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

September 28, 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) – CT1131
383 Torrington Road, Litchfield, CT 06759
N 41.76628333
W 73.17852778

Dear Ms. Bachman:

AT&T currently maintains nine (9) antennas at the 118-foot level of the existing 140-foot Monopole at 383 Torrington Road, Litchfield, CT. The tower is owned by SBA and the property is owned by Old Toll Gate Hill LLC. AT&T now intends to replace three (3) Powerwave antennas with (2) Andrew SBNHH-1D65A antennas and (1) CCI HPA65R-BU6A Antenna and install (2) new CCI OPA65R-BU4B and (1) CCI OPA65R-BU6B antennas. AT&T also intends to add (3) Ericsson RRUS-32, (3) 4426-B66, (3) 4478-B14, (3) 4478-B5 Remote Radio Units (RRU). These RRU's would also be installed at the 118-foot level of the tower.

This facility was approved by the Siting Council in Docket # 299 on August 25, 2005. This approval included no condition(s) that could feasibly be violated by this modification, including total facility height or mounting restrictions. This modification therefore complies with the aforementioned approval.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to the Honorable Leo Paul Jr., First Selectman of the Town of Litchfield, and the Litchfield Land Use

Department as well as the property and 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.

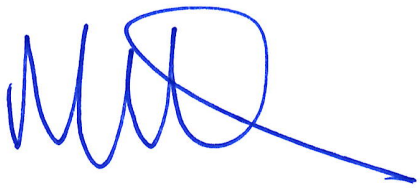
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

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: The Honorable Leo Paul, Jr.- as Elected Official
Dennis Tobin, PhD – as Local Land Use Administrator
Old Toll Gate Hill LLC – as Property Owner
SBA - as Tower Owner (via e-mail)

Power Density

Existing Loading on Tower

Carrier	# of Channels	ERP/Ch (W)	Antenna Centerline Height (ft)	Power Density (mW/cm^2)	Freq. Band (MHz**)	Limit S (mW /cm^2)	%MPE
Other Carriers*							5.15%
AT&T GSM	1	283	118	0.0081	880	0.5867	0.14%
AT&T UMTS	2	565	118	0.0324	880	0.5867	0.55%
AT&T UMTS	4	525	118	0.0602	1900	1.0000	0.60%
AT&T LTE	1	1313	118	0.0376	734	0.4893	0.77%
AT&T LTE	2	875	118	0.0502	1900	1.0000	0.50%
Site Total							7.71%

*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*							5.15%
AT&T UMTS	1	305	118	0.0087	850	0.5667	0.15%
AT&T LTE	2	2951	118	0.1692	700	0.4667	3.63%
AT&T LTE	2	1000	118	0.0573	850	0.5667	1.01%
AT&T LTE	2	3664	118	0.2101	1900	1.0000	2.10%
AT&T LTE	1	5070	118	0.1454	2100	1.0000	1.45%
AT&T LTE	1	1285	118	0.0368	2300	1.0000	0.37%
Site Total							13.86%

*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 THE EXISTING MONOPOLE TOWER:
- NEW AT&T ANTENNA (OPA65R–BU6B) @ POS. 2 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T ANTENNA (HPA65R–BU6A) @ POS. 3 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- RELOCATE EXISTING AT&T LTE ANTENNA TO POS. 4 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T B14 4478 (700) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T 4478 B5 (850) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T 4426 B66 (AWS) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T RRUS–32 (WCS) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- INSTALL (2) DC6–48–60–18–8F SQUID WITH (4) DC POWER, (2) FIBER, & (2) SQUIDS.
- PROPOSED PIPE TO PIPE CLAMP SITEPRO–1 # PUCK (TYP.)
- PROPOSED BACK TO BACK PIPE MOUNT SITEPRO–1 # BBPM–K1 (TYP.)
- INSTALL 2" STD. (2.38 O.D.) 1'–6" PIPE MAST (TYP. OF 2 PER SECTOR, TOTAL OF 6)
- PROPOSED CROSSOVER PLATE KIT, SITE PRO–1 PART# SCX45–K (TYP.) OR APPROVED EQUIVALENT
- PROPOSED 2"ø STD. (2.38" O.D.) DIAGONAL STEEL BRACE (TYP. OF 2 PER SECTOR, TOTAL OF 6)

ITEMS TO BE MOUNTED @ EXISTING EQUIPMENT SHELTER:
- SWAP BBU FOR RBS5216, ADD RBS6630, (2) XMU, (1) IDLE & INSTALL DC12.
- SWAP EXISTING DIPLEXERS WITH (3) LOW BAND COMBINERS.

ITEMS TO REMAIN:
- (6) ANTENNAS, (6) RRU'S, (1) SURGE ARRESTORS, (12) COAX, (2) DC POWER CABLES, & (1) FIBER RUN.

ITEMS TO BE REMOVED:
- (3) GSM ANTENNAS & (6) TMA'S

SQUID ALARMING (NOT TO BE DAISY CHAINED).
- THE 1ST SQUID INSTALLED WILL BE ALARMED TO THE LOWEST BAND (OR FIRST INSTALLED RRH/RRU ON THE ALPHA SECTOR, IN THE EVENT THE ALARM CABLE CANNOT BE CONNECTED TO ALPHA IT WILL BE ACCEPTABLE TO ALARM TO THE CLOSEST PHYSICAL SECTOR ON AN EXCEPTION BASIS.
- 2ND SQUID INSTALLED WILL BE ALARMED TO THE LOWEST BAND (OR FIRST INSTALLED) RRH/RRU ON THE BETA SECTOR.
- 3RD SQUID INSTALLED WILL BE ALARMED TO THE LOWEST BAND (OR FIRST INSTALLED) RRH/RRU ON THE GAMMA SECTOR.

SITE ADDRESS:	383 TORRINGTON ROAD LITCHFIELD, CT 06759
LATITUDE:	41.766283 N, 41° 45' 58.61" W
LONGITUDE:	73.178528 W, 73° 10' 42.70" W
TYPE OF SITE:	MONOPOLE TOWER, INDOOR EQUIPMENT
TOWER HEIGHT:	140'–0"±
RAD CENTER:	118'–0"±
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY

DRAWING INDEX

at&t

SITE NUMBER: CT1131

SITE NAME: LITCHFIELD CT TORRINGTON ROAD

FA CODE:10065732

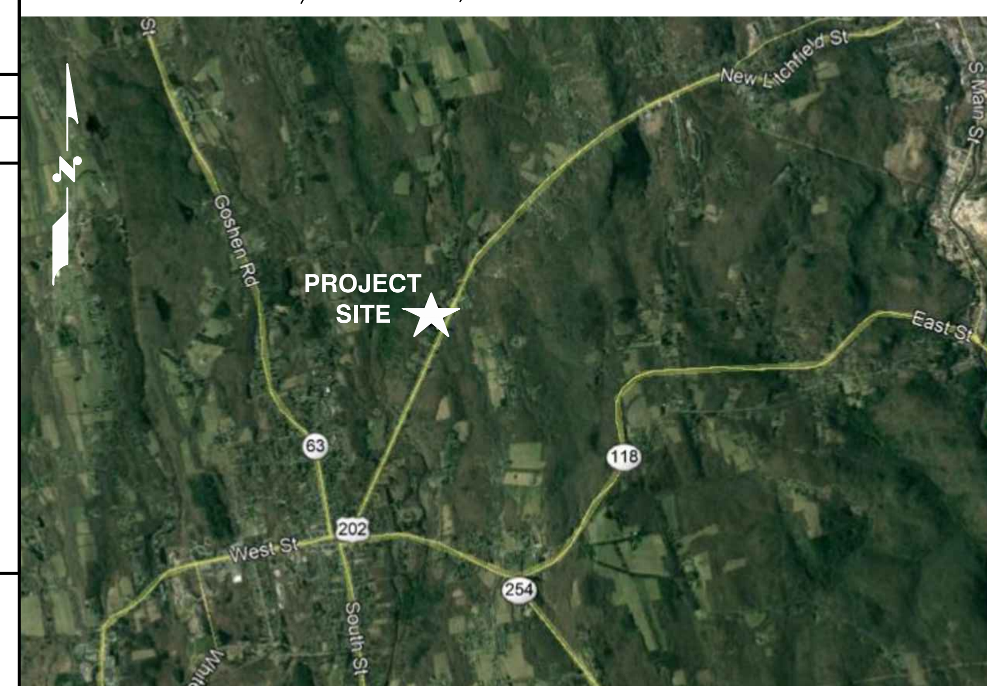
PACE ID: MRCTB032184, MRCTB032190, MRCTB032218, MRCTB032260

PROJECT: LTE 3C/4C/5C/6C 2018 UPGRADE

VICINITY MAP

DIRECTIONS TO SITE:

START OUT GOING RIGHT ONTO COCHITUATE RD, CONTINUE STRAIGHT TO STAY ON COCHITUATE RD, SLIGHT RIGHT ONTO MA–9 W/WORCESTER RD, CONTINUE TO FOLLOW MA–9 W, SLIGHT RIGHT ONTO THE ROUTE 495 N RAMP TO LOWELL, MERGE ONTO I–495 N, TAKE EXIT 25B FOR I–290 W TOWARD WORCESTER, CONTINUE ONTO I–290 W, TAKE EXIT 6B TO MERGE ONTO US–20 W TOWARD STURBRIDGE, MERGE ONTO US–20 W, USE THE LEFT LANE TO TAKE THE I–84 W RAMP TO HARTFORD CONNECTICUT, MERGE ONTO I–84, ENTERING CONNECTICUT, KEEP RIGHT TO STAY ON I–84, USE THE RIGHT 2 LANES TO TAKE EXIT 39 TOWARD FARMINGTON/CT–4, CONTINUE ONTO STATE HWY 508, STATE HWY 508 TURNS SLIGHTLY RIGHT AND BECOMES CT–4 W, SLIGHT RIGHT TO STAY ON CT–4 W, TURN LEFT ONTO CT–4, CONTINUE ONTO CT–118 W/LITCHFIELD RD, CT–118 W/LITCHFIELD RD TURNS SLIGHTLY RIGHT AND BECOMES THOMASTON RD, TURN LEFT ONTO CT–118 W/EAST ST, SLIGHT RIGHT ONTO EAST ST, TURN RIGHT ONTO US–202 E/TORRINGTON RD, TURN LEFT ONTO BERTOLI DR.



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 OR 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

STATE OF CONNECTICUT · DEREK J. CREASER · No. 28551 · LICENSED PROFESSIONAL ENGINEER

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

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12 INDUSTRIAL WAY
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SITE NUMBER: CT1131
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LITCHFIELD COUNTY

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
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A	07/05/18	ISSUED FOR REVIEW	SF	AT	DJC

SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: SF

AT&T

TITLE SHEET
(LTE 3C/4C/5C/6C)

SITE NUMBER	DRAWING NUMBER	REV
CT1131	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 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 STATE 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–F, 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

SAI
12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT1131
SITE NAME: LITCHFIELD
CT TORRINGTON ROAD
383 TORRINGTON ROAD
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at&t
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	09/10/18	ISSUED FOR CONSTRUCTION	AM	AT	DJC
A	07/05/18	ISSUED FOR REVIEW	SF	AT	DJC

SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: SF

STATE OF CONNECTICUT DEREK J. CREASER No. 28551 LICENSED PROFESSIONAL ENGINEER

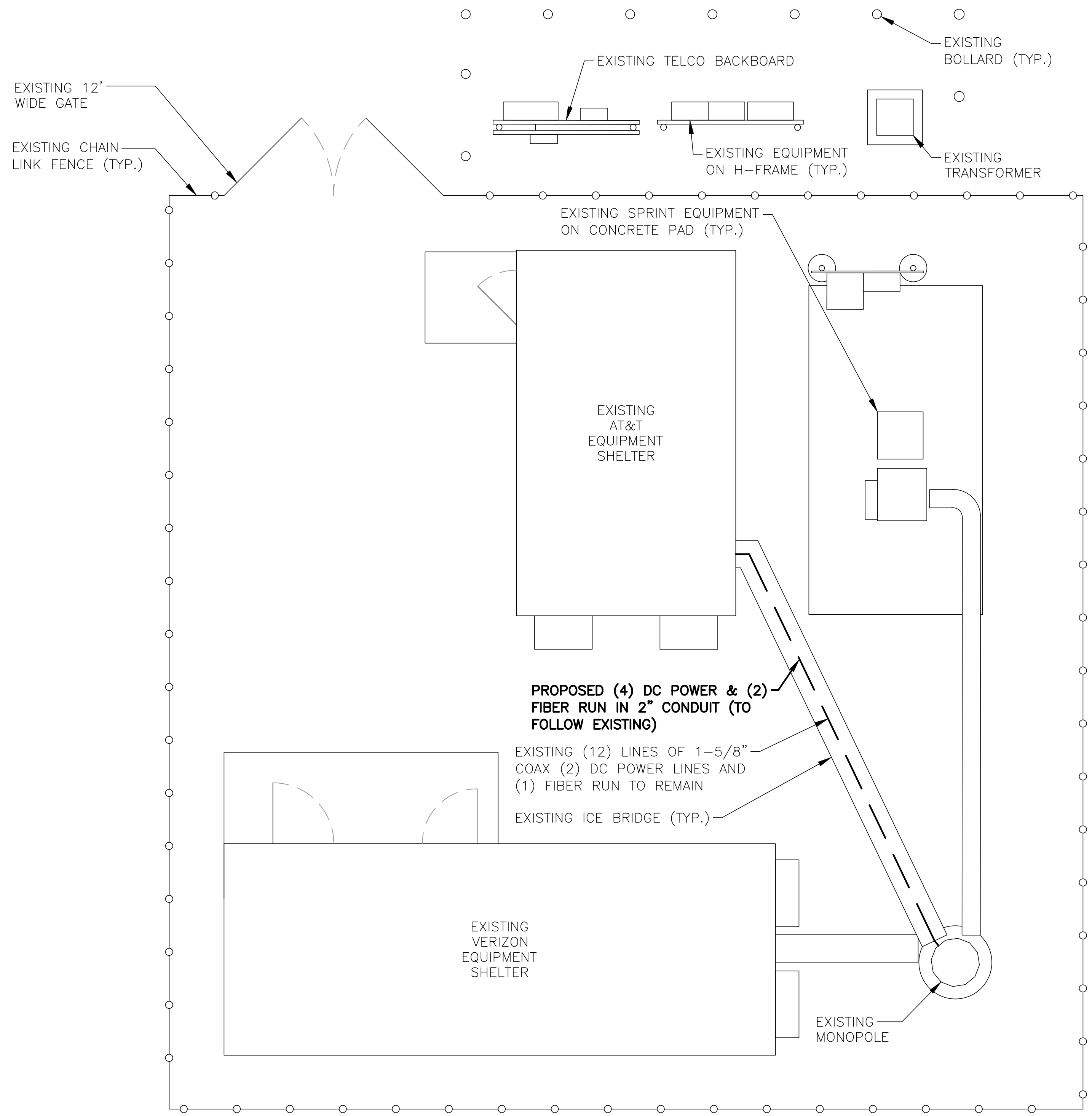
AT&T
GENERAL NOTES
(LTE 3C/4C/5C/6C)

SITE NUMBER	DRAWING NUMBER	REV
CT1131	GN–1	1

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

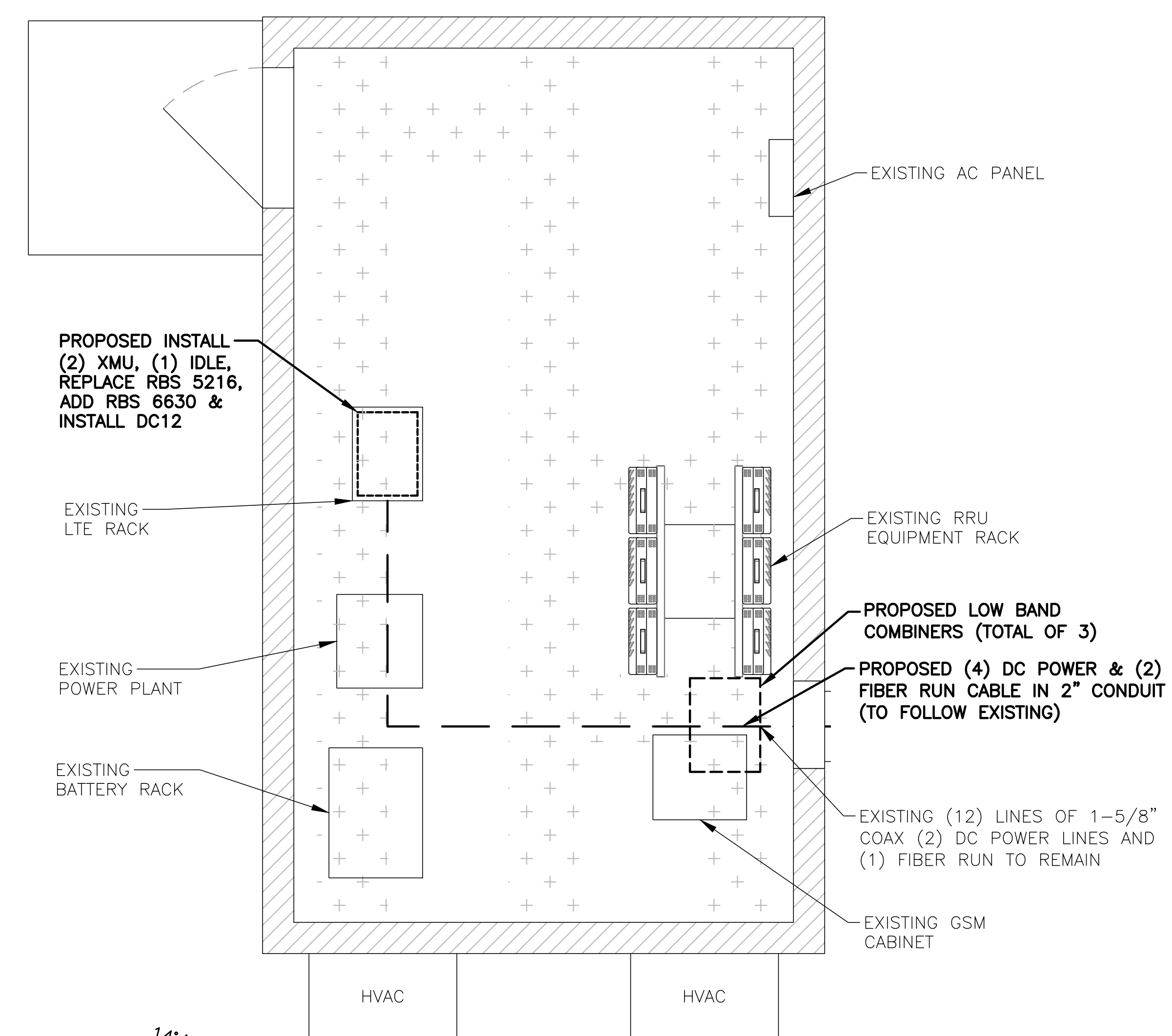
NOTE:
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION.

NOTE:
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY HUDSON DESIGN GROUP, LLC. DATED: JUNE 21, 2018



COMPOUND PLAN (1 / A-1)
22x34 SCALE: 1/4"=1'-0"
11x17 SCALE: 1/8"=1'-0"

0 2'-0" 4'-0" 8'-0" 12'-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"

HDG HUDSON Design Group LLC
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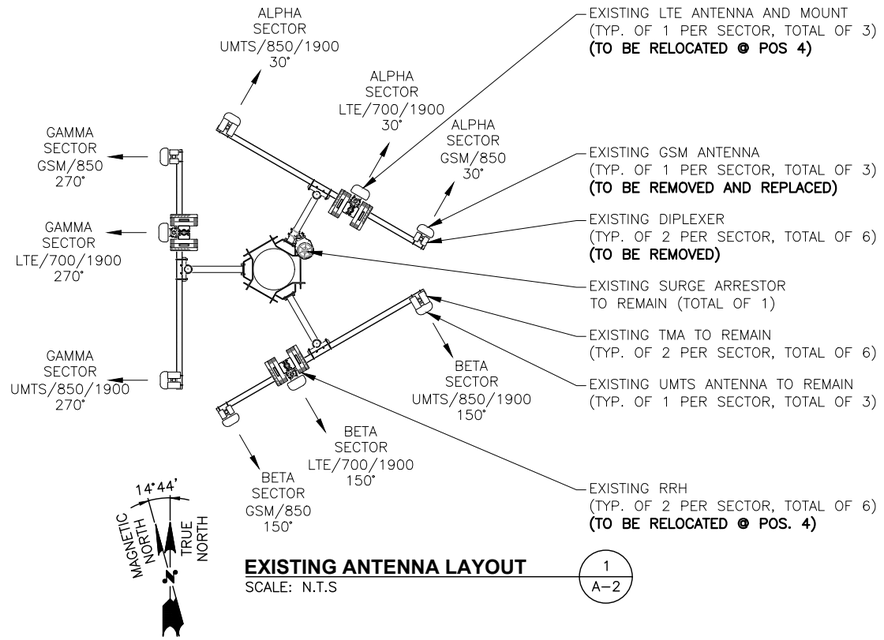
STATE OF CONNECTICUT DEREK J. CREASER LICENSED PROFESSIONAL ENGINEER

AT&T
COMPOUND & EQUIPMENT PLANS
(LTE 3C/4C/5C/6C)

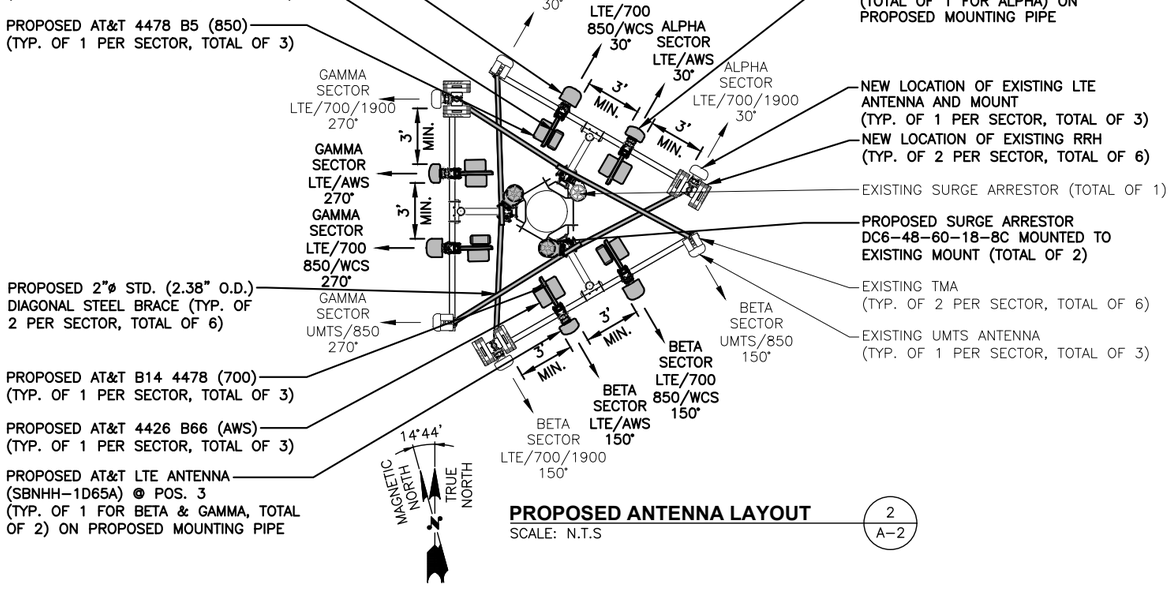
SITE NUMBER	DRAWING NUMBER	REV
CT1131	A-1	1



EXISTING ANTENNA LAYOUT

SCALE: N.T.S

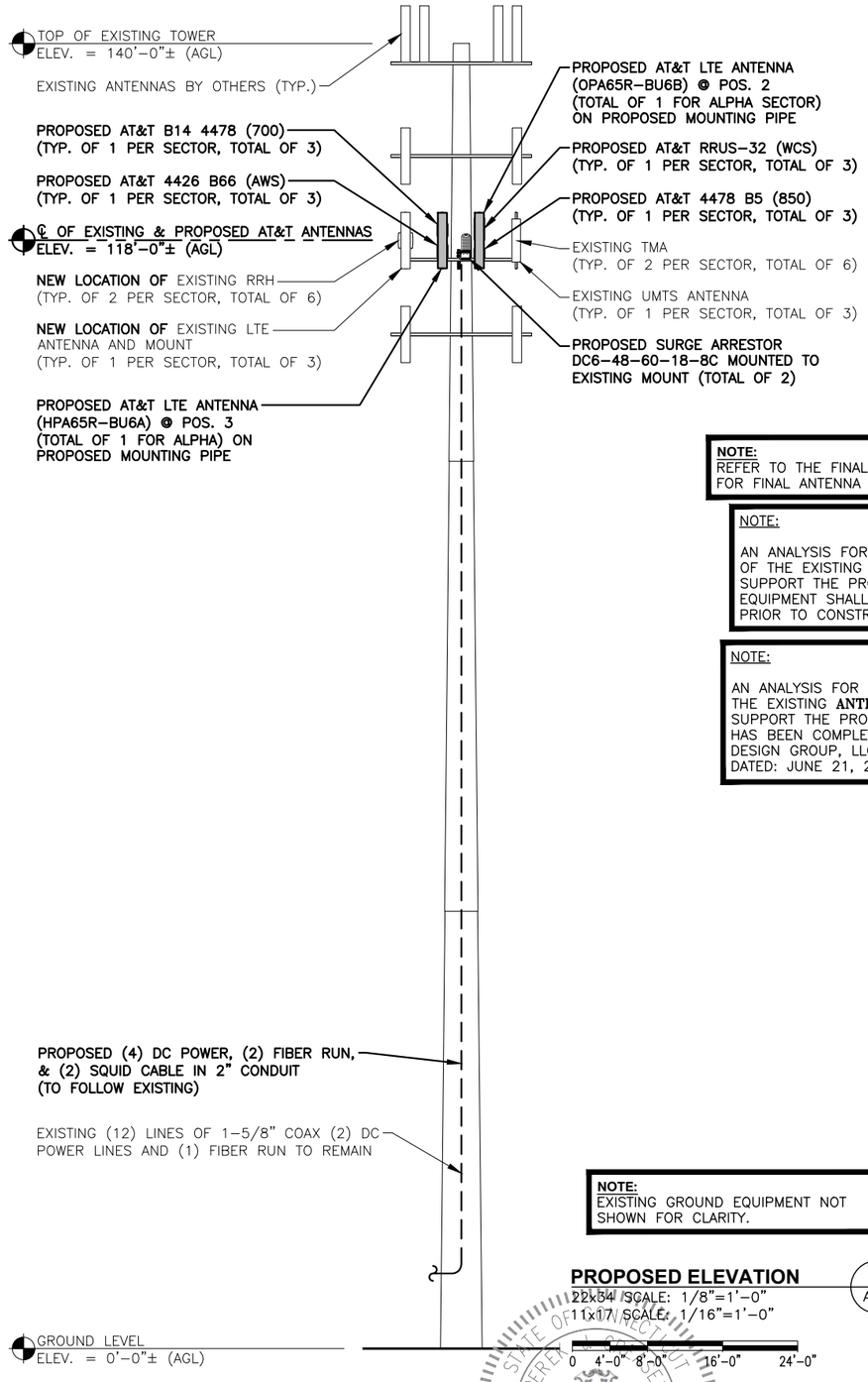
1 / A–2



PROPOSED ANTENNA LAYOUT

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 STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION.

NOTE:

AN ANALYSIS FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY HUDSON DESIGN GROUP, LLC.
DATED: JUNE 21, 2018

NOTE:
EXISTING GROUND EQUIPMENT NOT SHOWN FOR CLARITY.

PROPOSED ELEVATION

22x34 SCALE: 1/8"=1'–0"
11x17 SCALE: 1/16"=1'–0"

3 / A–2

0 4'–0" 8'–0" 16'–0" 24'–0"

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

SITE NUMBER: CT1131
SITE NAME: LITCHFIELD
CT TORRINGTON ROAD
383 TORRINGTON ROAD
LITCHFIELD, CT 06759
LITCHFIELD COUNTY

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	09/10/18	ISSUED FOR CONSTRUCTION	AM	AT	DJC
A	07/05/18	ISSUED FOR REVIEW	SF	AT	DJC

SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: SF

AT&T

ANTENNA LAYOUTS & ELEVATION
(LTE 3C/4C/5C/6C)

SITE NUMBER	DRAWING NUMBER	REV
CT1131	A–2	1

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

NOTE:

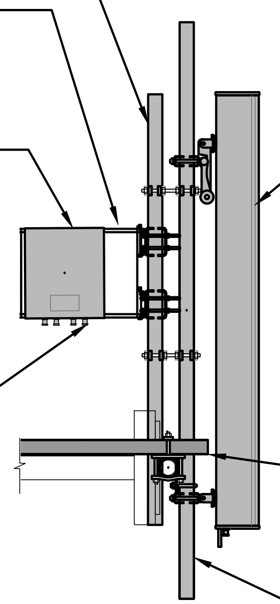
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION.

NOTE:

AN ANALYSIS FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY HUDSON DESIGN GROUP, LLC.
DATED: JUNE 21, 2018

SECTOR	EXISTING/ PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L X W X D)	RAD CENTER	AZIMUTH	DIPLEXERS		TMAS	RRUS	SIZE (INCHES) (L X W X D)	FEEDER	RAYCAP
A1	EXISTING	UMTS/850	7770	55x11x5	118'-0"±	30°	(E)	(2)LGP13519	(2) LGP21401	–	–	(2) 1-5/8 COAX (LENGTH 205'±)	--
A2	PROPOSED	LTE/700/850/WCS	OPA65R-BU6B	71.1x11.7x8.4	118'-0"±	30°	–	–	–	(P) B14 4478 (700) (P) 4478 B5 (850) (P) RRUS-32 (WCS)	15x13.2x7.4 15x13.2x7.4 27.2x12.1x7	–	(E) (1) RAYCAP DC6-48-60-18-8C
A3	PROPOSED	LTE/AWS	HPA65R-BU6A	71x11.7x7.6	118'-0"±	30°	(P)	(1)(G) DBC0061F1V51-2	–	(P) 4426 B66 (AWS)	15x13.2x7.4	(2) 1-5/8 COAX (LENGTH 205'±)	
A4	EXISTING	LTE/700/PCS	AM-X-CD-16-65-00T-RET	72x11.8x5.9	118'-0"±	30°	–	–	–	(E) RRUS-11 (700) (E) RRUS-12 (1900)	– –	–	
B1	EXISTING	UMTS/850	7770	55x11x5	118'-0"±	150°	(E)	(2)LGP21401	(2) LGP21401	–	–	(2) 1-5/8 COAX (LENGTH 205'±)	--
B2	PROPOSED	LTE/700/850/WCS	OPA65R-BU4B	48x11.7x10.1	118'-0"±	150°	–	–	–	(P) B14 4478 (700) (P) 4478 B5 (850) (P) RRUS-32 (WCS)	15x13.2x7.4 15x13.2x7.4 27.2x12.1x7	–	(P) (1) RAYCAP DC6-48-60-0-8C
B3	PROPOSED	LTE/AWS	SBNHH-1D65A	55x11.9x7.1	118'-0"±	150°	(P)	(1)(G) DBC0061F1V51-2	–	(P) 4426 B66 (AWS)	15x13.2x7.4	(2) 1-5/8 COAX (LENGTH 205'±)	
B4	EXISTING	LTE/700/PCS	AM-X-CD-14-65-00T-RET	48x11.8x5.9	118'-0"±	150°	–	–	–	(E) RRUS-11 (700) (E) RRUS-12 (1900)	– –	–	
C1	EXISTING	UMTS/850	7770	55x11x5	118'-0"±	270°	(E)	(2)LGP21401	(2) LGP21401	–	–	(2) 1-5/8 COAX (LENGTH 205'±)	--
C2	PROPOSED	LTE/700/850/WCS	OPA65R-BU4B	48x11.7x10.1	118'-0"±	270°	–	–	–	(P) B14 4478 (700) (P) 4478 B5 (850) (P) RRUS-32 (WCS)	15x13.2x7.4 15x13.2x7.4 27.2x12.1x7	–	(P) (1) RAYCAP DC6-48-60-0-8C
C3	PROPOSED	LTE/AWS	SBNHH-1D65A	55x11.9x7.1	118'-0"±	270°	(P)	(1)(G) DBC0061F1V51-2	–	(P) 4426 B66 (AWS)	15x13.2x7.4	(2) 1-5/8 COAX (LENGTH 205'±)	
C4	EXISTING	LTE/700/PCS	AM-X-CD-16-65-00T-RET	72x11.8x5.9	118'-0"±	270°	–	–	–	(E) RRUS-11 (700) (E) RRUS-12 (1900)	– –	–	

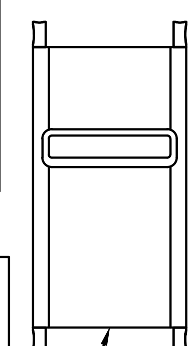
FINAL ANTENNA CONFIGURATION TABLE 1 / A-3



PROPOSED LTE ANTENNA, SURGES & RRU'S MOUNTING DETAIL 2 / A-3
22x34 SCALE: 3/4"=1'-0"
11x17 SCALE: 3/8"=1'-0"
0 8" 1'-4" 2'-8" 4'-0"

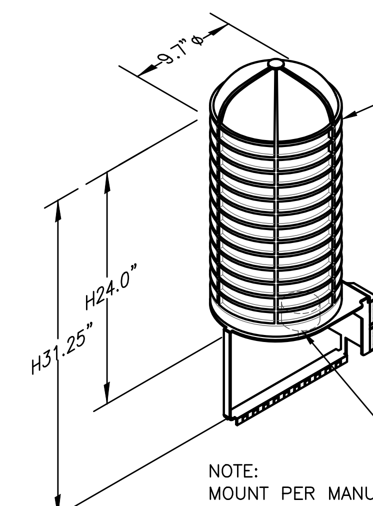
RRU CHART				
QUANTITY	MODEL	L	W	D
3(E)	RRUS-11	19.7"	17.0"	7.2"
3(E)	RRUS-12	20.4"	18.5"	7.5"
3(P)	RRUS-32	27.2"	12.1"	7.4"
3(P)	B14 4478	15.0"	13.2"	7.4"
3(P)	4478 B5	15.0"	13.2"	7.4"
3(P)	4415 B66	15.0"	13.2"	5.4"

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.



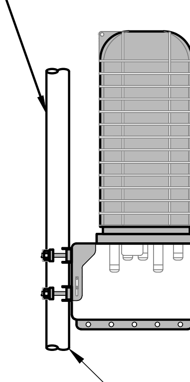
NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

PROPOSED RRUS DETAIL 3 / A-3
SCALE: N.T.S



NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

DC SURGE SUPPRESSOR DETAIL 4 / A-3
SCALE: N.T.S



SURGE SUPPRESSOR MOUNTING DETAIL 5 / A-3
SCALE: N.T.S

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SITE NUMBER: CT1131
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LITCHFIELD, CT 06759
LITCHFIELD COUNTY

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

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SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: SF

STATE OF CONNECTICUT DEREK J. CREASER LICENSED PROFESSIONAL ENGINEER

AT&T
DETAILS
(LTE 3C/4C/5C/6C)

SITE NUMBER	DRAWING NUMBER	REV
CT1131	A-3	1

STRUCTURAL NOTES:

1. DESIGN REQUIREMENTS ARE PER STATE BUILDING CODE AND APPLICABLE SUPPLEMENTS, INTERNATIONAL BUILDING CODE, EIA/TIA-222-G STRUCTURAL STANDARDS FOR STEEL ANTENNA, TOWERS AND ANTENNA SUPPORTING STRUCTURES.
2. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. ANY UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ATTENTION OF THE CONSTRUCTION MANAGER AND ENGINEER OF RECORD.
3. DESIGN AND CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".
4. STRUCTURAL STEEL SHALL CONFORM TO ASTM A992 (Fy=50 ksi), MISCELLANEOUS STEEL SHALL CONFORM TO ASTM A36 UNLESS OTHERWISE INDICATED.
5. STEEL PIPE SHALL CONFORM TO ASTM A500 "COLD-FORMED WELDED & SEAMLESS CARBON STEEL STRUCTURAL TUBING", GRADE B, OR ASTM A53 PIPE STEEL BLACK AND HOT-DIPPED ZINC-COATED WELDED AND SEAMLESS TYPE E OR S, GRADE B. PIPE SIZES INDICATED ARE NOMINAL. ACTUAL OUTSIDE DIAMETER IS LARGER.
6. STRUCTURAL CONNECTION BOLTS SHALL BE HIGH STRENGTH BOLTS (BEARING TYPE) AND CONFORM TO ASTM A325 TYPE-X "HIGH STRENGTH BOLTS FOR STRUCTURAL JOINTS, INCLUDING SUITABLE NUTS AND PLAIN HARDENED WASHERS". ALL BOLTS SHALL BE 3/4" DIA UON.
7. ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS OTHERWISE NOTED.
8. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC-COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS OTHERWISE NOTED.
9. FIELD WELDS, DRILL HOLES, SAW CUTS AND ALL DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED WITH AN ORGANIC ZINC REPAIR PAINT COMPLYING WITH REQUIREMENTS OF ASTM A780. GALVANIZING REPAIR PAINT SHALL HAVE 65 PERCENT ZINC BY WEIGHT, ZIRP BY DUNCAN GALVANIZING, GALVA BRIGHT PREMIUM BY CROWN OR EQUAL. THICKNESS OF APPLIED GALVANIZING REPAIR PAINT SHALL BE NOT NOT LESS THAN 4 COATS (ALLOW TIME TO DRY BETWEEN COATS) WITH A RESULTING COATING THICKNESS REQUIRED BY ASTM A123 OR A153 AS APPLICABLE.
10. CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS, AND FOR METHODS USED IN CORRECTING WELDING. ALL WELDERS AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES". ALL WELDING SHALL BE DONE USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND DI.I. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "STEEL CONSTRUCTION MANUAL". 14TH EDITION.
11. INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON-CONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE CONSTRUCTION MANAGER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE CONSTRUCTION MANAGER APPROVAL.
12. UNISTRUT SHALL BE FORMED STEEL CHANNEL STRUT FRAMING AS MANUFACTURED BY UNISTRUT CORP., WAYNE, MI OR EQUAL. STRUT MEMBERS SHALL BE 1 5/8"x1 5/8"x12GA, UNLESS OTHERWISE NOTED, AND SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.
13. EPOXY ANCHOR ASSEMBLY SHALL CONSIST OF STAINLESS STEEL ANCHOR ROD WITH NUTS & WASHERS. AN INTERNALLY THREADED INSERT, A SCREEN TUBE AND A EPOXY ADHESIVE. THE ANCHORING SYSTEM SHALL BE THE HILTI-HIT HY-70 AND OR HY-270 SYSTEMS (AS SPECIFIED IN DWG.) OR ENGINEERS APPROVED EQUAL.
14. EXPANSION BOLTS SHALL CONFORM TO FEDERAL SPECIFICATION FF-S-325, GROUP II, TYPE 4, CLASS I, HILTI KWIK BOLT III OR APPROVED EQUAL. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
15. LUMBER SHALL COMPLY WITH THE REQUIREMENTS OF THE AMERICAN INSTITUTE OF TIMBER CONSTRUCTION AND THE NATIONAL FOREST PRODUCTS ASSOCIATION'S NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION. ALL LUMBER SHALL BE PRESSURE TREATED AND SHALL BE STRUCTURAL GRADE NO. 2 OR BETTER.
16. WHERE ROOF PENETRATIONS ARE REQUIRED, THE CONTRACTOR SHALL CONTACT AND COORDINATE RELATED WORK WITH THE BUILDING OWNER AND THE EXISTING ROOF INSTALLER. WORK SHALL BE PERFORMED IN SUCH A MANNER AS TO NOT VOID THE EXISTING ROOF WARRANTY. ROOF SHALL BE WATERTIGHT.
17. ALL FIBERGLASS MEMBERS USED ARE AS MANUFACTURED BY STRONGWELL COMPANY OF BRISTOL, VA 24203. ALL DESIGN CRITERIA FOR THESE MEMBERS IS BASED ON INFORMATION PROVIDED IN THE DESIGN MANUAL. ALL REQUIREMENTS PUBLISHED IN SAID MANUAL MUST BE STRICTLY ADHERED TO.
18. NO MATERIALS TO BE ORDERED AND NO WORK TO BE COMPLETED UNTIL SHOP DRAWINGS HAVE BEEN REVIEWED AND APPROVED IN WRITING.
19. SUBCONTRACTOR SHALL FIREPROOF ALL STEEL TO PRE-EXISTING CONDITIONS.

SPECIAL INSPECTIONS (REFERENCE IBC CHAPTER 17):

GENERAL: WHERE APPLICATION IS MADE FOR CONSTRUCTION, THE OWNER OR THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE ACTING AS THE OWNER'S AGENT SHALL EMPLOY ONE OR MORE APPROVED AGENCIES TO PERFORM INSPECTIONS DURING CONSTRUCTION ON THE TYPES OF WORK LISTED IN THE INSPECTION CHECKLIST ABOVE.

THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE AND ENGINEERS OF RECORD INVOLVED IN THE DESIGN OF THE PROJECT ARE PERMITTED TO ACT AS THE APPROVED AGENCY AND THEIR PERSONNEL ARE PERMITTED TO ACT AS THE SPECIAL INSPECTOR FOR THE WORK DESIGNED BY THEM, PROVIDED THOSE PERSONNEL MEET THE QUALIFICATION REQUIREMENTS.

STATEMENT OF SPECIAL INSPECTIONS: THE APPLICANT SHALL SUBMIT A STATEMENT OF SPECIAL INSPECTIONS PREPARED BY THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE IN ACCORDANCE WITH SECTION 107.1 AS A CONDITION FOR ISSUANCE. THIS STATEMENT SHALL BE IN ACCORDANCE WITH SECTION 1705.

REPORT REQUIREMENT: SPECIAL INSPECTORS SHALL KEEP RECORDS OF INSPECTIONS. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL, AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. REPORTS SHALL INDICATE THAT WORK INSPECTED WAS OR WAS NOT COMPLETED IN CONFORMANCE TO APPROVED CONSTRUCTION DOCUMENTS. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF THEY ARE NOT CORRECTED, THE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. A FINAL REPORT DOCUMENTING REQUIRED SPECIAL INSPECTIONS SHALL BE SUBMITTED.

SPECIAL INSPECTION CHECKLIST	
BEFORE CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
N/A	ENGINEER OF RECORD APPROVED SHOP DRAWINGS [1]
N/A	MATERIAL SPECIFICATIONS REPORT [2]
N/A	FABRICATOR NDE INSPECTION
N/A	PACKING SLIPS [3]
ADDITIONAL TESTING AND INSPECTIONS:	
DURING CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	STEEL INSPECTIONS
N/A	HIGH STRENGTH BOLT INSPECTIONS
N/A	HIGH WIND ZONE INSPECTIONS [4]
N/A	FOUNDATION INSPECTIONS
N/A	CONCRETE COMP. STRENGTH, SLUMP TESTS AND PLACEMENT
N/A	POST INSTALLED ANCHOR VERIFICATION [5]
N/A	GROUT VERIFICATION
N/A	CERTIFIED WELD INSPECTION
N/A	EARTHWORK: LIFT AND DENSITY
N/A	ON SITE COLD GALVANIZING VERIFICATION
N/A	GUY WIRE TENSION REPORT
ADDITIONAL TESTING AND INSPECTIONS:	
AFTER CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	MODIFICATION INSPECTOR REDLINE OR RECORD DRAWINGS [6]
N/A	POST INSTALLED ANCHOR PULL-OUT TESTING
REQUIRED	PHOTOGRAPHS
ADDITIONAL TESTING AND INSPECTIONS:	

NOTES:

1. REQUIRED FOR ANY NEW SHOP FABRICATED FRP OR STEEL.
2. PROVIDED BY MANUFACTURER, REQUIRED IF HIGH STRENGTH BOLTS OR STEEL.
3. PROVIDED BY GENERAL CONTRACTOR; PROOF OF MATERIALS.
4. HIGH WIND ZONE INSPECTION CATB 120MPH OR CAT C,D 110MPH INSPECT FRAMING OF WALLS, ANCHORING, FASTENING SCHEDULE.
5. ADHESIVE FOR REBAR AND ANCHORS SHALL HAVE BEEN TESTED IN ACCORDANCE WITH ACI 355.4 AND ICC-ES AC308 FOR CRACKED CONCRETE AND SEISMIC APPLICATIONS. DESIGN ADHESIVE BOND STRENGTH HAS BEEN BASED ON ACI 355.4 TEMPERATURE CATEGORY B WITH INSTALLATIONS INTO DRY HOLES DRILLED USING A CARBIDE BIT INTO CRACKED CONCRETE THAT HAS CURED FOR AT LEAST 21 DAYS. ADHESIVE ANCHORS REQUIRING CERTIFIED INSTALLATIONS SHALL BE INSTALLED BY A CERTIFIED ADHESIVE ANCHOR INSTALLER PER ACI 318-11 D.9.2.2. INSTALLATIONS REQUIRING CERTIFIED INSTALLERS SHALL BE INSPECTED PER ACI 318-11 D.8.2.4.
6. AS REQUIRED; FOR ANY FIELD CHANGES TO THE ITEMS IN THIS TABLE.

NOTES:

1. ALL CONNECTIONS TO BE SHOP WELDED & FIELD BOLTED USING 3/4"ø A325-X BOLTS, UNLESS OTHERWISE NOTIFIED.
2. SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED BEFORE ORDERING MATERIAL.
3. SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED PRIOR TO STEEL FABRICATION.
4. VERIFICATION OF EXISTING ROOF CONSTRUCTION IS REQUIRED PRIOR TO THE INSTALLATION OF THE ROOF PLATFORM. ENGINEER OF RECORD IS TO APPROVE EXISTING CONDITIONS IN ORDER TO MOVE FORWARD.
5. CENTERLINE OF PROPOSED STEEL PLATFORM SUPPORT COLUMNS TO BE CENTRALLY LOCATED OVER THE EXISTING BUILDING COLUMNS.
6. EXISTING BRICK MASONRY COLUMNS/BEARING TO BE REPAIRED/REPLACED AT ALL PROPOSED PLATFORM SUPPORT POINTS. ENGINEER OF RECORD TO REVIEW AND APPROVE.

