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

March 22, 2018

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

Notice of Exempt Modification – New Cingular Wireless PCS, LLC (AT&T) – CT1029
335 South Washington Street, Plainville, CT 06062
N 41-39-11.20
W 72-52-36.70

Dear Ms. Bachman:

AT&T currently maintains nine (9) antennas at the 120-foot level of the existing 120-foot Monopole at 335 South Washington Street, Plainville, CT. The tower is owned by Crown Castle. The property is owned by the Display Properties LLC. AT&T now intends to remove three (3) Powerwave antennas and replace them with three (3) new Quintel QS66512-2 antennas. AT&T also intends to swap (3) Ericsson RRUS-12 / A2 for three (3) RRUS-32 B2 and install (3) RRUS-32 Remote Radio Units (RRU), also at the 120-foot level.

This facility was approved by the Connecticut Siting Council in Docket # 281 on June 23, 2004. Since no further modification to the overall facility height is proposed, this modification therefore complies with the aforementioned approvals.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Katherine Pugliese, Chair of the Town Council for the Town of Plainville, and the Plainville Planning and Economic Development Department, as well as the property owner and the tower owner.

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

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

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

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

4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.

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

6. The existing structure and its foundation can support the proposed loading.

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

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

Sincerely,

Mark Roberts
QC Development
Consultant for AT&T

Attachments

cc: Katherine Pugliese - as Elected Official
Mark DeVoe – Director of Planning & Economic Development
Display Properties LLC - as Property Owner
Crown Castle - Tower Owner (via e-mail)

Power Density

Existing Loading on Tower

Carrier	# of Channels	ERP/Ch (W)	Antenna Centerline Height (ft)	Power Density (mW/cm^2)	Freq. Band (MHz**)	Limit S (mW /cm^2)	%MPE
Other Carriers*							7.64%
AT&T UMTS	2	414	123	0.0435	850	0.5667	0.77%
AT&T UMTS	2	656	123	0.0689	1900	1.0000	0.69%
AT&T LTE	2	940	123	0.0494	700	0.4667	1.01%
AT&T LTE	2	1791	123	0.0941	1900	1.0000	0.94%
Site Total							11.04%

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

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

Proposed Loading on Tower

Carrier	# of Channels	ERP/Ch (W)	Antenna Centerline Height (ft)	Power Density (mW/cm^2)	Freq. Band (MHz**)	Limit S (mW /cm^2)	%MPE
Other Carriers*							7.64%
AT&T UMTS	1	414	120	0.0109	850	0.5667	0.19%
AT&T UMTS	1	656	120	0.0172	1900	1.0000	0.17%
AT&T LTE	1	1476	120	0.0388	700	0.4893	0.79%
AT&T LTE	3	4842	120	0.3816	1900	1.0000	3.82%
AT&T LTE	1	1285	120	0.0388	2300	1.0000	0.34%
Site Total							12.95%

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

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

PROJECT INFORMATION

SCOPE OF WORK:	ITEMS TO BE MOUNTED ON MONOPOLE: • NEW AT&T RRUS: (3) RRUS–32 AND (3) RRUS–32 B2. • NEW JUMPER CABLES: COAX JUMPER (2) PER SECTOR FROM EACH RRU (TOTAL OF 6) • NEW FIBER JUMPERS: FIBER JUMPERS (3) FROM THE SQUID TO EACH RRU (TOTAL OF 9) • NEW ANTENNA: (1) QS66512–2 (TOTAL OF 3) • NEW SURGE ARRESTOR: (1) SURGE ARRESTOR, (2) DC POWER CABLES, & (1) FIBER RUN. ITEMS TO BE MOVED, ADDED OR REMOVED INSIDE EQUIPMENT SHELTER: • AT&T RRUS MOVED FROM TOWER: (3) RRUS–12 (1900) (TOTAL OF 3). • AT&T DIPLEXORS: (6) TO REMAIN (6) TO BE REMOVED AND RELACED • NEW SURGE ARRESTOR: (6) APTDC–BDFDM–DB • NEW LOW BAND COMBINERS: (3) DBC0061F1V51–2 ITEMS TO REMAIN: • (6) ANTENNAS, (6) RRU'S, (1) SURGE ARRESTOR, (2) DC POWER CABLES, & (1) FIBER RUN.
SITE ADDRESS:	335 SOUTH WASHINGTON STREET PLAINVILLE, CT 06062
LATITUDE:	41.653110° N 41° 39' 11.03" N
LONGITUDE:	72.87692° W 72° 52' 36.90" W
TYPE OF SITE:	MONOPOLE / INDOOR EQUIPMENT
TOWER HEIGHT:	121'–0"±
RAD CENTER:	122'–0"±
JURISDICTION:	NATIONAL, STATE & LOCAL CODES OR ORDINANCES
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY

DRAWING INDEX

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

CCI SITE #: 857012
CCI SITE NAME: PLAINVILLE SOUTH WASHINGTON STREET

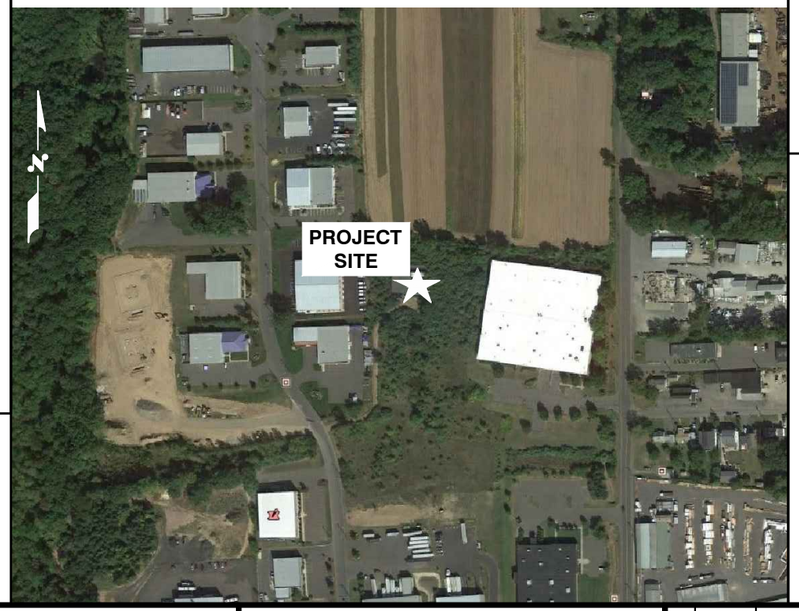
SITE NUMBER: CT1029

SITE NAME: PLAINVILLE SOUTH WASHINGTON STREET

PROJECT: LTE 3C, RETROFIT 2018 UPGRADE

VICINITY MAP

DIRECTIONS TO SITE:
I91 SOUTH TOWARD NEW HAVEN. TAKE EXIT 22 NORTH TOWARD NEW BRITAIN. MERGE ONTO CT–72 WEST VIA EXIT 28, ON THE LEFT, TOWARD BRISTOL. TAKE CT–177/NORTH WASHINGTON STREET EXIT. LEFT ONTO NORTH WASHINGTON STREET. END AT 335 SOUTH WASHINGTON.
SITE ACCESS IDS OFF ROBERT JACKSON WAY ACCESS RD IS RIGHT BEFORE LAWN CARE SERVICE.
(SEE PICTURES FOR ACCESSING CELL SITE IN PAIR GAIN DATA BASE).



GENERAL NOTES

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

72 HOURS

CALL
BEFORE YOU DIG
CALL TOLL FREE 1–800–922–4455
OR CALL 811

UNDERGROUND SERVICE ALERT

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

12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT1029
SITE NAME: PLAINVILLE SOUTH WASHINGTON STREET
CCI SITE NUMBER: 857012
335 SOUTH WASHINGTON STREET
PLAINVILLE, CT 06062
HARTFORD COUNTY

550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
B	03/07/18	ISSUED FOR PERMITTING	MR	AT	DPH
A	02/05/18	ISSUED FOR REVIEW	TB	AT	DPH

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

STATE OF CONNECTICUT · DEREK J. CREASER · No. 29567 · LICENSED PROFESSIONAL ENGINEER

AT&T

TITLE SHEET
LTE 3C, RETROFIT 2018 UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT1029	T–1	B

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		

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

12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT1029
SITE NAME: PLAINVILLE SOUTH WASHINGTON STREET
CCI SITE NUMBER: 857012
335 SOUTH WASHINGTON STREET
PLAINVILLE, CT 06062
HARTFORD COUNTY

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
B	03/07/18	ISSUED FOR PERMITTING	MR	AT	DPH
A	02/05/18	ISSUED FOR REVIEW	TB	AT	DPH

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

STATE OF CONNECTICUT
DEREK J. CREASER
No. 28561
LICENSED PROFESSIONAL ENGINEER

AT&T

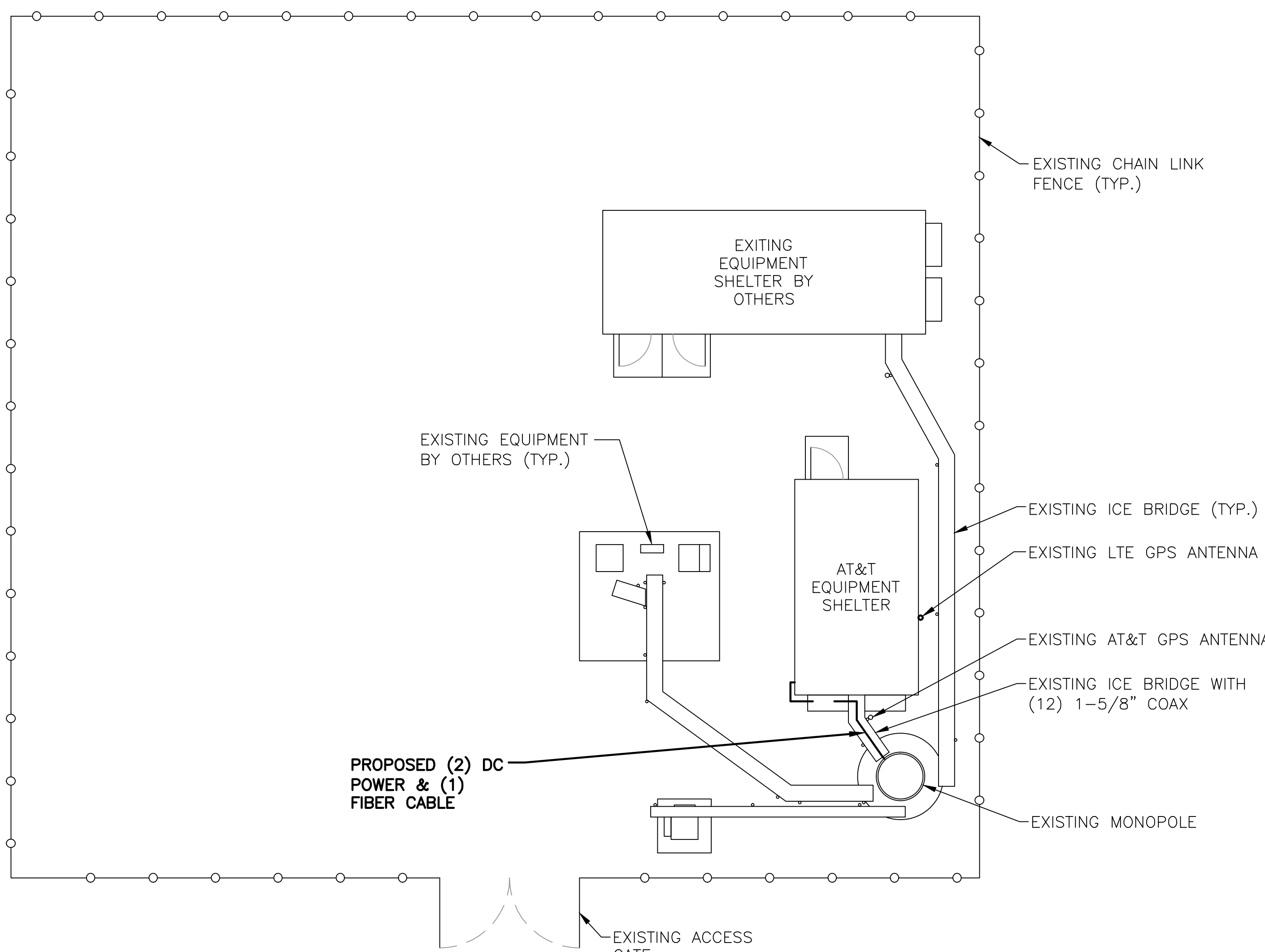
GENERAL NOTES
LTE 3C, RETROFIT 2018 UPGRADE

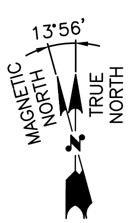
SITE NUMBER	DRAWING NUMBER	REV
CT1029	GN-1	B

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

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

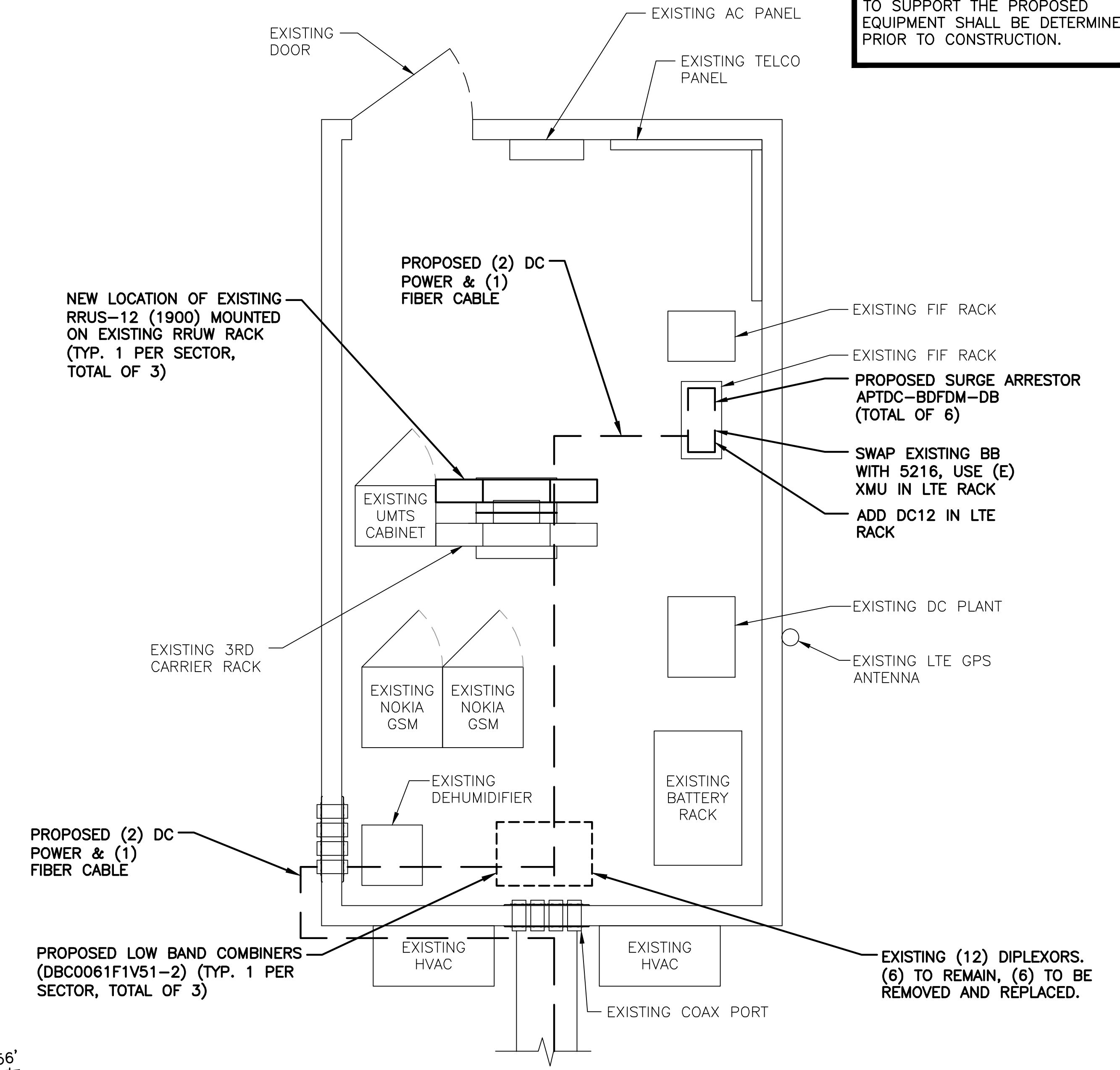
NOTE:
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION.

