Crown Castle
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065

August 19, 2019

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

RE: **Notice of Exempt Modification for T-Mobile:**
842862 - T-Mobile Site ID: CT11623B
259 Commerce Street, East Haven, CT 06512
Latitude: 41° 15′ 22.88″/ Longitude: -72° 52′ 32.80″

Dear Ms. Bachman:

T-Mobile currently maintains six (6) total antennas at the 47-foot mount on the existing 58-foot monopole at 259 Commerce Street in East Haven, Connecticut. The tower is owned by Crown Castle and the property is owned by Stephen J. Viglione. T-Mobile now intends to replace three (3) existing antennas with three (3) new 1900/2100 MHz antennas. The new antennas will be installed at the 47-ft level of the tower. T-Mobile is also proposing tower mount modifications, as shown on the enclosed mount analysis.

Planned Modifications:
Tower:

Remove:
(6) 1 5/8" Coax

Remove and Replace:
(3) LNX 6515DS-A1M Antenna **(REMOVE)** - (3) RFS-APXVAARR24_43-U-NA20 Antenna 600/700 MHz **(REPLACE)**

Install New:
(1) 1 5/8" Hybrid Fiber Line
(3) Radio 4449 B71/B12

Existing to Remain:
(12) 1 5/8" Coax
(3) APX16DWV-16DWVS-C Antenna 1900/2100 MHz
(6) TMA

Ground:

Upgrade: Internal upgrade to existing ground cabinet.

The facility was approved by the Siting Council in Petition Number 634 on July 8, 2003. No conditions were attached that would be impacted by this modification.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to the Honorable Joseph Maturo Jr., Mayor of the Town of East Haven, as well as, the East Haven Planning & Zoning Department, Crown Castle as the tower owner, and Stephen J. Viglione, the property owner.

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

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

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

4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communication 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-reference telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2). Please send approval/rejection letter to Attn: Anne Marie Zsamba.

Sincerely,

Anne Marie Zsamba
Real Estate Specialist
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065
(201) 236-9224
AnneMarie.Zsamba@crowncastle.com

Attachments

cc:

The Honorable Joseph Maturo Jr., Mayor
Town of East Haven
Town Hall – Upper Level
250 Main Street
East Haven, CT 06512-3004
(203) 468-3204

Christopher Soto, Planning & Zoning Enforcement Officer
Town Hall – Lower Level
250 Main Street
East Haven, CT 06512-3004
(203) 468-3349

Stephen J. Viglione
259 Commerce Street
East Haven, CT 06512-4147
203-467-8388

Crown Castle, Tower Owner

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Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.
Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

ORIGIN ID:GFLA (518) 373-3523
ANNE MARIE ZSAMBA
CROWN CASTLE
3 CORPORATE PARK DRIVE
SUITE 101
CLIFTON PARK, NY 12065
UNITED STATES US

SHIP DATE: 13JUL19
ACTWGT: 2.00 LB
CAD: 104924194/INET4100

BILL SENDER

TO **CHRISTOPHER SOTO**
PLANNING AND ZONING
TOWN HALL - LOWER LEVEL
250 MAIN STREET
EAST HAVEN CT 06512
(203) 468-3349

REF: 1734.7680
INV:
PO:
DEPT:

565J2/A6F9/23AD

J191019010701uv

FedEx Express

MON - 15 JUL 10:30A
PRIORITY OVERNIGHT

TRK# 0201 **7757 3367 1361**

XE EFBA

06512
BDL
CT-US

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ORIGIN ID:GFLA (518) 373-3523
ANNE MARIE ZSAMBA
CROWN CASTLE
3 CORPORATE PARK DRIVE
SUITE 101
CLIFTON PARK, NY 12065
UNITED STATES US

SHIP DATE: 13JUL19
ACTWGT: 2.00 LB
CAD: 104924194/INET4100

BILL SENDER

TO **JOSEPH MATURO JR., MAYOR**
TOWN OF EAST HAVEN
TOWN HALL UPPER LEVEL
250 MAIN STREET
EAST HAVEN CT 06512
(203) 468-3204

REF: 1734.7680
INV:
PO:
DEPT:

565J2/A6F9/23AD

J191019010701uv

FedEx Express

MON - 15 JUL 10:30A
PRIORITY OVERNIGHT

TRK# 0201 **7757 3365 7232**

XE EFBA

06512
BDL
CT-US

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ORIGIN ID:GFLA (518) 373-3523
ANNE MARIE ZSAMBA
CROWN CASTLE
3 CORPORATE PARK DRIVE
SUITE 101
CLIFTON PARK, NY 12065
UNITED STATES US

SHIP DATE: 13JUL19
ACTWGT: 4.00 LB
CAD: 104924194/INET4100

BILL SENDER

TO **MELANIE BACHMAN**
CONNECTICUT SITING COUNCIL
10 FRANKLIN SQUARE

NEW BRITAIN CT 06051
(860) 827-2951
INV:
PO:
REF: 1765.6680
DEPT:

565J2/A6F9/23AD

FedEx Express

J191019010701uv

MON - 15 JUL 10:30A
PRIORITY OVERNIGHT

TRK# 0201 **7757 3366 2974**

XE BDLA

06051
BDL
CT-US

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Exhibit A

Property Card

The Assessor's office is responsible for the maintenance of records on the ownership of properties. Assessments are computed at 70% of the estimated market value of real property at the time of the last revaluation which was 2016.

TOWN of EAST HAVEN
ASSESSOR

Information on the Property Records for the Municipality of East Haven was last updated on 4/12/2019.

Property Summary Information

Parcel Data And Values | Building | Outbuildings | Sales | Permits

Parcel Information

Location:	259 COMMERCE ST	Property Use:	Industrial	Primary Use:	Light Industrial
Unique ID:	V0098600	Map Block Lot:	090 1013 005	Acres:	0.49
490 Acres:	0.00	Zone:	LI-2	Volume / Page:	0322/0838
Developers Map / Lot:	PT.4&7	Census:	1801000		

Value Information

	Appraised Value	Assessed Value
Land	114,000	79,800
Buildings	587,740	411,420

	Appraised Value	Assessed Value
Detached Outbuildings	54,682	38,280
Total	756,422	529,500

Owner's Information

Owner's Data
VIGLIONE STEPHEN J 259 COMMERCE ST EAST HAVEN CT 06512

Back To Search (JavaScript:window.history.back(1);)

Print View (PrintPage.aspx?towncode=044&uniqueid=V0098600)

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TOWN of EAST HAVEN
ASSESSOR

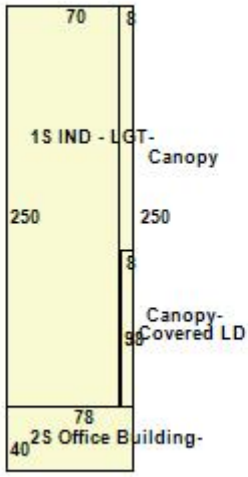
Information on the Property Records for the Municipality of East Haven was last updated on 4/12/2019.

Property Summary Information

Parcel Data And Values | Building | Outbuildings | Sales | Permits

Building 1

(Images/Towns/EastHavenWeb/Pictures/V0098600-01.JPG)



(Images/Towns/EastHavenWeb/Sketches/V0098600_01.jpg)

Category:	Industrial	Use:	Light Manu	GLA:	23,740
Stories:	1.00	Construction:	Masonry and Wood Frame	Year Built:	1956
Heating:	FHA	Fuel:	Gas	Cooling Percent:	20
Siding:	Concrete Block/B. V. Solid	Roof Material:		Beds/Units:	0

Special Features

Wet Sprinklers	3160

Attached Components

Type:	Year Built:	Area:
Canopy	1984	2,078
Covered Loading Dock	1984	783

Back To Search (JavaScript:window.history.back(1);)

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The Assessor's office is responsible for the maintenance of records on the ownership of properties. Assessments are computed at 70% of the estimated market value of real property at the time of the last revaluation which was 2016.

TOWN of EAST HAVEN
ASSESSOR

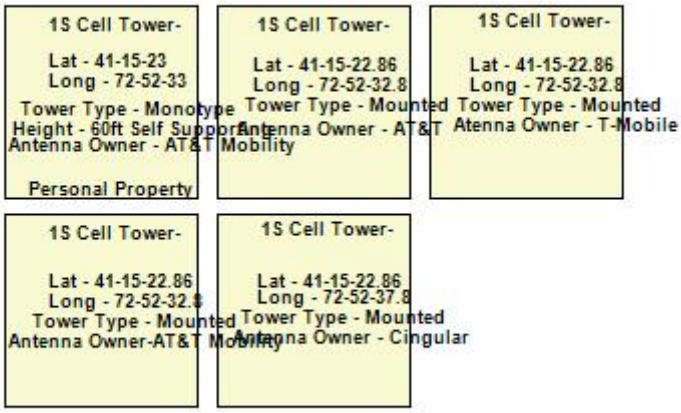
Information on the Property Records for the Municipality of East Haven was last updated on 4/12/2019.

Property Summary Information

Parcel Data And Values | Building | Outbuildings | Sales | Permits

Building 2

(Images/Towns/EastHavenWeb/Pictures/V0098600-02.JPG)



(Images/Towns/EastHavenWeb/Sketches/V0098600_02.jpg)

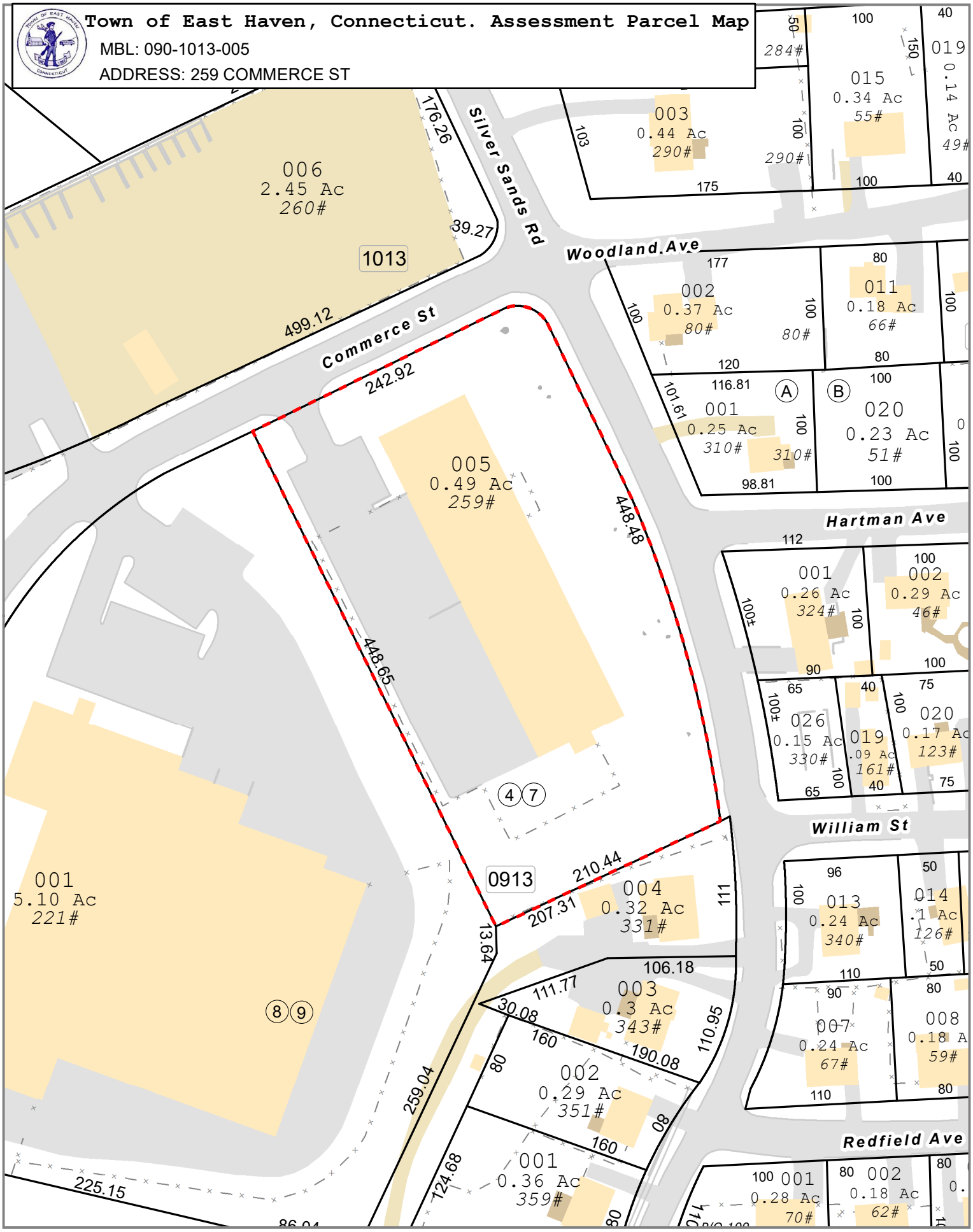
Category:	Cell Tower	Use:	Cell Site	GLA:	5
Stories:	0.00	Construction:	Metal	Year Built:	2011
Heating:		Fuel:		Cooling Percent:	0
Siding:		Roof Material:		Beds/Units:	1

Special Features

Attached Components

Back To Search (JavaScript:window.history.back(1);)

Print View (PrintPage.aspx?towncode=044&uniqueid=V0098600)



1 inch = 100 feet

0 50 100 150 200 Feet

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

Map Produced: 10/2018

Exhibit B

Construction Drawings

T-Mobile

T-MOBILE SITE NUMBER: CT11623B
T-MOBILE SITE NAME: CT623/ E. HAVEN ATT_MP
T-MOBILE PROJECT: L600

BUSINESS UNIT #: 842862
SITE ADDRESS: 259 COMMERCE STREET EAST HAVEN, CT 06512
COUNTY: NEW HAVEN
SITE TYPE: MONOPOLE
TOWER HEIGHT: 58'-0"

SITE INFORMATION

CROWN CASTLE USA INC. SITE NAME:	EAST HAVEN SOUTH
SITE ADDRESS:	259 COMMERCE STREET EAST HAVEN, CT 06512
COUNTY:	NEW HAVEN
MAP/PARCEL #:	090 1013 005
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	41° 15' 22.88"
LONGITUDE:	-72° 52' 32.80"
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	54'
CURRENT ZONING:	EXEMPT
JURISDICTION:	NEW HAVEN OUNTY
OCCUPANCY CLASSIFICATION:	U
TYPE OF CONSTRUCTION:	IIB
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
PROPERTY OWNER:	STEPHEN J VIGLIONE 259 COMMERCE STREET EAST HAVEN, CT 06512
TOWER OWNER:	CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	T-MOBILE 12920 SE 38TH STREET BELLEVUE, WA 98006
ELECTRIC PROVIDER:	UNITED ILLUMINATING COMPANY (800) 722-5584
TELCO PROVIDER:	AT&T (800) 288-2020

DRAWING INDEX

SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES
C-1.1	SITE PLAN
C-1.2	EXISTING & FINAL EQUIPMENT PLANS
C-2	FINAL ELEVATION & ANTENNA PLANS
C-3	EQUIPMENT DETAILS & COAX COLOR CODING
C-4	EQUIPMENT SPECS
G-1	TYPICAL FINAL GROUNDING SCHEMATIC
G-2	GROUNDING DETAILS
E-1	ELECTRICAL DETAILS

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR 11X17. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

CALL CONNECTICUT ONE CALL
(800) 922-4455
CALL 3 WORKING DAYS
BEFORE YOU DIG!
811

LOCATION MAP

NO SCALE

PROJECT TEAM

A&E FIRM:	KIMLEY-HORN AND ASSOCIATES, INC. COA #: PEC.0000738 4807 ROCKSIDE RD, SUITE 430 INDEPENDENCE, OH 44131 KEVIN.CLEMENTS@KIMLEY-HORN.COM
CROWN CASTLE USA INC. DISTRICT CONTACTS:	3 CORPORATE PARK DRIVE, SUITE 101 CLIFTON PARK, NY 12065 ALLISON SQUIRES - A&E SPECIALIST (518) 373-3523 ALLISON.SQUIRES.CONTRACTOR@CROWNCASTLE.COM

PROJECT DESCRIPTION

THE PURPOSE OF THIS PROJECT IS TO ENHANCE BROADBAND CONNECTIVITY AND CAPACITY TO THE EXISTING ELIGIBLE WIRELESS FACILITY.

TOWER SCOPE OF WORK:
- REMOVE (3) ANTENNAs
- INSTALL (3) ANTENNAs
- INSTALL (3) RADIOS
- INSTALL (1) NEW HANDRAIL KIT 3'-0" ABOVE EXISTING HORIZONTAL

GROUND SCOPE OF WORK:
- REMOVE (2) DUS41 BASEBAND MODULES
- REMOVE (6) COAX CABLES (1-5/8")
- INSTALL (2) BB 6630 RADIOS
- INSTALL (1) ERICSSON 6x12 HCS

APPLICABLE CODES/REFERENCE DOCUMENTS

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

CODE TYPE	CODE
BUILDING	2018 CT BUILDING CODE (2015 IBC)
MECHANICAL	2015 IMC
ELECTRICAL	2017 NEC

REFERENCE DOCUMENTS:

STRUCTURAL ANALYSIS:	B+T GROUP
DATED:	04/27/19
MOUNT ANALYSIS:	MASTEC NETWORK SOLUTIONS
DATED:	05/13/19
RFDS REVISION:	3.1
DATED:	04/09/19
ORDER ID:	479841
REVISION:	0

NOTE:
PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN NOC AT (800) 788-7011 & CROWN CONSTRUCTION MANAGER.

T-Mobile
12920 SE 38TH STREET
BELLEVUE, WA 98006

CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

Kimley»Horn
COA #PEC.0000738
421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601

T-MOBILE SITE NUMBER:
CT11623B

BU #: **842862**
EAST HAVEN SOUTH

259 COMMERCE STREET
EAST HAVEN, CT 06512

EXISTING 58'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	05/28/19	KRB	ISSUED FOR PERMITTING	MCK
0	08/15/19	KRB	ISSUED FOR CONSTRUCTION	MCK

STATE OF CONNECTICUT
BRIAN K. BREWER
29510
LICENSED PROFESSIONAL ENGINEER
8-15-19

SHEET NUMBER:	REVISION:
T-1	0

CROWN CASTLE USA INC. SITE ACTIVITY REQUIREMENTS:

1. NOTICE TO PROCEED– NO WORK SHALL COMMENCE PRIOR TO CROWN CASTLE USA INC. WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN CASTLE USA INC. NOC AT 800–788–7011 & THE CROWN CASTLE USA INC. CONSTRUCTION MANAGER.
2. "LOOK UP" – CROWN CASTLE USA INC. SAFETY CLIMB REQUIREMENT:
THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR CROWN CASTLE USA INC. POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.
3. PRIOR TO THE START OF CONSTRUCTION, ALL REQUIRED JURISDICTIONAL PERMITS SHALL BE OBTAINED. THIS INCLUDES, BUT IS NOT LIMITED TO, BUILDING, ELECTRICAL, MECHANICAL, FIRE, FLOOD ZONE, ENVIRONMENTAL, AND ZONING. AFTER ONSITE ACTIVITIES AND CONSTRUCTION ARE COMPLETED, ALL REQUIRED PERMITS SHALL BE SATISFIED AND CLOSED OUT ACCORDING TO LOCAL JURISDICTIONAL REQUIREMENTS.
4. ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN, AND SHALL MEET ANSI/ASSE A10.48 (LATEST EDITION); FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND CROWN CASTLE USA INC. STANDARD CED–STD–10253, INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION, TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH ANSI/TIA–322 (LATEST EDITION).
5. ALL SITE WORK TO COMPLY WITH QAS–STD–10068 "INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON CROWN CASTLE USA INC. TOWER SITE" AND LATEST VERSION OF ANSI/TIA–1019–A–2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."
6. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY CROWN CASTLE USA INC. PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
9. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
10. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION E) CONSTRUCTION SAFETY PROCEDURES.
11. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.
12. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH AT THE COMPLETION OF THE WORK. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
13. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF CONTRACTOR, TOWER OWNER, CROWN CASTLE USA INC., AND/OR LOCAL UTILITIES.
14. THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE REQUIRED BY LOCAL JURISDICTION AND SIGNAGE REQUIRED ON INDIVIDUAL PIECES OF EQUIPMENT, ROOMS, AND SHELTERS.
15. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.
16. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
17. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS.
18. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
19. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
20. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
21. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.
22. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
   CONTRACTOR: GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION
   CARRIER: T–MOBILE
   TOWER OWNER: CROWN CASTLE USA INC.
2. THESE DRAWINGS HAVE BEEN PREPARED USING STANDARDS OF PROFESSIONAL CARE AND COMPLETENESS NORMALLY EXERCISED UNDER SIMILAR CIRCUMSTANCES BY REPUTABLE ENGINEERS IN THIS OR SIMILAR LOCALITIES. IT IS ASSUMED THAT THE WORK DEPICTED WILL BE PERFORMED BY AN EXPERIENCED CONTRACTOR AND/OR WORKPEOPLE WHO HAVE A WORKING KNOWLEDGE OF THE APPLICABLE CODE STANDARDS AND REQUIREMENTS AND OF INDUSTRY ACCEPTED STANDARD GOOD PRACTICE. AS NOT EVERY CONDITION OR ELEMENT IS (OR CAN BE) EXPLICITLY SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL USE INDUSTRY ACCEPTED STANDARD GOOD PRACTICE FOR MISCELLANEOUS WORK NOT EXPLICITLY SHOWN.
3. THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE MEANS OR METHODS OF CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY FOR PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, FORMWORK, SHORING, ETC. SITE VISITS BY THE ENGINEER OR HIS REPRESENTATIVE WILL NOT INCLUDE INSPECTION OF THESE ITEMS AND IS FOR STRUCTURAL OBSERVATION OF THE FINISHED STRUCTURE ONLY.
4. NOTES AND DETAILS IN THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT, AND/OR AS PROVIDED FOR IN THE CONTRACT DOCUMENTS. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL NOTES, AND SPECIFICATIONS, THE GREATER, MORE STRICT REQUIREMENTS, SHALL GOVERN. IF FURTHER CLARIFICATION IS REQUIRED CONTACT THE ENGINEER OF RECORD.
5. SUBSTANTIAL EFFORT HAS BEEN MADE TO PROVIDE ACCURATE DIMENSIONS AND MEASUREMENTS ON THE DRAWINGS TO ASSIST IN THE FABRICATION AND/OR PLACEMENT OF CONSTRUCTION ELEMENTS BUT IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE DIMENSIONS, MEASUREMENTS, AND/OR CLEARANCES SHOWN IN THE CONSTRUCTION DRAWINGS PRIOR TO FABRICATION OR CUTTING OF ANY NEW OR EXISTING CONSTRUCTION ELEMENTS. IF IT IS DETERMINED THAT THERE ARE DISCREPANCIES AND/OR CONFLICTS WITH THE CONSTRUCTION DRAWINGS THE ENGINEER OF RECORD IS TO BE NOTIFIED AS SOON AS POSSIBLE.
6. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CROWN CASTLE.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
9. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
10. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CARRIER AND CROWN CASTLE PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
11. CONTRACTOR IS TO PERFORM A SITE INVESTIGATION AND IS TO DETERMINE THE BEST ROUTING OF ALL CONDUITS FOR POWER, AND TELCO AND FOR GROUNDING CABLES AS SHOWN IN THE POWER, TELCO, AND GROUNDING PLAN DRAWINGS.
12. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF CROWN CASTLE USA INC.
13. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
14. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST–IN–PLACE CONCRETE.
2. UNLESS NOTED OTHERWISE, SOIL BEARING PRESSURE USED FOR DESIGN OF SLABS AND FOUNDATIONS IS ASSUMED TO BE 1000 psf.
3. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (f'c) OF 3000 psi AT 28 DAYS, UNLESS NOTED OTHERWISE. NO MORE THAN 90 MINUTES SHALL ELAPSE FROM BATCH TIME TO TIME OF PLACEMENT UNLESS APPROVED BY THE ENGINEER OF RECORD. TEMPERATURE OF CONCRETE SHALL NOT EXCEED 90°f AT TIME OF PLACEMENT.
4. CONCRETE EXPOSED TO FREEZE–THAW CYCLES SHALL CONTAIN AIR ENTRAINING ADMIXTURES. AMOUNT OF AIR ENTRAINMENT TO BE BASED ON SIZE OF AGGREGATE AND F3 CLASS EXPOSURE (VERY SEVERE). CEMENT USED TO BE TYPE II PORTLAND CEMENT WITH A MAXIMUM WATER–TO–CEMENT RATIO (W/C) OF 0.45.
5. ALL STEEL REINFORCING SHALL CONFORM TO ASTM A615. ALL WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A185. ALL SPLICES SHALL BE CLASS "B" TENSION SPLICES, UNLESS NOTED OTHERWISE. ALL HOOKS SHALL BE STANDARD 90 DEGREE HOOKS, UNLESS NOTED OTHERWISE. YIELD STRENGTH (Fy) OF STANDARD DEFORMED BARS ARE AS FOLLOWS:
   #4 BARS AND SMALLER . . . . 40 ksi
   #5 BARS AND LARGER . . . . 60 ksi
6. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
   CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH . . . . 3"
   CONCRETE EXPOSED TO EARTH OR WEATHER:
   #6 BARS AND LARGER . . . . 2"
   #5 BARS AND SMALLER . . . . 1–1/2"
   CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
   SLAB AND WALLS . . . . 3/4"
   BEAMS AND COLUMNS . . . . 1–1/2"
7. A TOOLED EDGE OR A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

ELECTRICAL INSTALLATION NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
2. CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
   4.1. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.
   4.2. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 20,000 AIC MINIMUM. VERYIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PRE THE GOVERNING JURISDICTION.
5. EACH END OF EVERY POWER PHASE CONDUCTOR, GROUNDING CONDUCTOR, AND TELCO CONDUCTOR OR CABLE SHALL BE LABELED WITH COLOR–CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.
6. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH LAMICOID TAGS SHOWING THEIR RATED VOLTAGE, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (i.e. PANEL BOARD AND CIRCUIT ID'S).
7. PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
8. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
9. ALL POWER AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE COPPER CONDUCTOR (#14 OR LARGER) WITH TYPE THHW, THWN, THWN–2, XHHW, XHHW–2, THW, THW–2, RHW, OR RHW–2 INSULATION UNLESS OTHERWISE SPECIFIED.
10. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE COPPER CONDUCTOR (#6 OR LARGER) WITH TYPE THHW, THWN, THWN–2, XHHW, XHHW–2, THW, THW–2, RHW, OR RHW–2 INSULATION UNLESS OTHERWISE SPECIFIED.
11. POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI–CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.
12. POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI–CONDUCTOR, TYPE TC CABLE (#14 OR LARGER), WITH TYPE THHW, THWN, THWN–2, XHHW, XHHW–2, THW, THW–2, RHW, OR RHW–2 INSULATION UNLESS OTHERWISE SPECIFIED.
13. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP–STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION NOT LESS THAN 75° C (90° C IF AVAILABLE).
14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
15. ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
16. ELECTRICAL METALLIC TUBING (EMT) OR METAL–CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
17. SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
18. LIQUID–TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID–TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
19. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION–TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
20. CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND THE NEC.
21. WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECMATE WIREWAY).
22. SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).
23. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON–PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES (i.e. POWDER–ACTUATED) FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.
24. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY–COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND NEMA 3R (OR BETTER) FOR EXTERIOR LOCATIONS.
25. METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY–COATED OR NON–CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
26. NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2 (NEWEST REVISION) AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
27. THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CARRIER AND/OR CROWN CASTLE USA INC. BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
28. THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.
29. INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "T–MOBILE".
30. ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.

CONDUCTOR COLOR CODE

SYSTEM	CONDUCTOR	COLOR
120/240V, 1Ø	A PHASE	BLACK
	B PHASE	RED
	NEUTRAL	WHITE
	GROUND	GREEN
120/208V, 3Ø	A PHASE	BLACK
	B PHASE	RED
	C PHASE	BLUE
	NEUTRAL	WHITE
	GROUND	GREEN
277/480V, 3Ø	A PHASE	BROWN
	B PHASE	ORANGE OR PURPLE
	C PHASE	YELLOW
	NEUTRAL	GREY
	GROUND	GREEN
DC VOLTAGE	POS (+)	RED**
	NEG (–)	BLACK**

* SEE NEC 210.5(C)(1) AND (2)
** POLARITY MARKED AT TERMINATION

GREENFIELD GROUNDING NOTES:

1. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES'S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
2. THE CONTRACTOR SHALL PERFORM IEEE FALL–OF–POTENTAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS, THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
3. THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TESTING RESULTS.
4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
5. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
6. EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 BARE SOLID TINNED COPPER FOR OUTDOOR BTS.
7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.
8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
15. APPROVED ANTIOXIDANT COATINGS (i.e. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
17. MISCELLANEOUS ELECTRICAL AND NON–ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
18. BOND ALL METALLIC OBJECTS WITHIN 6 ft OF MAIN GROUND RING WITH (1) #2 BARE SOLID TINNED COPPER GROUND CONDUCTOR.
19. GROUND CONDUCTORS USED FOR THE FACILITY GROUNDING AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON–METALLIC MATERIAL SUCH AS PVC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (i.e., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
20. ALL GROUNDS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 BARE SOLID TINNED COPPER IN 3/4" NON–METALLIC, FLEXIBLE CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD–WELD TERMINATION POINT. THE EXPOSED END OF THE CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).
21. BUILDINGS WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUNDING RING, TO THE EXISTING GROUNDING SYSTEM, THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY).

ABBREVIATIONS:

ANT	ANTENNA
(E)	EXISTING
FIF	FACILITY INTERFACE FRAME
GEN	GENERATOR
GPS	GLOBAL POSITIONING SYSTEM
GSM	GLOBAL SYSTEM FOR MOBILE
LTE	LONG TERM EVOLUTION
MGB	MASTER GROUND BAR
MW	MICROWAVE
(N)	NEW
NEC	NATIONAL ELECTRIC CODE
(P)	PROPOSED
PP	POWER PLANT
QTY	QUANTITY
RECT	RECTIFIER
RBS	RADIO BASE STATION
RET	REMOTE ELECTRIC TILT
RFDS	RADIO FREQUENCY DATA SHEET
RRH	REMOTE RADIO HEAD
RRU	REMOTE RADIO UNIT
SIAD	SMART INTEGRATED DEVICE
TMA	TOWER MOUNTED AMPLIFIER
TYP	TYPICAL
UMTS	UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM
W.P.	WORK POINT

T-Mobile
12920 SE 38TH STREET
BELLEVUE, WA 98006

CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

Kimley»Horn
COA #PEC.0000738
421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601

T-MOBILE SITE NUMBER:
CT11623B

BU #: **842862**
EAST HAVEN SOUTH

259 COMMERCE STREET
EAST HAVEN, CT 06512

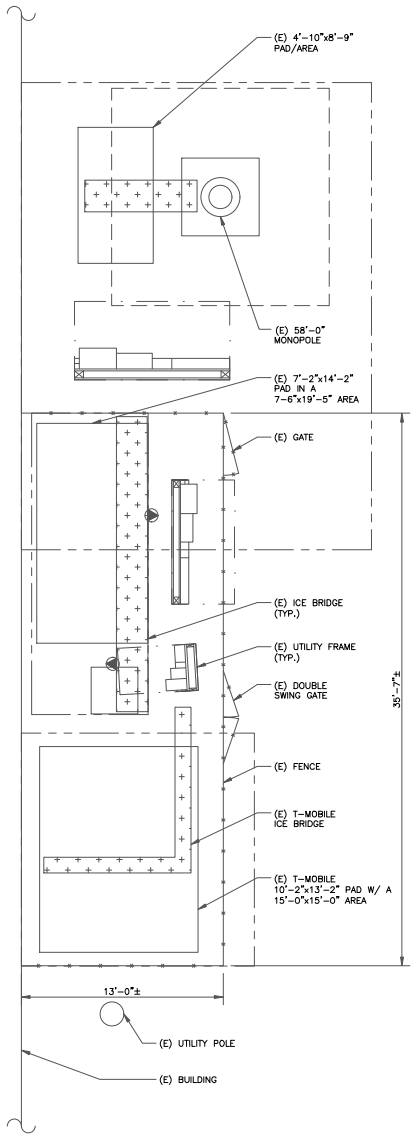
EXISTING 58'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	05/28/19	KRB	ISSUED FOR PERMITTING	MCK
0	08/15/19	KRB	ISSUED FOR CONSTRUCTION	MCK

STATE OF CONNECTICUT
BRIAN BREWER
29510
LICENSED
PROFESSIONAL ENGINEER
8-15-19

SHEET NUMBER: T-2
REVISION: 0



1 SITE PLAN
SCALE: 2' 1' 0 2' 1/2"=1'-0" (FULL SIZE) 1/4"=1'-0" (11x17)

N

T-Mobile
12920 SE 38TH STREET
BELLEVUE, WA 98006

CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

Kimley»Horn
COA #PEC.0000738
421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601

T-MOBILE SITE NUMBER:
CT11623B

BU #: **842862**
EAST HAVEN SOUTH

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EXISTING 58'-0" MONOPOLE

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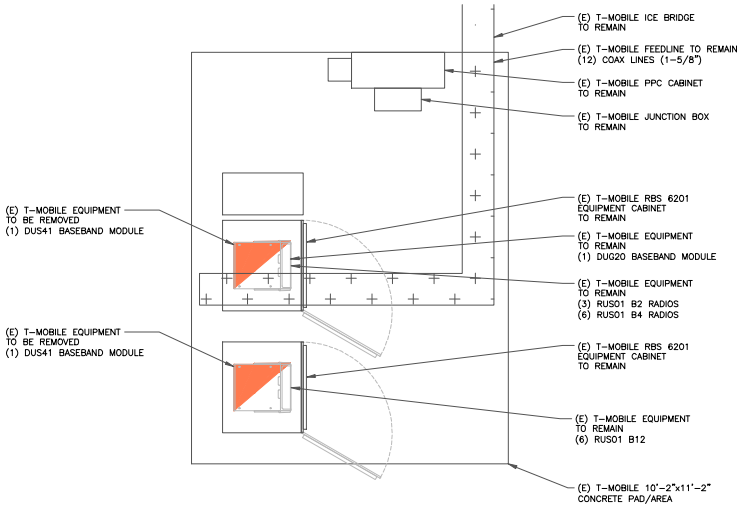
STATE OF CONNECTICUT
BRIAN C. BREWER
29510
LICENSED
PROFESSIONAL ENGINEER
8-15-19

SHEET NUMBER:	REVISION:
C-1.1	0

EQUIPMENT LEGEND:

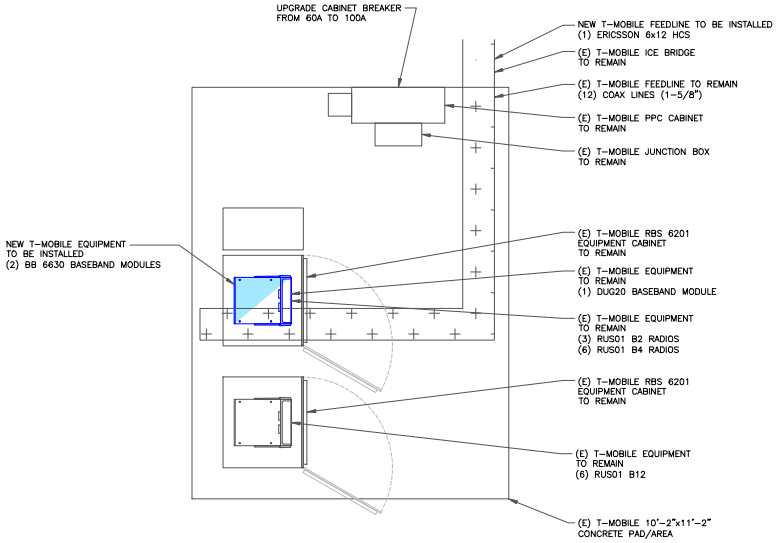
- EXISTING
- TO BE RELOCATED/REMOVED
- NEW



1 EXISTING EQUIPMENT PLAN

SCALE: 1' 0' 0 1' 1"=1'-0" (FULL SIZE) 1/2"=1'-0" (11x17)

N



2 FINAL EQUIPMENT PLAN

SCALE: 1' 0' 0 1' 1"=1'-0" (FULL SIZE) 1/2"=1'-0" (11x17)

N

T-Mobile
12920 SE 38TH STREET
BELLEVUE, WA 98006

CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

Kimley»Horn
COA #PEC.0000738
421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601

T-MOBILE SITE NUMBER:
CT11623B

BU #: **842862**
EAST HAVEN SOUTH

259 COMMERCE STREET
EAST HAVEN, CT 06512

EXISTING 58'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	05/28/19	KRB	ISSUED FOR PERMITTING	MCK
0	08/15/19	KRB	ISSUED FOR CONSTRUCTION	MCK

STATE OF CONNECTICUT BRIAN K. BREWER 29510 LICENSED PROFESSIONAL ENGINEER
8-15-19

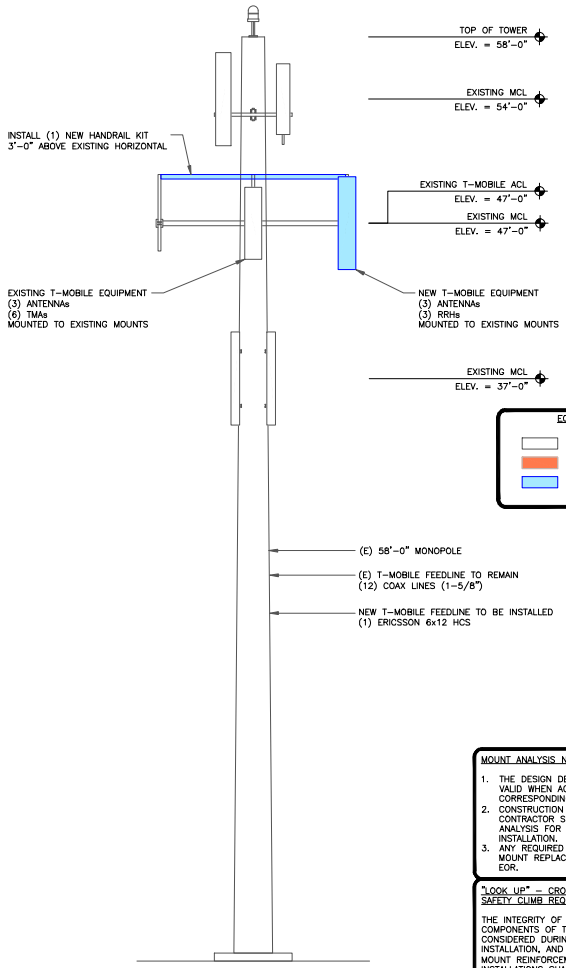
SHEET NUMBER:	REVISION:
C-1.2	0

T-MOBILE EQUIPMENT

ANTENNA CL: 47'-0"
MOUNT CL: 47'-0"

INSTALLER NOTE:

DIRECT TOWER MOUNTED EQUIPMENT MUST NOT TRAP OR INTERFERE W/ CLIMBING PEGS/STEPS AND SAFETY CLIMB.



