



STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: siting.council@ct.gov

www.ct.gov/csc

VIA ELECTRONIC MAIL

July 2, 2018

Mark Roberts
QC Development
P.O. Box 916
Storrs, CT 06268
Mark.roberts@qcdevelopment.net

RE: **EM-CING-148-180403** - New Cingular Wireless PCS, LLC (AT&T) notice of intent to modify an existing telecommunications facility located at 1000 Northrop Road, Wallingford, Connecticut.

Dear Mr. Roberts:

The Connecticut Siting Council (Council) is in receipt of your e-mail correspondence of June 29, 2018 submitted in response to the Council's April 12, 2018 notification of an incomplete request for exempt modification with regard to the above-referenced matter.

The submission renders the request for exempt modification complete and the Council will process the request in accordance with the Federal Communications Commission 60-day timeframe.

Thank you for your attention and cooperation.

Sincerely,

Melanie A. Bachman
Executive Director

MB/CMW/laf

From: Mark Roberts [mailto:mark.roberts@qcdevelopment.net]
Sent: Friday, June 29, 2018 2:31 PM
To: CSC-DL Siting Council
Cc: Mark Roberts
Subject: RE: Incomplete - EM-CING-148-180403 - Northrop Rd.
Importance: High

Hello – In response to your incomplete letter dated 4/12/18, I am sending the attached additional and/or revised materials:

1. Revised CDs from Hudson Design Group (dated 4/5/2018), which include a Mount Modification Design by B&T Engineers dated 3/2/2018 (Sheets S1 & S2);
2. Mount Modification Report by B&T Engineers dated 3/2/2018 confirming that the modified mount will support the proposed loading;
3. Revised Tower Structural Analysis from American Tower incorporating the additional mount components specified in the Mount Modification Design (specifically, (1) Hand Rail Kit and (1) Hand Rail Reinforcement Kit).

Let this e-mail also confirm that a copy of the original EM filing, as well as copies of these supplemental materials have been provided to American Tower as tower owner.

Please let me know if I can provide anything further.

Thanks

Mark Roberts
QC Development
860-670-9068

PROJECT INFORMATION

SCOPE OF WORK: ITEMS TO BE MOUNTED ON MONOPOLE:

- NEW AT&T RRUS: (3) RRUS-32 B66, (3) RRUS-32 & (3) 700-4478.
- NEW JUMPER CABLES: COAX JUMPER (3) PER SECTOR FROM EACH RRU (TOTAL OF 9)
- NEW FIBER JUMPERS: FIBER JUMPERS (4) FROM THE SQUID TO EACH RRU (TOTAL OF 12)
- NEW ANTENNA: (1) 800-10965 (TOTAL OF 3)
- NEW SURGE ARRESTOR: (1) SURGE ARRESTOR, (2) DC POWER CABLES, & (1) FIBER RUN.

ITEMS TO REMAIN:

- (9) ANTENNAS, (6) RRU'S, (2) SURGE ARRESTORS, (4) DC POWER CABLES, (2) FIBER RUN, AND (12) COAX.

SITE ADDRESS: 100 NORTHRUP ROAD
WALLINGFORD, CT 06492

LATITUDE: 41.4894000° N 41° 29' 21.84" N

LONGITUDE: 72.7682000° W 72° 46' 5.52" W

TYPE OF SITE: MONOPOLE / INDOOR EQUIPMENT

TOWER HEIGHT: 150'-0"±

RAD CENTER: 124'-0"±

JURISDICTION: NATIONAL, STATE & LOCAL CODES OR ORDINANCES

CURRENT USE: TELECOMMUNICATIONS FACILITY

PROPOSED USE: TELECOMMUNICATIONS FACILITY



SITE NUMBER: CT2221

SITE NAME: WALLINGFORD-NORTHRUP RD

PROJECT: LTE 4C, 5C & RETROFIT 2018 UPGRADE

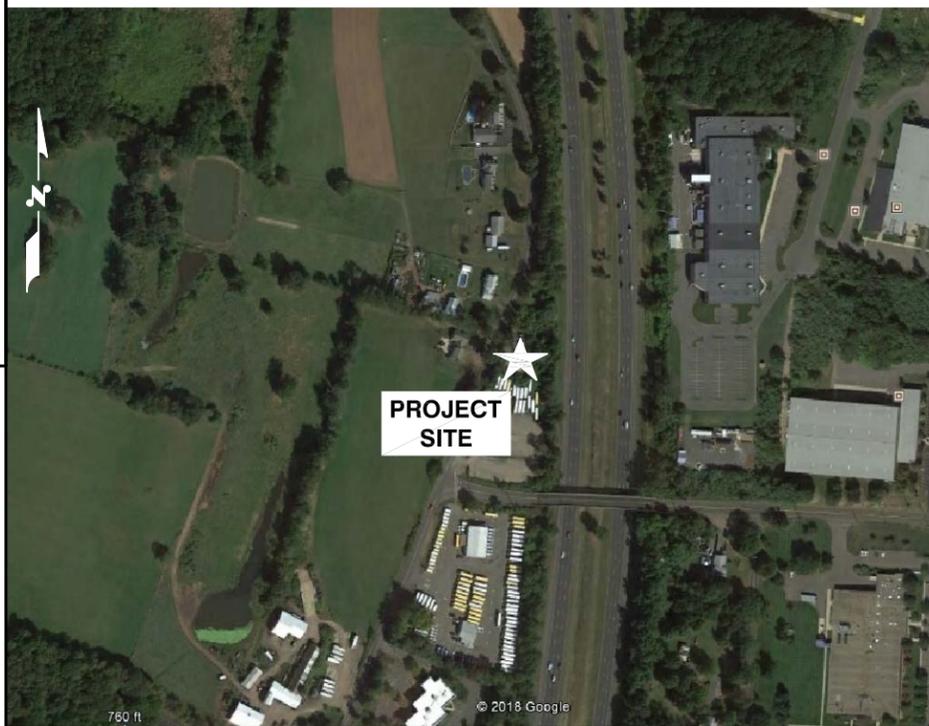
DRAWING INDEX

SHEET NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	1
GN-1	GENERAL NOTES	1
A-1	COMPOUND & EQUIPMENT PLAN	1
A-2	ELEVATION & ANTENNA LAYOUTS	1
A-3	DETAILS	1
RF-1	RF-PLUMBING DIAGRAM	1
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S-2	B+T GRP MODIFIED PLATFORM STRUCTURAL DETAILS	1

VICINITY MAP

DIRECTIONS TO SITE:

I 91 TO EXIT 15 RT 68 WEST TO LIGHT TURN RIGHT ON NORTHRUP ROAD .5 MILE TO SITE ON RIGHT. GATE COMBO 2370.



GENERAL NOTES

1. THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF AT&T. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.
2. THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.
3. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE AT&T MOBILITY REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.
4. CONSTRUCTION DRAWINGS ARE VALID FOR SIX MONTHS AFTER ENGINEER OF RECORD'S STAMPED AND SIGNED SUBMITTAL DATE LISTED HEREIN.

ATC SITE #: 302538
ATC SITE NAME: PARSONAGE HILL AKA WALLIN

72 HOURS



CALL BEFORE YOU DIG



CALL TOLL FREE **1-800-922-4455**
OR CALL **811**

UNDERGROUND SERVICE ALERT



SITE NUMBER: CT2221
SITE NAME: WALLINGFORD-NORTHRUP RD
ATC SITE NUMBER: 302538

100 NORTHRUP ROAD
WALLINGFORD, CT 06492
NEW HAVEN COUNTY



NO.	DATE	REVISIONS	BY	CHK	APP'D
1	04/05/18	ISSUED FOR CONSTRUCTION	SF	AT	DPH
B	03/08/18	ISSUED FOR PERMITTING	MR	AT	DPH
A	02/16/18	ISSUED FOR REVIEW	TB	AT	DPH

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



AT&T		
TITLE SHEET		
LTE 4C, 5C RETROFIT 2018 UPGRADE		
SITE NUMBER	DRAWING NUMBER	REV
CT2221	T-1	1

GROUNDING NOTES

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

GENERAL NOTES

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
 CONTRACTOR – SAI
 SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
 OWNER – AT&T MOBILITY
2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.
3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.
7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.
9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.
10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.

14. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.
15. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCHUP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.
16. CONSTRUCTION SHALL COMPLY WITH LTE SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T SITES."
17. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
18. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
19. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.
20. APPLICABLE BUILDING CODES:
 SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.
 BUILDING CODE: IBC 2012 WITH 2016 CT BUILDING CODE AMENDMENTS
 ELECTRICAL CODE: REFER TO ELECTRICAL DRAWINGS
 LIGHTENING CODE: REFER TO ELECTRICAL DRAWINGS

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

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

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) MANUAL OF STEEL CONSTRUCTION, ASD, FOURTEENTH EDITION;

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

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

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

ABBREVIATIONS

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

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

12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT2221
SITE NAME: WALLINGFORD-NORTHROP RD
ATC SITE NUMBER: 302538

100 NORTHROP ROAD
WALLINGFORD, CT 06492
NEW HAVEN COUNTY

550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	04/05/18	ISSUED FOR CONSTRUCTION	SF	AT	DPH
B	03/08/18	ISSUED FOR PERMITTING	MR	AT	DPH
A	02/16/18	ISSUED FOR REVIEW	TB	AT	DPH
SCALE: AS SHOWN		DESIGNED BY: AT	DRAWN BY: LL		

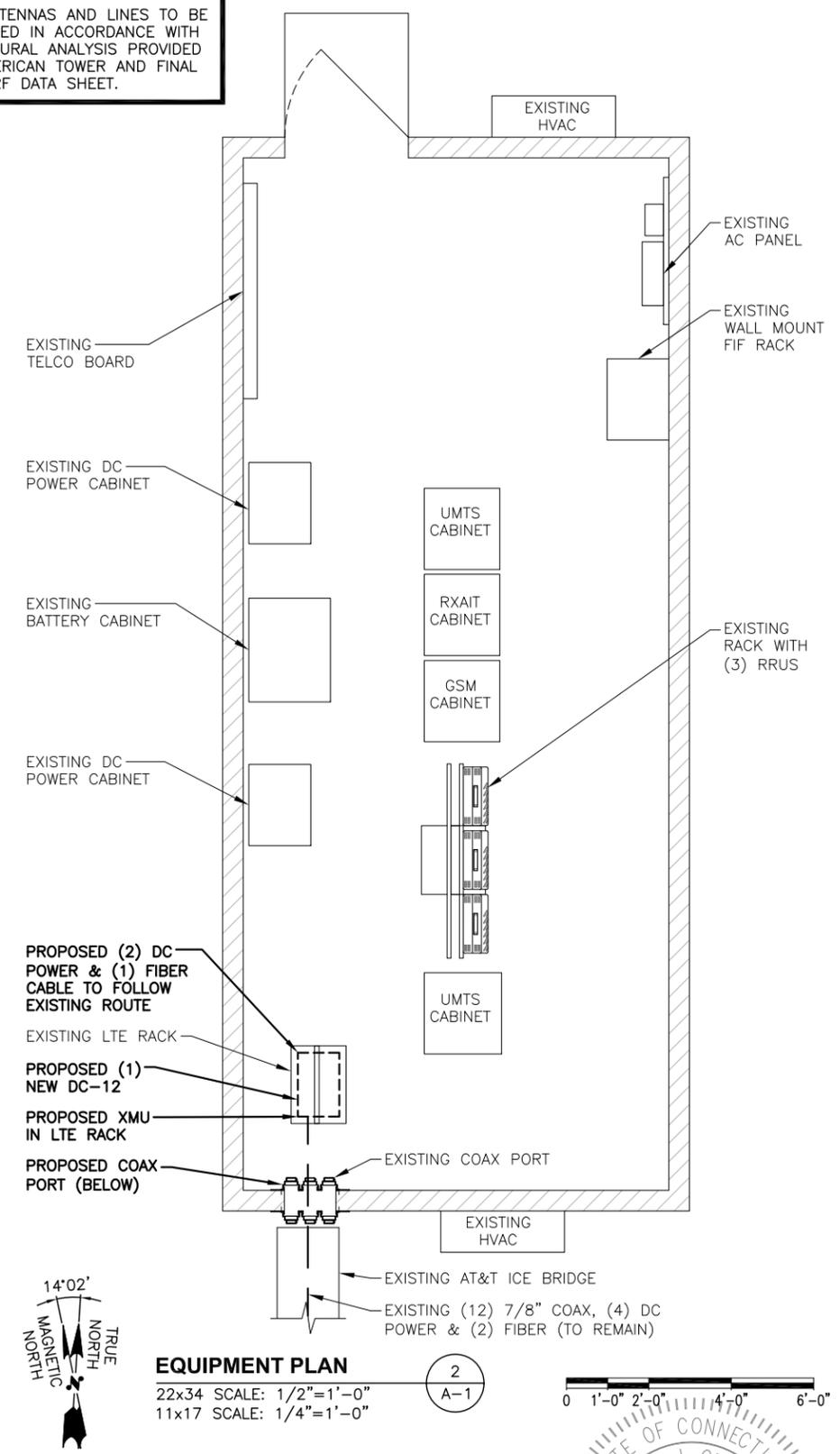
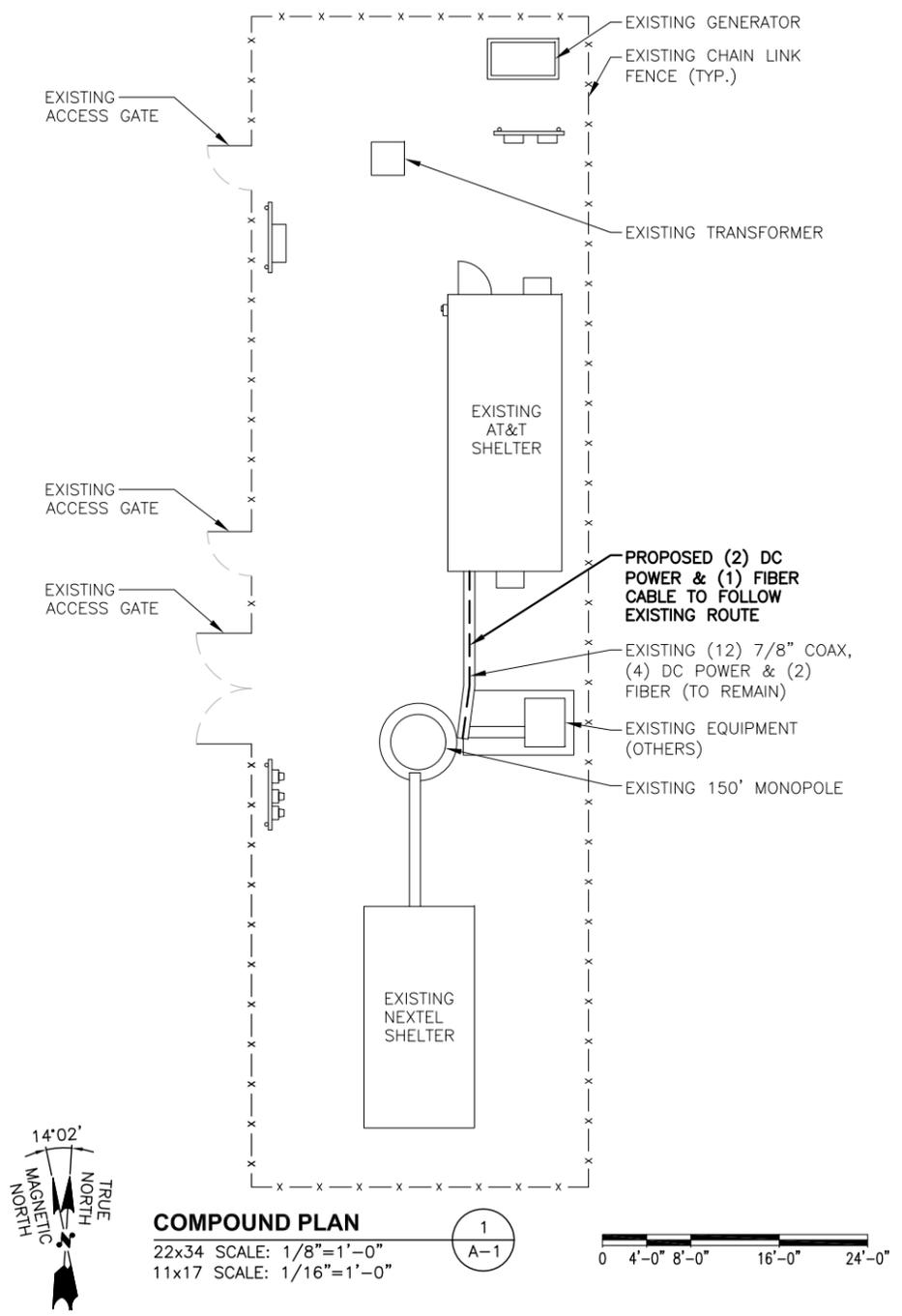
STATE OF CONNECTICUT
Derek J. Crease
Professional Engineer
No. 2905

AT&T		
GENERAL NOTES		
LTE 4C, 5C RETROFIT 2018 UPGRADE		
SITE NUMBER	DRAWING NUMBER	REV
CT2221	GN-1	1

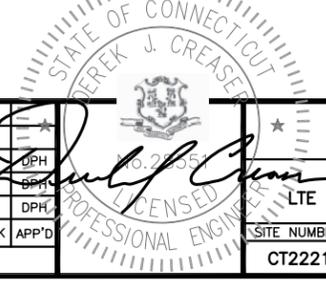
NOTE:
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

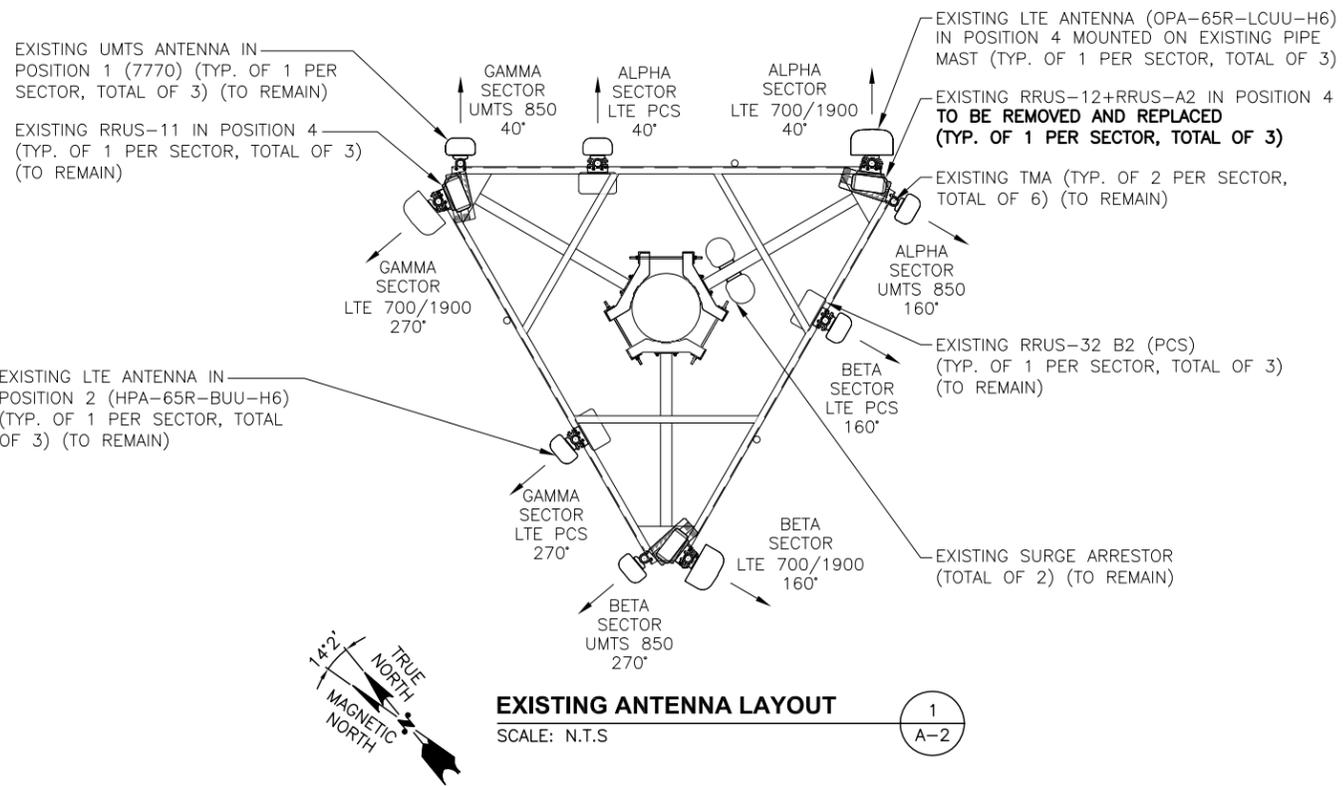
NOTE:
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: B+T GRP. DATED: MARCH 12, 2018

NOTE:
ALL ANTENNAS AND LINES TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS PROVIDED BY AMERICAN TOWER AND FINAL AT&T RF DATA SHEET.

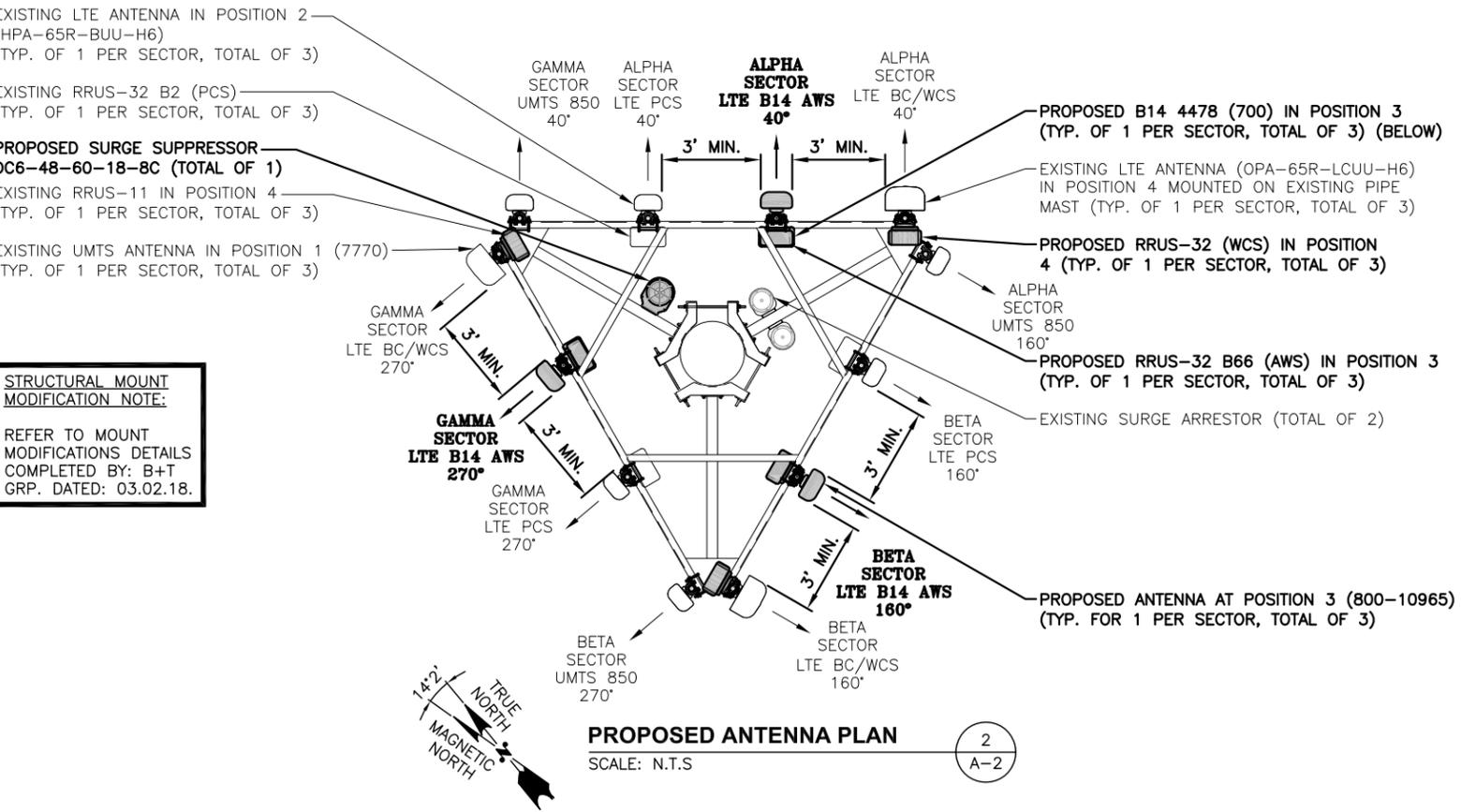


1	04/05/18	ISSUED FOR CONSTRUCTION	SF	AT	DPH
B	03/08/18	ISSUED FOR PERMITTING	MR	AT	DPH
A	02/16/18	ISSUED FOR REVIEW	TB	AT	DPH
NO.	DATE	REVISIONS	BY	CHK	APP'D
SCALE: AS SHOWN		DESIGNED BY: AT	DRAWN BY: LL		





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

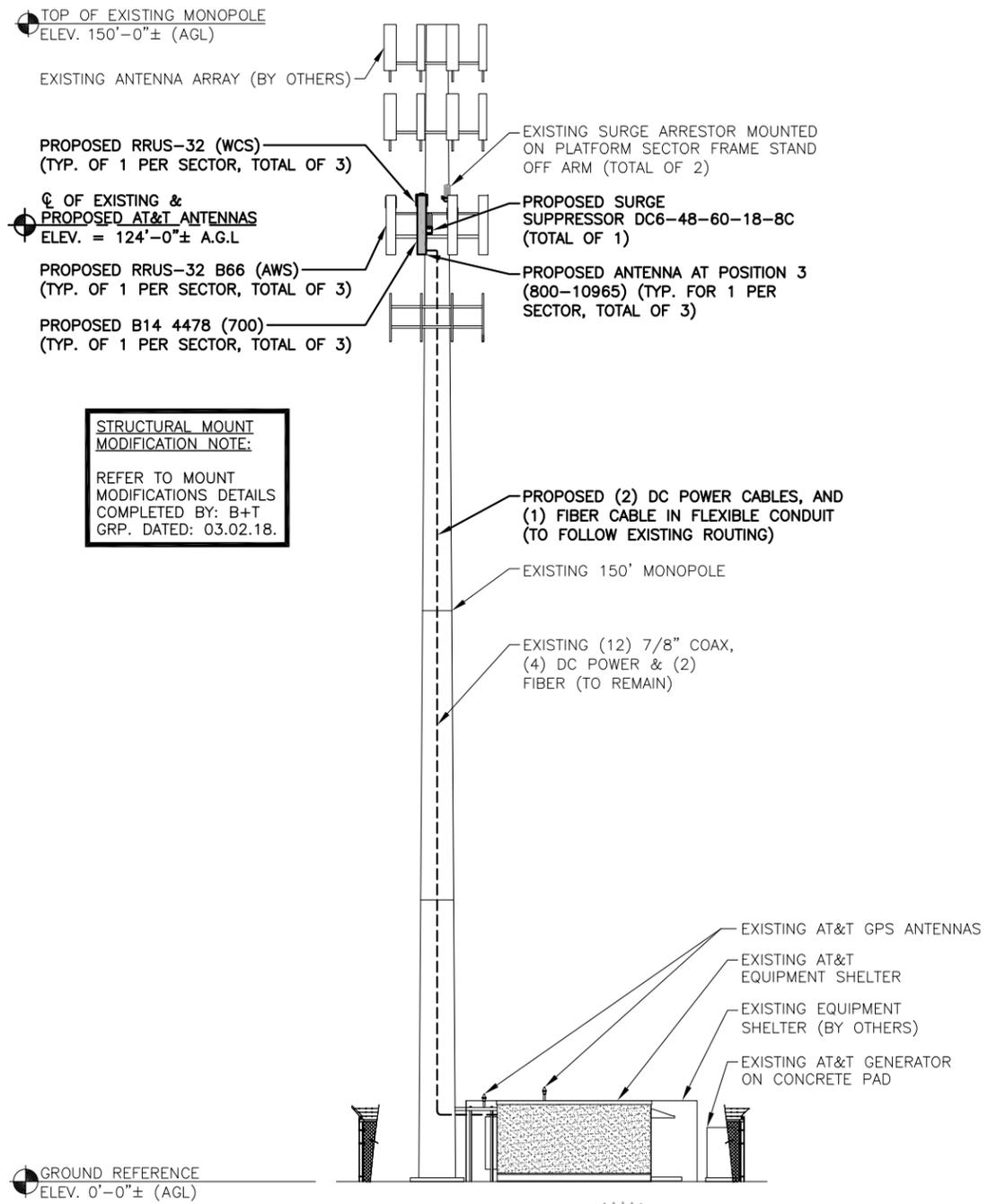


PROPOSED ANTENNA PLAN
SCALE: N.T.S. 2 A-2

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

NOTE:
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING ANTENNA MOUNT TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: B+T GRP. DATED: MARCH 12, 2018

NOTE:
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STRUCTURAL MOUNT MODIFICATION NOTE:
REFER TO MOUNT MODIFICATIONS DETAILS COMPLETED BY: B+T GRP. DATED: 03.02.18.

STRUCTURAL MOUNT MODIFICATION NOTE:
REFER TO MOUNT MODIFICATIONS DETAILS COMPLETED BY: B+T GRP. DATED: 03.02.18.

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

1	04/05/18	ISSUED FOR CONSTRUCTION	SF	AT	DPH
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A	02/16/18	ISSUED FOR REVIEW	TB	AT	DPH
NO.	DATE	REVISIONS	BY	CHK	APP'D
SCALE: AS SHOWN		DESIGNED BY: AT	DRAWN BY: LL		

FINAL ANTENNA SCHEDULE													
SECTOR	BAND	ANTENNA	SIZE (INCHES) (L X W X D)	RAD CENTER	AZIMUT H	TMA'S	RRU'S	SIZE (INCHES) (L X W X D)	COAX JUMPERS	FIBER JUMPERS	COAX		
ALPHA	UMTS 850	EXISTING	7770	55X11X5	124'-0"±	160'	EXISTING	(2) 21401	-	-	-	-	(2) 7/8"
	LTE PCS	EXISTING	HPA-65R-BUU-H6	72X14.8X9	124'-0"±	40'	-	-	EXISTING	RRUS-32 B2 (1900)	-	-	(2) 7/8"
	LTE B-14/AWS	PROPOSED	80010965	78.7X20X6.9	124'-0"±	40'	-	-	PROPOSED	700-4478 (700)	16.4X15.2X3.4	1*	1**
	LTE 700 BC/WCS	EXISTING	OPA-65R-LCUU-H6	72X14.8X7.4	124'-0"±	40'	-	-	EXISTING	RRUS-32 B66 (AWS)	27.2X12.1X7.0	1*	2**
BETA	UMTS 850	EXISTING	7770	55X11X5	124'-0"±	270'	EXISTING	(2) 21401	-	-	-	-	(2) 7/8"
	LTE PCS	EXISTING	HPA-65R-BUU-H6	72X14.8X9	124'-0"±	160'	-	-	EXISTING	RRUS-32 B2 (1900)	-	-	(2) 7/8"
	LTE B-14/AWS	PROPOSED	80010965	78.7X20X6.9	124'-0"±	160'	-	-	PROPOSED	700-4478 (700)	16.4X15.2X3.4	1*	1**
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NOTE:
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING ANTENNA MOUNT TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: B+T GRP. DATED: MARCH 12, 2018

NOTE:
ALL ANTENNAS AND LINES TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS PROVIDED BY AMERICAN TOWER AND FINAL AT&T RF DATA SHEET.