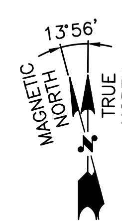




COMPOUND PLAN (1 / A-1)
22x34 SCALE: 1/8"=1'-0"
11x17 SCALE: 1/16"=1'-0"

0 4'-0" 8'-0" 16'-0" 24'-0"





EQUIPMENT PLAN (2 / A-1)
22x34 SCALE: 1/2"=1'-0"
11x17 SCALE: 1/4"=1'-0"

0 1'-0" 2'-0" 4'-0" 6'-0"

STATE OF CONNECTICUT
DEREK J. CREASER
LICENSED PROFESSIONAL ENGINEER

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: CT1029
SITE NAME: PLAINVILLE SOUTH WASHINGTON STREET
CCI SITE NUMBER: 857012
335 SOUTH WASHINGTON STREET
PLAINVILLE, CT 06062
HARTFORD COUNTY

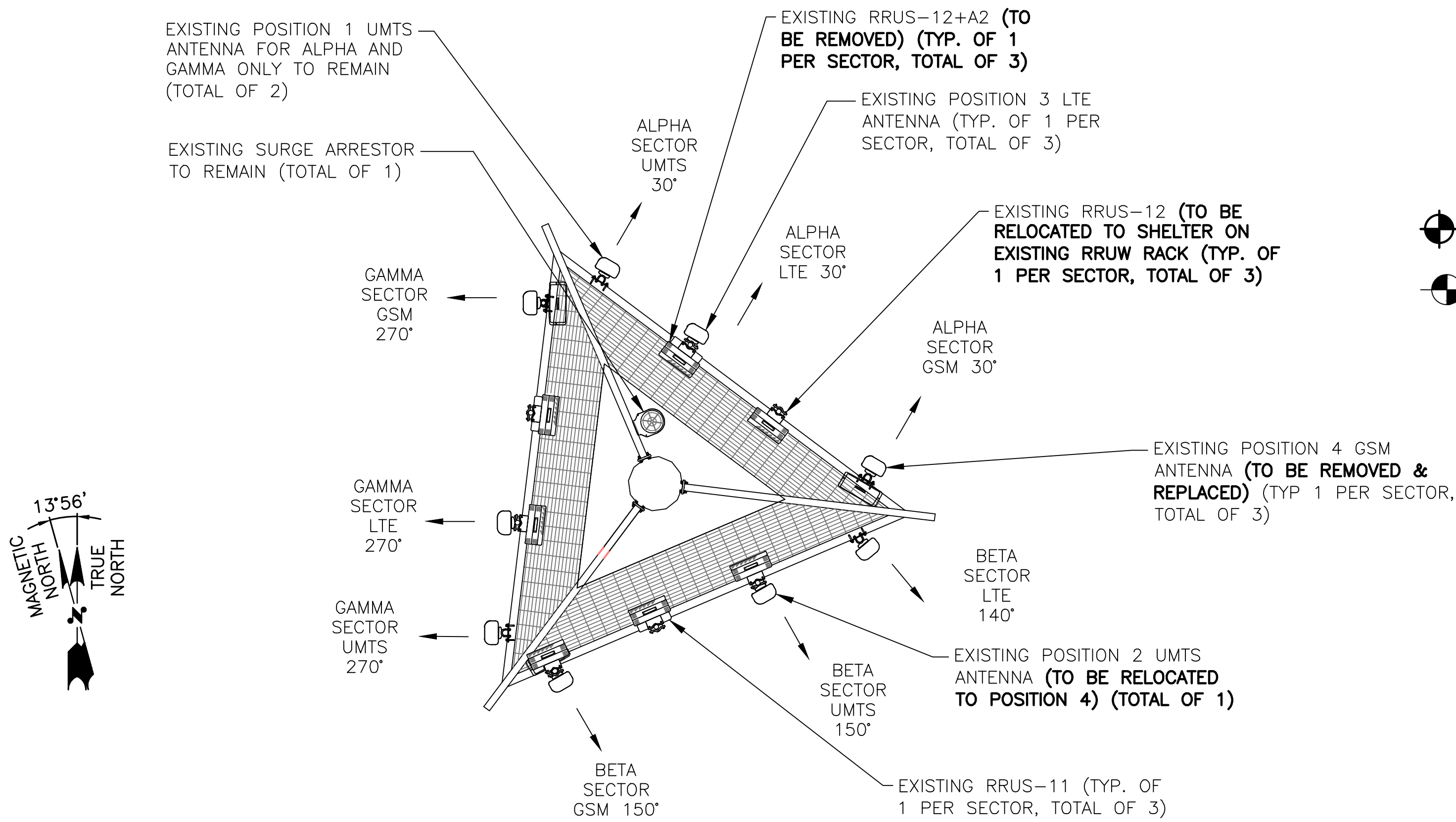
at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
B	03/07/18	ISSUED FOR PERMITTING	MR	AT	DPH
A	02/05/18	ISSUED FOR REVIEW	TB	AT	DPH

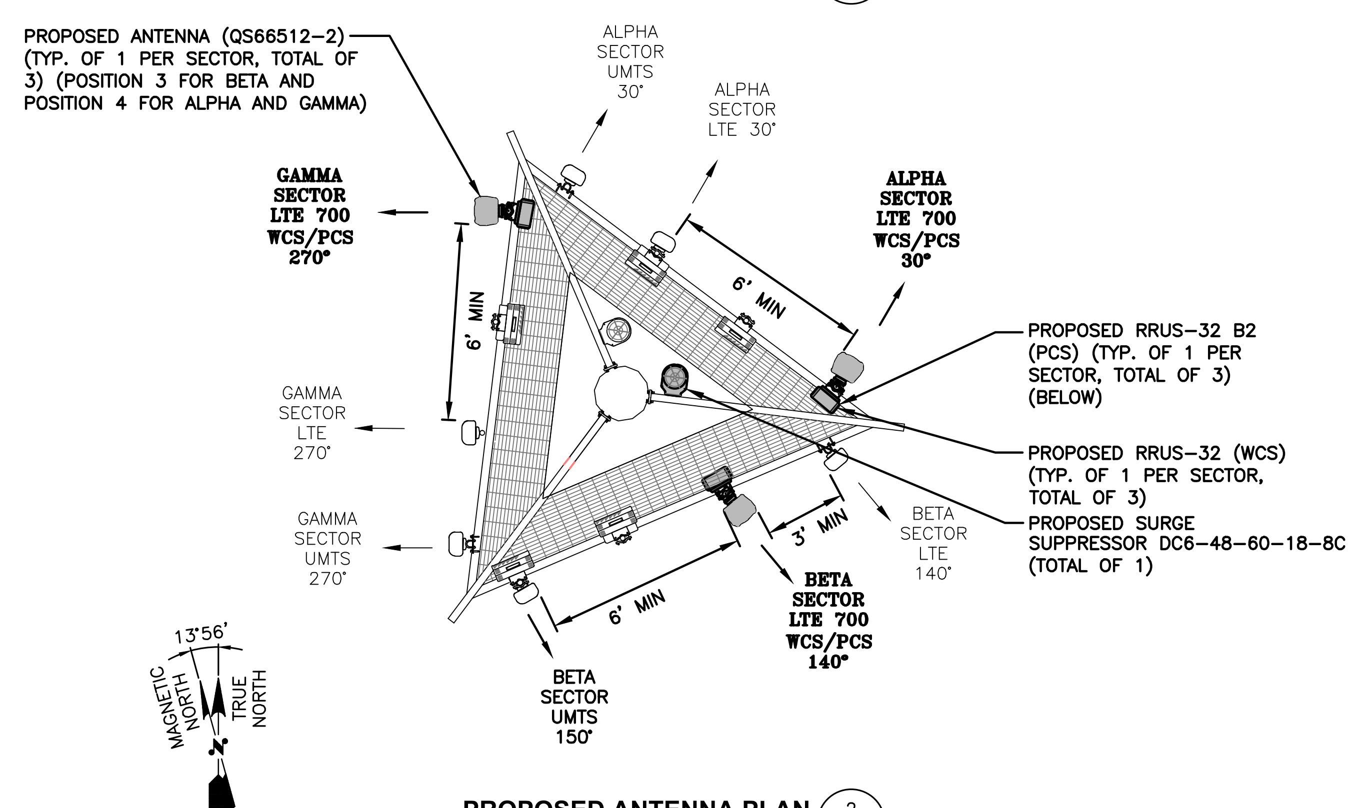
SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: LL

AT&T
COMPOUND & EQUIPMENT PLAN
LTE 3C, RETROFIT 2018 UPGRADE

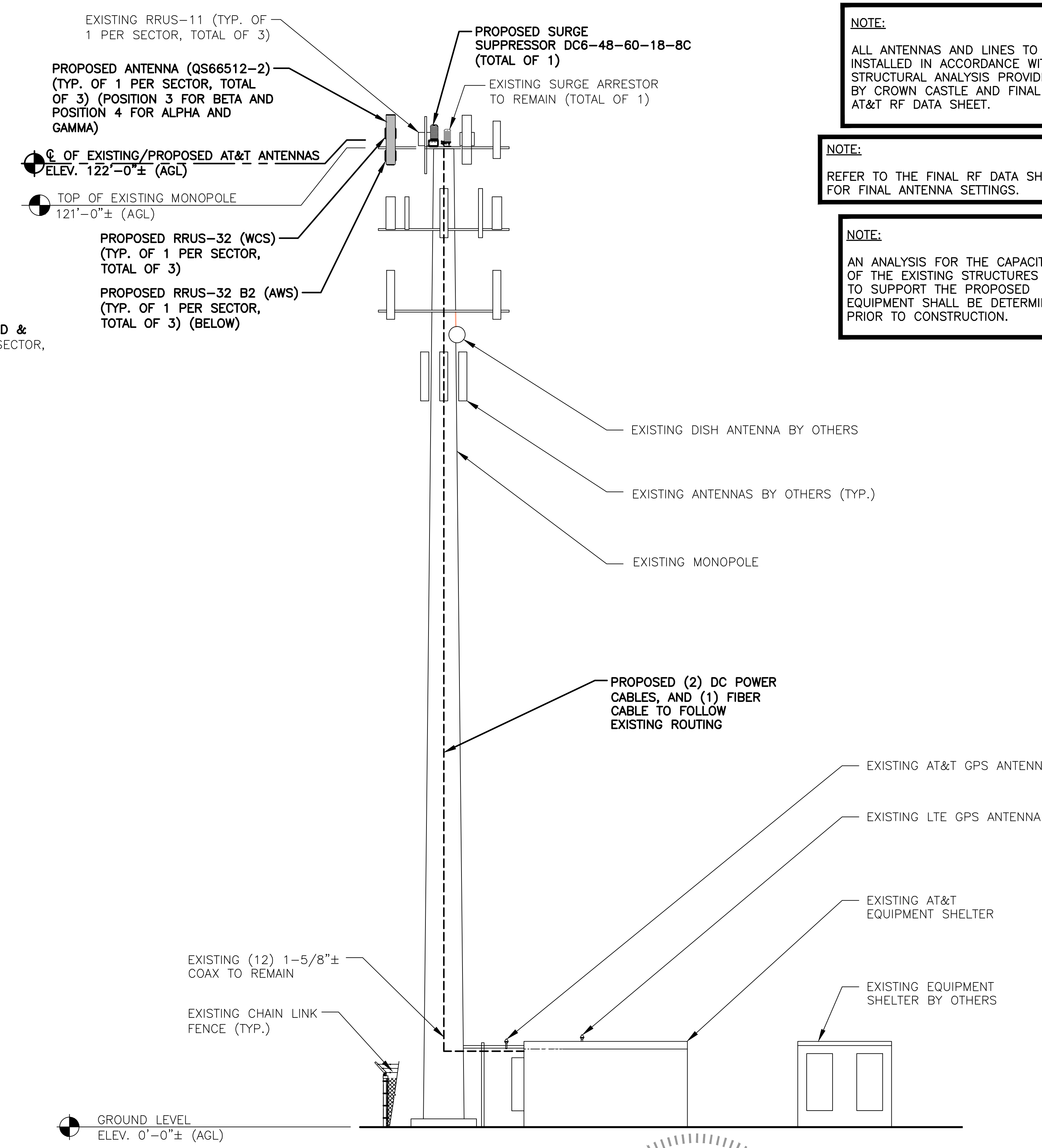
SITE NUMBER	DRAWING NUMBER	REV
CT1029	A-1	B



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



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



ELEVATION (3 / A-2)
22x34 SCALE: 1/8"=1'-0"
11x17 SCALE: 1/16"=1'-0"
0 4'-0" 8'-0" 16'-0" 24'-0"

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

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

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

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: CT1029
SITE NAME: PLAINVILLE SOUTH WASHINGTON STREET
CCI SITE NUMBER: 857012
335 SOUTH WASHINGTON STREET
PLAINVILLE, CT 06062
HARTFORD COUNTY

at&t
550 COCHITUATE ROAD FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
B	03/07/18	ISSUED FOR PERMITTING	MR	AT	DPH
A	02/05/18	ISSUED FOR REVIEW	TB	AT	DPH

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

STATE OF CONNECTICUT — DEREK ... — LICENSED PROFESSIONAL ENGINEER

AT&T
ANTENNA LAYOUTS & ELEVATION
LTE 3C, RETROFIT 2018 UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT1029	A-2	B

NOTE:

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

NOTE:

ALL ANTENNAS AND LINES TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS PROVIDED BY CROWN CASTLE AND FINAL AT&T RF DATA SHEET.

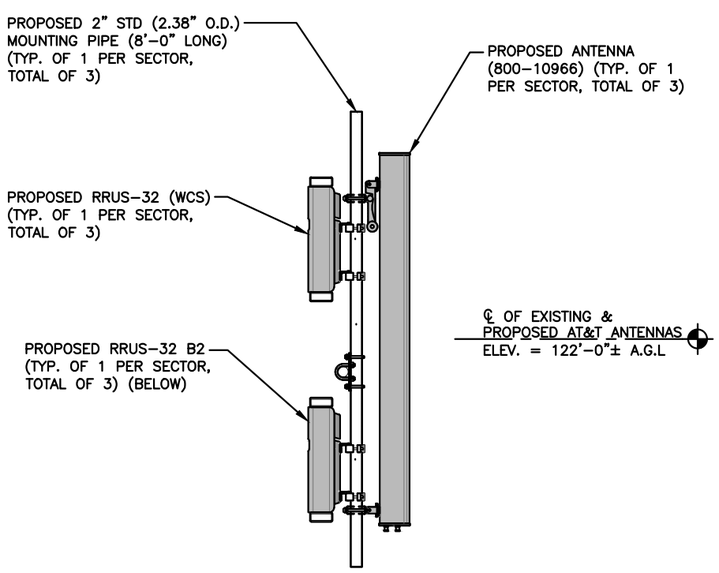
*COAX JUMPER NOTE:
COAX JUMPERS (2) PER SECTOR, FROM EACH RRU (TOTAL OF 6).

**FIBER JUMPER NOTE:
FIBER JUMPERS (3) PER SECTOR, FROM THE SQUID TO EACH RRU (TOTAL OF 9).

FINAL ANTENNA SCHEDULE

SECTOR	BAND	ANTENNA		SIZE (INCHES) (L X W X D)	RAD CENTER	AZIMUTH	TMA'S		RRU'S		SIZE (INCHES) (L X W X D)	COAX JUMPERS	FIBER JUMPERS	COAX
ALPHA	UMTS 850 / LTE PCS	EXISTING	7770	72X14.8X9	122'-0"±	30°	EXISTING	(2) LGP21401	EXISTING	RRUS-11	–	–	–	(2) 1-5/8"
	LTE 700 BC	EXISTING	HPA-65R-BUU-H6	72X14.8X9	122'-0"±	30°	–	–	–	–	–	–	–	–
	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	LTE 700 WCS/PCS	PROPOSED	QS66512-2	72X12X9.6	122'-0"±	30°	EXISTING	(2) 7020	PROPOSED PROPOSED	RRUS-32 B2 (PCS) RRUS-32 (WCS)	16.4X15.2X3.4 27.2X12.1X7.0	1* 1*	2** 1**	(2) 1-5/8"
BETA	UMTS 850 / LTE PCS	EXISTING	HPA-65R-BUU-H6	72X14.8X9	122'-0"±	140°	EXISTING		EXISTING	RRUS-11	–	–	–	(2) 1-5/8"
	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	LTE 700 WCS/PCS	PROPOSED	QS66512-2	72X12X9.6	122'-0"±	140°	–	–	PROPOSED PROPOSED	RRUS-32 B2 (PCS) RRUS-32 (WCS)	16.4X15.2X3.4 27.2X12.1X7.0	1* 1*	2** 1**	–
	LTE 700 WCS/PCS	EXISTING	7770	55X11X5	122'-0"±	150°	EXISTING	(2) LGP21401	–	–	–	–	–	(2) 1-5/8"
GAMMA	UMTS 850 / LTE PCS	EXISTING	7770	72X14.8X9	122'-0"±	270°	EXISTING	(2) LGP21401	EXISTING	RRUS-11	–	–	–	(2) 1-5/8"
	LTE 700 BC	EXISTING	HPA-65R-BUU-H6	72X14.8X9	122'-0"±	270°	–	–	PROPOSED PROPOSED	RRUS-32 B2 (PCS) RRUS-32 (WCS)	16.4X15.2X3.4 27.2X12.1X7.0	1* 1*	2** 1**	–
	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	LTE 700 WCS/PCS	PROPOSED	QS66512-2	72X12X9.6	122'-0"±	270°	–	–	–	–	–	–	–	(2) 1-5/8"

