10 Industrial Ave,
Suite 3
Mahwah NJ 07430

Phone: 201.684.0055
Fax: 201.684.0066

February 27, 2020

Members of the Siting Council
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: Notice of Exempt Modification
226 Ferry Rd. Old Saybrook, CT 06475
Latitude: 41.319658
Longitude: -72.351611
Sprint Site#: CT54XC774 – DO Macro

Dear Ms. Bachman:

Sprint currently maintains three (6) antennas at the 136 and a half-foot level of the existing 195-foot transmission tower at Keeney Street Manchester, CT. The 195-foot transmission tower is owned by The Connecticut Light & Power Company, d/b/a Eversource Energy and they have an easement for the property. Sprint now intends to replace three (3) of its existing antennas with three (3) new 800/1900/2500 MHz antennas. The new antennas will be installed at the same 136 and a half -foot level of the tower.

Planned Modifications:
Tower:

Remove
N/A

Remove and Replace:
(6) Decibel DB950G40E-M panel antennas (Remove) - CommScope DHHTT65B-3XR antennas (Replace) 800/1900/2500 MHz

Install New:
(12) 1-5/8" coax cables
(3) RFS KIT-FD9R6004 / 1C-DL diplexers
(3) CCI DPO-7126Y-0-T1 diplexers

Existing to Remain:
(6) 1-5/8" coax cables

Ground:

Install New: (3) RFS KIT-FD9R6004 / 1C-DL diplexers, (3) CCI DPO-7126Y-0-T1 diplexers (3) 2500 MHz RRHs

This facility was approved by the CZC for Sprint use in CZC Application #02-142 dated July 8, 2002. This modification complies with this approval. Please see the enclosed.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies§ 16- SOj-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.SA. § 16-SOj-73, a copy of this letter is being sent to First Selectman – Carl P. Fortuna, Jr., Elected Official, and Christina M. Costa, Zoning Enforcement Officer for the Town of Old Saybrook, as well as the 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, Sprint 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).

Sincerely,

Jake Shappy
Transcend Wireless
Cell: 845-553-3330
Email: jshappy@transcendwireless.com

Attachments
cc: Carl P. Fortuna, Jr. – Town of Old Saybrook First Selectman
Christina M. Costa – Town of Old Saybrook Enforcement Officer
The Connecticut Light & Power Company, d/b/a Eversource Energy – tower and property owner

EVERSOURCE ENERGY

56 Prospect Street,
Hartford, CT 06103

P.O. Box 270
Hartford, CT 06141-0270
(860) 665-5000

February 7, 2020

Mr. Jake Shappy
Transcend Wireless
10 Industrial Avenue
Suite 3
Mahwah NJ, 07430

Re: Sprint Antenna Site, CT-54XC774, 226 Ferry Road, Old Saybrook, CT. Distribution Structure

Dear Mr. Talmadge:

Based on our reviews of the site drawings, the structural analysis and foundation review provided by Centek Engineering, along with a third party review performed by Paul J. Ford & Company, we accept this modification.

Please work with Chris Gelinas (860-665-2008) to complete the lease amendment as needed. Please contact me at 860-728-4503 if I can be of further assistance.

Sincerely,

Joel Szarkowicz
Transmission Line Engineering

Ref: 17159.20 CT54XC774 Old Saybrook – CD Rev.3 18.11.14 S&S.pdf
17159.20 – CT54XC774 – Structural Analysis Rev2 18.08.14.pdf

TOWN OF OLD SAYBROOK

Land Use Department

302 Main Street • Old Saybrook, Connecticut 06475-1741
Telephone (860) 395-3131 • FAX (860) 395-3125

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

July 8, 2002

Sprint Spectrum, LP d/b/a Sprint PCS
C/o Thomas J. Regan, Esq.
Brown Rudnick Berlack Israels LLP
City Place I, 38th Floor
Hartford, CT 06103

Re: CZC Application #02-142 – Site Plan Review for co-location with telecommunication tower – attach antennas on existing CL&P tower, 226 Ferry Rd., Map 59/Lot 105, MC Zone

Dear Attorney Regan:

At its regularly-scheduled meeting of July 1, 2002, the Old Saybrook Zoning Commission voted to APPROVE above-referenced application with the following stipulations:

1) that Sprint paint tray the same color or lighter than the tower;
* 2) that the tower be bonded with a $25,000 cash restoration bond

The legal notice of approval will appear in The Hartford Courant on Tuesday, July 9, 2002.

Sincerely,

David H. Wight, Chairman
Old Saybrook Zoning Commission

DHW:cs
xc: C. Sklosdosky

Fed # 06-6002058

EBI Consulting

environmental | engineering | due diligence

RADIO FREQUENCY EMISSIONS ANALYSIS REPORT
EVALUATION OF HUMAN EXPOSURE POTENTIAL TO NON-IONIZING EMISSIONS

Sprint Existing Facility

Site ID: CT54XC774

Eversource Struct. Distribution West River X-ing
226 Ferry Road
Old Saybrook, Connecticut 06475

June 3, 2019

EBI Project Number: 6219001930

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**4.12%**

EBI Consulting

environmental | engineering | due diligence

June 3, 2019

Sprint
Attn: RF Engineering Manager
1 International Boulevard, Suite 800
Mahwah, New Jersey 07495

Emissions Analysis for Site: CT54XC774 - Eversource Struct. Distribution West River X-ing

EBI Consulting was directed to analyze the proposed Sprint facility located at **226 Ferry Road** in **Old Saybrook, Connecticut** for the purpose of determining whether the emissions from the Proposed Sprint Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu W/cm^2$). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits; therefore, it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general population may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general population would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 600 MHz and 700 MHz frequency bands are approximately 400 $\mu W/cm^2$ and 467 $\mu W/cm^2$, respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 11 GHz frequency bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed Sprint Wireless antenna facility located at 226 Ferry Road in Old Saybrook, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since Sprint is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

For all calculations, all equipment was calculated using the following assumptions:

1) 2 CDMA channels (800 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 50 Watts per Channel.

2) 4 PCS channels (1900 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

3) 8 BRS channels (2500 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.

4) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.

5) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

6) The antennas used in this modeling are the Commscope DHHTT65B-3XR for the 800 MHz / 1900 MHz / 2500 MHz channel(s) in Sector A, the Commscope DHHTT65B-3XR for the 800 MHz / 1900 MHz / 2500 MHz channel(s) in Sector B, the Commscope DHHTT65B-3XR for the 800 MHz / 1900 MHz / 2500 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

7) The antenna mounting height centerline of the proposed antennas is 136.5 feet above ground level (AGL).

8) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

9) All calculations were done with respect to uncontrolled / general population threshold limits.

Sprint Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Commscope DHHTT65B-3XR	Make / Model:	Commscope DHHTT65B-3XR	Make / Model:	Commscope DHHTT65B-3XR
Frequency Bands:	800 MHz / 1900 MHz / 2500 MHz	Frequency Bands:	800 MHz / 1900 MHz / 2500 MHz	Frequency Bands:	800 MHz / 1900 MHz / 2500 MHz
Gain:	13.35 dBd / 15.25 dBd / 15.05 dBd	Gain:	13.35 dBd / 15.25 dBd / 15.05 dBd	Gain:	13.35 dBd / 15.25 dBd / 15.05 dBd
Height (AGL):	136.5 feet	Height (AGL):	136.5 feet	Height (AGL):	136.5 feet
Channel Count:	14	Channel Count:	14	Channel Count:	14
Total TX Power (W):	420 Watts	Total TX Power (W):	420 Watts	Total TX Power (W):	420 Watts
ERP (W):	12,640.40	ERP (W):	12,640.40	ERP (W):	12,640.40
Antenna A1 MPE %:	**2.80%**	Antenna B1 MPE %:	**2.80%**	Antenna C1 MPE %:	**2.80%**

Site Composite MPE %	
Carrier	**MPE %**
Sprint (Max at Sector A):	2.80%
AT&T	1.32%
Site Total MPE % :	4.12%

Sprint MPE % Per Sector	
Sprint Sector A Total:	2.80%
Sprint Sector B Total:	2.80%
Sprint Sector C Total:	2.80%
Site Total MPE % :	4.12%

Sprint Maximum MPE Power Values (Sector A)

Sprint Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
Sprint 800 MHz CDMA	2	1081.36	136.5	4.17	800 MHz CDMA	533	0.78%
Sprint 1900 MHz PCS	4	1339.86	136.5	10.34	1900 MHz PCS	1000	1.03%
Sprint 2500 MHz BRS	8	639.78	136.5	9.88	2500 MHz BRS	1000	0.99%
						Total:	**2.80%**

• NOTE: Totals may vary by approximately 0.01% due to summation of remainders in calculations.

Summary

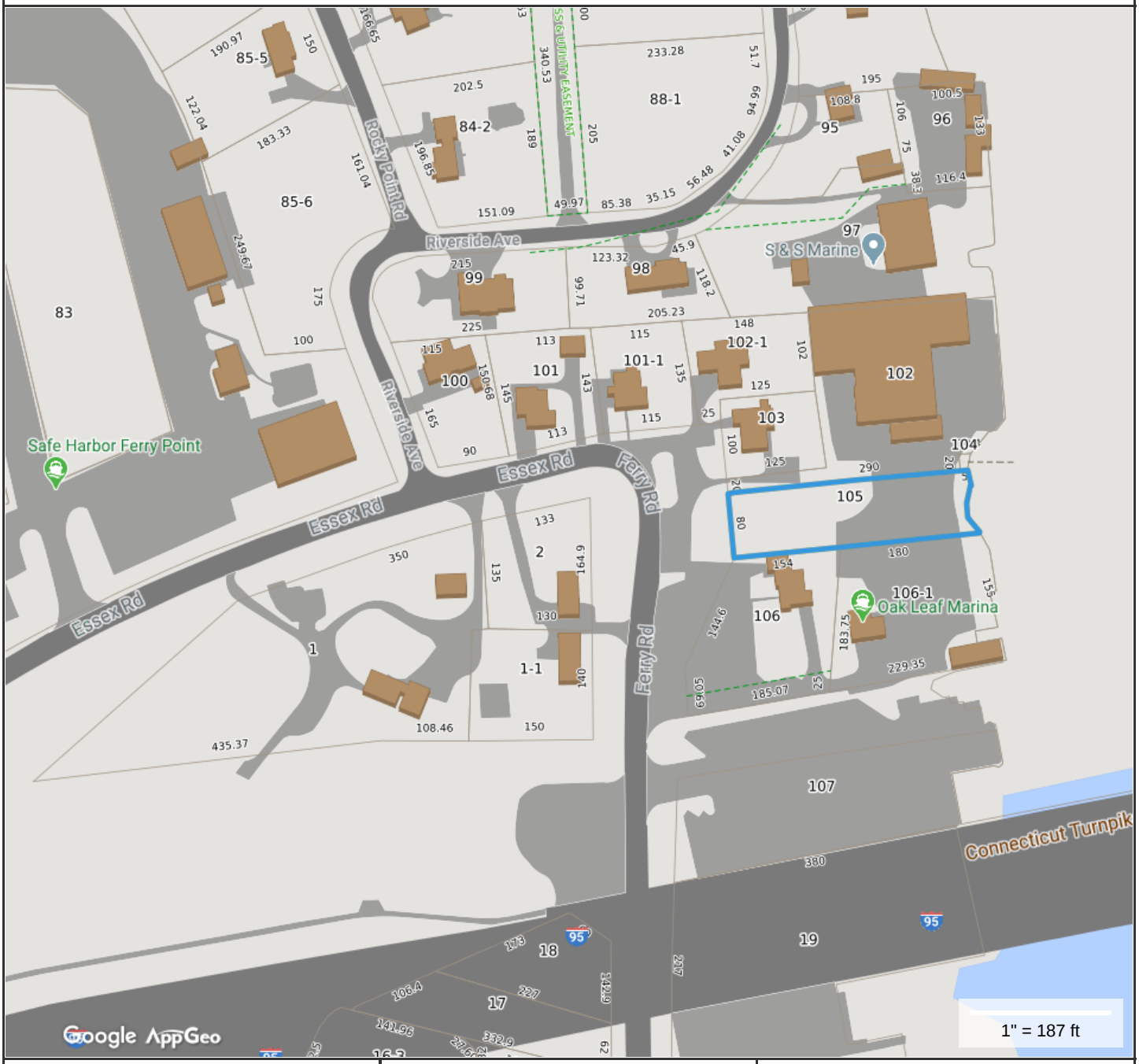
All calculations performed for this analysis yielded results that were **within** the allowable limits for general population exposure to RF Emissions.

The anticipated maximum composite contributions from the Sprint facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

Sprint Sector	Power Density Value (%)
Sector A:	2.80%
Sector B:	2.80%
Sector C:	2.80%
Sprint Maximum MPE % (Sector A):	2.80%
Site Total:	4.12%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **4.12%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.



Property Information

Property ID	059/105-0000
Location	226 FERRY RD
Owner	CONN LIGHT & POWER CO

MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT

Town of Old Saybrook, CT makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Geometry updated July 2018
Data updated 11/19/2018

226 FERRY RD

Location	226 FERRY RD	**MBLU**	059/ 105/ / /
Acct#	00631700	**Owner**	CONN LIGHT & POWER CO
Assessment	$510,000	**Appraisal**	$728,600
PID	2407	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$180,000	$548,600	$728,600
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$126,000	$384,000	$510,000

Owner of Record

Owner	CONN LIGHT & POWER CO	**Sale Price**	$0
Co-Owner		**Certificate**	
Address	P O BOX 270 HARTFORD, CT 06141-0270	**Book & Page**	0023/0053
		Sale Date	12/29/1922

Ownership History

Ownership History				
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Sale Date**
CONN LIGHT & POWER CO	$0		0023/0053	12/29/1922

Building Information

Building 1 : Section 1

Year Built:
Living Area: 0

Building Attributes	
Field	**Description**
Style	Outbuildings
Model	
Grade:	
Stories:	

Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure:	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Total Bthrms:	
Total Half Baths:	
Total Xtra Fixtrs:	
Total Rooms:	
Bath Style:	
Kitchen Style:	
Num Kitchens	
Cndtn	
Usrfld 103	
Usrfld 104	
Usrfld 105	
Usrfld 106	
Usrfld 107	
Num Park	
Fireplaces	
Usrfld 108	
Usrfld 101	
Usrfld 102	
Usrfld 100	
Usrfld 300	
Usrfld 301	

Building Photo

(http://images.vgsi.com/photos/OldSaybrookCTPhotos//default.jp

Building Layout

Building Layout
(http://images.vgsi.com/photos/OldSaybrookCTPhotos//Sketches

Building Sub-Areas (sq ft)	Legend
No Data for Building Sub-Areas	

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	4230
Description	ELEC ROW
Zone	MC

Land Line Valuation

Size (Acres)	0.55
Depth	0
Assessed Value	$384,000
Appraised Value	$548,600

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
UTIL	UTILITY BLDG			200.00 UNITS	$180,000	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$180,000	$548,600	$728,600
2016	$180,000	$540,300	$720,300
2015	$180,000	$540,300	$720,300

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$126,000	$384,000	$510,000
2016	$126,000	$378,200	$504,200
2015	$126,000	$378,200	$504,200

UPS Internet Shipping: View/Print Label

1. **Ensure there are no other shipping or tracking labels attached to your package.** Select the Print button on the print dialog box that appears. Note: If your browser does not support this function select Print from the File menu to print the label.

2. **Fold the printed label at the solid line below.** Place the label in a UPS Shipping Pouch. If you do not have a pouch, affix the folded label using clear plastic shipping tape over the entire label.

3. **GETTING YOUR SHIPMENT TO UPS**
   Customers with a Daily Pickup
   Your driver will pickup your shipment(s) as usual.

   Customers without a Daily Pickup
   Take your package to any location of The UPS Store®, UPS Access Point(TM) location, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. Items sent via UPS Return Services(SM) (including via Ground) are also accepted at Drop Boxes. To find the location nearest you, please visit the 'Find Locations' Quick link at ups.com.
   Schedule a same day or future day Pickup to have a UPS driver pickup all of your Internet Shipping packages.
   Hand the package to any UPS driver in your area.

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75 INTERSTATE SHOP CTR
RAMSEY ,NJ 07446

UPS Access Point™
THE UPS STORE
115 FRANKLIN TPKE
MAHWAH ,NJ 07430

UPS Access Point™
THE UPS STORE
120 E MAIN ST
RAMSEY ,NJ 07446

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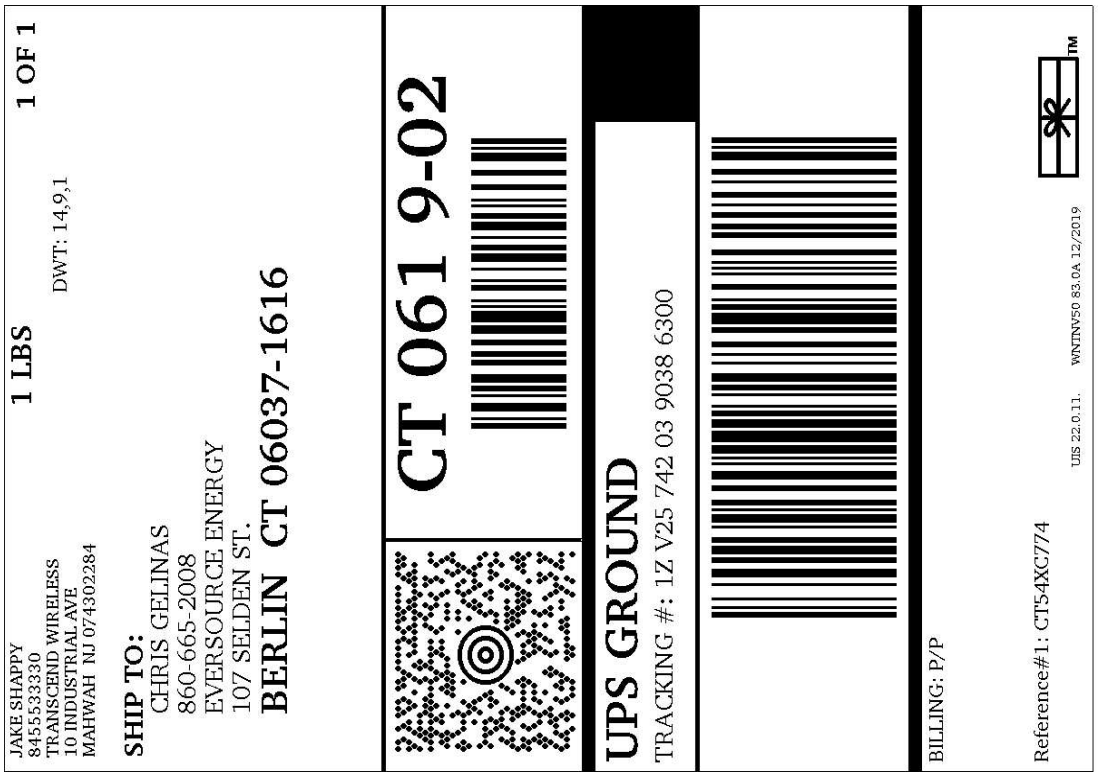

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   Take your package to any location of The UPS Store®, UPS Access Point(TM) location, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. Items sent via UPS Return Services(SM) (including via Ground) are also accepted at Drop Boxes. To find the location nearest you, please visit the 'Find Locations' Quick link at ups.com.
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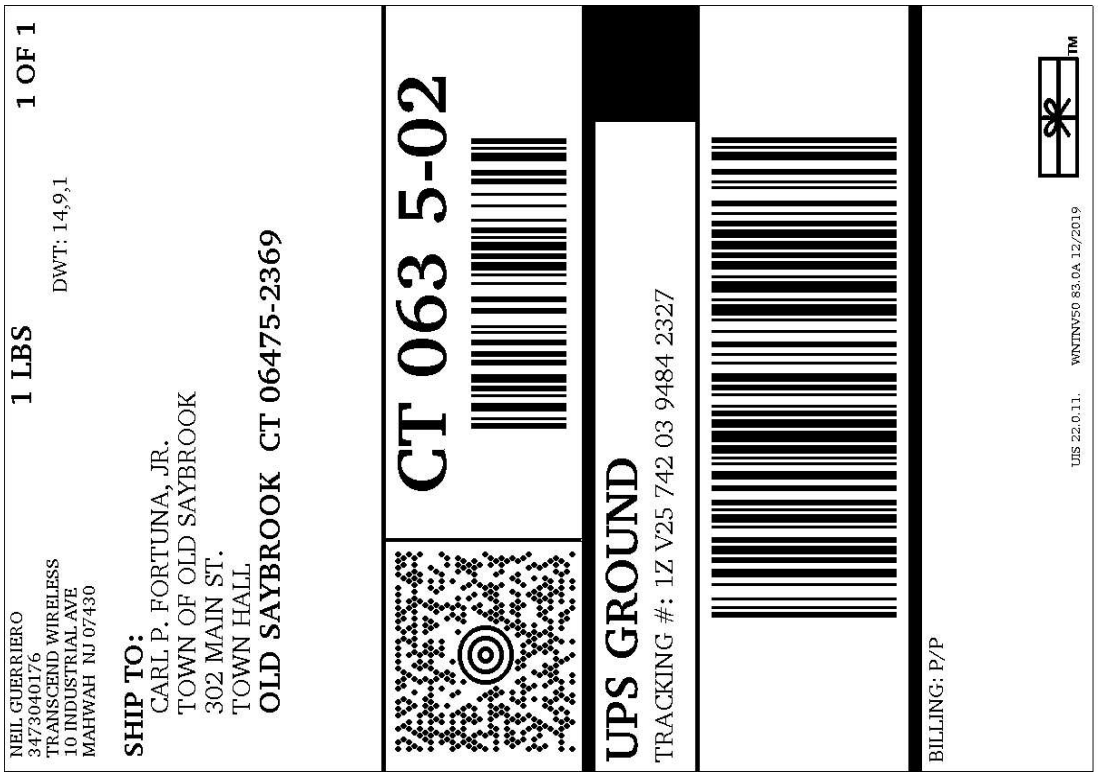

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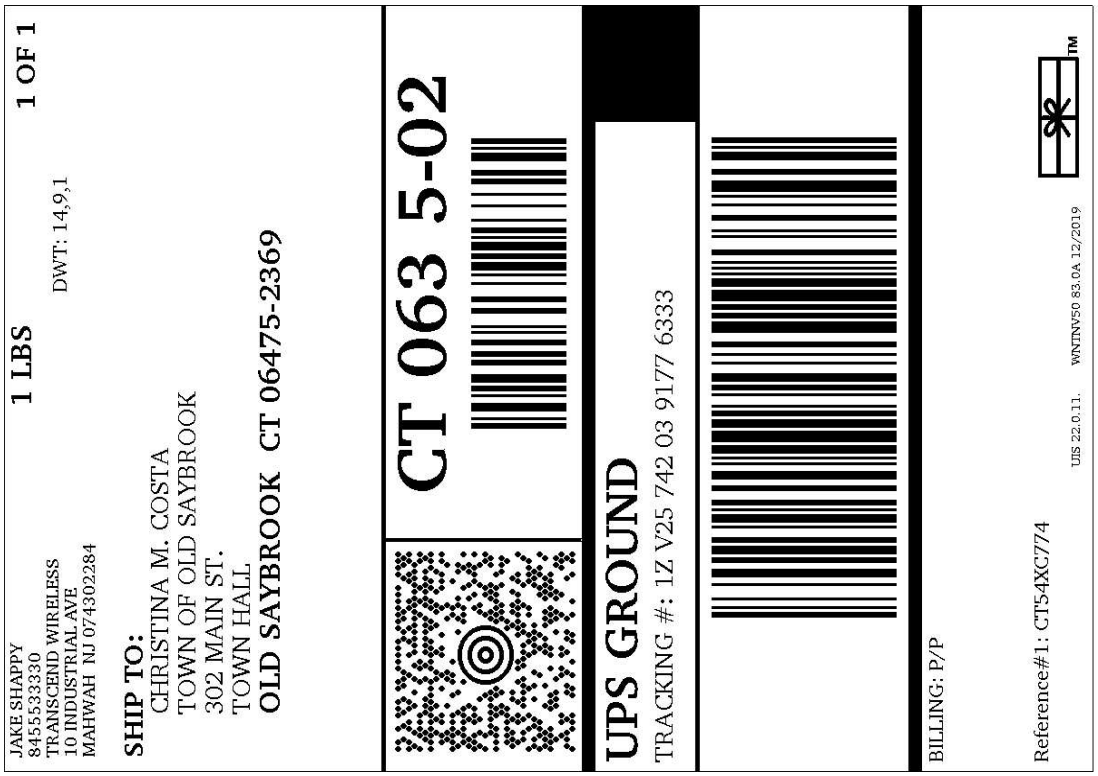


WIRELESS COMMUNICATIONS FACILITY

EVERSOURCE STRUCT. DISTRIBUTION WEST RIVER X-ING

SITE ID: CT54XC774

226 FERRY ROAD

OLD SAYBROOK, CT 06475

GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2012 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2016 CONNECTICUT SUPPLEMENT, INCLUDING THE TIA/EIA-222 REVISION "G" "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND SUPPORTING STRUCTURES." 2016 CONNECTICUT FIRE SAFETY CODE, NATIONAL ELECTRICAL CODE AND LOCAL CODES.
2. CONTRACTOR SHALL REVIEW ALL DRAWINGS AND SPECIFICATIONS IN THE CONTRACT DOCUMENT SET. CONTRACTOR SHALL COORDINATE ALL WORK SHOWN IN THE SET OF DRAWINGS. THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF DRAWINGS TO ALL SUBCONTRACTORS AND ALL RELATED PARTIES. THE SUBCONTRACTORS SHALL EXAMINE ALL THE DRAWINGS AND SPECIFICATIONS FOR THE INFORMATION THAT AFFECTS THEIR WORK.
3. CONTRACTOR SHALL PROVIDE A COMPLETE BUILD-OUT WITH ALL FINISHES, STRUCTURAL, MECHANICAL, AND ELECTRICAL COMPONENTS AND PROVIDE ALL ITEMS AS SHOWN OR INDICATED ON THE DRAWINGS OR IN THE WRITTEN SPECIFICATIONS.
4. CONTRACTOR SHALL FURNISH ALL MATERIAL, LABOR AND EQUIPMENT TO COMPLETE THE WORK AND FURNISH A COMPLETED JOB ALL IN ACCORDANCE WITH LOCAL AND STATE GOVERNING AUTHORITIES AND OTHER AUTHORITIES HAVING LAWFUL JURISDICTION OVER THE WORK.
5. CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS AND ALL INSPECTIONS REQUIRED AND SHALL ALSO PAY FEES REQUIRED FOR THE GENERAL CONSTRUCTION, PLUMBING, ELECTRICAL AND HVAC. PERMITS SHALL BE PAID FOR BY THE RESPECTIVE SUBCONTRACTORS.
6. CONTRACTOR SHALL MAINTAIN A CURRENT SET OF DRAWINGS AND SPECIFICATIONS ON SITE AT ALL TIMES AND INSURE DISTRIBUTION OF NEW DRAWINGS TO SUBCONTRACTORS AND OTHER RELEVANT PARTIES AS SOON AS THEY ARE MADE AVAILABLE. ALL OLD DRAWINGS SHALL BE MARKED VOID AND REMOVED FROM THE CONTRACT AREA. THE CONTRACTOR SHALL FURNISH AN 'AS-BUILT' SET OF DRAWINGS TO OWNER UPON COMPLETION OF PROJECT.
7. LOCATION OF EQUIPMENT, AND WORK SUPPLIED BY OTHERS THAT IS DIAGRAMMATICALLY INDICATED ON THE DRAWINGS SHALL BE DETERMINED BY THE CONTRACTOR. THE CONTRACTOR SHALL DETERMINE LOCATIONS AND DIMENSIONS SUBJECT TO STRUCTURAL CONDITIONS AND WORK OF THE SUBCONTRACTORS.
8. THE CONTRACTOR IS SOLELY RESPONSIBLE TO DETERMINE CONSTRUCTION PROCEDURE AND SEQUENCE, AND TO ENSURE THE SAFETY OF THE EXISTING STRUCTURES AND ITS COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, BRACING, UNDERPINNING, ETC. THAT MAY BE NECESSARY.
9. DRAWINGS INDICATE THE MINIMUM STANDARDS, BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS WORK AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS.
10. ALL UTILITY WORK SHALL BE IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS.
11. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUBCONTRACTORS FOR ANY CONDITION PER MFR.'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
12. ANY AND ALL ERRORS, DISCREPANCIES, AND 'MISSED" ITEMS ARE TO BE BROUGHT TO THE ATTENTION OF THE SPRINT CONSTRUCTION MANAGER DURING THE BIDDING PROCESS BY THE CONTRACTOR. ALL THESE ITEMS ARE TO BE INCLUDED IN THE BID. NO 'EXTRA' WILL BE ALLOWED FOR MISSED ITEMS.
13. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ON-SITE SAFETY FROM THE TIME THE JOB IS AWARDED UNTIL ALL WORK IS COMPLETE AND ACCEPTED BY THE OWNER.
14. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE CONSTRUCTION MANAGER FOR REVIEW.
15. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES, AND EXISTING CONDITIONS AT THE SITE, PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA.
16. COORDINATION, LAYOUT, FURNISHING AND INSTALLATION OF CONDUIT AND ALL APPURTENANCES REQUIRED FOR PROPER INSTALLATION OF ELECTRICAL AND TELECOMMUNICATION SERVICE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
17. ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.
18. THE CONTRACTOR SHALL CONTACT "CALL BEFORE YOU DIG" AT LEAST 48 HOURS PRIOR TO ANY EXCAVATIONS AT 1-800-922-4455. ALL UTILITIES SHALL BE IDENTIFIED AND CLEARLY MARKED. CONTRACTOR SHALL MAINTAIN AND PROTECT MARKED UTILITIES THROUGHOUT PROJECT COMPLETION.
19. CONTRACTOR SHALL COMPLY WITH OWNERS ENVIRONMENTAL ENGINEER ON ALL METHODS AND PROVISIONS FOR ALL EXCAVATION ACTIVITIES INCLUDING SOIL DISPOSAL. ALL BACKFILL MATERIALS TO BE PROVIDED BY THE CONTRACTOR.

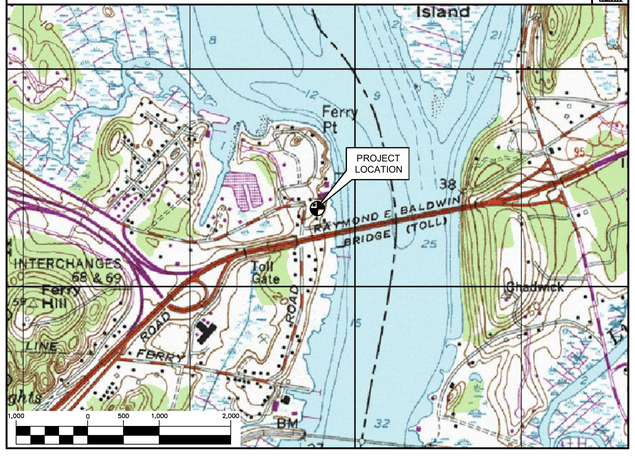
SITE DIRECTIONS

FROM: 5 WAYSIDE ROAD, BURLINGTON, MA 01803 **TO:** 226 FERRY ROAD, OLD SAYBROOK, CT 06475

1.	START OUT BY GOING TO WAYSIDE ROAD.	0.12 MI.
2.	TURN LEFT ONTO CAMBRIDGE ST/US-3 N/MA	0.12 MI.
3.	MERGE ONTO I-95 S/MA-128 S/YANKEE DIVISION HWY S TOWARD WALTHAM/LOWELL	0.27 MI.
4.	TAKE THE I-90/MASS PIKE EXIT, EXIT 25, TOWARD BOSTON/ALBANY NY.	12.32 MI.
5.	MERGE ONTO I-90 W/MASSACHUSETTS TPKE W TOWARD WORCESTER (PORTIONS TOLL).	0.32 MI.
6.	TAKE EXIT 10 TOWARD MA-12 N/AUBURN/WORCESTER.	33.00 MI.
7.	KEEP RIGHT AT THE FORK, FOLLOW SIGNS FOR I-395 S/US-20 E/NORWICH CT.	0.20 MI.
8.	CONTINUE ONTO I-395 S.	66.30 MI.
9.	MERGE ONTO I-95 S.	10.10 MI.
10.	USE THE RIGHT LANE TO TAKE EXIT 69 FOR CT-9 N TOWARD ESSEX/HARTFORD.	0.20 MI.
11.	KEEP RIGHT TO CONTINUE ON EXIT 1, FOLLOW SIGNS FOR FERRY POINT.	0.20 MI.
12.	TURN RIGHT ONTO ESSEX RD.	0.50 MI.
13.	ESSEX RD TURNS SLIGHTLY RIGHT AND BECOMES FERRY RD.	141 FT.
14.	DESTINATION WILL BE ON THE LEFT.	

VICINITY MAP

SCALE: 1" = 1000'



PROJECT SUMMARY

1. THE PROPOSED SCOPE OF WORK CONSISTS OF A MODIFICATION TO THE EXISTING UNMANNED TELECOMMUNICATIONS FACILITY INCLUDING THE FOLLOWING:
   - A. INSTALLATION OF A PROPOSED UNISTRUT EQUIPMENT RACK MOUNTED AT GRADE.
   - B. REMOVE (6) EXISTING PANEL ANTENNAS FROM EXISTING TOWER MOUNT.
   - C. INSTALL (3) PROPOSED 10-PORT PANEL ANTENNAS, (1) PER SECTOR.
   - D. INSTALL (6) PROPOSED DIPLEXERS ON TOWER.
   - E. INSTALL (6) PROPOSED DIPLEXERS ON PROPOSED UNISTRUT RACK.
   - F. INSTALL (6) PROPOSED RRH'S ON PROPOSED UNISTRUT RACK.

PROJECT INFORMATION

SITE NAME:	EVERSOURCE STRUCT. DISTRIBUTION WEST RIVER X-ING
SITE ID:	CT54XC774
SITE ADDRESS:	226 FERRY ROAD OLD SAYBROOOK, CT 06475
APPLICANT:	SPRINT 5 WAYSIDE ROAD BURLINGTON, MA 01803
CONTACT PERSON:	DOUG TALMADGE (PROJECT MANAGER) (475)434-4292
ENGINEER:	CENTEK ENGINEERING, INC. 63-2 NORTH BRANFORD RD. BRANFORD, CT 06405
PROJECT COORDINATES:	LATITUDE: 41° 19' 10.77"N LONGITUDE: 72° 21' 5.80"W GROUND ELEVATION: ±29' AMSL SITE COORDINATES AND GROUND ELEVATION REFERENCED FROM GOOGLE EARTH.

SHEET INDEX

SHT. NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	3
N-1	DESIGN BASIS AND SITE NOTES	3
C-1	COMPOUND PLANS AND ELEVATION	3
C-2	TYPICAL DETAILS	3
C-3	COLOR CODE AND CPRI DETAILS	3
S-1	REINFORCEMENT DETAILS	3

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
3	11/14/18	TJL	CAG	ISSUED FOR CONSTRUCTION
2	10/11/18	TJL	CAG	ISSUED FOR CONSTRUCTION - ADDED COLOR CODE AND CPRI
1	09/17/18	TJL	CAG	ISSUED FOR CONSTRUCTION - REVISED TO MATCH APPROVED STRUCTURAL
0	03/05/18	TJL	CAG	REVISED PER CLIENT COMMENTS

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WIRELESS COMMUNICATIONS FACILITY

EVERSOURCE STRUCT. DISTRIBUTION WEST RIVER X-ING

SITE ID: CT54XC774

226 FERRY ROAD

OLD SAYBROOK, CT 06475

DATE: 01/11/18

SCALE: AS NOTED

JOB NO. 17159.20

TITLE SHEET

T-1

Sheet No. 1 of 6

DESIGN BASIS:

GOVERNING CODE: 2012 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2016 CT STATE BUILDING CODE.

1. DESIGN CRITERIA:

   - WIND LOAD: PER NESC C2-2012 SECTION 25 RULE 250C (TOWER AND FOUNDATION 120 MPH (3 SECOND GUSTS).
   - SEISMIC LOAD (DOES NOT CONTROL): PER ASCE 7-02 MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES.

GENERAL NOTES:

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

STRUCTURAL STEEL

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

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

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

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
3	11/14/18	TJL	CAG	ISSUED FOR CONSTRUCTION
2	10/11/18	TJL	CAG	ISSUED FOR CONSTRUCTION – ADDED COLOR CODE AND CPRI
1	09/17/18	TJL	CAG	ISSUED FOR CONSTRUCTION – REVISED TO MATCH APPROVED STRUCTURAL
0	03/05/18	TJL	CAG	REVISED PER CLIENT COMMENTS

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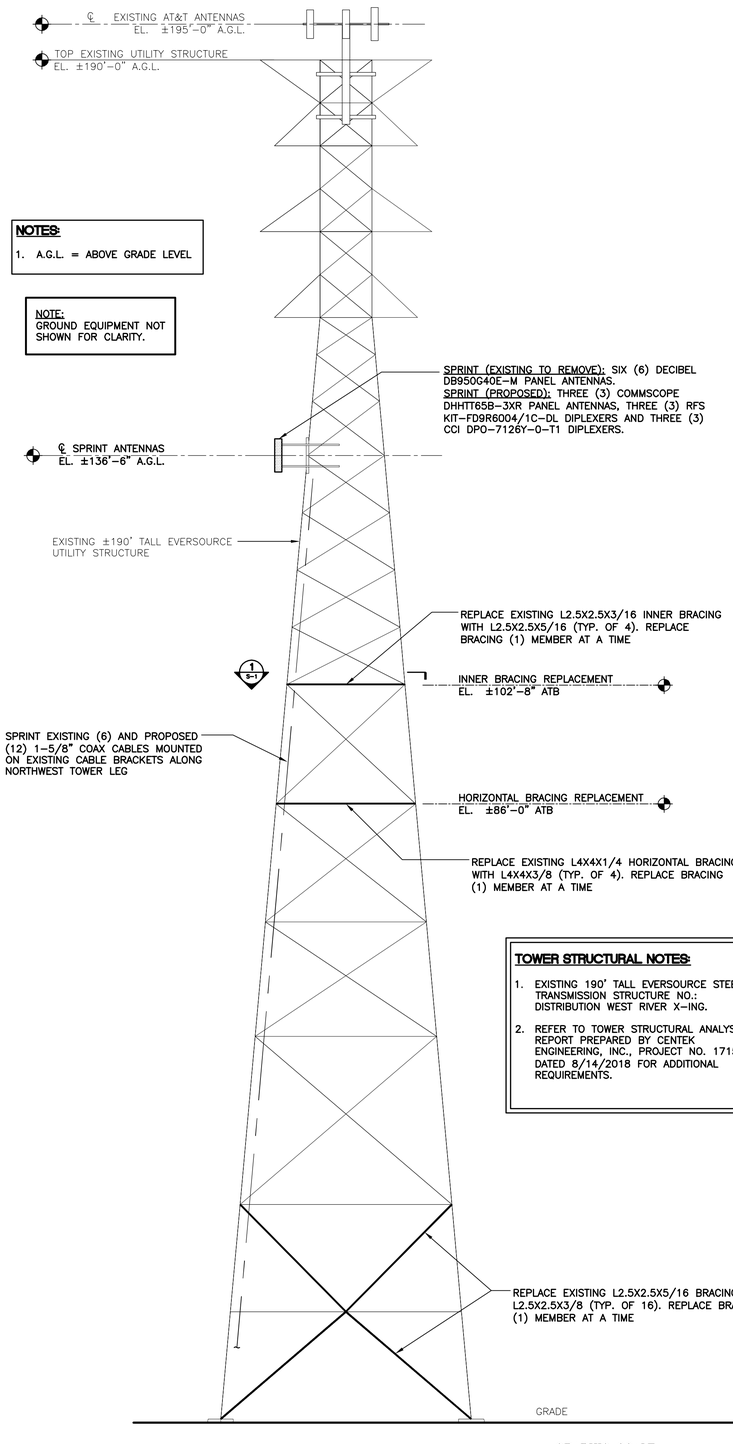
SITE ID: CT54CX774
226 FERRY ROAD
OLD SAYBROOK, CT 06475

DATE: 01/11/18
SCALE: AS NOTED
JOB NO. 17159.20

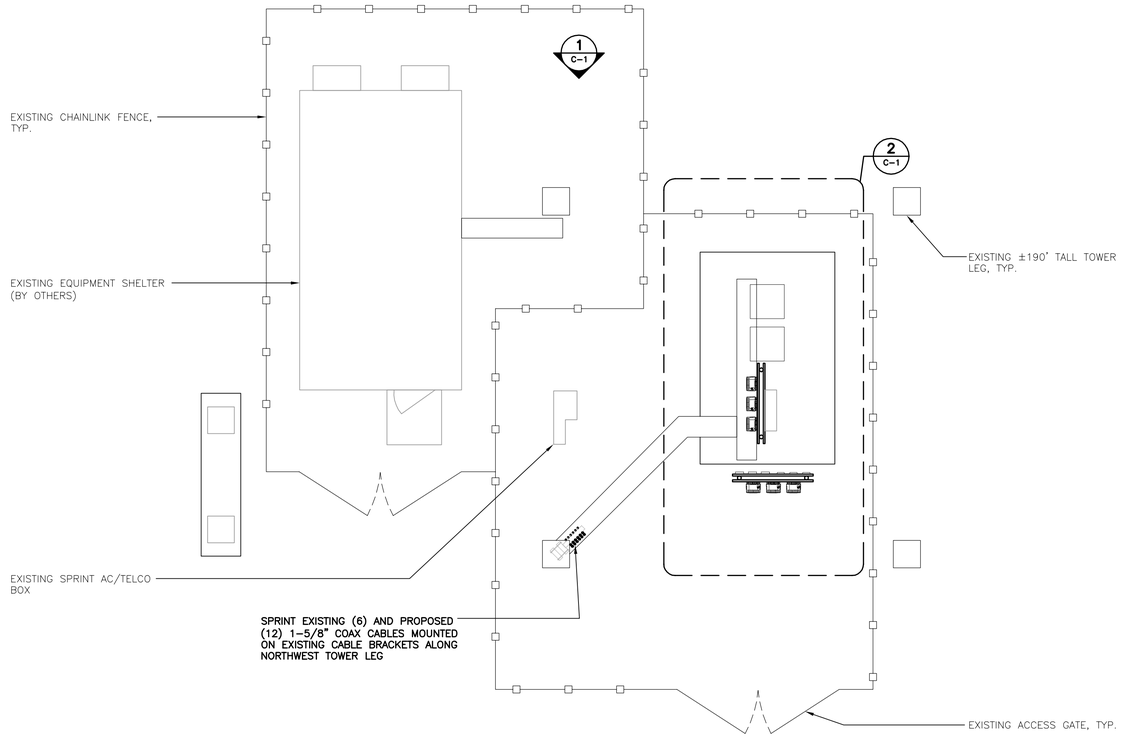
DESIGN BASIS AND SITE NOTES

N-1



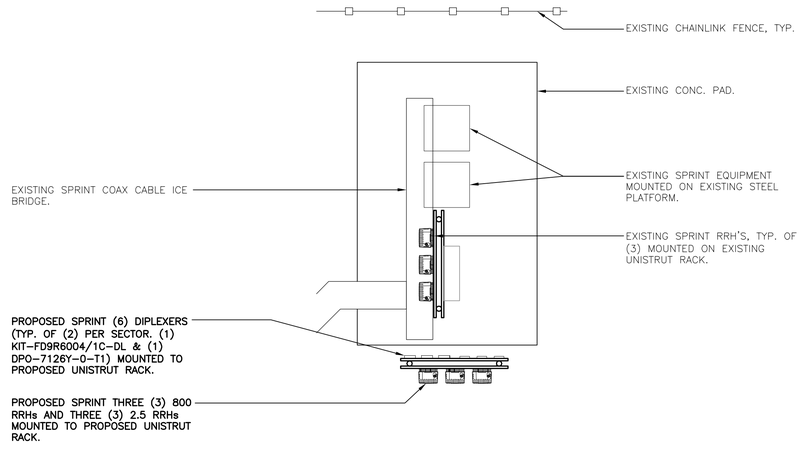
1 C-1 **PROPOSED TOWER ELEVATION**
SCALE: 1" = 10'-0"

GRAPHIC SCALE
10 0 5 10 20 40
(IN FEET)
1 inch = 10 ft.



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

TRUE NORTH



3 C-1 **EQUIPMENT PLAN**
SCALE: 1/4" = 1'-0"

TRUE NORTH

GRAPHIC SCALE
4 0 2 4 8 16
(IN FEET)
1/4 inch = 1 ft.

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
3	11/14/18	TJL	CAG	ISSUED FOR CONSTRUCTION - ADDED COLOR CODE AND CPRI
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1	09/17/18	TJL	CAG	ISSUED FOR CONSTRUCTION - REVISED PER CLIENT COMMENTS
0	03/05/18	TJL	CAG	

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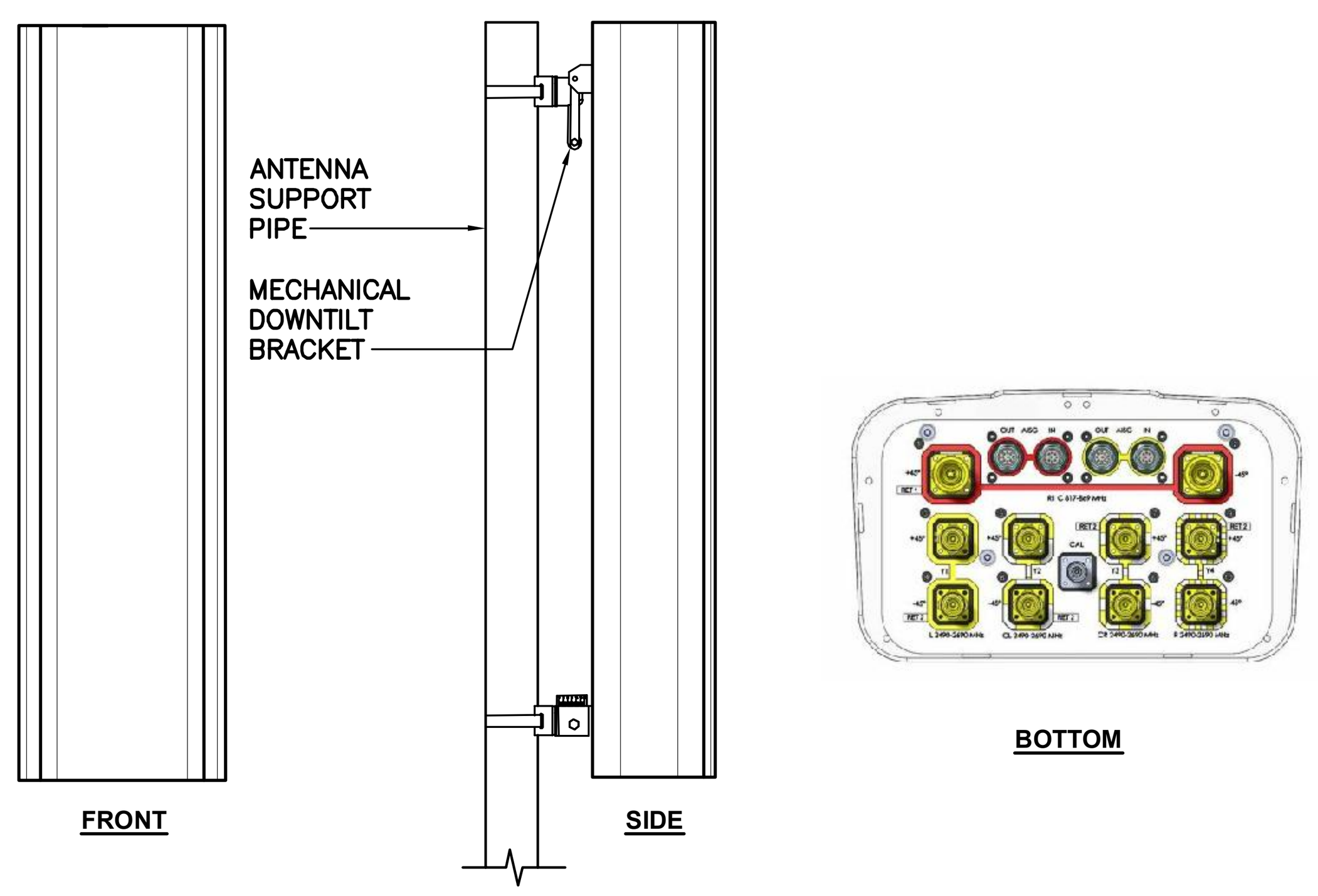
COMPOUND PLANS AND ELEVATION

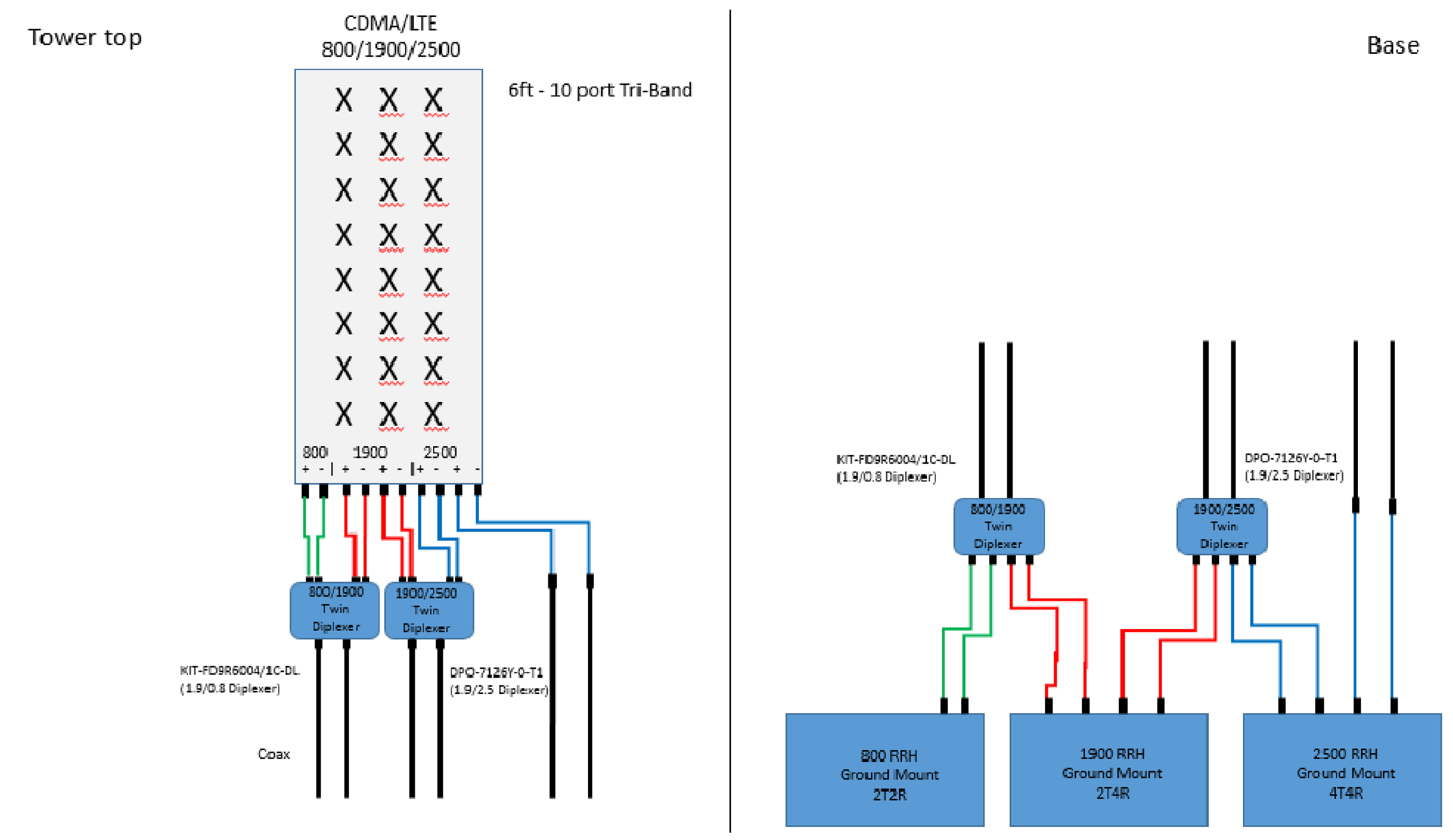
C-1

Sheet No. 3 of 6



ALPHA/BETA/GAMMA ANTENNA		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: COMMSCOPE MODEL: DHHTT65B–3XR	72.1"L x 11.9"W x 7.1"D	45.4 LBS.

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



4 C–2 PLUMBING DIAGRAM
NOT TO SCALE

TD-RRH8x20-25

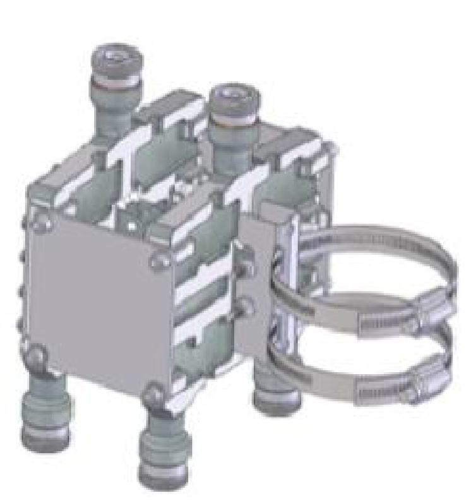
RRH-2x50-800

RRU (REMOTE RADIO UNIT)			
EQUIPMENT	DIMENSIONS	WEIGHT	CLEARANCES
MAKE: ALCATEL–LUCENT MODEL: TD–RRH8x20–25	25.3"L x 17.5"W x 5.7"D	66 LBS.	ABOVE: 16" MIN. BELOW: 12" MIN. FRONT: 36" MIN.
MAKE: ALCATEL–LUCENT MODEL: RRH–2x50–800	15.7"L x 13.0"W x 9.8"D	53 LBS.	ABOVE: 16" MIN. BELOW: 12" MIN. FRONT: 36" MIN.

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

2 C–2 REMOTE RADIO HEAD DETAIL
SCALE: NOT TO SCALE

DOP-7126Y-0-T1

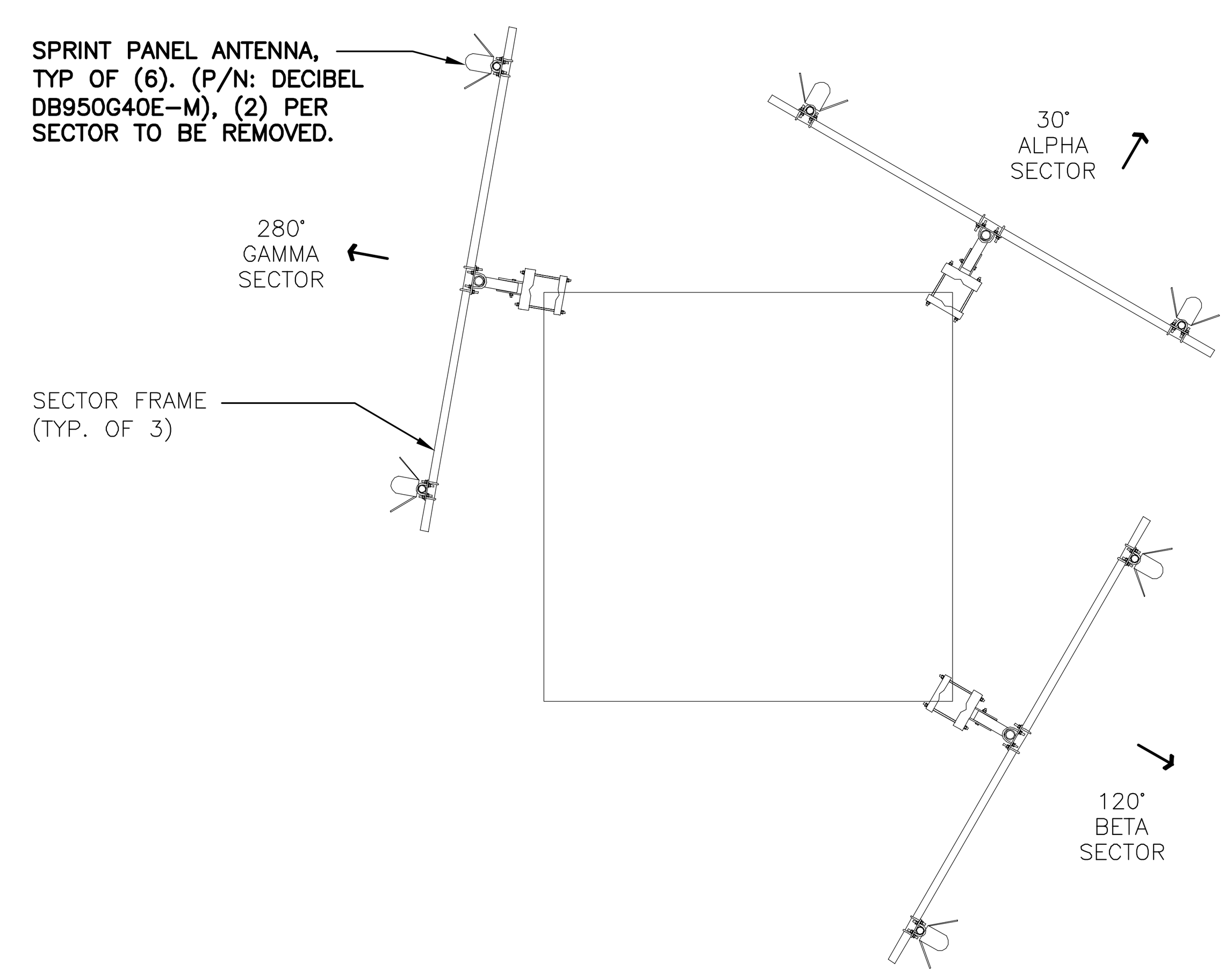


KIT-FD9R6004/1C-DL

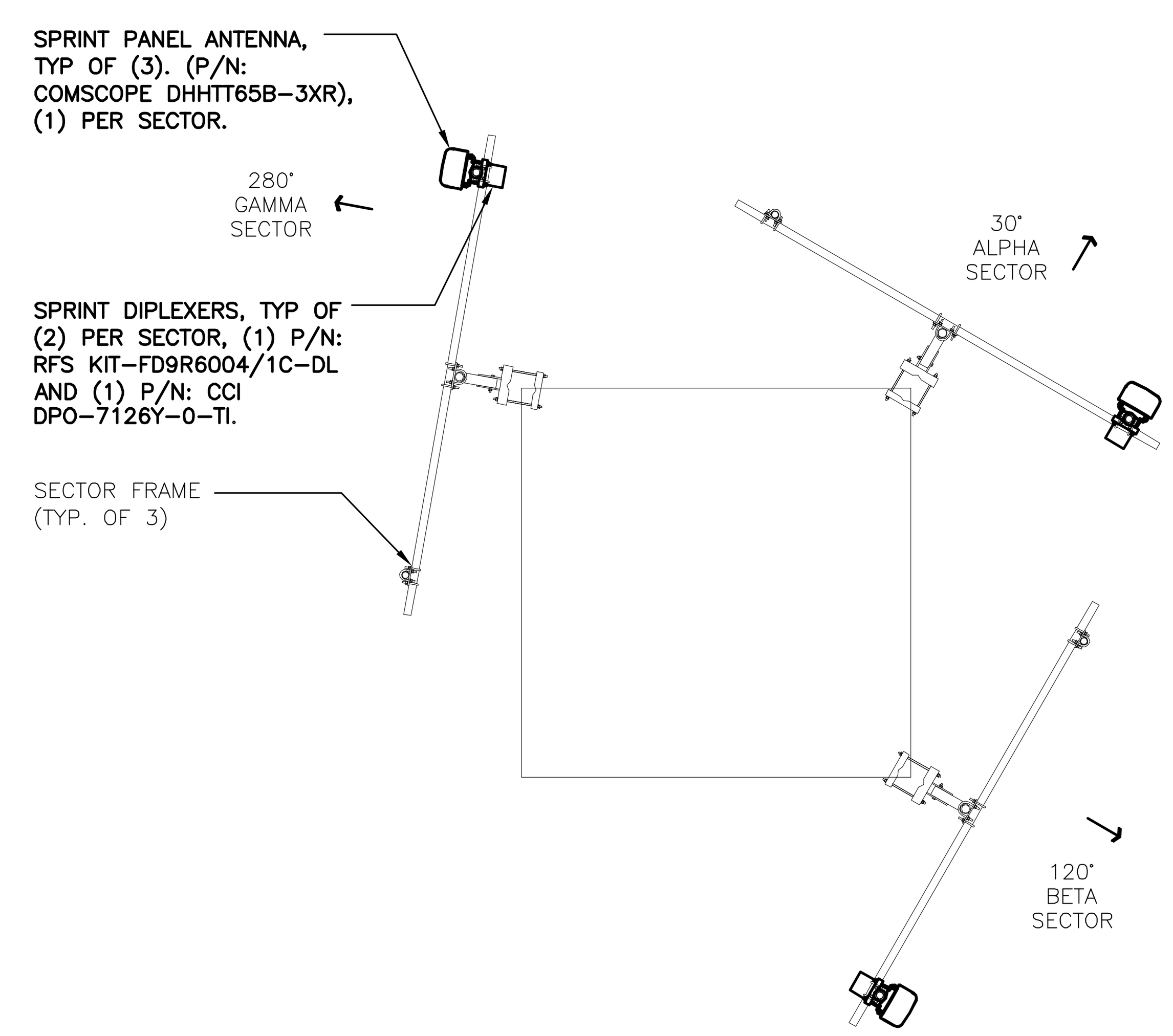
DIPLEXERS		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: RFS MODEL: KIT–FD9R6004/1C–DL	5.8"L x 6.5"W x 4.6"D	6.4 LBS.
MAKE: CCI MODEL: DPO–7126Y–0–T1	6.26"L x 7.42"W x 4.07"D	7.3 LBS.

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

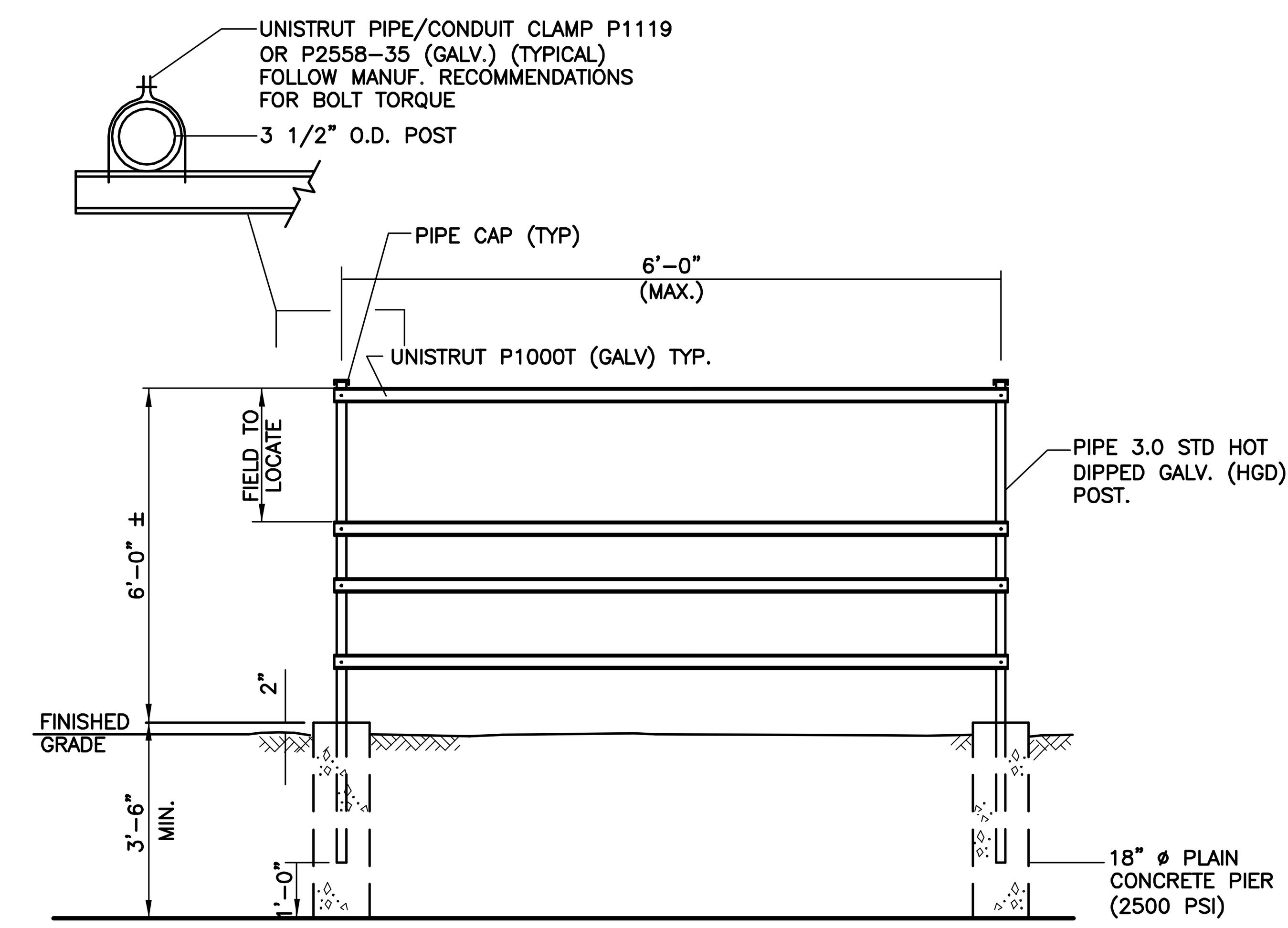
3 C–2 DIPLEXER DETAIL
SCALE: NOT TO SCALE



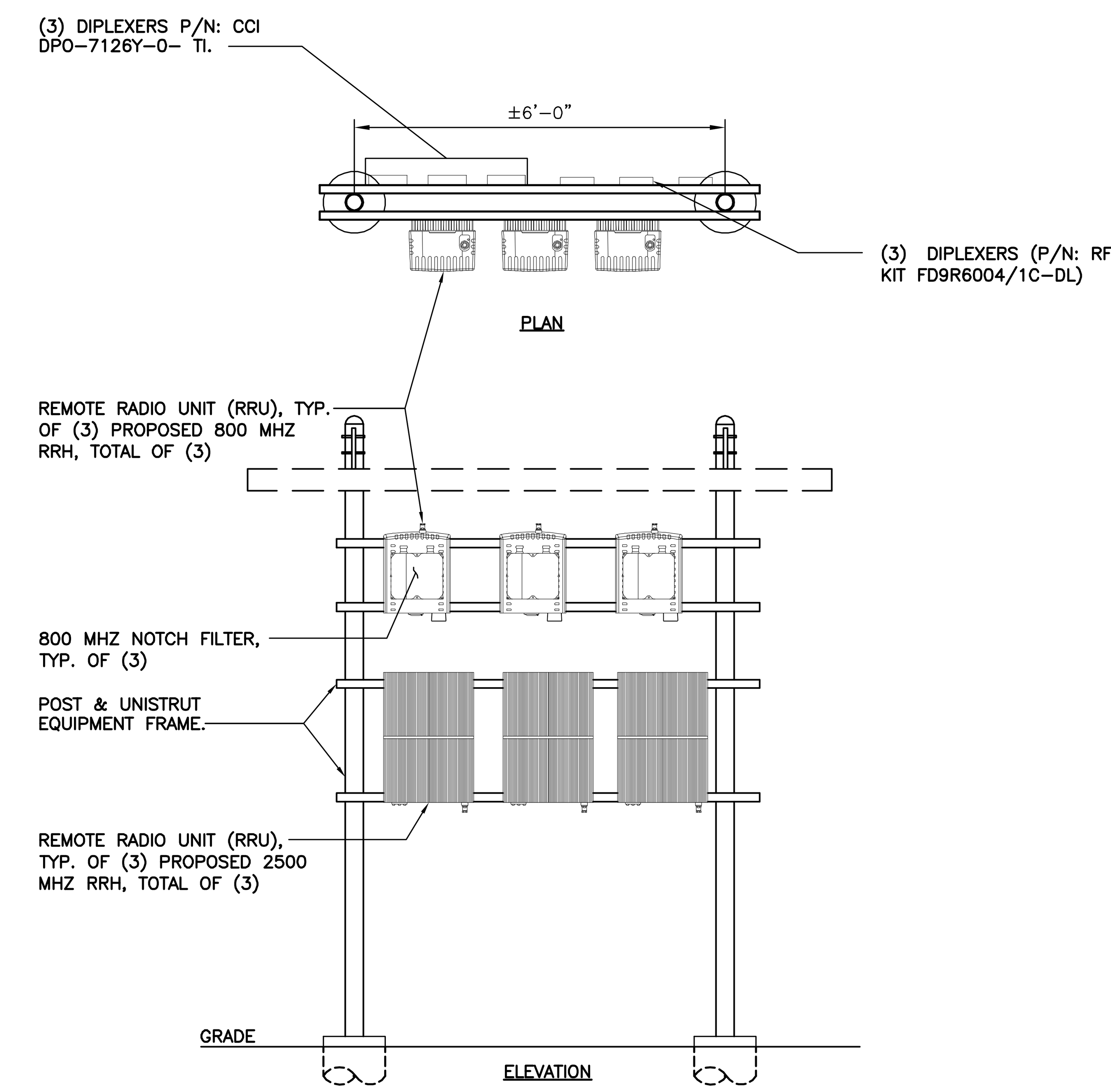
3 C–2 EXISTING ANTENNA PLAN
SCALE: = 1/4" = 1'



4 C–2 PROPOSED ANTENNA PLAN
SCALE: = 1/4" = 1'



5 C–2 UTILITY SUPPORT FRAME (TYP.)
NOT TO SCALE



6 C–2 RRU MOUNTING CONFIG.
SCALE: 1/2" = 1'– 0"

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
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TYPICAL DETAILS

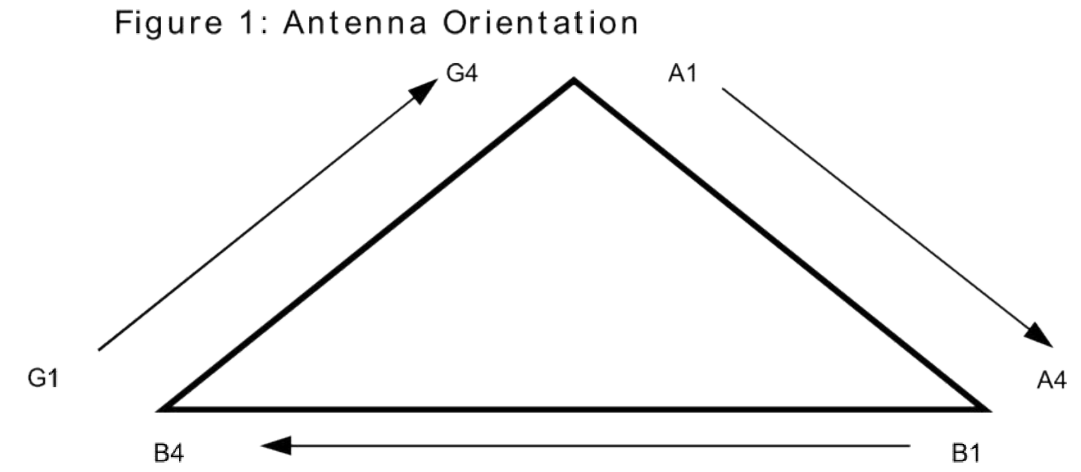
C–2

NV CABLES				
BAND	INDICATOR		PORT	COLOR
800-1	YEL	GRN	NV-1	GRN
1900-1	YEL	RED	NV-2	BLU
1900-2	YEL	BRN	NV-3	BRN
1900-3	YEL	BLU	NV-4	WHT
1900-4	YEL	SLT	NV-5	RED
800-2	YEL	ORG	NV-6	SLT
SPARE	YEL	WHT	NV-7	PPL
2500	YEL	PPL	NV-8	ORG

HYBRID	
HYBRID	COLOR
1	GRN
2	BLU
3	BRN
4	WHT
5	RED
6	SLT
7	PPL
8	ORG

2.5 Band		
2500 Radio 1		COLOR
YEL	WHT	GRN
YEL	WHT	BLU
YEL	WHT	BRN
YEL	WHT	WHT
YEL	WHT	RED
YEL	WHT	SLT
YEL	WHT	PPL
YEL	WHT	ORG

Figure 1: Antenna Orientation



NOTES

1. *All cables shall be marked at the top and bottom with 2" colored tape, stencil tag colored tape, or colored heat shrink tubing*
2. *Colored tape may be obtained from Graybar Electronic. UV stabilized tape or heat shrink are preferred.*
3. *The first ring shall be closest to the end of the cable, and there shall be a 1" space between each ring.*
4. *The cable color code shall be applied in accordance to Table 19-1.*
    A. Table 19-1 only shows 3 sectors, but additional sectors are easily supported by adding the appropriate number of colored rings to the cable color code.
5. *After the cable color code is applied, the frequency color code, Table 19-2, must be applied for the specific frequency band in use on a*
    A. 2" gap shall separate the cable color code from the frequency color code.
    B. The 2" color rings for the frequency code shall be placed next to each other with no spaces.
6. *Wrap 2" colored tape a minimum of 3 times around the coax, and keep the tape in the same area as much as possible. This will allow remova*
7. *Examples of the cable and frequency color codes are shown in Figure 19-1 and Figure 19-2.*

FIGURE 19.1 CABLE COLOR CODE

Sector	Cable	First Ring	Second Ring	Third Ring
1 Alpha	1	Green	No Tape	No Tape
1	2	Blue	No Tape	No Tape
1	3	Brown	No Tape	No Tape
1	4	White	No Tape	No Tape
1	5	Red	No Tape	No Tape
1	6	Grey	No Tape	No Tape
1	7	Purple	No Tape	No Tape
1	8	Orange	No Tape	No Tape
2 Beta	1	Green	Green	No Tape
2	2	Blue	Blue	No Tape
2	3	Brown	Brown	No Tape
2	4	White	White	No Tape
2	5	Red	Red	No Tape
2	6	Grey	Grey	No Tape
2	7	Purple	Purple	No Tape
2	8	Orange	Orange	No Tape
3 Gamma	1	Green	Green	Green
3	2	Blue	Blue	Blue
3	3	Brown	Brown	Brown
3	4	White	White	White
3	5	Red	Red	Red
3	6	Grey	Grey	Grey
3	7	Purple	Purple	Purple
3	8	Orange	Orange	Orange

FIGURE 19.2 COLOR CODE

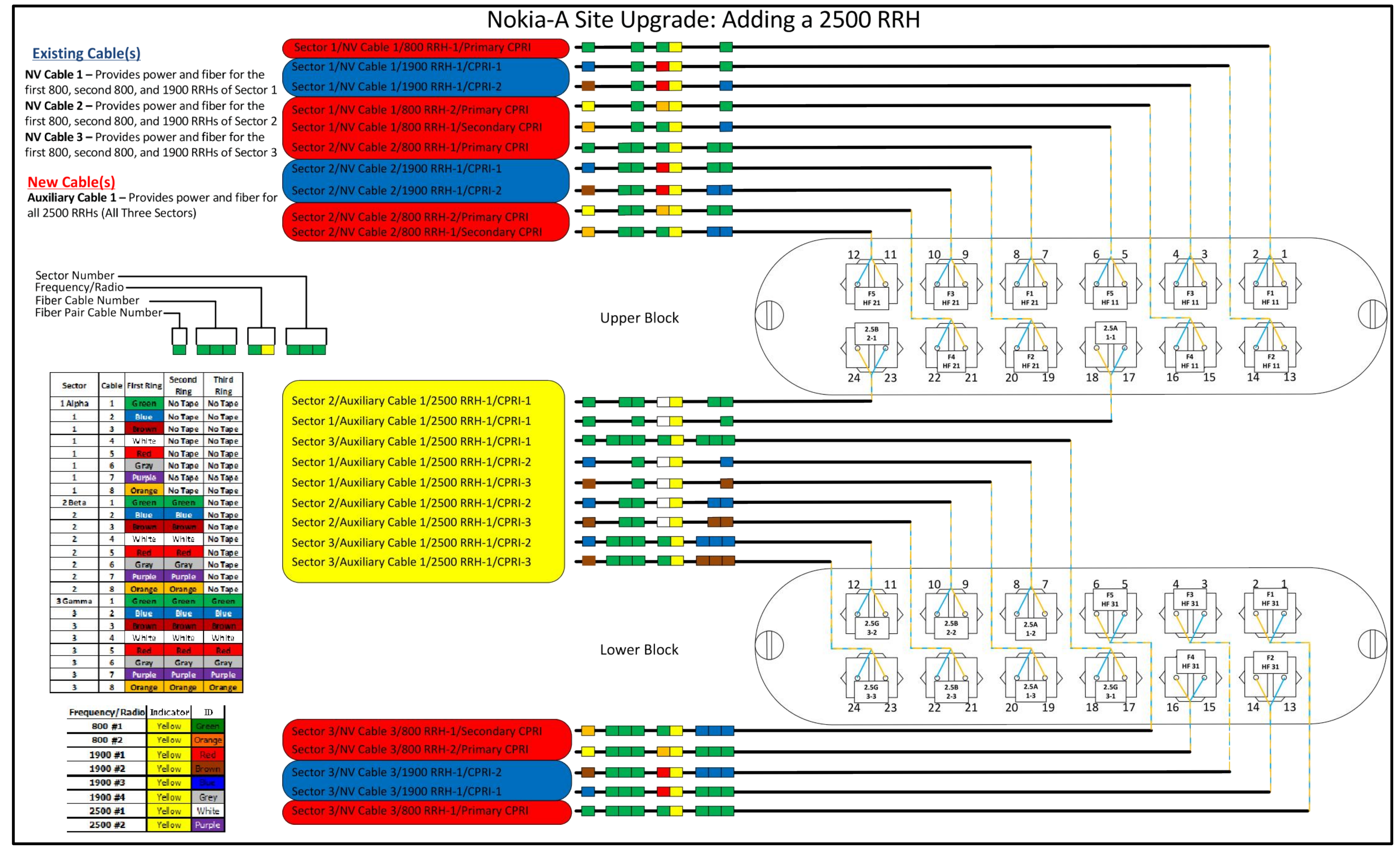
FREQUENC	INDICATOR	ID
800-1	YEL	GRN
1900-1	YEL	RED
1900-2	YEL	BRN
1900-3	YEL	BLU
1900-4	YEL	SLT
800-1	YEL	ORG
RESERVED	YEL	WHT
RESERVED	YEL	PPL

FREQUE	INDICATOR		ID
2500 -1	YEL	WHT	GRN
2500 -2	YEL	WHT	RED
2500 -3	YEL	WHT	BRN
2500 -4	YEL	WHT	BLU
2500 -5	YEL	WHT	SLT
2500 -6	YEL	WHT	ORG
2500 -7	YEL	WHT	WHT
2500 -8	YEL	WHT	PPL

Example – Sector 2, Cable 2, 800mhz Radio #1

Example – Sector 3, Cable 1, 1900mhz Radio #1

Example – Sector 1, Cable 4, 800 mhz Radio #1 and 1900mhz Radio #1



REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
3	11/14/18	TJL	CAG	ISSUED FOR CONSTRUCTION
2	10/11/18	TJL	CAG	ISSUED FOR CONSTRUCTION – ADDED COLOR CODE AND CPRI
1	09/17/18	TJL	CAG	ISSUED FOR CONSTRUCTION – REVISED TO MATCH APPROVED STRUCTURAL
0	03/05/18	TJL	CAG	REVISED PER CLIENT COMMENTS

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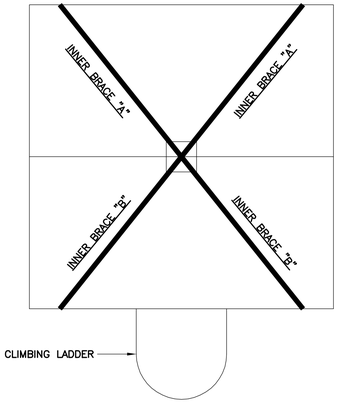
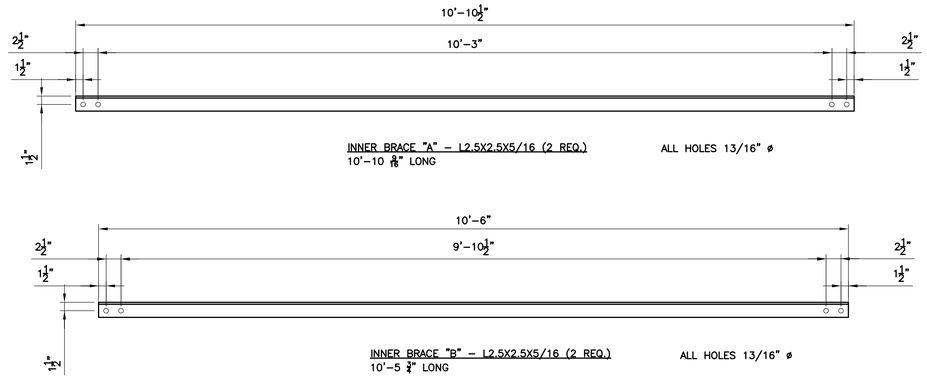
EVERSOURCE STRUCT.: DISTRIBUTON WEST RIVER X-ING
SITE ID: CT54CX774
226 FERRY ROAD
OLD SAYBROOK, CT 06475

DATE: 01/11/18
SCALE: AS NOTED
JOB NO. 17159.20

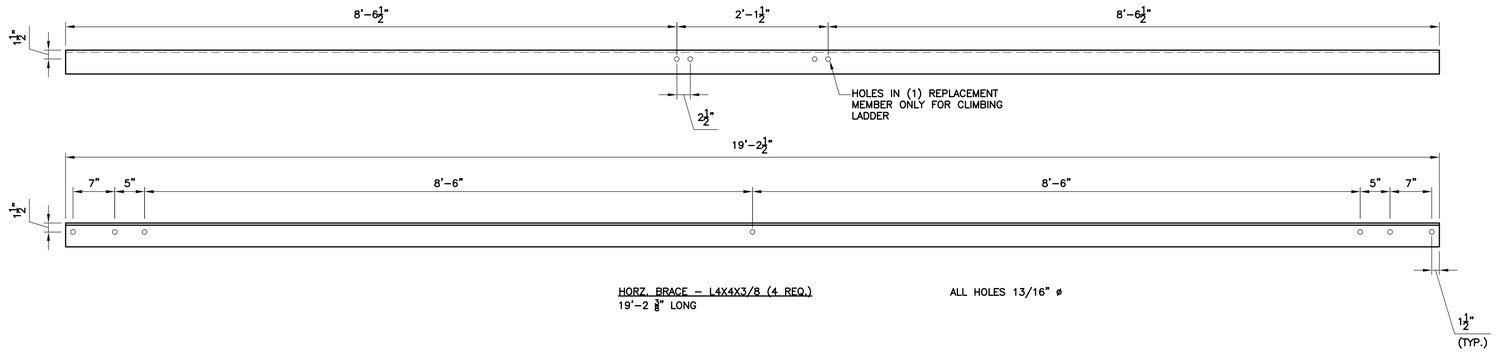
COLOR CODE AND CPRI DETAILS

C-3

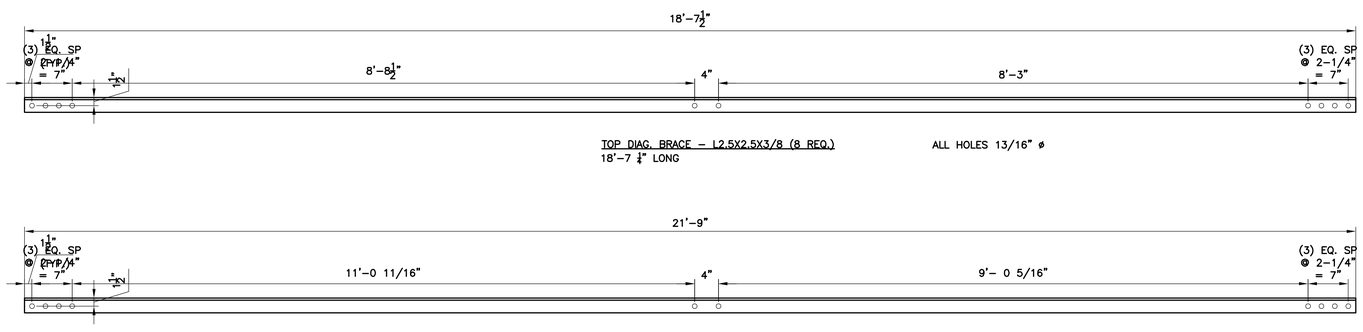




1 / S-1 INNER BRACING REPLACEMENT DETAILS
SCALE: 1" = 1'-0"



2 / S-1 HORZ. BRACING REPLACEMENT DETAILS
SCALE: 1" = 1'-0"



3 / S-1 DIAG. BRACING REPLACEMENT DETAILS
SCALE: 1" = 1'-0"

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2	10/11/18	TJL	CAG	ISSUED FOR CONSTRUCTION – ADDED COLOR CODE AND CPRI
1	09/17/18	TJL	CAG	ISSUED FOR CONSTRUCTION – REVISED TO MATCH APPROVED STRUCTURAL
0	03/05/18	TJL	CAG	REVISED PER CLIENT COMMENTS

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OLD SAYBROOK, CT 06475

DATE:	01/11/18
SCALE:	AS NOTED
JOB NO.	17159.20

REINFORCEMENT DETAILS

S-1

Sheet No. 6 of 6

CENTEK engineering

Centered on Solutions℠

Structural Analysis of Antenna Mast and Tower

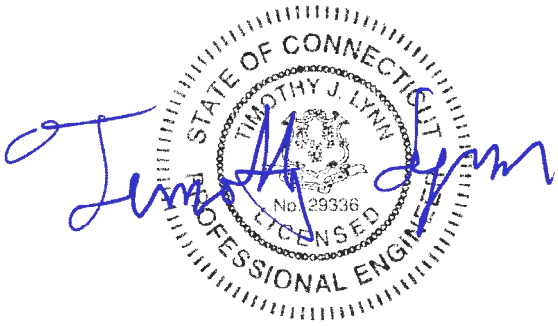
Sprint Site Ref: CT54XC774

Eversource Structure Dist West River x-ing
190' Electric Transmission Lattice Tower

226 Ferry Road
Old Saybrook, CT

CENTEK Project No. 17159.20

~~Date: December 28, 2017~~
Rev 2: August 14, 2018



Prepared for:
Transcend Wireless
10 Industrial Ave, Suite 3
Mahwah, NJ 07430

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Introduction

The purpose of this report is to analyze the existing antenna mast and 190' utility tower located at 226 Ferry Road in Old Saybrook, CT for the proposed antenna and equipment upgrade by Sprint.

