August 5, 2019

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

RE: Notice of Exempt Modification
405 Brushy Plain Road, Branford, CT 06405
Latitude: 41° 19' 0.45" N
Longitude: 72° 49' 10.89" W
T-Mobile Site#: CTNH102C – L600

Dear Ms. Bachman:

T-Mobile currently maintains nine (9) antennas at the 140-foot level of the existing 150-foot monopole tower at 405 Brushy Plain Road, Branford, CT. The 150-foot monopole tower is owned by American Tower Corporation. The property is owned by Edward and Kristin Jaconette. T-Mobile now intends to replace three (3) of its existing antennas with three (3) new 600/700 MHz antenna. The new antennas would be installed at the same 140-foot level of the tower.

Planned Modifications:
Tower:

Remove
(6) 1-5/8" coax

Remove and Replace:
(3) Andrew – LNX-6515DS-A1M (existing) – Add (3) APXAARR24_43-U-NA20
(3) RRUS11 B12 (existing) – Add (3) Ericsson Radio 4449 B12 B71

Install New:
(3) 1-5/8" hybrid

Existing to Remain:
(3) AIR B4A B2P
(3) AIR B2A B4P
(3) KRY 112 144/1
(6) 1-5/8" coax
(1) 1-1/4" hybrid

Ground:
Install New: Equipment inside existing 6131 cabinet

This facility was originally by the Council in Docket No. 44 dated July 24, 1984. This modification complies with the approval.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies§ 16- SOj-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.SA. § 16-SOj-73, a copy of this letter is being sent to First Selectman -James B. Cosgrove, Elected Official, for the Town of Branford, Harry Smith, Town Planner for Town of Branford, and the property and tower owner.

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

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

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

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

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

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

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

For the foregoing reasons, T-Mobile 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,

Austin Cofrancesco
Transcend Wireless
Cell: 203-909-1781
Email: acofrancesco@transcendwireless.com

Attachments
cc: James B. Cosgrove- Branford First Selectman
David Anderson- Branford Town Planner
American Tower Corporation- Owner
Edward and Kristin Jaconette- Property Owner

405 BRUSHY PLAIN RD

Location	405 BRUSHY PLAIN RD	**Mblu**	D02/000 003/ 00001/ /
Acct#	004475	**Owner**	JACONETTE EDWARD F JR &
Assessment	$374,700	**Appraisal**	$535,300
PID	695	**Building Count**	3

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2014	$173,100	$362,200	$535,300
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2014	$121,200	$253,500	$374,700

Owner of Record

Owner	JACONETTE EDWARD F JR &
Co-Owner	JACONETTE KRISTIN L (SUR)
Address	405 BRUSHY PLAIN RD BRANFORD, CT 06405

Sale Price	$0
Certificate	
Book & Page	0788/1038
Sale Date	11/18/2002
Instrument	25

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
JACONETTE EDWARD F JR &	$0		0788/1038	25	11/18/2002
ADAMS MARSHA	$0		442/ 252		12/22/1987
ADAMS MARSHA	$0				12/22/1987

Building Information

Building 1 : Section 1

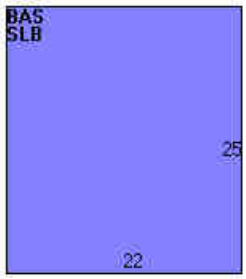
Year Built:	1992
Living Area:	550
Replacement Cost:	$25,339
Building Percent Good:	83
Replacement Cost Less Depreciation:	$21,000

Building Attributes	
Field	**Description**
STYLE	Warehouse
MODEL	Ind/Comm
Grade	C
Stories:	1
Occupancy	1
Exterior Wall 1	Precast Panel
Exterior Wall 2	
Roof Structure	Shed
Roof Cover	T&G/Rubber
Interior Wall 1	Minim/Masonry
Interior Wall 2	
Interior Floor 1	Concr-Finished
Interior Floor 2	
Heating Fuel	Electric
Heating Type	Hot Air-no Duc
AC Type	Heat Pump
Bldg Use	TEL REL TW MDL96
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	0431
Heat/AC	HEAT/AC PKGS
Frame Type	MASONRY
Baths/Plumbing	NONE
Ceiling/Wall	CEILING ONLY
Rooms/Prtns	AVERAGE
Wall Height	9
% Comn Wall	

Building Photo

(http://images.vgsi.com/photos/BranfordCTPhotos//\00\01\45/8

Building Layout



(http://images.vgsi.com/photos/BranfordCTPhotos//Sketches/69

Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	550	550
SLB	Slab	550	0
		1,100	550

Building 2 : Section 1

Year Built: 2001
Living Area: 432
Replacement Cost: $19,902
Building Percent Good: 87
Replacement Cost Less Depreciation: $17,300

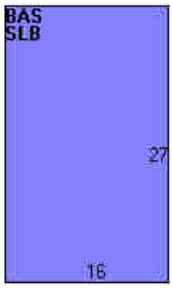
Building Attributes : Bldg 2 of 3	
Field	**Description**
STYLE	Warehouse
MODEL	Ind/Comm

Grade	C
Stories:	1
Occupancy	1
Exterior Wall 1	Precast Panel
Exterior Wall 2	
Roof Structure	Shed
Roof Cover	T&G/Rubber
Interior Wall 1	Minim/Masonry
Interior Wall 2	
Interior Floor 1	Concr-Finished
Interior Floor 2	
Heating Fuel	Electric
Heating Type	Hot Air-no Duc
AC Type	Heat Pump
Bldg Use	TEL REL TW MDL96
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	0431
Heat/AC	HEAT/AC PKGS
Frame Type	MASONRY
Baths/Plumbing	NONE
Ceiling/Wall	CEILING ONLY
Rooms/Prtns	AVERAGE
Wall Height	9
% Comn Wall	

Building Photo

(http://images.vgsi.com/photos/BranfordCTPhotos//\00\01\45/85

Building Layout



(http://images.vgsi.com/photos/BranfordCTPhotos//Sketches/695

Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	432	432
SLB	Slab	432	0
		864	432

Building 3 : Section 1

Year Built: 1975
Living Area: 1,742
Replacement Cost: $195,337
Building Percent Good: 66
Replacement Cost Less Depreciation: $128,900

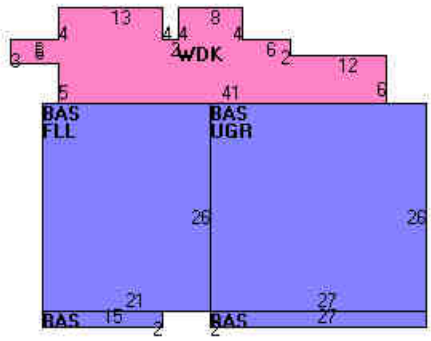
Building Attributes : Bldg 3 of 3	
Field	**Description**
Style	Raised Ranch
Model	Residential

Grade:	C +
Stories:	1 Story
Occupancy	1
Exterior Wall 1	Wood Shingle
Exterior Wall 2	
Roof Structure:	Gable/Hip
Roof Cover	Asphalt
Interior Wall 1	Drywall
Interior Wall 2	
Interior Flr 1	Carpet
Interior Flr 2	
Heat Fuel	Oil
Heat Type:	Hot Water
AC Type:	Central
Total Bedrooms:	3 Bedrooms
Total Bthrms:	2
Total Half Baths:	0
Total Xtra Fixtrs:	
Total Rooms:	7 Rooms
Bath Style:	Average
Kitchen Style:	Average
Cottage Cmplx	
Cottage Adj	

Building Photo

(http://images.vgsi.com/photos/BranfordCTPhotos//\00\01\05/6

Building Layout



(http://images.vgsi.com/photos/BranfordCTPhotos//Sketches/69

Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	1,332	1,332
FLL	Finished Lower Level	546	410
UGR	Garage Under	702	0
WDK	Deck, Wood	406	0
		2,986	1,742

Extra Features

Extra Features				Legend
Code	**Description**	**Size**	**Value**	**Bldg #**
FPL2	FIREPLACE 1.5	1 UNITS	$3,300	3
FPO	EXTRA FPL OPEN	1 UNITS	$800	3

Land

Land Use

Use Code	0431
Description	TEL REL TW MDL96
Zone	R-4
Neighborhood	0050
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	4.5
Frontage	
Depth	
Assessed Value	$253,500
Appraised Value	$362,200

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
FN3	FENCE-6' CHAIN			260 L.F.	$1,300	1
PAV2	PAVING-CONC			137 S.F.	$500	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$173,100	$362,200	$535,300
2017	$173,100	$362,200	$535,300
2016	$173,100	$362,200	$535,300

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$121,200	$253,500	$374,700
2017	$121,200	$253,500	$374,700
2016	$121,200	$253,500	$374,700

Town of Branford

Geographic Information System (GIS)

Date Printed: 7/23/2019

MAP DISCLAIMER - NOTICE OF LIABILITY

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

0 75 Feet

N W E S

DOCKET NO. 44

AN APPLICATION SUBMITTED BY THE SOUTHERN NEW ENGLAND TELEPHONE COMPANY FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED FOR THE CONSTRUCTION, MAINTENANCE AND OPERATION OF FACILITIES TO PROVIDE CELLULAR SERVICE IN NEW HAVEN COUNTY	:	CONNECTICUT SITING COUNCIL
	:	July 24, 1984

D E C I S I O N A N D O R D E R

Pursuant to the foregoing opinion, the Council hereby directs that a certificate of environmental compatibility and public need as required by section 16-50k of the General Statutes of Connecticut, revisions of 1958, revised to 1983, as amended, be issued to the Southern New England Telephone Company for the construction, operation, and maintenance of a telecommunications tower and associated equipment to provide cellular service at each of the following sites:

Jasudowich tract, Brushy Plain Road, Branford, Connecticut;
Town of Guilford tract, Tanner Marsh Road, Guilford, Connecticut;
Bridgeport Avenue, Milford, Connecticut;
Quagliaro tract, Farmdale Drive, Waterbury, Connecticut;
Pease Road, Woodbridge, Connecticut; and
Dwight Street, North Haven, Connecticut.

The facilities shall be constructed, operated, and maintained as specified in the Council's record on this matter, and subject to the following conditions:

1. The towers including antennas shall be no taller than necessary to provide the proposed service and in no event shall exceed

   a) 167' at the Branford site,
   b) 167' at the Guilford site,
   c) 117' at the Milford site,
   d) 167' at the Waterbury site,
   e) 167' at the Woodbridge site,
   f) 167' at the North Haven site;

2. A fence not lower than eight feet shall surround each tower and its associated equipment;

3. The applicant or its successor shall notify the Council if and when directional antennas or any other equipment is added to any of these facilities;
4. The applicant or its successor shall permit, in accordance with representations made by it during the proceeding, public or private entities to share space on the facilities, for due consideration received, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing;
5. Unless necessary to comply with condition number six, below, no lights shall be installed on any of these towers;
6. The facilities shall be constructed in accordance with all applicable federal, state, and municipal laws and regulations;
7. The applicant shall submit a development and management plan (D&M) for the Branford, Milford, Woodbridge, and North Haven sites pursuant to sections 16-50j-85 through 16-50j-87 of the regulations of state agencies, except that irrelevant items in section 16-50j-86 need only be identified as such. The D&M plans shall include appropriate evergreen screening of the sites, erosion control measures, reseeding plans, and tree removal plans. The applicant shall comply with the reporting requirements of section 16-50j-87 for all sites;
8. Construction activities shall take place during daylight working hours;
9. This decision and order shall be void and the towers and associated equipment approved herein shall be dismantled and removed, or reapplication for any new use shall be made to the Connecticut

Siting Council before any such new use is made, if the towers do not provide or permanently cease to provide cellular service following completion of construction;

10. This decision and order shall be void if all construction authorized is not completed within three years of the issuance of this decision.

Pursuant to section 16-50p of the General Statutes, we hereby direct that a copy of the opinion and decision and order be served on each person listed below. A notice of the issuance shall be published in the Hartford Courant, New Haven Register, and the Waterbury Republican.

The parties to this proceeding are

The Southern New England Telephone Company
Room 314
227 Church Street
New Haven, Connecticut 06506

(Applicant)

ATTENTION: Mr. Peter J. Tyrrell
Senior Attorney

(its attorney)

Town of Hamden
Peter F. Villano, Mayor
Shirley Gonzales, Town Planner

represented by:

Mr. Hugh Manke, Esquire
Office of the Town Attorney
Memorial Town Hall
2372 Whitney Avenue
Hamden, Connecticut 06518

Inland Wetlands Agency
Town of Woodbridge

represented by:

Robert J. Klancko
Chairman
Town Hall
11 Meeting House Lane
Woodbridge, Connecticut 06525

Town Plan and Zoning Commission
Town of Woodbridge

represented by:

Norman Fineberg
Chairman
Town Hall
11 Meeting House Lane
Woodbridge, Connecticut 06525

The Honorable Peter M. Lerner
State Representative
State of Connecticut
House of Representatives
State Capitol
Hartford, Connecticut 06115

John Menta
Felicia Tencza

represented by:

Ms. Felicia Tencza
580 Gaylord Mountain Road
Hamden, Connecticut 06518

Ms. Renee Robinson
265 Blue Trail
Hamden, Connecticut 06518

(service waived)

Irene L. Wong
Edson H. Mount
Dr. & Mrs. H.M. Fiskio
Dr. & Mrs. Alexander Gottschalk

represented by:

Dr. & Mrs. Alexander Gottschalk
230 Six Rod Highway
Hamden, Connecticut 06518

The Sleeping Giant Park Association

represented by:

Mr. Dag Pfeiffer
President
Box 14
Quinnipiac College
Hamden, Connecticut 06518

West Rock Ridge Park Association

represented by:

Mr. William L. Dohney, Jr., D.D.S.
President
220 Mountain Road
Hamden, Connecticut 06514

Sierra Club

represented by:

Ms. M. Kim Yanoshick
Executive Director
Hartford Chapter
118 Oak Street
Hartford, Connecticut 06106

Quinnipiac College	represented by: Mr. Richard A. Terry President Hamden, Connecticut 06518
Guilford Conservation Commission	represented by: Ms. Carolyn K. Evans Chairman Town Hall Park Street Guilford, Connecticut 06437
Mrs. Barbara R. Peterson Mary & Phil Faust Anita L. & Richard M. Sullivan	represented by: Anita L. & Richard M. Sullivan 315 Chestnut Lane Hamden, Connecticut 06518
Mrs. Pauline H. Hoff	represented by: Herbert L. Emanuelson, Jr. Emanuelson and Wynne 205 Church Street New Haven, Connecticut 06510
Hamden League of Women Voters	represented by: Mrs. Sherrill Zoller 605 West Woods Road Hamden, Connecticut 06518 (service waived)
Joan Rosenberg 230 Ridewood Avenue Hamden, Connecticut 06517	
Mr. & Mrs. Richard Sykes 110 Blue Trail Hamden, Connecticut 06518	
Thomas & Claudia Sullivan, Jr. 100 Blue Trail Hamden, Connecticut 06518	
Mr. William N. Pantalone 27 Pease Road Woodbridge, Connecticut 06525	(service waived)

INTERVENORS

Metromedia TeleCommunications
Nutmeg Telecommunications, Inc.
CSI of New Haven
CSI of Stamford
Cellular Communications, Inc.
LIN Cellular Corp.
Cellular Mobile Services
Maxcell TeleCommunications, Inc.
Mobile Cellular Telephone, Inc.
Cellular Dynamics
Connecticut Corridor Cellular
Chase/Post Cellular

represented by:

Dwight A. Johnson
Murtha, Cullina, Richter
and Pinney
101 Pearl Street
P.O. Box 3197
Hartford, Connecticut 06103-0197

C E R T I F I C A T I O N

The undersigned members of the Connecticut Siting Council hereby certify that they have heard this case or read the record thereof, and that we voted as follows:

Dated at New Britain, Connecticut, this 24th day of July, 1984.

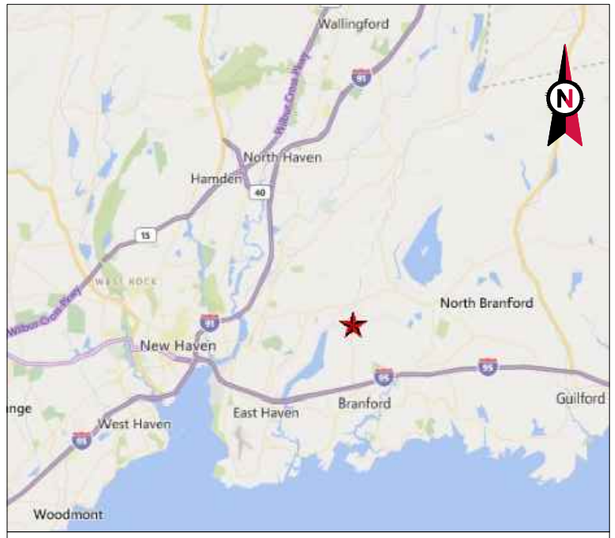
Council Members	Vote Cast
_____) Gloria Dibble Pond Chairperson	Absent
_____) Commissioner John Downey Designee: Commissioner Peter G. Boucher	Absent
Brian Emerick _____) Commissioner Stanley Pac Designee: Brian Emerick	~~Yes~~ ~~Absent~~ Abstain
Owen L. Clark _____) Owen L. Clark	Yes
Fred J. Doocy _____) Fred J. Doocy	Yes
Mortimer A. Gelston _____) Mortimer A. Gelston	Yes
James G. Horsfall _____) James G. Horsfall	Yes
_____) Janet Sitty	Absent
Colin C. Tait _____) Colin C. Tait Acting Chairperson	Yes

STATE OF CONNECTICUT)
: ss. New Britain, July 24, 1984
COUNTY OF HARTFORD)

I hereby certify that the foregoing is a true and correct copy of the decision and order issued by the Connecticut Siting Council, State of Connecticut.

ATTEST:

Christopher S. Wood, Executive Director
Connecticut Siting Council



VICINITY MAP

AMERICAN TOWER®

ATC SITE NAME: BRANFORD CT 6
ATC SITE NUMBER: 302484
T-MOBILE SITE ID: CTNH102C
SITE ADDRESS: 405 BRUSHY PLAIN RD
BRANFORD, CT 06405

LOCATION MAP

T-MOBILE L600 ANTENNA AMENDMENT
67D02C CONFIGURATION

COMPLIANCE CODE

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNMENT AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES.

1. INTERNATIONAL BUILDING CODE (IBC)
2. NATIONAL ELECTRIC CODE (NEC)
3. LOCAL BUILDING CODE
4. CITY/COUNTY ORDINANCES

UTILITY COMPANIES

POWER COMPANY: EVERSOURCE
PHONE: (877) 659-6326

TELEPHONE COMPANY: FRONTIER COMMUNICATIONS
PHONE: (899) 376-6843

811 Know what's below. Call before you dig.

PROJECT SUMMARY

SITE ADDRESS:

405 BRUSHY PLAIN RD
BRANFORD, CT 06405
COUNTY: NEW HAVEN

1A CERTIFICATE SUMMARY:

LATITUDE: 41° 19' 0.45" N

LONGITUDE: 72° 49' 10.89" W

GROUND ELEVATION: 405' AMSL

TOWER HEIGHT: 155' AGL

HIGHEST APPURTENANCE: 165' AGL

PROJECT TEAM

TOWER OWNER:

AMERICAN TOWER
10 PRESIDENTIAL WAY
WOBURN, MA 01801

ENGINEER:

ATC TOWER SERVICES, LLC
3500 REGENCY PKWY STE 100
CARY, NC 27518

PROPERTY OWNER:

KRISTEN JACONETTE
EDWARD JACONETTE JR
405 BRUSHY PLAIN RD
BRANFORD, CT, 06405

PROJECT DESCRIPTION

THE PROPOSED PROJECT INCLUDES MODIFYING GROUND BASED AND TOWER MOUNTED EQUIPMENT AS INDICATED PER BELOW:

REMOVE (3) PANELS, (3) RRUs, (3) T-FRAMES AND (6) 1-5/8" COAX CABLES

INSTALL (3) NEW PANELS, (3) RRUs, (1) PLATFORM MOUNT, AND (3) 1-5/8" HYBRID CABLES

EXISTING (6) PANELS, (3) TTAs, (6) 1-5/8" COAX CABLES AND (1) 1-1/4" HYBRID CABLE TO REMAIN

PROJECT NOTES

1. THE FACILITY IS UNMANNED.
2. A TECHNICIAN WILL VISIT THE SITE APPROXIMATELY ONCE A MONTH FOR ROUTINE INSPECTION AND MAINTENANCE.
3. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT LAND DISTURBANCE OR EFFECT OF STORM WATER DRAINAGE.
4. NO SANITARY SEWER, POTABLE WATER OR TRASH DISPOSAL IS REQUIRED.
5. HANDICAP ACCESS IS NOT REQUIRED.

PROJECT LOCATION DIRECTIONS

FROM HARTFORD TAKE I-91 SOUTH TO I 95 NORTH. TAKE EXIT 24, TURN LEFT AT END OF RAMP. FOLLOW FOR ABOUT 2 MILES. ROAD WILL WIND UP A HILL AND THE TOWER WILL BE SEEN ON THE RIGHT. TURN RIGHT ONTO HILLTOP ROAD. COMPOUND IS AT CORNER OF BRUSHY PLAIN RD. AND HILLTOP RD. ACCESS SITE FROM HILLTOP ROAD.

SHEET INDEX

SHEET NO:	DESCRIPTION:	REV:	DATE:	BY:
G-001	TITLE SHEET	1	07/25/19	LR
G-002	GENERAL NOTES	0	06/26/19	LR
C-101	DETAILED SITE PLAN & TOWER ELEVATION	1	07/25/19	LR
C-501	ANTENNA INFORMATION & SCHEDULE	1	07/25/19	LR
E-501	GROUNDING DETAILS	0	06/26/19	LR
R-601	SUPPLEMENTAL			
R-602	SUPPLEMENTAL			
R-603	SUPPLEMENTAL			
R-604	SUPPLEMENTAL			
R-605	SUPPLEMENTAL			

AMERICAN TOWER®
A.T. ENGINEERING SERVICE, PLLC
3500 REGENCY PARKWAY
SUITE 100
CARY, NC 27518
PHONE: (919) 468-0112
COA: PEC.0001553

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	LR	06/26/19
1	MA UPDATE	LR	07/25/19

ATC SITE NUMBER:
302484

ATC SITE NAME:
BRANFORD CT 6

SITE ADDRESS:
405 BRUSHY PLAIN RD
BRANFORD, CT 06405

SEAL:

Authorized by "EOR"
Jul 25 2019 1:00 PM

T-Mobile design

DRAWN BY:	EF
APPROVED BY:	PB
DATE DRAWN:	06/26/19
ATC JOB NO:	12951827

TITLE SHEET

SHEET NUMBER:	REVISION:
G-001	1

GENERAL CONSTRUCTION NOTES:

1. ALL WORK SHALL CONFORM TO ALL CURRENT APPLICABLE FEDERAL, STATE, AND LOCAL CODES, INCLUDING ANSI/EIA/TIA-222, AND COMPLY WITH ATC CONSTRUCTION SPECIFICATIONS.
2. CONTRACTOR SHALL CONTACT LOCAL 811 FOR IDENTIFICATION OF UNDERGROUND UTILITIES PRIOR TO START OF CONSTRUCTION.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL REQUIRED INSPECTIONS.
4. ALL DIMENSIONS TO, OF, AND ON EXISTING BUILDINGS, DRAINAGE STRUCTURES, AND SITE IMPROVEMENTS SHALL BE VERIFIED IN FIELD BY CONTRACTOR WITH ALL DISCREPANCIES REPORTED TO THE ENGINEER.
5. DO NOT CHANGE SIZE OR SPACING OF STRUCTURAL ELEMENTS.
6. DETAILS SHOWN ARE TYPICAL; SIMILAR DETAILS APPLY TO SIMILAR CONDITIONS UNLESS OTHERWISE NOTED.
7. THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY WHICH SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
8. CONTRACTOR SHALL BRACE STRUCTURES UNTIL ALL STRUCTURAL ELEMENTS NEEDED FOR STABILITY ARE INSTALLED. THESE ELEMENTS ARE AS FOLLOWS: LATERAL BRACING, ANCHOR BOLTS, ETC.
9. CONTRACTOR SHALL DETERMINE EXACT LOCATION OF EXISTING UTILITIES, GROUNDS DRAINS, DRAIN PIPES, VENTS, ETC. BEFORE COMMENCING WORK.
10. INCORRECTLY FABRICATED, DAMAGED, OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE T-MOBILE WIRELESS REP PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH REMEDIAL ACTION SHALL REQUIRE WRITTEN APPROVAL BY THE T-MOBILE WIRELESS REP PRIOR TO PROCEEDING.
11. EACH CONTRACTOR SHALL COOPERATE WITH THE T-MOBILE WIRELESS REP, AND COORDINATE HIS WORK WITH THE WORK OF OTHERS.
12. CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED BY CONSTRUCTION OF THIS PROJECT TO MATCH EXISTING PRE-CONSTRUCTION CONDITIONS TO THE SATISFACTION OF THE T-MOBILE WIRELESS CONSTRUCTION MANAGER.
13. ALL CABLE/CONDUIT ENTRY/EXIT PORTS SHALL BE WEATHERPROOFED DURING INSTALLATION USING A SILICONE SEALANT.
14. WHERE EXISTING CONDITIONS DO NOT MATCH THOSE SHOWN IN THIS PLAN SET, CONTRACTOR SHALL NOTIFY THE T-MOBILE WIRELESS REP IMMEDIATELY.
15. CONTRACTOR SHALL ENSURE ALL SUBCONTRACTORS ARE PROVIDED WITH A COMPLETE AND CURRENT SET OF DRAWINGS AND SPECIFICATIONS FOR THIS PROJECT.
16. CONTRACTOR SHALL REMOVE ALL RUBBISH AND DEBRIS FROM THE SITE AT THE END OF EACH DAY.
17. CONTRACTOR SHALL COORDINATE WORK SCHEDULE WITH LANDLORD AND TAKE PRECAUTIONS TO MINIMIZE IMPACT AND DISRUPTION OF OTHER OCCUPANTS OF THE FACILITY.
18. CONTRACTOR SHALL FURNISH T-MOBILE WIRELESS WITH A PDF MARKED UP AS-BUILT SET OF DRAWINGS UPON COMPLETION OF WORK.
19. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH T-MOBILE WIRELESS REP TO DETERMINE WHAT, IF ANY, ITEMS WILL BE PROVIDED. ALL ITEMS NOT PROVIDED SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR. CONTRACTOR WILL INSTALL ALL ITEMS PROVIDED.
20. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH T-MOBILE WIRELESS REP TO DETERMINE IF ANY PERMITS WILL BE OBTAINED BY CONTRACTOR. ALL REQUIRED PERMITS NOT OBTAINED BY T-MOBILE WIRELESS MUST BE OBTAINED, AND PAID FOR, BY THE CONTRACTOR.
21. CONTRACTOR SHALL INSTALL ALL SITE SIGNAGE IN ACCORDANCE WITH T-MOBILE WIRELESS SPECIFICATIONS AND REQUIREMENTS.
22. CONTRACTOR SHALL SUBMIT ALL SHOP DRAWINGS TO T-MOBILE WIRELESS FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
23. ALL EQUIPMENT SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND LOCATED ACCORDING TO T-MOBILE WIRELESS SPECIFICATIONS, AND AS SHOWN IN THESE PLANS.
24. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
25. CONTRACTOR SHALL NOTIFY T-MOBILE WIRELESS REP A MINIMUM OF 48 HOURS IN ADVANCE OF POURING CONCRETE OR BACKFILLING ANY UNDERGROUND UTILITIES, FOUNDATIONS OR SEALING ANY WALL, FLOOR OR ROOF PENETRATIONS FOR ENGINEERING REVIEW AND APPROVAL.
26. CONTRACTOR SHALL BE RESPONSIBLE FOR SITE SAFETY INCLUDING COMPLIANCE WITH ALL APPLICABLE OSHA STANDARDS AND RECOMMENDATIONS AND SHALL PROVIDE ALL NECESSARY SAFETY DEVICES INCLUDING PPE AND PPM AND CONSTRUCTION DEVICES SUCH AS WELDING AND FIRE PREVENTION, TEMPORARY SHORING, SCAFFOLDING, TRENCH BOXES/SLOPING, BARRIERS, ETC.
27. THE CONTRACTOR SHALL PROTECT AT HIS OWN EXPENSE, ALL EXISTING FACILITIES AND SUCH OF HIS NEW WORK LIABLE TO INJURY DURING THE CONSTRUCTION PERIOD. ANY DAMAGE CAUSED BY NEGLECT ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, OR BY THE ELEMENTS DUE TO NEGLECT ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, EITHER TO THE EXISTING WORK, OR TO HIS WORK OR THE WORK OF ANY OTHER CONTRACTOR, SHALL BE REPAIRED AT HIS EXPENSE TO THE OWNER'S SATISFACTION.
28. ALL WORK SHALL BE INSTALLED IN A FIRST CLASS, NEAT AND WORKMANLIKE MANNER BY MECHANICS SKILLED IN THE TRADE INVOLVED. THE QUALITY OF WORKMANSHIP SHALL BE SUBJECT TO THE APPROVAL OF THE T-MOBILE WIRELESS REP. ANY WORK FOUND BY THE T-MOBILE WIRELESS REP TO BE OF INFERIOR QUALITY AND/OR WORKMANSHIP SHALL BE REPLACED AND/OR REWORKED AT CONTRACTOR EXPENSE UNTIL APPROVAL IS OBTAINED.
29. IN ORDER TO ESTABLISH STANDARDS OF QUALITY AND PERFORMANCE, ALL TYPES OF MATERIALS LISTED HEREINAFTER BY MANUFACTURER'S NAMES AND/OR MANUFACTURER'S CATALOG NUMBER SHALL BE PROVIDED BY THESE MANUFACTURERS AS SPECIFIED.

STRUCTURAL STEEL NOTES:

1. STRUCTURAL STEEL SHALL CONFORM TO THE LATEST EDITION OF THE AISC "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS."
2. STRUCTURAL STEEL ROLLED SHAPES, PLATES AND BARS SHALL CONFORM TO THE FOLLOWING ASTM DESIGNATIONS:
   A. ASTM A-572, GRADE 50 - ALL W SHAPES, UNLESS NOTED OR A992 OTHERWISE
   B. ASTM A-36 - ALL OTHER ROLLED SHAPES, PLATES AND BARS UNLESS NOTED OTHERWISE.
   C. ASTM A-500, GRADE B - HSS SECTION (SQUARE, RECTANGULAR, AND ROUND)
   D. ASTM A-325, TYPE SC OR N - ALL BOLTS FOR CONNECTING STRUCTURAL MEMBERS
   E. ASTM F-1554 07 - ALL ANCHOR BOLTS, UNLESS NOTED OTHERWISE
3. ALL EXPOSED STRUCTURAL STEEL MEMBERS SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION PER ASTM A123. EXPOSED STEEL HARDWARE AND ANCHOR BOLTS SHALL BE GALVANIZED PER ASTM A153 OR B695.
4. ALL FIELD CUT SURFACES, FIELD DRILLED HOLES AND GROUND SURFACES WHERE EXISTING PAINT OR GALVANIZATION REMOVAL WAS REQUIRED SHALL BE REPAIRED WITH (2) BRUSHED COATS OF ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.
5. DO NOT DRILL HOLES THROUGH STRUCTURAL STEEL MEMBERS EXCEPT AS SHOWN AND DETAILED ON STRUCTURAL DRAWINGS.
6. CONNECTIONS:
   A. ALL WELDING TO BE PERFORMED BY AWS CERTIFIED WELDERS AND CONDUCTED IN ACCORDANCE WITH THE LATEST EDITION OF THE AWS WELDING CODE D1.1.
   B. ALL WELDS SHALL BE INSPECTED VISUALLY. 25% OF WELDS SHALL BE INSPECTED WITH DYE PENETRANT OR MAGNETIC PARTICLE TO MEET THE ACCEPTANCE CRITERIA OF AWS D1.1. REPAIR ALL WELDS AS NECESSARY.
   C. INSPECTION SHALL BE PERFORMED BY AN AWS CERTIFIED WELD INSPECTOR.
   D. IT IS THE CONTRACTORS RESPONSIBILITY TO PROVIDE BURNING/WELDING PERMITS AS REQUIRED BY LOCAL GOVERNING AUTHORITY AND IF REQUIRED SHALL HAVE FIRE DEPARTMENT DETAIL FOR ANY WELDING ACTIVITY.
   E. ALL ELECTRODES TO BE LOW HYDROGEN, MATCHING FILLER METAL, PER AWS D1.1, UNLESS NOTED OTHERWISE.
   F. MINIMUM WELD SIZE TO BE 0.1875 INCH FILLET WELDS, UNLESS NOTED OTHERWISE.
   G. PRIOR TO FIELD WELDING GALVANIZING MATERIAL, CONTRACTOR SHALL GRIND OFF GALVANIZING ½" BEYOND ALL FIELD WELD SURFACES. AFTER WELD AND WELD INSPECTION IS COMPLETE, REPAIR ALL GROUND AND WELDED SURFACES WITH ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURERS RECOMMENDATIONS.

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CARY, NC 27518
PHONE: (919) 468-0112
COA: PEC.0001553

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	LR	06/26/19

ATC SITE NUMBER:
302484

ATC SITE NAME:
BRANFORD CT 6

SITE ADDRESS:
405 BRUSHY PLAIN RD
BRANFORD, CT 06405

SEAL:

Authorized by "EOR"
Jul 25 2019 1:00 PM

T-Mobile design

DRAWN BY:	EF
APPROVED BY:	PB
DATE DRAWN:	06/26/19
ATC JOB NO:	12951827

GENERAL NOTES

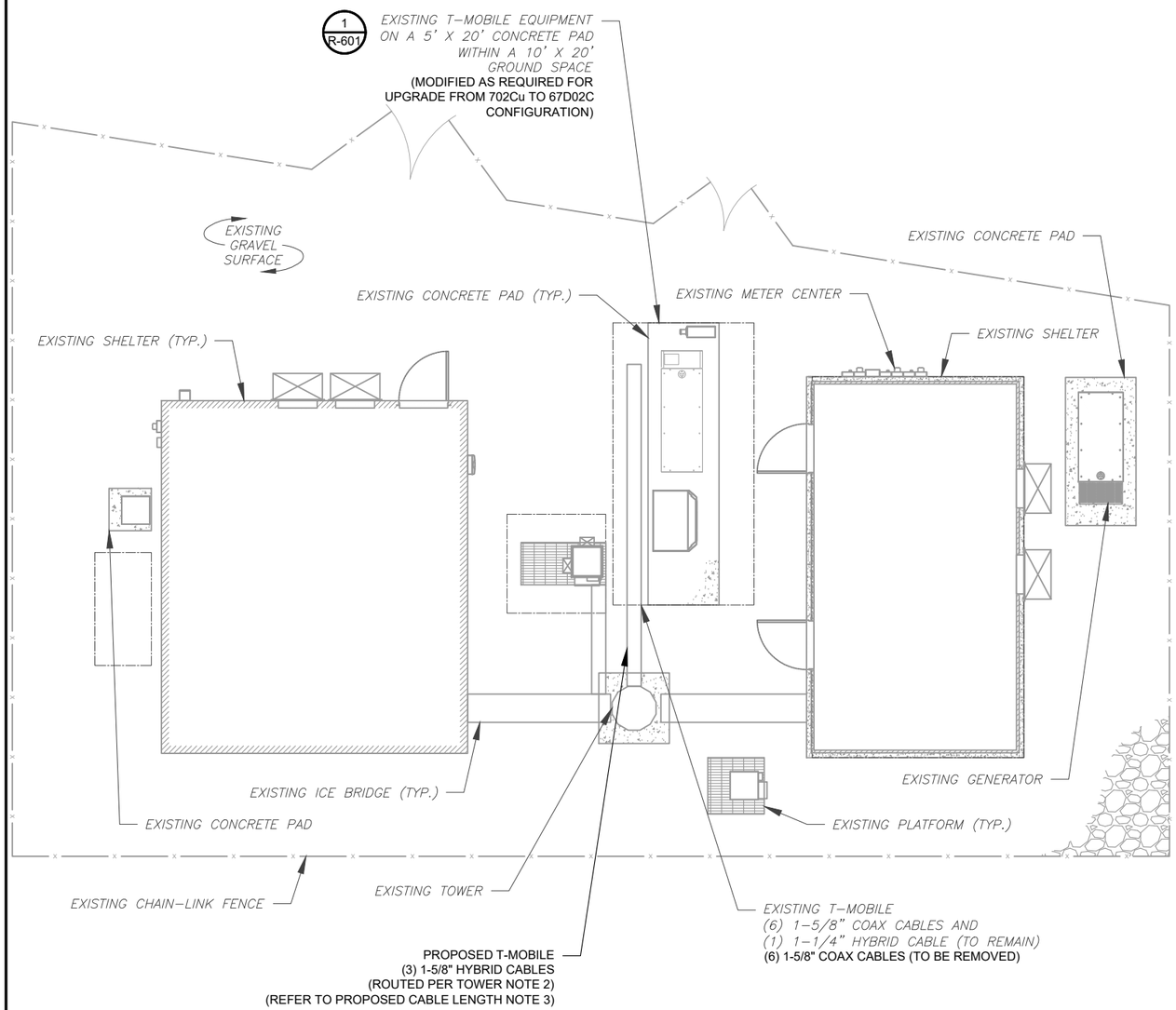
SHEET NUMBER:	REVISION:
G-002	0

SITE PLAN NOTES:

1. THIS SITE PLAN REPRESENTS THE BEST PRESENT KNOWLEDGE AVAILABLE TO THE ENGINEER AT THE TIME OF THIS DESIGN. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO CONSTRUCTION AND VERIFY ALL EXISTING CONDITIONS RELATED TO THE SCOPE OF WORK FOR THIS PROJECT.

2. ICE BRIDGE, CABLE LADDER, COAX PORT, AND COAX CABLE ARE SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL CONFIRM THE EXACT LOCATION OF ALL PROPOSED AND EXISTING EQUIPMENT AND STRUCTURES DEPICTED ON THIS PLAN. BEFORE UTILIZING EXISTING CABLE SUPPORTS, COAX PORTS, INSTALLING NEW PORTS OR ANY OTHER EQUIPMENT, CONTRACTOR SHALL VERIFY ALL ASPECTS OF THE COMPONENTS MEET THE ATC SPECIFICATIONS.

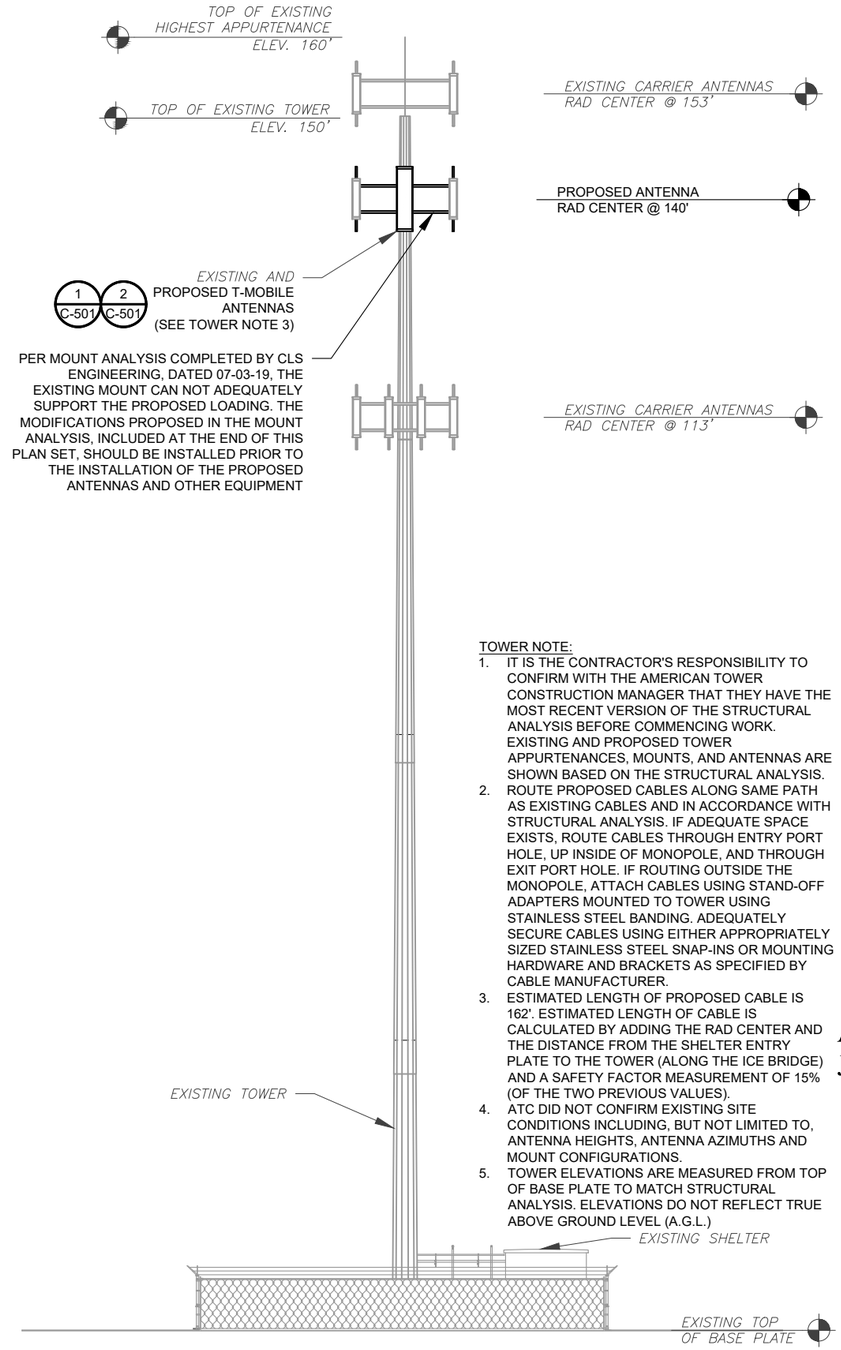
3. THIS PROJECT INCLUDES NO INSTALL OR MODIFICATION AT GRADE.



1 DETAILED SITE PLAN

0 10' 20'

SCALE: 1"=10' (11X17)
1"=5' (22X34)



TOWER NOTE:

1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM WITH THE AMERICAN TOWER CONSTRUCTION MANAGER THAT THEY HAVE THE MOST RECENT VERSION OF THE STRUCTURAL ANALYSIS BEFORE COMMENCING WORK. EXISTING AND PROPOSED TOWER APPURTENANCES, MOUNTS, AND ANTENNAS ARE SHOWN BASED ON THE STRUCTURAL ANALYSIS.
2. ROUTE PROPOSED CABLES ALONG SAME PATH AS EXISTING CABLES AND IN ACCORDANCE WITH STRUCTURAL ANALYSIS. IF ADEQUATE SPACE EXISTS, ROUTE CABLES THROUGH ENTRY PORT HOLE, UP INSIDE OF MONOPOLE, AND THROUGH EXIT PORT HOLE. IF ROUTING OUTSIDE THE MONOPOLE, ATTACH CABLES USING STAND-OFF ADAPTERS MOUNTED TO TOWER USING STAINLESS STEEL BANDING. ADEQUATELY SECURE CABLES USING EITHER APPROPRIATELY SIZED STAINLESS STEEL SNAP-INS OR MOUNTING HARDWARE AND BRACKETS AS SPECIFIED BY CABLE MANUFACTURER.
3. ESTIMATED LENGTH OF PROPOSED CABLE IS 162'. ESTIMATED LENGTH OF CABLE IS CALCULATED BY ADDING THE RAD CENTER AND THE DISTANCE FROM THE SHELTER ENTRY PLATE TO THE TOWER (ALONG THE ICE BRIDGE) AND A SAFETY FACTOR MEASUREMENT OF 15% (OF THE TWO PREVIOUS VALUES).
4. ATC DID NOT CONFIRM EXISTING SITE CONDITIONS INCLUDING, BUT NOT LIMITED TO, ANTENNA HEIGHTS, ANTENNA AZIMUTHS AND MOUNT CONFIGURATIONS.
5. TOWER ELEVATIONS ARE MEASURED FROM TOP OF BASE PLATE TO MATCH STRUCTURAL ANALYSIS. ELEVATIONS DO NOT REFLECT TRUE ABOVE GROUND LEVEL (A.G.L.)

