



NSS **NORTHEAST**
SITE SOLUTIONS
Turnkey Wireless Development

Northeast Site Solutions
Denise Sabo
420 Main Street, Box 2 Sturbridge MA 01566
860-209-4690
denise@northeastsitesolutions.com

November 1, 2017

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

RE: Exempt Modification Application
48 Westchester Road, Colchester CT 06415
Latitude: 41.590161
Longitude: -72.401467
T-Mobile Site#: CT11338A-MWAAV

Dear Ms. Bachman:

T-Mobile is requesting to file an exempt modification for an existing 180-foot monopole tower located at 48 Westchester Road, Colchester CT 06415. T-Mobile currently has approval for six (6) antennas at the 177-foot level of the existing 180-foot tower. The property and tower are owned by SBA Communications. T-Mobile now intends to install one (1) IBR1300 Dish. The new dish would be installed at the 177-foot and level of the tower.

Planned Modifications:

Remove:
NONE

Remove and Replace:
NONE

Install New:
(1)IBR1300 Dish
(1)Fiber line
(2)CAT6 Cables

Existing to Remain:
(12) 1-5/8" Coax
(3) TMA
(3) Smart Bias T's
(3) LNX6515 Antenna – 700 Mhz
(3) APX18 Antenna – 1900 Mhz

This facility was approved by the Town of Colchester PZC. The PZ approval for telecommunications/tower facility – Please see attached letter from the City Zoning Director



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SITE SOLUTIONS

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Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16- SOj-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-SOj-73, a copy of this letter is being sent to First Selectman Art Shilosky, Elected Official and Randall Benson, Planning Director for the Town of Colchester, as well as the property owner and the tower owner (SBA Communications).

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

1. The proposed modifications will not result in an increase in the height of the existing structure.
2. The proposed modifications will not require the extension of the site boundary.
3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading.

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

Sincerely,

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

Attachments

cc: Art Shilosky, First Selectman- as elected official
Randall Benson, Planning Director
SBA Communications - as tower owner and property owner

Exhibit A

TOWN OF COLCHESTER
ZONING & PLANNING COMMISSION
537-7280

ZONING PERMIT

TAX MAP SHEET # 06-12 LOT # 038 ZONE INDUSTRIAL

LOCATION (Street & No.) 48 Westchester Road

NAME OF PROPERTY OWNER Margus Properties LLC RES. PHONE 860 537 2687

OWNER'S ADDRESS 48 Westchester Road BUS. PHONE 800 346 7433

NAME OF APPLICANT SBA, Inc / Omnipoint Communications PHONE 800 439 0152

APPLICANT'S ADDRESS 125 Shaw Street

PROPOSED ACTIVITY:

NEW BUILDING ADDITION ALTERATION REPAIR OTHER

PROPERTY USE (Current):

SINGLE FAMILY TWO FAMILY MULTI FAMILY

COMMERCIAL INDUSTRIAL OTHER

PROPOSED:

LOT DIMENSIONS _____ AC/SQ.FT. _____ FRONTAGE _____

DOCUMENTATION REQUIRED:

- PLOT PLAN REQUIRED FOR ALL NEW CONSTRUCTION, ADDITIONS & ACCESSORY STRUCTURES.
- PLAN SHALL BE DRAWN IN ACCORDANCE WITH SECTION 12 OF THE COLCHESTER ZONING REGULATIONS.
- DISTANCES TO PROPERTY LINES FROM PROPOSED CONSTRUCTION MUST BE INCLUDED.

THE OWNER OF THE ABOVE PROPERTY GUARANTEES THAT ALL THE APPLICABLE REQUIREMENTS OF THE ZONING REGULATIONS WILL BE MET.

DATE 8/25/99 SIGNATURE (Property Owner or Agent) [Signature] Agent for SBA + Margus Properties

FOR OFFICE USE ONLY: SDP #99-235

The above stated PROPOSAL is hereby certified to comply () not comply () with the Colchester Zoning Regulations.

DATE 11/29/99 SIGNATURE (Zoning Enforcement Officer) [Signature]

TOWN OF COLCHESTER
BUILDING PERMIT

OFFICE USE ONLY

Street 48 Westchester Rd
 Map 06-12 Lot 038
 Date 12/1/99
 PERMIT NO 8226

FEES PAID	Structural <u>1600</u>	Plumbing _____	Misc. (<u>STP</u>) <u>10</u>
	Septic _____	Heating _____	Misc. (<u>EDF</u>) <u>26</u>
	Electrical _____	Well _____	Total Fee Paid <u>1636</u>

PERMISSION IS HEREBY GRANTED TO Dicia Blufair CO, INC
 to: erect , alter _____, enlarge _____, repair _____, move _____, demolish _____, a Tower
 located at 48 Westchester Rd on land
 owned by MARGUS PROPERTIES, LLC
 Said: erection _____, alteration _____, enlargement _____, repairs _____, removal _____, demolition _____, to be
 occupied as Tower
 as described in Application No. _____ and to conform with plans and specifications filed with
 application, all provisions of the Connecticut Building Code and to comply with all other laws and rules relating to this
 subject. If no work is performed within six months from the time of issuance, this permit shall expire by limitation as
 provided by law.

REMARKS Tole communication tower

Receipt No. 66004E
66006

Approved by Timothy E York
Timothy E York
 Building Inspector

Please refer to notice on reverse side of this permit
 WHITE: Applicant CANARY: Assessor PINK: Gen. File GOLDENROD: Street File

**TOWN OF COLCHESTER
APPLICATION FOR BUILDING PERMIT**

DATE OF APPLICATION 11/5/99 ASSESSOR'S TAX MAP & LOT # 06-12 / 038

Notice: Please refer to rules and requirements on reverse side.

The undersigned hereby applies for a permit to: ERECT (), ALTER (), ENLARGE (), REPAIR (), REMOVE (), DEMOLISH (), a building or structure herein described and in accordance with plans and specifications submitted.

LOCATION (Street & No.) 48 WESTCHESTER RD. PROPERTY OWNER MARGUS PROPERTIES, LLC

OWNER'S ADDRESS 48 WESTCHESTER RD PHONE 860 537-2687

BUILDER DICIN ELECTRIC CO., INC. PHONE 860 442-0826

BUILDER'S ADDRESS 156 CROSS ROAD, WATERFORD, CT LICENSE # 00900217

USE GROUP _____ TYPE OF CONSTRUCTION _____ SIZE OF BUILDING X

GARAGE SIZE N/A x _____ ATTACHED N/A TOTAL FLOOR AREA N/A NUMBER OF STORIES N/A

NUMBER OF BATHS N/A NUMBER OF BEDROOMS N/A JACUZZI/HOT-TUBS N/A GAL.

HEATING TYPE N/A SIDING N/A SEPTIC N/A WELL N/A CITY WATER N/A

CITY SEWER N/A GARBAGE DISPOSAL N/A ACCESSORY BUILDING SIZE N/A

IS PROPERTY WITHIN 100 YEAR FLOOD PLAIN? NO EST. CONSTRUCTION VALUE \$ 160,000

The applicant agrees to comply with all the provisions of the building code and with the provisions of all other laws and rules governing building construction.

Signed (Owner or Agent) [Signature] Print Name EDWARD G. DUPONT.

APPROVED (Building Official) [Signature]

DESCRIPTION OF PROPOSED WORK UNDER THIS APPLICATION:
TELECOMMUNICATION TOWER/FACILITY & ASSOCIATED UTILITIES.

SUBCONTRACTORS			OFFICIAL USE ONLY	
Electrician <u>TBD</u>			Electrical	_____
Name <u>Professional Elec</u>	Address <u>89 Access Rd,</u>		Plumbing	_____
Signature <u>James Buzon</u>	Lic.# <u>00125754</u>		Heating	_____
Plumber			Sed/Erosion	_____
Name	Address		Septic	_____
Signature	Lic.#		Well	_____
Heating Contractor			Driveway	_____
Name	Address		Building	<u>1600</u>
Signature	Lic.#		<u>edp</u>	<u>26</u>
Remodeler			State Fee	<u>10</u>
Name	Address		Total Fee	<u>31636</u>
Signature	Lic.#			

Exhibit B



Property Information

Property Location	48 WESTCHESTER RD
Owner	SBA TOWERS INC
Co-Owner	ATTN TAX DEPARTMENT CT 002652
Mailing Address	8051 CONGRESS AVENUE BOCA RATON FL 33487-1307
Land Use	4310 Tel Rel Tw
Land Class	I
Zoning Code	
Census Tract	
Sub Lot	
Neighborhood	
Acreage	0
Utilities	
Lot Setting/Desc	
Survey Map	
Additional Info	

Photo



Sketch

Primary Construction Details

Year Built	
Stories	
Building Style	
Building Use	
Building Condition	
Floors	
Total Rooms	

Bedrooms	
Full Bathrooms	
Half Bathrooms	
Bath Style	
Kitchen Style	
Roof Style	
Roof Cover	

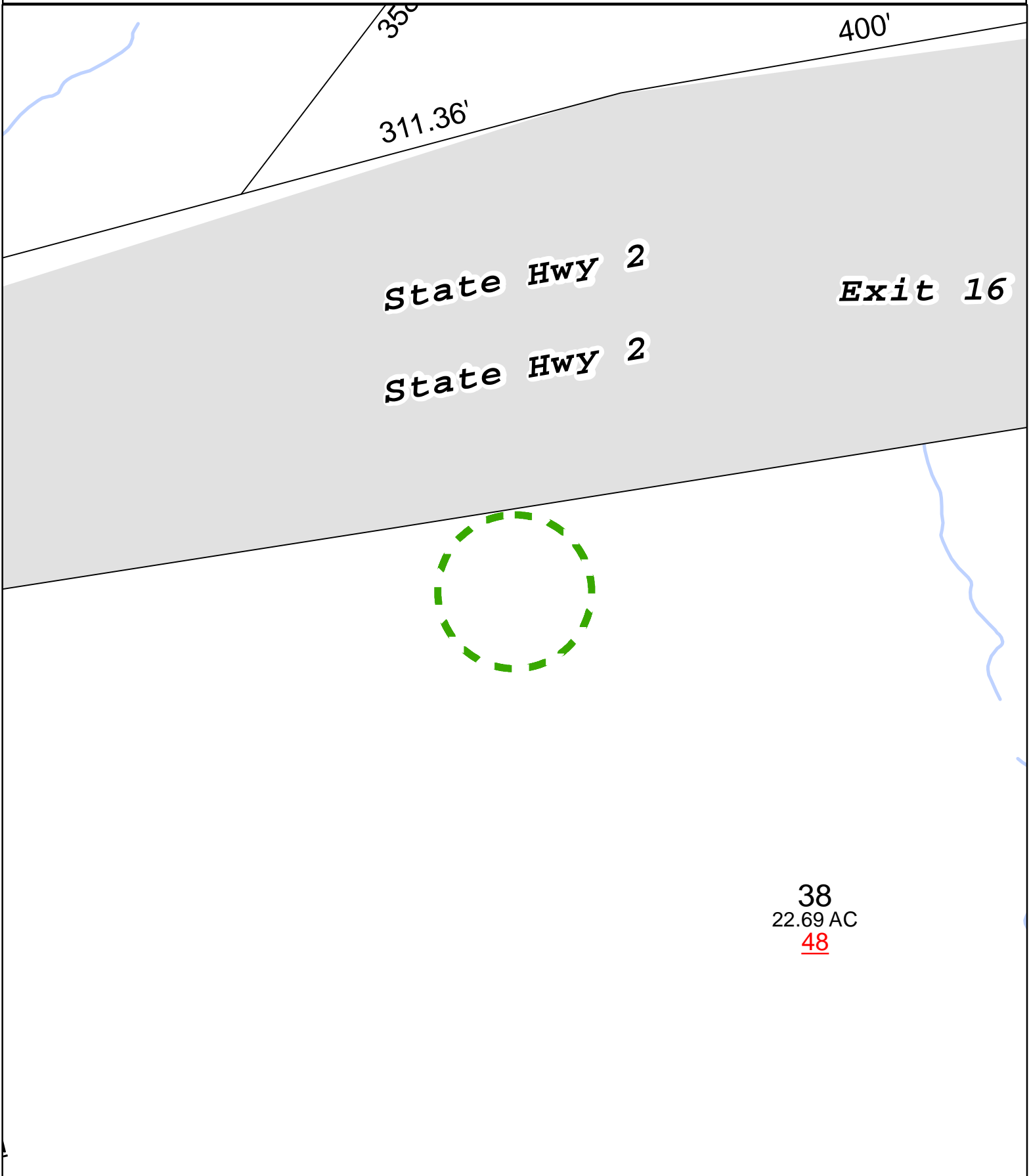
Exterior Walls	
Interior Walls	
Heating Type	
Heating Fuel	
AC Type	
Gross Bldg Area	
Total Living Area	



Town of Colchester, Connecticut - Assessment Parcel Map

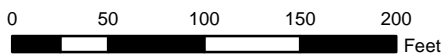
Parcel: 06-12-038-000-TWR

Address: 48 WESTCHESTER RD



38
 22.69 AC
48

Approximate Scale: 1 inch = 100 feet



Map Produced: July 2017 / Grand List: 2016

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

Exhibit C

SITE NAME: RT 2 / COLCHESTER WEST / SBA

48 WESTCHESTER ROAD
COLCHESTER, CT 06415
NEW LONDON COUNTY

SITE NUMBER: CT11338A

PROJECT: T-MOBILE MICROWAVE

T-MOBILE TECHNICIAN SITE SAFETY NOTES

LOCATION	SPECIAL RESTRICTIONS
ANTENNA/TMA	
SECTOR A:	ACCESS NOT PERMITTED
SECTOR B:	ACCESS NOT PERMITTED
SECTOR C:	ACCESS NOT PERMITTED
GPS/LMU:	UNRESTRICTED*
	(*CAUTION: OSHA-APPROVED PORTABLE 8' STEP-LADDER REQUIRED)
RADIO CABINETS:	UNRESTRICTED
PPC DISCONNECT:	UNRESTRICTED
MAIN CIRCUIT D/C:	UNRESTRICTED
NIU/T DEMARC:	UNRESTRICTED
OTHER/SPECIAL:	NONE



T-MOBILE NORTHEAST LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
TEL: (860) 648-1116

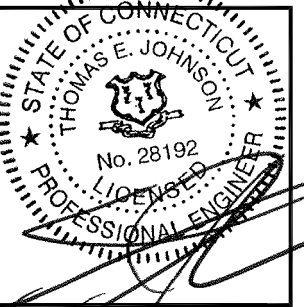


NORTHEAST SITE SOLUTIONS

199 Brickyard Road
Farmington, CT 06032
Ph: (203) 275-6669



4 Bay Road, Building A
Suite 200
Hadley, MA 01035 Ph: (413)320-4918



CHECKED BY: JMM/TEJ

APPROVED BY: JMM/TEJ

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	11/13/17	ISSUED FOR CONSTRUCTION	JEB
0	10/02/17	ISSUED FOR REVIEW	JEB

SITE NUMBER:

CT11338A

SITE NAME:

RT 2 / COLCHESTER WEST / SBA

SITE ADDRESS:

48 WESTCHESTER ROAD
COLCHESTER, CT 06415
NEW LONDON COUNTY

SHEET TITLE

TITLE SHEET

SHEET NUMBER

T-1

GENERAL NOTES

- THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF T-MOBILE NORTHEAST, LLC. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.
- THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.
- CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE T-MOBILE NORTHEAST, LLC REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

SPECIAL CONSTRUCTION NOTES

- TOWER OWNER SHALL PROVIDE GLOBAL STRUCTURAL STABILITY ANALYSIS OF EXISTING ANTENNA SUPPORT STRUCTURE. GENERAL CONTRACTOR SCOPE OF WORK SHALL INCLUDE ALL REQUIRED STRUCTURAL MODIFICATIONS, RE-BUNDLING OF COAXIAL CABLES OR OTHER SPECIAL MODIFICATIONS AS OUTLINED THEREIN.
- ENGINEER-OF-RECORD HAS MADE A VISUAL ASSESSMENT ONLY OF EXISTING ANTENNA MOUNT ASSEMBLIES, WITHOUT THE BENEFIT OF A RIGOROUS ANTENNA MOUNT STRUCTURAL ANALYSIS, AND RECOMMENDS THAT EXISTING AND PROPOSED TOWER TOP EQUIPMENT BE INSTALLED AS DEPICTED HEREIN. STRUCTURAL DETAILS AS DEPICTED HEREIN FOR MODIFICATION OF EXISTING ANTENNA MOUNT ASSEMBLIES ARE PRELIMINARY ONLY AND THAT FINAL CONSTRUCTION DETAILS MAY BE SUBJECT TO CHANGE PENDING THE COMPLETION OF A SEPARATE SUPPLEMENTAL ANTENNA MOUNT STRUCTURAL ASSESSMENT, SUPPLEMENTAL STRUCTURAL MAPPING/CONDITIONS ASSESSMENT REPORT AND/OR SUPPLEMENTAL RIGOROUS ANTENNA MOUNT STRUCTURAL ANALYSIS.
- PROTERRA DESIGN GROUP ASSUMES THAT THE TOWER IS PROPERLY CONSTRUCTED AND MAINTAINED. ALL STRUCTURAL MEMBERS AND THEIR CONNECTION ARE ASSUMED TO BE IN GOOD CONDITION AND ARE FREE FROM DEFECTS WITH NO DETERIORATION TO ITS MEMBER CAPACITIES



PROJECT INFORMATION

SCOPE OF WORK:	UNMANNED TELECOMMUNICATIONS FACILITY T-MOBILE EQUIPMENT MODERNIZATION
ADDRESS:	48 WESTCHESTER ROAD COLCHESTER, CT 06415
LATITUDE:	41.59013 (FROM T-MOBILE RECORD)
LONGITUDE:	-72.40147 (FROM T-MOBILE RECORD)
JURISDICTION:	TOWN OF COLCHESTER
BUILDING CODE:	2016 CONNECTICUT STATE BUILDING CODE WITH AMENDMENTS
ELECTRICAL CODE:	2014 NATIONAL ELECTRICAL CODE AND AMENDMENTS
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY
TOWER OWNER:	SBA TOWERS, LLC
TOWER OWNER SITE ID:	CT02218-S
TOWER OWNER SITE NAME:	COLCHESTER
TOWER OWNER REGIONAL SITE MANAGER:	STEPHEN ROTH (860) 539-4920

APPROVALS

PROJECT MANAGER	DATE
CONSTRUCTION	DATE
RF ENGINEERING	DATE
ZONING / SITE ACQ.	DATE
OPERATIONS	DATE
TOWER OWNER	DATE



DIG SAFE SYSTEM
(MA, ME, NH, RI, VT):
1-888-344-7233



CALL BEFORE YOU DIG
(CT): 1-800-922-4455

UNDERGROUND SERVICE ALERT

DRAWING INDEX

SHEET NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	1
GN-1	GENERAL NOTES	1
A-1	COMPOUND & ELEVATION PLAN	1
A-2	EXISTING & PROPOSED ANTENNA PLAN	1
A-3	DETAILS	1
E-1	ONE-LINE DIAGRAM & GROUNDING DETAILS	1

GROUNDING NOTES

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTNING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.
2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
4. 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.
5. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS 2 AWG STRANDED COPPER FOR OUTDOOR BTS.
6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
7. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
11. METAL CONDUIT SHALL BE MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH 6 AWS COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
12. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/2 IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50

GENERAL NOTES

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
 CONTRACTOR – NORTHEAST SITE SOLUTIONS
 SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
 OWNER – T-MOBILE
2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR 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 CONTRACTOR.
3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.
7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.
9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.
10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.
14. ANY NEW CONCRETE NEEDED FOR CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.
15. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (FY = 36 KSI) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (FY = 35 KSI). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCHUP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.
16. CONSTRUCTION SHALL COMPLY WITH UMS SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF T-MOBILE SITES."
17. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
18. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
19. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.
20. APPLICABLE BUILDING CODES:
 SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.

 SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:

 AMERICAN CONCRETE INSTITUTE (ACI) 318; BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE;

 AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)

 MANUAL OF STEEL CONSTRUCTION, ASD, NINTH EDITION;

 TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-F, STRUCTURAL STANDARDS FOR STEEL

 ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES; REFER TO ELECTRICAL DRAWINGS FOR SPECIFIC ELECTRICAL STANDARDS.

 FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

ABBREVIATIONS

AGL ABOVE GRADE LEVEL	EQ EQUAL	REQ REQUIRED
AWG AMERICAN WIRE GAUGE	G.C. GENERAL CONTRACTOR	RF RADIO FREQUENCY
BTCW BARE TINNED SOLID COPPER WIRE	GRC GALVANIZED RIGID CONDUIT	TBD TO BE DETERMINED
BGR BURIED GROUND RING	MGB MASTER GROUND BAR	TBR TO BE REMOVED
BTS BASE TRANSCEIVER STATION	MIN MINIMUM	TBRR TO BE REMOVED AND REPLACED
EXISTING EXISTING OR (E)	PROPOSED NEW OR (P)	TYP TYPICAL
EGB EQUIPMENT GROUND BAR	N.T.S. NOT TO SCALE	VIF VERIFY IN FIELD
EGR EQUIPMENT GROUND RING	RAD RADIATION CENTERLINE (ANTENNA)	
	REF REFERENCE	

T-Mobile

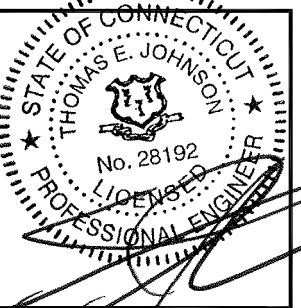
T-MOBILE NORTHEAST LLC
 35 GRIFFIN ROAD SOUTH
 BLOOMFIELD, CT 06002
 TEL: (860) 648-1116

NSS
NORTHEAST
SITE SOLUTIONS

199 Brickyard Road
 Farmington, CT 06032
 Ph: (203) 275-6669

ProTerra
DESIGN GROUP, LLC

4 Bay Road, Building A
 Suite 200
 Hadley, MA 01035 Ph: (413) 320-4918



CHECKED BY: JMM/TEJ

APPROVED BY: JMM/TEJ

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	11/13/17	ISSUED FOR CONSTRUCTION	JEB
0	10/02/17	ISSUED FOR REVIEW	JEB

SITE NUMBER:

CT11338A

SITE NAME:

RT 2 / COLCHESTER WEST / SBA

SITE ADDRESS:

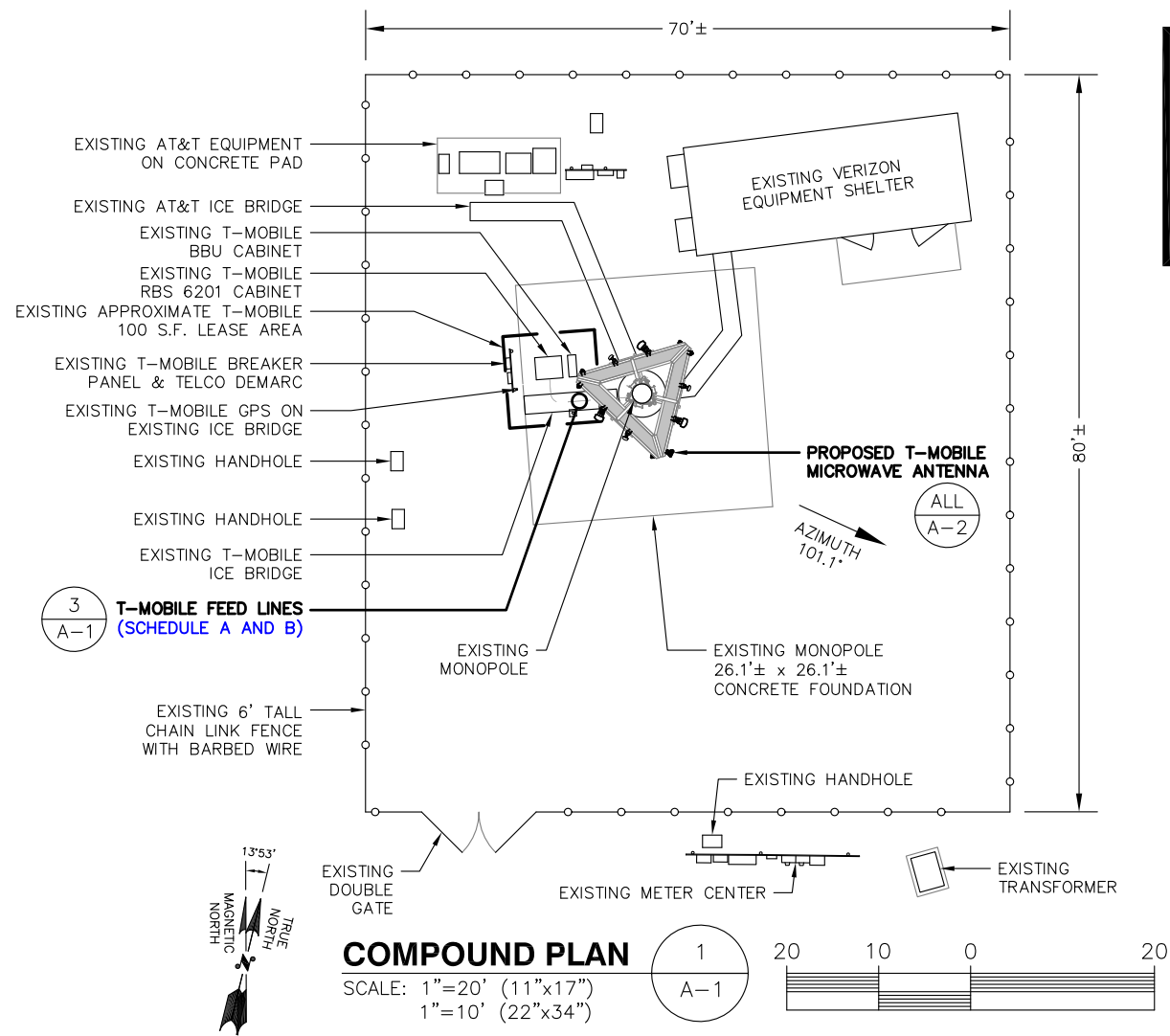
48 WESTCHESTER ROAD
 COLCHESTER, CT 06415
 NEW LONDON COUNTY

