



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

March 30, 2018

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

Notice of Exempt Modification – New Cingular Wireless PCS, LLC (AT&T) – CT2547
67 Fairchild Road, Middletown, CT 06457
N 41-32-41.40
W 72-37-14.84

Dear Ms. Bachman:

AT&T currently maintains nine (9) antennas at the 130-foot level of the existing 130-foot Monopole at 67 Fairchild Road, Middletown, CT. The tower is owned by SBA. The property is owned by the Stephen G. & Barbara L. Borrelli. AT&T now intends to install three (3) new Ericsson RRUS-32 B66, also at the 130-foot level of the tower.

This facility was approved by the Connecticut Siting Council in Docket # 316 on November 14, 2006. This decision was later rescinded and re-issued as Docket # 316A on August 25, 2011. The re-issued approval included a tower height limitation of 130 feet and eliminated the prior condition that antennas be flush-mounted. Since no further modification to the overall facility height is proposed, this modification therefore complies with the aforementioned approval.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to the Honorable Daniel Drew, Mayor of the City of Middletown, and the Middletown Planning Office, as well as the property owner and the tower owner.

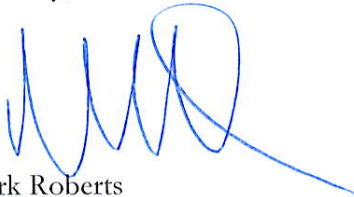
The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).

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

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

Please feel free to call me at (860) 670-9068 with any questions regarding this matter. Thank you for your consideration.

Sincerely,



Mark Roberts
QC Development
Consultant for AT&T

Attachments

cc: Mayor Daniel Drew - as Elected Official
Joseph Samolis – Planning Director
Stephen G. & Barbara L. Borrelli - as Property Owners
SBA - Tower Owner (via e-mail)

Power Density

Existing Loading on Tower

Carrier	# of Channels	ERP/Ch (W)	Antenna Centerline Height (ft)	Power Density (mW/cm ²)	Freq. Band (MHz ^{**})	Limit S (mW/cm ²)	%MPE
Other Carriers*							9.55%
AT&T UMTS	2	656	130	0.0307	850	0.5667	0.54%
AT&T UMTS	2	971	130	0.0454	1900	1.0000	0.45%
AT&T LTE	2	877	130	0.0410	700	0.4667	0.88%
AT&T LTE	2	1456	130	0.0681	1900	1.0000	0.68%
AT&T LTE	2	1833	130	0.0857	2300	1.0000	0.86%
Site Total							12.96%

*Per CSC Records (available upon request, includes calculation formulas)

** If a range of frequencies are used, such as 880-894, enter the lowest value, i.e. 880

Proposed Loading on Tower

Carrier	# of Channels	ERP/Ch (W)	Antenna Centerline Height (ft)	Power Density (mW/cm ²)	Freq. Band (MHz ^{**})	Limit S (mW/cm ²)	%MPE
Other Carriers*							9.55%
AT&T UMTS	2	656	130	0.0307	850	0.5667	0.54%
AT&T UMTS	2	971	130	0.0454	1900	1.0000	0.45%
AT&T LTE	1	757	130	0.0354	700	0.4667	0.76%
AT&T LTE	2	3664	130	0.1714	1900	1.0000	1.71%
AT&T LTE	1	3837	130	0.1795	2100	1.0000	1.79%
AT&T LTE	1	1285	130	0.0601	2300	1.0000	0.60%
Site Total							15.41%

*Per CSC Records (available upon request, includes calculation formulas)

** If a range of frequencies are used, such as 880-894, enter the lowest value, i.e. 880

PROJECT INFORMATION

SCOPE OF WORK: ITEMS TO BE MOUNTED ON MONOPOLE TOWER:
 • NEW AT&T RRUS: (3) RRUS-32 B66.
 • NEW JUMPER CABLES: COAX JUMPER (1) PER SECTOR FROM EACH RRU (TOTAL OF 3)
 • NEW FIBER JUMPERS: FIBER JUMPERS (2) FROM THE SQUID TO EACH RRU (TOTAL OF 6)

ITEMS TO REMAIN:
 • (9) ANTENNAS, (9) RRU'S, (1) SURGE ARRESTOR, (2) DC POWER CABLES, (1) FIBER RUN & (6) 1-5/8" COAX CABLES

SITE ADDRESS: 67 FAIRCHILD ROAD
 MIDDLETOWN, CT 06457

LATITUDE: 41.5450111° N 41° 32' 42.03" N
 LONGITUDE: 72.6207667° W 72° 37' 14.76" W
 TYPE OF SITE: MONOPOLE / INDOOR EQUIPMENT
 TOWER HEIGHT: 130'-0"±
 RAD CENTER: 130'-0"±
 JURISDICTION: NATIONAL, STATE & LOCAL CODES OR ORDINANCES
 CURRENT USE: TELECOMMUNICATIONS FACILITY
 PROPOSED USE: TELECOMMUNICATIONS FACILITY



SITE NUMBER: CT2547

SITE NAME: MIDDLETOWN FAIRCHILD ROAD

PROJECT: LTE 4C 2018 UPGRADE

DRAWING INDEX

SHEET NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	B
GN-1	GENERAL NOTES	B
A-1	COMPOUND & EQUIPMENT PLAN	B
A-2	ELEVATION & ANTENNA LAYOUTS	B
A-3	DETAILS	B
RF-1	RF-PLUMBING DIAGRAM	B
G-1	GROUNDING DETAILS	B

VICINITY MAP

DIRECTIONS TO SITE:
 FROM HARTFORD, TAKE I-91 SOUTH. TAKE ROUTE 9 SOUTH. TAKE EXIT 12. TURN LEFT ON SILVER STREET. TURN RIGHT ON EASTERN DRIVE. TURN LEFT ON BOW LANE. TURN RIGHT ON FAIRCHILD STREET. SITE AT END OF FAIRCHILD STREET. CONTINUE DOWN PRIVATE HOME DRIVEWAY AT THE END OF STREET TO ACCESS ROAD. FOLLOW ACCESS ROAD TO SITE. GATE COMBO 4722.



GENERAL NOTES

1. THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF AT&T. 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.
2. 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.
3. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE AT&T MOBILITY REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.
4. CONSTRUCTION DRAWINGS ARE VALID FOR SIX MONTHS AFTER ENGINEER OF RECORD'S STAMPED AND SIGNED SUBMITTAL DATE LISTED HEREIN.

72 HOURS



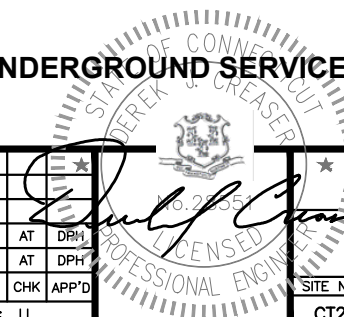
CALL BEFORE YOU DIG



CALL TOLL FREE 1-800-922-4455

OR CALL 811

UNDERGROUND SERVICE ALERT



SBA SITE #: CT13064

HGD HUDSON Design Group LLC
 45 BEECHWOOD DRIVE NORTH ANDOVER, MA 01845
 TEL: (978) 557-5553 FAX: (978) 336-5586

SAI
 12 INDUSTRIAL WAY SALEM, NH 03079

SITE NUMBER: CT2547
SITE NAME: MIDDLETOWN FAIRCHILD ROAD
SBA SITE NUMBER: CT13064
 67 FAIRCHILD ROAD
 MIDDLETOWN, CT 06457
 MIDDLESEX COUNTY

at&t
 500 ENTERPRISE DRIVE, SUITE 3A
 ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
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A	02/15/18	ISSUED FOR REVIEW	TB	AT	DPH

SCALE: AS SHOWN DESIGNED BY: AT DRAWN BY: LL

SITE NUMBER	DRAWING NUMBER	REV
CT2157	T-1	B

AT&T
 TITLE SHEET
 LTE 4C 2018 UPGRADE

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 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 – SAI
 SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
 OWNER – AT&T MOBILITY
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 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 THE 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 = 36 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 LTE SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T 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.
 BUILDING CODE: IBC 2012 WITH 2016 CT BUILDING CODE AMENDMENTS
 ELECTRICAL CODE: REFER TO ELECTRICAL DRAWINGS
 LIGHTENING CODE: REFER TO ELECTRICAL DRAWINGS

 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, FOURTEENTH EDITION;

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

 EQUIPMENT 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	GC	GENERAL CONTRACTOR	RF	RADIO FREQUENCY
BBU	BATTERY BACKUP UNIT	GRC	GALVANIZED RIGID CONDUIT	TBD	TO BE DETERMINED
BTCW	BARE TINNED SOLID COPPER WIRE	MGB	MASTER GROUND BAR	TBR	TO BE REMOVED
BGR	BURIED GROUND RING	MIN	MINIMUM	TBRR	TO BE REMOVED AND REPLACED
BTS	BASE TRANSCEIVER STATION	P	PROPOSED	TYP	TYPICAL
E	EXISTING	NTS	NOT TO SCALE	UG	UNDER GROUND
EGB	EQUIPMENT GROUND BAR	RAD	RADIATION CENTER LINE (ANTENNA)	VIF	VERIFY IN FIELD
EGR	EQUIPMENT GROUND RING	REF	REFERENCE		

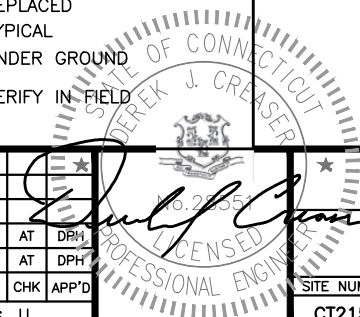
45 BEECHWOOD DRIVE
NORTH ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT2547
 SITE NAME: MIDDLETOWN FAIRCHILD ROAD
 SBA SITE NUMBER: CT13064
 67 FAIRCHILD ROAD
 MIDDLETOWN, CT 06457
 MIDDLESEX COUNTY

500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
B	03/07/18	ISSUED FOR PERMITTING	SG	AT	DPH
A	02/15/18	ISSUED FOR REVIEW	TB	AT	DPH
SCALE: AS SHOWN		DESIGNED BY: AT	DRAWN BY: LL		

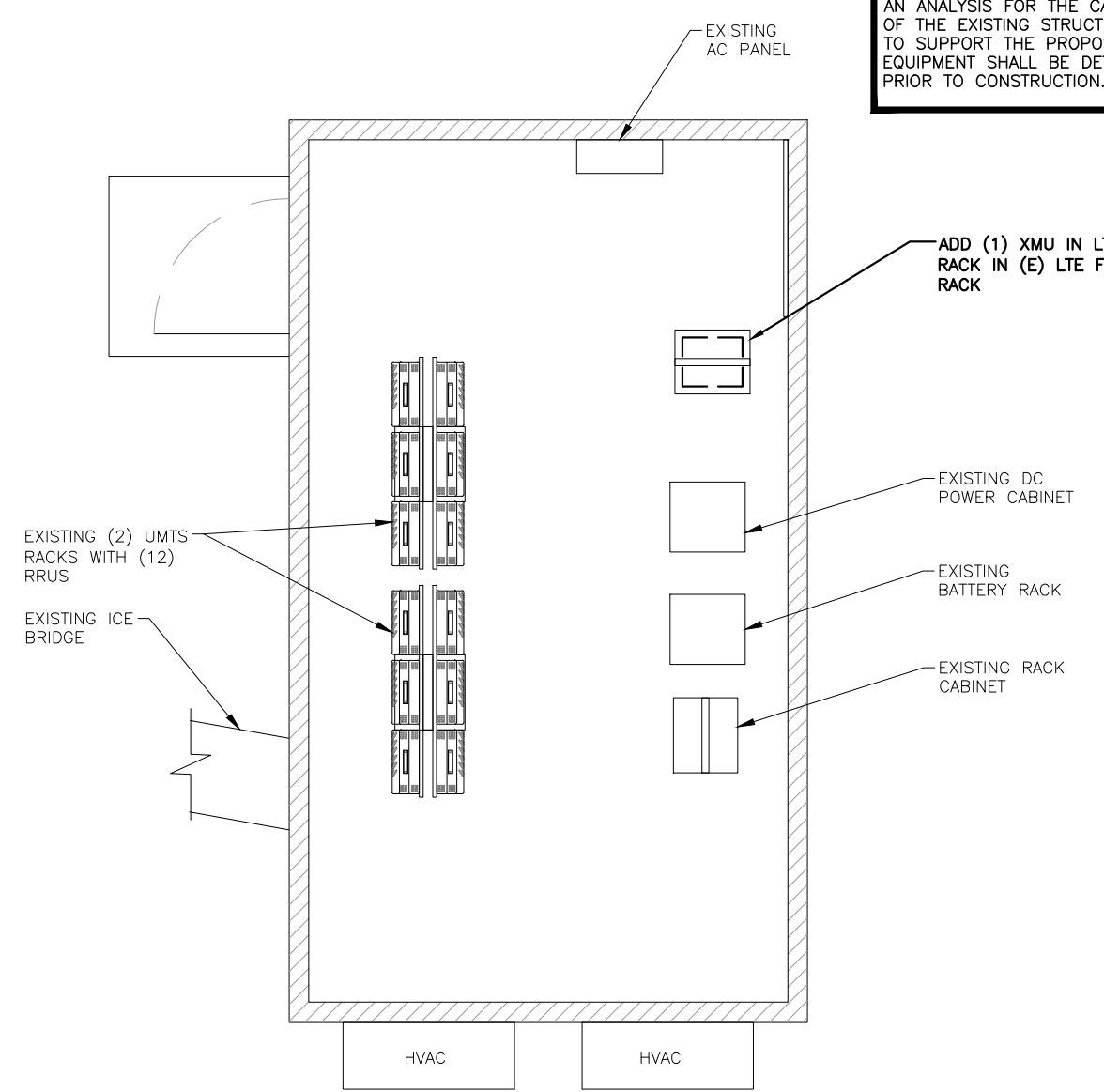
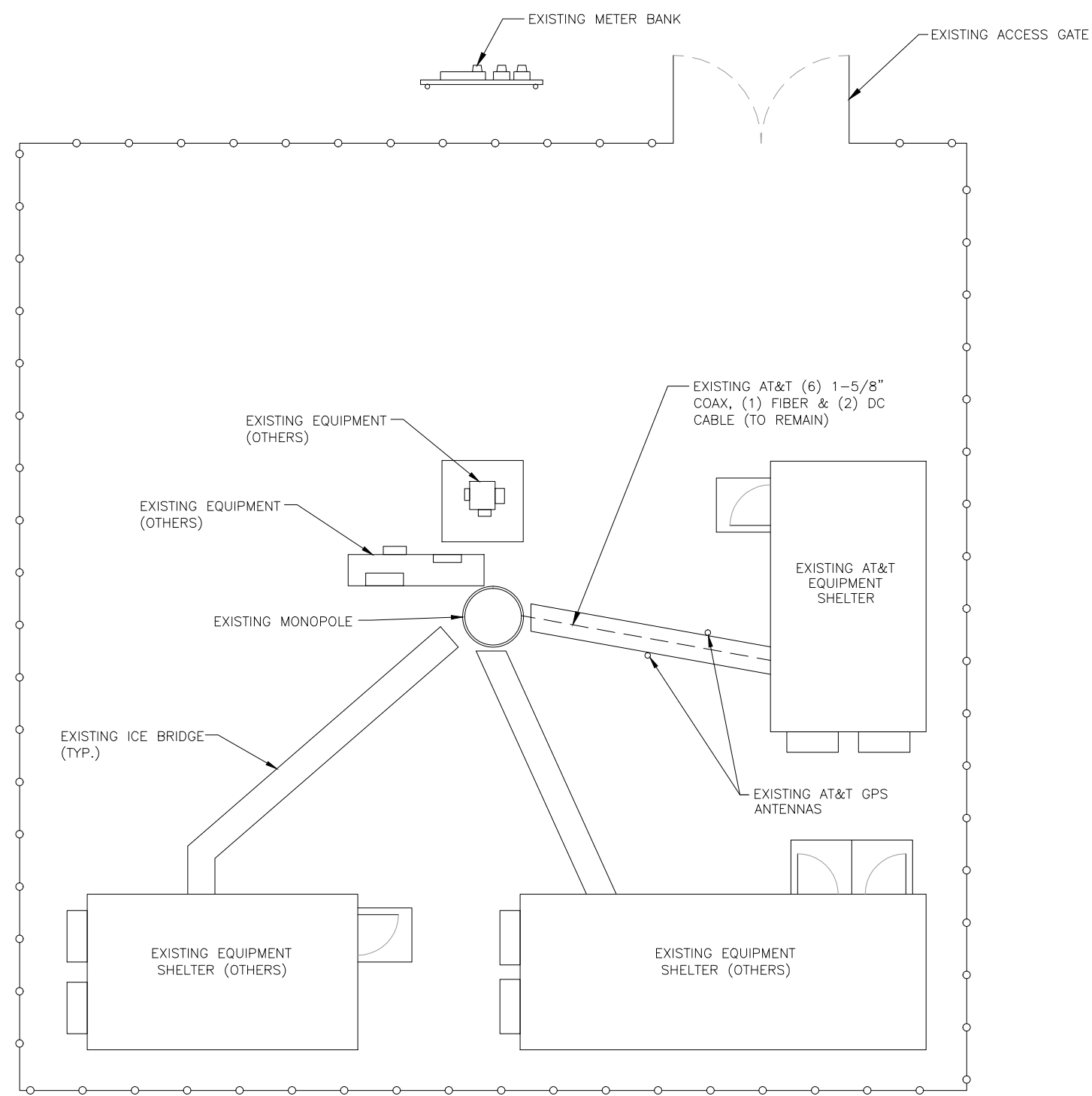


AT&T		
GENERAL NOTES LTE 4C 2018 UPGRADE		
SITE NUMBER	DRAWING NUMBER	REV
CT2157	GN-1	B

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

NOTE:
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING MOUNT TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION.

NOTE:
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION.



COMPOUND PLAN
22x34 SCALE: 3/16"=1'-0"
11x17 SCALE: 3/32"=1'-0"
1 13'50" MAGNETIC NORTH TRUE NORTH A-1

EQUIPMENT PLAN
22x34 SCALE: 1/2"=1'-0"
11x17 SCALE: 1/4"=1'-0"
2 13'50" MAGNETIC NORTH TRUE NORTH A-1

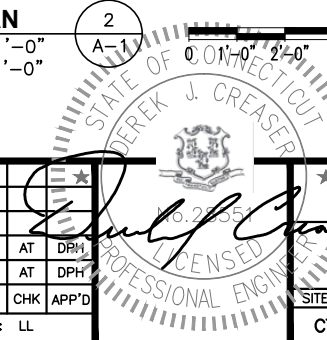
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S&I
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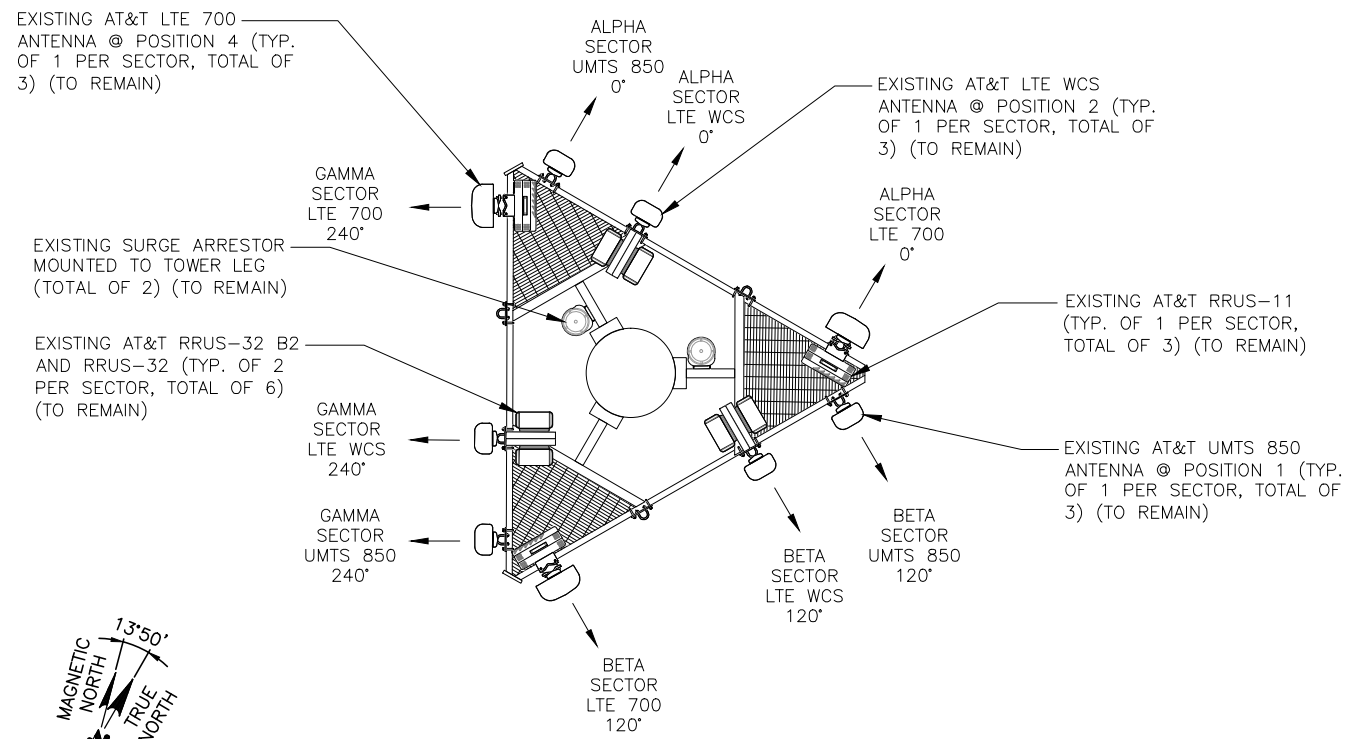
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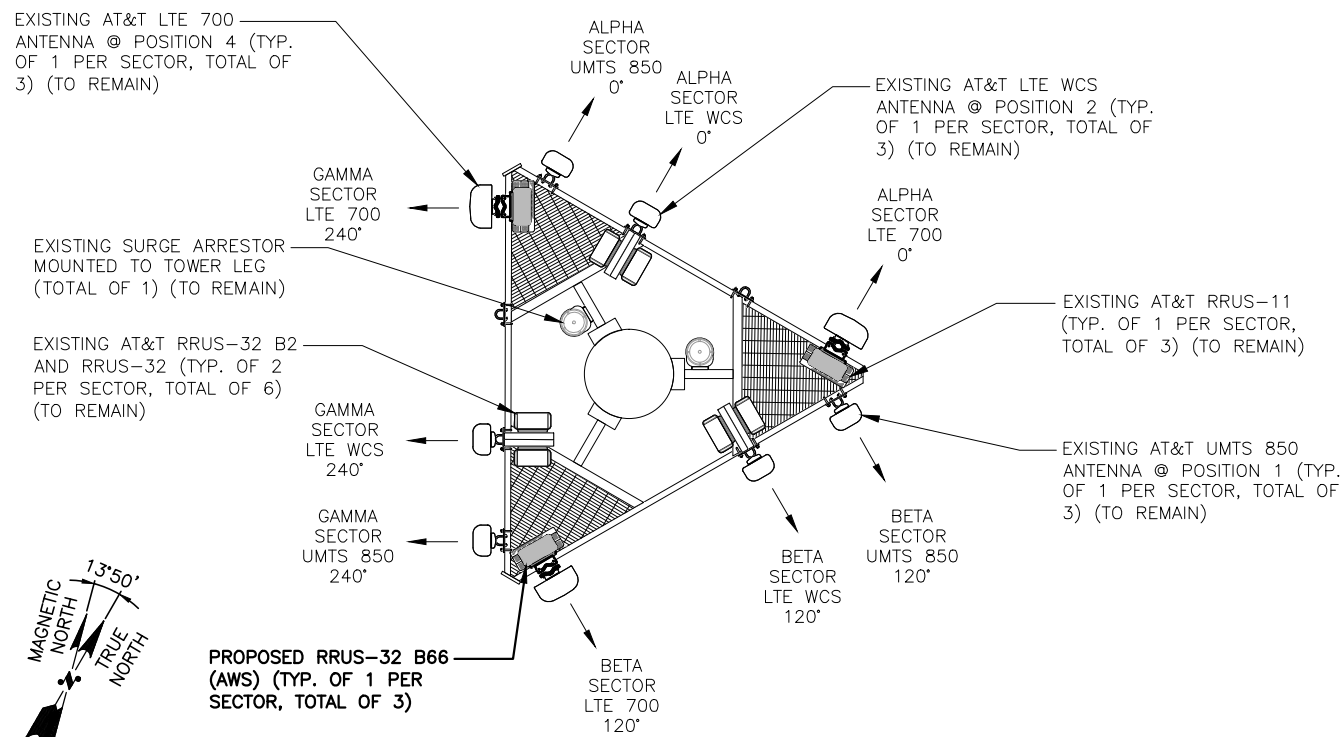
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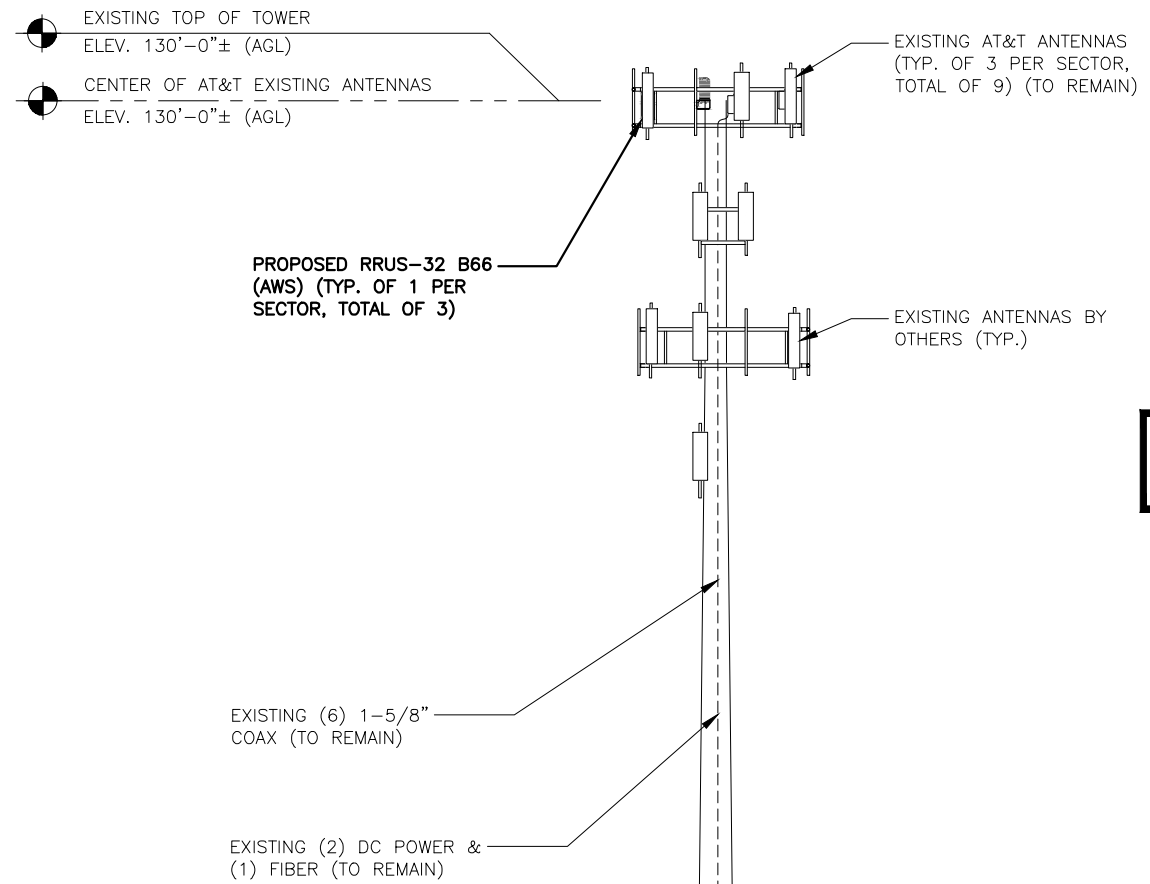
AT&T
COMPOUND & EQUIPMENT PLAN
LTE 4C 2018 UPGRADE
SITE NUMBER: CT2157
DRAWING NUMBER: A-1
REV: B



EXISTING ANTENNA LAYOUT 1
SCALE: N.T.S. A-2



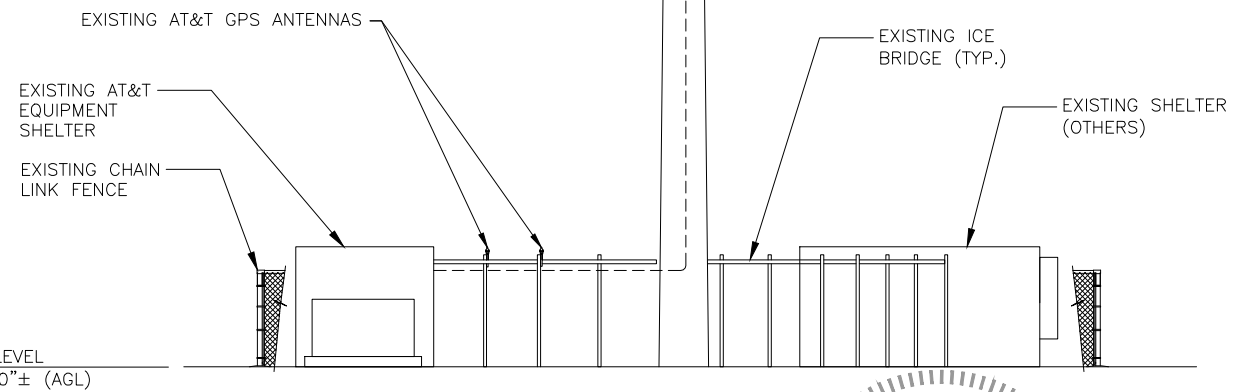
PROPOSED ANTENNA PLAN 2
SCALE: N.T.S. A-2



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



ELEVATION 3
22x34 SCALE: 3/32"=1'-0"
11x17 SCALE: 3/64"=1'-0"
A-2

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45 BEECHWOOD DRIVE NORTH ANDOVER, MA 01845
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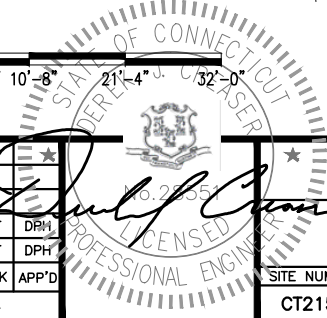
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AT&T
ANTENNA LAYOUTS & ELEVATION
LTE 4C 2018 UPGRADE
SITE NUMBER: CT2157 DRAWING NUMBER: A-2 REV: B

NOTE:
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING MOUNT TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION.