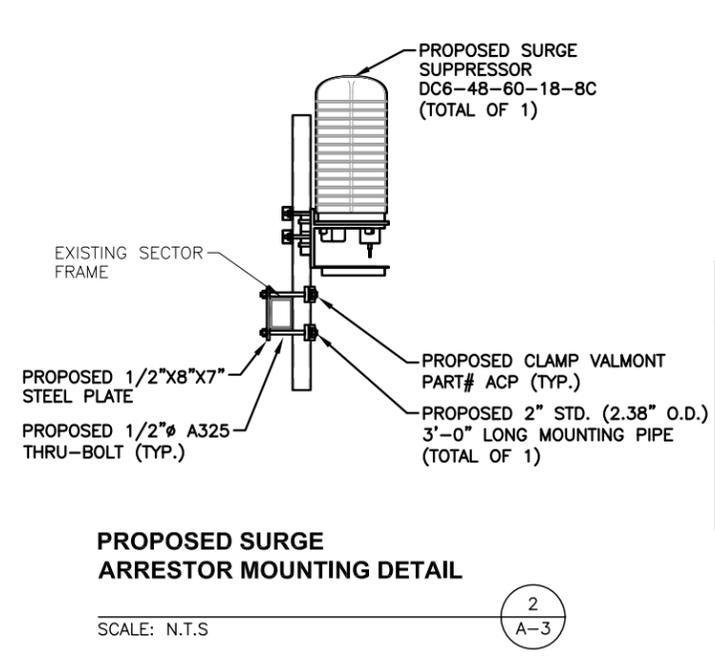
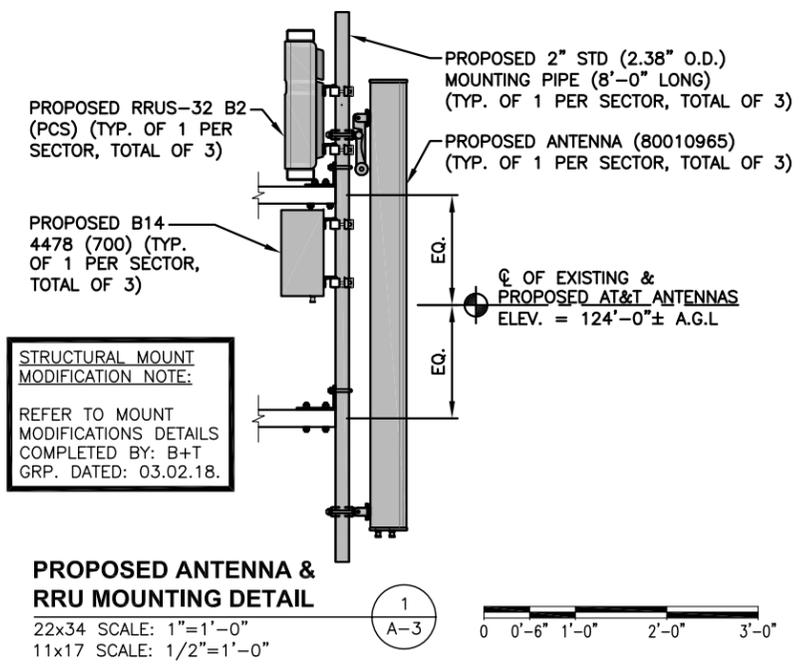
*DC JUMPER NOTE:
DC JUMPERS (3) PER SECTOR, FROM EACH RRU (TOTAL OF 9).

**FIBER JUMPER NOTE:
FIBER JUMPERS (4) PER SECTOR, FROM THE SQUID TO EACH RRU (TOTAL OF 12).

FINAL ANTENNA CONFIGURATION

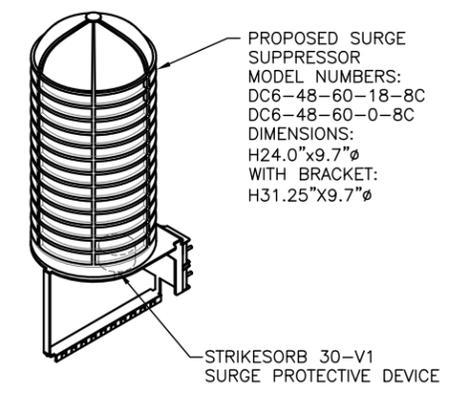
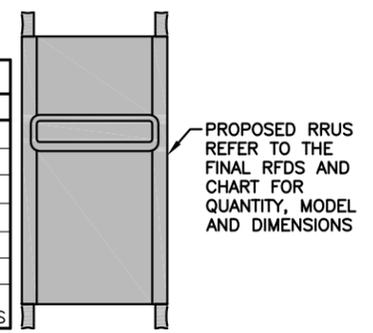
SCALE: N.T.S.

5
A-3



RRU CHART				
QUANTITY	MODEL	L	W	D
3(E)	RRUS-11	19.7"	17.0"	7.2"
-	RRUS-12	20.4"	18.5"	7.5"
3(E)6(P)	RRUS-32	27.2"	12.1"	7.0"
3(P)	B14 4478	15.0"	13.2"	7.4"
-	RRUS-E2	20.4"	18.5"	7.5"
-	LTE-A2	16.4"	15.2"	3.4"

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS



NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

STATE OF CONNECTICUT
Derek J. Crease
PROFESSIONAL ENGINEER
No. 2005

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

SAI
12 INDUSTRIAL WAY
SALEM, NH 03079

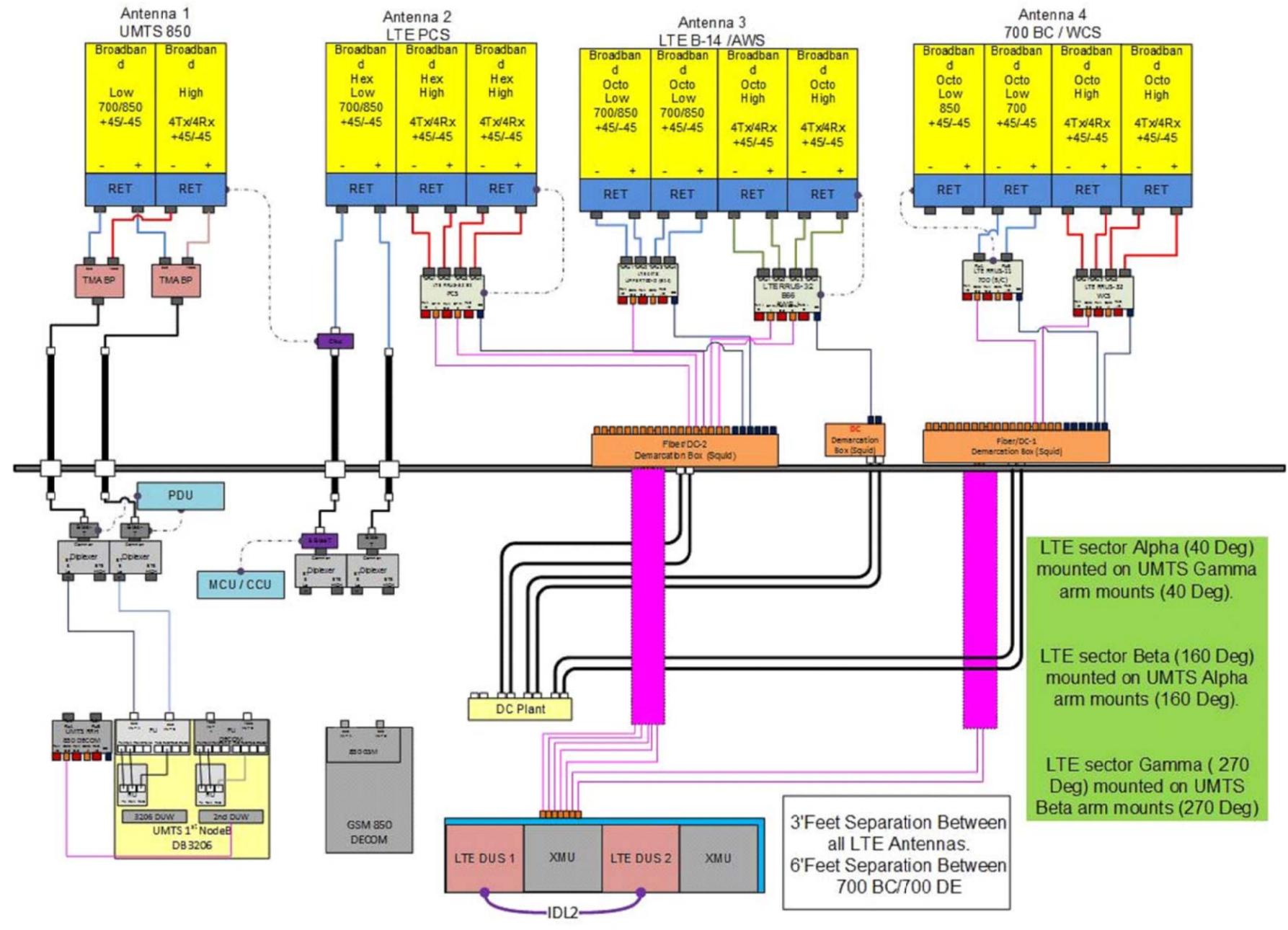
SITE NUMBER: CT2221
SITE NAME: WALLINGFORD-NORTHROP RD
ATC SITE NUMBER: 302538
100 NORTHROP ROAD
WALLINGFORD, CT 06492
NEW HAVEN COUNTY

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	04/05/18	ISSUED FOR CONSTRUCTION	SF	AT	DPH
B	03/08/18	ISSUED FOR PERMITTING	MR	AT	DPH
A	02/16/18	ISSUED FOR REVIEW	TB	AT	DPH

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

AT&T
DETAILS
LTE 4C, 5C RETROFIT 2018 UPGRADE
SITE NUMBER: CT2221
DRAWING NUMBER: A-3
REV: 1



RF PLUMBING DIAGRAM
SCALE: N.T.S.

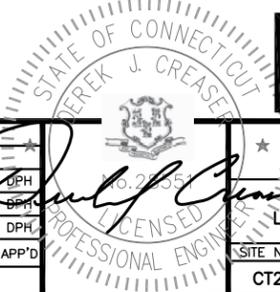
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RF-1

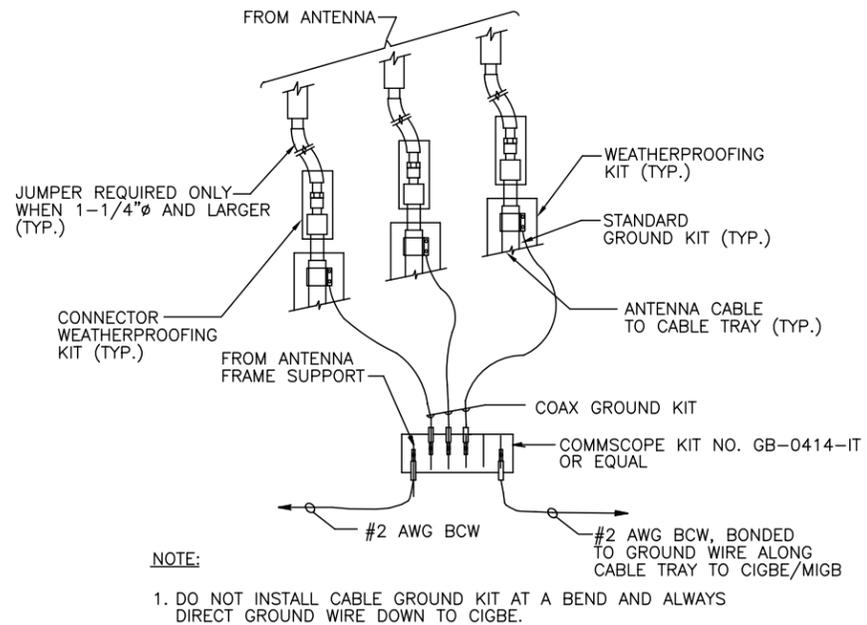
NOTE:
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
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B	03/08/18	ISSUED FOR PERMITTING	MR	AT	DPH
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SCALE: AS SHOWN DESIGNED BY: AT DRAWN BY: LL

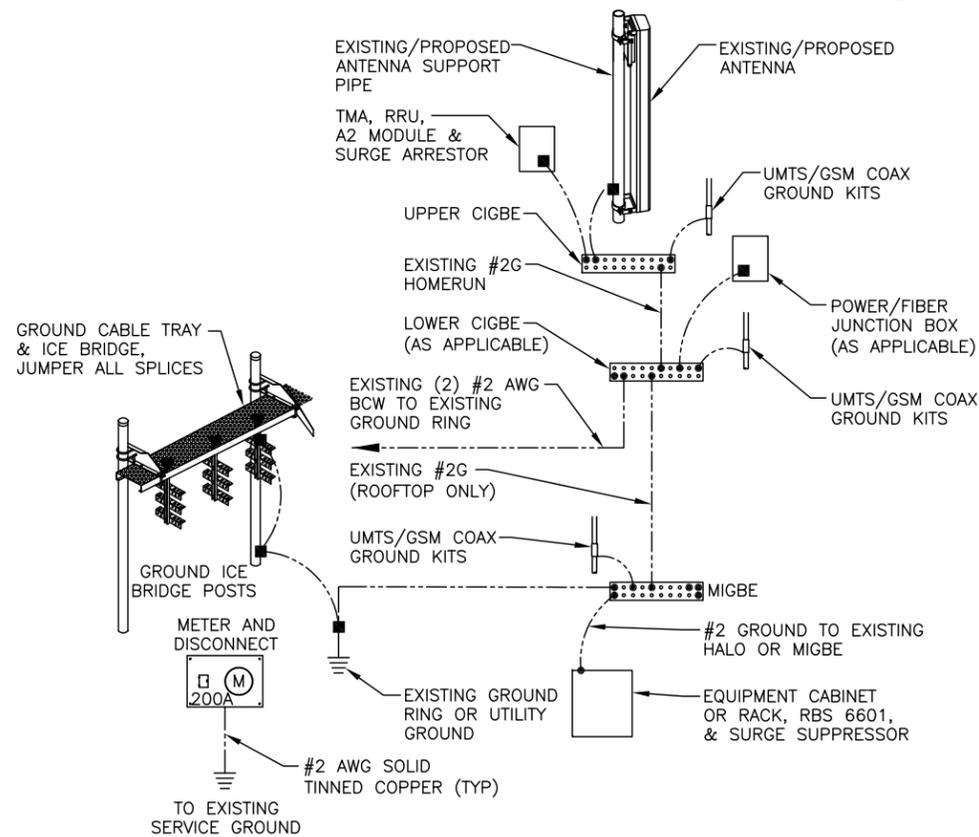




GROUND WIRE TO GROUND BAR CONNECTION DETAIL

SCALE: N.T.S

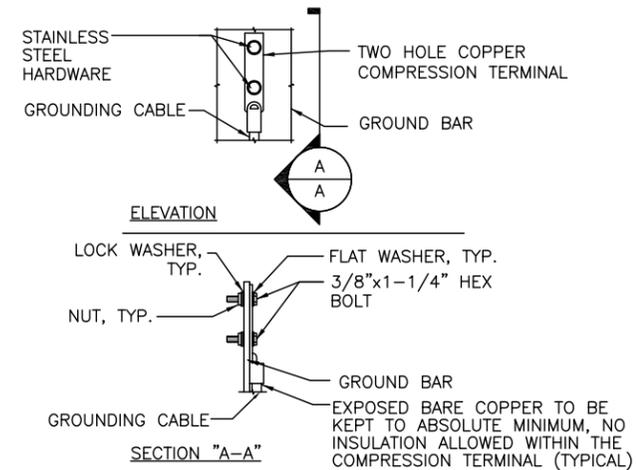
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G-1



GROUNDING RISER DIAGRAM

SCALE: N.T.S

2
G-1



NOTE:

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

TYPICAL GROUND BAR CONNECTION DETAIL

SCALE: N.T.S

3
G-1

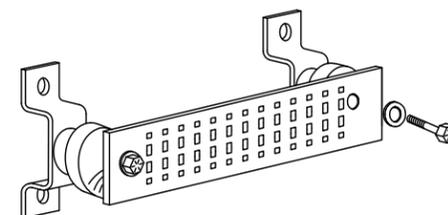
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" - SURGE PRODUCERS

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

SECTION "A" - SURGE ABSORBERS

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



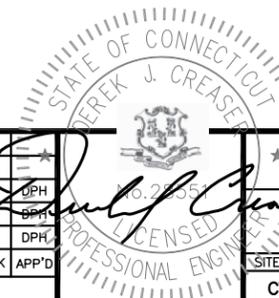
GROUND BAR - DETAIL

SCALE: N.T.S

4
G-1

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	04/05/18	ISSUED FOR CONSTRUCTION	SF	AT	DPH
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SCALE: AS SHOWN DESIGNED BY: AT DRAWN BY: LL



MI CHECKLIST

REQUIRED	REPORT ITEM	BRIEF DESCRIPTION
PRE-CONSTRUCTION		
X	MI CHECKLIST DRAWING	THIS CHECKLIST SHALL BE INCLUDED IN THE MI REPORT.
N/A	EOR APPROVED SHOP DRAWINGS	FABRICATION DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER OF RECORD FOR REVIEW. THE CONTRACTOR SHALL PROVIDE APPROVED SHOP DRAWINGS TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
N/A	ASSEMBLY DRAWINGS	ONCE THE PRE-MODIFICATION MAPPING IS COMPLETE, PRIOR TO FABRICATION, THE CONTRACTOR SHALL PROVIDE DETAILED ASSEMBLY DRAWINGS. THESE ARE TO INCLUDE, BUT ARE NOT LIMITED TO, A VISUAL LAYOUT OF NEW REINFORCEMENT, EXISTING REINFORCEMENT CONFIGURATION, PORTHOLES, MOUNTS, STEP PEGS, SAFETY CLIMBS AND ANY OTHER MISCELLANEOUS ITEMS WHICH MAY AFFECT SUCCESSFUL INSTALLATION OF MODIFICATIONS ON THE TOWER. THESE DRAWINGS SHALL BE SUBMITTED TO THE EOR FOR APPROVAL. APPROVED ASSEMBLY DRAWINGS SHALL BE SUBMITTED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
X	FABRICATION INSPECTION	A LETTER FROM THE FABRICATOR, STATING THAT THE WORK WAS PERFORMED IN ACCORDANCE WITH INDUSTRY STANDARDS AND THE CONTRACT DOCUMENTS SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
X	FABRICATOR CERTIFIED WELD INSPECTION	A VISUAL OBSERVATION BY CWI OF A PORTION OF WELDING ON THE PROPOSED STRUCTURAL MEMBERS IS REQUIRED AND A WRITTEN REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
X	MATERIAL TEST REPORT (MTR)	MILL CERTIFICATION SHALL BE PROVIDED FOR ALL STEEL AS SPECIFIED IN THE MODIFICATION DRAWINGS AND THIS DOCUMENTATION SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
N/A	FABRICATOR NDE INSPECTION	CRITICAL SHOP WELDS THAT REQUIRE TESTING ARE NOTED ON THESE CONTRACT DRAWINGS. A CERTIFIED WELD INSPECTOR SHALL PERFORM NON-DESTRUCTIVE EXAMINATION AND A REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
X	PACKING SLIPS	THE MATERIAL SHIPPING LIST SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
CONSTRUCTION (PERFORMED BY CONTRACTOR)		
X	CONSTRUCTION INSPECTIONS	A LETTER FROM THE GENERAL CONTRACTOR STATING THAT THE WORKMANSHIP WAS PERFORMED IN ACCORDANCE WITH INDUSTRY STANDARDS AND THESE CONTRACT DRAWINGS SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
N/A	CONTRACTOR'S CERTIFIED WELD INSPECTION	A CERTIFIED WELD INSPECTOR SHALL INSPECT AND TEST AS NECESSARY ALL FIELD WELDS. A REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
N/A	ON SITE COLD GALVANIZING VERIFICATION	THE GENERAL CONTRACTOR SHALL PROVIDE DOCUMENTATION TO THE MI INSPECTOR VERIFYING THAT ANY ON-SITE COLD GALVANIZING WAS APPLIED AS SPECIFIED IN THE MODIFICATION DRAWINGS.
X	GC AS-BUILT DOCUMENTS	THE GENERAL CONTRACTOR SHALL SUBMIT A COPY OF THE CONTRACT DRAWINGS EITHER STATING "INSTALLED AS DESIGNED" OR NOTING ANY CHANGES THAT WERE REQUIRED AND APPROVED BY THE ENGINEER OF RECORD DUE TO FIELD CONDITIONS.
POST-CONSTRUCTION		
X	MI INSPECTOR REDLINE OR RECORD DRAWING(S)	THE MI INSPECTOR SHALL OBSERVE AND REPORT ANY DISCREPANCIES BETWEEN THE CONTRACTORS REDLINE DRAWING AND THE ACTUAL COMPLETED INSTALLATION.
X	PHOTOGRAPHS	PHOTOGRAPHS SHALL BE SUBMITTED TO THE MI WHICH DOCUMENT ALL PHASES OF THE CONSTRUCTION. THE PHOTOS SHALL BE ORGANIZED IN A MANNER THAT EASILY IDENTIFIES THE EXACT LOCATION OF THE PHOTO.
ADDITIONAL TESTING AND INSPECTIONS:		
NOTE: X DENOTES A DOCUMENT NEEDED FOR THE MI REPORT AND N/A DENOTES A DOCUMENT THAT IS NOT REQUIRED FOR THE MI REPORT		

MODIFICATION INSPECTION NOTES:

GENERAL

THE MODIFICATION INSPECTION (MI) IS A VISUAL INSPECTION OF TOWER MODIFICATIONS AND A REVIEW OF CONSTRUCTION INSPECTIONS AND OTHER REPORTS TO ENSURE THE INSTALLATION WAS CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, NAMELY THE MODIFICATION DRAWINGS, AS DESIGNED BY THE ENGINEER OF RECORD (EOR).

THE MI IS TO CONFIRM INSTALLATION CONFIGURATION AND WORKMANSHIP ONLY AND IS NOT A REVIEW OF THE MODIFICATION DESIGN ITSELF, NOR DOES THE MI INSPECTOR TAKE OWNERSHIP OF THE MODIFICATION DESIGN. OWNERSHIP OF THE STRUCTURAL MODIFICATION DESIGN EFFECTIVENESS AND INTEGRITY RESIDES WITH THE EOR AT ALL TIMES.

TO ENSURE THAT THE REQUIREMENTS OF THE MI ARE MET, IT IS VITAL THAT THE GENERAL CONTRACTOR (GC) AND THE MI INSPECTOR BEGIN COMMUNICATING AND COORDINATING AS SOON AS A PO IS RECEIVED. IT IS EXPECTED THAT EACH PARTY WILL BE PROACTIVE IN REACHING OUT TO THE OTHER PARTY. IF CONTACT INFORMATION IS NOT KNOWN, CONTACT B+T GROUP.

MI INSPECTOR

THE MI INSPECTOR IS REQUIRED TO CONTACT THE GC AS SOON AS RECEIVING A PO FOR THE MI TO, AT A MINIMUM:

- REVIEW THE REQUIREMENTS OF THE MI CHECKLIST
- WORK WITH THE GC TO DEVELOP A SCHEDULE TO CONDUCT ONSITE INSPECTIONS, INCLUDING FOUNDATION INSPECTIONS

THE MI INSPECTOR IS RESPONSIBLE FOR COLLECTING ALL GENERAL CONTRACTOR (GC) INSPECTION AND TEST REPORTS, REVIEWING THE DOCUMENTS FOR ADHERENCE TO THE CONTRACT DOCUMENTS, CONDUCTING THE IN-FIELD INSPECTIONS, AND SUBMITTING THE MI REPORT.

GENERAL CONTRACTOR

THE GC IS REQUIRED TO CONTACT THE MI INSPECTOR AS SOON AS RECEIVING A PO FOR THE MODIFICATION INSTALLATION OR TURNKEY PROJECT TO, AT A MINIMUM:

- REVIEW THE REQUIREMENTS OF THE MI CHECKLIST
- WORK WITH THE MI INSPECTOR TO DEVELOP A SCHEDULE TO CONDUCT ON-SITE MI INSPECTIONS
- BETTER UNDERSTAND ALL INSPECTION AND TESTING REQUIREMENTS

THE GC SHALL PERFORM AND RECORD THE TEST AND INSPECTION RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE MI CHECKLIST.

RECOMMENDATIONS

THE FOLLOWING RECOMMENDATIONS AND SUGGESTIONS ARE OFFERED TO ENHANCE THE EFFICIENCY AND EFFECTIVENESS OF DELIVERING A MI REPORT:

- IT IS SUGGESTED THAT THE GC PROVIDE A MINIMUM OF 5 BUSINESS DAYS NOTICE, PREFERABLY 10, TO THE MI INSPECTOR AS TO WHEN THE SITE WILL BE READY FOR THE MI TO BE CONDUCTED.
- THE GC AND MI INSPECTOR COORDINATE CLOSELY THROUGHOUT THE ENTIRE PROJECT.
- WHEN POSSIBLE, IT IS PREFERRED TO HAVE THE GC AND MI INSPECTOR ON-SITE DURING THE MI TO HAVE ANY DEFICIENCIES CORRECTED DURING THE INITIAL MI. THEREFORE, THE GC MAY CHOOSE TO COORDINATE THE MI CAREFULLY TO ENSURE ALL CONSTRUCTION FACILITIES ARE AT THEIR DISPOSAL WHEN THE MI INSPECTOR IS ON SITE.

CANCELLATION OR DELAYS IN SCHEDULED MI

IF THE GC AND MI INSPECTOR AGREE TO A DATE ON WHICH THE MI WILL BE CONDUCTED, AND EITHER PARTY CANCELS OR DELAYS, CARRIER SHALL NOT BE RESPONSIBLE FOR ANY COSTS, FEES, LOSS OF DEPOSITS AND/OR OTHER PENALTIES RELATED TO THE CANCELLATION OR DELAY INCURRED BY EITHER PARTY FOR ANY TIME (E.G. TRAVEL AND LODGING, COSTS OF KEEPING EQUIPMENT ON-SITE, ETC.). IF CARRIER CONTRACTS DIRECTLY FOR A THIRD PARTY MI, EXCEPTIONS MAY BE MADE IN THE EVENT THAT THE DELAY/CANCELLATION IS CAUSED BY WEATHER OR OTHER CONDITIONS THAT MAY COMPROMISE THE SAFETY OF THE PARTIES INVOLVED.

CORRECTION OF FAILING MI'S

IF THE MODIFICATION INSPECTOR FAILS THE MI ("FAILED MI"), THE GC SHALL WORK WITH CARRIER TO COORDINATE A REMEDIATION PLAN IN ONE OF TWO WAYS:

- CORRECT FAILING ISSUES TO COMPLY WITH THE SPECIFICATIONS CONTAINED IN THE ORIGINAL CONTRACT DOCUMENTS AND COORDINATE A SUPPLEMENT MI.
- OR, WITH CARRIER'S APPROVAL, THE GC MAY WORK WITH THE EOR TO RE-ANALYZE THE MODIFICATION/REINFORCEMENT USING THE AS-BUILT CONDITION
- THE ADDITIONAL COST INCURRED IN THE SECOND SUPERVISION PROCESS WOULD BE BORNE BY THE GENERAL CONTRACTOR.

MI VERIFICATION INSPECTIONS

CARRIER RESERVES THE RIGHT TO CONDUCT A MI VERIFICATION INSPECTION TO VERIFY THE ACCURACY AND COMPLETENESS OF PREVIOUSLY COMPLETED MI INSPECTION(S) ON TOWER MODIFICATION PROJECTS.

ALL VERIFICATION INSPECTIONS SHALL BE HELD TO THE SAME SPECIFICATIONS AND REQUIREMENTS IN THE CONTRACT DOCUMENTS.

VERIFICATION INSPECTION MAY BE CONDUCTED BY AN INDEPENDENT FIRM AFTER A MODIFICATION PROJECT IS COMPLETED, AS MARKED BY THE DATE OF AN ACCEPTED "PASSING MI" OR "PASS AS NOTED MI" REPORT FOR THE ORIGINAL PROJECT.

REQUIRED PHOTOS

BETWEEN THE GC AND THE MI INSPECTOR THE FOLLOWING PHOTOGRAPHS, AT A MINIMUM, ARE TO BE TAKEN AND INCLUDED IN THE MI REPORT:

- PRE-CONSTRUCTION GENERAL SITE CONDITION
- PHOTOGRAPHS DURING THE REINFORCEMENT MODIFICATION CONSTRUCTION/ERECTION AND INSPECTION
 - RAW MATERIALS
 - PHOTOS OF ALL CRITICAL DETAILS
 - FOUNDATION MODIFICATIONS
 - WELD PREPARATION
 - BOLT INSTALLATION AND TORQUE
 - FINAL INSTALLED CONDITION
 - SURFACE COATING REPAIR
- POST CONSTRUCTION PHOTOGRAPHS
 - PHOTOS OF MODIFIED SECTIONS INDIVIDUALLY INDICATING ELEVATION
 - FINAL INFIELD CONDITION

PHOTOS OF ELEVATED MODIFICATIONS TAKEN FROM THE GROUND SHALL BE CONSIDERED INADEQUATE.



