QC Development
PO Box 916
Storrs, CT 06268
860-670-9068
Mark.Roberts@QCDevelopment.net

March 17, 2017

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

Notice of Exempt Modification – New Cingular Wireless PCS, LLC (AT&T) – CT1274
123 Pine Orchard Road, Branford, CT 06405
N 41-16-28.4
W 72-47-35.5

Dear Ms. Bachman:

AT&T currently maintains nine (9) antennas at the 112-foot level of the existing 125-foot Monopole at 123 Pine Orchard Road, Branford, CT. The tower is owned by American Tower and the property is owned by Malavasi Investments LLC. AT&T now intends to remove three (3) KMW antennas and replace them with three (3) Andrew antennas. AT&T also plans to install three (3) Ericsson remote radio units (RRUS-32 B2) also at the 112-foot level of the tower.

This facility was approved by the Connecticut Siting Council in Docket # 386 on February 5, 2010. This approval included conditions that the tower be constructed as a Monopole not to exceed 125 feet above ground level and to utilize flush-mounts or T-Arm mounts. Since no modifications to the overall facility height or existing T-Arm mount style are 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 James B. Cosgrove, First Selectman of the Town of Branford, and the Branford Town Planner 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.

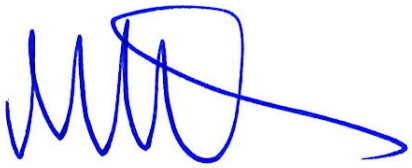
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

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: James B. Cosgrove - as elected official (via e-mail)
Harry Smith – Town Planner (via e-mail)
Malavasi Investments LLC – as property owner
American Tower - as 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*							6.03%
AT&T GSM	4	296	112	0.0379	880	0.5867	0.65%
AT&T UMTS	1	500	112	0.0160	880	0.5867	0.27%
AT&T UMTS	2	427	112	0.0208	1900	1.0000	0.27%
AT&T LTE	1	500	112	0.0160	1900	1.0000	0.16%
Site Total							7.38%

*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*							6.03%
AT&T GSM	1	159	112	0.0051	880	0.5867	0.09%
AT&T UMTS	1	350	112	0.0112	880	0.5867	0.19%
AT&T UMTS	1	715	112	0.0229	1900	1.0000	0.23%
AT&T LTE	1	1476	112	0.0472	734	0.4893	0.97%
AT&T LTE	2	2421	112	0.1550	1900	1.0000	1.55%
Site Total							9.05%

*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

WIRELESS COMMUNICATIONS FACILITY
CT1274 - LTE 2C
BRANFORD PINE ORCHARD RD
AMERICAN TOWER COMPANY SITE NO.: 283419
123 PINE ORCHARD ROAD
BRANFORD, CT 06405

GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2012 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2016 CONNECTICUT STATE BUILDING CODE, INCLUDING THE TIA-222 REVISION "G" STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND SUPPORTING STRUCTURES, 2016 CONNECTICUT FIRE SAFETY CODE AND, NATIONAL ELECTRICAL CODE AND LOCAL CODES.
2. THE COMPOUND, TOWER, PRIMARY GROUND RING, ELECTRICAL SERVICE TO THE METER BANK AND TELEPHONE SERVICE TO THE DEMARCATION POINT ARE PROVIDED BY SITE OWNER. AS BUILT FIELD CONDITIONS REGARDING THESE ITEMS SHALL BE CONFIRMED BY THE CONTRACTOR. SHOULD ANY FIELD CONDITIONS PRECLUDE COMPLIANCE WITH THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL NOT PROCEED WITH ANY AFFECTED WORK.
3. CONTRACTOR SHALL REVIEW ALL DRAWINGS AND SPECIFICATIONS IN THE CONTRACT DOCUMENT SET. CONTRACTOR SHALL COORDINATE ALL WORK SHOWN IN THE SET OF DRAWINGS. THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF DRAWINGS TO ALL SUBCONTRACTORS AND ALL RELATED PARTIES. THE SUBCONTRACTORS SHALL EXAMINE ALL THE DRAWINGS AND SPECIFICATIONS FOR THE INFORMATION THAT AFFECTS THEIR WORK.
4. CONTRACTOR SHALL PROVIDE A COMPLETE BUILD-OUT WITH ALL FINISHES, STRUCTURAL, MECHANICAL, AND ELECTRICAL COMPONENTS AND PROVIDE ALL ITEMS AS SHOWN OR INDICATED ON THE DRAWINGS OR IN THE WRITTEN SPECIFICATIONS.
5. CONTRACTOR SHALL FURNISH ALL MATERIAL, LABOR AND EQUIPMENT TO COMPLETE THE WORK AND FURNISH A COMPLETED JOB ALL IN ACCORDANCE WITH LOCAL AND STATE GOVERNING AUTHORITIES AND OTHER AUTHORITIES HAVING LAWFUL JURISDICTION OVER THE WORK.
6. CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS AND ALL INSPECTIONS REQUIRED AND SHALL ALSO PAY FEES REQUIRED FOR THE GENERAL CONSTRUCTION, PLUMBING, ELECTRICAL AND HVAC. PERMITS SHALL BE PAID FOR BY THE RESPECTIVE SUBCONTRACTORS.
7. CONTRACTOR SHALL MAINTAIN A CURRENT SET OF DRAWINGS AND SPECIFICATIONS ON SITE AT ALL TIMES AND INSURE DISTRIBUTION OF NEW DRAWINGS TO SUBCONTRACTORS AND OTHER RELEVANT PARTIES AS SOON AS THEY ARE MADE AVAILABLE. ALL OLD DRAWINGS SHALL BE MARKED VOID AND REMOVED FROM THE CONTRACT AREA. THE CONTRACTOR SHALL FURNISH AN "AS-BUILT" SET OF DRAWINGS TO OWNER UPON COMPLETION OF PROJECT.
8. LOCATION OF EQUIPMENT, AND WORK SUPPLIED BY OTHERS THAT IS DIAGRAMMATICALLY INDICATED ON THE DRAWINGS SHALL BE DETERMINED BY THE CONTRACTOR. THE CONTRACTOR SHALL DETERMINE LOCATIONS AND DIMENSIONS SUBJECT TO STRUCTURAL CONDITIONS AND WORK OF THE SUBCONTRACTORS.
9. THE CONTRACTOR IS SOLELY RESPONSIBLE TO DETERMINE CONSTRUCTION PROCEDURE AND SEQUENCE, AND TO ENSURE THE SAFETY OF THE EXISTING STRUCTURES AND ITS COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, BRACING, UNDERPINNING, ETC. THAT MAY BE NECESSARY. MAINTAIN EXISTING BUILDING'S/PROPERTY'S OPERATIONS, COORDINATE WORK WITH BUILDING/PROPERTY OWNER.
10. DRAWINGS INDICATE THE MINIMUM STANDARDS, BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS WORK AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS.
11. ALL UTILITY WORK SHALL BE IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS.
12. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUBCONTRACTORS FOR ANY CONDITION PER MFR.'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
13. ANY AND ALL ERRORS, DISCREPANCIES, AND "MISSED" ITEMS ARE TO BE BROUGHT TO THE ATTENTION OF THE AT&T CONSTRUCTION MANAGER DURING THE BIDDING PROCESS BY THE CONTRACTOR. ALL THESE ITEMS ARE TO BE INCLUDED IN THE BID. NO "EXTRA" WILL BE ALLOWED FOR MISSED ITEMS.
14. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ON-SITE SAFETY FROM THE TIME THE JOB IS AWARDED UNTIL ALL WORK IS COMPLETE AND ACCEPTED BY THE OWNER.
15. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE CONSTRUCTION MANAGER FOR REVIEW.
16. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES, AND EXISTING CONDITIONS AT THE SITE, PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA.
17. COORDINATION, LAYOUT, FURNISHING AND INSTALLATION OF CONDUIT AND ALL APPURTENANCES REQUIRED FOR PROPER INSTALLATION OF ELECTRICAL AND TELECOMMUNICATION SERVICE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
18. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUB-CONTRACTORS FOR ANY CONDITION PER THE MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
19. ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.
20. THE CONTRACTOR SHALL CONTACT "CALL BEFORE YOU DIG" AT LEAST 48 HOURS PRIOR TO ANY EXCAVATIONS AT 1-800-922-4455. ALL UTILITIES SHALL BE IDENTIFIED AND CLEARLY MARKED PRIOR TO ANY EXCAVATION WORK. CONTRACTOR SHALL MAINTAIN AND PROTECT MARKED UTILITIES THROUGHOUT PROJECT COMPLETION.
21. CONTRACTOR SHALL COMPLY WITH OWNERS ENVIRONMENTAL ENGINEER ON ALL METHODS AND PROVISIONS FOR ALL EXCAVATION ACTIVITIES INCLUDING SOIL DISPOSAL. ALL BACKFILL MATERIALS TO BE PROVIDED BY THE CONTRACTOR.

SITE DIRECTIONS

FROM: 500 ENTERPRISE DRIVE, ROCKY HILL, CONNECTICUT

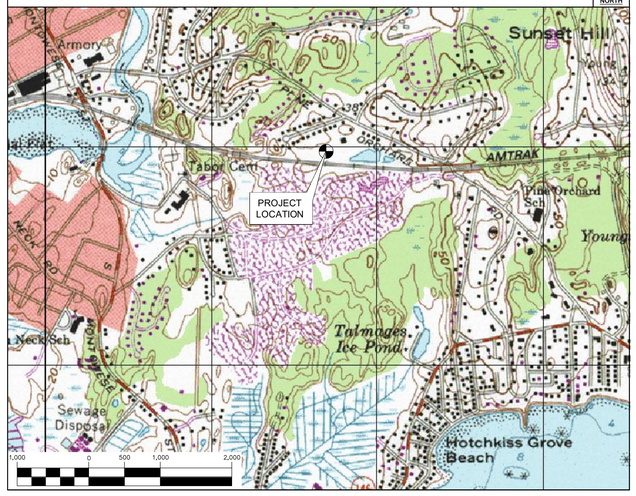
TO: 123 PINE ORCHARD RD, BRANFORD, CONNECTICUT

1.	HEAD NORTHEAST ON ENTERPRISE DR TOWARD CAPITAL BLVD	0.37 MI
2.	TURN LEFT ONTO CAPITAL BLVD	0.27 MI
3.	TURN LEFT ONTO WEST ST	0.30 MI
4.	TURN LEFT TO MERGE ONTO I-91 S TOWARD NEW HAVEN	28.6 MI
5.	USE THE LEFT LANE TO MERGE ONTO I-95 N TOWARD NEW LONDON	5.50 MI
6.	TAKE EXIT 54 FOR CEDAR ST TOWARD BRANFORD	0.20 MI
7.	TURN RIGHT ONTO CEDAR ST	0.60 MI
8.	TURN LEFT ONTO MAIN ST	381 FT
9.	TURN RIGHT ONTO S MAIN ST	0.30 MI
10.	TURN RIGHT ONTO MONTOWESE ST	0.20 MI
11.	TURN LEFT ONTO PINE ORCHARD RD	0.50 MI
12.	TURN RIGHT TO STAY ON PINE ORCHARD RD	0.30 MI

VICINITY MAP

SCALE: 1" = 1000'

NORTH



PROJECT SUMMARY

1. THE PROPOSED SCOPE OF WORK CONSISTS OF A MODIFICATION TO THE EXISTING UNMANNED TELECOMMUNICATIONS FACILITY INCLUDING THE FOLLOWING:
   A. REMOVE, REPLACE AND RELOCATE EXISTING POSITION 3 ANTENNA FOR PROPOSED HEXPORT ANTENNA, (1) PER SECTOR TOTAL OF (3).
   B. INSTALL (3) PROPOSED RRUS-32 B2'S BEHIND PROPOSED POSITION 2 ANTENNAS.
   C. REMOVE AND REPLACE EXISTING LTE DUL FOR PROPOSED DUS41 UNIT AND ADD XMU WITHIN EQUIPMENT CABINET AT GRADE.

PROJECT INFORMATION

AT&T SITE NUMBER:	CT1274
AT&T SITE NAME:	BRANFORD PINE ORCHARD RD AMERICAN TOWER CO. SITE NO.: 283419
SITE ADDRESS:	123 PINE ORCHARD RD BRANFORD, CT 06405
LESSEE/APPLICANT:	AT&T MOBILITY 500 ENTERPRISE DRIVE, SUITE 3A ROCKY HILL, CT 06067
ENGINEER:	CENTEK ENGINEERING, INC. 63-2 NORTH BRANFORD RD. BRANFORD, CT 06405
PROJECT COORDINATES:	LATITUDE: 41°-16'-27.99984" N LONGITUDE: 72°-47'-36.99996" W GROUND ELEVATION: ±33' AMSL SITE COORDINATES AND GROUND ELEVATION REFERENCED FROM GOOGLE EARTH.

SHEET INDEX

SHT. NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	0
N-1	NOTES, SPECIFICATIONS AND DETAILS	0
C-1	PLANS AND ELEVATION	0
C-2	LTE 2C EQUIPMENT DETAILS	0
E-1	LTE SCHEMATIC DIAGRAM AND NOTES	0
E-2	LTE WIRING DIAGRAM	0
E-3	TYPICAL ELECTRICAL DETAILS	0

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	03/01/17	LGL	CAG	CONSTRUCTION DOCUMENTS - ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER SEAL

CENTEK engineering
Centered on Solutions
(203) 488-0580
(203) 488-8587 Fax
63-2 North Branford Road
Branford, CT 06405
www.CentekEng.com

AT&T MOBILITY
WIRELESS COMMUNICATIONS FACILITY

BRANFORD PINE ORCHARD RD
CT1274 - LTE 2C
123 PINE ORCHARD ROAD
BRANFORD, CT 06405

DATE: 01/30/17
SCALE: AS NOTED
JOB NO. 17010.04

TITLE SHEET

T-1

Sheet No. 1 of 7

NOTES AND SPECIFICATIONS

DESIGN BASIS:

GOVERNING CODE: 2012 INTERNATIONAL BUILDING (IBC) AS MODIFIED BY THE 2016 CT STATE BUILDING CODE AND AMENDMENTS.

1. DESIGN CRITERIA:

- WIND LOAD: PER TIA 222 G (ANTENNA MOUNTS): 95–115 MPH (3 SECOND GUST)
- RISK CATEGORY: II (BASED ON IBC TABLE 1604.5)
- NOMINAL DESIGN SPEED (OTHER STRUCTURE): 101 MPH (V_{ASD}) (EXPOSURE B/IMPORTANCE FACTOR 1.0 BASED ON ASCE 7–10) PER 2012 INTERNATIONAL BUILDING CODE (IBC) AS MODIFIED BY THE 2016 CONNECTICUT STATE BUILDING CODE.
- SEISMIC LOAD (DOES NOT CONTROL): PER ASCE 7–10 MINIMUM DESIGN LOADS FOR BUILDING AND OTHER STRUCTURES.

GENERAL NOTES:

1. ALL CONSTRUCTION SHALL BE IN COMPLIANCE WITH THE GOVERNING BUILDING CODE.
2. DRAWINGS INDICATE THE MINIMUM STANDARDS, BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS WORK AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS.
3. BEFORE BEGINNING THE WORK, THE CONTRACTOR IS RESPONSIBLE FOR MAKING SUCH INVESTIGATIONS CONCERNING PHYSICAL CONDITIONS (SURFACE AND SUBSURFACE) AT OR CONTIGUOUS TO THE SITE WHICH MAY AFFECT PERFORMANCE AND COST OF THE WORK.
4. DIMENSIONS AND DETAILS SHALL BE CHECKED AGAINST EXISTING FIELD CONDITIONS.
5. THE CONTRACTOR SHALL VERIFY AND COORDINATE THE SIZE AND LOCATION OF ALL OPENINGS, SLEEVES AND ANCHOR BOLTS AS REQUIRED BY ALL TRADES.
6. ALL DIMENSIONS, ELEVATIONS, AND OTHER REFERENCES TO EXISTING STRUCTURES, SURFACE, AND SUBSURFACE CONDITIONS ARE APPROXIMATE. NO GUARANTEE IS MADE FOR THE ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN. THE CONTRACTOR SHALL VERIFY AND COORDINATE ALL DIMENSIONS, ELEVATIONS, ANGLES WITH EXISTING CONDITIONS AND WITH ARCHITECTURAL AND SITE DRAWINGS BEFORE PROCEEDING WITH ANY WORK.
7. AS THE WORK PROGRESSES, THE CONTRACTOR SHALL NOTIFY THE OWNER OF ANY CONDITIONS WHICH ARE IN CONFLICT OR OTHERWISE NOT CONSISTENT WITH THE CONSTRUCTION DOCUMENTS AND SHALL NOT PROCEED WITH SUCH WORK UNTIL THE CONFLICT IS SATISFACTORILY RESOLVED.
8. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE SAFETY CODES AND REGULATIONS DURING ALL PHASES OF CONSTRUCTION. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR PROVIDING AND MAINTAINING ADEQUATE SHORING, BRACING, AND BARRICADES AS MAY BE REQUIRED FOR THE PROTECTION OF EXISTING PROPERTY, CONSTRUCTION WORKERS, AND FOR PUBLIC SAFETY.
9. THE CONTRACTOR IS SOLELY RESPONSIBLE TO DETERMINE CONSTRUCTION PROCEDURE AND SEQUENCE, AND TO ENSURE THE SAFETY OF THE EXISTING STRUCTURES AND ITS COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, BRACING, UNDERPINNING, ETC. THAT MAY BE NECESSARY. MAINTAIN EXISTING SITE OPERATIONS, COORDINATE WORK WITH NORTHEAST UTILITIES
10. THE STRUCTURE IS DESIGNED TO BE SELF–SUPPORTING AND STABLE AFTER FOUNDATION REMEDIATION WORK IS COMPLETE. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE AND TO ENSURE THE SAFETY OF THE STRUCTURE AND ITS COMPONENT PARTS DURING ERECTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, TEMPORARY BRACING, GUYS OR TIEDOWNS, WHICH MIGHT BE NECESSARY.
11. ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.
12. SHOP DRAWINGS, CONCRETE MIX DESIGNS, TEST REPORTS, AND OTHER SUBMITTALS PERTAINING TO STRUCTURAL WORK SHALL BE FORWARDED TO THE OWNER FOR REVIEW BEFORE FABRICATION AND/OR INSTALLATION IS MADE. SHOP DRAWINGS SHALL INCLUDE ERECTION DRAWINGS AND COMPLETE DETAILS OF CONNECTIONS AS WELL AS MANUFACTURER'S SPECIFICATION DATA WHERE APPROPRIATE. SHOP DRAWINGS SHALL BE CHECKED BY THE CONTRACTOR AND BEAR THE CHECKER'S INITIALS BEFORE BEING SUBMITTED FOR REVIEW.
13. NO DRILLING WELDING OR TAPING ON EVERSOURCE OWNED EQUIPMENT.
14. REFER TO DRAWING T1 FOR ADDITIONAL NOTES AND REQUIREMENTS.

STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL IS DESIGNED BY ALLOWABLE STRESS DESIGN (ASD)

   A. STRUCTURAL STEEL (W SHAPES)–––ASTM A992 (FY = 50 KSI)
   B. STRUCTURAL STEEL (OTHER SHAPES)–––ASTM A36 (FY = 36 KSI)
   C. STRUCTURAL HSS (RECTANGULAR SHAPES)–––ASTM A500 GRADE B, (FY = 46 KSI)
   D. STRUCTURAL HSS (ROUND SHAPES)–––ASTM A500 GRADE B, (FY = 42 KSI)
   E. PIPE–––ASTM A53 (FY = 35 KSI)
   F. CONNECTION BOLTS–––ASTM A325–N
   G. U–BOLTS–––ASTM A36
   H. ANCHOR RODS–––ASTM F 1554
   I. WELDING ELECTRODE–––ASTM E 70XX

2. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE ENGINEER FOR REVIEW. SHOP DRAWINGS SHALL INCLUDE THE FOLLOWING: SECTION PROFILES, SIZES, CONNECTION ATTACHMENTS, REINFORCING, ANCHORAGE, SIZE AND TYPE OF FASTENERS AND ACCESSORIES. INCLUDE ERECTION DRAWINGS, ELEVATIONS AND DETAILS.
3. STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST PROVISIONS OF AISC MANUAL OF STEEL CONSTRUCTION.
4. PROVIDE ALL PLATES, CLIP ANGLES, CLOSURE PIECES, STRAP ANCHORS, MISCELLANEOUS PIECES AND HOLES REQUIRED TO COMPLETE THE STRUCTURE.
5. FIT AND SHOP ASSEMBLE FABRICATIONS IN THE LARGEST PRACTICAL SECTIONS FOR DELIVERY TO SITE.
6. INSTALL FABRICATIONS PLUMB AND LEVEL, ACCURATELY FITTED, AND FREE FROM DISTORTIONS OR DEFECTS.
7. AFTER ERECTION OF STRUCTURES, TOUCHUP ALL WELDS, ABRASIONS AND NON–GALVANIZED SURFACES WITH A 95% ORGANIC ZINC RICH PAINT IN ACCORDANCE WITH ASTM 780.
8. ALL STEEL MATERIAL (EXPOSED TO WEATHER) SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT DIPPED GALVANIZED) COATINGS" ON IRONS AND STEEL PRODUCTS.
9. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC COATING (HOT–DIP) ON IRON AND STEEL HARDWARE".
10. THE ENGINEER SHALL BE NOTIFIED OF ANY INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON CONFORMING MATERIALS OR CONDITIONS TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE ENGINEER REVIEW.
11. CONNECTION ANGLES SHALL HAVE A MINIMUM THICKNESS OF 1/4 INCHES.
12. STRUCTURAL CONNECTION BOLTS SHALL CONFORM TO ASTM A325. ALL BOLTS SHALL BE 3/4" DIAMETER MINIMUM AND SHALL HAVE A MINIMUM OF TWO BOLTS, UNLESS OTHERWISE ON THE DRAWINGS.
13. LOCK WASHER ARE NOT PERMITTED FOR A325 STEEL ASSEMBLIES.
14. SHOP CONNECTIONS SHALL BE WELDED OR HIGH STRENGTH BOLTED.
15. MILL BEARING ENDS OF COLUMNS, STIFFENERS, AND OTHER BEARING SURFACES TO TRANSFER LOAD OVER ENTIRE CROSS SECTION.
16. FABRICATE BEAMS WITH MILL CAMBER UP.
17. LEVEL AND PLUMB INDIVIDUAL MEMBERS OF THE STRUCTURE TO AN ACCURACY OF 1:500, BUT NOT TO EXCEED 1/4" IN THE FULL HEIGHT OF THE COLUMN.
18. COMMENCEMENT OF STRUCTURAL STEEL WORK WITHOUT NOTIFYING THE ENGINEER OF ANY DISCREPANCIES WILL BE CONSIDERED ACCEPTANCE OF PRECEDING WORK.
19. INSPECTION AND TESTING OF ALL WELDING AND HIGH STRENGTH BOLTING SHALL BE PERFORMED BY AN INDEPENDENT TESTING LABORATORY.
20. FOUR COPIES OF ALL INSPECTION TEST REPORTS SHALL BE SUBMITTED TO THE ENGINEER WITHIN TEN (10) WORKING DAYS OF THE DATE OF INSPECTION.

PAINT NOTES

PAINTING SCHEDULE:

1. ANTENNA PANELS:

   A. SHERWIN WILLIAMS POLANE–B
   B. COLOR TO BE MATCHED WITH EXISTING TOWER STRUCTURE.

2. COAXIAL CABLES:

   A. ONE COAT OF DTM BONDING PRIMER (2–5 MILS. DRY FINISH)
   B. TWO COATS OF DTM ACRYLIC PRIMER/FINISH (2.5–5 MILS. DRY FINISH)
   C. COLOR TO BE FIELD MATCHED WITH EXISTING STRUCTURE.