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-1



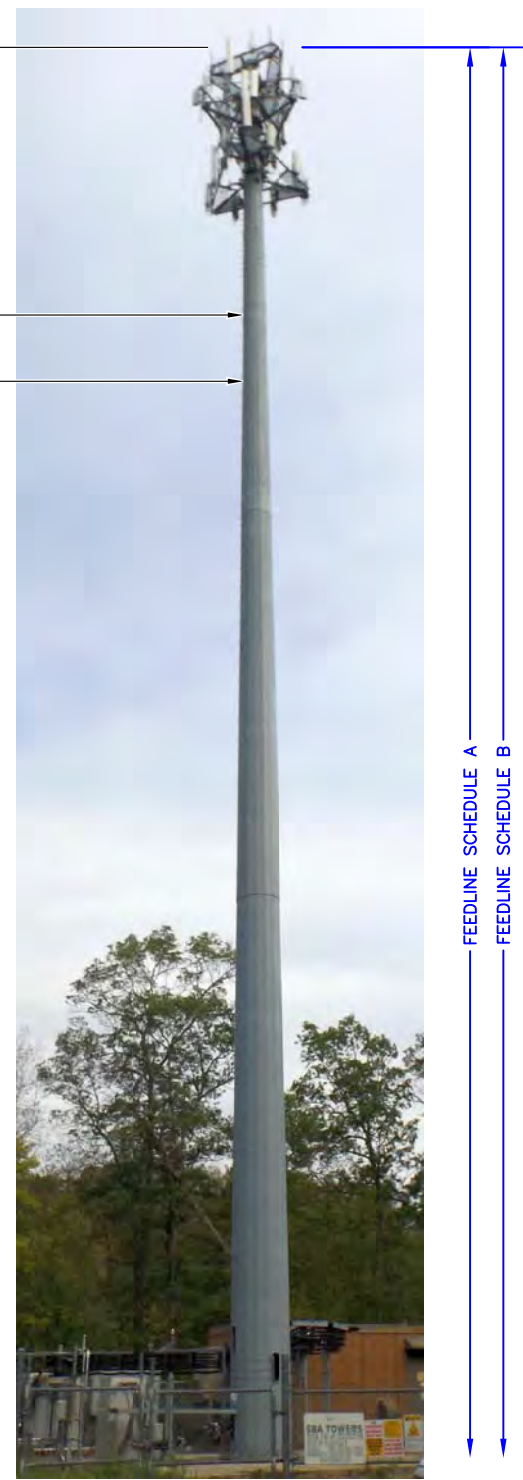
ANTENNA MOUNT STRUCTURAL DESIGN NOTE:
ENGINEER-OF-RECORD HAS MADE A VISUAL ASSESSMENT ONLY OF EXISTING ANTENNA MOUNT ASSEMBLIES, WITHOUT THE BENEFIT OF A RIGOROUS ANTENNA MOUNT STRUCTURAL ANALYSIS, AND RECOMMENDS THAT EXISTING AND PROPOSED TOWER TOP EQUIPMENT BE INSTALLED AS DEPICTED HEREIN. STRUCTURAL DETAILS AS DEPICTED HEREIN FOR MODIFICATION OF EXISTING ANTENNA MOUNT ASSEMBLIES ARE PRELIMINARY ONLY AND THAT FINAL CONSTRUCTION DETAILS MAY BE SUBJECT TO CHANGE PENDING THE COMPLETION OF A SEPARATE SUPPLEMENTAL ANTENNA MOUNT STRUCTURAL ASSESSMENT, SUPPLEMENTAL STRUCTURAL MAPPING/CONDITIONS ASSESSMENT REPORT AND/OR SUPPLEMENTAL RIGOROUS ANTENNA MOUNT STRUCTURAL ANALYSIS.

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PROPOSED T-MOBILE MICROWAVE ANTENNA
ELEV.= 177'± AGL

ALL A-2

ALL A-3

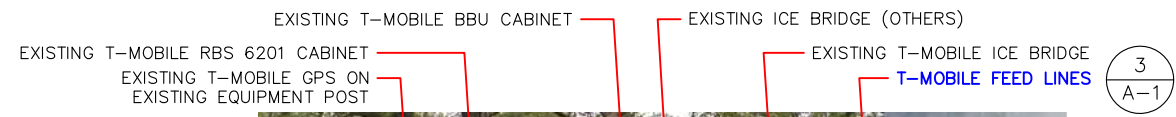


FEEDLINE SCHEDULE (* SEE NOTE)	FEEDLINE DESCRIPTION	LOCATION
A	EXISTING: TO REMAIN (12) 1-5/8" COAX TO RAD	INSIDE MONOPOLE TO EXISTING RAD 177'± AGL
B	PROPOSED: (2) CAT6 AND (1) FIBER TO (P) MICROWAVE (** SEE NOTE)	INSIDE MONOPOLE TO (P) MICROWAVE 177'± AGL (** SEE NOTE)

*NOTE: EXISTING T-MOBILE EQUIPMENT FEEDLINE INVENTORY BASED ON OBSERVED FIELD CONDITIONS. RFDS AND FEEDLINE LEASING ENTITLEMENTS MAY DIFFER

**NOTE: PROPOSED CABLING TO BE INSTALLED IN INNERDUCT AS REQUIRED. PROVIDE SUPPORT FOR STRAIN RELIEF AS REQUIRED PER MANUFACTURER'S RECOMMENDATIONS.

T-MOBILE FEED LINES (REFER TO STRUCTURAL ANALYSIS (BY OTHERS) FOR SPECIAL FEEDLINE INSTALLATION REQUIREMENTS, STACKING, BUNDLING, SHIELDING, MOUNTING AND RELOCATION OF EXISTING OR PROPOSED FEEDLINES)



EQUIPMENT PHOTO DETAIL
SCALE: N.T.S.

2 A-1



FEEDLINE PHOTO DETAIL AT TOWER BASE
SCALE: N.T.S.

3 A-1



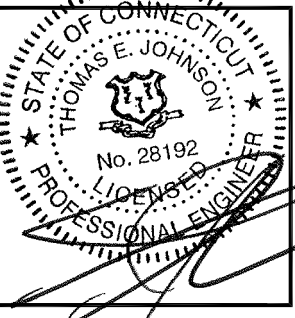
PARTIAL ELEVATION PHOTO DETAIL
SCALE: N.T.S.

4 A-1

T-Mobile
T-MOBILE NORTHEAST LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
TEL: (860) 648-1116

NSS
NORTHEAST SITE SOLUTIONS
199 Brickyard Road
Farmington, CT 06032
Ph: (203) 275-6669

ProTerra
DESIGN GROUP, LLC
4 Bay Road, Building A
Suite 200
Hadley, MA 01035 Ph:(413)320-4918



CHECKED BY: JMM/TEJ

APPROVED BY: JMM/TEJ

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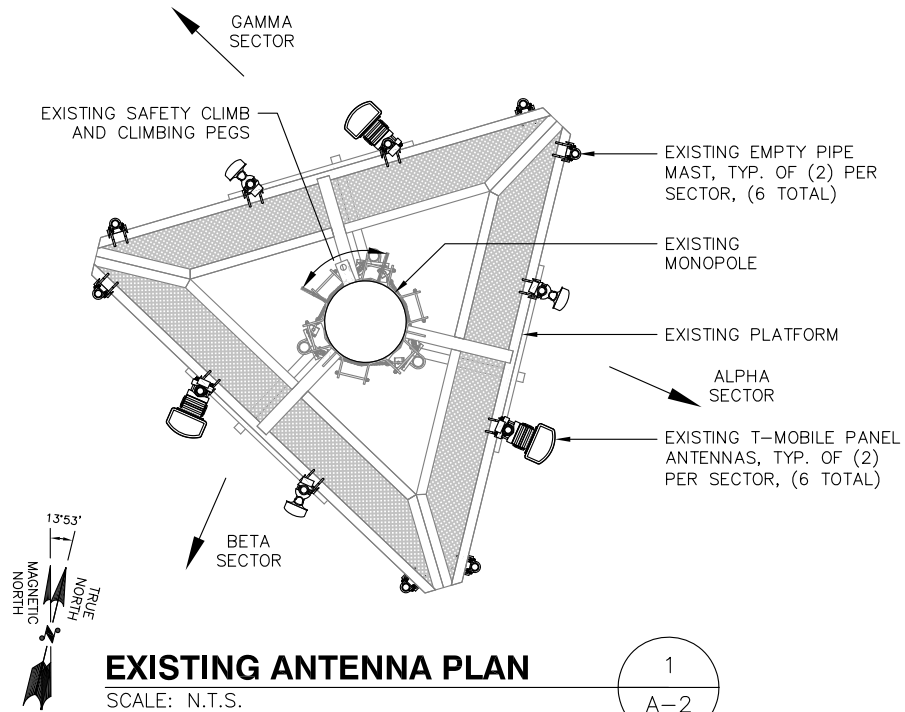
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CT11338A

SITE NAME:
RT 2 / COLCHESTER WEST / SBA

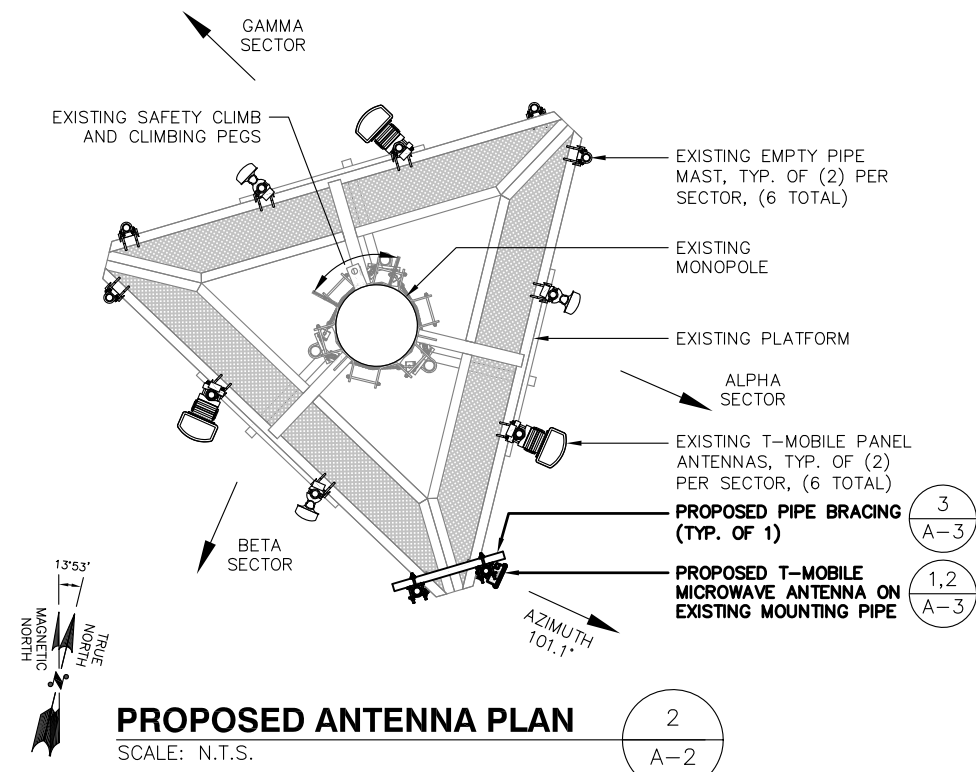
SITE ADDRESS:
48 WESTCHESTER ROAD
COLCHESTER, CT 06415
NEW LONDON COUNTY

SHEET TITLE
EXISTING & PROPOSED EQUIPMENT PLANS

SHEET NUMBER
A-1



EXISTING ANTENNA PLAN
SCALE: N.T.S.

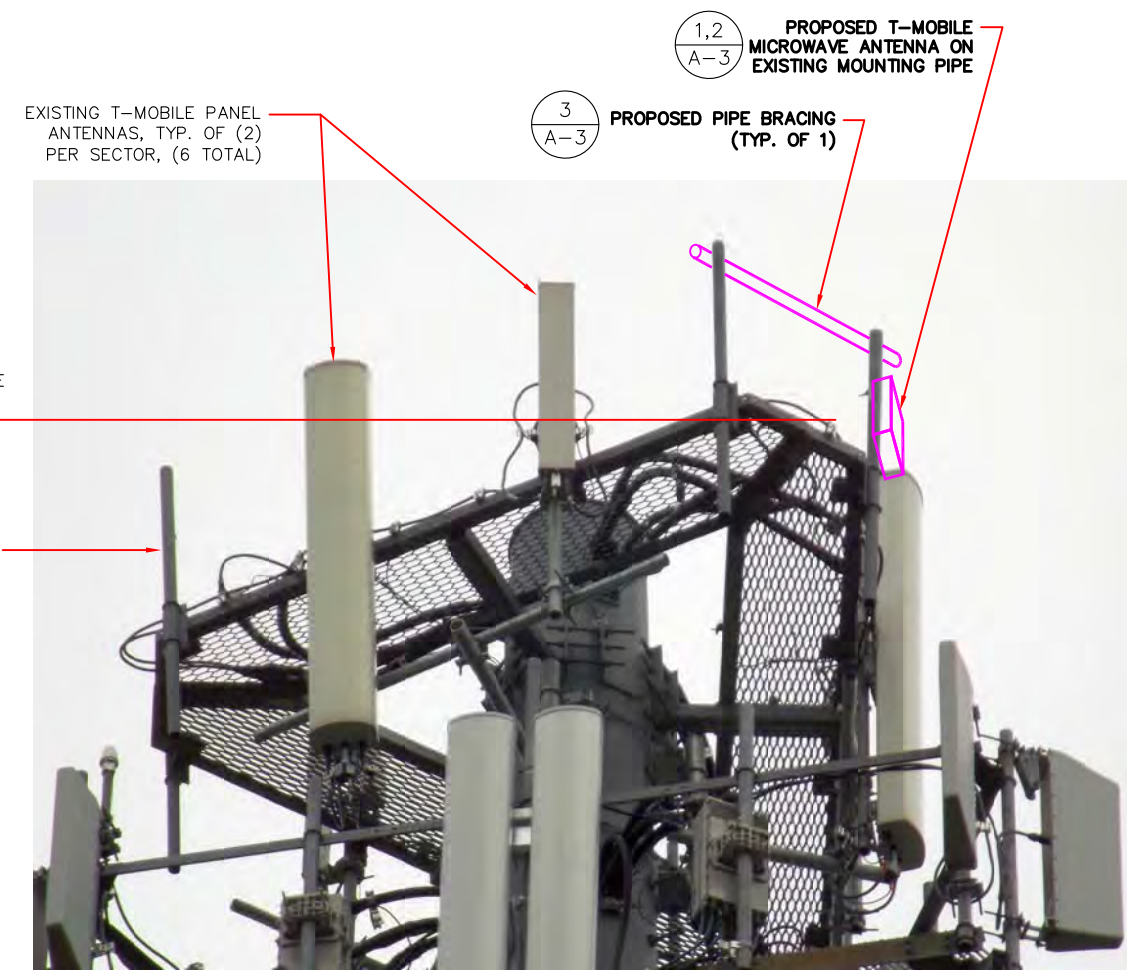


PROPOSED ANTENNA PLAN
SCALE: N.T.S.

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NOTE:
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

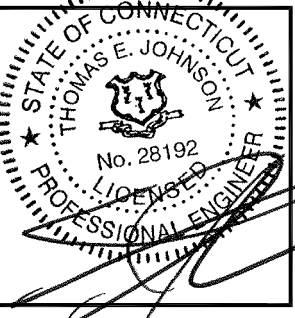


ANTENNA PHOTO DETAIL
SCALE: N.T.S.

T-Mobile
T-MOBILE NORTHEAST LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
TEL: (860) 648-1116

NSS
NORTHEAST
SITE SOLUTIONS
199 Brickyard Road
Farmington, CT 06032
Ph: (203) 275-6669

ProTerra
DESIGN GROUP, LLC
4 Bay Road, Building A
Suite 200
Hadley, MA 01035 Ph: (413)320-4918



CHECKED BY: JMM/TEJ

APPROVED BY: JMM/TEJ

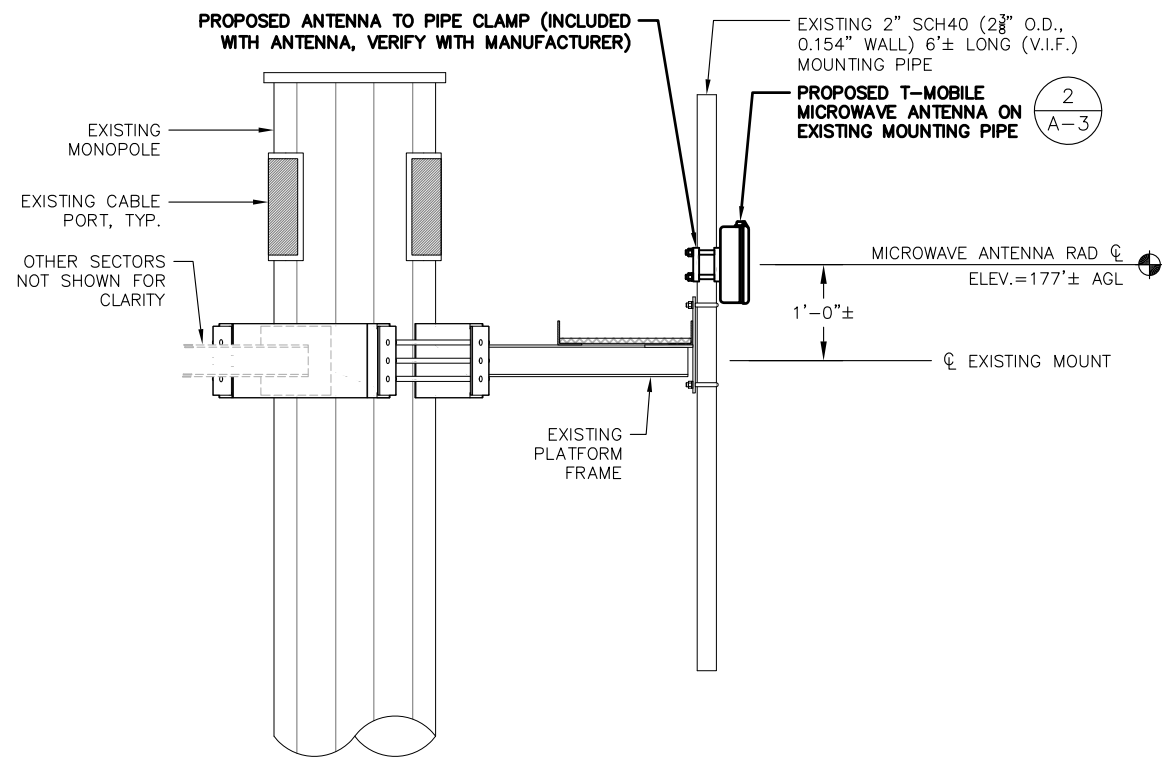
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SITE NAME:
RT 2 / COLCHESTER WEST / SBA
SITE ADDRESS:
48 WESTCHESTER ROAD
COLCHESTER, CT 06415
NEW LONDON COUNTY

SHEET TITLE
EXISTING & PROPOSED ANTENNA PLAN

SHEET NUMBER
A-2

IMAGE SOURCE: PROTERRA 09/22/17
NOTE: ONE SECTOR SHOWN FOR CLARITY



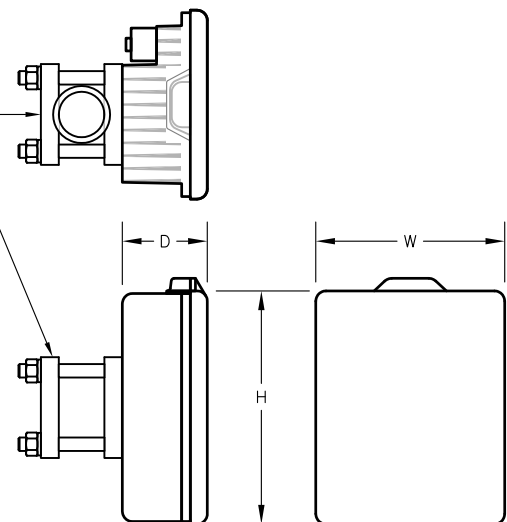
PROPOSED MICROWAVE ANTENNA MOUNTING DETAIL

SCALE: N.T.S.

1
A-3

MICROWAVE ANTENNA SPECIFICATIONS

MANUF.	FASTBACK NETWORKS
MODEL #	IBR 1300 SERIES
HEIGHT	10.3"±
WIDTH	7.9"±
DEPTH	3.6"±
WEIGHT	8.82± LBS.



MICROWAVE ANTENNA DETAIL

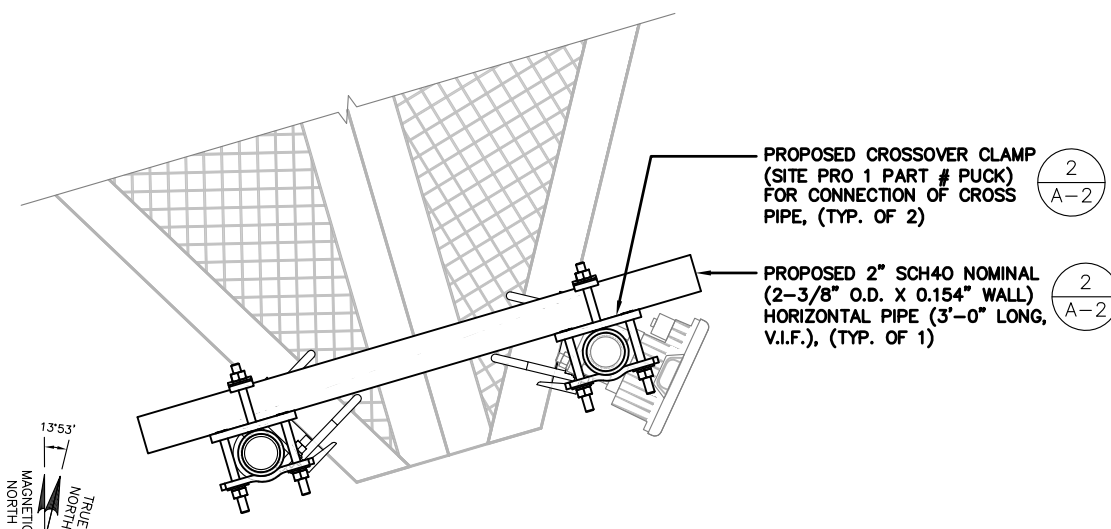
SCALE: N.T.S.

2
A-3

ANTENNA MOUNT STRUCTURAL DESIGN NOTE:
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NOTE:
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PROPOSED PIPE BRACE DETAIL

SCALE: N.T.S.

3
A-3

T-Mobile
T-MOBILE NORTHEAST LLC
 35 GRIFFIN ROAD SOUTH
 BLOOMFIELD, CT 06002
 TEL: (860) 648-1116

NSS
NORTHEAST
SITE SOLUTIONS
 199 Brickyard Road
 Farmington, CT 06032
 Ph: (203) 275-6669

ProTerra
DESIGN GROUP, LLC
 4 Bay Road, Building A
 Suite 200
 Hadley, MA 01035 Ph: (413)320-4918

STATE OF CONNECTICUT
 THOMAS E. JOHNSON
 No. 28192
 LICENSED PROFESSIONAL ENGINEER

CHECKED BY: JMM/TEJ

APPROVED BY: JMM/TEJ

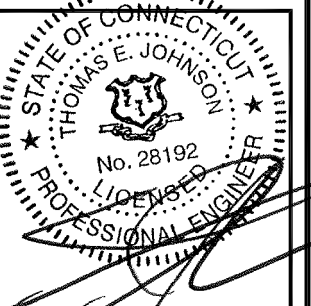
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 48 WESTCHESTER ROAD
 COLCHESTER, CT 06415
 NEW LONDON COUNTY

SHEET TITLE
DETAILS

SHEET NUMBER
A-3



CHECKED BY: JMM/TEJ

APPROVED BY: JMM/TEJ

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SITE NUMBER:

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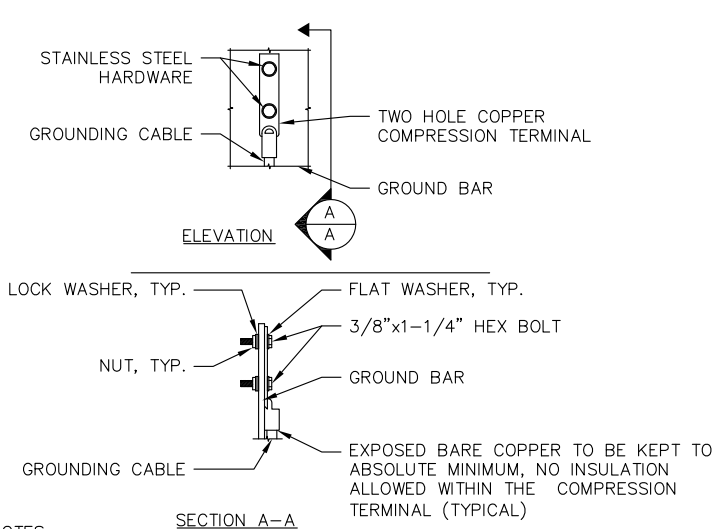
48 WESTCHESTER ROAD
 COLCHESTER, CT 06415
 NEW LONDON COUNTY

SHEET TITLE

ONE-LINE DIAGRAM & GROUNDING DETAILS

SHEET NUMBER

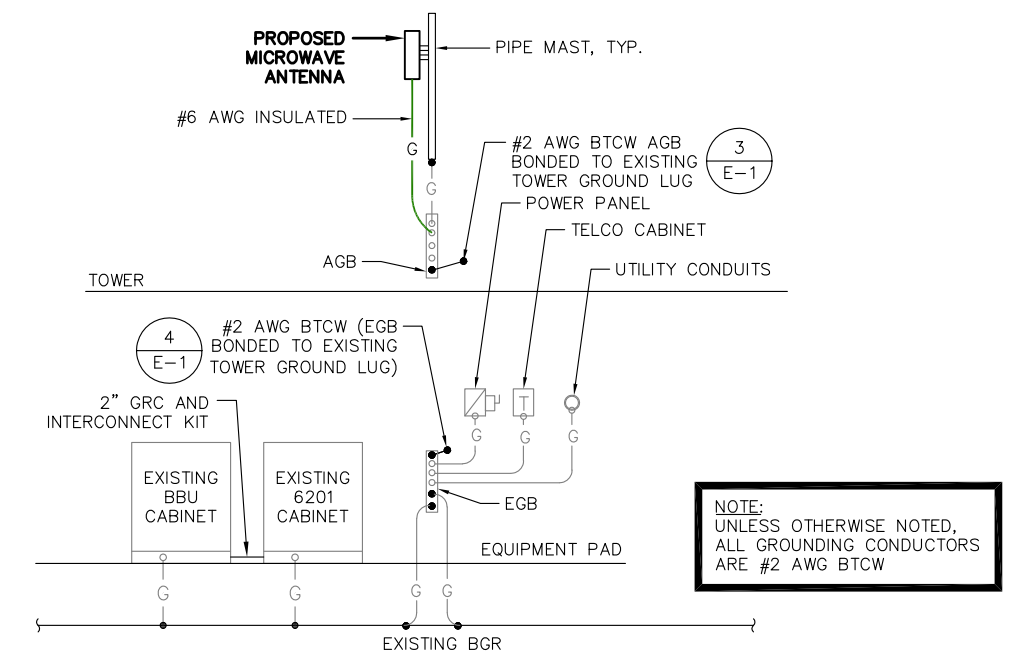
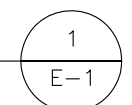
E-1



- NOTES:**
- "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
 - OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
 - CADWELDED DOWNLEADS FROM UPPER EGB, LOWER EGB, AND MGB.