FINAL ANTENNA CONFIGURATION (4 / A-3)
SCALE: N.T.S



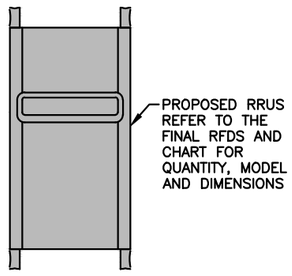
PROPOSED ANTENNA & RRU MOUNTING DETAIL (1 / A-3)
22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"

0 0'-6" 1'-0" 2'-0" 3'-0"

RRU CHART

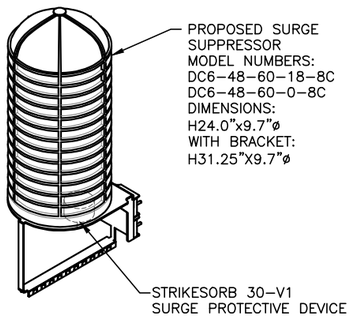
QUANTITY	MODEL	L	W	D
3(E)	RRUS-11	19.7"	17.0"	7.2"
3(E)	RRUS-12	20.4"	18.5"	7.5"
6(P)	RRUS-32	27.2"	12.1"	7.0"
–	RRUS-E2	20.4"	18.5"	7.5"
–	LTE-A2	16.4"	15.2"	3.4"

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS



NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

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



NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

DC SURGE SUPPRESSOR DETAIL (3 / A-3)
SCALE: N.T.S

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

12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT1029
SITE NAME: PLAINVILLE SOUTH WASHINGTON STREET
CCI SITE NUMBER: 857012
335 SOUTH WASHINGTON STREET
PLAINVILLE, CT 06062
HARTFORD COUNTY

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
B	03/07/18	ISSUED FOR PERMITTING	MR	AT	DPH
A	02/05/18	ISSUED FOR REVIEW	TB	AT	DPH

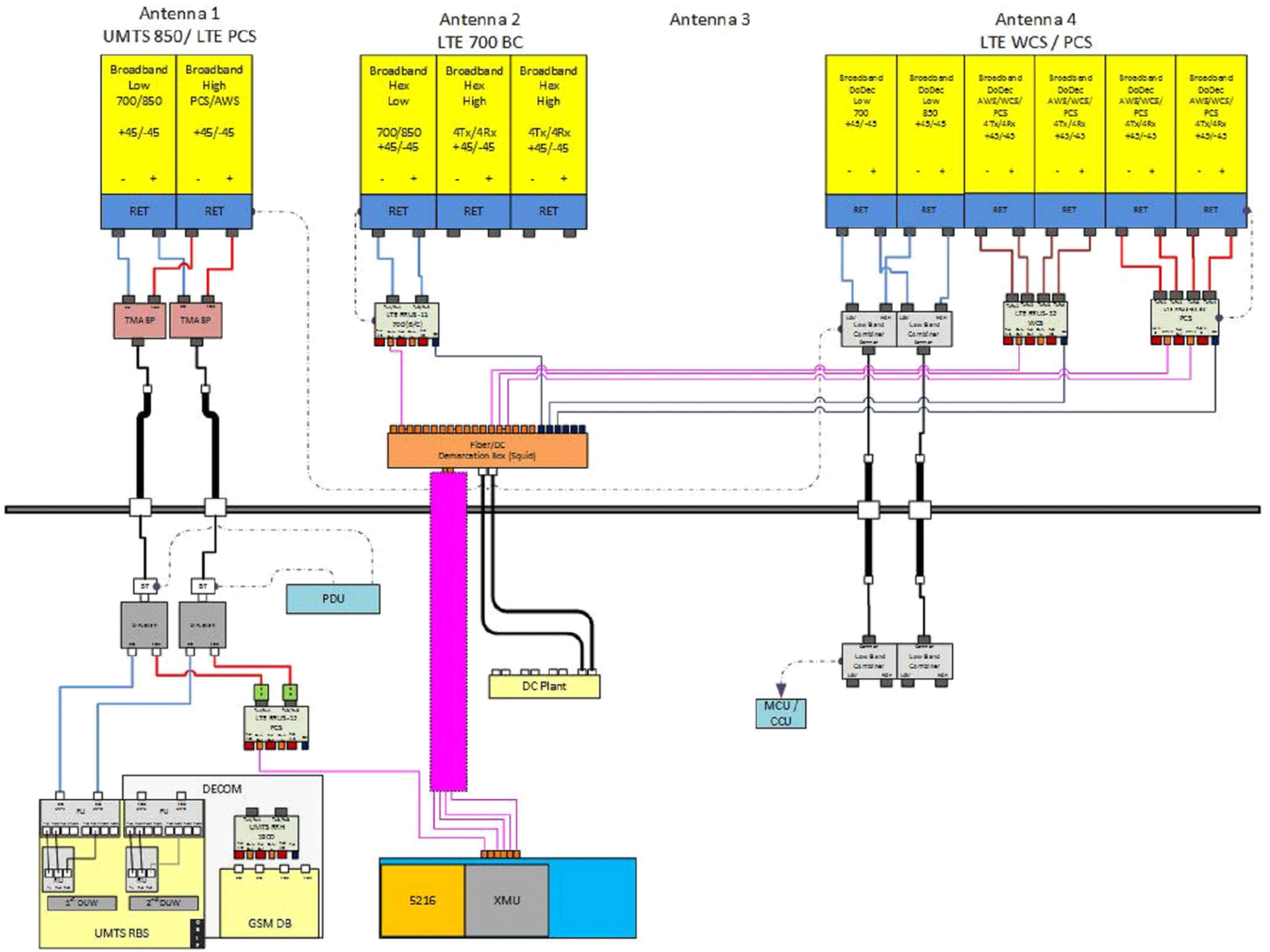
SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: LL

STATE OF CONNECTICUT
DEREK J. CREASER
16,285
LICENSED PROFESSIONAL ENGINEER

AT&T

DETAILS
LTE 3C, RETROFIT 2018 UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT1029	A-3	B



RF PLUMBING DIAGRAM 1 / RF–1
SCALE: N.T.S

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

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

12 INDUSTRIAL WAY
SALEM, NH 03079

550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

SITE NUMBER: CT1029
SITE NAME: PLAINVILLE SOUTH WASHINGTON STREET
CCI SITE NUMBER: 857012
335 SOUTH WASHINGTON STREET
PLAINVILLE, CT 06062
HARTFORD COUNTY

NO.	DATE	REVISIONS	BY	CHK	APP'D
B	03/07/18	ISSUED FOR PERMITTING	MR	AT	DPH
A	02/05/18	ISSUED FOR REVIEW	TB	AT	DPH

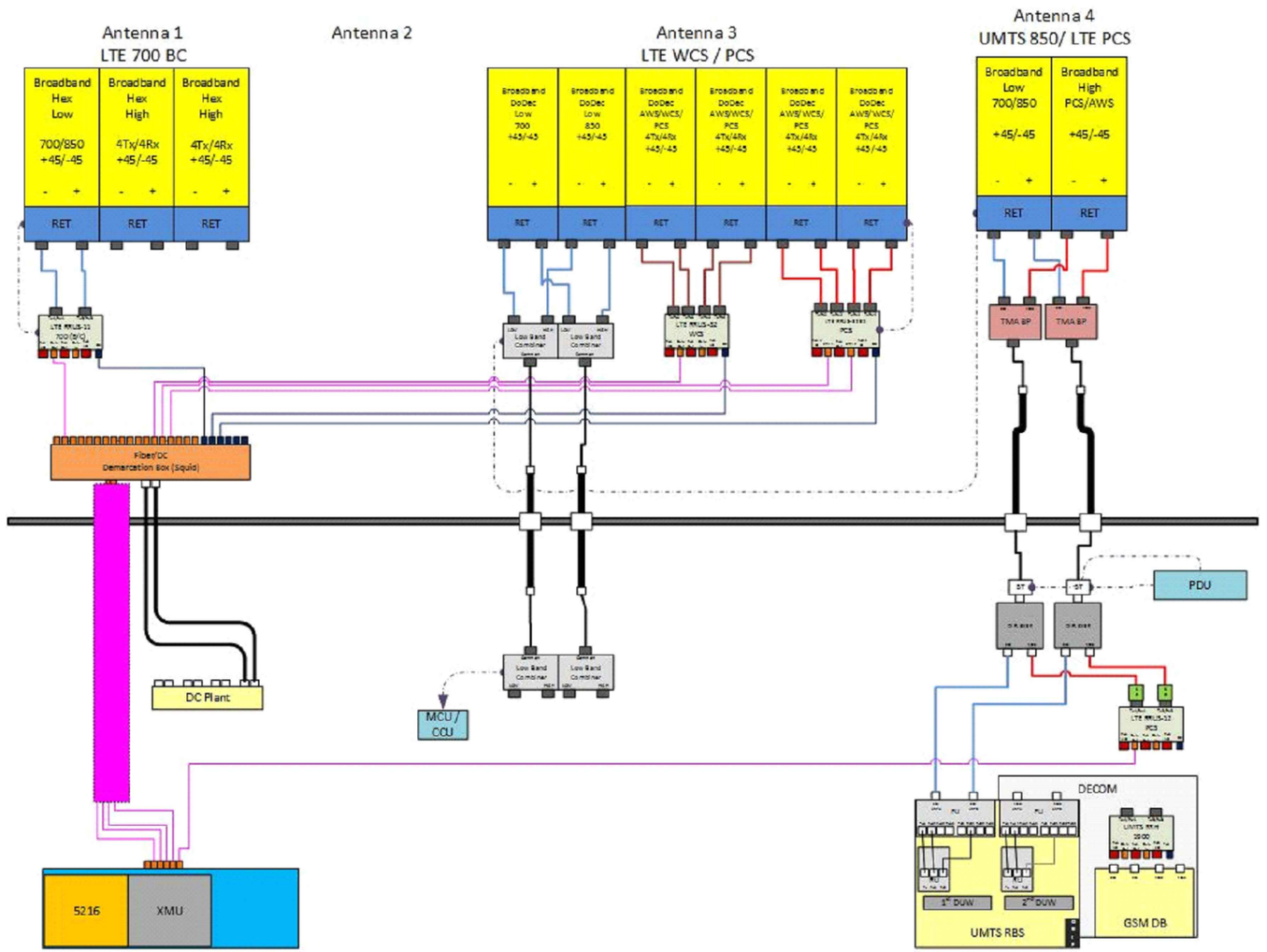
SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: LL

STATE OF CONNECTICUT · DEREK J. CREASER · No. 23567 · LICENSED PROFESSIONAL ENGINEER

AT&T

RF PLUMBING DIAGRAM
LTE 3C, RETROFIT 2018 UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT1029	RF–1	B



RF PLUMBING DIAGRAM (1 / RF–1)
SCALE: N.T.S

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

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

12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT1029
SITE NAME: PLAINVILLE SOUTH WASHINGTON STREET
CCI SITE NUMBER: 857012
335 SOUTH WASHINGTON STREET
PLAINVILLE, CT 06062
HARTFORD COUNTY

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
B	03/07/18	ISSUED FOR PERMITTING	MR	AT	DPH
A	02/05/18	ISSUED FOR REVIEW	TB	AT	DPH

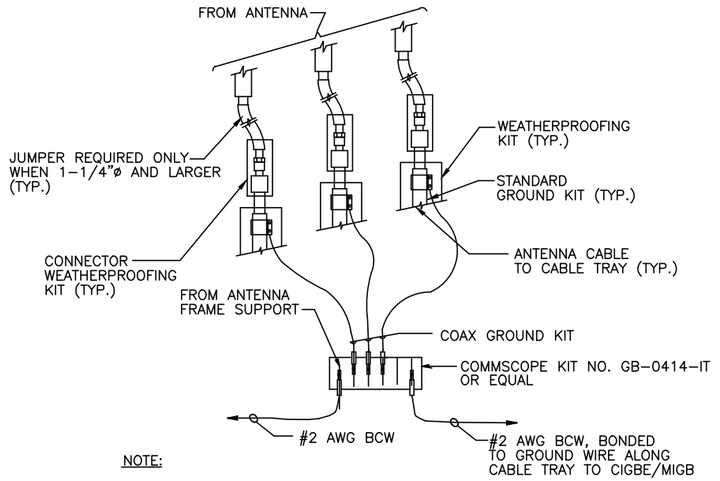
SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: LL

STATE OF CONNECTICUT · DEREK J. CREASER · 26,256 · LICENSED PROFESSIONAL ENGINEER

AT&T

RF PLUMBING DIAGRAM
LTE 3C, RETROFIT 2018 UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT1029	RF–2	B



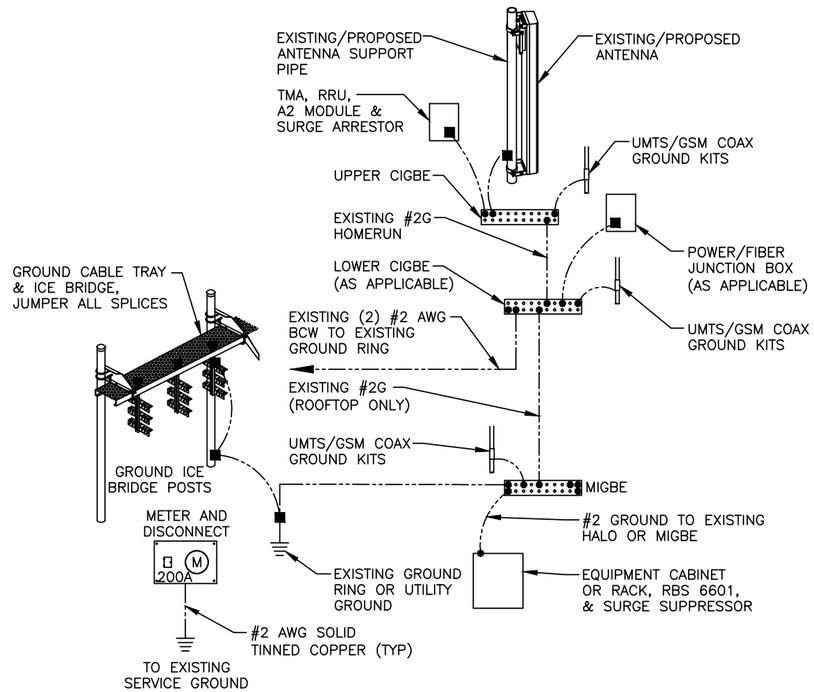
NOTE:

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

GROUND WIRE TO GROUND BAR CONNECTION DETAIL

SCALE: N.T.S

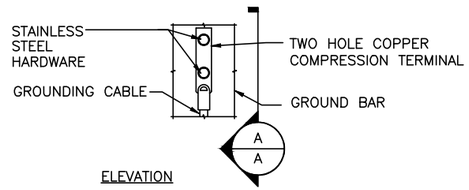
1 / G-1



GROUNDING RISER DIAGRAM

SCALE: N.T.S

2 / G-1



NOTE:

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

TYPICAL GROUND BAR CONNECTION DETAIL

SCALE: N.T.S

3 / G-1

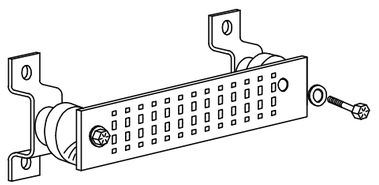
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

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

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

12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT1029
SITE NAME: PLAINVILLE SOUTH WASHINGTON STREET
CCI SITE NUMBER: 857012
335 SOUTH WASHINGTON STREET
PLAINVILLE, CT 06062
HARTFORD COUNTY

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
B	03/07/18	ISSUED FOR PERMITTING	MR	AT	DPH
A	02/05/18	ISSUED FOR REVIEW	TB	AT	DPH

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

STATE OF CONNECTICUT
DEREK J. CREASER
No. 25...
LICENSED PROFESSIONAL ENGINEER

AT&T

GROUNDING DETAILS
LTE 3C, RETROFIT 2018 UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT1029	G-1	B

Date: **January 27, 2018**

Chanhdara Ratsavong
Crown Castle
3530 Toringdon Way Suite 300
Charlotte, NC 28277

Crown Castle
2000 Corporate Drive
Canonsburg, PA 15317
(724) 416-2000

Subject: **Structural Analysis Report**

Carrier Designation:
***AT&T Mobility* Co-Locate**
Carrier Site Number: CT1029
Carrier Site Name: PLAINVILLE SOUTH WASHINGTON ST

Crown Castle Designation:
Crown Castle BU Number: 857012
Crown Castle Site Name: PLAINVILLE SOUTH WASHINGTON ST
Crown Castle JDE Job Number: 478490
Crown Castle Work Order Number: 1517539
Crown Castle Application Number: 421347 Rev. 1

Engineering Firm Designation:
Crown Castle Project Number: 1517539

Site Data:
335 SOUTH WASHINGTON STREET, PLAINVILLE, Hartford County, CT
Latitude *41° 39' 11.03"*, Longitude *-72° 52' 36.9"*
121 Foot - Monopole Tower

Dear Chanhdara Ratsavong,

Crown Castle is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 1517539, in accordance with application 421347, revision 1.

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

LC5: Existing + Proposed Equipment **Sufficient Capacity**
Note: See Table I and Table II for the proposed and existing loading, respectively.