EXAMINATION AND PREPARATION:

1. DO NOT APPLY PAINT IN SNOW, RAIN, FOG OR MIST OR WHEN RELATIVE HUMIDITY EXCEEDS 85%. DO NOT APPLY PAINT TO DAMP OR WET SURFACES.
2. VERIFY THAT SUBSTRATE CONDITIONS ARE READY TO RECEIVE WORK. EXAMINE SURFACE SCHEDULED TO BE FINISHED PRIOR TO COMMENCEMENT OF WORK. REPORT ANY CONDITION THAT MAY POTENTIALLY AFFECT PROPER APPLICATION.
3. TEST SHOP APPLIED PRIMER FOR COMPATIBILITY WITH SUBSEQUENT COVER MATERIALS.
4. PERFORM PREPARATION AND CLEANING PROCEDURE IN STRICT ACCORDANCE WITH COATING MANUFACTURER'S INSTRUCTIONS FOR EACH SUBSTRATE CONDITION.
5. CORRECT DEFECTS AND CLEAN SURFACES WHICH AFFECT WORK OF THIS SECTION. REMOVE EXISTING COATINGS THAT EXHIBIT LOOSE SURFACE DEFECTS.
6. IMPERVIOUS SURFACE: REMOVE MILDEW BY SCRUBBING WITH SOLUTION OF TRI–SODIUM PHOSPHATE AND BLEACH. RINSE WITH CLEAN WATER AND ALLOW SURFACE TO DRY.
7. ALUMINUM SURFACE SCHEDULED FOR PAINT FINISH: REMOVE SURFACE CONTAMINATION BY STEAM OR HIGH–PRESSURE WATER. REMOVE OXIDATION WITH ACID ETCH AND SOLVENT WASHING. APPLY ETCHING PRIMER IMMEDIATELY FOLLOWING CLEANING.
8. FERROUS METALS: CLEAN UNGALVANIZED FERROUS METAL SURFACES THAT HAVE NOT BEEN SHOP COATED; REMOVE OIL, GREASE, DIRT, LOOSE MILL SCALE, AND OTHER FOREIGN SUBSTANCES. USE SOLVENT OR MECHANICAL CLEANING METHODS THAT COMPLY WITH THE STEEL STRUCTURES PAINTING COUNCIL'S (SSPC) RECOMMENDATIONS. TOUCH UP BARE AREAS AND SHOP APPLIED PRIME COATS THAT HAVE BEEN DAMAGED. WIRE BRUSH, CLEAN WITH SOLVENTS RECOMMENDED BY PAINT MANUFACTURER, AND TOUCH UP WITH THE SAME PRIMER AS THE SHOP COAT.
9. GALVANIZED SURFACES: CLEAN GALVANIZED SURFACES WITH NON–PETROLEUM–BASED SOLVENTS SO SURFACE IS FREE OF OIL AND SURFACE CONTAMINANTS. REMOVE PRETREATMENT FROM GALVANIZED SHEET METAL FABRICATED FROM COIL STOCK BY MECHANICAL METHODS.
10. ANTENNA PANELS: REMOVE ALL OIL, DUST, GREASE, DIRT, AND OTHER FOREIGN MATERIAL TO ENSURE ADEQUATE ADHESION. PANELS MUST BE WIPED WITH METHYL ETHYL KETONE (MEK).
11. COAXIAL CABLES: REMOVE ALL OIL, DUST, GREASE. DIRT, AND OTHER FOREIGN MATERIAL TO ENSURE ADEQUATE ADHESION.

CLEANING:

1. COLLECT WASTE MATERIAL, WHICH MAY CONSTITUTE A FIRE HAZARD, PLACE IN CLOSED METAL CONTAINERS AND REMOVE DAILY FROM SITE.

APPLICATION:

1. APPLY PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
2. DO NOT APPLY FINISHES TO SURFACES THAT ARE NOT DRY.
3. APPLY EACH COAT TO UNIFORM FINISH.
4. APPLY EACH COAT OF PAINT SLIGHTLY DARKER THAN PRECEDING COAT UNLESS OTHERWISE APPROVED.
5. SAND METAL LIGHTLY BETWEEN COATS TO ACHIEVE REQUIRED FINISH.
6. VACUUM CLEAN SURFACES FREE OF LOOSE PARTICLES. USE TACK CLOTH JUST PRIOR TO APPLYING NEXT COAT.
7. ALLOW APPLIED COAT TO DRY BEFORE NEXT COAT IS APPLIED.

COMPLETED WORK:

1. SAMPLES: PREPARE 24" X 24" SAMPLE AREA FOR REVIEW.
2. MATCH APPROVED SAMPLES FOR COLOR, TEXTURE AND COVERAGE. REMOVE REFINISH OR REPAINT WORK NOT IN COMPLIANCE WITH SPECIFIED REQUIREMENTS.

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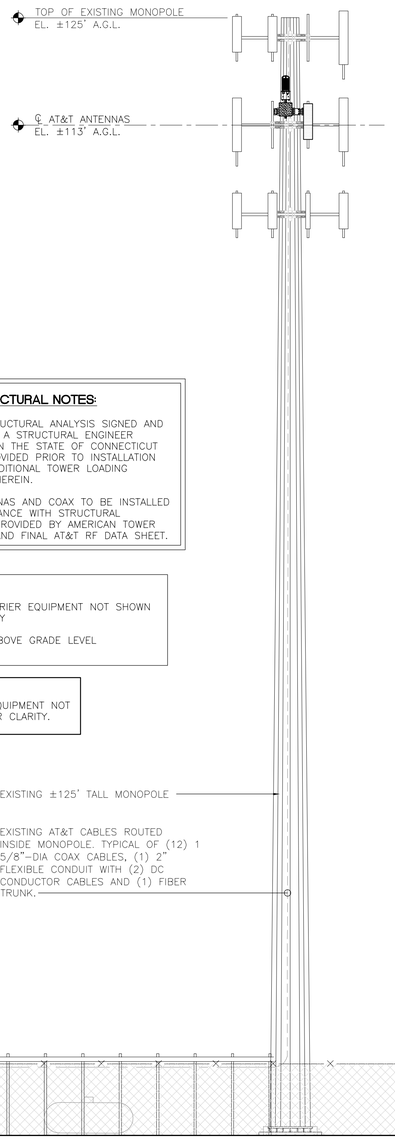
JOB NO. 17010.04

NOTES, SPECIFICATIONS AND DETAILS

N-1



TOWER STRUCTURAL NOTES:

1. TOWER STRUCTURAL ANALYSIS SIGNED AND SEALED BY A STRUCTURAL ENGINEER LICENSED IN THE STATE OF CONNECTICUT TO BE PROVIDED PRIOR TO INSTALLATION OF THE ADDITIONAL TOWER LOADING DEPICTED HEREIN.
2. ALL ANTENNAS AND COAX TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS PROVIDED BY AMERICAN TOWER COMPANY AND FINAL AT&T RF DATA SHEET.

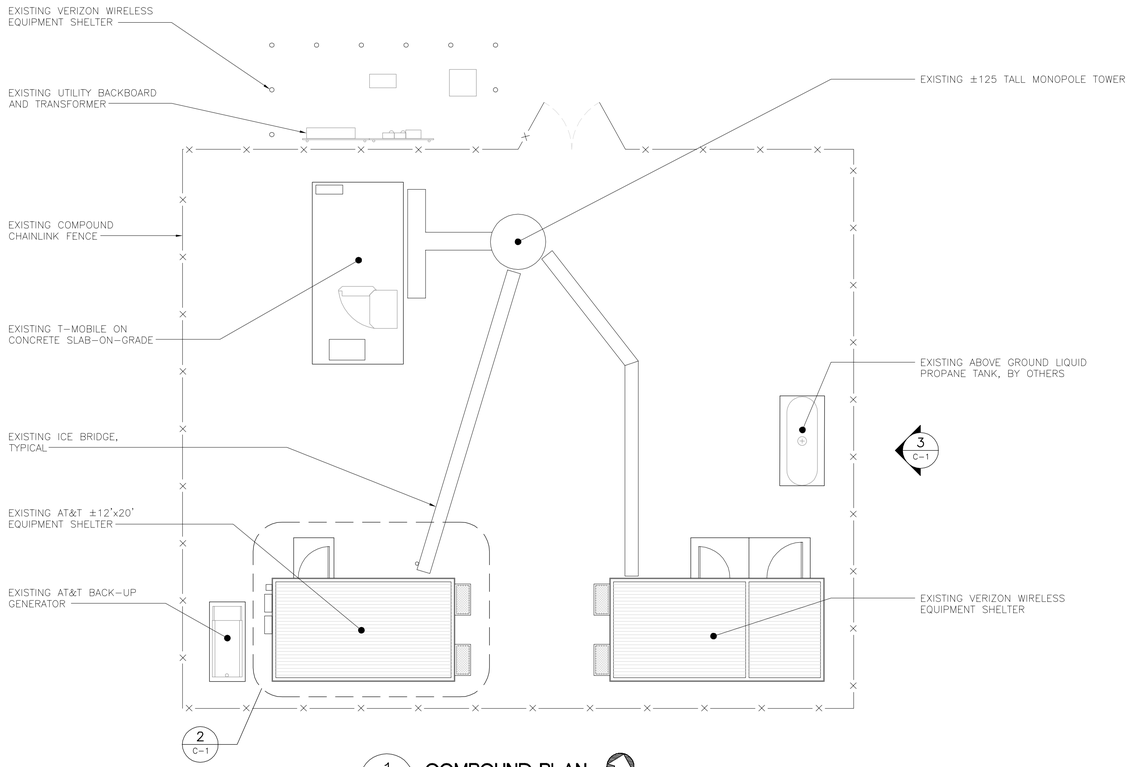
NOTES:

1. OTHER CARRIER EQUIPMENT NOT SHOWN FOR CLARITY
2. A.G.L. = ABOVE GRADE LEVEL

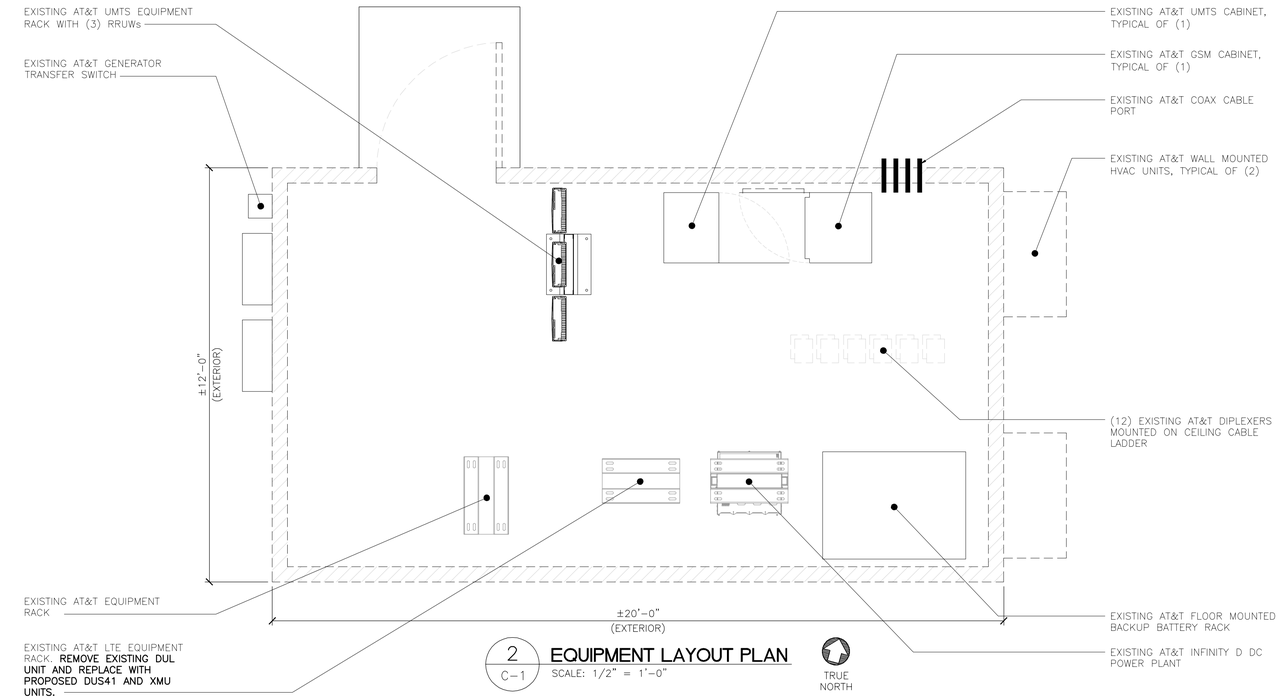
NOTE:
GROUND EQUIPMENT NOT SHOWN FOR CLARITY.

3/C-1 **TOWER ELEVATION**
SCALE: 1/8" = 1'-0"

GRAPHIC SCALE
8 0 4 8 16 32
(IN FEET)
1 inch = 8 ft.



1/C-1 **COMPOUND PLAN**
SCALE: 3/16" = 1'-0"
TRUE NORTH



2/C-1 **EQUIPMENT LAYOUT PLAN**
SCALE: 1/2" = 1'-0"
TRUE NORTH

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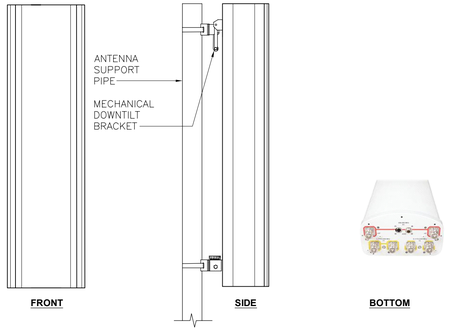
PLANS AND ELEVATION

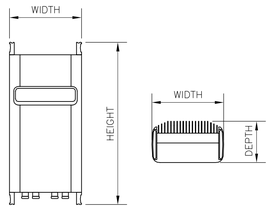
C-1

Sheet No. 3 of 7



ALPHA/BETA/GAMMA ANTENNA		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: ANDREW MODEL: SBNHH-1D6565A	55" L x 11.9"W x 7.1"D	33.5 LBS.

5 C-2 PROPOSED ANTENNA DETAIL
SCALE: 1/2" = 1'-0"

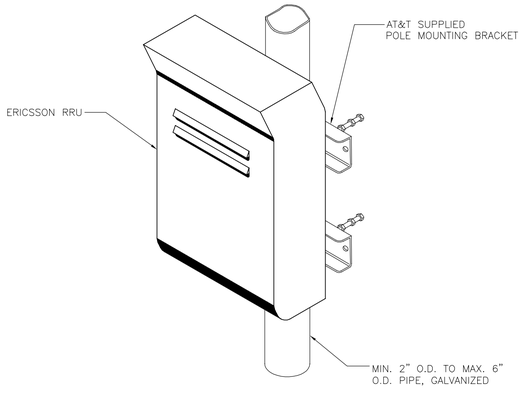


FRONT VIEW TOP VIEW

RRU (REMOTE RADIO UNIT)			
EQUIPMENT	DIMENSIONS	WEIGHT	CLEARANCES
MAKE: ERICSSON MODEL: RRUS-32 B2	27.17"H x 12.05"W x 7.01"D	52.91 LBS.	ABOVE: 16" MIN. BELOW: 12" MIN. FRONT: 36" MIN.

NOTES:
1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH AT&T CONSTRUCTION MANAGER PRIOR TO ORDERING.

6 C-2 ERICSSON RRUS 32 B2 DETAIL
SCALE: 1" = 1'-0"

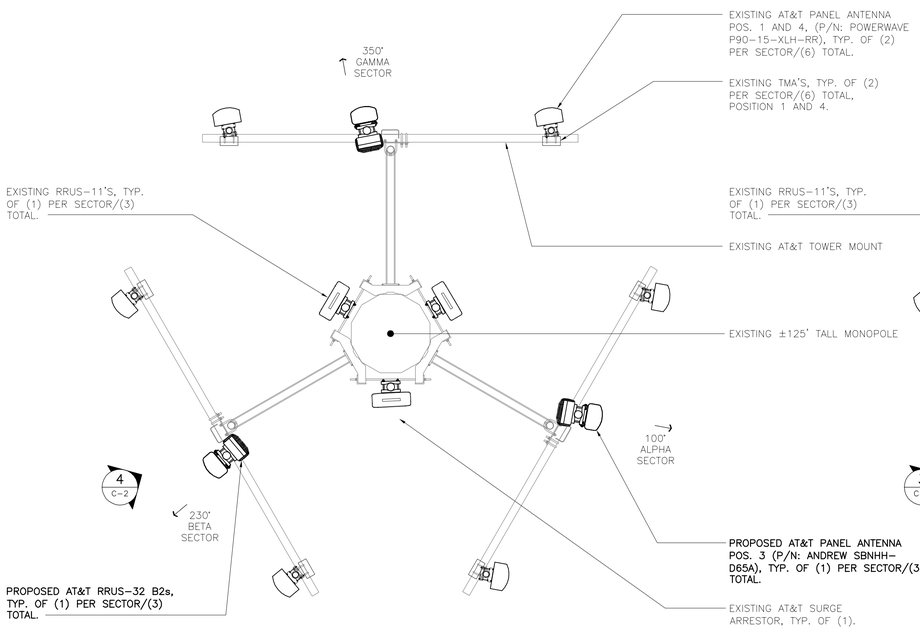


ISOMETRIC VIEW

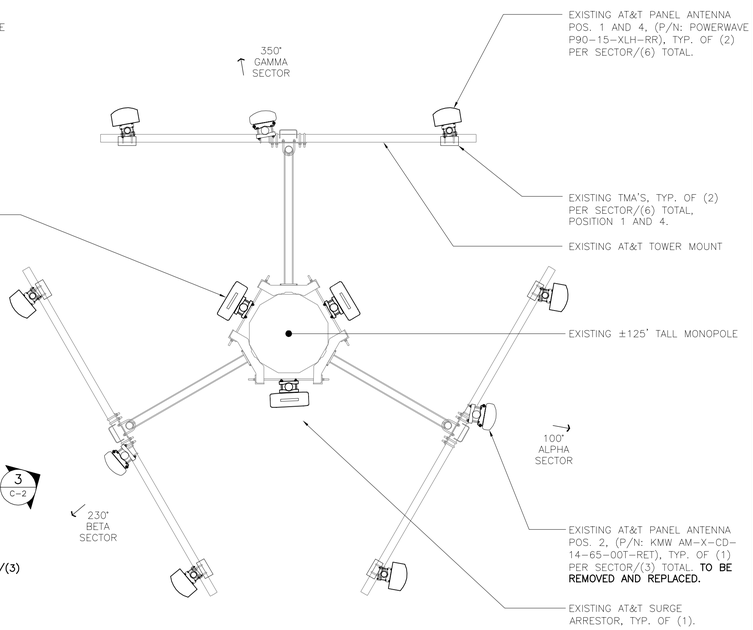
NOTES:

1. AT&T SHALL SUPPLY RRU, AND RRU POLE-MOUNTING BRACKET. CONTRACTOR SHALL SUPPLY POLE/PIPE AND INSTALL ALL MOUNTING HARDWARE INCLUDING ERICSSON RRU POLE-MOUNTING BRACKET. CONTRACTOR SHALL INSTALLS RRU AND MAKES CABLE TERMINATIONS.
2. NO PAINTING OF THE RRU OR SOLAR SHIELD IS ALLOWED.

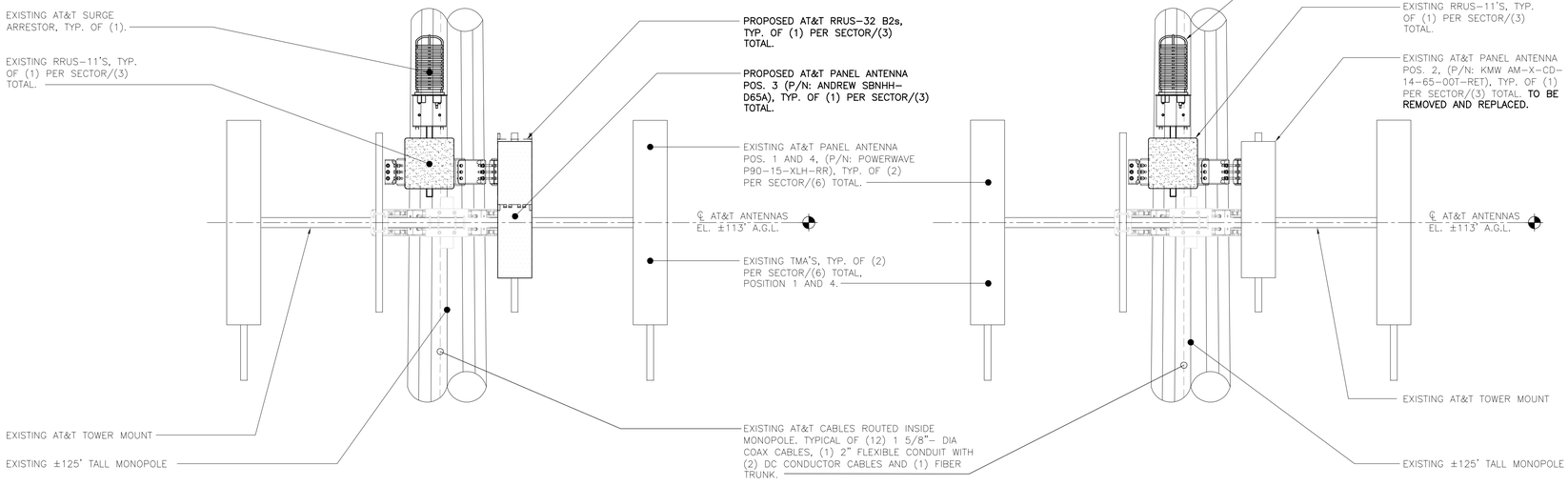
7 C-2 TYPICAL RRUS MOUNTING DETAILS
SCALE: NTS



2 C-2 PROPOSED ANTENNA PLAN
SCALE: 1/2" = 1'-0" NORTH



1 C-2 EXISTING ANTENNA PLAN
SCALE: 1/2" = 1'-0" NORTH



4 C-2 PROPOSED ANTENNA ELEVATION
SCALE: 1/2" = 1'-0"

3 C-2 EXISTING ANTENNA ELEVATION
SCALE: 1/2" = 1'-0"

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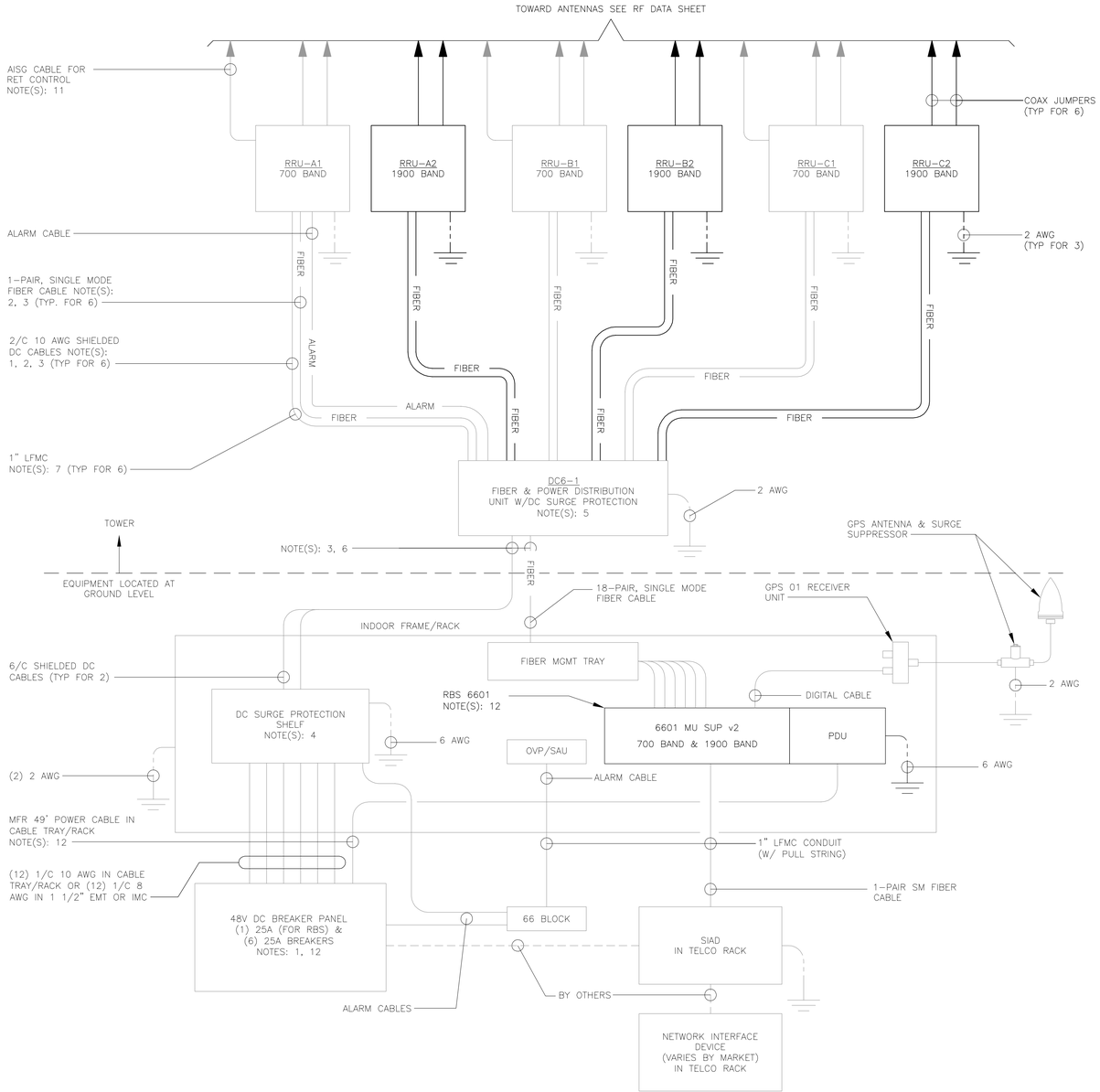
LTE 2C EQUIPMENT DETAILS

C-2

Sheet No. 4 of 7



1 / E-1 LTE SCHEMATIC DIAGRAM

NOT TO SCALE

LTE SCHEMATIC DIAGRAM NOTES:

1. BREAKERS TO BE TAGGED AND LOCKED OUT. A 20A (MIN.) OR 30A (MAX.) BREAKER FOR RRUs MAY BE SUBSTITUTED FOR THE RECOMMENDED 25A BREAKER. SIZE 12 CONDUCTORS MAY BE USED ONLY WITH 20A BREAKERS.
2. LEAVE COILED AND PROTECTED UNTIL TERMINATED.
3. DC AND FIBER CABLE SHALL BE ROUTED WITH THE EXISTING COAX CABLE.
4. DC SURGE PROTECTION SHELF SHALL BE RAYCAP DCx-48-60-RM.
5. FIBER & DC DISTRIBUTION BOX W/DC SURGE PROTECTION SHALL BE RAYCAP DC6-48-60-18-8F.
6. SUPPORT FIBER & DC POWER CABLES WITH SNAP-IN HANGERS SPACED NO GREATER THAN 3 FEET APART ON TOWER. SUPPORT FIBER AND DC POWER CABLES INSIDE MONOPOLE WITH CABLE HOISTING GRIPS AT 250 FT MAXIMUM INTERVALS. DRESS CABLES TO PREVENT CONTACT WITH ENTRANCE AND EXIT OPENINGS.
7. CONDUIT TO BE USED ON A TOWER IF THE RRU IS MORE THAN 10' FROM THE DISTRIBUTION UNITS. MAX CABLE LENGTH IS 16 FEET.
8. SINGLE-CONDUCTOR DC POWER CABLES SHALL BE TELCOFLEX® OR KS24194™, COPPER, UL LISTED RHH NON-HALOGEN, LOW SMOKE WITH BRAIDED COVER, TYPE TC (1/0 AND LARGER). UNLESS OTHERWISE NOTED, STRANDING SHALL BE CLASS B (TYPE III) FOR CABLES SIZES 14, 12 & 10 AWG AND CLASS I (TYPE IV) FOR SIZES 8 AWG AND LARGER. CABLES SHALL BE COLOR CODED RED FOR +24V, BLUE FOR -48V AND GRAY FOR 24V AND 48V RETURN CONDUCTORS. MULTI-CONDUCTOR DC POWER CABLES SHALL BE COPPER, CLASS B STRANDING WITH FLAME RETARDANT PVC JACKET, TYPE TC, UL LISTED FOR 90°C DRY/ 75°C WET INSTALLATION.
9. GROUNDING WIRES SHALL BE COPPER, GREEN THHN/THWN UL LISTED FOR 90°C DRY/75°C WET INSTALLATION. MINIMUM SIZE IS 6 AWG UNLESS NOTED OTHERWISE.
10. FIBER OPTIC CABLES SHALL BE INSTALLED IN FLEXIBLE CONDUIT AS SCOPED BY MARKET.
11. RET CONTROL FROM THE RRU IS AN OPTIONAL METHOD OF CONNECTION. REFER TO RF DATA SHEET FOR APPLICABILITY.
12. RBS 6601 VARIANT 2 REQUIRES A 25A BREAKER AND 10 AWG (MIN.) CONDUCTORS. REPLACE EXISTING 15A OR 20A BREAKERS AND 12 AWG CONDUCTORS WHEN UPGRADING AN EXISTING RBS 6601 VARIANT 1.