1 FINAL ELEVATION
SCALE: NOT TO SCALE

EQUIPMENT LEGEND:

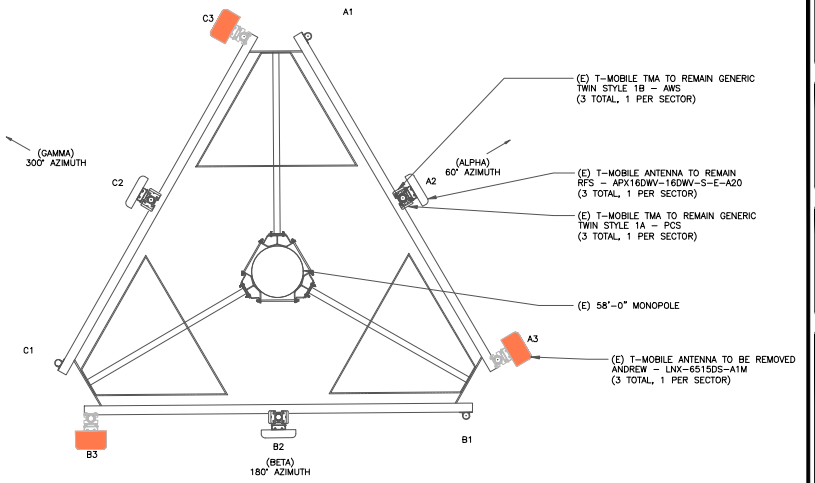
- EXISTING
- TO BE RELOCATED/REMOVED
- NEW

MOUNT ANALYSIS NOTES:

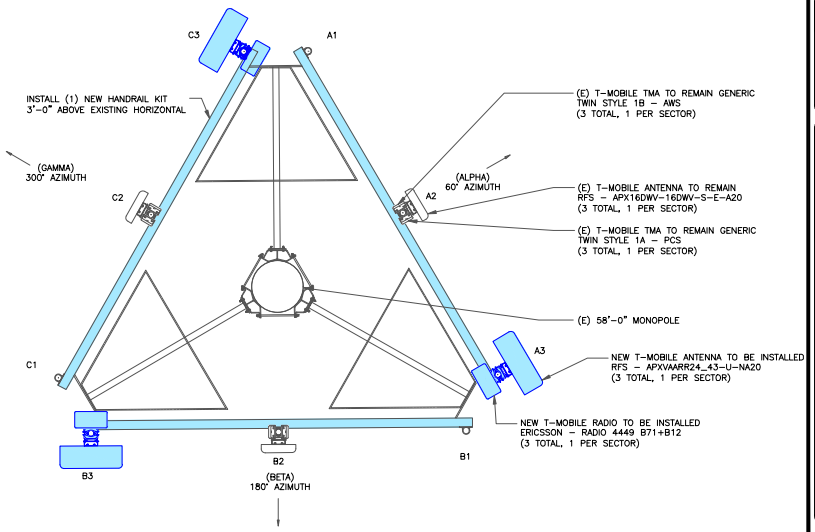
1. THE DESIGN DEPICTED IN THESE DRAWINGS IS VALID WHEN ACCOMPANIED BY A CORRESPONDING PASSING MOUNT ANALYSIS.
2. CONSTRUCTION MANAGER / GENERAL CONTRACTOR SHALL REVIEW THE MOUNT ANALYSIS FOR ANY CONDITIONS PRIOR TO INSTALLATION.
3. ANY REQUIRED MOUNT MODIFICATION DESIGN OR MOUNT REPLACEMENT SHALL BE APPROVED BY EOR.

"LOOK UP" – CROWN CASTLE USA INC.
SAFETY CLIMB REQUIREMENT:

THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR CROWN CASTLE USA INC. POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.



2 EXISTING ANTENNA PLAN
SCALE: NOT TO SCALE



3 FINAL ANTENNA PLAN
SCALE: NOT TO SCALE

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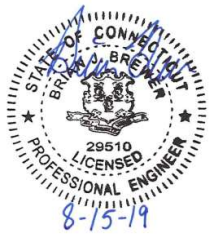
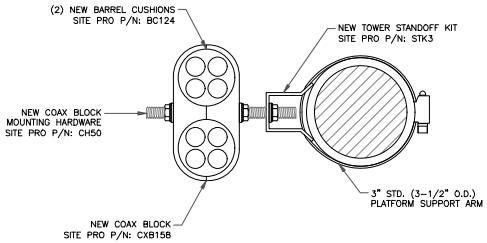


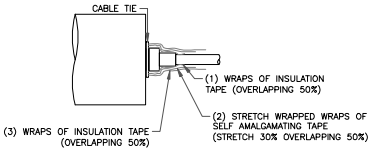
SHEET NUMBER:	REVISION:
C-2	0



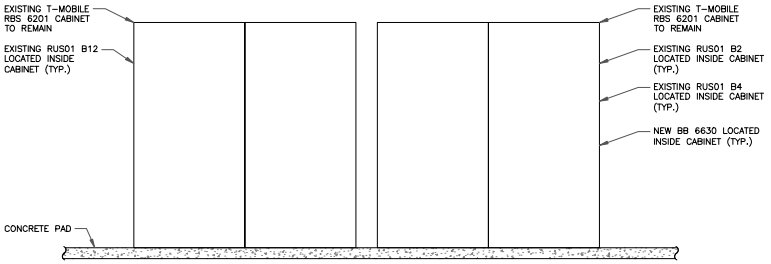
1 RF JUMPER DETAIL
SCALE: NOT TO SCALE

INSTALLER NOTE:

JUMPERS TO BE TORQUED TO 221.27 IN/LBS



2 RF JUMPER CONNECTION
SCALE: NOT TO SCALE

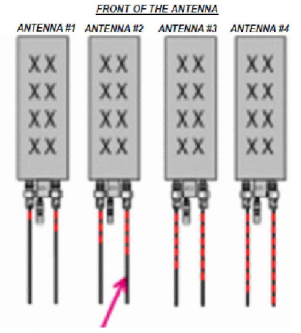


3 GROUND EQUIPMENT ELEVATION
SCALE: NOT TO SCALE

Coax Color Coding

- Antennas will be labeled (back of antenna view) Right to left 1 - X ports
- Coax/Jumper lines will be identified by sector color and by number of bands around the coax/jumper

SECTOR A	RED
SECTOR B	GREEN
SECTOR C	BLUE
SECTOR D	YELLOW
SECTOR E	WHITE
SECTOR F	PURPLE
LMU	BROWN + SECTOR COLOR BANDS (1 & 2)
FIBER ID	GRAY
UNUSED COAX	PINK
MICROWAVE	ORANGE
DWE T-1'S + GPS DOWNLINK CABLE	ID W/LABEL MAKER



EXAMPLE: COAX WITH FOUR BANDS OF RED TAPE WILL REPRESENT ALPHA SECTOR AND THE 4TH PORT OF ANTENNA

COLOR CODING NOTES:

color	GSM
color	UMTS 1900
color	UMTS AWS
color	LTE
color	FIBER CABLE

METALLIC TAG NOTES:

1. TWO METALLIC TAGS SHALL BE ATTACHED AT EACH END OF EVERY CABLE LONGER THAN (3) THREE FEET.
2. CABLE LESS THAN (3) THREE FEET WILL HAVE TWO METALLIC TAGS ATTACHED AT THE CENTER OF THE CABLE.
3. TAGS WILL BE FASTENED WITH STAINLESS STEEL ZIP TIES APPROPRIATE FOR CABLE DIAMETER.
4. STANDARDIZED METALLIC TAG KIT WILL BE ASSEMBLED WITH TAGS ALREADY ENGRAVED TO ACCOMMODATE ALL CONFIGURATIONS.

ANTENNA AND COAXIAL CABLE SCHEDULE

1. ALL ANTENNAS SHALL BE FURNISHED WITH DOWNTILT BRACKETS. CONTRACTOR SHALL COORDINATE REQUIRED MECHANICAL DOWNTILT FOR EACH ANTENNA WITH RF ENGINEER. ANTENNA DOWNTILT SHALL BE SET AND VERIFIED BY A SMART LEVEL.
2. CONTRACTOR SHALL INSTALL COLOR CODE RINGS ON EACH OF THE HYBRID CABLES AND JUMPER CABLES WITH UV RESISTANT TAPE. ALL CABLE SHALL BE MARKED AT TOP AND BOTTOM WITH 2" COLOR TAPE OR STENCIL TAG. COLOR TAPE MAY BE OBTAINED FROM GRAYBAR ELECTRONICS.

4 COAX COLOR CODING
SCALE: NOT TO SCALE

T-Mobile
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Kimley»Horn
COA #PEC.0000738
421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601

T-MOBILE SITE NUMBER:
CT11623B

BU #: **842862**
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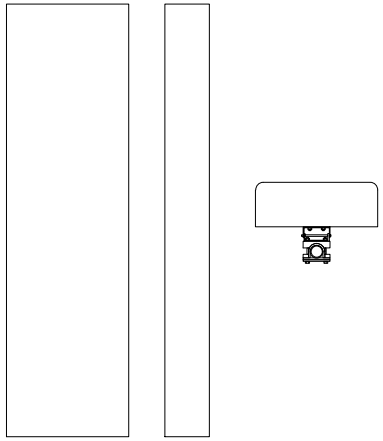
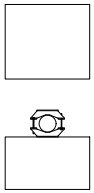
SHEET NUMBER: C-3

REVISION: 0



RFS – APXVAARR24_43-U-NA20
WEIGHT: 128 LBS.
SIZE (HxWxD): 95.9x24x8.7 IN.

1 RFS – APXVAARR24_43-U-NA20
SCALE: NOT TO SCALE



ERICSSON – 4449 B71 + B12
WEIGHT: 75 LBS.
SIZE (HxWxD): 15.0x13.2x10.4 IN.

2 ERICSSON – 4449 B71 + B12
SCALE: NOT TO SCALE

3 NOT USED
SCALE: NOT TO SCALE

4 NOT USED
SCALE: NOT TO SCALE

5 NOT USED
SCALE: NOT TO SCALE

6 NOT USED
SCALE: NOT TO SCALE

T-Mobile

12920 SE 38TH STREET
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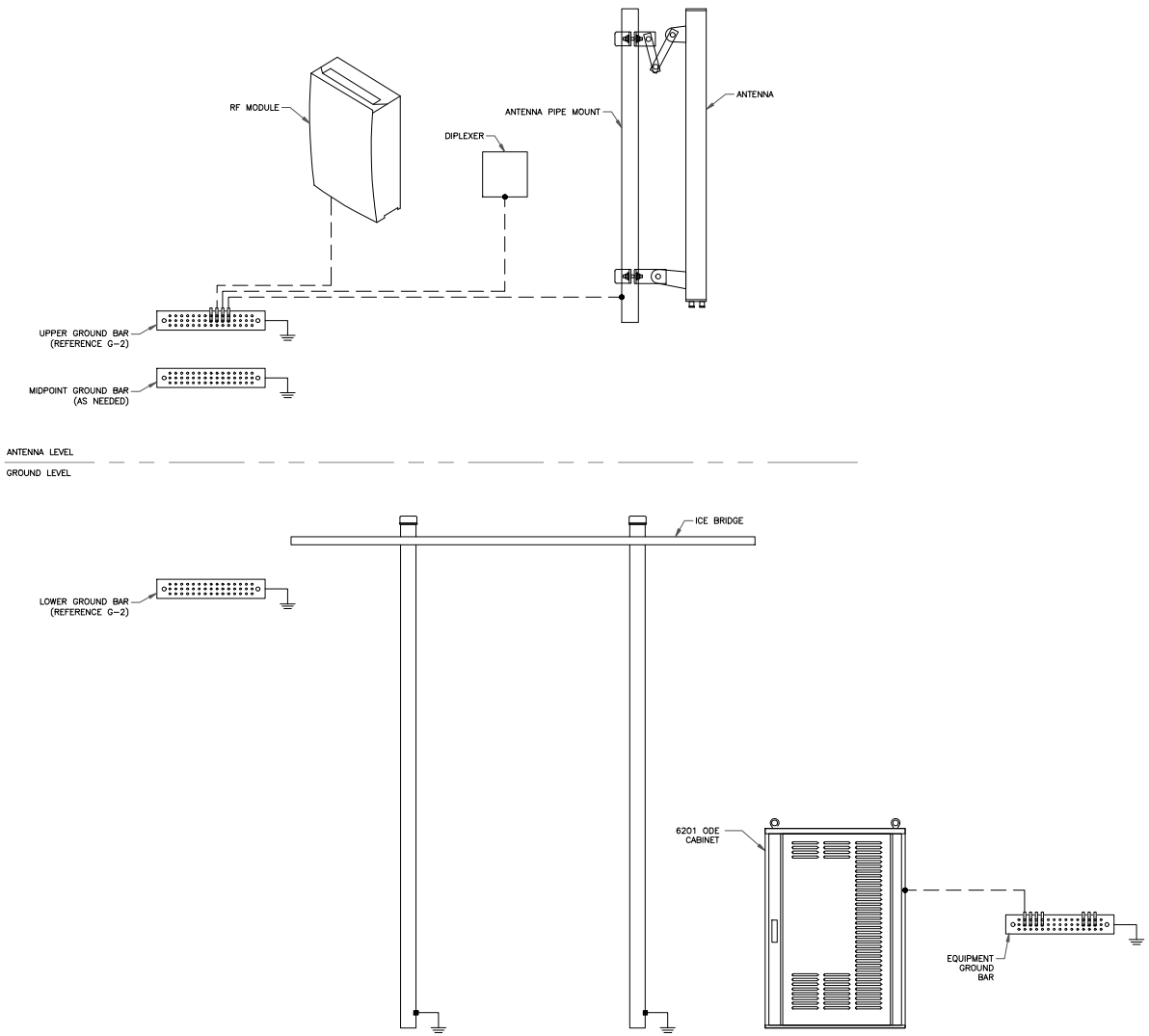
STATE OF CONNECTICUT
BRIAN M. BREWER
29510
LICENSED
PROFESSIONAL ENGINEER
8-15-19

SHEET NUMBER: C-4

REVISION: 0



1 TYPICAL FINAL GROUNDING SCHEMATIC
SCALE: NOT TO SCALE

GROUNDING PLAN LEGEND:

- #6 STRANDED COPPER WITH GREEN INSULATION GROUND WIRE
- #2 STRANDED COPPER WITH GREEN INSULATION GROUND WIRE
- #2 BARE, SOLID, TINNED COPPER GROUND WIRE
- EXOTHERMIC WELD
- MECHANICAL CONNECTION
- COPPER GROUND ROD
- GROUND ROD W/ TEST WELL

NOTE:

SEE FINAL EQUIPMENT PLAN FOR PROPOSED EQUIPMENT REQUIRING GROUNDING. CONTRACTOR TO VERIFY EXISTING EQUIPMENT GROUNDING IN FIELD. CONTRACTOR TO VERIFY IN FIELD AND INSTALL ANY MISSING T-MOBILE GROUND BARS ON SITE.

T-Mobile
12920 SE 38TH STREET
BELLEVUE, WA 98006

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COA #PEC.0000738
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EAST HAVEN SOUTH

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STATE OF CONNECTICUT
BRIAN M. BREWER
29510
LICENSED
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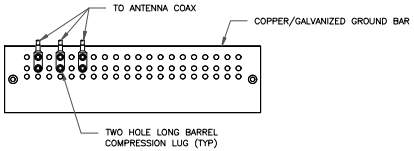
8-15-19

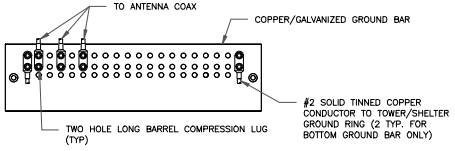
SHEET NUMBER:	REVISION:
G-1	0



NOTES:

1. DOUBLING UP "OR STACKING" OF CONNECTIONS IS NOT PERMITTED.
2. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
3. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO TOWER STEEL.

1 ANTENNA GROUND BAR DETAIL
SCALE: NOT TO SCALE

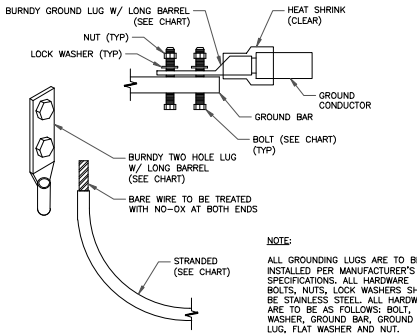


NOTES:

1. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
2. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO TOWER STEEL (TOWER ONLY).
3. GROUND BAR SHALL BE ISOLATED FROM BUILDING OR SHELTER.

2 TOWER/SHELTER GROUND BAR DETAIL
SCALE: NOT TO SCALE

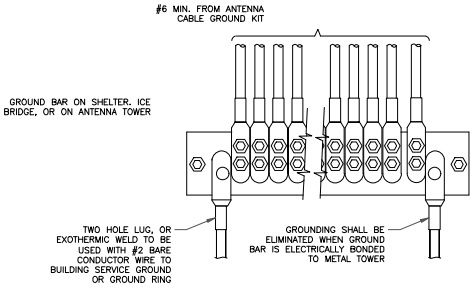
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC SS 2 BOLT
#2 SOLID TINNED	YA3C-2TC38	3/8" - 16 NC SS 2 BOLT
#2 STRANDED	YA2C-2TC38	3/8" - 16 NC SS 2 BOLT
#2/0 STRANDED	YA26-2TC38	3/8" - 16 NC SS 2 BOLT
#4/0 STRANDED	YA28-2N	1/2" - 16 NC SS 2 BOLT



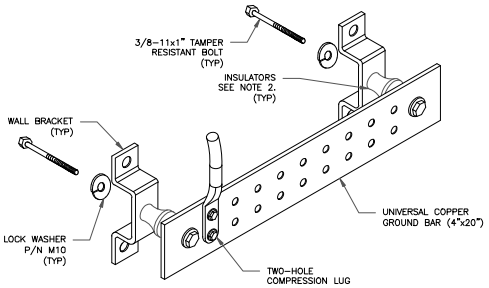
NOTE:

ALL GROUNDING LUGS ARE TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS. ALL HARDWARE BOLTS, NUTS, LOCK WASHERS SHALL BE STAINLESS STEEL. ALL HARDWARE ARE TO BE AS FOLLOWS: BOLT, FLAT WASHER, GROUND BAR, GROUND LUG, FLAT WASHER AND NUT.

3 MECHANICAL LUG CONNECTION
SCALE: NOT TO SCALE



4 GROUNDWIRE INSTALLATION
SCALE: NOT TO SCALE

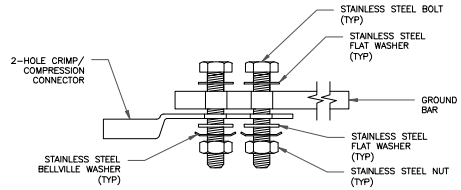


NOTES:

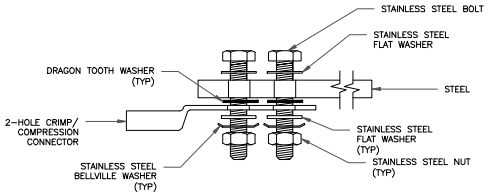
1. DOWN LEAD (HOME RUN) CONDUCTORS ARE NOT TO BE INSTALLED ON CROWN CASTLE USA INC. TOWER, PER THE GROUNDING DOWN CONDUCTOR POLICY QAS-STD-10091. NO MODIFICATION OR DRILLING TO TOWER STEEL IS ALLOWED IN ANY FORM OR FASHION, CAD-WELDING ON THE TOWER AND/OR IN THE AIR ARE NOT PERMITTED.

2. OMIT INSULATOR WHEN MOUNTING TO TOWER STEEL OR PLATFORM STEEL USE INSULATORS WHEN ATTACHING TO BUILDING OR SHELTERS.

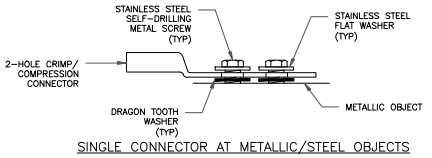
5 GROUND BAR DETAIL
SCALE: NOT TO SCALE



SINGLE CONNECTOR AT GROUND BARS

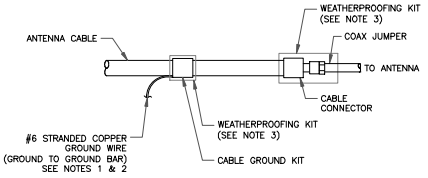


SINGLE CONNECTOR AT STEEL OBJECTS



SINGLE CONNECTOR AT METALLIC/STEEL OBJECTS

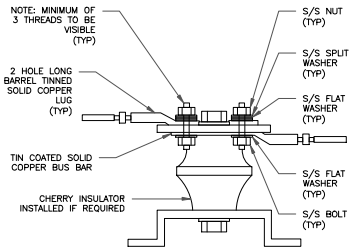
9 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



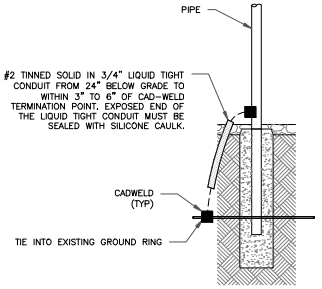
NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
3. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT, COLD SHRINK SHALL NOT BE USED.

6 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE



7 LUG DETAIL
SCALE: NOT TO SCALE



8 TRANSITIONING GROUND DETAIL
SCALE: NOT TO SCALE

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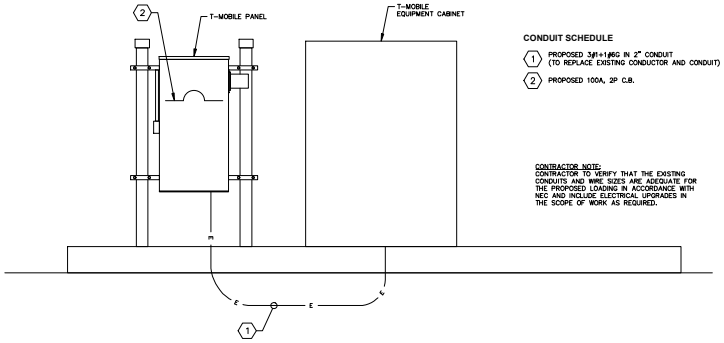

1 ONE LINE DIAGRAM
SCALE: NOT TO SCALE

2 DETAIL NOT USED
SCALE: NOT TO SCALE

3 DETAIL NOT USED
SCALE: NOT TO SCALE

4 DETAIL NOT USED
SCALE: NOT TO SCALE

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FOR REFERENCE ONLY

SHEET NUMBER:	REVISION:
E-1	0

Exhibit C

Structural Analysis Report

Date: **May 22, 2019**

Darcy Tarr
Crown Castle
3530 Toringdon Way Suite 300
Charlotte, NC 28277

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

Subject:	**Structural Analysis Report**	
Carrier Designation:	***T-Mobile* Co-Locate**	
	Carrier Site Number:	CT11623B
	Carrier Site Name:	CT623/E.Haven ATT_MP
Crown Castle Designation:	**Crown Castle BU Number:**	842862
	Crown Castle Site Name:	East Haven South
	Crown Castle JDE Job Number:	559274
	Crown Castle Work Order Number:	1745410
	Crown Castle Order Number:	479841 Rev. 2
Engineering Firm Designation:	**B+T Group Project Number:**	98372.007.01
Site Data:	**259 Commerce Street, East Haven, New Haven County, CT** **Latitude *41° 15' 22.88"*, Longitude *-72° 52' 32.8"*** **58 Foot - Monopole Tower**	

Dear Darcy Tarr,

B+T Group is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above mentioned tower.

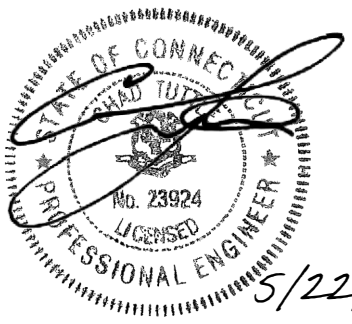
The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC7: Proposed Equipment Configuration **Sufficient Capacity-92.4%**

This analysis utilizes an ultimate 3-second gust wind speed of 130 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Structural analysis prepared by: Angela Ashwood

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



5/22/19

Chad Tuttle, P.E.

tnxTower Report - version 8.0.5.0

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 58 ft. Monopole tower designed by FWT, Inc. in September of 2003. The tower was originally designed for a wind speed of 85 mph per TIA/EIA-222-F.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	130 mph
Exposure Category:	C
Topographic Factor:	1
Ice Thickness:	1.5 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)
47.0	50.0	1	--	Handrail Kit	13	1-5/8
	47.0	3	Ericsson	KRY 112 144/1		
		3	Ericsson	KRY 112 489/2		
		3	Ericsson	RADIO 4449 B12/B71		
		3	RFS Celwave	APX16DWV-16DWVS-C		
		3	RFS Celwave	APXVAARR24_43-U-NA20		
		1	--	Platform Mount [LP 303-1]		

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)
54.0	55.0	3	Ericsson	RRUS 32	2 6 6	3/8 3/4 7/8
		3	Ericsson	RRUS 4449 B5/B12		
		3	Ericsson	RRUS 8843 B2/B66A		
		3	Kathrein	800 10121		
		3	Kathrein	80010965		
		6	Powerwave Tech.	LGP21401		
		3	Quintel Tech.	QS66512-6		
		1	Raycap	DC6-48-60-18-8C		
		2	Raycap	DC6-48-60-18-8F		
	54.0	3	Site Pro	STK-U		
		1	--	Pipe Mount [PM 602-3]		
		1	--	Sector Mount [SM 502-3]		
37.0	37.0	3	RFS Celwave	APXV18-206517S-C	6	1-5/8

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
Online Order Information	T-Mobile Co-Locate Rev# 2	479841	CCI Sites
Tower Manufacturer Drawing	FWT Inc., Job No. J030902001	4291655	CCI Sites
Mount Analysis Report	MasTec, Project No. 18527-MNT3	8404106	CCI Sites
Mount Modifications	Infinigy, Report Designation. 1039-A0002-B	8176772	CCI Sites
Foundation Drawing	FWT Inc., Job No. J030902001	4529325	CCI Sites
Geotech Report	Jaworski Geotech Inc., Project No.03368G	4291659	CCI Sites
Antenna Configuration	Crown CAD Package	Date:04/26/2019	CCI Sites

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) The tower and structures were built and have been maintained in accordance with the manufacturer's specification.
2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
3) Mount areas and weights are assumed based on photographs provided.

This analysis may be affected if any assumptions are not valid or have been made in error. B+T Group should be notified to determine the effect on the structural integrity of the 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
L1	58 - 50.5	Pole	TP19.078x17.393x0.188	1	-2.368	690.552	4.9	Pass
L2	50.5 - 0	Pole	TP30.05x18.141x0.188	2	-14.124	1091.643	92.4	Pass
							Summary	
						Pole (L2)	92.4	Pass
						Rating =	92.4	Pass

Table 5 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation	% Capacity	Pass / Fail
1	Anchor Rods	Base	83.9	Pass
1	Base Plate	Base	79.0	Pass
1	Base Foundation (Structure)	Base	40.5	Pass
1	Base Foundation (Soil Interaction)	Base	61.2	Pass

Structure Rating (max from all components) =	92.4%

Notes:
1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.
2) Rating per TIA-222-H Section 15.5

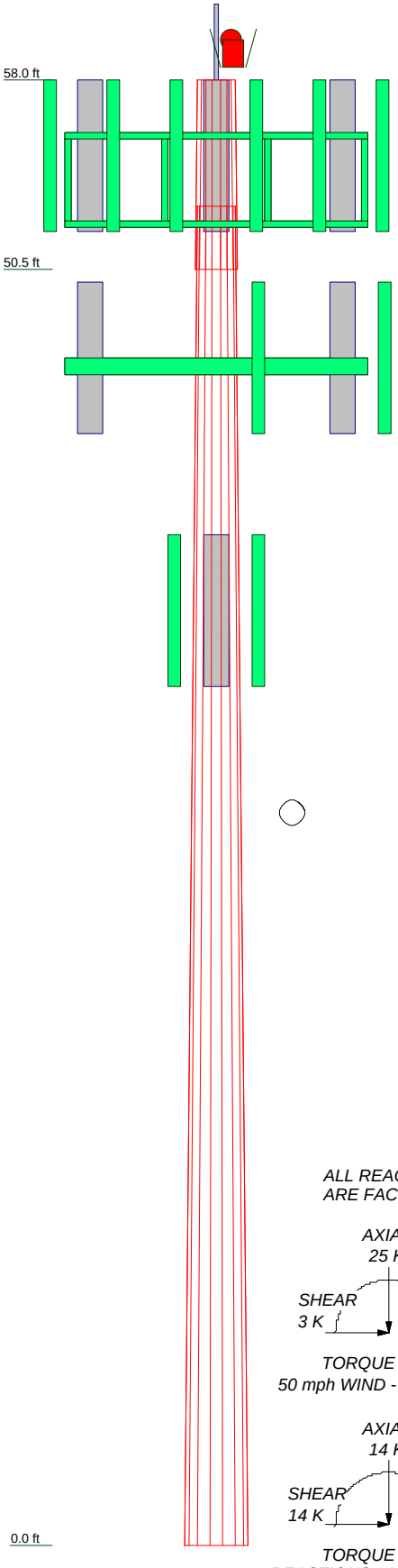
4.1) Recommendations

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

APPENDIX A

TNXTOWER OUTPUT

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	7.500	18	0.188	2.500	17.393	19.078		0.3
2	53.000	18	0.188		18.141	30.050	A572-65	2.6
								2.8



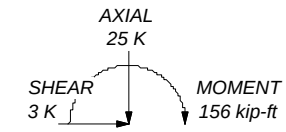
MATERIAL STRENGTH

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

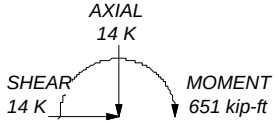
TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 130 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.000 ft
8. TIA-222-H Annex S
9. TOWER RATING: 92.4%

ALL REACTIONS ARE FACTORED



TORQUE 0 kip-ft
50 mph WIND - 1.500 in ICE



TORQUE 0 kip-ft
REACTIONS - 130 mph WIND

B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

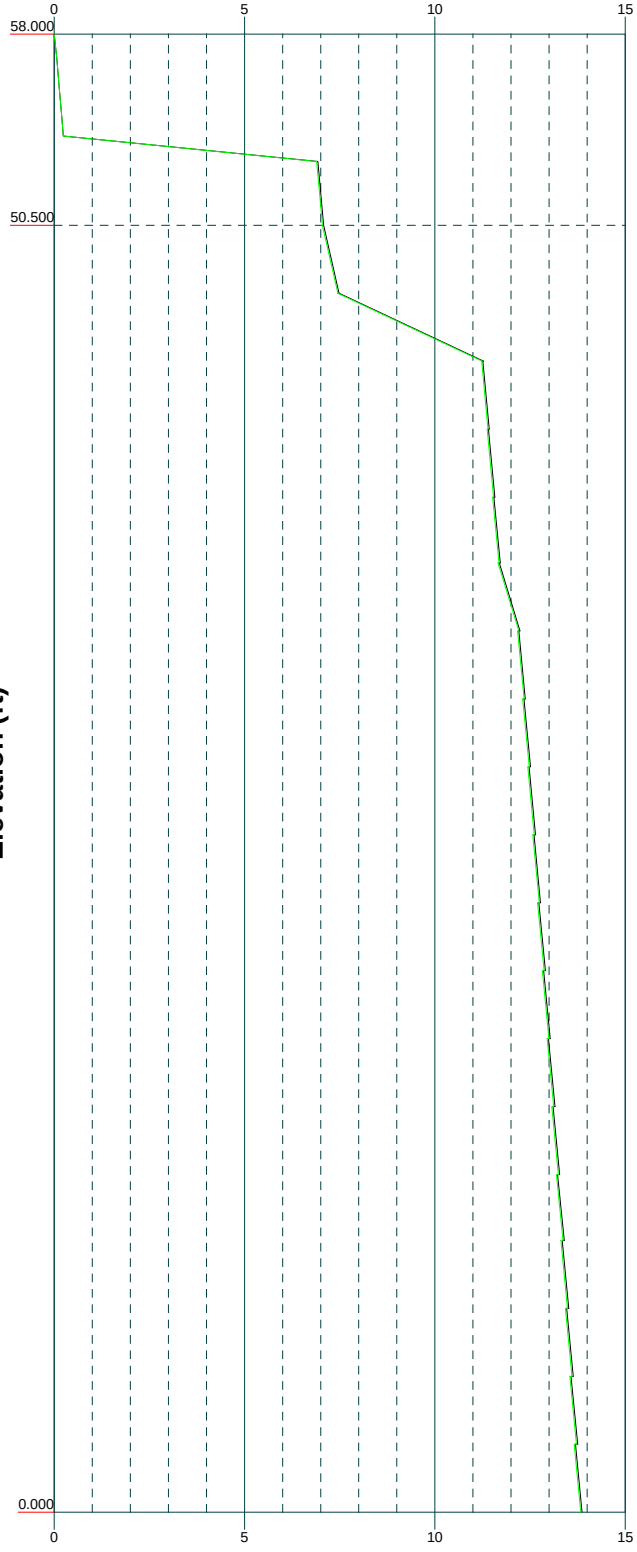
Job:	***98372.007.01 - EAST HAVEN SOUTH, CT (BU# 842862***		
Project:			
Client: Crown Castle	Drawn by: Damodar	App'd:	
Code: TIA-222-H	Date: 05/22/19	Scale: NTS	
Path:		Dwg No. E-1	

TIA-222-H - 130 mph/50 mph 1.500 in Ice Exposure C

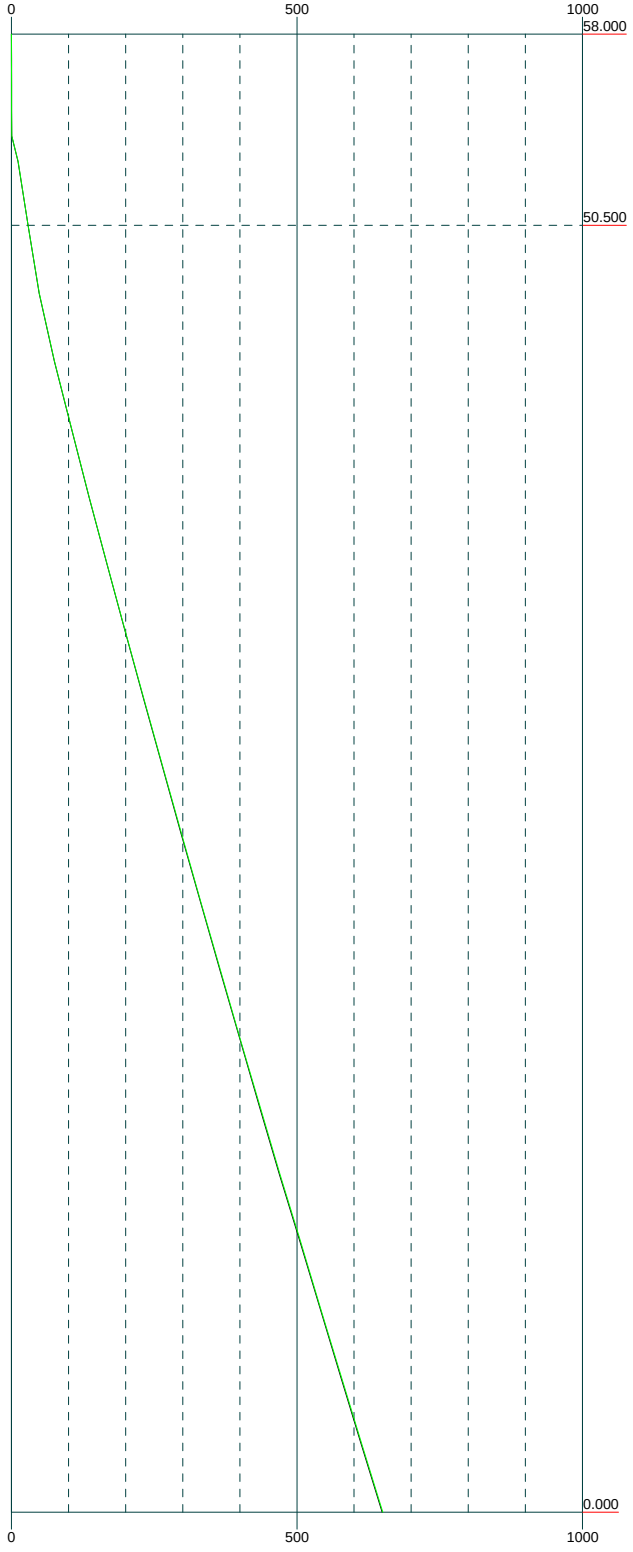
Maximum Values

Vx Vz Mx Mz

Global Mast Shear (K)