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

We at *Crown Castle* appreciate the opportunity of providing our continuing professional services to you and Crown Castle. If you have any questions or need further assistance on this or any other projects please give us a call.

Structural analysis prepared by: Ian E. Miller, E.I.T. / DS
Respectfully submitted by:

Maham Barimani, P.E.
Senior Project Engineer

STATE OF CONNECTICUT
MAHAM BARIMANI
30501
LICENSED
PROFESSIONAL ENGINEER

01/28/2018

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 121 ft Monopole tower was mapped by BTE Management Group in May of 2012. The original design standard and wind speed are not available.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of TIA-222-G Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a 3-second gust wind speed of 97 mph with no ice, 50 mph with 1 inch ice thickness and 60 mph under service loads, exposure category C.

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
121.0	121.0	3	ericsson	RRUS 32	4 2 1	3/4 3/8 2” conduit	-
		3	ericsson	RRUS 32 B2			
		3	kaelus	DBC0061F1V51-2			
		6	powerwave technologies	7020.00			
		3	quintel technology	QS66512-2 w/ Mount Pipe			
		1	raycap	DC6-48-60-18-8C			

Table 2 - Existing and Reserved Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
121.0	122.0	3	ericsson	RRUS 12 B2	2	7/8	2
		3	ericsson	RRUS A2			
		3	powerwave technologies	1001983			
		6	powerwave technologies	LGP13519			
		3	powerwave technologies	RA21.7770.00 W/ Mount Pipe			
	121.0	3	cci antennas	HPA-65R-BUU-H6 w/ Mount Pipe	12 1	1-5/8 1/2	1
		3	ericsson	RRUS-11			
		6	powerwave technologies	LGP21401			
		3	powerwave technologies	RA21.7770.00 w/ Mount Pipe			
		1	raycap	DC6-48-60-18-8F			
		1	tower mounts	Platform Mount [LP 601-1]			
110.0	112.0	3	alcatel lucent	B13 RRH 4X30	20	1-5/8	1
		3	alcatel lucent	B4 RRH2X60-4R			
		6	andrew	SBNHH-1D65B w/ Mount Pipe			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
		2	antel	BXA-171063-8BF-2 w/ Mount Pipe			
		6	antel	LPA-80063-4CF-EDIN-5 w/ Mount Pipe			
		1	kathrein	800 10735V01 w/ Mount Pipe			
		1	rfs celwave	DB-T1-6Z-8AB-0Z			
	110.0	1	tower mounts	Platform Mount [LP 601-1]			
98.0	100.0	3	andrew	ONEBASE TWIN DUAL DUPLEX TMA	12	1-5/8	1
		6	ericsson	AIR 21 w/ Mount Pipe	1	1-1/4	
	98.0	1	tower mounts	Platform Mount [LP 601-1]			
86.0	88.0	1		A-ANT-18G-2-C	5	5/16	1
		3	argus technologies	LLPX310R-V1 w/ Mount Pipe			
		1	dragonwave	A-ANT-11G-3-C			
		2	dragonwave	HORIZON DUO	2	1/2	
		3	raycap	DC6-48-60-18-8F			
		3	samsung	URAS-FLEXIBLE			
	86.0	1	tower mounts	Side Arm Mount [SO 103-3]			

Notes:
1) Existing Equipment
2) Equipment To Be Removed; Not considered in this analysis

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
Information Not Available						

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	Terracon	4566990	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	WEI (Mapping)	4566996	CCISITES
4-TOWER MANUFACTURER DRAWINGS	BTE (Mapping)	5121623	CCISITES

3.1) Analysis Method

tnxTower (version 7.0.5.1), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

1) Tower and structures were built in accordance with the manufacturer's specifications.
2) The tower and structures have been maintained in accordance with the manufacturer's specification.
3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.

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

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	121 - 96	Pole	TP27.56x21.26x0.188	1	-6.625	983.489	45.9	Pass
L2	96 - 48	Pole	TP39.56x26.303x0.25	2	-17.783	1828.310	88.8	Pass
L3	48 - 0	Pole	TP51.56x37.773x0.313	3	-32.220	2980.310	85.6	Pass
							Summary	
						Pole (L2)	88.8	Pass
						Rating =	88.8	Pass

Table 6 - Tower Component Stresses vs. Capacity – LC5

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	52.8	Pass
1	Base Plate	0	80.1	Pass
1	Base Foundation (Structure)	0	87.8	Pass
1	Base Foundation (Soil Interaction)	0	39.3	Pass

Structure Rating (max from all components) =	88.8%

Notes:
1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.

4.1) Recommendations

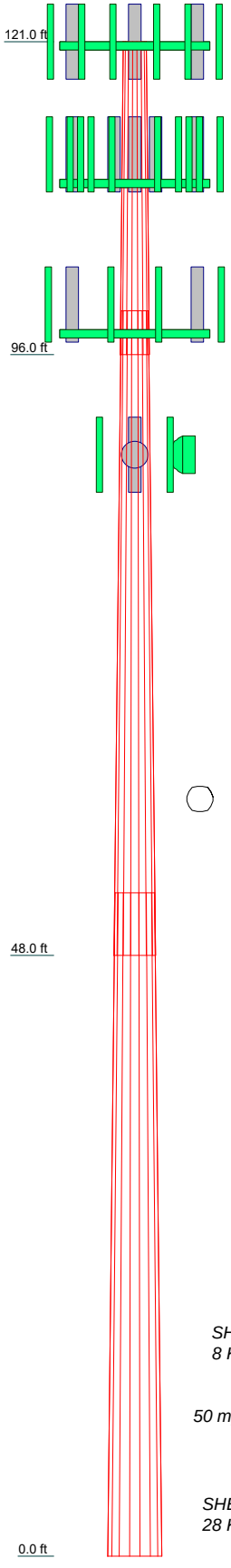
The tower and its foundation have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

APPENDIX A

TNXTOWER OUTPUT

Section	1	2	3
Length (ft)	25.000	51.500	53.000
Number of Sides	18	18	18
Thickness (in)	0.188	0.250	0.313
Socket Length (ft)	3.500	5.000	
Top Dia (in)	21.260	26.303	37.773
Bot Dia (in)	27.560	39.560	51.560
Grade	A572-60		
Weight (K)	1.2	4.5	7.9

Total 13.7



ALL REACTIONS ARE FACTORED

AXIAL 71 K

SHEAR 8 K

MOMENT 807 kip-ft

TORQUE 0 kip-ft
50 mph WIND - 1.000 in ICE

AXIAL 32 K

SHEAR 28 K

MOMENT 2659 kip-ft

TORQUE 2 kip-ft
REACTIONS - 97 mph WIND

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
RA21.7770.00 w/ Mount Pipe	121	(2) LPA-80063-4CF-EDIN-5 w/ Mount Pipe	110
RA21.7770.00 w/ Mount Pipe	121	(2) SBNHH-1D65B w/ Mount Pipe	110
RA21.7770.00 w/ Mount Pipe	121	(2) SBNHH-1D65B w/ Mount Pipe	110
HPA-65R-BUU-H6 w/ Mount Pipe	121	(2) SBNHH-1D65B w/ Mount Pipe	110
HPA-65R-BUU-H6 w/ Mount Pipe	121	DB-T1-6Z-8AB-0Z	110
HPA-65R-BUU-H6 w/ Mount Pipe	121	B4 RRH2X60-4R	110
(2) LGP21401	121	B4 RRH2X60-4R	110
(2) LGP21401	121	B4 RRH2X60-4R	110
(2) LGP21401	121	B13 RRH 4X30	110
RRUS-11	121	B13 RRH 4X30	110
RRUS-11	121	B13 RRH 4X30	110
RRUS-11	121	Platform Mount [LP 601-1]	110
DC6-48-60-18-8F	121	(2) AIR 21 w/ Mount Pipe	98
QS66512-2 w/ Mount Pipe	121	(2) AIR 21 w/ Mount Pipe	98
QS66512-2 w/ Mount Pipe	121	(2) AIR 21 w/ Mount Pipe	98
QS66512-2 w/ Mount Pipe	121	ONEBASE TWIN DUAL DUPLEX TMA	98
RRUS 32 B2	121	ONEBASE TWIN DUAL DUPLEX TMA	98
RRUS 32 B2	121	ONEBASE TWIN DUAL DUPLEX TMA	98
RRUS 32 B2	121	(2) 6' x 2" Mount Pipe	98
RRUS 32	121	(2) 6' x 2" Mount Pipe	98
RRUS 32	121	(2) 6' x 2" Mount Pipe	98
(2) 7020.00	121	Platform Mount [LP 601-1]	98
(2) 7020.00	121	LLPX310R-V1 w/ Mount Pipe	86
(2) 7020.00	121	LLPX310R-V1 w/ Mount Pipe	86
DBC0061F1V51-2	121	LLPX310R-V1 w/ Mount Pipe	86
DBC0061F1V51-2	121	HORIZON DUO	86
DBC0061F1V51-2	121	HORIZON DUO	86
DC6-48-60-18-8C	121	DC6-48-60-18-8F	86
6' x 2" Mount Pipe	121	DC6-48-60-18-8F	86
6' x 2" Mount Pipe	121	DC6-48-60-18-8F	86
6' x 2" Mount Pipe	121	URAS-FLEXIBLE	86
Platform Mount [LP 601-1]	121	URAS-FLEXIBLE	86
800 10735V01 w/ Mount Pipe	110	URAS-FLEXIBLE	86
BXA-171063-8BF-2 w/ Mount Pipe	110	7'x2" Pipe Mount	86
BXA-171063-8BF-2 w/ Mount Pipe	110	7'x2" Pipe Mount	86
(2) LPA-80063-4CF-EDIN-5 w/ Mount Pipe	110	7'x2" Pipe Mount	86
		Side Arm Mount [SO 103-3]	86
(2) LPA-80063-4CF-EDIN-5 w/ Mount Pipe	110	A-ANT-18G-2-C	86
		A-ANT-11G-3-C	86

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-60	60 ksi	75 ksi			

TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 97 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.000 ft
8. TOWER RATING: 88.8%

CROWN CASTLE
The Foundation For A Wireless World

Crown Castle
2000 Corporate Drive
Canonsburg, PA 15317
Phone: (724) 416-2000
FAX: (724) 416-2254

Job: *BU 857012*			
Project:			
Client: Crown Castle	Drawn by: DSkupien		App'd:
Code: TIA-222-G	Date: 01/27/18		Scale: NTS
Path: R:\SA Models - Letters\Work Area\JMiller\1. WIP\857012 WO 1517539\QA\857012.en			Dwg No. E-1

Tower Input Data

There is a pole section.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

3) Tower is located in Hartford County, Connecticut.
4) Basic wind speed of 97 mph.
5) Structure Class II.
6) Exposure Category C.
7) Topographic Category 1.
8) Crest Height 0.000 ft.
9) Nominal ice thickness of 1.000 in.
10) Ice thickness is considered to increase with height.
11) Ice density of 56.000 pcf.
12) A wind speed of 50 mph is used in combination with ice.
13) Temperature drop of 50.000 °F.
14) Deflections calculated using a wind speed of 60 mph.
15) A non-linear (P-delta) analysis was used.
16) Pressures are calculated at each section.
17) Stress ratio used in pole design is 1.
18) Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

	Consider Moments - Legs		Distribute Leg Loads As Uniform		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Horizontals		Assume Legs Pinned		Calculate Redundant Bracing Forces
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Ignore Redundant Members in FEA
	Use Moment Magnification	√	Use Clear Spans For Wind Area		SR Leg Bolts Resist Compression
√	Use Code Stress Ratios		Use Clear Spans For KL/r		All Leg Panels Have Same Allowable
√	Use Code Safety Factors - Guys		Retension Guys To Initial Tension		Offset Girt At Foundation
	Escalate Ice	√	Bypass Mast Stability Checks	√	Consider Feed Line Torque
	Always Use Max Kz	√	Use Azimuth Dish Coefficients		Include Angle Block Shear Check
	Use Special Wind Profile	√	Project Wind Area of Appurt.		Use TIA-222-G Bracing Resist. Exemption
	Include Bolts In Member Capacity		Autocalc Torque Arm Areas		Use TIA-222-G Tension Splice Exemption
	Leg Bolts Are At Top Of Section		Add IBC .6D+W Combination		Poles
	Secondary Horizontal Braces Leg	√	Sort Capacity Reports By Component	√	Include Shear-Torsion Interaction
	Use Diamond Inner Bracing (4 Sided)		Triangulate Diamond Inner Bracing		Always Use Sub-Critical Flow
	SR Members Have Cut Ends		Treat Feed Line Bundles As Cylinder		Use Top Mounted Sockets
	SR Members Are Concentric				

Tapered Pole Section Geometry

Section	*Elevation*	*Section Length*	*Splice Length*	*Number of Sides*	*Top Diameter*	*Bottom Diameter*	*Wall Thickness*	*Bend Radius*	*Pole Grade*
	ft	*ft*	*ft*		*in*	*in*	*in*	*in*	
L1	121.000-96.000	25.000	3.500	18	21.260	27.560	0.188	0.750	A572-60 (60 ksi)
L2	96.000-48.000	51.500	5.000	18	26.303	39.560	0.250	1.000	A572-60 (60 ksi)
L3	48.000-0.000	53.000		18	37.773	51.560	0.313	1.250	A572-60 (60 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	21.588	12.541	703.548	7.481	10.800	65.143	1408.022	6.272	3.412	18.196
	27.985	16.290	1542.017	9.717	14.000	110.140	3086.062	8.147	4.521	24.11
L2	27.624	20.673	1772.791	9.249	13.362	132.675	3547.915	10.338	4.189	16.757
	40.170	31.192	6089.667	13.955	20.096	303.022	12187.346	15.599	6.523	26.09
L3	39.676	37.156	6587.370	13.298	19.189	343.295	13183.408	18.582	6.098	19.514
	52.355	50.831	16866.014	18.193	26.192	643.926	33754.220	25.420	8.525	27.279

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 121.000-96.000				1	1	1			
L2 96.000-48.000				1	1	1			
L3 48.000-0.000				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight klf
*									
LDF7-50A(1-5/8)	C	Surface Ar (CaAa)	110.000 - 0.000	7	6	-0.400 -0.200	1.980		0.001
*									

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight klf
LDF7-50A(1-5/8)	C	No	Inside Pole	121.000 - 0.000	12	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
760002253(1/2)	C	No	Inside Pole	121.000 - 0.000	1	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
FB-L98B-034-XXX(3/8)	C	No	Inside Pole	121.000 - 0.000	2	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
WR-VG86ST-BRD(3/4)	C	No	Inside Pole	121.000 - 0.000	4	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
2" Rigid Conduit	C	No	Inside Pole	121.000 - 0.000	1	No Ice	0.000	0.003
						1/2" Ice	0.000	0.003
						1" Ice	0.000	0.003
2" Rigid Conduit	C	No	Inside Pole	121.000 - 0.000	1	No Ice	0.000	0.003
						1/2" Ice	0.000	0.003
						1" Ice	0.000	0.003
LDF7-50A(1-5/8)	C	No	Inside Pole	110.000 - 0.000	13	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
*								
LDF6-50A(1-1/4)	C	No	Inside Pole	98.000 - 0.000	1	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight klf
LDF7-50A(1-5/8)	C	No	Inside Pole	98.000 - 0.000	12	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
*								
LDF4-50A(1/2)	C	No	Inside Pole	86.000 - 0.000	2	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
9207(5/16)	C	No	Inside Pole	86.000 - 0.000	5	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
2" Rigid Conduit	C	No	Inside Pole	86.000 - 0.000	1	No Ice	0.000	0.003
						1/2" Ice	0.000	0.003
						1" Ice	0.000	0.003
*								

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	121.000-96.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	16.632	0.000	0.700
L2	96.000-48.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	57.024	0.000	2.384
L3	48.000-0.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	57.024	0.000	2.445

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	121.000-96.000	A	2.252	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	28.671	0.000	1.170
L2	96.000-48.000	A	2.159	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	98.300	0.000	3.995
L3	48.000-0.000	A	1.937	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	97.189	0.000	3.983

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	121.000-96.000	0.533	0.733	0.620	0.854
L2	96.000-48.000	0.812	1.118	0.927	1.277
L3	48.000-0.000	0.856	1.179	1.046	1.440