***COAX JUMPER NOTE:**
COAX JUMPERS (1) PER SECTOR, FROM EACH RRU (TOTAL OF 3).

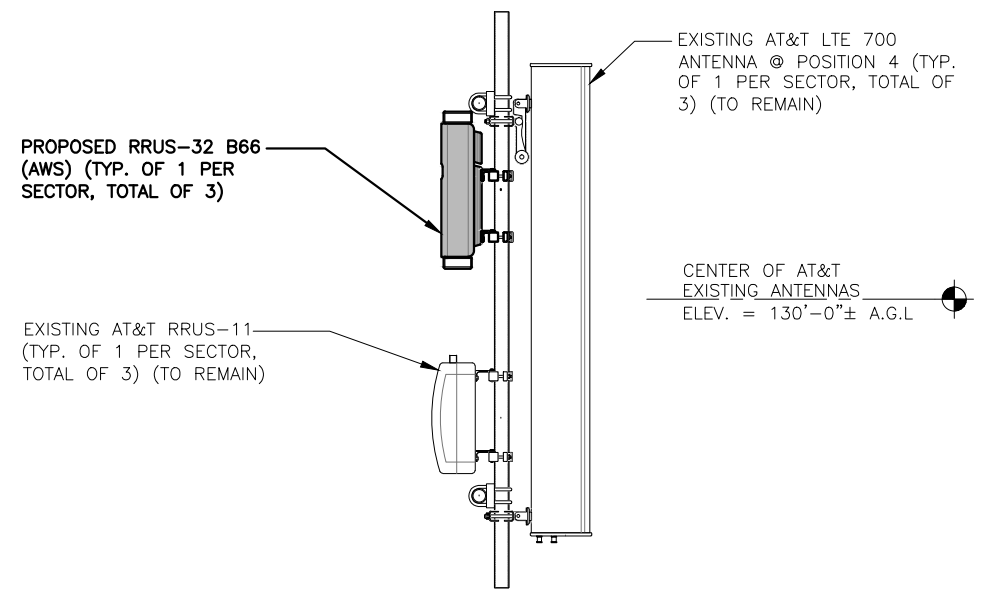
****FIBER JUMPER NOTE:**
FIBER JUMPERS (2) PER SECTOR, FROM THE SQUID TO EACH RRU (TOTAL OF 6).

NOTE:
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION.

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

FINAL ANTENNA SCHEDULE													
SECTOR	BAND	ANTENNA	SIZE (INCHES) (L X W X D)	RAD CENTER	AZIMUTH	TMA'S	RRU'S	SIZE (INCHES) (L X W X D)	COAX JUMPERS	FIBER JUMPERS	COAX		
ALPHA	UMTS DB	EXISTING	P65-16-XLH-RR	72X12X6	130'-0"±	0°	EXISTING (1) CCI DTMABP7819VG12A	-	-	-	-	-	(2) 1-5/8"
	LTE WCS/LTE PCS	EXISTING	QS66512-2	72X12X9.6	130'-0"±	0°	-	EXISTING RRUS-32 B2 (PCS) EXISTING RRUS-32 (WCS)	-	-	-	-	-
	LTE 700 BC/AWS	EXISTING	OPA-65R-LCUU-H6	72X14.8X7.4	130'-0"±	0°	-	EXISTING RRUS-11 (700) PROPOSED RRUS-32 B66 (AWS)	27.2X12.1X7.0	1*	2*	-	-
BETA	UMTS DB	EXISTING	P65-16-XLH-RR	72X12X6	130'-0"±	120°	EXISTING (1) CCI DTMABP7819VG12A	-	-	-	-	-	(2) 1-5/8"
	LTE WCS/LTE PCS	EXISTING	QS66512-2	72X12X9.6	130'-0"±	120°	-	EXISTING RRUS-32 B2 (PCS) EXISTING RRUS-32 (WCS)	-	-	-	-	-
	LTE 700 BC/AWS	EXISTING	OPA-65R-LCUU-H6	72X14.8X7.4	130'-0"±	120°	-	EXISTING RRUS-11 (700) PROPOSED RRUS-32 B66 (AWS)	27.2X12.1X7.0	1*	2*	-	-
GAMMA	UMTS DB	EXISTING	P65-16-XLH-RR	72X12X6	130'-0"±	240°	EXISTING (1) CCI DTMABP7819VG12A	-	-	-	-	-	(2) 1-5/8"
	LTE WCS/LTE PCS	EXISTING	QS66512-2	72X12X9.6	130'-0"±	240°	-	EXISTING RRUS-32 B2 (PCS) EXISTING RRUS-32 (WCS)	-	-	-	-	-
	LTE 700 BC/AWS	EXISTING	OPA-65R-LCUU-H6	72X14.8X7.4	130'-0"±	240°	-	EXISTING RRUS-11 (700) PROPOSED RRUS-32 B66 (AWS)	27.2X12.1X7.0	1*	2*	-	-

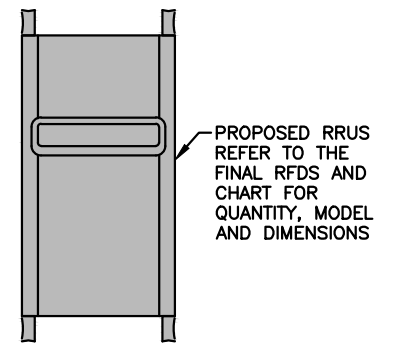
FINAL ANTENNA CONFIGURATION 3
SCALE: N.T.S. A-3



PROPOSED ANTENNA & RRU MOUNTING DETAIL 1
22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"
A-3

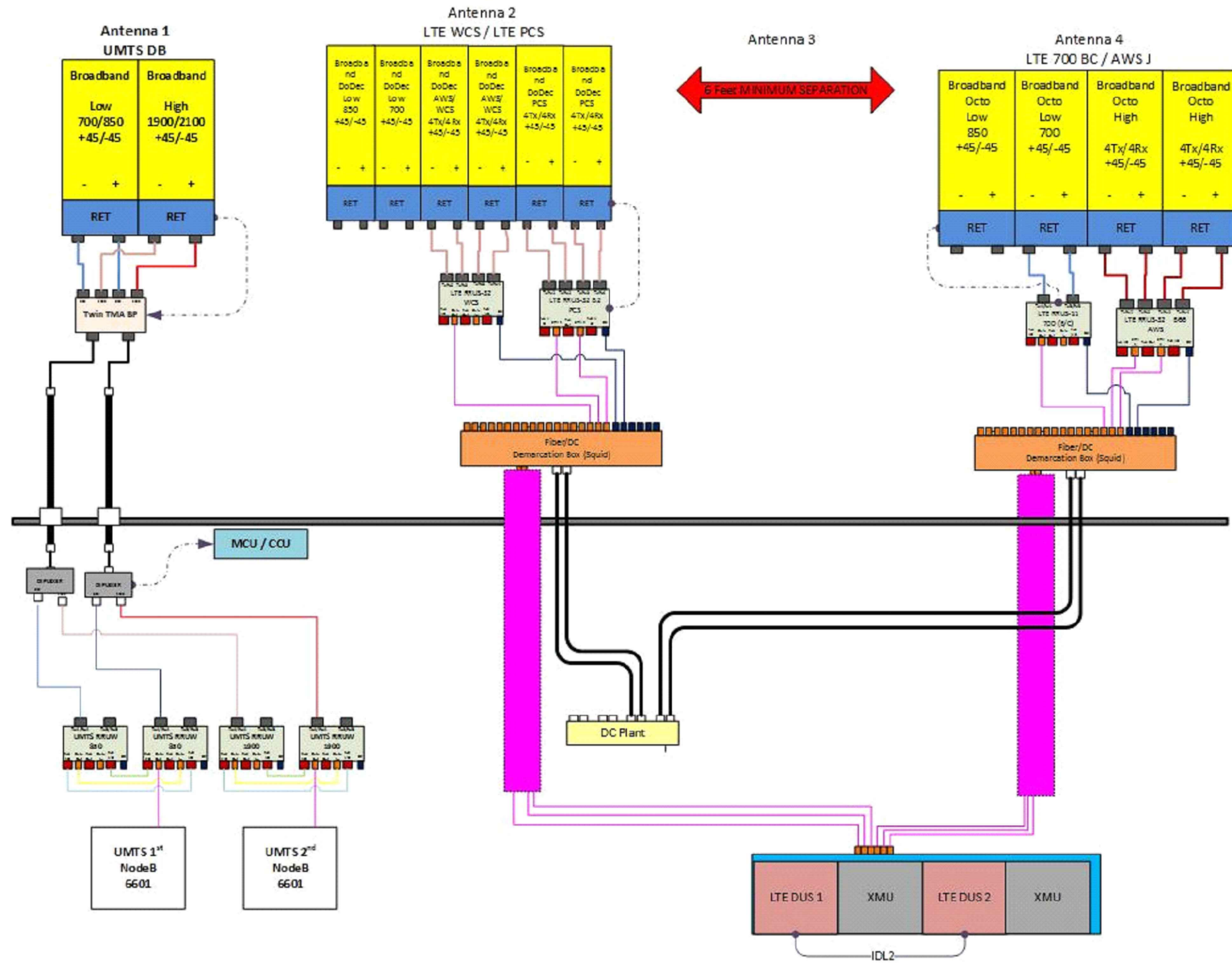
RRU CHART				
QUANTITY	MODEL	L	W	D
3(E)	RRUS-11	19.7"	17.0"	7.2"
3(P)	RRUS-32	27.2"	12.1"	7.0"
6(E)	RRUS-32	27.2"	12.1"	7.0"
-	RRUS-E2	20.4"	18.5"	7.5"
-	LTE-A2	16.4"	15.2"	3.4"

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS



RRUS DETAIL 2
SCALE: N.T.S. A-3

<p>45 BEECHWOOD DRIVE NORTH ANDOVER, MA 01845 TEL: (978) 557-5553 FAX: (978) 336-5586</p>	<p>12 INDUSTRIAL WAY SALEM, NH 03079</p>	<p>SITE NUMBER: CT2547 SITE NAME: MIDDLETOWN FAIRCHILD ROAD</p> <p>SBA SITE NUMBER: CT13064 67 FAIRCHILD ROAD MIDDLETOWN, CT 06457 MIDDLESEX COUNTY</p>	<p>500 ENTERPRISE DRIVE, SUITE 3A ROCKY HILL, CT 06067</p>	<table border="1"> <tr> <td>NO.</td> <td>DATE</td> <td>REVISIONS</td> <td>BY</td> <td>CHK</td> <td>APP'D</td> </tr> <tr> <td>B</td> <td>03/07/18</td> <td>ISSUED FOR PERMITTING</td> <td>SG</td> <td>AT</td> <td>DPH</td> </tr> <tr> <td>A</td> <td>02/15/18</td> <td>ISSUED FOR REVIEW</td> <td>TB</td> <td>AT</td> <td>DPH</td> </tr> </table>	NO.	DATE	REVISIONS	BY	CHK	APP'D	B	03/07/18	ISSUED FOR PERMITTING	SG	AT	DPH	A	02/15/18	ISSUED FOR REVIEW	TB	AT	DPH		<p>AT&T</p> <p>DETAILS LTE 4C 2018 UPGRADE</p>
					NO.	DATE	REVISIONS	BY	CHK	APP'D														
B	03/07/18	ISSUED FOR PERMITTING	SG	AT	DPH																			
A	02/15/18	ISSUED FOR REVIEW	TB	AT	DPH																			
<p>SCALE: AS SHOWN</p>	<p>DESIGNED BY: AT</p>	<p>DRAWN BY: LL</p>	<table border="1"> <tr> <td>SITE NUMBER</td> <td>DRAWING NUMBER</td> <td>REV</td> </tr> <tr> <td>CT2157</td> <td>A-3</td> <td>B</td> </tr> </table>	SITE NUMBER	DRAWING NUMBER	REV	CT2157	A-3	B															
SITE NUMBER	DRAWING NUMBER	REV																						
CT2157	A-3	B																						



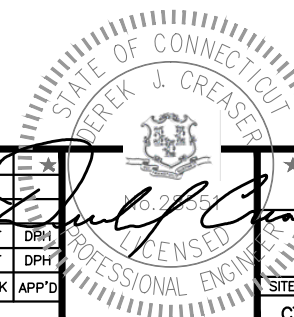
RF PLUMBING DIAGRAM
SCALE: N.T.S

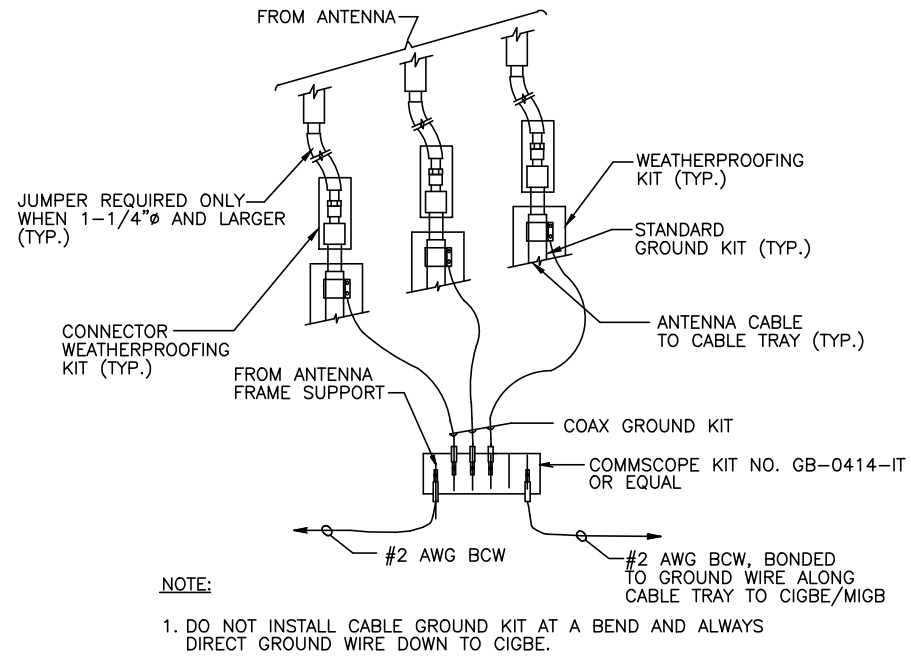
1
RF-1

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

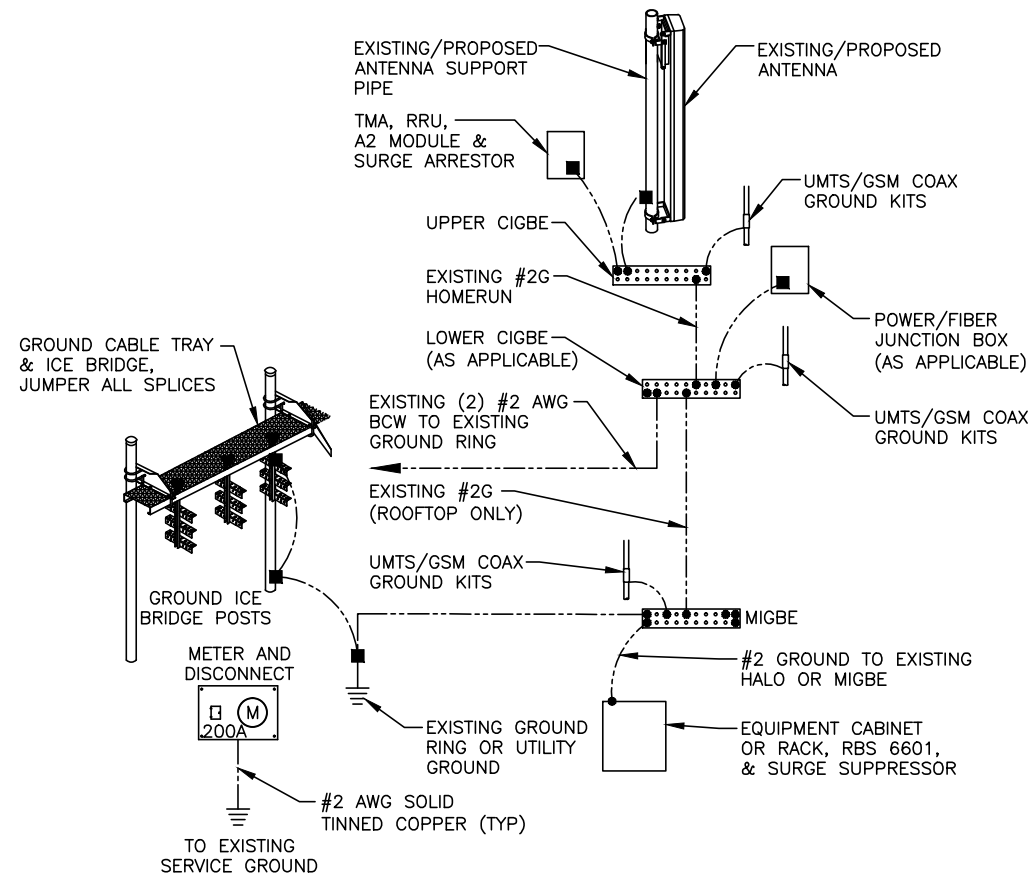
NOTE:
1. CONTRACTOR TO CONFIRM ALL PARTS.
2. INSTALL ALL EQUIPMENT TO MANUFACTURER'S RECOMMENDATIONS

B	03/07/18	ISSUED FOR PERMITTING	SG	AT	DPH
A	02/15/18	ISSUED FOR REVIEW	TB	AT	DPH
NO.	DATE	REVISIONS	BY	CHK	APP'D
SCALE: AS SHOWN		DESIGNED BY: AT	DRAWN BY: LL		

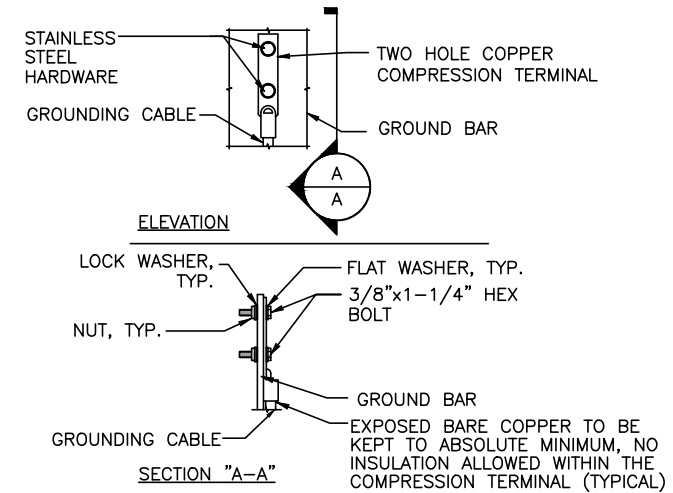




GROUND WIRE TO GROUND BAR CONNECTION DETAIL 1
SCALE: N.T.S. G-1



GROUNDING RISER DIAGRAM 2
SCALE: N.T.S. G-1



TYPICAL GROUND BAR CONNECTION DETAIL 3
SCALE: N.T.S. G-1

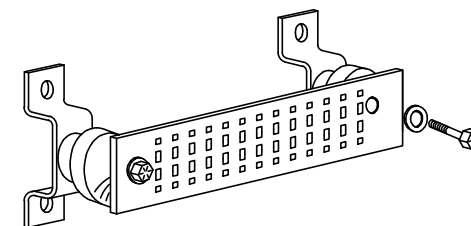
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" - SURGE PRODUCERS

- CABLE ENTRY PORTS (HATCH PLATES) (#2)
- GENERATOR FRAMEWORK (IF AVAILABLE) (#2)
- TELCO GROUND BAR
- COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND (#2)
- +24V POWER SUPPLY RETURN BAR (#2)
- 48V POWER SUPPLY RETURN BAR (#2)
- RECTIFIER FRAMES.

SECTION "A" - SURGE ABSORBERS

- INTERIOR GROUND RING (#2)
- EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2)
- METALLIC COLD WATER PIPE (IF AVAILABLE) (#2)
- BUILDING STEEL (IF AVAILABLE) (#2)



GROUND BAR - DETAIL 4
SCALE: N.T.S. G-1



Tower Engineering Solutions

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

Structural Analysis Report

Existing 130 ft. Rohn Monopole

Customer Name: SBA Communications Corp

Customer Site Number: CT13064-A

Customer Site Name: Middletown 2, CT

Carrier Name: AT&T

Carrier Site ID / Name: CT2547 / Middletown

Site Location: 67 Fairchild Road

Middletown, Connecticut

Middlesex County

Latitude: 41.545011

Longitude: -72.620766

Analysis Result:

Max Structural Usage: 97.9% [Pass]

Max Foundation Usage: 90% [Pass]

Additional Usage Caused by New Mount/Mount Modification: N/A



Report Prepared By : Stacey Hesselbein



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Max Foundation Usage: 90% [Pass]

Additional Usage Caused by New Mount/Mount Modification: N/A

Report Prepared By : Stacey Hesselbein

Introduction

The purpose of this report is to summarize the analysis results on the 130 ft. Rohn 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 by Radian Communications, File # 060-3494,57886EH Dated 12/15/2006
Foundation Drawing	Foundation Drawings by Radian Communications, File # 060-3494,57886EH Dated 12/15/2006
Geotechnical Report	Geotechnical Report by Gemini Geotechnical Associates Inc., Site # 999-0049 Dated 11/30/2006
Modification Drawings	Modification & 10' Extension Drawings by FDH, Project # 11-01248E S1 dated 09/21/2001 Modification Drawings prepared by FDH Engineering, Inc., Job # 12-08192E S2 dated 11/14/2012 Modification Drawings prepared by FDH Velocitel, Project # 15BVXK1400 dated 08/06/2015 Modification Drawings prepared by TES, Project # 13064 dated 11/05/2015

Analysis Criteria

The rigorous analysis was performed in accordance with the requirements and stipulations of the ANSI/TIA/EIA 222-G. In accordance with this standard, the structure was analyzed using **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 $V_{ult} = 130$ mph (3-Sec. Gust)/ Nominal Design Wind Speed $V_{asd} = 101.0$ 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:	$S_5 = 0.18$, $S_1 = 0.063$

This structural analysis is based upon the tower being classified as a Structure Class II; however, if a different classification is required subsequent to the date hereof, the tower classification will be changed to meet such requirement and a new structural analysis will be run.

Existing Antennas, Mounts and Transmission Lines

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

Items	Elevation (ft.)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
-	130.0	3	CCI - OPA-65R-LCUU-H6 - Panel	(1)Platform w/ Hand Rail (Commscope P/N MTC3607R)	(12) 1 5/8" *(4) 0.645" DC *(2) 1.496" Fiber	AT&T
-		3	Quintel - QS66512-2 - Panel			
-		3	Powerwave - P65-16-XLH-RR - Panel			
-		3	CCI - DTMABP7819VG12A - TMA			
-		3	Ericsson - RRUS 11 - RRU			
-		3	Ericsson - RRUS-32 - RRU			
-		3	Ericsson - RRUS 32 B2 - RRU			
-		2	Raycap - DC6-48-60-18-8F - SP			
10	111.0	3	Andrew - CBC721-DF - Panel	(3) T-Arms	(12) 1 5/8" (2) 1 5/8" Hybrid	Verizon
11	110.0	6	Andrew - SBNHH-1D65B - Panel			
12		3	Alcatel - RRH2X60-1900A-4R			
13		3	Alcatel - B13 RRH4X30-4R			
14		3	Alcatel - B4 RRH2X60-4R			
15		2	RFS - DB-T1-6Z-8AB-0Z			
16	109.0	3	Andrew - CBC721-DF - Panel	(3) T-Arms (Site Pro P/N RMV12-3xx)	(6) 1 5/8" (1) 1 5/8" Hybrid	T-Mobile
17	100.0	3	Ericsson - AIR 21 B2A/B4P - Panel			
18		3	Ericsson - AIR 21 B4A/B2P - Panel			
19		3	Commscope - LNX-6515DS-A1M - Panel			
20		3	Kathrein - 782 11056 - TMA	Direct Mount (3) T-Arms	(3) 5/16" (2) 1/2" (3) 5/8" (3) 1/4"	Clearwire
21	94.0	1	1'4"x6.5"x6" Surge Protector			
22	91.0	3	Kathrein - 840 10054 - Panel			
23		3	Samsung - RASSPI-2213-RRH			
24	90.8	1	Andrew - VHLP2-18-1WH - Dish			
25	90.7	1	Andrew - VHLP800-11 - Dish			

* Considered running inside (3) 3" Conduit outside the pole shaft

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	130.0	3	Powerwave - P65-16-XLH-RR - Panel	(1)Platform w/ Hand Rail (Commscope P/N MTC3607R)	(12) 1 5/8" (4) 3/4" DC And (2) 1/2" Fiber inside (3) 2" Conduit	AT&T
2		3	CCI - OPA-65R-LCUU-H6 - Panel			
3		3	Quintel - QS66512-2 - Panel			
4		3	CCI - DTMABP7819VG12A - TMA			
5		3	Ericsson - RRUS 11 - RRU			
6		3	Ericsson - RRUS-32 - RRU			
7		3	Ericsson - RRUS 32 B2 - RRU			
8		3	Ericsson - RRUS 32 b66 - RRU			
9		2	Raycap - DC6-48-60-18-8F - SP			

See the attached coax layout for the line placement considered in the analysis.

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:	97.9%	54.5%	56.6%
Pass/Fail	Pass	Pass	Pass

Foundations

	Moment (Kip-Ft)	Shear (Kips)	Axial (Kips)
Analysis Reactions	2760.2	28.1	52.8

The foundation has been investigated using the supplied documents and soils report and was found adequate. Therefore, no modification to the foundation will be required.