The existing and proposed loads consist of the following:

- AT&T (Existing/Reserved):
  Antennas: Nine (9) KMW AM-X-CD-14-65-00T panel antennas and six (6) Powerwave TT19-08DB111-01 TMAs mounted on three (3) 10'-6" T-Arms with a RAD center elevation of 195-ft above tower base.
  Coax Cables: Eighteen (18) 1-5/8" ∅ coax cables running on a leg of the existing tower.
- SPRINT (Existing to Remain):
  Coax Cables: Six (6) 1-5/8" ∅ coax cables running on the outside of the tower as indicated in section 4 of this report.
- SPRINT (Existing to Remove):
  Antennas: Six (6) Decibel DB950G40E-M panel antennas mounted on three (3) Valmont wireless frames to three (3) separate legs of the tower with a RAD center elevation of 136.5-ft above tower base plate.
- **SPRINT (Proposed):**
  Antennas: Three (3) Commscope DHHTT65B-3XR panel antennas, three (3) RFS KIT-FD9R6004/1C-DL Diplexers and three (3) CCI DPO-7126Y-0-T1 Diplexers mounted on three (3) Valmont wireless frames to three (3) separate legs of the tower with a RAD center elevation of 136.5-ft above tower base plate.
  Coax Cables: Twelve (12) 1-5/8" ∅ coax cables running on the outside of the tower as indicated in section 4 of this report.

Primary assumptions used in the analysis

- ASCE Manual No. 10-97, "Design of Latticed Steel Transmission Structures", defines steel stresses for evaluation of the utility tower.
- All utility tower members are adequately protected to prevent corrosion of steel members.
- All proposed antenna mounts are modeled as listed above.
- All coaxial cable will be installed within the antenna mast unless specified otherwise.
- Antenna mast will be properly installed and maintained.
- No residual stresses exist due to incorrect tower erection.
- All bolts are appropriately tightened providing the necessary connection continuity.
- All welds conform to the requirements of AWS D1.1.
- Antenna mast and utility tower will be in plumb condition.
- Utility tower was properly installed and maintained and all members were properly designed, detailed, fabricated, and installed and have been properly maintained since erection.
- Any deviation from the analyzed loading will require a new analysis for verification of structural adequacy.

Analysis

Structural analysis of the existing utility tower structure was completed using the current version of PLS-Tower computer program licensed to CENTEK Engineering, Inc. The NESC program contains a library of all AISC angle shapes and corresponding section properties are computed and applied directly within the program. The program's Steel Code Check option was also utilized.

The existing 190-ft tall lattice tower was analyzed for its ability to resist loads prescribed by the NESC standard. Maximum usage for the tower was calculated considering the additional forces from the antenna mast and associated appurtenances. Section 7 of this report details these gravity and lateral wind loads.

Design Basis

Our analysis was performed in accordance with TIA-222-G, ASCE Manual No. 10-97, "Design of Latticed Steel Transmission Structures", NESC C2-2007 and Northeast Utilities Design Criteria.

- UTILITY TOWER ANALYSIS

  The purpose of this analysis is to determine the adequacy of the existing utility structure to support the proposed antenna loads. The loading and design requirements were analyzed in accordance with the NU Design Criteria Table, NESC C2-2007 ~ Construction Grade B, and ASCE Manual No. 10-97, "Design of Latticed Steel Transmission Structures".

  Load cases considered:

  Load Case 1: NESC Heavy
  Wind Pressure…….. 4.0 psf
  Radial Ice Thickness…….. 0.5"
  Vertical Overload Capacity Factor…….. 1.50
  Wind Overload Capacity Factor…….. 2.50
  Wire Tension Overload Capacity Factor…… 1.65

  Load Case 2: NESC Extreme
  Wind Speed…….. 120 mph (1)
  Radial Ice Thickness…….. 0"

  Note 1: NESC C2-2007, Section25, Rule 250C: Extreme Wind Loading, 1.25 x Gust Response Factor (wind speed: 3-second gust)

Results

- UTILITY TOWER

  This analysis finds that the subject utility structure is adequate to support the proposed antenna mast and related appurtenances. The tower stresses meet the requirements set forth by the ASCE Manual No. 10-97, "Design of Latticed Steel Transmission Structures", for the applied NESC Heavy and Hi-Wind load cases. The detailed analysis results are provided in Section 8 of this report. The analysis results are summarized as follows:

  A maximum usage of **99.72%** occurs in the utility tower under the **NESC Extreme** loading condition **with the reinforcements detailed in section 4 of this report.**

TOWER SECTION:

The utility structure was found to be within allowable limits **with the reinforcements detailed in section 4 of this report.**

Tower Member	Stress Ratio (% of capacity)	Result
Angle 54X	99.72%	**PASS**

- FOUNDATION AND ANCHORS

The existing foundation consists of two (2) 3.5-ft square tapering to 6-ft square x 12.5-ft long reinforced concrete piers with two (2) 10-ft square x 2-ft thick reinforced concrete pads (uplift piers) and two (2) 10-ft x 25-ft x 7.5-ft thick reinforced concrete mats (compression piers) . The base of the tower is connected to the foundation by five (5) 2-1/4" Ø anchor bolts per leg. Foundation information was obtained from NUSCO drawings # 01503-60002 and 01503-42001.

BASE REACTIONS:

From PLS-Tower analysis of utility tower based on NESC/NU prescribed loads.

Load Case	Shear	Uplift	Compression
NESC Heavy Wind	21.43 kips	48.92 kips	137.39 kips
NESC Extreme Wind	66.08 kips	302.77 kips	323.12 kips

Note 1 – 10% increase to be applied to the above tower base reactions for foundation verification per OTRM 051

ANCHOR BOLTS:

The anchor bolts were found to be within allowable limits.

Tower Component	Design Limit	Stress Ratio (% of capacity)	Result
Anchor Bolts	Tension	51.8%	**PASS**

FOUNDATION:

The foundation was found to be within allowable limits.

Foundation	Design Limit	Required FS (1)	Proposed Loading FS (2)	Result
Reinf. Conc. Pad & Pier	Uplift	1.0	1.37	**PASS**
	Bearing Pressure	10 ksf	4.64 ksf	**PASS**

Note 1: FS denotes Factor of Safety
Note 2: 10% increase to PLS base reactions used in foundation analysis per OTRM 051.

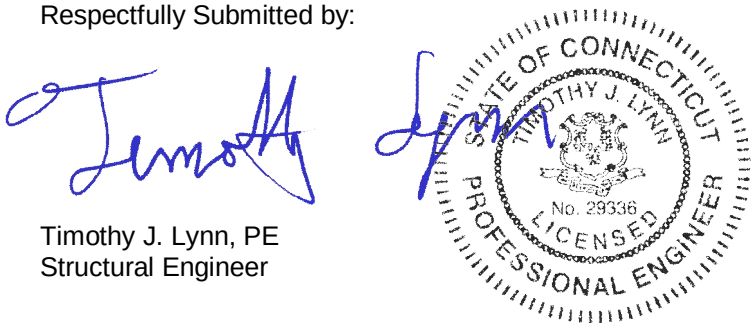
C o n c l u s i o n

This analysis shows that the subject utility tower **with the reinforcements detailed in section 4 of this report is adequate** to support the proposed AT&T equipment upgrade.

The analysis is based, in part on the information provided to this office by Eversource and Sprint. If the existing conditions are different than the information in this report, CENTEK engineering, Inc. must be contacted for resolution of any potential issues.

Please feel free to call with any questions or comments.

Respectfully Submitted by:



Timothy J. Lynn, PE
Structural Engineer

STANDARD CONDITIONS FOR FURNISHING OF PROFESSIONAL ENGINEERING SERVICES ON EXISTING STRUCTURES

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

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

- Information from the field and/or drawings in the possession of CENTEK engineering, Inc. or generated by field inspections or measurements of the structure.

- It is the responsibility of the client to ensure that the information provided to CENTEK engineering, Inc. and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and are in an un-corroded condition and have not deteriorated. It is therefore assumed that its capacity has not significantly changed from the “as new” condition.

- All services will be performed to the codes specified by the client, and we do not imply to meet any other codes or requirements unless explicitly agreed in writing. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement. In the absence of information to the contrary, all work will be performed in accordance with the latest revision of ANSI/ASCE10 & ANSI/EIA-222.

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

GENERAL DESCRIPTION OF STRUCTURAL ANALYSIS PROGRAM ~ RISA-3D

RISA-3D Structural Analysis Program is an integrated structural analysis and design software package for buildings, bridges, tower structures, etc.

Modeling Features:

- Comprehensive CAD-like graphic drawing/editing capabilities that let you draw, modify and load elements as well as snap, move, rotate, copy, mirror, scale, split, merge, mesh, delete, apply, etc.
- Versatile drawing grids (orthogonal, radial, skewed)
- Universal snaps and object snaps allow drawing without grids
- Versatile general truss generator
- Powerful graphic select/unselect tools including box, line, polygon, invert, criteria, spreadsheet selection, with locking
- Saved selections to quickly recall desired selections
- Modification tools that modify single items or entire selections
- Real spreadsheets with cut, paste, fill, math, sort, find, etc.
- Dynamic synchronization between spreadsheets and views so you can edit or view any data in the plotted views or in the spreadsheets
- Simultaneous view of multiple spreadsheets
- Constant in-stream error checking and data validation
- Unlimited undo/redo capability
- Generation templates for grids, disks, cylinders, cones, arcs, trusses, tanks, hydrostatic loads, etc.
- Support for all units systems & conversions at any time
- Automatic interaction with RISASection libraries
- Import DXF, RISA-2D, STAAD and ProSteel 3D files
- Export DXF, SDNF and ProSteel 3D files

Analysis Features:

- Static analysis and P-Delta effects
- Multiple simultaneous dynamic and response spectra analysis using Gupta, CQC or SRSS mode combinations
- Automatic inclusion of mass offset (5% or user defined) for dynamic analysis
- Physical member modeling that does not require members to be broken up at intermediate joints
- State of the art 3 or 4 node plate/shell elements
- High-end automatic mesh generation — draw a polygon with any number of sides to create a mesh of well-formed quadrilateral (NOT triangular) elements.
- Accurate analysis of tapered wide flanges - web, top and bottom flanges may all taper independently
- Automatic rigid diaphragm modeling
- Area loads with one-way or two-way distributions
- Multiple simultaneous moving loads with standard AASHTO loads and custom moving loads for bridges, cranes, etc.
- Torsional warping calculations for stiffness, stress and design
- Automatic Top of Member offset modeling
- Member end releases & rigid end offsets
- Joint master-slave assignments
- Joints detachable from diaphragms
- Enforced joint displacements
- 1-Way members, for tension only bracing, slipping, etc.

- 1-Way springs, for modeling soils and other effects
- Euler members that take compression up to their buckling load, then turn off.
- Stress calculations on any arbitrary shape
- Inactive members, plates, and diaphragms allows you to quickly remove parts of structures from consideration
- Story drift calculations provide relative drift and ratio to height
- Automatic self-weight calculations for members and plates
- Automatic subgrade soil spring generator

Graphics Features:

- Unlimited simultaneous model view windows
- Extraordinary “true to scale” rendering, even when drawing
- High-speed redraw algorithm for instant refreshing
- Dynamic scrolling stops right where you want
- Plot & print virtually everything with color coding & labeling
- Rotate, zoom, pan, scroll and snap views
- Saved views to quickly restore frequent or desired views
- Full render or wire-frame animations of deflected model and dynamic mode shapes with frame and speed control
- Animation of moving loads with speed control
- High quality customizable graphics printing

Design Features:

- Designs concrete, hot rolled steel, cold formed steel and wood
- ACI 1999/2002, BS 8110-97, CSA A23.3-94, IS456:2000,EC 2-1992 with consistent bar sizes through adjacent spans
- Exact integration of concrete stress distributions using parabolic or rectangular stress blocks
- Concrete beam detailing (Rectangular, T and L)
- Concrete column interaction diagrams
- Steel Design Codes: AISC ASD 9th, LRFD 2nd & 3rd, HSS Specification, CAN/CSA-S16.1-1994 & 2004, BS 5950-1-2000, IS 800-1984, Euro 3-1993 including local shape databases
- AISI 1999 cold formed steel design
- NDS 1991/1997/2001 wood design, including Structural Composite Lumber, multi-ply, full sawn
- Automatic spectra generation for UBC 1997, IBC 2000/2003
- Generation of load combinations: ASCE, UBC, IBC, BOCA, SBC, ACI
- Unbraced lengths for physical members that recognize connecting elements and full lengths of members
- Automatic approximation of K factors
- Tapered wide flange design with either ASD or LRFD codes
- Optimization of member sizes for all materials and all design codes, controlled by standard or user-defined lists of available sizes and criteria such as maximum depths
- Automatic calculation of custom shape properties
- Steel Shapes: AISC, HSS, CAN, ARBED, British, Euro, Indian, Chilean
- Light Gage Shapes: AISI, SSMA, Dale / Incor, Dietrich, Marino\WARE
- Wood Shapes: Complete NDS species/grade database
- Full seamless integration with RISAFoot (Ver 2 or better) for advanced footing design and detailing
- Plate force summation tool

Results Features:

- Graphic presentation of color-coded results and plotted designs
- Color contours of plate stresses and forces with quadratic smoothing, the contours may also be animated
- Spreadsheet results with sorting and filtering of: reactions, member & joint deflections, beam & plate forces/stresses, optimized sizes, code designs, concrete reinforcing, material takeoffs, frequencies and mode shapes
- Standard and user-defined reports
- Graphic member detail reports with force/stress/deflection diagrams and detailed design calculations and expanded diagrams that display magnitudes at any dialed location
- Saved solutions quickly restore analysis and design results.

GENERAL DESCRIPTION OF STRUCTURAL ANALYSIS PROGRAM ~ PLS-TOWER

PLS-TOWER is a Microsoft Windows program for the analysis and design of steel latticed towers used in electric power lines or communication facilities. Both self-supporting and guyed towers can be modeled. The program performs design checks of structures under user specified loads. For electric power structures it can also calculate maximum allowable wind and weight spans and interaction diagrams between different ratios of allowable wind and weight spans.

Modeling Features:

- Powerful graphics module (stress usages shown in different colors)
- Graphical selection of joints and members allows graphical editing and checking
- Towers can be shown as lines, wire frames or can be rendered as 3-d polygon surfaces
- Can extract geometry and connectivity information from a DXF CAD drawing
- CAD design drawings, title blocks, drawing borders or photos can be tied to structure model
- XML based post processor interface
- Steel Detailing Neutral File (SDNF) export to link with detailing packages
- Can link directly to line design program PLS-CADD
- Automatic generation of structure files for PLS-CADD
- Databases of steel angles, rounds, bolts, guys, etc.
- Automatic generation of joints and members by symmetries and interpolations
- Automated mast generation (quickly builds model for towers that have regular repeating sections) via graphical copy/paste
- Steel angles and rounds modeled either as truss, beam or tension-only elements
- Guys are easily handled (can be modeled as exact cable elements)

Analysis Features:

- Automatic handling of tension-only members
- Automatic distribution of loads in 2-part suspension insulators (v-strings, horizontal vees, etc.)
- Automatic calculation of tower dead, ice, and wind loads as well as drag coefficients according to:
  - ASCE 74-1991
  - NESC 2002
  - NESC 2007
  - IEC 60826:2003
  - EN50341-1:2001 (CENELEC)
  - EN50341-3-9:2001 (UK NNA)
  - EN50341-3-17:2001 (Portugal NNA)
  - ESAA C(b)1-2003 (Australia)
  - TPNZ (New Zealand)
  - REE (Spain)
  - EIA/TIA 222-F
  - ANSI/TIA 222-G
  - CSA S37-01
- Automated microwave antenna loading as per EIA/TIA 222-F and ANSI/TIA 222-G
- Minimization of problems caused by unstable joints and mechanisms
- Automatic bandwidth minimization and ability to solve large problems
- Design checks according to (other standards can be added easily):
  - ASCE Standard 10-90

- AS 3995 (Australian Standard 3995)
- BS 8100 (British Standard 8100)
- EN50341-1 (CENELEC, both empirical and analytical methods are available)
- ECCS 1985
- NGT-ECCS
- PN-90/B-03200
- EIA/TIA 222-F
- ANSI/TIA 222-G
- CSA S37-01
- EDF/RTE Resal
- IS 802 (India Standard 802)

Results Features:

- Design summaries printed for each group of members
- Easy to interpret text, spreadsheet and graphics design summaries
- Automatic determination of allowable wind and weight spans
- Automatic determination of interaction diagrams between allowable wind and weight spans
- Capability to batch run multiple tower configurations and consolidate the results
- Automated optimum angle member size selection and bolt quantity determination

Tool for interactive angle member sizing and bolt quantity determination.

Criteria for Design of PCS Facilities On or Extending Above Metal Electric Transmission Towers & Analysis of Transmission Towers Supporting PCS Masts (1)

Introduction

This criteria is the result from an evaluation of the methods and loadings specified by the separate standards, which are used in designing telecommunications towers and electric transmission towers. That evaluation is detailed elsewhere, but in summary; the methods and loadings are significantly different. This criteria specifies the manner in which the appropriate standard is used to design PCS facilities including masts and brackets (hereafter referred to as "masts"), and to evaluate the electric transmission towers to support PCS masts. The intent is to achieve an equivalent level of safety and security under the extreme design conditions expected in Connecticut and Massachusetts.

ANSI Standard TIA-222 covering the design of telecommunications structures specifies a working strength/allowable stress design approach. This approach applies the loads from extreme weather loading conditions, and designs the structure so that it does not exceed some defined percentage of failure strength (allowable stress).

ANSI Standard C2-2007 (National Electrical Safety Code) covering the design of electric transmission metal structures is based upon an ultimate strength/yield stress design approach. This approach applies a multiplier (overload capacity factor) to the loads possible from extreme weather loading conditions, and designs the structure so that it does not exceed its ultimate strength (yield stress).

Each standard defines the details of how loads are to be calculated differently. Most of the NU effort in "unifying" both codes was to establish what level of strength each approach would provide, and then increasing the appropriate elements of each to achieve a similar level of security under extreme weather loadings.

Two extreme weather conditions are considered. The first is an extreme wind condition (hurricane) based upon a 50-year recurrence (2% annual probability). The second is a winter condition combining wind and ice loadings.

The following sections describe the design criteria for any PCS mast extending above the top of an electric transmission tower, and the analysis criteria for evaluating the loads on the transmission tower from such a mast from the lower portions of such a mast, and loads on the pre-existing electric lower portions of such a mast, and loads on the pre-existing electric transmission tower and the conductors it supports.

Note 1: Prepared from documentation provide from Northeast Utilities.

P C S M a s t

The PCS facility (mast, external cable/trays, including the initial and any planned future support platforms, antennas, etc. extending the full height above the top level of the electric transmission structure) shall be designed in accordance with the provisions of TIA 222-G:

E L E C T R I C T R A N S M I S S I O N T O W E R

The electric transmission tower shall be analyzed using yield stress theory in accordance with the attached table titled “NU Design Criteria”. This specifies uniform loadings (different from the TIA loadings) on the each of the following components of the installed facility:

- PCS mast for its total height above ground level, including the initial and planned future support platforms, antennas, etc. above the top of an electric transmission structure.
- Conductors are related devices and hardware.
- Electric transmission structure. The loads from the PCS facility and from the electric conductors shall be applied to the structure at conductor and PCS mast attachment points, where those load transfer to the tower.

The uniform loadings and factors specified for the above components in the table are based upon the National Electrical Safety Code 2007 Edition Extreme Wind (Rule 250C) and Combined Ice and Wind (Rule 250B-Heavy) Loadings. These provide equivalent loadings compared to TIA and its loads and factors with the exceptions noted above. (Note that the NESC does not require the projected wind surfaces of structures and equipment to be increased by the ice covering.)

In the event that the electric transmission tower is not sufficient to support the additional loadings of the PCS mast, reinforcement will be necessary to upgrade the strength of the overstressed members.

Attachment A
Eversource Design Criteria

		Attachment A NU Design Criteria	Basic Wind Speed	Pressure	Height factor	Gust Factor	Load or Stress Factor	Force Coef. - Shape Factor
			V (MPH)	Q (PSF)	Kz	Gh		
Ice Condition	TIA/EIA	Antenna Mount	TIA	TIA (0.75Wi)	TIA	TIA	TIA, Section 3.1.1.1 disallowed for connection design	TIA
	NESC Heavy	Tower/Pole Analysis with antennas extending above top of Tower/Pole (Yield Stress)	____	4	1	1	2.50	1.6 Flat Surfaces 1.3 Round Surfaces
		Tower/Pole Analysis with antennas below top of Tower/Pole (on two faces)	____	4	1	1	2.50	1.6 Flat Surfaces 1.3 Round Surfaces
		Conductors:	Conductor Loads Provided by NU					
High Wind Condition	TIA/EIA	Antenna Mount	85	TIA	TIA	TIA	TIA, Section 3.1.1.1 disallowed for connection design	TIA
	NESC Extreme Wind	Tower/Pole Analysis with antennas extending above top of Tower/Pole	For wind speed use OTRM 060 Map 1, Rule 250C: Extreme Wind Loading Apply a 1.25 X Gust Response Factor to all telecommunication equipment projected above top of tower/pole and apply a 1.0 x Gust Response Factor to the tower/pole structure					1.6 Flat Surfaces 1.3 Round Surfaces
		Tower/Pole Analysis with antennas below top of Tower/Pole	For wind speed use OTRM 060 Map 1, Rule 250C: Extreme Wind Loading Height above ground is based on overall height to top of tower/pole					1.6 Flat Surfaces 1.3 Round Surfaces
		Conductors:	Conductor Loads Provided by NU					
NESC Extreme Ice with Wind Condition *		Tower/Pole Analysis with antennas extending above top of Tower/Pole	For wind speed use OTRM 060 Map 1, Rule 250D: Extreme Ice with Wind Loading 4 PSF Wind Load 1.25 X Gust Response Factor Apply a 1.25 X Gust Response Factor to all telecommunication equipment projected above top of tower/pole and apply a 1.0 x Gust Response Factor to the tower/pole structure					1.6 Flat Surfaces 1.3 Round Surfaces
		Tower/Pole Analysis with antennas below top of Tower/Pole	For wind speed use OTRM 060 Map 1, Rule 250D: Extreme Ice with Wind Loading 4 PSF Wind Load Height above ground is based on overall height to top of tower/pole					1.6 Flat Surfaces 1.3 Round Surfaces
		Conductors:	Conductor Loads Provided by NU					
		* Only for structures installed after 2007						

mount as specified below, and shall include the wireless communication mast and antenna loads per NESC criteria)

The strength reduction factor obtained from the field investigation shall be applied to the members or connections that are showing signs of deterioration from their original condition

With the written approval of Eversource Transmission Line Engineering on a case by case the existing structures may be analyzed initially using the current NESC code, then it is permitted to use the original design code with the original conductor load should the existing tower fail the current NESC code.

The structure shall be analyzed using yield stress theory in accordance with Attachment A, "Eversource Design Criteria." This specifies uniform loadings (different from the TIA loadings) on each of the following components of the installed facility:

a) Wireless communication mast for its total height above ground level, including the initial and any planned future equipment (Support Platforms, Antennas, TMA's etc.) above the top of an electric transmission structure.

b) Conductors and related devices and hardware (wire loads will be provided by Eversource).

c) Electric Transmission Structure

   i) The loads from the wireless communication equipment components based on NESC and Eversource Criteria in Attachment A, and from the electric conductors shall be applied to the structure at conductor and wireless communication mast attachment points, where those loads transfer to the tower.

   ii) Shape Factor Multiplier:

NESC Structure Shape	Cd
Polyround (for polygonal steel poles)	1.3
Flat	1.6
Open Lattice	3.2
Pole with Coaxial Cable	1.6

   iii) When Coaxial Cables are mounted alongside the pole structure, the shape multiplier shall be:

Mount Type	Cable Cd	Pole Cd
Coaxial Cables on outside periphery (One layer)	1.45	1.45
Coaxial Cables mounted on stand offs	1.6	1.6

d) The uniform loadings and factors specified for the above components in Attachment A, "Eversource Design Criteria" are based upon the National Electric Safety Code 2007 Edition Extreme Wind (Rule 250C) and Combined Ice and Wind (Rule 250B-Heavy) Loadings. These provide equivalent loadings compared to the TIA and its loads and factors with the exceptions noted above.

   Note: The NESC does not require ice load be included in the supporting structure. (Ice on conductors and shield wire only, and Eversource will provide these loads).

e) Mast reaction loads shall be evaluated for local effects on the transmission structure members at the attachment points.

EVERSOURCE

Wire Loads

Project Name	CT River Xing Recheck
Work Order	
Structure #	CT River Xing West - Old Saybrook
Line #	DIST
Prepared By	JS — Date 05/10/2018
Checked By	— Date

Structure Data

Structure Height (AGL)	190	Load Zone	SE CT Coastal
# of Circuits	2	Insulation Type	Deadend (Column)
Insulator Weight	150	Broken Wire Side	Back
Broken Wire Side	Left	Structure Type	Double Circuit Steel Pole

Wire Data

Circuit #	Left	Right
Shield Wire	7 #8 AW	7 #8 AW
Conductor	DOVE	DOVE
# of Conductors	1	1

Line Geometry

	Circuit 1			Circuit 2		
	Ahead	Back	Total	Ahead	Back	Total
Wind Span	1030	240	1270	1030	240	1270
Weight Span	1030	1878	2908	1030	1878	2908
Minimum Line Angle	0	3	3	0	3	3
Maximum Line Angle	0	3	3	0	3	3

Wire Tensions

	Left Circuit		Right Circuit		
	Ahead	Back	Ahead	Back	
NESC Rule 250B	12000	12000	12000	12000	Conductor
NESC Rule 250C	17025	11174	17025	11174	
NESC Rule 250D					
60°F, No wind or ice	4748	7320	4748	7320	
NESC Rule 250B	8230	8000	8230	8000	Shield Wire
NESC Rule 250C	8701	7266	8701	7266	
NESC Rule 250D					
60°F, No wind or ice	2651	6640	2651	6640	

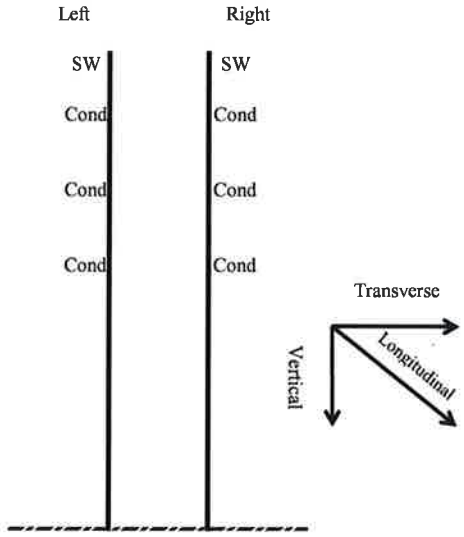
All Loads include Overload Factors but not Pole Shape Factors

Load Case	Description
1	NESC Rule 250B; 0°F, ½" of ice, 4 psf wind
2	NESC Rule 250C; (Extreme Wind Loading)
3	NESC Rule 250C; Extreme Wind Longtitudinal On The Pole Only
4	NESC Rule 250D; 15°F 1" of ice, 4 psf or NU Ice Case; 32°F 1" Ice
5	NESC Rule 250B with no OLFs (Service Load)
6	60°F, No wind or Ice (Deflection)
7a	NESC Rule 250B/261C Broken Wire Case (Broken SW and Borken Conductor)
7b	NESC Rule 250B/261C Broken Wire Case (Broken SW or Broken Phase)

EVERSOURCE

Wire Loads
Load Tree

Project Number
CT River Xing Recheck
Structure Number
CT River Xing West - O
Line Number
DIST



Double Circuit Steel Pole Deadend on Column
All wires to be broken simultaneously in each direction

LEFT Circuit

	Case	Back			Ahead		
		Vertical	Transverse	Longitudina	Vertical	Transverse	Longitudina
Conductor	1	4880.3573	1471.6519	-19772.86	2778.2577	1704.0083	19800
	2	1586.67	1479.322	-11158.69	937.95	3213.565	17025
	3	1586.67	383.0992	-7309.968	937.95	0	4748
	4	6088.5891	254.16	0	3407.0536	1024.9367	0
	5	3253.5715	802.19147	-11983.55	1852.1718	681.60333	12000
	6	1586.67	383.0992	-7309.968	937.95	0	4748
	7a	0	0	0	2778.2577	1704.0083	19800
	7b	0	0	0	2778.2577	1704.0083	19800
Shield Wire	Case	Back			Ahead		
		Vertical	Transverse	Longitudina	Vertical	Transverse	Longitudina
	1	2288.1646	967.83462	-13181.91	1254.9572	1188.7917	13579.5
	2	491.6604	672.87306	-7256.042	269.654	1255.7417	8701
	3	491.6604	347.51075	-6630.9	269.654	0	2651
	4	3727.3417	190.8	0	2044.2822	818.85	0
	5	1525.4431	529.48765	-7989.036	836.6381	475.51667	8230
	6	491.6604	347.51075	-6630.9	269.654	0	2651
	7a	0	0	0	1254.9572	1879.6263	13579.5
	7b	0	0	0	1254.9572	1188.7917	13579.5

V T L

7658 3176 27.2 ① 250B - Conductor

2525 4693 5866 ② 250C - Conductor

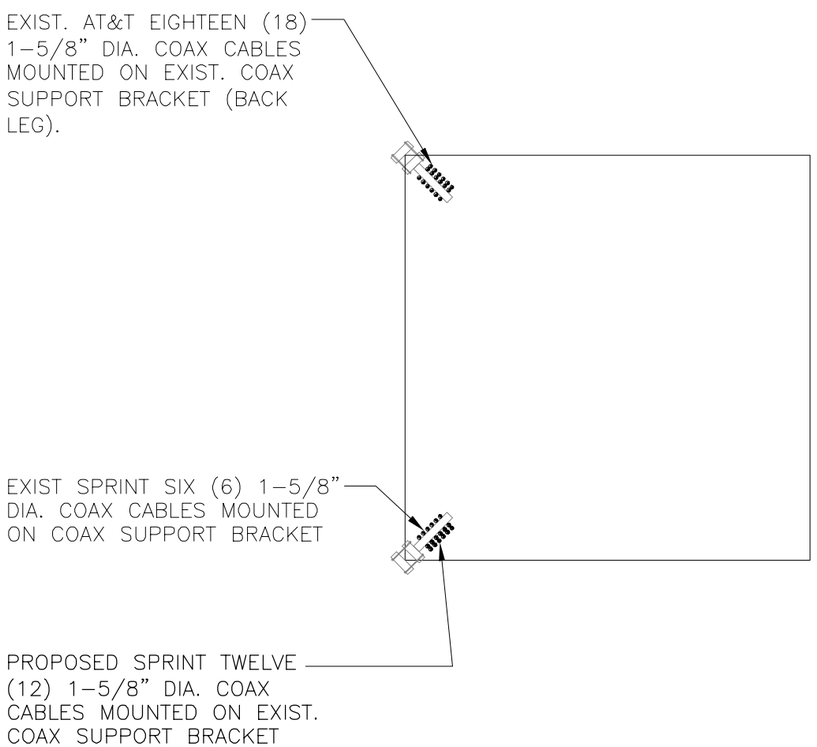
V T L

3543 2157 400 ① 250B - Shield wire

761 1929 1445 ② 250C - Shield wire

RIGHT Circuit

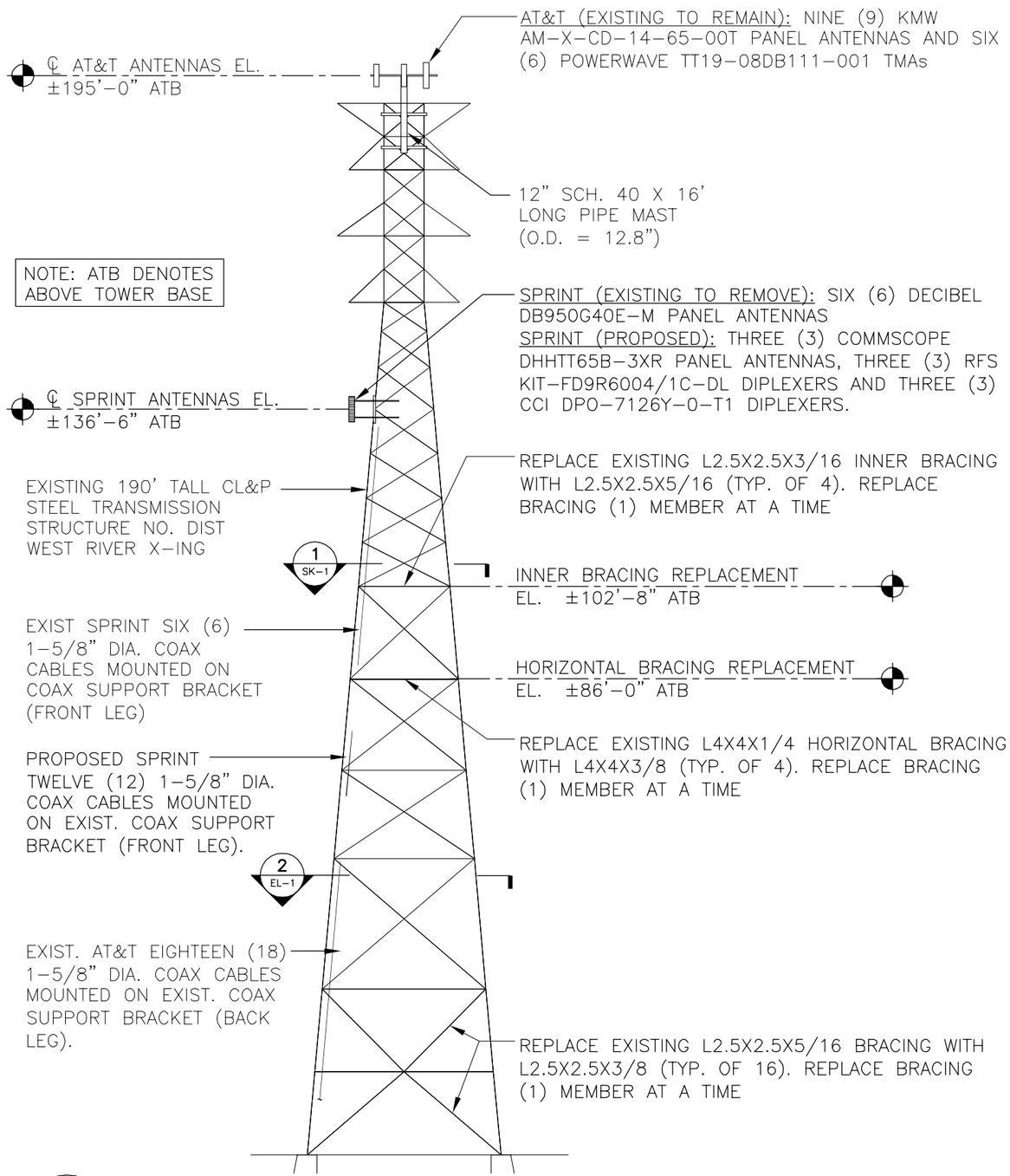
	Case	Back			Ahead		
		Vertical	Transverse	Longitudina	Vertical	Transverse	Longitudina
Conductor	1	4880.3573	1471.6519	-19772.86	2778.2577	1704.0083	19800
	2	1586.67	1479.322	-11158.69	937.95	3213.565	17025
	3	1586.67	383.0992	-7309.968	937.95	0	4748
	4	6088.5891	254.16	0	3407.0536	1024.9367	0
	5	3253.5715	802.19147	-11983.55	1852.1718	681.60333	12000
	6	1586.67	383.0992	-7309.968	937.95	0	4748
	7a	0	0	0	2778.2577	1704.0083	19800
	7b	0	0	0	2778.2577	1704.0083	19800
Shield Wire	Case	Back			Ahead		
		Vertical	Transverse	Longitudina	Vertical	Transverse	Longitudina
	1	2288.1646	967.83462	-13181.91	1254.9572	1188.7917	13579.5
	2	491.6604	672.87306	-7256.042	269.654	1255.7417	8701
	3	491.6604	347.51075	-6630.9	269.654	0	2651
	4	3727.3417	190.8	0	2044.2822	818.85	0
	5	1525.4431	529.48765	-7989.036	836.6381	475.51667	8230
	6	491.6604	347.51075	-6630.9	269.654	0	2651
	7a	0	0	0	1254.9572	1188.7917	13579.5
	7b	0	0	0	1254.9572	1188.7917	13579.5



2 EL–1 **COAX CABLE PLAN**

SCALE: NOT TO SCALE

APPROX. NORTH



1 EL–1 **TOWER & MAST ELEVATION**

SCALE: NOT TO SCALE

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
2	8/14/18	TJL	CFC	ISSUED FOR CONSTRUCTION
1	7/11/18	TJL	CFC	ISSUED FOR REVIEW
0	12/28/17	TJL	CFC	ISSUED FOR REVIEW

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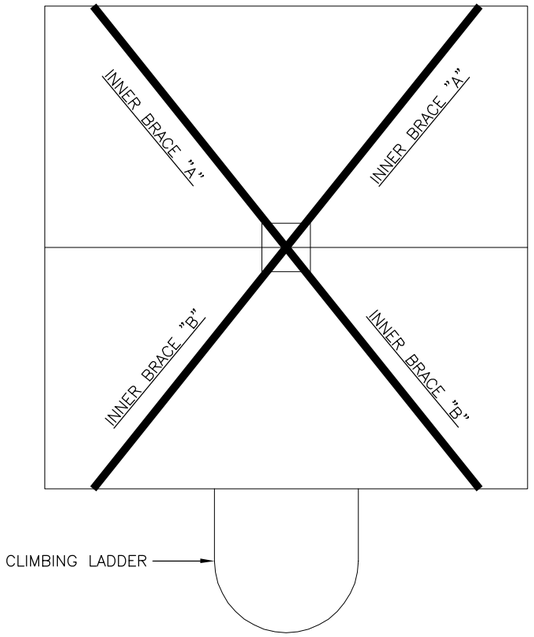
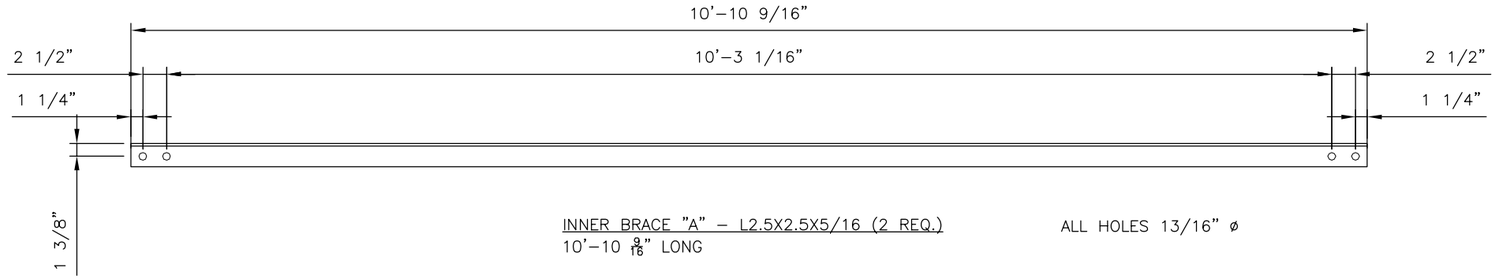
OLD SAYBROOK CT, 06475

DATE: 12/28/17
SCALE: AS SHOWN
JOB NO. 17159.20

TOWER / MAST ELEVATION AND FEEDLINE PLANS

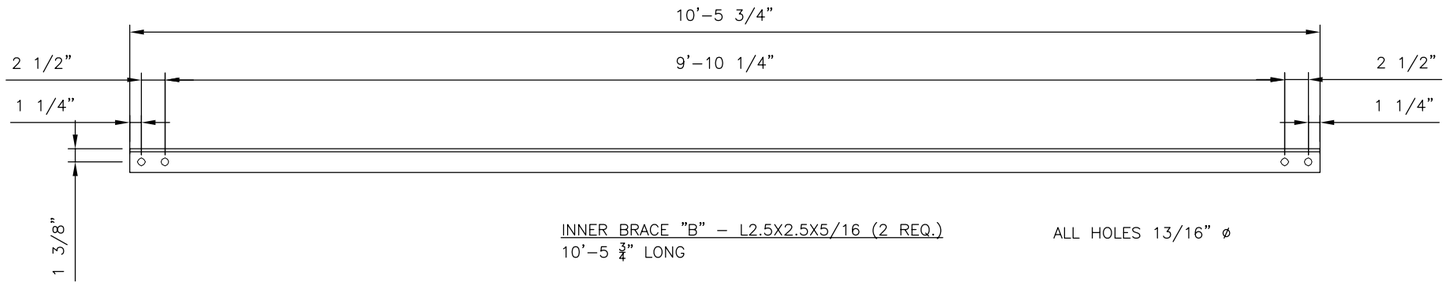
SHEET NO.
EL–1
Sheet No. 1 of 3





INNER BRACE "A" – L2.5X2.5X5/16 (2 REQ.)
10'-10 $\frac{9}{16}$" LONG

ALL HOLES 13/16" ø

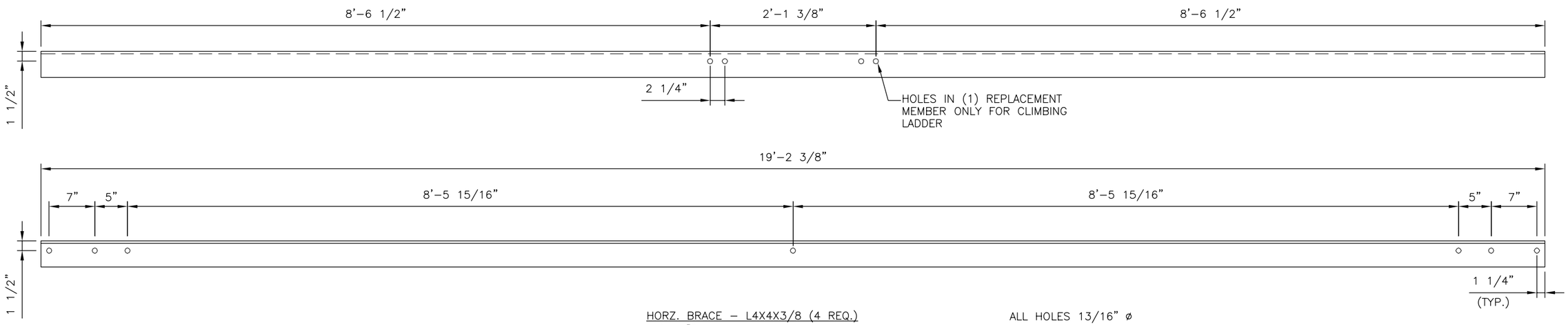


INNER BRACE "B" – L2.5X2.5X5/16 (2 REQ.)
10'-5 $\frac{3}{4}$" LONG

ALL HOLES 13/16" ø

1 / SK-1 INNER BRACING REPLACEMENT DETAILS

SCALE: 3/4" = 1'-0"



HORZ. BRACE – L4X4X3/8 (4 REQ.)
19'-2 $\frac{3}{8}$" LONG

ALL HOLES 13/16" ø

2 / SK-1 HORZ. BRACING REPLACEMENT DETAILS

SCALE: 3/4" = 1'-0"

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
2	8/14/18	TJL	CFC	ISSUED FOR CONSTRUCTION
1	7/11/18	TJL	CFC	ISSUED FOR REVIEW
0	12/28/17	TJL	CFC	ISSUED FOR REVIEW

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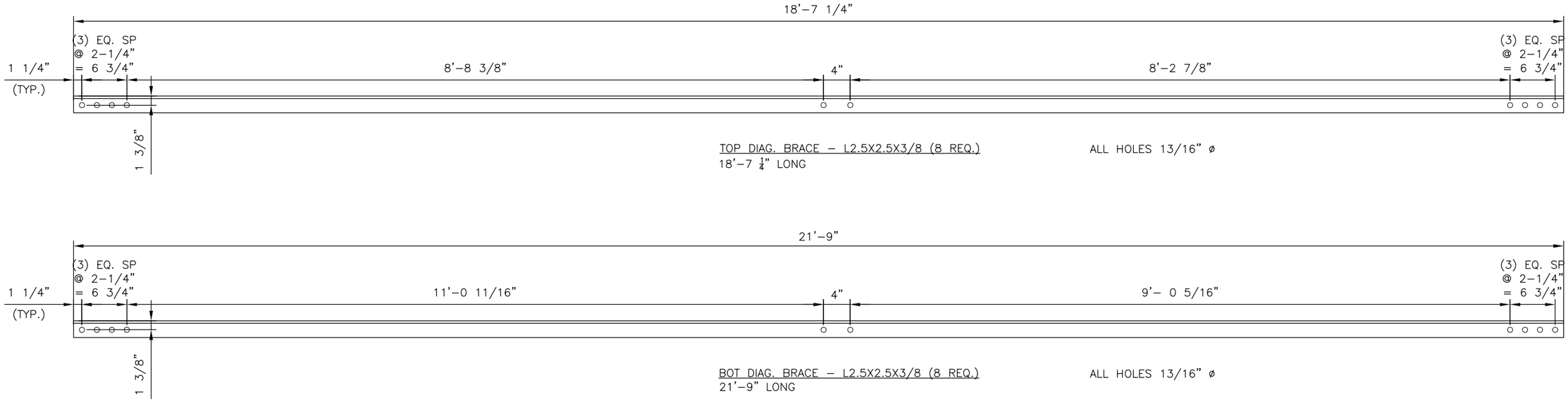
TOWER REINFORCEMENT DETAILS

SHEET NO.
SK-1
Sheet No. 2 of 3



1 / SK-2 DIAG. BRACING REPLACEMENT DETAILS

SCALE: 3/4" = 1'-0"

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
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1	7/11/18	TJL	CFC	ISSUED FOR REVIEW
0	12/28/17	TJL	CFC	ISSUED FOR REVIEW

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STRUCTURE

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TOWER REINFORCEMENT DETAILS

SHEET NO.
SK-2
Sheet No. 3 of 3

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Subject: NESC Loads - AT&T Equipment

Location: Old Saybrook, CT

Rev. 2: 8/14/18

Prepared by: T.J.L Checked by: C.F.C.
Job No. 17159.20

Basic Components

Heavy Wind Pressure =	p := 4.00	psf	(User Input NESC 2007 Figure 250-1 & Table 250-1)
Basic Windspeed =	V := 120	mph	(User Input NESC 2007 Figure 250-2(e))
Radial Ice Thickness =	Ir := 0.50	in	(User Input)
Radial Ice Density =	Id := 56.0	pcf	(User Input)

Factors for Extreme Wind Calculation

Elevation of Top of PCS Mast Above Grade =	TME := 197	ft	(User Input)
Multiplier Gust Response Factor =	m := 1.25		(User Input - Only for NESC Extreme wind case)
NESC Factor =	kv := 1.43		(User Input from NESC 2007 Table 250-3 equation)
Importance Factor =	I := 1.0		(User Input from NESC 2007 Section 250.C.2)

Velocity Pressure Coefficient = $Kz := 2.01 \cdot \left(\frac{TME}{900}\right)^{\frac{2}{9.5}} = 1.46$ (NESC 2007 Table 250-2)

Exposure Factor = $Es := 0.346 \left[\frac{33}{(0.67 \cdot TME)}\right]^{\frac{1}{7}} = 0.284$ (NESC 2007 Table 250-3)

Response Term = $Bs := \frac{1}{\left(1 + 0.375 \cdot \frac{TME}{220}\right)} = 0.749$ (NESC 2007 Table 250-3)

Gust Response Factor = $Grf := \frac{\left[1 + \left(2.7 \cdot Es \cdot Bs^{\frac{1}{2}}\right)\right]}{kv^2} = 0.813$ (NESC 2007 Table 250-3)

Wind Pressure = $qz := 0.00256 \cdot Kz \cdot V^2 \cdot Grf \cdot I = 43.8$ psf (NESC 2007 Section 250.C.2)

Shape Factors

NUS Design Criteria Issued April 12, 2007

Shape Factor for Round Members =	$Cd_R := 1.3$	(User Input)
Shape Factor for Flat Members =	$Cd_F := 1.6$	(User Input)
Shape Factor for Coax Cables Attached to Outside of Pole =	$Cd_{coax} := 1.6$	(User Input)

Overload Factors

NU Design Criteria Table

Overload Factors for Wind Loads:

NESC Heavy Loading =	**2.5**	(User Input)	Apply in Risa-3D Analysis
NESC Extreme Loading =	**1.0**	(User Input)	Apply in Risa-3D Analysis

Overload Factors for Vertical Loads:

NESC Heavy Loading =	**1.5**	(User Input)	Apply in Risa-3D Analysis
NESC Extreme Loading =	**1.0**	(User Input)	Apply in Risa-3D Analysis

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Branford, CT 06405 F: (203) 488-8587

Subject:	NESC Loads - AT&T Equipment
Location:	Old Saybrook, CT
Rev. 2: 8/14/18	Prepared by: T.J.L Checked by: C.F.C. Job No. 17159.20

Development of Wind & Ice Load on PCS Mast

PCS Mast Data: (Pipe 12.0" SCH. 40)

Mast Shape =	Round		(User Input)
Mast Diameter =	$D_{mast} := 12.8$	in	(User Input)
Mast Length =	$L_{mast} := 16$	ft	(User Input)
Mast Thickness =	$t_{mast} := 0.375$	in	(User Input)

Wind Load (NESC Extreme)

Mast Projected Surface Area = $A_{mast} := \frac{D_{mast}}{12} = 1.067$

Total Mast Wind Force (Below NU Structure) = $qz \cdot Cd_R \cdot A_{mast} = 61$ plf **BLC 5,7**

Wind Load (NESE Heavy)

Mast Projected Surface Area w/ Ice = $AICE_{mast} := \frac{(D_{mast} + 2 \cdot Ir)}{12} = 1.15$

Total Mast Wind Force w/ Ice = $p \cdot Cd_R \cdot AICE_{mast} = 6$ plf **BLC 4,6**

Gravity Loads (without ice)

Weight of the mast = Self Weight **(Computed internally by Risa-3D)** plf **BLC 1**

Gravity Loads (ice only)

Ice Area per Linear Foot = $Ai_{mast} := \frac{\pi}{4}\left[(D_{mast} + Ir \cdot 2)^2 - D_{mast}^2\right] = 20.9$ sq in

Weight of Ice on Mast = $W_{ICEmast} := Id \cdot \frac{Ai_{mast}}{144} = 8$ plf **BLC 3**

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Subject: NESC Loads - AT&T Equipment

Location: Old Saybrook, CT

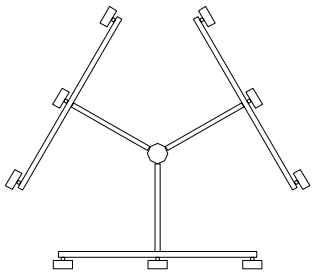
Rev. 2: 8/14/18

Prepared by: T.J.L Checked by: C.F.C.
Job No. 17159.20

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	KMW AM-X-CD-14-65-00T		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 48$	in	(User Input)
Antenna Width =	$W_{ant} := 11.8$	in	(User Input)
Antenna Thickness =	$T_{ant} := 5.9$	in	(User Input)
Antenna Weight =	$WT_{ant} := 36.4$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 9$		(User Input)



Wind Load (NESC Extreme)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 3.9$	sf	
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 35.4$	sf	
Total Antenna Wind Force =	$F_{ant} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 3099$	lbs	**BLC 5,7**

Wind Load (NESC Heavy)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

Surface Area for One Antenna w/ Ice =	$SA_{ICEant} := \frac{(L_{ant} + 1) \cdot (W_{ant} + 1)}{144} = 4.4$	sf	
Antenna Projected Surface Area w/ Ice =	$A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 39.2$	sf	
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := p \cdot Cd_F \cdot A_{ICEant} = 251$	lbs	**BLC 4,6**

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 328$	lbs	**BLC 2**

Gravity Load (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 3342$	cu in	
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 1)(W_{ant} + 1) \cdot (T_{ant} + 1) - V_{ant} = 986$	cu in	
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 32$	lbs	
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 288$	lbs	**BLC 3**

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Subject: NESC Loads - AT&T Equipment

Location: Old Saybrook, CT

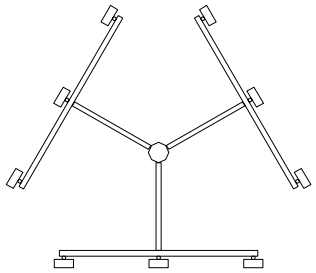
Rev. 2: 8/14/18

Prepared by: T.J.L Checked by: C.F.C.
Job No. 17159.20

Development of Wind & Ice Load on TMA's

TMA Data:

TMA Model =	Powerwave TT19-08DB111-01			
TMA Shape =	Flat		(User Input)	
TMA Height =	$L_{TMA} := 14.2$	in	(User Input)	
TMA Width =	$W_{TMA} := 6.7$	in	(User Input)	
TMA Thickness =	$T_{TMA} := 5.4$	in	(User Input)	
TMA Weight =	$WT_{TMA} := 22$	lbs	(User Input)	
Number of TMA's =	$N_{TMA} := 6$		(User Input)	



Wind Load (NESC Extreme)

Assumes Maximum Possible Wind Pressure Applied to All TMA's Simultaneously

Surface Area for One TMA = $SA_{TMA} := \frac{L_{TMA} \cdot W_{TMA}}{144} = 0.7$ sf

TMA Projected Surface Area = $A_{TMA} := SA_{TMA} \cdot N_{TMA} = 4$ sf

Total TMA Wind Force = $F_{TMA} := qz \cdot Cd_F \cdot A_{TMA} \cdot m = 347$ lbs **BLC 5,7**

Wind Load (NESC Heavy)

Assumes Maximum Possible Wind Pressure Applied to All TMA's Simultaneously

Surface Area for One TMA w/ Ice = $SA_{ICETMA} := \frac{(L_{TMA} + 1) \cdot (W_{TMA} + 1)}{144} = 0.8$ sf

TMA Projected Surface Area w/ Ice = $A_{ICETMA} := SA_{ICETMA} \cdot N_{TMA} = 4.9$ sf

Total TMA Wind Force w/ Ice = $Fi_{TMA} := p \cdot Cd_F \cdot A_{ICETMA} = 31$ lbs **BLC 4,6**

Gravity Load (without ice)

Weight of All TMA's = $WT_{TMA} \cdot N_{TMA} = 132$ lbs **BLC 2**

Gravity Load (ice only)

Volume of Each TMA = $V_{TMA} := L_{TMA} \cdot W_{TMA} \cdot T_{TMA} = 514$ cu in

Volume of Ice on Each TMA = $V_{ice} := (L_{TMA} + 1)(W_{TMA} + 1)(T_{TMA} + 1) - V_{TMA} = 235$ cu in

Weight of Ice on Each TMA = $W_{ICETMA} := \frac{V_{ice}}{1728} \cdot Id = 8$ lbs

Weight of Ice on All TMA's = $W_{ICETMA} \cdot N_{TMA} = 46$ lbs **BLC 3**

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Subject: NESC Loads - AT&T Equipment

Location: Old Saybrook, CT

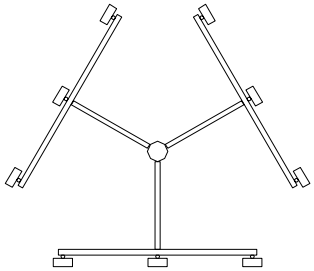
Rev. 2: 8/14/18

Prepared by: T.J.L Checked by: C.F.C.
Job No. 17159.20

Development of Wind & Ice Load on Antenna Mounts

Mount Data:

Mount Type: Valmont 10'-6" T-Arm Co-Location Kit



Mount Shape =	Flat		(User Input)
Mount Projected Surface Area =	$CdAa := 15.5$	sf	(User Input)
Mount Projected Surface Area w/ Ice =	$CdAa_{ice} := 17.8$	sf	(User Input)
Mount Weight =	$WT_{mnt} := 910$	lbs	(User Input)
Mount Weight w/ Ice =	$WT_{mnt.ice} := 1048$	lbs	

Wind Load (NESC Extreme)

Total Mount Wind Force = $F_{mnt} := qz \cdot CdAa \cdot m = 848$ lbs **BLC 5,7**

Wind Load (NESC Heavy)

Total Mount Wind Force w/ Ice = $Fi_{mnt} := p \cdot CdAa_{ice} = 71$ lbs **BLC 4,6**

Gravity Loads (without ice)

(per TIA/EIA-222-F-1996)

Weight of All Mounts = $WT_{mnt} = 910$ lbs **BLC 2**

Gravity Load (ice only)

(per TIA/EIA-222-F-1996)

Weight of Ice on All Mounts = $WT_{mnt.ice} - WT_{mnt} = 138$ lbs **BLC 3**

Development of Wind & Ice Load on Coax Cables

Coax Cable Data:

Coax Type =	HELIAX 1-5/8"		
Shape =	Round		(User Input)
Coax Outside Diameter =	$D_{coax} := 1.98$	in	(User Input)
Coax Cable Length =	$L_{coax} := 5$	ft	(User Input)
Weight of Coax per foot =	$Wt_{coax} := 1.04$	plf	(User Input)
Total Number of Coax =	$N_{coax} := 18$		(User Input)
No. of Coax Projecting Outside Face of PCS Mast =	$NP_{coax} := 6$		(User Input)

Wind Load (NESC Extreme)

Coax projected surface area = $A_{coax} := \frac{(NP_{coax} D_{coax})}{12} = 1$ ft

Total Coax Wind Force (Above NU Structure) = $F_{coax} := qz \cdot Cd_{coax} \cdot A_{coax} \cdot m = 87$ plf **BLC 5,7**

Wind Load (NESC Heavy)

Coax projected surface area w/ Ice = $AICE_{coax} := \frac{(NP_{coax} \cdot D_{coax} + 2 \cdot Ir)}{12} = 1.1$ ft

Total Coax Wind Force w/ Ice = $Fi_{coax} := p \cdot Cd_{coax} \cdot AICE_{coax} = 7$ plf **BLC 4,6**

Gravity Loads (without ice)

Weight of all cables w/o ice $WT_{coax} := Wt_{coax} \cdot N_{coax} = 19$ plf **BLC 2**

Gravity Load (ice only)

Ice Area per Linear Foot = $Ai_{coax} := \frac{\pi}{4}\left[(D_{coax} + 2 \cdot Ir)^2 - D_{coax}^2\right] = 3.9$ sq in

Ice Weight All Coax per foot = $WTi_{coax} := N_{coax} \cdot Id \cdot \frac{Ai_{coax}}{144} = 27$ plf **BLC 3**

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Subject: NESC Loads - AT&T Equipment

Location: Old Saybrook, CT

Rev. 2: 8/14/18

Prepared by: T.J.L Checked by: C.F.C.
Job No. 17159.20

Development of Wind & Ice Load on Brace Member

Member Data: HSS6x6x1/4

Shape =	Flat		(User Input)
Width =	$W_{mem} := 6$	in	(User Input)
Length =	$L_{mem} := 5$	ft	(User Input)
Height =	$H_{mem} := 6$	in	(User Input)

Wind Load (NESC Extreme)

Member Projected Surface Area = $A_{mem} := \frac{W_{mem}}{12} = 0.5$

Total Member Wind Force = $qz \cdot Cd_F \cdot A_{mem} = 35$ plf **BLC 5,7**

Wind Load (NESE Heavy)

Member Projected Surface Area w/ Ice = $AICE_{mem} := \frac{(W_{mem} + 2 \cdot Ir)}{12} = 0.583$

Total Member Wind Force w/ Ice = $p \cdot Cd_F \cdot AICE_{mem} = 4$ plf **BLC 4,6**

Gravity Loads (without ice)

Weight of the Member = Self Weight **(Computed internally by Risa-3D)** plf **BLC 1**

Gravity Loads (ice only)

Ice Area per Linear Foot = $Ai_{mem} := (W_{mem} + 2 \cdot Ir) \cdot (H_{mem} + 2 \cdot Ir) - W_{mem} \cdot H_{mem} = 13$ sq in

Weight of Ice on Member = $W_{ICEmem} := Id \cdot \frac{Ai_{mem}}{144} = 5$ plf **BLC 3**

(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	No
Max Iterations for Wall Stiffness	3
Gravity Acceleration (ft/sec^2)	32.2
Wall Mesh Size (in)	12
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 9th: ASD
RISAConnection Code	AISC 14th(360-10): ASD
Cold Formed Steel Code	AISI 1999: ASD
Wood Code	AF&PA NDS-91/97: ASD
Wood Temperature	< 100F
Concrete Code	ACI 318-02
Masonry Code	ACI 530-05: ASD
Aluminum Code	AA ADM1-05: ASD - Building
	AISC 14th(360-10): ASD

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	PCA Load Contour
Parme Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	Yes
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR_SET_ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8

(Global) Model Settings, Continued

Seismic Code	UBC 1997
Seismic Base Elevation (ft)	Not Entered
Add Base Weight?	No
Ct X	.035
Ct Z	.035
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	8.5
R Z	8.5
Ca	.36
Cv	.54
Nv	1
Occupancy Category	4
Seismic Zone	3
Om Z	1
Om X	1
Rho Z	1
Rho X	1
Footing Overturning Safety Factor	1.5
Optimize for OTM/Sliding	No
Check Concrete Bearing	No
Footing Concrete Weight (k/ft^3)	0
Footing Concrete f'c (ksi)	3
Footing Concrete Ec (ksi)	4000
Lambda	1
Footing Steel fy (ksi)	60
Minimum Steel	0.0018
Maximum Steel	0.0075
Footing Top Bar	#3
Footing Top Bar Cover (in)	3.5
Footing Bottom Bar	#3
Footing Bottom Bar Cover (in)	3.5
Pedestal Bar	#3
Pedestal Bar Cover (in)	1.5
Pedestal Ties	#3

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1...	Density[k/ft^3]	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
2	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	58	1.2
3	A992	29000	11154	.3	.65	.49	50	1.1	58	1.2
4	A500 Gr.42	29000	11154	.3	.65	.49	42	1.3	58	1.1
5	A500 Gr.46	29000	11154	.3	.65	.49	46	1.2	58	1.1
6	A53 Gr. B	29000	11154	.3	.65	.49	35	1.5	58	1.2

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Mast	PIPE 12.0	Beam	Pipe	A53 Gr. B	Typical	13.7	262	262	523
2	Brace	HSS6x6x4	Beam	Tube	A500 Gr.46	Typical	5.24	28.6	28.6	45.6

Hot Rolled Steel Design Parameters

	Label	Shape	Length...	Lbyy[ft]	Lbzz[ft]	Lcomp to...	Lcomp bo...	Kyy	Kzz	Cm-yy	Cm-zz	Cb	y sway	z sway	Function
1	M1	Mast	16			Lbyy									Lateral
2	M2	Brace	1			Lbyy									Lateral
3	M3	Brace	7.25			Lbyy									Lateral
4	M4	Brace	1			Lbyy									Lateral
5	M5	Brace	1			Lbyy									Lateral
6	M6	Brace	7.25			Lbyy									Lateral
7	M7	Brace	1			Lbyy									Lateral

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design Rul...
1	M1	N1	N4			Mast	Beam	Pipe	A53 Gr. B	Typical
2	M2	N8	N12			Brace	Beam	Tube	A500 Gr...	Typical
3	M3	N12	N11			Brace	Beam	Tube	A500 Gr...	Typical
4	M4	N11	N7			Brace	Beam	Tube	A500 Gr...	Typical
5	M5	N6	N10			Brace	Beam	Tube	A500 Gr...	Typical
6	M6	N10	N9			Brace	Beam	Tube	A500 Gr...	Typical
7	M7	N9	N5			Brace	Beam	Tube	A500 Gr...	Typical

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Dia...
1	N1	0	0	0	0	
2	N2	0	1	0	0	
3	N3	0	7	0	0	
4	N4	0	16	0	0	
5	N5	-3.625	1	1	0	
6	N6	3.625	1	1	0	
7	N7	-3.625	7	1	0	
8	N8	3.625	7	1	0	
9	N9	-3.625	1	0.	0	
10	N10	3.625	1	-0.	0	
11	N11	-3.625	7	0.	0	
12	N12	3.625	7	-0.	0	

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N8	Reaction	Reaction	Reaction			
2	N7	Reaction	Reaction	Reaction			
3	N5	Reaction	Reaction	Reaction			
4	N6	Reaction	Reaction	Reaction			

Member Point Loads (BLC 2 : Weight of Appurtenances)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M1	Y	-.328	14
2	M1	Y	-.132	14
3	M1	Y	-.91	14

Member Point Loads (BLC 3 : Weight of Ice Only)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M1	Y	-.288	14
2	M1	Y	-.046	14
3	M1	Y	-.138	14

Member Point Loads (BLC 4 : x-dir NESC Heavy Wind)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M1	X	.251	14
2	M1	X	.031	14
3	M1	X	.071	14

Member Point Loads (BLC 5 : x-dir NESC Extreme Wind)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M1	X	3.099	14
2	M1	X	.347	14
3	M1	X	.848	14

Member Distributed Loads (BLC 2 : Weight of Appurtenances)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-.019	-.019	9	11

Member Distributed Loads (BLC 3 : Weight of Ice Only)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-.008	-.008	0	11
2	M1	Y	-.027	-.027	9	11
3	M2	Y	-.005	-.005	0	0
4	M3	Y	-.005	-.005	0	0
5	M4	Y	-.005	-.005	0	0
6	M6	Y	-.005	-.005	0	0
7	M5	Y	-.005	-.005	0	0
8	M7	Y	-.005	-.005	0	0

Member Distributed Loads (BLC 4 : x-dir NESC Heavy Wind)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	.006	.006	0	11
2	M1	X	.007	.007	9	11
3	M2	X	.004	.004	0	0
4	M5	X	.004	.004	0	0

Member Distributed Loads (BLC 5 : x-dir NESC Extreme Wind)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]

Member Distributed Loads (BLC 5 : x-dir NESC Extreme Wind) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	.061	.061	0	11
2	M1	X	.087	.087	9	11
3	M2	X	.035	.035	0	0
4	M5	X	.035	.035	0	0

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(Me...	Surface(...
1	Self Weight	None		-1						
2	Weight of Appurtenances	None					3	1		
3	Weight of Ice Only	None					3	8		
4	x-dir NESC Heavy Wind	None					3	4		
5	x-dir NESC Extreme Wind	None					3	4		

Load Combinations

	Description	So...P...	S...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...
1	x-dir NESC Heav...	Yes			1	1.5	2	1.5	3	1.5	4	2.5													
2	x-dir NESC Extre...	Yes			1	1	2	1	5	1															

Envelope Joint Reactions

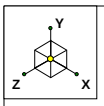
	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N8	max	-.319	1	1.734	2	.096	1	0	1	0	1	0	1
2		min	-4.101	2	1.428	1	-1.227	2	0	1	0	1	0	1
3	N7	max	-1.512	1	.971	1	1.635	2	0	1	0	1	0	1
4		min	-4.705	2	-.489	2	.69	1	0	1	0	1	0	1
5	N5	max	2.118	2	1.201	1	-.539	1	0	1	0	1	0	1
6		min	.966	1	.658	2	-.921	2	0	1	0	1	0	1
7	N6	max	1.479	2	1.186	1	.513	2	0	1	0	1	0	1
8		min	-.238	1	.581	2	-.247	1	0	1	0	1	0	1
9	Totals:	max	-1.103	1	4.785	1	0	1						
10		min	-5.209	2	2.484	2	0	2						

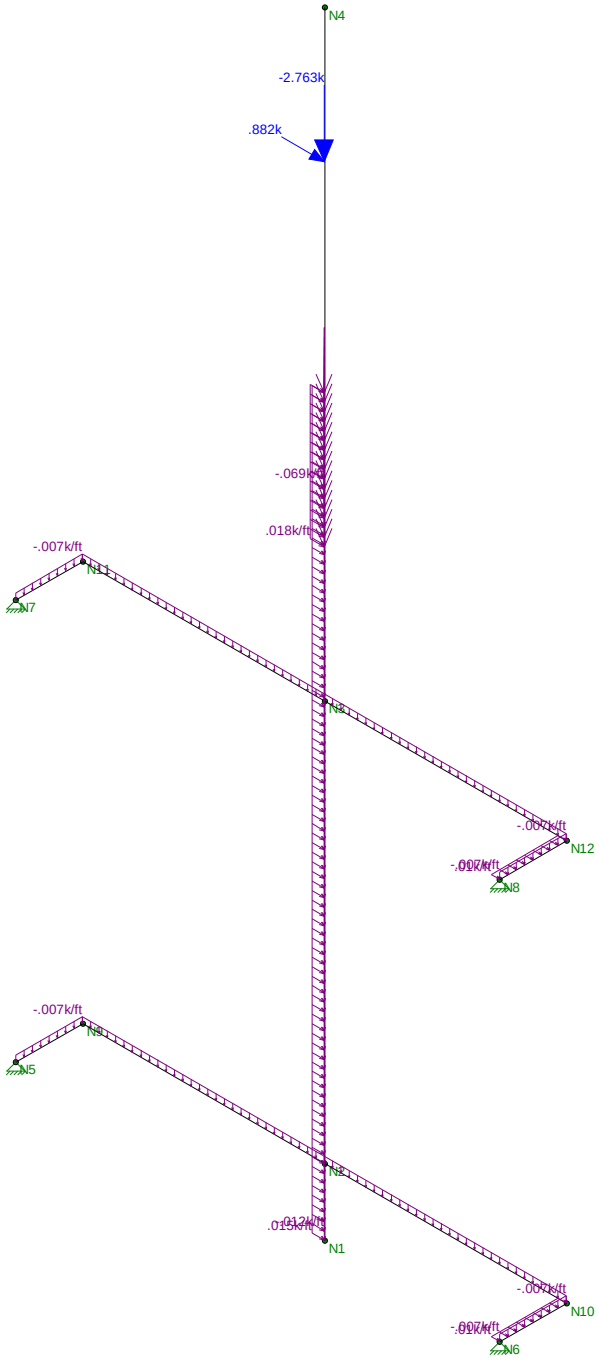
Joint Reactions

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	1	N8	-.319	1.428	.096	0	0	0
2	1	N7	-1.512	.971	.69	0	0	0
3	1	N5	.966	1.201	-.539	0	0	0
4	1	N6	-.238	1.186	-.247	0	0	0
5	1	Totals:	-1.103	4.785	0			
6	1	COG (ft):	X: 0	Y: 10.923	Z: .014			