ELECTRICAL NOTES

1. PRIOR TO START OF CONSTRUCTION CONTRACTOR SHALL COORDINATE WITH OWNER FOR ALL CONSTRUCTION STANDARDS AND SPECIFICATIONS, AND ALL MANUFACTURER DOCUMENTATION FOR ALL EQUIPMENT TO BE INSTALLED.
2. INSTALL ALL EQUIPMENT IN ACCORDANCE WITH LOCAL BUILDING CODE, NATIONAL ELECTRIC CODE, OWNER AND MANUFACTURER'S SPECIFICATIONS.
3. CONNECT ALL NEW EQUIPMENT TO EXISTING TELCO AS REQUIRED BY MANUFACTURER.
4. MAINTAIN ALL CLEARANCES REQUIRED BY NEC AND EQUIPMENT MANUFACTURER.
5. PRIOR TO INSTALLATION CONTRACTOR SHALL MEASURE EXISTING ELECTRICAL LOAD AND VERIFY EXISTING AVAILABLE CAPACITY FOR PROPOSED INSTALLATION. IF INADEQUATE CAPACITY IS AVAILABLE, CONTRACTOR SHALL COORDINATE WITH LOCAL ELECTRIC UTILITY COMPANY TO UPGRADE EXISTING ELECTRIC SERVICE.
6. CONTRACTOR SHALL INSPECT EXISTING GROUNDING AND LIGHTNING PROTECTION SYSTEM AND ENSURE THAT IT IS IN COMPLIANCE WITH NEC, AND SITE OWNER'S SPECIFICATIONS. THE RESULTS OF THIS INSPECTION SHALL BE PRESENTED TO OWNERS REPRESENTATIVE, AND ANY DEFICIENCIES SHALL BE CORRECTED.
7. ALL TRANSMISSION TOWER SITES CONTAIN AN EXTENSIVE BURIED GROUNDING SYSTEM. ALL GROUNDING WORK MUST BE COORDINATED WITH, AND APPROVED BY, THE TOWER OWNER'S SITE REPRESENTATIVE. ALL OF THE TOWER OWNER'S SPECIFICATIONS MUST BE STRICTLY FOLLOWED.
8. PROVIDE AND INSTALL GROUND KITS FOR ALL NEW COAXIAL CABLES AND BOND TO EXISTING OWNERS GROUNDING SYSTEM PER OWNERS SPECIFICATIONS AND NEC.
9. ALL CONDUCTORS SHALL BE TYPE THWN (INT. APPLICATION) AND XHHW (EXT. APPLICATION), 75 DEGREE C, 600 VOLT INSULATION, SOFT ANNEALED STRANDED COPPER. #10 AWG AND SMALLER SHALL BE SPLICED USING ACCEPTABLE SOLDERLESS PRESSURE CONNECTORS. #8 AWG AND LARGER SHALL BE SPLICED USING COMPRESSION SPLIT-BOLT TYPE CONNECTORS, #12 AWG SHALL BE THE MINIMUM SIZE CONDUCTOR FOR LINE VOLTAGE BRANCH CIRCUITS. REFER TO PANEL SCHEDULE FOR BRANCH CIRCUIT CONDUCTOR SIZE(S). CONDUCTORS SHALL BE COLOR CODED FOR CONSISTENT PHASE IDENTIFICATION:
10. MINIMUM BENDING RADIUS FOR CONDUCTORS SHALL BE 12 TIMES THE LARGEST DIAMETER OF BRANCH CIRCUIT CONDUCTOR.
11. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE MADE IN STRICT ACCORDANCE WITH ALL LOCAL, STATE AND NATIONAL CODES AND REGULATIONS WHICH MAY APPLY AND NOTHING IN THE DRAWINGS OR SPECIFICATIONS SHALL BE INTERPRETED AS AN INFRINGEMENT OF SUCH CODES OR REGULATIONS.
12. THE ELECTRICAL CONTRACTOR IS TO BE RESPONSIBLE FOR THE COMPLETE INSTALLATION AND COORDINATION OF THE ENTIRE ELECTRICAL SERVICE. ALL ACTIVITIES TO BE COORDINATED THROUGH OWNER'S REPRESENTATIVE, DESIGN ENGINEER AND OTHER AUTHORITIES HAVING JURISDICTION OF TRADES.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND PAY ALL FEES AS MAY BE REQUIRED FOR THE ELECTRICAL WORK AND FOR SCHEDULING OF ALL INSPECTIONS AS MAY BE REQUIRED BY THE LOCAL AUTHORITY.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH THE SITE AND/OR BUILDING OWNER FOR NEW AND/OR DEMOLITION WORK INVOLVED.
15. THE CONTRACTOR SHALL GUARANTEE ALL NEW WORK FOR A PERIOD OF ONE YEAR FROM THE ACCEPTANCE DATE BY THE OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING WARRANTIES FROM ALL EQUIPMENT MANUFACTURERS FOR SUBMISSION TO THE OWNER.
16. DRAWINGS INDICATE GENERAL ARRANGEMENT OF WORK INCLUDED IN CONTRACT. CONTRACTOR SHALL WITHOUT EXTRA CHARGE, MAKE MODIFICATIONS TO THE LAYOUT OF THE WORK TO PREVENT CONFLICT WITH WORK OF OTHER TRADES AND FOR THE PROPER INSTALLATION OF WORK. CHECK ALL DRAWINGS AND VISIT JOB SITE TO VERIFY SPACE AND TYPE OF EXISTING CONDITIONS IN WHICH WORK WILL BE DONE, PRIOR TO SUBMITTAL OF BID.
17. ALL NON-CURRENT CARRYING PARTS OF THE ELECTRICAL AND TELEPHONE CONDUIT SYSTEMS SHALL BE MECHANICALLY AND ELECTRICALLY CONNECTED TO PROVIDE AN INDEPENDENT RETURN PATH TO THE EQUIPMENT GROUNDING SOURCES.
18. GROUNDING SYSTEM WILL BE IN ACCORDANCE WITH THE LATEST ACCEPTABLE EDITION OF THE NATIONAL ELECTRICAL CODE AND REQUIREMENTS PER LOCAL INSPECTOR HAVING JURISDICTION.
19. EACH EQUIPMENT GROUND CONDUCTOR SHALL BE SIZED IN ACCORDANCE WITH THE N.E.C. ARTICLE 250-122. (MIN. #12 AWG).
20. CONTRACTOR SHALL PROVIDE A CELLULAR GROUNDING SYNSTEM WITH THE MAXIMUM AC RESISTANCE TO GROUND OF 5 OHM BETWEEN ANY POINT ON THE GROUNDING SYSTEM AS MEASURED BY 3-POINT GROUNDING TEST. (REFER TO SECTION 16960).

TESTS BY INDEPENDENT ELECTRICAL TESTING FIRM

A. CONTRACTOR SHALL RETAIN THE SERVICES OF A LOCAL INDEPENDENT ELECTRICAL TESTING FIRM (WITH MINIMUM 5 YEARS COMMERCIAL EXPERIENCE IN THE ELECTRICAL TESTING INDUSTRY) AS SPECIFIED BY OWNER TO PERFORM:

   TEST 1: RESISTANCE TO GROUND TEST ON THE CELLULAR GROUNDING SYSTEM.

   THE TESTING FIRM SHALL INCLUDE THE FOLLOWING INFORMATION WITH THE REPORT:

   1. TESTING PROCEDURE INCLUDING THE MAKE AND MODEL OF TEST EQUIPMENT.
   2. CERTIFICATION OF TESTING EQUIPMENT CALIBRATION WITHIN SIX (6) MONTHS OF DATE OF TESTING. INCLUDE CERTIFICATION LAB ADDRESS AND TELEPHONE NUMBER.
   3. GRAPHICAL DESCRIPTION OF TESTING METHOD ACTUALLY IMPLEMENTED.

B. TESTING SHALL BE PERFORMED IN THE PRESENCE AND TO THE SATISFACTION OF OWNERS CONSTRUCTION REPRESENTATIVE. TESTING DATA SHALL BE INITIALED AND DATED BY THE CONSTRUCTION AND INCLUDED WITH THE WRITTEN REPORT/ANALYSIS.

C. THE CONTRACTOR SHALL FORWARD SIX (6) COPIES OF THE INDEPENDENT ELECTRICAL TESTING FIRM REPORT/ANALYSIS TO ENGINEER A MINIMUM OF TEN (10) WORKING DAYS PRIOR TO THE JOB TURNOVER.

D. CONTRACTOR TO PROVIDE A MINIMUM OF ONE (1) WEEK NOTICE TO OWNER AND ENGINEER FOR ALL TESTS REQUIRING WITNESSING.

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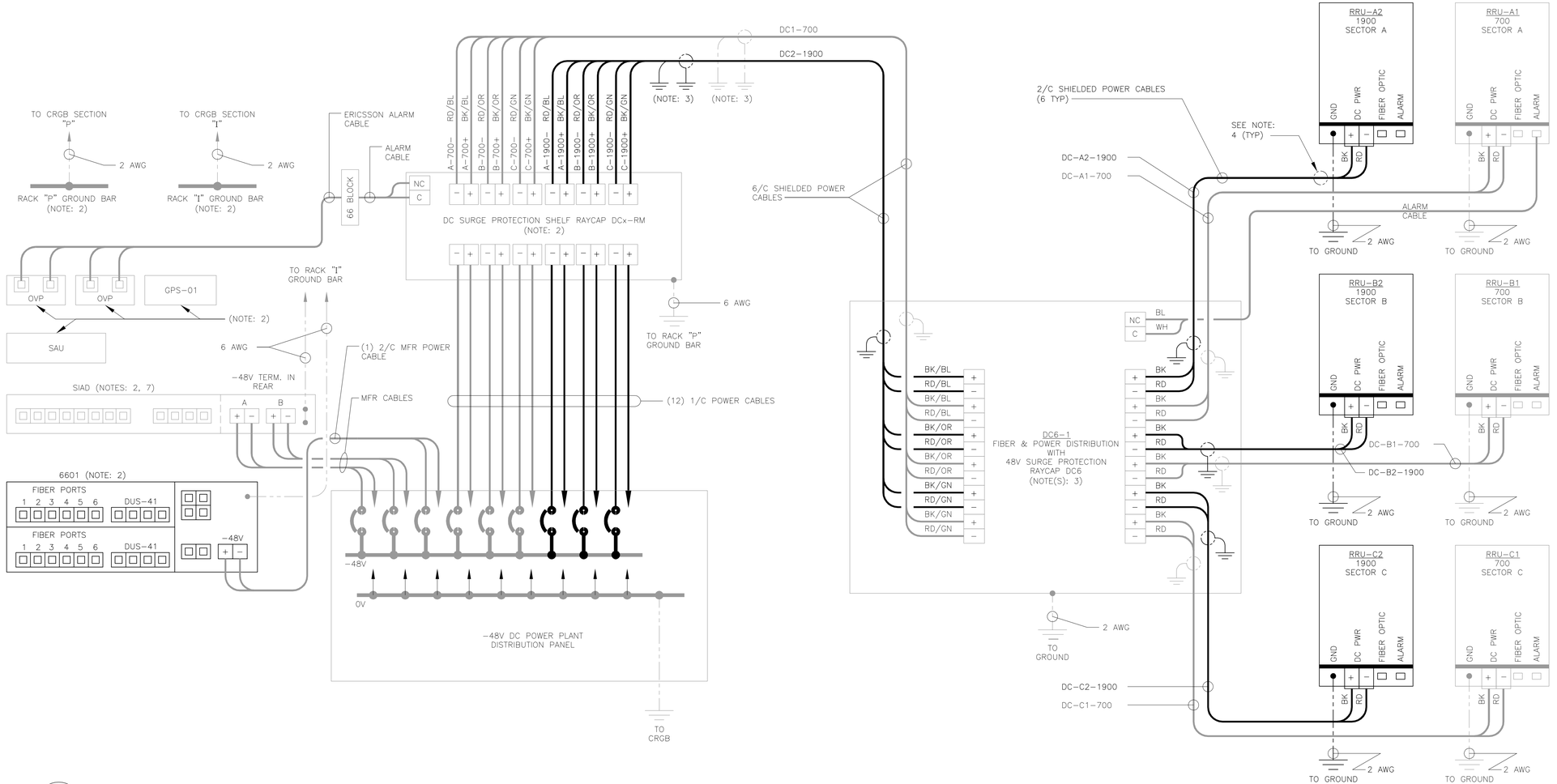
LTE SCHEMATIC DIAGRAM AND NOTES

E-1

Sheet No. 5 of 7



1 / E-2 LTE WIRING DIAGRAM

NOT TO SCALE

LTE WIRING DIAGRAM NOTES:

1. LABEL THE DC POWER CABLES AT BOTH ENDS OF EVERY WIRE AND IN ANY PULL BOX IF USED. LABEL SHALL BE DURABLE, SELF ADHESIVE, WRAPPED LONGITUDINALLY ALONG THE CABLE AND STATE THE SECTOR, FREQUENCY BAND AND POLARITY; I.E. "A-1900+". CABLE AND WIRE LABELS SHOWN ARE REPRESENTATIVE AND MAY BE MODIFIED AS DIRECTED BY AT&T.
2. INSTALL ON BASEBAND EQUIPMENT RACK.
3. THE BARE GROUND WIRE OF EACH MULTI-CONDUCTOR CABLE SHALL BE CONNECTED TO THE "P" GROUND BAR ON THE RACK. WHEN A SHIELDED CABLE IS USED, THE DRAIN WIRE ALSO SHALL BE CONNECTED TO THE "P" GROUND BAR.
4. CABLE GROUND WIRE AND SHIELD DRAIN WIRE TO BE LEFT UN-TERMINATED AT RRU AND DC POWER PLANT.
5. SEE LTE SCHEMATIC DIAGRAM DETAIL 1/E-1 FOR BREAKER RATING.

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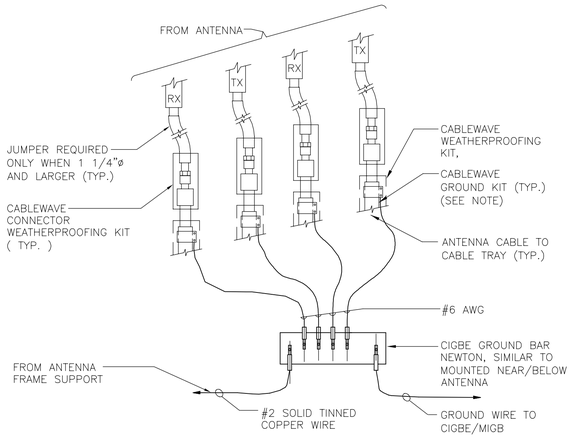
LTE WIRING DIAGRAM

E-2

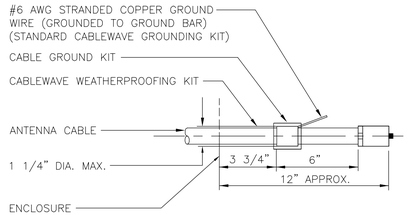
Sheet No. 6 of 7



NOTE:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE

4 / E-3 **CONNECTION OF GROUND WIRES TO GROUND BAR**
NOT TO SCALE

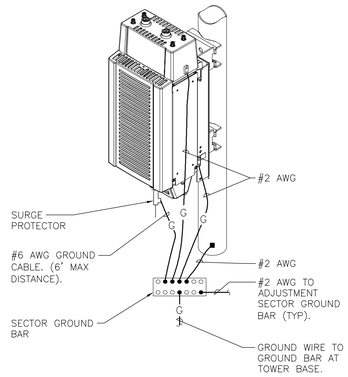


NOTE:

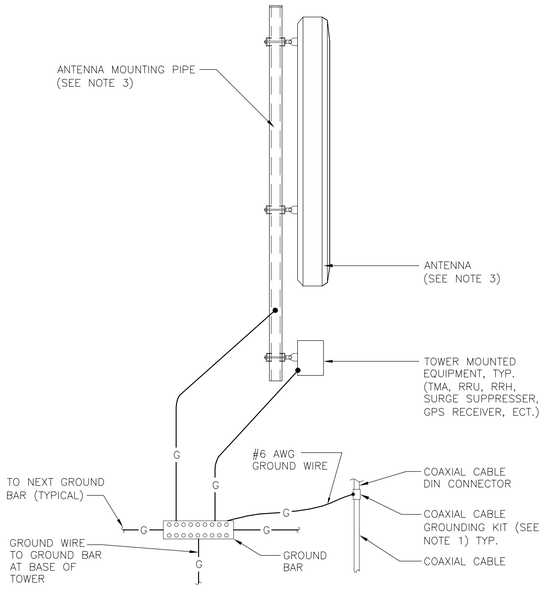
1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.

3 / E-3 **ANTENNA CABLE GROUNDING DETAIL**
NOT TO SCALE

EACH RRH CABINET SHALL BE GROUNDED IN THE FOLLOWING MANNER:
1. AT TOP OF THE CABINET
2. AT RIGHT SIDE OF THE CABINET.



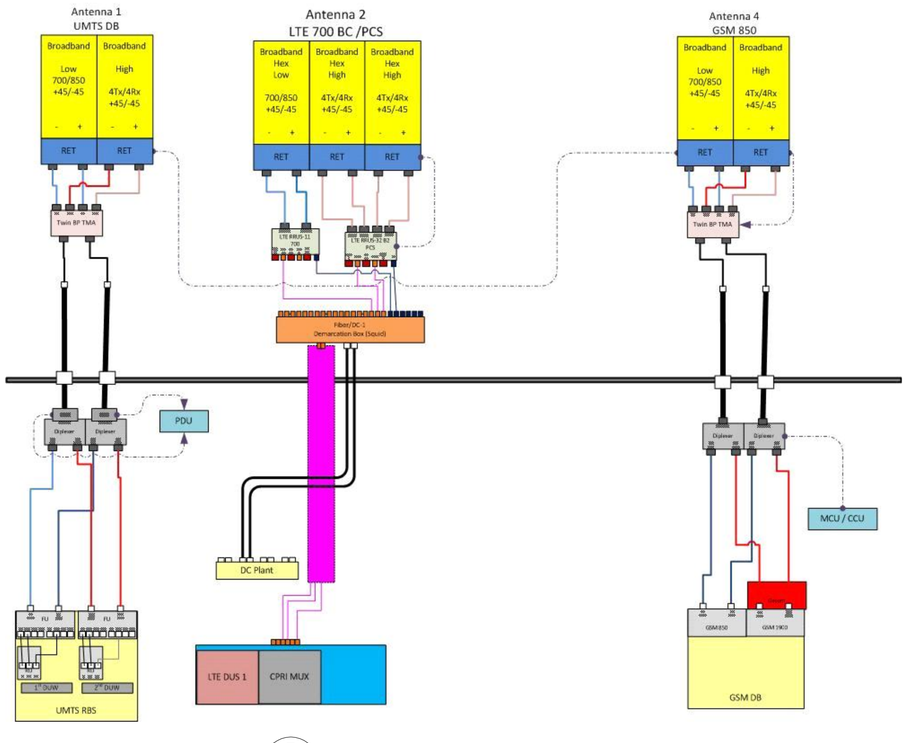
2 / E-3 **RRU POLE MOUNT GROUNDING**
NOT TO SCALE



NOTES:

1. BOND COAXIAL CABLE GROUND KITS TO EACH OWNER'S GROUND BAR ALONG ENTIRE COAX RUN FROM ANTENNA TO SHELTER.
2. BOND ALL EQUIPMENT TO GROUND PER NEC AND MANUFACTURERS SPECIFICATIONS.
3. DETAIL IS TYPICAL FOR ALL ANTENNA SECTORS, INCLUDING GPS ANTENNA.

1 / E-3 **TYPICAL ANTENNA GROUNDING DETAIL**
NOT TO SCALE



5 / E-3 **RF PLUMBING DIAGRAM**
NOT TO SCALE

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TYPICAL ELECTRICAL DETAILS

E-3
Sheet No. 7 of 7

AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure	:	**123 ft Monopole**
ATC Site Name	:	**Pine Orchard Branford CT, CT**
ATC Site Number	:	**283419**
Engineering Number	:	**OAA694357_C3_01**
Proposed Carrier	:	**AT&T Mobility**
Carrier Site Name	:	**Branford-Amtrak**
Carrier Site Number	:	**CT1274**
Site Location	:	**123 Pine Orchard Road** **Branford, CT 06405-3939** **41.274900,-72.793100**
County	:	**New Haven**
Date	:	**February 10, 2017**
Max Usage	:	**44%**
Result	:	**Pass**

Prepared By:
Tsega Melesse, E.I.
Structural Engineer I

Reviewed By:

COA: PEC.0001553

AMERICAN TOWER®
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Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 123 ft monopole to reflect the change in loading by AT&T Mobility.

Supporting Documents

Tower Drawings	Sabre Drawing #11-05276-PE, dated June 1, 2001
Foundation Drawing	Sabre Job #11-05276, dated June 2, 2001
Geotechnical Report	Terracon Project #J2105131, dated April 2, 2010

Analysis

The tower was analyzed using American Tower Corporation's tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/TIA-222.

Basic Wind Speed:	101 mph (3-Second Gust, Vasd) / 130 mph (3-Second Gust, Vult)
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 3/4" radial ice concurrent
Code:	ANSI/TIA-222-G / 2012 IBC / 2016 Connecticut State Building Code
Structure Class:	II
Exposure Category:	B
Topographic Category:	1
Crest Height:	0 ft
Spectral Response:	Ss = 0.18, S_1 = 0.06
Site Class:	D - Stiff Soil

Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report.