2 TOWER ELEVATION

SCALE: NOT TO SCALE

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3500 REGENCY PARKWAY
SUITE 100
CARY, NC 27518
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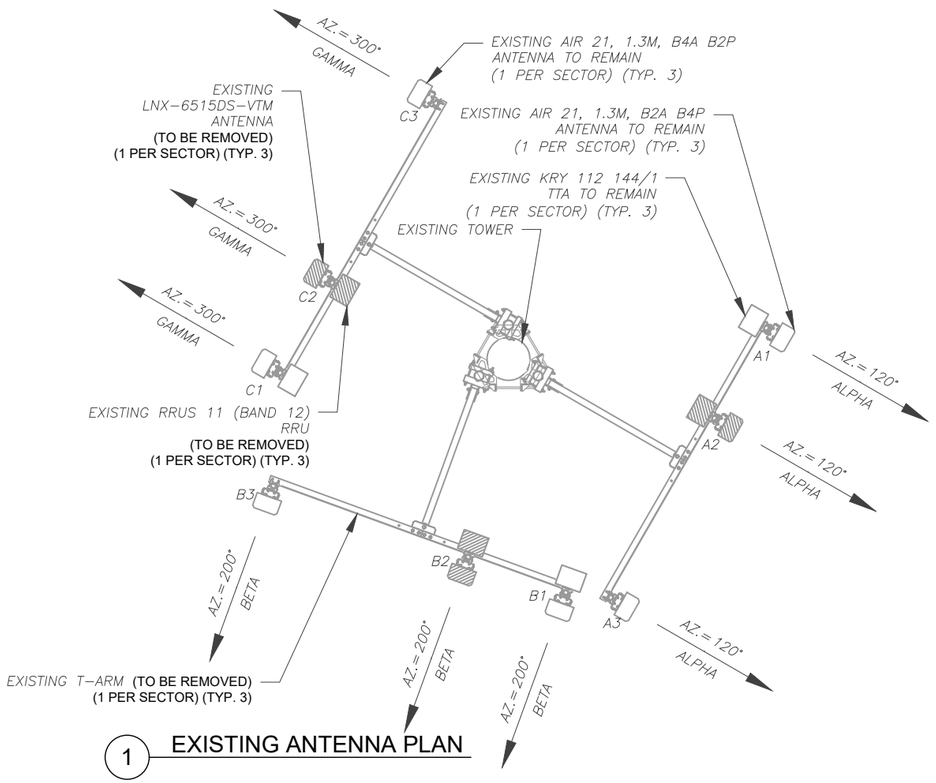
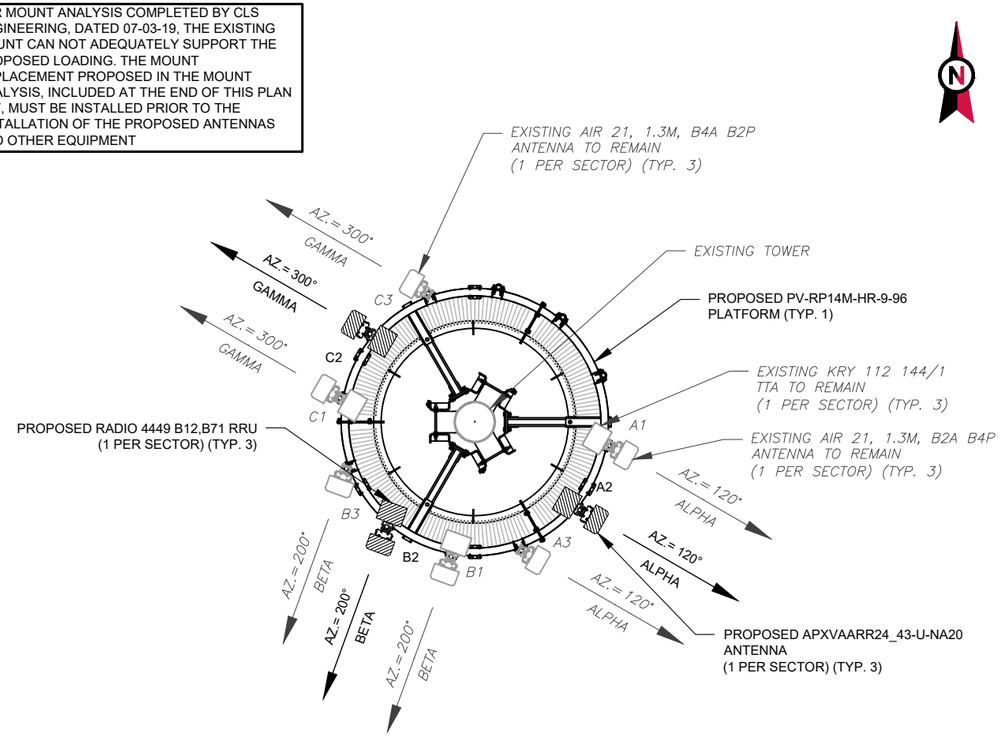
DETAILED SITE PLAN & TOWER ELEVATION

SHEET NUMBER:	REVISION:
C-101	1



1 EXISTING ANTENNA PLAN

PER MOUNT ANALYSIS COMPLETED BY CLS ENGINEERING, DATED 07-03-19, THE EXISTING MOUNT CAN NOT ADEQUATELY SUPPORT THE PROPOSED LOADING. THE MOUNT REPLACEMENT PROPOSED IN THE MOUNT ANALYSIS, INCLUDED AT THE END OF THIS PLAN SET, MUST BE INSTALLED PRIOR TO THE INSTALLATION OF THE PROPOSED ANTENNAS AND OTHER EQUIPMENT



2 FINAL ANTENNA PLAN

EXISTING ANTENNA / EQUIPMENT SCHEDULE

SECTOR	ANT.	MANUFACTURER (MODEL #)	RAD CENTER	AZIMUTH (TN)	MECH. D-TILT	ELEC. D-TILT	ADDITIONAL TOWER MOUNTED EQUIPMENT
ALPHA	A1	AIR 21, 1.3 M, B2A B4P	140'-0"	120°	0°	3°	KRY 112 144/1
ALPHA	A2	LNX-6515DS-VTM	140'-0"	120°	0°	2°	RRUS 11 (BAND 12)
ALPHA	A3	AIR 21, 1.3M, B4A B2P	140'-0"	120°	0°	3°	–
BETA	B1	AIR 21, 1.3 M, B2A B4P	140'-0"	200°	0°	10°	KRY 112 144/1
BETA	B2	LNX-6515DS-VTM	140'-0"	200°	0°	2°	RRUS 11 (BAND 12)
BETA	B3	AIR 21, 1.3M, B4A B2P	140'-0"	200°	0°	10°	–
GAMMA	C1	AIR 21, 1.3 M, B2A B4P	140'-0"	300°	0°	8°	KRY 112 144/1
GAMMA	C2	LNX-6515DS-VTM	140'-0"	300°	0°	2°	RRUS 11 (BAND 12)
GAMMA	C3	AIR 21, 1.3M, B4A B2P	140'-0"	300°	0°	7°	–

NOTES

1. BASED ON APPROVED ATC APPLICATION 12927172, DATED 04/02/2019. CONFIRM WITH T-MOBILE REP FOR APPLICABLE UPDATES/REVISIONS AND MOST RECENT RFDS FOR NSN CONFIGURATION (CONFIG). GC TO CAP ALL UNUSED PORTS.
2. ATC HAS NOT YET VERIFIED ANY EXISTING ANTENNA CONFIG OR MOUNT CONFIG. CONTRACTOR TO VERIFY MOUNT CONFIG HAS SUFFICIENT SPACE FOR PROPOSED LESSEE EQUIPMENT (EQUIP) (I.E. CLEARANCES, MOUNT PIPE, SUFFICIENT LENGTH, ETC.) ATC DID NOT ANALYZE ANTENNA MOUNT TO DETERMINE ADEQUATE STRUCTURAL CAPACITY FOR ANY LESSEE LOADING.
3. ALL PROPOSED EQUIP INCLUDING ANTENNAS, COAX, ETC. SHALL BE MOUNTED IN ACCORDANCE WITH THE TOWER STRUCTURAL ANALYSIS ON FILE WITH ATC'S CM.
4. CONFIRM SPACING OF PROPOSED EQUIP DOES NOT CAUSE TOWER CONFLICTS NOR IMPEDE TOWER CLIMBING PEGS.
5. POSITIONS START WITH FIRST PIPE ON THE LEFT SIDE (AS VIEWED FROM BEHIND THE MOUNT).

FINAL ANTENNA / EQUIPMENT SCHEDULE

SECTOR	ANT.	MANUFACTURER (MODEL #)	RAD CENTER	AZIMUTH (TN)	MECH. D-TILT	ELEC. D-TILT	ADDITIONAL TOWER MOUNTED EQUIPMENT
ALPHA	A1	AIR 21, 1.3 M, B2A B4P	140'-0"	120°	0°	3°	KRY 112 144/1
ALPHA	A2	APXVAARR24_43-U-NA20	140'-0"	120°	0°	2°	RADIO 4449 B12,B71
ALPHA	A3	AIR 21, 1.3M, B4A B2P	140'-0"	120°	0°	3°	–
BETA	B1	AIR 21, 1.3 M, B2A B4P	140'-0"	200°	0°	10°	KRY 112 144/1
BETA	B2	APXVAARR24_43-U-NA20	140'-0"	200°	0°	2°	RADIO 4449 B12,B71
BETA	B3	AIR 21, 1.3M, B4A B2P	140'-0"	200°	0°	10°	–
GAMMA	C1	AIR 21, 1.3 M, B2A B4P	140'-0"	300°	0°	8°	KRY 112 144/1
GAMMA	C2	APXVAARR24_43-U-NA20	140'-0"	300°	0°	2°	RADIO 4449 B12,B71
GAMMA	C3	AIR 21, 1.3M, B4A B2P	140'-0"	300°	0°	7°	–

CURRENT FIBER DISTRIBUTION/OVP BOX		CURRENT CABLING SUMMARY		
MODEL NUMBER	STATUS	COAX	HYBRID	STATUS
–	–	(6) 1-5/8"	(1) 1-1/4"	RMN
–	–	**(6) 1-5/8"**	–	RMV

STATUS ABBREVIATIONS
RMV: TO BE REMOVED
RMN: TO REMAIN
REL: TO BE RELOCATED
DSC: TO BE DISCONNECTED & REMAIN
ADD: TO BE ADDED

3 ANTENNA SCHEDULE

PROPOSED FIBER DISTRIBUTION/OVP BOX		PROPOSED CABLING SUMMARY		
MODEL NUMBER	STATUS	COAX	HYBRID	STATUS
-	-	(6) 1-5/8"	(1) 1-1/4"	RMN
-	-	-	(3) 1-5/8"	ADD

AMERICAN TOWER®
A.T. ENGINEERING SERVICE, PLLC
3500 REGENCY PARKWAY
SUITE 100
CARY, NC 27518
PHONE: (919) 468-0112
COA: PEC.0001553

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	LR	06/26/19
1	MA UPDATE	LR	07/25/19

ATC SITE NUMBER:
302484

ATC SITE NAME:
BRANFORD CT 6

SITE ADDRESS:
405 BRUSHY PLAIN RD
BRANFORD, CT 06405

SEAL:

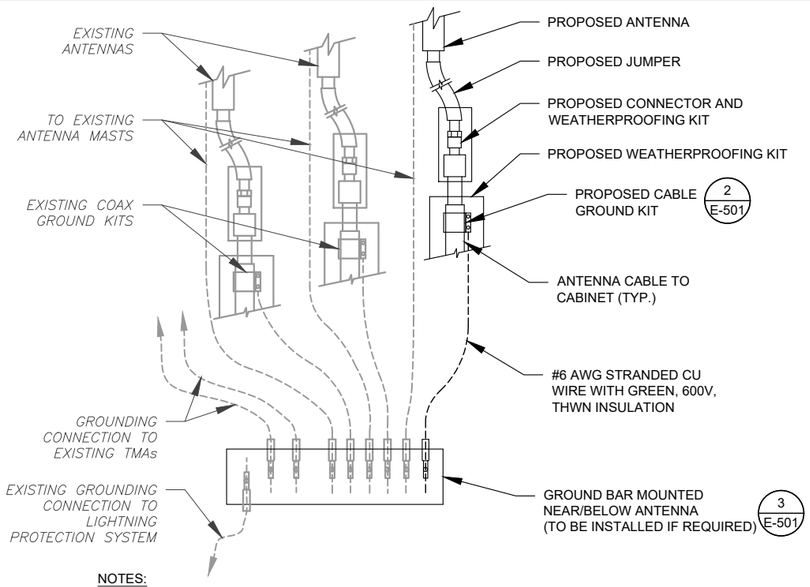
Authorized by "EOR"
Jul 25 2019 1:00 PM

T-Mobile design

DRAWN BY:	EF
APPROVED BY:	PB
DATE DRAWN:	06/26/19
ATC JOB NO:	12951827

ANTENNA INFORMATION & SCHEDULE

SHEET NUMBER:	REVISION:
C-501	1

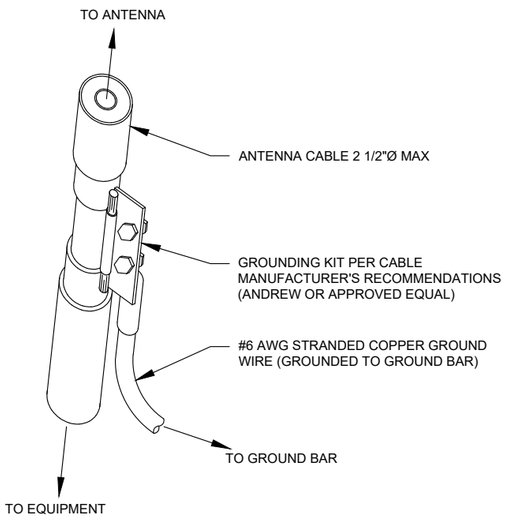


NOTES:

1. THIS DETAIL IS INTENDED TO SHOW THE GENERAL GROUNDING REQUIREMENTS. SLIGHT ADJUSTMENTS MAY BE REQUIRED BASED ON EXISTING SITE CONDITIONS. THE CONTRACTOR SHALL MAKE FIELD ADJUSTMENTS AS NEEDED AND INFORM THE CONSTRUCTION MANAGER OF ANY CONFLICTS.
2. SITE GROUNDING SHALL COMPLY WITH T-MOBILE GROUNDING STANDARDS, LATEST EDITION, AND COMPLY WITH T-MOBILE GROUNDING CHECKLIST, LATEST VERSION. WHEN NATIONAL AND LOCAL GROUNDING CODES ARE MORE STRINGENT THEY SHALL GOVERN.

1 TYPICAL ANTENNA GROUNDING DIAGRAM

SCALE: NOT TO SCALE

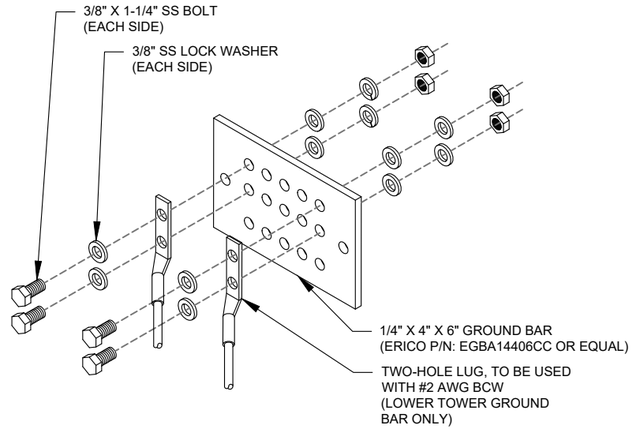


GROUND KIT NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. CONTRACTOR SHALL PROVIDE WEATHERPROOFING KIT (ANDREW PART NUMBER 221213) AND INSTALL/TAPE PER MANUFACTURER'S SPECIFICATIONS.

2 CABLE GROUND KIT CONNECTION DETAIL

SCALE: NOT TO SCALE



GROUND BAR NOTES:

1. GROUND BAR KITS COME WITH ALL HARDWARE, NUTS, BOLTS, WASHERS, ETC. EXCEPT THE STRUCTURAL MOUNTING MEMBER(S).
2. GROUND BAR TO BE BONDED DIRECTLY TO TOWER.

3 TOWER GROUND BAR DETAIL

SCALE: NOT TO SCALE

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3500 REGENCY PARKWAY
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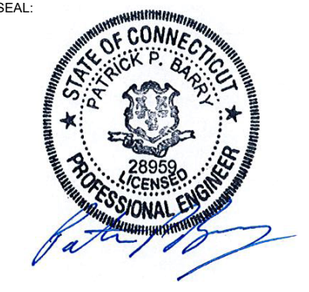
BRANFORD CT 6

SITE ADDRESS:
405 BRUSHY PLAIN RD
BRANFORD, CT 06405

SEAL:



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DRAWN BY:	EF
APPROVED BY:	PB
DATE DRAWN:	06/26/19
ATC JOB NO:	12951827

GROUNDING DETAILS

SHEET NUMBER:	REVISION:
E-501	0

Existing RAN Equipment		
Template: 702Cu		
Enclosure	1	2
Enclosure Type	RBS 6131	S12000 Outdoor
Baseband	DUW30 (U2100), DUW30 (U1900), DUG20 (G1900), DUS41 (L2100, L700)	
Hybrid Cable System	Ericsson 9x18 HCS *Select Length*	
Radio	RU22 (x 6) (U2100)	

Proposed RAN Equipment		
Template: 67D02C Outdoor		
Enclosure	1	2
Enclosure Type	RBS 6131	S12000 Outdoor
Baseband	DUW30 (U2100), DUW30 (U1900), DUG20 (G1900), BB 6630 (L2100, L700, L600), BB 6630 (N600 (DARK))	
Hybrid Cable System	Ericsson 6x12 HCS *Select Length & AWG* (x 3) Ericsson 9x18 HCS *Select Length*	
Radio	RU22 (x 6) (U2100)	

RAN Scope of Work:

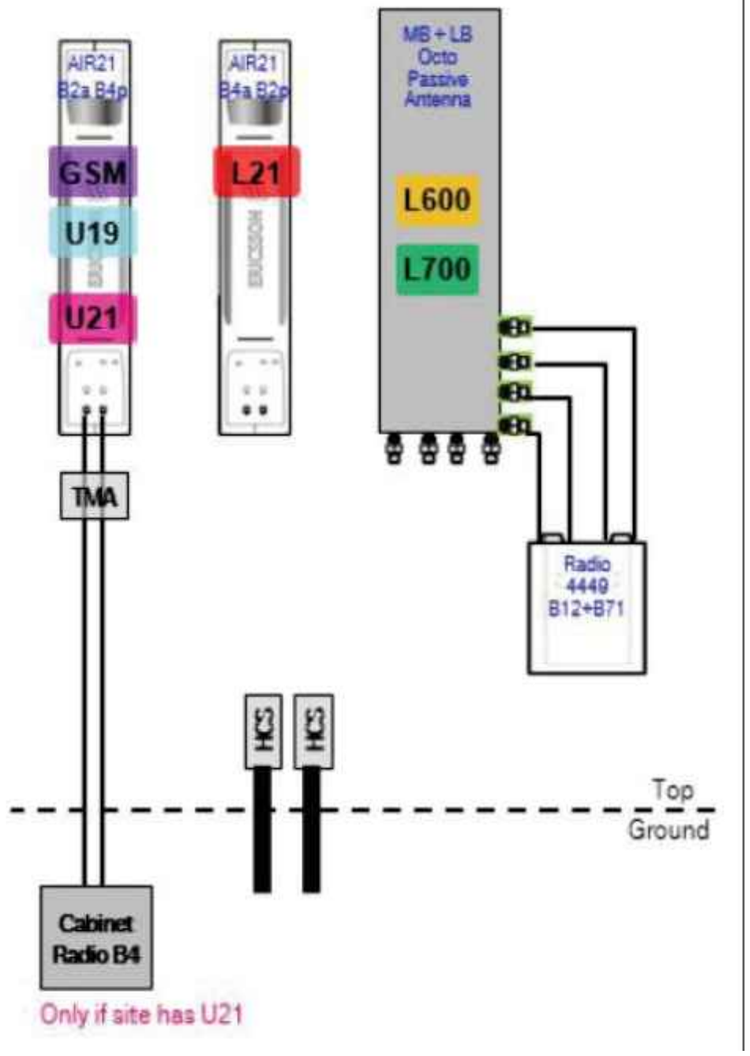
Replace (1) DUS41 with (1) BB6630 for L2100, L700, and L600.
Add (1) BB6630 for future 5G N600.
Add (3) 6X12 HCS, Length and AWG will decide by Dev. New HCS total for site will be (4).

Swap (3) LNX 6515 Antennas with (3) 8' Octoport antennas @ P2. Swap (3) RRUS11 B12 with (3) Radios 4449.

Existing: (12) 1-5/8" Coaxial Lines, (1) 9X18. Currently using 6 Lines. Remove (6) Coaxial Lines for total of (6) Coaxial Lines.

1 CABINET CONFIGURATION
SCALE: NOT TO SCALE

67D02C.JPG



2 ANTENNA CONFIGURATION
SCALE: NOT TO SCALE

NOTE: THIS SHEET CREATED BY OTHERS AND PROVIDED BY REQUEST OF CUSTOMER WITHOUT EDIT.

SUPPLEMENTAL

SHEET NUMBER:	REVISION:
R-601	0

Mount Analysis of Proposed Perfect Vision PV-RP14M-HR-9-96 w/PV-PKBK-M Kicker Kit for American Tower on behalf of T-Mobile

302484 - Branford CT 6

Project #: 12927172

T-Mobile Site ID: CTNH102C

Program: L600

CLS Engineering PLLC Project #41124-12927172-01-MR-R1

July 3, 2019

MOUNT DESCRIPTION	Proposed Perfect Vision PV-RP14M-HR-9-96 w/PV-PKBK-M Kicker Kit at 140 ft AGL
ANTENNA ELEVATION	Nominal Rad. Elevation of 140 ft AGL
SITE DESCRIPTION	150 ft Monopole
SITE ADDRESS	405 Brushy Plain Road, Branford, CT 06405-2308, New Haven County
GPS COORDINATES	41.31680556, -72.8197
ANALYSIS STANDARD	2015 IBC / 2018 Connecticut State Building Code / TIA-222-G
LOADING CRITERIA	130 mph, V_{ult} / 100.7 mph, V_{asd} (3-Second Gust) w/o ice & 50 mph (3-Second Gust) w/ 0.75"

■ **ANALYSIS RESULT:** **Pass (Replacement)**

MEMBER USAGE	66%	Pass
COLLAR USAGE	82%	Pass

Existing mounts to be replaced; see conclusion for details.

Prepared by:
Jennifer Soza

Reviewed and Approved by:
Tyler M. Barker, P.E.

STATE OF CONNECTICUT · TYLER M BARKER · No. 32402 · LICENSED PROFESSIONAL ENGINEER

Tyler M. Barker
CLS Engineering, PLLC
Director of Engineering
PE # 32402 Exp. 1/31/2020
COA # PEC.0001833 Exp. 8/14/2019

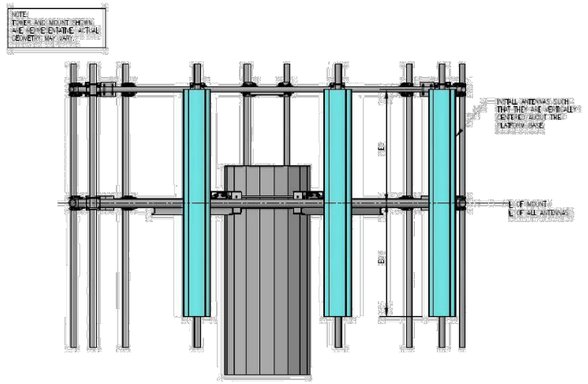
IdenTrust part of HID Global

Digitally signed by Tyler Barker
DN: c=US, o=Telamon Corporation, ou=A01427E00000 16A4525ADF80000 1D17, cn=Tyler Barker
Date: 2019.07.03 22:01:10 -04'00'

■ CONCLUSION AND RECOMMENDATIONS

According to our structural analysis, the mounts have been found to **PASS PENDING REPLACEMENT.** The mounting configuration considered in this analysis will be capable of supporting the referenced loading pursuant to referenced standards once the following scope is executed:

- **Replace existing T-Arm mounts with (1) new PerfectVision PV-RP14M-HR-9-96 Platform Mount.**
- **Install (1) PerfectVision PV-PKBK-M Monopole Platform Kicker Kit as shown. Field-cut angles as required. Maintain minimum bolt edge distance.**
- **Install (3) 2 STD x 8'-0" long mount pipes, included in the kit, per sector (9 total).**
- **Install support rails 3'-0" above the platform base. Connect to all mount pipes using crossover plates included in proposed platform kit.**
- **Install proposed antennas such that they are vertically centered about the face horizontal members. Install proposed RRUS behind the antennas.**



See following sketches and PerfectVision drawings for additional details.

1 MOUNT ANALYSIS
SCALE: NOT TO SCALE

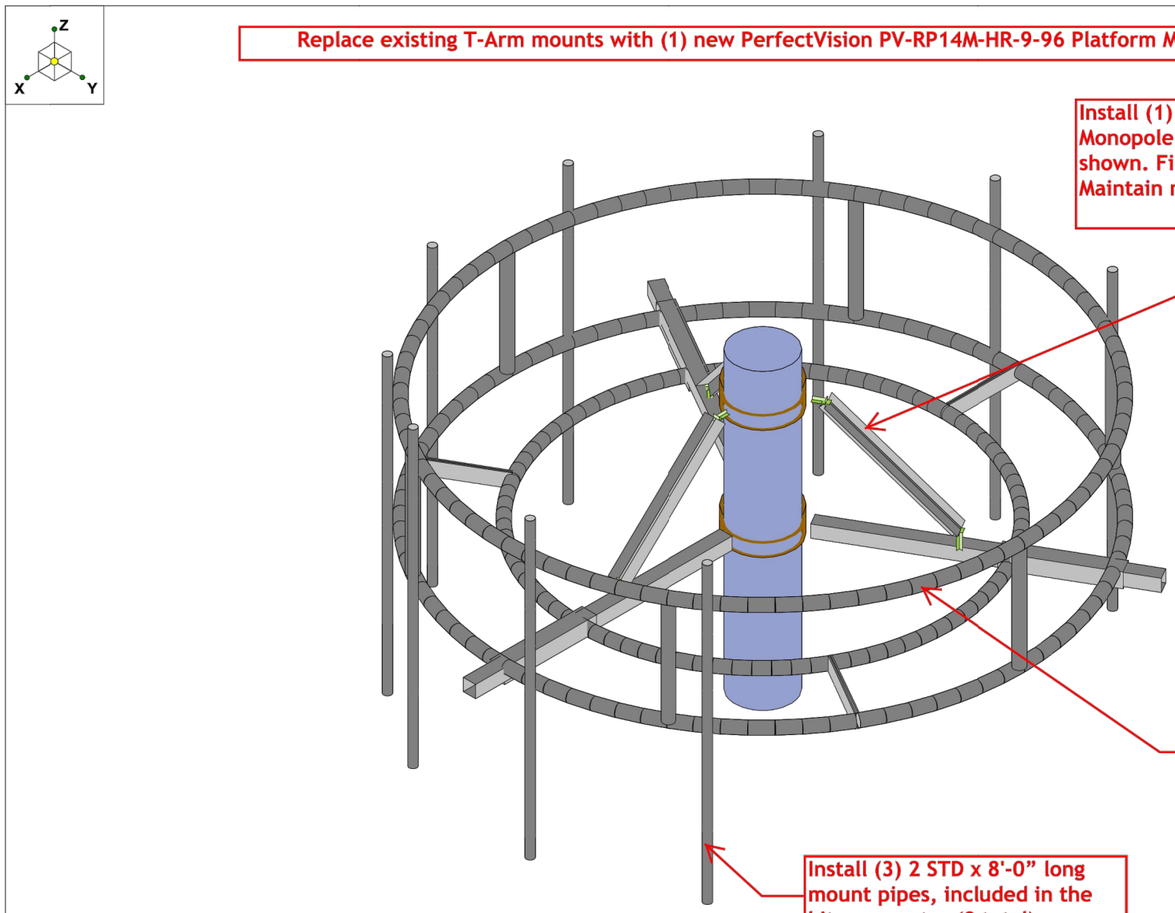
NOTE: THIS SHEET WAS CREATED BY OTHERS AND PROVIDED AT THE REQUEST OF THE CUSTOMER WITHOUT EDIT. PLEASE REFERENCE THE MOUNT ANALYSIS REPORT FOR COMPLETE MOUNT ANALYSIS CALCULATIONS AND DETAILS. SUPPLEMENTAL PAGES INCLUDED IN THE CONSTRUCTION DRAWINGS ARE FOR REFERENCE ONLY. GENERAL CONTRACTOR IS TO VERYIFY THEY HAVE THE MOST RECENT MOUNT ANALYSIS PRIOR TO CONTRUCTION.

SUPPLEMENTAL

SHEET NUMBER: R-602

REVISION: 0

Replace existing T-Arm mounts with (1) new PerfectVision PV-RP14M-HR-9-96 Platform Mount.



CLS	41124-12927172-Branford CT 6	IN - 1
JLS		July 3, 2019 at 12:51 PM
41124-12927172-01-MR	Installation Sketch	41124-12927172-01-MR-Images.r3d

1 MOUNT ANALYSIS
SCALE: NOT TO SCALE

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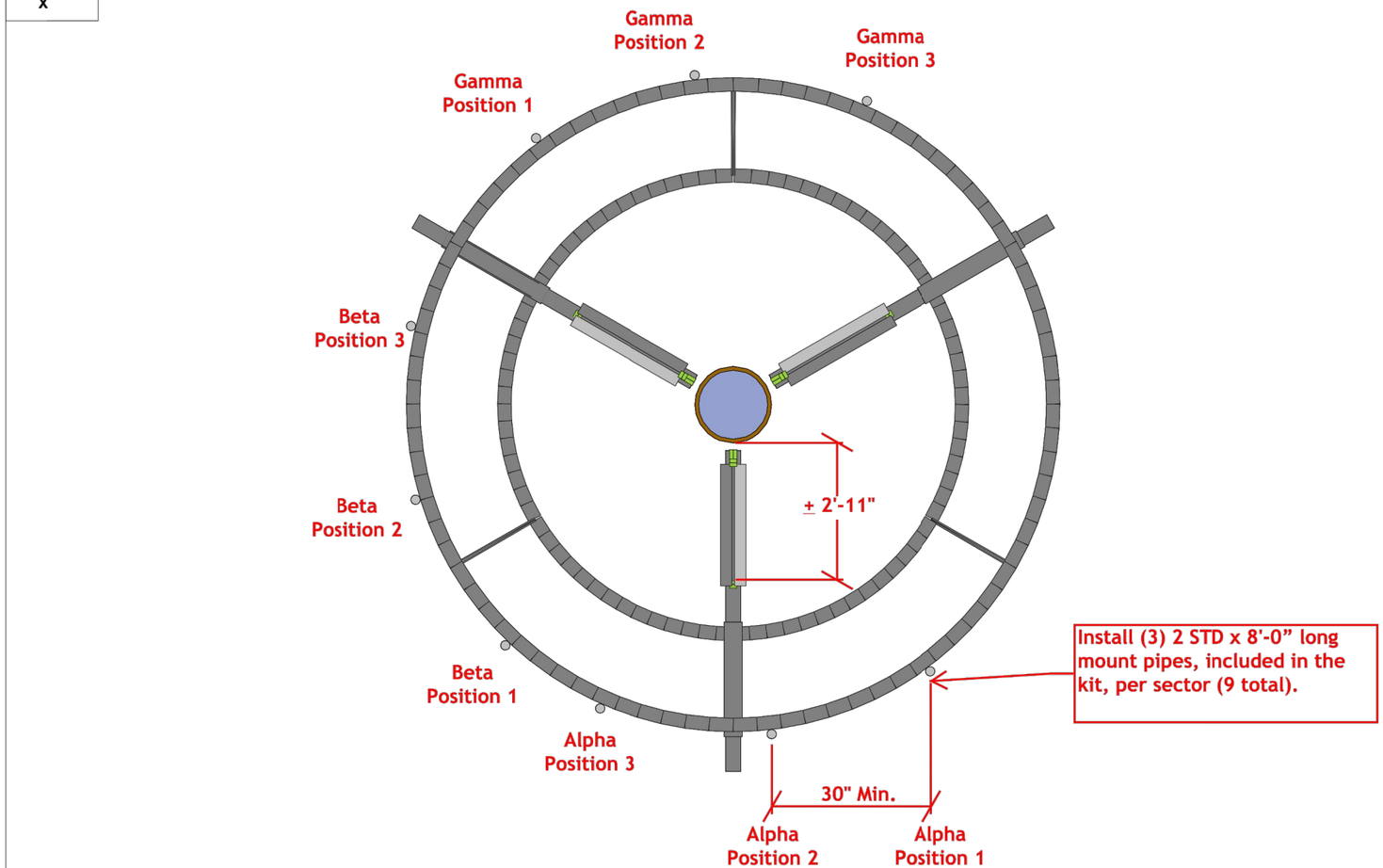
SUPPLEMENTAL

SHEET NUMBER:	REVISION:
R-603	0



CLS	41124-12927172-Branford CT 6	IN - 2
JLS		July 3, 2019 at 12:51 PM
41124-12927172-01-MR	Installation Sketch	41124-12927172-01-MR-Images.r3d

1 MOUNT ANALYSIS
SCALE: NOT TO SCALE

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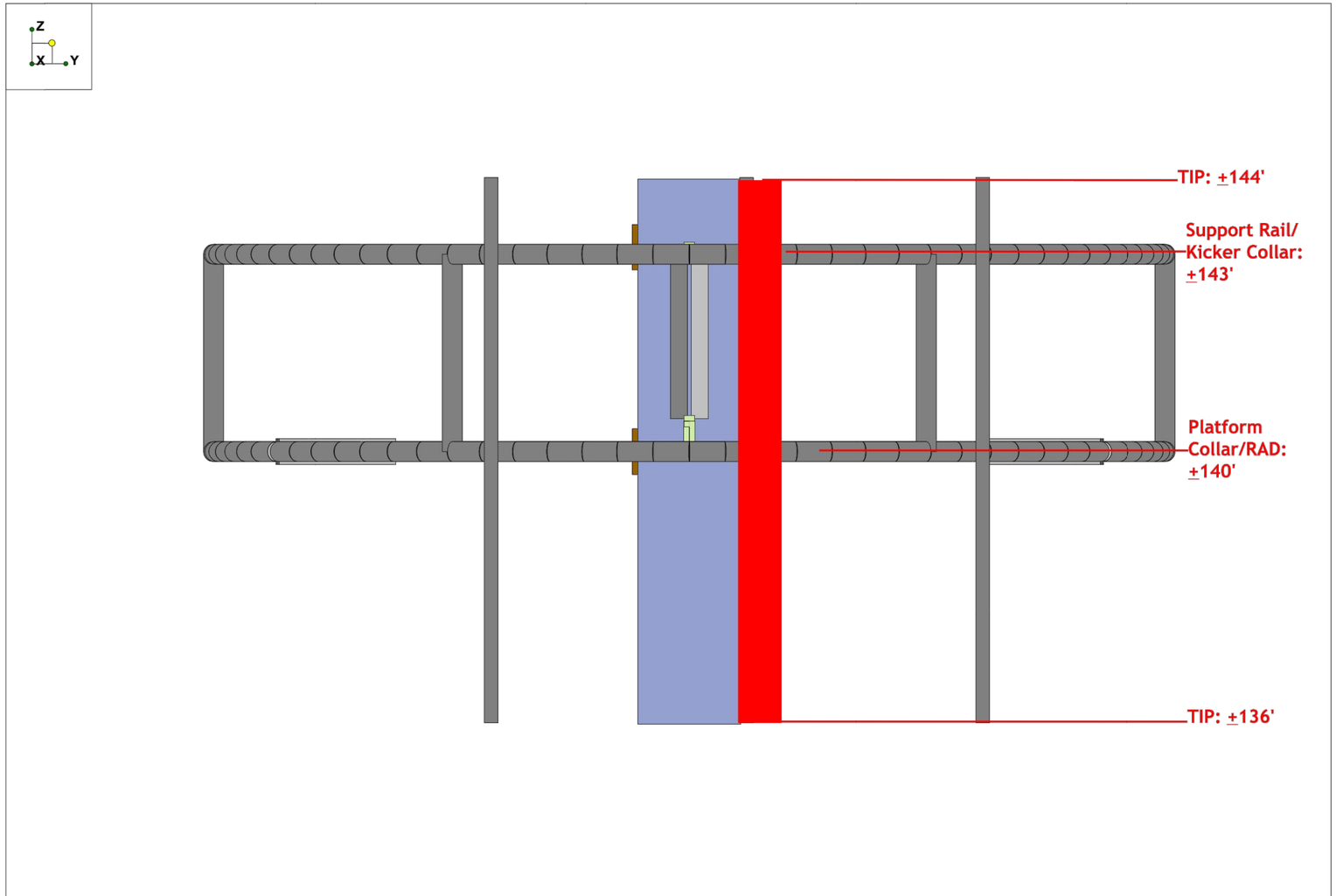
SUPPLEMENTAL

SHEET NUMBER:	REVISION:
R-604	0



CLS	41124-12927172-Branford CT 6	IN - 3
JLS		July 3, 2019 at 12:52 PM
41124-12927172-01-MR	Installation Sketch	41124-12927172-01-MR-Images.r3d

1 MOUNT ANALYSIS
SCALE: NOT TO SCALE

NOTE: THIS SHEET WAS CREATED BY OTHERS AND PROVIDED AT THE REQUEST OF THE CUSTOMER WITHOUT EDIT. PLEASE REFERENCE THE MOUNT ANALYSIS REPORT FOR COMPLETE MOUNT ANALYSIS CALCULATIONS AND DETAILS. SUPPLEMENTAL PAGES INCLUDED IN THE CONSTRUCTION DRAWINGS ARE FOR REFERENCE ONLY. GENERAL CONTRACTOR IS TO VERYIFY THEY HAVE THE MOST RECENT MOUNT ANALYSIS PRIOR TO CONTRUCTION.

SUPPLEMENTAL

SHEET NUMBER:	REVISION:
R-605	0

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Structural Analysis Report

Structure	:	**150 ft Monopole**
ATC Site Name	:	**Branford CT 6, CT**
ATC Site Number	:	**302484**
Engineering Number	:	**12927172_C3_02**
Proposed Carrier	:	**T-Mobile**
Carrier Site Name	:	**CT102/BranfordAmericanTwr**
Carrier Site Number	:	**CTNH102C**
Site Location	:	**405 Brushy Plain Rd** **Branford, CT 06405-2308** **41.316800,-72.819700**
County	:	**New Haven**
Date	:	**July 30, 2019**
Max Usage	:	**95%**
Result	:	**Pass**

Prepared By:
Parvin NikpoorParizi
Structural Engineer I

Reviewed By:

STATE OF CONNECTICUT
ESHA KAUSHAL MODI
32598
LICENSED PROFESSIONAL ENGINEER

Karen Wager
Aug 1 2019 8:14 AM cosign

COA: PEC.0001553

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Table of Contents

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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 T-Mobile.

Supporting Documents

Tower Drawings	PJF Job # 29297-629, dated October 2, 1997
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:	101 mph (3-Second Gust, V_{ASD}) / 130 mph (3-Second gust, V_{ULT})
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 3/4" radial ice concurrent
Code:	ANSI/TIA-222-G / 2015 IBC / 2018 Connecticut State Building Code
Structure Class:	II
Exposure Category:	B
Topographic Category:	1
Crest Height:	0 ft
Spectral Response:	Ss = 0.24, S_1 = 0.06
Site Class:	D - Stiff Soil

Conclusion

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

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

Existing and Reserved Equipment

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
160.0	1	Generic 11' Dipole	Platform with Handrails	(3) 7/8" Coax (1) 1 5/8" Coax	Other
159.0	1	Generic 4' Omni			
153.0	1	Raycap DC6-48-60-18-8C-EV	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
	3	Kathrein Scala 80010965			
	3	Commscope SBNHH-1D65B			
	3	CCI HPA65R-BU6A			
	3	Powerwave Allgon 7770.00			
	6	Powerwave Allgon 7020.00 Dual Band RET			
	3	Ericsson RRUS 32 B30 (53 lbs)			
	1	Raycap DC6-48-60-18-8C			
	3	Ericsson RRUS 4449 B5, B12			
	3	Ericsson RRUS 8843 B2, B66A			
	1	Raycap DC6-48-60-18-8F ("Squid")			
	6	Powerwave Allgon LGP21401			
	3	Kathrein Scala 782-10250			
150.0	1	Generic GPS	Platform with Handrails	(1) 1/2" Coax	Verizon Wireless
140.0	3	Ericsson AIR 21, 1.3M, B4A B2P	-	(6) 1 5/8" Coax	T-Mobile
	3	Ericsson AIR 21, 1.3 M, B2A B4P			
	3	Ericsson KRY 112 144/1			
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	2	DragonWave Horizon Compact			
	1	DragonWave A-ANT-23G-1-C			
	3	NextNet BTS-2500			
	3	Argus LLPX310R			
	1	DragonWave A-ANT-18G-2.5-C			
122.0	1	SWR FMEC/1	Flush	(3) 1/2" Coax	Alma Radio Inc.
114.0	3	Nokia B5 RRH4x40 w/ Solar Shield	T-Arm	(6) 1 1/4" Coax (2) 1 5/8" Hybriflex	Verizon Wireless
113.0	2	RFS DB-T1-6Z-8AB-0Z			
	3	Alcatel-Lucent RRH 2X60-1900			
	3	Alcatel-Lucent RRH2x60 700			
	3	Nokia B66a RRH4x45 (UHIE)			
	3	Alcatel-Lucent RRH2x40-07-L			
	2	RFS APL866513-12T0-00			
	4	RFS APL868013-12T0			
	6	Commscope JAHH-65B-R3B			
70.0	1	Generic 4' Std. Dish	Flush	(1) 0.28" (7mm) RG-6	Other

Equipment to be Removed

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
140.0	3	Andrew LNX-6515DS-VTM	T-Arm	(1) 1 1/4" Hybriflex Cable (6) 1 5/8" Coax	T-Mobile
	3	Ericsson RRUS 11 (Band 12)			

Proposed Equipment

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
140.0	3	Ericsson Radio 4449 B12,B71	PerfectVision PV-RP14M-9-96 Round Platform w/ Handrails	(1) 1 1/4" (1.25"-31.8mm) Fiber (3) 1 5/8" (1.63"-41.3mm) Fiber	T-Mobile
	3	RFS APXVAARR24_43-U-NA20			

[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	73%	Pass
Shaft	92%	Pass
Base Plate	63%	Pass
Reinforcement	95%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	3151.8	29%
Axial (Kips)	48.4	2%

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) (°)
140.0	Ericsson Radio 4449 B12,B71	T-Mobile	1.783	1.642
	RFS APXVAARR24_43-U-NA20			
130.0	DragonWave A-ANT-23G-1-C	Clearwire Corporation	1.510	1.465
	DragonWave A-ANT-18G-2.5-C			
70.0	Generic 4' Std. Dish	Other	0.416	0.710

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

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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:

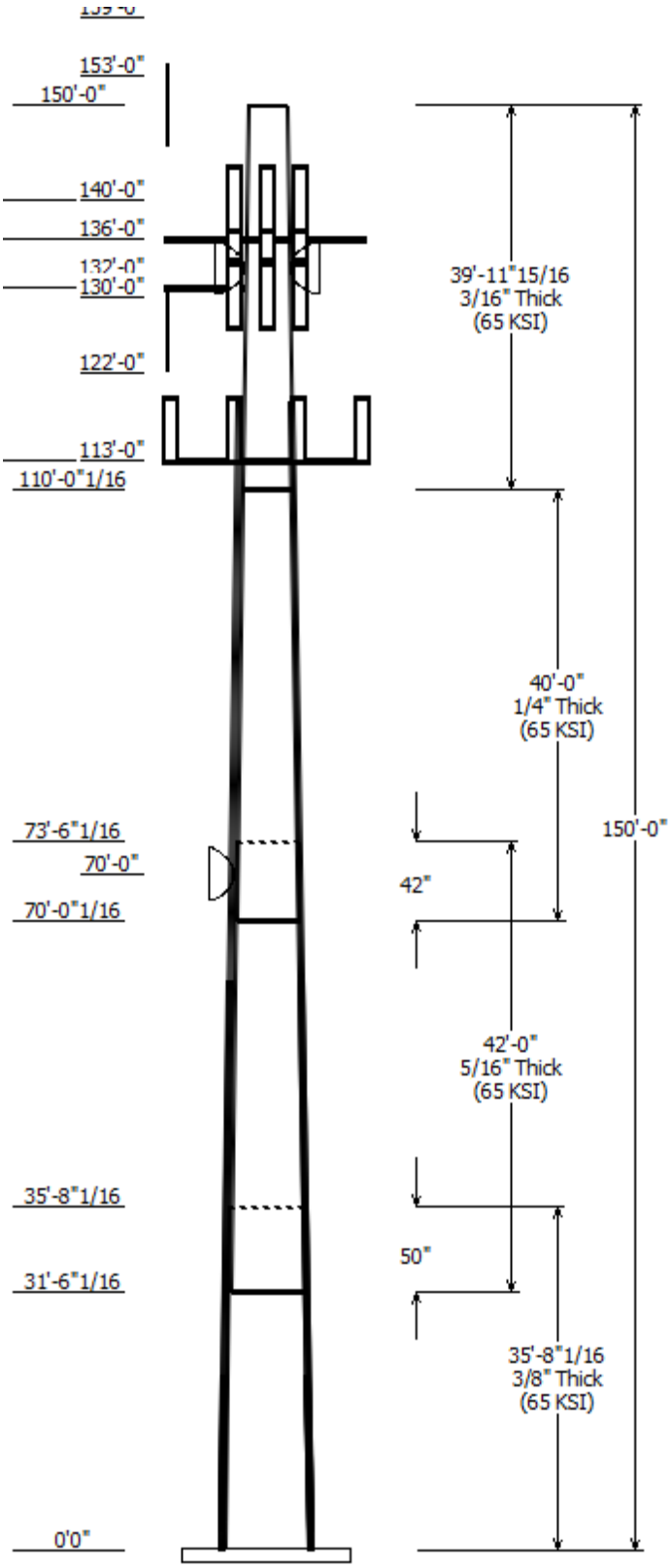
- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

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

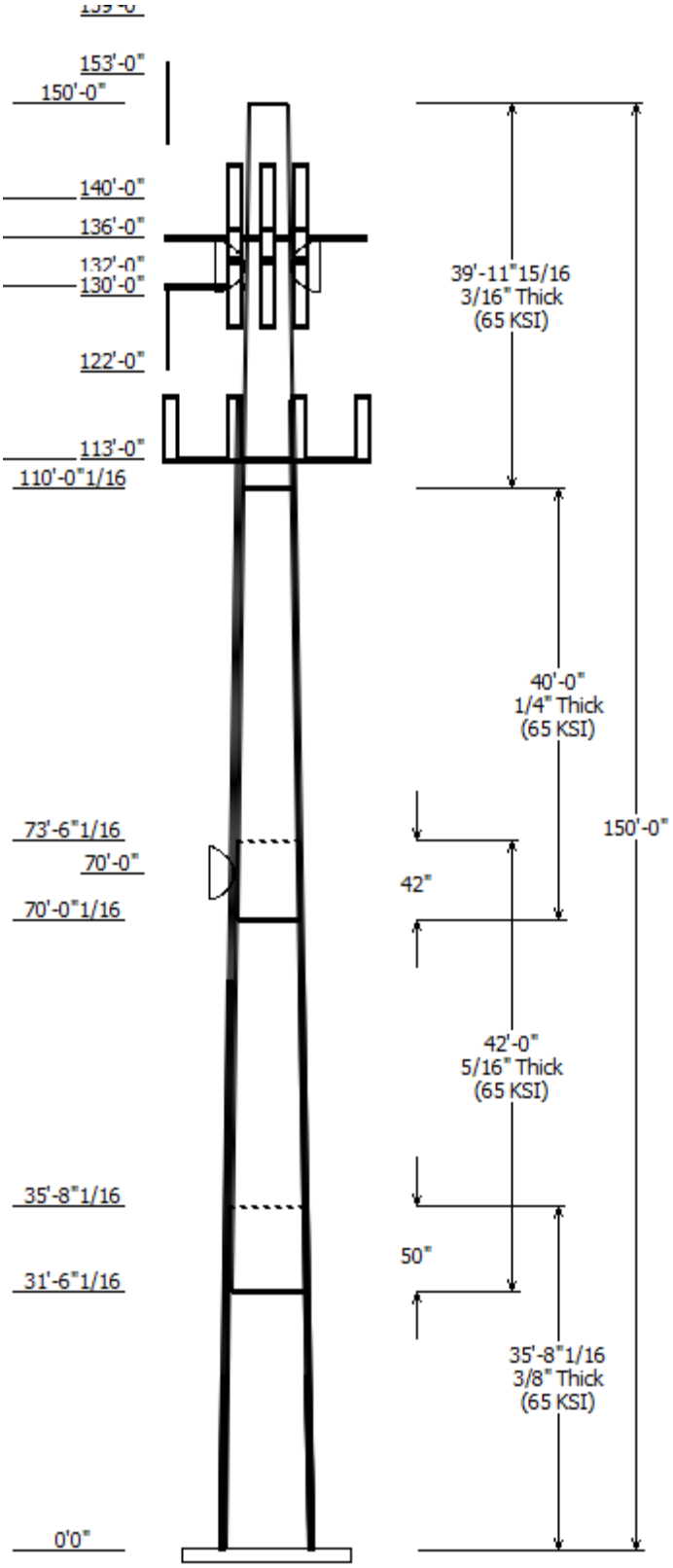
Client :	T-MOBILE		
Pole :	302484	Code:	ANSI/TIA-222-G
Location :	Branford CT 6, CT		
Description :	150 ft. ITT Meyer - Model Verified 10/25/11	Struct Class :	II
Shape :	12 Sides	Exposure :	B
Height :	150.00 (ft)	Topo :	1
Base Elev (ft):	0.00		
Taper:	0.156700 (in/ft)		

Sections Properties

Shaft Section	Length (ft)	Diameter (in) Accross Flats Top	Bottom	Thick (in)	Joint Type	Overlap Length (in)	Shape	Steel Grade (ksi)
1	35.670	31.79	37.38	0.375		0.000	12 Sides	65
2	42.000	26.48	33.06	0.313	Slip Joint	50.000	12 Sides	65
3	40.000	21.26	27.53	0.250	Slip Joint	42.000	12 Sides	65
4	39.997	15.00	21.26	0.188	Butt Joint	0.000	12 Sides	65

