May 23, 2022

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

Regarding: Notice of Exempt Modification – AT&T Site CT2015 / FA# 10034973
Address: 405 Brushy Plain Road, Branford, CT 06405

Dear Ms. Bachman:

New Cingular Wireless, PCS, LLC ("AT&T") currently maintains a wireless telecommunications facility on an existing +/- 155' monopole at the above-referenced address, latitude 41.3167981, longitude -72.8196931. Said monopole is operated by American Tower Asset Sub II, LLC.

AT&T desires to modify its existing telecommunications facility by swapping nine (9) antennae, adding three (3) remote radio units (RRUS), adding one (1) surge arrestor and accompanying feedlines as more particularly detailed and described on the enclosed Construction Drawings prepared by Hudson Design Group, LLC, last revised May 19, 2022. The centerline height of the existing antennas is and will remain at 153 feet. This modification may include B2, B5, B17, B14, B29, B30, B66, & n77 hardware that is 4G(LTE) and/or 5GNR capable through remote software configuration and either or both services may be turned off at various times.

Please accept this letter as notification pursuant to R.C.S.A §16-50j-73 for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to the following individuals: The Honorable James Cosgrove, First Selectman of the Town of Branford, as elected official, Dylan Willette, Zoning Enforcement Officer, Harry Smith, Town Planner of the Town of Branford, American Tower Asset Sub II, LLC., as tower operator, and Edward F. Jaconette, Jr and Kristin L. Jaconette, as property owners. We reached out to both the Building and Zoning Departments for the Town of Branford who conducted a search and could not locate the original tower approval.

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

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

2. The proposed modifications will not require an 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 modified facility will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. *Please see the RF emissions calculation for AT&T's modified facility enclosed herewith.*

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

6. The existing structure and its foundation can support the proposed loading. *Please see the structural analysis dated April 21, 2022, and prepared by American Tower Corporation, enclosed herewith.*

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

Sincerely,

Evan Renwick

Evan Renwick
Site Acquisition Specialist
Centerline Communications, LLC
750 West Center Street, Suite 301
West Bridgewater, MA 02379
erenwick@clinellc.com

Enclosures: Exhibit 1 – Construction Drawings
Exhibit 2 – Property Card and GIS
Exhibit 3 – Structural Analysis
Exhibit 4 – Mount Analysis
Exhibit 5 – RF Emissions Analysis Report Evaluation
Exhibit 6 – Notice Delivery Confirmations

cc: The Honorable James Cosgrove, First Selectman, Town of Branford elected official
Dylan Willette, Zoning Enforcement Officer, Town of Branford
Harry Smith, Town Planner, Town of Branford
American Tower Asset Sub II, LLC, as tower operator
Edward F. Jaconette, Jr and Kristin L. Jaconette, as property owners

EXHIBIT 1

PROJECT INFORMATION

SCOPE OF WORK:	ITEMS TO BE MOUNTED ON THE EXISTING MONOPOLE: • NEW AT&T ANTENNAS: AIR6419 B77G (TYP. OF 1 PER SECTOR, TOTAL OF 3). • NEW AT&T ANTENNAS: AIR6449 B77D (TYP. OF 1 PER SECTOR, TOTAL OF 3). • NEW AT&T ANTENNAS: DMP65R-BU6EA-K (TYP. OF 1 PER SECTOR, TOTAL OF 3). • EXISTING AT&T ANTENNAS: 800-10965 (TYP. OF 1 PER SECTOR, TOTAL OF 3) (TO BE RELOCATED TO POS. 2). • NEW AT&T RRU'S: RRUS-4478 B14 (700) (TYP. OF 1 PER SECTOR, TOTAL OF 3). • EXISTING AT&T RRU'S: RRUS-8843 B2/B66A (1900/AWS) (TYP. OF 1 PER SECTOR, TOTAL OF 3) (TO BE RELOCATED TO POS. 4). • NEW AT&T SURGE ARRESTOR: DC6-48-60-18-8F (TOTAL OF 1). • NEW AT&T (6) Y-CABLES • NEW AT&T (1) 18 PAIR OF FIBER RUN. ITEMS TO BE MOUNTED IN EQUIPMENT LOCATION: • ADD FRONTHAUL GATEWAY (FHG) 6648. • ADD IDLE CABLE XCEDE. • FINAL = 1X6601/1X6630/1XXMU03 || XXXXX/1X6630 MIXED-MODE/XXXXX+IDLE //1X6648+IDLE XCEDE. • ADD (3) -48V RECTIFIERS • ADD (12) UPCONVERTERS ITEMS TO BE REMOVED: • EXISTING AT&T ANTENNA: 7770 (TYP. OF 1 PER SECTOR, TOTAL OF 3). • EXISTING AT&T ANTENNA: HPA-65R-BU6AA (TYP. OF 1 PER SECTOR, TOTAL OF 3). • EXISTING AT&T ANTENNA: SBNHH-1D65B (TYP. OF 1 PER SECTOR, TOTAL OF 3). • EXISTING AT&T SURGE ARRESTOR: DC ONLY SQUID (TOTAL OF 1). • EXISTING AT&T TMAS: LGP21401 (TYP. OF 2 PER SECTOR, TOTAL OF 6). • EXISTING AT&T DIPLEXERS: 782 10250 (TYP. OF 2 PER SECTOR, TOTAL OF 6). • EXISTING AT&T (6) 1-5/8" COAX CABLES. ITEMS TO REMAIN: • (3) ANTENNAS, (9) RRU'S, (2) SURGE ARRESTOR, (6) DC POWER & (2) FIBER.
SITE ADDRESS:	405 BRUSHY PLAIN ROAD BRANFORD, CT 06405
LATITUDE:	41.3167981° N, 41° 19' 0.47" N
LONGITUDE:	-72.8196931° W, 72° 49' 10.89" W
TYPE OF SITE:	MONOPOLE / INDOOR EQUIPMENT
STRUCTURE HEIGHT:	155'-0"±
RAD CENTER:	153'-0"±
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY

DRAWING INDEX

SHEET NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	0
GN-1	GENERAL NOTES	0
A-1	COMPOUND & EQUIPMENT PLANS	0
A-2	ANTENNA LAYOUT PLANS & ELEVATION	0
A-3	DETAILS	0
G-1	GROUNDING DETAILS	0
RF-1	RF PLUMBING DIAGRAM	0

SITE NUMBER: CTL02015

SITE NAME: BRANFORD

FA CODE: 10034973

PACE ID: MRCTB054090,MRCTB055147,MRCTB053493, MRCTB054992,MRCTB054582,MRCTB055920

PROJECT: 5G NR 1SR CBAND, LTE 6C, BBU RECONFIGURATION, 5G NR SOFTWARE RADIO, 2022 UPGRADE

ISSUED FOR PERMITTING

VICINITY MAP

DIRECTIONS TO SITE:

TAKE I-90 WEST TO I-84 WEST TO MERGE WITH I-91 SOUTH. TAKE EXIT 14 (WOODHOUSE AVE/CT-150) AFTER A MILE IT BECOMES CT-22 CONTINUE 4.5 MILES. MAKE A RIGHT ONTO CT-80 CONTINUE 1 MILE THEN MAKE A RIGHT ONTO TOTOKET RD. TOTOKET RD BECOMES BRUSHY PLAIN ROAD, CONTINUE .25 MILES AND THE SITE IS ON THE LEFT.

GENERAL NOTES

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

UNDERGROUND SERVICE ALERT

811 DigSafe MA·ME·NH·RI·VT

WWW.DIGSAFE.COM
72 HOURS PRIOR

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

CENTERLINE COMMUNICATIONS
750 WEST CENTER STREET, SUITE #301
WEST BRIDGEWATER, MA 02379

SITE NUMBER: CTL02015
SITE NAME: BRANFORD

405 BRUSHY PLAIN ROAD
BRANFORD, CT 06405
NEW HAVEN COUNTY

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

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A	03/30/22	ISSUED FOR REVIEW	VPP	AT	DPH

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

STATE OF CONNECTICUT · DANIEL P. HAMM · No. 24178 · LICENSED PROFESSIONAL ENGINEER

AT&T

TITLE SHEET
5G NR 1SR CBAND, LTE 6C, BBU RECONFIGURATION, 5G NR SOFTWARE RADIO

SITE NUMBER	DRAWING NUMBER	REV
CTL02015	T-1	0

GROUNDING NOTES

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.

2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.

3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81 STANDARDS) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.

4. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.

5. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS AND #2 AWG STRANDED COPPER FOR OUTDOOR BTS.

6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.

7. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.

8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO GROUND BAR.

9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.

10. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.

11. METAL CONDUIT SHALL BE MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.

12. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/2 IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50

GENERAL NOTES

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:

   CONTRACTOR – CENTERLINE
   SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
   OWNER – AT&T MOBILITY

2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.

3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.

5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.

7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.

9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.

10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.

11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.

12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.

13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.

14. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.

15. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCH UP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.

16. CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T SITES."

17. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.

18. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.

19. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

20. **APPLICABLE BUILDING CODES:**
    SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.

    BUILDING CODE: IBC 2015 WITH 2018 CT STATE BUILDING CODE AMENDMENTS
    ELECTRICAL CODE: 2017 NATIONAL ELECTRICAL CODE (NFPA 70-2017)

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

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

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

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

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

ABBREVIATIONS

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

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

CENTERLINE COMMUNICATIONS
750 WEST CENTER STREET, SUITE #301
WEST BRIDGEWATER, MA 02379

SITE NUMBER: CTL02015
SITE NAME: BRANFORD

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at&t
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STATE OF CONNECTICUT
DANIEL P. HAMM
No. 24178
LICENSED PROFESSIONAL ENGINEER

AT&T

GENERAL NOTES
5G NR 1SR CBAND, LTE 6C, BBU RECONFIGURATION, 5G NR SOFTWARE RADIO

SITE NUMBER	DRAWING NUMBER	REV
CTL02015	GN-1	0

NOTE:

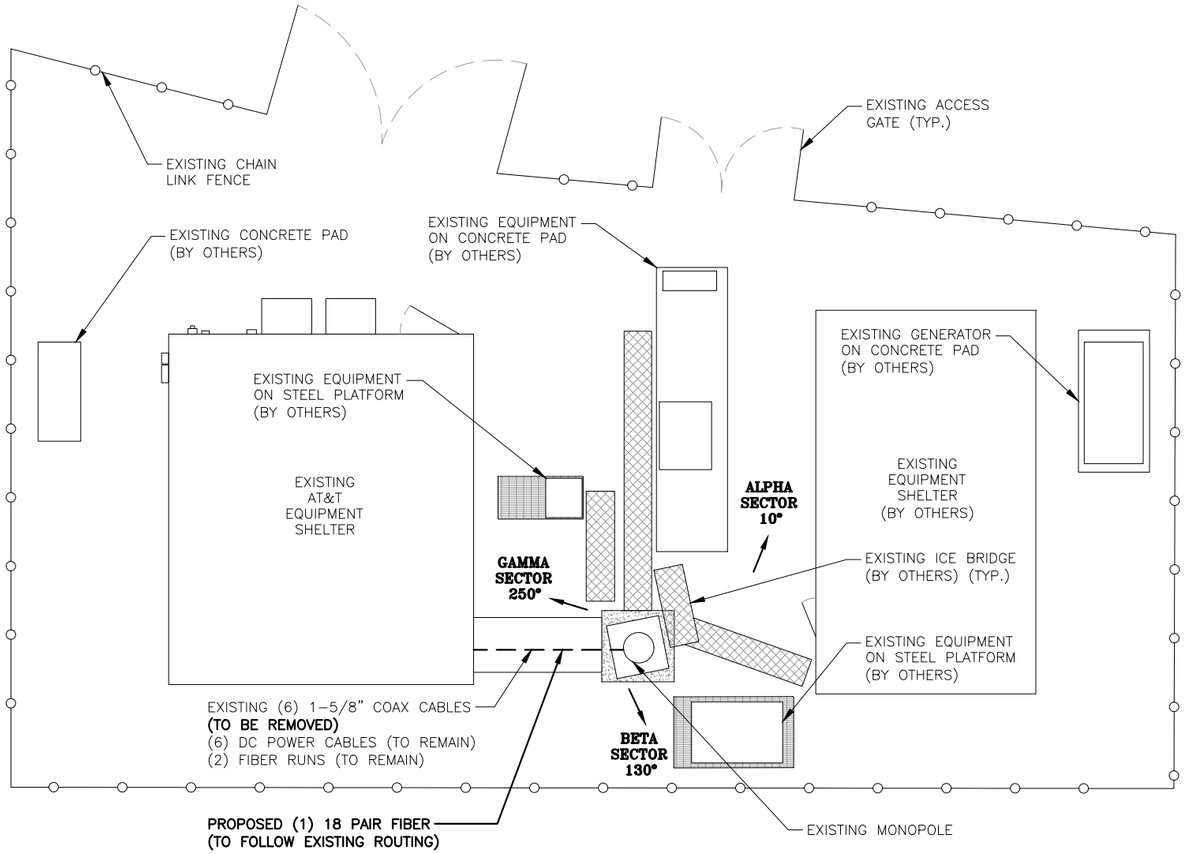
HDG RECOMMENDS THE EXISTING ANTENNA MOUNT BE MAPPED IN ITS ENTIRETY & A MOUNT STRUCTURAL ANALYSIS PERFORMED PRIOR TO THE ANTENNA INSTALLATION.

NOTE:

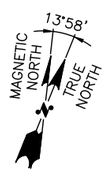
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:

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

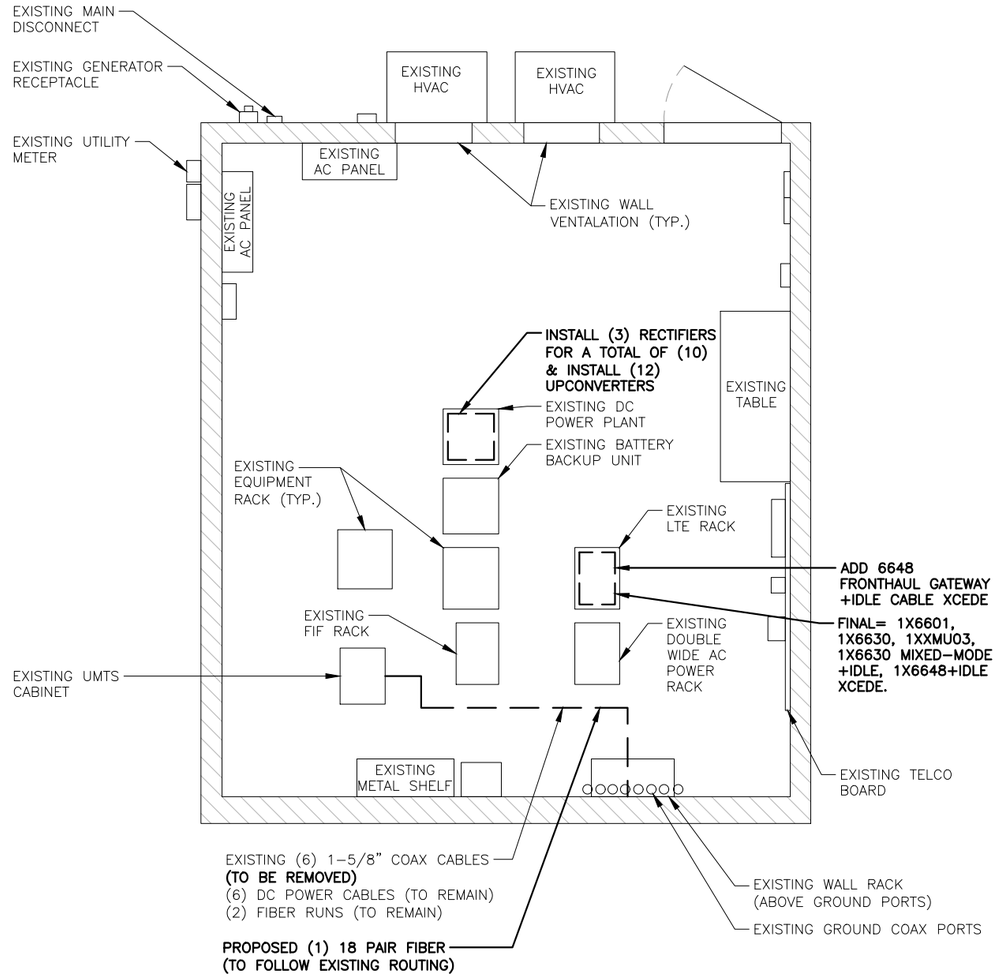


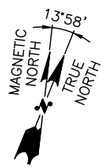
3 A-2



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

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





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

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

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STATE OF CONNECTICUT
DANIEL P. HAMM
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AT&T

COMPOUND & EQUIPMENT PLANS
5G NR 1SR CBAND, LTE 6C, BBU RECONFIGURATION, 5G NR SOFTWARE RADIO

SITE NUMBER	DRAWING NUMBER	REV
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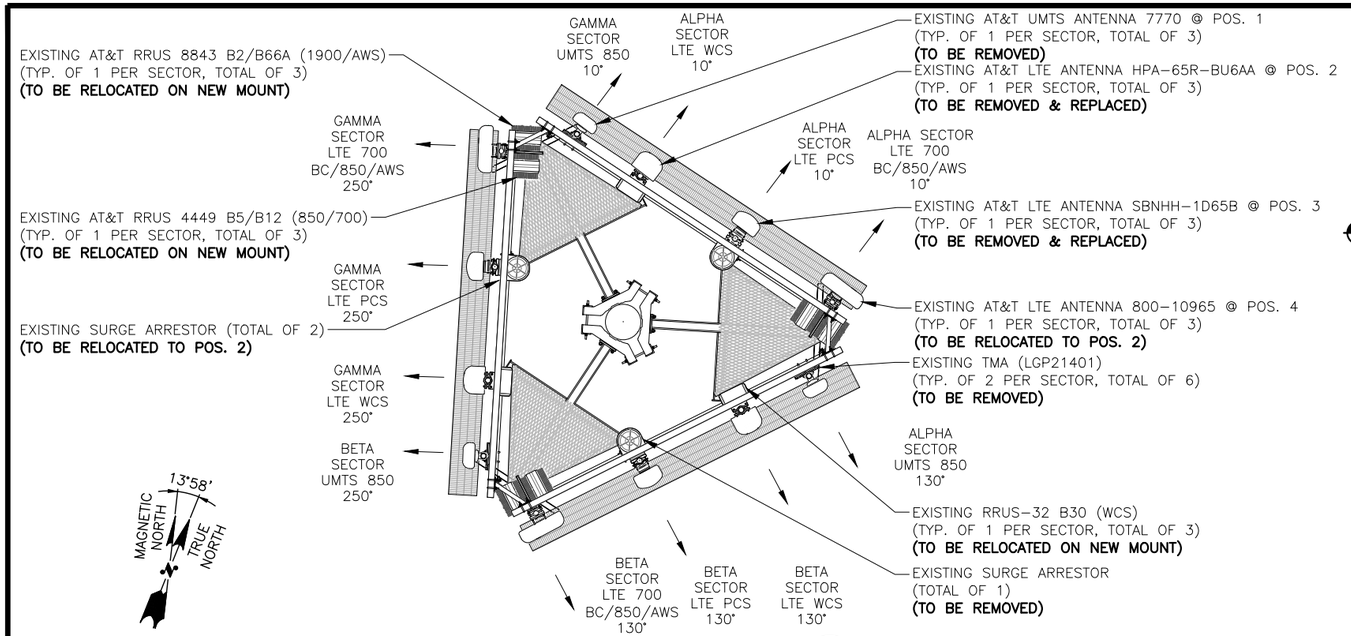
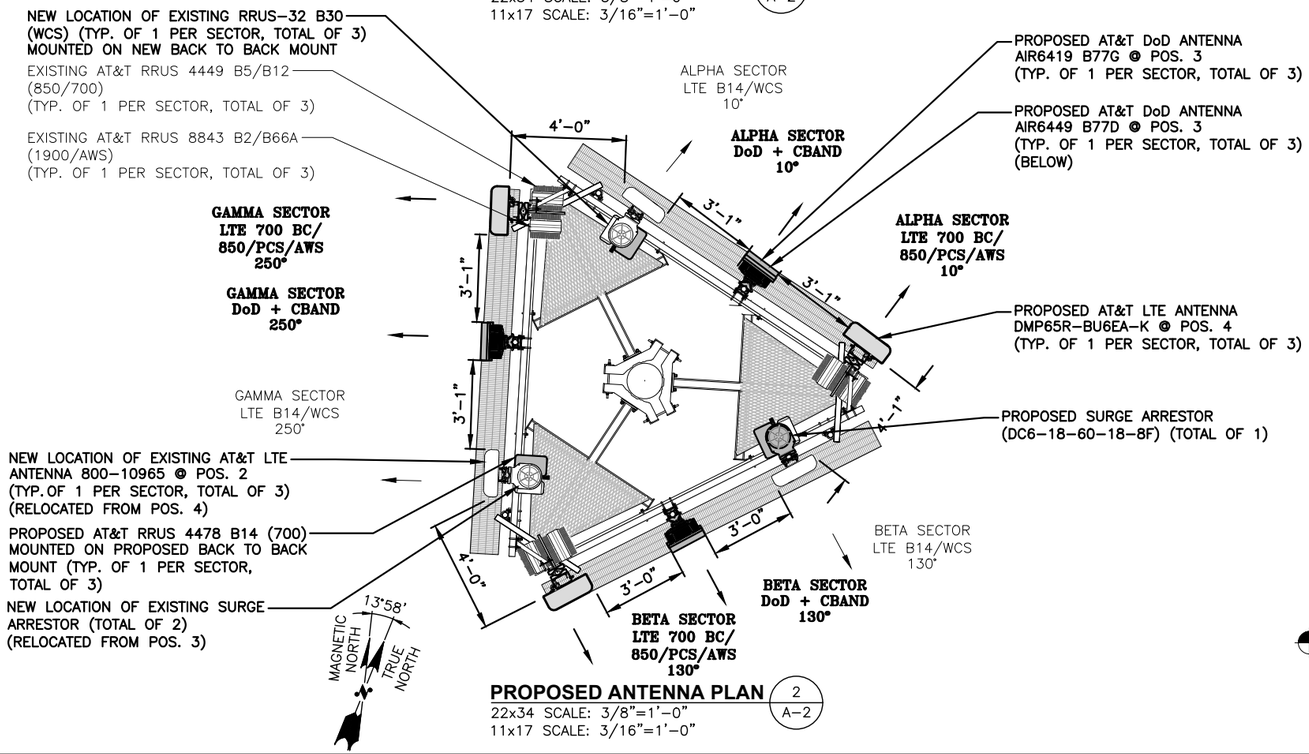


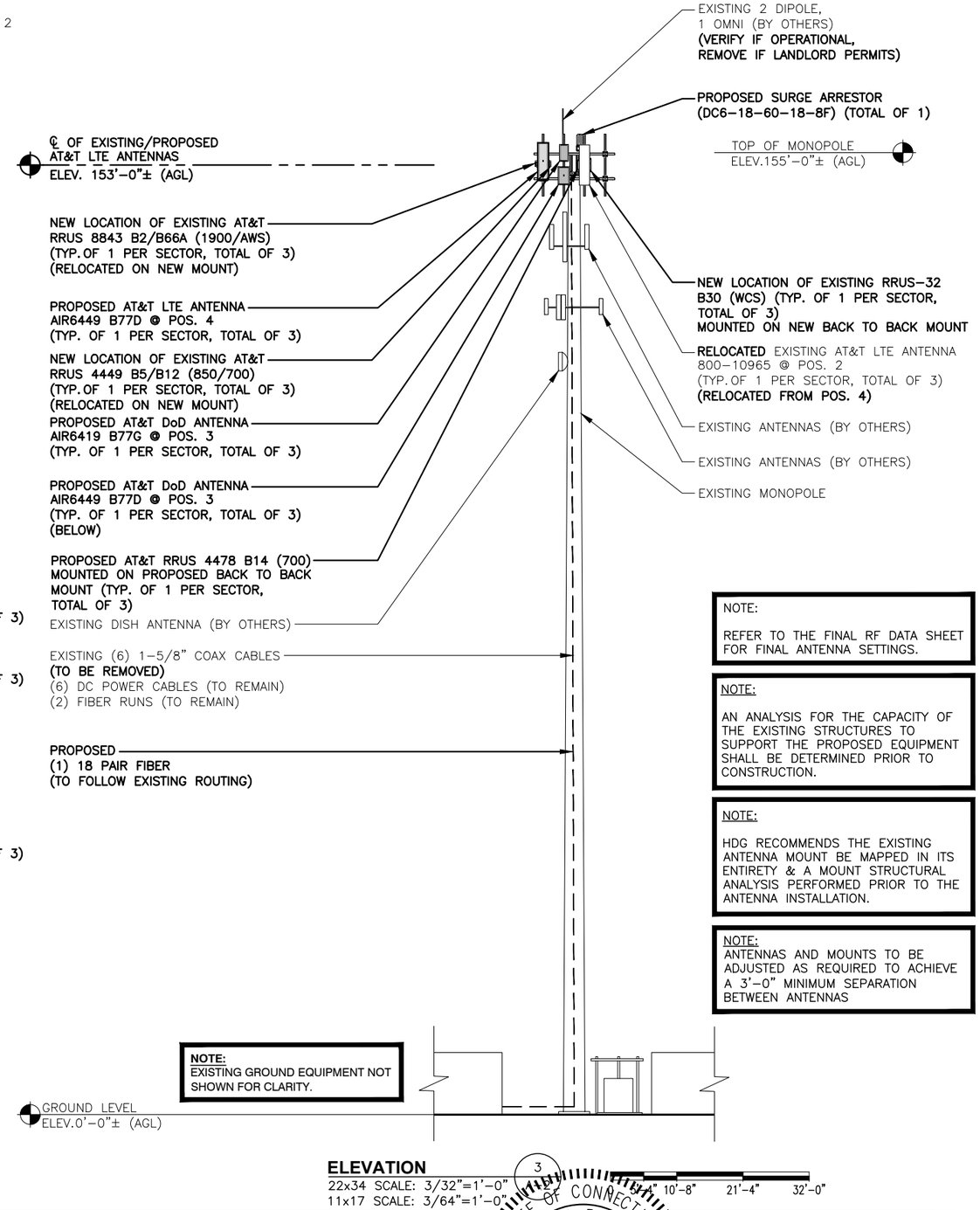
EXISTING ANTENNA PLAN (1 / A-2)

22x34 SCALE: 3/8"=1'-0"
11x17 SCALE: 3/16"=1'-0"



PROPOSED ANTENNA PLAN (2 / A-2)

22x34 SCALE: 3/8"=1'-0"
11x17 SCALE: 3/16"=1'-0"



NOTE:
EXISTING GROUND EQUIPMENT NOT SHOWN FOR CLARITY.

ELEVATION (3 / A-2)

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

1'-4" 10'-8" 21'-4" 32'-0"

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

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

NOTE:
HDG RECOMMENDS THE EXISTING ANTENNA MOUNT BE MAPPED IN ITS ENTIRETY & A MOUNT STRUCTURAL ANALYSIS PERFORMED PRIOR TO THE ANTENNA INSTALLATION.

NOTE:
ANTENNAS AND MOUNTS TO BE ADJUSTED AS REQUIRED TO achieve A 3'-0" MINIMUM SEPARATION BETWEEN ANTENNAS

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
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FAX: (978) 336-5586

CENTERLINE COMMUNICATIONS
750 WEST CENTER STREET, SUITE #301
WEST BRIDGEWATER, MA 02379

SITE NUMBER: CTL02015
SITE NAME: BRANFORD

405 BRUSHY PLAIN ROAD
BRANFORD, CT 06405
NEW HAVEN COUNTY

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
0	05/19/22	ISSUED FOR PERMITTING	MF	AT	DPH
A	03/30/22	ISSUED FOR REVIEW	VPP	AT	DPH

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

STATE OF CONNECTICUT
DANIEL P. HAMM
No. 24178
LICENSED PROFESSIONAL ENGINEER

AT&T

ANTENNA LAYOUT PLANS & ELEVATION
5G NR 1SR CBAND, LTE 6C, BBU RECONFIGURATION, 5G NR SOFTWARE RADIO

SITE NUMBER	DRAWING NUMBER	REV
CTL02015	A-2	0

ANTENNA SCHEDULE

SECTOR	EXISTING/ PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA ℄ HEIGHT	AZIMUTH	TMA/ DIPLEXER	RRU	SIZE (INCHES) (L x W x D)	FEEDER	RAYCAP
A1	–	–	–	–	–	–	–	–	–	–	(E) (1) RAYCAP DC6-48-60-18-8F
A2	EXISTING	LTE B14/WCS	800-10965	78.7"X20"X6.9"	153'-0"±	10°	–	**(P)(1)RRUS-4478 B14 (700)** (E)(1)RRUS-32 B30 (WCS)	**18.1"x13.4"x8.3"** –	(E)(2) DC POWER (1) FIBER	
A3	**PROPOSED**	**DoD C-BAND**	**AIR6419 B77G AIR6449 B77D (STACKED)**	**31.1"X16.1"X7.3" 30.4"X15.9"X8.1"**	**153'-0"±**	**10°**	–	–	–	–	
A4	**PROPOSED**	**LTE 700 BC/ 850/PCS/AWS**	**DMP65R-BU6EA-K**	**71.2"X20.7"X9.7"**	**153'-0"±**	**10°**	–	(E)(1)RRUS-4449 B5/B12 (850/700) (E)(1)RRUS-8843 B2/B66A (1900/AWS)	–	**(P)(2)(Y-CABLE)**	
B1	–	–	–	–	–	–	–	–	–	–	**(P) (1) RAYCAP DC6-48-60-18-8F**
B2	EXISTING	LTE B14/WCS	800-10965	78.7"X20"X6.9"	153'-0"±	130°	–	**(P)(1)RRUS-4478 B14 (700)** (E)(1)RRUS-32 B30 (WCS)	**18.1"x13.4"x8.3"** –	(E)(2) DC POWER **(P)(1) FIBER**	
B3	**PROPOSED**	**DoD C-BAND**	**AIR6419 B77G AIR6449 B77D (STACKED)**	**31.1"X16.1"X7.3" 30.4"X15.9"X8.1"**	**153'-0"±**	**130°**	–	–	–	–	
B4	**PROPOSED**	**LTE 700 BC/ 850/PCS/AWS**	**DMP65R-BU6EA-K**	**71.2"X20.7"X9.7"**	**153'-0"±**	**130°**	–	(E)(1)RRUS-4449 B5/B12 (850/700) (E)(1)RRUS-8843 B2/B66A (1900/AWS)	–	**(P)(2)(Y-CABLE)**	
C1	–	–	–	–	–	–	–	–	–	–	(E) (1) RAYCAP DC6-48-60-18-8F
C2	EXISTING	LTE B14/WCS	800-10965	78.7"X20"X6.9"	153'-0"±	250°	–	**(P)(1)RRUS-4478 B14 (700)** (E)(1)RRUS-32 B30 (WCS)	**18.1"x13.4"x8.3"** –	(E)(2) DC POWER (1) FIBER	
C3	**PROPOSED**	**DoD C-BAND**	**AIR6419 B77G AIR6449 B77D (STACKED)**	**31.1"X16.1"X7.3" 30.4"X15.9"X8.1"**	**153'-0"±**	**250°**	–	–	–	–	
C4	**PROPOSED**	**LTE 700 BC/ 850/PCS/AWS**	**DMP65R-BU6EA-K**	**71.2"X20.7"X9.7"**	**153'-0"±**	**250°**	–	(E)(1)RRUS-4449 B5/B12 (850/700) (E)(1)RRUS-8843 B2/B66A (1900/AWS)	–	**(P)(2)(Y-CABLE)**	

RRU CHART

QUANTITY	MODEL	SIZE (L x W x D)
P(3)	**4478 B14 (700)**	**18.1"x13.4"x8.3"**
E(3)	RRUS-32 B30 (WCS)	27.2"x12.1"x7.0"
E(3)	4449 B5/B12 (850/700)	17.9"x13.2"x10.4"
E(3)	8843 (1900/AWS)	14.9"x13.2"x10.9"

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS

NOTE:

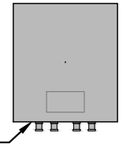
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:

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

NOTE:

SEE RFDS FOR RRH FREQUENCY AND MODEL NUMBER

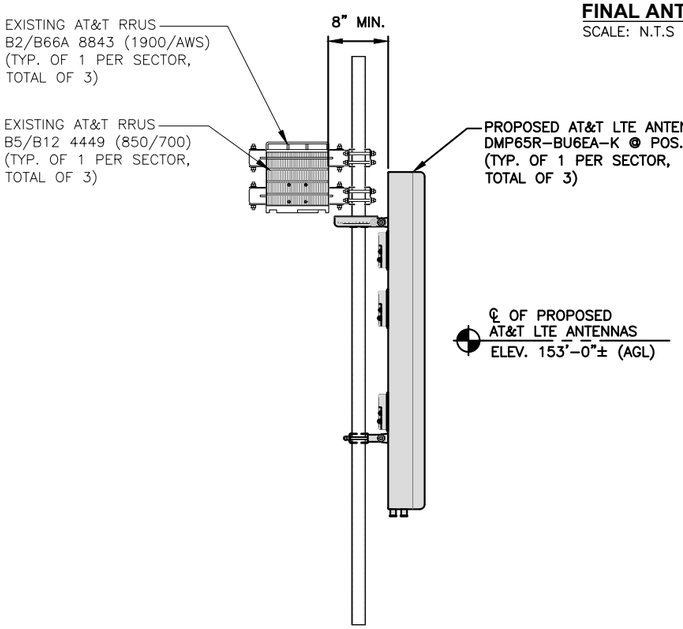


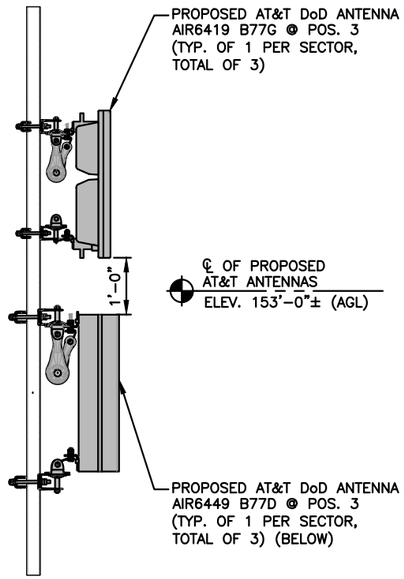
PROPOSED RRU REFER TO THE FINAL RFDS AND CHART FOR QUANTITY, MODEL AND DIMENSIONS

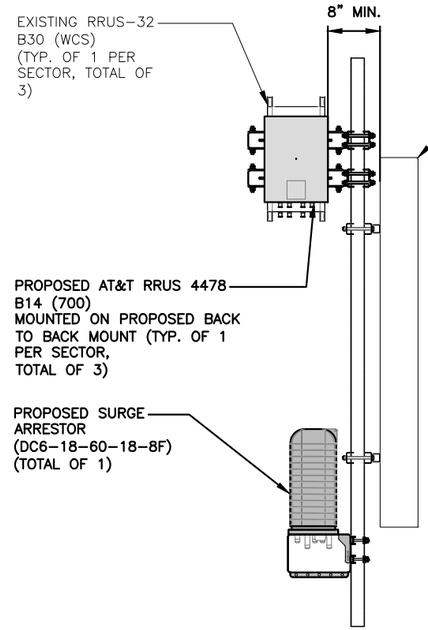
NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

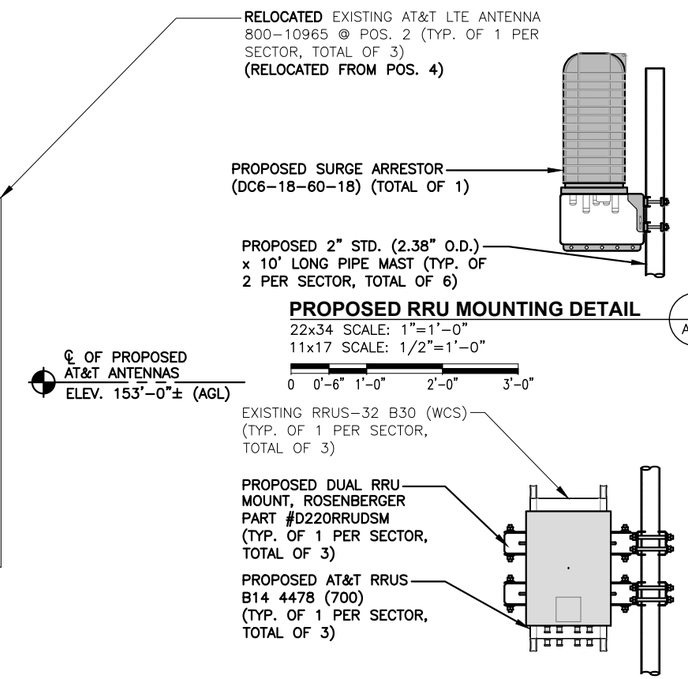
PROPOSED RRUS DETAIL (2 / A-3)
SCALE: N.T.S

FINAL ANTENNA SCHEDULE (1 / A-3)
SCALE: N.T.S









PROPOSED RRU MOUNTING DETAIL (7 / A-3)
22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"
0 0'-6" 1'-0" 2'-0" 3'-0"

PROPOSED RRU MOUNTING DETAIL (6 / A-3)
22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"
0 0'-6" 1'-0" 2'-0" 3'-0"