Joint Reactions

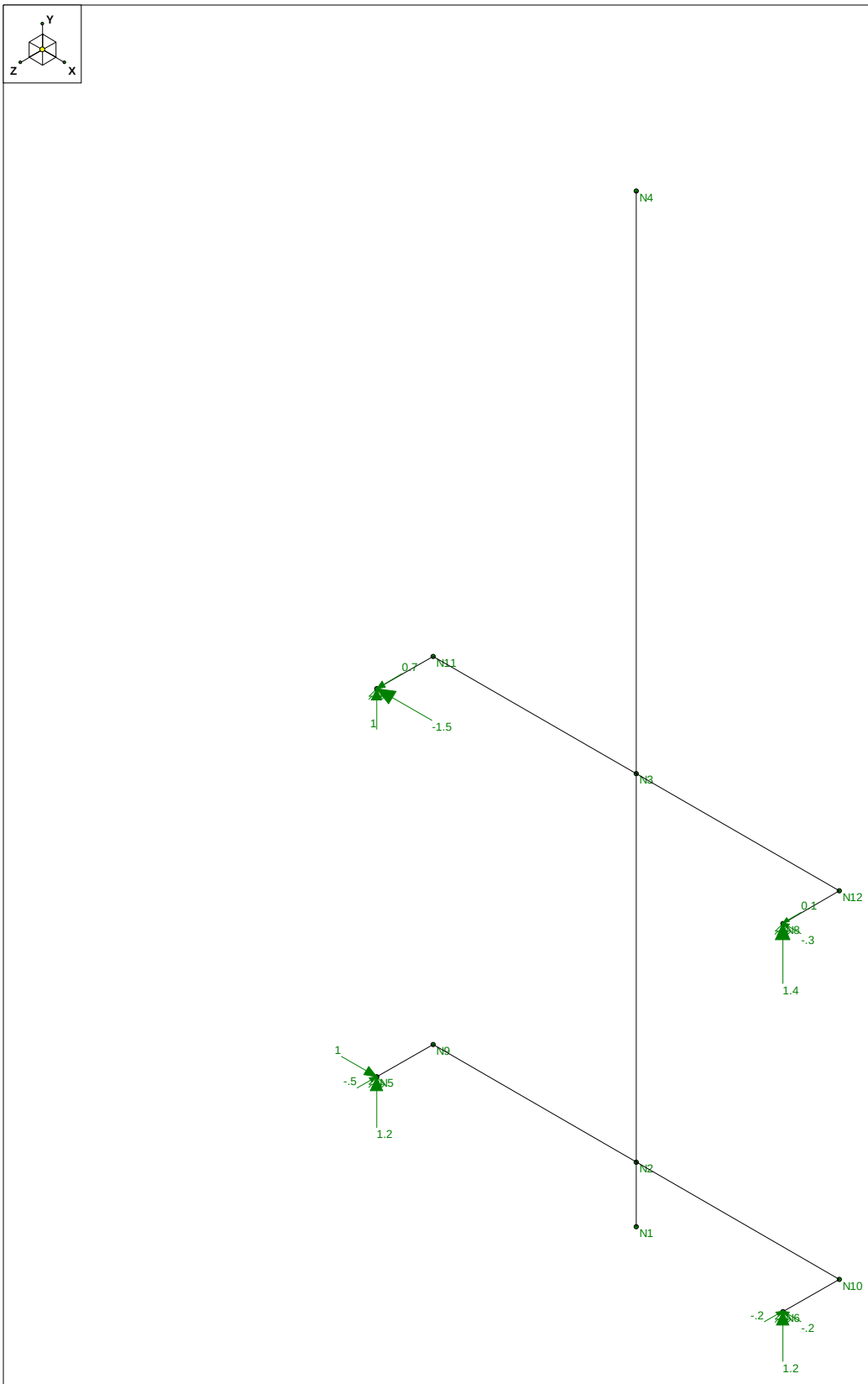
	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	2	N8	-4.101	1.734	-1.227	0	0	0
2	2	N7	-4.705	-.489	1.635	0	0	0
3	2	N5	2.118	.658	-.921	0	0	0
4	2	N6	1.479	.581	.513	0	0	0
5	2	Totals:	-5.209	2.484	0			
6	2	COG (ft):	X: 0	Y: 10.809	Z: .014			





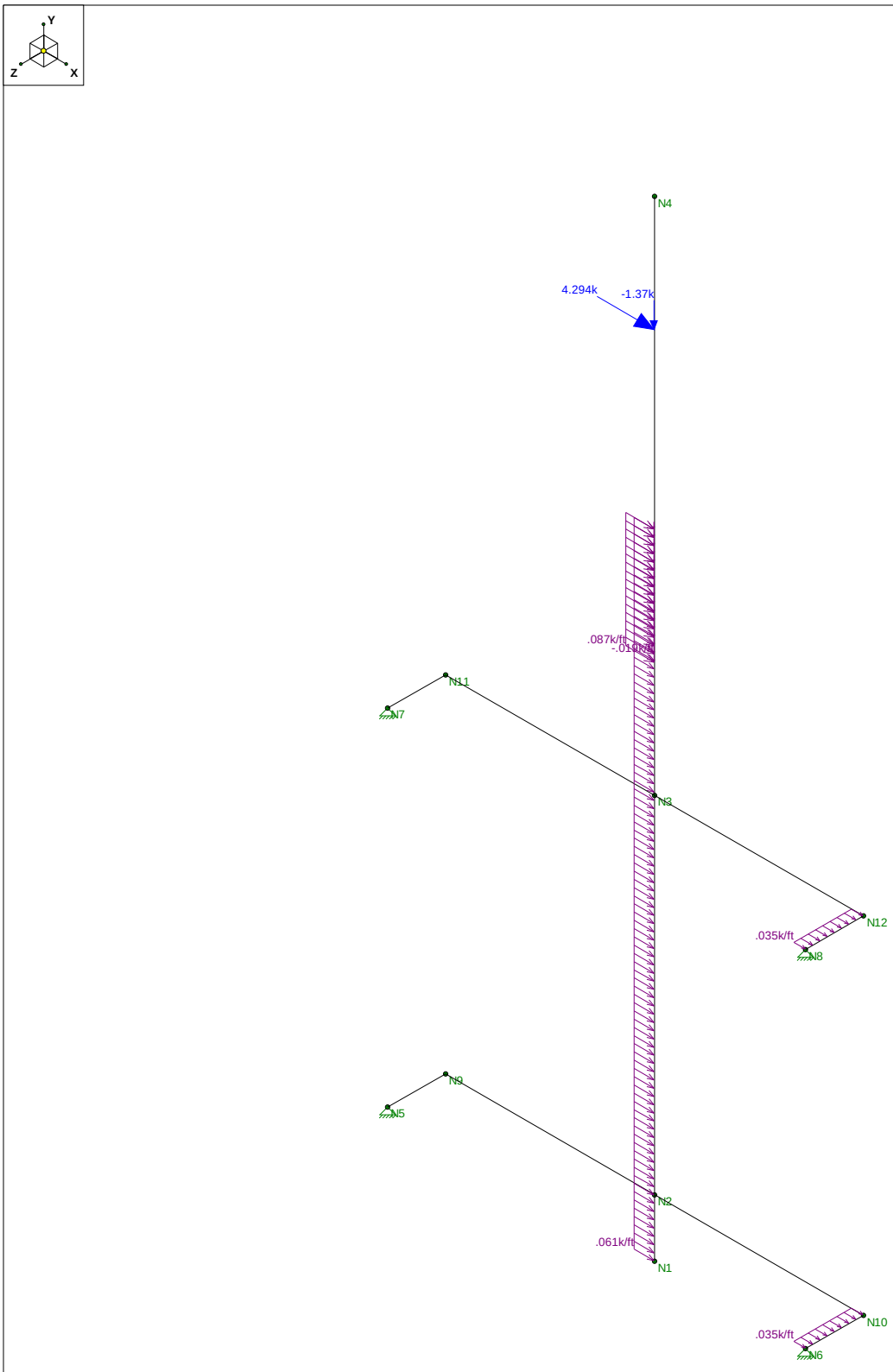
Loads: LC 1, x-dir NESC Heavy Wind

CENTEK Engineering, Inc.		
tjl, cfc	AT&T Pipe Mast	Aug 14, 2018 at 3:14 PM
17159.20	LC #1 Loads	NESC.r3d



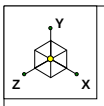
Results for LC 1, x-dir NESC Heavy Wind
Reaction and Moment Units are k and k-ft

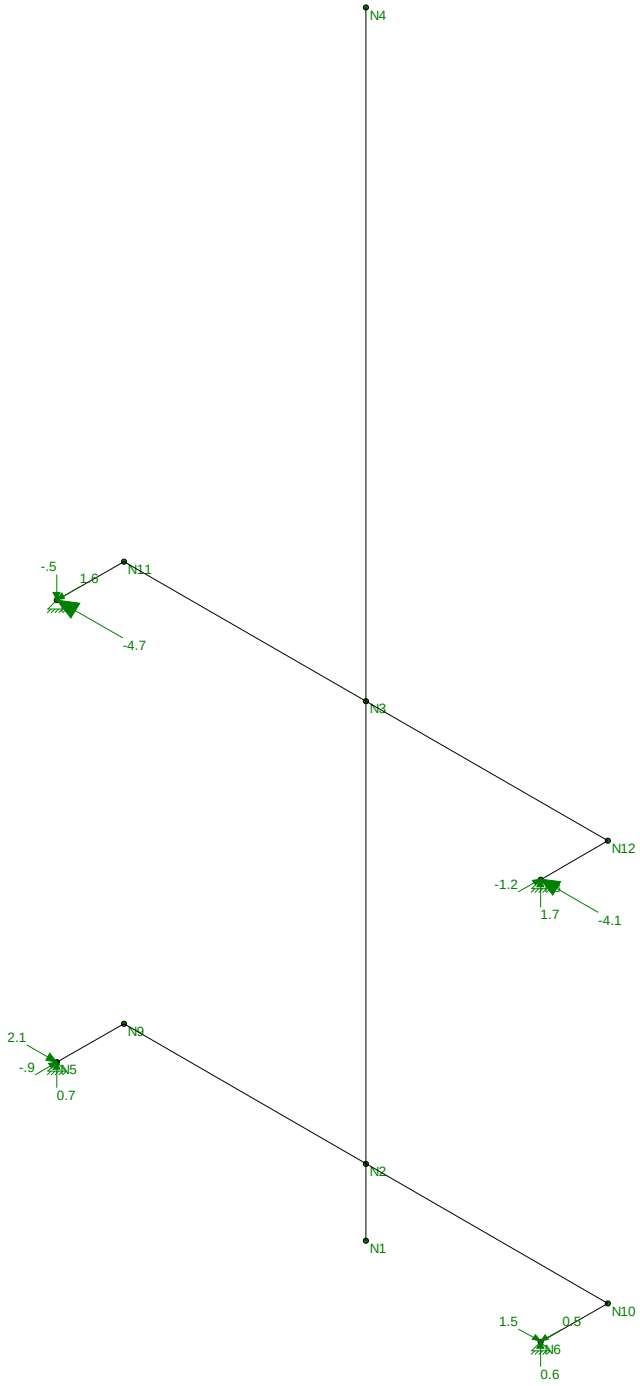
CENTEK Engineering, Inc.		
tjl, cfc	AT&T Pipe Mast	Aug 14, 2018 at 3:15 PM
17159.20	LC #1 Reactions	NESC.r3d



Loads: LC 2, x-dir NESC Extreme Wind

CENTEK Engineering, Inc.		
tjl, cfc	AT&T Pipe Mast	Aug 14, 2018 at 3:14 PM
17159.20	LC #2 Loads	NESC.r3d





Results for LC 2, x-dir NESC Extreme Wind
Reaction and Moment Units are k and k-ft

CENTEK Engineering, Inc.		
tjl, cfc	AT&T Pipe Mast	Aug 14, 2018 at 3:15 PM
17159.20	LC #2 Reactions	NESC.r3d

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Subject: NESC Loads - Sprint Equipment

Location: Old Saybrook, CT

Rev. 2: 8/14/17

Prepared by: T.J.L Checked by: C.F.C.
Job No. 17159.20

Basic Components

Heavy Wind Pressure =	p := 4.00	psf	(User Input NESC 2007 Figure 250-1 & Table 250-1)
Basic Windspeed =	V := 120	mph	(User Input NESC 2007 Figure 250-2(e))
Radial Ice Thickness =	Ir := 0.50	in	(User Input)
Radial Ice Density =	Id := 56.0	pcf	(User Input)

Factors for Extreme Wind Calculation

Elevation of Top of PCS Mast Above Grade =	TME := 136.5	ft	(User Input)
Multiplier Gust Response Factor =	m := 1.0		(User Input - Only for NESC Extreme wind case)
NESC Factor =	kv := 1.43		(User Input from NESC 2007 Table 250-3 equation)
Importance Factor =	I := 1.0		(User Input from NESC 2007 Section 250.C.2)

Velocity Pressure Coefficient = $Kz := 2.01 \cdot \left(\frac{TME}{900}\right)^{\frac{2}{9.5}} = 1.351$ (NESC 2007 Table 250-2)

Exposure Factor = $Es := 0.346 \left[\frac{33}{(0.67 \cdot TME)}\right]^{\frac{1}{7}} = 0.299$ (NESC 2007 Table 250-3)

Response Term = $Bs := \frac{1}{\left(1 + 0.375 \cdot \frac{TME}{220}\right)} = 0.811$ (NESC 2007 Table 250-3)

Gust Response Factor = $Grf := \frac{\left[1 + \left(2.7 \cdot Es \cdot Bs^{\frac{1}{2}}\right)\right]}{kv^2} = 0.845$ (NESC 2007 Table 250-3)

Wind Pressure = $qz := 0.00256 \cdot Kz \cdot V^2 \cdot Grf \cdot I = 42.1$ psf (NESC 2007 Section 250.C.2)

Shape Factors

NUS Design Criteria Issued April 12, 2007

Shape Factor for Round Members =	$Cd_R := 1.3$	(User Input)
Shape Factor for Flat Members =	$Cd_F := 1.6$	(User Input)
Shape Factor for Coax Cables Attached to Outside of Pole =	$Cd_{coax} := 1.45$	(User Input)

Overload Factors

NU Design Criteria Table

Overload Factors for Wind Loads:

NESC Heavy Loading =	**2.5**
NESC Extreme Loading =	**1.0**

Overload Factors for Vertical Loads:

NESC Heavy Loading =	**1.5**
NESC Extreme Loading =	**1.0**

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Subject: NESC Loads - Sprint Equipment

Location: Old Saybrook, CT

Rev. 2: 8/14/17

Prepared by: T.J.L Checked by: C.F.C.
Job No. 17159.20

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	Commscope DHHTT65B-3XR			
Antenna Shape =	Flat		(User Input)	
Antenna Height =	$L_{ant} := 72.1$	in	(User Input)	
Antenna Width =	$W_{ant} := 11.9$	in	(User Input)	
Antenna Thickness =	$T_{ant} := 7.1$	in	(User Input)	
Antenna Weight =	$WT_{ant} := 46$	lbs	(User Input)	
Number of Antennas =	$N_{ant} := 1$		(User Input)	(Note Typ. of 1 Per Leg)

Gravity Load (without ice)

Weight of All Antennas = $Wt_{ant1} := WT_{ant} \cdot N_{ant} = 46$ lbs

Gravity Load (ice only)

Volume of Each Antenna = $V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 6092$ cu in

Volume of Ice on Each Antenna = $V_{ice} := \left(L_{ant} + 2 \cdot Ir\right)\left(W_{ant} + 2 \cdot Ir\right)\left(T_{ant} + 2 \cdot Ir\right) - V_{ant} = 1546$ cu in

Weight of Ice on Each Antenna = $W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 50$ lbs

Weight of Ice on All Antennas = $Wt_{ice.ant1} := W_{ICEant} \cdot N_{ant} = 50$ lbs

Wind Load (NESC Heavy)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

Surface Area for One Antenna w/ Ice = $SA_{ICEant} := \frac{\left(L_{ant} + 2 \cdot Ir\right) \cdot \left(W_{ant} + 2 \cdot Ir\right)}{144} = 6.5$ sf

Antenna Projected Surface Area w/ Ice = $A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 6.5$ sf

Total Antenna Wind Force w/ Ice = $Fi_{ant1} := p \cdot Cd_F \cdot A_{ICEant} = 42$ lbs

Wind Load (NESC Extreme)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

Surface Area for One Antenna = $SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 6$ sf

Antenna Projected Surface Area = $A_{ant} := SA_{ant} \cdot N_{ant} = 6$ sf

Total Antenna Wind Force = $F_{ant1} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 401$ lbs

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Location: Old Saybrook, CT

Rev. 2: 8/14/17

Prepared by: T.J.L Checked by: C.F.C.
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Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	RFS KIT-FD9R6004/1C-DL Diplexer			
Antenna Shape =	Flat		(User Input)	
Antenna Height =	$L_{ant} := 5.8$	in	(User Input)	
Antenna Width =	$W_{ant} := 6.5$	in	(User Input)	
Antenna Thickness =	$T_{ant} := 4.6$	in	(User Input)	
Antenna Weight =	$WT_{ant} := 7$	lbs	(User Input)	
Number of Antennas =	$N_{ant} := 1$		(User Input)	(Note Typ. of 1 Per Leg)

Gravity Load (without ice)

Weight of All Antennas = $Wt_{ant2} := WT_{ant} \cdot N_{ant} = 7$ lbs

Gravity Load (ice only)

Volume of Each Antenna = $V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 173$ cu in

Volume of Ice on Each Antenna = $V_{ice} := \left(L_{ant} + 2 \cdot Ir\right)\left(W_{ant} + 2 \cdot Ir\right)\left(T_{ant} + 2 \cdot Ir\right) - V_{ant} = 112$ cu in

Weight of Ice on Each Antenna = $W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 4$ lbs

Weight of Ice on All Antennas = $Wt_{ice.ant2} := W_{ICEant} \cdot N_{ant} = 4$ lbs

Wind Load (NESC Heavy)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

Surface Area for One Antenna w/ Ice = $SA_{ICEant} := \frac{\left(L_{ant} + 2 \cdot Ir\right) \cdot \left(W_{ant} + 2 \cdot Ir\right)}{144} = 0.4$ sf

Antenna Projected Surface Area w/ Ice = $A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 0.4$ sf

Total Antenna Wind Force w/ Ice = $Fi_{ant2} := p \cdot Cd_F \cdot A_{ICEant} = 2$ lbs

Wind Load (NESC Extreme)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

Surface Area for One Antenna = $SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 0.3$ sf

Antenna Projected Surface Area = $A_{ant} := SA_{ant} \cdot N_{ant} = 0.3$ sf

Total Antenna Wind Force = $F_{ant2} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 18$ lbs

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Subject: NESC Loads - Sprint Equipment

Location: Old Saybrook, CT

Rev. 2: 8/14/17

Prepared by: T.J.L Checked by: C.F.C.
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Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	CCI DPO-7126Y-0-T1 Diplexer			
Antenna Shape =	Flat		(User Input)	
Antenna Height =	$L_{ant} := 4.07$	in	(User Input)	
Antenna Width =	$W_{ant} := 7.42$	in	(User Input)	
Antenna Thickness =	$T_{ant} := 6.26$	in	(User Input)	
Antenna Weight =	$WT_{ant} := 8$	lbs	(User Input)	
Number of Antennas =	$N_{ant} := 1$		(User Input)	(Note Typ. of 1 Per Leg)

Gravity Load (without ice)

Weight of All Antennas = $Wt_{ant3} := WT_{ant} \cdot N_{ant} = 8$ lbs

Gravity Load (ice only)

Volume of Each Antenna = $V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 189$ cu in

Volume of Ice on Each Antenna = $V_{ice} := \left(L_{ant} + 2 \cdot Ir\right)\left(W_{ant} + 2 \cdot Ir\right)\left(T_{ant} + 2 \cdot Ir\right) - V_{ant} = 121$ cu in

Weight of Ice on Each Antenna = $W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 4$ lbs

Weight of Ice on All Antennas = $Wt_{ice.ant3} := W_{ICEant} \cdot N_{ant} = 4$ lbs

Wind Load (NESC Heavy)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

Surface Area for One Antenna w/ Ice = $SA_{ICEant} := \frac{\left(L_{ant} + 2 \cdot Ir\right) \cdot \left(W_{ant} + 2 \cdot Ir\right)}{144} = 0.3$ sf

Antenna Projected Surface Area w/ Ice = $A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 0.3$ sf

Total Antenna Wind Force w/ Ice = $Fi_{ant3} := p \cdot Cd_F \cdot A_{ICEant} = 2$ lbs

Wind Load (NESC Extreme)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

Surface Area for One Antenna = $SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 0.2$ sf

Antenna Projected Surface Area = $A_{ant} := SA_{ant} \cdot N_{ant} = 0.2$ sf

Total Antenna Wind Force = $F_{ant3} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 14$ lbs

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Development of Wind & Ice Load on Platform

Platform Data:

Platform Model =	Valmont Wireless Frame	(Note Typ. of 1 Per Leg)	
Mount Shape =	Flat		
Mount Projected Surface Area =	$CdAa := 7.6$	sf	(User Input)
Mount Projected Surface Area w/ Ice =	$CdAa_{ice} := 10.4$	sf	(User Input)
Mount Weight =	$WT_{mnt} := 250$	lbs	(User Input)
Mount Weight w/ Ice =	$WT_{mnt.ice} := 300$	lbs	(User Input)

Gravity Loads (without ice)

Weight of All Mounts = $Wt_{mnt1} := WT_{mnt} = 250$ lbs

Gravity Load (ice only)

Weight of Ice on All Mounts = $Wt_{ice.mnt1} := \left(WT_{mnt.ice} - WT_{mnt}\right) = 50$ lbs

Wind Load (NESC Heavy)

Total Mount Wind Force w/ Ice = $Fi_{mnt1} := p \cdot CdAa_{ice} = 42$ lbs

Wind Load (NESC Extreme)

Total Mount Wind Force = $F_{mnt1} := qz \cdot CdAa \cdot m = 320$ lbs

Total Equipment Loads:

NESC Heavy Wind Vertical =

$$\left(Wt_{ant1} + Wt_{ice.ant1} + Wt_{ant2} + Wt_{ice.ant2} + Wt_{ant3} + Wt_{ice.ant3} + Wt_{mnt1} + Wt_{ice.mnt1}\right)\cdot 1.5 = 628$$

NESC Heavy Wind Trasnsverse =

$$\left(Fi_{ant1} + Fi_{ant2} + Fi_{ant3} + Fi_{mnt1}\right)\cdot 2.5 = 219$$

NESC Extreme Wind Vertical =

$$\left(Wt_{ant1} + Wt_{ant2} + Wt_{ant3} + Wt_{mnt1}\right) = 311$$

NESC Extreme Wind Trasnsverse =

$$\left(F_{ant1} + F_{ant2} + F_{ant3} + F_{mnt1}\right) = 753$$

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	Dish Located @ 110'AGL		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 12$	in	(User Input)
Antenna Width =	$W_{ant} := 24$	in	(User Input)
Antenna Thickness =	$T_{ant} := 3$	in	(User Input)
Antenna Weight =	$WT_{ant} := 15$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 1$		(User Input)

Wind Load (NESC Extreme)

Surface Area for One Antenna = $SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 2$ sf

Antenna Projected Surface Area = $A_{ant} := SA_{ant} \cdot N_{ant} = 2$ sf

Total Antenna Wind Force = $F_{ant} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 135$ lbs

Wind Load (NESC Heavy)

Surface Area for One Antenna w/ Ice = $SA_{ICEant} := \frac{(L_{ant} + 1) \cdot (W_{ant} + 1)}{144} = 2.3$ sf

Antenna Projected Surface Area w/ Ice = $A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 2.3$ sf

Total Antenna Wind Force w/ Ice = $Fi_{ant} := p \cdot Cd_F \cdot A_{ICEant} \cdot 2.5 = 36$ lbs

Weight Load (NESC Extreme)

Weight of All Antennas = $WT_{ant} \cdot N_{ant} = 15$ lbs

Weight Load (NESC Heavy)

Volume of Each Antenna = $V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 864$ cu in

Volume of Ice on Each Antenna = $V_{ice} := (L_{ant} + 1)(W_{ant} + 1) \cdot (T_{ant} + 1) - V_{ant} = 436$ cu in

Weight of Ice on Each Antenna = $W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 14$ lbs

Weight of Ice on All Antennas = $\left[(WT_{ant} \cdot N_{ant}) + W_{ICEant} \cdot N_{ant}\right] \cdot 1.5 = 44$ lbs

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	GPS Located @ 50'AGL		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 6$	in	(User Input)
Antenna Width =	$W_{ant} := 3$	in	(User Input)
Antenna Thickness =	$T_{ant} := 3$	in	(User Input)
Antenna Weight =	$WT_{ant} := 5$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 1$		(User Input)

Wind Load (NESC Extreme)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

Surface Area for One Antenna = $SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 0.1$ sf

Antenna Projected Surface Area = $A_{ant} := SA_{ant} \cdot N_{ant} = 0.1$ sf

Total Antenna Wind Force = $F_{ant} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 8$ lbs

Wind Load (NESC Heavy)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

Surface Area for One Antenna w/ Ice = $SA_{ICEant} := \frac{(L_{ant} + 1) \cdot (W_{ant} + 1)}{144} = 0.2$ sf

Antenna Projected Surface Area w/ Ice = $A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 0.2$ sf

Total Antenna Wind Force w/ Ice = $Fi_{ant} := p \cdot Cd_F \cdot A_{ICEant} \cdot 2.5 = 3$ lbs

Weight Load (NESC Extreme)

Weight of All Antennas = $WT_{ant} \cdot N_{ant} = 5$ lbs

Weight Load (NESC Heavy)

Volume of Each Antenna = $V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 54$ cu in

Volume of Ice on Each Antenna = $V_{ice} := (L_{ant} + 1)(W_{ant} + 1) \cdot (T_{ant} + 1) - V_{ant} = 58$ cu in

Weight of Ice on Each Antenna = $W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 2$ lbs

Weight of Ice on All Antennas = $\left[(WT_{ant} \cdot N_{ant}) + W_{ICEant} \cdot N_{ant}\right] \cdot 1.5 = 10$ lbs

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Subject:	Coax Cable on Tower
Location:	Old Saybrook, CT
Rev. 2: 8/14/18	Prepared by: T.J.L Checked by: C.F.C. Job No. 17159.20

Coax Cable on Tower

Basic Components

Heavy Wind Pressure =	p := 4.00·psf		(User Input NESC 2007 Figure 250-1 & Table 250-1)
Basic Windspeed =	V := 120	mph	(User Input NESC 2007 Figure 250-2(e))
Radial Ice Thickness =	Ir := 0.50in		(User Input)
Radial Ice Density =	Id := 56.0·pcf		(User Input)

Factors for Extreme Wind Calculation

Elevation of Top of Tower Above Grade =	TME := 197	ft	(User Input)
Multiplier Gust Response Factor =	m := 1.00		(User Input - Only for NESC Extreme wind case)
NESC Factor =	kv := 1.43		(User Input from NESC 2007 Table 250-3 equation)
Importance Factor =	I := 1.0		(User Input from NESC 2007 Section 250.C.2)
Velocity Pressure Coefficient =	$Kz := 2.01\cdot\left(\frac{0.67TME}{900}\right)^{\frac{2}{9.5}} = 1.342$		(NESC 2007 Table 250-2)
Exposure Factor =	$Es := 0.346\left[\frac{33}{(0.67\cdot TME)}\right]^{\frac{1}{7}} = 0.284$		(NESC 2007 Table 250-3)
Response Term =	$Bs := \frac{1}{\left(1+0.375\cdot\frac{TME}{220}\right)} = 0.749$		(NESC 2007 Table 250-3)
Gust Response Factor =	$Grf := \frac{\left[1+\left(2.7\cdot Es\cdot Bs^{\frac{1}{2}}\right)\right]}{kv^2} = 0.813$		(NESC 2007 Table 250-3)
Wind Pressure =	$qz := 0.00256\cdot Kz\cdot V^2\cdot Grf\cdot I = 40.2$	psf	(NESC 2007 Section 250.C.

Shape Factors

NUS Design Criteria Issued April 12, 2007

Shape Factor for Round Members =	$Cd_R := 1.3$	(User Input)
Shape Factor for Flat Members =	$Cd_F := 1.6$	(User Input)
Shape Factor for Coax Cables Attached to Outside of Pole =	$Cd_{coax} := 1.6$	(User Input)

Overload Factors

NU Design Criteria Table

Overload Factor for NESC Heavy Wind Transverse Load =	$OF_{HWT} := 2.5$	*(User Input)*
Overload Factor for NESC Heavy Wind Vertical Load =	$OF_{HWV} := 1.5$	*(User Input)*
Overload Factor for NESC Extreme Wind Transverse Load =	$OF_{EWT} := 1.0$	*(User Input)*
Overload Factor for NESC Extreme Wind Vertical Load =	$OF_{EWV} := 1.0$	*(User Input)*

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AT&T Coax Cables

Distance Between Coax Cable Attach Points = $Coax_{Span} := \begin{pmatrix} 6 \\ 15 \\ 14.6 \\ 12.6 \\ 15 \\ 16 \\ 16.35 \\ 16.6 \\ 16.25 \\ 19.75 \\ 19.25 \\ 12.5 \end{pmatrix} \cdot ft$ *(User Input)*

Diameter of Coax Cable = $D_{coax} := 1.98 \cdot in$ *(User Input)*

Weight of Coax Cable = $W_{coax} := 1.04 \cdot plf$ *(User Input)*

Number of Coax Cables = $N_{coax} := 18$ *(User Input)*

Number of Projected Coax Cables = $NP_{coax} := 6$ *(User Input)*

Number of External Coax Cables = $NX_{coax} := 18$ *(User Input)*

Wind Area without Ice = $A := \left(NP_{coax} \cdot D_{coax}\right) = 11.88 \cdot in$

Wind Area with Ice = $A_{ice} := \left(NP_{coax} \cdot D_{coax} + 2 \cdot Ir\right) = 12.88 \cdot in$

Ice Area per Liner Ft = $Ai_{coax} := \frac{\pi}{4} \cdot \left[\left(D_{coax} + 2 \cdot Ir\right)^2 - D_{coax}^2\right] = 0.027\,ft^2$

Weight of Ice on All Coax Cables = $W_{ice} := Ai_{coax} \cdot Id \cdot NX_{coax} = 27.269 \cdot plf$

Heavy Wind Vertical Load =

$$Heavy\_WInd_{Vert} := \overrightarrow{\left[\left(N_{coax} \cdot W_{coax} + W_{ice}\right) \cdot Coax_{Span} \cdot OF_{HWV}\right]}$$

Heavy Wind Transverse Load =

$$Heavy\_Wind_{Trans} := \overrightarrow{\left(p \cdot A_{ice} \cdot Cd_{coax} \cdot Coax_{Span} \cdot OF_{HWT}\right)}$$

$$Heavy\_WInd_{Vert} = \begin{pmatrix} 414 \\ 1035 \\ 1007 \\ 869 \\ 1035 \\ 1104 \\ 1128 \\ 1145 \\ 1121 \\ 1362 \\ 1328 \\ 862 \end{pmatrix} lb \qquad Heavy\_Wind_{Trans} = \begin{pmatrix} 103 \\ 258 \\ 251 \\ 216 \\ 258 \\ 275 \\ 281 \\ 285 \\ 279 \\ 339 \\ 331 \\ 215 \end{pmatrix} lb$$

Extreme Wind Vertical Load =

$$Extreme\_Wind_{Vert} := \overrightarrow{\left(N_{coax} \cdot W_{coax} \cdot Coax_{Span} \cdot OF_{EWV}\right)}$$

Extreme Wind Transverse Load =

$$Extreme\_Wind_{Trans} := \overrightarrow{\left[\left(qz \cdot psf \cdot A \cdot Cd_{coax}\right) \cdot Coax_{Span} \cdot OF_{EWT}\right]}$$

$$Extreme\_Wind_{Vert} = \begin{pmatrix} 112 \\ 281 \\ 273 \\ 236 \\ 281 \\ 300 \\ 306 \\ 311 \\ 304 \\ 370 \\ 360 \\ 234 \end{pmatrix} lb \qquad Extreme\_Wind_{Trans} = \begin{pmatrix} 382 \\ 956 \\ 930 \\ 803 \\ 956 \\ 1020 \\ 1042 \\ 1058 \\ 1035 \\ 1258 \\ 1227 \\ 797 \end{pmatrix} lb$$

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Subject:	Coax Cable on Tower
Location:	Old Saybrook, CT
Rev. 2: 8/14/18	Prepared by: T.J.L Checked by: C.F.C. Job No. 17159.20

Sprint Coax Cables

Distance Between Coax Cable Attach Points = $Coax_{Span} := \begin{pmatrix} 15 \\ 16 \\ 16.35 \\ 16.6 \\ 16.25 \\ 19.75 \\ 19.25 \\ 12.5 \end{pmatrix} \cdot ft$ *(User Input)*

Diameter of Coax Cable = $D_{coax} := 1.98 \cdot in$ *(User Input)*

Weight of Coax Cable = $W_{coax} := 1.04 \cdot plf$ *(User Input)*

Number of Coax Cables = $N_{coax} := 18$ *(User Input)*

Number of Projected Coax Cables = $NP_{coax} := 6$ *(User Input)*

Number of External Coax Cables = $NX_{coax} := 18$ *(User Input)*

Wind Area without Ice = $A := \left(NP_{coax} \cdot D_{coax}\right) = 11.88 \cdot in$

Wind Area with Ice = $A_{ice} := \left(NP_{coax} \cdot D_{coax} + 2 \cdot Ir\right) = 12.88 \cdot in$

Ice Area per Liner Ft = $Ai_{coax} := \frac{\pi}{4} \cdot \left[\left(D_{coax} + 2 \cdot Ir\right)^2 - D_{coax}^{\ 2}\right] = 0.027\,ft^2$

Weight of Ice on All Coax Cables = $W_{ice} := Ai_{coax} \cdot Id \cdot NX_{coax} = 27.269 \cdot plf$

Heavy Wind Vertical Load =

$$Heavy\_WInd_{Vert} := \overrightarrow{\left[\left(N_{coax} \cdot W_{coax} + W_{ice}\right) \cdot Coax_{Span} \cdot OF_{HWV}\right]}$$

Heavy Wind Transverse Load =

$$Heavy\_Wind_{Trans} := \overrightarrow{\left(p \cdot A_{ice} \cdot Cd_{coax} \cdot Coax_{Span} \cdot OF_{HWT}\right)}$$

$$Heavy\_WInd_{Vert} = \begin{pmatrix} 1035 \\ 1104 \\ 1128 \\ 1145 \\ 1121 \\ 1362 \\ 1328 \\ 862 \end{pmatrix} lb \qquad Heavy\_Wind_{Trans} = \begin{pmatrix} 258 \\ 275 \\ 281 \\ 285 \\ 279 \\ 339 \\ 331 \\ 215 \end{pmatrix} lb$$

Extreme Wind Vertical Load =

$$Extreme\_Wind_{Vert} := \overrightarrow{\left(N_{coax} \cdot W_{coax} \cdot Coax_{Span} \cdot OF_{EWV}\right)}$$

Extreme Wind Transverse Load =

$$Extreme\_Wind_{Trans} := \overrightarrow{\left[\left(qz \cdot psf \cdot A \cdot Cd_{coax}\right) \cdot Coax_{Span} \cdot OF_{EWT}\right]}$$

$$Extreme\_Wind_{Vert} = \begin{pmatrix} 281 \\ 300 \\ 306 \\ 311 \\ 304 \\ 370 \\ 360 \\ 234 \end{pmatrix} lb \qquad Extreme\_Wind_{Trans} = \begin{pmatrix} 956 \\ 1020 \\ 1042 \\ 1058 \\ 1035 \\ 1258 \\ 1227 \\ 797 \end{pmatrix} lb$$

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Subject:	NESC Loads - Climbing Ladder
Location:	Old Saybrook, CT
Rev. 0: 12/27/17	Prepared by: T.J.L Checked by: C.F.C. Job No. 17159.20

Climbing Ladder on CL&P Tower

Climbing Ladder Span = (Between Attachment Points)

$$CL_{Span} := \begin{pmatrix} 12 \\ 12 \\ 12 \\ 15 \\ 16 \\ 19 \\ 16.75 \\ 16.75 \\ 16 \\ 23.5 \\ 16 \end{pmatrix} \cdot ft$$ *(User Input)*

Extreme Wind Pressure = $qz := 38 \cdot psf$ *(User Input)*

Heavy Wind Pressure = $p := 4 \cdot psf$ *(User Input)*

Radial Ice Thickness = $Ir := 0.5 \cdot in$ *(User Input)*

Radial Ice Density = $Id := 56 \cdot pcf$ *(User Input)*

Steel Density = $D_S := 490 \cdot pcf$ *(User Input)*

Shape Factor = $Cd := 1.6$ *(User Input)*

Overload Factor for NESC Heavy Wind Load = $OF_{HW} := 2.5$ *(User Input)*

Overload Factor for NESC Extreme Wind Load = $OF_{EW} := 1.0$ *(User Input)*

Overload Factor for NESC Heavy Vertical Load = $OF_{HV} := 1.5$ *(User Input)*

Overload Factor for NESC Extreme Vertical Load = $OF_{EV} := 1.0$ *(User Input)*

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63-2 North Branford Road P: (203) 488-0580
Branford, CT 06405 F: (203) 488-8587

Subject: NESC Loads - Climbing Ladder

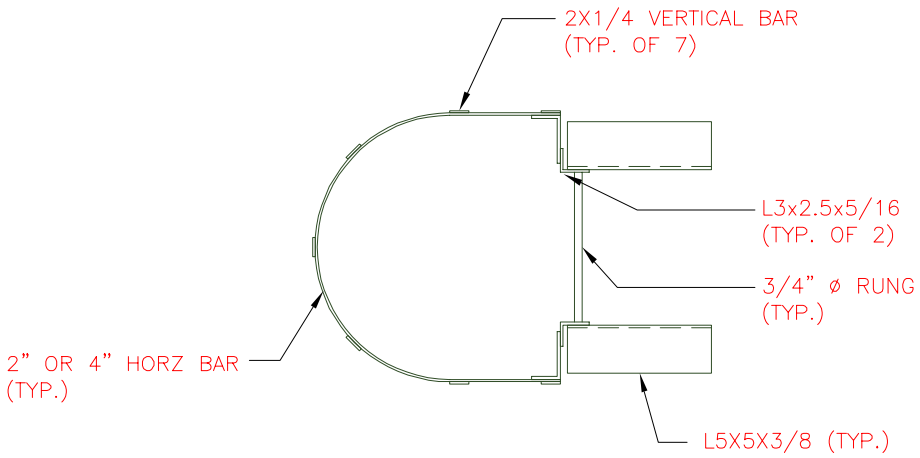
Location: Old Saybrook, CT

Rev. 0: 12/27/17

Prepared by: T.J.L Checked by: C.F.C.
Job No. 17159.20

Climbing Ladder Components:

- Two (2) 3"x2.5'x5/16" Angles Running the Full Span.
- Seven (7) 2"x1/4" Vertical Bars Running the Full Span.
- # of 3/4" Φ x 1.5' Rungs.
- # of 2"x1/4"x5'-7 3/8" Horizontal Bars per Span.
- # of 4"x1/4"x5'-7 3/8" Horizontal Bars per Span.
- # of 5"x5"x3/8"x1.25' Clip Angles per Span.



Area of Angles and 2' Vert Bars per Ft = $A_V := 1.67 \cdot in^2 \cdot 2 + 2 \cdot in \cdot 0.25 \cdot in \cdot 7 = 0.048\,ft^2$ *(User Input)*

Volume of Rung = $V_{Rung} := \frac{\pi}{4} \cdot (0.75 \cdot in)^2 \cdot 1.5 \cdot ft = 4.602 \times 10^{-3} \cdot ft^3$ *(User Input)*

Volume of 2" Horz Bar = $V_{2HB} := 2 \cdot in \cdot 0.25 \cdot in \cdot 5.62 \cdot ft = 0.02 \cdot ft^3$ *(User Input)*

Volume of 4" Horz Bar = $V_{4HB} := 4 \cdot in \cdot 0.25 \cdot in \cdot 5.62 \cdot ft = 0.039 \cdot ft^3$ *(User Input)*

Volume of Clip Angle = $V_{CA} := 3.61 \cdot in^2 \cdot 1.25 \cdot ft = 0.031 \cdot ft^3$ *(User Input)*

Number of 2" Horz Bars per Span = *(User Input)*

$N_{2HB} := \begin{pmatrix} 1 \\ 1 \\ 1 \\ 3 \\ 3 \\ 2 \\ 3 \\ 3 \\ 3 \\ 5 \\ 3 \end{pmatrix}$

Number of 4" Horz Bars per Span = *(User Input)*

$N_{4HB} := \begin{pmatrix} 2 \\ 2 \\ 2 \\ 2 \\ 1 \\ 1 \\ 2 \\ 1 \\ 1 \\ 1 \\ 0 \end{pmatrix}$

Number of Clip Angles per Span = *(User Input)*

$N_{CA} := \begin{pmatrix} 2 \\ 2 \\ 2 \\ 2 \\ 2 \\ 2 \\ 2 \\ 2 \\ 2 \\ 2 \\ 2 \end{pmatrix}$

Number of Rungs per Span = *(User Input)*

$N_{Rung} := \begin{pmatrix} 11 \\ 12 \\ 13 \\ 15 \\ 16 \\ 19 \\ 16 \\ 16 \\ 16 \\ 23 \\ 16 \end{pmatrix}$

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Weight of Climbing Ladder w/o Ice = $W := \left(A_V \cdot CL_{Span} + V_{Rung} \cdot N_{Rung} + V_{2HB} \cdot N_{2HB} + V_{4HB} \cdot N_{4HB} + V_{CA} \cdot N_{CA}\right) \cdot D_S =$ lb

	0
0	383
1	385
2	387
3	481
4	487
5	554
6	524
7	504
8	487
9	696
10	468

Area of Ice on 3x2.5x5/16 Angle = $Aice_{ang} := [4 \cdot in \cdot 1.3125 \cdot in + (3.5 \cdot in - 1.3125 \cdot in) \cdot 1.3125 \cdot in] - 1.67 \cdot in^2 = 0.045\,ft^2$ *(User Input)*

Area of Ice on 2x1/4 Vert Bar = $Aice_{VB} := 3 \cdot in \cdot 1.25 \cdot in - 2 \cdot in \cdot 0.25 \cdot in = 0.023\,ft^2$ *(User Input)*

Area of Ice on Angles and 2" Vert Bars per Ft = $Aice_V := Aice_{ang} \cdot 2 + Aice_{VB} \cdot 7 = 0.248\,ft^2$ *(User Input)*

Volume of Ice on Rung = $Vice_{Rung} := \frac{\pi}{4} \cdot \left[(1.75 \cdot in)^2 - (0.75 \cdot in)^2\right] \cdot 1.5 \cdot ft = 0.02 \cdot ft^3$ *(User Input)*

Volume of Ice on 2' Horz Bar = $Vice_{2HB} := (3 \cdot in \cdot 1.25 \cdot in - 2 \cdot in \cdot 0.25 \cdot in) 5.62 \cdot ft = 0.127 \cdot ft^3$ *(User Input)*

Volume of Ice on 4' Horz Bar = $Vice_{4HB} := (5 \cdot in \cdot 1.25 \cdot in - 4 \cdot in \cdot 0.25 \cdot in) 5.62 \cdot ft = 0.205 \cdot ft^3$ *(User Input)*

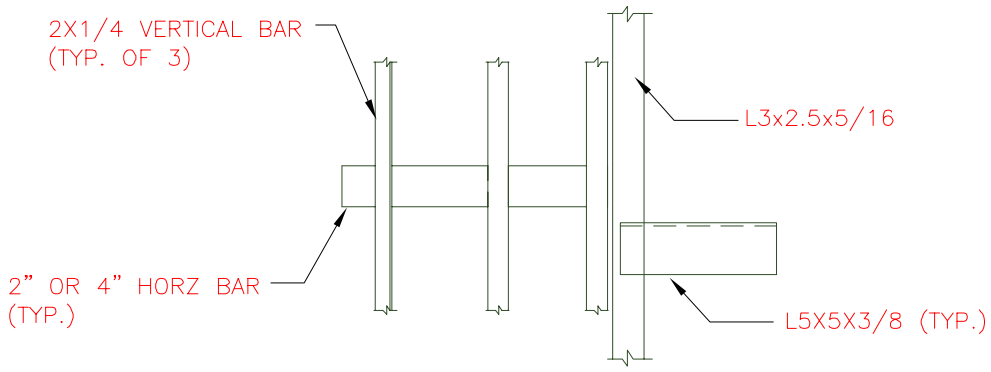
Volume of Ice on Clip Angle = $Vice_{CA} := \left[6 \cdot in \cdot 1.375 \cdot in + (6 \cdot in - 1.375 \cdot in) \cdot 1.375 \cdot in - 3.61 \cdot in^2\right] \cdot 1.25 \cdot ft = 0.095 \cdot ft^3$ *(User Input)*

Weight of Climbing Ladder with Ice = $W_{ice} := \left(Aice_V \cdot CL_{Span} + Vice_{Rung} \cdot N_{Rung} + Vice_{2HB} \cdot N_{2HB} + Vice_{4HB} \cdot N_{4HB} + Vice_{CA} \cdot N_{CA}\right) \cdot Id + W =$ lb

	0
0	602
1	606
2	609
3	761
4	771
5	876
6	829
7	798
8	771
9	1106
10	740

Climbing Ladder Components Exposed to Wind:

- One (1) 3" Wide Angle and Three (3) 2" Wide Vertical Bars Running the Full Span.
- # of 2" Wide x 2.125' Long Horizontal Bars per Span.
- # of 4" Wide x 2.125' Long Horizontal Bars per Span.
- # of 5" Wide x 1.25' Long Clip Angles per Span.



Exposed Area of Angle and 2" Vert Bars per Ft = $AEx_V := 3 \cdot in + 2 \cdot in \cdot 3 = 0.75\,ft$ *(User Input)*

Exposed Area of 2" Horz Bar = $AEx_{2HB} := 2 \cdot in \cdot 2.125 \cdot ft = 0.354\,ft^2$ *(User Input)*

Exposed Area of 4" Horz Bar = $AEx_{4HB} := 4 \cdot in \cdot 2.125 \cdot ft = 0.708\,ft^2$ *(User Input)*

Exposed Area of Clip Angle = $AEx_{CA} := 5 \cdot in \cdot 1.25 \cdot ft = 0.521\,ft^2$ *(User Input)*

Number of Exposed 2" Horz Bars per Span = *(User Input)*

$$NEx_{2HB} := \begin{pmatrix} 1 \\ 1 \\ 1 \\ 3 \\ 3 \\ 2 \\ 3 \\ 3 \\ 3 \\ 5 \\ 3 \end{pmatrix}$$

Number of Exposed 4" Horz Bars per Span = *(User Input)*

$$NEx_{4HB} := \begin{pmatrix} 2 \\ 2 \\ 2 \\ 2 \\ 1 \\ 1 \\ 2 \\ 1 \\ 1 \\ 1 \\ 0 \end{pmatrix}$$

Number of Exposed Clip Angles per Span = *(User Input)*

$$NEx_{CA} := \begin{pmatrix} 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \end{pmatrix}$$

Wind Area without Ice = $A := AEx_V \cdot CL_{Span} + AEx_{2HB} \cdot N_{2HB} + AEx_{4HB} \cdot N_{4HB} + AEx_{CA} \cdot N_{CA} =$

	0
0	11.8
1	11.8
2	11.8
3	14.8
4	14.8
5	16.7
6	16.1
7	15.4
8	14.8
9	21.1
10	14.1

ft^2

Exposed Area w/ Ice of Angle and 2" Vert Bars per Ft = $AExice_V := 4 \cdot in + 3 \cdot in \cdot 3 = 1.083\,ft$ *(User Input)*

Exposed Area w/ Ice of 2" Horz Bar = $AExice_{2HB} := 3 \cdot in \cdot 2.21 \cdot ft = 0.552\,ft^2$ *(User Input)*

Exposed Area w/ Ice of 4" Horz Bar = $AExice_{4HB} := 5 \cdot in \cdot 2.21 \cdot ft = 0.921\,ft^2$ *(User Input)*

Exposed Area w/ Ice of Clip Angle = $AExice_{CA} := 6 \cdot in \cdot 1.33 \cdot ft = 0.665\,ft^2$ *(User Input)*

Wind Area with Ice = $A_{ice} := AExice_V \cdot CL_{Span} + AExice_{2HB} \cdot N_{2HB} + AExice_{4HB} \cdot N_{4HB} + AExice_{CA} \cdot N_{CA} =$

	0
0	16.7
1	16.7
2	16.7
3	21.1
4	21.2
5	23.9
6	23
7	22.1
8	21.2
9	30.5
10	20.3

ft^2

Heavy Vertical Load =

$Heavy_{Vert} := \overrightarrow{(W_{ice} \cdot OF_{HV})}$

Heavy Transverse Load =

$Heavy_{Trans} := \overrightarrow{(p \cdot A_{ice} \cdot Cd \cdot OF_{HW})}$

$Heavy_{Vert} =$ lb

	0
0	904
1	909
2	914
3	1141
4	1156
5	1313
6	1244
7	1198
8	1156
9	1659
10	1110

$Heavy_{Trans} =$ lb

	0
0	268
1	268
2	268
3	337
4	340
5	383
6	368
7	353
8	340
9	488
10	325

Extreme Vertical Load =

$Extreme_{Vert} := \overrightarrow{(W \cdot OF_{EV})}$

Extreme Transverse Load =

$Extreme_{Trans} := \overrightarrow{(qz \cdot A \cdot Cd \cdot OF_{EW})}$

$Extreme_{Vert} =$ lb

	0
0	383
1	385
2	387
3	481
4	487
5	554
6	524
7	504
8	487
9	696
10	468

$Extreme_{Trans} =$ lb

	0
0	718
1	718
2	718
3	898
4	901
5	1016
6	978
7	935
8	901
9	1286
10	858

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Prepared by: T.J.L Checked by: C.F.C.
Job No. 17159.20

Heavy Transverse Loads (Apply @ Indicated Points)

$$1px := \frac{\left(HeavyTrans_0\right)}{4} = 67lb$$

$$4px := \frac{\left(HeavyTrans_0 + HeavyTrans_1\right)}{4} = 134lb$$

$$7px := \frac{\left(HeavyTrans_1 + HeavyTrans_2\right)}{4} = 134lb$$

$$10px := \frac{\left(HeavyTrans_2 + HeavyTrans_3\right)}{4} = 151lb$$

$$13px := \frac{\left(HeavyTrans_3 + HeavyTrans_4\right)}{4} = 169lb$$

$$15px := \frac{\left(HeavyTrans_4 + HeavyTrans_5\right)}{4} = 181lb$$

$$18px := \frac{\left(HeavyTrans_5 + HeavyTrans_6\right)}{4} = 188lb$$

$$19px := \frac{\left(HeavyTrans_6 + HeavyTrans_7\right)}{4} = 180lb$$

$$20px := \frac{\left(HeavyTrans_7 + HeavyTrans_8\right)}{4} = 173lb$$

$$21px := \frac{\left(HeavyTrans_8 + HeavyTrans_9\right)}{4} = 207lb$$

$$22px := \frac{\left(HeavyTrans_9 + HeavyTrans_{10}\right)}{4} = 203lb$$

$$25px := \frac{\left(HeavyTrans_{10}\right)}{4} = 81lb$$

Heavy Vertical Loads (Apply @ Indicated Points)

$$1px := \frac{\left(HeavyVert_0\right)}{4} = 226lb$$

$$4px := \frac{\left(HeavyVert_0 + HeavyVert_1\right)}{4} = 453lb$$

$$7px := \frac{\left(HeavyVert_1 + HeavyVert_2\right)}{4} = 456lb$$

$$10px := \frac{\left(HeavyVert_2 + HeavyVert_3\right)}{4} = 514lb$$

$$13px := \frac{\left(HeavyVert_3 + HeavyVert_4\right)}{4} = 574lb$$

$$15px := \frac{\left(HeavyVert_4 + HeavyVert_5\right)}{4} = 617lb$$

$$18px := \frac{\left(HeavyVert_5 + HeavyVert_6\right)}{4} = 639lb$$

$$19px := \frac{\left(HeavyVert_6 + HeavyVert_7\right)}{4} = 610lb$$

$$20px := \frac{\left(HeavyVert_7 + HeavyVert_8\right)}{4} = 588lb$$

$$21px := \frac{\left(HeavyVert_8 + HeavyVert_9\right)}{4} = 704lb$$

$$22px := \frac{\left(HeavyVert_9 + HeavyVert_{10}\right)}{4} = 692lb$$

$$25px := \frac{\left(HeavyVert_{10}\right)}{4} = 278lb$$

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Location:	Old Saybrook, CT
Rev. 0: 12/27/17	Prepared by: T.J.L Checked by: C.F.C. Job No. 17159.20

Extreme Transverse Loads (Apply @ Indicated Points)

$$1px := \frac{\left(Extreme_{Trans_0}\right)}{4} = 180lb$$

$$4px := \frac{\left(Extreme_{Trans_0} + Extreme_{Trans_1}\right)}{4} = 359lb$$

$$7px := \frac{\left(Extreme_{Trans_1} + Extreme_{Trans_2}\right)}{4} = 359lb$$

$$10px := \frac{\left(Extreme_{Trans_2} + Extreme_{Trans_3}\right)}{4} = 404lb$$

$$13px := \frac{\left(Extreme_{Trans_3} + Extreme_{Trans_4}\right)}{4} = 450lb$$

$$15px := \frac{\left(Extreme_{Trans_4} + Extreme_{Trans_5}\right)}{4} = 479lb$$

$$18px := \frac{\left(Extreme_{Trans_5} + Extreme_{Trans_6}\right)}{4} = 498lb$$

$$19px := \frac{\left(Extreme_{Trans_6} + Extreme_{Trans_7}\right)}{4} = 478lb$$

$$20px := \frac{\left(Extreme_{Trans_7} + Extreme_{Trans_8}\right)}{4} = 459lb$$

$$21px := \frac{\left(Extreme_{Trans_8} + Extreme_{Trans_9}\right)}{4} = 547lb$$

$$22px := \frac{\left(Extreme_{Trans_9} + Extreme_{Trans_{10}}\right)}{4} = 536lb$$

$$25px := \frac{\left(Extreme_{Trans_{10}}\right)}{4} = 214lb$$

Extreme Vertical Loads (Apply @ Indicated Points)

$$1px := \frac{\left(Extreme_{Vert_0}\right)}{4} = 96lb$$

$$4px := \frac{\left(Extreme_{Vert_0} + Extreme_{Vert_1}\right)}{4} = 192lb$$

$$7px := \frac{\left(Extreme_{Vert_1} + Extreme_{Vert_2}\right)}{4} = 193lb$$

$$10px := \frac{\left(Extreme_{Vert_2} + Extreme_{Vert_3}\right)}{4} = 217lb$$

$$13px := \frac{\left(Extreme_{Vert_3} + Extreme_{Vert_4}\right)}{4} = 242lb$$

$$15px := \frac{\left(Extreme_{Vert_4} + Extreme_{Vert_5}\right)}{4} = 260lb$$

$$18px := \frac{\left(Extreme_{Vert_5} + Extreme_{Vert_6}\right)}{4} = 269lb$$

$$19px := \frac{\left(Extreme_{Vert_6} + Extreme_{Vert_7}\right)}{4} = 257lb$$

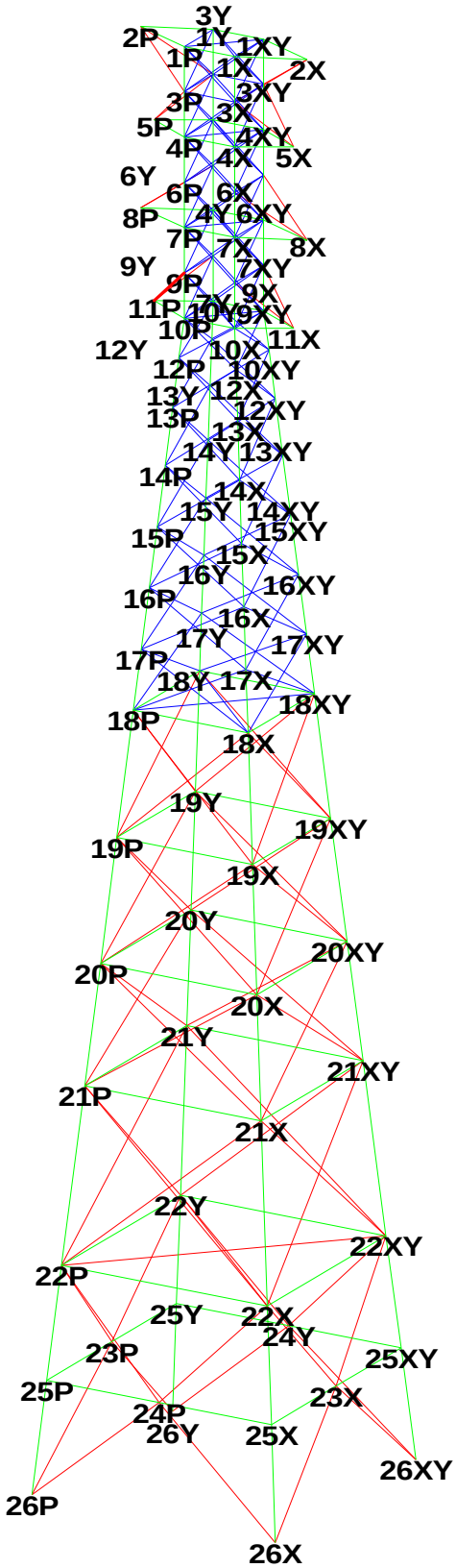
$$20px := \frac{\left(Extreme_{Vert_7} + Extreme_{Vert_8}\right)}{4} = 248lb$$

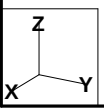
$$21px := \frac{\left(Extreme_{Vert_8} + Extreme_{Vert_9}\right)}{4} = 296lb$$

$$22px := \frac{\left(Extreme_{Vert_9} + Extreme_{Vert_{10}}\right)}{4} = 291lb$$

$$25px := \frac{\left(Extreme_{Vert_{10}}\right)}{4} = 117lb$$

Centek Engineering Inc, Project: "cl&p # dist west river x-ing - Reinforced"
Tower Version 12.50, 3:32:53 PM Tuesday, August 14, 2018
Undeformed geometry displayed





Project Name : 17159.20 - Old Saybrook
Project Notes: CT54XC774 - Structure - dist west river x-ing
Project File : J:\Jobs\1715900.WI\20_CT54XC774 Old Saybrook\04_Structural\Backup Documentation\Calcs\Rev (2)\PLS Tower\cl&p # dist west river x-ing - Reinforced.tow
Date run : 3:32:12 PM Tuesday, August 14, 2018
by : Tower Version 12.50
Licensed to : Centek Engineering Inc

Successfully performed nonlinear analysis

Member "5P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "5X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "5XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
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Member "8P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
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Member "11P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
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Member "16P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
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Member "18P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
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Member "19Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "20P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??

Member "20X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "20XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "20Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "21P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "21X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "21XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "21Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
KL/R value of 246.77 exceeds maximum of 200.00 for member "64P" ??
KL/R value of 246.77 exceeds maximum of 200.00 for member "64X" ??
KL/R value of 203.75 exceeds maximum of 200.00 for member "69P" ??
KL/R value of 203.75 exceeds maximum of 200.00 for member "69Y" ??
KL/R value of 203.75 exceeds maximum of 200.00 for member "70P" ??
KL/R value of 203.75 exceeds maximum of 200.00 for member "70X" ??
KL/R value of 203.75 exceeds maximum of 200.00 for member "74P" ??
KL/R value of 203.75 exceeds maximum of 200.00 for member "74X" ??
KL/R value of 203.75 exceeds maximum of 200.00 for member "78P" ??
KL/R value of 203.75 exceeds maximum of 200.00 for member "78X" ??
The model has 70 warnings. ??

Member check option: ASCE 10
Connection rupture check: ASCE 10
Crossing diagonal check: ASCE 10 [Alternate Unsupported RLOUT = 1]
Included angle check: None
Climbing load check: None
Redundant members checked with: Actual Force

Loads from file: j:\jobs\1715900.wi\20_ct54xc774 old saybrook\04_structural\backup documentation\calcs\rev (2)\pls tower\cl&p # dist west river x-ing.lca

*** Analysis Results:

Maximum element usage is 99.72% for Angle "54X" in load case "NESC Extreme"
Maximum insulator usage is 40.19% for Clamp "3" in load case "NESC Heavy Broken Wire"

Summary of Joint Support Reactions For All Load Cases:

Load Case	Joint Label	Long. Force (kips)	Tran. Force (kips)	Vert. Force (kips)	Shear Force (kips)	Tran. Moment (ft-k)	Long. Moment (ft-k)	Bending Moment (ft-k)	Vert. Moment (ft-k)	Found. Usage %
NESC Heavy	26P	5.94	-12.97	48.92	14.26	3.92	0.15	3.92	1.26	0.00
NESC Heavy	26X	-17.04	-12.47	-136.06	21.12	4.14	0.23	4.15	0.24	0.00
NESC Heavy	26XY	17.36	-12.55	-137.39	21.43	3.66	-0.08	3.66	-0.23	0.00
NESC Heavy	26Y	-5.29	-11.28	44.00	12.46	3.47	-0.12	3.47	-1.27	0.00
NESC Extreme	26P	36.06	-55.38	302.77	66.08	8.64	0.25	8.64	2.31	0.00
NESC Extreme	26X	-14.31	-16.41	-165.41	21.77	9.25	4.82	10.43	3.10	0.00
NESC Extreme	26XY	29.18	-30.37	-323.12	42.12	10.36	4.71	11.38	-2.58	0.00
NESC Extreme	26Y	-12.85	-30.47	96.74	33.07	10.03	-0.13	10.03	-2.62	0.00
NESC Heavy Broken Wire	26P	16.35	-15.33	132.92	22.41	-0.15	0.53	0.55	1.40	0.00
NESC Heavy Broken Wire	26X	-4.36	-4.33	-43.38	6.14	0.09	-4.86	4.86	-0.10	0.00
NESC Heavy Broken Wire	26XY	15.55	-19.82	-215.87	25.19	7.39	-4.92	8.88	-0.53	0.00

NESC Heavy Broken Wire	26Y	6.38	-7.37	-47.05	9.75	7.23	0.30	7.24	-1.14	0.00

Summary of Joint Support Reactions For All Load Cases in Direction of Leg:

Load Case	Support Joint	Origin Joint	Leg Member	Force In Leg Dir. (kips)	Residual Shear Perpendicular To Leg (kips)	Residual Shear Horizontal To Leg - Res. (kips)	Residual Shear Horizontal To Leg - Long. (kips)	Residual Shear Horizontal To Leg - Tran. (kips)	Total Long. Force (kips)	Total Tran. Force (kips)	Total Vert. Force (kips)
NESC Heavy	26P	25P	21P	-50.217	8.658	8.705	-1.532	8.569	5.94	-12.97	48.92
NESC Heavy	26X	25X	21X	137.609	4.781	4.802	4.797	0.229	-17.04	-12.47	-136.06
NESC Heavy	26XY	25XY	21XY	138.967	4.981	5.003	-4.999	0.189	17.36	-12.55	-137.39
NESC Heavy	26Y	25Y	21Y	-45.127	7.400	7.440	1.334	7.320	-5.29	-11.28	44.00
NESC Extreme	26P	25P	21P	-308.512	29.290	29.475	-8.813	28.126	36.06	-55.38	302.77
NESC Extreme	26X	25X	21X	166.830	1.623	1.625	-0.579	1.518	-14.31	-16.41	-165.41
NESC Extreme	26XY	25XY	21XY	325.847	1.292	1.298	-0.099	1.294	29.18	-30.37	-323.12
NESC Extreme	26Y	25Y	21Y	-99.828	22.031	22.152	4.142	21.761	-12.85	-30.47	96.74
NESC Heavy Broken Wire	26P	25P	21P	-134.684	5.484	5.527	-4.384	3.367	16.35	-15.33	132.92
NESC Heavy Broken Wire	26X	25X	21X	43.804	0.619	0.624	0.458	0.423	-4.36	-4.33	-43.38
NESC Heavy Broken Wire	26XY	25XY	21XY	217.297	3.884	3.897	3.878	0.388	15.55	-19.82	-215.87
NESC Heavy Broken Wire	26Y	25Y	21Y	46.582	11.769	11.799	-2.147	11.602	6.38	-7.37	-47.05

Overturning Moment Summary For All Load Cases:

Load Case	Transverse Moment (ft-k)	Longitudinal Moment (ft-k)	Resultant Moment (ft-k)
NESC Heavy	6411.601	-109.426	6412.535
NESC Extreme	15540.616	-6365.469	16793.747
NESC Heavy Broken Wire	6039.520	-6168.018	8632.511

Sections Information:

Section Label	Top Z (ft)	Bottom Z (ft)	Joint Count	Member Count	Tran. Face Top Width (ft)	Tran. Face Bot Width (ft)	Tran. Face Gross Area (ft^2)	Long. Face Top Width (ft)	Long. Face Bot Width (ft)	Long. Face Gross Area (ft^2)
1	190.000	154.000	36	136	7.25	7.25	261.000	24.00	20.00	438.000
2	154.000	69.500	40	122	7.25	22.48	1256.368	7.25	22.48	1256.368
3	69.500	0.000	24	66	22.48	35.00	1997.500	22.48	35.00	1997.500

*** Overall summary for all load cases - Usage = Maximum Stress / Allowable Stress
Printed capacities do not include the strength factor entered for each load case.
The Group Summary reports on the member and load case that resulted in maximum usage
which may not necessarily be the same as that which produces maximum force.

Group Summary (Compression Portion):

Group Label	Group Desc.	Angle Type	Angle Size	Steel Strength (ksi)	Max Usage %	Comp. Control Cont-rol	Max Use In Comp. %	Comp. Control Member	Comp. Force (kips)	Comp. Control Load Case	L/R Capacity (kips)	Comp. Connect. Shear Capacity (kips)	Comp. Connect. Bearing Capacity (kips)	RLX	RLY	RLZ	L/R KL/R	Length	Curve No.	Comp. Member	No. Of Bolts

(ft)

Leg1	6x6x3/8	SAE	6X6X0.375	33.0	31.93	Comp	31.93	5XY	-41.096	NESC	Hea	128.698	163.200	303.750	1.000	1.000	1.000	60.50	60.50	6.000	1	12
Leg2	8x8x1/2	SAE	8X8X0.5	33.0	43.51	Comp	43.51	8XY	-104.705	NESC	Hea	240.633	301.600	629.999	1.000	1.000	1.000	45.28	45.28	6.000	1	16
Leg3	8x8x11/16	SAE	8X8X0.6875	33.0	52.92	Comp	52.92	11XY	-165.459	NESC	Ext	312.686	414.700	1191.092	1.000	1.000	1.000	58.19	58.19	7.661	1	22
Leg4	8x8x3/4	SAE	8X8X0.75	33.0	60.26	Comp	60.26	13XY	-202.904	NESC	Ext	336.697	490.100	1535.623	1.000	1.000	1.000	61.25	61.25	8.065	1	26
Leg5	8x8x13/16	SAE	8X8X0.8125	33.0	63.84	Comp	63.84	15XY	-230.759	NESC	Ext	361.445	527.800	1791.560	1.000	1.000	1.000	61.64	61.64	8.065	1	28
Leg6	8x8x7/8	SAE	8X8X0.875	33.0	66.22	Comp	66.22	16XY	-254.612	NESC	Ext	384.502	565.500	2067.184	0.500	0.500	0.500	64.34	64.34	16.835	1	30
Leg7	8x8x/15/16	SAE	8X8X0.9375	33.0	68.52	Comp	68.52	18XY	-283.767	NESC	Ext	414.146	603.200	2362.496	0.500	0.500	0.500	61.76	61.76	16.129	1	32
Leg8	8x8x1	SAE	8X8X1	33.0	73.14	Tens	72.67	21XY	-324.657	NESC	Ext	446.741	640.900	2677.496	0.500	0.500	0.500	58.16	58.16	15.121	1	34
XBR1	2.5x2x1/4	SAU	2.5X2X0.25	33.0	73.57	Comp	73.57	23X	-11.786	NESC	Hea	16.019	27.200	33.750	0.500	0.750	0.500	143.07	137.62	9.411	5	2
XBR2	3x2.5x1/4	SAU	3X2.5X0.25	33.0	92.88	Comp	92.88	27X	-25.015	NESC	Hea	26.934	40.800	50.625	0.500	0.750	0.500	112.48	114.36	9.411	2	3
XBR3	3x3x5/16	SAE	3X3X0.3125	33.0	61.80	Comp	61.80	31X	-25.435	NESC	Hea	41.160	54.400	84.375	0.750	0.500	0.500	95.87	101.90	9.411	2	4
XBR4	3x2.5x5/16	SAU	3X2.5X0.3125	33.0	62.50	Comp	62.50	34Y	-20.563	NESC	Hea	32.903	54.400	84.375	0.767	0.535	0.535	114.00	115.50	9.322	2	4
XBR5	3.5x3x1/4	SAU	3.5X3X0.25	33.0	69.03	Comp	69.03	46Y	-11.484	NESC	Hea	16.638	40.800	50.625	0.763	0.527	0.527	177.45	163.82	17.706	5	3
XBR6	2.5x2.5x5/16	SAE	2.5X2.5X0.3125	33.0	73.77	Tens	65.82	49P	-3.719	NESC	Hea	5.650	54.400	84.375	0.764	0.529	0.529	319.36	271.95	24.601	5	4
XBR7	2.5x2x5/16	SAU	2.5X2X0.3125	33.0	99.72	Tens	98.28	53P	-2.677	NESC	Hea	2.724	40.800	63.281	0.517	0.759	0.517	449.38	371.03	28.814	5	3
HBR1	3.5x3.5x1/4	SAE	3.5X3.5X0.25	33.0	44.89	Comp	44.89	82P	-7.784	NESC	Ext	17.340	40.800	50.625	0.500	1.000	0.500	181.65	167.02	16.500	5	3
HBR2	4x4x1/4	SAE	4X4X0.25	33.0	0.00		0.00		0.000			0.000	0.000	0.000	0.000	0.000	0.000	0.00	0.00	0.000	0	0
HBR3 LL	3.5x3.5x1/4	DAE	3.5X3.5X0.25	33.0	75.07	Comp	75.07	88P	-23.865	NESC	Ext	31.791	81.600	101.250	0.500	1.000	0.500	191.40	174.44	25.360	5	3
HBR4	LL4x4x1/4	DAE	4X4X0.25	33.0	40.33	Comp	40.33	90P	-25.103	NESC	Ext	62.237	81.600	101.250	0.500	0.500	0.500	142.08	133.58	29.600	6	3
Arm	5x3.5x5/16	SAU	5X3.5X0.3125	33.0	59.14	Comp	59.14	73Y	-24.128	NESC	Hea	65.312	40.800	63.281	1.000	0.500	0.500	57.44	88.72	7.334	3	3
ArmBR1	3x3x1/4	SAE	3X3X0.25	33.0	66.51	Comp	66.51	94XY	-7.042	NESC	Hea	10.588	27.200	33.750	1.000	1.000	1.000	221.38	197.29	10.922	5	2
ArmBR2	2.5x2x1/4	SAU	2.5X2X0.25	33.0	61.94	Tens	35.00	97XY	-1.957	NESC	Hea	5.591	27.200	33.750	1.000	1.000	1.000	268.17	232.94	9.475	5	2
Br1	5x3x5/16	SAU	5X3X0.3125	33.0	8.02	Tens	5.28	79X	-2.220	NESC	Ext	42.081	54.400	84.375	1.000	1.000	1.000	132.22	127.51	7.250	6	4
Br2	2.5x2x1/4	SAU	2.5X2X0.25	33.0	14.47	Comp	14.47	60P	-2.021	NESC	Hea	13.968	27.200	33.750	0.500	0.750	0.500	155.87	147.38	10.253	5	2
Br3	2.5x2x3/16	SAU	2.5X2X0.1875	33.0	62.97	Comp	62.97	78P	-3.517	NESC	Ext	5.585	13.600	12.656	1.000	1.000	1.000	203.75	203.75	7.250	4	1
Br4	2.5x2.5x3/16	SAE	2.5X2.5X0.1875	33.0	0.00		0.00		0.000			0.000	0.000	0.000	0.000	0.000	0.000	0.00	0.00	0.000	0	0
Br5	2.5x2.5x1/4	SAE	2.5X2.5X0.25	33.0	2.63	Comp	2.63	65X	-0.051	NESC	Hea	1.946	27.200	33.750	0.500	0.750	0.500	511.54	418.39	41.861	5	2
XBR8	2.5x2.5x5/16	SAE	2.5X2.5X0.3125	33.0	0.00		0.00		0.000			0.000	0.000	0.000	0.000	0.000	0.000	0.00	0.00	0.000	0	0

XBR9	2.5x2x5/16	SAU	2.5X2X0.3125	33.0	0.00		0.00		0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.00	0.00	0.000	0	0
Br4R	2.5x2.5x5/16	SAE	2.5X2.5X0.3125	36.0	70.11	Comp	70.11	64X	-4.811	NESC Ext	6.862	27.200	40.781	0.500	0.750	0.500	286.31	246.77	23.335	5	2
HBR2R	4x4x3/8	SAE	4X4X0.375	36.0	73.11	Comp	73.11	84P	-19.858	NESC Ext	27.163	40.800	73.406	0.500	1.000	0.500	190.28	173.60	19.504	5	3
XBR8r	2.5x2.5x3/8	SAE	2.5X2.5X0.375	33.0	88.34	Comp	88.34	59Y	-7.266	NESC Hea	8.225	54.400	101.250	0.500	0.500	0.500	284.46	245.36	23.088	5	4

Group Summary (Tension Portion):

Group Label	Group Desc.	Angle Type	Angle Size	Steel Strength (ksi)	Max Usage %	Max Usage Control	Tension Use In Tens. %	Tension Control Member	Tension Force (kips)	Tension Control Load Case	Net Section Capacity (kips)	Tension Connect. Shear Capacity (kips)	Tension Connect. Bearing Capacity (kips)	Tension Connect. Rupture Capacity (kips)	Length Tens. Member (ft)	No. Of Bolts Tens.	No. Of Holes	Hole Diameter (in)
Leg1	6x6x3/8	SAE	6X6X0.375	33.0	31.93	Comp	19.42	5P	21.402	NESC Hea	110.204	163.200	303.750	281.250	6.000	12	3.110	0.875
Leg2	8x8x1/2	SAE	8X8X0.5	33.0	43.51	Comp	41.76	8P	81.436	NESC Ext	195.030	301.600	629.999	699.999	6.000	16	3.680	1
Leg3	8x8x11/16	SAE	8X8X0.6875	33.0	52.92	Comp	52.83	11P	139.789	NESC Ext	264.598	414.700	1191.092	1134.373	7.661	22	3.610	1
Leg4	8x8x3/4	SAE	8X8X0.75	33.0	60.26	Comp	58.60	13P	168.866	NESC Ext	288.172	490.100	1535.623	1462.498	8.065	26	3.610	1
Leg5	8x8x13/16	SAE	8X8X0.8125	33.0	63.84	Comp	62.18	15P	192.528	NESC Ext	309.643	527.800	1791.560	1706.247	8.065	28	3.590	1
Leg6	8x8x7/8	SAE	8X8X0.875	33.0	66.22	Comp	59.18	16P	197.041	NESC Ext	332.928	565.500	2067.184	1968.747	16.835	30	3.590	1
Leg7	8x8x/15/16	SAE	8X8X0.9375	33.0	68.52	Comp	67.68	18P	239.758	NESC Ext	354.234	603.200	2362.496	2249.997	16.129	32	3.590	1
Leg8	8x8x1	SAE	8X8X1	33.0	73.14	Tens	73.14	21P	274.441	NESC Ext	375.209	640.900	2677.496	2549.996	15.121	34	3.630	1
XBR1	2.5x2x1/4	SAU	2.5X2X0.25	33.0	73.57	Comp	45.79	23XY	11.440	NESC Hea	24.985	27.200	33.750	29.297	9.411	2	1.000	0.875
XBR2	3x2.5x1/4	SAU	3X2.5X0.25	33.0	92.88	Comp	75.51	27XY	24.472	NESC Hea	32.410	40.800	50.625	45.328	9.411	3	1.000	0.875
XBR3	3x3x5/16	SAE	3X3X0.3125	33.0	61.80	Comp	57.25	31XY	25.616	NESC Hea	44.745	54.400	84.375	66.504	9.411	4	1.000	0.875
XBR4	3x2.5x5/16	SAU	3X2.5X0.3125	33.0	62.50	Comp	50.33	36XY	17.791	NESC Hea	35.352	54.400	84.375	62.637	10.942	4	1.000	0.875
XBR5	3.5x3x1/4	SAU	3.5X3X0.25	33.0	69.03	Comp	40.42	38XY	14.601	NESC Hea	36.123	54.400	67.500	53.203	12.619	4	1.000	0.875
XBR6	2.5x2.5x5/16	SAE	2.5X2.5X0.3125	33.0	73.77	Tens	73.77	48X	25.998	NESC Ext	35.241	54.400	84.375	62.637	24.601	4	1.000	0.875
XBR7	2.5x2x5/16	SAU	2.5X2X0.3125	33.0	99.72	Tens	99.72	54X	30.700	NESC Ext	30.786	54.400	84.375	62.637	36.220	4	1.000	0.875
HBR1	3.5x3.5x1/4	SAE	3.5X3.5X0.25	33.0	44.89	Comp	8.00	83P	3.263	NESC Hea	43.696	40.800	50.625	46.875	16.500	3	1.000	0.875
HBR2	4x4x1/4	SAE	4X4X0.25	33.0	0.00		0.00		0.000		0.000	0.000	0.000	0.000	0.000	0	0.000	0
HBR3	LL3.5x3.5x1/4	DAE	3.5X3.5X0.25	33.0	75.07	Comp	4.88	87P	3.984	NESC Hea	87.392	81.600	101.250	93.750	22.480	3	2.000	0.875
HBR4	LL4x4x1/4	DAE	4X4X0.25	33.0	40.33	Comp	5.18	91P	4.226	NESC Hea	102.242	81.600	101.250	93.750	29.600	3	2.000	