Discrete Appurtenance

Attach Elev (ft)	Force Elev (ft)	Qty	Description
160.000	160.000	1	Generic 11' Dipole
159.000	159.000	1	Generic 4' Omni
153.000	153.000	3	Kathrein Scala 80010965
153.000	153.000	3	Commscope SBNHH-1D65B
153.000	153.000	3	CCI HPA65R-BU6A
153.000	151.000	3	Powerwave Allgon 7770.00
153.000	153.000	1	Raycap DC6-48-60-18-8C-EV
153.000	153.000	3	Ericsson RRUS 32 B30 (53 lbs)
153.000	153.000	1	Raycap DC6-48-60-18-8C
153.000	153.000	3	Ericsson RRUS 4449 B5, B12
153.000	153.000	3	Ericsson RRUS 8843 B2, B66A
153.000	151.000	1	Raycap DC6-48-60-18-8F
153.000	151.000	6	Powerwave Allgon LGP21401
153.000	153.000	3	Kathrein Scala 782-10250
153.000	151.000	6	Powerwave Allgon 7020.00
150.000	150.000	1	Generic GPS
140.000	140.000	1	PerfectVision PV-RP14M-9-96
140.000	140.000	3	RFS APXVAARR24_43-U-NA20
140.000	136.000	3	Ericsson AIR 21, 1.3M, B4A B2P
140.000	136.000	3	Ericsson AIR 21, 1.3 M, B2A B4
140.000	140.000	3	Ericsson Radio 4449 B12,B71
140.000	136.000	3	Ericsson KRY 112 144/1
136.000	136.000	3	Round T-Arm
132.000	132.000	1	Generic 12" x 12" Junction Box
131.000	131.000	1	Side Arms
130.000	132.000	1	DragonWave A-ANT-18G-2.5-C
130.000	130.000	3	Argus LLPX310R
130.000	130.000	3	NextNet BTS-2500
130.000	132.000	1	DragonWave A-ANT-23G-1-C
130.000	132.000	2	DragonWave Horizon Compact
122.000	123.000	1	SWR FMEC/1
113.000	113.000	3	Round T-Arm
113.000	115.000	6	Commscope JAHH-65B-R3B
113.000	115.000	2	RFS DB-T1-6Z-8AB-0Z
113.000	115.000	2	RFS APL866513-12T0-00
113.000	115.000	4	RFS APL868013-12T0
113.000	115.000	3	Nokia B66a RRH4x45 (UHIE)
113.000	115.000	3	Alcatel-Lucent RRH2x60 700
113.000	115.000	3	Alcatel-Lucent RRH 2X60-1900
113.000	115.000	3	Alcatel-Lucent RRH2x40-07-L
70.000	70.000	1	Generic 4' Std. Dish



Linear Appurtenance

Elev (ft) From	To	Description	Exposed To Wind
0.000	19.800	PL 1" x 5"	Yes
0.000	19.800	PL 1" x 5"	Yes
0.000	19.800	PL 1" x 5"	Yes
0.000	19.800	PL 1" x 5"	Yes
0.000	65.000	#18 Dywidag Bars	Yes
0.000	65.000	#18 Dywidag Bars	Yes
0.000	65.000	#18 Dywidag Bars	Yes
0.000	65.000	#18 Dywidag Bars	Yes
0.000	70.000	0.28" (7mm) RG-6	No
0.000	113.0	1 1/4" Coax	No
0.000	113.0	1 5/8" Hybriflex	No
0.000	122.0	1/2" Coax	No
0.000	123.2	#18 Dywidag bars	Yes
0.000	123.2	#18 Dywidag bars	Yes
0.000	123.2	#18 Dywidag bars	Yes
0.000	123.2	#18 Dywidag bars	Yes
0.000	130.0	1/2" Coax	Yes
0.000	130.0	5/16" (0.31"-	Yes
0.000	132.0	1/2" Coax	Yes
0.000	132.0	2" conduit	Yes
0.000	140.0	1 1/4" (1.25"-	No
0.000	140.0	1 5/8" (1.63"-	No
0.000	140.0	1 5/8" Coax	Yes
0.000	150.0	1/2" Coax	No
0.000	153.0	0.39" (10mm)	No
0.000	153.0	0.78" (19.7mm) 8	No
0.000	153.0	1 5/8" Coax	No
0.000	153.0	2" conduit	No
0.000	153.0	3" conduit	No
0.000	159.0	1 5/8" Coax	No
0.000	160.0	7/8" Coax	No

Load Cases

1.2D + 1.6W	101 mph with No Ice
0.9D + 1.6W	101 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Lateral
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Modal
1.0D + 1.0W	Serviceability 60 mph

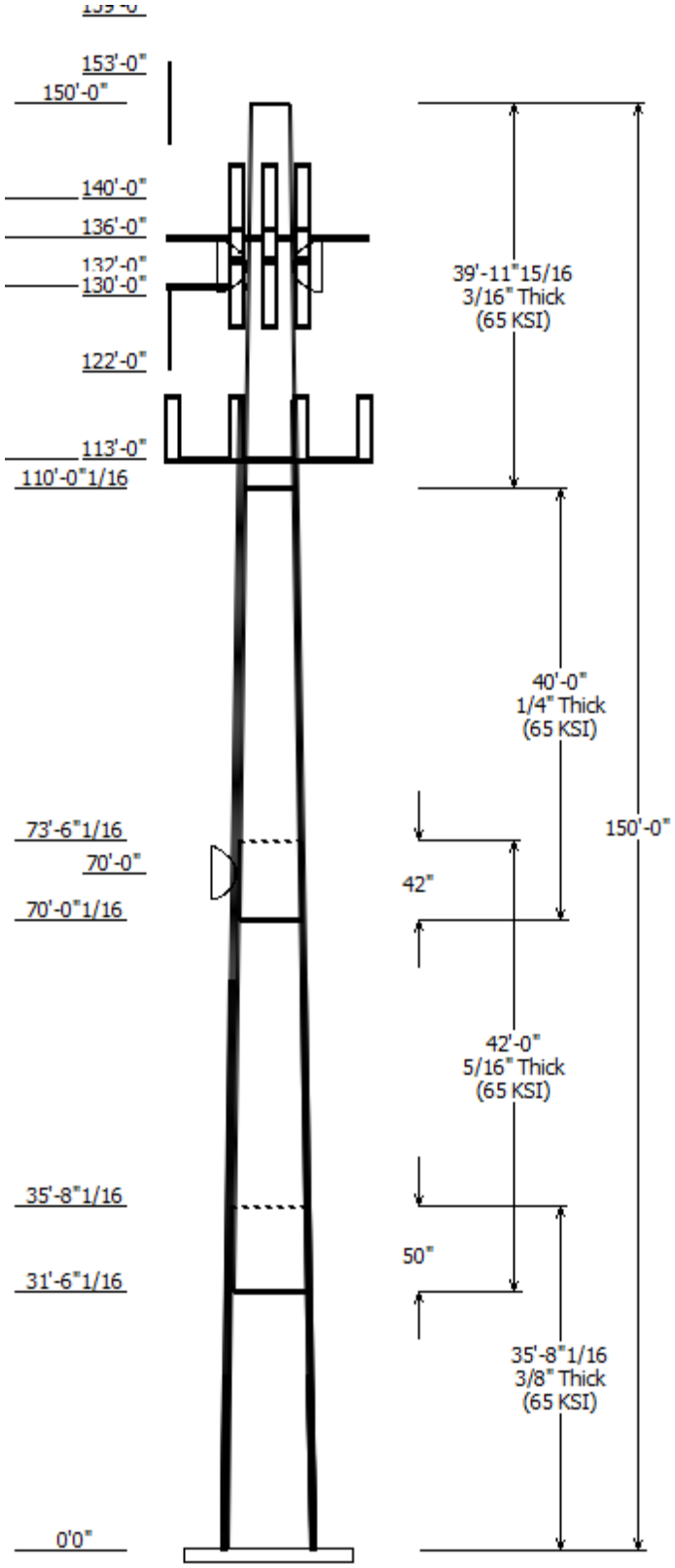
Reactions

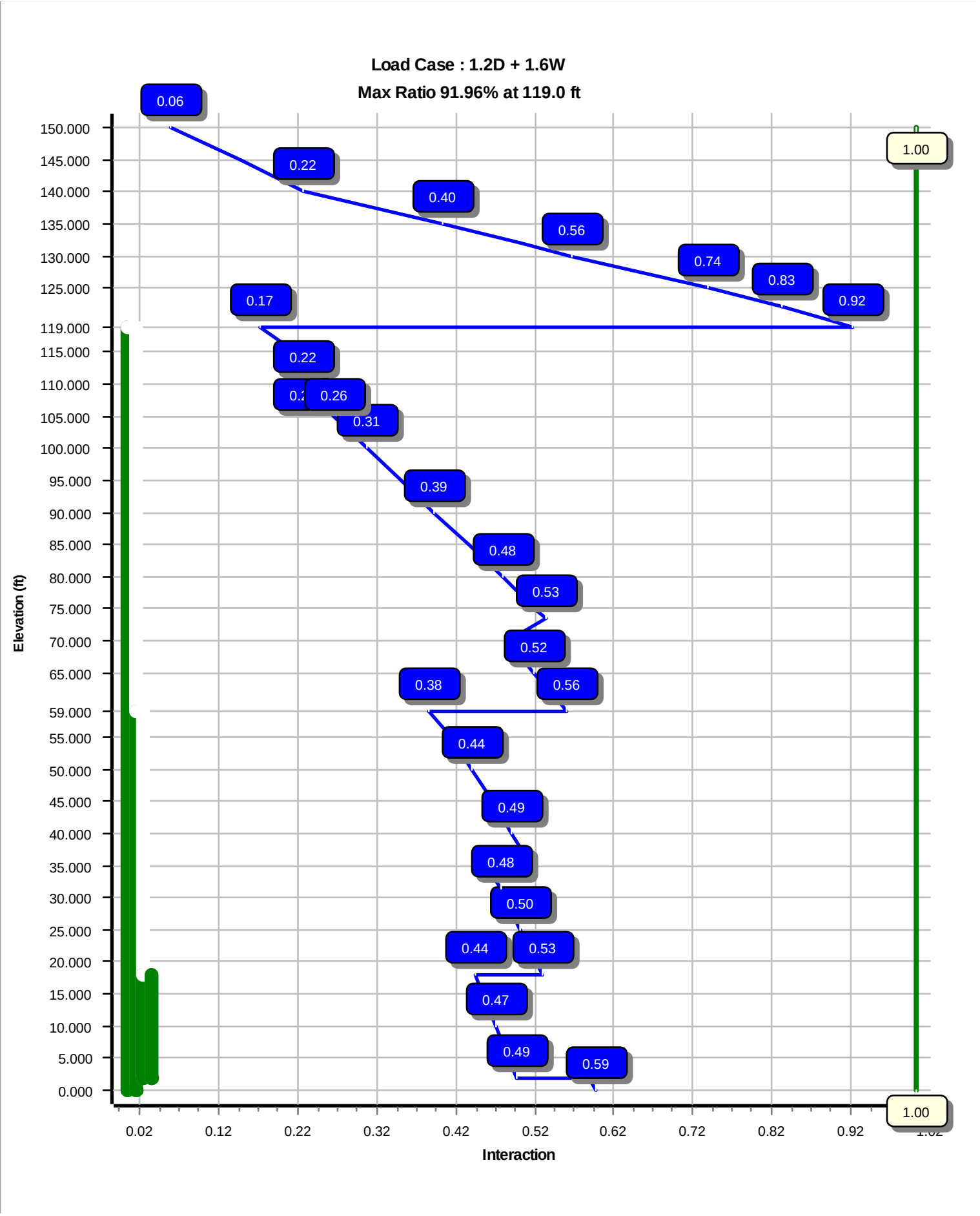
Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.6W	3151.79	29.90	48.38
0.9D + 1.6W	3021.47	28.19	36.28
1.2D + 1.0Di + 1.0Wi	1508.02	17.52	73.08
(1.2 + 0.2Sds) * DL + E ELFM	150.49	1.21	49.69
(1.2 + 0.2Sds) * DL + E EMAM	260.24	2.36	49.69
(0.9 - 0.2Sds) * DL + E ELFM	147.86	1.21	33.71
(0.9 - 0.2Sds) * DL + E EMAM	255.40	2.35	33.71
1.0D + 1.0W	599.93	5.56	40.34

Dish Deflections

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)

1.0D + 1.0W	70.00	4.508	0.641
1.0D + 1.0W	130.00	16.316	1.306
1.0D + 1.0W	130.00	16.316	1.306




Load Case : 1.2D + 1.6W
Max Ratio 91.96% at 119.0 ft
0.06
0.22
0.40
0.56
0.74
0.83
0.92
0.17
0.22
0.26
0.31
0.39
0.48
0.53
0.52
0.38
0.56
0.44
0.49
0.48
0.50
0.44
0.53
0.47
0.49
0.59
1.00
1.00
150.000
145.000
140.000
135.000
130.000
125.000
119.000
115.000
110.000
105.000
100.000
95.000
90.000
85.000
80.000
75.000
70.000
65.000
59.000
55.000
50.000
45.000
40.000
35.000
30.000
25.000
20.000
15.000
10.000
5.000
0.000
Elevation (ft)
0.02
0.12
0.22
0.32
0.42
0.52
0.62
0.72
0.82
0.92
Interaction

Site Number: 302484 | Code: ANSI/TIA-222-G |

Site Name: Branford CT 6, CT | Engineering Number:12927172_C3_02 | 7/30/2019 12:58:59 PM

Customer: T-MOBILE

Analysis Parameters

Location :	New Haven County, CT	Height (ft) :	150
Code :	ANSI/TIA-222-G	Base Diameter (in) :	37.38
Shape :	12 Sides	Top Diameter (in) :	15.00
Pole Type :	Taper	Taper (in/ft) :	0.157
Pole Manfacturer :	ITT Meyer	Rotation (deg) :	0.00

Ice & Wind Parameters

Structure Class:	II	Design Wind Speed Without Ice:	101 mph
Exposure Category:	B	Design Wind Speed With Ice:	50 mph
Topographic Category:	1	Operational Wind Speed:	60 mph
Crest Height:	0 ft	Design Ice Thickness:	0.75 in

Seismic Parameters

Analysis Method:	Equivalent Modal Analysis & Equivalent Lateral Force Methods				
Site Class:	D - Stiff Soil				
Period Based on Rayleigh Method (sec):	2.50				
T_L (sec):	6	p:	1	C_s:	0.030
S_s:	0.240	S_1:	0.060	C_s Max:	0.030
F_a:	1.600	F_v:	2.400	C_s Min:	0.030
S_{ds}:	0.256	S_{d1}:	0.096		

Load Cases

1.2D + 1.6W	101 mph with No Ice
0.9D + 1.6W	101 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E ELFM	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E EMAM	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E ELFM	Seismic (Reduced DL) Equivalent Lateral Forces Method
(0.9 - 0.2Sds) * DL + E EMAM	Seismic (Reduced DL) Equivalent Modal Analysis Method
1.0D + 1.0W	Serviceability 60 mph

Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Slip 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 (ft)	Top Area (in²)	Top Ix (in⁴)	Top W/t Ratio	Top D/t Ratio	Taper (in/ft)
1-12	35.670	0.3750	65		0.00	5,014	37.38	0.00	44.68	7810.1	24.03	99.68	31.79	35.67	37.93	4778.7	20.04	84.77	0.156700
2-12	42.000	0.3125	65	Slip	50.00	4,237	33.06	31.50	32.96	4514.0	25.67	105.82	26.48	73.50	26.34	2303.2	20.03	84.76	0.156700
3-12	40.000	0.2500	65	Slip	42.00	2,646	27.53	70.00	21.96	2087.3	26.83	110.14	21.26	110.00	16.92	953.9	20.11	85.07	0.156700
4-12	39.997	0.1875	65	Butt	0.00	1,475	21.26	110.00	12.73	721.9	27.71	113.43	15.00	150.00	8.94	250.5	18.76	80.00	0.156700
				Shaft Weight		13,372													

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	1.00	0.000	40.00	3.580	1.00	164.11	12.103	1.00
159.00	Generic 4' Omni	1	1.00	0.000	10.00	1.000	1.00	41.22	1.863	1.00
153.00	Powerwave Allgon 7020.00 Dual	6	0.75	-2.000	2.20	0.340	0.50	12.42	0.751	0.50
153.00	Kathrein Scala 782-10250	3	0.75	0.000	6.40	0.450	0.50	19.17	0.942	0.50
153.00	Powerwave Allgon LGP21401	6	0.75	-2.000	14.10	1.100	0.50	39.06	1.811	0.50
153.00	Raycap DC6-48-60-18-8F	1	0.75	-2.000	31.80	1.470	1.00	93.52	2.169	1.00
153.00	Ericsson RRUS 8843 B2, B66A	3	0.75	0.000	72.00	1.640	0.50	133.32	2.486	0.50
153.00	Ericsson RRUS 4449 B5, B12	3	0.75	0.000	71.00	1.970	0.50	135.47	2.904	0.50
153.00	Raycap DC6-48-60-18-8C	1	0.75	0.000	16.00	2.030	1.00	74.24	2.790	1.00
153.00	Ericsson RRUS 32 B30 (53 lbs)	3	0.75	0.000	53.00	2.740	0.50	126.58	3.909	0.50
153.00	Raycap DC6-48-60-18-8C-EV	1	0.75	0.000	16.00	4.790	1.00	145.18	6.262	1.00
153.00	Powerwave Allgon 7770.00	3	0.75	-2.000	35.00	5.510	0.65	169.89	6.563	0.65
153.00	CCI HPA65R-BU6A	3	0.75	0.000	41.90	7.860	0.70	217.22	10.621	0.70
153.00	Commscope SBNHH-1D65B	3	0.75	0.000	50.70	8.170	0.69	226.27	11.000	0.69
153.00	Kathrein Scala 80010965	3	0.75	0.000	97.60	13.810	0.62	364.30	16.861	0.62
150.00	Generic GPS	1	1.00	0.000	10.00	0.900	1.00	39.27	1.540	1.00
140.00	Ericsson KRY 112 144/1	3	0.75	-4.000	11.00	0.350	0.50	21.69	0.752	0.50
140.00	Ericsson Radio 4449 B12,B71	3	0.75	0.000	74.00	1.640	0.50	129.64	2.479	0.50
140.00	Ericsson AIR 21, 1.3 M, B2A B4P	3	0.75	-4.000	83.00	6.050	0.71	228.03	8.199	0.71
140.00	Ericsson AIR 21, 1.3M, B4A B2P	3	0.75	-4.000	81.50	6.090	0.70	226.00	8.240	0.70
140.00	RFS APXVAARR24_43-U-NA20	3	0.75	0.000	127.90	20.240	0.63	518.02	23.925	0.63
140.00	PerfectVision PV-RP14M-9-96	1	1.00	0.000	2,972.00	36.600	1.00	5,029.48	61.938	1.00
136.00	Round T-Arm	3	0.75	0.000	250.00	9.700	0.67	457.31	17.878	0.67
132.00	Generic 12" x 12" Junction Box	1	0.80	0.000	10.00	1.200	1.00	51.19	1.918	1.00
131.00	Side Arms	1	1.00	0.000	560.00	8.500	1.00	1,022.63	15.522	1.00
130.00	DragonWave Horizon Compact	2	0.80	2.000	10.60	0.720	0.50	32.77	1.280	0.50
130.00	DragonWave A-ANT-23G-1-C	1	1.00	2.000	15.00	1.610	1.00	49.83	2.356	1.00
130.00	NextNet BTS-2500	3	0.80	0.000	35.00	1.820	0.50	80.72	2.725	0.50
130.00	Argus LLPX310R	3	0.80	0.000	28.60	4.290	0.63	117.45	5.919	0.63
130.00	DragonWave A-ANT-18G-2.5-C	1	0.80	2.000	47.60	8.430	1.00	217.44	10.109	1.00
122.00	SWR FMEC/1	1	1.00	1.000	15.00	2.500	1.00	95.32	6.395	1.00
113.00	Alcatel-Lucent RRH2x40-07-L	3	0.80	2.000	52.40	1.700	0.50	111.28	2.569	0.50
113.00	Alcatel-Lucent RRH 2X60-1900	3	0.80	2.000	39.60	1.880	0.50	93.00	2.793	0.50
113.00	Alcatel-Lucent RRH2x60 700	3	0.80	2.000	56.70	2.150	0.50	122.91	3.125	0.50
113.00	Nokia B66a RRH4x45 (UHIE)	3	0.80	2.000	56.80	2.540	0.50	124.97	3.631	0.50
113.00	RFS APL868013-12T0	4	0.80	2.000	6.30	3.610	0.50	92.01	5.425	0.50
113.00	RFS APL866513-12T0-00	2	0.80	2.000	15.70	4.050	0.82	121.71	5.859	0.82
113.00	RFS DB-T1-6Z-8AB-0Z	2	0.80	2.000	44.00	4.800	0.72	166.43	6.182	0.72
113.00	Commscope JAHH-65B-R3B	6	0.80	2.000	60.60	9.110	0.69	257.40	11.808	0.69
113.00	Round T-Arm	3	0.75	0.000	250.00	9.700	0.67	453.31	17.720	0.67
70.00	Generic 4' Std. Dish	1	1.00	0.000	188.00	20.910	1.00	384.90	23.754	1.00
Totals	Num Loadings:41	104			9,280.90			22,501.06		

Linear Appurtenance Properties

Load Case Azimuth (deg) :

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	0.00	0.00	0	0.00	N	OTHER
0.00	159.00	1	1 5/8" Coax	1.98	0.82	N	0	0.00	0.00	0	0.00	N	OTHER
0.00	153.00	2	0.39" (10mm) Fiber	0.39	0.06	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	153.00	6	0.78" (19.7mm) 8 AWG	0.78	0.59	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	153.00	6	1 5/8" Coax	1.98	0.82	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	153.00	2	2" conduit	2.38	3.65	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	153.00	1	3" conduit	3.50	7.58	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	150.00	1	1/2" Coax	0.63	0.15	N	0	0.00	0.00	0	0.00	N	VERIZON WIRELESS
0.00	140.00	1	1 1/4" (1.25"- 31.8mm)	1.25	1.05	N	0	0.00	0.00	0	0.00	N	T-MOBILE
0.00	140.00	3	1 5/8" (1.63"-41.3mm)	1.63	1.61	N	0	0.00	0.00	0	0.00	N	T-MOBILE
0.00	140.00	6	1 5/8" Coax	1.98	0.82	N	6	0.00	0.00	90	0.25	Y	T-MOBILE
0.00	132.00	2	1/2" Coax	0.63	0.15	N	2	0.00	0.00	200	0.25	Y	CLEARWIRE
0.00	132.00	2	2" conduit	2.38	3.65	N	2	0.00	0.00	190	0.25	Y	CLEARWIRE
0.00	130.00	2	1/2" Coax	0.63	0.15	N	2	0.00	0.00	200	0.25	Y	CLEARWIRE
0.00	130.00	6	5/16" (0.31"-7.9mm)	0.31	0.05	N	6	0.00	0.00	205	0.25	Y	CLEARWIRE
0.00	123.20	1	#18 Dywidag bars	2.50	0.00	N	1	0.00	0.00	0	0.25	Y	
0.00	123.20	1	#18 Dywidag bars	2.50	0.00	N	1	0.00	0.00	90	0.25	Y	
0.00	123.20	1	#18 Dywidag bars	2.50	0.00	N	1	0.00	0.00	180	0.25	Y	
0.00	123.20	1	#18 Dywidag bars	2.50	0.00	N	1	0.00	0.00	270	0.25	Y	
0.00	122.00	3	1/2" Coax	0.63	0.15	N	0	0.00	0.00	0	0.00	N	ALMA RADIO INC.
0.00	113.00	6	1 1/4" Coax	1.55	0.63	N	0	0.00	0.00	0	0.00	N	VERIZON WIRELESS
0.00	113.00	2	1 5/8" Hybriflex	1.98	1.30	N	0	0.00	0.00	0	0.00	N	VERIZON WIRELESS
0.00	70.00	1	0.28" (7mm) RG-6	0.28	0.03	N	0	0.00	0.00	0	0.00	N	OTHER
0.00	65.00	1	#18 Dywidag Bars	2.50	0.00	N	1	0.00	0.00	10	0.25	Y	
0.00	65.00	1	#18 Dywidag Bars	2.50	0.00	N	1	0.00	0.00	100	0.25	Y	
0.00	65.00	1	#18 Dywidag Bars	2.50	0.00	N	1	0.00	0.00	190	0.25	Y	
0.00	65.00	1	#18 Dywidag Bars	2.50	0.00	N	1	0.00	0.00	280	0.25	Y	
0.00	19.80	1	PL 1" x 5"	1.00	0.00	N	1	0.00	0.00	5	0.25	Y	
0.00	19.80	1	PL 1" x 5"	1.00	0.00	N	1	0.00	0.00	95	0.25	Y	
0.00	19.80	1	PL 1" x 5"	1.00	0.00	N	1	0.00	0.00	185	0.25	Y	
0.00	19.80	1	PL 1" x 5"	1.00	0.00	N	1	0.00	0.00	275	0.25	Y	

Additional Steel

Elev From (ft)	Elev To (ft)	Qty	Description	Fy (ksi)	Offset (in)	Intermediate Connections: Description	Spacing (in)	Len (in)	Connectors	Continuation?
0.00	119.0	4	SOL #18 All Thread	75	6.37	6" T Bracket	30.0	3.50	5/8" A36 U-Bolt	Yes
0.00	59.00	4	SOL #18 All Thread	75	3.44	6" Angle Bracket	30.0	3.50	5/8" A36 U-Bolt	No
2.00	18.00	2	PL PL 4" x 1"	50	0.00	5/8" Hollo Bolt	12.0	3.00	5/8" Hollo Bolt	No
2.00	18.00	2	PL PL 5" x 1"	50	0.00	5/8" Hollo Bolt	12.0	3.00	5/8" Hollo Bolt	No

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	7,810.1	24.03	99.68	78.5	403.6	0.0	0.0	32.00	9,896	0.0
2.00	Reinf Bottom Reinf	0.3750	37.067	44.305	7,613.3	23.81	98.84	78.8	396.8	0.0	302.8	32.00	9,772	217.6
5.00		0.3750	36.597	43.737	7,324.4	23.47	97.59	79.1	386.6	0.0	449.4	50.00	12,78	510.1
10.00		0.3750	35.813	42.791	6,859.3	22.91	95.50	79.7	370.0	0.0	736.1	50.00	12,34	850.2
15.00		0.3750	35.030	41.845	6,414.3	22.35	93.41	80.3	353.7	0.0	720.0	50.00	11,92	850.2
18.00	Reinf. Top Reinf.	0.3750	34.559	41.278	6,156.8	22.01	92.16	80.7	344.2	0.0	424.3	50.00	11,66	510.1
20.00		0.3750	34.246	40.899	5,989.0	21.79	91.32	80.9	337.8	0.0	279.6	32.00	8,691	217.6
25.00		0.3750	33.463	39.953	5,583.0	21.23	89.23	81.6	322.3	0.0	687.8	32.00	8,402	544.0
30.00		0.3750	32.679	39.007	5,195.7	20.67	87.14	81.9	307.1	0.0	671.7	32.00	8,118	544.0
31.50	Bot - Section 2	0.3750	32.443	38.723	5,082.8	20.50	86.52	81.9	302.7	0.0	198.8	32.00	8,033	163.6
35.00		0.3750	31.896	38.061	4,826.7	20.11	85.05	81.9	292.3	0.0	845.7	32.00	8,061	380.4
35.67	Top - Section 1	0.3125	32.416	32.304	4,249.4	25.11	103.73	77.3	253.3	0.0	160.4	32.00	8,023	72.9
40.00		0.3125	31.737	31.621	3,985.6	24.53	101.56	78.0	242.6	0.0	470.9	32.00	7,783	471.1
45.00		0.3125	30.954	30.833	3,694.9	23.86	99.05	78.7	230.6	0.0	531.3	32.00	7,509	544.0
50.00		0.3125	30.170	30.044	3,418.6	23.19	96.54	79.4	218.9	0.0	517.9	32.00	7,241	544.0
55.00		0.3125	29.387	29.256	3,156.5	22.52	94.04	80.2	207.5	0.0	504.5	32.00	6,978	544.0
59.00	Reinf. Top	0.3125	28.760	28.625	2,956.7	21.98	92.03	80.7	198.6	0.0	393.9	32.00	6,989	489.6
60.00		0.3125	28.603	28.467	2,908.1	21.85	91.53	80.9	196.4	0.0	97.1	16.00	3,838	54.4
65.00		0.3125	27.819	27.679	2,673.1	21.17	89.02	81.6	185.6	0.0	477.6	16.00	3,702	272.0
70.00		0.3125	27.036	26.891	2,451.2	20.50	86.52	81.9	175.1	0.0	464.2	16.00	3,569	272.0
70.00	Bot - Section 3	0.3125	27.035	26.890	2,451.0	20.50	86.51	81.9	175.1	0.0	0.3	16.00	3,568	0.2
73.50	Top - Section 2	0.2500	26.987	21.523	1,963.9	26.25	107.95	76.1	140.6	0.0	575.9	16.00	3,560	190.4
75.00		0.2500	26.753	21.335	1,912.7	25.99	107.01	76.4	138.1	0.0	109.1	16.00	3,521	81.4
80.00		0.2500	25.969	20.704	1,748.0	25.15	103.88	77.3	130.0	0.0	357.6	16.00	3,391	272.0
85.00		0.2500	25.186	20.073	1,593.1	24.31	100.74	78.2	122.2	0.0	346.9	16.00	3,263	272.0
90.00		0.2500	24.402	19.442	1,447.6	23.47	97.61	79.1	114.6	0.0	336.2	16.00	3,138	272.0
95.00		0.2500	23.619	18.812	1,311.2	22.63	94.47	80.0	107.2	0.0	325.4	16.00	3,015	272.0
100.0		0.2500	22.835	18.181	1,183.7	21.79	91.34	80.9	100.1	0.0	314.7	16.00	2,895	272.0
105.0		0.2500	22.052	17.550	1,064.7	20.96	88.21	81.9	93.3	0.0	304.0	16.00	2,777	272.0
110.0		0.2500	21.268	16.919	954.0	20.12	85.07	81.9	86.7	0.0	293.2	16.00	2,661	272.0
110.0	Top - Section 3	0.2500	21.267	16.919	953.9	20.11	85.07	81.9	86.7	0.0	0.2	16.00	2,661	0.2
110.0	Bot - Section 4	0.1875	21.267	12.727	721.9	27.71	113.43	74.5	65.6	0.0		16.00	2,661	
113.0		0.1875	20.798	12.444	674.7	27.04	110.92	75.2	62.7	0.0	128.3	16.00	2,593	163.0
115.0		0.1875	20.485	12.254	644.4	26.59	109.25	75.7	60.8	0.0	84.0	16.00	2,548	108.8
119.0	Reinf. Top	0.1875	19.858	11.876	586.5	25.70	105.91	76.7	57.1	0.0	164.2	16.00	2,661	0.2
120.0		0.1875	19.701	11.781	572.6	25.47	105.07	76.9	56.1	0.0	40.3			
122.0		0.1875	19.388	11.592	545.4	25.03	103.40	77.4	54.4	0.0	79.5			
125.0		0.1875	18.918	11.308	506.4	24.35	100.89	78.2	51.7	0.0	116.9			
130.0		0.1875	18.134	10.835	445.4	23.24	96.71	79.4	47.5	0.0	188.4			
131.0		0.1875	17.977	10.741	433.9	23.01	95.88	79.6	46.6	0.0	36.7			
132.0		0.1875	17.821	10.646	422.5	22.79	95.04	79.9	45.8	0.0	36.4			
135.0		0.1875	17.351	10.362	389.6	22.12	92.54	80.6	43.4	0.0	107.2			
136.0		0.1875	17.194	10.268	379.0	21.89	91.70	80.8	42.6	0.0	35.1			
140.0		0.1875	16.567	9.889	338.6	21.00	88.36	81.8	39.5	0.0	137.2			
145.0		0.1875	15.784	9.416	292.3	19.88	84.18	81.9	35.8	0.0	164.2			
150.0		0.1875	15.000	8.943	250.5	18.76	80.00	81.9	32.3	0.0	156.2			
											13,372.3			10,500.

Site Number: 302484 Code: ANSI/TIA-222-G

Site Name: Branford CT 6, CT Engineering Number:12927172_C3_02 7/30/2019 12:58:59 PM

Customer: T-MOBILE

Load Case: 1.2D + 1.6W 101 mph with No Ice 26 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00

Dead Load Factor :1.20

Wind Load Factor :1.60

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		110.7	0.0					0.0	0.0	110.7	0.0	0.0	0.0
2.00	Reinf Bottom	275.7	363.4					0.0	384.2	275.7	747.6	0.0	0.0
5.00		437.2	539.3					0.0	796.8	437.2	1,336.0	0.0	0.0
10.00		540.7	883.3					0.0	1,327.9	540.7	2,211.2	0.0	0.0
15.00		427.9	864.0					0.0	1,327.9	427.9	2,191.9	0.0	0.0
18.00	Reinf. Top Reinf.	264.9	509.1					0.0	796.8	264.9	1,305.9	0.0	0.0
20.00		366.8	335.6					0.0	384.2	366.8	719.7	0.0	0.0
25.00		519.0	825.4					0.0	960.5	519.0	1,785.8	0.0	0.0
30.00		335.0	806.1					0.0	960.5	335.0	1,766.5	0.0	0.0
31.50	Bot - Section 2	263.7	238.6					0.0	288.8	263.7	527.4	0.0	0.0
35.00		222.4	1,014.8					0.0	671.7	222.4	1,686.5	0.0	0.0
35.67	Top - Section 1	270.5	192.5					0.0	128.7	270.5	321.2	0.0	0.0
40.00		510.5	565.1					0.0	831.8	510.5	1,396.9	0.0	0.0
45.00		556.9	637.5					0.0	960.5	556.9	1,598.0	0.0	0.0
50.00		565.6	621.4					0.0	960.5	565.6	1,581.9	0.0	0.0
55.00		514.9	605.4					0.0	960.5	514.9	1,565.8	0.0	0.0
59.00	Reinf. Top	287.9	472.7					0.0	833.7	287.9	1,306.4	0.0	0.0
60.00		348.0	116.6					0.0	126.8	348.0	243.4	0.0	0.0
65.00		576.5	573.2					0.0	634.1	576.5	1,207.2	0.0	0.0
70.00	Appurtenance(s)	286.4	557.1	814.8	0.0	0.0	225.6	0.0	634.1	1,101.3	1,416.7	0.0	0.0
70.00	Bot - Section 3	205.1	0.4					0.0	0.4	205.1	0.8	0.0	0.0
73.50	Top - Section 2	291.9	691.1					0.0	443.7	291.9	1,134.8	0.0	0.0
75.00		378.4	131.0					0.0	189.7	378.4	320.7	0.0	0.0
80.00		583.0	429.1					0.0	633.9	583.0	1,063.0	0.0	0.0
85.00		558.3	416.3					0.0	633.9	558.3	1,050.2	0.0	0.0
90.00		528.8	403.4					109.0	633.9	637.8	1,037.3	0.0	0.0
95.00		519.8	390.5					110.8	633.9	630.5	1,024.4	0.0	0.0
100.00		509.9	377.6					112.5	633.9	622.4	1,011.5	0.0	0.0
105.00		499.4	364.8					114.1	633.9	613.4	998.7	0.0	0.0
110.00		247.1	351.9					115.6	633.9	362.7	985.8	0.0	0.0
110.00	Top - Section 3	145.4	0.2					0.1	0.4	145.5	0.7	0.0	0.0
113.00	Appurtenance(s)	241.0	154.0	3,200.3	0.0	5,093.9	2,249.6	70.0	379.9	3,511.3	2,783.6	0.0	0.0
115.00		284.2	100.8					47.0	238.2	331.2	339.1	0.0	0.0
119.00	Reinf. Top	235.0	197.1					94.8	215.6	329.7	412.7	0.0	0.0
120.00		138.7	48.3					23.8	53.8	162.5	102.1	0.0	0.0
122.00	Appurtenance(s)	228.5	95.4	114.4	0.0	114.4	18.0	47.8	107.7	390.8	221.1	0.0	0.0
125.00		328.8	140.3					72.2	159.9	401.0	300.2	0.0	0.0
130.00	Appurtenance(s)	230.6	226.0	820.4	0.0	834.3	329.5	0.0	266.5	1,051.0	822.1	0.0	0.0
131.00	Appurtenance(s)	76.0	44.1	396.2	0.0	0.0	672.0	0.0	52.6	472.2	768.6	0.0	0.0
132.00	Appurtenance(s)	151.0	43.7	44.8	0.0	0.0	12.0	0.0	52.6	195.8	108.2	0.0	0.0
135.00		150.4	128.7					0.0	130.4	150.4	259.1	0.0	0.0
136.00	Appurtenance(s)	185.4	42.1	688.9	0.0	0.0	900.0	0.0	43.5	874.3	985.6	0.0	0.0
140.00	Appurtenance(s)	314.6	164.6	4,115.0	0.0	-3,703.4	4,925.0	0.0	173.9	4,429.6	5,263.5	0.0	0.0
145.00		326.6	197.1					0.0	152.5	326.6	349.6	0.0	0.0
150.00	Appurtenance(s)	160.1	187.4	43.6	0.0	0.0	12.0	0.0	152.5	203.7	351.9	0.0	0.0
								Totals:		26,355.4	46,611.5	0.00	0.00

Site Number: 302484 Code: ANSI/TIA-222-G

Site Name: Branford CT 6, CT Engineering Number: 12927172_C3_02 7/30/2019 12:59:09 PM

Customer: T-MOBILE

Load Case: 1.2D + 1.6W 101 mph with No Ice 26 Iterations

Gust Response Factor : 1.10 Wind Importance Factor : 1.00

Dead Load Factor : 1.20

Wind Load Factor : 1.60

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-48.38	-29.90	0.00	-3,151.79	0.00	3,151.79	3,157.17	1,578.58	4,812.28	2,376.61	0.00	0.00	0.594
2.00	-47.57	-29.73	0.00	-3,091.99	0.00	3,091.99	3,140.17	1,570.08	4,745.43	2,343.59	0.02	-0.10	0.587
5.00	-46.14	-29.43	0.00	-3,002.82	0.00	3,002.82	3,114.35	1,557.18	4,645.51	2,294.24	0.13	-0.25	0.484
10.00	-43.83	-29.03	0.00	-2,855.67	0.00	2,855.67	3,070.50	1,535.25	4,480.02	2,212.51	0.51	-0.46	0.468
15.00	-41.56	-28.70	0.00	-2,710.51	0.00	2,710.51	3,025.61	1,512.81	4,315.90	2,131.46	1.10	-0.66	0.451
18.00	-40.20	-28.49	0.00	-2,624.40	0.00	2,624.40	2,998.18	1,499.09	4,218.13	2,083.18	1.56	-0.79	0.442
18.00	-40.20	-28.49	0.00	-2,624.40	0.00	2,624.40	2,998.18	1,499.09	4,218.13	2,083.18	1.56	-0.79	0.526
20.00	-39.41	-28.23	0.00	-2,567.41	0.00	2,567.41	2,979.68	1,489.84	4,153.26	2,051.14	1.90	-0.87	0.518
25.00	-37.51	-27.84	0.00	-2,426.27	0.00	2,426.27	2,932.71	1,466.36	3,992.19	1,971.59	2.95	-1.11	0.499
30.00	-35.68	-27.56	0.00	-2,287.08	0.00	2,287.08	2,875.21	1,437.61	3,820.20	1,886.65	4.24	-1.35	0.480
31.50	-35.10	-27.36	0.00	-2,245.65	0.00	2,245.65	2,854.24	1,427.12	3,764.37	1,859.08	4.68	-1.42	0.475
35.00	-33.38	-27.15	0.00	-2,149.99	0.00	2,149.99	2,805.48	1,402.74	3,636.10	1,795.73	5.79	-1.59	0.455
35.67	-33.01	-26.94	0.00	-2,131.80	0.00	2,131.80	2,248.04	1,124.02	2,973.83	1,468.66	6.01	-1.62	0.511
40.00	-31.53	-26.51	0.00	-2,015.16	0.00	2,015.16	2,218.59	1,109.29	2,872.24	1,418.49	7.58	-1.82	0.489
45.00	-29.84	-26.02	0.00	-1,882.64	0.00	1,882.64	2,183.60	1,091.80	2,755.77	1,360.97	9.61	-2.06	0.463
50.00	-28.18	-25.50	0.00	-1,752.56	0.00	1,752.56	2,147.58	1,073.79	2,640.30	1,303.95	11.89	-2.29	0.438
55.00	-26.55	-25.02	0.00	-1,625.04	0.00	1,625.04	2,110.52	1,055.26	2,525.94	1,247.47	14.41	-2.51	0.412
59.00	-25.21	-24.72	0.00	-1,524.98	0.00	1,524.98	2,080.12	1,040.06	2,435.32	1,202.71	16.60	-2.69	0.383
59.00	-25.21	-24.72	0.00	-1,524.98	0.00	1,524.98	2,080.12	1,040.06	2,435.32	1,202.71	16.60	-2.69	0.558
60.00	-24.91	-24.43	0.00	-1,500.26	0.00	1,500.26	2,072.42	1,036.21	2,412.79	1,191.58	17.16	-2.73	0.551
65.00	-23.61	-23.92	0.00	-1,378.09	0.00	1,378.09	2,033.27	1,016.64	2,300.94	1,136.35	20.19	-3.04	0.516
70.00	-22.20	-22.80	0.00	-1,258.49	0.00	1,258.49	1,982.10	991.05	2,178.42	1,075.84	23.53	-3.33	0.484
70.00	-22.17	-22.63	0.00	-1,258.41	0.00	1,258.41	1,982.06	991.03	2,178.34	1,075.80	23.53	-3.33	0.484
73.50	-21.00	-22.33	0.00	-1,179.20	0.00	1,179.20	1,473.95	736.97	1,624.52	802.29	26.05	-3.53	0.532
75.00	-20.63	-22.00	0.00	-1,145.78	0.00	1,145.78	1,466.28	733.14	1,601.77	791.05	27.17	-3.62	0.519
80.00	-19.50	-21.44	0.00	-1,035.80	0.00	1,035.80	1,440.00	720.00	1,526.12	753.69	31.12	-3.90	0.476
85.00	-18.40	-20.89	0.00	-928.60	0.00	928.60	1,412.68	706.34	1,451.11	716.65	35.35	-4.18	0.433
90.00	-17.33	-20.26	0.00	-824.13	0.00	824.13	1,384.32	692.16	1,376.86	679.98	39.86	-4.43	0.390
95.00	-16.28	-19.61	0.00	-722.86	0.00	722.86	1,354.92	677.46	1,303.45	643.72	44.63	-4.67	0.348
100.00	-15.25	-18.96	0.00	-624.80	0.00	624.80	1,324.47	662.24	1,230.99	607.94	49.64	-4.89	0.305
105.00	-14.25	-18.31	0.00	-529.99	0.00	529.99	1,292.99	646.50	1,159.59	572.68	54.87	-5.10	0.263
110.00	-13.27	-17.88	0.00	-438.43	0.00	438.43	1,247.14	623.57	1,077.81	532.29	60.30	-5.27	0.224
110.00	-13.27	-17.75	0.00	-438.37	0.00	438.37	1,247.10	623.55	1,077.76	532.26	60.30	-5.27	0.224
110.00	-13.27	-17.75	0.00	-438.37	0.00	438.37	853.23	426.61	741.76	366.33	60.30	-5.27	0.264
113.00	-10.80	-14.01	0.00	-380.09	0.00	380.09	842.42	421.21	715.90	353.56	63.64	-5.37	0.229
115.00	-10.48	-13.66	0.00	-352.07	0.00	352.07	835.00	417.50	698.71	345.06	65.90	-5.44	0.212
119.00	-10.08	-13.31	0.00	-297.41	0.00	297.41	819.65	409.83	664.49	328.17	70.50	-5.55	0.170
119.00	-10.08	-13.31	0.00	-297.41	0.00	297.41	819.65	409.83	664.49	328.17	70.50	-5.55	0.920
120.00	-9.96	-13.16	0.00	-284.10	0.00	284.10	815.71	407.86	655.98	323.96	71.67	-5.58	0.890
122.00	-9.71	-12.81	0.00	-257.66	0.00	257.66	807.71	403.85	639.01	315.58	74.06	-5.85	0.829
125.00	-9.35	-12.45	0.00	-219.24	0.00	219.24	795.39	397.69	613.71	303.09	77.85	-6.22	0.736
130.00	-8.60	-11.36	0.00	-156.15	0.00	156.15	774.02	387.01	572.00	282.49	84.64	-6.75	0.565
131.00	-7.87	-10.81	0.00	-144.79	0.00	144.79	769.63	384.81	563.73	278.40	86.06	-6.84	0.531

Site Number:	302484	Code:	ANSI/TIA-222-G		
Site Name:	Branford CT 6, CT	Engineering Number:	12927172_C3_02	7/30/2019 12:59:09 PM	
Customer:	T-MOBILE				

Load Case: 1.2D + 1.6W — 101 mph with No Ice — 26 Iterations

Gust Response Factor : 1.10
Dead Load Factor : 1.20
Wind Load Factor : 1.60
Wind Importance Factor : 1.00

132.00	-7.75	-10.63	0.00	-133.98	0.00	133.98	765.19	382.59	555.49	274.33	87.50	-6.93	0.499
135.00	-7.49	-10.47	0.00	-102.09	0.00	102.09	751.62	375.81	530.94	262.21	91.93	-7.17	0.400
136.00	-6.60	-9.49	0.00	-91.62	0.00	91.62	747.02	373.51	522.82	258.20	93.44	-7.24	0.364
140.00	-1.93	-4.43	0.00	-53.65	0.00	53.65	728.18	364.09	490.64	242.31	99.59	-7.46	0.224
145.00	-1.61	-4.07	0.00	-31.49	0.00	31.49	694.06	347.03	445.03	219.79	107.49	-7.64	0.146
150.00	0.00	-3.81	0.00	-11.16	0.00	11.16	659.19	329.60	401.19	198.13	115.53	-7.74	0.056

Site Number: 302484 Code: ANSI/TIA-222-G

Site Name: Branford CT 6, CT Engineering Number: 12927172_C3_02 7/30/2019 12:59:09 PM