WALLINGFORD -
 NORTHOPE RD
 100 NORTHOPE RD
 WALLINGFORD, CT 06492
 NEW HAVEN COUNTY
 MODIFIED PLATFORM
 AT 127'-0"

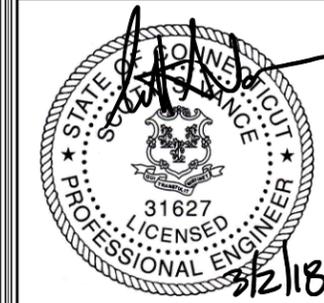
PROJECT NO: 121625.003

CHECKED BY: VB

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION
0	03/02/18	EAM	CONSTRUCTION

B&T ENGINEERING, INC.
 PEC.0001564
 Expires 2/10/19



IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER: REVISION:

S1 0

MODIFICATIONS BASED ON THE FAILING STRUCTURAL ANALYSIS FROM B+T GROUP DATED 02/01/18 AND ACCOMPANIED BY ANALYSIS FROM B+T GROUP DATED 03/02/18

GENERAL NOTES

- 1.1 CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND DIMENSIONS PRIOR TO THE MOBILIZING ON THE SITE FOR INSTALLATION OF THE MOUNT MODIFICATION AND SHALL NOTIFY THE ENGINEER OF RECORD IF THE FIELD CONDITIONS VARY FROM WHAT IS SHOWN ON THE DRAWINGS. IN ADDITION, THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF RECORD PRIOR TO MOBILIZING AT THE SITE IF THE MOUNT REINFORCEMENT SHOWN WILL NEED TO BE REVISED TO SATISFY FIELD CONDITIONS
- 1.2 CONTRACTOR SHALL RELOCATE NON-ANTENNA EQUIPMENT ALONG THE EXISTING PIPE MOUNT THAT IT IS MOUNTED TO, TO ALLOW FOR INSTALLATION OF MOUNT REINFORCEMENT. ENGINEER OF RECORD WILL BE NOTIFIED IF NON-ANTENNA EQUIPMENT NEEDS TO BE RELOCATED TO ANY OTHER EXISTING MEMBERS TO ALLOW FOR INSTALLATION OF MOUNT MODIFICATION.
- 1.3 MODIFICATION SHALL BE COMPLETED PRIOR TO ADDING THE PROPOSED APPURTENANCES.
- 1.4 ALL WORK SHALL COMPLY WITH THE TIA-222-G STANDARD, TIA-1019-A STANDARD, AS WELL AS ANY OTHER GOVERNING BUILDING CODES.
- 1.5 FIELD WORK WILL BE DONE AROUND EXISTING COAXIAL CABLE AND EQUIPMENT. ALL WORK SHALL BE DONE IN A MANNER SUCH THAT NO DAMAGE OCCURS TO THE EXISTING EQUIPMENT OR THE STRUCTURE.
- 1.6 A MINIMUM OF TWO COATS OF ZINGA COLD GALVANIZING COMPOUND (OR APPROVED EQUIVALENT) SHALL BE APPLIED TO ANY FIELD CUTS OR FIELD DRILLED HOLES.
- 1.7 THE USE OF A GAS TORCH OR WELDER WILL NOT BE PERMITTED ON THE TOWER WITHOUT THE CONSENT OF THE OWNER.
- 1.8 ALL FIELD CONNECTIONS SHALL BE MADE WITH A325N BOLTS, U.N.O.
- 1.9 IN LIEU OF TEMPORARY BRACING, CONTRACTOR MAY HAVE A STABILITY ANALYSIS PERFORMED BY AN ENGINEER LICENSED IN THE STATE THE TOWER IS LOCATED. THE ANALYSIS SHALL USE A MINIMUM WIND SPEED OF 45 mph (3-SEC) PER TIA-1019.
- 1.10 ALL CUTTING AND WELDING ACTIVITIES SHALL BE CONDUCTED IN ACCORDANCE WITH CCUSA POLICY "CUTTING AND WELDING PLAN" (DOC #ENG-PLN-10015) ON AN ONGOING BASIS THROUGHOUT THE ENTIRE LIFE OF THE PROJECT.
- 1.11 DIMENSIONS WITH "+/-" MUST BE WITHIN 3" OF THE INDICATED DIMENSION.

FABRICATION

- 2.1 ALL WORK SHALL BE DONE IN ACCORDANCE WITH A.I.S.C. "SPECIFICATIONS FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS."
- 2.2 STRUCTURAL STEEL SHALL MEET THE FOLLOWING SPECIFICATIONS:

	YIELD	ASTM SPECS
STEEL PIPE, U.N.O.	35ksi	A53 GR.B
- 2.3 ALL NEW MATERIAL INCLUDING STRUCTURAL STEEL AND FASTENERS SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 AND A153.
- 2.4 WELDING SHALL MEET ANSI/AWS D1.1 STRUCTURAL WELDING CODE (LATEST REVISION). ELECTRODES SHALL BE E80 SERIES.
- 2.5 CONTRACTOR SHALL PROVIDE SHOP FABRICATION DRAWINGS TO B+T GROUP 5 DAYS PRIOR TO FABRICATION.



B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
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www.btgrp.com




**WALLINGFORD -
NORTHOPE RD**
 100 NORTHOPE RD
 WALLINGFORD, CT 06492
 NEW HAVEN COUNTY
 MODIFIED PLATFORM
 AT 127'-0"

PROJECT NO: 121625.003
CHECKED BY: VB

ISSUED FOR:

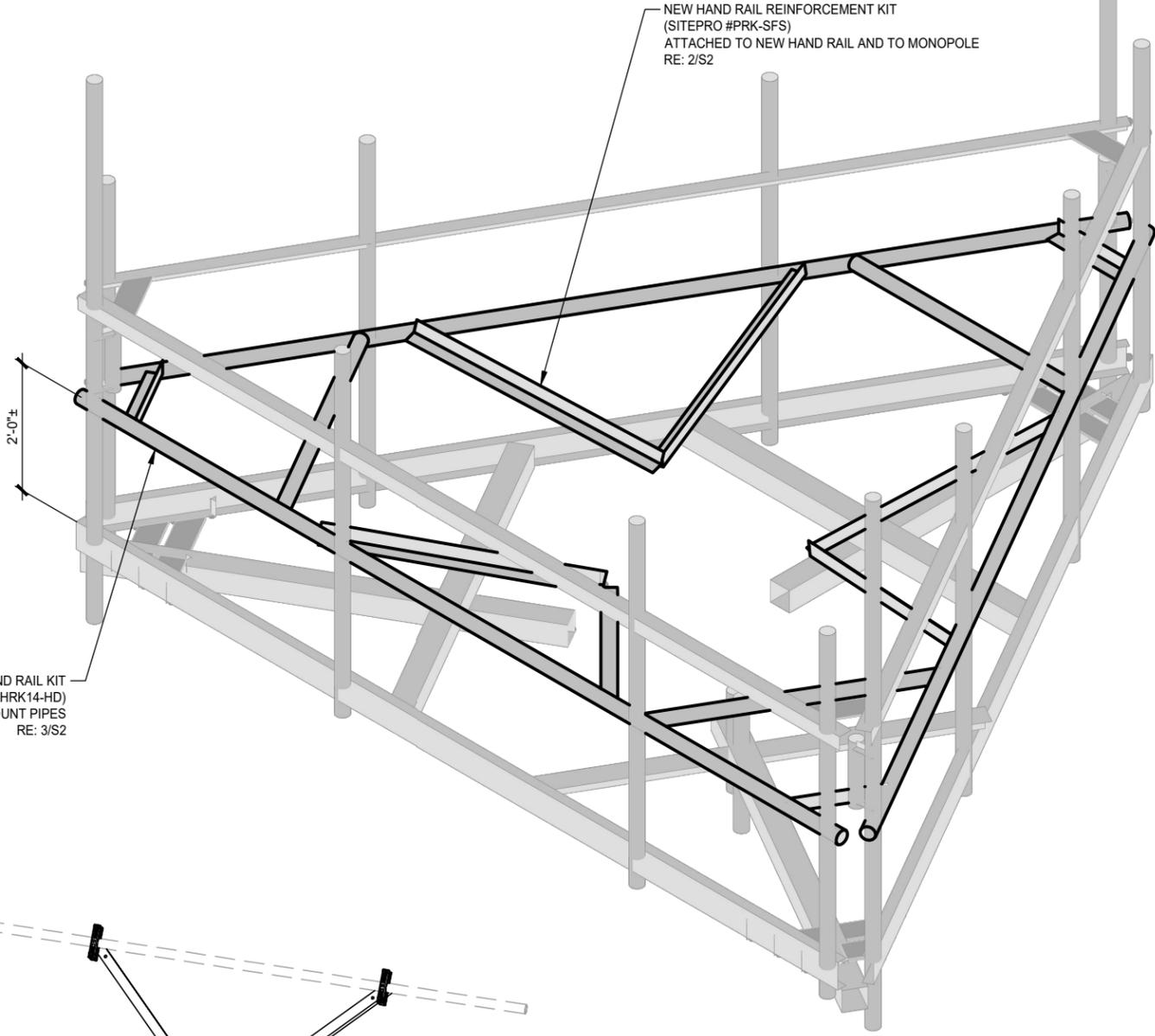
REV	DATE	DRWN	DESCRIPTION
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B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/19

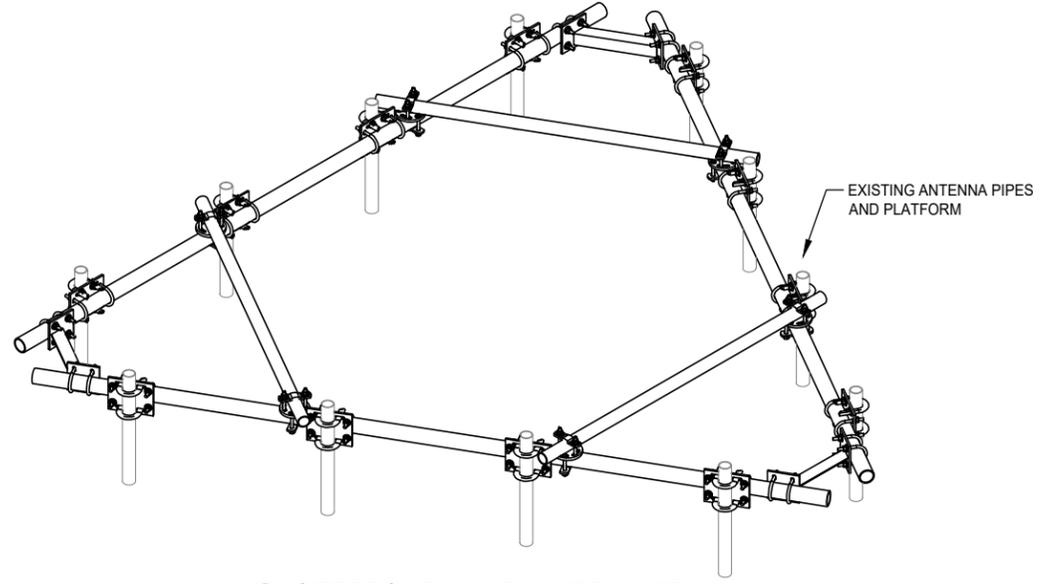


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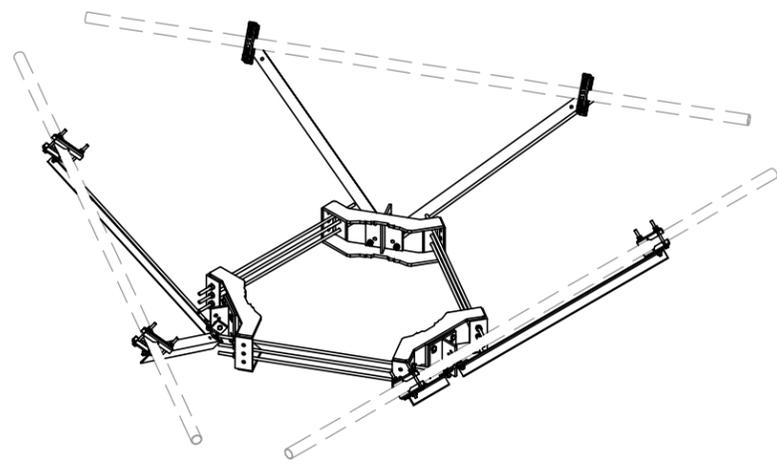
SHEET NUMBER: **S2** REVISION: **0**



1 MODIFIED PLATFORM
SCALE: N.T.S.



3 SITE PRO HRK14-HD HANDRAIL KIT
SCALE: N.T.S.



2 SITEPRO PRK-SFS REINFORCEMENT KIT
SCALE: N.T.S.



March 2, 2018

Tim Burks
SAI Communications
27 Northwestern Drive
Salem, NH 03079
(806) 989-0001

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

Subject: **Appurtenance Mount Modification Report**

Carrier Designation: **Site Number:** 10035227
Site Name: Wallingford-Northrope RD

Engineering Firm Designation: **B+T Group Project Number:** 121625.003.01

Site Data: **100 Northrop Road, Wallingford, CT, 06492, New Haven County**
Latitude 41.48940°, Longitude -72.76820°
Monopole

Dear Mr. Burks,

B+T Group is pleased to submit this “**Appurtenance Mount Modification Report**” to determine the structural integrity of the antenna mount on the above-mentioned structure.

The purpose of the analysis is to determine acceptability of the mount’s stress level. Based on our analysis we have determined the stress level for the mount under the following load case to be:

Existing + Proposed Equipment	Sufficient Capacity
Note: See Table 1 for the final loading configuration	(Passing at 84.5%)

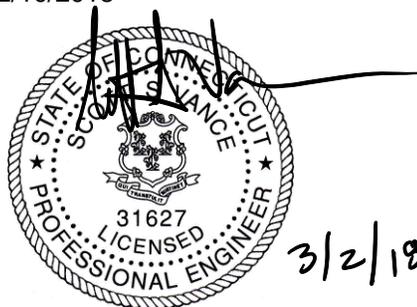
This analysis has been performed in accordance with the 2016 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 125 mph converted to a nominal 3-second gust wind speed of 97 mph per Section 1609.3 and Appendix N as required for use in the ANSI/TIA-222-G Standard per Exception #5 of Section 1609.1.1. Exposure Category C and Risk Category II were used in this analysis.

All the equipment proposed in this report shall be installed in accordance with the drawings for the determined available structural capacity to be effective.

We at B+T Group appreciate the opportunity of providing our continuing professional services to you and SAI Communications. If you have any questions or need further assistance on this or any other projects, please give us a call.

Mount structural analysis prepared by: Venkatesh Burri E.I.T

Respectfully submitted by: B&T Engineering, Inc.
COA: PEC.0001564 Expires: 02/10/2018



Scott S. Vance, P.E.

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3.1) Analysis Method

3.2) Assumptions

4) ANALYSIS RESULTS

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RISA-3D Output

6) APPENDIX B

Modification Drawings

1) INTRODUCTION

The appurtenance mount consists of platform mount at 127 ft., attached to monopole at 100 Northrop Road, Wallingford, CT, 06492, New Haven County. The proposed antenna loading information was obtained from SAI Communications. All information provided to B+T Group was assumed accurate and complete.

2) ANALYSIS CRITERIA

The structural analysis was performed for this mount in accordance with the ANSI/TIA-222-G-2-2005 Structural Standard for Antenna Supporting Structures and Antennas – Addendum 2 using a 3-second gust nominal wind speed of 97 mph with no ice and 50 mph with 0.75 in radial ice. In addition, the platform mount has been analyzed for load combinations consisting of 500 lb live load using Service wind speed of 30 mph. The analyzed loading is detailed in Table 1.

Table 1 – Proposed and Existing Equipment Information

Loading	RAD Ctr. Elev. (ft.)	Qty.	Position on sector	Manufacturer	Model / Type	Note
Proposed	127	3	3	Amphenol	800-10965	--
		3	2	Ericsson	RRUS-32 B2	1
		3	3	Ericsson	B14 4478	
		3		Ericsson	RRUS-32 B66	
		1	--	Raycap	DC Squid	3
Existing	127	3	1	Powerwave	7770	2
		3	2	CCI	HPA-65R-BUU-H6	
		3	4	CCI	OPA-65R-LCUU-H6	
		6	1	Powerwave	LGP21401	
		3	4	Ericsson	RRUS-32	
		3	--	Ericsson	RRUS-11	
		1		Raycap	DC6-48-60-18-8C	3
		1		Raycap	DC6-48-60-18-8F	

Note:

1. Proposed Equipment to be Installed directly behind the antenna using back to back RRU Support Kit
2. Existing Equipment Installed on Mount
3. Applicable only to one sector

Table 2 - Documents Provided

Documents	Remarks	Reference	Source
RFDS	Existing Loading Proposed Loading	Date:01/12/2018	SAI Communications
Mount Mapping	B+T Group	Date: 01/16/2018	On file

3) ANALYSIS PROCEDURE

3.1) Analysis Method

RISA-3D (Version 16.0.1), a commercially available analysis software package, was used to create a three-dimensional model of the mount and calculate member stresses and deflections for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

1. The mount was built in accordance with the manufacturer's specifications.
2. The mount has been maintained in accordance with the manufacturer's specifications and is free of damage.
3. The configuration of antennas and other appurtenances are as specified in Table 1.
4. All mount components have been assumed to be in sufficient condition to carry their full design capacity for the analysis.
5. Mount areas and weights are determined from field measurements, standard material properties, and/or manufacturer product data.
6. Serviceability with respect to antenna twist, tilt, roll or lateral translation is not checked and is left to the carrier or tower owner to ensure conformance.
7. All prior structural modifications, if any are assumed to be correctly installed and fully effective.
8. All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.
9. The following material grades were assumed (Unless Noted Otherwise):
 - a. Channels ASTM A36 (GR 36)
 - b. Solid Rods ASTM A36 (GR 36)
 - c. Angles ASTM A36 (GR 36)
 - d. Plates ASTM A36 (GR 36)
 - e. HSS (Rectangular) ASTM 500 (GR B-46)
 - f. HSS (Round) ASTM 500 (GR B-42)
 - g. Pipes ASTM A53 (GR 35)
 - h. Connection Bolts ASTM A325
 - i. Unistruts – P1000 ASTM A570 (GR 33)

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

4) ANALYSIS RESULTS

Table 3 – Mount Component Stresses vs. Capacity

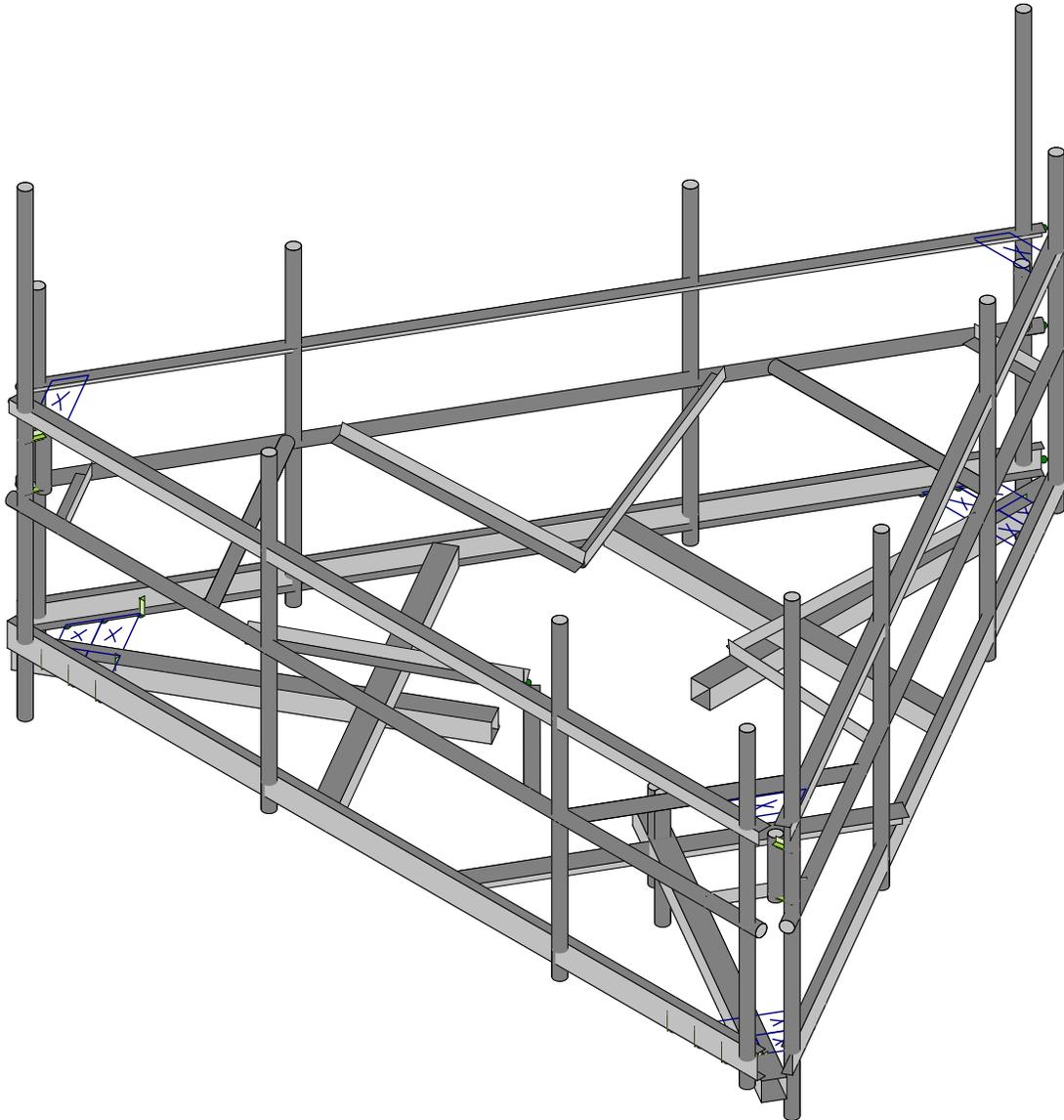
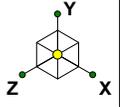
Notes	Component	Elevation (ft.)	% Capacity	Pass / Fail
-	Main Horizontals	127	30.4	Pass
-	Handrails	127	84.5	Pass
-	Supporting Tubes	127	49.1	Pass
-	Mount Pipes	127	67.9	Pass
-	Supporting Angles	127	19.1	Pass
-	Additional Reinforcement Members	127	79.0	Pass

4.1) Structural Notes:

- 1) All modifications proposed in this report shall be installed in accordance with the attached drawing for the determined available structural capacity to be effective.
- 2) If the loading differs from that described in Table 1 of this report or the provisions of this analysis are found to be invalid, another structural analysis should be performed.
- 3) B+T Group certifies that carrier's entire antenna structure will support the equipment deployment.
- 4) No erection or modification of the structure shall be made without approval of the structural engineer.

APPENDIX A

(RISA-3D Output)



Envelope Only Solution

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VB

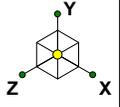
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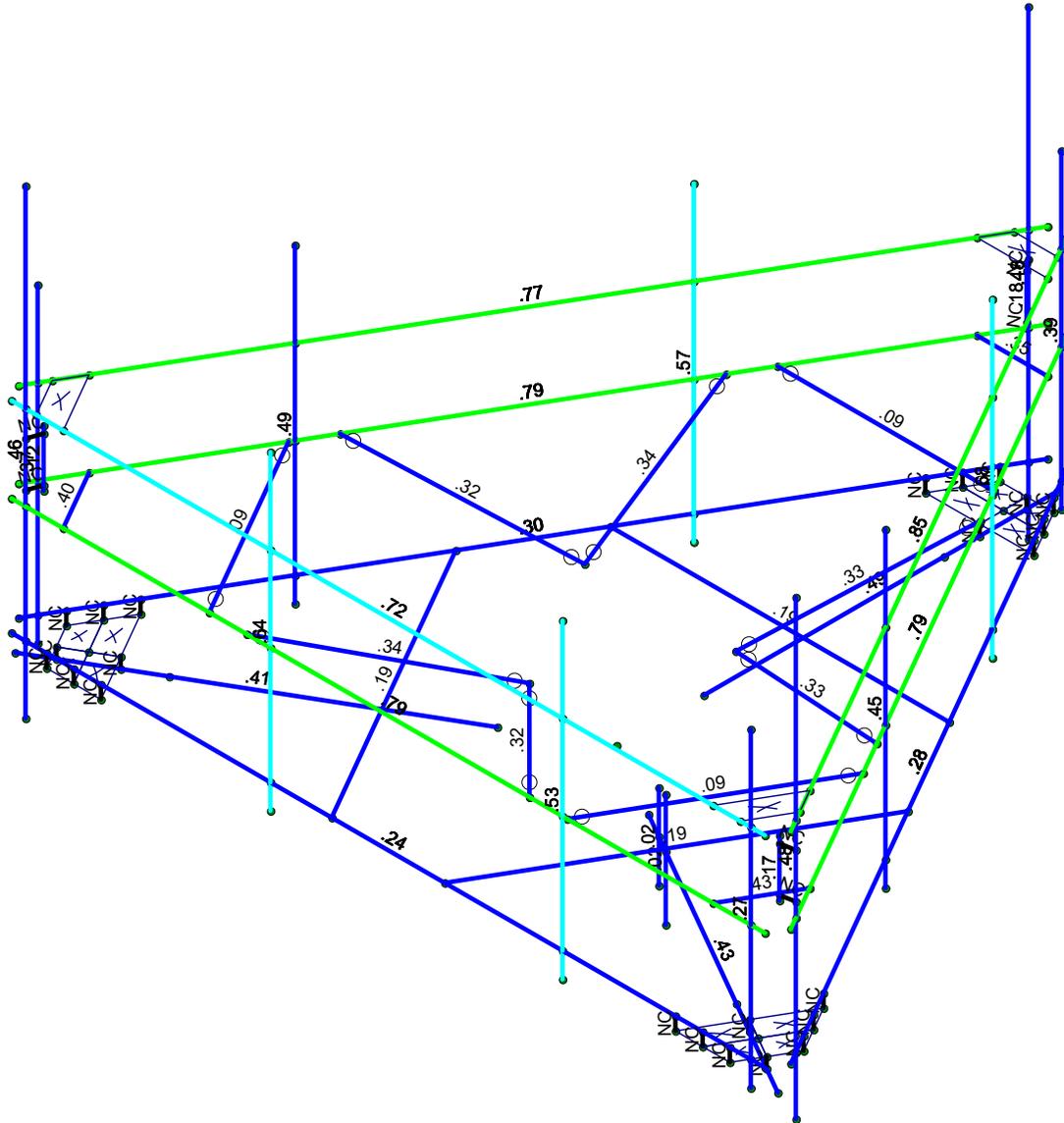
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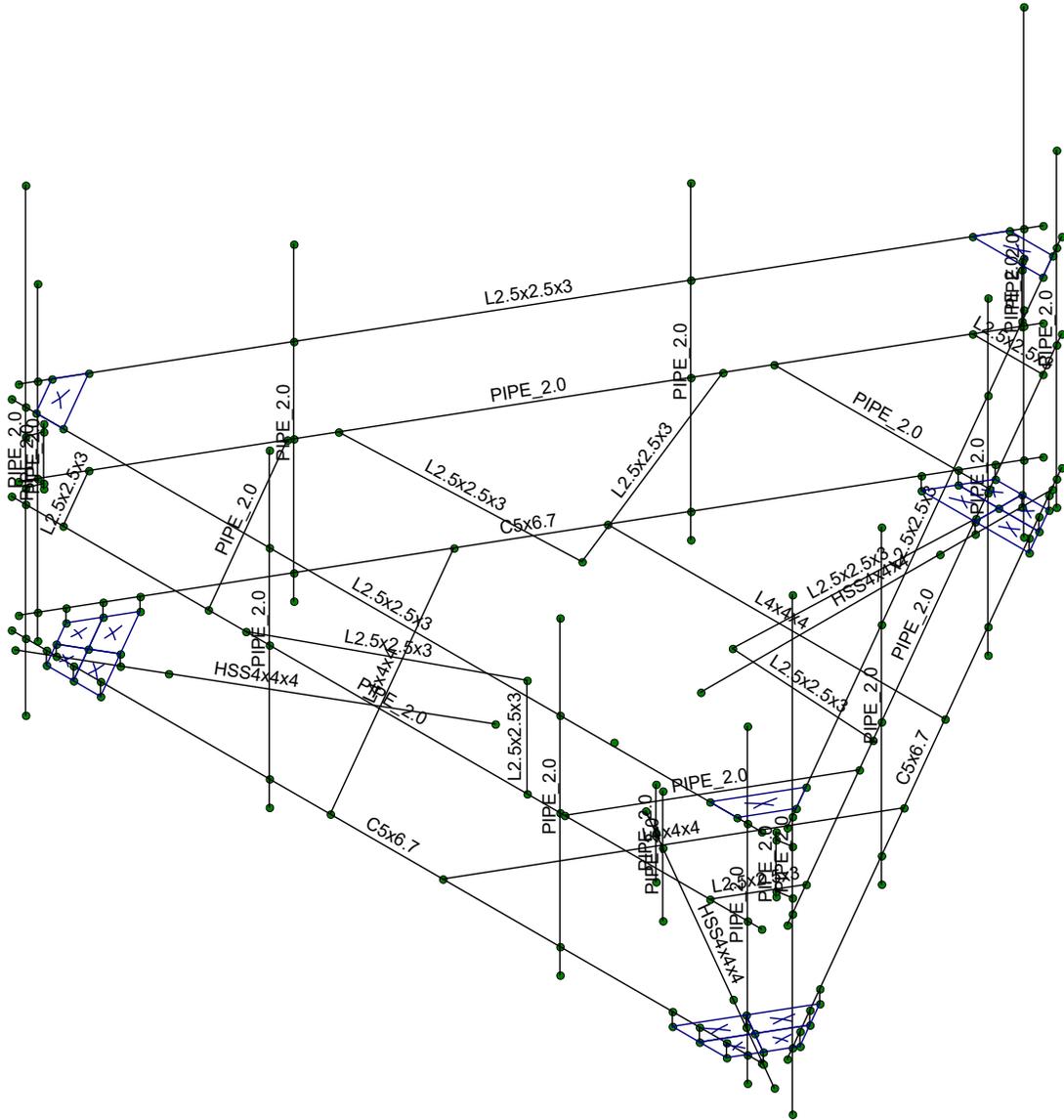
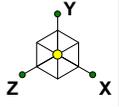


Code Check (Env)	
Black	No Calc
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Pink	.90-1.0
Green	.75-.90
Cyan	.50-.75
Blue	0.-.50