PROPOSED ANTENNA @ POS. 4 (4 / A-3)
22x34 SCALE: 3/4"=1'-0"
11x17 SCALE: 3/8"=1'-0"
0 8" 1'-4" 2'-8" 4'-0"

PROPOSED ANTENNA @ POS. 3 (5 / A-3)
22x34 SCALE: 3/4"=1'-0"
11x17 SCALE: 3/8"=1'-0"
0 8" 1'-4" 2'-8" 4'-0"

EXISTING ANTENNA @ POS. 2 (5 / A-3)
22x34 SCALE: 3/4"=1'-0"
11x17 SCALE: 3/8"=1'-0"
0 8" 1'-4" 2'-8"

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STATE OF CONNECTICUT
DANIEL P. HAMM
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AT&T

DETAILS
5G NR 1SR CBAND, LTE 6C, BBU RECONFIGURATION, 5G NR SOFTWARE RADIO

SITE NUMBER	DRAWING NUMBER	REV
CTL02015	A-3	0

NOTE:

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

NOTE:

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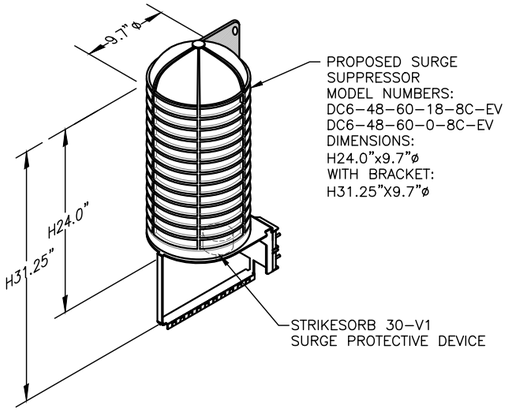
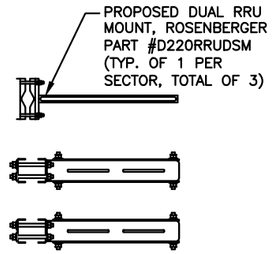


NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

DC SURGE SUPPRESSOR DETAIL 2 / A-4
SCALE: N.T.S



BACK TO BACK RRU MOUNT DETAIL 3 / A-4
SCALE: N.T.S

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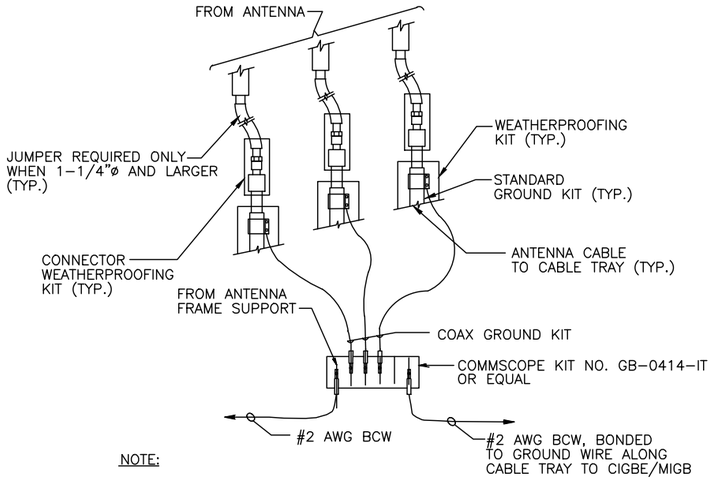
SITE NUMBER	DRAWING NUMBER	REV
CTL02015	A-4	0



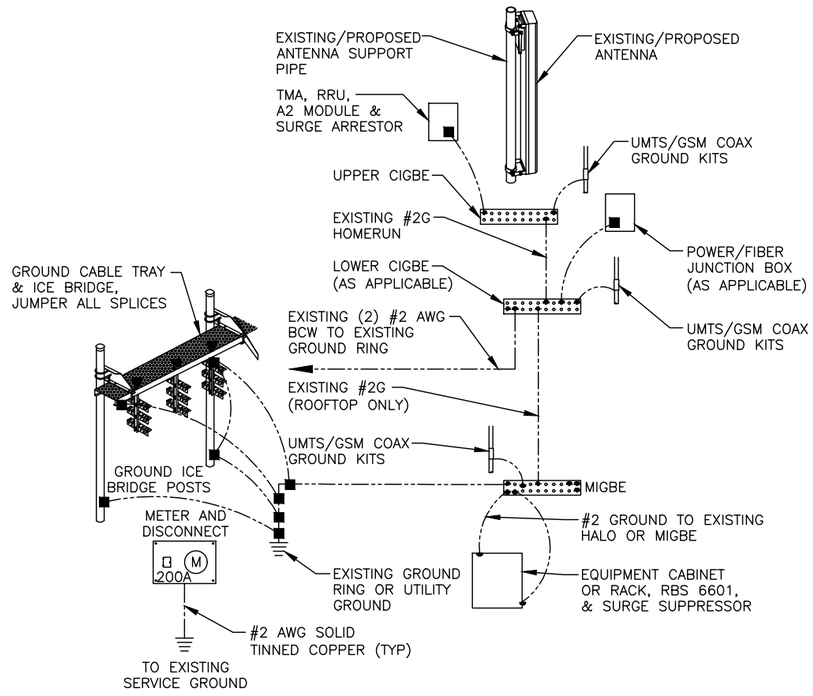
NOTE:

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

GROUND WIRE TO GROUND BAR CONNECTION DETAIL

SCALE: N.T.S

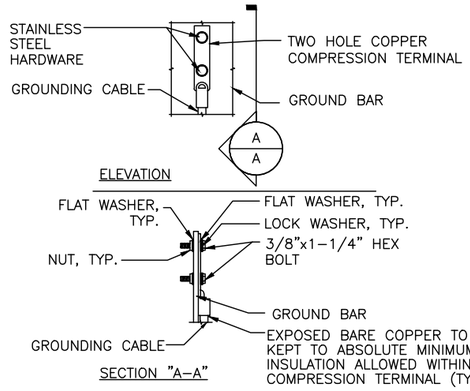
1 / G–1



GROUNDING RISER DIAGRAM

SCALE: N.T.S

2 / G–1



NOTES:

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

TYPICAL GROUND BAR CONNECTION DETAIL

SCALE: N.T.S

3 / G–1

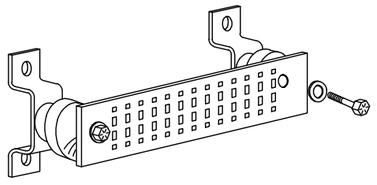
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" – SURGE PRODUCERS

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

SECTION "A" – SURGE ABSORBERS

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



GROUND BAR - DETAIL (AS REQUIRED)

SCALE: N.T.S

4 / G–1

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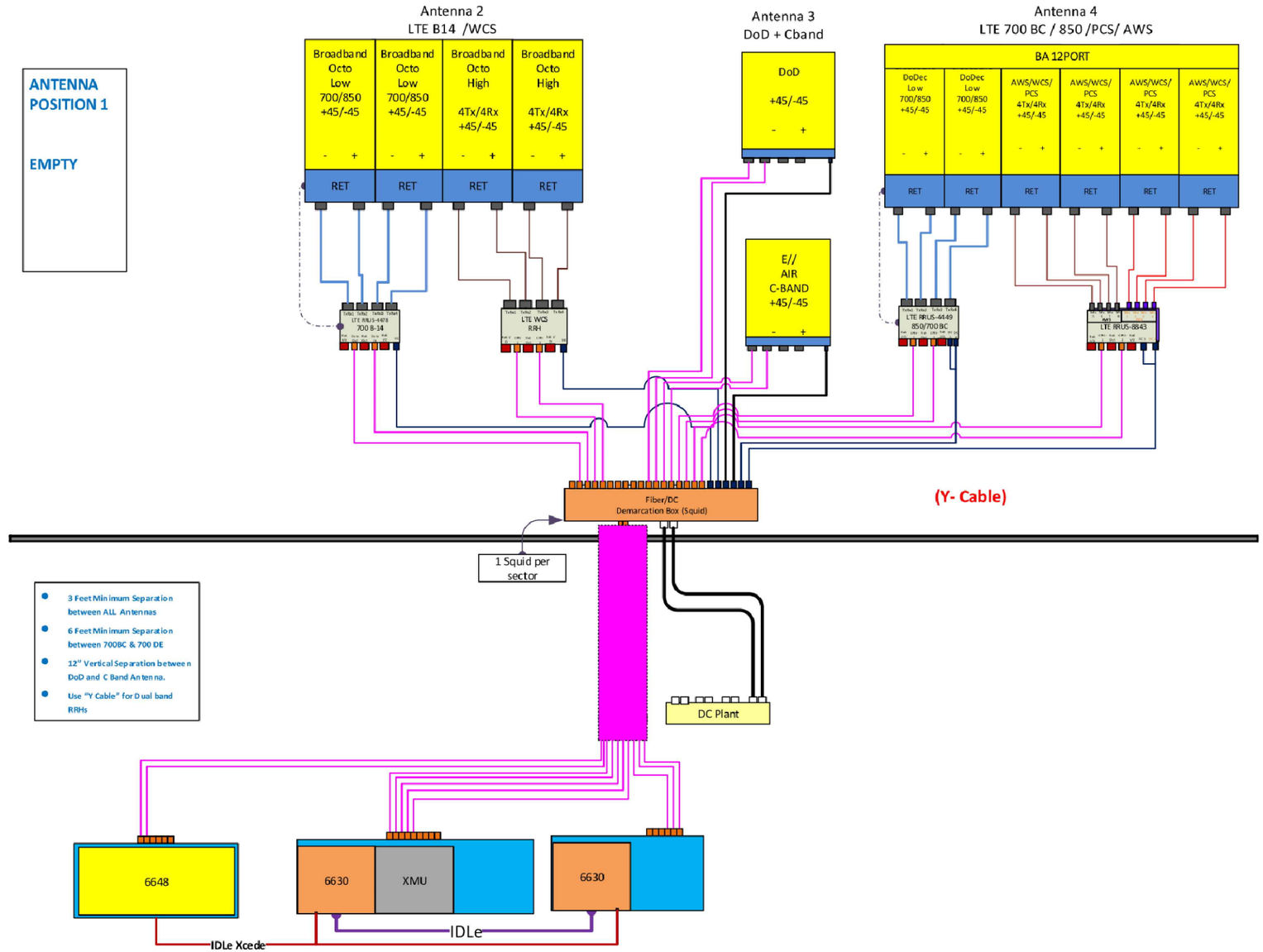
AT&T

GROUNDING DETAILS
5G NR 1SR CBAND, LTE 6C, BBU RECONFIGURATION, 5G NR SOFTWARE RADIO

SITE NUMBER	DRAWING NUMBER	REV
CTL02015	G–1	0



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

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

NOTE:

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

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RF PLUMBING DIAGRAM
5G NR 1SR CBAND, LTE 6C, BBU RECONFIGURATION, 5G NR SOFTWARE RADIO

SITE NUMBER	DRAWING NUMBER	REV
CTL02015	RF–1	0

EXHIBIT 2

Town of Branford, CT

Property Listing Report

Map Block Lot	D02/000/003/	Bldg #	1	Sec #	1	PID	695	Account	004475

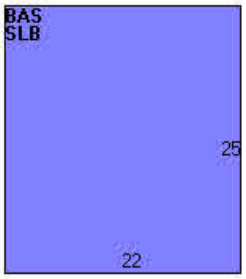
Property Information

Property Location	405 BRUSHY PLAIN RD
Owner	JACONETTE EDWARD F JR
Co-Owner	JACONETTE KRISTIN L (SUR)
Mailing Address	405 BRUSHY PLAIN RD BRANFORD CT 06405
Land Use	0431 TEL REL TW MDL96
Land Class	I
Zoning Code	R-4
Census Tract	

Neighborhood	0050
Acreage	4.5
Utilities	Well,Public Sewer
Lot Setting/Desc	Suburban Rolling
Book / Page	0788/1038

Photo

Sketch



Primary Construction Details

Year Built	1992
Building Desc.	TEL REL TW MDL96
Building Style	Warehouse
Building Grade	C
Stories	1
Occupancy	1.00
Exterior Walls	Precast Panel
Exterior Walls 2	NA
Roof Style	Shed
Roof Cover	T&G/Rubber
Interior Walls	Minim/Masonry
Interior Walls 2	NA
Interior Floors 1	Concr-Finished
Interior Floors 2	NA

Heating Fuel	Electric
Heating Type	Hot Air-no Duc
AC Type	Heat Pump
Bedrooms	0
Full Bathrooms	0
Half Bathrooms	0
Extra Fixtures	0
Total Rooms	0
Bath Style	NA
Kitchen Style	NA
Fin Bsmt Area	
Fin Bsmt Quality	
Bsmt Gar	
Fireplaces	

(*Industrial / Commercial Details)

Building Use	Ind/Comm
Building Condition	A
Sprinkler %	NA
Heat / AC	HEAT/AC PKGS
Frame Type	MASONRY
Baths / Plumbing	NONE
Ceiling / Wall	CEILING ONLY
Rooms / Prtns	AVERAGE
Wall Height	9.00
First Floor Use	NA
Foundation	NA

Report Created On 2/28/2022

Town of Branford, CT

Property Listing Report

Map Block Lot	D02/000/003/	Bldg #	1	Sec #	1	PID	695	Account	004475

Valuation Summary

(Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings	169300	118500
Extras	8100	5700
Improvements		
Outbuildings	1800	1300
Land	362200	253500
Total	541400	379000

Outbuilding and Extra Features

Type	Description
FENCE-6' CHAIN	260 L.F.
PAVING-CONC	137 S.F.
GEN 15-30KW PRMT BKP	1 UNITS
FIREPLACE 1.5	1 UNITS
EXTRA FPL OPEN	1 UNITS

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
First Floor	550	550
Slab	550	0
Total Area	1100	550

Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
JACONETTE EDWARD F JR	0788/1038	2002-11-18	0
ADAMS MARSHA	0442/0252	1987-12-22	0
ADAMS MARSHA		1987-12-22	0

Report Created On 2/28/2022

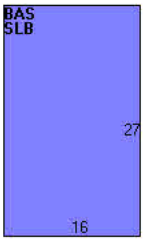
Town of Branford, CT

Property Listing Report

Map Block Lot	D02/000/003/000001	Bldg #	2	Sec #	1	PID	695	Account	004475

Photo

Sketch



Primary Construction Details

Year Built	2001
Building Desc.	Ind/Comm
Building Style	Warehouse
Building Grade	C
Stories	1
Occupancy	4.00
Exterior Walls	Precast Panel
Exterior Walls 2	NA
Roof Style	Shed
Roof Cover	T&G/Rubber
Interior Walls	Minim/Masonry
Interior Walls 2	NA
Interior Floors 1	Concr-Finished
Interior Floors 2	NA

Heating Fuel	Electric
Heating Type	Hot Air-no Duc
AC Type	Heat Pump
Bedrooms	0
Full Bathrooms	0
Half Bathrooms	0
Extra Fixtures	0
Total Rooms	0
Bath Style	NA
Kitchen Style	NA
Fin Bsmt Area	
Fin Bsmt Quality	
Bsmt Gar	
Fireplaces	

(*Industrial / Commercial Details)

Building Use	TEL REL TW MDL96
Building Condition	A
Sprinkler %	NA
Heat / AC	HEAT/AC PKGS
Frame Type	MASONRY
Baths / Plumbing	NONE
Ceiling / Wall	CEILING ONLY
Rooms / Prtns	AVERAGE
Wall Height	9.00
First Floor Use	NA
Foundation	NA

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
First Floor	432	432
Slab	432	0

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
Total Area	864	432

Report Created On 2/28/2022

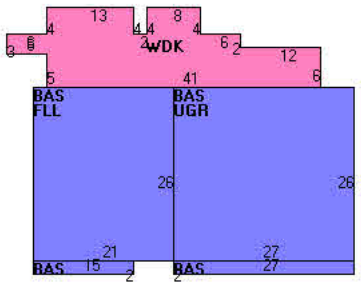
Town of Branford, CT

Property Listing Report

Map Block Lot	D02/000/003/000001	Bldg #	3	Sec #	1	PID	695	Account	004475

Photo

Sketch



Primary Construction Details

Year Built	1975
Building Desc.	Residential
Building Style	Raised Ranch
Building Grade	C +
Stories	1
Occupancy	1.00
Exterior Walls	Wood Shingle
Exterior Walls 2	NA
Roof Style	Gable/Hip
Roof Cover	Asphalt
Interior Walls	Drywall
Interior Walls 2	NA
Interior Floors 1	Carpet
Interior Floors 2	NA

Heating Fuel	Oil
Heating Type	Hot Water
AC Type	Central
Bedrooms	3 Bedrooms
Full Bathrooms	2
Half Bathrooms	0
Extra Fixtures	0
Total Rooms	7
Bath Style	Average
Kitchen Style	Average
Fin Bsmt Area	
Fin Bsmt Quality	
Bsmt Gar	
Fireplaces	

(*Industrial / Commercial Details)

Building Use	TEL REL TW MDL01
Building Condition	A
Sprinkler %	NA
Heat / AC	NA
Frame Type	NA
Baths / Plumbing	NA
Ceiling / Wall	NA
Rooms / Prtns	NA
Wall Height	NA
First Floor Use	NA
Foundation	NA

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
First Floor	1332	1332
Finished Lower Level	546	410
Garage Under	702	0
Deck, Wood	406	0

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
Total Area	2986	1742

Report Created On 2/28/2022

Town of Branford, CT - MapXpress Property Information Viewer

Full Town View | Reset Map | Se | Base Maps / Air Photos | Map Layers

Full Extent | Zoom In | Zoom Out | Prev Extent | Next Extent | Pan | **Parcel Information** | Simple M

MapXpress v1.2

EXHIBIT 3

AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure	:	**150 ft Monopole**
ATC Site Name	:	**Branford CT 6,CT**
ATC Site Number	:	**302484**
Engineering Number	:	**OAA775810_C3_01**
Proposed Carrier	:	**AT&T MOBILITY**
Carrier Site Name	:	**Branford**
Carrier Site Number	:	**CT2015**
Site Location	:	**405 Brushy Plain Rd** **Branford, CT 06405-2308** **41.3168, -72.8197**
County	:	**New Haven**
Date	:	**April 18, 2022**
Max Usage	:	**97%**
Result	:	**Pass**

Prepared By:

Daniel K. Sheek
Structural Engineer I

Reviewed By:

COA : PEC.0001553

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Supporting Documents....3
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Conclusion....3
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Deflection and Sway*....6
Standard Conditions....7
Calculations ....Attached

Introduction

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

Supporting Documents

Tower Drawings	PJF Job # 29297-629, dated October 2, 1997 SpectraSite Drawing #CT-0020/15, dated December 13, 2000
Foundation Drawing	Mapped by ATC Tower ID #302484, dated February 13, 2009
Geotechnical Report	Clarence Welti Geotechnical Engineering ID #CT-0020, dated October 8, 1996
Modifications	SpectraSite Drawing CT-0020 M1, dated March 26, 2004 ATC Job # 26487334, dated September 15, 2006 ATC Job # 53055832, dated June 2, 2013

Analysis

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

Basic Wind Speed:	121 mph (3-second gust)
Basic Wind Speed w/ Ice:	50 mph (3-second gust) w/ 1.00" radial ice concurrent
Code:	ANSI/TIA-222-H / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	B
Risk Category:	II
Topographic Factor Procedure:	Method 1
Topographic Category:	1
Crest Height (H):	0 ft
Crest Length (L):	0 ft
Spectral Response:	Ss = 0.20, S_1 = 0.05
Site Class:	D - Stiff Soil - Default

****Wind load and Ice thickness have been reduced by applicable existing structure load modification factors in accordance with TIA-222-H, Annex S.**

Conclusion

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

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

Existing and Reserved Equipment

Elev.[1] (ft)	Qty	Equipment	Mount Type	Lines	Carrier
160.0	1	Generic 11' Dipole	Triangular Platform with Handrails	(3) 7/8" Coax	TOWN OF BRANFORD
159.0	1	Generic 4' Omni	Triangular Platform with Handrails	(1) 1 5/8" Coax	OTHER
153.0	6	Powerwave Allgon LGP21401	Triangular Platform with Handrails	(2) 0.39" (10mm) Fiber Trunk (6) 0.78" (19.7mm) 8 AWG 6 (6) 1 5/8" Coax (2) 2" conduit (1) 3" conduit	AT&T MOBILITY
	1	Raycap DC6-48-60-18-8F ("Squid")			
	3	Ericsson RRUS 8843 B2, B66A			
	3	Kathrein Scala 782-10250			
	6	Powerwave Allgon 7020.00 Dual Band RET			
	3	Ericsson RRUS 4449 B5, B12			
	3	Kathrein Scala 80010965			
	3	Ericsson RRUS 32 B30 (53 lbs)			
150.0	1	Generic GPS	Flush	(1) 1/2" Coax	VERIZON WIRELESS
140.0	3	Ericsson Air6449 B41	Triangular Platform with Handrails	(3) 1 1/4" (1.25"-31.8mm) Fiber (2) 1.99" (50.7mm) Hybrid	T-MOBILE
	3	RFS APXVAARR24_43-U-NA20			
	3	Ericsson Radio 4449 B71 B85A			
	3	Ericsson Radio 4460 B25+B66			
132.0	1	Generic 12" x 12" Junction Box	Side Arm	(4) 1/2" Coax (2) 2" conduit (6) 5/16" (0.31"-7.9mm) Coax	CLEARWIRE CORPORATION
130.0	3	NextNet BTS-2500			
	3	Argus LLPX310R			
	2	DragonWave Horizon Compact			
	1	DragonWave A-ANT-23G-1-C			
	1	DragonWave A-ANT-18G-2.5-C			
122.0	1	SWR FMEC/1	Side Arm	(3) 1/2" Coax	ALMA RADIO INC.
113.0	2	RFS APL866513-12T0-00	T-Arm	(6) 1 1/4" Coax (2) 1 1/4" Hybriflex Cable	VERIZON WIRELESS
	3	Alcatel-Lucent RRH 2X60-1900			
	6	Commscope JAHH-65B-R3B			
	2	RFS DB-T1-6Z-8AB-0Z			
	4	RFS APL868013-12T0			
	3	Ericsson RRH2x40-07-L			
	3	Alcatel-Lucent RRH2x60 700			
	3	Nokia B66a RRH4x45 (UHIE)			
103.0	1	Commscope RDIDC-9181-PF-48	Triangular Platform with Handrails	(1) 1.60" (40.6mm) Hybrid	DISH WIRELESS L.L.C.
	3	JMA Wireless MX08FRO665-21			
	3	Fujitsu TA08025-B605			
	3	Fujitsu TA08025-B604			
70.0	1	Generic 4' Std. Dish	Flush	(1) 0.28" (7mm) RG-6	OTHER

Equipment to be Removed

Elev.[1] (ft)	Qty	Equipment	Mount Type	Lines	Carrier
153.0	1	Raycap DC6-48-60-18-8C	-	-	AT&T MOBILITY
	1	Raycap DC6-48-60-18-8C-EV			
	3	CCI HPA65R-BU6A			
	3	Commscope SBNHH-1D65B			
	3	Powerwave Allgon 7770.00			

Proposed Equipment

Elev.[1] (ft)	Qty	Equipment	Mount Type	Lines	Carrier
153.0	2	Raycap DC6-48-60-18-8F	Triangular Platform with Handrails	(1) 0.39" (10mm) Fiber Trunk	AT&T MOBILITY
	3	Ericsson RRUS 4478 B14			
	3	Ericsson AIR 6419 B77G			
	3	Ericsson AIR 6449 B77D/ C-Band			
	3	CCI DMP65R-BU6E			

[1] Contracted elevations are shown for appurtenances within contracted installation tolerances. Appurtenances outside of contract limits are shown at installed elevations.

Install proposed lines inside the pole shaft.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	97%	Pass
Shaft	93%	Pass
Reinforcement	97%	Pass
Base Plate	39%	Pass
Flanges	48%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	3192.7	56%
Axial (Kips)	60.6	7%

The structure base reactions resulting from this analysis were found to be acceptable through analysis based on geotechnical and foundation information, therefore no modification or reinforcement of the foundation will be required.

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
153.0	Raycap DC6-48-60-18-8F	AT&T MOBILITY	2.454	1.910
	Ericsson AIR 6419 B77G			
	CCI DMP65R-BU6E			
	Ericsson AIR 6449 B77D/ C-Band			
	Ericsson RRUS 4478 B14			
130.0	DragonWave A-ANT-18G-2.5-C	CLEARWIRE CORPORATION	1.738	1.650
	DragonWave A-ANT-23G-1-C			
70.0	Generic 4' Std. Dish	OTHER	0.481	0.820

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

Standard Conditions

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

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

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete.

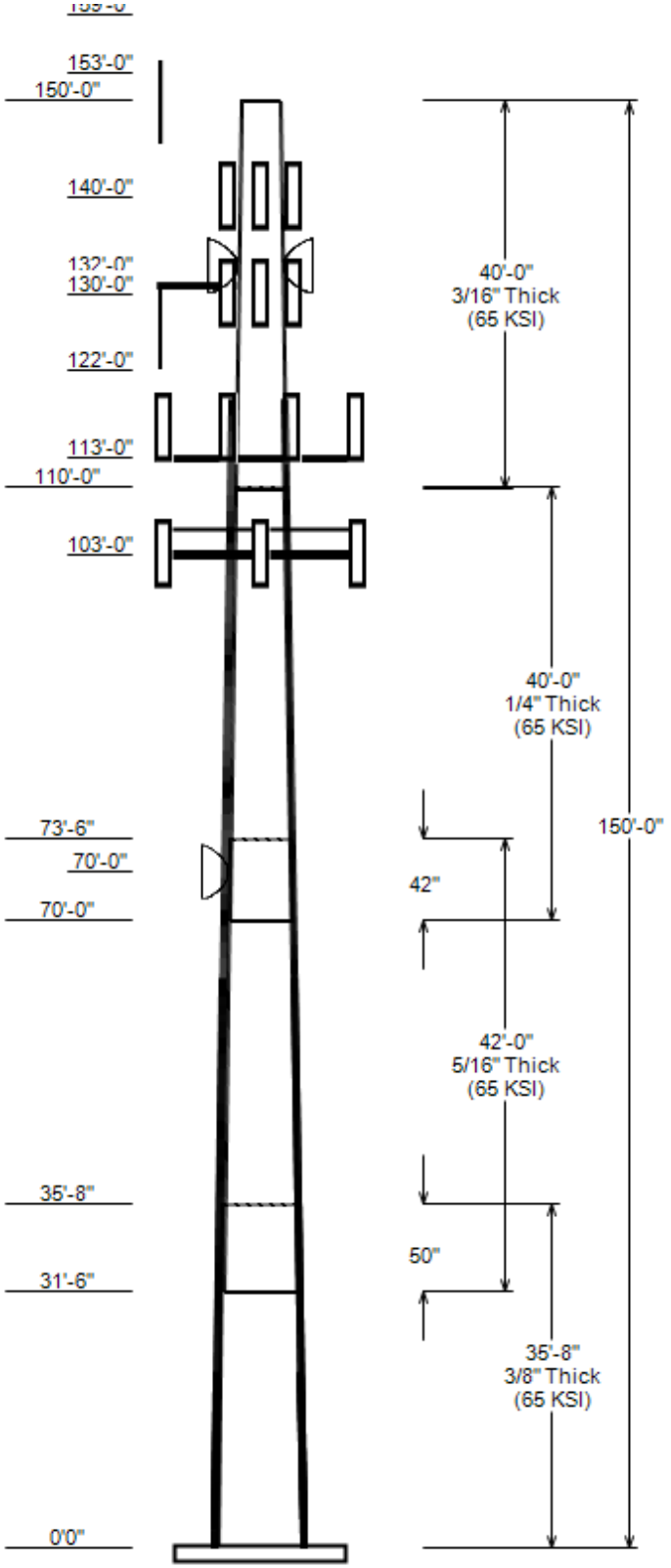
All assets of American Tower Corporation, its affiliates, and subsidiaries (collectively "American Tower") are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with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

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

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

JOB INFORMATION

Asset :	302484, Branford CT 6	Height :	150 ft
Client :	AT&T MOBILITY	Base Width :	37.38
Code :	ANSI/TIA-222-H	Shape :	12 Sides



SITE PARAMETERS

Nominal Wind: 117.94 mph wind with no ic **Topo Category:** 1

Ice Wind: 48.73 mph wind with 0.850" **Topo Method:** Method 1

Base Elev (ft): 0.00 **Taper :** 0.15700(In/ft) **Topo Feature:**

Structure Class: II **Exposure :** B **S_s :** 0.203 **S_1** : 0.054

SECTION PROPERTIES

Shaft Section	Length (ft)	Diameter (in) Across Flats Top	Bottom	Thick (in)	Joint Type	Overlap Length (in)	Shape	Steel Grade (ksi)
1	35.667	31.79	37.38	0.375		0.000	12 Sides	65
2	42.000	26.49	33.07	0.313	Slip Joint	50.000	12 Sides	65
3	40.000	21.27	27.54	0.250	Slip Joint	42.000	12 Sides	65
4	40.000	15.00	21.27	0.188	Butt Joint	0.000	12 Sides	65

DISCRETE APPURTENANCE

Attach Elev (ft)	Force Elev (ft)	Qty	Description
160.0	160.0	1	Generic 11' Dipole
159.0	159.0	1	Generic 4' Omni
153.0	153.0	6	Powerwave Allgon 7020.00 Dual
153.0	153.0	3	Kathrein Scala 782-10250
153.0	153.0	6	Powerwave Allgon LGP21401
153.0	153.0	2	Raycap DC6-48-60-18-8F
153.0	153.0	1	Raycap DC6-48-60-18-8F ("Squid
153.0	153.0	3	Ericsson RRUS 8843 B2, B66A
153.0	153.0	3	Ericsson RRUS 4478 B14
153.0	153.0	3	Ericsson RRUS 4449 B5, B12
153.0	153.0	3	Ericsson RRUS 32 B30 (53 lbs)
153.0	153.0	3	Ericsson AIR 6419 B77G
153.0	153.0	3	Ericsson AIR 6449 B77D/ C-Band
153.0	153.0	3	CCI DMP65R-BU6E
153.0	153.0	3	Kathrein Scala 80010965
153.0	153.0	1	Generic Round Platform with Ha
150.0	150.0	1	Generic GPS
140.0	140.0	3	Ericsson Radio 4449 B71 B85A
140.0	140.0	3	Ericsson Radio 4460 B25+B66
140.0	140.0	3	Ericsson Air6449 B41
140.0	140.0	3	RFS APXVAARR24_43-U-NA20
140.0	140.0	1	PerfectVision PV-RP14M-9-96 Ro
132.0	132.0	1	Generic 12" x 12" Junction Box
131.0	131.0	1	Side Arms
130.0	132.0	2	DragonWave Horizon Compact
130.0	132.0	1	DragonWave A-ANT-23G-1-C
130.0	130.0	3	NextNet BTS-2500
130.0	130.0	3	Argus LLPX310R
130.0	132.0	1	DragonWave A-ANT-18G-2.5-C
122.0	123.0	1	SWR FMEC/1
113.0	113.0	3	Ericsson RRH2x40-07-L
113.0	115.0	3	Alcatel-Lucent RRH 2X60-1900
113.0	115.0	3	Alcatel-Lucent RRH2x60 700
113.0	115.0	3	Nokia B66a RRH4x45 (UHIE)
113.0	115.0	4	RFS APL868013-12T0
113.0	115.0	2	RFS APL866513-12T0-00
113.0	115.0	2	RFS DB-T1-6Z-8AB-0Z
113.0	115.0	6	Commscope JAHH-65B-R3B
113.0	113.0	3	Round T-Arm
103.0	103.0	1	Commscope RDIDC-9181-PF-48
103.0	103.0	3	Fujitsu TA08025-B604
103.0	103.0	3	Fujitsu TA08025-B605
103.0	103.0	3	JMA Wireless MX08FRO665-21

Asset :	302484, Branford CT 6	Height :	150 ft
Client :	AT&T MOBILITY	Base Width :	37.38
Code :	ANSI/TIA-222-H	Shape :	12 Sides

DISCRETE APPURTENANCE

Attach Elev (ft)	Force Elev (ft)	Qty	Description
103.0	103.0	1	Generic Flat Platform with Han
70.0	70.0	1	Generic 4' Std. Dish

LINEAR APPURTENANCE

Elev From (ft)	Elev To (ft)	Description	Exp To Wind
0.0	160.0	7/8" Coax	No
0.0	159.0	1 5/8" Coax	No
0.0	153.0	3" conduit	No
0.0	153.0	2" conduit	No
0.0	153.0	1 5/8" Coax	No
0.0	153.0	0.78" (19.7mm) 8 AWG 6	No
0.0	153.0	0.39" (10mm) Fiber Trunk	No
0.0	153.0	0.39" (10mm) Fiber Trunk	No
0.0	150.0	1/2" Coax	No
128.0	143.0	#18 w/ Angle Bracket	Yes
128.0	143.0	#18 w/ Angle Bracket	Yes
128.0	143.0	#18 w/ Angle Bracket	Yes
0.0	140.0	1.99" (50.7mm) Hybrid	Yes
0.0	140.0	1.99" (50.7mm) Hybrid	Yes
0.0	140.0	1 1/4" (1.25"- 31.8mm) Fiber	Yes
115.5	133.0	#18 w/ Angle Bracket	Yes
115.5	133.0	#18 w/ Angle Bracket	Yes
115.5	133.0	#18 w/ Angle Bracket	Yes
0.0	132.0	2" conduit	Yes
0.0	132.0	1/2" Coax	Yes
0.0	130.0	5/16" (0.31"-7.9mm) Coax	Yes
0.0	130.0	1/2" Coax	Yes
0.0	123.2	W5 Brackets for #18	Yes
0.0	123.2	W5 Brackets for #18	Yes
0.0	123.2	W5 Brackets for #18	Yes
0.0	123.2	W5 Brackets for #18	Yes
0.0	123.2	#18 w/ W Bracket	Yes
0.0	123.2	#18 w/ W Bracket	Yes
0.0	123.2	#18 w/ W Bracket	Yes
0.0	123.2	#18 w/ W Bracket	Yes
0.0	122.0	1/2" Coax	No
0.0	113.0	1 1/4" Hybriflex Cable	No
0.0	113.0	1 1/4" Coax	No
0.0	103.0	1.60" (40.6mm) Hybrid	No
0.0	70.0	0.28" (7mm) RG-6	No
0.0	65.5	#18 w/ Angle Brackets	Yes
0.0	65.5	#18 w/ Angle Brackets	Yes
0.0	65.5	#18 w/ Angle Brackets	Yes
0.0	65.5	#18 w/ Angle Brackets	Yes
0.0	20.0	1" Thick Flat Plate	Yes
0.0	20.0	1" Thick Flat Plate	Yes
0.0	20.0	1" Thick Flat Plate	Yes
0.0	20.0	1" Thick Flat Plate	Yes

LOAD CASES

1.2D + 1.0W Normal	117.94 mph wind with no ice
0.9D + 1.0W Normal	117.94 mph wind with no ice
1.2D + 1.0Di + 1.0Wi Nor	48.73 mph wind with 0.850" radial
1.2D + 1.0Ev + 1.0Eh Nor	Seismic
0.9D - 1.0Ev + 1.0Eh Nor	Seismic (Reduced DL)
1.0D + 1.0W Service Norm	60 mph Wind with No Ice

Asset :	302484, Branford CT 6	Height :	150 ft
Client :	AT&T MOBILITY	Base Width :	37.38
Code :	ANSI/TIA-222-H	Shape :	12 Sides

REACTIONS

Load Case	Moment (kip-ft)	Shear (Kip)	Axial (Kip)
1.2D + 1.0W Normal	3192.68	30.26	60.62
0.9D + 1.0W Normal	3129.66	30.24	45.45
1.2D + 1.0Di + 1.0Wi Normal	769.41	6.80	78.06
1.2D + 1.0Ev + 1.0Eh Normal	198.51	1.52	61.96
0.9D - 1.0Ev + 1.0Eh Normal	193.29	1.52	42.69
1.0D + 1.0W Service Normal	733.00	7.02	50.54

DISH DEFLECTIONS

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
1.0D + 1.0W Service Normal	70.00	5.766	0.820
1.0D + 1.0W Service Normal	130.00	20.850	1.653
1.0D + 1.0W Service Normal	130.00	20.850	1.653

ANALYSIS PARAMETERS

Location:	New Haven County,CT	**Height:**	150 ft
Type and Shape:	Taper, 12 Sides	**Base Diameter:**	37.38 in
Manufacturer:	ITT Meyer	**Top Diameter:**	15.00 in
K_d (non-service):	0.95	**Taper:**	0.1570 in/ft
K_e:	0.99	**Rotation:**	0.000°

ICE & WIND PARAMETERS

Exposure Category:	B	**Design Wind Speed w/o Ice:**	118 mph
Risk Category:	II	**Design Wind Speed w/Ice:**	49 mph
Topo Factor Procedure:	Method 1	**Operational Wind Speed:**	60 mph
Topographic Category:	1	**Design Ice Thickness:**	0.85 in
Crest Height:	0 ft	**HMSL:**	240.00 ft