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	9	LDF7-50A(1-5/8)	96.00 - 110.00	1.0000	1.0000
L2	9	LDF7-50A(1-5/8)	48.00 - 96.00	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
RA21.7770.00 w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	121.000	No Ice 1/2" Ice 1" Ice	6.766 7.261 7.735	5.002 5.960 6.747	0.060 0.114 0.175
RA21.7770.00 w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	121.000	No Ice 1/2" Ice 1" Ice	6.766 7.261 7.735	5.002 5.960 6.747	0.060 0.114 0.175
RA21.7770.00 w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	121.000	No Ice 1/2" Ice 1" Ice	6.766 7.261 7.735	5.002 5.960 6.747	0.060 0.114 0.175
HPA-65R-BUU-H6 w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	121.000	No Ice 1/2" Ice 1" Ice	9.895 10.470 11.010	8.113 9.304 10.209	0.077 0.158 0.248
HPA-65R-BUU-H6 w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	121.000	No Ice 1/2" Ice 1" Ice	9.895 10.470 11.010	8.113 9.304 10.209	0.077 0.158 0.248
HPA-65R-BUU-H6 w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	121.000	No Ice 1/2" Ice 1" Ice	9.895 10.470 11.010	8.113 9.304 10.209	0.077 0.158 0.248
(2) LGP21401	A	From Leg	4.000 0.000 0.000	0.000	121.000	No Ice 1/2" Ice 1" Ice	1.104 1.239 1.381	0.207 0.274 0.348	0.014 0.021 0.030
(2) LGP21401	B	From Leg	4.000 0.000 0.000	0.000	121.000	No Ice 1/2" Ice 1" Ice	1.104 1.239 1.381	0.207 0.274 0.348	0.014 0.021 0.030
(2) LGP21401	C	From Leg	4.000 0.000 0.000	0.000	121.000	No Ice 1/2" Ice 1" Ice	1.104 1.239 1.381	0.207 0.274 0.348	0.014 0.021 0.030
RRUS-11	A	From Leg	4.000 0.000 0.000	0.000	121.000	No Ice 1/2" Ice 1" Ice	2.784 2.992 3.207	1.187 1.334 1.490	0.048 0.068 0.092
RRUS-11	B	From Leg	4.000 0.000 0.000	0.000	121.000	No Ice 1/2" Ice 1" Ice	2.784 2.992 3.207	1.187 1.334 1.490	0.048 0.068 0.092
RRUS-11	C	From Leg	4.000	0.000	121.000	No Ice	2.784	1.187	0.048

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.000			1/2"	2.992	1.334	0.068
			0.000			Ice	3.207	1.490	0.092
						1" Ice			
DC6-48-60-18-8F	C	From Leg	4.000	0.000	121.000	No Ice	0.791	0.791	0.020
			0.000			1/2"	1.274	1.274	0.035
			0.000			Ice	1.450	1.450	0.053
						1" Ice			
QS66512-2 w/ Mount Pipe	A	From Leg	4.000	0.000	121.000	No Ice	8.371	8.463	0.137
			0.000			1/2"	8.931	9.657	0.212
			0.000			Ice	9.457	10.548	0.296
						1" Ice			
QS66512-2 w/ Mount Pipe	B	From Leg	4.000	0.000	121.000	No Ice	8.371	8.463	0.137
			0.000			1/2"	8.931	9.657	0.212
			0.000			Ice	9.457	10.548	0.296
						1" Ice			
QS66512-2 w/ Mount Pipe	C	From Leg	4.000	0.000	121.000	No Ice	8.371	8.463	0.137
			0.000			1/2"	8.931	9.657	0.212
			0.000			Ice	9.457	10.548	0.296
						1" Ice			
RRUS 32 B2	A	From Leg	4.000	0.000	121.000	No Ice	2.731	1.668	0.053
			0.000			1/2"	2.953	1.855	0.074
			0.000			Ice	3.182	2.049	0.098
						1" Ice			
RRUS 32 B2	B	From Leg	4.000	0.000	121.000	No Ice	2.731	1.668	0.053
			0.000			1/2"	2.953	1.855	0.074
			0.000			Ice	3.182	2.049	0.098
						1" Ice			
RRUS 32 B2	C	From Leg	4.000	0.000	121.000	No Ice	2.731	1.668	0.053
			0.000			1/2"	2.953	1.855	0.074
			0.000			Ice	3.182	2.049	0.098
						1" Ice			
RRUS 32	A	From Leg	4.000	0.000	121.000	No Ice	2.857	1.777	0.055
			0.000			1/2"	3.083	1.968	0.077
			0.000			Ice	3.316	2.166	0.103
						1" Ice			
RRUS 32	B	From Leg	4.000	0.000	121.000	No Ice	2.857	1.777	0.055
			0.000			1/2"	3.083	1.968	0.077
			0.000			Ice	3.316	2.166	0.103
						1" Ice			
RRUS 32	C	From Leg	4.000	0.000	121.000	No Ice	2.857	1.777	0.055
			0.000			1/2"	3.083	1.968	0.077
			0.000			Ice	3.316	2.166	0.103
						1" Ice			
(2) 7020.00	A	From Leg	4.000	0.000	121.000	No Ice	0.102	0.175	0.002
			0.000			1/2"	0.147	0.239	0.005
			0.000			Ice	0.199	0.311	0.009
						1" Ice			
(2) 7020.00	B	From Leg	4.000	0.000	121.000	No Ice	0.102	0.175	0.002
			0.000			1/2"	0.147	0.239	0.005
			0.000			Ice	0.199	0.311	0.009
						1" Ice			
(2) 7020.00	C	From Leg	4.000	0.000	121.000	No Ice	0.102	0.175	0.002
			0.000			1/2"	0.147	0.239	0.005
			0.000			Ice	0.199	0.311	0.009
						1" Ice			
DBC0061F1V51-2	A	From Leg	4.000	0.000	121.000	No Ice	0.413	0.433	0.025
			0.000			1/2"	0.496	0.518	0.031
			0.000			Ice	0.586	0.609	0.038
						1" Ice			
DBC0061F1V51-2	B	From Leg	4.000	0.000	121.000	No Ice	0.413	0.433	0.025
			0.000			1/2"	0.496	0.518	0.031
			0.000			Ice	0.586	0.609	0.038
						1" Ice			
DBC0061F1V51-2	C	From Leg	4.000	0.000	121.000	No Ice	0.413	0.433	0.025
			0.000			1/2"	0.496	0.518	0.031

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.000			Ice	0.586	0.609	0.038
						1" Ice			
DC6-48-60-18-8C	A	From Leg	4.000	0.000	121.000	No Ice	2.737	2.737	0.026
			0.000			1/2"	2.963	2.963	0.052
			0.000			Ice	3.196	3.196	0.082
						1" Ice			
6' x 2" Mount Pipe	A	From Leg	4.000	0.000	121.000	No Ice	1.425	1.425	0.022
			0.000			1/2"	1.925	1.925	0.033
			0.000			Ice	2.294	2.294	0.048
						1" Ice			
6' x 2" Mount Pipe	B	From Leg	4.000	0.000	121.000	No Ice	1.425	1.425	0.022
			0.000			1/2"	1.925	1.925	0.033
			0.000			Ice	2.294	2.294	0.048
						1" Ice			
6' x 2" Mount Pipe	C	From Leg	4.000	0.000	121.000	No Ice	1.425	1.425	0.022
			0.000			1/2"	1.925	1.925	0.033
			0.000			Ice	2.294	2.294	0.048
						1" Ice			
Platform Mount [LP 601-1]	C	None		0.000	121.000	No Ice	28.470	28.470	1.122
						1/2"	33.590	33.590	1.514
						Ice	38.710	38.710	1.905
						1" Ice			
*									
800 10735V01 w/ Mount Pipe	A	From Leg	4.000	0.000	110.000	No Ice	8.873	5.489	0.058
			0.000			1/2"	9.455	6.710	0.121
			2.000			Ice	10.010	7.688	0.192
						1" Ice			
BXA-171063-8BF-2 w/ Mount Pipe	B	From Leg	4.000	0.000	110.000	No Ice	3.179	3.353	0.029
			0.000			1/2"	3.555	3.971	0.061
			2.000			Ice	3.930	4.595	0.099
						1" Ice			
BXA-171063-8BF-2 w/ Mount Pipe	C	From Leg	4.000	0.000	110.000	No Ice	3.179	3.353	0.029
			0.000			1/2"	3.555	3.971	0.061
			2.000			Ice	3.930	4.595	0.099
						1" Ice			
(2) LPA-80063-4CF-EDIN-5 w/ Mount Pipe	A	From Leg	4.000	0.000	110.000	No Ice	6.379	6.564	0.038
			0.000			1/2"	6.778	7.192	0.104
			2.000			Ice	7.186	7.836	0.176
						1" Ice			
(2) LPA-80063-4CF-EDIN-5 w/ Mount Pipe	B	From Leg	4.000	0.000	110.000	No Ice	6.379	6.564	0.038
			0.000			1/2"	6.778	7.192	0.104
			2.000			Ice	7.186	7.836	0.176
						1" Ice			
(2) LPA-80063-4CF-EDIN-5 w/ Mount Pipe	C	From Leg	4.000	0.000	110.000	No Ice	6.379	6.564	0.038
			0.000			1/2"	6.778	7.192	0.104
			2.000			Ice	7.186	7.836	0.176
						1" Ice			
(2) SBNHH-1D65B w/ Mount Pipe	A	From Leg	4.000	0.000	110.000	No Ice	8.386	7.084	0.076
			0.000			1/2"	8.950	8.275	0.146
			2.000			Ice	9.480	9.188	0.223
						1" Ice			
(2) SBNHH-1D65B w/ Mount Pipe	B	From Leg	4.000	0.000	110.000	No Ice	8.386	7.084	0.076
			0.000			1/2"	8.950	8.275	0.146
			2.000			Ice	9.480	9.188	0.223
						1" Ice			
(2) SBNHH-1D65B w/ Mount Pipe	C	From Leg	4.000	0.000	110.000	No Ice	8.386	7.084	0.076
			0.000			1/2"	8.950	8.275	0.146
			2.000			Ice	9.480	9.188	0.223
						1" Ice			
DB-T1-6Z-8AB-0Z	A	From Leg	4.000	0.000	110.000	No Ice	4.800	2.000	0.044
			0.000			1/2"	5.070	2.193	0.080
			2.000			Ice	5.348	2.393	0.120
						1" Ice			
B4 RRH2X60-4R	A	From Leg	4.000	0.000	110.000	No Ice	3.355	2.005	0.055
			0.000			1/2"	3.612	2.237	0.078

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			2.000			Ice	3.876	2.476	0.105
						1" Ice			
B4 RRH2X60-4R	B	From Leg	4.000	0.000	110.000	No Ice	3.355	2.005	0.055
			0.000			1/2"	3.612	2.237	0.078
			2.000			Ice	3.876	2.476	0.105
						1" Ice			
B4 RRH2X60-4R	C	From Leg	4.000	0.000	110.000	No Ice	3.355	2.005	0.055
			0.000			1/2"	3.612	2.237	0.078
			2.000			Ice	3.876	2.476	0.105
						1" Ice			
B13 RRH 4X30	A	From Leg	4.000	0.000	110.000	No Ice	2.055	1.320	0.056
			0.000			1/2"	2.241	1.475	0.073
			2.000			Ice	2.433	1.638	0.093
						1" Ice			
B13 RRH 4X30	B	From Leg	4.000	0.000	110.000	No Ice	2.055	1.320	0.056
			0.000			1/2"	2.241	1.475	0.073
			2.000			Ice	2.433	1.638	0.093
						1" Ice			
B13 RRH 4X30	C	From Leg	4.000	0.000	110.000	No Ice	2.055	1.320	0.056
			0.000			1/2"	2.241	1.475	0.073
			2.000			Ice	2.433	1.638	0.093
						1" Ice			
Platform Mount [LP 601-1]	C	None		0.000	110.000	No Ice	28.470	28.470	1.122
						1/2"	33.590	33.590	1.514
						Ice	38.710	38.710	1.905
						1" Ice			
*									
(2) AIR 21 w/ Mount Pipe	A	From Leg	4.000	0.000	98.000	No Ice	6.287	5.701	0.112
			0.000			1/2"	6.732	6.482	0.169
			2.000			Ice	7.170	7.188	0.232
						1" Ice			
(2) AIR 21 w/ Mount Pipe	B	From Leg	4.000	0.000	98.000	No Ice	6.287	5.701	0.112
			0.000			1/2"	6.732	6.482	0.169
			2.000			Ice	7.170	7.188	0.232
						1" Ice			
(2) AIR 21 w/ Mount Pipe	C	From Leg	4.000	0.000	98.000	No Ice	6.287	5.701	0.112
			0.000			1/2"	6.732	6.482	0.169
			2.000			Ice	7.170	7.188	0.232
						1" Ice			
ONEBASE TWIN DUAL DUPLEX TMA	A	From Leg	4.000	0.000	98.000	No Ice	0.578	0.263	0.011
			0.000			1/2"	0.674	0.336	0.016
			2.000			Ice	0.778	0.416	0.022
						1" Ice			
ONEBASE TWIN DUAL DUPLEX TMA	B	From Leg	4.000	0.000	98.000	No Ice	0.578	0.263	0.011
			0.000			1/2"	0.674	0.336	0.016
			2.000			Ice	0.778	0.416	0.022
						1" Ice			
ONEBASE TWIN DUAL DUPLEX TMA	C	From Leg	4.000	0.000	98.000	No Ice	0.578	0.263	0.011
			0.000			1/2"	0.674	0.336	0.016
			2.000			Ice	0.778	0.416	0.022
						1" Ice			
(2) 6' x 2'' Mount Pipe	A	From Leg	4.000	0.000	98.000	No Ice	1.425	1.425	0.022
			0.000			1/2"	1.925	1.925	0.033
			0.000			Ice	2.294	2.294	0.048
						1" Ice			
(2) 6' x 2'' Mount Pipe	B	From Leg	4.000	0.000	98.000	No Ice	1.425	1.425	0.022
			0.000			1/2"	1.925	1.925	0.033
			0.000			Ice	2.294	2.294	0.048
						1" Ice			
(2) 6' x 2'' Mount Pipe	C	From Leg	4.000	0.000	98.000	No Ice	1.425	1.425	0.022
			0.000			1/2"	1.925	1.925	0.033
			0.000			Ice	2.294	2.294	0.048
						1" Ice			
Platform Mount [LP 601-1]	C	None		0.000	98.000	No Ice	28.470	28.470	1.122
						1/2"	33.590	33.590	1.514

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						Ice 1" Ice	38.710	38.710	1.905
*									
LLPX310R-V1 w/ Mount Pipe	A	From Leg	2.000 0.000 2.000	0.000	86.000	No Ice 1/2" Ice 1" Ice	4.538 4.891 5.254	2.983 3.526 4.086	0.045 0.083 0.126
LLPX310R-V1 w/ Mount Pipe	B	From Leg	2.000 0.000 2.000	0.000	86.000	No Ice 1/2" Ice 1" Ice	4.538 4.891 5.254	2.983 3.526 4.086	0.045 0.083 0.126
LLPX310R-V1 w/ Mount Pipe	C	From Leg	2.000 0.000 2.000	0.000	86.000	No Ice 1/2" Ice 1" Ice	4.538 4.891 5.254	2.983 3.526 4.086	0.045 0.083 0.126
HORIZON DUO	A	From Leg	2.000 0.000 2.000	0.000	86.000	No Ice 1/2" Ice 1" Ice	0.469 0.556 0.650	0.294 0.365 0.444	0.007 0.012 0.018
HORIZON DUO	B	From Leg	2.000 0.000 2.000	0.000	86.000	No Ice 1/2" Ice 1" Ice	0.469 0.556 0.650	0.294 0.365 0.444	0.007 0.012 0.018
DC6-48-60-18-8F	A	From Leg	2.000 0.000 2.000	0.000	86.000	No Ice 1/2" Ice 1" Ice	0.791 1.274 1.450	0.791 1.274 1.450	0.020 0.035 0.053
DC6-48-60-18-8F	B	From Leg	2.000 0.000 2.000	0.000	86.000	No Ice 1/2" Ice 1" Ice	0.791 1.274 1.450	0.791 1.274 1.450	0.020 0.035 0.053
DC6-48-60-18-8F	C	From Leg	2.000 0.000 2.000	0.000	86.000	No Ice 1/2" Ice 1" Ice	0.791 1.274 1.450	0.791 1.274 1.450	0.020 0.035 0.053
URAS-FLEXIBLE	A	From Leg	2.000 0.000 2.000	0.000	86.000	No Ice 1/2" Ice 1" Ice	1.547 1.704 1.868	0.684 0.800 0.923	0.033 0.045 0.058
URAS-FLEXIBLE	B	From Leg	2.000 0.000 2.000	0.000	86.000	No Ice 1/2" Ice 1" Ice	1.547 1.704 1.868	0.684 0.800 0.923	0.033 0.045 0.058
URAS-FLEXIBLE	C	From Leg	2.000 0.000 2.000	0.000	86.000	No Ice 1/2" Ice 1" Ice	1.547 1.704 1.868	0.684 0.800 0.923	0.033 0.045 0.058
7'x2" Pipe Mount	A	From Leg	2.000 0.000 2.000	0.000	86.000	No Ice 1/2" Ice 1" Ice	1.663 2.391 2.825	1.663 2.391 2.825	0.026 0.039 0.056
7'x2" Pipe Mount	B	From Leg	2.000 0.000 2.000	0.000	86.000	No Ice 1/2" Ice 1" Ice	1.663 2.391 2.825	1.663 2.391 2.825	0.026 0.039 0.056
7'x2" Pipe Mount	C	From Leg	2.000 0.000 2.000	0.000	86.000	No Ice 1/2" Ice 1" Ice	1.663 2.391 2.825	1.663 2.391 2.825	0.026 0.039 0.056
Side Arm Mount [SO 103-3]	C	None		0.000	86.000	No Ice 1/2" Ice 1" Ice	9.500 11.800 14.100	9.500 11.800 14.100	0.224 0.317 0.410
*									