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NO.	DATE	REVISIONS	BY	CHK	APP'D
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SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: SF

STATE OF CONNECTICUT
DEREK J. CREASER
No. 29554
LICENSED PROFESSIONAL ENGINEER

AT&T

STRUCTURAL NOTES
(LTE 3C/4C/5C/6C)

SITE NUMBER	DRAWING NUMBER	REV
CT1131	SN-1	1

NOTE:
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NOTE:

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NOTE:

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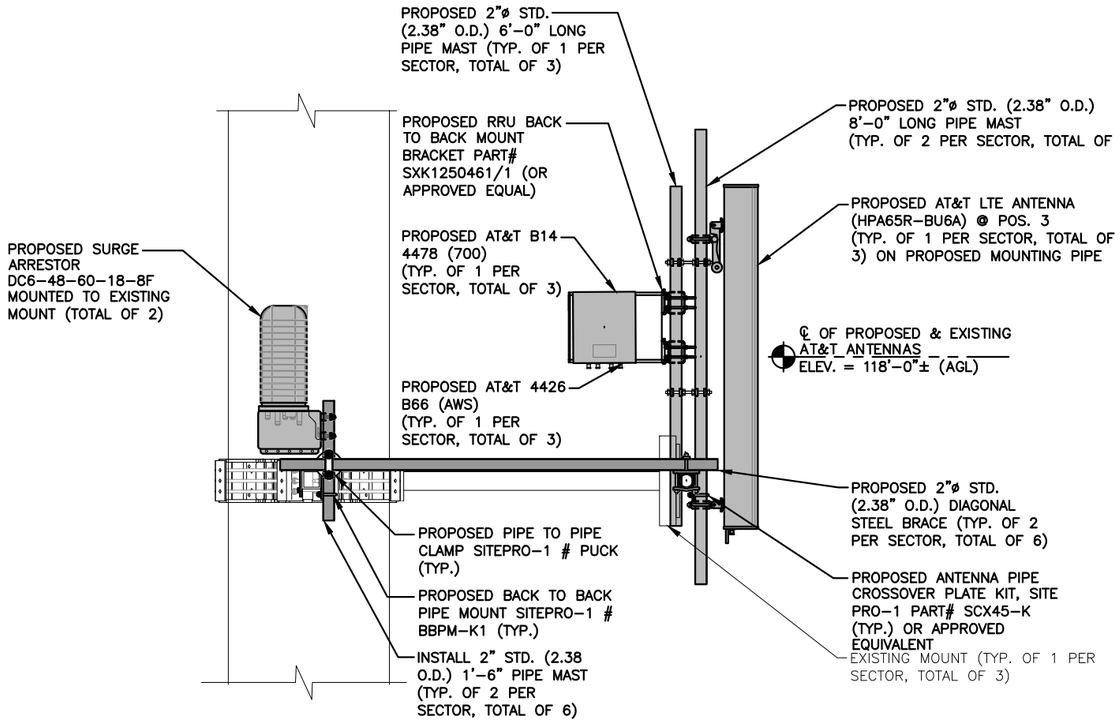
DATED: JUNE 21, 2018

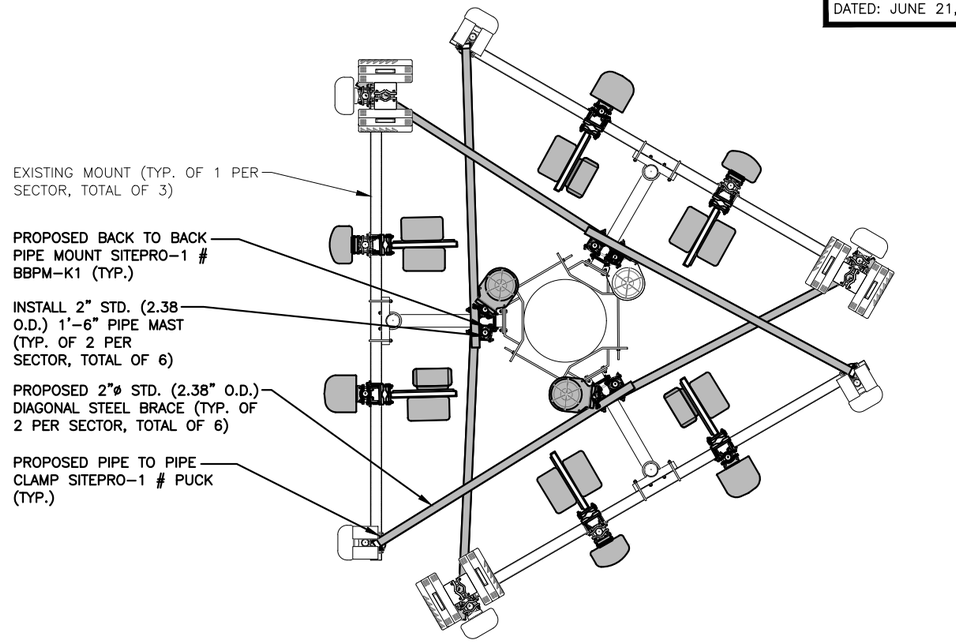


PROPOSED MOUNT MODIFICATION ELEVATION

1 / S-1

22x34 SCALE: 3/4"=1'-0"
11x17 SCALE: 3/8"=1'-0"

0 0'-8" 1'-4" 2'-8" 4'-0"



PROPOSED ANTENNA MOUNT MODIFICATION PLAN

2 / S-1

22x34 SCALE: 3/4"=1'-0"
11x17 SCALE: 3/8"=1'-0"

0 0'-8" 1'-4" 2'-8" 4'-0"

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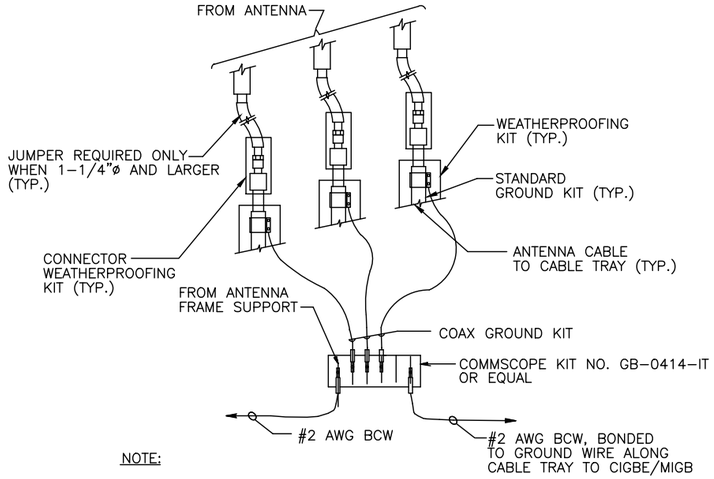
SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: SF

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

AT&T

MOUNT MODIFICATION DETAILS
(LTE 3C/4C/5C/6C)

SITE NUMBER	DRAWING NUMBER	REV
CT1131	S-1	1



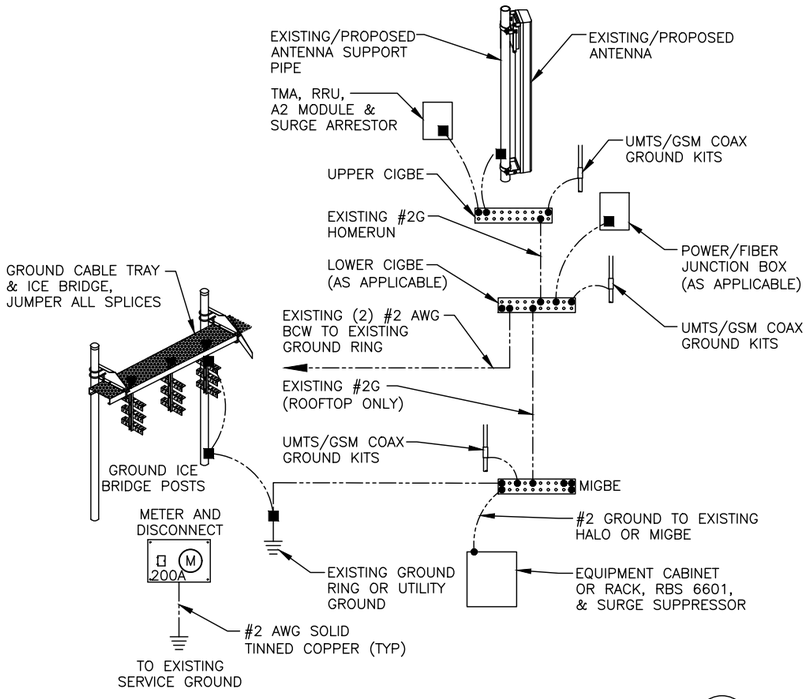
NOTE:

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

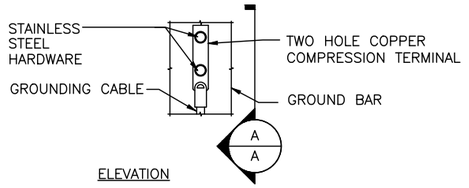
1 / G–1



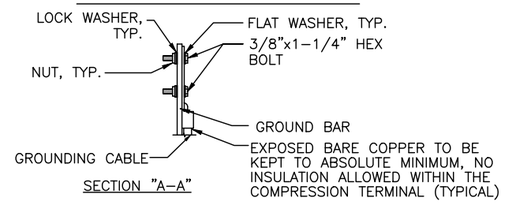
GROUNDING RISER DIAGRAM

SCALE: N.T.S

2 / G–1



ELEVATION



SECTION "A–A"

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

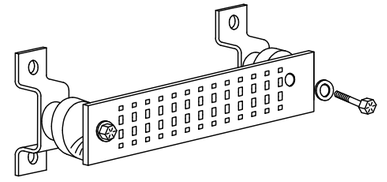
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

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: CT1131
SITE NAME: LITCHFIELD
CT TORRINGTON ROAD
383 TORRINGTON ROAD
LITCHFIELD, CT 06759
LITCHFIELD COUNTY

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	09/10/18	ISSUED FOR CONSTRUCTION	AM	AT	DJC
A	07/05/18	ISSUED FOR REVIEW	SF	AT	DJC

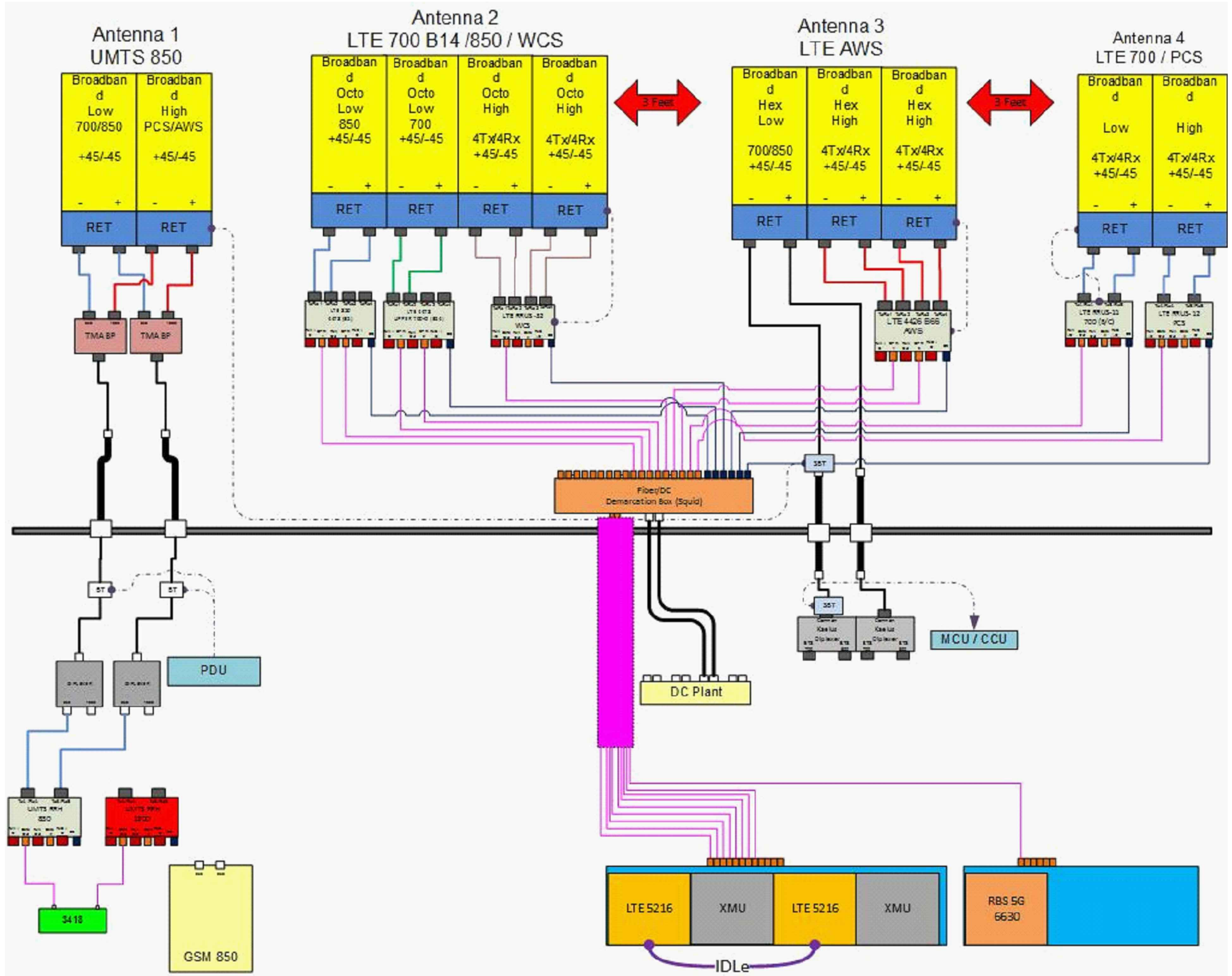
SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: SF

STATE OF CONNECTICUT
DEREK J. CREASER
No. 25854
LICENSED PROFESSIONAL ENGINEER

AT&T

GROUNDING DETAILS
(LTE 3C/4C/5C/6C)

SITE NUMBER	DRAWING NUMBER	REV
CT1131	G–1	1



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

SAI
12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT1131
SITE NAME: LITCHFIELD
CT TORRINGTON ROAD
383 TORRINGTON ROAD
LITCHFIELD, CT 06759
LITCHFIELD COUNTY

at&t
500 ENTERPRISE DRIVE, SUITE 3A
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NO.	DATE	REVISIONS	BY	CHK	APP'D
1	09/10/18	ISSUED FOR CONSTRUCTION	AM	AT	DJC
A	07/05/18	ISSUED FOR REVIEW	SF	AT	DJC

SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: SF

STATE OF CONNECTICUT · DEREK J. CREASER · LICENSED PROFESSIONAL ENGINEER

AT&T

DETAILS
(LTE 3C/4C/5C/6C)

SITE NUMBER	DRAWING NUMBER	REV
CT1131	RF–1	1

Tower Engineering Solutions
Phone (972) 483-0607, Fax (972) 975-9615
1320 Greenway Drive, Suite 600, Irving, Texas 75038

Structural Analysis Report

Existing 139 ft Monopole

Customer Name: SBA Communications Corp

Customer Site Number: CT46123-A

Customer Site Name: Litchfield

Carrier Name: AT&T

Carrier Site ID / Name: CT1131 / LITCHFIELD CT TORRINGTON ROAD

Site Location: 383 Torrington Rd

Litchfield, Connecticut

Litchfield County

Latitude: 41.766278

Longitude: -73.178527

9/12/18

Analysis Result:

Max Structural Usage: 58.6% [Pass]

Max Foundation Usage: 66% [Pass]

Additional Usage Caused by Mount Modification: 1.0%

Report Prepared By: Mariana Franco

Tower Engineering Solutions
Phone (972) 483-0607, Fax (972) 975-9615
1320 Greenway Drive, Suite 600, Irving, Texas 75038

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Max Foundation Usage: 66% [Pass]

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Report Prepared By: Mariana Franco

Introduction

The purpose of this report is to summarize the analysis results on the 139 ft Monopole to support the proposed antennas and transmission lines in addition to those currently installed. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

Sources of Information

Tower Drawings	FDH, Previous SA, Project # 15BGLG1400, dated 3/19/2015
Foundation Drawing	EEI, Project # 14854, dated 04/08/208
Geotechnical Report	Clarence Welti Associates, Inc., Geo Report, dated 8/19/2005
Modification Drawings	N/A

Analysis Criteria

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

Wind Speed Used in the Analysis:	Ultimate Design Wind Speed V_{ult} = 120.0 mph (3-Sec. Gust)/ Nominal Design Wind Speed V_{asd} = 93.0 mph (3-Sec. Gust)
Wind Speed with Ice:	40 mph (3-Sec. Gust) with 1" radial ice concurrent
Operational Wind Speed:	60 mph + 0" Radial ice
Standard/Codes:	ANSI/TIA/EIA 222-G / 2012 IBC / 2016 Connecticut State Building Code
Exposure Category:	C
Structure Class:	II
Topographic Category:	1
Crest Height:	0 ft
Seismic Parameters:	S_S = 0.183g, S_1 = 0.065g

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

Existing Antennas, Mounts and Transmission Lines

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

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	140.0	3	Antel BXA-70063/6CF-2 - Panel	(3) T-Arms	(12) 1 5/8"	Verizon
2		6	Antel LPA-80063/4CF - Panel			
3		3	Antel BXA-171063-8BF-2 - Panel			
4		6	RFS FD9R6004/2C-3L Diplexers			
5	127.0	3	RFS APXVSPP18-C-A20 - Panel	(3) T-Arms	(4) 1 1/4"	Sprint
6		3	Alcatel Lucent 1900 MHz			
7		3	Alcatel Lucent 800 MHz			
8		3	Alcatel Lucent 800 MHz Filters			
9		4	RFS ACU-A20-N RETs			
10		3	RFS APXVTM14-C-I20 - Panel			
11		3	Alcatel Lucent TD-RRH8x20-25			
-	119.0	1	KMW AM-X-CD-16-65-00T-RET w/ Mount Pipe - Panel	(3) T-Arms	(12) 1 5/8" (2) 3/4" DC & (1) 7/16" Fiber In (1) 3" Conduit	AT&T
-	118.0	1	KMW AM-X-CW-14-65-00T-RET - Panel			
-		6	Powerwave 7770 - Panel			
-		1	Kathrein 800 10121 - Panel			
-		18	Powerwave 21401 TMA			
-		6	Powerwave 7020.00 RET			
-		3	Ericsson RRU-11-RRU			
-		3	Ericsson RRU-12-RRU			
-		18	Powerwave LGP13519 Diplexer			
-		1	Raycap DC6-48-60-18-8F Surge Arrestor			
30	108.0	3	RFS - APX16PV-16VL-E - Panel	Low Profile Platform	(18) 1 5/8"	T-Mobile
31		3	RFS - APXV18-209014 - Panel			
32		3	Andrew - LNX-6515DS - Panel			
33		12	TMA			
34		3	Kathrein 782 11056-Bias-T			

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

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

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
12	118.0	3	Powerwave 7770 - Panel	(3) T-Arms w/ (6) 2" pipe steel brace	(12) 1 5/8" (6) 3/4" DC Power (3) 7/16" Fiber (2) 2" Conduit[1] (1) 3" Conduit[2]	AT&T
13		1	AM-X-CD-14-65-00T- Panel			
14		18	LGP21401 TMA			
15		6	7020.00 RET			
16		3	Ericsson RRUS 11 - RRU			
17		3	Ericsson RRUS 12 - RRU			
18		18	Powerwave LGP13519 Diplexer			
19		3	Raycap DC6-48-60-18-8F ("Squid")			
20		1	AM-X-CD-16-65-00T-RET- Panel			
21		1	Cci OPA65R-BU6B - Panel			
22		2	Cci OPA65R-BU4B - Panel			
23		1	Cci HPA65R-BU6A - Panel			
24		2	SBNHH-1D65A - Panel			
25		1	800 10764 K- Panel			
26		3	B14 4478 - RRU			
27		3	4478 B5 - RRU			
28		3	RRUS 32 B30 - RRU			
29		3	4426 B66 - RRU			

1. Each 2" flex conduit will contain the proposed (1) 7/16" fiber and (2) 3/4" DC Power lines

2. The existing 3" Conduit houses the existing (1) 7/16" fiber and (2) 3/4" DC Power lines

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

Analysis Results

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

	Pole shafts	Anchor Bolts	Base Plate
Max. Usage:	**58.6%**	**51.6%**	**37.5%**
Pass/Fail	**Pass**	**Pass**	**Pass**

Foundations

	Moment (Kip-Ft)	Shear (Kips)
Original Design Reactions	3021.6	29.2
Analysis Reactions	2611.7	25.9
Factored Reactions*	4079.2	39.4
% of Design Reactions	64.0%	65.8%

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

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

Operational Condition (Rigidity):

Operational characteristics of the tower are found to be within the limits prescribed by ANSI/TIA/EIA 222-G for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 1.0344 degrees under the operational wind speed as specified in the Analysis Criteria.

Conclusions

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

Standard Conditions

1. This analysis was performed based on the information supplied to **(TES) Tower Engineering Solutions, LLC.** Verification of the information provided was not included in the Scope of Work for **TES**. The accuracy of the analysis is dependent on the accuracy of the information provided.

2. The analysis is based on the presumption that the tower members and components along with any existing reinforcement items have been correctly and properly designed, manufactured, installed and maintained.

3. All the existing structural members were assumed to be in good condition with no physical damage or deterioration associated with corrosion.

4. An initial tension of 10% of the break strength on all the existing guy wires was assumed in all the structural analyses of guyed towers unless different values were provided by the client. **TES** cannot take responsibility for the deviations in the analysis results because of differences in the initial tension forces of the existing guy wires.

5. Secondary component or connection secondary components, welds and bolts are assumed to be able to carry their intended original design loads. **TES** cannot take responsibility for verification of the adequacy on the connections, bolts and welds present in the structure.

6. The analyses will be performed based on the codes as specified by the client or based on the best knowledge of the engineering staff of **TES**. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/TIA-222. If wind speed and/or ice loads are different from the minimum values recommended by the EIA/TIA-222 standard or other codes, **TES** should be notified in writing and the applicable minimum values provided by the client.

7. The configuration of the existing mounts, antennas, coax and other appurtenances were supplied by the customer for the current structural analysis. **TES** has not visited the tower site to verify the adequacy of the information provided. If there is any discrepancy found in the report regarding the existing conditions, **TES** should be notified immediately to evaluate the effect of the discrepancy on the analysis results.

8. The client will assume responsibility for rework associated with the differences in initially provided information, including tower and foundation information, existing and/or proposed equipment and transmission lines.

9. If a feasibility analysis was performed, final acceptance of changed conditions shall be based upon a rigorous structural analysis.

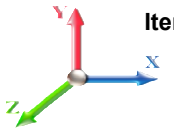
Usage Diagram - Max Ratio 58.59% at 0.0ft

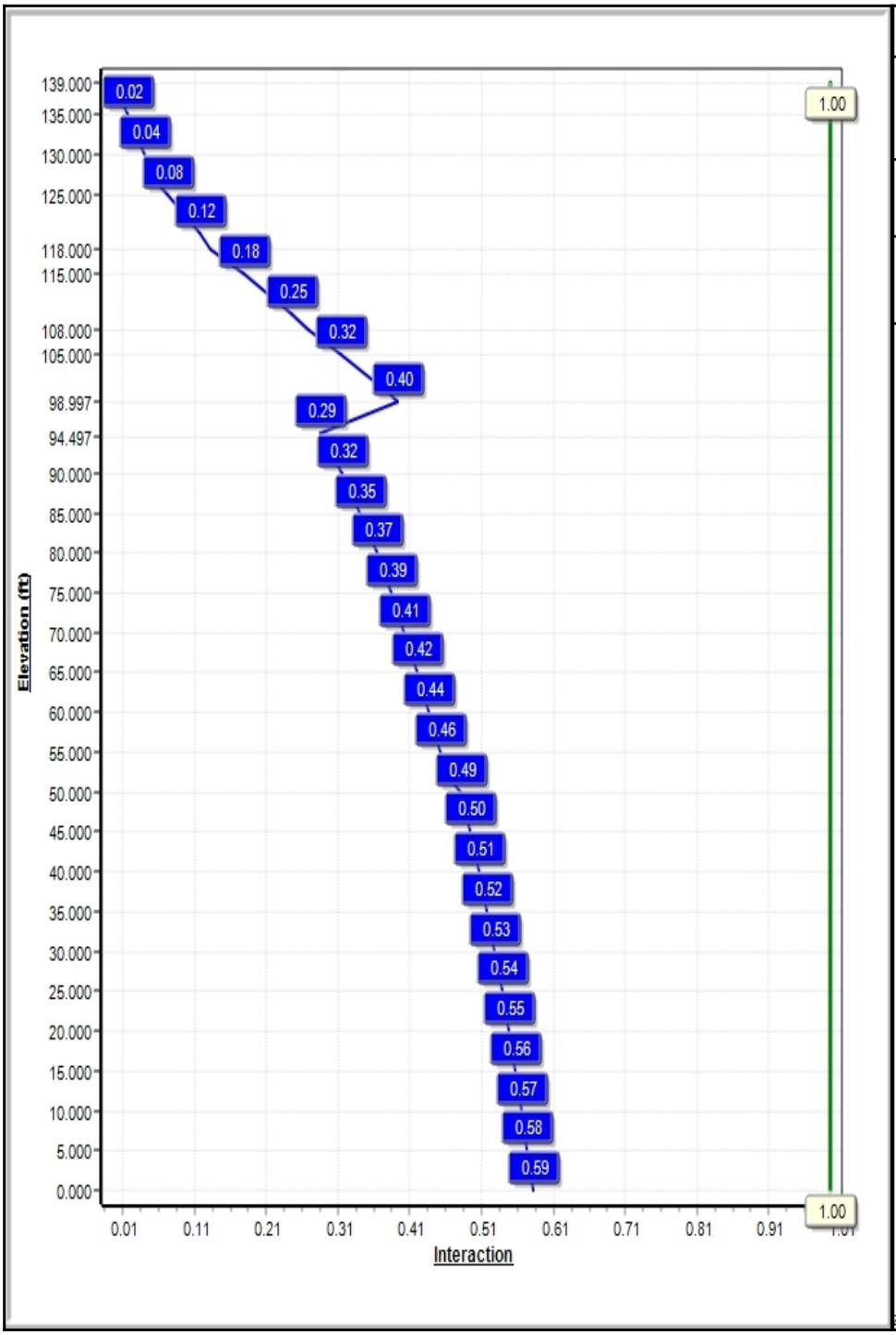
Structure:	CT46123-A-SBA	**Code:**	EIA/TIA-222-G	9/12/2018	
Site Name:	Litchfield	**Exposure:**	C		
Height:	139.00 (ft)	**Gh:**	1.1		
Base Elev:	0.000 (ft)			Page: 1	

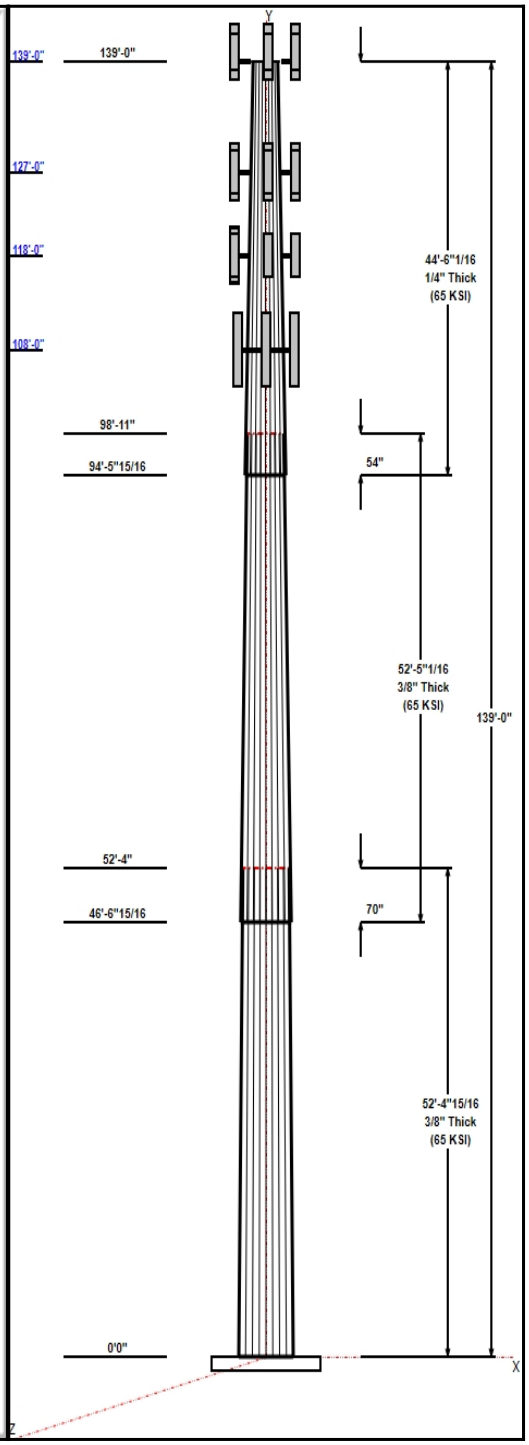
Tower Engineering Solutions

Dead Load Factor:	1.20	**Iterations:**	23
Wind Load Factor:	1.60		

Load Case : 1.2D + 1.6W 93 mph Wind







Structure: CT46123-A-SBA

Type: Tapered
Site Name: Litchfield
Height: 139.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.24460

9/12/2018

Tower Engineering Solutions

Shaft Properties

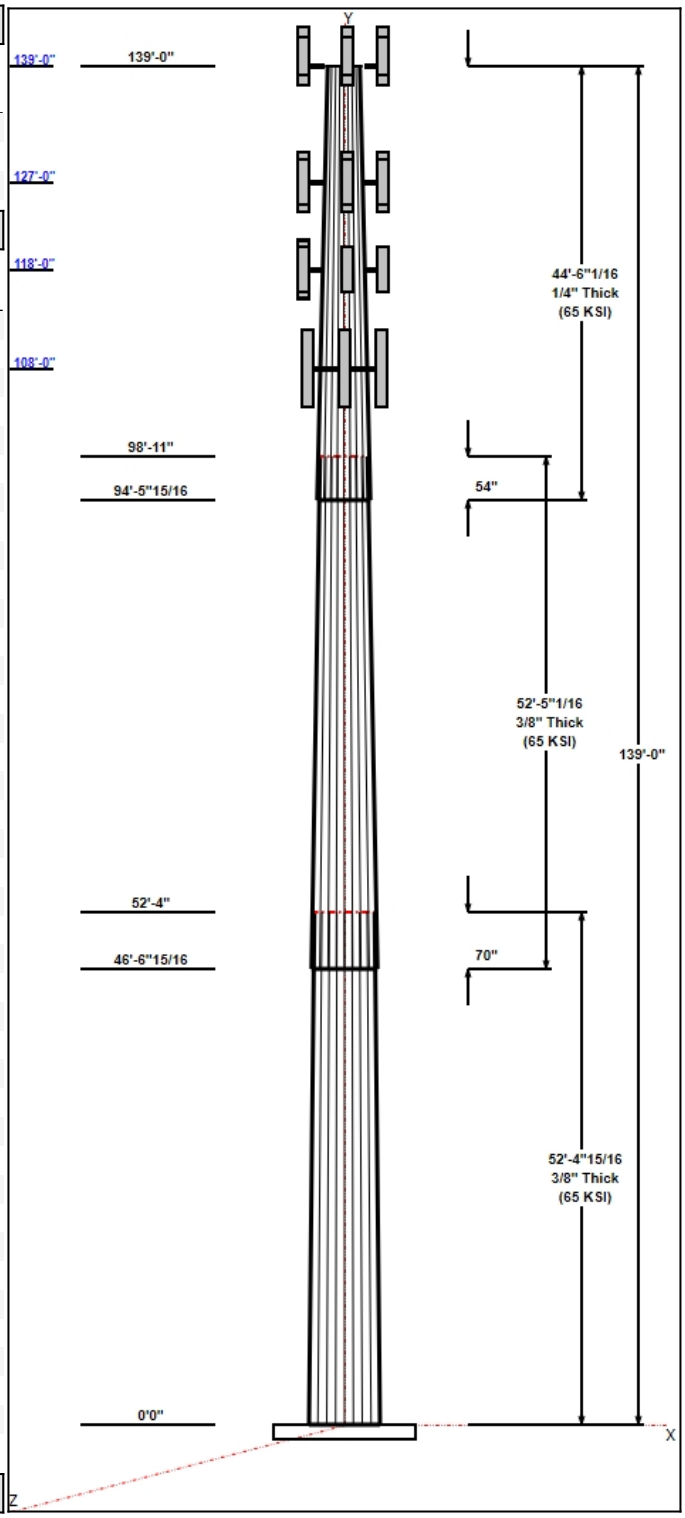
Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	52.41	40.43	53.25	0.375		0.24460	65
2	52.42	29.78	42.61	0.375	Slip	0.24460	65
3	44.50	20.50	31.39	0.250	Slip	0.24460	65

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
139.00	136.00	3	T-Arms	Verizon
139.00	140.00	3	Antel BXA-70063/6CF-2	Verizon
139.00	140.00	6	Antel LPA-80063/4CF	Verizon
139.00	140.00	3	Antel BXA-171063-8BF-2	Verizon
139.00	140.00	6	RFS FD9R6004/2C-3L	Verizon
127.00	127.00	3	T-Arms	Sprint
127.00	127.00	3	Collar Mounts	Sprint
127.00	127.00	3	RFS APXVSPP18-C-A20	Sprint
127.00	127.00	3	Alcatel Lucent 1900 MHz	Sprint
127.00	127.00	3	Alcatel Lucent 800 MHz	Sprint
127.00	127.00	3	Alcatel Lucent 800 MHz	Sprint
127.00	127.00	4	RFS ACU-A20-N RETs	Sprint
127.00	127.00	3	RFS APXVTM14-C-I20	Sprint
127.00	127.00	3	Alcatel Lucent	Sprint
118.00	118.00	3	T-Arms	AT&T
118.00	118.00	3	Powerwave 7770	AT&T
118.00	118.00	1	KMW	AT&T
118.00	118.00	18	LGP21401 TMA	AT&T
118.00	118.00	6	Powerwave 7020.00 RET	AT&T
118.00	118.00	3	Ericsson RRU-11-RRU	AT&T
118.00	118.00	3	Ericsson RRU-12-RRU	AT&T
118.00	118.00	18	Powerwave LGP13519	AT&T
118.00	118.00	3	Raycap DC6-48-60-18-8F	AT&T
118.00	118.00	1	KMW	AT&T
118.00	118.00	1	OPA65R-BU6B	AT&T
118.00	118.00	2	OPA65R-BU4B	AT&T
118.00	118.00	1	HPA65R-BU6A	AT&T
118.00	118.00	2	SBNHH-1D65A	AT&T
118.00	118.00	1	800 10764 K	AT&T
118.00	118.00	3	RRUS 4478 B14	AT&T
118.00	118.00	3	RRUS 4478 B5	AT&T
118.00	118.00	3	RRUS 32 B30	AT&T
118.00	118.00	3	4426 B66	AT&T
118.00	118.00	2	Steel Brace	AT&T
108.00	108.00	1	Low Profile Platform	T-Mobile
108.00	108.00	3	APX16PV-16VL-E	T-Mobile
108.00	108.00	3	APXV18-209014	T-Mobile
108.00	108.00	3	LNX-6515DS	T-Mobile
108.00	108.00	12	TMA	T-Mobile
108.00	108.00	3	Kathrein 782 11056-Bias-T	T-Mobile

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	139.00	Inside	1 5/8" Coax	Verizon
0.00	127.00	Inside	1 1/4" Coax	Sprint
0.00	118.00	Inside	1 5/8" Coax	AT&T



0.00	118.00	Inside	2" Conduit	AT&T
0.00	118.00	Inside	3" Conduit	AT&T
0.00	118.00	Inside	3/4" DC	AT&T
0.00	118.00	Inside	7/16" Fiber	AT&T
0.00	108.00	Inside	1 5/8" Coax	T-Mobile

Anchor Bolts

Qty	Specifications	Grade (ksi)	Arrangement
16	2.25" 18J	75.0	Radial

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
2.7500	72.0	60.0	Round

Reactions

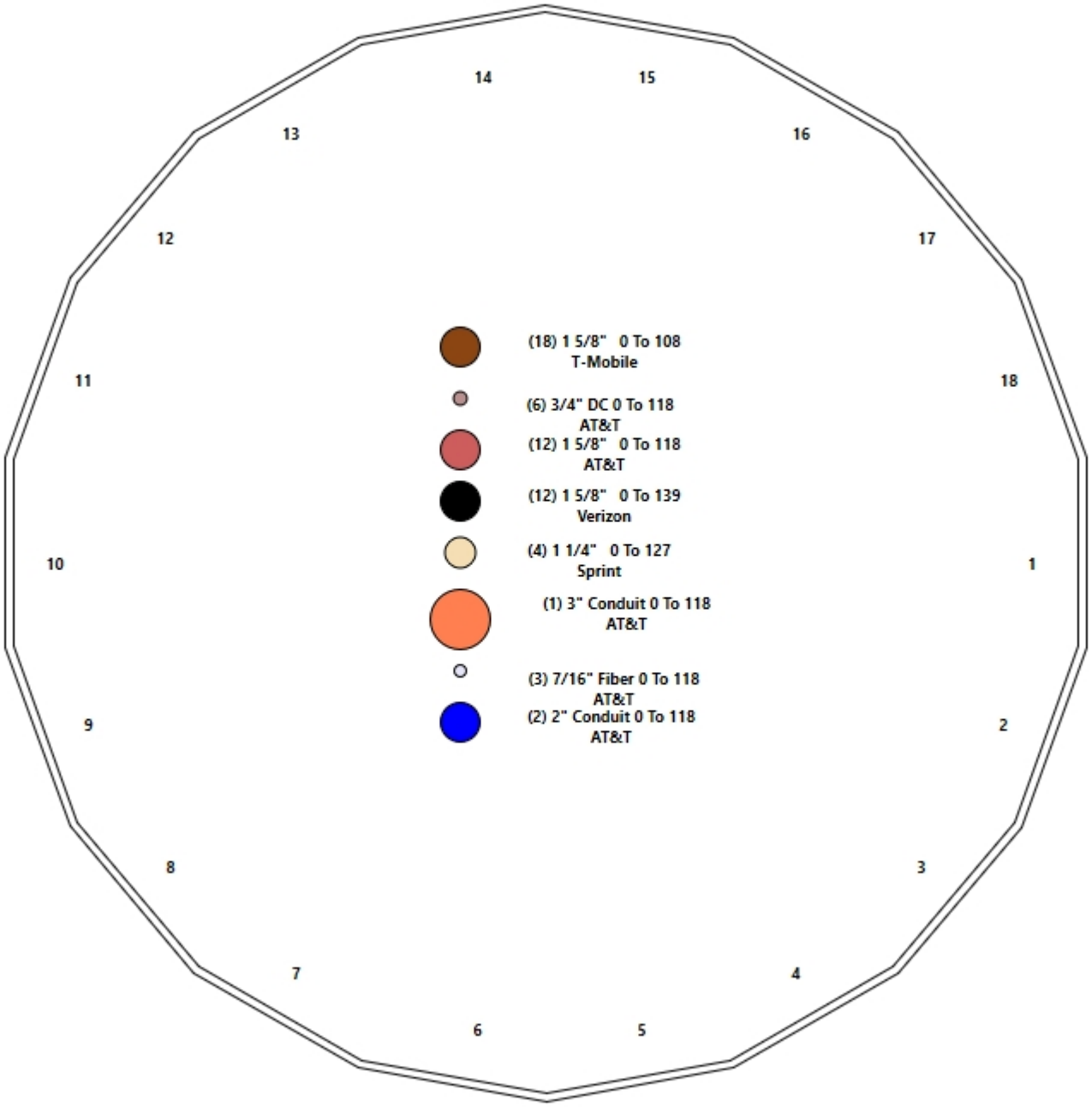
Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.6W 93 mph Wind	2611.7	25.9	43.5
0.9D + 1.6W 93 mph Wind	2586.6	25.9	32.6
1.2D + 1.0Di + 1.0Wi 40 mph Wind	682.0	6.4	71.3
1.2D + 1.0E	96.6	0.9	43.5
0.9D + 1.0E	95.6	0.9	32.7
1.0D + 1.0W 60 mph Wind	675.4	6.7	36.3

Structure: CT46123-A-SBA - Coax Line Placement

Type: Monopole
Site Name: Litchfield
Height: 139.00 (ft)

9/12/2018

Tower Engineering Solutions



Shaft Properties

Structure:	CT46123-A-SBA		**Code:**	EIA/TIA-222-G	9/12/2018
Site Name:	Litchfield		**Exposure:**	C	
Height:	139.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	B - Competent Rock	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 5

Tower Engineering Solutions

Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	52.410	0.3750	65		0.00	9,863
2	18	52.420	0.3750	65	Slip	70.00	7,605
3	18	44.503	0.2500	65	Slip	54.00	3,087
					Total Shaft Weight:		**20,555**

	Bottom						Top						
Sec. No.	**Dia (in)**	**Elev (ft)**	**Area (sqin)**	**Ix (in^4)**	**W/t Ratio**	**D/t Ratio**	**Dia (in)**	**Elev (ft)**	**Area (sqin)**	**Ix (in^4)**	**W/t Ratio**	**D/t Ratio**	**Taper**
1	53.25	0.00	62.93	22229.35	23.63	142.00	40.43	52.41	47.67	9663.96	17.60	107.8	0.244604
2	42.61	46.58	50.27	11326.74	18.62	113.62	29.78	99.00	35.00	3825.25	12.59	79.43	0.244604
3	31.39	94.50	24.71	3025.94	20.73	125.54	20.50	139.00	16.07	832.45	13.05	82.00	0.244604

Load Summary

Structure:	CT46123-A-SBA	**Code:**	EIA/TIA-222-G	9/12/2018	
Site Name:	Litchfield	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	B - Competent Rock		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 6	

Tower Engineering Solutions

Discrete Appurtenances

				No Ice			Ice				
No.	Elev (ft)	Description	Qty	Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor	Hor. Ecc. (ft)	Vert Ecc (ft)
1	139.00	T-Arms	3	400.00	10.00	0.75	769.49	21.547	1.00	0.00	-3.00
2	139.00	Antel BXA-70063/6CF-2	3	17.00	7.57	0.75	213.23	11.227	1.00	0.00	1.00
3	139.00	Antel LPA-80063/4CF	6	11.30	4.04	0.50	127.52	6.399	1.00	0.00	1.00
4	139.00	Antel BXA-171063-8BF-2	3	10.50	2.94	0.75	97.23	5.134	1.00	0.00	1.00
5	139.00	RFS FD9R6004/2C-3L Diplexers	6	3.10	0.36	0.67	13.72	0.947	1.00	0.00	1.00
6	127.00	T-Arms	3	400.00	10.00	0.75	766.17	21.443	1.00	0.00	0.00
7	127.00	Collar Mounts	3	100.00	3.50	0.75	209.85	6.704	1.00	0.00	0.00
8	127.00	RFS APXVSPP18-C-A20	3	57.00	8.02	0.83	283.66	11.684	1.00	0.00	0.00
9	127.00	Alcatel Lucent 1900 MHz	3	44.00	3.80	0.67	187.15	5.623	1.00	0.00	0.00
10	127.00	Alcatel Lucent 800 MHz	3	53.00	2.49	0.67	149.99	3.990	1.00	0.00	0.00
11	127.00	Alcatel Lucent 800 MHz Filters	3	61.80	2.91	0.67	180.77	4.506	1.00	0.00	0.00
12	127.00	RFS ACU-A20-N RETs	4	1.00	0.14	0.67	6.63	0.529	1.00	0.00	0.00
13	127.00	RFS APXVTM14-C-I20	3	56.00	6.34	0.79	279.77	7.829	1.00	0.00	0.00
14	127.00	Alcatel Lucent TD-RRH8x20-25	3	70.00	4.05	0.67	224.44	5.142	1.00	0.00	0.00
15	118.00	T-Arms	3	350.00	8.00	0.75	668.05	17.087	1.00	0.00	0.00
16	118.00	Powerwave 7770	3	35.00	5.50	0.73	223.21	6.914	1.00	0.00	0.00
17	118.00	KMW AM-X-CD-16-65-00T-RET w/	1	48.50	8.02	0.75	259.74	11.657	1.00	0.00	0.00
18	118.00	LGP21401 TMA	18	14.10	1.29	0.67	46.64	2.378	1.00	0.00	0.00
19	118.00	Powerwave 7020.00 RET	6	2.20	0.40	0.67	15.52	1.030	1.00	0.00	0.00
20	118.00	Ericsson RRU-11-RRU	3	50.70	2.52	0.67	174.87	3.391	1.00	0.00	0.00
21	118.00	Ericsson RRU-12-RRU	3	60.00	2.70	0.67	147.24	3.559	1.00	0.00	0.00
22	118.00	Powerwave LGP13519 Diplexer	18	5.30	0.34	0.67	17.66	0.931	1.00	0.00	0.00
23	118.00	Raycap DC6-48-60-18-8F Surge	3	32.80	0.92	1.00	115.81	1.490	1.00	0.00	0.00
24	118.00	KMW AM-X-CW-14-65-00T-RET	1	30.80	5.00	0.75	175.98	7.440	1.00	0.00	0.00
25	118.00	OPA65R-BU6B	1	71.20	7.92	0.99	403.01	9.619	1.00	0.00	0.00
26	118.00	OPA65R-BU4B	2	57.00	5.94	0.79	275.52	7.310	1.00	0.00	0.00
27	118.00	HPA65R-BU6A	1	46.90	9.49	0.79	359.32	11.291	1.00	0.00	0.00
28	118.00	SBNHH-1D65A	2	33.50	5.88	0.83	252.36	7.315	1.00	0.00	0.00
29	118.00	800 10764 K	1	40.80	5.88	0.75	206.79	8.669	1.00	0.00	0.00
30	118.00	RRUS 4478 B14	3	59.40	1.65	0.67	113.38	2.325	1.00	0.00	0.00
31	118.00	RRUS 4478 B5	3	59.90	1.84	0.67	123.53	2.554	1.00	0.00	0.00
32	118.00	RRUS 32 B30	3	60.00	2.74	0.67	182.98	3.711	1.00	0.00	0.00
33	118.00	4426 B66	3	59.40	1.65	0.67	113.38	2.325	1.00	0.00	0.00
34	118.00	Steel Brace	2	140.00	3.70	1.00	369.00	8.743	1.00	0.00	0.00
35	108.00	Low Profile Platform	1	1500.00	22.00	1.00	3188.82	44.788	1.00	0.00	0.00
36	108.00	APX16PV-16VL-E	3	39.60	6.03	0.67	217.51	7.448	1.00	0.00	0.00
37	108.00	APXV18-209014	3	18.70	3.58	0.74	143.60	4.814	1.00	0.00	0.00
38	108.00	LNX-6515DS	3	48.50	11.47	0.80	345.11	15.664	1.00	0.00	0.00
39	108.00	TMA	12	10.50	0.59	0.67	29.78	1.326	1.00	0.00	0.00
40	108.00	Kathrein 782 11056-Bias-T	3	11.00	0.68	0.74	32.52	1.473	1.00	0.00	0.00
		Totals:	**154**	**9,240.90**			**26,758.26**				

Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
0.00	139.00	(12) 1 5/8" Coax	0.00	Inside

Discrete Appurtenances

No.	Elev (ft)	Description	Qty	No Ice Weight (lb)	No Ice CaAa (sf)	No Ice CaAa Factor	Ice Weight (lb)	Ice CaAa (sf)	Ice CaAa Factor	Hor. Ecc. (ft)	Vert Ecc (ft)
0.00	127.00	(4) 1 1/4" Coax			0.00	Inside					
0.00	118.00	(12) 1 5/8" Coax			0.00	Inside					
0.00	118.00	(2) 2" Conduit			0.00	Inside					
0.00	118.00	(1) 3" Conduit			0.00	Inside					
0.00	118.00	(6) 3/4" DC			0.00	Inside					
0.00	118.00	(3) 7/16" Fiber			0.00	Inside					
0.00	108.00	(18) 1 5/8" Coax			0.00	Inside					

Shaft Section Properties

Structure:	CT46123-A-SBA	**Code:**	EIA/TIA-222-G	9/12/2018	
Site Name:	Litchfield	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	B - Competent Rock		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 8	

Increment Length: **5 (ft)**

Elev (ft)	Description	Thick (in)	Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fpy (ksi)	S (in^3)	Weight (lb)
0.00		0.3750	53.250	62.932	22229.4	23.63	142.00	73.6	822.2	0.0
5.00		0.3750	52.027	61.477	20722.2	23.05	138.74	74.3	784.5	1058.3
10.00		0.3750	50.804	60.021	19284.8	22.48	135.48	75.0	747.7	1033.6
15.00		0.3750	49.581	58.565	17915.5	21.90	132.22	75.6	711.7	1008.8
20.00		0.3750	48.358	57.110	16612.5	21.33	128.95	76.3	676.6	984.0
25.00		0.3750	47.135	55.654	15374.3	20.75	125.69	77.0	642.4	959.3
30.00		0.3750	45.912	54.198	14199.2	20.18	122.43	77.7	609.1	934.5
35.00		0.3750	44.689	52.743	13085.6	19.60	119.17	78.3	576.7	909.7
40.00		0.3750	43.466	51.287	12031.8	19.03	115.91	79.0	545.2	885.0
45.00		0.3750	42.243	49.831	11036.1	18.45	112.65	79.7	514.6	860.2
46.58	Bot - Section 2	0.3750	41.857	49.372	10733.9	18.27	111.62	79.9	505.1	266.1
50.00		0.3750	41.020	48.376	10096.9	17.88	109.39	80.4	484.8	1149.1
52.41	Top - Section 1	0.3750	41.180	48.567	10217.0	17.95	109.81	0.0	0.0	795.0
55.00		0.3750	40.547	47.813	9748.5	17.65	108.12	80.6	473.5	424.7
60.00		0.3750	39.324	46.357	8885.0	17.08	104.86	81.3	445.0	801.1
65.00		0.3750	38.101	44.901	8074.0	16.50	101.60	82.0	417.4	776.3
70.00		0.3750	36.878	43.446	7313.9	15.93	98.34	82.5	390.6	751.6
75.00		0.3750	35.655	41.990	6603.1	15.35	95.08	82.5	364.8	726.8
80.00		0.3750	34.432	40.534	5939.9	14.78	91.82	82.5	339.8	702.0
85.00		0.3750	33.209	39.079	5322.7	14.20	88.56	82.5	315.7	677.3
90.00		0.3750	31.986	37.623	4749.8	13.63	85.29	82.5	292.5	652.5
94.50	Bot - Section 3	0.3750	30.886	36.314	4271.0	13.11	82.36	82.5	272.4	565.7
95.00		0.3750	30.763	36.168	4219.5	13.05	82.03	82.5	270.2	104.3
99.00	Top - Section 2	0.2500	30.285	23.832	2716.2	19.95	121.14	0.0	0.0	813.3
100.00		0.2500	30.040	23.637	2650.2	19.78	120.16	78.1	173.8	81.0
105.00		0.2500	28.817	22.667	2337.0	18.91	115.27	79.2	159.7	393.9
108.00		0.2500	28.083	22.084	2161.5	18.40	112.33	79.8	151.6	228.4
110.00		0.2500	27.594	21.696	2049.5	18.05	110.37	80.2	146.3	149.0
115.00		0.2500	26.371	20.726	1786.6	17.19	105.48	81.2	133.4	360.9
118.00		0.2500	25.637	20.144	1640.2	16.67	102.55	81.8	126.0	208.6
120.00		0.2500	25.147	19.755	1547.2	16.33	100.59	82.2	121.2	135.8
125.00		0.2500	23.924	18.785	1330.2	15.46	95.70	82.5	109.5	327.9
127.00		0.2500	23.435	18.397	1249.5	15.12	93.74	82.5	105.0	126.5
130.00		0.2500	22.701	17.815	1134.5	14.60	90.81	82.5	98.4	184.8
135.00		0.2500	21.478	16.844	959.0	13.74	85.91	82.5	87.9	294.8
139.00		0.2500	20.500	16.068	832.5	13.05	82.00	82.5	80.0	224.0
										20554.8

Wind Loading - Shaft

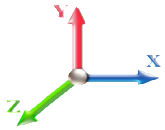
Structure:	CT46123-A-SBA	**Code:**	EIA/TIA-222-G	9/12/2018	
Site Name:	Litchfield	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	B - Competent Rock		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 9	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 93 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 23

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	17.879	19.67	386.35	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	17.879	19.67	377.48	0.650	0.000	5.00	22.271	14.48	455.5	0.0	1270.0
10.00		1.00	0.85	17.879	19.67	368.60	0.650	0.000	5.00	21.754	14.14	444.9	0.0	1240.3
15.00		1.00	0.85	17.879	19.67	359.73	0.650	0.000	5.00	21.236	13.80	434.4	0.0	1210.6
20.00		1.00	0.90	18.971	20.87	361.40	0.650	0.000	5.00	20.719	13.47	449.6	0.0	1180.8
25.00		1.00	0.95	19.883	21.87	360.64	0.650	0.000	5.00	20.201	13.13	459.5	0.0	1151.1
30.00		1.00	0.98	20.661	22.73	358.09	0.650	0.000	5.00	19.684	12.79	465.3	0.0	1121.4
35.00		1.00	1.01	21.343	23.48	354.25	0.650	0.000	5.00	19.166	12.46	468.0	0.0	1091.7
40.00		1.00	1.04	21.951	24.15	349.43	0.650	0.000	5.00	18.649	12.12	468.3	0.0	1062.0
45.00		1.00	1.07	22.502	24.75	343.84	0.650	0.000	5.00	18.131	11.79	466.7	0.0	1032.3
46.58	Bot - Section 2	1.00	1.08	22.666	24.93	341.93	0.650	0.000	1.58	5.610	3.65	145.5	0.0	319.3
50.00		1.00	1.09	23.007	25.31	337.60	0.650	0.000	3.42	12.221	7.94	321.7	0.0	1378.9
52.41	Top - Section 1	1.00	1.10	23.236	25.56	334.41	0.650	0.000	2.41	8.458	5.50	224.8	0.0	954.0
55.00		1.00	1.12	23.473	25.82	337.08	0.650	0.000	2.59	8.956	5.82	240.5	0.0	509.6
60.00		1.00	1.14	23.907	26.30	329.92	0.650	0.000	5.00	16.896	10.98	462.1	0.0	961.3
65.00		1.00	1.16	24.313	26.74	322.36	0.650	0.000	5.00	16.379	10.65	455.6	0.0	931.6
70.00		1.00	1.17	24.696	27.17	314.46	0.650	0.000	5.00	15.861	10.31	448.1	0.0	901.9
75.00		1.00	1.19	25.057	27.56	306.24	0.650	0.000	5.00	15.344	9.97	439.8	0.0	872.2
80.00		1.00	1.21	25.400	27.94	297.75	0.650	0.000	5.00	14.827	9.64	430.8	0.0	842.4
85.00		1.00	1.22	25.726	28.30	289.02	0.650	0.000	5.00	14.309	9.30	421.1	0.0	812.7
90.00		1.00	1.24	26.037	28.64	280.05	0.650	0.000	5.00	13.792	8.96	410.8	0.0	783.0
94.50	Bot - Section 3	1.00	1.25	26.306	28.94	271.81	0.650	0.000	4.50	11.961	7.77	360.0	0.0	678.8
95.00		1.00	1.25	26.336	28.97	270.88	0.650	0.000	0.50	1.334	0.87	40.2	0.0	125.2
99.00	Top - Section 2	1.00	1.26	26.565	29.22	263.41	0.650	0.000	4.00	10.407	6.76	316.3	0.0	976.0
100.00		1.00	1.27	26.621	29.28	265.95	0.650	0.000	1.00	2.561	1.66	78.0	0.0	97.2
105.00		1.00	1.28	26.896	29.59	256.43	0.650	0.000	5.00	12.451	8.09	383.1	0.0	472.7
108.00	Appurtenance(s)	1.00	1.29	27.056	29.76	250.65	0.650	0.000	3.00	7.222	4.69	223.5	0.0	274.1
110.00		1.00	1.29	27.161	29.88	246.76	0.650	0.000	2.00	4.711	3.06	146.4	0.0	178.8
115.00		1.00	1.30	27.416	30.16	236.92	0.650	0.000	5.00	11.416	7.42	358.1	0.0	433.1
118.00	Appurtenance(s)	1.00	1.31	27.565	30.32	230.96	0.650	0.000	3.00	6.601	4.29	208.2	0.0	250.3
120.00		1.00	1.32	27.663	30.43	226.95	0.650	0.000	2.00	4.297	2.79	136.0	0.0	162.9
125.00		1.00	1.33	27.902	30.69	216.84	0.650	0.000	5.00	10.381	6.75	331.4	0.0	393.4
127.00	Appurtenance(s)	1.00	1.33	27.995	30.79	212.76	0.650	0.000	2.00	4.008	2.60	128.3	0.0	151.8
130.00		1.00	1.34	28.133	30.95	206.61	0.650	0.000	3.00	5.856	3.81	188.5	0.0	221.8
135.00		1.00	1.35	28.358	31.19	196.26	0.650	0.000	5.00	9.346	6.07	303.2	0.0	353.8
139.00	Appurtenance(s)	1.00	1.36	28.533	31.39	187.89	0.650	0.000	4.00	7.104	4.62	231.9	0.0	268.8
								Totals:	**139.00**			**11,546.1**		**24,665.8**

Discrete Appurtenance Forces

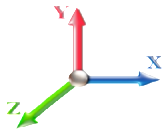
Structure:	CT46123-A-SBA	**Code:**	EIA/TIA-222-G	9/12/2018	
Site Name:	Litchfield	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	B - Competent Rock		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 10	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 93 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 23

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	139.00	RFS FD9R6004/2C-3L	6	28.576	31.433	0.54	0.80	1.16	22.32	0.000	1.000	58.23	0.00	58.23
2	139.00	Antel BXA-171063-8BF-2	3	28.576	31.433	0.60	0.80	5.29	37.80	0.000	1.000	266.15	0.00	266.15
3	139.00	Antel LPA-80063/4CF	6	28.576	31.433	0.40	0.80	9.70	81.36	0.000	1.000	487.64	0.00	487.64
4	139.00	Antel BXA-70063/6CF-2	3	28.576	31.433	0.60	0.80	13.63	61.20	0.000	1.000	685.29	0.00	685.29
5	139.00	T-Arms	3	28.402	31.242	0.56	0.75	16.88	1440.00	0.000	-3.000	843.53	0.00	-2530.60
6	127.00	T-Arms	3	27.995	30.795	0.56	0.75	16.88	1440.00	0.000	0.000	831.46	0.00	0.00
7	127.00	Collar Mounts	3	27.995	30.795	0.56	0.75	5.91	360.00	0.000	0.000	291.01	0.00	0.00
8	127.00	RFS APXVSPP18-C-A20	3	27.995	30.795	0.66	0.80	15.98	205.20	0.000	0.000	787.16	0.00	0.00
9	127.00	Alcatel Lucent 1900 MHz	3	27.995	30.795	0.54	0.80	6.11	158.40	0.000	0.000	301.07	0.00	0.00
10	127.00	Alcatel Lucent 800 MHz	3	27.995	30.795	0.54	0.80	4.00	190.80	0.000	0.000	197.28	0.00	0.00
11	127.00	Alcatel Lucent 800 MHz	3	27.995	30.795	0.54	0.80	4.68	222.48	0.000	0.000	230.56	0.00	0.00
12	127.00	RFS ACU-A20-N RETs	4	27.995	30.795	0.54	0.80	0.30	4.80	0.000	0.000	14.79	0.00	0.00
13	127.00	RFS APXVTM14-C-I20	3	27.995	30.795	0.63	0.80	12.02	201.60	0.000	0.000	592.28	0.00	0.00
14	127.00	Alcatel Lucent	3	27.995	30.795	0.54	0.80	6.51	252.00	0.000	0.000	320.88	0.00	0.00
15	118.00	Steel Brace	2	27.565	30.322	1.00	1.00	7.40	336.00	0.000	0.000	359.01	0.00	0.00
16	118.00	4426 B66	3	27.565	30.322	0.54	0.80	2.65	213.84	0.000	0.000	128.72	0.00	0.00
17	118.00	RRUS 32 B30	3	27.565	30.322	0.54	0.80	4.41	216.00	0.000	0.000	213.75	0.00	0.00
18	118.00	RRUS 4478 B5	3	27.565	30.322	0.54	0.80	2.96	215.64	0.000	0.000	143.54	0.00	0.00
19	118.00	RRUS 4478 B14	3	27.565	30.322	0.54	0.80	2.65	213.84	0.000	0.000	128.72	0.00	0.00
20	118.00	800 10764 K	1	27.565	30.322	0.60	0.80	3.53	48.96	0.000	0.000	171.16	0.00	0.00
21	118.00	SBNHH-1D65A	2	27.565	30.322	0.66	0.80	7.81	80.40	0.000	0.000	378.84	0.00	0.00
22	118.00	Ericsson RRU-11-RRU	3	27.565	30.322	0.54	0.80	4.05	182.52	0.000	0.000	196.59	0.00	0.00
23	118.00	T-Arms	3	27.565	30.322	0.56	0.75	13.50	1260.00	0.000	0.000	654.96	0.00	0.00
24	118.00	Powerwave 7770	3	27.565	30.322	0.58	0.80	9.64	126.00	0.000	0.000	467.49	0.00	0.00
25	118.00	KMW	1	27.565	30.322	0.60	0.80	4.81	58.20	0.000	0.000	233.46	0.00	0.00
26	118.00	LGP21401 TMA	18	27.565	30.322	0.54	0.80	12.45	304.56	0.000	0.000	603.82	0.00	0.00
27	118.00	Powerwave 7020.00 RET	6	27.565	30.322	0.54	0.80	1.29	15.84	0.000	0.000	62.41	0.00	0.00
28	118.00	HPA65R-BU6A	1	27.565	30.322	0.63	0.80	6.00	56.28	0.000	0.000	290.98	0.00	0.00
29	118.00	KMW	1	27.565	30.322	0.60	0.80	3.00	36.96	0.000	0.000	145.55	0.00	0.00
30	118.00	OPA65R-BU4B	2	27.565	30.322	0.63	0.80	7.51	136.80	0.000	0.000	364.26	0.00	0.00
31	118.00	OPA65R-BU6B	1	27.565	30.322	0.79	0.80	6.27	85.44	0.000	0.000	304.32	0.00	0.00
32	118.00	Ericsson RRU-12-RRU	3	27.565	30.322	0.54	0.80	4.34	216.00	0.000	0.000	210.63	0.00	0.00
33	118.00	Raycap DC6-48-60-18-8F	3	27.565	30.322	0.80	0.80	2.21	118.08	0.000	0.000	107.12	0.00	0.00
34	118.00	Powerwave LGP13519	18	27.565	30.322	0.54	0.80	3.28	114.48	0.000	0.000	159.15	0.00	0.00
35	108.00	Kathrein 782 11056-Bias-T	3	27.056	29.762	0.59	0.80	1.21	39.60	0.000	0.000	57.51	0.00	0.00
36	108.00	TMA	12	27.056	29.762	0.54	0.80	3.79	151.20	0.000	0.000	180.71	0.00	0.00
37	108.00	LNX-6515DS	3	27.056	29.762	0.64	0.80	22.02	174.60	0.000	0.000	1048.69	0.00	0.00
38	108.00	APXV18-209014	3	27.056	29.762	0.59	0.80	6.36	67.32	0.000	0.000	302.77	0.00	0.00
39	108.00	APX16PV-16VL-E	3	27.056	29.762	0.54	0.80	9.70	142.56	0.000	0.000	461.73	0.00	0.00
40	108.00	Low Profile Platform	1	27.056	29.762	1.00	1.00	22.00	1800.00	0.000	0.000	1047.62	0.00	0.00
							Totals:		**11,089.08**			**14,330.83**		