0.875																		
Arm	5x3.5x5/16	SAU	5X3.5X0.3125	33.0	59.14	Comp	46.56	73P	18.995	NESC Hea	67.911	40.800	63.281	44.613	7.334	3	1.000	
0.875																		
ArmBR1	3x3x1/4	SAE	3X3X0.25	33.0	66.51	Comp	4.44	94Y	1.208	NESC Ext	36.271	27.200	33.750	31.250	10.922	2	1.000	
0.875																		
ArmBR2	2.5x2x1/4	SAU	2.5X2X0.25	33.0	61.94	Tens	61.94	96P	15.475	NESC Hea	24.985	27.200	33.750	27.609	10.922	2	1.000	
0.875																		
Br1	5x3x5/16	SAU	5X3X0.3125	33.0	8.02	Tens	8.02	75X	4.204	NESC Hea	63.159	54.400	84.375	52.441	7.250	4	1.000	
0.875																		
Br2	2.5x2x1/4	SAU	2.5X2X0.25	33.0	14.47	Comp	9.24	60X	2.307	NESC Hea	24.985	27.200	33.750	31.250	10.253	2	1.000	
0.875																		
Br3	2.5x2x3/16	SAU	2.5X2X0.1875	33.0	62.97	Comp	34.53	78X	3.328	NESC Ext	19.184	13.600	12.656	9.640	7.250	1	1.000	
0.875																		
Br4	2.5x2.5x3/16	SAE	2.5X2.5X0.1875	33.0	0.00		0.00		0.000		0.000	0.000	0.000	0.000	0.000	0	0.000	
0																		
Br5	2.5x2.5x1/4	SAE	2.5X2.5X0.25	33.0	2.63	Comp	0.80	65P	0.218	NESC Ext	28.846	27.200	33.750	27.609	41.861	2	1.000	
0.875																		
XBR8	2.5x2.5x5/16	SAE	2.5X2.5X0.3125	33.0	0.00		0.00		0.000		0.000	0.000	0.000	0.000	0.000	0	0.000	
0																		
XBR9	2.5x2x5/16	SAU	2.5X2X0.3125	33.0	0.00		0.00		0.000		0.000	0.000	0.000	0.000	0.000	0	0.000	
0																		
Br4R	2.5x2.5x5/16	SAE	2.5X2.5X0.3125	36.0	70.11	Comp	0.00	64X	0.000		38.445	27.200	40.781	34.242	23.335	2	1.000	
0.875																		
HBR2R	4x4x3/8	SAE	4X4X0.375	36.0	73.11	Comp	11.00	85P	4.489	NESC Hea	82.033	40.800	73.406	67.969	19.504	3	1.000	
0.875																		
XBR8r	2.5x2.5x3/8	SAE	2.5X2.5X0.375	33.0	88.34	Comp	87.71	58P	36.520	NESC Ext	41.636	54.400	101.250	75.164	23.088	4	1.000	
0.875																		

*** Maximum Stress Summary for Each Load Case

Summary of Maximum Usages by Load Case:

Load Case	Maximum Usage %	Element Label	Element Type
NESC Heavy	98.28	53P	Angle
NESC Extreme	99.72	54X	Angle
NESC Heavy Broken Wire	92.88	27X	Angle

Summary of Insulator Usages:

Insulator Label	Insulator Type	Maximum Usage %	Load Case	Weight (lbs)
1	Clamp	27.44	NESC Heavy Broken Wire	0.0
2	Clamp	8.68	NESC Heavy	0.0
3	Clamp	40.19	NESC Heavy Broken Wire	0.0
4	Clamp	16.85	NESC Heavy	0.0
5	Clamp	16.98	NESC Heavy	0.0
6	Clamp	16.91	NESC Heavy	0.0
7	Clamp	16.93	NESC Heavy	0.0
8	Clamp	16.85	NESC Heavy	0.0
9	Clamp	11.35	NESC Extreme	0.0
10	Clamp	3.04	NESC Heavy	0.0

11	Clamp	3.08	NESC Heavy	0.0
12	Clamp	3.34	NESC Extreme	0.0
13	Clamp	5.28	NESC Extreme	0.0
14	Clamp	3.88	NESC Heavy	0.0
15	Clamp	5.26	NESC Heavy	0.0
16	Clamp	6.20	NESC Heavy	0.0
17	Clamp	6.71	NESC Extreme	0.0
18	Clamp	8.46	NESC Heavy	0.0
19	Clamp	8.98	NESC Heavy	0.0
20	Clamp	5.18	NESC Heavy	0.0
21	Clamp	5.28	NESC Extreme	0.0
22	Clamp	3.88	NESC Heavy	0.0
23	Clamp	6.59	NESC Heavy	0.0
24	Clamp	7.48	NESC Heavy	0.0
25	Clamp	7.85	NESC Heavy	0.0
26	Clamp	9.95	NESC Heavy	0.0
27	Clamp	10.42	NESC Heavy	0.0
28	Clamp	5.76	NESC Heavy	0.0
29	Clamp	3.33	NESC Extreme	0.0
30	Clamp	1.24	NESC Extreme	0.0
31	Clamp	0.83	NESC Extreme	0.0
32	Clamp	4.37	NESC Extreme	0.0
33	Clamp	1.98	NESC Extreme	0.0
34	Clamp	10.03	NESC Extreme	0.0
35	Clamp	3.11	NESC Heavy	0.0
37	Clamp	1.24	NESC Extreme	0.0
38	Clamp	1.85	NESC Heavy	0.0
39	Clamp	1.76	NESC Heavy	0.0
40	Clamp	2.17	NESC Heavy	0.0
41	Clamp	2.06	NESC Heavy	0.0
42	Clamp	3.48	NESC Extreme	0.0
43	Clamp	3.48	NESC Extreme	0.0
44	Clamp	2.75	NESC Extreme	0.0
45	Clamp	2.75	NESC Extreme	0.0
46	Clamp	2.82	NESC Heavy	0.0
47	Clamp	2.82	NESC Extreme	0.0
49	Clamp	4.06	NESC Heavy	0.0
51	Clamp	4.87	NESC Heavy	0.0
53	Clamp	5.75	NESC Extreme	0.0
55	Clamp	6.86	NESC Heavy	0.0
57	Clamp	7.45	NESC Heavy	0.0
59	Clamp	3.87	NESC Heavy	0.0