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	3 dB Beam Width	Elevation	Outside Diameter		Aperture Area	Weight
				ft	°	°	ft	ft		ft^2	K
A-ANT-18G-2-C	A	Paraboloid w/Shroud (HP)	From Leg	2.000	0.000		86.000	2.175	No Ice	3.715	0.027
				0.000					1/2" Ice	4.006	0.048
				2.000					1" Ice	4.296	0.068
A-ANT-11G-3-C	B	Paraboloid w/Shroud (HP)	From Leg	2.000	0.000		86.000	3.021	No Ice	7.170	0.050
				0.000					1/2" Ice	7.570	0.090
				2.000					1" Ice	7.970	0.130
*											

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 30 deg - No Ice
5	0.9 Dead+1.6 Wind 30 deg - No Ice
6	1.2 Dead+1.6 Wind 60 deg - No Ice
7	0.9 Dead+1.6 Wind 60 deg - No Ice
8	1.2 Dead+1.6 Wind 90 deg - No Ice
9	0.9 Dead+1.6 Wind 90 deg - No Ice
10	1.2 Dead+1.6 Wind 120 deg - No Ice
11	0.9 Dead+1.6 Wind 120 deg - No Ice
12	1.2 Dead+1.6 Wind 150 deg - No Ice
13	0.9 Dead+1.6 Wind 150 deg - No Ice
14	1.2 Dead+1.6 Wind 180 deg - No Ice
15	0.9 Dead+1.6 Wind 180 deg - No Ice
16	1.2 Dead+1.6 Wind 210 deg - No Ice
17	0.9 Dead+1.6 Wind 210 deg - No Ice
18	1.2 Dead+1.6 Wind 240 deg - No Ice
19	0.9 Dead+1.6 Wind 240 deg - No Ice
20	1.2 Dead+1.6 Wind 270 deg - No Ice
21	0.9 Dead+1.6 Wind 270 deg - No Ice
22	1.2 Dead+1.6 Wind 300 deg - No Ice
23	0.9 Dead+1.6 Wind 300 deg - No Ice
24	1.2 Dead+1.6 Wind 330 deg - No Ice
25	0.9 Dead+1.6 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service

Comb. No.	Description
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	121 - 96	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-25.618	0.071	2.449
			Max. Mx	20	-6.666	238.092	0.410
			Max. My	2	-6.625	0.076	241.913
			Max. Vy	20	-14.735	238.092	0.410
			Max. Vx	14	15.007	-0.022	-241.019
			Max. Torque	21			-1.404
L2	96 - 48	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-49.136	-2.568	0.297
			Max. Mx	20	-17.806	1240.462	6.142
			Max. My	14	-17.783	-5.708	-1255.883
			Max. Vy	20	-24.063	1240.462	6.142
			Max. Vx	14	24.305	-5.708	-1255.883
			Max. Torque	21			-1.616
L3	48 - 0	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-70.683	-5.008	-3.061
			Max. Mx	20	-32.221	2630.375	14.521
			Max. My	14	-32.220	-13.924	-2659.457
			Max. Vy	20	-28.230	2630.375	14.521
			Max. Vx	14	28.463	-13.924	-2659.457
			Max. Torque	21			-1.609

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	32	70.683	-4.173	-7.248
	Max. H_x	20	32.249	28.198	0.166
	Max. H_z	2	32.249	0.229	28.406
	Max. M_x	2	2656.153	0.229	28.406
	Max. M_z	8	2624.149	-28.110	-0.099
	Max. Torsion	9	1.554	-28.110	-0.099
	Min. Vert	11	24.187	-24.344	-14.326
	Min. H_x	9	24.187	-28.110	-0.099
	Min. H_z	14	32.249	-0.144	-28.431
	Min. M_x	14	-2659.457	-0.144	-28.431
	Min. M_z	20	-2630.375	28.198	0.166
	Min. Torsion	21	-1.606	28.198	0.166

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	26.874	0.000	0.000	0.424	-0.717	0.000

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
1.2 Dead+1.6 Wind 0 deg - No Ice	32.249	-0.229	-28.406	-2656.153	19.812	0.269
0.9 Dead+1.6 Wind 0 deg - No Ice	24.187	-0.229	-28.406	-2634.626	19.892	0.273
1.2 Dead+1.6 Wind 30 deg - No Ice	32.249	14.022	-24.565	-2296.696	-1309.280	-0.140
0.9 Dead+1.6 Wind 30 deg - No Ice	24.187	14.022	-24.565	-2278.094	-1298.392	-0.137
1.2 Dead+1.6 Wind 60 deg - No Ice	32.249	24.520	-14.211	-1326.664	-2285.314	-0.983
0.9 Dead+1.6 Wind 60 deg - No Ice	24.187	24.520	-14.211	-1315.980	-2266.505	-0.981
1.2 Dead+1.6 Wind 90 deg - No Ice	32.249	28.110	0.099	9.464	-2624.149	-1.554
0.9 Dead+1.6 Wind 90 deg - No Ice	24.187	28.110	0.099	9.271	-2602.551	-1.554
1.2 Dead+1.6 Wind 120 deg - No Ice	32.249	24.344	14.326	1340.029	-2272.649	-1.367
0.9 Dead+1.6 Wind 120 deg - No Ice	24.187	24.344	14.326	1328.991	-2253.917	-1.369
1.2 Dead+1.6 Wind 150 deg - No Ice	32.249	14.144	24.644	2305.183	-1320.486	-0.968
0.9 Dead+1.6 Wind 150 deg - No Ice	24.187	14.144	24.644	2286.271	-1309.520	-0.971
1.2 Dead+1.6 Wind 180 deg - No Ice	32.249	0.144	28.431	2659.457	-13.924	-0.465
0.9 Dead+1.6 Wind 180 deg - No Ice	24.187	0.144	28.431	2637.659	-13.605	-0.469
1.2 Dead+1.6 Wind 210 deg - No Ice	32.249	-13.965	24.651	2305.459	1302.381	0.134
0.9 Dead+1.6 Wind 210 deg - No Ice	24.187	-13.965	24.651	2286.547	1291.985	0.130
1.2 Dead+1.6 Wind 240 deg - No Ice	32.249	-24.566	14.190	1325.872	2287.755	1.098
0.9 Dead+1.6 Wind 240 deg - No Ice	24.187	-24.566	14.190	1314.943	2269.372	1.097
1.2 Dead+1.6 Wind 270 deg - No Ice	32.249	-28.198	-0.166	-14.520	2630.375	1.606
0.9 Dead+1.6 Wind 270 deg - No Ice	24.187	-28.198	-0.166	-14.544	2609.174	1.606
1.2 Dead+1.6 Wind 300 deg - No Ice	32.249	-24.432	-14.327	-1339.039	2278.900	1.448
0.9 Dead+1.6 Wind 300 deg - No Ice	24.187	-24.432	-14.327	-1328.259	2260.563	1.451
1.2 Dead+1.6 Wind 330 deg - No Ice	32.249	-14.201	-24.660	-2305.636	1323.872	0.922
0.9 Dead+1.6 Wind 330 deg - No Ice	24.187	-14.201	-24.660	-2286.969	1313.321	0.925
1.2 Dead+1.0 Ice+1.0 Temp	70.683	0.000	-0.000	3.061	-5.008	-0.000
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	70.683	-0.047	-8.357	-798.388	-0.641	0.012
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	70.683	4.145	-7.226	-689.885	-402.095	-0.101
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	70.683	7.194	-4.159	-395.756	-694.161	-0.286
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	70.683	8.309	0.020	5.060	-800.928	-0.393
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	70.683	7.196	4.206	406.455	-694.266	-0.320
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	70.683	4.173	7.248	698.219	-404.782	-0.197
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	70.683	0.030	8.363	805.217	-8.022	-0.054
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	70.683	-4.133	7.245	697.910	390.658	0.098
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	70.683	-7.204	4.156	401.689	684.729	0.308
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	70.683	-8.328	-0.035	-0.191	792.345	0.404

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	70.683	-7.214	-4.205	-400.138	685.708	0.339
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	70.683	-4.184	-7.250	-692.212	395.557	0.188
Dead+Wind 0 deg - Service	26.874	-0.049	-6.078	-565.719	3.675	0.058
Dead+Wind 30 deg - Service	26.874	3.000	-5.256	-489.110	-279.555	-0.031
Dead+Wind 60 deg - Service	26.874	5.246	-3.041	-282.396	-487.545	-0.213
Dead+Wind 90 deg - Service	26.874	6.014	0.021	2.330	-559.740	-0.336
Dead+Wind 120 deg - Service	26.874	5.209	3.065	285.870	-484.845	-0.296
Dead+Wind 150 deg - Service	26.874	3.026	5.273	491.552	-281.948	-0.210
Dead+Wind 180 deg - Service	26.874	0.031	6.083	567.053	-3.517	-0.101
Dead+Wind 210 deg - Service	26.874	-2.988	5.274	491.608	276.990	0.028
Dead+Wind 240 deg - Service	26.874	-5.256	3.036	282.854	486.971	0.238
Dead+Wind 270 deg - Service	26.874	-6.033	-0.036	-2.783	559.974	0.348
Dead+Wind 300 deg - Service	26.874	-5.228	-3.065	-285.034	485.082	0.314
Dead+Wind 330 deg - Service	26.874	-3.038	-5.276	-491.022	281.572	0.200

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.000	-26.874	0.000	0.000	26.874	0.000	0.000%
2	-0.229	-32.249	-28.406	0.229	32.249	28.406	0.000%
3	-0.229	-24.187	-28.406	0.229	24.187	28.406	0.000%
4	14.022	-32.249	-24.565	-14.022	32.249	24.565	0.000%
5	14.022	-24.187	-24.565	-14.022	24.187	24.565	0.000%
6	24.520	-32.249	-14.211	-24.520	32.249	14.211	0.000%
7	24.520	-24.187	-14.211	-24.520	24.187	14.211	0.000%
8	28.110	-32.249	0.099	-28.110	32.249	-0.099	0.000%
9	28.110	-24.187	0.099	-28.110	24.187	-0.099	0.000%
10	24.344	-32.249	14.326	-24.344	32.249	-14.326	0.000%
11	24.344	-24.187	14.326	-24.344	24.187	-14.326	0.000%
12	14.144	-32.249	24.644	-14.144	32.249	-24.644	0.000%
13	14.144	-24.187	24.644	-14.144	24.187	-24.644	0.000%
14	0.144	-32.249	28.431	-0.144	32.249	-28.431	0.000%
15	0.144	-24.187	28.431	-0.144	24.187	-28.431	0.000%
16	-13.965	-32.249	24.651	13.965	32.249	-24.651	0.000%
17	-13.965	-24.187	24.651	13.965	24.187	-24.651	0.000%
18	-24.566	-32.249	14.190	24.566	32.249	-14.190	0.000%
19	-24.566	-24.187	14.190	24.566	24.187	-14.190	0.000%
20	-28.198	-32.249	-0.166	28.198	32.249	0.166	0.000%
21	-28.198	-24.187	-0.166	28.198	24.187	0.166	0.000%
22	-24.432	-32.249	-14.327	24.432	32.249	14.327	0.000%
23	-24.432	-24.187	-14.327	24.432	24.187	14.327	0.000%
24	-14.201	-32.249	-24.660	14.201	32.249	24.660	0.000%
25	-14.201	-24.187	-24.660	14.201	24.187	24.660	0.000%
26	0.000	-70.683	0.000	-0.000	70.683	0.000	0.000%
27	-0.047	-70.683	-8.357	0.047	70.683	8.357	0.000%
28	4.145	-70.683	-7.226	-4.145	70.683	7.226	0.000%
29	7.194	-70.683	-4.159	-7.194	70.683	4.159	0.000%
30	8.309	-70.683	0.020	-8.309	70.683	-0.020	0.000%
31	7.195	-70.683	4.206	-7.196	70.683	-4.206	0.000%
32	4.173	-70.683	7.248	-4.173	70.683	-7.248	0.000%
33	0.030	-70.683	8.363	-0.030	70.683	-8.363	0.000%
34	-4.133	-70.683	7.244	4.133	70.683	-7.245	0.000%
35	-7.204	-70.683	4.156	7.204	70.683	-4.156	0.000%
36	-8.328	-70.683	-0.035	8.328	70.683	0.035	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
37	-7.214	-70.683	-4.205	7.214	70.683	4.205	0.000%
38	-4.184	-70.683	-7.250	4.184	70.683	7.250	0.000%
39	-0.049	-26.874	-6.078	0.049	26.874	6.078	0.000%
40	3.000	-26.874	-5.256	-3.000	26.874	5.256	0.000%
41	5.246	-26.874	-3.041	-5.246	26.874	3.041	0.000%
42	6.014	-26.874	0.021	-6.014	26.874	-0.021	0.000%
43	5.209	-26.874	3.065	-5.209	26.874	-3.065	0.000%
44	3.026	-26.874	5.273	-3.026	26.874	-5.273	0.000%
45	0.031	-26.874	6.083	-0.031	26.874	-6.083	0.000%
46	-2.988	-26.874	5.274	2.988	26.874	-5.274	0.000%
47	-5.256	-26.874	3.036	5.256	26.874	-3.036	0.000%
48	-6.033	-26.874	-0.036	6.033	26.874	0.036	0.000%
49	-5.228	-26.874	-3.065	5.228	26.874	3.065	0.000%
50	-3.038	-26.874	-5.276	3.038	26.874	5.276	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00030224
3	Yes	4	0.00000001	0.00016974
4	Yes	5	0.00000001	0.00073683
5	Yes	5	0.00000001	0.00029297
6	Yes	5	0.00000001	0.00077097
7	Yes	5	0.00000001	0.00030852
8	Yes	5	0.00000001	0.00004839
9	Yes	4	0.00000001	0.00079305
10	Yes	5	0.00000001	0.00072477
11	Yes	5	0.00000001	0.00028693
12	Yes	5	0.00000001	0.00076843
13	Yes	5	0.00000001	0.00030677
14	Yes	4	0.00000001	0.00045609
15	Yes	4	0.00000001	0.00026421
16	Yes	5	0.00000001	0.00075418
17	Yes	5	0.00000001	0.00030111
18	Yes	5	0.00000001	0.00072174
19	Yes	5	0.00000001	0.00028599
20	Yes	5	0.00000001	0.00006502
21	Yes	5	0.00000001	0.00002786
22	Yes	5	0.00000001	0.00077948
23	Yes	5	0.00000001	0.00031200
24	Yes	5	0.00000001	0.00073642
25	Yes	5	0.00000001	0.00029167
26	Yes	4	0.00000001	0.00002626
27	Yes	5	0.00000001	0.00045973
28	Yes	5	0.00000001	0.00083173
29	Yes	5	0.00000001	0.00085092
30	Yes	5	0.00000001	0.00046353
31	Yes	5	0.00000001	0.00082107
32	Yes	5	0.00000001	0.00084437
33	Yes	5	0.00000001	0.00045888
34	Yes	5	0.00000001	0.00082259
35	Yes	5	0.00000001	0.00080212
36	Yes	5	0.00000001	0.00045958
37	Yes	5	0.00000001	0.00084499
38	Yes	5	0.00000001	0.00082261
39	Yes	4	0.00000001	0.00002023
40	Yes	4	0.00000001	0.00032362
41	Yes	4	0.00000001	0.00037557
42	Yes	4	0.00000001	0.00009507
43	Yes	4	0.00000001	0.00030785
44	Yes	4	0.00000001	0.00036618
45	Yes	4	0.00000001	0.00002622
46	Yes	4	0.00000001	0.00034779

47	Yes	4	0.00000001	0.00030572
48	Yes	4	0.00000001	0.00010260
49	Yes	4	0.00000001	0.00038414
50	Yes	4	0.00000001	0.00031895

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	121 - 96	16.561	39	1.217	0.004
L2	99.5 - 48	11.260	45	1.102	0.002
L3	53 - 0	3.021	45	0.538	0.001

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
121.000	RA21.7770.00 w/ Mount Pipe	39	16.561	1.217	0.004	25822
110.000	800 10735V01 w/ Mount Pipe	45	13.790	1.168	0.003	11737
98.000	(2) AIR 21 w/ Mount Pipe	45	10.914	1.090	0.002	5951
88.000	A-ANT-18G-2-C	45	8.726	0.991	0.002	5251
86.000	LLPX310R-V1 w/ Mount Pipe	45	8.315	0.969	0.002	5139

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	121 - 96	77.707	14	5.708	0.019
L2	99.5 - 48	52.843	14	5.173	0.011
L3	53 - 0	14.175	14	2.528	0.003

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
121.000	RA21.7770.00 w/ Mount Pipe	14	77.707	5.708	0.019	5634
110.000	800 10735V01 w/ Mount Pipe	14	64.716	5.482	0.015	2560
98.000	(2) AIR 21 w/ Mount Pipe	14	51.218	5.117	0.011	1295
88.000	A-ANT-18G-2-C	14	40.949	4.657	0.008	1137
86.000	LLPX310R-V1 w/ Mount Pipe	14	39.019	4.550	0.008	1111