Total Applied Force Summary

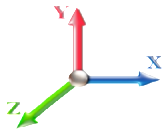
Structure:	CT46123-A-SBA		**Code:**	EIA/TIA-222-G	9/12/2018
Site Name:	Litchfield		**Exposure:**	C	
Height:	139.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	B - Competent Rock	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 11

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 93 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 23

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		455.53	1594.85	0.00	0.00
10.00		444.94	1565.13	0.00	0.00
15.00		434.36	1535.41	0.00	0.00
20.00		449.64	1505.69	0.00	0.00
25.00		459.50	1475.97	0.00	0.00
30.00		465.25	1446.25	0.00	0.00
35.00		467.96	1416.53	0.00	0.00
40.00		468.31	1386.81	0.00	0.00
45.00		466.75	1357.09	0.00	0.00
46.58		145.47	421.77	0.00	0.00
50.00		321.66	1601.27	0.00	0.00
52.41		224.83	1110.57	0.00	0.00
55.00		240.49	677.91	0.00	0.00
60.00		462.11	1286.16	0.00	0.00
65.00		455.57	1256.44	0.00	0.00
70.00		448.12	1226.72	0.00	0.00
75.00		439.84	1197.00	0.00	0.00
80.00		430.82	1167.28	0.00	0.00
85.00		421.13	1137.56	0.00	0.00
90.00		410.81	1107.84	0.00	0.00
94.50		359.97	970.93	0.00	0.00
95.00		40.19	157.86	0.00	0.00
99.00		316.29	1235.66	0.00	0.00
100.00		77.99	162.42	0.00	0.00
105.00		383.11	797.53	0.00	0.00
108.00	(25) attachments	3322.56	2844.29	0.00	0.00
110.00		146.39	263.78	0.00	0.00
115.00		358.05	645.58	0.00	0.00
118.00	(80) attachments	5532.64	4413.68	0.00	0.00
120.00		136.00	199.21	0.00	0.00
125.00		331.36	484.15	0.00	0.00
127.00	(28) attachments	3694.83	3223.39	0.00	0.00
130.00		188.47	266.72	0.00	0.00
135.00		303.20	428.69	0.00	0.00
139.00	(21) attachments	2572.74	1971.36	0.00	-1033.28
	Totals:	**25,876.90**	**43,539.48**	**0.00**	**-1,033.28**

Calculated Forces

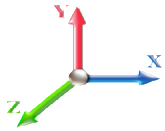
Structure:	CT46123-A-SBA	**Code:**	EIA/TIA-222-G	9/12/2018	
Site Name:	Litchfield	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	B - Competent Rock		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 12	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 93 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 23

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-43.50	-25.94	0.00	-2611.6	0.00	2611.69	4169.21	2084.60	9065.11	4539.29	0.00	0.000	0.000	0.586
5.00	-41.83	-25.60	0.00	-2482.0	0.00	2482.00	4110.19	2055.10	8728.63	4370.80	0.09	-0.163	0.000	0.578
10.00	-40.20	-25.27	0.00	-2353.9	0.00	2353.99	4049.41	2024.70	8394.45	4203.46	0.35	-0.329	0.000	0.570
15.00	-38.59	-24.94	0.00	-2227.6	0.00	2227.65	3986.85	1993.43	8062.85	4037.42	0.78	-0.498	0.000	0.562
20.00	-37.02	-24.59	0.00	-2102.9	0.00	2102.96	3922.52	1961.26	7734.09	3872.79	1.40	-0.670	0.000	0.553
25.00	-35.47	-24.22	0.00	-1980.0	0.00	1980.04	3856.42	1928.21	7408.45	3709.73	2.19	-0.845	0.000	0.543
30.00	-33.96	-23.83	0.00	-1858.9	0.00	1858.96	3788.55	1894.27	7086.18	3548.36	3.17	-1.022	0.000	0.533
35.00	-32.48	-23.44	0.00	-1739.8	0.00	1739.80	3718.90	1859.45	6767.57	3388.81	4.34	-1.203	0.000	0.522
40.00	-31.03	-23.04	0.00	-1622.6	0.00	1622.60	3647.48	1823.74	6452.87	3231.23	5.70	-1.385	0.000	0.511
45.00	-29.64	-22.60	0.00	-1507.4	0.00	1507.40	3574.29	1787.15	6142.37	3075.75	7.25	-1.570	0.000	0.499
46.58	-29.18	-22.49	0.00	-1471.7	0.00	1471.77	3550.85	1775.42	6045.37	3027.18	7.78	-1.631	0.000	0.495
50.00	-27.55	-22.18	0.00	-1394.7	0.00	1394.77	3499.33	1749.66	5836.32	2922.50	9.00	-1.761	0.000	0.485
52.41	-26.41	-21.96	0.00	-1341.3	0.00	1341.32	3509.27	1754.63	5876.22	2942.48	9.91	-1.854	0.000	0.464
55.00	-25.68	-21.76	0.00	-1284.4	0.00	1284.44	3469.86	1734.93	5719.21	2863.86	10.94	-1.954	0.000	0.456
60.00	-24.35	-21.33	0.00	-1175.6	0.00	1175.62	3392.44	1696.22	5419.79	2713.92	13.09	-2.133	0.000	0.441
65.00	-23.04	-20.90	0.00	-1068.9	0.00	1068.97	3313.25	1656.62	5125.48	2566.55	15.42	-2.313	0.000	0.424
70.00	-21.77	-20.47	0.00	-964.47	0.00	964.47	3227.80	1613.90	4829.83	2418.50	17.94	-2.492	0.000	0.406
75.00	-20.54	-20.04	0.00	-862.13	0.00	862.13	3119.66	1559.83	4510.01	2258.36	20.64	-2.670	0.000	0.388
80.00	-19.33	-19.61	0.00	-761.94	0.00	761.94	3011.51	1505.75	4201.15	2103.70	23.53	-2.845	0.000	0.369
85.00	-18.16	-19.19	0.00	-663.88	0.00	663.88	2903.36	1451.68	3903.25	1954.53	26.60	-3.016	0.000	0.346
90.00	-17.03	-18.76	0.00	-567.96	0.00	567.96	2795.21	1397.61	3616.30	1810.84	29.85	-3.180	0.000	0.320
94.50	-16.05	-18.37	0.00	-483.60	0.00	483.60	2697.95	1348.98	3367.59	1686.30	32.91	-3.322	0.000	0.293
95.00	-15.88	-18.34	0.00	-474.36	0.00	474.36	2687.07	1343.53	3340.31	1672.64	33.26	-3.338	0.000	0.290
99.00	-14.64	-17.97	0.00	-401.07	0.00	401.07	1671.63	835.82	2062.09	1032.58	36.11	-3.456	0.000	0.398
100.00	-14.45	-17.91	0.00	-383.04	0.00	383.04	1662.31	831.15	2033.69	1018.35	36.84	-3.485	0.000	0.385
105.00	-13.63	-17.51	0.00	-293.51	0.00	293.51	1614.76	807.38	1893.73	948.27	40.59	-3.667	0.000	0.318
108.00	-10.99	-14.02	0.00	-240.99	0.00	240.99	1585.38	792.69	1811.10	906.90	42.92	-3.764	0.000	0.273
110.00	-10.72	-13.88	0.00	-212.94	0.00	212.94	1565.43	782.72	1756.61	879.61	44.51	-3.824	0.000	0.249
115.00	-10.07	-13.49	0.00	-143.56	0.00	143.56	1514.34	757.17	1622.58	812.50	48.58	-3.948	0.000	0.184
118.00	-6.05	-7.67	0.00	-103.09	0.00	103.09	1482.83	741.42	1543.76	773.03	51.08	-4.007	0.000	0.138
120.00	-5.85	-7.53	0.00	-87.75	0.00	87.75	1461.47	730.74	1491.92	747.07	52.77	-4.040	0.000	0.122
125.00	-5.39	-7.16	0.00	-50.12	0.00	50.12	1395.63	697.82	1354.03	678.02	57.03	-4.103	0.000	0.078
127.00	-2.44	-3.25	0.00	-35.79	0.00	35.79	1366.79	683.40	1298.36	650.14	58.76	-4.121	0.000	0.057
130.00	-2.19	-3.04	0.00	-26.05	0.00	26.05	1323.53	661.77	1217.05	609.43	61.35	-4.143	0.000	0.044
135.00	-1.78	-2.71	0.00	-10.84	0.00	10.84	1251.44	625.72	1087.38	544.50	65.70	-4.166	0.000	0.021
139.00	0.00	-2.57	0.00	0.00	0.00	0.00	1193.76	596.88	988.90	495.18	69.19	-4.172	0.000	0.000

Wind Loading - Shaft

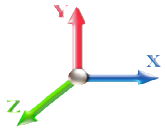
Structure:	CT46123-A-SBA	**Code:**	EIA/TIA-222-G	9/12/2018	
Site Name:	Litchfield	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	B - Competent Rock		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 13	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 93 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 23

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	17.879	19.67	386.35	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	17.879	19.67	377.48	0.650	0.000	5.00	22.271	14.48	455.5	0.0	952.5
10.00		1.00	0.85	17.879	19.67	368.60	0.650	0.000	5.00	21.754	14.14	444.9	0.0	930.2
15.00		1.00	0.85	17.879	19.67	359.73	0.650	0.000	5.00	21.236	13.80	434.4	0.0	907.9
20.00		1.00	0.90	18.971	20.87	361.40	0.650	0.000	5.00	20.719	13.47	449.6	0.0	885.6
25.00		1.00	0.95	19.883	21.87	360.64	0.650	0.000	5.00	20.201	13.13	459.5	0.0	863.3
30.00		1.00	0.98	20.661	22.73	358.09	0.650	0.000	5.00	19.684	12.79	465.3	0.0	841.1
35.00		1.00	1.01	21.343	23.48	354.25	0.650	0.000	5.00	19.166	12.46	468.0	0.0	818.8
40.00		1.00	1.04	21.951	24.15	349.43	0.650	0.000	5.00	18.649	12.12	468.3	0.0	796.5
45.00		1.00	1.07	22.502	24.75	343.84	0.650	0.000	5.00	18.131	11.79	466.7	0.0	774.2
46.58	Bot - Section 2	1.00	1.08	22.666	24.93	341.93	0.650	0.000	1.58	5.610	3.65	145.5	0.0	239.5
50.00		1.00	1.09	23.007	25.31	337.60	0.650	0.000	3.42	12.221	7.94	321.7	0.0	1034.1
52.41	Top - Section 1	1.00	1.10	23.236	25.56	334.41	0.650	0.000	2.41	8.458	5.50	224.8	0.0	715.5
55.00		1.00	1.12	23.473	25.82	337.08	0.650	0.000	2.59	8.956	5.82	240.5	0.0	382.2
60.00		1.00	1.14	23.907	26.30	329.92	0.650	0.000	5.00	16.896	10.98	462.1	0.0	721.0
65.00		1.00	1.16	24.313	26.74	322.36	0.650	0.000	5.00	16.379	10.65	455.6	0.0	698.7
70.00		1.00	1.17	24.696	27.17	314.46	0.650	0.000	5.00	15.861	10.31	448.1	0.0	676.4
75.00		1.00	1.19	25.057	27.56	306.24	0.650	0.000	5.00	15.344	9.97	439.8	0.0	654.1
80.00		1.00	1.21	25.400	27.94	297.75	0.650	0.000	5.00	14.827	9.64	430.8	0.0	631.8
85.00		1.00	1.22	25.726	28.30	289.02	0.650	0.000	5.00	14.309	9.30	421.1	0.0	609.5
90.00		1.00	1.24	26.037	28.64	280.05	0.650	0.000	5.00	13.792	8.96	410.8	0.0	587.2
94.50	Bot - Section 3	1.00	1.25	26.306	28.94	271.81	0.650	0.000	4.50	11.961	7.77	360.0	0.0	509.1
95.00		1.00	1.25	26.336	28.97	270.88	0.650	0.000	0.50	1.334	0.87	40.2	0.0	93.9
99.00	Top - Section 2	1.00	1.26	26.565	29.22	263.41	0.650	0.000	4.00	10.407	6.76	316.3	0.0	732.0
100.00		1.00	1.27	26.621	29.28	265.95	0.650	0.000	1.00	2.561	1.66	78.0	0.0	72.9
105.00		1.00	1.28	26.896	29.59	256.43	0.650	0.000	5.00	12.451	8.09	383.1	0.0	354.5
108.00	Appurtenance(s)	1.00	1.29	27.056	29.76	250.65	0.650	0.000	3.00	7.222	4.69	223.5	0.0	205.6
110.00		1.00	1.29	27.161	29.88	246.76	0.650	0.000	2.00	4.711	3.06	146.4	0.0	134.1
115.00		1.00	1.30	27.416	30.16	236.92	0.650	0.000	5.00	11.416	7.42	358.1	0.0	324.8
118.00	Appurtenance(s)	1.00	1.31	27.565	30.32	230.96	0.650	0.000	3.00	6.601	4.29	208.2	0.0	187.7
120.00		1.00	1.32	27.663	30.43	226.95	0.650	0.000	2.00	4.297	2.79	136.0	0.0	122.2
125.00		1.00	1.33	27.902	30.69	216.84	0.650	0.000	5.00	10.381	6.75	331.4	0.0	295.1
127.00	Appurtenance(s)	1.00	1.33	27.995	30.79	212.76	0.650	0.000	2.00	4.008	2.60	128.3	0.0	113.9
130.00		1.00	1.34	28.133	30.95	206.61	0.650	0.000	3.00	5.856	3.81	188.5	0.0	166.3
135.00		1.00	1.35	28.358	31.19	196.26	0.650	0.000	5.00	9.346	6.07	303.2	0.0	265.4
139.00	Appurtenance(s)	1.00	1.36	28.533	31.39	187.89	0.650	0.000	4.00	7.104	4.62	231.9	0.0	201.6
								Totals:	**139.00**			**11,546.1**		**18,499.4**

Discrete Appurtenance Forces

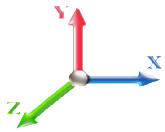
Structure:	CT46123-A-SBA	**Code:**	EIA/TIA-222-G	9/12/2018	
Site Name:	Litchfield	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	B - Competent Rock		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 14	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 93 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 23

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	139.00	RFS FD9R6004/2C-3L	6	28.576	31.433	0.54	0.80	1.16	16.74	0.000	1.000	58.23	0.00	58.23
2	139.00	Antel BXA-171063-8BF-2	3	28.576	31.433	0.60	0.80	5.29	28.35	0.000	1.000	266.15	0.00	266.15
3	139.00	Antel LPA-80063/4CF	6	28.576	31.433	0.40	0.80	9.70	61.02	0.000	1.000	487.64	0.00	487.64
4	139.00	Antel BXA-70063/6CF-2	3	28.576	31.433	0.60	0.80	13.63	45.90	0.000	1.000	685.29	0.00	685.29
5	139.00	T-Arms	3	28.402	31.242	0.56	0.75	16.88	1080.00	0.000	-3.000	843.53	0.00	-2530.60
6	127.00	T-Arms	3	27.995	30.795	0.56	0.75	16.88	1080.00	0.000	0.000	831.46	0.00	0.00
7	127.00	Collar Mounts	3	27.995	30.795	0.56	0.75	5.91	270.00	0.000	0.000	291.01	0.00	0.00
8	127.00	RFS APXVSPP18-C-A20	3	27.995	30.795	0.66	0.80	15.98	153.90	0.000	0.000	787.16	0.00	0.00
9	127.00	Alcatel Lucent 1900 MHz	3	27.995	30.795	0.54	0.80	6.11	118.80	0.000	0.000	301.07	0.00	0.00
10	127.00	Alcatel Lucent 800 MHz	3	27.995	30.795	0.54	0.80	4.00	143.10	0.000	0.000	197.28	0.00	0.00
11	127.00	Alcatel Lucent 800 MHz	3	27.995	30.795	0.54	0.80	4.68	166.86	0.000	0.000	230.56	0.00	0.00
12	127.00	RFS ACU-A20-N RETs	4	27.995	30.795	0.54	0.80	0.30	3.60	0.000	0.000	14.79	0.00	0.00
13	127.00	RFS APXVTM14-C-I20	3	27.995	30.795	0.63	0.80	12.02	151.20	0.000	0.000	592.28	0.00	0.00
14	127.00	Alcatel Lucent	3	27.995	30.795	0.54	0.80	6.51	189.00	0.000	0.000	320.88	0.00	0.00
15	118.00	Steel Brace	2	27.565	30.322	1.00	1.00	7.40	252.00	0.000	0.000	359.01	0.00	0.00
16	118.00	4426 B66	3	27.565	30.322	0.54	0.80	2.65	160.38	0.000	0.000	128.72	0.00	0.00
17	118.00	RRUS 32 B30	3	27.565	30.322	0.54	0.80	4.41	162.00	0.000	0.000	213.75	0.00	0.00
18	118.00	RRUS 4478 B5	3	27.565	30.322	0.54	0.80	2.96	161.73	0.000	0.000	143.54	0.00	0.00
19	118.00	RRUS 4478 B14	3	27.565	30.322	0.54	0.80	2.65	160.38	0.000	0.000	128.72	0.00	0.00
20	118.00	800 10764 K	1	27.565	30.322	0.60	0.80	3.53	36.72	0.000	0.000	171.16	0.00	0.00
21	118.00	SBNHH-1D65A	2	27.565	30.322	0.66	0.80	7.81	60.30	0.000	0.000	378.84	0.00	0.00
22	118.00	Ericsson RRU-11-RRU	3	27.565	30.322	0.54	0.80	4.05	136.89	0.000	0.000	196.59	0.00	0.00
23	118.00	T-Arms	3	27.565	30.322	0.56	0.75	13.50	945.00	0.000	0.000	654.96	0.00	0.00
24	118.00	Powerwave 7770	3	27.565	30.322	0.58	0.80	9.64	94.50	0.000	0.000	467.49	0.00	0.00
25	118.00	KMW	1	27.565	30.322	0.60	0.80	4.81	43.65	0.000	0.000	233.46	0.00	0.00
26	118.00	LGP21401 TMA	18	27.565	30.322	0.54	0.80	12.45	228.42	0.000	0.000	603.82	0.00	0.00
27	118.00	Powerwave 7020.00 RET	6	27.565	30.322	0.54	0.80	1.29	11.88	0.000	0.000	62.41	0.00	0.00
28	118.00	HPA65R-BU6A	1	27.565	30.322	0.63	0.80	6.00	42.21	0.000	0.000	290.98	0.00	0.00
29	118.00	KMW	1	27.565	30.322	0.60	0.80	3.00	27.72	0.000	0.000	145.55	0.00	0.00
30	118.00	OPA65R-BU4B	2	27.565	30.322	0.63	0.80	7.51	102.60	0.000	0.000	364.26	0.00	0.00
31	118.00	OPA65R-BU6B	1	27.565	30.322	0.79	0.80	6.27	64.08	0.000	0.000	304.32	0.00	0.00
32	118.00	Ericsson RRU-12-RRU	3	27.565	30.322	0.54	0.80	4.34	162.00	0.000	0.000	210.63	0.00	0.00
33	118.00	Raycap DC6-48-60-18-8F	3	27.565	30.322	0.80	0.80	2.21	88.56	0.000	0.000	107.12	0.00	0.00
34	118.00	Powerwave LGP13519	18	27.565	30.322	0.54	0.80	3.28	85.86	0.000	0.000	159.15	0.00	0.00
35	108.00	Kathrein 782 11056-Bias-T	3	27.056	29.762	0.59	0.80	1.21	29.70	0.000	0.000	57.51	0.00	0.00
36	108.00	TMA	12	27.056	29.762	0.54	0.80	3.79	113.40	0.000	0.000	180.71	0.00	0.00
37	108.00	LNX-6515DS	3	27.056	29.762	0.64	0.80	22.02	130.95	0.000	0.000	1048.69	0.00	0.00
38	108.00	APXV18-209014	3	27.056	29.762	0.59	0.80	6.36	50.49	0.000	0.000	302.77	0.00	0.00
39	108.00	APX16PV-16VL-E	3	27.056	29.762	0.54	0.80	9.70	106.92	0.000	0.000	461.73	0.00	0.00
40	108.00	Low Profile Platform	1	27.056	29.762	1.00	1.00	22.00	1350.00	0.000	0.000	1047.62	0.00	0.00
							Totals:		**8,316.81**			**14,330.83**		

Total Applied Force Summary

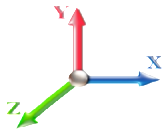
Structure:	CT46123-A-SBA		**Code:**	EIA/TIA-222-G	9/12/2018
Site Name:	Litchfield		**Exposure:**	C	
Height:	139.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	B - Competent Rock	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 15

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 93 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 23

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		455.53	1196.13	0.00	0.00
10.00		444.94	1173.84	0.00	0.00
15.00		434.36	1151.56	0.00	0.00
20.00		449.64	1129.27	0.00	0.00
25.00		459.50	1106.98	0.00	0.00
30.00		465.25	1084.69	0.00	0.00
35.00		467.96	1062.40	0.00	0.00
40.00		468.31	1040.11	0.00	0.00
45.00		466.75	1017.82	0.00	0.00
46.58		145.47	316.33	0.00	0.00
50.00		321.66	1200.95	0.00	0.00
52.41		224.83	832.93	0.00	0.00
55.00		240.49	508.44	0.00	0.00
60.00		462.11	964.62	0.00	0.00
65.00		455.57	942.33	0.00	0.00
70.00		448.12	920.04	0.00	0.00
75.00		439.84	897.75	0.00	0.00
80.00		430.82	875.46	0.00	0.00
85.00		421.13	853.17	0.00	0.00
90.00		410.81	830.88	0.00	0.00
94.50		359.97	728.20	0.00	0.00
95.00		40.19	118.40	0.00	0.00
99.00		316.29	926.75	0.00	0.00
100.00		77.99	121.82	0.00	0.00
105.00		383.11	598.14	0.00	0.00
108.00	(25) attachments	3322.56	2133.21	0.00	0.00
110.00		146.39	197.83	0.00	0.00
115.00		358.05	484.18	0.00	0.00
118.00	(80) attachments	5532.64	3310.26	0.00	0.00
120.00		136.00	149.41	0.00	0.00
125.00		331.36	363.12	0.00	0.00
127.00	(28) attachments	3694.83	2417.55	0.00	0.00
130.00		188.47	200.04	0.00	0.00
135.00		303.20	321.52	0.00	0.00
139.00	(21) attachments	2572.74	1478.52	0.00	-1033.28
	Totals:	**25,876.90**	**32,654.61**	**0.00**	**-1,033.28**

Calculated Forces

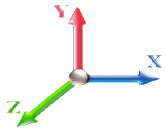
Structure:	CT46123-A-SBA	**Code:**	EIA/TIA-222-G	9/12/2018	
Site Name:	Litchfield	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	B - Competent Rock		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 16	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 93 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 23

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-32.62	-25.92	0.00	-2586.6	0.00	2586.61	4169.21	2084.60	9065.11	4539.29	0.00	0.000	0.000	0.578
5.00	-31.35	-25.56	0.00	-2456.9	0.00	2456.99	4110.19	2055.10	8728.63	4370.80	0.09	-0.161	0.000	0.570
10.00	-30.10	-25.19	0.00	-2329.2	0.00	2329.22	4049.41	2024.70	8394.45	4203.46	0.34	-0.326	0.000	0.562
15.00	-28.88	-24.84	0.00	-2203.2	0.00	2203.25	3986.85	1993.43	8062.85	4037.42	0.78	-0.493	0.000	0.553
20.00	-27.69	-24.46	0.00	-2079.0	0.00	2079.08	3922.52	1961.26	7734.09	3872.79	1.38	-0.663	0.000	0.544
25.00	-26.51	-24.06	0.00	-1956.7	0.00	1956.79	3856.42	1928.21	7408.45	3709.73	2.17	-0.836	0.000	0.535
30.00	-25.36	-23.66	0.00	-1836.4	0.00	1836.48	3788.55	1894.27	7086.18	3548.36	3.14	-1.011	0.000	0.524
35.00	-24.24	-23.25	0.00	-1718.1	0.00	1718.18	3718.90	1859.45	6767.57	3388.81	4.29	-1.189	0.000	0.514
40.00	-23.13	-22.83	0.00	-1601.9	0.00	1601.94	3647.48	1823.74	6452.87	3231.23	5.64	-1.370	0.000	0.502
45.00	-22.08	-22.38	0.00	-1487.8	0.00	1487.80	3574.29	1787.15	6142.37	3075.75	7.17	-1.552	0.000	0.490
46.58	-21.73	-22.26	0.00	-1452.5	0.00	1452.51	3550.85	1775.42	6045.37	3027.18	7.69	-1.612	0.000	0.486
50.00	-20.50	-21.95	0.00	-1376.2	0.00	1376.29	3499.33	1749.66	5836.32	2922.50	8.90	-1.740	0.000	0.477
52.41	-19.64	-21.73	0.00	-1323.3	0.00	1323.39	3509.27	1754.63	5876.22	2942.48	9.80	-1.832	0.000	0.456
55.00	-19.09	-21.52	0.00	-1267.1	0.00	1267.12	3469.86	1734.93	5719.21	2863.86	10.82	-1.931	0.000	0.448
60.00	-18.07	-21.08	0.00	-1159.5	0.00	1159.52	3392.44	1696.22	5419.79	2713.92	12.94	-2.108	0.000	0.433
65.00	-17.09	-20.64	0.00	-1054.1	0.00	1054.13	3313.25	1656.62	5125.48	2566.55	15.24	-2.285	0.000	0.416
70.00	-16.12	-20.20	0.00	-950.93	0.00	950.93	3227.80	1613.90	4829.83	2418.50	17.73	-2.462	0.000	0.398
75.00	-15.19	-19.77	0.00	-849.91	0.00	849.91	3119.66	1559.83	4510.01	2258.36	20.40	-2.637	0.000	0.381
80.00	-14.27	-19.34	0.00	-751.06	0.00	751.06	3011.51	1505.75	4201.15	2103.70	23.26	-2.809	0.000	0.362
85.00	-13.39	-18.92	0.00	-654.35	0.00	654.35	2903.36	1451.68	3903.25	1954.53	26.29	-2.978	0.000	0.340
90.00	-12.53	-18.50	0.00	-559.77	0.00	559.77	2795.21	1397.61	3616.30	1810.84	29.49	-3.140	0.000	0.314
94.50	-11.80	-18.11	0.00	-476.60	0.00	476.60	2697.95	1348.98	3367.59	1686.30	32.52	-3.279	0.000	0.287
95.00	-11.66	-18.08	0.00	-467.49	0.00	467.49	2687.07	1343.53	3340.31	1672.64	32.87	-3.295	0.000	0.284
99.00	-10.74	-17.72	0.00	-395.24	0.00	395.24	1671.63	835.82	2062.09	1032.58	35.67	-3.411	0.000	0.390
100.00	-10.58	-17.66	0.00	-377.46	0.00	377.46	1662.31	831.15	2033.69	1018.35	36.39	-3.440	0.000	0.377
105.00	-9.97	-17.26	0.00	-289.18	0.00	289.18	1614.76	807.38	1893.73	948.27	40.09	-3.619	0.000	0.312
108.00	-8.04	-13.82	0.00	-237.40	0.00	237.40	1585.38	792.69	1811.10	906.90	42.40	-3.715	0.000	0.267
110.00	-7.83	-13.67	0.00	-209.76	0.00	209.76	1565.43	782.72	1756.61	879.61	43.97	-3.774	0.000	0.244
115.00	-7.35	-13.29	0.00	-141.40	0.00	141.40	1514.34	757.17	1622.58	812.50	47.99	-3.896	0.000	0.179
118.00	-4.42	-7.55	0.00	-101.52	0.00	101.52	1482.83	741.42	1543.76	773.03	50.46	-3.954	0.000	0.134
120.00	-4.27	-7.41	0.00	-86.42	0.00	86.42	1461.47	730.74	1491.92	747.07	52.12	-3.987	0.000	0.119
125.00	-3.93	-7.05	0.00	-49.38	0.00	49.38	1395.63	697.82	1354.03	678.02	56.33	-4.049	0.000	0.076
127.00	-1.78	-3.20	0.00	-35.27	0.00	35.27	1366.79	683.40	1298.36	650.14	58.03	-4.067	0.000	0.056
130.00	-1.59	-3.00	0.00	-25.68	0.00	25.68	1323.53	661.77	1217.05	609.43	60.59	-4.088	0.000	0.043
135.00	-1.29	-2.67	0.00	-10.69	0.00	10.69	1251.44	625.72	1087.38	544.50	64.88	-4.111	0.000	0.021
139.00	0.00	-2.57	0.00	0.00	0.00	0.00	1193.76	596.88	988.90	495.18	68.32	-4.117	0.000	0.000

Wind Loading - Shaft

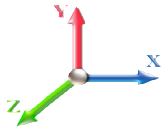
Structure:	CT46123-A-SBA	**Code:**	EIA/TIA-222-G	9/12/2018	
Site Name:	Litchfield	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	B - Competent Rock		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 17	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 40 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 22

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	3.308	3.64	0.00	1.200	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	3.308	3.64	0.00	1.200	1.656	5.00	23.651	28.38	103.3	556.9	1826.9
10.00		1.00	0.85	3.308	3.64	0.00	1.200	1.775	5.00	23.233	27.88	101.4	584.5	1824.8
15.00		1.00	0.85	3.308	3.64	0.00	1.200	1.848	5.00	22.776	27.33	99.4	595.4	1806.0
20.00		1.00	0.90	3.509	3.86	0.00	1.200	1.902	5.00	22.304	26.76	103.3	598.8	1779.7
25.00		1.00	0.95	3.678	4.05	0.00	1.200	1.945	5.00	21.822	26.19	106.0	597.9	1749.1
30.00		1.00	0.98	3.822	4.20	0.00	1.200	1.981	5.00	21.335	25.60	107.6	594.2	1715.6
35.00		1.00	1.01	3.948	4.34	0.00	1.200	2.012	5.00	20.843	25.01	108.6	588.4	1680.1
40.00		1.00	1.04	4.061	4.47	0.00	1.200	2.039	5.00	20.348	24.42	109.1	581.0	1643.0
45.00		1.00	1.07	4.163	4.58	0.00	1.200	2.063	5.00	19.851	23.82	109.1	572.4	1604.6
46.58	Bot - Section 2	1.00	1.08	4.193	4.61	0.00	1.200	2.070	1.58	6.154	7.38	34.1	179.6	498.9
50.00		1.00	1.09	4.256	4.68	0.00	1.200	2.085	3.42	13.411	16.09	75.3	392.0	1770.9
52.41	Top - Section 1	1.00	1.10	4.298	4.73	0.00	1.200	2.095	2.41	9.299	11.16	52.8	273.6	1227.6
55.00		1.00	1.12	4.342	4.78	0.00	1.200	2.105	2.59	9.864	11.84	56.5	291.2	800.8
60.00		1.00	1.14	4.423	4.86	0.00	1.200	2.123	5.00	18.666	22.40	109.0	551.0	1512.4
65.00		1.00	1.16	4.498	4.95	0.00	1.200	2.140	5.00	18.162	21.79	107.8	539.3	1470.9
70.00		1.00	1.17	4.569	5.03	0.00	1.200	2.156	5.00	17.658	21.19	106.5	527.0	1428.9
75.00		1.00	1.19	4.635	5.10	0.00	1.200	2.171	5.00	17.153	20.58	105.0	514.2	1386.4
80.00		1.00	1.21	4.699	5.17	0.00	1.200	2.185	5.00	16.648	19.98	103.3	501.0	1343.4
85.00		1.00	1.22	4.759	5.24	0.00	1.200	2.198	5.00	16.141	19.37	101.4	487.3	1300.1
90.00		1.00	1.24	4.817	5.30	0.00	1.200	2.211	5.00	15.634	18.76	99.4	473.4	1256.4
94.50	Bot - Section 3	1.00	1.25	4.866	5.35	0.00	1.200	2.222	4.50	13.627	16.35	87.5	414.2	1092.9
95.00		1.00	1.25	4.872	5.36	0.00	1.200	2.223	0.50	1.521	1.82	9.8	46.9	172.1
99.00	Top - Section 2	1.00	1.26	4.914	5.41	0.00	1.200	2.232	4.00	11.894	14.27	77.2	363.2	1339.2
100.00		1.00	1.27	4.925	5.42	0.00	1.200	2.234	1.00	2.934	3.52	19.1	90.6	187.8
105.00		1.00	1.28	4.976	5.47	0.00	1.200	2.245	5.00	14.322	17.19	94.1	436.6	909.3
108.00	Appurtenance(s)	1.00	1.29	5.005	5.51	0.00	1.200	2.252	3.00	8.348	10.02	55.2	256.5	530.6
110.00		1.00	1.29	5.025	5.53	0.00	1.200	2.256	2.00	5.463	6.56	36.2	168.6	347.4
115.00		1.00	1.30	5.072	5.58	0.00	1.200	2.266	5.00	13.304	15.97	89.1	406.1	839.2
118.00	Appurtenance(s)	1.00	1.31	5.099	5.61	0.00	1.200	2.272	3.00	7.737	9.28	52.1	238.1	488.4
120.00		1.00	1.32	5.117	5.63	0.00	1.200	2.276	2.00	5.056	6.07	34.2	156.2	319.1
125.00		1.00	1.33	5.162	5.68	0.00	1.200	2.285	5.00	12.285	14.74	83.7	374.8	768.2
127.00	Appurtenance(s)	1.00	1.33	5.179	5.70	0.00	1.200	2.289	2.00	4.770	5.72	32.6	147.4	299.2
130.00		1.00	1.34	5.204	5.72	0.00	1.200	2.294	3.00	7.003	8.40	48.1	215.3	437.1
135.00		1.00	1.35	5.246	5.77	0.00	1.200	2.303	5.00	11.265	13.52	78.0	342.6	696.4
139.00	Appurtenance(s)	1.00	1.36	5.278	5.81	0.00	1.200	2.309	4.00	8.644	10.37	60.2	263.7	532.4
								Totals:	**139.00**			**2,755.8**		**38,585.7**

Discrete Appurtenance Forces

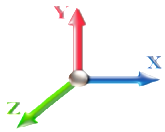
Structure:	CT46123-A-SBA	**Code:**	EIA/TIA-222-G	9/12/2018	
Site Name:	Litchfield	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	B - Competent Rock		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 18	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 40 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 22

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	139.00	RFS FD9R6004/2C-3L	6	5.286	5.815	0.80	0.80	4.54	72.25	0.000	1.000	26.42	0.00	26.42
2	139.00	Antel BXA-171063-8BF-2	3	5.286	5.815	0.80	0.80	12.32	241.59	0.000	1.000	71.65	0.00	71.65
3	139.00	Antel LPA-80063/4CF	6	5.286	5.815	0.80	0.80	30.71	566.86	0.000	1.000	178.59	0.00	178.59
4	139.00	Antel BXA-70063/6CF-2	3	5.286	5.815	0.80	0.80	26.95	522.38	0.000	1.000	156.68	0.00	156.68
5	139.00	T-Arms	3	5.254	5.780	0.75	0.75	48.48	2308.46	0.000	-3.000	280.19	0.00	-840.57
6	127.00	T-Arms	3	5.179	5.697	0.75	0.75	48.25	2298.50	0.000	0.000	274.85	0.00	0.00
7	127.00	Collar Mounts	3	5.179	5.697	0.75	0.75	15.08	-360.45	0.000	0.000	85.93	0.00	0.00
8	127.00	RFS APXVSPP18-C-A20	3	5.179	5.697	0.80	0.80	28.04	736.69	0.000	0.000	159.74	0.00	0.00
9	127.00	Alcatel Lucent 1900 MHz	3	5.179	5.697	0.80	0.80	13.49	494.25	0.000	0.000	76.88	0.00	0.00
10	127.00	Alcatel Lucent 800 MHz	3	5.179	5.697	0.80	0.80	9.58	418.46	0.000	0.000	54.55	0.00	0.00
11	127.00	Alcatel Lucent 800 MHz	3	5.179	5.697	0.80	0.80	10.81	501.40	0.000	0.000	61.60	0.00	0.00
12	127.00	RFS ACU-A20-N RETs	4	5.179	5.697	0.80	0.80	1.69	22.13	0.000	0.000	9.65	0.00	0.00
13	127.00	RFS APXVTM14-C-I20	3	5.179	5.697	0.80	0.80	18.79	872.92	0.000	0.000	107.04	0.00	0.00
14	127.00	Alcatel Lucent	3	5.179	5.697	0.80	0.80	12.34	715.31	0.000	0.000	70.30	0.00	0.00
15	118.00	Steel Brace	2	5.099	5.609	1.00	1.00	17.49	673.99	0.000	0.000	98.09	0.00	0.00
16	118.00	4426 B66	3	5.099	5.609	0.80	0.80	5.58	347.57	0.000	0.000	31.30	0.00	0.00
17	118.00	RRUS 32 B30	3	5.099	5.609	0.80	0.80	8.91	584.95	0.000	0.000	49.96	0.00	0.00
18	118.00	RRUS 4478 B5	3	5.099	5.609	0.80	0.80	6.13	371.43	0.000	0.000	34.38	0.00	0.00
19	118.00	RRUS 4478 B14	3	5.099	5.609	0.80	0.80	5.58	347.57	0.000	0.000	31.30	0.00	0.00
20	118.00	800 10764 K	1	5.099	5.609	0.80	0.80	6.94	178.45	0.000	0.000	38.90	0.00	0.00
21	118.00	SBNHH-1D65A	2	5.099	5.609	0.80	0.80	11.70	518.12	0.000	0.000	65.65	0.00	0.00
22	118.00	Ericsson RRU-11-RRU	3	5.099	5.609	0.80	0.80	8.14	555.04	0.000	0.000	45.65	0.00	0.00
23	118.00	T-Arms	3	5.099	5.609	0.75	0.75	38.45	2004.15	0.000	0.000	215.66	0.00	0.00
24	118.00	Powerwave 7770	3	5.099	5.609	0.80	0.80	16.59	690.64	0.000	0.000	93.08	0.00	0.00
25	118.00	KMW	1	5.099	5.609	0.80	0.80	9.33	222.94	0.000	0.000	52.31	0.00	0.00
26	118.00	LGP21401 TMA	18	5.099	5.609	0.80	0.80	34.24	762.56	0.000	0.000	192.07	0.00	0.00
27	118.00	Powerwave 7020.00 RET	6	5.099	5.609	0.80	0.80	4.94	78.39	0.000	0.000	27.73	0.00	0.00
28	118.00	HPA65R-BU6A	1	5.099	5.609	0.80	0.80	9.03	368.70	0.000	0.000	50.67	0.00	0.00
29	118.00	KMW	1	5.099	5.609	0.80	0.80	5.95	150.24	0.000	0.000	33.39	0.00	0.00
30	118.00	OPA65R-BU4B	2	5.099	5.609	0.80	0.80	11.70	573.84	0.000	0.000	65.61	0.00	0.00
31	118.00	OPA65R-BU6B	1	5.099	5.609	0.80	0.80	7.70	417.25	0.000	0.000	43.17	0.00	0.00
32	118.00	Ericsson RRU-12-RRU	3	5.099	5.609	0.80	0.80	8.54	430.61	0.000	0.000	47.91	0.00	0.00
33	118.00	Raycap DC6-48-60-18-8F	3	5.099	5.609	0.80	0.80	3.58	317.01	0.000	0.000	20.06	0.00	0.00
34	118.00	Powerwave LGP13519	18	5.099	5.609	0.80	0.80	13.41	288.42	0.000	0.000	75.20	0.00	0.00
35	108.00	Kathrein 782 11056-Bias-T	3	5.005	5.506	0.80	0.80	3.54	89.76	0.000	0.000	19.47	0.00	0.00
36	108.00	TMA	12	5.005	5.506	0.80	0.80	12.73	332.20	0.000	0.000	70.09	0.00	0.00
37	108.00	LNX-6515DS	3	5.005	5.506	0.80	0.80	37.59	867.04	0.000	0.000	206.99	0.00	0.00
38	108.00	APXV18-209014	3	5.005	5.506	0.80	0.80	11.55	442.01	0.000	0.000	63.62	0.00	0.00
39	108.00	APX16PV-16VL-E	3	5.005	5.506	0.80	0.80	17.87	676.29	0.000	0.000	98.41	0.00	0.00
40	108.00	Low Profile Platform	1	5.005	5.506	1.00	1.00	44.79	3188.82	0.000	0.000	246.59	0.00	0.00
							Totals:		**24,888.74**			**3,631.31**		

Total Applied Force Summary

Structure:	CT46123-A-SBA		**Code:**	EIA/TIA-222-G	9/12/2018
Site Name:	Litchfield		**Exposure:**	C	
Height:	139.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	B - Competent Rock	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 19

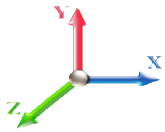
Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 40 mph Wind

Iterations 22

Dead Load Factor 1.20

Wind Load Factor 1.00



Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		103.26	2151.70	0.00	0.00
10.00		101.43	2149.65	0.00	0.00
15.00		99.44	2130.79	0.00	0.00
20.00		103.32	2104.50	0.00	0.00
25.00		105.95	2073.90	0.00	0.00
30.00		107.64	2040.44	0.00	0.00
35.00		108.63	2004.91	0.00	0.00
40.00		109.07	1967.82	0.00	0.00
45.00		109.08	1929.48	0.00	0.00
46.58		34.06	601.34	0.00	0.00
50.00		75.34	1993.27	0.00	0.00
52.41		52.77	1384.17	0.00	0.00
55.00		56.54	969.11	0.00	0.00
60.00		108.97	1837.20	0.00	0.00
65.00		107.83	1795.73	0.00	0.00
70.00		106.49	1753.71	0.00	0.00
75.00		104.96	1711.19	0.00	0.00
80.00		103.25	1668.25	0.00	0.00
85.00		101.40	1624.90	0.00	0.00
90.00		99.40	1581.20	0.00	0.00
94.50		87.53	1385.09	0.00	0.00
95.00		9.78	204.77	0.00	0.00
99.00		77.16	1598.88	0.00	0.00
100.00		19.08	253.01	0.00	0.00
105.00		94.06	1234.13	0.00	0.00
108.00	(25) attachments	760.31	6321.67	0.00	0.00
110.00		36.23	432.38	0.00	0.00
115.00		89.07	1051.72	0.00	0.00
118.00	(80) attachments	1364.15	10497.80	0.00	0.00
120.00		34.15	355.44	0.00	0.00
125.00		83.70	858.94	0.00	0.00
127.00	(28) attachments	933.15	6034.69	0.00	0.00
130.00		48.11	482.01	0.00	0.00
135.00		78.01	771.33	0.00	0.00
139.00	(21) attachments	773.76	4303.89	0.00	-407.22
	Totals:	**6,387.09**	**71,259.00**	**0.00**	**-407.22**

Calculated Forces

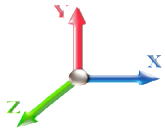
Structure:	CT46123-A-SBA	**Code:**	EIA/TIA-222-G	9/12/2018	
Site Name:	Litchfield	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	B - Competent Rock		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 20	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 40 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 22

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-71.26	-6.41	0.00	-682.02	0.00	682.02	4169.21	2084.60	9065.11	4539.29	0.00	0.000	0.000	0.167
5.00	-69.10	-6.36	0.00	-649.95	0.00	649.95	4110.19	2055.10	8728.63	4370.80	0.02	-0.043	0.000	0.166
10.00	-66.95	-6.31	0.00	-618.14	0.00	618.14	4049.41	2024.70	8394.45	4203.46	0.09	-0.086	0.000	0.164
15.00	-64.81	-6.26	0.00	-586.60	0.00	586.60	3986.85	1993.43	8062.85	4037.42	0.21	-0.131	0.000	0.162
20.00	-62.70	-6.20	0.00	-555.32	0.00	555.32	3922.52	1961.26	7734.09	3872.79	0.37	-0.176	0.000	0.159
25.00	-60.62	-6.13	0.00	-524.33	0.00	524.33	3856.42	1928.21	7408.45	3709.73	0.58	-0.222	0.000	0.157
30.00	-58.58	-6.07	0.00	-493.66	0.00	493.66	3788.55	1894.27	7086.18	3548.36	0.83	-0.269	0.000	0.155
35.00	-56.57	-5.99	0.00	-463.33	0.00	463.33	3718.90	1859.45	6767.57	3388.81	1.14	-0.317	0.000	0.152
40.00	-54.60	-5.92	0.00	-433.36	0.00	433.36	3647.48	1823.74	6452.87	3231.23	1.50	-0.366	0.000	0.149
45.00	-52.66	-5.83	0.00	-403.75	0.00	403.75	3574.29	1787.15	6142.37	3075.75	1.91	-0.415	0.000	0.146
46.58	-52.06	-5.81	0.00	-394.57	0.00	394.57	3550.85	1775.42	6045.37	3027.18	2.05	-0.432	0.000	0.145
50.00	-50.06	-5.75	0.00	-374.66	0.00	374.66	3499.33	1749.66	5836.32	2922.50	2.37	-0.467	0.000	0.143
52.41	-48.68	-5.71	0.00	-360.81	0.00	360.81	3509.27	1754.63	5876.22	2942.48	2.61	-0.491	0.000	0.137
55.00	-47.71	-5.67	0.00	-346.03	0.00	346.03	3469.86	1734.93	5719.21	2863.86	2.89	-0.518	0.000	0.135
60.00	-45.87	-5.59	0.00	-317.67	0.00	317.67	3392.44	1696.22	5419.79	2713.92	3.46	-0.567	0.000	0.131
65.00	-44.07	-5.50	0.00	-289.74	0.00	289.74	3313.25	1656.62	5125.48	2566.55	4.08	-0.615	0.000	0.126
70.00	-42.31	-5.41	0.00	-262.26	0.00	262.26	3227.80	1613.90	4829.83	2418.50	4.75	-0.664	0.000	0.122
75.00	-40.60	-5.31	0.00	-235.23	0.00	235.23	3119.66	1559.83	4510.01	2258.36	5.47	-0.712	0.000	0.117
80.00	-38.92	-5.22	0.00	-208.66	0.00	208.66	3011.51	1505.75	4201.15	2103.70	6.24	-0.760	0.000	0.112
85.00	-37.30	-5.13	0.00	-182.55	0.00	182.55	2903.36	1451.68	3903.25	1954.53	7.06	-0.807	0.000	0.106
90.00	-35.71	-5.03	0.00	-156.91	0.00	156.91	2795.21	1397.61	3616.30	1810.84	7.93	-0.853	0.000	0.099
94.50	-34.33	-4.94	0.00	-134.28	0.00	134.28	2697.95	1348.98	3367.59	1686.30	8.76	-0.892	0.000	0.092
95.00	-34.12	-4.94	0.00	-131.79	0.00	131.79	2687.07	1343.53	3340.31	1672.64	8.85	-0.896	0.000	0.092
99.00	-32.52	-4.84	0.00	-112.07	0.00	112.07	1671.63	835.82	2062.09	1032.58	9.61	-0.929	0.000	0.128
100.00	-32.27	-4.84	0.00	-107.21	0.00	107.21	1662.31	831.15	2033.69	1018.35	9.81	-0.937	0.000	0.125
105.00	-31.03	-4.74	0.00	-83.02	0.00	83.02	1614.76	807.38	1893.73	948.27	10.82	-0.988	0.000	0.107
108.00	-24.72	-3.88	0.00	-68.79	0.00	68.79	1585.38	792.69	1811.10	906.90	11.45	-1.016	0.000	0.091
110.00	-24.29	-3.85	0.00	-61.02	0.00	61.02	1565.43	782.72	1756.61	879.61	11.88	-1.033	0.000	0.085
115.00	-23.24	-3.75	0.00	-41.77	0.00	41.77	1514.34	757.17	1622.58	812.50	12.98	-1.069	0.000	0.067
118.00	-12.77	-2.19	0.00	-30.51	0.00	30.51	1482.83	741.42	1543.76	773.03	13.66	-1.086	0.000	0.048
120.00	-12.41	-2.16	0.00	-26.12	0.00	26.12	1461.47	730.74	1491.92	747.07	14.12	-1.096	0.000	0.043
125.00	-11.55	-2.06	0.00	-15.34	0.00	15.34	1395.63	697.82	1354.03	678.02	15.28	-1.115	0.000	0.031
127.00	-5.54	-1.01	0.00	-11.22	0.00	11.22	1366.79	683.40	1298.36	650.14	15.75	-1.121	0.000	0.021
130.00	-5.06	-0.95	0.00	-8.19	0.00	8.19	1323.53	661.77	1217.05	609.43	16.45	-1.127	0.000	0.017
135.00	-4.29	-0.86	0.00	-3.44	0.00	3.44	1251.44	625.72	1087.38	544.50	17.64	-1.135	0.000	0.010
139.00	0.00	-0.77	0.00	0.00	0.00	0.00	1193.76	596.88	988.90	495.18	18.59	-1.137	0.000	0.000

Seismic Segment Forces (Factored)

Structure:	CT46123-A-SBA		**Code:**	EIA/TIA-222-G	9/12/2018
Site Name:	Litchfield		**Exposure:**	C	
Height:	139.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	B - Competent Rock	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 21

Tower Engineering Solutions

Load Case:	1.2D + 1.0E							**Iterations**	20
Gust Response Factor	1.10				**Sds**	0.12		**Ss**	0.18
Dead Load Factor	1.20	**Seismic Load Factor**	1.00		**Sd1**	0.04		**S1**	0.07
Wind Load Factor	0.00	**Structure Frequency**	0.39		**SA**	0.02	**Seismic Importance Factor**		1.00

Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		1058.3	0.00	0.03	0.02	15.28	
10.00		1033.5	0.01	0.05	0.03	20.51	
15.00		1008.8	0.02	0.07	0.04	22.45	
20.00		984.04	0.04	0.07	0.04	23.05	
25.00		959.27	0.06	0.07	0.04	23.15	
30.00		934.51	0.09	0.07	0.04	23.15	
35.00		909.74	0.12	0.07	0.03	23.16	
40.00		884.97	0.16	0.07	0.03	23.09	
45.00		860.21	0.20	0.06	0.02	22.71	
46.58	Bot - Section 2	266.12	0.21	0.06	0.02	7.02	
50.00		1149.0	0.24	0.06	0.02	29.74	
52.41	Top - Section 1	795.00	0.27	0.05	0.02	19.97	
55.00		424.71	0.30	0.05	0.01	10.09	
60.00		801.10	0.35	0.03	0.01	15.30	
65.00		776.33	0.41	0.01	0.01	8.64	
70.00		751.56	0.48	-0.01	0.01	0.13	
75.00		726.80	0.55	-0.03	0.01	-8.47	
80.00		702.03	0.63	-0.06	0.02	-15.08	
85.00		677.27	0.71	-0.09	0.03	-18.63	
90.00		652.50	0.79	-0.11	0.05	-19.10	
94.50	Bot - Section 3	565.66	0.87	-0.12	0.08	-15.50	
95.00		104.30	0.88	-0.12	0.08	-2.82	
99.00	Top - Section 2	813.34	0.96	-0.12	0.11	-18.26	
100.00		81.03	0.98	-0.11	0.12	-1.70	
105.00		393.90	1.08	-0.08	0.17	-4.45	
108.00	Appurtenance(s)	2207.8	1.14	-0.04	0.21	-8.36	
110.00		148.98	1.18	-0.01	0.24	0.29	
115.00		360.88	1.29	0.11	0.33	6.76	
118.00	Appurtenance(s)	3571.8	1.36	0.22	0.39	109.23	
120.00		135.77	1.41	0.30	0.44	5.32	
125.00		327.86	1.53	0.57	0.58	20.81	
127.00	Appurtenance(s)	2655.9	1.58	0.71	0.64	197.15	
130.00		184.83	1.65	0.95	0.74	16.92	
135.00		294.84	1.78	1.46	0.95	36.46	
139.00	Appurtenance(s)	1592.8	1.89	1.98	1.14	242.57	
	Totals:	**29,795.7**				**810.6**	**Total Wind:** **25,876.9**

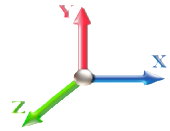
Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

Calculated Forces

Structure:	CT46123-A-SBA	**Code:**	EIA/TIA-222-G	9/12/2018	
Site Name:	Litchfield	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	B - Competent Rock		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 22	

Tower Engineering Solutions

Load Case: 1.2D + 1.0E



Gust Response Factor	1.10			**Sds**	0.12	**Iterations**	20		
Dead Load Factor	1.20	**Seismic Load Factor**	1.00	**Sd1**	0.04	**Ss**	0.18		
Wind Load Factor	0.00	**Structure Frequency**	0.39	**SA**	0.02	**S1**	0.07	**Seismic Importance Factor**	1.00