If you have any questions or require additional information, please contact American Tower via email at Engineering@americantower.com. Please include the American Tower site name, site number, and engineering number in the subject line for any questions.

Existing and Reserved Equipment

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
121.0	121.0	3	Ericsson KRY 112 71	T-Arms	(17) 1 5/8" Coax (1) 1 5/8" Fiber	T-Mobile
		3	Ericsson RRUS 11 B12			
		6	Ericsson AIR 21			
		3	Andrew LNX-6515DS-VTM			
112.0	112.0	1	Raycap DC6-48-60-18-8F	T-Arms	(12) 1 5/8" Coax (1) 0.40" Fiber	AT&T Mobility
105.0	105.0	1	54" x 8" Panel	T-Arms	(18) 1 5/8" Coax	Verizon
		2	72" x 6" Panel			
		2	88" x 6" Panel			
		2	Antel BXA-70063/6CF_			
		4	72" x 14" Panel			
		1	88" x 14" Panel			

Equipment to be Removed

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
112.0	112.0	12	Powerwave P65-16-XLH-RR	-	(6) 1 5/8" Coax	AT&T Mobility

Proposed Equipment

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
112.0	112.0	6	Powerwave TT19-08BP111-001	T-Arms	(2) 0.78" 8 AWG 6 (1) 2" conduit	AT&T Mobility
		3	Ericsson RRUS 11 (Band 12)			
		6	Powerwave P90-15-XLH-RR			
		3	Ericsson RRUS 32 B2			
		3	Commscope SBNHH-1D65A			

[1]Mount elevation is defined as height above bottom of steel structure to the bottom of mount, RAD elevation is defined as center of antenna above ground level (AGL).

Install proposed coax inside the pole shaft.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	34%	Pass
Shaft	44%	Pass
Base Plate	31%	Pass

Foundations

Reaction Component	Original Design Reactions	Factored Design Reactions*	Analysis Reactions	% of Design
Moment (Kips-Ft)	3,210.8	4,334.6	1,581.0	36%
Shear (Kips)	36.1	48.7	17.8	37%

*** The design reactions are factored by 1.35 per ANSI/TIA-222-G, Sec. 15.5.1**

The structure base reactions resulting from this analysis are acceptable when compared to those shown on the original structure drawings, therefore no modification or reinforcement of the foundation will be required.

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
112.0	Powerwave Allgon TT19-08BP111-001	AT&T Mobility	0.607	0.620
	Ericsson RRUS 11 (Band 12)			
	Ericsson RRUS 32 B2			
	Commscope SBNHH-1D65A			

***Deflection and Sway was evaluated considering a design wind speed of 60 mph (3-Second Gust) per ANSI/TIA-222-G**

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Standard Conditions

All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but is not necessary limited, to:

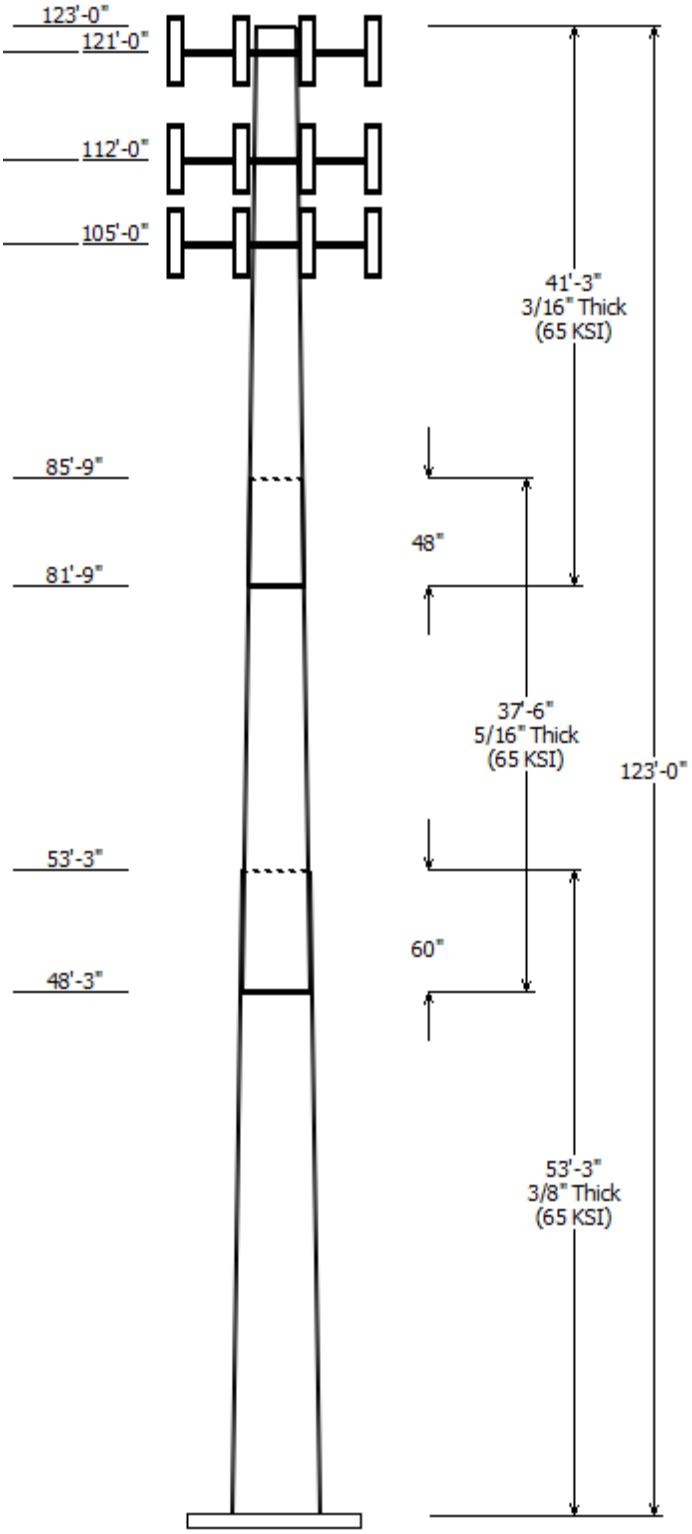
-- Information supplied by the client regarding the structure itself, antenna, mounts and feed line loading on the structure and its components, or other relevant information.

-- Information from drawings in the possession of American Tower Corporation, or generated by field inspections or measurements of the structure.

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and that their capacity has not significantly changed from the "as new" condition.

Unless explicitly agreed by both the client and American Tower Corporation, all services will be performed in accordance with the current revision of ANSI/TIA -222. The design basic wind speed will be determined based on the minimum basic wind speed as prescribed in ANSI/TIA-222. Although every effort is taken to ensure that the loading considered is adequate to meet the requirements of all applicable regulatory entities, we can provide no assurance to meet any other local and state codes or requirements. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. A.T. Engineering Service, PLLC is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.



Job Information

Pole :	283419	Code:	ANSI/TIA-222-G
Description :			
Client :	AT&T MOBILITY	Struct Class :	II
Location :	PINE ORCHARD BRANFORD CT, CT		
Shape :	18 Sides	Exposure :	B
Height :	123.00 (ft)	Topo :	1
Base Elev (ft):	0.00		
Taper:	0.250000 (in/ft)		

Sections Properties

Shaft Section	Length (ft)	Diameter (in) Across Flats Top	Bottom	Thick (in)	Joint Type	Overlap Length (in)	Taper (in/ft)	Steel Grade (ksi)
1	53.250	37.43	50.75	0.375		0.000	0.250000	65
2	37.500	29.93	39.31	0.313	Slip Joint	60.000	0.250000	65
3	41.250	21.00	31.31	0.188	Slip Joint	48.000	0.250000	65

Discrete Appurtenance

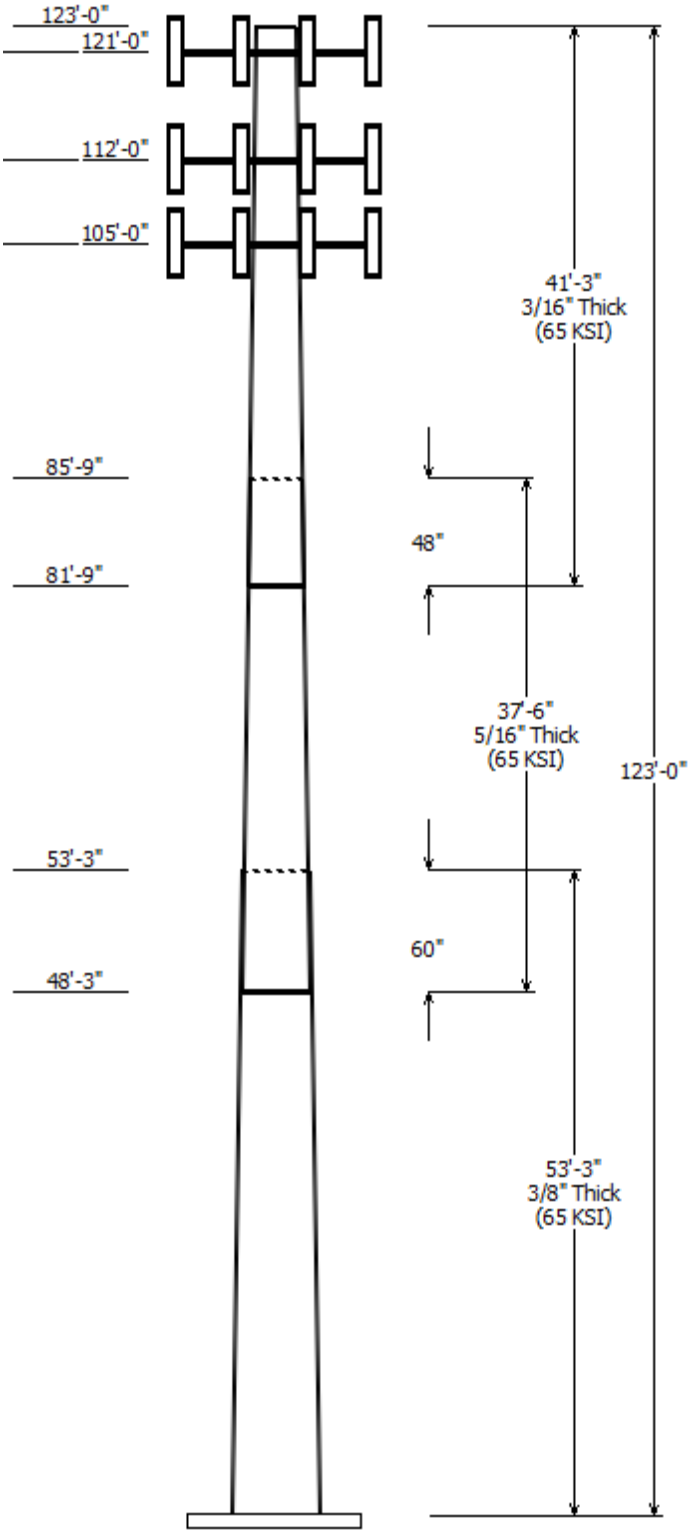
Attach Elev (ft)	Force Elev (ft)	Qty	Description
121.000	121.000	3	Ericsson KRY 112 71
121.000	121.000	3	Round T-Arm
121.000	121.000	6	Ericsson AIR 21
121.000	121.000	3	Ericsson RRUS 11 B12
121.000	121.000	3	Andrew LNX-6515DS-VTM
112.000	112.000	1	Raycap DC6-48-60-18-8F
112.000	112.000	6	Powerwave Allgon TT19-
112.000	112.000	3	Round T-Arm
112.000	112.000	3	Commscope SBNHH-1D65A
112.000	112.000	6	Powerwave Allgon P90-15-
112.000	112.000	3	Ericsson RRUS 11 (Band 12)
112.000	112.000	3	Ericsson RRUS 32 B2
105.000	105.000	1	54" x 8" Panel
105.000	105.000	2	72" x 6" Panel
105.000	105.000	1	88" x 14" Panel
105.000	105.000	2	Antel BXA-70063/6CF_
105.000	105.000	2	88" x 6" Panel
105.000	105.000	3	Round T-Arm
105.000	105.000	4	72" x 14" Panel

Linear Appurtenance

Elev (ft) From	To	Description	Exposed To Wind
0.000	105.0	1 5/8" Coax	No
0.000	112.0	0.40" Fiber	No
0.000	112.0	0.78" 8 AWG 6	No
0.000	112.0	1 5/8" Coax	No
0.000	112.0	2" conduit	No
0.000	121.0	1 5/8" Coax	No
0.000	121.0	1 5/8" Fiber	No

Load Cases

1.2D + 1.6W	101 mph with No Ice
0.9D + 1.6W	101 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Lateral
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Modal
1.0D + 1.0W	Serviceability 60 mph

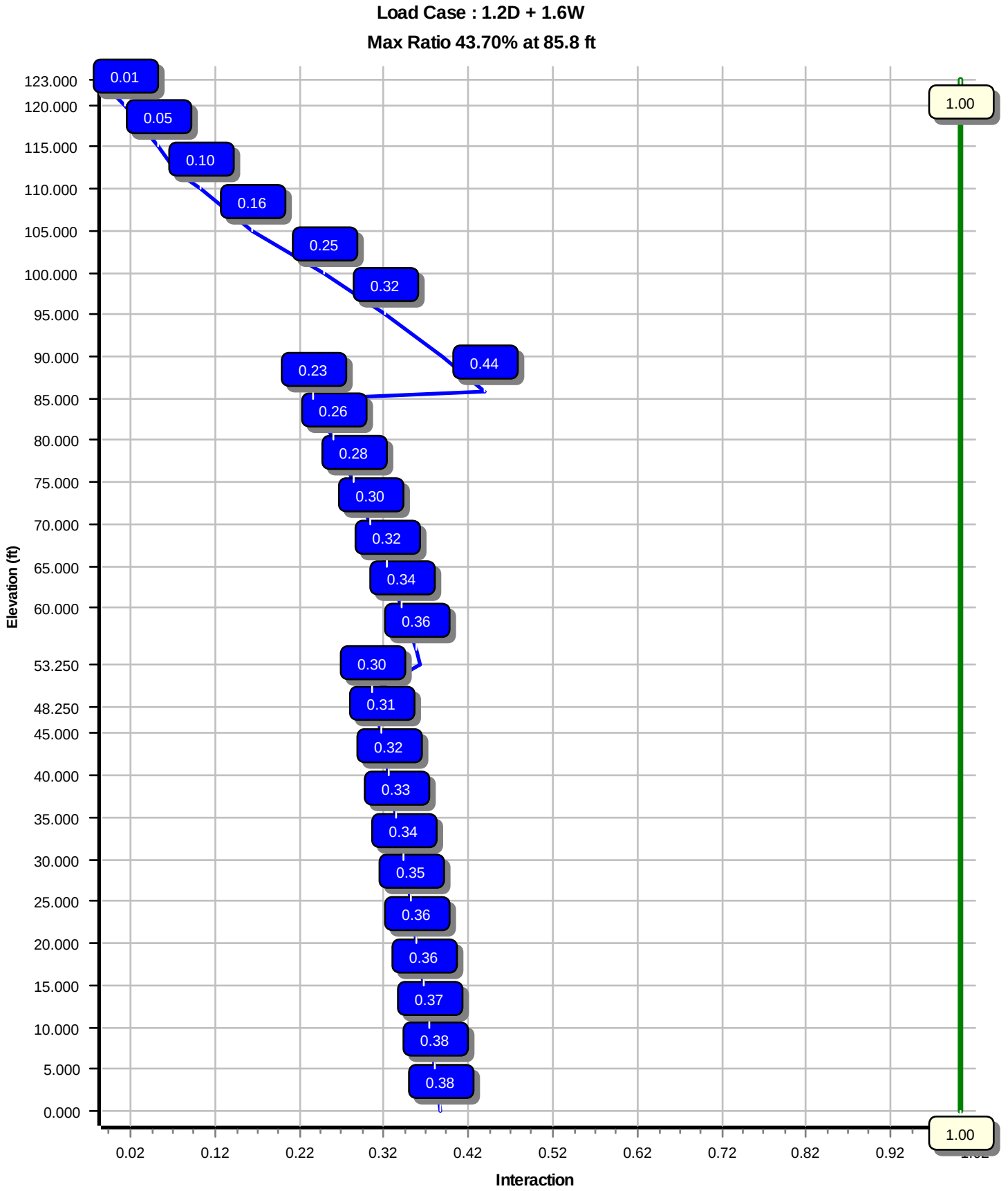


Reactions

Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.6W	1580.98	17.79	30.55
0.9D + 1.6W	1572.10	17.79	22.91
1.2D + 1.0Di + 1.0Wi	403.87	4.69	44.15
(1.2 + 0.2Sds) * DL + E ELFM	134.16	1.47	30.01
(1.2 + 0.2Sds) * DL + E EMAM	147.73	1.57	30.01
(0.9 - 0.2Sds) * DL + E ELFM	133.31	1.47	20.89
(0.9 - 0.2Sds) * DL + E EMAM	146.72	1.57	20.89
1.0D + 1.0W	347.48	3.92	25.47

Dish Deflections

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
	0.00	0.000	0.000


Load Case : 1.2D + 1.6W
Max Ratio 43.70% at 85.8 ft
Elevation (ft)
123.000
120.000
115.000
110.000
105.000
100.000
95.000
90.000
85.000
80.000
75.000
70.000
65.000
60.000
53.250
48.250
45.000
40.000
35.000
30.000
25.000
20.000
15.000
10.000
5.000
0.000
0.01
0.05
0.10
0.16
0.25
0.32
0.44
0.23
0.26
0.28
0.30
0.32
0.34
0.36
0.30
0.31
0.32
0.33
0.34
0.35
0.36
0.36
0.37
0.38
0.38
1.00
1.00
0.02
0.12
0.22
0.32
0.42
0.52
0.62
0.72
0.82
0.92
Interaction

Site Number: 283419 **Code:** ANSI/TIA-222-G

Site Name: PINE ORCHARD BRANFORD CT, CT **Engineering Number:** OAA694357_C3_01 **2/10/2017 6:16:07 PM**

Customer: AT&T MOBILITY

Analysis Parameters

Location:	NEW HAVEN County, CT	**Height (ft):**	123
Code:	ANSI/TIA-222-G	**Base Diameter (in):**	50.75
Shape:	18 Sides	**Top Diameter (in):**	21.00
Pole Type:	Taper	**Taper (in/ft) :**	0.250
Pole Manfacturer:		**Rotation (deg) :**	0.00

Ice & Wind Parameters

Structure Class:	II	**Design Wind Speed Without Ice:**	101 mph
Exposure Category:	B	**Design Wind Speed With Ice:**	50 mph
Topographic Category:	1	**Operational Wind Speed:**	60 mph
Crest Height:	0.0 ft	**Design Ice Thickness:**	0.75 in

Seismic Parameters

Analysis Method: Equivalent Modal Analysis & Equivalent Lateral Force Methods

Site Class: D - Stiff Soil

Period Based on Rayleigh Method (sec): 1.47

T_L (sec):	6	**p:**	1.3	**C_s:**	0.044
S_s:	0.179	**S_1:**	0.061	**C_s Max:**	0.044
F_a:	1.600	**F_v:**	2.400	**C_s Min:**	0.030
S_{ds}:	0.191	**S_{d1}:**	0.098		

Load Cases

1.2D + 1.6W	101 mph with No Ice
0.9D + 1.6W	101 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E ELFM	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E EMAM	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E ELFM	Seismic (Reduced DL) Equivalent Lateral Forces Method
(0.9 - 0.2Sds) * DL + E EMAM	Seismic (Reduced DL) Equivalent Modal Analysis Method
1.0D + 1.0W	Serviceability 60 mph

Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint Len (in)	Weight (lb)	Bottom Dia (in)	Bottom Elev (ft)	Bottom Area (in²)	Bottom Ix (in⁴)	Bottom W/t Ratio	Bottom D/t Ratio	Top Dia (in)	Top Elev (ft)	Top Area (in²)	Top Ix (in⁴)	Top W/t Ratio	Top D/t Ratio	Taper (in/ft)
1-18	53.250	0.3750	65		0.00	9,429	50.75	0.00	59.96	19223.0	22.45	135.33	37.43	53.25	44.11	7655.6	16.19	99.83	0.250000
2-18	37.500	0.3125	65	Slip	60.00	4,343	39.31	48.25	38.68	7433.4	20.77	125.80	29.93	85.75	29.38	3258.1	15.48	95.80	0.250000
3-18	41.250	0.1875	65	Slip	48.00	2,169	31.31	81.75	18.52	2267.1	28.04	167.00	21.00	123.00	12.39	677.8	18.34	112.00	0.250000
				Shaft Weight		15,940													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	No Ice Weight (lb)	No Ice EPAa (sf)	No Ice Orientation Factor	Ice Weight (lb)	Ice EPAa (sf)	Ice Orientation Factor	Distance From Face (ft)	Vert Ecc (ft)
121.00	Andrew LNX-6515DS-VTM	3	51.30	11.430	0.84	276.02	14.607	0.84	0.000	0.000
121.00	Ericsson AIR 21	6	91.00	6.050	0.86	233.32	8.170	0.86	0.000	0.000
121.00	Ericsson KRY 112 71	3	13.20	0.580	0.50	37.35	0.944	0.50	0.000	0.000
121.00	Ericsson RRUS 11 B12	3	50.70	2.970	0.67	121.68	4.114	0.67	0.000	0.000
121.00	Round T-Arm	3	250.00	9.700	0.67	454.89	17.782	0.67	0.000	0.000
112.00	Commscope SBNHH-1D65A	3	33.50	5.880	0.83	165.11	7.947	0.83	0.000	0.000
112.00	Ericsson RRUS 11 (Band 12)	3	50.00	2.570	0.67	116.28	3.590	0.67	0.000	0.000
112.00	Ericsson RRUS 32 B2	3	53.00	2.740	0.67	124.51	3.876	0.67	0.000	0.000
112.00	Powerwave Allgon P90-15-	6	53.00	8.130	0.79	213.15	10.840	0.79	0.000	0.000
112.00	Powerwave Allgon TT19-	6	16.00	0.640	0.50	35.64	1.215	0.50	0.000	0.000
112.00	Raycap DC6-48-60-18-8F	1	20.00	1.110	1.00	71.20	1.674	1.00	0.000	0.000
112.00	Round T-Arm	3	250.00	9.700	0.67	453.21	17.716	0.67	0.000	0.000
105.00	54" x 8" Panel	1	30.00	4.170	0.69	111.35	6.213	0.69	0.000	0.000
105.00	72" x 14" Panel	4	45.00	9.220	0.67	230.55	11.897	0.67	0.000	0.000
105.00	72" x 6" Panel	2	40.00	4.700	0.86	121.45	6.965	0.86	0.000	0.000
105.00	88" x 14" Panel	1	50.00	11.710	1.00	72.28	14.999	1.00	0.000	0.000
105.00	88" x 6" Panel	2	45.00	6.070	0.85	143.89	8.795	0.85	0.000	0.000
105.00	Antel BXA-70063/6CF_	2	17.00	7.570	0.81	153.41	10.231	0.81	0.000	0.000
105.00	Round T-Arm	3	250.00	9.700	0.67	451.60	17.652	0.67	0.000	0.000
	Totals	58	4449.10			11,509.23			Number of Loadings :	19

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Diameter (in)	Coax Weight (lb/ft)	Flat	Projected Width (in)	Exposed To Wind	Carrier
0.00	121.00	17	1 5/8" Coax	1.98	0.82	N	0.00	N	T-MOBILE
0.00	121.00	1	1 5/8" Fiber	1.63	1.61	N	0.00	N	T-MOBILE
0.00	112.00	1	0.40" Fiber	0.40	0.09	N	0.00	N	AT&T MOBILITY
0.00	112.00	2	0.78" 8 AWG 6	0.78	0.59	N	0.00	N	AT&T MOBILITY
0.00	112.00	12	1 5/8" Coax	1.98	0.82	N	0.00	N	AT&T MOBILITY
0.00	112.00	1	2" conduit	2.38	3.65	N	0.00	N	AT&T MOBILITY
0.00	105.00	18	1 5/8" Coax	1.98	0.82	N	0.00	N	VERIZON WIRELESS