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	121 - 96 (1)	TP27.56x21.26x0.188	25.000	0.000	0.0	15.765	-6.625	983.489	0.007
L2	96 - 48 (2)	TP39.56x26.303x0.25	51.500	0.000	0.0	30.171	-17.783	1828.310	0.010
L3	48 - 0 (3)	TP51.56x37.773x0.313	53.000	0.000	0.0	50.831	-32.220	2980.310	0.011

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	121 - 96 (1)	TP27.56x21.26x0.188	241.913	536.153	0.451	0.000	536.153	0.000
L2	96 - 48 (2)	TP39.56x26.303x0.25	1255.900	1431.333	0.877	0.000	1431.333	0.000
L3	48 - 0 (3)	TP51.56x37.773x0.313	2659.492	3146.200	0.845	0.000	3146.200	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	121 - 96 (1)	TP27.56x21.26x0.188	15.007	491.744	0.031	0.170	1073.617	0.000
L2	96 - 48 (2)	TP39.56x26.303x0.25	24.306	914.154	0.027	0.466	2866.167	0.000
L3	48 - 0 (3)	TP51.56x37.773x0.313	28.464	1490.150	0.019	0.465	6300.091	0.000

Pole Interaction Design Data

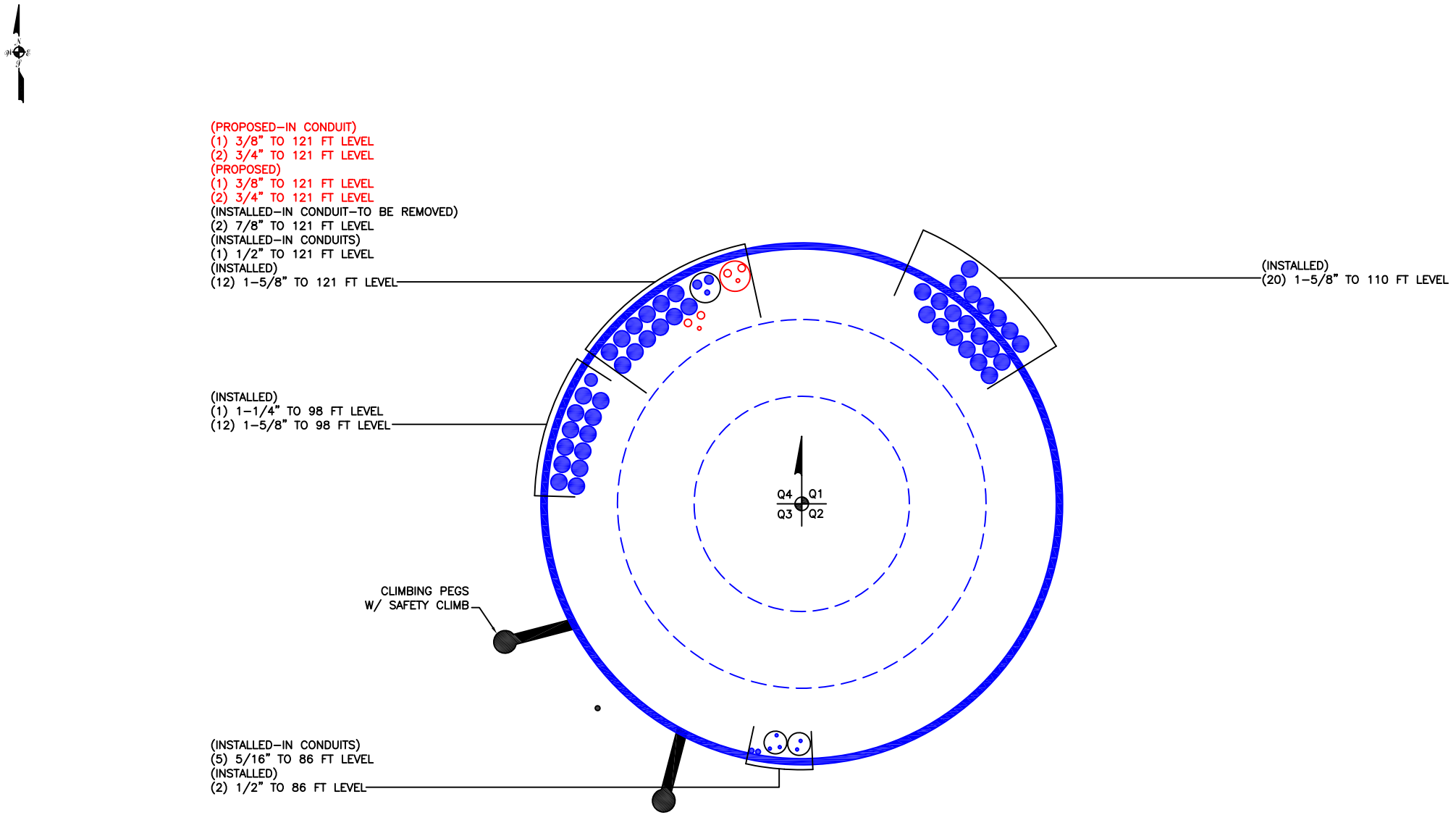
Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	121 - 96 (1)	0.007	0.451	0.000	0.031	0.000	0.459	1.000	4.8.2
L2	96 - 48 (2)	0.010	0.877	0.000	0.027	0.000	0.888	1.000	4.8.2
L3	48 - 0 (3)	0.011	0.845	0.000	0.019	0.000	0.856	1.000	4.8.2

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	121 - 96	Pole	TP27.56x21.26x0.188	1	-6.625	983.489	45.9	Pass
L2	96 - 48	Pole	TP39.56x26.303x0.25	2	-17.783	1828.310	88.8	Pass
L3	48 - 0	Pole	TP51.56x37.773x0.313	3	-32.220	2980.310	85.6	Pass
							Summary	
						Pole (L2)	88.8	Pass
						RATING =	**88.8**	**Pass**

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 857012 TOWER ID: C_BASELEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

Stiffened or Unstiffened, Ungrouted, Circular Base Plate - Any Rod Material

TIA Rev G Assumption: Clear space between bottom of leveling nut and top of concrete **not** exceeding (1)*(Rod Diameter)

Site Data	
BU#:	*857012*
Site Name:	*PLAINVILLE SOUTH WASHINGTOI*
App #:	*421347 Rev. 1*
Pole Manufacturer:	*Other*

Reactions		
Mu:	2659	ft-kips
Axial, Pu:	32	kips
Shear, Vu:	28	kips
Eta Factor, ɳ	0.5	TIA G (Fig. 4-4)

If No stiffeners, Criteria:	AISC LRFD	<-Only Applcable to Unstiffened Cases

Anchor Rod Data		
Qty:	16	
Diam:	2.25	in
Rod Material:	A615-J	
Strength (Fu):	100	ksi
Yield (Fy):	75	ksi
Bolt Circle:	60.56	in

Anchor Rod Results

Max Rod (Cu+ Vu/ɳ):	137.3	Kips
Allowable Axial, Φ*Fu*Anet:	260.0	Kips
Anchor Rod Stress Ratio:	52.8%	**Pass**

Rigid
AISC LRFD
φ*Tn

Plate Data		
Diam:	66	in
Thick:	2	in
Grade:	50	ksi
Single-Rod B-eff:	10.23	in

Base Plate Results Flexural Check

Base Plate Stress:	36.0	ksi
Allowable Plate Stress:	45.0	ksi
Base Plate Stress Ratio:	80.1%	**Pass**

Rigid
AISC LRFD
φ*Fy
Y.L. Length:
31.77

Stiffener Data (Welding at both sides)		
Config:	0	*
Weld Type:		
Groove Depth:		<-- Disregard
Groove Angle:		<-- Disregard
Fillet H. Weld:		in
Fillet V. Weld:		in
Width:		in
Height:		in
Thick:		in
Notch:		in
Grade:		ksi
Weld str.:		ksi

n/a

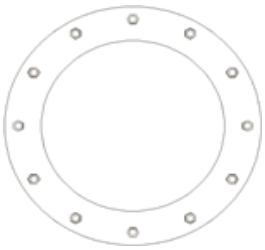
Stiffener Results

Horizontal Weld :	n/a
Vertical Weld:	n/a
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	n/a
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	n/a
Plate Comp. (AISC Bracket):	n/a

Pole Results

Pole Punching Shear Check:	n/a

Pole Data		
Diam:	51.56	in
Thick:	0.3125	in
Grade:	60	ksi
# of Sides:	18	"0" IF Round
Fu	76	ksi
Reinf. Fillet Weld	0	"0" if None



* 0 = none, 1 = every bolt, 2 = every 2 bolts, 3 = 2 per bolt

** Note: for complete joint penetration groove welds the groove depth must be exactly 1/2 the stiffener thickness for calculation purposes

Drilled Pier Foundation

BU # :	857012
Site Name:	PLAINVILLE SOUTH V
App. Number:	421347 Rev. 1

TIA-222 Revison:	G
Tower Type:	Monopole

Applied Loads	**Comp.**	**Uplift**
Moment (kip-ft)	2659	
Axial Force (kips)	32	
Shear Force (kips)	27	

Material Properties		
Concrete Strength, f'c:	3	ksi
Rebar Strength, Fy:	60	ksi

Pier Design Data		
Depth	32	ft
Ext. Above Grade	0.5	ft
Pier Section 1		
From 0.5' above grade to 32' below grade		
Pier Diameter	7	ft
Rebar Quantity	24	
Rebar Size	8	
Clear Cover to Ties	3	in
Tie Size	3	

Analysis Results		
Soil Lateral Capacity	*Compression*	*Uplift*
$D_{v=0}$ (ft from TOC)	7.04	-
Soil Safety Factor	4.18	-
Max Moment (kip-ft)	2844.06	-
Rating	*31.8%*	-
Soil Vertical Capacity	*Compression*	*Uplift*
Skin Friction (kips)	264.47	-
End Bearing (kips)	184.73	-
Weight of Concrete (kips)	144.45	-
Total Capacity (kips)	449.20	-
Axial (kips)	176.45	-
Rating	*39.3%*	-
Reinforced Concrete Capacity	*Compression*	*Uplift*
Critical Depth (ft from TOC)	7.05	-
Critical Moment (kip-ft)	2844.06	-
Critical Moment Capacity	3237.48	-
Rating	*87.8%*	-

Min. Steel is assumed

Soil Interaction Rating	**39.3%**
Structural Foundation Rating	**87.8%**

Soil Profile

Groundwater Depth	4	ft	# of Layers: 6

Layer	Top (ft)	Bottom (ft)	Thickness (ft)	γ_{soil} (pcf)	$\gamma_{concrete}$ (pcf)	Cohesion (ksf)	Angle of Friction (degrees)	Calculated Ultimate Skin Friction Comp (ksf)	Calculated Ultimate Skin Friction Uplift (ksf)	Ultimate Skin Friction Comp Override (ksf)	Ultimate Skin Friction Uplift Override (ksf)	Ult. Gross Bearing Capacity (ksf)	SPT Blow Count	Soil Type
1	0	3.5	3.5	117	150	0	0	0.000	0.000	0.00	0.00			Cohesionless
2	3.5	4	0.5	117	150	0	33	0.000	0.000	0.15	0.15			Cohesionless
3	4	13	9	55	87.6	0	33	0.000	0.000	0.48	0.48			Cohesionless
4	13	19	6	45	87.6	0	28	0.000	0.000	0.52	0.52			Cohesionless
5	19	23	4	55	87.6	0	33	0.000	0.000	0.60	0.60			Cohesionless
6	23	32	9	40	87.6	0	28	0.000	0.000	0.68	0.68	6.4		Cohesionless

CCISeismic - Design Category

Per *2012/2015 IBC*

Site BU:	857012
Work Order:	1517539
Application:	421347 Rev. 1

	Degrees	Minutes	Seconds		
Site Latitude =	41	39	11.03	41.6531	degrees
Site Longitude =	-72	52	36.90	-72.8769	degrees
Ground Supported Structure =	Yes				
Structure Class =	II				*(Table 2-1)*
Site Class =	D - Stiff Soil				*(Table 2-11)*

Spectral response acceleration short periods, S_S =	0.184	USGS Seismic Tool
Spectral response acceleration 1 s period, S_1 =	0.064	

Importance Factor, I =	1.0	*(Table 2-3)*
Acceleration-based site coefficient, F_a =	1.6	*(Table 2-12)*
Velocity-based site coefficient, F_v =	2.4	*(Table 2-13)*

Design spectral response acceleration short period, S_{DS} =	0.196	*(2.7.6)*
Design spectral response acceleration 1 s period, S_{D1} =	0.102	*(2.7.6)*

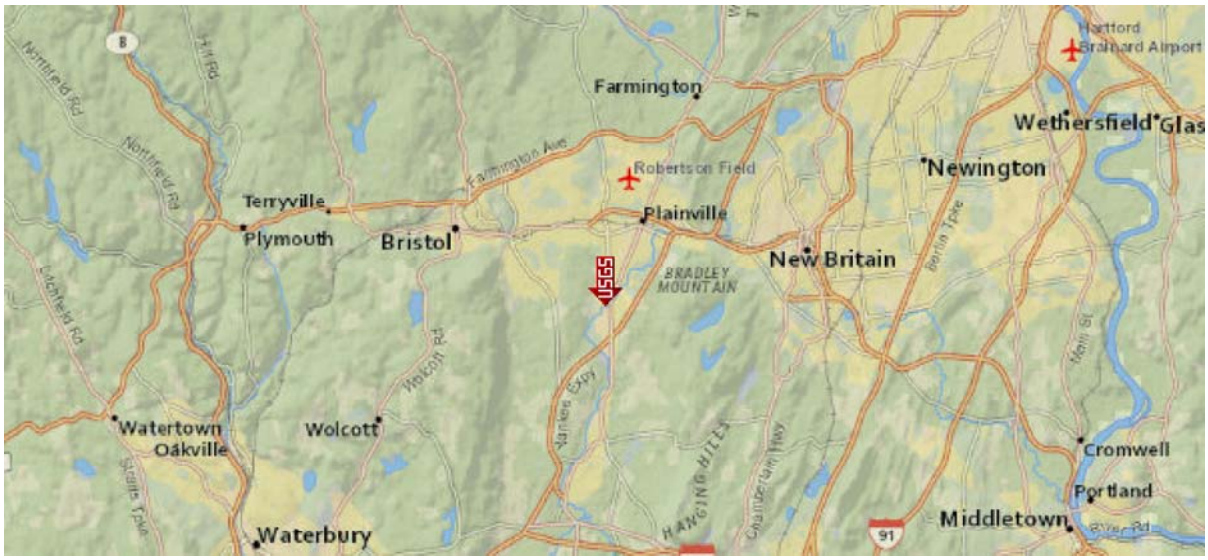
Seismic Design Category - Short Period Response =	B	*ASCE 7-05 Table 11.6-1*
Seismic Design Category - 1s Period Response =	B	*ASCE 7-05 Table 11.6-2*

Worst Case Seismic Design Category =	B	*ASCE 7-05 Tables 11.6-1 and 6-2*

USGS Design Maps Summary Report

User–Specified Input

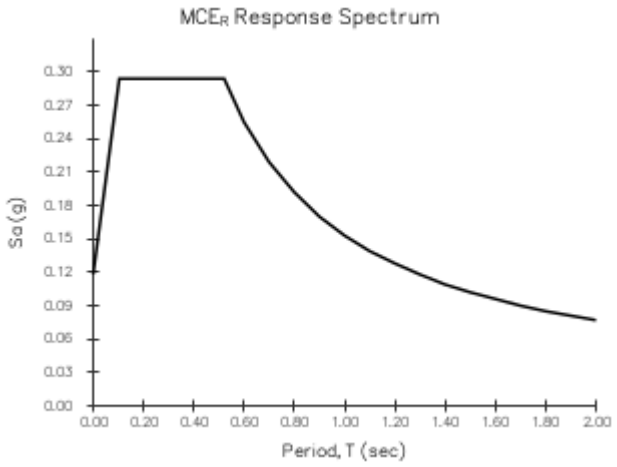
Building Code Reference Document	2012/2015 International Building Code (which utilizes USGS hazard data available in 2008)
Site Coordinates	41.6531°N, 72.8769°W
Site Soil Classification	Site Class D – "Stiff Soil"
Risk Category	I/II/III

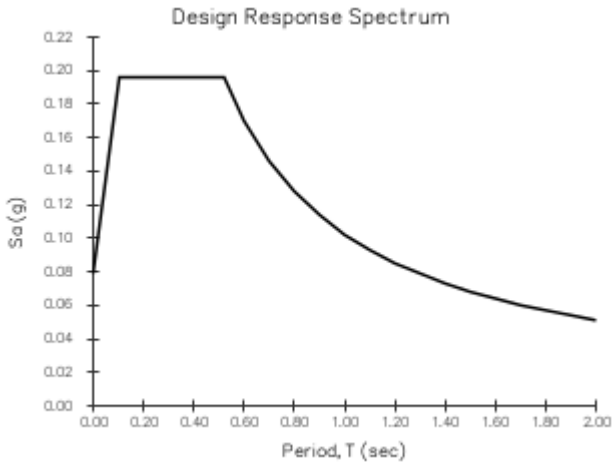


USGS–Provided Output

S_S =	0.184 g	S_{MS} =	0.294 g	S_{DS} =	0.196 g
S_1 =	0.064 g	S_{M1} =	0.153 g	S_{D1} =	0.102 g

For information on how the SS and S1 values above have been calculated from probabilistic (risk-targeted) and deterministic ground motions in the direction of maximum horizontal response, please return to the application and select the "2009 NEHRP" building code reference document.