SEISMIC PARAMETERS

Analysis Method:	Equivalent Lateral Force Method				
Site Class:	D - Stiff Soil			**Period Based on Rayleigh Method (sec):**	3.09
T_L (sec):	6	**P:**	1	**C_s:**	0.030
S_s:	0.203	**S_1:**	0.054	**C_s Max:**	0.030
F_a:	1.600	**F_v:**	2.400	**C_s Min:**	0.030
S_{ds}:	0.217	**S_{d1}:**	0.086		

LOAD CASES

1.2D + 1.0W Normal	117.94 mph wind with no ice
0.9D + 1.0W Normal	117.94 mph wind with no ice
1.2D + 1.0Di + 1.0Wi Normal	48.73 mph wind with 0.850" radial ice
1.2D + 1.0Ev + 1.0Eh Normal	Seismic
0.9D - 1.0Ev + 1.0Eh Normal	Seismic (Reduced DL)
1.0D + 1.0W Service Normal	60 mph Wind with No Ice

SHAFT SECTION PROPERTIES

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint len (in)	Weight (lb)	Bottom Dia (in)	Bottom Elev (ft)	Bottom Area (in²)	Bottom Ix (in⁴)	Bottom W/t Ratio	Bottom D/t Ratio	Top Dia (in)	Top Elev (in)	Top Area (in²)	Top Ix (in⁴)	Top W/t Ratio	Top D/t Ratio	Taper (in/ft)
1-12	35.67	0.3750	65		0.00	5,014	37.38	0.003	44.68	7,810.1	24.03	99.68	31.79	35.67	37.93	4,778.9	20.04	84.78	0.1567
2-12	42.00	0.3130	65	Slip	50.00	4,244	33.07	31.500	33.01	4,521.6	25.63	105.65	26.49	73.50	26.38	2,307.1	20.00	84.63	0.1567
3-12	40.00	0.2500	65	Slip	42.00	2,646	27.54	70.000	21.97	2,087.6	26.83	110.15	21.27	110.00	16.92	954.2	20.12	85.08	0.1567
								110.00								251.1			
4-12	40.00	0.1880	65	Butt	0.00	1,479	21.27	0	12.76	723.9	27.63	113.13	15.00	150.00	8.97		18.70	79.79	0.1567

Shaft Weight 13,383

DISCRETE APPURTENANCE PROPERTIES

Attach Elev (ft)	Description	Qty	Ka	Vert Ecc (ft)	No Ice Weight (lb)	No Ice EPAa (sf)	No Ice Orientation Factor	Ice Weight (lb)	Ice EPAa (sf)	Ice Orientation Factor
160.00	Generic 11' Dipole	1	0.75	0.000	40.00	3.580	1.00	110.33	8.410	1.00
159.00	Generic 4' Omni	1	0.75	0.000	10.00	1.000	1.00	27.69	1.489	1.00
153.00	CCI DMP65R-BU6E	3	0.75	0.000	103.80	12.709	0.65	261.70	14.290	0.65
153.00	Ericsson AIR 6449 B77D/ C-Band	3	0.75	0.000	81.60	4.028	0.70	147.63	4.806	0.70
153.00	Ericsson AIR 6419 B77G	3	0.75	0.000	66.10	3.797	0.65	121.10	4.544	0.65
153.00	Ericsson RRUS 32 B30 (53 lbs)	3	0.75	0.000	53.00	2.743	0.67	94.69	3.406	0.67
153.00	Kathrein Scala 80010965	3	0.75	0.000	97.60	13.814	0.62	248.73	15.543	0.62
153.00	Generic Round Platform with Ha	1	1.00	0.000	2500.00	27.200	1.00	3418.18	41.057	1.00
153.00	Ericsson RRUS 4449 B5, B12	3	0.75	0.000	71.00	1.969	0.50	107.54	2.498	0.50
153.00	Ericsson RRUS 4478 B14	3	0.75	0.000	59.90	1.842	0.50	91.24	2.350	0.50
153.00	Ericsson RRUS 8843 B2, B66A	3	0.75	0.000	72.00	1.639	0.50	106.75	2.118	0.50
153.00	Raycap DC6-48-60-18-8F ("Squid	1	0.75	0.000	31.80	1.470	1.00	66.78	1.866	1.00
153.00	Raycap DC6-48-60-18-8F	2	0.75	0.000	20.00	1.260	1.00	49.85	1.633	1.00
153.00	Powerwave Allgon LGP21401	6	0.75	0.000	14.10	1.104	0.50	28.24	1.509	0.50
153.00	Kathrein Scala 782-10250	3	0.75	0.000	6.40	0.449	0.50	13.63	0.727	0.50
153.00	Powerwave Allgon 7020.00 Dual	6	0.75	0.000	2.20	0.339	0.50	7.99	0.571	0.50
150.00	Generic GPS	1	1.00	0.000	10.00	0.900	1.00	26.59	1.263	1.00
140.00	Ericsson Radio 4449 B71 B85A	3	0.75	0.000	75.00	1.650	0.50	108.85	2.128	0.50
140.00	PerfectVision PV-RP14M-9-96 Ro	1	1.00	0.000	2972.00	36.600	1.00	4137.48	50.953	1.00
140.00	RFS APXVAARR24_43-U-NA20	3	0.75	0.000	127.90	20.243	0.63	348.89	22.331	0.63
140.00	Ericsson Air6449 B41	3	0.75	0.000	104.00	5.682	0.63	180.71	6.576	0.63
140.00	Ericsson Radio 4460 B25+B66	3	0.75	0.000	109.00	2.564	0.50	158.76	3.157	0.50
132.00	Generic 12" x 12" Junction Box	1	1.00	0.000	10.00	1.200	1.00	33.34	1.607	1.00
131.00	Side Arms	1	1.00	0.000	560.00	8.500	1.00	822.15	12.479	1.00
130.00	DragonWave A-ANT-18G-2.5-C	1	1.00	2.000	47.60	8.430	0.76	143.84	9.381	0.76
130.00	Argus LLPX310R	3	1.00	0.000	28.60	4.292	0.63	78.95	5.216	0.63
130.00	NextNet BTS-2500	3	1.00	0.000	35.00	1.817	0.50	60.91	2.329	0.50
130.00	DragonWave A-ANT-23G-1-C	1	1.00	2.000	15.00	1.610	0.68	34.74	2.033	0.68
130.00	DragonWave Horizon Compact	2	1.00	2.000	10.60	0.721	0.50	23.16	1.039	0.50
122.00	SWR FMEC/1	1	1.00	1.000	15.00	2.500	1.00	60.51	4.707	1.00
113.00	RFS DB-T1-6Z-8AB-0Z	2	0.80	2.000	44.00	4.800	0.72	113.38	5.583	0.72
113.00	Commscope JAHH-65B-R3B	6	0.80	2.000	60.60	9.113	0.69	172.12	10.642	0.69
113.00	Round T-Arm	3	0.75	0.000	250.00	9.700	0.67	365.21	14.245	0.67
113.00	RFS APL866513-12T0-00	2	0.80	2.000	15.70	4.050	0.82	75.77	5.075	0.82
113.00	Ericsson RRH2x40-07-L	3	0.80	0.000	60.00	1.811	0.50	93.36	2.324	0.50
113.00	Alcatel-Lucent RRH 2X60-1900	3	0.80	2.000	39.60	1.876	0.50	69.86	2.393	0.50
113.00	Alcatel-Lucent RRH2x60 700	3	0.80	2.000	56.70	2.150	0.67	94.22	2.702	0.67
113.00	Nokia B66a RRH4x45 (UHIE)	3	0.80	2.000	56.80	2.537	0.67	95.43	3.155	0.67
113.00	RFS APL868013-12T0	4	0.80	2.000	6.30	3.615	0.50	54.87	4.645	0.50
103.00	JMA Wireless MX08FRO665-21	3	0.75	0.000	64.50	12.489	0.64	204.86	14.024	0.64
103.00	Fujitsu TA08025-B605	3	0.75	0.000	75.00	1.962	0.50	109.21	2.464	0.50
103.00	Fujitsu TA08025-B604	3	0.75	0.000	63.90	1.962	0.50	95.75	2.464	0.50
103.00	Generic Flat Platform with Han	1	1.00	0.000	2500.00	42.400	1.00	3470.10	53.852	1.00
103.00	Commscope RDIDC-9181-PF-48	1	0.75	0.000	21.90	1.867	1.00	52.98	2.359	1.00
70.00	Generic 4' Std. Dish	1	1.00	0.000	188.00	20.910	0.76	299.58	22.521	0.76
Totals	Num Loadings: 45	113			14,860.70			24,472.13		

LINEAR APPURTENANCE PROPERTIES

Load Case Azimuth (deg) : 0.00

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Dia (in)	Coax Wt (lb/ft)	Flat	Max Coax/ Row	Dist Between Rows(in)	Dist Between Cols(in)	Azimuth (deg)	Dist From Face (in)	Exposed To Wind	Carrier
0.00	160.00	3	7/8" Coax	1.09	0.33	N	0	0	0	0	0	N	TOWN OF BRANF
0.00	159.00	1	1 5/8" Coax	1.98	0.82	N	0	0	0	0	0	N	OTHER
0.00	153.00	6	1 5/8" Coax	1.98	0.82	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	153.00	6	0.78" (19.7mm) 8 AWG	0.78	0.59	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	153.00	2	2" conduit	2.38	3.65	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	153.00	2	0.39" (10mm) Fiber Tr	0.39	0.06	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	153.00	1	3" conduit	3.5	7.58	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	153.00	1	0.39" (10mm) Fiber Tr	0.39	0.06	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	150.00	1	1/2" Coax	0.63	0.15	N	0	0	0	0	0	N	VERIZON WIREL
128.00	143.00	1	#18 w/ Angle Bracket	4.55	7.88	N	1	0	0	120	0	Y	
128.00	143.00	1	#18 w/ Angle Bracket	4.55	7.88	N	1	0	0	0	0	Y	
128.00	143.00	1	#18 w/ Angle Bracket	4.55	7.88	N	1	0	0	240	0	Y	
0.00	140.00	3	1 1/4" (1.25"- 31.8mm	1.25	1.05	N	2	1	1	80	1	Y	T-MOBILE
0.00	140.00	1	1.99" (50.7mm) Hybrid	1.99	1.9	N	1	1	1	90	1	Y	T-MOBILE
0.00	140.00	1	1.99" (50.7mm) Hybrid	1.99	1.9	N	1	1	1	90	1	Y	T-MOBILE
115.50	133.00	1	#18 w/ Angle Bracket	4.55	7.88	N	1	0	0	210	0	Y	
115.50	133.00	1	#18 w/ Angle Bracket	4.55	7.88	N	1	0	0	90	0	Y	
115.50	133.00	1	#18 w/ Angle Bracket	4.55	7.88	N	1	0	0	335	0	Y	
0.00	132.00	2	1/2" Coax	0.63	0.15	N	2	0	0	200	0.25	Y	CLEARWIRE COR
0.00	132.00	2	2" conduit	2.38	3.65	N	2	0	0	190	0.25	Y	CLEARWIRE COR
0.00	130.00	6	5/16" (0.31"-7.9mm) C	0.31	0.05	N	6	0	0	205	0.25	Y	CLEARWIRE COR
0.00	130.00	2	1/2" Coax	0.63	0.15	N	2	0	0	200	0.25	Y	CLEARWIRE COR
0.00	123.20	1	#18 w/ W Bracket	2.25	0	N	1	0	0	225	5.15	Y	
0.00	123.20	1	W5 Brackets for #18	1.55	5.7	Y	1	0	0	315	1.8	Y	
0.00	123.20	1	#18 w/ W Bracket	2.25	0	N	1	0	0	45	5.15	Y	
0.00	123.20	1	W5 Brackets for #18	1.55	5.7	Y	1	0	0	45	1.8	Y	
0.00	123.20	1	W5 Brackets for #18	1.55	5.7	Y	1	0	0	135	1.8	Y	
0.00	123.20	1	#18 w/ W Bracket	2.25	0	N	1	0	0	135	5.15	Y	
0.00	123.20	1	#18 w/ W Bracket	2.25	0	N	1	0	0	315	5.15	Y	
0.00	123.20	1	W5 Brackets for #18	1.55	5.7	Y	1	0	0	225	1.8	Y	
0.00	122.00	3	1/2" Coax	0.63	0.15	N	0	0	0	0	0	N	ALMA RADIO IN
0.00	113.00	6	1 1/4" Coax	1.55	0.63	N	0	0	0	0	0	N	VERIZON WIREL
0.00	113.00	2	1 1/4" Hybriflex Cabl	1.54	1	N	0	0	0	0	0	N	VERIZON WIREL
0.00	103.00	1	1.60" (40.6mm) Hybrid	1.6	2.34	N	0	0	0	0	0	N	DISH WIRELESS
0.00	70.00	1	0.28" (7mm) RG-6	0.28	0.03	N	0	0	0	0	0	N	OTHER
0.00	65.50	1	#18 w/ Angle Bracket	3.75	4.68	N	1	0	0	90	0	Y	
0.00	65.50	1	#18 w/ Angle Bracket	3.75	4.68	N	1	0	0	270	0	Y	
0.00	65.50	1	#18 w/ Angle Bracket	3.75	4.68	N	1	0	0	180	0	Y	
0.00	65.50	1	#18 w/ Angle Brackets	3.75	4.68	N	1	0	0	0	0	Y	
0.00	20.00	1	1" Thick Flat Plate	1	0	Y	1	0	0	195	0	Y	
0.00	20.00	1	1" Thick Flat Plate	1	0	Y	1	0	0	15	0	Y	
0.00	20.00	1	1" Thick Flat Plate	1	0	Y	1	0	0	105	0	Y	
0.00	20.00	1	1" Thick Flat Plate	1	0	Y	1	0	0	285	0	Y	

ADDITIONAL STEEL

Elev From (ft)	Elev To (ft)	Qty	Description	Fy (ksi)	Offset (in)	Intermediate Connectors Description	Spacing (in)	Len (in)	Connectors	Continuation?
0.00	119.00	4	SOL #18 All Thread Bar	75	5.15	6" T Bracket	30.00	3.50	5/8" A36 U-Bolt	N
0.00	59.00	4	SOL #18 All Thread Bar	75	2.22	6" Angle Bracket	30.00	3.50	5/8" A36 U-Bolt	N
2.00	18.00	2	PL PL 4" x 1"	50	0.00	5/8" Hollo Bolt	12.00	3.00	5/8" Hollo Bolt	N
2.00	18.00	2	PL PL 5" x 1"	50	0.00	5/8" Hollo Bolt	12.00	3.00	5/8" Hollo Bolt	N

SEGMENT PROPERTIES

(Max Len: 5.ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	F'y (ksi)	S (in^3)	Z (in^3)	Weight (lb)	Additional Reinforcing Area (in^2)	Additional Reinforcing Ix (in^4)	Additional Reinforcing Weight (lb)
0.00		0.3750	37.380	44.684	7,810.10	24.03	99.68	78.5	403.6	0.0	0.0	32.000	9,070.90	0.0
2.00	Reinf Bottom Reinf Bottom	0.3750	37.067	44.305	7,613.30	23.81	98.84	78.8	396.8	0.0	302.8	32.000	8,950.20	217.6
5.00		0.3750	36.597	43.737	7,324.40	23.47	97.59	79.1	386.6	0.0	449.4	50.000	11,967.50	510.1
10.00		0.3750	35.813	42.791	6,859.30	22.91	95.50	79.7	370.0	0.0	736.1	50.000	11,541.10	850.2
15.00		0.3750	35.030	41.845	6,414.30	22.35	93.41	80.3	353.7	0.0	720.0	50.000	11,122.50	850.2
18.00	Reinf. Top Reinf. Top	0.3750	34.559	41.278	6,156.80	22.01	92.16	80.7	344.2	0.0	424.3	50.000	10,875.20	510.1
20.00		0.3750	34.246	40.899	5,989.00	21.79	91.32	80.9	337.8	0.0	279.6	32.000	7,900.20	217.6
25.00		0.3750	33.463	39.953	5,583.00	21.23	89.23	81.6	322.3	0.0	687.8	32.000	7,620.30	544.0
30.00		0.3750	32.679	39.007	5,195.70	20.67	87.14	81.9	307.1	0.0	671.7	32.000	7,345.40	544.0
31.50	Bot - Section 2	0.3750	32.444	38.723	5,083.10	20.50	86.52	81.9	302.7	0.0	198.4	32.000	7,263.90	163.2
35.00		0.3750	31.896	38.061	4,826.70	20.11	85.05	81.9	292.3	0.0	847.1	32.000	7,290.80	380.8
35.67	Top - Section 1	0.3130	32.417	32.356	4,256.60	25.07	103.57	77.4	253.7	0.0	159.7	32.000	7,254.60	72.5
40.00		0.3130	31.738	31.672	3,992.20	24.49	101.40	78	243.0	0.0	472.1	32.000	7,022.00	471.5
45.00		0.3130	30.955	30.882	3,701.00	23.82	98.90	78.7	231.0	0.0	532.1	32.000	6,758.40	544.0
50.00		0.3130	30.171	30.093	3,424.30	23.15	96.39	79.5	219.3	0.0	518.7	32.000	6,499.80	544.0
55.00		0.3130	29.388	29.303	3,161.70	22.48	93.89	80.2	207.8	0.0	505.3	32.000	6,246.30	544.0
59.00	Reinf. Top	0.3130	28.761	28.671	2,961.60	21.94	91.89	80.8	198.9	0.0	394.5	32.000	6,047.20	435.2
60.00		0.3130	28.604	28.513	2,912.90	21.81	91.39	80.9	196.7	0.0	97.3	16.000	3,423.30	54.4
65.00		0.3130	27.821	27.724	2,677.60	21.14	88.88	81.7	185.9	0.0	478.4	16.000	3,295.00	272.0
70.00	Bot - Section 3	0.3130	27.037	26.934	2,455.20	20.47	86.38	81.9	175.4	0.0	465.0	16.000	3,169.10	272.0
73.50	Top - Section 2	0.2500	26.989	21.525	1,964.20	26.25	107.95	76.1	140.6	0.0	576.5	16.000	3,161.40	190.4
75.00		0.2500	26.754	21.335	1,912.90	25.99	107.01	76.4	138.1	0.0	109.4	16.000	3,124.10	81.6
80.00		0.2500	25.970	20.705	1,748.20	25.16	103.88	77.3	130.0	0.0	357.6	16.000	3,001.60	272.0
85.00		0.2500	25.187	20.074	1,593.30	24.32	100.75	78.2	122.2	0.0	346.9	16.000	2,881.50	272.0
90.00		0.2500	24.403	19.443	1,447.80	23.48	97.61	79.1	114.6	0.0	336.2	16.000	2,763.90	272.0
95.00		0.2500	23.620	18.812	1,311.40	22.64	94.48	80	107.3	0.0	325.4	16.000	2,648.70	272.0
100.00		0.2500	22.836	18.182	1,183.90	21.80	91.34	80.9	100.2	0.0	314.7	16.000	2,536.00	272.0
103.00		0.2500	22.366	17.803	1,111.50	21.29	89.46	81.5	96.0	0.0	183.7	16.000	2,469.60	163.2
105.00		0.2500	22.053	17.551	1,064.90	20.96	88.21	81.9	93.3	0.0	120.3	16.000	2,425.80	108.8
110.00	Top - Section 3	0.2500	21.269	16.920	954.20	20.12	85.08	81.9	86.7	0.0	293.2	16.000	2,318.00	272.0
110.00	Bot - Section 4	0.1880	21.269	12.762	723.90	27.63	113.13	74.6	65.8	0.0		16.000	2,318.00	
113.00		0.1880	20.799	12.477	676.50	26.96	110.63	75.3	62.8	0.0	128.8	16.000	2,254.50	163.2
115.00		0.1880	20.486	12.287	646.10	26.52	108.97	75.8	60.9	0.0	84.3	16.000	2,212.60	108.8
119.00	Reinf. Top	0.1880	19.859	11.908	588.10	25.62	105.63	76.8	57.2	0.0	164.7	16.000	2,130.10	217.6
120.00		0.1880	19.702	11.813	574.20	25.40	104.80	77	56.3	0.0	40.4			
122.00		0.1880	19.389	11.623	546.90	24.95	103.13	77.5	54.5	0.0	79.7			
125.00		0.1880	18.919	11.339	507.70	24.28	100.63	78.2	51.8	0.0	117.2			
130.00		0.1880	18.135	10.864	446.70	23.17	96.46	79.4	47.6	0.0	188.9			
131.00		0.1880	17.978	10.770	435.10	22.94	95.63	79.7	46.7	0.0	36.8			
132.00		0.1880	17.822	10.675	423.70	22.72	94.80	79.9	45.9	0.0	36.5			
135.00		0.1880	17.352	10.390	390.70	22.05	92.30	80.7	43.5	0.0	107.5			
140.00		0.1880	16.568	9.916	339.60	20.93	88.13	81.9	39.6	0.0	172.7			
145.00		0.1880	15.785	9.441	293.10	19.82	83.96	81.9	35.9	0.0	164.7			
150.00		0.1880	15.001	8.967	251.10	18.70	79.79	81.9	32.3	0.0	156.6			
									Totals:		13,383.0			10,663.0

Load Case: 1.2D + 1.0W Normal 117.94 mph wind with no ice 26 Iterations
Gust Response Factor: 1.10
Dead load Factor: 1.20
Wind Load Factor: 1.00

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-60.62	-30.26	0.00	-3,192.7	0.00	3,192.68	3,157.17	784.20	2,737.77	2,376.61	0	0	0.634
2.00	-59.70	-30.10	0.00	-3,132.2	0.00	3,132.17	3,140.17	777.55	2,691.61	2,343.59	0.02	-0.11	0.627
5.00	-58.13	-29.83	0.00	-3,041.9	0.00	3,041.87	3,114.35	767.59	2,623.11	2,294.24	0.14	-0.27	0.514
10.00	-55.57	-29.42	0.00	-2,892.7	0.00	2,892.74	3,070.50	750.99	2,510.89	2,212.51	0.54	-0.48	0.497
15.00	-53.06	-29.06	0.00	-2,745.6	0.00	2,745.63	3,025.61	734.39	2,401.13	2,131.46	1.16	-0.7	0.481
18.00	-51.56	-28.83	0.00	-2,658.4	0.00	2,658.45	2,998.18	724.42	2,336.45	2,083.18	1.65	-0.83	0.471
18.00	-51.56	-28.83	0.00	-2,658.4	0.00	2,658.45	2,998.18	724.42	2,336.45	2,083.18	1.65	-0.83	0.566
20.00	-50.67	-28.61	0.00	-2,600.8	0.00	2,600.78	2,979.68	717.78	2,293.82	2,051.14	2.02	-0.92	0.558
25.00	-48.53	-28.22	0.00	-2,457.7	0.00	2,457.74	2,932.71	701.18	2,188.97	1,971.59	3.12	-1.18	0.538
30.00	-46.45	-27.89	0.00	-2,316.7	0.00	2,316.66	2,875.21	684.57	2,086.57	1,886.65	4.5	-1.44	0.519
31.50	-45.80	-27.72	0.00	-2,274.8	0.00	2,274.82	2,854.29	679.59	2,056.33	1,859.14	4.96	-1.52	0.514
35.00	-43.90	-27.46	0.00	-2,177.8	0.00	2,177.82	2,805.48	667.97	1,986.62	1,795.73	6.14	-1.7	0.493
35.67	-43.50	-27.30	0.00	-2,159.5	0.00	2,159.50	2,253.08	567.85	1,719.88	1,471.98	6.38	-1.73	0.555
40.00	-41.81	-26.87	0.00	-2,041.2	0.00	2,041.20	2,223.50	555.84	1,647.92	1,421.63	8.05	-1.94	0.532
45.00	-39.88	-26.38	0.00	-1,906.8	0.00	1,906.82	2,188.39	541.99	1,566.79	1,363.96	10.23	-2.2	0.506
50.00	-37.97	-25.86	0.00	-1,774.9	0.00	1,774.93	2,152.25	528.13	1,487.72	1,306.78	12.67	-2.45	0.480
55.00	-36.10	-25.33	0.00	-1,645.7	0.00	1,645.66	2,115.06	514.27	1,410.69	1,250.16	15.36	-2.7	0.453
59.00	-34.64	-24.97	0.00	-1,544.4	0.00	1,544.35	2,084.57	503.18	1,350.55	1,205.28	17.71	-2.89	0.432
59.00	-34.64	-24.97	0.00	-1,544.4	0.00	1,544.35	2,084.57	503.18	1,350.55	1,205.28	17.71	-2.89	0.605
60.00	-34.28	-24.76	0.00	-1,519.4	0.00	1,519.38	2,076.84	500.41	1,335.71	1,194.13	18.32	-2.94	0.598
65.00	-32.73	-24.24	0.00	-1,395.6	0.00	1,395.60	2,037.58	486.55	1,262.78	1,138.75	21.57	-3.26	0.562
70.00	-31.14	-23.19	0.00	-1,274.4	0.00	1,274.40	1,985.31	472.69	1,191.90	1,077.58	25.16	-3.58	0.529
73.50	-29.88	-22.92	0.00	-1,193.2	0.00	1,193.22	1,474.00	377.76	952.88	802.36	27.86	-3.8	0.585
75.00	-29.46	-22.66	0.00	-1,158.8	0.00	1,158.84	1,466.32	374.43	936.20	791.10	29.07	-3.89	0.571
80.00	-28.20	-22.21	0.00	-1,045.5	0.00	1,045.53	1,440.03	363.37	881.69	753.74	33.31	-4.2	0.525
85.00	-26.95	-21.76	0.00	-934.5	0.00	934.50	1,412.71	352.30	828.81	716.70	37.87	-4.5	0.479
90.00	-25.73	-21.32	0.00	-825.7	0.00	825.69	1,384.35	341.23	777.56	680.02	42.73	-4.78	0.431
95.00	-24.54	-20.86	0.00	-719.1	0.00	719.09	1,354.95	330.16	727.95	643.77	47.88	-5.04	0.384
100.00	-23.38	-20.45	0.00	-614.8	0.00	614.81	1,324.51	319.09	679.97	607.99	53.28	-5.28	0.335
103.00	-19.18	-17.40	0.00	-553.5	0.00	553.48	1,305.75	312.45	651.97	586.76	56.64	-5.41	0.304
105.00	-18.73	-17.08	0.00	-518.7	0.00	518.67	1,293.03	308.02	633.63	572.72	58.92	-5.5	0.287
110.00	-17.63	-16.63	0.00	-433.3	0.00	433.29	1,247.19	296.95	588.93	532.34	64.78	-5.69	0.248
110.00	-17.63	-16.63	0.00	-433.3	0.00	433.29	856.53	223.97	445.40	367.75	64.78	-5.69	0.295
113.00	-15.05	-13.36	0.00	-379.1	0.00	379.10	845.64	218.97	425.76	354.91	68.39	-5.8	0.258
115.00	-14.67	-13.04	0.00	-352.4	0.00	352.39	838.16	215.64	412.92	346.37	70.83	-5.87	0.241
119.00	-13.83	-12.70	0.00	-300.2	0.00	300.21	822.72	208.98	387.82	329.40	75.8	-6	0.208
119.00	-13.83	-12.70	0.00	-300.2	0.00	300.21	822.72	208.98	387.82	329.40	75.8	-6	0.932
120.00	-13.66	-12.56	0.00	-287.5	0.00	287.51	818.76	207.32	381.66	325.17	77.06	-6.03	0.905
122.00	-13.30	-12.25	0.00	-262.3	0.00	262.28	810.71	203.99	369.51	316.76	79.64	-6.3	0.848
125.00	-12.84	-11.97	0.00	-225.5	0.00	225.53	798.31	198.99	351.64	304.20	83.72	-6.68	0.761
130.00	-11.93	-10.81	0.00	-165.0	0.00	165.05	776.83	190.67	322.85	283.51	91	-7.23	0.601
131.00	-11.15	-10.30	0.00	-154.2	0.00	154.23	772.41	189.01	317.24	279.41	92.53	-7.33	0.569
132.00	-10.99	-10.09	0.00	-143.9	0.00	143.94	767.94	187.34	311.67	275.32	94.07	-7.43	0.540
135.00	-10.63	-9.74	0.00	-113.7	0.00	113.66	754.30	182.35	295.28	263.15	98.81	-7.69	0.449
140.00	-5.54	-5.42	0.00	-65.0	0.00	64.96	730.89	174.02	268.95	243.21	107.03	-8.02	0.276
145.00	-5.15	-4.97	0.00	-37.9	0.00	37.87	695.93	165.70	243.85	220.38	115.52	-8.23	0.180
150.00	0.00	-4.18	0.00	-13.0	0.00	13.00	660.97	157.37	219.97	198.67	124.19	-8.36	0.066

Load Case: 0.9D + 1.0W Normal 117.94 mph wind with no ice 26 Iterations
Gust Response Factor: 1.10
Dead load Factor: 0.90
Wind Load Factor: 1.00

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-45.45	-30.24	0.00	-3,129.7	0.00	3,129.66	3,157.17	784.20	2,737.77	2,376.61	0	0	0.619
2.00	-44.76	-30.05	0.00	-3,069.2	0.00	3,069.18	3,140.17	777.55	2,691.61	2,343.59	0.02	-0.1	0.612
5.00	-43.55	-29.72	0.00	-2,979.0	0.00	2,979.04	3,114.35	767.59	2,623.11	2,294.24	0.14	-0.26	0.501
10.00	-41.61	-29.27	0.00	-2,830.4	0.00	2,830.42	3,070.50	750.99	2,510.89	2,212.51	0.53	-0.47	0.485
15.00	-39.71	-28.87	0.00	-2,684.1	0.00	2,684.07	3,025.61	734.39	2,401.13	2,131.46	1.14	-0.69	0.468
18.00	-38.57	-28.62	0.00	-2,597.5	0.00	2,597.46	2,998.18	724.42	2,336.45	2,083.18	1.61	-0.82	0.458
18.00	-38.57	-28.62	0.00	-2,597.5	0.00	2,597.46	2,998.18	724.42	2,336.45	2,083.18	1.61	-0.82	0.551
20.00	-37.88	-28.36	0.00	-2,540.2	0.00	2,540.22	2,979.68	717.78	2,293.82	2,051.14	1.98	-0.9	0.543
25.00	-36.26	-27.92	0.00	-2,398.4	0.00	2,398.43	2,932.71	701.18	2,188.97	1,971.59	3.06	-1.15	0.523
30.00	-34.68	-27.57	0.00	-2,258.8	0.00	2,258.85	2,875.21	684.57	2,086.57	1,886.65	4.4	-1.41	0.504
31.50	-34.18	-27.37	0.00	-2,217.5	0.00	2,217.50	2,854.29	679.59	2,056.33	1,859.14	4.86	-1.48	0.499
35.00	-32.75	-27.11	0.00	-2,121.7	0.00	2,121.71	2,805.48	667.97	1,986.62	1,795.73	6.01	-1.66	0.479
35.67	-32.44	-26.92	0.00	-2,103.6	0.00	2,103.64	2,253.08	567.85	1,719.88	1,471.98	6.24	-1.69	0.538
40.00	-31.15	-26.46	0.00	-1,987.0	0.00	1,986.98	2,223.50	555.84	1,647.92	1,421.63	7.87	-1.9	0.516
45.00	-29.68	-25.93	0.00	-1,854.7	0.00	1,854.68	2,188.39	541.99	1,566.79	1,363.96	10	-2.15	0.490
50.00	-28.24	-25.39	0.00	-1,725.0	0.00	1,725.01	2,152.25	528.13	1,487.72	1,306.78	12.38	-2.39	0.464
55.00	-26.82	-24.84	0.00	-1,598.1	0.00	1,598.08	2,115.06	514.27	1,410.69	1,250.16	15.01	-2.63	0.438
59.00	-25.71	-24.48	0.00	-1,498.7	0.00	1,498.73	2,084.57	503.18	1,350.55	1,205.28	17.3	-2.82	0.417
59.00	-25.71	-24.48	0.00	-1,498.7	0.00	1,498.73	2,084.57	503.18	1,350.55	1,205.28	17.3	-2.82	0.585
60.00	-25.43	-24.24	0.00	-1,474.2	0.00	1,474.24	2,076.84	500.41	1,335.71	1,194.13	17.89	-2.86	0.578
65.00	-24.25	-23.69	0.00	-1,353.0	0.00	1,353.04	2,037.58	486.55	1,262.78	1,138.75	21.06	-3.18	0.543
70.00	-23.05	-22.63	0.00	-1,234.6	0.00	1,234.57	1,985.31	472.69	1,191.90	1,077.58	24.56	-3.49	0.510
73.50	-22.10	-22.36	0.00	-1,155.4	0.00	1,155.37	1,474.00	377.76	952.88	802.36	27.19	-3.7	0.564
75.00	-21.78	-22.07	0.00	-1,121.8	0.00	1,121.83	1,466.32	374.43	936.20	791.10	28.37	-3.79	0.550
80.00	-20.81	-21.60	0.00	-1,011.5	0.00	1,011.47	1,440.03	363.37	881.69	753.74	32.5	-4.09	0.506
85.00	-19.87	-21.14	0.00	-903.5	0.00	903.49	1,412.71	352.30	828.81	716.70	36.94	-4.38	0.460
90.00	-18.94	-20.69	0.00	-797.8	0.00	797.79	1,384.35	341.23	777.56	680.02	41.66	-4.65	0.414
95.00	-18.04	-20.22	0.00	-694.4	0.00	694.36	1,354.95	330.16	727.95	643.77	46.66	-4.9	0.368
100.00	-17.16	-19.81	0.00	-593.3	0.00	593.27	1,324.51	319.09	679.97	607.99	51.92	-5.13	0.321
103.00	-14.06	-16.87	0.00	-533.8	0.00	533.83	1,305.75	312.45	651.97	586.76	55.18	-5.26	0.291
105.00	-13.72	-16.54	0.00	-500.1	0.00	500.09	1,293.03	308.02	633.63	572.72	57.4	-5.34	0.275
110.00	-12.90	-16.11	0.00	-417.4	0.00	417.37	1,247.19	296.95	588.93	532.34	63.09	-5.53	0.237
110.00	-12.90	-16.11	0.00	-417.4	0.00	417.37	856.53	223.97	445.40	367.75	63.09	-5.53	0.282
113.00	-11.03	-12.91	0.00	-364.8	0.00	364.75	845.64	218.97	425.76	354.91	66.6	-5.63	0.246
115.00	-10.75	-12.60	0.00	-338.9	0.00	338.92	838.16	215.64	412.92	346.37	68.97	-5.7	0.230
119.00	-10.11	-12.27	0.00	-288.5	0.00	288.53	822.72	208.98	387.82	329.40	73.79	-5.83	0.198
119.00	-10.11	-12.27	0.00	-288.5	0.00	288.53	822.72	208.98	387.82	329.40	73.79	-5.83	0.892
120.00	-9.98	-12.13	0.00	-276.2	0.00	276.25	818.76	207.32	381.66	325.17	75.01	-5.85	0.865
122.00	-9.72	-11.80	0.00	-251.9	0.00	251.89	810.71	203.99	369.51	316.76	77.52	-6.12	0.811
125.00	-9.36	-11.50	0.00	-216.5	0.00	216.48	798.31	198.99	351.64	304.20	81.47	-6.48	0.727
130.00	-8.69	-10.36	0.00	-158.3	0.00	158.32	776.83	190.67	322.85	283.51	88.54	-7.01	0.573
131.00	-8.12	-9.87	0.00	-148.0	0.00	147.97	772.41	189.01	317.24	279.41	90.01	-7.11	0.543
132.00	-8.00	-9.66	0.00	-138.1	0.00	138.10	767.94	187.34	311.67	275.32	91.51	-7.2	0.515
135.00	-7.73	-9.30	0.00	-109.1	0.00	109.13	754.30	182.35	295.28	263.15	96.1	-7.45	0.428
140.00	-4.02	-5.18	0.00	-62.6	0.00	62.63	730.89	174.02	268.95	243.21	104.06	-7.76	0.264
145.00	-3.74	-4.75	0.00	-36.7	0.00	36.73	695.93	165.70	243.85	220.38	112.28	-7.97	0.173
150.00	0.00	-4.18	0.00	-13.0	0.00	13.00	660.97	157.37	219.97	198.67	120.67	-8.09	0.066

Load Case: 1.2D + 1.0Di + 1.0Wi Normal 48.73 mph wind with 0.850" radial ice 25 Iterations
Gust Response Factor: 1.10 Ice Dead Load Factor 1.00
Dead load Factor: 1.20 Ice Importance Factor 1.00
Wind Load Factor: 1.00