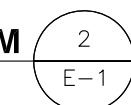
TYPICAL GROUND BAR CONNECTION DETAIL

SCALE: N.T.S.



TYPICAL GROUNDING RISER DIAGRAM

SCALE: N.T.S.



ELECTRICAL LEGEND

A	AMPERE
V	VOLT
KWH	KILOWATT - HOUR
C	CONDUIT
GRC	GALVANIZED RIGID CONDUIT
BTCW	BARE TINNED (SOLID) COPPER WIRE (#2 AWG, UNLESS NOTES OTHERWISE)
G	GROUND
⊕	GROUND
○●	MECHANICAL CONNECTION
○●	CADWELDED CONNECTION
○●	EQUIPMENT GROUND BAR/ANTENNA GROUND BAR
○●	GROUND COPPER WIRE, SIZE AS NOTED
—	EXPOSED WIRING
—	INSULATED GROUNDING CONDUCTOR (#6 AWG STRANDED, UNLESS NOTED OTHERWISE)
○	5/8"x10' COPPER CLAD STAINLESS STEEL GROUND ROD
●	EXOTHERMIC (CAD WELD) OR MECHANICAL (COMPRESSION TYPE) CONNECTION
PPC	POWER PROTECTION CABINET
⊗	OMNI-DIRECTIONAL ELECTRONIC MARKER SYSTEM (EMS) BALL

ELECTRICAL & GROUNDING NOTES:

- ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) 2014 AS WELL AS APPLICABLE STATE AND LOCAL CODES.
- ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.
- THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL DESCRIBED BY DRAWINGS AND SPECIFICATIONS INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.
- GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, AND IS RESPONSIBLE FOR OBTAINING SAID PERMITS AND COORDINATION OF INSPECTIONS.
- ELECTRICAL AND TELCO WIRING OUTSIDE A BUILDING AND EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS OR SCHEDULE 80 PVC (AS PERMITTED BY CODE) AND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.
- RIGID STEEL CONDUITS SHALL BE GROUNDED AT BOTH ENDS.
- ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THWN, OR THHN INSULATION AS REQUIRED BY NEC.
- RUN ELECTRICAL CONDUIT OR CABLE BETWEEN ELECTRICAL ROOM AND PROPOSED CELL SITE POWER PEDESTAL AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE. COORDINATE INSTALLATION WITH UTILITY COMPANY.
- RUN TELCO CONDUIT OR CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT AND PROPOSED CELL SITE TELCO CABINET AND BTS CABINET AS INDICATED ON DRAWING A-1. PROVIDE FULL LENGTH PULL ROPE IN INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.
- ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NEMA 3R ENCLOSURE.
- GROUNDING SHALL COMPLY WITH NEC ART. 250.
- GROUND COAXIAL CABLE SHIELDS MINIMUM AT BOTH ENDS USING MANUFACTURERS COAX CABLE GROUNDING KITS SUPPLIED BY PROJECT OWNER.
- USE #6 COPPER STRANDED WIRE WITH GREEN COLOR INSULATION FOR ABOVE GRADE GROUNDING (UNLESS OTHERWISE SPECIFIED) AND #2 SOLID TINNED BARE COPPER WIRE FOR BELOW GRADE GROUNDING AS INDICATED ON THE DRAWING.
- ALL GROUND CONNECTIONS TO BE BURNDY HYGROUND COMPRESSION TYPE CONNECTORS OR CADWELDED EXOTHERMIC WELD. DO NOT ALLOW BARE COPPER WIRE TO BE IN CONTACT WITH GALVANIZED STEEL.
- ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE, EXCEPT AS OTHERWISE INDICATED. GROUNDING LEADS SHOULD NEVER BE BENT AT RIGHT ANGLE. ALWAYS MAKE AT LEAST 12" RADIUS BENDS. #6 WIRE CAN BE BENT AT 6" RADIUS WHEN NECESSARY. BOND ANY METAL OBJECTS WITHIN 7 FEET OF PROPOSED EQUIPMENT OR CABINET TO MASTER GROUND BAR.
- CONNECTIONS TO MGB SHALL BE ARRANGED IN THREE MAIN GROUPS: SURGE PRODUCERS (COAXIAL CABLE GROUND KITS, TELCO AND POWER PANEL GROUND); (GROUNDING ELECTRODE RING OR BUILDING STEEL); NON-SURGING OBJECTS (EGB GROUND IN BTS UNIT).
- CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LYGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS.
- APPLY OXIDE INHIBITING COMPOUND TO ALL COMPRESSION TYPE GROUND CONNECTIONS.
- BOND ANTENNA MOUNTING BRACKETS, COAXIAL CABLE GROUND KITS, AND ALNA TO EGB PLACED NEAR THE ANTENNA LOCATION.
- BOND ANTENNA EGB'S AND MGB TO WATER MAIN/GROUND RING.
- TEST COMPLETED GROUND SYSTEM AND RECORD RESULTS FOR PROJECT CLOSE-OUT DOCUMENTATION.
- BOND ANY METAL OBJECTS WITHIN 7 FEET OF PROPOSED EQUIPMENT OR CABINET TO MASTER GROUND BAR.
- VERIFY PROPOSED SERVICE UPGRADE WITH LOCAL UTILITY COMPANY PRIOR TO CONSTRUCTION.

Exhibit D



Tower Engineering Solutions

Phone (972) 483-0607, Fax (972) 975-9615
8445 Freeport Parkway, Suite 375, Irving, Texas 75063

Structural Analysis Report

Existing 180 ft. Valmont Monopole
Customer Name: SBA Communications Corp
Customer Site Number: CT02218-S
Customer Site Name: Colchester
Carrier Name: T-Mobile
Carrier Site ID / Name: CT11338A
Site Location: 48 Westchester Road
Colchester, Connecticut
New London County
Latitude: 41.590161
Longitude: -72.401467

Analysis Result:

Max Structural Usage: 81.0% [Pass]

Max Foundation Usage: 79% [Pass]

Report Prepared By : Stacey Hesselbein





Tower Engineering Solutions

Phone (972) 483-0607, Fax (972) 975-9615
8445 Freeport Parkway, Suite 375, Irving, Texas 75063

Structural Analysis Report

Existing 180 ft. Valmont Monopole

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Customer Site Number: CT02218-S

Customer Site Name: Colchester

Carrier Name: T-Mobile

Carrier Site ID / Name: CT11338A

Site Location: 48 Westchester Road

Colchester, Connecticut

New London County

Latitude: 41.590161

Longitude: -72.401467

Analysis Result:

Max Structural Usage: 81.0% [Pass]

Max Foundation Usage: 79% [Pass]

Report Prepared By : Stacey Hesselbein

Introduction

The purpose of this report is to summarize the analysis results on the 180 ft. Valmont Monopole to support the proposed antennas and transmission lines in addition to those currently installed. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

Sources of Information

Tower Drawings	Tower Drawings prepared by Valmont Microflect, Order # 19487-99 Dated 11/03/1999
Foundation Drawing	Foundation Drawing prepared by Towerkraft, Project# 2985 Dated 11/04/1999
Geotechnical Report	N/A
Modification Drawings	N/A

Analysis Criteria

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

Wind Speed Used in the Analysis:	Ultimate Design Wind Speed $V_{ult} = 135$ mph (3-Sec. Gust)/ Nominal Design Wind Speed $V_{asd} = 105.0$ mph (3-Sec. Gust)
Wind Speed with Ice:	50 mph (3-Sec. Gust) with 3/4" radial ice concurrent
Operational Wind Speed:	60 mph + 0" Radial ice
Standard/Codes:	ANSI/TIA/EIA 222-G / 2012 IBC / 2016 Connecticut State Building Code
Exposure Category:	C
Structure Class:	II
Topographic Category:	1
Crest Height:	0 ft.
Seismic Parameters:	$S_S = 0.176$, $S_1 = 0.062$

Existing Antennas, Mounts and Transmission Lines

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

Items	Elevation (ft.)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
-	177.0	3	RFS - APXV18-206516S-C-A20 - Panel	(1) Platform w/ Hand Rails & w/ SitePro1 PRK-1245	(12) 1 5/8"	T-Mobile
-		3	Commscope - LNX-6515DS-VTM - Panel			
-		3	Ericsson - KRY 112 144/1 - TMA			
-		3	Kathrein - 782 11056 - Bias T's			
6	167.0	6	Antel - LPA-80080-4CF-EDIN-0 - Panel	(1) Platform w/ Hand Rails	(1) 1 1/4" Fiber (12) 1 5/8" (1) 1 5/8" Fiber	Verizon
7		6	Commscope - SBNHH-1D65B - Panel			
8		3	Alcatel-Lucent B13 RRH4x30-4R RRH			
9		3	Alcatel-Lucent B4 RRH 4x45-4R RRH			
10		2	Raycap RC2DC-3315-PF-48 ODU			
11	157.0	6	Powerwave - 7770 w/ Mount Pipe - Panel	(1) Low Profile Platform	(12) 1 5/8" (2) DC (1) Fiber	Cingular
12		2	Powerwave - P65-17-XLH-RR - Panel			
13		1	KMW - AM-X-CD-16-65-00T - Panel			
14		6	Powerwave - LGP21401 - TMA			
15		6	Ericsson - RRUS 11 - RRU			
16		6	Powerwave - LGP21903 - Diplexer			
17		1	Raycap - DC6-48-60-18-8F - SP			

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

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

Items	Elevation (ft.)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	177.0	3	RFS - APXV18-206516S-C-A20 - Panel	(1) Platform w/ Hand Rails & w/ SitePro1 PRK-1245	(12) 1 5/8"	T-Mobile
2		3	Commscope - LNX-6515DS-VTM - Panel			
3		3	Ericsson - KRY 112 144/1 - TMA			
4		3	Kathrein - 782 11056 - Bias T's			
5		1	Fastback Networks - IBR 1300 - Dish		(1) 5/16" Fiber (2) 5/16" Cat 6	

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

Analysis Results

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

	Pole shafts	Anchor Bolts	Base Plate
Max. Usage:	81.0%	75.6%	58.6%
Pass/Fail	Pass	Pass	Pass

Foundations

	Moment (Kip-Ft)
Original Design Reactions	5045.0
Analysis Reactions	5378.5
Factored Reactions*	6810.8
% of Design Reactions	79.0%

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

No geotechnical report is available for the analysis of the existing foundation. Since the reactions calculated from the current analysis are less than those indicated on the original structural design drawing, the foundations are assumed to be adequate to resist the reactions from the current analysis.

Operational Condition (Rigidity):

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

Elevation (ft.)	Antenna / Dish	Carrier	Twist (deg)	Sway (deg)
177.0	IBR 1300 - Dish	T-Mobile	0.000	1.505

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

Conclusions

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

Standard Conditions

1. This analysis was performed based on the information supplied to **(TES) Tower Engineering Solutions, LLC**. Verification of the information provided was not included in the Scope of Work for **TES**. The accuracy of the analysis is dependent on the accuracy of the information provided.
2. The analysis is based on the presumption that the tower members and components along with any existing reinforcement items have been correctly and properly designed, manufactured, installed and maintained.
3. All the existing structural members were assumed to be in good condition with no physical damage or deterioration associated with corrosion.
4. An initial tension of 10% of the break strength on all the existing guy wires was assumed in all the structural analyses of guyed towers unless different values were provided by the client. **TES** cannot take responsibility for the deviations in the analysis results because of differences in the initial tension forces of the existing guy wires.
5. Secondary component or connection secondary components, welds and bolts are assumed to be able to carry their intended original design loads. **TES** cannot take responsibility for verification of the adequacy on the connections, bolts and welds present in the structure.
6. The analyses will be performed based on the codes as specified by the client or based on the best knowledge of the engineering staff of **TES**. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/TIA-222. If wind speed and/or ice loads are different from the minimum values recommended by the EIA/TIA-222 standard or other codes, **TES** should be notified in writing and the applicable minimum values provided by the client.
7. The configuration of the existing mounts, antennas, coax and other appurtenances were supplied by the customer for the current structural analysis. **TES** has not visited the tower site to verify the adequacy of the information provided. If there is any discrepancy found in the report regarding the existing conditions, **TES** should be notified immediately to evaluate the effect of the discrepancy on the analysis results.
8. The client will assume responsibility for rework associated with the differences in initially provided information, including tower and foundation information, existing and/or proposed equipment and transmission lines.
9. If a feasibility analysis was performed, final acceptance of changed conditions shall be based upon a rigorous structural analysis.

Usage Diagram - Max Ratio 81.01% at 0.0ft

Structure: CT02218-S-SBA
Site Name: Colchester
Height: 180.00 (ft)
Base Elev: 0.000 (ft)

Code: EIA/TIA-222-G
Exposure: C
Gh: 1.1

10/26/2017

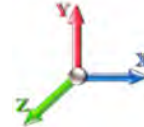
Page: 1



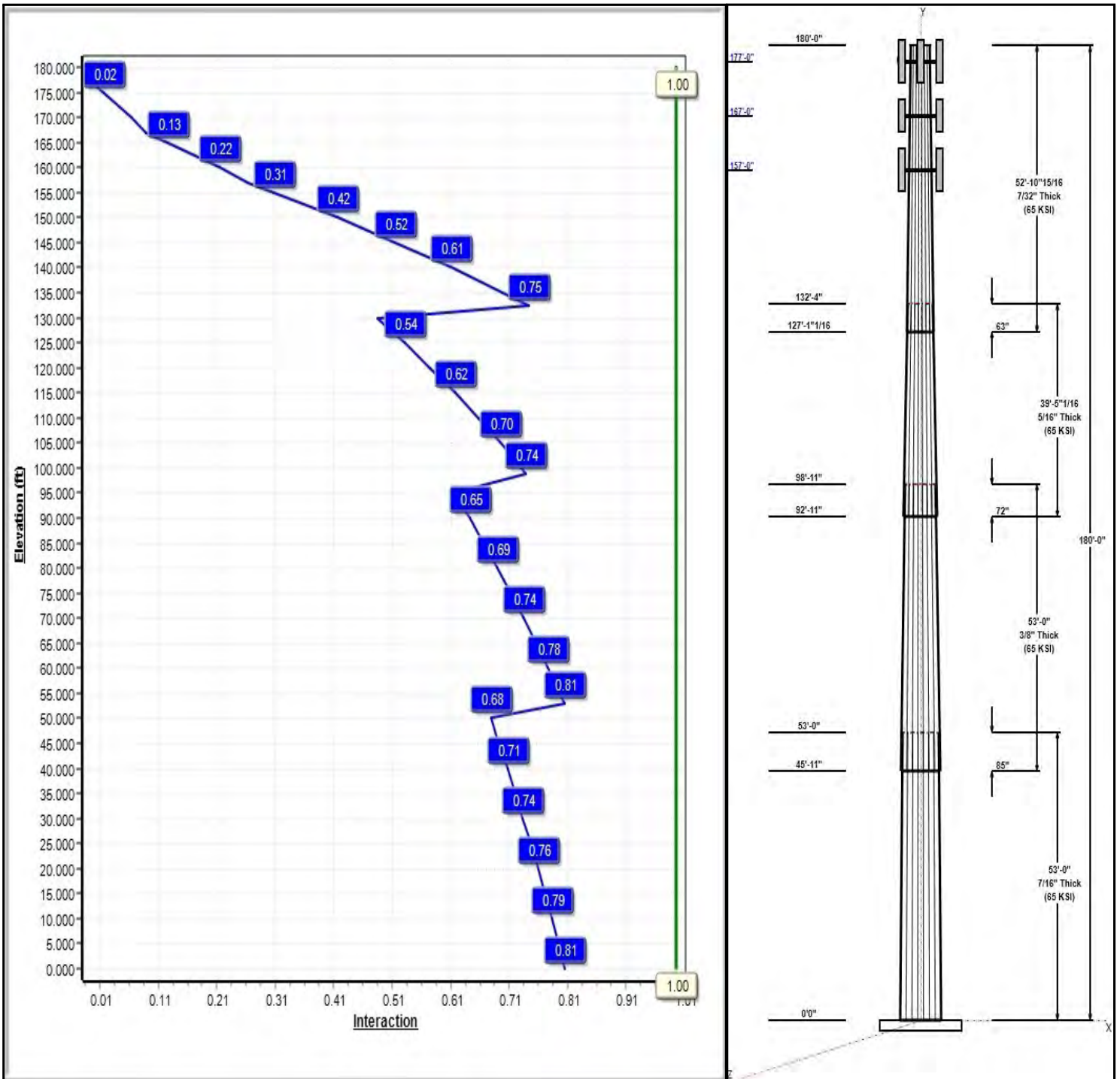
Dead Load Factor: 1.20
Wind Load Factor: 1.60

Iterations: 26

Load Case : 1.2D + 1.6W 105 mph Wind



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Structure: CT02218-S-SBA

Type: Tapered
Site Name: Colchester
Height: 180.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 16 Sided
Taper: 0.20502

10/26/2017

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Shaft Properties

Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	53.00	49.13	60.00	0.438		0.20502	65
2	53.00	40.47	51.34	0.375	Slip	0.20502	65
3	39.42	34.24	42.33	0.313	Slip	0.20502	65
4	52.91	24.91	35.76	0.219	Slip	0.20502	65

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
180.00	180.00	1	6' Lightning rod	T-Mobile
177.00	177.00	3	KRY 112 144/1	T-Mobile
177.00	177.00	3	APXV18-206516S-C-A20	T-Mobile
177.00	177.00	3	LNx-6515DS-VTM	T-Mobile
177.00	177.00	3	782 11056	T-Mobile
177.00	177.00	1	Platform w/ Hand Rails	T-Mobile
177.00	177.00	1	IBR 1300	T-Mobile
177.00	177.00	1	Pipe Mount	T-Mobile
167.00	167.00	6	SBNHH-1D65B	Verizon
167.00	167.00	3	Alcatel-Lucent B13	Verizon
167.00	167.00	3	Alcatel-Lucent B4 RRH	Verizon
167.00	167.00	2	Raycap	Verizon
167.00	167.00	6	LPA-80080-4CF-EDIN-0	Verizon
167.00	167.00	1	Platform w/ Hand Rails	Verizon
157.00	157.00	6	7770 w/ Mount Pipe	Cingular
157.00	157.00	2	P65-17-XLH-RR	Cingular
157.00	157.00	1	AM-X-CD-16-65-00T	Cingular
157.00	157.00	6	LGP21401	Cingular
157.00	157.00	6	RRUS 11	Cingular
157.00	157.00	6	LGP21903	Cingular
157.00	157.00	1	DC6-48-60-18-8F	Cingular
157.00	157.00	1	Low Profile Platform-flat	Cingular

Linear Appurtenances

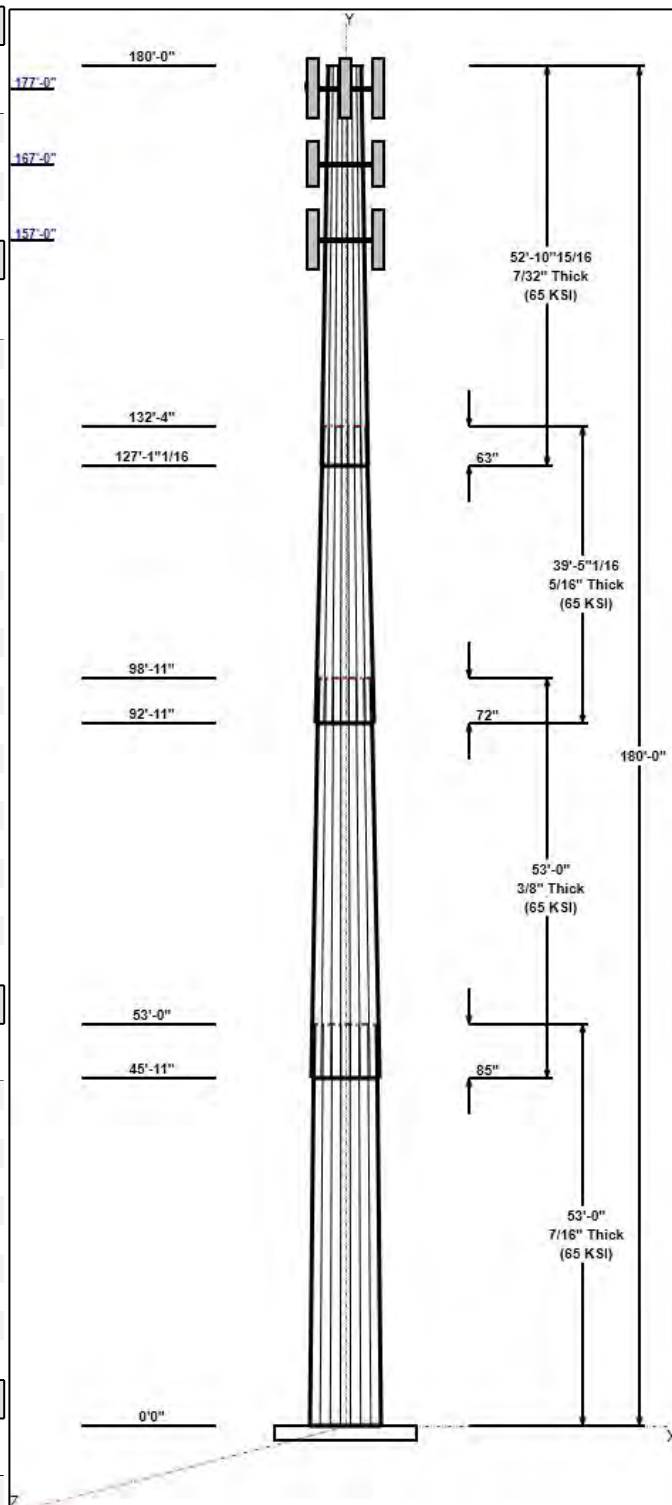
Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	177.00	Inside	1 5/8" Coax	T-Mobile
0.00	177.00	Inside	1 5/8" Coax	T-Mobile
0.00	177.00	Inside	5/16" CAT6	T-Mobile
0.00	177.00	Inside	5/16" Fiber	T-Mobile
0.00	167.00	Inside	1 1/4" Fiber	Verizon
0.00	167.00	Inside	1 5/8" Coax	Verizon
0.00	167.00	Inside	1 5/8" Fiber	Verizon
0.00	157.00	Inside	1 5/8" Coax	Cingular
0.00	157.00	Inside	DC	Cingular
0.00	157.00	Inside	Fiber	Cingular

Anchor Bolts

Qty	Specifications	Grade (ksi)	Arrangement
20	2.25" 18J	75.0	Radial

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry



Structure: CT02218-S-SBA

Type: Tapered
Site Name: Colchester
Height: 180.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 16 Sided
Taper: 0.20502

10/26/2017

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2.7500 74.6 60.0 Polygon

Reactions

Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.6W 105 mph Wind	5378.5	43.7	56.0
0.9D + 1.6W 105 mph Wind	5317.3	43.7	42.0
1.2D + 1.0Di + 1.0Wi 50 mph Wind	1247.6	10.0	81.8
1.2D + 1.0E	175.1	1.3	56.1
0.9D + 1.0E	172.9	1.3	42.1
1.0D + 1.0W 60 mph Wind	1091.6	8.9	46.7