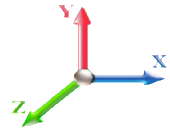
Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-43.54	-0.92	0.00	-96.56	0.00	96.56	4169.21	2084.60	9065.11	4539.29		0.00	0.00	0.032
5.00	-41.94	-0.91	0.00	-91.94	0.00	91.94	4110.19	2055.10	8728.63	4370.80		0.00	-0.01	0.031
10.00	-40.38	-0.90	0.00	-87.37	0.00	87.37	4049.41	2024.70	8394.45	4203.46		0.01	-0.01	0.031
15.00	-38.84	-0.88	0.00	-82.88	0.00	82.88	3986.85	1993.43	8062.85	4037.42		0.03	-0.02	0.030
20.00	-37.34	-0.86	0.00	-78.49	0.00	78.49	3922.52	1961.26	7734.09	3872.79		0.05	-0.02	0.030
25.00	-35.86	-0.84	0.00	-74.19	0.00	74.19	3856.42	1928.21	7408.45	3709.73		0.08	-0.03	0.029
30.00	-34.42	-0.82	0.00	-69.99	0.00	69.99	3788.55	1894.27	7086.18	3548.36		0.12	-0.04	0.029
35.00	-33.00	-0.80	0.00	-65.89	0.00	65.89	3718.90	1859.45	6767.57	3388.81		0.16	-0.04	0.028
40.00	-31.61	-0.78	0.00	-61.90	0.00	61.90	3647.48	1823.74	6452.87	3231.23		0.21	-0.05	0.028
45.00	-30.25	-0.76	0.00	-58.00	0.00	58.00	3574.29	1787.15	6142.37	3075.75		0.27	-0.06	0.027
46.58	-29.83	-0.75	0.00	-56.81	0.00	56.81	3550.85	1775.42	6045.37	3027.18		0.29	-0.06	0.027
50.00	-28.23	-0.72	0.00	-54.23	0.00	54.23	3499.33	1749.66	5836.32	2922.50		0.34	-0.07	0.027
52.41	-27.12	-0.70	0.00	-52.49	0.00	52.49	3509.27	1754.63	5876.22	2942.48		0.37	-0.07	0.026
55.00	-26.44	-0.69	0.00	-50.67	0.00	50.67	3469.86	1734.93	5719.21	2863.86		0.41	-0.07	0.025
60.00	-25.16	-0.68	0.00	-47.20	0.00	47.20	3392.44	1696.22	5419.79	2713.92		0.49	-0.08	0.025
65.00	-23.90	-0.67	0.00	-43.80	0.00	43.80	3313.25	1656.62	5125.48	2566.55		0.58	-0.09	0.024
70.00	-22.67	-0.67	0.00	-40.43	0.00	40.43	3227.80	1613.90	4829.83	2418.50		0.68	-0.10	0.024
75.00	-21.48	-0.68	0.00	-37.06	0.00	37.06	3119.66	1559.83	4510.01	2258.36		0.78	-0.10	0.023
80.00	-20.31	-0.68	0.00	-33.68	0.00	33.68	3011.51	1505.75	4201.15	2103.70		0.89	-0.11	0.023
85.00	-19.17	-0.68	0.00	-30.30	0.00	30.30	2903.36	1451.68	3903.25	1954.53		1.01	-0.12	0.022
90.00	-18.06	-0.68	0.00	-26.92	0.00	26.92	2795.21	1397.61	3616.30	1810.84		1.14	-0.13	0.021
94.50	-17.09	-0.67	0.00	-23.89	0.00	23.89	2697.95	1348.98	3367.59	1686.30		1.26	-0.13	0.021
95.00	-16.93	-0.68	0.00	-23.55	0.00	23.55	2687.07	1343.53	3340.31	1672.64		1.28	-0.13	0.020
99.00	-15.70	-0.67	0.00	-20.85	0.00	20.85	1671.63	835.82	2062.09	1032.58		1.39	-0.14	0.030
100.00	-15.54	-0.67	0.00	-20.17	0.00	20.17	1662.31	831.15	2033.69	1018.35		1.42	-0.14	0.029
105.00	-14.74	-0.67	0.00	-16.80	0.00	16.80	1614.76	807.38	1893.73	948.27		1.57	-0.15	0.027
108.00	-11.89	-0.67	0.00	-14.77	0.00	14.77	1585.38	792.69	1811.10	906.90		1.67	-0.16	0.024
110.00	-11.63	-0.67	0.00	-13.44	0.00	13.44	1565.43	782.72	1756.61	879.61		1.74	-0.16	0.023
115.00	-10.99	-0.66	0.00	-10.09	0.00	10.09	1514.34	757.17	1622.58	812.50		1.91	-0.17	0.020
118.00	-6.57	-0.54	0.00	-8.11	0.00	8.11	1482.83	741.42	1543.76	773.03		2.02	-0.17	0.015
120.00	-6.37	-0.53	0.00	-7.03	0.00	7.03	1461.47	730.74	1491.92	747.07		2.09	-0.18	0.014
125.00	-5.89	-0.51	0.00	-4.37	0.00	4.37	1395.63	697.82	1354.03	678.02		2.28	-0.18	0.011
127.00	-2.67	-0.30	0.00	-3.34	0.00	3.34	1366.79	683.40	1298.36	650.14		2.36	-0.18	0.007
130.00	-2.40	-0.29	0.00	-2.43	0.00	2.43	1323.53	661.77	1217.05	609.43		2.47	-0.18	0.006
135.00	-1.97	-0.25	0.00	-1.00	0.00	1.00	1251.44	625.72	1087.38	544.50		2.67	-0.19	0.003
139.00	0.00	-0.24	0.00	0.00	0.00	0.00	1193.76	596.88	988.90	495.18		2.82	-0.19	0.000

Seismic Segment Forces (Factored)

Structure:	CT46123-A-SBA	**Code:**	EIA/TIA-222-G	9/12/2018	
Site Name:	Litchfield	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	B - Competent Rock		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 23	

Tower Engineering Solutions

Load Case:	0.9D + 1.0E					**Iterations**	20
Gust Response Factor	1.10			**Sds**	0.12	**Ss**	0.18
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.04	**S1**	0.07
Wind Load Factor	0.00	**Structure Frequency**	0.39	**SA**	0.02	**Seismic Importance Factor**	1.00



Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		1058.3	0.00	0.03	0.02	15.28	
10.00		1033.5	0.01	0.05	0.03	20.51	
15.00		1008.8	0.02	0.07	0.04	22.45	
20.00		984.04	0.04	0.07	0.04	23.05	
25.00		959.27	0.06	0.07	0.04	23.15	
30.00		934.51	0.09	0.07	0.04	23.15	
35.00		909.74	0.12	0.07	0.03	23.16	
40.00		884.97	0.16	0.07	0.03	23.09	
45.00		860.21	0.20	0.06	0.02	22.71	
46.58	Bot - Section 2	266.12	0.21	0.06	0.02	7.02	
50.00		1149.0	0.24	0.06	0.02	29.74	
52.41	Top - Section 1	795.00	0.27	0.05	0.02	19.97	
55.00		424.71	0.30	0.05	0.01	10.09	
60.00		801.10	0.35	0.03	0.01	15.30	
65.00		776.33	0.41	0.01	0.01	8.64	
70.00		751.56	0.48	-0.01	0.01	0.13	
75.00		726.80	0.55	-0.03	0.01	-8.47	
80.00		702.03	0.63	-0.06	0.02	-15.08	
85.00		677.27	0.71	-0.09	0.03	-18.63	
90.00		652.50	0.79	-0.11	0.05	-19.10	
94.50	Bot - Section 3	565.66	0.87	-0.12	0.08	-15.50	
95.00		104.30	0.88	-0.12	0.08	-2.82	
99.00	Top - Section 2	813.34	0.96	-0.12	0.11	-18.26	
100.00		81.03	0.98	-0.11	0.12	-1.70	
105.00		393.90	1.08	-0.08	0.17	-4.45	
108.00	Appurtenance(s)	2207.8	1.14	-0.04	0.21	-8.36	
110.00		148.98	1.18	-0.01	0.24	0.29	
115.00		360.88	1.29	0.11	0.33	6.76	
118.00	Appurtenance(s)	3571.8	1.36	0.22	0.39	109.23	
120.00		135.77	1.41	0.30	0.44	5.32	
125.00		327.86	1.53	0.57	0.58	20.81	
127.00	Appurtenance(s)	2655.9	1.58	0.71	0.64	197.15	
130.00		184.83	1.65	0.95	0.74	16.92	
135.00		294.84	1.78	1.46	0.95	36.46	
139.00	Appurtenance(s)	1592.8	1.89	1.98	1.14	242.57	
	Totals:	**29,795.7**				**810.6**	**Total Wind:** **25,876.9**

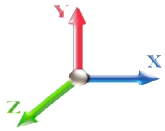
Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

Calculated Forces

Structure:	CT46123-A-SBA	**Code:**	EIA/TIA-222-G	9/12/2018	
Site Name:	Litchfield	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	B - Competent Rock		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 24	

Tower Engineering Solutions

Load Case: 0.9D + 1.0E



Gust Response Factor	1.10			**Sds**	0.12			**Iterations**	20
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.04			**Ss**	0.18
Wind Load Factor	0.00	**Structure Frequency**	0.39	**SA**	0.02			**S1**	0.07
								Seismic Importance Factor	1.00

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-32.65	-0.92	0.00	-95.58	0.00	95.58	4169.21	2084.60	9065.11	4539.29		0.00	0.00	0.029
5.00	-31.46	-0.91	0.00	-90.96	0.00	90.96	4110.19	2055.10	8728.63	4370.80		0.00	-0.01	0.028
10.00	-30.28	-0.89	0.00	-86.40	0.00	86.40	4049.41	2024.70	8394.45	4203.46		0.01	-0.01	0.028
15.00	-29.13	-0.87	0.00	-81.92	0.00	81.92	3986.85	1993.43	8062.85	4037.42		0.03	-0.02	0.028
20.00	-28.00	-0.85	0.00	-77.55	0.00	77.55	3922.52	1961.26	7734.09	3872.79		0.05	-0.02	0.027
25.00	-26.90	-0.83	0.00	-73.28	0.00	73.28	3856.42	1928.21	7408.45	3709.73		0.08	-0.03	0.027
30.00	-25.81	-0.81	0.00	-69.11	0.00	69.11	3788.55	1894.27	7086.18	3548.36		0.12	-0.04	0.026
35.00	-24.75	-0.79	0.00	-65.04	0.00	65.04	3718.90	1859.45	6767.57	3388.81		0.16	-0.04	0.026
40.00	-23.71	-0.77	0.00	-61.08	0.00	61.08	3647.48	1823.74	6452.87	3231.23		0.21	-0.05	0.025
45.00	-22.69	-0.75	0.00	-57.22	0.00	57.22	3574.29	1787.15	6142.37	3075.75		0.27	-0.06	0.025
46.58	-22.37	-0.74	0.00	-56.04	0.00	56.04	3550.85	1775.42	6045.37	3027.18		0.29	-0.06	0.025
50.00	-21.17	-0.71	0.00	-53.50	0.00	53.50	3499.33	1749.66	5836.32	2922.50		0.33	-0.07	0.024
52.41	-20.34	-0.69	0.00	-51.78	0.00	51.78	3509.27	1754.63	5876.22	2942.48		0.37	-0.07	0.023
55.00	-19.83	-0.69	0.00	-49.98	0.00	49.98	3469.86	1734.93	5719.21	2863.86		0.40	-0.07	0.023
60.00	-18.87	-0.67	0.00	-46.55	0.00	46.55	3392.44	1696.22	5419.79	2713.92		0.48	-0.08	0.023
65.00	-17.93	-0.66	0.00	-43.20	0.00	43.20	3313.25	1656.62	5125.48	2566.55		0.57	-0.09	0.022
70.00	-17.01	-0.66	0.00	-39.88	0.00	39.88	3227.80	1613.90	4829.83	2418.50		0.67	-0.09	0.022
75.00	-16.11	-0.66	0.00	-36.56	0.00	36.56	3119.66	1559.83	4510.01	2258.36		0.77	-0.10	0.021
80.00	-15.23	-0.67	0.00	-33.23	0.00	33.23	3011.51	1505.75	4201.15	2103.70		0.88	-0.11	0.021
85.00	-14.38	-0.67	0.00	-29.91	0.00	29.91	2903.36	1451.68	3903.25	1954.53		1.00	-0.12	0.020
90.00	-13.55	-0.67	0.00	-26.58	0.00	26.58	2795.21	1397.61	3616.30	1810.84		1.13	-0.12	0.020
94.50	-12.82	-0.66	0.00	-23.59	0.00	23.59	2697.95	1348.98	3367.59	1686.30		1.25	-0.13	0.019
95.00	-12.70	-0.67	0.00	-23.26	0.00	23.26	2687.07	1343.53	3340.31	1672.64		1.26	-0.13	0.019
99.00	-11.77	-0.66	0.00	-20.60	0.00	20.60	1671.63	835.82	2062.09	1032.58		1.37	-0.14	0.027
100.00	-11.65	-0.66	0.00	-19.93	0.00	19.93	1662.31	831.15	2033.69	1018.35		1.40	-0.14	0.027
105.00	-11.05	-0.66	0.00	-16.61	0.00	16.61	1614.76	807.38	1893.73	948.27		1.55	-0.15	0.024
108.00	-8.92	-0.66	0.00	-14.62	0.00	14.62	1585.38	792.69	1811.10	906.90		1.65	-0.16	0.022
110.00	-8.72	-0.66	0.00	-13.30	0.00	13.30	1565.43	782.72	1756.61	879.61		1.72	-0.16	0.021
115.00	-8.24	-0.65	0.00	-10.00	0.00	10.00	1514.34	757.17	1622.58	812.50		1.89	-0.17	0.018
118.00	-4.93	-0.53	0.00	-8.04	0.00	8.04	1482.83	741.42	1543.76	773.03		1.99	-0.17	0.014
120.00	-4.78	-0.53	0.00	-6.97	0.00	6.97	1461.47	730.74	1491.92	747.07		2.07	-0.17	0.013
125.00	-4.42	-0.51	0.00	-4.33	0.00	4.33	1395.63	697.82	1354.03	678.02		2.25	-0.18	0.010
127.00	-2.00	-0.30	0.00	-3.32	0.00	3.32	1366.79	683.40	1298.36	650.14		2.33	-0.18	0.007
130.00	-1.80	-0.28	0.00	-2.41	0.00	2.41	1323.53	661.77	1217.05	609.43		2.44	-0.18	0.005
135.00	-1.48	-0.25	0.00	-0.99	0.00	0.99	1251.44	625.72	1087.38	544.50		2.63	-0.18	0.003
139.00	0.00	-0.24	0.00	0.00	0.00	0.00	1193.76	596.88	988.90	495.18		2.79	-0.19	0.000

Wind Loading - Shaft

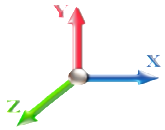
Structure:	CT46123-A-SBA	**Code:**	EIA/TIA-222-G	9/12/2018	
Site Name:	Litchfield	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	B - Competent Rock		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 25	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 21

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	7.442	8.19	249.26	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	7.442	8.19	243.53	0.650	0.000	5.00	22.271	14.48	118.5	0.0	1058.3
10.00		1.00	0.85	7.442	8.19	237.81	0.650	0.000	5.00	21.754	14.14	115.8	0.0	1033.6
15.00		1.00	0.85	7.442	8.19	232.08	0.650	0.000	5.00	21.236	13.80	113.0	0.0	1008.8
20.00		1.00	0.90	7.896	8.69	233.16	0.650	0.000	5.00	20.719	13.47	117.0	0.0	984.0
25.00		1.00	0.95	8.276	9.10	232.67	0.650	0.000	5.00	20.201	13.13	119.5	0.0	959.3
30.00		1.00	0.98	8.600	9.46	231.02	0.650	0.000	5.00	19.684	12.79	121.0	0.0	934.5
35.00		1.00	1.01	8.883	9.77	228.55	0.650	0.000	5.00	19.166	12.46	121.7	0.0	909.7
40.00		1.00	1.04	9.137	10.05	225.44	0.650	0.000	5.00	18.649	12.12	121.8	0.0	885.0
45.00		1.00	1.07	9.366	10.30	221.83	0.650	0.000	5.00	18.131	11.79	121.4	0.0	860.2
46.58	Bot - Section 2	1.00	1.08	9.434	10.38	220.60	0.650	0.000	1.58	5.610	3.65	37.8	0.0	266.1
50.00		1.00	1.09	9.576	10.53	217.81	0.650	0.000	3.42	12.221	7.94	83.7	0.0	1149.1
52.41	Top - Section 1	1.00	1.10	9.672	10.64	215.75	0.650	0.000	2.41	8.458	5.50	58.5	0.0	795.0
55.00		1.00	1.12	9.770	10.75	217.47	0.650	0.000	2.59	8.956	5.82	62.6	0.0	424.7
60.00		1.00	1.14	9.951	10.95	212.85	0.650	0.000	5.00	16.896	10.98	120.2	0.0	801.1
65.00		1.00	1.16	10.120	11.13	207.97	0.650	0.000	5.00	16.379	10.65	118.5	0.0	776.3
70.00		1.00	1.17	10.279	11.31	202.87	0.650	0.000	5.00	15.861	10.31	116.6	0.0	751.6
75.00		1.00	1.19	10.430	11.47	197.58	0.650	0.000	5.00	15.344	9.97	114.4	0.0	726.8
80.00		1.00	1.21	10.572	11.63	192.10	0.650	0.000	5.00	14.827	9.64	112.1	0.0	702.0
85.00		1.00	1.22	10.708	11.78	186.46	0.650	0.000	5.00	14.309	9.30	109.6	0.0	677.3
90.00		1.00	1.24	10.838	11.92	180.68	0.650	0.000	5.00	13.792	8.96	106.9	0.0	652.5
94.50	Bot - Section 3	1.00	1.25	10.949	12.04	175.36	0.650	0.000	4.50	11.961	7.77	93.6	0.0	565.7
95.00		1.00	1.25	10.962	12.06	174.76	0.650	0.000	0.50	1.334	0.87	10.5	0.0	104.3
99.00	Top - Section 2	1.00	1.26	11.057	12.16	169.94	0.650	0.000	4.00	10.407	6.76	82.3	0.0	813.3
100.00		1.00	1.27	11.081	12.19	171.58	0.650	0.000	1.00	2.561	1.66	20.3	0.0	81.0
105.00		1.00	1.28	11.195	12.31	165.44	0.650	0.000	5.00	12.451	8.09	99.7	0.0	393.9
108.00	Appurtenance(s)	1.00	1.29	11.262	12.39	161.71	0.650	0.000	3.00	7.222	4.69	58.2	0.0	228.4
110.00		1.00	1.29	11.305	12.44	159.20	0.650	0.000	2.00	4.711	3.06	38.1	0.0	149.0
115.00		1.00	1.30	11.412	12.55	152.85	0.650	0.000	5.00	11.416	7.42	93.1	0.0	360.9
118.00	Appurtenance(s)	1.00	1.31	11.474	12.62	149.00	0.650	0.000	3.00	6.601	4.29	54.2	0.0	208.6
120.00		1.00	1.32	11.514	12.67	146.42	0.650	0.000	2.00	4.297	2.79	35.4	0.0	135.8
125.00		1.00	1.33	11.614	12.78	139.90	0.650	0.000	5.00	10.381	6.75	86.2	0.0	327.9
127.00	Appurtenance(s)	1.00	1.33	11.653	12.82	137.27	0.650	0.000	2.00	4.008	2.60	33.4	0.0	126.5
130.00		1.00	1.34	11.710	12.88	133.30	0.650	0.000	3.00	5.856	3.81	49.0	0.0	184.8
135.00		1.00	1.35	11.803	12.98	126.62	0.650	0.000	5.00	9.346	6.07	78.9	0.0	294.8
139.00	Appurtenance(s)	1.00	1.36	11.876	13.06	121.22	0.650	0.000	4.00	7.104	4.62	60.3	0.0	224.0
								Totals:	**139.00**			**3,003.7**		**20,554.8**

Discrete Appurtenance Forces

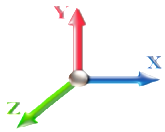
Structure:	CT46123-A-SBA	**Code:**	EIA/TIA-222-G	9/12/2018	
Site Name:	Litchfield	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	B - Competent Rock		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 26	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 21

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	139.00	RFS FD9R6004/2C-3L	6	11.894	13.084	0.54	0.80	1.16	18.60	0.000	1.000	15.15	0.00	15.15
2	139.00	Antel BXA-171063-8BF-2	3	11.894	13.084	0.60	0.80	5.29	31.50	0.000	1.000	69.24	0.00	69.24
3	139.00	Antel LPA-80063/4CF	6	11.894	13.084	0.40	0.80	9.70	67.80	0.000	1.000	126.86	0.00	126.86
4	139.00	Antel BXA-70063/6CF-2	3	11.894	13.084	0.60	0.80	13.63	51.00	0.000	1.000	178.28	0.00	178.28
5	139.00	T-Arms	3	11.822	13.004	0.56	0.75	16.88	1200.00	0.000	-3.000	219.44	0.00	-658.32
6	127.00	T-Arms	3	11.653	12.818	0.56	0.75	16.88	1200.00	0.000	0.000	216.30	0.00	0.00
7	127.00	Collar Mounts	3	11.653	12.818	0.56	0.75	5.91	300.00	0.000	0.000	75.71	0.00	0.00
8	127.00	RFS APXVSPP18-C-A20	3	11.653	12.818	0.66	0.80	15.98	171.00	0.000	0.000	204.78	0.00	0.00
9	127.00	Alcatel Lucent 1900 MHz	3	11.653	12.818	0.54	0.80	6.11	132.00	0.000	0.000	78.32	0.00	0.00
10	127.00	Alcatel Lucent 800 MHz	3	11.653	12.818	0.54	0.80	4.00	159.00	0.000	0.000	51.32	0.00	0.00
11	127.00	Alcatel Lucent 800 MHz	3	11.653	12.818	0.54	0.80	4.68	185.40	0.000	0.000	59.98	0.00	0.00
12	127.00	RFS ACU-A20-N RETs	4	11.653	12.818	0.54	0.80	0.30	4.00	0.000	0.000	3.85	0.00	0.00
13	127.00	RFS APXVTM14-C-I20	3	11.653	12.818	0.63	0.80	12.02	168.00	0.000	0.000	154.08	0.00	0.00
14	127.00	Alcatel Lucent	3	11.653	12.818	0.54	0.80	6.51	210.00	0.000	0.000	83.47	0.00	0.00
15	118.00	Steel Brace	2	11.474	12.621	1.00	1.00	7.40	280.00	0.000	0.000	93.40	0.00	0.00
16	118.00	4426 B66	3	11.474	12.621	0.54	0.80	2.65	178.20	0.000	0.000	33.49	0.00	0.00
17	118.00	RRUS 32 B30	3	11.474	12.621	0.54	0.80	4.41	180.00	0.000	0.000	55.61	0.00	0.00
18	118.00	RRUS 4478 B5	3	11.474	12.621	0.54	0.80	2.96	179.70	0.000	0.000	37.34	0.00	0.00
19	118.00	RRUS 4478 B14	3	11.474	12.621	0.54	0.80	2.65	178.20	0.000	0.000	33.49	0.00	0.00
20	118.00	800 10764 K	1	11.474	12.621	0.60	0.80	3.53	40.80	0.000	0.000	44.53	0.00	0.00
21	118.00	SBNHH-1D65A	2	11.474	12.621	0.66	0.80	7.81	67.00	0.000	0.000	98.55	0.00	0.00
22	118.00	Ericsson RRU-11-RRU	3	11.474	12.621	0.54	0.80	4.05	152.10	0.000	0.000	51.14	0.00	0.00
23	118.00	T-Arms	3	11.474	12.621	0.56	0.75	13.50	1050.00	0.000	0.000	170.38	0.00	0.00
24	118.00	Powerwave 7770	3	11.474	12.621	0.58	0.80	9.64	105.00	0.000	0.000	121.62	0.00	0.00
25	118.00	KMW	1	11.474	12.621	0.60	0.80	4.81	48.50	0.000	0.000	60.73	0.00	0.00
26	118.00	LGP21401 TMA	18	11.474	12.621	0.54	0.80	12.45	253.80	0.000	0.000	157.08	0.00	0.00
27	118.00	Powerwave 7020.00 RET	6	11.474	12.621	0.54	0.80	1.29	13.20	0.000	0.000	16.24	0.00	0.00
28	118.00	HPA65R-BU6A	1	11.474	12.621	0.63	0.80	6.00	46.90	0.000	0.000	75.70	0.00	0.00
29	118.00	KMW	1	11.474	12.621	0.60	0.80	3.00	30.80	0.000	0.000	37.86	0.00	0.00
30	118.00	OPA65R-BU4B	2	11.474	12.621	0.63	0.80	7.51	114.00	0.000	0.000	94.76	0.00	0.00
31	118.00	OPA65R-BU6B	1	11.474	12.621	0.79	0.80	6.27	71.20	0.000	0.000	79.17	0.00	0.00
32	118.00	Ericsson RRU-12-RRU	3	11.474	12.621	0.54	0.80	4.34	180.00	0.000	0.000	54.80	0.00	0.00
33	118.00	Raycap DC6-48-60-18-8F	3	11.474	12.621	0.80	0.80	2.21	98.40	0.000	0.000	27.87	0.00	0.00
34	118.00	Powerwave LGP13519	18	11.474	12.621	0.54	0.80	3.28	95.40	0.000	0.000	41.40	0.00	0.00
35	108.00	Kathrein 782 11056-Bias-T	3	11.262	12.388	0.59	0.80	1.21	33.00	0.000	0.000	14.96	0.00	0.00
36	108.00	TMA	12	11.262	12.388	0.54	0.80	3.79	126.00	0.000	0.000	47.01	0.00	0.00
37	108.00	LNX-6515DS	3	11.262	12.388	0.64	0.80	22.02	145.50	0.000	0.000	272.81	0.00	0.00
38	108.00	APXV18-209014	3	11.262	12.388	0.59	0.80	6.36	56.10	0.000	0.000	78.76	0.00	0.00
39	108.00	APX16PV-16VL-E	3	11.262	12.388	0.54	0.80	9.70	118.80	0.000	0.000	120.12	0.00	0.00
40	108.00	Low Profile Platform	1	11.262	12.388	1.00	1.00	22.00	1500.00	0.000	0.000	272.53	0.00	0.00
							Totals:		**9,240.90**			**3,728.10**		

Total Applied Force Summary

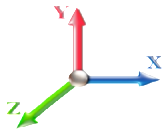
Structure:	CT46123-A-SBA		**Code:**	EIA/TIA-222-G	9/12/2018
Site Name:	Litchfield		**Exposure:**	C	
Height:	139.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	B - Competent Rock	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 27

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 21

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		118.50	1329.04	0.00	0.00
10.00		115.75	1304.27	0.00	0.00
15.00		113.00	1279.51	0.00	0.00
20.00		116.97	1254.74	0.00	0.00
25.00		119.54	1229.97	0.00	0.00
30.00		121.03	1205.21	0.00	0.00
35.00		121.74	1180.44	0.00	0.00
40.00		121.83	1155.67	0.00	0.00
45.00		121.42	1130.91	0.00	0.00
46.58		37.84	351.48	0.00	0.00
50.00		83.68	1334.39	0.00	0.00
52.41		58.49	925.47	0.00	0.00
55.00		62.56	564.93	0.00	0.00
60.00		120.22	1071.80	0.00	0.00
65.00		118.52	1047.03	0.00	0.00
70.00		116.58	1022.26	0.00	0.00
75.00		114.42	997.50	0.00	0.00
80.00		112.08	972.73	0.00	0.00
85.00		109.55	947.97	0.00	0.00
90.00		106.87	923.20	0.00	0.00
94.50		93.64	809.11	0.00	0.00
95.00		10.46	131.55	0.00	0.00
99.00		82.28	1029.72	0.00	0.00
100.00		20.29	135.35	0.00	0.00
105.00		99.66	664.60	0.00	0.00
108.00	(25) attachments	864.35	2370.24	0.00	0.00
110.00		38.08	219.82	0.00	0.00
115.00		93.15	537.98	0.00	0.00
118.00	(80) attachments	1439.29	3678.06	0.00	0.00
120.00		35.38	166.01	0.00	0.00
125.00		86.20	403.46	0.00	0.00
127.00	(28) attachments	961.19	2686.16	0.00	0.00
130.00		49.03	222.27	0.00	0.00
135.00		78.88	357.24	0.00	0.00
139.00	(21) attachments	669.29	1642.80	0.00	-268.80
	Totals:	**6,731.76**	**36,282.90**	**0.00**	**-268.80**

Calculated Forces

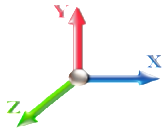
Structure:	CT46123-A-SBA	**Code:**	EIA/TIA-222-G	9/12/2018	
Site Name:	Litchfield	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	B - Competent Rock		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 28	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 21

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-36.28	-6.74	0.00	-675.43	0.00	675.43	4169.21	2084.60	9065.11	4539.29	0.00	0.000	0.000	0.158
5.00	-34.95	-6.65	0.00	-641.71	0.00	641.71	4110.19	2055.10	8728.63	4370.80	0.02	-0.042	0.000	0.155
10.00	-33.64	-6.56	0.00	-608.46	0.00	608.46	4049.41	2024.70	8394.45	4203.46	0.09	-0.085	0.000	0.153
15.00	-32.35	-6.47	0.00	-575.66	0.00	575.66	3986.85	1993.43	8062.85	4037.42	0.20	-0.129	0.000	0.151
20.00	-31.09	-6.37	0.00	-543.32	0.00	543.32	3922.52	1961.26	7734.09	3872.79	0.36	-0.173	0.000	0.148
25.00	-29.86	-6.27	0.00	-511.45	0.00	511.45	3856.42	1928.21	7408.45	3709.73	0.57	-0.218	0.000	0.146
30.00	-28.65	-6.17	0.00	-480.09	0.00	480.09	3788.55	1894.27	7086.18	3548.36	0.82	-0.264	0.000	0.143
35.00	-27.46	-6.06	0.00	-449.24	0.00	449.24	3718.90	1859.45	6767.57	3388.81	1.12	-0.311	0.000	0.140
40.00	-26.30	-5.96	0.00	-418.92	0.00	418.92	3647.48	1823.74	6452.87	3231.23	1.47	-0.358	0.000	0.137
45.00	-25.17	-5.84	0.00	-389.13	0.00	389.13	3574.29	1787.15	6142.37	3075.75	1.87	-0.406	0.000	0.134
46.58	-24.82	-5.81	0.00	-379.92	0.00	379.92	3550.85	1775.42	6045.37	3027.18	2.01	-0.421	0.000	0.133
50.00	-23.48	-5.73	0.00	-360.02	0.00	360.02	3499.33	1749.66	5836.32	2922.50	2.32	-0.455	0.000	0.130
52.41	-22.55	-5.67	0.00	-346.21	0.00	346.21	3509.27	1754.63	5876.22	2942.48	2.56	-0.479	0.000	0.124
55.00	-21.99	-5.62	0.00	-331.51	0.00	331.51	3469.86	1734.93	5719.21	2863.86	2.83	-0.505	0.000	0.122
60.00	-20.91	-5.51	0.00	-303.41	0.00	303.41	3392.44	1696.22	5419.79	2713.92	3.38	-0.551	0.000	0.118
65.00	-19.86	-5.40	0.00	-275.87	0.00	275.87	3313.25	1656.62	5125.48	2566.55	3.98	-0.597	0.000	0.113
70.00	-18.84	-5.28	0.00	-248.89	0.00	248.89	3227.80	1613.90	4829.83	2418.50	4.63	-0.644	0.000	0.109
75.00	-17.84	-5.17	0.00	-222.48	0.00	222.48	3119.66	1559.83	4510.01	2258.36	5.33	-0.689	0.000	0.104
80.00	-16.86	-5.06	0.00	-196.62	0.00	196.62	3011.51	1505.75	4201.15	2103.70	6.08	-0.735	0.000	0.099
85.00	-15.91	-4.95	0.00	-171.33	0.00	171.33	2903.36	1451.68	3903.25	1954.53	6.87	-0.779	0.000	0.093
90.00	-14.98	-4.84	0.00	-146.58	0.00	146.58	2795.21	1397.61	3616.30	1810.84	7.71	-0.821	0.000	0.086
94.50	-14.18	-4.74	0.00	-124.81	0.00	124.81	2697.95	1348.98	3367.59	1686.30	8.50	-0.858	0.000	0.079
95.00	-14.04	-4.73	0.00	-122.43	0.00	122.43	2687.07	1343.53	3340.31	1672.64	8.59	-0.862	0.000	0.078
99.00	-13.01	-4.64	0.00	-103.51	0.00	103.51	1671.63	835.82	2062.09	1032.58	9.33	-0.892	0.000	0.108
100.00	-12.88	-4.62	0.00	-98.86	0.00	98.86	1662.31	831.15	2033.69	1018.35	9.52	-0.900	0.000	0.105
105.00	-12.21	-4.52	0.00	-75.75	0.00	75.75	1614.76	807.38	1893.73	948.27	10.49	-0.947	0.000	0.087
108.00	-9.85	-3.62	0.00	-62.19	0.00	62.19	1585.38	792.69	1811.10	906.90	11.09	-0.972	0.000	0.075
110.00	-9.63	-3.58	0.00	-54.95	0.00	54.95	1565.43	782.72	1756.61	879.61	11.50	-0.987	0.000	0.069
115.00	-9.09	-3.48	0.00	-37.05	0.00	37.05	1514.34	757.17	1622.58	812.50	12.55	-1.019	0.000	0.052
118.00	-5.44	-1.98	0.00	-26.60	0.00	26.60	1482.83	741.42	1543.76	773.03	13.20	-1.034	0.000	0.038
120.00	-5.28	-1.94	0.00	-22.64	0.00	22.64	1461.47	730.74	1491.92	747.07	13.63	-1.043	0.000	0.034
125.00	-4.88	-1.85	0.00	-12.94	0.00	12.94	1395.63	697.82	1354.03	678.02	14.74	-1.059	0.000	0.023
127.00	-2.21	-0.84	0.00	-9.24	0.00	9.24	1366.79	683.40	1298.36	650.14	15.18	-1.064	0.000	0.016
130.00	-1.99	-0.79	0.00	-6.73	0.00	6.73	1323.53	661.77	1217.05	609.43	15.85	-1.070	0.000	0.013
135.00	-1.63	-0.70	0.00	-2.80	0.00	2.80	1251.44	625.72	1087.38	544.50	16.97	-1.076	0.000	0.006
139.00	0.00	-0.67	0.00	0.00	0.00	0.00	1193.76	596.88	988.90	495.18	17.88	-1.077	0.000	0.000

Final Analysis Summary

Structure:	CT46123-A-SBA	**Code:**	EIA/TIA-222-G	9/12/2018	
Site Name:	Litchfield	**Exposure:**	C		
Height:	139.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	B - Competent Rock		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 29	

Tower Engineering Solutions

Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
1.2D + 1.6W 93 mph Wind	25.9	0.00	43.50	0.00	0.00	2611.69
0.9D + 1.6W 93 mph Wind	25.9	0.00	32.62	0.00	0.00	2586.61
1.2D + 1.0Di + 1.0Wi 40 mph Wind	6.4	0.00	71.26	0.00	0.00	682.02
1.2D + 1.0E	0.9	0.00	43.54	0.00	0.00	96.56
0.9D + 1.0E	0.9	0.00	32.65	0.00	0.00	95.58
1.0D + 1.0W 60 mph Wind	6.7	0.00	36.28	0.00	0.00	675.43

Max Stresses

Load Case	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Elev (ft)	Stress Ratio
1.2D + 1.6W 93 mph Wind	-43.50	-25.94	0.00	-2611.6	0.00	-2611.6	4169.21	2084.6	9065.11	4539.29	0.00	0.586
0.9D + 1.6W 93 mph Wind	-32.62	-25.92	0.00	-2586.6	0.00	-2586.6	4169.21	2084.6	9065.11	4539.29	0.00	0.578
1.2D + 1.0Di + 1.0Wi 40 mph Wind	-71.26	-6.41	0.00	-682.02	0.00	-682.02	4169.21	2084.6	9065.11	4539.29	0.00	0.167
1.2D + 1.0E	-43.54	-0.92	0.00	-96.56	0.00	-96.56	4169.21	2084.6	9065.11	4539.29	0.00	0.032
0.9D + 1.0E	-32.65	-0.92	0.00	-95.58	0.00	-95.58	4169.21	2084.6	9065.11	4539.29	0.00	0.029
1.0D + 1.0W 60 mph Wind	-36.28	-6.74	0.00	-675.43	0.00	-675.43	4169.21	2084.6	9065.11	4539.29	0.00	0.158

June 21, 2018

SAI Communications
12 Industrial Way
Salem NH, 03079

RE:	Site Number:	CT1131 (LTE 3C/4C/5C/6C)
	FA Number:	10065732
	PACE Number:	MRCTB032260
	PT Number:	2051A0GWJ3
	Site Name:	Litchfield CT Torrington Road
	Site Address:	383 Torrington Road Litchfield, CT 06759

To Whom It May Concern:

Hudson Design Group LLC (HDG) has been authorized by SAI Communications to perform a mount analysis on the existing AT&T antenna/RRH mounts to determine their capability of supporting the following additional loading:

- (3) 7770 Antennas (55.0"x11.0"x5.0"– Wt. = 35 lbs. /each)
- (1) AM-X-CD-16-65-OOT-RET Antenna (72.0"x11.8"x5.9"– Wt. = 49 lbs. /each)
- (1) AM-X-CD-14-65-OOT-RET Antenna (48.0"x11.8"x5.9"– Wt. = 17 lbs. /each)
- (1) 800-10764 Antenna (55.2"x11.8"x6"– Wt. = 41 lbs. /each)
- (3) RRUS-11 RRH's (19.7"x17.0"x7.2" – Wt. = 51 lbs. /each)
- (3) RRUS-12 RRH's (20.4"x18.5"x7.5" – Wt. = 58 lbs. /each)
- (6) LGP21401 TMA's (14.4"x9"x2.7" – Wt. = 19 lbs. /each)
- (1) Squid Surge Arrestor (24.0"x9.7" Φ – Wt. = 33 lbs. /each)
- **(2) OPA65R-BU4B Antennas (48.0"x11.7"x10.1"– Wt. = 43 lbs. /each)**
- **(1) OPA65R-BU6B Antenna (71.1"x11.7"x8.4"– Wt. = 55 lbs. /each)**
- **(1) HPA65R-BU6A Antenna (71.1"x11.7"x7.6"– Wt. = 42 lbs. /each)**
- **(2) SBNHH-1D65A Antennas (55.0"x11.9"x7.1" – Wt. = 34 lbs. /each)**
- **(3) 4478 B5 RRH's (18.1"x13.4"x8.3"– Wt. = 60 lbs. /each)**
- **(3) RRUS-32 RRH's (27.2"x12.1"x7.0"– Wt. = 60 lbs. /each)**
- **(3) B14 4478 RRH's (18.1"x13.4"x8.3"– Wt. = 60 lbs. /each)**
- **(3) 4426 B66 RRH's (15.0"x13.2"x7.4" – Wt. = 49 lbs. /each)**
- **(3) DBC0061F1V51-2 Diplexers (8.0"x6.2"x6.5" – Wt. = 25 lbs. /each)**
- **(2) Squid Surge Arrestors (24.0"x9.7" Φ – Wt. = 33 lbs. /each)**

**Proposed equipment shown in bold*

No original structural design documents or fabrication drawings were available for the existing mounts. HDE's subconsultant, ProVertic LLC, conducted a survey climb and mapping of the existing AT&T antenna mounts on June 11, 2018.

Mount Analysis Methods:

- This analysis was conducted in accordance with EIA/TIA-222-G, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, the International Building Code 2012 with 2005 Connecticut Supplement with 2016 Amendments, and AT&T Mount Technical Directive – R7.

- HDG considers this mount to be asymmetrical and has applied wind loads in 30 degree increments all around the mount. Per TIA-222-G Annex B, the max basic wind speed for this site is equal to 100 mph with a max basic wind speed with ice of 40 mph. Per the AT&T Mount Technical Directive and Appendix N of the Connecticut State Building Code, an ultimate wind speed of 120 mph converted to a nominal wind speed of 93 mph was used for this analysis.
- HDG considers this site to be exposure category B; tower is located in an urban/suburban or wooded area with numerous closely spaced obstructions.
- HDG considers this site to be topographic category 1; tower is located on flat terrain or the bottom of a hill or ridge.
- The mount has been analyzed with load combinations consisting of 500 lbs live load using a service wind speed of 30 mph wind on the worst case antenna. Analysis performed on each antenna pipe to determine worst case location; worst case location was antenna position 1.
- The mount has been analyzed with load combinations consisting of a 250 lbs live load in a worst case location on the mount.

Based on our evaluation, we have determined that the existing mounts **ARE NOT CAPABLE** of supporting the proposed installation. HDG recommends the following modifications:

- **Install new 2"std. (2.38" O.D.) diagonal steel brace (typ. of 2 per sector, total of 6).**

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
Existing 3C/4C/5C/6C Mount Rating	10	LC52	118%	**FAIL**
Proposed 3C/4C/5C/6C Mount Rating	27	LC52	97%	**PASS**

Reference Documents:

- Mount mapping report prepared by ProVertic LLC.

This determination was based on the following limitations and assumptions:

1. HDG is not responsible for any modifications completed prior to and hereafter which HDG was not directly involved.
2. All structural members and their connections are assumed to be in good condition and are free from defects with no deterioration to its member capacities.
3. All antennas, coax cables and waveguide cables are assumed to be properly installed and supported as per the manufacturer's requirements.
4. The existing mount has been adequately secured to the tower structure per the mount manufacturer's specifications.
5. All components pertaining to AT&T's mounts must be tightened and re-plumbed prior to the installation of new appurtenances.
6. HDG performed a localized analysis on the mount itself and not on the supporting tower structure.

Please feel free to contact our office should you have any questions.

Respectfully Submitted,
Hudson Design Group LLC

Michael Cabral
Structural Dept. Head

Daniel P. Hamm, PE
Principal

FIELD PHOTOS:

p: 978.557.5553 f: 978.336.5586 a: 45 Beechwood Dr., N. Andover, MA 01845
p: 413.588.8139 f: 413.517.0590 a: 116 Pleasant Street, Ste 302, Easthampton, MA 01027

p: 978.557.5553 f: 978.336.5586 a: 45 Beechwood Dr., N. Andover, MA 01845
p: 413.588.8139 f: 413.517.0590 a: 116 Pleasant Street, Ste 302, Easthampton, MA 01027

HUDSON
Design Group LLC

Wind & Ice
Calculations

Date: 6/21/2018
Project Name: Litchfield CT Torrington Road
Project Number: CT1131
Designed By: LN **Checked By:** MSC

HUDSON Design Group LLC

2.6.5.2 Velocity Pressure Coeff:

$K_z = 2.01\ (z/z_g)^{2/\alpha}$

	z=	117 (ft)
	z_g=	1200 (ft)
K_z= 1.034	α=	7.0

Kzmin ≤ Kz ≤ 2.01

Table 2-4

Exposure	Z_g	α	K_{zmin}	K_e
B	1200 ft	7.0	0.70	0.9
C	900 ft	9.5	0.85	1.0
D	700 ft	11.5	1.03	1.1

2.6.6.4 Topographic Factor:

Table 2-5

Topo. Category	K_t	f
2	0.43	1.25
3	0.53	2.0
4	0.72	1.5

$K_{zt} = [1+(K_e K_t/K_h)]^2$ $K_h = e^{(f*z/H)}$

K_{zt}= 1

(If Category 1 then K_{zt} =1.0)

Category= 1

K_h=	#DIV/0!	
K_e=	0	(from Table 2-4)
K_t=	0	(from Table 2-5)
f=	0	(from Table 2-5)
z=	117	
H=	0	(Ht. of the crest above surrounding terrain)
K_{zt}=	1.00	
K_{iz} =	1.13	(from Sec. 2.6.8)

2.6.8 Design Ice Thickness

Max Ice Thickness = t_i = 1.00 in

$t_{iz} = 2.0*t_i*I*K_{iz}*(Kzt)^{0.35}$ t_{iz} = 2.27 in

Date: 6/21/2018
Project Name: Litchfield CT Torrington Road
Project Number: CT1131
Designed By: LN Checked By: MSC

HUDSON Design Group LLC

2.6.7 Gust Effect Factor

2.6.7.1 Self Supporting Lattice Structures

Gh = 1.0 Latticed Structures > 600 ft

Gh = 0.85 Latticed Structures 450 ft or less

Gh = 0.85 + 0.15 [h/150 - 3.0] h= ht. of structure

h=	140	Gh=	0.85
2.6.7.2 Guyed Masts		Gh=	0.85
2.6.7.3 Pole Structures		Gh=	1.1
2.6.9 Appurtenances		Gh=	1.0

2.6.7.4 Structures Supported on Other Structures
(Cantilivered tubular or latticed spines, pole, structures on buildings (ht. : width ratio > 5)

Gh=	1.35	**Gh=**	**1.00**

2.6.9.2 Design Wind Force on Appurtenances

State Code Ultimate Design Wind Speed: V_{ult} = 120 mph

Nomial Design Wind Speed, $V_{asd} = V_{ult} \sqrt{(0.6)}$ V_{asd} = 93 mph

V_{asd} per the AT&T Mount Technical Directive and Connecticut State Building Code, Latest Edition.
Per TIA-222-G, V_{min} = 90 mph V_{max} = 100 mph

$F = q_z * Gh * (EPA)_A$

$q_z = 0.00256 * K_z * K_{zt} * K_d * V_{max}^2 * I$

		K_z=	1.034
		K_{zt}=	1.0
q_z=	**21.72**	K_d=	0.95
$q_{z\,(ice)}$=	**4.02**	V_{asd}=	93 mph
$q_{z\,(30)}$=	**2.26**	$V_{max\,(ice)}$=	40 mph
		V_{30}=	30 mph
		I=	1.0

Table 2-2

Structure Type	Wind Direction Probability Factor, Kd
Latticed structures with triangular, square or rectangular cross sections	0.85
Tubular pole structures, latticed structures with other cross sections, appurtenances	0.95

Date: 6/21/2018
Project Name: Litchfield CT Torrington Road
Project Number: CT1131
Designed By: LN Checked By: MSC

HUDSON Design Group LLC

Determine Ca:

Table 2-8

Force Coefficients (Ca) for Appurtenances				
Member Type		Aspect Ratio ≤ 2.5	Aspect Ratio = 7	Aspect Ratio ≥ 25
		Ca	Ca	Ca
Flat		1.2	1.4	2.0
Round	C < 32 (Subcritical)	0.7	0.8	1.2
	32 ≤ C ≤ 64 (Transitional)	$3.76/(C^{0.485})$	$3.37/(C^{0.415})$	$38.4/(C^{1.0})$
	C > 64 (Supercritical)	0.5	0.6	0.6

Aspect Ratio is the overall length/width ratio in the plane normal to the wind direction.
(Aspect ratio is independent of the spacing between support points of a linear appurtenance,

Note: Linear interpolation may be used for aspect ratios other than those shown.

