [1]
T2	170 - 150	7/8" solid	4.01	3.85	211.1	0.60	1.99	27.06	0.073 [1]
T3	150 - 130	1" solid	4.51	4.33	207.7	0.79	2.38	35.34	0.067 [1]

[1] $P_u / \phi P_n$ controls

Bottom Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	180 - 170	7/8" solid	4.00	3.88	212.6	0.60	1.49	27.06	0.055 [1]
T2	170 - 150	7/8" solid	4.49	4.32	236.9	0.60	2.70	27.06	0.100 [1]
T3	150 - 130	1" solid	4.99	4.80	230.3	0.79	3.02	35.34	0.086 [1]

[1] P_u / ϕP_n controls

Section Capacity Table

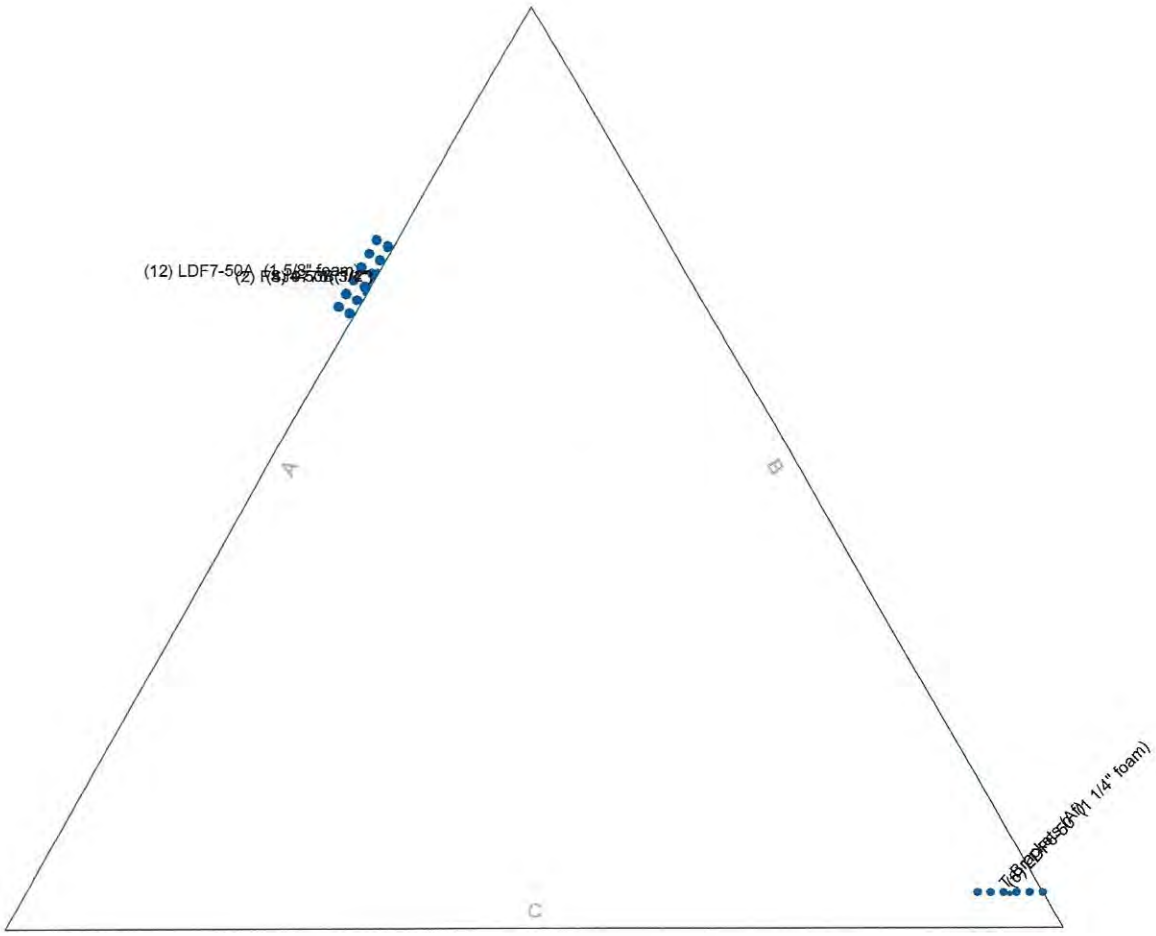
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	180 - 170	Leg	1 1/2" solid	2	-19.01	54.43	34.9	Pass
T2	170 - 150	Leg	2" solid	38	76.58	106.69	71.8	Pass
T3	150 - 130	Leg	2 1/4" solid	102	-140.82	148.69	94.7	Pass
T4	130 - 120	Leg	Pirod 105244 (12x1.25)	166	-142.10	142.49	99.7	Pass
T5	120 - 100	Leg	Pirod 105217 (12x1.5)	175	-169.60	214.86	78.9	Pass
T6	100 - 80	Leg	Pirod 105217 (12x1.5)	190	-191.86	214.86	89.3	Pass
T7	80 - 60	Leg	Pirod 105218 (12x1.75)	205	-214.65	300.68	71.4	Pass
T8	60 - 40	Leg	Pirod 105218 (12x1.75)	220	-237.49	300.68	79.0	Pass
T9	40 - 20	Leg	Pirod 105219 (12x2)	235	-261.25	399.87	65.3	Pass
T10	20 - 0	Leg	Pirod 105219 (12x2)	250	-283.78	399.87	71.0	Pass
T1	180 - 170	Diagonal	3/4" solid	32	-3.33	6.09	54.7	Pass
T2	170 - 150	Diagonal	7/8" solid	47	-5.59	9.34	59.9	Pass
T3	150 - 130	Diagonal	1" solid	160	-6.15	15.16	40.6	Pass
T4	130 - 120	Diagonal	L 2.5 x 2.5 x 3/16	170	-7.47	13.56	55.1 64.8 (b)	Pass
T5	120 - 100	Diagonal	L 2.5 x 2.5 x 3/16	186	-4.82	11.92	40.4 47.4 (b)	Pass
T6	100 - 80	Diagonal	L 2.5 x 2.5 x 3/16	194	-4.40	8.66	50.8	Pass
T7	80 - 60	Diagonal	L 3 x 3 x 3/16	209	-4.79	12.12	39.5 39.9 (b)	Pass
T8	60 - 40	Diagonal	L 3 x 3 x 3/16	225	-5.23	9.79	53.4	Pass
T9	40 - 20	Diagonal	L 3 x 3 x 5/16	240	-5.90	12.87	45.9	Pass
T10	20 - 0	Diagonal	L 3 x 3 x 5/16	254	-7.69	10.64	72.2	Pass
T1	180 - 170	Horizontal	3/4" solid	30	-0.50	3.31	15.2	Pass
T2	170 - 150	Horizontal	3/4" solid	59	-0.93	2.82	32.8	Pass
T3	150 - 130	Horizontal	7/8" solid	158	-1.92	4.79	40.1	Pass
T1	180 - 170	Top Girt	7/8" solid	5	-1.75	6.14	28.5	Pass
T2	170 - 150	Top Girt	7/8" solid	42	-1.99	6.22	32.0	Pass
T3	150 - 130	Top Girt	1" solid	106	-2.34	8.40	27.9	Pass
T1	180 - 170	Bottom Girt	7/8" solid	7	-1.42	6.14	23.1	Pass
T2	170 - 150	Bottom Girt	7/8" solid	45	-2.65	4.94	53.6	Pass
T3	150 - 130	Bottom Girt	1" solid	107	-2.83	6.83	41.5	Pass
							Summary	
						Leg (T4)	99.7	Pass
						Diagonal (T10)	72.2	Pass
						Horizontal (T3)	40.1	Pass
						Top Girt (T2)	32.0	Pass
						Bottom Girt (T2)	53.6	Pass
						Bolt Checks	68.1	Pass
						RATING =	**99.7**	**Pass**

APPENDIX B

BASE LEVEL DRAWING

Feed Line Plan

_____ Round _____ Flat _____ App In Face _____ App Out Face _____ Truss-Leg



Paul J. Ford and Company 250 East Broad st., Suite 600 Columbus, OH 43215 Phone: (614) 221-6679 FAX:	Job: 180-ft Self-Support Tower / WESTHARTFORD_DEXTERS		
	Project: PJF# 64118-0001 / CT0001		
	Client: Hirschfeld Communications, LLC	Drawn by: mbange	App'd:
	Code: TIA-222-G	Date: 07/02/19	Scale: NTS
	Path:		Dwg No. E-7

APPENDIX C

ADDITIONAL CALCULATIONS

PAUL J. FORD & COMPANY
250 E Broad St, Ste 600 • Columbus, OH 43215
Phone 614.221.6679 www.pauljford.com

Page	1	of	1
By	MTB	Date	7/2/2019
Project #	64118-0001		

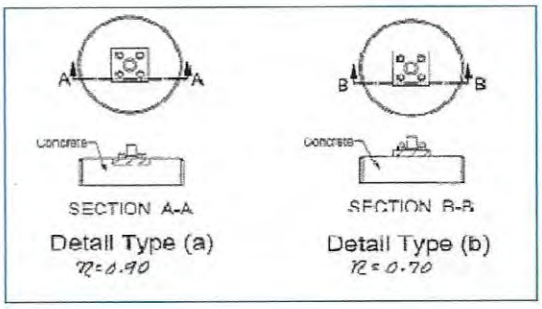
Self-Support Tower Anchor Rod Capacity - TIA-G

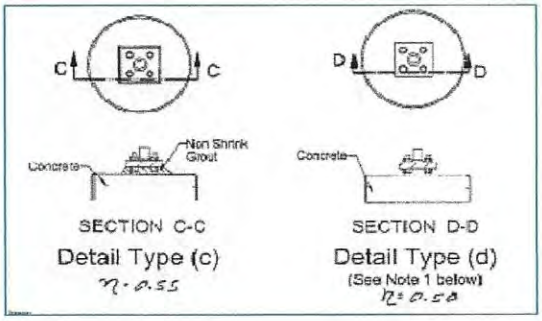
Loads

Uplift :	258	kips	1.00	Maximum Ratio
Shear :	24	kips		

Existing Anchor Rods

Anchor Rod Condition (n) :	0.55	
Anchor Rod ø :	1 1/4	in
Anchor Rod Quantity :	6	
Anchor Rod Grade :	A687	
F_y :	105	ksi
F_u :	150	ksi
Threads per Inch	7	
Total Net Tensile Area	5.81	in^2
ϕ :	0.8	
Total Anchor Rod Capacity ϕR_{nt} :	697.76	kip
Anchor Rod Ratio :	0.432	





PJF Job No. **64118-0001** Project Name: **West Hartford** Engineer: MTB

Factored Foundation Loads:

	Comp	Uplift	
Factored Axial Load (+Comp, -Ten) =	291	-258	kips
Factored Horiz. Load at Top of Pier =	27	24	kips
Factored OTM at Top of Pier =	0	0	k-ft

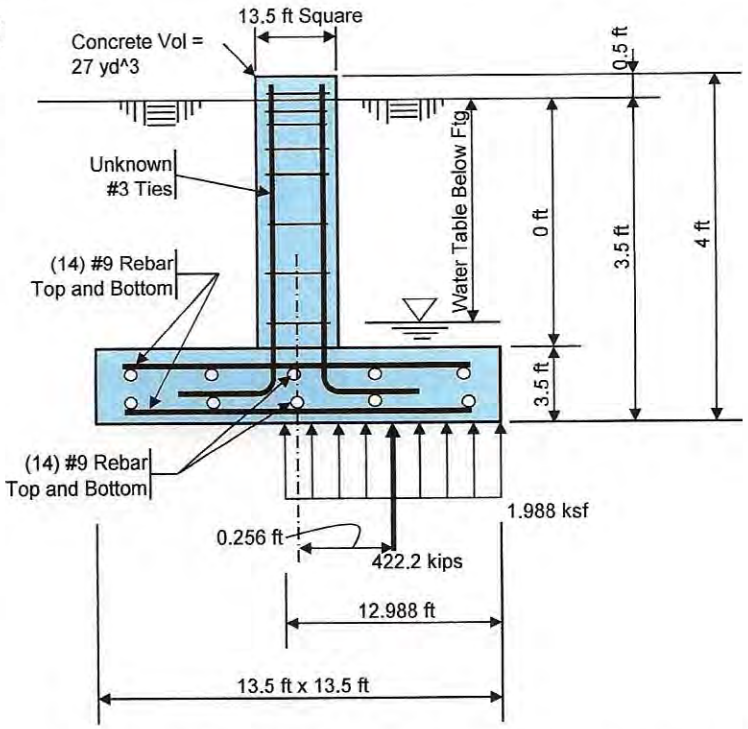
LRFD Resistance and Load Factors:

	Φ	Dead Load Factors	
Soil Bearing =	0.75		
Soil Weight =	0.75	1.2	0.9
Concrete Weight =	0.75	1.2	0.9

Soil Properties:

Depth to Water Table = 99 ft
Uplift Cone from Top of footing
Depth to Ignore for Uplift and PP = 3.33 ft

Layer Thk ft	Soil Density pcf	Cohesion ksf	Friction Angle degrees	Ult Bearing ksf	Depth ft
3.5	100	0	28	12	3.50



Dimensions:

Pier Shape =	Square	
Pier Width =	13.5	ft Square
Pier Height above Grade =	0.5	ft
Depth to Bottom of Footing =	3.5	ft
Footing Thickness =	3.5	ft
Footing Width, B =	13.5	ft
Footing Length, L =	13.5	ft

Concrete:

Concrete Strength =	3	ksi
Rebar Strength =	60	ksi

Summary Results:

	Required	Available		
Maximum Net Soil Bearing =	1.988 ksf	9.000 ksf	Stress Ratio =	22.1% in Soil Bearing
Punching Shear Stress =	0.000 ksi	0.159 ksi	Stress Ratio =	0.0% in Punching Shear
Bending Shear Stress =	-4.7 kips	496.6 kips	Stress Ratio =	0.9% in Bending Shear
Bending Moment =	0.004 in / in	0.0 in / in	Stress Ratio =	9.1% in Bending Moment
Conc Pier Reinforcing Steel =		Rebar Unknown	Stress Ratio =	in Pier Rebar

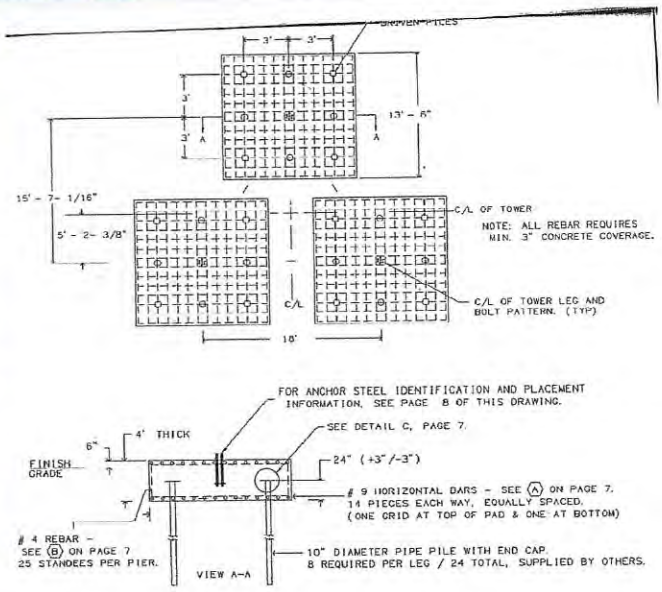
Total Pad Reinf Stl = 28.00 in^2 >= 12.25 in^2 = Min Stl, OK
Total Pier Reinf Stl =
Footing Thickness = 3.50 ft >= 0.75 ft = Min Ftg Thk, OK

PAUL J. FORD & COMPANY
250 E Broad St, Ste 600 • Columbus, OH 43215
Phone 614.221.6679 www.pauljford.com

Page 1 of 1
By MTB Date 7/2/2019
Project # 64118-0001

West Hartford Foundation Analysis

Uplift (kips):	258
Compression (kips):	291
Concrete Weight (kcf):	0.15
Mat Length/Width (ft):	13.5
Mat Depth (ft):	4
Mat Weight (kips):	109.4
Mat Bearing Area (ft^2):	182.3
Pile Quantity	8
Pile Diameter (in):	10
Pile Length (ft):	50
Depth to Ignore (ft):	8
Total Pile Surface Area (ft^2):	879.6
Ultimate Bearing Pressure (ksf):	12
Ultimate Skin Friction (ksf):	1
$Ø_{soil}$:	0.75
Mat Bearing Capacity (kips):	1640.3
Skin Friction Capcity (kips):	659.7
Total Uplift Load (kips):	258.0
Total Compression Load (kips):	422.2



Uplift Capacity (kips):	758.1
Compression Capacity (kips):	2300.0
Uplift Usage Capacity:	**34.0%**
Compression Usage Capacity:	**18.4%**

STANDARD CONDITIONS FOR FURNISHING OF PROFESSIONAL ENGINEERING SERVICES ON EXISTING STRUCTURES BY PAUL J. FORD AND COMPANY

1) Paul J. Ford and Company has not made a field inspection to verify the tower member sizes or the antenna/coax loading. If the existing conditions are not as represented on these drawings, we should be contacted immediately to evaluate the significance of the deviation.