Operational Condition (Rigidity):

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

Elevation (ft.)	Antenna / Dish	Carrier	Twist (deg)	Sway (deg)
89.5	Andrew - VHLP2-18-1WH - Dish	Clearwire	0.002	1.040
89.5	Andrew - VHLP800-11 - Dish	Clearwire	0.002	1.040

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 76.57% at 10.0ft

Structure: CT13064-A-SBA
Site Name: Middletown 2, CT
Height: 130.00 (ft)
Base Elev: 0.000 (ft)

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

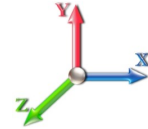
3/19/2018



Page: 1

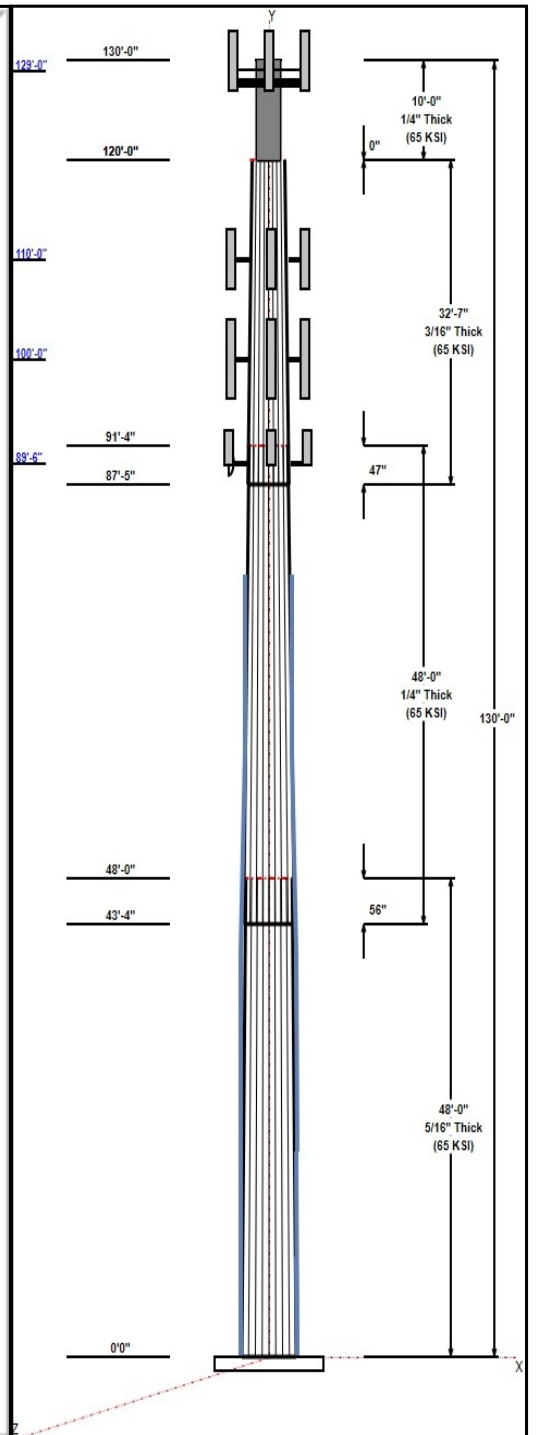
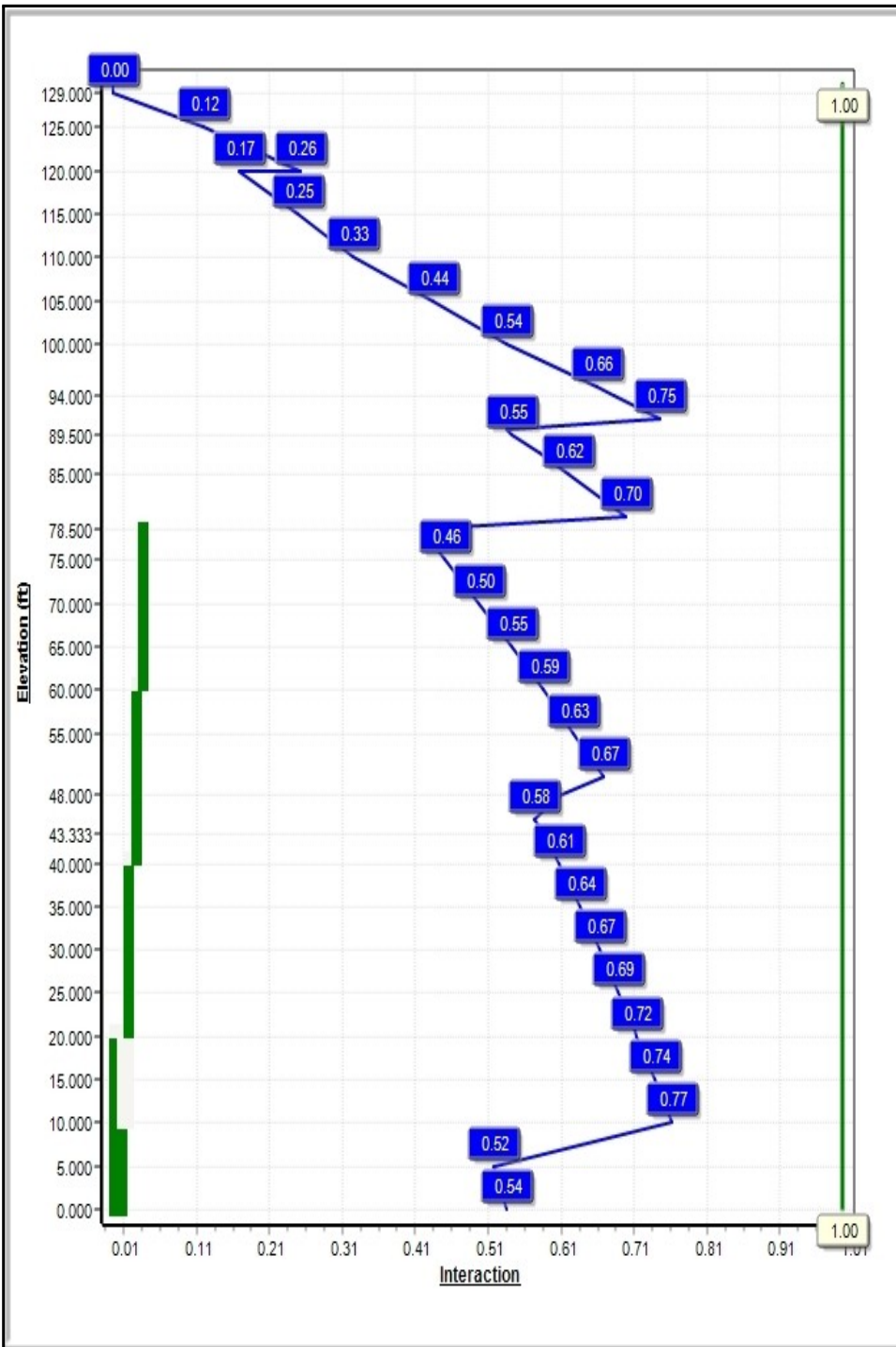
Dead Load Factor: 1.20
Wind Load Factor: 1.60

Load Case : 1.2D + 1.6W 10 101 mph Wind



Iterations: 24

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Structure: CT13064-A-SBA

Type: Custom
Site Name: Middletown 2, CT
Height: 130.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.00000

3/19/2018

Page: 2



Shaft Properties

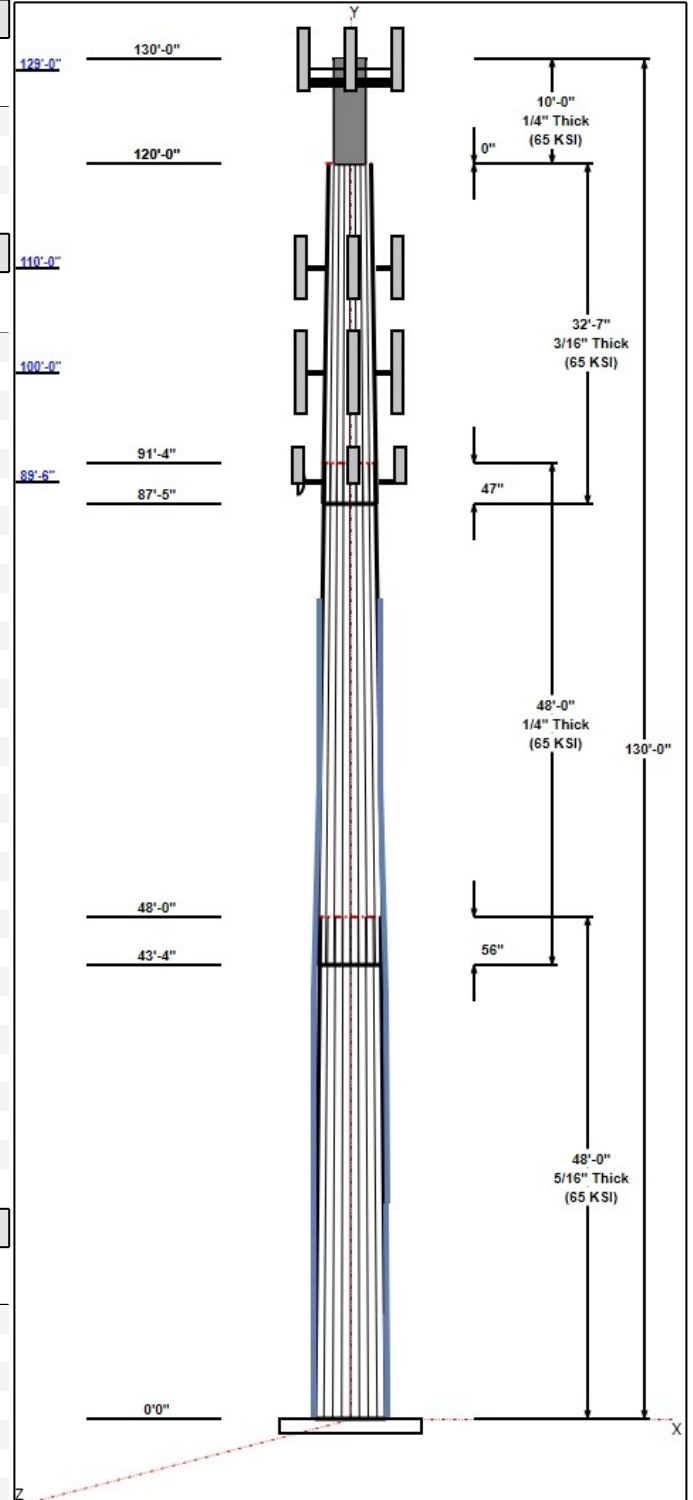
Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	48.00	35.05	42.50	0.313		0.15529	65
2	48.00	28.82	36.27	0.250	Slip	0.15529	65
3	32.58	24.74	29.80	0.188	Slip	0.15529	65
4	10.00	18.00	18.00	0.250	Butt	0.00000	65

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
130.00	130.00	1	6' Lightning rod	T-Mobile
129.00	130.00	3	RRUS-32	AT&T
129.00	130.00	3	RRUS 11	AT&T
129.00	130.00	2	DC6-48-60-18-8F	AT&T
129.00	130.00	3	P65-16-XLH-RR	AT&T
129.00	130.00	3	DTMABP7819VG12A	AT&T
129.00	129.00	1	MTC3607 Platform + HR &	AT&T
129.00	130.00	3	OPA-65R-LCUU-H6	AT&T
129.00	130.00	3	RRUS 32 B2	AT&T
129.00	130.00	3	QS66512-2	AT&T
129.00	130.00	3	RRUS 32 b66	AT&T
110.00	111.00	3	CBC721-DF	Verizon
110.00	109.00	3	CBC721-DF	Verizon
110.00	110.00	6	SBNHH-1D65B	Verizon
110.00	110.00	3	RRH2X60-1900A-4R	Verizon
110.00	110.00	3	B13 RRH4X30-4R	Verizon
110.00	110.00	3	B4 RRH2X60-4R	Verizon
110.00	110.00	2	DB-T1-6Z-8AB-0Z	Verizon
110.00	110.00	3	T-Arm (Round)	Verizon
100.00	100.00	3	AIR 21, 1.3M, B2A B4P	T-Mobile
100.00	100.00	3	AIR 21, 1.3M, B4A B2P	T-Mobile
100.00	100.00	3	LNx-6515DS-A1M	T-Mobile
100.00	100.00	3	782 11056	T-Mobile
100.00	100.00	3	T-Arm (Round)	T-Mobile
94.00	94.00	1	1'4"x6.5"x6" Surge	Clearwire
89.50	90.80	1	VHLP2-18-1WH	Clearwire
89.50	90.70	1	VHLP800-11	Clearwire
89.50	89.50	3	T-Arm (Round)	Clearwire
89.50	91.00	3	840 10054	Clearwire
89.50	91.00	3	SPI-2213 RRH	Clearwire

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	129.00	Inside	1 5/8" Coax	AT&T
0.00	129.00	Inside	1/2" Fiber	T-Mobile
0.00	129.00	Outside	2" Conduit	AT&T
0.00	129.00	Inside	3/4" DC	T-Mobile
0.00	110.00	Inside	1 5/8" Coax	Verizon
0.00	110.00	Inside	1 5/8" Hybrid	Verizon
0.00	100.00	Inside	1 5/8" Coax	T-Mobile
0.00	100.00	Inside	1 5/8" Hybrid	T-Mobile
0.00	89.50	Inside	1/2" Coax	Clearwire
0.00	89.50	Inside	1/4" Coax	Clearwire
0.00	89.50	Inside	5/16" Coax	Clearwire
0.00	89.50	Inside	5/8" Coax	Clearwire



Structure: CT13064-A-SBA

Type: Custom
Site Name: Middletown 2, CT
Height: 130.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.00000

3/19/2018

Page: 3



0.00 81.00 Outside 1" Reinforcing plate

Anchor Bolts

Qty	Specifications	Grade (ksi)	Arrangement
14	1.5" F1554 105	105.0	Radial

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
1.5000	51.8	50.0	Round

Reactions

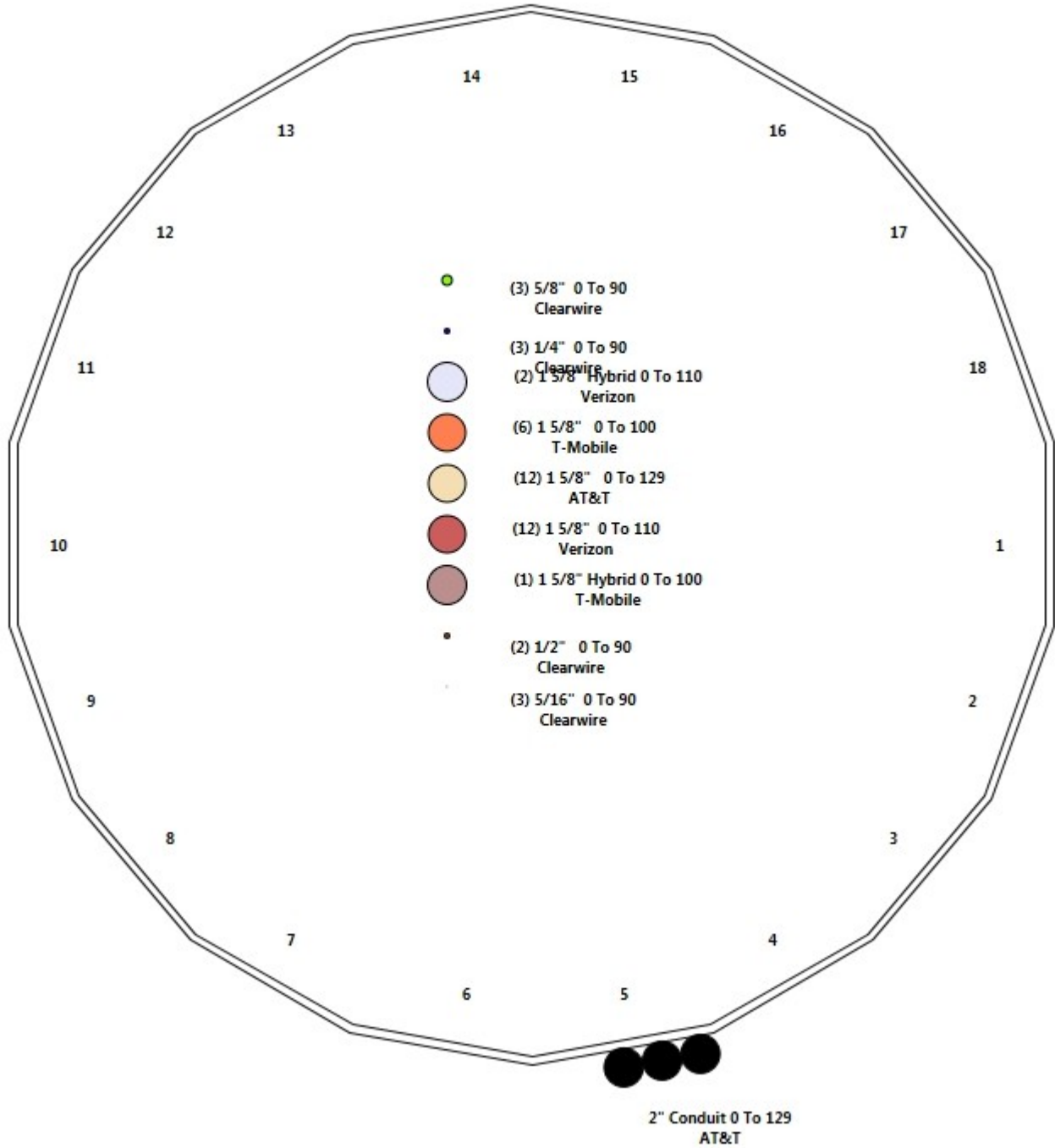
Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.6W 10 101 mph Wind	2760.2	28.1	32.3
0.9D + 1.6W 101 mph Wind	2733.0	28.0	24.2
1.2D + 1.0Di + 1.0Wi 50 mph Wind	684.2	7.1	52.8
1.2D + 1.0E	160.0	1.4	32.3
0.9D + 1.0E	158.3	1.4	24.2
1.0D + 1.0W 60 mph Wind	605.7	6.2	26.9

Structure: CT13064-A-SBA - Coax Line Placement

Type: Monopole
Site Name: Middletown 2, CT
Height: 130.00 (ft)

3/19/2018

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Shaft Properties

Structure: CT13064-A-SBA	Code: EIA/TIA-222-G	3/19/2018
Site Name: Middletown 2, CT	Exposure: C	
Height: 130.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
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	18	48.000	0.3125	65		0.00	6,231
2	18	48.000	0.2500	65	Slip	56.00	4,185
3	18	32.583	0.1875	65	Slip	47.00	1,787
4	R	10.000	0.2500	65	Flange	0.00	474
Total Shaft Weight:							12,677

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	42.50	0.00	41.84	9409.05	22.57	136.00	35.05	48.00	34.45	5250.98	18.36	112.1	0.155292
2	36.27	43.33	28.58	4685.33	24.17	145.08	28.82	91.33	22.67	2337.03	18.91	115.2	0.155292
3	29.80	87.42	17.62	1952.39	26.61	158.93	24.74	120.00	14.61	1112.84	21.86	131.9	0.155292
4	18.00	120.0	13.94	549.45	0.00	72.00	18.00	130.00	13.94	549.45	0.00	72.00	0.000000

Additional Steel

Elev From (ft)	Elev To (ft)	Qty	Description	Fy (ksi)	Fu (ksi)	Offset (in)	Intermediate Connectors			Termination Connectors		
							Description	Spacing (in)	Spacing (in)	Description	Spacing (in)	Lower Qty
0.00	20.50	4	PLT 6"x1" (1.25" Hole)	65	80	0.00	AJM20&sleeve	16.00	AJM20&sleeve	3.00	8	8
0.00	10.00	4	PLT 5.5"x1 1/4"(1.25"hol	65	80	0.00	AJM20&sleeve	18.00	AJM20&sleeve	3.00		9
20.50	40.50	4	PLT 6"x1" (1.25" Hole)	65	80	0.00	AJM20&sleeve	16.00	AJM20&sleeve	3.00	8	8
40.50	60.75	4	PLT 6"x1" (1.25" Hole)	65	80	0.00	AJM20&sleeve	16.00	AJM20&sleeve	3.00	8	8
60.75	78.50	4	PLT 6"x1" (1.25" Hole)	65	80	0.00	AJM20&sleeve	16.00	AJM20&sleeve	3.00	8	8

Load Summary

Structure: CT13064-A-SBA	Code: EIA/TIA-222-G	3/19/2018
Site Name: Middletown 2, CT	Exposure: C	
Height: 130.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
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	130.00	6' Lightning rod	1	6.50	0.38	1.00	42.28	1.452	1.00	0.00	0.00
2	129.00	RRUS-32	3	77.00	3.87	0.70	124.53	2.220	0.71	0.00	1.00
3	129.00	RRUS 11	3	50.70	2.52	0.76	138.26	3.161	0.77	0.00	1.00
4	129.00	DC6-48-60-18-8F	2	2.77	1.47	1.00	8.07	2.159	1.00	0.00	1.00
5	129.00	P65-16-XLH-RR	3	53.00	8.16	0.78	215.58	10.921	0.78	0.00	1.00
6	129.00	DTMABP7819VG12A	3	19.20	1.14	0.60	44.34	1.898	0.62	0.00	1.00
7	129.00	MTC3607 Platform + HR & Kicker	1	2246.00	51.70	1.00	5334.86	89.384	1.00	0.00	0.00
8	129.00	OPA-65R-LCUU-H6	3	80.00	9.66	0.77	307.71	11.005	0.77	0.00	1.00
9	129.00	RRUS 32 B2	3	77.00	3.87	0.67	124.53	2.220	0.67	0.00	1.00
10	129.00	QS66512-2	3	111.00	7.13	0.74	334.29	9.409	0.75	0.00	1.00
11	129.00	RRUS 32 b66	3	77.00	3.87	0.67	124.53	2.220	0.67	0.00	1.00
12	110.00	CBC721-DF	3	4.40	0.45	0.63	13.66	0.934	0.67	0.00	1.00
13	110.00	CBC721-DF	3	4.40	0.45	0.63	13.66	0.934	0.67	0.00	-1.00
14	110.00	SBNHH-1D65B	6	40.00	8.16	0.79	235.78	9.418	0.82	0.00	0.00
15	110.00	RRH2X60-1900A-4R	3	46.00	1.88	0.67	112.46	2.446	0.68	0.00	0.00
16	110.00	B13 RRH4X30-4R	3	57.20	2.16	0.67	117.59	2.752	0.68	0.00	0.00
17	110.00	B4 RRH2X60-4R	3	55.00	3.36	0.67	138.75	4.115	0.68	0.00	0.00
18	110.00	DB-T1-6Z-8AB-OZ	2	18.90	4.80	1.00	157.48	5.645	1.00	0.00	0.00
19	110.00	T-Arm (Round)	3	350.00	8.00	0.75	586.87	14.768	0.75	0.00	0.00
20	100.00	AIR 21, 1.3M, B2A B4P	3	91.50	6.09	0.80	252.43	7.141	0.83	0.00	0.00
21	100.00	AIR 21, 1.3M, B4A B2P	3	90.40	6.09	0.80	251.33	7.141	0.83	0.00	0.00
22	100.00	LNx-6515DS-A1M	3	50.30	11.47	0.80	272.94	14.607	0.84	0.00	0.00
23	100.00	782 11056	3	1.80	0.13	0.78	4.18	0.410	0.82	0.00	0.00
24	100.00	T-Arm (Round)	3	350.00	8.00	0.75	584.62	14.704	0.75	0.00	0.00
25	94.00	1'4"x6.5"x6" Surge Protector	1	53.00	2.14	1.00	146.00	3.112	1.00	0.00	0.00
26	89.50	VHLP2-18-1WH	1	31.00	4.69	1.00	123.93	5.903	1.00	1.00	1.30
27	89.50	VHLP800-11	1	48.00	8.43	1.00	212.01	10.051	1.00	1.00	1.20
28	89.50	T-Arm (Round)	3	350.00	8.00	0.75	582.03	14.630	0.75	0.00	0.00
29	89.50	840 10054	3	35.00	4.59	0.63	115.03	6.178	0.64	0.00	1.50
30	89.50	SPI-2213 RRH	3	33.10	1.82	0.67	74.81	2.747	0.67	0.00	1.50
Totals:			81	8,859.84			21,207.27				

Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
0.00	129.00	(12) 1 5/8" Coax	0.00	Inside
0.00	129.00	(2) 1/2" Fiber	0.00	Inside
0.00	129.00	(3) 2" Conduit	2.00	Outside
0.00	129.00	(4) 3/4" DC	0.00	Inside
0.00	110.00	(12) 1 5/8" Coax	0.00	Inside
0.00	110.00	(2) 1 5/8" Hybrid	0.00	Inside
0.00	100.00	(6) 1 5/8" Coax	0.00	Inside
0.00	100.00	(1) 1 5/8" Hybrid	0.00	Inside
0.00	89.50	(2) 1/2" Coax	0.00	Inside
0.00	89.50	(3) 1/4" Coax	0.00	Inside
0.00	89.50	(3) 5/16" Coax	0.00	Inside

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		
0.00	89.50	(3) 5/8" Coax		0.00							
0.00	81.00	(4) 1" Reinforcing plate		1.00							

Shaft Section Properties

Structure: CT13064-A-SBA	Code: EIA/TIA-222-G	3/19/2018
Site Name: Middletown 2, CT	Exposure: C	
Height: 130.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Increment Length: 5 (ft)

Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fy (ksi)	Fb (ksi)	Weight (lb)	Additional Reinforcing			
											Area (in^2)	Ixp (in^4)	Iyp (in^4)	Weight (lb)
0.00	RB1 RB2	0.3125	42.500	41.843	9409.0	22.57	136.00	65	75	0.0	51.50	14174.7	10484.2	
5.00		0.3125	41.724	41.073	8899.0	22.13	133.52	65	75	705.4	51.50	13677.0	10117.3	876.2
10.00	RT2	0.3125	40.947	40.303	8407.8	21.69	131.03	65	76	692.3	24.00	7053.3	3529.7	408.3
15.00		0.3125	40.171	39.533	7935.0	21.26	128.55	65	76	679.2	24.00	6795.7	3401.4	408.3
20.00		0.3125	39.394	38.763	7480.2	20.82	126.06	65	77	666.1	24.00	6543.0	3275.5	408.3
20.50	RT1 RB3	0.3125	39.317	38.686	7435.7	20.77	125.81	65	77	65.9	24.00	6518.0	3263.1	40.8
25.00		0.3125	38.618	37.993	7043.2	20.38	123.58	65	77	587.1	24.00	6295.0	3152.0	367.5
30.00		0.3125	37.841	37.222	6623.5	19.94	121.09	65	78	639.9	24.00	6051.9	3030.9	408.3
35.00		0.3125	37.065	36.452	6220.8	19.50	118.61	65	78	626.7	24.00	5813.6	2912.3	408.3
40.00		0.3125	36.288	35.682	5834.8	19.06	116.12	65	79	613.6	24.00	5580.1	2796.0	408.3
40.50	RT3 RB4	0.3125	36.211	35.605	5797.1	19.02	115.87	65	79	60.6	24.00	5557.0	2784.5	40.8
43.33	Bot - Section 2	0.3125	35.771	35.169	5586.6	18.77	114.47	65	79	341.2	24.00	5427.1	2719.8	231.4
45.00		0.3125	35.512	34.912	5465.1	18.63	113.64	65	79	360.2	24.00	5498.1	2755.0	136.1
48.00	Top - Section 1	0.2500	35.546	28.006	4408.2	23.66	142.18	65	74	641.8	24.00	5361.3	2686.9	245.0
50.00		0.2500	35.235	27.760	4292.8	23.44	140.94	65	74	189.8	24.00	5269.9	2639.8	163.3
55.00		0.2500	34.459	27.144	4013.3	22.89	137.84	65	74	467.1	24.00	5047.8	2529.4	408.3
60.00		0.2500	33.682	26.528	3746.2	22.35	134.73	65	75	456.6	24.00	4830.6	2421.3	408.3
60.75	RT4 RB5	0.2500	33.566	26.435	3707.2	22.26	134.26	65	75	67.6	24.00	4798.4	2405.3	61.3
65.00		0.2500	32.906	25.912	3491.2	21.80	131.62	65	76	378.5	24.00	4618.1	2315.6	347.1
70.00		0.2500	32.130	25.296	3248.0	21.25	128.52	65	76	435.6	24.00	4410.5	2212.3	408.3
75.00		0.2500	31.353	24.679	3016.5	20.70	125.41	65	77	425.1	24.00	4207.7	2111.4	408.3
78.50	RT5	0.2500	30.810	24.248	2861.1	20.32	123.24	65	78	291.4	24.00	4068.6	2042.3	285.8
80.00		0.2500	30.577	24.063	2796.1	20.16	122.31	65	78	123.3				
85.00		0.2500	29.800	23.447	2586.8	19.61	119.20	65	78	404.2				
87.42	Bot - Section 3	0.2500	29.425	23.149	2489.5	19.34	117.70	65	79	191.6				
89.50		0.2500	29.101	22.893	2407.6	19.11	116.41	65	79	287.4				
90.00		0.2500	29.024	22.831	2388.2	19.06	116.09	65	79	68.5				
91.33	Top - Section 2	0.1875	29.192	17.260	1834.5	26.04	155.69	65	71	181.8				
94.00		0.1875	28.778	17.014	1757.1	25.65	153.48	65	71	155.5				
95.00		0.1875	28.622	16.922	1728.6	25.51	152.65	65	71	57.7				
100.00		0.1875	27.846	16.460	1590.8	24.78	148.51	65	72	284.0				
105.00		0.1875	27.069	15.997	1460.6	24.05	144.37	65	73	276.1				
110.00		0.1875	26.293	15.535	1337.6	23.32	140.23	65	74	268.2				
115.00		0.1875	25.516	15.073	1221.8	22.59	136.09	65	75	260.4				
120.00	Top - Section 3	0.1875	24.740	14.611	1112.8	21.86	131.95	65	76	252.5				
120.00	Bot - Section 4	0.2500	18.000	13.941	549.4	16.39	98.96	65	59					
125.00		0.2500	18.000	13.941	549.4	0.00	72.00	65	59	237.2				
129.00		0.2500	18.000	13.941	549.4	0.00	72.00	65	59	189.8				
130.00		0.2500	18.000	13.941	549.4	0.00	72.00	65	59	47.4				
Total Weight										12677.2	6878.7			

Wind Loading - Shaft

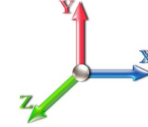
Structure: CT13064-A-SBA	Code: EIA/TIA-222-G	3/19/2018
Site Name: Middletown 2, CT	Exposure: C	
Height: 130.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.6W 10 101 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 24

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	RB1 RB2	1.00	0.85	21.088	23.20	334.88	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	21.088	23.20	328.76	0.650	0.000	5.00	17.817	11.58	429.8	0.0	846.4
10.00	RT2	1.00	0.85	21.088	23.20	322.64	0.650	0.000	5.00	17.489	11.37	421.9	0.0	830.7
15.00		1.00	0.85	21.088	23.20	316.52	0.650	0.000	5.00	17.160	11.15	414.0	0.0	815.0
20.00		1.00	0.90	22.375	24.61	319.74	0.650	0.000	5.00	16.832	10.94	430.8	0.0	799.3
20.50	RT1 RB3	1.00	0.91	22.491	24.74	319.94	0.650	0.000	0.50	1.665	1.08	42.8	0.0	79.1
25.00		1.00	0.95	23.451	25.80	320.89	0.650	0.000	4.50	14.838	9.64	398.1	0.0	704.5
30.00		1.00	0.98	24.369	26.81	320.53	0.650	0.000	5.00	16.175	10.51	450.9	0.0	767.8
35.00		1.00	1.01	25.172	27.69	319.09	0.650	0.000	5.00	15.846	10.30	456.3	0.0	752.1
40.00		1.00	1.04	25.890	28.48	316.82	0.650	0.000	5.00	15.518	10.09	459.6	0.0	736.4
40.50	RT3 RB4	1.00	1.05	25.958	28.55	316.56	0.650	0.000	0.50	1.534	1.00	45.5	0.0	72.8
43.33	Bot - Section 2	1.00	1.06	26.330	28.96	314.95	0.650	0.000	2.83	8.629	5.61	259.9	0.0	409.4
45.00		1.00	1.07	26.540	29.19	313.91	0.650	0.000	1.67	5.097	3.31	154.8	0.0	432.3
48.00	Top - Section 1	1.00	1.08	26.903	29.59	311.91	0.650	0.000	3.00	9.083	5.90	279.5	0.0	770.2
50.00		1.00	1.09	27.135	29.85	314.94	0.650	0.000	2.00	5.989	3.89	185.9	0.0	227.7
55.00		1.00	1.12	27.685	30.45	311.11	0.650	0.000	5.00	14.744	9.58	467.0	0.0	560.5
60.00		1.00	1.14	28.197	31.02	306.90	0.650	0.000	5.00	14.415	9.37	465.0	0.0	547.9
60.75	RT4 RB5	1.00	1.14	28.271	31.10	306.24	0.650	0.000	0.75	2.134	1.39	69.0	0.0	81.1
65.00		1.00	1.16	28.676	31.54	302.36	0.650	0.000	4.25	11.953	7.77	392.1	0.0	454.2
70.00		1.00	1.17	29.127	32.04	297.54	0.650	0.000	5.00	13.758	8.94	458.4	0.0	522.7
75.00		1.00	1.19	29.553	32.51	292.46	0.650	0.000	5.00	13.430	8.73	454.0	0.0	510.2
78.50	RT5	1.00	1.20	29.838	32.82	288.78	0.650	0.000	3.50	9.205	5.98	314.2	0.0	349.6
80.00		1.00	1.21	29.958	32.95	287.16	0.650	0.000	1.50	3.896	2.53	133.5	0.0	148.0
85.00		1.00	1.22	30.342	33.38	281.66	0.650	0.000	5.00	12.773	8.30	443.4	0.0	485.0
87.42	Bot - Section 3	1.00	1.23	30.522	33.57	278.94	0.650	0.000	2.42	6.056	3.94	211.4	0.0	229.9
89.50	Appurtenance(s)	1.00	1.24	30.674	33.74	276.56	0.650	0.000	2.08	5.225	3.40	183.3	0.0	344.9
90.00		1.00	1.24	30.710	33.78	275.98	0.650	0.000	0.50	1.245	0.81	43.8	0.0	82.2
91.33	Top - Section 2	1.00	1.24	30.805	33.89	274.44	0.650	0.000	1.33	3.305	2.15	116.5	0.0	218.2
94.00	Appurtenance(s)	1.00	1.25	30.992	34.09	274.89	0.650	0.000	2.67	6.540	4.25	231.9	0.0	186.6
95.00		1.00	1.25	31.061	34.17	273.72	0.650	0.000	1.00	2.429	1.58	86.3	0.0	69.3
100.00	Appurtenance(s)	1.00	1.27	31.399	34.54	267.73	0.650	0.000	5.00	11.946	7.76	429.1	0.0	340.8
105.00		1.00	1.28	31.723	34.89	261.61	0.650	0.000	5.00	11.617	7.55	421.6	0.0	331.3
110.00	Appurtenance(s)	1.00	1.29	32.035	35.24	255.35	0.650	0.000	5.00	11.289	7.34	413.7	0.0	321.9
115.00		1.00	1.30	32.336	35.57	248.97	0.650	0.000	5.00	10.960	7.12	405.4	0.0	312.5
120.00	Top - Section 3	1.00	1.32	32.627	35.89	242.48	0.650	0.000	5.00	10.632	6.91	396.8	0.0	303.0
125.00		1.00	1.33	32.909	36.20	174.49	0.620 *	0.000	5.00	7.500	4.65	269.3	0.0	284.6
129.00	Appurtenance(s)	1.00	1.34	33.128	36.44	175.07	0.620 *	0.000	4.00	6.000	3.72	216.9	0.0	227.7
130.00	Appurtenance(s)	1.00	1.34	33.182	36.50	175.21	0.600	0.000	1.00	1.500	0.90	52.6	0.0	56.9
								Totals:	130.00			11,105.3		15,212.6