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-78.06	-6.80	0.00	-769.4	0.00	769.41	3,157.17	784.20	2,737.77	2,376.61	0	0	0.164
2.00	-77.09	-6.80	0.00	-755.8	0.00	755.80	3,140.17	777.55	2,691.61	2,343.59	0.01	-0.03	0.163
5.00	-75.39	-6.78	0.00	-735.4	0.00	735.40	3,114.35	767.59	2,623.11	2,294.24	0.03	-0.06	0.133
10.00	-72.56	-6.74	0.00	-701.5	0.00	701.51	3,070.50	750.99	2,510.89	2,212.51	0.13	-0.12	0.129
15.00	-69.72	-6.69	0.00	-667.8	0.00	667.82	3,025.61	734.39	2,401.13	2,131.46	0.28	-0.17	0.125
18.00	-68.02	-6.67	0.00	-647.7	0.00	647.74	2,998.18	724.42	2,336.45	2,083.18	0.4	-0.2	0.123
18.00	-68.02	-6.67	0.00	-647.7	0.00	647.74	2,998.18	724.42	2,336.45	2,083.18	0.4	-0.2	0.148
20.00	-67.04	-6.64	0.00	-634.4	0.00	634.41	2,979.68	717.78	2,293.82	2,051.14	0.49	-0.22	0.146
25.00	-64.60	-6.60	0.00	-601.2	0.00	601.19	2,932.71	701.18	2,188.97	1,971.59	0.76	-0.29	0.141
30.00	-62.18	-6.55	0.00	-568.2	0.00	568.19	2,875.21	684.57	2,086.57	1,886.65	1.09	-0.35	0.137
31.50	-61.45	-6.53	0.00	-558.4	0.00	558.36	2,854.29	679.59	2,056.33	1,859.14	1.2	-0.37	0.136
35.00	-59.30	-6.49	0.00	-535.5	0.00	535.49	2,805.48	667.97	1,986.62	1,795.73	1.49	-0.41	0.130
35.67	-58.89	-6.48	0.00	-531.2	0.00	531.16	2,253.08	567.85	1,719.88	1,471.98	1.55	-0.42	0.147
40.00	-56.92	-6.42	0.00	-503.1	0.00	503.10	2,223.50	555.84	1,647.92	1,421.63	1.96	-0.47	0.141
45.00	-54.65	-6.34	0.00	-471.0	0.00	471.02	2,188.39	541.99	1,566.79	1,363.96	2.49	-0.54	0.135
50.00	-52.40	-6.26	0.00	-439.3	0.00	439.32	2,152.25	528.13	1,487.72	1,306.78	3.08	-0.6	0.128
55.00	-50.17	-6.16	0.00	-408.0	0.00	408.04	2,115.06	514.27	1,410.69	1,250.16	3.74	-0.66	0.121
59.00	-48.39	-6.08	0.00	-383.4	0.00	383.42	2,084.57	503.18	1,350.55	1,205.28	4.32	-0.71	0.116
59.00	-48.39	-6.08	0.00	-383.4	0.00	383.42	2,084.57	503.18	1,350.55	1,205.28	4.32	-0.71	0.162
60.00	-48.02	-6.05	0.00	-377.3	0.00	377.33	2,076.84	500.41	1,335.71	1,194.13	4.47	-0.72	0.160
65.00	-46.18	-5.96	0.00	-347.1	0.00	347.07	2,037.58	486.55	1,262.78	1,138.75	5.26	-0.8	0.151
70.00	-44.19	-5.76	0.00	-317.3	0.00	317.27	1,985.31	472.69	1,191.90	1,077.58	6.15	-0.88	0.143
73.50	-42.73	-5.69	0.00	-297.1	0.00	297.10	1,474.00	377.76	952.88	802.36	6.81	-0.93	0.159
75.00	-42.26	-5.66	0.00	-288.6	0.00	288.56	1,466.32	374.43	936.20	791.10	7.11	-0.96	0.155
80.00	-40.72	-5.55	0.00	-260.3	0.00	260.28	1,440.03	363.37	881.69	753.74	8.15	-1.03	0.143
85.00	-39.21	-5.44	0.00	-232.5	0.00	232.52	1,412.71	352.30	828.81	716.70	9.28	-1.11	0.131
90.00	-37.70	-5.32	0.00	-205.3	0.00	205.32	1,384.35	341.23	777.56	680.02	10.48	-1.18	0.119
95.00	-36.22	-5.20	0.00	-178.7	0.00	178.72	1,354.95	330.16	727.95	643.77	11.75	-1.24	0.107
100.00	-34.75	-5.07	0.00	-152.7	0.00	152.74	1,324.51	319.09	679.97	607.99	13.08	-1.3	0.094
103.00	-28.93	-4.37	0.00	-137.5	0.00	137.52	1,305.75	312.45	651.97	586.76	13.91	-1.34	0.085
105.00	-28.36	-4.30	0.00	-128.8	0.00	128.78	1,293.03	308.02	633.63	572.72	14.48	-1.36	0.080
110.00	-26.94	-4.16	0.00	-107.3	0.00	107.30	1,247.19	296.95	588.93	532.34	15.92	-1.41	0.070
110.00	-26.94	-4.16	0.00	-107.3	0.00	107.30	856.53	223.97	445.40	367.75	15.92	-1.41	0.084
113.00	-22.49	-3.39	0.00	-93.9	0.00	93.94	845.64	218.97	425.76	354.91	16.82	-1.43	0.073
115.00	-21.97	-3.31	0.00	-87.2	0.00	87.16	838.16	215.64	412.92	346.37	17.42	-1.45	0.068
119.00	-20.82	-3.17	0.00	-73.9	0.00	73.90	822.72	208.98	387.82	329.40	18.65	-1.48	0.060
119.00	-20.82	-3.17	0.00	-73.9	0.00	73.90	822.72	208.98	387.82	329.40	18.65	-1.48	0.250
120.00	-20.60	-3.14	0.00	-70.7	0.00	70.73	818.76	207.32	381.66	325.17	18.96	-1.49	0.243
122.00	-20.09	-3.04	0.00	-64.4	0.00	64.42	810.71	203.99	369.51	316.76	19.6	-1.56	0.228
125.00	-19.50	-2.96	0.00	-55.3	0.00	55.31	798.31	198.99	351.64	304.20	20.61	-1.65	0.206
130.00	-17.96	-2.67	0.00	-40.4	0.00	40.39	776.83	190.67	322.85	283.51	22.41	-1.78	0.166
131.00	-16.89	-2.53	0.00	-37.7	0.00	37.72	772.41	189.01	317.24	279.41	22.78	-1.81	0.157
132.00	-16.66	-2.48	0.00	-35.2	0.00	35.19	767.94	187.34	311.67	275.32	23.17	-1.83	0.150
135.00	-16.17	-2.38	0.00	-27.8	0.00	27.76	754.30	182.35	295.28	263.15	24.34	-1.9	0.127
140.00	-8.67	-1.33	0.00	-15.9	0.00	15.87	730.89	174.02	268.95	243.21	26.37	-1.98	0.077
145.00	-8.11	-1.23	0.00	-9.2	0.00	9.19	695.93	165.70	243.85	220.38	28.47	-2.03	0.053
150.00	0.00	-0.94	0.00	-3.0	0.00	3.05	660.97	157.37	219.97	198.67	30.61	-2.06	0.015

Load Case: 1.0D + 1.0W Service Normal 60 mph Wind with No Ice 24 Iterations
Gust Response Factor: 1.10
Dead load Factor: 1.00
Wind Load Factor: 1.00

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-50.54	-7.02	0.00	-733.0	0.00	733.00	3,157.17	784.20	2,737.77	2,376.61	0	0	0.152
2.00	-49.83	-6.98	0.00	-719.0	0.00	718.97	3,140.17	777.55	2,691.61	2,343.59	0.01	-0.02	0.150
5.00	-48.59	-6.90	0.00	-698.0	0.00	698.04	3,114.35	767.59	2,623.11	2,294.24	0.03	-0.06	0.123
10.00	-46.55	-6.80	0.00	-663.5	0.00	663.52	3,070.50	750.99	2,510.89	2,212.51	0.12	-0.11	0.119
15.00	-44.52	-6.71	0.00	-629.5	0.00	629.50	3,025.61	734.39	2,401.13	2,131.46	0.27	-0.16	0.115
18.00	-43.31	-6.66	0.00	-609.4	0.00	609.36	2,998.18	724.42	2,336.45	2,083.18	0.38	-0.19	0.112
18.00	-43.31	-6.66	0.00	-609.4	0.00	609.36	2,998.18	724.42	2,336.45	2,083.18	0.38	-0.19	0.135
20.00	-42.63	-6.60	0.00	-596.0	0.00	596.04	2,979.68	717.78	2,293.82	2,051.14	0.46	-0.21	0.133
25.00	-40.94	-6.50	0.00	-563.0	0.00	563.03	2,932.71	701.18	2,188.97	1,971.59	0.72	-0.27	0.129
30.00	-39.26	-6.42	0.00	-530.5	0.00	530.52	2,875.21	684.57	2,086.57	1,886.65	1.03	-0.33	0.124
31.50	-38.76	-6.38	0.00	-520.9	0.00	520.88	2,854.29	679.59	2,056.33	1,859.14	1.14	-0.35	0.123
35.00	-37.21	-6.32	0.00	-498.6	0.00	498.55	2,805.48	667.97	1,986.62	1,795.73	1.41	-0.39	0.118
35.67	-36.92	-6.28	0.00	-494.3	0.00	494.33	2,253.08	567.85	1,719.88	1,471.98	1.46	-0.4	0.133
40.00	-35.58	-6.18	0.00	-467.1	0.00	467.11	2,223.50	555.84	1,647.92	1,421.63	1.85	-0.45	0.127
45.00	-34.04	-6.06	0.00	-436.2	0.00	436.23	2,188.39	541.99	1,566.79	1,363.96	2.35	-0.5	0.121
50.00	-32.52	-5.93	0.00	-405.9	0.00	405.93	2,152.25	528.13	1,487.72	1,306.78	2.9	-0.56	0.115
55.00	-31.01	-5.81	0.00	-376.3	0.00	376.26	2,115.06	514.27	1,410.69	1,250.16	3.52	-0.62	0.108
59.00	-29.82	-5.73	0.00	-353.0	0.00	353.02	2,084.57	503.18	1,350.55	1,205.28	4.06	-0.66	0.103
59.00	-29.82	-5.73	0.00	-353.0	0.00	353.02	2,084.57	503.18	1,350.55	1,205.28	4.06	-0.66	0.145
60.00	-29.57	-5.68	0.00	-347.3	0.00	347.29	2,076.84	500.41	1,335.71	1,194.13	4.2	-0.67	0.143
65.00	-28.36	-5.55	0.00	-318.9	0.00	318.91	2,037.58	486.55	1,262.78	1,138.75	4.94	-0.75	0.135
70.00	-27.07	-5.31	0.00	-291.2	0.00	291.15	1,985.31	472.69	1,191.90	1,077.58	5.77	-0.82	0.127
73.50	-26.05	-5.25	0.00	-272.6	0.00	272.57	1,474.00	377.76	952.88	802.36	6.39	-0.87	0.141
75.00	-25.75	-5.18	0.00	-264.7	0.00	264.70	1,466.32	374.43	936.20	791.10	6.66	-0.89	0.137
80.00	-24.75	-5.08	0.00	-238.8	0.00	238.78	1,440.03	363.37	881.69	753.74	7.63	-0.96	0.126
85.00	-23.77	-4.97	0.00	-213.4	0.00	213.40	1,412.71	352.30	828.81	716.70	8.68	-1.03	0.116
90.00	-22.80	-4.87	0.00	-188.5	0.00	188.54	1,384.35	341.23	777.56	680.02	9.79	-1.09	0.105
95.00	-21.84	-4.76	0.00	-164.2	0.00	164.19	1,354.95	330.16	727.95	643.77	10.97	-1.15	0.093
100.00	-20.89	-4.67	0.00	-140.4	0.00	140.37	1,324.51	319.09	679.97	607.99	12.21	-1.21	0.082
103.00	-17.21	-3.98	0.00	-126.4	0.00	126.36	1,305.75	312.45	651.97	586.76	12.98	-1.24	0.074
105.00	-16.84	-3.90	0.00	-118.4	0.00	118.40	1,293.03	308.02	633.63	572.72	13.5	-1.26	0.070
110.00	-15.92	-3.80	0.00	-98.9	0.00	98.89	1,247.19	296.95	588.93	532.34	14.84	-1.3	0.061
110.00	-15.92	-3.80	0.00	-98.9	0.00	98.89	856.53	223.97	445.40	367.75	14.84	-1.3	0.073
113.00	-13.54	-3.05	0.00	-86.5	0.00	86.48	845.64	218.97	425.76	354.91	15.67	-1.33	0.063
115.00	-13.22	-2.98	0.00	-80.4	0.00	80.38	838.16	215.64	412.92	346.37	16.23	-1.34	0.059
119.00	-12.50	-2.90	0.00	-68.4	0.00	68.45	822.72	208.98	387.82	329.40	17.37	-1.37	0.052
119.00	-12.50	-2.90	0.00	-68.4	0.00	68.45	822.72	208.98	387.82	329.40	17.37	-1.37	0.223
120.00	-12.37	-2.87	0.00	-65.6	0.00	65.55	818.76	207.32	381.66	325.17	17.65	-1.38	0.217
122.00	-12.10	-2.80	0.00	-59.8	0.00	59.78	810.71	203.99	369.51	316.76	18.25	-1.44	0.204
125.00	-11.76	-2.73	0.00	-51.4	0.00	51.39	798.31	198.99	351.64	304.20	19.18	-1.53	0.184
130.00	-10.93	-2.46	0.00	-37.6	0.00	37.58	776.83	190.67	322.85	283.51	20.85	-1.65	0.147
131.00	-10.25	-2.35	0.00	-35.1	0.00	35.12	772.41	189.01	317.24	279.41	21.2	-1.68	0.139
132.00	-10.12	-2.30	0.00	-32.8	0.00	32.77	767.94	187.34	311.67	275.32	21.55	-1.7	0.132
135.00	-9.82	-2.21	0.00	-25.9	0.00	25.88	754.30	182.35	295.28	263.15	22.64	-1.76	0.112
140.00	-5.17	-1.23	0.00	-14.8	0.00	14.81	730.89	174.02	268.95	243.21	24.52	-1.83	0.068
145.00	-4.81	-1.13	0.00	-8.6	0.00	8.65	695.93	165.70	243.85	220.38	26.47	-1.88	0.046
150.00	0.00	-0.97	0.00	-3.0	0.00	3.01	660.97	157.37	219.97	198.67	28.45	-1.91	0.015

EQUIVALENT LATERAL FORCES METHOD ANALYSIS

(Based on ASCE7-16 Chapters 11, 12 and 15)

Spectral Response Acceleration for Short Period (S_S):	0.203
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.054
Long-Period Transition Period (T_L – Seconds):	6
Importance Factor (I_e):	1.000
Site Coefficient F_a:	1.600
Site Coefficient F_v:	2.400
Response Modification Coefficient (R):	1.500
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.217
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.086
Seismic Response Coefficient (C_s):	0.030
Upper Limit C_S:	0.030
Lower Limit C_S:	0.030
Period based on Rayleigh Method (sec):	3.090
Redundancy Factor (p):	1.000
Seismic Force Distribution Exponent (k):	2.000
Total Unfactored Dead Load:	50.540 k
Seismic Base Shear (E):	1.520 k

1.2D + 1.0Ev + 1.0Eh Normal **Seismic**

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
42	147.5	284	6,179	0.014	22	353
41	142.5	363	7,371	0.017	26	451
40	137.5	453	8,566	0.020	30	563
39	133.5	299	5,335	0.012	19	372
38	131.5	124	2,141	0.005	8	154
37	130.5	124	2,114	0.005	8	154
36	127.5	558	9,063	0.021	32	693
35	123.5	337	5,146	0.012	18	419
34	121	255	3,730	0.009	13	317
33	119.5	128	1,826	0.004	6	159
32	117	721	9,863	0.023	35	896
31	114	321	4,169	0.010	15	399
30	111.5	501	6,229	0.015	22	623
29	107.5	914	10,557	0.025	37	1,136
28	104	368	3,985	0.009	14	458
27	101.5	563	5,799	0.014	21	700
26	97.5	947	9,000	0.021	32	1,177
25	92.5	957	8,192	0.019	29	1,190
24	87.5	968	7,413	0.017	26	1,204
23	82.5	979	6,663	0.016	24	1,217
22	77.5	990	5,944	0.014	21	1,230
21	74.25	299	1,648	0.004	6	372
20	71.75	1,019	5,245	0.012	19	1,267
19	67.5	1,106	5,041	0.012	18	1,376
18	62.5	1,204	4,704	0.011	17	1,497
17	59.5	242	858	0.002	3	301
16	57	1,193	3,875	0.009	14	1,483
15	52.5	1,503	4,143	0.010	15	1,869
14	47.5	1,516	3,422	0.008	12	1,885
13	42.5	1,530	2,763	0.006	10	1,902
12	37.8334	1,337	1,913	0.004	7	1,662
11	35.3334	293	366	0.001	1	364
10	33.25	1,546	1,709	0.004	6	1,922
9	30.75	498	471	0.001	2	619

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
8	27.5	1,669	1,263	0.003	4	2,076
7	22.5	1,686	853	0.002	3	2,096
6	19	679	245	0.001	1	844
5	16.5	1,207	329	0.001	1	1,500
4	12.5	2,024	316	0.001	1	2,516
3	7.5	2,040	115	0.000	0	2,536
2	3.5	1,232	15	0.000	0	1,531
1	1	702	1	0.000	0	873
Generic 11' Dipole	150	40	900	0.002	3	50
Generic 4' Omni	150	10	225	0.000	1	12
Powerwave Allgon 7020.00 Dual Band RET	150	13	297	0.001	1	16
Kathrein Scala 782-10250	150	19	432	0.001	2	24
Powerwave Allgon LGP21401	150	85	1,904	0.004	7	105
Raycap DC6-48-60-18-8F	150	40	900	0.002	3	50
Raycap DC6-48-60-18-8F ("Squid")	150	32	716	0.002	3	40
Ericsson RRUS 8843 B2, B66A	150	216	4,860	0.011	17	269
Ericsson RRUS 4478 B14	150	180	4,043	0.010	14	223
Ericsson RRUS 4449 B5, B12	150	213	4,792	0.011	17	265
Ericsson RRUS 32 B30 (53 lbs)	150	159	3,578	0.008	13	198
Ericsson AIR 6419 B77G	150	198	4,462	0.010	16	247
Ericsson AIR 6449 B77D/ C-Band	150	245	5,508	0.013	20	304
CCI DMP65R-BU6E	150	311	7,006	0.016	25	387
Kathrein Scala 80010965	150	293	6,588	0.015	23	364
Generic Round Platform with Handrails	150	2,500	56,250	0.132	200	3,108
Generic GPS	150	10	225	0.000	1	12
Ericsson Radio 4449 B71 B85A	140	225	4,410	0.010	16	280
Ericsson Radio 4460 B25+B66	140	327	6,409	0.015	23	407
Ericsson Air6449 B41	140	312	6,115	0.014	22	388
RFS APXVAARR24_43-U-NA20	140	384	7,521	0.018	27	477
PerfectVision PV-RP14M-9-96 Round Platform w/ Handrails	140	2,972	58,251	0.136	207	3,695
Generic 12" x 12" Junction Box	132	10	174	0.000	1	12
Side Arms	131	560	9,610	0.022	34	696
DragonWave Horizon Compact	130	21	358	0.001	1	26
DragonWave A-ANT-23G-1-C	130	15	254	0.001	1	19
NextNet BTS-2500	130	105	1,774	0.004	6	131
Argus LLPX310R	130	86	1,450	0.003	5	107
DragonWave A-ANT-18G-2.5-C	130	48	804	0.002	3	59
SWR FMEC/1	122	15	223	0.000	1	19
Ericsson RRH2x40-07-L	113	180	2,298	0.005	8	224
Alcatel-Lucent RRH 2X60-1900	113	119	1,517	0.004	5	148
Alcatel-Lucent RRH2x60 700	113	170	2,172	0.005	8	211
Nokia B66a RRH4x45 (UHIE)	113	170	2,176	0.005	8	212
RFS APL868013-12T0	113	25	322	0.001	1	31
RFS APL866513-12T0-00	113	31	401	0.001	1	39
RFS DB-T1-6Z-8AB-0Z	113	88	1,124	0.003	4	109
Commscope JAHH-65B-R3B	113	364	4,643	0.011	16	452
Round T-Arm	113	750	9,577	0.022	34	932
Commscope RDIDC-9181-PF-48	103	22	232	0.000	1	27
Fujitsu TA08025-B604	103	192	2,034	0.005	7	238
Fujitsu TA08025-B605	103	225	2,387	0.006	8	280
JMA Wireless MX08FRO665-21	103	194	2,053	0.005	7	241
Generic Flat Platform with Handrails	103	2,500	26,522	0.062	94	3,108
Generic 4' Std. Dish	70	188	921	0.002	3	234
		50,538	426,997	1.000	1,516	62,834

0.9D - 1.0Ev + 1.0Eh Normal **Seismic (Reduced DL)**

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
42	147.5	284	6,179	0.014	22	243
41	142.5	363	7,371	0.017	26	311
40	137.5	453	8,566	0.020	30	388

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
39	133.5	299	5,335	0.012	19	256
38	131.5	124	2,141	0.005	8	106
37	130.5	124	2,114	0.005	8	106
36	127.5	558	9,063	0.021	32	478
35	123.5	337	5,146	0.012	18	289
34	121	255	3,730	0.009	13	218
33	119.5	128	1,826	0.004	6	110
32	117	721	9,863	0.023	35	617
31	114	321	4,169	0.010	15	275
30	111.5	501	6,229	0.015	22	429
29	107.5	914	10,557	0.025	37	783
28	104	368	3,985	0.009	14	316
27	101.5	563	5,799	0.014	21	482
26	97.5	947	9,000	0.021	32	811
25	92.5	957	8,192	0.019	29	820
24	87.5	968	7,413	0.017	26	829
23	82.5	979	6,663	0.016	24	839
22	77.5	990	5,944	0.014	21	848
21	74.25	299	1,648	0.004	6	256
20	71.75	1,019	5,245	0.012	19	873
19	67.5	1,106	5,041	0.012	18	948
18	62.5	1,204	4,704	0.011	17	1,032
17	59.5	242	858	0.002	3	208
16	57	1,193	3,875	0.009	14	1,022
15	52.5	1,503	4,143	0.010	15	1,288
14	47.5	1,516	3,422	0.008	12	1,299
13	42.5	1,530	2,763	0.006	10	1,311
12	37.8334	1,337	1,913	0.004	7	1,145
11	35.3334	293	366	0.001	1	251
10	33.25	1,546	1,709	0.004	6	1,324
9	30.75	498	471	0.001	2	426
8	27.5	1,669	1,263	0.003	4	1,430
7	22.5	1,686	853	0.002	3	1,444
6	19	679	245	0.001	1	581
5	16.5	1,207	329	0.001	1	1,034
4	12.5	2,024	316	0.001	1	1,734
3	7.5	2,040	115	0.000	0	1,748
2	3.5	1,232	15	0.000	0	1,055
1	1	702	1	0.000	0	601
Generic 11' Dipole	150	40	900	0.002	3	34
Generic 4' Omni	150	10	225	0.000	1	9
Powerwave Allgon 7020.00 Dual Band RET	150	13	297	0.001	1	11
Kathrein Scala 782-10250	150	19	432	0.001	2	16
Powerwave Allgon LGP21401	150	85	1,904	0.004	7	72
Raycap DC6-48-60-18-8F	150	40	900	0.002	3	34
Raycap DC6-48-60-18-8F ("Squid")	150	32	716	0.002	3	27
Ericsson RRUS 8843 B2, B66A	150	216	4,860	0.011	17	185
Ericsson RRUS 4478 B14	150	180	4,043	0.010	14	154
Ericsson RRUS 4449 B5, B12	150	213	4,792	0.011	17	182
Ericsson RRUS 32 B30 (53 lbs)	150	159	3,578	0.008	13	136
Ericsson AIR 6419 B77G	150	198	4,462	0.010	16	170
Ericsson AIR 6449 B77D/ C-Band	150	245	5,508	0.013	20	210
CCI DMP65R-BU6E	150	311	7,006	0.016	25	267
Kathrein Scala 80010965	150	293	6,588	0.015	23	251
Generic Round Platform with Handrails	150	2,500	56,250	0.132	200	2,142
Generic GPS	150	10	225	0.000	1	9
Ericsson Radio 4449 B71 B85A	140	225	4,410	0.010	16	193
Ericsson Radio 4460 B25+B66	140	327	6,409	0.015	23	280
Ericsson Air6449 B41	140	312	6,115	0.014	22	267
RFS APXVAARR24_43-U-NA20	140	384	7,521	0.018	27	329
PerfectVision PV-RP14M-9-96 Round Platform w/ Handrails	140	2,972	58,251	0.136	207	2,546
Generic 12" x 12" Junction Box	132	10	174	0.000	1	9
Side Arms	131	560	9,610	0.022	34	480
DragonWave Horizon Compact	130	21	358	0.001	1	18
DragonWave A-ANT-23G-1-C	130	15	254	0.001	1	13
NextNet BTS-2500	130	105	1,774	0.004	6	90
Argus LLPX310R	130	86	1,450	0.003	5	74
DragonWave A-ANT-18G-2.5-C	130	48	804	0.002	3	41
SWR FMEC/1	122	15	223	0.000	1	13

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
Ericsson RRH2x40-07-L	113	180	2,298	0.005	8	154
Alcatel-Lucent RRH 2X60-1900	113	119	1,517	0.004	5	102
Alcatel-Lucent RRH2x60 700	113	170	2,172	0.005	8	146
Nokia B66a RRH4x45 (UHIE)	113	170	2,176	0.005	8	146
RFS APL868013-12T0	113	25	322	0.001	1	22
RFS APL866513-12T0-00	113	31	401	0.001	1	27
RFS DB-T1-6Z-8AB-0Z	113	88	1,124	0.003	4	75
Commscope JAHH-65B-R3B	113	364	4,643	0.011	16	311
Round T-Arm	113	750	9,577	0.022	34	643
Commscope RDIDC-9181-PF-48	103	22	232	0.000	1	19
Fujitsu TA08025-B604	103	192	2,034	0.005	7	164
Fujitsu TA08025-B605	103	225	2,387	0.006	8	193
JMA Wireless MX08FRO665-21	103	194	2,053	0.005	7	166
Generic Flat Platform with Handrails	103	2,500	26,522	0.062	94	2,142
Generic 4' Std. Dish	70	188	921	0.002	3	161
		50,538	426,997	1.000	1,516	43,295

1.2D + 1.0Ev + 1.0Eh Normal **Seismic**

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-61.96	-1.52	0.00	-198.51	0.00	198.51	3,157.17	784.20	2,738	2,376.61	0.00	0.00	0.05
2.00	-60.43	-1.53	0.00	-195.47	0.00	195.47	3,140.17	777.55	2,692	2,343.59	0.00	-0.01	0.05
5.00	-57.89	-1.54	0.00	-190.89	0.00	190.89	3,114.35	767.59	2,623	2,294.24	0.01	-0.02	0.04
10.00	-55.38	-1.55	0.00	-183.20	0.00	183.20	3,070.50	750.99	2,511	2,212.51	0.03	-0.03	0.04
15.00	-53.88	-1.56	0.00	-175.45	0.00	175.45	3,025.61	734.39	2,401	2,131.46	0.07	-0.04	0.04
18.00	-53.03	-1.56	0.00	-170.77	0.00	170.77	2,998.18	724.42	2,336	2,083.18	0.10	-0.05	0.04
18.00	-53.03	-1.56	0.00	-170.77	0.00	170.77	2,998.18	724.42	2,336	2,083.18	0.10	-0.05	0.05
20.00	-50.94	-1.57	0.00	-167.65	0.00	167.65	2,979.68	717.78	2,294	2,051.14	0.13	-0.06	0.05
25.00	-48.86	-1.58	0.00	-159.81	0.00	159.81	2,932.71	701.18	2,189	1,971.59	0.20	-0.08	0.04
30.00	-48.24	-1.58	0.00	-151.93	0.00	151.93	2,875.21	684.57	2,087	1,886.65	0.28	-0.09	0.04
31.50	-46.32	-1.58	0.00	-149.56	0.00	149.56	2,854.29	679.59	2,056	1,859.14	0.31	-0.10	0.04
35.00	-45.95	-1.58	0.00	-144.03	0.00	144.03	2,805.48	667.97	1,987	1,795.73	0.39	-0.11	0.04
35.67	-44.29	-1.58	0.00	-142.98	0.00	142.98	2,253.08	567.85	1,720	1,471.98	0.41	-0.11	0.05
40.00	-42.39	-1.58	0.00	-136.13	0.00	136.13	2,223.50	555.84	1,648	1,421.63	0.51	-0.13	0.04
45.00	-40.50	-1.57	0.00	-128.24	0.00	128.24	2,188.39	541.99	1,567	1,363.96	0.65	-0.14	0.04
50.00	-38.63	-1.56	0.00	-120.38	0.00	120.38	2,152.25	528.13	1,488	1,306.78	0.81	-0.16	0.04
55.00	-37.15	-1.56	0.00	-112.55	0.00	112.55	2,115.06	514.27	1,411	1,250.16	0.99	-0.18	0.04
59.00	-36.85	-1.56	0.00	-106.33	0.00	106.33	2,084.57	503.18	1,351	1,205.28	1.14	-0.19	0.04
59.00	-36.85	-1.56	0.00	-106.33	0.00	106.33	2,084.57	503.18	1,351	1,205.28	1.14	-0.19	0.05
60.00	-35.35	-1.54	0.00	-104.77	0.00	104.77	2,076.84	500.41	1,336	1,194.13	1.18	-0.19	0.05
65.00	-33.98	-1.53	0.00	-97.05	0.00	97.05	2,037.58	486.55	1,263	1,138.75	1.39	-0.22	0.05
70.00	-32.47	-1.52	0.00	-89.38	0.00	89.38	1,985.31	472.69	1,192	1,077.58	1.63	-0.24	0.05
73.50	-32.10	-1.52	0.00	-84.07	0.00	84.07	1,474.00	377.76	953	802.36	1.81	-0.25	0.05
75.00	-30.87	-1.50	0.00	-81.79	0.00	81.79	1,466.32	374.43	936	791.10	1.89	-0.26	0.05
80.00	-29.65	-1.48	0.00	-74.31	0.00	74.31	1,440.03	363.37	882	753.74	2.18	-0.28	0.05
85.00	-28.45	-1.46	0.00	-66.91	0.00	66.91	1,412.71	352.30	829	716.70	2.48	-0.30	0.04
90.00	-27.26	-1.43	0.00	-59.63	0.00	59.63	1,384.35	341.23	778	680.02	2.81	-0.32	0.04
95.00	-26.08	-1.40	0.00	-52.47	0.00	52.47	1,354.95	330.16	728	643.77	3.16	-0.34	0.04
100.00	-25.38	-1.38	0.00	-45.47	0.00	45.47	1,324.51	319.09	680	607.99	3.53	-0.36	0.03
103.00	-21.03	-1.22	0.00	-41.33	0.00	41.33	1,305.75	312.45	652	586.76	3.76	-0.37	0.03
105.00	-19.90	-1.18	0.00	-38.88	0.00	38.88	1,293.03	308.02	634	572.72	3.91	-0.38	0.03
110.00	-19.27	-1.16	0.00	-32.96	0.00	32.96	1,247.19	296.95	589	532.34	4.31	-0.39	0.03
110.00	-19.27	-1.16	0.00	-32.96	0.00	32.96	856.53	223.97	445	367.75	4.31	-0.39	0.03
113.00	-16.51	-1.04	0.00	-29.48	0.00	29.48	845.64	218.97	426	354.91	4.56	-0.40	0.03
115.00	-15.62	-1.00	0.00	-27.39	0.00	27.39	838.16	215.64	413	346.37	4.73	-0.40	0.03
119.00	-15.46	-1.00	0.00	-23.38	0.00	23.38	822.72	208.98	388	329.40	5.07	-0.41	0.02
119.00	-15.46	-1.00	0.00	-23.38	0.00	23.38	822.72	208.98	388	329.40	5.07	-0.41	0.09
120.00	-15.14	-0.99	0.00	-22.38	0.00	22.38	818.76	207.32	382	325.17	5.16	-0.42	0.09
122.00	-14.70	-0.97	0.00	-20.41	0.00	20.41	810.71	203.99	370	316.76	5.34	-0.44	0.08
125.00	-14.01	-0.94	0.00	-17.50	0.00	17.50	798.31	198.99	352	304.20	5.62	-0.47	0.08
130.00	-13.52	-0.92	0.00	-12.79	0.00	12.79	776.83	190.67	323	283.51	6.13	-0.51	0.06
131.00	-12.67	-0.87	0.00	-11.87	0.00	11.87	772.41	189.01	317	279.41	6.24	-0.52	0.06

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
132.00	-12.28	-0.85	0.00	-11.00	0.00	11.00	767.94	187.34	312	275.32	6.35	-0.52	0.06
135.00	-11.72	-0.82	0.00	-8.45	0.00	8.45	754.30	182.35	295	263.15	6.69	-0.54	0.05
140.00	-6.02	-0.45	0.00	-4.35	0.00	4.35	730.89	174.02	269	243.21	7.27	-0.57	0.03
145.00	-5.67	-0.42	0.00	-2.11	0.00	2.11	695.93	165.70	244	220.38	7.87	-0.58	0.02
150.00	0.00	-0.36	0.00	0.00	0.00	0.00	660.97	157.37	220	198.67	8.49	-0.59	0.00

0.9D - 1.0Ev + 1.0Eh Normal **Seismic (Reduced DL)**

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-42.69	-1.52	0.00	-193.29	0.00	193.29	3,157.17	784.20	2,738	2,376.61	0.00	0.00	0.05
2.00	-41.64	-1.52	0.00	-190.25	0.00	190.25	3,140.17	777.55	2,692	2,343.59	0.00	-0.01	0.05
5.00	-39.89	-1.53	0.00	-185.68	0.00	185.68	3,114.35	767.59	2,623	2,294.24	0.01	-0.02	0.04
10.00	-38.16	-1.54	0.00	-178.03	0.00	178.03	3,070.50	750.99	2,511	2,212.51	0.03	-0.03	0.04
15.00	-37.12	-1.54	0.00	-170.34	0.00	170.34	3,025.61	734.39	2,401	2,131.46	0.07	-0.04	0.04
18.00	-36.54	-1.55	0.00	-165.71	0.00	165.71	2,998.18	724.42	2,336	2,083.18	0.10	-0.05	0.03
18.00	-36.54	-1.55	0.00	-165.71	0.00	165.71	2,998.18	724.42	2,336	2,083.18	0.10	-0.05	0.04
20.00	-35.10	-1.55	0.00	-162.62	0.00	162.62	2,979.68	717.78	2,294	2,051.14	0.12	-0.06	0.04
25.00	-33.67	-1.55	0.00	-154.87	0.00	154.87	2,932.71	701.18	2,189	1,971.59	0.19	-0.07	0.04
30.00	-33.24	-1.56	0.00	-147.11	0.00	147.11	2,875.21	684.57	2,087	1,886.65	0.28	-0.09	0.04
31.50	-31.91	-1.55	0.00	-144.78	0.00	144.78	2,854.29	679.59	2,056	1,859.14	0.31	-0.09	0.04
35.00	-31.66	-1.55	0.00	-139.35	0.00	139.35	2,805.48	667.97	1,987	1,795.73	0.38	-0.11	0.04
35.67	-30.52	-1.55	0.00	-138.31	0.00	138.31	2,253.08	567.85	1,720	1,471.98	0.39	-0.11	0.04
40.00	-29.21	-1.54	0.00	-131.60	0.00	131.60	2,223.50	555.84	1,648	1,421.63	0.50	-0.12	0.04
45.00	-27.91	-1.54	0.00	-123.87	0.00	123.87	2,188.39	541.99	1,567	1,363.96	0.63	-0.14	0.04
50.00	-26.62	-1.53	0.00	-116.19	0.00	116.19	2,152.25	528.13	1,488	1,306.78	0.79	-0.15	0.04
55.00	-25.60	-1.52	0.00	-108.55	0.00	108.55	2,115.06	514.27	1,411	1,250.16	0.96	-0.17	0.04
59.00	-25.39	-1.52	0.00	-102.48	0.00	102.48	2,084.57	503.18	1,351	1,205.28	1.11	-0.18	0.03
59.00	-25.39	-1.52	0.00	-102.48	0.00	102.48	2,084.57	503.18	1,351	1,205.28	1.11	-0.18	0.05
60.00	-24.36	-1.50	0.00	-100.96	0.00	100.96	2,076.84	500.41	1,336	1,194.13	1.15	-0.19	0.05
65.00	-23.41	-1.49	0.00	-93.45	0.00	93.45	2,037.58	486.55	1,263	1,138.75	1.35	-0.21	0.04
70.00	-22.37	-1.47	0.00	-86.00	0.00	86.00	1,985.31	472.69	1,192	1,077.58	1.58	-0.23	0.04
73.50	-22.12	-1.47	0.00	-80.85	0.00	80.85	1,474.00	377.76	953	802.36	1.76	-0.24	0.05
75.00	-21.27	-1.45	0.00	-78.65	0.00	78.65	1,466.32	374.43	936	791.10	1.83	-0.25	0.05
80.00	-20.43	-1.43	0.00	-71.41	0.00	71.41	1,440.03	363.37	882	753.74	2.11	-0.27	0.04
85.00	-19.60	-1.41	0.00	-64.27	0.00	64.27	1,412.71	352.30	829	716.70	2.40	-0.29	0.04
90.00	-18.78	-1.38	0.00	-57.24	0.00	57.24	1,384.35	341.23	778	680.02	2.72	-0.31	0.04
95.00	-17.97	-1.35	0.00	-50.35	0.00	50.35	1,354.95	330.16	728	643.77	3.06	-0.33	0.03
100.00	-17.49	-1.33	0.00	-43.62	0.00	43.62	1,324.51	319.09	680	607.99	3.41	-0.35	0.03
103.00	-14.49	-1.18	0.00	-39.64	0.00	39.64	1,305.75	312.45	652	586.76	3.63	-0.36	0.03
105.00	-13.71	-1.14	0.00	-37.28	0.00	37.28	1,293.03	308.02	634	572.72	3.78	-0.36	0.03
110.00	-13.28	-1.12	0.00	-31.58	0.00	31.58	1,247.19	296.95	589	532.34	4.17	-0.38	0.02
110.00	-13.28	-1.12	0.00	-31.58	0.00	31.58	856.53	223.97	445	367.75	4.17	-0.38	0.03
113.00	-11.38	-1.00	0.00	-28.23	0.00	28.23	845.64	218.97	426	354.91	4.41	-0.38	0.02
115.00	-10.76	-0.97	0.00	-26.23	0.00	26.23	838.16	215.64	413	346.37	4.57	-0.39	0.02
119.00	-10.65	-0.96	0.00	-22.36	0.00	22.36	822.72	208.98	388	329.40	4.90	-0.40	0.02
119.00	-10.65	-0.96	0.00	-22.36	0.00	22.36	822.72	208.98	388	329.40	4.90	-0.40	0.08
120.00	-10.43	-0.95	0.00	-21.40	0.00	21.40	818.76	207.32	382	325.17	4.99	-0.40	0.08
122.00	-10.13	-0.93	0.00	-19.50	0.00	19.50	810.71	203.99	370	316.76	5.16	-0.42	0.07
125.00	-9.65	-0.90	0.00	-16.71	0.00	16.71	798.31	198.99	352	304.20	5.43	-0.45	0.07
130.00	-9.31	-0.88	0.00	-12.20	0.00	12.20	776.83	190.67	323	283.51	5.93	-0.49	0.06
131.00	-8.73	-0.83	0.00	-11.33	0.00	11.33	772.41	189.01	317	279.41	6.03	-0.50	0.05
132.00	-8.46	-0.81	0.00	-10.49	0.00	10.49	767.94	187.34	312	275.32	6.14	-0.50	0.05
135.00	-8.07	-0.78	0.00	-8.06	0.00	8.06	754.30	182.35	295	263.15	6.46	-0.52	0.04
140.00	-4.15	-0.43	0.00	-4.15	0.00	4.15	730.89	174.02	269	243.21	7.02	-0.55	0.02
145.00	-3.91	-0.40	0.00	-2.01	0.00	2.01	695.93	165.70	244	220.38	7.60	-0.56	0.02
150.00	0.00	-0.36	0.00	0.00	0.00	0.00	660.97	157.37	220	198.67	8.19	-0.56	0.00