*** Weight of structure (lbs):

Weight of Angles*Section DLF:	57722.2
Total:	57722.2

*** End of Report

```
*****************************************************************************
*                                                                           *
* TOWER - Analysis and Design -  Copyright Power Line Systems, Inc. 1986-2011 *
*                                                                           *
*****************************************************************************

Project Name : 17159.20 - Old Saybrook
Project Notes: CT54XC774 - Structure - dist west river x-ing
Project File : J:\Jobs\1715900.WI\20_CT54XC774 Old Saybrook\04_Structural\Backup Documentation\Calcs\Rev (2)\PLS Tower\cl&p # dist west river x-ing  -
Reinforced.tow
Date run     : 3:32:12 PM Tuesday, August 14, 2018
by           : Tower Version 12.50
Licensed to  : Centek Engineering Inc

Successfully performed nonlinear analysis

Member "5P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "5X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "5XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "5Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "6P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
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Member "6Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "8P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "8X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
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and spacing distances will be checked. ??
Member "8Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "9P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "9X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "9XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "9Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "11P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "11X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "11XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "11Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "12P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
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Member "12X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "12XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "12Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "13P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "13X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "13XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "13Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "14P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
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Member "14Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "15P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "15X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "15XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "15Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "16P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "16X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "16XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "16Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "17P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "17X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "17XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "17Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "18P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "18X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
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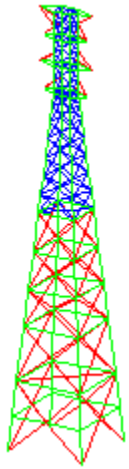
Member "18Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "19P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "19X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??

Member "19XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "19Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "20P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "20X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "20XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "20Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "21P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "21X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "21XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "21Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
KL/R value of 246.77 exceeds maximum of 200.00 for member "64P" ??
KL/R value of 246.77 exceeds maximum of 200.00 for member "64X" ??
KL/R value of 203.75 exceeds maximum of 200.00 for member "69P" ??
KL/R value of 203.75 exceeds maximum of 200.00 for member "69Y" ??
KL/R value of 203.75 exceeds maximum of 200.00 for member "70P" ??
KL/R value of 203.75 exceeds maximum of 200.00 for member "70X" ??
KL/R value of 203.75 exceeds maximum of 200.00 for member "74P" ??
KL/R value of 203.75 exceeds maximum of 200.00 for member "74X" ??
KL/R value of 203.75 exceeds maximum of 200.00 for member "78P" ??
KL/R value of 203.75 exceeds maximum of 200.00 for member "78X" ??
The model has 70 warnings. ??



Nonlinear convergence parameters: Use Standard Parameters
Tension only member maximum compression load as a percent of compression capacity: 100%
Member check option: ASCE 10
Connection rupture check: ASCE 10

Crossing diagonal check: ASCE 10 [Alternate Unsupported RLOUT = 1]
Included angle check: None
Climbing load check: None
Redundant members checked with: Actual Force

Joints Geometry:

Joint Label	Symmetry Code	X Coord. (ft)	Y Coord. (ft)	Z Coord. (ft)	X Disp. Rest.	Y Disp. Rest.	Z Disp. Rest.	X Rot. Rest.	Y Rot. Rest.	Z Rot. Rest.
1P	XY-Symmetry	3.625	-3.625	190	Free	Free	Free	Free	Free	Free
2P	X-Symmetry	0	-12	190	Free	Free	Free	Free	Free	Free
3P	XY-Symmetry	3.625	-3.625	184	Free	Free	Free	Free	Free	Free
4P	XY-Symmetry	3.625	-3.625	178	Free	Free	Free	Free	Free	Free
5P	X-Symmetry	0	-10	178	Free	Free	Free	Free	Free	Free
6P	XY-Symmetry	3.625	-3.625	172	Free	Free	Free	Free	Free	Free
7P	XY-Symmetry	3.625	-3.625	166	Free	Free	Free	Free	Free	Free
8P	X-Symmetry	0	-12	166	Free	Free	Free	Free	Free	Free
9P	XY-Symmetry	3.625	-3.625	160	Free	Free	Free	Free	Free	Free
10P	XY-Symmetry	3.625	-3.625	154	Free	Free	Free	Free	Free	Free
11P	X-Symmetry	0	-10	154	Free	Free	Free	Free	Free	Free
12P	XY-Symmetry	4.098	-4.098	148.8	Free	Free	Free	Free	Free	Free
13P	XY-Symmetry	4.684	-4.684	142.3	Free	Free	Free	Free	Free	Free
14P	XY-Symmetry	5.367	-5.367	134.7	Free	Free	Free	Free	Free	Free
15P	XY-Symmetry	6.088	-6.088	126.7	Free	Free	Free	Free	Free	Free
16P	XY-Symmetry	6.808	-6.808	118.7	Free	Free	Free	Free	Free	Free
17P	XY-Symmetry	7.529	-7.529	110.7	Free	Free	Free	Free	Free	Free
18P	XY-Symmetry	8.25	-8.25	102.7	Free	Free	Free	Free	Free	Free
19P	XY-Symmetry	9.752	-9.752	86	Free	Free	Free	Free	Free	Free
20P	XY-Symmetry	11.24	-11.24	69.5	Free	Free	Free	Free	Free	Free
21P	XY-Symmetry	12.68	-12.68	53.5	Free	Free	Free	Free	Free	Free
22P	XY-Symmetry	14.8	-14.8	30	Free	Free	Free	Free	Free	Free
23P	X-Symmetry	0	-16.15	15	Free	Free	Free	Free	Free	Free
24P	Y-Symmetry	16.15	0	15	Free	Free	Free	Free	Free	Free
25P	XY-Symmetry	16.15	-16.15	15	Free	Free	Free	Free	Free	Free
26P	XY-Symmetry	17.5	-17.5	0	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
1X	X-GenXY	3.625	3.625	190	Free	Free	Free	Free	Free	Free
1XY	XY-GenXY	-3.625	3.625	190	Free	Free	Free	Free	Free	Free
1Y	Y-GenXY	-3.625	-3.625	190	Free	Free	Free	Free	Free	Free
2X	X-Gen	0	12	190	Free	Free	Free	Free	Free	Free
3X	X-GenXY	3.625	3.625	184	Free	Free	Free	Free	Free	Free
3XY	XY-GenXY	-3.625	3.625	184	Free	Free	Free	Free	Free	Free
3Y	Y-GenXY	-3.625	-3.625	184	Free	Free	Free	Free	Free	Free
4X	X-GenXY	3.625	3.625	178	Free	Free	Free	Free	Free	Free
4XY	XY-GenXY	-3.625	3.625	178	Free	Free	Free	Free	Free	Free
4Y	Y-GenXY	-3.625	-3.625	178	Free	Free	Free	Free	Free	Free
5X	X-Gen	0	10	178	Free	Free	Free	Free	Free	Free
6X	X-GenXY	3.625	3.625	172	Free	Free	Free	Free	Free	Free
6XY	XY-GenXY	-3.625	3.625	172	Free	Free	Free	Free	Free	Free
6Y	Y-GenXY	-3.625	-3.625	172	Free	Free	Free	Free	Free	Free
7X	X-GenXY	3.625	3.625	166	Free	Free	Free	Free	Free	Free
7XY	XY-GenXY	-3.625	3.625	166	Free	Free	Free	Free	Free	Free
7Y	Y-GenXY	-3.625	-3.625	166	Free	Free	Free	Free	Free	Free
8X	X-Gen	0	12	166	Free	Free	Free	Free	Free	Free
9X	X-GenXY	3.625	3.625	160	Free	Free	Free	Free	Free	Free
9XY	XY-GenXY	-3.625	3.625	160	Free	Free	Free	Free	Free	Free
9Y	Y-GenXY	-3.625	-3.625	160	Free	Free	Free	Free	Free	Free
10X	X-GenXY	3.625	3.625	154	Free	Free	Free	Free	Free	Free

10XY	XY-GenXY	-3.625	3.625	154	Free	Free	Free	Free	Free	Free
10Y	Y-GenXY	-3.625	-3.625	154	Free	Free	Free	Free	Free	Free
11X	X-Gen	0	10	154	Free	Free	Free	Free	Free	Free
12X	X-GenXY	4.098	4.098	148.8	Free	Free	Free	Free	Free	Free
12XY	XY-GenXY	-4.098	4.098	148.8	Free	Free	Free	Free	Free	Free
12Y	Y-GenXY	-4.098	-4.098	148.8	Free	Free	Free	Free	Free	Free
13X	X-GenXY	4.684	4.684	142.3	Free	Free	Free	Free	Free	Free
13XY	XY-GenXY	-4.684	4.684	142.3	Free	Free	Free	Free	Free	Free
13Y	Y-GenXY	-4.684	-4.684	142.3	Free	Free	Free	Free	Free	Free
14X	X-GenXY	5.367	5.367	134.7	Free	Free	Free	Free	Free	Free
14XY	XY-GenXY	-5.367	5.367	134.7	Free	Free	Free	Free	Free	Free
14Y	Y-GenXY	-5.367	-5.367	134.7	Free	Free	Free	Free	Free	Free
15X	X-GenXY	6.088	6.088	126.7	Free	Free	Free	Free	Free	Free
15XY	XY-GenXY	-6.088	6.088	126.7	Free	Free	Free	Free	Free	Free
15Y	Y-GenXY	-6.088	-6.088	126.7	Free	Free	Free	Free	Free	Free
16X	X-GenXY	6.808	6.808	118.7	Free	Free	Free	Free	Free	Free
16XY	XY-GenXY	-6.808	6.808	118.7	Free	Free	Free	Free	Free	Free
16Y	Y-GenXY	-6.808	-6.808	118.7	Free	Free	Free	Free	Free	Free
17X	X-GenXY	7.529	7.529	110.7	Free	Free	Free	Free	Free	Free
17XY	XY-GenXY	-7.529	7.529	110.7	Free	Free	Free	Free	Free	Free
17Y	Y-GenXY	-7.529	-7.529	110.7	Free	Free	Free	Free	Free	Free
18X	X-GenXY	8.25	8.25	102.7	Free	Free	Free	Free	Free	Free
18XY	XY-GenXY	-8.25	8.25	102.7	Free	Free	Free	Free	Free	Free
18Y	Y-GenXY	-8.25	-8.25	102.7	Free	Free	Free	Free	Free	Free
19X	X-GenXY	9.752	9.752	86	Free	Free	Free	Free	Free	Free
19XY	XY-GenXY	-9.752	9.752	86	Free	Free	Free	Free	Free	Free
19Y	Y-GenXY	-9.752	-9.752	86	Free	Free	Free	Free	Free	Free
20X	X-GenXY	11.24	11.24	69.5	Free	Free	Free	Free	Free	Free
20XY	XY-GenXY	-11.24	11.24	69.5	Free	Free	Free	Free	Free	Free
20Y	Y-GenXY	-11.24	-11.24	69.5	Free	Free	Free	Free	Free	Free
21X	X-GenXY	12.68	12.68	53.5	Free	Free	Free	Free	Free	Free
21XY	XY-GenXY	-12.68	12.68	53.5	Free	Free	Free	Free	Free	Free
21Y	Y-GenXY	-12.68	-12.68	53.5	Free	Free	Free	Free	Free	Free
22X	X-GenXY	14.8	14.8	30	Free	Free	Free	Free	Free	Free
22XY	XY-GenXY	-14.8	14.8	30	Free	Free	Free	Free	Free	Free
22Y	Y-GenXY	-14.8	-14.8	30	Free	Free	Free	Free	Free	Free
23X	X-Gen	0	16.15	15	Free	Free	Free	Free	Free	Free
24Y	Y-Gen	-16.15	0	15	Free	Free	Free	Free	Free	Free
25X	X-GenXY	16.15	16.15	15	Free	Free	Free	Free	Free	Free
25XY	XY-GenXY	-16.15	16.15	15	Free	Free	Free	Free	Free	Free
25Y	Y-GenXY	-16.15	-16.15	15	Free	Free	Free	Free	Free	Free
26X	X-GenXY	17.5	17.5	0	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
26XY	XY-GenXY	-17.5	17.5	0	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
26Y	Y-GenXY	-17.5	-17.5	0	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed

The model contains 92 primary and 0 secondary joints for a total of 92 joints.

Steel Material Properties:

Steel Material Label	Modulus of Elasticity (ksi)	Yield Stress Fy (ksi)	Ultimate Stress Fu (ksi)	Member All. Stress Hyp. 1 (ksi)	Member All. Stress Hyp. 2 (ksi)	Member Rupture Hyp. 1 (ksi)	Member Rupture Hyp. 2 (ksi)	Member Bearing Hyp. 1 (ksi)	Member Bearing Hyp. 2 (ksi)
A 36	2.9e+004	36	58	0	0	0	0	0	0
A7	2.9e+004	33	60	0	0	0	0	0	0

Bolt Properties:

Bolt Label	Bolt Diameter (in)	Hole Diameter (in)	Ultimate Shear Capacity (kips)	Default End Distance (in)	Default Bolt Spacing (in)	Shear Capacity Hyp. 1 (kips)	Shear Capacity Hyp. 2 (kips)
3/4 A394	0.75	0.875	13.6	1.35	1.8	0	0
7/8 A394	0.875	1	18.85	1.575	2.1	0	0

Number Bolts Used By Type:

Bolt Type	Number Bolts
3/4 A394	836
7/8 A394	1400

Angle Properties:

Angle Type	Angle Size	Long Leg (in)	Short Leg (in)	Thick. (in)	Unit Weight (lbs/ft)	Gross Area (in^2)	w/t Ratio	Radius of Gyration Rx (in)	Radius of Gyration Ry (in)	Radius of Gyration Rz (in)	Number of Angles	Wind Width (in)	Short Edge Dist. (in)	Long Edge Dist. (in)	Optimize Cost Factor	Section Modulus (in^3)
SAE	8X8X1	8	8	1	51	15	6.38	2.44	2.44	1.56	1	8	4	0	1.0000	0
SAE	8X8X0.875	8	8	0.875	45	13.23	7.43	2.45	2.45	1.57	1	8	4	0	1.0000	0
SAE	8X8X0.75	8	8	0.75	38.9	11.44	8.83	2.47	2.47	1.58	1	8	4	0	1.0000	0
SAE	8X8X0.5	8	8	0.5	26.4	7.75	13.75	2.5	2.5	1.59	1	8	4	0	1.0000	0
SAE	6X6X0.375	6	6	0.375	14.9	4.36	13.67	1.88	1.88	1.19	1	6	3	0	1.0000	0
SAE	4X4X0.375	4	4	0.375	9.8	2.86	8.67	1.23	1.23	0.788	1	4	2	0	1.0000	0
SAE	4X4X0.25	4	4	0.25	6.6	1.94	13.5	1.25	1.25	0.795	1	4	2	0	1.0000	0
SAE	3.5X3.5X0.25	3.5	3.5	0.25	5.8	1.69	11.5	1.09	1.09	0.694	1	3.5	1.75	0	1.0000	0
SAE	3X3X0.3125	3	3	0.3125	6.1	1.78	7.6	0.922	0.922	0.589	1	3	1.5	0	1.0000	0
SAE	3X3X0.25	3	3	0.25	4.9	1.44	9.75	0.93	0.93	0.592	1	3	1.5	0	1.0000	0
SAE	2.5X2.5X0.375	2.5	2.5	0.375	5.9	1.73	4.83	0.753	0.753	0.487	1	2.5	1.25	0	1.0000	0
SAE	2.5X2.5X0.3125	2.5	2.5	0.3125	5	1.46	6	0.761	0.761	0.489	1	2.5	1.25	0	1.0000	0
SAE	2.5X2.5X0.25	2.5	2.5	0.25	4.1	1.19	7.75	0.769	0.769	0.491	1	2.5	1.25	0	1.0000	0
SAE	2.5X2.5X0.1875	2.5	2.5	0.1875	3.07	0.902	10.67	0.778	0.778	0.495	1	2.5	1.25	0	1.0000	0
SAU	5X3.5X0.3125	5	3.5	0.3125	8.7	2.56	13.4	1.61	1.03	0.766	1	5	1.75	0	1.0000	0
SAU	5X3X0.3125	5	3	0.3125	8.2	2.4	13.4	1.61	0.853	0.658	1	5	1.5	0	1.0000	0
SAU	3.5X3X0.25	3.5	3	0.25	5.4	1.56	11.25	1.11	0.914	0.631	1	3.5	1.5	0	1.0000	0
SAU	3X2.5X0.3125	3	2.5	0.3125	5.6	1.62	7.4	0.937	0.744	0.525	1	3	1.25	0	1.0000	0
SAU	3X2.5X0.25	3	2.5	0.25	4.5	1.31	9.5	0.945	0.753	0.528	1	3	1.25	0	1.0000	0
SAU	2.5X2X0.3125	2.5	2	0.3125	4.5	1.31	6	0.776	0.584	0.422	1	2.5	1	0	1.0000	0
SAU	2.5X2X0.25	2.5	2	0.25	3.62	1.06	7.75	0.784	0.592	0.424	1	2.5	1	0	1.0000	0
SAU	2.5X2X0.1875	2.5	2	0.1875	2.75	0.81	10.67	0.793	0.6	0.427	1	2.5	1	0	1.0000	0
DAE	4X4X0.25	4	4	0.25	13.2	3.88	13.5	1.25	1.79	1.25	2	4	2	0	1.0000	0
DAE	3.5X3.5X0.25	3.5	3.5	0.25	11.6	3.38	11.5	1.09	1.59	1.09	2	3.5	1.75	0	1.0000	0
SAE	8X8X0.6875	8	8	0.6875	36	10.5	12	2.48	2.48	1.58	1	8	0	0	1.0000	0
SAE	8X8X0.8125	8	8	0.8125	42	12.3	8.1	2.46	2.46	1.57	1	8	0	0	1.0000	0
SAE	8X8X0.9375	8	8	0.9375	48	14.1	6.9	2.44	2.44	1.567	1	8	0	0	1.0000	0

Angle Groups:

Group Label	Group Description	Angle Type	Angle Size	Material Type	Element Type	Group Type	Optimize Group	Allow. Add. Angle Width For Optimize (in)
Leg1	6x6x3/8	SAE	6X6X0.375	A7	Beam	Leg	None	0.000

Leg2	8x8x1/2	SAE	8X8X0.5	A7	Beam	Leg	None	0.000
Leg3	8x8x11/16	SAE	8X8X0.6875	A7	Beam	Leg	None	0.000
Leg4	8x8x3/4	SAE	8X8X0.75	A7	Beam	Leg	None	0.000
Leg5	8x8x13/16	SAE	8X8X0.8125	A7	Beam	Leg	None	0.000
Leg6	8x8x7/8	SAE	8X8X0.875	A7	Beam	Leg	None	0.000
Leg7	8x8x/15/16	SAE	8X8X0.9375	A7	Beam	Leg	None	0.000
Leg8	8x8x1	SAE	8X8X1	A7	Beam	Leg	None	0.000
XBR1	2.5x2x1/4	SAU	2.5X2X0.25	A7	Truss	Crossing Diagonal	None	0.000
XBR2	3x2.5x1/4	SAU	3X2.5X0.25	A7	Truss	Crossing Diagonal	None	0.000
XBR3	3x3x5/16	SAE	3X3X0.3125	A7	Truss	Crossing Diagonal	None	0.000
XBR4	3x2.5x5/16	SAU	3X2.5X0.3125	A7	Truss	Crossing Diagonal	None	0.000
XBR5	3.5x3x1/4	SAU	3.5X3X0.25	A7	Truss	Crossing Diagonal	None	0.000
XBR6	2.5x2.5x5/16	SAE	2.5X2.5X0.3125	A7	T-Only	Other	None	0.000
XBR7	2.5x2x5/16	SAU	2.5X2X0.3125	A7	T-Only	Other	None	0.000
HBR1	3.5x3.5x1/4	SAE	3.5X3.5X0.25	A7	Beam	Other	None	0.000
HBR2	4x4x1/4	SAE	4X4X0.25	A7	Beam	Other	None	0.000
HBR3	LL3.5x3.5x1/4	DAE	3.5X3.5X0.25	A7	Beam	Other	None	0.000
HBR4	LL4x4x1/4	DAE	4X4X0.25	A7	Beam	Other	None	0.000
Arm	5x3.5x5/16	SAU	5X3.5X0.3125	A7	Beam	Other	None	0.000
ArmBR1	3x3x1/4	SAE	3X3X0.25	A7	T-Only	Other	None	0.000
ArmBR2	2.5x2x1/4	SAU	2.5X2X0.25	A7	T-Only	Other	None	0.000
Br1	5x3x5/16	SAU	5X3X0.3125	A7	Truss	Other	None	0.000
Br2	2.5x2x1/4	SAU	2.5X2X0.25	A7	Truss	Other	None	0.000
Br3	2.5x2x3/16	SAU	2.5X2X0.1875	A7	Truss	Other	None	0.000
Br4	2.5x2.5x3/16	SAE	2.5X2.5X0.1875	A7	Truss	Other	None	0.000
Br5	2.5x2.5x1/4	SAE	2.5X2.5X0.25	A7	T-Only	Other	None	0.000
XBR8	2.5x2.5x5/16	SAE	2.5X2.5X0.3125	A7	T-Only	Other	None	0.000
XBR9	2.5x2x5/16	SAU	2.5X2X0.3125	A7	Truss	Crossing Diagonal	None	0.000
Br4R	2.5x2.5x5/16	SAE	2.5X2.5X0.3125	A 36	Truss	Other	None	0.000
HBR2R	4x4x3/8	SAE	4X4X0.375	A 36	Beam	Other	None	0.000
XBR8r	2.5x2.5x3/8	SAE	2.5X2.5X0.375	A7	T-Only	Other	None	0.000

Aggregate Angle Information:

Note: Estimate of surface area reported for painting purposes, not wind loading.

Angle Type	Angle Size	Material Type	Total Length (ft)	Total Surface Area (ft^2)	Total Weight (lbs)
SAE	6X6X0.375	A7	72.00	144.00	1072.80
SAE	8X8X0.5	A7	72.00	192.00	1900.80
SAE	8X8X0.6875	A7	77.83	207.54	2801.75
SAE	8X8X0.75	A7	64.52	172.05	2509.71
SAE	8X8X0.8125	A7	64.52	172.05	2709.75
SAE	8X8X0.875	A7	67.34	179.57	3030.22
SAE	8X8X0.9375	A7	131.05	349.47	6290.44
SAE	8X8X1	A7	215.73	575.28	11002.23
SAU	2.5X2X0.25	A7	352.09	264.06	1274.55
SAU	3X2.5X0.25	A7	150.57	138.02	677.58
SAE	3X3X0.3125	A7	150.57	150.57	918.49
SAU	3X2.5X0.3125	A7	162.11	148.60	907.83
SAU	3.5X3X0.25	A7	607.54	658.17	3280.72
SAE	2.5X2.5X0.3125	A7	196.81	164.01	984.05
SAU	2.5X2X0.3125	A7	734.21	550.66	3303.93
SAE	2.5X2.5X0.375	A7	353.63	294.69	2086.42
SAE	2.5X2.5X0.3125	A 36	46.67	38.89	233.35
SAE	2.5X2.5X0.25	A7	83.72	69.77	343.26

SAU	5X3.5X0.3125	A7	189.68	268.71	1650.18	
SAU	5X3X0.3125	A7	58.00	77.33	475.60	
SAU	2.5X2X0.1875	A7	58.00	43.50	159.50	
SAE	3.5X3.5X0.25	A7	66.00	77.00	382.80	
SAE	4X4X0.375	A 36	78.02	104.02	764.56	
DAE	3.5X3.5X0.25	A7	320.56	373.99	3718.50	
DAE	4X4X0.25	A7	118.40	157.87	1562.88	
SAE	3X3X0.25	A7	43.69	43.69	214.06	

Sections:
The adjustment factors below only apply to dead load and wind areas that are calculated for members in the model.
They do not apply to equipment or to manually input dead load and drag areas.

Section Label	Joint Defining Section Bottom	Dead Load Adjust. Factor	Transverse Drag x Area Factor For Face	Longitudinal Drag x Area Factor For Face	Transverse Area Factor (CD From Code)	Longitudinal Area Factor (CD From Code)	Af Flat Factor For Face EIA Only	Ar Round Factor For Face EIA Only	Transverse Drag x Area Factor For All	Longitudinal Drag x Area Factor For All	SAPS Angle Drag x Area Factor	SAPS Round Drag x Area Factor	Force Solid Face
1	10P	1.000	3.200	3.200	1.000	1.000	0.000	0.000	1.000	1.000	0.000	0.000	None
2	20P	1.000	3.200	3.200	1.000	1.000	0.000	0.000	1.000	1.000	0.000	0.000	None
3	26P	1.150	3.200	3.200	1.150	1.150	0.000	0.000	1.000	1.000	0.000	0.000	None

Angle Member Connectivity:

Member Label	Group Label	Section Label	Symmetry Code	Origin Joint	End Joint	Ecc. Code	Rest. Code	Ratio RLX	Ratio RLY	Ratio RLZ	Bolt Type	# Bolts	# Bolt Holes	# Shear Planes	Connect Leg	Short Edge Dist. (in)	Long Edge Dist. (in)	End Dist. (in)	Bolt Spacing (in)	Shear Path Length (in)	Tension Path Length (in)	Rest. Coef.
3P	Leg1		XY-Symmetry	1P	3P	1	4	1	1	1 3/4	A394	0	3.62	1		0	0	0	0	0	0	0
3X	Leg1		X-GenXY	1X	3X	1	4	1	1	1 3/4	A394	0	3.62	1		0	0	0	0	0	0	0
3XY	Leg1		XY-GenXY	1XY	3XY	1	4	1	1	1 3/4	A394	0	3.62	1		0	0	0	0	0	0	0
3Y	Leg1		Y-GenXY	1Y	3Y	1	4	1	1	1 3/4	A394	0	3.62	1		0	0	0	0	0	0	0
4P	Leg1		XY-Symmetry	3P	4P	1	4	1	1	1 3/4	A394	0	3.62	1		0	0	0	0	0	0	0
4X	Leg1		X-GenXY	3X	4X	1	4	1	1	1 3/4	A394	0	3.62	1		0	0	0	0	0	0	0
4XY	Leg1		XY-GenXY	3XY	4XY	1	4	1	1	1 3/4	A394	0	3.62	1		0	0	0	0	0	0	0
4Y	Leg1		Y-GenXY	3Y	4Y	1	4	1	1	1 3/4	A394	0	3.62	1		0	0	0	0	0	0	0
5P	Leg1		XY-Symmetry	4P	6P	1	4	1	1	1 3/4	A394	12	3.11	1	Both	1.25	3.875	1.25	3	0	0	0
5X	Leg1		X-GenXY	4X	6X	1	4	1	1	1 3/4	A394	12	3.11	1	Both	1.25	3.875	1.25	3	0	0	0
5XY	Leg1		XY-GenXY	4XY	6XY	1	4	1	1	1 3/4	A394	12	3.11	1	Both	1.25	3.875	1.25	3	0	0	0
5Y	Leg1		Y-GenXY	4Y	6Y	1	4	1	1	1 3/4	A394	12	3.11	1	Both	1.25	3.875	1.25	3	0	0	0
6P	Leg2		XY-Symmetry	6P	7P	1	4	1	1	1 3/4	A394	12	3.63	1	Both	2.375	5.875	1.25	3			

0	0	0																		
	6X	Leg2	X-GenXY	6X	7X	1	4	1	1	1	3/4	A394	12	3.63	1	Both	2.375	5.875	1.25	3
0	0	0																		
	6XY	Leg2	XY-GenXY	6XY	7XY	1	4	1	1	1	3/4	A394	12	3.63	1	Both	2.375	5.875	1.25	3
0	0	0																		
	6Y	Leg2	Y-GenXY	6Y	7Y	1	4	1	1	1	3/4	A394	12	3.63	1	Both	2.375	5.875	1.25	3
0	0	0																		
	7P	Leg2	XY-Symmetry	7P	9P	1	4	1	1	1	3/4	A394	0	3.6	1		0	0	0	0
0	0	0																		
	7X	Leg2	X-GenXY	7X	9X	1	4	1	1	1	3/4	A394	0	3.6	1		0	0	0	0
0	0	0																		
	7XY	Leg2	XY-GenXY	7XY	9XY	1	4	1	1	1	3/4	A394	0	3.6	1		0	0	0	0
0	0	0																		
	7Y	Leg2	Y-GenXY	7Y	9Y	1	4	1	1	1	3/4	A394	0	3.6	1		0	0	0	0
0	0	0																		
	8P	Leg2	XY-Symmetry	9P	10P	1	4	1	1	1	7/8	A394	16	3.68	1	Both	2.375	5.875	1.75	3
0	0	0																		
	8X	Leg2	X-GenXY	9X	10X	1	4	1	1	1	7/8	A394	16	3.68	1	Both	2.375	5.875	1.75	3
0	0	0																		
	8XY	Leg2	XY-GenXY	9XY	10XY	1	4	1	1	1	7/8	A394	16	3.68	1	Both	2.375	5.875	1.75	3
0	0	0																		
	8Y	Leg2	Y-GenXY	9Y	10Y	1	4	1	1	1	7/8	A394	16	3.68	1	Both	2.375	5.875	1.75	3
0	0	0																		
	9P	Leg3	XY-Symmetry	10P	12P	1	4	1	1	1	7/8	A394	16	3.61	1	Both	2.25	5.125	1.75	3
0	0	0																		
	9X	Leg3	X-GenXY	10X	12X	1	4	1	1	1	7/8	A394	16	3.61	1	Both	2.25	5.125	1.75	3
0	0	0																		
	9XY	Leg3	XY-GenXY	10XY	12XY	1	4	1	1	1	7/8	A394	16	3.61	1	Both	2.25	5.125	1.75	3
0	0	0																		
	9Y	Leg3	Y-GenXY	10Y	12Y	1	4	1	1	1	7/8	A394	16	3.61	1	Both	2.25	5.125	1.75	3
0	0	0																		
	10P	Leg3	XY-Symmetry	12P	13P	1	4	1	1	1	7/8	A394	0	3.61	1		0	0	0	0
0	0	0																		
	10X	Leg3	X-GenXY	12X	13X	1	4	1	1	1	7/8	A394	0	3.61	1		0	0	0	0
0	0	0																		
	10XY	Leg3	XY-GenXY	12XY	13XY	1	4	1	1	1	7/8	A394	0	3.61	1		0	0	0	0
0	0	0																		
	10Y	Leg3	Y-GenXY	12Y	13Y	1	4	1	1	1	7/8	A394	0	3.61	1		0	0	0	0
0	0	0																		
	11P	Leg3	XY-Symmetry	13P	14P	1	4	1	1	1	7/8	A394	22	3.61	1	Both	2.25	5.125	1.5	3
0	0	0																		
	11X	Leg3	X-GenXY	13X	14X	1	4	1	1	1	7/8	A394	22	3.61	1	Both	2.25	5.125	1.5	3
0	0	0																		
	11XY	Leg3	XY-GenXY	13XY	14XY	1	4	1	1	1	7/8	A394	22	3.61	1	Both	2.25	5.125	1.5	3
0	0	0																		
	11Y	Leg3	Y-GenXY	13Y	14Y	1	4	1	1	1	7/8	A394	22	3.61	1	Both	2.25	5.125	1.5	3
0	0	0																		
	12P	Leg4	XY-Symmetry	15P	14P	1	4	1	1	1	7/8	A394	22	3.61	1	Both	1.5	4.375	1.5	3
0	0	0																		
	12X	Leg4	X-GenXY	15X	14X	1	4	1	1	1	7/8	A394	22	3.61	1	Both	1.5	4.375	1.5	3
0	0	0																		
	12XY	Leg4	XY-GenXY	15XY	14XY	1	4	1	1	1	7/8	A394	22	3.61	1	Both	1.5	4.375	1.5	3
0	0	0																		
	12Y	Leg4	Y-GenXY	15Y	14Y	1	4	1	1	1	7/8	A394	22	3.61	1	Both	1.5	4.375	1.5	3
0	0	0																		
	13P	Leg4	XY-Symmetry	16P	15P	1	4	1	1	1	7/8	A394	26	3.61	1	Both	1.5	4.375	1.5	3
0	0	0																		
	13X	Leg4	X-GenXY	16X	15X	1	4	1	1	1	7/8	A394	26	3.61	1	Both	1.5	4.375	1.5	3
0	0	0																		

13XY	Leg4	XY-GenXY	16XY	15XY	1	4	1	1	1	7/8	A394	26	3.61	1	Both	1.5	4.375	1.5	3	0	0	0
13Y	Leg4	Y-GenXY	16Y	15Y	1	4	1	1	1	7/8	A394	26	3.61	1	Both	1.5	4.375	1.5	3	0	0	0
14P	Leg5	XY-Symmetry	17P	16P	1	4	1	1	1	7/8	A394	26	3.61	1	Both	2.25	5.125	1.5	3	0	0	0
14X	Leg5	X-GenXY	17X	16X	1	4	1	1	1	7/8	A394	26	3.61	1	Both	2.25	5.125	1.5	3	0	0	0
14XY	Leg5	XY-GenXY	17XY	16XY	1	4	1	1	1	7/8	A394	26	3.61	1	Both	2.25	5.125	1.5	3	0	0	0
14Y	Leg5	Y-GenXY	17Y	16Y	1	4	1	1	1	7/8	A394	26	3.61	1	Both	2.25	5.125	1.5	3	0	0	0
15P	Leg5	XY-Symmetry	18P	17P	1	4	1	1	1	7/8	A394	28	3.59	1	Both	2.375	5.125	1.5	3	0	0	0
15X	Leg5	X-GenXY	18X	17X	1	4	1	1	1	7/8	A394	28	3.59	1	Both	2.375	5.125	1.5	3	0	0	0
15XY	Leg5	XY-GenXY	18XY	17XY	1	4	1	1	1	7/8	A394	28	3.59	1	Both	2.375	5.125	1.5	3	0	0	0
15Y	Leg5	Y-GenXY	18Y	17Y	1	4	1	1	1	7/8	A394	28	3.59	1	Both	2.375	5.125	1.5	3	0	0	0
16P	Leg6	XY-Symmetry	19P	18P	1	4	0.5	0.5	0.5	7/8	A394	30	3.59	1	Both	1.5	4.25	1.5	3	0	0	0
16X	Leg6	X-GenXY	19X	18X	1	4	0.5	0.5	0.5	7/8	A394	30	3.59	1	Both	1.5	4.25	1.5	3	0	0	0
16XY	Leg6	XY-GenXY	19XY	18XY	1	4	0.5	0.5	0.5	7/8	A394	30	3.59	1	Both	1.5	4.25	1.5	3	0	0	0
16Y	Leg6	Y-GenXY	19Y	18Y	1	4	0.5	0.5	0.5	7/8	A394	30	3.59	1	Both	1.5	4.25	1.5	3	0	0	0
17P	Leg7	XY-Symmetry	20P	19P	1	4	0.5	0.5	0.5	7/8	A394	30	3.59	1	Both	2.375	5.125	1.5	3	0	0	0
17X	Leg7	X-GenXY	20X	19X	1	4	0.5	0.5	0.5	7/8	A394	30	3.59	1	Both	2.375	5.125	1.5	3	0	0	0
17XY	Leg7	XY-GenXY	20XY	19XY	1	4	0.5	0.5	0.5	7/8	A394	30	3.59	1	Both	2.375	5.125	1.5	3	0	0	0
17Y	Leg7	Y-GenXY	20Y	19Y	1	4	0.5	0.5	0.5	7/8	A394	30	3.59	1	Both	2.375	5.125	1.5	3	0	0	0
18P	Leg7	XY-Symmetry	21P	20P	1	4	0.5	0.5	0.5	7/8	A394	32	3.59	1	Both	1.4375	4.1875	1.5	3	0	0	0
18X	Leg7	X-GenXY	21X	20X	1	4	0.5	0.5	0.5	7/8	A394	32	3.59	1	Both	1.4375	4.1875	1.5	3	0	0	0
18XY	Leg7	XY-GenXY	21XY	20XY	1	4	0.5	0.5	0.5	7/8	A394	32	3.59	1	Both	1.4375	4.1875	1.5	3	0	0	0
18Y	Leg7	Y-GenXY	21Y	20Y	1	4	0.5	0.5	0.5	7/8	A394	32	3.59	1	Both	1.4375	4.1875	1.5	3	0	0	0
19P	Leg8	XY-Symmetry	22P	21P	1	4	0.333	0.333	0.333	7/8	A394	34	3.57	1	Both	2.5	5.125	1.5	3	0	0	0
19X	Leg8	X-GenXY	22X	21X	1	4	0.333	0.333	0.333	7/8	A394	34	3.57	1	Both	2.5	5.125	1.5	3	0	0	0
19XY	Leg8	XY-GenXY	22XY	21XY	1	4	0.333	0.333	0.333	7/8	A394	34	3.57	1	Both	2.5	5.125	1.5	3	0	0	0
19Y	Leg8	Y-GenXY	22Y	21Y	1	4	0.333	0.333	0.333	7/8	A394	34	3.57	1	Both	2.5	5.125	1.5	3	0	0	0
20P	Leg8	XY-Symmetry	25P	22P	1	4	0.5	0.5	0.5	7/8	A394	34	3.57	1	Both	1.5	4.125	1.5	3	0	0	0
20X	Leg8	X-GenXY	25X	22X	1	4	0.5	0.5	0.5	7/8	A394	34	3.57	1	Both	1.5	4.125	1.5	3	0	0	0
20XY	Leg8	XY-GenXY	25XY	22XY	1	4	0.5	0.5	0.5	7/8	A394	34	3.57	1	Both	1.5	4.125	1.5	3	0	0	0
20Y	Leg8	Y-GenXY	25Y	22Y	1	4	0.5	0.5	0.5	7/8	A394	34	3.57	1	Both	1.5	4.125	1.5	3	0	0	0

0	0	0																			
	21P	Leg8	XY-Symmetry	26P	25P	1	4	0.5	0.5	0.5	7/8	A394	34	3.63	1	Both	2	5	1.5	3	
0	0	0																			
	21X	Leg8	X-GenXY	26X	25X	1	4	0.5	0.5	0.5	7/8	A394	34	3.63	1	Both	2	5	1.5	3	
0	0	0																			
	21XY	Leg8	XY-GenXY	26XY	25XY	1	4	0.5	0.5	0.5	7/8	A394	34	3.63	1	Both	2	5	1.5	3	
0	0	0																			
	21Y	Leg8	Y-GenXY	26Y	25Y	1	4	0.5	0.5	0.5	7/8	A394	34	3.63	1	Both	2	5	1.5	3	
0	0	0																			
	22P	XBR1	XY-Symmetry	1P	3X	2	5	0.5	0.75	0.5	3/4	A394	2	1	1	Long only	1.125	0	1.25	2.6875	
0	0	0																			
	22X	XBR1	X-GenXY	1X	3P	2	5	0.5	0.75	0.5	3/4	A394	2	1	1	Long only	1.125	0	1.25	2.6875	
0	0	0																			
	22XY	XBR1	XY-GenXY	1XY	3Y	2	5	0.5	0.75	0.5	3/4	A394	2	1	1	Long only	1.125	0	1.25	2.6875	
0	0	0																			
	22Y	XBR1	Y-GenXY	1Y	3XY	2	5	0.5	0.75	0.5	3/4	A394	2	1	1	Long only	1.125	0	1.25	2.6875	
0	0	0																			
	23P	XBR1	XY-Symmetry	1X	3XY	2	5	0.5	0.75	0.5	3/4	A394	2	1	1	Long only	1.125	0	1.25	2.6875	
0	0	0																			
	23X	XBR1	X-GenXY	1P	3Y	2	5	0.5	0.75	0.5	3/4	A394	2	1	1	Long only	1.125	0	1.25	2.6875	
0	0	0																			
	23XY	XBR1	XY-GenXY	1Y	3P	2	5	0.5	0.75	0.5	3/4	A394	2	1	1	Long only	1.125	0	1.25	2.6875	
0	0	0																			
	23Y	XBR1	Y-GenXY	1XY	3X	2	5	0.5	0.75	0.5	3/4	A394	2	1	1	Long only	1.125	0	1.25	2.6875	
0	0	0																			
	24P	XBR1	XY-Symmetry	3P	4X	2	5	0.5	0.75	0.5	3/4	A394	2	1	1	Long only	1.125	0	1.25	2.6875	
0	0	0																			
	24X	XBR1	X-GenXY	3X	4P	2	5	0.5	0.75	0.5	3/4	A394	2	1	1	Long only	1.125	0	1.25	2.6875	
0	0	0																			
	24XY	XBR1	XY-GenXY	3XY	4Y	2	5	0.5	0.75	0.5	3/4	A394	2	1	1	Long only	1.125	0	1.25	2.6875	
0	0	0																			
	24Y	XBR1	Y-GenXY	3Y	4XY	2	5	0.5	0.75	0.5	3/4	A394	2	1	1	Long only	1.125	0	1.25	2.6875	
0	0	0																			
	25P	XBR1	XY-Symmetry	3X	4XY	2	5	0.5	0.75	0.5	3/4	A394	2	1	1	Long only	1.125	0	1.25	2.6875	
0	0	0																			
	25X	XBR1	X-GenXY	3P	4Y	2	5	0.5	0.75	0.5	3/4	A394	2	1	1	Long only	1.125	0	1.25	2.6875	
0	0	0																			
	25XY	XBR1	XY-GenXY	3Y	4P	2	5	0.5	0.75	0.5	3/4	A394	2	1	1	Long only	1.125	0	1.25	2.6875	
0	0	0																			
	25Y	XBR1	Y-GenXY	3XY	4X	2	5	0.5	0.75	0.5	3/4	A394	2	1	1	Long only	1.125	0	1.25	2.6875	
0	0	0																			
	26P	XBR2	XY-Symmetry	4P	6X	2	5	0.5	0.75	0.5	3/4	A394	3	1	1	Long only	1.5	0	1.25	2.5	
0	0	0																			
	26X	XBR2	X-GenXY	4X	6P	2	5	0.5	0.75	0.5	3/4	A394	3	1	1	Long only	1.5	0	1.25	2.5	
0	0	0																			
	26XY	XBR2	XY-GenXY	4XY	6Y	2	5	0.5	0.75	0.5	3/4	A394	3	1	1	Long only	1.5	0	1.25	2.5	
0	0	0																			
	26Y	XBR2	Y-GenXY	4Y	6XY	2	5	0.5	0.75	0.5	3/4	A394	3	1	1	Long only	1.5	0	1.25	2.5	
0	0	0																			
	27P	XBR2	XY-Symmetry	4X	6XY	2	5	0.5	0.75	0.5	3/4	A394	3	1	1	Long only	1.5	0	1.25	2.5	
0	0	0																			
	27X	XBR2	X-GenXY	4P	6Y	2	5	0.5	0.75	0.5	3/4	A394	3	1	1	Long only	1.5	0	1.25	2.5	
0	0	0																			
	27XY	XBR2	XY-GenXY	4Y	6P	2	5	0.5	0.75	0.5	3/4	A394	3	1	1	Long only	1.5	0	1.25	2.5	
0	0	0																			
	27Y	XBR2	Y-GenXY	4XY	6X	2	5	0.5	0.75	0.5	3/4	A394	3	1	1	Long only	1.5	0	1.25	2.5	
0	0	0																			
	28P	XBR2	XY-Symmetry	6P	7X	2	5	0.5	0.75	0.5	3/4	A394	3	1	1	Long only	1.5	0	1.25	2.5	
0	0	0																			

28X	XBR2	X-GenXY	6X	7P	2	5	0.5	0.75	0.5	3/4	A394	3	1	1	Long only	1.5	0	1.25	2.5	0	0
28XY	XBR2	XY-GenXY	6XY	7Y	2	5	0.5	0.75	0.5	3/4	A394	3	1	1	Long only	1.5	0	1.25	2.5	0	0
28Y	XBR2	Y-GenXY	6Y	7XY	2	5	0.5	0.75	0.5	3/4	A394	3	1	1	Long only	1.5	0	1.25	2.5	0	0
29P	XBR2	XY-Symmetry	6X	7XY	2	5	0.5	0.75	0.5	3/4	A394	3	1	1	Long only	1.5	0	1.25	2.5	0	0
29X	XBR2	X-GenXY	6P	7Y	2	5	0.5	0.75	0.5	3/4	A394	3	1	1	Long only	1.5	0	1.25	2.5	0	0
29XY	XBR2	XY-GenXY	6Y	7P	2	5	0.5	0.75	0.5	3/4	A394	3	1	1	Long only	1.5	0	1.25	2.5	0	0
29Y	XBR2	Y-GenXY	6XY	7X	2	5	0.5	0.75	0.5	3/4	A394	3	1	1	Long only	1.5	0	1.25	2.5	0	0
30P	XBR3	XY-Symmetry	7P	9X	2	5	0.75	0.5	0.5	3/4	A394	4	1	1	Long only	1.5	0	1.25	2.25	0	0
30X	XBR3	X-GenXY	7X	9P	2	5	0.75	0.5	0.5	3/4	A394	4	1	1	Long only	1.5	0	1.25	2.25	0	0
30XY	XBR3	XY-GenXY	7XY	9Y	2	5	0.75	0.5	0.5	3/4	A394	4	1	1	Long only	1.5	0	1.25	2.25	0	0
30Y	XBR3	Y-GenXY	7Y	9XY	2	5	0.75	0.5	0.5	3/4	A394	4	1	1	Long only	1.5	0	1.25	2.25	0	0
31P	XBR3	XY-Symmetry	7X	9XY	2	5	0.75	0.5	0.5	3/4	A394	4	1	1	Long only	1.5	0	1.25	2.25	0	0
31X	XBR3	X-GenXY	7P	9Y	2	5	0.75	0.5	0.5	3/4	A394	4	1	1	Long only	1.5	0	1.25	2.25	0	0
31XY	XBR3	XY-GenXY	7Y	9P	2	5	0.75	0.5	0.5	3/4	A394	4	1	1	Long only	1.5	0	1.25	2.25	0	0
31Y	XBR3	Y-GenXY	7XY	9X	2	5	0.75	0.5	0.5	3/4	A394	4	1	1	Long only	1.5	0	1.25	2.25	0	0
32P	XBR3	XY-Symmetry	9P	10X	2	5	0.75	0.5	0.5	3/4	A394	4	1	1	Long only	1.5	0	1.25	2.25	0	0
32X	XBR3	X-GenXY	9X	10P	2	5	0.75	0.5	0.5	3/4	A394	4	1	1	Long only	1.5	0	1.25	2.25	0	0
32XY	XBR3	XY-GenXY	9XY	10Y	2	5	0.75	0.5	0.5	3/4	A394	4	1	1	Long only	1.5	0	1.25	2.25	0	0
32Y	XBR3	Y-GenXY	9Y	10XY	2	5	0.75	0.5	0.5	3/4	A394	4	1	1	Long only	1.5	0	1.25	2.25	0	0
33P	XBR3	XY-Symmetry	9X	10XY	2	5	0.75	0.5	0.5	3/4	A394	4	1	1	Long only	1.5	0	1.25	2.25	0	0
33X	XBR3	X-GenXY	9P	10Y	2	5	0.75	0.5	0.5	3/4	A394	4	1	1	Long only	1.5	0	1.25	2.25	0	0
33XY	XBR3	XY-GenXY	9Y	10P	2	5	0.75	0.5	0.5	3/4	A394	4	1	1	Long only	1.5	0	1.25	2.25	0	0
33Y	XBR3	Y-GenXY	9XY	10X	2	5	0.75	0.5	0.5	3/4	A394	4	1	1	Long only	1.5	0	1.25	2.25	0	0
34P	XBR4	XY-Symmetry	10P	12X	2	5	0.767	0.535	0.535	3/4	A394	4	1	1	Short only	1.125	0	1.25	2.25	0	0
34X	XBR4	X-GenXY	10X	12P	2	5	0.767	0.535	0.535	3/4	A394	4	1	1	Short only	1.125	0	1.25	2.25	0	0
34XY	XBR4	XY-GenXY	10XY	12Y	2	5	0.767	0.535	0.535	3/4	A394	4	1	1	Short only	1.125	0	1.25	2.25	0	0
34Y	XBR4	Y-GenXY	10Y	12XY	2	5	0.767	0.535	0.535	3/4	A394	4	1	1	Short only	1.125	0	1.25	2.25	0	0
35P	XBR4	XY-Symmetry	10X	12XY	2	5	0.767	0.535	0.535	3/4	A394	4	1	1	Short only	1.125	0	1.25	2.25	0	0
35X	XBR4	X-GenXY	10P	12Y	2	5	0.767	0.535	0.535	3/4	A394	4	1	1	Short only	1.125	0	1.25	2.25	0	0
35XY	XBR4	XY-GenXY	10Y	12P	2	5	0.767	0.535	0.535	3/4	A394	4	1	1	Short only	1.125	0	1.25	2.25		

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0       0     0
    35Y   XBR4              Y-GenXY   10XY   12X    2     5 0.767 0.535 0.535 3/4 A394     4      1       1 Short only  1.125      0  1.25    2.25
0       0     0
    36P   XBR4          XY-Symmetry    12P   13X    2     5 0.768 0.536 0.536 3/4 A394     4      1       1 Short only  1.125      0  1.25    2.25
0       0     0
    36X   XBR4              X-GenXY    12X   13P    2     5 0.768 0.536 0.536 3/4 A394     4      1       1 Short only  1.125      0  1.25    2.25
0       0     0
   36XY   XBR4             XY-GenXY   12XY   13Y    2     5 0.768 0.536 0.536 3/4 A394     4      1       1 Short only  1.125      0  1.25    2.25
0       0     0
    36Y   XBR4              Y-GenXY    12Y  13XY    2     5 0.768 0.536 0.536 3/4 A394     4      1       1 Short only  1.125      0  1.25    2.25
0       0     0
    37P   XBR4          XY-Symmetry    12X  13XY    2     5 0.768 0.536 0.536 3/4 A394     4      1       1 Short only  1.125      0  1.25    2.25
0       0     0
    37X   XBR4              X-GenXY    12P   13Y    2     5 0.768 0.536 0.536 3/4 A394     4      1       1 Short only  1.125      0  1.25    2.25
0       0     0
   37XY   XBR4             XY-GenXY    12Y   13P    2     5 0.768 0.536 0.536 3/4 A394     4      1       1 Short only  1.125      0  1.25    2.25
0       0     0
    37Y   XBR4              Y-GenXY   12XY   13X    2     5 0.768 0.536 0.536 3/4 A394     4      1       1 Short only  1.125      0  1.25    2.25
0       0     0
    38P   XBR5          XY-Symmetry    13P   14X    2     5 0.771 0.542 0.542 3/4 A394     4      1       1 Short only    1.5      0  1.25    2.25
0       0     0
    38X   XBR5              X-GenXY    13X   14P    2     5 0.771 0.542 0.542 3/4 A394     4      1       1 Short only    1.5      0  1.25    2.25
0       0     0
   38XY   XBR5             XY-GenXY   13XY   14Y    2     5 0.771 0.542 0.542 3/4 A394     4      1       1 Short only    1.5      0  1.25    2.25
0       0     0
    38Y   XBR5              Y-GenXY    13Y  14XY    2     5 0.771 0.542 0.542 3/4 A394     4      1       1 Short only    1.5      0  1.25    2.25
0       0     0
    39P   XBR5          XY-Symmetry    13X  14XY    2     5 0.771 0.542 0.542 3/4 A394     4      1       1 Short only    1.5      0  1.25    2.25
0       0     0
    39X   XBR5              X-GenXY    13P   14Y    2     5 0.771 0.542 0.542 3/4 A394     4      1       1 Short only    1.5      0  1.25    2.25
0       0     0
   39XY   XBR5             XY-GenXY    13Y   14P    2     5 0.771 0.542 0.542 3/4 A394     4      1       1 Short only    1.5      0  1.25    2.25
0       0     0
    39Y   XBR5              Y-GenXY   13XY   14X    2     5 0.771 0.542 0.542 3/4 A394     4      1       1 Short only    1.5      0  1.25    2.25
0       0     0
    40P   XBR5          XY-Symmetry    14P   15X    2     5 0.766 0.533 0.533 3/4 A394     3      1       1 Short only    1.5      0  1.25     2.5
0       0     0
    40X   XBR5              X-GenXY    14X   15P    2     5 0.766 0.533 0.533 3/4 A394     3      1       1 Short only    1.5      0  1.25     2.5
0       0     0
   40XY   XBR5             XY-GenXY   14XY   15Y    2     5 0.766 0.533 0.533 3/4 A394     3      1       1 Short only    1.5      0  1.25     2.5
0       0     0
    40Y   XBR5              Y-GenXY    14Y  15XY    2     5 0.766 0.533 0.533 3/4 A394     3      1       1 Short only    1.5      0  1.25     2.5
0       0     0
    41P   XBR5          XY-Symmetry    14X  15XY    2     5 0.766 0.533 0.533 3/4 A394     3      1       1 Short only    1.5      0  1.25     2.5
0       0     0
    41X   XBR5              X-GenXY    14P   15Y    2     5 0.766 0.533 0.533 3/4 A394     3      1       1 Short only    1.5      0  1.25     2.5
0       0     0
   41XY   XBR5             XY-GenXY    14Y   15P    2     5 0.766 0.533 0.533 3/4 A394     3      1       1 Short only    1.5      0  1.25     2.5
0       0     0
    41Y   XBR5              Y-GenXY   14XY   15X    2     5 0.766 0.533 0.533 3/4 A394     3      1       1 Short only    1.5      0  1.25     2.5
0       0     0
    42P   XBR5          XY-Symmetry    15P   16X    2     5 0.763 0.526 0.526 3/4 A394     3      1       1 Short only    1.5      0  1.25     2.5
0       0     0
    42X   XBR5              X-GenXY    15X   16P    2     5 0.763 0.526 0.526 3/4 A394     3      1       1 Short only    1.5      0  1.25     2.5
0       0     0
   42XY   XBR5             XY-GenXY   15XY   16Y    2     5 0.763 0.526 0.526 3/4 A394     3      1       1 Short only    1.5      0  1.25     2.5
0       0     0
    42Y   XBR5              Y-GenXY    15Y  16XY    2     5 0.763 0.526 0.526 3/4 A394     3      1       1 Short only    1.5      0  1.25     2.5
0       0     0
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43P	XBR5	XY-Symmetry	15X	16XY	2	5	0.763	0.526	0.526	3/4	A394	3	1	1	Short only	1.5	0	1.25	2.5	0	0	0	0
43X	XBR5	X-GenXY	15P	16Y	2	5	0.763	0.526	0.526	3/4	A394	3	1	1	Short only	1.5	0	1.25	2.5	0	0	0	0
43XY	XBR5	XY-GenXY	15Y	16P	2	5	0.763	0.526	0.526	3/4	A394	3	1	1	Short only	1.5	0	1.25	2.5	0	0	0	0
43Y	XBR5	Y-GenXY	15XY	16X	2	5	0.763	0.526	0.526	3/4	A394	3	1	1	Short only	1.5	0	1.25	2.5	0	0	0	0
44P	XBR5	XY-Symmetry	16P	17X	2	5	0.763	0.525	0.525	3/4	A394	3	1	1	Short only	1.5	0	1.25	2.5	0	0	0	0
44X	XBR5	X-GenXY	16X	17P	2	5	0.763	0.525	0.525	3/4	A394	3	1	1	Short only	1.5	0	1.25	2.5	0	0	0	0
44XY	XBR5	XY-GenXY	16XY	17Y	2	5	0.763	0.525	0.525	3/4	A394	3	1	1	Short only	1.5	0	1.25	2.5	0	0	0	0
44Y	XBR5	Y-GenXY	16Y	17XY	2	5	0.763	0.525	0.525	3/4	A394	3	1	1	Short only	1.5	0	1.25	2.5	0	0	0	0
45P	XBR5	XY-Symmetry	16X	17XY	2	5	0.763	0.525	0.525	3/4	A394	3	1	1	Short only	1.5	0	1.25	2.5	0	0	0	0
45X	XBR5	X-GenXY	16P	17Y	2	5	0.763	0.525	0.525	3/4	A394	3	1	1	Short only	1.5	0	1.25	2.5	0	0	0	0
45XY	XBR5	XY-GenXY	16Y	17P	2	5	0.763	0.525	0.525	3/4	A394	3	1	1	Short only	1.5	0	1.25	2.5	0	0	0	0
45Y	XBR5	Y-GenXY	16XY	17X	2	5	0.763	0.525	0.525	3/4	A394	3	1	1	Short only	1.5	0	1.25	2.5	0	0	0	0
46P	XBR5	XY-Symmetry	17P	18X	2	5	0.763	0.527	0.527	3/4	A394	3	1	1	Short only	1.5	0	1.25	2.5	0	0	0	0
46X	XBR5	X-GenXY	17X	18P	2	5	0.763	0.527	0.527	3/4	A394	3	1	1	Short only	1.5	0	1.25	2.5	0	0	0	0
46XY	XBR5	XY-GenXY	17XY	18Y	2	5	0.763	0.527	0.527	3/4	A394	3	1	1	Short only	1.5	0	1.25	2.5	0	0	0	0
46Y	XBR5	Y-GenXY	17Y	18XY	2	5	0.763	0.527	0.527	3/4	A394	3	1	1	Short only	1.5	0	1.25	2.5	0	0	0	0
47P	XBR5	XY-Symmetry	17X	18XY	2	5	0.763	0.527	0.527	3/4	A394	3	1	1	Short only	1.5	0	1.25	2.5	0	0	0	0
47X	XBR5	X-GenXY	17P	18Y	2	5	0.763	0.527	0.527	3/4	A394	3	1	1	Short only	1.5	0	1.25	2.5	0	0	0	0
47XY	XBR5	XY-GenXY	17Y	18P	2	5	0.763	0.527	0.527	3/4	A394	3	1	1	Short only	1.5	0	1.25	2.5	0	0	0	0
47Y	XBR5	Y-GenXY	17XY	18X	2	5	0.763	0.527	0.527	3/4	A394	3	1	1	Short only	1.5	0	1.25	2.5	0	0	0	0
48P	XBR6	XY-Symmetry	18P	19X	2	5	0.764	0.529	0.529	3/4	A394	4	1	1	Long only	1.125	0	1.25	2.25	0	0	0	0
48X	XBR6	X-GenXY	18X	19P	2	5	0.764	0.529	0.529	3/4	A394	4	1	1	Long only	1.125	0	1.25	2.25	0	0	0	0
48XY	XBR6	XY-GenXY	18XY	19Y	2	5	0.764	0.529	0.529	3/4	A394	4	1	1	Long only	1.125	0	1.25	2.25	0	0	0	0
48Y	XBR6	Y-GenXY	18Y	19XY	2	5	0.764	0.529	0.529	3/4	A394	4	1	1	Long only	1.125	0	1.25	2.25	0	0	0	0
49P	XBR6	XY-Symmetry	18X	19XY	2	5	0.764	0.529	0.529	3/4	A394	4	1	1	Long only	1.125	0	1.25	2.25	0	0	0	0
49X	XBR6	X-GenXY	18P	19Y	2	5	0.764	0.529	0.529	3/4	A394	4	1	1	Long only	1.125	0	1.25	2.25	0	0	0	0
49XY	XBR6	XY-GenXY	18Y	19P	2	5	0.764	0.529	0.529	3/4	A394	4	1	1	Long only	1.125	0	1.25	2.25	0	0	0	0
49Y	XBR6	Y-GenXY	18XY	19X	2	5	0.764	0.529	0.529	3/4	A394	4	1	1	Long only	1.125	0	1.25	2.25	0	0	0	0
50P	XBR7	XY-Symmetry	19P	20X	2	5	0.522	0.761	0.522	3/4	A394	4	1	1	Long only	1.125	0	1.25	2.25	0	0	0	0
50X	XBR7	X-GenXY	19X	20P	2	5	0.522	0.761	0.522	3/4	A394	4	1	1	Long only	1.125	0	1.25	2.25				

0	0	0																		
	50XY	XBR7	XY-GenXY	19XY	20Y	2	5	0.522	0.761	0.522	3/4	A394	4	1	1	Long only	1.125	0	1.25	2.25
0	0	0																		
	50Y	XBR7	Y-GenXY	19Y	20XY	2	5	0.522	0.761	0.522	3/4	A394	4	1	1	Long only	1.125	0	1.25	2.25
0	0	0																		
	51P	XBR7	XY-Symmetry	19X	20XY	2	5	0.522	0.761	0.522	3/4	A394	4	1	1	Long only	1.125	0	1.25	2.25
0	0	0																		
	51X	XBR7	X-GenXY	19P	20Y	2	5	0.522	0.761	0.522	3/4	A394	4	1	1	Long only	1.125	0	1.25	2.25
0	0	0																		
	51XY	XBR7	XY-GenXY	19Y	20P	2	5	0.522	0.761	0.522	3/4	A394	4	1	1	Long only	1.125	0	1.25	2.25
0	0	0																		
	51Y	XBR7	Y-GenXY	19XY	20X	2	5	0.522	0.761	0.522	3/4	A394	4	1	1	Long only	1.125	0	1.25	2.25
0	0	0																		
	52P	XBR7	XY-Symmetry	20P	21X	2	5	0.517	0.759	0.517	3/4	A394	3	1	1	Long only	1.125	0	1.25	2.5
0	0	0																		
	52X	XBR7	X-GenXY	20X	21P	2	5	0.517	0.759	0.517	3/4	A394	3	1	1	Long only	1.125	0	1.25	2.5
0	0	0																		
	52XY	XBR7	XY-GenXY	20XY	21Y	2	5	0.517	0.759	0.517	3/4	A394	3	1	1	Long only	1.125	0	1.25	2.5
0	0	0																		
	52Y	XBR7	Y-GenXY	20Y	21XY	2	5	0.517	0.759	0.517	3/4	A394	3	1	1	Long only	1.125	0	1.25	2.5
0	0	0																		
	53P	XBR7	XY-Symmetry	20X	21XY	2	5	0.517	0.759	0.517	3/4	A394	3	1	1	Long only	1.125	0	1.25	2.5
0	0	0																		
	53X	XBR7	X-GenXY	20P	21Y	2	5	0.517	0.759	0.517	3/4	A394	3	1	1	Long only	1.125	0	1.25	2.5
0	0	0																		
	53XY	XBR7	XY-GenXY	20Y	21P	2	5	0.517	0.759	0.517	3/4	A394	3	1	1	Long only	1.125	0	1.25	2.5
0	0	0																		
	53Y	XBR7	Y-GenXY	20XY	21X	2	5	0.517	0.759	0.517	3/4	A394	3	1	1	Long only	1.125	0	1.25	2.5
0	0	0																		
	54P	XBR7	XY-Symmetry	21P	22X	2	5	0.466	0.767	0.466	3/4	A394	4	1	1	Long only	1.125	0	1.25	2.25
0	0	0																		
	54X	XBR7	X-GenXY	21X	22P	2	5	0.466	0.767	0.466	3/4	A394	4	1	1	Long only	1.125	0	1.25	2.25
0	0	0																		
	54XY	XBR7	XY-GenXY	21XY	22Y	2	5	0.466	0.767	0.466	3/4	A394	4	1	1	Long only	1.125	0	1.25	2.25
0	0	0																		
	54Y	XBR7	Y-GenXY	21Y	22XY	2	5	0.466	0.767	0.466	3/4	A394	4	1	1	Long only	1.125	0	1.25	2.25
0	0	0																		
	55P	XBR7	XY-Symmetry	21X	22XY	2	5	0.466	0.767	0.466	3/4	A394	4	1	1	Long only	1.125	0	1.25	2.25
0	0	0																		
	55X	XBR7	X-GenXY	21P	22Y	2	5	0.466	0.767	0.466	3/4	A394	4	1	1	Long only	1.125	0	1.25	2.25
0	0	0																		
	55XY	XBR7	XY-GenXY	21Y	22P	2	5	0.466	0.767	0.466	3/4	A394	4	1	1	Long only	1.125	0	1.25	2.25
0	0	0																		
	55Y	XBR7	Y-GenXY	21XY	22X	2	5	0.466	0.767	0.466	3/4	A394	4	1	1	Long only	1.125	0	1.25	2.25
0	0	0																		
	56P	XBR8r	XY-Symmetry	22P	24P	2	5	0.5	0.5	0.5	3/4	A394	4	1	1	Long only	1.125	0	1.25	2.25
0	0	0																		
	56X	XBR8r	X-GenXY	22X	24P	2	5	0.5	0.5	0.5	3/4	A394	4	1	1	Long only	1.125	0	1.25	2.25
0	0	0																		
	56XY	XBR8r	XY-GenXY	22XY	24Y	2	5	0.5	0.5	0.5	3/4	A394	4	1	1	Long only	1.125	0	1.25	2.25
0	0	0																		
	56Y	XBR8r	Y-GenXY	22Y	24Y	2	5	0.5	0.5	0.5	3/4	A394	4	1	1	Long only	1.125	0	1.25	2.25
0	0	0																		
	57P	XBR8r	XY-Symmetry	22X	23X	2	5	0.5	0.5	0.5	3/4	A394	4	1	1	Long only	1.125	0	1.25	2.25
0	0	0																		
	57X	XBR8r	X-GenXY	22P	23P	2	5	0.5	0.5	0.5	3/4	A394	4	1	1	Long only	1.125	0	1.25	2.25
0	0	0																		
	57XY	XBR8r	XY-GenXY	22Y	23P	2	5	0.5	0.5	0.5	3/4	A394	4	1	1	Long only	1.125	0	1.25	2.25
0	0	0																		

57Y	XBR8r	Y-GenXY	22XY	23X	2	5	0.5	0.5	0.5	3/4	A394	4	1	1	Long only	1.125	0	1.25	2.25	0	0	0
58P	XBR8r	XY-Symmetry	24P	26P	2	5	0.5	0.5	0.5	3/4	A394	4	1	1	Long only	1.125	0	1.25	2.25	0	0	0
58X	XBR8r	X-GenXY	24P	26X	2	5	0.5	0.5	0.5	3/4	A394	4	1	1	Long only	1.125	0	1.25	2.25	0	0	0
58XY	XBR8r	XY-GenXY	24Y	26XY	2	5	0.5	0.5	0.5	3/4	A394	4	1	1	Long only	1.125	0	1.25	2.25	0	0	0
58Y	XBR8r	Y-GenXY	24Y	26Y	2	5	0.5	0.5	0.5	3/4	A394	4	1	1	Long only	1.125	0	1.25	2.25	0	0	0
59P	XBR8r	XY-Symmetry	23X	26X	2	5	0.5	0.5	0.5	3/4	A394	4	1	1	Long only	1.125	0	1.25	2.25	0	0	0
59X	XBR8r	X-GenXY	23P	26P	2	5	0.5	0.5	0.5	3/4	A394	4	1	1	Long only	1.125	0	1.25	2.25	0	0	0
59XY	XBR8r	XY-GenXY	23P	26Y	2	5	0.5	0.5	0.5	3/4	A394	4	1	1	Long only	1.125	0	1.25	2.25	0	0	0
59Y	XBR8r	Y-GenXY	23X	26XY	2	5	0.5	0.5	0.5	3/4	A394	4	1	1	Long only	1.125	0	1.25	2.25	0	0	0
60P	Br2	X-Symmetry	1X	1Y	3	5	0.5	0.75	0.5	3/4	A394	2	1	1	Long only	1.125	0	1.25	3.125	0	0	0
60X	Br2	X-Gen	1P	1XY	3	5	0.5	0.75	0.5	3/4	A394	2	1	1	Long only	1.125	0	1.25	3.125	0	0	0
61P	Br2	X-Symmetry	4X	4Y	3	5	0.5	0.75	0.5	3/4	A394	2	1	1	Long only	1.125	0	1.25	3.125	0	0	0
61X	Br2	X-Gen	4P	4XY	3	5	0.5	0.75	0.5	3/4	A394	2	1	1	Long only	1.125	0	1.25	3.125	0	0	0
62P	Br2	X-Symmetry	7X	7Y	3	5	0.5	0.75	0.5	3/4	A394	2	1	1	Long only	1.125	0	1.25	3.125	0	0	0
62X	Br2	X-Gen	7P	7XY	3	5	0.5	0.75	0.5	3/4	A394	2	1	1	Long only	1.125	0	1.25	3.125	0	0	0
63P	Br2	X-Symmetry	10X	10Y	3	5	0.5	0.75	0.5	3/4	A394	2	1	1	Long only	1.125	0	1.25	3.125	0	0	0
63X	Br2	X-Gen	10P	10XY	3	5	0.5	0.75	0.5	3/4	A394	2	1	1	Long only	1.125	0	1.25	3.125	0	0	0
64P	Br4R	X-Symmetry	18P	18XY	3	5	0.5	0.75	0.5	3/4	A394	2	1	1	Long only	1.125	0	1.25	2.5	0	0	0
64X	Br4R	X-Gen	18X	18Y	3	5	0.5	0.75	0.5	3/4	A394	2	1	1	Long only	1.125	0	1.25	2.5	0	0	0
65P	Br5	X-Symmetry	22P	22XY	3	5	0.5	0.75	0.5	3/4	A394	2	1	1	Long only	1.125	0	1.25	2.5	0	0	0
65X	Br5	X-Gen	22X	22Y	3	5	0.5	0.75	0.5	3/4	A394	2	1	1	Long only	1.125	0	1.25	2.5	0	0	0
66P	Arm	Y-Symmetry	1Y	1XY	3	6	1	1	1	3/4	A394	0	0	1		0	0	0	0	0	0	0
66Y	Arm	Y-Gen	1P	1X	3	6	1	1	1	3/4	A394	0	0	1		0	0	0	0	0	0	0
67P	Br1	X-Symmetry	1P	1Y	3	6	1	1	1	3/4	A394	4	1	1	Long only	0	0	0	0	0	0	0
67X	Br1	X-Gen	1X	1XY	3	6	1	1	1	3/4	A394	4	1	1	Long only	0	0	0	0	0	0	0
68P	Arm	XY-Symmetry	1P	2P	3	6	1	0.5	0.5	3/4	A394	3	1	1	Long only	0	0	0	0	0	0	0
68X	Arm	X-GenXY	1X	2X	3	6	1	0.5	0.5	3/4	A394	3	1	1	Long only	0	0	0	0	0	0	0
68XY	Arm	XY-GenXY	1XY	2X	3	6	1	0.5	0.5	3/4	A394	3	1	1	Long only	0	0	0	0	0	0	0
68Y	Arm	Y-GenXY	1Y	2P	3	6	1	0.5	0.5	3/4	A394	3	1	1	Long only	0	0	0	0	0	0	0
69P	Br3	Y-Symmetry	3P	3X	3	4	1	1	1	3/4	A394	1	1	1	Long only	0	0	0	0			

0	0	0																			
	69Y	Br3	Y-Gen	3Y	3XY	3	4	1	1	1	3/4	A394	1	1	1	Long only	0	0	0	0	
0	0	0																			
	70P	Br3	X-Symmetry	3Y	3P	3	4	1	1	1	3/4	A394	1	1	1	Long only	0	0	0	0	
0	0	0																			
	70X	Br3	X-Gen	3XY	3X	3	4	1	1	1	3/4	A394	1	1	1	Long only	0	0	0	0	
0	0	0																			
	71P	Br1	X-Symmetry	4P	4Y	3	6	1	1	1	3/4	A394	4	1	1	Long only	0	0	0	0	
0	0	0																			
	71X	Br1	X-Gen	4X	4XY	3	6	1	1	1	3/4	A394	4	1	1	Long only	0	0	0	0	
0	0	0																			
	72P	Arm	Y-Symmetry	4P	4X	3	6	1	1	1	3/4	A394	0	0	1		0	0	0	0	
0	0	0																			
	72Y	Arm	Y-Gen	4Y	4XY	3	6	1	1	1	3/4	A394	0	0	1		0	0	0	0	
0	0	0																			
	73P	Arm	XY-Symmetry	4P	5P	3	6	1	0.5	0.5	3/4	A394	3	1	1	Long only	0	0	0	0	
0	0	0																			
	73X	Arm	X-GenXY	4X	5X	3	6	1	0.5	0.5	3/4	A394	3	1	1	Long only	0	0	0	0	
0	0	0																			
	73XY	Arm	XY-GenXY	4XY	5X	3	6	1	0.5	0.5	3/4	A394	3	1	1	Long only	0	0	0	0	
0	0	0																			
	73Y	Arm	Y-GenXY	4Y	5P	3	6	1	0.5	0.5	3/4	A394	3	1	1	Long only	0	0	0	0	
0	0	0																			
	74P	Br3	X-Symmetry	6Y	6P	3	4	1	1	1	3/4	A394	1	1	1	Long only	0	0	0	0	
0	0	0																			
	74X	Br3	X-Gen	6XY	6X	3	4	1	1	1	3/4	A394	1	1	1	Long only	0	0	0	0	
0	0	0																			
	75P	Br1	X-Symmetry	7P	7Y	3	6	1	1	1	3/4	A394	4	1	1	Long only	0	0	0	0	
0	0	0																			
	75X	Br1	X-Gen	7X	7XY	3	6	1	1	1	3/4	A394	4	1	1	Long only	0	0	0	0	
0	0	0																			
	76P	Arm	XY-Symmetry	7P	8P	3	6	1	0.5	0.5	3/4	A394	3	1	1	Long only	0	0	0	0	
0	0	0																			
	76X	Arm	X-GenXY	7X	8X	3	6	1	0.5	0.5	3/4	A394	3	1	1	Long only	0	0	0	0	
0	0	0																			
	76XY	Arm	XY-GenXY	7XY	8X	3	6	1	0.5	0.5	3/4	A394	3	1	1	Long only	0	0	0	0	
0	0	0																			
	76Y	Arm	Y-GenXY	7Y	8P	3	6	1	0.5	0.5	3/4	A394	3	1	1	Long only	0	0	0	0	
0	0	0																			
	77P	Arm	Y-Symmetry	7Y	7XY	3	6	1	1	1			0	0	1		0	0	0	0	
0	0	0																			
	77Y	Arm	Y-Gen	7P	7X	3	6	1	1	1			0	0	1		0	0	0	0	
0	0	0																			
	78P	Br3	X-Symmetry	9Y	9P	3	4	1	1	1	3/4	A394	1	1	1	Long only	0	0	0	0	
0	0	0																			
	78X	Br3	X-Gen	9XY	9X	3	4	1	1	1	3/4	A394	1	1	1	Long only	0	0	0	0	
0	0	0																			
	79P	Br1	X-Symmetry	10P	10Y	3	6	1	1	1	3/4	A394	4	1	1	Long only	0	0	0	0	
0	0	0																			
	79X	Br1	X-Gen	10X	10XY	3	6	1	1	1	3/4	A394	4	1	1	Long only	0	0	0	0	
0	0	0																			
	80P	Arm	XY-Symmetry	10P	11P	3	6	1	0.5	0.5	3/4	A394	3	1	1	Long only	0	0	0	0	
0	0	0																			
	80X	Arm	X-GenXY	10X	11X	3	6	1	0.5	0.5	3/4	A394	3	1	1	Long only	0	0	0	0	
0	0	0																			
	80XY	Arm	XY-GenXY	10XY	11X	3	6	1	0.5	0.5	3/4	A394	3	1	1	Long only	0	0	0	0	
0	0	0																			
	80Y	Arm	Y-GenXY	10Y	11P	3	6	1	0.5	0.5	3/4	A394	3	1	1	Long only	0	0	0	0	
0	0	0																			

81P	Arm	Y-Symmetry	10X	10P	3	6	1	1	1		0	0	1		0	0	0	0	0	0	0
81Y	Arm	Y-Gen	10XY	10Y	3	6	1	1	1		0	0	1		0	0	0	0	0	0	0
82P	HBR1	Y-Symmetry	18P	18X	3	5	0.5	1	0.5	3/4	A394	3	1	1	Long only	2	0	1.25	7	0	0
82Y	HBR1	Y-Gen	18Y	18XY	3	5	0.5	1	0.5	3/4	A394	3	1	1	Long only	2	0	1.25	7	0	0
83P	HBR1	X-Symmetry	18X	18XY	3	5	0.5	1	0.5	3/4	A394	3	1	1	Long only	2	0	1.25	7	0	0
83X	HBR1	X-Gen	18P	18Y	3	5	0.5	1	0.5	3/4	A394	3	1	1	Long only	2	0	1.25	7	0	0
84P	HBR2R	Y-Symmetry	19P	19X	3	5	0.5	1	0.5	3/4	A394	3	1	1	Long only	2	0	1.25	7	0	0
84Y	HBR2R	Y-Gen	19Y	19XY	3	5	0.5	1	0.5	3/4	A394	3	1	1	Long only	2	0	1.25	7	0	0
85P	HBR2R	X-Symmetry	19X	19XY	3	5	0.5	1	0.5	3/4	A394	3	1	1	Long only	2	0	1.25	7	0	0
85X	HBR2R	X-Gen	19P	19Y	3	5	0.5	1	0.5	3/4	A394	3	1	1	Long only	2	0	1.25	7	0	0
86P	HBR3	Y-Symmetry	20P	20X	3	5	0.5	1	0.5	3/4	A394	3	2	2	Long only	2	0	1.25	7	0	0
86Y	HBR3	Y-Gen	20Y	20XY	3	5	0.5	1	0.5	3/4	A394	3	2	2	Long only	2	0	1.25	7	0	0
87P	HBR3	X-Symmetry	20X	20XY	3	5	0.5	1	0.5	3/4	A394	3	2	2	Long only	2	0	1.25	7	0	0
87X	HBR3	X-Gen	20P	20Y	3	5	0.5	1	0.5	3/4	A394	3	2	2	Long only	2	0	1.25	7	0	0
88P	HBR3	Y-Symmetry	21P	21X	3	5	0.5	1	0.5	3/4	A394	3	2	2	Long only	2	0	1.25	7	0	0
88Y	HBR3	Y-Gen	21Y	21XY	3	5	0.5	1	0.5	3/4	A394	3	2	2	Long only	2	0	1.25	7	0	0
89P	HBR3	X-Symmetry	21X	21XY	3	5	0.5	1	0.5	3/4	A394	3	2	2	Long only	2	0	1.25	7	0	0
89X	HBR3	X-Gen	21P	21Y	3	5	0.5	1	0.5	3/4	A394	3	2	2	Long only	2	0	1.25	7	0	0
90P	HBR4	Y-Symmetry	22P	22X	3	6	0.5	0.5	0.5	3/4	A394	3	2	2	Long only	2	0	1.25	7	0	0
90Y	HBR4	Y-Gen	22Y	22XY	3	6	0.5	0.5	0.5	3/4	A394	3	2	2	Long only	2	0	1.25	7	0	0
91P	HBR4	X-Symmetry	22X	22XY	3	6	0.5	0.5	0.5	3/4	A394	3	2	2	Long only	2	0	1.25	7	0	0
91X	HBR4	X-Gen	22P	22Y	3	6	0.5	0.5	0.5	3/4	A394	3	2	2	Long only	2	0	1.25	7	0	0
92P	HBR3	XY-Symmetry	25P	24P	3	6	1	1	1	3/4	A394	2	2	2	Long only	2	0	1.25	2.5	0	0
92X	HBR3	X-GenXY	25X	24P	3	6	1	1	1	3/4	A394	2	2	2	Long only	2	0	1.25	2.5	0	0
92XY	HBR3	XY-GenXY	25XY	24Y	3	6	1	1	1	3/4	A394	2	2	2	Long only	2	0	1.25	2.5	0	0
92Y	HBR3	Y-GenXY	25Y	24Y	3	6	1	1	1	3/4	A394	2	2	2	Long only	2	0	1.25	2.5	0	0
93P	HBR3	XY-Symmetry	25X	23X	3	6	1	1	1	3/4	A394	2	2	2	Long only	2	0	1.25	2.5	0	0
93X	HBR3	X-GenXY	25P	23P	3	6	1	1	1	3/4	A394	2	2	2	Long only	2	0	1.25	2.5	0	0
93XY	HBR3	XY-GenXY	25Y	23P	3	6	1	1	1	3/4	A394	2	2	2	Long only	2	0	1.25	2.5	0	0
93Y	HBR3	Y-GenXY	25XY	23X	3	6	1	1	1	3/4	A394	2	2	2	Long only	2	0	1.25	2.5		

0	0	0																	
94P	ArmBR1	XY-Symmetry	2P	3Y	2	5	1	1	1 3/4	A394	2	1	1	Long only	1.625	0	1.25	2.5	
0	0	0																	
94X	ArmBR1	X-GenXY	2X	3XY	2	5	1	1	1 3/4	A394	2	1	1	Long only	1.625	0	1.25	2.5	
0	0	0																	
94XY	ArmBR1	XY-GenXY	2X	3X	2	5	1	1	1 3/4	A394	2	1	1	Long only	1.625	0	1.25	2.5	
0	0	0																	
94Y	ArmBR1	Y-GenXY	2P	3P	2	5	1	1	1 3/4	A394	2	1	1	Long only	1.625	0	1.25	2.5	
0	0	0																	
95P	ArmBR2	XY-Symmetry	3Y	5P	2	5	1	1	1 3/4	A394	2	1	1	Long only	1.125	0	1.25	2.5	
0	0	0																	
95X	ArmBR2	X-GenXY	3XY	5X	2	5	1	1	1 3/4	A394	2	1	1	Long only	1.125	0	1.25	2.5	
0	0	0																	
95XY	ArmBR2	XY-GenXY	3X	5X	2	5	1	1	1 3/4	A394	2	1	1	Long only	1.125	0	1.25	2.5	
0	0	0																	
95Y	ArmBR2	Y-GenXY	3P	5P	2	5	1	1	1 3/4	A394	2	1	1	Long only	1.125	0	1.25	2.5	
0	0	0																	
96P	ArmBR2	XY-Symmetry	8P	6Y	2	5	1	1	1 3/4	A394	2	1	1	Long only	1.125	0	1.25	2.5	
0	0	0																	
96X	ArmBR2	X-GenXY	8X	6XY	2	5	1	1	1 3/4	A394	2	1	1	Long only	1.125	0	1.25	2.5	
0	0	0																	
96XY	ArmBR2	XY-GenXY	8X	6X	2	5	1	1	1 3/4	A394	2	1	1	Long only	1.125	0	1.25	2.5	
0	0	0																	
96Y	ArmBR2	Y-GenXY	8P	6P	2	5	1	1	1 3/4	A394	2	1	1	Long only	1.125	0	1.25	2.5	
0	0	0																	
97P	ArmBR2	XY-Symmetry	9P	11P	2	5	1	1	1 3/4	A394	2	1	1	Long only	1.25	0	1.25	2.5	
0	0	0																	
97X	ArmBR2	X-GenXY	9X	11X	2	5	1	1	1 3/4	A394	2	1	1	Long only	1.25	0	1.25	2.5	
0	0	0																	
97XY	ArmBR2	XY-GenXY	9XY	11X	2	5	1	1	1 3/4	A394	2	1	1	Long only	1.25	0	1.25	2.5	
0	0	0																	
97Y	ArmBR2	Y-GenXY	9Y	11P	2	5	1	1	1 3/4	A394	2	1	1	Long only	1.25	0	1.25	2.5	
0	0	0																	

Member Capacities and Overrides:

Member Label	Group Label	Design Comp. Control	Design Tension Capacity	Tension Control Criterion	L/r Length (ft)	L/r Comp. Capacity	Connection Shear Capacity	Connection Bearing Capacity	Net Section Tension Capacity	Rupture Tension Capacity	RTE End Dist. Tension Capacity	RTE Edge Dist. Tension Capacity	Override Comp. Capacity	Override Comp. Capacity Unsup.	Override Warnings or Errors
		Face	Capacity Criterion (kips)	Capacity Criterion (kips)											
3P	Leg1	128.698	L/r	104.682	Net Sect	61	6.00	128.698	0.000	0.000	104.682	0.000	0.000	0.000	0.000	0.000	0.000	Automatic
3X	Leg1	128.698	L/r	104.682	Net Sect	61	6.00	128.698	0.000	0.000	104.682	0.000	0.000	0.000	0.000	0.000	0.000	Automatic
3XY	Leg1	128.698	L/r	104.682	Net Sect	61	6.00	128.698	0.000	0.000	104.682	0.000	0.000	0.000	0.000	0.000	0.000	Automatic
3Y	Leg1	128.698	L/r	104.682	Net Sect	61	6.00	128.698	0.000	0.000	104.682	0.000	0.000	0.000	0.000	0.000	0.000	Automatic

4P	Leg1	128.698	L/r	104.682	Net Sect	61	6.00	128.698	0.000	0.000	104.682	0.000	0.000	0.000	0.000	0.000	0.000
Automatic																	
4X	Leg1	128.698	L/r	104.682	Net Sect	61	6.00	128.698	0.000	0.000	104.682	0.000	0.000	0.000	0.000	0.000	0.000
Automatic																	
4XY	Leg1	128.698	L/r	104.682	Net Sect	61	6.00	128.698	0.000	0.000	104.682	0.000	0.000	0.000	0.000	0.000	0.000
Automatic																	
4Y	Leg1	128.698	L/r	104.682	Net Sect	61	6.00	128.698	0.000	0.000	104.682	0.000	0.000	0.000	0.000	0.000	0.000
Automatic																	
5P	**Leg1**	**128.698**	**L/r**	**110.204**	**Net Sect**	**61**	**6.00**	**128.698**	**163.200**	**303.750**	**110.204**	**281.250**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
Automatic		**Member "5P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**															
5X	**Leg1**	**128.698**	**L/r**	**110.204**	**Net Sect**	**61**	**6.00**	**128.698**	**163.200**	**303.750**	**110.204**	**281.250**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
Automatic		**Member "5X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**															
5XY	**Leg1**	**128.698**	**L/r**	**110.204**	**Net Sect**	**61**	**6.00**	**128.698**	**163.200**	**303.750**	**110.204**	**281.250**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
Automatic		**Member "5XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**															
5Y	**Leg1**	**128.698**	**L/r**	**110.204**	**Net Sect**	**61**	**6.00**	**128.698**	**163.200**	**303.750**	**110.204**	**281.250**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
Automatic		**Member "5Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**															
6P	**Leg2**	**163.200**	**Shear**	**163.200**	**Shear**	**45**	**6.00**	**240.633**	**163.200**	**404.999**	**203.342**	**374.999**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
Automatic		**Member "6P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**															
6X	**Leg2**	**163.200**	**Shear**	**163.200**	**Shear**	**45**	**6.00**	**240.633**	**163.200**	**404.999**	**203.342**	**374.999**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
Automatic		**Member "6X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**															
6XY	**Leg2**	**163.200**	**Shear**	**163.200**	**Shear**	**45**	**6.00**	**240.633**	**163.200**	**404.999**	**203.342**	**374.999**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
Automatic		**Member "6XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**															
6Y	**Leg2**	**163.200**	**Shear**	**163.200**	**Shear**	**45**	**6.00**	**240.633**	**163.200**	**404.999**	**203.342**	**374.999**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
Automatic		**Member "6Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**															
7P	Leg2	240.633	L/r	203.775	Net Sect	45	6.00	240.633	0.000	0.000	203.775	0.000	0.000	0.000	0.000	0.000	0.000
Automatic																	
7X	Leg2	240.633	L/r	203.775	Net Sect	45	6.00	240.633	0.000	0.000	203.775	0.000	0.000	0.000	0.000	0.000	0.000
Automatic																	
7XY	Leg2	240.633	L/r	203.775	Net Sect	45	6.00	240.633	0.000	0.000	203.775	0.000	0.000	0.000	0.000	0.000	0.000
Automatic																	
7Y	Leg2	240.633	L/r	203.775	Net Sect	45	6.00	240.633	0.000	0.000	203.775	0.000	0.000	0.000	0.000	0.000	0.000
Automatic																	
8P	**Leg2**	**240.633**	**L/r**	**195.030**	**Net Sect**	**45**	**6.00**	**240.633**	**301.600**	**629.999**	**195.030**	**699.999**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
Automatic		**Member "8P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**															
8X	**Leg2**	**240.633**	**L/r**	**195.030**	**Net Sect**	**45**	**6.00**	**240.633**	**301.600**	**629.999**	**195.030**	**699.999**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
Automatic		**Member "8X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**															
8XY	**Leg2**	**240.633**	**L/r**	**195.030**	**Net Sect**	**45**	**6.00**	**240.633**	**301.600**	**629.999**	**195.030**	**699.999**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
Automatic		**Member "8XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**															
8Y	**Leg2**	**240.633**	**L/r**	**195.030**	**Net Sect**	**45**	**6.00**	**240.633**	**301.600**	**629.999**	**195.030**	**699.999**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
Automatic		**Member "8Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**															
9P	**Leg3**	**301.600**	**Shear**	**264.598**	**Net Sect**	**40**	**5.24**	**330.664**	**301.600**	**866.249**	**264.598**	**962.499**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
Automatic		**Member "9P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**															
9X	**Leg3**	**301.600**	**Shear**	**264.598**	**Net Sect**	**40**	**5.24**	**330.664**	**301.600**	**866.249**	**264.598**	**962.499**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
Automatic		**Member "9X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**															

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    9XY   Leg3  301.600     Shear  264.598  Net Sect   40   5.24  330.664    301.600    866.249  264.598  962.499    0.000    0.000    0.000    0.000
0.000           Automatic  Member "9XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked.  ??
     9Y   Leg3  301.600     Shear  264.598  Net Sect   40   5.24  330.664    301.600    866.249  264.598  962.499    0.000    0.000    0.000    0.000
0.000           Automatic   Member "9Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked.  ??
    10P   Leg3  321.763       L/r  264.598  Net Sect   50   6.55  321.763      0.000      0.000  264.598    0.000    0.000    0.000    0.000    0.000
0.000           Automatic
    10X   Leg3  321.763       L/r  264.598  Net Sect   50   6.55  321.763      0.000      0.000  264.598    0.000    0.000    0.000    0.000    0.000
0.000           Automatic
   10XY   Leg3  321.763       L/r  264.598  Net Sect   50   6.55  321.763      0.000      0.000  264.598    0.000    0.000    0.000    0.000    0.000
0.000           Automatic
    10Y   Leg3  321.763       L/r  264.598  Net Sect   50   6.55  321.763      0.000      0.000  264.598    0.000    0.000    0.000    0.000    0.000
0.000           Automatic
    11P   Leg3  312.686       L/r  264.598  Net Sect   58   7.66  312.686    414.700   1191.092  264.598 1134.373    0.000    0.000    0.000    0.000
0.000           Automatic  Member "11P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked.  ??
    11X   Leg3  312.686       L/r  264.598  Net Sect   58   7.66  312.686    414.700   1191.092  264.598 1134.373    0.000    0.000    0.000    0.000
0.000           Automatic  Member "11X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked.  ??
   11XY   Leg3  312.686       L/r  264.598  Net Sect   58   7.66  312.686    414.700   1191.092  264.598 1134.373    0.000    0.000    0.000    0.000
0.000           Automatic Member "11XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked.  ??
    11Y   Leg3  312.686       L/r  264.598  Net Sect   58   7.66  312.686    414.700   1191.092  264.598 1134.373    0.000    0.000    0.000    0.000
0.000           Automatic  Member "11Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked.  ??
    12P   Leg4  336.695       L/r  288.172  Net Sect   61   8.06  336.695    414.700   1299.373  288.172 1237.498    0.000    0.000    0.000    0.000
0.000           Automatic  Member "12P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked.  ??
    12X   Leg4  336.695       L/r  288.172  Net Sect   61   8.06  336.695    414.700   1299.373  288.172 1237.498    0.000    0.000    0.000    0.000
0.000           Automatic  Member "12X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked.  ??
   12XY   Leg4  336.695       L/r  288.172  Net Sect   61   8.06  336.695    414.700   1299.373  288.172 1237.498    0.000    0.000    0.000    0.000
0.000           Automatic Member "12XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked.  ??
    12Y   Leg4  336.695       L/r  288.172  Net Sect   61   8.06  336.695    414.700   1299.373  288.172 1237.498    0.000    0.000    0.000    0.000
0.000           Automatic  Member "12Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked.  ??
    13P   Leg4  336.697       L/r  288.172  Net Sect   61   8.06  336.697    490.100   1535.623  288.172 1462.498    0.000    0.000    0.000    0.000
0.000           Automatic  Member "13P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked.  ??
    13X   Leg4  336.697       L/r  288.172  Net Sect   61   8.06  336.697    490.100   1535.623  288.172 1462.498    0.000    0.000    0.000    0.000
0.000           Automatic  Member "13X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked.  ??
   13XY   Leg4  336.697       L/r  288.172  Net Sect   61   8.06  336.697    490.100   1535.623  288.172 1462.498    0.000    0.000    0.000    0.000
0.000           Automatic Member "13XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked.  ??
    13Y   Leg4  336.697       L/r  288.172  Net Sect   61   8.06  336.697    490.100   1535.623  288.172 1462.498    0.000    0.000    0.000    0.000
0.000           Automatic  Member "13Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked.  ??
    14P   Leg5  361.445       L/r  309.106  Net Sect   62   8.06  361.445    490.100   1663.591  309.106 1584.373    0.000    0.000    0.000    0.000
0.000           Automatic  Member "14P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked.  ??
    14X   Leg5  361.445       L/r  309.106  Net Sect   62   8.06  361.445    490.100   1663.591  309.106 1584.373    0.000    0.000    0.000    0.000
0.000           Automatic  Member "14X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked.  ??
   14XY   Leg5  361.445       L/r  309.106  Net Sect   62   8.06  361.445    490.100   1663.591  309.106 1584.373    0.000    0.000    0.000    0.000
0.000           Automatic Member "14XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
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zero); however, end, edge and spacing distances will be checked. ??
14Y Leg5 361.445 L/r 309.106 Net Sect 62 8.06 361.445 490.100 1663.591 309.106 1584.373 0.000 0.000 0.000 0.000
0.000 Automatic Member "14Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked. ??
15P Leg5 361.445 L/r 309.643 Net Sect 62 8.06 361.445 527.800 1791.560 309.643 1706.247 0.000 0.000 0.000 0.000
0.000 Automatic Member "15P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked. ??
15X Leg5 361.445 L/r 309.643 Net Sect 62 8.06 361.445 527.800 1791.560 309.643 1706.247 0.000 0.000 0.000 0.000
0.000 Automatic Member "15X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked. ??
15XY Leg5 361.445 L/r 309.643 Net Sect 62 8.06 361.445 527.800 1791.560 309.643 1706.247 0.000 0.000 0.000 0.000
0.000 Automatic Member "15XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked. ??
15Y Leg5 361.445 L/r 309.643 Net Sect 62 8.06 361.445 527.800 1791.560 309.643 1706.247 0.000 0.000 0.000 0.000
0.000 Automatic Member "15Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked. ??
16P Leg6 384.502 L/r 332.928 Net Sect 64 16.83 384.502 565.500 2067.184 332.928 1968.747 0.000 0.000 0.000 0.000
0.000 Automatic Member "16P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked. ??
16X Leg6 384.502 L/r 332.928 Net Sect 64 16.83 384.502 565.500 2067.184 332.928 1968.747 0.000 0.000 0.000 0.000
0.000 Automatic Member "16X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked. ??
16XY Leg6 384.502 L/r 332.928 Net Sect 64 16.83 384.502 565.500 2067.184 332.928 1968.747 0.000 0.000 0.000 0.000
0.000 Automatic Member "16XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked. ??
16Y Leg6 384.502 L/r 332.928 Net Sect 64 16.83 384.502 565.500 2067.184 332.928 1968.747 0.000 0.000 0.000 0.000
0.000 Automatic Member "16Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked. ??
17P Leg7 410.896 L/r 354.234 Net Sect 64 16.63 410.896 565.500 2214.840 354.234 2109.372 0.000 0.000 0.000 0.000
0.000 Automatic Member "17P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked. ??
17X Leg7 410.896 L/r 354.234 Net Sect 64 16.63 410.896 565.500 2214.840 354.234 2109.372 0.000 0.000 0.000 0.000
0.000 Automatic Member "17X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked. ??
17XY Leg7 410.896 L/r 354.234 Net Sect 64 16.63 410.896 565.500 2214.840 354.234 2109.372 0.000 0.000 0.000 0.000
0.000 Automatic Member "17XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked. ??
17Y Leg7 410.896 L/r 354.234 Net Sect 64 16.63 410.896 565.500 2214.840 354.234 2109.372 0.000 0.000 0.000 0.000
0.000 Automatic Member "17Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked. ??
18P Leg7 414.146 L/r 354.234 Net Sect 62 16.13 414.146 603.200 2362.496 354.234 2249.997 0.000 0.000 0.000 0.000
0.000 Automatic Member "18P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked. ??
18X Leg7 414.146 L/r 354.234 Net Sect 62 16.13 414.146 603.200 2362.496 354.234 2249.997 0.000 0.000 0.000 0.000
0.000 Automatic Member "18X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked. ??
18XY Leg7 414.146 L/r 354.234 Net Sect 62 16.13 414.146 603.200 2362.496 354.234 2249.997 0.000 0.000 0.000 0.000
0.000 Automatic Member "18XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked. ??
18Y Leg7 414.146 L/r 354.234 Net Sect 62 16.13 414.146 603.200 2362.496 354.234 2249.997 0.000 0.000 0.000 0.000
0.000 Automatic Member "18Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked. ??
19P Leg8 442.457 L/r 377.189 Net Sect 61 23.69 442.457 640.900 2677.496 377.189 2549.996 0.000 0.000 0.000 0.000
0.000 Automatic Member "19P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked. ??
19X Leg8 442.457 L/r 377.189 Net Sect 61 23.69 442.457 640.900 2677.496 377.189 2549.996 0.000 0.000 0.000 0.000
0.000 Automatic Member "19X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked. ??

19XY	Leg8	442.457	L/r	377.189	Net Sect	61	23.69	442.457	640.900	2677.496	377.189	2549.996	0.000	0.000	0.000	0.000
0.000	Automatic Member "19XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??															
19Y	Leg8	442.457	L/r	377.189	Net Sect	61	23.69	442.457	640.900	2677.496	377.189	2549.996	0.000	0.000	0.000	0.000
0.000	Automatic Member "19Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??															
20P	Leg8	446.741	L/r	377.189	Net Sect	58	15.12	446.741	640.900	2677.496	377.189	2549.996	0.000	0.000	0.000	0.000
0.000	Automatic Member "20P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??															
20X	Leg8	446.741	L/r	377.189	Net Sect	58	15.12	446.741	640.900	2677.496	377.189	2549.996	0.000	0.000	0.000	0.000
0.000	Automatic Member "20X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??															
20XY	Leg8	446.741	L/r	377.189	Net Sect	58	15.12	446.741	640.900	2677.496	377.189	2549.996	0.000	0.000	0.000	0.000
0.000	Automatic Member "20XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??															
20Y	Leg8	446.741	L/r	377.189	Net Sect	58	15.12	446.741	640.900	2677.496	377.189	2549.996	0.000	0.000	0.000	0.000
0.000	Automatic Member "20Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??															
21P	Leg8	446.741	L/r	375.209	Net Sect	58	15.12	446.741	640.900	2677.496	375.209	2549.996	0.000	0.000	0.000	0.000
0.000	Automatic Member "21P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??															
21X	Leg8	446.741	L/r	375.209	Net Sect	58	15.12	446.741	640.900	2677.496	375.209	2549.996	0.000	0.000	0.000	0.000
0.000	Automatic Member "21X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??															
21XY	Leg8	446.741	L/r	375.209	Net Sect	58	15.12	446.741	640.900	2677.496	375.209	2549.996	0.000	0.000	0.000	0.000
0.000	Automatic Member "21XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??															
21Y	Leg8	446.741	L/r	375.209	Net Sect	58	15.12	446.741	640.900	2677.496	375.209	2549.996	0.000	0.000	0.000	0.000
0.000	Automatic Member "21Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??															
22P	XBR1	16.019	L/r	24.985	Net Sect	143	9.41	16.019	27.200	33.750	24.985	29.297	0.000	0.000	0.000	0.000
0.000	Automatic															
22X	XBR1	16.019	L/r	24.985	Net Sect	143	9.41	16.019	27.200	33.750	24.985	29.297	0.000	0.000	0.000	0.000
0.000	Automatic															
22XY	XBR1	16.019	L/r	24.985	Net Sect	143	9.41	16.019	27.200	33.750	24.985	29.297	0.000	0.000	0.000	0.000
0.000	Automatic															
22Y	XBR1	16.019	L/r	24.985	Net Sect	143	9.41	16.019	27.200	33.750	24.985	29.297	0.000	0.000	0.000	0.000
0.000	Automatic															
23P	XBR1	16.019	L/r	24.985	Net Sect	143	9.41	16.019	27.200	33.750	24.985	29.297	0.000	0.000	0.000	0.000
0.000	Automatic															
23X	XBR1	16.019	L/r	24.985	Net Sect	143	9.41	16.019	27.200	33.750	24.985	29.297	0.000	0.000	0.000	0.000
0.000	Automatic															
23XY	XBR1	16.019	L/r	24.985	Net Sect	143	9.41	16.019	27.200	33.750	24.985	29.297	0.000	0.000	0.000	0.000
0.000	Automatic															
23Y	XBR1	16.019	L/r	24.985	Net Sect	143	9.41	16.019	27.200	33.750	24.985	29.297	0.000	0.000	0.000	0.000
0.000	Automatic															
24P	XBR1	16.019	L/r	24.985	Net Sect	143	9.41	16.019	27.200	33.750	24.985	29.297	0.000	0.000	0.000	0.000
0.000	Automatic															
24X	XBR1	16.019	L/r	24.985	Net Sect	143	9.41	16.019	27.200	33.750	24.985	29.297	0.000	0.000	0.000	0.000
0.000	Automatic															
24XY	XBR1	16.019	L/r	24.985	Net Sect	143	9.41	16.019	27.200	33.750	24.985	29.297	0.000	0.000	0.000	0.000
0.000	Automatic															
24Y	XBR1	16.019	L/r	24.985	Net Sect	143	9.41	16.019	27.200	33.750	24.985	29.297	0.000	0.000	0.000	0.000
0.000	Automatic															
25P	XBR1	16.019	L/r	24.985	Net Sect	143	9.41	16.019	27.200	33.750	24.985	29.297	0.000	0.000	0.000	0.000
0.000	Automatic															
25X	XBR1	16.019	L/r	24.985	Net Sect	143	9.41	16.019	27.200	33.750	24.985	29.297	0.000	0.000	0.000	0.000
0.000	Automatic															

25XY	XBR1	16.019	L/r	24.985	Net Sect	143	9.41	16.019	27.200	33.750	24.985	29.297	0.000	0.000	0.000	0.000
0.000		Automatic														
25Y	XBR1	16.019	L/r	24.985	Net Sect	143	9.41	16.019	27.200	33.750	24.985	29.297	0.000	0.000	0.000	0.000
0.000		Automatic														
26P	XBR2	26.934	L/r	32.410	Net Sect	112	9.41	26.934	40.800	50.625	32.410	45.328	0.000	0.000	0.000	0.000
0.000		Automatic														
26X	XBR2	26.934	L/r	32.410	Net Sect	112	9.41	26.934	40.800	50.625	32.410	45.328	0.000	0.000	0.000	0.000
0.000		Automatic														
26XY	XBR2	26.934	L/r	32.410	Net Sect	112	9.41	26.934	40.800	50.625	32.410	45.328	0.000	0.000	0.000	0.000
0.000		Automatic														
26Y	XBR2	26.934	L/r	32.410	Net Sect	112	9.41	26.934	40.800	50.625	32.410	45.328	0.000	0.000	0.000	0.000
0.000		Automatic														
27P	XBR2	26.934	L/r	32.410	Net Sect	112	9.41	26.934	40.800	50.625	32.410	45.328	0.000	0.000	0.000	0.000
0.000		Automatic														
27X	XBR2	26.934	L/r	32.410	Net Sect	112	9.41	26.934	40.800	50.625	32.410	45.328	0.000	0.000	0.000	0.000
0.000		Automatic														
27XY	XBR2	26.934	L/r	32.410	Net Sect	112	9.41	26.934	40.800	50.625	32.410	45.328	0.000	0.000	0.000	0.000
0.000		Automatic														
27Y	XBR2	26.934	L/r	32.410	Net Sect	112	9.41	26.934	40.800	50.625	32.410	45.328	0.000	0.000	0.000	0.000
0.000		Automatic														
28P	XBR2	26.934	L/r	32.410	Net Sect	112	9.41	26.934	40.800	50.625	32.410	45.328	0.000	0.000	0.000	0.000
0.000		Automatic														
28X	XBR2	26.934	L/r	32.410	Net Sect	112	9.41	26.934	40.800	50.625	32.410	45.328	0.000	0.000	0.000	0.000
0.000		Automatic														
28XY	XBR2	26.934	L/r	32.410	Net Sect	112	9.41	26.934	40.800	50.625	32.410	45.328	0.000	0.000	0.000	0.000
0.000		Automatic														
28Y	XBR2	26.934	L/r	32.410	Net Sect	112	9.41	26.934	40.800	50.625	32.410	45.328	0.000	0.000	0.000	0.000
0.000		Automatic														
29P	XBR2	26.934	L/r	32.410	Net Sect	112	9.41	26.934	40.800	50.625	32.410	45.328	0.000	0.000	0.000	0.000
0.000		Automatic														
29X	XBR2	26.934	L/r	32.410	Net Sect	112	9.41	26.934	40.800	50.625	32.410	45.328	0.000	0.000	0.000	0.000
0.000		Automatic														
29XY	XBR2	26.934	L/r	32.410	Net Sect	112	9.41	26.934	40.800	50.625	32.410	45.328	0.000	0.000	0.000	0.000
0.000		Automatic														
29Y	XBR2	26.934	L/r	32.410	Net Sect	112	9.41	26.934	40.800	50.625	32.410	45.328	0.000	0.000	0.000	0.000
0.000		Automatic														
30P	XBR3	41.160	L/r	44.745	Net Sect	96	9.41	41.160	54.400	84.375	44.745	66.504	0.000	0.000	0.000	0.000
0.000		Automatic														
30X	XBR3	41.160	L/r	44.745	Net Sect	96	9.41	41.160	54.400	84.375	44.745	66.504	0.000	0.000	0.000	0.000
0.000		Automatic														
30XY	XBR3	41.160	L/r	44.745	Net Sect	96	9.41	41.160	54.400	84.375	44.745	66.504	0.000	0.000	0.000	0.000
0.000		Automatic														
30Y	XBR3	41.160	L/r	44.745	Net Sect	96	9.41	41.160	54.400	84.375	44.745	66.504	0.000	0.000	0.000	0.000
0.000		Automatic														
31P	XBR3	41.160	L/r	44.745	Net Sect	96	9.41	41.160	54.400	84.375	44.745	66.504	0.000	0.000	0.000	0.000
0.000		Automatic														
31X	XBR3	41.160	L/r	44.745	Net Sect	96	9.41	41.160	54.400	84.375	44.745	66.504	0.000	0.000	0.000	0.000
0.000		Automatic														
31XY	XBR3	41.160	L/r	44.745	Net Sect	96	9.41	41.160	54.400	84.375	44.745	66.504	0.000	0.000	0.000	0.000
0.000		Automatic														
31Y	XBR3	41.160	L/r	44.745	Net Sect	96	9.41	41.160	54.400	84.375	44.745	66.504	0.000	0.000	0.000	0.000
0.000		Automatic														
32P	XBR3	41.160	L/r	44.745	Net Sect	96	9.41	41.160	54.400	84.375	44.745	66.504	0.000	0.000	0.000	0.000
0.000		Automatic														
32X	XBR3	41.160	L/r	44.745	Net Sect	96	9.41	41.160	54.400	84.375	44.745	66.504	0.000	0.000	0.000	0.000
0.000		Automatic														
32XY	XBR3	41.160	L/r	44.745	Net Sect	96	9.41	41.160	54.400	84.375	44.745	66.504	0.000	0.000	0.000	0.000
0.000		Automatic														
32Y	XBR3	41.160	L/r	44.745	Net Sect	96	9.41	41.160	54.400	84.375	44.745	66.504	0.000	0.000	0.000	0.000

0.000		Automatic														
33P	XBR3	41.160	L/r	44.745	Net Sect	96	9.41	41.160	54.400	84.375	44.745	66.504	0.000	0.000	0.000	0.000
0.000		Automatic														
33X	XBR3	41.160	L/r	44.745	Net Sect	96	9.41	41.160	54.400	84.375	44.745	66.504	0.000	0.000	0.000	0.000
0.000		Automatic														
33XY	XBR3	41.160	L/r	44.745	Net Sect	96	9.41	41.160	54.400	84.375	44.745	66.504	0.000	0.000	0.000	0.000
0.000		Automatic														
33Y	XBR3	41.160	L/r	44.745	Net Sect	96	9.41	41.160	54.400	84.375	44.745	66.504	0.000	0.000	0.000	0.000
0.000		Automatic														
34P	XBR4	32.903	L/r	35.352	Net Sect	114	9.32	32.903	54.400	84.375	35.352	62.637	0.000	0.000	0.000	0.000
0.000		Automatic														
34X	XBR4	32.903	L/r	35.352	Net Sect	114	9.32	32.903	54.400	84.375	35.352	62.637	0.000	0.000	0.000	0.000
0.000		Automatic														
34XY	XBR4	32.903	L/r	35.352	Net Sect	114	9.32	32.903	54.400	84.375	35.352	62.637	0.000	0.000	0.000	0.000
0.000		Automatic														
34Y	XBR4	32.903	L/r	35.352	Net Sect	114	9.32	32.903	54.400	84.375	35.352	62.637	0.000	0.000	0.000	0.000
0.000		Automatic														
35P	XBR4	32.903	L/r	35.352	Net Sect	114	9.32	32.903	54.400	84.375	35.352	62.637	0.000	0.000	0.000	0.000
0.000		Automatic														
35X	XBR4	32.903	L/r	35.352	Net Sect	114	9.32	32.903	54.400	84.375	35.352	62.637	0.000	0.000	0.000	0.000
0.000		Automatic														
35XY	XBR4	32.903	L/r	35.352	Net Sect	114	9.32	32.903	54.400	84.375	35.352	62.637	0.000	0.000	0.000	0.000
0.000		Automatic														
35Y	XBR4	32.903	L/r	35.352	Net Sect	114	9.32	32.903	54.400	84.375	35.352	62.637	0.000	0.000	0.000	0.000
0.000		Automatic														
36P	XBR4	27.119	L/r	35.352	Net Sect	134	10.94	27.119	54.400	84.375	35.352	62.637	0.000	0.000	0.000	0.000
0.000		Automatic														
36X	XBR4	27.119	L/r	35.352	Net Sect	134	10.94	27.119	54.400	84.375	35.352	62.637	0.000	0.000	0.000	0.000
0.000		Automatic														
36XY	XBR4	27.119	L/r	35.352	Net Sect	134	10.94	27.119	54.400	84.375	35.352	62.637	0.000	0.000	0.000	0.000
0.000		Automatic														
36Y	XBR4	27.119	L/r	35.352	Net Sect	134	10.94	27.119	54.400	84.375	35.352	62.637	0.000	0.000	0.000	0.000
0.000		Automatic														
37P	XBR4	27.119	L/r	35.352	Net Sect	134	10.94	27.119	54.400	84.375	35.352	62.637	0.000	0.000	0.000	0.000
0.000		Automatic														
37X	XBR4	27.119	L/r	35.352	Net Sect	134	10.94	27.119	54.400	84.375	35.352	62.637	0.000	0.000	0.000	0.000
0.000		Automatic														
37XY	XBR4	27.119	L/r	35.352	Net Sect	134	10.94	27.119	54.400	84.375	35.352	62.637	0.000	0.000	0.000	0.000
0.000		Automatic														
37Y	XBR4	27.119	L/r	35.352	Net Sect	134	10.94	27.119	54.400	84.375	35.352	62.637	0.000	0.000	0.000	0.000
0.000		Automatic														
38P	XBR5	27.276	L/r	36.123	Net Sect	130	12.62	27.276	54.400	67.500	36.123	53.203	0.000	0.000	0.000	0.000
0.000		Automatic														
38X	XBR5	27.276	L/r	36.123	Net Sect	130	12.62	27.276	54.400	67.500	36.123	53.203	0.000	0.000	0.000	0.000
0.000		Automatic														
38XY	XBR5	27.276	L/r	36.123	Net Sect	130	12.62	27.276	54.400	67.500	36.123	53.203	0.000	0.000	0.000	0.000
0.000		Automatic														
38Y	XBR5	27.276	L/r	36.123	Net Sect	130	12.62	27.276	54.400	67.500	36.123	53.203	0.000	0.000	0.000	0.000
0.000		Automatic														
39P	XBR5	27.276	L/r	36.123	Net Sect	130	12.62	27.276	54.400	67.500	36.123	53.203	0.000	0.000	0.000	0.000
0.000		Automatic														
39X	XBR5	27.276	L/r	36.123	Net Sect	130	12.62	27.276	54.400	67.500	36.123	53.203	0.000	0.000	0.000	0.000
0.000		Automatic														
39XY	XBR5	27.276	L/r	36.123	Net Sect	130	12.62	27.276	54.400	67.500	36.123	53.203	0.000	0.000	0.000	0.000
0.000		Automatic														
39Y	XBR5	27.276	L/r	36.123	Net Sect	130	12.62	27.276	54.400	67.500	36.123	53.203	0.000	0.000	0.000	0.000
0.000		Automatic														
40P	XBR5	23.907	L/r	36.123	Net Sect	142	13.99	23.907	40.800	50.625	36.123	45.328	0.000	0.000	0.000	0.000
0.000		Automatic														

40X	XBR5	23.907	L/r	36.123	Net Sect	142	13.99	23.907	40.800	50.625	36.123	45.328	0.000	0.000	0.000	0.000
0.000		Automatic														
40XY	XBR5	23.907	L/r	36.123	Net Sect	142	13.99	23.907	40.800	50.625	36.123	45.328	0.000	0.000	0.000	0.000
0.000		Automatic														
40Y	XBR5	23.907	L/r	36.123	Net Sect	142	13.99	23.907	40.800	50.625	36.123	45.328	0.000	0.000	0.000	0.000
0.000		Automatic														
41P	XBR5	23.907	L/r	36.123	Net Sect	142	13.99	23.907	40.800	50.625	36.123	45.328	0.000	0.000	0.000	0.000
0.000		Automatic														
41X	XBR5	23.907	L/r	36.123	Net Sect	142	13.99	23.907	40.800	50.625	36.123	45.328	0.000	0.000	0.000	0.000
0.000		Automatic														
41XY	XBR5	23.907	L/r	36.123	Net Sect	142	13.99	23.907	40.800	50.625	36.123	45.328	0.000	0.000	0.000	0.000
0.000		Automatic														
41Y	XBR5	23.907	L/r	36.123	Net Sect	142	13.99	23.907	40.800	50.625	36.123	45.328	0.000	0.000	0.000	0.000
0.000		Automatic														
42P	XBR5	21.411	L/r	36.123	Net Sect	152	15.19	21.411	40.800	50.625	36.123	45.328	0.000	0.000	0.000	0.000
0.000		Automatic														
42X	XBR5	21.411	L/r	36.123	Net Sect	152	15.19	21.411	40.800	50.625	36.123	45.328	0.000	0.000	0.000	0.000
0.000		Automatic														
42XY	XBR5	21.411	L/r	36.123	Net Sect	152	15.19	21.411	40.800	50.625	36.123	45.328	0.000	0.000	0.000	0.000
0.000		Automatic														
42Y	XBR5	21.411	L/r	36.123	Net Sect	152	15.19	21.411	40.800	50.625	36.123	45.328	0.000	0.000	0.000	0.000
0.000		Automatic														
43P	XBR5	21.411	L/r	36.123	Net Sect	152	15.19	21.411	40.800	50.625	36.123	45.328	0.000	0.000	0.000	0.000
0.000		Automatic														
43X	XBR5	21.411	L/r	36.123	Net Sect	152	15.19	21.411	40.800	50.625	36.123	45.328	0.000	0.000	0.000	0.000
0.000		Automatic														
43XY	XBR5	21.411	L/r	36.123	Net Sect	152	15.19	21.411	40.800	50.625	36.123	45.328	0.000	0.000	0.000	0.000
0.000		Automatic														
43Y	XBR5	21.411	L/r	36.123	Net Sect	152	15.19	21.411	40.800	50.625	36.123	45.328	0.000	0.000	0.000	0.000
0.000		Automatic														
44P	XBR5	18.918	L/r	36.123	Net Sect	164	16.43	18.918	40.800	50.625	36.123	45.328	0.000	0.000	0.000	0.000
0.000		Automatic														
44X	XBR5	18.918	L/r	36.123	Net Sect	164	16.43	18.918	40.800	50.625	36.123	45.328	0.000	0.000	0.000	0.000
0.000		Automatic														
44XY	XBR5	18.918	L/r	36.123	Net Sect	164	16.43	18.918	40.800	50.625	36.123	45.328	0.000	0.000	0.000	0.000
0.000		Automatic														
44Y	XBR5	18.918	L/r	36.123	Net Sect	164	16.43	18.918	40.800	50.625	36.123	45.328	0.000	0.000	0.000	0.000
0.000		Automatic														
45P	XBR5	18.918	L/r	36.123	Net Sect	164	16.43	18.918	40.800	50.625	36.123	45.328	0.000	0.000	0.000	0.000
0.000		Automatic														
45X	XBR5	18.918	L/r	36.123	Net Sect	164	16.43	18.918	40.800	50.625	36.123	45.328	0.000	0.000	0.000	0.000
0.000		Automatic														
45XY	XBR5	18.918	L/r	36.123	Net Sect	164	16.43	18.918	40.800	50.625	36.123	45.328	0.000	0.000	0.000	0.000
0.000		Automatic														
45Y	XBR5	18.918	L/r	36.123	Net Sect	164	16.43	18.918	40.800	50.625	36.123	45.328	0.000	0.000	0.000	0.000
0.000		Automatic														
46P	XBR5	16.638	L/r	36.123	Net Sect	177	17.71	16.638	40.800	50.625	36.123	45.328	0.000	0.000	0.000	0.000
0.000		Automatic														
46X	XBR5	16.638	L/r	36.123	Net Sect	177	17.71	16.638	40.800	50.625	36.123	45.328	0.000	0.000	0.000	0.000
0.000		Automatic														
46XY	XBR5	16.638	L/r	36.123	Net Sect	177	17.71	16.638	40.800	50.625	36.123	45.328	0.000	0.000	0.000	0.000
0.000		Automatic														
46Y	XBR5	16.638	L/r	36.123	Net Sect	177	17.71	16.638	40.800	50.625	36.123	45.328	0.000	0.000	0.000	0.000
0.000		Automatic														
47P	XBR5	16.638	L/r	36.123	Net Sect	177	17.71	16.638	40.800	50.625	36.123	45.328	0.000	0.000	0.000	0.000
0.000		Automatic														
47X	XBR5	16.638	L/r	36.123	Net Sect	177	17.71	16.638	40.800	50.625	36.123	45.328	0.000	0.000	0.000	0.000
0.000		Automatic														
47XY	XBR5	16.638	L/r	36.123	Net Sect	177	17.71	16.638	40.800	50.625	36.123	45.328	0.000	0.000	0.000	0.000

0.000		Automatic														
47Y	XBR5	16.638	L/r	36.123	Net Sect	177	17.71	16.638	40.800	50.625	36.123	45.328	0.000	0.000	0.000	0.000
0.000		Automatic														
48P	XBR6	5.650	L/r	35.241	Net Sect	319	24.60	5.650	54.400	84.375	35.241	62.637	0.000	0.000	0.000	0.000
0.000		Automatic														
48X	XBR6	5.650	L/r	35.241	Net Sect	319	24.60	5.650	54.400	84.375	35.241	62.637	0.000	0.000	0.000	0.000
0.000		Automatic														
48XY	XBR6	5.650	L/r	35.241	Net Sect	319	24.60	5.650	54.400	84.375	35.241	62.637	0.000	0.000	0.000	0.000
0.000		Automatic														
48Y	XBR6	5.650	L/r	35.241	Net Sect	319	24.60	5.650	54.400	84.375	35.241	62.637	0.000	0.000	0.000	0.000
0.000		Automatic														
49P	XBR6	5.650	L/r	35.241	Net Sect	319	24.60	5.650	54.400	84.375	35.241	62.637	0.000	0.000	0.000	0.000
0.000		Automatic														
49X	XBR6	5.650	L/r	35.241	Net Sect	319	24.60	5.650	54.400	84.375	35.241	62.637	0.000	0.000	0.000	0.000
0.000		Automatic														
49XY	XBR6	5.650	L/r	35.241	Net Sect	319	24.60	5.650	54.400	84.375	35.241	62.637	0.000	0.000	0.000	0.000
0.000		Automatic														
49Y	XBR6	5.650	L/r	35.241	Net Sect	319	24.60	5.650	54.400	84.375	35.241	62.637	0.000	0.000	0.000	0.000
0.000		Automatic														
50P	XBR7	3.110	L/r	30.786	Net Sect	418	26.74	3.110	54.400	84.375	30.786	62.637	0.000	0.000	0.000	0.000
0.000		Automatic														
50X	XBR7	3.110	L/r	30.786	Net Sect	418	26.74	3.110	54.400	84.375	30.786	62.637	0.000	0.000	0.000	0.000
0.000		Automatic														
50XY	XBR7	3.110	L/r	30.786	Net Sect	418	26.74	3.110	54.400	84.375	30.786	62.637	0.000	0.000	0.000	0.000
0.000		Automatic														
50Y	XBR7	3.110	L/r	30.786	Net Sect	418	26.74	3.110	54.400	84.375	30.786	62.637	0.000	0.000	0.000	0.000
0.000		Automatic														
51P	XBR7	3.110	L/r	30.786	Net Sect	418	26.74	3.110	54.400	84.375	30.786	62.637	0.000	0.000	0.000	0.000
0.000		Automatic														
51X	XBR7	3.110	L/r	30.786	Net Sect	418	26.74	3.110	54.400	84.375	30.786	62.637	0.000	0.000	0.000	0.000
0.000		Automatic														
51XY	XBR7	3.110	L/r	30.786	Net Sect	418	26.74	3.110	54.400	84.375	30.786	62.637	0.000	0.000	0.000	0.000
0.000		Automatic														
51Y	XBR7	3.110	L/r	30.786	Net Sect	418	26.74	3.110	54.400	84.375	30.786	62.637	0.000	0.000	0.000	0.000
0.000		Automatic														
52P	XBR7	2.724	L/r	30.786	Net Sect	449	28.81	2.724	40.800	63.281	30.786	52.793	0.000	0.000	0.000	0.000
0.000		Automatic														
52X	XBR7	2.724	L/r	30.786	Net Sect	449	28.81	2.724	40.800	63.281	30.786	52.793	0.000	0.000	0.000	0.000
0.000		Automatic														
52XY	XBR7	2.724	L/r	30.786	Net Sect	449	28.81	2.724	40.800	63.281	30.786	52.793	0.000	0.000	0.000	0.000
0.000		Automatic														
52Y	XBR7	2.724	L/r	30.786	Net Sect	449	28.81	2.724	40.800	63.281	30.786	52.793	0.000	0.000	0.000	0.000
0.000		Automatic														
53P	XBR7	2.724	L/r	30.786	Net Sect	449	28.81	2.724	40.800	63.281	30.786	52.793	0.000	0.000	0.000	0.000
0.000		Automatic														
53X	XBR7	2.724	L/r	30.786	Net Sect	449	28.81	2.724	40.800	63.281	30.786	52.793	0.000	0.000	0.000	0.000
0.000		Automatic														
53XY	XBR7	2.724	L/r	30.786	Net Sect	449	28.81	2.724	40.800	63.281	30.786	52.793	0.000	0.000	0.000	0.000
0.000		Automatic														
53Y	XBR7	2.724	L/r	30.786	Net Sect	449	28.81	2.724	40.800	63.281	30.786	52.793	0.000	0.000	0.000	0.000
0.000		Automatic														
54P	XBR7	1.745	L/r	30.786	Net Sect	571	36.22	1.745	54.400	84.375	30.786	62.637	0.000	0.000	0.000	0.000
0.000		Automatic														
54X	XBR7	1.745	L/r	30.786	Net Sect	571	36.22	1.745	54.400	84.375	30.786	62.637	0.000	0.000	0.000	0.000
0.000		Automatic														
54XY	XBR7	1.745	L/r	30.786	Net Sect	571	36.22	1.745	54.400	84.375	30.786	62.637	0.000	0.000	0.000	0.000
0.000		Automatic														
54Y	XBR7	1.745	L/r	30.786	Net Sect	571	36.22	1.745	54.400	84.375	30.786	62.637	0.000	0.000	0.000	0.000
0.000		Automatic														

55P	XBR7	1.745	L/r	30.786	Net Sect	571	36.22	1.745	54.400	84.375	30.786	62.637	0.000	0.000	0.000	0.000
0.000		Automatic														
55X	XBR7	1.745	L/r	30.786	Net Sect	571	36.22	1.745	54.400	84.375	30.786	62.637	0.000	0.000	0.000	0.000
0.000		Automatic														
55XY	XBR7	1.745	L/r	30.786	Net Sect	571	36.22	1.745	54.400	84.375	30.786	62.637	0.000	0.000	0.000	0.000
0.000		Automatic														
55Y	XBR7	1.745	L/r	30.786	Net Sect	571	36.22	1.745	54.400	84.375	30.786	62.637	0.000	0.000	0.000	0.000
0.000		Automatic														
56P	XBR8r	9.623	L/r	41.636	Net Sect	260	21.12	9.623	54.400	101.250	41.636	75.164	0.000	0.000	0.000	0.000
0.000		Automatic														
56X	XBR8r	9.623	L/r	41.636	Net Sect	260	21.12	9.623	54.400	101.250	41.636	75.164	0.000	0.000	0.000	0.000
0.000		Automatic														
56XY	XBR8r	9.623	L/r	41.636	Net Sect	260	21.12	9.623	54.400	101.250	41.636	75.164	0.000	0.000	0.000	0.000
0.000		Automatic														
56Y	XBR8r	9.623	L/r	41.636	Net Sect	260	21.12	9.623	54.400	101.250	41.636	75.164	0.000	0.000	0.000	0.000
0.000		Automatic														
57P	XBR8r	9.623	L/r	41.636	Net Sect	260	21.12	9.623	54.400	101.250	41.636	75.164	0.000	0.000	0.000	0.000
0.000		Automatic														
57X	XBR8r	9.623	L/r	41.636	Net Sect	260	21.12	9.623	54.400	101.250	41.636	75.164	0.000	0.000	0.000	0.000
0.000		Automatic														
57XY	XBR8r	9.623	L/r	41.636	Net Sect	260	21.12	9.623	54.400	101.250	41.636	75.164	0.000	0.000	0.000	0.000
0.000		Automatic														
57Y	XBR8r	9.623	L/r	41.636	Net Sect	260	21.12	9.623	54.400	101.250	41.636	75.164	0.000	0.000	0.000	0.000
0.000		Automatic														
58P	XBR8r	8.225	L/r	41.636	Net Sect	284	23.09	8.225	54.400	101.250	41.636	75.164	0.000	0.000	0.000	0.000
0.000		Automatic														
58X	XBR8r	8.225	L/r	41.636	Net Sect	284	23.09	8.225	54.400	101.250	41.636	75.164	0.000	0.000	0.000	0.000
0.000		Automatic														
58XY	XBR8r	8.225	L/r	41.636	Net Sect	284	23.09	8.225	54.400	101.250	41.636	75.164	0.000	0.000	0.000	0.000
0.000		Automatic														
58Y	XBR8r	8.225	L/r	41.636	Net Sect	284	23.09	8.225	54.400	101.250	41.636	75.164	0.000	0.000	0.000	0.000
0.000		Automatic														
59P	XBR8r	8.225	L/r	41.636	Net Sect	284	23.09	8.225	54.400	101.250	41.636	75.164	0.000	0.000	0.000	0.000
0.000		Automatic														
59X	XBR8r	8.225	L/r	41.636	Net Sect	284	23.09	8.225	54.400	101.250	41.636	75.164	0.000	0.000	0.000	0.000
0.000		Automatic														
59XY	XBR8r	8.225	L/r	41.636	Net Sect	284	23.09	8.225	54.400	101.250	41.636	75.164	0.000	0.000	0.000	0.000
0.000		Automatic														
59Y	XBR8r	8.225	L/r	41.636	Net Sect	284	23.09	8.225	54.400	101.250	41.636	75.164	0.000	0.000	0.000	0.000
0.000		Automatic														
60P	Br2	13.968	L/r	24.985	Net Sect	156	10.25	13.968	27.200	33.750	24.985	31.250	0.000	0.000	0.000	0.000
0.000		Automatic														
60X	Br2	13.968	L/r	24.985	Net Sect	156	10.25	13.968	27.200	33.750	24.985	31.250	0.000	0.000	0.000	0.000
0.000		Automatic														
61P	Br2	13.968	L/r	24.985	Net Sect	156	10.25	13.968	27.200	33.750	24.985	31.250	0.000	0.000	0.000	0.000
0.000		Automatic														
61X	Br2	13.968	L/r	24.985	Net Sect	156	10.25	13.968	27.200	33.750	24.985	31.250	0.000	0.000	0.000	0.000
0.000		Automatic														
62P	Br2	13.968	L/r	24.985	Net Sect	156	10.25	13.968	27.200	33.750	24.985	31.250	0.000	0.000	0.000	0.000
0.000		Automatic														
62X	Br2	13.968	L/r	24.985	Net Sect	156	10.25	13.968	27.200	33.750	24.985	31.250	0.000	0.000	0.000	0.000
0.000		Automatic														
63P	Br2	13.968	L/r	24.985	Net Sect	156	10.25	13.968	27.200	33.750	24.985	31.250	0.000	0.000	0.000	0.000
0.000		Automatic														
63X	Br2	13.968	L/r	24.985	Net Sect	156	10.25	13.968	27.200	33.750	24.985	31.250	0.000	0.000	0.000	0.000
0.000		Automatic														
64P	**Br4R**	**6.862**	**L/r**	**27.200**	**Shear**	**286**	**23.33**	**6.862**	**27.200**	**40.781**	**38.445**	**34.242**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**														

KL/R value of 246.77 exceeds maximum of 200.00 for member "64P" ??

64X	**Br4R**	**6.862**	**L/r**	**27.200**	**Shear**	**286**	**23.33**	**6.862**	**27.200**	**40.781**	**38.445**	**34.242**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**														
KL/R value of 246.77 exceeds maximum of 200.00 for member "64X" ??																
65P	Br5	1.946	L/r	27.200	Shear	512	41.86	1.946	27.200	33.750	28.846	27.609	0.000	0.000	0.000	0.000
0.000		Automatic														
65X	Br5	1.946	L/r	27.200	Shear	512	41.86	1.946	27.200	33.750	28.846	27.609	0.000	0.000	0.000	0.000
0.000		Automatic														
66P	Arm	51.267	L/r	84.480	Net Sect	114	7.25	51.267	0.000	0.000	84.480	0.000	0.000	0.000	0.000	0.000
0.000		Automatic														
66Y	Arm	51.267	L/r	84.480	Net Sect	114	7.25	51.267	0.000	0.000	84.480	0.000	0.000	0.000	0.000	0.000
0.000		Automatic														
67P	Br1	42.081	L/r	52.441	Rupture	132	7.25	42.081	54.400	84.375	63.159	52.441	0.000	0.000	0.000	0.000
0.000		Automatic														
67X	Br1	42.081	L/r	52.441	Rupture	132	7.25	42.081	54.400	84.375	63.159	52.441	0.000	0.000	0.000	0.000
0.000		Automatic														
68P	Arm	40.800	Shear	40.800	Shear	71	9.13	62.159	40.800	63.281	67.911	44.613	0.000	0.000	0.000	0.000
0.000		Automatic														
68X	Arm	40.800	Shear	40.800	Shear	71	9.13	62.159	40.800	63.281	67.911	44.613	0.000	0.000	0.000	0.000
0.000		Automatic														
68XY	Arm	40.800	Shear	40.800	Shear	71	9.13	62.159	40.800	63.281	67.911	44.613	0.000	0.000	0.000	0.000
0.000		Automatic														
68Y	Arm	40.800	Shear	40.800	Shear	71	9.13	62.159	40.800	63.281	67.911	44.613	0.000	0.000	0.000	0.000
0.000		Automatic														
69P	**Br3**	**5.585**	**L/r**	**9.640**	**Rupture**	**204**	**7.25**	**5.585**	**13.600**	**12.656**	**19.184**	**9.640**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**														
KL/R value of 203.75 exceeds maximum of 200.00 for member "69P" ??																
69Y	**Br3**	**5.585**	**L/r**	**9.640**	**Rupture**	**204**	**7.25**	**5.585**	**13.600**	**12.656**	**19.184**	**9.640**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**														
KL/R value of 203.75 exceeds maximum of 200.00 for member "69Y" ??																
70P	**Br3**	**5.585**	**L/r**	**9.640**	**Rupture**	**204**	**7.25**	**5.585**	**13.600**	**12.656**	**19.184**	**9.640**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**														
KL/R value of 203.75 exceeds maximum of 200.00 for member "70P" ??																
70X	**Br3**	**5.585**	**L/r**	**9.640**	**Rupture**	**204**	**7.25**	**5.585**	**13.600**	**12.656**	**19.184**	**9.640**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**														
KL/R value of 203.75 exceeds maximum of 200.00 for member "70X" ??																
71P	Br1	42.081	L/r	52.441	Rupture	132	7.25	42.081	54.400	84.375	63.159	52.441	0.000	0.000	0.000	0.000
0.000		Automatic														
71X	Br1	42.081	L/r	52.441	Rupture	132	7.25	42.081	54.400	84.375	63.159	52.441	0.000	0.000	0.000	0.000
0.000		Automatic														
72P	Arm	51.267	L/r	84.480	Net Sect	114	7.25	51.267	0.000	0.000	84.480	0.000	0.000	0.000	0.000	0.000
0.000		Automatic														
72Y	Arm	51.267	L/r	84.480	Net Sect	114	7.25	51.267	0.000	0.000	84.480	0.000	0.000	0.000	0.000	0.000
0.000		Automatic														
73P	Arm	40.800	Shear	40.800	Shear	57	7.33	65.312	40.800	63.281	67.911	44.613	0.000	0.000	0.000	0.000
0.000		Automatic														
73X	Arm	40.800	Shear	40.800	Shear	57	7.33	65.312	40.800	63.281	67.911	44.613	0.000	0.000	0.000	0.000
0.000		Automatic														
73XY	Arm	40.800	Shear	40.800	Shear	57	7.33	65.312	40.800	63.281	67.911	44.613	0.000	0.000	0.000	0.000
0.000		Automatic														
73Y	Arm	40.800	Shear	40.800	Shear	57	7.33	65.312	40.800	63.281	67.911	44.613	0.000	0.000	0.000	0.000
0.000		Automatic														
74P	**Br3**	**5.585**	**L/r**	**9.640**	**Rupture**	**204**	**7.25**	**5.585**	**13.600**	**12.656**	**19.184**	**9.640**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**														
KL/R value of 203.75 exceeds maximum of 200.00 for member "74P" ??																
74X	**Br3**	**5.585**	**L/r**	**9.640**	**Rupture**	**204**	**7.25**	**5.585**	**13.600**	**12.656**	**19.184**	**9.640**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**														
KL/R value of 203.75 exceeds maximum of 200.00 for member "74X" ??																
75P	Br1	42.081	L/r	52.441	Rupture	132	7.25	42.081	54.400	84.375	63.159	52.441	0.000	0.000	0.000	0.000
0.000		Automatic														

75X	Br1	42.081	L/r	52.441	Rupture	132	7.25	42.081	54.400	84.375	63.159	52.441	0.000	0.000	0.000	0.000
0.000		Automatic														
76P	Arm	40.800	Shear	40.800	Shear	71	9.13	62.159	40.800	63.281	67.911	44.613	0.000	0.000	0.000	0.000
0.000		Automatic														
76X	Arm	40.800	Shear	40.800	Shear	71	9.13	62.159	40.800	63.281	67.911	44.613	0.000	0.000	0.000	0.000
0.000		Automatic														
76XY	Arm	40.800	Shear	40.800	Shear	71	9.13	62.159	40.800	63.281	67.911	44.613	0.000	0.000	0.000	0.000
0.000		Automatic														
76Y	Arm	40.800	Shear	40.800	Shear	71	9.13	62.159	40.800	63.281	67.911	44.613	0.000	0.000	0.000	0.000
0.000		Automatic														
77P	Arm	51.267	L/r	84.480	Net Sect	114	7.25	51.267	0.000	0.000	84.480	0.000	0.000	0.000	0.000	0.000
0.000		Automatic														
77Y	Arm	51.267	L/r	84.480	Net Sect	114	7.25	51.267	0.000	0.000	84.480	0.000	0.000	0.000	0.000	0.000
0.000		Automatic														
78P	**Br3**	**5.585**	**L/r**	**9.640**	**Rupture**	**204**	**7.25**	**5.585**	**13.600**	**12.656**	**19.184**	**9.640**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**														
KL/R value of 203.75 exceeds maximum of 200.00 for member "78P" ??																
78X	**Br3**	**5.585**	**L/r**	**9.640**	**Rupture**	**204**	**7.25**	**5.585**	**13.600**	**12.656**	**19.184**	**9.640**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**														
KL/R value of 203.75 exceeds maximum of 200.00 for member "78X" ??																
79P	Br1	42.081	L/r	52.441	Rupture	132	7.25	42.081	54.400	84.375	63.159	52.441	0.000	0.000	0.000	0.000
0.000		Automatic														
79X	Br1	42.081	L/r	52.441	Rupture	132	7.25	42.081	54.400	84.375	63.159	52.441	0.000	0.000	0.000	0.000
0.000		Automatic														
80P	Arm	40.800	Shear	40.800	Shear	57	7.33	65.312	40.800	63.281	67.911	44.613	0.000	0.000	0.000	0.000
0.000		Automatic														
80X	Arm	40.800	Shear	40.800	Shear	57	7.33	65.312	40.800	63.281	67.911	44.613	0.000	0.000	0.000	0.000
0.000		Automatic														
80XY	Arm	40.800	Shear	40.800	Shear	57	7.33	65.312	40.800	63.281	67.911	44.613	0.000	0.000	0.000	0.000
0.000		Automatic														
80Y	Arm	40.800	Shear	40.800	Shear	57	7.33	65.312	40.800	63.281	67.911	44.613	0.000	0.000	0.000	0.000
0.000		Automatic														
81P	Arm	51.267	L/r	84.480	Net Sect	114	7.25	51.267	0.000	0.000	84.480	0.000	0.000	0.000	0.000	0.000
0.000		Automatic														
81Y	Arm	51.267	L/r	84.480	Net Sect	114	7.25	51.267	0.000	0.000	84.480	0.000	0.000	0.000	0.000	0.000
0.000		Automatic														
82P	HBR1	17.340	L/r	40.800	Shear	182	16.50	17.340	40.800	50.625	43.696	46.875	0.000	0.000	0.000	0.000
0.000		Automatic														
82Y	HBR1	17.340	L/r	40.800	Shear	182	16.50	17.340	40.800	50.625	43.696	46.875	0.000	0.000	0.000	0.000
0.000		Automatic														
83P	HBR1	17.340	L/r	40.800	Shear	182	16.50	17.340	40.800	50.625	43.696	46.875	0.000	0.000	0.000	0.000
0.000		Automatic														
83X	HBR1	17.340	L/r	40.800	Shear	182	16.50	17.340	40.800	50.625	43.696	46.875	0.000	0.000	0.000	0.000
0.000		Automatic														
84P	HBR2R	27.163	L/r	40.800	Shear	190	19.50	27.163	40.800	73.406	82.033	67.969	0.000	0.000	0.000	0.000
0.000		Automatic														
84Y	HBR2R	27.163	L/r	40.800	Shear	190	19.50	27.163	40.800	73.406	82.033	67.969	0.000	0.000	0.000	0.000
0.000		Automatic														
85P	HBR2R	27.163	L/r	40.800	Shear	190	19.50	27.163	40.800	73.406	82.033	67.969	0.000	0.000	0.000	0.000
0.000		Automatic														
85X	HBR2R	27.163	L/r	40.800	Shear	190	19.50	27.163	40.800	73.406	82.033	67.969	0.000	0.000	0.000	0.000
0.000		Automatic														
86P	HBR3	38.811	L/r	81.600	Shear	170	22.48	38.811	81.600	101.250	87.392	93.750	0.000	0.000	0.000	0.000
0.000		Automatic														
86Y	HBR3	38.811	L/r	81.600	Shear	170	22.48	38.811	81.600	101.250	87.392	93.750	0.000	0.000	0.000	0.000
0.000		Automatic														
87P	HBR3	38.811	L/r	81.600	Shear	170	22.48	38.811	81.600	101.250	87.392	93.750	0.000	0.000	0.000	0.000
0.000		Automatic														
87X	HBR3	38.811	L/r	81.600	Shear	170	22.48	38.811	81.600	101.250	87.392	93.750	0.000	0.000	0.000	0.000

0.000		Automatic														
88P	HBR3	31.791	L/r	81.600	Shear	191	25.36	31.791	81.600	101.250	87.392	93.750	0.000	0.000	0.000	0.000
0.000		Automatic														
88Y	HBR3	31.791	L/r	81.600	Shear	191	25.36	31.791	81.600	101.250	87.392	93.750	0.000	0.000	0.000	0.000
0.000		Automatic														
89P	HBR3	31.791	L/r	81.600	Shear	191	25.36	31.791	81.600	101.250	87.392	93.750	0.000	0.000	0.000	0.000
0.000		Automatic														
89X	HBR3	31.791	L/r	81.600	Shear	191	25.36	31.791	81.600	101.250	87.392	93.750	0.000	0.000	0.000	0.000
0.000		Automatic														
90P	HBR4	62.237	L/r	81.600	Shear	142	29.60	62.237	81.600	101.250	102.242	93.750	0.000	0.000	0.000	0.000
0.000		Automatic														
90Y	HBR4	62.237	L/r	81.600	Shear	142	29.60	62.237	81.600	101.250	102.242	93.750	0.000	0.000	0.000	0.000
0.000		Automatic														
91P	HBR4	62.237	L/r	81.600	Shear	142	29.60	62.237	81.600	101.250	102.242	93.750	0.000	0.000	0.000	0.000
0.000		Automatic														
91X	HBR4	62.237	L/r	81.600	Shear	142	29.60	62.237	81.600	101.250	102.242	93.750	0.000	0.000	0.000	0.000
0.000		Automatic														
92P	HBR3	39.985	L/r	54.400	Shear	178	16.15	39.985	54.400	67.500	87.392	62.500	0.000	0.000	0.000	0.000
0.000		Automatic														
92X	HBR3	39.985	L/r	54.400	Shear	178	16.15	39.985	54.400	67.500	87.392	62.500	0.000	0.000	0.000	0.000
0.000		Automatic														
92XY	HBR3	39.985	L/r	54.400	Shear	178	16.15	39.985	54.400	67.500	87.392	62.500	0.000	0.000	0.000	0.000
0.000		Automatic														
92Y	HBR3	39.985	L/r	54.400	Shear	178	16.15	39.985	54.400	67.500	87.392	62.500	0.000	0.000	0.000	0.000
0.000		Automatic														
93P	HBR3	39.985	L/r	54.400	Shear	178	16.15	39.985	54.400	67.500	87.392	62.500	0.000	0.000	0.000	0.000
0.000		Automatic														
93X	HBR3	39.985	L/r	54.400	Shear	178	16.15	39.985	54.400	67.500	87.392	62.500	0.000	0.000	0.000	0.000
0.000		Automatic														
93XY	HBR3	39.985	L/r	54.400	Shear	178	16.15	39.985	54.400	67.500	87.392	62.500	0.000	0.000	0.000	0.000
0.000		Automatic														
93Y	HBR3	39.985	L/r	54.400	Shear	178	16.15	39.985	54.400	67.500	87.392	62.500	0.000	0.000	0.000	0.000
0.000		Automatic														
94P	ArmBR1	10.588	L/r	27.200	Shear	221	10.92	10.588	27.200	33.750	36.271	31.250	0.000	0.000	0.000	0.000
0.000		Automatic														
94X	ArmBR1	10.588	L/r	27.200	Shear	221	10.92	10.588	27.200	33.750	36.271	31.250	0.000	0.000	0.000	0.000
0.000		Automatic														
94XY	ArmBR1	10.588	L/r	27.200	Shear	221	10.92	10.588	27.200	33.750	36.271	31.250	0.000	0.000	0.000	0.000
0.000		Automatic														
94Y	ArmBR1	10.588	L/r	27.200	Shear	221	10.92	10.588	27.200	33.750	36.271	31.250	0.000	0.000	0.000	0.000
0.000		Automatic														
95P	ArmBR2	5.591	L/r	24.985	Net Sect	268	9.48	5.591	27.200	33.750	24.985	27.609	0.000	0.000	0.000	0.000
0.000		Automatic														
95X	ArmBR2	5.591	L/r	24.985	Net Sect	268	9.48	5.591	27.200	33.750	24.985	27.609	0.000	0.000	0.000	0.000
0.000		Automatic														
95XY	ArmBR2	5.591	L/r	24.985	Net Sect	268	9.48	5.591	27.200	33.750	24.985	27.609	0.000	0.000	0.000	0.000
0.000		Automatic														
95Y	ArmBR2	5.591	L/r	24.985	Net Sect	268	9.48	5.591	27.200	33.750	24.985	27.609	0.000	0.000	0.000	0.000
0.000		Automatic														
96P	ArmBR2	4.349	L/r	24.985	Net Sect	309	10.92	4.349	27.200	33.750	24.985	27.609	0.000	0.000	0.000	0.000
0.000		Automatic														
96X	ArmBR2	4.349	L/r	24.985	Net Sect	309	10.92	4.349	27.200	33.750	24.985	27.609	0.000	0.000	0.000	0.000
0.000		Automatic														
96XY	ArmBR2	4.349	L/r	24.985	Net Sect	309	10.92	4.349	27.200	33.750	24.985	27.609	0.000	0.000	0.000	0.000
0.000		Automatic														
96Y	ArmBR2	4.349	L/r	24.985	Net Sect	309	10.92	4.349	27.200	33.750	24.985	27.609	0.000	0.000	0.000	0.000
0.000		Automatic														
97P	ArmBR2	5.591	L/r	24.985	Net Sect	268	9.48	5.591	27.200	33.750	24.985	28.641	0.000	0.000	0.000	0.000
0.000		Automatic														

97X	ArmBR2	5.591	L/r	24.985	Net Sect	268	9.48	5.591	27.200	33.750	24.985	28.641	0.000	0.000	0.000	0.000
0.000		Automatic														
97XY	ArmBR2	5.591	L/r	24.985	Net Sect	268	9.48	5.591	27.200	33.750	24.985	28.641	0.000	0.000	0.000	0.000
0.000		Automatic														
97Y	ArmBR2	5.591	L/r	24.985	Net Sect	268	9.48	5.591	27.200	33.750	24.985	28.641	0.000	0.000	0.000	0.000
0.000		Automatic														

The model contains 324 angle members.

Sum of Unfactored Dead Load and Drag Areas From Equipment, Input and Calculated:

Joint Label	Dead Load (kips)	X-Drag Area (ft^2)	Y-Drag Area (ft^2)
1P	0.198	7.116	6.126
2P	0.133	6.065	3.263
3P	0.221	9.166	8.572
4P	0.278	10.125	9.552
5P	0.0981	4.480	2.971
6P	0.238	8.426	8.838
7P	0.378	11.863	10.874
8P	0.119	5.636	2.971
9P	0.3	8.765	9.338
10P	0.395	11.077	10.504
11P	0.0981	4.480	2.971
12P	0.326	7.914	7.914
13P	0.385	9.851	9.851
14P	0.438	11.380	11.380
15P	0.471	11.948	11.948
16P	0.497	12.305	12.305
17P	0.523	12.672	12.672
18P	0.921	20.447	20.447
19P	1.21	23.174	23.174
20P	1.3	23.334	23.334
21P	1.58	27.814	27.814
22P	1.75	30.890	30.890
23P	0.448	6.275	13.902
24P	0.448	13.902	6.275
25P	0.959	12.396	12.396
26P	0.522	8.990	8.990
1X	0.198	7.116	6.126
1XY	0.198	7.116	6.126
1Y	0.198	7.116	6.126
2X	0.133	6.065	3.263
3X	0.221	9.166	8.572
3XY	0.221	9.166	8.572
3Y	0.221	9.166	8.572
4X	0.278	10.125	9.552
4XY	0.278	10.125	9.552
4Y	0.278	10.125	9.552
5X	0.0981	4.480	2.971
6X	0.238	8.426	8.838
6XY	0.238	8.426	8.838
6Y	0.238	8.426	8.838
7X	0.378	11.863	10.874
7XY	0.378	11.863	10.874
7Y	0.378	11.863	10.874
8X	0.119	5.636	2.971

9X	0.3	8.765	9.338
9XY	0.3	8.765	9.338
9Y	0.3	8.765	9.338
10X	0.395	11.077	10.504
10XY	0.395	11.077	10.504
10Y	0.395	11.077	10.504
11X	0.0981	4.480	2.971
12X	0.326	7.914	7.914
12XY	0.326	7.914	7.914
12Y	0.326	7.914	7.914
13X	0.385	9.851	9.851
13XY	0.385	9.851	9.851
13Y	0.385	9.851	9.851
14X	0.438	11.380	11.380
14XY	0.438	11.380	11.380
14Y	0.438	11.380	11.380
15X	0.471	11.948	11.948
15XY	0.471	11.948	11.948
15Y	0.471	11.948	11.948
16X	0.497	12.305	12.305
16XY	0.497	12.305	12.305
16Y	0.497	12.305	12.305
17X	0.523	12.672	12.672
17XY	0.523	12.672	12.672
17Y	0.523	12.672	12.672
18X	0.921	20.447	20.447
18XY	0.921	20.447	20.447
18Y	0.921	20.447	20.447
19X	1.21	23.174	23.174
19XY	1.21	23.174	23.174
19Y	1.21	23.174	23.174
20X	1.3	23.334	23.334
20XY	1.3	23.334	23.334
20Y	1.3	23.334	23.334
21X	1.58	27.814	27.814
21XY	1.58	27.814	27.814
21Y	1.58	27.814	27.814
22X	1.75	30.890	30.890
22XY	1.75	30.890	30.890
22Y	1.75	30.890	30.890
23X	0.448	6.275	13.902
24Y	0.448	13.902	6.275
25X	0.959	12.396	12.396
25XY	0.959	12.396	12.396
25Y	0.959	12.396	12.396
26X	0.522	8.990	8.990
26XY	0.522	8.990	8.990
26Y	0.522	8.990	8.990
Total	54.3	1200.287	1172.385

Unadjusted Dead Load and Drag Areas by Section:

Section Label	Unfactored Dead Load (kips)	X-Drag Area All (ft^2)	Y-Drag Area All (ft^2)	X-Drag Area Face (ft^2)	Y-Drag Area Face (ft^2)
1	8.344	293.244	265.342	123.580	97.546
2	22.804	506.226	506.226	206.719	206.719
3	23.108	400.817	400.817	165.166	165.166

Total	54.256	1200.287	1172.385	495.465	469.431

Angle Member Weights and Surface Areas by Section:

Section Label	Unfactored Weight (kips)	Factored Weight (kips)	Unfactored Surface Area (ft^2)	Factored Surface Area (ft^2)
1	8.344	8.344	1321.887	1321.887
2	22.804	22.804	2364.673	2364.673
3	23.108	26.574	1928.934	2218.274
Total	54.256	57.722	5615.495	5904.835

Section Joint Information:

Section Label	Joint Label	Joint Elevation (ft)
1	1P	190.000
1	3P	184.000
1	1X	190.000
1	3X	184.000
1	1XY	190.000
1	3XY	184.000
1	1Y	190.000
1	3Y	184.000
1	4P	178.000
1	4X	178.000
1	4XY	178.000
1	4Y	178.000
1	6P	172.000
1	6X	172.000
1	6XY	172.000
1	6Y	172.000
1	7P	166.000
1	7X	166.000
1	7XY	166.000
1	7Y	166.000
1	9P	160.000
1	9X	160.000
1	9XY	160.000
1	9Y	160.000
1	10P	154.000
1	10X	154.000
1	10XY	154.000
1	10Y	154.000
1	2P	190.000
1	2X	190.000
1	5P	178.000
1	5X	178.000
1	8P	166.000
1	8X	166.000
1	11P	154.000
1	11X	154.000
2	10P	154.000
2	12P	148.800
2	10X	154.000
2	12X	148.800