Global Mast Moment (kip-ft)

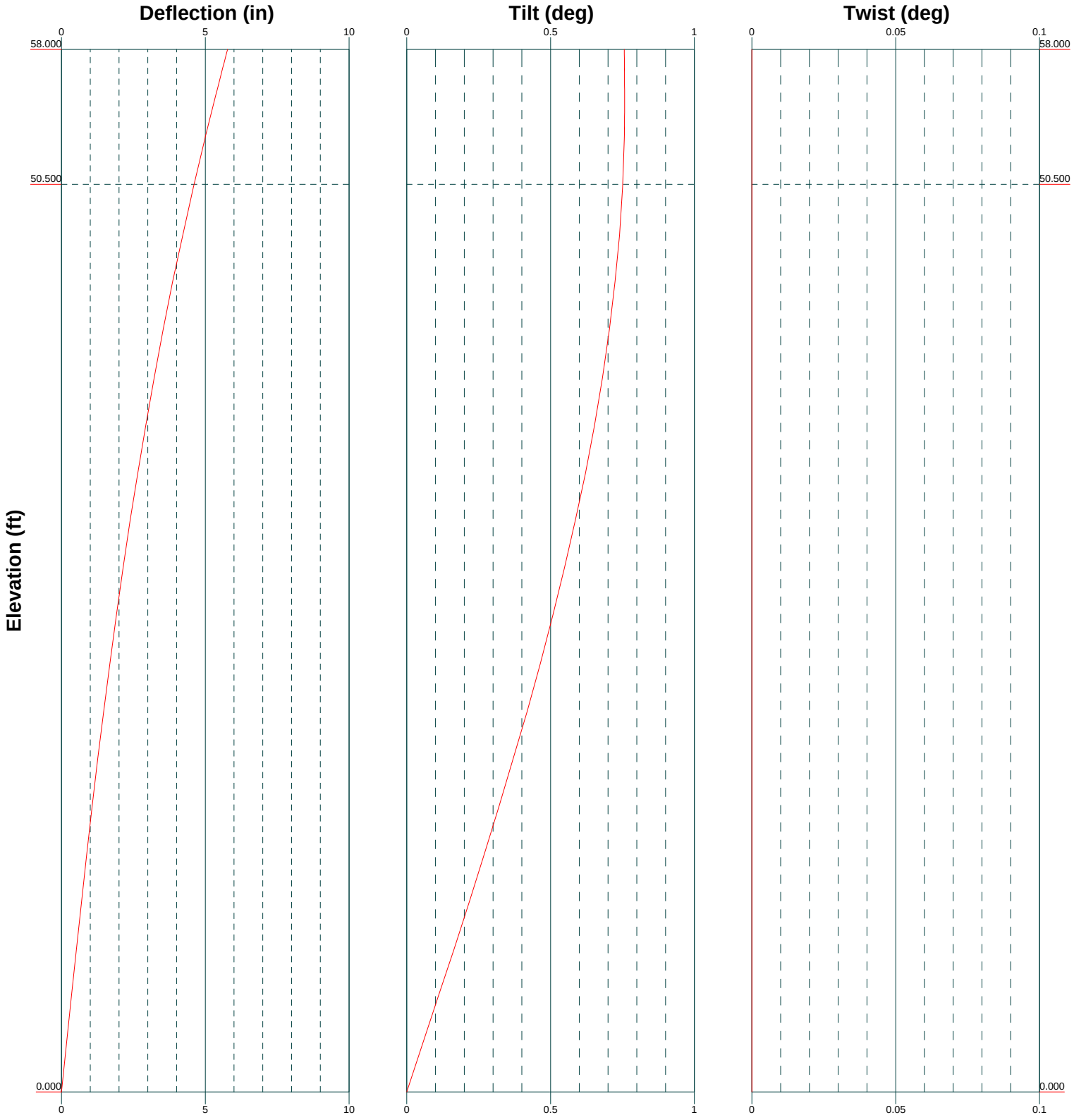


B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Job: 98372.007.01 - EAST HAVEN SOUTH, CT (BU# 84286			
Project:			
Client: Crown Castle	Drawn by: Damodar	App'd:	
Code: TIA-222-H	Date: 05/22/19	Scale: NTS	
Path:		Dwg No. E-4	

TIA-222-H - Service - 60 mph

Maximum Values



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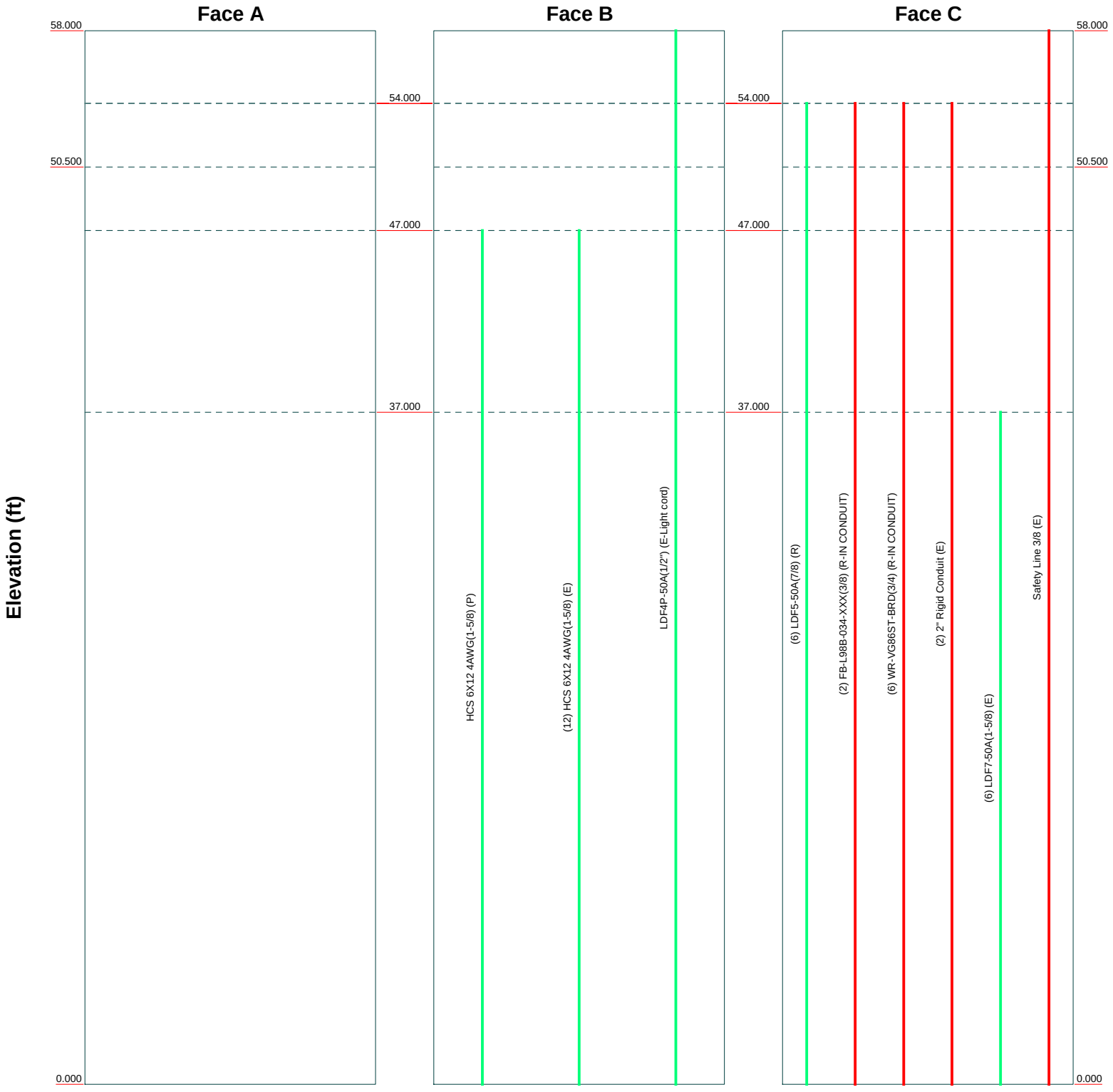
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Job:	***98372.007.01 - EAST HAVEN SOUTH, CT (BU# 842862***		
Project:			
Client: Crown Castle	Drawn by: Damodar	App'd:	
Code: TIA-222-H	Date: 05/22/19	Scale: NTS	
Path:		Dwg No. E-5	

Feed Line Distribution Chart
0' - 58'

Round | Flat | App In Face | App Out Face | Truss Leg



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Phone: (918) 587-4630
FAX: (918) 295-0265

Job:	***98372.007.01 - EAST HAVEN SOUTH, CT (BU# 842862***		
Project:			
Client: Crown Castle	Drawn by: Damodar	App'd:	
Code: TIA-222-H	Date: 05/22/19	Scale: NTS	
Path:		Dwg No. E-7	

Tower Input Data

The tower is a monopole.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:

Tower is located in New Haven County, Connecticut.
Tower base elevation above sea level: 35.000 ft.
Basic wind speed of 130 mph.
Risk Category II.
Exposure Category C.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.000 ft.
Nominal ice thickness of 1.500 in.
Ice thickness is considered to increase with height.
Ice density of 56.000 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50.000 °F.
Deflections calculated using a wind speed of 60 mph.
TIA-222-H Annex S.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.05.
Tower analysis based on target reliabilities in accordance with Annex S.
Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
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-H Bracing Resist. Exemption
Include Bolts In Member Capacity	Autocalc Torque Arm Areas	Use TIA-222-H 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

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	58.000-50.500	7.500	2.500	18	17.393	19.078	0.188	0.750	A572-65 (65 ksi)
L2	50.500-0.000	53.000		18	18.141	30.050	0.188	0.750	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	17.632	10.239	382.955	6.108	8.836	43.342	766.414	5.121	2.731	14.566
	19.343	11.242	506.846	6.706	9.692	52.297	1014.359	5.622	3.028	16.148
L2	18.963	10.685	435.128	6.374	9.216	47.215	870.829	5.343	2.863	15.269
	30.485	17.772	2002.277	10.601	15.265	131.164	4007.188	8.888	4.959	26.447

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 58.000-50.500				1	1	1			
L2 50.500-0.000				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight klf
FB-L98B-034-XXX(3/8) (R-IN CONDUIT)	C	No	Surface Ar (CaAa)	54.000 - 0.000	2	2	-0.400 -0.350	0.000		0.000
WR-VG86ST-BRD(3/4) (R-IN CONDUIT)	C	No	Surface Ar (CaAa)	54.000 - 0.000	6	4	-0.500 -0.350	0.000		0.001
2" Rigid Conduit (E) ***D***	C	No	Surface Ar (CaAa)	54.000 - 0.000	2	2	-0.500 -0.350	2.000		0.003
Safety Line 3/8 (E) *s*	C	No	Surface Ar (CaAa)	58.000 - 0.000	1	1	0.000 0.010	0.375		0.000

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight klf
54									
LDF5-50A(7/8) (R)	C	No	No	Inside Pole	54.000 - 0.000	6	No Ice	0.000	0.000
							1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000
							2" Ice	0.000	0.000
D									
HCS 6X12 4AWG(1-5/8) (P)	B	No	No	Inside Pole	47.000 - 0.000	1	No Ice	0.000	0.002
							1/2" Ice	0.000	0.002
							1" Ice	0.000	0.002
							2" Ice	0.000	0.002
HCS 6X12 4AWG(1-5/8) (E)	B	No	No	Inside Pole	47.000 - 0.000	12	No Ice	0.000	0.002
							1/2" Ice	0.000	0.002
							1" Ice	0.000	0.002
							2" Ice	0.000	0.002
D									
LDF7-50A(1-5/8) (E)	C	No	No	Inside Pole	37.000 - 0.000	6	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
							2" Ice	0.000	0.001
D									
LDF4P-50A(1/2") (E-Light cord)	B	No	No	Inside Pole	58.000 - 0.000	1	No Ice	0.000	0.000
							1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000
							2" Ice	0.000	0.000
s									

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	58.000-50.500	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.001
		C	0.000	0.000	1.681	0.000	0.041
L2	50.500-0.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	1.474
		C	0.000	0.000	22.094	0.000	0.759

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	58.000-50.500	A	1.340	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.001
		C		0.000	0.000	7.558	0.000	0.105
L2	50.500-0.000	A	1.237	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	1.474
		C		0.000	0.000	91.423	0.000	1.520

Feed Line Center of Pressure

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L1	58.000-50.500	1.110	1.159	1.420	1.976
L2	50.500-0.000	2.109	1.949	2.511	2.785

Note: For pole sections, center of pressure calculations do not consider feed line shielding.

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	6	FB-L98B-034-XXX(3/8)	50.50 - 54.00	1.0000	1.0000
L1	7	WR-VG86ST-BRD(3/4)	50.50 - 54.00	1.0000	1.0000
L1	8	2" Rigid Conduit	50.50 - 54.00	1.0000	1.0000
L1	17	Safety Line 3/8	50.50 - 58.00	1.0000	1.0000

Discrete Tower Loads

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) Side Lighting (E/TIA)	B	From Leg	0.000 0.000 0.500	0.000	58.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.108 0.170 0.233 0.389	0.108 0.170 0.233 0.389	0.005 0.007 0.010 0.019
Lightning Rod 1/2" x 2' (E)	A	From Leg	4.000 0.000 1.000	0.000	58.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.100 0.264 0.395 0.685	0.100 0.264 0.395 0.685	0.020 0.021 0.024 0.034
54 800 10121 w/ Mount Pipe (E)	A	From Leg	4.000 0.000 1.000	0.000	54.000	No Ice 1/2" Ice 1" Ice 2" Ice	5.388 5.813 6.234 7.102	4.600 5.351 6.046 7.475	0.066 0.114 0.168 0.298
800 10121 w/ Mount Pipe (E)	B	From Leg	4.000 0.000 1.000	0.000	54.000	No Ice 1/2" Ice 1" Ice 2" Ice	5.388 5.813 6.234 7.102	4.600 5.351 6.046 7.475	0.066 0.114 0.168 0.298
800 10121 w/ Mount Pipe (E)	C	From Leg	4.000 0.000 1.000	0.000	54.000	No Ice 1/2" Ice 1" Ice	5.388 5.813 6.234	4.600 5.351 6.046	0.066 0.114 0.168

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
						2" Ice	7.102	7.475	0.298
DC6-48-60-18-8F	A	From Leg	4.000	0.000	54.000	No Ice	1.212	1.212	0.033
(E)			0.000			1/2" Ice	1.892	1.892	0.055
			1.000			1" Ice	2.105	2.105	0.080
						2" Ice	2.570	2.570	0.138
80010965 w/ Mount Pipe	A	From Leg	4.000	0.000	54.000	No Ice	14.051	7.628	0.125
(R)			0.000			1/2" Ice	14.688	8.903	0.222
			1.000			1" Ice	15.303	9.963	0.327
						2" Ice	16.530	11.925	0.569
80010965 w/ Mount Pipe	B	From Leg	4.000	0.000	54.000	No Ice	14.051	7.628	0.125
(R)			0.000			1/2" Ice	14.688	8.903	0.222
			1.000			1" Ice	15.303	9.963	0.327
						2" Ice	16.530	11.925	0.569
80010965 w/ Mount Pipe	C	From Leg	4.000	0.000	54.000	No Ice	14.051	7.628	0.125
(R)			0.000			1/2" Ice	14.688	8.903	0.222
			1.000			1" Ice	15.303	9.963	0.327
						2" Ice	16.530	11.925	0.569
QS66512-6 w/ Mount Pipe	A	From Leg	4.000	0.000	54.000	No Ice	8.371	8.463	0.137
(R)			0.000			1/2" Ice	8.931	9.657	0.212
			1.000			1" Ice	9.457	10.548	0.296
						2" Ice	10.531	12.352	0.492
QS66512-6 w/ Mount Pipe	B	From Leg	4.000	0.000	54.000	No Ice	8.371	8.463	0.137
(R)			0.000			1/2" Ice	8.931	9.657	0.212
			1.000			1" Ice	9.457	10.548	0.296
						2" Ice	10.531	12.352	0.492
QS66512-6 w/ Mount Pipe	C	From Leg	4.000	0.000	54.000	No Ice	8.371	8.463	0.137
(R)			0.000			1/2" Ice	8.931	9.657	0.212
			1.000			1" Ice	9.457	10.548	0.296
						2" Ice	10.531	12.352	0.492
RRUS 8843 B2/B66A	A	From Leg	4.000	0.000	54.000	No Ice	1.639	1.353	0.072
(R)			0.000			1/2" Ice	1.799	1.500	0.090
			1.000			1" Ice	1.966	1.655	0.110
						2" Ice	2.323	1.986	0.159
RRUS 8843 B2/B66A	B	From Leg	4.000	0.000	54.000	No Ice	1.639	1.353	0.072
(R)			0.000			1/2" Ice	1.799	1.500	0.090
			1.000			1" Ice	1.966	1.655	0.110
						2" Ice	2.323	1.986	0.159
RRUS 8843 B2/B66A	C	From Leg	4.000	0.000	54.000	No Ice	1.639	1.353	0.072
(R)			0.000			1/2" Ice	1.799	1.500	0.090
			1.000			1" Ice	1.966	1.655	0.110
						2" Ice	2.323	1.986	0.159
(2) LGP21401	A	From Leg	4.000	0.000	54.000	No Ice	1.104	0.207	0.014
(R)			0.000			1/2" Ice	1.239	0.274	0.021
			1.000			1" Ice	1.381	0.348	0.030
						2" Ice	1.688	0.521	0.055
(2) LGP21401	B	From Leg	4.000	0.000	54.000	No Ice	1.104	0.207	0.014
(R)			0.000			1/2" Ice	1.239	0.274	0.021
			1.000			1" Ice	1.381	0.348	0.030
						2" Ice	1.688	0.521	0.055
(2) LGP21401	C	From Leg	4.000	0.000	54.000	No Ice	1.104	0.207	0.014
(R)			0.000			1/2" Ice	1.239	0.274	0.021
			1.000			1" Ice	1.381	0.348	0.030
						2" Ice	1.688	0.521	0.055
RRUS 32	A	From Leg	4.000	0.000	54.000	No Ice	2.857	1.777	0.055
(R)			0.000			1/2" Ice	3.083	1.968	0.077
			1.000			1" Ice	3.316	2.166	0.103
						2" Ice	3.805	2.583	0.165

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
RRUS 32	B	From Leg	4.000	0.000	54.000	No Ice	2.857	1.777	0.055
(R)			0.000			1/2" Ice	3.083	1.968	0.077
			1.000			1" Ice	3.316	2.166	0.103
						2" Ice	3.805	2.583	0.165
RRUS 32	C	From Leg	4.000	0.000	54.000	No Ice	2.857	1.777	0.055
(R)			0.000			1/2" Ice	3.083	1.968	0.077
			1.000			1" Ice	3.316	2.166	0.103
						2" Ice	3.805	2.583	0.165
RRUS 4449 B5/B12	B	From Leg	4.000	0.000	54.000	No Ice	1.968	1.408	0.071
(R)			0.000			1/2" Ice	2.144	1.564	0.090
			1.000			1" Ice	2.328	1.727	0.111
						2" Ice	2.718	2.075	0.163
(2) RRUS 4449 B5/B12	C	From Leg	4.000	0.000	54.000	No Ice	1.968	1.408	0.071
(R)			0.000			1/2" Ice	2.144	1.564	0.090
			1.000			1" Ice	2.328	1.727	0.111
						2" Ice	2.718	2.075	0.163
DC6-48-60-18-8F	A	From Leg	4.000	0.000	54.000	No Ice	1.212	1.212	0.033
(R)			0.000			1/2" Ice	1.892	1.892	0.055
			1.000			1" Ice	2.105	2.105	0.080
						2" Ice	2.570	2.570	0.138
DC6-48-60-18-8C	B	From Leg	4.000	0.000	54.000	No Ice	2.737	2.737	0.026
(R)			0.000			1/2" Ice	2.963	2.963	0.052
			1.000			1" Ice	3.196	3.196	0.082
						2" Ice	3.684	3.684	0.152
12.5' horizontal x 2.375"	A	From Leg	6.000	0.000	54.000	No Ice	2.969	2.969	0.120
Pipe Mount			0.000			1/2" Ice	4.247	4.247	0.142
(STK-U)			0.000			1" Ice	5.542	5.542	0.173
						2" Ice	8.054	8.054	0.258
12.5' horizontal x 2.375"	B	From Leg	6.000	0.000	54.000	No Ice	2.969	2.969	0.120
Pipe Mount			0.000			1/2" Ice	4.247	4.247	0.142
(STK-U)			0.000			1" Ice	5.542	5.542	0.173
						2" Ice	8.054	8.054	0.258
12.5' horizontal x 2.375"	C	From Leg	6.000	0.000	54.000	No Ice	2.969	2.969	0.120
Pipe Mount			0.000			1/2" Ice	4.247	4.247	0.142
(STK-U)			0.000			1" Ice	5.542	5.542	0.173
						2" Ice	8.054	8.054	0.258
Pipe Mount [PM 602-3]	C	None		0.000	54.000	No Ice	7.680	7.680	0.279
(E)						1/2" Ice	9.500	9.500	0.353
						1" Ice	11.320	11.320	0.427
						2" Ice	14.960	14.960	0.576
Sector Mount [SM 502-3]	C	None		0.000	54.000	No Ice	33.020	33.020	1.673
(E)						1/2" Ice	47.360	47.360	2.224
						1" Ice	61.700	61.700	2.775
						2" Ice	90.380	90.380	3.876
D									
47									
APX16DWV-16DWVS-C w/	A	From Leg	4.000	0.000	47.000	No Ice	6.824	3.494	0.061
Mount Pipe			0.000			1/2" Ice	7.275	4.263	0.110
(E)			0.000			1" Ice	7.719	4.960	0.165
						2" Ice	8.633	6.403	0.298
APX16DWV-16DWVS-C w/	B	From Leg	4.000	0.000	47.000	No Ice	6.824	3.494	0.061
Mount Pipe			0.000			1/2" Ice	7.275	4.263	0.110
(E)			0.000			1" Ice	7.719	4.960	0.165
						2" Ice	8.633	6.403	0.298
APX16DWV-16DWVS-C w/	C	From Leg	4.000	0.000	47.000	No Ice	6.824	3.494	0.061
Mount Pipe			0.000			1/2" Ice	7.275	4.263	0.110
(E)			0.000			1" Ice	7.719	4.960	0.165

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" Ice	8.633	6.403	0.298
KRY 112 144/1	A	From Leg	4.000	0.000	47.000	No Ice	0.350	0.175	0.011
(E)			0.000			1/2" Ice	0.426	0.234	0.014
			0.000			1" Ice	0.509	0.301	0.019
						2" Ice	0.698	0.456	0.032
KRY 112 144/1	B	From Leg	4.000	0.000	47.000	No Ice	0.350	0.175	0.011
(E)			0.000			1/2" Ice	0.426	0.234	0.014
			0.000			1" Ice	0.509	0.301	0.019
						2" Ice	0.698	0.456	0.032
KRY 112 144/1	C	From Leg	4.000	0.000	47.000	No Ice	0.350	0.175	0.011
(E)			0.000			1/2" Ice	0.426	0.234	0.014
			0.000			1" Ice	0.509	0.301	0.019
						2" Ice	0.698	0.456	0.032
APXVAARR24_43-U-NA20	A	From Leg	4.000	0.000	47.000	No Ice	20.480	11.024	0.161
w/ Mount Pipe			0.000			1/2" Ice	21.231	12.550	0.297
(P)			0.000			1" Ice	21.990	14.099	0.444
						2" Ice	23.444	16.451	0.775
APXVAARR24_43-U-NA20	B	From Leg	4.000	0.000	47.000	No Ice	20.480	11.024	0.161
w/ Mount Pipe			0.000			1/2" Ice	21.231	12.550	0.297
(P)			0.000			1" Ice	21.990	14.099	0.444
						2" Ice	23.444	16.451	0.775
APXVAARR24_43-U-NA20	C	From Leg	4.000	0.000	47.000	No Ice	20.480	11.024	0.161
w/ Mount Pipe			0.000			1/2" Ice	21.231	12.550	0.297
(P)			0.000			1" Ice	21.990	14.099	0.444
						2" Ice	23.444	16.451	0.775
RADIO 4449 B12/B71	A	From Leg	4.000	0.000	47.000	No Ice	1.650	1.300	0.075
(P)			0.000			1/2" Ice	1.810	1.445	0.092
			0.000			1" Ice	1.978	1.597	0.112
						2" Ice	2.336	1.924	0.161
RADIO 4449 B12/B71	B	From Leg	4.000	0.000	47.000	No Ice	1.650	1.300	0.075
(P)			0.000			1/2" Ice	1.810	1.445	0.092
			0.000			1" Ice	1.978	1.597	0.112
						2" Ice	2.336	1.924	0.161
RADIO 4449 B12/B71	C	From Leg	4.000	0.000	47.000	No Ice	1.650	1.300	0.075
(P)			0.000			1/2" Ice	1.810	1.445	0.092
			0.000			1" Ice	1.978	1.597	0.112
						2" Ice	2.336	1.924	0.161
KRY 112 489/2	A	From Leg	4.000	0.000	47.000	No Ice	0.559	0.365	0.015
(E)			0.000			1/2" Ice	0.658	0.448	0.020
			0.000			1" Ice	0.764	0.542	0.027
						2" Ice	0.998	0.752	0.046
KRY 112 489/2	B	From Leg	4.000	0.000	47.000	No Ice	0.559	0.365	0.015
(E)			0.000			1/2" Ice	0.658	0.448	0.020
			0.000			1" Ice	0.764	0.542	0.027
						2" Ice	0.998	0.752	0.046
KRY 112 489/2	C	From Leg	4.000	0.000	47.000	No Ice	0.559	0.365	0.015
(E)			0.000			1/2" Ice	0.658	0.448	0.020
			0.000			1" Ice	0.764	0.542	0.027
						2" Ice	0.998	0.752	0.046
8' x 2.375" Mount Pipe	A	From Leg	4.000	0.000	47.000	No Ice	1.900	1.900	0.061
(E)			0.000			1/2" Ice	2.728	2.728	0.075
			0.000			1" Ice	3.401	3.401	0.095
						2" Ice	4.396	4.396	0.150
8' x 2.375" Mount Pipe	B	From Leg	4.000	0.000	47.000	No Ice	1.900	1.900	0.061
(E)			0.000			1/2" Ice	2.728	2.728	0.075
			0.000			1" Ice	3.401	3.401	0.095
						2" Ice	4.396	4.396	0.150

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
8' x 2.375" Mount Pipe	C	From Leg	4.000	0.000	47.000	No Ice	1.900	1.900	0.061
(E)			0.000			1/2" Ice	2.728	2.728	0.075
			0.000			1" Ice	3.401	3.401	0.095
						2" Ice	4.396	4.396	0.150
Miscellaneous [NA 507-1]	C	None		0.000	50.000	No Ice	4.800	4.800	0.245
(P-HANDRAIL KIT)						1/2" Ice	6.700	6.700	0.294
						1" Ice	8.600	8.600	0.343
						2" Ice	12.400	12.400	0.441
Platform Mount [LP 303-1]	C	None		0.000	47.000	No Ice	14.660	14.660	1.250
(E)						1/2" Ice	18.870	18.870	1.481
						1" Ice	23.080	23.080	1.713
						2" Ice	31.500	31.500	2.175
D									
37									
APXV18-206517S-C w/	A	From Leg	1.000	0.000	37.000	No Ice	3.790	3.160	0.053
Mount Pipe			0.000			1/2" Ice	4.380	3.750	0.094
(E-Direct Mount)			0.000			1" Ice	4.990	4.350	0.145
						2" Ice	6.250	5.590	0.281
APXV18-206517S-C w/	B	From Leg	1.000	0.000	37.000	No Ice	3.790	3.160	0.053
Mount Pipe			0.000			1/2" Ice	4.380	3.750	0.094
(E-Direct Mount)			0.000			1" Ice	4.990	4.350	0.145
						2" Ice	6.250	5.590	0.281
APXV18-206517S-C w/	C	From Leg	1.000	0.000	37.000	No Ice	3.790	3.160	0.053
Mount Pipe			0.000			1/2" Ice	4.380	3.750	0.094
(E-Direct Mount)			0.000			1" Ice	4.990	4.350	0.145
						2" Ice	6.250	5.590	0.281
D									

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice

Comb. No.	Description
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
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 Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	58 - 50.5	Pole	Max Tension	33	0.000	0.000	0.001
			Max. Compression	26	-9.921	0.114	-0.192
			Max. Mx	20	-2.368	15.059	-0.137
			Max. My	14	-2.370	0.139	-14.991
			Max. Vy	20	-6.926	11.694	-0.228
			Max. Vx	14	6.894	0.247	-11.633
			Max. Torque	5			-0.270
L2	50.5 - 0	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-25.260	0.124	-1.728
			Max. Mx	20	-14.124	650.334	-1.398
			Max. My	14	-14.124	0.755	-649.155
			Max. Vy	20	-13.865	650.334	-1.398
			Max. Vx	14	13.833	0.755	-649.155
			Max. Torque	5			-0.270

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	33	25.260	0.002	-3.245
	Max. H_x	20	14.154	13.835	-0.009
	Max. H_z	2	14.154	-0.009	13.803
	Max. M_x	2	647.415	-0.009	13.803
	Max. M_z	8	649.882	-13.835	0.009
	Max. Torsion	17	0.268	6.925	-11.958
	Min. Vert	25	10.616	6.909	11.949
	Min. H_x	8	14.154	-13.835	0.009
	Min. H_z	14	14.154	0.009	-13.803
	Min. M_x	14	-649.155	0.009	-13.803
	Min. M_z	20	-650.334	13.835	-0.009
	Min. Torsion	5	-0.269	-6.925	11.958

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	11.795	0.000	0.000	0.704	0.181	0.000
1.2 Dead+1.0 Wind 0 deg - No Ice	14.154	0.009	-13.803	-647.415	-0.299	0.202
0.9 Dead+1.0 Wind 0 deg - No Ice	10.616	0.009	-13.803	-642.499	-0.354	0.205
1.2 Dead+1.0 Wind 30 deg - No Ice	14.154	6.925	-11.958	-560.825	-325.285	0.268
0.9 Dead+1.0 Wind 30 deg - No Ice	10.616	6.925	-11.958	-556.594	-322.762	0.269
1.2 Dead+1.0 Wind 60 deg - No Ice	14.154	11.986	-6.909	-323.728	-563.048	0.261
0.9 Dead+1.0 Wind 60 deg - No Ice	10.616	11.986	-6.909	-321.378	-558.639	0.260
1.2 Dead+1.0 Wind 90 deg - No Ice	14.154	13.835	-0.009	0.344	-649.882	0.185
0.9 Dead+1.0 Wind 90 deg - No Ice	10.616	13.835	-0.009	0.124	-644.785	0.181
1.2 Dead+1.0 Wind 120 deg - No Ice	14.154	11.977	6.893	324.557	-562.522	0.059
0.9 Dead+1.0 Wind 120 deg - No Ice	10.616	11.977	6.893	321.766	-558.117	0.054
1.2 Dead+1.0 Wind 150 deg - No Ice	14.154	6.909	11.949	562.039	-324.372	-0.082
0.9 Dead+1.0 Wind 150 deg - No Ice	10.616	6.909	11.949	557.366	-321.857	-0.087
1.2 Dead+1.0 Wind 180 deg - No Ice	14.154	-0.009	13.803	649.155	0.755	-0.201
0.9 Dead+1.0 Wind 180 deg - No Ice	10.616	-0.009	13.803	643.791	0.692	-0.204
1.2 Dead+1.0 Wind 210 deg - No Ice	14.154	-6.925	11.958	562.564	325.739	-0.266
0.9 Dead+1.0 Wind 210 deg - No Ice	10.616	-6.925	11.958	557.886	323.098	-0.268
1.2 Dead+1.0 Wind 240 deg - No Ice	14.154	-11.986	6.909	325.468	563.501	-0.260
0.9 Dead+1.0 Wind 240 deg - No Ice	10.616	-11.986	6.909	322.670	558.974	-0.260
1.2 Dead+1.0 Wind 270 deg - No Ice	14.154	-13.835	0.009	1.398	650.334	-0.185

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
0.9 Dead+1.0 Wind 270 deg - No Ice	10.616	-13.835	0.009	1.170	645.120	-0.182
1.2 Dead+1.0 Wind 300 deg - No Ice	14.154	-11.977	-6.893	-322.814	562.976	-0.060
0.9 Dead+1.0 Wind 300 deg - No Ice	10.616	-11.977	-6.893	-320.472	558.454	-0.056
1.2 Dead+1.0 Wind 330 deg - No Ice	14.154	-6.909	-11.949	-560.298	324.828	0.081
0.9 Dead+1.0 Wind 330 deg - No Ice	10.616	-6.909	-11.949	-556.072	322.194	0.086
1.2 Dead+1.0 Ice+1.0 Temp	25.260	-0.000	0.000	1.728	0.124	0.000
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	25.260	0.002	-3.245	-152.760	0.038	0.036
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	25.260	1.627	-2.811	-132.104	-77.360	0.024
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	25.260	2.816	-1.624	-75.581	-133.995	0.005
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	25.260	3.251	-0.002	1.663	-154.692	-0.016
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	25.260	2.814	1.621	78.931	-133.906	-0.032
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	25.260	1.624	2.810	135.518	-77.206	-0.039
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	25.260	-0.002	3.245	156.263	0.215	-0.036
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	25.260	-1.627	2.811	135.607	77.612	-0.024
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	25.260	-2.816	1.624	79.084	134.247	-0.005
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	25.260	-3.251	0.002	1.840	154.945	0.016
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	25.260	-2.814	-1.621	-75.427	134.159	0.032
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	25.260	-1.624	-2.810	-132.015	77.459	0.039
Dead+Wind 0 deg - Service	11.795	0.002	-2.769	-128.760	0.082	0.041
Dead+Wind 30 deg - Service	11.795	1.389	-2.399	-111.465	-64.827	0.054
Dead+Wind 60 deg - Service	11.795	2.405	-1.386	-64.110	-112.316	0.053
Dead+Wind 90 deg - Service	11.795	2.776	-0.002	0.617	-129.659	0.037
Dead+Wind 120 deg - Service	11.795	2.403	1.383	65.372	-112.210	0.011
Dead+Wind 150 deg - Service	11.795	1.386	2.397	112.804	-64.645	-0.017
Dead+Wind 180 deg - Service	11.795	-0.002	2.769	130.204	0.293	-0.041
Dead+Wind 210 deg - Service	11.795	-1.389	2.399	112.910	65.202	-0.054
Dead+Wind 240 deg - Service	11.795	-2.405	1.386	65.554	112.691	-0.052
Dead+Wind 270 deg - Service	11.795	-2.776	0.002	0.828	130.034	-0.037
Dead+Wind 300 deg - Service	11.795	-2.403	-1.383	-63.928	112.586	-0.011
Dead+Wind 330 deg - Service	11.795	-1.386	-2.397	-111.360	65.020	0.017