* Cf Adjusted by Linear Load Ra Effect

Discrete Appurtenance Forces

Structure: CT13064-A-SBA	Code: EIA/TIA-222-G	3/19/2018
Site Name: Middletown 2, CT	Exposure: C	
Height: 130.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.6W 10 101 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



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	130.00	6' Lightning rod	1	33.182	36.500	1.00	1.00	0.38	7.80	0.000	0.000	22.19	0.00	0.00
2	129.00	RRUS-32	3	33.182	36.500	0.63	0.90	7.31	277.20	0.000	1.000	427.15	0.00	427.15
3	129.00	OPA-65R-LCUU-H6	3	33.182	36.500	0.69	0.90	20.08	288.00	0.000	1.000	1172.85	0.00	1172.85
4	129.00	RRUS 32 B2	3	33.182	36.500	0.60	0.90	7.00	277.20	0.000	1.000	408.85	0.00	408.85
5	129.00	QS66512-2	3	33.182	36.500	0.67	0.90	14.25	399.60	0.000	1.000	831.95	0.00	831.95
6	129.00	RRUS 32 b66	3	33.182	36.500	0.60	0.90	7.00	277.20	0.000	1.000	408.85	0.00	408.85
7	129.00	RRUS 11	3	33.182	36.500	0.68	0.90	5.17	182.52	0.000	1.000	301.99	0.00	301.99
8	129.00	DC6-48-60-18-8F	2	33.182	36.500	1.00	1.00	2.94	6.65	0.000	1.000	171.69	0.00	171.69
9	129.00	P65-16-XLH-RR	3	33.182	36.500	0.70	0.90	17.18	190.80	0.000	1.000	1003.59	0.00	1003.59
10	129.00	DTMABP7819VG12A	3	33.182	36.500	0.54	0.90	1.85	69.12	0.000	1.000	107.85	0.00	107.85
11	129.00	MTC3607 Platform + HR	1	33.128	36.440	1.00	1.00	51.70	2695.20	0.000	0.000	3014.36	0.00	0.00
12	110.00	T-Arm (Round)	3	32.035	35.238	0.56	0.75	13.50	1260.00	0.000	0.000	761.15	0.00	0.00
13	110.00	DB-T1-6Z-8AB-OZ	2	32.035	35.238	0.80	0.80	7.68	45.36	0.000	0.000	433.01	0.00	0.00
14	110.00	B4 RRH2X60-4R	3	32.035	35.238	0.54	0.80	5.40	198.00	0.000	0.000	304.62	0.00	0.00
15	110.00	B13 RRH4X30-4R	3	32.035	35.238	0.54	0.80	3.47	205.92	0.000	0.000	195.83	0.00	0.00
16	110.00	RRH2X60-1900A-4R	3	32.035	35.238	0.54	0.80	3.02	165.60	0.000	0.000	170.44	0.00	0.00
17	110.00	CBC721-DF	3	31.973	35.171	0.50	0.80	0.68	15.84	0.000	-1.000	38.29	0.00	-38.29
18	110.00	CBC721-DF	3	32.096	35.306	0.50	0.80	0.68	15.84	0.000	1.000	38.44	0.00	38.44
19	110.00	SBNHH-1D65B	6	32.035	35.238	0.63	0.80	30.94	288.00	0.000	0.000	1744.59	0.00	0.00
20	100.00	LNx-6515DS-A1M	3	31.399	34.538	0.64	0.80	22.02	181.08	0.000	0.000	1216.99	0.00	0.00
21	100.00	AIR 21, 1.3M, B2A B4P	3	31.399	34.538	0.64	0.80	11.69	329.40	0.000	0.000	646.16	0.00	0.00
22	100.00	AIR 21, 1.3M, B4A B2P	3	31.399	34.538	0.64	0.80	11.69	325.44	0.000	0.000	646.16	0.00	0.00
23	100.00	782 11056	3	31.399	34.538	0.62	0.80	0.24	6.48	0.000	0.000	13.45	0.00	0.00
24	100.00	T-Arm (Round)	3	31.399	34.538	0.56	0.75	13.50	1260.00	0.000	0.000	746.03	0.00	0.00
25	94.00	1'4"x6.5"x6" Surge	1	30.992	34.091	0.80	0.80	1.71	63.60	0.000	0.000	93.38	0.00	0.00
26	89.50	T-Arm (Round)	3	30.674	33.741	0.56	0.75	13.50	1260.00	0.000	0.000	728.81	0.00	0.00
27	89.50	VHLP800-11	1	30.760	33.836	1.00	1.00	8.43	57.60	2.231	1.200	456.38	636.44	547.65
28	89.50	VHLP2-18-1WH	1	30.767	33.844	1.00	1.00	4.69	37.20	2.231	1.300	253.96	354.16	330.15
29	89.50	840 10054	3	30.781	33.859	0.50	0.80	6.94	126.00	0.000	1.500	375.98	0.00	563.97
30	89.50	SPI-2213 RRH	3	30.781	33.859	0.54	0.80	2.93	119.16	0.000	1.500	158.55	0.00	237.82
Totals:									10,631.81			16,893.53		

Total Applied Force Summary

Structure: CT13064-A-SBA	Code: EIA/TIA-222-G	3/19/2018
Site Name: Middletown 2, CT	Exposure: C	
Height: 130.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.6W 10 101 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



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		429.83	1135.85	0.00	0.00
10.00		421.90	1120.12	0.00	0.00
15.00		413.98	1104.40	0.00	0.00
20.00		430.84	1088.68	0.00	0.00
20.50		42.84	108.00	0.00	0.00
25.00		398.07	964.95	0.00	0.00
30.00		450.91	1057.23	0.00	0.00
35.00		456.32	1041.51	0.00	0.00
40.00		459.60	1025.78	0.00	0.00
40.50		45.54	101.71	0.00	0.00
43.33		259.92	573.41	0.00	0.00
45.00		154.76	528.75	0.00	0.00
48.00		279.54	943.83	0.00	0.00
50.00		185.93	343.48	0.00	0.00
55.00		466.96	849.89	0.00	0.00
60.00		465.00	837.31	0.00	0.00
60.75		69.02	124.51	0.00	0.00
65.00		392.12	700.22	0.00	0.00
70.00		458.44	812.15	0.00	0.00
75.00		454.04	799.57	0.00	0.00
78.50		314.22	552.22	0.00	0.00
80.00		133.52	234.78	0.00	0.00
85.00		443.36	745.61	0.00	0.00
87.42		211.45	352.39	0.00	0.00
89.50	(11) attachments	2157.02	2050.48	990.60	1679.59
90.00		43.76	106.87	0.00	0.00
91.33		116.48	283.91	0.00	0.00
94.00	(1) attachments	325.27	381.69	0.00	0.00
95.00		86.30	118.59	0.00	0.00
100.00	(15) attachments	3697.87	2689.71	0.00	0.00
105.00		421.60	533.83	0.00	0.00
110.00	(26) attachments	4100.08	2718.96	0.00	0.15
115.00		405.44	426.88	0.00	0.00
120.00		396.83	417.45	0.00	0.00
125.00		269.33	399.05	0.00	0.00
129.00	(27) attachments	8066.02	4982.72	0.00	4834.77
130.00	(1) attachments	74.75	64.73	0.00	0.00
	Totals:	27,998.83	32,321.22	990.60	6,514.51

Linear Appurtenance Segment Forces (Factored)

Structure: CT13064-A-SBA	Code: EIA/TIA-222-G	3/19/2018
Site Name: Middletown 2, CT	Exposure: C	
Height: 130.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.6W 10 101 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 24

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	2" Conduit	Yes	5.00	0.000	2.00	0.83	0.00	0.070	0.000	21.088	0.00	28.98
5.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.070	0.000	21.088	0.00	36.00
10.00	2" Conduit	Yes	5.00	0.000	2.00	0.83	0.00	0.071	0.000	21.088	0.00	28.98
10.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.071	0.000	21.088	0.00	36.00
15.00	2" Conduit	Yes	5.00	0.000	2.00	0.83	0.00	0.073	0.000	21.088	0.00	28.98
15.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.073	0.000	21.088	0.00	36.00
20.00	2" Conduit	Yes	5.00	0.000	2.00	0.83	0.00	0.074	0.000	22.375	0.00	28.98
20.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.074	0.000	22.375	0.00	36.00
20.50	2" Conduit	Yes	0.50	0.000	2.00	0.08	0.00	0.075	0.000	22.491	0.00	2.90
20.50	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.04	0.00	0.075	0.000	22.491	0.00	3.60
25.00	2" Conduit	Yes	4.50	0.000	2.00	0.75	0.00	0.076	0.000	23.451	0.00	26.08
25.00	1" Reinforcing plate	Yes	4.50	0.000	1.00	0.38	0.00	0.076	0.000	23.451	0.00	32.40
30.00	2" Conduit	Yes	5.00	0.000	2.00	0.83	0.00	0.077	0.000	24.369	0.00	28.98
30.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.077	0.000	24.369	0.00	36.00
35.00	2" Conduit	Yes	5.00	0.000	2.00	0.83	0.00	0.079	0.000	25.172	0.00	28.98
35.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.079	0.000	25.172	0.00	36.00
40.00	2" Conduit	Yes	5.00	0.000	2.00	0.83	0.00	0.081	0.000	25.890	0.00	28.98
40.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.081	0.000	25.890	0.00	36.00
40.50	2" Conduit	Yes	0.50	0.000	2.00	0.08	0.00	0.082	0.000	25.958	0.00	2.90
40.50	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.04	0.00	0.082	0.000	25.958	0.00	3.60
43.33	2" Conduit	Yes	2.83	0.000	2.00	0.47	0.00	0.082	0.000	26.330	0.00	16.42
43.33	1" Reinforcing plate	Yes	2.83	0.000	1.00	0.24	0.00	0.082	0.000	26.330	0.00	20.40
45.00	2" Conduit	Yes	1.67	0.000	2.00	0.28	0.00	0.083	0.000	26.540	0.00	9.66
45.00	1" Reinforcing plate	Yes	1.67	0.000	1.00	0.14	0.00	0.083	0.000	26.540	0.00	12.00
48.00	2" Conduit	Yes	3.00	0.000	2.00	0.50	0.00	0.084	0.000	26.903	0.00	17.39
48.00	1" Reinforcing plate	Yes	3.00	0.000	1.00	0.25	0.00	0.084	0.000	26.903	0.00	21.60
50.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.083	0.000	27.135	0.00	11.59
50.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.083	0.000	27.135	0.00	14.40
55.00	2" Conduit	Yes	5.00	0.000	2.00	0.83	0.00	0.085	0.000	27.685	0.00	28.98
55.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.085	0.000	27.685	0.00	36.00
60.00	2" Conduit	Yes	5.00	0.000	2.00	0.83	0.00	0.087	0.000	28.197	0.00	28.98
60.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.087	0.000	28.197	0.00	36.00
60.75	2" Conduit	Yes	0.75	0.000	2.00	0.13	0.00	0.088	0.000	28.271	0.00	4.35
60.75	1" Reinforcing plate	Yes	0.75	0.000	1.00	0.06	0.00	0.088	0.000	28.271	0.00	5.40
65.00	2" Conduit	Yes	4.25	0.000	2.00	0.71	0.00	0.089	0.000	28.676	0.00	24.63
65.00	1" Reinforcing plate	Yes	4.25	0.000	1.00	0.35	0.00	0.089	0.000	28.676	0.00	30.60
70.00	2" Conduit	Yes	5.00	0.000	2.00	0.83	0.00	0.091	0.000	29.127	0.00	28.98
70.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.091	0.000	29.127	0.00	36.00
75.00	2" Conduit	Yes	5.00	0.000	2.00	0.83	0.00	0.093	0.000	29.553	0.00	28.98
75.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.093	0.000	29.553	0.00	36.00
78.50	2" Conduit	Yes	3.50	0.000	2.00	0.58	0.00	0.095	0.000	29.838	0.00	20.29
78.50	1" Reinforcing plate	Yes	3.50	0.000	1.00	0.29	0.00	0.095	0.000	29.838	0.00	25.20
80.00	2" Conduit	Yes	1.50	0.000	2.00	0.25	0.00	0.096	0.000	29.958	0.00	8.69
80.00	1" Reinforcing plate	Yes	1.50	0.000	1.00	0.13	0.00	0.096	0.000	29.958	0.00	10.80
85.00	2" Conduit	Yes	5.00	0.000	2.00	0.83	0.00	0.072	0.000	30.342	0.00	28.98
85.00	1" Reinforcing plate	Yes	1.00	0.000	1.00	0.08	0.00	0.072	0.000	30.342	0.00	7.20
87.42	2" Conduit	Yes	2.42	0.000	2.00	0.40	0.00	0.067	0.000	30.522	0.00	14.01

Linear Appurtenance Segment Forces (Factored)

Structure: CT13064-A-SBA	Code: EIA/TIA-222-G	3/19/2018
Site Name: Middletown 2, CT	Exposure: C	
Height: 130.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.6W 10 101 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 24

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
89.50	2" Conduit	Yes	2.08	0.000	2.00	0.35	0.00	0.067	0.000	30.674	0.00	12.07
90.00	2" Conduit	Yes	0.50	0.000	2.00	0.08	0.00	0.068	0.000	30.710	0.00	2.90
91.33	2" Conduit	Yes	1.33	0.000	2.00	0.22	0.00	0.068	0.000	30.805	0.00	7.73
94.00	2" Conduit	Yes	2.67	0.000	2.00	0.44	0.00	0.068	0.000	30.992	0.00	15.46
95.00	2" Conduit	Yes	1.00	0.000	2.00	0.17	0.00	0.069	0.000	31.061	0.00	5.80
100.00	2" Conduit	Yes	5.00	0.000	2.00	0.83	0.00	0.070	0.000	31.399	0.00	28.98
105.00	2" Conduit	Yes	5.00	0.000	2.00	0.83	0.00	0.072	0.000	31.723	0.00	28.98
110.00	2" Conduit	Yes	5.00	0.000	2.00	0.83	0.00	0.074	0.000	32.035	0.00	28.98
115.00	2" Conduit	Yes	5.00	0.000	2.00	0.83	0.00	0.076	0.000	32.336	0.00	28.98
120.00	2" Conduit	Yes	5.00	0.000	2.00	0.83	0.00	0.078	0.000	32.627	0.00	28.98
125.00	2" Conduit	Yes	5.00	0.000	2.00	0.83	0.00	0.111	1.033	32.909	0.00	28.98
129.00	2" Conduit	Yes	4.00	0.000	2.00	0.67	0.00	0.111	1.033	33.128	0.00	23.18
Totals:											0.0	1,330.9

Calculated Forces

Structure: CT13064-A-SBA	Code: EIA/TIA-222-G	3/19/2018
Site Name: Middletown 2, CT	Exposure: C	
Height: 130.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

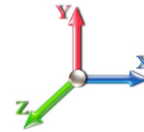


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Load Case: 1.2D + 1.6W 10 101 mph Wind

Iterations 24

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	-32.27	-28.05	-0.97	-2760.1	-0.01	2760.16	2818.94	1409.47	4888.80	2448.04	0.00	0.000	0.000	0.539
5.00	-31.05	-27.73	-0.97	-2619.8	-0.01	2619.89	2786.10	1393.05	4742.28	2374.66	0.10	-0.192	0.000	0.522
10.00	-29.81	-27.42	-0.98	-2481.2	-0.01	2481.26	2752.56	1376.28	4596.67	2301.75	0.41	-0.383	0.000	0.766
15.00	-28.58	-27.14	-0.98	-2344.1	-0.01	2344.14	2718.29	1359.15	4452.05	2229.33	0.96	-0.670	0.000	0.742
20.00	-27.42	-26.77	-0.98	-2208.4	0.00	2208.43	2683.32	1341.66	4308.48	2157.44	1.82	-0.956	-0.001	0.718
20.50	-27.25	-26.79	-0.98	-2195.0	-0.01	2195.05	2679.78	1339.89	4294.19	2150.28	1.92	-0.985	-0.001	0.715
25.00	-26.17	-26.50	-0.98	-2074.4	-0.01	2074.47	2647.62	1323.81	4166.04	2086.12	2.97	-1.240	-0.001	0.693
30.00	-24.99	-26.15	-0.98	-1941.9	-0.01	1941.97	2611.22	1305.61	4024.80	2015.39	4.42	-1.520	-0.001	0.667
35.00	-23.84	-25.77	-0.98	-1811.2	-0.01	1811.24	2574.10	1287.05	3884.82	1945.30	6.16	-1.796	-0.001	0.639
40.00	-22.77	-25.34	-0.98	-1682.3	0.00	1682.38	2536.26	1268.13	3746.17	1875.87	8.18	-2.068	-0.001	0.611
40.50	-22.63	-25.33	-0.98	-1669.7	-0.01	1669.71	2532.44	1266.22	3732.38	1868.96	8.40	-2.095	-0.001	0.609
43.33	-22.01	-25.09	-0.98	-1597.9	-0.01	1597.95	2510.64	1255.32	3654.51	1829.97	9.69	-2.249	-0.002	0.592
45.00	-21.44	-24.96	-0.98	-1556.1	-0.01	1556.13	2497.71	1248.86	3608.92	1807.14	10.49	-2.339	-0.002	0.577
48.00	-20.45	-24.69	-0.98	-1481.2	-0.01	1481.25	1854.44	927.22	2691.60	1347.80	12.01	-2.496	-0.002	0.616
50.00	-20.03	-24.56	-0.98	-1431.8	-0.01	1431.87	1844.56	922.28	2653.53	1328.74	13.08	-2.601	-0.002	0.673
55.00	-19.09	-24.14	-0.98	-1309.0	-0.01	1309.09	1819.35	909.68	2558.78	1281.29	15.95	-2.881	-0.002	0.632
60.00	-18.21	-23.68	-0.98	-1188.3	-0.01	1188.39	1793.44	896.72	2464.66	1234.16	19.11	-3.152	-0.003	0.590
60.75	-18.04	-23.65	-0.98	-1170.6	-0.01	1170.63	1789.49	894.74	2450.61	1227.12	19.61	-3.193	-0.003	0.584
65.00	-17.27	-23.29	-0.98	-1070.1	-0.01	1070.13	1766.81	883.40	2371.26	1187.39	22.56	-3.415	-0.003	0.547
70.00	-16.39	-22.85	-0.99	-953.69	-0.02	953.69	1739.46	869.73	2278.63	1141.01	26.26	-3.662	-0.003	0.502
75.00	-15.54	-22.39	-0.99	-839.45	-0.02	839.45	1711.40	855.70	2186.84	1095.05	30.22	-3.895	-0.004	0.456
78.50	-14.97	-22.07	-0.99	-761.07	-0.02	761.07	1691.33	845.67	2123.13	1063.14	33.13	-4.050	-0.004	0.422
78.50	-14.97	-22.07	-0.99	-761.07	-0.02	761.07	1691.33	845.67	2123.13	1063.14	33.13	-4.050	-0.004	0.422
80.00	-14.67	-21.98	-0.99	-727.96	-0.02	727.96	1682.63	841.31	2095.97	1049.54	34.42	-4.115	-0.004	0.703
85.00	-13.87	-21.54	-0.99	-618.09	-0.03	618.09	1653.14	826.57	2006.08	1004.53	38.91	-4.458	-0.005	0.624
87.42	-13.48	-21.33	-0.99	-566.04	-0.03	566.04	1638.63	819.32	1963.01	982.97	41.20	-4.615	-0.005	0.585
89.50	-11.58	-19.03	0.00	-519.92	0.04	519.92	1625.99	812.99	1926.09	964.47	43.25	-4.744	-0.005	0.547
90.00	-11.46	-18.99	0.00	-510.40	0.04	510.40	1622.94	811.47	1917.25	960.05	43.74	-4.775	-0.005	0.539
91.33	-11.15	-18.87	0.00	-485.09	0.04	485.09	1099.39	549.70	1312.06	657.00	45.09	-4.854	-0.005	0.750
94.00	-10.76	-18.54	0.00	-434.76	0.04	434.76	1090.71	545.35	1282.99	642.45	47.84	-5.003	-0.005	0.688
95.00	-10.59	-18.48	0.00	-416.22	0.04	416.22	1087.40	543.70	1272.11	637.00	48.90	-5.072	-0.005	0.664
100.00	-8.18	-14.59	0.00	-323.85	0.03	323.85	1070.43	535.22	1217.83	609.82	54.37	-5.377	-0.005	0.539
105.00	-7.63	-14.15	0.00	-250.91	0.02	250.91	1052.74	526.37	1163.86	582.80	60.13	-5.634	-0.005	0.439
110.00	-5.30	-9.81	0.00	-180.18	0.02	180.18	1034.34	517.17	1110.26	555.96	66.14	-5.844	-0.005	0.330
115.00	-4.90	-9.38	0.00	-131.11	0.01	131.11	1015.23	507.62	1057.10	529.34	72.35	-6.009	-0.005	0.253
120.00	-4.51	-8.95	0.00	-84.22	0.01	84.22	995.40	497.70	1004.45	502.97	78.70	-6.134	-0.005	0.172
120.00	-4.51	-8.95	0.00	-84.22	0.01	84.22	735.22	367.61	535.89	335.79	78.70	-6.134	-0.005	0.258
125.00	-4.13	-8.64	0.00	-39.48	0.00	39.48	735.22	367.61	535.89	335.79	85.16	-6.213	-0.005	0.124
129.00	-0.06	-0.08	0.00	-0.08	0.00	0.08	735.22	367.61	535.89	335.79	90.38	-6.259	-0.005	0.000
130.00	0.00	-0.07	0.00	0.00	0.00	0.00	735.22	367.61	535.89	335.79	91.69	-6.259	-0.005	0.000

Wind Loading - Shaft

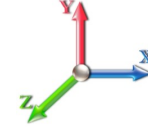
Structure: CT13064-A-SBA	Code: EIA/TIA-222-G	3/19/2018
Site Name: Middletown 2, CT	Exposure: C	
Height: 130.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.60



Iterations 24

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	RB1 RB2	1.00	0.85	21.088	23.20	334.88	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	21.088	23.20	328.76	0.650	0.000	5.00	17.817	11.58	429.8	0.0	634.8
10.00	RT2	1.00	0.85	21.088	23.20	322.64	0.650	0.000	5.00	17.489	11.37	421.9	0.0	623.0
15.00		1.00	0.85	21.088	23.20	316.52	0.650	0.000	5.00	17.160	11.15	414.0	0.0	611.2
20.00		1.00	0.90	22.375	24.61	319.74	0.650	0.000	5.00	16.832	10.94	430.8	0.0	599.5
20.50	RT1 RB3	1.00	0.91	22.491	24.74	319.94	0.650	0.000	0.50	1.665	1.08	42.8	0.0	59.3
25.00		1.00	0.95	23.451	25.80	320.89	0.650	0.000	4.50	14.838	9.64	398.1	0.0	528.4
30.00		1.00	0.98	24.369	26.81	320.53	0.650	0.000	5.00	16.175	10.51	450.9	0.0	575.9
35.00		1.00	1.01	25.172	27.69	319.09	0.650	0.000	5.00	15.846	10.30	456.3	0.0	564.1
40.00		1.00	1.04	25.890	28.48	316.82	0.650	0.000	5.00	15.518	10.09	459.6	0.0	552.3
40.50	RT3 RB4	1.00	1.05	25.958	28.55	316.56	0.650	0.000	0.50	1.534	1.00	45.5	0.0	54.6
43.33	Bot - Section 2	1.00	1.06	26.330	28.96	314.95	0.650	0.000	2.83	8.629	5.61	259.9	0.0	307.1
45.00		1.00	1.07	26.540	29.19	313.91	0.650	0.000	1.67	5.097	3.31	154.8	0.0	324.2
48.00	Top - Section 1	1.00	1.08	26.903	29.59	311.91	0.650	0.000	3.00	9.083	5.90	279.5	0.0	577.6
50.00		1.00	1.09	27.135	29.85	314.94	0.650	0.000	2.00	5.989	3.89	185.9	0.0	170.8
55.00		1.00	1.12	27.685	30.45	311.11	0.650	0.000	5.00	14.744	9.58	467.0	0.0	420.4
60.00		1.00	1.14	28.197	31.02	306.90	0.650	0.000	5.00	14.415	9.37	465.0	0.0	410.9
60.75	RT4 RB5	1.00	1.14	28.271	31.10	306.24	0.650	0.000	0.75	2.134	1.39	69.0	0.0	60.8
65.00		1.00	1.16	28.676	31.54	302.36	0.650	0.000	4.25	11.953	7.77	392.1	0.0	340.7
70.00		1.00	1.17	29.127	32.04	297.54	0.650	0.000	5.00	13.758	8.94	458.4	0.0	392.1
75.00		1.00	1.19	29.553	32.51	292.46	0.650	0.000	5.00	13.430	8.73	454.0	0.0	382.6
78.50	RT5	1.00	1.20	29.838	32.82	288.78	0.650	0.000	3.50	9.205	5.98	314.2	0.0	262.2
80.00		1.00	1.21	29.958	32.95	287.16	0.650	0.000	1.50	3.896	2.53	133.5	0.0	111.0
85.00		1.00	1.22	30.342	33.38	281.66	0.650	0.000	5.00	12.773	8.30	443.4	0.0	363.8
87.42	Bot - Section 3	1.00	1.23	30.522	33.57	278.94	0.650	0.000	2.42	6.056	3.94	211.4	0.0	172.4
89.50	Appurtenance(s)	1.00	1.24	30.674	33.74	276.56	0.650	0.000	2.08	5.225	3.40	183.3	0.0	258.7
90.00		1.00	1.24	30.710	33.78	275.98	0.650	0.000	0.50	1.245	0.81	43.8	0.0	61.7
91.33	Top - Section 2	1.00	1.24	30.805	33.89	274.44	0.650	0.000	1.33	3.305	2.15	116.5	0.0	163.6
94.00	Appurtenance(s)	1.00	1.25	30.992	34.09	274.89	0.650	0.000	2.67	6.540	4.25	231.9	0.0	140.0
95.00		1.00	1.25	31.061	34.17	273.72	0.650	0.000	1.00	2.429	1.58	86.3	0.0	52.0
100.00	Appurtenance(s)	1.00	1.27	31.399	34.54	267.73	0.650	0.000	5.00	11.946	7.76	429.1	0.0	255.6
105.00		1.00	1.28	31.723	34.89	261.61	0.650	0.000	5.00	11.617	7.55	421.6	0.0	248.5
110.00	Appurtenance(s)	1.00	1.29	32.035	35.24	255.35	0.650	0.000	5.00	11.289	7.34	413.7	0.0	241.4
115.00		1.00	1.30	32.336	35.57	248.97	0.650	0.000	5.00	10.960	7.12	405.4	0.0	234.3
120.00	Top - Section 3	1.00	1.32	32.627	35.89	242.48	0.650	0.000	5.00	10.632	6.91	396.8	0.0	227.3
125.00		1.00	1.33	32.909	36.20	174.49	0.620 *	0.000	5.00	7.500	4.65	269.3	0.0	213.5
129.00	Appurtenance(s)	1.00	1.34	33.128	36.44	175.07	0.620 *	0.000	4.00	6.000	3.72	216.9	0.0	170.8
130.00	Appurtenance(s)	1.00	1.34	33.182	36.50	175.21	0.600	0.000	1.00	1.500	0.90	52.6	0.0	42.7
								Totals:	130.00			11,105.3		11,409.5

* Cf Adjusted by Linear Load Ra Effect

Discrete Appurtenance Forces

Structure: CT13064-A-SBA	Code: EIA/TIA-222-G	3/19/2018
Site Name: Middletown 2, CT	Exposure: C	
Height: 130.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.60