Member Code Checks Displayed (Enveloped)
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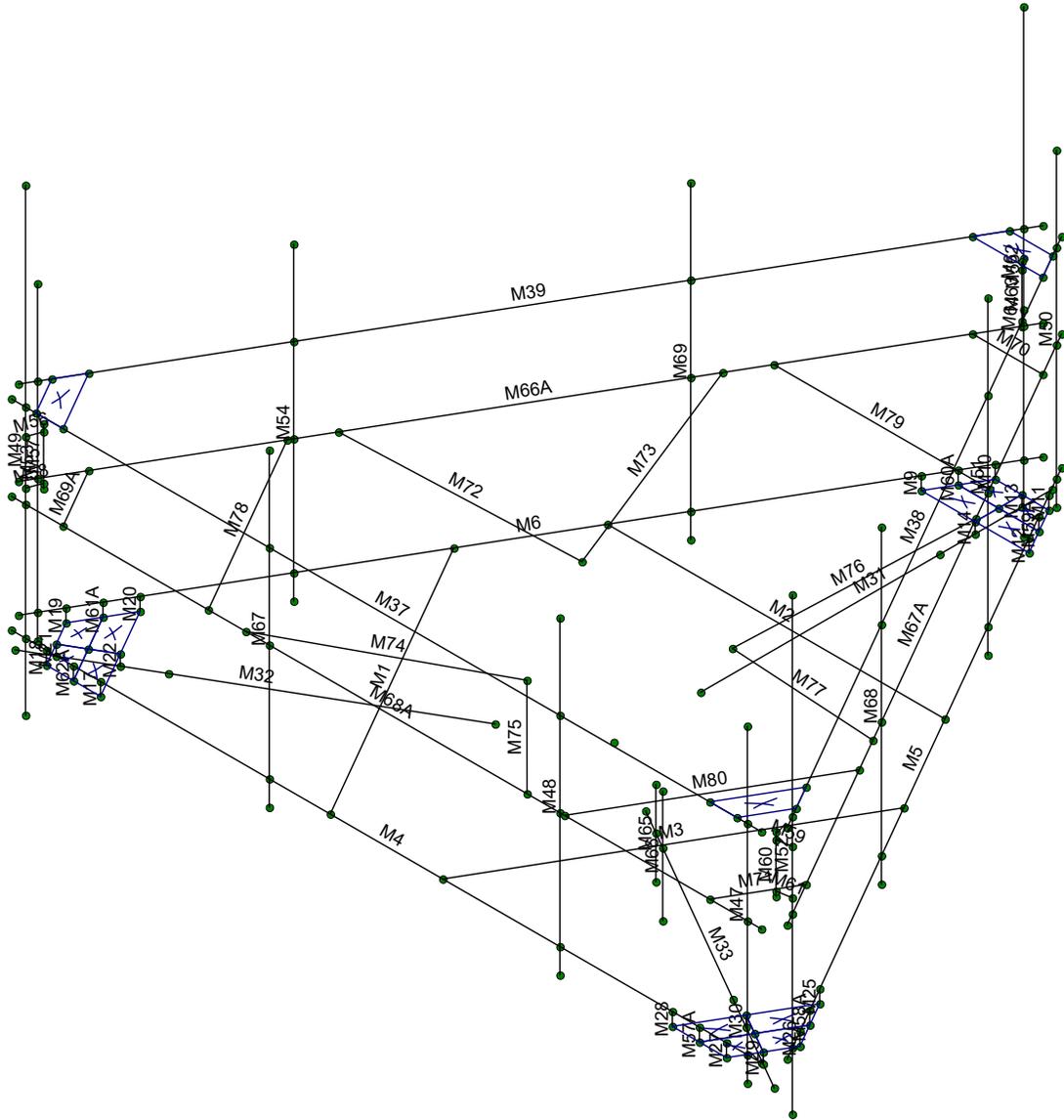
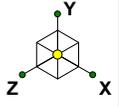
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APPENDIX B

(Modification Drawings)

MI CHECKLIST

REQUIRED	REPORT ITEM	BRIEF DESCRIPTION
PRE-CONSTRUCTION		
X	MI CHECKLIST DRAWING	THIS CHECKLIST SHALL BE INCLUDED IN THE MI REPORT.
N/A	EOR APPROVED SHOP DRAWINGS	FABRICATION DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER OF RECORD FOR REVIEW. THE CONTRACTOR SHALL PROVIDE APPROVED SHOP DRAWINGS TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
N/A	ASSEMBLY DRAWINGS	ONCE THE PRE-MODIFICATION MAPPING IS COMPLETE, PRIOR TO FABRICATION, THE CONTRACTOR SHALL PROVIDE DETAILED ASSEMBLY DRAWINGS. THESE ARE TO INCLUDE, BUT ARE NOT LIMITED TO, A VISUAL LAYOUT OF NEW REINFORCEMENT, EXISTING REINFORCEMENT CONFIGURATION, PORTHOLES, MOUNTS, STEP PEGS, SAFETY CLIMBS AND ANY OTHER MISCELLANEOUS ITEMS WHICH MAY AFFECT SUCCESSFUL INSTALLATION OF MODIFICATIONS ON THE TOWER. THESE DRAWINGS SHALL BE SUBMITTED TO THE EOR FOR APPROVAL. APPROVED ASSEMBLY DRAWINGS SHALL BE SUBMITTED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
X	FABRICATION INSPECTION	A LETTER FROM THE FABRICATOR, STATING THAT THE WORK WAS PERFORMED IN ACCORDANCE WITH INDUSTRY STANDARDS AND THE CONTRACT DOCUMENTS SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
X	FABRICATOR CERTIFIED WELD INSPECTION	A VISUAL OBSERVATION BY CWI OF A PORTION OF WELDING ON THE PROPOSED STRUCTURAL MEMBERS IS REQUIRED AND A WRITTEN REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
X	MATERIAL TEST REPORT (MTR)	MILL CERTIFICATION SHALL BE PROVIDED FOR ALL STEEL AS SPECIFIED IN THE MODIFICATION DRAWINGS AND THIS DOCUMENTATION SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
N/A	FABRICATOR NDE INSPECTION	CRITICAL SHOP WELDS THAT REQUIRE TESTING ARE NOTED ON THESE CONTRACT DRAWINGS. A CERTIFIED WELD INSPECTOR SHALL PERFORM NON-DESTRUCTIVE EXAMINATION AND A REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
X	PACKING SLIPS	THE MATERIAL SHIPPING LIST SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
CONSTRUCTION (PERFORMED BY CONTRACTOR)		
X	CONSTRUCTION INSPECTIONS	A LETTER FROM THE GENERAL CONTRACTOR STATING THAT THE WORKMANSHIP WAS PERFORMED IN ACCORDANCE WITH INDUSTRY STANDARDS AND THESE CONTRACT DRAWINGS SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
N/A	CONTRACTOR'S CERTIFIED WELD INSPECTION	A CERTIFIED WELD INSPECTOR SHALL INSPECT AND TEST AS NECESSARY ALL FIELD WELDS. A REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
N/A	ON SITE COLD GALVANIZING VERIFICATION	THE GENERAL CONTRACTOR SHALL PROVIDE DOCUMENTATION TO THE MI INSPECTOR VERIFYING THAT ANY ON-SITE COLD GALVANIZING WAS APPLIED AS SPECIFIED IN THE MODIFICATION DRAWINGS.
X	GC AS-BUILT DOCUMENTS	THE GENERAL CONTRACTOR SHALL SUBMIT A COPY OF THE CONTRACT DRAWINGS EITHER STATING "INSTALLED AS DESIGNED" OR NOTING ANY CHANGES THAT WERE REQUIRED AND APPROVED BY THE ENGINEER OF RECORD DUE TO FIELD CONDITIONS.
POST-CONSTRUCTION		
X	MI INSPECTOR REDLINE OR RECORD DRAWING(S)	THE MI INSPECTOR SHALL OBSERVE AND REPORT ANY DISCREPANCIES BETWEEN THE CONTRACTORS REDLINE DRAWING AND THE ACTUAL COMPLETED INSTALLATION.
X	PHOTOGRAPHS	PHOTOGRAPHS SHALL BE SUBMITTED TO THE MI WHICH DOCUMENT ALL PHASES OF THE CONSTRUCTION. THE PHOTOS SHALL BE ORGANIZED IN A MANNER THAT EASILY IDENTIFIES THE EXACT LOCATION OF THE PHOTO.
ADDITIONAL TESTING AND INSPECTIONS:		
NOTE: X DENOTES A DOCUMENT NEEDED FOR THE MI REPORT AND N/A DENOTES A DOCUMENT THAT IS NOT REQUIRED FOR THE MI REPORT		

MODIFICATION INSPECTION NOTES:

GENERAL

THE MODIFICATION INSPECTION (MI) IS A VISUAL INSPECTION OF TOWER MODIFICATIONS AND A REVIEW OF CONSTRUCTION INSPECTIONS AND OTHER REPORTS TO ENSURE THE INSTALLATION WAS CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, NAMELY THE MODIFICATION DRAWINGS, AS DESIGNED BY THE ENGINEER OF RECORD (EOR).

THE MI IS TO CONFIRM INSTALLATION CONFIGURATION AND WORKMANSHIP ONLY AND IS NOT A REVIEW OF THE MODIFICATION DESIGN ITSELF, NOR DOES THE MI INSPECTOR TAKE OWNERSHIP OF THE MODIFICATION DESIGN. OWNERSHIP OF THE STRUCTURAL MODIFICATION DESIGN EFFECTIVENESS AND INTEGRITY RESIDES WITH THE EOR AT ALL TIMES.

TO ENSURE THAT THE REQUIREMENTS OF THE MI ARE MET, IT IS VITAL THAT THE GENERAL CONTRACTOR (GC) AND THE MI INSPECTOR BEGIN COMMUNICATING AND COORDINATING AS SOON AS A PO IS RECEIVED. IT IS EXPECTED THAT EACH PARTY WILL BE PROACTIVE IN REACHING OUT TO THE OTHER PARTY. IF CONTACT INFORMATION IS NOT KNOWN, CONTACT B+T GROUP.

MI INSPECTOR

THE MI INSPECTOR IS REQUIRED TO CONTACT THE GC AS SOON AS RECEIVING A PO FOR THE MI TO, AT A MINIMUM:

- REVIEW THE REQUIREMENTS OF THE MI CHECKLIST
- WORK WITH THE GC TO DEVELOP A SCHEDULE TO CONDUCT ONSITE INSPECTIONS, INCLUDING FOUNDATION INSPECTIONS

THE MI INSPECTOR IS RESPONSIBLE FOR COLLECTING ALL GENERAL CONTRACTOR (GC) INSPECTION AND TEST REPORTS, REVIEWING THE DOCUMENTS FOR ADHERENCE TO THE CONTRACT DOCUMENTS, CONDUCTING THE IN-FIELD INSPECTIONS, AND SUBMITTING THE MI REPORT.

GENERAL CONTRACTOR

THE GC IS REQUIRED TO CONTACT THE MI INSPECTOR AS SOON AS RECEIVING A PO FOR THE MODIFICATION INSTALLATION OR TURNKEY PROJECT TO, AT A MINIMUM:

- REVIEW THE REQUIREMENTS OF THE MI CHECKLIST
- WORK WITH THE MI INSPECTOR TO DEVELOP A SCHEDULE TO CONDUCT ON-SITE MI INSPECTIONS
- BETTER UNDERSTAND ALL INSPECTION AND TESTING REQUIREMENTS

THE GC SHALL PERFORM AND RECORD THE TEST AND INSPECTION RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE MI CHECKLIST.

RECOMMENDATIONS

THE FOLLOWING RECOMMENDATIONS AND SUGGESTIONS ARE OFFERED TO ENHANCE THE EFFICIENCY AND EFFECTIVENESS OF DELIVERING A MI REPORT:

- IT IS SUGGESTED THAT THE GC PROVIDE A MINIMUM OF 5 BUSINESS DAYS NOTICE, PREFERABLY 10, TO THE MI INSPECTOR AS TO WHEN THE SITE WILL BE READY FOR THE MI TO BE CONDUCTED.
- THE GC AND MI INSPECTOR COORDINATE CLOSELY THROUGHOUT THE ENTIRE PROJECT.
- WHEN POSSIBLE, IT IS PREFERRED TO HAVE THE GC AND MI INSPECTOR ON-SITE DURING THE MI TO HAVE ANY DEFICIENCIES CORRECTED DURING THE INITIAL MI. THEREFORE, THE GC MAY CHOOSE TO COORDINATE THE MI CAREFULLY TO ENSURE ALL CONSTRUCTION FACILITIES ARE AT THEIR DISPOSAL WHEN THE MI INSPECTOR IS ON SITE.

CANCELLATION OR DELAYS IN SCHEDULED MI

IF THE GC AND MI INSPECTOR AGREE TO A DATE ON WHICH THE MI WILL BE CONDUCTED, AND EITHER PARTY CANCELS OR DELAYS, CARRIER SHALL NOT BE RESPONSIBLE FOR ANY COSTS, FEES, LOSS OF DEPOSITS AND/OR OTHER PENALTIES RELATED TO THE CANCELLATION OR DELAY INCURRED BY EITHER PARTY FOR ANY TIME (E.G. TRAVEL AND LODGING, COSTS OF KEEPING EQUIPMENT ON-SITE, ETC.). IF CARRIER CONTRACTS DIRECTLY FOR A THIRD PARTY MI, EXCEPTIONS MAY BE MADE IN THE EVENT THAT THE DELAY/CANCELLATION IS CAUSED BY WEATHER OR OTHER CONDITIONS THAT MAY COMPROMISE THE SAFETY OF THE PARTIES INVOLVED.

CORRECTION OF FAILING MI'S

IF THE MODIFICATION INSPECTOR FAILS THE MI ("FAILED MI"), THE GC SHALL WORK WITH CARRIER TO COORDINATE A REMEDIATION PLAN IN ONE OF TWO WAYS:

- CORRECT FAILING ISSUES TO COMPLY WITH THE SPECIFICATIONS CONTAINED IN THE ORIGINAL CONTRACT DOCUMENTS AND COORDINATE A SUPPLEMENT MI.
- OR, WITH CARRIER'S APPROVAL, THE GC MAY WORK WITH THE EOR TO RE-ANALYZE THE MODIFICATION/REINFORCEMENT USING THE AS-BUILT CONDITION
- THE ADDITIONAL COST INCURRED IN THE SECOND SUPERVISION PROCESS WOULD BE BORNE BY THE GENERAL CONTRACTOR.

MI VERIFICATION INSPECTIONS

CARRIER RESERVES THE RIGHT TO CONDUCT A MI VERIFICATION INSPECTION TO VERIFY THE ACCURACY AND COMPLETENESS OF PREVIOUSLY COMPLETED MI INSPECTION(S) ON TOWER MODIFICATION PROJECTS.

ALL VERIFICATION INSPECTIONS SHALL BE HELD TO THE SAME SPECIFICATIONS AND REQUIREMENTS IN THE CONTRACT DOCUMENTS.

VERIFICATION INSPECTION MAY BE CONDUCTED BY AN INDEPENDENT FIRM AFTER A MODIFICATION PROJECT IS COMPLETED, AS MARKED BY THE DATE OF AN ACCEPTED "PASSING MI" OR "PASS AS NOTED MI" REPORT FOR THE ORIGINAL PROJECT.

REQUIRED PHOTOS

BETWEEN THE GC AND THE MI INSPECTOR THE FOLLOWING PHOTOGRAPHS, AT A MINIMUM, ARE TO BE TAKEN AND INCLUDED IN THE MI REPORT:

- PRE-CONSTRUCTION GENERAL SITE CONDITION
- PHOTOGRAPHS DURING THE REINFORCEMENT MODIFICATION CONSTRUCTION/ERECTION AND INSPECTION
 - RAW MATERIALS
 - PHOTOS OF ALL CRITICAL DETAILS
 - FOUNDATION MODIFICATIONS
 - WELD PREPARATION
 - BOLT INSTALLATION AND TORQUE
 - FINAL INSTALLED CONDITION
 - SURFACE COATING REPAIR
- POST CONSTRUCTION PHOTOGRAPHS
 - PHOTOS OF MODIFIED SECTIONS INDIVIDUALLY INDICATING ELEVATION
 - FINAL INFIELD CONDITION

PHOTOS OF ELEVATED MODIFICATIONS TAKEN FROM THE GROUND SHALL BE CONSIDERED INADEQUATE.



WALLINGFORD -
 NORTHOPE RD
 100 NORTHOPE RD
 WALLINGFORD, CT 06492
 NEW HAVEN COUNTY
 MODIFIED PLATFORM
 AT 127'-0"

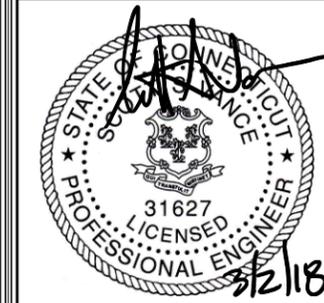
PROJECT NO: 121625.003

CHECKED BY: VB

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION
0	03/02/18	EAM	CONSTRUCTION

B&T ENGINEERING, INC.
 PEC.0001564
 Expires 2/10/19



IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER: REVISION:

S1 0

MODIFICATIONS BASED ON THE FAILING STRUCTURAL ANALYSIS FROM B+T GROUP DATED 02/01/18 AND ACCOMPANIED BY ANALYSIS FROM B+T GROUP DATED 03/02/18

GENERAL NOTES

- 1.1 CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND DIMENSIONS PRIOR TO THE MOBILIZING ON THE SITE FOR INSTALLATION OF THE MOUNT MODIFICATION AND SHALL NOTIFY THE ENGINEER OF RECORD IF THE FIELD CONDITIONS VARY FROM WHAT IS SHOWN ON THE DRAWINGS. IN ADDITION, THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF RECORD PRIOR TO MOBILIZING AT THE SITE IF THE MOUNT REINFORCEMENT SHOWN WILL NEED TO BE REVISED TO SATISFY FIELD CONDITIONS
- 1.2 CONTRACTOR SHALL RELOCATE NON-ANTENNA EQUIPMENT ALONG THE EXISTING PIPE MOUNT THAT IT IS MOUNTED TO, TO ALLOW FOR INSTALLATION OF MOUNT REINFORCEMENT. ENGINEER OF RECORD WILL BE NOTIFIED IF NON-ANTENNA EQUIPMENT NEEDS TO BE RELOCATED TO ANY OTHER EXISTING MEMBERS TO ALLOW FOR INSTALLATION OF MOUNT MODIFICATION.
- 1.3 MODIFICATION SHALL BE COMPLETED PRIOR TO ADDING THE PROPOSED APPURTENANCES.
- 1.4 ALL WORK SHALL COMPLY WITH THE TIA-222-G STANDARD, TIA-1019-A STANDARD, AS WELL AS ANY OTHER GOVERNING BUILDING CODES.
- 1.5 FIELD WORK WILL BE DONE AROUND EXISTING COAXIAL CABLE AND EQUIPMENT. ALL WORK SHALL BE DONE IN A MANNER SUCH THAT NO DAMAGE OCCURS TO THE EXISTING EQUIPMENT OR THE STRUCTURE.
- 1.6 A MINIMUM OF TWO COATS OF ZINGA COLD GALVANIZING COMPOUND (OR APPROVED EQUIVALENT) SHALL BE APPLIED TO ANY FIELD CUTS OR FIELD DRILLED HOLES.
- 1.7 THE USE OF A GAS TORCH OR WELDER WILL NOT BE PERMITTED ON THE TOWER WITHOUT THE CONSENT OF THE OWNER.
- 1.8 ALL FIELD CONNECTIONS SHALL BE MADE WITH A325N BOLTS, U.N.O.
- 1.9 IN LIEU OF TEMPORARY BRACING, CONTRACTOR MAY HAVE A STABILITY ANALYSIS PERFORMED BY AN ENGINEER LICENSED IN THE STATE THE TOWER IS LOCATED. THE ANALYSIS SHALL USE A MINIMUM WIND SPEED OF 45 mph (3-SEC) PER TIA-1019.
- 1.10 ALL CUTTING AND WELDING ACTIVITIES SHALL BE CONDUCTED IN ACCORDANCE WITH CCUSA POLICY "CUTTING AND WELDING PLAN" (DOC #ENG-PLN-10015) ON AN ONGOING BASIS THROUGHOUT THE ENTIRE LIFE OF THE PROJECT.
- 1.11 DIMENSIONS WITH "+/-" MUST BE WITHIN 3" OF THE INDICATED DIMENSION.

FABRICATION

- 2.1 ALL WORK SHALL BE DONE IN ACCORDANCE WITH A.I.S.C. "SPECIFICATIONS FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS."
- 2.2 STRUCTURAL STEEL SHALL MEET THE FOLLOWING SPECIFICATIONS:

	YIELD	ASTM SPECS
STEEL PIPE, U.N.O.	35ksi	A53 GR.B
- 2.3 ALL NEW MATERIAL INCLUDING STRUCTURAL STEEL AND FASTENERS SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 AND A153.
- 2.4 WELDING SHALL MEET ANSI/AWS D1.1 STRUCTURAL WELDING CODE (LATEST REVISION). ELECTRODES SHALL BE E80 SERIES.
- 2.5 CONTRACTOR SHALL PROVIDE SHOP FABRICATION DRAWINGS TO B+T GROUP 5 DAYS PRIOR TO FABRICATION.



B+T GRP
 1717 S. BOULDER
 SUITE 300
 TULSA, OK 74119
 PH: (918) 587-4630
 www.btgrp.com




**WALLINGFORD -
 NORTHOPE RD**
 100 NORTHOPE RD
 WALLINGFORD, CT 06492
 NEW HAVEN COUNTY
 MODIFIED PLATFORM
 AT 127'-0"

PROJECT NO: 121625.003
 CHECKED BY: VB

ISSUED FOR:

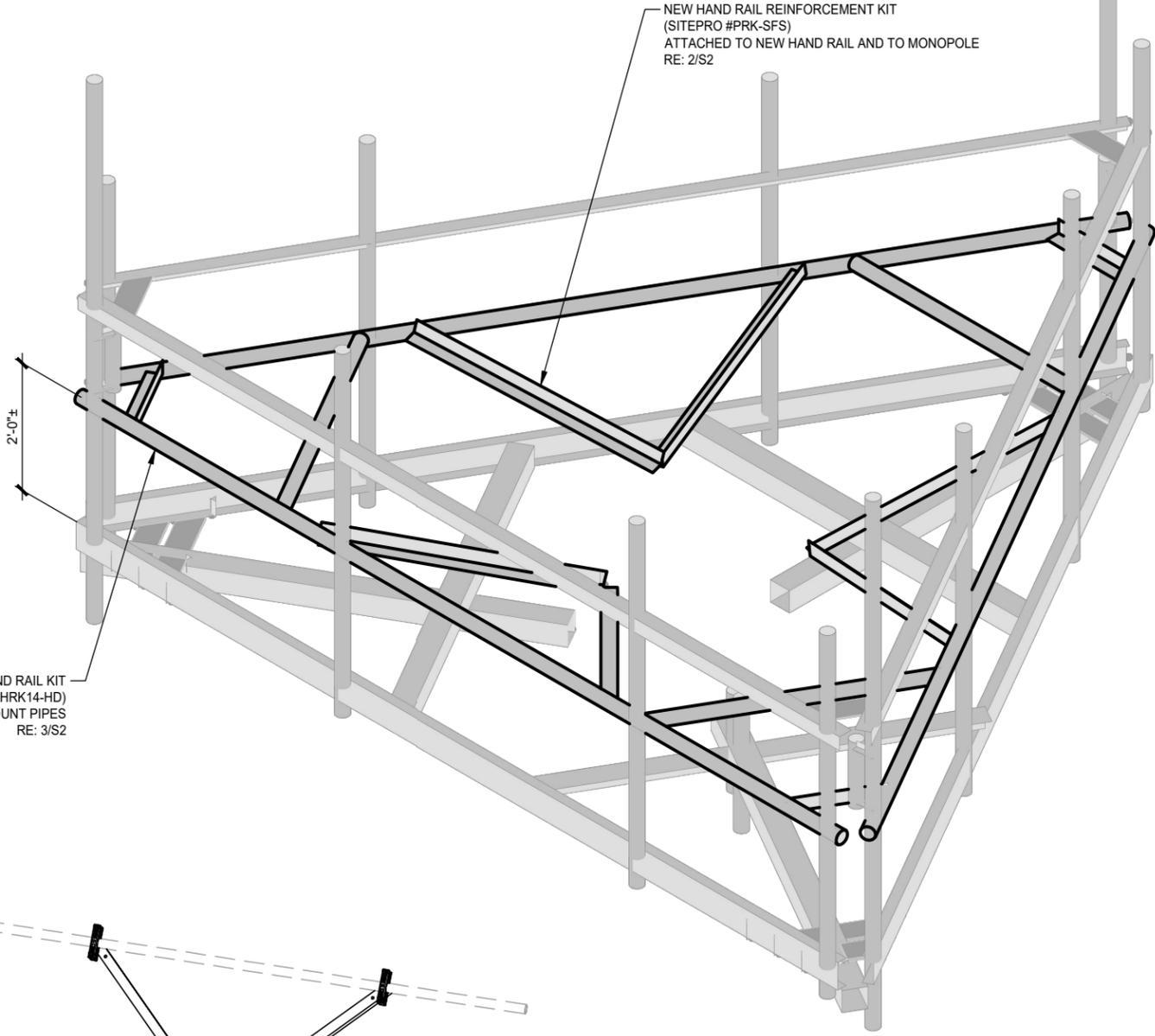
REV	DATE	DRWN	DESCRIPTION
0	03/02/18	EAM	CONSTRUCTION

B&T ENGINEERING, INC.
 PEC.0001564
 Expires 2/10/19

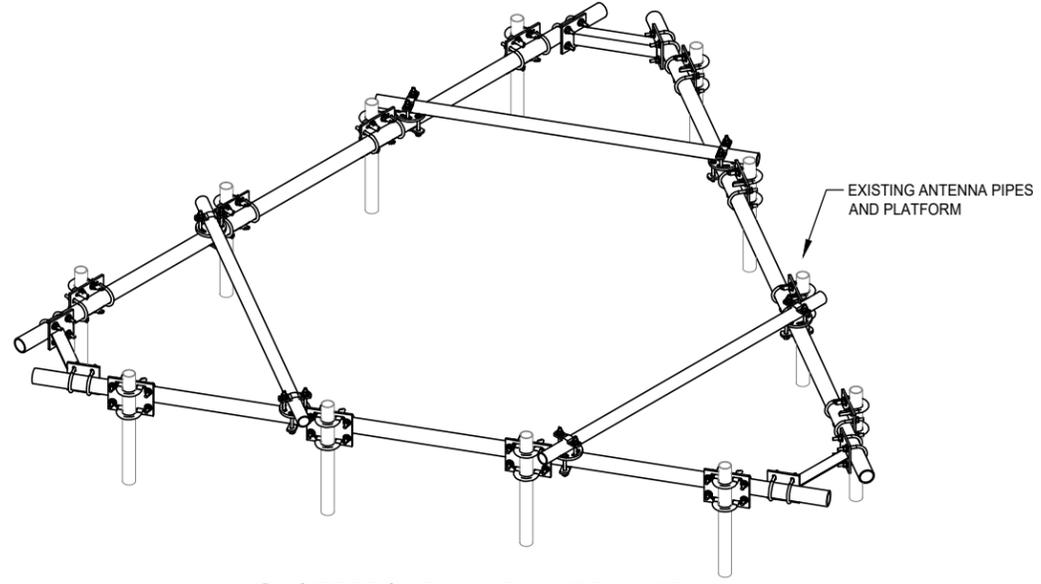


IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

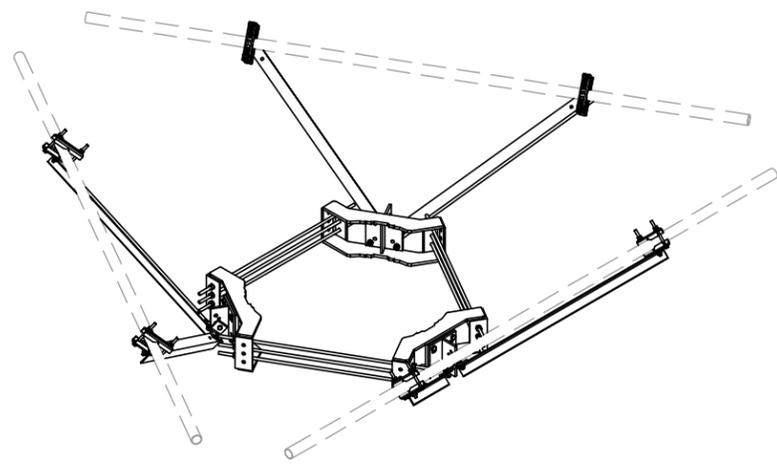
SHEET NUMBER: **S2** REVISION: **0**



1 MODIFIED PLATFORM
 SCALE: N.T.S.



3 SITE PRO HRK14-HD HANDRAIL KIT
 SCALE: N.T.S.



2 SITEPRO PRK-SFS REINFORCEMENT KIT
 SCALE: N.T.S.



AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure : 150 ft Monopole
ATC Site Name : Parsonage Hill Aka Wallin, CT
ATC Site Number : 302538
Engineering Number : OAA722111_C3_03
Proposed Carrier : AT&T Mobility
Carrier Site Name : Wallingford Nextel
Carrier Site Number : CT2221
Site Location : 922 Northrop Road
Wallingford, CT 06492-1910
41.489300,-72.768300
County : New Haven
Date : May 17, 2018
Max Usage : 82%
Result : Pass

Prepared By:
Parvin NikpoorParizi
Structural Engineer I

Reviewed By:

COA: PEC.0001553



Table of Contents

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Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 150 ft monopole to reflect the change in loading by AT&T Mobility.