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
1	0.000	-11.795	0.000	0.000	11.795	0.000	0.000%
2	0.009	-14.154	-13.803	-0.009	14.154	13.803	0.000%
3	0.009	-10.616	-13.803	-0.009	10.616	13.803	0.000%
4	6.925	-14.154	-11.958	-6.925	14.154	11.958	0.000%
5	6.925	-10.616	-11.958	-6.925	10.616	11.958	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
6	11.986	-14.154	-6.909	-11.986	14.154	6.909	0.000%
7	11.986	-10.616	-6.909	-11.986	10.616	6.909	0.000%
8	13.835	-14.154	-0.009	-13.835	14.154	0.009	0.000%
9	13.835	-10.616	-0.009	-13.835	10.616	0.009	0.000%
10	11.977	-14.154	6.893	-11.977	14.154	-6.893	0.000%
11	11.977	-10.616	6.893	-11.977	10.616	-6.893	0.000%
12	6.909	-14.154	11.949	-6.909	14.154	-11.949	0.000%
13	6.909	-10.616	11.949	-6.909	10.616	-11.949	0.000%
14	-0.009	-14.154	13.803	0.009	14.154	-13.803	0.000%
15	-0.009	-10.616	13.803	0.009	10.616	-13.803	0.000%
16	-6.925	-14.154	11.958	6.925	14.154	-11.958	0.000%
17	-6.925	-10.616	11.958	6.925	10.616	-11.958	0.000%
18	-11.986	-14.154	6.909	11.986	14.154	-6.909	0.000%
19	-11.986	-10.616	6.909	11.986	10.616	-6.909	0.000%
20	-13.835	-14.154	0.009	13.835	14.154	-0.009	0.000%
21	-13.835	-10.616	0.009	13.835	10.616	-0.009	0.000%
22	-11.977	-14.154	-6.893	11.977	14.154	6.893	0.000%
23	-11.977	-10.616	-6.893	11.977	10.616	6.893	0.000%
24	-6.909	-14.154	-11.949	6.909	14.154	11.949	0.000%
25	-6.909	-10.616	-11.949	6.909	10.616	11.949	0.000%
26	0.000	-25.260	0.000	0.000	25.260	-0.000	0.000%
27	0.002	-25.260	-3.245	-0.002	25.260	3.245	0.000%
28	1.627	-25.260	-2.811	-1.627	25.260	2.811	0.000%
29	2.816	-25.260	-1.624	-2.816	25.260	1.624	0.000%
30	3.251	-25.260	-0.002	-3.251	25.260	0.002	0.000%
31	2.814	-25.260	1.621	-2.814	25.260	-1.621	0.000%
32	1.624	-25.260	2.810	-1.624	25.260	-2.810	0.000%
33	-0.002	-25.260	3.245	0.002	25.260	-3.245	0.000%
34	-1.627	-25.260	2.811	1.627	25.260	-2.811	0.000%
35	-2.816	-25.260	1.624	2.816	25.260	-1.624	0.000%
36	-3.251	-25.260	0.002	3.251	25.260	-0.002	0.000%
37	-2.814	-25.260	-1.621	2.814	25.260	1.621	0.000%
38	-1.624	-25.260	-2.810	1.624	25.260	2.810	0.000%
39	0.002	-11.795	-2.769	-0.002	11.795	2.769	0.000%
40	1.389	-11.795	-2.399	-1.389	11.795	2.399	0.000%
41	2.405	-11.795	-1.386	-2.405	11.795	1.386	0.000%
42	2.776	-11.795	-0.002	-2.776	11.795	0.002	0.000%
43	2.403	-11.795	1.383	-2.403	11.795	-1.383	0.000%
44	1.386	-11.795	2.397	-1.386	11.795	-2.397	0.000%
45	-0.002	-11.795	2.769	0.002	11.795	-2.769	0.000%
46	-1.389	-11.795	2.399	1.389	11.795	-2.399	0.000%
47	-2.405	-11.795	1.386	2.405	11.795	-1.386	0.000%
48	-2.776	-11.795	0.002	2.776	11.795	-0.002	0.000%
49	-2.403	-11.795	-1.383	2.403	11.795	1.383	0.000%
50	-1.386	-11.795	-2.397	1.386	11.795	2.397	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00023272
3	Yes	4	0.00000001	0.00014560
4	Yes	5	0.00000001	0.00019678
5	Yes	5	0.00000001	0.00008565
6	Yes	5	0.00000001	0.00018519

7	Yes	5	0.00000001	0.00008021
8	Yes	4	0.00000001	0.00021768
9	Yes	4	0.00000001	0.00012729
10	Yes	5	0.00000001	0.00019263
11	Yes	5	0.00000001	0.00008346
12	Yes	5	0.00000001	0.00019309
13	Yes	5	0.00000001	0.00008381
14	Yes	4	0.00000001	0.00021079
15	Yes	4	0.00000001	0.00013192
16	Yes	5	0.00000001	0.00018700
17	Yes	5	0.00000001	0.00008073
18	Yes	5	0.00000001	0.00019882
19	Yes	5	0.00000001	0.00008624
20	Yes	4	0.00000001	0.00024068
21	Yes	4	0.00000001	0.00014143
22	Yes	5	0.00000001	0.00018933
23	Yes	5	0.00000001	0.00008214
24	Yes	5	0.00000001	0.00018867
25	Yes	5	0.00000001	0.00008175
26	Yes	4	0.00000001	0.00001119
27	Yes	4	0.00000001	0.00068678
28	Yes	4	0.00000001	0.00087747
29	Yes	4	0.00000001	0.00087478
30	Yes	4	0.00000001	0.00069594
31	Yes	4	0.00000001	0.00089697
32	Yes	4	0.00000001	0.00090207
33	Yes	4	0.00000001	0.00070477
34	Yes	4	0.00000001	0.00090077
35	Yes	4	0.00000001	0.00090472
36	Yes	4	0.00000001	0.00069808
37	Yes	4	0.00000001	0.00087997
38	Yes	4	0.00000001	0.00087403
39	Yes	4	0.00000001	0.00000001
40	Yes	4	0.00000001	0.00006569
41	Yes	4	0.00000001	0.00005113
42	Yes	4	0.00000001	0.00000001
43	Yes	4	0.00000001	0.00006023
44	Yes	4	0.00000001	0.00006111
45	Yes	4	0.00000001	0.00000001
46	Yes	4	0.00000001	0.00005388
47	Yes	4	0.00000001	0.00006840
48	Yes	4	0.00000001	0.00000001
49	Yes	4	0.00000001	0.00005592
50	Yes	4	0.00000001	0.00005531

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	58 - 50.5	5.773	46	0.757	0.001
L2	53 - 0	4.981	46	0.755	0.001

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
58.000	(2) Side Lighting	46	5.773	0.757	0.001	4404
54.000	800 10121 w/ Mount Pipe	46	5.135	0.756	0.001	4404
50.000	Miscellaneous [NA 507-1]	46	4.537	0.748	0.001	3864
47.000	APX16DWV-16DWVS-C w/ Mount Pipe	46	4.121	0.734	0.001	4060
37.000	APXV18-206517S-C w/ Mount Pipe	46	2.919	0.649	0.001	5157

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	58 - 50.5	28.780	18	3.771	0.006
L2	53 - 0	24.836	18	3.765	0.006

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
58.000	(2) Side Lighting	18	28.780	3.771	0.006	892
54.000	800 10121 w/ Mount Pipe	18	25.605	3.771	0.006	892
50.000	Miscellaneous [NA 507-1]	18	22.626	3.728	0.005	782
47.000	APX16DWV-16DWVS-C w/ Mount Pipe	18	20.557	3.660	0.005	821
37.000	APXV18-206517S-C w/ Mount Pipe	18	14.565	3.235	0.004	1041

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	58 - 50.5 (1)	TP19.078x17.393x0.188	7.500	0.000	0.0	11.242	-2.368	657.669	0.004
L2	50.5 - 0 (2)	TP30.05x18.141x0.188	53.000	0.000	0.0	17.772	-14.124	1039.660	0.014

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	58 - 50.5 (1)	TP19.078x17.393x0.188	15.104	319.168	0.047	0.000	319.168	0.000
L2	50.5 - 0 (2)	TP30.05x18.141x0.188	650.740	681.328	0.955	0.000	681.328	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	58 - 50.5 (1)	TP19.078x17.393x0.188	3.681	197.301	0.019	0.135	326.402	0.000
L2	50.5 - 0 (2)	TP30.05x18.141x0.188	13.865	311.897	0.044	0.260	815.676	0.000

Pole Interaction Design Data

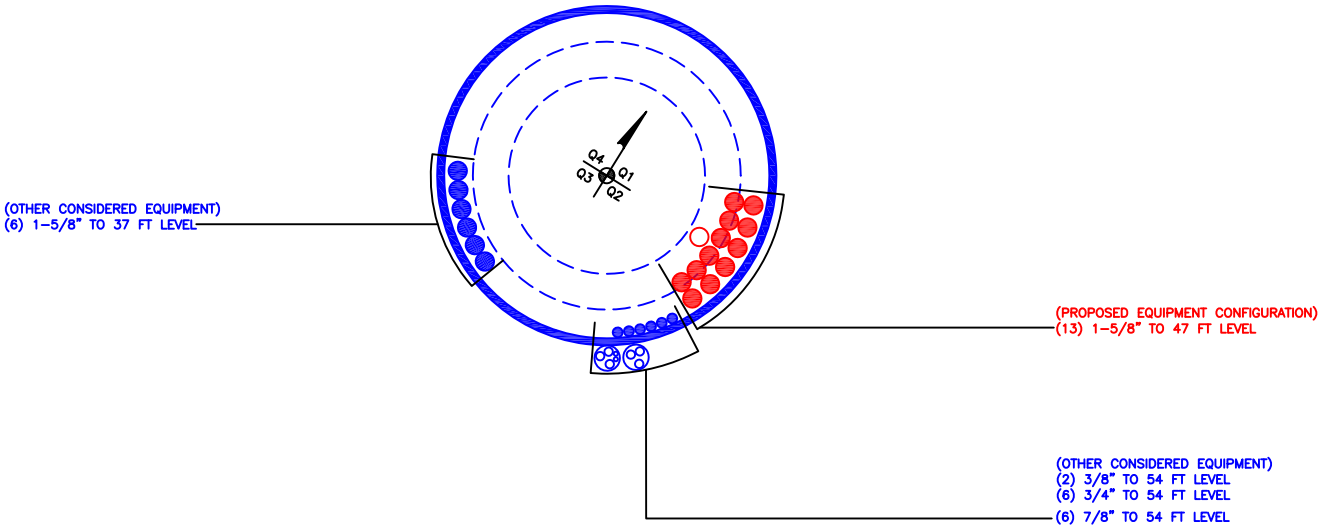
Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	58 - 50.5 (1)	0.004	0.047	0.000	0.019	0.000	0.051 ✔	1.050	4.8.2 ✔
L2	50.5 - 0 (2)	0.014	0.955	0.000	0.044	0.000	0.971 ✔	1.050	4.8.2 ✔

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	58 - 50.5	Pole	TP19.078x17.393x0.188	1	-2.368	690.552	4.9	Pass
L2	50.5 - 0	Pole	TP30.05x18.141x0.188	2	-14.124	1091.643	92.4	Pass
							Summary	
						Pole (L2)	92.4	Pass
						RATING =	**92.4**	**Pass**

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 842862

APPENDIX C

ADDITIONAL CALCULATIONS

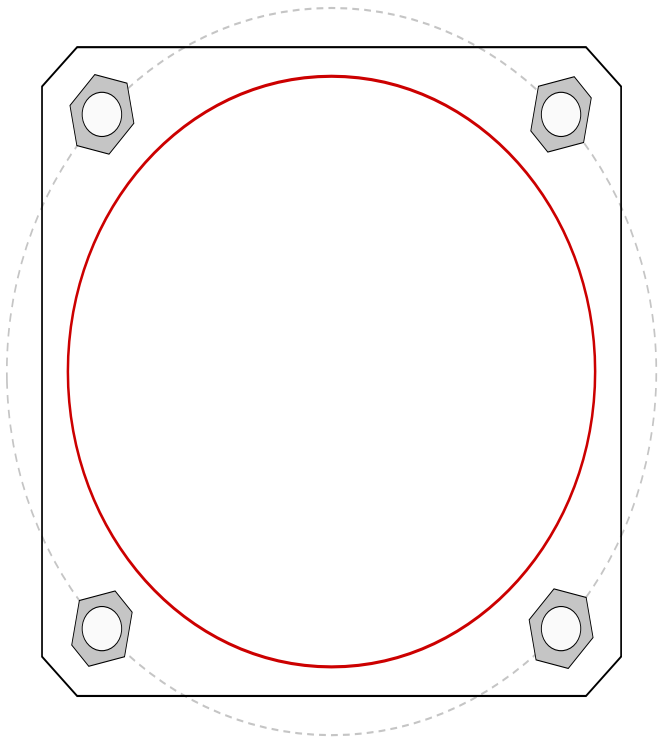
Monopole Base Plate Connection

Site Info	
BU #	842862
Site Name	EAST HAVEN SOUTH,CT
Order #	479841 Rev.2

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	0.5

Applied Loads	
Moment (kip-ft)	650.74
Axial Force (kips)	14.12
Shear Force (kips)	13.87

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

(4) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 37" BC

Base Plate Data

33" OD x 2" Plate (A633 GR.E 60; Fy=60 ksi, Fu=75 ksi)

Stiffener Data

N/A

Pole Data

30.05" x 0.1875" 18-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

Anchor Rod Summary *(units of kips, kip-in)*

Pu_c = 214.26	ϕPn_c = 243.75	**Stress Rating**
Vu = 3.47	ϕVn = 73.13	**83.9%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	44.8	(Flexural)
Allowable Stress (ksi):	54	
Stress Rating:	**79.0%**	**Pass**

Pier and Pad Foundation

BU # :	842862
Site Name:	EAST HAVEN SOU
App. Number:	479841 Rev. 2

TIA-222 Revision:	H
Tower Type:	Monopole

Top & Bot. Pad Rein. Different?:	☐
Block Foundation?:	☐

Superstructure Analysis Reactions

Compression, P_{comp}:	14	kips
Base Shear, Vu_comp:	14	kips
Moment, M_u:	651	ft-kips
Tower Height, **H**:	58	ft
BP Dist. Above Fdn, bp_{dist}:	2.75	in

Pier Properties

Pier Shape:	Square	
Pier Diameter, **dpier**:	5	ft
Ext. Above Grade, **E**:	0.5	ft
Pier Rebar Size, **Sc**:	9	
Pier Rebar Quantity, **mc**:	15	
Pier Tie/Spiral Size, **St**:	4	
Pier Tie/Spiral Quantity, **mt**:	14	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	3	in

Pad Properties

Depth, **D**:	6.5	ft
Pad Width, **W**:	14	ft
Pad Thickness, **T**:	2.5	ft
Pad Rebar Size (Bottom), **Sp**:	8	
Pad Rebar Quantity (Bottom), **mp**:	13	
Pad Clear Cover, cc_{pad}:	3	in

Material Properties

Rebar Grade, **Fy**:	60	ksi
Concrete Compressive Strength, **F'c**:	3	ksi
Dry Concrete Density, δ**c**:	150	pcf

Soil Properties

Total Soil Unit Weight, γ:	120	pcf
Ultimate Net Bearing, Qnet:	10.000	ksf
Cohesion, **Cu**:	0.000	ksf
Friction Angle, φ:	32	degrees
SPT Blow Count, N_{blows}:	21	
Base Friction, μ:	0.4	
Neglected Depth, **N**:	3.50	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, **gw**:	8	ft

<--Toggle between Gross and Net

Foundation Analysis Checks

	Capacity	Demand	Rating*	Check
Lateral (Sliding) (kips)	106.28	14.00	**12.5%**	**Pass**
Bearing Pressure (ksf)	8.09	2.36	**29.2%**	**Pass**
*Overturning (kip*ft)*	1228.63	752.21	**61.2%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	1679.27	714.00	**40.5%**	**Pass**
Pier Compression (kip)	11934.00	34.25	**0.3%**	**Pass**
*Pad Flexure (kip*ft)*	1145.25	253.12	**21.0%**	**Pass**
Pad Shear - 1-way (kips)	351.97	63.89	**17.3%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.164	0.017	**9.8%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	1971.95	428.40	**20.7%**	**Pass**

**Rating per TIA-222-H Section 15.5*

Soil Rating*:	**61.2%**
Structural Rating*:	**40.5%**

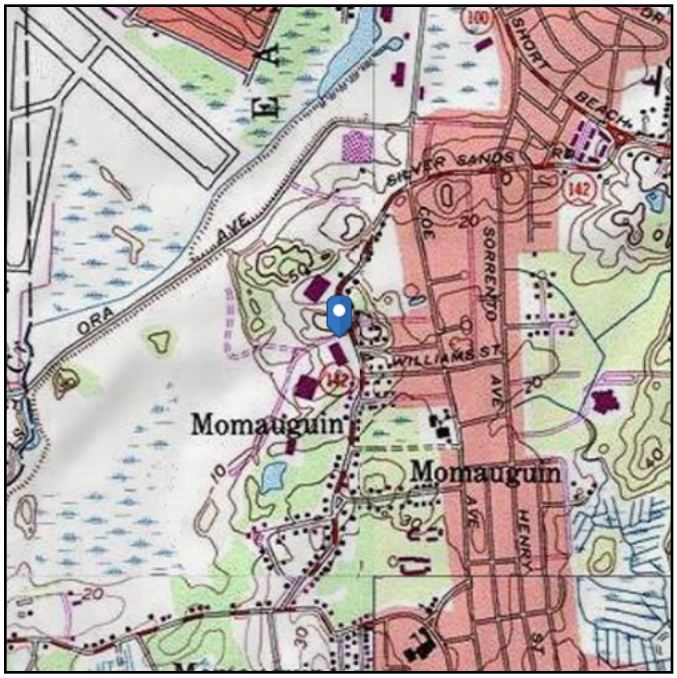
Version 3.2.0

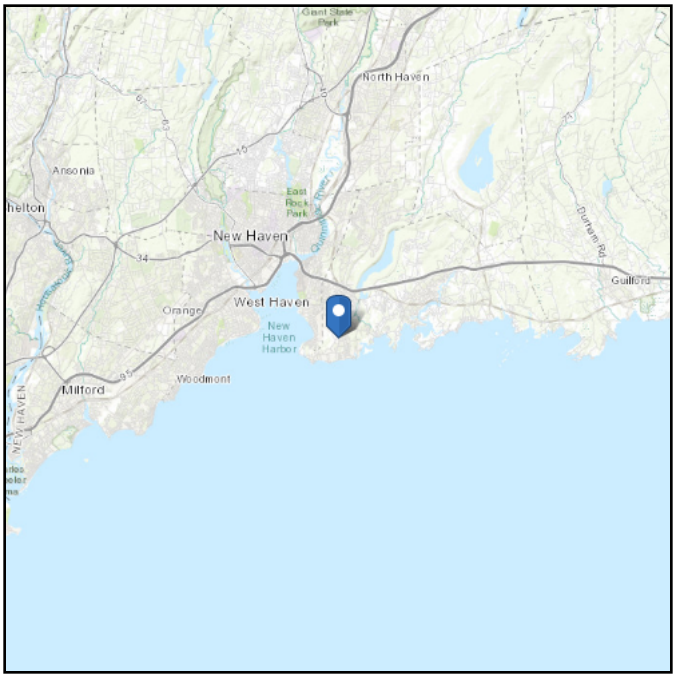
ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-10
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 35.45 ft (NAVD 88)
Latitude: 41.256356
Longitude: -72.875778





Wind

Results:

Wind Speed:	127 Vmph
10-year MRI	78 Vmph
25-year MRI	87 Vmph
50-year MRI	95 Vmph
100-year MRI	103 Vmph
Data Source:	ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, incorporating errata of March 12, 2014
Date Accessed:	Wed May 22 2019

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-10 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is in a hurricane-prone region as defined in ASCE/SEI 7-10 Section 26.2. Glazed openings need not be protected against wind-borne debris.

Mountainous terrain, gorges, ocean promontories, and special wind regions should be examined for unusual wind conditions.

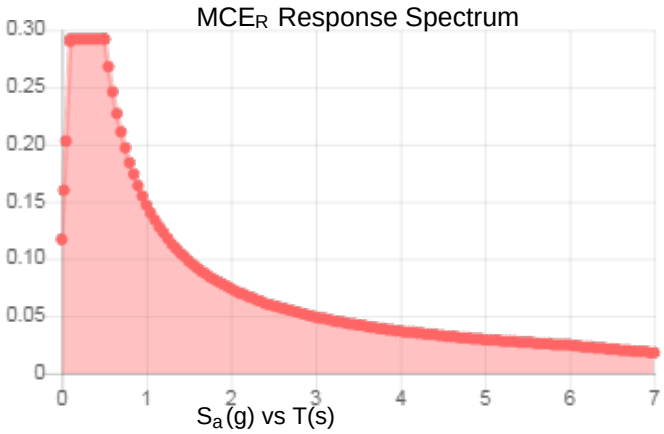
Seismic

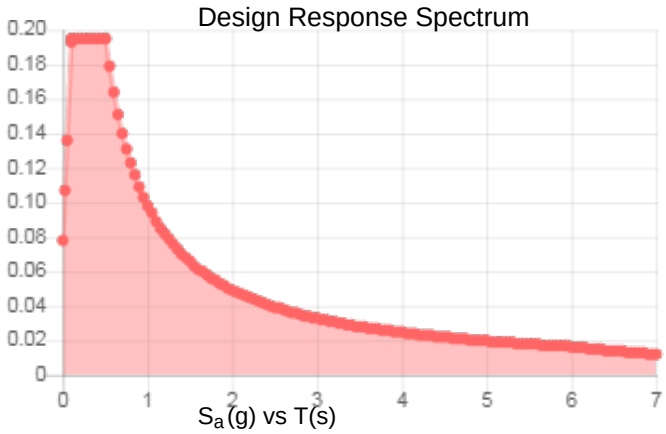
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.182	S_{DS} :	0.195
S_1 :	0.061	S_{D1} :	0.098
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.095
S_{MS} :	0.292	PGA_M :	0.152
S_{M1} :	0.147	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B





Data Accessed: Wed May 22 2019

Date Source: USGS Seismic Design Maps based on ASCE/SEI 7-10, incorporating Supplement 1 and errata of March 31, 2013, and ASCE/SEI 7-10 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-10 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness:	0.75 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Wed May 22 2019

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 50-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Exhibit D

Mount Analysis

Date: **May 13, 2019**

Charles McGuirt
Crown Castle
3530 Toringdon Way Suite 300
Charlotte, NC 28277

MasTec Network Solutions
507 Airport Blvd, Suite 111
Morrisville, NC 27560
(919) 244-5207

Subject:	**Mount Analysis**	
Carrier Designation:	**T-Mobile Equipment Change-Out**	
	Carrier Site Number:	CT11623B
	Carrier Site Name:	CT623/E.Haven ATT_MP
Crown Castle Designation:	**Crown Castle BU Number:**	842862
	Crown Castle Site Name:	EAST HAVEN SOUTH
	Crown Castle JDE Number:	559274
	Crown Castle Order Number:	479841 Revision 2
Engineering Firm Designation:	**MasTec Network Solutions Project Number:**	18527-MNT3
Site Data:	**259 Commerce Street, East Haven, New Haven County, CT 06512** **Latitude: 41° 15' 22.88" Longitude: -72° 52' 32.80"**	
Structure Information	**Tower Height & Type:**	58 ft Monopole
	Mount Elevation:	47 ft
	Mount Width & Type:	12.5 ft Platform Mount W/ Handrail

Dear Charles McGuirt,

MasTec Network Solutions is pleased to submit this **"Mount Analysis Report"** to determine the structural integrity of T-Mobile's antenna mounting system with the proposed appurtenance and equipment addition on the above mentioned supporting tower structure. Analysis of the existing supporting tower structure is to be completed by others and therefore is not part of this analysis. Analysis of the antenna mounting system as a tie-off point for fall protection or rigging is not part of this document.

The purpose of the analysis is to determine acceptability of the mount stress level. Based on our analysis we have determined the mount stress level to be:

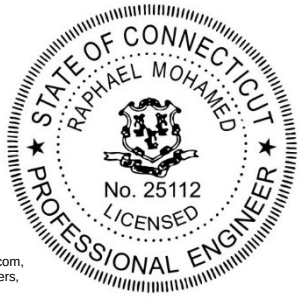
Platform Mount **Sufficient**

This analysis utilizes an ultimate 3-second gust wind speed of 130 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - AnalysisCriteria.

Mount analysis prepared by: Noah Noxon, EI

Respectfully Submitted by:

Raphael Mohamed, PE, Peng
Senior Director Of Engineering
CT PE License No. 25112



Raphael Mohamed

Digitally signed by Raphael Mohamed
DN: E=Raphael.Mohamed@mastec.com, CN=Raphael Mohamed, OU=Users, OU=MasTec Network Solutions, OU=Service Lines, DC=mastec, DC=local
Date: 2019.05.14 10:16:04-04'00'

TABLE OF CONTENTS

1) INTRODUCTION

This mount is an existing 12.5 ft Platform Mount mapped by P-SEC in April of 2019. It is installed at the 47 ft elevation on 3 sectors of the 58 ft Monopole tower.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category	II
Wind Speed:	130 mph
Exposure Category:	C
Topographic Factor:	1
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Seismic Ss:	0.182
Seismic S1:	0.061
Live Loading Wind Speed:	30 mph
Live Loading at Mid/End-Points:	250 lb
Man Live Loading at Mount Pipes	500 lb

Table 1 - Proposed Loading Configuration

Mount Centerline (ft)	Antenna Centerline (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount / Modification Details
47.0	47.0	3	RFS	APX16DWV-16DWVS-C	(1) 12.5 Platform Mount W/ Handrail
		3	RFS	APXVAARR24_43-U-NA20	
		3	Ericsson	KRY 112 144/1	
		3	Ericsson	KRY 112 489/2	
		3	Ericsson	RADIO 4449 B12/B71	

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Reference	Source
4-MOUNT MAPPING	P-SEC	Project #19651-21	On File
4-MOUNT ANALYSIS REPORT	MASTEC	8365970	CCISites
4-ORDER INFORMATION	CROWN CASTLE	ORDER NO. 479841, Rev. 0	CCISites

3.1) Analysis Method

RISA-3D (Version No. 17.0.2), a commercially available analysis software package, was used to create a three-dimensional model of the antenna mounting system and calculate member stresses for various loading cases.

This analysis was performed in accordance with Crown Castle's ENG-SOW-10208 *Tower Mount Analysis* (Revision B).

3.2) Assumptions

1) The antenna mounting system was properly fabricated, installed and maintained in good condition in accordance with its original design and manufacturer's specifications.
2) The configuration of antennas, mounts, and other appurtenances are as specified in Tables 1 and the referenced drawings.
3) 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.
4) Steel grades have been assumed as follows, unless noted otherwise:

Channel, Solid Round, Angle, Plate	ASTM A36 (GR 36)
HSS (Rectangular)	ASTM 500 (GR B-46)
Pipe	ASTM A53 (GR B-35)
Connection Bolts	ASTM A325

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

4) ANALYSIS RESULTS

Table 3 - Mount Component Stresses vs. Capacity (Platform Mount)

Notes	Component	Beam No.	Centerline (ft)	% Capacity	Pass / Fail
1	Mount Pipe	--	47	32.4	Pass
1	Mount Pipe Large	--	47	44.7	Pass
1	Brace	--	47	26.2	Pass
1	Standoff	--	47	46.4	Pass
1	Horizontal	--	47	19.5	Pass
1	Handrail	--	47	21.3	Pass
1	Plate	--	47	21.3	Pass
1	Bolt Connection	--	47	26.6	Pass
1	Plate Connection	--	47	41.8	Pass

Structure Rating (max from all components) =	**46.4%**

Notes:
1) See additional documentation in "Appendix C - Software Analysis Output" for calculations supporting the % capacity consumed.

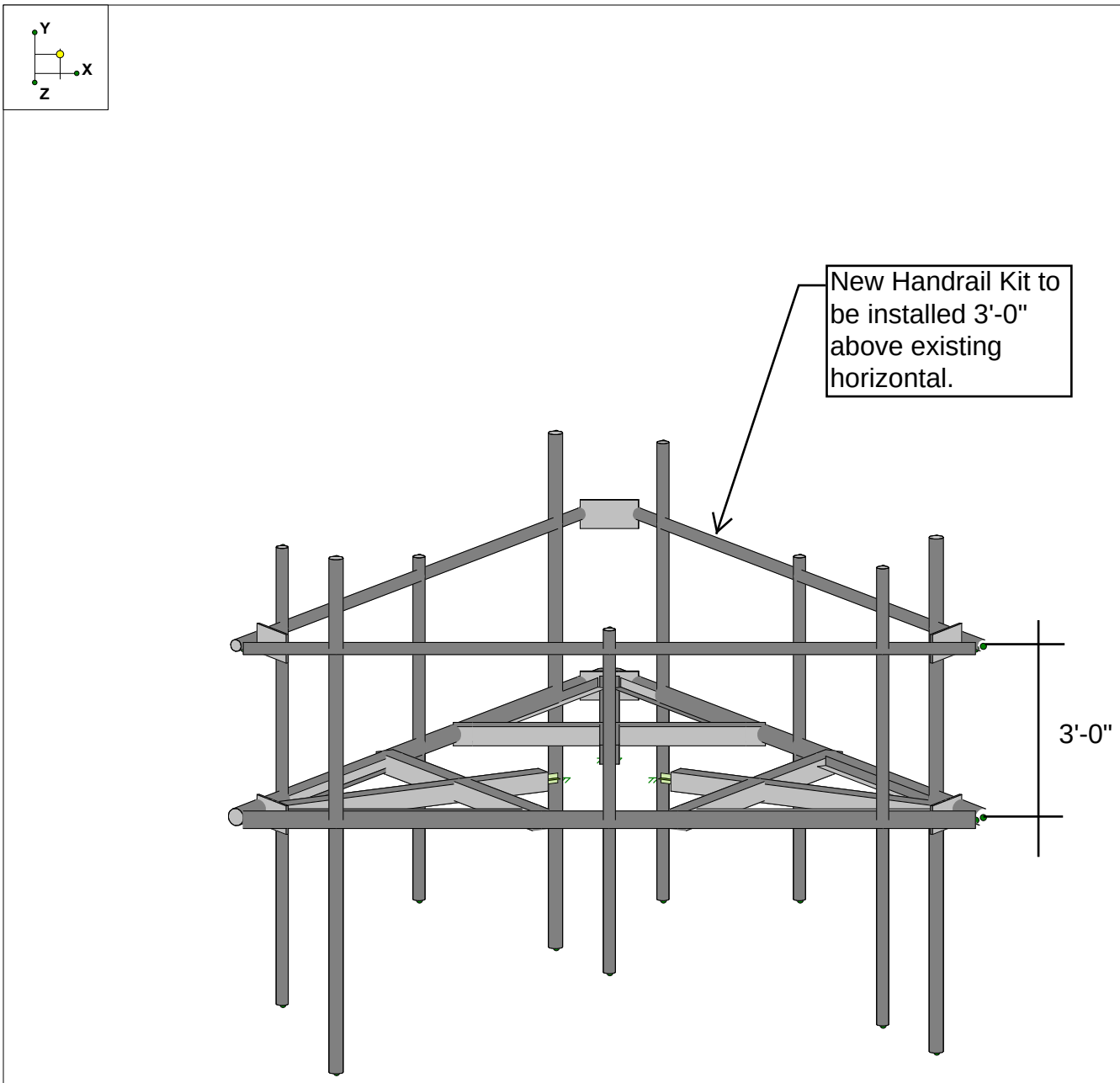
4.1) Recommendations

The mount has sufficient capacity to carry the proposed configuration. No modifications are required at this time.

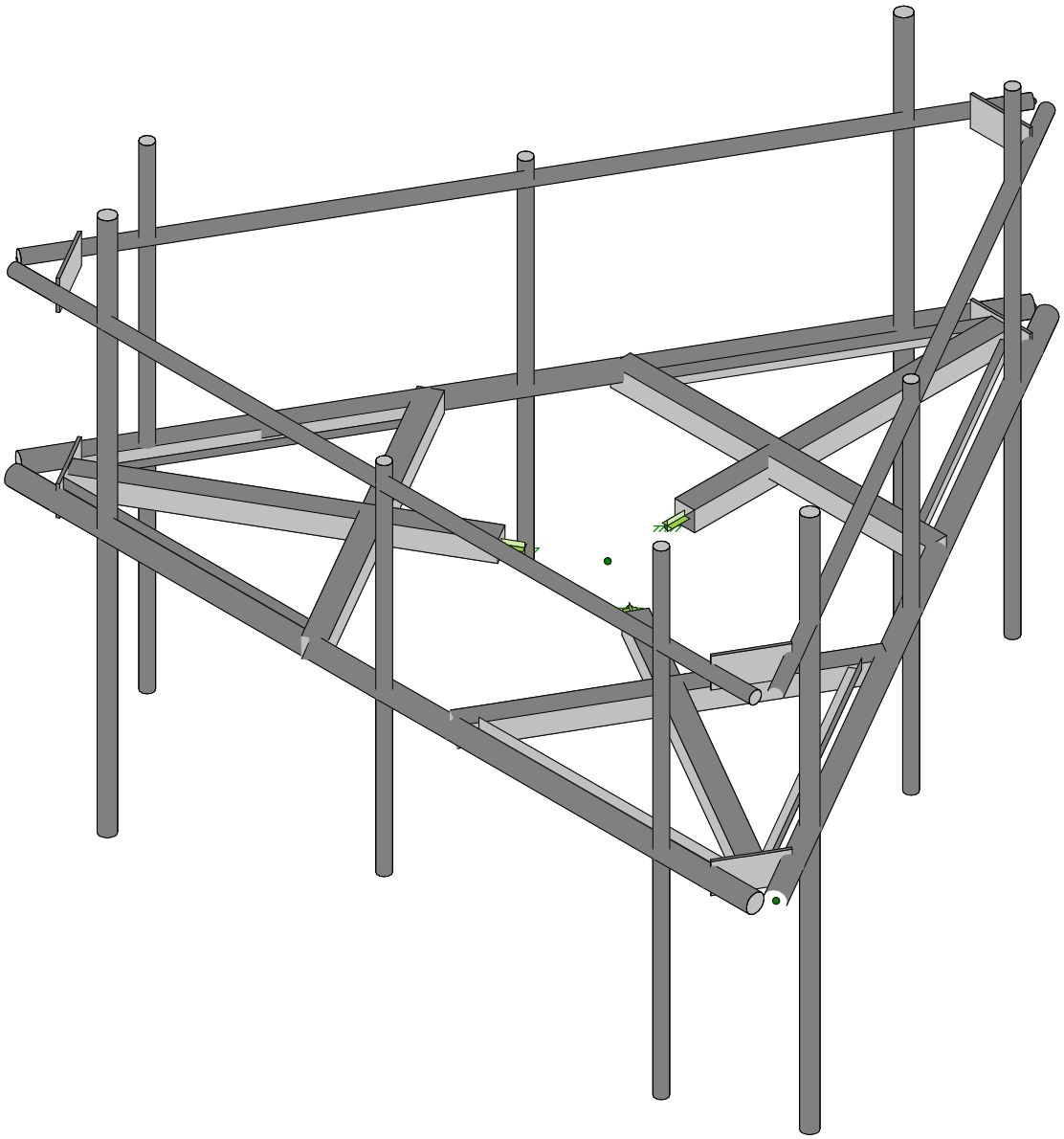
In order for the results to be valid, (1) Handrail Kit must be installed as specified in Appendix A.