Segment Properties (Max Len : 5. ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	F'y (ksi)	S (in^3)	Z (in^3)	Weight (lb)
0.00		0.3750	50.750	59.957	19,223.0	22.45	135.33	75.0	746.0	0.0	0.0
5.00		0.3750	49.500	58.469	17,827.2	21.86	132.00	75.7	709.3	0.0	1,007.4
10.00		0.3750	48.250	56.981	16,500.7	21.28	128.67	76.4	673.6	0.0	982.1
15.00		0.3750	47.000	55.493	15,241.7	20.69	125.33	77.1	638.7	0.0	956.8
20.00		0.3750	45.750	54.006	14,048.4	20.10	122.00	77.8	604.8	0.0	931.5
25.00		0.3750	44.500	52.518	12,919.0	19.51	118.67	78.4	571.8	0.0	906.2
30.00		0.3750	43.250	51.030	11,851.9	18.93	115.33	79.1	539.7	0.0	880.9
35.00		0.3750	42.000	49.542	10,845.2	18.34	112.00	79.8	508.6	0.0	855.6
40.00		0.3750	40.750	48.055	9,897.2	17.75	108.67	80.5	478.4	0.0	830.3
45.00		0.3750	39.500	46.567	9,006.1	17.16	105.33	81.2	449.1	0.0	804.9
48.25	Bot - Section 2	0.3750	38.688	45.600	8,456.6	16.78	103.17	81.7	430.5	0.0	509.6
50.00		0.3750	38.250	45.079	8,170.2	16.57	102.00	81.9	420.7	0.0	499.0
53.25	Top - Section 1	0.3125	38.063	37.442	6,741.3	20.07	121.80	77.8	348.8	0.0	911.7
55.00		0.3125	37.625	37.008	6,509.6	19.82	120.40	78.1	340.8	0.0	221.7
60.00		0.3125	36.375	35.768	5,877.1	19.11	116.40	78.9	318.2	0.0	619.1
65.00		0.3125	35.125	34.528	5,286.9	18.41	112.40	79.7	296.5	0.0	598.0
70.00		0.3125	33.875	33.289	4,737.6	17.70	108.40	80.6	275.5	0.0	576.9
75.00		0.3125	32.625	32.049	4,227.7	17.00	104.40	81.4	255.2	0.0	555.8
80.00		0.3125	31.375	30.809	3,755.8	16.29	100.40	82.2	235.8	0.0	534.7
81.75	Bot - Section 3	0.3125	30.938	30.375	3,599.3	16.05	99.00	82.5	229.1	0.0	182.2
85.00		0.3125	30.125	29.569	3,320.4	15.59	96.40	82.6	217.1	0.0	533.6
85.75	Top - Section 2	0.1875	30.313	17.927	2,055.5	27.10	161.67	69.5	133.6	0.0	121.1
90.00		0.1875	29.250	17.295	1,845.6	26.10	156.00	70.7	124.3	0.0	254.7
95.00		0.1875	28.000	16.551	1,617.6	24.92	149.33	72.1	113.8	0.0	287.9
100.0		0.1875	26.750	15.807	1,409.1	23.75	142.67	73.5	103.8	0.0	275.3
105.0		0.1875	25.500	15.064	1,219.4	22.57	136.00	74.9	94.2	0.0	262.6
110.0		0.1875	24.250	14.320	1,047.5	21.39	129.33	76.2	85.1	0.0	250.0
112.0		0.1875	23.750	14.022	983.6	20.92	126.67	76.8	81.6	0.0	96.4
115.0		0.1875	23.000	13.576	892.6	20.22	122.67	77.6	76.4	0.0	140.9
120.0		0.1875	21.750	12.832	753.8	19.04	116.00	79.0	68.3	0.0	224.6
121.0		0.1875	21.500	12.683	727.9	18.81	114.67	79.3	66.7	0.0	43.4
123.0		0.1875	21.000	12.386	677.8	18.34	112.00	79.8	63.6	0.0	85.3
											15,940.4

Load Case: 1.2D + 1.6W — 101 mph with No Ice — 21 Iterations

Gust Response Factor : 1.10 — Wind Importance Factor : 1.00
Dead Load Factor : 1.20
Wind Load Factor : 1.60

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces Wind FX (lb)	Shaft Forces Dead Load (lb)	Discrete Forces Wind FX (lb)	Discrete Forces Torsion MY (lb-ft)	Discrete Forces Moment MZ (lb-ft)	Discrete Forces Dead Load (lb)	Linear Forces Wind FX (lb)	Linear Forces Dead Load (lb)	Sum of Forces Wind FX (lb)	Sum of Forces Dead Load (lb)	Sum of Forces Torsion MY (lb-ft)	Sum of Forces Moment MZ (lb)
0.00		210.7	0.0					0.0	0.0	210.7	0.0	0.0	0.0
5.00		416.1	1,208.9					0.0	270.4	416.1	1,479.3	0.0	0.0
10.00		405.6	1,178.6					0.0	270.4	405.6	1,449.0	0.0	0.0
15.00		395.1	1,148.2					0.0	270.4	395.1	1,418.6	0.0	0.0
20.00		384.6	1,117.8					0.0	270.4	384.6	1,388.2	0.0	0.0
25.00		374.0	1,087.4					0.0	270.4	374.0	1,357.8	0.0	0.0
30.00		367.8	1,057.1					0.0	270.4	367.8	1,327.5	0.0	0.0
35.00		368.9	1,026.7					0.0	270.4	368.9	1,297.1	0.0	0.0
40.00		371.9	996.3					0.0	270.4	371.9	1,266.7	0.0	0.0
45.00		307.7	965.9					0.0	270.4	307.7	1,236.3	0.0	0.0
48.25	Bot - Section 2	187.5	611.6					0.0	175.8	187.5	787.3	0.0	0.0
50.00		189.1	598.9					0.0	94.6	189.1	693.5	0.0	0.0
53.25	Top - Section 1	188.8	1,094.1					0.0	175.8	188.8	1,269.8	0.0	0.0
55.00		253.4	266.0					0.0	94.6	253.4	360.7	0.0	0.0
60.00		372.9	742.9					0.0	270.4	372.9	1,013.3	0.0	0.0
65.00		368.4	717.6					0.0	270.4	368.4	988.0	0.0	0.0
70.00		362.9	692.3					0.0	270.4	362.9	962.7	0.0	0.0
75.00		356.5	667.0					0.0	270.4	356.5	937.4	0.0	0.0
80.00		237.4	641.7					0.0	270.4	237.4	912.1	0.0	0.0
81.75	Bot - Section 3	174.1	218.6					0.0	94.6	174.1	313.3	0.0	0.0
85.00		139.0	640.4					0.0	175.8	139.0	816.1	0.0	0.0
85.75	Top - Section 2	170.6	145.3					0.0	40.6	170.6	185.9	0.0	0.0
90.00		310.9	305.6					0.0	229.9	310.9	535.5	0.0	0.0
95.00		327.4	345.5					0.0	270.4	327.4	615.9	0.0	0.0
100.00		317.4	330.3					0.0	270.4	317.4	600.7	0.0	0.0
105.00	Appertunance(s)	306.8	315.1	3,088.8	0.0	0.0	1,456.8	0.0	270.4	3,395.6	2,042.4	0.0	0.0
110.00		209.4	300.0					0.0	181.9	209.4	481.8	0.0	0.0
112.00	Appertunance(s)	145.0	115.7	3,036.4	0.0	0.0	1,912.2	0.0	72.7	3,181.4	2,100.7	0.0	0.0
115.00		225.3	169.0					0.0	56.0	225.3	225.0	0.0	0.0
120.00		166.1	269.6					0.0	93.3	166.1	362.9	0.0	0.0
121.00	Appertunance(s)	80.4	52.1	3,103.5	0.0	0.0	1,969.9	0.0	18.7	3,183.9	2,040.7	0.0	0.0
123.00		53.4	102.4					0.0	0.0	53.4	102.4	0.0	0.0
								Totals:		17,973.5	30,568.7	0.00	0.00

Load Case: 1.2D + 1.6W — 101 mph with No Ice — 21 Iterations

Gust Response Factor : 1.10 — Wind Importance Factor : 1.00
Dead Load Factor : 1.20
Wind Load Factor : 1.60

Calculated Forces

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 (deg)	Ratio
0.00	-30.55	-17.79	0.00	-1,580.98	0.00	1,580.98	4,046.69	2,023.34	8,379.77	4,196.11	0.00	0.00	0.384
5.00	-29.04	-17.43	0.00	-1,492.01	0.00	1,492.01	3,982.65	1,991.32	8,041.00	4,026.48	0.06	-0.11	0.378
10.00	-27.55	-17.08	0.00	-1,404.85	0.00	1,404.85	3,916.76	1,958.38	7,705.23	3,858.34	0.24	-0.23	0.371
15.00	-26.10	-16.73	0.00	-1,319.45	0.00	1,319.45	3,849.02	1,924.51	7,372.73	3,691.85	0.55	-0.35	0.364
20.00	-24.68	-16.39	0.00	-1,235.79	0.00	1,235.79	3,779.43	1,889.72	7,043.80	3,527.13	0.97	-0.47	0.357
25.00	-23.30	-16.05	0.00	-1,153.84	0.00	1,153.84	3,707.99	1,853.99	6,718.71	3,364.35	1.53	-0.59	0.349
30.00	-21.94	-15.72	0.00	-1,073.58	0.00	1,073.58	3,634.70	1,817.35	6,397.77	3,203.64	2.21	-0.71	0.341
35.00	-20.61	-15.38	0.00	-995.00	0.00	995.00	3,559.55	1,779.78	6,081.25	3,045.14	3.02	-0.83	0.333
40.00	-19.32	-15.03	0.00	-918.12	0.00	918.12	3,482.56	1,741.28	5,769.44	2,889.01	3.96	-0.96	0.323
45.00	-18.06	-14.73	0.00	-842.99	0.00	842.99	3,403.71	1,701.85	5,462.63	2,735.38	5.03	-1.09	0.314
48.25	-17.26	-14.55	0.00	-795.12	0.00	795.12	3,351.47	1,675.73	5,266.03	2,636.93	5.80	-1.17	0.307
50.00	-16.56	-14.36	0.00	-769.67	0.00	769.67	3,323.01	1,661.51	5,161.12	2,584.39	6.24	-1.22	0.303
53.25	-15.27	-14.16	0.00	-722.99	0.00	722.99	2,621.66	1,310.83	4,064.92	2,035.48	7.10	-1.30	0.361
55.00	-14.90	-13.93	0.00	-698.21	0.00	698.21	2,600.95	1,300.48	3,985.68	1,995.80	7.58	-1.35	0.356
60.00	-13.86	-13.56	0.00	-628.58	0.00	628.58	2,540.52	1,270.26	3,761.58	1,883.58	9.07	-1.49	0.339
65.00	-12.85	-13.20	0.00	-560.77	0.00	560.77	2,478.24	1,239.12	3,541.08	1,773.17	10.71	-1.64	0.322
70.00	-11.86	-12.84	0.00	-494.77	0.00	494.77	2,414.11	1,207.05	3,324.48	1,664.71	12.50	-1.78	0.302
75.00	-10.91	-12.48	0.00	-430.59	0.00	430.59	2,348.12	1,174.06	3,112.07	1,558.35	14.44	-1.92	0.281
80.00	-9.99	-12.22	0.00	-368.20	0.00	368.20	2,280.29	1,140.14	2,904.14	1,454.23	16.52	-2.05	0.258
81.75	-9.67	-12.05	0.00	-346.81	0.00	346.81	2,256.11	1,128.06	2,832.47	1,418.34	17.28	-2.10	0.249
85.00	-8.85	-11.89	0.00	-307.65	0.00	307.65	2,196.84	1,098.42	2,684.15	1,344.07	18.74	-2.18	0.233
85.75	-8.65	-11.72	0.00	-298.73	0.00	298.73	1,121.87	560.94	1,390.96	696.51	19.08	-2.20	0.437
90.00	-8.10	-11.41	0.00	-248.92	0.00	248.92	1,100.60	550.30	1,316.16	659.06	21.09	-2.30	0.385
95.00	-7.47	-11.08	0.00	-191.89	0.00	191.89	1,073.86	536.93	1,228.59	615.21	23.59	-2.47	0.319
100.00	-6.86	-10.75	0.00	-136.51	0.00	136.51	1,045.26	522.63	1,141.77	571.73	26.27	-2.62	0.246
105.00	-4.97	-7.27	0.00	-82.77	0.00	82.77	1,014.82	507.41	1,055.98	528.78	29.07	-2.73	0.162
110.00	-4.49	-7.04	0.00	-46.43	0.00	46.43	982.52	491.26	971.52	486.48	31.97	-2.80	0.100
112.00	-2.55	-3.76	0.00	-32.36	0.00	32.36	969.08	484.54	938.16	469.78	33.15	-2.83	0.072
115.00	-2.33	-3.52	0.00	-21.08	0.00	21.08	948.37	474.19	888.66	444.99	34.93	-2.85	0.050
120.00	-1.98	-3.34	0.00	-3.46	0.00	3.46	912.38	456.19	807.70	404.45	37.93	-2.87	0.011
121.00	-0.10	-0.06	0.00	-0.12	0.00	0.12	904.95	452.48	791.76	396.47	38.53	-2.87	0.000
123.00	0.00	-0.05	0.00	0.00	0.00	0.00	889.89	444.94	760.16	380.64	39.73	-2.87	0.000

Load Case: 0.9D + 1.6W — 101 mph with No Ice (Reduced DL) — 21 Iterations

Gust Response Factor : 1.10
Dead Load Factor : 0.90
Wind Load Factor : 1.60
Wind Importance Factor : 1.00

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces Wind FX (lb)	Shaft Forces Dead Load (lb)	Discrete Forces Wind FX (lb)	Discrete Forces Torsion MY (lb-ft)	Discrete Forces Moment MZ (lb-ft)	Discrete Forces Dead Load (lb)	Linear Forces Wind FX (lb)	Linear Forces Dead Load (lb)	Sum of Forces Wind FX (lb)	Sum of Forces Dead Load (lb)	Sum of Forces Torsion MY (lb-ft)	Sum of Forces Moment MZ (lb)
0.00		210.7	0.0					0.0	0.0	210.7	0.0	0.0	0.0
5.00		416.1	906.7					0.0	202.8	416.1	1,109.5	0.0	0.0
10.00		405.6	883.9					0.0	202.8	405.6	1,086.7	0.0	0.0
15.00		395.1	861.1					0.0	202.8	395.1	1,063.9	0.0	0.0
20.00		384.6	838.4					0.0	202.8	384.6	1,041.2	0.0	0.0
25.00		374.0	815.6					0.0	202.8	374.0	1,018.4	0.0	0.0
30.00		367.8	792.8					0.0	202.8	367.8	995.6	0.0	0.0
35.00		368.9	770.0					0.0	202.8	368.9	972.8	0.0	0.0
40.00		371.9	747.2					0.0	202.8	371.9	950.0	0.0	0.0
45.00		307.7	724.4					0.0	202.8	307.7	927.3	0.0	0.0
48.25	Bot - Section 2	187.5	458.7					0.0	131.8	187.5	590.5	0.0	0.0
50.00		189.1	449.1					0.0	71.0	189.1	520.1	0.0	0.0
53.25	Top - Section 1	188.8	820.5					0.0	131.8	188.8	952.4	0.0	0.0
55.00		253.4	199.5					0.0	71.0	253.4	270.5	0.0	0.0
60.00		372.9	557.2					0.0	202.8	372.9	760.0	0.0	0.0
65.00		368.4	538.2					0.0	202.8	368.4	741.0	0.0	0.0
70.00		362.9	519.2					0.0	202.8	362.9	722.0	0.0	0.0
75.00		356.5	500.2					0.0	202.8	356.5	703.1	0.0	0.0
80.00		237.4	481.3					0.0	202.8	237.4	684.1	0.0	0.0
81.75	Bot - Section 3	174.1	164.0					0.0	71.0	174.1	234.9	0.0	0.0
85.00		139.0	480.3					0.0	131.8	139.0	612.1	0.0	0.0
85.75	Top - Section 2	170.6	109.0					0.0	30.4	170.6	139.4	0.0	0.0
90.00		310.9	229.2					0.0	172.4	310.9	401.6	0.0	0.0
95.00		327.4	259.1					0.0	202.8	327.4	462.0	0.0	0.0
100.00		317.4	247.7					0.0	202.8	317.4	450.6	0.0	0.0
105.00	Appertunance(s)	306.8	236.4	3,088.8	0.0	0.0	1,092.6	0.0	202.8	3,395.6	1,531.8	0.0	0.0
110.00		209.4	225.0					0.0	136.4	209.4	361.4	0.0	0.0
112.00	Appertunance(s)	145.0	86.8	3,036.4	0.0	0.0	1,434.1	0.0	54.6	3,181.4	1,575.5	0.0	0.0
115.00		225.3	126.8					0.0	42.0	225.3	168.8	0.0	0.0
120.00		166.1	202.2					0.0	70.0	166.1	272.2	0.0	0.0
121.00	Appertunance(s)	80.4	39.1	3,103.5	0.0	0.0	1,477.4	0.0	14.0	3,183.9	1,530.5	0.0	0.0
123.00		53.4	76.8					0.0	0.0	53.4	76.8	0.0	0.0
								Totals:		17,973.5	22,926.5	0.00	0.00

Load Case: 0.9D + 1.6W — 101 mph with No Ice (Reduced DL) — 21 Iterations

Gust Response Factor : 1.10 — Wind Importance Factor : 1.00
Dead Load Factor : 0.90
Wind Load Factor : 1.60

Calculated Forces

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 (deg)	Ratio
0.00	-22.91	-17.79	0.00	-1,572.10	0.00	1,572.10	4,046.69	2,023.34	8,379.77	4,196.11	0.00	0.00	0.380
5.00	-21.76	-17.41	0.00	-1,483.17	0.00	1,483.17	3,982.65	1,991.32	8,041.00	4,026.48	0.06	-0.11	0.374
10.00	-20.64	-17.04	0.00	-1,396.11	0.00	1,396.11	3,916.76	1,958.38	7,705.23	3,858.34	0.24	-0.23	0.367
15.00	-19.55	-16.68	0.00	-1,310.89	0.00	1,310.89	3,849.02	1,924.51	7,372.73	3,691.85	0.54	-0.34	0.360
20.00	-18.48	-16.33	0.00	-1,227.47	0.00	1,227.47	3,779.43	1,889.72	7,043.80	3,527.13	0.97	-0.46	0.353
25.00	-17.43	-15.98	0.00	-1,145.81	0.00	1,145.81	3,707.99	1,853.99	6,718.71	3,364.35	1.52	-0.58	0.345
30.00	-16.40	-15.64	0.00	-1,065.89	0.00	1,065.89	3,634.70	1,817.35	6,397.77	3,203.64	2.19	-0.70	0.337
35.00	-15.40	-15.29	0.00	-987.69	0.00	987.69	3,559.55	1,779.78	6,081.25	3,045.14	3.00	-0.83	0.329
40.00	-14.43	-14.94	0.00	-911.23	0.00	911.23	3,482.56	1,741.28	5,769.44	2,889.01	3.93	-0.95	0.320
45.00	-13.48	-14.64	0.00	-836.55	0.00	836.55	3,403.71	1,701.85	5,462.63	2,735.38	5.00	-1.08	0.310
48.25	-12.87	-14.45	0.00	-788.98	0.00	788.98	3,351.47	1,675.73	5,266.03	2,636.93	5.76	-1.16	0.303
50.00	-12.34	-14.27	0.00	-763.69	0.00	763.69	3,323.01	1,661.51	5,161.12	2,584.39	6.20	-1.21	0.299
53.25	-11.38	-14.07	0.00	-717.32	0.00	717.32	2,621.66	1,310.83	4,064.92	2,035.48	7.05	-1.29	0.357
55.00	-11.09	-13.83	0.00	-692.70	0.00	692.70	2,600.95	1,300.48	3,985.68	1,995.80	7.53	-1.34	0.351
60.00	-10.31	-13.46	0.00	-623.55	0.00	623.55	2,540.52	1,270.26	3,761.58	1,883.58	9.01	-1.48	0.335
65.00	-9.54	-13.10	0.00	-556.23	0.00	556.23	2,478.24	1,239.12	3,541.08	1,773.17	10.64	-1.62	0.318
70.00	-8.80	-12.74	0.00	-490.74	0.00	490.74	2,414.11	1,207.05	3,324.48	1,664.71	12.41	-1.76	0.299
75.00	-8.08	-12.38	0.00	-427.06	0.00	427.06	2,348.12	1,174.06	3,112.07	1,558.35	14.34	-1.90	0.278
80.00	-7.39	-12.13	0.00	-365.17	0.00	365.17	2,280.29	1,140.14	2,904.14	1,454.23	16.40	-2.04	0.254
81.75	-7.14	-11.95	0.00	-343.95	0.00	343.95	2,256.11	1,128.06	2,832.47	1,418.34	17.16	-2.08	0.246
85.00	-6.53	-11.80	0.00	-305.10	0.00	305.10	2,196.84	1,098.42	2,684.15	1,344.07	18.61	-2.17	0.230
85.75	-6.38	-11.63	0.00	-296.26	0.00	296.26	1,121.87	560.94	1,390.96	696.51	18.95	-2.19	0.431
90.00	-5.97	-11.32	0.00	-246.84	0.00	246.84	1,100.60	550.30	1,316.16	659.06	20.94	-2.29	0.380
95.00	-5.49	-10.99	0.00	-190.25	0.00	190.25	1,073.86	536.93	1,228.59	615.21	23.43	-2.45	0.315
100.00	-5.03	-10.66	0.00	-135.33	0.00	135.33	1,045.26	522.63	1,141.77	571.73	26.08	-2.60	0.242
105.00	-3.64	-7.20	0.00	-82.03	0.00	82.03	1,014.82	507.41	1,055.98	528.78	28.86	-2.71	0.159
110.00	-3.29	-6.98	0.00	-46.02	0.00	46.02	982.52	491.26	971.52	486.48	31.74	-2.78	0.098
112.00	-1.87	-3.72	0.00	-32.06	0.00	32.06	969.08	484.54	938.16	469.78	32.91	-2.80	0.070
115.00	-1.71	-3.49	0.00	-20.89	0.00	20.89	948.37	474.19	888.66	444.99	34.68	-2.83	0.049
120.00	-1.44	-3.31	0.00	-3.43	0.00	3.43	912.38	456.19	807.70	404.45	37.65	-2.85	0.010
121.00	-0.07	-0.06	0.00	-0.11	0.00	0.11	904.95	452.48	791.76	396.47	38.25	-2.85	0.000
123.00	0.00	-0.05	0.00	0.00	0.00	0.00	889.89	444.94	760.16	380.64	39.44	-2.85	0.000

Load Case: 1.2D + 1.0Di + 1.0Wi — 50 mph with 0.75 in Radial Ice — 20 Iterations

Gust Response Factor : 1.10 | Ice Dead Load Factor : 1.00 | Wind Importance Factor : 1.00
Dead Load Factor : 1.20 | Ice Importance Factor : 1.00
Wind Load Factor : 1.00

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		62.3	0.0					0.0	0.0	62.3	0.0	0.0	0.0
5.00		123.4	1,576.7					0.0	270.4	123.4	1,847.1	0.0	0.0
10.00		120.9	1,580.0					0.0	270.4	120.9	1,850.4	0.0	0.0
15.00		118.2	1,560.5					0.0	270.4	118.2	1,831.0	0.0	0.0
20.00		115.4	1,533.7					0.0	270.4	115.4	1,804.1	0.0	0.0
25.00		112.6	1,502.9					0.0	270.4	112.6	1,773.3	0.0	0.0
30.00		111.1	1,469.6					0.0	270.4	111.1	1,740.1	0.0	0.0
35.00		111.7	1,434.7					0.0	270.4	111.7	1,705.1	0.0	0.0
40.00		112.9	1,398.5					0.0	270.4	112.9	1,668.9	0.0	0.0
45.00		93.7	1,361.3					0.0	270.4	93.7	1,631.8	0.0	0.0
48.25	Bot - Section 2	57.2	865.9					0.0	175.8	57.2	1,041.7	0.0	0.0
50.00		57.7	737.2					0.0	94.6	57.7	831.9	0.0	0.0
53.25	Top - Section 1	57.7	1,347.1					0.0	175.8	57.7	1,522.9	0.0	0.0
55.00		77.7	401.4					0.0	94.6	77.7	496.1	0.0	0.0
60.00		114.5	1,119.9					0.0	270.4	114.5	1,390.3	0.0	0.0
65.00		113.6	1,085.3					0.0	270.4	113.6	1,355.8	0.0	0.0
70.00		112.3	1,050.4					0.0	270.4	112.3	1,320.8	0.0	0.0
75.00		110.7	1,015.0					0.0	270.4	110.7	1,285.4	0.0	0.0
80.00		73.9	979.4					0.0	270.4	73.9	1,249.8	0.0	0.0
81.75	Bot - Section 3	54.4	335.7					0.0	94.6	54.4	430.4	0.0	0.0
85.00		43.5	855.7					0.0	175.8	43.5	1,031.4	0.0	0.0
85.75	Top - Section 2	53.5	194.9					0.0	40.6	53.5	235.4	0.0	0.0
90.00		97.8	577.7					0.0	229.9	97.8	807.6	0.0	0.0
95.00		103.4	654.4					0.0	270.4	103.4	924.8	0.0	0.0
100.00		100.8	627.8					0.0	270.4	100.8	898.2	0.0	0.0
105.00	Appertunance(s)	98.0	601.0	686.0	0.0	0.0	2,848.9	0.0	270.4	784.0	3,720.4	0.0	0.0
110.00		67.2	574.1					0.0	181.9	67.2	755.9	0.0	0.0
112.00	Appertunance(s)	46.8	223.6	682.0	0.0	0.0	3,695.8	0.0	72.7	728.8	3,992.2	0.0	0.0
115.00		73.1	326.5					0.0	56.0	73.1	382.5	0.0	0.0
120.00		54.0	519.6					0.0	93.3	54.0	612.9	0.0	0.0
121.00	Appertunance(s)	26.3	101.7	682.1	0.0	0.0	3,697.0	0.0	18.7	708.4	3,817.3	0.0	0.0
123.00		17.5	199.6					0.0	0.0	17.5	199.6	0.0	0.0
								Totals:		4,743.80	44,155.0	0.00	0.00