ANALYSIS SUMMARY

	Reactions						Max Usage	
Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.0W Normal	30.26	0.00	60.62	0.00	0.00	3192.68	119.00	0.93
0.9D + 1.0W Normal	30.24	0.00	45.45	0.00	0.00	3129.66	119.00	0.89
1.2D + 1.0Di + 1.0Wi Normal	6.80	0.00	78.06	0.00	0.00	769.41	119.00	0.25
1.2D + 1.0Ev + 1.0Eh Normal	1.58	0.00	61.96	0.00	0.00	198.51	119.00	0.09
0.9D - 1.0Ev + 1.0Eh Normal	1.56	0.00	42.69	0.00	0.00	193.29	119.00	0.08
1.0D + 1.0W Service Normal	7.02	0.00	50.54	0.00	0.00	733.00	119.00	0.22

ADDITIONAL STEEL SUMMARY

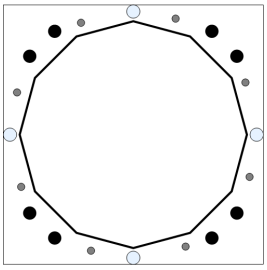
			Intermediate Connectors				Max member		
Elev From (ft)	Elev To (ft)	Member	VQ/I	Shear Applied (kips)	Shear (phiVn) (kips)	Ratio	Pu (kip)	PhiPn (kip)	Ratio
0.00	59.00	SOL #18 All Thread Bar	199.6	6.0	16.8	0.3562	207.1	249.8	0.8291
0.00	119.00	SOL #18 All Thread Bar	391.0	11.7	16.8	0.6979	243.0	249.8	0.9730
2.00	18.00	PL PL 4" x 1"	120.4	1.4	25.3	0.0572	146.8	174.4	0.8414
2.00	18.00	PL PL 5" x 1"	150.5	1.8	25.3	0.0715	183.5	218.0	0.8414

			Upper Termination Connectors					Lower Termination Connectors				
Elev From (ft)	Elev To (ft)	Member	MQ/I	phiVn (kips)	Num Reqd	Num Actual	Ratio	MQ/I (kips)	phiVn (kip)	Num Reqd	Num Actual	Ratio
0.00	59.00	SOL #18 All Thread Bar	148.1369	12	13	18	0.6858	0	12	0	0	0.0000
0.00	119.00	SOL #18 All Thread Bar	86.4013	12	8	10	0.7200	0	12	0	0	0.0000
2.00	18.00	PL PL 4" x 1"	133.2071	25.27	6	8	0.6589	144.2286	25.27	6	8	0.7134
2.00	18.00	PL PL 5" x 1"	166.5089	25.27	7	8	0.8236	180.2857	25.27	8	8	0.8918

BASE PLATE ANALYSIS @ 0 FT

PLATE PARAMETERS (ID# 17613)

Width:	44	in
Shape:	Square	
Thickness:	2.5	in
Grade:	A633 Gr. E	
Yield Strength:	60	ksi
Tensile Strength:	80	ksi
Clip Length:	0	in
Rod Detail Type:	c	
Clear Distance	-	in
Base Weld Size:	0.125	in
Orientation Offset:	-	°
Analysis Type:	Elastic	
Neutral Axis:	322	°



ANCHOR ROD PARAMETERS

Class	Arrangement	Quantity	Diameter (in)	Circle (in)	Grade	Fy (ksi)	Fu (ksi)	Spacing (in)	Offset (°)
Original [ID# 18041]	Cluster	8	2.25	44	A615-75	75	100	6	-
Additional [ID# 18042]	Radial	8	1.25	41.875	A325	92	120	-	25

DYWIDAG BAR PARAMETERS

Quantity	Bar Size	Bar Diameter (in)	Fy (ksi)	Fu (ksi)	Bracket Type	Bracket Offset (in)	Circle (in)	Offset (°)
4 [ID# 1200]	#18	2.25	75	100	Angle	2.19	44.01	-

ANCHOR ROD GEOMETRY AND APPLIED LOADS --- ORIGINAL (8) 2.25"ø [ID 18041]

Position	Radians	X (in)	Y (in)	Moment Arm (in)	Inertia (in^4)	Axial Load (k)	Shear Load (k)
1	0.649	17.53	13.30	20.000	1299.909	228.75	1.53
2	0.922	13.30	17.53	20.685	1390.482	236.46	0.08
3	2.220	-13.30	17.53	5.289	91.692	63.30	5.78
4	2.493	-17.53	13.30	-0.294	1.119	0.51	5.98
5	3.791	-17.53	-13.30	-20.000	1299.909	-221.13	1.53
6	4.063	-13.30	-17.53	-20.685	1390.482	-228.84	0.08
7	5.361	13.30	-17.53	-5.289	91.692	-55.67	5.78
8	5.634	17.53	-13.30	0.294	1.119	7.11	5.98

ANCHOR ROD GEOMETRY AND APPLIED LOADS --- ADDITIONAL (8) 1.25"ø [ID 18042]

Position	Radians	X (in)	Y (in)	Moment Arm (in)	Inertia (in^4)	Axial Load (k)	Shear Load (k)
1	1.222	7.16	19.68	19.913	384.344	67.41	0.20
2	2.007	-8.85	18.98	9.505	87.637	32.48	0.58
3	2.793	-19.68	7.16	-6.470	40.643	-21.13	0.62
4	3.578	-18.98	-8.85	-18.655	337.351	-62.03	0.30
5	4.363	-7.16	-19.68	-19.913	384.344	-66.25	0.20
6	5.149	8.85	-18.98	-9.505	87.637	-31.32	0.58
7	5.934	19.68	-7.16	6.470	40.643	22.30	0.62
8	0.436	18.98	8.85	18.655	337.351	63.19	0.30

DYWIDAG BAR GEOMETRY AND APPLIED LOADS --- (4) #18 [ID 1200]

Position	Radians	X (in)	Y (in)	Moment Arm (in)	Inertia (in^4)	Axial Load (k)
1	1.571	0.00	22.00	17.340	1196.792	240.31
2	3.142	-22.00	0.00	-13.548	731.021	-178.49
3	4.712	0.00	-22.00	-17.340	1196.792	-229.91
4	6.283	22.00	0.00	13.548	731.021	188.89

REACTION DISTRIBUTION

Component	ID	Moment Mu (k-ft)	Axial Load Pu (k)	Shear Vu (k)	Moment Factor
Pole	37.38"ø x 0.375" (12 Sides)	2097.0	60.62	30.26	0.657
Bolt Group	Original (8) 2.25"ø	1606.4	-	26.75	0.503
Bolt Group	Additional (8) 1.25"ø	490.6	-	3.51	0.154
Dywidag Group	(4) #18	1095.7	-	-	0.343
	TOTALS	**3192.68**	**60.62**	**30.26**	

COMPONENT PROPERTIES

Component	ID	Gross Area (in^2)	Net Area (in^2)	Individual Inertia (in^4)	Moment of Inertia (in^4)	Threads/in
Pole	37.38"ø x 0.375" (12 Sides)	43.0992	-	-	7379.37	-
Bolt Group	Original (8) 2.25"ø	3.9761	3.2477	0.8393	5566.40	4.5
Bolt Group	Additional (8) 1.25"ø	1.2272	0.9691	0.0747	1699.95	7.0
Dywidag Group	(4) #18	3.9761	3.9761	1.2581	3855.63	-

EXTERNAL BASE PLATE BEND LINE ANALYSIS @ 0 FT

POLE PROPERTIES

Flat-to-Flat Diameter:	37.50	in
Point-to-Point Diameter:	38.83	in
Flat Width:	10.049	in
Flat Radians:	0.524	rad

PLATE PROPERTIES

Neutral Axis:	322	°
Bend Line Lower Limit:		rad
Bend Line Upper Limit:	-0.179	rad

Bend Line	Chord Length (in)	Additional Length (in)	Section Modulus (in^3)	Applied Moment Mu (k-in)	Moment Capacity ϕMn (k-in)	Ratio
Flat	24.720	0.00	38.626	820.6	2085.8	0.393
Corner	23.397	0.00	36.558	468.3	1974.2	0.237

ELASTIC ANCHOR ROD ANALYSIS

Class	Group Quantity	Rod Diameter (in)	Applied Axial Load Pu (k)	Applied Shear Load Vu (k)	Compressive Capacity ϕPn (k)	Ratio	Interaction
Original	8	2.25	236.5	0.1	243.6	0.971	0.971
Additional	8	1.25	67.4	0.2	87.2	0.773	0.773

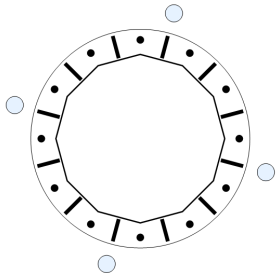
DYWIDAG BAR ANALYSIS

Group Quantity	Bar Size	Bar Circle (in)	Applied Axial Load Pu (k)	Compressive Capacity ϕPn (k)	Ratio
4	#18	44.01	240.3	298.2	0.806

UPPER FLANGE PLATE ANALYSIS @ 110 FT

PLATE PARAMETERS (ID# 17612)

Diameter:	28.5	in
Shape:	Round	
Thickness:	1	in
Grade:	A572-60	
Yield Strength:	60	ksi
Tensile Strength:	75	ksi
Pole Weld Size:	0.125	in
Orientation Offset:	-	°
Analysis Type:	Elastic	
Neutral Axis:	0	°



FLANGE BOLT PARAMETERS

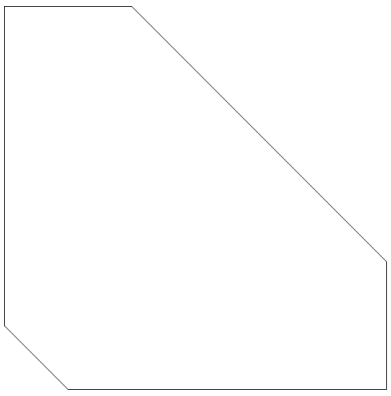
Class	Arrangement	Quantity	Diameter (in)	Circle (in)	Grade	Fy (ksi)	Fu (ksi)	Spacing (in)	Offset (°)
Original [ID# 18043]	Radial	12	1	25.75	A325	92	120	-	-

DYWIDAG BAR PARAMETERS

Quantity	Bar Size	Bar Diameter (in)	Fy (ksi)	Fu (ksi)	Bracket Type	Bracket Offset (in)	Circle (in)	Offset (°)
4 [ID# 1219]	#18	2.25	75	100	W5x19	5.15	33.82	345

STIFFENER PARAMETERS

Arrangement:	Radial	
Quantity:	12	
Height:	3	in
Width:	3	in
Thickness:	0.5	in
Notch:	0.5	in
Grade:	A36	
Yield Strength:	36	ksi
Tensile Strength:	58	ksi
Horizontal Weld Type:	Fillet	
Horizontal Weld Fillet Size:	0.188	in
Vertical Weld Fillet Size:	0.188	in
Weld Strength:	70	ksi
Orientation Offset:	-	°



FLANGE BOLT GEOMETRY AND APPLIED LOADS --- ORIGINAL (12) 1"ø [ID 18043]

Position	Radians	X (in)	Y (in)	Moment Arm (in)	Inertia (in^4)	Axial Load (k)	Shear Load (k)
1	0.524	11.15	6.44	6.125	22.754	8.50	1.93
2	1.047	6.44	11.15	10.609	68.204	14.47	1.11
3	1.571	0.00	12.88	12.250	90.929	16.66	0.00
4	2.094	-6.44	11.15	10.609	68.204	14.47	1.11
5	2.618	-11.15	6.44	6.125	22.754	8.50	1.93
6	3.142	-12.88	0.00	0.000	0.029	0.34	2.23
7	3.665	-11.15	-6.44	-6.125	22.754	-7.82	1.93
8	4.189	-6.44	-11.15	-10.609	68.204	-13.79	1.11
9	4.712	0.00	-12.88	-12.250	90.929	-15.98	0.00
10	5.236	6.44	-11.15	-10.609	68.204	-13.79	1.11
11	5.760	11.15	-6.44	-6.125	22.754	-7.82	1.93
12	6.283	12.88	0.00	0.000	0.029	0.34	2.23

DYWIDAG BAR GEOMETRY AND APPLIED LOADS --- (4) #18 [ID 1219]

Position	Radians	X (in)	Y (in)	Moment Arm (in)	Inertia (in^4)	Axial Load (k)
1	1.309	4.38	16.33	16.333	1061.986	117.36
2	2.880	-16.33	4.38	4.376	77.415	33.93
3	4.451	-4.38	-16.33	-16.333	1061.986	-110.58
4	6.021	16.33	-4.38	-4.376	77.415	-27.15

STIFFENER GEOMETRY AND APPLIED LOADS

Position	Radians	Moment Arm (in)	Inertia (in^4)	Axial Load (k)	Shear Load (k)
1	0.262	3.141	12.148	2.72	1.24
2	0.785	8.580	83.404	7.08	0.90
3	1.309	11.721	154.660	9.60	0.33
4	1.833	11.721	154.660	9.60	0.33
5	2.356	8.580	83.404	7.08	0.90
6	2.880	3.141	12.148	2.72	1.24
7	3.403	-3.141	12.148	-2.32	1.24
8	3.927	-8.580	83.404	-6.68	0.90
9	4.451	-11.721	154.660	-9.19	0.33
10	4.974	-11.721	154.660	-9.19	0.33
11	5.498	-8.580	83.404	-6.68	0.90
12	6.021	-3.141	12.148	-2.32	1.24

REACTION DISTRIBUTION

Component	ID	Moment Mu (k-ft)	Axial Load Pu (k)	Shear Vu (k)	Moment Factor
Pole	21.269"ø x 0.188" (12 Sides)	100.0	17.63	16.63	0.231
Bolt Group	Original (12) 1"ø	100.0	-	16.63	0.231
Dywidag Group	(4) #18	333.3	-	-	0.769
Stiffeners	(12) 3"H x 3"W x 0.5"T	59.4	-	9.88	0.137
	TOTALS	**433.29**	**17.63**	**16.63**	

COMPONENT PROPERTIES

Component	ID	Gross Area (in^2)	Net Area (in^2)	Individual Inertia (in^4)	Moment of Inertia (in^4)	Threads/in
Pole	21.269"ø x 0.188" (12 Sides)	12.3091	-	-	683.93	-
Bolt Group	Original (12) 1"ø	0.7854	0.6057	0.0292	545.75	8.0
Dywidag Group	(4) #18	3.9761	3.9761	1.2581	2278.80	-
Stiffeners	(12) 3"H x 3"W x 0.5"T	1.2500	1.1250	4.5000	1000.85	-

EXTERNAL UPPER FLANGE PLATE BEND LINE ANALYSIS @ 110 FT

POLE PROPERTIES

Flat-to-Flat Diameter:	21.39	in
Point-to-Point Diameter:	22.15	in
Flat Width:	5.733	in
Flat Radians:	0.524	rad

PLATE PROPERTIES

Neutral Axis:	0	°
Bend Line Lower Limit:	1.261	rad
Bend Line Upper Limit:	1.881	rad

Bend Line	Chord Length (in)	Additional Length (in)	Section Modulus (in^3)	Applied Moment Mu (k-in)	Moment Capacity ϕMn (k-in)	Ratio
Flat	16.999	4.46	5.365	25.9	289.7	0.089
Corner	16.003	3.19	4.797	19.6	259.1	0.076
Circumferential	15.347	6.07	5.354	19.6	289.1	0.068

ELASTIC FLANGE BOLT ANALYSIS

Class	Group Quantity	Bolt Diameter (in)	Applied Axial Load Pu (k)	Applied Shear Load Vu (k)	Compressive Capacity ϕPn (k)	Ratio	Interaction
Original	12	1	16.7	0.0	54.5	0.306	0.306

DYWIDAG BAR ANALYSIS

Group Quantity	Bar Size	Bar Circle (in)	Applied Axial Load Pu (k)	Compressive Capacity ϕPn (k)	Ratio
4	#18	33.82	117.4	298.2	0.394

UPPER FLANGE PLATE STIFFENER ANALYSIS

Quantity:	12	
Height:	3	in
Width:	3	in
Effective Width:	3.000	in
Thickness:	0.5	in
Notch:	0.5	in
Grade:	A36	
Yield Strength:	36	ksi
Tensile Strength:	58	ksi
Horizontal Weld Type:	Fillet	
Horizontal Weld Fillet Size:	0.188	in
Horizontal Weld Bevel Size:		in
Vertical Weld Fillet Size:	0.188	in
Weld Strength:	70	ksi
Electrode Coefficient:	1.000	

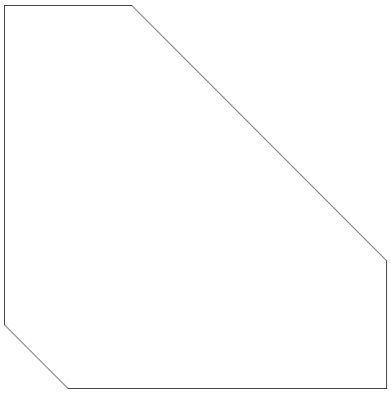


PLATE COMPRESSION

Radius of Gyration:	0.144	in^3
kl/r:	12.47	
4.71 √(E/Fy):	133.68	
Buckling Stress, Fe:	1840.40	ksi
Crit. Buckling Stress, Fcr:	1614.03	ksi
Applied Compression, Pu:	9.60	k
Compressive Capacity, ϕPn:	1815.78	k
Pu/ϕPn:	**0.003**	

PLATE TENSION

Gross Cross Section:	1.2500	in^2
Net Cross Section:	1.1250	in^2
Applied Tension, Tu:	9.19	k
Tensile Capacity, ϕTn:	40.50	k
Tu/ϕTn:	**0.113**	

VERTICAL WELD TO POLE

Vertical Eccentricity Ratio, $a=e_x/l$:	0.333	
Spacing Ratio, k:	0.167	
Weld Coefficient, C:	3.090	
Applied Compression, Pu:	9.60	k
Compressive Capacity, ϕPn:	20.91	k
Horizontal Eccentricity Ratio, $a=e_x/l$:	0.333	
Weld Coefficient, C:	2.970	
Applied Shear, Vu	0.33	k
Shear Capacity, ϕVn:	20.10	k
Pu/ϕPn + Vu/ϕVn:	**0.475**	

HORIZONTAL WELD TO PLATE

Horizontal Eccentricity Ratio, $a=e_x/l$:	0.167	
Spacing Ratio, k:	0.167	
Weld Coefficient, C:	3.940	
Effective Fillet Size:	0.188	in
Applied Compression, Pu:	9.60	k
Compressive Capacity, ϕPn:	26.67	k
Vertical Eccentricity Ratio, $a=e_x/l$:	0.167	
Weld Coefficient, C:	3.660	
Applied Shear, Vu	0.33	k
Shear Capacity, ϕVn:	24.77	k
Pu/ϕPn + Vu/ϕVn:	**0.373**	

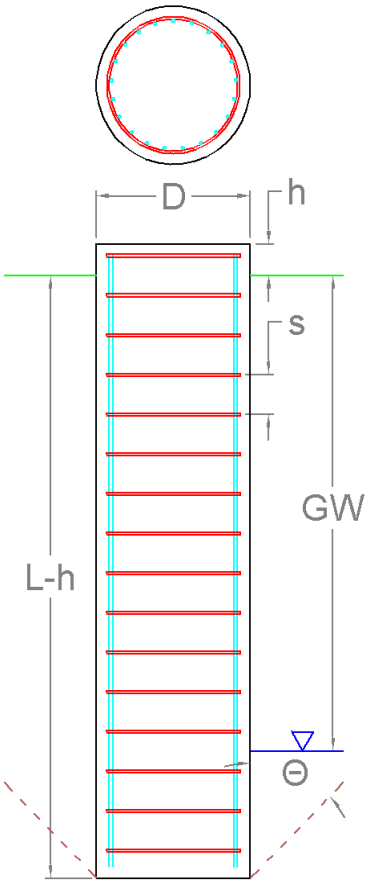
Pier Foundation Analysis (ANSI/TIA-222-H)

Foundation Analysis Parameters			
Pier Diameter	*D*	5.00	ft
Pier Embedment	*L-h*	22.2	ft
Pier Height above Ground	*H*	0.50	ft
Water Table Depth [BGL]	*GW*	5	ft
Pullout Angle	Θ	30	°
Unit Weight of Concrete		150	pcf
Uplift Skin Friction Factor		0.890	

Reactions		
Moment, M_u	3,192.7	k-ft
Shear, V_u	30.3	k
Axial, P_u	60.6	k
Uplift, T_u	0.0	k

Soil Properties

Layer Depth (ft)		Unit Weight	Cohesion	Friction Angle	Ultimate Skin Friction	Ultimate Bearing Pressure
TOP	BTM	pcf	psf	°	psf	psf
0.0	1.0	116	0	0	0	0
1.0	3.0	115	0	30	0	0
3.0	4.5	106	0	29	0	0
4.5	7.0	117	0	31	731	0
7.0	8.0	126	0	34	788	0
8.0	10.0	126	0	34	892	0
10.0	23.3	135	5,112	0	2,300	42,670



Soil Strength Capacities		
Volume of Concrete	446.7	ft^3
Weight of Concrete [Buoyancy Considered]	45.9	k
Average Soil Unit Weight	78.8	pcf
Skin Friction Resistance	511.7	k
Compressive Bearing Resistance	837.8	k
Pullout Weight [Minus Concrete Weight]	479.8	k
Compressive Force, P_u	72.6	k
Nominal Compressive Capacity, $\phi_s P_n$	1,012.1	k
$P_u / \phi_s P_n$	**7.2%**	
Total Lateral Resistance	2,496.9	k
Inflection Point [BGL]	15.6	ft
Moment at Inflection Point, M_D	3,678.4	k-ft
Nominal Moment Capacity, $\phi_s M_n$	6,566.4	k-ft
$M_D / \phi_s M_n$	**56.0%**	

EXHIBIT 4

April 12, 2022 (Rev.1)
March 31, 2022

Centerline Communications
750 West Center Street, Suite #301
West Bridgewater, MA, 02379

RE:		
	Site Number:	CT2015
	FA Number:	10034973
	PACE Number:	MRCTB055920
	PT Number:	2051A11L1Q
	Site Name:	BRANFORD
	Site Address:	405 Brushy Plain Road Branford, CT 06405

To Whom It May Concern:

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

- (3) 800-10965 Antennas (78.7"x20.0"x6.9" – Wt. = 109 lbs. /each)
- (3) RRUS-32 B30 RRH's (27.2"x12.1"x7.0" – Wt. = 60 lbs. /each)
- (3) 4449 B5/B12 RRH's (17.9"x13.2"x9.4" – Wt. = 73 lbs. /each)
- (3) 8843 B2/B66A RRH's (14.9"x13.2"x10.9" – Wt. = 72 lbs. /each)
- (2) DC6-48-60-18-8F Surge Arrestors (24.0"x9.7"Ø – Wt. = 33 lbs. /each)
- **(3) AIR6449 Antennas (30.4"x15.9"x10.6" – Wt. = 82 lbs. /each)**
- **(3) AIR6419 Antennas (31.1"x16.1"x7.3" – Wt. = 66 lbs. /each)**
- **(3) DMP65R-BU6EA-K Antennas (71.2"x20.7"x9.7" – Wt. = 104 lbs. /each)**
- **(3) 4478 B14 RRH's (18.1"x13.4"x8.3" – Wt. = 60 lbs. /each)**
- **(1) DC6-48-60-18-8F Surge Arrestor (24.0"x9.7"Ø – Wt. = 33 lbs.)**

**Proposed equipment shown in bold*

Mount fabrication drawings prepared by SitePro1 P/N RMQP-12-H5, dated November 11, 2017, and P/N HRK12, dated July 13, 2014, were used to perform this analysis. HDG conducted a ground audit of the existing AT&T antenna mounts on January 21, 2022.

Mount Analysis Methods:

- This analysis was conducted in accordance with EIA/TIA-222-H, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, the International Building Code 2015 with 2018 Connecticut State Building Code, and AT&T Mount Technical Directive – R16.
- HDG considers this mount to be asymmetrical and has applied wind loads in 30 degree increments all around the mount. Per TIA-222-H and Appendix N of the Connecticut State Building Code, the max basic wind speed for this site is equal to 130 mph with a max basic wind speed with ice of 50 mph and a max ice thickness of 1.0 in. An escalated ice thickness of 1.17in was used for this analysis.
- HDG considers this site to be exposure category B; tower is located in an urban/suburban or wooded area with numerous closely spaced obstructions.
- HDG considers this site to be topographic category 1; tower is located on flat terrain or the bottom of a hill or ridge.
- HDG considers this site to have a spectral response acceleration parameter at short periods, S_S, of 0.180 and a spectral response acceleration parameter at a period of 1 second, S_1, of 0.061.
- The mount has been analyzed with load combinations consisting of 500 lb live load using a service wind speed of 30 mph wind on the worst case antenna. Analysis performed on each antenna pipe to determine worst case location; worst case location was antenna position 2.
- The mount has been analyzed with load combinations consisting of a 250 lbs live load in a worst case location on the mount.
- The existing mounts are secured to the existing monopole with ring mounts and threaded rods. HDG considers the threaded rods to be the governing connection member.

Based on our evaluation, we have determined that the existing mounts **ARE CAPABLE** of supporting the proposed installation.

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
Existing Mount Rating	88	LC2	50%	**PASS**

Reference Documents:

- Fabrication drawings prepared by SitePro1, P/N HRK12, dated July 13, 2014.
- Fabrication drawings prepared by SitePro1, P/N RMQP-12-H5, dated November 11, 2017.

directly involved.

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

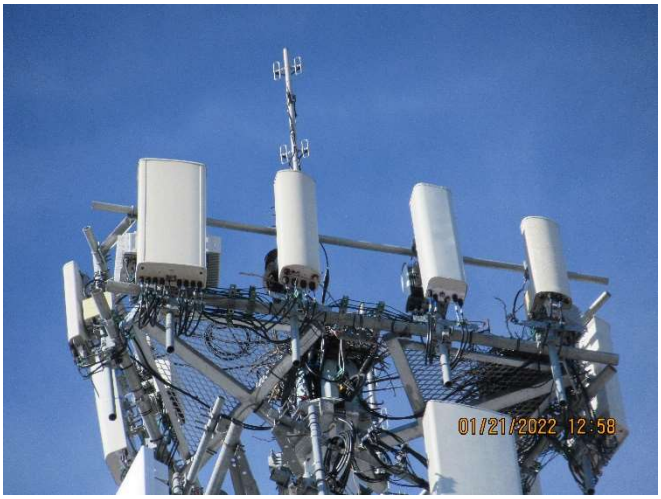
Please feel free to contact our office should you have any questions.

Respectfully Submitted,
Hudson Design Group LLC

Michael Cabral
Vice President

Daniel P. Hamm, PE
Principal

FIELD PHOTOS:



HUDSON
Design Group LLC

Wind & Ice
Calculations

ANSI/TIA-222H - WIND, ICE & SEISMIC LOAD CALCULATIONS

Site Code/Name		CT2015 - Branford		
State		Connecticut		
County		New Haven		*Reference*
Structure Class		II		*Table 2-1*
Exposure Category		B		*Section 2.6.5.1.2*
Topographic Category		1 - Kzt = 1		*Section 2.6.6.2.1*
Mean Elevation of base of structure	z_s	236.76	ft	*ASCE7-16 Hazards*
Height Above Ground	z	153	ft	

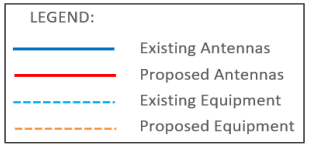
Wind Parameters				
Basic wind speed	V	130	mph	*Appendix N of Connecticut Building Code*
Wind direction probability factor	K_d	0.95		*Section 16.6*
Gust effect factor	G_h	1		*Section 16.6*
Velocity Pressure (Ka = 0.9)		40.93	psf	*Section 2.6.11.6*

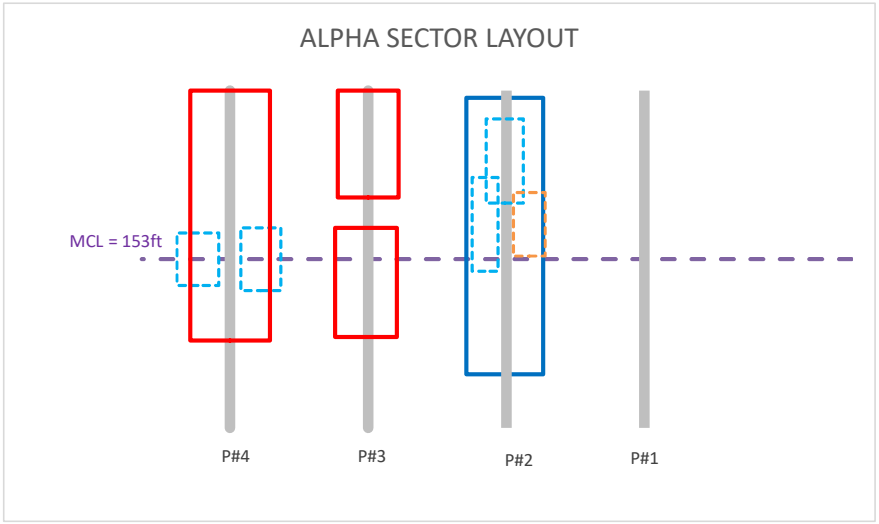
Wind & Ice Parameters				
Base windspeed in conjunction with ice, V		50	mph	*ASCE7-16 Hazards Tool*
Base Ice thickness	t_i	1.00	in	*ASCE7-16 Hazards Tool*
Ice Velocity Pressure (Ka = 0.9)	q_{ice}	6.05	psf	*Section 2.6.11.6*
Design Ice Thickness	t_{iz}	1.17	in	*Section 2.6.10*

Seismic Parameters				
Site Soil Class		D - Default		*Table 2-10*
Seismic Design Category		B		*ASCE7-16 Hazards Tool*
Spectral Response at Short Periods	S_s	0.18		*Appendix N of Connecticut Building Code*
Spectral Response at 1sec	S_1	0.061		*Appendix N of Connecticut Building Code*
Long Period Transition Period	T_L	6		*ASCE7-16 Hazards Tool*
Seismic Importance Factor	I_s	1		*Table 2-3*
Response modification coefficient	R	2		*Section 16.7*
Short-Period Site Coefficient	F_a	1.6		*Table 2-11*
Design Spectral Response at Short Periods	S_{DS}	0.192		*Section 2.7.5*
Seismic Response Coefficient	C_s	0.096		*Section 2.7.7.1*

ALPHA SECTOR

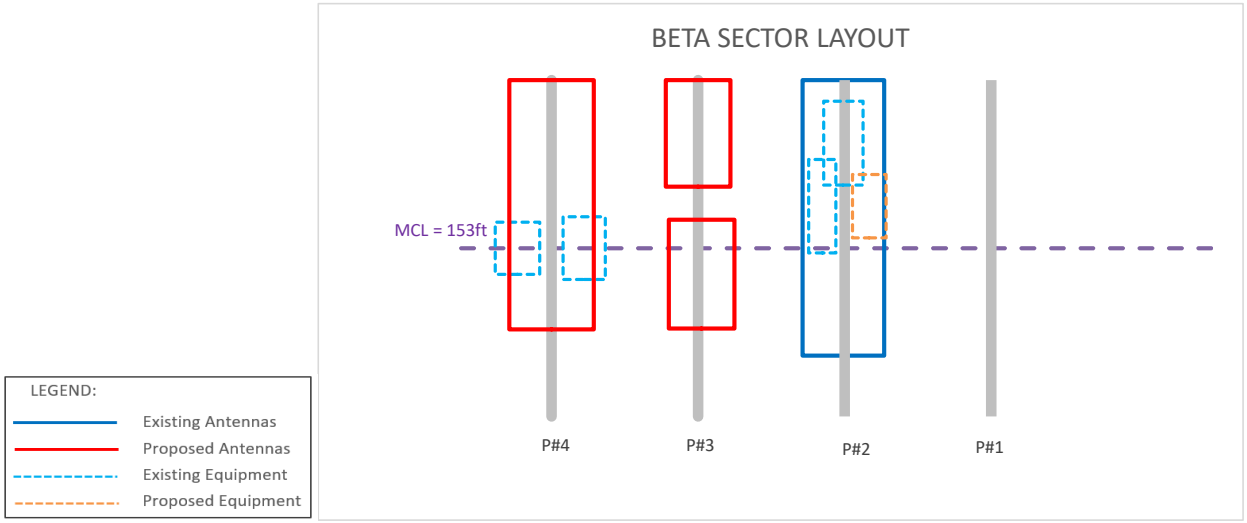
Position	Appurtenance properties						Wind		Ice	Seismic
	Manufacturer	Model	L [in]	W [in]	D [in]	Weight [lbs]	0^o [lbs]	90^o [lbs]	IceWeight [lbs]	E_H [lbs]
2	Kathrein	800-10965	78.7	20.0	6.9	108.6	565.3	238.7	211.6	10.4
3	Ericsson	AIR6419 B77G	31.1	16.1	7.3	80.4	170.8	82.5	72.2	7.7
3	Ericsson	AIR6449 B77D	30.4	15.9	8.1	81.6	164.8	87.9	71.2	7.8
4	CCI	DMP65R-BU6EA-K	71.2	20.7	9.7	103.8	520.1	277.0	206.4	10.0
2	Ericsson	4478 B14	18.1	13.4	8.3	59.4	51.2	82.7	38.7	5.7
2	Ericsson	RRUS-32 B30	26.7	12.1	6.7	60.0	64.4	110.2	49.6	5.8
4	Ericsson	4449 B5/B12	17.9	13.2	10.4	73.0	63.5	80.6	40.7	7.0
4	Ericsson	8843 B2/B66A	14.9	13.2	10.9	72.0	55.4	67.1	34.9	6.9
2	Raycap	DC6-48-60-18-8F	24.0	9.7	9.7	33.0	79.4	77.7	44.5	3.2