APPENDIX A

WIRE FRAME AND RENDERED MODELS



Mastec	842862-East Haven South	Handrail Installation
NDN		May 13, 2019 at 5:19 PM
18527-MNT3		18527.R3D



Envelope Only Solution

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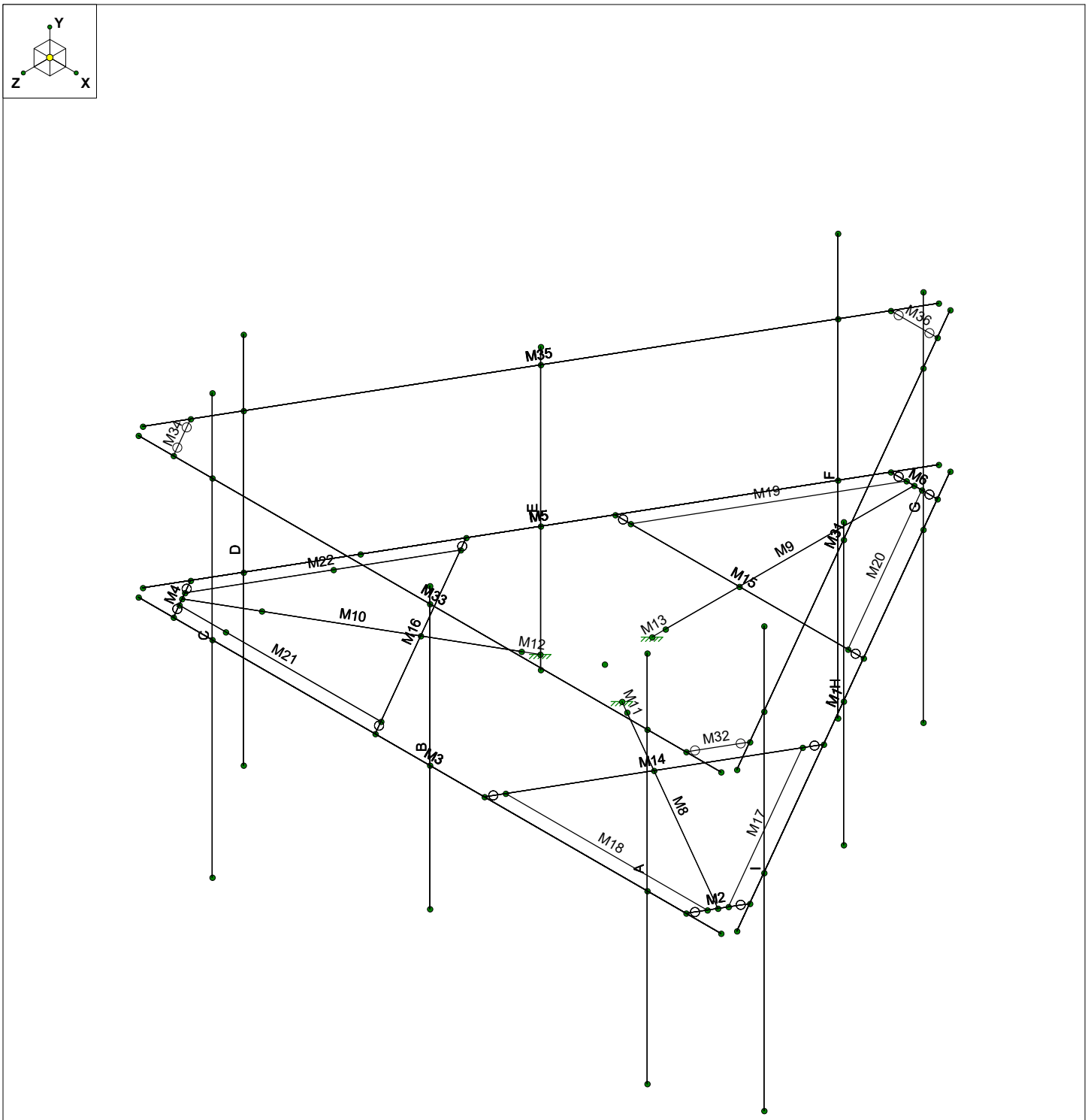

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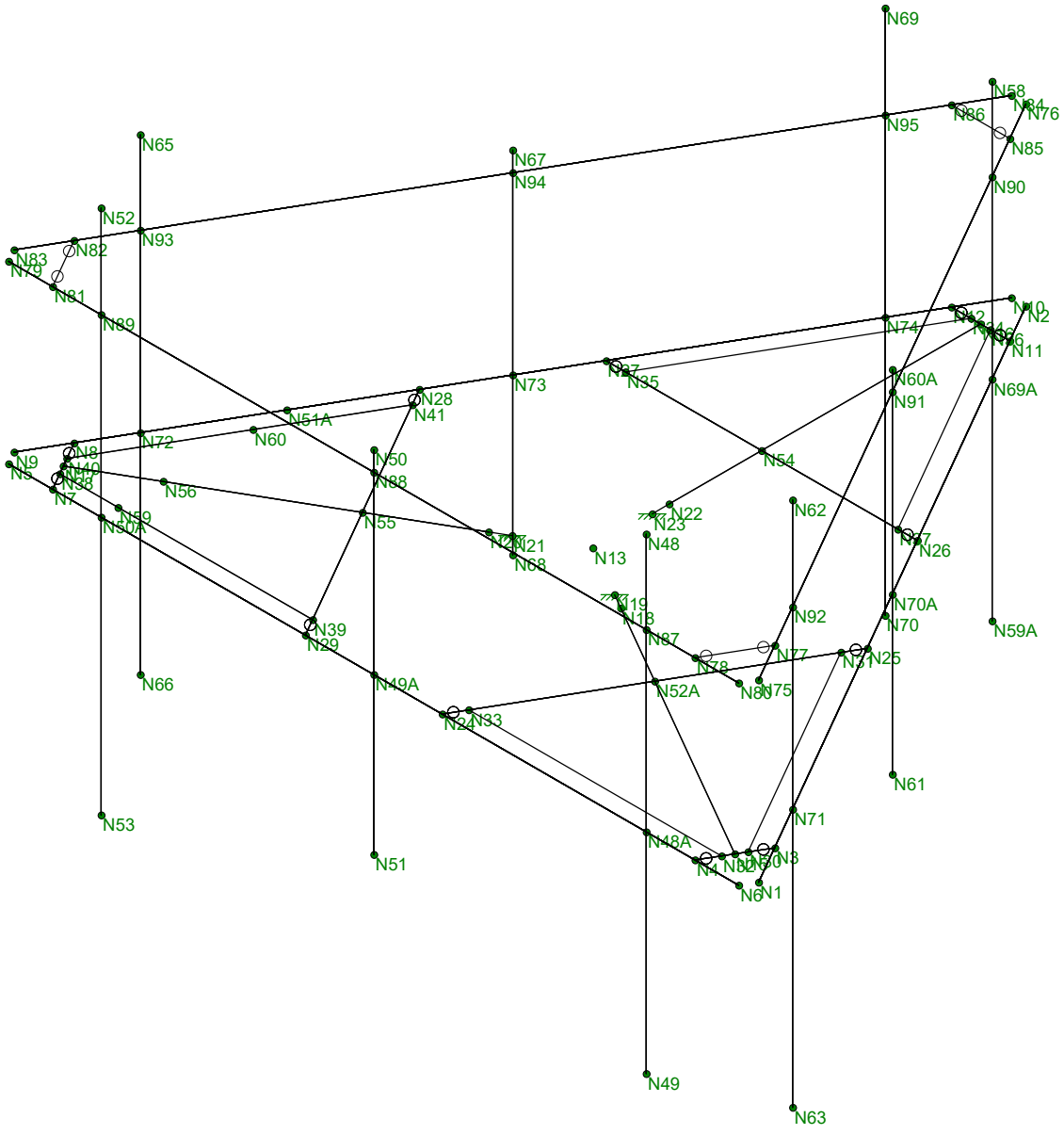

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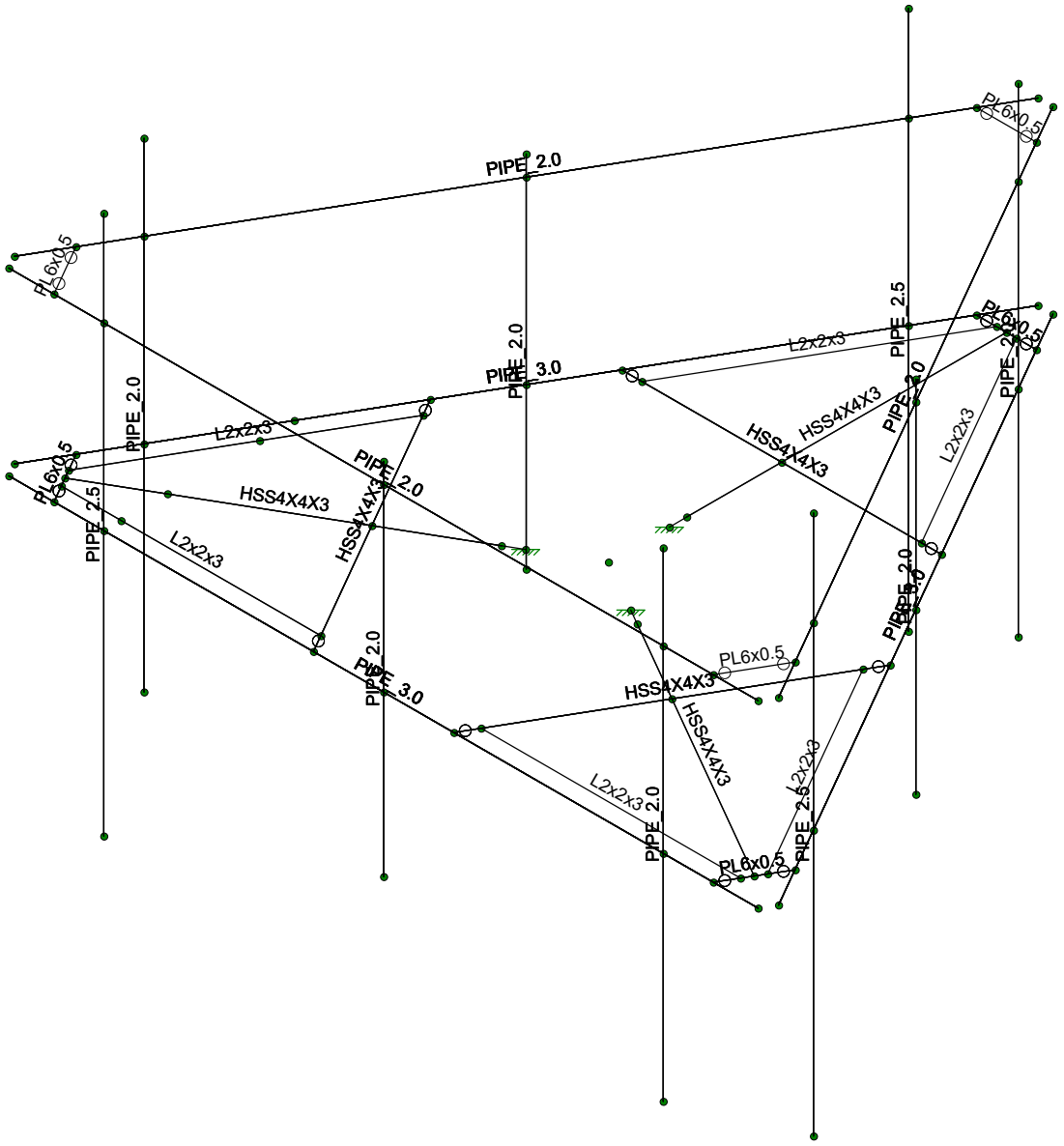

Envelope Only Solution

Mastec	842862-East Haven South	Shapes
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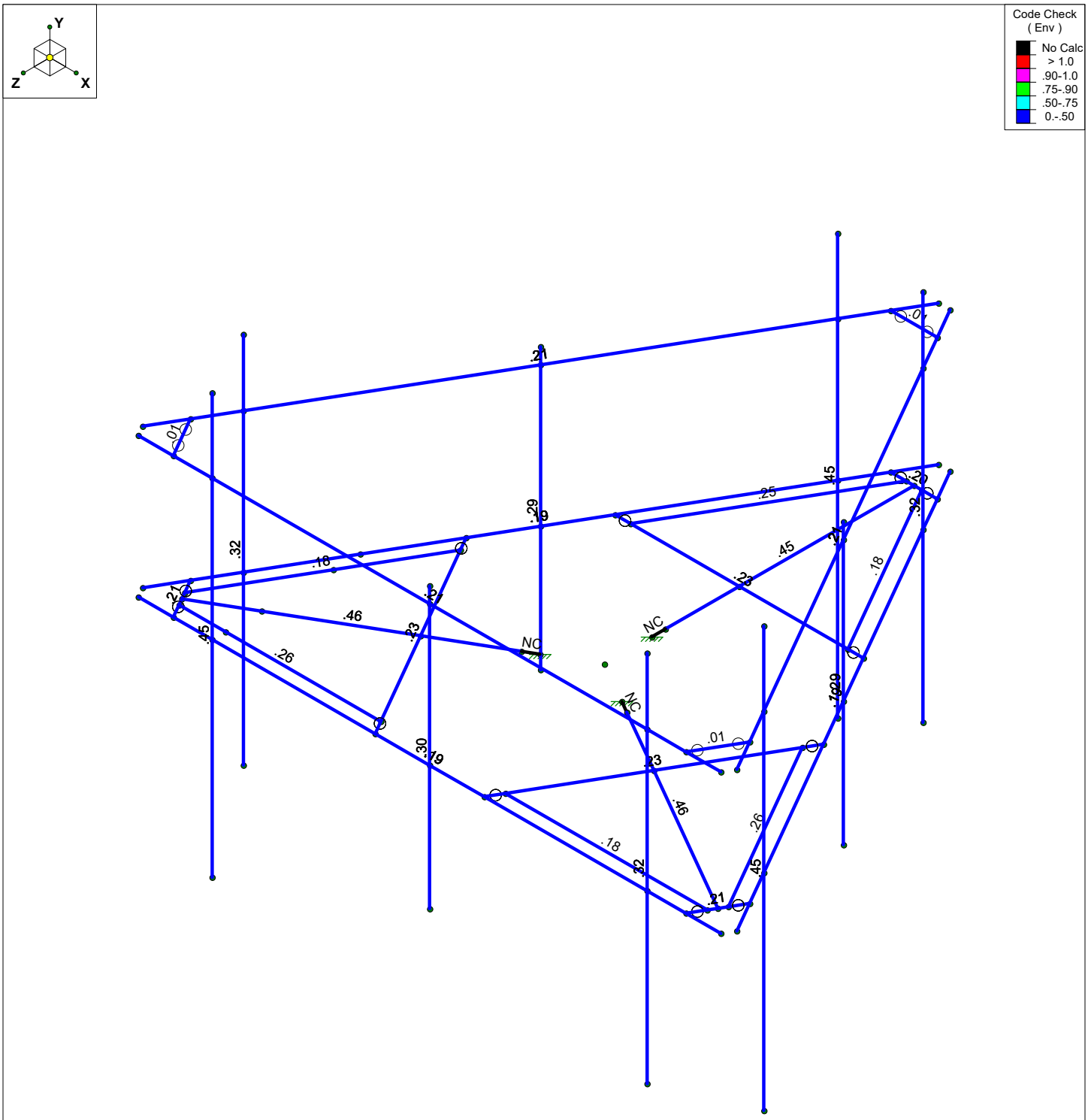

Member Code Checks Displayed (Enveloped)
Envelope Only Solution

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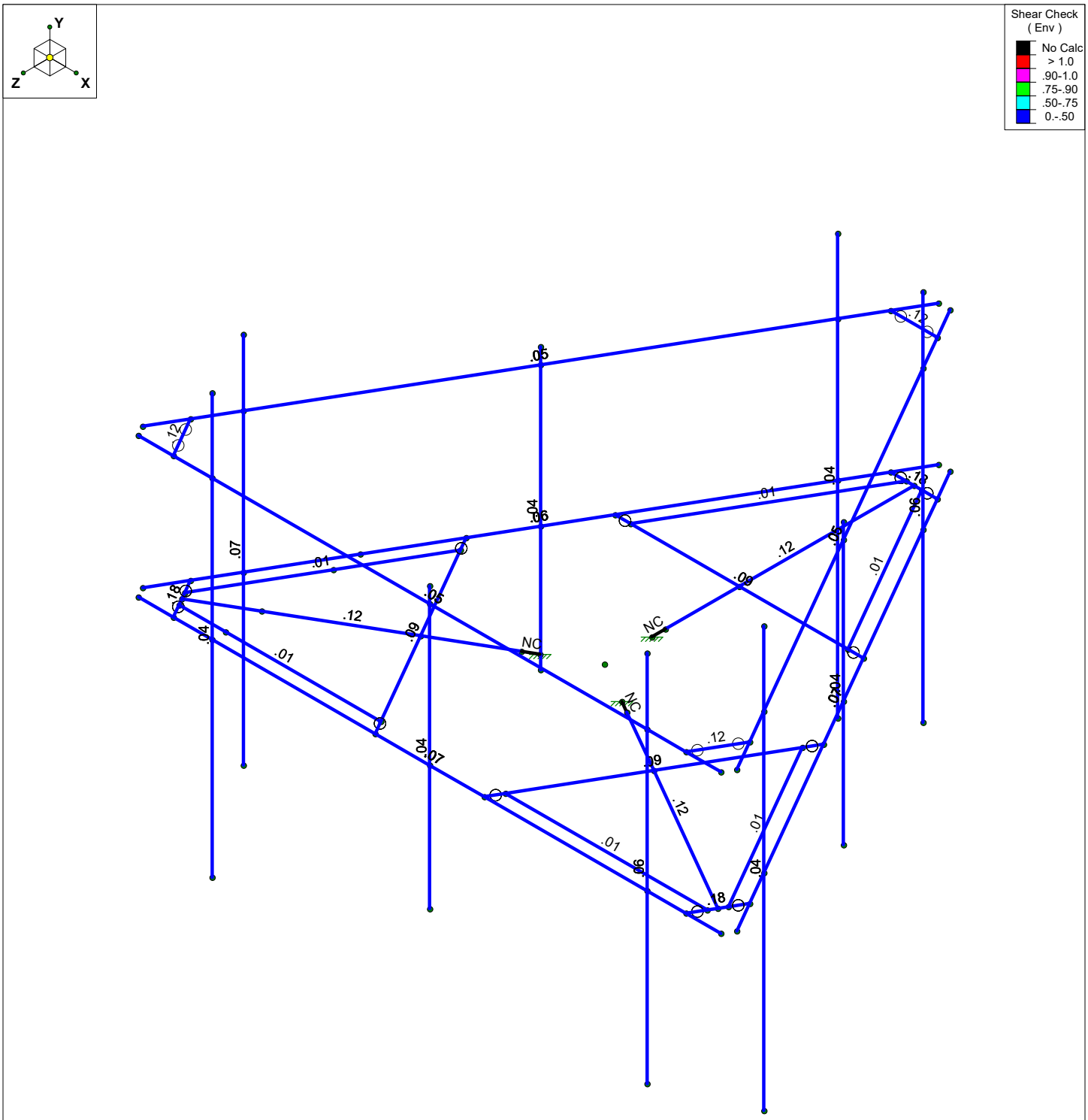

Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

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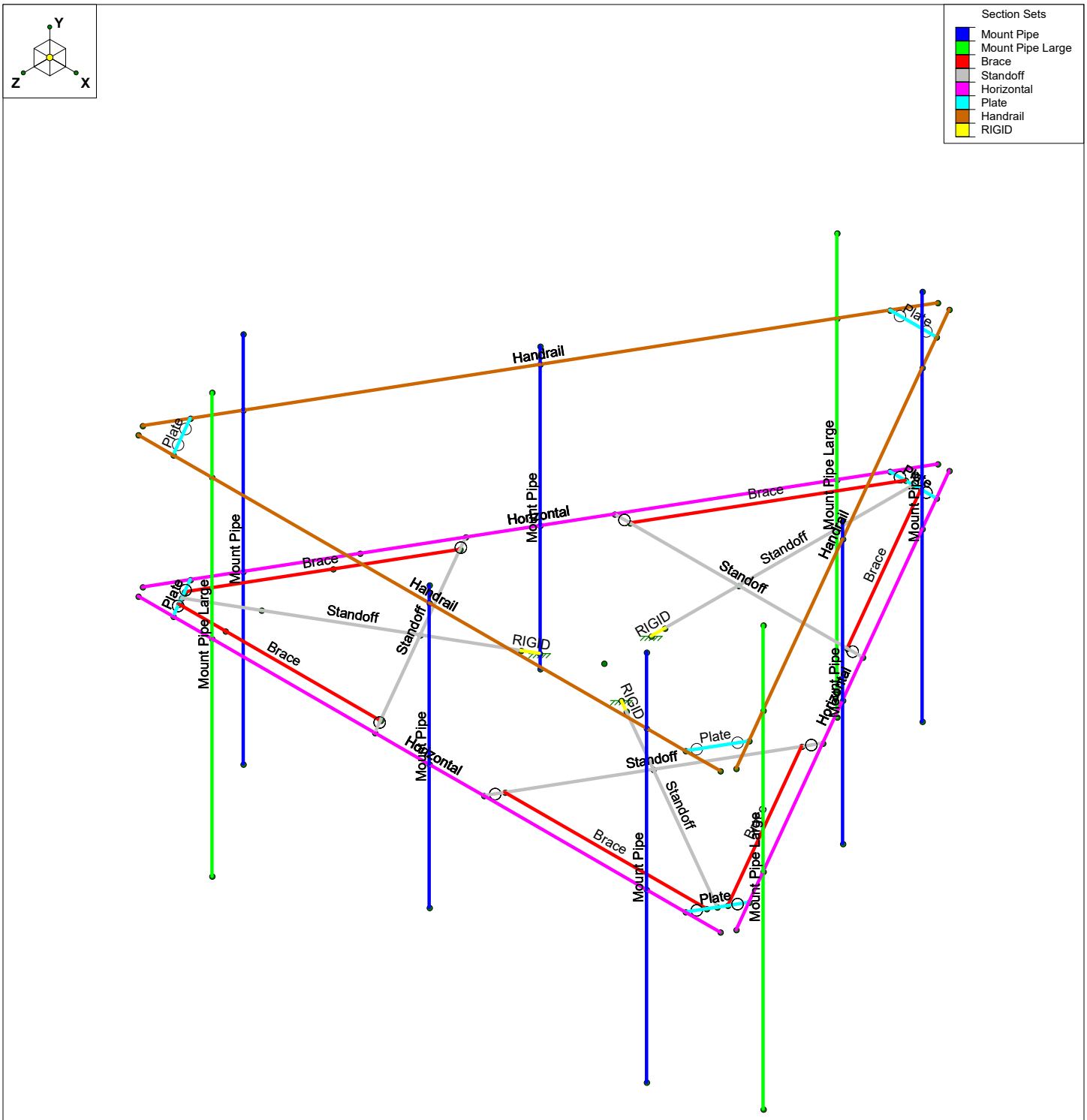

Envelope Only Solution

Mastec	842862-East Haven South	Section Set
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18527-MNT3		18527.R3D

APPENDIX B

SOFTWARE INPUT CALCULATIONS

MasTec Network Solutions

Mount Analysis Tool

Site Name	Haven South		
Site ID	842862		
Job Number	18527-MNT3	Mount Existing?	Crown
Code	H	Risk Category	II

Legend
Input
Calculated
Notes

Maximum Capacity		
Controlling Capacity	46.4%	PASS

Analysis Parameters		
Mount Height	47	ft
Exposure Category	C	(B,C, or D)
Ultimate Wind Speed	130	mph
Ice Wind Speed	50	mph
Design Ice Thickness, t_i	1.5	in
Maintenance Wind Speed	30	mph
Run Earthquake Analysis?	Yes	
Ground Elevation	35.45	ft, Google Earth
S_1	0.061	USGS
S_{DS}	0.195	2.7.5
Vertical Seismic Loads, E_v	0.039	2.7.6
Seismic Response Coefficient, C_s	0.098	2.7.7.1.1
C_s Min	0.030	2.7.7.1.1

Wind Parameters					
Gust Effect Factor, G_h	1.000	2.6.9	K_s	1.000	2.6.7
K_Z	1.080	2.6.5.2	K_e	0.999	2.6.8
K_{Zt}	1.000	2.6.6	K_a	0.900	16.6
K_d	0.950	Table 2-2	*Note for Rooftop Structures greater than 50', unobstructed for 90 deg and protruding 50' above surrounding buildings Ks must be calculated.		
q_z	40.009	psf, 2.6.11.6			
C/D	135.076	Table 2-9			
t_{iz}	1.554	in, 2.6.10			
q_{iz}	5.919	psf, 2.6.9.6	I, Ice	1.000	Table 2-3
C/D $_{iz}$	51.952	Table 2-9	I, EQ	1.000	Table 2-3
$q_{Maintenance}$	2.127	psf, 2.6.9.6	$K_{es\ (Wind)}$	1.000	Table S-1
C/D $_{Maintenance}$	31.171	Table 2-9	$K_{es\ (ice)}$	1.000	Table S-1
Ice Dead, Grating	0.014503954	ksf			

Pipe Mounts (Orientation Drawn Top-Down)			
Risa 3D Label	Elevation (ft)	Length (in)	Diameter (in)
A	47	96	2.375
B	47	72	2.375
C	47	108	2.875
D	47	96	2.375
E	47	72	2.375
F	47	108	2.875
G	47	96	2.375
H	47	72	2.375
I	47	108	2.875

Appurtenances					
Model	Type	Height (in)	Width (in)	Depth (in)	Weight (lbs)
RFS APX16DWV-16DWVS-C	Antenna	55.9	13.3	3.15	40.7
RFS APXVAARR24_43-U-NA20	Antenna	95.9	24	8.7	128
Ericsson KRY 112 144/1	RRU, TMA, Etc.	7	6	3	11
Ericsson RADIO 4449 B12/B71	RRU, TMA, Etc.	14.95	13.19	9.25	75
Ericsson KRY 112 489/2	RRU, TMA, Etc.	11	6.1	3.94	15.4

Pipe Mount	Antenna	Elevation (ft)	Quantity	Orientation (deg)	Front Exposed (%)	Side Exposed (%)	Type	Height (in)	Width (in)	Depth (in)	Weight (lbs)	Front CaAa (ft^2)	Side CaAa (ft^2)	Front F_A (kips)	Side F_A (kips)	Top %	Bottom %
A																	
A																	
A																	
A																	
A																	
A																	
B	RFS APX16DWV-16DWVS-C	47	1	0	100.0%	100.0%	Antenna	55.900	13.300	3.150	40.700	6.586	2.150	0.264	0.086	11.2%	88.8%
B	Ericsson KRY 112 144/1	47	1	0	0.0%	100.0%	RRU, TMA, Etc.	7.000	6.000	3.000	11.000	0.350	0.175	0.000	0.007	45.1%	54.9%
B																	
B																	
B																	
B																	
C	RFS APXVAARR24_43-U-NA20	47	1	0	100.0%	100.0%	Antenna	95.900	24.000	8.700	128.000	20.243	8.889	0.810	0.356	5.6%	94.4%
C	Ericsson KRY 112 489/2	49	1	0	0.0%	100.0%	RRU, TMA, Etc.	11.000	6.100	3.940	15.400	0.559	0.365	0.000	0.015	22.7%	32.9%
C	Ericsson RADIO 4449 B12/B71	47	1	0	0.0%	100.0%	RRU, TMA, Etc.	14.950	13.190	9.250	75.000	1.643	1.152	0.000	0.046	43.1%	56.9%
C																	
C																	
C																	
D																	
D																	
D																	
D																	
D																	
D																	
E	RFS APX16DWV-16DWVS-C	47	1	120	100.0%	100.0%	Antenna	55.900	13.300	3.150	40.700	6.586	2.150	0.130	0.219	11.2%	88.8%
E	Ericsson KRY 112 144/1	47	1	120	0.0%	100.0%	RRU, TMA, Etc.	7.000	6.000	3.000	11.000	0.350	0.175	0.000	0.012	45.1%	54.9%
E																	
E																	
E																	
E																	
F	RFS APXVAARR24_43-U-NA20	47	1	120	100.0%	100.0%	Antenna	95.900	24.000	8.700	128.000	20.243	8.889	0.469	0.696	5.6%	94.4%
F	Ericsson KRY 112 489/2	49	1	120	0.0%	100.0%	RRU, TMA, Etc.	11.000	6.100	3.940	15.400	0.559	0.365	0.000	0.020	22.7%	32.9%
F	Ericsson RADIO 4449 B12/B71	47	1	120	0.0%	100.0%	RRU, TMA, Etc.	14.950	13.190	9.250	75.000	1.643	1.152	0.000	0.061	43.1%	56.9%
F																	
F																	
F																	
G																	
G																	
G																	
G																	
G																	
G																	
H	RFS APX16DWV-16DWVS-C	47	1	240	100.0%	100.0%	Antenna	55.900	13.300	3.150	40.700	6.586	2.150	0.130	0.219	11.2%	88.8%
H	Ericsson KRY 112 144/1	47	1	240	0.0%	100.0%	RRU, TMA, Etc.	7.000	6.000	3.000	11.000	0.350	0.175	0.000	0.012	45.1%	54.9%
H																	
H																	
H																	
H																	
I	RFS APXVAARR24_43-U-NA20	47	1	240	100.0%	100.0%	Antenna	95.900	24.000	8.700	128.000	20.243	8.889	0.469	0.696	5.6%	94.4%
I	Ericsson KRY 112 489/2	49	1	240	0.0%	100.0%	RRU, TMA, Etc.	11.000	6.100	3.940	15.400	0.559	0.365	0.000	0.020	22.7%	32.9%
I	Ericsson RADIO 4449 B12/B71	47	1	240	0.0%	100.0%	RRU, TMA, Etc.	14.950	13.190	9.250	75.000	1.643	1.152	0.000	0.061	43.1%	56.9%
I																	
I																	
I																	

Member	Section Set	Member Length (ft)	Flat/Round	Wind Projection (in)	D_c (in)	A_{lz} (in^2)	C_F	Front Wind (klf)	Side Wind (klf)	Front Ice Wind (klf)	Side Ice Wind (klf)	Ice Dead (klf)	Front Maint Wind (klf)	Side Maint Wind (klf)
M1	Horizontal	12.49999953	Round	3.500	3.500	24.674	1.200	0.004	0.011	0.001	0.002	0.010	0.000	0.001
M2	Plate	1.000000516	Flat	8.484	6.021	36.980	2.000	0.014	0.042	0.003	0.007	0.014	0.001	0.002
M3	Horizontal	12.5	Round	3.500	3.500	24.674	1.200	0.014	0.000	0.004	0.002	0.010	0.001	0.000
M4	Plate	1.000000516	Flat	8.484	6.021	36.980	2.000	0.014	0.042	0.003	0.007	0.014	0.001	0.002
M5	Horizontal	12.49999953	Round	3.500	3.500	24.674	1.200	0.004	0.011	0.001	0.002	0.010	0.000	0.001
M6	Plate	1	Flat	8.484	6.021	36.980	2.000	0.057	0.000	0.012	0.004	0.014	0.003	0.000
M8	Standoff	5.333333367	Flat	4.000	5.657	35.204	2.000	0.020	0.007	0.004	0.003	0.014	0.001	0.000
M9	Standoff	5.333333	Flat	4.000	5.657	35.204	2.000	0.000	0.027	0.000	0.004	0.014	0.000	0.001
M10	Standoff	5.333333367	Flat	4.000	5.657	35.204	2.000	0.020	0.007	0.004	0.003	0.014	0.001	0.000
M11	RIGID	0.291666723	Flat	0.000	0.000	7.587	2.000	0.000	0.000	0.003	0.003	0.003	0.000	0.000
M12	RIGID	0.291666723	Flat	0.000	0.000	7.587	2.000	0.000	0.000	0.003	0.003	0.003	0.000	0.000
M13	RIGID	0.291667	Flat	0.000	0.000	7.587	2.000	0.000	0.000	0.000	0.000	0.003	0.000	0.000
M14	Standoff	5.330127781	Flat	4.000	5.657	35.204	2.000	0.007	0.020	0.001	0.003	0.014	0.000	0.001
M15	Standoff	5.330127	Flat	4.000	5.657	35.204	2.000	0.027	0.000	0.006	0.002	0.014	0.001	0.000
M16	Standoff	5.330127281	Flat	4.000	5.657	35.204	2.000	0.007	0.020	0.001	0.003	0.014	0.000	0.001
M17	Brace	4.330127264	Flat	2.000	2.828	21.395	2.000	0.003	0.010	0.001	0.002	0.008	0.000	0.001
M18	Brace	4.330127	Flat	2.000	2.828	21.395	2.000	0.013	0.000	0.004	0.002	0.008	0.001	0.000
M19	Brace	4.330127264	Flat	2.000	2.828	21.395	2.000	0.003	0.010	0.001	0.002	0.008	0.000	0.001
M20	Brace	4.330126764	Flat	2.000	2.828	21.395	2.000	0.003	0.010	0.001	0.002	0.008	0.000	0.001
M21	Brace	4.330127	Flat	2.000	2.828	21.395	2.000	0.013	0.000	0.004	0.002	0.008	0.001	0.000
M22	Brace	4.330126764	Flat	2.000	2.828	21.395	2.000	0.003	0.010	0.001	0.002	0.008	0.000	0.001
A	Mount Pipe	8	Round	2.380	2.380	19.206	1.200	0.010	0.010	0.003	0.003	0.007	0.001	0.001
B	Mount Pipe	6	Round	2.380	2.380	19.206	1.200	0.010	0.010	0.004	0.004	0.007	0.001	0.001
C	Mount Pipe Large	9	Round	2.880	2.880	21.647	1.200	0.012	0.012	0.004	0.004	0.008	0.001	0.001
G	Mount Pipe	8	Round	2.380	2.380	19.206	1.200	0.010	0.010	0.003	0.003	0.007	0.001	0.001
H	Mount Pipe	6	Round	2.380	2.380	19.206	1.200	0.010	0.010	0.004	0.004	0.007	0.001	0.001
I	Mount Pipe Large	9	Round	2.880	2.880	21.647	1.200	0.012	0.012	0.004	0.004	0.008	0.001	0.001
D	Mount Pipe	8	Round	2.380	2.380	19.206	1.200	0.010	0.010	0.003	0.003	0.007	0.001	0.001
E	Mount Pipe	6	Round	2.380	2.380	19.206	1.200	0.010	0.010	0.004	0.004	0.007	0.001	0.001
F	Mount Pipe Large	9	Round	2.880	2.880	21.647	1.200	0.012	0.012	0.004	0.004	0.008	0.001	0.001
M31	Handrail	12.49999953	Round	2.380	2.380	19.206	1.200	0.002	0.007	0.001	0.002	0.007	0.000	0.000
M32	Plate	1.000000516	Flat	8.484	6.021	36.980	2.000	0.014	0.042	0.003	0.007	0.014	0.001	0.002
M33	Handrail	12.5	Round	2.380	2.380	19.206	1.200	0.010	0.000	0.003	0.002	0.007	0.001	0.000
M34	Plate	1.000000516	Flat	8.484	6.021	36.980	2.000	0.014	0.042	0.003	0.007	0.014	0.001	0.002
M35	Handrail	12.49999953	Round	2.380	2.380	19.206	1.200	0.002	0.007	0.001	0.002	0.007	0.000	0.000
M36	Plate	1	Flat	8.484	6.021	36.980	2.000	0.057	0.000	0.012	0.004	0.014	0.003	0.000

APPENDIX C

SOFTWARE ANALYSIS OUTPUT

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1E...	Density[k/ft...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	.3	.65	.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65	.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	.49	50	1.4	65	1.3