Load Case: 1.2D + 1.0Di + 1.0Wi — 50 mph with 0.75 in Radial Ice — 20 Iterations

Gust Response Factor : 1.10 | Ice Dead Load Factor : 1.00 | Wind Importance Factor : 1.00
Dead Load Factor : 1.20 | Ice Importance Factor : 1.00
Wind Load Factor : 1.00

Calculated Forces

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 (deg)	Ratio
0.00	-44.15	-4.69	0.00	-403.87	0.00	403.87	4,046.69	2,023.34	8,379.77	4,196.11	0.00	0.00	0.107
5.00	-42.30	-4.59	0.00	-380.41	0.00	380.41	3,982.65	1,991.32	8,041.00	4,026.48	0.02	-0.03	0.105
10.00	-40.45	-4.49	0.00	-357.46	0.00	357.46	3,916.76	1,958.38	7,705.23	3,858.34	0.06	-0.06	0.103
15.00	-38.62	-4.39	0.00	-335.02	0.00	335.02	3,849.02	1,924.51	7,372.73	3,691.85	0.14	-0.09	0.101
20.00	-36.81	-4.29	0.00	-313.08	0.00	313.08	3,779.43	1,889.72	7,043.80	3,527.13	0.25	-0.12	0.099
25.00	-35.04	-4.19	0.00	-291.63	0.00	291.63	3,707.99	1,853.99	6,718.71	3,364.35	0.39	-0.15	0.096
30.00	-33.30	-4.09	0.00	-270.67	0.00	270.67	3,634.70	1,817.35	6,397.77	3,203.64	0.56	-0.18	0.094
35.00	-31.59	-3.99	0.00	-250.21	0.00	250.21	3,559.55	1,779.78	6,081.25	3,045.14	0.77	-0.21	0.091
40.00	-29.92	-3.89	0.00	-230.24	0.00	230.24	3,482.56	1,741.28	5,769.44	2,889.01	1.01	-0.24	0.088
45.00	-28.28	-3.80	0.00	-210.79	0.00	210.79	3,403.71	1,701.85	5,462.63	2,735.38	1.28	-0.27	0.085
48.25	-27.24	-3.75	0.00	-198.44	0.00	198.44	3,351.47	1,675.73	5,266.03	2,636.93	1.47	-0.30	0.083
50.00	-26.41	-3.69	0.00	-191.88	0.00	191.88	3,323.01	1,661.51	5,161.12	2,584.39	1.58	-0.31	0.082
53.25	-24.89	-3.63	0.00	-179.88	0.00	179.88	2,621.66	1,310.83	4,064.92	2,035.48	1.80	-0.33	0.098
55.00	-24.39	-3.56	0.00	-173.52	0.00	173.52	2,600.95	1,300.48	3,985.68	1,995.80	1.92	-0.34	0.096
60.00	-23.00	-3.45	0.00	-155.70	0.00	155.70	2,540.52	1,270.26	3,761.58	1,883.58	2.30	-0.38	0.092
65.00	-21.64	-3.34	0.00	-138.43	0.00	138.43	2,478.24	1,239.12	3,541.08	1,773.17	2.71	-0.41	0.087
70.00	-20.32	-3.24	0.00	-121.71	0.00	121.71	2,414.11	1,207.05	3,324.48	1,664.71	3.16	-0.45	0.082
75.00	-19.03	-3.13	0.00	-105.53	0.00	105.53	2,348.12	1,174.06	3,112.07	1,558.35	3.64	-0.48	0.076
80.00	-17.78	-3.05	0.00	-89.91	0.00	89.91	2,280.29	1,140.14	2,904.14	1,454.23	4.17	-0.51	0.070
81.75	-17.35	-2.99	0.00	-84.57	0.00	84.57	2,256.11	1,128.06	2,832.47	1,418.34	4.36	-0.52	0.067
85.00	-16.32	-2.94	0.00	-74.84	0.00	74.84	2,196.84	1,098.42	2,684.15	1,344.07	4.72	-0.55	0.063
85.75	-16.08	-2.89	0.00	-72.64	0.00	72.64	1,121.87	560.94	1,390.96	696.51	4.81	-0.55	0.119
90.00	-15.28	-2.80	0.00	-60.34	0.00	60.34	1,100.60	550.30	1,316.16	659.06	5.31	-0.57	0.105
95.00	-14.35	-2.69	0.00	-46.36	0.00	46.36	1,073.86	536.93	1,228.59	615.21	5.93	-0.62	0.089
100.00	-13.45	-2.59	0.00	-32.90	0.00	32.90	1,045.26	522.63	1,141.77	571.73	6.60	-0.65	0.070
105.00	-9.74	-1.77	0.00	-19.95	0.00	19.95	1,014.82	507.41	1,055.98	528.78	7.29	-0.68	0.047
110.00	-8.98	-1.69	0.00	-11.13	0.00	11.13	982.52	491.26	971.52	486.48	8.01	-0.70	0.032
112.00	-5.00	-0.91	0.00	-7.74	0.00	7.74	969.08	484.54	938.16	469.78	8.31	-0.70	0.022
115.00	-4.62	-0.84	0.00	-5.00	0.00	5.00	948.37	474.19	888.66	444.99	8.75	-0.71	0.016
120.00	-4.01	-0.78	0.00	-0.82	0.00	0.82	912.38	456.19	807.70	404.45	9.49	-0.71	0.006
121.00	-0.20	-0.02	0.00	-0.04	0.00	0.04	904.95	452.48	791.76	396.47	9.64	-0.71	0.000
123.00	0.00	-0.02	0.00	0.00	0.00	0.00	889.89	444.94	760.16	380.64	9.94	-0.71	0.000

Load Case: 1.0D + 1.0W Serviceability 60 mph 20 Iterations

Gust Response Factor : 1.10 Wind Importance Factor : 1.00
Dead Load Factor : 1.00
Wind Load Factor : 1.00

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		46.5	0.0					0.0	0.0	46.5	0.0	0.0	0.0
5.00		91.8	1,007.4					0.0	225.4	91.8	1,232.8	0.0	0.0
10.00		89.5	982.1					0.0	225.4	89.5	1,207.5	0.0	0.0
15.00		87.1	956.8					0.0	225.4	87.1	1,182.2	0.0	0.0
20.00		84.8	931.5					0.0	225.4	84.8	1,156.9	0.0	0.0
25.00		82.5	906.2					0.0	225.4	82.5	1,131.5	0.0	0.0
30.00		81.1	880.9					0.0	225.4	81.1	1,106.2	0.0	0.0
35.00		81.4	855.6					0.0	225.4	81.4	1,080.9	0.0	0.0
40.00		82.0	830.3					0.0	225.4	82.0	1,055.6	0.0	0.0
45.00		67.9	804.9					0.0	225.4	67.9	1,030.3	0.0	0.0
48.25	Bot - Section 2	41.4	509.6					0.0	146.5	41.4	656.1	0.0	0.0
50.00		41.7	499.0					0.0	78.9	41.7	577.9	0.0	0.0
53.25	Top - Section 1	41.6	911.7					0.0	146.5	41.6	1,058.2	0.0	0.0
55.00		55.9	221.7					0.0	78.9	55.9	300.5	0.0	0.0
60.00		82.2	619.1					0.0	225.4	82.2	844.5	0.0	0.0
65.00		81.3	598.0					0.0	225.4	81.3	823.4	0.0	0.0
70.00		80.0	576.9					0.0	225.4	80.0	802.3	0.0	0.0
75.00		78.6	555.8					0.0	225.4	78.6	781.2	0.0	0.0
80.00		52.4	534.7					0.0	225.4	52.4	760.1	0.0	0.0
81.75	Bot - Section 3	38.4	182.2					0.0	78.9	38.4	261.0	0.0	0.0
85.00		30.7	533.6					0.0	146.5	30.7	680.1	0.0	0.0
85.75	Top - Section 2	37.6	121.1					0.0	33.8	37.6	154.9	0.0	0.0
90.00		68.6	254.7					0.0	191.5	68.6	446.2	0.0	0.0
95.00		72.2	287.9					0.0	225.4	72.2	513.3	0.0	0.0
100.00		70.0	275.3					0.0	225.4	70.0	500.6	0.0	0.0
105.00	Appertunance(s)	67.7	262.6	681.3	0.0	0.0	1,214.0	0.0	225.4	749.0	1,702.0	0.0	0.0
110.00		46.2	250.0					0.0	151.5	46.2	401.5	0.0	0.0
112.00	Appertunance(s)	32.0	96.4	669.7	0.0	0.0	1,593.5	0.0	60.6	701.7	1,750.6	0.0	0.0
115.00		49.7	140.9					0.0	46.6	49.7	187.5	0.0	0.0
120.00		36.6	224.6					0.0	77.7	36.6	302.4	0.0	0.0
121.00	Appertunance(s)	17.7	43.4	684.5	0.0	0.0	1,641.6	0.0	15.5	702.3	1,700.6	0.0	0.0
123.00		11.8	85.3					0.0	0.0	11.8	85.3	0.0	0.0
								Totals:		3,964.37	25,473.9	0.00	0.00

Load Case: 1.0D + 1.0W Serviceability 60 mph 20 Iterations

Gust Response Factor : 1.10 Wind Importance Factor 1.00
Dead Load Factor : 1.00
Wind Load Factor : 1.00

Calculated Forces

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 (deg)	Ratio
0.00	-25.47	-3.92	0.00	-347.48	0.00	347.48	4,046.69	2,023.34	8,379.77	4,196.11	0.00	0.00	0.089
5.00	-24.24	-3.84	0.00	-327.87	0.00	327.87	3,982.65	1,991.32	8,041.00	4,026.48	0.01	-0.02	0.088
10.00	-23.03	-3.76	0.00	-308.66	0.00	308.66	3,916.76	1,958.38	7,705.23	3,858.34	0.05	-0.05	0.086
15.00	-21.85	-3.68	0.00	-289.85	0.00	289.85	3,849.02	1,924.51	7,372.73	3,691.85	0.12	-0.08	0.084
20.00	-20.69	-3.61	0.00	-271.43	0.00	271.43	3,779.43	1,889.72	7,043.80	3,527.13	0.21	-0.10	0.082
25.00	-19.55	-3.53	0.00	-253.40	0.00	253.40	3,707.99	1,853.99	6,718.71	3,364.35	0.34	-0.13	0.081
30.00	-18.45	-3.46	0.00	-235.75	0.00	235.75	3,634.70	1,817.35	6,397.77	3,203.64	0.49	-0.16	0.079
35.00	-17.36	-3.38	0.00	-218.47	0.00	218.47	3,559.55	1,779.78	6,081.25	3,045.14	0.66	-0.18	0.077
40.00	-16.31	-3.30	0.00	-201.58	0.00	201.58	3,482.56	1,741.28	5,769.44	2,889.01	0.87	-0.21	0.074
45.00	-15.28	-3.24	0.00	-185.07	0.00	185.07	3,403.71	1,701.85	5,462.63	2,735.38	1.11	-0.24	0.072
48.25	-14.62	-3.19	0.00	-174.56	0.00	174.56	3,351.47	1,675.73	5,266.03	2,636.93	1.27	-0.26	0.071
50.00	-14.04	-3.15	0.00	-168.97	0.00	168.97	3,323.01	1,661.51	5,161.12	2,584.39	1.37	-0.27	0.070
53.25	-12.98	-3.11	0.00	-158.72	0.00	158.72	2,621.66	1,310.83	4,064.92	2,035.48	1.56	-0.29	0.083
55.00	-12.68	-3.06	0.00	-153.27	0.00	153.27	2,600.95	1,300.48	3,985.68	1,995.80	1.67	-0.30	0.082
60.00	-11.84	-2.98	0.00	-137.98	0.00	137.98	2,540.52	1,270.26	3,761.58	1,883.58	1.99	-0.33	0.078
65.00	-11.01	-2.90	0.00	-123.10	0.00	123.10	2,478.24	1,239.12	3,541.08	1,773.17	2.35	-0.36	0.074
70.00	-10.21	-2.82	0.00	-108.61	0.00	108.61	2,414.11	1,207.05	3,324.48	1,664.71	2.75	-0.39	0.069
75.00	-9.43	-2.74	0.00	-94.52	0.00	94.52	2,348.12	1,174.06	3,112.07	1,558.35	3.17	-0.42	0.065
80.00	-8.66	-2.68	0.00	-80.83	0.00	80.83	2,280.29	1,140.14	2,904.14	1,454.23	3.63	-0.45	0.059
81.75	-8.40	-2.64	0.00	-76.13	0.00	76.13	2,256.11	1,128.06	2,832.47	1,418.34	3.80	-0.46	0.057
85.00	-7.72	-2.61	0.00	-67.54	0.00	67.54	2,196.84	1,098.42	2,684.15	1,344.07	4.12	-0.48	0.054
85.75	-7.57	-2.57	0.00	-65.58	0.00	65.58	1,121.87	560.94	1,390.96	696.51	4.19	-0.48	0.101
90.00	-7.12	-2.50	0.00	-54.64	0.00	54.64	1,100.60	550.30	1,316.16	659.06	4.63	-0.51	0.089
95.00	-6.61	-2.43	0.00	-42.12	0.00	42.12	1,073.86	536.93	1,228.59	615.21	5.18	-0.54	0.075
100.00	-6.11	-2.36	0.00	-29.96	0.00	29.96	1,045.26	522.63	1,141.77	571.73	5.77	-0.57	0.058
105.00	-4.41	-1.59	0.00	-18.17	0.00	18.17	1,014.82	507.41	1,055.98	528.78	6.39	-0.60	0.039
110.00	-4.01	-1.55	0.00	-10.19	0.00	10.19	982.52	491.26	971.52	486.48	7.02	-0.62	0.025
112.00	-2.27	-0.82	0.00	-7.10	0.00	7.10	969.08	484.54	938.16	469.78	7.28	-0.62	0.017
115.00	-2.08	-0.77	0.00	-4.63	0.00	4.63	948.37	474.19	888.66	444.99	7.67	-0.63	0.013
120.00	-1.78	-0.73	0.00	-0.76	0.00	0.76	912.38	456.19	807.70	404.45	8.33	-0.63	0.004
121.00	-0.09	-0.01	0.00	-0.03	0.00	0.03	904.95	452.48	791.76	396.47	8.46	-0.63	0.000
123.00	0.00	-0.01	0.00	0.00	0.00	0.00	889.89	444.94	760.16	380.64	8.73	-0.63	0.000

Equivalent Lateral Forces Method Analysis

(Based on ASCE7-10 Chapters 11, 12, 15)

Spectral Response Acceleration for Short Period (S_s):	0.18	
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06	
Long-Period Transition Period (T_L):	6	
Importance Factor (I_E):	1.00	
Site Coefficient F_a:	1.60	
Site Coeffiecient F_v:	2.40	
Response Modification Coefficient (R):	1.50	
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.19	
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10	
Seismic Response Coefficient (C_s):	0.04	
Upper Limit C_s	0.04	
Lower Limit C_s	0.03	
Period based on Rayleigh Method (sec):	1.47	
Redundancy Factor (p):	1.30	
Seismic Force Distribution Exponent (k):	1.48	
Total Unfactored Dead Load:	25.47	k
Seismic Base Shear (E):	1.47	k

Load Case (1.2 + 0.2Sds) * DL + E ELFM **Seismic Equivalent Lateral Forces Method**

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
31	122.00	85	106	0.008	12	106
30	120.50	59	72	0.006	8	73
29	117.50	302	356	0.028	41	374
28	113.50	188	210	0.016	24	232
27	111.00	157	170	0.013	19	194
26	107.50	402	414	0.032	48	497
25	102.50	488	469	0.037	54	604
24	97.50	501	447	0.035	51	620
23	92.50	513	424	0.033	49	636
22	87.88	446	342	0.027	39	553
21	85.38	155	114	0.009	13	192
20	83.38	680	481	0.038	55	842
19	80.88	261	177	0.014	20	323
18	77.50	760	483	0.038	55	941
17	72.50	781	449	0.035	52	967
16	67.50	802	415	0.032	48	993
15	62.50	823	380	0.030	44	1,019
14	57.50	844	344	0.027	40	1,046
13	54.13	301	112	0.009	13	372
12	51.63	1,058	368	0.029	42	1,310
11	49.13	578	187	0.015	21	716
10	46.63	656	196	0.015	22	812
9	42.50	1,030	268	0.021	31	1,276

8	37.50	1,056	228	0.018	26	1,307
7	32.50	1,081	189	0.015	22	1,338
6	27.50	1,106	151	0.012	17	1,370
5	22.50	1,132	115	0.009	13	1,401
4	17.50	1,157	81	0.006	9	1,432
3	12.50	1,182	50	0.004	6	1,464
2	7.50	1,207	24	0.002	3	1,495
1	2.50	1,233	5	0.000	1	1,526
Ericsson KRY 112 71	121.00	40	49	0.004	6	49
Ericsson RRUS 11 B12	121.00	152	187	0.015	21	188
Ericsson AIR 21	121.00	546	672	0.052	77	676
Round T-Arm	121.00	750	923	0.072	106	929
Andrew LNX-6515DS-VT	121.00	154	189	0.015	22	191
Powerwave Allgon TT1	112.00	96	105	0.008	12	119
Raycap DC6-48-60-18-	112.00	20	22	0.002	3	25
Ericsson RRUS 11 (Ba	112.00	150	165	0.013	19	186
Ericsson RRUS 32 B2	112.00	159	174	0.014	20	197
Commscope SBNHH-1D65	112.00	101	110	0.009	13	124
Powerwave Allgon P90	112.00	318	349	0.027	40	394
Round T-Arm	112.00	750	823	0.064	94	929
54" x 8" Panel	105.00	30	30	0.002	3	37
72" x 6" Panel	105.00	80	80	0.006	9	99
88" x 6" Panel	105.00	90	90	0.007	10	111
Antel BXA-70063/6CF_	105.00	34	34	0.003	4	42
72" x 14" Panel	105.00	180	179	0.014	21	223
Round T-Arm	105.00	750	748	0.058	86	929
88" x 14" Panel	105.00	50	50	0.004	6	62
		25,474	12,806	1.000	1,469	31,542

Load Case (0.9 - 0.2Sds) * DL + E ELFM **Seismic (Reduced DL) Equivalent Lateral Forces Method**

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
31	122.00	85	106	0.008	12	74
30	120.50	59	72	0.006	8	51
29	117.50	302	356	0.028	41	261
28	113.50	188	210	0.016	24	162
27	111.00	157	170	0.013	19	135
26	107.50	402	414	0.032	48	346
25	102.50	488	469	0.037	54	421
24	97.50	501	447	0.035	51	431
23	92.50	513	424	0.033	49	442
22	87.88	446	342	0.027	39	385
21	85.38	155	114	0.009	13	134
20	83.38	680	481	0.038	55	586
19	80.88	261	177	0.014	20	225
18	77.50	760	483	0.038	55	655
17	72.50	781	449	0.035	52	673
16	67.50	802	415	0.032	48	691
15	62.50	823	380	0.030	44	710
14	57.50	844	344	0.027	40	728
13	54.13	301	112	0.009	13	259
12	51.63	1,058	368	0.029	42	912
11	49.13	578	187	0.015	21	498
10	46.63	656	196	0.015	22	565
9	42.50	1,030	268	0.021	31	888
8	37.50	1,056	228	0.018	26	910
7	32.50	1,081	189	0.015	22	932
6	27.50	1,106	151	0.012	17	953
5	22.50	1,132	115	0.009	13	975

4	17.50	1,157	81	0.006	9	997
3	12.50	1,182	50	0.004	6	1,019
2	7.50	1,207	24	0.002	3	1,041
1	2.50	1,233	5	0.000	1	1,062
Ericsson KRY 112 71	121.00	40	49	0.004	6	34
Ericsson RRUS 11 B12	121.00	152	187	0.015	21	131
Ericsson AIR 21	121.00	546	672	0.052	77	471
Round T-Arm	121.00	750	923	0.072	106	646
Andrew LNX-6515DS-VT	121.00	154	189	0.015	22	133
Powerwave Allgon TT1	112.00	96	105	0.008	12	83
Raycap DC6-48-60-18-	112.00	20	22	0.002	3	17
Ericsson RRUS 11 (Ba	112.00	150	165	0.013	19	129
Ericsson RRUS 32 B2	112.00	159	174	0.014	20	137
Commscope SBNHH-1D65	112.00	101	110	0.009	13	87
Powerwave Allgon P90	112.00	318	349	0.027	40	274
Round T-Arm	112.00	750	823	0.064	94	646
54" x 8" Panel	105.00	30	30	0.002	3	26
72" x 6" Panel	105.00	80	80	0.006	9	69
88" x 6" Panel	105.00	90	90	0.007	10	78
Antel BXA-70063/6CF_	105.00	34	34	0.003	4	29
72" x 14" Panel	105.00	180	179	0.014	21	155
Round T-Arm	105.00	750	748	0.058	86	646
88" x 14" Panel	105.00	50	50	0.004	6	43
		25,474	12,806	1.000	1,469	21,954

Load Case (1.2 + 0.2Sds) * DL + E ELFM **Seismic Equivalent Lateral Forces Method**

Calculated Forces

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 (deg)	Ratio
0.00	-30.01	-1.47	0.00	-134.16	0.00	134.16	4,046.69	2,023.34	8,379.77	4,196.11	0.00	0.00	0.039
5.00	-28.52	-1.47	0.00	-126.81	0.00	126.81	3,982.65	1,991.32	8,041.00	4,026.48	0.01	-0.01	0.039
10.00	-27.06	-1.47	0.00	-119.45	0.00	119.45	3,916.76	1,958.38	7,705.23	3,858.34	0.02	-0.02	0.038
15.00	-25.62	-1.47	0.00	-112.10	0.00	112.10	3,849.02	1,924.51	7,372.73	3,691.85	0.05	-0.03	0.037
20.00	-24.22	-1.46	0.00	-104.77	0.00	104.77	3,779.43	1,889.72	7,043.80	3,527.13	0.08	-0.04	0.036
25.00	-22.85	-1.44	0.00	-97.50	0.00	97.50	3,707.99	1,853.99	6,718.71	3,364.35	0.13	-0.05	0.035
30.00	-21.51	-1.42	0.00	-90.29	0.00	90.29	3,634.70	1,817.35	6,397.77	3,203.64	0.19	-0.06	0.034
35.00	-20.21	-1.40	0.00	-83.18	0.00	83.18	3,559.55	1,779.78	6,081.25	3,045.14	0.26	-0.07	0.033
40.00	-18.93	-1.37	0.00	-76.19	0.00	76.19	3,482.56	1,741.28	5,769.44	2,889.01	0.34	-0.08	0.032
45.00	-18.12	-1.35	0.00	-69.35	0.00	69.35	3,403.71	1,701.85	5,462.63	2,735.38	0.43	-0.09	0.031
48.25	-17.40	-1.33	0.00	-64.97	0.00	64.97	3,351.47	1,675.73	5,266.03	2,636.93	0.49	-0.10	0.030
50.00	-16.09	-1.28	0.00	-62.64	0.00	62.64	3,323.01	1,661.51	5,161.12	2,584.39	0.53	-0.10	0.029
53.25	-15.72	-1.27	0.00	-58.47	0.00	58.47	2,621.66	1,310.83	4,064.92	2,035.48	0.60	-0.11	0.035
55.00	-14.67	-1.23	0.00	-56.24	0.00	56.24	2,600.95	1,300.48	3,985.68	1,995.80	0.64	-0.11	0.034
60.00	-13.65	-1.19	0.00	-50.08	0.00	50.08	2,540.52	1,270.26	3,761.58	1,883.58	0.76	-0.12	0.032
65.00	-12.66	-1.14	0.00	-44.13	0.00	44.13	2,478.24	1,239.12	3,541.08	1,773.17	0.90	-0.14	0.030
70.00	-11.69	-1.09	0.00	-38.42	0.00	38.42	2,414.11	1,207.05	3,324.48	1,664.71	1.05	-0.15	0.028
75.00	-10.75	-1.03	0.00	-32.97	0.00	32.97	2,348.12	1,174.06	3,112.07	1,558.35	1.21	-0.16	0.026
80.00	-10.43	-1.01	0.00	-27.80	0.00	27.80	2,280.29	1,140.14	2,904.14	1,454.23	1.38	-0.17	0.024
81.75	-9.59	-0.96	0.00	-26.02	0.00	26.02	2,256.11	1,128.06	2,832.47	1,418.34	1.44	-0.17	0.023
85.00	-9.39	-0.94	0.00	-22.91	0.00	22.91	2,196.84	1,098.42	2,684.15	1,344.07	1.56	-0.18	0.021
85.75	-8.84	-0.90	0.00	-22.20	0.00	22.20	1,121.87	560.94	1,390.96	696.51	1.59	-0.18	0.040
90.00	-8.21	-0.86	0.00	-18.36	0.00	18.36	1,100.60	550.30	1,316.16	659.06	1.75	-0.19	0.035
95.00	-7.59	-0.80	0.00	-14.08	0.00	14.08	1,073.86	536.93	1,228.59	615.21	1.95	-0.20	0.030
100.00	-6.98	-0.75	0.00	-10.06	0.00	10.06	1,045.26	522.63	1,141.77	571.73	2.17	-0.21	0.024
105.00	-4.98	-0.56	0.00	-6.32	0.00	6.32	1,014.82	507.41	1,055.98	528.78	2.39	-0.22	0.017
110.00	-4.79	-0.54	0.00	-3.54	0.00	3.54	982.52	491.26	971.52	486.48	2.63	-0.22	0.012
112.00	-2.58	-0.30	0.00	-2.46	0.00	2.46	969.08	484.54	938.16	469.78	2.72	-0.23	0.008
115.00	-2.21	-0.26	0.00	-1.56	0.00	1.56	948.37	474.19	888.66	444.99	2.86	-0.23	0.006
120.00	-2.14	-0.25	0.00	-0.25	0.00	0.25	912.38	456.19	807.70	404.45	3.10	-0.23	0.003
121.00	0.00	0.00	0.00	0.00	0.00	0.00	904.95	452.48	791.76	396.47	3.15	-0.23	0.000
123.00	0.00	0.00	0.00	0.00	0.00	0.00	889.89	444.94	760.16	380.64	3.24	-0.23	0.000