Ice Thickness = 2.27 in | **Angle =** 0 (deg) | **Equivalent Angle =** 180 (deg)

Appurtenances	Height	Width	Depth	Flat Area	Aspect Ratio	Ca	Force (lbs)	Force (lbs) (w/ Ice)	Force (lbs) (30 mph)
7770	55.0	11.0	5.0	4.20	5.00	1.31	120	34	12
AM-X-CD-16-65-OOT-RET	72.0	11.8	5.9	5.90	6.10	1.36	174	48	18
AM-X-CD-14-65-OOT-RET	48.0	11.8	5.9	3.93	4.07	1.27	108	30	11
800-10764	55.2	11.8	6.0	4.52	4.68	1.30	127	35	13
OPA65R-BU4B	48.0	11.7	10.1	3.90	4.10	1.27	108	30	11
OPA65R-BU6B	71.1	11.7	8.4	5.78	6.08	1.36	170	47	18
HPA65R-BU6A	71.1	11.7	7.6	5.78	6.08	1.36	170	47	18
SBNHH-1D65A	55.0	11.9	7.1	4.55	4.62	1.29	128	35	13
RRUS-11	19.7	7.2	17.0	0.99	2.74	1.21	26	10	3
RRUS-12	20.4	7.5	18.5	1.06	2.72	1.21	28	10	3
RRUS-32	27.2	12.1	7.0	2.29	2.25	1.20	60	18	6
RRUS-32 (Shielded)	27.2	1.1	7.0	0.21	24.73	1.99	9	10	1
4478 B5	18.1	8.3	13.4	1.04	2.19	1.20	27	10	3
B14 4478	18.1	8.3	13.4	1.04	2.19	1.20	27	10	3
4426 B66	15.0	13.2	7.4	1.38	1.14	1.20	36	12	4
4426 B66 (Shielded)	15.0	1.4	7.4	0.15	10.71	1.52	5	5	1
LGP21401	14.4	2.7	9.0	0.27	5.33	1.33	8	5	1
DBC0061F1V51-2	8.0	6.2	6.5	0.34	1.29	1.20	9	5	1

Date: 6/21/2018
Project Name: Litchfield CT Torrington Road
Project Number: CT1131
Designed By: LN Checked By: MJC

HUDSON Design Group LLC

WIND LOADS

Angle = 30 (deg) | Ice Thickness = 2.27 in. | Equivalent Angle = 210 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Aspect Ratio	Aspect Ratio	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
7770	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	120	64	106
AM-X-CD-16-65-OOT-RET	72.0	11.8	5.9	5.90	2.95	6.10	12.20	1.36	1.57	174	101	156
AM-X-CD-14-65-OOT-RET	48.0	11.8	5.9	3.93	1.97	4.07	8.14	1.27	1.44	108	61	97
800-10764	55.2	11.8	6.0	4.52	2.30	4.68	9.20	1.30	1.47	127	74	114
OPA65R-BU4B	48.0	11.7	10.1	3.90	3.37	4.10	4.75	1.27	1.30	108	95	105
OPA65R-BU6B	71.1	11.7	8.4	5.78	4.15	6.08	8.46	1.36	1.45	170	131	150
HPA65R-BU6A	71.1	11.7	7.6	5.78	3.75	6.08	9.36	1.36	1.48	170	120	158
SBNHH-1D65A	55.0	11.9	7.1	4.55	2.71	4.62	7.75	1.29	1.42	128	84	117
RRUS-11	19.7	7.2	17.0	0.99	2.33	2.74	1.16	1.21	1.20	25	61	35
RRUS-12	20.4	7.5	18.5	1.06	2.62	2.72	1.10	1.21	1.20	28	68	38
RRUS-32	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	60	36	54
RRUS-32 (Shielded)	27.2	6.1	7.0	1.14	1.32	4.50	3.89	1.29	1.26	32	36	33
4478 B5	18.1	8.3	13.4	1.04	1.68	2.19	1.35	1.20	1.20	27	44	31
B14 4478	18.1	8.3	13.4	1.04	1.68	2.19	1.35	1.20	1.20	27	44	31
4426 B66	15.0	13.2	7.4	1.38	0.77	1.14	2.03	1.20	1.20	36	20	32
4426 B66 (Shielded)	15.0	6.6	7.4	0.69	0.77	2.27	2.03	1.20	1.20	18	20	18
LGP21401	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	8	23	12
DBC0061F1V51-2	8.0	6.2	6.5	0.34	0.36	1.29	1.23	1.20	1.20	9	9	9

WIND LOADS WITH ICE:

7770	59.5	15.5	9.5	6.43	3.94	3.83	6.24	1.26	1.37	33	22	30
AM-X-CD-16-65-OOT-RET	76.5	16.3	10.4	8.68	5.55	4.68	7.33	1.30	1.41	45	31	42
AM-X-CD-14-65-OOT-RET	52.5	16.3	10.4	5.96	3.81	3.22	5.03	1.23	1.31	30	20	27
800-10764	59.7	16.3	10.5	6.78	4.37	3.66	5.67	1.25	1.34	34	24	31
OPA65R-BU4B	52.5	16.2	14.6	5.93	5.34	3.24	3.59	1.23	1.25	29	27	29
OPA65R-BU6B	75.6	16.2	12.9	8.53	6.80	4.66	5.85	1.30	1.35	44	37	43
HPA65R-BU6A	75.6	16.2	12.1	8.53	6.38	4.66	6.23	1.30	1.37	44	35	42
SBNHH-1D65A	59.5	16.4	11.6	6.80	4.81	3.62	5.12	1.25	1.32	34	25	32
RRUS-11	24.2	11.7	21.5	1.98	3.63	2.06	1.13	1.20	1.20	10	17	12
RRUS-12	24.9	12.0	23.0	2.09	3.99	2.07	1.08	1.20	1.20	10	19	12
RRUS-32	31.7	16.6	11.5	3.67	2.54	1.91	2.75	1.20	1.21	18	12	16
RRUS-32 (Shielded)	31.7	8.3	11.5	1.83	2.54	3.81	2.75	1.26	1.21	9	12	10
4478 B5	22.6	12.8	17.9	2.01	2.82	1.77	1.26	1.20	1.20	10	14	11
B14 4478	22.6	12.8	17.9	2.01	2.82	1.77	1.26	1.20	1.20	10	14	11
4426 B66	19.5	17.7	11.9	2.41	1.62	1.10	1.64	1.20	1.20	12	8	11
4426 B66 (Shielded)	19.5	8.9	11.9	1.20	1.62	2.20	1.64	1.20	1.20	6	8	6
LGP21401	18.9	7.2	13.5	0.95	1.78	2.62	1.40	1.21	1.20	5	9	6
DBC0061F1V51-2	12.5	10.7	11.0	0.94	0.96	1.17	1.14	1.20	1.20	5	5	5

WIND LOADS AT 30 MPH:

7770	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	12	7	11
AM-X-CD-16-65-OOT-RET	72.0	11.8	5.9	5.90	2.95	6.10	12.20	1.36	1.57	18	11	16
AM-X-CD-14-65-OOT-RET	48.0	11.8	5.9	3.93	1.97	4.07	8.14	1.27	1.44	11	6	10
800-10764	55.2	11.8	6.0	4.52	2.30	4.68	9.20	1.30	1.47	13	8	12
OPA65R-BU4B	48.0	11.7	10.1	3.90	3.37	4.10	4.75	1.27	1.30	11	10	11
OPA65R-BU6B	71.1	11.7	8.4	5.78	4.15	6.08	8.46	1.36	1.45	18	14	17
HPA65R-BU6A	71.1	11.7	7.6	5.78	3.75	6.08	9.36	1.36	1.48	18	13	16
SBNHH-1D65A	55.0	11.9	7.1	4.55	2.71	4.62	7.75	1.29	1.42	13	9	12
RRUS-11	19.7	7.2	17.0	0.99	2.33	2.74	1.16	1.21	1.20	3	6	4
RRUS-12	20.4	7.5	18.5	1.06	2.62	2.72	1.10	1.21	1.20	3	7	4
RRUS-32	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	6	4	6
RRUS-32 (Shielded)	27.2	6.1	7.0	1.14	1.32	4.50	3.89	1.29	1.26	3	4	3
4478 B5	18.1	8.3	13.4	1.04	1.68	2.19	1.35	1.20	1.20	3	5	3
B14 4478	18.1	8.3	13.4	1.04	1.68	2.19	1.35	1.20	1.20	3	5	3
4426 B66	15.0	13.2	7.4	1.38	0.77	1.14	2.03	1.20	1.20	4	2	3
4426 B66 (Shielded)	15.0	6.6	7.4	0.69	0.77	2.27	2.03	1.20	1.20	2	2	2
LGP21401	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	1	2	1
DBC0061F1V51-2	8.0	6.2	6.5	0.34	0.36	1.29	1.23	1.20	1.20	1	1	1

Date: 6/21/2018
Project Name: Litchfield CT Torrington Road
Project Number: CT1131
Designed By: LN Checked By: MJC

HUDSON Design Group LLC

WIND LOADS

Angle = 60 (deg) | Ice Thickness = 2.27 in. | Equivalent Angle = 240 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
7770	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	120	64	78
AM-X-CD-16-65-OOT-RET	72.0	11.8	5.9	5.90	2.95	6.10	12.20	1.36	1.57	174	101	119
AM-X-CD-14-65-OOT-RET	48.0	11.8	5.9	3.93	1.97	4.07	8.14	1.27	1.44	108	61	73
800-10764	55.2	11.8	6.0	4.52	2.30	4.68	9.20	1.30	1.47	127	74	87
OPA65R-BU4B	48.0	11.7	10.1	3.90	3.37	4.10	4.75	1.27	1.30	108	95	98
OPA65R-BU6B	71.1	11.7	8.4	5.78	4.15	6.08	8.46	1.36	1.45	170	131	141
HPA65R-BU6A	71.1	11.7	7.6	5.78	3.75	6.08	9.36	1.36	1.48	170	120	133
SBNHH-1D65A	55.0	11.9	7.1	4.55	2.71	4.62	7.75	1.29	1.42	128	84	95
RRUS-11	19.7	7.2	17.0	0.99	2.33	2.74	1.16	1.21	1.20	26	61	52
RRUS-12	20.4	7.5	18.5	1.06	2.62	2.72	1.10	1.21	1.20	28	68	58
RRUS-32	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	60	36	42
RRUS-32 (Shielded)	27.2	9.1	7.0	1.71	1.32	3.00	3.89	1.22	1.26	45	36	39
4478 B5	18.1	8.3	13.4	1.04	1.68	2.19	1.35	1.20	1.20	27	44	40
B14 4478	18.1	8.3	13.4	1.04	1.68	2.19	1.35	1.20	1.20	27	44	40
4426 B66	15.0	13.2	7.4	1.38	0.77	1.14	2.03	1.20	1.20	36	20	24
4426 B66 (Shielded)	15.0	9.9	7.4	1.03	0.77	1.52	2.03	1.20	1.20	27	20	22
LGP21401	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	8	23	20
DBC0061F1V51-2	8.0	6.2	6.5	0.34	0.36	1.29	1.23	1.20	1.20	9	9	9

WIND LOADS WITH ICE:

7770	59.5	15.5	9.5	6.43	3.94	3.83	6.24	1.26	1.37	35	22	24
AM-X-CD-16-65-OOT-RET	76.5	16.3	10.4	8.68	5.55	4.68	7.33	1.30	1.41	45	31	35
AM-X-CD-14-65-OOT-RET	52.5	16.3	10.4	5.96	3.81	3.22	5.03	1.23	1.31	30	20	22
800-10764	59.7	16.3	10.5	6.78	4.37	3.66	5.67	1.25	1.34	34	24	26
OPA65R-BU4B	52.5	16.2	14.6	5.93	5.34	3.24	3.59	1.23	1.25	29	27	27
OPA65R-BU6B	75.6	16.2	12.9	8.53	6.80	4.66	5.85	1.30	1.35	44	37	39
HPA65R-BU6A	75.6	16.2	12.1	8.53	6.38	4.66	6.23	1.30	1.37	44	35	37
SBNHH-1D65A	59.5	16.4	11.6	6.80	4.81	3.62	5.12	1.25	1.32	34	25	28
RRUS-11	24.2	11.7	21.5	1.98	3.63	2.06	1.13	1.20	1.20	10	17	16
RRUS-12	24.9	12.0	23.0	2.09	3.99	2.07	1.08	1.20	1.20	10	19	17
RRUS-32	31.7	16.6	11.5	3.67	2.54	1.91	2.75	1.20	1.21	18	12	14
RRUS-32 (Shielded)	31.7	12.5	11.5	2.75	2.54	2.54	2.75	1.20	1.21	13	12	13
4478 B5	22.6	12.8	17.9	2.01	2.82	1.77	1.26	1.20	1.20	10	14	13
B14 4478	22.6	12.8	17.9	2.01	2.82	1.77	1.26	1.20	1.20	10	14	13
4426 B66	19.5	17.7	11.9	2.41	1.62	1.10	1.64	1.20	1.20	12	8	9
4426 B66 (Shielded)	19.5	13.3	11.9	1.81	1.62	1.47	1.64	1.20	1.20	9	8	8
LGP21401	18.9	7.2	13.5	0.95	1.78	2.62	1.40	1.21	1.20	5	9	8
DBC0061F1V51-2	12.5	10.7	11.0	0.94	0.96	1.17	1.14	1.20	1.20	5	5	5

WIND LOADS AT 30 MPH:

7770	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	12	7	8
AM-X-CD-16-65-OOT-RET	72.0	11.8	5.9	5.90	2.95	6.10	12.20	1.36	1.57	18	11	12
AM-X-CD-14-65-OOT-RET	48.0	11.8	5.9	3.93	1.97	4.07	8.14	1.27	1.44	11	6	8
800-10764	55.2	11.8	6.0	4.52	2.30	4.68	9.20	1.30	1.47	13	8	9
OPA65R-BU4B	48.0	11.7	10.1	3.90	3.37	4.10	4.75	1.27	1.30	11	10	10
OPA65R-BU6B	71.1	11.7	8.4	5.78	4.15	6.08	8.46	1.36	1.45	18	14	15
HPA65R-BU6A	71.1	11.7	7.6	5.78	3.75	6.08	9.36	1.36	1.48	18	13	14
SBNHH-1D65A	55.0	11.9	7.1	4.55	2.71	4.62	7.75	1.29	1.42	13	9	10
RRUS-11	19.7	7.2	17.0	0.99	2.33	2.74	1.16	1.21	1.20	8	6	5
RRUS-12	20.4	7.5	18.5	1.06	2.62	2.72	1.10	1.21	1.20	8	7	6
RRUS-32	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	6	4	4
RRUS-32 (Shielded)	27.2	9.1	7.0	1.71	1.32	3.00	3.89	1.22	1.26	5	4	4
4478 B5	18.1	8.3	13.4	1.04	1.68	2.19	1.35	1.20	1.20	5	5	4
B14 4478	18.1	8.3	13.4	1.04	1.68	2.19	1.35	1.20	1.20	3	5	4
4426 B66	15.0	13.2	7.4	1.38	0.77	1.14	2.03	1.20	1.20	4	2	3
4426 B66 (Shielded)	15.0	9.9	7.4	1.03	0.77	1.52	2.03	1.20	1.20	3	2	2
LGP21401	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	1	2	2
DBC0061F1V51-2	8.0	6.2	6.5	0.34	0.36	1.29	1.23	1.20	1.20	1	1	1

Date: 6/21/2018
Project Name: Litchfield CT Torrington Road
Project Number: CT1131
Designed By: LN Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle = 90 (deg) | Ice Thickness = 2.27 in. | Equivalent Angle = 270 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
7770	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	120	64	64
AM-X-CD-16-65-OOT-RET	72.0	11.8	5.9	5.90	2.95	6.10	12.20	1.36	1.57	174	101	101
AM-X-CD-14-65-OOT-RET	48.0	11.8	5.9	3.93	1.97	4.07	8.14	1.27	1.44	108	61	61
800-10764	55.2	11.8	6.0	4.52	2.30	4.68	9.20	1.30	1.47	127	74	74
OPA65R-BU4B	48.0	11.7	10.1	3.90	3.37	4.10	4.75	1.27	1.30	108	95	95
OPA65R-BU6B	71.1	11.7	8.4	5.78	4.15	6.08	8.46	1.36	1.45	170	131	131
HPA65R-BU6A	71.1	11.7	7.6	5.78	3.75	6.08	9.36	1.36	1.48	170	120	120
SBNHH-1D65A	55.0	11.9	7.1	4.55	2.71	4.62	7.75	1.29	1.42	128	84	84
RRUS-11	19.7	7.2	17.0	0.99	2.33	2.74	1.16	1.21	1.20	26	61	61
RRUS-12	20.4	7.5	18.5	1.06	2.62	2.72	1.10	1.21	1.20	28	68	68
RRUS-32	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	60	36	36
RRUS-32 (Shielded)	27.2	1.1	7.0	0.21	1.32	24.73	3.89	1.99	1.26	9	36	36
4478 B5	18.1	8.3	13.4	1.04	1.68	2.19	1.35	1.20	1.20	27	44	44
B14 4478	18.1	8.3	13.4	1.04	1.68	2.19	1.35	1.20	1.20	27	44	44
4426 B66	15.0	13.2	7.4	1.38	0.77	1.14	2.03	1.20	1.20	36	20	20
4426 B66 (Shielded)	15.0	1.4	7.4	0.15	0.77	10.71	2.03	1.52	1.20	5	20	20
LGP21401	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	8	23	23
DBC0061F1V51-2	8.0	6.2	6.5	0.34	0.36	1.29	1.23	1.20	1.20	9	9	9

WIND LOADS WITH ICE:

7770	59.5	15.5	9.5	6.43	3.94	3.83	6.24	1.26	1.37	33	22	22
AM-X-CD-16-65-OOT-RET	76.5	16.3	10.4	8.68	5.55	4.68	7.33	1.30	1.41	45	31	31
AM-X-CD-14-65-OOT-RET	52.5	16.3	10.4	5.96	3.81	3.22	5.03	1.23	1.31	30	20	20
800-10764	59.7	16.3	10.5	6.78	4.37	3.66	5.67	1.25	1.34	34	24	24
OPA65R-BU4B	52.5	16.2	14.6	5.93	5.34	3.24	3.59	1.23	1.25	29	27	27
OPA65R-BU6B	75.6	16.2	12.9	8.53	6.80	4.66	5.85	1.30	1.35	44	37	37
HPA65R-BU6A	75.6	16.2	12.1	8.53	6.38	4.66	6.23	1.30	1.37	44	35	35
SBNHH-1D65A	59.5	16.4	11.6	6.80	4.81	3.62	5.12	1.25	1.32	34	25	25
RRUS-11	24.2	11.7	21.5	1.98	3.63	2.06	1.13	1.20	1.20	10	17	17
RRUS-12	24.9	12.0	23.0	2.09	3.99	2.07	1.08	1.20	1.20	10	19	19
RRUS-32	31.7	16.6	11.5	3.67	2.54	1.91	2.75	1.20	1.21	18	12	12
RRUS-32 (Shielded)	31.7	5.6	11.5	1.24	2.54	5.63	2.75	1.34	1.21	7	12	12
4478 B5	22.6	12.8	17.9	2.01	2.82	1.77	1.26	1.20	1.20	10	14	14
B14 4478	22.6	12.8	17.9	2.01	2.82	1.77	1.26	1.20	1.20	10	14	14
4426 B66	19.5	17.7	11.9	2.41	1.62	1.10	1.64	1.20	1.20	12	8	8
4426 B66 (Shielded)	19.5	5.9	11.9	0.81	1.62	3.29	1.64	1.24	1.20	4	8	8
LGP21401	18.9	7.2	13.5	0.95	1.78	2.62	1.40	1.21	1.20	5	9	9
DBC0061F1V51-2	12.5	10.7	11.0	0.94	0.96	1.17	1.14	1.20	1.20	5	5	5

WIND LOADS AT 30 MPH:

7770	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	12	7	7
AM-X-CD-16-65-OOT-RET	72.0	11.8	5.9	5.90	2.95	6.10	12.20	1.36	1.57	18	11	11
AM-X-CD-14-65-OOT-RET	48.0	11.8	5.9	3.93	1.97	4.07	8.14	1.27	1.44	11	6	6
800-10764	55.2	11.8	6.0	4.52	2.30	4.68	9.20	1.30	1.47	13	8	8
OPA65R-BU4B	48.0	11.7	10.1	3.90	3.37	4.10	4.75	1.27	1.30	11	10	10
OPA65R-BU6B	71.1	11.7	8.4	5.78	4.15	6.08	8.46	1.36	1.45	18	14	14
HPA65R-BU6A	71.1	11.7	7.6	5.78	3.75	6.08	9.36	1.36	1.48	18	13	13
SBNHH-1D65A	55.0	11.9	7.1	4.55	2.71	4.62	7.75	1.29	1.42	13	9	9
RRUS-11	19.7	7.2	17.0	0.99	2.33	2.74	1.16	1.21	1.20	3	6	6
RRUS-12	20.4	7.5	18.5	1.06	2.62	2.72	1.10	1.21	1.20	3	7	7
RRUS-32	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	6	4	4
RRUS-32 (Shielded)	27.2	1.1	7.0	0.21	1.32	24.73	3.89	1.99	1.26	1	4	4
4478 B5	18.1	8.3	13.4	1.04	1.68	2.19	1.35	1.20	1.20	3	5	5
B14 4478	18.1	8.3	13.4	1.04	1.68	2.19	1.35	1.20	1.20	3	5	5
4426 B66	15.0	13.2	7.4	1.38	0.77	1.14	2.03	1.20	1.20	4	2	2
4426 B66 (Shielded)	15.0	1.4	7.4	0.15	0.77	10.71	2.03	1.52	1.20	1	2	2
LGP21401	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	1	2	2
DBC0061F1V51-2	8.0	6.2	6.5	0.34	0.36	1.29	1.23	1.20	1.20	1	1	1

Date: 6/21/2018
Project Name: Litchfield CT Torrington Road
Project Number: CT1131
Designed By: LN Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle = 120 (deg) | Ice Thickness = 2.27 in. | Equivalent Angle = 300 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
7770	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	12	6	7
AM-X-CD-16-65-OOT-RET	72.0	11.8	5.9	5.90	2.95	6.10	12.20	1.36	1.57	17	10	11
AM-X-CD-14-65-OOT-RET	48.0	11.8	5.9	3.93	1.97	4.07	8.14	1.27	1.44	10	6	7
800-10764	55.2	11.8	6.0	4.52	2.30	4.68	9.20	1.30	1.47	12	7	8
OPA65R-BU4B	48.0	11.7	10.1	3.90	3.37	4.10	4.75	1.27	1.30	10	9	9
OPA65R-BU6B	71.1	11.7	8.4	5.78	4.15	6.08	8.46	1.36	1.45	17	15	14
HPA65R-BU6A	71.1	11.7	7.6	5.78	3.75	6.08	9.36	1.36	1.48	17	12	13
SBNHH-1D65A	55.0	11.9	7.1	4.55	2.71	4.62	7.75	1.29	1.42	12	8	9
RRUS-11	19.7	7.2	17.0	0.99	2.33	2.74	1.16	1.21	1.20	2	6	5
RRUS-12	20.4	7.5	18.5	1.06	2.62	2.72	1.10	1.21	1.20	2	6	5
RRUS-32	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	6	4	4
RRUS-32 (Shielded)	27.2	9.1	7.0	1.71	1.32	3.00	3.89	1.22	1.26	4	4	4
4478 B5	18.1	8.3	13.4	1.04	1.68	2.19	1.35	1.20	1.20	3	5	4
B14 4478	18.1	8.3	13.4	1.04	1.68	2.19	1.35	1.20	1.20	3	5	4
4426 B66	15.0	13.2	7.4	1.38	0.77	1.14	2.03	1.20	1.20	2	2	2
4426 B66 (Shielded)	15.0	9.9	7.4	1.03	0.77	1.52	2.03	1.20	1.20	2	2	2
LGP21401	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	1	2	2
DBC0061F1V51-2	8.0	6.2	6.5	0.34	0.36	1.29	1.23	1.20	1.20	1	1	1

WIND LOADS WITH ICE:

7770	59.5	15.5	9.5	6.43	3.94	3.83	6.24	1.26	1.37	53	22	24
AM-X-CD-16-65-OOT-RET	76.5	16.3	10.4	8.68	5.55	4.68	7.33	1.30	1.41	45	31	33
AM-X-CD-14-65-OOT-RET	52.5	16.3	10.4	5.96	3.81	3.22	5.03	1.23	1.31	30	20	22
800-10764	59.7	16.3	10.5	6.78	4.37	3.66	5.67	1.25	1.34	34	24	26
OPA65R-BU4B	52.5	16.2	14.6	5.93	5.34	3.24	3.59	1.23	1.25	29	27	27
OPA65R-BU6B	75.6	16.2	12.9	8.53	6.80	4.66	5.85	1.30	1.35	44	37	39
HPA65R-BU6A	75.6	16.2	12.1	8.53	6.38	4.66	6.23	1.30	1.37	44	33	37
SBNHH-1D65A	59.5	16.4	11.6	6.80	4.81	3.62	5.12	1.25	1.32	34	25	28
RRUS-11	24.2	11.7	21.5	1.98	3.63	2.06	1.13	1.20	1.20	10	17	16
RRUS-12	24.9	12.0	23.0	2.09	3.99	2.07	1.08	1.20	1.20	10	19	17
RRUS-32	31.7	16.6	11.5	3.67	2.54	1.91	2.75	1.20	1.21	18	12	14
RRUS-32 (Shielded)	31.7	12.5	11.5	2.75	2.54	2.54	2.75	1.20	1.21	13	12	13
4478 B5	22.6	12.8	17.9	2.01	2.82	1.77	1.26	1.20	1.20	10	14	13
B14 4478	22.6	12.8	17.9	2.01	2.82	1.77	1.26	1.20	1.20	10	14	13
4426 B66	19.5	17.7	11.9	2.41	1.61	1.10	1.64	1.20	1.20	12	8	9
4426 B66 (Shielded)	19.5	13.3	11.9	1.81	1.62	1.47	1.64	1.20	1.20	9	8	8
LGP21401	18.9	7.2	13.5	0.95	1.78	2.62	1.40	1.21	1.20	5	9	8
DBC0061F1V51-2	12.5	10.7	11.0	0.94	0.98	1.17	1.14	1.20	1.20	5	5	5

WIND LOADS AT 30 MPH:

7770	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	12	7	8
AM-X-CD-16-65-OOT-RET	72.0	11.8	5.9	5.90	2.95	6.10	12.20	1.36	1.57	18	11	12
AM-X-CD-14-65-OOT-RET	48.0	11.8	5.9	3.93	1.97	4.07	8.14	1.27	1.44	11	6	8
800-10764	55.2	11.8	6.0	4.52	2.30	4.68	9.20	1.30	1.47	13	8	9
OPA65R-BU4B	48.0	11.7	10.1	3.90	3.37	4.10	4.75	1.27	1.30	11	10	10
OPA65R-BU6B	71.1	11.7	8.4	5.78	4.15	6.08	8.46	1.36	1.45	18	14	15
HPA65R-BU6A	71.1	11.7	7.6	5.78	3.75	6.08	9.36	1.36	1.48	18	13	14
SBNHH-1D65A	55.0	11.9	7.1	4.55	2.71	4.62	7.75	1.29	1.42	13	9	10
RRUS-11	19.7	7.2	17.0	0.99	2.33	2.74	1.16	1.21	1.20	3	6	5
RRUS-12	20.4	7.5	18.5	1.06	2.62	2.72	1.10	1.21	1.20	3	7	6
RRUS-32	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	6	4	4
RRUS-32 (Shielded)	27.2	9.1	7.0	1.71	1.32	3.00	3.89	1.22	1.26	5	4	4
4478 B5	18.1	8.3	13.4	1.04	1.68	2.19	1.35	1.20	1.20	3	5	4
B14 4478	18.1	8.3	13.4	1.04	1.68	2.19	1.35	1.20	1.20	3	5	4
4426 B66	15.0	13.2	7.4	1.38	0.77	1.14	2.03	1.20	1.20	4	2	3
4426 B66 (Shielded)	15.0	9.9	7.4	1.03	0.77	1.52	2.03	1.20	1.20	3	2	2
LGP21401	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	1	2	2
DBC0061F1V51-2	8.0	6.2	6.5	0.34	0.36	1.29	1.23	1.20	1.20	1	1	1

Date: 6/21/2018
Project Name: Litchfield CT Torrington Road
Project Number: CT1131
Designed By: LN **Checked By:** MSC

HUDSON Design Group LLC

ICE WEIGHT CALCULATIONS

Thickness of ice: 1 in.
Density of ice: 56 pcf

7770 Antenna

Weight of ice based on total radial SF area:

Height (in):	55.0	
Width (in):	11.0	
Depth (in):	5.0	
Total weight of ice on object:		70 lbs
Weight of object:	35 lbs	
Combined weight of ice and object:		105 lbs

AM-X-CD-16-65-OOT-RET Antenna

Weight of ice based on total radial SF area:

Height (in):	72.0	
Width (in):	11.8	
Depth (in):	5.9	
Total weight of ice on object:		99 lbs
Weight of object:	49 lbs	
Combined weight of ice and object:		148 lbs

AM-X-CD-14-65-OOT-RET Antenna

Weight of ice based on total radial SF area:

Height (in):	48.0	
Width (in):	11.8	
Depth (in):	5.9	
Total weight of ice on object:		68 lbs
Weight of object:	17 lbs	
Combined weight of ice and object:		85 lbs

800-10764 Antenna

Weight of ice based on total radial SF area:

Height (in):	55.2	
Width (in):	11.8	
Depth (in):	6.0	
Total weight of ice on object:		78 lbs
Weight of object:	41 lbs	
Combined weight of ice and object:		119 lbs

OPA65R-BU4B Antenna

Weight of ice based on total radial SF area:

Height (in):	48.0	
Width (in):	11.7	
Depth (in):	10.1	
Total weight of ice on object:		85 lbs
Weight of object:	43 lbs	
Combined weight of ice and object:		128 lbs

OPA65R-BU6B Antenna

Weight of ice based on total radial SF area:

Height (in):	71.1	
Width (in):	11.7	
Depth (in):	8.4	
Total weight of ice on object:		111 lbs
Weight of object:	55 lbs	
Combined weight of ice and object:		166 lbs

HPA65R-BU6A Antenna

Weight of ice based on total radial SF area:

Height (in):	71.1	
Width (in):	11.7	
Depth (in):	7.6	
Total weight of ice on object:		107 lbs
Weight of object:	42 lbs	
Combined weight of ice and object:		149 lbs

SBNHH-1D65A Antenna

Weight of ice based on total radial SF area:

Height (in):	55.0	
Width (in):	11.9	
Depth (in):	7.1	
Total weight of ice on object:		83 lbs
Weight of object:	34 lbs	
Combined weight of ice and object:		117 lbs

RRUS-11 RRH

Weight of ice based on total radial SF area:

Height (in):	19.7	
Width (in):	17.0	
Depth (in):	7.2	
Total weight of ice on object:		45 lbs
Weight of object:	51 lbs	
Combined weight of ice and object:		96 lbs

RRUS-12 RRH

Weight of ice based on total radial SF area:

Height (in):	20.4	
Width (in):	18.5	
Depth (in):	7.5	
Total weight of ice on object:		50 lbs
Weight of object:	58 lbs	
Combined weight of ice and object:		108 lbs

RRUS-32 RRH

Weight of ice based on total radial SF area:

Height (in):	27.2	
Width (in):	12.1	
Depth (in):	7.0	
Total weight of ice on object:		45 lbs
Weight of object:	60 lbs	
Combined weight of ice and object:		105 lbs

4478 B5 RRH

Weight of ice based on total radial SF area:

Height (in):	18.1	
Width (in):	13.4	
Depth (in):	8.3	
Total weight of ice on object:		38 lbs
Weight of object:	60 lbs	
Combined weight of ice and object:		98 lbs

Date: 6/21/2018
Project Name: Litchfield CT Torrington Road
Project Number: CT1131
Designed By: LN **Checked By:** MSC

HUDSON Design Group LLC

B14 4478 RRH

Weight of ice based on total radial SF area:		
Height (in):	18.1	
Width (in):	13.4	
Depth (in):	8.3	
Total weight of ice on object:		38 lbs
Weight of object:	60 lbs	
Combined weight of ice and object:		98 lbs

4426 B66 RRH

Weight of ice based on total radial SF area:		
Height (in):	15.0	
Width (in):	13.2	
Depth (in):	7.4	
Total weight of ice on object:		31 lbs
Weight of object:	49 lbs	
Combined weight of ice and object:		80 lbs

DBC0061F1V51-2 Diplexer

Weight of ice based on total radial SF area:		
Height (in):	8.0	
Width (in):	6.2	
Depth (in):	6.5	
Total weight of ice on object:		12 lbs
Weight of object:	25 lbs	
Combined weight of ice and object:		37 lbs

LGP21401 TMA

Weight of ice based on total radial SF area:		
Height (in):	14.4	
Width (in):	9.0	
Depth (in):	2.7	
Total weight of ice on object:		16 lbs
Weight of object:	19 lbs	
Combined weight of ice and object:		35 lbs

Squid Surge Arrestor

Weight of ice based on total radial SF area:		
Depth (in):	24.0	
Diameter(in):	9.7	
Total weight of ice on object:		35 lbs
Weight of object:	33 lbs	
Combined weight of ice and object:		68 lbs

2" pipe

Per foot weight of ice:		
diameter (in):	2.38	
Per foot weight of ice on object:		4 plf

3" Pipe

Per foot weight of ice:		
diameter (in):	3.5	
Per foot weight of ice on object:		5 plf

4" Pipe

Per foot weight of ice:		
diameter (in):	4.5	
Per foot weight of ice on object:		7 plf

HSS 4"x4"

Weight of ice based on total radial SF area:		
Height (in):	4	
Width (in):	4	
Per foot weight of ice on object:		8 plf

HUDSON
Design Group LLC

Mount Calculations
(Existing Conditions)

Bentley

Current Date: 6/21/2018 3:42 PM
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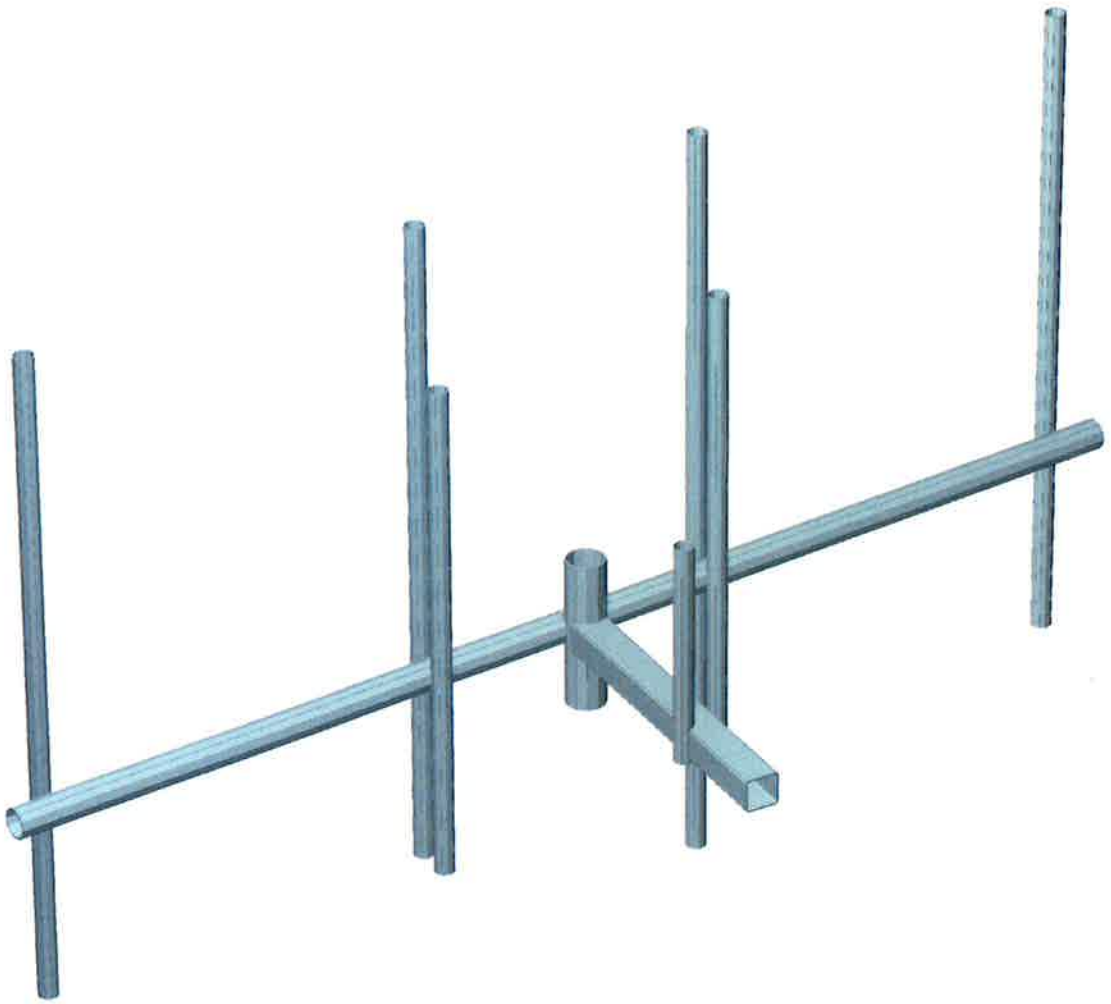

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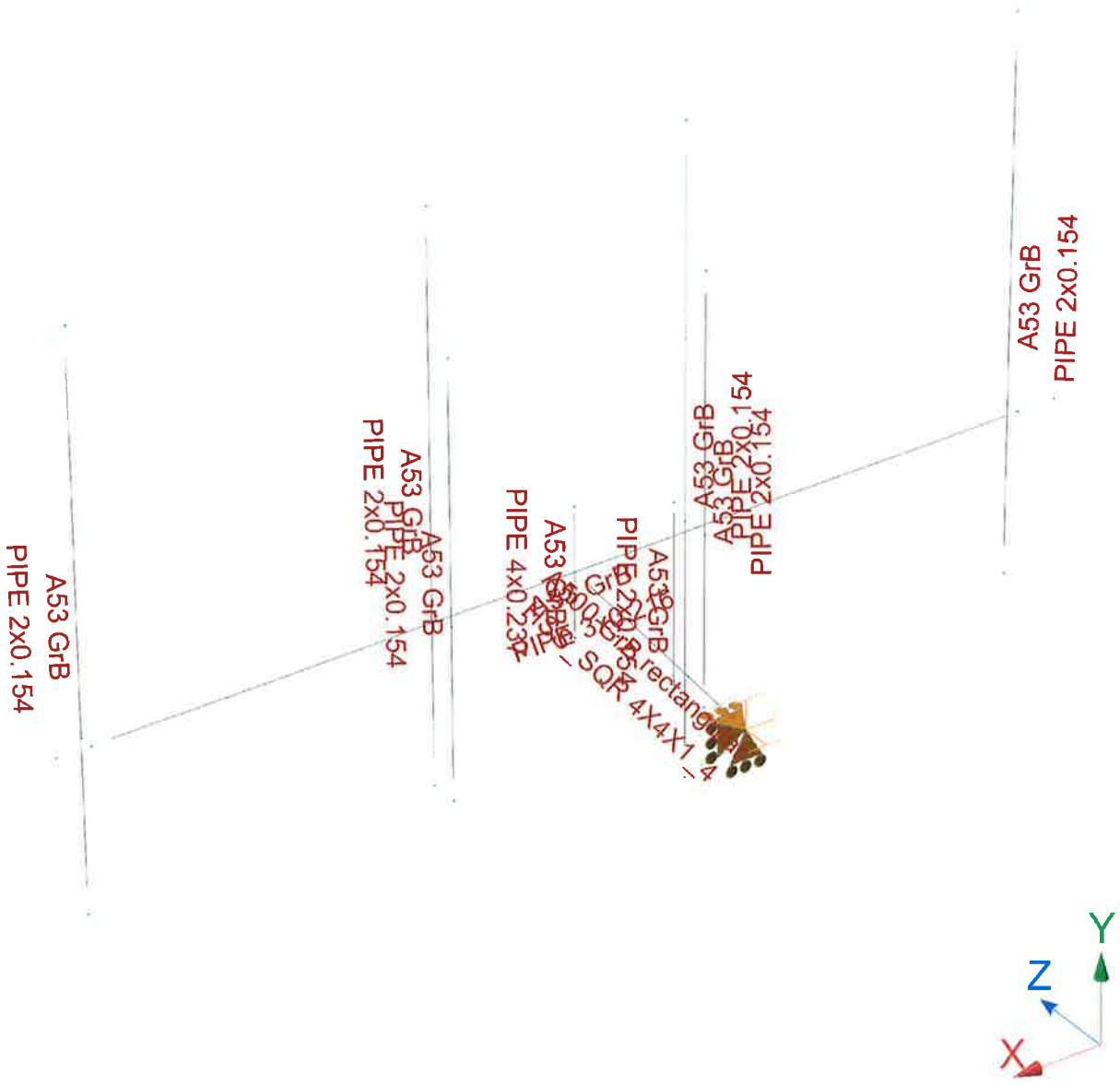

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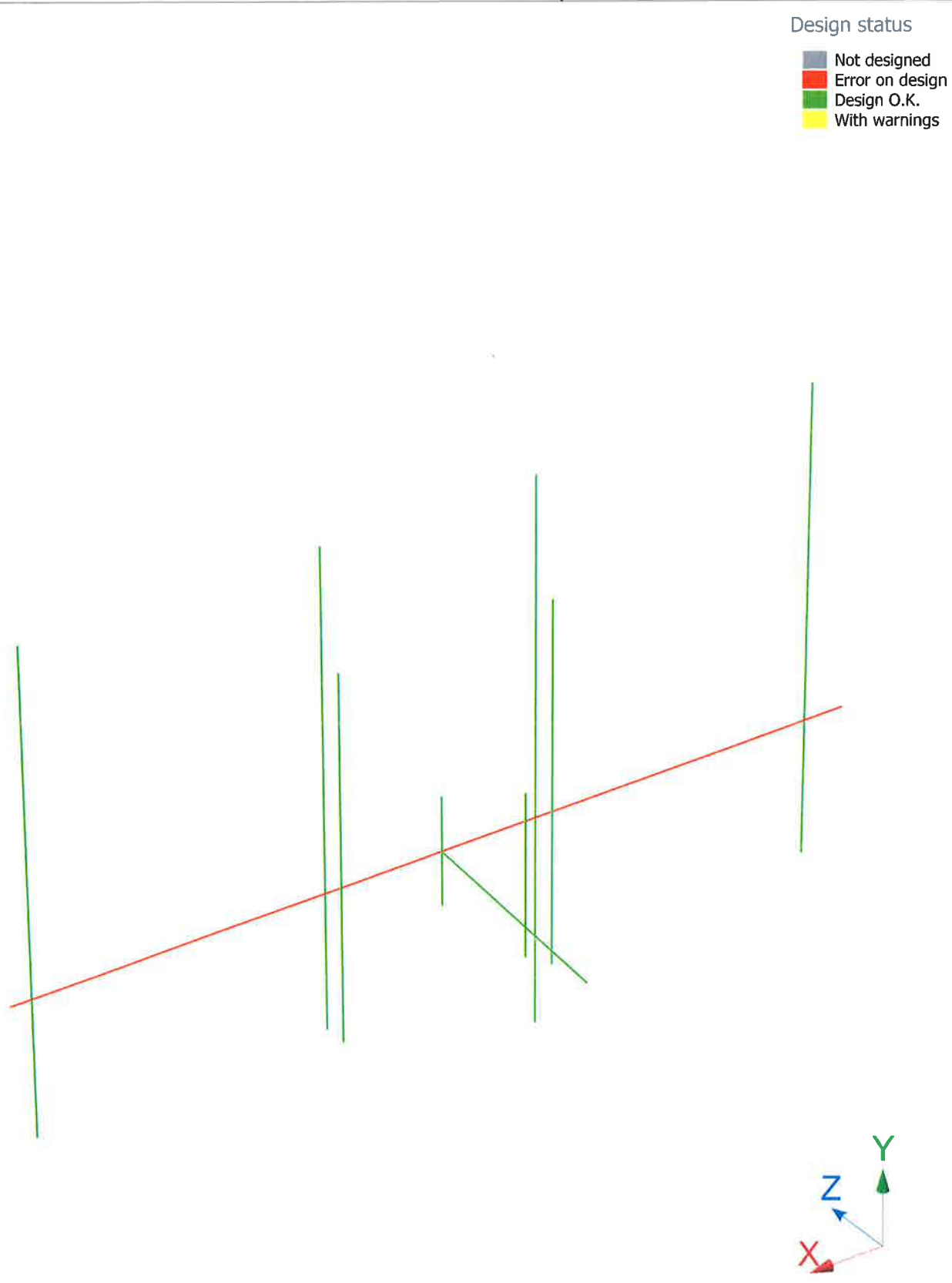

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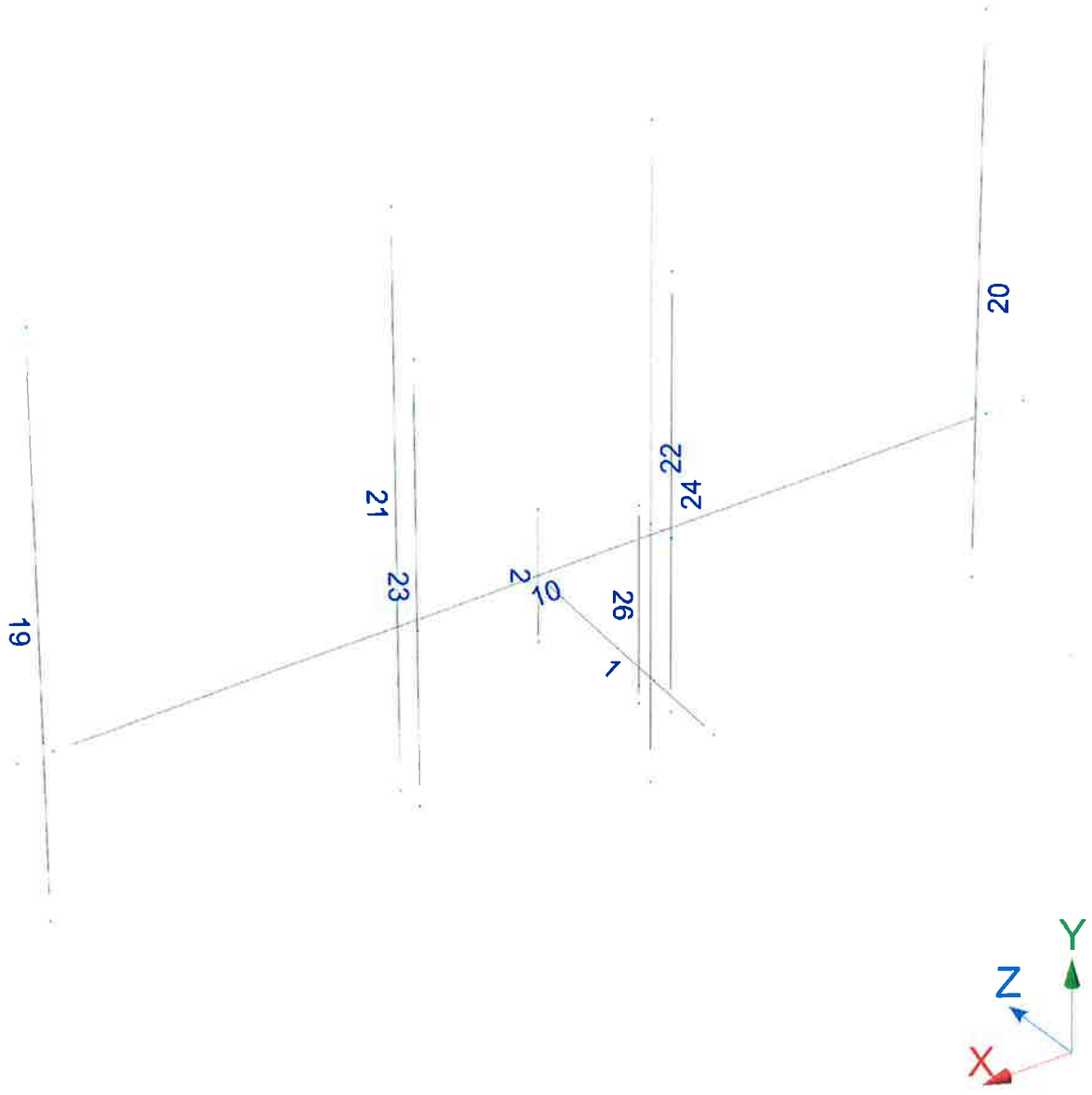

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Load data

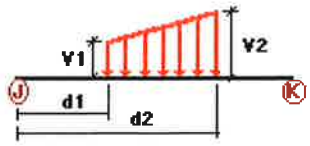
GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

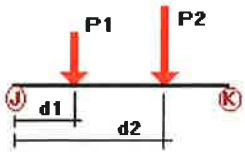
Condition	Description	Comb.	Category
D	Dead Load	No	DL
Wo	Wind Load (NO ICE)	No	WIND
W30	WL 30deg	No	WIND
W60	WL 60deg	No	WIND
W90	WL 90deg	No	WIND
W120	WL 120deg	No	WIND
W150	WL 150deg	No	WIND
Di	Ice Load	No	LL
WI0	WL ICE 0deg	No	WIND
WI30	WL ICE 30deg	No	WIND
WI60	WL ICE 60deg	No	WIND
WI90	WL ICE 90deg	No	WIND
WI120	WL ICE 120deg	No	WIND
WI150	WL ICE 150deg	No	WIND
WL0	WL 30 mph 0deg	No	WIND
WL30	WL 30 mph 30deg	No	WIND
WL60	WL 30 mph 60deg	No	WIND
WL90	WL 30 mph 90deg	No	WIND
WL120	WL 30 mph 120deg	No	WIND
WL150	WL 30 mph 150deg	No	WIND
LL1	250 lb Live Load on Left End	No	LL
LL2	250 lb Live Load on Center	No	LL
LL3	250 lb Live Load on Right End	No	LL
LLa1	500 lb Live Load on Antenna 1	No	LL
LLa2	500 lb Live Load on Antenna 2	No	LL
LLa3	500 lb Live Load on Antenna 3	No	LL
LLa4	500 lb Live Load on Antenna 4	No	LL
W180	-Wo	Yes	
W210	-W30	Yes	
W240	-W60	Yes	
W270	-W90	Yes	
W300	-W120	Yes	
W330	-W150	Yes	
WI180	-WI0	Yes	
WI210	-WI30	Yes	
WI240	-WI60	Yes	
WI270	-WI90	Yes	
WI300	-WI120	Yes	
WI330	-WI150	Yes	
WL180	-WL0	Yes	
WL210	-WL30	Yes	
WL240	-WL60	Yes	
WL270	-WL90	Yes	
WL300	-WL120	Yes	
WL330	-WL150	Yes	

Distributed force on members



Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
Wo	26	z	-0.003	0.00	0.00	No	0.00	No
	10	z	-0.004	0.00	0.00	No	0.00	No
W30	26	z	-0.003	0.00	0.00	No	0.00	No
	10	z	-0.004	0.00	0.00	No	0.00	No
W60	1	x	-0.009	0.00	0.00	No	0.00	No
	19	x	-0.003	0.00	0.00	No	0.00	No
	20	x	-0.003	0.00	0.00	No	0.00	No
	21	x	-0.003	0.00	0.00	No	0.00	No
	22	x	-0.003	0.00	0.00	No	0.00	No
	23	x	-0.003	0.00	0.00	No	0.00	No
	24	x	-0.003	0.00	0.00	No	0.00	No
	26	x	-0.003	0.00	0.00	No	0.00	No
W90	1	x	-0.009	0.00	0.00	No	0.00	No
	19	x	-0.003	0.00	0.00	No	0.00	No
	20	x	-0.003	0.00	0.00	No	0.00	No
	21	x	-0.003	0.00	0.00	No	0.00	No
	22	x	-0.003	0.00	0.00	No	0.00	No
	23	x	-0.003	0.00	0.00	No	0.00	No
	24	x	-0.003	0.00	0.00	No	0.00	No
	26	x	-0.003	0.00	0.00	No	0.00	No
W120	1	x	-0.009	0.00	0.00	No	0.00	No
	19	x	-0.003	0.00	0.00	No	0.00	No
	20	x	-0.003	0.00	0.00	No	0.00	No
	21	x	-0.003	0.00	0.00	No	0.00	No
	22	x	-0.003	0.00	0.00	No	0.00	No
	23	x	-0.003	0.00	0.00	No	0.00	No
	24	x	-0.003	0.00	0.00	No	0.00	No
	26	x	-0.003	0.00	0.00	No	0.00	No
W150	26	z	0.003	0.00	0.00	No	0.00	No
	10	z	0.004	0.00	0.00	No	0.00	No
Di	1	y	-0.008	0.00	0.00	No	0.00	No
	2	y	-0.007	0.00	0.00	No	0.00	No
	19	y	-0.004	0.00	0.00	No	0.00	No
	20	y	-0.004	0.00	0.00	No	0.00	No
	21	y	-0.004	0.00	0.00	No	0.00	No
	22	y	-0.004	0.00	0.00	No	0.00	No
	23	y	-0.004	0.00	0.00	No	0.00	No
	24	y	-0.004	0.00	0.00	No	0.00	No
	26	y	-0.004	0.00	0.00	No	0.00	No
	10	y	-0.005	0.00	0.00	No	0.00	No

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
D	19	y	-0.016	0.50	No
		y	-0.016	4.30	No
		y	-0.06	2.00	No
		y	-0.038	3.50	No
	20	y	-0.025	0.50	No
		y	-0.025	5.00	No
		y	-0.049	2.00	No
		y	-0.025	3.50	No
	21	y	-0.028	0.50	No
		y	-0.028	5.00	No
	22	y	-0.021	0.50	No
		y	-0.021	5.00	No
	23	y	-0.06	2.00	No
		y	-0.06	2.50	No
	24	y	-0.058	2.00	No
		y	-0.051	2.50	No
	26	y	-0.033	1.50	No
Wo	19	z	-0.06	0.50	No
		z	-0.06	4.30	No
		z	-0.009	2.00	No
	20	z	-0.088	0.50	No
		z	-0.088	5.00	No
		z	-0.005	2.00	No
	21	z	-0.086	0.50	No
		z	-0.086	5.00	No
	22	z	-0.086	0.50	No
		z	-0.086	5.00	No
	23	z	-0.027	2.00	No
		z	-0.027	2.50	No
	24	z	-0.026	2.50	No
		z	-0.028	2.00	No
	26	z	-0.025	1.00	No
W30	19	2	-0.053	0.50	No
		2	-0.053	4.30	No
		2	-0.033	2.00	No
		2	-0.012	3.50	No
	20	2	-0.078	0.50	No
		2	-0.078	5.00	No
		2	-0.018	2.00	No
	21	2	-0.081	0.50	No
		2	-0.081	5.00	No
	22	2	-0.079	0.50	No
		2	-0.079	5.00	No
	23	2	-0.031	2.00	No
		2	-0.031	2.50	No
	24	2	-0.035	2.50	No
		2	-0.038	2.00	No
	26	2	-0.025	1.00	No
W60	19	2	-0.039	0.50	No
		2	-0.039	4.30	No
		2	-0.039	2.00	No
		2	-0.02	3.50	No
	20	2	-0.06	0.50	No
		2	-0.06	5.00	No

		2	-0.022	2.00	No
	21	2	-0.071	0.50	No
		2	-0.071	5.00	No
	22	2	-0.067	0.50	No
		2	-0.067	5.00	No
	23	2	-0.04	2.00	No
		2	-0.04	2.50	No
	24	2	-0.052	2.50	No
		2	-0.058	2.00	No
	26	2	-0.025	1.00	No
W90	19	x	-0.032	0.50	No
		x	-0.032	4.30	No
		x	-0.036	2.00	No
		x	-0.023	3.50	No
	20	x	-0.051	0.50	No
		x	-0.051	5.00	No
		x	-0.02	2.00	No
		x	-0.009	3.50	No
	21	x	-0.066	0.50	No
		x	-0.066	5.00	No
	22	x	-0.061	0.50	No
		x	-0.061	5.00	No
	23	x	-0.044	2.00	No
		x	-0.044	2.50	No
	24	x	-0.061	2.50	No
		x	-0.068	2.00	No
	26	x	-0.025	1.00	No
W120	19	3	0.039	0.50	No
		3	0.039	4.30	No
		3	0.039	2.00	No
		3	0.02	3.50	No
	20	3	0.06	0.50	No
		3	0.06	5.00	No
		3	0.022	2.00	No
	21	3	0.071	0.50	No
		3	0.071	5.00	No
	22	3	0.067	0.50	No
		3	0.067	5.00	No
	23	3	0.04	2.00	No
		3	0.04	2.50	No
	24	3	0.052	2.50	No
		3	0.058	2.00	No
	26	3	0.025	1.00	No
W150	19	3	0.053	0.50	No
		3	0.053	4.30	No
		3	0.033	2.00	No
		3	0.012	3.50	No
	20	3	0.078	0.50	No
		3	0.078	5.00	No
		3	0.018	2.00	No
	21	3	0.081	0.50	No
		3	0.081	5.00	No
	22	3	0.079	0.50	No
		3	0.079	5.00	No
	23	3	0.031	2.00	No
		3	0.031	2.50	No
	24	3	0.035	2.50	No
		3	0.038	2.00	No
	26	3	0.025	1.00	No
Di	19	y	-0.035	0.50	No

		y	-0.035	4.30	No
		y	-0.045	2.00	No
		y	-0.032	3.50	No
	20	y	-0.05	0.50	No
		y	-0.05	5.00	No
		y	-0.031	2.00	No
		y	-0.012	3.50	No
	21	y	-0.056	0.50	No
		y	-0.056	5.00	No
	22	y	-0.054	0.50	No
		y	-0.054	5.00	No
	23	y	-0.038	2.00	No
		y	-0.038	2.50	No
	24	y	-0.05	2.00	No
		y	-0.045	2.50	No
	26	y	-0.035	1.50	No
WI0	19	z	-0.017	0.50	No
		z	-0.017	4.30	No
		z	-0.01	2.00	No
	20	z	-0.024	0.50	No
		z	-0.024	5.00	No
		z	-0.005	2.00	No
	21	z	-0.024	0.50	No
		z	-0.024	5.00	No
	22	z	-0.024	0.50	No
		z	-0.024	5.00	No
	23	z	-0.01	2.00	No
		z	-0.01	2.50	No
	24	z	-0.01	2.50	No
		z	-0.01	2.00	No
	26	z	-0.008	1.00	No
WI30	19	2	-0.015	0.50	No
		2	-0.015	4.30	No
		2	-0.01	2.00	No
		2	-0.006	3.50	No
	20	2	-0.021	0.50	No
		2	-0.021	5.00	No
		2	-0.006	2.00	No
	21	2	-0.022	0.50	No
		2	-0.022	5.00	No
	22	2	-0.022	0.50	No
		2	-0.022	5.00	No
	23	2	-0.011	2.00	No
		2	-0.011	2.50	No
	24	2	-0.012	2.50	No
		2	-0.012	2.00	No
	26	2	-0.008	1.00	No
WI60	19	2	-0.013	0.50	No
		2	-0.013	4.30	No
		2	-0.013	2.00	No
		2	-0.008	3.50	No
	20	2	-0.018	0.50	No
		2	-0.018	5.00	No
		2	-0.008	2.00	No
	21	2	-0.02	0.50	No
		2	-0.02	5.00	No
	22	2	-0.019	0.50	No
		2	-0.019	5.00	No
	23	2	-0.013	2.00	No
		2	-0.013	2.50	No

	24	2	-0.016	2.50	No
		2	-0.017	2.00	No
	26	2	-0.008	1.00	No
WI90	19	x	-0.011	0.50	No
		x	-0.011	4.30	No
		x	-0.012	2.00	No
		x	-0.009	3.50	No
	20	x	-0.016	0.50	No
		x	-0.016	5.00	No
		x	-0.008	2.00	No
		x	-0.005	3.50	No
	21	x	-0.019	0.50	No
		x	-0.019	5.00	No
	22	x	-0.018	0.50	No
		x	-0.018	5.00	No
	23	x	-0.014	2.00	No
		x	-0.014	2.50	No
	24	x	-0.017	2.50	No
		x	-0.019	2.00	No
	26	x	-0.008	1.00	No
WI120	19	3	0.013	0.50	No
		3	0.013	4.30	No
		3	0.013	2.00	No
		3	0.008	3.50	No
	20	3	0.018	0.50	No
		3	0.018	5.00	No
		3	0.008	2.00	No
	21	3	0.02	0.50	No
		3	0.02	5.00	No
	22	3	0.019	0.50	No
		3	0.019	5.00	No
	23	3	0.013	2.00	No
		3	0.013	2.50	No
	24	3	0.016	2.50	No
		3	0.017	2.00	No
	26	3	0.008	1.00	No
WI150	19	3	0.015	0.50	No
		3	0.015	4.30	No
		3	0.01	2.00	No
		3	0.006	3.50	No
	20	3	0.021	0.50	No
		3	0.021	5.00	No
		3	0.006	2.00	No
	21	3	0.022	0.50	No
		3	0.022	5.00	No
	22	3	0.022	0.50	No
		3	0.022	5.00	No
	23	3	0.011	2.00	No
		3	0.011	2.50	No
	24	3	0.012	2.50	No
		3	0.012	2.00	No
	26	3	0.008	1.00	No
WL0	19	z	-0.006	0.50	No
		z	-0.006	4.30	No
		z	-0.001	2.00	No
	20	z	-0.009	0.50	No
		z	-0.009	5.00	No
		z	-0.001	2.00	No
	21	z	-0.009	0.50	No
		z	-0.009	5.00	No