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Ru...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Mount Pipe	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
2	Mount Pipe Large	PIPE_2.5	Beam	Pipe	A53 Gr.B	Typical	1.61	1.45	1.45	2.89
3	Brace	L2x2x3	Beam	Single Angle	A36 Gr.36	Typical	.722	.271	.271	.009
4	Standoff	HSS4X4X3	Beam	SquareTube	A36 Gr.36	Typical	2.58	6.21	6.21	10
5	Horizontal	PIPE_3.0	Beam	Pipe	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
6	Plate	PL6x0.5	Beam	RECT	A36 Gr.36	Typical	3	.063	9	.237
7	Handrail	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
1	N1	7.4032	0	14.636837	0	
2	N2	1.1532	0	3.81152	0	
3	N3	7.0282	0	13.987318	0	
4	N4	6.5282	0	14.853344	0	
5	N5	-5.2218	0	14.853344	0	
6	N6	7.2782	0	14.853344	0	
7	N7	-4.4718	0	14.853344	0	
8	N8	-4.9718	0	13.987318	0	
9	N9	-5.3468	0	14.636837	0	
10	N10	0.9032	0	3.81152	0	
11	N11	1.5282	0	4.461039	0	
12	N12	0.5282	0	4.461039	0	
13	N13	1.0282	0	11.100567	0	
14	N15	6.7782	0	14.420331	0	
15	N16	1.0282	0	4.461039	0	
16	N17	-4.7218	0	14.420331	0	
17	N18	2.159398	0	11.753664	0	
18	N19	1.906807	0	11.607831	0	
19	N20	-0.102998	0	11.753664	0	
20	N21	0.149593	0	11.607831	0	
21	N22	1.0282	0	9.794372	0	
22	N23	1.0282	0	10.086039	0	
23	N24	2.198073	0	14.853344	0	
24	N25	4.863137	0	10.237318	0	
25	N26	3.693264	0	8.211039	0	
26	N27	-1.636863	0	8.211039	0	
27	N28	-2.806736	0	10.237318	0	
28	N29	-0.141673	0	14.853344	0	
29	N30	6.861534	0	14.275993	0	
30	N31	4.69647	0	10.525993	0	
31	N32	6.694867	0	14.564668	0	
32	N33	2.36474	0	14.564668	0	
33	N34	0.861534	0	4.461039	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
34	N35	-1.30353	0	8.211039	0	
35	N36	1.194867	0	4.461039	0	
36	N37	3.35993	0	8.211039	0	
37	N38	-4.638466	0	14.564668	0	
38	N39	-0.308339	0	14.564668	0	
39	N40	-4.805133	0	14.275993	0	
40	N41	-2.64007	0	10.525993	0	
41	N48	5.694867	4.416667	14.853344	0	
42	N49	5.694867	-3.583333	14.853344	0	
43	N50	1.0282	3.333333	14.853344	0	
44	N51	1.0282	-2.666667	14.853344	0	
45	N52	-3.638466	4.583333	14.853344	0	
46	N53	-3.638466	-4.416667	14.853344	0	
47	N48A	5.694867	0	14.853344	0	
48	N49A	1.0282	0	14.853344	0	
49	N50A	-3.638466	0	14.853344	0	
50	N51A	-3.638466	0	11.677917	0	
51	N52A	3.530605	0	12.545331	0	
52	N54	1.0282	0	8.211039	0	
53	N55	-1.474205	0	12.545331	0	
54	N56	-3.638466	0	13.794868	0	
55	N59	-3.638466	0	14.564668	0	
56	N60	-3.638466	0	12.255267	0	
57	N58	1.944867	4.416667	5.182727	0	
58	N59A	1.944867	-3.583333	5.182727	0	
59	N60A	4.2782	3.333333	9.224178	0	
60	N61	4.2782	-2.666667	9.224178	0	
61	N62	6.611534	4.583333	13.26563	0	
62	N63	6.611534	-4.416667	13.26563	0	
63	N65	-4.555133	4.416667	13.26563	0	
64	N66	-4.555133	-3.583333	13.26563	0	
65	N67	-2.2218	3.333333	9.224178	0	
66	N68	-2.2218	-2.666667	9.224178	0	
67	N69	0.111534	4.583333	5.182727	0	
68	N70	0.111534	-4.416667	5.182727	0	
69	N69A	1.944867	0	5.182727	0	
70	N70A	4.2782	0	9.224178	0	
71	N71	6.611534	0	13.26563	0	
72	N72	-4.555133	0	13.26563	0	
73	N73	-2.2218	0	9.224178	0	
74	N74	0.111534	0	5.182727	0	
75	N75	7.4032	3	14.636837	0	
76	N76	1.1532	3	3.81152	0	
77	N77	7.0282	3	13.987318	0	
78	N78	6.5282	3	14.853344	0	
79	N79	-5.2218	3	14.853344	0	
80	N80	7.2782	3	14.853344	0	
81	N81	-4.4718	3	14.853344	0	
82	N82	-4.9718	3	13.987318	0	
83	N83	-5.3468	3	14.636837	0	
84	N84	0.9032	3	3.81152	0	
85	N85	1.5282	3	4.461039	0	
86	N86	0.5282	3	4.461039	0	
87	N87	5.694867	3	14.853344	0	
88	N88	1.0282	3	14.853344	0	
89	N89	-3.638466	3	14.853344	0	
90	N90	1.944867	3	5.182727	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
91	N91	4.2782	3	9.224178	0	
92	N92	6.611534	3	13.26563	0	
93	N93	-4.555133	3	13.26563	0	
94	N94	-2.2218	3	9.224178	0	
95	N95	0.111534	3	5.182727	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	N21	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	N19	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	N23	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N1	N2			Horizontal	Beam	Pipe	A53 Gr.B	Typical
2	M2	N3	N4			Plate	Beam	RECT	A36 Gr.36	Typical
3	M3	N5	N6			Horizontal	Beam	Pipe	A53 Gr.B	Typical
4	M4	N7	N8			Plate	Beam	RECT	A36 Gr.36	Typical
5	M5	N9	N10			Horizontal	Beam	Pipe	A53 Gr.B	Typical
6	M6	N11	N12			Plate	Beam	RECT	A36 Gr.36	Typical
7	M8	N15	N18			Standoff	Beam	SquareTube	A36 Gr.36	Typical
8	M9	N16	N22			Standoff	Beam	SquareTube	A36 Gr.36	Typical
9	M10	N17	N20			Standoff	Beam	SquareTube	A36 Gr.36	Typical
10	M11	N18	N19			RIGID	None	None	RIGID	Typical
11	M12	N20	N21			RIGID	None	None	RIGID	Typical
12	M13	N22	N23			RIGID	None	None	RIGID	Typical
13	M14	N24	N25			Standoff	Beam	SquareTube	A36 Gr.36	Typical
14	M15	N26	N27			Standoff	Beam	SquareTube	A36 Gr.36	Typical
15	M16	N28	N29			Standoff	Beam	SquareTube	A36 Gr.36	Typical
16	M17	N30	N31		270	Brace	Beam	Single Angle	A36 Gr.36	Typical
17	M18	N32	N33			Brace	Beam	Single Angle	A36 Gr.36	Typical
18	M19	N34	N35		270	Brace	Beam	Single Angle	A36 Gr.36	Typical
19	M20	N36	N37			Brace	Beam	Single Angle	A36 Gr.36	Typical
20	M21	N38	N39		270	Brace	Beam	Single Angle	A36 Gr.36	Typical
21	M22	N40	N41			Brace	Beam	Single Angle	A36 Gr.36	Typical
22	A	N48	N49			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical
23	B	N50	N51			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical
24	C	N52	N53			Mount Pipe La...	Beam	Pipe	A53 Gr.B	Typical
25	G	N58	N59A			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical
26	H	N60A	N61			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical
27	I	N62	N63			Mount Pipe La...	Beam	Pipe	A53 Gr.B	Typical
28	D	N65	N66			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical
29	E	N67	N68			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical
30	F	N69	N70			Mount Pipe La...	Beam	Pipe	A53 Gr.B	Typical
31	M31	N75	N76			Handrail	Beam	Pipe	A53 Gr.B	Typical
32	M32	N77	N78			Plate	Beam	RECT	A36 Gr.36	Typical
33	M33	N79	N80			Handrail	Beam	Pipe	A53 Gr.B	Typical
34	M34	N81	N82			Plate	Beam	RECT	A36 Gr.36	Typical
35	M35	N83	N84			Handrail	Beam	Pipe	A53 Gr.B	Typical
36	M36	N85	N86			Plate	Beam	RECT	A36 Gr.36	Typical

Joint Loads and Enforced Displacements (BLC 42 : Man 1 (500 lbs))

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/ft...
1	N50A	L	Y	-.5

Joint Loads and Enforced Displacements (BLC 43 : Man 2 (500 lbs))

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/ft...
1	N71	L	Y	-.5

Joint Loads and Enforced Displacements (BLC 44 : Man 3 (500 lbs))

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/ft...
1	N74	L	Y	-.5

Joint Loads and Enforced Displacements (BLC 45 : Man 4 (250 lbs))

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/ft...
1	N5	L	Y	-.25

Joint Loads and Enforced Displacements (BLC 46 : Man 5 (250 lbs))

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/ft...
1	N1	L	Y	-.25

Joint Loads and Enforced Displacements (BLC 47 : Man 6 (250 lbs))

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/ft...
1	N10	L	Y	-.25

Member Point Loads (BLC 1 : Dead)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	B	Y	-.041	%50
2	B	Y	-.011	%50
3	C	Y	-.128	%50
4	C	Y	-.015	%27.8
5	C	Y	-.075	%50
6	E	Y	-.041	%50
7	E	Y	-.011	%50
8	F	Y	-.128	%50
9	F	Y	-.015	%27.8
10	F	Y	-.075	%50
11	H	Y	-.041	%50
12	H	Y	-.011	%50
13	I	Y	-.128	%50
14	I	Y	-.015	%27.8
15	I	Y	-.075	%50

Member Point Loads (BLC 2 : Ice Dead)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	B	Y	-.135	%50
2	B	Y	-.009	%50
3	C	Y	-.411	%50
4	C	Y	-.015	%27.8
5	C	Y	-.042	%50
6	E	Y	-.135	%50
7	E	Y	-.009	%50
8	F	Y	-.411	%50
9	F	Y	-.015	%27.8

Member Point Loads (BLC 2 : Ice Dead) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
10	F	Y	-.042	%50
11	H	Y	-.135	%50
12	H	Y	-.009	%50
13	I	Y	-.411	%50
14	I	Y	-.015	%27.8
15	I	Y	-.042	%50

Member Point Loads (BLC 3 : Full Wind Antenna (0 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	B	Z	-.132	%11.2
2	C	Z	-.405	%5.6
3	E	Z	-.065	%11.2
4	F	Z	-.235	%5.6
5	H	Z	-.065	%11.2
6	I	Z	-.235	%5.6
7	B	Z	-.132	%88.8
8	C	Z	-.405	%94.4
9	E	Z	-.065	%88.8
10	F	Z	-.235	%94.4
11	H	Z	-.065	%88.8
12	I	Z	-.235	%94.4

Member Point Loads (BLC 4 : Full Wind Antenna (30 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	B	Z	-.095	%11.2
2	C	Z	-.302	%5.6
3	E	Z	-.037	%11.2
4	F	Z	-.154	%5.6
5	H	Z	-.095	%11.2
6	I	Z	-.302	%5.6
7	B	Z	-.095	%88.8
8	C	Z	-.302	%94.4
9	E	Z	-.037	%88.8
10	F	Z	-.154	%94.4
11	H	Z	-.095	%88.8
12	I	Z	-.302	%94.4
13	B	X	.055	%11.2
14	B	X	.001	%50
15	C	X	.174	%5.6
16	C	X	.002	%27.8
17	C	X	.006	%50
18	E	X	.022	%11.2
19	E	X	.004	%50
20	F	X	.089	%5.6
21	F	X	.007	%27.8
22	F	X	.023	%50
23	H	X	.055	%11.2
24	H	X	.001	%50
25	I	X	.174	%5.6
26	I	X	.002	%27.8
27	I	X	.006	%50
28	B	X	.055	%88.8
29	C	X	.174	%94.4
30	E	X	.022	%88.8
31	F	X	.089	%94.4
32	H	X	.055	%88.8

Member Point Loads (BLC 4 : Full Wind Antenna (30 Deg)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
33	I	X	.174	%94.4

Member Point Loads (BLC 5 : Full Wind Antenna (60 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	B	Z	-.033	%11.2
2	C	Z	-.117	%5.6
3	E	Z	-.033	%11.2
4	F	Z	-.117	%5.6
5	H	Z	-.066	%11.2
6	I	Z	-.202	%5.6
7	B	Z	-.033	%88.8
8	C	Z	-.117	%94.4
9	E	Z	-.033	%88.8
10	F	Z	-.117	%94.4
11	H	Z	-.066	%88.8
12	I	Z	-.202	%94.4
13	B	X	.056	%11.2
14	B	X	.005	%50
15	C	X	.203	%5.6
16	C	X	.009	%27.8
17	C	X	.03	%50
18	E	X	.056	%11.2
19	E	X	.005	%50
20	F	X	.203	%5.6
21	F	X	.009	%27.8
22	F	X	.03	%50
23	H	X	.114	%11.2
24	H	X	0	%50
25	I	X	.351	%5.6
26	I	X	0	%27.8
27	I	X	0	%50
28	B	X	.056	%88.8
29	C	X	.203	%94.4
30	E	X	.056	%88.8
31	F	X	.203	%94.4
32	H	X	.114	%88.8
33	I	X	.351	%94.4

Member Point Loads (BLC 6 : Full Wind Antenna (90 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	B	Z	0	%11.2
2	C	Z	0	%5.6
3	E	Z	0	%11.2
4	F	Z	0	%5.6
5	H	Z	0	%11.2
6	I	Z	0	%5.6
7	B	Z	0	%88.8
8	C	Z	0	%94.4
9	E	Z	0	%88.8
10	F	Z	0	%94.4
11	H	Z	0	%88.8
12	I	Z	0	%94.4
13	B	X	.043	%11.2
14	B	X	.007	%50
15	C	X	.178	%5.6
16	C	X	.015	%27.8

Member Point Loads (BLC 6 : Full Wind Antenna (90 Deg)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
17	C	X	.046	%50
18	E	X	.11	%11.2
19	E	X	.002	%50
20	F	X	.348	%5.6
21	F	X	.004	%27.8
22	F	X	.012	%50
23	H	X	.11	%11.2
24	H	X	.002	%50
25	I	X	.348	%5.6
26	I	X	.004	%27.8
27	I	X	.012	%50
28	B	X	.043	%88.8
29	C	X	.178	%94.4
30	E	X	.11	%88.8
31	F	X	.348	%94.4
32	H	X	.11	%88.8
33	I	X	.348	%94.4

Member Point Loads (BLC 7 : Full Wind Antenna (120 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	B	Z	.033	%11.2
2	C	Z	.117	%5.6
3	E	Z	.066	%11.2
4	F	Z	.202	%5.6
5	H	Z	.033	%11.2
6	I	Z	.117	%5.6
7	B	Z	.033	%88.8
8	C	Z	.117	%94.4
9	E	Z	.066	%88.8
10	F	Z	.202	%94.4
11	H	Z	.033	%88.8
12	I	Z	.117	%94.4
13	B	X	.056	%11.2
14	B	X	.005	%50
15	C	X	.203	%5.6
16	C	X	.009	%27.8
17	C	X	.03	%50
18	E	X	.114	%11.2
19	F	X	.351	%5.6
20	H	X	.056	%11.2
21	H	X	.005	%50
22	I	X	.203	%5.6
23	I	X	.009	%27.8
24	I	X	.03	%50
25	B	X	.056	%88.8
26	C	X	.203	%94.4
27	E	X	.114	%88.8
28	F	X	.351	%94.4
29	H	X	.056	%88.8
30	I	X	.203	%94.4

Member Point Loads (BLC 8 : Full Wind Antenna (150 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	B	Z	.095	%11.2
2	C	Z	.302	%5.6
3	E	Z	.095	%11.2

Member Point Loads (BLC 8 : Full Wind Antenna (150 Deg)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
4	F	Z	.302	%5.6
5	H	Z	.037	%11.2
6	I	Z	.154	%5.6
7	B	Z	.095	%88.8
8	C	Z	.302	%94.4
9	E	Z	.095	%88.8
10	F	Z	.302	%94.4
11	H	Z	.037	%88.8
12	I	Z	.154	%94.4
13	B	X	.055	%11.2
14	B	X	.001	%50
15	C	X	.174	%5.6
16	C	X	.002	%27.8
17	C	X	.006	%50
18	E	X	.055	%11.2
19	E	X	.001	%50
20	F	X	.174	%5.6
21	F	X	.002	%27.8
22	F	X	.006	%50
23	H	X	.022	%11.2
24	H	X	.004	%50
25	I	X	.089	%5.6
26	I	X	.007	%27.8
27	I	X	.023	%50
28	B	X	.055	%88.8
29	C	X	.174	%94.4
30	E	X	.055	%88.8
31	F	X	.174	%94.4
32	H	X	.022	%88.8
33	I	X	.089	%94.4

Member Point Loads (BLC 15 : Ice Wind Antenna (0 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	B	Z	-.025	%11.2
2	C	Z	-.069	%5.6
3	E	Z	-.015	%11.2
4	F	Z	-.043	%5.6
5	H	Z	-.015	%11.2
6	I	Z	-.043	%5.6
7	B	Z	-.025	%88.8
8	C	Z	-.069	%94.4
9	E	Z	-.015	%88.8
10	F	Z	-.043	%94.4
11	H	Z	-.015	%88.8
12	I	Z	-.043	%94.4

Member Point Loads (BLC 16 : Ice Wind Antenna (30 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	B	Z	-.019	%11.2
2	C	Z	-.052	%5.6
3	E	Z	-.01	%11.2
4	F	Z	-.03	%5.6
5	H	Z	-.019	%11.2
6	I	Z	-.052	%5.6
7	B	Z	-.019	%88.8
8	C	Z	-.052	%94.4

Member Point Loads (BLC 16 : Ice Wind Antenna (30 Deg)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
9	E	Z	-.01	%88.8
10	F	Z	-.03	%94.4
11	H	Z	-.019	%88.8
12	I	Z	-.052	%94.4
13	B	X	.011	%11.2
14	B	X	0	%50
15	C	X	.03	%5.6
16	C	X	.001	%27.8
17	C	X	.001	%50
18	E	X	.006	%11.2
19	E	X	.002	%50
20	F	X	.017	%5.6
21	F	X	.002	%27.8
22	F	X	.006	%50
23	H	X	.011	%11.2
24	H	X	0	%50
25	I	X	.03	%5.6
26	I	X	.001	%27.8
27	I	X	.001	%50
28	B	X	.011	%88.8
29	C	X	.03	%94.4
30	E	X	.006	%88.8
31	F	X	.017	%94.4
32	H	X	.011	%88.8
33	I	X	.03	%94.4

Member Point Loads (BLC 17 : Ice Wind Antenna (60 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	B	Z	-.007	%11.2
2	C	Z	-.022	%5.6
3	E	Z	-.007	%11.2
4	F	Z	-.022	%5.6
5	H	Z	-.012	%11.2
6	I	Z	-.035	%5.6
7	B	Z	-.007	%88.8
8	C	Z	-.022	%94.4
9	E	Z	-.007	%88.8
10	F	Z	-.022	%94.4
11	H	Z	-.012	%88.8
12	I	Z	-.035	%94.4
13	B	X	.013	%11.2
14	B	X	.002	%50
15	C	X	.038	%5.6
16	C	X	.003	%27.8
17	C	X	.007	%50
18	E	X	.013	%11.2
19	E	X	.002	%50
20	F	X	.038	%5.6
21	F	X	.003	%27.8
22	F	X	.007	%50
23	H	X	.022	%11.2
24	H	X	0	%50
25	I	X	.06	%5.6
26	I	X	0	%27.8
27	I	X	0	%50
28	B	X	.013	%88.8

Member Point Loads (BLC 17 : Ice Wind Antenna (60 Deg)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
29	C	X	.038	%94.4
30	E	X	.013	%88.8
31	F	X	.038	%94.4
32	H	X	.022	%88.8
33	I	X	.06	%94.4

Member Point Loads (BLC 18 : Ice Wind Antenna (90 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	B	Z	0	%11.2
2	C	Z	0	%5.6
3	E	Z	0	%11.2
4	F	Z	0	%5.6
5	H	Z	0	%11.2
6	I	Z	0	%5.6
7	B	Z	0	%88.8
8	C	Z	0	%94.4
9	E	Z	0	%88.8
10	F	Z	0	%94.4
11	H	Z	0	%88.8
12	I	Z	0	%94.4
13	B	X	.011	%11.2
14	B	X	.003	%50
15	C	X	.035	%5.6
16	C	X	.005	%27.8
17	C	X	.011	%50
18	E	X	.021	%11.2
19	E	X	.001	%50
20	F	X	.06	%5.6
21	F	X	.001	%27.8
22	F	X	.003	%50
23	H	X	.021	%11.2
24	H	X	.001	%50
25	I	X	.06	%5.6
26	I	X	.001	%27.8
27	I	X	.003	%50
28	B	X	.011	%88.8
29	C	X	.035	%94.4
30	E	X	.021	%88.8
31	F	X	.06	%94.4
32	H	X	.021	%88.8
33	I	X	.06	%94.4

Member Point Loads (BLC 19 : Ice Wind Antenna (120 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	B	Z	.007	%11.2
2	C	Z	.022	%5.6
3	E	Z	.012	%11.2
4	F	Z	.035	%5.6
5	H	Z	.007	%11.2
6	I	Z	.022	%5.6
7	B	Z	.007	%88.8
8	C	Z	.022	%94.4
9	E	Z	.012	%88.8
10	F	Z	.035	%94.4
11	H	Z	.007	%88.8
12	I	Z	.022	%94.4

Member Point Loads (BLC 19 : Ice Wind Antenna (120 Deg)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
13	B	X	.013	%11.2
14	B	X	.002	%50
15	C	X	.038	%5.6
16	C	X	.003	%27.8
17	C	X	.007	%50
18	E	X	.022	%11.2
19	F	X	.06	%5.6
20	H	X	.013	%11.2
21	H	X	.002	%50
22	I	X	.038	%5.6
23	I	X	.003	%27.8
24	I	X	.007	%50
25	B	X	.013	%88.8
26	C	X	.038	%94.4
27	E	X	.022	%88.8
28	F	X	.06	%94.4
29	H	X	.013	%88.8
30	I	X	.038	%94.4

Member Point Loads (BLC 20 : Ice Wind Antenna (150 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	B	Z	.007	%11.2
2	C	Z	.022	%5.6
3	E	Z	.012	%11.2
4	F	Z	.035	%5.6
5	H	Z	.007	%11.2
6	I	Z	.022	%5.6
7	B	Z	.007	%88.8
8	C	Z	.022	%94.4
9	E	Z	.012	%88.8
10	F	Z	.035	%94.4
11	H	Z	.007	%88.8
12	I	Z	.022	%94.4
13	B	X	.013	%11.2
14	B	X	.002	%50
15	C	X	.038	%5.6
16	C	X	.003	%27.8
17	C	X	.007	%50
18	E	X	.022	%11.2
19	F	X	.06	%5.6
20	H	X	.013	%11.2
21	H	X	.002	%50
22	I	X	.038	%5.6
23	I	X	.003	%27.8
24	I	X	.007	%50
25	B	X	.013	%88.8
26	C	X	.038	%94.4
27	E	X	.022	%88.8
28	F	X	.06	%94.4
29	H	X	.013	%88.8
30	I	X	.038	%94.4

Member Point Loads (BLC 27 : Seismic Antenna (0 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	B	Z	-.004	%50
2	B	Z	-.001	%50

Member Point Loads (BLC 27 : Seismic Antenna (0 Deg)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
3	C	Z	-.012	%50
4	C	Z	-.002	%27.8
5	C	Z	-.007	%50
6	E	Z	-.004	%50
7	E	Z	-.001	%50
8	F	Z	-.012	%50
9	F	Z	-.002	%27.8
10	F	Z	-.007	%50
11	H	Z	-.004	%50
12	H	Z	-.001	%50
13	I	Z	-.012	%50
14	I	Z	-.002	%27.8
15	I	Z	-.007	%50

Member Point Loads (BLC 28 : Seismic Antenna (90 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	B	X	.004	%50
2	B	X	.001	%50
3	C	X	.012	%50
4	C	X	.002	%27.8
5	C	X	.007	%50
6	E	X	.004	%50
7	E	X	.001	%50
8	F	X	.012	%50
9	F	X	.002	%27.8
10	F	X	.007	%50
11	H	X	.004	%50
12	H	X	.001	%50
13	I	X	.012	%50
14	I	X	.002	%27.8
15	I	X	.007	%50

Member Point Loads (BLC 41 : Seismic Vertical Antennas)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	B	Y	-.008	%50
2	B	Y	-.002	%50
3	C	Y	-.026	%50
4	C	Y	-.003	%27.8
5	C	Y	-.015	%50
6	E	Y	-.008	%50
7	E	Y	-.002	%50
8	F	Y	-.026	%50
9	F	Y	-.003	%27.8
10	F	Y	-.015	%50
11	H	Y	-.008	%50
12	H	Y	-.002	%50
13	I	Y	-.026	%50
14	I	Y	-.003	%27.8
15	I	Y	-.015	%50

Member Distributed Loads (BLC 2 : Ice Dead)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F,...	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-.01	-.01	0	%100
2	M2	Y	-.014	-.014	0	%100

Member Distributed Loads (BLC 2 : Ice Dead) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F,...	Start Location[ft,%]	End Location[ft,%]
3	M3	Y	-.01	-.01	0	%100
4	M4	Y	-.014	-.014	0	%100
5	M5	Y	-.01	-.01	0	%100
6	M6	Y	-.014	-.014	0	%100
7	M8	Y	-.014	-.014	0	%100
8	M9	Y	-.014	-.014	0	%100
9	M10	Y	-.014	-.014	0	%100
10	M11	Y	-.003	-.003	0	%100
11	M12	Y	-.003	-.003	0	%100
12	M13	Y	-.003	-.003	0	%100
13	M14	Y	-.014	-.014	0	%100
14	M15	Y	-.014	-.014	0	%100
15	M16	Y	-.014	-.014	0	%100
16	M17	Y	-.008	-.008	0	%100
17	M18	Y	-.008	-.008	0	%100
18	M19	Y	-.008	-.008	0	%100
19	M20	Y	-.008	-.008	0	%100
20	M21	Y	-.008	-.008	0	%100
21	M22	Y	-.008	-.008	0	%100
22	A	Y	-.007	-.007	0	%100
23	B	Y	-.007	-.007	0	%100
24	C	Y	-.008	-.008	0	%100
25	G	Y	-.007	-.007	0	%100
26	H	Y	-.007	-.007	0	%100
27	I	Y	-.008	-.008	0	%100
28	D	Y	-.007	-.007	0	%100
29	E	Y	-.007	-.007	0	%100
30	F	Y	-.008	-.008	0	%100
31	M31	Y	-.007	-.007	0	%100
32	M32	Y	-.014	-.014	0	%100
33	M33	Y	-.007	-.007	0	%100
34	M34	Y	-.014	-.014	0	%100
35	M35	Y	-.007	-.007	0	%100
36	M36	Y	-.014	-.014	0	%100

Member Distributed Loads (BLC 9 : Full Wind Members (0 Deg))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F,...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	-.004	-.004	0	%100
2	M2	Z	-.014	-.014	0	%100
3	M3	Z	-.014	-.014	0	%100
4	M4	Z	-.014	-.014	0	%100
5	M5	Z	-.004	-.004	0	%100
6	M6	Z	-.057	-.057	0	%100
7	M8	Z	-.02	-.02	0	%100
8	M9	Z	0	0	0	%100
9	M10	Z	-.02	-.02	0	%100
10	M14	Z	-.007	-.007	0	%100
11	M15	Z	-.027	-.027	0	%100
12	M16	Z	-.007	-.007	0	%100
13	M17	Z	-.003	-.003	0	%100
14	M18	Z	-.013	-.013	0	%100
15	M19	Z	-.003	-.003	0	%100
16	M20	Z	-.003	-.003	0	%100
17	M21	Z	-.013	-.013	0	%100
18	M22	Z	-.003	-.003	0	%100
19	B	Z	-.01	-.01	0	%11.2

Member Distributed Loads (BLC 9 : Full Wind Members (0 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F,...	Start Location[ft,%]	End Location[ft,%]
20	C	Z	-.012	-.012	0	%5.6
21	H	Z	-.01	-.01	0	%11.2
22	I	Z	-.012	-.012	0	%5.6
23	E	Z	-.01	-.01	0	%11.2
24	F	Z	-.012	-.012	0	%5.6
25	M31	Z	-.002	-.002	0	%100
26	M32	Z	-.014	-.014	0	%100
27	M33	Z	-.01	-.01	0	%100
28	M34	Z	-.014	-.014	0	%100
29	M35	Z	-.002	-.002	0	%100
30	M36	Z	-.057	-.057	0	%100
31	A	Z	-.01	-.01	0	%100
32	B	Z	-.01	-.01	%88.8	%100
33	C	Z	-.012	-.012	%94.4	%100
34	G	Z	-.01	-.01	0	%100
35	H	Z	-.01	-.01	%88.8	%100
36	I	Z	-.012	-.012	%94.4	%100
37	D	Z	-.01	-.01	0	%100
38	E	Z	-.01	-.01	%88.8	%100
39	F	Z	-.012	-.012	%94.4	%100
40	M1	X	0	0	0	%100
41	M2	X	0	0	0	%100
42	M3	X	0	0	0	%100
43	M4	X	0	0	0	%100
44	M5	X	0	0	0	%100
45	M6	X	0	0	0	%100
46	M8	X	0	0	0	%100
47	M9	X	0	0	0	%100
48	M10	X	0	0	0	%100
49	M14	X	0	0	0	%100
50	M15	X	0	0	0	%100
51	M16	X	0	0	0	%100
52	M17	X	0	0	0	%100
53	M18	X	0	0	0	%100
54	M19	X	0	0	0	%100
55	M20	X	0	0	0	%100
56	M21	X	0	0	0	%100
57	M22	X	0	0	0	%100
58	B	X	0	0	0	%100
59	C	X	0	0	0	%100
60	H	X	0	0	0	%11.2
61	I	X	0	0	0	%5.6
62	E	X	0	0	0	%11.2
63	F	X	0	0	0	%5.6
64	M31	X	0	0	0	%100
65	M32	X	0	0	0	%100
66	M33	X	0	0	0	%100
67	M34	X	0	0	0	%100
68	M35	X	0	0	0	%100
69	M36	X	0	0	0	%100
70	A	X	0	0	0	%100
71	G	X	0	0	0	%100
72	H	X	0	0	%88.8	%100
73	I	X	0	0	%94.4	%100
74	D	X	0	0	0	%100
75	E	X	0	0	%88.8	%100
76	F	X	0	0	%94.4	%100

Member Distributed Loads (BLC 10 : Full Wind Members (30 Deg))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F,...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	-.009	-.009	0	%100
2	M2	Z	0	0	0	%100
3	M3	Z	-.009	-.009	0	%100
4	M4	Z	-.037	-.037	0	%100
5	M5	Z	0	0	0	%100
6	M6	Z	-.037	-.037	0	%100
7	M8	Z	-.023	-.023	0	%100
8	M9	Z	-.006	-.006	0	%100
9	M10	Z	-.006	-.006	0	%100
10	M14	Z	0	0	0	%100
11	M15	Z	-.017	-.017	0	%100
12	M16	Z	-.017	-.017	0	%100
13	M17	Z	-.009	-.009	0	%100
14	M18	Z	-.009	-.009	0	%100
15	M19	Z	0	0	0	%100
16	M20	Z	-.009	-.009	0	%100
17	M21	Z	-.009	-.009	0	%100
18	M22	Z	0	0	0	%100
19	B	Z	-.008	-.008	0	%11.2
20	C	Z	-.01	-.01	0	%5.6
21	H	Z	-.008	-.008	0	%11.2
22	I	Z	-.01	-.01	0	%5.6
23	E	Z	-.008	-.008	0	%11.2
24	F	Z	-.01	-.01	0	%5.6
25	M31	Z	-.006	-.006	0	%100
26	M32	Z	0	0	0	%100
27	M33	Z	-.006	-.006	0	%100
28	M34	Z	-.037	-.037	0	%100
29	M35	Z	0	0	0	%100
30	M36	Z	-.037	-.037	0	%100
31	A	Z	-.008	-.008	0	%100
32	B	Z	-.008	-.008	%88.8	%100
33	C	Z	-.01	-.01	%94.4	%100
34	G	Z	-.008	-.008	0	%100
35	H	Z	-.008	-.008	%88.8	%100
36	I	Z	-.01	-.01	%94.4	%100
37	D	Z	-.008	-.008	0	%100
38	E	Z	-.008	-.008	%88.8	%100
39	F	Z	-.01	-.01	%94.4	%100
40	M1	X	.005	.005	0	%100
41	M2	X	0	0	0	%100
42	M3	X	.005	.005	0	%100
43	M4	X	.021	.021	0	%100
44	M5	X	0	0	0	%100
45	M6	X	.021	.021	0	%100
46	M8	X	.013	.013	0	%100
47	M9	X	.003	.003	0	%100
48	M10	X	.003	.003	0	%100
49	M14	X	0	0	0	%100
50	M15	X	.01	.01	0	%100
51	M16	X	.01	.01	0	%100
52	M17	X	.005	.005	0	%100
53	M18	X	.005	.005	0	%100
54	M19	X	0	0	0	%100
55	M20	X	.005	.005	0	%100
56	M21	X	.005	.005	0	%100
57	M22	X	0	0	0	%100

Member Distributed Loads (BLC 10 : Full Wind Members (30 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F,...	Start Location[ft,%]	End Location[ft,%]
58	B	X	.005	.005	0	%100
59	C	X	.006	.006	0	%100
60	H	X	.005	.005	0	%11.2
61	I	X	.006	.006	0	%5.6
62	E	X	.005	.005	0	%11.2
63	F	X	.006	.006	0	%5.6
64	M31	X	.004	.004	0	%100
65	M32	X	0	0	0	%100
66	M33	X	.004	.004	0	%100
67	M34	X	.021	.021	0	%100
68	M35	X	0	0	0	%100
69	M36	X	.021	.021	0	%100
70	A	X	.005	.005	0	%100
71	G	X	.005	.005	0	%100
72	H	X	.005	.005	%88.8	%100
73	I	X	.006	.006	%94.4	%100
74	D	X	.005	.005	0	%100
75	E	X	.005	.005	%88.8	%100
76	F	X	.006	.006	%94.4	%100

Member Distributed Loads (BLC 11 : Full Wind Members (60 Deg))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F,...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	-.007	-.007	0	%100
2	M2	Z	-.007	-.007	0	%100
3	M3	Z	-.002	-.002	0	%100
4	M4	Z	-.028	-.028	0	%100
5	M5	Z	-.002	-.002	0	%100
6	M6	Z	-.007	-.007	0	%100
7	M8	Z	-.01	-.01	0	%100
8	M9	Z	-.01	-.01	0	%100
9	M10	Z	0	0	0	%100
10	M14	Z	-.003	-.003	0	%100
11	M15	Z	-.003	-.003	0	%100
12	M16	Z	-.013	-.013	0	%100
13	M17	Z	-.007	-.007	0	%100
14	M18	Z	-.002	-.002	0	%100
15	M19	Z	-.002	-.002	0	%100
16	M20	Z	-.007	-.007	0	%100
17	M21	Z	-.002	-.002	0	%100
18	M22	Z	-.002	-.002	0	%100
19	B	Z	-.005	-.005	0	%11.2
20	C	Z	-.006	-.006	0	%5.6
21	H	Z	-.005	-.005	0	%11.2
22	I	Z	-.006	-.006	0	%5.6
23	E	Z	-.005	-.005	0	%11.2
24	F	Z	-.006	-.006	0	%5.6
25	M31	Z	-.005	-.005	0	%100
26	M32	Z	-.007	-.007	0	%100
27	M33	Z	-.001	-.001	0	%100
28	M34	Z	-.028	-.028	0	%100
29	M35	Z	-.001	-.001	0	%100
30	M36	Z	-.007	-.007	0	%100
31	A	Z	-.005	-.005	0	%100
32	B	Z	-.005	-.005	%88.8	%100
33	C	Z	-.006	-.006	%94.4	%100
34	G	Z	-.005	-.005	0	%100

Member Distributed Loads (BLC 11 : Full Wind Members (60 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F,...	Start Location[ft,%]	End Location[ft,%]
35	H	Z	-.005	-.005	%88.8	%100
36	I	Z	-.006	-.006	%94.4	%100
37	D	Z	-.005	-.005	0	%100
38	E	Z	-.005	-.005	%88.8	%100
39	F	Z	-.006	-.006	%94.4	%100
40	M1	X	.012	.012	0	%100
41	M2	X	.012	.012	0	%100
42	M3	X	.003	.003	0	%100
43	M4	X	.049	.049	0	%100
44	M5	X	.003	.003	0	%100
45	M6	X	.012	.012	0	%100
46	M8	X	.017	.017	0	%100
47	M9	X	.017	.017	0	%100
48	M10	X	0	0	0	%100
49	M14	X	.006	.006	0	%100
50	M15	X	.006	.006	0	%100
51	M16	X	.023	.023	0	%100
52	M17	X	.012	.012	0	%100
53	M18	X	.003	.003	0	%100
54	M19	X	.003	.003	0	%100
55	M20	X	.012	.012	0	%100
56	M21	X	.003	.003	0	%100
57	M22	X	.003	.003	0	%100
58	B	X	.008	.008	0	%100
59	C	X	.01	.01	0	%100
60	H	X	.008	.008	0	%11.2
61	I	X	.01	.01	0	%5.6
62	E	X	.008	.008	0	%11.2
63	F	X	.01	.01	0	%5.6
64	M31	X	.008	.008	0	%100
65	M32	X	.012	.012	0	%100
66	M33	X	.002	.002	0	%100
67	M34	X	.049	.049	0	%100
68	M35	X	.002	.002	0	%100
69	M36	X	.012	.012	0	%100
70	A	X	.008	.008	0	%100
71	G	X	.008	.008	0	%100
72	H	X	.008	.008	%88.8	%100
73	I	X	.01	.01	%94.4	%100
74	D	X	.008	.008	0	%100
75	E	X	.008	.008	%88.8	%100
76	F	X	.01	.01	%94.4	%100

Member Distributed Loads (BLC 12 : Full Wind Members (90 Deg))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F,...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	0	0	0	%100
2	M2	Z	0	0	0	%100
3	M3	Z	0	0	0	%100
4	M4	Z	0	0	0	%100
5	M5	Z	0	0	0	%100
6	M6	Z	0	0	0	%100
7	M8	Z	0	0	0	%100
8	M9	Z	0	0	0	%100
9	M10	Z	0	0	0	%100
10	M14	Z	0	0	0	%100
11	M15	Z	0	0	0	%100

Member Distributed Loads (BLC 12 : Full Wind Members (90 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F,...	Start Location[ft,%]	End Location[ft,%]
12	M16	Z	0	0	0	%100
13	M17	Z	0	0	0	%100
14	M18	Z	0	0	0	%100
15	M19	Z	0	0	0	%100
16	M20	Z	0	0	0	%100
17	M21	Z	0	0	0	%100
18	M22	Z	0	0	0	%100
19	B	Z	0	0	0	%11.2
20	C	Z	0	0	0	%5.6
21	H	Z	0	0	0	%11.2
22	I	Z	0	0	0	%5.6
23	E	Z	0	0	0	%11.2
24	F	Z	0	0	0	%5.6
25	M31	Z	0	0	0	%100
26	M32	Z	0	0	0	%100
27	M33	Z	0	0	0	%100
28	M34	Z	0	0	0	%100
29	M35	Z	0	0	0	%100
30	M36	Z	0	0	0	%100
31	A	Z	0	0	0	%100
32	B	Z	0	0	%88.8	%100
33	C	Z	0	0	%94.4	%100
34	G	Z	0	0	0	%100
35	H	Z	0	0	%88.8	%100
36	I	Z	0	0	%94.4	%100
37	D	Z	0	0	0	%100
38	E	Z	0	0	%88.8	%100
39	F	Z	0	0	%94.4	%100
40	M1	X	.011	.011	0	%100
41	M2	X	.042	.042	0	%100
42	M3	X	0	0	0	%100
43	M4	X	.042	.042	0	%100
44	M5	X	.011	.011	0	%100
45	M6	X	0	0	0	%100
46	M8	X	.007	.007	0	%100
47	M9	X	.027	.027	0	%100
48	M10	X	.007	.007	0	%100
49	M14	X	.02	.02	0	%100
50	M15	X	0	0	0	%100
51	M16	X	.02	.02	0	%100
52	M17	X	.01	.01	0	%100
53	M18	X	0	0	0	%100
54	M19	X	.01	.01	0	%100
55	M20	X	.01	.01	0	%100
56	M21	X	0	0	0	%100
57	M22	X	.01	.01	0	%100
58	B	X	.01	.01	0	%100
59	C	X	.012	.012	0	%100
60	H	X	.01	.01	0	%11.2
61	I	X	.012	.012	0	%5.6
62	E	X	.01	.01	0	%11.2
63	F	X	.012	.012	0	%5.6
64	M31	X	.007	.007	0	%100
65	M32	X	.042	.042	0	%100
66	M33	X	0	0	0	%100
67	M34	X	.042	.042	0	%100
68	M35	X	.007	.007	0	%100