```
2  10XY   154.000
2  12XY   148.800
2   10Y   154.000
2   12Y   148.800
2   13P   142.300
2   13X   142.300
2  13XY   142.300
2   13Y   142.300
2   14P   134.700
2   14X   134.700
2  14XY   134.700
2   14Y   134.700
2   15P   126.700
2   15X   126.700
2  15XY   126.700
2   15Y   126.700
2   16P   118.700
2   16X   118.700
2  16XY   118.700
2   16Y   118.700
2   17P   110.700
2   17X   110.700
2  17XY   110.700
2   17Y   110.700
2   18P   102.700
2   18X   102.700
2  18XY   102.700
2   18Y   102.700
2   19P    86.000
2   19X    86.000
2  19XY    86.000
2   19Y    86.000
2   20P    69.500
2   20X    69.500
2  20XY    69.500
2   20Y    69.500
3   21P    53.500
3   20P    69.500
3   21X    53.500
3   20X    69.500
3  21XY    53.500
3  20XY    69.500
3   21Y    53.500
3   20Y    69.500
3   22P    30.000
3   22X    30.000
3  22XY    30.000
3   22Y    30.000
3   25P    15.000
3   25X    15.000
3  25XY    15.000
3   25Y    15.000
3   26P     0.000
3   26X     0.000
3  26XY     0.000
3   26Y     0.000
3   24P    15.000
3   24Y    15.000
3   23X    15.000
```

3	23P	15.000

Sections Information:

Section Label	Top Z (ft)	Bottom Z (ft)	Joint Count	Member Count	Tran. Face Top Width (ft)	Tran. Face Bot Width (ft)	Tran. Face Gross Area (ft^2)	Long. Face Top Width (ft)	Long. Face Bot Width (ft)	Long. Face Gross Area (ft^2)
1	190.000	154.000	36	136	7.25	7.25	261.000	24.00	20.00	438.000
2	154.000	69.500	40	122	7.25	22.48	1256.368	7.25	22.48	1256.368
3	69.500	0.000	24	66	22.48	35.00	1997.500	22.48	35.00	1997.500

*** Insulator Data

Clamp Properties:

Label	Stock Number	Holding Capacity (lbs)
C-EX1		5e+004

Clamp Insulator Connectivity:

Clamp Label	Structure Property And Tip Attach	Set	Min. Required Vertical Load (uplift) (lbs)
1	2P	C-EX1	No Limit
2	2X	C-EX1	No Limit
3	5P	C-EX1	No Limit
4	5X	C-EX1	No Limit
5	8P	C-EX1	No Limit
6	8X	C-EX1	No Limit
7	11P	C-EX1	No Limit
8	11X	C-EX1	No Limit
9	1Y	C-EX1	No Limit
10	4Y	C-EX1	No Limit
11	9Y	C-EX1	No Limit
12	12Y	C-EX1	No Limit
13	14Y	C-EX1	No Limit
14	16Y	C-EX1	No Limit
15	18Y	C-EX1	No Limit
16	19Y	C-EX1	No Limit
17	20Y	C-EX1	No Limit
18	21Y	C-EX1	No Limit
19	22Y	C-EX1	No Limit
20	25Y	C-EX1	No Limit
21	14P	C-EX1	No Limit
22	16P	C-EX1	No Limit
23	18P	C-EX1	No Limit
24	19P	C-EX1	No Limit
25	20P	C-EX1	No Limit
26	21P	C-EX1	No Limit
27	22P	C-EX1	No Limit
28	25P	C-EX1	No Limit
29	14XY	C-EX1	No Limit
30	1P	C-EX1	No Limit

31	3P	C-EX1	No Limit
32	3Y	C-EX1	No Limit
33	17P	C-EX1	No Limit
34	1XY	C-EX1	No Limit
35	3XY	C-EX1	No Limit
37	1X	C-EX1	No Limit
38	4P	C-EX1	No Limit
39	4X	C-EX1	No Limit
40	7P	C-EX1	No Limit
41	7X	C-EX1	No Limit
42	10P	C-EX1	No Limit
43	10X	C-EX1	No Limit
44	13P	C-EX1	No Limit
45	13X	C-EX1	No Limit
46	15P	C-EX1	No Limit
47	15X	C-EX1	No Limit
49	18X	C-EX1	No Limit
51	19X	C-EX1	No Limit
53	20X	C-EX1	No Limit
55	21X	C-EX1	No Limit
57	22X	C-EX1	No Limit
59	25X	C-EX1	No Limit

*** Loads Data

Loads from file: j:\jobs\1715900.wi\20_ct54xc774 old saybrook\04_structural\backup documentation\calcs\rev (2)\pls tower\cl&p # dist west river x-ing.lca

Insulator dead and wind loads are already included in the point loads printed below.

Loading Method Parameters:

Structure Height Summary (used for calculating wind/ice adjust with height):

Z of ground for wind height adjust	0.00 (ft)	and structure Z coordinate that will be put on the centerline ground profile in PLS-CADD.
Ground elevation shift	0.00 (ft)	
Z of ground with shift	0.00 (ft)	
Z of structure top (highest joint)	190.00 (ft)	
Structure height	190.00 (ft)	
Structure height above ground	190.00 (ft)	
Tower Shape	Rectangular	

Load distributed evenly among joints in section for section based load cases

Vector Load Cases:

Load Case Description	Dead Load Factor	Wind Area Factor	SF for Steel Tubular Arms and Towers	SF for Poles and Guys Cables	SF for Insuls.	SF For Found.	Point Loads	Wind/Ice Model	Trans. Wind Pressure (psf)	Longit. Wind Pressure (psf)	Ice Thick. (in)	Ice Density (lbs/ft^3)	Temperature (deg F)	Joint Displ.
NESC Heavy	1.5000	2.5000	1.00000	1.0000	1.0000	1.0000	61 loads	Wind on Face	4	0	0.000	56.000	0.0	
NESC Extreme	1.0000	1.0000	1.00000	1.0000	1.0000	1.0000	61 loads	NESC 2012	36.8	0	0.000	0.000	0.0	
NESC Heavy Broken Wire	1.5000	2.5000	1.00000	1.0000	1.0000	1.0000	61 loads	Wind on Face	4	0	0.000	56.000	0.0	

Point Loads for Load Case "NESC Heavy":

Joint Label	Vertical Load (lbs)	Transverse Load (lbs)	Longitudinal Load (lbs)	Load Comment
2P	3543	2157	-400	Shield Wire
2X	3543	2157	-400	Shield Wire
5P	7658	3176	-27.2	Conductor
5X	7658	3176	-27.2	Conductor
8P	7658	3176	-27.2	Conductor
8X	7658	3176	-27.2	Conductor
11P	7658	3176	-27.2	Conductor
11X	7658	3176	-27.2	Conductor
1XY	1428	319	-96	AT&T Top Connection
1Y	971	1512	-690	AT&T Top Connection
3Y	1201	-966	539	AT&T Bottom Connection
3XY	1186	238	247	AT&T Bottom Connection
14P	628	219	0	Sprint Antennas & Mount
14Y	628	219	0	Sprint Antennas & Mount
14XY	628	219	0	Sprint Antennas & Mount
1Y	414	103	0	AT&T Coax Cables
4Y	1035	258	0	AT&T Coax Cables
9Y	1007	251	0	AT&T Coax Cables

12Y	869	216	0	AT&T Coax Cables
14Y	1035	258	0	AT&T Coax Cables
16Y	1104	275	0	AT&T Coax Cables
18Y	1128	281	0	AT&T Coax Cables
19Y	1145	285	0	AT&T Coax Cables
20Y	1121	279	0	AT&T Coax Cables
21Y	1362	339	0	AT&T Coax Cables
22Y	1328	331	0	AT&T Coax Cables
25Y	862	215	0	AT&T Coax Cables
14P	1035	258	0	Sprint Coax Cables
16P	1104	275	0	Sprint Coax Cables
18P	1128	281	0	Sprint Coax Cables
19P	1145	285	0	Sprint Coax Cables
20P	1121	279	0	Sprint Coax Cables
21P	1362	339	0	Sprint Coax Cables
22P	1328	331	0	Sprint Coax Cables
25P	862	215	0	Sprint Coax Cables
21P	10	3	0	Sprint GSP
17P	44	36	0	Dish
1P	226	67	0	Climbing Ladder
1X	226	67	0	Climbing Ladder
4P	453	134	0	Climbing Ladder
4X	453	134	0	Climbing Ladder
7P	456	134	0	Climbing Ladder
7X	456	134	0	Climbing Ladder
10P	514	151	0	Climbing Ladder
10X	514	151	0	Climbing Ladder
13P	574	169	0	Climbing Ladder
13X	574	169	0	Climbing Ladder
15P	617	181	0	Climbing Ladder
15X	617	181	0	Climbing Ladder
18P	639	188	0	Climbing Ladder
18X	639	188	0	Climbing Ladder
19P	610	180	0	Climbing Ladder
19X	610	180	0	Climbing Ladder
20P	588	173	0	Climbing Ladder
20X	588	173	0	Climbing Ladder
21P	704	207	0	Climbing Ladder
21X	704	207	0	Climbing Ladder
22P	692	203	0	Climbing Ladder
22X	692	203	0	Climbing Ladder
25P	278	81	0	Climbing Ladder
25X	278	81	0	Climbing Ladder

Section Load Case Information (Standard) for "NESC Heavy":

Section Label	Z of Top (ft)	Z of Bottom (ft)	Ave. Elev. Above Ground (ft)	Res. Adj. Wind Pres. (psf)	Tran Adj. Wind Pres. (psf)	Tran Drag Coef	Tran Wind Load (lbs)	Long Adj. Wind Pres. (psf)	Long Drag Coef	Long Wind Load (lbs)	Ice Weight (lbs)	Total Weight (lbs)
1	190.00	154.00	172.00	10.00	10.00	3.200	3121.5	0.00	3.200	0.0	0	12515
2	154.00	69.50	111.75	10.00	10.00	3.200	6615.0	0.00	3.200	0.0	0	34206
3	69.50	0.00	34.75	10.00	10.00	3.200	5285.3	0.00	3.200	0.0	0	39862

Point Loads for Load Case "NESC Extreme":

Joint	Vertical	Transverse	Longitudinal	Load

Label	Load (lbs)	Load (lbs)	Load (lbs)	Comment
2P	761	1929	-1445	Shield Wire
2X	761	1929	-1445	Shield Wire
5P	2525	4693	-5866	Conductor
5X	2525	4693	-5866	Conductor
8P	2525	4693	-5866	Conductor
8X	2525	4693	-5866	Conductor
11P	2525	4693	-5866	Conductor
11X	2525	4693	-5866	Conductor
1XY	1734	4101	1227	AT&T Top Connection
1Y	-489	4705	-1635	AT&T Top Connection
3Y	658	-2118	921	AT&T Bottom Connection
3XY	581	-1479	-513	AT&T Bottom Connection
14P	311	753	0	Sprint Antennas & Mount
14Y	311	753	0	Sprint Antennas & Mount
14XY	311	753	0	Sprint Antennas & Mount
1Y	112	382	0	AT&T Coax Cables
4Y	281	956	0	AT&T Coax Cables
9Y	273	930	0	AT&T Coax Cables
12Y	236	803	0	AT&T Coax Cables
14Y	281	956	0	AT&T Coax Cables
16Y	300	1020	0	AT&T Coax Cables
18Y	306	1042	0	AT&T Coax Cables
19Y	311	1058	0	AT&T Coax Cables
20Y	304	1035	0	AT&T Coax Cables
21Y	370	1258	0	AT&T Coax Cables
22Y	360	1227	0	AT&T Coax Cables
25Y	234	797	0	AT&T Coax Cables
14P	281	956	0	Sprint Coax Cables
16P	300	1020	0	Sprint Coax Cables
18P	306	1042	0	Sprint Coax Cables
19P	311	1058	0	Sprint Coax Cables
20P	304	1035	0	Sprint Coax Cables
21P	370	1258	0	Sprint Coax Cables
22P	360	1227	0	Sprint Coax Cables
25P	234	797	0	Sprint Coax Cables
21P	5	8	0	Sprint GSP
17P	15	135	0	Dish
1P	96	180	0	Climbing Ladder
1X	96	180	0	Climbing Ladder
4P	192	359	0	Climbing Ladder
4X	192	359	0	Climbing Ladder
7P	193	359	0	Climbing Ladder
7X	193	359	0	Climbing Ladder
10P	217	404	0	Climbing Ladder
10X	217	404	0	Climbing Ladder
13P	242	450	0	Climbing Ladder
13X	242	450	0	Climbing Ladder
15P	260	479	0	Climbing Ladder
15X	260	479	0	Climbing Ladder
18P	269	498	0	Climbing Ladder
18X	269	498	0	Climbing Ladder
19P	257	478	0	Climbing Ladder
19X	257	478	0	Climbing Ladder
20P	248	459	0	Climbing Ladder
20X	248	459	0	Climbing Ladder
21P	296	547	0	Climbing Ladder

21X	296	547	0	Climbing Ladder
22P	291	536	0	Climbing Ladder
22X	291	536	0	Climbing Ladder
25P	117	214	0	Climbing Ladder
25X	117	214	0	Climbing Ladder

Section Load Case Information (Code) for "NESC Extreme":

Section Label	Z of Top (ft)	Z of Bottom (ft)	Ave. Elev. Above Ground (ft)	Res. Adj. Wind Pres. (psf)	Tran Adj. Wind Pres. (psf)	Tran Angle Face Area (ft^2)	Tran Gross Area (ft^2)	Tran Soli-dity Ratio	Tran Angle Drag Coef	Tran Wind Load (lbs)	Long Adj. Wind Pres. (psf)	Long Angle Face Area (ft^2)	Long Gross Area (ft^2)	Long Soli-dity Ratio	Long Angle Drag Coef	Long Wind Load (lbs)	Ice Weight (lbs)	Total Weight (lbs)
1	190.00	154.00	172.00	39.97	39.97	97.55	261.00	0.374	3.200	12476.9	0.00	123.58	438.00	0.282	3.200	0.0	0	8344
2	154.00	69.50	111.75	39.97	39.97	206.72	1256.37	0.165	3.200	26441.0	0.00	206.72	1256.37	0.165	3.200	0.0	0	22804
3	69.50	0.00	34.75	39.97	39.97	189.94	1997.50	0.095	3.200	24295.0	0.00	189.94	1997.50	0.095	3.200	0.0	0	26574

Point Loads for Load Case "NESC Heavy Broken Wire":

Joint Label	Vertical Load (lbs)	Transverse Load (lbs)	Longitudinal Load (lbs)	Load Comment
2P	1255	1189	-13580	Broken Shield Wire
2X	3543	2157	-400	Shield Wire
5P	2778	1704	-19800	Broken Conductor
5X	7658	3176	-27.2	Conductor
8P	7658	3176	-27.2	Conductor
8X	7658	3176	-27.2	Conductor
11P	7658	3176	-27.2	Conductor
11X	7658	3176	-27.2	Conductor
1XY	1428	319	-96	AT&T Top Connection
1Y	971	1512	-690	AT&T Top Connection
3Y	1201	-966	539	AT&T Bottom Connection
3XY	1186	238	247	AT&T Bottom Connection
14P	628	219	0	Sprint Antennas & Mount
14Y	628	219	0	Sprint Antennas & Mount
14XY	628	219	0	Sprint Antennas & Mount
1Y	414	103	0	AT&T Coax Cables
4Y	1035	258	0	AT&T Coax Cables
9Y	1007	251	0	AT&T Coax Cables
12Y	869	216	0	AT&T Coax Cables
14Y	1035	258	0	AT&T Coax Cables
16Y	1104	275	0	AT&T Coax Cables
18Y	1128	281	0	AT&T Coax Cables
19Y	1145	285	0	AT&T Coax Cables
20Y	1121	279	0	AT&T Coax Cables
21Y	1362	339	0	AT&T Coax Cables
22Y	1328	331	0	AT&T Coax Cables
25Y	862	215	0	AT&T Coax Cables
14P	1035	258	0	Sprint Coax Cables
16P	1104	275	0	Sprint Coax Cables
18P	1128	281	0	Sprint Coax Cables
19P	1145	285	0	Sprint Coax Cables
20P	1121	279	0	Sprint Coax Cables
21P	1362	339	0	Sprint Coax Cables
22P	1328	331	0	Sprint Coax Cables
25P	862	215	0	Sprint Coax Cables

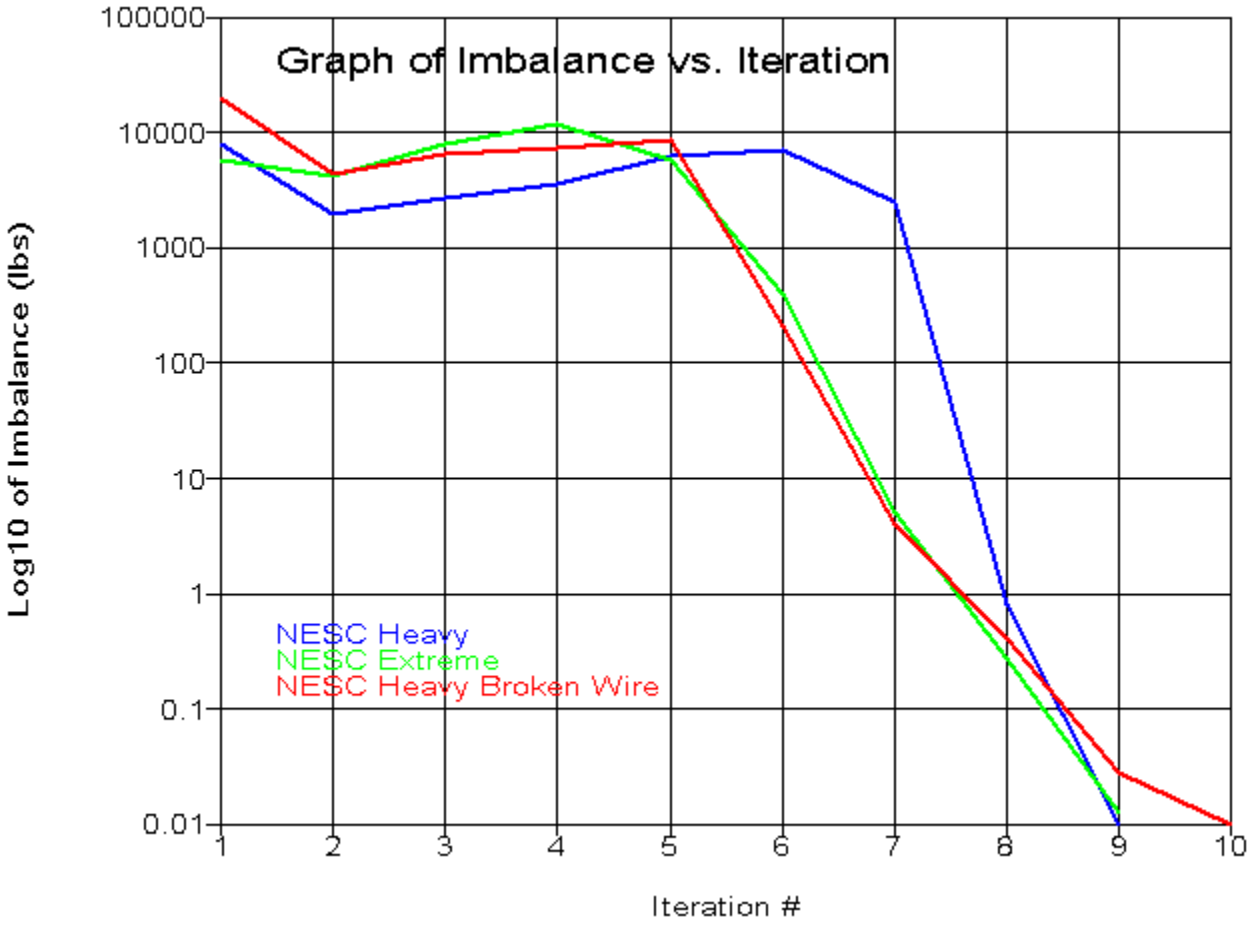
21P	10	3	0	Sprint GSP
17P	44	36	0	Dish
1P	226	67	0	Climbing Ladder
1X	226	67	0	Climbing Ladder
4P	453	134	0	Climbing Ladder
4X	453	134	0	Climbing Ladder
7P	456	134	0	Climbing Ladder
7X	456	134	0	Climbing Ladder
10P	514	151	0	Climbing Ladder
10X	514	151	0	Climbing Ladder
13P	574	169	0	Climbing Ladder
13X	574	169	0	Climbing Ladder
15P	617	181	0	Climbing Ladder
15X	617	181	0	Climbing Ladder
18P	639	188	0	Climbing Ladder
18X	639	188	0	Climbing Ladder
19P	610	180	0	Climbing Ladder
19X	610	180	0	Climbing Ladder
20P	588	173	0	Climbing Ladder
20X	588	173	0	Climbing Ladder
21P	704	207	0	Climbing Ladder
21X	704	207	0	Climbing Ladder
22P	692	203	0	Climbing Ladder
22X	692	203	0	Climbing Ladder
25P	278	81	0	Climbing Ladder
25X	278	81	0	Climbing Ladder

Section Load Case Information (Standard) for "NESC Heavy Broken Wire":

Section Label	Z of Top (ft)	Z of Bottom (ft)	Ave. Elev. Above Ground (ft)	Res. Adj. Wind Pres. (psf)	Tran Adj. Wind Pres. (psf)	Tran Drag Coef	Tran Wind Load (lbs)	Long Adj. Wind Pres. (psf)	Long Drag Coef	Long Wind Load (lbs)	Ice Weight (lbs)	Total Weight (lbs)
1	190.00	154.00	172.00	10.00	10.00	3.200	3121.5	0.00	3.200	0.0	0	12515
2	154.00	69.50	111.75	10.00	10.00	3.200	6615.0	0.00	3.200	0.0	0	34206
3	69.50	0.00	34.75	10.00	10.00	3.200	5285.3	0.00	3.200	0.0	0	39862

*** Analysis Results:

Maximum element usage is 99.72% for Angle "54X" in load case "NESC Extreme"
Maximum insulator usage is 40.19% for Clamp "3" in load case "NESC Heavy Broken Wire"



Angle Forces For All Load Cases:
Positive for tension - negative for compression

Group Label	Angle Label	Max. Usage For All LC %	Max. Tens. For All LC (kips)	Max. Comp. For All LC (kips)	LC 1 (kips)	LC 2 (kips)	LC 3 (kips)
Leg1	3P	3.33	3.485	0.000	0.769	2.825	3.485
Leg1	3X	2.38	1.797	-3.061	-1.767	-3.061	1.797
Leg1	3XY	5.92	0.000	-7.616	-3.481	-5.565	-7.616
Leg1	3Y	3.04	3.179	-2.523	-0.555	3.179	-2.523

Leg1	4P	11.57	12.109	-1.128	-1.128	8.615	12.109
Leg1	4X	8.08	0.000	-10.399	-8.990	-10.399	-4.238
Leg1	4XY	16.34	0.000	-21.031	-12.861	-13.579	-21.031
Leg1	4Y	6.33	4.572	-8.146	-4.952	4.572	-8.146
Leg1	5P	19.42	21.402	0.000	0.237	19.091	21.402
Leg1	5X	11.96	1.974	-15.388	-15.388	-15.186	1.974
Leg1	5XY	31.93	0.000	-41.096	-19.808	-26.415	-41.096
Leg1	5Y	11.59	7.410	-14.910	-4.621	7.410	-14.910
Leg2	6P	23.90	38.998	0.000	2.077	34.589	38.998
Leg2	6X	15.40	5.387	-25.138	-25.138	-22.820	5.387
Leg2	6XY	38.31	0.000	-62.519	-30.466	-44.708	-62.519
Leg2	6Y	19.24	11.280	-31.400	-3.448	11.280	-31.400
Leg2	7P	28.15	57.370	0.000	9.331	57.370	56.916
Leg2	7X	13.44	14.027	-32.337	-32.337	-27.713	14.027
Leg2	7XY	34.79	0.000	-83.718	-38.063	-67.461	-83.718
Leg2	7Y	15.54	16.135	-37.404	3.734	16.135	-37.404
Leg2	8P	41.76	81.436	0.000	13.920	81.436	75.653
Leg2	8X	18.32	12.892	-44.096	-44.096	-34.872	12.892
Leg2	8XY	43.51	0.000	-104.705	-50.492	-93.920	-104.705
Leg2	8Y	21.06	19.784	-50.669	6.816	19.784	-50.669
Leg3	9P	40.11	106.142	0.000	22.015	106.142	91.839
Leg3	9X	17.47	15.196	-52.699	-52.699	-40.566	15.196
Leg3	9XY	40.54	0.000	-122.282	-59.270	-121.984	-122.282
Leg3	9Y	17.32	26.133	-52.241	15.197	26.133	-52.241
Leg3	10P	46.90	124.092	0.000	26.595	124.092	99.384
Leg3	10X	18.64	13.542	-59.961	-59.961	-42.951	13.542
Leg3	10XY	45.28	0.000	-145.708	-66.776	-145.708	-133.699
Leg3	10Y	16.35	30.004	-52.609	19.283	30.004	-52.609
Leg3	11P	52.83	139.789	0.000	30.734	139.789	104.615
Leg3	11X	21.04	11.360	-65.782	-65.782	-45.444	11.360
Leg3	11XY	52.92	0.000	-165.459	-72.181	-165.459	-141.279
Leg3	11Y	16.01	35.344	-50.046	24.419	35.344	-50.046
Leg4	12P	53.85	155.168	0.000	33.321	155.168	108.766
Leg4	12X	21.31	9.012	-71.738	-71.738	-50.171	9.012
Leg4	12XY	55.24	0.000	-186.004	-78.795	-186.004	-150.397
Leg4	12Y	14.87	40.712	-50.079	27.321	40.712	-50.079
Leg4	13P	58.60	168.866	0.000	36.392	168.866	112.857
Leg4	13X	23.03	5.859	-77.528	-77.528	-55.697	5.859
Leg4	13XY	60.26	0.000	-202.904	-83.906	-202.904	-156.806
Leg4	13Y	16.33	47.050	-47.990	31.182	47.050	-47.990
Leg5	14P	58.60	181.139	0.000	38.341	181.139	115.880
Leg5	14X	22.82	3.042	-82.485	-82.485	-61.994	3.042
Leg5	14XY	60.48	0.000	-218.616	-88.756	-218.616	-163.744
Leg5	14Y	16.92	52.291	-48.453	33.112	52.291	-48.453
Leg5	15P	62.18	192.528	0.000	41.246	192.528	119.370
Leg5	15X	23.94	0.620	-86.529	-86.529	-67.067	0.620
Leg5	15XY	63.84	0.000	-230.759	-92.698	-230.759	-167.527
Leg5	15Y	18.85	58.356	-45.912	36.034	58.356	-45.912
Leg6	16P	59.18	197.041	0.000	38.556	197.041	114.987
Leg6	16X	24.48	0.000	-94.110	-94.110	-89.026	-9.823
Leg6	16XY	66.22	0.000	-254.612	-99.685	-254.612	-186.803
Leg6	16Y	15.97	53.173	-59.181	34.014	53.173	-59.181
Leg7	17P	62.45	221.230	0.000	41.390	221.230	120.641
Leg7	17X	25.12	0.000	-103.209	-102.776	-103.209	-14.674
Leg7	17XY	65.46	0.000	-268.976	-107.671	-268.976	-192.928
Leg7	17Y	17.35	61.451	-55.521	37.494	61.451	-55.521
Leg7	18P	67.68	239.758	0.000	43.256	239.758	124.340
Leg7	18X	28.64	0.000	-118.602	-110.562	-118.602	-20.465
Leg7	18XY	68.52	0.000	-283.767	-114.688	-283.767	-198.829

Leg7	18Y	19.05	67.469	-53.188	39.642	67.469	-53.188
Leg8	19P	67.90	256.098	0.000	43.210	256.098	125.762
Leg8	19X	31.40	0.000	-138.925	-122.085	-138.925	-29.239
Leg8	19XY	68.15	0.000	-301.538	-125.026	-301.538	-208.541
Leg8	19Y	19.16	72.275	-54.768	39.750	72.275	-54.768
Leg8	20P	73.13	275.841	0.000	44.374	275.841	130.864
Leg8	20X	36.81	0.000	-164.453	-129.672	-164.453	-40.321
Leg8	20XY	72.37	0.000	-323.325	-131.126	-323.325	-218.175
Leg8	20Y	20.70	78.079	-51.828	40.435	78.079	-51.828
Leg8	21P	73.14	274.441	0.000	41.593	274.441	128.020
Leg8	21X	37.11	0.000	-165.773	-131.687	-165.773	-42.365
Leg8	21XY	72.67	0.000	-324.657	-132.862	-324.657	-219.917
Leg8	21Y	20.48	76.841	-54.292	37.929	76.841	-54.292
XBR1	22P	21.24	5.307	-3.267	-1.134	-3.267	5.307
XBR1	22X	18.39	4.421	-2.947	2.628	4.421	-2.947
XBR1	22XY	38.51	9.621	0.000	3.023	6.026	9.621
XBR1	22Y	63.28	0.000	-10.138	-1.824	-6.109	-10.138
XBR1	23P	6.53	0.000	-0.741	-0.741	-0.231	-0.575
XBR1	23X	73.57	0.000	-11.786	-0.863	-1.576	-11.786
XBR1	23XY	45.79	11.440	0.000	0.097	1.523	11.440
XBR1	23Y	4.34	0.000	-0.493	-0.341	-0.465	-0.493
XBR1	24P	19.63	2.200	-3.145	-2.536	-3.145	2.200
XBR1	24X	16.89	4.219	-1.642	1.322	4.219	-1.642
XBR1	24XY	29.14	7.281	0.000	1.433	4.038	7.281
XBR1	24Y	63.18	0.000	-10.121	-3.147	-5.937	-10.121
XBR1	25P	14.23	0.000	-1.614	-0.925	-1.614	-1.526
XBR1	25X	61.93	0.000	-9.921	-0.536	-1.665	-9.921
XBR1	25XY	40.82	10.199	0.000	0.171	2.381	10.199
XBR1	25Y	5.13	0.061	-0.582	-0.582	0.061	-0.217
XBR2	26P	54.21	17.570	-5.613	-1.193	-5.613	17.570
XBR2	26X	37.71	9.009	-10.157	7.146	9.009	-10.157
XBR2	26XY	72.70	23.561	0.000	7.511	9.980	23.561
XBR2	26Y	69.51	0.000	-18.722	-1.948	-9.408	-18.722
XBR2	27P	20.00	1.098	-5.386	-1.743	-5.386	1.098
XBR2	27X	92.88	0.000	-25.015	-0.844	-4.767	-25.015
XBR2	27XY	75.51	24.472	0.000	0.026	6.624	24.472
XBR2	27Y	17.38	2.049	-4.681	-1.501	2.049	-4.681
XBR2	28P	27.51	8.916	-6.397	-1.646	-6.397	8.916
XBR2	28X	31.44	10.189	-4.308	7.256	10.189	-4.308
XBR2	28XY	52.72	17.087	0.000	7.614	9.770	17.087
XBR2	28Y	40.47	0.000	-10.900	-2.005	-9.508	-10.900
XBR2	29P	21.60	0.000	-5.816	-1.435	-5.816	-1.245
XBR2	29X	80.15	0.000	-21.588	-0.672	-5.359	-21.588
XBR2	29XY	65.93	21.367	0.000	0.159	6.791	21.367
XBR2	29Y	10.09	3.272	-1.268	-1.064	3.272	-1.268
XBR3	30P	28.21	12.621	-10.912	-5.041	-10.912	12.621
XBR3	30X	29.01	12.978	-8.953	8.448	12.978	-8.953
XBR3	30XY	54.70	24.477	0.000	8.736	13.883	24.477
XBR3	30Y	52.20	0.000	-21.487	-5.582	-14.040	-21.487
XBR3	31P	22.63	1.553	-9.313	-1.645	-9.313	1.553
XBR3	31X	61.80	0.000	-25.435	-0.483	-8.294	-25.435
XBR3	31XY	57.25	25.616	0.000	0.417	10.640	25.616
XBR3	31Y	13.08	5.852	-4.571	-1.331	5.852	-4.571
XBR3	32P	25.80	8.772	-10.620	-5.051	-10.620	8.772
XBR3	32X	33.07	14.796	-1.478	8.835	14.796	-1.478
XBR3	32XY	39.35	17.608	0.000	8.958	13.343	17.608
XBR3	32Y	43.17	0.000	-17.770	-5.750	-15.482	-17.770
XBR3	33P	30.89	0.000	-12.714	-3.667	-12.714	-3.362
XBR3	33X	52.95	0.000	-21.793	-0.040	-6.489	-21.793

XBR3	33XY	50.80	22.733	0.000	0.811	12.879	22.733
XBR3	33Y	10.01	4.051	-3.378	-3.230	4.051	-3.378
XBR4	34P	28.02	9.907	-6.961	-5.768	-6.961	9.907
XBR4	34X	28.97	8.327	-9.533	3.525	8.327	-9.533
XBR4	34XY	43.61	15.416	0.000	3.704	9.035	15.416
XBR4	34Y	62.50	0.000	-20.563	-6.359	-12.841	-20.563
XBR4	35P	27.80	9.827	-8.281	-0.456	-8.281	9.827
XBR4	35X	47.14	0.695	-15.511	0.695	-5.816	-15.511
XBR4	35XY	48.09	17.002	0.000	0.776	8.460	17.002
XBR4	35Y	33.61	5.611	-11.059	-0.793	5.611	-11.059
XBR4	36P	28.98	8.874	-7.859	-4.128	-7.859	8.874
XBR4	36X	34.87	7.494	-9.456	4.586	7.494	-9.456
XBR4	36XY	50.33	17.791	0.000	5.086	11.745	17.791
XBR4	36Y	60.38	0.000	-16.374	-4.645	-10.660	-16.374
XBR4	37P	29.20	10.321	-5.764	0.450	-5.764	10.321
XBR4	37X	55.97	0.000	-15.178	-0.332	-7.158	-15.178
XBR4	37XY	40.82	14.432	-0.363	-0.363	5.864	14.432
XBR4	37Y	36.29	6.930	-9.841	0.111	6.930	-9.841
XBR5	38P	31.32	7.416	-8.542	-4.578	-8.542	7.416
XBR5	38X	28.46	7.740	-7.762	3.822	7.740	-7.762
XBR5	38XY	40.42	14.601	0.000	4.155	10.182	14.601
XBR5	38Y	57.38	0.000	-15.651	-4.779	-11.245	-15.651
XBR5	39P	23.52	8.495	-5.921	-0.077	-5.921	8.495
XBR5	39X	48.06	0.000	-13.108	-0.001	-5.589	-13.108
XBR5	39XY	36.11	13.042	0.000	0.031	5.975	13.042
XBR5	39Y	32.95	5.247	-8.986	-0.316	5.247	-8.986
XBR5	40P	37.77	5.609	-9.029	-4.285	-9.029	5.609
XBR5	40X	26.56	8.331	-6.349	3.887	8.331	-6.349
XBR5	40XY	37.42	13.516	0.000	4.237	11.188	13.516
XBR5	40Y	56.34	0.000	-13.470	-4.541	-11.192	-13.470
XBR5	41P	21.16	7.644	-4.563	0.138	-4.563	7.644
XBR5	41X	47.18	0.000	-11.280	-0.177	-5.156	-11.280
XBR5	41XY	30.60	11.053	-0.147	-0.147	4.745	11.053
XBR5	41Y	31.31	4.835	-7.486	-0.130	4.835	-7.486
XBR5	42P	42.44	4.648	-9.088	-4.226	-9.088	4.648
XBR5	42X	23.53	8.498	-4.768	3.563	8.498	-4.768
XBR5	42XY	30.82	11.134	0.000	3.641	9.836	11.134
XBR5	42Y	57.81	0.000	-12.377	-4.287	-10.957	-12.377
XBR5	43P	20.09	6.141	-4.301	0.016	-4.301	6.141
XBR5	43X	45.83	0.000	-9.812	-0.051	-4.183	-9.812
XBR5	43XY	26.10	9.426	0.000	0.034	4.387	9.426
XBR5	43Y	31.78	3.732	-6.804	-0.157	3.732	-6.804
XBR5	44P	46.11	3.311	-8.724	-3.627	-8.724	3.311
XBR5	44X	25.00	9.029	-4.172	3.826	9.029	-4.172
XBR5	44XY	30.96	11.182	0.000	3.884	10.651	11.182
XBR5	44Y	52.03	0.000	-9.843	-3.668	-9.720	-9.843
XBR5	45P	16.85	6.086	-3.058	0.029	-3.058	6.086
XBR5	45X	43.33	0.000	-8.197	-0.197	-4.039	-8.197
XBR5	45XY	23.67	8.550	-0.120	-0.120	3.482	8.550
XBR5	45Y	27.51	3.771	-5.204	-0.125	3.771	-5.204
XBR5	46P	59.57	3.277	-9.911	-4.342	-9.911	3.277
XBR5	46X	22.82	8.242	-2.929	3.019	8.242	-2.929
XBR5	46XY	24.86	8.981	0.000	3.049	8.981	8.460
XBR5	46Y	69.03	0.000	-11.484	-4.375	-11.354	-11.484
XBR5	47P	22.94	4.481	-3.816	0.062	-3.816	4.481
XBR5	47X	48.87	0.039	-8.131	0.039	-3.065	-8.131
XBR5	47XY	19.81	7.157	0.000	0.107	3.717	7.157
XBR5	47Y	36.57	2.579	-6.085	-0.074	2.579	-6.085
XBR6	48P	13.10	4.618	0.000	0.000	0.000	4.618

XBR6	48X	73.77	25.998	-0.373	8.875	25.998	-0.373
XBR6	48XY	61.06	21.517	0.000	8.873	20.691	21.517
XBR6	48Y	0.00	0.000	0.000	0.000	0.000	0.000
XBR6	49P	65.82	10.768	-3.719	-3.719	0.000	10.768
XBR6	49X	4.04	1.423	-0.221	1.423	-0.221	0.000
XBR6	49XY	45.43	16.010	0.000	1.362	10.321	16.010
XBR6	49Y	63.30	3.211	-3.577	-3.577	3.211	0.000
XBR7	50P	7.59	2.338	0.000	0.000	0.000	2.338
XBR7	50X	81.08	24.962	0.000	8.788	24.962	0.006
XBR7	50XY	63.36	19.507	0.000	8.370	19.507	18.695
XBR7	50Y	0.00	0.000	0.000	0.000	0.000	0.000
XBR7	51P	88.56	8.923	-2.754	-2.754	0.000	8.923
XBR7	51X	23.58	0.932	-0.733	0.932	-0.733	0.000
XBR7	51XY	42.13	12.971	0.000	0.946	7.806	12.971
XBR7	51Y	83.69	2.559	-2.602	-2.602	2.559	0.000
XBR7	52P	3.31	1.018	0.000	0.000	0.000	1.018
XBR7	52X	87.23	26.855	0.000	8.902	26.855	0.678
XBR7	52XY	68.97	21.233	0.000	8.151	21.233	16.728
XBR7	52Y	0.00	0.000	0.000	0.000	0.000	0.000
XBR7	53P	98.28	7.482	-2.677	-2.677	0.000	7.482
XBR7	53X	25.15	0.703	-0.685	0.703	-0.685	0.000
XBR7	53XY	35.31	10.871	0.000	0.778	6.562	10.871
XBR7	53Y	87.89	2.129	-2.394	-2.394	2.129	0.000
XBR7	54P	1.05	0.323	0.000	0.000	0.000	0.323
XBR7	54X	99.72	30.700	0.000	10.265	30.700	2.023
XBR7	54XY	76.90	23.675	0.000	9.052	23.675	17.019
XBR7	54Y	0.00	0.000	0.000	0.000	0.000	0.000
XBR7	55P	22.58	6.953	0.000	0.000	0.000	6.953
XBR7	55X	3.21	0.987	0.000	0.987	0.913	0.000
XBR7	55XY	33.98	10.462	0.000	1.142	8.011	10.462
XBR7	55Y	5.43	1.671	0.000	0.227	1.671	0.000
XBR8r	56P	5.16	0.309	-0.497	-0.497	-0.471	0.309
XBR8r	56X	84.84	35.325	0.000	11.765	35.325	4.086
XBR8r	56XY	65.02	27.069	0.000	10.079	27.069	16.518
XBR8r	56Y	16.80	0.000	-1.617	-0.369	-0.246	-1.617
XBR8r	57P	64.19	6.495	-6.178	-6.178	-0.114	6.495
XBR8r	57X	32.57	5.668	-3.135	2.153	5.668	-3.135
XBR8r	57XY	29.82	12.414	0.000	2.421	12.414	6.856
XBR8r	57Y	60.23	1.847	-5.796	-5.796	1.847	-0.975
XBR8r	58P	87.71	36.520	0.000	11.179	36.520	4.381
XBR8r	58X	9.26	0.000	-0.761	0.000	0.000	-0.761
XBR8r	58XY	0.00	0.000	0.000	0.000	0.000	0.000
XBR8r	58Y	66.69	27.766	0.000	9.471	27.766	15.193
XBR8r	59P	85.24	0.186	-7.011	-7.011	0.186	0.000
XBR8r	59X	29.84	12.425	0.000	2.064	12.425	6.124
XBR8r	59XY	39.05	5.729	-3.212	1.784	5.729	-3.212
XBR8r	59Y	88.34	4.902	-7.266	-7.266	0.000	4.902
Br2	60P	14.47	0.113	-2.021	0.113	-0.480	-2.021
Br2	60X	9.24	2.307	0.000	0.242	0.541	2.307
Br2	61P	12.82	0.000	-1.791	-0.299	-0.218	-1.791
Br2	61X	5.16	1.290	-0.289	-0.289	-0.034	1.290
Br2	62P	8.74	0.000	-1.221	-0.651	-0.151	-1.221
Br2	62X	4.84	0.000	-0.676	-0.676	-0.278	-0.160
Br2	63P	13.55	0.712	-1.892	-0.538	0.712	-1.892
Br2	63X	7.90	0.801	-1.104	-0.573	-1.104	0.801
Br4R	64P	38.35	0.000	-2.632	-0.855	-1.210	-2.632
Br4R	64X	70.11	0.000	-4.811	-0.613	-4.811	-2.655
Br5	65P	0.80	0.218	0.000	0.000	0.218	0.201
Br5	65X	2.63	0.000	-0.051	-0.051	0.000	0.000

Arm	66P	16.37	1.179	-8.390	1.179	-0.806	-8.390
Arm	66Y	12.89	10.893	0.000	2.020	1.257	10.893
Br1	67P	1.89	0.993	-0.138	-0.138	0.993	0.185
Br1	67X	2.99	0.000	-1.256	-1.256	-1.138	-1.234
Arm	68P	45.15	18.421	-0.432	1.549	-0.432	18.421
Arm	68X	18.75	7.652	0.000	4.381	4.161	7.652
Arm	68XY	8.87	3.617	-0.219	3.617	-0.219	0.329
Arm	68Y	43.32	1.627	-17.674	1.627	-0.573	-17.674
Br3	69P	19.22	1.412	-1.074	1.412	1.119	-1.074
Br3	69Y	34.12	3.289	0.000	1.684	0.453	3.289
Br3	70P	20.89	0.000	-1.167	-0.967	-1.167	-0.613
Br3	70X	6.08	0.586	-0.302	-0.302	0.586	-0.215
Br1	71P	7.18	3.767	0.000	3.767	1.217	1.400
Br1	71X	6.74	3.534	0.000	3.383	1.379	3.534
Arm	72P	10.40	2.512	-5.331	-5.331	1.554	2.512
Arm	72Y	19.88	0.000	-10.194	-5.134	-5.538	-10.194
Arm	73P	46.56	18.995	-6.456	-6.456	1.194	18.995
Arm	73X	15.84	5.976	-6.463	-2.923	5.976	-6.463
Arm	73XY	8.32	0.795	-3.396	-2.769	-3.396	0.795
Arm	73Y	59.14	0.000	-24.128	-6.708	-10.270	-24.128
Br3	74P	33.06	0.000	-1.846	-1.565	-1.846	-1.808
Br3	74X	14.03	1.352	-0.043	-0.043	1.352	0.069
Br1	75P	6.38	3.346	0.000	3.346	0.165	3.113
Br1	75X	8.02	4.204	0.000	4.204	2.462	4.199
Arm	76P	18.65	1.993	-7.610	-7.610	1.993	-0.535
Arm	76X	25.06	6.579	-10.224	-4.240	6.579	-10.224
Arm	76XY	12.52	1.967	-5.106	-4.019	-5.106	1.967
Arm	76Y	36.35	0.000	-14.832	-7.748	-11.590	-14.832
Arm	77P	13.91	0.000	-7.131	-7.131	-6.640	-7.077
Arm	77Y	14.42	1.765	-7.394	-7.335	1.765	-7.394
Br3	78P	62.97	0.000	-3.517	-2.115	-3.517	-2.278
Br3	78X	34.53	3.328	0.000	1.338	3.328	1.264
Br1	79P	6.90	3.620	0.000	3.620	3.470	3.614
Br1	79X	5.28	0.450	-2.220	0.427	-2.220	0.450
Arm	80P	16.13	0.983	-6.580	-6.580	0.983	-1.487
Arm	80X	21.88	5.940	-8.929	-2.962	5.940	-8.929
Arm	80XY	8.14	3.233	-3.323	-2.735	-3.323	3.233
Arm	80Y	28.81	0.000	-11.753	-6.652	-10.144	-11.753
Arm	81P	9.36	3.057	-4.799	-4.799	3.057	-2.598
Arm	81Y	13.66	0.000	-7.004	-4.887	-6.283	-7.004
HBR1	82P	44.89	0.000	-7.784	-2.905	-7.784	-0.684
HBR1	82Y	31.99	0.000	-5.547	-2.837	-5.249	-5.547
HBR1	83P	10.37	3.263	-1.798	3.263	1.469	-1.798
HBR1	83X	24.28	0.000	-4.210	-0.920	-2.374	-4.210
HBR2R	84P	73.11	0.000	-19.858	-7.436	-19.858	-3.129
HBR2R	84Y	58.41	0.000	-15.866	-7.211	-15.866	-15.846
HBR2R	85P	28.18	4.489	-7.654	4.489	-2.306	-7.654
HBR2R	85X	41.02	0.000	-11.143	-2.001	-6.407	-11.143
HBR3	86P	55.77	0.000	-21.643	-7.869	-21.643	-2.391
HBR3	86Y	44.16	0.000	-17.138	-7.335	-17.138	-14.855
HBR3	87P	17.45	3.984	-6.773	3.984	-2.017	-6.773
HBR3	87X	25.45	0.000	-9.877	-1.662	-5.427	-9.877
HBR3	88P	75.07	0.000	-23.865	-8.613	-23.865	-2.555
HBR3	88Y	59.16	0.000	-18.807	-7.762	-18.807	-14.383
HBR3	89P	19.19	1.600	-6.101	1.600	-1.669	-6.101
HBR3	89X	28.13	0.000	-8.943	-1.843	-6.101	-8.943
HBR4	90P	40.33	0.000	-25.103	-8.852	-25.103	-3.527
HBR4	90Y	31.46	0.000	-19.580	-7.770	-19.580	-12.655
HBR4	91P	7.81	4.226	-4.860	4.226	-1.449	-4.860

HBR4	91X	16.57	0.000	-10.313	-2.910	-10.313	-5.638
HBR3	92P	3.33	0.000	-1.330	-0.602	-1.319	-1.330
HBR3	92X	1.80	0.276	-0.720	-0.720	0.276	-0.081
HBR3	92XY	2.96	0.077	-1.184	-0.708	0.077	-1.184
HBR3	92Y	2.08	0.000	-0.830	-0.566	-0.830	-0.000
HBR3	93P	2.64	0.597	-1.056	-0.119	0.597	-1.056
HBR3	93X	1.08	0.000	-0.432	-0.292	-0.432	-0.359
HBR3	93XY	0.72	0.000	-0.287	-0.268	-0.090	-0.287
HBR3	93Y	1.59	0.460	-0.636	-0.192	-0.636	0.460
ArmBR1	94P	38.09	0.000	-4.033	-4.033	-2.982	0.000
ArmBR1	94X	33.24	0.308	-3.520	-3.520	-0.434	0.308
ArmBR1	94XY	66.51	0.000	-7.042	-3.226	-1.308	-7.042
ArmBR1	94Y	25.81	1.208	-2.733	-2.733	1.208	-2.302
ArmBR2	95P	24.76	6.186	0.000	6.186	1.844	4.188
ArmBR2	95X	23.70	5.921	0.000	5.921	0.475	1.153
ArmBR2	95XY	43.75	10.931	0.000	6.196	3.711	10.931
ArmBR2	95Y	23.75	5.935	0.000	5.935	2.370	0.189
ArmBR2	96P	61.94	15.475	0.000	7.084	1.735	15.475
ArmBR2	96X	27.44	6.856	-0.463	6.856	0.575	-0.463
ArmBR2	96XY	58.11	14.519	0.000	7.206	4.262	14.519
ArmBR2	96Y	31.52	7.005	-1.371	7.005	3.155	-1.371
ArmBR2	97P	24.37	6.088	-0.426	6.088	2.635	-0.426
ArmBR2	97X	56.25	14.054	0.000	6.235	3.739	14.054
ArmBR2	97XY	35.00	5.870	-1.957	5.870	0.394	-1.957
ArmBR2	97Y	50.58	12.638	0.000	6.109	1.684	12.638

*** Analysis Results for Load Case No. 1 "NESC Heavy" - Number of iterations in SAPS 9

Equilibrium Joint Positions and Rotations for Load Case "NESC Heavy":

Joint Label	X-Displ (ft)	Y-Displ (ft)	Z-Displ (ft)	X-Rot (deg)	Y-Rot (deg)	Z-Rot (deg)	X-Pos (ft)	Y-Pos (ft)	Z-Pos (ft)
1P	-0.01304	0.3228	-0.003657	-0.1800	-0.0135	0.0023	3.612	-3.302	190
2P	-0.01269	0.3225	0.02038	-0.1651	-0.0137	0.0020	-0.01269	-11.68	190
3P	-0.01154	0.3038	-0.003663	-0.1758	-0.0170	0.0011	3.613	-3.321	184
4P	-0.0097	0.2855	-0.003581	-0.1852	-0.0135	-0.0001	3.615	-3.339	178
5P	-0.009373	0.2861	0.01098	-0.1160	-0.0118	0.0046	-0.009373	-9.714	178
6P	-0.008817	0.2649	-0.003557	-0.1640	-0.0148	-0.0022	3.616	-3.36	172
7P	-0.007245	0.2484	-0.00359	-0.1685	-0.0094	-0.0029	3.618	-3.377	166
8P	-0.006443	0.2491	0.01253	-0.0883	-0.0091	0.0067	-0.006443	-11.75	166
9P	-0.006738	0.2293	-0.003808	-0.1693	-0.0091	-0.0057	3.618	-3.396	160
10P	-0.005362	0.2139	-0.00416	-0.1428	-0.0077	-0.0084	3.62	-3.411	154
11P	-0.004673	0.2143	0.008012	-0.0998	-0.0063	0.0081	-0.004673	-9.786	154
12P	-0.005184	0.2004	-0.003278	-0.1441	-0.0028	-0.0087	4.093	-3.898	148.8
13P	-0.004482	0.1852	-0.002406	-0.1247	-0.0063	-0.0062	4.68	-4.499	142.3
14P	-0.003951	0.1692	-0.001678	-0.1162	-0.0038	-0.0052	5.363	-5.198	134.7
15P	-0.003317	0.1536	-0.001019	-0.1020	-0.0040	-0.0034	6.085	-5.934	126.7
16P	-0.002842	0.1401	-0.0006438	-0.0946	-0.0026	-0.0025	6.805	-6.668	118.7
17P	-0.002418	0.1273	-0.0003138	-0.0802	-0.0028	-0.0007	7.527	-7.402	110.7
18P	-0.001966	0.1172	-0.0002936	-0.0740	-0.0021	0.0002	8.248	-8.133	102.7
19P	-0.00153	0.09179	0.000342	-0.0866	-0.0009	-0.0014	9.75	-9.66	86
20P	-0.001099	0.06857	0.0007938	-0.0729	-0.0011	-0.0027	11.24	-11.17	69.5
21P	-0.0008493	0.04842	0.0009224	-0.0709	-0.0009	-0.0106	12.68	-12.63	53.5
22P	-0.0006544	0.02243	0.0009261	-0.0334	-0.0036	-0.0304	14.8	-14.78	30
23P	-8.5e-005	0.0718	-0.005272	-0.0466	0.0003	0.0031	-8.5e-005	-16.08	14.99
24P	-0.002052	0.01336	-0.007855	0.0144	-0.0031	0.0135	16.15	0.01336	14.99
25P	-0.0002394	0.01346	0.0002188	-0.0496	-0.0061	-0.0613	16.15	-16.14	15
26P	0	0	0	0.0000	0.0000	0.0000	17.5	-17.5	0
1X	-0.01345	0.323	-0.02567	-0.1776	-0.0152	0.0042	3.612	3.948	190
1XY	-0.01332	0.3226	-0.02742	-0.1778	-0.0139	0.0031	-3.638	3.948	190
1Y	-0.01302	0.3225	-0.005441	-0.1816	-0.0179	0.0041	-3.638	-3.302	190
2X	-0.01393	0.3233	-0.05509	-0.2030	-0.0141	0.0036	-0.01393	12.32	189.9
3X	-0.01194	0.3042	-0.02556	-0.1853	-0.0151	0.0066	3.613	3.929	184
3XY	-0.01184	0.3037	-0.02723	-0.1868	-0.0128	0.0022	-3.637	3.929	184
3Y	-0.01124	0.3032	-0.005384	-0.1775	-0.0134	0.0071	-3.636	-3.322	184
4X	-0.01033	0.285	-0.0251	-0.1698	-0.0143	0.0090	3.615	3.91	178
4XY	-0.01069	0.2844	-0.02659	-0.1700	-0.0102	0.0013	-3.636	3.909	178
4Y	-0.01009	0.2849	-0.005121	-0.1864	-0.0132	0.0102	-3.635	-3.34	178
5X	-0.01102	0.2842	-0.05027	-0.2392	-0.0119	0.0044	-0.01102	10.28	177.9
6X	-0.009332	0.2679	-0.02434	-0.1918	-0.0112	0.0128	3.616	3.893	172
6XY	-0.009319	0.2672	-0.02562	-0.1937	-0.0100	0.0001	-3.634	3.892	172
6Y	-0.008334	0.264	-0.004865	-0.1644	-0.0084	0.0149	-3.633	-3.361	172
7X	-0.008046	0.2477	-0.02364	-0.1739	-0.0122	0.0140	3.617	3.873	166
7XY	-0.008484	0.2469	-0.02477	-0.1745	-0.0067	-0.0003	-3.633	3.872	166
7Y	-0.007593	0.2476	-0.00475	-0.1692	-0.0112	0.0164	-3.633	-3.377	166
8X	-0.009202	0.2466	-0.05873	-0.2634	-0.0094	0.0063	-0.009202	12.25	165.9
9X	-0.007143	0.2314	-0.02275	-0.1628	-0.0051	0.0167	3.618	3.856	160
9XY	-0.007556	0.2305	-0.02374	-0.1637	-0.0115	-0.0019	-3.633	3.856	160
9Y	-0.006085	0.2283	-0.004819	-0.1701	-0.0090	0.0200	-3.631	-3.397	160
10X	-0.006531	0.2134	-0.02155	-0.1570	-0.0113	0.0194	3.618	3.838	154
10XY	-0.006575	0.2124	-0.02236	-0.1580	-0.0014	-0.0036	-3.632	3.837	154
10Y	-0.005739	0.2129	-0.004981	-0.1434	-0.0062	0.0236	-3.631	-3.412	154

11X	-0.007422	0.2125	-0.04553	-0.2328	-0.0069	0.0079	-0.007422	10.21	154
12X	-0.005607	0.2007	-0.02169	-0.1346	-0.0110	0.0201	4.092	4.299	148.8
12XY	-0.006632	0.1995	-0.02248	-0.1351	0.0013	-0.0039	-4.105	4.298	148.8
12Y	-0.004669	0.1991	-0.00407	-0.1463	-0.0081	0.0243	-4.103	-3.899	148.8
13X	-0.005094	0.1855	-0.0217	-0.1315	-0.0059	0.0192	4.679	4.87	142.3
13XY	-0.006277	0.184	-0.02244	-0.1326	-0.0023	-0.0025	-4.69	4.868	142.3
13Y	-0.004065	0.1836	-0.003122	-0.1262	-0.0028	0.0222	-4.688	-4.5	142.3
14X	-0.004628	0.1692	-0.02143	-0.1152	-0.0054	0.0188	5.362	5.536	134.7
14XY	-0.005962	0.1674	-0.02212	-0.1162	-0.0008	-0.0015	-5.373	5.534	134.7
14Y	-0.003306	0.1672	-0.00232	-0.1174	-0.0034	0.0217	-5.37	-5.2	134.7
15X	-0.004403	0.154	-0.02101	-0.1059	-0.0039	0.0179	6.084	6.242	126.7
15XY	-0.005641	0.1518	-0.0216	-0.1067	-0.0008	-0.0001	-6.094	6.24	126.7
15Y	-0.002811	0.1513	-0.001582	-0.1027	-0.0018	0.0205	-6.091	-5.937	126.7
16X	-0.004268	0.14	-0.02035	-0.0924	-0.0030	0.0174	6.804	6.948	118.7
16XY	-0.005424	0.1374	-0.02085	-0.0925	-0.0003	0.0009	-6.813	6.945	118.7
16Y	-0.002312	0.1375	-0.001145	-0.0949	-0.0021	0.0201	-6.81	-6.67	118.7
17X	-0.004273	0.1281	-0.01953	-0.0830	-0.0028	0.0165	7.525	7.657	110.7
17XY	-0.005246	0.1254	-0.01992	-0.0829	0.0006	0.0022	-7.534	7.654	110.7
17Y	-0.001907	0.1244	-0.0007451	-0.0803	-0.0010	0.0189	-7.531	-7.405	110.7
18X	-0.0042	0.1162	-0.01862	-0.0883	-0.0028	0.0143	8.246	8.366	102.7
18XY	-0.005299	0.1132	-0.0189	-0.0888	0.0015	0.0049	-8.255	8.363	102.7
18Y	-0.001656	0.1141	-0.0006515	-0.0741	-0.0006	0.0186	-8.252	-8.136	102.7
19X	-0.004274	0.09003	-0.0168	-0.0856	-0.0022	0.0120	9.748	9.842	85.98
19XY	-0.00533	0.08641	-0.01687	-0.0851	0.0006	0.0071	-9.757	9.838	85.98
19Y	-0.001059	0.08811	0.0001497	-0.0866	-0.0003	0.0205	-9.753	-9.664	86
20X	-0.004566	0.06676	-0.01469	-0.0745	0.0013	0.0118	11.24	11.31	69.49
20XY	-0.00548	0.06309	-0.01453	-0.0721	0.0027	0.0065	-11.25	11.3	69.49
20Y	-0.0007172	0.06478	0.0007017	-0.0708	0.0004	0.0208	-11.24	-11.18	69.5
21X	-0.005084	0.04618	-0.01218	-0.0741	-0.0087	0.0096	12.67	12.73	53.49
21XY	-0.005498	0.04303	-0.01176	-0.0697	-0.0047	0.0039	-12.69	12.72	53.49
21Y	-0.0003724	0.04504	0.0008829	-0.0669	0.0004	0.0254	-12.68	-12.63	53.5
22X	0.0003369	0.0201	-0.007326	-0.0309	-0.0076	0.0091	14.8	14.82	29.99
22XY	-0.0007748	0.01837	-0.007533	-0.0293	-0.0061	-0.0043	-14.8	14.82	29.99
22Y	0.0001113	0.02042	0.0008915	-0.0311	0.0027	0.0365	-14.8	-14.78	30
23X	-7.749e-005	0.004225	-0.004677	-0.0444	-0.0009	0.0031	-7.749e-005	16.15	15
24Y	0.00196	0.01195	-0.00741	0.0114	0.0036	-0.0149	-16.15	0.01195	14.99
25X	-9.96e-005	0.01324	-0.003438	-0.0468	-0.0002	0.0057	16.15	16.16	15
25XY	-4.395e-005	0.01183	-0.003592	-0.0420	0.0020	-0.0029	-16.15	16.16	15
25Y	7.062e-005	0.01204	0.0002343	-0.0442	0.0053	0.0639	-16.15	-16.14	15
26X	0	0	0	0.0000	0.0000	0.0000	17.5	17.5	0
26XY	0	0	0	0.0000	0.0000	0.0000	-17.5	17.5	0
26Y	0	0	0	0.0000	0.0000	0.0000	-17.5	-17.5	0

Joint Support Reactions for Load Case "NESC Heavy":

Joint Label	X Force (kips)	X Usage %	Y Force (kips)	Y Usage %	H-Shear Usage %	Z Force (kips)	Comp. Usage %	Uplift Usage %	Result. Force (kips)	Result. Usage %	X Moment (ft-k)	X-M. Usage %	Y Moment (ft-k)	Y-M. Usage %	H-Bend-M Usage %	Z Moment (ft-k)	Z-M. Usage %	Max. Usage %
26P	5.94	0.0	-12.97	0.0	0.0	48.92	0.0	0.0	50.96	0.0	3.92	0.0	0.1	0.0	0.0	1.26	0.0	0.0
26X	-17.04	0.0	-12.47	0.0	0.0	-136.06	0.0	0.0	137.69	0.0	4.14	0.0	0.2	0.0	0.0	0.24	0.0	0.0
26XY	17.36	0.0	-12.55	0.0	0.0	-137.39	0.0	0.0	139.06	0.0	3.66	0.0	-0.1	0.0	0.0	-0.23	0.0	0.0
26Y	-5.29	0.0	-11.28	0.0	0.0	44.00	0.0	0.0	45.73	0.0	3.47	0.0	-0.1	0.0	0.0	-1.27	0.0	0.0

Joint Displacements, Loads and Member Forces on Joints for Load Case "NESC Heavy":

Joint Label	X External Load	Y External Load	Z External Load	X Member Force	Y Member Force	Z Member Force	X Disp.	Y Disp.	Z Disp.

	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)	(ft)	(ft)	(ft)
1P	0.0000	0.1705	-0.5234	-0.0000	-0.1705	0.5234	-0.0130	0.3228	-0.0037
2P	-0.4000	2.2614	-3.7424	0.4000	-2.2614	3.7424	-0.0127	0.3225	0.0204
3P	0.0000	0.2343	-0.3321	-0.0000	-0.2343	0.3321	-0.0115	0.3038	-0.0037
4P	0.0000	0.3232	-0.8693	0.0000	-0.3232	0.8693	-0.0097	0.2855	-0.0036
5P	-0.0272	3.2711	-7.8052	0.0272	-3.2711	7.8052	-0.0094	0.2861	0.0110
6P	0.0000	0.2348	-0.3575	-0.0000	-0.2348	0.3575	-0.0088	0.2649	-0.0036
7P	0.0000	0.3615	-1.0225	0.0000	-0.3614	1.0225	-0.0072	0.2484	-0.0036
8P	-0.0272	3.2711	-7.8364	0.0272	-3.2711	7.8364	-0.0064	0.2491	0.0125
9P	0.0000	0.2508	-0.4505	-0.0000	-0.2508	0.4505	-0.0067	0.2293	-0.0038
10P	0.0000	0.3697	-1.1064	0.0000	-0.3697	1.1064	-0.0054	0.2139	-0.0042
11P	-0.0272	3.2711	-7.8052	0.0272	-3.2711	7.8052	-0.0047	0.2143	0.0080
12P	0.0000	0.2063	-0.4887	-0.0000	-0.2062	0.4887	-0.0052	0.2004	-0.0033
13P	0.0000	0.4225	-1.1519	-0.0000	-0.4225	1.1519	-0.0045	0.1852	-0.0024
14P	0.0000	0.7681	-2.3207	-0.0000	-0.7681	2.3207	-0.0040	0.1692	-0.0017
15P	0.0000	0.4884	-1.3240	-0.0000	-0.4884	1.3240	-0.0033	0.1536	-0.0010
16P	0.0000	0.5938	-1.8495	-0.0000	-0.5938	1.8495	-0.0028	0.1401	-0.0006
17P	0.0000	0.3665	-0.8286	-0.0000	-0.3665	0.8286	-0.0024	0.1273	-0.0003
18P	0.0000	0.9749	-3.1482	0.0000	-0.9749	3.1482	-0.0020	0.1172	-0.0003
19P	0.0000	1.0954	-3.5737	-0.0000	-1.0954	3.5737	-0.0015	0.0918	0.0003
20P	0.0000	1.0899	-3.7709	-0.0000	-1.0899	3.7709	-0.0011	0.0686	0.0008
21P	0.0000	1.3068	-4.7981	-0.0000	-1.3068	4.7981	-0.0008	0.0484	0.0009
22P	0.0000	1.2950	-5.0453	-0.0000	-1.2950	5.0453	-0.0007	0.0224	0.0009
23P	0.0000	0.4449	-0.7730	-0.0000	-0.4449	0.7730	-0.0001	0.0718	-0.0053
24P	0.0000	0.0000	-0.7730	-0.0000	0.0000	0.7730	-0.0021	0.0134	-0.0079
25P	0.0000	0.6927	-2.7934	-0.0000	-0.6927	2.7934	-0.0002	0.0135	0.0002
26P	0.0000	0.2375	-0.9001	-5.9350	12.7342	49.8203	0.0000	0.0000	0.0000
1X	0.0000	0.0670	-0.5234	-0.0000	-0.0670	0.5234	-0.0135	0.3230	-0.0257
1XY	-0.0960	0.3190	-1.7254	0.0960	-0.3190	1.7254	-0.0133	0.3226	-0.0274
1Y	-0.6900	1.7185	-1.6824	0.6900	-1.7185	1.6824	-0.0130	0.3225	-0.0054
2X	-0.4000	2.1570	-3.7424	0.4000	-2.1570	3.7424	-0.0139	0.3233	-0.0551
3X	0.0000	0.0000	-0.3321	-0.0000	0.0000	0.3321	-0.0119	0.3042	-0.0256
3XY	0.2470	0.2380	-1.5181	-0.2470	-0.2380	1.5181	-0.0118	0.3037	-0.0272
3Y	0.5390	-0.7317	-1.5331	-0.5390	0.7317	1.5331	-0.0112	0.3032	-0.0054
4X	0.0000	0.1340	-0.8693	0.0000	-0.1340	0.8693	-0.0103	0.2850	-0.0251
4XY	0.0000	0.0000	-0.4163	0.0000	0.0000	0.4163	-0.0107	0.2844	-0.0266
4Y	0.0000	0.4472	-1.4513	0.0000	-0.4472	1.4513	-0.0101	0.2849	-0.0051
5X	-0.0272	3.1760	-7.8052	0.0272	-3.1760	7.8052	-0.0110	0.2842	-0.0503
6X	0.0000	0.0000	-0.3575	-0.0000	0.0000	0.3575	-0.0093	0.2679	-0.0243
6XY	0.0000	0.0000	-0.3575	-0.0000	0.0000	0.3575	-0.0093	0.2672	-0.0256
6Y	0.0000	0.2348	-0.3575	-0.0000	-0.2348	0.3575	-0.0083	0.2640	-0.0049
7X	0.0000	0.1340	-1.0225	0.0000	-0.1340	1.0225	-0.0080	0.2477	-0.0236
7XY	0.0000	0.0000	-0.5665	0.0000	0.0000	0.5665	-0.0085	0.2469	-0.0248
7Y	0.0000	0.2275	-0.5665	0.0000	-0.2274	0.5665	-0.0076	0.2476	-0.0048
8X	-0.0272	3.1760	-7.8364	0.0272	-3.1760	7.8364	-0.0092	0.2466	-0.0587
9X	0.0000	0.0000	-0.4505	-0.0000	0.0000	0.4505	-0.0071	0.2314	-0.0228
9XY	0.0000	0.0000	-0.4505	-0.0000	0.0000	0.4505	-0.0076	0.2305	-0.0237
9Y	0.0000	0.5018	-1.4575	-0.0000	-0.5018	1.4575	-0.0061	0.2283	-0.0048
10X	0.0000	0.1510	-1.1064	0.0000	-0.1510	1.1064	-0.0065	0.2134	-0.0215
10XY	0.0000	0.0000	-0.5924	0.0000	0.0000	0.5924	-0.0066	0.2124	-0.0224
10Y	0.0000	0.2187	-0.5924	0.0000	-0.2187	0.5924	-0.0057	0.2129	-0.0050
11X	-0.0272	3.1760	-7.8052	0.0272	-3.1760	7.8052	-0.0074	0.2125	-0.0455
12X	0.0000	0.0000	-0.4887	-0.0000	0.0000	0.4887	-0.0056	0.2007	-0.0217
12XY	0.0000	0.0000	-0.4887	-0.0000	0.0000	0.4887	-0.0066	0.1995	-0.0225
12Y	0.0000	0.4223	-1.3577	-0.0000	-0.4222	1.3577	-0.0047	0.1991	-0.0041
13X	0.0000	0.1690	-1.1519	-0.0000	-0.1690	1.1519	-0.0051	0.1855	-0.0217
13XY	0.0000	0.0000	-0.5779	-0.0000	0.0000	0.5779	-0.0063	0.1840	-0.0224
13Y	0.0000	0.2535	-0.5779	-0.0000	-0.2535	0.5779	-0.0041	0.1836	-0.0031

14X	0.0000	0.0000	-0.6577	-0.0000	0.0000	0.6577	-0.0046	0.1692	-0.0214
14XY	0.0000	0.2190	-1.2857	-0.0000	-0.2190	1.2857	-0.0060	0.1674	-0.0221
14Y	0.0000	0.7681	-2.3207	-0.0000	-0.7681	2.3207	-0.0033	0.1672	-0.0023
15X	0.0000	0.1810	-1.3240	-0.0000	-0.1810	1.3240	-0.0044	0.1540	-0.0210
15XY	0.0000	0.0000	-0.7070	-0.0000	0.0000	0.7070	-0.0056	0.1518	-0.0216
15Y	0.0000	0.3074	-0.7070	-0.0000	-0.3074	0.7070	-0.0028	0.1513	-0.0016
16X	0.0000	0.0000	-0.7455	-0.0000	0.0000	0.7455	-0.0043	0.1400	-0.0204
16XY	0.0000	0.0000	-0.7455	-0.0000	0.0000	0.7455	-0.0054	0.1374	-0.0209
16Y	0.0000	0.5938	-1.8495	-0.0000	-0.5938	1.8495	-0.0023	0.1375	-0.0011
17X	0.0000	0.0000	-0.7846	-0.0000	0.0000	0.7846	-0.0043	0.1281	-0.0195
17XY	0.0000	0.0000	-0.7846	-0.0000	0.0000	0.7846	-0.0052	0.1254	-0.0199
17Y	0.0000	0.3305	-0.7846	-0.0000	-0.3305	0.7846	-0.0019	0.1244	-0.0007
18X	0.0000	0.1880	-2.0202	0.0000	-0.1880	2.0202	-0.0042	0.1162	-0.0186
18XY	0.0000	0.0000	-1.3812	0.0000	0.0000	1.3812	-0.0053	0.1132	-0.0189
18Y	0.0000	0.7869	-2.5092	0.0000	-0.7869	2.5092	-0.0017	0.1141	-0.0007
19X	0.0000	0.1800	-2.4287	-0.0000	-0.1800	2.4287	-0.0043	0.0900	-0.0168
19XY	0.0000	0.0000	-1.8187	-0.0000	0.0000	1.8187	-0.0053	0.0864	-0.0169
19Y	0.0000	0.9154	-2.9637	-0.0000	-0.9154	2.9637	-0.0011	0.0881	0.0001
20X	0.0000	0.1730	-2.6499	-0.0000	-0.1730	2.6499	-0.0046	0.0668	-0.0147
20XY	0.0000	0.0000	-2.0619	-0.0000	0.0000	2.0619	-0.0055	0.0631	-0.0145
20Y	0.0000	0.9169	-3.1829	-0.0000	-0.9169	3.1829	-0.0007	0.0648	0.0007
21X	0.0000	0.2070	-3.4261	-0.0000	-0.2070	3.4261	-0.0051	0.0462	-0.0122
21XY	0.0000	0.0000	-2.7221	-0.0000	0.0000	2.7221	-0.0055	0.0430	-0.0118
21Y	0.0000	1.0968	-4.0841	-0.0000	-1.0968	4.0841	-0.0004	0.0450	0.0009
22X	0.0000	0.2030	-3.7173	-0.0000	-0.2030	3.7173	0.0003	0.0201	-0.0073
22XY	0.0000	0.0000	-3.0253	-0.0000	0.0000	3.0253	-0.0008	0.0184	-0.0075
22Y	0.0000	1.0920	-4.3533	-0.0000	-1.0920	4.3533	0.0001	0.0204	0.0009
23X	0.0000	0.0000	-0.7730	-0.0000	0.0000	0.7730	-0.0001	0.0042	-0.0047
24Y	0.0000	0.0000	-0.7730	-0.0000	0.0000	0.7730	0.0020	0.0119	-0.0074
25X	0.0000	0.0810	-1.9314	0.0000	-0.0810	1.9314	-0.0001	0.0132	-0.0034
25XY	0.0000	0.0000	-1.6534	0.0000	0.0000	1.6534	-0.0000	0.0118	-0.0036
25Y	0.0000	0.6117	-2.5154	-0.0000	-0.6117	2.5154	0.0001	0.0120	0.0002
26X	0.0000	0.0000	-0.9001	17.0426	12.4745	-135.1627	0.0000	0.0000	0.0000
26XY	0.0000	0.0000	-0.9001	-17.3648	12.5547	-136.4948	0.0000	0.0000	0.0000
26Y	0.0000	0.2375	-0.9001	5.2942	11.0420	44.8995	0.0000	0.0000	0.0000

Crossing Diagonal Check for Load Case "NESC Heavy" (RLOUT controls):

Comp. Member Label	Tens. Member Label	Connect Leg for Comp. Member	Force In Comp. Member (kips)	Force In Tens. Member (kips)	Original Supported L/R Cap. (kips)	Original Supported RLX	Original Supported RLY	Original Supported RLZ	Original Supported L/R	Original Supported KL/R	Original Supported Curve No.	Alternate Unsupported L/R Cap. (kips)	Alternate Unsupported RLOUT	Alternate Unsupported L/R	Alternate Unsupported KL/R	Alternate Unsupported Curve No.
23P	23Y	Long only	-0.74	-0.34	16.02	0.500	0.750	0.500	143.07	137.62	5	11.35	1.000	190.76	163.52	6
23X	23XY	Long only	-0.86	0.10	16.02	0.500	0.750	0.500	143.07	137.62	5	11.35	1.000	190.76	163.52	6
23Y	23P	Long only	-0.34	-0.74	16.02	0.500	0.750	0.500	143.07	137.62	5	11.35	1.000	190.76	163.52	6
25P	25Y	Long only	-0.93	-0.58	16.02	0.500	0.750	0.500	143.07	137.62	5	11.35	1.000	190.76	163.52	6
25Y	25P	Long only	-0.58	-0.93	16.02	0.500	0.750	0.500	143.07	137.62	5	11.35	1.000	190.76	163.52	6
27P	27Y	Long only	-1.74	-1.50	26.93	0.500	0.750	0.500	112.48	114.36	2	19.57	1.000	149.97	138.43	6
27X	27XY	Long only	-0.84	0.03	26.93	0.500	0.750	0.500	112.48	114.36	2	19.57	1.000	149.97	138.43	6
27Y	27P	Long only	-1.50	-1.74	26.93	0.500	0.750	0.500	112.48	114.36	2	19.57	1.000	149.97	138.43	6
29P	29Y	Long only	-1.44	-1.06	26.93	0.500	0.750	0.500	112.48	114.36	2	19.57	1.000	149.97	138.43	6
29Y	29P	Long only	-1.06	-1.44	26.93	0.500	0.750	0.500	112.48	114.36	2	19.57	1.000	149.97	138.43	6
31P	31Y	Long only	-1.65	-1.33	41.16	0.750	0.500	0.500	95.87	101.90	2	33.73	1.000	122.48	121.53	6
31Y	31P	Long only	-1.33	-1.65	41.16	0.750	0.500	0.500	95.87	101.90	2	33.73	1.000	122.48	121.53	6
33P	33Y	Long only	-3.67	-3.23	41.16	0.750	0.500	0.500	95.87	101.90	2	33.73	1.000	122.48	121.53	6
33Y	33P	Long only	-3.23	-3.67	41.16	0.750	0.500	0.500	95.87	101.90	2	33.73	1.000	122.48	121.53	6
35P	35Y	Short only	-0.46	-0.79	32.90	0.767	0.535	0.535	114.00	115.50	2	31.38	1.000	119.39	119.70	3

35Y	35P	Short only	-0.79	-0.46	32.90	0.767	0.535	0.535	114.00	115.50	2	31.38	1.000	119.39	119.70	3
37X	37XY	Short only	-0.33	-0.36	27.12	0.768	0.536	0.536	134.05	130.75	5	26.46	1.000	140.13	132.38	6
37XY	37X	Short only	-0.36	-0.33	27.12	0.768	0.536	0.536	134.05	130.75	5	26.46	1.000	140.13	132.38	6
39P	39Y	Short only	-0.08	-0.32	27.28	0.771	0.542	0.542	130.07	127.72	5	26.36	1.000	136.43	130.10	6
39Y	39P	Short only	-0.32	-0.08	27.28	0.771	0.542	0.542	130.07	127.72	5	26.36	1.000	136.43	130.10	6
41X	41XY	Short only	-0.18	-0.15	23.91	0.766	0.533	0.533	141.81	136.66	5	23.04	1.000	151.25	139.22	6
41XY	41X	Short only	-0.15	-0.18	23.91	0.766	0.533	0.533	141.81	136.66	5	23.04	1.000	151.25	139.22	6
43Y	43P	Short only	-0.16	0.02	21.41	0.763	0.526	0.526	151.98	144.41	5	20.60	1.000	164.25	147.21	6
45X	45XY	Short only	-0.20	-0.12	18.92	0.763	0.525	0.525	164.08	153.63	5	18.47	1.000	177.66	155.46	6
45XY	45X	Short only	-0.12	-0.20	18.92	0.763	0.525	0.525	164.08	153.63	5	18.47	1.000	177.66	155.46	6

Summary of Clamp Capacities and Usages for Load Case "NESC Heavy":

Clamp Label	Force (kips)	Input Holding Capacity (kips)	Factored Holding Capacity (kips)	Usage %
1	4.391	50.00	50.00	8.78
2	4.338	50.00	50.00	8.68
3	8.463	50.00	50.00	16.93
4	8.427	50.00	50.00	16.85
5	8.492	50.00	50.00	16.98
6	8.456	50.00	50.00	16.91
7	8.463	50.00	50.00	16.93
8	8.427	50.00	50.00	16.85
9	2.502	50.00	50.00	5.00
10	1.519	50.00	50.00	3.04
11	1.541	50.00	50.00	3.08
12	1.422	50.00	50.00	2.84
13	2.444	50.00	50.00	4.89
14	1.942	50.00	50.00	3.88
15	2.630	50.00	50.00	5.26
16	3.102	50.00	50.00	6.20
17	3.312	50.00	50.00	6.62
18	4.229	50.00	50.00	8.46
19	4.488	50.00	50.00	8.98
20	2.589	50.00	50.00	5.18
21	2.444	50.00	50.00	4.89
22	1.942	50.00	50.00	3.88
23	3.296	50.00	50.00	6.59
24	3.738	50.00	50.00	7.48
25	3.925	50.00	50.00	7.85
26	4.973	50.00	50.00	9.95
27	5.209	50.00	50.00	10.42
28	2.878	50.00	50.00	5.76
29	1.304	50.00	50.00	2.61
30	0.551	50.00	50.00	1.10
31	0.406	50.00	50.00	0.81
32	1.782	50.00	50.00	3.56
33	0.906	50.00	50.00	1.81
34	1.757	50.00	50.00	3.51
35	1.556	50.00	50.00	3.11
37	0.528	50.00	50.00	1.06
38	0.927	50.00	50.00	1.85
39	0.880	50.00	50.00	1.76
40	1.085	50.00	50.00	2.17

41	1.031	50.00	50.00	2.06
42	1.167	50.00	50.00	2.33
43	1.117	50.00	50.00	2.23
44	1.227	50.00	50.00	2.45
45	1.164	50.00	50.00	2.33
46	1.411	50.00	50.00	2.82
47	1.336	50.00	50.00	2.67
49	2.029	50.00	50.00	4.06
51	2.435	50.00	50.00	4.87
53	2.656	50.00	50.00	5.31
55	3.432	50.00	50.00	6.86
57	3.723	50.00	50.00	7.45
59	1.933	50.00	50.00	3.87

*** Analysis Results for Load Case No. 2 "NESC Extreme" - Number of iterations in SAPS 9

Equilibrium Joint Positions and Rotations for Load Case "NESC Extreme":

Joint Label	X-Displ (ft)	Y-Displ (ft)	Z-Displ (ft)	X-Rot (deg)	Y-Rot (deg)	Z-Rot (deg)	X-Pos (ft)	Y-Pos (ft)	Z-Pos (ft)
1P	-0.3525	0.7227	0.02466	-0.3793	-0.2013	0.0023	3.273	-2.902	190
2P	-0.3528	0.723	0.06824	-0.3846	-0.1979	-0.0021	-0.3528	-11.28	190.1
3P	-0.3312	0.6826	0.0247	-0.3803	-0.2070	0.0045	3.294	-2.942	184
4P	-0.3093	0.6433	0.02446	-0.3727	-0.2091	0.0067	3.316	-2.982	178
5P	-0.3097	0.6435	0.0524	-0.3566	-0.1962	-0.0037	-0.3097	-9.357	178.1
6P	-0.2873	0.6037	0.02372	-0.3702	-0.2155	0.0127	3.338	-3.021	172
7P	-0.265	0.5658	0.02296	-0.3524	-0.2050	0.0145	3.36	-3.059	166
8P	-0.2647	0.5655	0.06172	-0.3402	-0.1881	-0.0017	-0.2647	-11.43	166.1
9P	-0.244	0.5292	0.02158	-0.3478	-0.2053	0.0172	3.381	-3.096	160
10P	-0.2228	0.4941	0.01954	-0.3095	-0.1835	0.0198	3.402	-3.131	154
11P	-0.2214	0.4932	0.04506	-0.3277	-0.1638	0.0121	-0.2214	-9.507	154
12P	-0.2069	0.4674	0.02166	-0.2871	-0.1669	0.0208	3.891	-3.631	148.8
13P	-0.1875	0.4354	0.02371	-0.2697	-0.1626	0.0228	4.497	-4.249	142.3
14P	-0.1666	0.4014	0.0252	-0.2499	-0.1450	0.0238	5.2	-4.966	134.7
15P	-0.1465	0.3675	0.02637	-0.2272	-0.1335	0.0256	5.942	-5.72	126.7
16P	-0.1281	0.3376	0.02665	-0.2118	-0.1183	0.0264	6.68	-6.47	118.7
17P	-0.1118	0.3088	0.02666	-0.1864	-0.1083	0.0285	7.417	-7.22	110.7
18P	-0.09628	0.2848	0.02588	-0.1766	-0.1005	0.0295	8.154	-7.965	102.7
19P	-0.06849	0.226	0.02508	-0.2015	-0.0813	0.0226	9.684	-9.526	86.03