	22	z	-0.009	0.50	No
		z	-0.009	5.00	No
	23	z	-0.003	2.00	No
		z	-0.003	2.50	No
	24	z	-0.003	2.50	No
		z	-0.003	2.00	No
	26	z	-0.003	1.00	No
WL30	19	2	-0.006	0.50	No
		2	-0.006	4.30	No
		2	-0.004	2.00	No
		2	-0.002	3.50	No
	20	2	-0.009	0.50	No
		2	-0.009	5.00	No
		2	-0.002	2.00	No
	21	2	-0.009	0.50	No
		2	-0.009	5.00	No
	22	2	-0.009	0.50	No
		2	-0.009	5.00	No
	23	2	-0.004	2.00	No
		2	-0.004	2.50	No
	24	2	-0.004	2.50	No
		2	-0.004	2.00	No
	26	2	-0.003	1.00	No
WL60	19	2	-0.005	0.50	No
		2	-0.005	4.30	No
		2	-0.005	2.00	No
		2	-0.003	3.50	No
		2	0.00	0.00	No
	20	2	-0.007	0.50	No
		2	-0.007	5.00	No
		2	-0.003	2.00	No
	21	2	-0.008	0.50	No
		2	-0.008	5.00	No
		2	0.00	0.00	No
	22	2	-0.007	0.50	No
		2	-0.007	5.00	No
	23	2	-0.005	2.00	No
		2	-0.005	2.50	No
	24	2	-0.006	2.50	No
		2	-0.007	2.00	No
		2	0.00	0.00	No
	26	2	-0.003	1.00	No
WL90	19	x	-0.004	0.50	No
		x	-0.004	4.30	No
		x	-0.003	3.50	No
	20	x	-0.006	0.50	No
		x	-0.006	5.00	No
		x	-0.003	2.00	No
		x	-0.001	3.50	No
	21	x	-0.007	0.50	No
		x	-0.007	5.00	No
	22	x	-0.007	0.50	No
		x	-0.007	5.00	No
	23	x	-0.005	2.00	No
		x	-0.005	2.50	No
	24	x	-0.007	2.50	No
		x	-0.008	2.00	No
	26	x	-0.003	1.00	No
WL120	19	3	0.005	0.50	No
		3	0.005	4.30	No

		3	0.005	2.00	No
		3	0.003	3.50	No
		2	0.00	0.00	No
	20	3	0.007	0.50	No
		3	0.007	5.00	No
		3	0.003	2.00	No
	21	3	0.008	0.50	No
		3	0.008	5.00	No
		2	0.00	0.00	No
	22	3	0.007	0.50	No
		3	0.007	5.00	No
	23	3	0.005	2.00	No
		3	0.005	2.50	No
	24	3	0.006	2.50	No
		3	0.007	2.00	No
		3	0.00	0.00	No
	26	3	0.003	1.00	No
WL150	19	3	0.006	0.50	No
		3	0.006	4.30	No
		3	0.004	2.00	No
		3	0.002	3.50	No
	20	3	0.009	0.50	No
		3	0.009	5.00	No
		3	0.002	2.00	No
	21	3	0.009	0.50	No
		3	0.009	5.00	No
	22	3	0.009	0.50	No
		3	0.009	5.00	No
	23	3	0.004	2.00	No
		3	0.004	2.50	No
	24	3	0.004	2.50	No
		3	0.004	2.00	No
	26	3	0.003	1.00	No
LL1	10	y	-0.25	11.84	No
LL2	10	y	-0.25	5.92	No
LL3	10	y	-0.25	0.00	No
LLa1	19	y	-0.50	0.00	No
LLa2	21	y	-0.50	0.00	No
LLa3	22	y	-0.50	0.00	No
LLa4	20	y	-0.50	0.00	No

Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
D	Dead Load	No	0.00	-1.00	0.00
Wo	Wind Load (NO ICE)	No	0.00	0.00	0.00
W30	WL 30deg	No	0.00	0.00	0.00
W60	WL 60deg	No	0.00	0.00	0.00
W90	WL 90deg	No	0.00	0.00	0.00
W120	WL 120deg	No	0.00	0.00	0.00
W150	WL 150deg	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00
WI0	WL ICE 0deg	No	0.00	0.00	0.00
WI30	WL ICE 30deg	No	0.00	0.00	0.00

WI60	WL ICE 60deg	No	0.00	0.00	0.00
WI90	WL ICE 90deg	No	0.00	0.00	0.00
WI120	WL ICE 120deg	No	0.00	0.00	0.00
WI150	WL ICE 150deg	No	0.00	0.00	0.00
WL0	WL 30 mph 0deg	No	0.00	0.00	0.00
WL30	WL 30 mph 30deg	No	0.00	0.00	0.00
WL60	WL 30 mph 60deg	No	0.00	0.00	0.00
WL90	WL 30 mph 90deg	No	0.00	0.00	0.00
WL120	WL 30 mph 120deg	No	0.00	0.00	0.00
WL150	WL 30 mph 150deg	No	0.00	0.00	0.00
LL1	250 lb Live Load on Left End	No	0.00	0.00	0.00
LL2	250 lb Live Load on Center	No	0.00	0.00	0.00
LL3	250 lb Live Load on Right End	No	0.00	0.00	0.00
LLa1	500 lb Live Load on Antenna 1	No	0.00	0.00	0.00
LLa2	500 lb Live Load on Antenna 2	No	0.00	0.00	0.00
LLa3	500 lb Live Load on Antenna 3	No	0.00	0.00	0.00
LLa4	500 lb Live Load on Antenna 4	No	0.00	0.00	0.00
W180	-Wo	Yes	0.00	0.00	0.00
W210	-W30	Yes	0.00	0.00	0.00
W240	-W60	Yes	0.00	0.00	0.00
W270	-W90	Yes	0.00	0.00	0.00
W300	-W120	Yes	0.00	0.00	0.00
W330	-W150	Yes	0.00	0.00	0.00
WI180	-WI0	Yes	0.00	0.00	0.00
WI210	-WI30	Yes	0.00	0.00	0.00
WI240	-WI60	Yes	0.00	0.00	0.00
WI270	-WI90	Yes	0.00	0.00	0.00
WI300	-WI120	Yes	0.00	0.00	0.00
WI330	-WI150	Yes	0.00	0.00	0.00
WL180	-WL0	Yes	0.00	0.00	0.00
WL210	-WL30	Yes	0.00	0.00	0.00
WL240	-WL60	Yes	0.00	0.00	0.00
WL270	-WL90	Yes	0.00	0.00	0.00
WL300	-WL120	Yes	0.00	0.00	0.00
WL330	-WL150	Yes	0.00	0.00	0.00

Earthquake (Dynamic analysis only)

Condition	a/g	Ang. [Deg]	Damp. [%]
D	0.00	0.00	0.00
Wo	0.00	0.00	0.00
W30	0.00	0.00	0.00
W60	0.00	0.00	0.00
W90	0.00	0.00	0.00
W120	0.00	0.00	0.00
W150	0.00	0.00	0.00
Di	0.00	0.00	0.00
WI0	0.00	0.00	0.00
WI30	0.00	0.00	0.00
WI60	0.00	0.00	0.00
WI90	0.00	0.00	0.00
WI120	0.00	0.00	0.00
WI150	0.00	0.00	0.00
WL0	0.00	0.00	0.00

WL30	0.00	0.00	0.00
WL60	0.00	0.00	0.00
WL90	0.00	0.00	0.00
WL120	0.00	0.00	0.00
WL150	0.00	0.00	0.00
LL1	0.00	0.00	0.00
LL2	0.00	0.00	0.00
LL3	0.00	0.00	0.00
LLa1	0.00	0.00	0.00
LLa2	0.00	0.00	0.00
LLa3	0.00	0.00	0.00
LLa4	0.00	0.00	0.00
W180	0.00	0.00	0.00
W210	0.00	0.00	0.00
W240	0.00	0.00	0.00
W270	0.00	0.00	0.00
W300	0.00	0.00	0.00
W330	0.00	0.00	0.00
WI180	0.00	0.00	0.00
WI210	0.00	0.00	0.00
WI240	0.00	0.00	0.00
WI270	0.00	0.00	0.00
WI300	0.00	0.00	0.00
WI330	0.00	0.00	0.00
WL180	0.00	0.00	0.00
WL210	0.00	0.00	0.00
WL240	0.00	0.00	0.00
WL270	0.00	0.00	0.00
WL300	0.00	0.00	0.00
WL330	0.00	0.00	0.00

Bentley

Current Date: 6/21/2018 3:43 PM
Units system: English
File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT1131\CT1131.etz\

Steel Code Check

Report: Summary - For all selected load conditions

Load conditions to be included in design :

W180=-Wo
W210=-W30
W240=-W60
W270=-W90
W300=-W120
W330=-W150
WI180=-WI0
WI210=-WI30
WI240=-WI60
WI270=-WI90
WI300=-WI120
WI330=-WI150
WL180=-WL0
WL210=-WL30
WL240=-WL60
WL270=-WL90
WL300=-WL120
WL330=-WL150
LC1=1.2D+1.6Wo
LC2=1.2D+1.6W30
LC3=1.2D+1.6W60
LC4=1.2D+1.6W90
LC5=1.2D+1.6W120
LC6=1.2D+1.6W150
LC7=1.2D-1.6Wo
LC8=1.2D-1.6W30
LC9=1.2D-1.6W60
LC10=1.2D-1.6W90
LC11=1.2D-1.6W120
LC12=1.2D-1.6W150
LC13=0.9D+1.6Wo
LC14=0.9D+1.6W30
LC15=0.9D+1.6W60
LC16=0.9D+1.6W90
LC17=0.9D+1.6W120
LC18=0.9D+1.6W150
LC19=0.9D-1.6Wo
LC20=0.9D-1.6W30
LC21=0.9D-1.6W60
LC22=0.9D-1.6W90
LC23=0.9D-1.6W120
LC24=0.9D-1.6W150
LC25=1.2D+Di+WI0
LC26=1.2D+Di+WI30
LC27=1.2D+Di+WI60
LC28=1.2D+Di+WI90
LC29=1.2D+Di+WI120
LC30=1.2D+Di+WI150
LC31=1.2D+Di-WI0
LC32=1.2D+Di-WI30
LC33=1.2D+Di-WI60
LC34=1.2D+Di-WI90
LC35=1.2D+Di-WI120

LC36=1.2D+Di-WI150
LC37=0.9D
LC38=1.2D+1.6LL1
LC39=1.2D+1.6LL2
LC40=1.2D+1.6LL3
LC41=1.2D+WL0+LLa1
LC42=1.2D+WL30+LLa1
LC43=1.2D+WL60+LLa1
LC44=1.2D+WL90+LLa1
LC45=1.2D+WL120+LLa1
LC46=1.2D+WL150+LLa1
LC47=1.2D-WL0+LLa1
LC48=1.2D-WL30+LLa1
LC49=1.2D-WL60+LLa1
LC50=1.2D-WL90+LLa1
LC51=1.2D-WL120+LLa1
LC52=1.2D-WL150+LLa1
LC53=1.2D+WL0+LLa2
LC54=1.2D+WL30+LLa2
LC55=1.2D+WL60+LLa2
LC56=1.2D+WL90+LLa2
LC57=1.2D+WL120+LLa2
LC58=1.2D+WL150+LLa2
LC59=1.2D-WL0+LLa2
LC60=1.2D-WL30+LLa2
LC61=1.2D-WL60+LLa2
LC62=1.2D-WL90+LLa2
LC63=1.2D-WL120+LLa2
LC64=1.2D-WL150+LLa2
LC65=1.2D+WL0+LLa3
LC66=1.2D+WL30+LLa3
LC67=1.2D+WL60+LLa3
LC68=1.2D+WL90+LLa3
LC69=1.2D+WL120+LLa3
LC70=1.2D+WL150+LLa3
LC71=1.2D-WL0+LLa3
LC72=1.2D-WL30+LLa3
LC73=1.2D-WL60+LLa3
LC74=1.2D-WL90+LLa3
LC75=1.2D-WL120+LLa3
LC76=1.2D-WL150+LLa3
LC77=1.2D+WL0+LLa4
LC78=1.2D+WL30+LLa4
LC79=1.2D+WL60+LLa4
LC80=1.2D+WL90+LLa4
LC81=1.2D+WL120+LLa4
LC82=1.2D+WL150+LLa4
LC83=1.2D-WL0+LLa4
LC84=1.2D-WL30+LLa4
LC85=1.2D-WL60+LLa4
LC86=1.2D-WL90+LLa4
LC87=1.2D-WL120+LLa4
LC88=1.2D-WL150+LLa4

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	HSS_SQR 4X4X1_4	**1**	LC1 at 100.00%	0.23	OK	
			LC10 at 0.00%	0.85	OK	
			LC11 at 0.00%	0.50	OK	
			LC12 at 0.00%	0.42	OK	
			LC13 at 100.00%	0.23	OK	Eq. H1-1b
			LC14 at 0.00%	0.44	OK	
			LC15 at 0.00%	0.49	OK	
			LC16 at 0.00%	0.78	OK	
			LC17 at 0.00%	0.69	OK	

LC18 at 0.00%	0.65	OK	
LC19 at 0.00%	0.51	OK	
LC2 at 0.00%	0.52	OK	
LC20 at 0.00%	0.69	OK	
LC21 at 0.00%	0.72	OK	
LC22 at 0.00%	0.76	OK	
LC23 at 0.00%	0.42	OK	
LC24 at 0.00%	0.34	OK	
LC25 at 0.00%	0.54	OK	
LC26 at 0.00%	0.60	OK	
LC27 at 0.00%	0.60	OK	
LC28 at 0.00%	0.64	OK	
LC29 at 0.00%	0.64	OK	
LC3 at 0.00%	0.57	OK	
LC30 at 0.00%	0.64	OK	
LC31 at 0.00%	0.61	OK	
LC32 at 0.00%	0.64	OK	
LC33 at 0.00%	0.64	OK	
LC34 at 0.00%	0.63	OK	
LC35 at 0.00%	0.59	OK	
LC36 at 0.00%	0.58	OK	
LC37 at 0.00%	0.24	OK	
LC38 at 0.00%	0.53	OK	
LC39 at 0.00%	0.44	OK	
LC4 at 0.00%	**0.87**	**OK**	Eq. H3-6
LC40 at 0.00%	0.56	OK	
LC41 at 0.00%	0.60	OK	
LC42 at 0.00%	0.61	OK	
LC43 at 0.00%	0.61	OK	
LC44 at 0.00%	0.63	OK	
LC45 at 0.00%	0.63	OK	
LC46 at 0.00%	0.63	OK	
LC47 at 0.00%	0.63	OK	
LC48 at 0.00%	0.65	OK	
LC49 at 0.00%	0.65	OK	
LC5 at 0.00%	0.77	OK	
LC50 at 0.00%	0.64	OK	
LC51 at 0.00%	0.63	OK	
LC52 at 0.00%	0.62	OK	
LC53 at 0.00%	0.47	OK	
LC54 at 0.00%	0.49	OK	
LC55 at 0.00%	0.49	OK	
LC56 at 0.00%	0.50	OK	
LC57 at 0.00%	0.51	OK	
LC58 at 0.00%	0.51	OK	
LC59 at 0.00%	0.49	OK	
LC6 at 0.00%	0.73	OK	
LC60 at 0.00%	0.51	OK	
LC61 at 0.00%	0.51	OK	
LC62 at 0.00%	0.50	OK	
LC63 at 0.00%	0.49	OK	
LC64 at 0.00%	0.48	OK	
LC65 at 0.00%	0.48	OK	
LC66 at 0.00%	0.50	OK	
LC67 at 0.00%	0.50	OK	
LC68 at 0.00%	0.52	OK	
LC69 at 0.00%	0.52	OK	
LC7 at 0.00%	0.59	OK	
LC70 at 0.00%	0.52	OK	
LC71 at 0.00%	0.51	OK	
LC72 at 0.00%	0.52	OK	
LC73 at 0.00%	0.52	OK	
LC74 at 0.00%	0.51	OK	
LC75 at 0.00%	0.50	OK	

		LC76 at 0.00%	0.50	OK	
		LC77 at 0.00%	0.62	OK	
		LC78 at 0.00%	0.65	OK	
		LC79 at 0.00%	0.65	OK	
		LC8 at 0.00%	0.77	OK	
		LC80 at 0.00%	0.67	OK	
		LC81 at 0.00%	0.66	OK	
		LC82 at 0.00%	0.67	OK	
		LC83 at 0.00%	0.64	OK	
		LC84 at 0.00%	0.65	OK	
		LC85 at 0.00%	0.65	OK	
		LC86 at 0.00%	0.64	OK	
		LC87 at 0.00%	0.63	OK	
		LC88 at 0.00%	0.63	OK	
		LC9 at 0.00%	0.80	OK	Eq. H1-1b
		W180 at 0.00%	0.17	OK	
		W210 at 0.00%	0.28	OK	
		W240 at 0.00%	0.30	OK	
		W270 at 0.00%	0.28	OK	
		W300 at 0.00%	0.28	OK	
		W330 at 0.00%	0.25	OK	
		WI180 at 0.00%	0.05	OK	
		WI210 at 0.00%	0.08	OK	
		WI240 at 0.00%	0.08	OK	
		WI270 at 0.00%	0.08	OK	
		WI300 at 0.00%	0.08	OK	
		WI330 at 0.00%	0.08	OK	
		WL180 at 0.00%	0.02	OK	
		WL210 at 0.00%	0.03	OK	
		WL240 at 0.00%	0.03	OK	
		WL270 at 0.00%	0.03	OK	
		WL300 at 0.00%	0.03	OK	
		WL330 at 0.00%	0.03	OK	
PIPE 2x0.154	**19**	LC1 at 68.75%	0.50	OK	
		LC10 at 68.75%	0.50	OK	
		LC11 at 68.75%	0.42	OK	
		LC12 at 68.75%	0.41	OK	
		LC13 at 68.75%	0.50	OK	
		LC14 at 68.75%	0.41	OK	
		LC15 at 68.75%	0.41	OK	
		LC16 at 68.75%	0.50	OK	
		LC17 at 68.75%	0.42	OK	
		LC18 at 68.75%	0.41	OK	
		LC19 at 68.75%	0.50	OK	
		LC2 at 68.75%	0.41	OK	
		LC20 at 68.75%	0.41	OK	
		LC21 at 68.75%	0.41	OK	
		LC22 at 68.75%	0.50	OK	
		LC23 at 68.75%	0.42	OK	
		LC24 at 68.75%	0.41	OK	
		LC25 at 68.75%	0.12	OK	
		LC26 at 68.75%	0.09	OK	
		LC27 at 68.75%	0.09	OK	
		LC28 at 68.75%	0.11	OK	
		LC29 at 68.75%	0.09	OK	
		LC3 at 68.75%	0.41	OK	
		LC30 at 68.75%	0.09	OK	
		LC31 at 68.75%	0.12	OK	
		LC32 at 68.75%	0.09	OK	
		LC33 at 68.75%	0.09	OK	
		LC34 at 68.75%	0.11	OK	
		LC35 at 68.75%	0.09	OK	
		LC36 at 68.75%	0.09	OK	

LC37 at 68.75%	0.01	OK	
LC38 at 68.75%	0.01	OK	
LC39 at 68.75%	0.01	OK	
LC4 at 68.75%	**0.50**	**OK**	Eq. H1-1b
LC40 at 68.75%	0.01	OK	
LC41 at 68.75%	0.06	OK	
LC42 at 68.75%	0.06	OK	
LC43 at 68.75%	0.06	OK	
LC44 at 68.75%	0.05	OK	
LC45 at 68.75%	0.06	OK	
LC46 at 68.75%	0.06	OK	
LC47 at 68.75%	0.06	OK	
LC48 at 68.75%	0.06	OK	
LC49 at 68.75%	0.06	OK	
LC5 at 68.75%	0.42	OK	
LC50 at 68.75%	0.05	OK	
LC51 at 68.75%	0.06	OK	
LC52 at 68.75%	0.06	OK	
LC53 at 68.75%	0.04	OK	
LC54 at 68.75%	0.04	OK	
LC55 at 68.75%	0.04	OK	
LC56 at 68.75%	0.03	OK	
LC57 at 68.75%	0.04	OK	
LC58 at 68.75%	0.04	OK	
LC59 at 68.75%	0.04	OK	
LC6 at 68.75%	0.41	OK	
LC60 at 68.75%	0.04	OK	
LC61 at 68.75%	0.04	OK	
LC62 at 68.75%	0.03	OK	
LC63 at 68.75%	0.04	OK	
LC64 at 68.75%	0.04	OK	
LC65 at 68.75%	0.04	OK	
LC66 at 68.75%	0.04	OK	
LC67 at 68.75%	0.04	OK	
LC68 at 68.75%	0.03	OK	
LC69 at 68.75%	0.04	OK	
LC7 at 68.75%	0.50	OK	
LC70 at 68.75%	0.04	OK	
LC71 at 68.75%	0.04	OK	
LC72 at 68.75%	0.04	OK	
LC73 at 68.75%	0.04	OK	
LC74 at 68.75%	0.03	OK	
LC75 at 68.75%	0.04	OK	
LC76 at 68.75%	0.04	OK	
LC77 at 68.75%	0.04	OK	
LC78 at 68.75%	0.04	OK	
LC79 at 68.75%	0.04	OK	
LC8 at 68.75%	0.41	OK	
LC80 at 68.75%	0.03	OK	
LC81 at 68.75%	0.04	OK	
LC82 at 68.75%	0.04	OK	
LC83 at 68.75%	0.04	OK	
LC84 at 68.75%	0.04	OK	
LC85 at 68.75%	0.04	OK	
LC86 at 68.75%	0.03	OK	
LC87 at 68.75%	0.04	OK	
LC88 at 68.75%	0.04	OK	
LC9 at 68.75%	0.41	OK	
W180 at 68.75%	0.31	OK	
W210 at 68.75%	0.25	OK	
W240 at 68.75%	0.26	OK	
W270 at 68.75%	0.31	OK	
W300 at 68.75%	0.26	OK	
W330 at 68.75%	0.25	OK	

	WI180 at 68.75%	0.11	OK	
	WI210 at 68.75%	0.07	OK	
	WI240 at 68.75%	0.08	OK	
	WI270 at 68.75%	0.10	OK	
	WI300 at 68.75%	0.08	OK	
	WI330 at 68.75%	0.07	OK	
	WL180 at 68.75%	0.03	OK	
	WL210 at 68.75%	0.03	OK	
	WL240 at 68.75%	0.03	OK	
	WL270 at 68.75%	0.02	OK	
	WL300 at 68.75%	0.03	OK	
	WL330 at 68.75%	0.03	OK	
20	LC1 at 68.75%	**0.66**	**OK**	Eq. H1-1b
	LC10 at 68.75%	0.53	OK	
	LC11 at 68.75%	0.44	OK	
	LC12 at 68.75%	0.46	OK	
	LC13 at 68.75%	0.66	OK	
	LC14 at 68.75%	0.46	OK	
	LC15 at 68.75%	0.43	OK	
	LC16 at 68.75%	0.53	OK	
	LC17 at 68.75%	0.43	OK	
	LC18 at 68.75%	0.46	OK	
	LC19 at 68.75%	0.66	OK	
	LC2 at 68.75%	0.46	OK	
	LC20 at 68.75%	0.46	OK	
	LC21 at 68.75%	0.43	OK	
	LC22 at 68.75%	0.53	OK	
	LC23 at 68.75%	0.43	OK	
	LC24 at 68.75%	0.46	OK	
	LC25 at 68.75%	0.13	OK	
	LC26 at 68.75%	0.09	OK	
	LC27 at 68.75%	0.08	OK	
	LC28 at 68.75%	0.11	OK	
	LC29 at 68.75%	0.08	OK	
	LC3 at 68.75%	0.43	OK	
	LC30 at 68.75%	0.09	OK	
	LC31 at 68.75%	0.13	OK	
	LC32 at 68.75%	0.09	OK	
	LC33 at 68.75%	0.08	OK	
	LC34 at 68.75%	0.11	OK	
	LC35 at 68.75%	0.08	OK	
	LC36 at 68.75%	0.09	OK	
	LC37 at 68.75%	0.01	OK	
	LC38 at 68.75%	0.01	OK	
	LC39 at 68.75%	0.01	OK	
	LC4 at 68.75%	0.53	OK	
	LC40 at 68.75%	0.01	OK	
	LC41 at 68.75%	0.05	OK	
	LC42 at 68.75%	0.04	OK	
	LC43 at 68.75%	0.03	OK	
	LC44 at 68.75%	0.04	OK	
	LC45 at 68.75%	0.03	OK	
	LC46 at 68.75%	0.04	OK	
	LC47 at 68.75%	0.05	OK	
	LC48 at 68.75%	0.04	OK	
	LC49 at 68.75%	0.03	OK	
	LC5 at 68.75%	0.44	OK	
	LC50 at 68.75%	0.04	OK	
	LC51 at 68.75%	0.03	OK	
	LC52 at 68.75%	0.04	OK	
	LC53 at 68.75%	0.05	OK	
	LC54 at 68.75%	0.04	OK	
	LC55 at 68.75%	0.03	OK	

	LC56 at 68.75%	0.04	OK
	LC57 at 68.75%	0.03	OK
	LC58 at 68.75%	0.04	OK
	LC59 at 68.75%	0.05	OK
	LC6 at 68.75%	0.46	OK
	LC60 at 68.75%	0.04	OK
	LC61 at 68.75%	0.03	OK
	LC62 at 68.75%	0.04	OK
	LC63 at 68.75%	0.03	OK
	LC64 at 68.75%	0.04	OK
	LC65 at 68.75%	0.05	OK
	LC66 at 68.75%	0.04	OK
	LC67 at 68.75%	0.03	OK
	LC68 at 68.75%	0.04	OK
	LC69 at 68.75%	0.03	OK
	LC7 at 68.75%	0.66	OK
	LC70 at 68.75%	0.04	OK
	LC71 at 68.75%	0.05	OK
	LC72 at 68.75%	0.04	OK
	LC73 at 68.75%	0.03	OK
	LC74 at 68.75%	0.04	OK
	LC75 at 68.75%	0.03	OK
	LC76 at 68.75%	0.04	OK
	LC77 at 68.75%	0.07	OK
	LC78 at 68.75%	0.06	OK
	LC79 at 68.75%	0.05	OK
	LC8 at 68.75%	0.46	OK
	LC80 at 68.75%	0.06	OK
	LC81 at 68.75%	0.05	OK
	LC82 at 68.75%	0.06	OK
	LC83 at 68.75%	0.07	OK
	LC84 at 68.75%	0.06	OK
	LC85 at 68.75%	0.05	OK
	LC86 at 68.75%	0.06	OK
	LC87 at 68.75%	0.05	OK
	LC88 at 68.75%	0.06	OK
	LC9 at 68.75%	0.43	OK
	W180 at 68.75%	0.41	OK
	W210 at 68.75%	0.28	OK
	W240 at 68.75%	0.27	OK
	W270 at 68.75%	0.33	OK
	W300 at 68.75%	0.27	OK
	W330 at 68.75%	0.28	OK
	WI180 at 68.75%	0.12	OK
	WI210 at 68.75%	0.08	OK
	WI240 at 68.75%	0.07	OK
	WI270 at 68.75%	0.10	OK
	WI300 at 68.75%	0.07	OK
	WI330 at 68.75%	0.08	OK
	WL180 at 68.75%	0.04	OK
	WL210 at 68.75%	0.03	OK
	WL240 at 68.75%	0.03	OK
	WL270 at 68.75%	0.04	OK
	WL300 at 68.75%	0.03	OK
	WL330 at 68.75%	0.03	OK
21	LC1 at 68.75%	0.62	OK
	LC10 at 68.75%	0.53	OK
	LC11 at 68.75%	0.42	OK
	LC12 at 68.75%	0.42	OK
	LC13 at 68.75%	0.62	OK
	LC14 at 68.75%	0.41	OK
	LC15 at 68.75%	0.42	OK
	LC16 at 68.75%	0.53	OK

LC17 at 68.75%	0.42	OK	
LC18 at 68.75%	0.41	OK	
LC19 at 68.75%	0.62	OK	
LC2 at 68.75%	0.42	OK	
LC20 at 68.75%	0.41	OK	
LC21 at 68.75%	0.42	OK	
LC22 at 68.75%	0.53	OK	
LC23 at 68.75%	0.42	OK	
LC24 at 68.75%	0.41	OK	
LC25 at 68.75%	0.11	OK	
LC26 at 68.75%	0.07	OK	
LC27 at 68.75%	0.07	OK	
LC28 at 68.75%	0.09	OK	
LC29 at 68.75%	0.07	OK	
LC3 at 68.75%	0.42	OK	
LC30 at 68.75%	0.07	OK	
LC31 at 68.75%	0.11	OK	
LC32 at 68.75%	0.07	OK	
LC33 at 68.75%	0.07	OK	
LC34 at 68.75%	0.09	OK	
LC35 at 68.75%	0.07	OK	
LC36 at 68.75%	0.07	OK	
LC37 at 68.75%	0.00	OK	
LC38 at 68.75%	0.00	OK	
LC39 at 68.75%	0.00	OK	
LC4 at 68.75%	0.53	OK	
LC40 at 68.75%	0.00	OK	
LC41 at 68.75%	0.04	OK	
LC42 at 68.75%	0.03	OK	
LC43 at 68.75%	0.03	OK	
LC44 at 68.75%	0.03	OK	
LC45 at 68.75%	0.03	OK	
LC46 at 68.75%	0.03	OK	
LC47 at 68.75%	0.04	OK	
LC48 at 68.75%	0.03	OK	
LC49 at 68.75%	0.03	OK	
LC5 at 68.75%	0.42	OK	
LC50 at 68.75%	0.03	OK	
LC51 at 68.75%	0.03	OK	
LC52 at 68.75%	0.03	OK	
LC53 at 68.75%	0.06	OK	
LC54 at 68.75%	0.05	OK	
LC55 at 68.75%	0.05	OK	
LC56 at 68.75%	0.05	OK	
LC57 at 68.75%	0.05	OK	
LC58 at 68.75%	0.05	OK	
LC59 at 68.75%	0.06	OK	
LC6 at 68.75%	0.42	OK	
LC60 at 68.75%	0.05	OK	
LC61 at 68.75%	0.05	OK	
LC62 at 68.75%	0.05	OK	
LC63 at 68.75%	0.05	OK	
LC64 at 68.75%	0.05	OK	
LC65 at 68.75%	0.04	OK	
LC66 at 68.75%	0.03	OK	
LC67 at 68.75%	0.03	OK	
LC68 at 68.75%	0.03	OK	
LC69 at 68.75%	0.03	OK	
LC7 at 68.75%	**0.62**	**OK**	Eq. H1-1b
LC70 at 68.75%	0.03	OK	
LC71 at 68.75%	0.04	OK	
LC72 at 68.75%	0.03	OK	
LC73 at 68.75%	0.03	OK	
LC74 at 68.75%	0.03	OK	

	LC75 at 68.75%	0.03	OK	
	LC76 at 68.75%	0.03	OK	
	LC77 at 68.75%	0.04	OK	
	LC78 at 68.75%	0.03	OK	
	LC79 at 68.75%	0.03	OK	
	LC8 at 68.75%	0.42	OK	
	LC80 at 68.75%	0.03	OK	
	LC81 at 68.75%	0.03	OK	
	LC82 at 68.75%	0.03	OK	
	LC83 at 68.75%	0.04	OK	
	LC84 at 68.75%	0.03	OK	
	LC85 at 68.75%	0.03	OK	
	LC86 at 68.75%	0.03	OK	
	LC87 at 68.75%	0.03	OK	
	LC88 at 68.75%	0.03	OK	
	LC9 at 68.75%	0.42	OK	
	W180 at 68.75%	0.39	OK	
	W210 at 68.75%	0.26	OK	
	W240 at 68.75%	0.26	OK	
	W270 at 68.75%	0.33	OK	
	W300 at 68.75%	0.26	OK	
	W330 at 68.75%	0.26	OK	
	WI180 at 68.75%	0.11	OK	
	WI210 at 68.75%	0.07	OK	
	WI240 at 68.75%	0.06	OK	
	WI270 at 68.75%	0.09	OK	
	WI300 at 68.75%	0.06	OK	
	WI330 at 68.75%	0.07	OK	
	WL180 at 68.75%	0.04	OK	
	WL210 at 68.75%	0.03	OK	
	WL240 at 68.75%	0.03	OK	
	WL270 at 68.75%	0.03	OK	
	WL300 at 68.75%	0.03	OK	
	WL330 at 68.75%	0.03	OK	
22	LC1 at 59.38%	**0.62**	**OK**	Eq. H1-1b
	LC10 at 59.38%	0.49	OK	
	LC11 at 59.38%	0.40	OK	
	LC12 at 59.38%	0.40	OK	
	LC13 at 59.38%	0.62	OK	
	LC14 at 59.38%	0.40	OK	
	LC15 at 59.38%	0.39	OK	
	LC16 at 59.38%	0.49	OK	
	LC17 at 59.38%	0.40	OK	
	LC18 at 59.38%	0.40	OK	
	LC19 at 59.38%	0.62	OK	
	LC2 at 59.38%	0.40	OK	
	LC20 at 59.38%	0.40	OK	
	LC21 at 59.38%	0.39	OK	
	LC22 at 59.38%	0.49	OK	
	LC23 at 59.38%	0.40	OK	
	LC24 at 59.38%	0.40	OK	
	LC25 at 59.38%	0.11	OK	
	LC26 at 59.38%	0.07	OK	
	LC27 at 59.38%	0.06	OK	
	LC28 at 59.38%	0.09	OK	
	LC29 at 59.38%	0.06	OK	
	LC3 at 59.38%	0.39	OK	
	LC30 at 59.38%	0.07	OK	
	LC31 at 59.38%	0.11	OK	
	LC32 at 59.38%	0.07	OK	
	LC33 at 59.38%	0.06	OK	
	LC34 at 59.38%	0.09	OK	
	LC35 at 59.38%	0.06	OK	

LC36 at 59.38%	0.07	OK
LC37 at 59.38%	0.00	OK
LC38 at 59.38%	0.00	OK
LC39 at 59.38%	0.00	OK
LC4 at 59.38%	0.49	OK
LC40 at 59.38%	0.00	OK
LC41 at 59.38%	0.04	OK
LC42 at 59.38%	0.03	OK
LC43 at 59.38%	0.02	OK
LC44 at 59.38%	0.03	OK
LC45 at 59.38%	0.02	OK
LC46 at 59.38%	0.03	OK
LC47 at 59.38%	0.04	OK
LC48 at 59.38%	0.03	OK
LC49 at 59.38%	0.02	OK
LC5 at 59.38%	0.40	OK
LC50 at 59.38%	0.03	OK
LC51 at 59.38%	0.02	OK
LC52 at 59.38%	0.03	OK
LC53 at 59.38%	0.04	OK
LC54 at 59.38%	0.03	OK
LC55 at 59.38%	0.02	OK
LC56 at 59.38%	0.03	OK
LC57 at 59.38%	0.02	OK
LC58 at 59.38%	0.03	OK
LC59 at 59.38%	0.04	OK
LC6 at 59.38%	0.40	OK
LC60 at 59.38%	0.03	OK
LC61 at 59.38%	0.02	OK
LC62 at 59.38%	0.03	OK
LC63 at 59.38%	0.02	OK
LC64 at 59.38%	0.03	OK
LC65 at 59.38%	0.07	OK
LC66 at 59.38%	0.05	OK
LC67 at 59.38%	0.05	OK
LC68 at 59.38%	0.06	OK
LC69 at 59.38%	0.05	OK
LC7 at 59.38%	0.62	OK
LC70 at 59.38%	0.05	OK
LC71 at 59.38%	0.07	OK
LC72 at 59.38%	0.05	OK
LC73 at 59.38%	0.05	OK
LC74 at 59.38%	0.06	OK
LC75 at 59.38%	0.05	OK
LC76 at 59.38%	0.05	OK
LC77 at 59.38%	0.04	OK
LC78 at 59.38%	0.03	OK
LC79 at 59.38%	0.02	OK
LC8 at 59.38%	0.40	OK
LC80 at 59.38%	0.03	OK
LC81 at 59.38%	0.02	OK
LC82 at 59.38%	0.03	OK
LC83 at 59.38%	0.04	OK
LC84 at 59.38%	0.03	OK
LC85 at 59.38%	0.02	OK
LC86 at 59.38%	0.03	OK
LC87 at 59.38%	0.02	OK
LC88 at 59.38%	0.03	OK
LC9 at 59.38%	0.39	OK
W180 at 59.38%	0.39	OK
W210 at 59.38%	0.25	OK
W240 at 59.38%	0.25	OK
W270 at 59.38%	0.31	OK
W300 at 59.38%	0.25	OK

	W330 at 59.38%	0.25	OK	
	WI180 at 59.38%	0.11	OK	
	WI210 at 59.38%	0.07	OK	
	WI240 at 59.38%	0.06	OK	
	WI270 at 59.38%	0.08	OK	
	WI300 at 59.38%	0.06	OK	
	WI330 at 59.38%	0.07	OK	
	WL180 at 59.38%	0.04	OK	
	WL210 at 59.38%	0.03	OK	
	WL240 at 59.38%	0.02	OK	
	WL270 at 59.38%	0.03	OK	
	WL300 at 59.38%	0.02	OK	
	WL330 at 59.38%	0.03	OK	
23	LC1 at 59.38%	0.08	OK	
	LC10 at 59.38%	0.14	OK	
	LC11 at 59.38%	0.10	OK	
	LC12 at 59.38%	0.06	OK	
	LC13 at 59.38%	0.07	OK	
	LC14 at 59.38%	0.06	OK	
	LC15 at 59.38%	0.10	OK	
	LC16 at 59.38%	0.14	OK	
	LC17 at 59.38%	0.10	OK	
	LC18 at 59.38%	0.06	OK	
	LC19 at 59.38%	0.07	OK	
	LC2 at 59.38%	0.06	OK	
	LC20 at 59.38%	0.06	OK	
	LC21 at 59.38%	0.10	OK	
	LC22 at 59.38%	0.14	OK	
	LC23 at 59.38%	0.10	OK	
	LC24 at 59.38%	0.06	OK	
	LC25 at 59.38%	0.02	OK	
	LC26 at 59.38%	0.02	OK	
	LC27 at 59.38%	0.02	OK	
	LC28 at 59.38%	0.03	OK	
	LC29 at 59.38%	0.02	OK	
	LC3 at 59.38%	0.10	OK	
	LC30 at 59.38%	0.02	OK	
	LC31 at 59.38%	0.02	OK	
	LC32 at 59.38%	0.02	OK	
	LC33 at 59.38%	0.02	OK	
	LC34 at 59.38%	0.03	OK	
	LC35 at 59.38%	0.02	OK	
	LC36 at 59.38%	0.02	OK	
	LC37 at 59.38%	0.01	OK	
	LC38 at 59.38%	0.01	OK	
	LC39 at 59.38%	0.01	OK	
	LC4 at 59.38%	**0.14**	**OK**	Eq. H1-1b
	LC40 at 59.38%	0.01	OK	
	LC41 at 59.38%	0.01	OK	
	LC42 at 59.38%	0.01	OK	
	LC43 at 59.38%	0.01	OK	
	LC44 at 59.38%	0.01	OK	
	LC45 at 59.38%	0.01	OK	
	LC46 at 59.38%	0.01	OK	
	LC47 at 59.38%	0.01	OK	
	LC48 at 59.38%	0.01	OK	
	LC49 at 59.38%	0.01	OK	
	LC5 at 59.38%	0.10	OK	
	LC50 at 59.38%	0.01	OK	
	LC51 at 59.38%	0.01	OK	
	LC52 at 59.38%	0.01	OK	
	LC53 at 59.38%	0.01	OK	
	LC54 at 59.38%	0.01	OK	

	LC55 at 59.38%	0.01	OK	
	LC56 at 59.38%	0.01	OK	
	LC57 at 59.38%	0.01	OK	
	LC58 at 59.38%	0.01	OK	
	LC59 at 59.38%	0.01	OK	
	LC6 at 59.38%	0.06	OK	
	LC60 at 59.38%	0.01	OK	
	LC61 at 59.38%	0.01	OK	
	LC62 at 59.38%	0.01	OK	
	LC63 at 59.38%	0.01	OK	
	LC64 at 59.38%	0.01	OK	
	LC65 at 59.38%	0.01	OK	
	LC66 at 59.38%	0.01	OK	
	LC67 at 59.38%	0.01	OK	
	LC68 at 59.38%	0.01	OK	
	LC69 at 59.38%	0.01	OK	
	LC7 at 59.38%	0.08	OK	
	LC70 at 59.38%	0.01	OK	
	LC71 at 59.38%	0.01	OK	
	LC72 at 59.38%	0.01	OK	
	LC73 at 59.38%	0.01	OK	
	LC74 at 59.38%	0.01	OK	
	LC75 at 59.38%	0.01	OK	
	LC76 at 59.38%	0.01	OK	
	LC77 at 59.38%	0.01	OK	
	LC78 at 59.38%	0.01	OK	
	LC79 at 59.38%	0.01	OK	
	LC8 at 59.38%	0.06	OK	
	LC80 at 59.38%	0.01	OK	
	LC81 at 59.38%	0.01	OK	
	LC82 at 59.38%	0.01	OK	
	LC83 at 59.38%	0.01	OK	
	LC84 at 59.38%	0.01	OK	
	LC85 at 59.38%	0.01	OK	
	LC86 at 59.38%	0.01	OK	
	LC87 at 59.38%	0.01	OK	
	LC88 at 59.38%	0.01	OK	
	LC9 at 59.38%	0.10	OK	
	W180 at 59.38%	0.04	OK	
	W210 at 59.38%	0.04	OK	
	W240 at 59.38%	0.06	OK	
	W270 at 59.38%	0.09	OK	
	W300 at 59.38%	0.06	OK	
	W330 at 59.38%	0.04	OK	
	WI180 at 59.38%	0.02	OK	
	WI210 at 59.38%	0.01	OK	
	WI240 at 59.38%	0.02	OK	
	WI270 at 59.38%	0.02	OK	
	WI300 at 59.38%	0.02	OK	
	WI330 at 59.38%	0.01	OK	
	WL180 at 59.38%	0.00	OK	
	WL210 at 59.38%	0.00	OK	
	WL240 at 59.38%	0.01	OK	
	WL270 at 59.38%	0.01	OK	
	WL300 at 59.38%	0.01	OK	
	WL330 at 59.38%	0.00	OK	
24	LC1 at 59.38%	0.08	OK	
	LC10 at 59.38%	**0.20**	**OK**	Eq. H1-1b
	LC11 at 59.38%	0.13	OK	
	LC12 at 59.38%	0.07	OK	
	LC13 at 59.38%	0.07	OK	
	LC14 at 59.38%	0.07	OK	
	LC15 at 59.38%	0.13	OK	

LC16 at 59.38%	0.20	OK
LC17 at 59.38%	0.13	OK
LC18 at 59.38%	0.07	OK
LC19 at 59.38%	0.07	OK
LC2 at 59.38%	0.07	OK
LC20 at 59.38%	0.07	OK
LC21 at 59.38%	0.13	OK
LC22 at 59.38%	0.20	OK
LC23 at 59.38%	0.13	OK
LC24 at 59.38%	0.07	OK
LC25 at 59.38%	0.02	OK
LC26 at 59.38%	0.02	OK
LC27 at 59.38%	0.03	OK
LC28 at 59.38%	0.04	OK
LC29 at 59.38%	0.03	OK
LC3 at 59.38%	0.13	OK
LC30 at 59.38%	0.02	OK
LC31 at 59.38%	0.02	OK
LC32 at 59.38%	0.02	OK
LC33 at 59.38%	0.03	OK
LC34 at 59.38%	0.04	OK
LC35 at 59.38%	0.03	OK
LC36 at 59.38%	0.02	OK
LC37 at 59.38%	0.01	OK
LC38 at 59.38%	0.01	OK
LC39 at 59.38%	0.01	OK
LC4 at 59.38%	0.20	OK
LC40 at 59.38%	0.01	OK
LC41 at 59.38%	0.01	OK
LC42 at 59.38%	0.01	OK
LC43 at 59.38%	0.01	OK
LC44 at 59.38%	0.02	OK
LC45 at 59.38%	0.01	OK
LC46 at 59.38%	0.01	OK
LC47 at 59.38%	0.01	OK
LC48 at 59.38%	0.01	OK
LC49 at 59.38%	0.01	OK
LC5 at 59.38%	0.13	OK
LC50 at 59.38%	0.02	OK
LC51 at 59.38%	0.01	OK
LC52 at 59.38%	0.01	OK
LC53 at 59.38%	0.01	OK
LC54 at 59.38%	0.01	OK
LC55 at 59.38%	0.01	OK
LC56 at 59.38%	0.02	OK
LC57 at 59.38%	0.01	OK
LC58 at 59.38%	0.01	OK
LC59 at 59.38%	0.01	OK
LC6 at 59.38%	0.07	OK
LC60 at 59.38%	0.01	OK
LC61 at 59.38%	0.01	OK
LC62 at 59.38%	0.02	OK
LC63 at 59.38%	0.01	OK
LC64 at 59.38%	0.01	OK
LC65 at 59.38%	0.01	OK
LC66 at 59.38%	0.01	OK
LC67 at 59.38%	0.01	OK
LC68 at 59.38%	0.02	OK
LC69 at 59.38%	0.01	OK
LC7 at 59.38%	0.08	OK
LC70 at 59.38%	0.01	OK
LC71 at 59.38%	0.01	OK
LC72 at 59.38%	0.01	OK
LC73 at 59.38%	0.01	OK

	LC74 at 59.38%	0.02	OK
	LC75 at 59.38%	0.01	OK
	LC76 at 59.38%	0.01	OK
	LC77 at 59.38%	0.01	OK
	LC78 at 59.38%	0.01	OK
	LC79 at 59.38%	0.01	OK
	LC8 at 59.38%	0.07	OK
	LC80 at 59.38%	0.02	OK
	LC81 at 59.38%	0.01	OK
	LC82 at 59.38%	0.01	OK
	LC83 at 59.38%	0.01	OK
	LC84 at 59.38%	0.01	OK
	LC85 at 59.38%	0.01	OK
	LC86 at 59.38%	0.02	OK
	LC87 at 59.38%	0.01	OK
	LC88 at 59.38%	0.01	OK
	LC9 at 59.38%	0.13	OK
	W180 at 59.38%	0.04	OK
	W210 at 59.38%	0.04	OK
	W240 at 59.38%	0.08	OK
	W270 at 59.38%	0.12	OK
	W300 at 59.38%	0.08	OK
	W330 at 59.38%	0.04	OK
	WI180 at 59.38%	0.02	OK
	WI210 at 59.38%	0.01	OK
	WI240 at 59.38%	0.02	OK
	WI270 at 59.38%	0.03	OK
	WI300 at 59.38%	0.02	OK
	WI330 at 59.38%	0.01	OK
	WL180 at 59.38%	0.00	OK
	WL210 at 59.38%	0.00	OK
	WL240 at 59.38%	0.01	OK
	WL270 at 59.38%	0.01	OK
	WL300 at 59.38%	0.01	OK
	WL330 at 59.38%	0.00	OK
26	LC1 at 90.63%	0.06	OK
	LC10 at 90.63%	0.06	OK
	LC11 at 90.63%	0.04	OK
	LC12 at 90.63%	0.04	OK
	LC13 at 90.63%	0.06	OK
	LC14 at 90.63%	0.04	OK
	LC15 at 90.63%	0.04	OK
	LC16 at 90.63%	0.06	OK
	LC17 at 90.63%	0.04	OK
	LC18 at 90.63%	0.04	OK
	LC19 at 90.63%	0.06	OK
	LC2 at 90.63%	0.04	OK
	LC20 at 90.63%	0.04	OK
	LC21 at 90.63%	0.04	OK
	LC22 at 90.63%	0.06	OK
	LC23 at 90.63%	0.04	OK
	LC24 at 90.63%	0.04	OK
	LC25 at 90.63%	0.01	OK
	LC26 at 90.63%	0.01	OK
	LC27 at 90.63%	0.01	OK
	LC28 at 90.63%	0.01	OK
	LC29 at 90.63%	0.01	OK
	LC3 at 90.63%	0.04	OK
	LC30 at 90.63%	0.01	OK
	LC31 at 90.63%	0.01	OK
	LC32 at 90.63%	0.01	OK
	LC33 at 90.63%	0.01	OK
	LC34 at 90.63%	0.01	OK

LC35 at 90.63%	0.01	OK	
LC36 at 90.63%	0.01	OK	
LC37 at 90.63%	0.00	OK	
LC38 at 90.63%	0.00	OK	
LC39 at 90.63%	0.00	OK	
LC4 at 90.63%	**0.06**	**OK**	Eq. H1-1b
LC40 at 90.63%	0.00	OK	
LC41 at 90.63%	0.00	OK	
LC42 at 90.63%	0.00	OK	
LC43 at 90.63%	0.00	OK	
LC44 at 90.63%	0.00	OK	
LC45 at 90.63%	0.00	OK	
LC46 at 90.63%	0.00	OK	
LC47 at 90.63%	0.00	OK	
LC48 at 90.63%	0.00	OK	
LC49 at 90.63%	0.00	OK	
LC5 at 90.63%	0.04	OK	
LC50 at 90.63%	0.00	OK	
LC51 at 90.63%	0.00	OK	
LC52 at 90.63%	0.00	OK	
LC53 at 90.63%	0.00	OK	
LC54 at 90.63%	0.00	OK	
LC55 at 90.63%	0.00	OK	
LC56 at 90.63%	0.00	OK	
LC57 at 90.63%	0.00	OK	
LC58 at 90.63%	0.00	OK	
LC59 at 90.63%	0.00	OK	
LC6 at 90.63%	0.04	OK	
LC60 at 90.63%	0.00	OK	
LC61 at 90.63%	0.00	OK	
LC62 at 90.63%	0.00	OK	
LC63 at 90.63%	0.00	OK	
LC64 at 90.63%	0.00	OK	
LC65 at 90.63%	0.00	OK	
LC66 at 90.63%	0.00	OK	
LC67 at 90.63%	0.00	OK	
LC68 at 90.63%	0.00	OK	
LC69 at 90.63%	0.00	OK	
LC7 at 90.63%	0.06	OK	
LC70 at 90.63%	0.00	OK	
LC71 at 90.63%	0.00	OK	
LC72 at 90.63%	0.00	OK	
LC73 at 90.63%	0.00	OK	
LC74 at 90.63%	0.00	OK	
LC75 at 90.63%	0.00	OK	
LC76 at 90.63%	0.00	OK	
LC77 at 90.63%	0.00	OK	
LC78 at 90.63%	0.00	OK	
LC79 at 90.63%	0.00	OK	
LC8 at 90.63%	0.04	OK	
LC80 at 90.63%	0.00	OK	
LC81 at 90.63%	0.00	OK	
LC82 at 90.63%	0.00	OK	
LC83 at 90.63%	0.00	OK	
LC84 at 90.63%	0.00	OK	
LC85 at 90.63%	0.00	OK	
LC86 at 90.63%	0.00	OK	
LC87 at 90.63%	0.00	OK	
LC88 at 90.63%	0.00	OK	
LC9 at 90.63%	0.04	OK	
W180 at 90.63%	0.03	OK	
W210 at 90.63%	0.03	OK	
W240 at 90.63%	0.03	OK	
W270 at 90.63%	0.03	OK	

		W300 at 90.63%	0.03	OK	
		W330 at 90.63%	0.03	OK	
		WI180 at 90.63%	0.01	OK	
		WI210 at 90.63%	0.01	OK	
		WI240 at 90.63%	0.01	OK	
		WI270 at 90.63%	0.01	OK	
		WI300 at 90.63%	0.01	OK	
		WI330 at 90.63%	0.01	OK	
		WL180 at 90.63%	0.00	OK	
		WL210 at 90.63%	0.00	OK	
		WL240 at 90.63%	0.00	OK	
		WL270 at 90.63%	0.00	OK	
		WL300 at 90.63%	0.00	OK	
		WL330 at 90.63%	0.00	OK	
PIPE 3x0.216	**10**	LC1 at 48.96%	0.92	OK	
		LC10 at 50.00%	0.68	OK	
		LC11 at 50.00%	0.95	OK	
		LC12 at 50.00%	1.00	OK	
		LC13 at 48.96%	0.83	OK	
		LC14 at 48.96%	0.88	OK	
		LC15 at 48.96%	0.80	OK	
		LC16 at 48.96%	0.54	OK	
		LC17 at 48.96%	0.78	OK	
		LC18 at 48.96%	0.85	OK	
		LC19 at 48.96%	0.83	OK	
		LC2 at 48.96%	0.97	OK	
		LC20 at 50.00%	0.87	OK	
		LC21 at 50.00%	0.83	OK	
		LC22 at 50.00%	0.58	OK	
		LC23 at 50.00%	0.85	OK	
		LC24 at 50.00%	0.90	OK	
		LC25 at 50.00%	0.81	OK	
		LC26 at 48.96%	0.76	OK	
		LC27 at 50.00%	0.75	OK	
		LC28 at 48.96%	0.71	OK	
		LC29 at 50.00%	0.76	OK	
		LC3 at 48.96%	0.90	OK	
		LC30 at 50.00%	0.76	OK	
		LC31 at 50.00%	0.81	OK	
		LC32 at 50.00%	0.82	OK	
		LC33 at 50.00%	0.82	OK	
		LC34 at 50.00%	0.77	OK	
		LC35 at 50.00%	0.83	OK	
		LC36 at 50.00%	0.83	OK	
		LC37 at 50.00%	0.31	OK	
		LC38 at 50.00%	1.03	N.G.	
		LC39 at 50.00%	0.41	OK	
		LC4 at 48.96%	0.63	OK	
		LC40 at 48.96%	0.97	OK	
		LC41 at 50.00%	1.16	N.G.	
		LC42 at 50.00%	1.15	N.G.	
		LC43 at 50.00%	1.15	N.G.	
		LC44 at 50.00%	1.12	N.G.	
		LC45 at 50.00%	1.15	N.G.	
		LC46 at 50.00%	1.15	N.G.	
		LC47 at 50.00%	1.16	N.G.	
		LC48 at 50.00%	1.17	N.G.	
		LC49 at 50.00%	1.17	N.G.	
		LC5 at 48.96%	0.87	OK	
		LC50 at 50.00%	1.15	N.G.	
		LC51 at 50.00%	1.18	N.G.	
		LC52 at 50.00%	**1.18**	**N.G.**	Eq. H1-1b
		LC53 at 50.00%	0.64	OK	