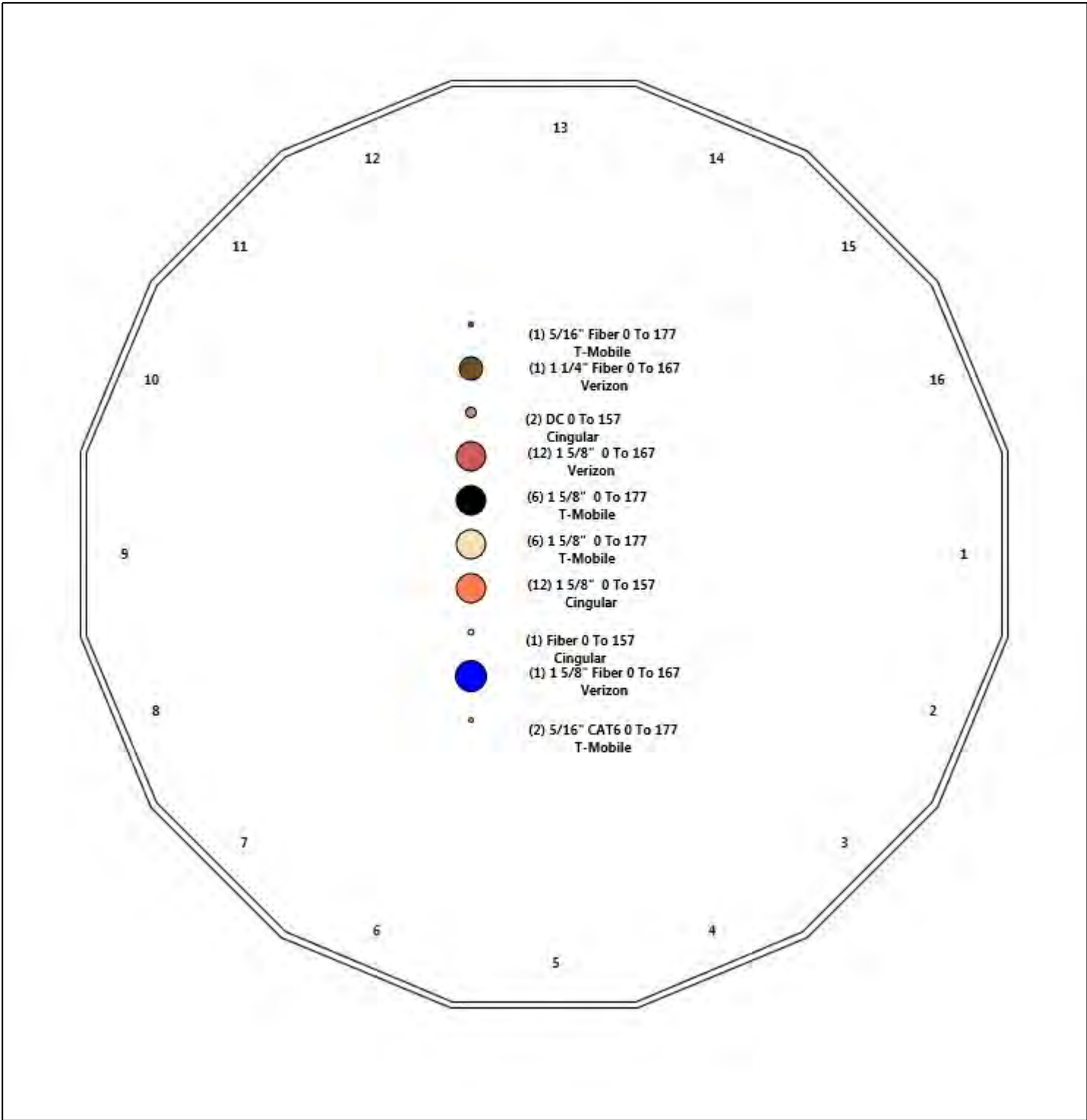
Structure: CT02218-S-SBA - Coax Line Placement

Type: Monopole
Site Name: Colchester
Height: 180.00 (ft)

10/26/2017



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Shaft Properties

Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/26/2017
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	16	53.000	0.4380	65		0.00	13,640
2	16	53.000	0.3750	65	Slip	85.00	9,822
3	16	39.420	0.3130	65	Slip	72.00	5,086
4	16	52.913	0.2190	65	Slip	63.00	3,788
Total Shaft Weight:							32,336

Bottom

Top

Sec. No.	Dia (in)	Elev (ft)	Area (sqin)	Ix (in^4)	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (sqin)	Ix (in^4)	W/t Ratio	D/t Ratio	Taper
1	60.00	0.00	83.22	37298.12	25.66	136.99	49.13	53.00	68.04	20382.3	20.72	112.1	0.205022
2	51.34	45.92	60.96	20001.00	25.64	136.90	40.47	98.92	47.96	9740.99	19.88	107.9	0.205022
3	42.33	92.92	41.95	9354.08	25.31	135.23	34.24	132.34	33.88	4927.66	20.17	109.4	0.205022
4	35.76	127.0	24.83	3961.68	30.89	163.28	24.91	180.00	17.25	1328.51	21.03	113.7	0.205022

Load Summary

Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/26/2017
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Discrete Appurtenances

No.	Elev (ft)	Description	Qty	No Ice			Ice			Hor. Ecc. (ft)	Vert Ecc (ft)
				Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor		
1	180.00	6' Lightning rod	1	6.50	0.38	0.00	43.47	1.488	0.00	0.00	0.00
2	177.00	KRY 112 144/1	3	11.00	0.41	0.72	21.96	0.893	0.75	0.00	0.00
3	177.00	APXV18-206516S-C-A20	3	18.70	3.61	0.78	89.94	5.498	0.79	0.00	0.00
4	177.00	LNx-6515DS-VTM	3	50.30	11.47	0.84	286.38	14.775	0.84	0.00	0.00
5	177.00	782 11056	3	1.80	0.28	0.78	6.40	0.688	0.82	0.00	0.00
6	177.00	Platform w/ Hand Rails w/PRK	1	2600.00	40.00	1.00	5367.97	61.292	1.00	0.00	0.00
7	177.00	IBR 1300	1	8.90	0.67	1.00	27.08	1.023	1.00	0.00	0.00
8	177.00	Pipe Mount	1	40.00	2.63	0.75	121.62	8.698	0.75	0.00	0.00
9	167.00	SBNHH-1D65B	6	40.00	8.16	0.83	245.75	9.475	0.83	0.00	0.00
10	167.00	Alcatel-Lucent B13 RRH4x30-4R	3	57.20	2.16	0.88	120.16	2.777	0.88	0.00	0.00
11	167.00	Alcatel-Lucent B4 RRH 4x45-4R	3	64.00	2.60	0.80	148.71	3.312	0.80	0.00	0.00
12	167.00	Raycap RC2DC-3315-PF-48 ODU	2	32.00	3.79	0.84	147.95	4.755	0.84	0.00	0.00
13	167.00	LPA-80080-4CF-EDIN-0	6	12.00	2.61	1.00	149.23	3.473	1.00	0.00	0.00
14	167.00	Platform w/ Hand Rails (flat)	1	2000.00	40.00	1.00	4116.86	61.169	1.00	0.00	0.00
15	157.00	7770 w/ Mount Pipe	6	35.00	5.50	0.75	170.93	6.570	0.75	0.00	0.00
16	157.00	P65-17-XLH-RR	2	59.00	11.44	0.80	276.59	14.689	0.80	0.00	0.00
17	157.00	AM-X-CD-16-65-00T	1	48.50	8.02	0.78	211.52	10.826	0.78	0.00	0.00
18	157.00	LGP21401	6	14.10	1.29	0.64	39.22	2.130	0.66	0.00	0.00
19	157.00	RRUS 11	6	50.70	2.52	0.76	140.39	3.175	0.77	0.00	0.00
20	157.00	LGP21903	6	5.50	0.27	0.74	13.97	0.669	0.76	0.00	0.00
21	157.00	DC6-48-60-18-8F	1	31.80	1.47	1.00	93.91	2.173	1.00	0.00	0.00
22	157.00	Low Profile Platform-flat	1	1200.00	25.00	1.00	2251.92	46.038	1.00	0.00	0.00
Totals:			66	7,670.50			19,661.03				

Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
0.00	177.00	(6) 1 5/8" Coax	0.00	Inside
0.00	177.00	(6) 1 5/8" Coax	0.00	Inside
0.00	177.00	(2) 5/16" CAT6	0.00	Inside
0.00	177.00	(1) 5/16" Fiber	0.00	Inside
0.00	167.00	(1) 1 1/4" Fiber	0.00	Inside
0.00	167.00	(12) 1 5/8" Coax	0.00	Inside
0.00	167.00	(1) 1 5/8" Fiber	0.00	Inside
0.00	157.00	(12) 1 5/8" Coax	0.00	Inside
0.00	157.00	(2) DC	0.00	Inside
0.00	157.00	(1) Fiber	0.00	Inside

Shaft Section Properties

Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/26/2017
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Increment Length: 5 (ft)

Elev (ft)	Description	Thick (in)	Dia (in)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Fpy (ksi)	S (in ³)	Weight (lb)
0.00		0.4380	60.000	83.221	37298.1	25.66	136.99	73.5	1219.	0.0
5.00		0.4380	58.975	81.789	35405.3	25.19	134.65	74.1	1177.	1403.7
10.00		0.4380	57.950	80.357	33577.6	24.73	132.31	74.6	1136.	1379.4
15.00		0.4380	56.925	78.924	31813.9	24.26	129.96	75.1	1096.	1355.0
20.00		0.4380	55.900	77.492	30113.1	23.79	127.62	75.6	1056.	1330.6
25.00		0.4380	54.874	76.060	28474.0	23.33	125.28	76.2	1017.	1306.3
30.00		0.4380	53.849	74.627	26895.5	22.86	122.94	76.7	979.7	1281.9
35.00		0.4380	52.824	73.195	25376.4	22.40	120.60	77.2	942.3	1257.5
40.00		0.4380	51.799	71.763	23915.7	21.93	118.26	77.8	905.7	1233.1
45.00		0.4380	50.774	70.330	22512.1	21.47	115.92	78.3	869.7	1208.8
45.92	Bot - Section 2	0.4380	50.586	70.068	22260.8	21.38	115.49	78.4	863.2	219.0
50.00		0.4380	49.749	68.898	21164.5	21.00	113.58	78.8	834.5	1805.5
53.00	Top - Section 1	0.3750	49.884	59.225	18339.4	24.87	133.02	0.0	0.0	1307.3
55.00		0.3750	49.474	58.734	17887.4	24.65	131.93	74.7	709.2	401.4
60.00		0.3750	48.449	57.508	16790.3	24.11	129.20	75.3	679.8	988.9
65.00		0.3750	47.424	56.282	15738.9	23.56	126.46	75.9	651.0	968.0
70.00		0.3750	46.398	55.056	14732.4	23.02	123.73	76.5	622.8	947.1
75.00		0.3750	45.373	53.829	13769.7	22.48	121.00	77.1	595.3	926.3
80.00		0.3750	44.348	52.603	12849.9	21.93	118.26	77.8	568.4	905.4
85.00		0.3750	43.323	51.377	11972.0	21.39	115.53	78.4	542.1	884.5
90.00		0.3750	42.298	50.150	11135.1	20.84	112.79	79.0	516.4	863.7
92.92	Bot - Section 3	0.3750	41.700	49.435	10665.4	20.53	111.20	79.3	501.7	494.2
95.00		0.3750	41.273	48.924	10338.1	20.30	110.06	79.6	491.3	644.5
98.92	Top - Section 2	0.3130	41.096	40.720	8556.2	24.53	131.30	0.0	0.0	1193.7
100.00		0.3130	40.874	40.499	8417.2	24.38	130.59	75.0	403.9	149.7
105.00		0.3130	39.849	39.475	7795.0	23.73	127.31	75.7	383.7	680.3
110.00		0.3130	38.824	38.452	7204.2	23.08	124.04	76.5	364.0	662.9
115.00		0.3130	37.798	37.428	6644.1	22.43	120.76	77.2	344.8	645.5
120.00		0.3130	36.773	36.405	6113.8	21.78	117.49	77.9	326.1	628.1
125.00		0.3130	35.748	35.381	5612.5	21.13	114.21	78.7	308.0	610.7
127.09	Bot - Section 4	0.3130	35.320	34.954	5411.6	20.85	112.84	79.0	300.5	249.7
130.00		0.3130	34.723	34.357	5139.3	20.48	110.94	79.4	290.3	587.6
132.34	Top - Section 3	0.2190	34.682	24.076	3612.5	29.91	158.37	0.0	0.0	464.0
135.00		0.2190	34.136	23.695	3443.5	29.41	155.87	69.3	197.9	216.5
140.00		0.2190	33.111	22.979	3140.6	28.48	151.19	70.3	186.1	397.0
145.00		0.2190	32.086	22.262	2856.0	27.55	146.51	71.4	174.6	384.9
150.00		0.2190	31.061	21.546	2589.2	26.62	141.83	72.5	163.5	372.7
155.00		0.2190	30.036	20.830	2339.5	25.69	137.15	73.5	152.8	360.5
157.00		0.2190	29.626	20.544	2244.3	25.32	135.28	73.9	148.6	140.8
160.00		0.2190	29.010	20.114	2106.4	24.76	132.47	74.6	142.4	207.5
165.00		0.2190	27.985	19.398	1889.3	23.83	127.79	75.6	132.4	336.1
167.00		0.2190	27.575	19.111	1806.8	23.45	125.91	76.0	128.5	131.0
170.00		0.2190	26.960	18.682	1687.7	22.90	123.11	76.7	122.8	192.9
175.00		0.2190	25.935	17.966	1500.9	21.96	118.43	77.7	113.5	311.8
177.00		0.2190	25.525	17.679	1430.3	21.59	116.55	78.1	109.9	121.3
180.00		0.2190	24.910	17.249	1328.5	21.03	113.74	78.8	104.6	178.3

32335.6

Wind Loading - Shaft

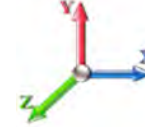
Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/26/2017
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



Load Case: 1.2D + 1.6W 105 mph Wind

Iterations 26

Dead Load Factor 1.20
Wind Load Factor 1.60



Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	22.791	25.07	493.51	0.750	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	22.791	25.07	485.08	0.750	0.000	5.00	25.272	18.95	760.3	0.0	1684.5
10.00		1.00	0.85	22.791	25.07	476.65	0.750	0.000	5.00	24.837	18.63	747.2	0.0	1655.2
15.00		1.00	0.85	22.791	25.07	468.21	0.750	0.000	5.00	24.401	18.30	734.1	0.0	1626.0
20.00		1.00	0.90	24.182	26.60	473.61	0.750	0.000	5.00	23.966	17.97	765.0	0.0	1596.7
25.00		1.00	0.95	25.345	27.88	475.97	0.750	0.000	5.00	23.530	17.65	787.2	0.0	1567.5
30.00		1.00	0.98	26.337	28.97	476.13	0.750	0.000	5.00	23.095	17.32	802.9	0.0	1538.3
35.00		1.00	1.01	27.206	29.93	474.71	0.750	0.000	5.00	22.659	16.99	813.7	0.0	1509.0
40.00		1.00	1.04	27.981	30.78	472.08	0.750	0.000	5.00	22.224	16.67	820.8	0.0	1479.8
45.00		1.00	1.07	28.684	31.55	468.51	0.750	0.000	5.00	21.788	16.34	825.0	0.0	1450.5
45.92 Bot - Section 2		1.00	1.07	28.806	31.69	467.77	0.750	0.000	0.92	3.947	2.96	150.1	0.0	262.8
50.00		1.00	1.09	29.327	32.26	464.17	0.750	0.000	4.08	17.666	13.25	683.9	0.0	2166.6
53.00 Top - Section 1		1.00	1.11	29.689	32.66	461.26	0.750	0.000	3.00	12.794	9.60	501.4	0.0	1568.8
55.00		1.00	1.12	29.922	32.91	466.26	0.750	0.000	2.00	8.442	6.33	333.4	0.0	481.7
60.00		1.00	1.14	30.475	33.52	460.80	0.750	0.000	5.00	20.800	15.60	836.7	0.0	1186.6
65.00		1.00	1.16	30.993	34.09	454.87	0.750	0.000	5.00	20.365	15.27	833.1	0.0	1161.6
70.00		1.00	1.17	31.480	34.63	448.52	0.750	0.000	5.00	19.929	14.95	828.1	0.0	1136.6
75.00		1.00	1.19	31.941	35.13	441.81	0.750	0.000	5.00	19.494	14.62	821.9	0.0	1111.5
80.00		1.00	1.21	32.377	35.62	434.77	0.750	0.000	5.00	19.058	14.29	814.5	0.0	1086.5
85.00		1.00	1.22	32.793	36.07	427.44	0.750	0.000	5.00	18.623	13.97	806.1	0.0	1061.5
90.00		1.00	1.24	33.190	36.51	419.84	0.750	0.000	5.00	18.187	13.64	796.8	0.0	1036.4
92.92 Bot - Section 3		1.00	1.25	33.414	36.76	415.30	0.750	0.000	2.92	10.408	7.81	459.1	0.0	593.0
95.00		1.00	1.25	33.570	36.93	412.01	0.750	0.000	2.08	7.454	5.59	330.3	0.0	773.4
98.92 Top - Section 2		1.00	1.26	33.857	37.24	405.71	0.750	0.000	3.92	13.810	10.36	617.2	0.0	1432.4
100.00		1.00	1.27	33.935	37.33	410.23	0.750	0.000	1.08	3.773	2.83	169.0	0.0	179.6
105.00		1.00	1.28	34.285	37.71	402.00	0.750	0.000	5.00	17.147	12.86	776.0	0.0	816.4
110.00		1.00	1.29	34.623	38.08	393.58	0.750	0.000	5.00	16.711	12.53	763.7	0.0	795.5
115.00		1.00	1.30	34.948	38.44	384.99	0.750	0.000	5.00	16.276	12.21	750.8	0.0	774.6
120.00		1.00	1.32	35.263	38.79	376.23	0.750	0.000	5.00	15.840	11.88	737.3	0.0	753.7
125.00		1.00	1.33	35.567	39.12	367.32	0.750	0.000	5.00	15.405	11.55	723.2	0.0	732.8
127.09 Bot - Section 4		1.00	1.33	35.691	39.26	363.55	0.750	0.000	2.09	6.300	4.73	296.8	0.0	299.6
130.00		1.00	1.34	35.862	39.45	358.26	0.750	0.000	2.91	8.777	6.58	415.5	0.0	705.1
132.34 Top - Section 3		1.00	1.34	35.997	39.60	353.98	0.750	0.000	2.34	6.933	5.20	329.4	0.0	556.9
135.00		1.00	1.35	36.148	39.76	353.60	0.750	0.000	2.66	7.787	5.84	371.5	0.0	259.8
140.00		1.00	1.36	36.426	40.07	344.30	0.750	0.000	5.00	14.284	10.71	686.8	0.0	476.5
145.00		1.00	1.37	36.696	40.37	334.88	0.750	0.000	5.00	13.849	10.39	670.8	0.0	461.8
150.00		1.00	1.38	36.959	40.65	325.34	0.750	0.000	5.00	13.413	10.06	654.4	0.0	447.2
155.00		1.00	1.39	37.215	40.94	315.69	0.750	0.000	5.00	12.978	9.73	637.5	0.0	432.6
157.00 Appurtenance(s)		1.00	1.39	37.315	41.05	311.80	0.750	0.000	2.00	5.069	3.80	249.7	0.0	168.9
160.00		1.00	1.40	37.464	41.21	305.93	0.750	0.000	3.00	7.473	5.60	369.6	0.0	249.0
165.00		1.00	1.41	37.708	41.48	296.08	0.750	0.000	5.00	12.107	9.08	602.6	0.0	403.3
167.00 Appurtenance(s)		1.00	1.41	37.804	41.58	292.11	0.750	0.000	2.00	4.721	3.54	235.6	0.0	157.2
170.00		1.00	1.42	37.946	41.74	286.13	0.750	0.000	3.00	6.950	5.21	348.1	0.0	231.5
175.00		1.00	1.42	38.178	42.00	276.09	0.750	0.000	5.00	11.236	8.43	566.2	0.0	374.1
177.00 Appurtenance(s)		1.00	1.43	38.269	42.10	272.05	0.750	0.000	2.00	4.372	3.28	220.9	0.0	145.5
180.00 Appurtenance(s)		1.00	1.43	38.405	42.25	265.97	0.750	0.000	3.00	6.428	4.82	325.9	0.0	213.9

Wind Loading - Shaft

Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/26/2017
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Totals:	180.00	26,770.1	38,802.8
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Discrete Appurtenance Forces

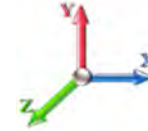
Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/26/2017
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.6W 105 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 26

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	180.00	6' Lightning rod	1	38.405	42.245	0.00	1.00	0.38	7.80	0.000	0.000	25.69	0.00	0.00
2	177.00	782 11056	3	38.269	42.096	0.62	0.80	0.52	6.48	0.000	0.000	35.30	0.00	0.00
3	177.00	KRY 112 144/1	3	38.269	42.096	0.58	0.80	0.71	39.60	0.000	0.000	47.72	0.00	0.00
4	177.00	APXV18-206516S-C-A20	3	38.269	42.096	0.62	0.80	6.76	67.32	0.000	0.000	455.17	0.00	0.00
5	177.00	LNx-6515DS-VTM	3	38.269	42.096	0.67	0.80	23.12	181.08	0.000	0.000	1557.46	0.00	0.00
6	177.00	Platform w/ Hand Rails	1	38.269	42.096	1.00	1.00	40.00	3120.00	0.000	0.000	2694.16	0.00	0.00
7	177.00	IBR 1300	1	38.269	42.096	1.00	1.00	0.67	10.68	0.000	0.000	45.13	0.00	0.00
8	177.00	Pipe Mount	1	38.269	42.096	0.56	0.75	1.48	48.00	0.000	0.000	99.64	0.00	0.00
9	167.00	Platform w/ Hand Rails	1	37.804	41.584	1.00	1.00	40.00	2400.00	0.000	0.000	2661.37	0.00	0.00
10	167.00	LPA-80080-4CF-EDIN-0	6	37.804	41.584	0.80	0.80	12.53	86.40	0.000	0.000	833.54	0.00	0.00
11	167.00	Raycap	2	37.804	41.584	0.67	0.80	5.09	76.80	0.000	0.000	338.91	0.00	0.00
12	167.00	Alcatel-Lucent B4 RRH	3	37.804	41.584	0.64	0.80	4.99	230.40	0.000	0.000	332.14	0.00	0.00
13	167.00	Alcatel-Lucent B13	3	37.804	41.584	0.70	0.80	4.56	205.92	0.000	0.000	303.52	0.00	0.00
14	167.00	SBNHH-1D65B	6	37.804	41.584	0.66	0.80	32.51	288.00	0.000	0.000	2162.99	0.00	0.00
15	157.00	Low Profile Platform-flat	1	37.315	41.047	1.00	1.00	25.00	1440.00	0.000	0.000	1641.87	0.00	0.00
16	157.00	DC6-48-60-18-8F	1	37.315	41.047	0.80	0.80	1.18	38.16	0.000	0.000	77.23	0.00	0.00
17	157.00	LGP21903	6	37.315	41.047	0.59	0.80	0.96	39.60	0.000	0.000	62.98	0.00	0.00
18	157.00	RRUS 11	6	37.315	41.047	0.61	0.80	9.19	365.04	0.000	0.000	603.75	0.00	0.00
19	157.00	LGP21401	6	37.315	41.047	0.51	0.80	3.96	101.52	0.000	0.000	260.26	0.00	0.00
20	157.00	AM-X-CD-16-65-00T	1	37.315	41.047	0.62	0.80	5.00	58.20	0.000	0.000	328.67	0.00	0.00
21	157.00	P65-17-XLH-RR	2	37.315	41.047	0.64	0.80	14.64	141.60	0.000	0.000	961.69	0.00	0.00
22	157.00	7770 w/ Mount Pipe	6	37.315	41.047	0.60	0.80	19.80	252.00	0.000	0.000	1300.36	0.00	0.00
Totals:									9,204.60			16,829.57		

Total Applied Force Summary

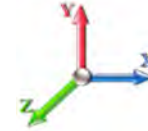
Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/26/2017
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.6W 105 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 26

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		760.28	1926.28	0.00	0.00
10.00		747.18	1897.04	0.00	0.00
15.00		734.08	1867.79	0.00	0.00
20.00		764.99	1838.55	0.00	0.00
25.00		787.21	1809.31	0.00	0.00
30.00		802.88	1780.06	0.00	0.00
35.00		813.72	1750.82	0.00	0.00
40.00		820.83	1721.58	0.00	0.00
45.00		824.95	1692.34	0.00	0.00
45.92		150.09	307.09	0.00	0.00
50.00		683.87	2364.11	0.00	0.00
53.00		501.38	1713.83	0.00	0.00
55.00		333.43	578.39	0.00	0.00
60.00		836.72	1428.44	0.00	0.00
65.00		833.12	1403.41	0.00	0.00
70.00		828.13	1378.37	0.00	0.00
75.00		821.88	1353.33	0.00	0.00
80.00		814.51	1328.30	0.00	0.00
85.00		806.12	1303.26	0.00	0.00
90.00		796.80	1278.22	0.00	0.00
92.92		459.06	734.07	0.00	0.00
95.00		330.33	874.16	0.00	0.00
98.92		617.17	1621.83	0.00	0.00
100.00		168.99	232.03	0.00	0.00
105.00		776.00	1058.20	0.00	0.00
110.00		763.73	1037.30	0.00	0.00
115.00		750.82	1016.41	0.00	0.00
120.00		737.31	995.51	0.00	0.00
125.00		723.22	974.61	0.00	0.00
127.09		296.81	400.56	0.00	0.00
130.00		415.51	846.03	0.00	0.00
132.34		329.44	669.85	0.00	0.00
135.00		371.54	388.56	0.00	0.00
140.00		686.82	718.26	0.00	0.00
145.00		670.81	703.64	0.00	0.00
150.00		654.37	689.01	0.00	0.00
155.00		637.51	674.39	0.00	0.00
157.00	(29) attachments	5486.51	2701.78	0.00	0.00
160.00		369.57	346.08	0.00	0.00
165.00		602.60	565.11	0.00	0.00
167.00	(21) attachments	6868.05	3509.47	0.00	0.00
170.00		348.14	277.27	0.00	0.00
175.00		566.22	450.43	0.00	0.00
177.00	(15) attachments	5155.45	3649.24	0.00	0.00
180.00	(1) attachments	351.54	221.74	0.00	0.00