2) No allowance was made for any damaged, missing, or rusted members. The analysis of this tower assumes that no physical deterioration has occurred in any of the structural components of the tower and that all the tower members have the same load carrying capacity as the day the tower was erected.

3) It is not possible to have all the detailed information to perform a thorough analysis of every structural sub-component of an existing tower. The structural analysis by Paul J. Ford and Company verifies the adequacy of the main structural members of the tower. Paul J. Ford and Company provides a limited scope of service in that we cannot verify the adequacy of every weld, plate connection detail, etc.

4) This tower has been analyzed according to the minimum design wind loads recommended by the Telecommunications Industry Association Standard ANSI/TIA-222-G. If the owner or local or state agencies require a higher design wind load, Paul J. Ford and Company should be made aware of this requirement.

5) The enclosed sketches are a schematic representation of the tower that we have analyzed. If any material is fabricated from these sketches, the contractor shall be responsible for field verifying the existing conditions and for the proper fit and clearance in the field.

6) Miscellaneous items such as antenna mounts etc. have not been designed or detailed as a part of our work. We recommend that material of adequate size and strength be purchased from a reputable tower manufacturer.

Exhibit E

Date: 6/14/2019

To: T-Mobile Northeast, LLC
35 Griffin Road South
Bloomfield, CT06002

Subject:	**Mount Structural Analysis Report – Upgrade**	
T-Mobile Designation:	**Site ID:**	CT11170C
	Site Name:	Hartford/N. Britain Ave_1
Destek Designation:	**Project Number:**	1975051
Site Data:	**1030 New Britain Avenue, West Hartford, CT 06110** **Latitude 41.731301˚, Longitude -72.723795˚**	

Destek Engineering, LLC is pleased to submit this **"Mount Structural Analysis Report"** to determine the structural capacity of the antenna mount utilized by T-Mobile at the above referenced site.

The purpose of the analysis is to determine acceptability of the mount stress level for the changes proposed by T-Mobile. Under the following load case we have determined the mount to have:

Existing + Proposed Equipment **Adequate Capacity (77.9%)**
Note: See Analysis Criteria for loading configuration

The analysis has been performed in accordance with TIA-222-G Standard and the 2018 Connecticut State Building Code (2015 IBC).

We at *Destek Engineering, LLC* appreciate the opportunity of providing our continuing professional services to you. If you have any questions or need further assistance on this or any other projects please give us a call.

Sincerely,
Destek Engineering, LLC
License No: PEC0001429

6/14/2019

Ahmet Colakoglu, PE
Connecticut Professional Engineer
License No: 27057

DESTEK ENGINEERING, LLC
1281 Kennestone Circle, Suite 100, Marietta, GA 30066 - Tel: (770) 693-0835

1) ANALYSIS CRITERIA

The analysis was performed for the existing and proposed appurtenances as specified in the loading information referenced below, and per the following loading criteria of Table 1.

Table 1 – Loading and Analysis Criteria

Rad Center	180’
Structure Type	Self-Support Tower
Exposure Category	C
Wind Speed	125 mph* √0.6 = 97 mph (ASD)
Ice Loading	1.00” with 50 mph Wind
Risk Category	II
Topographic Factor	Kzt = 1.0

Table 1.1 – Existing Appurtenance Configuration

Qty	Model
3	Ericsson AIR32 KRD901146-1_B66A_B2A – Antennas
3	RFS APXVAARR24_43-U-NA20 – Antennas
3	Ericsson AIR21 KRC118023-1_B2A_B4P – Antennas
3	Radio 4449 B71+B12 – RRUs
3	Generic Twin Style 1B – AWS – TMAs

Table 1.2 – Proposed and Final Appurtenance Configuration

Qty	Model
3	RFS APXVAARR24_43-U-NA20 – Antennas
3	Ericsson AIR32 KRD901146-1_B66A_B2A – Antennas
3	Ericsson AIR6488 B41 – Antennas
3	Ericsson AIR3246 B66 – Antennas
3	Radio 4449 B71+B12 – RRUs
3	Radio 4415 B25 – RRUs*

***To be mounted behind antennas.**

DESTEK ENGINEERING, LLC
1281 Kennestone Circle, Suite 100, Marietta, GA 30066 - Tel: (770) 693-0835

Table 1.3 – Assumed Material Properties

Member Type	ASTM Material Designation	Fy (ksi)	Fu (ksi)
Pipes	A53 Gr. B	35	60
Angles/Channels	A36	36	58
Rectangular HSS	A500 Gr. B - 46	46	58
Round HSS	A500 Gr. B - 42	42	58
Others (UNO)	A572 Gr. 50	50	65

2) ANALYSIS PROCEDURE

The analysis is based on the following information:

Table 2 – Documents

Document	Provided By	Date
RFDS	T-Mobile	03/10/2019
Construction Drawings	URS Corporation AES	10/17/2001
Tower Analysis Report	Paul J. Ford & Company	09/11/2018
Mount Assessment Letter	Destek Engineering, LLC	07/30/2018
Site Photos	ForeSite LLC	03/01/2019

2.1) Analysis Method

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

2.2) Analysis Conditions and Assumptions

1) The mount was built and installed in accordance with the manufacturer's specifications.
2) The mount has been maintained and will be maintained in accordance with the manufacturer's specifications. All structural members and connections of the mount are in good condition and can achieve theoretical strength.
3) The configuration of antennas is as specified in "1) Analysis Criteria".
4) The analysis was performed for the subject mount only. It does not include an evaluation of the other mounts or the tower, which should be analyzed by others.
5) The evaluation does not include any antenna rigging loads. The equipment should not be rigged using the subject antenna mount as the support.
6) The analysis includes a minimum 250 lbf maintenance point load at the worst-case location on the mount, as well as a minimum 250 lbf maintenance point load at each antenna location in conjunction with a 30 mph wind load.
7) Any steel grating represented in this model is for loading purposes only and it is not considered to provide any structural restraint or support.

8) Member sizes per the available specifications, mount analysis report, site photos and assumed based on our experience with similar structures. Please refer to calculation output in the appendix of this report for sizes and lengths assumed.
9) All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.
10) According to provided photos, pipe kicker has been added to the model.

Destek Engineering, LLC must be notified immediately if any of these assumptions are discovered to be incorrect. The results of this analysis may be affected if any of the assumptions are not valid or have been made in error.

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3) ANALYSIS RESULTS AND CONCLUSION

The analysis results are shown on the table below.

Table 3.1 – Mount Component Stresses vs. Capacity

Component	% Capacity	Pass / Fail
Horizontal Face Pipe	65.8	Pass
Horizontal Standoff Tube	31.1	Pass
Vertical Standoff Pipe	<20.0	Pass
Antenna Mount Pipe	**77.9**	**Pass**
Pipe Kicker	<20.0	Pass

T-Frame Sector Mounts: The existing T-Frame sector mounts **will have adequate** capacity for the proposed changes by T-Mobile, ***once they are modified per the Upgrade Drawings prepared by Destek Engineering, LLC, dated 06/14/2019***. For the code specified load combinations and as a maximum, the mount members are stressed to **77.9%** of their structural capacity.

DESTEK ENGINEERING, LLC
1281 Kennestone Circle, Suite 100, Marietta, GA 30066 - Tel: (770) 693-0835

APPENDIX

INPUT LOADS
ANALYSIS OUTPUT
UPGRADE DRAWINGS

DESTEK ENGINEERING, LLC
1281 Kennestone Circle, Suite 100, Marietta, GA 30066 - Tel: (770) 693-0835

CLIENT: Foresite LLC

PROJECT: CT11170C - Upgrade

SUBJECT: Antenna Loads -TIA 222 G Stanadard (chapter 16 revisions)

Tower Height	180.00	ft	Type of Mount: Sector
Basic Wind Speed, V	97	mph (=Ultimate Speed*Sqrt(0.6))	
Basic Wind Speed with Ice, V_i	50	mph	
Maintanence Load Factor, L_{FM}	0.0957	Load Factor for Maint. Load Cases (Basic Wind Speed=30 mph)	
Design Ice Thickness, t_i	1	inches	

Table 2-3 Importance Factors

Structure Classification	Wind Load Without Ice	Wind Load With Ice	Ice Thickness	Earthquake
II	1	1	1	1

1

Table 2-4 Exposure Category Coefficients

Exposure Category	Zg	α	Kzmin	Ke	m
C	900	9.5	0.85	1	0.6

Table 2-5 Topographic Categories

Kzt 1.000

Table 2-2 Wind Directionality Factor, Kd

Structure Type	Kd	
1 Lattice Tower	0.95	DOES NOT CHANGE

Gust Effect Factor Gh

Structure Type	Gh	
1 Lattice Tower	1.00	DOES NOT CHANGE

Shielding Factor, Ka

Structure Type	Ka	
Lattice Tower	0.90	DOES NOT CHANGE

Seismic Factors

Ss	0.181	
S1	0.064	
Fa	1.6	
Fv	2.4	
R	3	Truss or Pole

CLIENT: Foresite LLC

PROJECT: CT11170C - Upgrade

SUBJECT: Antenna Loads -TIA 222 G Stanadard (chapter 16 revisions)

Rad Center **165.00** ft

Antenna AND Mount Without Ice

Mounting Pole	Height (ft)	Model Number	#	Weight (lbs)	H (in)	*W (in)	D (in)	Ka	**A_N (ft2)	***A_T (ft2)	Aspect (FRONT)	Aspect (SIDE)	Ca (FRONT)	Ca (SIDE)	K_z	q_z (psf)	Pounds: Wind Load (Front)	Wind Load (Side)	Dead Load	Total Wind Load (Front)	Total Wind Load (Side)	Total Dead Load	Lateral Load (Seismic)	Vertical Load (Seismic)
Pos. 1	**165.00**	RFS APXVAARR24_43-U-NA20	1	128.0	95.9	24.0	8.7	0.90	15.98	5.79	4.00	11.02	1.27	1.53	1.406	32.2	586.2	257.4	128	586	315	249	9	10
	165.00	Radio 4449 B12/B71	1	75.0	15.0	N/A	9.3	0.90	-	0.96	-	1.62	-	1.20	1.406	32.2	0.0	33.4	75					
	165.00	RRUS 4415 B25	1	46.0	16.5	N/A	5.9	0.90	-	0.68	-	2.80	-	1.21	1.406	32.2	0.0	23.8	46					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
																				294	**158**	**125**	**4**	**5**
Pos.2	**165.00**	Ericsson AIR32 B66A B2A	1	105.8	56.6	12.9	8.7	0.90	5.07	3.42	4.39	6.51	1.28	1.38	1.406	32.2	188.5	136.5	105.8	189	136	106	4	4
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
																				95	**69**	**53**	**2**	**2**
Pos.3	**165.00**	Ericsson AIR6488 B41	1	133.2	38.3	20.5	7.2	0.90	5.45	1.92	1.87	5.32	1.20	1.33	1.406	32.2	189.5	73.5	133.16	190	73	133	5	5
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
																				95	**37**	**67**	**2**	**3**
Pos.4	**165.00**	Ericsson AIR3246 B66	1	216.1	58.7	15.8	9.5	0.90	6.42	3.85	3.72	6.21	1.25	1.36	1.406	32.2	233.1	152.1	216.05	233	152	216	8	8
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
																				117	**77**	**109**	**4**	**4**

* Enter N/A in the W column for front sheilded apurtanances.

** A_N is the product of H and W

*** A_T is the product of H and D

DL 704

Mount	Height (ft)	Member	*L (in)	**W (in)	D (in)	Weight (lb/ft)	*** Ca	K_z	q_z (psf)	Wind Load (PLF)	Lateral Load (Seismic)	Vertical Load (Seismic)
	165.00	1.5 STD Pipe	12.00	2.38	0.00		1.20	1.406	29.0	7	-	-
	165.00	2 STD Pipe	12.00	2.38	0.00		1.20	1.406	29.0	7	-	-
	165.00	2.5 STD Pipe	12.00	2.88	0.00		1.20	1.406	29.0	8	-	-
	165.00	4 STD Pipe	12.00	3.50	0.00		1.20	1.406	29.0	10	-	-
	165.00	(L3x3)	0.00	3.00	3.00		-	-	-	-	-	-
	165.00	(L2.5x2.5)	12.00	2.50	2.50		2.00	1.406	29.0	12	-	-
	165.00	Angle Diagonal	0.00	0.00	0.00		-	-	-	-	-	-
	165.00	Plate Horizontal (PL6x3/8)	0.00	6.00	0.38		-	-	-	-	-	-
	165.00	Plate Horizontal (PL7x0.4)	0.00	0.40	7.00		-	-	-	-	-	-
	165.00	Tube Standoff (3x3)	12.00	3.00	3.00		2.00	1.406	29.0	14	-	-
	165.00	Double Angle (LL2x2x3x0)	0.00	2.00	2.00		-	-	-	-	-	-
	165.00	Double Angle (LL3x3x4x0)	0.00	3.00	3.00		-	-	-	-	-	-
	165.00	Channel (Weak Axis Bending)	0.00	0.00	0.00		-	-	-	-	-	-
	165.00	Invert U 5.375x3.625x.375	0.00	3.63	5.38		-	-	-	-	-	-

* The dimension L is the longest dimension of the member

** The dimension W is the height or width of the member that resists wind load

*** Ca will equal 1.2 for round members and 2.0 for flat members

CLIENT: Foresite LLC

PROJECT: CT11170C - Upgrade

SUBJECT: Antenna Loads -TIA 222 G Stanadard (chapter 16 revisions)

ti (in) 2.349238 Kiz 1.1746189 reduction 0.2657

Antenna AND Mount With Ice

Mounting Pole	Height (ft)	Model Number	#	H (in)	W (in)	D (in)	Ka	*A_N (ft2)	*A_T (ft2)	*Volume Ice (ft3)	*Weight Ice (lbs)	**Ca (FRONT)	**Ca (SIDE)	Kz	q_z (psf)	Pounds: Ice Wind Load (Front)	Ice Wind Load (Side)	Combined Wind Load (Front)	Combined Wind Load (Side)	Ice Dead Load	**Total Wind Load (Front)	**Total Wind Load (Side)	Total Ice Load
Pos. 1	**165.00**	RFS APXVAARR24_43-U-NA20	1	95.9	24.0	8.7	0.90	4.07	3.57	10.80	604.65	0.72	0.81	1.406	8.6	22.6	22.3	178.4	90.7	605	178	116	794
	165.00	Radio 4449 B12/B71	1	15.0	13.2	9.3	0.90	-	0.94	1.78	99.77	0.70	0.70	1.406	8.6	0.0	5.1	0.0	13.9	100			
	165.00	RRUS 4415 B25	1	16.5	13.4	5.9	0.90	-	0.88	1.60	89.50	0.70	0.70	1.406	8.6	0.0	4.8	0.0	11.1	90			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
																					90	**58**	**397**
Pos.2	**165.00**	Ericsson AIR32 B66A B2A	1	56.6	12.9	8.7	0.90	2.42	2.28	4.69	262.55	0.72	0.75	1.406	8.6	13.4	13.1	63.5	49.4	263	64	49	263
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
																					32	**25**	**132**
Pos.3	**165.00**	Ericsson AIR6488 B41	1	38.3	20.5	7.2	0.90	2.07	1.64	4.19	234.59	0.70	0.72	1.406	8.6	11.2	9.1	61.5	28.7	235	62	29	235
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
																					31	**15**	**118**
Pos.4	**165.00**	Ericsson AIR3246 B66	1	58.7	15.8	9.5	0.90	2.58	2.38	5.56	311.10	0.71	0.74	1.406	8.6	14.2	13.6	76.1	54.0	311	76	54	311
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
																					39	**28**	**156**