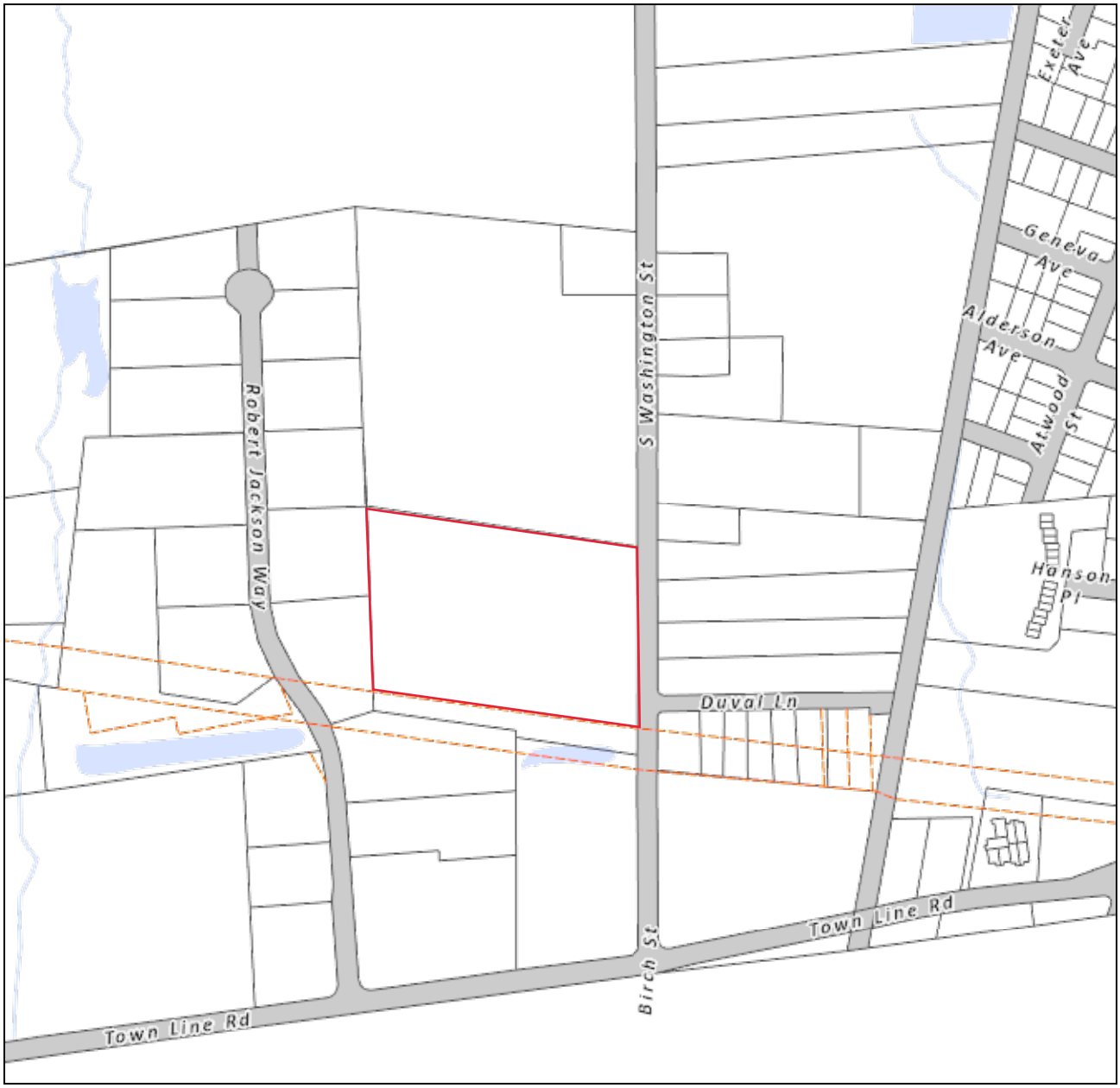




Town of Plainville

Geographic Information System (GIS)

Date Printed: 3/7/2018



MAP DISCLAIMER - NOTICE OF LIABILITY

This map is for assessment purposes only. It is not for legal description or conveyances. All information is subject to verification by any user. The Town of Plainville and its mapping contractors assume no legal responsibility for the information contained herein.

Approximate Scale: 1 inch = 400 feet

0 400 Feet

N W E S

Plainville, CT : Assessor Database

Property Search:

Parcel ID:	Alternate ID:	Owner 1 Name:	Street Number:	Street Name:
				...

Search Reset

Property Detail:

Parcel ID:	Alternate ID/Map Block Lot:	Card:	Card:	Street Name:	Street Number:	Zoning:	LUC:	Acres:
42-A-03	R05380	1	1	S WASHINGTON ST	335	RI	Manufacturing Warehouse Facilities	8.00

Owner Information:

Owner 1 Name:	DISPLAY PROPERTIES LLC
Owner 2 Name:	
Street 1:	335 S WASHINGTON ST
Street 2:	
City:	PLAINVILLE
State:	CT
Zip:	06062
Volume:	374
Page:	357
Deed Date:	0000-00-00

Building Information:

Building Number:	1
Units:	1
Structure Type:	WAREHOUSE
Grade:	B-
Identical Units:	1
Year Built:	1989

Valuation:

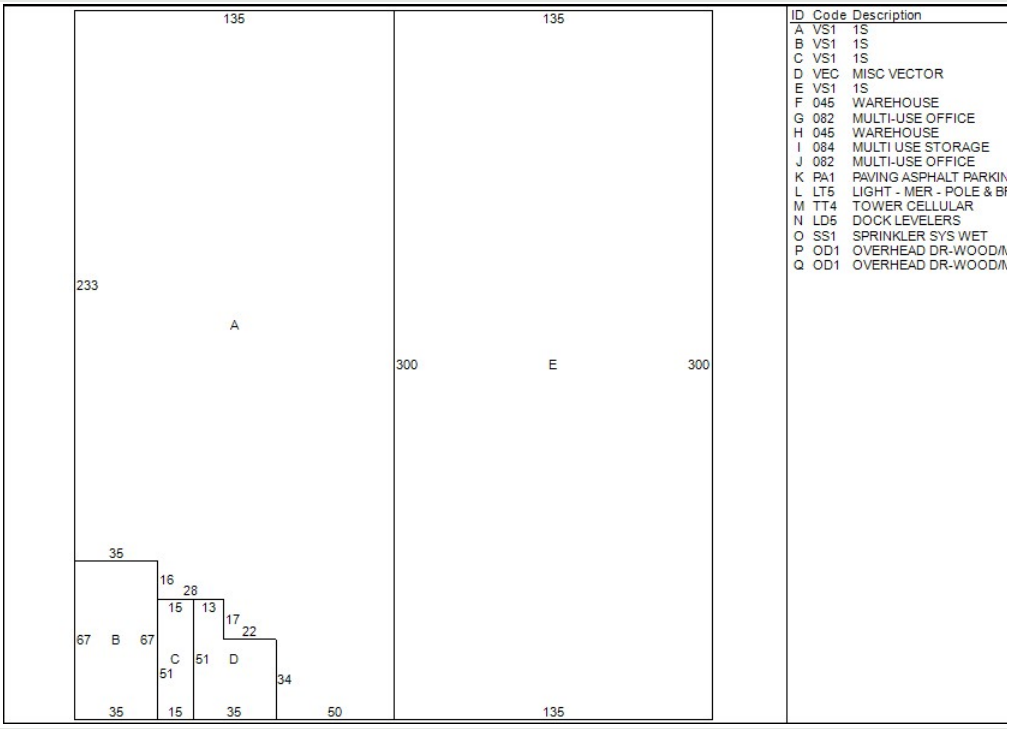
Appraised Land:	$467,600.00
Appraised Bldg:	$3,284,900.00
Appraised Total:	$3,752,500.00
Total Assessment:	$2,626,750.00

Property Images:

Picture:

There is no picture available.

Sketch:



Sales History:

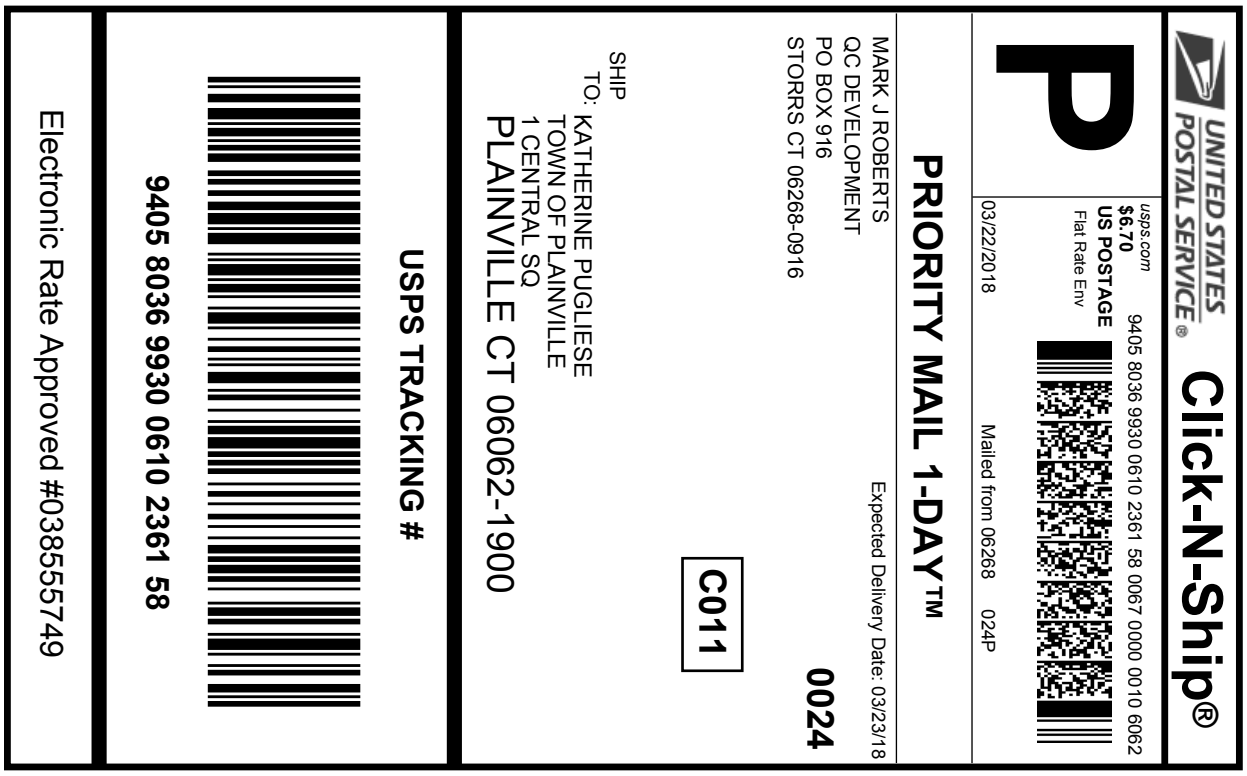
Book:	Page:	Sale Date:	Price:	Validity:	Sale Type:
374	357	03/27/2001	1,953,261	B	2
130	418	05/07/1963			
261	271	09/14/1988			
261	313	09/14/1988			
374	357	03/27/2001			

Out-Buildings:

Code:	Description:	Units:	Year Built:	Size1:	Size2:	Area:	Grade:	Condition:
PA1	PAVING ASPHALT PARKING	1	1989	1	9200	9200	C	NORMAL (Comm)
LT5	LIGHT - MER - POLE & BRK	4	2006	0	0	1	C	NORMAL (Comm)
TT4	TOWER CELLULAR	1	2000	1	120	120	C	NORMAL (Comm)

Building Interior/Exterior Information:

Floor From:	Floor To:	Area:	Use Type:	Exterior Walls:	Contruction Type:	Heating:	A/C:	Plumbing:	Functional Uti
01	01	34279	WAREHOUSE	METAL, SANDWICH	FIRE RESISTANT	UNIT HEATERS	NONE	NORMAL	3
01	01	7584	MULTI-USE OFFICE	METAL, SANDWICH	FIRE RESISTANT	HOT AIR	CENTRAL	NORMAL	2
M1	M1	2179	MULTI USE STORAGE	METAL, SANDWICH	FIRE RESISTANT	HOT AIR	NONE	NONE	3
M2	M2	429	MULTI-USE OFFICE	METAL, SANDWICH	FIRE RESISTANT	HOT AIR	CENTRAL	NORMAL	3
01	01	39140	WAREHOUSE	METAL, SANDWICH	FIRE RESISTANT	UNIT HEATERS	NONE	NORMAL	3



Cut on dotted line.

Instructions

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

Click-N-Ship® Label Record

USPS TRACKING # / Insurance Number:
9405 8036 9930 0610 2361 58

Trans. #:	430474198
Print Date:	03/21/2018
Ship Date:	03/22/2018
Expected Delivery Date:	03/23/2018
Insured Value:	$50.00

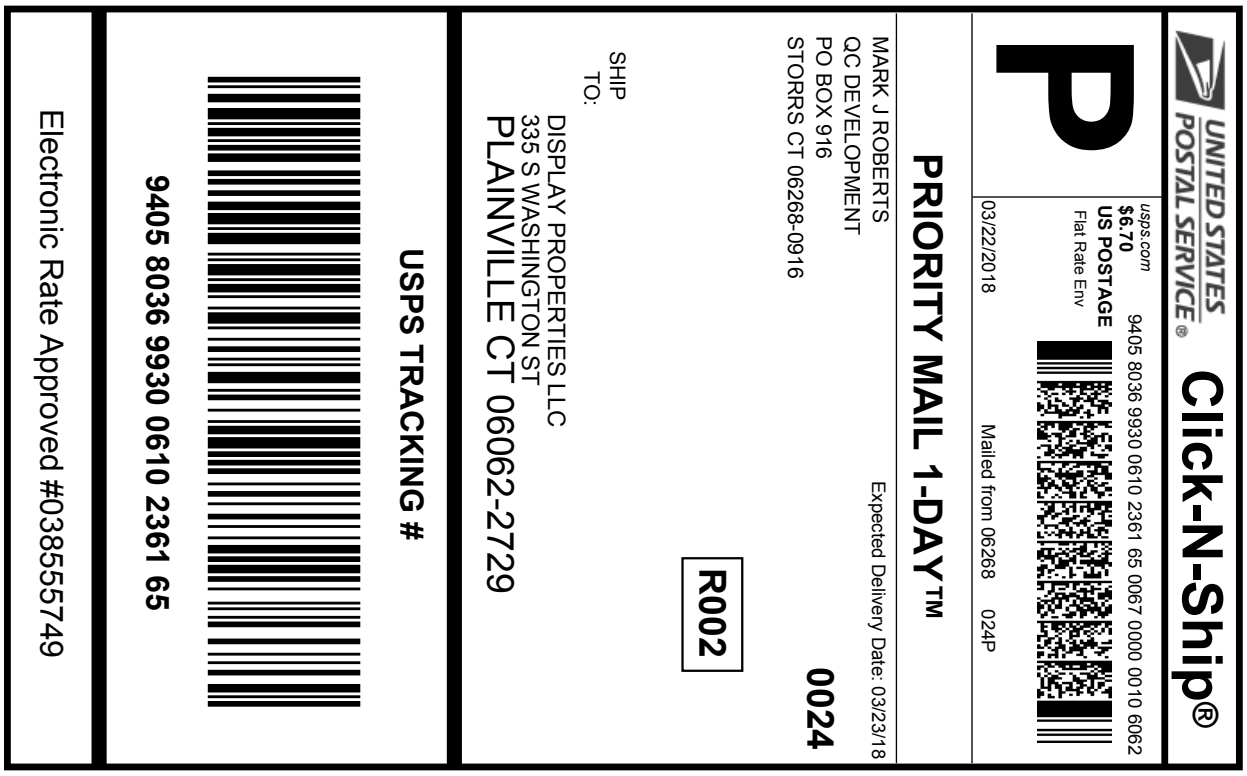
Priority Mail® Postage:	**$6.70**
Insurance Fee	**$0.00**
Total	**$6.70**

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

To: KATHERINE PUGLIESE
TOWN OF PLAINVILLE
1 CENTRAL SQ
PLAINVILLE CT 06062-1900

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

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



Cut on dotted line.

Instructions

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

Click-N-Ship® Label Record

USPS TRACKING # / Insurance Number:
9405 8036 9930 0610 2361 65

Trans. #:	430474198
Print Date:	03/21/2018
Ship Date:	03/22/2018
Expected Delivery Date:	03/23/2018
Insured Value:	$50.00

Priority Mail® Postage:	**$6.70**
Insurance Fee	**$0.00**
Total	**$6.70**

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

To: DISPLAY PROPERTIES LLC
335 S WASHINGTON ST
PLAINVILLE CT 06062-2729

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

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