Total Applied Force Summary

Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/26/2017
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Totals:	<u>43,599.70</u>	<u>56,076.05</u>	<u>0.00</u>	<u>0.00</u>
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Calculated Forces

Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/26/2017
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II

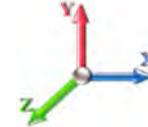


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Load Case: 1.2D + 1.6W 105 mph Wind

Iterations 26

Dead Load Factor 1.20
Wind Load Factor 1.60



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-56.00	-43.70	0.00	-5378.5	0.00	5378.54	5508.12	2754.06	13547.4	6725.55	0.00	0.000	0.000	0.810
5.00	-53.92	-43.13	0.00	-5160.0	0.00	5160.04	5452.09	2726.05	13177.2	6541.73	0.11	-0.201	0.000	0.799
10.00	-51.88	-42.55	0.00	-4944.4	0.00	4944.41	5394.71	2697.35	12808.5	6358.68	0.43	-0.404	0.000	0.787
15.00	-49.86	-41.98	0.00	-4731.6	0.00	4731.65	5335.97	2667.98	12441.5	6176.49	0.96	-0.609	0.000	0.776
20.00	-47.89	-41.37	0.00	-4521.7	0.00	4521.74	5275.87	2637.93	12076.4	5995.24	1.71	-0.816	0.000	0.764
25.00	-45.94	-40.72	0.00	-4314.8	0.00	4314.89	5214.41	2607.20	11713.3	5815.02	2.68	-1.025	0.000	0.751
30.00	-44.03	-40.05	0.00	-4111.2	0.00	4111.29	5151.59	2575.80	11352.6	5635.92	3.86	-1.235	0.000	0.738
35.00	-42.15	-39.35	0.00	-3911.0	0.00	3911.06	5087.42	2543.71	10994.2	5458.02	5.27	-1.447	0.000	0.725
40.00	-40.31	-38.63	0.00	-3714.3	0.00	3714.32	5021.88	2510.94	10638.5	5281.41	6.90	-1.661	0.000	0.712
45.00	-38.56	-37.84	0.00	-3521.1	0.00	3521.16	4954.99	2477.50	10285.5	5106.18	8.76	-1.876	0.000	0.698
45.92	-38.19	-37.75	0.00	-3486.4	0.00	3486.48	4942.58	2471.29	10221.1	5074.21	9.12	-1.917	0.000	0.695
50.00	-35.75	-37.08	0.00	-3332.3	0.00	3332.32	4886.75	2443.37	9935.52	4932.41	10.84	-2.095	0.000	0.683
53.00	-33.98	-36.58	0.00	-3221.0	0.00	3221.07	3967.43	1983.71	8109.29	4025.79	12.20	-2.227	0.000	0.809
55.00	-33.31	-36.33	0.00	-3147.9	0.00	3147.90	3947.58	1973.79	8001.39	3972.23	13.15	-2.316	0.000	0.801
60.00	-31.77	-35.56	0.00	-2966.2	0.00	2966.27	3897.00	1948.50	7732.70	3838.84	15.70	-2.559	0.000	0.781
65.00	-30.26	-34.80	0.00	-2788.4	0.00	2788.45	3845.06	1922.53	7465.70	3706.29	18.51	-2.803	0.000	0.761
70.00	-28.78	-34.02	0.00	-2614.4	0.00	2614.48	3791.77	1895.89	7200.54	3574.65	21.58	-3.047	0.000	0.739
75.00	-27.33	-33.24	0.00	-2444.3	0.00	2444.38	3737.12	1868.56	6937.41	3444.02	24.90	-3.291	0.000	0.717
80.00	-25.92	-32.46	0.00	-2278.1	0.00	2278.17	3681.11	1840.56	6676.48	3314.49	28.47	-3.535	0.000	0.695
85.00	-24.53	-31.68	0.00	-2115.8	0.00	2115.87	3623.74	1811.87	6417.92	3186.13	32.30	-3.778	0.000	0.671
90.00	-23.21	-30.87	0.00	-1957.4	0.00	1957.48	3565.02	1782.51	6161.91	3059.03	36.39	-4.020	0.000	0.647
92.92	-22.45	-30.41	0.00	-1867.4	0.00	1867.44	3530.13	1765.07	6013.81	2985.51	38.89	-4.163	0.000	0.632
95.00	-21.52	-30.07	0.00	-1804.0	0.00	1804.08	3504.93	1752.47	5908.61	2933.28	40.73	-4.265	0.000	0.621
98.92	-19.89	-29.37	0.00	-1686.3	0.00	1686.31	2742.07	1371.04	4616.42	2291.78	44.30	-4.453	0.000	0.744
100.00	-19.59	-29.24	0.00	-1654.4	0.00	1654.48	2732.96	1366.48	4575.83	2271.63	45.32	-4.506	0.000	0.736
105.00	-18.47	-28.47	0.00	-1508.2	0.00	1508.27	2690.08	1345.04	4389.32	2179.04	50.17	-4.773	0.000	0.699
110.00	-17.37	-27.70	0.00	-1365.9	0.00	1365.92	2645.83	1322.92	4204.31	2087.20	55.31	-5.035	0.000	0.661
115.00	-16.31	-26.93	0.00	-1227.4	0.00	1227.42	2600.23	1300.12	4020.98	1996.19	60.71	-5.291	0.000	0.622
120.00	-15.28	-26.17	0.00	-1092.7	0.00	1092.77	2553.28	1276.64	3839.50	1906.09	66.38	-5.539	0.000	0.580
125.00	-14.31	-25.40	0.00	-961.92	0.00	961.92	2504.96	1252.48	3660.03	1816.99	72.30	-5.779	0.000	0.536
127.09	-13.89	-25.09	0.00	-908.93	0.00	908.93	2484.39	1242.20	3585.78	1780.13	74.85	-5.877	0.000	0.517
130.00	-13.04	-24.61	0.00	-835.84	0.00	835.84	2455.29	1227.64	3482.76	1728.99	78.47	-6.011	0.000	0.489
132.34	-12.36	-24.24	0.00	-778.33	0.00	778.33	1489.26	744.63	2121.49	1053.20	81.43	-6.115	0.000	0.748
135.00	-11.93	-23.87	0.00	-713.77	0.00	713.77	1477.63	738.82	2071.36	1028.31	84.87	-6.230	0.000	0.703
140.00	-11.19	-23.16	0.00	-594.43	0.00	594.43	1454.76	727.38	1977.27	981.60	91.53	-6.500	0.000	0.614
145.00	-10.48	-22.45	0.00	-478.65	0.00	478.65	1430.53	715.26	1883.34	934.97	98.46	-6.743	0.000	0.520
150.00	-9.80	-21.75	0.00	-366.39	0.00	366.39	1404.94	702.47	1789.74	888.50	105.62	-6.954	0.000	0.420
155.00	-9.17	-21.05	0.00	-257.63	0.00	257.63	1377.99	688.99	1696.65	842.29	112.99	-7.125	0.000	0.313
157.00	-7.15	-15.28	0.00	-215.52	0.00	215.52	1366.83	683.41	1659.60	823.90	115.98	-7.183	0.000	0.267
160.00	-6.84	-14.88	0.00	-169.68	0.00	169.68	1349.68	674.84	1604.25	796.42	120.50	-7.256	0.000	0.219
165.00	-6.34	-14.22	0.00	-95.27	0.00	95.27	1320.02	660.01	1512.71	750.97	128.14	-7.346	0.000	0.132
167.00	-3.74	-6.96	0.00	-66.83	0.00	66.83	1307.77	653.89	1476.37	732.93	131.21	-7.370	0.000	0.094
170.00	-3.50	-6.58	0.00	-45.95	0.00	45.95	1289.00	644.50	1422.20	706.04	135.84	-7.397	0.000	0.068
175.00	-3.13	-5.96	0.00	-13.05	0.00	13.05	1256.62	628.31	1332.89	661.70	143.58	-7.421	0.000	0.022
177.00	-0.17	-0.38	0.00	-1.13	0.00	1.13	1243.29	621.64	1297.54	644.16	146.68	-7.424	0.000	0.002
180.00	0.00	-0.35	0.00	0.00	0.00	0.00	1222.88	611.44	1244.96	618.05	151.33	-7.424	0.000	0.000

Wind Loading - Shaft

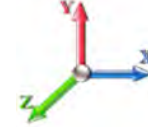
Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/26/2017
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



Load Case: 0.9D + 1.6W 105 mph Wind

Iterations 26

Dead Load Factor 0.90
Wind Load Factor 1.60



Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	22.791	25.07	493.51	0.750	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	22.791	25.07	485.08	0.750	0.000	5.00	25.272	18.95	760.3	0.0	1263.4
10.00		1.00	0.85	22.791	25.07	476.65	0.750	0.000	5.00	24.837	18.63	747.2	0.0	1241.4
15.00		1.00	0.85	22.791	25.07	468.21	0.750	0.000	5.00	24.401	18.30	734.1	0.0	1219.5
20.00		1.00	0.90	24.182	26.60	473.61	0.750	0.000	5.00	23.966	17.97	765.0	0.0	1197.6
25.00		1.00	0.95	25.345	27.88	475.97	0.750	0.000	5.00	23.530	17.65	787.2	0.0	1175.6
30.00		1.00	0.98	26.337	28.97	476.13	0.750	0.000	5.00	23.095	17.32	802.9	0.0	1153.7
35.00		1.00	1.01	27.206	29.93	474.71	0.750	0.000	5.00	22.659	16.99	813.7	0.0	1131.8
40.00		1.00	1.04	27.981	30.78	472.08	0.750	0.000	5.00	22.224	16.67	820.8	0.0	1109.8
45.00		1.00	1.07	28.684	31.55	468.51	0.750	0.000	5.00	21.788	16.34	825.0	0.0	1087.9
45.92 Bot - Section 2		1.00	1.07	28.806	31.69	467.77	0.750	0.000	0.92	3.947	2.96	150.1	0.0	197.1
50.00		1.00	1.09	29.327	32.26	464.17	0.750	0.000	4.08	17.666	13.25	683.9	0.0	1625.0
53.00 Top - Section 1		1.00	1.11	29.689	32.66	461.26	0.750	0.000	3.00	12.794	9.60	501.4	0.0	1176.6
55.00		1.00	1.12	29.922	32.91	466.26	0.750	0.000	2.00	8.442	6.33	333.4	0.0	361.3
60.00		1.00	1.14	30.475	33.52	460.80	0.750	0.000	5.00	20.800	15.60	836.7	0.0	890.0
65.00		1.00	1.16	30.993	34.09	454.87	0.750	0.000	5.00	20.365	15.27	833.1	0.0	871.2
70.00		1.00	1.17	31.480	34.63	448.52	0.750	0.000	5.00	19.929	14.95	828.1	0.0	852.4
75.00		1.00	1.19	31.941	35.13	441.81	0.750	0.000	5.00	19.494	14.62	821.9	0.0	833.6
80.00		1.00	1.21	32.377	35.62	434.77	0.750	0.000	5.00	19.058	14.29	814.5	0.0	814.9
85.00		1.00	1.22	32.793	36.07	427.44	0.750	0.000	5.00	18.623	13.97	806.1	0.0	796.1
90.00		1.00	1.24	33.190	36.51	419.84	0.750	0.000	5.00	18.187	13.64	796.8	0.0	777.3
92.92 Bot - Section 3		1.00	1.25	33.414	36.76	415.30	0.750	0.000	2.92	10.408	7.81	459.1	0.0	444.8
95.00		1.00	1.25	33.570	36.93	412.01	0.750	0.000	2.08	7.454	5.59	330.3	0.0	580.1
98.92 Top - Section 2		1.00	1.26	33.857	37.24	405.71	0.750	0.000	3.92	13.810	10.36	617.2	0.0	1074.3
100.00		1.00	1.27	33.935	37.33	410.23	0.750	0.000	1.08	3.773	2.83	169.0	0.0	134.7
105.00		1.00	1.28	34.285	37.71	402.00	0.750	0.000	5.00	17.147	12.86	776.0	0.0	612.3
110.00		1.00	1.29	34.623	38.08	393.58	0.750	0.000	5.00	16.711	12.53	763.7	0.0	596.6
115.00		1.00	1.30	34.948	38.44	384.99	0.750	0.000	5.00	16.276	12.21	750.8	0.0	581.0
120.00		1.00	1.32	35.263	38.79	376.23	0.750	0.000	5.00	15.840	11.88	737.3	0.0	565.3
125.00		1.00	1.33	35.567	39.12	367.32	0.750	0.000	5.00	15.405	11.55	723.2	0.0	549.6
127.09 Bot - Section 4		1.00	1.33	35.691	39.26	363.55	0.750	0.000	2.09	6.300	4.73	296.8	0.0	224.7
130.00		1.00	1.34	35.862	39.45	358.26	0.750	0.000	2.91	8.777	6.58	415.5	0.0	528.9
132.34 Top - Section 3		1.00	1.34	35.997	39.60	353.98	0.750	0.000	2.34	6.933	5.20	329.4	0.0	417.6
135.00		1.00	1.35	36.148	39.76	353.60	0.750	0.000	2.66	7.787	5.84	371.5	0.0	194.8
140.00		1.00	1.36	36.426	40.07	344.30	0.750	0.000	5.00	14.284	10.71	686.8	0.0	357.3
145.00		1.00	1.37	36.696	40.37	334.88	0.750	0.000	5.00	13.849	10.39	670.8	0.0	346.4
150.00		1.00	1.38	36.959	40.65	325.34	0.750	0.000	5.00	13.413	10.06	654.4	0.0	335.4
155.00		1.00	1.39	37.215	40.94	315.69	0.750	0.000	5.00	12.978	9.73	637.5	0.0	324.4
157.00 Appurtenance(s)		1.00	1.39	37.315	41.05	311.80	0.750	0.000	2.00	5.069	3.80	249.7	0.0	126.7
160.00		1.00	1.40	37.464	41.21	305.93	0.750	0.000	3.00	7.473	5.60	369.6	0.0	186.8
165.00		1.00	1.41	37.708	41.48	296.08	0.750	0.000	5.00	12.107	9.08	602.6	0.0	302.5
167.00 Appurtenance(s)		1.00	1.41	37.804	41.58	292.11	0.750	0.000	2.00	4.721	3.54	235.6	0.0	117.9
170.00		1.00	1.42	37.946	41.74	286.13	0.750	0.000	3.00	6.950	5.21	348.1	0.0	173.6
175.00		1.00	1.42	38.178	42.00	276.09	0.750	0.000	5.00	11.236	8.43	566.2	0.0	280.6
177.00 Appurtenance(s)		1.00	1.43	38.269	42.10	272.05	0.750	0.000	2.00	4.372	3.28	220.9	0.0	109.2
180.00 Appurtenance(s)		1.00	1.43	38.405	42.25	265.97	0.750	0.000	3.00	6.428	4.82	325.9	0.0	160.5

Wind Loading - Shaft

Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/26/2017
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Totals: 180.00

26,770.1

29,102.1

Discrete Appurtenance Forces

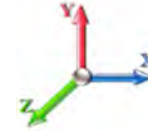
Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/26/2017
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.6W 105 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.60



Iterations 26

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	180.00	6' Lightning rod	1	38.405	42.245	0.00	1.00	0.38	5.85	0.000	0.000	25.69	0.00	0.00
2	177.00	782 11056	3	38.269	42.096	0.62	0.80	0.52	4.86	0.000	0.000	35.30	0.00	0.00
3	177.00	KRY 112 144/1	3	38.269	42.096	0.58	0.80	0.71	29.70	0.000	0.000	47.72	0.00	0.00
4	177.00	APXV18-206516S-C-A20	3	38.269	42.096	0.62	0.80	6.76	50.49	0.000	0.000	455.17	0.00	0.00
5	177.00	LNx-6515DS-VTM	3	38.269	42.096	0.67	0.80	23.12	135.81	0.000	0.000	1557.46	0.00	0.00
6	177.00	Platform w/ Hand Rails	1	38.269	42.096	1.00	1.00	40.00	2340.00	0.000	0.000	2694.16	0.00	0.00
7	177.00	IBR 1300	1	38.269	42.096	1.00	1.00	0.67	8.01	0.000	0.000	45.13	0.00	0.00
8	177.00	Pipe Mount	1	38.269	42.096	0.56	0.75	1.48	36.00	0.000	0.000	99.64	0.00	0.00
9	167.00	Platform w/ Hand Rails	1	37.804	41.584	1.00	1.00	40.00	1800.00	0.000	0.000	2661.37	0.00	0.00
10	167.00	LPA-80080-4CF-EDIN-0	6	37.804	41.584	0.80	0.80	12.53	64.80	0.000	0.000	833.54	0.00	0.00
11	167.00	Raycap	2	37.804	41.584	0.67	0.80	5.09	57.60	0.000	0.000	338.91	0.00	0.00
12	167.00	Alcatel-Lucent B4 RRH	3	37.804	41.584	0.64	0.80	4.99	172.80	0.000	0.000	332.14	0.00	0.00
13	167.00	Alcatel-Lucent B13	3	37.804	41.584	0.70	0.80	4.56	154.44	0.000	0.000	303.52	0.00	0.00
14	167.00	SBNHH-1D65B	6	37.804	41.584	0.66	0.80	32.51	216.00	0.000	0.000	2162.99	0.00	0.00
15	157.00	Low Profile Platform-flat	1	37.315	41.047	1.00	1.00	25.00	1080.00	0.000	0.000	1641.87	0.00	0.00
16	157.00	DC6-48-60-18-8F	1	37.315	41.047	0.80	0.80	1.18	28.62	0.000	0.000	77.23	0.00	0.00
17	157.00	LGP21903	6	37.315	41.047	0.59	0.80	0.96	29.70	0.000	0.000	62.98	0.00	0.00
18	157.00	RRUS 11	6	37.315	41.047	0.61	0.80	9.19	273.78	0.000	0.000	603.75	0.00	0.00
19	157.00	LGP21401	6	37.315	41.047	0.51	0.80	3.96	76.14	0.000	0.000	260.26	0.00	0.00
20	157.00	AM-X-CD-16-65-00T	1	37.315	41.047	0.62	0.80	5.00	43.65	0.000	0.000	328.67	0.00	0.00
21	157.00	P65-17-XLH-RR	2	37.315	41.047	0.64	0.80	14.64	106.20	0.000	0.000	961.69	0.00	0.00
22	157.00	7770 w/ Mount Pipe	6	37.315	41.047	0.60	0.80	19.80	189.00	0.000	0.000	1300.36	0.00	0.00
Totals:									6,903.45			16,829.57		

Total Applied Force Summary

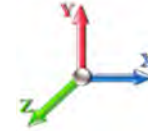
Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/26/2017
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.6W 105 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.60



Iterations 26

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		760.28	1444.71	0.00	0.00
10.00		747.18	1422.78	0.00	0.00
15.00		734.08	1400.84	0.00	0.00
20.00		764.99	1378.91	0.00	0.00
25.00		787.21	1356.98	0.00	0.00
30.00		802.88	1335.05	0.00	0.00
35.00		813.72	1313.12	0.00	0.00
40.00		820.83	1291.18	0.00	0.00
45.00		824.95	1269.25	0.00	0.00
45.92		150.09	230.32	0.00	0.00
50.00		683.87	1773.08	0.00	0.00
53.00		501.38	1285.37	0.00	0.00
55.00		333.43	433.79	0.00	0.00
60.00		836.72	1071.33	0.00	0.00
65.00		833.12	1052.55	0.00	0.00
70.00		828.13	1033.78	0.00	0.00
75.00		821.88	1015.00	0.00	0.00
80.00		814.51	996.22	0.00	0.00
85.00		806.12	977.44	0.00	0.00
90.00		796.80	958.67	0.00	0.00
92.92		459.06	550.55	0.00	0.00
95.00		330.33	655.62	0.00	0.00
98.92		617.17	1216.37	0.00	0.00
100.00		168.99	174.02	0.00	0.00
105.00		776.00	793.65	0.00	0.00
110.00		763.73	777.98	0.00	0.00
115.00		750.82	762.30	0.00	0.00
120.00		737.31	746.63	0.00	0.00
125.00		723.22	730.96	0.00	0.00
127.09		296.81	300.42	0.00	0.00
130.00		415.51	634.52	0.00	0.00
132.34		329.44	502.39	0.00	0.00
135.00		371.54	291.42	0.00	0.00
140.00		686.82	538.69	0.00	0.00
145.00		670.81	527.73	0.00	0.00
150.00		654.37	516.76	0.00	0.00
155.00		637.51	505.79	0.00	0.00
157.00	(29) attachments	5486.51	2026.34	0.00	0.00
160.00		369.57	259.56	0.00	0.00
165.00		602.60	423.83	0.00	0.00
167.00	(21) attachments	6868.05	2632.10	0.00	0.00
170.00		348.14	207.96	0.00	0.00
175.00		566.22	337.82	0.00	0.00
177.00	(15) attachments	5155.45	2736.93	0.00	0.00
180.00	(1) attachments	351.54	166.30	0.00	0.00

Total Applied Force Summary

Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/26/2017
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Totals:	<u>43,599.70</u>	<u>42,057.04</u>	<u>0.00</u>	<u>0.00</u>
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Calculated Forces

Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/26/2017
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II

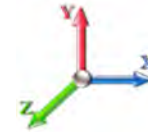


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Load Case: 0.9D + 1.6W 105 mph Wind

Iterations 26

Dead Load Factor 0.90
Wind Load Factor 1.60



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-41.98	-43.67	0.00	-5317.3	0.00	5317.35	5508.12	2754.06	13547.4	6725.55	0.00	0.000	0.000	0.798
5.00	-40.39	-43.05	0.00	-5098.9	0.00	5098.98	5452.09	2726.05	13177.2	6541.73	0.11	-0.199	0.000	0.787
10.00	-38.82	-42.43	0.00	-4883.7	0.00	4883.72	5394.71	2697.35	12808.5	6358.68	0.42	-0.399	0.000	0.775
15.00	-37.28	-41.82	0.00	-4671.5	0.00	4671.56	5335.97	2667.98	12441.5	6176.49	0.95	-0.602	0.000	0.764
20.00	-35.76	-41.17	0.00	-4462.4	0.00	4462.46	5275.87	2637.93	12076.4	5995.24	1.69	-0.806	0.000	0.751
25.00	-34.27	-40.48	0.00	-4256.6	0.00	4256.63	5214.41	2607.20	11713.3	5815.02	2.64	-1.012	0.000	0.739
30.00	-32.81	-39.77	0.00	-4054.2	0.00	4054.22	5151.59	2575.80	11352.6	5635.92	3.82	-1.219	0.000	0.726
35.00	-31.37	-39.04	0.00	-3855.3	0.00	3855.36	5087.42	2543.71	10994.2	5458.02	5.20	-1.429	0.000	0.713
40.00	-29.96	-38.30	0.00	-3660.1	0.00	3660.14	5021.88	2510.94	10638.5	5281.41	6.81	-1.639	0.000	0.699
45.00	-28.63	-37.50	0.00	-3468.6	0.00	3468.64	4954.99	2477.50	10285.5	5106.18	8.64	-1.851	0.000	0.685
45.92	-28.34	-37.40	0.00	-3434.2	0.00	3434.27	4942.58	2471.29	10221.1	5074.21	9.00	-1.891	0.000	0.683
50.00	-26.49	-36.72	0.00	-3281.5	0.00	3281.58	4886.75	2443.37	9935.52	4932.41	10.70	-2.066	0.000	0.671
53.00	-25.16	-36.22	0.00	-3171.4	0.00	3171.42	3967.43	1983.71	8109.29	4025.79	12.04	-2.196	0.000	0.794
55.00	-24.63	-35.94	0.00	-3098.9	0.00	3098.98	3947.58	1973.79	8001.39	3972.23	12.98	-2.284	0.000	0.787
60.00	-23.45	-35.16	0.00	-2919.2	0.00	2919.28	3897.00	1948.50	7732.70	3838.84	15.50	-2.523	0.000	0.767
65.00	-22.29	-34.37	0.00	-2743.4	0.00	2743.49	3845.06	1922.53	7465.70	3706.29	18.27	-2.763	0.000	0.746
70.00	-21.16	-33.58	0.00	-2571.6	0.00	2571.64	3791.77	1895.89	7200.54	3574.65	21.29	-3.003	0.000	0.725
75.00	-20.06	-32.79	0.00	-2403.7	0.00	2403.73	3737.12	1868.56	6937.41	3444.02	24.56	-3.244	0.000	0.704
80.00	-18.98	-32.00	0.00	-2239.7	0.00	2239.79	3681.11	1840.56	6676.48	3314.49	28.09	-3.483	0.000	0.681
85.00	-17.92	-31.21	0.00	-2079.8	0.00	2079.81	3623.74	1811.87	6417.92	3186.13	31.86	-3.723	0.000	0.658
90.00	-16.92	-30.40	0.00	-1923.7	0.00	1923.78	3565.02	1782.51	6161.91	3059.03	35.89	-3.960	0.000	0.634
92.92	-16.34	-29.94	0.00	-1835.1	0.00	1835.10	3530.13	1765.07	6013.81	2985.51	38.35	-4.100	0.000	0.620
95.00	-15.64	-29.60	0.00	-1772.7	0.00	1772.73	3504.93	1752.47	5908.61	2933.28	40.16	-4.201	0.000	0.609
98.92	-14.41	-28.93	0.00	-1656.7	0.00	1656.79	2742.07	1371.04	4616.42	2291.78	43.68	-4.386	0.000	0.729
100.00	-14.17	-28.78	0.00	-1625.4	0.00	1625.45	2732.96	1366.48	4575.83	2271.63	44.68	-4.437	0.000	0.721
105.00	-13.31	-28.01	0.00	-1481.5	0.00	1481.54	2690.08	1345.04	4389.32	2179.04	49.46	-4.700	0.000	0.685
110.00	-12.48	-27.24	0.00	-1341.5	0.00	1341.51	2645.83	1322.92	4204.31	2087.20	54.52	-4.958	0.000	0.648
115.00	-11.67	-26.47	0.00	-1205.3	0.00	1205.33	2600.23	1300.12	4020.98	1996.19	59.84	-5.209	0.000	0.609
120.00	-10.89	-25.71	0.00	-1072.9	0.00	1072.97	2553.28	1276.64	3839.50	1906.09	65.42	-5.453	0.000	0.568
125.00	-10.16	-24.95	0.00	-944.40	0.00	944.40	2504.96	1252.48	3660.03	1816.99	71.25	-5.688	0.000	0.524
127.09	-9.85	-24.65	0.00	-892.34	0.00	892.34	2484.39	1242.20	3585.78	1780.13	73.76	-5.785	0.000	0.506
130.00	-9.21	-24.19	0.00	-820.54	0.00	820.54	2455.29	1227.64	3482.76	1728.99	77.32	-5.916	0.000	0.479
132.34	-8.70	-23.82	0.00	-764.02	0.00	764.02	1489.26	744.63	2121.49	1053.20	80.24	-6.018	0.000	0.732
135.00	-8.37	-23.45	0.00	-700.57	0.00	700.57	1477.63	738.82	2071.36	1028.31	83.62	-6.131	0.000	0.688
140.00	-7.81	-22.74	0.00	-583.31	0.00	583.31	1454.76	727.38	1977.27	981.60	90.18	-6.396	0.000	0.601
145.00	-7.27	-22.05	0.00	-469.59	0.00	469.59	1430.53	715.26	1883.34	934.97	96.99	-6.635	0.000	0.508
150.00	-6.77	-21.36	0.00	-359.36	0.00	359.36	1404.94	702.47	1789.74	888.50	104.04	-6.841	0.000	0.410
155.00	-6.30	-20.68	0.00	-252.57	0.00	252.57	1377.99	688.99	1696.65	842.29	111.29	-7.009	0.000	0.305
157.00	-4.95	-14.99	0.00	-211.21	0.00	211.21	1366.83	683.41	1659.60	823.90	114.23	-7.066	0.000	0.260
160.00	-4.72	-14.60	0.00	-166.25	0.00	166.25	1349.68	674.84	1604.25	796.42	118.68	-7.137	0.000	0.213
165.00	-4.36	-13.95	0.00	-93.26	0.00	93.26	1320.02	660.01	1512.71	750.97	126.19	-7.225	0.000	0.128
167.00	-2.61	-6.81	0.00	-65.37	0.00	65.37	1307.77	653.89	1476.37	732.93	129.21	-7.249	0.000	0.091
170.00	-2.44	-6.44	0.00	-44.95	0.00	44.95	1289.00	644.50	1422.20	706.04	133.77	-7.275	0.000	0.066
175.00	-2.18	-5.83	0.00	-12.77	0.00	12.77	1256.62	628.31	1332.89	661.70	141.38	-7.299	0.000	0.021
177.00	-0.12	-0.37	0.00	-1.11	0.00	1.11	1243.29	621.64	1297.54	644.16	144.43	-7.302	0.000	0.002
180.00	0.00	-0.35	0.00	0.00	0.00	0.00	1222.88	611.44	1244.96	618.05	149.01	-7.302	0.000	0.000