Supporting Documents

Tower Drawings	Valmont Drawing #DC1776A, dated June 29, 1994
Foundation Drawing	SAC Engineering, Valmont Order #11715-94, dated July 21, 1994
Geotechnical Report	AET Project #91294, dated July 8, 1994

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:	97 mph (3-Second Gust, V_{ASD}) / 125 mph (3-Second Gust, V_{ULT})
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:	C
Topographic Category:	1
Crest Height:	0 ft
Spectral Response:	$S_s = 0.18$, $S_1 = 0.06$
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					
150.0	150.0	2	DragonWave Horizon Compact	T-Arms	(6) 5/16" Coax (4) 1 1/4" Hybriflex (2) 2" conduit (2) 1/2" Coax	Clearwire
		6	Alcatel-Lucent RRH2x50-08			
		3	Alcatel-Lucent 1900MHz 4x45 RRH			
		3	Alcatel-Lucent TD-RRH8x20-25 w/ Solar Shield			
		1	DragonWave A-ANT-11G-2-C			
		1	DragonWave A-ANT-18G-2-C			
		3	KMW ETCR-654L12H6			
140.0	140.0	3	Ericsson KRY 112 144/1	T-Arms	(12) 1 5/8" Coax (1) 1 1/4" Hybriflex	T-Mobile
		3	Ericsson RRUS 11 B12			
		3	Ericsson AIR 21, 1.3 M, B2A B4P			
		3	Ericsson AIR 21 B4A/B12P-B5P 6FT			
124.0	126.0	1	Raycap DC6-48-60-18-8F ("Squid")	Platform w/ Handrails	(12) 1 5/8" Coax (2) 0.78" 8 AWG 6 (1) 3" conduit (1) 0.39" Fiber Trunk	AT&T Mobility
	124.0	6	Powerwave LGP21401			
		3	Ericsson RRUS-11 (50 lbs.)			
		3	Powerwave 7770.00			
		6	CCI OPA-65R-LCUU-H6			
105.0	105.0	3	RFS APXV18-206517S-C	Flush	(6) 1 5/8" Coax	Metro PCS

Equipment to be Removed

Elevation ¹ (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
126.0	126.0	3	Ericsson RRUS 12 w/ RRUS A2	-	-	AT&T Mobility

Proposed Equipment

Elevation ¹ (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
124.0	124.0	1	Raycap DC6-48-60-18-8F ("Squid")	SitePro PRK-SFS and SitePro HRK-14-HD	(4) 0.78" 8 AWG 6 (2) 0.39" Fiber Trunk (1) 3" conduit	AT&T Mobility
		3	Ericsson RRUS 4478 B14 (15")			
		3	Ericsson RRUS 32 B66A			
		3	Ericsson RRUS 32 B2			
		3	Ericsson RRUS 32 B30			
		1	Raycap DC6-48-60-18-8C			
		3	Kathrein 80010965			

¹Mount 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	77%	Pass
Shaft	82%	Pass
Base Plate	38%	Pass

Foundations

Reaction Component	Original Design Reactions	Factored Design Reactions*	Analysis Reactions	% of Design
Moment (Kips-Ft)	3,567.2	4,815.7	3,760.8	78%
Shear (Kips)	30.5	41.1	36.9	90%

* 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) (°)
150.0	DragonWave A-ANT-11G-2-C	Clearwire	2.165	1.386
	DragonWave A-ANT-18G-2-C			
124.0	Raycap DC6-48-60-18-8F ("Squid")	AT&T Mobility	1.544	1.328
	Ericsson RRUS 4478 B14 (15")			
	Ericsson RRUS 32 B66A			
	Ericsson RRUS 32 B30			
	Ericsson RRUS 32 B2			
	Raycap DC6-48-60-18-8C			
	Kathrein Scala 80010965			

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



Standard Conditions

All engineering services performed by A.T. Engineering Service, PLLC are prepared on the basis that the information used is current and correct. This information may consist of, but is not limited to the following:

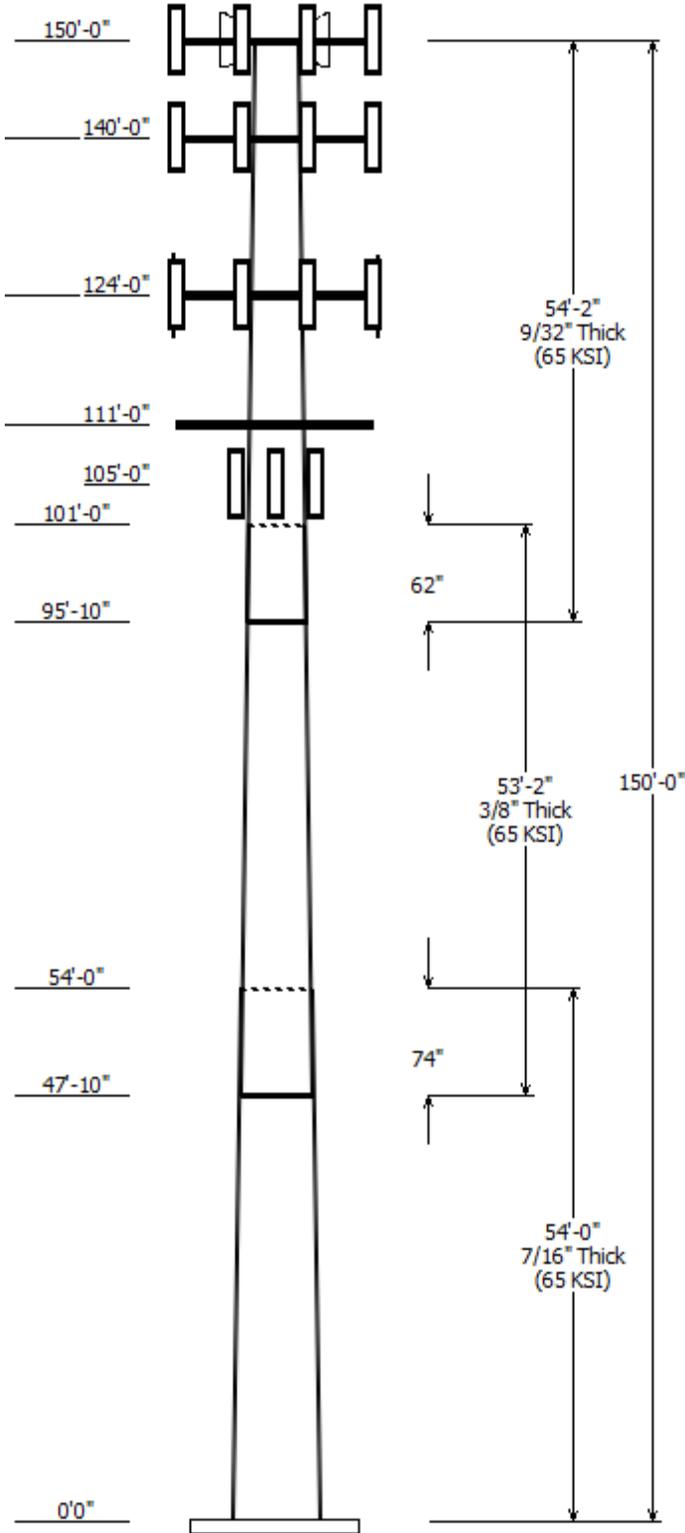
- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

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.

All assets of American Tower Corporation, its affiliates and subsidiaries (collectively "American Tower") are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with the drawings and specifications.

Unless explicitly agreed by both the client and A.T. Engineering Service, PLLC, all services will be performed in accordance with the current revision of ANSI/TIA-222.

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 supplied herein.



Job Information	
Pole : 302538	Code: ANSI/TIA-222-G
Location : Parsonage Hill Aka Wallin, CT	
Description :	
Client : AT&T MOBILITY	Struct Class : II
Shape : 12 Sides	Exposure : C
Height : 150.00 (ft)	Topo : 1
Base Elev (ft): 0.00	
Taper: 0.18200@in/ft)	

Sections Properties							
Shaft Section	Length (ft)	Diameter (in)		Thick (in)	Joint Type	Overlap Length (in)	Steel Grade
		Top	Bottom				
1	54.000	39.77	49.60	0.438		0.000	12 Sides 65
2	53.167	31.96	41.64	0.375	Slip Joint	74.000	12 Sides 65
3	54.167	23.61	33.47	0.281	Slip Joint	62.000	12 Sides 65

Discrete Appurtenance			
Attach Elev (ft)	Force Elev (ft)	Qty	Description
150.000	150.000	3	Alcatel-Lucent TD-RRH8x20-25
150.000	150.000	3	KMW ETCR-654L12H6
150.000	150.000	3	Alcatel-Lucent 1900 MHz 4x45
150.000	150.000	6	Alcatel-Lucent RRH2x50-08
150.000	150.000	1	DragonWave A-ANT-18G-2-C
150.000	150.000	1	DragonWave A-ANT-11G-2-C
150.000	150.000	2	DragonWave Horizon Compact
150.000	150.000	3	Round T-Arm
140.000	140.000	3	Ericsson AIR 21 B4A/B12P-B5P
140.000	140.000	3	Round T-Arm
140.000	140.000	3	Ericsson AIR 21, 1.3 M, B2A B4
140.000	140.000	3	Ericsson RRUS 11 B12
140.000	140.000	3	Ericsson KRY 112 144/1
124.000	124.000	1	Raycap DC6-48-60-18-8F
124.000	124.000	3	Kathrein Scala 80010965
124.000	124.000	3	Ericsson RRUS 32 B2
124.000	124.000	3	Ericsson RRUS 32 B30
124.000	124.000	3	Ericsson RRUS 32 B66A
124.000	124.000	3	Ericsson RRUS 4478 B14 (15")
124.000	124.000	1	Raycap DC6-48-60-18-8C
124.000	124.000	1	SitePro PRK-SFS and SitePro
124.000	124.000	6	CCI OPA-65R-LCUU-H6
124.000	124.000	3	Powerwave 7770.00
124.000	124.000	3	Ericsson RRUS-11 (50 lbs.)
124.000	124.000	1	Raycap DC6-48-60-18-8F
124.000	124.000	6	Powerwave Allgon LGP21401
111.000	111.000	1	Empty Flat Platform w/ Handrai
105.000	105.000	3	RFS APXV18-206517S-C

Linear Appurtenance			
Elev (ft)		Description	Exposed To Wind
From	To		
5.000	105.0	1 5/8" Coax	No
5.000	124.0	0.39" Fiber Trunk	No
5.000	124.0	0.39" Fiber Trunk	No
5.000	124.0	0.78" 8 AWG 6	No
5.000	124.0	0.78" 8 AWG 6	No
5.000	124.0	1 5/8" Coax	No
5.000	124.0	3" conduit	No
5.000	124.0	3" conduit	No
5.000	140.0	1 1/4" Hybriflex	No

5.000	140.0	1 5/8" Coax	No
5.000	150.0	1 1/4" Hybriflex	Yes
5.000	150.0	1/2" Coax	Yes
5.000	150.0	2" conduit	Yes
5.000	150.0	5/16" Coax	No

Load Cases

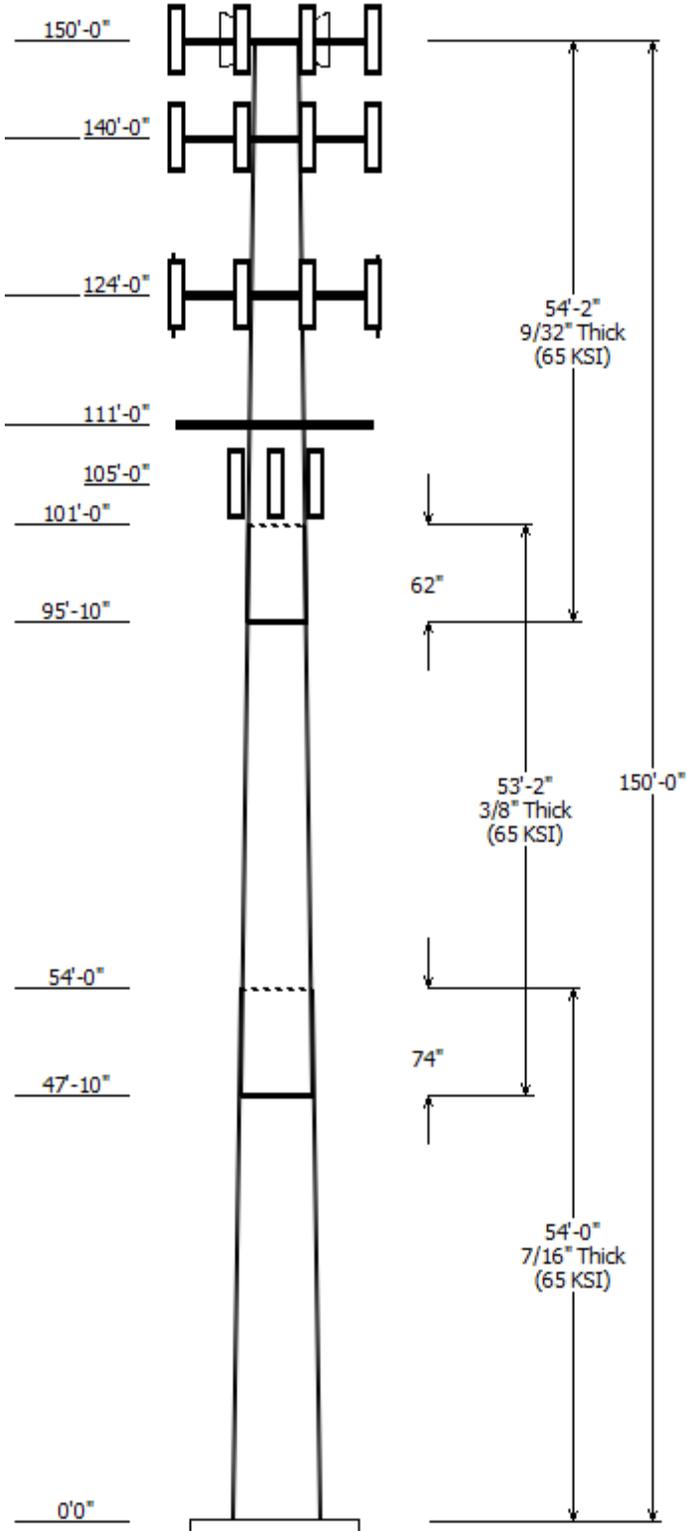
1.2D + 1.6W	97 mph with No Ice
0.9D + 1.6W	97 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Lateral
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Modal
1.0D + 1.0W	Serviceability 60 mph

Reactions

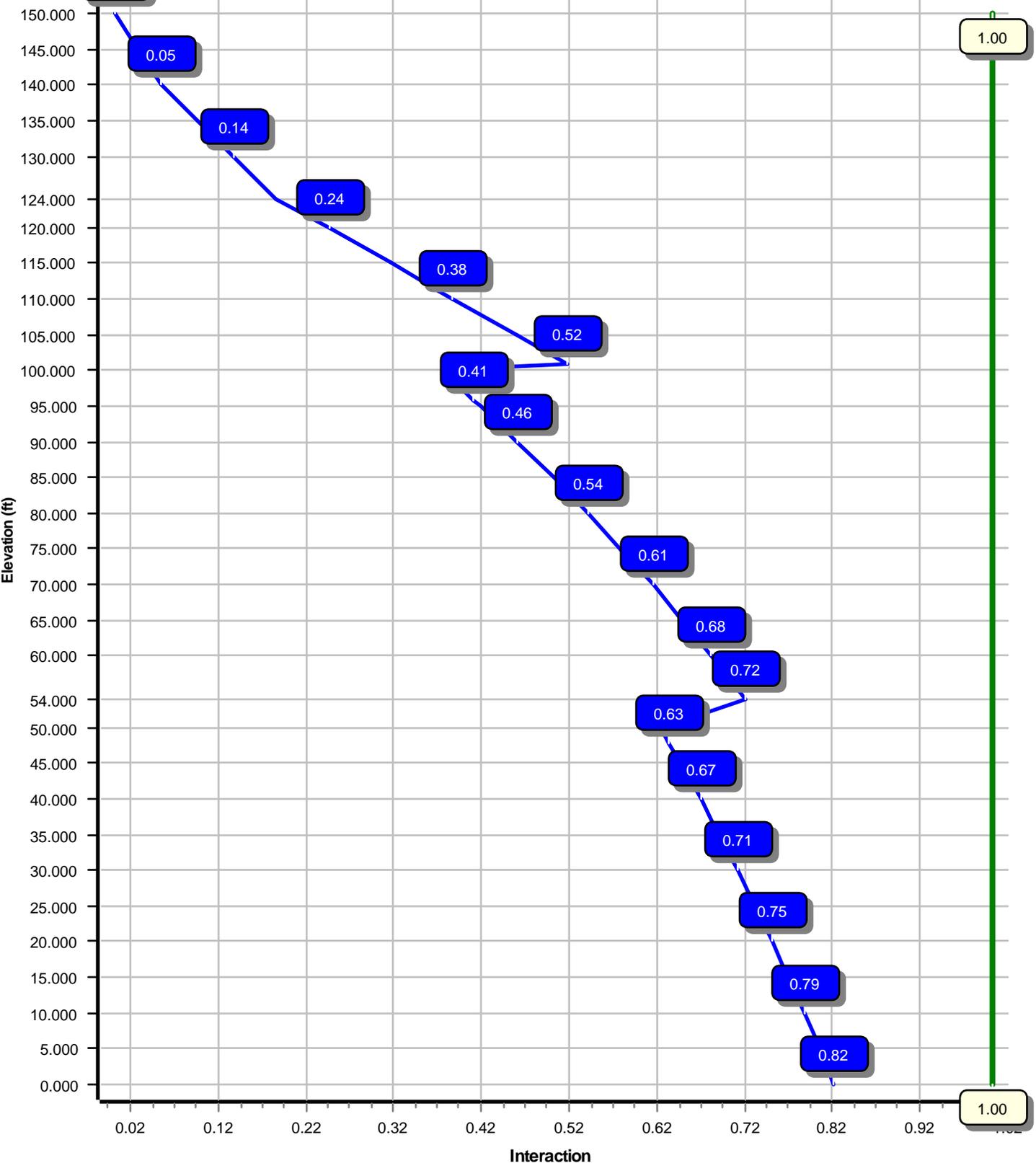
Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.6W	3760.82	36.85	49.63
0.9D + 1.6W	3715.02	36.82	37.20
1.2D + 1.0Di + 1.0Wi	870.62	8.11	77.87
(1.2 + 0.2Sds) * DL + E ELFM	149.64	1.25	49.87
(1.2 + 0.2Sds) * DL + E EMAM	175.78	1.56	49.87
(0.9 - 0.2Sds) * DL + E ELFM	147.38	1.25	34.67
(0.9 - 0.2Sds) * DL + E EMAM	172.95	1.55	34.67
1.0D + 1.0W	893.29	8.81	41.42

Dish Deflections

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
1.0D + 1.0W	150.00	25.976	1.386
1.0D + 1.0W	150.00	25.976	1.386



Load Case : 1.2D + 1.6W
Max Ratio 81.97% at 0.0 ft



Site Number: 302538

Code: ANSI/TIA-222-G

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Site Name: Parsonage Hill Aka Wallin, CT

Engineering Number: OAA722111_C3_03

5/24/2018 10:56:23 AM

Customer: AT&T MOBILITY

Analysis Parameters

Location :	NEW HAVEN County, CT	Height (ft) :	150
Code :	ANSI/TIA-222-G	Base Diameter (in) :	49.60
Shape :	12 Sides	Top Diameter (in) :	23.61
Pole Type :	Taper	Taper (in/ft) :	0.182
Pole Manufacturer :	Valmont	Rotation (deg) :	0.00

Ice & Wind Parameters

Structure Class:	II	Design Wind Speed Without Ice:	97 mph
Exposure Category:	C	Design Wind Speed With Ice:	50 mph
Topographic Category:	1	Operational Wind Speed:	60 mph
Crest Height:	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):	2.39		
T _L (sec):	6	p:	1
S _s :	0.182	S ₁ :	0.063
F _a :	1.600	F _v :	2.400
S _{ds} :	0.194	S _{d1} :	0.101
		C _s :	0.030
		C _s Max:	0.030
		C _s Min:	0.030

Load Cases

1.2D + 1.6W	97 mph with No Ice
0.9D + 1.6W	97 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
(1.2 + 0.2S _{ds}) * DL + E ELFM	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2S _{ds}) * DL + E EMAM	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2S _{ds}) * DL + E ELFM	Seismic (Reduced DL) Equivalent Lateral Forces Method
(0.9 - 0.2S _{ds}) * DL + E EMAM	Seismic (Reduced DL) Equivalent Modal Analysis Method
1.0D + 1.0W	Serviceability 60 mph

Site Number: 302538

Code: ANSI/TIA-222-G

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Site Name: Parsonage Hill Aka Wallin, CT

Engineering Number: OAA722111_C3_03

5/24/2018 10:56:23 AM

Customer: AT&T MOBILITY

Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint Len (in)	Weight (lb)	Bottom						Top						
							Dia (in)	Elev (ft)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Taper (in/ft)
1-12	54.000	0.4375	65		0.00	11,454	49.60	0.00	69.26	21365.7	27.70	113.37	39.77	54.00	55.41	10942.9	21.68	90.91	0.182000
2-12	53.167	0.3750	65	Slip	74.00	7,958	41.64	47.83	49.83	10833.0	27.08	111.05	31.96	101.00	38.15	4860.0	20.16	85.25	0.182000
3-12	54.167	0.2813	65	Slip	62.00	4,717	33.47	95.83	30.06	4226.0	29.21	119.01	23.61	150.00	21.13	1468.0	19.82	83.95	0.182000
Shaft Weight						24,130													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	Distance From Face (ft)	Vert Ecc (ft)	Weight (lb)	No Ice EPAa (sf)	Orientation Factor
150.00	Alcatel-Lucent 1900 MHz 4x45 R	3	0.000	0.000	60.00	2.320	0.67
150.00	Alcatel-Lucent RRH2x50-08	6	0.000	0.000	52.90	1.700	0.50
150.00	Alcatel-Lucent TD-RRH8x20-25 w	3	0.000	0.000	70.00	4.050	0.67
150.00	DragonWave A-ANT-11G-2-C	1	0.000	0.000	27.00	4.690	1.00
150.00	DragonWave A-ANT-18G-2-C	1	0.000	0.000	27.10	4.690	1.00
150.00	DragonWave Horizon Compact	2	0.000	0.000	10.60	0.430	0.50
150.00	KMW ETCR-654L12H6	3	0.000	0.000	84.90	15.710	0.61
150.00	Round T-Arm	3	0.000	0.000	250.00	9.700	0.67
140.00	Ericsson AIR 21 B4A/B12P-B5P 6	3	0.000	0.000	110.00	10.610	0.69
140.00	Ericsson AIR 21, 1.3 M, B2A B4	3	0.000	0.000	83.00	6.050	0.71
140.00	Ericsson KRY 112 144/1	3	0.000	0.000	11.00	0.410	0.50
140.00	Ericsson RRUS 11 B12	3	0.000	0.000	50.70	2.790	0.67
140.00	Round T-Arm	3	0.000	0.000	250.00	9.700	0.67
124.00	CCI OPA-65R-LCUU-H6	6	0.000	0.000	73.00	9.660	0.66
124.00	Ericsson RRUS 32 B2	3	0.000	0.000	53.00	2.740	0.67
124.00	Ericsson RRUS 32 B30	3	0.000	0.000	60.00	2.740	0.67
124.00	Ericsson RRUS 32 B66A	3	0.000	0.000	50.70	2.720	0.67
124.00	Ericsson RRUS 4478 B14 (15")	3	0.000	0.000	59.40	1.650	0.50
124.00	Ericsson RRUS-11 (50 lbs.)	3	0.000	0.000	50.00	2.570	0.67
124.00	Kathrein Scala 80010965	3	0.000	0.000	97.60	13.810	0.62
124.00	Powerwave 7770.00	3	0.000	0.000	35.00	5.510	0.65
124.00	Powerwave Allgon LGP21401	6	0.000	0.000	14.10	1.100	0.50
124.00	Raycap DC6-48-60-18-8C	1	0.000	0.000	16.00	3.050	0.67
124.00	Raycap DC6-48-60-18-8F ("Squid	1	0.000	0.000	31.80	1.280	1.00
124.00	Raycap DC6-48-60-18-8F ("Squid	1	0.000	0.000	31.80	1.280	1.00
124.00	SitePro PRK-SFS and SitePro HR	1	0.000	0.000	3000.00	49.620	1.00
111.00	Empty Flat Platform w/ Handrai	1	0.000	0.000	2000.00	42.400	1.00
105.00	RFS APXV18-206517S-C	3	0.000	0.000	26.40	5.170	0.68
Totals	Num Loadings:28	78			10200.00		

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Diameter (in)	Coax Weight (lb/ft)	Projected Flat	Projected Width (in)	Exposed To Wind	Carrier
5.00	150.00	4	1 1/4" Hybriflex Cable	1.54	1.00	N	0.00	Y	Clearwire
5.00	150.00	2	1/2" Coax	0.63	0.15	N	0.00	Y	Clearwire
5.00	150.00	2	2" conduit	2.38	3.65	N	2.38	Y	Clearwire
5.00	150.00	6	5/16" Coax	0.31	0.05	N	0.00	N	Clearwire
5.00	140.00	1	1 1/4" Hybriflex Cable	1.54	1.00	N	0.00	N	T-Mobile
5.00	140.00	12	1 5/8" Coax	1.98	0.82	N	0.00	N	T-Mobile
5.00	124.00	1	0.39" Fiber Trunk	0.39	0.06	N	0.00	N	AT&T Mobility
5.00	124.00	2	0.39" Fiber Trunk	0.39	0.06	N	0.00	N	AT&T Mobility

Site Number: 302538

Code: ANSI/TIA-222-G

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Site Name: Parsonage Hill Aka Wallin, CT

Engineering Number: OAA722111_C3_03

5/24/2018 10:56:23 AM

Customer: AT&T MOBILITY

5.00	124.00	2	0.78"	8 AWG 6	0.78	0.59	N	0.00	N	AT&T Mobility
5.00	124.00	4	0.78"	8 AWG 6	0.78	0.59	N	0.00	N	AT&T Mobility
5.00	124.00	12	1 5/8"	Coax	1.98	0.82	N	0.00	N	AT&T Mobility
5.00	124.00	1	3"	conduit	3.50	7.58	N	0.00	N	AT&T Mobility
5.00	124.00	1	3"	conduit	3.50	7.58	N	0.00	N	AT&T Mobility
5.00	105.00	6	1 5/8"	Coax	1.98	0.82	N	0.00	N	Metro PCS

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		0.4375	49.600	69.257	21,365.7	27.70	113.37	74.5	832.2	0.0	0.0
5.00		0.4375	48.690	67.975	20,201.1	27.14	111.29	75.1	801.5	0.0	1,167.4
10.00		0.4375	47.780	66.693	19,079.5	26.58	109.21	75.7	771.4	0.0	1,145.6
15.00		0.4375	46.870	65.412	18,000.3	26.03	107.13	76.3	741.9	0.0	1,123.8
20.00		0.4375	45.960	64.130	16,962.6	25.47	105.05	76.9	713.0	0.0	1,102.0
25.00		0.4375	45.050	62.848	15,965.5	24.91	102.97	77.5	684.6	0.0	1,080.2
30.00		0.4375	44.140	61.566	15,008.3	24.35	100.89	78.2	656.9	0.0	1,058.4
35.00		0.4375	43.230	60.284	14,090.2	23.80	98.81	78.8	629.7	0.0	1,036.6
40.00		0.4375	42.320	59.002	13,210.3	23.24	96.73	79.4	603.0	0.0	1,014.8
45.00		0.4375	41.410	57.720	12,367.8	22.68	94.65	80.0	577.0	0.0	992.9
47.83	Bot - Section 2	0.4375	40.894	56.993	11,906.6	22.37	93.47	80.3	562.5	0.0	553.0
50.00		0.4375	40.500	56.438	11,561.9	22.12	92.57	80.6	551.5	0.0	783.8
54.00	Top - Section 1	0.3750	40.522	48.477	9,973.0	26.27	108.06	76.1	475.5	0.0	1,427.0
55.00		0.3750	40.340	48.257	9,838.0	26.14	107.57	76.2	471.1	0.0	164.6
60.00		0.3750	39.430	47.159	9,181.1	25.49	105.15	76.9	449.8	0.0	811.7
65.00		0.3750	38.520	46.060	8,554.2	24.84	102.72	77.6	429.0	0.0	793.0
70.00		0.3750	37.610	44.961	7,956.5	24.19	100.29	78.3	408.7	0.0	774.3
75.00		0.3750	36.700	43.862	7,387.3	23.54	97.87	79.0	388.9	0.0	755.6
80.00		0.3750	35.790	42.763	6,845.9	22.89	95.44	79.7	369.5	0.0	736.9
85.00		0.3750	34.880	41.665	6,331.6	22.24	93.01	80.5	350.7	0.0	718.2
90.00		0.3750	33.970	40.566	5,843.7	21.59	90.59	81.2	332.3	0.0	699.5
95.00		0.3750	33.060	39.467	5,381.6	20.94	88.16	81.9	314.5	0.0	680.8
95.83	Bot - Section 3	0.3750	32.908	39.284	5,307.0	20.83	87.76	81.9	311.5	0.0	111.7
100.00		0.3750	32.150	38.368	4,944.5	20.29	85.73	81.9	297.1	0.0	971.8
101.00	Top - Section 2	0.2813	32.530	29.206	3,876.9	28.31	115.66	73.8	230.2	0.0	229.8
105.00		0.2813	31.802	28.546	3,620.2	27.62	113.07	74.6	219.9	0.0	393.0
110.00		0.2813	30.892	27.722	3,315.7	26.75	109.84	75.5	207.3	0.0	478.7
111.00		0.2813	30.710	27.557	3,256.9	26.58	109.19	75.7	204.9	0.0	94.1
115.00		0.2813	29.982	26.898	3,028.7	25.88	106.60	76.5	195.1	0.0	370.6
120.00		0.2813	29.072	26.074	2,758.7	25.02	103.37	77.4	183.3	0.0	450.6
124.00		0.2813	28.344	25.415	2,554.7	24.32	100.78	78.2	174.1	0.0	350.4
125.00		0.2813	28.162	25.250	2,505.3	24.15	100.13	78.4	171.9	0.0	86.2
130.00		0.2813	27.252	24.426	2,267.9	23.28	96.90	79.3	160.8	0.0	422.6
135.00		0.2813	26.342	23.602	2,046.0	22.42	93.66	80.3	150.0	0.0	408.6
140.00		0.2813	25.432	22.777	1,839.1	21.55	90.43	81.2	139.7	0.0	394.5
145.00		0.2813	24.522	21.953	1,646.6	20.68	87.19	81.9	129.7	0.0	380.5
150.00		0.2813	23.612	21.129	1,468.0	19.82	83.95	81.9	120.1	0.0	366.5
											24,129.8

Load Case: 1.2D + 1.6W	97 mph with No Ice	24 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		Discrete Forces			Linear Forces		Sum of Forces				
		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		362.9	0.0					0.0	0.0	362.9	0.0	0.0	0.0
5.00		719.0	1,400.9					0.0	0.0	719.0	1,400.9	0.0	0.0
10.00		705.6	1,374.7					0.0	338.1	705.6	1,712.8	0.0	0.0
15.00		703.0	1,348.6					0.0	338.1	703.0	1,686.7	0.0	0.0
20.00		719.0	1,322.4					0.0	338.1	719.0	1,660.5	0.0	0.0
25.00		739.0	1,296.2					0.0	338.1	739.0	1,634.3	0.0	0.0
30.00		752.6	1,270.1					0.0	338.1	752.6	1,608.2	0.0	0.0
35.00		761.6	1,243.9					0.0	338.1	761.6	1,582.0	0.0	0.0
40.00		766.9	1,217.7					0.0	338.1	766.9	1,555.8	0.0	0.0
45.00		602.5	1,191.5					0.0	338.1	602.5	1,529.6	0.0	0.0
47.83	Bot - Section 2	388.0	663.6					0.0	191.6	388.0	855.2	0.0	0.0
50.00		483.2	940.5					0.0	146.5	483.2	1,087.1	0.0	0.0
54.00	Top - Section 1	391.6	1,712.4					0.0	270.5	391.6	1,982.9	0.0	0.0
55.00		468.5	197.5					0.0	67.6	468.5	265.1	0.0	0.0
60.00		778.4	974.0					0.0	338.1	778.4	1,312.1	0.0	0.0
65.00		773.3	951.6					0.0	338.1	773.3	1,289.7	0.0	0.0
70.00		767.0	929.2					0.0	338.1	767.0	1,267.3	0.0	0.0
75.00		759.4	906.7					0.0	338.1	759.4	1,244.8	0.0	0.0
80.00		750.7	884.3					0.0	338.1	750.7	1,222.4	0.0	0.0
85.00		741.0	861.9					0.0	338.1	741.0	1,200.0	0.0	0.0
90.00		730.4	839.4					0.0	338.1	730.4	1,177.5	0.0	0.0
95.00		422.3	817.0					0.0	338.1	422.3	1,155.1	0.0	0.0
95.83	Bot - Section 3	361.7	134.0					0.0	56.4	361.7	190.3	0.0	0.0
100.00		373.6	1,166.1					0.0	281.7	373.6	1,447.9	0.0	0.0
101.00	Top - Section 2	356.5	275.8					0.0	67.6	356.5	343.4	0.0	0.0
105.00	Appurtenance(s)	634.6	471.6	543.1	0.0	0.0	95.0	0.0	270.5	1,177.7	837.2	0.0	0.0
110.00		419.1	574.4					0.0	308.6	419.1	883.0	0.0	0.0
111.00	Appurtenance(s)	343.0	112.9	2,209.2	0.0	0.0	2,400.0	0.0	61.7	2,552.2	2,574.6	0.0	0.0
115.00		609.7	444.7					0.0	246.9	609.7	691.6	0.0	0.0
120.00		599.1	540.8					0.0	308.6	599.1	849.3	0.0	0.0
124.00	Appurtenance(s)	328.3	420.5	6,914.7	0.0	0.0	5,783.2	0.0	246.9	7,243.0	6,450.5	0.0	0.0
125.00		385.6	103.4					0.0	27.3	385.6	130.7	0.0	0.0
130.00		633.2	507.1					0.0	136.3	633.2	643.4	0.0	0.0
135.00		616.9	490.3					0.0	136.3	616.9	626.5	0.0	0.0
140.00	Appurtenance(s)	600.2	473.5	2,597.8	0.0	0.0	1,816.9	0.0	136.3	3,197.9	2,426.6	0.0	0.0
145.00		583.0	456.6					0.0	71.2	583.0	527.8	0.0	0.0
150.00	Appurtenance(s)	287.1	439.8	3,423.4	0.0	0.0	2,144.9	0.0	71.2	3,710.6	2,655.9	0.0	0.0
Totals:										37,105.2	49,708.8	0.00	0.00