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	130.00	6' Lightning rod	1	33.182	36.500	1.00	1.00	0.38	5.85	0.000	0.000	22.19	0.00	0.00
2	129.00	RRUS-32	3	33.182	36.500	0.63	0.90	7.31	207.90	0.000	1.000	427.15	0.00	427.15
3	129.00	OPA-65R-LCUU-H6	3	33.182	36.500	0.69	0.90	20.08	216.00	0.000	1.000	1172.85	0.00	1172.85
4	129.00	RRUS 32 B2	3	33.182	36.500	0.60	0.90	7.00	207.90	0.000	1.000	408.85	0.00	408.85
5	129.00	QS66512-2	3	33.182	36.500	0.67	0.90	14.25	299.70	0.000	1.000	831.95	0.00	831.95
6	129.00	RRUS 32 b66	3	33.182	36.500	0.60	0.90	7.00	207.90	0.000	1.000	408.85	0.00	408.85
7	129.00	RRUS 11	3	33.182	36.500	0.68	0.90	5.17	136.89	0.000	1.000	301.99	0.00	301.99
8	129.00	DC6-48-60-18-8F	2	33.182	36.500	1.00	1.00	2.94	4.99	0.000	1.000	171.69	0.00	171.69
9	129.00	P65-16-XLH-RR	3	33.182	36.500	0.70	0.90	17.18	143.10	0.000	1.000	1003.59	0.00	1003.59
10	129.00	DTMABP7819VG12A	3	33.182	36.500	0.54	0.90	1.85	51.84	0.000	1.000	107.85	0.00	107.85
11	129.00	MTC3607 Platform + HR	1	33.128	36.440	1.00	1.00	51.70	2021.40	0.000	0.000	3014.36	0.00	0.00
12	110.00	T-Arm (Round)	3	32.035	35.238	0.56	0.75	13.50	945.00	0.000	0.000	761.15	0.00	0.00
13	110.00	DB-T1-6Z-8AB-OZ	2	32.035	35.238	0.80	0.80	7.68	34.02	0.000	0.000	433.01	0.00	0.00
14	110.00	B4 RRH2X60-4R	3	32.035	35.238	0.54	0.80	5.40	148.50	0.000	0.000	304.62	0.00	0.00
15	110.00	B13 RRH4X30-4R	3	32.035	35.238	0.54	0.80	3.47	154.44	0.000	0.000	195.83	0.00	0.00
16	110.00	RRH2X60-1900A-4R	3	32.035	35.238	0.54	0.80	3.02	124.20	0.000	0.000	170.44	0.00	0.00
17	110.00	CBC721-DF	3	31.973	35.171	0.50	0.80	0.68	11.88	0.000	-1.000	38.29	0.00	-38.29
18	110.00	CBC721-DF	3	32.096	35.306	0.50	0.80	0.68	11.88	0.000	1.000	38.44	0.00	38.44
19	110.00	SBNHH-1D65B	6	32.035	35.238	0.63	0.80	30.94	216.00	0.000	0.000	1744.59	0.00	0.00
20	100.00	LNx-6515DS-A1M	3	31.399	34.538	0.64	0.80	22.02	135.81	0.000	0.000	1216.99	0.00	0.00
21	100.00	AIR 21, 1.3M, B2A B4P	3	31.399	34.538	0.64	0.80	11.69	247.05	0.000	0.000	646.16	0.00	0.00
22	100.00	AIR 21, 1.3M, B4A B2P	3	31.399	34.538	0.64	0.80	11.69	244.08	0.000	0.000	646.16	0.00	0.00
23	100.00	782 11056	3	31.399	34.538	0.62	0.80	0.24	4.86	0.000	0.000	13.45	0.00	0.00
24	100.00	T-Arm (Round)	3	31.399	34.538	0.56	0.75	13.50	945.00	0.000	0.000	746.03	0.00	0.00
25	94.00	1'4"x6.5"x6" Surge	1	30.992	34.091	0.80	0.80	1.71	47.70	0.000	0.000	93.38	0.00	0.00
26	89.50	T-Arm (Round)	3	30.674	33.741	0.56	0.75	13.50	945.00	0.000	0.000	728.81	0.00	0.00
27	89.50	VHLP800-11	1	30.760	33.836	1.00	1.00	8.43	43.20	2.231	1.200	456.38	636.44	547.65
28	89.50	VHLP2-18-1WH	1	30.767	33.844	1.00	1.00	4.69	27.90	2.231	1.300	253.96	354.16	330.15
29	89.50	840 10054	3	30.781	33.859	0.50	0.80	6.94	94.50	0.000	1.500	375.98	0.00	563.97
30	89.50	SPI-2213 RRH	3	30.781	33.859	0.54	0.80	2.93	89.37	0.000	1.500	158.55	0.00	237.82
Totals:									7,973.86			16,893.53		

Total Applied Force Summary

Structure: CT13064-A-SBA	Code: EIA/TIA-222-G	3/19/2018
Site Name: Middletown 2, CT	Exposure: C	
Height: 130.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.60



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		429.83	851.89	0.00	0.00
10.00		421.90	840.09	0.00	0.00
15.00		413.98	828.30	0.00	0.00
20.00		430.84	816.51	0.00	0.00
20.50		42.84	81.00	0.00	0.00
25.00		398.07	723.71	0.00	0.00
30.00		450.91	792.92	0.00	0.00
35.00		456.32	781.13	0.00	0.00
40.00		459.60	769.34	0.00	0.00
40.50		45.54	76.29	0.00	0.00
43.33		259.92	430.06	0.00	0.00
45.00		154.76	396.57	0.00	0.00
48.00		279.54	707.87	0.00	0.00
50.00		185.93	257.61	0.00	0.00
55.00		466.96	637.41	0.00	0.00
60.00		465.00	627.98	0.00	0.00
60.75		69.02	93.38	0.00	0.00
65.00		392.12	525.16	0.00	0.00
70.00		458.44	609.11	0.00	0.00
75.00		454.04	599.68	0.00	0.00
78.50		314.22	414.16	0.00	0.00
80.00		133.52	176.08	0.00	0.00
85.00		443.36	559.21	0.00	0.00
87.42		211.45	264.29	0.00	0.00
89.50	(11) attachments	2157.02	1537.86	990.60	1679.59
90.00		43.76	80.15	0.00	0.00
91.33		116.48	212.93	0.00	0.00
94.00	(1) attachments	325.27	286.27	0.00	0.00
95.00		86.30	88.95	0.00	0.00
100.00	(15) attachments	3697.87	2017.28	0.00	0.00
105.00		421.60	400.37	0.00	0.00
110.00	(26) attachments	4100.08	2039.22	0.00	0.15
115.00		405.44	320.16	0.00	0.00
120.00		396.83	313.09	0.00	0.00
125.00		269.33	299.28	0.00	0.00
129.00	(27) attachments	8066.02	3737.04	0.00	4834.77
130.00	(1) attachments	74.75	48.54	0.00	0.00
	Totals:	27,998.83	24,240.92	990.60	6,514.51

Linear Appurtenance Segment Forces (Factored)

Structure: CT13064-A-SBA	Code: EIA/TIA-222-G	3/19/2018
Site Name: Middletown 2, CT	Exposure: C	
Height: 130.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

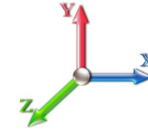


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Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 24

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	2" Conduit	Yes	5.00	0.000	2.00	0.83	0.00	0.070	0.000	21.088	0.00	21.74
5.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.070	0.000	21.088	0.00	27.00
10.00	2" Conduit	Yes	5.00	0.000	2.00	0.83	0.00	0.071	0.000	21.088	0.00	21.74
10.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.071	0.000	21.088	0.00	27.00
15.00	2" Conduit	Yes	5.00	0.000	2.00	0.83	0.00	0.073	0.000	21.088	0.00	21.74
15.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.073	0.000	21.088	0.00	27.00
20.00	2" Conduit	Yes	5.00	0.000	2.00	0.83	0.00	0.074	0.000	22.375	0.00	21.74
20.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.074	0.000	22.375	0.00	27.00
20.50	2" Conduit	Yes	0.50	0.000	2.00	0.08	0.00	0.075	0.000	22.491	0.00	2.17
20.50	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.04	0.00	0.075	0.000	22.491	0.00	2.70
25.00	2" Conduit	Yes	4.50	0.000	2.00	0.75	0.00	0.076	0.000	23.451	0.00	19.56
25.00	1" Reinforcing plate	Yes	4.50	0.000	1.00	0.38	0.00	0.076	0.000	23.451	0.00	24.30
30.00	2" Conduit	Yes	5.00	0.000	2.00	0.83	0.00	0.077	0.000	24.369	0.00	21.74
30.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.077	0.000	24.369	0.00	27.00
35.00	2" Conduit	Yes	5.00	0.000	2.00	0.83	0.00	0.079	0.000	25.172	0.00	21.74
35.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.079	0.000	25.172	0.00	27.00
40.00	2" Conduit	Yes	5.00	0.000	2.00	0.83	0.00	0.081	0.000	25.890	0.00	21.74
40.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.081	0.000	25.890	0.00	27.00
40.50	2" Conduit	Yes	0.50	0.000	2.00	0.08	0.00	0.082	0.000	25.958	0.00	2.17
40.50	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.04	0.00	0.082	0.000	25.958	0.00	2.70
43.33	2" Conduit	Yes	2.83	0.000	2.00	0.47	0.00	0.082	0.000	26.330	0.00	12.32
43.33	1" Reinforcing plate	Yes	2.83	0.000	1.00	0.24	0.00	0.082	0.000	26.330	0.00	15.30
45.00	2" Conduit	Yes	1.67	0.000	2.00	0.28	0.00	0.083	0.000	26.540	0.00	7.25
45.00	1" Reinforcing plate	Yes	1.67	0.000	1.00	0.14	0.00	0.083	0.000	26.540	0.00	9.00
48.00	2" Conduit	Yes	3.00	0.000	2.00	0.50	0.00	0.084	0.000	26.903	0.00	13.04
48.00	1" Reinforcing plate	Yes	3.00	0.000	1.00	0.25	0.00	0.084	0.000	26.903	0.00	16.20
50.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.083	0.000	27.135	0.00	8.69
50.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.083	0.000	27.135	0.00	10.80
55.00	2" Conduit	Yes	5.00	0.000	2.00	0.83	0.00	0.085	0.000	27.685	0.00	21.74
55.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.085	0.000	27.685	0.00	27.00
60.00	2" Conduit	Yes	5.00	0.000	2.00	0.83	0.00	0.087	0.000	28.197	0.00	21.74
60.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.087	0.000	28.197	0.00	27.00
60.75	2" Conduit	Yes	0.75	0.000	2.00	0.13	0.00	0.088	0.000	28.271	0.00	3.26
60.75	1" Reinforcing plate	Yes	0.75	0.000	1.00	0.06	0.00	0.088	0.000	28.271	0.00	4.05
65.00	2" Conduit	Yes	4.25	0.000	2.00	0.71	0.00	0.089	0.000	28.676	0.00	18.47
65.00	1" Reinforcing plate	Yes	4.25	0.000	1.00	0.35	0.00	0.089	0.000	28.676	0.00	22.95
70.00	2" Conduit	Yes	5.00	0.000	2.00	0.83	0.00	0.091	0.000	29.127	0.00	21.74
70.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.091	0.000	29.127	0.00	27.00
75.00	2" Conduit	Yes	5.00	0.000	2.00	0.83	0.00	0.093	0.000	29.553	0.00	21.74
75.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.093	0.000	29.553	0.00	27.00
78.50	2" Conduit	Yes	3.50	0.000	2.00	0.58	0.00	0.095	0.000	29.838	0.00	15.21
78.50	1" Reinforcing plate	Yes	3.50	0.000	1.00	0.29	0.00	0.095	0.000	29.838	0.00	18.90
80.00	2" Conduit	Yes	1.50	0.000	2.00	0.25	0.00	0.096	0.000	29.958	0.00	6.52
80.00	1" Reinforcing plate	Yes	1.50	0.000	1.00	0.13	0.00	0.096	0.000	29.958	0.00	8.10
85.00	2" Conduit	Yes	5.00	0.000	2.00	0.83	0.00	0.072	0.000	30.342	0.00	21.74
85.00	1" Reinforcing plate	Yes	1.00	0.000	1.00	0.08	0.00	0.072	0.000	30.342	0.00	5.40
87.42	2" Conduit	Yes	2.42	0.000	2.00	0.40	0.00	0.067	0.000	30.522	0.00	10.51

Linear Appurtenance Segment Forces (Factored)

Structure: CT13064-A-SBA	Code: EIA/TIA-222-G	3/19/2018
Site Name: Middletown 2, CT	Exposure: C	
Height: 130.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

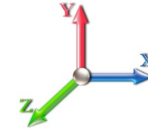


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Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 24

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
89.50	2" Conduit	Yes	2.08	0.000	2.00	0.35	0.00	0.067	0.000	30.674	0.00	9.06
90.00	2" Conduit	Yes	0.50	0.000	2.00	0.08	0.00	0.068	0.000	30.710	0.00	2.17
91.33	2" Conduit	Yes	1.33	0.000	2.00	0.22	0.00	0.068	0.000	30.805	0.00	5.80
94.00	2" Conduit	Yes	2.67	0.000	2.00	0.44	0.00	0.068	0.000	30.992	0.00	11.59
95.00	2" Conduit	Yes	1.00	0.000	2.00	0.17	0.00	0.069	0.000	31.061	0.00	4.35
100.00	2" Conduit	Yes	5.00	0.000	2.00	0.83	0.00	0.070	0.000	31.399	0.00	21.74
105.00	2" Conduit	Yes	5.00	0.000	2.00	0.83	0.00	0.072	0.000	31.723	0.00	21.74
110.00	2" Conduit	Yes	5.00	0.000	2.00	0.83	0.00	0.074	0.000	32.035	0.00	21.74
115.00	2" Conduit	Yes	5.00	0.000	2.00	0.83	0.00	0.076	0.000	32.336	0.00	21.74
120.00	2" Conduit	Yes	5.00	0.000	2.00	0.83	0.00	0.078	0.000	32.627	0.00	21.74
125.00	2" Conduit	Yes	5.00	0.000	2.00	0.83	0.00	0.111	1.033	32.909	0.00	21.74
129.00	2" Conduit	Yes	4.00	0.000	2.00	0.67	0.00	0.111	1.033	33.128	0.00	17.39
Totals:											0.0	998.2

Calculated Forces

Structure: CT13064-A-SBA	Code: EIA/TIA-222-G	3/19/2018
Site Name: Middletown 2, CT	Exposure: C	
Height: 130.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

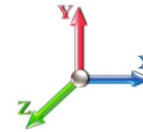


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Load Case: 0.9D + 1.6W 101 mph Wind

Iterations 24

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	-24.19	-28.04	-0.98	-2733.0	-0.01	2733.04	2818.94	1409.47	4888.80	2448.04	0.00	0.000	0.000	0.532
5.00	-23.25	-27.69	-0.98	-2592.8	-0.01	2592.85	2786.10	1393.05	4742.28	2374.66	0.10	-0.190	0.000	0.515
10.00	-22.30	-27.35	-0.98	-2454.4	0.00	2454.42	2752.56	1376.28	4596.67	2301.75	0.40	-0.379	0.000	0.756
15.00	-21.34	-27.04	-0.98	-2317.6	0.00	2317.66	2718.29	1359.15	4452.05	2229.33	0.95	-0.663	0.000	0.732
20.00	-20.46	-26.65	-0.98	-2182.4	0.00	2182.48	2683.32	1341.66	4308.48	2157.44	1.80	-0.945	-0.001	0.708
20.50	-20.31	-26.66	-0.98	-2169.1	0.00	2169.16	2679.78	1339.89	4294.19	2150.28	1.90	-0.974	-0.001	0.705
25.00	-19.48	-26.33	-0.98	-2049.2	0.00	2049.21	2647.62	1323.81	4166.04	2086.12	2.94	-1.226	-0.001	0.683
30.00	-18.57	-25.95	-0.98	-1917.5	0.00	1917.54	2611.22	1305.61	4024.80	2015.39	4.37	-1.503	-0.001	0.657
35.00	-17.68	-25.56	-0.98	-1787.7	0.00	1787.78	2574.10	1287.05	3884.82	1945.30	6.09	-1.775	-0.001	0.630
40.00	-16.86	-25.12	-0.98	-1659.9	0.00	1659.99	2536.26	1268.13	3746.17	1875.87	8.09	-2.044	-0.001	0.602
40.50	-16.75	-25.09	-0.98	-1647.4	0.00	1647.43	2532.44	1266.22	3732.38	1868.96	8.31	-2.071	-0.001	0.599
43.33	-16.28	-24.85	-0.98	-1576.3	0.00	1576.33	2510.64	1255.32	3654.51	1829.97	9.58	-2.222	-0.002	0.583
45.00	-15.84	-24.72	-0.98	-1534.9	0.00	1534.91	2497.71	1248.86	3608.92	1807.14	10.37	-2.311	-0.002	0.568
48.00	-15.09	-24.44	-0.98	-1460.7	0.00	1460.76	1854.44	927.22	2691.60	1347.80	11.87	-2.466	-0.002	0.606
50.00	-14.75	-24.29	-0.98	-1411.8	-0.01	1411.88	1844.56	922.28	2653.53	1328.74	12.93	-2.569	-0.002	0.662
55.00	-14.03	-23.86	-0.98	-1290.4	-0.01	1290.41	1819.35	909.68	2558.78	1281.29	15.77	-2.846	-0.002	0.622
60.00	-13.36	-23.40	-0.98	-1171.0	-0.01	1171.09	1793.44	896.72	2464.66	1234.16	18.89	-3.113	-0.003	0.580
60.75	-13.22	-23.36	-0.98	-1153.5	-0.01	1153.54	1789.49	894.74	2450.61	1227.12	19.38	-3.153	-0.003	0.574
65.00	-12.62	-22.99	-0.98	-1054.2	-0.01	1054.26	1766.81	883.40	2371.26	1187.39	22.29	-3.371	-0.003	0.537
70.00	-11.95	-22.54	-0.99	-939.32	-0.01	939.32	1739.46	869.73	2278.63	1141.01	25.95	-3.615	-0.003	0.493
75.00	-11.31	-22.09	-0.99	-826.60	-0.02	826.60	1711.40	855.70	2186.84	1095.05	29.86	-3.845	-0.004	0.447
78.50	-10.88	-21.77	-0.99	-749.29	-0.02	749.29	1691.33	845.67	2123.13	1063.14	32.73	-3.997	-0.004	0.415
78.50	-10.88	-21.77	-0.99	-749.29	-0.02	749.29	1691.33	845.67	2123.13	1063.14	32.73	-3.997	-0.004	0.415
80.00	-10.63	-21.66	-0.99	-716.64	-0.02	716.64	1682.63	841.31	2095.97	1049.54	33.99	-4.061	-0.004	0.690
85.00	-10.02	-21.22	-0.99	-608.34	-0.03	608.34	1653.14	826.57	2006.08	1004.53	38.43	-4.398	-0.005	0.612
87.42	-9.72	-21.01	-0.99	-557.06	-0.03	557.06	1638.63	819.32	1963.01	982.97	40.69	-4.553	-0.005	0.573
89.50	-8.34	-18.75	0.00	-511.61	0.05	511.61	1625.99	812.99	1926.09	964.47	42.71	-4.681	-0.005	0.536
90.00	-8.24	-18.71	0.00	-502.23	0.04	502.23	1622.94	811.47	1917.25	960.05	43.20	-4.710	-0.005	0.529
91.33	-8.00	-18.59	0.00	-477.29	0.04	477.29	1099.39	549.70	1312.06	657.00	44.53	-4.788	-0.005	0.735
94.00	-7.71	-18.26	0.00	-427.72	0.04	427.72	1090.71	545.35	1282.99	642.45	47.24	-4.935	-0.005	0.674
95.00	-7.57	-18.19	0.00	-409.47	0.04	409.47	1087.40	543.70	1272.11	637.00	48.28	-5.003	-0.005	0.651
100.00	-5.82	-14.35	0.00	-318.53	0.03	318.53	1070.43	535.22	1217.83	609.82	53.68	-5.302	-0.005	0.528
105.00	-5.41	-13.91	0.00	-246.78	0.02	246.78	1052.74	526.37	1163.86	582.80	59.37	-5.555	-0.005	0.429
110.00	-3.75	-9.65	0.00	-177.21	0.02	177.21	1034.34	517.17	1110.26	555.96	65.29	-5.762	-0.005	0.323
115.00	-3.45	-9.22	0.00	-128.98	0.01	128.98	1015.23	507.62	1057.10	529.34	71.41	-5.925	-0.005	0.247
120.00	-3.17	-8.80	0.00	-82.89	0.01	82.89	995.40	497.70	1004.45	502.97	77.67	-6.048	-0.005	0.168
120.00	-3.17	-8.80	0.00	-82.89	0.01	82.89	735.22	367.61	535.89	335.79	77.67	-6.048	-0.005	0.252
125.00	-2.89	-8.50	0.00	-38.91	0.00	38.91	735.22	367.61	535.89	335.79	84.04	-6.126	-0.005	0.120
129.00	-0.04	-0.08	0.00	-0.08	0.00	0.08	735.22	367.61	535.89	335.79	89.19	-6.171	-0.005	0.000
130.00	0.00	-0.07	0.00	0.00	0.00	0.00	735.22	367.61	535.89	335.79	90.48	-6.171	-0.005	0.000

Wind Loading - Shaft

Structure: CT13064-A-SBA	Code: EIA/TIA-222-G	3/19/2018
Site Name: Middletown 2, CT	Exposure: C	
Height: 130.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
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 22

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	RB1 RB2	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	18.852	22.62	128.6	330.9	1177.3
10.00	RT2	1.00	0.85	5.168	5.68	0.00	1.200	1.331	5.00	18.598	22.32	126.9	348.9	1179.6
15.00		1.00	0.85	5.168	5.68	0.00	1.200	1.386	5.00	18.315	21.98	124.9	357.2	1172.2
20.00		1.00	0.90	5.483	6.03	0.00	1.200	1.427	5.00	18.021	21.62	130.4	361.1	1160.3
20.50	RT1 RB3	1.00	0.91	5.512	6.06	0.00	1.200	1.430	0.50	1.784	2.14	13.0	36.1	115.2
25.00		1.00	0.95	5.747	6.32	0.00	1.200	1.459	4.50	15.932	19.12	120.9	326.2	1030.7
30.00		1.00	0.98	5.972	6.57	0.00	1.200	1.486	5.00	17.413	20.90	137.3	362.2	1130.1
35.00		1.00	1.01	6.169	6.79	0.00	1.200	1.509	5.00	17.104	20.52	139.3	360.8	1112.9
40.00		1.00	1.04	6.345	6.98	0.00	1.200	1.529	5.00	16.792	20.15	140.6	358.5	1094.9
40.50	RT3 RB4	1.00	1.05	6.362	7.00	0.00	1.200	1.531	0.50	1.661	1.99	14.0	35.8	108.6
43.33	Bot - Section 2	1.00	1.06	6.453	7.10	0.00	1.200	1.541	2.83	9.357	11.23	79.7	202.0	611.4
45.00		1.00	1.07	6.504	7.15	0.00	1.200	1.547	1.67	5.527	6.63	47.5	120.1	552.4
48.00	Top - Section 1	1.00	1.08	6.593	7.25	0.00	1.200	1.557	3.00	9.861	11.83	85.8	214.9	985.1
50.00		1.00	1.09	6.650	7.32	0.00	1.200	1.564	2.00	6.511	7.81	57.2	142.7	370.4
55.00		1.00	1.12	6.785	7.46	0.00	1.200	1.579	5.00	16.059	19.27	143.8	352.6	913.1
60.00		1.00	1.14	6.910	7.60	0.00	1.200	1.592	5.00	15.742	18.89	143.6	348.2	896.1
60.75	RT4 RB5	1.00	1.14	6.928	7.62	0.00	1.200	1.594	0.75	2.333	2.80	21.3	52.1	133.2
65.00		1.00	1.16	7.028	7.73	0.00	1.200	1.605	4.25	13.090	15.71	121.4	291.9	746.1
70.00		1.00	1.17	7.138	7.85	0.00	1.200	1.617	5.00	15.106	18.13	142.3	338.3	861.0
75.00		1.00	1.19	7.243	7.97	0.00	1.200	1.628	5.00	14.787	17.74	141.4	332.9	843.0
78.50	RT5	1.00	1.20	7.313	8.04	0.00	1.200	1.636	3.50	10.159	12.19	98.1	230.3	579.9
80.00		1.00	1.21	7.342	8.08	0.00	1.200	1.639	1.50	4.306	5.17	41.7	98.2	246.1
85.00		1.00	1.22	7.436	8.18	0.00	1.200	1.649	5.00	14.147	16.98	138.9	321.4	806.4
87.42	Bot - Section 3	1.00	1.23	7.480	8.23	0.00	1.200	1.653	2.42	6.722	8.07	66.4	153.9	383.8
89.50	Appurtenance(s)	1.00	1.24	7.517	8.27	0.00	1.200	1.657	2.08	5.800	6.96	57.6	133.3	478.2
90.00		1.00	1.24	7.526	8.28	0.00	1.200	1.658	0.50	1.384	1.66	13.7	31.9	114.1
91.33	Top - Section 2	1.00	1.24	7.549	8.30	0.00	1.200	1.661	1.33	3.674	4.41	36.6	84.7	302.8
94.00	Appurtenance(s)	1.00	1.25	7.595	8.35	0.00	1.200	1.666	2.67	7.281	8.74	73.0	167.6	354.2
95.00		1.00	1.25	7.612	8.37	0.00	1.200	1.667	1.00	2.706	3.25	27.2	62.6	131.9
100.00	Appurtenance(s)	1.00	1.27	7.695	8.46	0.00	1.200	1.676	5.00	13.342	16.01	135.5	306.6	647.4
105.00		1.00	1.28	7.774	8.55	0.00	1.200	1.684	5.00	13.021	15.62	133.6	300.1	631.4
110.00	Appurtenance(s)	1.00	1.29	7.851	8.64	0.00	1.200	1.692	5.00	12.699	15.24	131.6	293.4	615.3
115.00		1.00	1.30	7.925	8.72	0.00	1.200	1.699	5.00	12.376	14.85	129.5	286.6	599.1
120.00	Top - Section 3	1.00	1.32	7.996	8.80	0.00	1.200	1.707	5.00	12.054	14.46	127.2	279.7	582.7
125.00		1.00	1.33	8.065	8.87	0.00	1.240 *	1.714	5.00	8.928	11.07	98.2	206.4	491.0
129.00	Appurtenance(s)	1.00	1.34	8.119	8.93	0.00	1.240 *	1.719	4.00	7.146	8.86	79.1	165.7	393.4
130.00	Appurtenance(s)	1.00	1.34	8.132	8.95	0.00	1.200	1.720	1.00	1.787	2.14	19.2	41.5	98.4
								Totals:	130.00			3,466.9	23,649.8	

* Cf Adjusted by Linear Load Ra Effect

Discrete Appurtenance Forces

Structure: CT13064-A-SBA	Code: EIA/TIA-222-G	3/19/2018
Site Name: Middletown 2, CT	Exposure: C	
Height: 130.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
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 22

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	130.00	6' Lightning rod	1	8.132	8.945	1.00	1.00	1.45	38.28	0.000	0.000	12.99	0.00	0.00	
2	129.00	RRUS-32	3	8.132	8.945	0.64	0.90	4.26	419.78	0.000	1.000	38.07	0.00	38.07	
3	129.00	OPA-65R-LCUU-H6	3	8.132	8.945	0.69	0.90	22.88	971.12	0.000	1.000	204.65	0.00	204.65	
4	129.00	RRUS 32 B2	3	8.132	8.945	0.60	0.90	4.02	419.78	0.000	1.000	35.93	0.00	35.93	
5	129.00	QS66512-2	3	8.132	8.945	0.68	0.90	19.05	1069.48	0.000	1.000	170.42	0.00	170.42	
6	129.00	RRUS 32 b66	3	8.132	8.945	0.60	0.90	4.02	419.78	0.000	1.000	35.93	0.00	35.93	
7	129.00	RRUS 11	3	8.132	8.945	0.69	0.90	6.57	445.21	0.000	1.000	58.78	0.00	58.78	
8	129.00	DC6-48-60-18-8F	2	8.132	8.945	1.00	1.00	4.32	-76.20	0.000	1.000	38.63	0.00	38.63	
9	129.00	P65-16-XLH-RR	3	8.132	8.945	0.70	0.90	23.00	536.94	0.000	1.000	205.73	0.00	205.73	
10	129.00	DTMABP7819VG12A	3	8.132	8.945	0.56	0.90	3.18	122.63	0.000	1.000	28.42	0.00	28.42	
11	129.00	MTC3607 Platform + HR	1	8.119	8.931	1.00	1.00	89.38	4780.06	0.000	0.000	798.25	0.00	0.00	
12	110.00	T-Arm (Round)	3	7.851	8.636	0.56	0.75	24.92	1760.61	0.000	0.000	215.21	0.00	0.00	
13	110.00	DB-T1-6Z-8AB-OZ	2	7.851	8.636	0.80	0.80	9.03	322.52	0.000	0.000	78.00	0.00	0.00	
14	110.00	B4 RRH2X60-4R	3	7.851	8.636	0.54	0.80	6.72	388.05	0.000	0.000	58.00	0.00	0.00	
15	110.00	B13 RRH4X30-4R	3	7.851	8.636	0.54	0.80	4.49	341.19	0.000	0.000	38.79	0.00	0.00	
16	110.00	RRH2X60-1900A-4R	3	7.851	8.636	0.54	0.80	3.99	364.99	0.000	0.000	34.48	0.00	0.00	
17	110.00	CBC721-DF	3	7.836	8.619	0.54	0.80	1.50	35.51	0.000	-1.000	12.95	0.00	-12.95	
18	110.00	CBC721-DF	3	7.866	8.652	0.54	0.80	1.50	35.51	0.000	1.000	13.00	0.00	13.00	
19	110.00	SBNHH-1D65B	6	7.851	8.636	0.66	0.80	37.07	1462.67	0.000	0.000	320.12	0.00	0.00	
20	100.00	LNx-6515DS-A1M	3	7.695	8.464	0.67	0.80	29.45	653.11	0.000	0.000	249.26	0.00	0.00	
21	100.00	AIR 21, 1.3M, B2A B4P	3	7.695	8.464	0.66	0.80	14.22	812.18	0.000	0.000	120.40	0.00	0.00	
22	100.00	AIR 21, 1.3M, B4A B2P	3	7.695	8.464	0.66	0.80	14.22	808.22	0.000	0.000	120.40	0.00	0.00	
23	100.00	782 11056	3	7.695	8.464	0.66	0.80	0.81	7.02	0.000	0.000	6.84	0.00	0.00	
24	100.00	T-Arm (Round)	3	7.695	8.464	0.56	0.75	24.81	1753.86	0.000	0.000	210.02	0.00	0.00	
25	94.00	1'4"x6.5"x6" Surge	1	7.595	8.355	0.80	0.80	2.49	143.60	0.000	0.000	20.80	0.00	0.00	
26	89.50	T-Arm (Round)	3	7.517	8.269	0.56	0.75	24.69	1746.10	0.000	0.000	204.14	0.00	0.00	
27	89.50	VHLP800-11	1	7.538	8.292	1.00	1.00	10.05	172.21	2.231	1.200	83.34	185.96	100.01	
28	89.50	VHLP2-18-1WH	1	7.540	8.294	1.00	1.00	5.90	102.13	2.231	1.300	48.96	109.24	63.64	
29	89.50	840 10054	3	7.544	8.298	0.51	0.80	9.49	293.78	0.000	1.500	78.75	0.00	118.12	
30	89.50	SPI-2213 RRH	3	7.544	8.298	0.54	0.80	4.42	206.81	0.000	1.500	36.65	0.00	54.97	
Totals:									20,556.97						3,577.92