Wind Loading - Shaft

Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/26/2017
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II

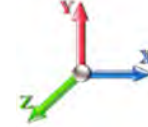


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Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Iterations 25

Dead Load Factor 1.20
Wind Load Factor 1.00



Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	5.168	5.68	0.00	1.200	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	5.168	5.68	0.00	1.200	1.242	5.00	26.307	31.57	179.5	472.8	2157.3
10.00		1.00	0.85	5.168	5.68	0.00	1.200	1.331	5.00	25.946	31.14	177.0	498.9	2154.1
15.00		1.00	0.85	5.168	5.68	0.00	1.200	1.386	5.00	25.556	30.67	174.3	511.0	2137.0
20.00		1.00	0.90	5.483	6.03	0.00	1.200	1.427	5.00	25.154	30.19	182.1	517.0	2113.8
25.00		1.00	0.95	5.747	6.32	0.00	1.200	1.459	5.00	24.746	29.69	187.7	519.5	2087.0
30.00		1.00	0.98	5.972	6.57	0.00	1.200	1.486	5.00	24.333	29.20	191.8	519.7	2057.9
35.00		1.00	1.01	6.169	6.79	0.00	1.200	1.509	5.00	23.916	28.70	194.8	518.2	2027.2
40.00		1.00	1.04	6.345	6.98	0.00	1.200	1.529	5.00	23.498	28.20	196.8	515.4	1995.2
45.00		1.00	1.07	6.504	7.15	0.00	1.200	1.547	5.00	23.077	27.69	198.1	511.7	1962.2
45.92 Bot - Section 2		1.00	1.07	6.532	7.19	0.00	1.200	1.550	0.92	4.184	5.02	36.1	93.7	356.4
50.00		1.00	1.09	6.650	7.32	0.00	1.200	1.564	4.08	18.730	22.48	164.4	420.2	2586.9
53.00 Top - Section 1		1.00	1.11	6.732	7.41	0.00	1.200	1.573	3.00	13.580	16.30	120.7	306.9	1875.7
55.00		1.00	1.12	6.785	7.46	0.00	1.200	1.579	2.00	8.968	10.76	80.3	203.8	685.4
60.00		1.00	1.14	6.910	7.60	0.00	1.200	1.592	5.00	22.127	26.55	201.8	503.6	1690.3
65.00		1.00	1.16	7.028	7.73	0.00	1.200	1.605	5.00	21.702	26.04	201.3	497.4	1659.0
70.00		1.00	1.17	7.138	7.85	0.00	1.200	1.617	5.00	21.277	25.53	200.5	490.8	1627.3
75.00		1.00	1.19	7.243	7.97	0.00	1.200	1.628	5.00	20.851	25.02	199.3	483.7	1595.2
80.00		1.00	1.21	7.342	8.08	0.00	1.200	1.639	5.00	20.424	24.51	197.9	476.3	1562.8
85.00		1.00	1.22	7.436	8.18	0.00	1.200	1.649	5.00	19.997	24.00	196.3	468.6	1530.1
90.00		1.00	1.24	7.526	8.28	0.00	1.200	1.658	5.00	19.569	23.48	194.4	460.7	1497.1
92.92 Bot - Section 3		1.00	1.25	7.577	8.33	0.00	1.200	1.664	2.92	11.217	13.46	112.2	265.9	859.0
95.00		1.00	1.25	7.612	8.37	0.00	1.200	1.667	2.08	8.033	9.64	80.7	191.3	964.7
98.92 Top - Section 2		1.00	1.26	7.677	8.45	0.00	1.200	1.674	3.92	14.902	17.88	151.0	354.4	1786.9
100.00		1.00	1.27	7.695	8.46	0.00	1.200	1.676	1.08	4.075	4.89	41.4	97.6	277.3
105.00		1.00	1.28	7.774	8.55	0.00	1.200	1.684	5.00	18.550	22.26	190.4	442.0	1258.4
110.00		1.00	1.29	7.851	8.64	0.00	1.200	1.692	5.00	18.121	21.75	187.8	433.2	1228.7
115.00		1.00	1.30	7.925	8.72	0.00	1.200	1.699	5.00	17.692	21.23	185.1	424.2	1198.8
120.00		1.00	1.32	7.996	8.80	0.00	1.200	1.707	5.00	17.262	20.71	182.2	415.0	1168.7
125.00		1.00	1.33	8.065	8.87	0.00	1.200	1.714	5.00	16.833	20.20	179.2	405.6	1138.5
127.09 Bot - Section 4		1.00	1.33	8.093	8.90	0.00	1.200	1.717	2.09	6.897	8.28	73.7	167.6	467.3
130.00		1.00	1.34	8.132	8.95	0.00	1.200	1.720	2.91	9.613	11.54	103.2	233.6	938.8
132.34 Top - Section 3		1.00	1.34	8.163	8.98	0.00	1.200	1.723	2.34	7.604	9.13	81.9	185.3	742.1
135.00		1.00	1.35	8.197	9.02	0.00	1.200	1.727	2.66	8.553	10.26	92.5	208.4	468.2
140.00		1.00	1.36	8.260	9.09	0.00	1.200	1.733	5.00	15.729	18.87	171.5	381.6	858.0
145.00		1.00	1.37	8.321	9.15	0.00	1.200	1.739	5.00	15.298	18.36	168.0	371.7	833.5
150.00		1.00	1.38	8.381	9.22	0.00	1.200	1.745	5.00	14.868	17.84	164.5	361.7	808.9
155.00		1.00	1.39	8.439	9.28	0.00	1.200	1.751	5.00	14.437	17.32	160.8	351.6	784.2
157.00 Appurtenance(s)		1.00	1.39	8.462	9.31	0.00	1.200	1.753	2.00	5.654	6.78	63.1	139.0	308.0
160.00		1.00	1.40	8.495	9.34	0.00	1.200	1.757	3.00	8.351	10.02	93.7	204.8	453.9
165.00		1.00	1.41	8.551	9.41	0.00	1.200	1.762	5.00	13.575	16.29	153.2	331.1	734.4
167.00 Appurtenance(s)		1.00	1.41	8.572	9.43	0.00	1.200	1.764	2.00	5.309	6.37	60.1	130.8	288.0
170.00		1.00	1.42	8.604	9.46	0.00	1.200	1.767	3.00	7.834	9.40	89.0	192.4	423.9
175.00		1.00	1.42	8.657	9.52	0.00	1.200	1.772	5.00	12.713	15.26	145.3	310.2	684.3
177.00 Appurtenance(s)		1.00	1.43	8.678	9.55	0.00	1.200	1.774	2.00	4.964	5.96	56.9	122.4	267.9
180.00 Appurtenance(s)		1.00	1.43	8.709	9.58	0.00	1.200	1.777	3.00	7.317	8.78	84.1	179.8	393.7

Wind Loading - Shaft

Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/26/2017
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Totals: 180.00

6,546.6

54,694.0

Discrete Appurtenance Forces

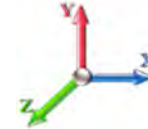
Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/26/2017
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 25

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)	
1	180.00	6' Lightning rod	1	8.709	9.579	0.00	1.00	1.49	39.47	0.000	0.000	14.25	0.00	0.00	
2	177.00	782 11056	3	8.678	9.546	0.66	0.80	1.35	12.17	0.000	0.000	12.92	0.00	0.00	
3	177.00	KRY 112 144/1	3	8.678	9.546	0.60	0.80	1.61	63.18	0.000	0.000	15.34	0.00	0.00	
4	177.00	APXV18-206516S-C-A20	3	8.678	9.546	0.63	0.80	10.42	221.05	0.000	0.000	99.51	0.00	0.00	
5	177.00	LNx-6515DS-VTM	3	8.678	9.546	0.67	0.80	29.79	693.13	0.000	0.000	284.33	0.00	0.00	
6	177.00	Platform w/ Hand Rails	1	8.678	9.546	1.00	1.00	61.29	5287.97	0.000	0.000	585.07	0.00	0.00	
7	177.00	IBR 1300	1	8.678	9.546	1.00	1.00	1.02	24.76	0.000	0.000	9.76	0.00	0.00	
8	177.00	Pipe Mount	1	8.678	9.546	0.56	0.75	4.89	106.62	0.000	0.000	46.70	0.00	0.00	
9	167.00	Platform w/ Hand Rails	1	8.572	9.429	1.00	1.00	61.17	3916.86	0.000	0.000	576.79	0.00	0.00	
10	167.00	LPA-80080-4CF-EDIN-0	6	8.572	9.429	0.80	0.80	16.67	909.75	0.000	0.000	157.20	0.00	0.00	
11	167.00	Raycap	2	8.572	9.429	0.67	0.80	6.39	258.70	0.000	0.000	60.27	0.00	0.00	
12	167.00	Alcatel-Lucent B4 RRH	3	8.572	9.429	0.64	0.80	6.36	484.54	0.000	0.000	59.97	0.00	0.00	
13	167.00	Alcatel-Lucent B13	3	8.572	9.429	0.70	0.80	5.87	348.91	0.000	0.000	55.31	0.00	0.00	
14	167.00	SBNHH-1D65B	6	8.572	9.429	0.66	0.80	37.75	1522.50	0.000	0.000	355.95	0.00	0.00	
15	157.00	Low Profile Platform-flat	1	8.462	9.308	1.00	1.00	46.04	2191.92	0.000	0.000	428.51	0.00	0.00	
16	157.00	DC6-48-60-18-8F	1	8.462	9.308	0.80	0.80	1.74	82.57	0.000	0.000	16.18	0.00	0.00	
17	157.00	LGP21903	6	8.462	9.308	0.61	0.80	2.44	76.00	0.000	0.000	22.73	0.00	0.00	
18	157.00	RRUS 11	6	8.462	9.308	0.62	0.80	11.73	903.21	0.000	0.000	109.21	0.00	0.00	
19	157.00	LGP21401	6	8.462	9.308	0.53	0.80	6.75	209.61	0.000	0.000	62.79	0.00	0.00	
20	157.00	AM-X-CD-16-65-00T	1	8.462	9.308	0.62	0.80	6.76	174.72	0.000	0.000	62.88	0.00	0.00	
21	157.00	P65-17-XLH-RR	2	8.462	9.308	0.64	0.80	18.80	452.79	0.000	0.000	175.00	0.00	0.00	
22	157.00	7770 w/ Mount Pipe	6	8.462	9.308	0.60	0.80	23.65	1067.60	0.000	0.000	220.16	0.00	0.00	
Totals:									19,048.03						3,430.84

Total Applied Force Summary

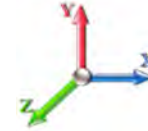
Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/26/2017
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 25

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		179.46	2399.10	0.00	0.00
10.00		177.00	2395.90	0.00	0.00
15.00		174.34	2378.78	0.00	0.00
20.00		182.07	2355.56	0.00	0.00
25.00		187.73	2328.82	0.00	0.00
30.00		191.82	2299.75	0.00	0.00
35.00		194.76	2269.01	0.00	0.00
40.00		196.80	2237.02	0.00	0.00
45.00		198.13	2204.02	0.00	0.00
45.92		36.08	400.76	0.00	0.00
50.00		164.41	2784.33	0.00	0.00
53.00		120.68	2020.74	0.00	0.00
55.00		80.32	782.14	0.00	0.00
60.00		201.84	1932.09	0.00	0.00
65.00		201.33	1900.82	0.00	0.00
70.00		200.48	1869.12	0.00	0.00
75.00		199.34	1837.04	0.00	0.00
80.00		197.93	1804.62	0.00	0.00
85.00		196.28	1771.89	0.00	0.00
90.00		194.41	1738.88	0.00	0.00
92.92		112.18	1000.01	0.00	0.00
95.00		80.72	1065.43	0.00	0.00
98.92		151.02	1976.27	0.00	0.00
100.00		41.39	329.67	0.00	0.00
105.00		190.36	1500.20	0.00	0.00
110.00		187.79	1470.48	0.00	0.00
115.00		185.07	1440.57	0.00	0.00
120.00		182.20	1410.50	0.00	0.00
125.00		179.20	1380.26	0.00	0.00
127.09		73.68	568.20	0.00	0.00
130.00		103.19	1079.64	0.00	0.00
132.34		81.93	855.13	0.00	0.00
135.00		92.54	597.00	0.00	0.00
140.00		171.49	1099.83	0.00	0.00
145.00		168.03	1075.34	0.00	0.00
150.00		164.47	1050.73	0.00	0.00
155.00		160.81	1026.01	0.00	0.00
157.00	(29) attachments	1160.61	5563.09	0.00	0.00
160.00		93.65	550.93	0.00	0.00
165.00		153.22	896.21	0.00	0.00
167.00	(21) attachments	1325.54	7793.99	0.00	0.00
170.00		88.98	469.69	0.00	0.00
175.00		145.27	760.61	0.00	0.00
177.00	(15) attachments	1110.51	6707.35	0.00	0.00
180.00	(1) attachments	98.36	433.16	0.00	0.00

Total Applied Force Summary

Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/26/2017
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Totals:	<u>9,977.45</u>	<u>81,810.68</u>	<u>0.00</u>	<u>0.00</u>
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Calculated Forces

Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/26/2017
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II

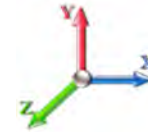


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Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Iterations 25

Dead Load Factor 1.20
Wind Load Factor 1.00



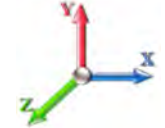
Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-81.81	-10.01	0.00	-1247.5	0.00	1247.56	5508.12	2754.06	13547.4	6725.55	0.00	0.000	0.000	0.200
5.00	-79.40	-9.90	0.00	-1197.5	0.00	1197.51	5452.09	2726.05	13177.2	6541.73	0.03	-0.047	0.000	0.198
10.00	-77.00	-9.78	0.00	-1148.0	0.00	1148.03	5394.71	2697.35	12808.5	6358.68	0.10	-0.094	0.000	0.195
15.00	-74.61	-9.66	0.00	-1099.1	0.00	1099.14	5335.97	2667.98	12441.5	6176.49	0.22	-0.141	0.000	0.192
20.00	-72.25	-9.53	0.00	-1050.8	0.00	1050.83	5275.87	2637.93	12076.4	5995.24	0.40	-0.189	0.000	0.189
25.00	-69.91	-9.40	0.00	-1003.1	0.00	1003.16	5214.41	2607.20	11713.3	5815.02	0.62	-0.238	0.000	0.186
30.00	-67.60	-9.25	0.00	-956.17	0.00	956.17	5151.59	2575.80	11352.6	5635.92	0.90	-0.287	0.000	0.183
35.00	-65.33	-9.10	0.00	-909.91	0.00	909.91	5087.42	2543.71	10994.2	5458.02	1.22	-0.336	0.000	0.180
40.00	-63.08	-8.95	0.00	-864.40	0.00	864.40	5021.88	2510.94	10638.5	5281.41	1.60	-0.386	0.000	0.176
45.00	-60.88	-8.76	0.00	-819.67	0.00	819.67	4954.99	2477.50	10285.5	5106.18	2.03	-0.436	0.000	0.173
45.92	-60.47	-8.75	0.00	-811.64	0.00	811.64	4942.58	2471.29	10221.1	5074.21	2.12	-0.445	0.000	0.172
50.00	-57.68	-8.60	0.00	-775.90	0.00	775.90	4886.75	2443.37	9935.52	4932.41	2.52	-0.487	0.000	0.169
53.00	-55.66	-8.49	0.00	-750.10	0.00	750.10	3967.43	1983.71	8109.29	4025.79	2.83	-0.518	0.000	0.200
55.00	-54.87	-8.44	0.00	-733.13	0.00	733.13	3947.58	1973.79	8001.39	3972.23	3.06	-0.538	0.000	0.198
60.00	-52.94	-8.27	0.00	-690.94	0.00	690.94	3897.00	1948.50	7732.70	3838.84	3.65	-0.595	0.000	0.194
65.00	-51.03	-8.10	0.00	-649.60	0.00	649.60	3845.06	1922.53	7465.70	3706.29	4.30	-0.652	0.000	0.189
70.00	-49.15	-7.92	0.00	-609.12	0.00	609.12	3791.77	1895.89	7200.54	3574.65	5.02	-0.709	0.000	0.183
75.00	-47.31	-7.75	0.00	-569.50	0.00	569.50	3737.12	1868.56	6937.41	3444.02	5.79	-0.766	0.000	0.178
80.00	-45.50	-7.57	0.00	-530.76	0.00	530.76	3681.11	1840.56	6676.48	3314.49	6.62	-0.822	0.000	0.173
85.00	-43.73	-7.39	0.00	-492.92	0.00	492.92	3623.74	1811.87	6417.92	3186.13	7.51	-0.879	0.000	0.167
90.00	-41.99	-7.20	0.00	-455.97	0.00	455.97	3565.02	1782.51	6161.91	3059.03	8.46	-0.935	0.000	0.161
92.92	-40.98	-7.09	0.00	-434.97	0.00	434.97	3530.13	1765.07	6013.81	2985.51	9.05	-0.969	0.000	0.157
95.00	-39.92	-7.02	0.00	-420.19	0.00	420.19	3504.93	1752.47	5908.61	2933.28	9.47	-0.992	0.000	0.155
98.92	-37.94	-6.85	0.00	-392.71	0.00	392.71	2742.07	1371.04	4616.42	2291.78	10.31	-1.036	0.000	0.185
100.00	-37.61	-6.83	0.00	-385.29	0.00	385.29	2732.96	1366.48	4575.83	2271.63	10.54	-1.049	0.000	0.183
105.00	-36.10	-6.65	0.00	-351.16	0.00	351.16	2690.08	1345.04	4389.32	2179.04	11.68	-1.111	0.000	0.175
110.00	-34.63	-6.47	0.00	-317.92	0.00	317.92	2645.83	1322.92	4204.31	2087.20	12.87	-1.172	0.000	0.165
115.00	-33.19	-6.29	0.00	-285.59	0.00	285.59	2600.23	1300.12	4020.98	1996.19	14.13	-1.231	0.000	0.156
120.00	-31.78	-6.10	0.00	-254.16	0.00	254.16	2553.28	1276.64	3839.50	1906.09	15.45	-1.289	0.000	0.146
125.00	-30.40	-5.91	0.00	-223.65	0.00	223.65	2504.96	1252.48	3660.03	1816.99	16.83	-1.345	0.000	0.135
127.09	-29.83	-5.84	0.00	-211.31	0.00	211.31	2484.39	1242.20	3585.78	1780.13	17.43	-1.368	0.000	0.131
130.00	-28.75	-5.73	0.00	-194.29	0.00	194.29	2455.29	1227.64	3482.76	1728.99	18.27	-1.399	0.000	0.124
132.34	-27.89	-5.63	0.00	-180.92	0.00	180.92	1489.26	744.63	2121.49	1053.20	18.96	-1.423	0.000	0.191
135.00	-27.29	-5.55	0.00	-165.91	0.00	165.91	1477.63	738.82	2071.36	1028.31	19.76	-1.450	0.000	0.180
140.00	-26.19	-5.38	0.00	-138.17	0.00	138.17	1454.76	727.38	1977.27	981.60	21.31	-1.513	0.000	0.159
145.00	-25.12	-5.20	0.00	-111.29	0.00	111.29	1430.53	715.26	1883.34	934.97	22.93	-1.569	0.000	0.137
150.00	-24.07	-5.03	0.00	-85.28	0.00	85.28	1404.94	702.47	1789.74	888.50	24.60	-1.618	0.000	0.113
155.00	-23.04	-4.85	0.00	-60.14	0.00	60.14	1377.99	688.99	1696.65	842.29	26.32	-1.658	0.000	0.088
157.00	-17.52	-3.53	0.00	-50.44	0.00	50.44	1366.83	683.41	1659.60	823.90	27.02	-1.671	0.000	0.074
160.00	-16.97	-3.43	0.00	-39.85	0.00	39.85	1349.68	674.84	1604.25	796.42	28.07	-1.689	0.000	0.063
165.00	-16.07	-3.25	0.00	-22.72	0.00	22.72	1320.02	660.01	1512.71	750.97	29.85	-1.710	0.000	0.042
167.00	-8.32	-1.69	0.00	-16.22	0.00	16.22	1307.77	653.89	1476.37	732.93	30.57	-1.716	0.000	0.028
170.00	-7.86	-1.59	0.00	-11.14	0.00	11.14	1289.00	644.50	1422.20	706.04	31.65	-1.722	0.000	0.022
175.00	-7.10	-1.42	0.00	-3.18	0.00	3.18	1256.62	628.31	1332.89	661.70	33.46	-1.728	0.000	0.010
177.00	-0.43	-0.11	0.00	-0.33	0.00	0.33	1243.29	621.64	1297.54	644.16	34.18	-1.729	0.000	0.001
180.00	0.00	-0.10	0.00	0.00	0.00	0.00	1222.88	611.44	1244.96	618.05	35.27	-1.729	0.000	0.000

Seismic Segment Forces (Factored)

Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/26/2017
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.0E						Iterations 23
Gust Response Factor	1.10			Sds	0.12	Ss 0.18
Dead Load Factor	1.20	Seismic Load Factor	1.00	Sd1	0.04	S1 0.06
Wind Load Factor	0.00	Structure Frequency	0.33	SA	0.01	Seismic Importance Factor 1.00

Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		1403.7	0.00	0.03	0.02	18.31	
10.00		1379.3	0.01	0.05	0.03	25.40	
15.00		1354.9	0.01	0.06	0.03	28.66	
20.00		1330.6	0.02	0.07	0.04	30.11	
25.00		1306.2	0.04	0.07	0.04	30.66	
30.00		1281.8	0.05	0.07	0.04	30.82	
35.00		1257.5	0.07	0.07	0.04	30.85	
40.00		1233.1	0.09	0.07	0.04	30.89	
45.00		1208.7	0.12	0.07	0.03	30.97	
45.92	Bot - Section 2	218.97	0.12	0.07	0.03	5.63	
50.00		1805.5	0.15	0.07	0.03	47.30	
53.00	Top - Section 1	1307.2	0.16	0.07	0.03	34.65	
55.00		401.39	0.18	0.07	0.03	10.70	
60.00		988.87	0.21	0.06	0.02	26.54	
65.00		968.00	0.25	0.06	0.02	25.58	
70.00		947.14	0.29	0.05	0.01	23.67	
75.00		926.28	0.33	0.04	0.01	20.39	
80.00		905.41	0.37	0.03	0.01	15.33	
85.00		884.55	0.42	0.01	0.01	8.36	
90.00		863.69	0.47	-0.01	0.01	-0.02	
92.92	Bot - Section 3	494.18	0.50	-0.02	0.01	-2.93	
95.00		644.51	0.53	-0.03	0.01	-6.51	
98.92	Top - Section 2	1193.6	0.57	-0.04	0.01	-20.61	
100.00		149.70	0.58	-0.05	0.01	-2.85	
105.00		680.33	0.64	-0.07	0.02	-17.45	
110.00		662.92	0.71	-0.09	0.03	-19.59	
115.00		645.50	0.77	-0.11	0.05	-19.90	
120.00		628.09	0.84	-0.12	0.07	-18.68	
125.00		610.68	0.91	-0.12	0.09	-16.16	
127.09	Bot - Section 4	249.71	0.94	-0.12	0.10	-6.11	
130.00		587.62	0.99	-0.11	0.12	-12.41	
132.34	Top - Section 3	464.04	1.02	-0.10	0.14	-8.33	
135.00		216.47	1.06	-0.09	0.17	-2.98	
140.00		397.05	1.14	-0.04	0.21	-1.77	
145.00		384.86	1.23	0.03	0.27	2.65	
150.00		372.68	1.31	0.14	0.35	7.55	
155.00		360.49	1.40	0.29	0.43	12.87	
157.00	Appurtenance(s)	2170.8	1.44	0.36	0.47	92.24	
160.00		207.52	1.49	0.48	0.53	11.06	
165.00		336.12	1.59	0.74	0.65	24.56	
167.00	Appurtenance(s)	2870.6	1.63	0.86	0.71	234.27	
170.00		192.90	1.69	1.07	0.79	18.34	
175.00		311.76	1.79	1.48	0.95	37.22	
177.00	Appurtenance(s)	3015.5	1.83	1.67	1.03	391.32	
180.00	Appurtenance(s)	184.78	1.89	1.98	1.14	26.99	

Seismic Segment Forces (Factored)

Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/26/2017
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Totals: 40,006.1

1,177.6

Total Wind: 43,599.7

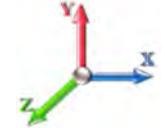
Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

Calculated Forces

Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/26/2017
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.0E							Iterations 23
Gust Response Factor	1.10			Sds	0.12	Ss	0.18
Dead Load Factor	1.20	Seismic Load Factor	1.00	Sd1	0.04	S1	0.06
Wind Load Factor	0.00	Structure Frequency	0.33	SA	0.01	Seismic Importance Factor	1.00

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-56.08	-1.34	0.00	-175.08	0.00	175.08	5508.12	2754.06	13547.4	6725.55	0.00	0.00	0.00	0.036
5.00	-54.15	-1.32	0.00	-168.40	0.00	168.40	5452.09	2726.05	13177.2	6541.73	0.00	-0.01	0.00	0.036
10.00	-52.25	-1.30	0.00	-161.78	0.00	161.78	5394.71	2697.35	12808.5	6358.68	0.01	-0.01	0.00	0.035
15.00	-50.38	-1.28	0.00	-155.25	0.00	155.25	5335.97	2667.98	12441.5	6176.49	0.03	-0.02	0.00	0.035
20.00	-48.55	-1.26	0.00	-148.85	0.00	148.85	5275.87	2637.93	12076.4	5995.24	0.06	-0.03	0.00	0.034
25.00	-46.74	-1.23	0.00	-142.57	0.00	142.57	5214.41	2607.20	11713.3	5815.02	0.09	-0.03	0.00	0.033
30.00	-44.96	-1.20	0.00	-136.41	0.00	136.41	5151.59	2575.80	11352.6	5635.92	0.13	-0.04	0.00	0.033
35.00	-43.21	-1.18	0.00	-130.40	0.00	130.40	5087.42	2543.71	10994.2	5458.02	0.17	-0.05	0.00	0.032
40.00	-41.48	-1.15	0.00	-124.51	0.00	124.51	5021.88	2510.94	10638.5	5281.41	0.23	-0.05	0.00	0.032
45.00	-39.79	-1.12	0.00	-118.76	0.00	118.76	4954.99	2477.50	10285.5	5106.18	0.29	-0.06	0.00	0.031
45.92	-39.48	-1.12	0.00	-117.73	0.00	117.73	4942.58	2471.29	10221.1	5074.21	0.30	-0.06	0.00	0.031
50.00	-37.12	-1.07	0.00	-113.17	0.00	113.17	4886.75	2443.37	9935.52	4932.41	0.36	-0.07	0.00	0.031
53.00	-35.41	-1.04	0.00	-109.96	0.00	109.96	3967.43	1983.71	8109.29	4025.79	0.40	-0.07	0.00	0.036
55.00	-34.83	-1.03	0.00	-107.89	0.00	107.89	3947.58	1973.79	8001.39	3972.23	0.43	-0.08	0.00	0.036
60.00	-33.40	-1.00	0.00	-102.76	0.00	102.76	3897.00	1948.50	7732.70	3838.84	0.52	-0.09	0.00	0.035
65.00	-32.00	-0.98	0.00	-97.74	0.00	97.74	3845.06	1922.53	7465.70	3706.29	0.61	-0.09	0.00	0.035
70.00	-30.62	-0.96	0.00	-92.83	0.00	92.83	3791.77	1895.89	7200.54	3574.65	0.71	-0.10	0.00	0.034
75.00	-29.26	-0.94	0.00	-88.03	0.00	88.03	3737.12	1868.56	6937.41	3444.02	0.83	-0.11	0.00	0.033
80.00	-27.94	-0.93	0.00	-83.33	0.00	83.33	3681.11	1840.56	6676.48	3314.49	0.95	-0.12	0.00	0.033
85.00	-26.63	-0.92	0.00	-78.69	0.00	78.69	3623.74	1811.87	6417.92	3186.13	1.08	-0.13	0.00	0.032
90.00	-25.35	-0.92	0.00	-74.09	0.00	74.09	3565.02	1782.51	6161.91	3059.03	1.22	-0.14	0.00	0.031
92.92	-24.62	-0.92	0.00	-71.40	0.00	71.40	3530.13	1765.07	6013.81	2985.51	1.30	-0.14	0.00	0.031
95.00	-23.74	-0.92	0.00	-69.48	0.00	69.48	3504.93	1752.47	5908.61	2933.28	1.37	-0.15	0.00	0.030
98.92	-22.12	-0.92	0.00	-65.88	0.00	65.88	2742.07	1371.04	4616.42	2291.78	1.49	-0.15	0.00	0.037
100.00	-21.89	-0.92	0.00	-64.88	0.00	64.88	2732.96	1366.48	4575.83	2271.63	1.53	-0.16	0.00	0.037
105.00	-20.83	-0.92	0.00	-60.28	0.00	60.28	2690.08	1345.04	4389.32	2179.04	1.70	-0.17	0.00	0.035
110.00	-19.80	-0.92	0.00	-55.67	0.00	55.67	2645.83	1322.92	4204.31	2087.20	1.88	-0.18	0.00	0.034
115.00	-18.78	-0.92	0.00	-51.06	0.00	51.06	2600.23	1300.12	4020.98	1996.19	2.07	-0.19	0.00	0.033
120.00	-17.78	-0.92	0.00	-46.45	0.00	46.45	2553.28	1276.64	3839.50	1906.09	2.27	-0.20	0.00	0.031
125.00	-16.81	-0.92	0.00	-41.84	0.00	41.84	2504.96	1252.48	3660.03	1816.99	2.49	-0.21	0.00	0.030
127.09	-16.41	-0.92	0.00	-39.92	0.00	39.92	2484.39	1242.20	3585.78	1780.13	2.58	-0.21	0.00	0.029
130.00	-15.56	-0.92	0.00	-37.24	0.00	37.24	2455.29	1227.64	3482.76	1728.99	2.71	-0.22	0.00	0.028
132.34	-14.89	-0.92	0.00	-35.09	0.00	35.09	1489.26	744.63	2121.49	1053.20	2.82	-0.22	0.00	0.043
135.00	-14.50	-0.92	0.00	-32.65	0.00	32.65	1477.63	738.82	2071.36	1028.31	2.95	-0.23	0.00	0.042
140.00	-13.78	-0.92	0.00	-28.06	0.00	28.06	1454.76	727.38	1977.27	981.60	3.19	-0.24	0.00	0.038
145.00	-13.08	-0.92	0.00	-23.47	0.00	23.47	1430.53	715.26	1883.34	934.97	3.45	-0.25	0.00	0.034
150.00	-12.39	-0.91	0.00	-18.89	0.00	18.89	1404.94	702.47	1789.74	888.50	3.72	-0.26	0.00	0.030
155.00	-11.72	-0.89	0.00	-14.36	0.00	14.36	1377.99	688.99	1696.65	842.29	4.01	-0.27	0.00	0.026
157.00	-9.02	-0.79	0.00	-12.57	0.00	12.57	1366.83	683.41	1659.60	823.90	4.12	-0.28	0.00	0.022
160.00	-8.67	-0.78	0.00	-10.21	0.00	10.21	1349.68	674.84	1604.25	796.42	4.30	-0.28	0.00	0.019
165.00	-8.10	-0.75	0.00	-6.33	0.00	6.33	1320.02	660.01	1512.71	750.97	4.59	-0.29	0.00	0.015
167.00	-4.60	-0.50	0.00	-4.84	0.00	4.84	1307.77	653.89	1476.37	732.93	4.71	-0.29	0.00	0.010
170.00	-4.32	-0.48	0.00	-3.35	0.00	3.35	1289.00	644.50	1422.20	706.04	4.90	-0.29	0.00	0.008
175.00	-3.87	-0.44	0.00	-0.96	0.00	0.96	1256.62	628.31	1332.89	661.70	5.20	-0.29	0.00	0.005
177.00	-0.22	-0.03	0.00	-0.08	0.00	0.08	1243.29	621.64	1297.54	644.16	5.32	-0.29	0.00	0.000
180.00	0.00	-0.03	0.00	0.00	0.00	0.00	1222.88	611.44	1244.96	618.05	5.51	-0.29	0.00	0.000

Calculated Forces

Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/26/2017
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II

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Seismic Segment Forces (Factored)

Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/26/2017
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.0E					Iterations 23
Gust Response Factor	1.10			Sds 0.12	Ss 0.18
Dead Load Factor	0.90	Seismic Load Factor	1.00	Sd1 0.04	S1 0.06
Wind Load Factor	0.00	Structure Frequency	0.33	SA 0.01	Seismic Importance Factor 1.00



Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		1403.7	0.00	0.03	0.02	18.31	
10.00		1379.3	0.01	0.05	0.03	25.40	
15.00		1354.9	0.01	0.06	0.03	28.66	
20.00		1330.6	0.02	0.07	0.04	30.11	
25.00		1306.2	0.04	0.07	0.04	30.66	
30.00		1281.8	0.05	0.07	0.04	30.82	
35.00		1257.5	0.07	0.07	0.04	30.85	
40.00		1233.1	0.09	0.07	0.04	30.89	
45.00		1208.7	0.12	0.07	0.03	30.97	
45.92	Bot - Section 2	218.97	0.12	0.07	0.03	5.63	
50.00		1805.5	0.15	0.07	0.03	47.30	
53.00	Top - Section 1	1307.2	0.16	0.07	0.03	34.65	
55.00		401.39	0.18	0.07	0.03	10.70	
60.00		988.87	0.21	0.06	0.02	26.54	
65.00		968.00	0.25	0.06	0.02	25.58	
70.00		947.14	0.29	0.05	0.01	23.67	
75.00		926.28	0.33	0.04	0.01	20.39	
80.00		905.41	0.37	0.03	0.01	15.33	
85.00		884.55	0.42	0.01	0.01	8.36	
90.00		863.69	0.47	-0.01	0.01	-0.02	
92.92	Bot - Section 3	494.18	0.50	-0.02	0.01	-2.93	
95.00		644.51	0.53	-0.03	0.01	-6.51	
98.92	Top - Section 2	1193.6	0.57	-0.04	0.01	-20.61	
100.00		149.70	0.58	-0.05	0.01	-2.85	
105.00		680.33	0.64	-0.07	0.02	-17.45	
110.00		662.92	0.71	-0.09	0.03	-19.59	
115.00		645.50	0.77	-0.11	0.05	-19.90	
120.00		628.09	0.84	-0.12	0.07	-18.68	
125.00		610.68	0.91	-0.12	0.09	-16.16	
127.09	Bot - Section 4	249.71	0.94	-0.12	0.10	-6.11	
130.00		587.62	0.99	-0.11	0.12	-12.41	
132.34	Top - Section 3	464.04	1.02	-0.10	0.14	-8.33	
135.00		216.47	1.06	-0.09	0.17	-2.98	
140.00		397.05	1.14	-0.04	0.21	-1.77	
145.00		384.86	1.23	0.03	0.27	2.65	
150.00		372.68	1.31	0.14	0.35	7.55	
155.00		360.49	1.40	0.29	0.43	12.87	
157.00	Appurtenance(s)	2170.8	1.44	0.36	0.47	92.24	
160.00		207.52	1.49	0.48	0.53	11.06	
165.00		336.12	1.59	0.74	0.65	24.56	
167.00	Appurtenance(s)	2870.6	1.63	0.86	0.71	234.27	
170.00		192.90	1.69	1.07	0.79	18.34	
175.00		311.76	1.79	1.48	0.95	37.22	
177.00	Appurtenance(s)	3015.5	1.83	1.67	1.03	391.32	
180.00	Appurtenance(s)	184.78	1.89	1.98	1.14	26.99	

Seismic Segment Forces (Factored)

Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/26/2017
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Totals: **40,006.1**

1,177.6

Total Wind: **43,599.7**

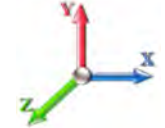
Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

Calculated Forces

Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/26/2017
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.0E							Iterations 23
Gust Response Factor	1.10			Sds	0.12	Ss	0.18
Dead Load Factor	0.90	Seismic Load Factor	1.00	Sd1	0.04	S1	0.06
Wind Load Factor	0.00	Structure Frequency	0.33	SA	0.01	Seismic Importance Factor	1.00

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-42.06	-1.34	0.00	-172.92	0.00	172.92	5508.12	2754.06	13547.4	6725.55	0.00	0.00	0.00	0.033
5.00	-40.61	-1.32	0.00	-166.24	0.00	166.24	5452.09	2726.05	13177.2	6541.73	0.00	-0.01	0.00	0.033
10.00	-39.19	-1.30	0.00	-159.63	0.00	159.63	5394.71	2697.35	12808.5	6358.68	0.01	-0.01	0.00	0.032
15.00	-37.79	-1.28	0.00	-153.13	0.00	153.13	5335.97	2667.98	12441.5	6176.49	0.03	-0.02	0.00	0.032
20.00	-36.41	-1.25	0.00	-146.75	0.00	146.75	5275.87	2637.93	12076.4	5995.24	0.06	-0.03	0.00	0.031
25.00	-35.05	-1.22	0.00	-140.50	0.00	140.50	5214.41	2607.20	11713.3	5815.02	0.09	-0.03	0.00	0.031
30.00	-33.72	-1.19	0.00	-134.39	0.00	134.39	5151.59	2575.80	11352.6	5635.92	0.12	-0.04	0.00	0.030
35.00	-32.40	-1.17	0.00	-128.42	0.00	128.42	5087.42	2543.71	10994.2	5458.02	0.17	-0.05	0.00	0.030
40.00	-31.11	-1.14	0.00	-122.58	0.00	122.58	5021.88	2510.94	10638.5	5281.41	0.22	-0.05	0.00	0.029
45.00	-29.84	-1.11	0.00	-116.89	0.00	116.89	4954.99	2477.50	10285.5	5106.18	0.28	-0.06	0.00	0.029
45.92	-29.61	-1.10	0.00	-115.87	0.00	115.87	4942.58	2471.29	10221.1	5074.21	0.30	-0.06	0.00	0.029
50.00	-27.84	-1.06	0.00	-111.36	0.00	111.36	4886.75	2443.37	9935.52	4932.41	0.35	-0.07	0.00	0.028
53.00	-26.55	-1.02	0.00	-108.19	0.00	108.19	3967.43	1983.71	8109.29	4025.79	0.40	-0.07	0.00	0.034
55.00	-26.12	-1.01	0.00	-106.14	0.00	106.14	3947.58	1973.79	8001.39	3972.23	0.43	-0.08	0.00	0.033
60.00	-25.05	-0.99	0.00	-101.06	0.00	101.06	3897.00	1948.50	7732.70	3838.84	0.51	-0.08	0.00	0.033
65.00	-24.00	-0.97	0.00	-96.11	0.00	96.11	3845.06	1922.53	7465.70	3706.29	0.60	-0.09	0.00	0.032
70.00	-22.96	-0.94	0.00	-91.28	0.00	91.28	3791.77	1895.89	7200.54	3574.65	0.70	-0.10	0.00	0.032
75.00	-21.95	-0.93	0.00	-86.56	0.00	86.56	3737.12	1868.56	6937.41	3444.02	0.81	-0.11	0.00	0.031
80.00	-20.95	-0.91	0.00	-81.93	0.00	81.93	3681.11	1840.56	6676.48	3314.49	0.93	-0.12	0.00	0.030
85.00	-19.97	-0.90	0.00	-77.37	0.00	77.37	3623.74	1811.87	6417.92	3186.13	1.06	-0.13	0.00	0.030
90.00	-19.01	-0.90	0.00	-72.85	0.00	72.85	3565.02	1782.51	6161.91	3059.03	1.20	-0.14	0.00	0.029
92.92	-18.46	-0.90	0.00	-70.21	0.00	70.21	3530.13	1765.07	6013.81	2985.51	1.29	-0.14	0.00	0.029
95.00	-17.81	-0.90	0.00	-68.32	0.00	68.32	3504.93	1752.47	5908.61	2933.28	1.35	-0.15	0.00	0.028
98.92	-16.59	-0.90	0.00	-64.78	0.00	64.78	2742.07	1371.04	4616.42	2291.78	1.47	-0.15	0.00	0.034
100.00	-16.42	-0.90	0.00	-63.80	0.00	63.80	2732.96	1366.48	4575.83	2271.63	1.50	-0.15	0.00	0.034
105.00	-15.62	-0.90	0.00	-59.28	0.00	59.28	2690.08	1345.04	4389.32	2179.04	1.67	-0.16	0.00	0.033
110.00	-14.85	-0.91	0.00	-54.76	0.00	54.76	2645.83	1322.92	4204.31	2087.20	1.85	-0.18	0.00	0.032
115.00	-14.08	-0.91	0.00	-50.23	0.00	50.23	2600.23	1300.12	4020.98	1996.19	2.04	-0.19	0.00	0.031
120.00	-13.34	-0.91	0.00	-45.70	0.00	45.70	2553.28	1276.64	3839.50	1906.09	2.24	-0.20	0.00	0.029
125.00	-12.61	-0.90	0.00	-41.18	0.00	41.18	2504.96	1252.48	3660.03	1816.99	2.45	-0.21	0.00	0.028
127.09	-12.30	-0.90	0.00	-39.29	0.00	39.29	2484.39	1242.20	3585.78	1780.13	2.54	-0.21	0.00	0.027
130.00	-11.67	-0.90	0.00	-36.66	0.00	36.66	2455.29	1227.64	3482.76	1728.99	2.67	-0.22	0.00	0.026
132.34	-11.17	-0.90	0.00	-34.54	0.00	34.54	1489.26	744.63	2121.49	1053.20	2.78	-0.22	0.00	0.040
135.00	-10.88	-0.90	0.00	-32.14	0.00	32.14	1477.63	738.82	2071.36	1028.31	2.90	-0.23	0.00	0.039
140.00	-10.34	-0.90	0.00	-27.63	0.00	27.63	1454.76	727.38	1977.27	981.60	3.14	-0.24	0.00	0.035
145.00	-9.81	-0.90	0.00	-23.11	0.00	23.11	1430.53	715.26	1883.34	934.97	3.40	-0.25	0.00	0.032
150.00	-9.29	-0.89	0.00	-18.62	0.00	18.62	1404.94	702.47	1789.74	888.50	3.67	-0.26	0.00	0.028
155.00	-8.79	-0.88	0.00	-14.16	0.00	14.16	1377.99	688.99	1696.65	842.29	3.94	-0.27	0.00	0.023
157.00	-6.76	-0.78	0.00	-12.40	0.00	12.40	1366.83	683.41	1659.60	823.90	4.06	-0.27	0.00	0.020
160.00	-6.50	-0.76	0.00	-10.08	0.00	10.08	1349.68	674.84	1604.25	796.42	4.23	-0.28	0.00	0.017
165.00	-6.08	-0.74	0.00	-6.26	0.00	6.26	1320.02	660.01	1512.71	750.97	4.52	-0.28	0.00	0.013
167.00	-3.45	-0.49	0.00	-4.78	0.00	4.78	1307.77	653.89	1476.37	732.93	4.64	-0.28	0.00	0.009
170.00	-3.24	-0.47	0.00	-3.31	0.00	3.31	1289.00	644.50	1422.20	706.04	4.82	-0.29	0.00	0.007
175.00	-2.90	-0.43	0.00	-0.95	0.00	0.95	1256.62	628.31	1332.89	661.70	5.12	-0.29	0.00	0.004
177.00	-0.17	-0.03	0.00	-0.08	0.00	0.08	1243.29	621.64	1297.54	644.16	5.24	-0.29	0.00	0.000
180.00	0.00	-0.03	0.00	0.00	0.00	0.00	1222.88	611.44	1244.96	618.05	5.42	-0.29	0.00	0.000

Calculated Forces

Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/26/2017
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II

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Wind Loading - Shaft

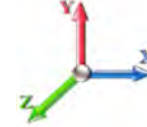
Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/26/2017
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



Load Case: 1.0D + 1.0W 60 mph Wind

Iterations 24

Dead Load Factor 1.00
Wind Load Factor 1.00



Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	7.442	8.19	282.00	0.750	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	7.442	8.19	277.19	0.750	0.000	5.00	25.272	18.95	155.2	0.0	1403.7
10.00		1.00	0.85	7.442	8.19	272.37	0.750	0.000	5.00	24.837	18.63	152.5	0.0	1379.4
15.00		1.00	0.85	7.442	8.19	267.55	0.750	0.000	5.00	24.401	18.30	149.8	0.0	1355.0
20.00		1.00	0.90	7.896	8.69	270.63	0.750	0.000	5.00	23.966	17.97	156.1	0.0	1330.6
25.00		1.00	0.95	8.276	9.10	271.98	0.750	0.000	5.00	23.530	17.65	160.7	0.0	1306.3
30.00		1.00	0.98	8.600	9.46	272.07	0.750	0.000	5.00	23.095	17.32	163.9	0.0	1281.9
35.00		1.00	1.01	8.883	9.77	271.26	0.750	0.000	5.00	22.659	16.99	166.1	0.0	1257.5
40.00		1.00	1.04	9.137	10.05	269.76	0.750	0.000	5.00	22.224	16.67	167.5	0.0	1233.1
45.00		1.00	1.07	9.366	10.30	267.72	0.750	0.000	5.00	21.788	16.34	168.4	0.0	1208.8
45.92	Bot - Section 2	1.00	1.07	9.406	10.35	267.30	0.750	0.000	0.92	3.947	2.96	30.6	0.0	219.0
50.00		1.00	1.09	9.576	10.53	265.24	0.750	0.000	4.08	17.666	13.25	139.6	0.0	1805.5
53.00	Top - Section 1	1.00	1.11	9.694	10.66	263.58	0.750	0.000	3.00	12.794	9.60	102.3	0.0	1307.3
55.00		1.00	1.12	9.770	10.75	266.44	0.750	0.000	2.00	8.442	6.33	68.0	0.0	401.4
60.00		1.00	1.14	9.951	10.95	263.32	0.750	0.000	5.00	20.800	15.60	170.8	0.0	988.9
65.00		1.00	1.16	10.120	11.13	259.93	0.750	0.000	5.00	20.365	15.27	170.0	0.0	968.0
70.00		1.00	1.17	10.279	11.31	256.30	0.750	0.000	5.00	19.929	14.95	169.0	0.0	947.1
75.00		1.00	1.19	10.430	11.47	252.46	0.750	0.000	5.00	19.494	14.62	167.7	0.0	926.3
80.00		1.00	1.21	10.572	11.63	248.44	0.750	0.000	5.00	19.058	14.29	166.2	0.0	905.4
85.00		1.00	1.22	10.708	11.78	244.25	0.750	0.000	5.00	18.623	13.97	164.5	0.0	884.5
90.00		1.00	1.24	10.838	11.92	239.91	0.750	0.000	5.00	18.187	13.64	162.6	0.0	863.7
92.92	Bot - Section 3	1.00	1.25	10.911	12.00	237.32	0.750	0.000	2.92	10.408	7.81	93.7	0.0	494.2
95.00		1.00	1.25	10.962	12.06	235.43	0.750	0.000	2.08	7.454	5.59	67.4	0.0	644.5
98.92	Top - Section 2	1.00	1.26	11.055	12.16	231.84	0.750	0.000	3.92	13.810	10.36	126.0	0.0	1193.7
100.00		1.00	1.27	11.081	12.19	234.42	0.750	0.000	1.08	3.773	2.83	34.5	0.0	149.7
105.00		1.00	1.28	11.195	12.31	229.72	0.750	0.000	5.00	17.147	12.86	158.4	0.0	680.3
110.00		1.00	1.29	11.305	12.44	224.91	0.750	0.000	5.00	16.711	12.53	155.9	0.0	662.9
115.00		1.00	1.30	11.412	12.55	219.99	0.750	0.000	5.00	16.276	12.21	153.2	0.0	645.5
120.00		1.00	1.32	11.514	12.67	214.99	0.750	0.000	5.00	15.840	11.88	150.5	0.0	628.1
125.00		1.00	1.33	11.614	12.78	209.90	0.750	0.000	5.00	15.405	11.55	147.6	0.0	610.7
127.09	Bot - Section 4	1.00	1.33	11.654	12.82	207.75	0.750	0.000	2.09	6.300	4.73	60.6	0.0	249.7
130.00		1.00	1.34	11.710	12.88	204.72	0.750	0.000	2.91	8.777	6.58	84.8	0.0	587.6
132.34	Top - Section 3	1.00	1.34	11.754	12.93	202.27	0.750	0.000	2.34	6.933	5.20	67.2	0.0	464.0
135.00		1.00	1.35	11.803	12.98	202.06	0.750	0.000	2.66	7.787	5.84	75.8	0.0	216.5
140.00		1.00	1.36	11.894	13.08	196.74	0.750	0.000	5.00	14.284	10.71	140.2	0.0	397.0
145.00		1.00	1.37	11.982	13.18	191.36	0.750	0.000	5.00	13.849	10.39	136.9	0.0	384.9
150.00		1.00	1.38	12.068	13.27	185.91	0.750	0.000	5.00	13.413	10.06	133.5	0.0	372.7
155.00		1.00	1.39	12.152	13.37	180.39	0.750	0.000	5.00	12.978	9.73	130.1	0.0	360.5
157.00	Appurtenance(s)	1.00	1.39	12.185	13.40	178.17	0.750	0.000	2.00	5.069	3.80	51.0	0.0	140.8
160.00		1.00	1.40	12.233	13.46	174.82	0.750	0.000	3.00	7.473	5.60	75.4	0.0	207.5
165.00		1.00	1.41	12.313	13.54	169.19	0.750	0.000	5.00	12.107	9.08	123.0	0.0	336.1
167.00	Appurtenance(s)	1.00	1.41	12.344	13.58	166.92	0.750	0.000	2.00	4.721	3.54	48.1	0.0	131.0
170.00		1.00	1.42	12.390	13.63	163.50	0.750	0.000	3.00	6.950	5.21	71.0	0.0	192.9
175.00		1.00	1.42	12.466	13.71	157.77	0.750	0.000	5.00	11.236	8.43	115.6	0.0	311.8
177.00	Appurtenance(s)	1.00	1.43	12.496	13.75	155.46	0.750	0.000	2.00	4.372	3.28	45.1	0.0	121.3
180.00	Appurtenance(s)	1.00	1.43	12.540	13.79	151.98	0.750	0.000	3.00	6.428	4.82	66.5	0.0	178.3