* A_N ,A_T, Volume Ice and Weight Ice are calculated per unit

** Ca will equal 1.2 for all ice load calculations

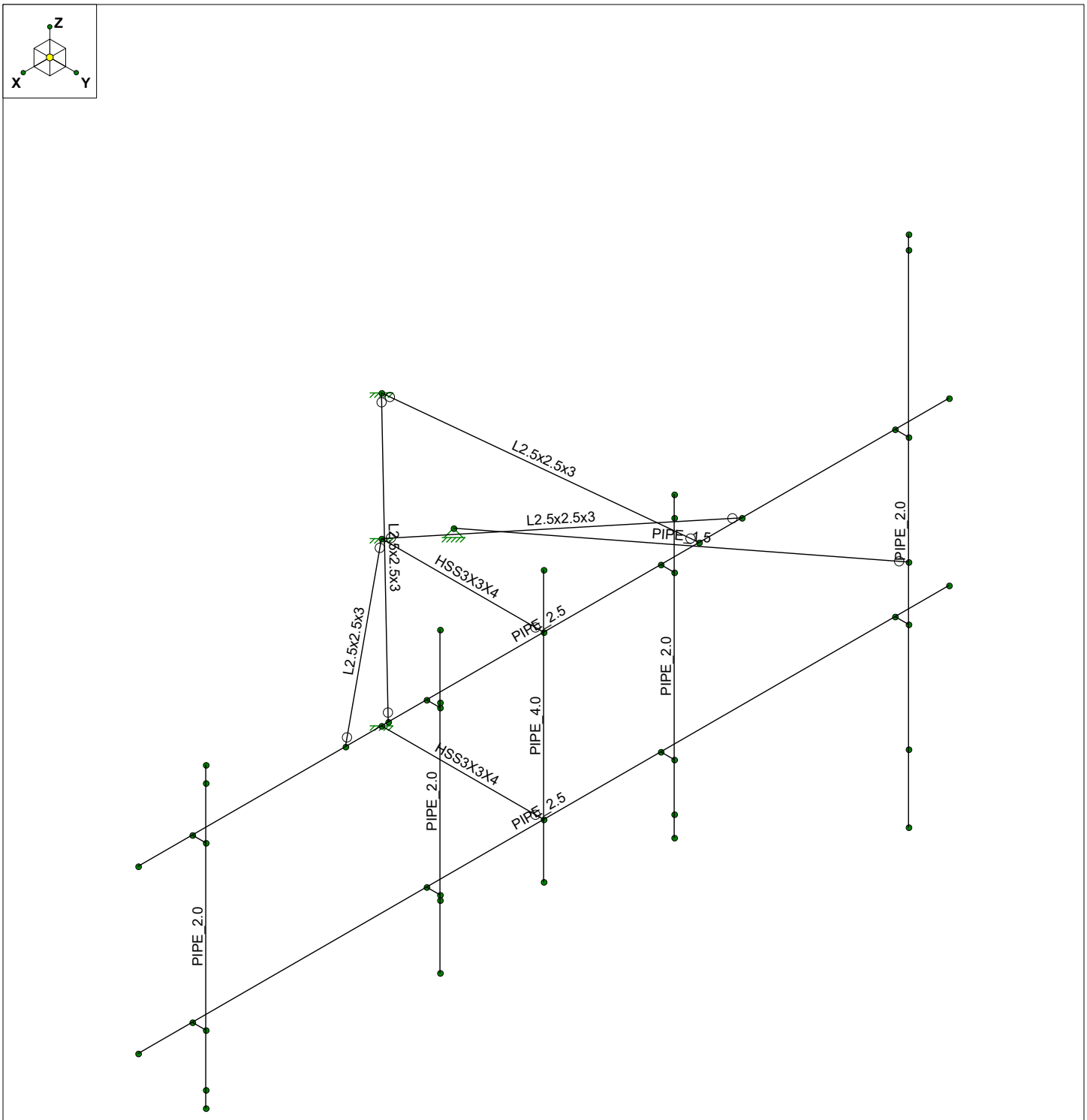
Mount	Height (ft)	Member	*L (in)	**W (in)	D (in)	***A_N (ft2)	Volume Ice (ft3)	Weight Ice (lbs)	****Ca (FRONT)	Kz	q_z (psf)	PLF: Ice Wind Load (Front)	Combined Wind Load (Front)	Ice Dead Load
	165.00	1.5 STD Pipe	12.00	2.38	0.00	0.62	0.24	13.57	1.20	1.406	7.7	5.7	7.6	14
	165.00	2 STD Pipe	12.00	2.38	0.00	0.62	0.24	13.57	1.20	1.406	7.7	5.7	7.6	14
	165.00	2.5 STD Pipe	12.00	2.88	0.00	0.64	0.27	15.01	1.20	1.406	7.7	5.9	8.1	15
	165.00	4 STD Pipe	12.00	3.50	0.00	0.66	0.30	16.79	1.20	1.406	7.7	6.1	8.8	17
	165.00	(L3x3)	0.00	3.00	3.00	-	-	-	-	-	-	-	-	-
	165.00	(L2.5x2.5)	12.00	2.50	2.50	0.63	0.16	9.14	1.20	1.406	7.7	5.8	9.0	9
	165.00	Angle Diagonal	0.00	0.00	0.00	-	-	-	-	-	-	-	-	-
	165.00	Plate Horizontal (PL6x3/8)	0.00	6.00	0.38	-	-	-	-	-	-	-	-	-
	165.00	Plate Horizontal (PL7x0.4)	0.00	0.40	7.00	-	-	-	-	-	-	-	-	-
	165.00	Tube Standoff (3x3)	12.00	3.00	3.00	0.64	0.51	28.57	1.20	1.406	7.7	5.9	9.8	29
	165.00	Double Angle (LL2x2x3x0)	0.00	2.00	2.00	-	-	-	-	-	-	-	-	-
	165.00	Double Angle (LL3x3x4x0)	0.00	3.00	3.00	-	-	-	-	-	-	-	-	-
	165.00	Channel (Weak Axis Bending)	0.00	0.00	0.00	-	-	-	-	-	-	-	-	-
	165.00	Invert U 5.375x3.625x.375	0.00	3.63	5.38	-	-	-	-	-	-	-	-	-

* The dimension L is the longest dimension of the member

** The dimension W is the height or width of the member that resists wind load

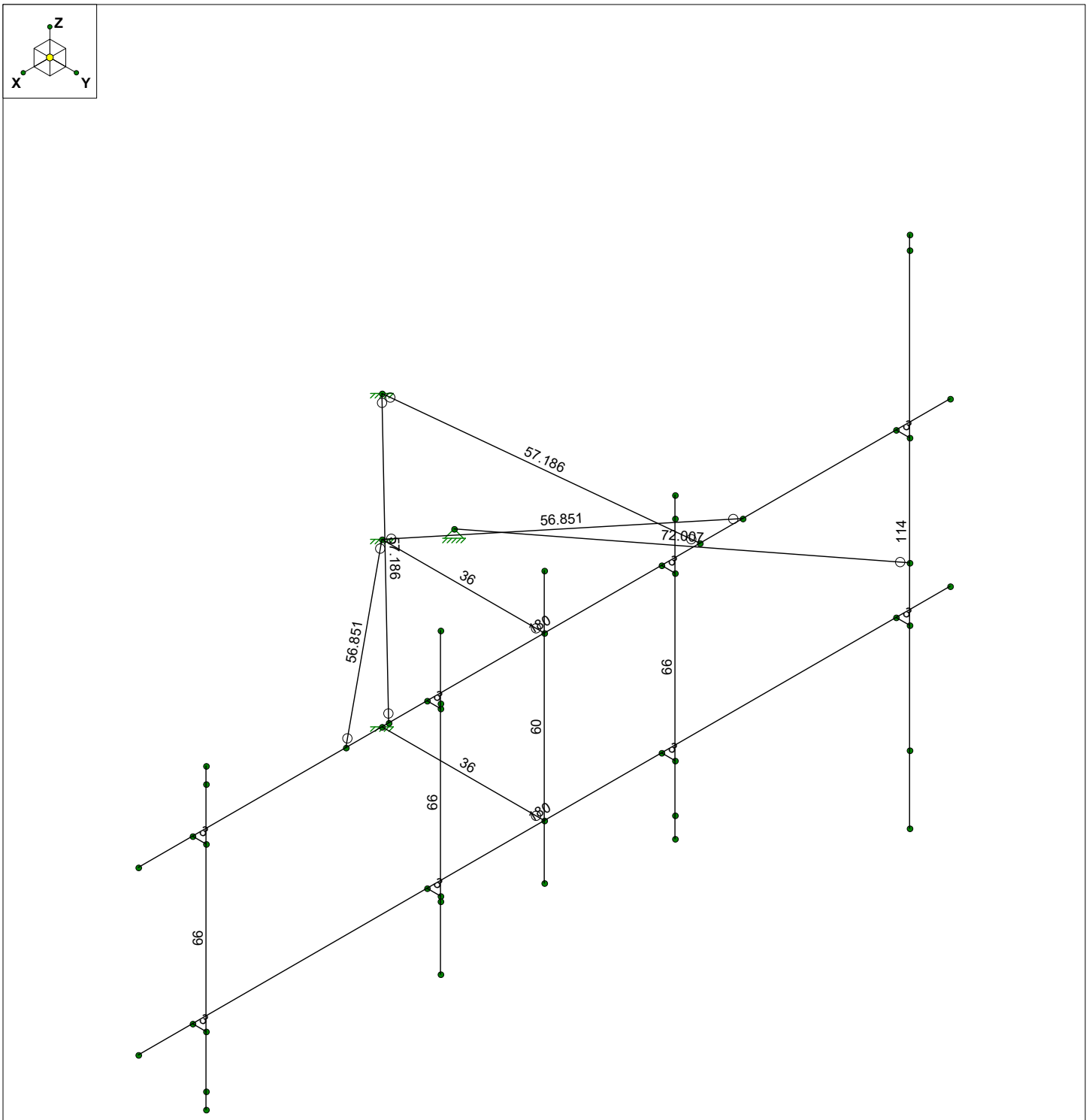
*** A_N is the area of ice built up on the LW plane

**** Ca will equal 1.2 for all ice load calculations



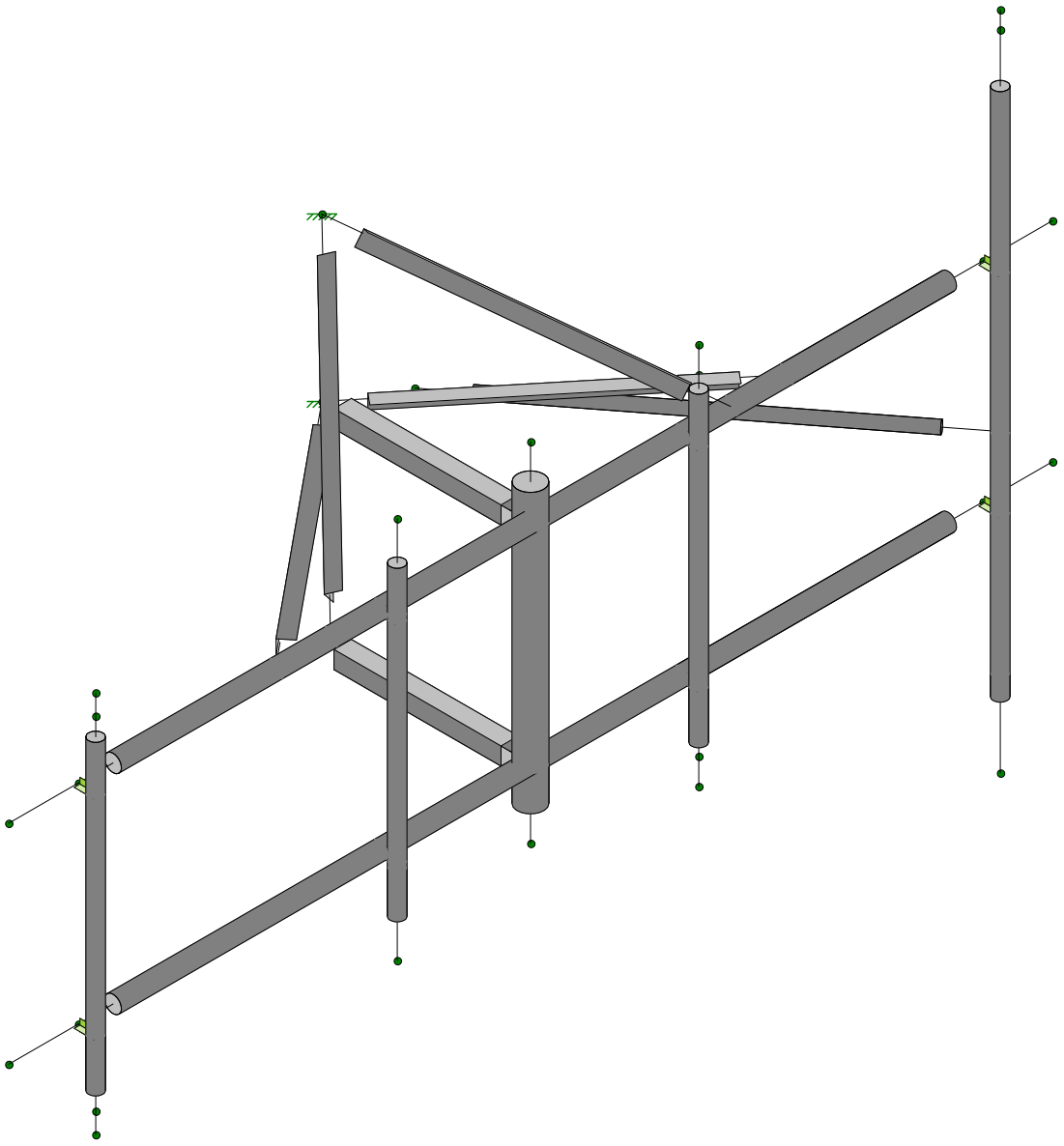
Envelope Only Solution

Destek/Foresite LLC	CT11170C	SK - 1
SA		June 14, 2019 at 2:51 PM
1975051		1975051 - CT11170C - Upgrade.r3d



Member Length (in) Displayed
Envelope Only Solution

Destek/Foresite LLC	CT11170C	SK - 2
SA		June 14, 2019 at 2:51 PM
1975051		1975051 - CT11170C - Upgrade.r3d