Load Case: 1.2D + 1.6W

97 mph with No Ice

24 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	-49.63	-36.85	0.00	-3,760.82	0.00	3,760.82	4,644.06	2,322.03	9,415.76	4,650.09	0.00	0.00	0.820
5.00	-48.07	-36.33	0.00	-3,576.57	0.00	3,576.57	4,595.29	2,297.65	9,142.89	4,515.33	0.13	-0.24	0.803
10.00	-46.21	-35.82	0.00	-3,394.90	0.00	3,394.90	4,545.11	2,272.56	8,870.98	4,381.04	0.52	-0.49	0.785
15.00	-44.38	-35.29	0.00	-3,215.83	0.00	3,215.83	4,493.53	2,246.77	8,600.18	4,247.31	1.16	-0.74	0.767
20.00	-42.58	-34.73	0.00	-3,039.39	0.00	3,039.39	4,440.55	2,220.28	8,330.66	4,114.20	2.07	-0.98	0.749
25.00	-40.82	-34.13	0.00	-2,865.76	0.00	2,865.76	4,386.17	2,193.08	8,062.58	3,981.80	3.23	-1.23	0.729
30.00	-39.08	-33.51	0.00	-2,695.10	0.00	2,695.10	4,330.38	2,165.19	7,796.08	3,850.19	4.65	-1.48	0.709
35.00	-37.38	-32.87	0.00	-2,527.54	0.00	2,527.54	4,273.19	2,136.59	7,531.34	3,719.45	6.33	-1.73	0.689
40.00	-35.71	-32.21	0.00	-2,363.20	0.00	2,363.20	4,214.59	2,107.30	7,268.52	3,589.65	8.27	-1.97	0.667
45.00	-34.10	-31.66	0.00	-2,202.18	0.00	2,202.18	4,154.60	2,077.30	7,007.76	3,460.87	10.47	-2.22	0.645
47.83	-33.19	-31.31	0.00	-2,112.47	0.00	2,112.47	4,119.98	2,059.99	6,860.98	3,388.38	11.83	-2.36	0.632
50.00	-32.04	-30.87	0.00	-2,044.63	0.00	2,044.63	4,093.20	2,046.60	6,749.23	3,333.19	12.93	-2.47	0.621
54.00	-30.02	-30.45	0.00	-1,921.16	0.00	1,921.16	3,318.39	1,659.20	5,491.78	2,712.18	15.08	-2.66	0.718
55.00	-29.69	-30.05	0.00	-1,890.71	0.00	1,890.71	3,309.51	1,654.75	5,452.02	2,692.55	15.64	-2.71	0.712
60.00	-28.29	-29.34	0.00	-1,740.44	0.00	1,740.44	3,264.25	1,632.12	5,253.88	2,594.69	18.62	-2.97	0.680
65.00	-26.91	-28.62	0.00	-1,593.74	0.00	1,593.74	3,217.59	1,608.79	5,056.96	2,497.44	21.87	-3.23	0.647
70.00	-25.57	-27.89	0.00	-1,450.66	0.00	1,450.66	3,169.52	1,584.76	4,861.43	2,400.88	25.39	-3.49	0.613
75.00	-24.26	-27.16	0.00	-1,311.21	0.00	1,311.21	3,120.06	1,560.03	4,667.43	2,305.07	29.18	-3.73	0.577
80.00	-22.98	-26.42	0.00	-1,175.42	0.00	1,175.42	3,069.19	1,534.59	4,475.14	2,210.10	33.21	-3.97	0.540
85.00	-21.74	-25.68	0.00	-1,043.32	0.00	1,043.32	3,016.92	1,508.46	4,284.71	2,116.06	37.49	-4.20	0.501
90.00	-20.53	-24.94	0.00	-914.92	0.00	914.92	2,963.24	1,481.62	4,096.29	2,023.00	42.01	-4.42	0.459
95.00	-19.36	-24.47	0.00	-790.21	0.00	790.21	2,909.11	1,454.55	3,911.32	1,931.65	46.75	-4.63	0.416
95.83	-19.16	-24.13	0.00	-769.82	0.00	769.82	2,895.61	1,447.80	3,874.90	1,913.67	47.56	-4.66	0.409
100.00	-17.70	-23.66	0.00	-669.30	0.00	669.30	2,828.11	1,414.06	3,695.36	1,825.00	51.70	-4.83	0.373
101.00	-17.36	-23.31	0.00	-645.63	0.00	645.63	1,940.77	970.39	2,581.63	1,274.97	52.72	-4.86	0.516
105.00	-16.56	-22.11	0.00	-552.40	0.00	552.40	1,916.40	958.20	2,491.16	1,230.29	56.85	-5.00	0.458
110.00	-15.67	-21.65	0.00	-441.84	0.00	441.84	1,884.66	942.33	2,378.55	1,174.68	62.19	-5.20	0.385
111.00	-13.31	-18.89	0.00	-420.20	0.00	420.20	1,878.15	939.07	2,356.11	1,163.59	63.28	-5.24	0.369
115.00	-12.64	-18.25	0.00	-344.63	0.00	344.63	1,851.53	925.76	2,266.63	1,119.40	67.72	-5.37	0.315
120.00	-11.81	-17.60	0.00	-253.38	0.00	253.38	1,816.99	908.49	2,155.56	1,064.55	73.41	-5.51	0.245
124.00	-6.08	-9.77	0.00	-182.99	0.00	182.99	1,788.35	894.17	2,067.42	1,021.02	78.06	-5.60	0.183
125.00	-5.98	-9.38	0.00	-173.23	0.00	173.23	1,781.05	890.52	2,045.49	1,010.19	79.24	-5.62	0.175
130.00	-5.39	-8.69	0.00	-126.34	0.00	126.34	1,743.70	871.85	1,936.59	956.41	85.16	-5.70	0.135
135.00	-4.83	-8.02	0.00	-82.88	0.00	82.88	1,704.95	852.48	1,829.01	903.28	91.16	-5.77	0.095
140.00	-2.73	-4.59	0.00	-42.78	0.00	42.78	1,664.80	832.40	1,722.91	850.88	97.22	-5.81	0.052
145.00	-2.26	-3.96	0.00	-19.81	0.00	19.81	1,618.18	809.09	1,613.39	796.79	103.31	-5.84	0.026
150.00	0.00	-3.71	0.00	0.00	0.00	0.00	1,557.43	778.72	1,493.87	737.76	109.42	-5.85	0.000

Load Case: 0.9D + 1.6W

97 mph with No Ice (Reduced DL)

24 Iterations

Gust Response Factor :1.10

Wind Importance Factor :1.00

Dead Load Factor :0.90

Wind Load Factor :1.60

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		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		362.9	0.0					0.0	0.0	362.9	0.0	0.0	0.0
5.00		719.0	1,050.7					0.0	0.0	719.0	1,050.7	0.0	0.0
10.00		705.6	1,031.1					0.0	253.6	705.6	1,284.6	0.0	0.0
15.00		703.0	1,011.4					0.0	253.6	703.0	1,265.0	0.0	0.0
20.00		719.0	991.8					0.0	253.6	719.0	1,245.4	0.0	0.0
25.00		739.0	972.2					0.0	253.6	739.0	1,225.7	0.0	0.0
30.00		752.6	952.5					0.0	253.6	752.6	1,206.1	0.0	0.0
35.00		761.6	932.9					0.0	253.6	761.6	1,186.5	0.0	0.0
40.00		766.9	913.3					0.0	253.6	766.9	1,166.9	0.0	0.0
45.00		602.5	893.6					0.0	253.6	602.5	1,147.2	0.0	0.0
47.83	Bot - Section 2	388.0	497.7					0.0	143.7	388.0	641.4	0.0	0.0
50.00		483.2	705.4					0.0	109.9	483.2	815.3	0.0	0.0
54.00	Top - Section 1	391.6	1,284.3					0.0	202.9	391.6	1,487.2	0.0	0.0
55.00		468.5	148.1					0.0	50.7	468.5	198.8	0.0	0.0
60.00		778.4	730.5					0.0	253.6	778.4	984.1	0.0	0.0
65.00		773.3	713.7					0.0	253.6	773.3	967.3	0.0	0.0
70.00		767.0	696.9					0.0	253.6	767.0	950.5	0.0	0.0
75.00		759.4	680.1					0.0	253.6	759.4	933.6	0.0	0.0
80.00		750.7	663.2					0.0	253.6	750.7	916.8	0.0	0.0
85.00		741.0	646.4					0.0	253.6	741.0	900.0	0.0	0.0
90.00		730.4	629.6					0.0	253.6	730.4	883.2	0.0	0.0
95.00		422.3	612.7					0.0	253.6	422.3	866.3	0.0	0.0
95.83	Bot - Section 3	361.7	100.5					0.0	42.3	361.7	142.8	0.0	0.0
100.00		373.6	874.6					0.0	211.3	373.6	1,085.9	0.0	0.0
101.00	Top - Section 2	356.5	206.9					0.0	50.7	356.5	257.6	0.0	0.0
105.00	Appurtenance(s)	634.6	353.7	543.1	0.0	0.0	71.3	0.0	202.9	1,177.7	627.9	0.0	0.0
110.00		419.1	430.8					0.0	231.4	419.1	662.2	0.0	0.0
111.00	Appurtenance(s)	343.0	84.6	2,209.2	0.0	0.0	1,800.0	0.0	46.3	2,552.2	1,930.9	0.0	0.0
115.00		609.7	333.5					0.0	185.1	609.7	518.7	0.0	0.0
120.00		599.1	405.6					0.0	231.4	599.1	637.0	0.0	0.0
124.00	Appurtenance(s)	328.3	315.4	6,914.7	0.0	0.0	4,337.4	0.0	185.1	7,243.0	4,837.9	0.0	0.0
125.00		385.6	77.6					0.0	20.4	385.6	98.0	0.0	0.0
130.00		633.2	380.3					0.0	102.2	633.2	482.5	0.0	0.0
135.00		616.9	367.7					0.0	102.2	616.9	469.9	0.0	0.0
140.00	Appurtenance(s)	600.2	355.1	2,597.8	0.0	0.0	1,362.7	0.0	102.2	3,197.9	1,820.0	0.0	0.0
145.00		583.0	342.5					0.0	53.4	583.0	395.9	0.0	0.0
150.00	Appurtenance(s)	287.1	329.9	3,423.4	0.0	0.0	1,608.7	0.0	53.4	3,710.6	1,991.9	0.0	0.0
Totals:										37,105.2	37,281.6	0.00	0.00

Site Number: 302538

Code: ANSI/TIA-222-G

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Site Name: Parsonage Hill Aka Wallin, CT

Engineering Number: OAA722111_C3_03

5/24/2018 10:56:35 AM

Customer: AT&T MOBILITY

Load Case: 0.9D + 1.6W

97 mph with No Ice (Reduced DL)

24 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	-37.20	-36.82	0.00	-3,715.02	0.00	3,715.02	4,644.06	2,322.03	9,415.76	4,650.09	0.00	0.00	0.807
5.00	-36.00	-36.25	0.00	-3,530.92	0.00	3,530.92	4,595.29	2,297.65	9,142.89	4,515.33	0.13	-0.24	0.790
10.00	-34.57	-35.69	0.00	-3,349.65	0.00	3,349.65	4,545.11	2,272.56	8,870.98	4,381.04	0.51	-0.48	0.772
15.00	-33.16	-35.11	0.00	-3,171.22	0.00	3,171.22	4,493.53	2,246.77	8,600.18	4,247.31	1.15	-0.73	0.754
20.00	-31.78	-34.51	0.00	-2,995.67	0.00	2,995.67	4,440.55	2,220.28	8,330.66	4,114.20	2.04	-0.97	0.736
25.00	-30.43	-33.88	0.00	-2,823.12	0.00	2,823.12	4,386.17	2,193.08	8,062.58	3,981.80	3.19	-1.21	0.716
30.00	-29.10	-33.22	0.00	-2,653.74	0.00	2,653.74	4,330.38	2,165.19	7,796.08	3,850.19	4.59	-1.46	0.696
35.00	-27.79	-32.54	0.00	-2,487.64	0.00	2,487.64	4,273.19	2,136.59	7,531.34	3,719.45	6.25	-1.70	0.676
40.00	-26.52	-31.85	0.00	-2,324.92	0.00	2,324.92	4,214.59	2,107.30	7,268.52	3,589.65	8.16	-1.94	0.654
45.00	-25.29	-31.29	0.00	-2,165.65	0.00	2,165.65	4,154.60	2,077.30	7,007.76	3,460.87	10.33	-2.19	0.632
47.83	-24.60	-30.93	0.00	-2,076.99	0.00	2,076.99	4,119.98	2,059.99	6,860.98	3,388.38	11.67	-2.32	0.619
50.00	-23.72	-30.48	0.00	-2,009.97	0.00	2,009.97	4,093.20	2,046.60	6,749.23	3,333.19	12.75	-2.43	0.609
54.00	-22.19	-30.07	0.00	-1,888.05	0.00	1,888.05	3,318.39	1,659.20	5,491.78	2,712.18	14.87	-2.62	0.703
55.00	-21.94	-29.65	0.00	-1,857.99	0.00	1,857.99	3,309.51	1,654.75	5,452.02	2,692.55	15.42	-2.67	0.697
60.00	-20.86	-28.92	0.00	-1,709.74	0.00	1,709.74	3,264.25	1,632.12	5,253.88	2,594.69	18.36	-2.93	0.666
65.00	-19.81	-28.18	0.00	-1,565.15	0.00	1,565.15	3,217.59	1,608.79	5,056.96	2,497.44	21.56	-3.18	0.633
70.00	-18.79	-27.44	0.00	-1,424.24	0.00	1,424.24	3,169.52	1,584.76	4,861.43	2,400.88	25.03	-3.43	0.599
75.00	-17.80	-26.70	0.00	-1,287.03	0.00	1,287.03	3,120.06	1,560.03	4,667.43	2,305.07	28.75	-3.67	0.564
80.00	-16.83	-25.96	0.00	-1,153.53	0.00	1,153.53	3,069.19	1,534.59	4,475.14	2,210.10	32.72	-3.91	0.528
85.00	-15.88	-25.22	0.00	-1,023.74	0.00	1,023.74	3,016.92	1,508.46	4,284.71	2,116.06	36.93	-4.13	0.489
90.00	-14.97	-24.48	0.00	-897.65	0.00	897.65	2,963.24	1,481.62	4,096.29	2,023.00	41.38	-4.35	0.449
95.00	-14.09	-24.02	0.00	-775.26	0.00	775.26	2,909.11	1,454.55	3,911.32	1,931.65	46.04	-4.55	0.406
95.83	-13.93	-23.67	0.00	-755.24	0.00	755.24	2,895.61	1,447.80	3,874.90	1,913.67	46.84	-4.59	0.400
100.00	-12.84	-23.23	0.00	-656.61	0.00	656.61	2,828.11	1,414.06	3,695.36	1,825.00	50.91	-4.75	0.365
101.00	-12.58	-22.87	0.00	-633.38	0.00	633.38	1,940.77	970.39	2,581.63	1,274.97	51.91	-4.78	0.504
105.00	-11.99	-21.68	0.00	-541.88	0.00	541.88	1,916.40	958.20	2,491.16	1,230.29	55.97	-4.92	0.447
110.00	-11.33	-21.23	0.00	-433.47	0.00	433.47	1,884.66	942.33	2,378.55	1,174.68	61.22	-5.11	0.376
111.00	-9.61	-18.53	0.00	-412.24	0.00	412.24	1,878.15	939.07	2,356.11	1,163.59	62.30	-5.15	0.360
115.00	-9.10	-17.90	0.00	-338.12	0.00	338.12	1,851.53	925.76	2,266.63	1,119.40	66.66	-5.28	0.307
120.00	-8.49	-17.26	0.00	-248.64	0.00	248.64	1,816.99	908.49	2,155.56	1,064.55	72.26	-5.42	0.239
124.00	-4.36	-9.59	0.00	-179.61	0.00	179.61	1,788.35	894.17	2,067.42	1,021.02	76.83	-5.51	0.178
125.00	-4.29	-9.20	0.00	-170.02	0.00	170.02	1,781.05	890.52	2,045.49	1,010.19	77.99	-5.53	0.171
130.00	-3.86	-8.53	0.00	-124.01	0.00	124.01	1,743.70	871.85	1,936.59	956.41	83.81	-5.61	0.132
135.00	-3.44	-7.87	0.00	-81.37	0.00	81.37	1,704.95	852.48	1,829.01	903.28	89.71	-5.67	0.092
140.00	-1.95	-4.51	0.00	-42.01	0.00	42.01	1,664.80	832.40	1,722.91	850.88	95.67	-5.72	0.051
145.00	-1.61	-3.89	0.00	-19.46	0.00	19.46	1,618.18	809.09	1,613.39	796.79	101.66	-5.74	0.025
150.00	0.00	-3.71	0.00	0.00	0.00	0.00	1,557.43	778.72	1,493.87	737.76	107.67	-5.75	0.000

Load Case: 1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice	23 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

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		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		75.6	0.0					0.0	0.0	75.6	0.0	0.0	0.0
5.00		150.2	1,775.1					0.0	0.0	150.2	1,775.1	0.0	0.0
10.00		148.1	1,785.8					0.0	439.0	148.1	2,224.8	0.0	0.0
15.00		148.1	1,773.7					0.0	445.6	148.1	2,219.3	0.0	0.0
20.00		151.9	1,754.2					0.0	450.1	151.9	2,204.3	0.0	0.0
25.00		156.5	1,730.8					0.0	453.7	156.5	2,184.5	0.0	0.0
30.00		159.7	1,705.1					0.0	456.6	159.7	2,161.7	0.0	0.0
35.00		162.0	1,677.6					0.0	459.2	162.0	2,136.8	0.0	0.0
40.00		163.5	1,648.9					0.0	461.4	163.5	2,110.3	0.0	0.0
45.00		128.7	1,619.3					0.0	463.4	128.7	2,082.7	0.0	0.0
47.83	Bot - Section 2	82.9	905.3					0.0	263.4	82.9	1,168.6	0.0	0.0
50.00		103.4	1,127.9					0.0	201.8	103.4	1,329.7	0.0	0.0
54.00	Top - Section 1	83.8	2,054.6					0.0	373.3	83.8	2,427.9	0.0	0.0
55.00		100.5	283.1					0.0	93.5	100.5	376.6	0.0	0.0
60.00		167.2	1,395.0					0.0	468.3	167.2	1,863.3	0.0	0.0
65.00		166.5	1,366.8					0.0	469.7	166.5	1,836.5	0.0	0.0
70.00		165.5	1,338.2					0.0	471.0	165.5	1,809.2	0.0	0.0
75.00		164.3	1,309.3					0.0	472.2	164.3	1,781.5	0.0	0.0
80.00		162.8	1,280.0					0.0	473.4	162.8	1,753.4	0.0	0.0
85.00		161.1	1,250.5					0.0	474.5	161.1	1,725.0	0.0	0.0
90.00		159.3	1,220.7					0.0	475.6	159.3	1,696.2	0.0	0.0
95.00		92.2	1,190.7					0.0	476.6	92.2	1,667.2	0.0	0.0
95.83	Bot - Section 3	79.1	196.2					0.0	79.5	79.1	275.7	0.0	0.0
100.00		81.7	1,476.2					0.0	398.0	81.7	1,874.2	0.0	0.0
101.00	Top - Section 2	78.2	350.0					0.0	95.6	78.2	445.7	0.0	0.0
105.00	Appurtenance(s)	139.4	763.0	110.9	0.0	0.0	431.3	0.0	382.8	250.4	1,577.0	0.0	0.0
110.00		92.2	930.3					0.0	449.8	92.2	1,380.0	0.0	0.0
111.00	Appurtenance(s)	75.7	183.8	543.2	0.0	0.0	3,331.2	0.0	90.1	618.9	3,605.1	0.0	0.0
115.00		134.8	722.9					0.0	360.6	134.8	1,083.5	0.0	0.0
120.00		132.9	879.9					0.0	451.4	132.9	1,331.3	0.0	0.0
124.00	Appurtenance(s)	73.0	686.4	1,492.4	0.0	0.0	12,703.8	0.0	361.7	1,565.3	13,751.9	0.0	0.0
125.00		86.0	169.7					0.0	56.0	86.0	225.7	0.0	0.0
130.00		141.6	828.9					0.0	280.6	141.6	1,109.5	0.0	0.0
135.00		138.5	803.2					0.0	281.4	138.5	1,084.6	0.0	0.0
140.00	Appurtenance(s)	135.3	777.4	594.2	0.0	0.0	3,833.5	0.0	282.1	729.5	4,893.0	0.0	0.0
145.00		132.1	751.5					0.0	217.7	132.1	969.2	0.0	0.0
150.00	Appurtenance(s)	65.2	725.5	766.0	0.0	0.0	4,793.4	0.0	218.4	831.2	5,737.2	0.0	0.0
Totals:										8,146.61	77,878.4	0.00	0.00

Site Number: 302538

Code: ANSI/TIA-222-G

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Site Name: Parsonage Hill Aka Wallin, CT

Engineering Number: OAA722111_C3_03

5/24/2018 10:56:40 AM

Customer: AT&T MOBILITY

Load Case: 1.2D + 1.0Di + 1.0Wi

50 mph with 0.75 in Radial Ice

23 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	-77.87	-8.11	0.00	-870.62	0.00	870.62	4,644.06	2,322.03	9,415.76	4,650.09	0.00	0.00	0.204
5.00	-76.09	-8.03	0.00	-830.07	0.00	830.07	4,595.29	2,297.65	9,142.89	4,515.33	0.03	-0.06	0.200
10.00	-73.86	-7.96	0.00	-789.90	0.00	789.90	4,545.11	2,272.56	8,870.98	4,381.04	0.12	-0.11	0.197
15.00	-71.63	-7.88	0.00	-750.12	0.00	750.12	4,493.53	2,246.77	8,600.18	4,247.31	0.27	-0.17	0.193
20.00	-69.42	-7.79	0.00	-710.75	0.00	710.75	4,440.55	2,220.28	8,330.66	4,114.20	0.48	-0.23	0.188
25.00	-67.23	-7.69	0.00	-671.82	0.00	671.82	4,386.17	2,193.08	8,062.58	3,981.80	0.75	-0.29	0.184
30.00	-65.06	-7.58	0.00	-633.39	0.00	633.39	4,330.38	2,165.19	7,796.08	3,850.19	1.08	-0.34	0.180
35.00	-62.92	-7.47	0.00	-595.48	0.00	595.48	4,273.19	2,136.59	7,531.34	3,719.45	1.47	-0.40	0.175
40.00	-60.80	-7.35	0.00	-558.13	0.00	558.13	4,214.59	2,107.30	7,268.52	3,589.65	1.93	-0.46	0.170
45.00	-58.71	-7.25	0.00	-521.37	0.00	521.37	4,154.60	2,077.30	7,007.76	3,460.87	2.44	-0.52	0.165
47.83	-57.54	-7.19	0.00	-500.83	0.00	500.83	4,119.98	2,059.99	6,860.98	3,388.38	2.76	-0.55	0.162
50.00	-56.21	-7.11	0.00	-485.25	0.00	485.25	4,093.20	2,046.60	6,749.23	3,333.19	3.02	-0.58	0.159
54.00	-53.78	-7.02	0.00	-456.83	0.00	456.83	3,318.39	1,659.20	5,491.78	2,712.18	3.52	-0.62	0.185
55.00	-53.40	-6.95	0.00	-449.80	0.00	449.80	3,309.51	1,654.75	5,452.02	2,692.55	3.65	-0.64	0.183
60.00	-51.53	-6.82	0.00	-415.03	0.00	415.03	3,264.25	1,632.12	5,253.88	2,594.69	4.36	-0.70	0.176
65.00	-49.69	-6.68	0.00	-380.92	0.00	380.92	3,217.59	1,608.79	5,056.96	2,497.44	5.12	-0.76	0.168
70.00	-47.88	-6.54	0.00	-347.50	0.00	347.50	3,169.52	1,584.76	4,861.43	2,400.88	5.95	-0.82	0.160
75.00	-46.09	-6.40	0.00	-314.78	0.00	314.78	3,120.06	1,560.03	4,667.43	2,305.07	6.84	-0.88	0.151
80.00	-44.33	-6.25	0.00	-282.77	0.00	282.77	3,069.19	1,534.59	4,475.14	2,210.10	7.80	-0.94	0.142
85.00	-42.61	-6.10	0.00	-251.50	0.00	251.50	3,016.92	1,508.46	4,284.71	2,116.06	8.81	-0.99	0.133
90.00	-40.91	-5.95	0.00	-220.99	0.00	220.99	2,963.24	1,481.62	4,096.29	2,023.00	9.88	-1.05	0.123
95.00	-39.24	-5.85	0.00	-191.23	0.00	191.23	2,909.11	1,454.55	3,911.32	1,931.65	11.00	-1.10	0.113
95.83	-38.96	-5.78	0.00	-186.36	0.00	186.36	2,895.61	1,447.80	3,874.90	1,913.67	11.19	-1.11	0.111
100.00	-37.09	-5.68	0.00	-162.28	0.00	162.28	2,828.11	1,414.06	3,695.36	1,825.00	12.17	-1.14	0.102
101.00	-36.64	-5.60	0.00	-156.60	0.00	156.60	1,940.77	970.39	2,581.63	1,274.97	12.42	-1.15	0.142
105.00	-35.07	-5.35	0.00	-134.19	0.00	134.19	1,916.40	958.20	2,491.16	1,230.29	13.40	-1.19	0.127
110.00	-33.69	-5.24	0.00	-107.46	0.00	107.46	1,884.66	942.33	2,378.55	1,174.68	14.67	-1.23	0.109
111.00	-30.09	-4.56	0.00	-102.22	0.00	102.22	1,878.15	939.07	2,356.11	1,163.59	14.93	-1.24	0.104
115.00	-29.01	-4.41	0.00	-84.00	0.00	84.00	1,851.53	925.76	2,266.63	1,119.40	15.98	-1.28	0.091
120.00	-27.68	-4.26	0.00	-61.93	0.00	61.93	1,816.99	908.49	2,155.56	1,064.55	17.34	-1.31	0.073
124.00	-13.97	-2.38	0.00	-44.87	0.00	44.87	1,788.35	894.17	2,067.42	1,021.02	18.45	-1.33	0.052
125.00	-13.74	-2.30	0.00	-42.49	0.00	42.49	1,781.05	890.52	2,045.49	1,010.19	18.73	-1.34	0.050
130.00	-12.64	-2.13	0.00	-31.00	0.00	31.00	1,743.70	871.85	1,936.59	956.41	20.14	-1.36	0.040
135.00	-11.56	-1.97	0.00	-20.34	0.00	20.34	1,704.95	852.48	1,829.01	903.28	21.57	-1.37	0.029
140.00	-6.68	-1.13	0.00	-10.48	0.00	10.48	1,664.80	832.40	1,722.91	850.88	23.01	-1.39	0.016
145.00	-5.72	-0.97	0.00	-4.85	0.00	4.85	1,618.18	809.09	1,613.39	796.79	24.47	-1.39	0.010
150.00	0.00	-0.83	0.00	0.00	0.00	0.00	1,557.43	778.72	1,493.87	737.76	25.93	-1.39	0.000

Load Case: 1.0D + 1.0W	Serviceability 60 mph	22 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