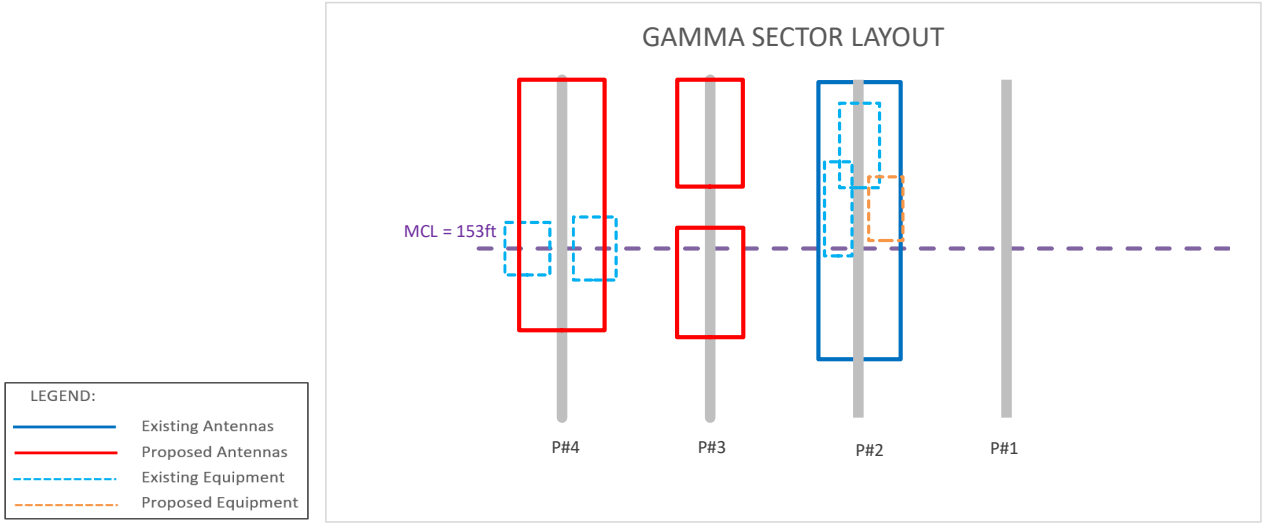
BETA SECTOR

Position	Appurtenance properties						Wind		Ice	Seismic
	Manufacturer	Model	L [in]	W [in]	D [in]	Weight [lbs]	0^o [lbs]	90^o [lbs]	IceWeight [lbs]	E_H [lbs]
2	Kathrein	800-10965	78.7	20.0	6.9	108.6	565.3	238.7	211.6	10.4
3	Ericsson	AIR6419 B77G	31.1	16.1	7.3	80.4	170.8	82.5	72.2	7.7
3	Ericsson	AIR6449 B77D	30.4	15.9	8.1	81.6	164.8	87.9	71.2	7.8
4	CCI	DMP65R-BU6EA-K	71.2	20.7	9.7	103.8	520.1	277.0	206.4	10.0
2	Ericsson	4478 B14	18.1	13.4	8.3	59.4	74.8	59.1	38.7	5.7
2	Ericsson	RRUS-32 B30	26.7	12.1	6.7	60.0	98.7	75.8	49.6	5.8
4	Ericsson	4449 B5/B12	17.9	13.2	10.4	73.0	76.3	67.8	40.7	7.0
4	Ericsson	8843 B2/B66A	14.9	13.2	10.9	72.0	64.2	58.3	34.9	6.9
2	Raycap	DC6-48-60-18-8F	24.0	9.7	9.7	33.0	78.2	79.0	44.5	3.2



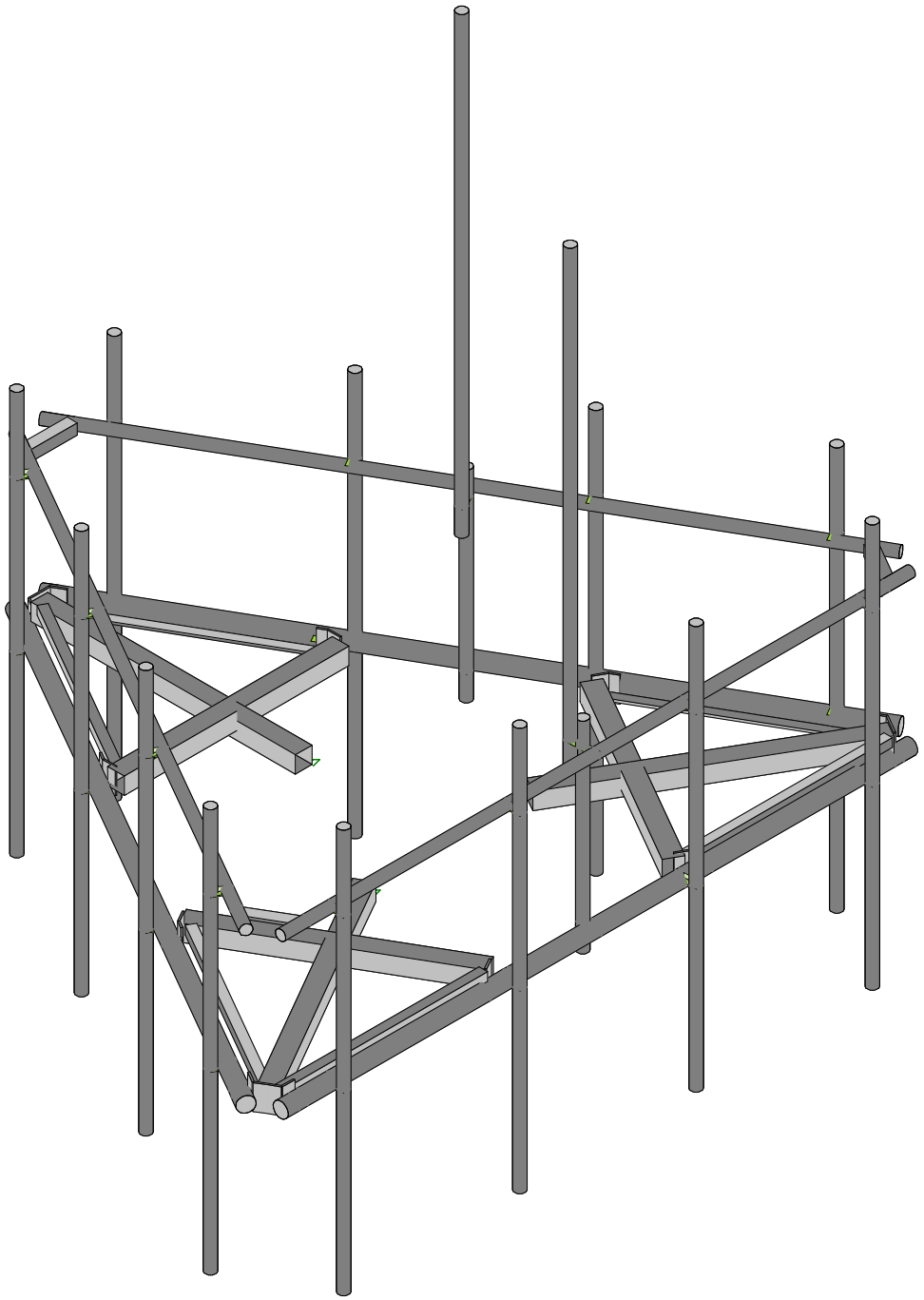
GAMMA SECTOR

Position	Appurtenance properties						Wind		Ice	Seismic
	Manufacturer	Model	L [in]	W [in]	D [in]	Weight [lbs]	0^o [lbs]	90^o [lbs]	IceWeight [lbs]	E_H [lbs]
2	Kathrein	800-10965	78.7	20.0	6.9	108.6	565.3	238.7	211.6	10.4
3	Ericsson	AIR6419 B77G	31.1	16.1	7.3	80.4	170.8	82.5	72.2	7.7
3	Ericsson	AIR6449 B77D	30.4	15.9	8.1	81.6	164.8	87.9	71.2	7.8
4	CCI	DMP65R-BU6EA-K	71.2	20.7	9.7	103.8	520.1	277.0	206.4	10.0
2	Ericsson	4478 B14	18.1	13.4	8.3	59.4	74.8	59.1	38.7	5.7
2	Ericsson	RRUS-32 B30	26.7	12.1	6.7	60.0	98.7	75.8	49.6	5.8
4	Ericsson	4449 B5/B12	17.9	13.2	10.4	73.0	76.3	67.8	40.7	7.0
4	Ericsson	8843 B2/B66A	14.9	13.2	10.9	72.0	64.2	58.3	34.9	6.9
2	Raycap	DC6-48-60-18-8F	24.0	9.7	9.7	33.0	78.2	79.0	44.5	3.2



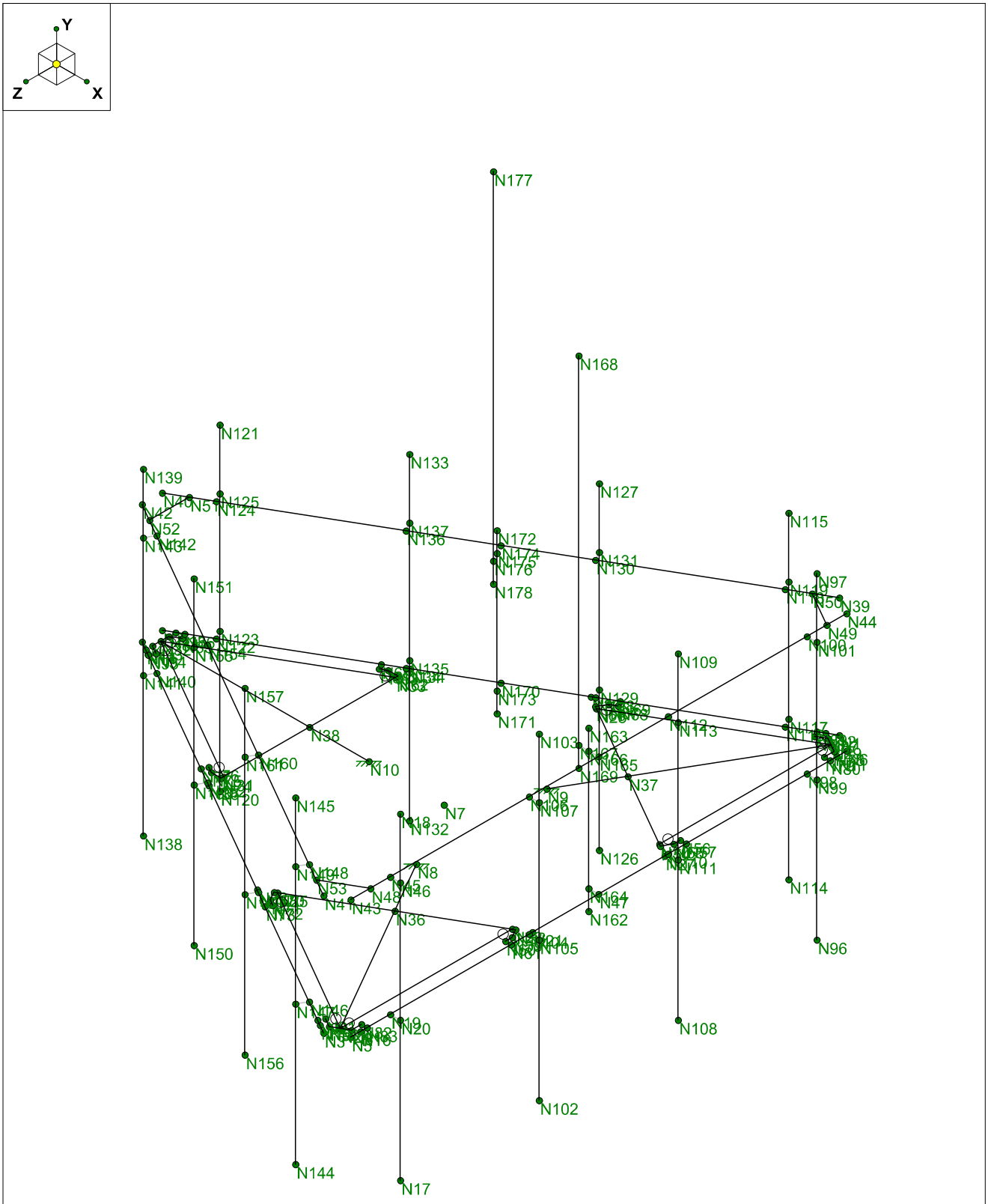
HUDSON
Design Group LLC

Mount Calculations
(Existing Conditions)



Envelope Only Solution

Hudson Design Group, LLC		SK - 1
SS	Branford	Mar 22, 2022 at 12:41 PM
CT2015		CT2015 - Copy.r3d



Envelope Only Solution

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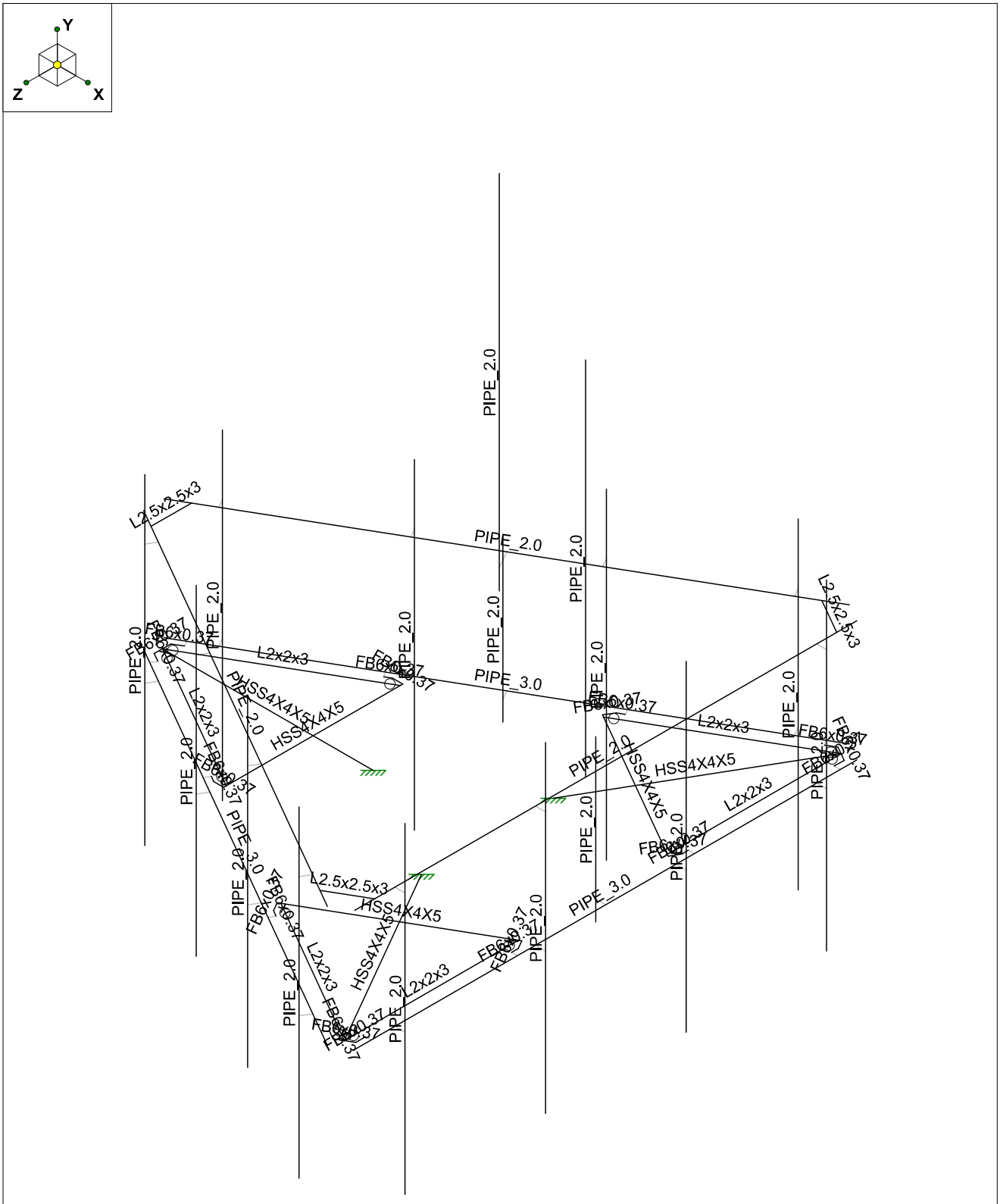
CT2015		CT2015 - Copy.r3d



Envelope Only Solution

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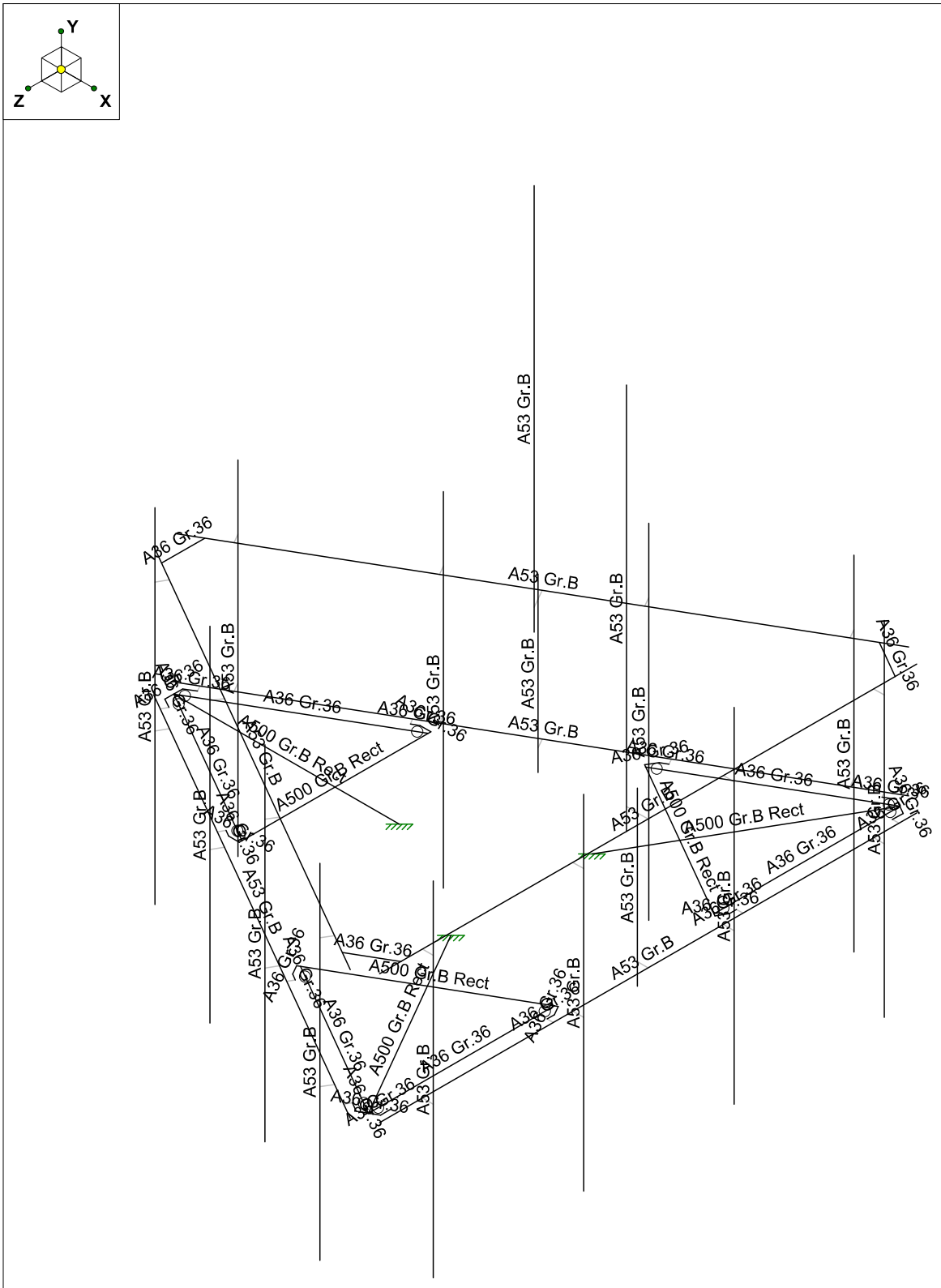

Envelope Only Solution

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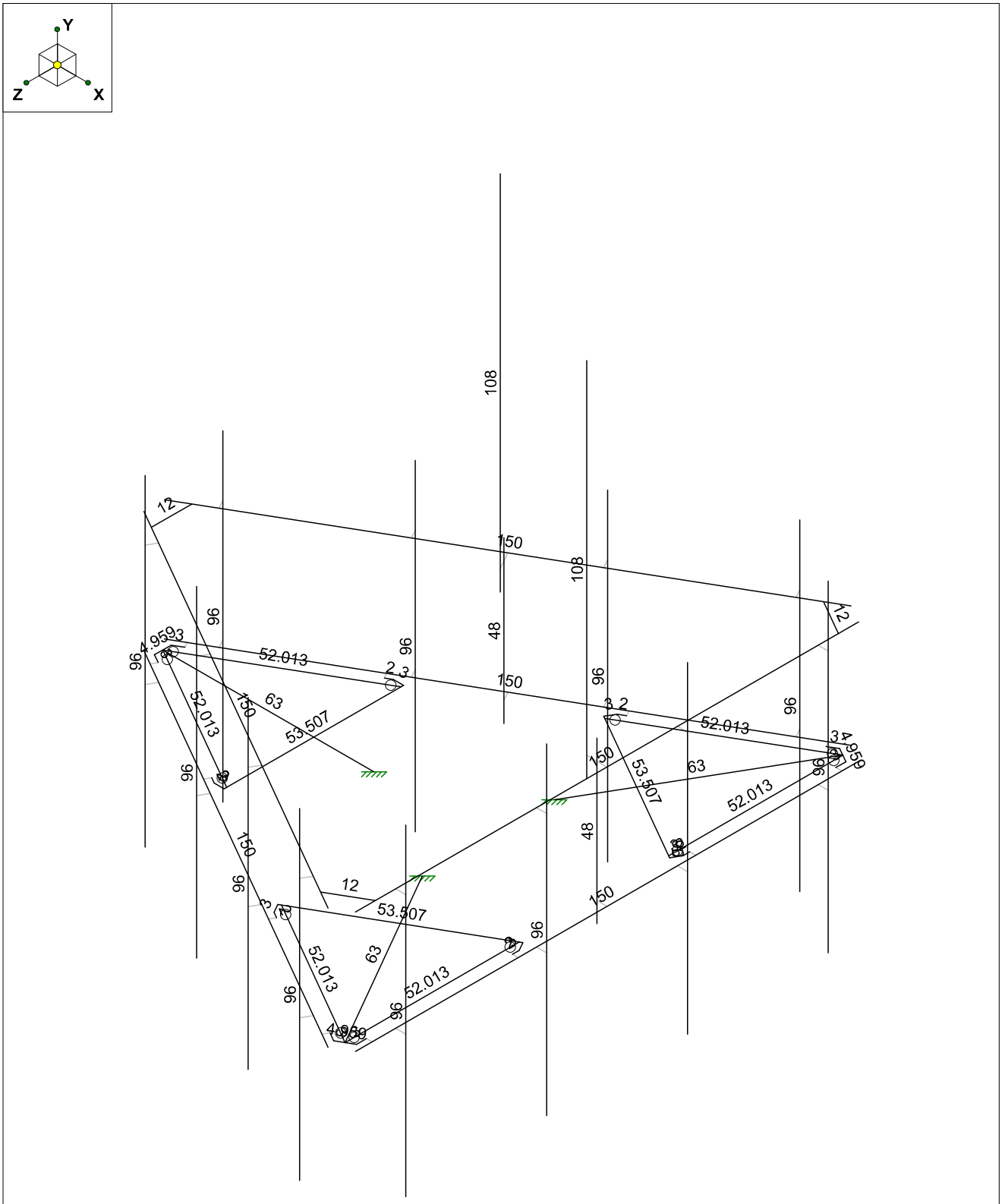

Member Length (in) Displayed
Envelope Only Solution

Hudson Design Group, LLC		SK - 5
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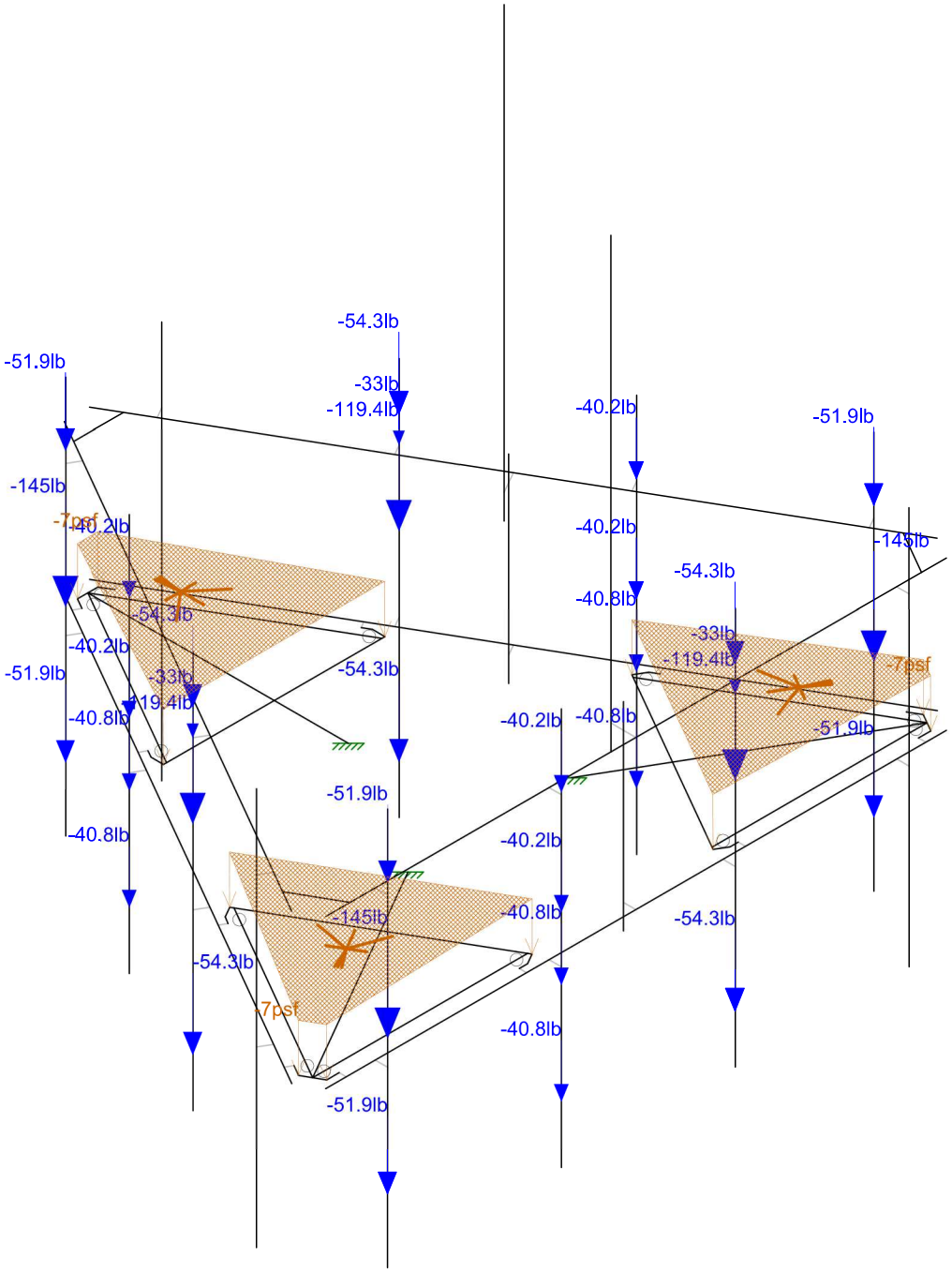

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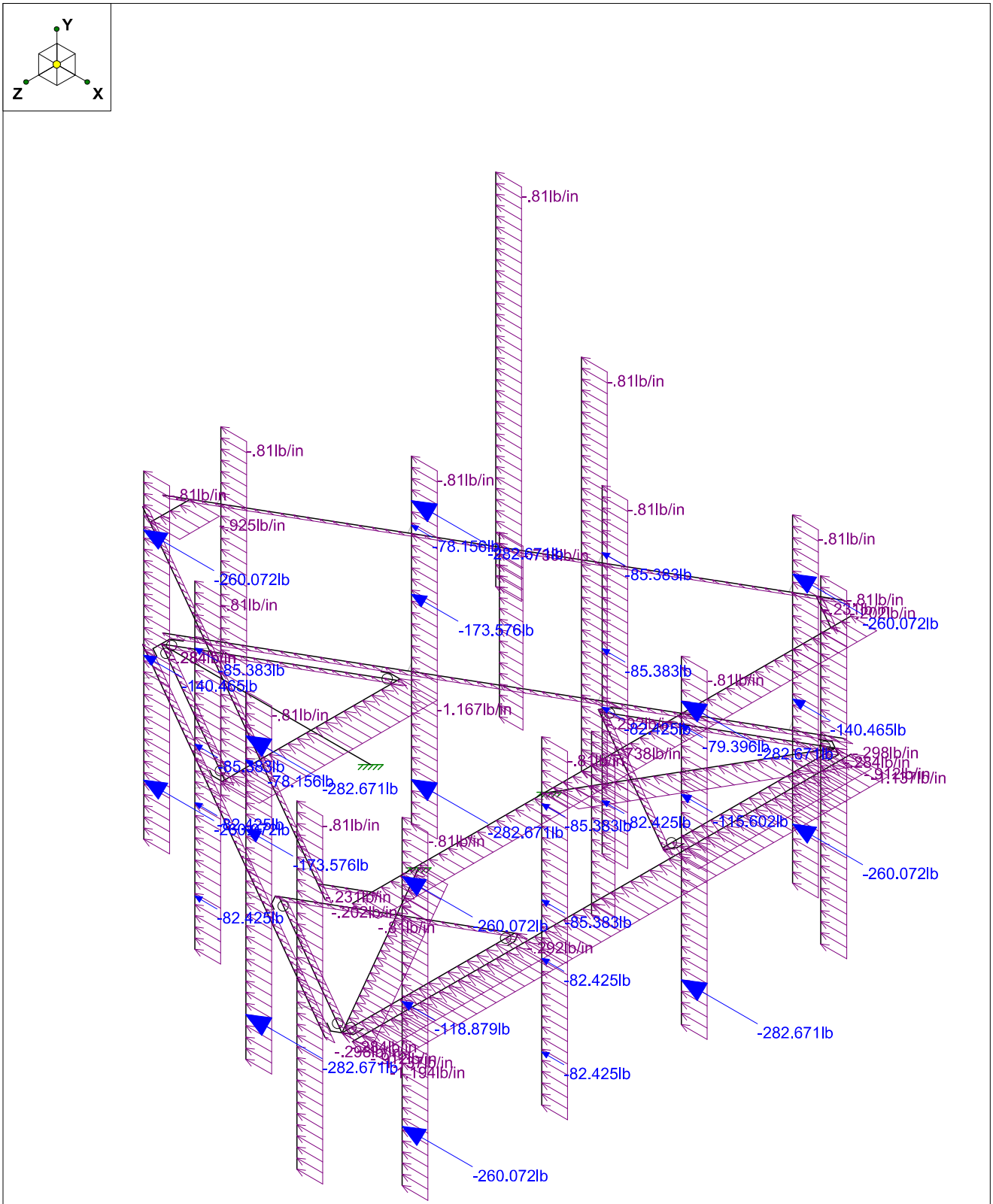

Loads: BLC 4, W0
Envelope Only Solution

Hudson Design Group, LLC		SK - 7
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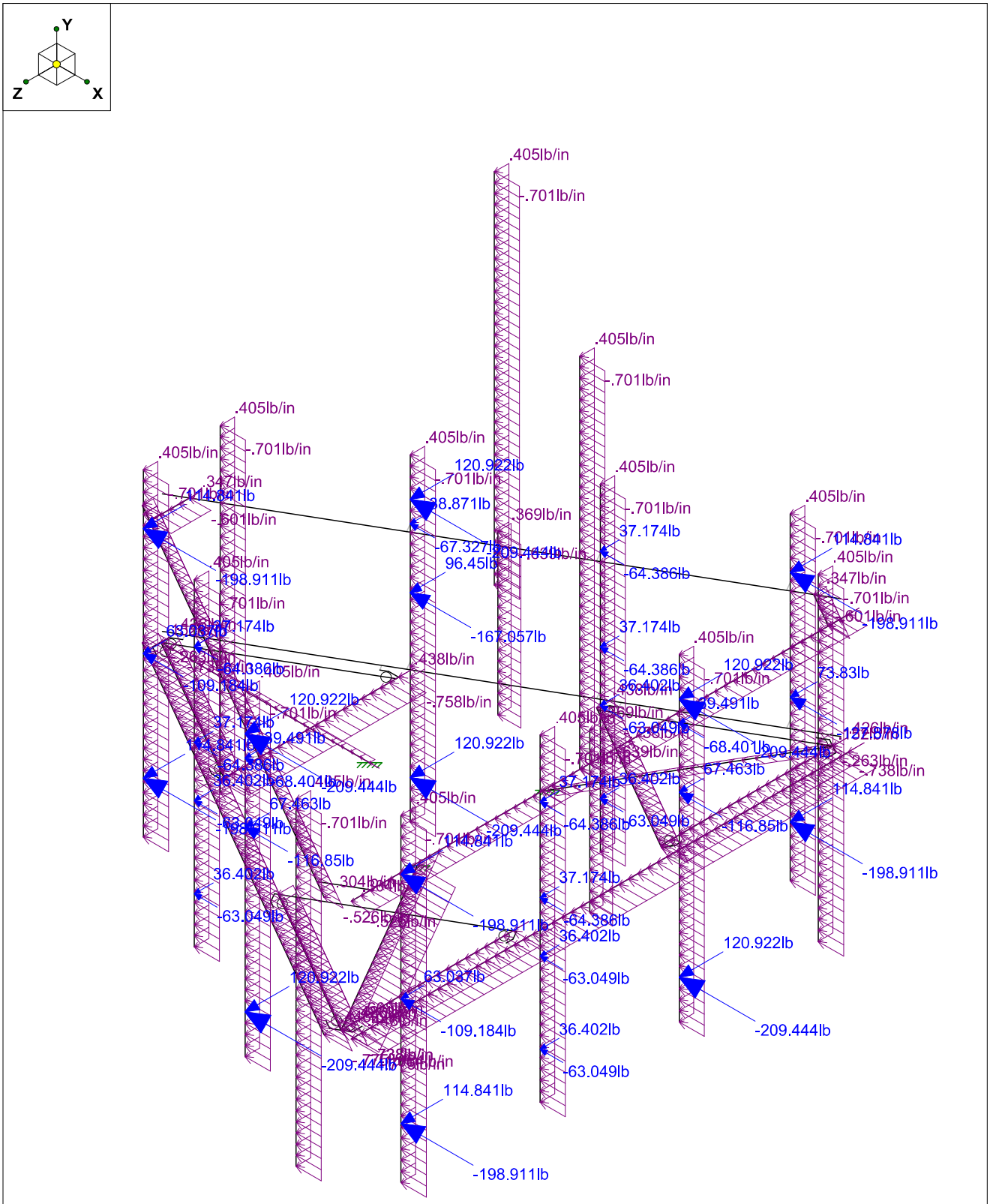
CT2015		CT2015 - Copy.r3d



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Envelope Only Solution

Hudson Design Group, LLC		SK - 8
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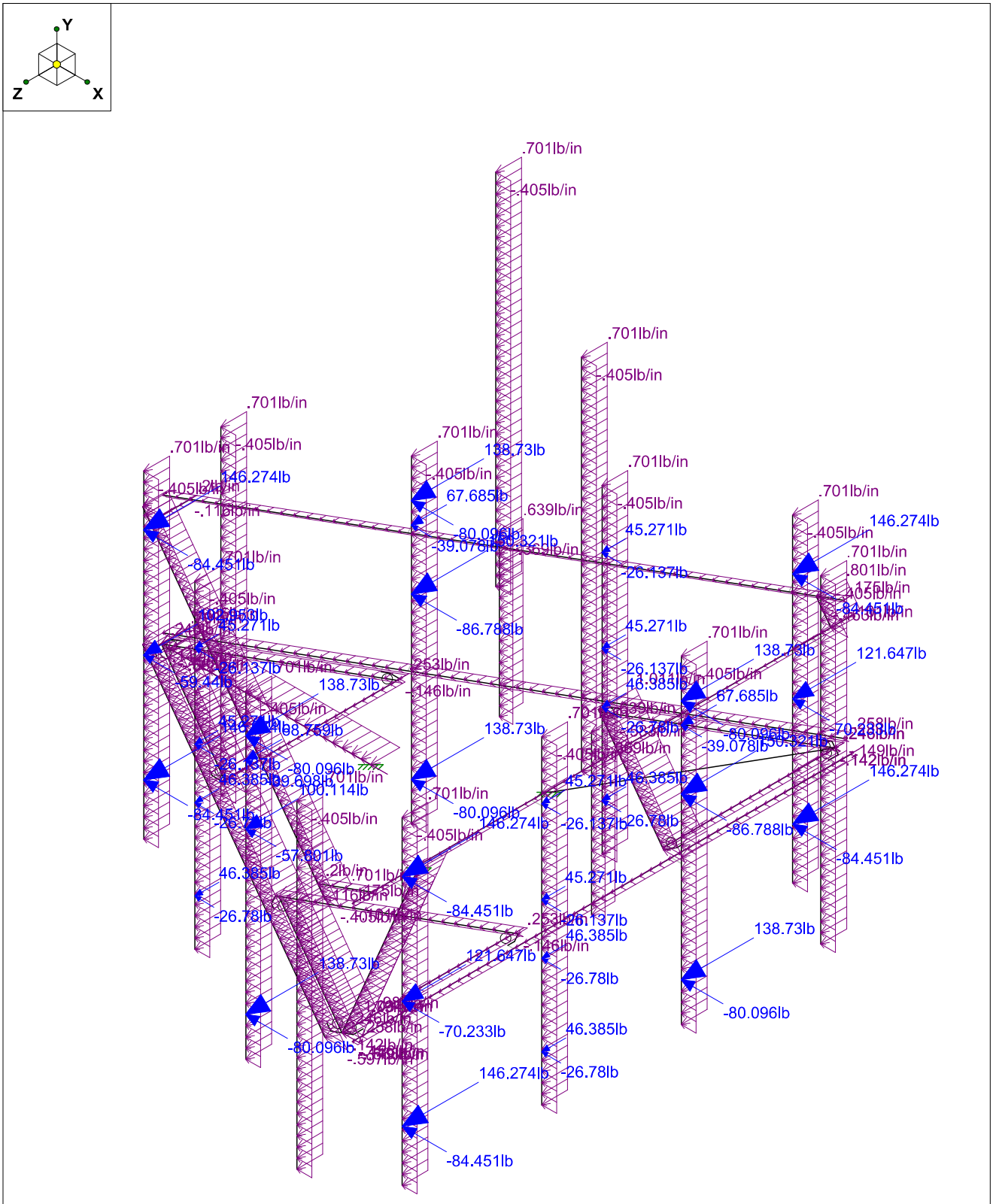