Envelope Only Solution

Destek/Foresite LLC	CT11170C	SK - 3
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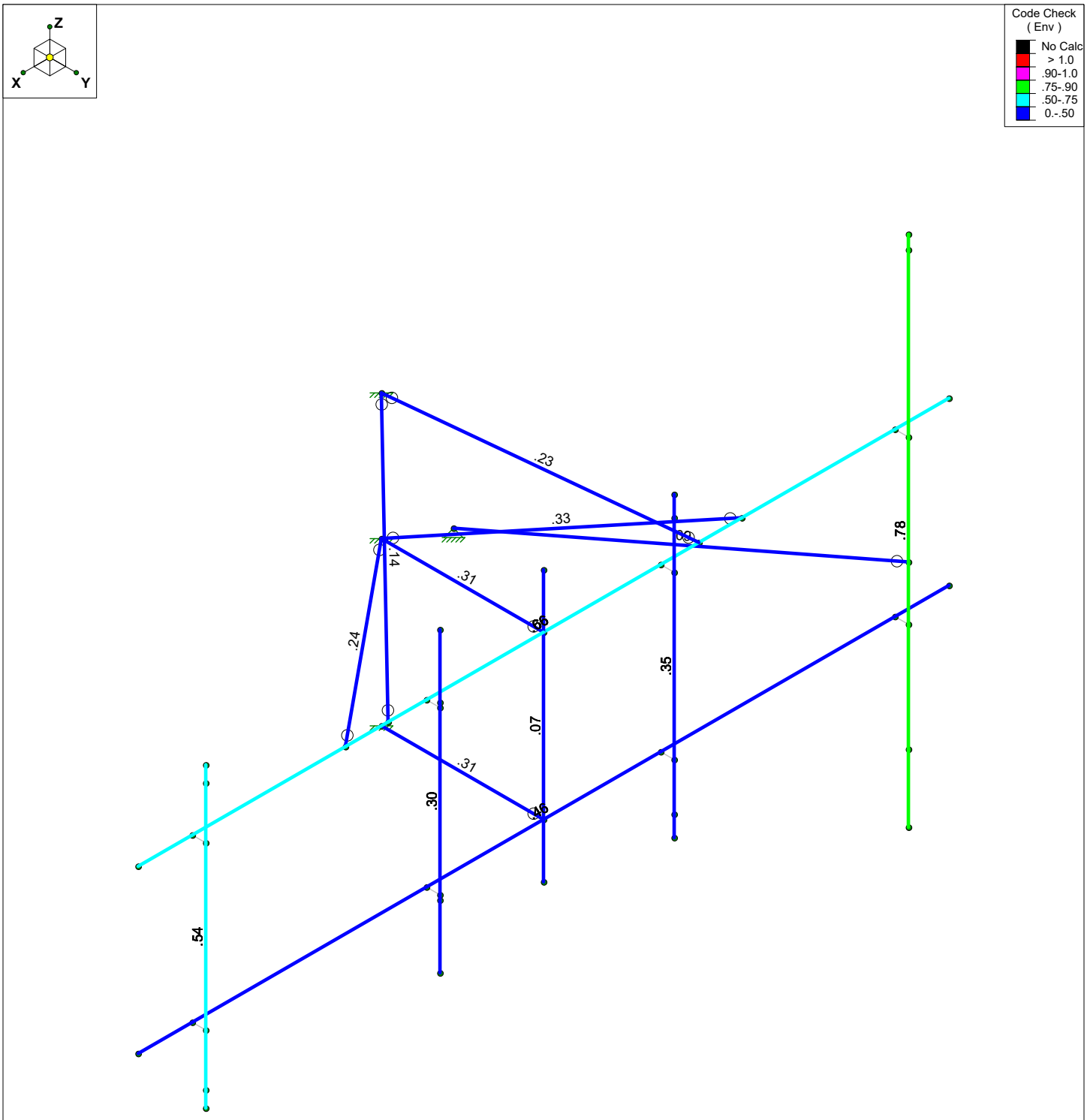
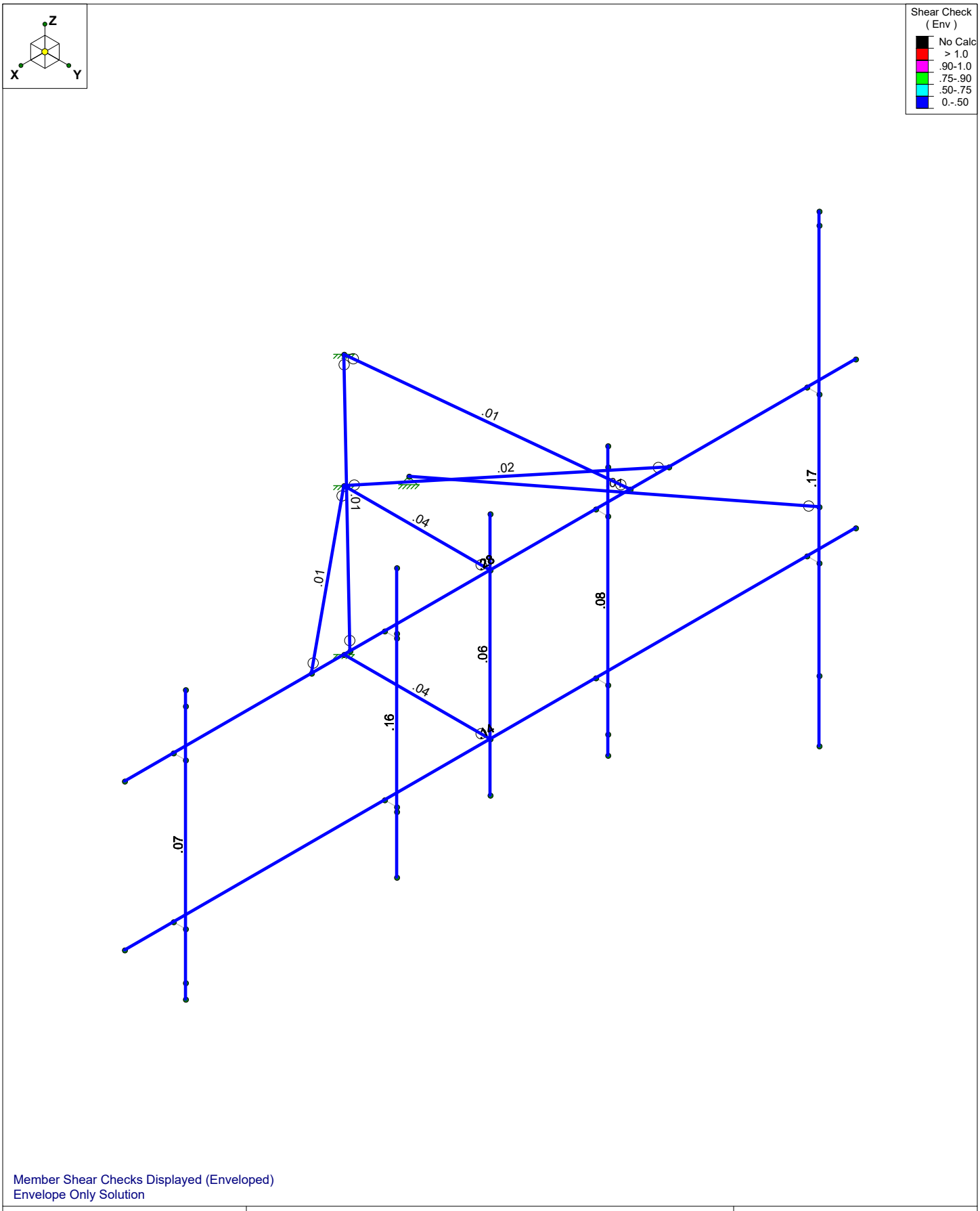
1975051		1975051 - CT11170C - Upgrade.r3d



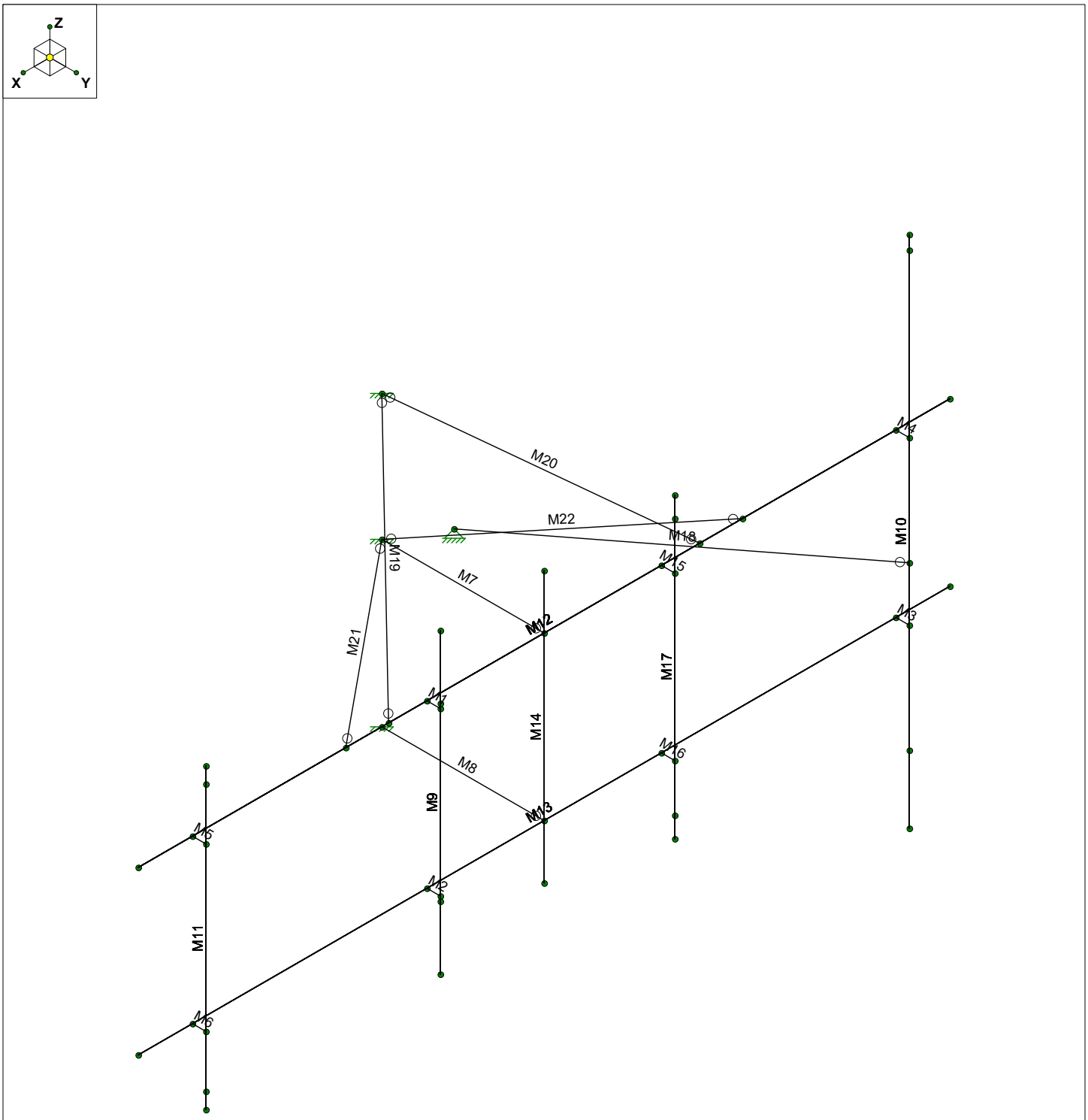
Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Destek/Foresite LLC	CT11170C	SK - 4
SA		June 14, 2019 at 3:06 PM
1975051		1975051 - CT11170C - Upgrade.r3d



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

Destek/Foresite LLC	CT11170C	SK - 5
SA		June 14, 2019 at 3:06 PM
1975051		1975051 - CT11170C - Upgrade.r3d



Envelope Only Solution

Destek/Foresite LLC	CT11170C	SK - 6
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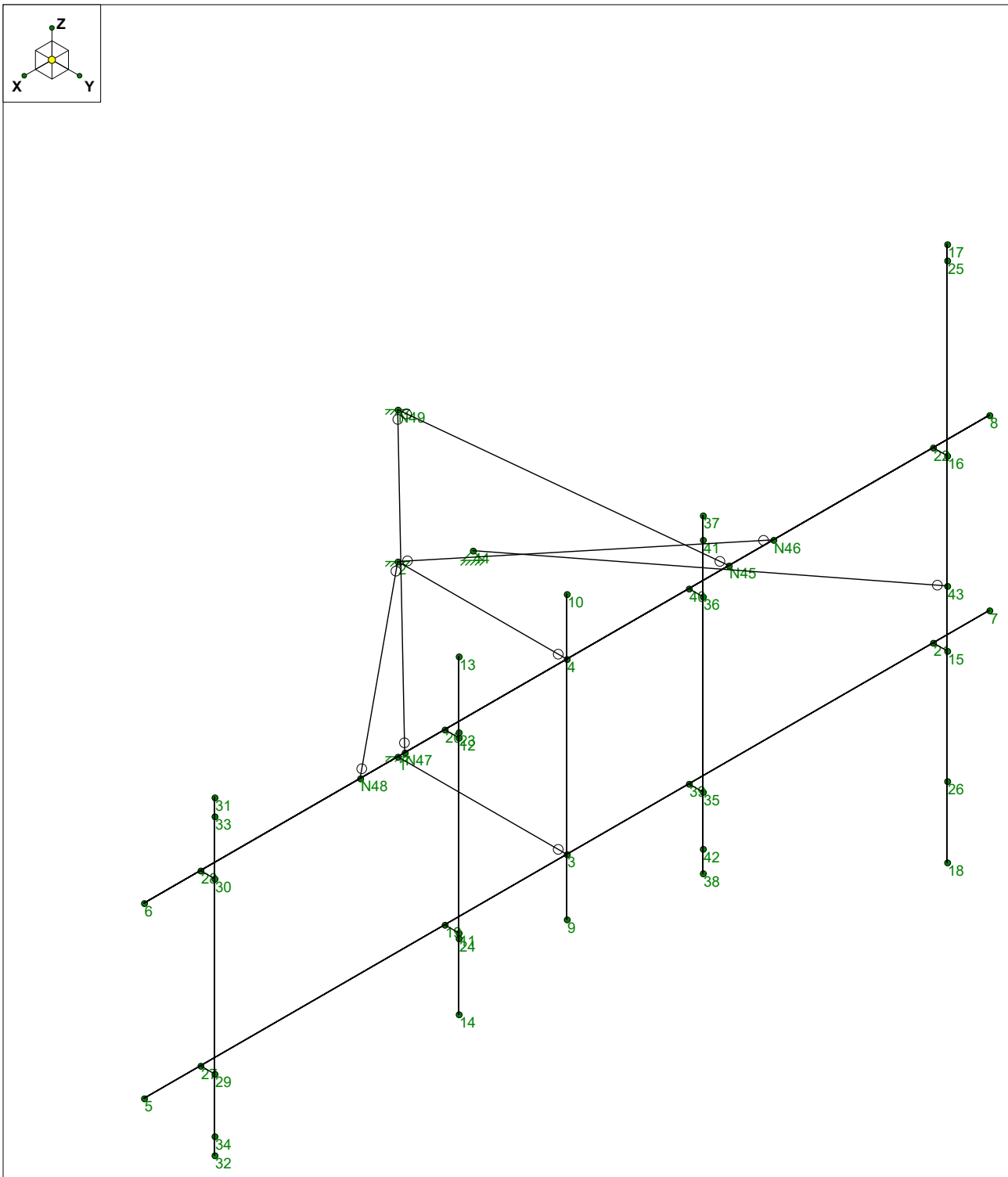


Envelope Only Solution

Destek/Foresite LLC	CT11170C	SK - 7
SA		June 14, 2019 at 3:07 PM
1975051		1975051 - CT11170C - Upgrade.r3d

(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	No
Max Iterations for Wall Stiffness	3
Gravity Acceleration (in/sec^2)	386.4
Wall Mesh Size (in)	12
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Z
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 14th(360-10): LRFD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	AISC 13th(360-05): ASD
Cold Formed Steel Code	AISI NAS-01: ASD
Wood Code	AF&PA NDS-05/08: ASD
Wood Temperature	< 100F
Concrete Code	ACI 318-05
Masonry Code	ACI 530-05: ASD
Aluminum Code	AA ADM1-05: ASD - Building
Stainless Steel Code	AISC 14th(360-10): ASD
Adjust Stiffness?	Yes(Iterative)

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parme Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	No
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR_SET_ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8

(Global) Model Settings, Continued

Seismic Code	ASCE 7-05
Seismic Base Elevation (in)	Not Entered
Add Base Weight?	Yes
Ct X	.035
Ct Z	.035
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	8.5
R Z	8.5
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	Not Entered
Occupancy Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	4
Cd X	4
Rho Z	1
Rho X	1

Project Grid Lines

	Label	Start X [in]	End X [in]	Start Y [in]	End Y [in]	Start Bubble	End Bubble
No Data to Print ...							