Customer: T-MOBILE

Load Case: 0.9D + 1.6W 101 mph with No Ice (Reduced DL) 25 Iterations

Gust Response Factor : 1.10 Wind Importance Factor : 1.00

Dead Load Factor : 0.90

Wind Load Factor : 1.60

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		98.2	0.0					0.0	0.0	98.2	0.0	0.0	0.0
2.00	Reinf Bottom	243.8	272.5					0.0	288.1	243.8	560.7	0.0	0.0
5.00		384.4	404.4					0.0	597.6	384.4	1,002.0	0.0	0.0
10.00		472.2	662.5					0.0	995.9	472.2	1,658.4	0.0	0.0
15.00		371.1	648.0					0.0	995.9	371.1	1,643.9	0.0	0.0
18.00	Reinf. Top Reinf.	228.3	381.8					0.0	597.6	228.3	979.4	0.0	0.0
20.00		313.9	251.7					0.0	288.1	313.9	539.8	0.0	0.0
25.00		441.2	619.0					0.0	720.4	441.2	1,339.4	0.0	0.0
30.00		283.1	604.5					0.0	720.4	283.1	1,324.9	0.0	0.0
31.50	Bot - Section 2	220.9	178.9					0.0	216.6	220.9	395.5	0.0	0.0
35.00		185.9	761.1					0.0	503.8	185.9	1,264.9	0.0	0.0
35.67	Top - Section 1	225.9	144.4					0.0	96.5	225.9	240.9	0.0	0.0
40.00		424.3	423.8					0.0	623.8	424.3	1,047.7	0.0	0.0
45.00		458.4	478.2					0.0	720.4	458.4	1,198.5	0.0	0.0
50.00		460.5	466.1					0.0	720.4	460.5	1,186.4	0.0	0.0
55.00		414.9	454.0					0.0	720.4	414.9	1,174.4	0.0	0.0
59.00	Reinf. Top	230.4	354.5					0.0	625.2	230.4	979.8	0.0	0.0
60.00		275.6	87.4					0.0	95.1	275.6	182.5	0.0	0.0
65.00		457.7	429.9					0.0	475.6	457.7	905.4	0.0	0.0
70.00	Appurtenance(s)	228.3	417.8	814.8	0.0	0.0	169.2	0.0	475.6	1,043.1	1,062.6	0.0	0.0
70.00	Bot - Section 3	161.7	0.3					0.0	0.3	161.7	0.6	0.0	0.0
73.50	Top - Section 2	230.3	518.3					0.0	332.8	230.3	851.1	0.0	0.0
75.00		296.8	98.2					0.0	142.3	296.8	240.5	0.0	0.0
80.00		453.4	321.9					0.0	475.4	453.4	797.3	0.0	0.0
85.00		491.8	312.2					0.0	475.4	491.8	787.6	0.0	0.0
90.00		528.8	302.5					109.0	475.4	637.8	778.0	0.0	0.0
95.00		519.8	292.9					110.8	475.4	630.5	768.3	0.0	0.0
100.00		509.9	283.2					112.5	475.4	622.4	758.6	0.0	0.0
105.00		499.4	273.6					114.1	475.4	613.4	749.0	0.0	0.0
110.00		247.1	263.9					115.6	475.4	362.7	739.3	0.0	0.0
110.00	Top - Section 3	145.4	0.2					0.1	0.3	145.5	0.5	0.0	0.0
113.00	Appurtenance(s)	241.0	115.5	3,200.3	0.0	5,093.9	1,687.2	70.0	284.9	3,511.3	2,087.7	0.0	0.0
115.00		284.2	75.6					47.0	178.7	331.2	254.3	0.0	0.0
119.00	Reinf. Top	235.0	147.8					94.8	161.7	329.7	309.5	0.0	0.0
120.00		138.7	36.2					23.8	40.4	162.5	76.6	0.0	0.0
122.00	Appurtenance(s)	228.5	71.6	114.4	0.0	114.4	13.5	47.8	80.8	390.8	165.8	0.0	0.0
125.00		321.1	105.2					72.2	119.9	393.3	225.1	0.0	0.0
130.00	Appurtenance(s)	221.1	169.5	820.4	0.0	834.3	247.1	0.0	199.9	1,041.5	616.6	0.0	0.0
131.00	Appurtenance(s)	72.3	33.0	396.2	0.0	0.0	504.0	0.0	39.4	468.5	576.5	0.0	0.0
132.00	Appurtenance(s)	142.7	32.7	44.8	0.0	0.0	9.0	0.0	39.4	187.5	81.2	0.0	0.0
135.00		141.7	96.5					0.0	97.8	141.7	194.3	0.0	0.0
136.00	Appurtenance(s)	172.9	31.6	688.9	0.0	0.0	675.0	0.0	32.6	861.8	739.2	0.0	0.0
140.00	Appurtenance(s)	304.4	123.5	4,115.0	0.0	-3,703.4	3,693.8	0.0	130.4	4,419.4	3,947.6	0.0	0.0
145.00		326.6	147.8					0.0	114.4	326.6	262.2	0.0	0.0
150.00	Appurtenance(s)	160.1	140.6	43.6	0.0	0.0	9.0	0.0	114.4	203.7	264.0	0.0	0.0
								Totals:		24,649.6	34,958.6	0.00	0.00

Site Number: 302484 Code: ANSI/TIA-222-G

Site Name: Branford CT 6, CT Engineering Number: 12927172_C3_02 7/30/2019 12:59:19 PM

Customer: T-MOBILE

Load Case: 0.9D + 1.6W 101 mph with No Ice (Reduced DL) 25 Iterations

Gust Response Factor : 1.10 Wind Importance Factor : 1.00

Dead Load Factor : 0.90

Wind Load Factor : 1.60

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-36.28	-28.19	0.00	-3,021.47	0.00	3,021.47	3,157.17	1,578.58	4,812.28	2,376.61	0.00	0.00	0.568
2.00	-35.66	-28.02	0.00	-2,965.09	0.00	2,965.09	3,140.17	1,570.08	4,745.43	2,343.59	0.02	-0.10	0.561
5.00	-34.58	-27.74	0.00	-2,881.02	0.00	2,881.02	3,114.35	1,557.18	4,645.51	2,294.24	0.13	-0.24	0.463
10.00	-32.83	-27.37	0.00	-2,742.33	0.00	2,742.33	3,070.50	1,535.25	4,480.02	2,212.51	0.49	-0.44	0.448
15.00	-31.11	-27.07	0.00	-2,605.48	0.00	2,605.48	3,025.61	1,512.81	4,315.90	2,131.46	1.05	-0.64	0.433
18.00	-30.09	-26.88	0.00	-2,524.27	0.00	2,524.27	2,998.18	1,499.09	4,218.13	2,083.18	1.49	-0.76	0.423
18.00	-30.09	-26.88	0.00	-2,524.27	0.00	2,524.27	2,998.18	1,499.09	4,218.13	2,083.18	1.49	-0.76	0.505
20.00	-29.48	-26.64	0.00	-2,470.50	0.00	2,470.50	2,979.68	1,489.84	4,153.26	2,051.14	1.83	-0.84	0.497
25.00	-28.04	-26.29	0.00	-2,337.30	0.00	2,337.30	2,932.71	1,466.36	3,992.19	1,971.59	2.83	-1.07	0.479
30.00	-26.65	-26.05	0.00	-2,205.84	0.00	2,205.84	2,875.21	1,437.61	3,820.20	1,886.65	4.07	-1.30	0.462
31.50	-26.21	-25.87	0.00	-2,166.68	0.00	2,166.68	2,854.24	1,427.12	3,764.37	1,859.08	4.49	-1.37	0.457
35.00	-24.91	-25.70	0.00	-2,076.20	0.00	2,076.20	2,805.48	1,402.74	3,636.10	1,795.73	5.56	-1.53	0.438
35.67	-24.62	-25.51	0.00	-2,058.99	0.00	2,058.99	2,248.04	1,124.02	2,973.83	1,468.66	5.78	-1.56	0.491
40.00	-23.50	-25.15	0.00	-1,948.51	0.00	1,948.51	2,218.59	1,109.29	2,872.24	1,418.49	7.28	-1.75	0.471
45.00	-22.22	-24.74	0.00	-1,822.78	0.00	1,822.78	2,183.60	1,091.80	2,755.77	1,360.97	9.24	-1.98	0.447
50.00	-20.95	-24.31	0.00	-1,699.10	0.00	1,699.10	2,147.58	1,073.79	2,640.30	1,303.95	11.44	-2.21	0.423
55.00	-19.72	-23.92	0.00	-1,577.53	0.00	1,577.53	2,110.52	1,055.26	2,525.94	1,247.47	13.87	-2.42	0.399
59.00	-18.70	-23.68	0.00	-1,481.85	0.00	1,481.85	2,080.12	1,040.06	2,435.32	1,202.71	15.97	-2.60	0.371
59.00	-18.70	-23.68	0.00	-1,481.85	0.00	1,481.85	2,080.12	1,040.06	2,435.32	1,202.71	15.97	-2.60	0.540
60.00	-18.46	-23.45	0.00	-1,458.17	0.00	1,458.17	2,072.42	1,036.21	2,412.79	1,191.58	16.52	-2.64	0.534
65.00	-17.47	-23.04	0.00	-1,340.91	0.00	1,340.91	2,033.27	1,016.64	2,300.94	1,136.35	19.44	-2.93	0.501
70.00	-16.41	-21.98	0.00	-1,225.72	0.00	1,225.72	1,982.10	991.05	2,178.42	1,075.84	22.67	-3.22	0.470
70.00	-16.38	-21.85	0.00	-1,225.64	0.00	1,225.64	1,982.06	991.03	2,178.34	1,075.80	22.67	-3.22	0.470
73.50	-15.49	-21.61	0.00	-1,149.17	0.00	1,149.17	1,473.95	736.97	1,624.52	802.29	25.11	-3.42	0.516
75.00	-15.20	-21.34	0.00	-1,116.84	0.00	1,116.84	1,466.28	733.14	1,601.77	791.05	26.19	-3.50	0.504
80.00	-14.33	-20.91	0.00	-1,010.11	0.00	1,010.11	1,440.00	720.00	1,526.12	753.69	30.00	-3.78	0.462
85.00	-13.49	-20.43	0.00	-905.56	0.00	905.56	1,412.68	706.34	1,451.11	716.65	34.10	-4.04	0.421
90.00	-12.68	-19.79	0.00	-803.43	0.00	803.43	1,384.32	692.16	1,376.86	679.98	38.47	-4.29	0.379
95.00	-11.88	-19.15	0.00	-704.50	0.00	704.50	1,354.92	677.46	1,303.45	643.72	43.09	-4.53	0.337
100.00	-11.11	-18.50	0.00	-608.77	0.00	608.77	1,324.47	662.24	1,230.99	607.94	47.94	-4.74	0.296
105.00	-10.36	-17.86	0.00	-516.24	0.00	516.24	1,292.99	646.50	1,159.59	572.68	53.01	-4.94	0.255
110.00	-9.63	-17.45	0.00	-426.92	0.00	426.92	1,247.14	623.57	1,077.81	532.29	58.27	-5.11	0.216
110.00	-9.63	-17.32	0.00	-426.87	0.00	426.87	1,247.10	623.55	1,077.76	532.26	58.28	-5.11	0.216
110.00	-9.63	-17.32	0.00	-426.87	0.00	426.87	853.23	426.61	741.76	366.33	58.28	-5.11	0.255
113.00	-7.84	-13.64	0.00	-369.88	0.00	369.88	842.42	421.21	715.90	353.56	61.51	-5.21	0.221
115.00	-7.60	-13.30	0.00	-342.60	0.00	342.60	835.00	417.50	698.71	345.06	63.71	-5.27	0.205
119.00	-7.31	-12.95	0.00	-289.40	0.00	289.40	819.65	409.83	664.49	328.17	68.17	-5.38	0.164
119.00	-7.31	-12.95	0.00	-289.40	0.00	289.40	819.65	409.83	664.49	328.17	68.17	-5.38	0.892
120.00	-7.21	-12.80	0.00	-276.45	0.00	276.45	815.71	407.86	655.98	323.96	69.30	-5.41	0.863
122.00	-7.02	-12.43	0.00	-250.74	0.00	250.74	807.71	403.85	639.01	315.58	71.62	-5.67	0.804
125.00	-6.74	-12.07	0.00	-213.43	0.00	213.43	795.39	397.69	613.71	303.09	75.29	-6.03	0.714
130.00	-6.19	-11.00	0.00	-152.23	0.00	152.23	774.02	387.01	572.00	282.49	81.88	-6.55	0.548
131.00	-5.65	-10.48	0.00	-141.23	0.00	141.23	769.63	384.81	563.73	278.40	83.26	-6.64	0.515

Site Number:	302484	Code: ANSI/TIA-222-G	
Site Name:	Branford CT 6, CT	Engineering Number: 12927172_C3_02	7/30/2019 12:59:20 PM
Customer:	T-MOBILE		

Load Case: 0.9D + 1.6W — 101 mph with No Ice (Reduced DL) — 25 Iterations

Gust Response Factor : 1.10
Dead Load Factor : 0.90
Wind Load Factor : 1.60
Wind Importance Factor : 1.00

132.00	-5.56	-10.30	0.00	-130.75	0.00	130.75	765.19	382.59	555.49	274.33	84.66	-6.73	0.485
135.00	-5.36	-10.15	0.00	-99.85	0.00	99.85	751.62	375.81	530.94	262.21	88.96	-6.96	0.389
136.00	-4.71	-9.22	0.00	-89.70	0.00	89.70	747.02	373.51	522.82	258.20	90.42	-7.03	0.354
140.00	-1.33	-4.35	0.00	-52.83	0.00	52.83	728.18	364.09	490.64	242.31	96.39	-7.25	0.220
145.00	-1.10	-3.99	0.00	-31.11	0.00	31.11	694.06	347.03	445.03	219.79	104.06	-7.42	0.143
150.00	0.00	-3.81	0.00	-11.16	0.00	11.16	659.19	329.60	401.19	198.13	111.88	-7.53	0.056

Site Number: 302484 Code: ANSI/TIA-222-G

Site Name: Branford CT 6, CT Engineering Number: 12927172_C3_02 7/30/2019 12:59:20 PM

Customer: T-MOBILE

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 0.75 in Radial Ice 25 Iterations

Gust Response Factor : 1.10 Ice Dead Load Factor : 1.00 Wind Importance Factor : 1.00

Dead Load Factor : 1.20 Ice Importance Factor : 1.00

Wind Load Factor : 1.00

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		19.0	0.0					0.0	0.0	19.0	0.0	0.0	0.0
2.00	Reinf Bottom	47.5	467.8					185.7	465.3	233.2	933.1	0.0	0.0
5.00		75.4	715.2					279.6	937.3	355.0	1,652.5	0.0	0.0
10.00		93.0	1,194.0					463.8	1,584.1	556.8	2,778.1	0.0	0.0
15.00		73.4	1,184.7					458.8	1,600.2	532.2	2,784.9	0.0	0.0
18.00	Reinf. Top Reinf.	45.3	704.6					272.5	965.7	317.8	1,670.3	0.0	0.0
20.00		62.4	466.6					180.0	497.5	242.4	964.2	0.0	0.0
25.00		87.9	1,151.5					434.6	1,222.4	522.5	2,373.9	0.0	0.0
30.00		56.5	1,131.6					428.0	1,228.8	484.5	2,360.4	0.0	0.0
31.50	Bot - Section 2	44.2	336.9					128.4	370.5	172.6	707.5	0.0	0.0
35.00		37.2	1,246.0					302.9	863.6	340.1	2,109.6	0.0	0.0
35.67	Top - Section 1	45.3	236.9					58.6	165.8	104.0	402.7	0.0	0.0
40.00		85.3	848.6					388.9	1,073.2	474.2	1,921.8	0.0	0.0
45.00		92.4	961.0					457.1	1,243.2	549.5	2,204.2	0.0	0.0
50.00		93.1	940.8					463.8	1,247.0	557.0	2,187.9	0.0	0.0
55.00		84.1	920.1					469.0	1,250.5	553.1	2,170.7	0.0	0.0
59.00	Reinf. Top	46.8	721.5					378.0	1,068.0	424.8	1,789.6	0.0	0.0
60.00		56.2	178.7					94.8	185.7	151.0	364.5	0.0	0.0
65.00		93.5	877.5					475.3	930.4	568.8	1,807.9	0.0	0.0
70.00	Appurtenance(s)	46.7	855.7	141.8	0.0	0.0	355.3	452.5	868.1	641.0	2,079.1	0.0	0.0
70.00	Bot - Section 3	33.1	0.6					0.3	0.6	33.4	1.1	0.0	0.0
73.50	Top - Section 2	47.2	901.1					316.7	608.8	364.0	1,509.9	0.0	0.0
75.00		61.1	220.4					137.3	260.6	198.3	481.0	0.0	0.0
80.00		93.5	720.9					457.9	871.9	551.4	1,592.7	0.0	0.0
85.00		92.6	701.6					456.4	873.7	549.0	1,575.3	0.0	0.0
90.00		91.6	682.1					454.1	875.5	545.8	1,557.5	0.0	0.0
95.00		90.5	662.4					451.3	877.1	541.7	1,539.5	0.0	0.0
100.00		89.2	642.6					447.8	878.7	537.0	1,521.2	0.0	0.0
105.00		87.8	622.6					443.8	880.2	531.5	1,502.8	0.0	0.0
110.00		43.5	602.4					439.2	881.6	482.7	1,484.1	0.0	0.0
110.00	Top - Section 3	25.7	0.4					0.3	0.6	26.0	1.0	0.0	0.0
113.00	Appurtenance(s)	42.7	301.7	713.4	0.0	1,061.2	4,626.9	260.8	529.1	1,017.0	5,457.6	0.0	0.0
115.00		50.6	198.3					173.0	338.1	223.6	536.3	0.0	0.0
119.00	Reinf. Top	41.9	386.9					343.4	415.9	385.3	802.7	0.0	0.0
120.00		24.8	95.5					85.3	104.0	110.1	199.6	0.0	0.0
122.00	Appurtenance(s)	41.0	188.6	44.8	0.0	44.8	-9.8	169.8	208.2	255.7	387.1	0.0	0.0
125.00		64.5	277.2					241.6	285.9	306.2	563.1	0.0	0.0
130.00	Appurtenance(s)	47.9	446.3	169.1	0.0	164.1	792.3	384.8	449.1	601.8	1,687.8	0.0	0.0
131.00	Appurtenance(s)	15.7	87.9	110.8	0.0	0.0	1,022.6	40.9	81.1	167.5	1,191.6	0.0	0.0
132.00	Appurtenance(s)	31.2	87.2	11.0	0.0	0.0	41.2	40.8	81.2	82.9	209.6	0.0	0.0
135.00		31.0	256.3					14.6	175.1	45.6	431.4	0.0	0.0
136.00	Appurtenance(s)	38.0	84.4	194.5	0.0	0.0	1,371.9	4.9	58.4	237.4	1,514.7	0.0	0.0
140.00	Appurtenance(s)	67.3	328.3	912.0	0.0	-777.2	7,979.5	19.7	233.7	999.1	8,541.5	0.0	0.0
145.00		72.8	393.6					0.0	152.5	72.8	546.1	0.0	0.0
150.00	Appurtenance(s)	35.9	375.8	11.4	0.0	0.0	32.8	0.0	152.5	47.3	561.1	0.0	0.0
								Totals:		16,712.4	68,658.7	0.00	0.00

Site Number: 302484 Code: ANSI/TIA-222-G

Site Name: Branford CT 6, CT Engineering Number: 12927172_C3_02 7/30/2019 12:59:29 PM

Customer: T-MOBILE

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 0.75 in Radial Ice 25 Iterations

Gust Response Factor : 1.10 Ice Dead Load Factor : 1.00 Wind Importance Factor : 1.00

Dead Load Factor : 1.20 Ice Importance Factor : 1.00

Wind Load Factor : 1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-73.08	-17.52	0.00	-1,508.02	0.00	1,508.02	3,157.17	1,578.58	4,812.28	2,376.61	0.00	0.00	0.293
2.00	-72.13	-17.36	0.00	-1,472.98	0.00	1,472.98	3,140.17	1,570.08	4,745.43	2,343.59	0.01	-0.05	0.289
5.00	-70.45	-17.11	0.00	-1,420.89	0.00	1,420.89	3,114.35	1,557.18	4,645.51	2,294.24	0.06	-0.12	0.236
10.00	-67.65	-16.66	0.00	-1,335.34	0.00	1,335.34	3,070.50	1,535.25	4,480.02	2,212.51	0.24	-0.22	0.226
15.00	-64.84	-16.20	0.00	-1,252.05	0.00	1,252.05	3,025.61	1,512.81	4,315.90	2,131.46	0.52	-0.31	0.215
18.00	-63.16	-15.92	0.00	-1,203.46	0.00	1,203.46	2,998.18	1,499.09	4,218.13	2,083.18	0.74	-0.37	0.209
18.00	-63.16	-15.92	0.00	-1,203.46	0.00	1,203.46	2,998.18	1,499.09	4,218.13	2,083.18	0.74	-0.37	0.250
20.00	-62.18	-15.76	0.00	-1,171.61	0.00	1,171.61	2,979.68	1,489.84	4,153.26	2,051.14	0.90	-0.41	0.245
25.00	-59.78	-15.33	0.00	-1,092.83	0.00	1,092.83	2,932.71	1,466.36	3,992.19	1,971.59	1.39	-0.52	0.233
30.00	-57.41	-14.89	0.00	-1,016.20	0.00	1,016.20	2,875.21	1,437.61	3,820.20	1,886.65	1.99	-0.62	0.221
31.50	-56.69	-14.76	0.00	-993.81	0.00	993.81	2,854.24	1,427.12	3,764.37	1,859.08	2.19	-0.66	0.218
35.00	-54.57	-14.44	0.00	-942.20	0.00	942.20	2,805.48	1,402.74	3,636.10	1,795.73	2.70	-0.73	0.207
35.67	-54.16	-14.38	0.00	-932.53	0.00	932.53	2,248.04	1,124.02	2,973.83	1,468.66	2.80	-0.74	0.232
40.00	-52.22	-13.96	0.00	-870.29	0.00	870.29	2,218.59	1,109.29	2,872.24	1,418.49	3.52	-0.83	0.220
45.00	-50.00	-13.46	0.00	-800.48	0.00	800.48	2,183.60	1,091.80	2,755.77	1,360.97	4.44	-0.93	0.205
50.00	-47.80	-12.95	0.00	-733.17	0.00	733.17	2,147.58	1,073.79	2,640.30	1,303.95	5.47	-1.03	0.191
55.00	-45.62	-12.42	0.00	-668.42	0.00	668.42	2,110.52	1,055.26	2,525.94	1,247.47	6.60	-1.12	0.177
59.00	-43.84	-11.99	0.00	-618.74	0.00	618.74	2,080.12	1,040.06	2,435.32	1,202.71	7.57	-1.19	0.163
59.00	-43.84	-11.99	0.00	-618.74	0.00	618.74	2,080.12	1,040.06	2,435.32	1,202.71	7.57	-1.19	0.237
60.00	-43.46	-11.89	0.00	-606.75	0.00	606.75	2,072.42	1,036.21	2,412.79	1,191.58	7.82	-1.21	0.233
65.00	-41.64	-11.37	0.00	-547.30	0.00	547.30	2,033.27	1,016.64	2,300.94	1,136.35	9.16	-1.33	0.215
70.00	-39.57	-10.71	0.00	-490.47	0.00	490.47	1,982.10	991.05	2,178.42	1,075.84	10.62	-1.45	0.198
70.00	-39.56	-10.71	0.00	-490.44	0.00	490.44	1,982.06	991.03	2,178.34	1,075.80	10.62	-1.45	0.198
73.50	-38.05	-10.34	0.00	-452.96	0.00	452.96	1,473.95	736.97	1,624.52	802.29	11.71	-1.53	0.216
75.00	-37.56	-10.18	0.00	-437.48	0.00	437.48	1,466.28	733.14	1,601.77	791.05	12.20	-1.56	0.209
80.00	-35.97	-9.65	0.00	-386.60	0.00	386.60	1,440.00	720.00	1,526.12	753.69	13.89	-1.67	0.189
85.00	-34.39	-9.11	0.00	-338.37	0.00	338.37	1,412.68	706.34	1,451.11	716.65	15.69	-1.77	0.169
90.00	-32.84	-8.56	0.00	-292.83	0.00	292.83	1,384.32	692.16	1,376.86	679.98	17.60	-1.86	0.149
95.00	-31.31	-8.01	0.00	-250.01	0.00	250.01	1,354.92	677.46	1,303.45	643.72	19.59	-1.94	0.130
100.00	-29.80	-7.46	0.00	-209.94	0.00	209.94	1,324.47	662.24	1,230.99	607.94	21.67	-2.02	0.112
105.00	-28.31	-6.91	0.00	-172.63	0.00	172.63	1,292.99	646.50	1,159.59	572.68	23.82	-2.09	0.095
110.00	-26.84	-6.38	0.00	-138.09	0.00	138.09	1,247.14	623.57	1,077.81	532.29	26.04	-2.14	0.080
110.00	-26.84	-6.36	0.00	-138.07	0.00	138.07	1,247.10	623.55	1,077.76	532.26	26.04	-2.14	0.080
110.00	-26.84	-6.36	0.00	-138.07	0.00	138.07	853.23	426.61	741.76	366.33	26.04	-2.14	0.095
113.00	-21.42	-5.15	0.00	-117.94	0.00	117.94	842.42	421.21	715.90	353.56	27.40	-2.18	0.080
115.00	-20.89	-4.92	0.00	-107.63	0.00	107.63	835.00	417.50	698.71	345.06	28.31	-2.19	0.074
119.00	-20.10	-4.51	0.00	-87.96	0.00	87.96	819.65	409.83	664.49	328.17	30.17	-2.23	0.059
119.00	-20.10	-4.51	0.00	-87.96	0.00	87.96	819.65	409.83	664.49	328.17	30.17	-2.23	0.293
120.00	-19.90	-4.41	0.00	-83.45	0.00	83.45	815.71	407.86	655.98	323.96	30.64	-2.24	0.282
122.00	-19.52	-4.17	0.00	-74.59	0.00	74.59	807.71	403.85	639.01	315.58	31.59	-2.32	0.261
125.00	-18.96	-3.88	0.00	-62.09	0.00	62.09	795.39	397.69	613.71	303.09	33.08	-2.42	0.229
130.00	-17.30	-3.23	0.00	-42.52	0.00	42.52	774.02	387.01	572.00	282.49	35.70	-2.57	0.173
131.00	-16.11	-3.02	0.00	-39.28	0.00	39.28	769.63	384.81	563.73	278.40	36.24	-2.60	0.162

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 0.75 in Radial Ice 25 Iterations

Gust Response Factor : 1.10 Ice Dead Load Factor : 1.00 Wind Importance Factor : 1.00
Dead Load Factor : 1.20 Ice Importance Factor : 1.00
Wind Load Factor : 1.00

132.00	-15.91	-2.94	0.00	-36.27	0.00	36.27	765.19	382.59	555.49	274.33	36.79	-2.62	0.153
135.00	-15.47	-2.88	0.00	-27.45	0.00	27.45	751.62	375.81	530.94	262.21	38.45	-2.69	0.125
136.00	-13.97	-2.59	0.00	-24.57	0.00	24.57	747.02	373.51	522.82	258.20	39.02	-2.70	0.114
140.00	-5.49	-1.18	0.00	-14.23	0.00	14.23	728.18	364.09	490.64	242.31	41.31	-2.76	0.066
145.00	-4.94	-1.09	0.00	-8.30	0.00	8.30	694.06	347.03	445.03	219.79	44.23	-2.81	0.045
150.00	0.00	-0.84	0.00	-2.86	0.00	2.86	659.19	329.60	401.19	198.13	47.19	-2.84	0.014

Site Number: 302484 Code: ANSI/TIA-222-G

Site Name: Branford CT 6, CT Engineering Number: 12927172_C3_02 7/30/2019 12:59:29 PM

Customer: T-MOBILE

Load Case: 1.0D + 1.0W Serviceability 60 mph 24 Iterations

Gust Response Factor : 1.10 Wind Importance Factor : 1.00

Dead Load Factor : 1.00

Wind Load Factor : 1.00

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		19.4	0.0					0.0	0.0	19.4	0.0	0.0	0.0
2.00	Reinf Bottom	48.1	302.8					0.0	320.2	48.1	623.0	0.0	0.0
5.00		75.9	449.4					0.0	664.0	75.9	1,113.4	0.0	0.0
10.00		93.2	736.1					0.0	1,106.6	93.2	1,842.7	0.0	0.0
15.00		73.2	720.0					0.0	1,106.6	73.2	1,826.6	0.0	0.0
18.00	Reinf. Top Reinf.	45.1	424.3					0.0	664.0	45.1	1,088.2	0.0	0.0
20.00		61.9	279.6					0.0	320.2	61.9	599.8	0.0	0.0
25.00		87.1	687.8					0.0	800.4	87.1	1,488.2	0.0	0.0
30.00		55.9	671.7					0.0	800.4	55.9	1,472.1	0.0	0.0
31.50	Bot - Section 2	43.6	198.8					0.0	240.7	43.6	439.5	0.0	0.0
35.00		36.7	845.7					0.0	559.7	36.7	1,405.4	0.0	0.0
35.67	Top - Section 1	44.6	160.4					0.0	107.3	44.6	267.7	0.0	0.0
40.00		83.7	470.9					0.0	693.1	83.7	1,164.1	0.0	0.0
45.00		90.5	531.3					0.0	800.4	90.5	1,331.7	0.0	0.0
50.00		90.9	517.9					0.0	800.4	90.9	1,318.3	0.0	0.0
55.00		81.9	504.5					0.0	800.4	81.9	1,304.9	0.0	0.0
59.00	Reinf. Top	45.5	393.9					0.0	694.7	45.5	1,088.6	0.0	0.0
60.00		54.4	97.1					0.0	105.7	54.4	202.8	0.0	0.0
65.00		90.3	477.6					0.0	528.4	90.3	1,006.0	0.0	0.0
70.00	Appurtenance(s)	45.1	464.2	160.8	0.0	0.0	188.0	0.0	528.4	205.9	1,180.6	0.0	0.0
70.00	Bot - Section 3	31.9	0.3					0.0	0.4	31.9	0.7	0.0	0.0
73.50	Top - Section 2	45.4	575.9					0.0	369.8	45.4	945.7	0.0	0.0
75.00		58.6	109.1					0.0	158.1	58.6	267.3	0.0	0.0
80.00		89.5	357.6					0.0	528.3	89.5	885.9	0.0	0.0
85.00		97.1	346.9					0.0	528.3	97.1	875.1	0.0	0.0
90.00		104.4	336.2					21.5	528.3	125.9	864.4	0.0	0.0
95.00		102.6	325.4					21.9	528.3	124.4	853.7	0.0	0.0
100.00		100.6	314.7					22.2	528.3	122.8	842.9	0.0	0.0
105.00		98.5	304.0					22.5	528.3	121.1	832.2	0.0	0.0
110.00		48.8	293.2					22.8	528.3	71.6	821.5	0.0	0.0
110.00	Top - Section 3	28.7	0.2					0.0	0.4	28.7	0.5	0.0	0.0
113.00	Appurtenance(s)	47.6	128.3	631.6	0.0	1,005.3	1,874.7	13.8	316.6	693.0	2,319.6	0.0	0.0
115.00		56.1	84.0					9.3	198.5	65.4	282.6	0.0	0.0
119.00	Reinf. Top	46.4	164.2					18.7	179.7	65.1	343.9	0.0	0.0
120.00		27.4	40.3					4.7	44.9	32.1	85.1	0.0	0.0
122.00	Appurtenance(s)	45.1	79.5	22.6	0.0	22.6	15.0	9.4	89.7	77.1	184.3	0.0	0.0
125.00		63.4	116.9					14.2	133.3	77.6	250.1	0.0	0.0
130.00	Appurtenance(s)	43.6	188.4	161.9	0.0	164.6	274.6	0.0	222.1	205.5	685.1	0.0	0.0
131.00	Appurtenance(s)	14.3	36.7	78.2	0.0	0.0	560.0	0.0	43.8	92.5	640.5	0.0	0.0
132.00	Appurtenance(s)	28.2	36.4	8.8	0.0	0.0	10.0	0.0	43.8	37.0	90.2	0.0	0.0
135.00		28.0	107.2					0.0	108.7	28.0	215.9	0.0	0.0
136.00	Appurtenance(s)	34.1	35.1	136.0	0.0	0.0	750.0	0.0	36.2	170.1	821.3	0.0	0.0
140.00	Appurtenance(s)	60.1	137.2	812.1	0.0	-730.9	4,104.2	0.0	144.9	872.2	4,386.3	0.0	0.0
145.00		64.5	164.2					0.0	127.1	64.5	291.3	0.0	0.0
150.00	Appurtenance(s)	31.6	156.2	8.6	0.0	0.0	10.0	0.0	127.1	40.2	293.3	0.0	0.0
								Totals:		4,864.58	38,842.9	0.00	0.00

Load Case: 1.0D + 1.0W Serviceability 60 mph 24 Iterations

Gust Response Factor : 1.10
Dead Load Factor : 1.00
Wind Load Factor : 1.00
Wind Importance 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	-40.34	-5.56	0.00	-599.93	0.00	599.93	3,157.17	1,578.58	4,812.28	2,376.61	0.00	0.00	0.119
2.00	-39.71	-5.53	0.00	-588.80	0.00	588.80	3,140.17	1,570.08	4,745.43	2,343.59	0.00	-0.02	0.117
5.00	-38.59	-5.48	0.00	-572.20	0.00	572.20	3,114.35	1,557.18	4,645.51	2,294.24	0.03	-0.05	0.097
10.00	-36.75	-5.41	0.00	-544.81	0.00	544.81	3,070.50	1,535.25	4,480.02	2,212.51	0.10	-0.09	0.093
15.00	-34.92	-5.35	0.00	-517.77	0.00	517.77	3,025.61	1,512.81	4,315.90	2,131.46	0.21	-0.13	0.090
18.00	-33.83	-5.31	0.00	-501.71	0.00	501.71	2,998.18	1,499.09	4,218.13	2,083.18	0.30	-0.15	0.088
18.00	-33.83	-5.31	0.00	-501.71	0.00	501.71	2,998.18	1,499.09	4,218.13	2,083.18	0.30	-0.15	0.105
20.00	-33.23	-5.27	0.00	-491.08	0.00	491.08	2,979.68	1,489.84	4,153.26	2,051.14	0.36	-0.17	0.104
25.00	-31.73	-5.20	0.00	-464.74	0.00	464.74	2,932.71	1,466.36	3,992.19	1,971.59	0.56	-0.21	0.100
30.00	-30.26	-5.16	0.00	-438.72	0.00	438.72	2,875.21	1,437.61	3,820.20	1,886.65	0.81	-0.26	0.097
31.50	-29.82	-5.12	0.00	-430.97	0.00	430.97	2,854.24	1,427.12	3,764.37	1,859.08	0.89	-0.27	0.096
35.00	-28.41	-5.09	0.00	-413.06	0.00	413.06	2,805.48	1,402.74	3,636.10	1,795.73	1.10	-0.30	0.092
35.67	-28.14	-5.05	0.00	-409.65	0.00	409.65	2,248.04	1,124.02	2,973.83	1,468.66	1.15	-0.31	0.103
40.00	-26.97	-4.98	0.00	-387.76	0.00	387.76	2,218.59	1,109.29	2,872.24	1,418.49	1.45	-0.35	0.099
45.00	-25.64	-4.90	0.00	-362.85	0.00	362.85	2,183.60	1,091.80	2,755.77	1,360.97	1.84	-0.39	0.094
50.00	-24.32	-4.82	0.00	-338.33	0.00	338.33	2,147.58	1,073.79	2,640.30	1,303.95	2.27	-0.44	0.089
55.00	-23.01	-4.75	0.00	-314.22	0.00	314.22	2,110.52	1,055.26	2,525.94	1,247.47	2.76	-0.48	0.084
59.00	-21.92	-4.70	0.00	-295.23	0.00	295.23	2,080.12	1,040.06	2,435.32	1,202.71	3.18	-0.52	0.078
59.00	-21.92	-4.70	0.00	-295.23	0.00	295.23	2,080.12	1,040.06	2,435.32	1,202.71	3.18	-0.52	0.113
60.00	-21.72	-4.66	0.00	-290.54	0.00	290.54	2,072.42	1,036.21	2,412.79	1,191.58	3.28	-0.52	0.112
65.00	-20.71	-4.58	0.00	-267.26	0.00	267.26	2,033.27	1,016.64	2,300.94	1,136.35	3.87	-0.58	0.105
70.00	-19.53	-4.37	0.00	-244.38	0.00	244.38	1,982.10	991.05	2,178.42	1,075.84	4.51	-0.64	0.099
70.00	-19.52	-4.34	0.00	-244.36	0.00	244.36	1,982.06	991.03	2,178.34	1,075.80	4.51	-0.64	0.099
73.50	-18.58	-4.29	0.00	-229.16	0.00	229.16	1,473.95	736.97	1,624.52	802.29	4.99	-0.68	0.109
75.00	-18.31	-4.24	0.00	-222.74	0.00	222.74	1,466.28	733.14	1,601.77	791.05	5.21	-0.70	0.106
80.00	-17.42	-4.16	0.00	-201.51	0.00	201.51	1,440.00	720.00	1,526.12	753.69	5.97	-0.75	0.098
85.00	-16.54	-4.07	0.00	-180.71	0.00	180.71	1,412.68	706.34	1,451.11	716.65	6.78	-0.80	0.089
90.00	-15.68	-3.94	0.00	-160.38	0.00	160.38	1,384.32	692.16	1,376.86	679.98	7.65	-0.85	0.081
95.00	-14.82	-3.82	0.00	-140.67	0.00	140.67	1,354.92	677.46	1,303.45	643.72	8.58	-0.90	0.072
100.00	-13.98	-3.69	0.00	-121.59	0.00	121.59	1,324.47	662.24	1,230.99	607.94	9.54	-0.94	0.064
105.00	-13.15	-3.56	0.00	-103.15	0.00	103.15	1,292.99	646.50	1,159.59	572.68	10.55	-0.98	0.055
110.00	-12.32	-3.48	0.00	-85.34	0.00	85.34	1,247.14	623.57	1,077.81	532.29	11.60	-1.02	0.047
110.00	-12.32	-3.45	0.00	-85.32	0.00	85.32	1,247.10	623.55	1,077.76	532.26	11.60	-1.02	0.047
110.00	-12.32	-3.45	0.00	-85.32	0.00	85.32	853.23	426.61	741.76	366.33	11.60	-1.02	0.056
113.00	-10.02	-2.72	0.00	-73.97	0.00	73.97	842.42	421.21	715.90	353.56	12.25	-1.04	0.048
115.00	-9.73	-2.65	0.00	-68.53	0.00	68.53	835.00	417.50	698.71	345.06	12.69	-1.05	0.045
119.00	-9.39	-2.59	0.00	-57.91	0.00	57.91	819.65	409.83	664.49	328.17	13.58	-1.07	0.037
119.00	-9.39	-2.59	0.00	-57.91	0.00	57.91	819.65	409.83	664.49	328.17	13.58	-1.07	0.188
120.00	-9.31	-2.56	0.00	-55.32	0.00	55.32	815.71	407.86	655.98	323.96	13.80	-1.08	0.182
122.00	-9.12	-2.49	0.00	-50.19	0.00	50.19	807.71	403.85	639.01	315.58	14.27	-1.13	0.170
125.00	-8.87	-2.42	0.00	-42.73	0.00	42.73	795.39	397.69	613.71	303.09	15.00	-1.20	0.152
130.00	-8.18	-2.20	0.00	-30.48	0.00	30.48	774.02	387.01	572.00	282.49	16.32	-1.31	0.119
131.00	-7.55	-2.10	0.00	-28.28	0.00	28.28	769.63	384.81	563.73	278.40	16.59	-1.32	0.111

Load Case: 1.0D + 1.0W Serviceability 60 mph 24 Iterations

Gust Response Factor : 1.10
Dead Load Factor : 1.00
Wind Load Factor : 1.00

Wind Importance Factor : 1.00

132.00	-7.46	-2.07	0.00	-26.18	0.00	26.18	765.19	382.59	555.49	274.33	16.87	-1.34	0.105
135.00	-7.24	-2.04	0.00	-19.98	0.00	19.98	751.62	375.81	530.94	262.21	17.73	-1.39	0.086
136.00	-6.42	-1.85	0.00	-17.94	0.00	17.94	747.02	373.51	522.82	258.20	18.02	-1.40	0.078
140.00	-2.06	-0.87	0.00	-10.55	0.00	10.55	728.18	364.09	490.64	242.31	19.22	-1.45	0.046
145.00	-1.77	-0.80	0.00	-6.20	0.00	6.20	694.06	347.03	445.03	219.79	20.75	-1.48	0.031
150.00	0.00	-0.75	0.00	-2.20	0.00	2.20	659.19	329.60	401.19	198.13	22.31	-1.50	0.011

Equivalent Lateral Forces Method Analysis

(Based on ASCE7-10 Chapters 11, 12, 15)

Spectral Response Acceleration for Short Period (S_s):	0.24	
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06	
Long-Period Transition Period (T_L):	6	
Importance Factor (I_E):	1.00	
Site Coefficient F_a:	1.60	
Site Coeffiecient F_v:	2.40	
Response Modification Coefficient (R):	1.50	
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.26	
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10	
Seismic Response Coefficient (C_s):	0.03	
Upper Limit C_s	0.03	
Lower Limit C_s	0.03	
Period based on Rayleigh Method (sec):	2.50	
Redundancy Factor (p):	1.00	
Seismic Force Distribution Exponent (k):	2.00	
Total Unfactored Dead Load:	40.34	k
Seismic Base Shear (E):	1.21	k

Load Case (1.2 + 0.2Sds) * DL + E ELFM Seismic Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
44	147.50	283	6,163	0.020	24	354
43	142.50	291	5,916	0.019	23	365
42	138.00	282	5,372	0.017	21	353
41	135.50	71	1,309	0.004	5	89
40	133.50	216	3,848	0.013	15	270
39	131.50	80	1,387	0.005	5	100
38	130.50	81	1,371	0.004	5	101
37	127.50	410	6,673	0.022	26	514
36	123.50	250	3,815	0.012	15	313
35	121.00	169	2,478	0.008	10	212
34	119.50	85	1,216	0.004	5	107
33	117.00	344	4,707	0.015	19	430
32	114.00	283	3,672	0.012	14	354
31	111.50	445	5,532	0.018	22	557
30	110.00	1	7	0.000	0	1
29	107.50	821	9,493	0.031	37	1,028
28	102.50	832	8,743	0.028	34	1,041
27	97.50	843	8,013	0.026	32	1,055
26	92.50	854	7,304	0.024	29	1,068
25	87.50	864	6,618	0.022	26	1,082
24	82.50	875	5,956	0.019	23	1,095
23	77.50	886	5,321	0.017	21	1,108
22	74.25	267	1,473	0.005	6	334

21	71.75	946	4,869	0.016	19	1,183
20	70.00	1	3	0.000	0	1
19	67.50	993	4,523	0.015	18	1,242
18	62.50	1,006	3,930	0.013	15	1,259
17	59.50	203	718	0.002	3	254
16	57.00	1,089	3,537	0.012	14	1,362
15	52.50	1,305	3,597	0.012	14	1,633
14	47.50	1,318	2,974	0.010	12	1,649
13	42.50	1,332	2,405	0.008	9	1,666
12	37.83	1,164	1,666	0.005	7	1,456
11	35.33	268	334	0.001	1	335
10	33.25	1,405	1,554	0.005	6	1,758
9	30.75	439	416	0.001	2	550
8	27.50	1,472	1,113	0.004	4	1,842
7	22.50	1,488	753	0.002	3	1,862
6	19.00	600	217	0.001	1	750
5	16.50	1,088	296	0.001	1	1,362
4	12.50	1,827	285	0.001	1	2,285
3	7.50	1,843	104	0.000	0	2,306
2	3.50	1,113	14	0.000	0	1,393
1	1.00	623	1	0.000	0	779
Generic 11' Dipole	150.00	40	900	0.003	4	50
Generic 4' Omni	150.00	10	225	0.001	1	13
Powerwave Allgon 702	150.00	13	297	0.001	1	17
Kathrein Scala 782-1	150.00	19	432	0.001	2	24
Powerwave Allgon LGP	150.00	85	1,904	0.006	7	106
Raycap DC6-48-60-18-	150.00	32	715	0.002	3	40
Ericsson RRUS 8843 B	150.00	216	4,860	0.016	19	270
Ericsson RRUS 4449 B	150.00	213	4,793	0.016	19	267
Raycap DC6-48-60-18-	150.00	16	360	0.001	1	20
Ericsson RRUS 32 B30	150.00	159	3,577	0.012	14	199
Raycap DC6-48-60-18-	150.00	16	360	0.001	1	20
Powerwave Allgon 777	150.00	105	2,363	0.008	9	131
CCI HPA65R-BU6A	150.00	126	2,828	0.009	11	157
Commscope SBNHH-1D65	150.00	152	3,422	0.011	13	190
Kathrein Scala 80010	150.00	293	6,588	0.021	26	366
Generic GPS	150.00	10	225	0.001	1	13
Ericsson KRY 112 144	140.00	33	647	0.002	3	41
Ericsson Radio 4449	140.00	222	4,351	0.014	17	278
Ericsson AIR 21, 1.3	140.00	249	4,880	0.016	19	312
Ericsson AIR 21, 1.3	140.00	244	4,792	0.016	19	306
RFS APXVAARR24_43-U-	140.00	384	7,521	0.024	30	480
PerfectVision PV-RP1	140.00	2,972	58,251	0.190	229	3,719
Round T-Arm	136.00	750	13,872	0.045	55	938
Generic 12" x 12" Ju	132.00	10	174	0.001	1	13
Side Arms	131.00	560	9,610	0.031	38	701
DragonWave Horizon C	130.00	21	358	0.001	1	27
DragonWave A-ANT-23G	130.00	15	254	0.001	1	19
NextNet BTS-2500	130.00	105	1,775	0.006	7	131
Argus LLPX310R	130.00	86	1,450	0.005	6	107
DragonWave A-ANT-18G	130.00	48	804	0.003	3	60
SWR FMEC/1	122.00	15	223	0.001	1	19
Alcatel-Lucent RRH2x	113.00	157	2,007	0.007	8	197
Alcatel-Lucent RRH 2	113.00	119	1,517	0.005	6	149
Alcatel-Lucent RRH2x	113.00	170	2,172	0.007	9	213
Nokia B66a RRH4x45 (	113.00	170	2,176	0.007	9	213
RFS APL868013-12T0	113.00	25	322	0.001	1	32
RFS APL866513-12T0-0	113.00	31	401	0.001	2	39
RFS DB-T1-6Z-8AB-0Z	113.00	88	1,124	0.004	4	110
Commscope JAHH-65B-R	113.00	364	4,643	0.015	18	455
Round T-Arm	113.00	750	9,577	0.031	38	938
Generic 4' Std. Dish	70.00	188	921	0.003	4	235
		40,337	307,368	1.000	1,210	50,470

Load Case (0.9 - 0.2Sds) * DL + E ELFM Seismic (Reduced DL) Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
44	147.50	283	6,163	0.020	24	240
43	142.50	291	5,916	0.019	23	247
42	138.00	282	5,372	0.017	21	239
41	135.50	71	1,309	0.004	5	61
40	133.50	216	3,848	0.013	15	183
39	131.50	80	1,387	0.005	5	68
38	130.50	81	1,371	0.004	5	68
37	127.50	410	6,673	0.022	26	348
36	123.50	250	3,815	0.012	15	212
35	121.00	169	2,478	0.008	10	144
34	119.50	85	1,216	0.004	5	72
33	117.00	344	4,707	0.015	19	292
32	114.00	283	3,672	0.012	14	240
31	111.50	445	5,532	0.018	22	378
30	110.00	1	7	0.000	0	0
29	107.50	821	9,493	0.031	37	697
28	102.50	832	8,743	0.028	34	706
27	97.50	843	8,013	0.026	32	715
26	92.50	854	7,304	0.024	29	725
25	87.50	864	6,618	0.022	26	734
24	82.50	875	5,956	0.019	23	743
23	77.50	886	5,321	0.017	21	752
22	74.25	267	1,473	0.005	6	227
21	71.75	946	4,869	0.016	19	803
20	70.00	1	3	0.000	0	1
19	67.50	993	4,523	0.015	18	843
18	62.50	1,006	3,930	0.013	15	854
17	59.50	203	718	0.002	3	172
16	57.00	1,089	3,537	0.012	14	924
15	52.50	1,305	3,597	0.012	14	1,108
14	47.50	1,318	2,974	0.010	12	1,119
13	42.50	1,332	2,405	0.008	9	1,130
12	37.83	1,164	1,666	0.005	7	988
11	35.33	268	334	0.001	1	227
10	33.25	1,405	1,554	0.005	6	1,193
9	30.75	439	416	0.001	2	373
8	27.50	1,472	1,113	0.004	4	1,250
7	22.50	1,488	753	0.002	3	1,263
6	19.00	600	217	0.001	1	509
5	16.50	1,088	296	0.001	1	924
4	12.50	1,827	285	0.001	1	1,550
3	7.50	1,843	104	0.000	0	1,564
2	3.50	1,113	14	0.000	0	945
1	1.00	623	1	0.000	0	529
Generic 11' Dipole	150.00	40	900	0.003	4	34
Generic 4' Omni	150.00	10	225	0.001	1	8
Powerwave Allgon 702	150.00	13	297	0.001	1	11
Kathrein Scala 782-1	150.00	19	432	0.001	2	16
Powerwave Allgon LGP	150.00	85	1,904	0.006	7	72
Raycap DC6-48-60-18-	150.00	32	715	0.002	3	27
Ericsson RRUS 8843 B	150.00	216	4,860	0.016	19	183
Ericsson RRUS 4449 B	150.00	213	4,793	0.016	19	181
Raycap DC6-48-60-18-	150.00	16	360	0.001	1	14
Ericsson RRUS 32 B30	150.00	159	3,577	0.012	14	135
Raycap DC6-48-60-18-	150.00	16	360	0.001	1	14
Powerwave Allgon 777	150.00	105	2,363	0.008	9	89
CCI HPA65R-BU6A	150.00	126	2,828	0.009	11	107