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Hudson Design Group, LLC		SK - 9
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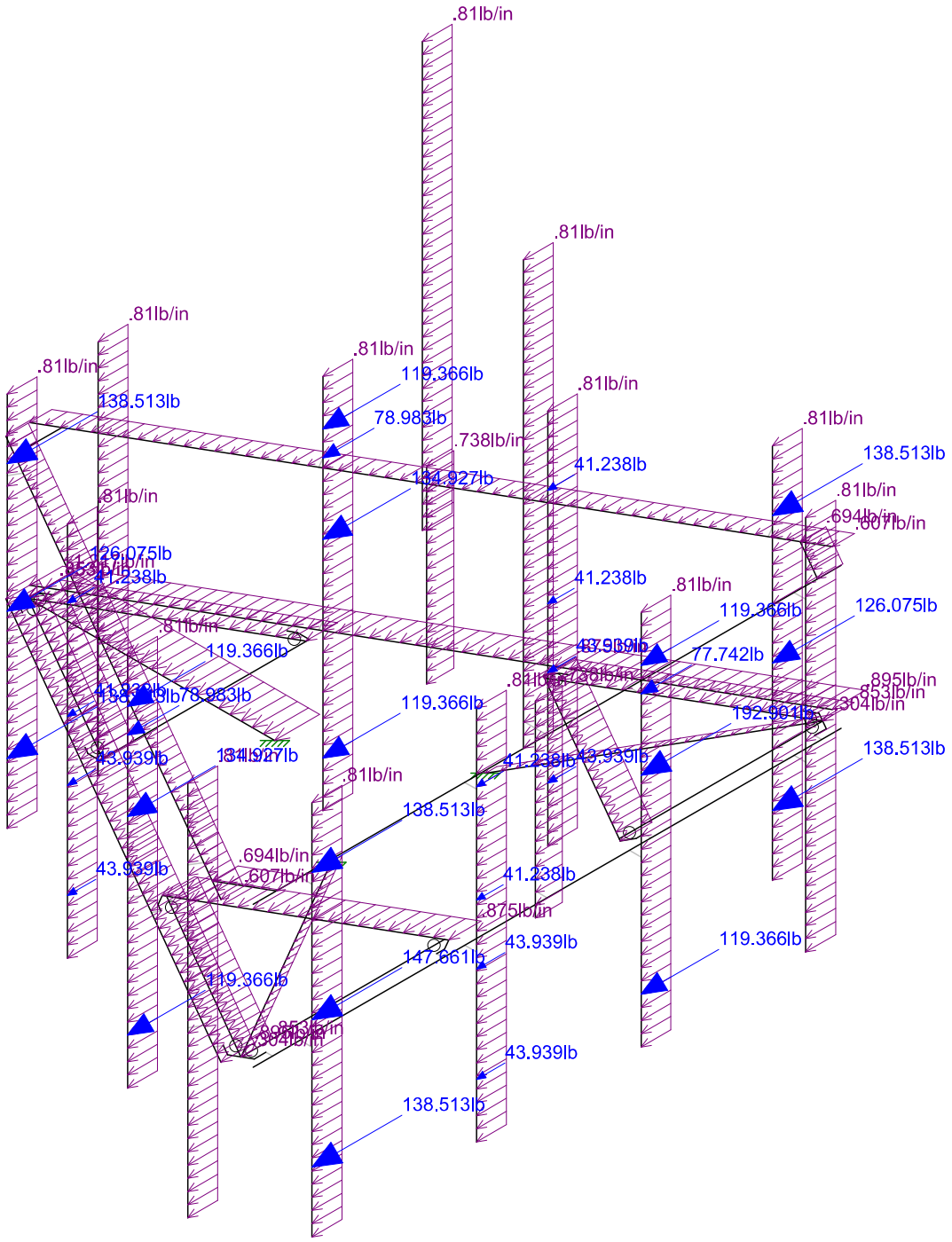

Loads: BLC 7, W90
Envelope Only Solution

Hudson Design Group, LLC		SK - 10
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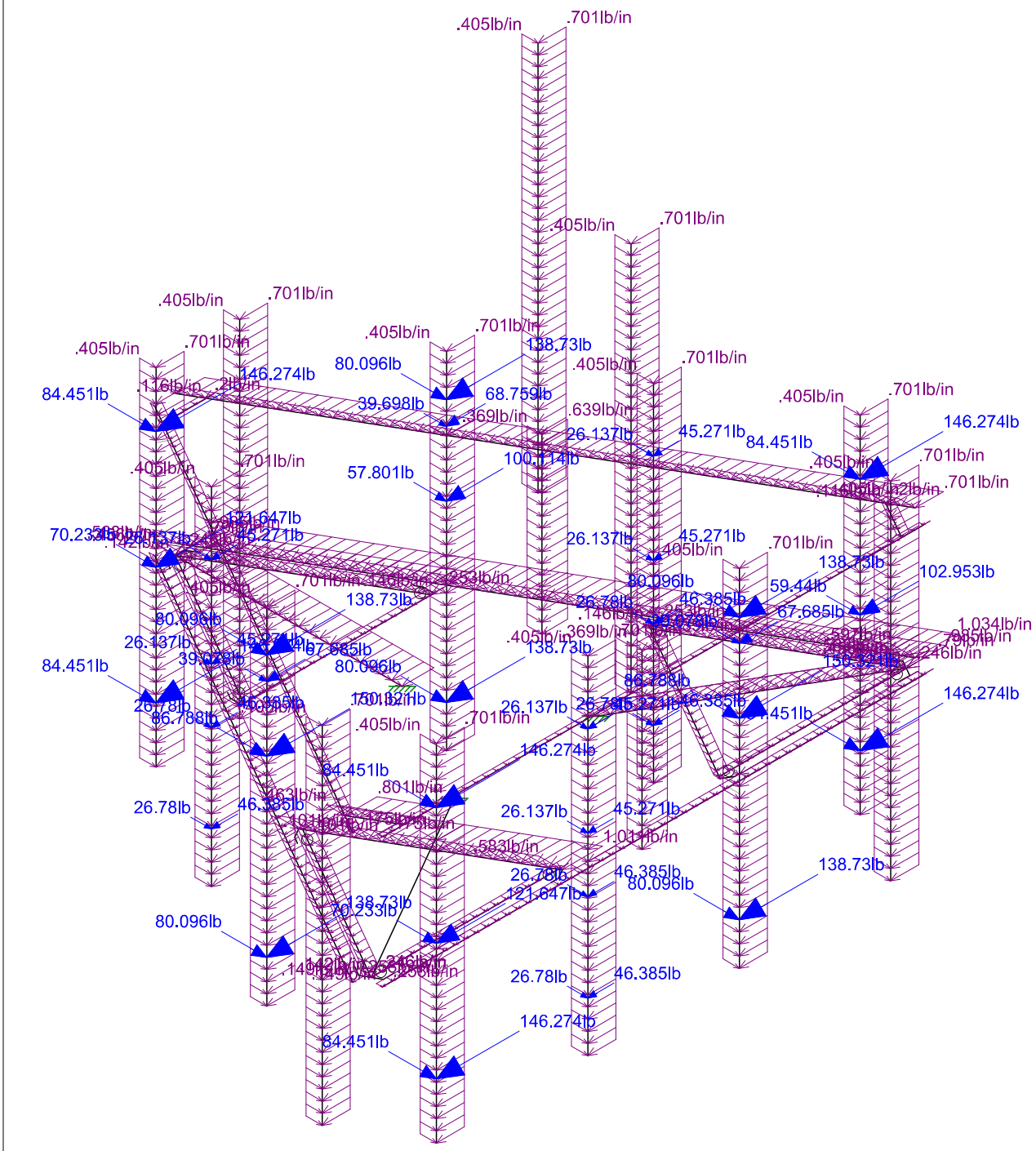
CT2015		CT2015 - Copy.r3d



Loads: BLC 8, W120
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Hudson Design Group, LLC		SK - 11
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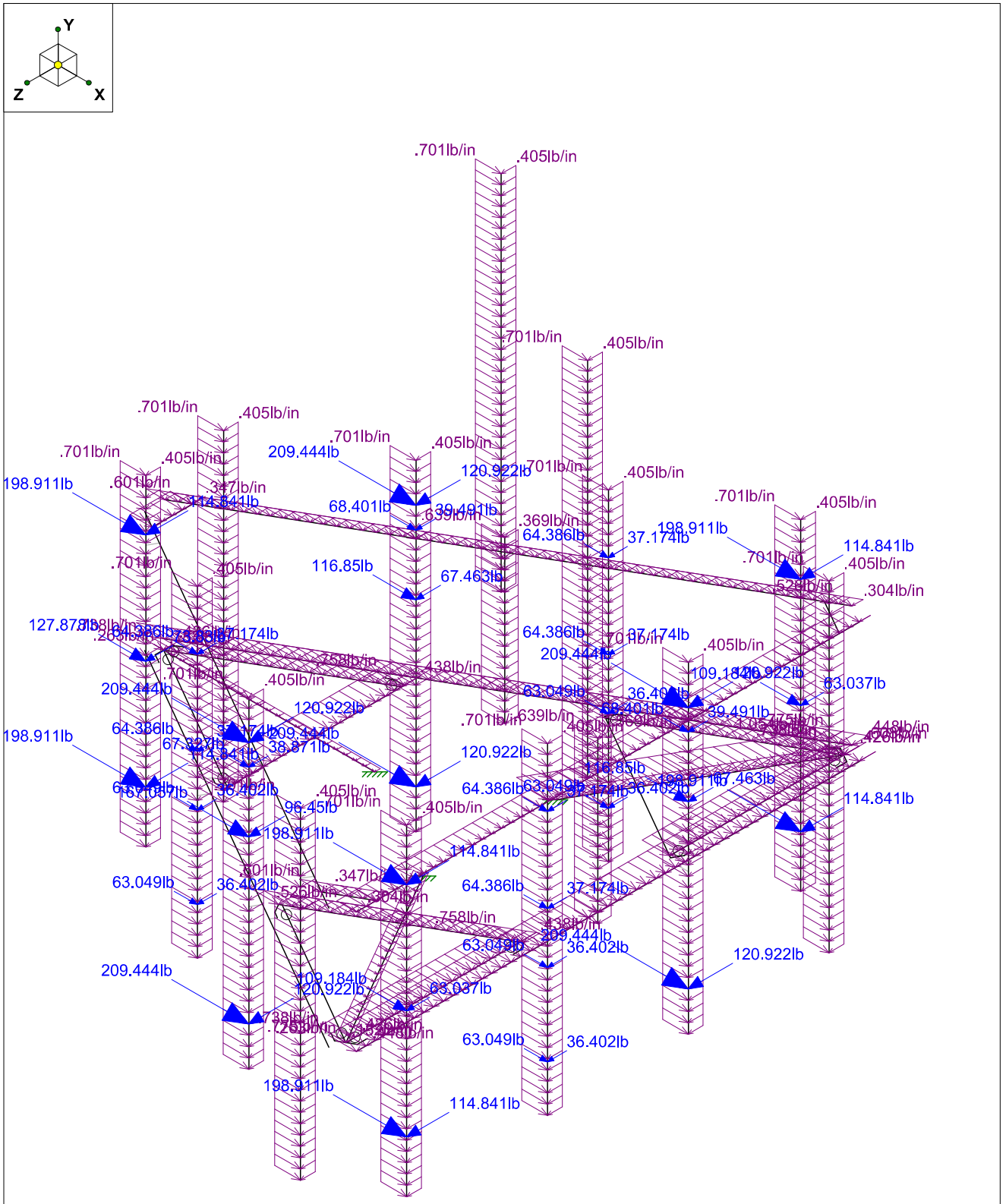
CT2015		CT2015 - Copy.r3d



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Hudson Design Group, LLC		SK - 12
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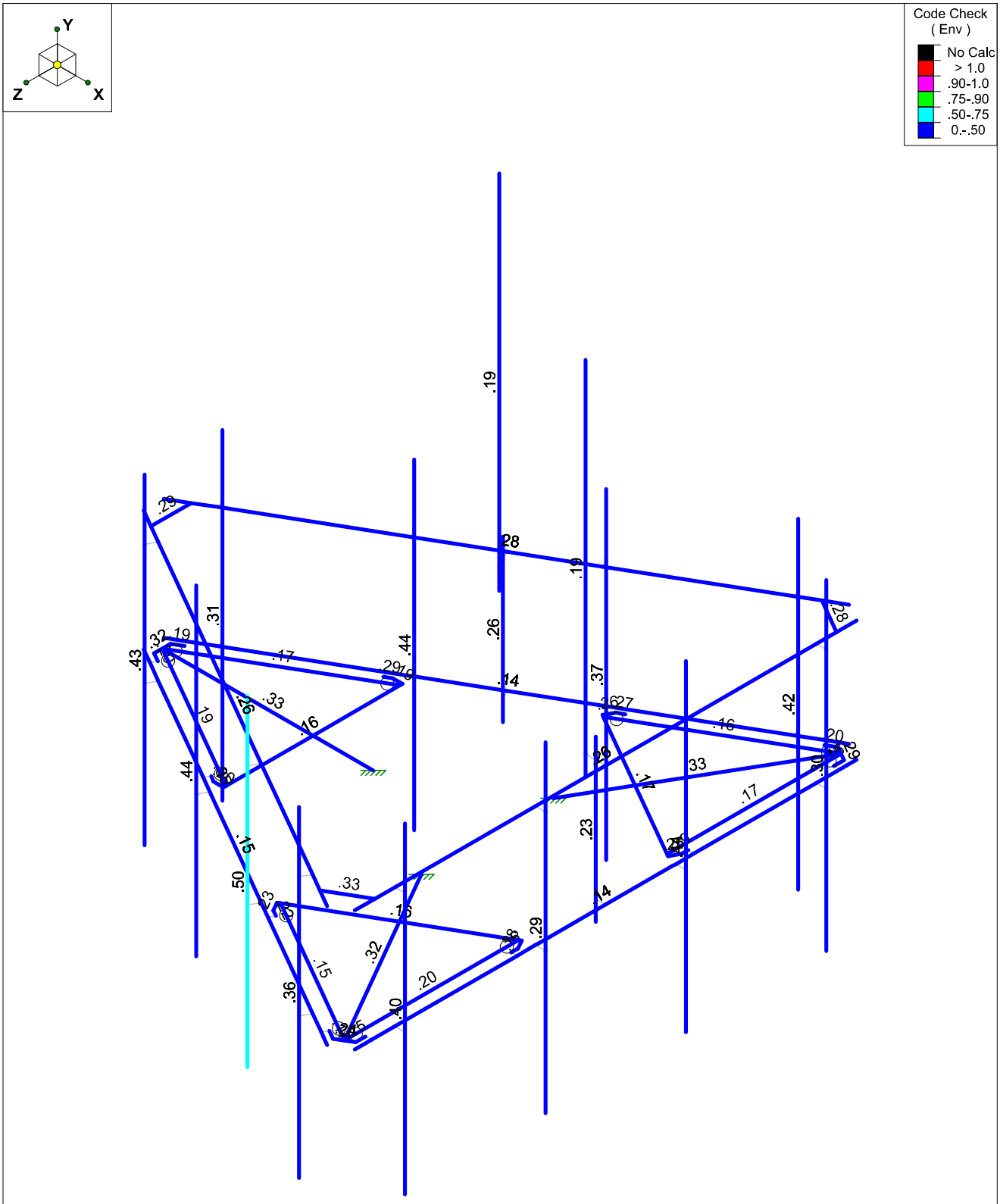
CT2015		CT2015 - Copy.r3d



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Hudson Design Group, LLC		SK - 13
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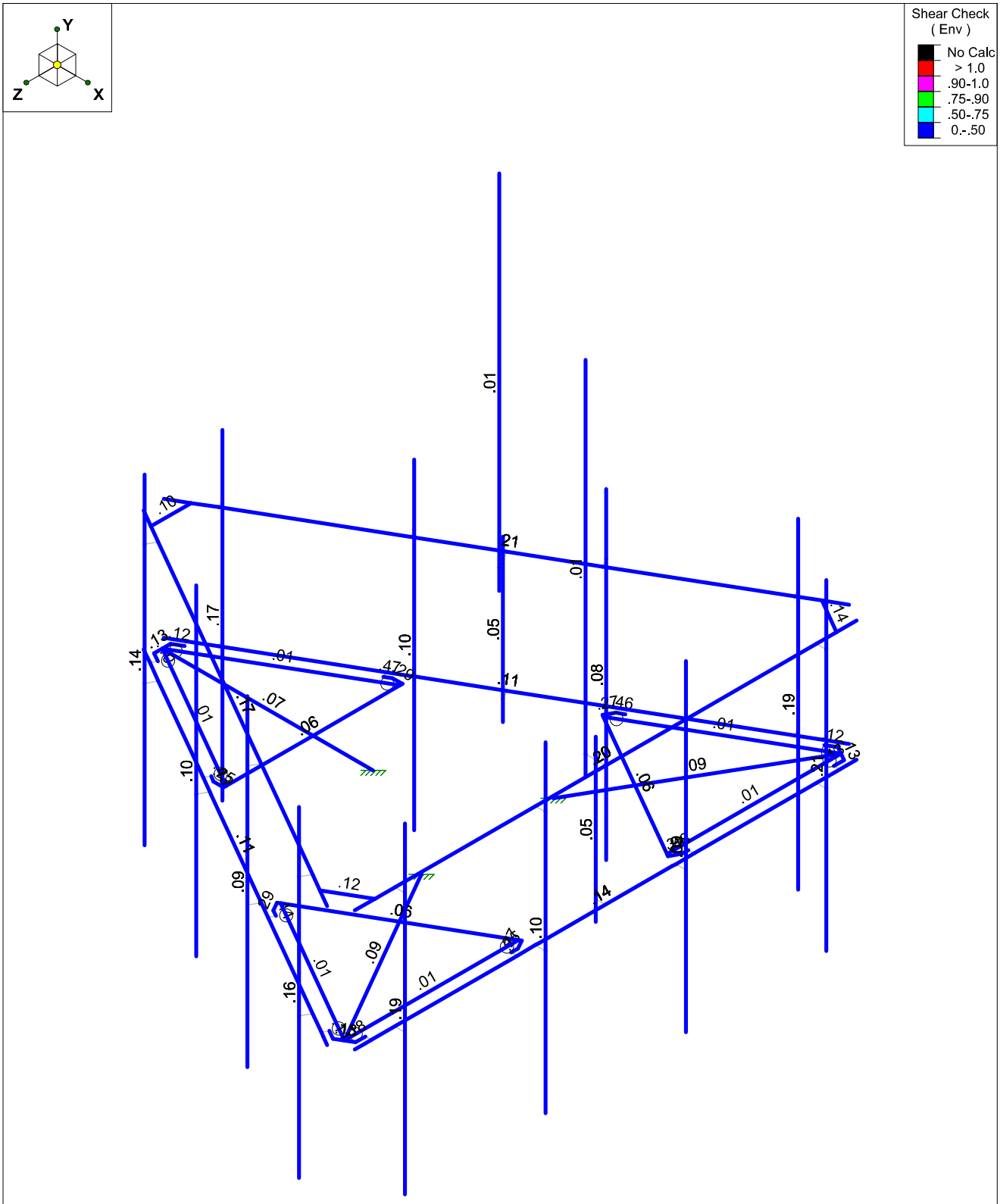

Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

Hudson Design Group, LLC		SK - 14
SS	Branford	Mar 22, 2022 at 1:50 PM
CT2015		CT2015 - Copy.r3d

(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?	Yes
Max Iterations for Wall Stiffness	3
Gravity Acceleration (in/sec^2)	386.4
Wall Mesh Size (in)	24
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 15th(360-16): LRFD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	AISC 15th(360-16): LRFD
Cold Formed Steel Code	AISI S100-16: LRFD
Wood Code	None
Wood Temperature	< 100F
Concrete Code	None
Masonry Code	None
Aluminum Code	AA ADM1-15: LRFD - Building
Stainless Steel Code	AISC 14th(360-10): LRFD
Adjust Stiffness?	Yes(Iterative)

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parme Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	No
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	ASCE 7-16
Seismic Base Elevation (in)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Risk Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	4
Cd X	4
Rho Z	1
Rho X	1

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1...	Density[k/ft^3]	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	.3	.65	.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65	.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	.49	50	1.25	65	1.15
8	A913 Gr.65	29000	11154	.3	.65	.49	65	1.1	80	1.1

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design R...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Horizontal	PIPE 3.0	None	None	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
2	Handrail	PIPE 2.0	None	None	A53 Gr.B	Typical	1.02	.627	.627	1.25
3	Mount Pipe	PIPE 2.0	None	None	A53 Gr.B	Typical	1.02	.627	.627	1.25
4	Standoff	HSS4X4X5	None	None	A500 Gr.B Rect	Typical	4.1	9.14	9.14	15.3
5	Corner Members	L2.5x2.5x3	None	None	A36 Gr.36	Typical	.901	.535	.535	.011
6	Gratings	L2x2x3	None	None	A36 Gr.36	Typical	.722	.271	.271	.009
7	PIPE_2.0	PIPE_2.0	None	None	A53 Gr.B	Typical	1.02	.627	.627	1.25

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-in/rad]	Y Rot.[k-in/rad]	Z Rot.[k-in/rad]
1	N8	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	N9	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	N10	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design Rul...
1	M1	N1	N2			Horizontal	None	None	A53 Gr.B	Typical
2	M2	N3	N4			Horizontal	None	None	A53 Gr.B	Typical
3	M3	N5	N6			Horizontal	None	None	A53 Gr.B	Typical
4	M4	N24	N8			Standoff	None	None	A500 Gr.B Rect	Typical
5	M5	N29	N9			Standoff	None	None	A500 Gr.B Rect	Typical
6	M6	N32	N10			Standoff	None	None	A500 Gr.B Rect	Typical
7	M7	N78	N87			FB6x0.37	None	None	A36 Gr.36	Typical
8	M8	N84	N93			FB6x0.37	None	None	A36 Gr.36	Typical
9	M9	N90	N81			FB6x0.37	None	None	A36 Gr.36	Typical
10	M10	N18	N17			Mount Pipe	None	None	A53 Gr.B	Typical
11	M11	N19	N20			RIGID	None	None	RIGID	Typical
12	M12	N58	N70			Standoff	None	None	A500 Gr.B Rect	Typical
13	M13	N24	N23		180	Gratings	None	None	A36 Gr.36	Typical
14	M14	N24	N25		90	Gratings	None	None	A36 Gr.36	Typical
15	M15	N66	N54			Standoff	None	None	A500 Gr.B Rect	Typical
16	M16	N29	N28		180	Gratings	None	None	A36 Gr.36	Typical
17	M17	N29	N30		90	Gratings	None	None	A36 Gr.36	Typical
18	M18	N32	N31		180	Gratings	None	None	A36 Gr.36	Typical
19	M19	N32	N33		90	Gratings	None	None	A36 Gr.36	Typical
20	M20	N62	N74			Standoff	None	None	A500 Gr.B Rect	Typical
21	M21	N39	N40			Handrail	None	None	A53 Gr.B	Typical
22	M22	N41	N42			Handrail	None	None	A53 Gr.B	Typical
23	M23	N43	N44			Handrail	None	None	A53 Gr.B	Typical
24	M24	N45	N46			RIGID	None	None	RIGID	Typical
25	M25	N53	N48		90	Corner Members	None	None	A36 Gr.36	Typical
26	M26	N51	N52		90	Corner Members	None	None	A36 Gr.36	Typical
27	M27	N50	N49		180	Corner Members	None	None	A36 Gr.36	Typical
28	M28	N56	N57			RIGID	None	None	RIGID	Typical
29	M29	N54	N55			FB6x0.37	Beam	None	A36 Gr.36	Typical
30	M30	N55	N56			FB6x0.37	Beam	None	A36 Gr.36	Typical
31	M31	N60	N61			RIGID	None	None	RIGID	Typical
32	M32	N58	N59			FB6x0.37	Beam	None	A36 Gr.36	Typical
33	M33	N59	N60			FB6x0.37	Beam	None	A36 Gr.36	Typical
34	M34	N64	N65			RIGID	None	None	RIGID	Typical
35	M35	N62	N63			FB6x0.37	Beam	None	A36 Gr.36	Typical
36	M36	N63	N64			FB6x0.37	Beam	None	A36 Gr.36	Typical
37	M37	N68	N69			RIGID	None	None	RIGID	Typical
38	M38	N66	N67			FB6x0.37	Beam	None	A36 Gr.36	Typical
39	M39	N67	N68			FB6x0.37	Beam	None	A36 Gr.36	Typical
40	M40	N72	N73			RIGID	None	None	RIGID	Typical
41	M41	N70	N71			FB6x0.37	Beam	None	A36 Gr.36	Typical
42	M42	N71	N72			FB6x0.37	Beam	None	A36 Gr.36	Typical
43	M43	N76	N77			RIGID	None	None	RIGID	Typical
44	M44	N74	N75			FB6x0.37	Beam	None	A36 Gr.36	Typical
45	M45	N75	N76			FB6x0.37	Beam	None	A36 Gr.36	Typical
46	M46	N78	N79			FB6x0.37	None	None	A36 Gr.36	Typical
47	M47	N79	N80			RIGID	None	None	RIGID	Typical
48	M48	N81	N82			FB6x0.37	None	None	A36 Gr.36	Typical
49	M49	N82	N83			RIGID	None	None	RIGID	Typical
50	M50	N84	N85			FB6x0.37	None	None	A36 Gr.36	Typical
51	M51	N85	N86			RIGID	None	None	RIGID	Typical
52	M52	N87	N88			FB6x0.37	None	None	A36 Gr.36	Typical
53	M53	N88	N89			RIGID	None	None	RIGID	Typical
54	M54	N90	N91			FB6x0.37	None	None	A36 Gr.36	Typical
55	M55	N91	N92			RIGID	None	None	RIGID	Typical
56	M56	N93	N94			FB6x0.37	None	None	A36 Gr.36	Typical
57	M57	N94	N95			RIGID	None	None	RIGID	Typical
58	M58	N97	N96			Mount Pipe	None	None	A53 Gr.B	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design Rul...
59	M59	N98	N99			RIGID	None	None	RIGID	Typical
60	M60	N100	N101			RIGID	None	None	RIGID	Typical
61	M61	N103	N102			Mount Pipe	None	None	A53 Gr.B	Typical
62	M62	N104	N105			RIGID	None	None	RIGID	Typical
63	M63	N106	N107			RIGID	None	None	RIGID	Typical
64	M64	N109	N108			Mount Pipe	None	None	A53 Gr.B	Typical
65	M65	N110	N111			RIGID	None	None	RIGID	Typical
66	M66	N112	N113			RIGID	None	None	RIGID	Typical
67	M67	N115	N114			Mount Pipe	None	None	A53 Gr.B	Typical
68	M68	N116	N117			RIGID	None	None	RIGID	Typical
69	M69	N118	N119			RIGID	None	None	RIGID	Typical
70	M70	N121	N120			Mount Pipe	None	None	A53 Gr.B	Typical
71	M71	N122	N123			RIGID	None	None	RIGID	Typical
72	M72	N124	N125			RIGID	None	None	RIGID	Typical
73	M73	N127	N126			Mount Pipe	None	None	A53 Gr.B	Typical
74	M74	N128	N129			RIGID	None	None	RIGID	Typical
75	M75	N130	N131			RIGID	None	None	RIGID	Typical
76	M76	N133	N132			Mount Pipe	None	None	A53 Gr.B	Typical
77	M77	N134	N135			RIGID	None	None	RIGID	Typical
78	M78	N136	N137			RIGID	None	None	RIGID	Typical
79	M79	N139	N138			Mount Pipe	None	None	A53 Gr.B	Typical
80	M80	N140	N141			RIGID	None	None	RIGID	Typical
81	M81	N142	N143			RIGID	None	None	RIGID	Typical
82	M82	N145	N144			Mount Pipe	None	None	A53 Gr.B	Typical
83	M83	N146	N147			RIGID	None	None	RIGID	Typical
84	M84	N148	N149			RIGID	None	None	RIGID	Typical
85	M85	N151	N150			Mount Pipe	None	None	A53 Gr.B	Typical
86	M86	N152	N153			RIGID	None	None	RIGID	Typical
87	M87	N154	N155			RIGID	None	None	RIGID	Typical
88	M88	N157	N156			Mount Pipe	None	None	A53 Gr.B	Typical
89	M89	N158	N159			RIGID	None	None	RIGID	Typical
90	M90	N160	N161			RIGID	None	None	RIGID	Typical
91	M91	N163	N162			Mount Pipe	None	None	A53 Gr.B	Typical
92	M92	N164	N47			RIGID	None	None	RIGID	Typical
93	M93	N166	N165			RIGID	None	None	RIGID	Typical
94	M94	N167	N166			RIGID	None	None	RIGID	Typical
95	M95	N168	N169			Mount Pipe	None	None	A53 Gr.B	Typical
96	M96	N172	N171			Mount Pipe	None	None	A53 Gr.B	Typical
97	M97	N173	N170			RIGID	None	None	RIGID	Typical
98	M98	N175	N174			RIGID	None	None	RIGID	Typical
99	M99	N176	N175			RIGID	None	None	RIGID	Typical
100	M100	N177	N178			Mount Pipe	None	None	A53 Gr.B	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
1	M1						Yes	** NA **			None
2	M2						Yes	** NA **			None
3	M3						Yes	** NA **			None
4	M4						Yes	** NA **			None
5	M5						Yes	** NA **			None
6	M6						Yes	** NA **			None
7	M7						Yes	** NA **			None
8	M8						Yes	** NA **			None
9	M9						Yes	** NA **			None
10	M10						Yes	** NA **			None
11	M11						Yes	** NA **			None
12	M12						Yes	** NA **			None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
13	M13	BenPIN	BenPIN				Yes	** NA **			None
14	M14	BenPIN	BenPIN				Yes	** NA **			None
15	M15						Yes	** NA **			None
16	M16	BenPIN	BenPIN				Yes	** NA **			None
17	M17	BenPIN	BenPIN				Yes	** NA **			None
18	M18	BenPIN	BenPIN				Yes	** NA **			None
19	M19	BenPIN	BenPIN				Yes	** NA **			None
20	M20						Yes	** NA **			None
21	M21						Yes	** NA **			None
22	M22						Yes	** NA **			None
23	M23						Yes	** NA **			None
24	M24						Yes	** NA **			None
25	M25						Yes	** NA **			None
26	M26						Yes	** NA **			None
27	M27						Yes	** NA **			None
28	M28		BenPIN				Yes	** NA **			None
29	M29						Yes				None
30	M30						Yes				None
31	M31		BenPIN				Yes	** NA **			None
32	M32						Yes				None
33	M33						Yes				None
34	M34		BenPIN				Yes	** NA **			None
35	M35						Yes				None
36	M36						Yes				None
37	M37		BenPIN				Yes	** NA **			None
38	M38						Yes				None
39	M39						Yes				None
40	M40		BenPIN				Yes	** NA **			None
41	M41						Yes				None
42	M42						Yes				None
43	M43		BenPIN				Yes	** NA **			None
44	M44						Yes				None
45	M45						Yes				None
46	M46						Yes	** NA **			None
47	M47		BenPIN				Yes	** NA **			None
48	M48						Yes	** NA **			None
49	M49		BenPIN				Yes	** NA **			None
50	M50						Yes	** NA **			None
51	M51		BenPIN				Yes	** NA **			None
52	M52						Yes	** NA **			None
53	M53		BenPIN				Yes	** NA **			None
54	M54						Yes	** NA **			None
55	M55		BenPIN				Yes	** NA **			None
56	M56						Yes	** NA **			None
57	M57		BenPIN				Yes	** NA **			None
58	M58						Yes	** NA **			None
59	M59						Yes	** NA **			None
60	M60						Yes	** NA **			None
61	M61						Yes	** NA **			None
62	M62						Yes	** NA **			None
63	M63						Yes	** NA **			None
64	M64						Yes	** NA **			None
65	M65						Yes	** NA **			None
66	M66						Yes	** NA **			None
67	M67						Yes	** NA **			None
68	M68						Yes	** NA **			None
69	M69						Yes	** NA **			None
70	M70						Yes	** NA **			None
71	M71						Yes	** NA **			None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
72	M72						Yes	** NA **			None
73	M73						Yes	** NA **			None
74	M74						Yes	** NA **			None
75	M75						Yes	** NA **			None
76	M76						Yes	** NA **			None
77	M77						Yes	** NA **			None
78	M78						Yes	** NA **			None
79	M79						Yes	** NA **			None
80	M80						Yes	** NA **			None
81	M81						Yes	** NA **			None
82	M82						Yes	** NA **			None
83	M83						Yes	** NA **			None
84	M84						Yes	** NA **			None
85	M85						Yes	** NA **			None
86	M86						Yes	** NA **			None
87	M87						Yes	** NA **			None
88	M88						Yes	** NA **			None
89	M89						Yes	** NA **			None
90	M90						Yes	** NA **			None
91	M91						Yes	** NA **			None
92	M92						Yes	** NA **			None
93	M93						Yes	** NA **			None
94	M94						Yes	** NA **			None
95	M95						Yes	** NA **			None
96	M96						Yes	** NA **			None
97	M97						Yes	** NA **			None
98	M98						Yes	** NA **			None
99	M99						Yes	** NA **			None
100	M100						Yes	** NA **			None

Hot Rolled Steel Design Parameters

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torqu...	Kyy	Kzz	Cb	Function
1	M1	Horizontal	150			Lbyy						Lateral
2	M2	Horizontal	150			Lbyy						Lateral
3	M3	Horizontal	150			Lbyy						Lateral
4	M4	Standoff	63			Lbyy						Lateral
5	M5	Standoff	63			Lbyy						Lateral
6	M6	Standoff	63			Lbyy						Lateral
7	M7	FB6x0.37	4.959									Lateral
8	M8	FB6x0.37	4.959									Lateral
9	M9	FB6x0.37	4.959									Lateral
10	M10	Mount Pipe	96			Lbyy						Lateral
11	M12	Standoff	53.507			Lbyy						Lateral
12	M13	Gratings	52.013									Lateral
13	M14	Gratings	52.013									Lateral
14	M15	Standoff	53.507			Lbyy						Lateral
15	M16	Gratings	52.013									Lateral
16	M17	Gratings	52.013									Lateral
17	M18	Gratings	52.013									Lateral
18	M19	Gratings	52.013									Lateral
19	M20	Standoff	53.507			Lbyy						Lateral
20	M21	Handrail	150			Lbyy						Lateral
21	M22	Handrail	150			Lbyy						Lateral
22	M23	Handrail	150			Lbyy						Lateral
23	M25	Corner Me...	12									Lateral
24	M26	Corner Me...	12									Lateral
25	M27	Corner Me...	12									Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torqu...	Kyy	Kzz	Cb	Function
26	M29	FB6x0.37	3			Lbyy						Lateral
27	M30	FB6x0.37	2			Lbyy						Lateral
28	M32	FB6x0.37	3			Lbyy						Lateral
29	M33	FB6x0.37	2			Lbyy						Lateral
30	M35	FB6x0.37	3			Lbyy						Lateral
31	M36	FB6x0.37	2			Lbyy						Lateral
32	M38	FB6x0.37	3			Lbyy						Lateral
33	M39	FB6x0.37	2			Lbyy						Lateral
34	M41	FB6x0.37	3			Lbyy						Lateral
35	M42	FB6x0.37	2			Lbyy						Lateral
36	M44	FB6x0.37	3			Lbyy						Lateral
37	M45	FB6x0.37	2			Lbyy						Lateral
38	M46	FB6x0.37	3									Lateral
39	M48	FB6x0.37	3									Lateral
40	M50	FB6x0.37	3									Lateral
41	M52	FB6x0.37	3									Lateral
42	M54	FB6x0.37	3									Lateral
43	M56	FB6x0.37	3									Lateral
44	M58	Mount Pipe	96			Lbyy						Lateral
45	M61	Mount Pipe	96			Lbyy						Lateral
46	M64	Mount Pipe	96			Lbyy						Lateral
47	M67	Mount Pipe	96			Lbyy						Lateral
48	M70	Mount Pipe	96			Lbyy						Lateral
49	M73	Mount Pipe	96			Lbyy						Lateral
50	M76	Mount Pipe	96			Lbyy						Lateral
51	M79	Mount Pipe	96			Lbyy						Lateral
52	M82	Mount Pipe	96			Lbyy						Lateral
53	M85	Mount Pipe	96			Lbyy						Lateral
54	M88	Mount Pipe	96			Lbyy						Lateral
55	M91	Mount Pipe	48									Lateral
56	M95	Mount Pipe	108									Lateral
57	M96	Mount Pipe	48									Lateral
58	M100	Mount Pipe	108									Lateral