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1E...	Density[k/ft...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
2	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	58	1.2
3	A992	29000	11154	.3	.65	.49	50	1.1	58	1.2
4	A500 Gr.42	29000	11154	.3	.65	.49	42	1.3	58	1.1
5	A500 Gr.46	29000	11154	.3	.65	.49	46	1.2	58	1.1
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.5	60	1.2
7	A529 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.2

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rules	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Standoff Tube	HSS3X3X4	Beam	None	A500 Gr.42	Typical	2.44	3.02	3.02	5.08
2	Standoff Pipe	PIPE_4.0	Column	None	A53 Gr.B	Typical	2.96	6.82	6.82	13.6
3	Frame Face	PIPE_2.5	Beam	None	A53 Gr.B	Typical	1.61	1.45	1.45	2.89
4	Antenna Mo...	PIPE_2.0	Column	None	A53 Gr.B	Typical	1.02	.627	.627	1.25
5	Stabilizer Arm	PIPE_1.5	Beam	None	A53 Gr.B	Typical	.749	.293	.293	.586
6	Reinforceme...	L2.5x2.5x3	Beam	None	A36 Gr.36	Typical	.901	.535	.535	.011

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	20	12			RIGID	None	None	LINK	Typical
2	M2	19	11			RIGID	None	None	LINK	Typical
3	M3	21	15			RIGID	None	None	LINK	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
4	M4	22	16			RIGID	None	None	LINK	Typical
5	M5	28	30			RIGID	None	None	LINK	Typical
6	M6	27	29			RIGID	None	None	LINK	Typical
7	M7	2	4			Standoff Tube	Beam	None	A500 Gr.42	Typical
8	M8	1	3			Standoff Tube	Beam	None	A500 Gr.42	Typical
9	M9	13	14			Antenna Mount	Column	None	A53 Gr.B	Typical
10	M10	17	18			Antenna Mount	Column	None	A53 Gr.B	Typical
11	M11	31	32			Antenna Mount	Column	None	A53 Gr.B	Typical
12	M12	6	8			Frame Face	Beam	None	A53 Gr.B	Typical
13	M13	5	7			Frame Face	Beam	None	A53 Gr.B	Typical
14	M14	10	9			Standoff Pipe	Column	None	A53 Gr.B	Typical
15	M15	40	36			RIGID	None	None	LINK	Typical
16	M16	39	35			RIGID	None	None	LINK	Typical
17	M17	37	38			Antenna Mount	Column	None	A53 Gr.B	Typical
18	M18	43	44			Stabilizer Arm	Beam	None	A53 Gr.B	Typical
19	M19	N49	N47		270	Reinforcement...	Beam	None	A36 Gr.36	Typical
20	M20	N49	N45			Reinforcement...	Beam	None	A36 Gr.36	Typical
21	M21	2	N48		270	Reinforcement...	Beam	None	A36 Gr.36	Typical
22	M22	2	N46			Reinforcement...	Beam	None	A36 Gr.36	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Ratio O...	Analysis ...	Inactive	Seismic...
1	M1						Yes	** NA **			None
2	M2						Yes	** NA **			None
3	M3						Yes	** NA **			None
4	M4						Yes	** NA **			None
5	M5						Yes	** NA **			None
6	M6						Yes	** NA **			None
7	M7		BenPIN				Yes				None
8	M8		BenPIN				Yes				None
9	M9						Yes	** NA **			None
10	M10						Yes	** NA **			None
11	M11						Yes	** NA **			None
12	M12						Yes				None
13	M13						Yes				None
14	M14						Yes	** NA **			None
15	M15						Yes	** NA **			None
16	M16						Yes	** NA **			None
17	M17						Yes	** NA **			None
18	M18	BenPIN					Yes				None
19	M19	BenPIN	BenPIN				Yes				None
20	M20	BenPIN	BenPIN				Yes				None
21	M21	BenPIN	BenPIN				Yes				None
22	M22	BenPIN	BenPIN				Yes				None

Hot Rolled Steel Design Parameters

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torq...	Kyy	Kzz	Cb	Function
1	M7	Standoff Tu...	36			Lbyy						Lateral
2	M8	Standoff Tu...	36			Lbyy						Lateral
3	M9	Antenna Mo...	66			Lbyy						Lateral
4	M10	Antenna Mo...	114			Lbyy						Lateral
5	M11	Antenna Mo...	66			Lbyy						Lateral
6	M12	Frame Face	180									Lateral
7	M13	Frame Face	180									Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torq...	Kyy	Kzz	Cb	Function
8	M14	Standoff Pipe	60			Lbyy						Lateral
9	M17	Antenna Mo...	66			Lbyy						Lateral
10	M18	Stabilizer Ar...	72.007			Lbyy						Lateral
11	M19	Reinforcem...	57.186			Lbyy						Lateral
12	M20	Reinforcem...	57.186			Lbyy						Lateral
13	M21	Reinforcem...	56.851			Lbyy						Lateral
14	M22	Reinforcem...	56.851			Lbyy						Lateral

Joint Coordinates and Temperatures

	Label	X [in]	Y [in]	Z [in]	Temp [F]	Detach From Di...
1	1	0	0	0	0	
2	2	0	0	36	0	
3	3	0	36	0	0	
4	4	0	36	36	0	
5	5	90	36	0	0	
6	6	90	36	36	0	
7	7	-90	36	0	0	
8	8	-90	36	36	0	
9	9	0	36	-12	0	
10	10	0	36	48	0	
11	11	26	39	0	0	
12	12	26	39	36	0	
13	13	26	39	51	0	
14	14	26	39	-15	0	
15	15	-78	39	0	0	
16	16	-78	39	36	0	
17	17	-78	39	75	0	
18	18	-78	39	-39	0	
19	19	26	36	0	0	
20	20	26	36	36	0	
21	21	-78	36	0	0	
22	22	-78	36	36	0	
23	23	26	39	37	0	
24	24	26	39	-1	0	
25	25	-78	39	72	0	
26	26	-78	39	-24	0	
27	27	78	36	0	0	
28	28	78	36	36	0	
29	29	78	39	0	0	
30	30	78	39	36	0	
31	31	78	39	51	0	
32	32	78	39	-15	0	
33	33	78	39	47.5	0	
34	34	78	39	-11.5	0	
35	35	-26	39	0	0	
36	36	-26	39	36	0	
37	37	-26	39	51	0	
38	38	-26	39	-15	0	
39	39	-26	36	0	0	
40	40	-26	36	36	0	
41	41	-26	39	46.5	0	
42	42	-26	39	-10.5	0	
43	43	-78	39	12	0	
44	44	-34	-18	12	0	
45	N45	-34.5	36	36	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [in]	Y [in]	Z [in]	Temp [F]	Detach From Di...
46	N46	-44	36	36	0	
47	N47	34.5	36	36	0	
48	N48	44	36	36	0	
49	N49	0	0	64	0	

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	1	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	2	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	44	Reaction	Reaction	Reaction			
4	N49	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(Me...	Surface(...
1	DEAD LOAD	None			-1	8				
2	DEAD LOAD ICE	None				8		14		
3	WIND LOAD (NO ICE) FRONT	None				8		14		
4	WIND LOAD (NO ICE) SIDE	None				8		14		
5	WIND LOAD (ICE) FRONT	None				8		14		
6	WIND LOAD (ICE) SIDE	None				8		14		
7	LIVE LOAD 1	None				1				
8	LIVE LOAD 2	None				1				
9	LIVE LOAD 3	None								
10	MAINTENANCE LOAD 1	None				1				
11	MAINTENANCE LOAD 2	None				1				
12	MAINTENANCE LOAD 3	None				1				
13	MAINTENANCE LOAD 4	None				1				

Joint Loads and Enforced Displacements (BLC 1 : DEAD LOAD)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
1	25	L	Z	-125
2	26	L	Z	-125
3	41	L	Z	-53
4	42	L	Z	-53
5	23	L	Z	-67
6	24	L	Z	-67
7	33	L	Z	-109
8	34	L	Z	-109

Joint Loads and Enforced Displacements (BLC 2 : DEAD LOAD ICE)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
1	25	L	Z	-397
2	26	L	Z	-397
3	41	L	Z	-132
4	42	L	Z	-132
5	23	L	Z	-118
6	24	L	Z	-118
7	33	L	Z	-156
8	34	L	Z	-156

Joint Loads and Enforced Displacements (BLC 3 : WIND LOAD (NO ICE) FRONT)

Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...

Joint Loads and Enforced Displacements (BLC 3 : WIND LOAD (NO ICE) FRONT) (Continued)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
1	25	L	Y	294
2	26	L	Y	294
3	41	L	Y	95
4	42	L	Y	95
5	23	L	Y	95
6	24	L	Y	95
7	33	L	Y	117
8	34	L	Y	117

Joint Loads and Enforced Displacements (BLC 4 : WIND LOAD (NO ICE) SIDE)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
1	25	L	X	158
2	26	L	X	158
3	41	L	X	69
4	42	L	X	69
5	23	L	X	37
6	24	L	X	37
7	33	L	X	77
8	34	L	X	77

Joint Loads and Enforced Displacements (BLC 5 : WIND LOAD (ICE) FRONT)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
1	25	L	Y	90
2	26	L	Y	90
3	41	L	Y	32
4	42	L	Y	32
5	23	L	Y	31
6	24	L	Y	31
7	33	L	Y	39
8	34	L	Y	39

Joint Loads and Enforced Displacements (BLC 6 : WIND LOAD (ICE) SIDE)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
1	25	L	X	58
2	26	L	X	58
3	41	L	X	25
4	42	L	X	25
5	23	L	X	15
6	24	L	X	15
7	33	L	X	28
8	34	L	X	28

Joint Loads and Enforced Displacements (BLC 7 : LIVE LOAD 1)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
1	5	L	Z	-250

Joint Loads and Enforced Displacements (BLC 8 : LIVE LOAD 2)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
1	7	L	Z	-250

Joint Loads and Enforced Displacements (BLC 10 : MAINTENANCE LOAD 1)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
1	18	L	Z	-500

Joint Loads and Enforced Displacements (BLC 11 : MAINTENANCE LOAD 2)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
1	38	L	Z	-500

Joint Loads and Enforced Displacements (BLC 12 : MAINTENANCE LOAD 3)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
1	14	L	Z	-500

Joint Loads and Enforced Displacements (BLC 13 : MAINTENANCE LOAD 4)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
1	32	L	Z	-500

Member Point Loads

Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
No Data to Print ...			

Member Distributed Loads (BLC 2 : DEAD LOAD ICE)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
1	M9	Z	-14	-14	0	0
2	M10	Z	-14	-14	0	0
3	M11	Z	-14	-14	0	0
4	M17	Z	-14	-14	0	0
5	M18	Z	-14	-14	0	0
6	M12	Z	-15	-15	0	0
7	M13	Z	-15	-15	0	0
8	M14	Z	-17	-17	0	0
9	M7	Z	-29	-29	0	0
10	M8	Z	-29	-29	0	0
11	M19	Z	-9	-9	0	%100
12	M20	Z	-9	-9	0	%100
13	M21	Z	-9	-9	0	%100
14	M22	Z	-9	-9	0	%100

Member Distributed Loads (BLC 3 : WIND LOAD (NO ICE) FRONT)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
1	M9	PY	7	7	0	0
2	M10	PY	7	7	0	0
3	M11	PY	7	7	0	0
4	M17	PY	7	7	0	0
5	M18	PY	7	7	0	0
6	M12	PY	8	8	0	0
7	M13	PY	8	8	0	0
8	M14	PY	10	10	0	0
9	M7	PY	14	14	0	0
10	M8	PY	14	14	0	0
11	M19	PY	12	12	0	%100
12	M20	PY	12	12	0	%100
13	M21	PY	12	12	0	%100
14	M22	PY	12	12	0	%100

Member Distributed Loads (BLC 4 : WIND LOAD (NO ICE) SIDE)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
1	M9	PX	7	7	0	0
2	M10	PX	7	7	0	0

Member Distributed Loads (BLC 4 : WIND LOAD (NO ICE) SIDE) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
3	M11	PX	7	7	0	0
4	M17	PX	7	7	0	0
5	M18	PX	7	7	0	0
6	M12	PX	8	8	0	0
7	M13	PX	8	8	0	0
8	M14	PX	10	10	0	0
9	M7	PX	14	14	0	0
10	M8	PX	14	14	0	0
11	M19	PX	12	12	0	%100
12	M20	PX	12	12	0	%100
13	M21	PX	12	12	0	%100
14	M22	PX	12	12	0	%100

Member Distributed Loads (BLC 5 : WIND LOAD (ICE) FRONT)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
1	M9	PY	7.6	7.6	0	0
2	M10	PY	7.6	7.6	0	0
3	M11	PY	7.6	7.6	0	0
4	M17	PY	7.6	7.6	0	0
5	M18	PY	7.6	7.6	0	0
6	M12	PY	8.1	8.1	0	0
7	M13	PY	8.1	8.1	0	0
8	M14	PY	8.8	8.8	0	0
9	M7	PY	9.8	9.8	0	0
10	M8	PY	9.8	9.8	0	0
11	M19	PY	9	9	0	%100
12	M20	PY	9	9	0	%100
13	M21	PY	9	9	0	%100
14	M22	PY	9	9	0	%100

Member Distributed Loads (BLC 6 : WIND LOAD (ICE) SIDE)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
1	M9	PX	7.6	7.6	0	0
2	M10	PX	7.6	7.6	0	0
3	M11	PX	7.6	7.6	0	0
4	M17	PX	7.6	7.6	0	0
5	M18	PX	7.6	7.6	0	0
6	M12	PX	8.1	8.1	0	0
7	M13	PX	8.1	8.1	0	0
8	M14	PX	8.8	8.8	0	0
9	M7	PX	9.8	9.8	0	0
10	M8	PX	9.8	9.8	0	0
11	M19	PX	9	9	0	%100
12	M20	PX	9	9	0	%100
13	M21	PX	9	9	0	%100
14	M22	PX	9	9	0	%100

Member Area Loads

Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[ksf]
No Data to Print ...						