Commscope SBNHH-1D65	150.00	152	3,422	0.011	13	129
Kathrein Scala 80010	150.00	293	6,588	0.021	26	249
Generic GPS	150.00	10	225	0.001	1	8
Ericsson KRY 112 144	140.00	33	647	0.002	3	28
Ericsson Radio 4449	140.00	222	4,351	0.014	17	188
Ericsson AIR 21, 1.3	140.00	249	4,880	0.016	19	211
Ericsson AIR 21, 1.3	140.00	244	4,792	0.016	19	208
RFS APXVAARR24_43-U-	140.00	384	7,521	0.024	30	326
PerfectVision PV-RP1	140.00	2,972	58,251	0.190	229	2,523
Round T-Arm	136.00	750	13,872	0.045	55	637
Generic 12" x 12" Ju	132.00	10	174	0.001	1	8
Side Arms	131.00	560	9,610	0.031	38	475
DragonWave Horizon C	130.00	21	358	0.001	1	18
DragonWave A-ANT-23G	130.00	15	254	0.001	1	13
NextNet BTS-2500	130.00	105	1,775	0.006	7	89
Argus LLPX310R	130.00	86	1,450	0.005	6	73
DragonWave A-ANT-18G	130.00	48	804	0.003	3	40
SWR FMEC/1	122.00	15	223	0.001	1	13
Alcatel-Lucent RRH2x	113.00	157	2,007	0.007	8	133
Alcatel-Lucent RRH 2	113.00	119	1,517	0.005	6	101
Alcatel-Lucent RRH2x	113.00	170	2,172	0.007	9	144
Nokia B66a RRH4x45 (	113.00	170	2,176	0.007	9	145
RFS APL868013-12T0	113.00	25	322	0.001	1	21
RFS APL866513-12T0-0	113.00	31	401	0.001	2	27
RFS DB-T1-6Z-8AB-0Z	113.00	88	1,124	0.004	4	75
Commscope JAHH-65B-R	113.00	364	4,643	0.015	18	309
Round T-Arm	113.00	750	9,577	0.031	38	637
Generic 4' Std. Dish	70.00	188	921	0.003	4	160
		40,337	307,368	1.000	1,210	34,238

Load Case (1.2 + 0.2Sds) * DL + E ELFM Seismic Equivalent Lateral Forces Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-49.69	-1.21	0.00	-150.49	0.00	150.49	3,157.17	1,578.58	4,812.28	2,376.61	0.00	0.00	0.037
2.00	-48.30	-1.22	0.00	-148.07	0.00	148.07	3,140.17	1,570.08	4,745.43	2,343.59	0.00	0.00	0.037
5.00	-45.99	-1.22	0.00	-144.42	0.00	144.42	3,114.35	1,557.18	4,645.51	2,294.24	0.01	-0.01	0.030
10.00	-43.71	-1.23	0.00	-138.30	0.00	138.30	3,070.50	1,535.25	4,480.02	2,212.51	0.02	-0.02	0.029
15.00	-42.34	-1.23	0.00	-132.16	0.00	132.16	3,025.61	1,512.81	4,315.90	2,131.46	0.05	-0.03	0.028
18.00	-41.59	-1.24	0.00	-128.46	0.00	128.46	2,998.18	1,499.09	4,218.13	2,083.18	0.07	-0.04	0.028
18.00	-41.59	-1.24	0.00	-128.46	0.00	128.46	2,998.18	1,499.09	4,218.13	2,083.18	0.07	-0.04	0.033
20.00	-39.73	-1.24	0.00	-125.99	0.00	125.99	2,979.68	1,489.84	4,153.26	2,051.14	0.09	-0.04	0.033
25.00	-37.89	-1.24	0.00	-119.81	0.00	119.81	2,932.71	1,466.36	3,992.19	1,971.59	0.14	-0.05	0.031
30.00	-37.34	-1.24	0.00	-113.62	0.00	113.62	2,875.21	1,437.61	3,820.20	1,886.65	0.21	-0.07	0.031
31.50	-35.58	-1.24	0.00	-111.76	0.00	111.76	2,854.24	1,427.12	3,764.37	1,859.08	0.23	-0.07	0.030
35.00	-35.25	-1.24	0.00	-107.43	0.00	107.43	2,805.48	1,402.74	3,636.10	1,795.73	0.28	-0.08	0.029
35.67	-33.79	-1.23	0.00	-106.60	0.00	106.60	2,248.04	1,124.02	2,973.83	1,468.66	0.29	-0.08	0.033
40.00	-32.12	-1.23	0.00	-101.26	0.00	101.26	2,218.59	1,109.29	2,872.24	1,418.49	0.37	-0.09	0.031
45.00	-30.47	-1.22	0.00	-95.13	0.00	95.13	2,183.60	1,091.80	2,755.77	1,360.97	0.47	-0.10	0.030
50.00	-28.84	-1.21	0.00	-89.04	0.00	89.04	2,147.58	1,073.79	2,640.30	1,303.95	0.58	-0.11	0.028
55.00	-27.48	-1.20	0.00	-83.00	0.00	83.00	2,110.52	1,055.26	2,525.94	1,247.47	0.71	-0.12	0.027
59.00	-27.22	-1.19	0.00	-78.22	0.00	78.22	2,080.12	1,040.06	2,435.32	1,202.71	0.81	-0.13	0.026
59.00	-27.22	-1.19	0.00	-78.22	0.00	78.22	2,080.12	1,040.06	2,435.32	1,202.71	0.81	-0.13	0.037
60.00	-25.97	-1.18	0.00	-77.02	0.00	77.02	2,072.42	1,036.21	2,412.79	1,191.58	0.84	-0.14	0.036
65.00	-24.72	-1.17	0.00	-71.12	0.00	71.12	2,033.27	1,016.64	2,300.94	1,136.35	0.99	-0.15	0.034
70.00	-24.49	-1.17	0.00	-65.29	0.00	65.29	1,982.10	991.05	2,178.42	1,075.84	1.16	-0.17	0.032
70.00	-23.30	-1.14	0.00	-65.29	0.00	65.29	1,982.06	991.03	2,178.34	1,075.80	1.16	-0.17	0.032
73.50	-22.97	-1.14	0.00	-61.28	0.00	61.28	1,473.95	736.97	1,624.52	802.29	1.29	-0.18	0.036
75.00	-21.86	-1.12	0.00	-59.57	0.00	59.57	1,466.28	733.14	1,601.77	791.05	1.34	-0.18	0.035
80.00	-20.77	-1.10	0.00	-53.97	0.00	53.97	1,440.00	720.00	1,526.12	753.69	1.54	-0.20	0.032
85.00	-19.68	-1.07	0.00	-48.48	0.00	48.48	1,412.68	706.34	1,451.11	716.65	1.75	-0.21	0.030
90.00	-18.62	-1.04	0.00	-43.11	0.00	43.11	1,384.32	692.16	1,376.86	679.98	1.98	-0.22	0.027
95.00	-17.56	-1.01	0.00	-37.89	0.00	37.89	1,354.92	677.46	1,303.45	643.72	2.22	-0.24	0.025
100.00	-16.52	-0.98	0.00	-32.83	0.00	32.83	1,324.47	662.24	1,230.99	607.94	2.48	-0.25	0.022
105.00	-15.49	-0.94	0.00	-27.94	0.00	27.94	1,292.99	646.50	1,159.59	572.68	2.74	-0.26	0.020
110.00	-15.49	-0.94	0.00	-23.25	0.00	23.25	1,247.14	623.57	1,077.81	532.29	3.02	-0.27	0.018
110.00	-14.93	-0.92	0.00	-23.25	0.00	23.25	1,247.10	623.55	1,077.76	532.26	3.02	-0.27	0.018
110.00	-14.93	-0.92	0.00	-23.25	0.00	23.25	853.23	426.61	741.76	366.33	3.02	-0.27	0.021
113.00	-12.24	-0.79	0.00	-20.51	0.00	20.51	842.42	421.21	715.90	353.56	3.19	-0.27	0.018
115.00	-11.80	-0.78	0.00	-18.92	0.00	18.92	835.00	417.50	698.71	345.06	3.30	-0.28	0.017
119.00	-11.70	-0.77	0.00	-15.82	0.00	15.82	819.65	409.83	664.49	328.17	3.54	-0.28	0.015
119.00	-11.70	-0.77	0.00	-15.82	0.00	15.82	819.65	409.83	664.49	328.17	3.54	-0.28	0.062
120.00	-11.49	-0.76	0.00	-15.05	0.00	15.05	815.71	407.86	655.98	323.96	3.60	-0.28	0.061
122.00	-11.15	-0.75	0.00	-13.52	0.00	13.52	807.71	403.85	639.01	315.58	3.72	-0.30	0.057
125.00	-10.64	-0.72	0.00	-11.28	0.00	11.28	795.39	397.69	613.71	303.09	3.91	-0.32	0.051
130.00	-10.20	-0.70	0.00	-7.67	0.00	7.67	774.02	387.01	572.00	282.49	4.26	-0.34	0.040
131.00	-9.40	-0.65	0.00	-6.97	0.00	6.97	769.63	384.81	563.73	278.40	4.33	-0.35	0.037
132.00	-9.11	-0.64	0.00	-6.32	0.00	6.32	765.19	382.59	555.49	274.33	4.41	-0.35	0.035
135.00	-9.02	-0.63	0.00	-4.41	0.00	4.41	751.62	375.81	530.94	262.21	4.63	-0.36	0.029
136.00	-7.73	-0.55	0.00	-3.78	0.00	3.78	747.02	373.51	522.82	258.20	4.71	-0.37	0.025
140.00	-2.24	-0.17	0.00	-1.59	0.00	1.59	728.18	364.09	490.64	242.31	5.02	-0.38	0.010

145.00	-1.88	-0.15	0.00	-0.73	0.00	0.73	694.06	347.03	445.03	219.79	5.42	-0.38	0.006
150.00	0.00	-0.13	0.00	0.00	0.00	0.00	659.19	329.60	401.19	198.13	5.82	-0.38	0.000

Load Case (0.9 - 0.2Sds) * DL + E ELFM Seismic (Reduced DL) Equivalent Lateral Forces Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-33.71	-1.21	0.00	-147.86	0.00	147.86	3,157.17	1,578.58	4,812.28	2,376.61	0.00	0.00	0.034
2.00	-32.76	-1.21	0.00	-145.44	0.00	145.44	3,140.17	1,570.08	4,745.43	2,343.59	0.00	0.00	0.033
5.00	-31.20	-1.22	0.00	-141.80	0.00	141.80	3,114.35	1,557.18	4,645.51	2,294.24	0.01	-0.01	0.027
10.00	-29.65	-1.22	0.00	-135.70	0.00	135.70	3,070.50	1,535.25	4,480.02	2,212.51	0.02	-0.02	0.026
15.00	-28.73	-1.22	0.00	-129.60	0.00	129.60	3,025.61	1,512.81	4,315.90	2,131.46	0.05	-0.03	0.026
18.00	-28.22	-1.23	0.00	-125.92	0.00	125.92	2,998.18	1,499.09	4,218.13	2,083.18	0.07	-0.04	0.025
18.00	-28.22	-1.23	0.00	-125.92	0.00	125.92	2,998.18	1,499.09	4,218.13	2,083.18	0.07	-0.04	0.030
20.00	-26.95	-1.23	0.00	-123.47	0.00	123.47	2,979.68	1,489.84	4,153.26	2,051.14	0.09	-0.04	0.030
25.00	-25.70	-1.23	0.00	-117.35	0.00	117.35	2,932.71	1,466.36	3,992.19	1,971.59	0.14	-0.05	0.029
30.00	-25.33	-1.23	0.00	-111.22	0.00	111.22	2,875.21	1,437.61	3,820.20	1,886.65	0.20	-0.06	0.028
31.50	-24.14	-1.22	0.00	-109.38	0.00	109.38	2,854.24	1,427.12	3,764.37	1,859.08	0.22	-0.07	0.027
35.00	-23.91	-1.22	0.00	-105.11	0.00	105.11	2,805.48	1,402.74	3,636.10	1,795.73	0.28	-0.08	0.027
35.67	-22.92	-1.22	0.00	-104.29	0.00	104.29	2,248.04	1,124.02	2,973.83	1,468.66	0.29	-0.08	0.030
40.00	-21.79	-1.21	0.00	-99.02	0.00	99.02	2,218.59	1,109.29	2,872.24	1,418.49	0.36	-0.09	0.029
45.00	-20.67	-1.20	0.00	-92.98	0.00	92.98	2,183.60	1,091.80	2,755.77	1,360.97	0.46	-0.10	0.027
50.00	-19.56	-1.19	0.00	-86.98	0.00	86.98	2,147.58	1,073.79	2,640.30	1,303.95	0.57	-0.11	0.026
55.00	-18.64	-1.17	0.00	-81.04	0.00	81.04	2,110.52	1,055.26	2,525.94	1,247.47	0.69	-0.12	0.024
59.00	-18.47	-1.17	0.00	-76.34	0.00	76.34	2,080.12	1,040.06	2,435.32	1,202.71	0.80	-0.13	0.023
59.00	-18.47	-1.17	0.00	-76.34	0.00	76.34	2,080.12	1,040.06	2,435.32	1,202.71	0.80	-0.13	0.033
60.00	-17.61	-1.16	0.00	-75.17	0.00	75.17	2,072.42	1,036.21	2,412.79	1,191.58	0.83	-0.13	0.033
65.00	-16.77	-1.14	0.00	-69.38	0.00	69.38	2,033.27	1,016.64	2,300.94	1,136.35	0.97	-0.15	0.031
70.00	-16.61	-1.14	0.00	-63.66	0.00	63.66	1,982.10	991.05	2,178.42	1,075.84	1.14	-0.16	0.029
70.00	-15.81	-1.12	0.00	-63.66	0.00	63.66	1,982.06	991.03	2,178.34	1,075.80	1.14	-0.16	0.029
73.50	-15.58	-1.12	0.00	-59.73	0.00	59.73	1,473.95	736.97	1,624.52	802.29	1.26	-0.17	0.033
75.00	-14.83	-1.10	0.00	-58.06	0.00	58.06	1,466.28	733.14	1,601.77	791.05	1.31	-0.18	0.032
80.00	-14.09	-1.07	0.00	-52.58	0.00	52.58	1,440.00	720.00	1,526.12	753.69	1.51	-0.19	0.029
85.00	-13.35	-1.05	0.00	-47.21	0.00	47.21	1,412.68	706.34	1,451.11	716.65	1.72	-0.21	0.027
90.00	-12.63	-1.02	0.00	-41.97	0.00	41.97	1,384.32	692.16	1,376.86	679.98	1.94	-0.22	0.024
95.00	-11.91	-0.99	0.00	-36.88	0.00	36.88	1,354.92	677.46	1,303.45	643.72	2.17	-0.23	0.022
100.00	-11.21	-0.95	0.00	-31.94	0.00	31.94	1,324.47	662.24	1,230.99	607.94	2.42	-0.24	0.020
105.00	-10.51	-0.91	0.00	-27.18	0.00	27.18	1,292.99	646.50	1,159.59	572.68	2.68	-0.25	0.017
110.00	-10.51	-0.91	0.00	-22.61	0.00	22.61	1,247.14	623.57	1,077.81	532.29	2.95	-0.26	0.016
110.00	-10.13	-0.89	0.00	-22.61	0.00	22.61	1,247.10	623.55	1,077.76	532.26	2.95	-0.26	0.015
110.00	-10.13	-0.89	0.00	-22.61	0.00	22.61	853.23	426.61	741.76	366.33	2.95	-0.26	0.018
113.00	-8.30	-0.78	0.00	-19.93	0.00	19.93	842.42	421.21	715.90	353.56	3.12	-0.27	0.016
115.00	-8.01	-0.76	0.00	-18.38	0.00	18.38	835.00	417.50	698.71	345.06	3.23	-0.27	0.015
119.00	-7.94	-0.75	0.00	-15.36	0.00	15.36	819.65	409.83	664.49	328.17	3.46	-0.28	0.013
119.00	-7.94	-0.75	0.00	-15.36	0.00	15.36	819.65	409.83	664.49	328.17	3.46	-0.28	0.056
120.00	-7.79	-0.74	0.00	-14.61	0.00	14.61	815.71	407.86	655.98	323.96	3.52	-0.28	0.055
122.00	-7.57	-0.73	0.00	-13.13	0.00	13.13	807.71	403.85	639.01	315.58	3.64	-0.29	0.051
125.00	-7.22	-0.70	0.00	-10.94	0.00	10.94	795.39	397.69	613.71	303.09	3.83	-0.31	0.045
130.00	-6.92	-0.68	0.00	-7.44	0.00	7.44	774.02	387.01	572.00	282.49	4.17	-0.34	0.035
131.00	-6.37	-0.63	0.00	-6.76	0.00	6.76	769.63	384.81	563.73	278.40	4.24	-0.34	0.033
132.00	-6.18	-0.62	0.00	-6.13	0.00	6.13	765.19	382.59	555.49	274.33	4.31	-0.34	0.030
135.00	-6.12	-0.61	0.00	-4.28	0.00	4.28	751.62	375.81	530.94	262.21	4.53	-0.36	0.024
136.00	-5.25	-0.53	0.00	-3.67	0.00	3.67	747.02	373.51	522.82	258.20	4.60	-0.36	0.021
140.00	-1.52	-0.17	0.00	-1.54	0.00	1.54	728.18	364.09	490.64	242.31	4.91	-0.37	0.008

145.00	-1.28	-0.14	0.00	-0.71	0.00	0.71	694.06	347.03	445.03	219.79	5.29	-0.37	0.005
150.00	0.00	-0.13	0.00	0.00	0.00	0.00	659.19	329.60	401.19	198.13	5.68	-0.37	0.000

Equivalent Modal Analysis Method

(Based on ASCE7-10 Chapters 11, 12 & 15 and ANSI/TIA-G, section 2.7)

Spectral Response Acceleration for Short Period (S_s):	0.24
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06
Importance Factor (I_E):	1.00
Site Coefficient F_a:	1.60
Site Coefficient F_v	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.26
Desing Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Period Based on Rayleigh Method (sec):	2.50
Redundancy Factor (p):	1.00

Load Case (1.2 + 0.2Sds) * DL + E EMAM Seismic Equivalent Modal Analysis Method

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
44	147.50	283	1.828	1.667	1.025	0.427	81	354
43	142.50	291	1.706	1.144	0.823	0.329	64	365
42	138.00	282	1.600	0.778	0.670	0.250	47	353
41	135.50	71	1.542	0.611	0.595	0.210	10	89
40	133.50	216	1.497	0.494	0.539	0.180	26	270
39	131.50	80	1.453	0.391	0.488	0.152	8	100
38	130.50	81	1.431	0.344	0.464	0.138	7	101
37	127.50	410	1.366	0.222	0.397	0.100	27	514
36	123.50	250	1.281	0.095	0.320	0.054	9	313
35	121.00	169	1.230	0.035	0.278	0.029	3	212
34	119.50	85	1.200	0.004	0.254	0.015	1	107
33	117.00	344	1.150	-0.037	0.219	-0.006	-1	430
32	114.00	283	1.092	-0.074	0.182	-0.028	-5	354
31	111.50	445	1.044	-0.096	0.154	-0.044	-13	557
30	110.00	1	1.016	-0.105	0.140	-0.053	0	1
29	107.50	821	0.971	-0.116	0.117	-0.064	-35	1,028
28	102.50	832	0.883	-0.121	0.081	-0.081	-45	1,041
27	97.50	843	0.799	-0.112	0.053	-0.087	-49	1,055
26	92.50	854	0.719	-0.092	0.034	-0.082	-47	1,068
25	87.50	864	0.643	-0.068	0.020	-0.067	-38	1,082
24	82.50	875	0.572	-0.043	0.012	-0.041	-24	1,095
23	77.50	886	0.505	-0.018	0.007	-0.010	-6	1,108
22	74.25	267	0.463	-0.003	0.006	0.011	2	334
21	71.75	946	0.432	0.008	0.006	0.026	17	1,183
20	70.00	1	0.412	0.014	0.006	0.036	0	1
19	67.50	993	0.383	0.023	0.007	0.048	32	1,242
18	62.50	1,006	0.328	0.039	0.010	0.065	44	1,259
17	59.50	203	0.297	0.046	0.012	0.072	10	254
16	57.00	1,089	0.273	0.051	0.015	0.076	55	1,362
15	52.50	1,305	0.232	0.058	0.019	0.080	69	1,633
14	47.50	1,318	0.190	0.064	0.025	0.081	71	1,649
13	42.50	1,332	0.152	0.068	0.030	0.080	71	1,666
12	37.83	1,164	0.120	0.070	0.034	0.078	61	1,456
11	35.33	268	0.105	0.071	0.037	0.077	14	335

10	33.25	1,405	0.093	0.071	0.038	0.076	71	1,758
9	30.75	439	0.079	0.072	0.040	0.075	22	550
8	27.50	1,472	0.064	0.072	0.041	0.074	73	1,842
7	22.50	1,488	0.043	0.070	0.042	0.072	72	1,862
6	19.00	600	0.030	0.068	0.041	0.070	28	750
5	16.50	1,088	0.023	0.066	0.039	0.068	50	1,362
4	12.50	1,827	0.013	0.059	0.034	0.063	77	2,285
3	7.50	1,843	0.005	0.044	0.025	0.052	64	2,306
2	3.50	1,113	0.001	0.024	0.013	0.033	25	1,393
1	1.00	623	0.000	0.008	0.004	0.012	5	779
Generic 11' Dipole	150.00	40	1.890	1.980	1.140	0.480	13	50
Generic 4' Omni	150.00	10	1.890	1.980	1.140	0.480	3	13
Powerwave Allgon 702	150.00	13	1.890	1.980	1.140	0.480	4	17
Kathrein Scala 782-1	150.00	19	1.890	1.980	1.140	0.480	6	24
Powerwave Allgon LGP	150.00	85	1.890	1.980	1.140	0.480	27	106
Raycap DC6-48-60-18-	150.00	32	1.890	1.980	1.140	0.480	10	40
Ericsson RRUS 8843 B	150.00	216	1.890	1.980	1.140	0.480	69	270
Ericsson RRUS 4449 B	150.00	213	1.890	1.980	1.140	0.480	68	267
Raycap DC6-48-60-18-	150.00	16	1.890	1.980	1.140	0.480	5	20
Ericsson RRUS 32 B30	150.00	159	1.890	1.980	1.140	0.480	51	199
Raycap DC6-48-60-18-	150.00	16	1.890	1.980	1.140	0.480	5	20
Powerwave Allgon 777	150.00	105	1.890	1.980	1.140	0.480	34	131
CCI HPA65R-BU6A	150.00	126	1.890	1.980	1.140	0.480	40	157
Commscope SBNHH-	150.00	152	1.890	1.980	1.140	0.480	49	190
Kathrein Scala 80010	150.00	293	1.890	1.980	1.140	0.480	94	366
Generic GPS	150.00	10	1.890	1.980	1.140	0.480	3	13
Ericsson KRY 112 144	140.00	33	1.646	0.929	0.735	0.284	6	41
Ericsson Radio 4449	140.00	222	1.646	0.929	0.735	0.284	42	278
Ericsson AIR 21, 1.3	140.00	249	1.646	0.929	0.735	0.284	47	312
Ericsson AIR 21, 1.3	140.00	244	1.646	0.929	0.735	0.284	46	306
RFS APXVAARR24_43-U-	140.00	384	1.646	0.929	0.735	0.284	73	480
PerfectVision PV-RP1	140.00	2,972	1.646	0.929	0.735	0.284	563	3,719
Round T-Arm	136.00	750	1.554	0.642	0.609	0.218	109	938
Generic 12" x 12" Ju	132.00	10	1.464	0.415	0.501	0.159	1	13
Side Arms	131.00	560	1.442	0.367	0.476	0.145	54	701
DragonWave Horizon C	130.00	21	1.420	0.322	0.452	0.131	2	27
DragonWave A-ANT-23G	130.00	15	1.420	0.322	0.452	0.131	1	19
NextNet BTS-2500	130.00	105	1.420	0.322	0.452	0.131	9	131
Argus LLPX310R	130.00	86	1.420	0.322	0.452	0.131	8	107
DragonWave A-ANT-18G	130.00	48	1.420	0.322	0.452	0.131	4	60
SWR FMEC/1	122.00	15	1.250	0.057	0.294	0.039	0	19
Alcatel-Lucent RRH2x	113.00	157	1.073	-0.084	0.170	-0.035	-4	197
Alcatel-Lucent RRH 2	113.00	119	1.073	-0.084	0.170	-0.035	-3	149
Alcatel-Lucent RRH2x	113.00	170	1.073	-0.084	0.170	-0.035	-4	213
Nokia B66a RRH4x45 (	113.00	170	1.073	-0.084	0.170	-0.035	-4	213
RFS APL868013-12T0	113.00	25	1.073	-0.084	0.170	-0.035	-1	32
RFS APL866513-12T0-0	113.00	31	1.073	-0.084	0.170	-0.035	-1	39
RFS DB-T1-6Z-8AB-0Z	113.00	88	1.073	-0.084	0.170	-0.035	-2	110
Commscope JAHH-65B-	113.00	364	1.073	-0.084	0.170	-0.035	-8	455
Round T-Arm	113.00	750	1.073	-0.084	0.170	-0.035	-17	938
Generic 4' Std. Dish	70.00	188	0.412	0.014	0.006	0.036	4	235
		40,337	92.251	45.568	35.726	12.976	2,358	50,470

Load Case (0.9 - 0.2Sds) * DL + E EMAM Seismic (Reduced DL) Equivalent Modal Analysis Method

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
44	147.50	283	1.828	1.667	1.025	0.427	81	240
43	142.50	291	1.706	1.144	0.823	0.329	64	247

42	138.00	282	1.600	0.778	0.670	0.250	47	239
41	135.50	71	1.542	0.611	0.595	0.210	10	61
40	133.50	216	1.497	0.494	0.539	0.180	26	183
39	131.50	80	1.453	0.391	0.488	0.152	8	68
38	130.50	81	1.431	0.344	0.464	0.138	7	68
37	127.50	410	1.366	0.222	0.397	0.100	27	348
36	123.50	250	1.281	0.095	0.320	0.054	9	212
35	121.00	169	1.230	0.035	0.278	0.029	3	144
34	119.50	85	1.200	0.004	0.254	0.015	1	72
33	117.00	344	1.150	-0.037	0.219	-0.006	-1	292
32	114.00	283	1.092	-0.074	0.182	-0.028	-5	240
31	111.50	445	1.044	-0.096	0.154	-0.044	-13	378
30	110.00	1	1.016	-0.105	0.140	-0.053	0	0
29	107.50	821	0.971	-0.116	0.117	-0.064	-35	697
28	102.50	832	0.883	-0.121	0.081	-0.081	-45	706
27	97.50	843	0.799	-0.112	0.053	-0.087	-49	715
26	92.50	854	0.719	-0.092	0.034	-0.082	-47	725
25	87.50	864	0.643	-0.068	0.020	-0.067	-38	734
24	82.50	875	0.572	-0.043	0.012	-0.041	-24	743
23	77.50	886	0.505	-0.018	0.007	-0.010	-6	752
22	74.25	267	0.463	-0.003	0.006	0.011	2	227
21	71.75	946	0.432	0.008	0.006	0.026	17	803
20	70.00	1	0.412	0.014	0.006	0.036	0	1
19	67.50	993	0.383	0.023	0.007	0.048	32	843
18	62.50	1,006	0.328	0.039	0.010	0.065	44	854
17	59.50	203	0.297	0.046	0.012	0.072	10	172
16	57.00	1,089	0.273	0.051	0.015	0.076	55	924
15	52.50	1,305	0.232	0.058	0.019	0.080	69	1,108
14	47.50	1,318	0.190	0.064	0.025	0.081	71	1,119
13	42.50	1,332	0.152	0.068	0.030	0.080	71	1,130
12	37.83	1,164	0.120	0.070	0.034	0.078	61	988
11	35.33	268	0.105	0.071	0.037	0.077	14	227
10	33.25	1,405	0.093	0.071	0.038	0.076	71	1,193
9	30.75	439	0.079	0.072	0.040	0.075	22	373
8	27.50	1,472	0.064	0.072	0.041	0.074	73	1,250
7	22.50	1,488	0.043	0.070	0.042	0.072	72	1,263
6	19.00	600	0.030	0.068	0.041	0.070	28	509
5	16.50	1,088	0.023	0.066	0.039	0.068	50	924
4	12.50	1,827	0.013	0.059	0.034	0.063	77	1,550
3	7.50	1,843	0.005	0.044	0.025	0.052	64	1,564
2	3.50	1,113	0.001	0.024	0.013	0.033	25	945
1	1.00	623	0.000	0.008	0.004	0.012	5	529
Generic 11' Dipole	150.00	40	1.890	1.980	1.140	0.480	13	34
Generic 4' Omni	150.00	10	1.890	1.980	1.140	0.480	3	8
Powerwave Allgon 702	150.00	13	1.890	1.980	1.140	0.480	4	11
Kathrein Scala 782-1	150.00	19	1.890	1.980	1.140	0.480	6	16
Powerwave Allgon LGP	150.00	85	1.890	1.980	1.140	0.480	27	72
Raycap DC6-48-60-18-	150.00	32	1.890	1.980	1.140	0.480	10	27
Ericsson RRUS 8843 B	150.00	216	1.890	1.980	1.140	0.480	69	183
Ericsson RRUS 4449 B	150.00	213	1.890	1.980	1.140	0.480	68	181
Raycap DC6-48-60-18-	150.00	16	1.890	1.980	1.140	0.480	5	14
Ericsson RRUS 32 B30	150.00	159	1.890	1.980	1.140	0.480	51	135
Raycap DC6-48-60-18-	150.00	16	1.890	1.980	1.140	0.480	5	14
Powerwave Allgon 777	150.00	105	1.890	1.980	1.140	0.480	34	89
CCI HPA65R-BU6A	150.00	126	1.890	1.980	1.140	0.480	40	107
Commscope SBNHH-	150.00	152	1.890	1.980	1.140	0.480	49	129
Kathrein Scala 80010	150.00	293	1.890	1.980	1.140	0.480	94	249
Generic GPS	150.00	10	1.890	1.980	1.140	0.480	3	8
Ericsson KRY 112 144	140.00	33	1.646	0.929	0.735	0.284	6	28
Ericsson Radio 4449	140.00	222	1.646	0.929	0.735	0.284	42	188
Ericsson AIR 21, 1.3	140.00	249	1.646	0.929	0.735	0.284	47	211
Ericsson AIR 21, 1.3	140.00	244	1.646	0.929	0.735	0.284	46	208
RFS APXVAARR24_43-U-	140.00	384	1.646	0.929	0.735	0.284	73	326
PerfectVision PV-RP1	140.00	2,972	1.646	0.929	0.735	0.284	563	2,523

Round T-Arm	136.00	750	1.554	0.642	0.609	0.218	109	637
Generic 12" x 12" Ju	132.00	10	1.464	0.415	0.501	0.159	1	8
Side Arms	131.00	560	1.442	0.367	0.476	0.145	54	475
DragonWave Horizon C	130.00	21	1.420	0.322	0.452	0.131	2	18
DragonWave A-ANT-23G	130.00	15	1.420	0.322	0.452	0.131	1	13
NextNet BTS-2500	130.00	105	1.420	0.322	0.452	0.131	9	89
Argus LLPX310R	130.00	86	1.420	0.322	0.452	0.131	8	73
DragonWave A-ANT-18G	130.00	48	1.420	0.322	0.452	0.131	4	40
SWR FMEC/1	122.00	15	1.250	0.057	0.294	0.039	0	13
Alcatel-Lucent RRH2x	113.00	157	1.073	-0.084	0.170	-0.035	-4	133
Alcatel-Lucent RRH 2	113.00	119	1.073	-0.084	0.170	-0.035	-3	101
Alcatel-Lucent RRH2x	113.00	170	1.073	-0.084	0.170	-0.035	-4	144
Nokia B66a RRH4x45 (	113.00	170	1.073	-0.084	0.170	-0.035	-4	145
RFS APL868013-12T0	113.00	25	1.073	-0.084	0.170	-0.035	-1	21
RFS APL866513-12T0-0	113.00	31	1.073	-0.084	0.170	-0.035	-1	27
RFS DB-T1-6Z-8AB-0Z	113.00	88	1.073	-0.084	0.170	-0.035	-2	75
Commscope JAHH-65B-	113.00	364	1.073	-0.084	0.170	-0.035	-8	309
Round T-Arm	113.00	750	1.073	-0.084	0.170	-0.035	-17	637
Generic 4' Std. Dish	70.00	188	0.412	0.014	0.006	0.036	4	160
		40,337	92.251	45.568	35.726	12.976	2,358	34,238

Load Case (1.2 + 0.2Sds) * DL + E EMAM Seismic Equivalent Modal Analysis Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-49.69	-2.36	0.00	-260.24	0.00	260.24	3,157.17	1,578.58	4,812.28	2,376.61	0.00	0.00	0.057
2.00	-48.30	-2.34	0.00	-255.53	0.00	255.53	3,140.17	1,570.08	4,745.43	2,343.59	0.00	-0.01	0.057
5.00	-45.99	-2.29	0.00	-248.51	0.00	248.51	3,114.35	1,557.18	4,645.51	2,294.24	0.01	-0.02	0.046
10.00	-43.70	-2.22	0.00	-237.08	0.00	237.08	3,070.50	1,535.25	4,480.02	2,212.51	0.04	-0.04	0.045
15.00	-42.34	-2.18	0.00	-225.97	0.00	225.97	3,025.61	1,512.81	4,315.90	2,131.46	0.09	-0.05	0.043
18.00	-41.59	-2.16	0.00	-219.42	0.00	219.42	2,998.18	1,499.09	4,218.13	2,083.18	0.13	-0.07	0.043
18.00	-41.59	-2.16	0.00	-219.42	0.00	219.42	2,998.18	1,499.09	4,218.13	2,083.18	0.13	-0.07	0.051
20.00	-39.73	-2.09	0.00	-215.10	0.00	215.10	2,979.68	1,489.84	4,153.26	2,051.14	0.16	-0.07	0.050
25.00	-37.89	-2.03	0.00	-204.63	0.00	204.63	2,932.71	1,466.36	3,992.19	1,971.59	0.24	-0.09	0.049
30.00	-37.34	-2.02	0.00	-194.47	0.00	194.47	2,875.21	1,437.61	3,820.20	1,886.65	0.35	-0.11	0.047
31.50	-35.58	-1.95	0.00	-191.44	0.00	191.44	2,854.24	1,427.12	3,764.37	1,859.08	0.39	-0.12	0.047
35.00	-35.24	-1.94	0.00	-184.62	0.00	184.62	2,805.48	1,402.74	3,636.10	1,795.73	0.48	-0.13	0.045
35.67	-33.79	-1.88	0.00	-183.32	0.00	183.32	2,248.04	1,124.02	2,973.83	1,468.66	0.50	-0.14	0.051
40.00	-32.12	-1.82	0.00	-175.17	0.00	175.17	2,218.59	1,109.29	2,872.24	1,418.49	0.63	-0.15	0.049
45.00	-30.47	-1.75	0.00	-166.08	0.00	166.08	2,183.60	1,091.80	2,755.77	1,360.97	0.80	-0.17	0.047
50.00	-28.84	-1.69	0.00	-157.31	0.00	157.31	2,147.58	1,073.79	2,640.30	1,303.95	1.00	-0.19	0.045
55.00	-27.47	-1.64	0.00	-148.87	0.00	148.87	2,110.52	1,055.26	2,525.94	1,247.47	1.21	-0.21	0.043
59.00	-27.22	-1.63	0.00	-142.32	0.00	142.32	2,080.12	1,040.06	2,435.32	1,202.71	1.40	-0.23	0.041
59.00	-27.22	-1.63	0.00	-142.32	0.00	142.32	2,080.12	1,040.06	2,435.32	1,202.71	1.40	-0.23	0.060
60.00	-25.96	-1.59	0.00	-140.69	0.00	140.69	2,072.42	1,036.21	2,412.79	1,191.58	1.45	-0.24	0.059
65.00	-24.72	-1.57	0.00	-132.73	0.00	132.73	2,033.27	1,016.64	2,300.94	1,136.35	1.71	-0.26	0.057
70.00	-24.48	-1.57	0.00	-124.90	0.00	124.90	1,982.10	991.05	2,178.42	1,075.84	2.00	-0.29	0.055
70.00	-23.30	-1.55	0.00	-124.90	0.00	124.90	1,982.06	991.03	2,178.34	1,075.80	2.00	-0.29	0.055
73.50	-22.96	-1.55	0.00	-119.48	0.00	119.48	1,473.95	736.97	1,624.52	802.29	2.22	-0.31	0.062
75.00	-21.86	-1.56	0.00	-117.16	0.00	117.16	1,466.28	733.14	1,601.77	791.05	2.32	-0.32	0.061
80.00	-20.76	-1.59	0.00	-109.37	0.00	109.37	1,440.00	720.00	1,526.12	753.69	2.68	-0.35	0.057
85.00	-19.68	-1.63	0.00	-101.45	0.00	101.45	1,412.68	706.34	1,451.11	716.65	3.06	-0.38	0.054
90.00	-18.61	-1.68	0.00	-93.31	0.00	93.31	1,384.32	692.16	1,376.86	679.98	3.47	-0.41	0.051
95.00	-17.55	-1.73	0.00	-84.93	0.00	84.93	1,354.92	677.46	1,303.45	643.72	3.92	-0.44	0.047
100.00	-16.51	-1.77	0.00	-76.31	0.00	76.31	1,324.47	662.24	1,230.99	607.94	4.39	-0.46	0.043
105.00	-15.48	-1.80	0.00	-67.46	0.00	67.46	1,292.99	646.50	1,159.59	572.68	4.89	-0.49	0.039
110.00	-15.48	-1.81	0.00	-58.45	0.00	58.45	1,247.14	623.57	1,077.81	532.29	5.41	-0.51	0.035
110.00	-14.92	-1.82	0.00	-58.44	0.00	58.44	1,247.10	623.55	1,077.76	532.26	5.41	-0.51	0.035
110.00	-14.92	-1.82	0.00	-58.44	0.00	58.44	853.23	426.61	741.76	366.33	5.41	-0.51	0.042
113.00	-12.22	-1.84	0.00	-53.00	0.00	53.00	842.42	421.21	715.90	353.56	5.74	-0.52	0.037
115.00	-11.79	-1.84	0.00	-49.32	0.00	49.32	835.00	417.50	698.71	345.06	5.96	-0.53	0.035
119.00	-11.68	-1.84	0.00	-41.95	0.00	41.95	819.65	409.83	664.49	328.17	6.41	-0.55	0.029
119.00	-11.68	-1.84	0.00	-41.95	0.00	41.95	819.65	409.83	664.49	328.17	6.41	-0.55	0.142
120.00	-11.47	-1.84	0.00	-40.10	0.00	40.10	815.71	407.86	655.98	323.96	6.53	-0.55	0.138
122.00	-11.14	-1.84	0.00	-36.42	0.00	36.42	807.71	403.85	639.01	315.58	6.77	-0.59	0.129
125.00	-10.62	-1.82	0.00	-30.91	0.00	30.91	795.39	397.69	613.71	303.09	7.16	-0.64	0.115
130.00	-10.18	-1.79	0.00	-21.82	0.00	21.82	774.02	387.01	572.00	282.49	7.88	-0.72	0.090
131.00	-9.38	-1.72	0.00	-20.03	0.00	20.03	769.63	384.81	563.73	278.40	8.03	-0.73	0.084
132.00	-9.10	-1.69	0.00	-18.32	0.00	18.32	765.19	382.59	555.49	274.33	8.18	-0.74	0.079
135.00	-9.01	-1.68	0.00	-13.24	0.00	13.24	751.62	375.81	530.94	262.21	8.66	-0.78	0.063
136.00	-7.72	-1.51	0.00	-11.56	0.00	11.56	747.02	373.51	522.82	258.20	8.82	-0.79	0.055
140.00	-2.23	-0.59	0.00	-5.51	0.00	5.51	728.18	364.09	490.64	242.31	9.50	-0.81	0.026

145.00	-1.88	-0.51	0.00	-2.54	0.00	2.54	694.06	347.03	445.03	219.79	10.35	-0.83	0.014
150.00	0.00	-0.48	0.00	0.00	0.00	0.00	659.19	329.60	401.19	198.13	11.23	-0.83	0.000

Load Case (0.9 - 0.2Sds) * DL + E EMAM Seismic (Reduced DL) Equivalent Modal Analysis Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-33.71	-2.35	0.00	-255.40	0.00	255.40	3,157.17	1,578.58	4,812.28	2,376.61	0.00	0.00	0.054
2.00	-32.76	-2.34	0.00	-250.69	0.00	250.69	3,140.17	1,570.08	4,745.43	2,343.59	0.00	-0.01	0.053
5.00	-31.20	-2.28	0.00	-243.69	0.00	243.69	3,114.35	1,557.18	4,645.51	2,294.24	0.01	-0.02	0.043
10.00	-29.65	-2.21	0.00	-232.29	0.00	232.29	3,070.50	1,535.25	4,480.02	2,212.51	0.04	-0.04	0.042
15.00	-28.72	-2.17	0.00	-221.24	0.00	221.24	3,025.61	1,512.81	4,315.90	2,131.46	0.09	-0.05	0.041
18.00	-28.21	-2.14	0.00	-214.74	0.00	214.74	2,998.18	1,499.09	4,218.13	2,083.18	0.13	-0.06	0.040
18.00	-28.21	-2.14	0.00	-214.74	0.00	214.74	2,998.18	1,499.09	4,218.13	2,083.18	0.13	-0.06	0.048
20.00	-26.95	-2.08	0.00	-210.45	0.00	210.45	2,979.68	1,489.84	4,153.26	2,051.14	0.15	-0.07	0.047
25.00	-25.70	-2.01	0.00	-200.07	0.00	200.07	2,932.71	1,466.36	3,992.19	1,971.59	0.24	-0.09	0.045
30.00	-25.33	-1.99	0.00	-190.02	0.00	190.02	2,875.21	1,437.61	3,820.20	1,886.65	0.35	-0.11	0.044
31.50	-24.13	-1.92	0.00	-187.03	0.00	187.03	2,854.24	1,427.12	3,764.37	1,859.08	0.38	-0.12	0.044
35.00	-23.91	-1.91	0.00	-180.30	0.00	180.30	2,805.48	1,402.74	3,636.10	1,795.73	0.47	-0.13	0.042
35.67	-22.92	-1.85	0.00	-179.02	0.00	179.02	2,248.04	1,124.02	2,973.83	1,468.66	0.49	-0.13	0.047
40.00	-21.79	-1.79	0.00	-171.00	0.00	171.00	2,218.59	1,109.29	2,872.24	1,418.49	0.62	-0.15	0.046
45.00	-20.67	-1.72	0.00	-162.06	0.00	162.06	2,183.60	1,091.80	2,755.77	1,360.97	0.79	-0.17	0.044
50.00	-19.56	-1.65	0.00	-153.46	0.00	153.46	2,147.58	1,073.79	2,640.30	1,303.95	0.98	-0.19	0.042
55.00	-18.64	-1.60	0.00	-145.19	0.00	145.19	2,110.52	1,055.26	2,525.94	1,247.47	1.19	-0.21	0.040
59.00	-18.46	-1.59	0.00	-138.78	0.00	138.78	2,080.12	1,040.06	2,435.32	1,202.71	1.37	-0.23	0.038
59.00	-18.46	-1.59	0.00	-138.78	0.00	138.78	2,080.12	1,040.06	2,435.32	1,202.71	1.37	-0.23	0.056
60.00	-17.61	-1.55	0.00	-137.18	0.00	137.18	2,072.42	1,036.21	2,412.79	1,191.58	1.42	-0.23	0.055
65.00	-16.77	-1.53	0.00	-129.42	0.00	129.42	2,033.27	1,016.64	2,300.94	1,136.35	1.67	-0.26	0.053
70.00	-16.61	-1.52	0.00	-121.79	0.00	121.79	1,982.10	991.05	2,178.42	1,075.84	1.96	-0.29	0.051
70.00	-15.80	-1.51	0.00	-121.79	0.00	121.79	1,982.06	991.03	2,178.34	1,075.80	1.96	-0.29	0.051
73.50	-15.58	-1.51	0.00	-116.51	0.00	116.51	1,473.95	736.97	1,624.52	802.29	2.18	-0.31	0.058
75.00	-14.82	-1.51	0.00	-114.26	0.00	114.26	1,466.28	733.14	1,601.77	791.05	2.27	-0.31	0.057
80.00	-14.08	-1.54	0.00	-106.69	0.00	106.69	1,440.00	720.00	1,526.12	753.69	2.62	-0.34	0.054
85.00	-13.35	-1.58	0.00	-98.99	0.00	98.99	1,412.68	706.34	1,451.11	716.65	2.99	-0.37	0.051
90.00	-12.62	-1.63	0.00	-91.08	0.00	91.08	1,384.32	692.16	1,376.86	679.98	3.40	-0.40	0.047
95.00	-11.90	-1.68	0.00	-82.93	0.00	82.93	1,354.92	677.46	1,303.45	643.72	3.83	-0.43	0.044
100.00	-11.20	-1.72	0.00	-74.54	0.00	74.54	1,324.47	662.24	1,230.99	607.94	4.29	-0.45	0.040
105.00	-10.50	-1.76	0.00	-65.93	0.00	65.93	1,292.99	646.50	1,159.59	572.68	4.78	-0.48	0.036
110.00	-10.50	-1.76	0.00	-57.14	0.00	57.14	1,247.14	623.57	1,077.81	532.29	5.29	-0.50	0.033
110.00	-10.12	-1.77	0.00	-57.14	0.00	57.14	1,247.10	623.55	1,077.76	532.26	5.29	-0.50	0.033
110.00	-10.12	-1.77	0.00	-57.14	0.00	57.14	853.23	426.61	741.76	366.33	5.29	-0.50	0.039
113.00	-8.29	-1.80	0.00	-51.83	0.00	51.83	842.42	421.21	715.90	353.56	5.61	-0.51	0.035
115.00	-7.99	-1.81	0.00	-48.22	0.00	48.22	835.00	417.50	698.71	345.06	5.82	-0.52	0.032
119.00	-7.92	-1.80	0.00	-41.00	0.00	41.00	819.65	409.83	664.49	328.17	6.27	-0.54	0.027
119.00	-7.92	-1.80	0.00	-41.00	0.00	41.00	819.65	409.83	664.49	328.17	6.27	-0.54	0.135
120.00	-7.78	-1.80	0.00	-39.20	0.00	39.20	815.71	407.86	655.98	323.96	6.38	-0.54	0.131
122.00	-7.55	-1.80	0.00	-35.59	0.00	35.59	807.71	403.85	639.01	315.58	6.62	-0.58	0.122
125.00	-7.20	-1.77	0.00	-30.20	0.00	30.20	795.39	397.69	613.71	303.09	7.00	-0.63	0.109
130.00	-6.90	-1.74	0.00	-21.33	0.00	21.33	774.02	387.01	572.00	282.49	7.70	-0.70	0.084
131.00	-6.36	-1.68	0.00	-19.58	0.00	19.58	769.63	384.81	563.73	278.40	7.84	-0.71	0.079
132.00	-6.16	-1.65	0.00	-17.91	0.00	17.91	765.19	382.59	555.49	274.33	8.00	-0.73	0.073
135.00	-6.10	-1.64	0.00	-12.96	0.00	12.96	751.62	375.81	530.94	262.21	8.46	-0.76	0.058
136.00	-5.23	-1.48	0.00	-11.32	0.00	11.32	747.02	373.51	522.82	258.20	8.62	-0.77	0.051
140.00	-1.51	-0.58	0.00	-5.41	0.00	5.41	728.18	364.09	490.64	242.31	9.28	-0.79	0.024