		LC54 at 50.00%	0.62	OK	
		LC55 at 50.00%	0.62	OK	
		LC56 at 50.00%	0.60	OK	
		LC57 at 50.00%	0.63	OK	
		LC58 at 50.00%	0.62	OK	
		LC59 at 50.00%	0.64	OK	
		LC6 at 48.96%	0.94	OK	
		LC60 at 50.00%	0.65	OK	
		LC61 at 50.00%	0.65	OK	
		LC62 at 50.00%	0.63	OK	
		LC63 at 50.00%	0.65	OK	
		LC64 at 50.00%	0.65	OK	
		LC65 at 48.96%	0.58	OK	
		LC66 at 48.96%	0.58	OK	
		LC67 at 48.96%	0.58	OK	
		LC68 at 48.96%	0.56	OK	
		LC69 at 48.96%	0.58	OK	
		LC7 at 48.96%	0.92	OK	
		LC70 at 48.96%	0.58	OK	
		LC71 at 48.96%	0.58	OK	
		LC72 at 48.96%	0.55	OK	
		LC73 at 48.96%	0.55	OK	
		LC74 at 48.96%	0.52	OK	
		LC75 at 48.96%	0.55	OK	
		LC76 at 48.96%	0.55	OK	
		LC77 at 48.96%	1.10	N.G.	
		LC78 at 48.96%	1.10	N.G.	Eq. H1-1b
		LC79 at 48.96%	1.10	N.G.	
		LC8 at 50.00%	0.97	OK	
		LC80 at 48.96%	1.08	N.G.	
		LC81 at 48.96%	1.10	N.G.	
		LC82 at 48.96%	1.10	N.G.	
		LC83 at 48.96%	1.10	N.G.	
		LC84 at 48.96%	1.08	N.G.	
		LC85 at 48.96%	1.08	N.G.	
		LC86 at 48.96%	1.05	N.G.	
		LC87 at 48.96%	1.07	N.G.	
		LC88 at 48.96%	1.08	N.G.	
		LC9 at 50.00%	0.93	OK	
		W180 at 48.96%	0.35	OK	
		W210 at 48.96%	0.38	OK	
		W240 at 48.96%	0.34	OK	
		W270 at 50.00%	0.17	OK	
		W300 at 50.00%	0.34	OK	
		W330 at 50.00%	0.37	OK	
		WI180 at 48.96%	0.10	OK	
		WI210 at 48.96%	0.10	OK	
		WI240 at 50.00%	0.10	OK	
		WI270 at 50.00%	0.05	OK	
		WI300 at 50.00%	0.10	OK	
		WI330 at 50.00%	0.10	OK	
		WL180 at 48.96%	0.03	OK	
		WL210 at 48.96%	0.04	OK	
		WL240 at 50.00%	0.04	OK	
		WL270 at 38.54%	0.02	OK	
		WL300 at 50.00%	0.04	OK	
		WL330 at 50.00%	0.04	OK	
PIPE 4x0.237	**2**	LC1 at 50.00%	0.00	OK	
		LC10 at 50.00%	0.00	OK	
		LC11 at 50.00%	0.00	OK	
		LC12 at 50.00%	0.00	OK	
		LC13 at 50.00%	0.00	OK	
		LC14 at 50.00%	0.00	OK	

LC15 at 50.00%	0.00	OK	
LC16 at 50.00%	0.00	OK	
LC17 at 50.00%	0.00	OK	
LC18 at 50.00%	0.00	OK	
LC19 at 50.00%	0.00	OK	
LC2 at 50.00%	**0.00**	**OK**	Eq. Sec. D2
LC20 at 50.00%	0.00	OK	
LC21 at 50.00%	0.00	OK	
LC22 at 50.00%	0.00	OK	
LC23 at 50.00%	0.00	OK	
LC24 at 50.00%	0.00	OK	
LC25 at 50.00%	0.00	OK	
LC26 at 50.00%	0.00	OK	
LC27 at 50.00%	0.00	OK	
LC28 at 50.00%	0.00	OK	
LC29 at 50.00%	0.00	OK	
LC3 at 50.00%	0.00	OK	
LC30 at 50.00%	0.00	OK	
LC31 at 50.00%	0.00	OK	
LC32 at 50.00%	0.00	OK	
LC33 at 50.00%	0.00	OK	
LC34 at 50.00%	0.00	OK	
LC35 at 50.00%	0.00	OK	
LC36 at 50.00%	0.00	OK	
LC37 at 50.00%	0.00	OK	
LC38 at 50.00%	0.00	OK	
LC39 at 50.00%	0.00	OK	
LC4 at 50.00%	0.00	OK	
LC40 at 50.00%	0.00	OK	
LC41 at 50.00%	0.00	OK	
LC42 at 50.00%	0.00	OK	
LC43 at 50.00%	0.00	OK	
LC44 at 50.00%	0.00	OK	
LC45 at 50.00%	0.00	OK	
LC46 at 50.00%	0.00	OK	
LC47 at 50.00%	0.00	OK	
LC48 at 50.00%	0.00	OK	
LC49 at 50.00%	0.00	OK	
LC5 at 50.00%	0.00	OK	
LC50 at 50.00%	0.00	OK	
LC51 at 50.00%	0.00	OK	
LC52 at 50.00%	0.00	OK	
LC53 at 50.00%	0.00	OK	
LC54 at 50.00%	0.00	OK	
LC55 at 50.00%	0.00	OK	
LC56 at 50.00%	0.00	OK	
LC57 at 50.00%	0.00	OK	
LC58 at 50.00%	0.00	OK	
LC59 at 50.00%	0.00	OK	
LC6 at 50.00%	0.00	OK	
LC60 at 50.00%	0.00	OK	
LC61 at 50.00%	0.00	OK	
LC62 at 50.00%	0.00	OK	
LC63 at 50.00%	0.00	OK	
LC64 at 50.00%	0.00	OK	
LC65 at 50.00%	0.00	OK	
LC66 at 50.00%	0.00	OK	
LC67 at 50.00%	0.00	OK	
LC68 at 50.00%	0.00	OK	
LC69 at 50.00%	0.00	OK	
LC7 at 50.00%	0.00	OK	
LC70 at 50.00%	0.00	OK	
LC71 at 50.00%	0.00	OK	
LC72 at 50.00%	0.00	OK	

LC73 at 50.00%	0.00	OK	
LC74 at 50.00%	0.00	OK	
LC75 at 50.00%	0.00	OK	
LC76 at 50.00%	0.00	OK	
LC77 at 50.00%	0.00	OK	
LC78 at 50.00%	0.00	OK	
LC79 at 50.00%	0.00	OK	
LC8 at 50.00%	0.00	OK	
LC80 at 50.00%	0.00	OK	
LC81 at 50.00%	0.00	OK	
LC82 at 50.00%	0.00	OK	
LC83 at 50.00%	0.00	OK	
LC84 at 50.00%	0.00	OK	
LC85 at 50.00%	0.00	OK	
LC86 at 50.00%	0.00	OK	
LC87 at 50.00%	0.00	OK	
LC88 at 50.00%	0.00	OK	
LC9 at 50.00%	0.00	OK	
W180 at 50.00%	0.00	OK	
W210 at 0.00%	0.00	OK	Eq. Sec. D2
W240 at 0.00%	0.00	OK	
W270 at 0.00%	0.00	OK	
W300 at 0.00%	0.00	OK	
W330 at 0.00%	0.00	OK	
WI180 at 0.00%	0.00	OK	
WI210 at 0.00%	0.00	OK	
WI240 at 50.00%	0.00	OK	
WI270 at 50.00%	0.00	OK	
WI300 at 0.00%	0.00	OK	
WI330 at 0.00%	0.00	OK	
WL180 at 0.00%	0.00	OK	
WL210 at 50.00%	0.00	OK	
WL240 at 0.00%	0.00	OK	
WL270 at 50.00%	0.00	OK	
WL300 at 0.00%	0.00	OK	
WL330 at 0.00%	0.00	OK	

Bentley

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Geometry data

GLOSSARY

Cb22, Cb33	: Moment gradient coefficients
Cm22, Cm33	: Coefficients applied to bending term in interaction formula
d0	: Tapered member section depth at J end of member
DJX	: Rigid end offset distance measured from J node in axis X
DJY	: Rigid end offset distance measured from J node in axis Y
DJZ	: Rigid end offset distance measured from J node in axis Z
DKX	: Rigid end offset distance measured from K node in axis X
DKY	: Rigid end offset distance measured from K node in axis Y
DKZ	: Rigid end offset distance measured from K node in axis Z
dL	: Tapered member section depth at K end of member
Ig factor	: Inertia reduction factor (Effective Inertia/Gross Inertia) for reinforced concrete members
K22	: Effective length factor about axis 2
K33	: Effective length factor about axis 3
L22	: Member length for calculation of axial capacity
L33	: Member length for calculation of axial capacity
LB pos	: Lateral unbraced length of the compression flange in the positive side of local axis 2
LB neg	: Lateral unbraced length of the compression flange in the negative side of local axis 2
RX	: Rotation about X
RY	: Rotation about Y
RZ	: Rotation about Z
TO	: 1 = Tension only member 0 = Normal member
TX	: Translation in X
TY	: Translation in Y
TZ	: Translation in Z

Nodes

Node	X [ft]	Y [ft]	Z [ft]	Rigid Floor
1	0.30	0.00	0.00	0
2	0.00	0.00	3.36	0
3	0.00	0.75	3.36	0
4	0.00	-0.75	3.36	0
17	-5.92	0.00	3.36	0
18	-5.462	0.00	3.36	0
19	-1.462	0.00	3.36	0
21	-1.462	0.00	3.19	0
22	-1.462	0.00	3.53	0
23	5.92	0.00	3.36	0
24	5.545	0.00	3.36	0
25	1.545	0.00	3.36	0
26	1.545	0.00	3.19	0
28	1.545	0.00	3.53	0
29	5.545	0.00	3.53	0
30	-5.462	0.00	3.53	0
31	5.545	4.50	3.53	0
32	-5.462	4.50	3.53	0
33	5.545	-2.00	3.53	0
34	-5.462	-2.00	3.53	0
35	1.545	4.50	3.53	0
36	1.545	-2.00	3.53	0

37	-1.462	4.50	3.53	0
38	-1.462	-3.00	3.53	0
39	1.545	-2.00	3.19	0
40	1.545	3.00	3.19	0
41	-1.462	3.00	3.19	0
42	-1.462	-2.00	3.19	0
43	0.20	0.00	1.12	0
44	0.37	0.00	1.12	0
45	0.37	2.00	1.12	0
46	0.37	-0.20	1.12	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
1	1	1	1	1	1	1

Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	Ig factor
1	1	2		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
2	3	4		PIPE 4x0.237	A53 GrB	0.00	0.00	0.00
19	31	33		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
20	32	34		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
21	35	36		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
22	37	38		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
23	40	39		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
24	41	42		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
26	45	46		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
10	17	23		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00

Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
19	45.00	0	0.00	0.00	0.00
20	45.00	0	0.00	0.00	0.00
21	45.00	0	0.00	0.00	0.00
22	45.00	0	0.00	0.00	0.00
23	45.00	0	0.00	0.00	0.00
24	45.00	0	0.00	0.00	0.00
26	45.00	0	0.00	0.00	0.00

Rigid end offsets

Member	DJX [in]	DJY [in]	DJZ [in]	DKX [in]	DKY [in]	DKZ [in]
2	0.00	0.00	-2.00	0.00	0.00	-2.00

HUDSON
Design Group LLC

Mount Calculations
(Proposed Conditions)

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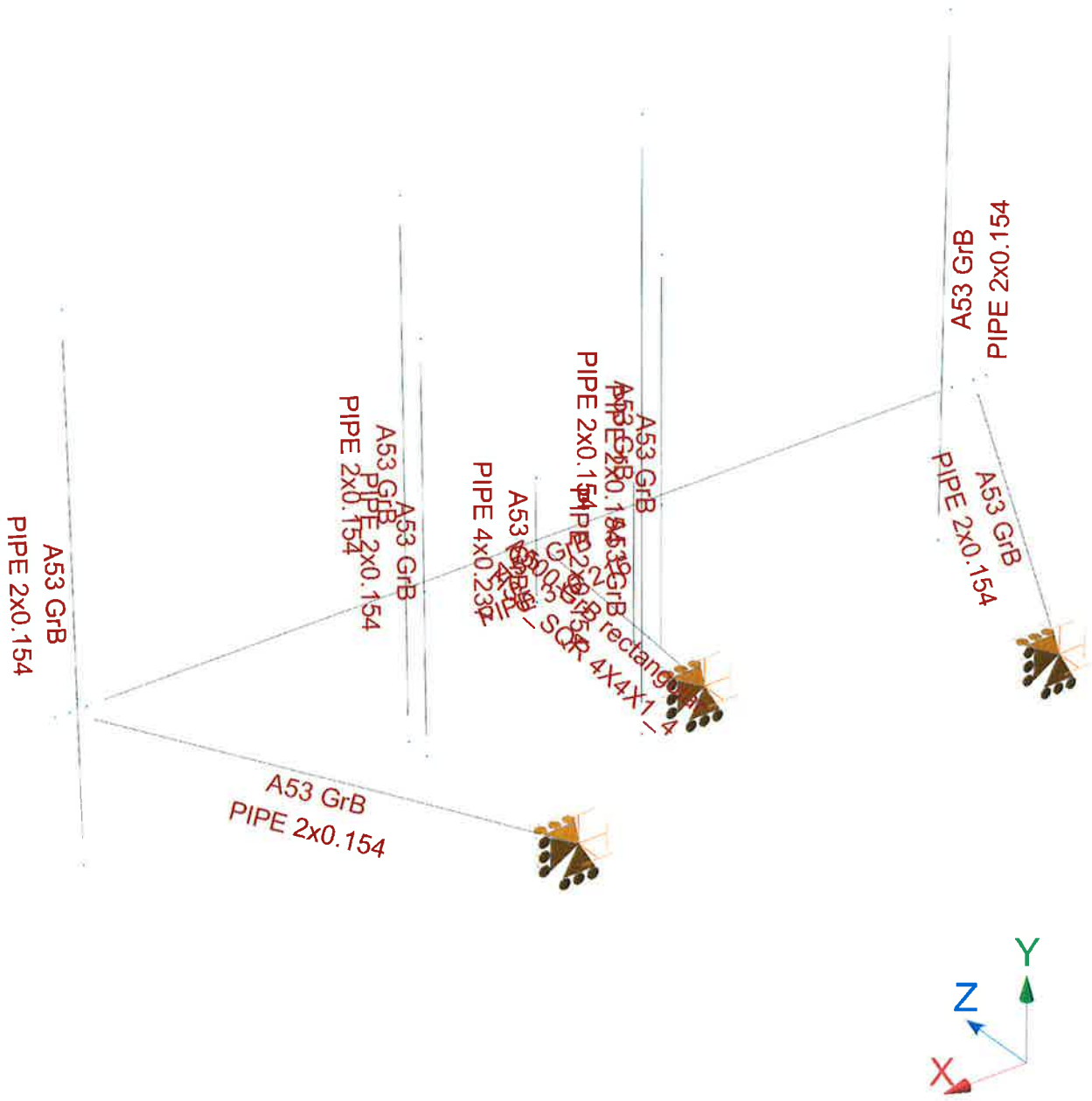
A53 GrB
PIPE 2x0.154
A53 GrB
PIPE 2x0.154
A53 GrB
PIPE 2x0.154
A53 GrB
PIPE 2x0.154
A53 GrB
PIPE 2x0.154
A53 GrB
PIPE 4x0.237
A53 GrB
PIPE 2x0.154
A53 GrB
PIPE 2x0.154
A53 GrB
PIPE 2x0.154
Y
Z
X

Bentley

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Units system: English
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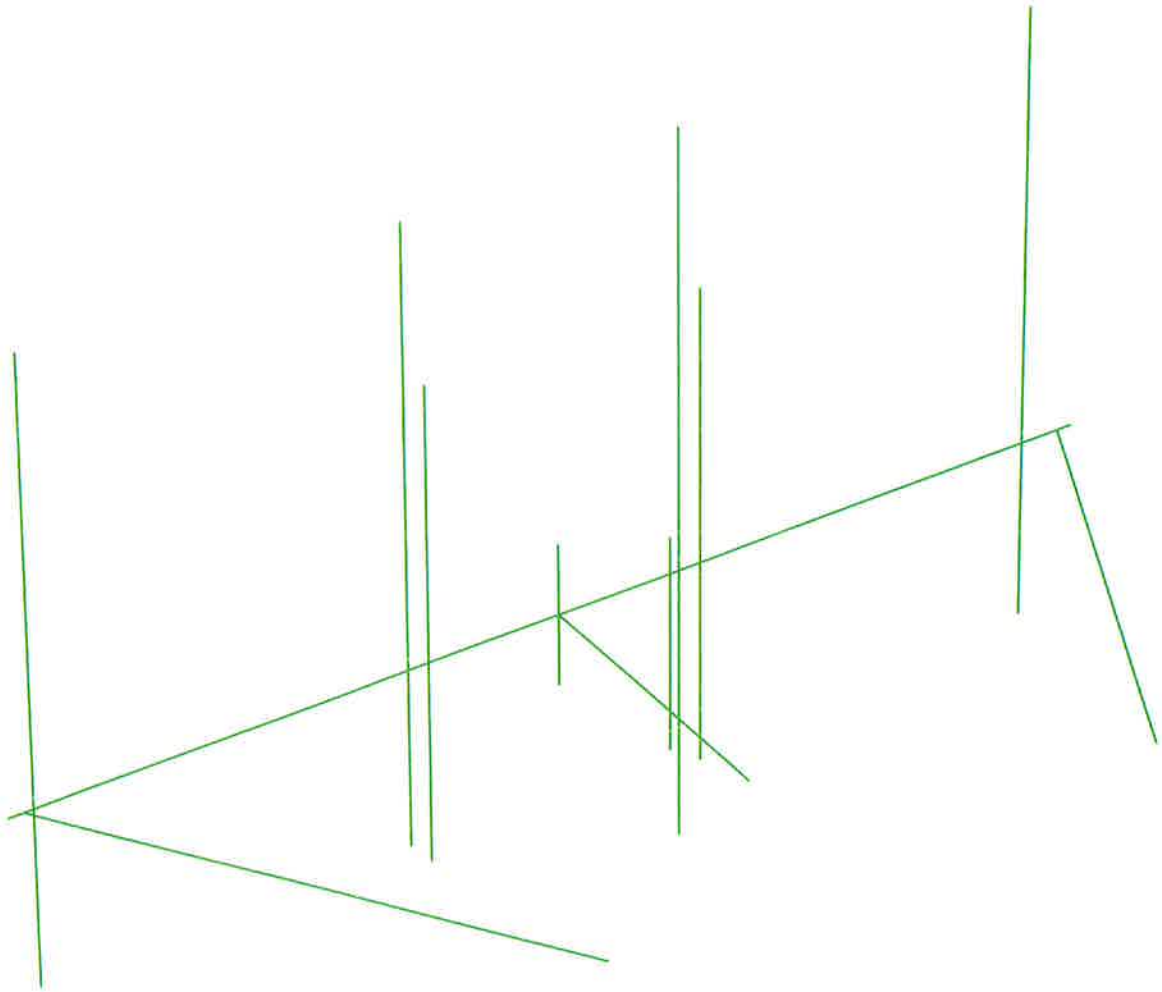
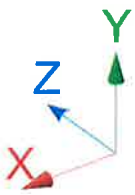
Design status

- Not designed
- Error on design
- Design O.K.
- With warnings





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Units system: English
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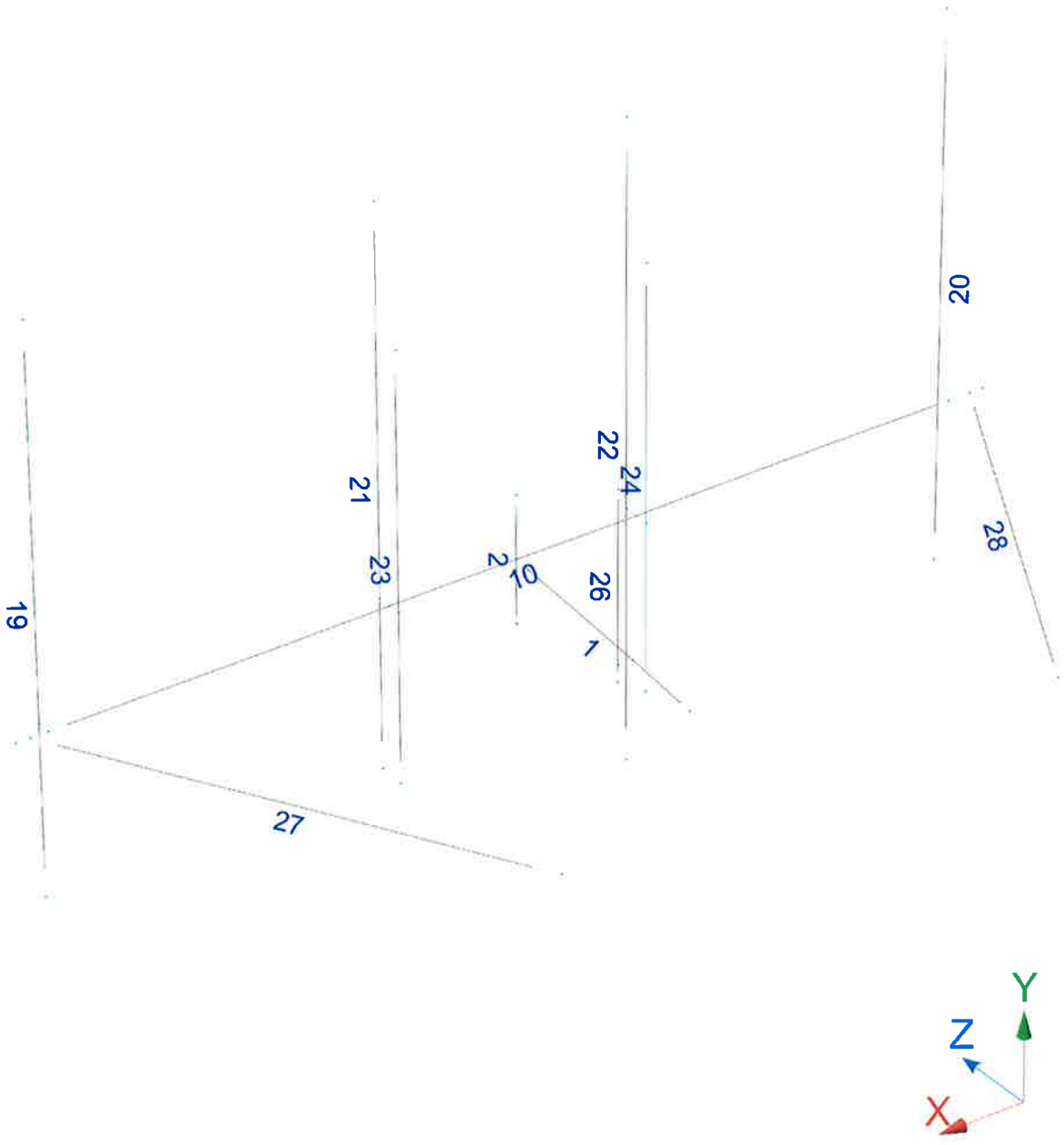

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Units system: English
File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT1131\CT1131 (Mod.).etz\

Steel Code Check

Report: Summary - For all selected load conditions

Load conditions to be included in design :

W180=-Wo
W210=-W30
W240=-W60
W270=-W90
W300=-W120
W330=-W150
WI180=-WI0
WI210=-WI30
WI240=-WI60
WI270=-WI90
WI300=-WI120
WI330=-WI150
WL180=-WL0
WL210=-WL30
WL240=-WL60
WL270=-WL90
WL300=-WL120
WL330=-WL150
LC1=1.2D+1.6Wo
LC2=1.2D+1.6W30
LC3=1.2D+1.6W60
LC4=1.2D+1.6W90
LC5=1.2D+1.6W120
LC6=1.2D+1.6W150
LC7=1.2D-1.6Wo
LC8=1.2D-1.6W30
LC9=1.2D-1.6W60
LC10=1.2D-1.6W90
LC11=1.2D-1.6W120
LC12=1.2D-1.6W150
LC13=0.9D+1.6Wo
LC14=0.9D+1.6W30
LC15=0.9D+1.6W60
LC16=0.9D+1.6W90
LC17=0.9D+1.6W120
LC18=0.9D+1.6W150
LC19=0.9D-1.6Wo
LC20=0.9D-1.6W30
LC21=0.9D-1.6W60
LC22=0.9D-1.6W90
LC23=0.9D-1.6W120
LC24=0.9D-1.6W150
LC25=1.2D+Di+WI0
LC26=1.2D+Di+WI30
LC27=1.2D+Di+WI60
LC28=1.2D+Di+WI90
LC29=1.2D+Di+WI120
LC30=1.2D+Di+WI150
LC31=1.2D+Di-WI0
LC32=1.2D+Di-WI30
LC33=1.2D+Di-WI60
LC34=1.2D+Di-WI90
LC35=1.2D+Di-WI120

LC36=1.2D+Di-WI150
LC37=0.9D
LC38=1.2D+1.6LL1
LC39=1.2D+1.6LL2
LC40=1.2D+1.6LL3
LC41=1.2D+WL0+LLa1
LC42=1.2D+WL30+LLa1
LC43=1.2D+WL60+LLa1
LC44=1.2D+WL90+LLa1
LC45=1.2D+WL120+LLa1
LC46=1.2D+WL150+LLa1
LC47=1.2D-WL0+LLa1
LC48=1.2D-WL30+LLa1
LC49=1.2D-WL60+LLa1
LC50=1.2D-WL90+LLa1
LC51=1.2D-WL120+LLa1
LC52=1.2D-WL150+LLa1
LC53=1.2D+WL0+LLa2
LC54=1.2D+WL30+LLa2
LC55=1.2D+WL60+LLa2
LC56=1.2D+WL90+LLa2
LC57=1.2D+WL120+LLa2
LC58=1.2D+WL150+LLa2
LC59=1.2D-WL0+LLa2
LC60=1.2D-WL30+LLa2
LC61=1.2D-WL60+LLa2
LC62=1.2D-WL90+LLa2
LC63=1.2D-WL120+LLa2
LC64=1.2D-WL150+LLa2
LC65=1.2D+WL0+LLa3
LC66=1.2D+WL30+LLa3
LC67=1.2D+WL60+LLa3
LC68=1.2D+WL90+LLa3
LC69=1.2D+WL120+LLa3
LC70=1.2D+WL150+LLa3
LC71=1.2D-WL0+LLa3
LC72=1.2D-WL30+LLa3
LC73=1.2D-WL60+LLa3
LC74=1.2D-WL90+LLa3
LC75=1.2D-WL120+LLa3
LC76=1.2D-WL150+LLa3
LC77=1.2D+WL0+LLa4
LC78=1.2D+WL30+LLa4
LC79=1.2D+WL60+LLa4
LC80=1.2D+WL90+LLa4
LC81=1.2D+WL120+LLa4
LC82=1.2D+WL150+LLa4
LC83=1.2D-WL0+LLa4
LC84=1.2D-WL30+LLa4
LC85=1.2D-WL60+LLa4
LC86=1.2D-WL90+LLa4
LC87=1.2D-WL120+LLa4
LC88=1.2D-WL150+LLa4

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	HSS_SQR 4X4X1_4	**1**	LC1 at 0.00%	0.14	OK	
			LC10 at 0.00%	0.62	OK	
			LC11 at 0.00%	0.42	OK	
			LC12 at 0.00%	0.36	OK	
			LC13 at 100.00%	0.13	OK	
			LC14 at 0.00%	0.33	OK	
			LC15 at 0.00%	0.38	OK	
			LC16 at 0.00%	0.56	OK	
			LC17 at 0.00%	0.59	OK	

LC18 at 0.00%	0.55	OK
LC19 at 0.00%	0.43	OK
LC2 at 0.00%	0.40	OK
LC20 at 0.00%	0.57	OK
LC21 at 0.00%	0.60	OK
LC22 at 0.00%	0.54	OK
LC23 at 0.00%	0.35	OK
LC24 at 0.00%	0.29	OK
LC25 at 0.00%	0.49	OK
LC26 at 0.00%	0.54	OK
LC27 at 0.00%	0.54	OK
LC28 at 0.00%	0.58	OK
LC29 at 0.00%	0.58	OK
LC3 at 0.00%	0.45	OK
LC30 at 0.00%	0.58	OK
LC31 at 0.00%	0.56	OK
LC32 at 0.00%	0.58	OK
LC33 at 0.00%	0.58	OK
LC34 at 0.00%	0.57	OK
LC35 at 0.00%	0.53	OK
LC36 at 0.00%	0.53	OK
LC37 at 0.00%	0.22	OK
LC38 at 0.00%	0.39	OK
LC39 at 0.00%	0.41	OK
LC4 at 0.00%	0.63	OK
LC40 at 0.00%	0.41	OK
LC41 at 0.00%	0.41	OK
LC42 at 0.00%	0.43	OK
LC43 at 0.00%	0.43	OK
LC44 at 0.00%	0.44	OK
LC45 at 0.00%	0.45	OK
LC46 at 0.00%	0.45	OK
LC47 at 0.00%	0.44	OK
LC48 at 0.00%	0.45	OK
LC49 at 0.00%	0.45	OK
LC5 at 0.00%	0.66	OK
LC50 at 0.00%	0.44	OK
LC51 at 0.00%	0.43	OK
LC52 at 0.00%	0.43	OK
LC53 at 0.00%	0.44	OK
LC54 at 0.00%	0.45	OK
LC55 at 0.00%	0.45	OK
LC56 at 0.00%	0.47	OK
LC57 at 0.00%	0.47	OK
LC58 at 0.00%	0.47	OK
LC59 at 0.00%	0.46	OK
LC6 at 0.00%	0.63	OK
LC60 at 0.00%	0.47	OK
LC61 at 0.00%	0.47	OK
LC62 at 0.00%	0.47	OK
LC63 at 0.00%	0.45	OK
LC64 at 0.00%	0.45	OK
LC65 at 0.00%	0.44	OK
LC66 at 0.00%	0.46	OK
LC67 at 0.00%	0.46	OK
LC68 at 0.00%	0.47	OK
LC69 at 0.00%	0.48	OK
LC7 at 0.00%	0.50	OK
LC70 at 0.00%	0.48	OK
LC71 at 0.00%	0.47	OK
LC72 at 0.00%	0.48	OK
LC73 at 0.00%	0.48	OK
LC74 at 0.00%	0.47	OK
LC75 at 0.00%	0.46	OK

		LC76 at 0.00%	0.46	OK	
		LC77 at 0.00%	0.43	OK	
		LC78 at 0.00%	0.45	OK	
		LC79 at 0.00%	0.45	OK	
		LC8 at 0.00%	0.64	OK	
		LC80 at 0.00%	0.46	OK	
		LC81 at 0.00%	0.47	OK	
		LC82 at 0.00%	0.47	OK	
		LC83 at 0.00%	0.46	OK	
		LC84 at 0.00%	0.47	OK	
		LC85 at 0.00%	0.47	OK	
		LC86 at 0.00%	0.46	OK	
		LC87 at 0.00%	0.45	OK	
		LC88 at 0.00%	0.45	OK	
		LC9 at 0.00%	**0.67**	**OK**	Eq. H1-1b
		W180 at 0.00%	0.13	OK	
		W210 at 0.00%	0.22	OK	
		W240 at 0.00%	0.24	OK	
		W270 at 0.00%	0.21	OK	
		W300 at 0.00%	0.23	OK	
		W330 at 0.00%	0.21	OK	
		WI180 at 0.00%	0.04	OK	
		WI210 at 0.00%	0.06	OK	
		WI240 at 0.00%	0.06	OK	
		WI270 at 0.00%	0.06	OK	
		WI300 at 0.00%	0.06	OK	
		WI330 at 0.00%	0.06	OK	
		WL180 at 0.00%	0.01	OK	
		WL210 at 0.00%	0.02	OK	
		WL240 at 0.00%	0.02	OK	
		WL270 at 0.00%	0.02	OK	
		WL300 at 0.00%	0.02	OK	
		WL330 at 0.00%	0.02	OK	
PIPE 2x0.154	**19**	LC1 at 68.75%	0.50	OK	
		LC10 at 68.75%	**0.50**	**OK**	
		LC11 at 68.75%	0.42	OK	
		LC12 at 68.75%	0.41	OK	
		LC13 at 68.75%	0.50	OK	
		LC14 at 68.75%	0.41	OK	
		LC15 at 68.75%	0.41	OK	
		LC16 at 68.75%	0.50	OK	
		LC17 at 68.75%	0.42	OK	
		LC18 at 68.75%	0.41	OK	
		LC19 at 68.75%	0.50	OK	
		LC2 at 68.75%	0.41	OK	
		LC20 at 68.75%	0.41	OK	
		LC21 at 68.75%	0.41	OK	
		LC22 at 68.75%	0.50	OK	
		LC23 at 68.75%	0.42	OK	
		LC24 at 68.75%	0.41	OK	
		LC25 at 68.75%	0.12	OK	
		LC26 at 68.75%	0.09	OK	
		LC27 at 68.75%	0.09	OK	
		LC28 at 68.75%	0.11	OK	
		LC29 at 68.75%	0.09	OK	
		LC3 at 68.75%	0.41	OK	
		LC30 at 68.75%	0.09	OK	
		LC31 at 68.75%	0.12	OK	
		LC32 at 68.75%	0.09	OK	
		LC33 at 68.75%	0.09	OK	
		LC34 at 68.75%	0.11	OK	
		LC35 at 68.75%	0.09	OK	
		LC36 at 68.75%	0.09	OK	

LC37 at 68.75%	0.01	OK	
LC38 at 68.75%	0.01	OK	
LC39 at 68.75%	0.01	OK	
LC4 at 68.75%	0.50	OK	Eq. H1-1b
LC40 at 68.75%	0.01	OK	
LC41 at 68.75%	0.06	OK	
LC42 at 68.75%	0.06	OK	
LC43 at 68.75%	0.06	OK	
LC44 at 68.75%	0.05	OK	
LC45 at 68.75%	0.06	OK	
LC46 at 68.75%	0.06	OK	
LC47 at 68.75%	0.06	OK	
LC48 at 68.75%	0.06	OK	
LC49 at 68.75%	0.06	OK	
LC5 at 68.75%	0.42	OK	
LC50 at 68.75%	0.05	OK	
LC51 at 68.75%	0.06	OK	
LC52 at 68.75%	0.06	OK	
LC53 at 68.75%	0.04	OK	
LC54 at 68.75%	0.04	OK	
LC55 at 68.75%	0.04	OK	
LC56 at 68.75%	0.03	OK	
LC57 at 68.75%	0.04	OK	
LC58 at 68.75%	0.04	OK	
LC59 at 68.75%	0.04	OK	
LC6 at 68.75%	0.41	OK	
LC60 at 68.75%	0.04	OK	
LC61 at 68.75%	0.04	OK	
LC62 at 68.75%	0.03	OK	
LC63 at 68.75%	0.04	OK	
LC64 at 68.75%	0.04	OK	
LC65 at 68.75%	0.04	OK	
LC66 at 68.75%	0.04	OK	
LC67 at 68.75%	0.04	OK	
LC68 at 68.75%	0.03	OK	
LC69 at 68.75%	0.04	OK	
LC7 at 68.75%	0.50	OK	
LC70 at 68.75%	0.04	OK	
LC71 at 68.75%	0.04	OK	
LC72 at 68.75%	0.04	OK	
LC73 at 68.75%	0.04	OK	
LC74 at 68.75%	0.03	OK	
LC75 at 68.75%	0.04	OK	
LC76 at 68.75%	0.04	OK	
LC77 at 68.75%	0.04	OK	
LC78 at 68.75%	0.04	OK	
LC79 at 68.75%	0.04	OK	
LC8 at 68.75%	0.41	OK	
LC80 at 68.75%	0.03	OK	
LC81 at 68.75%	0.04	OK	
LC82 at 68.75%	0.04	OK	
LC83 at 68.75%	0.04	OK	
LC84 at 68.75%	0.04	OK	
LC85 at 68.75%	0.04	OK	
LC86 at 68.75%	0.03	OK	
LC87 at 68.75%	0.04	OK	
LC88 at 68.75%	0.04	OK	
LC9 at 68.75%	0.41	OK	
W180 at 68.75%	0.31	OK	
W210 at 68.75%	0.25	OK	
W240 at 68.75%	0.26	OK	
W270 at 68.75%	0.31	OK	
W300 at 68.75%	0.26	OK	
W330 at 68.75%	0.25	OK	

	WI180 at 68.75%	0.11	OK	
	WI210 at 68.75%	0.07	OK	
	WI240 at 68.75%	0.08	OK	
	WI270 at 68.75%	0.10	OK	
	WI300 at 68.75%	0.08	OK	
	WI330 at 68.75%	0.07	OK	
	WL180 at 68.75%	0.03	OK	
	WL210 at 68.75%	0.03	OK	
	WL240 at 68.75%	0.03	OK	
	WL270 at 68.75%	0.02	OK	
	WL300 at 68.75%	0.03	OK	
	WL330 at 68.75%	0.03	OK	
20	LC1 at 68.75%	**0.66**	**OK**	Eq. H1-1b
	LC10 at 68.75%	0.53	OK	
	LC11 at 68.75%	0.44	OK	
	LC12 at 68.75%	0.46	OK	
	LC13 at 68.75%	0.66	OK	
	LC14 at 68.75%	0.46	OK	
	LC15 at 68.75%	0.43	OK	
	LC16 at 68.75%	0.53	OK	
	LC17 at 68.75%	0.43	OK	
	LC18 at 68.75%	0.46	OK	
	LC19 at 68.75%	0.66	OK	
	LC2 at 68.75%	0.46	OK	
	LC20 at 68.75%	0.46	OK	
	LC21 at 68.75%	0.43	OK	
	LC22 at 68.75%	0.53	OK	
	LC23 at 68.75%	0.43	OK	
	LC24 at 68.75%	0.46	OK	
	LC25 at 68.75%	0.13	OK	
	LC26 at 68.75%	0.09	OK	
	LC27 at 68.75%	0.08	OK	
	LC28 at 68.75%	0.11	OK	
	LC29 at 68.75%	0.08	OK	
	LC3 at 68.75%	0.43	OK	
	LC30 at 68.75%	0.09	OK	
	LC31 at 68.75%	0.13	OK	
	LC32 at 68.75%	0.09	OK	
	LC33 at 68.75%	0.08	OK	
	LC34 at 68.75%	0.11	OK	
	LC35 at 68.75%	0.08	OK	
	LC36 at 68.75%	0.09	OK	
	LC37 at 68.75%	0.01	OK	
	LC38 at 68.75%	0.01	OK	
	LC39 at 68.75%	0.01	OK	
	LC4 at 68.75%	0.53	OK	
	LC40 at 68.75%	0.01	OK	
	LC41 at 68.75%	0.05	OK	
	LC42 at 68.75%	0.04	OK	
	LC43 at 68.75%	0.03	OK	
	LC44 at 68.75%	0.04	OK	
	LC45 at 68.75%	0.03	OK	
	LC46 at 68.75%	0.04	OK	
	LC47 at 68.75%	0.05	OK	
	LC48 at 68.75%	0.04	OK	
	LC49 at 68.75%	0.03	OK	
	LC5 at 68.75%	0.44	OK	
	LC50 at 68.75%	0.04	OK	
	LC51 at 68.75%	0.03	OK	
	LC52 at 68.75%	0.04	OK	
	LC53 at 68.75%	0.05	OK	
	LC54 at 68.75%	0.04	OK	
	LC55 at 68.75%	0.03	OK	

	LC56 at 68.75%	0.04	OK
	LC57 at 68.75%	0.03	OK
	LC58 at 68.75%	0.04	OK
	LC59 at 68.75%	0.05	OK
	LC6 at 68.75%	0.46	OK
	LC60 at 68.75%	0.04	OK
	LC61 at 68.75%	0.03	OK
	LC62 at 68.75%	0.04	OK
	LC63 at 68.75%	0.03	OK
	LC64 at 68.75%	0.04	OK
	LC65 at 68.75%	0.05	OK
	LC66 at 68.75%	0.04	OK
	LC67 at 68.75%	0.03	OK
	LC68 at 68.75%	0.04	OK
	LC69 at 68.75%	0.03	OK
	LC7 at 68.75%	0.66	OK
	LC70 at 68.75%	0.04	OK
	LC71 at 68.75%	0.05	OK
	LC72 at 68.75%	0.04	OK
	LC73 at 68.75%	0.03	OK
	LC74 at 68.75%	0.04	OK
	LC75 at 68.75%	0.03	OK
	LC76 at 68.75%	0.04	OK
	LC77 at 68.75%	0.07	OK
	LC78 at 68.75%	0.06	OK
	LC79 at 68.75%	0.05	OK
	LC8 at 68.75%	0.46	OK
	LC80 at 68.75%	0.06	OK
	LC81 at 68.75%	0.05	OK
	LC82 at 68.75%	0.06	OK
	LC83 at 68.75%	0.07	OK
	LC84 at 68.75%	0.06	OK
	LC85 at 68.75%	0.05	OK
	LC86 at 68.75%	0.06	OK
	LC87 at 68.75%	0.05	OK
	LC88 at 68.75%	0.06	OK
	LC9 at 68.75%	0.43	OK
	W180 at 68.75%	0.41	OK
	W210 at 68.75%	0.28	OK
	W240 at 68.75%	0.27	OK
	W270 at 68.75%	0.33	OK
	W300 at 68.75%	0.27	OK
	W330 at 68.75%	0.28	OK
	WI180 at 68.75%	0.12	OK
	WI210 at 68.75%	0.08	OK
	WI240 at 68.75%	0.07	OK
	WI270 at 68.75%	0.10	OK
	WI300 at 68.75%	0.07	OK
	WI330 at 68.75%	0.08	OK
	WL180 at 68.75%	0.04	OK
	WL210 at 68.75%	0.03	OK
	WL240 at 68.75%	0.03	OK
	WL270 at 68.75%	0.04	OK
	WL300 at 68.75%	0.03	OK
	WL330 at 68.75%	0.03	OK
21	LC1 at 68.75%	0.62	OK
	LC10 at 68.75%	0.53	OK
	LC11 at 68.75%	0.42	OK
	LC12 at 68.75%	0.42	OK
	LC13 at 68.75%	0.62	OK
	LC14 at 68.75%	0.41	OK
	LC15 at 68.75%	0.42	OK
	LC16 at 68.75%	0.53	OK

LC17 at 68.75%	0.42	OK	
LC18 at 68.75%	0.41	OK	
LC19 at 68.75%	0.62	OK	
LC2 at 68.75%	0.42	OK	
LC20 at 68.75%	0.41	OK	
LC21 at 68.75%	0.42	OK	
LC22 at 68.75%	0.53	OK	
LC23 at 68.75%	0.42	OK	
LC24 at 68.75%	0.41	OK	
LC25 at 68.75%	0.11	OK	
LC26 at 68.75%	0.07	OK	
LC27 at 68.75%	0.07	OK	
LC28 at 68.75%	0.09	OK	
LC29 at 68.75%	0.07	OK	
LC3 at 68.75%	0.42	OK	
LC30 at 68.75%	0.07	OK	
LC31 at 68.75%	0.11	OK	
LC32 at 68.75%	0.07	OK	
LC33 at 68.75%	0.07	OK	
LC34 at 68.75%	0.09	OK	
LC35 at 68.75%	0.07	OK	
LC36 at 68.75%	0.07	OK	
LC37 at 68.75%	0.00	OK	
LC38 at 68.75%	0.00	OK	
LC39 at 68.75%	0.00	OK	
LC4 at 68.75%	0.53	OK	
LC40 at 68.75%	0.00	OK	
LC41 at 68.75%	0.04	OK	
LC42 at 68.75%	0.03	OK	
LC43 at 68.75%	0.03	OK	
LC44 at 68.75%	0.03	OK	
LC45 at 68.75%	0.03	OK	
LC46 at 68.75%	0.03	OK	
LC47 at 68.75%	0.04	OK	
LC48 at 68.75%	0.03	OK	
LC49 at 68.75%	0.03	OK	
LC5 at 68.75%	0.42	OK	
LC50 at 68.75%	0.03	OK	
LC51 at 68.75%	0.03	OK	
LC52 at 68.75%	0.03	OK	
LC53 at 68.75%	0.06	OK	
LC54 at 68.75%	0.05	OK	
LC55 at 68.75%	0.05	OK	
LC56 at 68.75%	0.05	OK	
LC57 at 68.75%	0.05	OK	
LC58 at 68.75%	0.05	OK	
LC59 at 68.75%	0.06	OK	
LC6 at 68.75%	0.42	OK	
LC60 at 68.75%	0.05	OK	
LC61 at 68.75%	0.05	OK	
LC62 at 68.75%	0.05	OK	
LC63 at 68.75%	0.05	OK	
LC64 at 68.75%	0.05	OK	
LC65 at 68.75%	0.04	OK	
LC66 at 68.75%	0.03	OK	
LC67 at 68.75%	0.03	OK	
LC68 at 68.75%	0.03	OK	
LC69 at 68.75%	0.03	OK	
LC7 at 68.75%	**0.62**	**OK**	Eq. H1-1b
LC70 at 68.75%	0.03	OK	
LC71 at 68.75%	0.04	OK	
LC72 at 68.75%	0.03	OK	
LC73 at 68.75%	0.03	OK	
LC74 at 68.75%	0.03	OK	

	LC75 at 68.75%	0.03	OK	
	LC76 at 68.75%	0.03	OK	
	LC77 at 68.75%	0.04	OK	
	LC78 at 68.75%	0.03	OK	
	LC79 at 68.75%	0.03	OK	
	LC8 at 68.75%	0.42	OK	
	LC80 at 68.75%	0.03	OK	
	LC81 at 68.75%	0.03	OK	
	LC82 at 68.75%	0.03	OK	
	LC83 at 68.75%	0.04	OK	
	LC84 at 68.75%	0.03	OK	
	LC85 at 68.75%	0.03	OK	
	LC86 at 68.75%	0.03	OK	
	LC87 at 68.75%	0.03	OK	
	LC88 at 68.75%	0.03	OK	
	LC9 at 68.75%	0.42	OK	
	W180 at 68.75%	0.39	OK	
	W210 at 68.75%	0.26	OK	
	W240 at 68.75%	0.26	OK	
	W270 at 68.75%	0.33	OK	
	W300 at 68.75%	0.26	OK	
	W330 at 68.75%	0.26	OK	
	WI180 at 68.75%	0.11	OK	
	WI210 at 68.75%	0.07	OK	
	WI240 at 68.75%	0.06	OK	
	WI270 at 68.75%	0.09	OK	
	WI300 at 68.75%	0.06	OK	
	WI330 at 68.75%	0.07	OK	
	WL180 at 68.75%	0.04	OK	
	WL210 at 68.75%	0.03	OK	
	WL240 at 68.75%	0.03	OK	
	WL270 at 68.75%	0.03	OK	
	WL300 at 68.75%	0.03	OK	
	WL330 at 68.75%	0.03	OK	
22	LC1 at 59.38%	**0.62**	**OK**	Eq. H1-1b
	LC10 at 59.38%	0.49	OK	
	LC11 at 59.38%	0.40	OK	
	LC12 at 59.38%	0.40	OK	
	LC13 at 59.38%	0.62	OK	
	LC14 at 59.38%	0.40	OK	
	LC15 at 59.38%	0.39	OK	
	LC16 at 59.38%	0.49	OK	
	LC17 at 59.38%	0.40	OK	
	LC18 at 59.38%	0.40	OK	
	LC19 at 59.38%	0.62	OK	
	LC2 at 59.38%	0.40	OK	
	LC20 at 59.38%	0.40	OK	
	LC21 at 59.38%	0.39	OK	
	LC22 at 59.38%	0.49	OK	
	LC23 at 59.38%	0.40	OK	
	LC24 at 59.38%	0.40	OK	
	LC25 at 59.38%	0.11	OK	
	LC26 at 59.38%	0.07	OK	
	LC27 at 59.38%	0.06	OK	
	LC28 at 59.38%	0.09	OK	
	LC29 at 59.38%	0.06	OK	
	LC3 at 59.38%	0.39	OK	
	LC30 at 59.38%	0.07	OK	
	LC31 at 59.38%	0.11	OK	
	LC32 at 59.38%	0.07	OK	
	LC33 at 59.38%	0.06	OK	
	LC34 at 59.38%	0.09	OK	
	LC35 at 59.38%	0.06	OK	

LC36 at 59.38%	0.07	OK
LC37 at 59.38%	0.00	OK
LC38 at 59.38%	0.00	OK
LC39 at 59.38%	0.00	OK
LC4 at 59.38%	0.49	OK
LC40 at 59.38%	0.00	OK
LC41 at 59.38%	0.04	OK
LC42 at 59.38%	0.03	OK
LC43 at 59.38%	0.02	OK
LC44 at 59.38%	0.03	OK
LC45 at 59.38%	0.02	OK
LC46 at 59.38%	0.03	OK
LC47 at 59.38%	0.04	OK
LC48 at 59.38%	0.03	OK
LC49 at 59.38%	0.02	OK
LC5 at 59.38%	0.40	OK
LC50 at 59.38%	0.03	OK
LC51 at 59.38%	0.02	OK
LC52 at 59.38%	0.03	OK
LC53 at 59.38%	0.04	OK
LC54 at 59.38%	0.03	OK
LC55 at 59.38%	0.02	OK
LC56 at 59.38%	0.03	OK
LC57 at 59.38%	0.02	OK
LC58 at 59.38%	0.03	OK
LC59 at 59.38%	0.04	OK
LC6 at 59.38%	0.40	OK
LC60 at 59.38%	0.03	OK
LC61 at 59.38%	0.02	OK
LC62 at 59.38%	0.03	OK
LC63 at 59.38%	0.02	OK
LC64 at 59.38%	0.03	OK
LC65 at 59.38%	0.07	OK
LC66 at 59.38%	0.05	OK
LC67 at 59.38%	0.05	OK
LC68 at 59.38%	0.06	OK
LC69 at 59.38%	0.05	OK
LC7 at 59.38%	0.62	OK
LC70 at 59.38%	0.05	OK
LC71 at 59.38%	0.07	OK
LC72 at 59.38%	0.05	OK
LC73 at 59.38%	0.05	OK
LC74 at 59.38%	0.06	OK
LC75 at 59.38%	0.05	OK
LC76 at 59.38%	0.05	OK
LC77 at 59.38%	0.04	OK
LC78 at 59.38%	0.03	OK
LC79 at 59.38%	0.02	OK
LC8 at 59.38%	0.40	OK
LC80 at 59.38%	0.03	OK
LC81 at 59.38%	0.02	OK
LC82 at 59.38%	0.03	OK
LC83 at 59.38%	0.04	OK
LC84 at 59.38%	0.03	OK
LC85 at 59.38%	0.02	OK
LC86 at 59.38%	0.03	OK
LC87 at 59.38%	0.02	OK
LC88 at 59.38%	0.03	OK
LC9 at 59.38%	0.39	OK
W180 at 59.38%	0.39	OK
W210 at 59.38%	0.25	OK
W240 at 59.38%	0.25	OK
W270 at 59.38%	0.31	OK
W300 at 59.38%	0.25	OK

	W330 at 59.38%	0.25	OK	
	WI180 at 59.38%	0.11	OK	
	WI210 at 59.38%	0.07	OK	
	WI240 at 59.38%	0.06	OK	
	WI270 at 59.38%	0.08	OK	
	WI300 at 59.38%	0.06	OK	
	WI330 at 59.38%	0.07	OK	
	WL180 at 59.38%	0.04	OK	
	WL210 at 59.38%	0.03	OK	
	WL240 at 59.38%	0.02	OK	
	WL270 at 59.38%	0.03	OK	
	WL300 at 59.38%	0.02	OK	
	WL330 at 59.38%	0.03	OK	
23	LC1 at 59.38%	0.08	OK	
	LC10 at 59.38%	0.14	OK	
	LC11 at 59.38%	0.10	OK	
	LC12 at 59.38%	0.06	OK	
	LC13 at 59.38%	0.07	OK	
	LC14 at 59.38%	0.06	OK	
	LC15 at 59.38%	0.10	OK	
	LC16 at 59.38%	0.14	OK	
	LC17 at 59.38%	0.10	OK	
	LC18 at 59.38%	0.06	OK	
	LC19 at 59.38%	0.07	OK	
	LC2 at 59.38%	0.06	OK	
	LC20 at 59.38%	0.06	OK	
	LC21 at 59.38%	0.10	OK	
	LC22 at 59.38%	0.14	OK	
	LC23 at 59.38%	0.10	OK	
	LC24 at 59.38%	0.06	OK	
	LC25 at 59.38%	0.02	OK	
	LC26 at 59.38%	0.02	OK	
	LC27 at 59.38%	0.02	OK	
	LC28 at 59.38%	0.03	OK	
	LC29 at 59.38%	0.02	OK	
	LC3 at 59.38%	0.10	OK	
	LC30 at 59.38%	0.02	OK	
	LC31 at 59.38%	0.02	OK	
	LC32 at 59.38%	0.02	OK	
	LC33 at 59.38%	0.02	OK	
	LC34 at 59.38%	0.03	OK	
	LC35 at 59.38%	0.02	OK	
	LC36 at 59.38%	0.02	OK	
	LC37 at 59.38%	0.01	OK	
	LC38 at 59.38%	0.01	OK	
	LC39 at 59.38%	0.01	OK	
	LC4 at 59.38%	**0.14**	**OK**	Eq. H1-1b
	LC40 at 59.38%	0.01	OK	
	LC41 at 59.38%	0.01	OK	
	LC42 at 59.38%	0.01	OK	
	LC43 at 59.38%	0.01	OK	
	LC44 at 59.38%	0.01	OK	
	LC45 at 59.38%	0.01	OK	
	LC46 at 59.38%	0.01	OK	
	LC47 at 59.38%	0.01	OK	
	LC48 at 59.38%	0.01	OK	
	LC49 at 59.38%	0.01	OK	
	LC5 at 59.38%	0.10	OK	
	LC50 at 59.38%	0.01	OK	
	LC51 at 59.38%	0.01	OK	
	LC52 at 59.38%	0.01	OK	
	LC53 at 59.38%	0.01	OK	
	LC54 at 59.38%	0.01	OK	