Load Combinations

	Description	Solve	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	DL + WL (NO ICE) 0 Degree	Yes	Y		1	1.2			3	1.6																
2	DL + WL (NO ICE) 30 Degree	Yes	Y		1	1.2			3	1.3...	4	.8														
3	DL + WL (NO ICE) 60 Degree	Yes	Y		1	1.2			3	.8	4	1.3...														
4	DL + WL (NO ICE) 90 Degree	Yes	Y		1	1.2					4	1.6														
5	DL + WL (NO ICE) 120 Degree	Yes	Y		1	1.2			3	-.8	4	1.3...														
6	DL + WL (NO ICE) 150 Degree	Yes	Y		1	1.2			3	-1....	4	.8														
7	DL + WL (NO ICE) 180 Degree	Yes	Y		1	1.2			3	-1.6																
8	DL + WL (NO ICE) 210 Degree	Yes	Y		1	1.2			3	-1....	4	-.8														
9	DL + WL (NO ICE) 240 Degree	Yes	Y		1	1.2			3	-.8	4	-1....														
10	DL + WL (NO ICE) 270 Degree	Yes	Y		1	1.2					4	-1.6														
11	DL + WL (NO ICE) 300 Degree	Yes	Y		1	1.2			3	.8	4	-1....														
12	DL + WL (NO ICE) 330 Degree	Yes	Y		1	1.2			3	1.3...	4	-.8														
13	DL + DL ICE + WL (ICE) 0 Degree	Yes	Y		1	1.2	2	1	5	1																
14	DL + DL ICE + WL (ICE) 30 Degree	Yes	Y		1	1.2	2	1	5	.866	6	.5														
15	DL + DL ICE + WL (ICE) 60 Degree	Yes	Y		1	1.2	2	1	5	.5	6	.866														
16	DL + DL ICE + WL (ICE) 90 Degree	Yes	Y		1	1.2	2	1			6	1														
17	DL + DL ICE + WL (ICE) 120 Degr...	Yes	Y		1	1.2	2	1	5	-.5	6	.866														
18	DL + DL ICE + WL (ICE) 150 Degr...	Yes	Y		1	1.2	2	1	5	-.8...	6	.5														
19	DL + DL ICE + WL (ICE) 180 Degr...	Yes	Y		1	1.2	2	1	5	-1																
20	DL + DL ICE + WL (ICE) 210 Degr...	Yes	Y		1	1.2	2	1	5	-.8...	6	-.5														
21	DL + DL ICE + WL (ICE) 240 Degr...	Yes	Y		1	1.2	2	1	5	-.5	6	-.8...														
22	DL + DL ICE + WL (ICE) 270 Degr...	Yes	Y		1	1.2	2	1			6	-1														
23	DL + DL ICE + WL (ICE) 300 Degr...	Yes	Y		1	1.2	2	1	5	.5	6	-.8...														
24	DL + DL ICE + WL (ICE) 330 Degr...	Yes	Y		1	1.2	2	1	5	.866	6	-.5														
25	DEAD LOAD + LIVE LOAD1	Yes	Y		1	1.2					7	1.5														
26	DEAD LOAD + LIVE LOAD2	Yes	Y		1	1.2					8	1.5														
27	DEAD LOAD + LIVE LOAD3	Yes	Y		1	1.2					9	1.5														
28	DL + MAIN L1+30MPH WL FRONT	Yes	Y		1	1.2	10	1.5	3	.096																
29	DL + MAIN L2+30MPH WL FRONT	Yes	Y		1	1.2	11	1.5	3	.096																
30	DL + MAIN L3+30MPH WL FRONT	Yes	Y		1	1.2	12	1.5	3	.096																
31	DL + MAIN L4+30MPH WL FRONT	Yes	Y		1	1.2	13	1.5	3	.096																
32	DL + MAIN L1+30MPH WL SIDE	Yes	Y		1	1.2	10	1.5	4	.096																
33	DL + MAIN L2+30MPH WL SIDE	Yes	Y		1	1.2	11	1.5	4	.096																
34	DL + MAIN L3+30MPH WL SIDE	Yes	Y		1	1.2	12	1.5	4	.096																
35	DL + MAIN L4+30MPH WL SIDE	Yes	Y		1	1.2	13	1.5	4	.096																
36	DL + MAIN L1+30MPH WL FRON...	Yes	Y		1	1.2	10	1.5	3	-.0...																
37	DL + MAIN L2+30MPH WL FRON...	Yes	Y		1	1.2	11	1.5	3	-.0...																
38	DL + MAIN L3+30MPH WL FRON...	Yes	Y		1	1.2	12	1.5	3	-.0...																
39	DL + MAIN L4+30MPH WL FRON...	Yes	Y		1	1.2	13	1.5	3	-.0...																
40	DL + MAIN L1+30MPH WL SIDE (...	Yes	Y		1	1.2	10	1.5	4	-.0...																
41	DL + MAIN L2+30MPH WL SIDE (...	Yes	Y		1	1.2	11	1.5	4	-.0...																
42	DL + MAIN L3+30MPH WL SIDE (...	Yes	Y		1	1.2	12	1.5	4	-.0...																
43	DL + MAIN L4+30MPH WL SIDE (...	Yes	Y		1	1.2	13	1.5	4	-.0...																

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	1	max	768.02	10	725.948	6	199.904	13	.424	13	.163	28	2.227	4
2		min	-774.714	4	-553.28	12	-13.251	7	-.085	7	-.136	39	-2.207	9
3	2	max	1524.801	43	5123.821	19	247.105	13	.425	13	.172	28	2.104	4
4		min	-1996.437	15	-163.201	1	1.5	7	-.085	7	-.144	39	-2.195	10
5	44	max	644.692	2	853.182	8	53.867	14	0	43	0	43	0	43
6		min	-634.774	8	-874.319	2	7.579	8	0	1	0	1	0	1
7	N49	max	1914.651	28	-1432.638	1	3871.299	19	0	2	.001	8	0	2
8		min	-1630.27	39	-4848.666	18	1078.649	1	0	8	0	2	0	8

Envelope Joint Reactions (Continued)

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
9	Totals:	max	1911.134	10	3002.449	7	4297.656	19						
10		min	-1911.134	4	-3002.449	1	1363.6	1						

Envelope Joint Displacements

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation ...	LC	Y Rotation ...	LC	Z Rotation [...	LC
1	1	max	0	43	0	43	0	43	0	43	0	43	0	43
2		min	0	1	0	1	0	1	0	1	0	1	0	1
3	2	max	0	43	0	43	0	43	0	43	0	43	0	43
4		min	0	1	0	1	0	1	0	1	0	1	0	1
5	3	max	.165	4	0	12	.007	7	7.791e-04	1	1.041e-03	39	4.071e-03	11
6		min	-.164	9	0	6	-.029	13	-5.613e-04	7	-1.239e-03	28	-3.679e-03	5
7	4	max	.156	4	0	6	.007	7	2.74e-04	7	1.097e-03	39	4.39e-03	10
8		min	-.162	10	0	24	-.029	13	-4.614e-04	1	-1.307e-03	28	-3.992e-03	4
9	5	max	.165	4	.846	12	-.069	32	9.397e-03	1	5.796e-03	25	1.213e-02	12
10		min	-.164	9	-.79	6	-.53	43	-9.755e-03	7	1.755e-04	32	-1.075e-02	6
11	6	max	.157	4	.596	11	-.07	28	5.447e-03	1	6.819e-03	39	1.193e-02	12
12		min	-.162	10	-.516	5	-.541	39	-6.755e-03	7	3.291e-04	28	-1.059e-02	6
13	7	max	.167	3	.201	2	-.08	7	1.012e-02	12	2.918e-05	10	4.004e-03	7
14		min	-.164	9	-.205	8	-.72	13	-1.098e-02	7	-7.245e-03	16	-4.925e-03	1
15	8	max	.156	4	.479	2	-.103	35	1.708e-02	8	7.457e-04	4	8.12e-03	7
16		min	-.164	10	-.43	8	-.732	23	-1.919e-02	2	-9.537e-03	23	-9.066e-03	1
17	9	max	.172	3	.01	1	.007	7	7.815e-04	1	1.041e-03	39	4.071e-03	11
18		min	-.168	9	-.007	7	-.029	13	-5.637e-04	7	-1.239e-03	28	-3.679e-03	5
19	10	max	.154	4	.005	2	.007	7	2.764e-04	7	1.097e-03	39	4.39e-03	10
20		min	-.163	10	-.003	8	-.029	13	-4.639e-04	1	-1.307e-03	28	-3.992e-03	4
21	11	max	.178	4	.153	12	.003	32	4.31e-03	1	4.015e-03	39	7.768e-03	12
22		min	-.177	10	-.15	6	-.05	43	-3.364e-03	7	3.316e-04	40	-7.597e-03	6
23	12	max	.17	4	.101	10	.003	32	2.325e-03	1	2.375e-03	43	4.254e-03	10
24		min	-.175	10	-.121	4	-.049	43	-3.059e-03	7	-8.475e-05	29	-4.715e-03	4
25	13	max	.176	4	.123	9	.003	32	2.284e-03	1	2.375e-03	39	4.254e-03	10
26		min	-.168	10	-.131	3	-.049	43	-3.017e-03	7	-8.476e-05	29	-4.715e-03	4
27	14	max	.163	4	.21	12	.003	32	4.351e-03	1	4.015e-03	39	7.768e-03	12
28		min	-.191	10	-.192	6	-.05	43	-3.405e-03	7	3.321e-04	28	-7.597e-03	6
29	15	max	.175	3	.148	2	-.091	7	1.012e-02	12	3.387e-05	10	3.995e-03	7
30		min	-.17	9	-.163	8	-.636	13	-1.098e-02	7	-7.229e-03	16	-4.916e-03	1
31	16	max	.16	4	.378	2	-.091	6	1.708e-02	8	7.503e-04	4	8.111e-03	7
32		min	-.166	9	-.34	8	-.636	13	-1.919e-02	2	-9.522e-03	23	-9.057e-03	1
33	17	max	.516	4	1.641	2	-.091	6	3.88e-02	7	1.271e-02	4	8.111e-03	7
34		min	-.69	10	-1.52	8	-.637	13	-4.092e-02	1	-1.705e-02	10	-9.057e-03	1
35	18	max	.472	4	.83	1	-.091	7	2.e-02	1	5.661e-03	10	3.995e-03	7
36		min	-.338	10	-.878	7	-.637	13	-2.087e-02	7	-8.929e-03	4	-4.916e-03	1
37	19	max	.165	4	.153	12	.002	36	4.31e-03	1	4.015e-03	39	7.768e-03	12
38		min	-.164	9	-.15	6	-.055	31	-3.364e-03	7	3.316e-04	40	-7.597e-03	6
39	20	max	.156	4	.101	10	.003	36	2.325e-03	1	2.375e-03	43	4.254e-03	10
40		min	-.163	10	-.121	4	-.046	31	-3.059e-03	7	-8.475e-05	29	-4.715e-03	4
41	21	max	.167	3	.148	2	-.058	7	1.012e-02	12	3.387e-05	10	3.995e-03	7
42		min	-.164	9	-.163	8	-.639	13	-1.098e-02	7	-7.229e-03	16	-4.916e-03	1
43	22	max	.156	4	.378	2	-.094	35	1.708e-02	8	7.503e-04	4	8.111e-03	7
44		min	-.164	10	-.34	8	-.618	23	-1.919e-02	2	-9.522e-03	23	-9.057e-03	1
45	23	max	.171	4	.102	10	.003	32	2.313e-03	1	2.375e-03	39	4.254e-03	10
46		min	-.175	10	-.121	4	-.049	43	-3.047e-03	7	-8.475e-05	29	-4.715e-03	4
47	24	max	.177	4	.157	12	.003	32	4.322e-03	1	4.015e-03	39	7.768e-03	12
48		min	-.178	10	-.153	6	-.05	43	-3.376e-03	7	3.321e-04	28	-7.597e-03	6
49	25	max	.477	4	1.526	2	-.091	6	3.88e-02	7	1.271e-02	4	8.111e-03	7
50		min	-.639	10	-1.412	8	-.637	13	-4.092e-02	1	-1.705e-02	10	-9.057e-03	1

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation ...	LC	Y Rotation ...	LC	Z Rotation [...	LC
51	26	max	.338	4	.53	1	-.091	7	1.997e-02	1	5.625e-03	10	3.995e-03	7
52		min	-.254	10	-.565	7	-.637	13	-2.084e-02	7	-8.893e-03	4	-4.916e-03	1
53	27	max	.165	4	.7	12	-.067	32	9.397e-03	1	5.5e-03	43	1.212e-02	12
54		min	-.164	9	-.661	6	-.464	43	-9.755e-03	7	1.708e-04	32	-1.074e-02	6
55	28	max	.157	4	.474	11	-.066	28	5.447e-03	1	6.814e-03	39	1.192e-02	12
56		min	-.162	10	-.41	5	-.459	39	-6.755e-03	7	3.244e-04	28	-1.058e-02	6
57	29	max	.178	4	.7	12	-.064	28	9.397e-03	1	5.5e-03	43	1.212e-02	12
58		min	-.182	10	-.661	6	-.469	39	-9.755e-03	7	1.708e-04	32	-1.074e-02	6
59	30	max	.17	4	.474	11	-.064	28	5.447e-03	1	6.814e-03	39	1.192e-02	12
60		min	-.18	10	-.41	5	-.468	39	-6.755e-03	7	3.244e-04	28	-1.058e-02	6
61	31	max	.206	4	.446	11	-.064	28	4.563e-03	1	6.828e-03	35	1.192e-02	12
62		min	-.168	10	-.363	5	-.468	39	-5.872e-03	7	3.13e-04	40	-1.058e-02	6
63	32	max	.176	4	.83	12	-.064	28	1.028e-02	1	5.501e-03	43	1.212e-02	12
64		min	-.215	10	-.796	6	-.469	39	-1.064e-02	7	-7.979e-05	3	-1.074e-02	6
65	33	max	.197	4	.452	11	-.064	28	4.564e-03	1	6.828e-03	35	1.192e-02	12
66		min	-.17	10	-.374	5	-.468	39	-5.873e-03	7	3.13e-04	40	-1.058e-02	6
67	34	max	.176	4	.799	12	-.064	28	1.028e-02	1	5.502e-03	43	1.212e-02	12
68		min	-.207	10	-.764	6	-.469	39	-1.064e-02	7	-7.939e-05	3	-1.074e-02	6
69	35	max	.17	3	.055	4	.013	7	4.466e-03	12	1.643e-04	6	2.121e-03	9
70		min	-.17	9	-.072	10	-.09	13	-3.471e-03	6	-5.485e-03	24	-1.546e-03	3
71	36	max	.168	4	.102	4	.014	7	4.261e-03	8	-7.435e-05	34	4.93e-03	10
72		min	-.178	10	-.139	10	-.088	13	-5.27e-03	2	-2.724e-03	22	-4.071e-03	4
73	37	max	.166	4	.149	3	.014	7	4.792e-03	8	-4.709e-05	34	4.93e-03	10
74		min	-.194	10	-.171	9	-.088	13	-5.802e-03	2	-2.845e-03	22	-4.071e-03	4
75	38	max	.199	3	.075	2	.013	7	4.995e-03	12	1.378e-04	7	2.121e-03	9
76		min	-.161	9	-.078	8	-.09	13	-4.001e-03	6	-5.474e-03	13	-1.546e-03	3
77	39	max	.166	3	.055	4	.023	7	4.466e-03	12	1.643e-04	6	2.121e-03	9
78		min	-.164	9	-.072	10	-.098	13	-3.471e-03	6	-5.485e-03	24	-1.546e-03	3
79	40	max	.156	4	.102	4	.002	39	4.261e-03	8	-7.435e-05	34	4.93e-03	10
80		min	-.163	10	-.139	10	-.079	24	-5.27e-03	2	-2.724e-03	22	-4.071e-03	4
81	41	max	.166	4	.129	3	.014	7	4.791e-03	8	-4.715e-05	34	4.93e-03	10
82		min	-.188	10	-.156	9	-.088	13	-5.801e-03	2	-2.845e-03	22	-4.071e-03	4
83	42	max	.19	3	.061	3	.013	7	4.994e-03	12	1.378e-04	7	2.121e-03	9
84		min	-.164	9	-.067	9	-.09	13	-4.e-03	6	-5.474e-03	13	-1.546e-03	3
85	43	max	.162	3	.129	3	-.091	7	3.937e-03	11	1.9e-03	43	5.367e-03	7
86		min	-.166	9	-.132	9	-.636	13	-5.133e-03	5	-3.879e-04	4	-6.296e-03	1
87	44	max	0	43	0	43	0	43	-1.612e-03	10	1.007e-03	5	4.5e-03	9
88		min	0	1	0	1	0	1	-1.108e-02	16	-6.332e-03	23	-4.44e-03	3
89	N45	max	.156	4	.139	4	-.004	39	6.351e-03	8	-9.927e-04	30	3.765e-03	9
90		min	-.163	10	-.176	10	-.113	24	-7.543e-03	2	-6.277e-03	18	-4.844e-03	3
91	N46	max	.155	4	.183	4	-.022	39	8.69e-03	8	-2.158e-03	31	3.75e-03	8
92		min	-.163	10	-.201	10	-.196	24	-1.008e-02	2	-1.09e-02	18	-6.056e-03	2
93	N47	max	.156	4	.141	10	-.001	36	2.834e-03	1	5.027e-03	43	5.198e-03	10
94		min	-.163	10	-.159	4	-.075	31	-3.662e-03	7	6.811e-04	33	-4.05e-03	4
95	N48	max	.156	4	.195	10	-.014	36	3.403e-03	1	8.368e-03	39	6.774e-03	11
96		min	-.162	10	-.194	4	-.14	31	-4.337e-03	7	1.651e-03	28	-4.529e-03	5
97	N49	max	0	43	0	43	0	43	0	43	0	43	0	43
98		min	0	1	0	1	0	1	0	1	0	1	0	1