Total Applied Force Summary

Structure: CT13064-A-SBA	Code: EIA/TIA-222-G	3/19/2018
Site Name: Middletown 2, CT	Exposure: C	
Height: 130.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
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 22

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		128.61	1540.55	0.00	0.00
10.00		126.87	1549.15	0.00	0.00
15.00		124.94	1545.63	0.00	0.00
20.00		130.44	1536.77	0.00	0.00
20.50		12.98	152.86	0.00	0.00
25.00		120.87	1371.65	0.00	0.00
30.00		137.27	1510.89	0.00	0.00
35.00		139.28	1495.48	0.00	0.00
40.00		140.64	1478.97	0.00	0.00
40.50		13.95	147.02	0.00	0.00
43.33		79.70	829.64	0.00	0.00
45.00		47.45	680.87	0.00	0.00
48.00		85.82	1216.85	0.00	0.00
50.00		57.15	525.09	0.00	0.00
55.00		143.83	1301.04	0.00	0.00
60.00		143.59	1285.08	0.00	0.00
60.75		21.34	191.60	0.00	0.00
65.00		121.43	1077.59	0.00	0.00
70.00		142.33	1251.93	0.00	0.00
75.00		141.37	1234.84	0.00	0.00
78.50		98.07	854.57	0.00	0.00
80.00		41.73	363.92	0.00	0.00
85.00		138.86	1135.88	0.00	0.00
87.42		66.37	535.47	0.00	0.00
89.50	(11) attachments	509.40	3130.00	295.20	336.75
90.00		13.75	144.84	0.00	0.00
91.33		36.62	384.75	0.00	0.00
94.00	(1) attachments	93.80	661.73	0.00	0.00
95.00		27.19	193.37	0.00	0.00
100.00	(15) attachments	842.45	4989.60	0.00	0.00
105.00		133.62	895.55	0.00	0.00
110.00	(26) attachments	902.15	5590.85	0.00	0.05
115.00		129.46	775.81	0.00	0.00
120.00		127.23	759.78	0.00	0.00
125.00		98.22	668.35	0.00	0.00
129.00	(27) attachments	1693.95	9644.03	0.00	816.56
130.00	(1) attachments	32.17	136.66	0.00	0.00
	Totals:	7,044.87	52,788.69	295.20	1,153.37

Linear Appurtenance Segment Forces (Factored)

Structure: CT13064-A-SBA	Code: EIA/TIA-222-G	3/19/2018
Site Name: Middletown 2, CT	Exposure: C	
Height: 130.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
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 22

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	2" Conduit	Yes	5.00	0.000	2.00	1.87	0.00	0.070	0.000	5.168	0.00	72.39
5.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	1.45	0.00	0.070	0.000	5.168	0.00	66.41
10.00	2" Conduit	Yes	5.00	0.000	2.00	1.94	0.00	0.071	0.000	5.168	0.00	75.87
10.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	1.53	0.00	0.071	0.000	5.168	0.00	69.20
15.00	2" Conduit	Yes	5.00	0.000	2.00	1.99	0.00	0.073	0.000	5.168	0.00	78.07
15.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	1.57	0.00	0.073	0.000	5.168	0.00	70.97
20.00	2" Conduit	Yes	5.00	0.000	2.00	2.02	0.00	0.074	0.000	5.483	0.00	79.71
20.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	1.61	0.00	0.074	0.000	5.483	0.00	72.30
20.50	2" Conduit	Yes	0.50	0.000	2.00	0.20	0.00	0.075	0.000	5.512	0.00	7.99
20.50	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.16	0.00	0.075	0.000	5.512	0.00	7.24
25.00	2" Conduit	Yes	4.50	0.000	2.00	1.84	0.00	0.076	0.000	5.747	0.00	72.93
25.00	1" Reinforcing plate	Yes	4.50	0.000	1.00	1.47	0.00	0.076	0.000	5.747	0.00	66.03
30.00	2" Conduit	Yes	5.00	0.000	2.00	2.07	0.00	0.077	0.000	5.972	0.00	82.14
30.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	1.65	0.00	0.077	0.000	5.972	0.00	74.27
35.00	2" Conduit	Yes	5.00	0.000	2.00	2.09	0.00	0.079	0.000	6.169	0.00	83.10
35.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	1.67	0.00	0.079	0.000	6.169	0.00	75.05
40.00	2" Conduit	Yes	5.00	0.000	2.00	2.11	0.00	0.081	0.000	6.345	0.00	83.95
40.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	1.69	0.00	0.081	0.000	6.345	0.00	75.74
40.50	2" Conduit	Yes	0.50	0.000	2.00	0.21	0.00	0.082	0.000	6.362	0.00	8.40
40.50	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.17	0.00	0.082	0.000	6.362	0.00	7.58
43.33	2" Conduit	Yes	2.83	0.000	2.00	1.20	0.00	0.082	0.000	6.453	0.00	47.87
43.33	1" Reinforcing plate	Yes	2.83	0.000	1.00	0.96	0.00	0.082	0.000	6.453	0.00	43.16
45.00	2" Conduit	Yes	1.67	0.000	2.00	0.71	0.00	0.083	0.000	6.504	0.00	28.24
45.00	1" Reinforcing plate	Yes	1.67	0.000	1.00	0.57	0.00	0.083	0.000	6.504	0.00	25.45
48.00	2" Conduit	Yes	3.00	0.000	2.00	1.28	0.00	0.084	0.000	6.593	0.00	51.08
48.00	1" Reinforcing plate	Yes	3.00	0.000	1.00	1.03	0.00	0.084	0.000	6.593	0.00	46.02
50.00	2" Conduit	Yes	2.00	0.000	2.00	0.85	0.00	0.083	0.000	6.650	0.00	34.16
50.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.69	0.00	0.083	0.000	6.650	0.00	30.77
55.00	2" Conduit	Yes	5.00	0.000	2.00	2.15	0.00	0.085	0.000	6.785	0.00	86.04
55.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	1.73	0.00	0.085	0.000	6.785	0.00	77.45
60.00	2" Conduit	Yes	5.00	0.000	2.00	2.16	0.00	0.087	0.000	6.910	0.00	86.63
60.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	1.74	0.00	0.087	0.000	6.910	0.00	77.93
60.75	2" Conduit	Yes	0.75	0.000	2.00	0.32	0.00	0.088	0.000	6.928	0.00	13.01
60.75	1" Reinforcing plate	Yes	0.75	0.000	1.00	0.26	0.00	0.088	0.000	6.928	0.00	11.70
65.00	2" Conduit	Yes	4.25	0.000	2.00	1.85	0.00	0.089	0.000	7.028	0.00	74.10
65.00	1" Reinforcing plate	Yes	4.25	0.000	1.00	1.49	0.00	0.089	0.000	7.028	0.00	66.62
70.00	2" Conduit	Yes	5.00	0.000	2.00	2.18	0.00	0.091	0.000	7.138	0.00	87.70
70.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	1.76	0.00	0.091	0.000	7.138	0.00	78.80
75.00	2" Conduit	Yes	5.00	0.000	2.00	2.19	0.00	0.093	0.000	7.243	0.00	88.18
75.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	1.77	0.00	0.093	0.000	7.243	0.00	79.20
78.50	2" Conduit	Yes	3.50	0.000	2.00	1.54	0.00	0.095	0.000	7.313	0.00	61.95
78.50	1" Reinforcing plate	Yes	3.50	0.000	1.00	1.25	0.00	0.095	0.000	7.313	0.00	55.62
80.00	2" Conduit	Yes	1.50	0.000	2.00	0.66	0.00	0.096	0.000	7.342	0.00	26.59
80.00	1" Reinforcing plate	Yes	1.50	0.000	1.00	0.53	0.00	0.096	0.000	7.342	0.00	23.87
85.00	2" Conduit	Yes	5.00	0.000	2.00	2.21	0.00	0.072	0.000	7.436	0.00	89.07
85.00	1" Reinforcing plate	Yes	1.00	0.000	1.00	0.36	0.00	0.072	0.000	7.436	0.00	15.99
87.42	2" Conduit	Yes	2.42	0.000	2.00	1.07	0.00	0.067	0.000	7.480	0.00	43.15

Linear Appurtenance Segment Forces (Factored)

Structure: CT13064-A-SBA	Code: EIA/TIA-222-G	3/19/2018
Site Name: Middletown 2, CT	Exposure: C	
Height: 130.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
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 22

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
89.50	2" Conduit	Yes	2.08	0.000	2.00	0.92	0.00	0.067	0.000	7.517	0.00	37.27
90.00	2" Conduit	Yes	0.50	0.000	2.00	0.22	0.00	0.068	0.000	7.526	0.00	8.95
91.33	2" Conduit	Yes	1.33	0.000	2.00	0.59	0.00	0.068	0.000	7.549	0.00	23.89
94.00	2" Conduit	Yes	2.67	0.000	2.00	1.18	0.00	0.068	0.000	7.595	0.00	47.89
95.00	2" Conduit	Yes	1.00	0.000	2.00	0.44	0.00	0.069	0.000	7.612	0.00	17.97
100.00	2" Conduit	Yes	5.00	0.000	2.00	2.23	0.00	0.070	0.000	7.695	0.00	90.25
105.00	2" Conduit	Yes	5.00	0.000	2.00	2.24	0.00	0.072	0.000	7.774	0.00	90.61
110.00	2" Conduit	Yes	5.00	0.000	2.00	2.24	0.00	0.074	0.000	7.851	0.00	90.95
115.00	2" Conduit	Yes	5.00	0.000	2.00	2.25	0.00	0.076	0.000	7.925	0.00	91.28
120.00	2" Conduit	Yes	5.00	0.000	2.00	2.26	0.00	0.078	0.000	7.996	0.00	91.60
125.00	2" Conduit	Yes	5.00	0.000	2.00	2.26	0.00	0.111	1.033	8.065	0.00	91.91
129.00	2" Conduit	Yes	4.00	0.000	2.00	1.81	0.00	0.111	1.033	8.119	0.00	73.72
Totals:											0.0	3,436.0

Calculated Forces

Structure: CT13064-A-SBA	Code: EIA/TIA-222-G	3/19/2018
Site Name: Middletown 2, CT	Exposure: C	
Height: 130.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

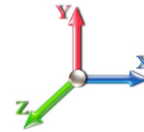


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Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Iterations 22

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	-52.79	-7.07	-0.29	-684.17	0.00	684.17	2818.94	1409.47	4888.80	2448.04	0.00	0.000	0.000	0.141
5.00	-51.24	-6.98	-0.29	-648.84	0.00	648.84	2786.10	1393.05	4742.28	2374.66	0.03	-0.048	0.000	0.136
10.00	-49.68	-6.90	-0.29	-613.94	0.00	613.94	2752.56	1376.28	4596.67	2301.75	0.10	-0.095	0.000	0.199
15.00	-48.13	-6.83	-0.29	-579.43	0.00	579.43	2718.29	1359.15	4452.05	2229.33	0.24	-0.166	0.000	0.193
20.00	-46.59	-6.73	-0.29	-545.26	0.00	545.26	2683.32	1341.66	4308.48	2157.44	0.45	-0.236	0.000	0.186
20.50	-46.43	-6.74	-0.29	-541.90	0.00	541.90	2679.78	1339.89	4294.19	2150.28	0.47	-0.244	0.000	0.186
25.00	-45.05	-6.67	-0.29	-511.55	0.00	511.55	2647.62	1323.81	4166.04	2086.12	0.73	-0.307	0.000	0.180
30.00	-43.54	-6.57	-0.29	-478.21	0.00	478.21	2611.22	1305.61	4024.80	2015.39	1.09	-0.376	0.000	0.173
35.00	-42.03	-6.47	-0.29	-445.34	0.00	445.34	2574.10	1287.05	3884.82	1945.30	1.52	-0.444	0.000	0.166
40.00	-40.55	-6.35	-0.29	-412.98	0.00	412.98	2536.26	1268.13	3746.17	1875.87	2.02	-0.510	0.000	0.158
40.50	-40.40	-6.35	-0.29	-409.80	0.00	409.80	2532.44	1266.22	3732.38	1868.96	2.08	-0.517	0.000	0.158
43.33	-39.57	-6.28	-0.29	-391.82	0.00	391.82	2510.64	1255.32	3654.51	1829.97	2.39	-0.555	0.000	0.153
45.00	-38.89	-6.25	-0.29	-381.35	0.00	381.35	2497.71	1248.86	3608.92	1807.14	2.59	-0.577	-0.001	0.149
48.00	-37.67	-6.17	-0.30	-362.62	0.00	362.62	1854.44	927.22	2691.60	1347.80	2.97	-0.615	-0.001	0.159
50.00	-37.14	-6.14	-0.30	-350.28	0.00	350.28	1844.56	922.28	2653.53	1328.74	3.23	-0.641	-0.001	0.174
55.00	-35.83	-6.02	-0.30	-319.60	0.00	319.60	1819.35	909.68	2558.78	1281.29	3.94	-0.709	-0.001	0.163
60.00	-34.54	-5.88	-0.30	-289.50	0.00	289.50	1793.44	896.72	2464.66	1234.16	4.72	-0.776	-0.001	0.152
60.75	-34.35	-5.88	-0.30	-285.09	0.00	285.09	1789.49	894.74	2450.61	1227.12	4.84	-0.785	-0.001	0.151
65.00	-33.27	-5.77	-0.30	-260.11	0.00	260.11	1766.81	883.40	2371.26	1187.39	5.56	-0.839	-0.001	0.141
70.00	-32.01	-5.65	-0.30	-231.24	0.00	231.24	1739.46	869.73	2278.63	1141.01	6.47	-0.899	-0.001	0.130
75.00	-30.78	-5.51	-0.30	-203.01	0.00	203.01	1711.40	855.70	2186.84	1095.05	7.45	-0.956	-0.001	0.118
78.50	-29.92	-5.41	-0.30	-183.73	0.00	183.73	1691.33	845.67	2123.13	1063.14	8.16	-0.993	-0.001	0.110
78.50	-29.92	-5.41	-0.30	-183.73	0.00	183.73	1691.33	845.67	2123.13	1063.14	8.16	-0.993	-0.001	0.110
80.00	-29.55	-5.39	-0.30	-175.61	0.00	175.61	1682.63	841.31	2095.97	1049.54	8.48	-1.009	-0.001	0.185
85.00	-28.41	-5.26	-0.30	-148.67	0.00	148.67	1653.14	826.57	2006.08	1004.53	9.58	-1.092	-0.001	0.165
87.42	-27.88	-5.20	-0.30	-135.97	0.00	135.97	1638.63	819.32	1963.01	982.97	10.14	-1.129	-0.002	0.155
89.50	-24.76	-4.63	0.00	-124.80	0.00	124.80	1625.99	812.99	1926.09	964.47	10.64	-1.160	-0.002	0.145
90.00	-24.61	-4.62	0.00	-122.48	0.00	122.48	1622.94	811.47	1917.25	960.05	10.76	-1.168	-0.002	0.143
91.33	-24.22	-4.59	0.00	-116.32	0.00	116.32	1099.39	549.70	1312.06	657.00	11.09	-1.187	-0.002	0.199
94.00	-23.56	-4.49	0.00	-104.08	0.00	104.08	1090.71	545.35	1282.99	642.45	11.77	-1.222	-0.002	0.184
95.00	-23.37	-4.48	0.00	-99.59	0.00	99.59	1087.40	543.70	1272.11	637.00	12.02	-1.239	-0.002	0.178
100.00	-18.39	-3.55	0.00	-77.18	0.00	77.18	1070.43	535.22	1217.83	609.82	13.36	-1.312	-0.002	0.144
105.00	-17.50	-3.41	0.00	-59.44	0.00	59.44	1052.74	526.37	1163.86	582.80	14.77	-1.373	-0.002	0.119
110.00	-11.93	-2.38	0.00	-42.38	0.00	42.38	1034.34	517.17	1110.26	555.96	16.24	-1.422	-0.002	0.088
115.00	-11.15	-2.24	0.00	-30.47	0.00	30.47	1015.23	507.62	1057.10	529.34	17.75	-1.461	-0.002	0.069
120.00	-10.40	-2.10	0.00	-19.27	0.00	19.27	995.40	497.70	1004.45	502.97	19.29	-1.490	-0.002	0.049
120.00	-10.40	-2.10	0.00	-19.27	0.00	19.27	735.22	367.61	535.89	335.79	19.29	-1.490	-0.002	0.072
125.00	-9.73	-1.98	0.00	-8.79	0.00	8.79	735.22	367.61	535.89	335.79	20.86	-1.508	-0.002	0.039
129.00	-0.14	-0.04	0.00	-0.04	0.00	0.04	735.22	367.61	535.89	335.79	22.13	-1.518	-0.002	0.000
130.00	0.00	-0.03	0.00	0.00	0.00	0.00	735.22	367.61	535.89	335.79	22.45	-1.518	-0.002	0.000

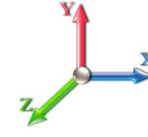
Seismic Segment Forces (Factored)

Structure: CT13064-A-SBA	Code: EIA/TIA-222-G	3/19/2018
Site Name: Middletown 2, CT	Exposure: C	
Height: 130.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.0E				Iterations 21
Gust Response Factor	1.10	Sds	0.19	Ss 0.18
Dead Load Factor	1.20	Seismic Load Factor	1.00	S1 0.06
Wind Load Factor	0.00	Structure Frequency	0.31	SA 0.03
				Seismic Importance Factor 1.00



Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00	RB1 RB2	0.00	0.00	0.00	0.00	0.00	
5.00		705.36	0.00	0.04	0.02	15.32	
10.00	RT2	692.26	0.01	0.06	0.03	20.78	
15.00		679.16	0.03	0.07	0.04	22.85	
20.00		666.06	0.04	0.07	0.04	23.57	
20.50	RT1 RB3	65.88	0.05	0.07	0.04	2.34	
25.00		587.07	0.07	0.07	0.04	21.43	
30.00		639.85	0.10	0.07	0.04	24.02	
35.00		626.75	0.14	0.07	0.03	24.16	
40.00		613.65	0.18	0.07	0.03	24.09	
40.50	RT3 RB4	60.64	0.18	0.06	0.03	2.38	
43.33	Bot - Section 2	341.17	0.21	0.06	0.02	13.38	
45.00		360.24	0.23	0.06	0.02	14.02	
48.00	Top - Section 1	641.82	0.26	0.05	0.02	24.25	
50.00		189.76	0.28	0.05	0.01	6.92	
55.00		467.06	0.34	0.04	0.01	14.23	
60.00		456.58	0.40	0.02	0.01	9.00	
60.75	RT4 RB5	67.58	0.41	0.01	0.01	1.19	
65.00		378.52	0.47	-0.01	0.01	1.61	
70.00		435.62	0.55	-0.03	0.01	-5.81	
75.00		425.13	0.63	-0.06	0.02	-12.23	
78.50	RT5	291.36	0.69	-0.08	0.03	-10.59	
80.00		123.30	0.72	-0.09	0.03	-4.76	
85.00		404.17	0.81	-0.11	0.06	-16.72	
87.42	Bot - Section 3	191.59	0.85	-0.12	0.07	-7.69	
89.50	Appurtenance(s)	1620.7	0.90	-0.12	0.09	-61.24	
90.00		68.51	0.91	-0.12	0.09	-2.54	
91.33	Top - Section 2	181.80	0.93	-0.12	0.10	-6.31	
94.00	Appurtenance(s)	208.50	0.99	-0.11	0.13	-5.98	
95.00		57.74	1.01	-0.11	0.14	-1.50	
100.00	Appurtenance(s)	2035.9	1.12	-0.06	0.20	-16.60	
105.00		276.11	1.23	0.04	0.28	4.46	
110.00	Appurtenance(s)	2097.0	1.35	0.20	0.39	98.82	
115.00		260.39	1.48	0.45	0.52	22.09	
120.00	Top - Section 3	252.53	1.61	0.81	0.68	32.71	
125.00		237.19	1.75	1.31	0.89	43.01	
129.00	Appurtenance(s)	4075.9	1.86	1.83	1.09	929.64	
130.00	Appurtenance(s)	53.94	1.89	1.98	1.14	12.97	
Totals:		21,537.0				1,257.3	Total Wind: 27,998.8

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

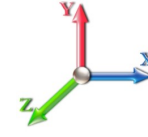
Calculated Forces

Structure: CT13064-A-SBA	Code: EIA/TIA-222-G	3/19/2018
Site Name: Middletown 2, CT	Exposure: C	
Height: 130.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.0E										Iterations 21
Gust Response Factor	1.10						Sds	0.19		Ss 0.18
Dead Load Factor	1.20	Seismic Load Factor	1.00	Sd1	0.10					S1 0.06
Wind Load Factor	0.00	Structure Frequency	0.31	SA	0.03	Seismic Importance Factor	1.00			



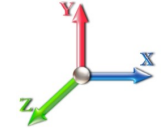
Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-32.32	-1.41	0.00	-160.04	0.00	160.04	2818.94	1409.47	4888.80	2448.04	0.00	0.00	0.00	0.036
5.00	-31.18	-1.40	0.00	-152.98	0.00	152.98	2786.10	1393.05	4742.28	2374.66	0.01	-0.01	0.035	
10.00	-30.06	-1.39	0.00	-145.97	0.00	145.97	2752.56	1376.28	4596.67	2301.75	0.02	-0.02	0.051	
15.00	-28.96	-1.37	0.00	-139.03	0.00	139.03	2718.29	1359.15	4452.05	2229.33	0.06	-0.04	0.050	
20.00	-27.87	-1.35	0.00	-132.16	0.00	132.16	2683.32	1341.66	4308.48	2157.44	0.11	-0.06	0.049	
20.50	-27.76	-1.36	0.00	-131.48	0.00	131.48	2679.78	1339.89	4294.19	2150.28	0.11	-0.06	0.049	
25.00	-26.80	-1.34	0.00	-125.38	0.00	125.38	2647.62	1323.81	4166.04	2086.12	0.17	-0.07	0.048	
30.00	-25.74	-1.32	0.00	-118.67	0.00	118.67	2611.22	1305.61	4024.80	2015.39	0.26	-0.09	0.046	
35.00	-24.70	-1.30	0.00	-112.06	0.00	112.06	2574.10	1287.05	3884.82	1945.30	0.36	-0.11	0.045	
40.00	-23.67	-1.28	0.00	-105.54	0.00	105.54	2536.26	1268.13	3746.17	1875.87	0.49	-0.12	0.044	
40.50	-23.57	-1.28	0.00	-104.90	0.00	104.90	2532.44	1266.22	3732.38	1868.96	0.50	-0.13	0.043	
43.33	-23.00	-1.27	0.00	-101.27	0.00	101.27	2510.64	1255.32	3654.51	1829.97	0.58	-0.14	0.043	
45.00	-22.47	-1.26	0.00	-99.15	0.00	99.15	2497.71	1248.86	3608.92	1807.14	0.63	-0.14	0.042	
48.00	-21.52	-1.23	0.00	-95.38	0.00	95.38	1854.44	927.22	2691.60	1347.80	0.72	-0.15	0.045	
50.00	-21.18	-1.23	0.00	-92.91	0.00	92.91	1844.56	922.28	2653.53	1328.74	0.78	-0.16	0.049	
55.00	-20.33	-1.22	0.00	-86.75	0.00	86.75	1819.35	909.68	2558.78	1281.29	0.96	-0.18	0.047	
60.00	-19.49	-1.21	0.00	-80.65	0.00	80.65	1793.44	896.72	2464.66	1234.16	1.15	-0.19	0.045	
60.75	-19.37	-1.21	0.00	-79.74	0.00	79.74	1789.49	894.74	2450.61	1227.12	1.18	-0.20	0.045	
65.00	-18.67	-1.22	0.00	-74.58	0.00	74.58	1766.81	883.40	2371.26	1187.39	1.37	-0.21	0.043	
70.00	-17.85	-1.22	0.00	-68.50	0.00	68.50	1739.46	869.73	2278.63	1141.01	1.60	-0.23	0.041	
75.00	-17.05	-1.22	0.00	-62.41	0.00	62.41	1711.40	855.70	2186.84	1095.05	1.85	-0.25	0.039	
78.50	-16.50	-1.22	0.00	-58.15	0.00	58.15	1691.33	845.67	2123.13	1063.14	2.03	-0.26	0.037	
78.50	-16.50	-1.22	0.00	-58.15	0.00	58.15	1691.33	845.67	2123.13	1063.14	2.03	-0.26	0.037	
80.00	-16.27	-1.22	0.00	-56.32	0.00	56.32	1682.63	841.31	2095.97	1049.54	2.12	-0.26	0.063	
85.00	-15.52	-1.22	0.00	-50.21	0.00	50.21	1653.14	826.57	2006.08	1004.53	2.41	-0.29	0.059	
87.42	-15.17	-1.23	0.00	-47.25	0.00	47.25	1638.63	819.32	1963.01	982.97	2.56	-0.30	0.057	
89.50	-13.12	-1.22	0.00	-44.70	0.00	44.70	1625.99	812.99	1926.09	964.47	2.69	-0.32	0.054	
90.00	-13.01	-1.22	0.00	-44.09	0.00	44.09	1622.94	811.47	1917.25	960.05	2.73	-0.32	0.054	
91.33	-12.73	-1.22	0.00	-42.47	0.00	42.47	1099.39	549.70	1312.06	657.00	2.82	-0.32	0.076	
94.00	-12.34	-1.22	0.00	-39.22	0.00	39.22	1090.71	545.35	1282.99	642.45	3.00	-0.34	0.072	
95.00	-12.23	-1.22	0.00	-38.00	0.00	38.00	1087.40	543.70	1272.11	637.00	3.07	-0.34	0.071	
100.00	-9.54	-1.21	0.00	-31.90	0.00	31.90	1070.43	535.22	1217.83	609.82	3.45	-0.37	0.061	
105.00	-9.00	-1.20	0.00	-25.87	0.00	25.87	1052.74	526.37	1163.86	582.80	3.85	-0.40	0.053	
110.00	-6.28	-1.09	0.00	-19.85	0.00	19.85	1034.34	517.17	1110.26	555.96	4.28	-0.42	0.042	
115.00	-5.86	-1.06	0.00	-14.41	0.00	14.41	1015.23	507.62	1057.10	529.34	4.74	-0.44	0.033	
120.00	-5.44	-1.03	0.00	-9.09	0.00	9.09	995.40	497.70	1004.45	502.97	5.20	-0.45	0.024	
120.00	-5.44	-1.03	0.00	-9.09	0.00	9.09	735.22	367.61	535.89	335.79	5.20	-0.45	0.034	
125.00	-5.04	-0.98	0.00	-3.95	0.00	3.95	735.22	367.61	535.89	335.79	5.68	-0.46	0.019	
129.00	-0.06	-0.01	0.00	-0.01	0.00	0.01	735.22	367.61	535.89	335.79	6.07	-0.47	0.000	
130.00	0.00	-0.01	0.00	0.00	0.00	0.00	735.22	367.61	535.89	335.79	6.17	-0.47	0.000	

Seismic Segment Forces (Factored)

Structure: CT13064-A-SBA	Code: EIA/TIA-222-G	3/19/2018
Site Name: Middletown 2, CT	Exposure: C	
Height: 130.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.0E						Iterations 21
Gust Response Factor	1.10			Sds	0.19	Ss 0.18
Dead Load Factor	0.90	Seismic Load Factor	1.00	Sd1	0.10	S1 0.06
Wind Load Factor	0.00	Structure Frequency	0.31	SA	0.03	Seismic Importance Factor 1.00

Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00	RB1 RB2	0.00	0.00	0.00	0.00	0.00	
5.00		705.36	0.00	0.04	0.02	15.32	
10.00	RT2	692.26	0.01	0.06	0.03	20.78	
15.00		679.16	0.03	0.07	0.04	22.85	
20.00		666.06	0.04	0.07	0.04	23.57	
20.50	RT1 RB3	65.88	0.05	0.07	0.04	2.34	
25.00		587.07	0.07	0.07	0.04	21.43	
30.00		639.85	0.10	0.07	0.04	24.02	
35.00		626.75	0.14	0.07	0.03	24.16	
40.00		613.65	0.18	0.07	0.03	24.09	
40.50	RT3 RB4	60.64	0.18	0.06	0.03	2.38	
43.33	Bot - Section 2	341.17	0.21	0.06	0.02	13.38	
45.00		360.24	0.23	0.06	0.02	14.02	
48.00	Top - Section 1	641.82	0.26	0.05	0.02	24.25	
50.00		189.76	0.28	0.05	0.01	6.92	
55.00		467.06	0.34	0.04	0.01	14.23	
60.00		456.58	0.40	0.02	0.01	9.00	
60.75	RT4 RB5	67.58	0.41	0.01	0.01	1.19	
65.00		378.52	0.47	-0.01	0.01	1.61	
70.00		435.62	0.55	-0.03	0.01	-5.81	
75.00		425.13	0.63	-0.06	0.02	-12.23	
78.50	RT5	291.36	0.69	-0.08	0.03	-10.59	
80.00		123.30	0.72	-0.09	0.03	-4.76	
85.00		404.17	0.81	-0.11	0.06	-16.72	
87.42	Bot - Section 3	191.59	0.85	-0.12	0.07	-7.69	
89.50	Appurtenance(s)	1620.7	0.90	-0.12	0.09	-61.24	
90.00		68.51	0.91	-0.12	0.09	-2.54	
91.33	Top - Section 2	181.80	0.93	-0.12	0.10	-6.31	
94.00	Appurtenance(s)	208.50	0.99	-0.11	0.13	-5.98	
95.00		57.74	1.01	-0.11	0.14	-1.50	
100.00	Appurtenance(s)	2035.9	1.12	-0.06	0.20	-16.60	
105.00		276.11	1.23	0.04	0.28	4.46	
110.00	Appurtenance(s)	2097.0	1.35	0.20	0.39	98.82	
115.00		260.39	1.48	0.45	0.52	22.09	
120.00	Top - Section 3	252.53	1.61	0.81	0.68	32.71	
125.00		237.19	1.75	1.31	0.89	43.01	
129.00	Appurtenance(s)	4075.9	1.86	1.83	1.09	929.64	
130.00	Appurtenance(s)	53.94	1.89	1.98	1.14	12.97	
Totals:		21,537.0				1,257.3	Total Wind: 27,998.8