	LC55 at 59.38%	0.01	OK	
	LC56 at 59.38%	0.01	OK	
	LC57 at 59.38%	0.01	OK	
	LC58 at 59.38%	0.01	OK	
	LC59 at 59.38%	0.01	OK	
	LC6 at 59.38%	0.06	OK	
	LC60 at 59.38%	0.01	OK	
	LC61 at 59.38%	0.01	OK	
	LC62 at 59.38%	0.01	OK	
	LC63 at 59.38%	0.01	OK	
	LC64 at 59.38%	0.01	OK	
	LC65 at 59.38%	0.01	OK	
	LC66 at 59.38%	0.01	OK	
	LC67 at 59.38%	0.01	OK	
	LC68 at 59.38%	0.01	OK	
	LC69 at 59.38%	0.01	OK	
	LC7 at 59.38%	0.08	OK	
	LC70 at 59.38%	0.01	OK	
	LC71 at 59.38%	0.01	OK	
	LC72 at 59.38%	0.01	OK	
	LC73 at 59.38%	0.01	OK	
	LC74 at 59.38%	0.01	OK	
	LC75 at 59.38%	0.01	OK	
	LC76 at 59.38%	0.01	OK	
	LC77 at 59.38%	0.01	OK	
	LC78 at 59.38%	0.01	OK	
	LC79 at 59.38%	0.01	OK	
	LC8 at 59.38%	0.06	OK	
	LC80 at 59.38%	0.01	OK	
	LC81 at 59.38%	0.01	OK	
	LC82 at 59.38%	0.01	OK	
	LC83 at 59.38%	0.01	OK	
	LC84 at 59.38%	0.01	OK	
	LC85 at 59.38%	0.01	OK	
	LC86 at 59.38%	0.01	OK	
	LC87 at 59.38%	0.01	OK	
	LC88 at 59.38%	0.01	OK	
	LC9 at 59.38%	0.10	OK	
	W180 at 59.38%	0.04	OK	
	W210 at 59.38%	0.04	OK	
	W240 at 59.38%	0.06	OK	
	W270 at 59.38%	0.09	OK	
	W300 at 59.38%	0.06	OK	
	W330 at 59.38%	0.04	OK	
	WI180 at 59.38%	0.02	OK	
	WI210 at 59.38%	0.01	OK	
	WI240 at 59.38%	0.02	OK	
	WI270 at 59.38%	0.02	OK	
	WI300 at 59.38%	0.02	OK	
	WI330 at 59.38%	0.01	OK	
	WL180 at 59.38%	0.00	OK	
	WL210 at 59.38%	0.00	OK	
	WL240 at 59.38%	0.01	OK	
	WL270 at 59.38%	0.01	OK	
	WL300 at 59.38%	0.01	OK	
	WL330 at 59.38%	0.00	OK	
24	LC1 at 59.38%	0.08	OK	
	LC10 at 59.38%	**0.20**	**OK**	Eq. H1-1b
	LC11 at 59.38%	0.13	OK	
	LC12 at 59.38%	0.07	OK	
	LC13 at 59.38%	0.07	OK	
	LC14 at 59.38%	0.07	OK	
	LC15 at 59.38%	0.13	OK	

LC16 at 59.38%	0.20	OK
LC17 at 59.38%	0.13	OK
LC18 at 59.38%	0.07	OK
LC19 at 59.38%	0.07	OK
LC2 at 59.38%	0.07	OK
LC20 at 59.38%	0.07	OK
LC21 at 59.38%	0.13	OK
LC22 at 59.38%	0.20	OK
LC23 at 59.38%	0.13	OK
LC24 at 59.38%	0.07	OK
LC25 at 59.38%	0.02	OK
LC26 at 59.38%	0.02	OK
LC27 at 59.38%	0.03	OK
LC28 at 59.38%	0.04	OK
LC29 at 59.38%	0.03	OK
LC3 at 59.38%	0.13	OK
LC30 at 59.38%	0.02	OK
LC31 at 59.38%	0.02	OK
LC32 at 59.38%	0.02	OK
LC33 at 59.38%	0.03	OK
LC34 at 59.38%	0.04	OK
LC35 at 59.38%	0.03	OK
LC36 at 59.38%	0.02	OK
LC37 at 59.38%	0.01	OK
LC38 at 59.38%	0.01	OK
LC39 at 59.38%	0.01	OK
LC4 at 59.38%	0.20	OK
LC40 at 59.38%	0.01	OK
LC41 at 59.38%	0.01	OK
LC42 at 59.38%	0.01	OK
LC43 at 59.38%	0.01	OK
LC44 at 59.38%	0.02	OK
LC45 at 59.38%	0.01	OK
LC46 at 59.38%	0.01	OK
LC47 at 59.38%	0.01	OK
LC48 at 59.38%	0.01	OK
LC49 at 59.38%	0.01	OK
LC5 at 59.38%	0.13	OK
LC50 at 59.38%	0.02	OK
LC51 at 59.38%	0.01	OK
LC52 at 59.38%	0.01	OK
LC53 at 59.38%	0.01	OK
LC54 at 59.38%	0.01	OK
LC55 at 59.38%	0.01	OK
LC56 at 59.38%	0.02	OK
LC57 at 59.38%	0.01	OK
LC58 at 59.38%	0.01	OK
LC59 at 59.38%	0.01	OK
LC6 at 59.38%	0.07	OK
LC60 at 59.38%	0.01	OK
LC61 at 59.38%	0.01	OK
LC62 at 59.38%	0.02	OK
LC63 at 59.38%	0.01	OK
LC64 at 59.38%	0.01	OK
LC65 at 59.38%	0.01	OK
LC66 at 59.38%	0.01	OK
LC67 at 59.38%	0.01	OK
LC68 at 59.38%	0.02	OK
LC69 at 59.38%	0.01	OK
LC7 at 59.38%	0.08	OK
LC70 at 59.38%	0.01	OK
LC71 at 59.38%	0.01	OK
LC72 at 59.38%	0.01	OK
LC73 at 59.38%	0.01	OK

	LC74 at 59.38%	0.02	OK
	LC75 at 59.38%	0.01	OK
	LC76 at 59.38%	0.01	OK
	LC77 at 59.38%	0.01	OK
	LC78 at 59.38%	0.01	OK
	LC79 at 59.38%	0.01	OK
	LC8 at 59.38%	0.07	OK
	LC80 at 59.38%	0.02	OK
	LC81 at 59.38%	0.01	OK
	LC82 at 59.38%	0.01	OK
	LC83 at 59.38%	0.01	OK
	LC84 at 59.38%	0.01	OK
	LC85 at 59.38%	0.01	OK
	LC86 at 59.38%	0.02	OK
	LC87 at 59.38%	0.01	OK
	LC88 at 59.38%	0.01	OK
	LC9 at 59.38%	0.13	OK
	W180 at 59.38%	0.04	OK
	W210 at 59.38%	0.04	OK
	W240 at 59.38%	0.08	OK
	W270 at 59.38%	0.12	OK
	W300 at 59.38%	0.08	OK
	W330 at 59.38%	0.04	OK
	WI180 at 59.38%	0.02	OK
	WI210 at 59.38%	0.01	OK
	WI240 at 59.38%	0.02	OK
	WI270 at 59.38%	0.03	OK
	WI300 at 59.38%	0.02	OK
	WI330 at 59.38%	0.01	OK
	WL180 at 59.38%	0.00	OK
	WL210 at 59.38%	0.00	OK
	WL240 at 59.38%	0.01	OK
	WL270 at 59.38%	0.01	OK
	WL300 at 59.38%	0.01	OK
	WL330 at 59.38%	0.00	OK
26	LC1 at 90.63%	0.06	OK
	LC10 at 90.63%	**0.06**	**OK**
	LC11 at 90.63%	0.04	OK
	LC12 at 90.63%	0.04	OK
	LC13 at 90.63%	0.06	OK
	LC14 at 90.63%	0.04	OK
	LC15 at 90.63%	0.04	OK
	LC16 at 90.63%	0.06	OK
	LC17 at 90.63%	0.04	OK
	LC18 at 90.63%	0.04	OK
	LC19 at 90.63%	0.06	OK
	LC2 at 90.63%	0.04	OK
	LC20 at 90.63%	0.04	OK
	LC21 at 90.63%	0.04	OK
	LC22 at 90.63%	0.06	OK
	LC23 at 90.63%	0.04	OK
	LC24 at 90.63%	0.04	OK
	LC25 at 90.63%	0.01	OK
	LC26 at 90.63%	0.01	OK
	LC27 at 90.63%	0.01	OK
	LC28 at 90.63%	0.01	OK
	LC29 at 90.63%	0.01	OK
	LC3 at 90.63%	0.04	OK
	LC30 at 90.63%	0.01	OK
	LC31 at 90.63%	0.01	OK
	LC32 at 90.63%	0.01	OK
	LC33 at 90.63%	0.01	OK
	LC34 at 90.63%	0.01	OK

LC35 at 90.63%	0.01	OK	
LC36 at 90.63%	0.01	OK	
LC37 at 90.63%	0.00	OK	
LC38 at 90.63%	0.00	OK	
LC39 at 90.63%	0.00	OK	
LC4 at 90.63%	0.06	OK	Eq. H1-1b
LC40 at 90.63%	0.00	OK	
LC41 at 90.63%	0.00	OK	
LC42 at 90.63%	0.00	OK	
LC43 at 90.63%	0.00	OK	
LC44 at 90.63%	0.00	OK	
LC45 at 90.63%	0.00	OK	
LC46 at 90.63%	0.00	OK	
LC47 at 90.63%	0.00	OK	
LC48 at 90.63%	0.00	OK	
LC49 at 90.63%	0.00	OK	
LC5 at 90.63%	0.04	OK	
LC50 at 90.63%	0.00	OK	
LC51 at 90.63%	0.00	OK	
LC52 at 90.63%	0.00	OK	
LC53 at 90.63%	0.00	OK	
LC54 at 90.63%	0.00	OK	
LC55 at 90.63%	0.00	OK	
LC56 at 90.63%	0.00	OK	
LC57 at 90.63%	0.00	OK	
LC58 at 90.63%	0.00	OK	
LC59 at 90.63%	0.00	OK	
LC6 at 90.63%	0.04	OK	
LC60 at 90.63%	0.00	OK	
LC61 at 90.63%	0.00	OK	
LC62 at 90.63%	0.00	OK	
LC63 at 90.63%	0.00	OK	
LC64 at 90.63%	0.00	OK	
LC65 at 90.63%	0.00	OK	
LC66 at 90.63%	0.00	OK	
LC67 at 90.63%	0.00	OK	
LC68 at 90.63%	0.00	OK	
LC69 at 90.63%	0.00	OK	
LC7 at 90.63%	0.06	OK	
LC70 at 90.63%	0.00	OK	
LC71 at 90.63%	0.00	OK	
LC72 at 90.63%	0.00	OK	
LC73 at 90.63%	0.00	OK	
LC74 at 90.63%	0.00	OK	
LC75 at 90.63%	0.00	OK	
LC76 at 90.63%	0.00	OK	
LC77 at 90.63%	0.00	OK	
LC78 at 90.63%	0.00	OK	
LC79 at 90.63%	0.00	OK	
LC8 at 90.63%	0.04	OK	
LC80 at 90.63%	0.00	OK	
LC81 at 90.63%	0.00	OK	
LC82 at 90.63%	0.00	OK	
LC83 at 90.63%	0.00	OK	
LC84 at 90.63%	0.00	OK	
LC85 at 90.63%	0.00	OK	
LC86 at 90.63%	0.00	OK	
LC87 at 90.63%	0.00	OK	
LC88 at 90.63%	0.00	OK	
LC9 at 90.63%	0.04	OK	
W180 at 90.63%	0.03	OK	
W210 at 90.63%	0.03	OK	
W240 at 90.63%	0.03	OK	
W270 at 90.63%	0.03	OK	

	W300 at 90.63%	0.03	OK	
	W330 at 90.63%	0.03	OK	
	WI180 at 90.63%	0.01	OK	
	WI210 at 90.63%	0.01	OK	
	WI240 at 90.63%	0.01	OK	
	WI270 at 90.63%	0.01	OK	
	WI300 at 90.63%	0.01	OK	
	WI330 at 90.63%	0.01	OK	
	WL180 at 90.63%	0.00	OK	
	WL210 at 90.63%	0.00	OK	
	WL240 at 90.63%	0.00	OK	
	WL270 at 90.63%	0.00	OK	
	WL300 at 90.63%	0.00	OK	
	WL330 at 90.63%	0.00	OK	
27	LC1 at 100.00%	0.32	OK	
	LC10 at 100.00%	0.73	OK	
	LC11 at 100.00%	0.67	OK	
	LC12 at 100.00%	0.64	OK	
	LC13 at 0.00%	0.31	OK	
	LC14 at 0.00%	0.20	OK	
	LC15 at 0.00%	0.19	OK	
	LC16 at 100.00%	0.25	OK	
	LC17 at 0.00%	0.36	OK	
	LC18 at 0.00%	0.37	OK	
	LC19 at 0.00%	0.25	OK	
	LC2 at 0.00%	0.21	OK	
	LC20 at 100.00%	0.50	OK	
	LC21 at 100.00%	0.54	OK	
	LC22 at 100.00%	0.66	OK	
	LC23 at 100.00%	0.60	OK	
	LC24 at 100.00%	0.58	OK	
	LC25 at 100.00%	0.50	OK	
	LC26 at 100.00%	0.46	OK	
	LC27 at 100.00%	0.46	OK	
	LC28 at 100.00%	0.45	OK	
	LC29 at 100.00%	0.46	OK	
	LC3 at 0.00%	0.20	OK	
	LC30 at 100.00%	0.46	OK	
	LC31 at 100.00%	0.48	OK	
	LC32 at 100.00%	0.54	OK	
	LC33 at 100.00%	0.54	OK	
	LC34 at 100.00%	0.56	OK	
	LC35 at 100.00%	0.55	OK	
	LC36 at 100.00%	0.55	OK	
	LC37 at 100.00%	0.21	OK	
	LC38 at 100.00%	0.86	OK	
	LC39 at 100.00%	0.29	OK	
	LC4 at 0.00%	0.21	OK	
	LC40 at 100.00%	0.11	OK	
	LC41 at 100.00%	0.95	OK	
	LC42 at 100.00%	0.94	OK	
	LC43 at 100.00%	0.94	OK	
	LC44 at 100.00%	0.94	OK	
	LC45 at 100.00%	0.94	OK	
	LC46 at 100.00%	0.94	OK	
	LC47 at 100.00%	0.95	OK	
	LC48 at 100.00%	0.97	OK	
	LC49 at 100.00%	0.97	OK	
	LC5 at 0.00%	0.35	OK	
	LC50 at 100.00%	0.97	OK	
	LC51 at 100.00%	0.97	OK	
	LC52 at 100.00%	**0.97**	**OK**	Eq. H1-1b
	LC53 at 100.00%	0.42	OK	

	LC54 at 100.00%	0.41	OK
	LC55 at 100.00%	0.41	OK
	LC56 at 100.00%	0.41	OK
	LC57 at 100.00%	0.41	OK
	LC58 at 100.00%	0.41	OK
	LC59 at 100.00%	0.42	OK
	LC6 at 0.00%	0.36	OK
	LC60 at 100.00%	0.44	OK
	LC61 at 100.00%	0.44	OK
	LC62 at 100.00%	0.45	OK
	LC63 at 100.00%	0.45	OK
	LC64 at 100.00%	0.45	OK
	LC65 at 100.00%	0.23	OK
	LC66 at 100.00%	0.22	OK
	LC67 at 100.00%	0.22	OK
	LC68 at 100.00%	0.22	OK
	LC69 at 100.00%	0.22	OK
	LC7 at 100.00%	0.25	OK
	LC70 at 100.00%	0.21	OK
	LC71 at 100.00%	0.22	OK
	LC72 at 100.00%	0.25	OK
	LC73 at 100.00%	0.25	OK
	LC74 at 100.00%	0.25	OK
	LC75 at 100.00%	0.25	OK
	LC76 at 100.00%	0.25	OK
	LC77 at 100.00%	0.08	OK
	LC78 at 0.00%	0.09	OK
	LC79 at 0.00%	0.09	OK
	LC8 at 100.00%	0.57	OK
	LC80 at 0.00%	0.11	OK
	LC81 at 0.00%	0.12	OK
	LC82 at 0.00%	0.12	OK
	LC83 at 0.00%	0.11	OK
	LC84 at 0.00%	0.11	OK
	LC85 at 0.00%	0.11	OK
	LC86 at 100.00%	0.10	OK
	LC87 at 100.00%	0.10	OK
	LC88 at 100.00%	0.11	OK
	LC9 at 100.00%	0.61	OK
	W180 at 0.00%	0.18	OK
	W210 at 100.00%	0.18	OK
	W240 at 100.00%	0.21	OK
	W270 at 100.00%	0.29	OK
	W300 at 100.00%	0.25	OK
	W330 at 0.00%	0.25	OK
	WI180 at 0.00%	0.06	OK
	WI210 at 100.00%	0.05	OK
	WI240 at 100.00%	0.05	OK
	WI270 at 100.00%	0.08	OK
	WI300 at 0.00%	0.07	OK
	WI330 at 0.00%	0.07	OK
	WL180 at 0.00%	0.02	OK
	WL210 at 100.00%	0.02	OK
	WL240 at 100.00%	0.02	OK
	WL270 at 100.00%	0.03	OK
	WL300 at 0.00%	0.03	OK
	WL330 at 0.00%	0.03	OK
28	LC1 at 100.00%	0.36	OK
	LC10 at 100.00%	0.24	OK
	LC11 at 100.00%	0.18	OK
	LC12 at 100.00%	0.20	OK
	LC13 at 100.00%	0.35	OK
	LC14 at 0.00%	0.59	OK

LC15 at 0.00%	0.61	OK
LC16 at 0.00%	0.66	OK
LC17 at 0.00%	0.52	OK
LC18 at 0.00%	0.48	OK
LC19 at 100.00%	0.31	OK
LC2 at 0.00%	0.66	OK
LC20 at 100.00%	0.41	OK
LC21 at 100.00%	0.39	OK
LC22 at 0.00%	0.27	OK
LC23 at 100.00%	0.17	OK
LC24 at 100.00%	0.19	OK
LC25 at 0.00%	0.48	OK
LC26 at 0.00%	0.54	OK
LC27 at 0.00%	0.54	OK
LC28 at 0.00%	0.55	OK
LC29 at 0.00%	0.52	OK
LC3 at 0.00%	0.68	OK
LC30 at 0.00%	0.52	OK
LC31 at 0.00%	0.47	OK
LC32 at 0.00%	0.44	OK
LC33 at 0.00%	0.45	OK
LC34 at 0.00%	0.44	OK
LC35 at 0.00%	0.45	OK
LC36 at 0.00%	0.45	OK
LC37 at 0.00%	0.19	OK
LC38 at 100.00%	0.09	OK
LC39 at 0.00%	0.28	OK
LC4 at 0.00%	0.73	OK
LC40 at 0.00%	0.86	OK
LC41 at 100.00%	0.10	OK
LC42 at 100.00%	0.10	OK
LC43 at 100.00%	0.10	OK
LC44 at 100.00%	0.11	OK
LC45 at 100.00%	0.13	OK
LC46 at 100.00%	0.13	OK
LC47 at 100.00%	0.14	OK
LC48 at 100.00%	0.15	OK
LC49 at 100.00%	0.14	OK
LC5 at 0.00%	0.58	OK
LC50 at 100.00%	0.13	OK
LC51 at 100.00%	0.11	OK
LC52 at 100.00%	0.11	OK
LC53 at 0.00%	0.22	OK
LC54 at 0.00%	0.24	OK
LC55 at 0.00%	0.24	OK
LC56 at 0.00%	0.24	OK
LC57 at 0.00%	0.23	OK
LC58 at 0.00%	0.23	OK
LC59 at 0.00%	0.21	OK
LC6 at 0.00%	0.54	OK
LC60 at 0.00%	0.20	OK
LC61 at 0.00%	0.20	OK
LC62 at 0.00%	0.20	OK
LC63 at 0.00%	0.20	OK
LC64 at 0.00%	0.20	OK
LC65 at 0.00%	0.41	OK
LC66 at 0.00%	0.44	OK
LC67 at 0.00%	0.43	OK
LC68 at 0.00%	0.44	OK
LC69 at 0.00%	0.43	OK
LC7 at 100.00%	0.30	OK
LC70 at 0.00%	0.43	OK
LC71 at 0.00%	0.41	OK
LC72 at 0.00%	0.40	OK

		LC73 at 0.00%	0.40	OK	
		LC74 at 0.00%	0.40	OK	
		LC75 at 0.00%	0.40	OK	
		LC76 at 0.00%	0.40	OK	
		LC77 at 0.00%	0.94	OK	
		LC78 at 0.00%	0.96	OK	
		LC79 at 0.00%	0.96	OK	
		LC8 at 100.00%	0.40	OK	
		LC80 at 0.00%	**0.97**	**OK**	Eq. H1-1b
		LC81 at 0.00%	0.96	OK	
		LC82 at 0.00%	0.96	OK	
		LC83 at 0.00%	0.94	OK	
		LC84 at 0.00%	0.93	OK	
		LC85 at 0.00%	0.93	OK	
		LC86 at 0.00%	0.92	OK	
		LC87 at 0.00%	0.93	OK	
		LC88 at 0.00%	0.93	OK	
		LC9 at 100.00%	0.38	OK	
		W180 at 100.00%	0.21	OK	
		W210 at 100.00%	0.27	OK	
		W240 at 100.00%	0.26	OK	
		W270 at 0.00%	0.29	OK	
		W300 at 0.00%	0.20	OK	
		W330 at 0.00%	0.18	OK	
		WI180 at 100.00%	0.06	OK	
		WI210 at 100.00%	0.08	OK	
		WI240 at 100.00%	0.07	OK	
		WI270 at 0.00%	0.08	OK	
		WI300 at 0.00%	0.05	OK	
		WI330 at 0.00%	0.05	OK	
		WL180 at 100.00%	0.02	OK	
		WL210 at 100.00%	0.03	OK	
		WL240 at 100.00%	0.03	OK	
		WL270 at 0.00%	0.03	OK	
		WL300 at 0.00%	0.02	OK	
		WL330 at 0.00%	0.02	OK	
PIPE 3x0.216	**10**	LC1 at 50.00%	0.37	OK	
		LC10 at 50.00%	0.59	OK	
		LC11 at 50.00%	0.42	OK	
		LC12 at 50.00%	0.38	OK	
		LC13 at 50.00%	0.29	OK	
		LC14 at 49.22%	0.30	OK	
		LC15 at 49.22%	0.33	OK	
		LC16 at 49.22%	0.51	OK	
		LC17 at 49.22%	0.54	OK	
		LC18 at 49.22%	0.53	OK	
		LC19 at 50.00%	0.43	OK	
		LC2 at 49.22%	0.38	OK	
		LC20 at 50.00%	0.56	OK	
		LC21 at 50.00%	0.57	OK	
		LC22 at 50.00%	0.51	OK	
		LC23 at 50.00%	0.33	OK	
		LC24 at 50.00%	0.30	OK	
		LC25 at 50.00%	0.58	OK	
		LC26 at 50.00%	0.58	OK	
		LC27 at 50.00%	0.58	OK	
		LC28 at 50.00%	0.58	OK	
		LC29 at 49.22%	0.58	OK	
		LC3 at 49.22%	0.41	OK	
		LC30 at 49.22%	0.58	OK	
		LC31 at 50.00%	0.61	OK	
		LC32 at 50.00%	0.63	OK	
		LC33 at 50.00%	0.63	OK	

LC34 at 50.00%	0.62	OK	
LC35 at 50.00%	0.59	OK	
LC36 at 50.00%	0.59	OK	
LC37 at 50.00%	0.24	OK	
LC38 at 50.00%	0.69	OK	
LC39 at 50.00%	0.32	OK	
LC4 at 49.22%	0.58	OK	
LC40 at 49.22%	0.64	OK	
LC41 at 50.00%	0.76	OK	
LC42 at 50.00%	0.76	OK	
LC43 at 50.00%	0.76	OK	
LC44 at 50.00%	0.76	OK	
LC45 at 50.00%	0.76	OK	
LC46 at 50.00%	0.76	OK	
LC47 at 50.00%	0.77	OK	
LC48 at 50.00%	**0.78**	**OK**	Eq. H1-1b
LC49 at 50.00%	0.78	OK	
LC5 at 49.22%	0.61	OK	
LC50 at 50.00%	0.77	OK	
LC51 at 50.00%	0.76	OK	
LC52 at 50.00%	0.76	OK	
LC53 at 50.00%	0.47	OK	
LC54 at 50.00%	0.47	OK	
LC55 at 50.00%	0.47	OK	
LC56 at 50.00%	0.47	OK	
LC57 at 50.00%	0.47	OK	
LC58 at 50.00%	0.47	OK	
LC59 at 50.00%	0.48	OK	
LC6 at 49.22%	0.60	OK	
LC60 at 50.00%	0.49	OK	
LC61 at 50.00%	0.49	OK	
LC62 at 50.00%	0.49	OK	
LC63 at 50.00%	0.48	OK	
LC64 at 50.00%	0.48	OK	
LC65 at 49.22%	0.42	OK	
LC66 at 49.22%	0.42	OK	
LC67 at 49.22%	0.42	OK	
LC68 at 49.22%	0.43	OK	
LC69 at 49.22%	0.44	OK	
LC7 at 50.00%	0.51	OK	
LC70 at 49.22%	0.44	OK	
LC71 at 49.22%	0.43	OK	
LC72 at 49.22%	0.42	OK	
LC73 at 49.22%	0.42	OK	
LC74 at 49.22%	0.42	OK	
LC75 at 49.22%	0.42	OK	
LC76 at 49.22%	0.42	OK	
LC77 at 49.22%	0.71	OK	
LC78 at 49.22%	0.71	OK	
LC79 at 49.22%	0.71	OK	
LC8 at 50.00%	0.64	OK	
LC80 at 49.22%	0.72	OK	
LC81 at 49.22%	0.73	OK	
LC82 at 49.22%	0.73	OK	Eq. H1-1b
LC83 at 49.22%	0.72	OK	
LC84 at 49.22%	0.71	OK	
LC85 at 49.22%	0.71	OK	
LC86 at 49.22%	0.71	OK	
LC87 at 49.22%	0.71	OK	
LC88 at 49.22%	0.71	OK	
LC9 at 50.00%	0.65	OK	
W180 at 38.28%	0.13	OK	
W210 at 50.00%	0.20	OK	
W240 at 50.00%	0.20	OK	

		W270 at 49.22%	0.18	OK	
		W300 at 49.22%	0.21	OK	
		W330 at 49.22%	0.20	OK	
		WI180 at 38.28%	0.04	OK	
		WI210 at 50.00%	0.06	OK	
		WI240 at 50.00%	0.06	OK	
		WI270 at 49.22%	0.05	OK	
		WI300 at 49.22%	0.06	OK	
		WI330 at 49.22%	0.06	OK	
		WL180 at 38.28%	0.01	OK	
		WL210 at 50.00%	0.02	OK	
		WL240 at 50.00%	0.02	OK	
		WL270 at 49.22%	0.02	OK	
		WL300 at 49.22%	0.02	OK	
		WL330 at 49.22%	0.02	OK	
PIPE 4x0.237	**2**	LC1 at 50.00%	0.00	OK	
		LC10 at 50.00%	0.00	OK	
		LC11 at 50.00%	0.00	OK	
		LC12 at 50.00%	0.00	OK	
		LC13 at 50.00%	0.00	OK	
		LC14 at 50.00%	0.00	OK	
		LC15 at 50.00%	0.00	OK	
		LC16 at 50.00%	0.00	OK	
		LC17 at 50.00%	0.00	OK	
		LC18 at 50.00%	0.00	OK	
		LC19 at 50.00%	0.00	OK	
		LC2 at 50.00%	**0.00**	**OK**	Eq. Sec. D2
		LC20 at 50.00%	0.00	OK	
		LC21 at 50.00%	0.00	OK	
		LC22 at 50.00%	0.00	OK	
		LC23 at 50.00%	0.00	OK	
		LC24 at 50.00%	0.00	OK	
		LC25 at 50.00%	0.00	OK	
		LC26 at 50.00%	0.00	OK	
		LC27 at 50.00%	0.00	OK	
		LC28 at 50.00%	0.00	OK	
		LC29 at 50.00%	0.00	OK	
		LC3 at 50.00%	0.00	OK	
		LC30 at 50.00%	0.00	OK	
		LC31 at 50.00%	0.00	OK	
		LC32 at 50.00%	0.00	OK	
		LC33 at 50.00%	0.00	OK	
		LC34 at 50.00%	0.00	OK	
		LC35 at 50.00%	0.00	OK	
		LC36 at 50.00%	0.00	OK	
		LC37 at 50.00%	0.00	OK	
		LC38 at 50.00%	0.00	OK	
		LC39 at 50.00%	0.00	OK	
		LC4 at 50.00%	0.00	OK	
		LC40 at 50.00%	0.00	OK	
		LC41 at 50.00%	0.00	OK	
		LC42 at 50.00%	0.00	OK	
		LC43 at 50.00%	0.00	OK	
		LC44 at 50.00%	0.00	OK	
		LC45 at 50.00%	0.00	OK	
		LC46 at 50.00%	0.00	OK	
		LC47 at 50.00%	0.00	OK	
		LC48 at 50.00%	0.00	OK	
		LC49 at 50.00%	0.00	OK	
		LC5 at 50.00%	0.00	OK	
		LC50 at 50.00%	0.00	OK	
		LC51 at 50.00%	0.00	OK	
		LC52 at 50.00%	0.00	OK	

LC53 at 50.00%	0.00	OK
LC54 at 50.00%	0.00	OK
LC55 at 50.00%	0.00	OK
LC56 at 50.00%	0.00	OK
LC57 at 50.00%	0.00	OK
LC58 at 50.00%	0.00	OK
LC59 at 50.00%	0.00	OK
LC6 at 50.00%	0.00	OK
LC60 at 50.00%	0.00	OK
LC61 at 50.00%	0.00	OK
LC62 at 50.00%	0.00	OK
LC63 at 50.00%	0.00	OK
LC64 at 50.00%	0.00	OK
LC65 at 50.00%	0.00	OK
LC66 at 50.00%	0.00	OK
LC67 at 50.00%	0.00	OK
LC68 at 50.00%	0.00	OK
LC69 at 50.00%	0.00	OK
LC7 at 50.00%	0.00	OK
LC70 at 50.00%	0.00	OK
LC71 at 50.00%	0.00	OK
LC72 at 50.00%	0.00	OK
LC73 at 50.00%	0.00	OK
LC74 at 50.00%	0.00	OK
LC75 at 50.00%	0.00	OK
LC76 at 50.00%	0.00	OK
LC77 at 50.00%	0.00	OK
LC78 at 50.00%	0.00	OK
LC79 at 50.00%	0.00	OK
LC8 at 50.00%	0.00	OK
LC80 at 50.00%	0.00	OK
LC81 at 50.00%	0.00	OK
LC82 at 50.00%	0.00	OK
LC83 at 50.00%	0.00	OK
LC84 at 50.00%	0.00	OK
LC85 at 50.00%	0.00	OK
LC86 at 50.00%	0.00	OK
LC87 at 50.00%	0.00	OK
LC88 at 50.00%	0.00	OK
LC9 at 50.00%	0.00	OK
W180 at 50.00%	0.00	OK
W210 at 0.00%	0.00	OK
W240 at 0.00%	0.00	OK
W270 at 0.00%	0.00	OK
W300 at 0.00%	0.00	OK
W330 at 0.00%	0.00	OK
WI180 at 0.00%	0.00	OK
WI210 at 0.00%	0.00	OK
WI240 at 0.00%	0.00	OK
WI270 at 50.00%	0.00	OK
WI300 at 50.00%	0.00	OK
WI330 at 50.00%	0.00	OK
WL180 at 0.00%	0.00	OK
WL210 at 50.00%	0.00	OK
WL240 at 50.00%	0.00	OK
WL270 at 0.00%	0.00	OK
WL300 at 50.00%	0.00	OK
WL330 at 50.00%	0.00	OK

Bentley

Current Date: 6/21/2018 3:36 PM
Units system: English
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Geometry data

GLOSSARY

Cb22, Cb33	: Moment gradient coefficients
Cm22, Cm33	: Coefficients applied to bending term in interaction formula
d0	: Tapered member section depth at J end of member
DJX	: Rigid end offset distance measured from J node in axis X
DJY	: Rigid end offset distance measured from J node in axis Y
DJZ	: Rigid end offset distance measured from J node in axis Z
DKX	: Rigid end offset distance measured from K node in axis X
DKY	: Rigid end offset distance measured from K node in axis Y
DKZ	: Rigid end offset distance measured from K node in axis Z
dL	: Tapered member section depth at K end of member
Ig factor	: Inertia reduction factor (Effective Inertia/Gross Inertia) for reinforced concrete members
K22	: Effective length factor about axis 2
K33	: Effective length factor about axis 3
L22	: Member length for calculation of axial capacity
L33	: Member length for calculation of axial capacity
LB pos	: Lateral unbraced length of the compression flange in the positive side of local axis 2
LB neg	: Lateral unbraced length of the compression flange in the negative side of local axis 2
RX	: Rotation about X
RY	: Rotation about Y
RZ	: Rotation about Z
TO	: 1 = Tension only member 0 = Normal member
TX	: Translation in X
TY	: Translation in Y
TZ	: Translation in Z

Nodes

Node	X [ft]	Y [ft]	Z [ft]	Rigid Floor
1	0.30	0.00	0.00	0
2	0.00	0.00	3.36	0
3	0.00	0.75	3.36	0
4	0.00	-0.75	3.36	0
17	-5.92	0.00	3.36	0
18	-5.462	0.00	3.36	0
19	-1.462	0.00	3.36	0
21	-1.462	0.00	3.19	0
22	-1.462	0.00	3.53	0
23	5.92	0.00	3.36	0
24	5.545	0.00	3.36	0
25	1.545	0.00	3.36	0
26	1.545	0.00	3.19	0
28	1.545	0.00	3.53	0
29	5.545	0.00	3.53	0
30	-5.462	0.00	3.53	0
31	5.545	4.50	3.53	0
32	-5.462	4.50	3.53	0
33	5.545	-2.00	3.53	0
34	-5.462	-2.00	3.53	0
35	1.545	4.50	3.53	0
36	1.545	-2.00	3.53	0

37	-1.462	4.50	3.53	0
38	-1.462	-3.00	3.53	0
39	1.545	-2.00	3.19	0
40	1.545	3.00	3.19	0
41	-1.462	3.00	3.19	0
42	-1.462	-2.00	3.19	0
43	0.20	0.00	1.12	0
44	0.37	0.00	1.12	0
45	0.37	2.00	1.12	0
46	0.37	-0.20	1.12	0
47	5.75	0.00	3.36	0
48	-5.75	0.00	3.36	0
49	3.00	0.00	-1.64	0
50	-3.00	0.00	-1.64	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
1	1	1	1	1	1	1
49	1	1	1	1	1	1
50	1	1	1	1	1	1

Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	lg factor
1	1	2		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
2	3	4		PIPE 4x0.237	A53 GrB	0.00	0.00	0.00
10	17	23		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
19	31	33		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
20	32	34		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
21	35	36		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
22	37	38		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
23	40	39		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
24	41	42		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
26	45	46		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
27	47	49		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
28	50	48		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00

Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
19	45.00	0	0.00	0.00	0.00
20	45.00	0	0.00	0.00	0.00
21	45.00	0	0.00	0.00	0.00
22	45.00	0	0.00	0.00	0.00
23	45.00	0	0.00	0.00	0.00
24	45.00	0	0.00	0.00	0.00
26	45.00	0	0.00	0.00	0.00

Rigid end offsets

Member	DJX [in]	DJY [in]	DJZ [in]	DKX [in]	DKY [in]	DKZ [in]
2	0.00	0.00	-2.00	0.00	0.00	-2.00

383 TORRINGTON RD

Location	383 TORRINGTON RD	**Mblu**	126/ 36/ 91/ /
Acct#	002199	**Owner**	OLD TOLL GATE HILL LLC
Assessment	$1,074,590	**PID**	300
Building Count	5		

Current Value

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$848,450	$226,140	$1,074,590

Owner of Record

Owner	OLD TOLL GATE HILL LLC	**Sale Price**	$0
Co-Owner	C/O WM PERSSONATTI	**Certificate**	
		Book & Page	234/ 333
		Sale Date	11/13/1996
		Instrument	25

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
OLD TOLL GATE HILL LLC	$0		234/ 333	25	11/13/1996
BOLUS,ANGELA M	$0		225/ 1159		02/09/1995
BOLUS ANGELA M	$0		164/ 267		01/18/1979

Building Information

Building 1 : Section 1

Year Built:	1919
Living Area:	8,117
Replacement Cost:	$510,511
Building Percent Good:	47
Replacement Cost Less Depreciation:	$239,940

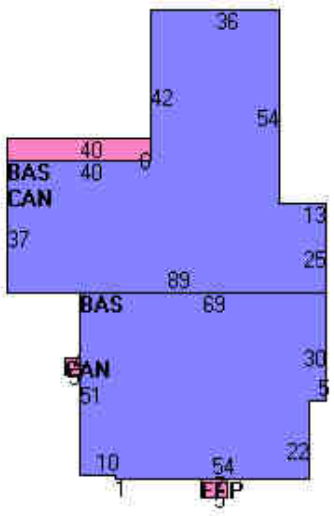
Building Attributes	
Field	**Description**
STYLE	Multipurpose
MODEL	Comm/Ind
Grade	D
Stories	1
Occupancy	6
Exterior Wall 1	Concr/Cinder
Exterior Wall 2	Brick Veneer
Roof Structure	Flat
Roof Cover	Tar & Gravel
Interior Wall 1	Typical
Interior Wall 2	

Building Photo

(http://images.vgsi.com/photos/LitchfieldCTPhotos//\00\01\02/22.jpg)

Building Layout

Interior Floor 1	Carpet
Interior Floor 2	Minimum
Heating Fuel	Oil
Heating Type	Forced Hot Air
Central Air	None
Sprinkler %	0
Bldg Use	Commercial
Total Rooms	0
Full Baths	0
Half Baths	0
Extra Fixtures	0
Total Fixtures	0
1st Floor Use	
Heat/AC	None
Frame Type	Reinf. Concr
Baths/Plumbing	Average
Common Wall	0
Wall Height	10
Perimeter	578



Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	8,117	8,117
CAN	Canopy	260	0
FEP	Finished Enclosed Porch	35	0
		8,412	8,117

Building 2 : Section 1

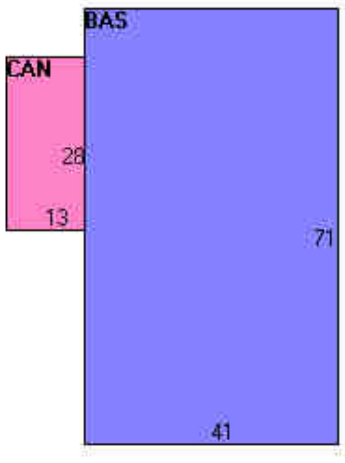
Year Built: 1985
Living Area: 2,911
Replacement Cost: $69,596
Building Percent Good: 58
Replacement Cost Less Depreciation: $40,370

Building Attributes : Bldg 2 of 5	
Field	**Description**
STYLE	Storage Building
MODEL	Comm/Ind
Grade	D
Stories	1
Occupancy	1
Exterior Wall 1	Board & Batten
Exterior Wall 2	Wood On Sheath
Roof Structure	Gable
Roof Cover	Asphalt
Interior Wall 1	Minimum
Interior Wall 2	
Interior Floor 1	Concrete
Interior Floor 2	
Heating Fuel	None
Heating Type	None
Central Air	None
Sprinkler %	0
Bldg Use	Commercial
Total Rooms	0
Full Baths	0
Half Baths	0
Extra Fixtures	0
Total Fixtures	0

Building Photo

(http://images.vgsi.com/photos/LitchfieldCTPhotos//\00\01\02/23.jpg)

Building Layout



Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	2,911	2,911
CAN	Canopy	364	0
		3,275	2,911

1st Floor Use	
Heat/AC	None
Frame Type	Wood Frame
Baths/Plumbing	None
Common Wall	0
Wall Height	12
Perimeter	224

Building 3 : Section 1

Year Built: 1950
Living Area: 652
Replacement Cost: $134,121
Building Percent Good: 22
Replacement Cost Less Depreciation: $29,510

Building Attributes : Bldg 3 of 5	
Field	**Description**
STYLE	Store
MODEL	Comm/Ind
Grade	C
Stories	2
Occupancy	1
Exterior Wall 1	Clapboard
Exterior Wall 2	
Roof Structure	Gable
Roof Cover	Tar & Gravel
Interior Wall 1	Drywall
Interior Wall 2	
Interior Floor 1	Linoleum
Interior Floor 2	
Heating Fuel	Propane
Heating Type	Forced Hot Air
Central Air	None
Sprinkler %	0
Bldg Use	Commercial
Total Rooms	0
Full Baths	0
Half Baths	0
Extra Fixtures	0
Total Fixtures	0
1st Floor Use	
Heat/AC	None
Frame Type	Wood Frame
Baths/Plumbing	Average
Common Wall	0
Wall Height	10
Perimeter	106

Building Photo

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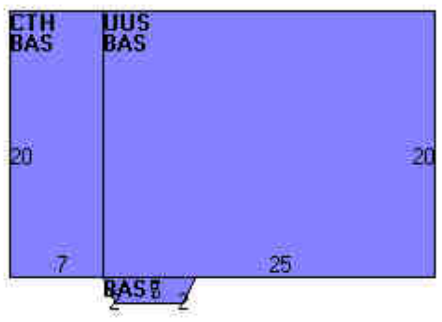
Building Layout



Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	652	652
CTH	Cathedral Ceiling	140	0
UUS	Unfinished Upper Story	500	0
		1,292	652

Building 4 : Section 1

Year Built: 1950
Living Area: 1,800
Replacement Cost: $64,012

Building Photo

Building Percent Good: 47
Replacement Cost Less Depreciation: $30,090

Building Attributes : Bldg 4 of 5	
Field	**Description**
STYLE	Storage Building
MODEL	Comm/Ind
Grade	D
Stories	1
Occupancy	1
Exterior Wall 1	Minimum
Exterior Wall 2	Wood On Sheath
Roof Structure	Gable
Roof Cover	Rolled
Interior Wall 1	Wall Board
Interior Wall 2	
Interior Floor 1	Concrete
Interior Floor 2	
Heating Fuel	Oil
Heating Type	Forced Hot Air
Central Air	None
Sprinkler %	
Bldg Use	Commercial
Total Rooms	
Full Baths	
Half Baths	0
Extra Fixtures	
Total Fixtures	
1st Floor Use	
Heat/AC	None
Frame Type	Wood Frame
Baths/Plumbing	Light
Common Wall	0
Wall Height	10
Perimeter	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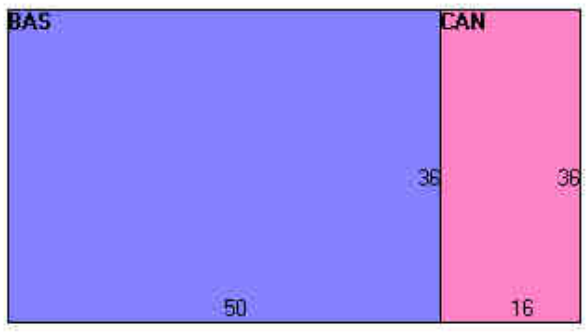
Building Layout



Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	1,800	1,800
CAN	Canopy	576	0
		2,376	1,800

Building 5 : Section 1

Year Built: 2008
Living Area: 580
Replacement Cost: $45,362
Building Percent Good: 96
Replacement Cost Less Depreciation: $43,550

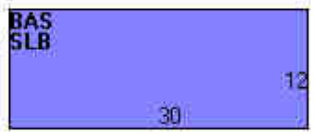
Building Attributes : Bldg 5 of 5	
Field	**Description**
STYLE	Commercial
MODEL	Comm/Ind
Grade	C
Stories	1
Occupancy	0
Exterior Wall 1	Concr/Cinder
Exterior Wall 2	

Building Photo


(http://images.vgsi.com/photos/LitchfieldCTPhotos//\00\01\02/25.jpg)

Building Layout

Roof Structure	Flat
Roof Cover	Tar & Gravel
Interior Wall 1	Minimum
Interior Wall 2	
Interior Floor 1	Concrete
Interior Floor 2	
Heating Fuel	None
Heating Type	None
Central Air	None
Sprinkler %	0
Bldg Use	Commercial
Total Rooms	0
Full Baths	0
Half Baths	0
Extra Fixtures	0
Total Fixtures	0
1st Floor Use	
Heat/AC	None
Frame Type	Reinf. Concr
Baths/Plumbing	Average
Common Wall	0
Wall Height	10
Perimeter	146



Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	580	580
SLB	Slab	580	0
		1,160	580

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	201
Description	Commercial
Zone	5
Neighborhood	225
Category	

Land Line Valuation

Size (Acres)	6.7
Frontage	
Depth	
Assessed Value	$226,140

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
CTWR	Cell Tower			4 UNITS	$820,800	5
PAV1	Paving	AS	Asphalt	16000 S.F.	$7,200	1
FN1	Fence			200 L.F.	$600	5

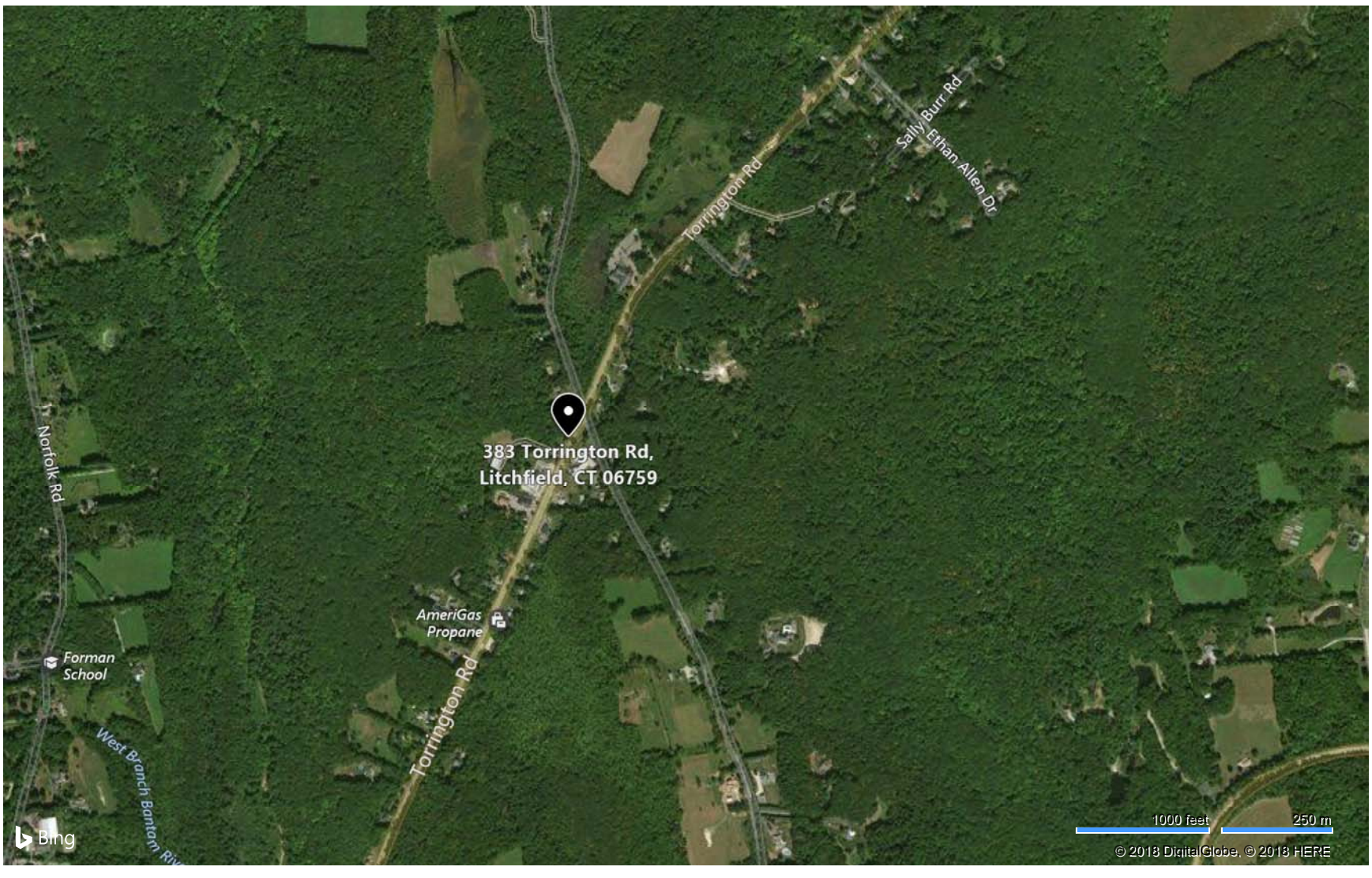
Valuation History

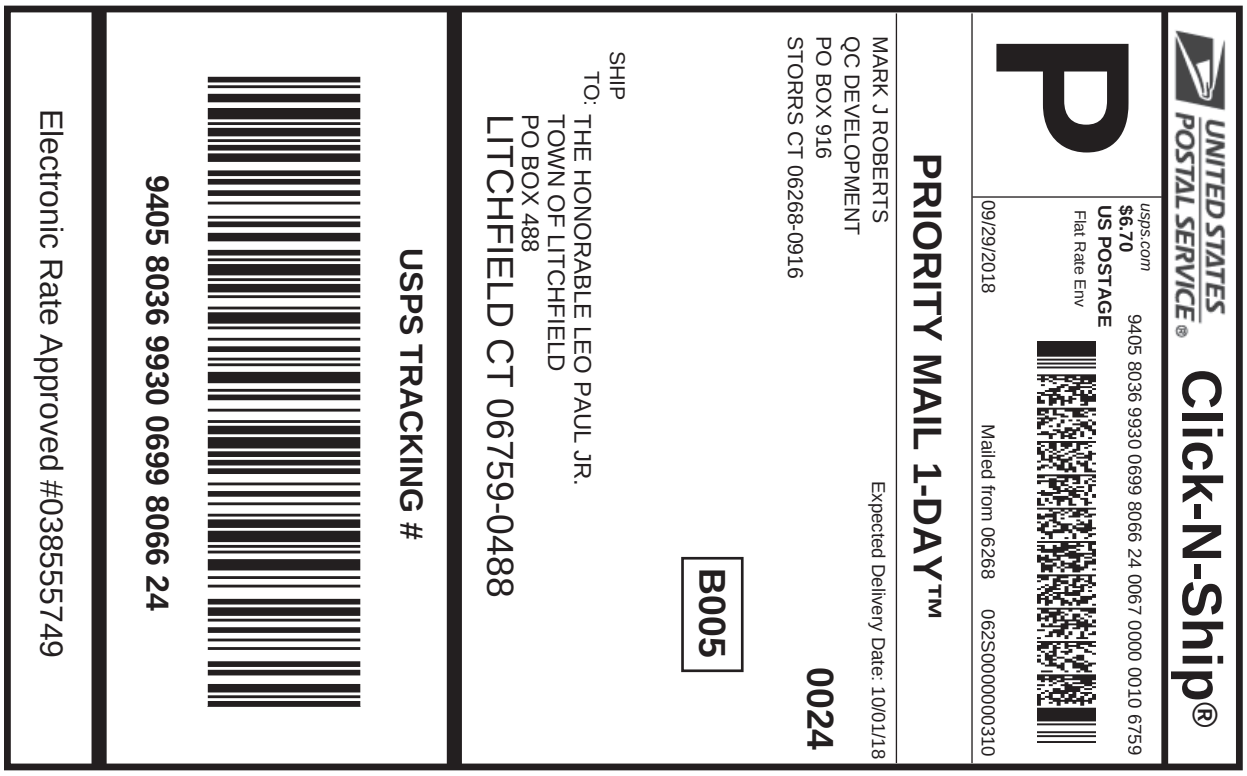
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$848,450	$226,140	$1,074,590
2016	$848,450	$226,140	$1,074,590
2015	$848,450	$226,140	$1,074,590

bing maps

383 Torrington Rd, Litchfield, CT 06759

Location: 41.768036, -73.175757





Cut on dotted line.

Instructions

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2. **Place your label so it does not wrap around the edge of the package.**
3. **Adhere your label to the package. A self-adhesive label is recommended. If tape or glue is used, DO NOT TAPE OVER BARCODE. Be sure all edges are secure.**
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USPS TRACKING # / Insurance Number:
9405 8036 9930 0699 8066 24

Trans. #:	445153041
Print Date:	09/28/2018
Ship Date:	09/29/2018
Expected Delivery Date:	10/01/2018
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: THE HONORABLE LEO PAUL JR.
TOWN OF LITCHFIELD
PO BOX 488
LITCHFIELD CT 06759-0488

* 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.

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Click-N-Ship®

9405 8036 9930 0699 8066 55 0067 0000 0010 6759

usps.com
$6.70
US POSTAGE
Flat Rate Env

09/29/2018 Mailed from 06268 062S0000000312

PRIORITY MAIL 1-DAY™

Expected Delivery Date: 10/01/18

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

R003

0024

SHIP TO:
OLD TOLL GATE HILL LLC
387 TORRINGTON RD
LITCHFIELD CT 06759-2704

USPS TRACKING #

9405 8036 9930 0699 8066 55

Electronic Rate Approved #038555749

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Click-N-Ship® Label Record

USPS TRACKING # / Insurance Number:
9405 8036 9930 0699 8066 55

Trans. #:	445153041
Print Date:	09/28/2018
Ship Date:	09/29/2018
Expected Delivery Date:	10/01/2018
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: OLD TOLL GATE HILL LLC
387 TORRINGTON RD
LITCHFIELD CT 06759-2704

* 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.

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