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		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		86.8	0.0					0.0	0.0	86.8	0.0	0.0	0.0
5.00		171.9	1,167.4					0.0	0.0	171.9	1,167.4	0.0	0.0
10.00		168.7	1,145.6					0.0	281.8	168.7	1,427.4	0.0	0.0
15.00		168.1	1,123.8					0.0	281.8	168.1	1,405.6	0.0	0.0
20.00		171.9	1,102.0					0.0	281.8	171.9	1,383.7	0.0	0.0
25.00		176.7	1,080.2					0.0	281.8	176.7	1,361.9	0.0	0.0
30.00		180.0	1,058.4					0.0	281.8	180.0	1,340.1	0.0	0.0
35.00		182.1	1,036.6					0.0	281.8	182.1	1,318.3	0.0	0.0
40.00		183.4	1,014.8					0.0	281.8	183.4	1,296.5	0.0	0.0
45.00		144.1	992.9					0.0	281.8	144.1	1,274.7	0.0	0.0
47.83	Bot - Section 2	92.8	553.0					0.0	159.7	92.8	712.6	0.0	0.0
50.00		115.5	783.8					0.0	122.1	115.5	905.9	0.0	0.0
54.00	Top - Section 1	93.6	1,427.0					0.0	225.4	93.6	1,652.4	0.0	0.0
55.00		112.0	164.6					0.0	56.4	112.0	220.9	0.0	0.0
60.00		186.1	811.7					0.0	281.8	186.1	1,093.5	0.0	0.0
65.00		184.9	793.0					0.0	281.8	184.9	1,074.8	0.0	0.0
70.00		183.4	774.3					0.0	281.8	183.4	1,056.1	0.0	0.0
75.00		181.6	755.6					0.0	281.8	181.6	1,037.4	0.0	0.0
80.00		179.5	736.9					0.0	281.8	179.5	1,018.7	0.0	0.0
85.00		177.2	718.2					0.0	281.8	177.2	1,000.0	0.0	0.0
90.00		174.7	699.5					0.0	281.8	174.7	981.3	0.0	0.0
95.00		101.0	680.8					0.0	281.8	101.0	962.6	0.0	0.0
95.83	Bot - Section 3	86.5	111.7					0.0	47.0	86.5	158.6	0.0	0.0
100.00		89.3	971.8					0.0	234.8	89.3	1,206.6	0.0	0.0
101.00	Top - Section 2	85.2	229.8					0.0	56.4	85.2	286.2	0.0	0.0
105.00	Appurtenance(s)	151.7	393.0	129.9	0.0	0.0	79.2	0.0	225.4	281.6	697.6	0.0	0.0
110.00		100.2	478.7					0.0	257.2	100.2	735.8	0.0	0.0
111.00	Appurtenance(s)	82.0	94.1	528.3	0.0	0.0	2,000.0	0.0	51.4	610.3	2,145.5	0.0	0.0
115.00		145.8	370.6					0.0	205.7	145.8	576.3	0.0	0.0
120.00		143.3	450.6					0.0	257.2	143.3	707.8	0.0	0.0
124.00	Appurtenance(s)	78.5	350.4	1,653.5	0.0	0.0	4,819.3	0.0	205.7	1,732.0	5,375.4	0.0	0.0
125.00		92.2	86.2					0.0	22.7	92.2	108.9	0.0	0.0
130.00		151.4	422.6					0.0	113.6	151.4	536.1	0.0	0.0
135.00		147.5	408.6					0.0	113.6	147.5	522.1	0.0	0.0
140.00	Appurtenance(s)	143.5	394.5	621.2	0.0	0.0	1,514.1	0.0	113.6	764.7	2,022.2	0.0	0.0
145.00		139.4	380.5					0.0	59.4	139.4	439.9	0.0	0.0
150.00	Appurtenance(s)	68.7	366.5	818.7	0.0	0.0	1,787.4	0.0	59.4	887.3	2,213.3	0.0	0.0
Totals:										8,873.07	41,424.0	0.00	0.00

Site Number: 302538

Code: ANSI/TIA-222-G

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Site Name: Parsonage Hill Aka Wallin, CT

Engineering Number: OAA722111_C3_03

5/24/2018 10:56:46 AM

Customer: AT&T MOBILITY

Load Case: 1.0D + 1.0W

Serviceability 60 mph

22 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	-41.42	-8.81	0.00	-893.29	0.00	893.29	4,644.06	2,322.03	9,415.76	4,650.09	0.00	0.00	0.201
5.00	-40.24	-8.67	0.00	-849.25	0.00	849.25	4,595.29	2,297.65	9,142.89	4,515.33	0.03	-0.06	0.197
10.00	-38.81	-8.54	0.00	-805.88	0.00	805.88	4,545.11	2,272.56	8,870.98	4,381.04	0.12	-0.12	0.192
15.00	-37.39	-8.41	0.00	-763.16	0.00	763.16	4,493.53	2,246.77	8,600.18	4,247.31	0.28	-0.17	0.188
20.00	-36.00	-8.27	0.00	-721.11	0.00	721.11	4,440.55	2,220.28	8,330.66	4,114.20	0.49	-0.23	0.183
25.00	-34.63	-8.12	0.00	-679.76	0.00	679.76	4,386.17	2,193.08	8,062.58	3,981.80	0.77	-0.29	0.179
30.00	-33.29	-7.97	0.00	-639.15	0.00	639.15	4,330.38	2,165.19	7,796.08	3,850.19	1.10	-0.35	0.174
35.00	-31.96	-7.81	0.00	-599.30	0.00	599.30	4,273.19	2,136.59	7,531.34	3,719.45	1.50	-0.41	0.169
40.00	-30.66	-7.65	0.00	-560.25	0.00	560.25	4,214.59	2,107.30	7,268.52	3,589.65	1.96	-0.47	0.163
45.00	-29.38	-7.52	0.00	-522.01	0.00	522.01	4,154.60	2,077.30	7,007.76	3,460.87	2.49	-0.53	0.158
47.83	-28.66	-7.43	0.00	-500.71	0.00	500.71	4,119.98	2,059.99	6,860.98	3,388.38	2.81	-0.56	0.155
50.00	-27.75	-7.33	0.00	-484.60	0.00	484.60	4,093.20	2,046.60	6,749.23	3,333.19	3.07	-0.59	0.152
54.00	-26.10	-7.23	0.00	-455.30	0.00	455.30	3,318.39	1,659.20	5,491.78	2,712.18	3.58	-0.63	0.176
55.00	-25.87	-7.13	0.00	-448.08	0.00	448.08	3,309.51	1,654.75	5,452.02	2,692.55	3.71	-0.64	0.174
60.00	-24.78	-6.96	0.00	-412.43	0.00	412.43	3,264.25	1,632.12	5,253.88	2,594.69	4.42	-0.71	0.167
65.00	-23.70	-6.78	0.00	-377.64	0.00	377.64	3,217.59	1,608.79	5,056.96	2,497.44	5.19	-0.77	0.159
70.00	-22.64	-6.61	0.00	-343.72	0.00	343.72	3,169.52	1,584.76	4,861.43	2,400.88	6.03	-0.83	0.150
75.00	-21.59	-6.43	0.00	-310.68	0.00	310.68	3,120.06	1,560.03	4,667.43	2,305.07	6.92	-0.89	0.142
80.00	-20.57	-6.26	0.00	-278.51	0.00	278.51	3,069.19	1,534.59	4,475.14	2,210.10	7.88	-0.94	0.133
85.00	-19.57	-6.08	0.00	-247.22	0.00	247.22	3,016.92	1,508.46	4,284.71	2,116.06	8.90	-1.00	0.123
90.00	-18.59	-5.91	0.00	-216.81	0.00	216.81	2,963.24	1,481.62	4,096.29	2,023.00	9.97	-1.05	0.113
95.00	-17.62	-5.80	0.00	-187.28	0.00	187.28	2,909.11	1,454.55	3,911.32	1,931.65	11.09	-1.10	0.103
95.83	-17.46	-5.71	0.00	-182.45	0.00	182.45	2,895.61	1,447.80	3,874.90	1,913.67	11.29	-1.11	0.101
100.00	-16.26	-5.61	0.00	-158.64	0.00	158.64	2,828.11	1,414.06	3,695.36	1,825.00	12.27	-1.14	0.093
101.00	-15.97	-5.52	0.00	-153.03	0.00	153.03	1,940.77	970.39	2,581.63	1,274.97	12.51	-1.15	0.128
105.00	-15.28	-5.24	0.00	-130.94	0.00	130.94	1,916.40	958.20	2,491.16	1,230.29	13.49	-1.19	0.114
110.00	-14.54	-5.13	0.00	-104.76	0.00	104.76	1,884.66	942.33	2,378.55	1,174.68	14.76	-1.23	0.097
111.00	-12.41	-4.48	0.00	-99.63	0.00	99.63	1,878.15	939.07	2,356.11	1,163.59	15.02	-1.24	0.092
115.00	-11.83	-4.33	0.00	-81.72	0.00	81.72	1,851.53	925.76	2,266.63	1,119.40	16.07	-1.27	0.079
120.00	-11.12	-4.17	0.00	-60.10	0.00	60.10	1,816.99	908.49	2,155.56	1,064.55	17.42	-1.31	0.063
124.00	-5.79	-2.32	0.00	-43.41	0.00	43.41	1,788.35	894.17	2,067.42	1,021.02	18.53	-1.33	0.046
125.00	-5.68	-2.22	0.00	-41.09	0.00	41.09	1,781.05	890.52	2,045.49	1,010.19	18.81	-1.33	0.044
130.00	-5.15	-2.06	0.00	-29.98	0.00	29.98	1,743.70	871.85	1,936.59	956.41	20.21	-1.35	0.034
135.00	-4.63	-1.90	0.00	-19.67	0.00	19.67	1,704.95	852.48	1,829.01	903.28	21.64	-1.37	0.024
140.00	-2.63	-1.09	0.00	-10.15	0.00	10.15	1,664.80	832.40	1,722.91	850.88	23.08	-1.38	0.014
145.00	-2.19	-0.94	0.00	-4.70	0.00	4.70	1,618.18	809.09	1,613.39	796.79	24.52	-1.38	0.007
150.00	0.00	-0.89	0.00	0.00	0.00	0.00	1,557.43	778.72	1,493.87	737.76	25.98	-1.39	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 Coefficient 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):	0.03
Upper Limit C_s	0.03
Lower Limit C_s	0.03
Period based on Rayleigh Method (sec):	2.39
Redundancy Factor (ρ):	1.00
Seismic Force Distribution Exponent (k):	1.94
Total Unfactored Dead Load:	41.42 k
Seismic Base Shear (E):	1.24 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)
36	147.50	426	7,007	0.027	33	528
35	142.50	440	6,769	0.026	32	545
34	137.50	508	7,294	0.028	35	629
33	132.50	522	6,974	0.027	33	647
32	127.50	536	6,646	0.026	32	664
31	124.50	109	1,289	0.005	6	135
30	122.00	556	6,327	0.024	30	689
29	117.50	708	7,485	0.029	36	877
28	113.00	576	5,649	0.022	27	714
27	110.50	145	1,365	0.005	7	180
26	107.50	736	6,546	0.025	31	912
25	103.00	618	5,063	0.019	24	766
24	100.50	286	2,234	0.009	11	355
23	97.92	1,207	8,952	0.034	43	1,495
22	95.42	159	1,119	0.004	5	196
21	92.50	963	6,394	0.025	31	1,192
20	87.50	981	5,851	0.022	28	1,216
19	82.50	1,000	5,318	0.020	25	1,239
18	77.50	1,019	4,797	0.018	23	1,262
17	72.50	1,037	4,291	0.016	20	1,285
16	67.50	1,056	3,802	0.015	18	1,308
15	62.50	1,075	3,331	0.013	16	1,331
14	57.50	1,093	2,882	0.011	14	1,355

13	54.50	221	525	0.002	3	274
12	52.00	1,652	3,582	0.014	17	2,047
11	48.92	906	1,744	0.007	8	1,122
10	46.42	713	1,239	0.005	6	883
9	42.50	1,275	1,867	0.007	9	1,579
8	37.50	1,297	1,489	0.006	7	1,606
7	32.50	1,318	1,146	0.004	5	1,633
6	27.50	1,340	842	0.003	4	1,660
5	22.50	1,362	579	0.002	3	1,687
4	17.50	1,384	361	0.001	2	1,714
3	12.50	1,406	191	0.001	1	1,741
2	7.50	1,427	72	0.000	0	1,768
1	2.50	1,167	7	0.000	0	1,446
DragonWave Horizon C	150.00	21	360	0.001	2	26
Alcatel-Lucent RRH2x	150.00	317	5,396	0.021	26	393
Alcatel-Lucent 1900	150.00	180	3,060	0.012	15	223
Alcatel-Lucent TD-RR	150.00	210	3,570	0.014	17	260
DragonWave A-ANT-11G	150.00	27	459	0.002	2	33
DragonWave A-ANT-18G	150.00	27	461	0.002	2	34
Round T-Arm	150.00	750	12,751	0.049	61	929
KMW ETCR-654L12H6	150.00	255	4,330	0.017	21	316
Ericsson KRY 112 144	140.00	33	491	0.002	2	41
Ericsson RRUS 11 B12	140.00	152	2,261	0.009	11	188
Ericsson AIR 21, 1.3	140.00	249	3,702	0.014	18	308
Round T-Arm	140.00	750	11,151	0.043	53	929
Ericsson AIR 21 B4A/	140.00	330	4,906	0.019	23	409
Powerwave Allgon LGP	124.00	85	993	0.004	5	105
Raycap DC6-48-60-18-	124.00	32	373	0.001	2	39
Raycap DC6-48-60-18-	124.00	32	373	0.001	2	39
Ericsson RRUS 4478 B	124.00	178	2,093	0.008	10	221
Ericsson RRUS-11 (50	124.00	150	1,761	0.007	8	186
Ericsson RRUS 32 B66	124.00	152	1,786	0.007	9	188
Ericsson RRUS 32 B30	124.00	180	2,114	0.008	10	223
Ericsson RRUS 32 B2	124.00	159	1,867	0.007	9	197
Raycap DC6-48-60-18-	124.00	16	188	0.001	1	20
Powerwave 7770.00	124.00	105	1,233	0.005	6	130
CCI OPA-65R-LCUU-H6	124.00	438	5,143	0.020	25	543
Kathrein Scala 80010	124.00	293	3,438	0.013	16	363
SitePro PRK-SFS and	124.00	3,000	35,228	0.135	168	3,716
Empty Flat Platform	111.00	2,000	18,936	0.073	90	2,478
RFS APXV18-206517S-C	105.00	79	673	0.003	3	98
		41,424	260,129	1.000	1,243	51,317

Load Case (0.9 - 0.2Sds) * DL + E ELMF

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)
36	147.50	426	7,007	0.027	33	367
35	142.50	440	6,769	0.026	32	379
34	137.50	508	7,294	0.028	35	438
33	132.50	522	6,974	0.027	33	450
32	127.50	536	6,646	0.026	32	462
31	124.50	109	1,289	0.005	6	94
30	122.00	556	6,327	0.024	30	479
29	117.50	708	7,485	0.029	36	610
28	113.00	576	5,649	0.022	27	496
27	110.50	145	1,365	0.005	7	125
26	107.50	736	6,546	0.025	31	634
25	103.00	618	5,063	0.019	24	533
24	100.50	286	2,234	0.009	11	246

Site Number: 302538

Code: ANSI/TIA-222-G

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Site Name: Parsonage Hill Aka Wallin, CT

Engineering Number: OAA722111_C3_03

5/24/2018 10:56:46 AM

Customer: AT&T MOBILITY

23	97.92	1,207	8,952	0.034	43	1,039
22	95.42	159	1,119	0.004	5	137
21	92.50	963	6,394	0.025	31	829
20	87.50	981	5,851	0.022	28	845
19	82.50	1,000	5,318	0.020	25	861
18	77.50	1,019	4,797	0.018	23	877
17	72.50	1,037	4,291	0.016	20	893
16	67.50	1,056	3,802	0.015	18	909
15	62.50	1,075	3,331	0.013	16	926
14	57.50	1,093	2,882	0.011	14	942
13	54.50	221	525	0.002	3	190
12	52.00	1,652	3,582	0.014	17	1,423
11	48.92	906	1,744	0.007	8	780
10	46.42	713	1,239	0.005	6	614
9	42.50	1,275	1,867	0.007	9	1,098
8	37.50	1,297	1,489	0.006	7	1,117
7	32.50	1,318	1,146	0.004	5	1,135
6	27.50	1,340	842	0.003	4	1,154
5	22.50	1,362	579	0.002	3	1,173
4	17.50	1,384	361	0.001	2	1,192
3	12.50	1,406	191	0.001	1	1,210
2	7.50	1,427	72	0.000	0	1,229
1	2.50	1,167	7	0.000	0	1,005
DragonWave Horizon C	150.00	21	360	0.001	2	18
Alcatel-Lucent RRH2x	150.00	317	5,396	0.021	26	273
Alcatel-Lucent 1900	150.00	180	3,060	0.012	15	155
Alcatel-Lucent TD-RR	150.00	210	3,570	0.014	17	181
DragonWave A-ANT-11G	150.00	27	459	0.002	2	23
DragonWave A-ANT-18G	150.00	27	461	0.002	2	23
Round T-Arm	150.00	750	12,751	0.049	61	646
KMW ETCR-654L12H6	150.00	255	4,330	0.017	21	219
Ericsson KRY 112 144	140.00	33	491	0.002	2	28
Ericsson RRUS 11 B12	140.00	152	2,261	0.009	11	131
Ericsson AIR 21, 1.3	140.00	249	3,702	0.014	18	214
Round T-Arm	140.00	750	11,151	0.043	53	646
Ericsson AIR 21 B4A/	140.00	330	4,906	0.019	23	284
Powerwave Allgon LGP	124.00	85	993	0.004	5	73
Raycap DC6-48-60-18-	124.00	32	373	0.001	2	27
Raycap DC6-48-60-18-	124.00	32	373	0.001	2	27
Ericsson RRUS 4478 B	124.00	178	2,093	0.008	10	153
Ericsson RRUS-11 (50	124.00	150	1,761	0.007	8	129
Ericsson RRUS 32 B66	124.00	152	1,786	0.007	9	131
Ericsson RRUS 32 B30	124.00	180	2,114	0.008	10	155
Ericsson RRUS 32 B2	124.00	159	1,867	0.007	9	137
Raycap DC6-48-60-18-	124.00	16	188	0.001	1	14
Powerwave 7770.00	124.00	105	1,233	0.005	6	90
CCI OPA-65R-LCUU-H6	124.00	438	5,143	0.020	25	377
Kathrein Scala 80010	124.00	293	3,438	0.013	16	252
SitePro PRK-SFS and	124.00	3,000	35,228	0.135	168	2,584
Empty Flat Platform	111.00	2,000	18,936	0.073	90	1,722
RFS APXV18-206517S-C	105.00	79	673	0.003	3	68
		41,424	260,129	1.000	1,243	35,673

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	-49.87	-1.25	0.00	-149.64	0.00	149.64	4,644.06	2,322.03	9,415.76	4,650.09	0.00	0.00	0.043
5.00	-48.10	-1.25	0.00	-143.41	0.00	143.41	4,595.29	2,297.65	9,142.89	4,515.33	0.01	-0.01	0.042
10.00	-46.36	-1.26	0.00	-137.14	0.00	137.14	4,545.11	2,272.56	8,870.98	4,381.04	0.02	-0.02	0.042
15.00	-44.65	-1.27	0.00	-130.84	0.00	130.84	4,493.53	2,246.77	8,600.18	4,247.31	0.05	-0.03	0.041
20.00	-42.96	-1.27	0.00	-124.51	0.00	124.51	4,440.55	2,220.28	8,330.66	4,114.20	0.08	-0.04	0.040
25.00	-41.30	-1.27	0.00	-118.16	0.00	118.16	4,386.17	2,193.08	8,062.58	3,981.80	0.13	-0.05	0.039
30.00	-39.67	-1.27	0.00	-111.80	0.00	111.80	4,330.38	2,165.19	7,796.08	3,850.19	0.19	-0.06	0.038
35.00	-38.06	-1.27	0.00	-105.44	0.00	105.44	4,273.19	2,136.59	7,531.34	3,719.45	0.26	-0.07	0.037
40.00	-36.48	-1.27	0.00	-99.09	0.00	99.09	4,214.59	2,107.30	7,268.52	3,589.65	0.34	-0.08	0.036
45.00	-35.60	-1.26	0.00	-92.76	0.00	92.76	4,154.60	2,077.30	7,007.76	3,460.87	0.43	-0.09	0.035
47.83	-34.47	-1.26	0.00	-89.18	0.00	89.18	4,119.98	2,059.99	6,860.98	3,388.38	0.48	-0.10	0.035
50.00	-32.43	-1.24	0.00	-86.46	0.00	86.46	4,093.20	2,046.60	6,749.23	3,333.19	0.53	-0.10	0.034
54.00	-32.15	-1.24	0.00	-81.50	0.00	81.50	3,318.39	1,659.20	5,491.78	2,712.18	0.62	-0.11	0.040
55.00	-30.80	-1.23	0.00	-80.26	0.00	80.26	3,309.51	1,654.75	5,452.02	2,692.55	0.64	-0.11	0.039
60.00	-29.47	-1.21	0.00	-74.13	0.00	74.13	3,264.25	1,632.12	5,253.88	2,594.69	0.76	-0.12	0.038
65.00	-28.16	-1.20	0.00	-68.07	0.00	68.07	3,217.59	1,608.79	5,056.96	2,497.44	0.90	-0.13	0.036
70.00	-26.87	-1.18	0.00	-62.08	0.00	62.08	3,169.52	1,584.76	4,861.43	2,400.88	1.04	-0.14	0.034
75.00	-25.61	-1.16	0.00	-56.18	0.00	56.18	3,120.06	1,560.03	4,667.43	2,305.07	1.20	-0.16	0.033
80.00	-24.37	-1.13	0.00	-50.39	0.00	50.39	3,069.19	1,534.59	4,475.14	2,210.10	1.37	-0.17	0.031
85.00	-23.16	-1.11	0.00	-44.73	0.00	44.73	3,016.92	1,508.46	4,284.71	2,116.06	1.55	-0.18	0.029
90.00	-21.96	-1.07	0.00	-39.20	0.00	39.20	2,963.24	1,481.62	4,096.29	2,023.00	1.74	-0.19	0.027
95.00	-21.77	-1.07	0.00	-33.83	0.00	33.83	2,909.11	1,454.55	3,911.32	1,931.65	1.94	-0.19	0.025
95.83	-20.27	-1.02	0.00	-32.94	0.00	32.94	2,895.61	1,447.80	3,874.90	1,913.67	1.97	-0.20	0.024
100.00	-19.92	-1.01	0.00	-28.67	0.00	28.67	2,828.11	1,414.06	3,695.36	1,825.00	2.14	-0.20	0.023
101.00	-19.15	-0.99	0.00	-27.66	0.00	27.66	1,940.77	970.39	2,581.63	1,274.97	2.19	-0.20	0.032
105.00	-18.14	-0.95	0.00	-23.70	0.00	23.70	1,916.40	958.20	2,491.16	1,230.29	2.36	-0.21	0.029
110.00	-17.96	-0.95	0.00	-18.94	0.00	18.94	1,884.66	942.33	2,378.55	1,174.68	2.58	-0.22	0.026
111.00	-14.77	-0.82	0.00	-18.00	0.00	18.00	1,878.15	939.07	2,356.11	1,163.59	2.63	-0.22	0.023
115.00	-13.89	-0.78	0.00	-14.72	0.00	14.72	1,851.53	925.76	2,266.63	1,119.40	2.82	-0.23	0.021
120.00	-13.21	-0.75	0.00	-10.82	0.00	10.82	1,816.99	908.49	2,155.56	1,064.55	3.06	-0.23	0.017
124.00	-7.10	-0.45	0.00	-7.83	0.00	7.83	1,788.35	894.17	2,067.42	1,021.02	3.25	-0.24	0.012
125.00	-6.44	-0.41	0.00	-7.38	0.00	7.38	1,781.05	890.52	2,045.49	1,010.19	3.30	-0.24	0.011
130.00	-5.79	-0.38	0.00	-5.31	0.00	5.31	1,743.70	871.85	1,936.59	956.41	3.55	-0.24	0.009
135.00	-5.16	-0.34	0.00	-3.43	0.00	3.43	1,704.95	852.48	1,829.01	903.28	3.80	-0.24	0.007
140.00	-2.74	-0.19	0.00	-1.72	0.00	1.72	1,664.80	832.40	1,722.91	850.88	4.06	-0.24	0.004
145.00	-2.21	-0.15	0.00	-0.77	0.00	0.77	1,618.18	809.09	1,613.39	796.79	4.32	-0.25	0.002
150.00	0.00	-0.15	0.00	0.00	0.00	0.00	1,557.43	778.72	1,493.87	737.76	4.57	-0.25	0.000

Load Case (0.9 - 0.2Sds) * DL + E ELMF

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	-34.67	-1.25	0.00	-147.38	0.00	147.38	4,644.06	2,322.03	9,415.76	4,650.09	0.00	0.00	0.039
5.00	-33.44	-1.25	0.00	-141.15	0.00	141.15	4,595.29	2,297.65	9,142.89	4,515.33	0.01	-0.01	0.039
10.00	-32.23	-1.25	0.00	-134.90	0.00	134.90	4,545.11	2,272.56	8,870.98	4,381.04	0.02	-0.02	0.038
15.00	-31.04	-1.26	0.00	-128.63	0.00	128.63	4,493.53	2,246.77	8,600.18	4,247.31	0.05	-0.03	0.037
20.00	-29.86	-1.26	0.00	-122.34	0.00	122.34	4,440.55	2,220.28	8,330.66	4,114.20	0.08	-0.04	0.036
25.00	-28.71	-1.26	0.00	-116.04	0.00	116.04	4,386.17	2,193.08	8,062.58	3,981.80	0.13	-0.05	0.036
30.00	-27.57	-1.26	0.00	-109.74	0.00	109.74	4,330.38	2,165.19	7,796.08	3,850.19	0.18	-0.06	0.035
35.00	-26.46	-1.25	0.00	-103.46	0.00	103.46	4,273.19	2,136.59	7,531.34	3,719.45	0.25	-0.07	0.034
40.00	-25.36	-1.25	0.00	-97.19	0.00	97.19	4,214.59	2,107.30	7,268.52	3,589.65	0.33	-0.08	0.033
45.00	-24.74	-1.24	0.00	-90.94	0.00	90.94	4,154.60	2,077.30	7,007.76	3,460.87	0.42	-0.09	0.032
47.83	-23.96	-1.24	0.00	-87.42	0.00	87.42	4,119.98	2,059.99	6,860.98	3,388.38	0.47	-0.10	0.032
50.00	-22.54	-1.22	0.00	-84.74	0.00	84.74	4,093.20	2,046.60	6,749.23	3,333.19	0.52	-0.10	0.031
54.00	-22.35	-1.22	0.00	-79.86	0.00	79.86	3,318.39	1,659.20	5,491.78	2,712.18	0.60	-0.11	0.036
55.00	-21.41	-1.21	0.00	-78.64	0.00	78.64	3,309.51	1,654.75	5,452.02	2,692.55	0.63	-0.11	0.036
60.00	-20.48	-1.19	0.00	-72.60	0.00	72.60	3,264.25	1,632.12	5,253.88	2,594.69	0.75	-0.12	0.034
65.00	-19.57	-1.18	0.00	-66.64	0.00	66.64	3,217.59	1,608.79	5,056.96	2,497.44	0.88	-0.13	0.033
70.00	-18.68	-1.16	0.00	-60.76	0.00	60.76	3,169.52	1,584.76	4,861.43	2,400.88	1.02	-0.14	0.031
75.00	-17.80	-1.13	0.00	-54.98	0.00	54.98	3,120.06	1,560.03	4,667.43	2,305.07	1.18	-0.15	0.030
80.00	-16.94	-1.11	0.00	-49.31	0.00	49.31	3,069.19	1,534.59	4,475.14	2,210.10	1.34	-0.16	0.028
85.00	-16.10	-1.08	0.00	-43.76	0.00	43.76	3,016.92	1,508.46	4,284.71	2,116.06	1.52	-0.17	0.026
90.00	-15.27	-1.05	0.00	-38.34	0.00	38.34	2,963.24	1,481.62	4,096.29	2,023.00	1.71	-0.18	0.024
95.00	-15.13	-1.05	0.00	-33.09	0.00	33.09	2,909.11	1,454.55	3,911.32	1,931.65	1.90	-0.19	0.022
95.83	-14.09	-1.00	0.00	-32.22	0.00	32.22	2,895.61	1,447.80	3,874.90	1,913.67	1.93	-0.19	0.022
100.00	-13.85	-0.99	0.00	-28.04	0.00	28.04	2,828.11	1,414.06	3,695.36	1,825.00	2.10	-0.20	0.020
101.00	-13.31	-0.97	0.00	-27.05	0.00	27.05	1,940.77	970.39	2,581.63	1,274.97	2.15	-0.20	0.028
105.00	-12.61	-0.93	0.00	-23.19	0.00	23.19	1,916.40	958.20	2,491.16	1,230.29	2.32	-0.21	0.025
110.00	-12.49	-0.92	0.00	-18.53	0.00	18.53	1,884.66	942.33	2,378.55	1,174.68	2.54	-0.21	0.022
111.00	-10.27	-0.80	0.00	-17.61	0.00	17.61	1,878.15	939.07	2,356.11	1,163.59	2.58	-0.22	0.021
115.00	-9.66	-0.76	0.00	-14.41	0.00	14.41	1,851.53	925.76	2,266.63	1,119.40	2.76	-0.22	0.018
120.00	-9.18	-0.73	0.00	-10.59	0.00	10.59	1,816.99	908.49	2,155.56	1,064.55	3.00	-0.23	0.015
124.00	-4.94	-0.44	0.00	-7.67	0.00	7.67	1,788.35	894.17	2,067.42	1,021.02	3.19	-0.23	0.010
125.00	-4.47	-0.40	0.00	-7.23	0.00	7.23	1,781.05	890.52	2,045.49	1,010.19	3.24	-0.23	0.010
130.00	-4.02	-0.37	0.00	-5.21	0.00	5.21	1,743.70	871.85	1,936.59	956.41	3.48	-0.24	0.008
135.00	-3.59	-0.33	0.00	-3.36	0.00	3.36	1,704.95	852.48	1,829.01	903.28	3.73	-0.24	0.006
140.00	-1.91	-0.19	0.00	-1.69	0.00	1.69	1,664.80	832.40	1,722.91	850.88	3.98	-0.24	0.003
145.00	-1.54	-0.15	0.00	-0.76	0.00	0.76	1,618.18	809.09	1,613.39	796.79	4.23	-0.24	0.002
150.00	0.00	-0.15	0.00	0.00	0.00	0.00	1,557.43	778.72	1,493.87	737.76	4.49	-0.24	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
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Period Based on Rayleigh Method (sec):	2.39
Redundancy Factor (p):	1.00

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)
36	147.50	426	1.828	1.667	1.025	0.329	93	528
35	142.50	440	1.706	1.144	0.823	0.255	75	545
34	137.50	508	1.588	0.742	0.654	0.189	64	629
33	132.50	522	1.475	0.441	0.513	0.132	46	647
32	127.50	536	1.366	0.222	0.397	0.083	30	664
31	124.50	109	1.302	0.123	0.338	0.058	4	135
30	122.00	556	1.250	0.057	0.294	0.039	14	689
29	117.50	708	1.160	-0.030	0.226	0.009	4	877
28	113.00	576	1.073	-0.084	0.170	-0.014	-5	714
27	110.50	145	1.026	-0.103	0.144	-0.024	-2	180
26	107.50	736	0.971	-0.116	0.117	-0.034	-16	912
25	103.00	618	0.891	-0.122	0.084	-0.043	-18	766
24	100.50	286	0.848	-0.119	0.069	-0.045	-9	355
23	97.92	1,207	0.805	-0.113	0.055	-0.045	-36	1,495
22	95.42	159	0.765	-0.104	0.044	-0.044	-5	196
21	92.50	963	0.719	-0.092	0.034	-0.040	-26	1,192
20	87.50	981	0.643	-0.068	0.020	-0.028	-19	1,216
19	82.50	1,000	0.572	-0.043	0.012	-0.012	-8	1,239
18	77.50	1,019	0.505	-0.018	0.007	0.005	3	1,262
17	72.50	1,037	0.442	0.005	0.006	0.021	15	1,285
16	67.50	1,056	0.383	0.023	0.007	0.035	24	1,308
15	62.50	1,075	0.328	0.039	0.010	0.044	31	1,331
14	57.50	1,093	0.278	0.050	0.014	0.049	36	1,355
13	54.50	221	0.250	0.055	0.017	0.051	8	274
12	52.00	1,652	0.227	0.059	0.020	0.052	58	2,047
11	48.92	906	0.201	0.063	0.023	0.053	32	1,122
10	46.42	713	0.181	0.065	0.026	0.053	25	883
9	42.50	1,275	0.152	0.068	0.030	0.052	45	1,579
8	37.50	1,297	0.118	0.070	0.035	0.051	44	1,606
7	32.50	1,318	0.089	0.071	0.039	0.050	44	1,633
6	27.50	1,340	0.064	0.072	0.041	0.049	44	1,660
5	22.50	1,362	0.043	0.070	0.042	0.047	43	1,687
4	17.50	1,384	0.026	0.067	0.040	0.045	41	1,714
3	12.50	1,406	0.013	0.059	0.034	0.040	38	1,741