Wind Loading - Shaft

Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/26/2017
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Totals:	180.00	5,463.3	32,335.6
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Discrete Appurtenance Forces

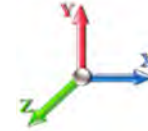
Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/26/2017
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 24

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	180.00	6' Lightning rod	1	12.540	13.794	0.00	1.00	0.38	6.50	0.000	0.000	5.24	0.00	0.00
2	177.00	782 11056	3	12.496	13.746	0.62	0.80	0.52	5.40	0.000	0.000	7.20	0.00	0.00
3	177.00	KRY 112 144/1	3	12.496	13.746	0.58	0.80	0.71	33.00	0.000	0.000	9.74	0.00	0.00
4	177.00	APXV18-206516S-C-A20	3	12.496	13.746	0.62	0.80	6.76	56.10	0.000	0.000	92.89	0.00	0.00
5	177.00	LNx-6515DS-VTM	3	12.496	13.746	0.67	0.80	23.12	150.90	0.000	0.000	317.85	0.00	0.00
6	177.00	Platform w/ Hand Rails	1	12.496	13.746	1.00	1.00	40.00	2600.00	0.000	0.000	549.83	0.00	0.00
7	177.00	IBR 1300	1	12.496	13.746	1.00	1.00	0.67	8.90	0.000	0.000	9.21	0.00	0.00
8	177.00	Pipe Mount	1	12.496	13.746	0.56	0.75	1.48	40.00	0.000	0.000	20.34	0.00	0.00
9	167.00	Platform w/ Hand Rails	1	12.344	13.578	1.00	1.00	40.00	2000.00	0.000	0.000	543.14	0.00	0.00
10	167.00	LPA-80080-4CF-EDIN-0	6	12.344	13.578	0.80	0.80	12.53	72.00	0.000	0.000	170.11	0.00	0.00
11	167.00	Raycap	2	12.344	13.578	0.67	0.80	5.09	64.00	0.000	0.000	69.17	0.00	0.00
12	167.00	Alcatel-Lucent B4 RRH	3	12.344	13.578	0.64	0.80	4.99	192.00	0.000	0.000	67.78	0.00	0.00
13	167.00	Alcatel-Lucent B13	3	12.344	13.578	0.70	0.80	4.56	171.60	0.000	0.000	61.94	0.00	0.00
14	167.00	SBNHH-1D65B	6	12.344	13.578	0.66	0.80	32.51	240.00	0.000	0.000	441.43	0.00	0.00
15	157.00	Low Profile Platform-flat	1	12.185	13.403	1.00	1.00	25.00	1200.00	0.000	0.000	335.08	0.00	0.00
16	157.00	DC6-48-60-18-8F	1	12.185	13.403	0.80	0.80	1.18	31.80	0.000	0.000	15.76	0.00	0.00
17	157.00	LGP21903	6	12.185	13.403	0.59	0.80	0.96	33.00	0.000	0.000	12.85	0.00	0.00
18	157.00	RRUS 11	6	12.185	13.403	0.61	0.80	9.19	304.20	0.000	0.000	123.21	0.00	0.00
19	157.00	LGP21401	6	12.185	13.403	0.51	0.80	3.96	84.60	0.000	0.000	53.11	0.00	0.00
20	157.00	AM-X-CD-16-65-00T	1	12.185	13.403	0.62	0.80	5.00	48.50	0.000	0.000	67.08	0.00	0.00
21	157.00	P65-17-XLH-RR	2	12.185	13.403	0.64	0.80	14.64	118.00	0.000	0.000	196.26	0.00	0.00
22	157.00	7770 w/ Mount Pipe	6	12.185	13.403	0.60	0.80	19.80	210.00	0.000	0.000	265.38	0.00	0.00
Totals:									7,670.50			3,434.61		

Total Applied Force Summary

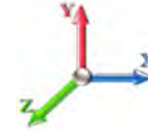
Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/26/2017
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 24

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		155.16	1605.23	0.00	0.00
10.00		152.49	1580.86	0.00	0.00
15.00		149.81	1556.49	0.00	0.00
20.00		156.12	1532.12	0.00	0.00
25.00		160.66	1507.76	0.00	0.00
30.00		163.85	1483.39	0.00	0.00
35.00		166.07	1459.02	0.00	0.00
40.00		167.52	1434.65	0.00	0.00
45.00		168.36	1410.28	0.00	0.00
45.92		30.63	255.91	0.00	0.00
50.00		139.56	1970.09	0.00	0.00
53.00		102.32	1428.19	0.00	0.00
55.00		68.05	481.99	0.00	0.00
60.00		170.76	1190.37	0.00	0.00
65.00		170.03	1169.50	0.00	0.00
70.00		169.01	1148.64	0.00	0.00
75.00		167.73	1127.78	0.00	0.00
80.00		166.23	1106.91	0.00	0.00
85.00		164.52	1086.05	0.00	0.00
90.00		162.61	1065.19	0.00	0.00
92.92		93.69	611.72	0.00	0.00
95.00		67.41	728.47	0.00	0.00
98.92		125.95	1351.53	0.00	0.00
100.00		34.49	193.36	0.00	0.00
105.00		158.37	881.83	0.00	0.00
110.00		155.86	864.42	0.00	0.00
115.00		153.23	847.00	0.00	0.00
120.00		150.47	829.59	0.00	0.00
125.00		147.60	812.18	0.00	0.00
127.09		60.57	333.80	0.00	0.00
130.00		84.80	705.03	0.00	0.00
132.34		67.23	558.21	0.00	0.00
135.00		75.82	323.80	0.00	0.00
140.00		140.17	598.55	0.00	0.00
145.00		136.90	586.36	0.00	0.00
150.00		133.55	574.18	0.00	0.00
155.00		130.10	561.99	0.00	0.00
157.00	(29) attachments	1119.70	2251.49	0.00	0.00
160.00		75.42	288.40	0.00	0.00
165.00		122.98	470.92	0.00	0.00
167.00	(21) attachments	1401.64	2924.56	0.00	0.00
170.00		71.05	231.06	0.00	0.00
175.00		115.56	375.36	0.00	0.00
177.00	(15) attachments	1052.13	3041.03	0.00	0.00
180.00	(1) attachments	71.74	184.78	0.00	0.00

Total Applied Force Summary

Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/26/2017
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Totals:	8,897.90	46,730.04	0.00	0.00
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Calculated Forces

Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/26/2017
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II

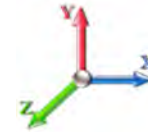


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Load Case: 1.0D + 1.0W 60 mph Wind

Iterations 24

Dead Load Factor 1.00
Wind Load Factor 1.00



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-46.73	-8.91	0.00	-1091.5	0.00	1091.59	5508.12	2754.06	13547.4	6725.55	0.00	0.000	0.000	0.171
5.00	-45.12	-8.79	0.00	-1047.0	0.00	1047.02	5452.09	2726.05	13177.2	6541.73	0.02	-0.041	0.000	0.168
10.00	-43.53	-8.67	0.00	-1003.0	0.00	1003.07	5394.71	2697.35	12808.5	6358.68	0.09	-0.082	0.000	0.166
15.00	-41.97	-8.55	0.00	-959.73	0.00	959.73	5335.97	2667.98	12441.5	6176.49	0.20	-0.124	0.000	0.163
20.00	-40.43	-8.42	0.00	-917.01	0.00	917.01	5275.87	2637.93	12076.4	5995.24	0.35	-0.166	0.000	0.161
25.00	-38.91	-8.28	0.00	-874.93	0.00	874.93	5214.41	2607.20	11713.3	5815.02	0.54	-0.208	0.000	0.158
30.00	-37.43	-8.14	0.00	-833.54	0.00	833.54	5151.59	2575.80	11352.6	5635.92	0.78	-0.251	0.000	0.155
35.00	-35.96	-7.99	0.00	-792.86	0.00	792.86	5087.42	2543.71	10994.2	5458.02	1.07	-0.294	0.000	0.152
40.00	-34.52	-7.84	0.00	-752.90	0.00	752.90	5021.88	2510.94	10638.5	5281.41	1.40	-0.337	0.000	0.149
45.00	-33.11	-7.68	0.00	-713.70	0.00	713.70	4954.99	2477.50	10285.5	5106.18	1.78	-0.380	0.000	0.146
45.92	-32.85	-7.66	0.00	-706.66	0.00	706.66	4942.58	2471.29	10221.1	5074.21	1.85	-0.389	0.000	0.146
50.00	-30.88	-7.52	0.00	-675.38	0.00	675.38	4886.75	2443.37	9935.52	4932.41	2.20	-0.425	0.000	0.143
53.00	-29.45	-7.42	0.00	-652.81	0.00	652.81	3967.43	1983.71	8109.29	4025.79	2.47	-0.452	0.000	0.170
55.00	-28.96	-7.37	0.00	-637.97	0.00	637.97	3947.58	1973.79	8001.39	3972.23	2.67	-0.470	0.000	0.168
60.00	-27.77	-7.21	0.00	-601.14	0.00	601.14	3897.00	1948.50	7732.70	3838.84	3.19	-0.519	0.000	0.164
65.00	-26.59	-7.05	0.00	-565.09	0.00	565.09	3845.06	1922.53	7465.70	3706.29	3.76	-0.568	0.000	0.159
70.00	-25.44	-6.89	0.00	-529.84	0.00	529.84	3791.77	1895.89	7200.54	3574.65	4.38	-0.618	0.000	0.155
75.00	-24.31	-6.73	0.00	-495.37	0.00	495.37	3737.12	1868.56	6937.41	3444.02	5.05	-0.667	0.000	0.150
80.00	-23.20	-6.57	0.00	-461.71	0.00	461.71	3681.11	1840.56	6676.48	3314.49	5.78	-0.717	0.000	0.146
85.00	-22.11	-6.41	0.00	-428.84	0.00	428.84	3623.74	1811.87	6417.92	3186.13	6.55	-0.766	0.000	0.141
90.00	-21.04	-6.25	0.00	-396.78	0.00	396.78	3565.02	1782.51	6161.91	3059.03	7.38	-0.815	0.000	0.136
92.92	-20.43	-6.16	0.00	-378.54	0.00	378.54	3530.13	1765.07	6013.81	2985.51	7.89	-0.844	0.000	0.133
95.00	-19.70	-6.09	0.00	-365.72	0.00	365.72	3504.93	1752.47	5908.61	2933.28	8.26	-0.865	0.000	0.130
98.92	-18.35	-5.95	0.00	-341.87	0.00	341.87	2742.07	1371.04	4616.42	2291.78	8.99	-0.903	0.000	0.156
100.00	-18.15	-5.92	0.00	-335.42	0.00	335.42	2732.96	1366.48	4575.83	2271.63	9.19	-0.913	0.000	0.154
105.00	-17.27	-5.77	0.00	-305.81	0.00	305.81	2690.08	1345.04	4389.32	2179.04	10.18	-0.968	0.000	0.147
110.00	-16.40	-5.61	0.00	-276.98	0.00	276.98	2645.83	1322.92	4204.31	2087.20	11.22	-1.021	0.000	0.139
115.00	-15.55	-5.46	0.00	-248.93	0.00	248.93	2600.23	1300.12	4020.98	1996.19	12.32	-1.073	0.000	0.131
120.00	-14.72	-5.30	0.00	-221.65	0.00	221.65	2553.28	1276.64	3839.50	1906.09	13.47	-1.123	0.000	0.122
125.00	-13.91	-5.15	0.00	-195.14	0.00	195.14	2504.96	1252.48	3660.03	1816.99	14.67	-1.172	0.000	0.113
127.09	-13.57	-5.08	0.00	-184.40	0.00	184.40	2484.39	1242.20	3585.78	1780.13	15.19	-1.192	0.000	0.109
130.00	-12.87	-4.99	0.00	-169.59	0.00	169.59	2455.29	1227.64	3482.76	1728.99	15.92	-1.219	0.000	0.103
132.34	-12.31	-4.92	0.00	-157.93	0.00	157.93	1489.26	744.63	2121.49	1053.20	16.53	-1.240	0.000	0.158
135.00	-11.98	-4.84	0.00	-144.83	0.00	144.83	1477.63	738.82	2071.36	1028.31	17.22	-1.263	0.000	0.149
140.00	-11.38	-4.70	0.00	-120.63	0.00	120.63	1454.76	727.38	1977.27	981.60	18.58	-1.318	0.000	0.131
145.00	-10.80	-4.56	0.00	-97.14	0.00	97.14	1430.53	715.26	1883.34	934.97	19.98	-1.367	0.000	0.111
150.00	-10.22	-4.42	0.00	-74.35	0.00	74.35	1404.94	702.47	1789.74	888.50	21.44	-1.410	0.000	0.091
155.00	-9.66	-4.28	0.00	-52.27	0.00	52.27	1377.99	688.99	1696.65	842.29	22.94	-1.445	0.000	0.069
157.00	-7.44	-3.10	0.00	-43.72	0.00	43.72	1366.83	683.41	1659.60	823.90	23.55	-1.456	0.000	0.059
160.00	-7.15	-3.02	0.00	-34.42	0.00	34.42	1349.68	674.84	1604.25	796.42	24.47	-1.471	0.000	0.049
165.00	-6.68	-2.89	0.00	-19.32	0.00	19.32	1320.02	660.01	1512.71	750.97	26.02	-1.489	0.000	0.031
167.00	-3.80	-1.41	0.00	-13.54	0.00	13.54	1307.77	653.89	1476.37	732.93	26.64	-1.494	0.000	0.021
170.00	-3.57	-1.33	0.00	-9.31	0.00	9.31	1289.00	644.50	1422.20	706.04	27.58	-1.500	0.000	0.016
175.00	-3.20	-1.21	0.00	-2.65	0.00	2.65	1256.62	628.31	1332.89	661.70	29.16	-1.505	0.000	0.007
177.00	-0.18	-0.08	0.00	-0.23	0.00	0.23	1243.29	621.64	1297.54	644.16	29.79	-1.505	0.000	0.001
180.00	0.00	-0.07	0.00	0.00	0.00	0.00	1222.88	611.44	1244.96	618.05	30.73	-1.505	0.000	0.000

Final Analysis Summary

Structure: CT02218-S-SBA	Code: EIA/TIA-222-G	10/26/2017
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
1.2D + 1.6W 105 mph Wind	43.7	0.00	56.00	0.00	0.00	5378.54
0.9D + 1.6W 105 mph Wind	43.7	0.00	41.98	0.00	0.00	5317.35
1.2D + 1.0Di + 1.0Wi 50 mph Wind	10.0	0.00	81.81	0.00	0.00	1247.56
1.2D + 1.0E	1.3	0.00	56.08	0.00	0.00	175.08
0.9D + 1.0E	1.3	0.00	42.06	0.00	0.00	172.92
1.0D + 1.0W 60 mph Wind	8.9	0.00	46.73	0.00	0.00	1091.59

Max Stresses

Load Case	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Elev (ft)	Stress Ratio
1.2D + 1.6W 105 mph Wind	-56.00	-43.70	0.00	-5378.5	0.00	-5378.5	5508.12	2754.0	13547.4	6725.55	0.00	0.810
0.9D + 1.6W 105 mph Wind	-41.98	-43.67	0.00	-5317.3	0.00	-5317.3	5508.12	2754.0	13547.4	6725.55	0.00	0.798
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-55.66	-8.49	0.00	-750.10	0.00	-750.10	3967.43	1983.7	8109.29	4025.79	53.00	0.200
1.2D + 1.0E	-14.89	-0.92	0.00	-35.09	0.00	-35.09	1489.26	744.63	2121.49	1053.20	132.34	0.043
0.9D + 1.0E	-11.17	-0.90	0.00	-34.54	0.00	-34.54	1489.26	744.63	2121.49	1053.20	132.34	0.040
1.0D + 1.0W 60 mph Wind	-46.73	-8.91	0.00	-1091.5	0.00	-1091.5	5508.12	2754.0	13547.4	6725.55	0.00	0.171

Base Plate Summary

Structure: CT02218-S-SB	Code: EIA/TIA-222-G	10/26/2017
Site Name: Colchester	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II
		Page: 41



Reactions	Base Plate	Anchor Bolts
Original Design	Yield (ksi): 60.00	Bolt Circle: 68.62
Moment (kip-ft): 5045.00	Width (in): 74.62	Number Bolts: 20.00
Axial (kip): 56.10	Style: Polygon	Bolt Type: 2.25" 18J
Shear (kip): 39.50	Polygon Sides: 16.00	Bolt Diameter (in): 2.25
Analysis	Clip Length (in): 0.00	Yield (ksi): 75.00
Moment (kip-ft): 5378.54	Effective Len (in): 13.86	Ultimate (ksi): 100.00
Axial (kip): 81.81	Moment (kip-in): 828.41	Arrangement: Radial
Shear (kip): 43.70	Allow Stress (ksi): 81.00	Cluster Dist (in): 0.00
	Applied Stress (ksi): 0.00	Start Angle (deg): 0.00
Moment Design %: 106.61	Stress Ratio: 0.59	Compression
		Force (kip): 192.21
		Allowable (kip): 260.00
		Ratio: 0.76
		Tension
		Force (kip): 184.03
		Allowable (kip): 260.00
		Ratio: 0.72

Exhibit E



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

T-Mobile Existing Facility

Site ID: CT11338A (MW Add)

RT 2/Colchester West/SBA
48 Westchester Road
Colchester, CT 06415

September 29, 2017

EBI Project Number: 6217004238

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	4.638%



September 29, 2017

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

Emissions Analysis for Site: **CT11338A – RT 2/Colchester West/SBA**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **48 Westchester Road, Colchester, 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 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The number of $\mu\text{W}/\text{cm}^2$ 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 ($\mu\text{W}/\text{cm}^2$). The general population exposure limit for the 700 MHz Band is approximately 467 $\mu\text{W}/\text{cm}^2$, and the general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 5 GHz microwave bands is 1000 $\mu\text{W}/\text{cm}^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.



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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at **48 Westchester Road, Colchester, 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 and microwave 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, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

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

- 1) 2 GSM channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 2) 2 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.
- 3) 1 LTE channel (700 MHz Band) was considered for each sector of the proposed installation. This channel has a transmit power of 30 Watts.
- 4) 1 microwave backhaul channel (5 GHz) was considered for the microwave Link. This channel has a transmit power of 1 Watt.
- 5) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.



- 6) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 7) The antennas used in this modeling are the **RFS APXV18-206516S-C-A20** for 1900 MHz (PCS) channels, the **Commscope LNX-6515DS-A1M** for 700 MHz channels and the **Fastback Networks IBR 1300** for 5 GHz microwave backhaul. This is based on feedback from the carrier with regards to anticipated antenna selection. The **RFS APXV18-206516S-C-A20** has a maximum gain of **16.3 dBd** at its main lobe at 1900 MHz. The **Commscope LNX-6515DS-A1M** has a maximum gain of **14.6 dBd** at its main lobe at 700 MHz. the **Fastback Networks IBR 1300 antenna** has a maximum gain of **10 dBd** at 5 GHz. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, 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.
- 8) The antenna mounting height centerlines of the proposed antennas are **177 feet & 175 feet** above ground level (AGL) for all standard panel antennas and 5 GHz microwave radio / antenna.
- 9) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.
- 10) All calculations were done with respect to uncontrolled / general population threshold limits.



T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	RFS APXV18-206516S-C-A20	Make / Model:	RFS APXV18-206516S-C-A20	Make / Model:	RFS APXV18-206516S-C-A20
Gain:	16.3 dBd	Gain:	16.3 dBd	Gain:	16.3 dBd
Height (AGL):	177	Height (AGL):	177	Height (AGL):	177
Frequency Bands	1900 MHz (PCS)	Frequency Bands	1900 MHz (PCS)	Frequency Bands	1900 MHz (PCS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	180	Total TX Power(W):	180	Total TX Power(W):	180
ERP (W):	7,678.43	ERP (W):	7,678.43	ERP (W):	7,678.43
Antenna A1 MPE%	0.944	Antenna B1 MPE%	0.944	Antenna C1 MPE%	0.944
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	Commscope LNX-6515DS-A1M	Make / Model:	Commscope LNX-6515DS-A1M	Make / Model:	Commscope LNX-6515DS-A1M
Gain:	14.6 dBd	Gain:	14.6 dBd	Gain:	14.6 dBd
Height (AGL):	175	Height (AGL):	175	Height (AGL):	175
Frequency Bands	700 MHz	Frequency Bands	700 MHz	Frequency Bands	700 MHz
Channel Count	1	Channel Count	1	Channel Count	1
Total TX Power(W):	30	Total TX Power(W):	30	Total TX Power(W):	30
ERP (W):	865.21	ERP (W):	865.21	ERP (W):	865.21
Antenna A2 MPE%	0.233	Antenna B2 MPE%	0.233	Antenna C2 MPE%	0.233
				Antenna #:	3 (Microwave)
				Make / Model:	Fastback Networks IBR 1300
				Gain:	10.0 dBd
				Height (AGL):	177
				Frequency Bands	5.0 GHz
				Channel Count	1
				Total TX Power(W):	1
				ERP (W):	10 W
				Antenna A3 MPE%	0.001

Site Composite MPE%	
Carrier	MPE%
T-Mobile (Per Sector Max)	1.178%
Verizon Wireless	1.950%
AT&T	1.510%
Site Total MPE %:	4.638%

T-Mobile Sector A Total:	1.177%
T-Mobile Sector B Total:	1.178%
T-Mobile Sector C Total:	1.178%
<hr/>	
Site Total:	4.638%



T-Mobile Per Sector Maximum Power Values

T-Mobile _Max Values per sector (Sector C)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
T-Mobile PCS - 1900 MHz GSM	2	1,279.74	177	3.15	PCS - 1900 MHz	1000	0.315%
T-Mobile PCS - 1900 MHz LTE	2	2,559.48	177	6.29	PCS - 1900 MHz	1000	0.629%
T-Mobile 700 MHz LTE	1	865.21	175	1.09	700 MHz	467	0.233%
T-Mobile 5 GHz Microwave	1	10	177	0.01	5 GHz Microwave	1000	0.001%
						Total:	1.178%



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:	1.177%
Sector B:	1.178%
Sector C:	1.178%
T-Mobile Per Sector Maximum:	1.178%
Site Total:	4.638%
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **4.638%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

Exhibit F

CT 11 3358A

=====
BLOOMFIELD
40 JEROME AVE
BLOOMFIELD
CT
06002-9998
0804760102
11/01/2017 (800)275-8777 1:35 PM
=====

Product Description Sale Qty Final Price

Prepaid Mail 1
(Weight:0 lbs. 13.90 oz.)
(Destination:COLCHESTER, CT 06415)
(Acceptance Date:11/01/2017 13:35:21)
(Label #:9405501699320050119557)

Prepaid Mail 1
(Weight:0 lbs. 13.90 oz.)
(Destination:COLCHESTER, CT 06415)
(Acceptance Date:11/01/2017 13:35:36)
(Label #:9405501699320050119571)

Prepaid Mail 1
(Weight:0 lbs. 13.90 oz.)
(Destination:BOCA RATON, FL 33487)
(Acceptance Date:11/01/2017 13:35:52)
(Label #:9405501699320050119564)

Total \$0.00

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