Member Distributed Loads (BLC 12 : Full Wind Members (90 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F,...	Start Location[ft,%]	End Location[ft,%]
69	M36	X	0	0	0	%100
70	A	X	.01	.01	0	%100
71	G	X	.01	.01	0	%100
72	H	X	.01	.01	%88.8	%100
73	I	X	.012	.012	%94.4	%100
74	D	X	.01	.01	0	%100
75	E	X	.01	.01	%88.8	%100
76	F	X	.012	.012	%94.4	%100

Member Distributed Loads (BLC 13 : Full Wind Members (120 Deg))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F,...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	.002	.002	0	%100
2	M2	Z	.028	.028	0	%100
3	M3	Z	.002	.002	0	%100
4	M4	Z	.007	.007	0	%100
5	M5	Z	.007	.007	0	%100
6	M6	Z	.007	.007	0	%100
7	M8	Z	0	0	0	%100
8	M9	Z	.01	.01	0	%100
9	M10	Z	.01	.01	0	%100
10	M14	Z	.013	.013	0	%100
11	M15	Z	.003	.003	0	%100
12	M16	Z	.003	.003	0	%100
13	M17	Z	.002	.002	0	%100
14	M18	Z	.002	.002	0	%100
15	M19	Z	.007	.007	0	%100
16	M20	Z	.002	.002	0	%100
17	M21	Z	.002	.002	0	%100
18	M22	Z	.007	.007	0	%100
19	B	Z	.005	.005	0	%11.2
20	C	Z	.006	.006	0	%5.6
21	H	Z	.005	.005	0	%11.2
22	I	Z	.006	.006	0	%5.6
23	E	Z	.005	.005	0	%11.2
24	F	Z	.006	.006	0	%5.6
25	M31	Z	.001	.001	0	%100
26	M32	Z	.028	.028	0	%100
27	M33	Z	.001	.001	0	%100
28	M34	Z	.007	.007	0	%100
29	M35	Z	.005	.005	0	%100
30	M36	Z	.007	.007	0	%100
31	A	Z	.005	.005	0	%100
32	B	Z	.005	.005	%88.8	%100
33	C	Z	.006	.006	%94.4	%100
34	G	Z	.005	.005	0	%100
35	H	Z	.005	.005	%88.8	%100
36	I	Z	.006	.006	%94.4	%100
37	D	Z	.005	.005	0	%100
38	E	Z	.005	.005	%88.8	%100
39	F	Z	.006	.006	%94.4	%100
40	M1	X	.003	.003	0	%100
41	M2	X	.049	.049	0	%100
42	M3	X	.003	.003	0	%100
43	M4	X	.012	.012	0	%100
44	M5	X	.012	.012	0	%100
45	M6	X	.012	.012	0	%100

Member Distributed Loads (BLC 13 : Full Wind Members (120 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F,...	Start Location[ft,%]	End Location[ft,%]
46	M8	X	0	0	0	%100
47	M9	X	.017	.017	0	%100
48	M10	X	.017	.017	0	%100
49	M14	X	.023	.023	0	%100
50	M15	X	.006	.006	0	%100
51	M16	X	.006	.006	0	%100
52	M17	X	.003	.003	0	%100
53	M18	X	.003	.003	0	%100
54	M19	X	.012	.012	0	%100
55	M20	X	.003	.003	0	%100
56	M21	X	.003	.003	0	%100
57	M22	X	.012	.012	0	%100
58	B	X	.008	.008	0	%100
59	C	X	.01	.01	0	%100
60	H	X	.008	.008	0	%11.2
61	I	X	.01	.01	0	%5.6
62	E	X	.008	.008	0	%11.2
63	F	X	.01	.01	0	%5.6
64	M31	X	.002	.002	0	%100
65	M32	X	.049	.049	0	%100
66	M33	X	.002	.002	0	%100
67	M34	X	.012	.012	0	%100
68	M35	X	.008	.008	0	%100
69	M36	X	.012	.012	0	%100
70	A	X	.008	.008	0	%100
71	G	X	.008	.008	0	%100
72	H	X	.008	.008	%88.8	%100
73	I	X	.01	.01	%94.4	%100
74	D	X	.008	.008	0	%100
75	E	X	.008	.008	%88.8	%100
76	F	X	.01	.01	%94.4	%100

Member Distributed Loads (BLC 14 : Full Wind Members (150 Deg))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F,...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	0	0	0	%100
2	M2	Z	.037	.037	0	%100
3	M3	Z	.009	.009	0	%100
4	M4	Z	0	0	0	%100
5	M5	Z	.009	.009	0	%100
6	M6	Z	.037	.037	0	%100
7	M8	Z	.006	.006	0	%100
8	M9	Z	.006	.006	0	%100
9	M10	Z	.023	.023	0	%100
10	M14	Z	.017	.017	0	%100
11	M15	Z	.017	.017	0	%100
12	M16	Z	0	0	0	%100
13	M17	Z	0	0	0	%100
14	M18	Z	.009	.009	0	%100
15	M19	Z	.009	.009	0	%100
16	M20	Z	0	0	0	%100
17	M21	Z	.009	.009	0	%100
18	M22	Z	.009	.009	0	%100
19	B	Z	.008	.008	0	%11.2
20	C	Z	.01	.01	0	%5.6
21	H	Z	.008	.008	0	%11.2
22	I	Z	.01	.01	0	%5.6

Member Distributed Loads (BLC 14 : Full Wind Members (150 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F,...	Start Location[ft,%]	End Location[ft,%]
23	E	Z	.008	.008	0	%11.2
24	F	Z	.01	.01	0	%5.6
25	M31	Z	0	0	0	%100
26	M32	Z	.037	.037	0	%100
27	M33	Z	.006	.006	0	%100
28	M34	Z	0	0	0	%100
29	M35	Z	.006	.006	0	%100
30	M36	Z	.037	.037	0	%100
31	A	Z	.008	.008	0	%100
32	B	Z	.008	.008	%88.8	%100
33	C	Z	.01	.01	%94.4	%100
34	G	Z	.008	.008	0	%100
35	H	Z	.008	.008	%88.8	%100
36	I	Z	.01	.01	%94.4	%100
37	D	Z	.008	.008	0	%100
38	E	Z	.008	.008	%88.8	%100
39	F	Z	.01	.01	%94.4	%100
40	M1	X	0	0	0	%100
41	M2	X	.021	.021	0	%100
42	M3	X	.005	.005	0	%100
43	M4	X	0	0	0	%100
44	M5	X	.005	.005	0	%100
45	M6	X	.021	.021	0	%100
46	M8	X	.003	.003	0	%100
47	M9	X	.003	.003	0	%100
48	M10	X	.013	.013	0	%100
49	M14	X	.01	.01	0	%100
50	M15	X	.01	.01	0	%100
51	M16	X	0	0	0	%100
52	M17	X	0	0	0	%100
53	M18	X	.005	.005	0	%100
54	M19	X	.005	.005	0	%100
55	M20	X	0	0	0	%100
56	M21	X	.005	.005	0	%100
57	M22	X	.005	.005	0	%100
58	B	X	.005	.005	0	%100
59	C	X	.006	.006	0	%100
60	H	X	.005	.005	0	%11.2
61	I	X	.006	.006	0	%5.6
62	E	X	.005	.005	0	%11.2
63	F	X	.006	.006	0	%5.6
64	M31	X	0	0	0	%100
65	M32	X	.021	.021	0	%100
66	M33	X	.004	.004	0	%100
67	M34	X	0	0	0	%100
68	M35	X	.004	.004	0	%100
69	M36	X	.021	.021	0	%100
70	A	X	.005	.005	0	%100
71	G	X	.005	.005	0	%100
72	H	X	.005	.005	%88.8	%100
73	I	X	.006	.006	%94.4	%100
74	D	X	.005	.005	0	%100
75	E	X	.005	.005	%88.8	%100
76	F	X	.006	.006	%94.4	%100

Member Distributed Loads (BLC 21 : Ice Wind Members (0 Deg))

Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F,...	Start Location[ft,%]	End Location[ft,%]

Member Distributed Loads (BLC 21 : Ice Wind Members (0 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F,...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	-.001	-.001	0	%100
2	M2	Z	-.003	-.003	0	%100
3	M3	Z	-.004	-.004	0	%100
4	M4	Z	-.003	-.003	0	%100
5	M5	Z	-.001	-.001	0	%100
6	M6	Z	-.012	-.012	0	%100
7	M8	Z	-.004	-.004	0	%100
8	M9	Z	0	0	0	%100
9	M10	Z	-.004	-.004	0	%100
10	M11	Z	-.003	-.003	0	%100
11	M12	Z	-.003	-.003	0	%100
12	M13	Z	0	0	0	%100
13	M14	Z	-.001	-.001	0	%100
14	M15	Z	-.006	-.006	0	%100
15	M16	Z	-.001	-.001	0	%100
16	M17	Z	-.001	-.001	0	%100
17	M18	Z	-.004	-.004	0	%100
18	M19	Z	-.001	-.001	0	%100
19	M20	Z	-.001	-.001	0	%100
20	M21	Z	-.004	-.004	0	%100
21	M22	Z	-.001	-.001	0	%100
22	B	Z	-.004	-.004	0	%11.2
23	C	Z	-.004	-.004	0	%5.6
24	H	Z	-.004	-.004	0	%11.2
25	I	Z	-.004	-.004	0	%5.6
26	E	Z	-.004	-.004	0	%11.2
27	F	Z	-.004	-.004	0	%5.6
28	M31	Z	-.001	-.001	0	%100
29	M32	Z	-.003	-.003	0	%100
30	M33	Z	-.003	-.003	0	%100
31	M34	Z	-.003	-.003	0	%100
32	M35	Z	-.001	-.001	0	%100
33	M36	Z	-.012	-.012	0	%100
34	A	Z	-.003	-.003	0	%100
35	B	Z	-.004	-.004	%88.8	%100
36	C	Z	-.004	-.004	%94.4	%100
37	G	Z	-.003	-.003	0	%100
38	H	Z	-.004	-.004	%88.8	%100
39	I	Z	-.004	-.004	%94.4	%100
40	D	Z	-.003	-.003	0	%100
41	E	Z	-.004	-.004	%88.8	%100
42	F	Z	-.004	-.004	%94.4	%100
43	M1	X	0	0	0	%100
44	M2	X	0	0	0	%100
45	M3	X	0	0	0	%100
46	M4	X	0	0	0	%100
47	M5	X	0	0	0	%100
48	M6	X	0	0	0	%100
49	M8	X	0	0	0	%100
50	M9	X	0	0	0	%100
51	M10	X	0	0	0	%100
52	M11	X	0	0	0	%100
53	M12	X	0	0	0	%100
54	M13	X	0	0	0	%100
55	M14	X	0	0	0	%100
56	M15	X	0	0	0	%100
57	M16	X	0	0	0	%100

Member Distributed Loads (BLC 21 : Ice Wind Members (0 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F,...	Start Location[ft,%]	End Location[ft,%]
58	M17	X	0	0	0	%100
59	M18	X	0	0	0	%100
60	M19	X	0	0	0	%100
61	M20	X	0	0	0	%100
62	M21	X	0	0	0	%100
63	M22	X	0	0	0	%100
64	B	X	0	0	0	%100
65	C	X	0	0	0	%100
66	H	X	0	0	0	%11.2
67	I	X	0	0	0	%5.6
68	E	X	0	0	0	%11.2
69	F	X	0	0	0	%5.6
70	M31	X	0	0	0	%100
71	M32	X	0	0	0	%100
72	M33	X	0	0	0	%100
73	M34	X	0	0	0	%100
74	M35	X	0	0	0	%100
75	M36	X	0	0	0	%100
76	A	X	0	0	0	%100
77	G	X	0	0	0	%100
78	H	X	0	0	%88.8	%100
79	I	X	0	0	%94.4	%100
80	D	X	0	0	0	%100
81	E	X	0	0	%88.8	%100
82	F	X	0	0	%94.4	%100

Member Distributed Loads (BLC 22 : Ice Wind Members (30 Deg))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F,...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	-.002	-.002	0	%100
2	M2	Z	-.001	-.001	0	%100
3	M3	Z	-.003	-.003	0	%100
4	M4	Z	-.006	-.006	0	%100
5	M5	Z	0	0	0	%100
6	M6	Z	-.009	-.009	0	%100
7	M8	Z	-.005	-.005	0	%100
8	M9	Z	-.001	-.001	0	%100
9	M10	Z	-.002	-.002	0	%100
10	M11	Z	-.002	-.002	0	%100
11	M12	Z	-.002	-.002	0	%100
12	M13	Z	0	0	0	%100
13	M14	Z	0	0	0	%100
14	M15	Z	-.004	-.004	0	%100
15	M16	Z	-.003	-.003	0	%100
16	M17	Z	-.002	-.002	0	%100
17	M18	Z	-.003	-.003	0	%100
18	M19	Z	0	0	0	%100
19	M20	Z	-.002	-.002	0	%100
20	M21	Z	-.003	-.003	0	%100
21	M22	Z	0	0	0	%100
22	B	Z	-.003	-.003	0	%11.2
23	C	Z	-.003	-.003	0	%5.6
24	H	Z	-.003	-.003	0	%11.2
25	I	Z	-.003	-.003	0	%5.6
26	E	Z	-.003	-.003	0	%11.2
27	F	Z	-.003	-.003	0	%5.6
28	M31	Z	-.001	-.001	0	%100

Member Distributed Loads (BLC 22 : Ice Wind Members (30 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F,...	Start Location[ft,%]	End Location[ft,%]
29	M32	Z	-.001	-.001	0	%100
30	M33	Z	-.003	-.003	0	%100
31	M34	Z	-.006	-.006	0	%100
32	M35	Z	0	0	0	%100
33	M36	Z	-.009	-.009	0	%100
34	A	Z	-.003	-.003	0	%100
35	B	Z	-.003	-.003	%88.8	%100
36	C	Z	-.003	-.003	%94.4	%100
37	G	Z	-.003	-.003	0	%100
38	H	Z	-.003	-.003	%88.8	%100
39	I	Z	-.003	-.003	%94.4	%100
40	D	Z	-.003	-.003	0	%100
41	E	Z	-.003	-.003	%88.8	%100
42	F	Z	-.003	-.003	%94.4	%100
43	M1	X	.001	.001	0	%100
44	M2	X	0	0	0	%100
45	M3	X	.002	.002	0	%100
46	M4	X	.004	.004	0	%100
47	M5	X	0	0	0	%100
48	M6	X	.005	.005	0	%100
49	M8	X	.003	.003	0	%100
50	M9	X	0	0	0	%100
51	M10	X	.001	.001	0	%100
52	M11	X	.001	.001	0	%100
53	M12	X	.001	.001	0	%100
54	M13	X	0	0	0	%100
55	M14	X	0	0	0	%100
56	M15	X	.003	.003	0	%100
57	M16	X	.002	.002	0	%100
58	M17	X	.001	.001	0	%100
59	M18	X	.002	.002	0	%100
60	M19	X	0	0	0	%100
61	M20	X	.001	.001	0	%100
62	M21	X	.002	.002	0	%100
63	M22	X	0	0	0	%100
64	B	X	.002	.002	0	%100
65	C	X	.002	.002	0	%100
66	H	X	.002	.002	0	%11.2
67	I	X	.002	.002	0	%5.6
68	E	X	.002	.002	0	%11.2
69	F	X	.002	.002	0	%5.6
70	M31	X	.001	.001	0	%100
71	M32	X	0	0	0	%100
72	M33	X	.001	.001	0	%100
73	M34	X	.004	.004	0	%100
74	M35	X	0	0	0	%100
75	M36	X	.005	.005	0	%100
76	A	X	.002	.002	0	%100
77	G	X	.002	.002	0	%100
78	H	X	.002	.002	%88.8	%100
79	I	X	.002	.002	%94.4	%100
80	D	X	.002	.002	0	%100
81	E	X	.002	.002	%88.8	%100
82	F	X	.002	.002	%94.4	%100

Member Distributed Loads (BLC 23 : Ice Wind Members (60 Deg))

Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F,...	Start Location[ft,%]	End Location[ft,%]

Member Distributed Loads (BLC 23 : Ice Wind Members (60 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F,...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	-.001	-.001	0	%100
2	M2	Z	-.001	-.001	0	%100
3	M3	Z	-.001	-.001	0	%100
4	M4	Z	-.005	-.005	0	%100
5	M5	Z	-.001	-.001	0	%100
6	M6	Z	-.003	-.003	0	%100
7	M8	Z	-.002	-.002	0	%100
8	M9	Z	-.001	-.001	0	%100
9	M10	Z	-.001	-.001	0	%100
10	M11	Z	-.001	-.001	0	%100
11	M12	Z	-.001	-.001	0	%100
12	M13	Z	0	0	0	%100
13	M14	Z	-.001	-.001	0	%100
14	M15	Z	-.002	-.002	0	%100
15	M16	Z	-.002	-.002	0	%100
16	M17	Z	-.001	-.001	0	%100
17	M18	Z	-.001	-.001	0	%100
18	M19	Z	-.001	-.001	0	%100
19	M20	Z	-.001	-.001	0	%100
20	M21	Z	-.001	-.001	0	%100
21	M22	Z	-.001	-.001	0	%100
22	B	Z	-.002	-.002	0	%11.2
23	C	Z	-.002	-.002	0	%5.6
24	H	Z	-.002	-.002	0	%11.2
25	I	Z	-.002	-.002	0	%5.6
26	E	Z	-.002	-.002	0	%11.2
27	F	Z	-.002	-.002	0	%5.6
28	M31	Z	-.001	-.001	0	%100
29	M32	Z	-.001	-.001	0	%100
30	M33	Z	-.001	-.001	0	%100
31	M34	Z	-.005	-.005	0	%100
32	M35	Z	0	0	0	%100
33	M36	Z	-.003	-.003	0	%100
34	A	Z	-.002	-.002	0	%100
35	B	Z	-.002	-.002	%88.8	%100
36	C	Z	-.002	-.002	%94.4	%100
37	G	Z	-.002	-.002	0	%100
38	H	Z	-.002	-.002	%88.8	%100
39	I	Z	-.002	-.002	%94.4	%100
40	D	Z	-.002	-.002	0	%100
41	E	Z	-.002	-.002	%88.8	%100
42	F	Z	-.002	-.002	%94.4	%100
43	M1	X	.002	.002	0	%100
44	M2	X	.003	.003	0	%100
45	M3	X	.002	.002	0	%100
46	M4	X	.008	.008	0	%100
47	M5	X	.001	.001	0	%100
48	M6	X	.005	.005	0	%100
49	M8	X	.004	.004	0	%100
50	M9	X	.003	.003	0	%100
51	M10	X	.001	.001	0	%100
52	M11	X	.002	.002	0	%100
53	M12	X	.002	.002	0	%100
54	M13	X	0	0	0	%100
55	M14	X	.001	.001	0	%100
56	M15	X	.003	.003	0	%100
57	M16	X	.004	.004	0	%100

Member Distributed Loads (BLC 23 : Ice Wind Members (60 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F,...	Start Location[ft,%]	End Location[ft,%]
58	M17	X	.002	.002	0	%100
59	M18	X	.002	.002	0	%100
60	M19	X	.001	.001	0	%100
61	M20	X	.002	.002	0	%100
62	M21	X	.002	.002	0	%100
63	M22	X	.001	.001	0	%100
64	B	X	.003	.003	0	%100
65	C	X	.003	.003	0	%100
66	H	X	.003	.003	0	%11.2
67	I	X	.003	.003	0	%5.6
68	E	X	.003	.003	0	%11.2
69	F	X	.003	.003	0	%5.6
70	M31	X	.002	.002	0	%100
71	M32	X	.003	.003	0	%100
72	M33	X	.002	.002	0	%100
73	M34	X	.008	.008	0	%100
74	M35	X	.001	.001	0	%100
75	M36	X	.005	.005	0	%100
76	A	X	.003	.003	0	%100
77	G	X	.003	.003	0	%100
78	H	X	.003	.003	%88.8	%100
79	I	X	.003	.003	%94.4	%100
80	D	X	.003	.003	0	%100
81	E	X	.003	.003	%88.8	%100
82	F	X	.003	.003	%94.4	%100

Member Distributed Loads (BLC 24 : Ice Wind Members (90 Deg))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F,...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	0	0	0	%100
2	M2	Z	0	0	0	%100
3	M3	Z	0	0	0	%100
4	M4	Z	0	0	0	%100
5	M5	Z	0	0	0	%100
6	M6	Z	0	0	0	%100
7	M8	Z	0	0	0	%100
8	M9	Z	0	0	0	%100
9	M10	Z	0	0	0	%100
10	M11	Z	0	0	0	%100
11	M12	Z	0	0	0	%100
12	M13	Z	0	0	0	%100
13	M14	Z	0	0	0	%100
14	M15	Z	0	0	0	%100
15	M16	Z	0	0	0	%100
16	M17	Z	0	0	0	%100
17	M18	Z	0	0	0	%100
18	M19	Z	0	0	0	%100
19	M20	Z	0	0	0	%100
20	M21	Z	0	0	0	%100
21	M22	Z	0	0	0	%100
22	B	Z	0	0	0	%11.2
23	C	Z	0	0	0	%5.6
24	H	Z	0	0	0	%11.2
25	I	Z	0	0	0	%5.6
26	E	Z	0	0	0	%11.2
27	F	Z	0	0	0	%5.6
28	M31	Z	0	0	0	%100

Member Distributed Loads (BLC 24 : Ice Wind Members (90 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F,...	Start Location[ft,%]	End Location[ft,%]
29	M32	Z	0	0	0	%100
30	M33	Z	0	0	0	%100
31	M34	Z	0	0	0	%100
32	M35	Z	0	0	0	%100
33	M36	Z	0	0	0	%100
34	A	Z	0	0	0	%100
35	B	Z	0	0	%88.8	%100
36	C	Z	0	0	%94.4	%100
37	G	Z	0	0	0	%100
38	H	Z	0	0	%88.8	%100
39	I	Z	0	0	%94.4	%100
40	D	Z	0	0	0	%100
41	E	Z	0	0	%88.8	%100
42	F	Z	0	0	%94.4	%100
43	M1	X	.002	.002	0	%100
44	M2	X	.007	.007	0	%100
45	M3	X	.002	.002	0	%100
46	M4	X	.007	.007	0	%100
47	M5	X	.002	.002	0	%100
48	M6	X	.004	.004	0	%100
49	M8	X	.003	.003	0	%100
50	M9	X	.004	.004	0	%100
51	M10	X	.003	.003	0	%100
52	M11	X	.003	.003	0	%100
53	M12	X	.003	.003	0	%100
54	M13	X	0	0	0	%100
55	M14	X	.003	.003	0	%100
56	M15	X	.002	.002	0	%100
57	M16	X	.003	.003	0	%100
58	M17	X	.002	.002	0	%100
59	M18	X	.002	.002	0	%100
60	M19	X	.002	.002	0	%100
61	M20	X	.002	.002	0	%100
62	M21	X	.002	.002	0	%100
63	M22	X	.002	.002	0	%100
64	B	X	.004	.004	0	%100
65	C	X	.004	.004	0	%100
66	H	X	.004	.004	0	%11.2
67	I	X	.004	.004	0	%5.6
68	E	X	.004	.004	0	%11.2
69	F	X	.004	.004	0	%5.6
70	M31	X	.002	.002	0	%100
71	M32	X	.007	.007	0	%100
72	M33	X	.002	.002	0	%100
73	M34	X	.007	.007	0	%100
74	M35	X	.002	.002	0	%100
75	M36	X	.004	.004	0	%100
76	A	X	.003	.003	0	%100
77	G	X	.003	.003	0	%100
78	H	X	.004	.004	%88.8	%100
79	I	X	.004	.004	%94.4	%100
80	D	X	.003	.003	0	%100
81	E	X	.004	.004	%88.8	%100
82	F	X	.004	.004	%94.4	%100

Member Distributed Loads (BLC 25 : Ice Wind Members (120 Deg))

Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F,...	Start Location[ft,%]	End Location[ft,%]

Member Distributed Loads (BLC 25 : Ice Wind Members (120 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F,...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	.001	.001	0	%100
2	M2	Z	.005	.005	0	%100
3	M3	Z	.001	.001	0	%100
4	M4	Z	.001	.001	0	%100
5	M5	Z	.001	.001	0	%100
6	M6	Z	.003	.003	0	%100
7	M8	Z	.001	.001	0	%100
8	M9	Z	.001	.001	0	%100
9	M10	Z	.002	.002	0	%100
10	M11	Z	.001	.001	0	%100
11	M12	Z	.001	.001	0	%100
12	M13	Z	0	0	0	%100
13	M14	Z	.002	.002	0	%100
14	M15	Z	.002	.002	0	%100
15	M16	Z	.001	.001	0	%100
16	M17	Z	.001	.001	0	%100
17	M18	Z	.001	.001	0	%100
18	M19	Z	.001	.001	0	%100
19	M20	Z	.001	.001	0	%100
20	M21	Z	.001	.001	0	%100
21	M22	Z	.001	.001	0	%100
22	B	Z	.002	.002	0	%11.2
23	C	Z	.002	.002	0	%5.6
24	H	Z	.002	.002	0	%11.2
25	I	Z	.002	.002	0	%5.6
26	E	Z	.002	.002	0	%11.2
27	F	Z	.002	.002	0	%5.6
28	M31	Z	0	0	0	%100
29	M32	Z	.005	.005	0	%100
30	M33	Z	.001	.001	0	%100
31	M34	Z	.001	.001	0	%100
32	M35	Z	.001	.001	0	%100
33	M36	Z	.003	.003	0	%100
34	A	Z	.002	.002	0	%100
35	B	Z	.002	.002	%88.8	%100
36	C	Z	.002	.002	%94.4	%100
37	G	Z	.002	.002	0	%100
38	H	Z	.002	.002	%88.8	%100
39	I	Z	.002	.002	%94.4	%100
40	D	Z	.002	.002	0	%100
41	E	Z	.002	.002	%88.8	%100
42	F	Z	.002	.002	%94.4	%100
43	M1	X	.001	.001	0	%100
44	M2	X	.008	.008	0	%100
45	M3	X	.002	.002	0	%100
46	M4	X	.003	.003	0	%100
47	M5	X	.002	.002	0	%100
48	M6	X	.005	.005	0	%100
49	M8	X	.001	.001	0	%100
50	M9	X	.003	.003	0	%100
51	M10	X	.004	.004	0	%100
52	M11	X	.002	.002	0	%100
53	M12	X	.002	.002	0	%100
54	M13	X	0	0	0	%100
55	M14	X	.004	.004	0	%100
56	M15	X	.003	.003	0	%100
57	M16	X	.001	.001	0	%100

Member Distributed Loads (BLC 25 : Ice Wind Members (120 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F,...	Start Location[ft,%]	End Location[ft,%]
58	M17	X	.001	.001	0	%100
59	M18	X	.002	.002	0	%100
60	M19	X	.002	.002	0	%100
61	M20	X	.001	.001	0	%100
62	M21	X	.002	.002	0	%100
63	M22	X	.002	.002	0	%100
64	B	X	.003	.003	0	%100
65	C	X	.003	.003	0	%100
66	H	X	.003	.003	0	%11.2
67	I	X	.003	.003	0	%5.6
68	E	X	.003	.003	0	%11.2
69	F	X	.003	.003	0	%5.6
70	M31	X	.001	.001	0	%100
71	M32	X	.008	.008	0	%100
72	M33	X	.002	.002	0	%100
73	M34	X	.003	.003	0	%100
74	M35	X	.002	.002	0	%100
75	M36	X	.005	.005	0	%100
76	A	X	.003	.003	0	%100
77	G	X	.003	.003	0	%100
78	H	X	.003	.003	%88.8	%100
79	I	X	.003	.003	%94.4	%100
80	D	X	.003	.003	0	%100
81	E	X	.003	.003	%88.8	%100
82	F	X	.003	.003	%94.4	%100

Member Distributed Loads (BLC 26 : Ice Wind Members (150 Deg))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F,...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	0	0	0	%100
2	M2	Z	.006	.006	0	%100
3	M3	Z	.003	.003	0	%100
4	M4	Z	.001	.001	0	%100
5	M5	Z	.002	.002	0	%100
6	M6	Z	.009	.009	0	%100
7	M8	Z	.002	.002	0	%100
8	M9	Z	.001	.001	0	%100
9	M10	Z	.005	.005	0	%100
10	M11	Z	.002	.002	0	%100
11	M12	Z	.002	.002	0	%100
12	M13	Z	0	0	0	%100
13	M14	Z	.003	.003	0	%100
14	M15	Z	.004	.004	0	%100
15	M16	Z	0	0	0	%100
16	M17	Z	0	0	0	%100
17	M18	Z	.003	.003	0	%100
18	M19	Z	.002	.002	0	%100
19	M20	Z	0	0	0	%100
20	M21	Z	.003	.003	0	%100
21	M22	Z	.002	.002	0	%100
22	B	Z	.003	.003	0	%11.2
23	C	Z	.003	.003	0	%5.6
24	H	Z	.003	.003	0	%11.2
25	I	Z	.003	.003	0	%5.6
26	E	Z	.003	.003	0	%11.2
27	F	Z	.003	.003	0	%5.6
28	M31	Z	0	0	0	%100

Member Distributed Loads (BLC 26 : Ice Wind Members (150 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F,...	Start Location[ft,%]	End Location[ft,%]
29	M32	Z	.006	.006	0	%100
30	M33	Z	.003	.003	0	%100
31	M34	Z	.001	.001	0	%100
32	M35	Z	.001	.001	0	%100
33	M36	Z	.009	.009	0	%100
34	A	Z	.003	.003	0	%100
35	B	Z	.003	.003	%88.8	%100
36	C	Z	.003	.003	%94.4	%100
37	G	Z	.003	.003	0	%100
38	H	Z	.003	.003	%88.8	%100
39	I	Z	.003	.003	%94.4	%100
40	D	Z	.003	.003	0	%100
41	E	Z	.003	.003	%88.8	%100
42	F	Z	.003	.003	%94.4	%100
43	M1	X	0	0	0	%100
44	M2	X	.004	.004	0	%100
45	M3	X	.002	.002	0	%100
46	M4	X	0	0	0	%100
47	M5	X	.001	.001	0	%100
48	M6	X	.005	.005	0	%100
49	M8	X	.001	.001	0	%100
50	M9	X	0	0	0	%100
51	M10	X	.003	.003	0	%100
52	M11	X	.001	.001	0	%100
53	M12	X	.001	.001	0	%100
54	M13	X	0	0	0	%100
55	M14	X	.002	.002	0	%100
56	M15	X	.003	.003	0	%100
57	M16	X	0	0	0	%100
58	M17	X	0	0	0	%100
59	M18	X	.002	.002	0	%100
60	M19	X	.001	.001	0	%100
61	M20	X	0	0	0	%100
62	M21	X	.002	.002	0	%100
63	M22	X	.001	.001	0	%100
64	B	X	.002	.002	0	%100
65	C	X	.002	.002	0	%100
66	H	X	.002	.002	0	%11.2
67	I	X	.002	.002	0	%5.6
68	E	X	.002	.002	0	%11.2
69	F	X	.002	.002	0	%5.6
70	M31	X	0	0	0	%100
71	M32	X	.004	.004	0	%100
72	M33	X	.001	.001	0	%100
73	M34	X	0	0	0	%100
74	M35	X	.001	.001	0	%100
75	M36	X	.005	.005	0	%100
76	A	X	.002	.002	0	%100
77	G	X	.002	.002	0	%100
78	H	X	.002	.002	%88.8	%100
79	I	X	.002	.002	%94.4	%100
80	D	X	.002	.002	0	%100
81	E	X	.002	.002	%88.8	%100
82	F	X	.002	.002	%94.4	%100

Member Distributed Loads (BLC 48 : BLC 1 Transient Area Loads)

Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F,...	Start Location[ft,%]	End Location[ft,%]

Member Distributed Loads (BLC 48 : BLC 1 Transient Area Loads) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F,...	Start Location[ft,%]	End Location[ft,%]
1	M2	Y	-.0003493	-.0003493	.216	.784
2	M8	Y	-.0008007	-.007	0	.747
3	M8	Y	-.007	-.014	.747	1.493
4	M8	Y	-.014	-.016	1.493	2.24
5	M8	Y	-.016	-.008	2.24	2.987
6	M8	Y	-.008	-.0003209	2.987	3.733
7	M14	Y	-.009	-.009	.557	4.773
8	M17	Y	-.002	-.003	0	.779
9	M17	Y	-.003	-.006	.779	1.559
10	M17	Y	-.006	-.01	1.559	2.338
11	M17	Y	-.01	-.006	2.338	3.118
12	M17	Y	-.006	-5.721e-5	3.118	3.897
13	M18	Y	-.002	-.003	0	.779
14	M18	Y	-.003	-.006	.779	1.559
15	M18	Y	-.006	-.01	1.559	2.338
16	M18	Y	-.01	-.006	2.338	3.118
17	M18	Y	-.006	-5.726e-5	3.118	3.897
18	M4	Y	-.0003493	-.0003493	.216	.784
19	M10	Y	-.0008007	-.007	0	.747
20	M10	Y	-.007	-.014	.747	1.493
21	M10	Y	-.014	-.016	1.493	2.24
22	M10	Y	-.016	-.008	2.24	2.987
23	M10	Y	-.008	-.0003209	2.987	3.733
24	M16	Y	-.009	-.009	.557	4.773
25	M21	Y	-.002	-.003	0	.779
26	M21	Y	-.003	-.006	.779	1.559
27	M21	Y	-.006	-.01	1.559	2.338
28	M21	Y	-.01	-.006	2.338	3.118
29	M21	Y	-.006	-5.726e-5	3.118	3.897
30	M22	Y	-.002	-.003	0	.779
31	M22	Y	-.003	-.006	.779	1.559
32	M22	Y	-.006	-.01	1.559	2.338
33	M22	Y	-.01	-.006	2.338	3.118
34	M22	Y	-.006	-5.721e-5	3.118	3.897
35	M6	Y	-.0003493	-.0003493	.216	.784
36	M9	Y	-.0008007	-.007	0	.747
37	M9	Y	-.007	-.014	.747	1.493
38	M9	Y	-.014	-.016	1.493	2.24
39	M9	Y	-.016	-.008	2.24	2.987
40	M9	Y	-.008	-.0003209	2.987	3.733
41	M15	Y	-.009	-.009	.557	4.773
42	M19	Y	-.002	-.003	0	.779
43	M19	Y	-.003	-.006	.779	1.559
44	M19	Y	-.006	-.01	1.559	2.338
45	M19	Y	-.01	-.006	2.338	3.118
46	M19	Y	-.006	-5.721e-5	3.118	3.897
47	M20	Y	-.002	-.003	0	.779
48	M20	Y	-.003	-.006	.779	1.559
49	M20	Y	-.006	-.01	1.559	2.338
50	M20	Y	-.01	-.006	2.338	3.118
51	M20	Y	-.006	-5.726e-5	3.118	3.897

Member Distributed Loads (BLC 49 : BLC 2 Transient Area Loads)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F,...	Start Location[ft,%]	End Location[ft,%]
1	M2	Y	-.0004222	-.0004222	.216	.784
2	M8	Y	-.0009678	-.009	0	.747

Member Distributed Loads (BLC 49 : BLC 2 Transient Area Loads) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F,...	Start Location[ft,%]	End Location[ft,%]
3	M8	Y	-.009	-.016	.747	1.493
4	M8	Y	-.016	-.019	1.493	2.24
5	M8	Y	-.019	-.009	2.24	2.987
6	M8	Y	-.009	-.0003878	2.987	3.733
7	M14	Y	-.011	-.011	.557	4.773
8	M17	Y	-.002	-.004	0	.779
9	M17	Y	-.004	-.007	.779	1.559
10	M17	Y	-.007	-.013	1.559	2.338
11	M17	Y	-.013	-.008	2.338	3.118
12	M17	Y	-.008	-6.914e-5	3.118	3.897
13	M18	Y	-.002	-.004	0	.779
14	M18	Y	-.004	-.007	.779	1.559
15	M18	Y	-.007	-.013	1.559	2.338
16	M18	Y	-.013	-.008	2.338	3.118
17	M18	Y	-.008	-6.92e-5	3.118	3.897
18	M4	Y	-.0004222	-.0004222	.216	.784
19	M10	Y	-.0009678	-.009	0	.747
20	M10	Y	-.009	-.016	.747	1.493
21	M10	Y	-.016	-.019	1.493	2.24
22	M10	Y	-.019	-.009	2.24	2.987
23	M10	Y	-.009	-.0003878	2.987	3.733
24	M16	Y	-.011	-.011	.557	4.773
25	M21	Y	-.002	-.004	0	.779
26	M21	Y	-.004	-.007	.779	1.559
27	M21	Y	-.007	-.013	1.559	2.338
28	M21	Y	-.013	-.008	2.338	3.118
29	M21	Y	-.008	-6.92e-5	3.118	3.897
30	M22	Y	-.002	-.004	0	.779
31	M22	Y	-.004	-.007	.779	1.559
32	M22	Y	-.007	-.013	1.559	2.338
33	M22	Y	-.013	-.008	2.338	3.118
34	M22	Y	-.008	-6.914e-5	3.118	3.897
35	M6	Y	-.0004222	-.0004222	.216	.784
36	M9	Y	-.0009678	-.009	0	.747
37	M9	Y	-.009	-.016	.747	1.493
38	M9	Y	-.016	-.019	1.493	2.24
39	M9	Y	-.019	-.009	2.24	2.987
40	M9	Y	-.009	-.0003878	2.987	3.733
41	M15	Y	-.011	-.011	.557	4.773
42	M19	Y	-.002	-.004	0	.779
43	M19	Y	-.004	-.007	.779	1.559
44	M19	Y	-.007	-.013	1.559	2.338
45	M19	Y	-.013	-.008	2.338	3.118
46	M19	Y	-.008	-6.914e-5	3.118	3.897
47	M20	Y	-.002	-.004	0	.779
48	M20	Y	-.004	-.007	.779	1.559
49	M20	Y	-.007	-.013	1.559	2.338
50	M20	Y	-.013	-.008	2.338	3.118
51	M20	Y	-.008	-6.92e-5	3.118	3.897