20P	-0.04572	0.1709	0.02313	-0.1799	-0.0661	0.0156	11.19	-11.07	69.52
21P	-0.02865	0.1203	0.01978	-0.1768	-0.0479	-0.0024	12.65	-12.56	53.52
22P	-0.01151	0.05569	0.01318	-0.0937	-0.0393	-0.0387	14.79	-14.74	30.01
23P	-0.002033	0.1425	-0.007075	-0.1212	-0.0092	-0.0106	-0.002033	-16.01	14.99
24P	-0.01741	0.03076	-0.01162	0.0274	-0.0352	0.0913	16.13	0.03076	14.99
25P	-0.002495	0.031	0.006572	-0.1218	-0.0281	-0.1056	16.15	-16.12	15.01
26P	0	0	0	0.0000	0.0000	0.0000	17.5	-17.5	0
1X	-0.3528	0.7227	-0.02191	-0.3770	-0.2024	0.0070	3.272	4.348	190
1XY	-0.3526	0.7225	-0.04724	-0.3815	-0.1977	0.0073	-3.978	4.347	190
1Y	-0.3526	0.7227	-0.0005979	-0.3851	-0.2087	0.0025	-3.978	-2.902	190
2X	-0.3533	0.7227	-0.09149	-0.3928	-0.2028	0.0040	-0.3533	12.72	189.9
3X	-0.3317	0.6828	-0.0216	-0.3807	-0.1999	0.0117	3.293	4.308	184
3XY	-0.3319	0.6818	-0.0468	-0.3912	-0.2003	0.0117	-3.957	4.307	184
3Y	-0.3308	0.6818	-0.0005695	-0.3847	-0.2047	0.0067	-3.956	-2.943	184
4X	-0.3106	0.6433	-0.02094	-0.3717	-0.2076	0.0164	3.314	4.268	178
4XY	-0.3107	0.6415	-0.04599	-0.3715	-0.2033	0.0163	-3.936	4.267	178
4Y	-0.3094	0.6422	-0.000618	-0.3807	-0.2115	0.0110	-3.934	-2.983	178
5X	-0.313	0.6424	-0.07725	-0.4013	-0.1983	0.0219	-0.313	10.64	177.9
6X	-0.2888	0.6044	-0.02005	-0.3714	-0.2048	0.0213	3.336	4.229	172
6XY	-0.2892	0.6026	-0.04457	-0.3856	-0.2089	0.0213	-3.914	4.228	172
6Y	-0.2867	0.6012	-0.0007866	-0.3670	-0.2092	0.0203	-3.912	-3.024	172
7X	-0.2673	0.5658	-0.01928	-0.3617	-0.2077	0.0229	3.358	4.191	166
7XY	-0.2676	0.5628	-0.0432	-0.3589	-0.2002	0.0229	-3.893	4.188	166
7Y	-0.265	0.5636	-0.0009304	-0.3630	-0.2113	0.0232	-3.89	-3.061	166
8X	-0.2726	0.5642	-0.0882	-0.4017	-0.1905	0.0398	-0.2726	12.56	165.9
9X	-0.2458	0.5288	-0.01839	-0.3431	-0.1952	0.0229	3.379	4.154	160
9XY	-0.2468	0.5267	-0.04126	-0.3499	-0.2029	0.0236	-3.872	4.152	160
9Y	-0.2429	0.525	-0.001196	-0.3500	-0.2002	0.0292	-3.868	-3.1	160
10X	-0.2262	0.4943	-0.01733	-0.3166	-0.1909	0.0230	3.399	4.119	154
10XY	-0.2259	0.4902	-0.0386	-0.3224	-0.1812	0.0241	-3.851	4.115	154
10Y	-0.2231	0.4909	-0.001595	-0.3175	-0.1898	0.0352	-3.848	-3.134	154

11X	-0.2304	0.4923	-0.06786	-0.3726	-0.1703	0.0456	-0.2304	10.49	153.9
12X	-0.209	0.4665	-0.01748	-0.2955	-0.1844	0.0238	3.889	4.564	148.8
12XY	-0.2105	0.4624	-0.04032	-0.2929	-0.1659	0.0247	-4.309	4.56	148.8
12Y	-0.2055	0.4616	-0.0008641	-0.3122	-0.1835	0.0369	-4.304	-3.636	148.8
13X	-0.19	0.4347	-0.01759	-0.2738	-0.1613	0.0257	4.494	5.119	142.3
13XY	-0.1917	0.429	-0.04175	-0.2831	-0.1607	0.0267	-4.876	5.113	142.3
13Y	-0.186	0.4278	-0.0001157	-0.2783	-0.1621	0.0353	-4.87	-4.256	142.3
14X	-0.1698	0.3998	-0.01766	-0.2501	-0.1471	0.0266	5.197	5.767	134.7
14XY	-0.1718	0.3926	-0.04251	-0.2529	-0.1406	0.0285	-5.539	5.76	134.7
14Y	-0.1648	0.3919	0.0004273	-0.2600	-0.1498	0.0366	-5.532	-4.975	134.7
15X	-0.151	0.367	-0.01761	-0.2310	-0.1266	0.0277	5.937	6.455	126.7
15XY	-0.1531	0.3582	-0.04264	-0.2351	-0.1274	0.0308	-6.241	6.446	126.7
15Y	-0.1447	0.3565	0.0009099	-0.2299	-0.1331	0.0362	-6.233	-5.732	126.7
16X	-0.1348	0.3359	-0.01751	-0.2087	-0.1151	0.0284	6.673	7.144	118.7
16XY	-0.1364	0.3259	-0.04199	-0.2047	-0.1085	0.0325	-6.944	7.134	118.7
16Y	-0.1266	0.3259	0.0009655	-0.2142	-0.1224	0.0377	-6.935	-6.482	118.7
17X	-0.1202	0.309	-0.01714	-0.1892	-0.0954	0.0296	7.409	7.838	110.7
17XY	-0.1225	0.2987	-0.04066	-0.1849	-0.0952	0.0344	-7.651	7.828	110.7
17Y	-0.11	0.2963	0.00101	-0.1832	-0.1086	0.0374	-7.639	-7.233	110.7
18X	-0.1086	0.2821	-0.01694	-0.2021	-0.0878	0.0268	8.141	8.532	102.7
18XY	-0.109	0.2709	-0.03905	-0.1993	-0.0983	0.0379	-8.359	8.521	102.7
18Y	-0.09545	0.2728	0.0005387	-0.1690	-0.0982	0.0388	-8.345	-7.977	102.7
19X	-0.08093	0.2213	-0.01585	-0.2020	-0.0934	0.0183	9.671	9.973	85.98
19XY	-0.08038	0.2102	-0.0357	-0.1899	-0.0899	0.0395	-9.832	9.962	85.96
19Y	-0.06697	0.214	0.001038	-0.1952	-0.0855	0.0431	-9.819	-9.538	86
20X	-0.05832	0.1659	-0.01447	-0.1833	-0.0684	0.0100	11.18	11.41	69.49
20XY	-0.05785	0.1572	-0.03138	-0.1648	-0.0667	0.0397	-11.3	11.4	69.47
20Y	-0.04446	0.1612	0.001352	-0.1649	-0.0663	0.0400	-11.28	-11.08	69.5
21X	-0.0409	0.1141	-0.01275	-0.1850	-0.0637	-0.0115	12.64	12.79	53.49
21XY	-0.04046	0.1092	-0.02591	-0.1680	-0.0632	0.0471	-12.72	12.79	53.47
21Y	-0.02707	0.1141	0.001418	-0.1653	-0.0514	0.0451	-12.71	-12.57	53.5
22X	-0.01929	0.04908	-0.008941	-0.0760	-0.0147	-0.0502	14.78	14.85	29.99
22XY	-0.01891	0.04865	-0.01667	-0.0575	-0.0245	0.0708	-14.82	14.85	29.98
22Y	-0.008797	0.05381	0.001325	-0.0745	-0.0297	0.0623	-14.81	-14.75	30
23X	-0.01462	0.143	-0.00474	-0.1046	0.0168	-0.0087	-0.01462	16.29	15
24Y	2.896e-006	0.03344	-0.01939	0.0384	-0.0305	-0.0304	-16.15	0.03344	14.98
25X	-0.01491	0.03081	-0.004417	-0.1048	-0.0427	-0.1279	16.14	16.18	15
25XY	-0.01414	0.03344	-0.007136	-0.1040	-0.0534	0.1345	-16.16	16.18	14.99
25Y	-0.00165	0.03359	-0.0002193	-0.1232	-0.0074	0.1203	-16.15	-16.12	15
26X	0	0	0	0.0000	0.0000	0.0000	17.5	17.5	0
26XY	0	0	0	0.0000	0.0000	0.0000	-17.5	17.5	0
26Y	0	0	0	0.0000	0.0000	0.0000	-17.5	-17.5	0

Joint Support Reactions for Load Case "NESC Extreme":

Joint Label	X Force (kips)	X Usage %	Y Force (kips)	Y Usage %	H-Shear Usage %	Z Force (kips)	Comp. Uplift Usage %	Result. Usage %	Result. Force (kips)	X Moment (ft-k)	X-M. Usage %	Y Moment (ft-k)	Y-M. Usage %	H-Bend-M Usage %	Z Moment (ft-k)	Z-M. Usage %	Max. Usage %
26P	36.06	0.0	-55.38	0.0	0.0	302.77	0.0	0.0	309.90	0.0	8.64	0.0	0.2	0.0	0.0	2.31	0.0	0.0
26X	-14.31	0.0	-16.41	0.0	0.0	-165.41	0.0	0.0	166.84	0.0	9.25	0.0	4.8	0.0	0.0	3.10	0.0	0.0
26XY	29.18	0.0	-30.37	0.0	0.0	-323.12	0.0	0.0	325.85	0.0	10.36	0.0	4.7	0.0	0.0	-2.58	0.0	0.0
26Y	-12.85	0.0	-30.47	0.0	0.0	96.74	0.0	0.0	102.23	0.0	10.03	0.0	-0.1	0.0	0.0	-2.62	0.0	0.0

Joint Displacements, Loads and Member Forces on Joints for Load Case "NESC Extreme":

Joint Label	X External Load	Y External Load	Z External Load	X Member Force	Y Member Force	Z Member Force	X Disp.	Y Disp.	Z Disp.

	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)	(ft)	(ft)	(ft)
1P	0.0000	0.5266	-0.3278	-0.0000	-0.5266	0.3278	-0.3525	0.7227	0.0247
2P	-1.4450	2.2756	-0.9928	1.4450	-2.2756	0.9928	-0.3528	0.7230	0.0682
3P	0.0000	0.3466	-0.2318	-0.0000	-0.3466	0.2318	-0.3312	0.6826	0.0247
4P	0.0000	0.7056	-0.4238	-0.0000	-0.7056	0.4238	-0.3093	0.6433	0.0245
5P	-5.8660	5.0396	-2.7568	5.8660	-5.0396	2.7568	-0.3097	0.6435	0.0524
6P	0.0000	0.3466	-0.2318	-0.0000	-0.3466	0.2318	-0.2873	0.6037	0.0237
7P	0.0000	0.7056	-0.4248	-0.0000	-0.7056	0.4248	-0.2650	0.5658	0.0230
8P	-5.8660	5.0396	-2.7568	5.8660	-5.0396	2.7568	-0.2647	0.5655	0.0617
9P	0.0000	0.3466	-0.2318	-0.0000	-0.3466	0.2318	-0.2440	0.5292	0.0216
10P	0.0000	1.4116	-1.0189	-0.0000	-1.4116	1.0189	-0.2228	0.4941	0.0195
11P	-5.8660	5.0396	-2.7568	5.8660	-5.0396	2.7568	-0.2214	0.4932	0.0451
12P	0.0000	0.6610	-0.5701	-0.0000	-0.6610	0.5701	-0.2069	0.4674	0.0217
13P	0.0000	1.1110	-0.8121	-0.0000	-1.1110	0.8121	-0.1875	0.4354	0.0237
14P	0.0000	2.3700	-1.1621	-0.0000	-2.3700	1.1621	-0.1666	0.4014	0.0252
15P	0.0000	1.1400	-0.8301	-0.0000	-1.1400	0.8301	-0.1465	0.3675	0.0264
16P	0.0000	1.6810	-0.8701	-0.0000	-1.6810	0.8701	-0.1281	0.3376	0.0267
17P	0.0000	0.7960	-0.5851	-0.0000	-0.7960	0.5851	-0.1118	0.3088	0.0267
18P	0.0000	2.2010	-1.1451	0.0000	-2.2010	1.1451	-0.0963	0.2848	0.0259
19P	0.0000	2.1970	-1.1381	-0.0000	-2.1970	1.1381	-0.0685	0.2260	0.0251
20P	0.0000	3.1673	-2.2294	-0.0000	-3.1673	2.2294	-0.0457	0.1709	0.0231
21P	0.0000	2.8253	-1.7783	-0.0000	-2.8253	1.7783	-0.0287	0.1203	0.0198
22P	0.0000	2.7753	-1.7583	-0.0000	-2.7753	1.7583	-0.0115	0.0557	0.0132
23P	0.0000	1.0123	-1.1073	-0.0000	-1.0123	1.1073	-0.0020	0.1425	-0.0071
24P	0.0000	1.0123	-1.1073	-0.0000	-1.0123	1.1073	-0.0174	0.0308	-0.0116
25P	0.0000	2.0233	-1.4583	-0.0000	-2.0233	1.4583	-0.0025	0.0310	0.0066
26P	0.0000	1.0123	-1.1073	-36.0625	54.3637	303.8791	0.0000	0.0000	0.0000
1X	0.0000	0.5266	-0.3278	-0.0000	-0.5266	0.3278	-0.3528	0.7227	-0.0219
1XY	1.2270	4.4476	-1.9658	-1.2270	-4.4476	1.9658	-0.3526	0.7225	-0.0472
1Y	-1.6350	5.4336	0.1452	1.6350	-5.4336	-0.1452	-0.3526	0.7227	-0.0006
2X	-1.4450	2.2756	-0.9928	1.4450	-2.2756	0.9928	-0.3533	0.7227	-0.0915
3X	0.0000	0.3466	-0.2318	-0.0000	-0.3466	0.2318	-0.3317	0.6828	-0.0216
3XY	-0.5130	-1.1324	-0.8128	0.5130	1.1324	0.8128	-0.3319	0.6818	-0.0468
3Y	0.9210	-1.7714	-0.8898	-0.9210	1.7714	0.8898	-0.3308	0.6818	-0.0006
4X	0.0000	0.7056	-0.4238	-0.0000	-0.7056	0.4238	-0.3106	0.6433	-0.0209
4XY	0.0000	0.3466	-0.2318	-0.0000	-0.3466	0.2318	-0.3107	0.6415	-0.0460
4Y	0.0000	1.3026	-0.5128	-0.0000	-1.3026	0.5128	-0.3094	0.6422	-0.0006
5X	-5.8660	5.0396	-2.7568	5.8660	-5.0396	2.7568	-0.3130	0.6424	-0.0772
6X	0.0000	0.3466	-0.2318	-0.0000	-0.3466	0.2318	-0.2888	0.6044	-0.0201
6XY	0.0000	0.3466	-0.2318	-0.0000	-0.3466	0.2318	-0.2892	0.6026	-0.0446
6Y	0.0000	0.3466	-0.2318	-0.0000	-0.3466	0.2318	-0.2867	0.6012	-0.0008
7X	0.0000	0.7056	-0.4248	-0.0000	-0.7056	0.4248	-0.2673	0.5658	-0.0193
7XY	0.0000	0.3466	-0.2318	-0.0000	-0.3466	0.2318	-0.2676	0.5628	-0.0432
7Y	0.0000	0.3466	-0.2318	-0.0000	-0.3466	0.2318	-0.2650	0.5636	-0.0009
8X	-5.8660	5.0396	-2.7568	5.8660	-5.0396	2.7568	-0.2726	0.5642	-0.0882
9X	0.0000	0.3466	-0.2318	-0.0000	-0.3466	0.2318	-0.2458	0.5288	-0.0184
9XY	0.0000	0.3466	-0.2318	-0.0000	-0.3466	0.2318	-0.2468	0.5267	-0.0413
9Y	0.0000	1.2766	-0.5048	-0.0000	-1.2766	0.5048	-0.2429	0.5250	-0.0012
10X	0.0000	1.4116	-1.0189	-0.0000	-1.4116	1.0189	-0.2262	0.4943	-0.0173
10XY	0.0000	1.0076	-0.8019	0.0000	-1.0076	0.8019	-0.2259	0.4902	-0.0386
10Y	0.0000	1.0076	-0.8019	0.0000	-1.0076	0.8019	-0.2231	0.4909	-0.0016
11X	-5.8660	5.0396	-2.7568	5.8660	-5.0396	2.7568	-0.2304	0.4923	-0.0679
12X	0.0000	0.6610	-0.5701	-0.0000	-0.6610	0.5701	-0.2090	0.4665	-0.0175
12XY	0.0000	0.6610	-0.5701	-0.0000	-0.6610	0.5701	-0.2105	0.4624	-0.0403
12Y	0.0000	1.4640	-0.8061	-0.0000	-1.4640	0.8061	-0.2055	0.4616	-0.0009
13X	0.0000	1.1110	-0.8121	-0.0000	-1.1110	0.8121	-0.1900	0.4347	-0.0176
13XY	0.0000	0.6610	-0.5701	-0.0000	-0.6610	0.5701	-0.1917	0.4290	-0.0418
13Y	0.0000	0.6610	-0.5701	-0.0000	-0.6610	0.5701	-0.1860	0.4278	-0.0001

14X	0.0000	0.6610	-0.5701	-0.0000	-0.6610	0.5701	-0.1698	0.3998	-0.0177
14XY	0.0000	1.4140	-0.8811	-0.0000	-1.4140	0.8811	-0.1718	0.3926	-0.0425
14Y	0.0000	2.3700	-1.1621	-0.0000	-2.3700	1.1621	-0.1648	0.3919	0.0004
15X	0.0000	1.1400	-0.8301	-0.0000	-1.1400	0.8301	-0.1510	0.3670	-0.0176
15XY	0.0000	0.6610	-0.5701	-0.0000	-0.6610	0.5701	-0.1531	0.3582	-0.0426
15Y	0.0000	0.6610	-0.5701	-0.0000	-0.6610	0.5701	-0.1447	0.3565	0.0009
16X	0.0000	0.6610	-0.5701	-0.0000	-0.6610	0.5701	-0.1348	0.3359	-0.0175
16XY	0.0000	0.6610	-0.5701	-0.0000	-0.6610	0.5701	-0.1364	0.3259	-0.0420
16Y	0.0000	1.6810	-0.8701	-0.0000	-1.6810	0.8701	-0.1266	0.3259	0.0010
17X	0.0000	0.6610	-0.5701	-0.0000	-0.6610	0.5701	-0.1202	0.3090	-0.0171
17XY	0.0000	0.6610	-0.5701	-0.0000	-0.6610	0.5701	-0.1225	0.2987	-0.0407
17Y	0.0000	0.6610	-0.5701	-0.0000	-0.6610	0.5701	-0.1100	0.2963	0.0010
18X	0.0000	1.1590	-0.8391	0.0000	-1.1590	0.8391	-0.1086	0.2821	-0.0169
18XY	0.0000	0.6610	-0.5701	-0.0000	-0.6610	0.5701	-0.1090	0.2709	-0.0391
18Y	0.0000	1.7030	-0.8761	-0.0000	-1.7030	0.8761	-0.0955	0.2728	0.0005
19X	0.0000	1.1390	-0.8271	-0.0000	-1.1390	0.8271	-0.0809	0.2213	-0.0158
19XY	0.0000	0.6610	-0.5701	-0.0000	-0.6610	0.5701	-0.0804	0.2102	-0.0357
19Y	0.0000	1.7190	-0.8811	-0.0000	-1.7190	0.8811	-0.0670	0.2140	0.0010
20X	0.0000	2.1323	-1.9254	-0.0000	-2.1323	1.9254	-0.0583	0.1659	-0.0145
20XY	0.0000	1.6733	-1.6774	-0.0000	-1.6733	1.6774	-0.0578	0.1572	-0.0314
20Y	0.0000	2.7083	-1.9814	-0.0000	-2.7083	1.9814	-0.0445	0.1612	0.0014
21X	0.0000	1.5593	-1.4033	-0.0000	-1.5593	1.4033	-0.0409	0.1141	-0.0127
21XY	0.0000	1.0123	-1.1073	-0.0000	-1.0123	1.1073	-0.0405	0.1092	-0.0259
21Y	0.0000	2.2703	-1.4773	-0.0000	-2.2703	1.4773	-0.0271	0.1141	0.0014
22X	0.0000	1.5483	-1.3983	-0.0000	-1.5483	1.3983	-0.0193	0.0491	-0.0089
22XY	0.0000	1.0123	-1.1073	-0.0000	-1.0123	1.1073	-0.0189	0.0487	-0.0167
22Y	0.0000	2.2393	-1.4673	-0.0000	-2.2393	1.4673	-0.0088	0.0538	0.0013
23X	0.0000	1.0123	-1.1073	-0.0000	-1.0123	1.1073	-0.0146	0.1430	-0.0047
24Y	0.0000	1.0123	-1.1073	-0.0000	-1.0123	1.1073	0.0000	0.0334	-0.0194
25X	0.0000	1.2263	-1.2243	-0.0000	-1.2263	1.2243	-0.0149	0.0308	-0.0044
25XY	0.0000	1.0123	-1.1073	-0.0000	-1.0123	1.1073	-0.0141	0.0334	-0.0071
25Y	0.0000	1.8093	-1.3413	0.0000	-1.8093	1.3413	-0.0016	0.0336	-0.0002
26X	0.0000	1.0123	-1.1073	14.3078	15.3929	-164.3046	0.0000	0.0000	0.0000
26XY	0.0000	1.0123	-1.1073	-29.1797	29.3620	-322.0091	0.0000	0.0000	0.0000
26Y	0.0000	1.0123	-1.1073	12.8486	29.4548	97.8425	0.0000	0.0000	0.0000

Crossing Diagonal Check for Load Case "NESC Extreme" (RLOUT controls):

Comp. Member Label	Tens. Member Label	Connect Leg for Comp. Member	Force In Comp. Member (kips)	Force In Tens. Member (kips)	Original Supported L/R Cap. (kips)	RLX	RLY	RLZ	Original Supported L/R	Original Supported KL/R	Original Supported Curve No.	Alternate Unsupported L/R Cap. (kips)	Alternate Unsupported RLOUT	Alternate Unsupported L/R	Alternate Unsupported KL/R	Alternate Unsupported Curve No.
23P	23Y	Long only	-0.23	-0.46	16.02	0.500	0.750	0.500	143.07	137.62	5	11.35	1.000	190.76	163.52	6
23Y	23P	Long only	-0.46	-0.23	16.02	0.500	0.750	0.500	143.07	137.62	5	11.35	1.000	190.76	163.52	6
25P	25Y	Long only	-1.61	0.06	16.02	0.500	0.750	0.500	143.07	137.62	5	11.35	1.000	190.76	163.52	6

Summary of Clamp Capacities and Usages for Load Case "NESC Extreme":

Clamp Label	Force (kips)	Input Holding Capacity (kips)	Factored Holding Capacity (kips)	Usage %
1	2.873	50.00	50.00	5.75
2	2.873	50.00	50.00	5.75

3	8.210	50.00	50.00	16.42
4	8.210	50.00	50.00	16.42
5	8.210	50.00	50.00	16.42
6	8.210	50.00	50.00	16.42
7	8.210	50.00	50.00	16.42
8	8.210	50.00	50.00	16.42
9	5.676	50.00	50.00	11.35
10	1.400	50.00	50.00	2.80
11	1.373	50.00	50.00	2.75
12	1.671	50.00	50.00	3.34
13	2.640	50.00	50.00	5.28
14	1.893	50.00	50.00	3.79
15	1.915	50.00	50.00	3.83
16	1.932	50.00	50.00	3.86
17	3.356	50.00	50.00	6.71
18	2.709	50.00	50.00	5.42
19	2.677	50.00	50.00	5.35
20	2.252	50.00	50.00	4.50
21	2.640	50.00	50.00	5.28
22	1.893	50.00	50.00	3.79
23	2.481	50.00	50.00	4.96
24	2.474	50.00	50.00	4.95
25	3.873	50.00	50.00	7.75
26	3.338	50.00	50.00	6.68
27	3.285	50.00	50.00	6.57
28	2.494	50.00	50.00	4.99
29	1.666	50.00	50.00	3.33
30	0.620	50.00	50.00	1.24
31	0.417	50.00	50.00	0.83
32	2.186	50.00	50.00	4.37
33	0.988	50.00	50.00	1.98
34	5.015	50.00	50.00	10.03
35	1.485	50.00	50.00	2.97
37	0.620	50.00	50.00	1.24
38	0.823	50.00	50.00	1.65
39	0.823	50.00	50.00	1.65
40	0.824	50.00	50.00	1.65
41	0.824	50.00	50.00	1.65
42	1.741	50.00	50.00	3.48
43	1.741	50.00	50.00	3.48
44	1.376	50.00	50.00	2.75
45	1.376	50.00	50.00	2.75
46	1.410	50.00	50.00	2.82
47	1.410	50.00	50.00	2.82
49	1.431	50.00	50.00	2.86
51	1.408	50.00	50.00	2.82
53	2.873	50.00	50.00	5.75
55	2.098	50.00	50.00	4.20
57	2.086	50.00	50.00	4.17
59	1.733	50.00	50.00	3.47

*** Analysis Results for Load Case No. 3 "NESC Heavy Broken Wire" - Number of iterations in SAPS 10

Equilibrium Joint Positions and Rotations for Load Case "NESC Heavy Broken Wire":

Joint Label	X-Displ (ft)	Y-Displ (ft)	Z-Displ (ft)	X-Rot (deg)	Y-Rot (deg)	Z-Rot (deg)	X-Pos (ft)	Y-Pos (ft)	Z-Pos (ft)
1P	-0.4755	0.2567	0.01463	-0.1474	-0.3621	-0.8609	3.149	-3.368	190
2P	-0.6096	0.3135	0.008688	-0.0686	-0.3113	-0.9414	-0.6096	-11.69	190
3P	-0.438	0.2406	0.0146	-0.1544	-0.3565	-0.8215	3.187	-3.384	184
4P	-0.4013	0.223	0.01416	-0.1510	-0.3608	-0.7820	3.224	-3.402	178
5P	-0.4951	0.2751	0.01274	-0.1559	-0.2837	-0.8653	-0.4951	-9.725	178
6P	-0.3623	0.2096	0.01329	-0.1159	-0.3726	-0.6847	3.263	-3.415	172
7P	-0.325	0.1961	0.01238	-0.1270	-0.3385	-0.6539	3.3	-3.429	166
8P	-0.4246	0.24	0.009798	-0.0799	-0.2653	-0.6971	-0.4246	-11.76	166
9P	-0.2914	0.1826	0.01097	-0.1249	-0.3161	-0.6122	3.334	-3.442	160
10P	-0.2599	0.1694	0.009046	-0.1053	-0.2776	-0.5703	3.365	-3.456	154
11P	-0.3243	0.2067	0.005633	-0.0901	-0.2126	-0.5879	-0.3243	-9.793	154
12P	-0.2408	0.1562	0.01045	-0.0847	-0.2525	-0.5424	3.857	-3.942	148.8
13P	-0.2185	0.1407	0.01176	-0.0808	-0.2331	-0.5085	4.466	-4.543	142.3
14P	-0.1953	0.1243	0.01271	-0.0719	-0.2070	-0.4688	5.172	-5.243	134.7
15P	-0.1735	0.1084	0.01349	-0.0663	-0.1830	-0.4302	5.914	-5.98	126.7
16P	-0.1546	0.09412	0.01375	-0.0573	-0.1654	-0.3908	6.653	-6.714	118.7
17P	-0.1372	0.08133	0.01385	-0.0533	-0.1429	-0.3548	7.392	-7.448	110.7
18P	-0.1228	0.0695	0.01351	-0.0481	-0.1319	-0.3176	8.127	-8.18	102.7
19P	-0.08953	0.04946	0.01327	-0.0376	-0.1311	-0.2413	9.662	-9.703	86.01
20P	-0.06051	0.03334	0.01243	-0.0323	-0.1047	-0.1778	11.18	-11.21	69.51
21P	-0.03744	0.02112	0.01068	-0.0237	-0.0840	-0.1300	12.64	-12.66	53.51
22P	-0.01209	0.008501	0.007215	-0.0190	-0.0523	-0.0871	14.79	-14.79	30.01
23P	-0.002834	0.07257	-0.005676	-0.0445	-0.0096	-0.0427	-0.002834	-16.08	14.99
24P	0.002722	0.001561	0.001527	-0.0061	-0.0009	-0.0145	16.15	0.001561	15
25P	-0.003051	0.001782	0.004051	-0.0083	-0.0287	-0.0896	16.15	-16.15	15
26P	0	0	0	0.0000	0.0000	0.0000	17.5	-17.5	0
1X	-0.3658	0.2569	-0.006978	-0.1727	-0.3199	-0.8348	3.259	3.882	190
1XY	-0.3648	0.3666	-0.04705	-0.1858	-0.3185	-0.8365	-3.99	3.992	190
1Y	-0.4746	0.3682	-0.02572	-0.1898	-0.3590	-0.8590	-4.1	-3.257	190
2X	-0.2395	0.3113	-0.0554	-0.2077	-0.3207	-0.8731	-0.2395	12.31	189.9
3X	-0.3331	0.2395	-0.006948	-0.1575	-0.3173	-0.7964	3.292	3.864	184
3XY	-0.3321	0.3455	-0.04656	-0.2066	-0.3157	-0.8011	-3.957	3.971	184
3Y	-0.4369	0.3453	-0.02544	-0.1970	-0.3564	-0.8162	-4.062	-3.28	184
4X	-0.3004	0.2225	-0.006634	-0.1423	-0.3087	-0.7580	3.325	3.848	178
4XY	-0.3	0.3234	-0.04543	-0.1876	-0.3053	-0.7654	-3.925	3.948	178
4Y	-0.4007	0.3251	-0.02491	-0.2098	-0.3656	-0.7735	-4.026	-3.3	178
5X	-0.2107	0.2718	-0.05033	-0.2459	-0.3241	-0.8219	-0.2107	10.27	177.9
6X	-0.2704	0.2102	-0.006641	-0.1321	-0.2890	-0.6628	3.355	3.835	172
6XY	-0.2697	0.3025	-0.04337	-0.2227	-0.2887	-0.6761	-3.895	3.928	172
6Y	-0.3611	0.2984	-0.02401	-0.1803	-0.3653	-0.6686	-3.986	-3.327	172
7X	-0.2407	0.1949	-0.006691	-0.1367	-0.2752	-0.6326	3.384	3.82	166
7XY	-0.2406	0.2793	-0.04159	-0.1876	-0.2706	-0.6475	-3.866	3.904	166
7Y	-0.3248	0.2805	-0.02303	-0.1867	-0.3411	-0.6355	-3.95	-3.345	166
8X	-0.1411	0.2358	-0.0568	-0.2551	-0.2965	-0.6968	-0.1411	12.24	165.9
9X	-0.2138	0.1822	-0.006992	-0.1166	-0.2523	-0.5871	3.411	3.807	160
9XY	-0.2137	0.2611	-0.03926	-0.1822	-0.2591	-0.6065	-3.839	3.886	160
9Y	-0.2902	0.2574	-0.02189	-0.1850	-0.3165	-0.5875	-3.915	-3.368	160
10X	-0.1887	0.1688	-0.007269	-0.1189	-0.2206	-0.5418	3.436	3.794	154
10XY	-0.1884	0.2405	-0.03638	-0.1712	-0.2112	-0.5657	-3.813	3.865	154
10Y	-0.2599	0.2415	-0.02044	-0.1559	-0.2765	-0.5393	-3.885	-3.383	154

11X	-0.1242	0.2039	-0.04402	-0.2233	-0.2516	-0.5851	-0.1242	10.2	154
12X	-0.1664	0.1549	-0.006697	-0.0937	-0.1871	-0.5118	3.932	4.253	148.8
12XY	-0.1669	0.2305	-0.03706	-0.1511	-0.1751	-0.5369	-4.265	4.329	148.8
12Y	-0.2398	0.2292	-0.02018	-0.1798	-0.2578	-0.5109	-4.338	-3.869	148.8
13X	-0.1413	0.1393	-0.006071	-0.0868	-0.1683	-0.4787	4.543	4.823	142.3
13XY	-0.1421	0.2176	-0.03751	-0.1536	-0.1653	-0.5016	-4.826	4.902	142.3
13Y	-0.2177	0.2161	-0.01981	-0.1460	-0.2300	-0.4814	-4.902	-4.468	142.3
14X	-0.115	0.1227	-0.005426	-0.0766	-0.1493	-0.4400	5.252	5.49	134.7
14XY	-0.1159	0.2037	-0.03747	-0.1329	-0.1433	-0.4615	-5.483	5.571	134.7
14Y	-0.1943	0.2025	-0.01937	-0.1396	-0.2057	-0.4434	-5.561	-5.165	134.7
15X	-0.09029	0.1071	-0.004765	-0.0683	-0.1303	-0.4025	5.998	6.195	126.7
15XY	-0.09123	0.191	-0.0371	-0.1246	-0.1308	-0.4221	-6.179	6.279	126.7
15Y	-0.1728	0.1893	-0.01885	-0.1178	-0.1834	-0.4075	-6.261	-5.899	126.7
16X	-0.06845	0.09293	-0.004179	-0.0633	-0.1191	-0.3659	6.74	6.901	118.7
16XY	-0.06888	0.179	-0.03631	-0.1037	-0.1107	-0.3833	-6.877	6.987	118.7
16Y	-0.1535	0.1787	-0.01842	-0.1142	-0.1612	-0.3700	-6.962	-6.629	118.7
17X	-0.04818	0.08009	-0.003542	-0.0544	-0.1055	-0.3310	7.481	7.609	110.7
17XY	-0.0496	0.1701	-0.03509	-0.0939	-0.1060	-0.3472	-7.579	7.699	110.7
17Y	-0.137	0.1676	-0.01778	-0.0890	-0.1440	-0.3365	-7.666	-7.361	110.7
18X	-0.03178	0.06901	-0.003052	-0.0486	-0.0725	-0.2946	8.218	8.319	102.7
18XY	-0.0309	0.1588	-0.03395	-0.1212	-0.0866	-0.3065	-8.281	8.409	102.7
18Y	-0.1211	0.1609	-0.01755	-0.0889	-0.1437	-0.2993	-8.371	-8.089	102.7
19X	-0.01199	0.04857	-0.002652	-0.0428	-0.0322	-0.2217	9.74	9.801	86
19XY	-0.01002	0.1251	-0.03055	-0.1327	-0.0275	-0.2268	-9.762	9.877	85.97
19Y	-0.08673	0.129	-0.01509	-0.1396	-0.1294	-0.2198	-9.839	-9.623	85.98
20X	0.0003884	0.0327	-0.002353	-0.0348	-0.0227	-0.1578	11.24	11.27	69.5
20XY	0.002039	0.09418	-0.02648	-0.1103	-0.0195	-0.1639	-11.24	11.33	69.47
20Y	-0.05813	0.09767	-0.01251	-0.1116	-0.1032	-0.1549	-11.3	-11.14	69.49
21X	0.006883	0.02042	-0.002054	-0.0288	0.0023	-0.1033	12.69	12.7	53.5
21XY	0.008511	0.06636	-0.02164	-0.1125	0.0052	-0.1099	-12.67	12.75	53.48
21Y	-0.03507	0.07012	-0.009948	-0.1122	-0.0818	-0.0944	-12.72	-12.61	53.49
22X	0.007346	0.007566	-0.001563	-0.0226	-0.0220	-0.0457	14.81	14.81	30
22XY	0.008635	0.02954	-0.01349	-0.0366	-0.0149	-0.0593	-14.79	14.83	29.99
22Y	-0.01059	0.03288	-0.005748	-0.0442	-0.0426	-0.0202	-14.81	-14.77	29.99
23X	0.01279	0.004679	-0.01104	-0.0428	-0.0332	-0.0444	0.01279	16.15	14.99
24Y	0.006823	0.02271	-0.01637	0.0302	0.0098	-0.0438	-16.14	0.02271	14.98
25X	0.01261	0.001545	-0.0002159	-0.0126	0.0269	-0.0191	16.16	16.15	15
25XY	0.01272	0.02251	-0.006847	-0.0727	0.0358	-0.0265	-16.14	16.17	14.99
25Y	-0.00271	0.02272	-0.003721	-0.0816	-0.0158	0.0377	-16.15	-16.13	15
26X	0	0	0	0.0000	0.0000	0.0000	17.5	17.5	0
26XY	0	0	0	0.0000	0.0000	0.0000	-17.5	17.5	0
26Y	0	0	0	0.0000	0.0000	0.0000	-17.5	-17.5	0

Joint Support Reactions for Load Case "NESC Heavy Broken Wire":

Joint Label	X Force (kips)	X Usage %	Y Force (kips)	Y Usage %	H-Shear Usage %	Z Force (kips)	Comp. Usage %	Uplift Usage %	Result. Force (kips)	Result. Usage %	X Moment (ft-k)	X-M. Usage %	Y Moment (ft-k)	Y-M. Usage %	H-Bend-M Usage %	Z Moment (ft-k)	Z-M. Usage %	Max. Usage %
26P	16.35	0.0	-15.33	0.0	0.0	132.92	0.0	0.0	134.80	0.0	-0.15	0.0	0.5	0.0	0.0	1.40	0.0	0.0
26X	-4.36	0.0	-4.33	0.0	0.0	-43.38	0.0	0.0	43.81	0.0	0.09	0.0	-4.9	0.0	0.0	-0.10	0.0	0.0
26XY	15.55	0.0	-19.82	0.0	0.0	-215.87	0.0	0.0	217.33	0.0	7.39	0.0	-4.9	0.0	0.0	-0.53	0.0	0.0
26Y	6.38	0.0	-7.37	0.0	0.0	-47.05	0.0	0.0	48.05	0.0	7.23	0.0	0.3	0.0	0.0	-1.14	0.0	0.0

Joint Displacements, Loads and Member Forces on Joints for Load Case "NESC Heavy Broken Wire":

Joint Label	X External Load	Y External Load	Z External Load	X Member Force	Y Member Force	Z Member Force	X Disp.	Y Disp.	Z Disp.

	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)	(ft)	(ft)	(ft)
1P	0.0000	0.1705	-0.5234	0.0000	-0.1705	0.5234	-0.4755	0.2567	0.0146
2P	-13.5800	1.2934	-1.4544	13.5800	-1.2934	1.4544	-0.6096	0.3135	0.0087
3P	0.0000	0.2343	-0.3321	-0.0000	-0.2343	0.3321	-0.4380	0.2406	0.0146
4P	0.0000	0.3232	-0.8693	-0.0000	-0.3232	0.8693	-0.4013	0.2230	0.0142
5P	-19.8000	1.7991	-2.9252	19.8000	-1.7991	2.9252	-0.4951	0.2751	0.0127
6P	0.0000	0.2348	-0.3575	0.0000	-0.2348	0.3575	-0.3623	0.2096	0.0133
7P	0.0000	0.3615	-1.0225	-0.0000	-0.3615	1.0225	-0.3250	0.1961	0.0124
8P	-0.0272	3.2711	-7.8364	0.0272	-3.2711	7.8364	-0.4246	0.2400	0.0098
9P	0.0000	0.2508	-0.4505	-0.0000	-0.2508	0.4505	-0.2914	0.1826	0.0110
10P	0.0000	0.3697	-1.1064	0.0000	-0.3697	1.1064	-0.2599	0.1694	0.0090
11P	-0.0272	3.2711	-7.8052	0.0272	-3.2711	7.8052	-0.3243	0.2067	0.0056
12P	0.0000	0.2063	-0.4887	-0.0000	-0.2063	0.4887	-0.2408	0.1562	0.0104
13P	0.0000	0.4225	-1.1519	-0.0000	-0.4225	1.1519	-0.2185	0.1407	0.0118
14P	0.0000	0.7681	-2.3207	-0.0000	-0.7681	2.3207	-0.1953	0.1243	0.0127
15P	0.0000	0.4884	-1.3240	-0.0000	-0.4884	1.3240	-0.1735	0.1084	0.0135
16P	0.0000	0.5938	-1.8495	-0.0000	-0.5938	1.8495	-0.1546	0.0941	0.0137
17P	0.0000	0.3665	-0.8286	-0.0000	-0.3665	0.8286	-0.1372	0.0813	0.0138
18P	0.0000	0.9749	-3.1482	-0.0000	-0.9749	3.1482	-0.1228	0.0695	0.0135
19P	0.0000	1.0954	-3.5737	-0.0000	-1.0954	3.5737	-0.0895	0.0495	0.0133
20P	0.0000	1.0899	-3.7709	-0.0000	-1.0899	3.7709	-0.0605	0.0333	0.0124
21P	0.0000	1.3068	-4.7981	-0.0000	-1.3068	4.7981	-0.0374	0.0211	0.0107
22P	0.0000	1.2950	-5.0453	-0.0000	-1.2950	5.0453	-0.0121	0.0085	0.0072
23P	0.0000	0.4449	-0.7730	-0.0000	-0.4449	0.7730	-0.0028	0.0726	-0.0057
24P	0.0000	0.0000	-0.7730	-0.0000	0.0000	0.7730	0.0027	0.0016	0.0015
25P	0.0000	0.6927	-2.7934	-0.0000	-0.6927	2.7934	-0.0031	0.0018	0.0041
26P	0.0000	0.2375	-0.9001	-16.3466	15.0921	133.8196	0.0000	0.0000	0.0000
1X	0.0000	0.0670	-0.5234	0.0000	-0.0670	0.5234	-0.3658	0.2569	-0.0070
1XY	-0.0960	0.3190	-1.7254	0.0960	-0.3190	1.7254	-0.3648	0.3666	-0.0470
1Y	-0.6900	1.7185	-1.6824	0.6900	-1.7185	1.6824	-0.4746	0.3682	-0.0257
2X	-0.4000	2.1570	-3.7424	0.4000	-2.1570	3.7424	-0.2395	0.3113	-0.0554
3X	0.0000	0.0000	-0.3321	-0.0000	0.0000	0.3321	-0.3331	0.2395	-0.0069
3XY	0.2470	0.2380	-1.5181	-0.2470	-0.2380	1.5181	-0.3321	0.3455	-0.0466
3Y	0.5390	-0.7317	-1.5331	-0.5390	0.7317	1.5331	-0.4369	0.3453	-0.0254
4X	0.0000	0.1340	-0.8693	-0.0000	-0.1340	0.8693	-0.3004	0.2225	-0.0066
4XY	0.0000	0.0000	-0.4163	-0.0000	0.0000	0.4163	-0.3000	0.3234	-0.0454
4Y	0.0000	0.4472	-1.4513	-0.0000	-0.4472	1.4513	-0.4007	0.3251	-0.0249
5X	-0.0272	3.1760	-7.8052	0.0272	-3.1760	7.8052	-0.2107	0.2718	-0.0503
6X	0.0000	0.0000	-0.3575	0.0000	0.0000	0.3575	-0.2704	0.2102	-0.0066
6XY	0.0000	0.0000	-0.3575	0.0000	0.0000	0.3575	-0.2697	0.3025	-0.0434
6Y	0.0000	0.2348	-0.3575	0.0000	-0.2348	0.3575	-0.3611	0.2984	-0.0240
7X	0.0000	0.1340	-1.0225	-0.0000	-0.1340	1.0225	-0.2407	0.1949	-0.0067
7XY	0.0000	0.0000	-0.5665	-0.0000	-0.0000	0.5665	-0.2406	0.2793	-0.0416
7Y	0.0000	0.2275	-0.5665	-0.0000	-0.2275	0.5665	-0.3248	0.2805	-0.0230
8X	-0.0272	3.1760	-7.8364	0.0272	-3.1760	7.8364	-0.1411	0.2358	-0.0568
9X	0.0000	0.0000	-0.4505	-0.0000	-0.0000	0.4505	-0.2138	0.1822	-0.0070
9XY	0.0000	0.0000	-0.4505	-0.0000	0.0000	0.4505	-0.2137	0.2611	-0.0393
9Y	0.0000	0.5018	-1.4575	-0.0000	-0.5018	1.4575	-0.2902	0.2574	-0.0219
10X	0.0000	0.1510	-1.1064	0.0000	-0.1510	1.1064	-0.1887	0.1688	-0.0073
10XY	0.0000	0.0000	-0.5924	-0.0000	0.0000	0.5924	-0.1884	0.2405	-0.0364
10Y	0.0000	0.2187	-0.5924	-0.0000	-0.2187	0.5924	-0.2599	0.2415	-0.0204
11X	-0.0272	3.1760	-7.8052	0.0272	-3.1760	7.8052	-0.1242	0.2039	-0.0440
12X	0.0000	0.0000	-0.4887	-0.0000	-0.0000	0.4887	-0.1664	0.1549	-0.0067
12XY	0.0000	0.0000	-0.4887	-0.0000	-0.0000	0.4887	-0.1669	0.2305	-0.0371
12Y	0.0000	0.4223	-1.3577	-0.0000	-0.4223	1.3577	-0.2398	0.2292	-0.0202
13X	0.0000	0.1690	-1.1519	-0.0000	-0.1690	1.1519	-0.1413	0.1393	-0.0061
13XY	0.0000	0.0000	-0.5779	-0.0000	-0.0000	0.5779	-0.1421	0.2176	-0.0375
13Y	0.0000	0.2535	-0.5779	-0.0000	-0.2535	0.5779	-0.2177	0.2161	-0.0198

14X	0.0000	0.0000	-0.6577	-0.0000	0.0000	0.6577	-0.1150	0.1227	-0.0054
14XY	0.0000	0.2190	-1.2857	-0.0000	-0.2190	1.2857	-0.1159	0.2037	-0.0375
14Y	0.0000	0.7681	-2.3207	-0.0000	-0.7681	2.3207	-0.1943	0.2025	-0.0194
15X	0.0000	0.1810	-1.3240	-0.0000	-0.1810	1.3240	-0.0903	0.1071	-0.0048
15XY	0.0000	0.0000	-0.7070	-0.0000	0.0000	0.7070	-0.0912	0.1910	-0.0371
15Y	0.0000	0.3074	-0.7070	-0.0000	-0.3074	0.7070	-0.1728	0.1893	-0.0189
16X	0.0000	0.0000	-0.7455	-0.0000	0.0000	0.7455	-0.0685	0.0929	-0.0042
16XY	0.0000	0.0000	-0.7455	-0.0000	0.0000	0.7455	-0.0689	0.1790	-0.0363
16Y	0.0000	0.5938	-1.8495	-0.0000	-0.5938	1.8495	-0.1535	0.1787	-0.0184
17X	0.0000	0.0000	-0.7846	-0.0000	0.0000	0.7846	-0.0482	0.0801	-0.0035
17XY	0.0000	0.0000	-0.7846	-0.0000	0.0000	0.7846	-0.0496	0.1701	-0.0351
17Y	0.0000	0.3305	-0.7846	-0.0000	-0.3305	0.7846	-0.1370	0.1676	-0.0178
18X	0.0000	0.1880	-2.0202	-0.0000	-0.1880	2.0202	-0.0318	0.0690	-0.0031
18XY	0.0000	0.0000	-1.3812	-0.0000	-0.0000	1.3812	-0.0309	0.1588	-0.0339
18Y	0.0000	0.7869	-2.5092	-0.0000	-0.7869	2.5092	-0.1211	0.1609	-0.0175
19X	0.0000	0.1800	-2.4287	-0.0000	-0.1800	2.4287	-0.0120	0.0486	-0.0027
19XY	0.0000	0.0000	-1.8187	-0.0000	0.0000	1.8187	-0.0100	0.1251	-0.0305
19Y	0.0000	0.9154	-2.9637	-0.0000	-0.9154	2.9637	-0.0867	0.1290	-0.0151
20X	0.0000	0.1730	-2.6499	-0.0000	-0.1730	2.6499	0.0004	0.0327	-0.0024
20XY	0.0000	0.0000	-2.0619	-0.0000	0.0000	2.0619	0.0020	0.0942	-0.0265
20Y	0.0000	0.9169	-3.1829	-0.0000	-0.9169	3.1829	-0.0581	0.0977	-0.0125
21X	0.0000	0.2070	-3.4261	-0.0000	-0.2070	3.4261	0.0069	0.0204	-0.0021
21XY	0.0000	0.0000	-2.7221	-0.0000	0.0000	2.7221	0.0085	0.0664	-0.0216
21Y	0.0000	1.0968	-4.0841	-0.0000	-1.0968	4.0841	-0.0351	0.0701	-0.0099
22X	0.0000	0.2030	-3.7173	-0.0000	-0.2030	3.7173	0.0073	0.0076	-0.0016
22XY	0.0000	0.0000	-3.0253	-0.0000	0.0000	3.0253	0.0086	0.0295	-0.0135
22Y	0.0000	1.0920	-4.3533	-0.0000	-1.0920	4.3533	-0.0106	0.0329	-0.0057
23X	0.0000	0.0000	-0.7730	0.0000	0.0000	0.7730	0.0128	0.0047	-0.0110
24Y	0.0000	0.0000	-0.7730	-0.0000	0.0000	0.7730	0.0068	0.0227	-0.0164
25X	0.0000	0.0810	-1.9314	-0.0000	-0.0810	1.9314	0.0126	0.0015	-0.0002
25XY	0.0000	0.0000	-1.6534	-0.0000	-0.0000	1.6534	0.0127	0.0225	-0.0068
25Y	0.0000	0.6117	-2.5154	-0.0000	-0.6117	2.5154	-0.0027	0.0227	-0.0037
26X	0.0000	0.0000	-0.9001	4.3621	4.3270	-42.4754	0.0000	0.0000	0.0000
26XY	0.0000	0.0000	-0.9001	-15.5505	19.8162	-214.9672	0.0000	0.0000	0.0000
26Y	0.0000	0.2375	-0.9001	-6.3811	7.1306	-46.1468	0.0000	0.0000	0.0000

Crossing Diagonal Check for Load Case "NESC Heavy Broken Wire" (RLOUT controls):

Comp. Member Label	Tens. Member Label	Connect Leg for Comp. Member	Force In Comp. Member (kips)	Force In Tens. Member (kips)	Original Supported L/R Cap. (kips)	Original Supported RLX	Original Supported RLY	Original Supported RLZ	Original Supported L/R	Original Supported KL/R	Original Supported Curve No.	Alternate Unsupported L/R Cap. (kips)	Alternate Unsupported RLOUT	Alternate Unsupported L/R	Alternate Unsupported KL/R	Alternate Unsupported Curve No.
23P	23Y	Long only	-0.58	-0.49	16.02	0.500	0.750	0.500	143.07	137.62	5	11.35	1.000	190.76	163.52	6
23Y	23P	Long only	-0.49	-0.58	16.02	0.500	0.750	0.500	143.07	137.62	5	11.35	1.000	190.76	163.52	6
25P	25Y	Long only	-1.53	-0.22	16.02	0.500	0.750	0.500	143.07	137.62	5	11.35	1.000	190.76	163.52	6
25Y	25P	Long only	-0.22	-1.53	16.02	0.500	0.750	0.500	143.07	137.62	5	11.35	1.000	190.76	163.52	6
29P	29Y	Long only	-1.24	-1.27	26.93	0.500	0.750	0.500	112.48	114.36	2	19.57	1.000	149.97	138.43	6
29Y	29P	Long only	-1.27	-1.24	26.93	0.500	0.750	0.500	112.48	114.36	2	19.57	1.000	149.97	138.43	6
33P	33Y	Long only	-3.36	-3.38	41.16	0.750	0.500	0.500	95.87	101.90	2	33.73	1.000	122.48	121.53	6
33Y	33P	Long only	-3.38	-3.36	41.16	0.750	0.500	0.500	95.87	101.90	2	33.73	1.000	122.48	121.53	6

Summary of Clamp Capacities and Usages for Load Case "NESC Heavy Broken Wire":

Clamp Label	Force Input Holding	Factored Holding	Usage

	(kips)	Capacity (kips)	Capacity (kips)	%
1	13.719	50.00	50.00	27.44
2	4.338	50.00	50.00	8.68
3	20.096	50.00	50.00	40.19
4	8.427	50.00	50.00	16.85
5	8.492	50.00	50.00	16.98
6	8.456	50.00	50.00	16.91
7	8.463	50.00	50.00	16.93
8	8.427	50.00	50.00	16.85
9	2.502	50.00	50.00	5.00
10	1.519	50.00	50.00	3.04
11	1.541	50.00	50.00	3.08
12	1.422	50.00	50.00	2.84
13	2.444	50.00	50.00	4.89
14	1.942	50.00	50.00	3.88
15	2.630	50.00	50.00	5.26
16	3.102	50.00	50.00	6.20
17	3.312	50.00	50.00	6.62
18	4.229	50.00	50.00	8.46
19	4.488	50.00	50.00	8.98
20	2.589	50.00	50.00	5.18
21	2.444	50.00	50.00	4.89
22	1.942	50.00	50.00	3.88
23	3.296	50.00	50.00	6.59
24	3.738	50.00	50.00	7.48
25	3.925	50.00	50.00	7.85
26	4.973	50.00	50.00	9.95
27	5.209	50.00	50.00	10.42
28	2.878	50.00	50.00	5.76
29	1.304	50.00	50.00	2.61
30	0.551	50.00	50.00	1.10
31	0.406	50.00	50.00	0.81
32	1.782	50.00	50.00	3.56
33	0.906	50.00	50.00	1.81
34	1.757	50.00	50.00	3.51
35	1.556	50.00	50.00	3.11
37	0.528	50.00	50.00	1.06
38	0.927	50.00	50.00	1.85
39	0.880	50.00	50.00	1.76
40	1.085	50.00	50.00	2.17
41	1.031	50.00	50.00	2.06
42	1.167	50.00	50.00	2.33
43	1.117	50.00	50.00	2.23
44	1.227	50.00	50.00	2.45
45	1.164	50.00	50.00	2.33
46	1.411	50.00	50.00	2.82
47	1.336	50.00	50.00	2.67
49	2.029	50.00	50.00	4.06
51	2.435	50.00	50.00	4.87
53	2.656	50.00	50.00	5.31
55	3.432	50.00	50.00	6.86
57	3.723	50.00	50.00	7.45
59	1.933	50.00	50.00	3.87

*** Overall summary for all load cases - Usage = Maximum Stress / Allowable Stress
Printed capacities do not include the strength factor entered for each load case.
The Group Summary reports on the member and load case that resulted in maximum usage
which may not necessarily be the same as that which produces maximum force.

Group Summary (Compression Portion):

Group Label	Group Desc.	Angle Type	Angle Size	Steel Strength (ksi)	Max Usage %	Cont-rol	Max Use In Comp. %	Comp. Control Member	Comp. Force (kips)	Comp. Control Load Case	L/R Capacity (kips)	Comp. Connect. Shear Capacity (kips)	Comp. Connect. Bearing Capacity (kips)	RLX	RLY	RLZ	L/R KL/R Comp.	Length (ft)	Curve No.	No. Of Bolts	Member Comp.
Leg1	6x6x3/8	SAE	6X6X0.375	33.0	31.93	Comp	31.93	5XY	-41.096	NESC Hea	128.698	163.200	303.750	1.000	1.000	1.000	60.50	60.50	6.000	1	12
Leg2	8x8x1/2	SAE	8X8X0.5	33.0	43.51	Comp	43.51	8XY	-104.705	NESC Hea	240.633	301.600	629.999	1.000	1.000	1.000	45.28	45.28	6.000	1	16
Leg3	8x8x11/16	SAE	8X8X0.6875	33.0	52.92	Comp	52.92	11XY	-165.459	NESC Ext	312.686	414.700	1191.092	1.000	1.000	1.000	58.19	58.19	7.661	1	22
Leg4	8x8x3/4	SAE	8X8X0.75	33.0	60.26	Comp	60.26	13XY	-202.904	NESC Ext	336.697	490.100	1535.623	1.000	1.000	1.000	61.25	61.25	8.065	1	26
Leg5	8x8x13/16	SAE	8X8X0.8125	33.0	63.84	Comp	63.84	15XY	-230.759	NESC Ext	361.445	527.800	1791.560	1.000	1.000	1.000	61.64	61.64	8.065	1	28
Leg6	8x8x7/8	SAE	8X8X0.875	33.0	66.22	Comp	66.22	16XY	-254.612	NESC Ext	384.502	565.500	2067.184	0.500	0.500	0.500	64.34	64.34	16.835	1	30
Leg7	8x8x/15/16	SAE	8X8X0.9375	33.0	68.52	Comp	68.52	18XY	-283.767	NESC Ext	414.146	603.200	2362.496	0.500	0.500	0.500	61.76	61.76	16.129	1	32
Leg8	8x8x1	SAE	8X8X1	33.0	73.14	Tens	72.67	21XY	-324.657	NESC Ext	446.741	640.900	2677.496	0.500	0.500	0.500	58.16	58.16	15.121	1	34
XBR1	2.5x2x1/4	SAU	2.5X2X0.25	33.0	73.57	Comp	73.57	23X	-11.786	NESC Hea	16.019	27.200	33.750	0.500	0.750	0.500	143.07	137.62	9.411	5	2
XBR2	3x2.5x1/4	SAU	3X2.5X0.25	33.0	92.88	Comp	92.88	27X	-25.015	NESC Hea	26.934	40.800	50.625	0.500	0.750	0.500	112.48	114.36	9.411	2	3
XBR3	3x3x5/16	SAE	3X3X0.3125	33.0	61.80	Comp	61.80	31X	-25.435	NESC Hea	41.160	54.400	84.375	0.750	0.500	0.500	95.87	101.90	9.411	2	4
XBR4	3x2.5x5/16	SAU	3X2.5X0.3125	33.0	62.50	Comp	62.50	34Y	-20.563	NESC Hea	32.903	54.400	84.375	0.767	0.535	0.535	114.00	115.50	9.322	2	4
XBR5	3.5x3x1/4	SAU	3.5X3X0.25	33.0	69.03	Comp	69.03	46Y	-11.484	NESC Hea	16.638	40.800	50.625	0.763	0.527	0.527	177.45	163.82	17.706	5	3
XBR6	2.5x2.5x5/16	SAE	2.5X2.5X0.3125	33.0	73.77	Tens	65.82	49P	-3.719	NESC Hea	5.650	54.400	84.375	0.764	0.529	0.529	319.36	271.95	24.601	5	4
XBR7	2.5x2x5/16	SAU	2.5X2X0.3125	33.0	99.72	Tens	98.28	53P	-2.677	NESC Hea	2.724	40.800	63.281	0.517	0.759	0.517	449.38	371.03	28.814	5	3
HBR1	3.5x3.5x1/4	SAE	3.5X3.5X0.25	33.0	44.89	Comp	44.89	82P	-7.784	NESC Ext	17.340	40.800	50.625	0.500	1.000	0.500	181.65	167.02	16.500	5	3
HBR2	4x4x1/4	SAE	4X4X0.25	33.0	0.00		0.00		0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.00	0.00	0.000	0	0
HBR3	LL3.5x3.5x1/4	DAE	3.5X3.5X0.25	33.0	75.07	Comp	75.07	88P	-23.865	NESC Ext	31.791	81.600	101.250	0.500	1.000	0.500	191.40	174.44	25.360	5	3
HBR4	LL4x4x1/4	DAE	4X4X0.25	33.0	40.33	Comp	40.33	90P	-25.103	NESC Ext	62.237	81.600	101.250	0.500	0.500	0.500	142.08				

133.58 29.600 6 3
Arm 5x3.5x5/16 SAU 5X3.5X0.3125 33.0 59.14 Comp 59.14 73Y -24.128NESC Hea 65.312 40.800 63.281 1.000 0.500 0.500 57.44
88.72 7.334 3 3
ArmBR1 3x3x1/4 SAE 3X3X0.25 33.0 66.51 Comp 66.51 94XY -7.042NESC Hea 10.588 27.200 33.750 1.000 1.000 1.000 221.38
197.29 10.922 5 2
ArmBR2 2.5x2x1/4 SAU 2.5X2X0.25 33.0 61.94 Tens 35.00 97XY -1.957NESC Hea 5.591 27.200 33.750 1.000 1.000 1.000 268.17
232.94 9.475 5 2
Br1 5x3x5/16 SAU 5X3X0.3125 33.0 8.02 Tens 5.28 79X -2.220NESC Ext 42.081 54.400 84.375 1.000 1.000 1.000 132.22
127.51 7.250 6 4
Br2 2.5x2x1/4 SAU 2.5X2X0.25 33.0 14.47 Comp 14.47 60P -2.021NESC Hea 13.968 27.200 33.750 0.500 0.750 0.500 155.87
147.38 10.253 5 2
Br3 2.5x2x3/16 SAU 2.5X2X0.1875 33.0 62.97 Comp 62.97 78P -3.517NESC Ext 5.585 13.600 12.656 1.000 1.000 1.000 203.75
203.75 7.250 4 1
Br4 2.5x2.5x3/16 SAE 2.5X2.5X0.1875 33.0 0.00 0.00 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.00
0.00 0.000 0 0
Br5 2.5x2.5x1/4 SAE 2.5X2.5X0.25 33.0 2.63 Comp 2.63 65X -0.051NESC Hea 1.946 27.200 33.750 0.500 0.750 0.500 511.54
418.39 41.861 5 2
XBR8 2.5x2.5x5/16 SAE 2.5X2.5X0.3125 33.0 0.00 0.00 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.00
0.00 0.000 0 0
XBR9 2.5x2x5/16 SAU 2.5X2X0.3125 33.0 0.00 0.00 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.00
0.00 0.000 0 0
Br4R 2.5x2.5x5/16 SAE 2.5X2.5X0.3125 36.0 70.11 Comp 70.11 64X -4.811NESC Ext 6.862 27.200 40.781 0.500 0.750 0.500 286.31
246.77 23.335 5 2
HBR2R 4x4x3/8 SAE 4X4X0.375 36.0 73.11 Comp 73.11 84P -19.858NESC Ext 27.163 40.800 73.406 0.500 1.000 0.500 190.28
173.60 19.504 5 3
XBR8r 2.5x2.5x3/8 SAE 2.5X2.5X0.375 33.0 88.34 Comp 88.34 59Y -7.266NESC Hea 8.225 54.400 101.250 0.500 0.500 0.500 284.46
245.36 23.088 5 4

Group Summary (Tension Portion):

Group Label	Group Desc.	Angle Type	Angle Size	Steel Strength (ksi)	Max Usage %	Usage Control	Max Tension Use In Tens. %	Tension Control Member	Tension Force (kips)	Tension Control Load Case	Net Section Capacity (kips)	Tension Connect. Shear Capacity (kips)	Tension Connect. Bearing Capacity (kips)	Tension Connect. Rupture Capacity (kips)	Length Tens. Member (ft)	No. Of Bolts	No. Of Holes	Hole Diameter (in)
Leg1	6x6x3/8	SAE	6X6X0.375	33.0	31.93	Comp	19.42	5P	21.402NESC Hea		110.204	163.200	303.750	281.250	6.000	12	3.110	0.875
Leg2	8x8x1/2	SAE	8X8X0.5	33.0	43.51	Comp	41.76	8P	81.436NESC Ext		195.030	301.600	629.999	699.999	6.000	16	3.680	1
Leg3	8x8x11/16	SAE	8X8X0.6875	33.0	52.92	Comp	52.83	11P	139.789NESC Ext		264.598	414.700	1191.092	1134.373	7.661	22	3.610	1
Leg4	8x8x3/4	SAE	8X8X0.75	33.0	60.26	Comp	58.60	13P	168.866NESC Ext		288.172	490.100	1535.623	1462.498	8.065	26	3.610	1
Leg5	8x8x13/16	SAE	8X8X0.8125	33.0	63.84	Comp	62.18	15P	192.528NESC Ext		309.643	527.800	1791.560	1706.247	8.065	28	3.590	1
Leg6	8x8x7/8	SAE	8X8X0.875	33.0	66.22	Comp	59.18	16P	197.041NESC Ext		332.928	565.500	2067.184	1968.747	16.835	30	3.590	1
Leg7	8x8x/15/16	SAE	8X8X0.9375	33.0	68.52	Comp	67.68	18P	239.758NESC Ext		354.234	603.200	2362.496	2249.997	16.129	32	3.590	1
Leg8	8x8x1	SAE	8X8X1	33.0	73.14	Tens	73.14	21P	274.441NESC Ext		375.209	640.900	2677.496	2549.996	15.121	34	3.630	1
XBR1	2.5x2x1/4	SAU	2.5X2X0.25	33.0	73.57	Comp	45.79	23XY	11.440NESC Hea		24.985	27.200	33.750	29.297	9.411	2	1.000	0.875

XBR2	3x2.5x1/4	SAU	3X2.5X0.25	33.0	92.88	Comp	75.51	27XY	24.472	NESC	Hea	32.410	40.800	50.625	45.328	9.411	3	1.000
0.875																		
XBR3	3x3x5/16	SAE	3X3X0.3125	33.0	61.80	Comp	57.25	31XY	25.616	NESC	Hea	44.745	54.400	84.375	66.504	9.411	4	1.000
0.875																		
XBR4	3x2.5x5/16	SAU	3X2.5X0.3125	33.0	62.50	Comp	50.33	36XY	17.791	NESC	Hea	35.352	54.400	84.375	62.637	10.942	4	1.000
0.875																		
XBR5	3.5x3x1/4	SAU	3.5X3X0.25	33.0	69.03	Comp	40.42	38XY	14.601	NESC	Hea	36.123	54.400	67.500	53.203	12.619	4	1.000
0.875																		
XBR6	2.5x2.5x5/16	SAE	2.5X2.5X0.3125	33.0	73.77	Tens	73.77	48X	25.998	NESC	Ext	35.241	54.400	84.375	62.637	24.601	4	1.000
0.875																		
XBR7	2.5x2x5/16	SAU	2.5X2X0.3125	33.0	99.72	Tens	99.72	54X	30.700	NESC	Ext	30.786	54.400	84.375	62.637	36.220	4	1.000
0.875																		
HBR1	3.5x3.5x1/4	SAE	3.5X3.5X0.25	33.0	44.89	Comp	8.00	83P	3.263	NESC	Hea	43.696	40.800	50.625	46.875	16.500	3	1.000
0.875																		
HBR2	4x4x1/4	SAE	4X4X0.25	33.0	0.00		0.00		0.000			0.000	0.000	0.000	0.000	0.000	0	0.000
0																		
HBR3	LL3.5x3.5x1/4	DAE	3.5X3.5X0.25	33.0	75.07	Comp	4.88	87P	3.984	NESC	Hea	87.392	81.600	101.250	93.750	22.480	3	2.000
0.875																		
HBR4	LL4x4x1/4	DAE	4X4X0.25	33.0	40.33	Comp	5.18	91P	4.226	NESC	Hea	102.242	81.600	101.250	93.750	29.600	3	2.000
0.875																		
Arm	5x3.5x5/16	SAU	5X3.5X0.3125	33.0	59.14	Comp	46.56	73P	18.995	NESC	Hea	67.911	40.800	63.281	44.613	7.334	3	1.000
0.875																		
ArmBR1	3x3x1/4	SAE	3X3X0.25	33.0	66.51	Comp	4.44	94Y	1.208	NESC	Ext	36.271	27.200	33.750	31.250	10.922	2	1.000
0.875																		
ArmBR2	2.5x2x1/4	SAU	2.5X2X0.25	33.0	61.94	Tens	61.94	96P	15.475	NESC	Hea	24.985	27.200	33.750	27.609	10.922	2	1.000
0.875																		
Br1	5x3x5/16	SAU	5X3X0.3125	33.0	8.02	Tens	8.02	75X	4.204	NESC	Hea	63.159	54.400	84.375	52.441	7.250	4	1.000
0.875																		
Br2	2.5x2x1/4	SAU	2.5X2X0.25	33.0	14.47	Comp	9.24	60X	2.307	NESC	Hea	24.985	27.200	33.750	31.250	10.253	2	1.000
0.875																		
Br3	2.5x2x3/16	SAU	2.5X2X0.1875	33.0	62.97	Comp	34.53	78X	3.328	NESC	Ext	19.184	13.600	12.656	9.640	7.250	1	1.000
0.875																		
Br4	2.5x2.5x3/16	SAE	2.5X2.5X0.1875	33.0	0.00		0.00		0.000			0.000	0.000	0.000	0.000	0.000	0	0.000
0																		
Br5	2.5x2.5x1/4	SAE	2.5X2.5X0.25	33.0	2.63	Comp	0.80	65P	0.218	NESC	Ext	28.846	27.200	33.750	27.609	41.861	2	1.000
0.875																		
XBR8	2.5x2.5x5/16	SAE	2.5X2.5X0.3125	33.0	0.00		0.00		0.000			0.000	0.000	0.000	0.000	0.000	0	0.000
0																		
XBR9	2.5x2x5/16	SAU	2.5X2X0.3125	33.0	0.00		0.00		0.000			0.000	0.000	0.000	0.000	0.000	0	0.000
0																		
Br4R	2.5x2.5x5/16	SAE	2.5X2.5X0.3125	36.0	70.11	Comp	0.00	64X	0.000			38.445	27.200	40.781	34.242	23.335	2	1.000
0.875																		
HBR2R	4x4x3/8	SAE	4X4X0.375	36.0	73.11	Comp	11.00	85P	4.489	NESC	Hea	82.033	40.800	73.406	67.969	19.504	3	1.000
0.875																		
XBR8r	2.5x2.5x3/8	SAE	2.5X2.5X0.375	33.0	88.34	Comp	87.71	58P	36.520	NESC	Ext	41.636	54.400	101.250	75.164	23.088	4	1.000
0.875																		

*** Maximum Stress Summary for Each Load Case

Summary of Maximum Usages by Load Case:

Load Case	Maximum Usage %	Element Label	Element Type
NESC Heavy	98.28	53P	Angle
NESC Extreme	99.72	54X	Angle

NESC Heavy Broken Wire 92.88 27X Angle

Summary of Insulator Usages:

Insulator Label	Insulator Type	Maximum Usage %	Load Case	Weight (lbs)
1	Clamp	27.44	NESC Heavy Broken Wire	0.0
2	Clamp	8.68	NESC Heavy	0.0
3	Clamp	40.19	NESC Heavy Broken Wire	0.0
4	Clamp	16.85	NESC Heavy	0.0
5	Clamp	16.98	NESC Heavy	0.0
6	Clamp	16.91	NESC Heavy	0.0
7	Clamp	16.93	NESC Heavy	0.0
8	Clamp	16.85	NESC Heavy	0.0
9	Clamp	11.35	NESC Extreme	0.0
10	Clamp	3.04	NESC Heavy	0.0
11	Clamp	3.08	NESC Heavy	0.0
12	Clamp	3.34	NESC Extreme	0.0
13	Clamp	5.28	NESC Extreme	0.0
14	Clamp	3.88	NESC Heavy	0.0
15	Clamp	5.26	NESC Heavy	0.0
16	Clamp	6.20	NESC Heavy	0.0
17	Clamp	6.71	NESC Extreme	0.0
18	Clamp	8.46	NESC Heavy	0.0
19	Clamp	8.98	NESC Heavy	0.0
20	Clamp	5.18	NESC Heavy	0.0
21	Clamp	5.28	NESC Extreme	0.0
22	Clamp	3.88	NESC Heavy	0.0
23	Clamp	6.59	NESC Heavy	0.0
24	Clamp	7.48	NESC Heavy	0.0
25	Clamp	7.85	NESC Heavy	0.0
26	Clamp	9.95	NESC Heavy	0.0
27	Clamp	10.42	NESC Heavy	0.0
28	Clamp	5.76	NESC Heavy	0.0
29	Clamp	3.33	NESC Extreme	0.0
30	Clamp	1.24	NESC Extreme	0.0
31	Clamp	0.83	NESC Extreme	0.0
32	Clamp	4.37	NESC Extreme	0.0
33	Clamp	1.98	NESC Extreme	0.0
34	Clamp	10.03	NESC Extreme	0.0
35	Clamp	3.11	NESC Heavy	0.0
37	Clamp	1.24	NESC Extreme	0.0
38	Clamp	1.85	NESC Heavy	0.0
39	Clamp	1.76	NESC Heavy	0.0
40	Clamp	2.17	NESC Heavy	0.0
41	Clamp	2.06	NESC Heavy	0.0
42	Clamp	3.48	NESC Extreme	0.0
43	Clamp	3.48	NESC Extreme	0.0
44	Clamp	2.75	NESC Extreme	0.0
45	Clamp	2.75	NESC Extreme	0.0
46	Clamp	2.82	NESC Heavy	0.0
47	Clamp	2.82	NESC Extreme	0.0
49	Clamp	4.06	NESC Heavy	0.0
51	Clamp	4.87	NESC Heavy	0.0
53	Clamp	5.75	NESC Extreme	0.0
55	Clamp	6.86	NESC Heavy	0.0

57	Clamp	7.45	NESC Heavy	0.0
59	Clamp	3.87	NESC Heavy	0.0

Loads At Insulator Attachments For All Load Cases:

Load Case	Insulator Label	Insulator Type	Structure Attach Label	Structure Attach Load X (kips)	Structure Attach Load Y (kips)	Structure Attach Load Z (kips)	Structure Attach Load Res. (kips)
NESC Heavy	1	Clamp	2P	-0.400	2.261	3.742	4.391
NESC Heavy	2	Clamp	2X	-0.400	2.157	3.742	4.338
NESC Heavy	3	Clamp	5P	-0.027	3.271	7.805	8.463
NESC Heavy	4	Clamp	5X	-0.027	3.176	7.805	8.427
NESC Heavy	5	Clamp	8P	-0.027	3.271	7.836	8.492
NESC Heavy	6	Clamp	8X	-0.027	3.176	7.836	8.456
NESC Heavy	7	Clamp	11P	-0.027	3.271	7.805	8.463
NESC Heavy	8	Clamp	11X	-0.027	3.176	7.805	8.427
NESC Heavy	9	Clamp	1Y	-0.690	1.719	1.682	2.502
NESC Heavy	10	Clamp	4Y	0.000	0.447	1.451	1.519
NESC Heavy	11	Clamp	9Y	0.000	0.502	1.457	1.541
NESC Heavy	12	Clamp	12Y	0.000	0.422	1.358	1.422
NESC Heavy	13	Clamp	14Y	0.000	0.768	2.321	2.444
NESC Heavy	14	Clamp	16Y	0.000	0.594	1.849	1.942
NESC Heavy	15	Clamp	18Y	0.000	0.787	2.509	2.630
NESC Heavy	16	Clamp	19Y	0.000	0.915	2.964	3.102
NESC Heavy	17	Clamp	20Y	0.000	0.917	3.183	3.312
NESC Heavy	18	Clamp	21Y	0.000	1.097	4.084	4.229
NESC Heavy	19	Clamp	22Y	0.000	1.092	4.353	4.488
NESC Heavy	20	Clamp	25Y	0.000	0.612	2.515	2.589
NESC Heavy	21	Clamp	14P	0.000	0.768	2.321	2.444
NESC Heavy	22	Clamp	16P	0.000	0.594	1.849	1.942
NESC Heavy	23	Clamp	18P	0.000	0.975	3.148	3.296
NESC Heavy	24	Clamp	19P	0.000	1.095	3.574	3.738
NESC Heavy	25	Clamp	20P	0.000	1.090	3.771	3.925
NESC Heavy	26	Clamp	21P	0.000	1.307	4.798	4.973
NESC Heavy	27	Clamp	22P	0.000	1.295	5.045	5.209
NESC Heavy	28	Clamp	25P	0.000	0.693	2.793	2.878
NESC Heavy	29	Clamp	14XY	0.000	0.219	1.286	1.304
NESC Heavy	30	Clamp	1P	0.000	0.171	0.523	0.551
NESC Heavy	31	Clamp	3P	0.000	0.234	0.332	0.406
NESC Heavy	32	Clamp	3Y	0.539	-0.732	1.533	1.782
NESC Heavy	33	Clamp	17P	0.000	0.367	0.829	0.906
NESC Heavy	34	Clamp	1XY	-0.096	0.319	1.725	1.757
NESC Heavy	35	Clamp	3XY	0.247	0.238	1.518	1.556
NESC Heavy	37	Clamp	1X	0.000	0.067	0.523	0.528
NESC Heavy	38	Clamp	4P	0.000	0.323	0.869	0.927
NESC Heavy	39	Clamp	4X	0.000	0.134	0.869	0.880
NESC Heavy	40	Clamp	7P	0.000	0.361	1.023	1.085
NESC Heavy	41	Clamp	7X	0.000	0.134	1.023	1.031
NESC Heavy	42	Clamp	10P	0.000	0.370	1.106	1.167
NESC Heavy	43	Clamp	10X	0.000	0.151	1.106	1.117
NESC Heavy	44	Clamp	13P	0.000	0.423	1.152	1.227
NESC Heavy	45	Clamp	13X	0.000	0.169	1.152	1.164
NESC Heavy	46	Clamp	15P	0.000	0.488	1.324	1.411
NESC Heavy	47	Clamp	15X	0.000	0.181	1.324	1.336
NESC Heavy	49	Clamp	18X	0.000	0.188	2.020	2.029
NESC Heavy	51	Clamp	19X	0.000	0.180	2.429	2.435
NESC Heavy	53	Clamp	20X	0.000	0.173	2.650	2.656

NESC Heavy	55	Clamp	21X	0.000	0.207	3.426	3.432
NESC Heavy	57	Clamp	22X	0.000	0.203	3.717	3.723
NESC Heavy	59	Clamp	25X	0.000	0.081	1.931	1.933
NESC Extreme	1	Clamp	2P	-1.445	2.276	0.993	2.873
NESC Extreme	2	Clamp	2X	-1.445	2.276	0.993	2.873
NESC Extreme	3	Clamp	5P	-5.866	5.040	2.757	8.210
NESC Extreme	4	Clamp	5X	-5.866	5.040	2.757	8.210
NESC Extreme	5	Clamp	8P	-5.866	5.040	2.757	8.210
NESC Extreme	6	Clamp	8X	-5.866	5.040	2.757	8.210
NESC Extreme	7	Clamp	11P	-5.866	5.040	2.757	8.210
NESC Extreme	8	Clamp	11X	-5.866	5.040	2.757	8.210
NESC Extreme	9	Clamp	1Y	-1.635	5.434	-0.145	5.676
NESC Extreme	10	Clamp	4Y	0.000	1.303	0.513	1.400
NESC Extreme	11	Clamp	9Y	0.000	1.277	0.505	1.373
NESC Extreme	12	Clamp	12Y	0.000	1.464	0.806	1.671
NESC Extreme	13	Clamp	14Y	0.000	2.370	1.162	2.640
NESC Extreme	14	Clamp	16Y	0.000	1.681	0.870	1.893
NESC Extreme	15	Clamp	18Y	0.000	1.703	0.876	1.915
NESC Extreme	16	Clamp	19Y	0.000	1.719	0.881	1.932
NESC Extreme	17	Clamp	20Y	0.000	2.708	1.981	3.356
NESC Extreme	18	Clamp	21Y	0.000	2.270	1.477	2.709
NESC Extreme	19	Clamp	22Y	0.000	2.239	1.467	2.677
NESC Extreme	20	Clamp	25Y	0.000	1.809	1.341	2.252
NESC Extreme	21	Clamp	14P	0.000	2.370	1.162	2.640
NESC Extreme	22	Clamp	16P	0.000	1.681	0.870	1.893
NESC Extreme	23	Clamp	18P	0.000	2.201	1.145	2.481
NESC Extreme	24	Clamp	19P	0.000	2.197	1.138	2.474
NESC Extreme	25	Clamp	20P	0.000	3.167	2.229	3.873
NESC Extreme	26	Clamp	21P	0.000	2.825	1.778	3.338
NESC Extreme	27	Clamp	22P	0.000	2.775	1.758	3.285
NESC Extreme	28	Clamp	25P	0.000	2.023	1.458	2.494
NESC Extreme	29	Clamp	14XY	0.000	1.414	0.881	1.666
NESC Extreme	30	Clamp	1P	0.000	0.527	0.328	0.620
NESC Extreme	31	Clamp	3P	0.000	0.347	0.232	0.417
NESC Extreme	32	Clamp	3Y	0.921	-1.771	0.890	2.186
NESC Extreme	33	Clamp	17P	0.000	0.796	0.585	0.988
NESC Extreme	34	Clamp	1XY	1.227	4.448	1.966	5.015
NESC Extreme	35	Clamp	3XY	-0.513	-1.132	0.813	1.485
NESC Extreme	37	Clamp	1X	0.000	0.527	0.328	0.620
NESC Extreme	38	Clamp	4P	0.000	0.706	0.424	0.823
NESC Extreme	39	Clamp	4X	0.000	0.706	0.424	0.823
NESC Extreme	40	Clamp	7P	0.000	0.706	0.425	0.824
NESC Extreme	41	Clamp	7X	0.000	0.706	0.425	0.824
NESC Extreme	42	Clamp	10P	0.000	1.412	1.019	1.741
NESC Extreme	43	Clamp	10X	0.000	1.412	1.019	1.741
NESC Extreme	44	Clamp	13P	0.000	1.111	0.812	1.376
NESC Extreme	45	Clamp	13X	0.000	1.111	0.812	1.376
NESC Extreme	46	Clamp	15P	0.000	1.140	0.830	1.410
NESC Extreme	47	Clamp	15X	0.000	1.140	0.830	1.410
NESC Extreme	49	Clamp	18X	0.000	1.159	0.839	1.431
NESC Extreme	51	Clamp	19X	0.000	1.139	0.827	1.408
NESC Extreme	53	Clamp	20X	0.000	2.132	1.925	2.873
NESC Extreme	55	Clamp	21X	0.000	1.559	1.403	2.098
NESC Extreme	57	Clamp	22X	0.000	1.548	1.398	2.086
NESC Extreme	59	Clamp	25X	0.000	1.226	1.224	1.733
NESC Heavy Broken Wire	1	Clamp	2P	-13.580	1.293	1.454	13.719
NESC Heavy Broken Wire	2	Clamp	2X	-0.400	2.157	3.742	4.338
NESC Heavy Broken Wire	3	Clamp	5P	-19.800	1.799	2.925	20.096