Load Case (0.9 - 0.2Sds) * DL + E ELFM **Seismic (Reduced DL) Equivalent Lateral Forces Method**

Calculated Forces

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 (deg)	Ratio
0.00	-20.89	-1.47	0.00	-133.31	0.00	133.31	4,046.69	2,023.34	8,379.77	4,196.11	0.00	0.00	0.037
5.00	-19.85	-1.47	0.00	-125.96	0.00	125.96	3,982.65	1,991.32	8,041.00	4,026.48	0.01	-0.01	0.036
10.00	-18.83	-1.47	0.00	-118.61	0.00	118.61	3,916.76	1,958.38	7,705.23	3,858.34	0.02	-0.02	0.036
15.00	-17.83	-1.46	0.00	-111.28	0.00	111.28	3,849.02	1,924.51	7,372.73	3,691.85	0.05	-0.03	0.035
20.00	-16.86	-1.45	0.00	-103.97	0.00	103.97	3,779.43	1,889.72	7,043.80	3,527.13	0.08	-0.04	0.034
25.00	-15.91	-1.43	0.00	-96.73	0.00	96.73	3,707.99	1,853.99	6,718.71	3,364.35	0.13	-0.05	0.033
30.00	-14.97	-1.41	0.00	-89.56	0.00	89.56	3,634.70	1,817.35	6,397.77	3,203.64	0.19	-0.06	0.032
35.00	-14.06	-1.39	0.00	-82.48	0.00	82.48	3,559.55	1,779.78	6,081.25	3,045.14	0.25	-0.07	0.031
40.00	-13.18	-1.36	0.00	-75.53	0.00	75.53	3,482.56	1,741.28	5,769.44	2,889.01	0.33	-0.08	0.030
45.00	-12.61	-1.34	0.00	-68.73	0.00	68.73	3,403.71	1,701.85	5,462.63	2,735.38	0.42	-0.09	0.029
48.25	-12.11	-1.32	0.00	-64.38	0.00	64.38	3,351.47	1,675.73	5,266.03	2,636.93	0.49	-0.10	0.028
50.00	-11.20	-1.27	0.00	-62.08	0.00	62.08	3,323.01	1,661.51	5,161.12	2,584.39	0.52	-0.10	0.027
53.25	-10.94	-1.26	0.00	-57.93	0.00	57.93	2,621.66	1,310.83	4,064.92	2,035.48	0.60	-0.11	0.033
55.00	-10.21	-1.22	0.00	-55.72	0.00	55.72	2,600.95	1,300.48	3,985.68	1,995.80	0.64	-0.11	0.032
60.00	-9.50	-1.18	0.00	-49.61	0.00	49.61	2,540.52	1,270.26	3,761.58	1,883.58	0.76	-0.12	0.030
65.00	-8.81	-1.13	0.00	-43.71	0.00	43.71	2,478.24	1,239.12	3,541.08	1,773.17	0.89	-0.13	0.028
70.00	-8.14	-1.08	0.00	-38.05	0.00	38.05	2,414.11	1,207.05	3,324.48	1,664.71	1.04	-0.15	0.026
75.00	-7.48	-1.03	0.00	-32.64	0.00	32.64	2,348.12	1,174.06	3,112.07	1,558.35	1.20	-0.16	0.024
80.00	-7.26	-1.01	0.00	-27.52	0.00	27.52	2,280.29	1,140.14	2,904.14	1,454.23	1.37	-0.17	0.022
81.75	-6.67	-0.95	0.00	-25.76	0.00	25.76	2,256.11	1,128.06	2,832.47	1,418.34	1.43	-0.17	0.021
85.00	-6.54	-0.94	0.00	-22.67	0.00	22.67	2,196.84	1,098.42	2,684.15	1,344.07	1.55	-0.18	0.020
85.75	-6.15	-0.90	0.00	-21.97	0.00	21.97	1,121.87	560.94	1,390.96	696.51	1.58	-0.18	0.037
90.00	-5.71	-0.85	0.00	-18.16	0.00	18.16	1,100.60	550.30	1,316.16	659.06	1.74	-0.18	0.033
95.00	-5.28	-0.80	0.00	-13.93	0.00	13.93	1,073.86	536.93	1,228.59	615.21	1.94	-0.20	0.028
100.00	-4.86	-0.74	0.00	-9.95	0.00	9.95	1,045.26	522.63	1,141.77	571.73	2.15	-0.21	0.022
105.00	-3.47	-0.55	0.00	-6.25	0.00	6.25	1,014.82	507.41	1,055.98	528.78	2.37	-0.22	0.015
110.00	-3.33	-0.53	0.00	-3.50	0.00	3.50	982.52	491.26	971.52	486.48	2.60	-0.22	0.011
112.00	-1.80	-0.30	0.00	-2.44	0.00	2.44	969.08	484.54	938.16	469.78	2.70	-0.22	0.007
115.00	-1.54	-0.26	0.00	-1.54	0.00	1.54	948.37	474.19	888.66	444.99	2.84	-0.23	0.005
120.00	-1.49	-0.25	0.00	-0.25	0.00	0.25	912.38	456.19	807.70	404.45	3.07	-0.23	0.002
121.00	0.00	0.00	0.00	0.00	0.00	0.00	904.95	452.48	791.76	396.47	3.12	-0.23	0.000
123.00	0.00	0.00	0.00	0.00	0.00	0.00	889.89	444.94	760.16	380.64	3.22	-0.23	0.000

Equivalent Modal Forces Analysis

(Based on ASCE7-10 Chapters 11, 12 & 15 and ANSI/TIA-G, section 2.7)

Spectral Response Acceleration for Short Period (S_s):	0.18
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06
Importance Factor (I_E):	1.00
Site Coefficient F_a:	1.60
Site Coefficient F_v	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.19
Desing Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Period Based on Rayleigh Method (sec):	1.47
Redundancy Factor (p):	1.30

Load Case (1.2 + 0.2Sds) * DL + E EMAM **Seismic Equivalent Modal Analysis Method**

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
31	122.00	85	1.859	1.822	1.083	0.356	26	106
30	120.50	59	1.814	1.603	1.001	0.328	17	73
29	117.50	302	1.725	1.218	0.853	0.276	72	374
28	113.50	188	1.609	0.808	0.683	0.214	35	232
27	111.00	157	1.539	0.602	0.591	0.179	24	194
26	107.50	402	1.444	0.372	0.478	0.135	47	497
25	102.50	488	1.312	0.138	0.347	0.083	35	604
24	97.50	501	1.188	-0.007	0.246	0.043	19	620
23	92.50	513	1.069	-0.086	0.168	0.016	7	636
22	87.88	446	0.965	-0.117	0.115	0.000	0	553
21	85.38	155	0.911	-0.122	0.091	-0.005	-1	192
20	83.38	680	0.868	-0.121	0.076	-0.007	-4	842
19	80.88	261	0.817	-0.115	0.059	-0.007	-2	323
18	77.50	760	0.750	-0.101	0.041	-0.005	-3	941
17	72.50	781	0.657	-0.073	0.022	0.003	2	967
16	67.50	802	0.569	-0.042	0.011	0.014	10	993
15	62.50	823	0.488	-0.012	0.007	0.025	18	1,019
14	57.50	844	0.413	0.014	0.006	0.034	25	1,046
13	54.13	301	0.366	0.028	0.008	0.039	10	372
12	51.63	1,058	0.333	0.037	0.010	0.041	38	1,310
11	49.13	578	0.301	0.045	0.012	0.043	21	716
10	46.63	656	0.272	0.051	0.015	0.044	25	812
9	42.50	1,030	0.226	0.059	0.020	0.044	39	1,276
8	37.50	1,056	0.176	0.066	0.026	0.043	39	1,307
7	32.50	1,081	0.132	0.069	0.033	0.041	39	1,338
6	27.50	1,106	0.094	0.071	0.038	0.040	38	1,370
5	22.50	1,132	0.063	0.072	0.041	0.038	37	1,401
4	17.50	1,157	0.038	0.070	0.041	0.035	35	1,432
3	12.50	1,182	0.020	0.064	0.038	0.032	32	1,464
2	7.50	1,207	0.007	0.050	0.028	0.025	26	1,495
1	2.50	1,233	0.001	0.022	0.012	0.011	12	1,526
Ericsson KRY 112 71	121.00	40	1.829	1.674	1.028	0.338	12	49
Ericsson RRUS 11 B12	121.00	152	1.829	1.674	1.028	0.338	45	188
Ericsson AIR 21	121.00	546	1.829	1.674	1.028	0.338	160	676

Round T-Arm	121.00	750	1.829	1.674	1.028	0.338	219	929
Andrew LNX-6515DS-VT	121.00	154	1.829	1.674	1.028	0.338	45	191
Powerwave Allgon TT1	112.00	96	1.567	0.680	0.626	0.192	16	119
Raycap DC6-48-60-18-	112.00	20	1.567	0.680	0.626	0.192	3	25
Ericsson RRUS 11 (Ba	112.00	150	1.567	0.680	0.626	0.192	25	186
Ericsson RRUS 32 B2	112.00	159	1.567	0.680	0.626	0.192	26	197
Commscope SBNHH-	112.00	101	1.567	0.680	0.626	0.192	17	124
Powerwave Allgon P90	112.00	318	1.567	0.680	0.626	0.192	53	394
Round T-Arm	112.00	750	1.567	0.680	0.626	0.192	125	929
54" x 8" Panel	105.00	30	1.377	0.242	0.409	0.107	3	37
72" x 6" Panel	105.00	80	1.377	0.242	0.409	0.107	7	99
88" x 6" Panel	105.00	90	1.377	0.242	0.409	0.107	8	111
Antel BXA-70063/6CF_	105.00	34	1.377	0.242	0.409	0.107	3	42
72" x 14" Panel	105.00	180	1.377	0.242	0.409	0.107	17	223
Round T-Arm	105.00	750	1.377	0.242	0.409	0.107	70	929
88" x 14" Panel	105.00	50	1.377	0.242	0.409	0.107	5	62
		25,474	51.782	21.313	18.585	5.944	1,579	31,542

Load Case (0.9 - 0.2Sds) * DL + E EMAM **Seismic (Reduced DL) Equivalent Modal Analysis Method**

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
31	122.00	85	1.859	1.822	1.083	0.356	26	74
30	120.50	59	1.814	1.603	1.001	0.328	17	51
29	117.50	302	1.725	1.218	0.853	0.276	72	261
28	113.50	188	1.609	0.808	0.683	0.214	35	162
27	111.00	157	1.539	0.602	0.591	0.179	24	135
26	107.50	402	1.444	0.372	0.478	0.135	47	346
25	102.50	488	1.312	0.138	0.347	0.083	35	421
24	97.50	501	1.188	-0.007	0.246	0.043	19	431
23	92.50	513	1.069	-0.086	0.168	0.016	7	442
22	87.88	446	0.965	-0.117	0.115	0.000	0	385
21	85.38	155	0.911	-0.122	0.091	-0.005	-1	134
20	83.38	680	0.868	-0.121	0.076	-0.007	-4	586
19	80.88	261	0.817	-0.115	0.059	-0.007	-2	225
18	77.50	760	0.750	-0.101	0.041	-0.005	-3	655
17	72.50	781	0.657	-0.073	0.022	0.003	2	673
16	67.50	802	0.569	-0.042	0.011	0.014	10	691
15	62.50	823	0.488	-0.012	0.007	0.025	18	710
14	57.50	844	0.413	0.014	0.006	0.034	25	728
13	54.13	301	0.366	0.028	0.008	0.039	10	259
12	51.63	1,058	0.333	0.037	0.010	0.041	38	912
11	49.13	578	0.301	0.045	0.012	0.043	21	498
10	46.63	656	0.272	0.051	0.015	0.044	25	565
9	42.50	1,030	0.226	0.059	0.020	0.044	39	888
8	37.50	1,056	0.176	0.066	0.026	0.043	39	910
7	32.50	1,081	0.132	0.069	0.033	0.041	39	932
6	27.50	1,106	0.094	0.071	0.038	0.040	38	953
5	22.50	1,132	0.063	0.072	0.041	0.038	37	975
4	17.50	1,157	0.038	0.070	0.041	0.035	35	997
3	12.50	1,182	0.020	0.064	0.038	0.032	32	1,019
2	7.50	1,207	0.007	0.050	0.028	0.025	26	1,041
1	2.50	1,233	0.001	0.022	0.012	0.011	12	1,062
Ericsson KRY 112 71	121.00	40	1.829	1.674	1.028	0.338	12	34
Ericsson RRUS 11 B12	121.00	152	1.829	1.674	1.028	0.338	45	131
Ericsson AIR 21	121.00	546	1.829	1.674	1.028	0.338	160	471
Round T-Arm	121.00	750	1.829	1.674	1.028	0.338	219	646
Andrew LNX-6515DS-VT	121.00	154	1.829	1.674	1.028	0.338	45	133
Powerwave Allgon TT1	112.00	96	1.567	0.680	0.626	0.192	16	83

Raycap DC6-48-60-18-	112.00	20	1.567	0.680	0.626	0.192	3	17
Ericsson RRUS 11 (Ba	112.00	150	1.567	0.680	0.626	0.192	25	129
Ericsson RRUS 32 B2	112.00	159	1.567	0.680	0.626	0.192	26	137
Commscope SBNHH-	112.00	101	1.567	0.680	0.626	0.192	17	87
Powerwave Allgon P90	112.00	318	1.567	0.680	0.626	0.192	53	274
Round T-Arm	112.00	750	1.567	0.680	0.626	0.192	125	646
54" x 8" Panel	105.00	30	1.377	0.242	0.409	0.107	3	26
72" x 6" Panel	105.00	80	1.377	0.242	0.409	0.107	7	69
88" x 6" Panel	105.00	90	1.377	0.242	0.409	0.107	8	78
Antel BXA-70063/6CF_	105.00	34	1.377	0.242	0.409	0.107	3	29
72" x 14" Panel	105.00	180	1.377	0.242	0.409	0.107	17	155
Round T-Arm	105.00	750	1.377	0.242	0.409	0.107	70	646
88" x 14" Panel	105.00	50	1.377	0.242	0.409	0.107	5	43
		25,474	51.782	21.313	18.585	5.944	1,579	21,954

Load Case **(1.2 + 0.2Sds) * DL + E EMAM** **Seismic Equivalent Modal Analysis Method**

Calculated Forces

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 (deg)	Ratio
0.00	-30.01	-1.57	0.00	-147.73	0.00	147.73	4,046.69	2,023.34	8,379.77	4,196.11	0.00	0.00	0.043
5.00	-28.52	-1.55	0.00	-139.89	0.00	139.89	3,982.65	1,991.32	8,041.00	4,026.48	0.01	-0.01	0.042
10.00	-27.06	-1.52	0.00	-132.15	0.00	132.15	3,916.76	1,958.38	7,705.23	3,858.34	0.02	-0.02	0.041
15.00	-25.62	-1.49	0.00	-124.54	0.00	124.54	3,849.02	1,924.51	7,372.73	3,691.85	0.05	-0.03	0.040
20.00	-24.22	-1.46	0.00	-117.10	0.00	117.10	3,779.43	1,889.72	7,043.80	3,527.13	0.09	-0.04	0.040
25.00	-22.85	-1.42	0.00	-109.81	0.00	109.81	3,707.99	1,853.99	6,718.71	3,364.35	0.14	-0.06	0.039
30.00	-21.51	-1.39	0.00	-102.70	0.00	102.70	3,634.70	1,817.35	6,397.77	3,203.64	0.21	-0.07	0.038
35.00	-20.21	-1.35	0.00	-95.77	0.00	95.77	3,559.55	1,779.78	6,081.25	3,045.14	0.28	-0.08	0.037
40.00	-18.93	-1.31	0.00	-89.02	0.00	89.02	3,482.56	1,741.28	5,769.44	2,889.01	0.37	-0.09	0.036
45.00	-18.12	-1.29	0.00	-82.46	0.00	82.46	3,403.71	1,701.85	5,462.63	2,735.38	0.48	-0.10	0.035
48.25	-17.40	-1.27	0.00	-78.27	0.00	78.27	3,351.47	1,675.73	5,266.03	2,636.93	0.55	-0.11	0.035
50.00	-16.09	-1.23	0.00	-76.05	0.00	76.05	3,323.01	1,661.51	5,161.12	2,584.39	0.59	-0.12	0.034
53.25	-15.72	-1.22	0.00	-72.05	0.00	72.05	2,621.66	1,310.83	4,064.92	2,035.48	0.67	-0.12	0.041
55.00	-14.67	-1.20	0.00	-69.91	0.00	69.91	2,600.95	1,300.48	3,985.68	1,995.80	0.72	-0.13	0.041
60.00	-13.65	-1.18	0.00	-63.93	0.00	63.93	2,540.52	1,270.26	3,761.58	1,883.58	0.86	-0.14	0.039
65.00	-12.66	-1.17	0.00	-58.03	0.00	58.03	2,478.24	1,239.12	3,541.08	1,773.17	1.02	-0.16	0.038
70.00	-11.69	-1.17	0.00	-52.18	0.00	52.18	2,414.11	1,207.05	3,324.48	1,664.71	1.19	-0.17	0.036
75.00	-10.75	-1.17	0.00	-46.34	0.00	46.34	2,348.12	1,174.06	3,112.07	1,558.35	1.38	-0.19	0.034
80.00	-10.43	-1.17	0.00	-40.49	0.00	40.49	2,280.29	1,140.14	2,904.14	1,454.23	1.59	-0.20	0.032
81.75	-9.59	-1.18	0.00	-38.44	0.00	38.44	2,256.11	1,128.06	2,832.47	1,418.34	1.66	-0.21	0.031
85.00	-9.39	-1.18	0.00	-34.62	0.00	34.62	2,196.84	1,098.42	2,684.15	1,344.07	1.81	-0.22	0.030
85.75	-8.84	-1.18	0.00	-33.73	0.00	33.73	1,121.87	560.94	1,390.96	696.51	1.84	-0.22	0.056
90.00	-8.20	-1.17	0.00	-28.74	0.00	28.74	1,100.60	550.30	1,316.16	659.06	2.05	-0.23	0.051
95.00	-7.58	-1.15	0.00	-22.90	0.00	22.90	1,073.86	536.93	1,228.59	615.21	2.30	-0.25	0.044
100.00	-6.98	-1.11	0.00	-17.15	0.00	17.15	1,045.26	522.63	1,141.77	571.73	2.57	-0.27	0.037
105.00	-4.98	-0.95	0.00	-11.59	0.00	11.59	1,014.82	507.41	1,055.98	528.78	2.86	-0.28	0.027
110.00	-4.79	-0.92	0.00	-6.86	0.00	6.86	982.52	491.26	971.52	486.48	3.16	-0.29	0.019
112.00	-2.58	-0.61	0.00	-5.02	0.00	5.02	969.08	484.54	938.16	469.78	3.29	-0.30	0.013
115.00	-2.21	-0.53	0.00	-3.19	0.00	3.19	948.37	474.19	888.66	444.99	3.48	-0.30	0.010
120.00	-2.14	-0.52	0.00	-0.52	0.00	0.52	912.38	456.19	807.70	404.45	3.79	-0.30	0.004
121.00	0.00	0.00	0.00	0.00	0.00	0.00	904.95	452.48	791.76	396.47	3.86	-0.30	0.000
123.00	0.00	0.00	0.00	0.00	0.00	0.00	889.89	444.94	760.16	380.64	3.98	-0.30	0.000

Load Case **(0.9 - 0.2Sds) * DL + E EMAM** **Seismic (Reduced DL) Equivalent Modal Analysis Method**

Calculated Forces

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 (deg)	Ratio
0.00	-20.89	-1.57	0.00	-146.72	0.00	146.72	4,046.69	2,023.34	8,379.77	4,196.11	0.00	0.00	0.040
5.00	-19.85	-1.55	0.00	-138.88	0.00	138.88	3,982.65	1,991.32	8,041.00	4,026.48	0.01	-0.01	0.039
10.00	-18.83	-1.52	0.00	-131.15	0.00	131.15	3,916.76	1,958.38	7,705.23	3,858.34	0.02	-0.02	0.039
15.00	-17.83	-1.48	0.00	-123.57	0.00	123.57	3,849.02	1,924.51	7,372.73	3,691.85	0.05	-0.03	0.038
20.00	-16.86	-1.45	0.00	-116.14	0.00	116.14	3,779.43	1,889.72	7,043.80	3,527.13	0.09	-0.04	0.037
25.00	-15.90	-1.41	0.00	-108.89	0.00	108.89	3,707.99	1,853.99	6,718.71	3,364.35	0.14	-0.05	0.037
30.00	-14.97	-1.38	0.00	-101.82	0.00	101.82	3,634.70	1,817.35	6,397.77	3,203.64	0.21	-0.07	0.036
35.00	-14.06	-1.34	0.00	-94.93	0.00	94.93	3,559.55	1,779.78	6,081.25	3,045.14	0.28	-0.08	0.035
40.00	-13.18	-1.30	0.00	-88.23	0.00	88.23	3,482.56	1,741.28	5,769.44	2,889.01	0.37	-0.09	0.034
45.00	-12.61	-1.28	0.00	-81.72	0.00	81.72	3,403.71	1,701.85	5,462.63	2,735.38	0.47	-0.10	0.034
48.25	-12.11	-1.26	0.00	-77.56	0.00	77.56	3,351.47	1,675.73	5,266.03	2,636.93	0.54	-0.11	0.033
50.00	-11.20	-1.22	0.00	-75.36	0.00	75.36	3,323.01	1,661.51	5,161.12	2,584.39	0.59	-0.12	0.033
53.25	-10.94	-1.21	0.00	-71.39	0.00	71.39	2,621.66	1,310.83	4,064.92	2,035.48	0.67	-0.12	0.039
55.00	-10.21	-1.19	0.00	-69.28	0.00	69.28	2,600.95	1,300.48	3,985.68	1,995.80	0.71	-0.13	0.039
60.00	-9.50	-1.17	0.00	-63.35	0.00	63.35	2,540.52	1,270.26	3,761.58	1,883.58	0.86	-0.14	0.037
65.00	-8.81	-1.16	0.00	-57.51	0.00	57.51	2,478.24	1,239.12	3,541.08	1,773.17	1.01	-0.16	0.036
70.00	-8.14	-1.16	0.00	-51.71	0.00	51.71	2,414.11	1,207.05	3,324.48	1,664.71	1.19	-0.17	0.034
75.00	-7.48	-1.16	0.00	-45.93	0.00	45.93	2,348.12	1,174.06	3,112.07	1,558.35	1.37	-0.19	0.033
80.00	-7.26	-1.16	0.00	-40.13	0.00	40.13	2,280.29	1,140.14	2,904.14	1,454.23	1.58	-0.20	0.031
81.75	-6.67	-1.16	0.00	-38.10	0.00	38.10	2,256.11	1,128.06	2,832.47	1,418.34	1.65	-0.21	0.030
85.00	-6.54	-1.17	0.00	-34.31	0.00	34.31	2,196.84	1,098.42	2,684.15	1,344.07	1.79	-0.22	0.029
85.75	-6.15	-1.16	0.00	-33.44	0.00	33.44	1,121.87	560.94	1,390.96	696.51	1.83	-0.22	0.053
90.00	-5.71	-1.16	0.00	-28.49	0.00	28.49	1,100.60	550.30	1,316.16	659.06	2.03	-0.23	0.048
95.00	-5.28	-1.14	0.00	-22.70	0.00	22.70	1,073.86	536.93	1,228.59	615.21	2.28	-0.25	0.042
100.00	-4.86	-1.10	0.00	-17.01	0.00	17.01	1,045.26	522.63	1,141.77	571.73	2.55	-0.27	0.034
105.00	-3.47	-0.94	0.00	-11.50	0.00	11.50	1,014.82	507.41	1,055.98	528.78	2.84	-0.28	0.025
110.00	-3.33	-0.91	0.00	-6.81	0.00	6.81	982.52	491.26	971.52	486.48	3.14	-0.29	0.017
112.00	-1.80	-0.60	0.00	-4.99	0.00	4.99	969.08	484.54	938.16	469.78	3.26	-0.29	0.012
115.00	-1.54	-0.53	0.00	-3.17	0.00	3.17	948.37	474.19	888.66	444.99	3.45	-0.30	0.009
120.00	-1.49	-0.51	0.00	-0.51	0.00	0.51	912.38	456.19	807.70	404.45	3.76	-0.30	0.003
121.00	0.00	0.00	0.00	0.00	0.00	0.00	904.95	452.48	791.76	396.47	3.82	-0.30	0.000
123.00	0.00	0.00	0.00	0.00	0.00	0.00	889.89	444.94	760.16	380.64	3.95	-0.30	0.000