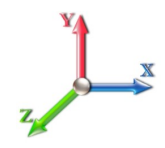
Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

Calculated Forces

Structure: CT13064-A-SBA	Code: EIA/TIA-222-G	3/19/2018
Site Name: Middletown 2, CT	Exposure: C	
Height: 130.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Load Case: 0.9D + 1.0E										Iterations 21
Gust Response Factor	1.10						Sds	0.19		Ss 0.18
Dead Load Factor	0.90	Seismic Load Factor	1.00	Sd1	0.10					S1 0.06
Wind Load Factor	0.00	Structure Frequency	0.31	SA	0.03	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	-24.24	-1.41	0.00	-158.28	0.00	158.28	2818.94	1409.47	4888.80	2448.04	0.00	0.00	0.00	0.034
5.00	-23.39	-1.40	0.00	-151.23	0.00	151.23	2786.10	1393.05	4742.28	2374.66	0.01	-0.01	0.034	
10.00	-22.55	-1.38	0.00	-144.23	0.00	144.23	2752.56	1376.28	4596.67	2301.75	0.02	-0.02	0.049	
15.00	-21.72	-1.37	0.00	-137.30	0.00	137.30	2718.29	1359.15	4452.05	2229.33	0.06	-0.04	0.048	
20.00	-20.90	-1.35	0.00	-130.46	0.00	130.46	2683.32	1341.66	4308.48	2157.44	0.11	-0.06	0.047	
20.50	-20.82	-1.35	0.00	-129.79	0.00	129.79	2679.78	1339.89	4294.19	2150.28	0.11	-0.06	0.047	
25.00	-20.10	-1.33	0.00	-123.73	0.00	123.73	2647.62	1323.81	4166.04	2086.12	0.17	-0.07	0.046	
30.00	-19.30	-1.31	0.00	-117.07	0.00	117.07	2611.22	1305.61	4024.80	2015.39	0.26	-0.09	0.044	
35.00	-18.52	-1.29	0.00	-110.52	0.00	110.52	2574.10	1287.05	3884.82	1945.30	0.36	-0.11	0.043	
40.00	-17.75	-1.27	0.00	-104.06	0.00	104.06	2536.26	1268.13	3746.17	1875.87	0.48	-0.12	0.042	
40.50	-17.68	-1.27	0.00	-103.43	0.00	103.43	2532.44	1266.22	3732.38	1868.96	0.49	-0.12	0.042	
43.33	-17.25	-1.26	0.00	-99.83	0.00	99.83	2510.64	1255.32	3654.51	1829.97	0.57	-0.13	0.041	
45.00	-16.85	-1.24	0.00	-97.74	0.00	97.74	2497.71	1248.86	3608.92	1807.14	0.62	-0.14	0.040	
48.00	-16.14	-1.22	0.00	-94.01	0.00	94.01	1854.44	927.22	2691.60	1347.80	0.71	-0.15	0.043	
50.00	-15.88	-1.22	0.00	-91.57	0.00	91.57	1844.56	922.28	2653.53	1328.74	0.77	-0.16	0.047	
55.00	-15.25	-1.20	0.00	-85.50	0.00	85.50	1819.35	909.68	2558.78	1281.29	0.95	-0.17	0.045	
60.00	-14.62	-1.20	0.00	-79.48	0.00	79.48	1793.44	896.72	2464.66	1234.16	1.14	-0.19	0.043	
60.75	-14.52	-1.20	0.00	-78.58	0.00	78.58	1789.49	894.74	2450.61	1227.12	1.17	-0.19	0.043	
65.00	-14.00	-1.20	0.00	-73.50	0.00	73.50	1766.81	883.40	2371.26	1187.39	1.35	-0.21	0.041	
70.00	-13.39	-1.20	0.00	-67.52	0.00	67.52	1739.46	869.73	2278.63	1141.01	1.58	-0.23	0.039	
75.00	-12.79	-1.20	0.00	-61.52	0.00	61.52	1711.40	855.70	2186.84	1095.05	1.82	-0.24	0.037	
78.50	-12.38	-1.20	0.00	-57.33	0.00	57.33	1691.33	845.67	2123.13	1063.14	2.01	-0.26	0.035	
78.50	-12.38	-1.20	0.00	-57.33	0.00	57.33	1691.33	845.67	2123.13	1063.14	2.01	-0.26	0.035	
80.00	-12.20	-1.20	0.00	-55.53	0.00	55.53	1682.63	841.31	2095.97	1049.54	2.09	-0.26	0.060	
85.00	-11.64	-1.20	0.00	-49.52	0.00	49.52	1653.14	826.57	2006.08	1004.53	2.38	-0.29	0.056	
87.42	-11.37	-1.20	0.00	-46.61	0.00	46.61	1638.63	819.32	1963.01	982.97	2.53	-0.30	0.054	
89.50	-9.84	-1.20	0.00	-44.11	0.00	44.11	1625.99	812.99	1926.09	964.47	2.66	-0.31	0.052	
90.00	-9.76	-1.20	0.00	-43.51	0.00	43.51	1622.94	811.47	1917.25	960.05	2.69	-0.31	0.051	
91.33	-9.54	-1.20	0.00	-41.91	0.00	41.91	1099.39	549.70	1312.06	657.00	2.78	-0.32	0.072	
94.00	-9.26	-1.20	0.00	-38.72	0.00	38.72	1090.71	545.35	1282.99	642.45	2.96	-0.33	0.069	
95.00	-9.17	-1.20	0.00	-37.52	0.00	37.52	1087.40	543.70	1272.11	637.00	3.03	-0.34	0.067	
100.00	-7.15	-1.19	0.00	-31.52	0.00	31.52	1070.43	535.22	1217.83	609.82	3.40	-0.37	0.058	
105.00	-6.75	-1.19	0.00	-25.56	0.00	25.56	1052.74	526.37	1163.86	582.80	3.80	-0.39	0.050	
110.00	-4.71	-1.08	0.00	-19.63	0.00	19.63	1034.34	517.17	1110.26	555.96	4.23	-0.42	0.040	
115.00	-4.39	-1.05	0.00	-14.25	0.00	14.25	1015.23	507.62	1057.10	529.34	4.67	-0.43	0.031	
120.00	-4.08	-1.02	0.00	-8.99	0.00	8.99	995.40	497.70	1004.45	502.97	5.13	-0.45	0.022	
120.00	-4.08	-1.02	0.00	-8.99	0.00	8.99	735.22	367.61	535.89	335.79	5.13	-0.45	0.032	
125.00	-3.78	-0.97	0.00	-3.90	0.00	3.90	735.22	367.61	535.89	335.79	5.61	-0.46	0.017	
129.00	-0.05	-0.01	0.00	-0.01	0.00	0.01	735.22	367.61	535.89	335.79	5.99	-0.46	0.000	
130.00	0.00	-0.01	0.00	0.00	0.00	0.00	735.22	367.61	535.89	335.79	6.09	-0.46	0.000	

Wind Loading - Shaft

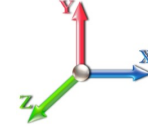
Structure: CT13064-A-SBA	Code: EIA/TIA-222-G	3/19/2018
Site Name: Middletown 2, CT	Exposure: C	
Height: 130.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 22

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	RB1 RB2	1.00	0.85	7.442	8.19	198.94	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	7.442	8.19	195.30	0.650	0.000	5.00	17.817	11.58	94.8	0.0	705.4
10.00	RT2	1.00	0.85	7.442	8.19	191.67	0.650	0.000	5.00	17.489	11.37	93.1	0.0	692.3
15.00		1.00	0.85	7.442	8.19	188.03	0.650	0.000	5.00	17.160	11.15	91.3	0.0	679.2
20.00		1.00	0.90	7.896	8.69	189.94	0.650	0.000	5.00	16.832	10.94	95.0	0.0	666.1
20.50	RT1 RB3	1.00	0.91	7.937	8.73	190.06	0.650	0.000	0.50	1.665	1.08	9.4	0.0	65.9
25.00		1.00	0.95	8.276	9.10	190.63	0.650	0.000	4.50	14.838	9.64	87.8	0.0	587.1
30.00		1.00	0.98	8.600	9.46	190.41	0.650	0.000	5.00	16.175	10.51	99.5	0.0	639.9
35.00		1.00	1.01	8.883	9.77	189.56	0.650	0.000	5.00	15.846	10.30	100.6	0.0	626.7
40.00		1.00	1.04	9.137	10.05	188.21	0.650	0.000	5.00	15.518	10.09	101.4	0.0	613.6
40.50	RT3 RB4	1.00	1.05	9.161	10.08	188.06	0.650	0.000	0.50	1.534	1.00	10.0	0.0	60.6
43.33	Bot - Section 2	1.00	1.06	9.292	10.22	187.10	0.650	0.000	2.83	8.629	5.61	57.3	0.0	341.2
45.00		1.00	1.07	9.366	10.30	186.48	0.650	0.000	1.67	5.097	3.31	34.1	0.0	360.2
48.00	Top - Section 1	1.00	1.08	9.494	10.44	185.29	0.650	0.000	3.00	9.083	5.90	61.7	0.0	641.8
50.00		1.00	1.09	9.576	10.53	187.09	0.650	0.000	2.00	5.989	3.89	41.0	0.0	189.8
55.00		1.00	1.12	9.770	10.75	184.82	0.650	0.000	5.00	14.744	9.58	103.0	0.0	467.1
60.00		1.00	1.14	9.951	10.95	182.31	0.650	0.000	5.00	14.415	9.37	102.6	0.0	456.6
60.75	RT4 RB5	1.00	1.14	9.977	10.97	181.92	0.650	0.000	0.75	2.134	1.39	15.2	0.0	67.6
65.00		1.00	1.16	10.120	11.13	179.62	0.650	0.000	4.25	11.953	7.77	86.5	0.0	378.5
70.00		1.00	1.17	10.279	11.31	176.75	0.650	0.000	5.00	13.758	8.94	101.1	0.0	435.6
75.00		1.00	1.19	10.430	11.47	173.74	0.650	0.000	5.00	13.430	8.73	100.1	0.0	425.1
78.50	RT5	1.00	1.20	10.530	11.58	171.55	0.650	0.000	3.50	9.205	5.98	69.3	0.0	291.4
80.00		1.00	1.21	10.572	11.63	170.59	0.650	0.000	1.50	3.896	2.53	29.4	0.0	123.3
85.00		1.00	1.22	10.708	11.78	167.32	0.650	0.000	5.00	12.773	8.30	97.8	0.0	404.2
87.42	Bot - Section 3	1.00	1.23	10.771	11.85	165.71	0.650	0.000	2.42	6.056	3.94	46.6	0.0	191.6
89.50	Appurtenance(s)	1.00	1.24	10.825	11.91	164.29	0.650	0.000	2.08	5.225	3.40	40.4	0.0	287.4
90.00		1.00	1.24	10.838	11.92	163.95	0.650	0.000	0.50	1.245	0.81	9.7	0.0	68.5
91.33	Top - Section 2	1.00	1.24	10.871	11.96	163.03	0.650	0.000	1.33	3.305	2.15	25.7	0.0	181.8
94.00	Appurtenance(s)	1.00	1.25	10.937	12.03	163.30	0.650	0.000	2.67	6.540	4.25	51.1	0.0	155.5
95.00		1.00	1.25	10.962	12.06	162.60	0.650	0.000	1.00	2.429	1.58	19.0	0.0	57.7
100.00	Appurtenance(s)	1.00	1.27	11.081	12.19	159.05	0.650	0.000	5.00	11.946	7.76	94.6	0.0	284.0
105.00		1.00	1.28	11.195	12.31	155.41	0.650	0.000	5.00	11.617	7.55	93.0	0.0	276.1
110.00	Appurtenance(s)	1.00	1.29	11.305	12.44	151.69	0.650	0.000	5.00	11.289	7.34	91.2	0.0	268.2
115.00		1.00	1.30	11.412	12.55	147.90	0.650	0.000	5.00	10.960	7.12	89.4	0.0	260.4
120.00	Top - Section 3	1.00	1.32	11.514	12.67	144.05	0.650	0.000	5.00	10.632	6.91	87.5	0.0	252.5
125.00		1.00	1.33	11.614	12.78	103.66	0.620 *	0.000	5.00	7.500	4.65	59.4	0.0	237.2
129.00	Appurtenance(s)	1.00	1.34	11.691	12.86	104.00	0.620 *	0.000	4.00	6.000	3.72	47.8	0.0	189.8
130.00	Appurtenance(s)	1.00	1.34	11.710	12.88	104.08	0.600	0.000	1.00	1.500	0.90	11.6	0.0	47.4
Totals:									130.00			2,449.5		12,677.2

* Cf Adjusted by Linear Load Ra Effect

Discrete Appurtenance Forces

Structure: CT13064-A-SBA	Code: EIA/TIA-222-G	3/19/2018
Site Name: Middletown 2, CT	Exposure: C	
Height: 130.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
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 22

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	130.00	6' Lightning rod	1	11.710	12.881	1.00	1.00	0.38	6.50	0.000	0.000	4.89	0.00	0.00
2	129.00	RRUS-32	3	11.710	12.881	0.63	0.90	7.31	231.00	0.000	1.000	94.22	0.00	94.22
3	129.00	OPA-65R-LCUU-H6	3	11.710	12.881	0.69	0.90	20.08	240.00	0.000	1.000	258.69	0.00	258.69
4	129.00	RRUS 32 B2	3	11.710	12.881	0.60	0.90	7.00	231.00	0.000	1.000	90.18	0.00	90.18
5	129.00	QS66512-2	3	11.710	12.881	0.67	0.90	14.25	333.00	0.000	1.000	183.50	0.00	183.50
6	129.00	RRUS 32 b66	3	11.710	12.881	0.60	0.90	7.00	231.00	0.000	1.000	90.18	0.00	90.18
7	129.00	RRUS 11	3	11.710	12.881	0.68	0.90	5.17	152.10	0.000	1.000	66.61	0.00	66.61
8	129.00	DC6-48-60-18-8F	2	11.710	12.881	1.00	1.00	2.94	5.54	0.000	1.000	37.87	0.00	37.87
9	129.00	P65-16-XLH-RR	3	11.710	12.881	0.70	0.90	17.18	159.00	0.000	1.000	221.36	0.00	221.36
10	129.00	DTMABP7819VG12A	3	11.710	12.881	0.54	0.90	1.85	57.60	0.000	1.000	23.79	0.00	23.79
11	129.00	MTC3607 Platform + HR	1	11.691	12.860	1.00	1.00	51.70	2246.00	0.000	0.000	664.87	0.00	0.00
12	110.00	T-Arm (Round)	3	11.305	12.436	0.56	0.75	13.50	1050.00	0.000	0.000	167.88	0.00	0.00
13	110.00	DB-T1-6Z-8AB-OZ	2	11.305	12.436	0.80	0.80	7.68	37.80	0.000	0.000	95.51	0.00	0.00
14	110.00	B4 RRH2X60-4R	3	11.305	12.436	0.54	0.80	5.40	165.00	0.000	0.000	67.19	0.00	0.00
15	110.00	B13 RRH4X30-4R	3	11.305	12.436	0.54	0.80	3.47	171.60	0.000	0.000	43.19	0.00	0.00
16	110.00	RRH2X60-1900A-4R	3	11.305	12.436	0.54	0.80	3.02	138.00	0.000	0.000	37.59	0.00	0.00
17	110.00	CBC721-DF	3	11.284	12.412	0.50	0.80	0.68	13.20	0.000	-1.000	8.45	0.00	-8.45
18	110.00	CBC721-DF	3	11.327	12.460	0.50	0.80	0.68	13.20	0.000	1.000	8.48	0.00	8.48
19	110.00	SBNHH-1D65B	6	11.305	12.436	0.63	0.80	30.94	240.00	0.000	0.000	384.80	0.00	0.00
20	100.00	LNx-6515DS-A1M	3	11.081	12.189	0.64	0.80	22.02	150.90	0.000	0.000	268.43	0.00	0.00
21	100.00	AIR 21, 1.3M, B2A B4P	3	11.081	12.189	0.64	0.80	11.69	274.50	0.000	0.000	142.52	0.00	0.00
22	100.00	AIR 21, 1.3M, B4A B2P	3	11.081	12.189	0.64	0.80	11.69	271.20	0.000	0.000	142.52	0.00	0.00
23	100.00	782 11056	3	11.081	12.189	0.62	0.80	0.24	5.40	0.000	0.000	2.97	0.00	0.00
24	100.00	T-Arm (Round)	3	11.081	12.189	0.56	0.75	13.50	1050.00	0.000	0.000	164.55	0.00	0.00
25	94.00	1'4"x6.5"x6" Surge	1	10.937	12.031	0.80	0.80	1.71	53.00	0.000	0.000	20.60	0.00	0.00
26	89.50	T-Arm (Round)	3	10.825	11.907	0.56	0.75	13.50	1050.00	0.000	0.000	160.75	0.00	0.00
27	89.50	VHLP800-11	1	10.855	11.941	1.00	1.00	8.43	48.00	2.231	1.200	100.66	224.60	120.79
28	89.50	VHLP2-18-1WH	1	10.858	11.944	1.00	1.00	4.69	31.00	2.231	1.300	56.02	124.99	72.82
29	89.50	840 10054	3	10.863	11.949	0.50	0.80	6.94	105.00	0.000	1.500	82.93	0.00	124.39
30	89.50	SPI-2213 RRH	3	10.863	11.949	0.54	0.80	2.93	99.30	0.000	1.500	34.97	0.00	52.46
Totals:									8,859.84			3,726.15		

Total Applied Force Summary

Structure: CT13064-A-SBA	Code: EIA/TIA-222-G	3/19/2018
Site Name: Middletown 2, CT	Exposure: C	
Height: 130.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
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 22

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		94.81	946.54	0.00	0.00
10.00		93.06	933.44	0.00	0.00
15.00		91.31	920.33	0.00	0.00
20.00		95.03	907.23	0.00	0.00
20.50		9.45	90.00	0.00	0.00
25.00		87.80	804.13	0.00	0.00
30.00		99.46	881.03	0.00	0.00
35.00		100.65	867.92	0.00	0.00
40.00		101.37	854.82	0.00	0.00
40.50		10.05	84.76	0.00	0.00
43.33		57.33	477.84	0.00	0.00
45.00		34.13	440.63	0.00	0.00
48.00		61.66	786.53	0.00	0.00
50.00		41.01	286.23	0.00	0.00
55.00		103.00	708.24	0.00	0.00
60.00		102.56	697.76	0.00	0.00
60.75		15.22	103.76	0.00	0.00
65.00		86.49	583.51	0.00	0.00
70.00		101.12	676.79	0.00	0.00
75.00		100.15	666.31	0.00	0.00
78.50		69.31	460.18	0.00	0.00
80.00		29.45	195.65	0.00	0.00
85.00		97.79	621.34	0.00	0.00
87.42		46.64	293.66	0.00	0.00
89.50	(11) attachments	475.77	1708.73	349.59	370.46
90.00		9.65	89.06	0.00	0.00
91.33		25.69	236.59	0.00	0.00
94.00	(1) attachments	71.74	318.08	0.00	0.00
95.00		19.03	98.83	0.00	0.00
100.00	(15) attachments	815.63	2241.42	0.00	0.00
105.00		92.99	444.86	0.00	0.00
110.00	(26) attachments	904.34	2265.80	0.00	0.03
115.00		89.43	355.74	0.00	0.00
120.00		87.53	347.88	0.00	0.00
125.00		59.40	332.54	0.00	0.00
129.00	(27) attachments	1779.09	4152.27	0.00	1066.39
130.00	(1) attachments	16.49	53.94	0.00	0.00
	Totals:	6,175.61	26,934.35	349.59	1,436.88

Linear Appurtenance Segment Forces (Factored)

Structure: CT13064-A-SBA	Code: EIA/TIA-222-G	3/19/2018
Site Name: Middletown 2, CT	Exposure: C	
Height: 130.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 22

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	2" Conduit	Yes	5.00	0.000	2.00	0.83	0.00	0.070	0.000	7.442	0.00	24.15
5.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.070	0.000	7.442	0.00	30.00
10.00	2" Conduit	Yes	5.00	0.000	2.00	0.83	0.00	0.071	0.000	7.442	0.00	24.15
10.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.071	0.000	7.442	0.00	30.00
15.00	2" Conduit	Yes	5.00	0.000	2.00	0.83	0.00	0.073	0.000	7.442	0.00	24.15
15.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.073	0.000	7.442	0.00	30.00
20.00	2" Conduit	Yes	5.00	0.000	2.00	0.83	0.00	0.074	0.000	7.896	0.00	24.15
20.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.074	0.000	7.896	0.00	30.00
20.50	2" Conduit	Yes	0.50	0.000	2.00	0.08	0.00	0.075	0.000	7.937	0.00	2.42
20.50	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.04	0.00	0.075	0.000	7.937	0.00	3.00
25.00	2" Conduit	Yes	4.50	0.000	2.00	0.75	0.00	0.076	0.000	8.276	0.00	21.73
25.00	1" Reinforcing plate	Yes	4.50	0.000	1.00	0.38	0.00	0.076	0.000	8.276	0.00	27.00
30.00	2" Conduit	Yes	5.00	0.000	2.00	0.83	0.00	0.077	0.000	8.600	0.00	24.15
30.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.077	0.000	8.600	0.00	30.00
35.00	2" Conduit	Yes	5.00	0.000	2.00	0.83	0.00	0.079	0.000	8.883	0.00	24.15
35.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.079	0.000	8.883	0.00	30.00
40.00	2" Conduit	Yes	5.00	0.000	2.00	0.83	0.00	0.081	0.000	9.137	0.00	24.15
40.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.081	0.000	9.137	0.00	30.00
40.50	2" Conduit	Yes	0.50	0.000	2.00	0.08	0.00	0.082	0.000	9.161	0.00	2.42
40.50	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.04	0.00	0.082	0.000	9.161	0.00	3.00
43.33	2" Conduit	Yes	2.83	0.000	2.00	0.47	0.00	0.082	0.000	9.292	0.00	13.68
43.33	1" Reinforcing plate	Yes	2.83	0.000	1.00	0.24	0.00	0.082	0.000	9.292	0.00	17.00
45.00	2" Conduit	Yes	1.67	0.000	2.00	0.28	0.00	0.083	0.000	9.366	0.00	8.05
45.00	1" Reinforcing plate	Yes	1.67	0.000	1.00	0.14	0.00	0.083	0.000	9.366	0.00	10.00
48.00	2" Conduit	Yes	3.00	0.000	2.00	0.50	0.00	0.084	0.000	9.494	0.00	14.49
48.00	1" Reinforcing plate	Yes	3.00	0.000	1.00	0.25	0.00	0.084	0.000	9.494	0.00	18.00
50.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.083	0.000	9.576	0.00	9.66
50.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.083	0.000	9.576	0.00	12.00
55.00	2" Conduit	Yes	5.00	0.000	2.00	0.83	0.00	0.085	0.000	9.770	0.00	24.15
55.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.085	0.000	9.770	0.00	30.00
60.00	2" Conduit	Yes	5.00	0.000	2.00	0.83	0.00	0.087	0.000	9.951	0.00	24.15
60.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.087	0.000	9.951	0.00	30.00
60.75	2" Conduit	Yes	0.75	0.000	2.00	0.13	0.00	0.088	0.000	9.977	0.00	3.62
60.75	1" Reinforcing plate	Yes	0.75	0.000	1.00	0.06	0.00	0.088	0.000	9.977	0.00	4.50
65.00	2" Conduit	Yes	4.25	0.000	2.00	0.71	0.00	0.089	0.000	10.120	0.00	20.53
65.00	1" Reinforcing plate	Yes	4.25	0.000	1.00	0.35	0.00	0.089	0.000	10.120	0.00	25.50
70.00	2" Conduit	Yes	5.00	0.000	2.00	0.83	0.00	0.091	0.000	10.279	0.00	24.15
70.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.091	0.000	10.279	0.00	30.00
75.00	2" Conduit	Yes	5.00	0.000	2.00	0.83	0.00	0.093	0.000	10.430	0.00	24.15
75.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.093	0.000	10.430	0.00	30.00
78.50	2" Conduit	Yes	3.50	0.000	2.00	0.58	0.00	0.095	0.000	10.530	0.00	16.91
78.50	1" Reinforcing plate	Yes	3.50	0.000	1.00	0.29	0.00	0.095	0.000	10.530	0.00	21.00
80.00	2" Conduit	Yes	1.50	0.000	2.00	0.25	0.00	0.096	0.000	10.572	0.00	7.25
80.00	1" Reinforcing plate	Yes	1.50	0.000	1.00	0.13	0.00	0.096	0.000	10.572	0.00	9.00
85.00	2" Conduit	Yes	5.00	0.000	2.00	0.83	0.00	0.072	0.000	10.708	0.00	24.15
85.00	1" Reinforcing plate	Yes	1.00	0.000	1.00	0.08	0.00	0.072	0.000	10.708	0.00	6.00
87.42	2" Conduit	Yes	2.42	0.000	2.00	0.40	0.00	0.067	0.000	10.771	0.00	11.67

Linear Appurtenance Segment Forces (Factored)

Structure: CT13064-A-SBA	Code: EIA/TIA-222-G	3/19/2018
Site Name: Middletown 2, CT	Exposure: C	
Height: 130.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

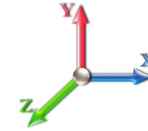


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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 22

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
89.50	2" Conduit	Yes	2.08	0.000	2.00	0.35	0.00	0.067	0.000	10.825	0.00	10.06
90.00	2" Conduit	Yes	0.50	0.000	2.00	0.08	0.00	0.068	0.000	10.838	0.00	2.42
91.33	2" Conduit	Yes	1.33	0.000	2.00	0.22	0.00	0.068	0.000	10.871	0.00	6.44
94.00	2" Conduit	Yes	2.67	0.000	2.00	0.44	0.00	0.068	0.000	10.937	0.00	12.88
95.00	2" Conduit	Yes	1.00	0.000	2.00	0.17	0.00	0.069	0.000	10.962	0.00	4.83
100.00	2" Conduit	Yes	5.00	0.000	2.00	0.83	0.00	0.070	0.000	11.081	0.00	24.15
105.00	2" Conduit	Yes	5.00	0.000	2.00	0.83	0.00	0.072	0.000	11.195	0.00	24.15
110.00	2" Conduit	Yes	5.00	0.000	2.00	0.83	0.00	0.074	0.000	11.305	0.00	24.15
115.00	2" Conduit	Yes	5.00	0.000	2.00	0.83	0.00	0.076	0.000	11.412	0.00	24.15
120.00	2" Conduit	Yes	5.00	0.000	2.00	0.83	0.00	0.078	0.000	11.514	0.00	24.15
125.00	2" Conduit	Yes	5.00	0.000	2.00	0.83	0.00	0.111	1.033	11.614	0.00	24.15
129.00	2" Conduit	Yes	4.00	0.000	2.00	0.67	0.00	0.111	1.033	11.691	0.00	19.32
Totals:											0.0	1,109.1

Calculated Forces

Structure: CT13064-A-SBA	Code: EIA/TIA-222-G	3/19/2018
Site Name: Middletown 2, CT	Exposure: C	
Height: 130.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

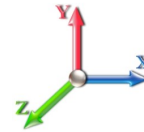


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Load Case: 1.0D + 1.0W 60 mph Wind