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Member)	Surface(...
1	Self We	DL		-1.1						
2	We	DL					39		3	
3	Ice We	DL					39	37	3	
4	W0	WL					39	37		
5	W30	WL					78	74		
6	W60	WL					78	74		
7	W90	WL					39	37		
8	W120	WL					78	74		
9	W150	WL					78	74		
10	W0 + Ice	WL					39	37		
11	W30 + Ice	WL					78	74		
12	W60 + Ice	WL					78	74		
13	W90 + Ice	WL					39	37		
14	W120 + Ice	WL					78	74		
15	W150 + Ice	WL					78	74		
16	500lbs LM 1	LL				1				
17	500lbs LM 2	LL				1				
18	500lbs LM 3	LL				1				
19	500lbs LM 4	LL				1				
20	250lbs LV 5	LL				1				
21	250lbs LV 6	LL				1				

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Member)	Surface(...
22	E0	EL	-.1				39			
23	E90	EL			.1		39			
24	BLC 2 Transient Ar...	None						75		
25	BLC 3 Transient Ar...	None						75		

Load Combinations

	Description	Solve	PDelta	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	Dead	Yes	Y		1	1.4	2	1.4	0		0															
2	Dead + Wind 0	Yes	Y		1	1.2	2	1.2	4	1	0															
3	Dead + Wind 30	Yes	Y		1	1.2	2	1.2	5	1	0															
4	Dead + Wind 60	Yes	Y		1	1.2	2	1.2	6	1	0															
5	Dead + Wind 90	Yes	Y		1	1.2	2	1.2	7	1	0															
6	Dead + Wind 120	Yes	Y		1	1.2	2	1.2	8	1	0															
7	Dead + Wind 150	Yes	Y		1	1.2	2	1.2	9	1	0															
8	Dead + Wind 180	Yes	Y		1	1.2	2	1.2	4	-1	0															
9	Dead + Wind 210	Yes	Y		1	1.2	2	1.2	5	-1	0															
10	Dead + Wind 240	Yes	Y		1	1.2	2	1.2	6	-1	0															
11	Dead + Wind 270	Yes	Y		1	1.2	2	1.2	7	-1	0															
12	Dead + Wind 300	Yes	Y		1	1.2	2	1.2	8	-1	0															
13	Dead + Wind 330	Yes	Y		1	1.2	2	1.2	9	-1	0															
14	Dead + Ice + Wi...	Yes	Y		1	1.2	2	1.2	10	1	3	1														
15	Dead + Ice + Wi...	Yes	Y		1	1.2	2	1.2	11	1	3	1														
16	Dead + Ice + Wi...	Yes	Y		1	1.2	2	1.2	12	1	3	1														
17	Dead + Ice + Wi...	Yes	Y		1	1.2	2	1.2	13	1	3	1														
18	Dead + Ice + Wi...	Yes	Y		1	1.2	2	1.2	14	1	3	1														
19	Dead + Ice + Wi...	Yes	Y		1	1.2	2	1.2	15	1	3	1														
20	Dead + Ice + Wi...	Yes	Y		1	1.2	2	1.2	10	-1	3	1														
21	Dead + Ice + Wi...	Yes	Y		1	1.2	2	1.2	11	-1	3	1														
22	Dead + Ice + Wi...	Yes	Y		1	1.2	2	1.2	12	-1	3	1														
23	Dead + Ice + Wi...	Yes	Y		1	1.2	2	1.2	13	-1	3	1														
24	Dead + Ice + Wi...	Yes	Y		1	1.2	2	1.2	14	-1	3	1														
25	Dead + Ice + Wi...	Yes	Y		1	1.2	2	1.2	15	-1	3	1														
26	Dead + LM5001 ...	Yes	Y		1	1.2	2	1.2	16	1.5	4	.053														
27	Dead + LM5001 ...	Yes	Y		1	1.2	2	1.2	16	1.5	5	.053														
28	Dead + LM5001 ...	Yes	Y		1	1.2	2	1.2	16	1.5	6	.053														
29	Dead + LM5001 ...	Yes	Y		1	1.2	2	1.2	16	1.5	7	.053														
30	Dead + LM5001 ...	Yes	Y		1	1.2	2	1.2	16	1.5	8	.053														
31	Dead + LM5001 ...	Yes	Y		1	1.2	2	1.2	16	1.5	9	.053														
32	Dead + LM5001 ...	Yes	Y		1	1.2	2	1.2	16	1.5	4	-.053														
33	Dead + LM5001 ...	Yes	Y		1	1.2	2	1.2	16	1.5	5	-.053														
34	Dead + LM5001 ...	Yes	Y		1	1.2	2	1.2	16	1.5	6	-.053														
35	Dead + LM5001 ...	Yes	Y		1	1.2	2	1.2	16	1.5	7	-.053														
36	Dead + LM5001 ...	Yes	Y		1	1.2	2	1.2	16	1.5	8	-.053														
37	Dead + LM5001 ...	Yes	Y		1	1.2	2	1.2	16	1.5	9	-.053														
38	Dead + LM5002 ...	Yes	Y		1	1.2	2	1.2	17	1.5	4	.053														
39	Dead + LM5002 ...	Yes	Y		1	1.2	2	1.2	17	1.5	5	.053														
40	Dead + LM5002 ...	Yes	Y		1	1.2	2	1.2	17	1.5	6	.053														
41	Dead + LM5002 ...	Yes	Y		1	1.2	2	1.2	17	1.5	7	.053														
42	Dead + LM5002 ...	Yes	Y		1	1.2	2	1.2	17	1.5	8	.053														
43	Dead + LM5002 ...	Yes	Y		1	1.2	2	1.2	17	1.5	9	.053														
44	Dead + LM5002 ...	Yes	Y		1	1.2	2	1.2	17	1.5	4	-.053														
45	Dead + LM5002 ...	Yes	Y		1	1.2	2	1.2	17	1.5	5	-.053														
46	Dead + LM5002 ...	Yes	Y		1	1.2	2	1.2	17	1.5	6	-.053														
47	Dead + LM5002 ...	Yes	Y		1	1.2	2	1.2	17	1.5	7	-.053														
48	Dead + LM5002 ...	Yes	Y		1	1.2	2	1.2	17	1.5	8	-.053														
49	Dead + LM5002 ...	Yes	Y		1	1.2	2	1.2	17	1.5	9	-.053														
50	Dead + LM5003 ...	Yes	Y		1	1.2	2	1.2	18	1.5	4	.053														

Load Combinations (Continued)

	Description	Solve	PDelta	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
51	Dead + LM5003 ...	Yes	Y		1	1.2	2	1.2	18	1.5	5	.053												
52	Dead + LM5003 ...	Yes	Y		1	1.2	2	1.2	18	1.5	6	.053												
53	Dead + LM5003 ...	Yes	Y		1	1.2	2	1.2	18	1.5	7	.053												
54	Dead + LM5003 ...	Yes	Y		1	1.2	2	1.2	18	1.5	8	.053												
55	Dead + LM5003 ...	Yes	Y		1	1.2	2	1.2	18	1.5	9	.053												
56	Dead + LM5003 ...	Yes	Y		1	1.2	2	1.2	18	1.5	4	-.053												
57	Dead + LM5003 ...	Yes	Y		1	1.2	2	1.2	18	1.5	5	-.053												
58	Dead + LM5003 ...	Yes	Y		1	1.2	2	1.2	18	1.5	6	-.053												
59	Dead + LM5003 ...	Yes	Y		1	1.2	2	1.2	18	1.5	7	-.053												
60	Dead + LM5003 ...	Yes	Y		1	1.2	2	1.2	18	1.5	8	-.053												
61	Dead + LM5003 ...	Yes	Y		1	1.2	2	1.2	18	1.5	9	-.053												
62	Dead + LM5004 ...	Yes	Y		1	1.2	2	1.2	19	1.5	4	.053												
63	Dead + LM5004 ...	Yes	Y		1	1.2	2	1.2	19	1.5	5	.053												
64	Dead + LM5004 ...	Yes	Y		1	1.2	2	1.2	19	1.5	6	.053												
65	Dead + LM5004 ...	Yes	Y		1	1.2	2	1.2	19	1.5	7	.053												
66	Dead + LM5004 ...	Yes	Y		1	1.2	2	1.2	19	1.5	8	.053												
67	Dead + LM5004 ...	Yes	Y		1	1.2	2	1.2	19	1.5	9	.053												
68	Dead + LM5004 ...	Yes	Y		1	1.2	2	1.2	19	1.5	4	-.053												
69	Dead + LM5004 ...	Yes	Y		1	1.2	2	1.2	19	1.5	5	-.053												
70	Dead + LM5004 ...	Yes	Y		1	1.2	2	1.2	19	1.5	6	-.053												
71	Dead + LM5004 ...	Yes	Y		1	1.2	2	1.2	19	1.5	7	-.053												
72	Dead + LM5004 ...	Yes	Y		1	1.2	2	1.2	19	1.5	8	-.053												
73	Dead + LM5004 ...	Yes	Y		1	1.2	2	1.2	19	1.5	9	-.053												
74	Dead + LV2505	Yes	Y		1	1.2	2	1.2	20	1.5	0													
75	Dead + LV2506	Yes	Y		1	1.2	2	1.2	21	1.5	0													
76	Service 60mph ...	Yes	Y		1	1	2	1	4	.213	0													
77	(1.2 + 0.2SDS)D...	Yes	Y		1	1.2...	2	1.2...	22	1	23													
78	(1.2 + 0.2SDS)D...	Yes	Y		1	1.2...	2	1.2...	22	.866	23	.5												
79	(1.2 + 0.2SDS)D...	Yes	Y		1	1.2...	2	1.2...	22	.5	23	.866												
80	(1.2 + 0.2SDS)D...	Yes	Y		1	1.2...	2	1.2...	22		23	1												
81	(1.2 + 0.2SDS)D...	Yes	Y		1	1.2...	2	1.2...	22	-.5	23	.866												
82	(1.2 + 0.2SDS)D...	Yes	Y		1	1.2...	2	1.2...	22	-.866	23	.5												
83	(1.2 + 0.2SDS)D...	Yes	Y		1	1.2...	2	1.2...	22	-1	23													
84	(1.2 + 0.2SDS)D...	Yes	Y		1	1.2...	2	1.2...	22	-.866	23	-.5												
85	(1.2 + 0.2SDS)D...	Yes	Y		1	1.2...	2	1.2...	22	-.5	23	-.866												
86	(1.2 + 0.2SDS)D...	Yes	Y		1	1.2...	2	1.2...	22		23	-1												
87	(1.2 + 0.2SDS)D...	Yes	Y		1	1.2...	2	1.2...	22	.5	23	-.866												
88	(1.2 + 0.2SDS)D...	Yes	Y		1	1.2...	2	1.2...	22	.866	23	-.5												

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-in]	LC	MY [k-in]	LC	MZ [k-in]	LC
1	N8	max	2009.612	13	2985.148	18	2393.293	12	-11.007	12	15.511	3	38.403	18
2		min	-1968.584	7	782.061	12	-2340.267	6	-62.823	18	-15.758	9	3.565	13
3	N9	max	1897.361	3	3082.023	22	2466.755	10	65.079	22	16.716	7	37.326	22
4		min	-1866.387	9	760.717	4	-2529.693	4	10.305	4	-16.908	13	6.251	4
5	N10	max	3532.749	2	2999.85	14	932.546	11	3.08	13	12.137	11	-8.281	8
6		min	-3598.824	8	682.032	8	-922.225	5	-2.564	7	-12.253	5	-74.119	14
7	Totals:	max	7393.959	2	8544.897	25	5188.959	11						
8		min	-7393.969	8	3711.647	76	-5188.964	5						

Envelope AISC 15th(360-16): LRFD Steel Code Checks

	Member	Shape	Code Check	Loc[in]	LC	Shear ...	Loc[in]	Dir	LC	phi*Pnc [...	phi*Pnt [lb]	phi*Mn y...	phi*Mn z...	Cb	Eqn
1	M88	PIPE_2.0	.502	54	2	.088	54		7	14916.096	32130	22.459	22.459	1...	H1-1b
2	M85	PIPE_2.0	.445	54	7	.096	54		8	14916.096	32130	22.459	22.459	1...	H1-1b
3	M64	PIPE_2.0	.441	54	8	.091	54		9	14916.096	32130	22.459	22.459	2...	H1-1b
4	M76	PIPE_2.0	.439	54	2	.097	54		13	14916.096	32130	22.459	22.459	1...	H1-1b

Envelope AISC 15th(360-16): LRFD Steel Code Checks (Continued)

	Member	Shape	Code Check	Loc[in]	LC	Shear ...	Loc[in]	Dir	LC	phi*Pnc [..	phi*Pnt [lb]	phi*Mn y...	phi*Mn z...	Cb	Eqn
5	M79	PIPE_2.0	.431	54	7	.137	54		5	14916.096	32130	22.459	22.459	1....	H1-1b
6	M67	PIPE_2.0	.420	54	2	.193	54		13	14916.096	32130	22.459	22.459	1....	H1-1b
7	M10	PIPE_2.0	.400	54	9	.191	54		8	14916.096	32130	22.459	22.459	2....	H1-1b
8	M73	PIPE_2.0	.368	54	2	.084	54		13	14916.096	32130	22.459	22.459	1....	H1-1b
9	M82	PIPE_2.0	.362	54	2	.161	54		3	14916.096	32130	22.459	22.459	1....	H1-1b
10	M33	FB6x0.37	.357	2	13	.450	0	y	18	70612.488	71928	6.653	107.892	1....	H1-1b
11	M45	FB6x0.37	.353	2	9	.430	0	y	14	70612.488	71928	6.653	107.892	1....	H1-1b
12	M5	HSS4X4X5	.327	63	22	.087	63	y	45	150581.3...	169740	231.426	231.426	3....	H1-1b
13	M25	L2.5x2.5x3	.326	0	7	.123	0	z	3	27702.87	29192.4	10.471	23.662	1....	H2-1
14	M6	HSS4X4X5	.325	63	14	.074	63	y	25	150581.3...	169740	231.426	231.426	3....	H1-1b
15	M4	HSS4X4X5	.321	63	19	.093	63	y	55	150581.3...	169740	231.426	231.426	3....	H1-1b
16	M8	FB6x0.37	.320	2.479	8	.125	2.479	y	24	64213.019	71928	6.653	107.892	1....	H1-1b
17	M70	PIPE_2.0	.308	54	9	.173	18		12	14916.096	32130	22.459	22.459	1....	H1-1b
18	M58	PIPE_2.0	.300	54	6	.206	18		8	14916.096	32130	22.459	22.459	1....	H1-1b
19	M36	FB6x0.37	.293	2	7	.467	0	y	14	70612.488	71928	6.653	107.892	1....	H1-1b
20	M61	PIPE_2.0	.292	54	12	.099	54		13	14916.096	32130	22.459	22.459	2....	H1-1b
21	M30	FB6x0.37	.290	2	3	.475	0	y	22	70612.488	71928	6.653	107.892	1....	H1-1b
22	M26	L2.5x2.5x3	.289	12	13	.095	0	z	11	27702.87	29192.4	10.471	23.662	1....	H2-1
23	M7	FB6x0.37	.286	2.479	3	.129	2.479	y	33	64213.019	71928	6.653	107.892	1....	H1-1b
24	M21	PIPE_2.0	.279	75	8	.214	6.25		7	6295.422	32130	22.459	22.459	1....	H1-1b
25	M27	L2.5x2.5x3	.278	12	11	.136	12	y	7	27702.87	29192.4	10.471	23.662	1....	H2-1
26	M39	FB6x0.37	.270	2	4	.461	0	y	22	70612.488	71928	6.653	107.892	1....	H1-1b
27	M23	PIPE_2.0	.262	96.875	8	.198	137.5		8	6295.422	32130	22.459	22.459	1....	H1-1b
28	M96	PIPE_2.0	.258	42	8	.052	42		3	26521.424	32130	22.459	22.459	1....	H1-1b
29	M22	PIPE_2.0	.257	137.5	7	.167	143.75		12	6295.422	32130	22.459	22.459	3....	H1-1b
30	M38	FB6x0.37	.256	0	8	.274	0	y	19	69002.007	71928	6.653	107.892	1....	H1-1b
31	M29	FB6x0.37	.254	0	13	.308	0	y	25	69002.007	71928	6.653	107.892	1....	H1-1b
32	M9	FB6x0.37	.239	2.479	7	.134	2.479	y	62	64213.019	71928	6.653	107.892	1....	H1-1b
33	M91	PIPE_2.0	.234	42	2	.052	42		13	26521.424	32130	22.459	22.459	1....	H1-1b
34	M41	FB6x0.37	.227	0	8	.288	0	y	19	69002.007	71928	6.653	107.892	1....	H1-1b
35	M42	FB6x0.37	.217	2	12	.443	0	y	18	70612.488	71928	6.653	107.892	2....	H1-1b
36	M52	FB6x0.37	.203	3	9	.125	0	y	13	69001.881	71928	6.653	107.892	1....	H1-1b
37	M13	L2x2x3	.201	26.006	8	.009	52.013	y	15	9123.422	23392.8	6.693	12.773	1....	H2-1
38	M44	FB6x0.37	.200	0	13	.248	0	y	24	69002.007	71928	6.653	107.892	1....	H1-1b
39	M56	FB6x0.37	.200	3	13	.102	0	y	4	69001.881	71928	6.653	107.892	1....	H1-1b
40	M18	L2x2x3	.193	26.548	2	.008	52.013	y	24	9123.425	23392.8	6.693	12.79	1....	H2-1
41	M35	FB6x0.37	.192	0	4	.295	0	y	16	69002.007	71928	6.653	107.892	1....	H1-1b
42	M95	PIPE_2.0	.189	101.25	8	.009	101.25		8	12143.947	32130	22.459	22.459	2....	H1-1b
43	M100	PIPE_2.0	.189	101.25	12	.009	101.25		12	12143.947	32130	22.459	22.459	2....	H1-1b
44	M50	FB6x0.37	.186	3	2	.119	3	y	7	69001.881	71928	6.653	107.892	1....	H1-1b
45	M32	FB6x0.37	.180	0	9	.267	0	y	14	69002.007	71928	6.653	107.892	1....	H1-1b
46	M17	L2x2x3	.174	26.006	8	.010	52.013	z	24	9123.422	23392.8	6.693	12.773	1....	H2-1
47	M54	FB6x0.37	.173	3	7	.109	3	y	9	69001.881	71928	6.653	107.892	1....	H1-1b
48	M19	L2x2x3	.167	26.548	2	.010	52.013	z	17	9123.425	23392.8	6.693	12.789	1....	H2-1
49	M15	HSS4X4X5	.166	26.754	21	.061	26.754	y	22	155691.5...	169740	231.426	231.426	1....	H1-1b
50	M20	HSS4X4X5	.163	26.754	14	.060	26.754	y	14	155691.5...	169740	231.426	231.426	1....	H1-1b
51	M16	L2x2x3	.163	26.006	12	.009	52.013	y	20	9123.425	23392.8	6.693	12.773	1....	H2-1
52	M46	FB6x0.37	.157	3	10	.132	3	y	2	69001.881	71928	6.653	107.892	1....	H1-1b
53	M12	HSS4X4X5	.157	26.754	19	.059	26.754	y	18	155691.5...	169740	231.426	231.426	1....	H1-1b
54	M2	PIPE_3.0	.148	100	2	.105	100		3	28250.554	65205	68.985	68.985	2....	H1-1b
55	M48	FB6x0.37	.147	3	5	.177	0	y	68	69001.881	71928	6.653	107.892	1....	H1-1b
56	M14	L2x2x3	.146	26.006	4	.010	52.013	z	21	9123.425	23392.8	6.693	12.773	1....	H2-1
57	M1	PIPE_3.0	.142	50	25	.114	50		12	28250.554	65205	68.985	68.985	2....	H1-1b
58	M3	PIPE_3.0	.136	50	21	.140	50		8	28250.554	65205	68.985	68.985	1....	H1-1b

HUDSON
Design Group LLC

Connection Check

SITE DETAILS

Site Name/Code	CT2015 - Branford
Date	03/22/2022
Engineer	SS

CONNECTION PARAMETERS

Number of bolts		4	
b - width of member		4	*in*
d - height of member		4	*in*
B - horizontal bolt spacing		6	*in*
D - vertical bolt spacing		6	*in*
Bolt Diameter	d	5/8	*in*
Section Shape		HSS	
Weld Thickness		3/16	*in*
Tensile Area	A_b	0.31	in^2
Tensile Area	A_n	0.23	in^2
Grade		A325	
Bolt Ultimate Strength	F_{ub}	120	*ksi*
Connection length reduction factor	Rb	1	

Connection Sketch/Photo

FLANGE LOADS

Loadcase #		**22**	
Bending Moment	Mzz	**75.02**	*kips-in*
Bending Moment	Myy	**0.33**	*kips-in*
Torsional Moment	Mxx	**0.21**	*kips-in*
Shear Force	Vy	**3.08**	*kips*
Shear Force	Vz	**0.01**	*kips*
Axial Force	Px	**0.55**	*kips*

BOLT CHECK

Bolt Tension Capacity

$\phi R_{nt} = 0.75 * F_{ub} * A_n$

ϕR_{nt}= **20.3** *kips*

Bolt Shear Capacity

$\phi R_{nv} = 0.75 * 0.625 * 0.8 * Fub * Ab * Rb$

ϕR_{nv}= **13.8** *kips*

Maximum Bolt Tension

$T_{ub} = F_{Mxx} + F_{Mzz} + T_y/4$

T_{ub}= **6.42** *kips*

Maximum Bolt Shear

$V_{ub} = \text{sqrt}\left((V_x/4)^2 + (V_y/4)^2\right) + F_{Myy}$

V_{ub}= **0.78** *kips*

Tension Ratio:	**31.5%**	**%**	**Shear Ratio:**	**5.7%**	**%**
	PASS			PASS	
$(T_{ub} / \phi R_{nt})^2 + (V_{ub} / \phi R_{nv})^2 < 1.0$	**OK**		Ratio	**10.3%**	PASS

WELD CHECK

Filler Metal F_{EXX}	**70**	ksi	Are stiffners present? **No**
Weld Thk.	**0.1875**	in	
Base metal F_u	**58**	ksi	
Type of section	**HSS**		
Length of Section [b]	**4.0**	in	
Length of Section [d]	**4.0**	in	
I_{total}	**16.00**	in	
I_p	**85.33**	in^3	
S_z	**21.33**	in^2	
S_y	**21.33**	in^2	
R_{ux}	3.57	kips/in	
R_{uy}	0.20	kips/in	
R_{uz}	0.01	kips/in	
R_u	3.57	kips/in	
Allowable Weld Stress	**4.18**	kips/in	**85.5%** PASS

Connection Sketch

EXHIBIT 5

Radio Frequency Exposure Analysis Report

April 7, 2022

Centerline on behalf of AT&T
Centerline Communications Project Number: 566711

AT&T Site Name: BRANFORD
Site Number: CT2015
FA#: 10034973
USID: 61159

Site Address: 405 BRUSHY PLAIN ROAD, BRANFORD, CT 06405

Site Compliance Summary

AT&T Compliance Status:	Compliant
Cumulative Calculated Power Density (Ground Level):	1.34918 µW/cm^2
Cumulative General Population % MPE (Ground Level):	0.17982999999999999%

April 7, 2022

Centerline
Attn: Jennifer Iliades, Project Manager
750 W Center St, Suite 301
West Bridgewater, MA 02379

RF Exposure Analysis for Site: **BRANFORD**

Centerline Communications, LLC ("Centerline") was contracted to analyze the proposed AT&T facility at **405 BRUSHY PLAIN ROAD, BRANFORD, CT 06405** for the purpose of determining whether the predictive exposure from the proposed facility is within specified federal limits.

All information used in this report was analyzed as a percentage of the Maximum Permissible Exposure (% MPE) limits as detailed in 47 CFR § 1.1310 as well as Federal Communications Commission (FCC) OET Bulletin 65 Edition 97-01. The FCC MPE limits are typically expressed in units of milliwatts per square centimeter (mW/cm^2) or microwatts per square centimeter ($\mu W/cm^2$). The exposure limits vary depending upon the frequencies being utilized. The General Population/Uncontrolled MPE limit (in mW/cm^2) for frequencies between 300 and 1500 is defined as frequency (in MHz) divided by 1500 ($f_{MHz}/1500$). Frequencies between 1500 and 100,000 MHz have a General Population/Uncontrolled MPE limit of 1 mW/cm^2 (1000 $\mu W/cm^2$). The calculated power density at each sample point divided by the limit at each calculated frequency provides a result in % MPE. Summing the calculated % MPE from all contributors provides a cumulative % MPE at a particular sample point. Wireless carriers use different frequency bands with varying MPE limits; therefore, it is useful to report results in terms of % MPE as opposed to power density.

All results were compared to the FCC radio frequency exposure rules as detailed in 47 CFR § 1.1307(b) to determine compliance with the 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.

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, 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.

Calculation Methodology

Centerline Communications, LLC has performed theoretical modeling of the site using a software tool, RoofMaster®, which incorporates calculation methodologies detailed in FCC OET 65. RoofMaster® uses a cylindrical model for conservative power density predictions within the near field of the antenna where the antenna pattern has not truly formed yet. Within this area power density values tend to decrease based upon an inverse distance function. At the point where it is appropriate for modeling to change from near-field calculations to far-field calculations, the power decreases inversely with the square of the distance. The modeling is based on worst-case assumptions in terms of transmitter power and duty cycle. No losses were included in the power calculations unless they were specifically provided for the project.

In OET 65, a far field model is presented to calculate the spatial peak power density. The RoofMaster® implementation of this model incorporates antenna manufacturer's horizontal and vertical pattern data to determine the power density in all directions. This model yields the power density at a single point in space. In order to determine the spatial power density for comparison to the FCC limits, the average of several points calculated within the human profile (0-6') must be conducted. RoofMaster® calculates seven power density values between 0-6' above the specified study plane and performs a linear spatial average.

Data & Results

The following table details the antennas and operating parameters for the AT&T antenna system as well as any other antenna systems at the site. This is based on antenna information provided by the client and data compiled from other sources where necessary. The data below was input into Roofmaster® to perform the theoretical exposure calculations at the Ground Level.

The theoretical calculations performed in Roofmaster® determine the cumulative exposure at all sample points at ground level (0-6' spatial average). The results from highest cumulative sample point at ground level surrounding the site are displayed in the table below. The contribution from directional antennas to the maximum cumulative totals varies greatly depending on location; therefore, the contribution from one antenna sector at the highest calculated exposure point may be greater or less than other sectors since sectorized directional antennas are pointed in different directions and there is not much overlapping exposure.

The contribution to the cumulative power density and % MPE for each antenna/frequency band is listed in the table. The cumulative power density and cumulative % MPE are displayed at the bottom of the table.

Maximum Calculated Cumulative Power Density (Location: approximately 8' North of site)

Antenna ID	Make / Model	Frequency Band (MHz)	Antenna Gain (dBd)	Antenna Centerline (ft)	Channel Count	TX Power/ Channel (watts)	ERP (watts)	Calculated Power Density (μW/cm²)	General Population MPE Limit (μW/cm²)	General Population % MPE
AT&T A 1	KATHREIN 80010965	700	12.15	153.00	4.00	40.00	2624.94	0.05044	466.67	0.01081
AT&T A 1	KATHREIN 80010965	2300	15.75	153.00	2.00	40.00	3006.70	0.02647	1000.00	0.00265
AT&T A 2	ERICSSON SON_AIR6449	3700	23.55	155.50	1.00	108.40	24548.74	0.59214	1000.00	0.05921
AT&T A 3	ERICSSON SON_AIR6419	3450	22.85	150.50	1.00	0.00	0.00	0.00811	1000.00	0.00081
AT&T A 4	CCI DMP65R-BU6E	700	11.75	153.00	4.00	40.00	2393.98	0.05424	466.67	0.01162
AT&T A 4	CCI DMP65R-BU6E	850	11.95	153.00	4.00	40.00	2506.80	0.06233	566.67	0.01100
AT&T A 4	CCI DMP65R-BU6E	1900	15.45	153.00	4.00	40.00	5612.03	0.05983	1000.00	0.00598
AT&T A 4	CCI DMP65R-BU6E	2100	15.95	153.00	4.00	40.00	6296.80	0.05781	1000.00	0.00578
AT&T B 5	KATHREIN 80010965	700	12.15	153.00	4.00	40.00	2624.94	0.00004	466.67	0.00001
AT&T B 5	KATHREIN 80010965	2300	15.75	153.00	2.00	40.00	3006.70	0.00009	1000.00	0.00001
AT&T B 6	ERICSSON SON_AIR6449	3700	23.55	155.50	1.00	108.40	24548.74	0.00192	1000.00	0.00019
AT&T B 7	ERICSSON SON_AIR6419	3450	22.85	150.50	1.00	0.00	0.00	0.00006	1000.00	0.00001
AT&T B 8	CCI DMP65R-BU6E	700	11.75	153.00	4.00	40.00	2393.98	0.00003	466.67	0.00001
AT&T B 8	CCI DMP65R-BU6E	850	11.95	153.00	4.00	40.00	2506.80	0.00010	566.67	0.00002
AT&T B 8	CCI DMP65R-BU6E	1900	15.45	153.00	4.00	40.00	5612.03	0.00001	1000.00	0.00000
AT&T B 8	CCI DMP65R-BU6E	2100	15.95	153.00	4.00	40.00	6296.80	0.00004	1000.00	0.00000
AT&T C 9	KATHREIN 80010965	700	12.15	153.00	4.00	40.00	2624.94	0.00101	466.67	0.00022
AT&T C 9	KATHREIN 80010965	2300	15.75	153.00	2.00	40.00	3006.70	0.00016	1000.00	0.00002
AT&T C 10	ERICSSON SON_AIR6449	3700	23.55	155.50	1.00	108.40	24548.74	0.02806	1000.00	0.00281
AT&T C 11	ERICSSON SON_AIR6419	3450	22.85	150.50	1.00	0.00	0.00	0.00059	1000.00	0.00006
AT&T C 12	CCI DMP65R-BU6E	700	11.75	153.00	4.00	40.00	2393.98	0.00034	466.67	0.00007
AT&T C 12	CCI DMP65R-BU6E	850	11.95	153.00	4.00	40.00	2506.80	0.00008	566.67	0.00001
AT&T C 12	CCI DMP65R-BU6E	1900	15.45	153.00	4.00	40.00	5612.03	0.00014	1000.00	0.00001
AT&T C 12	CCI DMP65R-BU6E	2100	15.95	153.00	4.00	40.00	6296.80	0.00019	1000.00	0.00002
T-Mobile A 13	GENERIC PANEL 6FT	1900	15.84	140.00	2.00	60.00	4604.49	0.06319	1000.00	0.00632
T-Mobile A 14	GENERIC PANEL 6FT	600	12.33	140.00	2.00	60.00	2052.02	0.06150	400.00	0.01537
T-Mobile A 14	GENERIC PANEL 6FT	700	12.33	140.00	2.00	60.00	2052.02	0.06150	466.67	0.01318
T-Mobile A 15	GENERIC PANEL 6FT	2100	16.39	140.00	2.00	60.00	5226.14	0.06620	1000.00	0.00662
T-Mobile B 16	GENERIC PANEL 6FT	1900	15.84	140.00	2.00	60.00	4604.49	0.00002	1000.00	0.00000
T-Mobile B 17	GENERIC PANEL 6FT	600	12.33	140.00	2.00	60.00	2052.02	0.00015	400.00	0.00004
T-Mobile B 17	GENERIC PANEL 6FT	700	12.33	140.00	2.00	60.00	2052.02	0.00015	466.67	0.00003
T-Mobile B 18	GENERIC PANEL 6FT	2100	16.39	140.00	2.00	60.00	5226.14	0.00002	1000.00	0.00000
T-Mobile C 19	GENERIC PANEL 6FT	1900	15.84	140.00	2.00	60.00	4604.49	0.00041	1000.00	0.00004
T-Mobile C 20	GENERIC PANEL 6FT	600	12.33	140.00	2.00	60.00	2052.02	0.00100	400.00	0.00025
T-Mobile C 20	GENERIC PANEL 6FT	700	12.33	140.00	2.00	60.00	2052.02	0.00100	466.67	0.00021

Antenna ID	Make / Model	Frequency Band (MHz)	Antenna Gain (dBd)	Antenna Centerline (ft)	Channel Count	TX Power/ Channel (watts)	ERP (watts)	Calculated Power Density (µW/cm²)	General Population MPE Limit (µW/cm²)	General Population % MPE
T-Mobile C 21	GENERIC PANEL 6FT	2100	16.39	140.00	2.00	60.00	5226.14	0.00007	1000.00	0.00001
Unknown A 22	GENERIC PANEL 6FT	850	12.62	130.00	1.00	60.00	1096.86	0.03703	566.67	0.00653
Unknown A 23	GENERIC PANEL 6FT	850	12.62	130.00	1.00	60.00	1096.86	0.03703	566.67	0.00653
Unknown A 24	GENERIC PANEL 6FT	850	12.62	130.00	1.00	60.00	1096.86	0.03703	566.67	0.00653
Unknown A 25	GENERIC PANEL 6FT	850	12.62	130.00	1.00	60.00	1096.86	0.03703	566.67	0.00653
Unknown B 26	GENERIC PANEL 6FT	850	12.62	130.00	1.00	60.00	1096.86	0.00001	566.67	0.00000
Unknown B 27	GENERIC PANEL 6FT	850	12.62	130.00	1.00	60.00	1096.86	0.00001	566.67	0.00000
Unknown B 28	GENERIC PANEL 6FT	850	12.62	130.00	1.00	60.00	1096.86	0.00001	566.67	0.00000
Unknown B 29	GENERIC PANEL 6FT	850	12.62	130.00	1.00	60.00	1096.86	0.00001	566.67	0.00000
Unknown C 30	GENERIC PANEL 6FT	850	12.62	130.00	1.00	60.00	1096.86	0.00041	566.67	0.00007
Unknown C 31	GENERIC PANEL 6FT	850	12.62	130.00	1.00	60.00	1096.86	0.00041	566.67	0.00007
Unknown C 32	GENERIC PANEL 6FT	850	12.62	130.00	1.00	60.00	1096.86	0.00041	566.67	0.00007
Unknown C 33	GENERIC PANEL 6FT	850	12.62	130.00	1.00	60.00	1096.86	0.00041	566.67	0.00007
							Cumulative Power Density:	**1.34918 µW/cm²**	**Cumulative % MPE:**	**0.17983%**

Summary

The theoretical calculations performed for this analysis yielded cumulative power density totals in all areas at Ground Level that are within the allowable federal limits for public exposure to RF energy. Therefore, the site is **Compliant** with FCC rules and regulations.

Matt Schulzinger
RF EME Technical Writer
Centerline Communications, LLC

Matthew Schulzinger

EXHIBIT 6

Proof of Delivery

Dear Customer,

This notice serves as proof of delivery for the shipment listed below.

Tracking Number

1Z9Y45030337388518

Weight

1.00 LBS

Service

UPS Ground

Shipped / Billed On

04/19/2022

Delivered On

05/25/2022 11:39 A.M.

Delivered To

10 PRESIDENTIAL WAY
WOBURN, MA, 01801, US

Received By

LONG

Left At

Front Desk

Reference Number(s)

CT2015-CSC AMERICAN TOWER

Thank you for giving us this opportunity to serve you. Details are only available for shipments delivered within the last 120 days. Please print for your records if you require this information after 120 days.

Sincerely,

UPS

Tracking results provided by UPS: 05/26/2022 1:17 P.M. EST

Proof of Delivery

Dear Customer,

This notice serves as proof of delivery for the shipment listed below.

Tracking Number

1Z9Y45030327498687

Weight

1.00 LBS

Service

UPS Ground

Shipped / Billed On

04/19/2022

Delivered On

05/25/2022 10:47 A.M.

Delivered To

selectman's office
1019 MAIN ST
BRANFORD, CT, 06405, US

Received By

COSGROVE

Left At

Reception

Reference Number(s)

CT2015-CSC FIRST SELECTMAN

Thank you for giving us this opportunity to serve you. Details are only available for shipments delivered within the last 120 days. Please print for your records if you require this information after 120 days.

Sincerely,

UPS

Tracking results provided by UPS: 05/26/2022 1:19 P.M. EST

Proof of Delivery

Dear Customer,

This notice serves as proof of delivery for the shipment listed below.

Tracking Number

1Z9Y45030335802297

Weight

1.00 LBS

Service

UPS Ground

Shipped / Billed On

04/19/2022

Delivered On

05/25/2022 10:46 A.M.

Delivered To

planning and zoning
1019 MAIN ST
BRANFORD, CT, 06405, US

Received By

TRISTA

Left At

Reception

Reference Number(s)

CT2015-CSC TOWN PLANNER

Thank you for giving us this opportunity to serve you. Details are only available for shipments delivered within the last 120 days. Please print for your records if you require this information after 120 days.

Sincerely,

UPS

Tracking results provided by UPS: 05/26/2022 1:20 P.M. EST

Proof of Delivery

Dear Customer,

This notice serves as proof of delivery for the shipment listed below.

Tracking Number

1Z9Y45030338798903

Weight

1.00 LBS

Service

UPS Ground

Shipped / Billed On

04/19/2022

Delivered On

05/25/2022 10:46 A.M.

Delivered To

planning and zoning
1019 MAIN ST
BRANFORD, CT, 06405, US

Received By

TRISTA

Left At

Reception

Reference Number(s)

CT2015- CSC ZEO

Thank you for giving us this opportunity to serve you. Details are only available for shipments delivered within the last 120 days. Please print for your records if you require this information after 120 days.

Sincerely,

UPS

Tracking results provided by UPS: 05/26/2022 1:21 P.M. EST