Analysis Summary

Load Case	Reactions: Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Max Usage: Elev (ft)	Interaction Ratio
1.2D + 1.6W	17.79	0.00	30.55	0.00	0.00	1580.98	85.75	0.44
0.9D + 1.6W	17.79	0.00	22.91	0.00	0.00	1572.10	85.75	0.43
1.2D + 1.0Di + 1.0Wi	4.69	0.00	44.15	0.00	0.00	403.87	85.75	0.12
(1.2 + 0.2Sds) * DL + E ELFM	1.47	0.00	30.01	0.00	0.00	134.16	85.75	0.04
(1.2 + 0.2Sds) * DL + E EMAM	1.57	0.00	30.01	0.00	0.00	147.73	85.75	0.06
(0.9 - 0.2Sds) * DL + E ELFM	1.47	0.00	20.89	0.00	0.00	133.31	85.75	0.04
(0.9 - 0.2Sds) * DL + E EMAM	1.57	0.00	20.89	0.00	0.00	146.72	85.75	0.05
1.0D + 1.0W	3.92	0.00	25.47	0.00	0.00	347.48	85.75	0.10

Base Summary

Reactions

Original Design			Analysis			
Moment (kip-ft)	Axial (kip)	Shear (kip)	Moment (kip-ft)	Axial (kip)	Shear (kip)	Moment Design %
3,210.83	31.26	36.09	1,580.98	44.15	17.79	36.47

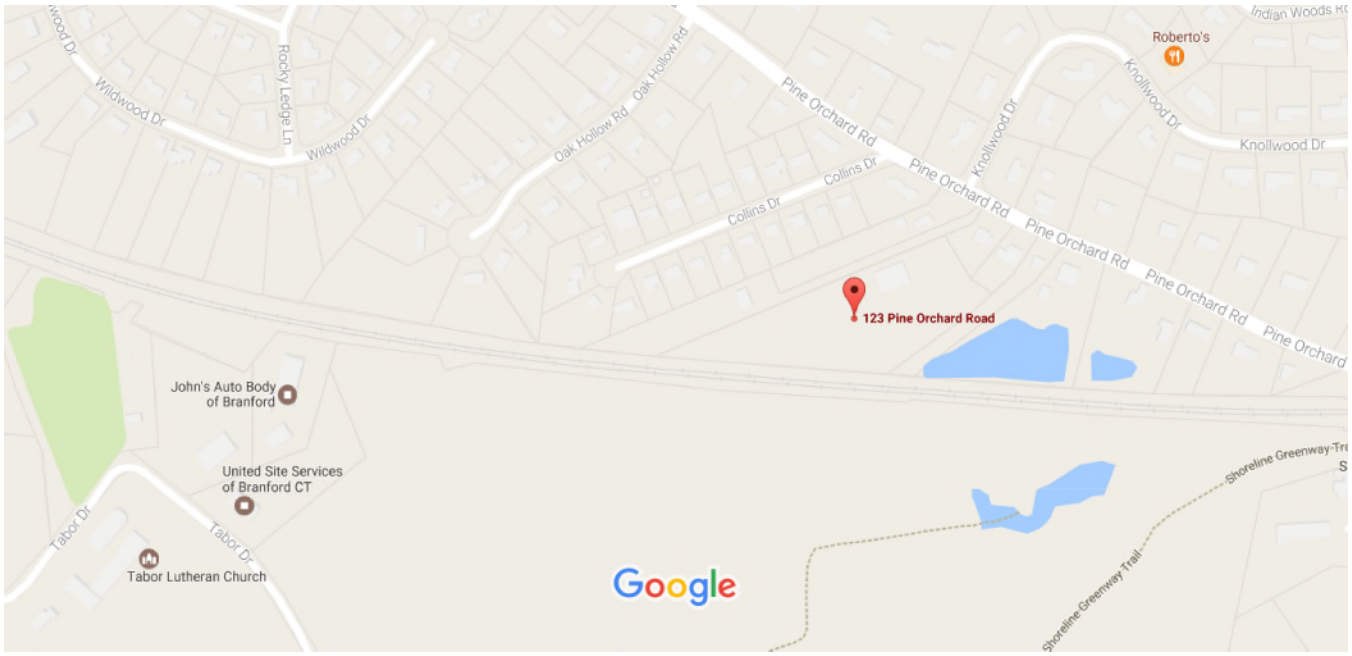
Base Plate

Yield (ksi)	Thick (in)	Width (in)	Style	Poly Sides	Clip Len (in)	Effective Len (in)	Mu (kip-in)	Phi Mn (kip-in)	Ratio
50.0	2.750	57.000	Clipped	8	12.00	10.067	268.65	856.50	0.31

Anchor Bolts

								Start	Compression			Tension		
Bolt Circle	Num Bolts	Bolt Type	Bolt Dia (in)	Yield (ksi)	Ultimate (ksi)	Arrange	Cluster Dist (in)	Angle (deg)	Force (kip)	Allow (kip)	Ratio	Force (kip)	Allow (kip)	Ratio
57.00	16	2.25" 18J	2.25	75.00	100.00	Clustered	6.00	45.0	85.97	260.00	0.34	80.45	260.00	0.32

Google Maps 123 Pine Orchard Rd



Map data ©2017 Google 200 ft

Property Location: 123 PINE ORCHARD RD **MAP ID:** F08/000 006/ 00049/ / **Bldg Name:** **State Use:** 3160

Vision ID: 1046 **Account #** 003607 **Bldg #:** 1 of 2 **Sec #:** 1 of 1 **Card** 1 of 2 **Print Date:** 04/06/2016 11:59

CURRENT OWNER	TOPO.	UTILITIES	STRT./ROAD	LOCATION
MALAVASI INVESTMENTS LLC	1 Level	2 Public Water	1 Paved	2 Suburban
		3 Public Sewer		
35 STONY CREEK RD				
BRANFORD, CT 06405				
Additional Owners:				

SUPPLEMENTAL DATA

Other ID:	F08/000/006/00049/	HLDG TK	
CONDO BLDG		SEPTIC	
CONDO UNIT		SEWER	
CONDO FLOOI		DISTRICT	
		CENSUS TR	1845
PARCEL DESC			
GIS ID:	F08/000/006/00049	*ASSOC PID#*	

CURRENT ASSESSMENT

Description	Code	Appraised Value	Assessed Value
COM LAND	2-1	141,800	99,300
COM BLDG	2-2	201,500	140,990
COM OUTBL	2-5	19,600	13,710
UTL LAND	4-1	200,000	140,000
	Total	562,900	394,000

6014
BRANFORD, CT

VISION

RECORD OF OWNERSHIP

RECORD OF OWNERSHIP	BK-VOL/PAGE	SALE DATE	q/u	v/i	SALE PRICE	V.C.
MALAVASI INVESTMENTS LLC	0802/0624	02/13/2003	U	I	537,500	25
PRIFITERA BARBARA A &	0802/0622	02/13/2003	U	I		25
GIORDANO ANTHONY EST OF	0802/0621	02/13/2003	Q	I		
GIORDANO ANTHONY	0695/0932	03/23/2000	U		0	
GIORDANO ANTHONY + HELEN EST	0425/0520					

PREVIOUS ASSESSMENTS (HISTORY)

Yr.	Code	Assessed Value	Yr.	Code	Assessed Value	Yr.	Code	Assessed Value
2015	2-1	99,300	2014	2-1	99,300	2013	2-1	103,200
2015	2-2	140,990	2014	2-2	140,990	2013	2-2	139,290
2015	2-5	13,710	2014	2-5	13,710	2013	2-5	13,710
2015	4-1	140,000	2014	4-1	140,000	2013	4-1	140,000
	Total:	394,000		*Total:*	394,000		*Total:*	396,200

EXEMPTIONS

Year	Type	Description	Amount
		Total:	

OTHER ASSESSMENTS

Code	Description	Number	Amount	Comm. Int.

This signature acknowledges a visit by a Data Collector or Assessor

APPRAISED VALUE SUMMARY

Appraised Bldg. Value (Card)	129,600
Appraised XF (B) Value (Bldg)	1,900
Appraised OB (L) Value (Bldg)	500
Appraised Land Value (Bldg)	141,800
Special Land Value	0
Total Appraised Parcel Value	562,900
Valuation Method:	C
Adjustment:	0
Net Total Appraised Parcel Value	562,900

ASSESSING NEIGHBORHOOD

NBHD/ SUB	NBHD Name	Street Index Name	Tracing	Batch
0070/A				

NOTES

ACE TRAILER LEASING
REAR 24X36
BAS 8 FT WALLS
UNPAVED LOT
AT&T TOWER SITE CT 1274
ECO/FUNC=LOC/ACCESS/USE

*SOLD WITH 121 PINE ORCHARD RD LOT 50
SMAP 3597 5/2/11
V1081 [980 5/2/11 EASEMENT TO CL&P
V1081 P729 7/5/11 EASEMENT TO SNET
V1154P258 3/20/14 EASEMENT TO SNET

BUILDING PERMIT RECORD

Permit ID	Issue Date	Type	Description	Amount	Insp. Date	% Comp.	Date Comp.	Comments
12-00201-2	05/01/2012	PL	Plumbing	1,000	09/18/2012	100		PROPANE TNK, 1000 G
12-00201-1	04/03/2012	EL	Electric	6,500	09/18/2012	100		INSTL 200 AMP UG FE
12-00201	03/19/2012	CM	Commercial	60,000	09/18/2012	100		ADD 12 ATENNAS @ 1
	08/24/2011	CO	CO ISSUED	0	09/21/2011	100		
11-000713-	08/03/2011	EL	Electric	6,600	09/21/2011	100		SVC CLL TWR+ MTR 1
11-00391	06/13/2011	CM	Commercial	3,000	09/20/2011	100		EQPT PAD FOR WIRE
11-00071-1	03/14/2011	EL	Electric	6,000	09/21/2011	100		WIRING CELL CARRI

VISIT/ CHANGE HISTORY

Date	Type	IS	ID	Cd.	Purpose/Result
08/08/2014			JG	11	Field Review
12/21/2012			DV	15	Quality Inspec
09/18/2012			ECS	00	Measur+Listed
09/21/2011			TMM	37	Bldg Permit
09/20/2011			TMM	37	Bldg Permit

LAND LINE VALUATION SECTION

B #	Use Code	Use Description	Zone	D	Front	Depth	Units		Unit Price	I. Factor	S.A.	Acre Disc	C. Factor	ST. Idx	Adj.	Notes- Adj	Special Pricing		S Adj Fact	Adj. Unit Price	Land Value
1	3160	COMM WHS MDL96	R3				0.34	AC	109,600.00	2.6165	5	1.0000	0.90	0070	1.25	ACCESS LOT 50			1.00		109,700
1	3160	COMM WHS MDL96					3.42	AC	7,500.00	1.0000	0	1.0000	1.00	0070	1.25				1.00		32,100

Total Card Land Units:	3.76	AC	**Parcel Total Land Area:**	3.76 AC	**Total Land Value:** 141,800

Property Location: 123 PINE ORCHARD RD **MAP ID:** F08/000 006/ 00049/ / **Bldg Name:** **State Use:** 3160

Vision ID: 1046 **Account #** 003607 **Bldg #:** 1 of 2 **Sec #:** 1 of 1 **Card** 1 of 2 **Print Date:** 04/06/2016 11:59

CONSTRUCTION DETAIL

Element	Cd.	Ch.	Description
Style	25		Service Shop
Model	96		Ind/Comm
Grade	03		C
Stories	1		
Occupancy	1		
Exterior Wall 1	15		Concr/Cinder
Exterior Wall 2			
Roof Structure	01		Flat
Roof Cover	04		T&G/Rubber
Interior Wall 1	01		Minim/Masonry
Interior Wall 2			
Interior Floor 1	03		Concr-Finished
Interior Floor 2			
Heating Fuel	02		Oil
Heating Type	03		Hot Air-no Duc
AC Type	01		None
Bldg Use	3160		COMM WHS MDL96
Total Rooms			
Total Bedrms	00		
Total Baths	0		
Heat/AC	02		HEAT/AC SPLIT
Frame Type	03		MASONRY
Baths/Plumbing	02		AVERAGE
Ceiling/Wall	02		CEILING ONLY
Rooms/Prtns	02		AVERAGE
Wall Height	15		
% Comn Wall			

CONSTRUCTION DETAIL (CONTINUED)

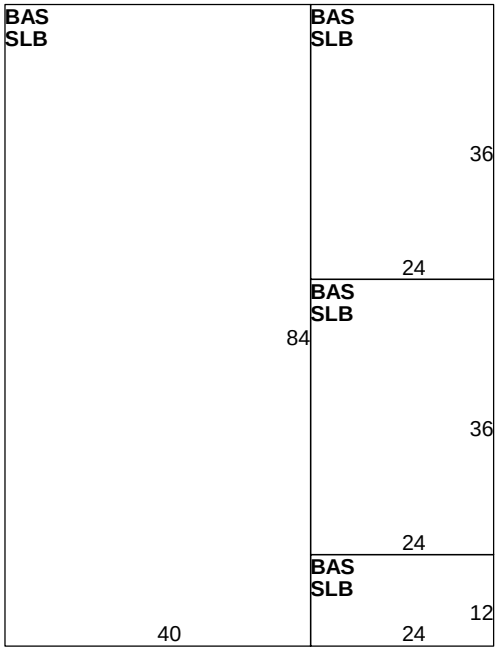
Element	Cd.	Ch.	Description

MIXED USE

Code	Description	Percentage
3160	COMM WHS MDL96	100

COST/MARKET VALUATION

Adj. Base Rate:	48.20
Replace Cost	259,123
AYB	1941
Dep Code	A
Remodel Rating	
Year Remodeled	
Dep %	40
Functional Obslnc	5
External Obslnc	5
Cost Trend Factor	
Condition	
% Complete	
Overall % Cond	50
Apprais Val	129,600
Dep % Ovr	0
Dep Ovr Comment	
Misc Imp Ovr	0
Misc Imp Ovr Comment	
Cost to Cure Ovr	0
Cost to Cure Ovr Comment	



OB-OUTBUILDING & YARD ITEMS(L) / XF-BUILDING EXTRA FEATURES(B)

Code	Description	Sub	Sub Descript	L/B	Units	Unit Price	Yr	Gde	Dp Rt	Cnd	%Cnd	Apr Value
PAV1	PAVING-ASPH			L	1,000	1.65	2002		0		30	500
MEZ1	MEZZANINE-			B	379	10.00	1974		1		80	1,900

BUILDING SUB-AREA SUMMARY SECTION

Code	Description	Living Area	Gross Area	Eff. Area	Unit Cost	Undeprec. Value
BAS	First Floor	5,376	5,376	5,376	48.20	259,123
SLB	Slab	0	5,376	0	0.00	0
	Ttl. Gross Liv/Lease Area:	5,376	10,752	5,376		259,123

Property Location: 123 PINE ORCHARD RD | **MAP ID:** F08/000 006/ 00049/ / | **Bldg Name:** | **State Use:** 3160

Vision ID: 1046 | **Account #** 003607 | **Bldg #:** 2 of 2 | **Sec #:** 1 of 1 | **Card** 2 of 2 | **Print Date:** 04/06/2016 11:59

CURRENT OWNER	TOPO.	UTILITIES	STRT./ROAD	LOCATION
MALAVASI INVESTMENTS LLC	1 Level	2 Public Water	1 Paved	2 Suburban
		3 Public Sewer		
35 STONY CREEK RD				
BRANFORD, CT 06405				
Additional Owners:				

SUPPLEMENTAL DATA

Other ID: F08/000/006/00049/	HLDG TK
CONDO BLDG	SEPTIC
CONDO UNIT	SEWER
CONDO FLOOI	DISTRICT
	CENSUS TR 1845
PARCEL DESC	
GIS ID: F08/000/006/00049	*ASSOC PID#*

CURRENT ASSESSMENT

Description	Code	Appraised Value	Assessed Value
COM LAND	2-1	141,800	99,300
COM BLDG	2-2	201,500	140,990
COM OUTBL	2-5	19,600	13,710
UTL LAND	4-1	200,000	140,000
	Total	562,900	394,000

6014
BRANFORD, CT

VISION

RECORD OF OWNERSHIP

RECORD OF OWNERSHIP	BK-VOL/PAGE	SALE DATE	q/u	v/i	SALE PRICE	V.C.
MALAVASI INVESTMENTS LLC	0802/0624	02/13/2003	U	I	537,500	25
PRIFITERA BARBARA A &	0802/0622	02/13/2003	U	I		25
GIORDANO ANTHONY EST OF	0802/0621	02/13/2003	Q	I		
GIORDANO ANTHONY	0695/0932	03/23/2000	U		0	
GIORDANO ANTHONY + HELEN EST	0425/0520					

PREVIOUS ASSESSMENTS (HISTORY)

Yr.	Code	Assessed Value	Yr.	Code	Assessed Value	Yr.	Code	Assessed Value
2015	2-1	99,300	2014	2-1	99,300	2013	2-1	103,200
2015	2-2	140,990	2014	2-2	140,990	2013	2-2	139,290
2015	2-5	13,710	2014	2-5	13,710	2013	2-5	13,710
2015	4-1	140,000	2014	4-1	140,000	2013	4-1	140,000
	Total:	394,000		*Total:*	394,000		*Total:*	396,200

EXEMPTIONS

Year	Type	Description	Amount
		Total:	

OTHER ASSESSMENTS

Code	Description	Number	Amount	Comm. Int.

This signature acknowledges a visit by a Data Collector or Assessor

ASSESSING NEIGHBORHOOD

NBHD/ SUB	NBHD Name	Street Index Name	Tracing	Batch
0070/A				

APPRAISED VALUE SUMMARY

Appraised Bldg. Value (Card)	16,300
Appraised XF (B) Value (Bldg)	53,700
Appraised OB (L) Value (Bldg)	19,100
Appraised Land Value (Bldg)	200,000
Special Land Value	0
Total Appraised Parcel Value	562,900
Valuation Method:	C
Adjustment:	0
Net Total Appraised Parcel Value	**562,900**

NOTES

9/12 - T MOBILE (TOP), AT&T (MIDDLE)
VERIZON (BOTTOM) ATENNAS
(CELL TOWER SET ON
REAR OF PARCEL
CELL TOWER EIGHT 117 FT
9/12 - MOBILE HOME USED AS OFFICE
CELL TOWER GENERATOR
EXT-MKT

BUILDING PERMIT RECORD

Permit ID	Issue Date	Type	Description	Amount	Insp. Date	% Comp.	Date Comp.	Comments

VISIT/ CHANGE HISTORY

Date	Type	IS	ID	Cd.	Purpose/Result
08/08/2014			JG	11	Field Review
12/21/2012			DV	15	Quality Inspec
09/18/2012			ECS	00	Measur+Listed
09/21/2011			TMM	37	Bldg Permit
09/20/2011			TMM	37	Bldg Permit

LAND LINE VALUATION SECTION

B #	Use Code	Use Description	Zone	D	Front	Depth	Units		Unit Price	I. Factor	S.A.	Acre Disc	C. Factor	ST. Idx	Adj.	Notes- Adj	Special Pricing		S Adj Fact	Adj. Unit Price	Land Value
2	316R	COMM WHS MDL01	R2				0.00	AC	0.00	1.0000	0	1.0000	1.00		0.00				.00		0
2	4310	TEL REL TW MDL96	R2				1.00	BL	200,000.00	1.0000	0	1.0000	1.00		0.00	CELL SITE			1.00		200,000

Total Card Land Units: 0.00 AC | **Parcel Total Land Area:** 3.76 AC | **Total Land Value:** 200,000

Property Location: 123 PINE ORCHARD RD **MAP ID:** F08/000 006/ 00049/ / **Bldg Name:** **State Use:** 3160

Vision ID: 1046 **Account #** 003607 **Bldg #:** 2 of 2 **Sec #:** 1 of 1 **Card** 2 of 2 **Print Date:** 04/06/2016 11:59

CONSTRUCTION DETAIL

Element	Cd.	Ch.	Description
Style	20		Mobile Home
Model	01		Residential
Grade	02		C -
Stories	1		1 Story
Occupancy	1		
Exterior Wall 1	27		Pre-finsh Metl
Exterior Wall 2			
Roof Structure	03		Gable/Hip
Roof Cover	01		Metal/Tin
Interior Wall 1	04		Plywood Panel
Interior Wall 2			
Interior Flr 1	14		Carpet
Interior Flr 2			
Heat Fuel	04		Electric
Heat Type	04		Forced Air-Duc
AC Type	03		Central
Total Bedrooms	00		
Total Bthrms	0		
Total Half Baths	0		
Total Xtra Fixtrs			
Total Rooms			
Bath Style			
Kitchen Style			
Cottage Cmplx			
Cottage Adj			

CONSTRUCTION DETAIL (CONTINUED)

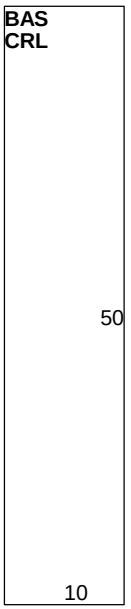
Element	Cd.	Ch.	Description

MIXED USE

Code	Description	Percentage
316R	COMM WHS MDL01	100

COST/MARKET VALUATION

Adj. Base Rate:	46.04
Replace Cost	23,018
AYB	1974
Dep Code	A
Remodel Rating	
Year Remodeled	
Dep %	24
Functional Obslnc	0
External Obslnc	5
Cost Trend Factor	
Condition	
% Complete	
Overall % Cond	71
Apprais Val	16,300
Dep % Ovr	0
Dep Ovr Comment	
Misc Imp Ovr	0
Misc Imp Ovr Comment	
Cost to Cure Ovr	0
Cost to Cure Ovr Comment	



OB-OUTBUILDING & YARD ITEMS(L) / XF-BUILDING EXTRA FEATURES(B)

Code	Description	Sub	Sub Descript	L/B	Units	Unit Price	Yr	Gde	Dp Rt	Cnd	%Cnd	Apr Value
FN4	FENCE-8' CHA			L	272	12.00	2011		0		100	3,300
SHD6	SHED COM M			L	240	22.00	2011		0		100	5,300
SHD6	SHED COM M			L	288	22.00	2012		0		100	7,300
PAV2	PAVING-CON			L	959	3.30	2011		0		100	3,200
GEN4	GEN 100+ KW			B	1	15,000.00	1990		1		100	53,700

BUILDING SUB-AREA SUMMARY SECTION

Code	Description	Living Area	Gross Area	Eff. Area	Unit Cost	Undeprec. Value
BAS	First Floor	500	500	500	46.04	23,018
CRL	Crawl Space	0	500	0	0.00	0
	Ttl. Gross Liv/Lease Area:	500	1,000	500		23,018