145.00	-1.27	-0.50	0.00	-2.50	0.00	2.50	694.06	347.03	445.03	219.79	10.12	-0.81	0.013
150.00	0.00	-0.48	0.00	0.00	0.00	0.00	659.19	329.60	401.19	198.13	10.97	-0.81	0.000

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 + 1.6W	29.90	0.00	48.38	0.00	0.00	3151.79	119.00	0.92
0.9D + 1.6W	28.19	0.00	36.28	0.00	0.00	3021.47	119.00	0.89
1.2D + 1.0Di + 1.0Wi	17.52	0.00	73.08	0.00	0.00	1508.02	0.00	0.29
(1.2 + 0.2Sds) * DL + E ELFM	1.21	0.00	49.69	0.00	0.00	150.49	119.00	0.06
(1.2 + 0.2Sds) * DL + E EMAM	2.36	0.00	49.69	0.00	0.00	260.24	119.00	0.14
(0.9 - 0.2Sds) * DL + E ELFM	1.21	0.00	33.71	0.00	0.00	147.86	119.00	0.06
(0.9 - 0.2Sds) * DL + E EMAM	2.35	0.00	33.71	0.00	0.00	255.40	119.00	0.13
1.0D + 1.0W	5.56	0.00	40.34	0.00	0.00	599.93	119.00	0.19

Additional Steel Summary

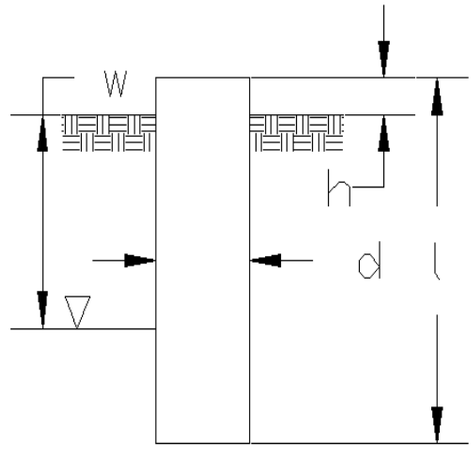
Elev From (ft)	Elev To (ft)	Member	Intermediate Connectors VQ/I (lb/in)	Shear Applied (kips)	Shear phiVn (kips)	Ratio	Max Member Pu (kip)	phiPn (kip)	Ratio
0.00	119.00	(4) SOL-#18 All Thread Bar	360.5	10.8	16.8	0.643	238.0	249.8	0.953
0.00	59.00	(4) SOL-#18 All Thread Bar	196.3	5.9	16.8	0.350	202.0	249.8	0.809
2.00	18.00	(2) PL-PL 4" x 1"	113.7	1.4	25.3	0.054	138.7	174.4	0.795
2.00	18.00	(2) PL-PL 5" x 1"	142.1	1.7	25.3	0.067	173.4	218.0	0.795

Elev From (ft)	Elev To (ft)	Member	Upper Termination Connectors MQ/I (kips)	phiVn (kips)	Num Reqd	Num Actual	Ratio	Lower Termination Connectors MQ/I (kips)	phiVn (kips)	Num Reqd	Num Actual	Ratio
0.00	119.00	(4) SOL-#18 All Thread Bar	80.1	12.0	7	10	0.667	0.0	12.0	0	0	0.000
0.00	59.00	(4) SOL-#18 All Thread Bar	145.3	12.0	13	18	0.673	0.0	12.0	0	0	0.000
2.00	18.00	(2) PL-PL 4" x 1"	125.6	25.3	5	8	0.621	136.7	25.3	6	8	0.676
2.00	18.00	(2) PL-PL 5" x 1"	157.1	25.3	7	8	0.777	170.9	25.3	7	8	0.845

Site Name: Branford CT 6, CT
Site Number: 302484
Tower Type: MP
Design Base Loads (Factored) - Analysis per TIA-222-G Standards

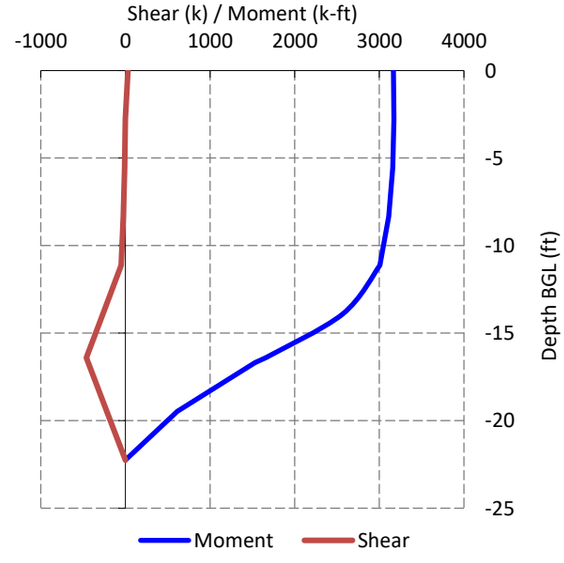
Pier Foundation Analysis

Foundation Analysis Parameters		
Analyze or Design a Foundation?	Analyze	-
Foundation Mapped:	Y	-
Moment (M):	3151.8	k-ft
Shear/Leg (V):	29.9	k
Axial Load (P):	48.4	k
Uplift/Leg (U):	0.0	k
Diameter of Caisson (d):	5	ft
Caisson Embedment (L-h):	22.25	ft
Caisson Height Above Ground (h):	0.5	ft
Depth Below Ground Surface to Water Table (w):	5	ft
Unit Weight of Concrete:	150	pcf
Unit Weight of Water:	62.4	pcf
Tension/Compression Skin Friction Factor:	1.00	-
Pullout Angle:	20	°



Depth (ft) Top	Depth (ft) Bottom	γ_{Soil} (pcf)	Cu (psf)	ϕ (degree)	Ultimate Skin Friction (psf)	Ultimate Bearing Pressure (psf)
0.0	1.0	105	0	0	0	0
1.0	2.0	120	0	33	0	0
2.0	4.0	115	0	30	0	0
4.0	6.0	124	0	35	700	0
6.0	8.0	137	0	40	822	0
8.0	10.0	136	0	40	948	0
10.0	23.3	140	12,807	0	5,763	111,949

Soil Strength Capacities		
Required Embedment:	16.7	ft
Volume of Concrete:	446.7	ft^3
Buoyant Weight of Concrete:	45.3	k
Average Soil Unit Weight:	83.4	pcf
Skin Friction Resistance:	1186.5	k
Compressive Bearing Resistance:	2198.1	k
Pullout Weight (Minus Concrete Weight):	245.6	k
Nominal Uplift Capacity per Leg ($\phi_s T_n$):	184.2	k
Nominal Compressive Capacity per Leg ($\phi_s P_n$):	2538.5	k
T_u:	0.0	k
$T_u/\phi_s T_n$:	0%	Pass
P_u:	57.2	k
$P_u/\phi_s P_n$:	2%	Pass
Total Lateral Resistance:	5355.3	k
Inflection Point (Below Ground Surface):	16.4	ft
Moment At Inflection Point (M_D):	3657.2	k-ft
Nominal Moment Capacity ($\phi_s M_n$):	12476.1	k-ft
ϕ_s:	0.75	-
$M_D/\phi_s M_n$:	29%	Pass



Base Plate & Anchor Rod Analysis

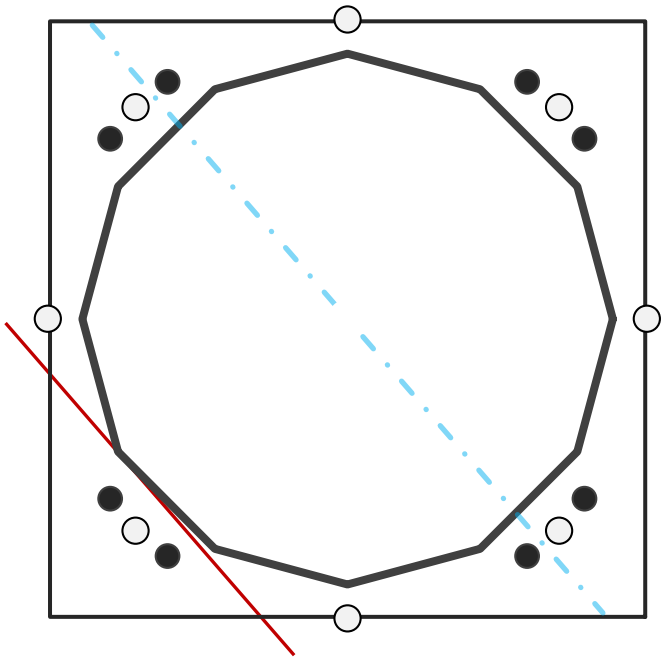
Pole Dimensions		
Number of Sides	12	-
Diameter	37.38	in
Thickness	0.375	in
Orientation Offset	0	°

Base Reactions		
Moment, Mu	3151.8	k-ft
Axial, Pu	48.4	k
Shear, Vu	29.9	k
Neutral Axis	131	°

Report Capacities		
Component	Capacity	Result
Base Plate	63%	Pass
Anchor Rods	73%	Pass
Dwyidag	62%	Pass

Base Plate		
Shape	Square	-
Width	44	in
Thickness	2 1/4	in
Grade	A572-60	-
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	75	ksi
Clip	0	in
Orientation Offset	0	°
Anchor Rod Detail	c	η=0.55
Clear Distance	N/A	in
Applied Moment, Mu	1047.2	k
Bending Stress, ϕMn	1663.9	k

Dywidag Reinforcement		
Quantity	8	-
Bar Size	#20	in
Diameter, ø	2.5	in
Bracket Type	Angle	-
Circle	44.26	in
Orientation Offset	0	°
Applied Force, Pu	244.4	k
Dywidag Bar, ϕPn	392.7	k



Original Anchor Rods		
Arrangement	Cluster	-
Quantity	8	-
Diameter, ø	2 1/4	in
Bolt Circle	44	in
Grade	A615-75	
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	6.0	in
Orientation Offset	0	°
Applied Force, Pu	188.5	k
Anchor Rods, ϕPn	259.8	k

Calculations for Monopole Base Plate & Anchor Rod Analysis

Reaction Distribution

Reaction	Shear Vu	Moment Mu	Factor
-	k	k-ft	-
Base Forces	29.9	1367.3	0.43
Anchor Rod Forces	29.9	1367.3	0.43
Additional Bolt (Grp1) Forces	0.0	0.0	0.00
Additional Bolt (Grp2) Forces	0.0	0.0	0.00
Dywidag Forces	0.0	1784.5	0.57
Stiffener Forces	0.0	0.0	0.00

Geometric Properties

Section	Gross Area	Net Area	Individual Inertia	Threads per Inch	Moment of Inertia
-	in^2	in^2	in^4	#	in^4
Pole	43.0992	3.5916	0.1692		7379.37
Bolt	3.9761	3.2477	0.8393	4.5	6294.24
Bolt1	0.0000	0.0000	0.0000	0	0.00
Bolt2	0.0000	0.0000	0.0000	0	0.00
Dywidag	4.9087	4.9087	1.9175		9631.30
Stiffener	0.0000	0.0000	0.0000		0.00

Base Plate		
Shape	Square	-
Width, W	44	in
Thickness, t	2.25	in
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	75	ksi
Base Plate Chord	23.211	in
Detail Type	c	-
Detail Factor	0.55	-
Clear Distance	N/A	-

Anchor Rods		
Anchor Rod Quantity, N	8	-
Rod Diameter, d	2.25	in
Bolt Circle, BC	44	in
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	188.5	k
Applied Shear, Vu	0.4	k
Compressive Capacity, ϕPn	259.8	k
Tensile Capacity, ϕRnt	0.725	OK
Interaction Capacity	0.728	OK

External Base Plate		
Chord Length AA	24.345	in
Additional AA	0.000	in
Section Modulus, Z	30.812	in^3
Applied Moment, Mu	1047.2	k-ft
Bending Capacity, ϕMn	1663.9	k-ft
Capacity, Mu/ϕMn	0.629	OK
Chord Length AB	23.009	in
Additional AB	0.000	in
Section Modulus, Z	29.121	in^3
Applied Moment, Mu	797.7	k-ft
Bending Capacity, ϕMn	1572.5	k-ft
Capacity, Mu/ϕMn	0.507	OK
Bend Line Length	0.000	in
Additional Bend Line	0.000	in
Section Modulus, Z	0.000	in^3
Applied Moment, Mu	0.0	k-ft
Bending Capacity, ϕMn	0.0	k-ft
Capacity, Mu/ϕMn		

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

Dywidag Reinforcement		
Dywidag Quantity, N	8	-
Dywidag Diameter, d	2.5	in
Bolt Circle, BC	44.26	in
Yield Strength, Fy	80	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	244.4	k
Compressive Capacity, ϕPn	392.7	k
Capacity, Pu/ϕPn	0.622	OK

Mount Analysis of Proposed Perfect Vision PV-RP14M-HR-9-96 w/PV-PKBK-M Kicker Kit for American Tower on behalf of T-Mobile

302484 - Branford CT 6

Project #: 12927172

T-Mobile Site ID: CTNH102C

Program: L600

CLS Engineering PLLC Project #41124-12927172-01-MR-R1

July 3, 2019

MOUNT DESCRIPTION	Proposed Perfect Vision PV-RP14M-HR-9-96 w/PV-PKBK-M Kicker Kit at 140 ft AGL
ANTENNA ELEVATION	Nominal Rad. Elevation of 140 ft AGL
SITE DESCRIPTION	150 ft Monopole
SITE ADDRESS	405 Brushy Plain Road, Branford, CT 06405-2308, New Haven County
GPS COORDINATES	41.31680556, -72.8197
ANALYSIS STANDARD	2015 IBC / 2018 Connecticut State Building Code / TIA-222-G
LOADING CRITERIA	130 mph, V_{ult} / 100.7 mph, V_{asd} (3-Second Gust) w/o ice & 50 mph (3-Second Gust) w/ 0.75"

■ **ANALYSIS RESULT:** **Pass (Replacement)**

MEMBER USAGE	**66%**	**Pass**
COLLAR USAGE	**82%**	**Pass**

Existing mounts to be replaced; see conclusion for details.

Prepared by:
Jennifer Soza

Reviewed and Approved by:
Tyler M. Barker, P.E.

STATE OF CONNECTICUT
TYLER M BARKER
No. 32402
LICENSED PROFESSIONAL ENGINEER

Tyler M. Barker
CLS Engineering, PLLC
Director of Engineering
PE # 32402 Exp. 1/31/2020
COA # PEC.001833 Exp. 8/14/2019

IdenTrust part of HID Global

Digitally signed by Tyler Barker
DN: c=US, o=Telamon Corporation, ou=A01427E00000 16A4525ADF80000 1D17, cn=Tyler Barker
Date: 2019.07.03 22:01:10 -04'00'

■ INTRODUCTION

The proposed equipment is to be mounted to the proposed Perfect Vision PV-RP14M-HR-9-96 w/PV-PKBK-M Kicker Kit. This proposed mounting configuration was analyzed using RISA-3D, a commercially available finite element analysis software package. A selection of input and output from our analysis is attached to the end of this report.

■ STRUCTURAL DOCUMENTS PROVIDED

STRUCTURAL DATA	Perfect Vision Drawing #RP-ENG-01-R2 Rev. 2, dated August 9, 2018 Site photos, dated November 14, 2018
PREVIOUS ANALYSES	Structural Analysis by ATC, Engineering #OAA745542_C3_01, dated February 5, 2019
LOADING DATA	ATC Application, Project #12927172, dated April 2, 2019

■ ANALYSIS CRITERIA

STANDARD	2015 IBC / 2018 Connecticut State Building Code / TIA-222-G
BASIC WIND SPEED	130 mph, V_{ult} / 100.7 mph, V_{asd} (3-Second Gust)
BASIC WIND SPEED W/ ICE	50 mph (3-Second Gust) w/ 0.75" Radial Ice (Escalating)
EXPOSURE CATEGORY	B
MAX. TOPOGRAPHIC FACTOR, K_{zt}	1.00
RISK CATEGORY	II
MAINTENANCE LIVE LOAD	L_M: 500 lb

■ FINAL EQUIPMENT

ELEVATION (ft)		ANTENNAS	
MOUNT	**RAD.**	**#**	**NAME**
140.0	140.0	3	Ericsson AIR 21,1.3M, B2A/B4P
		3	Ericsson AIR 21,1.3M, B4A/B2P
		3	Ericsson RADIO 4449 B12/B71
		3	Ericsson KRY 112 144/1
		3	RFS Celwave APXVAARR24_43-U-NA20

■ RESULTS SUMMARY

Existing Mount Usages:

COMPONENT	PEAK USAGE	RESULT
Collar	**123%**	**Fail**
Standoff Tubes	86%	Pass
Mount Pipes	85%	Pass

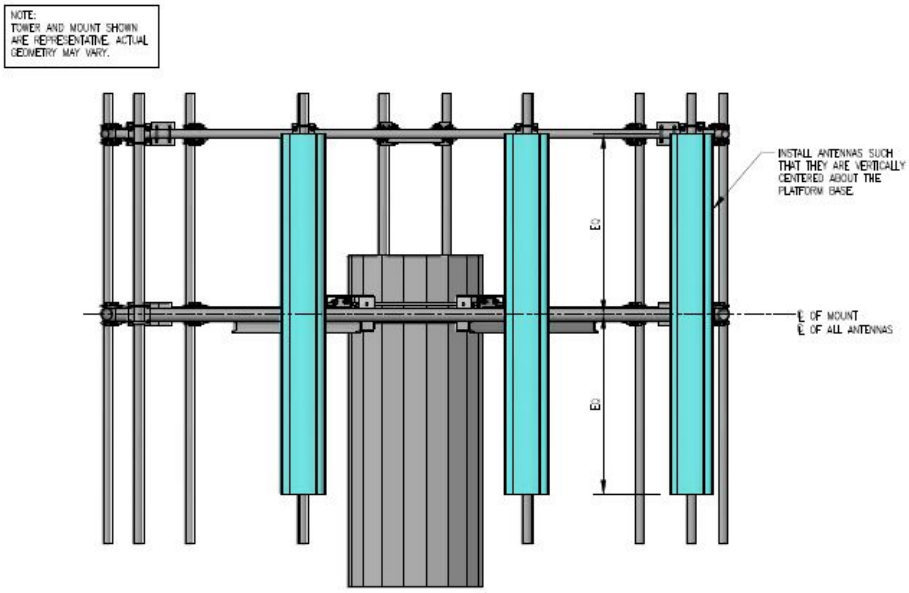
Replacement Mount Usages:

COMPONENT	PEAK USAGE	RESULT
Collar Reactions	82%	Pass
Mount Pipes	66%	Pass
Platform Base	58%	Pass
Platform Connection Plates	41%	Pass
Support Rail	23%	Pass

■ CONCLUSION AND RECOMMENDATIONS

According to our structural analysis, the mounts have been found to **PASS PENDING REPLACEMENT**. The mounting configuration considered in this analysis will be capable of supporting the referenced loading pursuant to referenced standards once the following scope is executed:

- **Replace existing T-Arm mounts with (1) new PerfectVision PV-RP14M-HR-9-96 Platform Mount.**
- **Install (1) PerfectVision PV-PKBK-M Monopole Platform Kicker Kit as shown. Field-cut angles as required. Maintain minimum bolt edge distance.**
- **Install (3) 2 STD x 8'-0" long mount pipes, included in the kit, per sector (9 total).**
- **Install support rails 3'-0" above the platform base. Connect to all mount pipes using crossover plates included in proposed platform kit.**
- **Install proposed antennas such that they are vertically centered about the face horizontal members. Install proposed RRUS behind the antennas.**



See following sketches and PerfectVision drawings for additional details.

■ ASSUMPTIONS AND CONDITIONS

This analysis is inclusive of the antenna supporting frames/mounts and all recorded connections that will support the equipment listed in this report. It considers only the theoretical capacity of structural components and it is not a condition assessment. The validity of the analysis may be dependent on the accuracy of structural information supplied by others. The client is responsible for verifying this information. If any provided information is revised after completion of this analysis, CLS Engineering PLLC should be notified immediately to revise results.

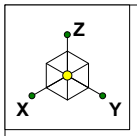
This analysis assumes the following:

1. The tower or other superstructure and mounts (if existing) were properly constructed as per the original design and have been properly maintained in accordance with applicable code standards.
2. Member sizes and strengths are accurate as supplied or are assumed as stated in the calculations.
3. In the absence of sufficient design information, all welds and connections are assumed to develop at least the capacity of the connected member, unless otherwise stated in this analysis.
4. All prior structural modifications, if any, are assumed to be correctly installed and fully effective.
5. The loading configuration is complete and accurate as supplied and/or as modeled in the previous analysis. All appurtenances are assumed to be properly installed and supported as per manufacturer requirements.
6. Some conservative assumptions may be used regarding appurtenances and their projected areas based on careful interpretation of data supplied, previous experience and standard industry practice.

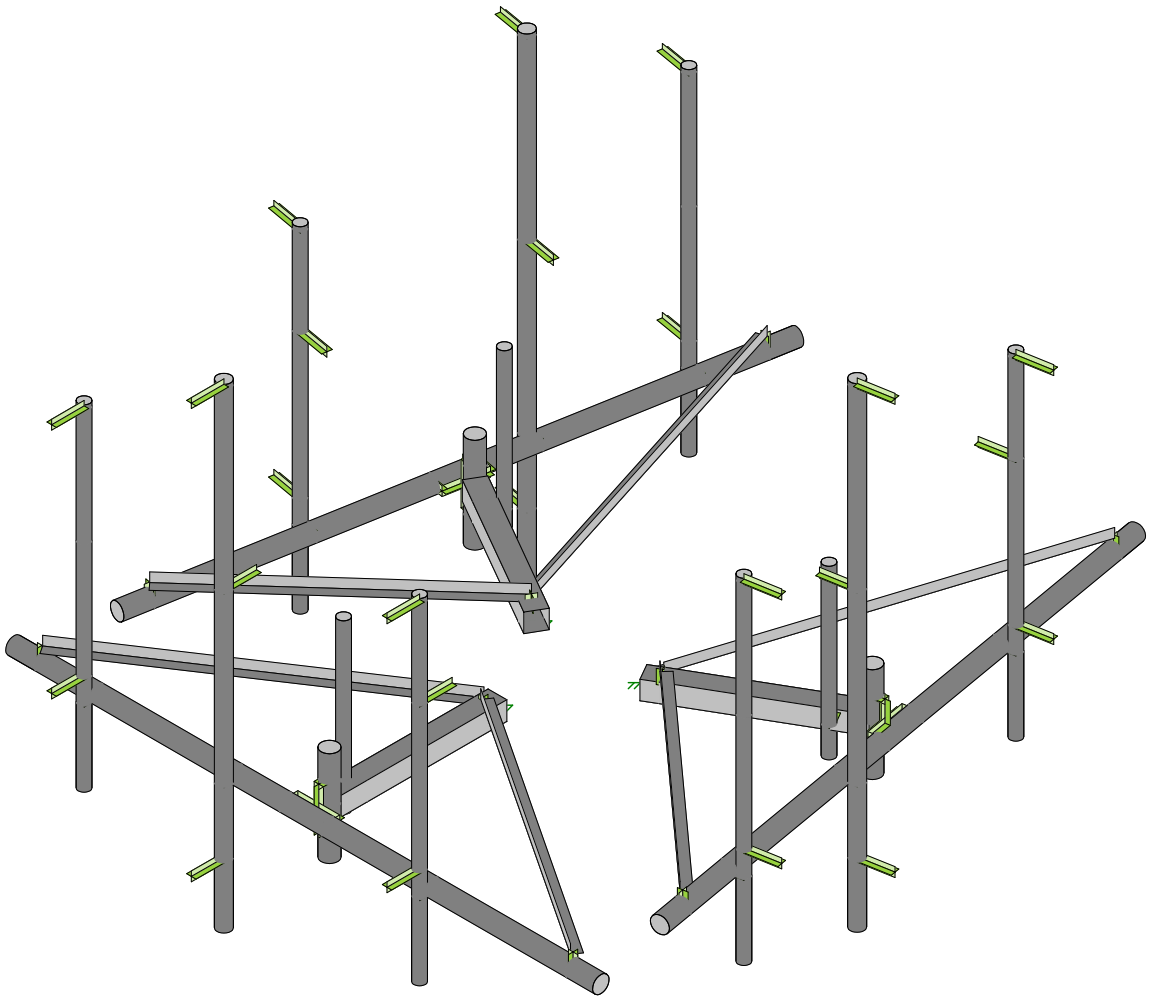
All opinions and conclusions are considered accurate to a reasonable degree of engineering certainty based upon the evidence available at the time of the report. All opinions and conclusions contained herein are subject to revision based upon receipt of new or updated information. All services are provided exercising a level of care and diligence equivalent to the standard of our profession. No warranty or guarantee, either expressed or implied, is offered. All services are confidential in nature and this report will not be released to any other party without the client's consent. The use of this analysis is limited to the expressed purpose for which it was commissioned and it may not be reused, copied or disseminated for any other purpose without consent from CLS Engineering PLLC.

All services were performed, results obtained and recommendations made in accordance with generally accepted engineering principles and practices. CLS Engineering PLLC is not responsible for the conclusions, opinions or recommendations made by others based on the information supplied in this analysis.

It is not possible to have the fully detailed information necessary to perform a complete and thorough analysis of every structural sub-component of an existing structure. The structural analysis by CLS Engineering PLLC verifies the adequacy of the primary members of the structure. CLS Engineering PLLC provides a limited scope of service in that we cannot verify the adequacy of every weld, bolt, gusset, etc.



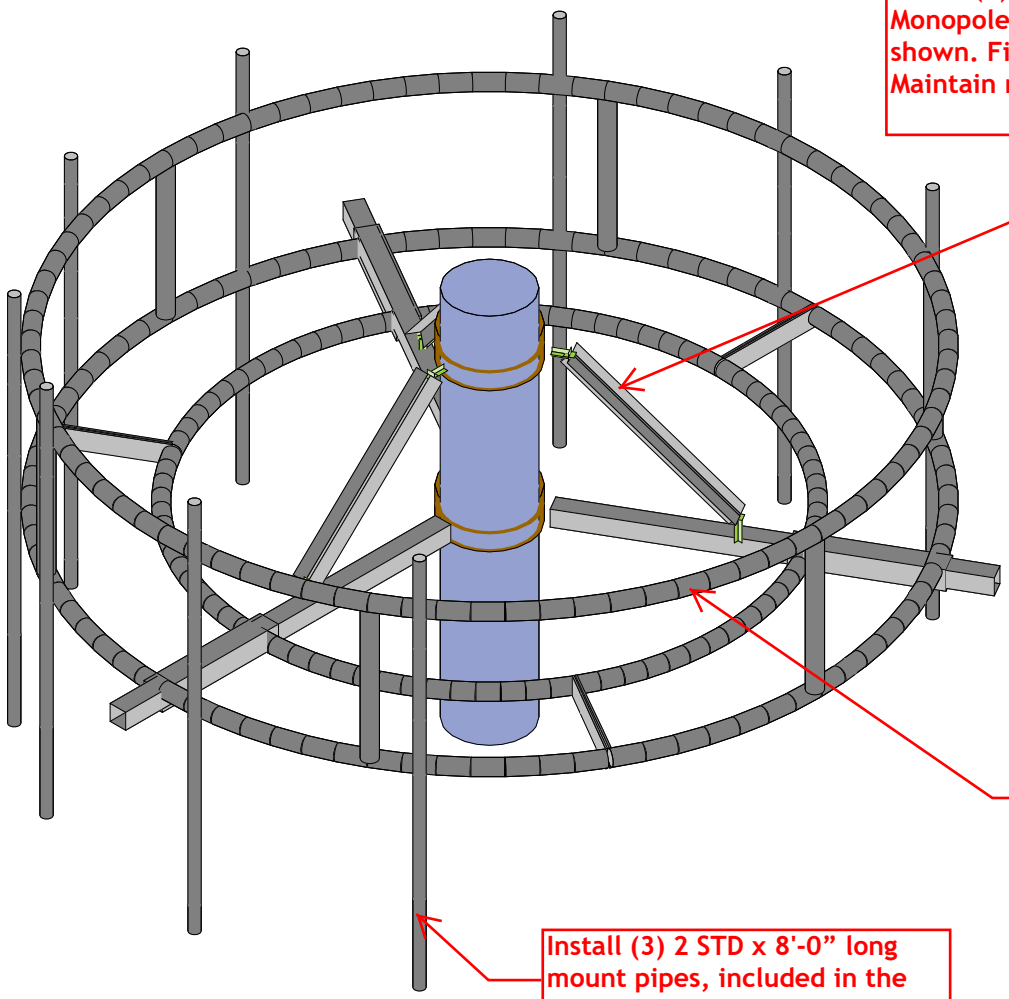
Existing Mount to be Replaced.



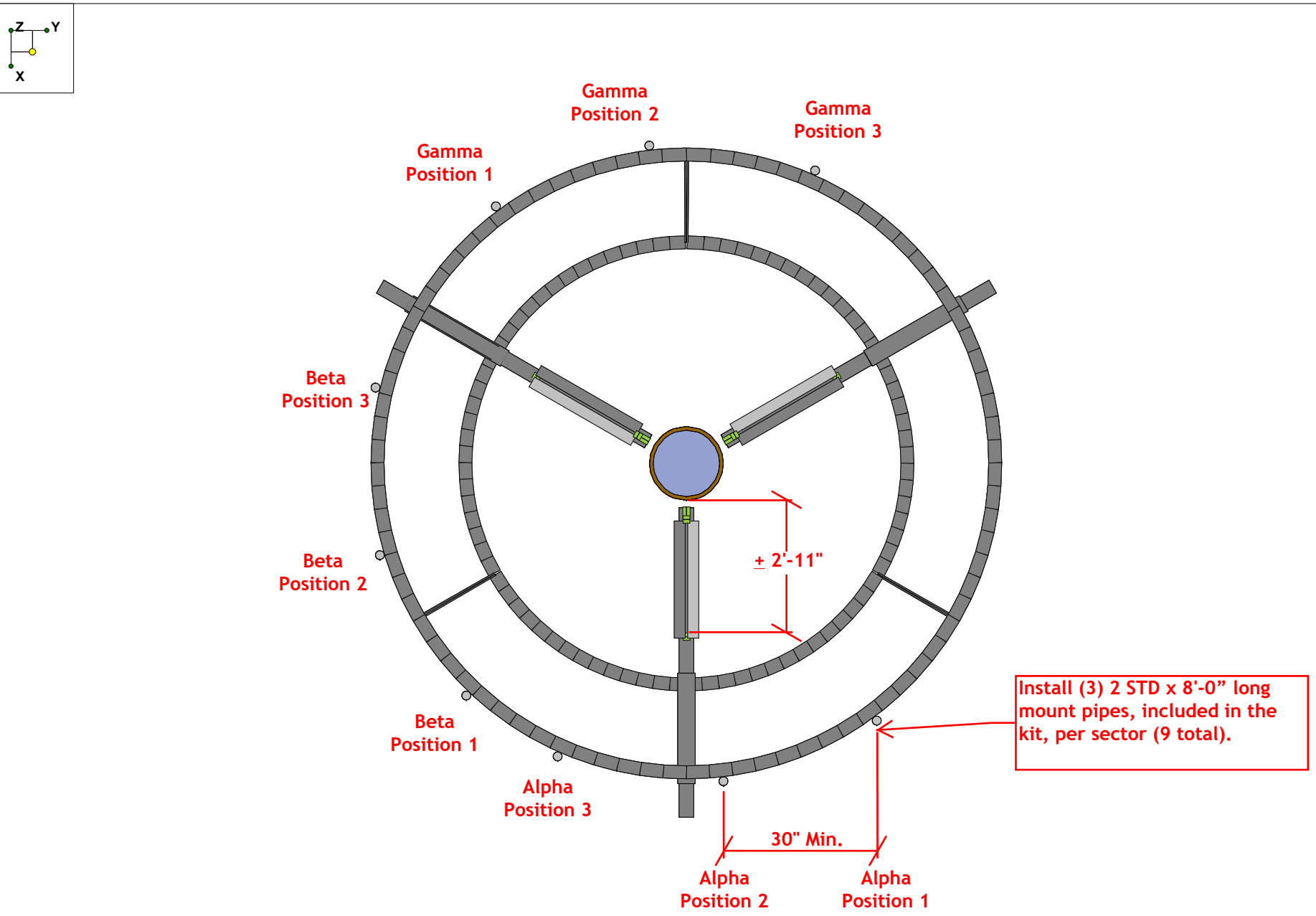
Envelope Only Solution

CLS	41124-12927172-Branford CT 6	EX - 1
JLS		Apr 10, 2019 at 2:39 PM
41124-12927172-01-MA	Existing - Rendered	41124-12927172-01-MA-Existing.r3d

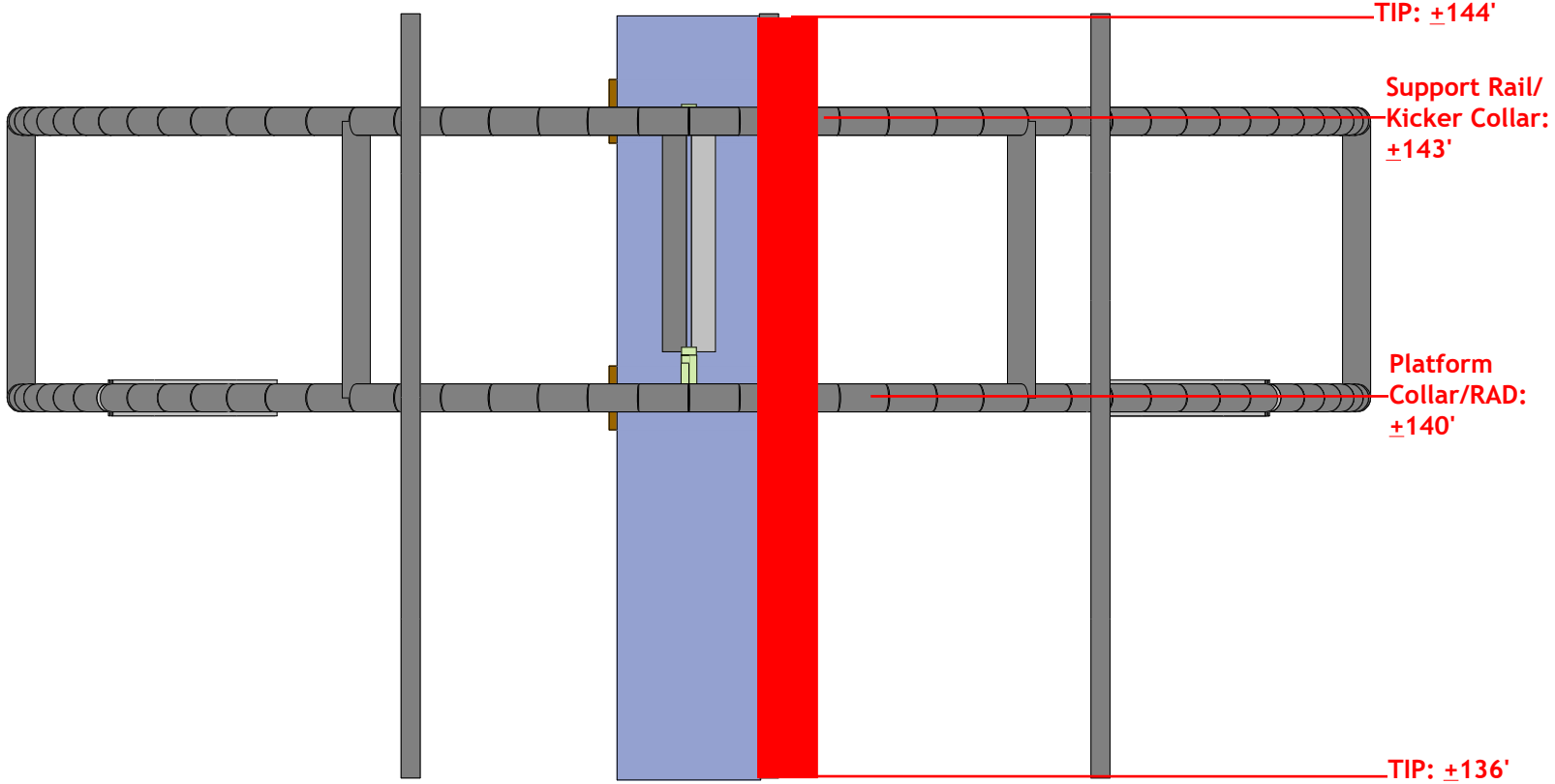
Replace existing T-Arm mounts with (1) new PerfectVision PV-RP14M-HR-9-96 Platform Mount.



CLS		IN - 1
JLS	41124-12927172-Branford CT 6	July 3, 2019 at 12:51 PM
41124-12927172-01-MR	Installation Sketch	41124-12927172-01-MR-Images.r3d



CLS	41124-12927172-Branford CT 6	IN - 2
JLS		July 3, 2019 at 12:51 PM
41124-12927172-01-MR	Installation Sketch	41124-12927172-01-MR-Images.r3d



CLS	41124-12927172-Branford CT 6	IN - 3
JLS		July 3, 2019 at 12:52 PM
41124-12927172-01-MR	Installation Sketch	41124-12927172-01-MR-Images.r3d

MONOPOLE ROUND PLATFORM

Table 1: Monopole Configurations									
				Included Parts					
Part Number	Description	Pole Diameter Range	Weight (lbs)	PV-RM1045	PV-RP10-HR-B	PV-RP14-HR-B	PV-XP-2030-HD	PIPE-238X96	PV-PM-1
PV-RP10S-HR-12-B	10' Round Platform, w/ Handrail, W/ Ring Mount, Crossovers for (12) 2-3/8" Pipe, No Antenna Pipe	10" - 22"	1835	1	1	-	24	-	-
PV-RP10S-HR-6-96	10' Round Platform, w/ Handrail, W/ Ring Mount, Crossovers for (12) 2-3/8" Pipe, (6) 2-3/8" x 96" Pipe	10" - 22"	2010	1	1	-	24	6	-
PV-RP10S-HR-9-96	10' Round Platform, w/ Handrail, W/ Ring Mount, Crossovers for (12) 2-3/8" Pipe, (9) 2-3/8" x 96" Pipe	10" - 22"	2100	1	1	-	24	9	-
PV-RP10S-HR-12-96	10' Round Platform, w/ Handrail, W/ Ring Mount, Crossovers for (12) 2-3/8" Pipe, (12) 2-3/8" x 96" Pipe	10" - 22"	2190	1	1	-	24	12	-
PV-RP10S-HR-12-96-4XPM1	10' Round Platform, w/ Handrail, W/ Ring Mount, Crossovers for (12) 2-3/8" Pipe, (8) 2-3/8" x 96" Pipe, (4) Standoffs	10" - 22"	2443	1	1	-	24	8	4
PV-RP14M-HR-12-B	14' Round Platform, w/ Handrail, W/ Ring Mount, Crossovers for (12) 2-3/8" Pipe, No Antenna Pipe	10" - 45"	2350	1	-	1	24	-	-
PV-RP14M-HR-6-96	14' Round Platform, w/ Handrail, W/ Ring Mount, Crossovers for (12) 2-3/8" Pipe, (6) 2-3/8" x 96" Pipe	10" - 45"	2525	1	-	1	24	6	-
PV-RP14M-HR-9-96	14' Round Platform, w/ Handrail, W/ Ring Mount, Crossovers for (12) 2-3/8" Pipe, (9) 2-3/8" x 96" Pipe	10" - 45"	2615	1	-	1	24	9	-
PV-RP14M-HR-12-96	14' Round Platform, w/ Handrail, W/ Ring Mount, Crossovers for (12) 2-3/8" Pipe, (12) 2-3/8" x 96" Pipe	10" - 45"	2700	1	-	1	24	12	-
PV-RP14M-HR-12-96-4XPM1	14' Round Platform, w/ Handrail, W/ Ring Mount, Crossovers for (12) 2-3/8" Pipe, (8) 2-3/8" x 96" Pipe, (4) Standoffs	10" - 45"	2972	1	-	1	24	8	4

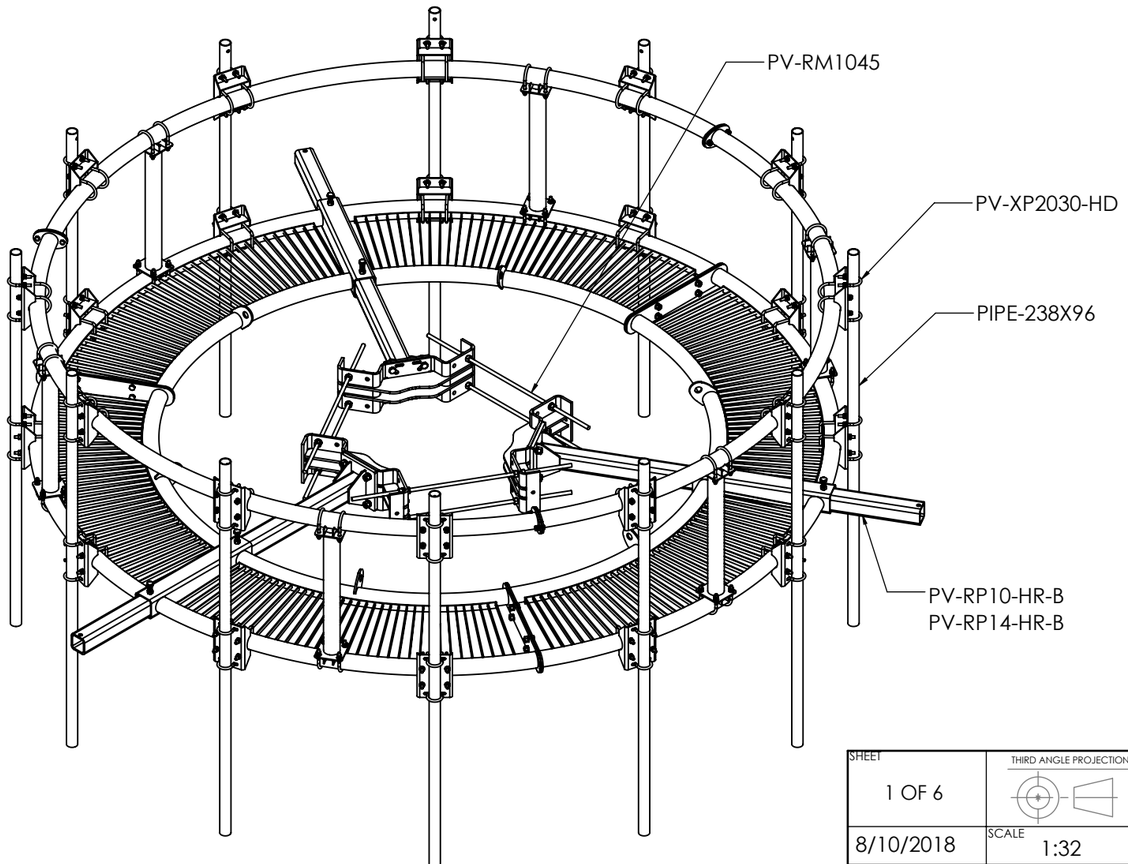


Table 2: Platform EPA			
Platform Size	Platform $(EPA)_A$ (ft^2)	1/2" Radial Ice Platform $(EPA)_A$	1" Radial Ice Platform $(EPA)_A$
10'	25.3	32.2	39.1
14'	33.9	43.2	52.5
10' (4XPM1)	28.1	35.4	42.6
14' (4XPM1)	36.6	46.3	56

*EPA DOES NOT INCLUDE ANTENNA PIPES OR EQUIPMENT
SEE SHEET 4 FOR STANDOFF DETAILS

FALL-SAFE L.I.F.E. MOUNTS™

SHEET 1 OF 6	THIRD ANGLE PROJECTION	CATEGORY 02_Monopole	4		
		SERIES 03_Round	3		
8/10/2018	SCALE 1:32	TYPE PV-RP_Round Platform Monopole	2	ADDED 4X 1' STANDOFF CONFIGURATIONS	8/9/18
DIMENSIONS ARE IN INCHES TOLERANCES U.N.O. HOLES: +1/16", -1/32" ANGULAR: PROFILE ±1/4°, BEND ±2° ALL OTHERS: ±1/16"		BY DJN	1	UPDATED CROSSOVERS. ADDED CLASSIFICATIONS	5/11/18
		CHECKED SJS	0	INITIAL RELEASE	7/18/16
		STATUS APPROVED	REV	DESCRIPTION	DATE

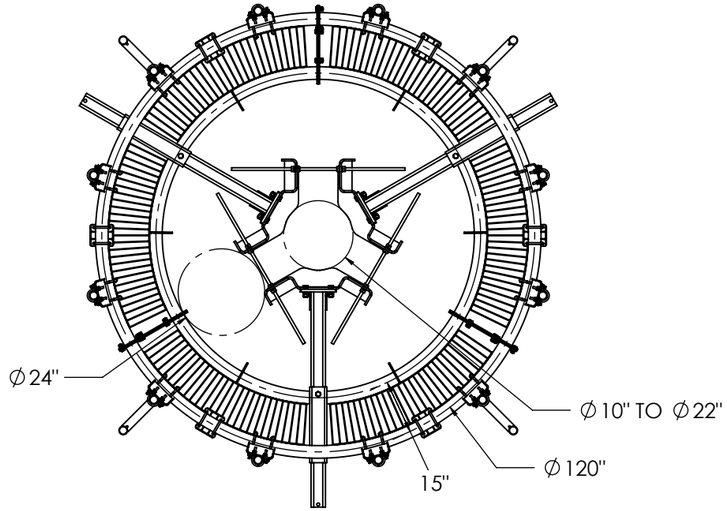
PERFECTVISION MANUFACTURING

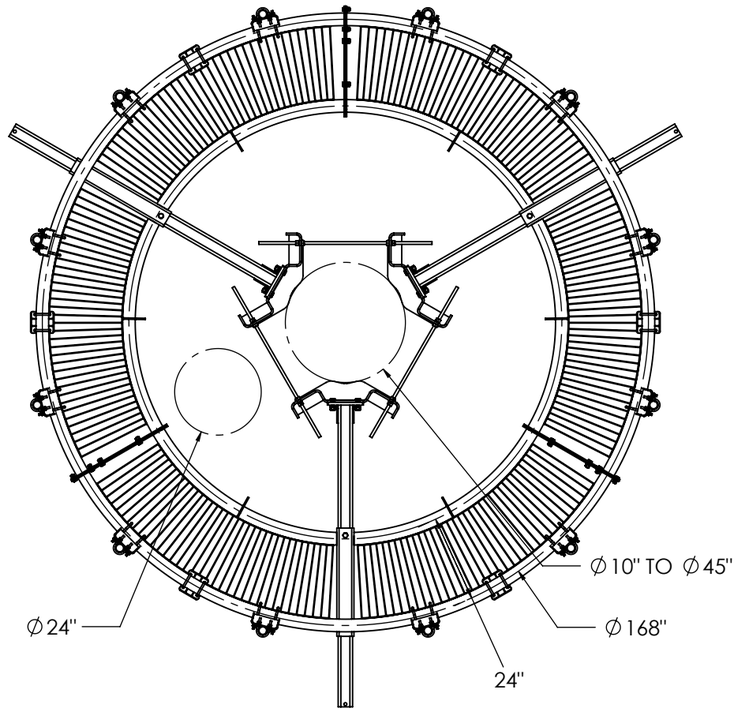
MONOPOLE ROUND PLATFORM

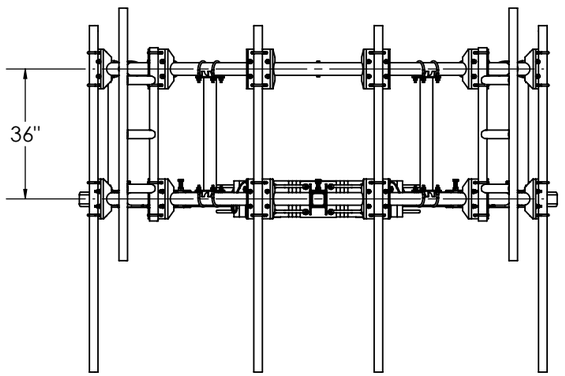
DOCUMENT NUMBER RP-ENG-01-R2 REV 2

C:\PVMSteel\PVM Sales Catalog\SW Working Files\Engineering Details\

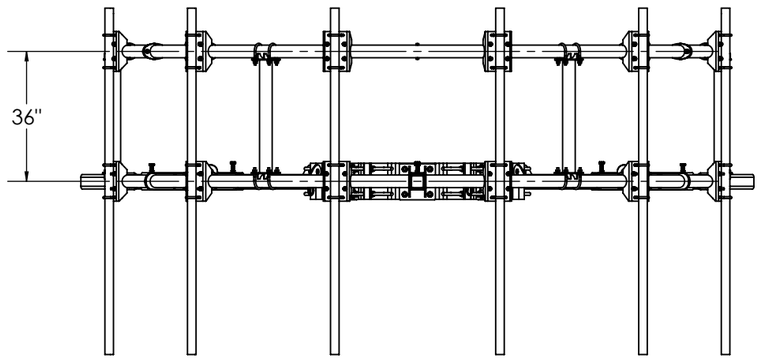
MONOPOLE ROUND PLATFORM:







PV-RP10



PV-RP14

FALL-SAFE L.I.F.E. MOUNTS™

SHEET: 2 OF 6	THIRD ANGLE PROJECTION	CATEGORY: 02_Monopole	4		
		SERIES: 03_Round	3		
8/10/2018	SCALE: 1:42	TYPE: PV-RP_Round Platform Monopole	2	ADDED 4X 1' STANDOFF CONFIGURATIONS	8/9/18
DIMENSIONS ARE IN INCHES TOLERANCES U.N.O. HOLES: +1/16", -1/32" ANGULAR: PROFILE ±1/4°, BEND ±2° ALL OTHERS: ±1/16"		BY: DJN	1	UPDATED CROSSOVERS. ADDED CLASSIFICATIONS	5/11/18
		CHECKED: SJS	0	INITIAL RELEASE	7/18/16
		STATUS: APPROVED	REV	DESCRIPTION	DATE

PERFECTVISION® MANUFACTURING

MONOPOLE ROUND PLATFORM

DOCUMENT NUMBER: RP-ENG-01-R2 | REV: 2

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MOUNT CLASSIFICATIONS

MOUNT CLASSIFICATION INFORMATION:
- MAX STRUCTURE HEIGHT: 400ft
- STRUCTURE CLASS: I OR II
- EXPOSURE CATEGORY: B OR C
- TOPOGRAPHIC CATEGORY: 1
- DESIGN WIND PRESSURE (NO ICE): 135psf
- DESIGN WIND PRESSURE (ICED): 15psf
- DESIGN ICE THICKNESS: 2.75in Radial

3 SECTOR APPROVED MOUNT CLASSIFICATIONS (12 PIPE MAX)
- M700R-4[6]
- M800R-4[6]
- M900R-4[6]
- M950R-4[6]
- M1000R-4[6]
- M1400R-4[6]
- M1800R-4[6]
- M1000R(i)-4[6]
- M1150R(i)-4[6]
- M1250R(i)-4[6]

4 SECTOR APPROVED MOUNT CLASSIFICATIONS (16 PIPE MAX)
- M700R-4[6]
- M800R-4[6]
- M900R-4[6]
- M950R-4[6]
- M1000R-4[6]
- M1150R-4[6]
- M1000R(i)-4[6]
- M1150R(i)-4[6]

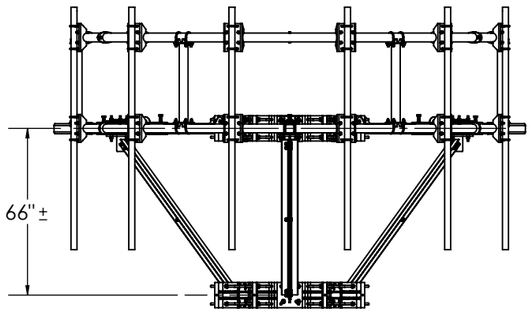
POLE THICKNESS LIMITATIONS:
ON POLES WITH WALL THICKNESS EQUAL TO OR GREATER THAN THE VALUES LISTED BELOW, THE PERFECT VISION PV-RP MOUNT SERIES IS STRUCTURALLY CAPABLE OF SUPPORTING THE ABOVE LOADING SCENARIOS WITHOUT THE NEED FOR AN ADDITIONAL KICKER BRACE.