Iterations 22

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	-26.93	-6.19	-0.35	-605.73	0.00	605.73	2818.94	1409.47	4888.80	2448.04	0.00	0.000	0.000	0.121
5.00	-25.98	-6.11	-0.35	-574.81	0.00	574.81	2786.10	1393.05	4742.28	2374.66	0.02	-0.042	0.000	0.117
10.00	-25.04	-6.04	-0.35	-544.26	0.00	544.26	2752.56	1376.28	4596.67	2301.75	0.09	-0.084	0.000	0.172
15.00	-24.12	-5.97	-0.35	-514.07	0.00	514.07	2718.29	1359.15	4452.05	2229.33	0.21	-0.147	0.000	0.167
20.00	-23.21	-5.89	-0.35	-484.22	0.00	484.22	2683.32	1341.66	4308.48	2157.44	0.40	-0.210	0.000	0.161
20.50	-23.11	-5.89	-0.35	-481.27	0.00	481.27	2679.78	1339.89	4294.19	2150.28	0.42	-0.216	0.000	0.161
25.00	-22.30	-5.82	-0.35	-454.77	0.00	454.77	2647.62	1323.81	4166.04	2086.12	0.65	-0.272	0.000	0.156
30.00	-21.42	-5.74	-0.35	-425.66	0.00	425.66	2611.22	1305.61	4024.80	2015.39	0.97	-0.333	0.000	0.150
35.00	-20.54	-5.66	-0.35	-396.96	0.00	396.96	2574.10	1287.05	3884.82	1945.30	1.35	-0.394	0.000	0.144
40.00	-19.69	-5.56	-0.35	-368.68	0.00	368.68	2536.26	1268.13	3746.17	1875.87	1.79	-0.453	-0.001	0.137
40.50	-19.60	-5.56	-0.35	-365.90	0.00	365.90	2532.44	1266.22	3732.38	1868.96	1.84	-0.459	-0.001	0.137
43.33	-19.12	-5.50	-0.35	-350.16	0.00	350.16	2510.64	1255.32	3654.51	1829.97	2.13	-0.493	-0.001	0.133
45.00	-18.68	-5.47	-0.35	-340.99	0.00	340.99	2497.71	1248.86	3608.92	1807.14	2.30	-0.513	-0.001	0.130
48.00	-17.89	-5.41	-0.35	-324.57	0.00	324.57	1854.44	927.22	2691.60	1347.80	2.63	-0.547	-0.001	0.138
50.00	-17.60	-5.38	-0.35	-313.74	0.00	313.74	1844.56	922.28	2653.53	1328.74	2.87	-0.570	-0.001	0.151
55.00	-16.88	-5.29	-0.35	-286.82	0.00	286.82	1819.35	909.68	2558.78	1281.29	3.50	-0.632	-0.001	0.142
60.00	-16.19	-5.19	-0.35	-260.37	0.00	260.37	1793.44	896.72	2464.66	1234.16	4.19	-0.691	-0.001	0.133
60.75	-16.08	-5.18	-0.35	-256.48	0.00	256.48	1789.49	894.74	2450.61	1227.12	4.30	-0.700	-0.001	0.131
65.00	-15.49	-5.10	-0.35	-234.46	0.00	234.46	1766.81	883.40	2371.26	1187.39	4.95	-0.748	-0.001	0.123
70.00	-14.81	-5.00	-0.35	-208.95	0.00	208.95	1739.46	869.73	2278.63	1141.01	5.76	-0.803	-0.001	0.113
75.00	-14.14	-4.91	-0.35	-183.93	0.00	183.93	1711.40	855.70	2186.84	1095.05	6.63	-0.854	-0.001	0.103
78.50	-13.68	-4.83	-0.35	-166.76	0.00	166.76	1691.33	845.67	2123.13	1063.14	7.27	-0.888	-0.001	0.095
78.50	-13.68	-4.83	-0.35	-166.76	0.00	166.76	1691.33	845.67	2123.13	1063.14	7.27	-0.888	-0.001	0.095
80.00	-13.48	-4.81	-0.35	-159.51	0.00	159.51	1682.63	841.31	2095.97	1049.54	7.55	-0.902	-0.002	0.160
85.00	-12.86	-4.72	-0.35	-135.45	0.00	135.45	1653.14	826.57	2006.08	1004.53	8.53	-0.977	-0.002	0.143
87.42	-12.56	-4.67	-0.35	-124.05	0.00	124.05	1638.63	819.32	1963.01	982.97	9.04	-1.012	-0.002	0.134
89.50	-10.86	-4.17	0.00	-113.94	0.00	113.94	1625.99	812.99	1926.09	964.47	9.49	-1.040	-0.002	0.125
90.00	-10.77	-4.16	0.00	-111.86	0.00	111.86	1622.94	811.47	1917.25	960.05	9.60	-1.047	-0.002	0.123
91.33	-10.54	-4.13	0.00	-106.31	0.00	106.31	1099.39	549.70	1312.06	657.00	9.89	-1.064	-0.002	0.171
94.00	-10.22	-4.06	0.00	-95.29	0.00	95.29	1090.71	545.35	1282.99	642.45	10.49	-1.097	-0.002	0.158
95.00	-10.12	-4.05	0.00	-91.22	0.00	91.22	1087.40	543.70	1272.11	637.00	10.73	-1.112	-0.002	0.153
100.00	-7.89	-3.20	0.00	-70.98	0.00	70.98	1070.43	535.22	1217.83	609.82	11.93	-1.178	-0.002	0.124
105.00	-7.44	-3.10	0.00	-55.00	0.00	55.00	1052.74	526.37	1163.86	582.80	13.19	-1.235	-0.002	0.101
110.00	-5.19	-2.15	0.00	-39.50	0.00	39.50	1034.34	517.17	1110.26	555.96	14.51	-1.281	-0.002	0.076
115.00	-4.84	-2.06	0.00	-28.75	0.00	28.75	1015.23	507.62	1057.10	529.34	15.87	-1.317	-0.002	0.059
120.00	-4.49	-1.96	0.00	-18.47	0.00	18.47	995.40	497.70	1004.45	502.97	17.27	-1.345	-0.002	0.041
120.00	-4.49	-1.96	0.00	-18.47	0.00	18.47	735.22	367.61	535.89	335.79	17.27	-1.345	-0.002	0.061
125.00	-4.16	-1.90	0.00	-8.67	0.00	8.67	735.22	367.61	535.89	335.79	18.69	-1.362	-0.002	0.031
129.00	-0.05	-0.02	0.00	-0.02	0.00	0.02	735.22	367.61	535.89	335.79	19.83	-1.372	-0.002	0.000
130.00	0.00	-0.02	0.00	0.00	0.00	0.00	735.22	367.61	535.89	335.79	20.12	-1.372	-0.002	0.000

Final Analysis Summary

Structure: CT13064-A-SBA	Code: EIA/TIA-222-G	3/19/2018
Site Name: Middletown 2, CT	Exposure: C	
Height: 130.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
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 10 101 mph Wind	28.1	0.00	32.27	0.01	0.97	2760.16
0.9D + 1.6W 101 mph Wind	28.0	0.00	24.19	0.01	0.98	2733.04
1.2D + 1.0Di + 1.0Wi 50 mph Wind	7.1	0.00	52.79	0.00	0.29	684.17
1.2D + 1.0E	1.4	0.00	32.32	0.00	0.00	160.04
0.9D + 1.0E	1.4	0.00	24.24	0.00	0.00	158.28
1.0D + 1.0W 60 mph Wind	6.2	0.00	26.93	0.00	0.35	605.73

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 10 101 mph Wind	-29.81	-27.42	-0.98	-2481.2	-0.01	-2481.2	2752.56	1376.2	4596.67	2301.75	10.00	0.766
0.9D + 1.6W 101 mph Wind	-22.30	-27.35	-0.98	-2454.4	0.00	-2454.4	2752.56	1376.2	4596.67	2301.75	10.00	0.756
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-24.22	-4.59	0.00	-116.32	0.00	-116.32	1099.39	549.70	1312.06	657.00	91.33	0.199
1.2D + 1.0E	-12.73	-1.22	0.00	-42.47	0.00	-42.47	1099.39	549.70	1312.06	657.00	91.33	0.076
0.9D + 1.0E	-9.54	-1.20	0.00	-41.91	0.00	-41.91	1099.39	549.70	1312.06	657.00	91.33	0.072
1.0D + 1.0W 60 mph Wind	-25.04	-6.04	-0.35	-544.26	0.00	-544.26	2752.56	1376.2	4596.67	2301.75	10.00	0.172

Additional Steel Summary

Elev From (ft)	Elev To (ft)	Member	Intermediate Connectors			Lower Termination				Upper Termination				Max Member			
			VQ/I (lb/in)	Vu (kips)	phi Vn (kips)	MQ/I (kips)	phi Vn (kips)	Num Reqd	Num Actual	MQ/I (kips)	phi Vn (kips)	Num Reqd	Num Actual	Pu (kips)	phi Pn (kips)	phi Tn (kips)	Ratio
0.0	20.5	(4) PLT-6"x1" (1.25" Hole)	-268.6	-4.30	37.1	204.3	37.1	6	8	264.0	37.1		8	279.11	326.3	285.00	0.979
0.0	10.0	(4) PLT-5.5"x1 1/4" (1.25" hol	205.8	3.71	37.1	235.6	37.1	7	0	223.5	37.1	7	9	235.57	379.1	318.75	0.739
20.5	40.5	(4) PLT-6"x1" (1.25" Hole)	-290.3	-4.64	37.1	264.0	37.1		8	229.7	37.1		8	264.00	326.3	285.00	0.926
40.5	60.8	(4) PLT-6"x1" (1.25" Hole)	-346.1	-5.54	37.1	229.7	37.1		8	205.6	37.1		8	233.30	326.3	285.00	0.819
60.8	78.5	(4) PLT-6"x1" (1.25" Hole)	-368.2	-5.89	37.1	205.6	37.1		8	152.4	37.1	5	8	205.62	326.3	285.00	0.721

Base Plate Summary

Structure: CT13064-A-SB	Code: EIA/TIA-222-G	3/19/2018
Site Name: Middletown 2, CT	Exposure: C	
Height: 130.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Reactions	Base Plate	Anchor Bolts
Original Design	Yield (ksi): 50.00	Bolt Circle: 47.25
Moment (kip-ft): 1864.44	Width (in): 51.75	Number Bolts: 14.00
Axial (kip): 38.20	Style: Round	Bolt Type: 1.5" F1554 105
Shear (kip): 20.10	Polygon Sides: 0.00	Bolt Diameter (in): 1.50
Analysis	Clip Length (in): 0.00	Yield (ksi): 105.00
Moment (kip-ft): 2760.16	Effective Len (in): 12.18	Ultimate (ksi): 125.00
Axial (kip): 52.79	Moment (kip-in): 174.47	Arrangement: Radial
Shear (kip): 28.05	Allow Stress (ksi): 67.50	Cluster Dist (in): 0.00
	Applied Stress (ksi): 0.00	Start Angle (deg): 0.00
Moment Design %: 148.04	Stress Ratio: 0.57	Compression
		Force (kip): 72.83
		Allowable (kip): 141.00
		Ratio: 0.54
		Tension
		Force (kip): 65.29
		Allowable (kip): 141.00
		Ratio: 0.49



Monopole Mat Foundation Design

Date

3/19/2018

Customer Name:	AT&T	EIA/TIA Standard:	EIA-222-G
Site Name:	Middletown	Structure Height (Ft.):	130
Site Number:	CT13064-A-SBA	Engineer Name:	S. Hesselbeir
Engr. Number:	48996	Engineer Login ID:	

Foundation Info Obtained from:

Drawings/Calculations

Structure Type:

Monopole

Analysis or Design?

Analysis

Base Reactions (Factored):

Axial Load (Kips):	32.3	Shear Force (Kips):	28.1
Uplift Force (Kips):	0.0	Moment (Kips-ft):	2760.2

Allowable overstress %: 5.0%

Foundation Geometries:

		Mods required -Yes/No ?:	Yes
Diameter of Pier (ft.):	6.0	Depth of Base BG (ft.):	6.0
Pier Height A. G. (ft.):	0.50	Thickness of Pad (ft):	2.50
Length of Pad (ft.):	20	Width of Pad (ft.):	20
Add Concrete Width & Length (ft.)	14	Add Concrete Thick. (ft)	1
Final Length of pad (ft)	20.0	Final width of pad (ft):	20.0
Control Value for Cell D18:	14	Control Value for Cell F18:	1

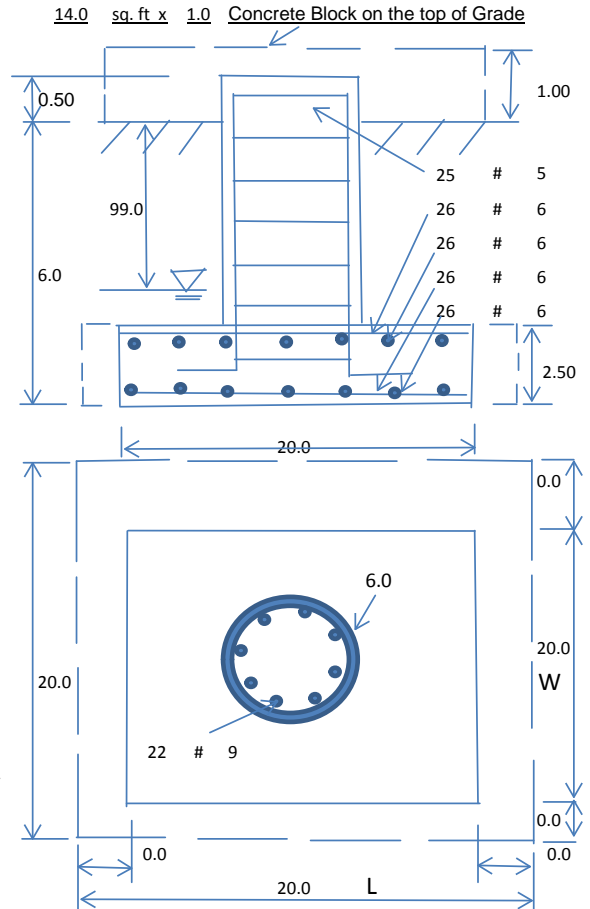
Material Properties and Rebar Info:

Concrete Strength (psi):	4000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield (ksi):	60	
Vertical Rebar Size #:	9	Tie / Stirrup Size #:	5	
Qty. of Vertical Rebars:	22	Tie Spacing (in):	3.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	6	
Concrete Cover (in.):	3	Unit Weight of Concrete:	150.0	pcf
Rebar at the bottom of the concrete pad:				
Qty. of Rebar in Pad (L):	26	Qty. of Rebar in Pad (W):	26	
Rebar at the top of the concrete pad:				
Qty. of Rebar in Pad (L):	26	Qty. of Rebar in Pad (W):	26	

Apply 1.35 factor for e/w Per G: 1.00

Soil Design Parameters:

Soil Unit Weight (pcf):	130.0	Soil Buoyant Weight:	50.0	Pcf
Water Table B.G.S. (ft):	99.0	Unit Weight of Water:	62.4	pcf
Ultimate Bearing Pressure (psf):	8000	Ultimate Skin Friction:	0	Psf
Consider Friction for O.T.M. (Y/N):	No	Consider Friction for bearing (Y/N):	No	
Consider soil hor. resist. for OTM.:	Yes	Reduction factor on the maximum soil bearing pressure:	1.00	
		Angle from Top of Pad:	30	
		Angle from Bottm of Pad:	25	
		Angle from Bottm of Pad:	25	



Foundation Analysis and Design:

Uplift Strength Reduction Factor:	0.75	Compression Strength Reduction Factor:	0.75
Total Dry Soil Volume (cu. Ft.):	1301.04	Total Dry Soil Weight (Kips):	169.14
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	169.14	Weight from the Concrete Block at Top (K):	27.28
Total Dry Concrete Volume (cu. Ft.):	1294.96	Total Dry Concrete Weight (Kips):	194.24
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	194.24	Total Vertical Load on Base (Kips):	395.65

Check Soil Capacities:

Calculated Maxium Net Soil Pressure under the base (psf):	5155	<	Allowable Factored Soil Bearing (psf):	6000	0.86	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	3593.1	>	Design Factored Momont (kips-ft):	2827	0.79	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	1.27					OK!

Load/
Capacity
Ratio

Check the capacities of Reinforcing Concrete:

Strength reduction factor (Flexure and axial tension):	0.90	Strength reduction factor (Shear):	0.75	
Strength reduction factor (Axial compression):	0.65	Wind Load Factor on Concrete Design:	1.00	

Load/
Capacity
Ratio**(1) Concrete Pier:**

Vertical Steel Rebar Area (sq. in./each):	1.00	Tie / Stirrup Area (sq. in./each):	0.31	
Calculated Moment Capacity (Mn,Kips-Ft):	3190.2	> Design Factored Moment (Mu, Kips-Ft)	2872.6	0.90 OK!
Calculated Shear Capacity (Kips):	1100.5	> Design Factored Shear (Kips):	28.1	0.03 OK!
Calculated Tension Capacity (Tn, Kips):	1188.0	> Design Factored Tension (Tu Kips):	0.0	0.00 OK!
Calculated Compression Capacity (Pn, Kips):	7159.5	> Design Factored Axial Load (Pu Kips):	32.3	0.00 OK!
Moment & Axial Strength Combination:	0.90	OK! Check Tie Spacing (Design/Required):		0.25 OK!
Pier Reinforcement Ratio:	0.005	Reinforcement Ratio is satisfied per ACI		

(2).Concrete Pad:

One-Way Design Shear Capacity (L-Direction, Kips):	606.2	> One-Way Factored Shear (L-D. Kips):	241.8	0.40 OK!
One-Way Design Shear Capacity (W-Direction, Kips):	606.2	> One-Way Factored Shear (W-D., Kips)	241.8	0.40 OK!
One-Way Design Shear Capacity (Corner-Corner. Kips):	540.9	> One-Way Factored Shear (C-C, Kips):	211.7	0.39 OK!
Lower Steel Pad Reinforcement Ratio (L-Direct.):	0.0018	OK! Lower Steel Pad Reinf. Ratio (W-Direc	0.0018	
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	1349.0	> Moment at Bottom (L-Dir. K-Ft):	952.0	0.71 OK!
Lower Steel Pad Moment Capacity (W-Direction. Kips-ft):	1349.0	> Moment at Bottom (W-Dir. K-Ft):	952.0	0.71 OK!
Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):	1899.5	> Moment at Bottom (C-C Dir. K-Ft):	1346.3	0.71 OK!
Upper Steel Pad Reinforcement Ratio (L-Direct.):	0.0018	OK! Upper Steel Reinf. Ratio (W-Dir.):	0.0018	
Upper Steel Pad Moment Capacity (L-Direc. Kips-ft):	1349.0	> Moment at the top (L-Dir K-Ft):	384.0	0.28 OK!
Upper Steel Pad Moment Capacity (W-Direc. Kips-ft):	1349.0	> Moment at the top (W-Dir K-Ft):	384.0	0.28 OK!
Upper Steel Pad Moment Capacity (Corner-Corner. K-ft):	1899.5	> Moment at the top (C-C Dir. K-Ft):	361.3	0.19 OK!

(3).Check Punching Shear Capacity due to Moment in the Pier:

Moment transferred by punching shear:	1104.1	k-ft.	Max. factored shear stress $v_{u,CD}$:	5.7	Psi
Max. factored shear stress $v_{u,AB}$:	11.8	Psi	Factored shear Strength ϕv_n :	189.7	Psi
Max. factored shear stress v_u :	11.8	Psi	Check Usage of Punching Shear Capacity:	0.06	OK!

67 FAIRCHILD RD

Location 67 FAIRCHILD RD

Map-Lot 42 / / 0118 / /

Acct# R15245

Owner BORRELLI STEPHEN G &
BARBARA L

Municipality

Assessment \$495,450

Appraisal \$707,780

PID 15236

Building Count 2

Assessing Distr...

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2017	\$394,130	\$313,650	\$707,780

Assessment			
Valuation Year	Improvements	Land	Total
2017	\$275,890	\$219,560	\$495,450

Parcel Addresses

Additional Addresses		
Address	City, State Zip	Type
67 FAIRCHILD RD	MIDDLETOWN, CT 06457	Primary

Owner of Record

Owner BORRELLI STEPHEN G & BARBARA L
Co-Owner
Address 67 FAIRCHILD RD
MIDDLETOWN, CT 06457

Sale Price \$0
Certificate
Book & Page 1091/ 136
Sale Date 02/28/1996
Instrument 29

Ownership History

Ownership History					
Owner	Sale Price	Certificate	Book & Page	Instrument	Sale Date
BORRELLI STEPHEN G & BARBARA L	\$0		1091/ 136	29	02/28/1996

Building Information

Building 1 : Section 1

Year Built: 2012

Living Area: 2,134
Replacement Cost: \$292,538
Building Percent Good: 95
Replacement Cost Less Depreciation: \$277,910

Building Attributes	
Field	Description
Style	Cape Cod
Model	Residential
Grade	B-
Stories	1.25
Occupancy	1
Exterior Wall 1	Vinyl Siding
Exterior Wall 2	
Roof Structure	Gable
Roof Cover	Asphalt Shingl
Interior Wall 1	Drywall
Interior Wall 2	
Interior Floor 1	Hardwood
Interior Floor 2	
Heat Fuel	Propane
Heat Type	Forced Air
Bedrooms	3
Full Baths	2
Half Baths	0
Extra Fixtures	2
Total Rooms	5
Bath Remodel	Not Updated
Kitchen Remodel	Not Updated
Extra Kitchens	
Fireplaces	0
Extra Openings	
Gas Fireplace	1
Int vs Ext	Same
A/C Type	Central
A/C %	100
Fin Bsmt Area	
Bsmt Garage	

Building 2 : Section 1

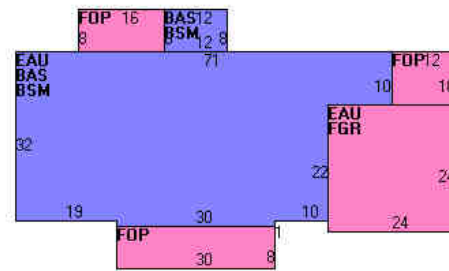
Year Built: 2000
Living Area: 3,192
Replacement Cost: \$67,875
Building Percent Good: 86

Building Photo



(<http://images.vgsi.com/photos/MiddletownCTPhotos/00\02\11\39.jpg>)

Building Layout



Building Sub-Areas (sq ft)		Legend	
Code	Description	Gross Area	Living Area
BAS	First Floor	2,134	2,134
BSM	Basement	2,134	0
EAU	Expansion Attic Unfinished	2,614	0
FGR	Garage	576	0
FOP	Framed Open Porch	488	0
		7,946	2,134

Building Photo

Replacement Cost

Less Depreciation: \$58,370

Building Attributes : Bldg 2 of 2	
Field	Description
STYLE	Equip Garage
MODEL	Commercial
Grade	D
Stories	1
Occupancy	1
Exterior Wall 1	Pre-finish Metl
Exterior Wall 2	
Roof Structure	Gable
Roof Cover	Metal/Tin
Interior Wall 1	Minimum
Interior Wall 2	
Interior Floor 1	Concrete
Interior Floor 2	
Heating Fuel	None
Heating Type	None
AC Type	None
Bldg Use	Res / Comm MDL 94
Cov Parking	
Uncov Parking	
Percent Fin	
1st Floor Use	
Heat/AC	None
Frame Type	Steel
Baths/Plumbing	Average
Ceiling/Walls	None
Rooms/Prtns	None
Wall Height	14



(http://images.vgsi.com/photos/MiddletownCTPhotos/\00\03\06\29.jpg)

Building Layout



Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	3,192	3,192
		3,192	3,192

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code 101
Description Single Family
Zone R-30
Neighborhood 13

Land Line Valuation

Size (Acres) 18.89
Assessed Value \$219,560
Appraised Value \$313,650

Alt Land Appr No
 Category

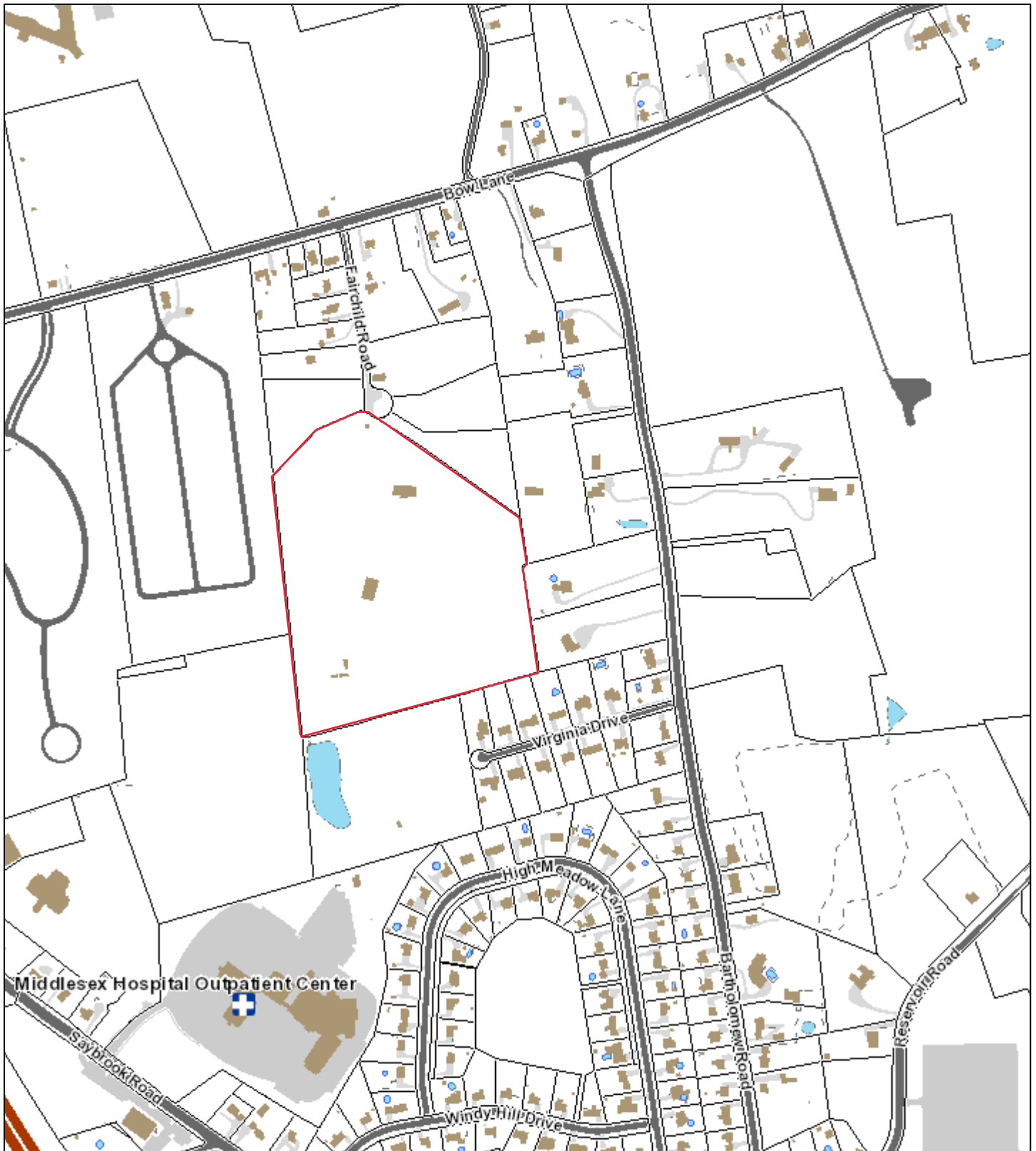
Outbuildings

Outbuildings						Legend
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
CSHD	Cell Shed			240 UNITS	\$15,000	2
CSHD	Cell Shed			240 UNITS	\$15,000	2
SHD1	Shed	MS	Masonry	143 UNITS	\$1,430	1
CSHD	Cell Shed			360 UNITS	\$22,500	2
FN4	Fence-8' Chain			280 UNITS	\$3,920	2

Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2016	\$305,899	\$366,330	\$672,229
2015	\$305,899	\$366,330	\$672,229
2014	\$305,899	\$366,330	\$672,229

Assessment			
Valuation Year	Improvements	Land	Total
2016	\$214,130	\$256,430	\$470,560
2015	\$214,130	\$256,430	\$470,560
2014	\$214,130	\$256,430	\$470,560



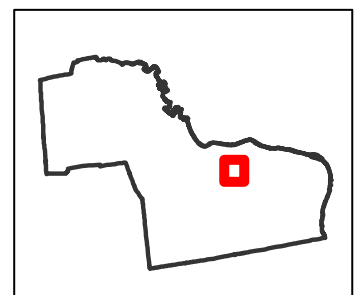
City of Middletown, Connecticut

Map generated 3/7/2018

Map Legend: <http://gis.cityofmiddletown.com/middletownct/legend.pdf>


Property Card: <http://gis.vgsi.com/MiddletownCT/Parcel.aspx?pid=15236>

0 162.5 325 650 975 1,300 Feet 1 in = 500 ft



MAP FOR REFERENCE ONLY - NOT A LEGAL DOCUMENT

Because of different update schedules, current property assessments may not reflect recent changes to property boundaries. Check with the Board of Assessors to confirm boundaries uses at the time of assessment.



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 CITY OF MIDDLETOWN
 245 DEKOVEN DR
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2. Place your label so it does not wrap around the edge of the package.
3. Adhere your label to the package. A self-adhesive label is recommended. If tape or glue is used, DO NOT TAPE OVER BARCODE. Be sure all edges are secure.
4. To mail your package with PC Postage®, you may schedule a Package Pickup online, hand to your letter carrier, take to a Post Office™, or drop in a USPS collection box.
5. Mail your package on the "Ship Date" you selected when creating this label.

Click-N-Ship® Label Record

**USPS TRACKING # / Insurance Number:
 9405 8036 9930 0615 3201 35**

Trans. #:	431300899	Priority Mail® Postage:	\$6.70
Print Date:	03/30/2018	Insurance Fee	\$0.00
Ship Date:	03/31/2018	Total	\$6.70
Expected Delivery Date:	04/02/2018		
Insured Value:	\$50.00		


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

To: MAYOR DANIEL DREW
 CITY OF MIDDLETOWN
 245 DEKOVEN DR
 MIDDLETOWN CT 06457-3460

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.



Thank you for shipping with the United States Postal Service!
 Check the status of your shipment on the USPS Tracking® page at usps.com




**UNITED STATES
POSTAL SERVICE®**

Click-N-Ship®

P

usps.com 9405 8036 9930 0615 3200 81 0067 0000 0010 6457
US POSTAGE
 Flat Rate Env
 03/31/2018 Mailed from 06268 024P



PRIORITY MAIL 1-DAY™

Expected Delivery Date: 04/02/18

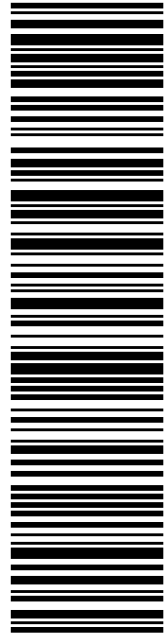
MARK J ROBERTS
 QC DEVELOPMENT
 PO BOX 916
 STORRS CT 06268-0916

0024

C015

SHIP TO:
 STEPHEN G. & BARBARA L. BORRELLI
 67 FAIRCHILD RD
 MIDDLETOWN CT 06457-4815

USPS TRACKING #



9405 8036 9930 0615 3200 81

Electronic Rate Approved #038555749



Cut on dotted line.

Instructions

1. Each Click-N-Ship® label is unique. Labels are to be used as printed and used only once. DO NOT PHOTO COPY OR ALTER LABEL.
2. Place your label so it does not wrap around the edge of the package.
3. Adhere your label to the package. A self-adhesive label is recommended. If tape or glue is used, DO NOT TAPE OVER BARCODE. Be sure all edges are secure.
4. To mail your package with PC Postage®, you may schedule a Package Pickup online, hand to your letter carrier, take to a Post Office™, or drop in a USPS collection box.
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 9405 8036 9930 0615 3200 81**

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Ship Date:	03/31/2018	Total	\$6.70
Expected Delivery Date:	04/02/2018		
Insured Value:	\$50.00		

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

To: STEPHEN G. & BARBARA L. BORRELLI
 67 FAIRCHILD RD
 MIDDLETOWN CT 06457-4815

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.



Thank you for shipping with the United States Postal Service!
 Check the status of your shipment on the USPS Tracking® page at usps.com