NESC Heavy Broken Wire	4	Clamp	5X	-0.027	3.176	7.805	8.427

NESC Heavy Broken Wire	5	Clamp	8P	-0.027	3.271	7.836	8.492
NESC Heavy Broken Wire	6	Clamp	8X	-0.027	3.176	7.836	8.456
NESC Heavy Broken Wire	7	Clamp	11P	-0.027	3.271	7.805	8.463
NESC Heavy Broken Wire	8	Clamp	11X	-0.027	3.176	7.805	8.427
NESC Heavy Broken Wire	9	Clamp	1Y	-0.690	1.719	1.682	2.502
NESC Heavy Broken Wire	10	Clamp	4Y	0.000	0.447	1.451	1.519
NESC Heavy Broken Wire	11	Clamp	9Y	0.000	0.502	1.457	1.541
NESC Heavy Broken Wire	12	Clamp	12Y	0.000	0.422	1.358	1.422
NESC Heavy Broken Wire	13	Clamp	14Y	0.000	0.768	2.321	2.444
NESC Heavy Broken Wire	14	Clamp	16Y	0.000	0.594	1.849	1.942
NESC Heavy Broken Wire	15	Clamp	18Y	0.000	0.787	2.509	2.630
NESC Heavy Broken Wire	16	Clamp	19Y	0.000	0.915	2.964	3.102
NESC Heavy Broken Wire	17	Clamp	20Y	0.000	0.917	3.183	3.312
NESC Heavy Broken Wire	18	Clamp	21Y	0.000	1.097	4.084	4.229
NESC Heavy Broken Wire	19	Clamp	22Y	0.000	1.092	4.353	4.488
NESC Heavy Broken Wire	20	Clamp	25Y	0.000	0.612	2.515	2.589
NESC Heavy Broken Wire	21	Clamp	14P	0.000	0.768	2.321	2.444
NESC Heavy Broken Wire	22	Clamp	16P	0.000	0.594	1.849	1.942
NESC Heavy Broken Wire	23	Clamp	18P	0.000	0.975	3.148	3.296
NESC Heavy Broken Wire	24	Clamp	19P	0.000	1.095	3.574	3.738
NESC Heavy Broken Wire	25	Clamp	20P	0.000	1.090	3.771	3.925
NESC Heavy Broken Wire	26	Clamp	21P	0.000	1.307	4.798	4.973
NESC Heavy Broken Wire	27	Clamp	22P	0.000	1.295	5.045	5.209
NESC Heavy Broken Wire	28	Clamp	25P	0.000	0.693	2.793	2.878
NESC Heavy Broken Wire	29	Clamp	14XY	0.000	0.219	1.286	1.304
NESC Heavy Broken Wire	30	Clamp	1P	0.000	0.171	0.523	0.551
NESC Heavy Broken Wire	31	Clamp	3P	0.000	0.234	0.332	0.406
NESC Heavy Broken Wire	32	Clamp	3Y	0.539	-0.732	1.533	1.782
NESC Heavy Broken Wire	33	Clamp	17P	0.000	0.367	0.829	0.906
NESC Heavy Broken Wire	34	Clamp	1XY	-0.096	0.319	1.725	1.757
NESC Heavy Broken Wire	35	Clamp	3XY	0.247	0.238	1.518	1.556
NESC Heavy Broken Wire	37	Clamp	1X	0.000	0.067	0.523	0.528
NESC Heavy Broken Wire	38	Clamp	4P	0.000	0.323	0.869	0.927
NESC Heavy Broken Wire	39	Clamp	4X	0.000	0.134	0.869	0.880
NESC Heavy Broken Wire	40	Clamp	7P	0.000	0.361	1.023	1.085
NESC Heavy Broken Wire	41	Clamp	7X	0.000	0.134	1.023	1.031
NESC Heavy Broken Wire	42	Clamp	10P	0.000	0.370	1.106	1.167
NESC Heavy Broken Wire	43	Clamp	10X	0.000	0.151	1.106	1.117
NESC Heavy Broken Wire	44	Clamp	13P	0.000	0.423	1.152	1.227
NESC Heavy Broken Wire	45	Clamp	13X	0.000	0.169	1.152	1.164
NESC Heavy Broken Wire	46	Clamp	15P	0.000	0.488	1.324	1.411
NESC Heavy Broken Wire	47	Clamp	15X	0.000	0.181	1.324	1.336
NESC Heavy Broken Wire	49	Clamp	18X	0.000	0.188	2.020	2.029
NESC Heavy Broken Wire	51	Clamp	19X	0.000	0.180	2.429	2.435
NESC Heavy Broken Wire	53	Clamp	20X	0.000	0.173	2.650	2.656
NESC Heavy Broken Wire	55	Clamp	21X	0.000	0.207	3.426	3.432
NESC Heavy Broken Wire	57	Clamp	22X	0.000	0.203	3.717	3.723
NESC Heavy Broken Wire	59	Clamp	25X	0.000	0.081	1.931	1.933

Overturning Moments For User Input Concentrated Loads:

Moments are static equivalents based on central axis of 0,0 (i.e. a single pole).

Load Case	Total Tran. Load (kips)	Total Long. Load (kips)	Total Vert. Load (kips)	Transverse Overturning Moment (ft-k)	Longitudinal Overturning Moment (ft-k)	Torsional Moment (ft-k)
NESC Heavy	34.259	-0.963	93.955	4950.060	-108.713	22.624

NESC Extreme	69.410	-38.086	31.299	9505.525	-6362.544	45.501
NESC Heavy Broken Wire	31.819	-33.916	86.787	4580.380	-6132.471	-333.264

*** Weight of structure (lbs):

Weight of Angles*Section DLF:	57722.2
Total:	57722.2

*** End of Report

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63-2 North Branford Road P: (203) 488-0580
Branford, CT 06405 F: (203) 488-8587

Subject: Anchor Bolt Analysis

Location: Old Saybrook, CT

Rev. 2: 8/14/18

Prepared by: T.J.L. Checked by: C.F.C.
Job No. 17159.20

Anchor Bolt Analysis:

Input Data:

Bolt Force:

Maximum Uplift Force per Pier = $Uplift := 302.8 \cdot kips$ (User Input from PLS-Pole)

Anchor Bolt Data:

Use AST MA36 (Assumed - Conservative)

Number of Anchor Bolts = $N := 5$ (User Input)

Bolt Ultimate Strength = $F_u := 58 \cdot ksi$ (User Input)

Bolt Yeild Strength= $F_y := 36 \cdot ksi$ (User Input)

Bolt Modulus = $E := 29000 \cdot ksi$ (User Input)

Diameter of Anchor Bolts = $D := 2.25 \cdot in$ (User Input)

Threads per Inch = $n := 4.5$ (User Input)

Anchor Bolt Analysis:

Maximum Tension Force per Bolt = $T_{Max} := \frac{Uplift}{N} = 60.6 \cdot kips$

Calculated Anchor Bolt Properties:

Net Area of Bolt = $A_n := \frac{\pi}{4} \cdot \left(D - \frac{0.9743 \cdot in}{n} \right)^2 = 3.248 \cdot in^2$

Bolt Tension Check:

Allowable Tensile Force (Net Area) = $T_{ALL.Net} := 1.0 \cdot \left(A_n \cdot F_y \right) = 116.917 \cdot kips$

Bolt Tension % of Capacity = $\frac{T_{Max}}{T_{ALL.Net}} = 51.8 \cdot \%$

Condition1 = $Condition1 := if\left(\frac{T_{Max}}{T_{ALL.Net}} \le 1.00, "OK", "Overstressed" \right)$

Condition1 = "OK"

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Subject:	Foundation Analysis CL&P Tower # Dist West River x-ing (Uplift Pier)
Location:	Old Saybrook, CT
Rev. 1: 7/11/18	Prepared by: T.J.L. Checked by: C.F.C. Job No. 17159.20

Foundation Analysis

(Uplift Pier)

Input Data:

Max. Reactions at Tower Leg:

Shear =	Shear := 21.8·1.1·kips = 24·kips	(User Input from PLS node 26X)
Compression =	Comp := 165.4·1.1·kips = 181.9·kips	(User Input from PLS node 26X)
Uplift =	Uplift := 302.8·1.1·kips = 333.1·kips	(User Input from PLS node 26P)

Tower Properties:

Tower Height =	$H_t := 190 \cdot ft$	(User Input)

Foundation Properties:

Pier Height =	$P_H := 12.5 \cdot ft$	(User Input)
Pier Width Top =	$P_{w1} := 3.5 \cdot ft$	(User Input)
Pier Width Botttom =	$P_{w2} := 6.0 \cdot ft$	(User Input)
Pier Projection Above Grade =	$P_P := 0.5 \cdot ft$	(User Input)
Pad Width =	$Pd_w := 10 \cdot ft$	(User Input)
Pad Thickness =	$Pd_t := 2 \cdot ft$	(User Input)

Subgrade Properties:

Concrete Unit Weight =	$\gamma c := 150 \cdot pcf$	(User Input)
Water Unit Weight =	$\gamma w := 62.4 \cdot pcf$	(User Input)
Soil Unit Weight =	$\gamma s := 115 \cdot pcf$	(User Input)
Uplift Angle =	$\psi := 30.0 \cdot deg$	(User Input)
Ultimate Soil Bearing Capacity =	$BC_{soil} := 10000 \cdot psf$	(User Input)

Calculated Data:

Cross Sectional Area of Pad = $A_{pier} := Pd_w^2 = 100\,ft^2$

Section Modulus of Pad = $S_{pad} := \frac{Pd_w^3}{6} = 166.67\cdot ft^3$

Resisting Pyramid Base 1 = $B_1 := Pd_w^2 = 100\,ft^2$

Resisting Pyramid Base 2 = $B_2 := \left[2\cdot\tan(\psi)\cdot\left(P_H - P_P\right) + Pd_w\right]^2 = 569.13\,ft^2$

Volume of the Concrete Pad = $V_{pad} := Pd_w^2\cdot Pd_t = 200\cdot ft^3$

Volume of the Concrete Pier = $V_{pier} := P_H\cdot\left[P_{w2}\cdot P_{w1} + \frac{1}{12}\cdot\left[2\cdot\left(P_{w2} - P_{w1}\right)\right]^2\right] = 288.54\cdot ft^3$

Total Vdume of Concrete = $V_{Conc} := V_{pad} + V_{pier} = 488.5\cdot ft^3$

Volume of Soil = $V_{Soil} := \left[\frac{1}{3}\cdot\left(P_H - P_P\right)\cdot\left(B_1 + B_2 + \sqrt{B_1\cdot B_2}\right)\right] - V_{pier} = 3342.2\cdot ft^3$

Mass of Concrete = $Mass_{Conc} := V_{Conc}\cdot\gamma c = 73.3\cdot kips$

Mass of Soil = $Mass_{Soil} := V_{Soil}\cdot\gamma s = 384.4\cdot kips$

Total Mass = $Mass_{Tot} := Mass_{Soil} + Mass_{Conc} = 457.6\cdot kips$

Check Uplift:

Required Factor of Safety = $F_S := 1$

$ActualFS := \frac{Mass_{Tot}}{Uplift} = 1.37$

$Uplift\_Check := if\left(\frac{Mass_{Tot}}{Uplift} \geq F_S, "OK", "Overstressed"\right)$

Uplift_Check = "OK"

Check Bearing:

$Bearing := \frac{Comp + Mass_{Conc}}{A_{pier}} + \frac{Shear\cdot\left(P_H + Pd_t\right)}{S_{pad}} = 4.64\cdot ksf$

$Bearing\_Check := if\left(Bearing \leq BC_{soil}, "OK", "No Good"\right)$

Bearing_Check = "OK"

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Branford, CT 06405 F: (203) 488-8587

Subject:	Foundation Analysis CL&P Tower # Dist West River x-ing (Compression Pier)
Location:	Old Saybrook, CT
Rev. 1: 7/11/18	Prepared by: T.J.L. Checked by: C.F.C. Job No. 17159.20

Foundation Analysis

(Compression Pier)

Input Data:

Max. Reactions at Tower Leg:

Shear =	Shear := 42.12·1.1·kips = 46.3·kips	(User Input from PLS node 26XY)
Compression =	Comp := 323.2·1.1·kips = 355.5·kips	(User Input from PLS node 26XY)
Uplift =	Uplift := 96.74·1.1·kips = 106.4·kips	(User Input from PLS node 26Y)

Tower Properties:

Tower Height =	$H_t := 190 \cdot ft$	(User Input)

Foundation Properties:

Pier Height =	$P_H := 0 \cdot ft$	(User Input)
Pier Width Top =	$P_{w1} := 0 \cdot ft$	(User Input)
Pier Width Botttom =	$P_{w2} := 0 \cdot ft$	(User Input)
Pier Projection Above Grade =	$P_P := 0 \cdot ft$	(User Input)
Pad Width 1 =	$Pd_{w1} := 10 \cdot ft$	(User Input)
Pad Width 2 =	$Pd_{w2} := 25 \cdot ft$	(User Input)
Pad Thickness =	$Pd_t := 7.5 \cdot ft$	(User Input)

Subgrade Properties:

Concrete Unit Weight =	$\gamma c := 150 \cdot pcf$	(User Input)
Water Unit Weight =	$\gamma w := 62.4 \cdot pcf$	(User Input)
Soil Unit Weight =	$\gamma s := 115 \cdot pcf$	(User Input)
Uplift Angle =	$\psi := 30.0 \cdot deg$	(User Input)
Ultimate Soil Bearing Capacity =	$BC_{soil} := 10000 \cdot psf$	(User Input)

Calculated Data:

Cross Sectional Area of Pad = $A_{pier} := Pd_{w1} \cdot Pd_{w2} = 250 ft^2$

Section Modulus of Pad = $S_{pad} := \frac{Pd_{w2} \cdot Pd_{w1}^2}{6} = 417 \cdot ft^3$

Volume of the Concrete Pad = $V_{pad} := Pd_{w1} \cdot Pd_{w2} \cdot Pd_t = 1875 \cdot ft^3$

Volume of the Concrete Pier = $V_{pier} := P_H \cdot \left[P_{w2} \cdot P_{w1} + \frac{1}{12} \cdot \left[2 \cdot \left(P_{w2} - P_{w1} \right) \right]^2 \right] = 0 \cdot ft^3$

Total Vdlume ofConcrete = $V_{Conc} := V_{pad} + V_{pier} = 1875 \cdot ft^3$

Mass of Concrete = $Mass_{Conc} := V_{Conc} \cdot \gamma c = 281.2 \cdot kips$

Check Uplift:

Required Factor of Safety = $F_S := 1$

$ActualFS := \frac{Mass_{Conc}}{Uplift} = 2.64$

$Uplift\_Check := if\left(\frac{Mass_{Conc}}{Uplift} \geq F_S, "OK", "Overstressed" \right)$

Uplift_Check = "OK"

Check Bearing:

$Bearing := \frac{Comp + Mass_{Conc}}{A_{pier}} + \frac{Shear \cdot \left(P_H + Pd_t \right)}{S_{pad}} = 3.38 \cdot ksf$

$Bearing\_Check := if\left(Bearing \leq BC_{soil}, "OK", "No Good" \right)$

Bearing_Check = "OK"

Augment ID: CT54XC774Q17.2

RFDS ID: 45892

SprintVision

RF Design Sheet

Site Identification	
Cascade	CT54XC774
SMS Schedule ID	12323516
SMS Schedule Name	DO Macro Upgrade
PID	DOKU_CT54XC774
RRU OEM	ALU
Switch OEM	Alcatel Lucent
RFDS Issue Date	
RFDS Revision Date	2017-12-06 00:00:00.0
RFDS Revision	2

Filter Analysis Complete	YES
RFDS - Issue Date	
Design Status	Complete
Project Description	DO Macro Upgrade - Add 800MHz (3G + 4G), 1900 MHz (4C

Battery Backup Cabinet Model	
Model Number	
Weight (Lbs.)	
Dimensions (In.)	
Manufacturer	

Junction Box Model	
Model Number	
Weight (Lbs.)	
Dimensions (In.)	
Manufacturer	
Junction Boxes needed at site	

BTS #2 Model	
Model Number	
Weight (Lbs.)	
Dimensions (In.)	
Manufacturer	
Needed at site	

Contact Information	
Engineer Email	Bill.M.Hastings@sprint.com
Sprint Badged RF Engineer	Bill Hastings
RF Engineer Email	Bill.M.Hastings@sprint.com
RF Engineer Phone	978-590-9700
RF Manager	Jonathan Hull
RF Manager Email	Jonathan.B.Hull@Sprint.com
RF Manager Phone	617-233-2920

Carrier Count	
2500 LTE	3
1900 LTE	1
1900 EVDO	
1900 Voice	1
800 LTE	1
800 Voice	1

UE Relay Model	
Model Number	
Weight (Lbs.)	
Dimensions (In.)	
UE Relay Azimuth	
Manufacturer	
UE Relay CL Height (meters)	

ALU Top Hat Model	
Model Number	
Weight (Lbs.)	
Dimensions (In.)	
Manufacturer	
Top Hat Quantity	

Power Protection Cabinet Model	
Model Number	
Weight (Lbs.)	
Dimensions (In.)	
Manufacturer	
Power Protection Cabinet	

Location Details	
Latitude	41.319675
Longitude	-72.35166388
Market	Northern Connecticut
Region	Northeast
City	Old Saybrook
State	CT
Zip Code	CT/06475
County	Middlesex

2500MHz	3
1900MHz	3
800MHz	3

GPS Antenna Model	
Model Number	
Weight (Lbs.)	
Dimensions (In.)	
Manufacturer	
GPS Antenna needed at site	

Repeater Model	
Model Number	
Weight (Lbs.)	
Dimensions (In.)	
Manufacturer	

Growth Cabinet Model	
Model Number	
Weight (Lbs.)	
Dimensions (In.)	
Manufacturer	

BTS #1 Model	
Model Number	
Weight (Lbs.)	
Dimensions (In.)	
Manufacturer	
Number of BTS #1	

A&E Drawing Requirements

12/06/2017 (WR): RFDS revised to replace 16 port KMW antenna with 10 port Commscope antenna and add twin Diplexers for ground mount 1900/800/2500 RRHs on transmission tower. Radio configuration changed.

Additional RF Notes Special Construction Requirements

12/06/2017 (WR): RFDS revised to replace 16 port KMW antenna with 10 port Commscope antenna and add twin Diplexers for ground mount 1900/800/2500 RRHs on transmission tower. Radio configuration changed.

Additional RF Notes

Replace Existing Antenna with 16 port KMW Panel Antenna for 1900 4T4R, 800 2T4R and 2500 8T8R.

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RF Design Sheet

Band: 2500	**Alpha**	**Beta**	**Gamma**	**Delta**	**Epsilon**	**Zeta**
Radio Model						
Model Number	TD-RRH8x20-25	TD-RRH8x20-25	TD-RRH8x20-25	N/A	N/A	N/A
Weight (lbs)	76.2	76.2	76.2	N/A	N/A	N/A
Dimensions	26 x 18.6 x 6.7	26 x 18.6 x 6.7	26 x 18.6 x 6.7	N/A	N/A	N/A
Manufacturer	ALU	ALU	ALU	N/A	N/A	N/A
Number of RRUs needed	1	1	1	0	0	0
Filter Model						
Model Number	N/A	N/A	N/A	N/A	N/A	N/A
Weight (lbs)	N/A	N/A	N/A	N/A	N/A	N/A
Dimensions	N/A	N/A	N/A	N/A	N/A	N/A
Manufacturer	N/A	N/A	N/A	N/A	N/A	N/A
Filter Model 2						
Model Number	N/A	N/A	N/A	N/A	N/A	N/A
Weight (lbs)	N/A	N/A	N/A	N/A	N/A	N/A
Dimensions	N/A	N/A	N/A		N/A	N/A
Manufacturer	N/A	N/A	N/A	N/A	N/A	N/A
Filter Model 3						
Model Number	N/A	N/A	N/A	N/A	N/A	N/A
Weight (lbs)	N/A	N/A	N/A	N/A	N/A	N/A
Dimensions		N/A	N/A	N/A	N/A	N/A
Manufacturer	N/A	N/A	N/A	N/A	N/A	N/A
Trunk Cable 1						
Model Number	Hybriflex	N/A	N/A	N/A	N/A	N/A
Weight (Lbs.)	1	N/A	N/A	N/A	N/A	N/A
Dimensions (In.)	1.54	N/A	N/A	N/A	N/A	N/A
Manufacturer	ALU	N/A	N/A	N/A	N/A	N/A
Trunk Cable 1 Qty						
Power Junction Cylinder Model						
Model Number	N/A	N/A	N/A	N/A	N/A	N/A
Weight (Lbs.)	N/A	N/A	N/A	N/A	N/A	N/A
Dimensions (In.)	N/A	N/A	N/A	N/A	N/A	N/A
Manufacturer	N/A	N/A	N/A	N/A	N/A	N/A
Power Junction Cylinder Qty	0	0	0	0	0	0
Optical Junction Cylinder Qty needed						
Model Number	N/A	N/A	N/A	N/A	N/A	N/A
Weight (Lbs.)	N/A	N/A	N/A	N/A	N/A	N/A
Dimensions (In.)	N/A	N/A	N/A	N/A	N/A	N/A
Manufacturer	N/A	N/A	N/A	N/A	N/A	N/A
Optical Junction Cylinder Qty needed	0	0	0	0	0	0

Band: 1900	**Alpha**	**Beta**	**Gamma**	**Delta**	**Epsilon**	**Zeta**
Radio Model						
Model Number	N/A	N/A	N/A	N/A	N/A	N/A
Weight (lbs)	N/A	N/A	N/A	N/A	N/A	N/A
Dimensions	N/A	N/A	N/A	N/A	N/A	N/A
Manufacturer	N/A	N/A	N/A	N/A	N/A	N/A
Number of RRUs needed	0	0	0	0	0	0
Filter Model						
Model Number	N/A	N/A	N/A	N/A	N/A	N/A
Weight (lbs)	N/A	N/A	N/A	N/A	N/A	N/A
Dimensions	N/A	N/A	N/A	N/A	N/A	N/A
Manufacturer	N/A	N/A	N/A	N/A	N/A	N/A
Filter Model 2						
Model Number	N/A	N/A	N/A	N/A	N/A	N/A
Weight (lbs)	N/A	N/A	N/A	N/A	N/A	N/A
Dimensions	N/A	N/A	N/A		N/A	N/A
Manufacturer	N/A	N/A	N/A	N/A	N/A	N/A
Filter Model 3						
Model Number	N/A	N/A	N/A	N/A	N/A	N/A
Weight (lbs)	N/A	N/A	N/A	N/A	N/A	N/A
Dimensions		N/A	N/A	N/A	N/A	N/A
Manufacturer	N/A	N/A	N/A	N/A	N/A	N/A
Trunk Cable 1						
Model Number	N/A	N/A	N/A	N/A	N/A	N/A
Weight (Lbs.)	N/A	N/A	N/A	N/A	N/A	N/A
Dimensions (In.)	N/A	N/A	N/A	N/A	N/A	N/A
Manufacturer	N/A	N/A	N/A	N/A	N/A	N/A
Trunk Cable 1 Qty						
Power Junction Cylinder Model						
Model Number	N/A	N/A	N/A	N/A	N/A	N/A
Weight (Lbs.)	N/A	N/A	N/A	N/A	N/A	N/A
Dimensions (In.)	N/A	N/A	N/A	N/A	N/A	N/A
Manufacturer	N/A	N/A	N/A	N/A	N/A	N/A
Power Junction Cylinder Qty	0	0	0	0	0	0
Optical Junction Cylinder Qty needed						
Model Number	N/A	N/A	N/A	N/A	N/A	N/A
Weight (Lbs.)	N/A	N/A	N/A	N/A	N/A	N/A
Dimensions (In.)	N/A	N/A	N/A	N/A	N/A	N/A
Manufacturer	N/A	N/A	N/A	N/A	N/A	N/A
Optical Junction Cylinder Qty needed	0	0	0	0	0	0

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RF Design Sheet

Band: 800	Alpha	Beta	Gamma	Delta	Epsilon	Zeta
Radio Model						
Model Number	RRH-2x50-800	RRH-2x50-800	RRH-2x50-800	N/A	N/A	N/A
Weight (lbs)	69.1	69.1	69.1	N/A	N/A	N/A
Dimensions	16 x 13 x 10	16 x 13 x 10	16 x 13 x 10	N/A	N/A	N/A
Manufacturer	ALU	ALU	ALU	N/A	N/A	N/A
Number of RRUs needed	1	1	1	0	0	0
Filter Model						
Model Number	N/A	N/A	N/A	N/A	N/A	N/A
Weight (lbs)	N/A	N/A	N/A	N/A	N/A	N/A
Dimensions	N/A	N/A	N/A	N/A	N/A	N/A
Manufacturer	N/A	N/A	N/A	N/A	N/A	N/A
Filter Model 2						
Model Number	N/A	N/A	N/A	N/A	N/A	N/A
Weight (lbs)	N/A	N/A	N/A	N/A	N/A	N/A
Dimensions	N/A	N/A	N/A		N/A	N/A
Manufacturer	N/A	N/A	N/A	N/A	N/A	N/A
Filter Model 3						
Model Number	N/A	N/A	N/A	N/A	N/A	N/A
Weight (lbs)	N/A	N/A	N/A	N/A	N/A	N/A
Dimensions		N/A	N/A	N/A	N/A	N/A
Manufacturer	N/A	N/A	N/A	N/A	N/A	N/A
Trunk Cable 1						
Model Number	N/A	N/A	N/A	N/A	N/A	N/A
Weight (Lbs.)	N/A	N/A	N/A	N/A	N/A	N/A
Dimensions (In.)	N/A	N/A	N/A	N/A	N/A	N/A
Manufacturer	N/A	N/A	N/A	N/A	N/A	N/A
Trunk Cable 1 Qty						
Power Junction Cylinder Model						
Model Number	N/A	N/A	N/A	N/A	N/A	N/A
Weight (Lbs.)	N/A	N/A	N/A	N/A	N/A	N/A
Dimensions (In.)	N/A	N/A	N/A	N/A	N/A	N/A
Manufacturer	N/A	N/A	N/A	N/A	N/A	N/A
Power Junction Cylinder Qty	0	0	0	0	0	0
Optical Junction Cylinder Qty needed						
Model Number	N/A	N/A	N/A	N/A	N/A	N/A
Weight (Lbs.)	N/A	N/A	N/A	N/A	N/A	N/A
Dimensions (In.)	N/A	N/A	N/A	N/A	N/A	N/A
Manufacturer	N/A	N/A	N/A	N/A	N/A	N/A
Optical Junction Cylinder Qty needed	0	0	0	0	0	0

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RF Design Sheet

Band: 2500	Alpha	Beta	Gamma	Delta	Epsilon	Zeta
Antenna1						
Model Number	Antenna assigned on a different band	Antenna assigned on a different band	Antenna assigned on a different band			
Weight (lbs)	0	0	0	N/A	N/A	N/A
Dimensions	0 x 0 x 0	0 x 0 x 0	0 x 0 x 0	N/A	N/A	N/A
Manufacturer	-	-	-	N/A	N/A	N/A
Ant1 Top Jumper Make/Mode/Qtyl	2.5 Jumper | 8	2.5 Jumper | 8	2.5 Jumper | 8	N/A | 0	N/A | 0	N/A | 0
Ant 1 RF requested Diameter	1/2"	1/2"	1/2"	N/A	N/A	N/A
Ant 1 RF requested Top Jumper Length(ft)	8	8	8	N/A	N/A	N/A
Antenna 1 Azimuth	30	120	280	N/A	N/A	N/A
Antenna 1 Mechanical DT	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 1 Center Line (ft)	135.9580096	135.9580096	135.9580096	N/A	N/A	N/A
Antenna 1 Electrical DT	2	2	2	N/A	N/A	N/A
Antenna 1 Electrical DT 2	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 1 Electrical DT 3	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 1 Twist	N/A	N/A	N/A	N/A	N/A	N/A
Antenna2						
Model Number						
Weight (lbs)	N/A	N/A	N/A	N/A	N/A	N/A
Dimensions	N/A	N/A	N/A	N/A	N/A	N/A
Manufacturer	N/A	N/A	N/A	N/A	N/A	N/A
Ant2 Top Jumper Make/Mode/Qtyl	N/A | 0	N/A | 0	N/A | 0	N/A | 0	N/A | 0	N/A | 0
Ant 2 RF Top Jumper Diameter	N/A	N/A	N/A	N/A	N/A	N/A
Ant 2 RF Top Jumper Length(ft)	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 2 Azimuth	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 2 Mechanical DT	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 2 Center Line (ft)	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 2 Electrical DT	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 2 Electrical DT 2	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 2 Electrical DT 3	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 2 Twist	N/A	N/A	N/A	N/A	N/A	N/A

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RF Design Sheet

Band: 1900	Alpha	Beta	Gamma	Delta	Epsilon	Zeta
Antenna1						
Model Number	DHHTT65B-3XR	DHHTT65B-3XR	DHHTT65B-3XR			
Weight (lbs)	48.5	48.5	48.5	N/A	N/A	N/A
Dimensions	72 x 12 x 7.1	72 x 12 x 7.1	72 x 12 x 7.1	N/A	N/A	N/A
Manufacturer	CommScope	CommScope	CommScope	N/A	N/A	N/A
Ant1 Top Jumper Make/Mode/Qtyl	800/1900 Jumper 8	800/1900 Jumper 8	800/1900 Jumper 8	N/A 0	N/A 0	N/A 0
Ant 1 RF requested Diameter	1/2"	1/2"	1/2"	N/A	N/A	N/A
Ant 1 RF requested Top Jumper Length(ft)	8	8	8	N/A	N/A	N/A
Antenna 1 Azimuth	30	120	280	N/A	N/A	N/A
Antenna 1 Mechanical DT	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 1 Center Line (ft)	135.9580096	135.9580096	135.9580096	N/A	N/A	N/A
Antenna 1 Electrical DT	3	3	3	N/A	N/A	N/A
Antenna 1 Electrical DT 2	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 1 Electrical DT 3	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 1 Twist	N/A	N/A	N/A	N/A	N/A	N/A
Antenna2						
Model Number						
Weight (lbs)	N/A	N/A	N/A	N/A	N/A	N/A
Dimensions	N/A	N/A	N/A	N/A	N/A	N/A
Manufacturer	N/A	N/A	N/A	N/A	N/A	
Ant2 Top Jumper Make/Mode/Qtyl	N/A 0	N/A 0	N/A 0	N/A 0	N/A 0	N/A
Ant 2 RF Top Jumper Diameter	N/A	N/A	N/A	N/A	N/A	N/A
Ant 2 RF Top Jumper Length(ft)	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 2 Azimuth	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 2 Mechanical DT	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 2 Center Line (ft)	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 2 Electrical DT	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 2 Electrical DT 2	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 2 Electrical DT 3	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 2 Twist	N/A	N/A	N/A	N/A	N/A	N/A

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RF Design Sheet

Band: 800	Alpha	Beta	Gamma	Delta	Epsilon	Zeta
Antenna1						
Model Number	Antenna assigned on a different band	Antenna assigned on a different band	Antenna assigned on a different band			
Weight (lbs)	0	0	0	N/A	N/A	N/A
Dimensions	0 x 0 x 0	0 x 0 x 0	0 x 0 x 0	N/A	N/A	N/A
Manufacturer	-	-	-	N/A	N/A	N/A
Ant1 Top Jumper Make/Mode/Qtyl	800/1900 Jumper | 2	800/1900 Jumper | 2	800/1900 Jumper | 2	N/A | 0	N/A | 0	N/A | 0
Ant 1 RF requested Diameter	1/2"	1/2"	1/2"	N/A	N/A	N/A
Ant 1 RF requested Top Jumper Length(ft)	8	8	8	N/A	N/A	N/A
Antenna 1 Azimuth	30	120	280	N/A	N/A	N/A
Antenna 1 Mechanical DT	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 1 Center Line (ft)	135.9580096	135.9580096	135.9580096	N/A	N/A	N/A
Antenna 1 Electrical DT	5	5	5	N/A	N/A	N/A
Antenna 1 Electrical DT 2	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 1 Electrical DT 3	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 1 Twist	N/A	N/A	N/A	N/A	N/A	N/A
Antenna2						
Model Number						
Weight (lbs)	N/A	N/A	N/A	N/A	N/A	N/A
Dimensions	N/A	N/A	N/A	N/A	N/A	N/A
Manufacturer	N/A	N/A	N/A	N/A	N/A	
Ant2 Top Jumper Make/Mode/Qtyl	N/A | 0	N/A | 0	N/A | 0	N/A | 0	N/A | 0	N/A |
Ant 2 RF Top Jumper Diameter	N/A	N/A	N/A	N/A	N/A	N/A
Ant 2 RF Top Jumper Length(ft)	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 2 Azimuth	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 2 Mechanical DT	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 2 Center Line (ft)	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 2 Electrical DT	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 2 Electrical DT 2	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 2 Electrical DT 3	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 2 Twist	N/A	N/A	N/A	N/A	N/A	N/A

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RF Design Sheet

Band: 2500	Alpha	Beta	Gamma	Delta	Epsilon	Zeta
Antenna1 Split						
Model Number						
Weight (lbs)	N/A	N/A	N/A	N/A	N/A	N/A
Dimensions	N/A	N/A	N/A	N/A	N/A	N/A
Manufacturer	N/A	N/A	N/A	N/A	N/A	N/A
Accept Proposed Ant1 Model Change?	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 1 band combined with	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 1 Upper Passive Component Model						
Model Number	DPO-7126Y-0-T1 (1.9/2.5 4:2 Diplexer)	DPO-7126Y-0-T1 (1.9/2.5 4:2 Diplexer)	DPO-7126Y-0-T1 (1.9/2.5 4:2 Diplexer)			
Weight (lbs)	7.3	7.3	7.3	N/A	N/A	N/A
Dimensions	6.26 x 4.07 x 7.42	6.26 x 4.07 x 7.42	6.26 x 4.07 x 7.42	N/A	N/A	N/A
Manufacturer	CCI	CCI	CCI	N/A	N/A	N/A
Ant1 Upper Passive Comp Qty needed	1	1	1	0	0	0
Ant1 Upper Pass Comp band combi with	1900MHz	1900MHz	1900MHz			
Antenna 1 Lower Passive Component Model						
Model Number	DPO-7126Y-0-T1 (1.9/2.5 4:2 Diplexer)	DPO-7126Y-0-T1 (1.9/2.5 4:2 Diplexer)	DPO-7126Y-0-T1 (1.9/2.5 4:2 Diplexer)			
Weight (lbs)	7.3	7.3	7.3	N/A	N/A	N/A
Dimensions	6.26 x 4.07 x 7.42	6.26 x 4.07 x 7.42	6.26 x 4.07 x 7.42	N/A	N/A	N/A
Manufacturer	CCI	CCI	CCI	N/A	N/A	N/A
Ant1 Lower Passive Comp Qty needed	1	1	1	0	0	0
Ant1 Low Pass Comp band comb with	1900MHz	1900MHz	1900MHz			
Position Ant 1						
Antenna2 Split						
Model Number						
Weight (lbs)	N/A	N/A	N/A	N/A	N/A	N/A
Dimensions	N/A	N/A	N/A	N/A	N/A	N/A
Manufacturer	N/A	N/A	N/A	N/A	N/A	N/A
Accept Proposed Ant2 Model Change?	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 2 band combined with						
Antenna 2 Upper Passive Component Model						
Model Number						
Weight (lbs)	N/A	N/A	N/A	N/A	N/A	N/A
Dimensions	N/A	N/A	N/A	N/A	N/A	N/A
Manufacturer	N/A	N/A	N/A	N/A	N/A	N/A
Ant2 Upper Passive Comp Qty needed	0	0	0	0	0	0
Antenna 2 Lower Passive Component Model						
Model Number						
Weight (lbs)	N/A	N/A	N/A	N/A	N/A	N/A
Dimensions	N/A	N/A	N/A	N/A	N/A	N/A
Manufacturer	N/A	N/A	N/A	N/A	N/A	N/A
Ant1 Lower Passive Comp Qty needed	0	0	0	0	0	0
Ant1 Lower Passive Component band combined with						
Position Ant 2						

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RF Design Sheet

Band: 1900	Alpha	Beta	Gamma	Delta	Epsilon	Zeta
Antenna1 Split						
Model Number						
Weight (lbs)	N/A	N/A	N/A	N/A	N/A	N/A
Dimensions	N/A	N/A	N/A	N/A	N/A	N/A
Manufacturer	N/A	N/A	N/A	N/A	N/A	N/A
Accept Proposed Ant1 Model Change?	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 1 band combined with	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 1 Upper Passive Component Model						
Model Number	KIT-FD9R6004/1C-DL	KIT-FD9R6004/1C-DL	KIT-FD9R6004/1C-DL			
Weight (lbs)	6.4	6.4	6.4	N/A	N/A	N/A
Dimensions	5.8 x 6.5 x 4.6	5.8 x 6.5 x 4.6	5.8 x 6.5 x 4.6	N/A	N/A	N/A
Manufacturer	RFS	RFS	RFS	N/A	N/A	N/A
Ant1 Upper Passive Comp Qty needed	1	1	1	0	0	0
Ant1 Upper Pass Comp band combi with	800MHz	800MHz	800MHz			
Antenna 1 Lower Passive Component Model						
Model Number	KIT-FD9R6004/1C-DL	KIT-FD9R6004/1C-DL	KIT-FD9R6004/1C-DL			
Weight (lbs)	6.4	6.4	6.4	N/A	N/A	N/A
Dimensions	5.8 x 6.5 x 4.6	5.8 x 6.5 x 4.6	5.8 x 6.5 x 4.6	N/A	N/A	N/A
Manufacturer	RFS	RFS	RFS	N/A	N/A	N/A
Ant1 Lower Passive Comp Qty needed	1	1	1	0	0	0
Ant1 Low Pass Comp band comb with	800MHz	800MHz	800MHz			
Position Ant 1						
Antenna2 Split						
Model Number						
Weight (lbs)	N/A	N/A	N/A	N/A	N/A	N/A
Dimensions	N/A	N/A	N/A	N/A	N/A	N/A
Manufacturer	N/A	N/A	N/A	N/A	N/A	N/A
Accept Proposed Ant2 Model Change?	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 2 band combined with						
Antenna 2 Upper Passive Component Model						
Model Number						
Weight (lbs)	N/A	N/A	N/A	N/A	N/A	N/A
Dimensions	N/A	N/A	N/A	N/A	N/A	N/A
Manufacturer	N/A	N/A	N/A	N/A	N/A	N/A
Ant2 Upper Passive Comp Qty needed	0	0	0	0	0	0
Antenna 2 Lower Passive Component Model						
Model Number						
Weight (lbs)	N/A	N/A	N/A	N/A	N/A	N/A
Dimensions	N/A	N/A	N/A	N/A	N/A	N/A
Manufacturer	N/A	N/A	N/A	N/A	N/A	N/A
Ant1 Lower Passive Comp Qty needed	0	0	0	0	0	0
Ant1 Lower Passive Component band combined with						
Position Ant 2						

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RF Design Sheet

Band: 800	Alpha	Beta	Gamma	Delta	Epsilon	Zeta
Antenna1 Split						
Model Number						
Weight (lbs)	N/A	N/A	N/A	N/A	N/A	N/A
Dimensions	N/A	N/A	N/A	N/A	N/A	N/A
Manufacturer	N/A	N/A	N/A	N/A	N/A	N/A
Accept Proposed Ant1 Model Change?	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 1 band combined with	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 1 Upper Passive Component Model						
Model Number						
Weight (lbs)	N/A	N/A	N/A	N/A	N/A	N/A
Dimensions	N/A	N/A	N/A	N/A	N/A	N/A
Manufacturer	N/A	N/A	N/A	N/A	N/A	N/A
Ant1 Upper Passive Comp Qty needed	0	0	0	0	0	0
Ant1 Upper Pass Comp band combi with						
Antenna 1 Lower Passive Component Model						
Model Number						
Weight (lbs)	N/A	N/A	N/A	N/A	N/A	N/A
Dimensions	N/A	N/A	N/A	N/A	N/A	N/A
Manufacturer	N/A	N/A	N/A	N/A	N/A	N/A
Ant1 Lower Passive Comp Qty needed	0	0	0	0	0	0
Ant1 Low Pass Comp band comb with						
Position Ant 1						
Antenna2 Split						
Model Number						
Weight (lbs)	N/A	N/A	N/A	N/A	N/A	N/A
Dimensions	N/A	N/A	N/A	N/A	N/A	N/A
Manufacturer	N/A	N/A	N/A	N/A	N/A	N/A
Accept Proposed Ant2 Model Change?	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 2 band combined with						
Antenna 2 Upper Passive Component Model						
Model Number						
Weight (lbs)	N/A	N/A	N/A	N/A	N/A	N/A
Dimensions	N/A	N/A	N/A	N/A	N/A	N/A
Manufacturer	N/A	N/A	N/A	N/A	N/A	N/A
Ant2 Upper Passive Comp Qty needed	0	0	0	0	0	0
Antenna 2 Lower Passive Component Model						
Model Number						
Weight (lbs)	N/A	N/A	N/A	N/A	N/A	N/A
Dimensions	N/A	N/A	N/A	N/A	N/A	N/A
Manufacturer	N/A	N/A	N/A	N/A	N/A	N/A
Ant1 Lower Passive Comp Qty needed	0	0	0	0	0	0
Ant1 Lower Passive Component band combined with						
Position Ant 2						

Product Specifications

DHHTT65B-3XR

Multiband Antenna, 790–960, 2 x 1710–2180 and 2 x 2490-2690 MHz, 65° horizontal beamwidth, internal electrical tilt with individual tilt available for the 850 MHz band, 1900 MHz bands and 2500 MHz bands.

Electrical Specifications

Frequency Band, MHz	790–896	870–960	1710–1880	1850–1990	1920–2180	2490–2690
Connector Interface	7-16 DIN Female	7-16 DIN Female	7-16 DIN Female	7-16 DIN Female	7-16 DIN Female	4.1-9.5 DIN Female
Connector Location	Bottom	Bottom	Bottom	Bottom	Bottom	Bottom
Gain, dBi	15.5	15.5	17.3	17.4	17.5	17.2
Beamwidth, Horizontal, degrees	64	63	71	69	66	60
Beamwidth, Vertical, degrees	11.2	10.3	5.6	5.4	5.1	4.3
Beam Tilt, degrees	0–10	0–10	0–8	0–8	0–8	0–8
USLS (First Lobe), dB	15	16	15	16	15	18
Front-to-Back Ratio at 180°, dB	28	31	31	29	25	26
CPR at Boresight, dB	20	19	20	20	18	16
CPR at Sector, dB	9	9	9	9	7	4
Isolation, dB	25	25	25	25	25	25
Isolation, Intersystem, dB	30	30	30	30	30	30
VSWR | Return Loss, dB	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153	-153	-153	-153	-150
Input Power per Port, maximum, watts	350	350	300	300	300	250
Polarization	±45°	±45°	±45°	±45°	±45°	±45°
Impedance	50 ohm	50 ohm	50 ohm	50 ohm	50 ohm	50 ohm

Electrical Specifications, BASTA*

Frequency Band, MHz	790–896	870–960	1710–1880	1850–1990	1920–2180	2490–2690
Gain by all Beam Tilts, average, dBi	15.0	15.1	17.0	17.1	17.1	17.1
Gain by all Beam Tilts Tolerance, dB	±0.4	±0.3	±0.3	±0.3	±0.3	±0.6
Gain by Beam Tilt, average, dBi	0 ° | 15.0	0 ° | 15.0	0 ° | 16.8	0 ° | 17.0	0 ° | 17.0	0 ° | 17.1
	5 ° | 15.1	5 ° | 15.1	4 ° | 17.0	4 ° | 17.1	4 ° | 17.1	4 ° | 17.2
	10 ° | 15.0	10 ° | 15.0	8 ° | 17.0	8 ° | 17.1	8 ° | 17.1	8 ° | 17.0
Beamwidth, Horizontal Tolerance, degrees	±2.5	±1.8	±3.2	±2.7	±5	±6.6
Beamwidth, Vertical Tolerance, degrees	±0.8	±0.6	±0.2	±0.2	±0.4	±0.3
USLS, beampeak to 20° above beampeak, dB	16	17	16	17	16	19
Front-to-Back Total Power at 180° ± 30°, dB	24	26	26	25	23	23
CPR at Boresight, dB	21	20	22	22	21	16
CPR at Sector, dB	9	10	13	10	8	5

* CommScope® supports NGMN recommendations on Base Station Antenna Standards (BASTA). To learn more about the benefits of BASTA, download the whitepaper Time to Raise the Bar on BSAs.

General Specifications

Antenna Brand	Andrew®
Antenna Type	DualPol® multiband with internal RET
Band	Multiband
Brand	DualPol®

Product Specifications

DHHTT65B-3XR

Operating Frequency Band	1710 – 2180 MHz | 2490 – 2690 MHz | 790 – 960 MHz
Performance Note	Outdoor usage

Mechanical Specifications

Color	Light gray
Lightning Protection	dc Ground
Radiator Material	Copper | Low loss circuit board
Radome Material	ASA, UV stabilized
Reflector Material	Aluminum
RF Connector Interface	4.1-9.5 DIN Female | 7-16 DIN Female
RF Connector Location	Bottom
RF Connector Quantity, total	10
Wind Loading, frontal	618.0 N @ 150 km/h 138.9 lbf @ 150 km/h
Wind Speed, maximum	241 km/h | 150 mph

Dimensions

Depth	181.0 mm | 7.1 in
Length	1832.0 mm | 72.1 in
Width	301.0 mm | 11.9 in
Net Weight	20.6 kg | 45.4 lb

Remote Electrical Tilt (RET) Information

Input Voltage	10–30 Vdc
Power Consumption, idle state, maximum	2.0 W
Power Consumption, normal conditions, maximum	13.0 W
Protocol	3GPP/AISG 2.0 (Multi-RET)
RET Interface	8-pin DIN Female | 8-pin DIN Male
RET Interface, quantity	1 female | 1 male

Packed Dimensions

Depth	299.0 mm | 11.8 in
Length	1954.0 mm | 76.9 in
Width	409.0 mm | 16.1 in
Shipping Weight	33.2 kg | 73.2 lb

Regulatory Compliance/Certifications

Agency	Classification
RoHS 2011/65/EU	Compliant by Exemption
China RoHS SJ/T 11364-2006	Above Maximum Concentration Value (MCV)
ISO 9001:2008	

DATA SHEET

Outdoor Diplexer

DPO-7126Y-0x1

- Combines the frequencies covering PCS/AWS (1695-2180 MHz) with BRS (2496-2690 MHz)
- High power 250 W per port with low insertion loss in a small, lightweight enclosure
- Low intermodulation with isolation of >50 dB port to port
- High reliability of >500K Hours MTBF and multi-strike lightning protection
- Designed and produced to ISO 9001:2008 certification standards
- Weatherproof enclosure (IP67) with available outdoor pole or wall mounting options

Overview

The CCI Outdoor Diplexer passes the PCS and AWS bands covering 1695-2180 MHz on its low band input port and the full BRS band which covers 2496-2690 MHz on its high band input port. The Diplexer combines the low band and high band signals on to a common port and is specifically intended for use in multi-band systems with limited feeder lines. The Diplexer facilitates the addition of new technologies including LTE and new spectrum to existing sites while providing a high degree of isolation between systems. Decreasing the number of feeder lines lowers tower loading, leasing and installation expenditures and significantly reduces the total cost to upgrade a site.
The CCI Outdoor Diplexer provides full band performance for each band with low insertion loss, low Intermodulation, and high 250 W per port power handling. Excellent return loss performance delivers the best match to the antennas and base station, saving precious transmit power. The CCI Diplexer is available in a single, twin or quad unit configuration.

Technical Description:

The CCI Outdoor Diplexer consists of multiple filters and can be used as either a splitter or combiner to aggregate the PCS/AWS with the BRS bands on to a common feeder line. The fully weatherproof tower mount Diplexer has internal multi-strike lightning protection using a multi-stage surge protection circuit.
The unit has been designed to minimize insertion loss while maximizing isolation. Particular attention has been given to the intermodulation performance of the Diplexer to minimize any passive intermodulation products from occurring. The Diplexer housing is constructed from die cast aluminum and consists of an IP67 moisture proof enclosure, with IP68 immersion proof connectors suited to long-life masthead mounting. The Diplexer can be pole or wall mounted with the included bracket. The RF ports are configured with DIN 7-16.
CCI filter and combiner products are designed and produced to ISO 9001:2008 certification standards for reliability and quality at our state-of-the-art engineering and manufacturing facilities.

SPECIFICATIONS

Outdoor Diplexer

DPO-7126Y-0x1

Electrical

RF Parameters	Ports	Frequency(MHz)	Specification
Return Loss	COMMON	1695 - 2180	18 dB minimum, 20 dB typical
		2496 - 2690	18 dB minimum, 20 dB typical
	PCS/AWS	1695 - 2180	18 dB minimum, 20 dB typical
	BRS	2496 - 2690	18 dB minimum, 20 dB typical
Insertion Loss	COMMON to PCS/AWS	1695 - 2180	0.2 dB typical, 0.25 dB maximum
	COMMON to BRS	2496 - 2690	0.2 dB typical, 0.25 dB maximum
Rejection	COMMON to PCS/AWS	2496 - 2690	50 dB minimum
	COMMON to BRS	1695 - 2180	50 dB minimum
Isolation	PCS/AWS to BRS	1695 - 2180	50 dB minimum
	BRS to PCS/AWS	2496 - 2690	50 dB minimum

General Characteristics	
General Impedance	50 ohms
Continuous Average Power	250 W maximum (input ports), 500 W maximum (Common port)
Peak Envelope Power	1 kW maximum (input ports), 3 kW maximum (Common port)
Intermodulation Performance	<-117 dBm (-160 dBc) at 2 × +43 dBm tones all bands

Environmental

Operating Temperature	-40˚C to +65˚C
Enclosure	Enclosure IP67, Connectors IP68
MTBF	>500,000 hours
Lightning Protection	8/20us, ±20KA maximum, 10 strikes per IEC61000-4-5

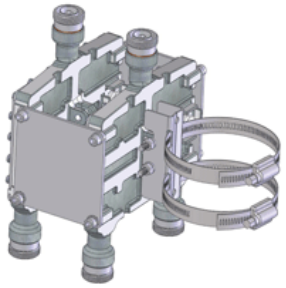
Mechanical

Model	DPO-7126Y-0-S1	DPO-7126Y-0-T1	DPO-7126Y-0-Q1
Modularity	Single	Twin	Quad
Weight with brackets	3.7 lbs (1.6 Kg)	7.3 lbs (3.3 Kg)	14.4 lbs (6.6 Kg)
Dimensions with brackets	6.26 x 7.42 x 2.02 in. (159 x 188.5 x 51.4 mm)	6.26 x 7.42 x 4.07 in. (159 x 188.5 x 103.4 mm)	6.26x 7.42 x 8.17 in. (159 x 188.5 x 207.4 mm)
Dimensions enclosure only	2.95 x 7.42 x 1.95 in. (75 x 188.5 x 48.8 mm)		
Connectors	3 x 7-16 DIN female long neck		
Mounting	Pole/Wall mounting bracket		

RADIO FREQUENCY SYSTEMS
The Clear Choice®

ShareLite™ Wideband Diplexer Kit – In-line 698-960 MHz/1710-2200 MHz, full DC/AISG pass

The ShareLite FD9R6004 Series of diplexers are designed to enable feeder sharing between systems in the 698-960 MHz range and in the 1710-2200 MHz range, including all the new AWS-3 paired spectrum blocks (G, H, I, J).. The diplexer is equipped with in-line connector placement so it can be installed in the BTS cabinet or at the tower top. This is especially valuable in crowded sites or when the feeders are not easily accessible. Due to its wideband design, the FD9R6004 Series can accommodate many combining solutions between 698-960 MHz and 1710-2200 MHz systems such as LTE 700 MHz, Cellular 800 MHz with PCS, GSM900 with GSM1800, or GSM900 with UMTS. This diplexer features a highly selective filter. It provides a high level of isolation between ports, while keeping the insertion loss on both paths at an extremely low level. The FD9R6004 diplexers are available with various DC pass options, helpful in configurations with or without the Tower Mount Amplifiers installed.



FEATURES / BENEFITS

- LTE and AWS-3 ready design
- Extremely Low Insertion Loss
- High level of Rejection between bands – Protection against interferences
- Extremely High Power Handling Capability
- DC/AISG 1.1/2.0 pass through all ports
- Very compact & small size design – Easy installation and reduced tower load
- In-line long-neck connectors for easy connection & waterproofing
- Exceptional reliability & environmental protection (IP 67)
- Equipped with 1 * Breathable Vent – Prevent any humidity inside the product
- Mounting hardware for Wall and Pole mount provided (P/N SEM2-1A)
- Grounding already provided through the mounting bracket

Technical Features

GENERAL SPECIFICATIONS		
Product Type		Diplexer/Cross Band Combiner
Application		LTE700, GSM900, UMTS, GSM1800, Cellular 800, PCS, AWS-1, AWS-3
Configuration		ShareLite Kit consisting of (2) in-line long neck connector diplexers (Full DC Pass), (1) mounting hardware SEM2-1A, & (1) assembly kit SEM2-3 disassembled
ELECTRICAL SPECIFICATIONS		
Frequency Range 1	MHz	698 - 960
Frequency Range 2	MHz	1710 - 2200
Return Loss All Ports	dB	19 Min/23 Typ.
Power Handling Continuous, Max	W	1250 at common port; 750 in low frequency path & 500 in high frequency path
Power Handling Peak, Max	W	15000 in low frequency path & 8000 in high frequency path
Impedance	Ω	50.0
Insertion Loss, Path 1	dB	0.07 typ.
Insertion Loss, Path 2	dB	0.13 typ.
Rejection Between Bands Min/Typ	dB	58/64@698-960MHz 57/70@1710-2200MHz
Group Delay, Path 1	ns	3 Max.
Group Delay, Path 2	ns	3 Max.
IMP Level at the COM Port	dBm (dBc)	-112 (-155) @2x43 typ.
DC Pass in Path 1		Yes
DC Pass in Path 2		Yes

MECHANICAL SPECIFICATIONS		
Mounting		Wall Mounting: With 4 screws (maximum 6mm diameter) Pole Mounting: With included clamp set 40-110mm (1.57-4.33)
RF Connectors		In-line long-neck 7-16-Female
Weight	kg (lb)	2.9 (6.4)
Dimensions, H x W x D	mm (in)	147 x 164 x 118 (5.8 x 6.5 x 4.6)
Shipping Dimensions, H x W x D	mm (in)	254 x 406 x 82 (10 x 16 x 3.2) for 1 * Dual unit in 1 * box, 280 x 406 x 241 (11 x 16 x 9.5) for 3 * Dual units = 3 * Boxes in 1 * overwrap
Housing		Aluminum
TESTING AND ENVIRONMENTAL		
Temperature Range	°C (°F)	-40 to 60 (-40 to 140)
Environmental		ETSI 300-019-2-4 Class 4.1E
Ingress Protection		IP 67
Lightning Protection		EN/IEC61000-4-5 Level 4

External Document Links

RFS Diplexer Field Test Procedure□□

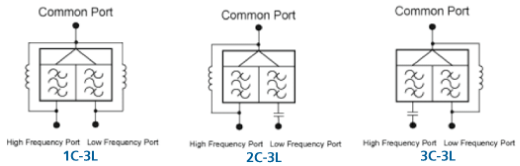
KIT-FD9R6004/1C-DL Installation Instructions

Notes

RADIO FREQUENCY SYSTEMS
The Clear Choice®

ShareLite™ Wideband Diplexer Kit – In-line 698-960 MHz/1710-2200 MHz, full DC/AISG pass

Selection Guide Diplexer 698-960 / 1710-2200MHz					
	Model Number	Full DC Pass	DC Pass High Band	DC Pass Low Band	Mounting Hardware Included
Single	FD9R6004/1C-3L				X
	FD9R6004/2C-3L				X
	FD9R6004/3C-3L				X
Dual	KIT-FD9R6004/1C-DL				X
	KIT-FD9R6004/2C-DL				X
	KIT-FD9R6004/3C-DL				X



The FD9R6004 Series is upgradeable to a Dual Diplexer kit by means of 2 diplexers and mounting hardware kits SEM2-1A and SEM2-3

Mounting Hardware and Ground Cable Ordering Information		
Model Number	**Description**	
SEM2-1A	Mounting Hardware, Pole mount ø40-110mm (Included with the Single and Dual Diplexer) Wall Screws M6 (Not included with the product)	
SEM2-3	Assembly kit for 2 pcs of FD9R6004/xC-3L (Can be ordered separately but included with the Dual Diplexer Kit)	
CA020-2	Ground Cable, 2m, includes lugs (Optional)	
CA030-2	Ground Cable, 3m, includes lugs (Optional)	
SEM6	Mounting Hardware for 6 Diplexers, Tower Base (Optional)	

DR. CLARENCE WELTI, P.E., P.C.

GEOTECHNICAL ENGINEERING

227 Williams Street • P.O. Box 397
Glastonbury, CT 06033

(860) 633-4623 / FAX (860) 657-2514

February 24, 2011

Mr. Timothy J. Lynn, EIT
Centek Engineering, Inc.
63-2 North Branford Road
Branford, CT 06405

Re: Geotechnical Study to Provide Design Parameters for Assessment of Existing NEU Transmission Tower Foundations, Old Lyme and Old Saybrook, CT

Dear Mr. Lynn:

1.0 Herewith are the data from the test borings taken at the above referenced site. One boring was drilled at each of the subject towers to a depth of about 30 feet below the existing grades. The borings were taken about 10 feet from the existing lattice tower structures. The boring locations are shown on the attached sketch. *The borings were drilled by Clarence Welti Associates, Inc. and sampling was conducted by this firm solely to obtain indications of subsurface conditions as part of a geotechnical exploration program. No services were performed to evaluate subsurface environmental conditions.*

2.0 The purpose of this investigation was to provide foundation design parameters to evaluate the existing structure foundation design with a proposed increase to the loading on the structure. The existing towers are 100+ foot high lattice type structures which support the NEU transmission lines crossing the Connecticut River. The four legs for each of the subject tower structures are supported on concrete piers atop spread footings. It is our understanding that the bottom of the foundations at each tower are located at 14.5+ feet below the existing grades, that the foundations are 2 feet thick, and the maximum existing design bearing pressure is 4,000 psf. The maximum bearing pressure is assumed to occur from wind forces. It is our understanding that the proposed additional loading on the tower may increase the maximum bearing to as much as 5,000 psf.

3.0 The **Soil/Rock Cross Section** from the borings was generally as follows:

Old Saybrook NEU Tower (see boring B-1)

Gravel FILL to 12"

Fine to fine to medium SAND, trace to little Silt to 15 feet, loose to medium compact
Note: Based on the proximity of the boring to the tower foundations the soils to about 10 feet may have been disturbed.

Fine to coarse SAND, some Gravel, trace Silt to 30 feet, medium compact

Fine to medium SAND, trace Silt to 31.5+ feet, loose

Old Lyme NEU Tower (see boring B-2)

FILL; fine SAND, some Silt, few Cobbles to 2'

FILL; fine SAND, little Silt to 5 feet, medium compact

Fine to coarse SAND, some Gravel, trace Silt to 15 feet, medium compact to dense

Fine to coarse SAND, some Silt, little Gravel to 28.5 feet, dense

Rock Fragments, Possible Weathered Rock to 30 feet, very dense

3.1 The **Ground Water Table** was not encountered at the completion of the borings. The soils were wet at 31 feet at the Old Saybrook tower. The water table will probably not rise above 20 feet and will have no effect on the bearing capacity.

4.0 In general the criteria for tower support is that the foundation capacity would exceed the loads, which might collapse the tower. **Movements from strains in the soils should be limited to differential settlement (or lateral movements of less than ½").**

5.0 Based on the borings, the **recommended design parameters** to be used to evaluate the foundation for additional loading are as follows:

Design Parameter	Value
Allowable Bearing Pressure at 14+ feet below the existing grades	5,000 psf
Uplift Angle with Vertical	30°
Unit Weight of Soil to to top of foundations at 12.5 feet below existing grades	115 pcf
Unit Weight of Soil, below water table	53 pcf
Design Groundwater Table	20+ feet below finished grade

5.1 The estimated maximum foundation settlements due to an increase in the maximum bearing pressure from 4,000 psf to 5,000 psf would be 1/4". This would occur with sustained loadings. The settlements due to cyclic wind loadings would be less 1/4".

6.0 This report has been prepared for specific a application to the subject project in accordance with generally accepted soil and foundation engineering practices. No other warranty, express or implied, is made. In the event that any changes in the nature, design and location of structures are planned, the conclusions and recommendations contained in this report should not be considered valid unless the changes are reviewed and conclusions of this report modified or verified in writing.

The analyses and recommendations submitted in this report are based in part upon data obtained from referenced explorations. The extent of variations between explorations may not become evident until construction. If variations then appear evident, it will be necessary to re-evaluate the recommendations of this report.

Dr. Clarence Welti, P.E., P.C., should perform a general review of the final design and specifications in order that geotechnical design recommendations may be properly interpreted and implemented as they were intended.

If you have any questions please call me.

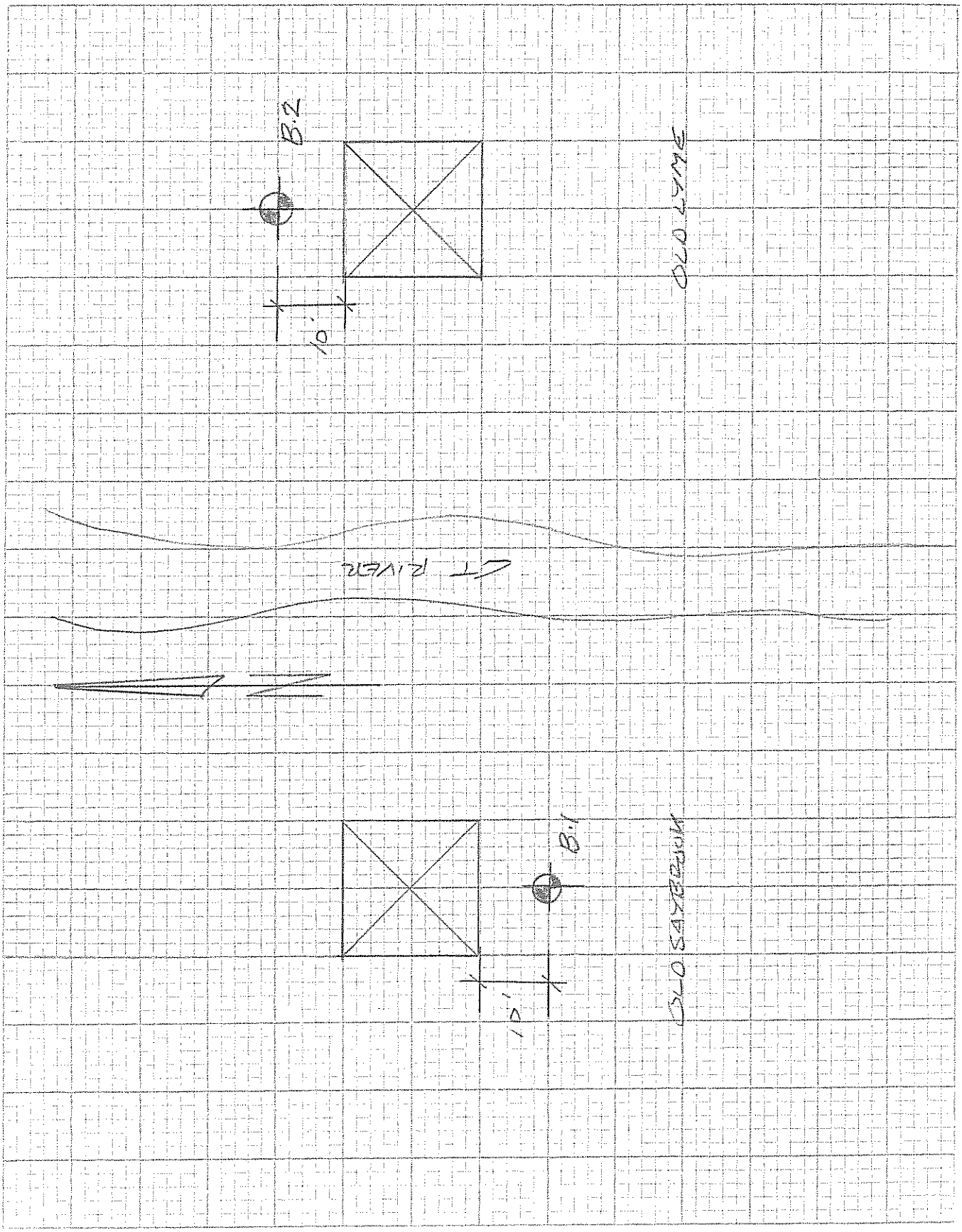
Very truly yours,

Max Welti, P.E.

Clarence Welti, PhD, P. E.
President, Dr. Clarence Welti, P.E., P.C.

DR. CLARENCE WELTI, PE, PC
P.O. BOX 397
GLASTONBURY, CONNECTICUT 06033 • (860) 633-4623

CLIENT CENTER ENVIRONMENTAL
PROJECT NEW TOWER FOUNDATION
SUBJECT GLOSAVERDE LONG LANE CT
BY MW DATE 2/22/11 SHEET NO.



CLARENCE WELTI ASSOC., INC.
P.O. BOX 397
GLASTONBURY, CONN 06033

CLIENT
CENTEK ENGINEERING

PROJECT NAME
NEU TRANSMISSION LINE TOWER FOUNDATION
LOCATION
OLD SAYBROOK, CT

	AUGER	CASING	SAMPLER	CORE BAR.
TYPE	HSA		SS	
SIZE I.D.	3.75"		1.375"	
HAMMER WT.			140 lbs	
HAMMER FALL			30"	

OFFSET
LINE & STA.
N. COORDINATE
E. COORDINATE

SURFACE ELEV.

HOLE NO. B-1

GROUND WATER OBSERVATIONS
AT none FT. AFTER 0 HOURS
AT FT. AFTER HOURS

START DATE 2/22/11
FINISH DATE 2/22/11

DEPTH	SAMPLE NO.	SAMPLE BLOWS/6"	SAMPLE DEPTH	A	STRATUM DESCRIPTION + REMARKS	ELEV.
0	1	3-4-5-4	0.00'-2.00'		RED/BR. GRAVEL	
					BR. FINE-MED. SAND, TRACE SILT	1.0
5	2	3-4-5-6	5.00'-7.00'			
10	3	4-5-4	10.00'-11.50'		BR. FINE SAND, LITTLE SILT	10.0
15	4	7-15-13	15.00'-16.50'		GREY/BR. FINE-CRS. SAND, SOME GRAVEL, TRACE SILT	15.0
20	5	6-5-4	20.00'-21.50'		BR. FINE-CRS. SAND, SOME GRAVEL, TRACE SILT	20.0
25	6	6-5-5	25.00'-26.50'			
30	7	1-3-3	30.00'-31.50'		BR. FINE-MED. SAND, TRACE SILT	30.0
					BOTTOM OF BORING @ 31.5'	31.5
35					NOTE: SOILS WERE WET @ 31.0'	

LEGEND: COL. A:RECOVERY "
SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON
PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: D. BROMLEY
INSPECTOR:

SHEET 1 OF 1 HOLE NO. **B-1**

CLARENCE WELTI ASSOC., INC.
P.O. BOX 397
GLASTONBURY, CONN 06033

CLIENT
CENTEK ENGINEERING

PROJECT NAME
NEU TRANSMISSION LINE TOWER FOUNDATION
LOCATION
OLD LYME, CT

	AUGER	CASING	SAMPLER	CORE BAR.
TYPE	HSA		SS	
SIZE I.D.	3.75"		1.375"	
HAMMER WT.			140 lbs	
HAMMER FALL			30"	

OFFSET
LINE & STA.
N. COORDINATE
E. COORDINATE

SURFACE ELEV.
HOLE NO. B-2

GROUND WATER OBSERVATIONS
AT none FT. AFTER 0 HOURS
AT FT. AFTER HOURS

START DATE 2/22/11
FINISH DATE 2/22/11

DEPTH	SAMPLE NO.	BLOWS/6"	DEPTH	A	STRATUM DESCRIPTION + REMARKS	ELEV.
0	1	10-9-6-5	0.00'-2.00'		DARK BR. FINE SAND, SOME SILT, FEW COBBLES	
					2.0	
					RED/BR. FINE SAND, LITTLE SILT	
5	2	9-7-8	5.00'-6.50'		5.0	
					RED/BR. FINE-CRS. SAND, SOME GRAVEL, TRACE SILT	
10	3	21-25-25	10.00'-11.50'		10.0	
					BR. FINE-CRS. SAND, SOME GRAVEL, TRACE SILT	
15	4	11-15-22	15.00'-16.50'		15.0	
					BR. FINE-CRS. SAND, SOME SILT, LITTLE GRAVEL	
20	5	22-46-60	20.00'-21.50'			
25	6	19-31-47	25.00'-26.50'			
					28.5	
					GREY ROCK FRAGMENTS	
30	7	60	30.00'-30.00'		30.0	
					BOTTOM OF BORING @ 30.0'	
35						

LEGEND: COL. A:RECOVERY "
SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON
PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: D. BROMLEY
INSPECTOR:

SHEET 1 OF 1 HOLE NO. **B-2**