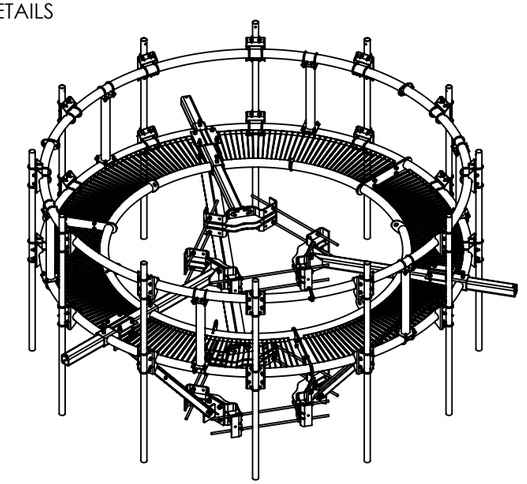
FOR THIN WALL POLES, USE PV-PKBK-M PLATFORM KICKER BRACE TO AVOID POLE CRIMPING FAILURES. KICKER BRACE CAN BE INSTALLED ABOVE OR BELOW PLATFORM.

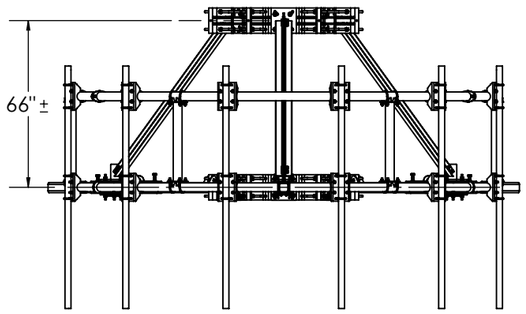
POLE THICKNESS LIMITATIONS			
3 SECTOR		4 SECTOR	
MOUNT CLASSIFICATION	MINIMUM POLE THICKNESS	MOUNT CLASSIFICATION	MINIMUM POLE THICKNESS
M700R-4[6]	1/4"	M700R-4[6]	1/4"
M800R-4[6]	1/4"	M800R-4[6]	1/4"
M900R-4[6]	1/4"	M900R-4[6]	5/16"
M950R-4[6]	1/4"	M950R-4[6]	5/16"
M1000R-4[6]	5/16"	M1000R-4[6]	5/16"
M1400R-4[6]	5/16"	M1000R(i)-4[6]	5/16"
M1000R(i)-4[6]	5/16"	M1150R(i)-4[6]	5/16"
M1150R(i)-4[6]	5/16"		
M1250R(i)-4[6]	5/16"		

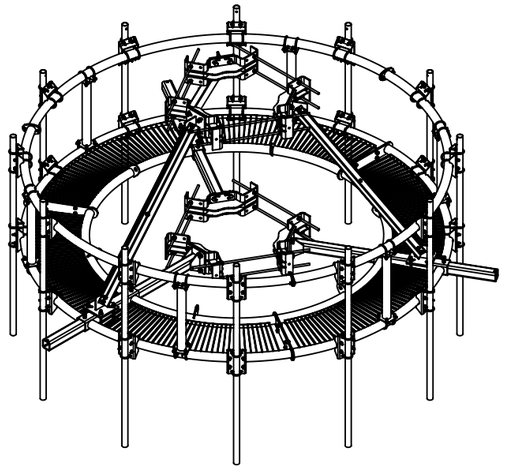
KICKER ATTACHMENT

- SEE CLASSIFICATION SECTION FOR KICKER REQUIREMENT DETAILS
- INSTALL KICKER ABOVE OR BELOW PLATFORM
- PART# PV-PKBK-M (SOLD SEPARATELY)









SHEET 3 OF 6	THIRD ANGLE PROJECTION	CATEGORY	02_Monopole	4		
		SERIES	03_Round	3		
8/10/2018	SCALE 1:60	TYPE	PV-RP_Round Platform Monopole	2	ADDED 4X 1' STANDOFF CONFIGURATIONS	8/9/18
DIMENSIONS ARE IN INCHES TOLERANCES U.N.O. HOLES: +1/16", -1/32" ANGULAR: PROFILE ±1/4°, BEND ±2° ALL OTHERS: ±1/16"		BY	DJN	1	UPDATED CROSSOVERS. ADDED CLASSIFICATIONS	5/11/18
		CHECKED	SJS	0	INITIAL RELEASE	7/18/16
		STATUS	APPROVED	REV	DESCRIPTION	DATE

PERFECT VISION MANUFACTURING

MONOPOLE ROUND PLATFORM

DOCUMENT NUMBER RP-ENG-01-R2 REV 2

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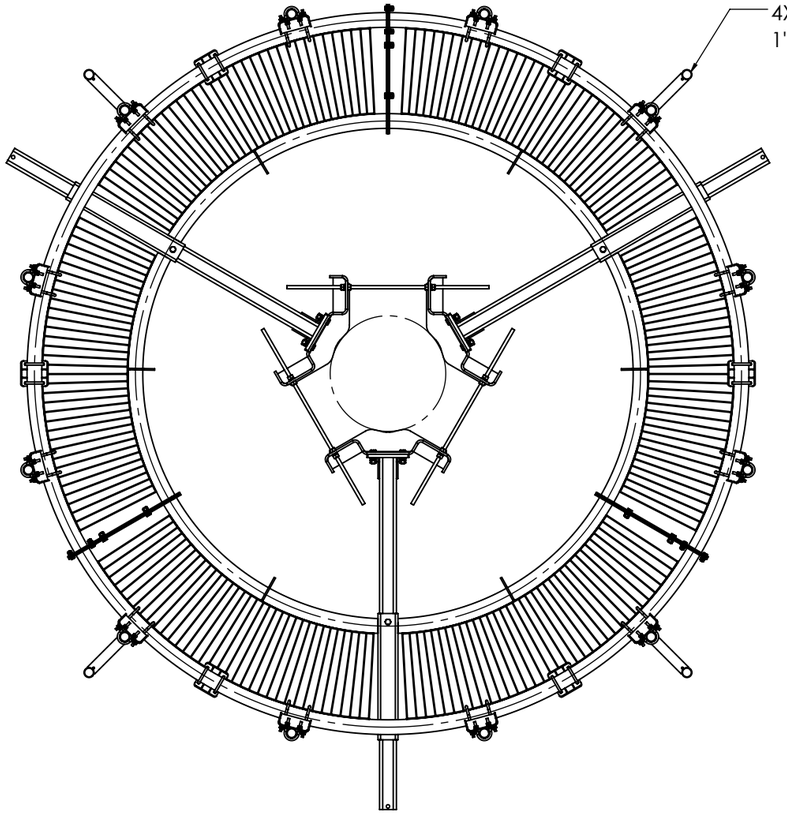
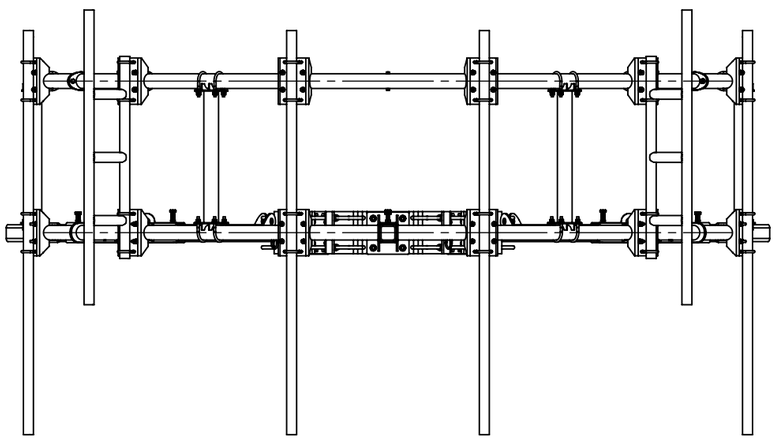
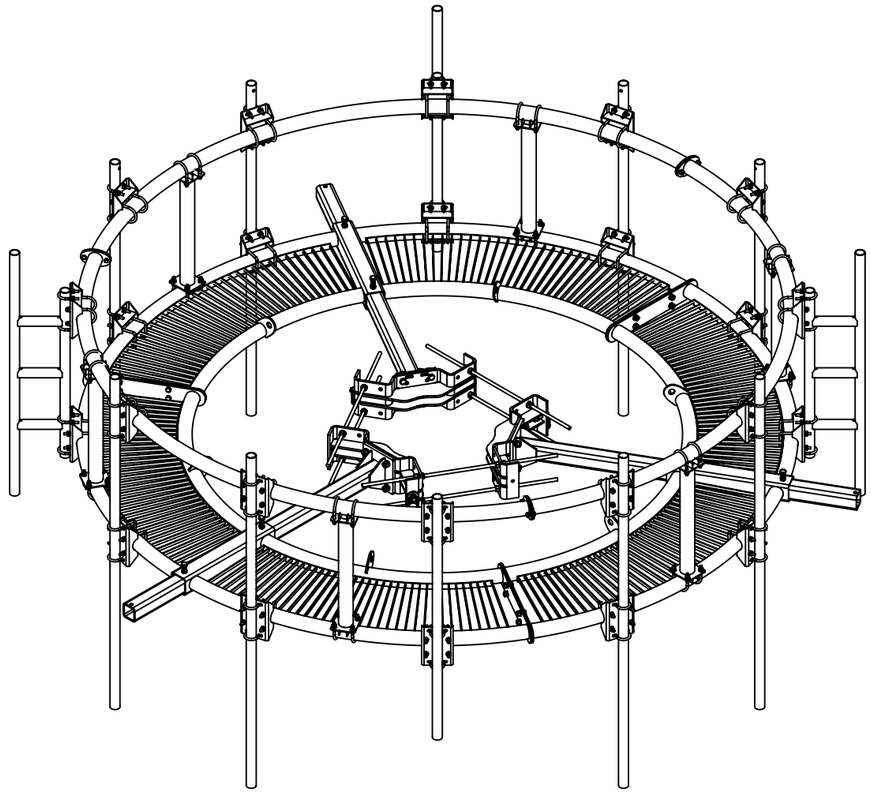
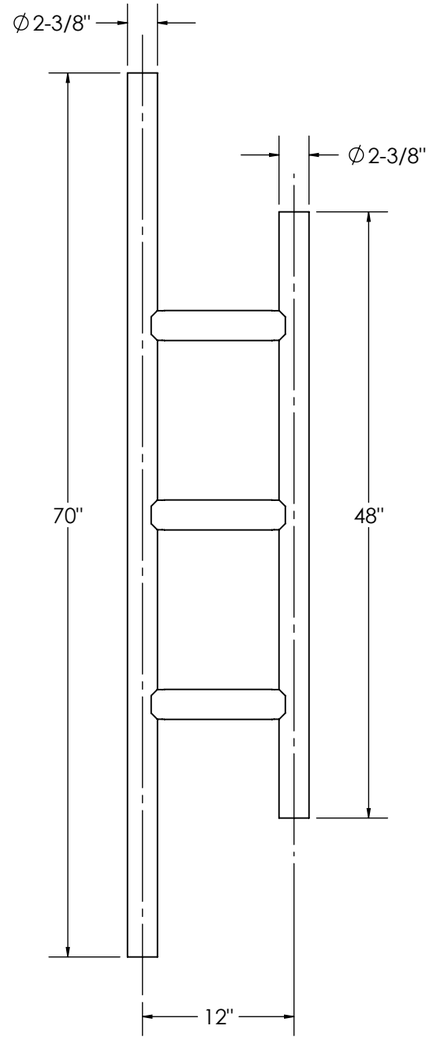
MONOPOLE ROUND PLATFORM WITH ANTENNA STANDOFFS:





AS SHOWN PV-RP14M-HR-12-96-4XPM1





PV-PM-1
1' STANDOFF

FALL-SAFE L.I.F.E. MOUNTS™

SHEET 4 OF 6	THIRD ANGLE PROJECTION	CATEGORY 02_Monopole	4		
		SERIES 03_Round	3		
8/10/2018	SCALE 1:36	TYPE PV-RP_Round Platform Monopole	2	ADDED 4X 1' STANDOFF CONFIGURATIONS	8/9/18
DIMENSIONS ARE IN INCHES TOLERANCES U.N.O. HOLES: +1/16", -1/32" ANGULAR: PROFILE ±1/4°, BEND ±2° ALL OTHERS: ±1/16"		BY DJN	1	UPDATED CROSSOVERS. ADDED CLASSIFICATIONS	5/11/18
		CHECKED SJS	0	INITIAL RELEASE	7/18/16
		STATUS APPROVED	REV	DESCRIPTION	DATE

PERFECTVISION MANUFACTURING

MONOPOLE ROUND PLATFORM

DOCUMENT NUMBER RP-ENG-01-R2 | REV 2

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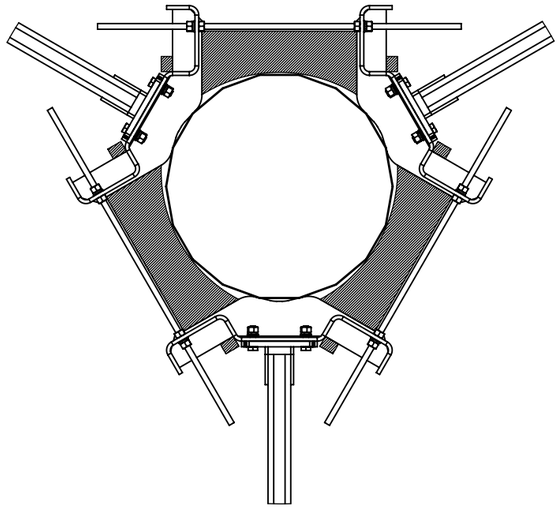
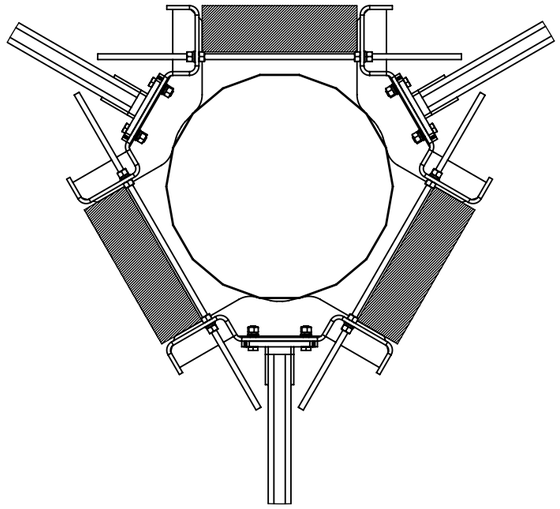
SAFETY CLIMB ROUTING:

CABLE GUIDES AND PV-SCRB-LPP SOLD SEPARATELY



SAFETY CLIMB CABLE RECOMMENDED ROUTING (ALL THREAD IN EXTERIOR HOLES)



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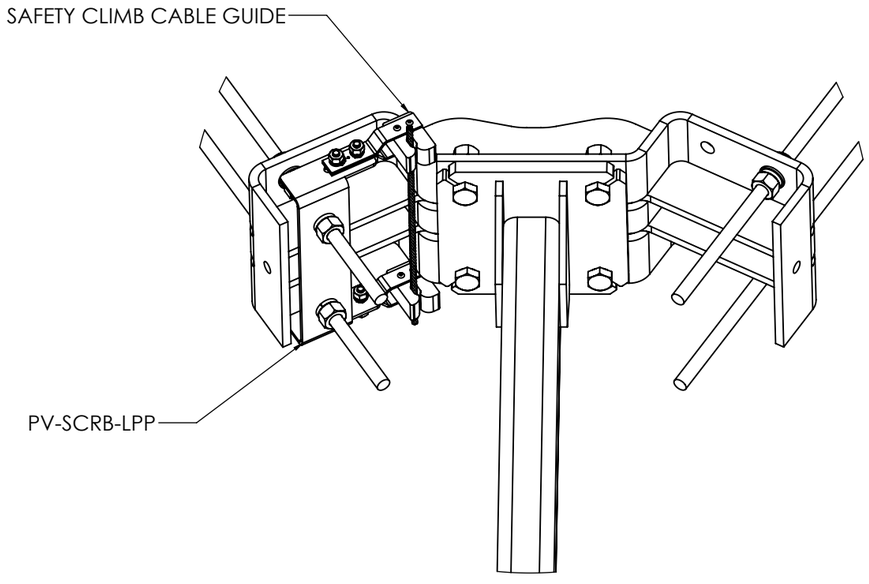
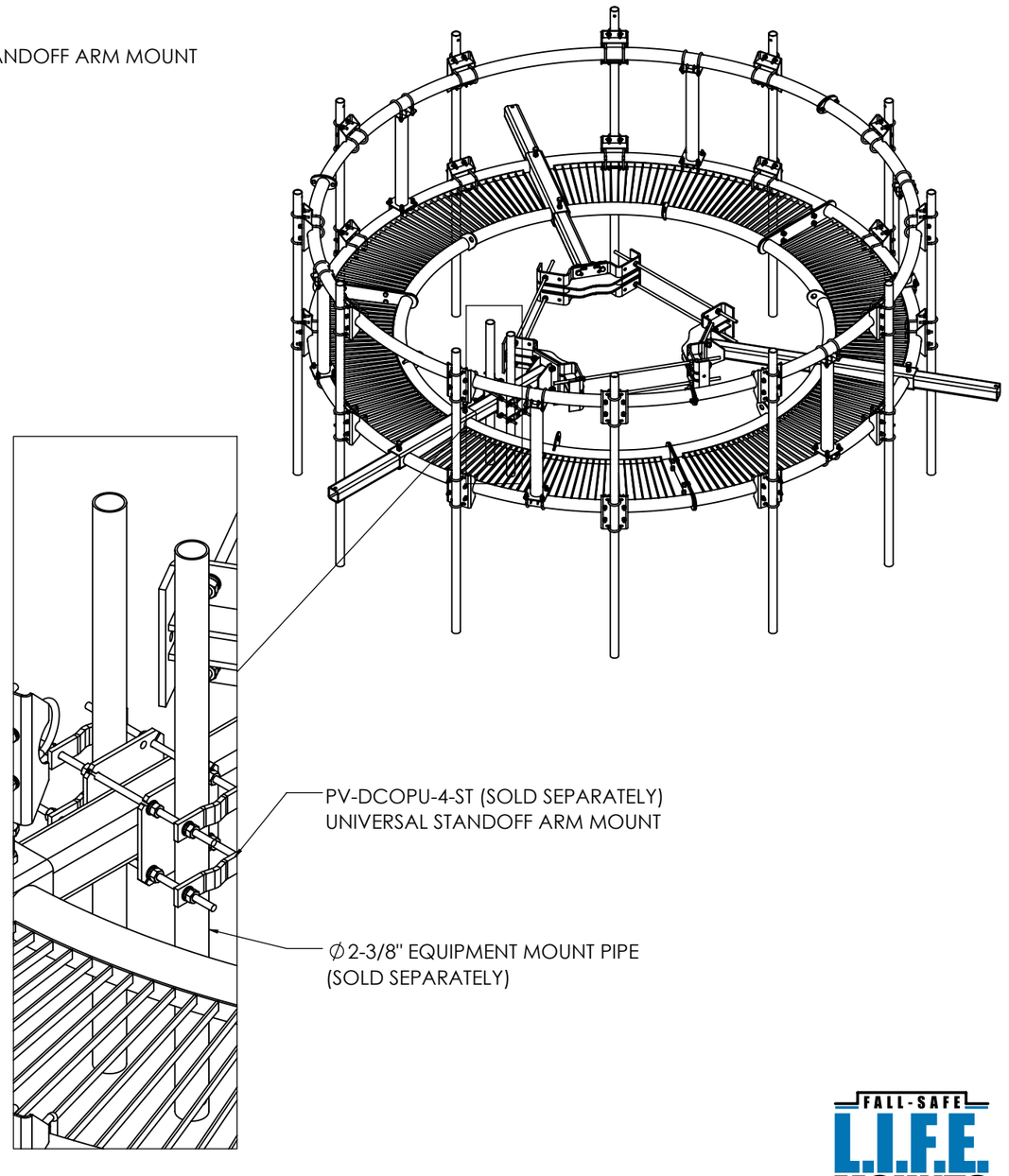


SAFETY CLIMB CABLE GUIDE ATTACHMENT

IF RING MOUNT IS TO BE INSTALLED ON THE SAFETY CLIMB FACE, USE THE RECOMMENDED ROUTING AS SHOWN

OPTIONAL ACCESSORIES:

STANDOFF ARM MOUNT



FALL-SAFE L.I.F.E. MOUNTS™

SHEET: 5 OF 6	THIRD ANGLE PROJECTION	CATEGORY: 02_Monopole	4		
		SERIES: 03_Round	3		
8/10/2018	SCALE: NTS	TYPE: PV-RP_Round Platform Monopole	2	ADDED 4X 1' STANDOFF CONFIGURATIONS	8/9/18
DIMENSIONS ARE IN INCHES TOLERANCES U.N.O. HOLES: +1/16", -1/32" ANGULAR: PROFILE ±1/4°, BEND ±2° ALL OTHERS: ±1/16"		BY: DJN	1	UPDATED CROSSOVERS. ADDED CLASSIFICATIONS	5/11/18
		CHECKED: SJS	0	INITIAL RELEASE	7/18/16
		STATUS: APPROVED	REV	DESCRIPTION	DATE

PERFECTVISION® MANUFACTURING

MONOPOLE ROUND PLATFORM

DOCUMENT NUMBER: RP-ENG-01-R2 | REV: 2

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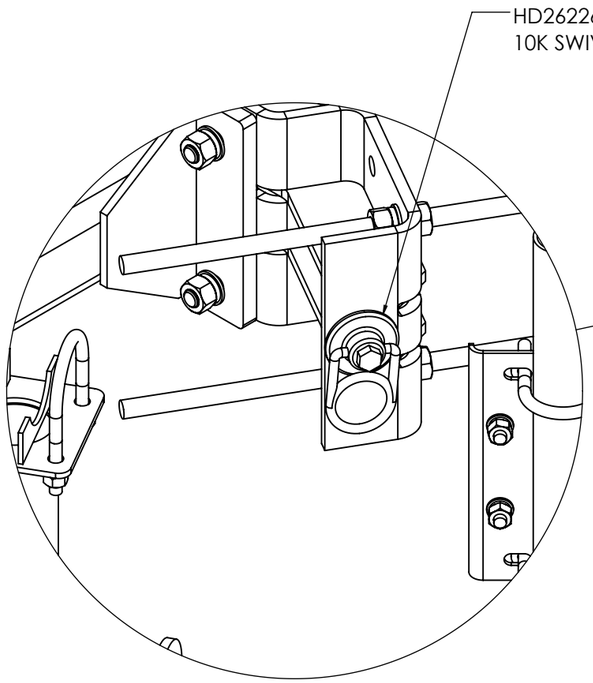
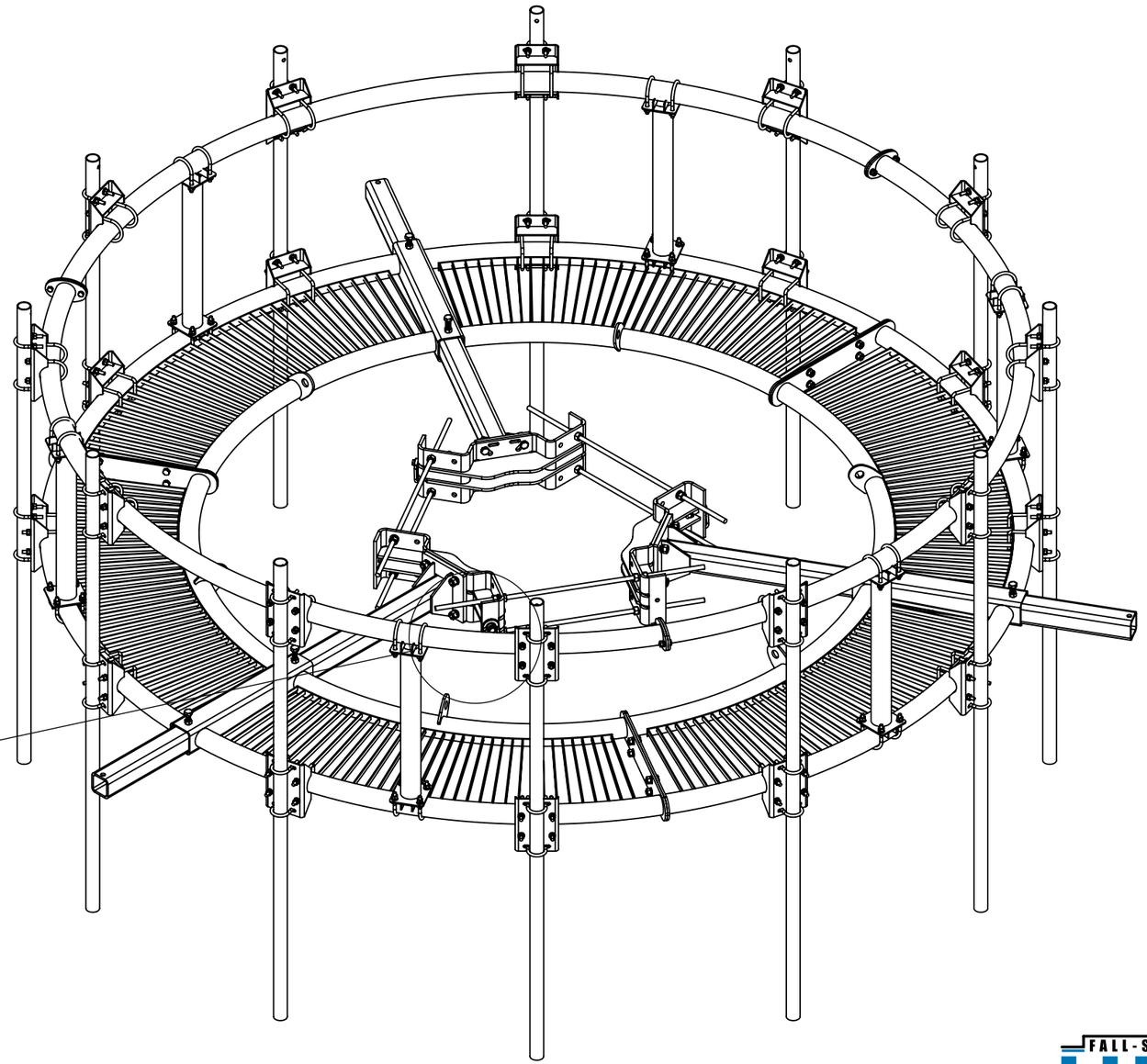
10K SWIVEL ANCHOR

SWIVEL ANCHOR ATTACHMENT NOTES:

- DO NOT INSTALL ANCHORS UNTIL AFTER RING MOUNT IS PROPERLY INSTALLED ON TOWER
- DO NOT USE SWIVEL ANCHORS AS A RIGGING / LIFTING POINT
- SWIVEL ANCHOR SPECS:
  - UTS: 10,000 LBF
  - MAX USE WEIGHT: 310 LBS
  - WORKING LOAD: 2,000 LBS
- FOLLOW MANUFACTURER SPECIFICATIONS FOR ANCHOR INSTALLATION AND MAINTENANCE.



DETAIL B
SCALE 1 : 6



FALL-SAFE L.I.F.E. MOUNTS™

SHEET 6 OF 6	THIRD ANGLE PROJECTION	CATEGORY 02_Monopole	4			PERFECTVISION MANUFACTURING
		SERIES 03_Round	3			
8/10/2018	SCALE 1:24	TYPE PV-RP_Round Platform Monopole	2	ADDED 4X 1" STANDOFF CONFIGURATIONS	8/9/18	
DIMENSIONS ARE IN INCHES TOLERANCES U.N.O. HOLES: +1/16", -1/32" ANGULAR: PROFILE ±1/4°, BEND ±2° ALL OTHERS: ±1/16"		BY DJN	1	UPDATED CROSSOVERS. ADDED CLASSIFICATIONS	5/11/18	MONOPOLE ROUND PLATFORM
		CHECKED SJS	0	INITIAL RELEASE	7/18/16	DOCUMENT NUMBER RP-ENG-01-R2 REV 2
		STATUS APPROVED	REV	DESCRIPTION	DATE	

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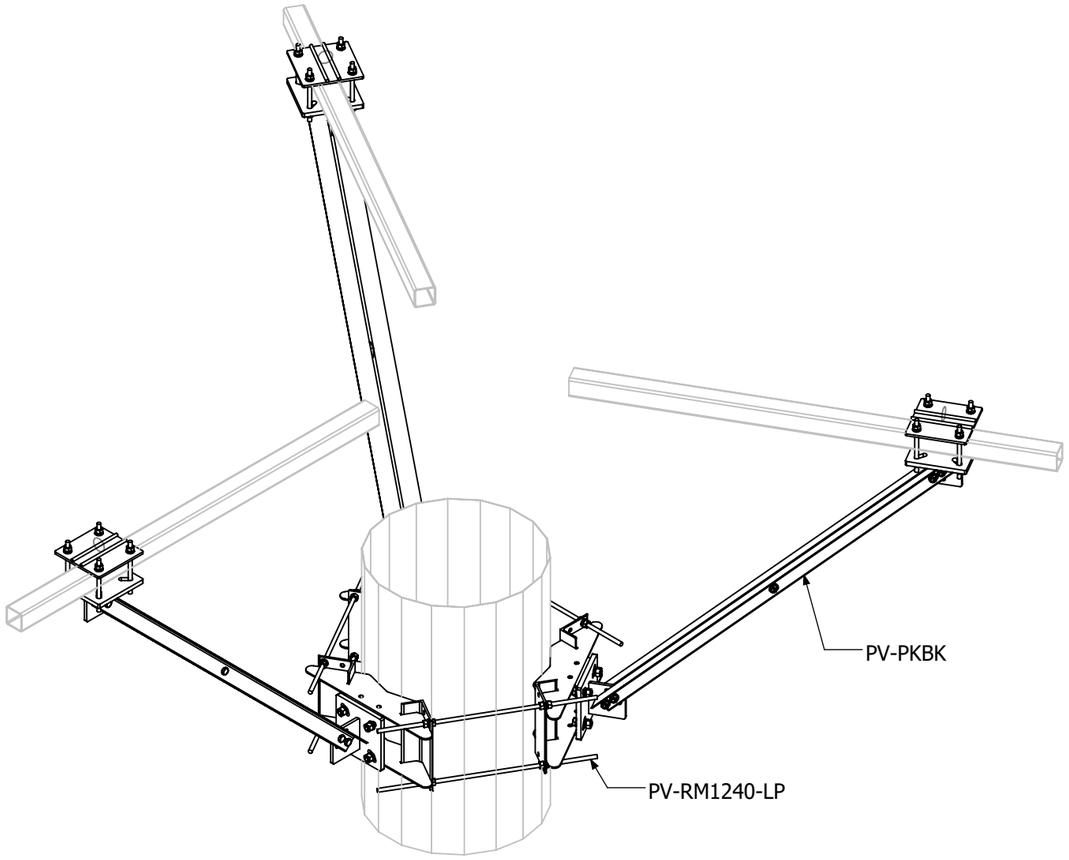
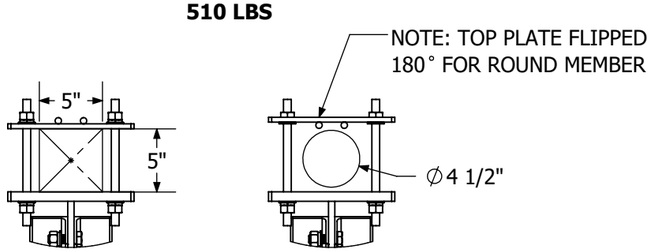
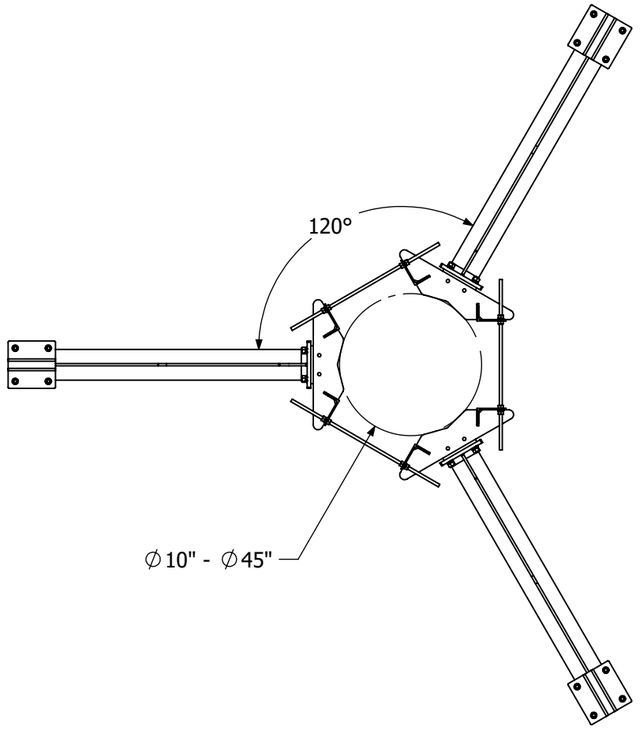
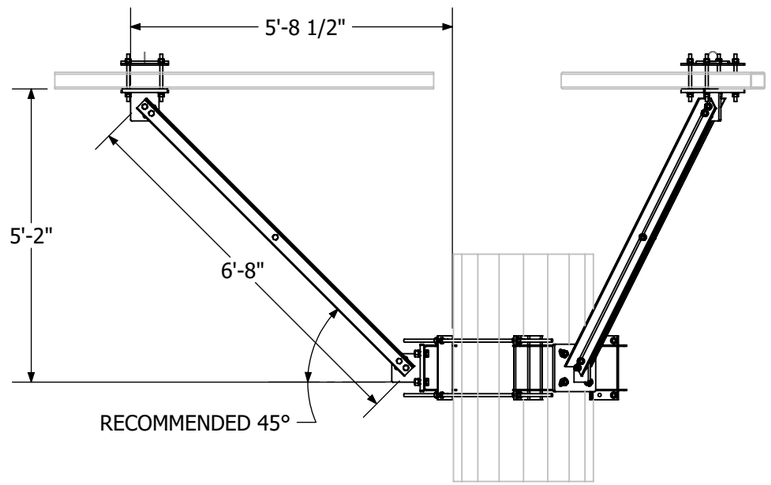


PV-PKBK-M
(INCLUDES (1) PV-RM1240-LP AND (1) PV-PKBK)
KICKER BRACE
510 LBS



ARM ATTACHMENT
CLAMPS TO RECT HSS UP TO 5"X5" AND ROUND PIPE UP TO 4-1/2" OD





PERFECT VISION MANUFACTURING
16101 La Grande Dr.
Little Rock, AR 72223
1-800-205-8620

STAMP:

REVISIONS:

NO.	DATE	DESCRIPTION	BY	CHK	APD
0	4/11/17	INTIAL RELEASE	DJN	LL	SS
1					
2					
3					
4					
5					

SITE INFORMATION:

DESIGN TYPE:
MONOPOLE KICKER BRACE KIT

SHEET TITLE:
ENGINEERING DETAIL

SHEET TITLE: E-1

REVISION: 0

Wind & Ice Loading

Nominal Mount Elevation (AGL), z_{mount}	140 ft	K_a	0.90
Nominal Rad Elevation (AGL), z_{rad}	140 ft	K_d	0.95
Elevation AMSL (ft)	-	K_e	-
TIA Standard	G	K_z	1.09
Basic Wind Speed, V_{ult} (bare)	130 mph	K_{zt}	1.00
Basic Wind Speed, V (ice)	50 mph	K_s	-
Design Ice Thickness, t_i	3/4 in	t_{iz}	1.73 in
Exposure Category	B	G_h	1.00
Risk Category	II	q_z (bare)	44.7 psf
Seismic Response Coeff., C_s	-	q_z (ice)	6.6 psf

Live Loading

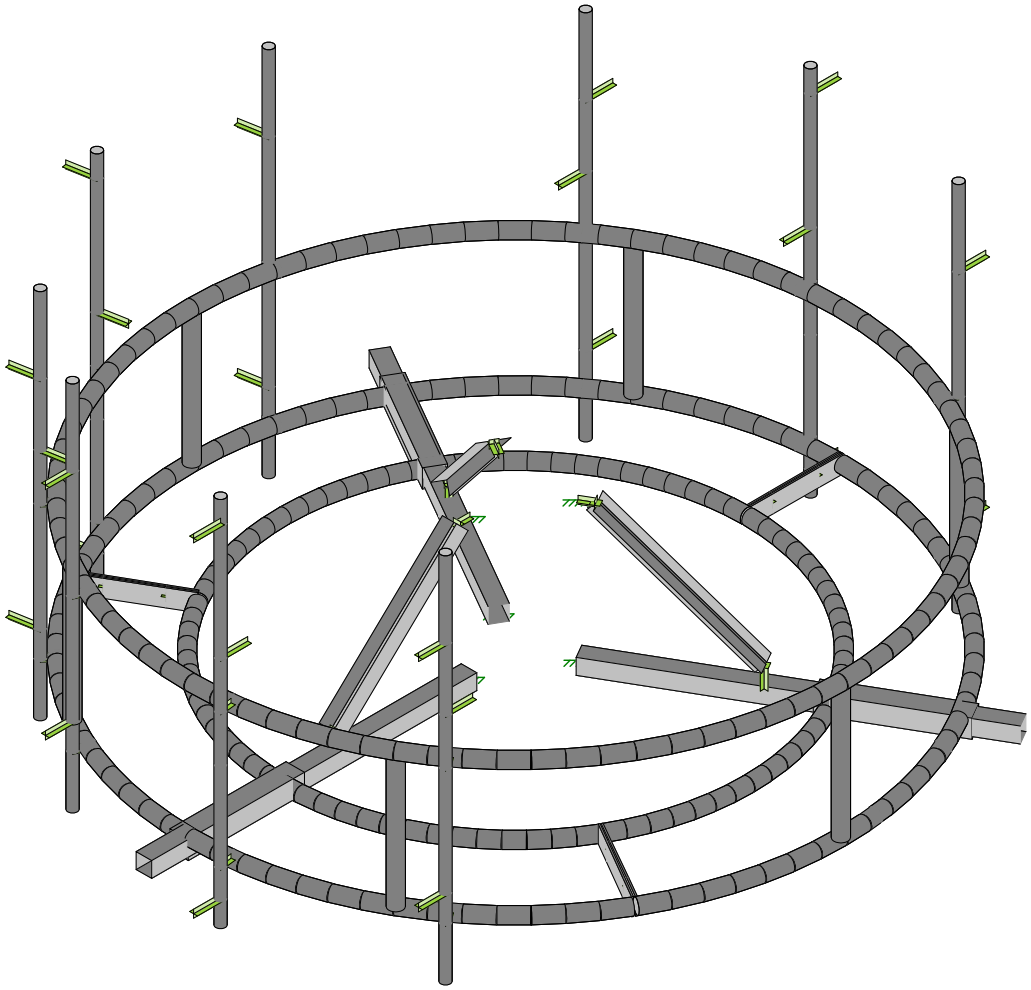
At Mount Pipes, L_M	500 lb
Joint Labels Considered	m1
	m2
	m3

Member Distributed Loading

Section Set Label	Shape Label	F_A (lb/ft)		Ice Wt. (lb/ft)
		Bare	Ice	
Standoff Arm	HSS4X4X6	26.83	2.36	14.45
Intermediate Plate	PL4.5x0.375	30.18	4.75	10.24
Face horizontal	PIPE 3.0 SCH10	14.09	4.15	11.08
Vertical Brace	PIPE 3.0 SCH10	14.09	4.15	11.08
Handrail	PIPE 3.0 SCH10	14.09	4.15	11.08
Mount Pipe	PIPE_2.0	9.56	3.48	8.70
PKBK	L3X3X3	20.12	2.29	11.51
Standoff Tube	HSS4.75x4.75x4	31.86	2.42	16.48