Member Area Loads (BLC 1 : Dead)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[ksf]
1	N30	N32	N33	N31	Y	Two Way	-.012
2	N39	N41	N40	N38	Y	Two Way	-.012
3	N35	N34	N36	N37	Y	Two Way	-.012

Member Area Loads (BLC 2 : Ice Dead)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[ksf]
1	N30	N32	N33	N31	Y	Two Way	-.015
2	N39	N41	N40	N38	Y	Two Way	-.015
3	N35	N34	N36	N37	Y	Two Way	-.015

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(...
1	Dead	None		-1			15		3	
2	Ice Dead	None					15	36	3	
3	Full Wind Antenna (0 Deg)	None					12			
4	Full Wind Antenna (30 Deg)	None					33			
5	Full Wind Antenna (60 Deg)	None					33			
6	Full Wind Antenna (90 Deg)	None					33			
7	Full Wind Antenna (120 Deg)	None					30			
8	Full Wind Antenna (150 Deg)	None					33			
9	Full Wind Members (0 Deg)	None						76		
10	Full Wind Members (30 Deg)	None						76		
11	Full Wind Members (60 Deg)	None						76		
12	Full Wind Members (90 Deg)	None						76		
13	Full Wind Members (120 Deg)	None						76		
14	Full Wind Members (150 Deg)	None						76		
15	Ice Wind Antenna (0 Deg)	None					12			
16	Ice Wind Antenna (30 Deg)	None					33			
17	Ice Wind Antenna (60 Deg)	None					33			
18	Ice Wind Antenna (90 Deg)	None					33			
19	Ice Wind Antenna (120 Deg)	None					30			
20	Ice Wind Antenna (150 Deg)	None					30			
21	Ice Wind Members (0 Deg)	None						82		
22	Ice Wind Members (30 Deg)	None						82		
23	Ice Wind Members (60 Deg)	None						82		
24	Ice Wind Members (90 Deg)	None						82		
25	Ice Wind Members (120 Deg)	None						82		
26	Ice Wind Members (150 Deg)	None						82		
27	Seismic Antenna (0 Deg)	None					15			
28	Seismic Antenna (90 Deg)	None					15			
29	Seismic Members (0 Deg)	None		-.039	-.098					
30	Seismic Members (30 Deg)	None	.049	-.039	-.084					
31	Seismic Members (60 Deg)	None	.084	-.039	-.049					
32	Seismic Members (90 Deg)	None	.098	-.039	-5.973e-...					
33	Seismic Members (120 Deg)	None	.084	-.039	.049					
34	Seismic Members (150 Deg)	None	.049	-.039	.084					
35	Seismic Members (180 Deg)	None	1.195e-17	-.039	.098					
36	Seismic Members (210 Deg)	None	-.049	-.039	.084					
37	Seismic Members (240 Deg)	None	-.084	-.039	.049					
38	Seismic Members (270 Deg)	None	-.098	-.039	1.792e-17					
39	Seismic Members (300 Deg)	None	-.084	-.039	-.049					
40	Seismic Members (330 Deg)	None	-.049	-.039	-.084					
41	Seismic Vertical Antennas	None					15			
42	Man 1 (500 lbs)	None				1				
43	Man 2 (500 lbs)	None				1				
44	Man 3 (500 lbs)	None				1				
45	Man 4 (250 lbs)	None				1				
46	Man 5 (250 lbs)	None				1				
47	Man 6 (250 lbs)	None				1				
48	BLC 1 Transient Area Loads	None						51		
49	BLC 2 Transient Area Loads	None						51		

Load Combinations

	Description	S...	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	1.4D	Yes	Y		1	1.4																		
2	1.2D + 1.0W 0°	Yes	Y		1	1.2	3	1	9	1														
3	1.2D + 1.0W 30°	Yes	Y		1	1.2	4	1	10	1														
4	1.2D + 1.0W 60°	Yes	Y		1	1.2	5	1	11	1														
5	1.2D + 1.0W 90°	Yes	Y		1	1.2	6	1	12	1														
6	1.2D + 1.0W 120°	Yes	Y		1	1.2	7	1	13	1														
7	1.2D + 1.0W 150°	Yes	Y		1	1.2	8	1	14	1														
8	1.2D + 1.0W 180°	Yes	Y		1	1.2	3	-1	9	-1														
9	1.2D + 1.0W 210°	Yes	Y		1	1.2	4	-1	10	-1														
10	1.2D + 1.0W 240°	Yes	Y		1	1.2	5	-1	11	-1														
11	1.2D + 1.0W 270°	Yes	Y		1	1.2	6	-1	12	-1														
12	1.2D + 1.0W 300°	Yes	Y		1	1.2	7	-1	13	-1														
13	1.2D + 1.0W 330°	Yes	Y		1	1.2	8	-1	14	-1														
14	1.2D + 1.0Di + 1.0Wi 0°	Yes	Y		1	1.2	2	1	15	1	21	1												
15	1.2D + 1.0Di + 1.0Wi 30°	Yes	Y		1	1.2	2	1	16	1	22	1												
16	1.2D + 1.0Di + 1.0Wi 60°	Yes	Y		1	1.2	2	1	17	1	23	1												
17	1.2D + 1.0Di + 1.0Wi 90°	Yes	Y		1	1.2	2	1	18	1	24	1												
18	1.2D + 1.0Di + 1.0Wi 120°	Yes	Y		1	1.2	2	1	19	1	25	1												
19	1.2D + 1.0Di + 1.0Wi 150°	Yes	Y		1	1.2	2	1	20	1	26	1												
20	1.2D + 1.0Di + 1.0Wi 180°	Yes	Y		1	1.2	2	1	15	-1	21	-1												
21	1.2D + 1.0Di + 1.0Wi 210°	Yes	Y		1	1.2	2	1	16	-1	22	-1												
22	1.2D + 1.0Di + 1.0Wi 240°	Yes	Y		1	1.2	2	1	17	-1	23	-1												
23	1.2D + 1.0Di + 1.0Wi 270°	Yes	Y		1	1.2	2	1	18	-1	24	-1												
24	1.2D + 1.0Di + 1.0Wi 300°	Yes	Y		1	1.2	2	1	19	-1	25	-1												
25	1.2D + 1.0Di + 1.0Wi 330°	Yes	Y		1	1.2	2	1	20	-1	26	-1												
26	1.2D + 1.5Lm_1 + 1.0Wm 0°	Yes	Y		1	1.2	3	.058	9	.058	42	1.5												
27	1.2D + 1.5Lm_1 + 1.0Wm 30°	Yes	Y		1	1.2	4	.058	10	.058	42	1.5												
28	1.2D + 1.5Lm_1 + 1.0Wm 60°	Yes	Y		1	1.2	5	.058	11	.058	42	1.5												
29	1.2D + 1.5Lm_1 + 1.0Wm 90°	Yes	Y		1	1.2	6	.058	12	.058	42	1.5												
30	1.2D + 1.5Lm_1 + 1.0Wm 120°	Yes	Y		1	1.2	7	.058	13	.058	42	1.5												
31	1.2D + 1.5Lm_1 + 1.0Wm 150°	Yes	Y		1	1.2	8	.058	14	.058	42	1.5												
32	1.2D + 1.5Lm_1 + 1.0Wm 180°	Yes	Y		1	1.2	3	-.0...	9	-.0...	42	1.5												
33	1.2D + 1.5Lm_1 + 1.0Wm 210°	Yes	Y		1	1.2	4	-.0...	10	-.0...	42	1.5												
34	1.2D + 1.5Lm_1 + 1.0Wm 240°	Yes	Y		1	1.2	5	-.0...	11	-.0...	42	1.5												
35	1.2D + 1.5Lm_1 + 1.0Wm 270°	Yes	Y		1	1.2	6	-.0...	12	-.0...	42	1.5												
36	1.2D + 1.5Lm_1 + 1.0Wm 300°	Yes	Y		1	1.2	7	-.0...	13	-.0...	42	1.5												
37	1.2D + 1.5Lm_1 + 1.0Wm 330°	Yes	Y		1	1.2	8	-.0...	14	-.0...	42	1.5												
38	1.2D + 1.5Lm_2 + 1.0Wm 0°	Yes	Y		1	1.2	3	.058	9	.058	43	1.5												
39	1.2D + 1.5Lm_2 + 1.0Wm 30°	Yes	Y		1	1.2	4	.058	10	.058	43	1.5												
40	1.2D + 1.5Lm_2 + 1.0Wm 60°	Yes	Y		1	1.2	5	.058	11	.058	43	1.5												
41	1.2D + 1.5Lm_2 + 1.0Wm 90°	Yes	Y		1	1.2	6	.058	12	.058	43	1.5												
42	1.2D + 1.5Lm_2 + 1.0Wm 120°	Yes	Y		1	1.2	7	.058	13	.058	43	1.5												
43	1.2D + 1.5Lm_2 + 1.0Wm 150°	Yes	Y		1	1.2	8	.058	14	.058	43	1.5												
44	1.2D + 1.5Lm_2 + 1.0Wm 180°	Yes	Y		1	1.2	3	-.0...	9	-.0...	43	1.5												
45	1.2D + 1.5Lm_2 + 1.0Wm 210°	Yes	Y		1	1.2	4	-.0...	10	-.0...	43	1.5												
46	1.2D + 1.5Lm_2 + 1.0Wm 240°	Yes	Y		1	1.2	5	-.0...	11	-.0...	43	1.5												
47	1.2D + 1.5Lm_2 + 1.0Wm 270°	Yes	Y		1	1.2	6	-.0...	12	-.0...	43	1.5												
48	1.2D + 1.5Lm_2 + 1.0Wm 300°	Yes	Y		1	1.2	7	-.0...	13	-.0...	43	1.5												
49	1.2D + 1.5Lm_2 + 1.0Wm 330°	Yes	Y		1	1.2	8	-.0...	14	-.0...	43	1.5												
50	1.2D + 1.5Lm_3 + 1.0Wm 0°	Yes	Y		1	1.2	3	.058	9	.058	44	1.5												
51	1.2D + 1.5Lm_3 + 1.0Wm 30°	Yes	Y		1	1.2	4	.058	10	.058	44	1.5												
52	1.2D + 1.5Lm_3 + 1.0Wm 60°	Yes	Y		1	1.2	5	.058	11	.058	44	1.5												
53	1.2D + 1.5Lm_3 + 1.0Wm 90°	Yes	Y		1	1.2	6	.058	12	.058	44	1.5												
54	1.2D + 1.5Lm_3 + 1.0Wm 120°	Yes	Y		1	1.2	7	.058	13	.058	44	1.5												
55	1.2D + 1.5Lm_3 + 1.0Wm 150°	Yes	Y		1	1.2	8	.058	14	.058	44	1.5												
56	1.2D + 1.5Lm_3 + 1.0Wm 180°	Yes	Y		1	1.2	3	-.0...	9	-.0...	44	1.5												

Load Combinations (Continued)

	Description	S...	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
57	1.2D + 1.5Lm_3 + 1.0Wm 210°	Yes	Y		1	1.2	4	-.0...	10	-.0...	44	1.5												
58	1.2D + 1.5Lm_3 + 1.0Wm 240°	Yes	Y		1	1.2	5	-.0...	11	-.0...	44	1.5												
59	1.2D + 1.5Lm_3 + 1.0Wm 270°	Yes	Y		1	1.2	6	-.0...	12	-.0...	44	1.5												
60	1.2D + 1.5Lm_3 + 1.0Wm 300°	Yes	Y		1	1.2	7	-.0...	13	-.0...	44	1.5												
61	1.2D + 1.5Lm_3 + 1.0Wm 330°	Yes	Y		1	1.2	8	-.0...	14	-.0...	44	1.5												
62	1.2D + 1.5Lv_1 0°	Yes	Y		1	1.2	45	1.5																
63	1.2D + 1.5Lv_1 30°	Yes	Y		1	1.2	45	1.5																
64	1.2D + 1.5Lv_1 60°	Yes	Y		1	1.2	45	1.5																
65	1.2D + 1.5Lv_1 90°	Yes	Y		1	1.2	45	1.5																
66	1.2D + 1.5Lv_1 120°	Yes	Y		1	1.2	45	1.5																
67	1.2D + 1.5Lv_1 150°	Yes	Y		1	1.2	45	1.5																
68	1.2D + 1.5Lv_1 180°	Yes	Y		1	1.2	45	1.5																
69	1.2D + 1.5Lv_1 210°	Yes	Y		1	1.2	45	1.5																
70	1.2D + 1.5Lv_1 240°	Yes	Y		1	1.2	45	1.5																
71	1.2D + 1.5Lv_1 270°	Yes	Y		1	1.2	45	1.5																
72	1.2D + 1.5Lv_1 300°	Yes	Y		1	1.2	45	1.5																
73	1.2D + 1.5Lv_1 330°	Yes	Y		1	1.2	45	1.5																
74	1.2D + 1.5Lv_2 0°	Yes	Y		1	1.2	46	1.5																
75	1.2D + 1.5Lv_2 30°	Yes	Y		1	1.2	46	1.5																
76	1.2D + 1.5Lv_2 60°	Yes	Y		1	1.2	46	1.5																
77	1.2D + 1.5Lv_2 90°	Yes	Y		1	1.2	46	1.5																
78	1.2D + 1.5Lv_2 120°	Yes	Y		1	1.2	46	1.5																
79	1.2D + 1.5Lv_2 150°	Yes	Y		1	1.2	46	1.5																
80	1.2D + 1.5Lv_2 180°	Yes	Y		1	1.2	46	1.5																
81	1.2D + 1.5Lv_2 210°	Yes	Y		1	1.2	46	1.5																
82	1.2D + 1.5Lv_2 240°	Yes	Y		1	1.2	46	1.5																
83	1.2D + 1.5Lv_2 270°	Yes	Y		1	1.2	46	1.5																
84	1.2D + 1.5Lv_2 300°	Yes	Y		1	1.2	46	1.5																
85	1.2D + 1.5Lv_2 330°	Yes	Y		1	1.2	46	1.5																
86	1.2D + 1.5Lv_3 0°	Yes	Y		1	1.2	47	1.5																
87	1.2D + 1.5Lv_3 30°	Yes	Y		1	1.2	47	1.5																
88	1.2D + 1.5Lv_3 60°	Yes	Y		1	1.2	47	1.5																
89	1.2D + 1.5Lv_3 90°	Yes	Y		1	1.2	47	1.5																
90	1.2D + 1.5Lv_3 120°	Yes	Y		1	1.2	47	1.5																
91	1.2D + 1.5Lv_3 150°	Yes	Y		1	1.2	47	1.5																
92	1.2D + 1.5Lv_3 180°	Yes	Y		1	1.2	47	1.5																
93	1.2D + 1.5Lv_3 210°	Yes	Y		1	1.2	47	1.5																
94	1.2D + 1.5Lv_3 240°	Yes	Y		1	1.2	47	1.5																
95	1.2D + 1.5Lv_3 270°	Yes	Y		1	1.2	47	1.5																
96	1.2D + 1.5Lv_3 300°	Yes	Y		1	1.2	47	1.5																
97	1.2D + 1.5Lv_3 330°	Yes	Y		1	1.2	47	1.5																
98	1.2D + 1.0EV +1.0 EH 0°	Yes	Y		1	1.2	27	1	28		29	1	40	1										
99	1.2D + 1.0EV +1.0 EH 30°	Yes	Y		1	1.2	27	.866	28	.5	30	1	40	1										
100	1.2D + 1.0EV +1.0 EH 60°	Yes	Y		1	1.2	27	.5	28	.866	31	1	40	1										
101	1.2D + 1.0EV +1.0 EH 90°	Yes	Y		1	1.2	27		28	1	32	1	40	1										
102	1.2D + 1.0EV +1.0 EH 120°	Yes	Y		1	1.2	27	-.5	28	.866	33	1	40	1										
103	1.2D + 1.0EV +1.0 EH 150°	Yes	Y		1	1.2	27	-.8...	28	.5	34	1	40	1										
104	1.2D + 1.0EV +1.0 EH 180°	Yes	Y		1	1.2	27	-1	28		35	1	40	1										
105	1.2D + 1.0EV +1.0 EH 210°	Yes	Y		1	1.2	27	-.8...	28	-.5	36	1	40	1										
106	1.2D + 1.0EV +1.0 EH 240°	Yes	Y		1	1.2	27	-.5	28	-.8...	37	1	40	1										
107	1.2D + 1.0EV +1.0 EH 270°	Yes	Y		1	1.2	27		28	-1	38	1	40	1										
108	1.2D + 1.0EV +1.0 EH 300°	Yes	Y		1	1.2	27	.5	28	-.8...	39	1	40	1										
109	1.2D + 1.0EV +1.0 EH 330°	Yes	Y		1	1.2	27	.866	28	-.5	40	1	40	1										

Envelope Joint Reactions

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N21	max	1.56	10	2.331	22	1.389	2	-.608	4	1.666	13	-1.101	40
2		min	-1.631	4	.696	4	-1.35	8	-2.699	22	-1.666	7	-4.313	22
3	N19	max	1.701	11	2.331	18	.878	3	-.556	60	1.639	9	4.496	18
4		min	-1.632	5	.697	12	-.837	9	-2.386	18	-1.639	3	1.087	12
5	N23	max	1.047	11	2.325	14	1.672	2	5.065	14	1.483	5	.151	43
6		min	-1.045	5	.703	8	-1.753	8	1.312	8	-1.482	11	-.343	61
7	Totals:	max	4.06	11	6.823	25	3.807	2						
8		min	-4.06	5	2.689	2	-3.807	8						

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

	Memb...	Shape	Code Check	Loc[ft]	LC	Shear C...	Loc[ft]	Dir	LC	phi*...	phi*...	phi*...	phi*...	Cb	Eqn
1	M1	PIPE_3.0	.194	7.292	15	.066	5.208		4	28.2..	65.2..	5.749	5.749	2.185	H1...
2	M2	PL6x0.5	.213	.5	5	.179	.333	y	44	67.5..	97.2	1.012	12.15	1.647	H1...
3	M3	PIPE_3.0	.194	7.292	15	.065	5.208		8	28.2..	65.2..	5.749	5.749	2.164	H1...
4	M4	PL6x0.5	.209	.5	9	.179	.333	y	36	67.5..	97.2	1.012	12.15	1.627	H1...
5	M5	PIPE_3.0	.195	5.208	23	.063	7.292		12	28.2..	65.2..	5.749	5.749	2.18	H1...
6	M6	PL6x0.5	.204	.5	13	.179	.667	y	52	67.5..	97.2	1.012	12.15	1.642	H1...
7	M8	HSS4X4X3	.464	5.333	16	.121	5.333	y	17	76.4..	83.5..	9.909	9.909	2.989	H1...
8	M9	HSS4X4X3	.453	5.333	24	.121	5.333	y	14	76.4..	83.5..	9.909	9.909	2.998	H1...
9	M10	HSS4X4X3	.458	5.333	20	.121	5.333	y	21	76.4..	83.5..	9.909	9.909	2.997	H1...
10	M14	HSS4X4X3	.235	2.665	21	.093	.333	y	15	76.4..	83.5..	9.909	9.909	1.359	H1...
11	M15	HSS4X4X3	.234	2.665	17	.092	.333	y	23	76.4..	83.5..	9.909	9.909	1.359	H1...
12	M16	HSS4X4X3	.234	2.665	21	.091	.333	y	18	76.4..	83.5..	9.909	9.909	1.354	H1...
13	M17	L2x2x3	.262	4.33	5	.012	4.33	z	21	9.144	23.3..	.558	1.232	2.257	H2...
14	M18	L2x2x3	.183	4.33	15	.014	4.33	y	14	9.144	23.3..	.558	1.239	2.452	H2...
15	M19	L2x2x3	.254	4.33	13	.012	4.33	z	18	9.144	23.3..	.558	1.232	2.255	H2...
16	M20	L2x2x3	.184	4.33	22	.014	4.33	y	22	9.144	23.3..	.558	1.239	2.479	H2...
17	M21	L2x2x3	.259	4.33	9	.012	4.33	z	14	9.144	23.3..	.558	1.23	2.228	H2...
18	M22	L2x2x3	.184	4.33	18	.014	4.33	y	18	9.144	23.3..	.558	1.239	2.49	H2...
19	A	PIPE_2.0	.324	4.417	24	.062	1.417		20	14.9..	32.13	1.872	1.872	1.92	H1...
20	B	PIPE_2.0	.296	3.313	2	.043	3.313		7	20.8..	32.13	1.872	1.872	1.99	H1...
21	C	PIPE_2.5	.447	4.594	8	.041	4.5		19	26.1..	50.7..	3.596	3.596	1.916	H1...
22	G	PIPE_2.0	.318	4.417	18	.063	1.417		25	14.9..	32.13	1.872	1.872	1.817	H1...
23	H	PIPE_2.0	.293	3.313	10	.040	3.063		3	20.8..	32.13	1.872	1.872	1.617	H1...
24	I	PIPE_2.5	.446	4.594	4	.040	1.594		19	26.1..	50.7..	3.596	3.596	1.581	H1...
25	D	PIPE_2.0	.317	4.417	14	.065	1.417		21	14.9..	32.13	1.872	1.872	1.994	H1...
26	E	PIPE_2.0	.293	3.313	6	.040	3.063		11	20.8..	32.13	1.872	1.872	1.609	H1...
27	F	PIPE_2.5	.446	4.594	12	.040	1.594		15	26.1..	50.7..	3.596	3.596	1.454	H1...
28	M31	PIPE_2.0	.210	6.25	14	.051	6.25		3	6.295	32.13	1.872	1.872	1.507	H1...
29	M32	PL6x0.5	.008	.5	6	.121	0	y	4	67.5..	97.2	1.012	12.15	1.136	H1...
30	M33	PIPE_2.0	.213	6.25	18	.052	6.25		7	6.295	32.13	1.872	1.872	1.511	H1...
31	M34	PL6x0.5	.008	.5	10	.123	0	y	8	67.5..	97.2	1.012	12.15	1.136	H1...
32	M35	PIPE_2.0	.210	6.25	22	.051	6.25		11	6.295	32.13	1.872	1.872	1.507	H1...
33	M36	PL6x0.5	.008	.5	2	.122	1	y	12	67.5..	97.2	1.012	12.15	1.136	H1...

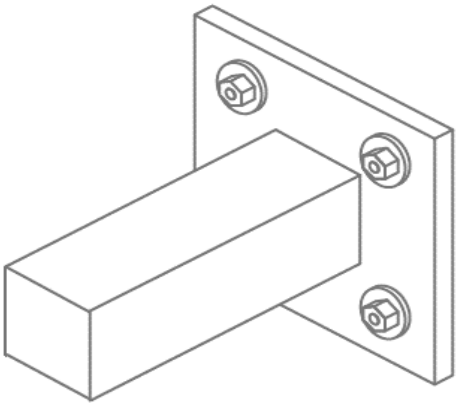
APPENDIX D

ADDITIONAL CALCUATIONS

MasTec
Network Solutions

Bolt Calcuations:

Bolt Size:	5/8	in
# Bolts:	4	
Plate Width:	10	in
Plate Height:	10	in
Bolt H Gap:	7	in
Bolt V Gap:	7	in
Plate T:	0.625	in
Bolt Grade:	A325N	
Fu_{bolt}	120	ksi
r:	4.950	in
J:	98.000	in^4/in^2
Bolt Area, $_{Normal}$:	0.307	
Bolt Area, $_{Net\ Tensile}$:	0.226	in^2



Allowable Shear:	12.4	kip
Allowable Tension:	20.3	kip

Tension Capacity:	22.0%
Shear Capacity:	26.6%
Combined Capacity:	8.2%

Bolt Capacity:	26.6%

Plate Calculations:

Horizontal Member Height:	4	in
Horizontal Member Width:	4	in
Plate Grade:	A36	
Plate Fy:	36	ksi

Mx =	5.079	k*in
Mz =	13.229	k*in

Zx =	0.977	in^3
Zz =	0.977	in^3

ØMpy (X) =	31.641	k - in
ØMpx (X) =	31.641	k - in

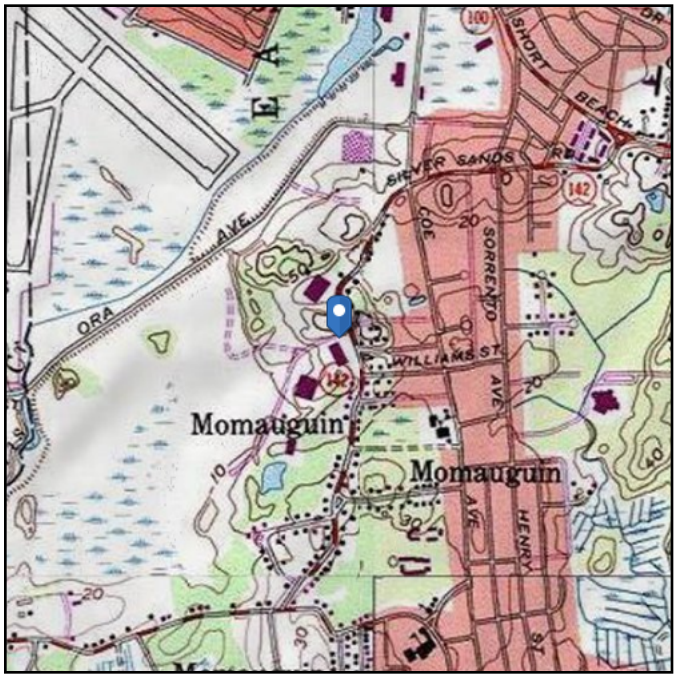
Plate Capacity:	41.8%

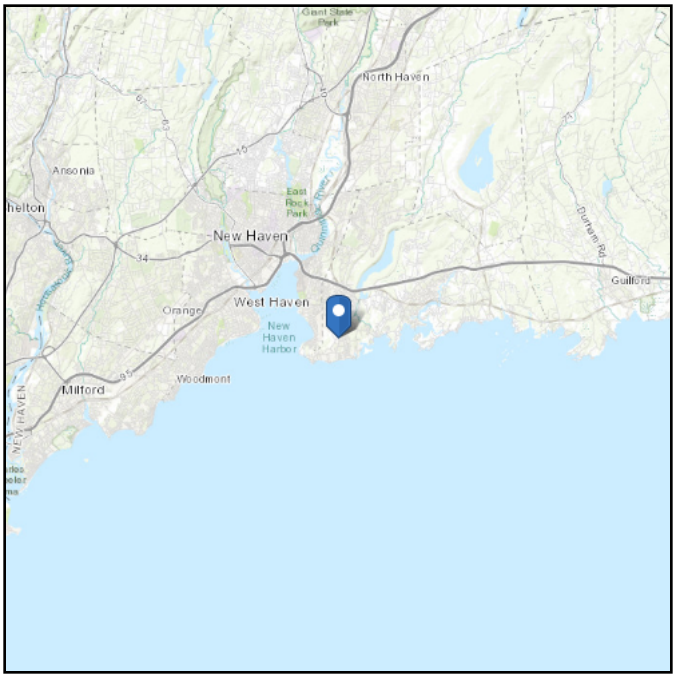
ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-10
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 35.45 ft (NAVD 88)
Latitude: 41.256356
Longitude: -72.875778





Wind

Results:

Wind Speed:	WSEL New Haven County Risk Category II = 130 mph
10-year MRI	78 Vmph
25-year MRI	87 Vmph
50-year MRI	95 Vmph
100-year MRI	103 Vmph
Data Source:	ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, incorporating errata of March 12, 2014
Date Accessed:	Mon Apr 22 2019

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-10 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is in a hurricane-prone region as defined in ASCE/SEI 7-10 Section 26.2. Glazed openings need not be protected against wind-borne debris.

Mountainous terrain, gorges, ocean promontories, and special wind regions should be examined for unusual wind conditions.

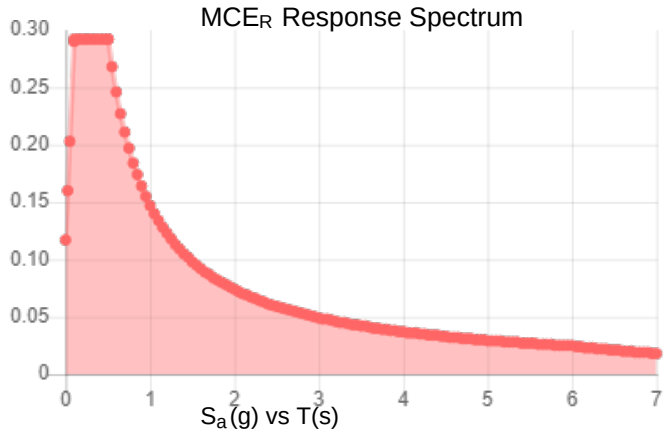
Seismic

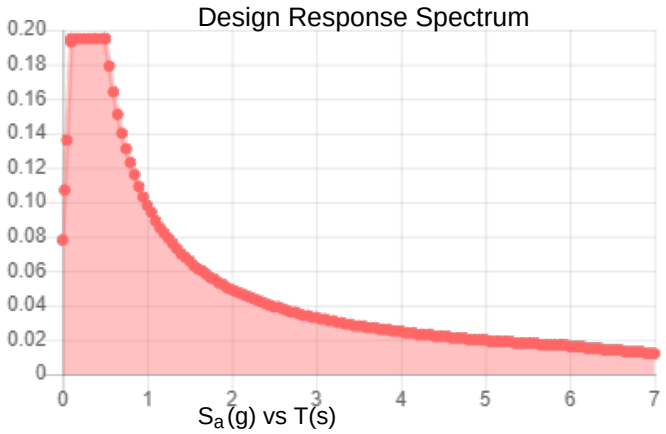
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.182	S_{DS} :	0.195
S_1 :	0.061	S_{D1} :	0.098
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.095
S_{MS} :	0.292	PGA_M :	0.152
S_{M1} :	0.147	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B





Data Accessed: Mon Apr 22 2019

Date Source: USGS Seismic Design Maps based on ASCE/SEI 7-10, incorporating Supplement 1 and errata of March 31, 2013, and ASCE/SEI 7-10 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-10 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness:	0.75 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Mon Apr 22 2019

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 50-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Exhibit E

Power Density/RF Emissions Report

Transcom Engineering, Inc.

Wireless Network Design and Deployment

Radio Frequency Emissions Analysis Report

T-MOBILE Existing Facility

Site ID: CT11623B

CT623/E.Haven ATT_MP
259 Commerce Street
East Haven, CT 06512

May 17, 2019

Transcom Engineering Project Number: 737001-0020

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**48.72 %**

May 17, 2019

T-MOBILE
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, CT 6009

Emissions Analysis for Site: **CT11623B – CT623/E.Haven ATT_MP**

Transcom Engineering, Inc ("Transcom") was directed to analyze the proposed upgrades to the T-MOBILE facility located at **259 Commerce Street, East Haven, CT**, 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 (μW/cm2). 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.

Population 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 & 700 MHz 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) and 2100 MHz (AWS) 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 performed for the proposed upgrades to the T-MOBILE antenna facility located at **259 Commerce Street, East Haven, CT**, 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 manufactures supplied specifications, minus 10 dB for directional panel antennas, 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.

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. All power values expressed and analyzed are maximum power levels expected to be used on all radios.

All emissions values for additional carriers were taken from the Connecticut Siting Council (CSC) active MPE database. Values in this database are provided by the individual carriers themselves

For each sector the following channel counts, frequency bands and power levels were utilized as shown in *Table 1*:

Technology	Frequency Band	Channel Count	Transmit Power per Channel (W)
GSM	1900 MHz (PCS)	1	15
LTE	2100 MHz (AWS)	2	60
LTE / 5G NR	600 MHz	2	40
LTE	700 MHz	2	20

Table 1: Channel Data Table

The following antennas listed in *Table 2* were used in the modeling for transmission in the 600, 700 MHz, 1900 MHz (PCS) and 2100 MHz (AWS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, 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.

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	1	RFS APX16DWV-16DWV-S-E-ACU	47
A	2	RFS APXVAARR24_43-U-NA20	47
B	1	RFS APX16DWV-16DWV-S-E-ACU	47
B	2	RFS APXVAARR24_43-U-NA20	47
C	1	RFS APX16DWV-16DWV-S-E-ACU	47
C	2	RFS APXVAARR24_43-U-NA20	47

Table 2: Antenna Data

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

Cable losses were factored in the calculations for this site. Since all **1900 MHz (PCS)** and **2100 MHz (AWS)** radios are ground mounted the following cable loss values were used. For each ground mounted **1900 MHz (PCS)** radio there was **1.03 dB** of cable loss calculated into the system gains / losses for this site. For each ground mounted **2100 MHz (AWS)** radio there was **1.65 dB** of cable loss calculated into the system gains / losses for this site. These values were calculated based upon the manufacturers specifications for 100 feet of 1-5/8" coax.

RESULTS

Per the calculations completed for the proposed T-MOBILE configurations *Table 3* shows resulting emissions power levels and percentages of the FCC's allowable general population limit.

Antenna ID	Antenna Make / Model	Frequency Bands	Antenna Gain (dBd)	Channel Count	Total TX Power (W)	ERP (W)	MPE %
Antenna A1	RFS APX16DWV-16DWV-S-E-ACU	1900 MHz (PCS) / 2100 MHz (AWS)	15.9	3	135	4,117.83	8.80
Antenna A2	RFS APXVAARR24_43-U-NA20	600 MHz / 700 MHz	12.95 / 13.35	4	120	2,443.03	12.40
						Sector A Composite MPE%	**21.20**
Antenna B1	RFS APX16DWV-16DWV-S-E-ACU	1900 MHz (PCS) / 2100 MHz (AWS)	15.9	3	135	4,117.83	8.80
Antenna B2	RFS APXVAARR24_43-U-NA20	600 MHz / 700 MHz	12.95 / 13.35	4	120	2,443.03	12.40
						Sector B Composite MPE%	**21.20**
Antenna C1	RFS APX16DWV-16DWV-S-E-ACU	1900 MHz (PCS) / 2100 MHz (AWS)	15.9	3	135	4,117.83	8.80
Antenna C2	RFS APXVAARR24_43-U-NA20	600 MHz / 700 MHz	12.95 / 13.35	4	120	2,443.03	12.40
						Sector C Composite MPE%	**21.20**

Table 3: T-MOBILE Emissions Levels

The Following table (*table 4*) shows all additional carriers on site and their MPE% as recorded in the CSC active MPE database for this facility along with the newly calculated maximum T-MOBILE MPE contributions per this report. FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. For this site, all three sectors have the same configuration yielding the same results on all three sectors. *Table 5* below shows a summary for each T-MOBILE Sector as well as the composite MPE value for the site.

Site Composite MPE%	
Carrier	**MPE%**
T-MOBILE – Max Per Sector Value	**21.20 %**
AT&T	26.81 %
MetroPCS	0.71 %
Site Total MPE %:	**48.72 %**

Table 4: All Carrier MPE Contributions

T-MOBILE Sector A Total:	21.20 %
T-MOBILE Sector B Total:	21.20 %
T-MOBILE Sector C Total:	21.20 %
Site Total:	48.72 %

Table 5: Site MPE Summary

FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. *Table 6* below details a breakdown by frequency band and technology for the MPE power values for the maximum calculated T-MOBILE sector(s). For this site, all three sectors have the same configuration yielding the same results on all three sectors.

T-MOBILE _ Frequency Band / Technology Max Power Values (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
T-Mobile 1900 MHz (PCS) GSM	1	460.35	47	9.85	1900 MHz (PCS)	1000	0.98%
T-Mobile 2100 MHz (AWS) LTE	2	1,828.74	47	78.22	2100 MHz (AWS)	1000	7.82%
T-Mobile 600 MHz LTE / 5G NR	2	788.97	47	33.75	600 MHz	400	8.44%
T-Mobile 700 MHz LTE	2	432.54	47	18.50	700 MHz	467	3.96%
						Total:	**21.20%**

Table 6: T-MOBILE Maximum Sector MPE Power Values

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:	21.20 %
Sector B:	21.20 %
Sector C:	21.20 %
T-MOBILE Maximum Total (per sector):	21.20 %
Site Total:	48.72 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **48.72 %** 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.

Scott Heffernan
RF Engineering Director
Transcom Engineering, Inc
PO Box 1048
Sterling, MA 01564