2	7.50	1,427	0.005	0.044	0.025	0.032	30	1,768
1	2.50	1,167	0.001	0.018	0.010	0.015	12	1,446
DragonWave Horizon C	150.00	21	1.890	1.980	1.140	0.369	5	26
Alcatel-Lucent RRH2x	150.00	317	1.890	1.980	1.140	0.369	78	393
Alcatel-Lucent 1900	150.00	180	1.890	1.980	1.140	0.369	44	223
Alcatel-Lucent TD-RR	150.00	210	1.890	1.980	1.140	0.369	52	260
DragonWave A-ANT-11G	150.00	27	1.890	1.980	1.140	0.369	7	33
DragonWave A-ANT-18G	150.00	27	1.890	1.980	1.140	0.369	7	34
Round T-Arm	150.00	750	1.890	1.980	1.140	0.369	184	929
KMW ETCR-654L12H6	150.00	255	1.890	1.980	1.140	0.369	63	316
Ericsson KRY 112 144	140.00	33	1.646	0.929	0.735	0.221	5	41
Ericsson RRUS 11 B12	140.00	152	1.646	0.929	0.735	0.221	22	188
Ericsson AIR 21, 1.3	140.00	249	1.646	0.929	0.735	0.221	37	308
Round T-Arm	140.00	750	1.646	0.929	0.735	0.221	111	929
Ericsson AIR 21 B4A/	140.00	330	1.646	0.929	0.735	0.221	49	409
Powerwave Allgon LGP	124.00	85	1.292	0.109	0.329	0.054	3	105
Raycap DC6-48-60-18-	124.00	32	1.292	0.109	0.329	0.054	1	39
Raycap DC6-48-60-18-	124.00	32	1.292	0.109	0.329	0.054	1	39
Ericsson RRUS 4478 B	124.00	178	1.292	0.109	0.329	0.054	6	221
Ericsson RRUS-11 (50	124.00	150	1.292	0.109	0.329	0.054	5	186
Ericsson RRUS 32 B66	124.00	152	1.292	0.109	0.329	0.054	5	188
Ericsson RRUS 32 B30	124.00	180	1.292	0.109	0.329	0.054	6	223
Ericsson RRUS 32 B2	124.00	159	1.292	0.109	0.329	0.054	6	197
Raycap DC6-48-60-18-	124.00	16	1.292	0.109	0.329	0.054	1	20
Powerwave 7770.00	124.00	105	1.292	0.109	0.329	0.054	4	130
CCI OPA-65R-LCUU-H6	124.00	438	1.292	0.109	0.329	0.054	16	543
Kathrein Scala 80010	124.00	293	1.292	0.109	0.329	0.054	11	363
SitePro PRK-SFS and	124.00	3,000	1.292	0.109	0.329	0.054	108	3,716
Empty Flat Platform	111.00	2,000	1.035	-0.099	0.149	-0.022	-29	2,478
RFS APXV18-206517S-C	105.00	79	0.926	-0.121	0.098	-0.039	-2	98
		41,424	65.392	25.965	22.760	6.204	1,563	51,317

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)
36	147.50	426	1.828	1.667	1.025	0.329	93	367
35	142.50	440	1.706	1.144	0.823	0.255	75	379
34	137.50	508	1.588	0.742	0.654	0.189	64	438
33	132.50	522	1.475	0.441	0.513	0.132	46	450
32	127.50	536	1.366	0.222	0.397	0.083	30	462
31	124.50	109	1.302	0.123	0.338	0.058	4	94
30	122.00	556	1.250	0.057	0.294	0.039	14	479
29	117.50	708	1.160	-0.030	0.226	0.009	4	610
28	113.00	576	1.073	-0.084	0.170	-0.014	-5	496
27	110.50	145	1.026	-0.103	0.144	-0.024	-2	125
26	107.50	736	0.971	-0.116	0.117	-0.034	-16	634
25	103.00	618	0.891	-0.122	0.084	-0.043	-18	533
24	100.50	286	0.848	-0.119	0.069	-0.045	-9	246
23	97.92	1,207	0.805	-0.113	0.055	-0.045	-36	1,039
22	95.42	159	0.765	-0.104	0.044	-0.044	-5	137
21	92.50	963	0.719	-0.092	0.034	-0.040	-26	829
20	87.50	981	0.643	-0.068	0.020	-0.028	-19	845
19	82.50	1,000	0.572	-0.043	0.012	-0.012	-8	861
18	77.50	1,019	0.505	-0.018	0.007	0.005	3	877
17	72.50	1,037	0.442	0.005	0.006	0.021	15	893
16	67.50	1,056	0.383	0.023	0.007	0.035	24	909
15	62.50	1,075	0.328	0.039	0.010	0.044	31	926
14	57.50	1,093	0.278	0.050	0.014	0.049	36	942

13	54.50	221	0.250	0.055	0.017	0.051	8	190
12	52.00	1,652	0.227	0.059	0.020	0.052	58	1,423
11	48.92	906	0.201	0.063	0.023	0.053	32	780
10	46.42	713	0.181	0.065	0.026	0.053	25	614
9	42.50	1,275	0.152	0.068	0.030	0.052	45	1,098
8	37.50	1,297	0.118	0.070	0.035	0.051	44	1,117
7	32.50	1,318	0.089	0.071	0.039	0.050	44	1,135
6	27.50	1,340	0.064	0.072	0.041	0.049	44	1,154
5	22.50	1,362	0.043	0.070	0.042	0.047	43	1,173
4	17.50	1,384	0.026	0.067	0.040	0.045	41	1,192
3	12.50	1,406	0.013	0.059	0.034	0.040	38	1,210
2	7.50	1,427	0.005	0.044	0.025	0.032	30	1,229
1	2.50	1,167	0.001	0.018	0.010	0.015	12	1,005
DragonWave Horizon C	150.00	21	1.890	1.980	1.140	0.369	5	18
Alcatel-Lucent RRH2x	150.00	317	1.890	1.980	1.140	0.369	78	273
Alcatel-Lucent 1900	150.00	180	1.890	1.980	1.140	0.369	44	155
Alcatel-Lucent TD-RR	150.00	210	1.890	1.980	1.140	0.369	52	181
DragonWave A-ANT-11G	150.00	27	1.890	1.980	1.140	0.369	7	23
DragonWave A-ANT-18G	150.00	27	1.890	1.980	1.140	0.369	7	23
Round T-Arm	150.00	750	1.890	1.980	1.140	0.369	184	646
KMW ETCR-654L12H6	150.00	255	1.890	1.980	1.140	0.369	63	219
Ericsson KRY 112 144	140.00	33	1.646	0.929	0.735	0.221	5	28
Ericsson RRUS 11 B12	140.00	152	1.646	0.929	0.735	0.221	22	131
Ericsson AIR 21, 1.3	140.00	249	1.646	0.929	0.735	0.221	37	214
Round T-Arm	140.00	750	1.646	0.929	0.735	0.221	111	646
Ericsson AIR 21 B4A/	140.00	330	1.646	0.929	0.735	0.221	49	284
Powerwave Allgon LGP	124.00	85	1.292	0.109	0.329	0.054	3	73
Raycap DC6-48-60-18-	124.00	32	1.292	0.109	0.329	0.054	1	27
Raycap DC6-48-60-18-	124.00	32	1.292	0.109	0.329	0.054	1	27
Ericsson RRUS 4478 B	124.00	178	1.292	0.109	0.329	0.054	6	153
Ericsson RRUS-11 (50	124.00	150	1.292	0.109	0.329	0.054	5	129
Ericsson RRUS 32 B66	124.00	152	1.292	0.109	0.329	0.054	5	131
Ericsson RRUS 32 B30	124.00	180	1.292	0.109	0.329	0.054	6	155
Ericsson RRUS 32 B2	124.00	159	1.292	0.109	0.329	0.054	6	137
Raycap DC6-48-60-18-	124.00	16	1.292	0.109	0.329	0.054	1	14
Powerwave 7770.00	124.00	105	1.292	0.109	0.329	0.054	4	90
CCI OPA-65R-LCUU-H6	124.00	438	1.292	0.109	0.329	0.054	16	377
Kathrein Scala 80010	124.00	293	1.292	0.109	0.329	0.054	11	252
SitePro PRK-SFS and	124.00	3,000	1.292	0.109	0.329	0.054	108	2,584
Empty Flat Platform	111.00	2,000	1.035	-0.099	0.149	-0.022	-29	1,722
RFS APXV18-206517S-C	105.00	79	0.926	-0.121	0.098	-0.039	-2	68
		41,424	65.392	25.965	22.760	6.204	1,563	35,673

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	-49.87	-1.56	0.00	-175.78	0.00	175.78	4,644.06	2,322.03	9,415.76	4,650.09	0.00	0.00	0.049
5.00	-48.10	-1.54	0.00	-168.00	0.00	168.00	4,595.29	2,297.65	9,142.89	4,515.33	0.01	-0.01	0.048
10.00	-46.36	-1.51	0.00	-160.32	0.00	160.32	4,545.11	2,272.56	8,870.98	4,381.04	0.02	-0.02	0.047
15.00	-44.65	-1.47	0.00	-152.79	0.00	152.79	4,493.53	2,246.77	8,600.18	4,247.31	0.05	-0.03	0.046
20.00	-42.96	-1.44	0.00	-145.42	0.00	145.42	4,440.55	2,220.28	8,330.66	4,114.20	0.10	-0.05	0.045
25.00	-41.30	-1.40	0.00	-138.23	0.00	138.23	4,386.17	2,193.08	8,062.58	3,981.80	0.15	-0.06	0.044
30.00	-39.66	-1.36	0.00	-131.22	0.00	131.22	4,330.38	2,165.19	7,796.08	3,850.19	0.22	-0.07	0.043
35.00	-38.06	-1.33	0.00	-124.40	0.00	124.40	4,273.19	2,136.59	7,531.34	3,719.45	0.30	-0.08	0.042
40.00	-36.48	-1.29	0.00	-117.77	0.00	117.77	4,214.59	2,107.30	7,268.52	3,589.65	0.39	-0.09	0.041
45.00	-35.60	-1.27	0.00	-111.34	0.00	111.34	4,154.60	2,077.30	7,007.76	3,460.87	0.50	-0.11	0.041
47.83	-34.47	-1.24	0.00	-107.75	0.00	107.75	4,119.98	2,059.99	6,860.98	3,388.38	0.56	-0.11	0.040
50.00	-32.43	-1.18	0.00	-105.08	0.00	105.08	4,093.20	2,046.60	6,749.23	3,333.19	0.62	-0.12	0.039
54.00	-32.15	-1.17	0.00	-100.36	0.00	100.36	3,318.39	1,659.20	5,491.78	2,712.18	0.72	-0.13	0.047
55.00	-30.80	-1.14	0.00	-99.19	0.00	99.19	3,309.51	1,654.75	5,452.02	2,692.55	0.75	-0.13	0.046
60.00	-29.47	-1.11	0.00	-93.49	0.00	93.49	3,264.25	1,632.12	5,253.88	2,594.69	0.90	-0.15	0.045
65.00	-28.16	-1.09	0.00	-87.93	0.00	87.93	3,217.59	1,608.79	5,056.96	2,497.44	1.06	-0.16	0.044
70.00	-26.87	-1.08	0.00	-82.48	0.00	82.48	3,169.52	1,584.76	4,861.43	2,400.88	1.23	-0.17	0.043
75.00	-25.61	-1.08	0.00	-77.08	0.00	77.08	3,120.06	1,560.03	4,667.43	2,305.07	1.42	-0.19	0.042
80.00	-24.37	-1.09	0.00	-71.69	0.00	71.69	3,069.19	1,534.59	4,475.14	2,210.10	1.63	-0.20	0.040
85.00	-23.16	-1.11	0.00	-66.25	0.00	66.25	3,016.92	1,508.46	4,284.71	2,116.06	1.85	-0.22	0.039
90.00	-21.96	-1.13	0.00	-60.71	0.00	60.71	2,963.24	1,481.62	4,096.29	2,023.00	2.08	-0.23	0.037
95.00	-21.77	-1.14	0.00	-55.04	0.00	55.04	2,909.11	1,454.55	3,911.32	1,931.65	2.33	-0.25	0.036
95.83	-20.27	-1.17	0.00	-54.09	0.00	54.09	2,895.61	1,447.80	3,874.90	1,913.67	2.38	-0.25	0.035
100.00	-19.92	-1.18	0.00	-49.20	0.00	49.20	2,828.11	1,414.06	3,695.36	1,825.00	2.60	-0.26	0.034
101.00	-19.15	-1.20	0.00	-48.02	0.00	48.02	1,940.77	970.39	2,581.63	1,274.97	2.65	-0.26	0.048
105.00	-18.14	-1.22	0.00	-43.22	0.00	43.22	1,916.40	958.20	2,491.16	1,230.29	2.88	-0.27	0.045
110.00	-17.96	-1.22	0.00	-37.13	0.00	37.13	1,884.66	942.33	2,378.55	1,174.68	3.17	-0.29	0.041
111.00	-14.77	-1.24	0.00	-35.91	0.00	35.91	1,878.15	939.07	2,356.11	1,163.59	3.23	-0.29	0.039
115.00	-13.89	-1.24	0.00	-30.93	0.00	30.93	1,851.53	925.76	2,266.63	1,119.40	3.48	-0.30	0.035
120.00	-13.20	-1.22	0.00	-24.75	0.00	24.75	1,816.99	908.49	2,155.56	1,064.55	3.81	-0.32	0.031
124.00	-7.10	-1.01	0.00	-19.86	0.00	19.86	1,788.35	894.17	2,067.42	1,021.02	4.08	-0.33	0.023
125.00	-6.43	-0.98	0.00	-18.85	0.00	18.85	1,781.05	890.52	2,045.49	1,010.19	4.15	-0.33	0.022
130.00	-5.79	-0.93	0.00	-13.96	0.00	13.96	1,743.70	871.85	1,936.59	956.41	4.50	-0.34	0.018
135.00	-5.16	-0.86	0.00	-9.32	0.00	9.32	1,704.95	852.48	1,829.01	903.28	4.85	-0.34	0.013
140.00	-2.74	-0.55	0.00	-5.01	0.00	5.01	1,664.80	832.40	1,722.91	850.88	5.22	-0.35	0.008
145.00	-2.21	-0.45	0.00	-2.26	0.00	2.26	1,618.18	809.09	1,613.39	796.79	5.59	-0.35	0.004
150.00	0.00	-0.44	0.00	0.00	0.00	0.00	1,557.43	778.72	1,493.87	737.76	5.96	-0.35	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	-34.67	-1.55	0.00	-172.95	0.00	172.95	4,644.06	2,322.03	9,415.76	4,650.09	0.00	0.00	0.045
5.00	-33.44	-1.53	0.00	-165.18	0.00	165.18	4,595.29	2,297.65	9,142.89	4,515.33	0.01	-0.01	0.044
10.00	-32.23	-1.50	0.00	-157.52	0.00	157.52	4,545.11	2,272.56	8,870.98	4,381.04	0.02	-0.02	0.043
15.00	-31.04	-1.46	0.00	-150.03	0.00	150.03	4,493.53	2,246.77	8,600.18	4,247.31	0.05	-0.03	0.042
20.00	-29.86	-1.43	0.00	-142.71	0.00	142.71	4,440.55	2,220.28	8,330.66	4,114.20	0.10	-0.05	0.041
25.00	-28.71	-1.39	0.00	-135.58	0.00	135.58	4,386.17	2,193.08	8,062.58	3,981.80	0.15	-0.06	0.041
30.00	-27.57	-1.35	0.00	-128.65	0.00	128.65	4,330.38	2,165.19	7,796.08	3,850.19	0.22	-0.07	0.040
35.00	-26.46	-1.31	0.00	-121.91	0.00	121.91	4,273.19	2,136.59	7,531.34	3,719.45	0.29	-0.08	0.039
40.00	-25.36	-1.27	0.00	-115.37	0.00	115.37	4,214.59	2,107.30	7,268.52	3,589.65	0.39	-0.09	0.038
45.00	-24.74	-1.24	0.00	-109.04	0.00	109.04	4,154.60	2,077.30	7,007.76	3,460.87	0.49	-0.11	0.037
47.83	-23.96	-1.21	0.00	-105.52	0.00	105.52	4,119.98	2,059.99	6,860.98	3,388.38	0.55	-0.11	0.037
50.00	-22.54	-1.16	0.00	-102.89	0.00	102.89	4,093.20	2,046.60	6,749.23	3,333.19	0.61	-0.12	0.036
54.00	-22.35	-1.15	0.00	-98.26	0.00	98.26	3,318.39	1,659.20	5,491.78	2,712.18	0.71	-0.13	0.043
55.00	-21.41	-1.12	0.00	-97.11	0.00	97.11	3,309.51	1,654.75	5,452.02	2,692.55	0.74	-0.13	0.043
60.00	-20.48	-1.09	0.00	-91.54	0.00	91.54	3,264.25	1,632.12	5,253.88	2,594.69	0.88	-0.14	0.042
65.00	-19.57	-1.06	0.00	-86.10	0.00	86.10	3,217.59	1,608.79	5,056.96	2,497.44	1.04	-0.16	0.041
70.00	-18.68	-1.05	0.00	-80.78	0.00	80.78	3,169.52	1,584.76	4,861.43	2,400.88	1.21	-0.17	0.040
75.00	-17.80	-1.05	0.00	-75.52	0.00	75.52	3,120.06	1,560.03	4,667.43	2,305.07	1.40	-0.19	0.038
80.00	-16.94	-1.06	0.00	-70.27	0.00	70.27	3,069.19	1,534.59	4,475.14	2,210.10	1.60	-0.20	0.037
85.00	-16.10	-1.08	0.00	-64.97	0.00	64.97	3,016.92	1,508.46	4,284.71	2,116.06	1.81	-0.21	0.036
90.00	-15.27	-1.11	0.00	-59.58	0.00	59.58	2,963.24	1,481.62	4,096.29	2,023.00	2.04	-0.23	0.035
95.00	-15.13	-1.11	0.00	-54.05	0.00	54.05	2,909.11	1,454.55	3,911.32	1,931.65	2.29	-0.24	0.033
95.83	-14.09	-1.15	0.00	-53.12	0.00	53.12	2,895.61	1,447.80	3,874.90	1,913.67	2.33	-0.24	0.033
100.00	-13.84	-1.15	0.00	-48.35	0.00	48.35	2,828.11	1,414.06	3,695.36	1,825.00	2.55	-0.25	0.031
101.00	-13.31	-1.17	0.00	-47.20	0.00	47.20	1,940.77	970.39	2,581.63	1,274.97	2.60	-0.26	0.044
105.00	-12.61	-1.19	0.00	-42.51	0.00	42.51	1,916.40	958.20	2,491.16	1,230.29	2.82	-0.27	0.041
110.00	-12.48	-1.19	0.00	-36.56	0.00	36.56	1,884.66	942.33	2,378.55	1,174.68	3.11	-0.28	0.038
111.00	-10.26	-1.22	0.00	-35.37	0.00	35.37	1,878.15	939.07	2,356.11	1,163.59	3.17	-0.29	0.036
115.00	-9.65	-1.21	0.00	-30.50	0.00	30.50	1,851.53	925.76	2,266.63	1,119.40	3.42	-0.30	0.032
120.00	-9.18	-1.20	0.00	-24.43	0.00	24.43	1,816.99	908.49	2,155.56	1,064.55	3.74	-0.31	0.028
124.00	-4.93	-1.00	0.00	-19.64	0.00	19.64	1,788.35	894.17	2,067.42	1,021.02	4.00	-0.32	0.022
125.00	-4.47	-0.97	0.00	-18.64	0.00	18.64	1,781.05	890.52	2,045.49	1,010.19	4.07	-0.32	0.021
130.00	-4.02	-0.92	0.00	-13.81	0.00	13.81	1,743.70	871.85	1,936.59	956.41	4.41	-0.33	0.017
135.00	-3.58	-0.85	0.00	-9.22	0.00	9.22	1,704.95	852.48	1,829.01	903.28	4.76	-0.34	0.012
140.00	-1.90	-0.54	0.00	-4.96	0.00	4.96	1,664.80	832.40	1,722.91	850.88	5.12	-0.34	0.007
145.00	-1.54	-0.45	0.00	-2.24	0.00	2.24	1,618.18	809.09	1,613.39	796.79	5.48	-0.35	0.004
150.00	0.00	-0.44	0.00	0.00	0.00	0.00	1,557.43	778.72	1,493.87	737.76	5.84	-0.35	0.000

Site Number: 302538

Code: ANSI/TIA-222-G

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Site Name: Parsonage Hill Aka Wallin, CT

Engineering Number: OAA722111_C3_03

5/24/2018 10:56:46 AM

Customer: AT&T MOBILITY

Analysis Summary

Load Case	Reactions						Max Usage	
	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.6W	36.85	0.00	49.63	0.00	0.00	3760.82	0.00	0.82
0.9D + 1.6W	36.82	0.00	37.20	0.00	0.00	3715.02	0.00	0.81
1.2D + 1.0Di + 1.0Wi	8.11	0.00	77.87	0.00	0.00	870.62	0.00	0.20
(1.2 + 0.2Sds) * DL + E ELFM	1.25	0.00	49.87	0.00	0.00	149.64	0.00	0.04
(1.2 + 0.2Sds) * DL + E EMAM	1.56	0.00	49.87	0.00	0.00	175.78	0.00	0.05
(0.9 - 0.2Sds) * DL + E ELFM	1.25	0.00	34.67	0.00	0.00	147.38	0.00	0.04
(0.9 - 0.2Sds) * DL + E EMAM	1.55	0.00	34.67	0.00	0.00	172.95	0.00	0.04
1.0D + 1.0W	8.81	0.00	41.42	0.00	0.00	893.29	0.00	0.20



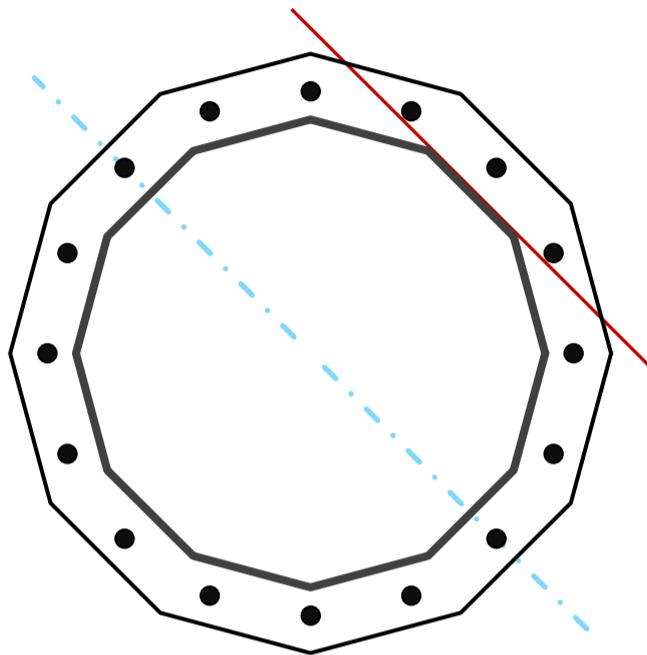
Base Plate & Anchor Rod Analysis

Pole Dimensions		
Number of Sides	12	-
Diameter	49.6	in
Thickness	0.4375	in
Orientation Offset		°

Base Reactions		
Moment, Mu	3760.8	k-ft
Axial, Pu	49.6	k
Shear, Vu	36.9	k
Neutral Axis	315	°

Report Capacities		
Component	Capacity	Result
Base Plate	38%	Pass
Anchor Rods	77%	Pass
Dwyidag	-	-

Base Plate		
Number of Sides	12	-
Diameter, ϕ	63.85	in
Thickness	2 3/4	in
Grade	A572-60	-
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	75	ksi
Clip	N/A	in
Orientation Offset		°
Anchor Rod Detail	c	$\eta=0.55$
Clear Distance	N/A	in
Applied Moment, Mu	1450.8	k
Bending Stress, ϕMn	3812.3	k



Original Anchor Rods		
Arrangement	Radial	-
Quantity	16	-
Diameter, ϕ	2 1/4	in
Bolt Circle	57.85	in
Grade	A615-75	
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	11.4	in
Orientation Offset		°
Applied Force, Pu	198.0	k
Anchor Rods, ϕPn	259.8	k

Calculations for Monopole Base Plate & Anchor Rod Analysis

Reaction Distribution

Reaction	Shear Vu	Moment Mu	Factor
-	k	k-ft	-
Base Forces	36.9	3760.8	1.00
Anchor Rod Forces	36.9	3760.8	1.00
Additional Bolt (Grp1) Forces	0.0	0.0	0.00
Additional Bolt (Grp2) Forces	0.0	0.0	0.00
Dywidag Forces	0.0	0.0	0.00
Stiffener Forces	0.0	0.0	0.00

Geometric Properties

Section	Gross Area	Net Area	Individual Inertia	Threads per Inch	Moment of Inertia
-	in ²	in ²	in ⁴	#	in ⁴
Pole	66.8020	5.5668	0.3568		20186.43
Bolt	3.9761	3.2477	0.8393	4.5	21751.01
Bolt1	0.0000	0.0000	0.0000	0	0.00
Bolt2	0.0000	0.0000	0.0000	0	0.00
Dywidag	0.0000	0.0000	0.0000		0.00
Stiffener	0.0000	0.0000	0.0000		0.00

Base Plate		
Shape	12	-
Width, W	63.85	in
Thickness, t	2.75	in
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	75	ksi
Base Plate Chord	40.208	in
Detail Type	c	-
Detail Factor	0.55	-
Clear Distance	N/A	-

Anchor Rods		
Anchor Rod Quantity, N	16	-
Rod Diameter, d	2.25	in
Bolt Circle, BC	57.85	in
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	198.0	k
Applied Shear, Vu	1.4	k
Compressive Capacity, φPn	259.8	k
Tensile Capacity, φRnt	0.762	OK
Interaction Capacity	0.772	OK

Base Plate Stiffeners		
Applied Axial Force, Pu	0.0	k
Applied Horizontal Force, Vu	0.00	k

Vertical Weld		
Vert.-to-Stiffener a=e _x /l	#DIV/0!	-
Spacing Ratio, k	#DIV/0!	-
Weld Coefficient, C	#DIV/0!	-
Compressive Capacity, φPn	#DIV/0!	k
Vert.-to-Plate a=e _x /l	#DIV/0!	-
Spacing Ratio, k	#DIV/0!	-
Weld Coefficient, C	#DIV/0!	-
Shear Capacity, φVn	#DIV/0!	k
P _u /φ _p P _n + V _u /φ _v V _n		

External Base Plate		
Chord Length AA	40.448	in
Additional AA	5.500	in
Section Modulus, Z	86.870	in ³
Applied Moment, Mu	1450.8	k-ft
Bending Capacity, φMn	4691.0	k-ft
Capacity, Mu/φMn	0.309	OK

Additional Bolt Group 1		
Bolt Quantity, N	0	-
Bolt Diameter, d	0	in
Bolt Circle, BC	0	in
Yield Strength, Fy	0	ksi
Tensile Strength, Fu	0	ksi
Applied Axial, Pu	0.0	k
Applied Shear, Vu	0.0	k
Compressive Capacity, φPn	0.0	k
Compressive Capacity, φPn		
Interaction Capacity		

Horizontal Weld		
Horz.-to-Stiffener a=e _x /l	0.000	-
Spacing Ratio, k	#DIV/0!	-
Weld Coefficient, C	#DIV/0!	-
Effective Fillet	0.000	in
Compressive Capacity, φPn	#DIV/0!	k
Horz.-to-Pole a=e _x /l	#DIV/0!	-
Spacing Ratio, k	#DIV/0!	-
Weld Coefficient, C	#DIV/0!	-
Shear Capacity, φVn	#DIV/0!	k
P _u /φ _p P _n + V _u /φ _v V _n		

Chord Length AB	38.689	in
Additional AB	5.500	in
Section Modulus, Z	83.545	in ³
Applied Moment, Mu	954.6	k-ft
Bending Capacity, φMn	4511.4	k-ft
Capacity, Mu/φMn	0.212	OK

Additional Bolt Group 2		
Bolt Quantity, N	0	-
Bolt Diameter, d	0	in
Bolt Circle, BC	0	in
Yield Strength, Fy	0	ksi
Tensile Strength, Fu	0	ksi
Applied Axial, Pu	0.0	k
Applied Shear, Vu	0.0	k
Compressive Capacity, φPn	0.0	k
Compressive Capacity, φPn		
Interaction Capacity		

Plate Tension		
Gross Cross Section	0.000	in ²
Net Cross Section	0.000	in ²
Tensile Capacity, φTn	0.0	k
Capacity, Tu/φTn		

Bend Line Length	37.341	in
Additional Bend Line	0.000	in
Section Modulus, Z	70.597	in ³
Applied Moment, Mu	1450.8	k-ft
Bending Capacity, φMn	3812.3	k-ft
Capacity, Mu/φMn	0.381	OK

Internal Base Plate		
Arc Length	0.000	in
Section Modulus, Z	0.000	in ³
Moment Arm	0.000	in
Applied Moment, Mu	0.0	k-ft
Bending Capacity, φMn	0.0	k-ft
Capacity, Mu/φMn		

Dywidag Reinforcement		
Dywidag Quantity, N	0	-
Dywidag Diameter, d	2.5	in
Bolt Circle, BC	56.48	in
Yield Strength, Fy	80	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	0.0	k
Compressive Capacity, φPn	0.0	k
Capacity, Pu/φPn		

Plate Compression		
Radius of Gyration	#DIV/0!	in ³
kl/r	#DIV/0!	-
4.71 √(E/Fy)	0.00	-
Buckling Stress(F _e)	0.0	-
Crit. Buckling Stress(F _{cr})	0.0	ksi
Compressive Capacity, φPn	0.0	k
Capacity, Pu/φPn		