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

	Member	Shape	Code Check	Loc[...	LC	Shear...	Loc[...	Dir	LC	phi*Pnc...	phi*Pnt...	phi*Mn ...	phi*Mn ...	Cb	Eqn
1	M7	HSS3X3X4	.305	0	10	.036	0	y	3	86487....	92232	7.812	7.812	1...	H1-1b
2	M8	HSS3X3X4	.311	0	3	.043	0	y	3	86487....	92232	7.812	7.812	1...	H1-1b
3	M9	PIPE_2.0	.295	50.8...	13	.157	15.1...		1	22356....	32130	1.872	1.872	1...	H1-1b
4	M10	PIPE_2.0	.779	38	1	.173	64.1...		1	10899....	32130	1.872	1.872	1...	H1-1b

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

	Member	Shape	Code Check	Loc[...	LC	Shear...	Loc[...	Dir	LC	phi*Pnc...	phi*Pnt...	phi*Mn ...	phi*Mn ...	Cb	Eqn
5	M11	PIPE_2.0	.538	15.1...	31	.067	15.1...		31	22356....	32130	1.872	1.872	1...	H1-1b
6	M12	PIPE_2.5	.658	125....	24	.282	123....		1	10110....	50715	3.596	3.596	2...	H1-1b
7	M13	PIPE_2.5	.459	116....	24	.137	90		12	10110....	50715	3.596	3.596	1...	H1-1b
8	M14	PIPE_4.0	.072	47.5	1	.056	12.5		2	86073....	93240	10.631	10.631	1...	H1-1b
9	M17	PIPE_2.0	.348	50.8...	20	.076	15.1...		10	22356....	32130	1.872	1.872	1...	H1-1b
10	M18	PIPE_1.5	.089	72.0...	8	.008	72.0...		21	11972....	23593.5	1.105	1.105	1...	H1-1b*
11	M19	L2.5x2.5x3	.137	28.5...	22	.007	0	y	9	13854....	29192.4	.873	1.682	1...	H2-1
12	M20	L2.5x2.5x3	.226	28.5...	15	.014	57.1...	y	8	13854....	29192.4	.873	1.682	1...	H2-1
13	M21	L2.5x2.5x3	.237	27.8...	7	.009	56.8...	z	12	13972....	29192.4	.873	1.685	1...	H2-1
14	M22	L2.5x2.5x3	.327	27.8...	17	.017	56.8...	y	8	13972....	29192.4	.873	1.685	1...	H2-1

1.0 DESIGN INFORMATION AND GENERAL REQUIREMENTS

1.0 GENERAL
a. ALL DIMENSIONS ARE APPROXIMATE, CONTRACTOR SHOULD VERIFY ALL DIMENSIONS BEFORE FABRICATION OF STEEL MEMBERS AND COMMENCEMENT OF WORK.

1.1 CODES
a. 2018 CONNECTICUT STATE BUILDING CODE,
b. MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES, ASCE/SEI 7-10, AMERICAN SOCIETY OF CIVIL ENGINEERS
c. STEEL CONSTRUCTION MANUAL, 14TH EDITION, AMERICAN INSTITUTE OF STEEL CONSTRUCTION
d. STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND SUPPORTING STRUCTURES, ANSI/TIA-222-G, TELECOMMUNICATIONS INDUSTRY ASSOCIATION

1.2 LOADS AND DESIGN CRITERIA
a. WIND LOADING: V: 125 MPH (ULTIMATE) / 97 MPH (NOMINAL), EXPOSURE C, RISK CATEGORY II
b. EQUIPMENT AS LISTED IN MOUNT STRUCTURAL ANALYSIS REPORT PREPARED BY DESTEK ENGINEERING, LLC, DATED 06/14/2019.

1.3 NOTES
a. PRIOR TO PURCHASE OR FABRICATION OF MATERIAL, THE CONTRACTOR SHALL PERFORM AN INSPECTION VERIFYING MEMBER AND BOLT SIZES. SHOULD THE CONTRACTOR DISCOVER ANY DAMAGED OR MISSING MEMBERS OR THE MEMBER OR BOLT SIZES DO NOT MATCH THOSE LISTED, DESTEK SHALL BE NOTIFIED IMMEDIATELY.
b. CONTRACTOR TO REPLACE ALL MEMBERS AND BOLTS REMOVED WITH NEW MEMBERS AND BOLTS OF SAME TYPE, UNLESS NOTED OTHERWISE.

2.0 STRUCTURAL STEEL

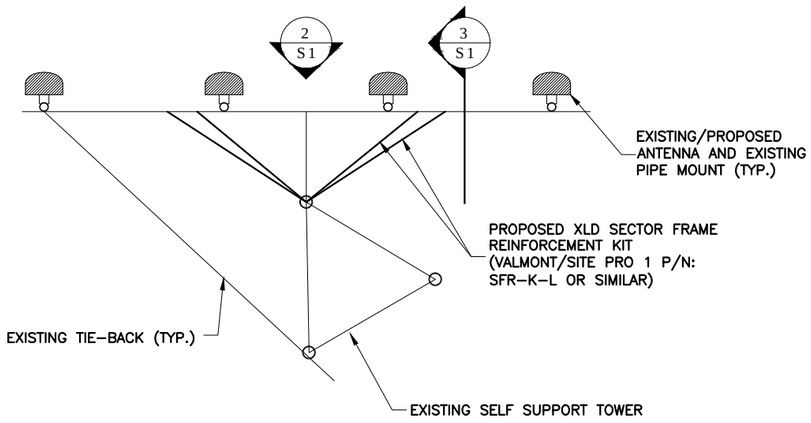
2.1 MATERIALS
a. STRUCTURAL STEEL . . . . . ASTM A992
MISC ANGLE & PLATE . . . . ASTM A36
PIPE . . . . . ASTM A53 GR. B
RODS . . . . . ASTM A572-50 (MINIMUM)
HSS. . . . . ASTM A500, GR. B, Fy=46 KSI
b. BOLTS . . . . . ASTM A325 U.N.O.
c. WELDING ELECTRODES . . . . . AWS A5.1 (E70XX)
d. STEEL CONSTRUCTION SHALL CONFORM TO "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS, ANSI/AISC 360-10"
e. WELDING SHALL CONFORM TO AWS D1.1/D1.3/D1.7 AS APPLICABLE.
f. THE FABRICATOR SHALL FURNISH CHECKED SHOP AND ERECTION DRAWINGS TO THE ENGINEER, AND OBTAIN APPROVAL PRIOR TO FABRICATING ANY STRUCTURAL STEEL. SHOP DRAWINGS SHALL CONFORM TO "DETAILING FOR STEEL CONSTRUCTION, 2ND EDITION"
g. POOR MATCHING OF HOLES SHALL BE CORRECTED BY DRILLING TO THE NEXT LARGER SIZE. WELDING FOR REDRILLING WILL NOT BE PERMITTED.

2.2 CONNECTIONS
a. SHOP CONNECTIONS MAY BE BOLTED OR WELDED
b. CONNECTIONS WHERE THE BEAM SHEAR (V) IS NOT NOTED ON THE DRAWINGS, SIMPLE SHEAR CONNECTIONS SHALL BE DESIGNED TO DEVELOP 1/2 OF THE MAXIMUM TOTAL UNIFORM LOAD CAPACITY OF THE BEAM.
c. FIELD CONNECTIONS SHALL BE MADE WITH A325 BOLTS AND HARDENED WASHERS EXCEPT AS INDICATED ON THE DESIGN DRAWINGS
d. CONNECTIONS NOT SHOWN ON DRAWINGS SHALL BE DESIGNED BY THE STEEL FABRICATOR. CONNECTIONS SHALL BE DESIGNED IN ACCORDANCE WITH AISC "SPECIFICATIONS FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS" AND "AISC CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES".
e. DO NOT FIELD CUT OR ALTER STRUCTURAL MEMBERS WITHOUT PRIOR WRITTEN APPROVAL OF ENGINEER.
f. BOLT HOLES SHALL BE CUT, DRILLED OR PUNCHED AT RIGHT ANGLES TO THE SURFACE OF THE METAL AND SHALL NOT BE MADE OR ENLARGED BY BURNING. HOLES SHALL BE CLEAN CUT WITHOUT TORN OR RAGGED EDGES. OUTSIDE BURRS RESULTING FROM DRILLING OR REAMING OPERATION SHALL BE REMOVED WITH A TOOL MAKING A 1/16 INCH BEVEL. BOLT HOLES SHALL BE 1/16 INCH OVERSIZE.

2.3 FINISHES
a. STRUCTURAL STEEL SHALL BE HOT DIP GALVANIZED AFTER FABRICATION PER ASTM A123
b. BOLTS AND NUTS SHALL BE HOT DIP GALVANIZED PER ASTM A153.
c. ALL SURFACES DAMAGED BY FIELD WELDING OR CUTTING SHALL BE PAINTED WITH COLD GALVANIZING COMPOUND TWICE. THE PAINT SHOULD BE AT LEAST 93% PURE ZINC. RUST-OLEUM PROFESSIONAL, (MODEL# 7585838) OR SIMILAR.

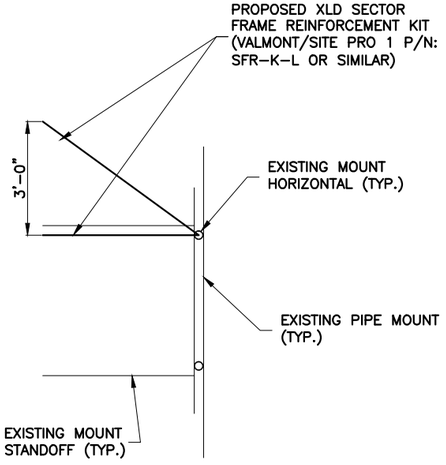
2.4 WELDING
a. CONTRACTOR TO TAKE ALL NECESSARY PRECAUTIONS FOR FIRE PREVENTION DURING WELDING, SUCH AS; INSTALLING 3000 (NFPA 701) FIRE BLANKET AROUND COAX. MORE SPLATTER AND SPARKS SHOULD BE ANTICIPATED WHILE WELDING ON GALVANIZED SURFACE. COAX IS FLAMMABLE AND SHALL CATCH FIRE IF NOT PROTECTED. WATER SHALL BE ON SITE OF ADEQUATE AMOUNT AND AVAILABLE AT SHORT NOTICE AT ALL TIMES DURING WELDING ACTIVITY. CONTRACTOR SHOULD BE ABLE TO TRANSPORT THE WATER TO THE HEIGHT WELDING BEING PERFORMED.
b. WELDING ON GALVANIZED SURFACE SHOULD BE DONE WITH EXTREME CAUTION. IF THE WELD MATERIAL IS CONTAMINATED WITH ZINC, IT DOES NOT PROVIDE A STRUCTURAL WELD. GROUND GALVANIZING BEFORE WELDING.
c. WELDING CERTIFICATE MUST BE PROVIDED PRIOR TO WELDING. ALL WELDING SHALL BE PERFORMED BY AWS QUALIFIED WELDER WHO HAS EXPERIENCE WITH GALVANIZED SURFACES.

DRAWINGS PLOTTED TO SCALE ON 11x17 SHEETS



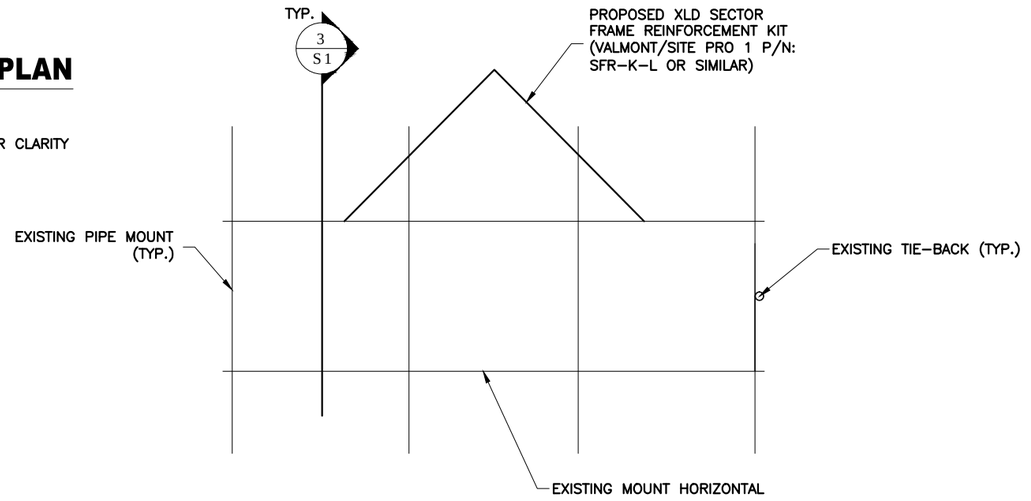
1 S1 **TYPICAL SECTOR MOUNT @ 180'-0" PLAN**
N.T.S.

NOTE:
– ADDITIONAL EQUIPMENT AND MOUNTING HARDWARE NOT SHOWN FOR CLARITY
– SINGLE SECTOR SHOWN FOR CLARITY



3 S1 **SECTOR MOUNT SIDE VIEW**
1/4" = 1'-0"

NOTE:
– ADDITIONAL EQUIPMENT, MOUNTING HARDWARE, AND TIE-BACKS NOT SHOWN FOR CLARITY



2 S1 **SECTOR MOUNT ELEVATION**
1/4" = 1'-0"

NOTE:
– ANTENNAS, ADDITIONAL EQUIPMENT, MOUNTING HARDWARE, AND EXISTING STANDOFF ARMS NOT SHOWN FOR CLARITY

PROPOSED MODIFICATION TO BE INSTALLED AT ALL THREE SECTORS.

STATE OF CONNECTICUT
AHMET COLAKOGLU
PEN. 27057
LICENSED PROFESSIONAL ENGINEER
06-14-2019

Ahmet Colakoglu, PE
CT License No: 27057

DESTEK ENGINEERING
DESTEK ENGINEERING, LLC
1281 KENNESTONE CIRCLE
SUITE 100
MARIETTA, GA 30066
TEL NO: 770-693-0835
ADMIN@DESTEKENGINEERING.COM
LICENSE NO: PEC001429

PREPARED FOR:
T-Mobile Northeast, LLC
35 Griffin Road South
Bloomfield, CT 06002

NUM	DATE	DESCRIPTION:
A	06/14/19	ISSUED FOR CONSTRUCTION

CT11170C

ADDRESS:
1030 NEW BRITAIN AVENUE,
WEST HARTFORD, CT 06110

DESIGNED: SA
DRAWN: SA
CHECKED: AC

JOB #: 1975051

S1
UPGRADE
DETAILS

Exhibit F

EBI Consulting

environmental | engineering | due diligence

RADIO FREQUENCY EMISSIONS ANALYSIS REPORT
EVALUATION OF HUMAN EXPOSURE POTENTIAL TO NON-IONIZING EMISSIONS

T-Mobile Existing Facility

Site ID: CT11170C

Hartford/ N.Britian Ave_1
1030 New Britain Avenue
West Hartford, Connecticut 06110

May 22, 2019

EBI Project Number: 6219001759

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**11.07%**

21 B Street, Burlington, MA 01803 · Tel: (781) 273.2500 · Fax: (781) 273.3311

May 22, 2019

T-Mobile
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, Connecticut 06002

Emissions Analysis for Site: CT11170C - Hartford/ N.Britian Ave_1

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **1030 New Britain Avenue** in **West Hartford, Connecticut** for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu W/cm^2$). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits; therefore, it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general population may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general population would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 600 MHz and 700 MHz frequency bands are approximately 400 $\mu W/cm^2$ and 467 $\mu W/cm^2$, respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 11 GHz frequency bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at 1030 New Britain Avenue in West Hartford, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

For all calculations, all equipment was calculated using the following assumptions:

1) 2 LTE channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

2) 2 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

3) 4 GSM channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

4) 4 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

5) 2 UMTS channels (AWS Band - 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

6) 4 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

7) 4 LTE channels (BRS Band - 2500 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

8) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.

9) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

10) The antennas used in this modeling are the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 700 MHz / 1900 MHz channel(s), the Ericsson AIR32 for the 1900 MHz / 2100 MHz / 1900 MHz channel(s), the Ericsson AIR6488 for the 2500 MHz channel(s), the Ericsson AIR3246 for the 2100 MHz channel(s) in Sector A, the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 700 MHz / 1900 MHz channel(s), the Ericsson AIR32 for the 1900 MHz / 2100 MHz / 1900 MHz channel(s), the Ericsson AIR6488 for the 2500 MHz channel(s), the Ericsson AIR3246 for the 2100 MHz channel(s) in Sector B, the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 700 MHz / 1900 MHz channel(s), the Ericsson AIR32 for the 1900 MHz / 2100 MHz / 1900 MHz channel(s), the Ericsson AIR6488 for the 2500 MHz channel(s), the Ericsson AIR3246 for the 2100 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

11) The antenna mounting height centerline of the proposed antennas is 165 feet above ground level (AGL).

12) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

13) All calculations were done with respect to uncontrolled / general population threshold limits.

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20
Frequency Bands:	600 MHz / 700 MHz / 1900 MHz	Frequency Bands:	600 MHz / 700 MHz / 1900 MHz	Frequency Bands:	600 MHz / 700 MHz / 1900 MHz
Gain:	12.95 dBd / 13.35 dBd / 15.65 dBd	Gain:	12.95 dBd / 13.35 dBd / 15.65 dBd	Gain:	12.95 dBd / 13.35 dBd / 15.65 dBd
Height (AGL):	165 feet	Height (AGL):	165 feet	Height (AGL):	165 feet
Channel Count:	6	Channel Count:	6	Channel Count:	6
Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts
ERP (W):	6,888.47	ERP (W):	6,888.47	ERP (W):	6,888.47
Antenna A1 MPE %:	**1.34%**	Antenna B1 MPE %:	**1.34%**	Antenna C1 MPE %:	**1.34%**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	Ericsson AIR32	Make / Model:	Ericsson AIR32	Make / Model:	Ericsson AIR32
Frequency Bands:	1900 MHz / 2100 MHz / 1900 MHz	Frequency Bands:	1900 MHz / 2100 MHz / 1900 MHz	Frequency Bands:	1900 MHz / 2100 MHz / 1900 MHz
Gain:	15.35 dBd / 15.85 dBd / 15.35 dBd	Gain:	15.35 dBd / 15.85 dBd / 15.35 dBd	Gain:	15.35 dBd / 15.85 dBd / 15.35 dBd
Height (AGL):	165 feet	Height (AGL):	165 feet	Height (AGL):	165 feet
Channel Count:	8	Channel Count:	8	Channel Count:	8
Total TX Power (W):	300 Watts	Total TX Power (W):	300 Watts	Total TX Power (W):	300 Watts
ERP (W):	10,533.98	ERP (W):	10,533.98	ERP (W):	10,533.98
Antenna A2 MPE %:	**1.39%**	Antenna B2 MPE %:	**1.39%**	Antenna C2 MPE %:	**1.39%**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	Ericsson AIR6488	Make / Model:	Ericsson AIR6488	Make / Model:	Ericsson AIR6488
Frequency Bands:	2500 MHz	Frequency Bands:	2500 MHz	Frequency Bands:	2500 MHz
Gain:	20.85 dBd	Gain:	20.85 dBd	Gain:	20.85 dBd
Height (AGL):	165 feet	Height (AGL):	165 feet	Height (AGL):	165 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	160 Watts	Total TX Power (W):	160 Watts	Total TX Power (W):	160 Watts
ERP (W):	19,458.98	ERP (W):	19,458.98	ERP (W):	19,458.98
Antenna A3 MPE %:	**2.57%**	Antenna B3 MPE %:	**2.57%**	Antenna C3 MPE %:	**2.57%**
Antenna #:	**4**	Antenna #:	**4**	Antenna #:	**4**
Make / Model:	Ericsson AIR3246	Make / Model:	Ericsson AIR3246	Make / Model:	Ericsson AIR3246
Frequency Bands:	2100 MHz	Frequency Bands:	2100 MHz	Frequency Bands:	2100 MHz
Gain:	15.85 dBd	Gain:	15.85 dBd	Gain:	15.85 dBd
Height (AGL):	165 feet	Height (AGL):	165 feet	Height (AGL):	165 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts
ERP (W):	9,230.20	ERP (W):	9,230.20	ERP (W):	9,230.20
Antenna A4 MPE %:	**1.22%**	Antenna B4 MPE %:	**1.22%**	Antenna C4 MPE %:	**1.22%**

Site Composite MPE %	
Carrier	**MPE %**
T-Mobile (Max at Sector A):	6.52%
AT&T	4.2%
Clearwire	0.08%
Nextel	0.27%
Site Total MPE % :	11.07%

T-Mobile Sector A Total:	6.52%
T-Mobile Sector B Total:	6.52%
T-Mobile Sector C Total:	6.52%
Site Total:	11.07%

T-Mobile Maximum MPE Power Values (Sector A)

T-Mobile Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
T-Mobile 600 MHz LTE	2	591.73	165.0	1.56	600 MHz LTE	400	0.39%
T-Mobile 700 MHz LTE	2	648.82	165.0	1.71	700 MHz LTE	467	0.37%
T-Mobile 1900 MHz LTE	2	2203.69	165.0	5.82	1900 MHz LTE	1000	0.58%
T-Mobile 1900 MHz GSM	4	1028.30	165.0	5.43	1900 MHz GSM	1000	0.54%
T-Mobile 2100 MHz UMTS	2	1153.78	165.0	3.05	2100 MHz UMTS	1000	0.30%
T-Mobile 1900 MHz LTE	2	2056.61	165.0	5.43	1900 MHz LTE	1000	0.54%
T-Mobile 2500 MHz LTE	4	4864.74	165.0	25.70	2500 MHz LTE	1000	2.57%
T-Mobile 2100 MHz LTE	4	2307.55	165.0	12.19	2100 MHz LTE	1000	1.22%
						Total:	**6.52%**

• NOTE: Totals may vary by approximately 0.01% due to summation of remainders in calculations.

Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general population exposure to RF Emissions.

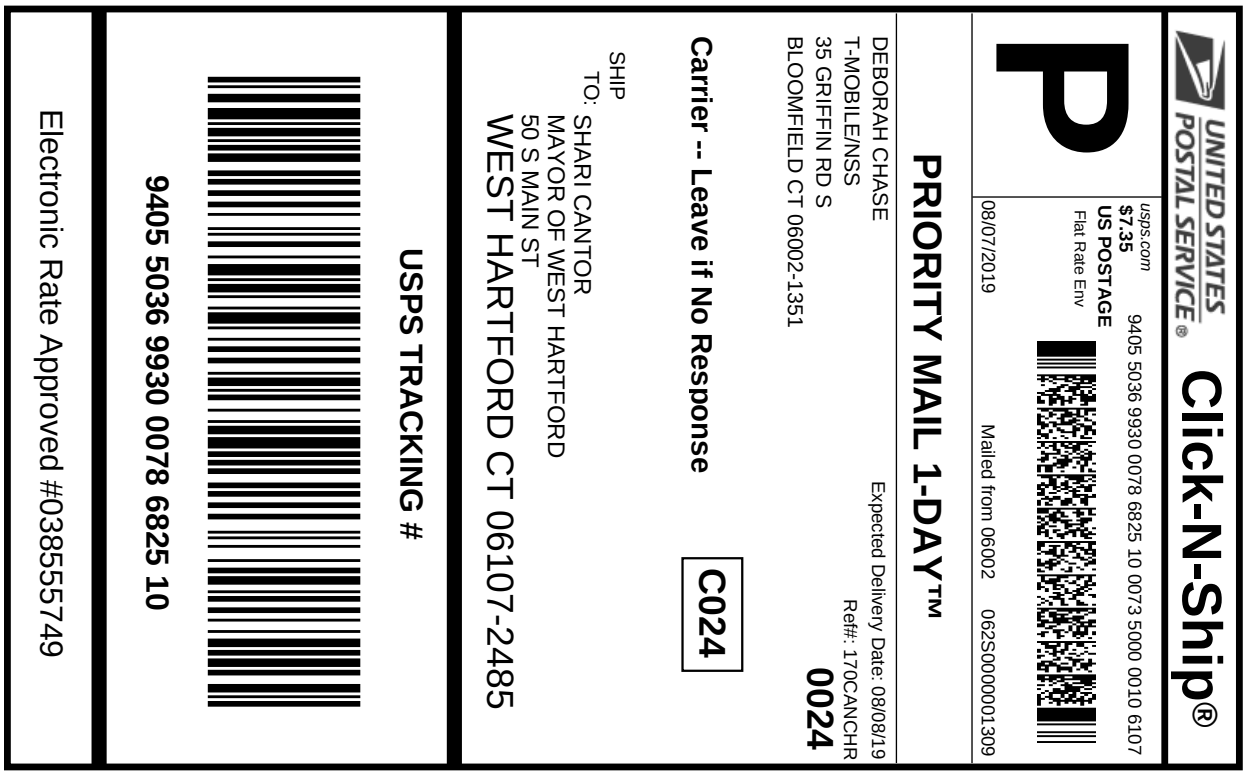
The anticipated maximum composite contributions from the T-Mobile facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

T-Mobile Sector	Power Density Value (%)
Sector A:	6.52%
Sector B:	6.52%
Sector C:	6.52%
T-Mobile Maximum MPE % (Sector A):	6.52%
Site Total:	11.07%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **11.07%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.

Exhibit G



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T-MOBILE/NSS
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Ref#: 170CANCHR

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MAYOR OF WEST HARTFORD
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T-MOBILE/NSS
35 GRIFFIN RD S
BLOOMFIELD CT 06002-1351

Expected Delivery Date: 08/08/19
Ref#: 170C-ANCHR

0024

Carrier -- Leave if No Response

C024

SHIP TO: TODD DUMAIS
TOWN PLANNER- WEST HARTFORD
50 S MAIN ST
WEST HARTFORD CT 06107-2485

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Print Date:	08/07/2019
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Expected Delivery Date:	08/08/2019

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

From: DEBORAH CHASE
T-MOBILE/NSS
35 GRIFFIN RD S
BLOOMFIELD CT 06002-1351

Ref#: 170C-ANCHR

To: TODD DUMAIS
TOWN PLANNER- WEST HARTFORD
50 S MAIN ST
WEST HARTFORD CT 06107-2485

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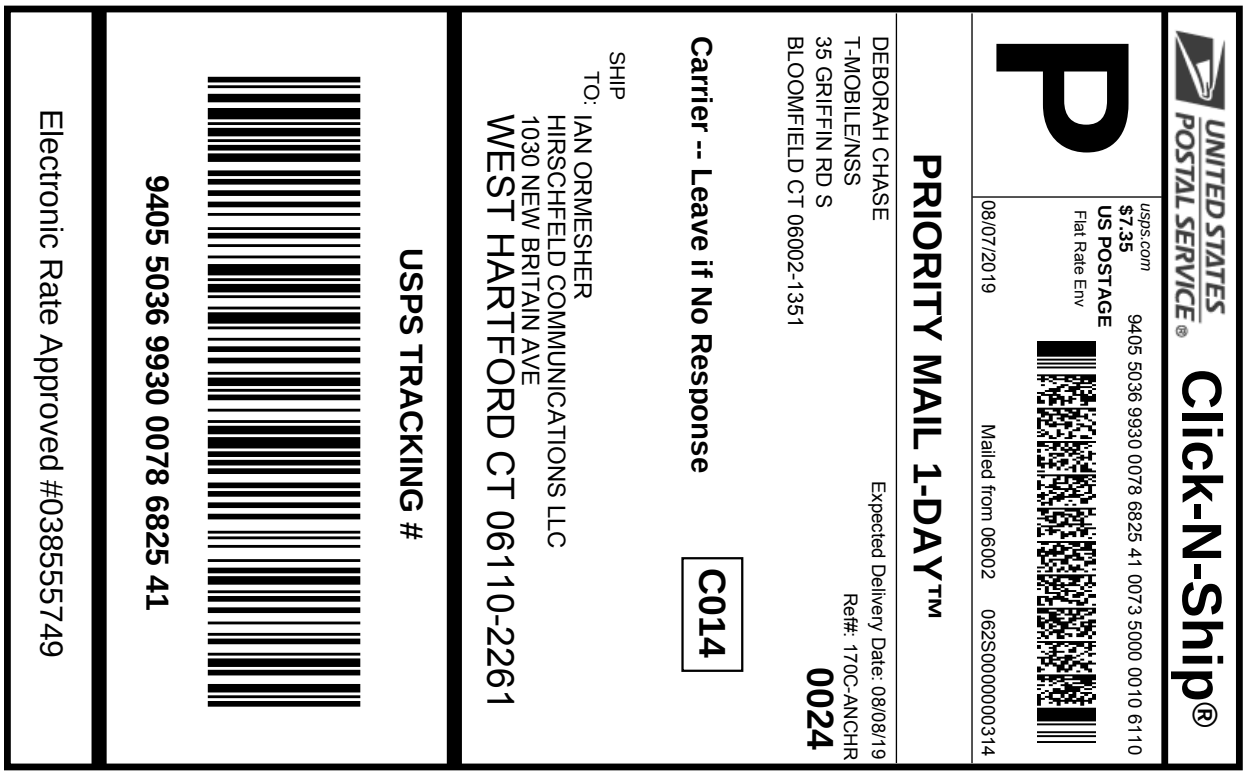

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Trans. #:	469849323
Print Date:	08/07/2019
Ship Date:	08/07/2019
Expected Delivery Date:	08/08/2019

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

From: DEBORAH CHASE
T-MOBILE/NSS
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BLOOMFIELD CT 06002-1351

Ref#: 170C-ANCHR

To: IAN ORMESHER
HIRSCHFELD COMMUNICATIONS LLC
1030 NEW BRITAIN AVE
WEST HARTFORD CT 06110-2261

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DEBORAH CHASE
NORTHEAST SITE SOLUTIONS, LLC
420 MAIN ST STE 2
STURBRIDGE MA 01566-1359

Expected Delivery Date: 08/09/19
Ref#: 170-ANCHR

0006

Carrier -- Leave if No Response

C024

SHIP TO: MATTHEW HART
TOWN MANAGER- TOWN OF WEST HARTFORD
50 S MAIN ST
WEST HARTFORD CT 06107-2485

USPS TRACKING #

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Ship Date:	08/07/2019
Expected Delivery Date:	08/09/2019

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

From: DEBORAH CHASE Ref#: 170-ANCHR
NORTHEAST SITE SOLUTIONS, LLC
420 MAIN ST STE 2
STURBRIDGE MA 01566-1359

To: MATTHEW HART
TOWN MANAGER- TOWN OF WEST HARTFORD
50 S MAIN ST
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