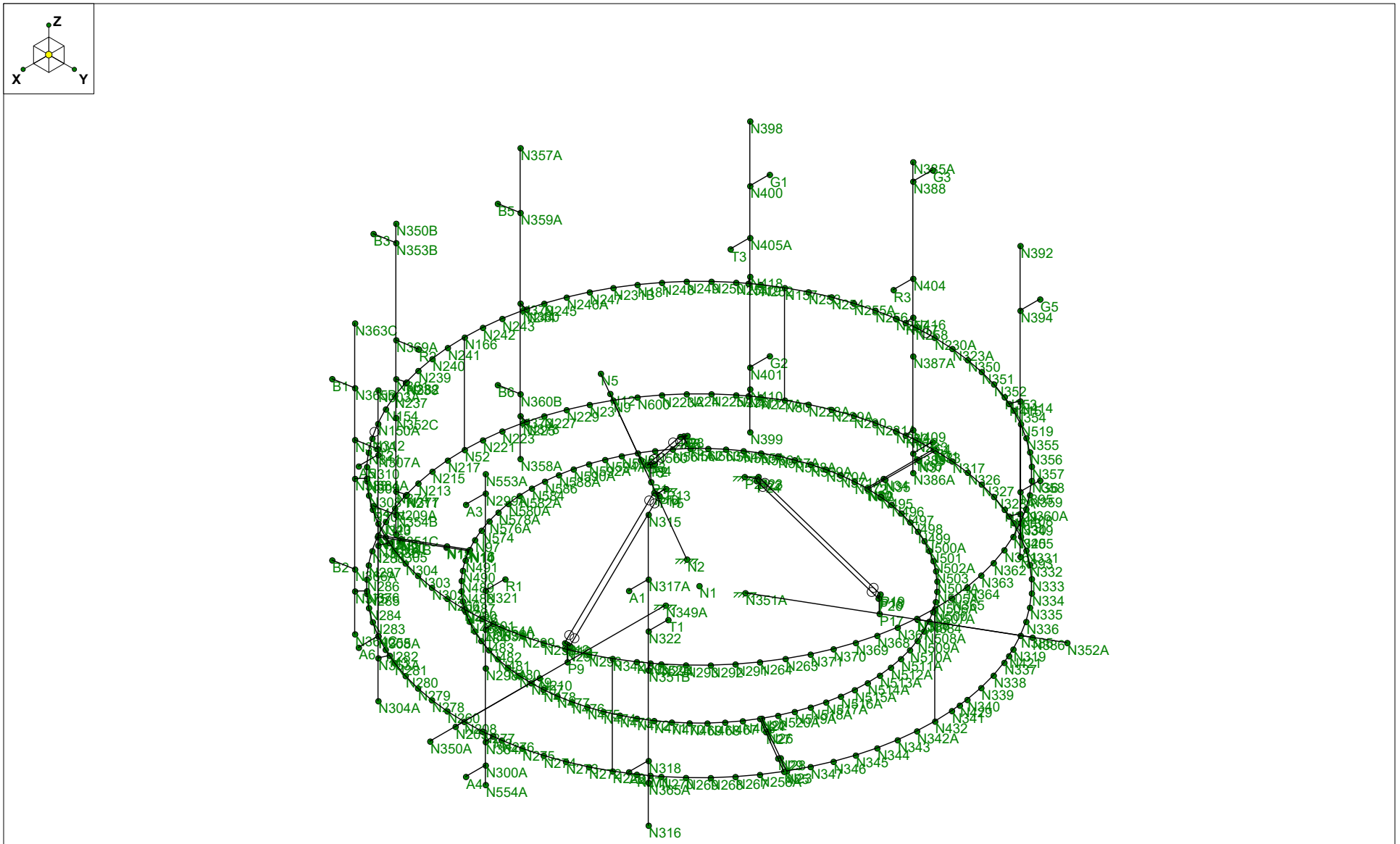
Appurtenances

Appurtenance Model	Status	Azimuth Offset (°, ↻)	Rad Elev. Override (ft)	Swap Width & Depth	Area Factor		Qty. per Azimuth			Total Qty. Override	0° Joints		120° Joints		240° Joints		Height (in)	Width (in)	Depth (in)	Weight (Bare) (lb)	Shape	Weight of Ice (lb)	EPA_A (Bare) (ft^2)		EPA_A (Ice) (ft^2)		F_A (Bare) (lb)		F_A (Ice) (lb)	
					Front	Side	0°	120°	240°		1	2	1	2	1	2							N	T	N	T	N	T	N	T
AIR 21,1.3M, B2A/B4P				☐			1				a1	a2					55	12	7.9	83	Flat	164.12	5.92	4.22	7.89	6.08	238.42	169.80	46.99	36.20
KRY 112 144/1				☐	0.2		1				t1						7	6	3	11	Flat	11.01	0.07	0.18	0.17	0.56	2.82	7.04	0.98	3.36
APXVAARR24_43-U-NA20				☐			1				a3	a4					0	0	0	153.3	Generic	390.29	14.67	5.32	17.30	7.64	590.38	214.10	103.02	45.50
RADIO 4449 B12/B71				☐	0.5		1				r1						15	13.2	10.4	75	Flat	59.64	0.83	1.30	1.28	2.13	33.20	52.32	7.63	12.70
AIR 21,1.3M, B4A/B2P				☐			1				a5	a6					55	12	7.9	83	Flat	164.12	5.92	4.22	7.89	6.08	238.42	169.80	46.99	36.20
AIR 21,1.3M, B2A/B4P		-40		☐				1					b1	b2			55	12	7.9	83	Flat	164.12	5.92	4.22	7.89	6.08	238.42	169.80	46.99	36.20
KRY 112 144/1		-40		☐	0.2			1					t2				7	6	3	11	Flat	11.01	0.07	0.18	0.17	0.56	2.82	7.04	0.98	3.36
APXVAARR24_43-U-NA20		-40		☐				1					b3	b4			0	0	0	153.3	Generic	390.29	14.67	5.32	17.30	7.64	590.38	214.10	103.02	45.50
RADIO 4449 B12/B71		-40		☐	0.5			1					r2				15	13.2	10.4	75	Flat	59.64	0.83	1.30	1.28	2.13	33.20	52.32	7.63	12.70
AIR 21,1.3M, B4A/B2P		-40		☐				1					b5	b6			55	12	7.9	83	Flat	164.12	5.92	4.22	7.89	6.08	238.42	169.80	46.99	36.20
AIR 21,1.3M, B2A/B4P		-60		☐					1						g1	g2	55	12	7.9	83	Flat	164.12	5.92	4.22	7.89	6.08	238.42	169.80	46.99	36.20
KRY 112 144/1		-60		☐					1						t3		7	6	3	11	Flat	11.01	0.35	0.18	0.83	0.56	14.09	7.04	4.92	3.36
APXVAARR24_43-U-NA20		-60		☐					1						g3	g4	0	0	0	153.3	Generic	390.29	14.67	5.32	17.30	7.64	590.38	214.10	103.02	45.50
RADIO 4449 B12/B71		-60		☐					1						r3		15	13.2	10.4	75	Flat	59.64	1.65	1.30	2.56	2.13	66.40	52.32	15.27	12.70
AIR 21,1.3M, B4A/B2P		-60		☐					1						g5	g6	55	12	7.9	83	Flat	164.12	5.92	4.22	7.89	6.08	238.42	169.80	46.99	36.20



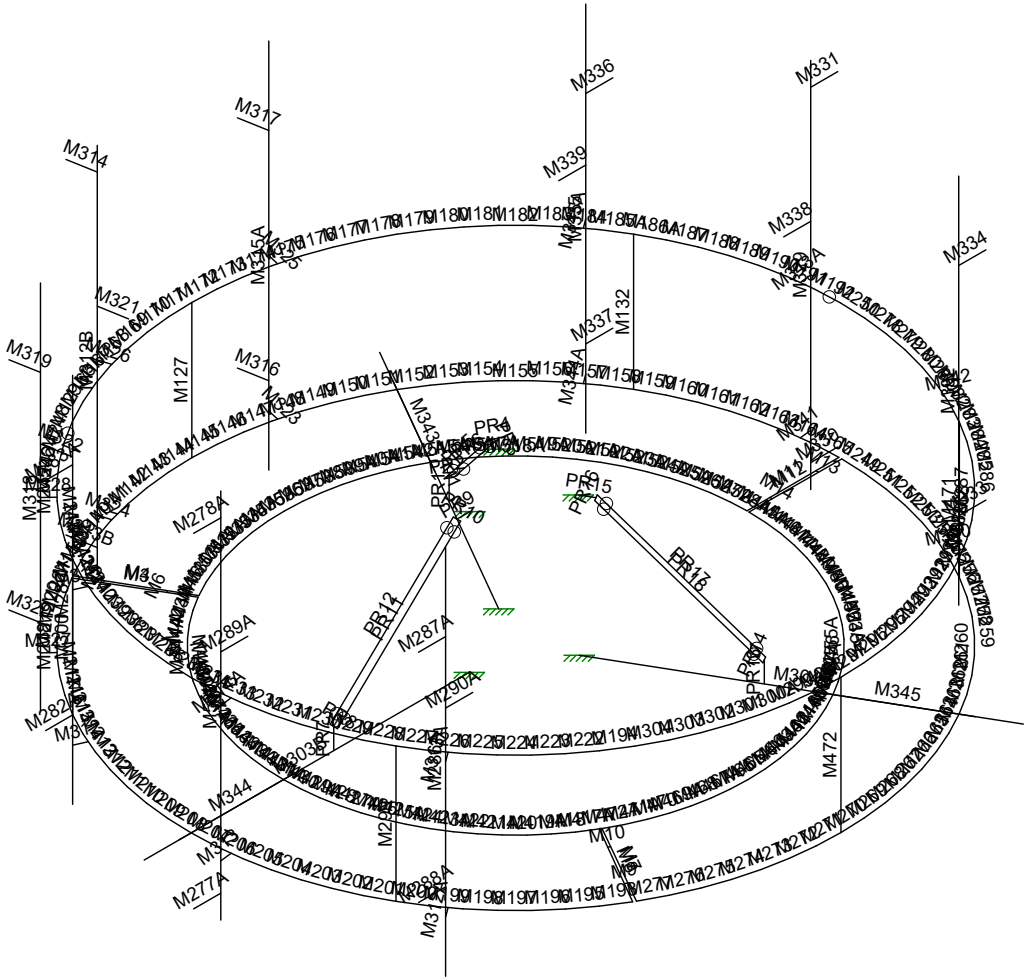
Envelope Only Solution

CLS	41124-12927172-Branford CT 6	SK - 1
JLS		July 3, 2019 at 12:43 PM
41124-12927172-01-MR-R1	Rendered	41124-12927172-01-MR-R1.r3d



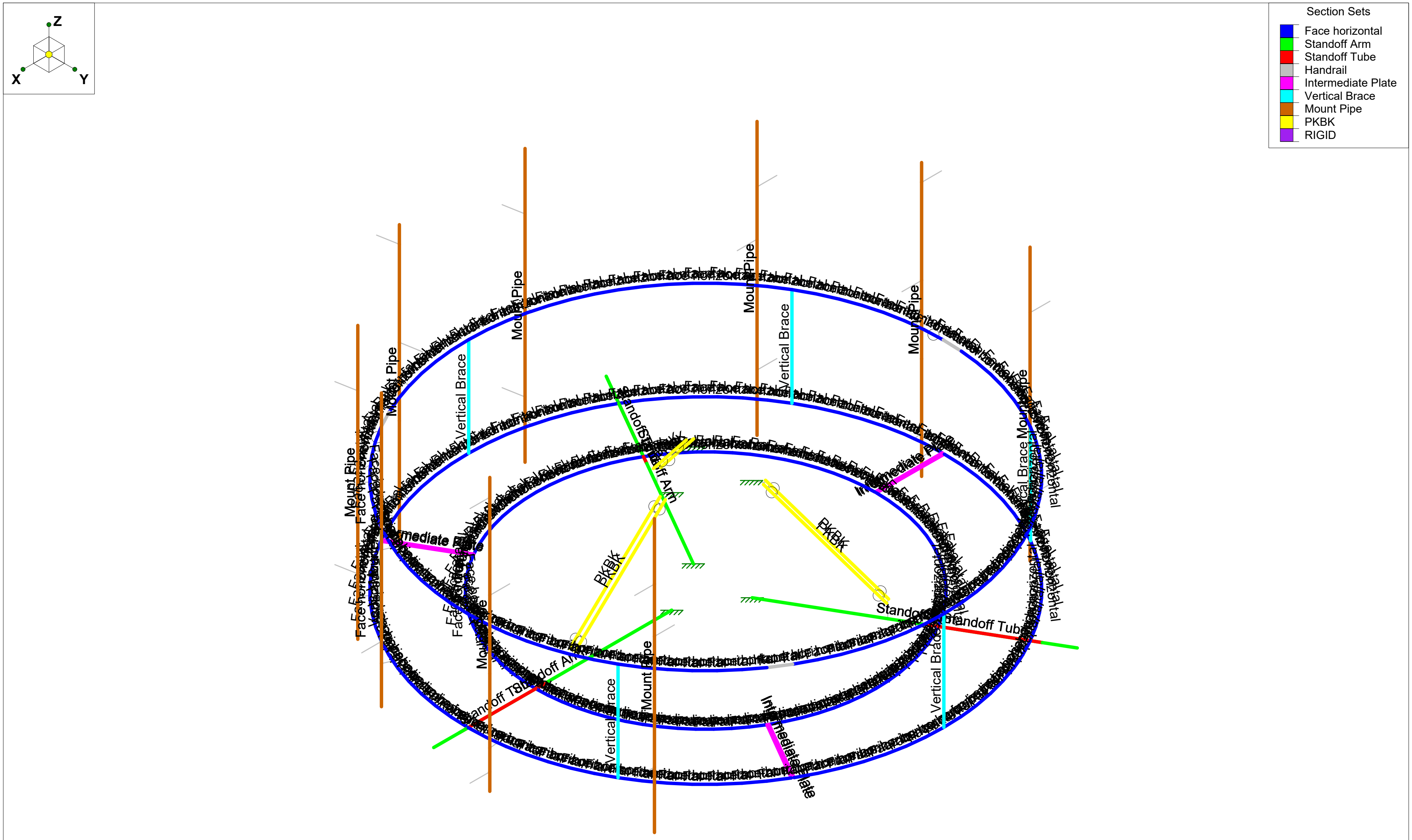
Envelope Only Solution

CLS	41124-12927172-Branford CT 6	SK - 2
JLS		July 3, 2019 at 12:42 PM
41124-12927172-01-MR-R1	Joint Labels	41124-12927172-01-MR-R1.r3d



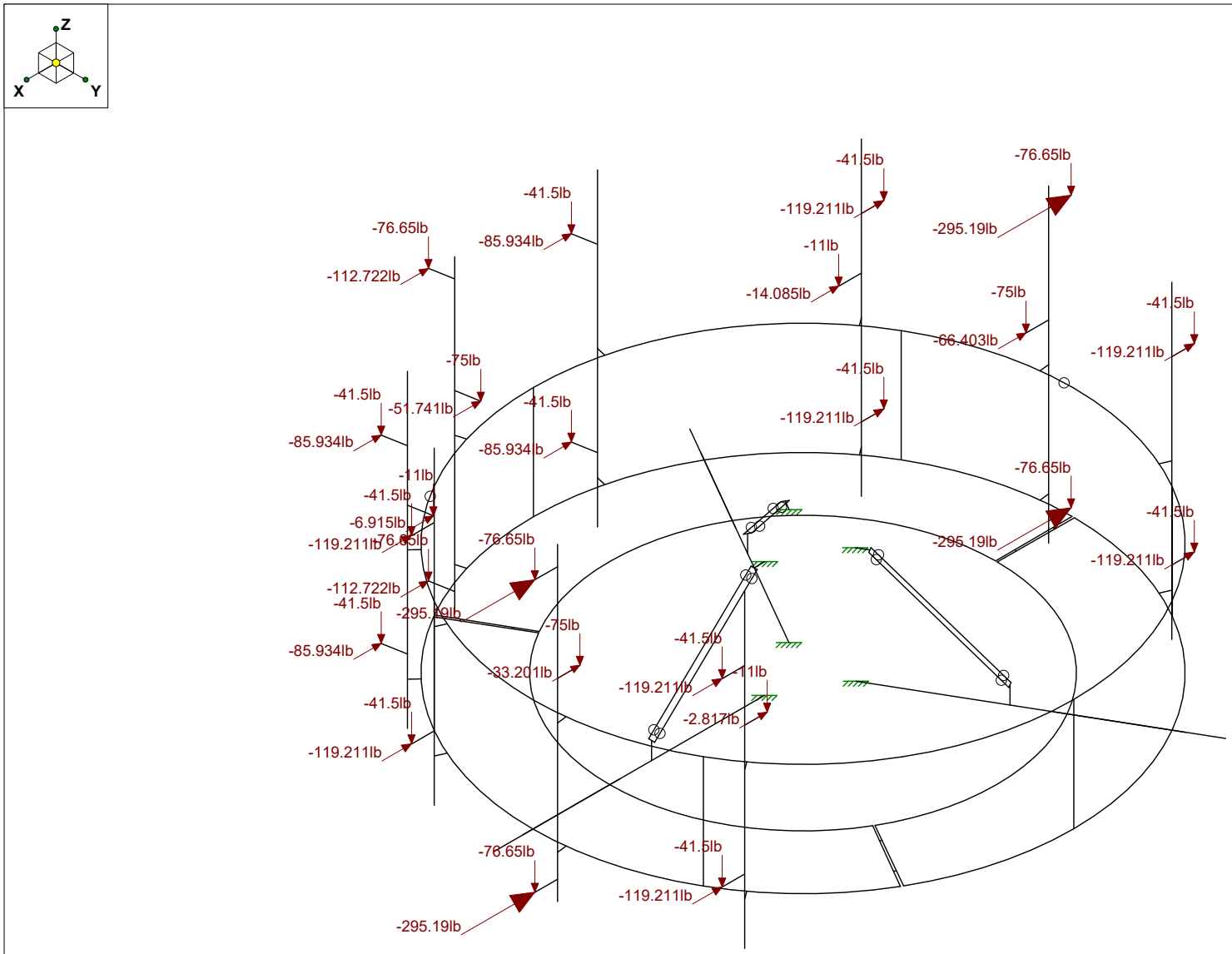
Envelope Only Solution

CLS	41124-12927172-Branford CT 6	SK - 3
JLS		July 3, 2019 at 12:40 PM
41124-12927172-01-MR-R1	Member Labels	41124-12927172-01-MR-R1.r3d



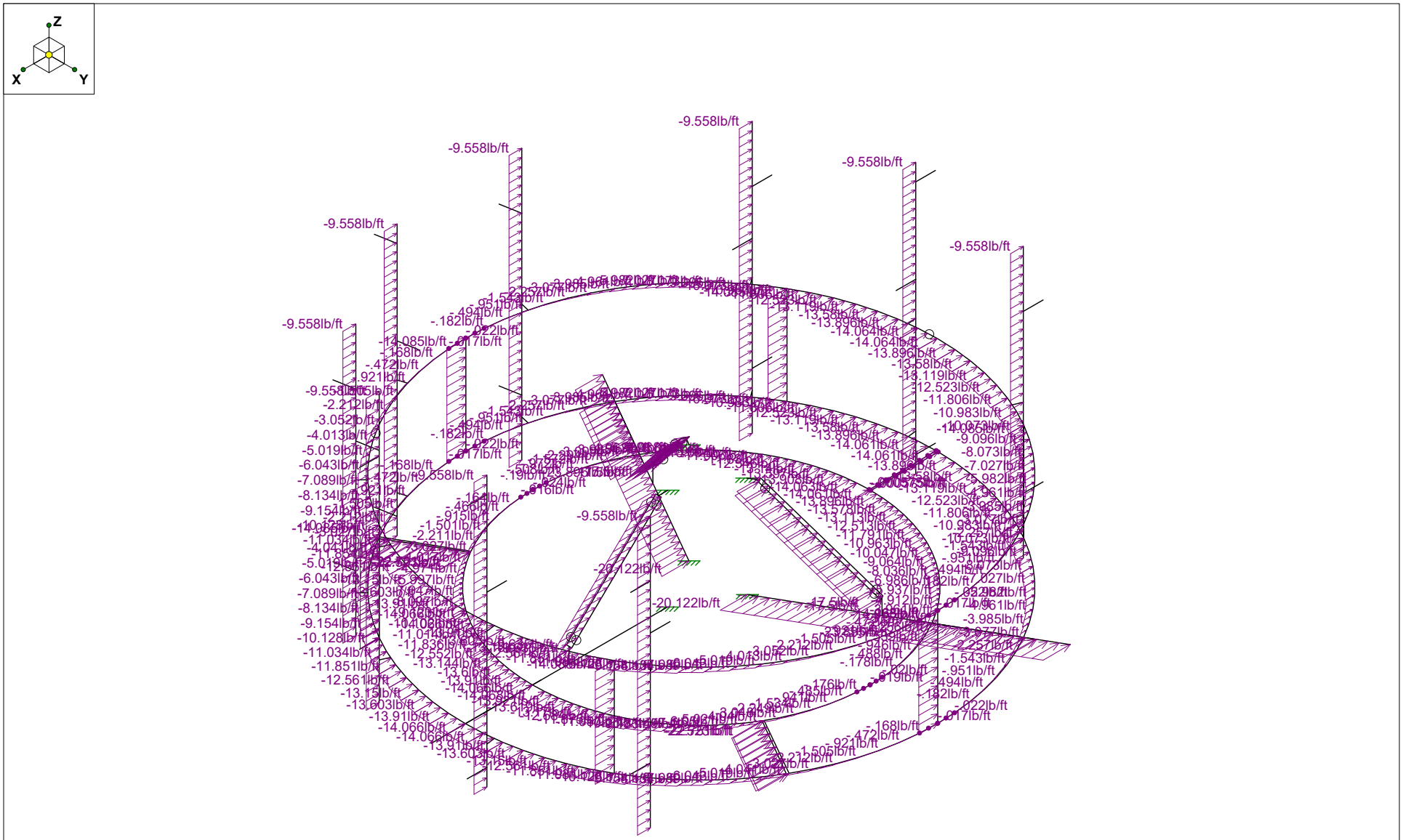
Envelope Only Solution

CLS		SK - 4
JLS	41124-12927172-Branford CT 6	July 3, 2019 at 12:41 PM
41124-12927172-01-MR-R1	Section Sets	41124-12927172-01-MR-R1.r3d



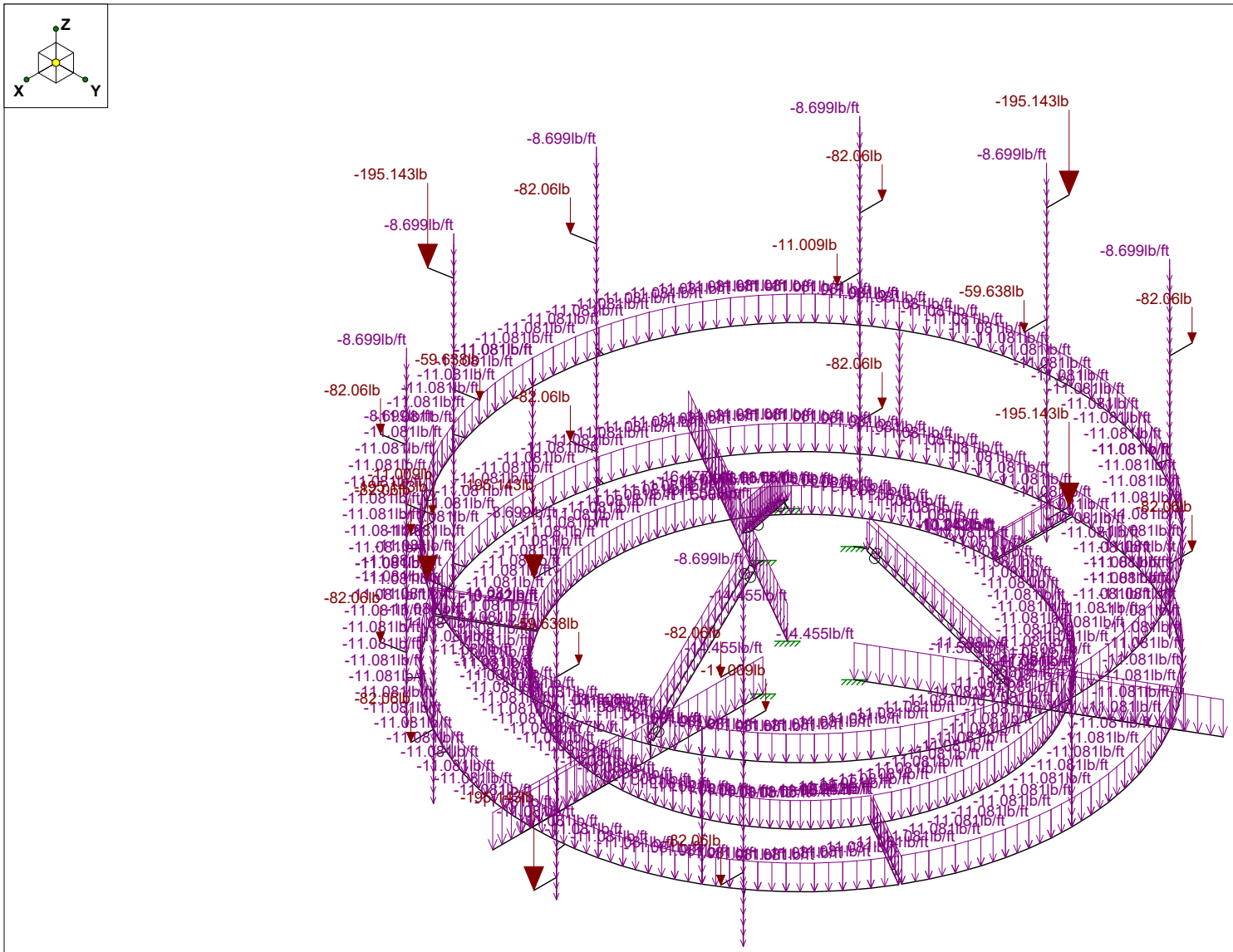
Loads: LC 1, DISPLAY (1.0D + 1.0W_0°)
Envelope Only Solution

CLS		SK - 5
JLS	41124-12927172-Branford CT 6	July 3, 2019 at 12:41 PM
41124-12927172-01-MR-R1	Joint Loads - Dead and Normal Wind	41124-12927172-01-MR-R1.r3d



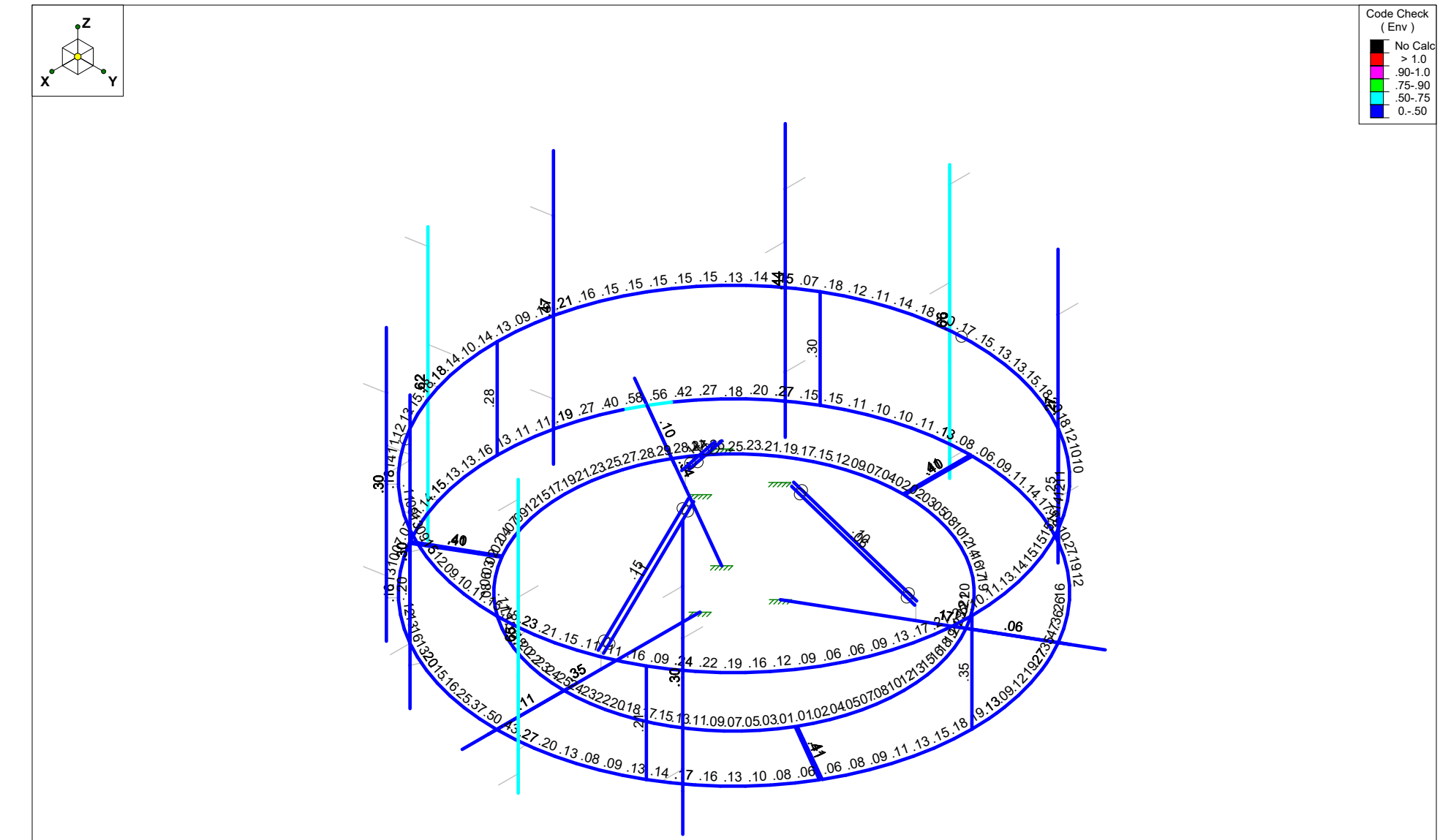
Loads: BLC 4, Structure Wind 0°
Envelope Only Solution

CLS		SK - 6
JLS	41124-12927172-Branford CT 6	July 3, 2019 at 12:41 PM
41124-12927172-01-MR-R1	Distributed Load - Normal Wind	41124-12927172-01-MR-R1.r3d



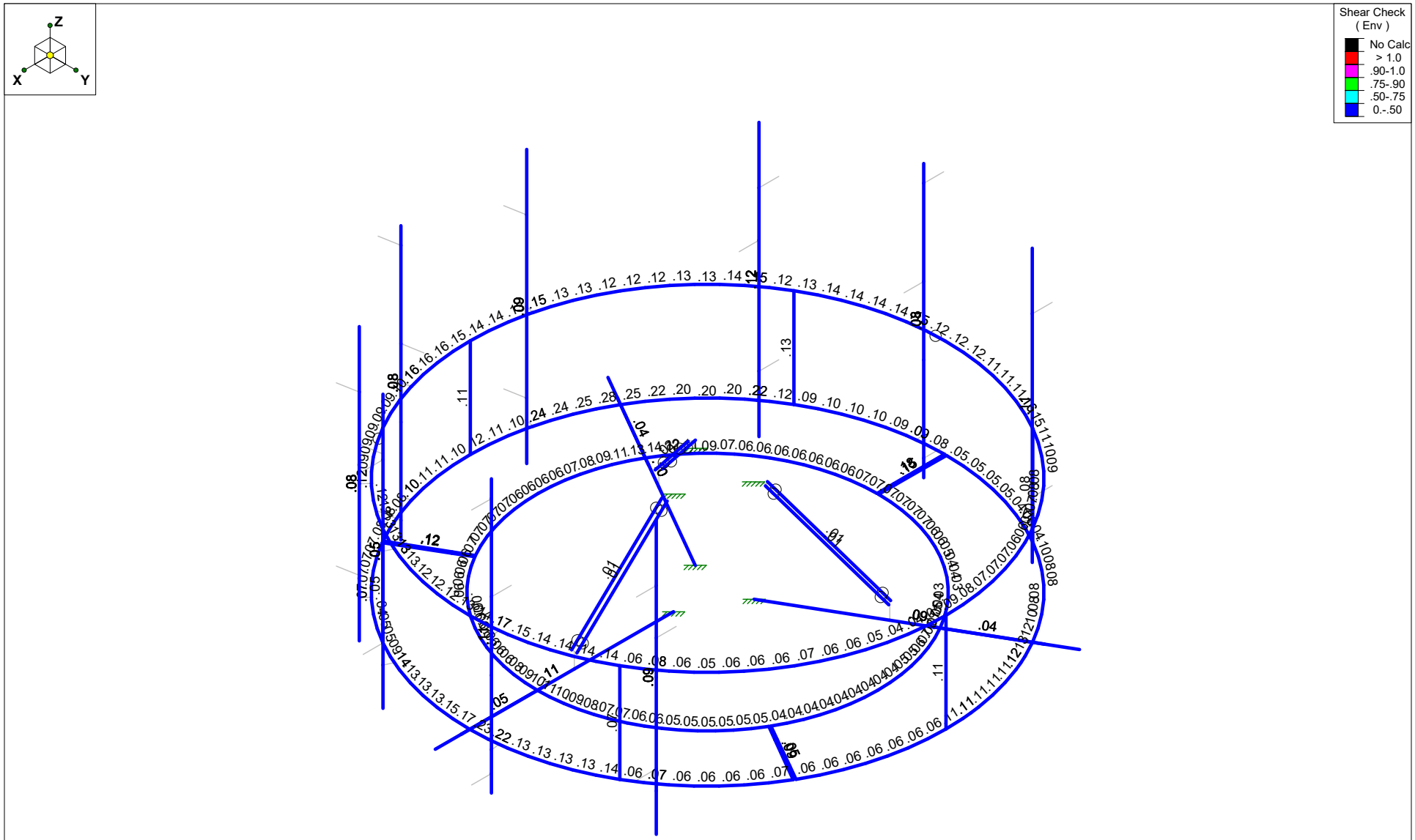
Loads: BLC 2, Ice Dead
Envelope Only Solution

CLS		SK - 7
JLS	41124-12927172-Branford CT 6	July 3, 2019 at 12:41 PM
41124-12927172-01-MR-R1	Ice Dead Loads	41124-12927172-01-MR-R1.r3d



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

CLS	41124-12927172-Branford CT 6	SK - 8
JLS		July 3, 2019 at 12:42 PM
41124-12927172-01-MR-R1	Envelope Member Unity Check Results - Bending	41124-12927172-01-MR-R1.r3d



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

CLS	41124-12927172-Branford CT 6	SK - 9
JLS		July 3, 2019 at 12:42 PM
41124-12927172-01-MR-R1	Envelope Member Check Results - Shear	41124-12927172-01-MR-R1.r3d

Basic Load Cases

	BLC Description	Category	X Gravi..	Y Gravi..	Z Gravity	Joint	Point	Distributed	Area(Member)	Surfac...
1	Dead	DL			-1	24				
2	Ice Dead	RL				24		285		
4	Structure Wind 0°	None						283		
5	Structure Wind 30°	None						570		
6	Structure Wind 45°	None						570		
7	Structure Wind 60°	None						566		
8	Structure Wind 90°	None						285		
9	Structure Wind 120°	None						566		
10	Structure Wind 135°	None						570		
11	Structure Wind 150°	None						570		
12	Structure Wind w/ Ice 0°	None						283		
13	Structure Wind w/ Ice 30°	None						570		
14	Structure Wind w/ Ice 45°	None						570		
15	Structure Wind w/ Ice 60°	None						566		
16	Structure Wind w/ Ice 90°	None						285		
17	Structure Wind w/ Ice 120°	None						566		
18	Structure Wind w/ Ice 135°	None						570		
19	Structure Wind w/ Ice 150°	None						570		
20	Antenna Wind 0°	None				24				
21	Antenna Wind 30°	None				48				
22	Antenna Wind 45°	None				48				
23	Antenna Wind 60°	None				48				
24	Antenna Wind 90°	None				24				
25	Antenna Wind 120°	None				48				
26	Antenna Wind 135°	None				48				
27	Antenna Wind 150°	None				48				
28	Antenna Wind w/ Ice 0°	None				24				
29	Antenna Wind w/ Ice 30°	None				48				
30	Antenna Wind w/ Ice 45°	None				48				
31	Antenna Wind w/ Ice 60°	None				48				
32	Antenna Wind w/ Ice 90°	None				24				
33	Antenna Wind w/ Ice 120°	None				48				
34	Antenna Wind w/ Ice 135°	None				48				
35	Antenna Wind w/ Ice 150°	None				48				
39	Maintenance Live 500 (1)	OL1				1				
40	Maintenance Live 500 (2)	OL2				1				
41	Maintenance Live 500 (3)	OL3				1				

Load Combinations

	Description	S...	P...	S...	BLC	Factor	BLC	Factor	BLC	Factor	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	DISPLAY (1.0D + ...	Y...	Y		DL	1	20	1																
2	1.4D	Y...	Y		DL	1.4																		
3	1.2D + 1.0W_0°	Y...	Y		DL	1.2	4	1	20	1														
4	1.2D + 1.0W_30°	Y...	Y		DL	1.2	5	1	21	1														
5	1.2D + 1.0W_45°	Y...	Y		DL	1.2	6	1	22	1														
6	1.2D + 1.0W_60°	Y...	Y		DL	1.2	7	1	23	1														
7	1.2D + 1.0W_90°	Y...	Y		DL	1.2	8	1	24	1														
8	1.2D + 1.0W_120°	Y...	Y		DL	1.2	9	1	25	1														
9	1.2D + 1.0W_135°	Y...	Y		DL	1.2	10	1	26	1														
10	1.2D + 1.0W_150°	Y...	Y		DL	1.2	11	1	27	1														
11	1.2D + 1.0W_180°	Y...	Y		DL	1.2	4	-1	20	-1														
12	1.2D + 1.0W_210°	Y...	Y		DL	1.2	5	-1	21	-1														
13	1.2D + 1.0W_225°	Y...	Y		DL	1.2	6	-1	22	-1														
14	1.2D + 1.0W_240°	Y...	Y		DL	1.2	7	-1	23	-1														

Load Combinations (Continued)

	Description	S...	P...	S...	BLC	Factor	BLC	Factor	BLC	Factor	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
15	1.2D + 1.0W_270°	Y...	Y		DL	1.2	8	-1	24	-1														
16	1.2D + 1.0W_300°	Y...	Y		DL	1.2	9	-1	25	-1														
17	1.2D + 1.0W_315°	Y...	Y		DL	1.2	10	-1	26	-1														
18	1.2D + 1.0W_330°	Y...	Y		DL	1.2	11	-1	27	-1														
19	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	12	1	28	1	RL	1												
20	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	13	1	29	1	RL	1												
21	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	14	1	30	1	RL	1												
22	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	15	1	31	1	RL	1												
23	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	16	1	32	1	RL	1												
24	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	17	1	33	1	RL	1												
25	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	18	1	34	1	RL	1												
26	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	19	1	35	1	RL	1												
27	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	12	-1	28	-1	RL	1												
28	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	13	-1	29	-1	RL	1												
29	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	14	-1	30	-1	RL	1												
30	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	15	-1	31	-1	RL	1												
31	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	16	-1	32	-1	RL	1												
32	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	17	-1	33	-1	RL	1												
33	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	18	-1	34	-1	RL	1												
34	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	19	-1	35	-1	RL	1												
35	1.2D + 1.5Lm_1 +...	Y...	Y		DL	1.2	4	.056	20	.056	O...	1.5												
36	1.2D + 1.5Lm_1 +...	Y...	Y		DL	1.2	5	.056	21	.056	O...	1.5												
37	1.2D + 1.5Lm_1 +...	Y...	Y		DL	1.2	6	.056	22	.056	O...	1.5												
38	1.2D + 1.5Lm_1 +...	Y...	Y		DL	1.2	7	.056	23	.056	O...	1.5												
39	1.2D + 1.5Lm_1 +...	Y...	Y		DL	1.2	8	.056	24	.056	O...	1.5												
40	1.2D + 1.5Lm_1 +...	Y...	Y		DL	1.2	9	.056	25	.056	O...	1.5												
41	1.2D + 1.5Lm_1 +...	Y...	Y		DL	1.2	10	.056	26	.056	O...	1.5												
42	1.2D + 1.5Lm_1 +...	Y...	Y		DL	1.2	11	.056	27	.056	O...	1.5												
43	1.2D + 1.5Lm_1 +...	Y...	Y		DL	1.2	4	-.056	20	-.056	O...	1.5												
44	1.2D + 1.5Lm_1 +...	Y...	Y		DL	1.2	5	-.056	21	-.056	O...	1.5												
45	1.2D + 1.5Lm_1 +...	Y...	Y		DL	1.2	6	-.056	22	-.056	O...	1.5												
46	1.2D + 1.5Lm_1 +...	Y...	Y		DL	1.2	7	-.056	23	-.056	O...	1.5												
47	1.2D + 1.5Lm_1 +...	Y...	Y		DL	1.2	8	-.056	24	-.056	O...	1.5												
48	1.2D + 1.5Lm_1 +...	Y...	Y		DL	1.2	9	-.056	25	-.056	O...	1.5												
49	1.2D + 1.5Lm_1 +...	Y...	Y		DL	1.2	10	-.056	26	-.056	O...	1.5												
50	1.2D + 1.5Lm_1 +...	Y...	Y		DL	1.2	11	-.056	27	-.056	O...	1.5												
51	1.2D + 1.5Lm_2 +...	Y...	Y		DL	1.2	4	.056	20	.056	O...	1.5												
52	1.2D + 1.5Lm_2 +...	Y...	Y		DL	1.2	5	.056	21	.056	O...	1.5												
53	1.2D + 1.5Lm_2 +...	Y...	Y		DL	1.2	6	.056	22	.056	O...	1.5												
54	1.2D + 1.5Lm_2 +...	Y...	Y		DL	1.2	7	.056	23	.056	O...	1.5												
55	1.2D + 1.5Lm_2 +...	Y...	Y		DL	1.2	8	.056	24	.056	O...	1.5												
56	1.2D + 1.5Lm_2 +...	Y...	Y		DL	1.2	9	.056	25	.056	O...	1.5												
57	1.2D + 1.5Lm_2 +...	Y...	Y		DL	1.2	10	.056	26	.056	O...	1.5												
58	1.2D + 1.5Lm_2 +...	Y...	Y		DL	1.2	11	.056	27	.056	O...	1.5												
59	1.2D + 1.5Lm_2 +...	Y...	Y		DL	1.2	4	-.056	20	-.056	O...	1.5												
60	1.2D + 1.5Lm_2 +...	Y...	Y		DL	1.2	5	-.056	21	-.056	O...	1.5												
61	1.2D + 1.5Lm_2 +...	Y...	Y		DL	1.2	6	-.056	22	-.056	O...	1.5												
62	1.2D + 1.5Lm_2 +...	Y...	Y		DL	1.2	7	-.056	23	-.056	O...	1.5												
63	1.2D + 1.5Lm_2 +...	Y...	Y		DL	1.2	8	-.056	24	-.056	O...	1.5												
64	1.2D + 1.5Lm_2 +...	Y...	Y		DL	1.2	9	-.056	25	-.056	O...	1.5												
65	1.2D + 1.5Lm_2 +...	Y...	Y		DL	1.2	10	-.056	26	-.056	O...	1.5												
66	1.2D + 1.5Lm_2 +...	Y...	Y		DL	1.2	11	-.056	27	-.056	O...	1.5												
67	1.2D + 1.5Lm_3 +...	Y...	Y		DL	1.2	4	.056	20	.056	O...	1.5												
68	1.2D + 1.5Lm_3 +...	Y...	Y		DL	1.2	5	.056	21	.056	O...	1.5												
69	1.2D + 1.5Lm_3 +...	Y...	Y		DL	1.2	6	.056	22	.056	O...	1.5												
70	1.2D + 1.5Lm_3 +...	Y...	Y		DL	1.2	7	.056	23	.056	O...	1.5												
71	1.2D + 1.5Lm_3 +...	Y...	Y		DL	1.2	8	.056	24	.056	O...	1.5												

Load Combinations (Continued)

	Description	S...	P...	S...	BLC	Factor	BLC	Factor	BLC	Factor	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
72	1.2D + 1.5Lm_3 +..	Y...	Y		DL	1.2	9	.056	25	.056	O...	1.5												
73	1.2D + 1.5Lm_3 +..	Y...	Y		DL	1.2	10	.056	26	.056	O...	1.5												
74	1.2D + 1.5Lm_3 +..	Y...	Y		DL	1.2	11	.056	27	.056	O...	1.5												
75	1.2D + 1.5Lm_3 +..	Y...	Y		DL	1.2	4	-.056	20	-.056	O...	1.5												
76	1.2D + 1.5Lm_3 +..	Y...	Y		DL	1.2	5	-.056	21	-.056	O...	1.5												
77	1.2D + 1.5Lm_3 +..	Y...	Y		DL	1.2	6	-.056	22	-.056	O...	1.5												
78	1.2D + 1.5Lm_3 +..	Y...	Y		DL	1.2	7	-.056	23	-.056	O...	1.5												
79	1.2D + 1.5Lm_3 +..	Y...	Y		DL	1.2	8	-.056	24	-.056	O...	1.5												
80	1.2D + 1.5Lm_3 +..	Y...	Y		DL	1.2	9	-.056	25	-.056	O...	1.5												
81	1.2D + 1.5Lm_3 +..	Y...	Y		DL	1.2	10	-.056	26	-.056	O...	1.5												
82	1.2D + 1.5Lm_3 +..	Y...	Y		DL	1.2	11	-.056	27	-.056	O...	1.5												

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1E...	Density[lb/f...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	.3	.65	490	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	490	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	490	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	490	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	490	50	1.4	65	1.3

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design R...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Face horizontal	PIPE 3.0 SCH10	Beam	None	A500 Gr....	Typical	1.274	1.822	1.822	3.644
2	Standoff Arm	HSS4X4X6	Beam	None	A500 Gr....	Typical	4.78	10.3	10.3	17.5
3	Standoff Tube	HSS4.75x4.75x4	Beam	None	A500 Gr....	Typical	4.5	15.234	15.234	22.781
4	Handrail	PIPE 3.0 SCH10	Beam	None	A500 Gr....	Typical	1.274	1.822	1.822	3.644
5	Intermediate Plate	PL4.5x0.375	Beam	None	A36 Gr.36	Typical	1.688	.02	2.848	.075
6	Vertical Brace	PIPE 3.0 SCH10	Column	None	A500 Gr....	Typical	1.274	1.822	1.822	3.644
7	Mount Pipe	PIPE_2.0	Column	None	A53 Gr.B	Typical	1.02	.627	.627	1.25
8	PKBK	L3X3X3	Beam	None	A36 Gr.36	Typical	1.09	.948	.948	.014

Hot Rolled Steel Design Parameters

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torq...	Kyy	Kzz	Cb	Function
1	M1	Standoff Arm	84			Lbyy						Lateral
2	M3	Intermediat...	23.85			Lbyy						Lateral
3	M4	Intermediat...	23.85			Lbyy						Lateral
4	M7	Intermediat...	23.85			Lbyy						Lateral
5	M8	Intermediat...	23.85			Lbyy						Lateral
6	M11	Intermediat...	23.85			Lbyy						Lateral
7	M12	Intermediat...	23.85			Lbyy						Lateral
8	M15	Face horizo...	6.244			Lbyy						Lateral
9	M16	Face horizo...	4.468			Lbyy						Lateral
10	M127	Vertical Bra...	34.75									Lateral
11	M132	Vertical Bra...	34.75									Lateral
12	M129	Handrail	6.61			Lbyy						Lateral
13	M299	Vertical Bra...	34.75									Lateral
14	M300	Vertical Bra...	34.75									Lateral
15	M471	Vertical Bra...	34.75									Lateral
16	M472	Vertical Bra...	34.75									Lateral
17	M537	Mount Pipe	96									Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torq...	Kyy	Kzz	Cb	Function
18	M530A	Face horizo...	4.487			Lbyy						Lateral
19	M531A	Face horizo...	4.487			Lbyy						Lateral
20	M532A	Face horizo...	4.487			Lbyy						Lateral
21	M533A	Face horizo...	4.487			Lbyy						Lateral
22	M534A	Face horizo...	4.487			Lbyy						Lateral
23	M535A	Face horizo...	4.487			Lbyy						Lateral
24	M536A	Face horizo...	4.487			Lbyy						Lateral
25	M537A	Face horizo...	4.487			Lbyy						Lateral
26	M538A	Face horizo...	4.487			Lbyy						Lateral
27	M539A	Face horizo...	4.487			Lbyy						Lateral
28	M540A	Face horizo...	4.487			Lbyy						Lateral
29	M541A	Face horizo...	4.487			Lbyy						Lateral
30	M542A	Face horizo...	4.244			Lbyy						Lateral
31	M515A	Face horizo...	4.468			Lbyy						Lateral
32	M516A	Face horizo...	4.487			Lbyy						Lateral
33	M517A	Face horizo...	4.487			Lbyy						Lateral
34	M518A	Face horizo...	4.487			Lbyy						Lateral
35	M519A	Face horizo...	4.487			Lbyy						Lateral
36	M520A	Face horizo...	4.487			Lbyy						Lateral
37	M521A	Face horizo...	4.487			Lbyy						Lateral
38	M522A	Face horizo...	4.487			Lbyy						Lateral
39	M523A	Face horizo...	4.487			Lbyy						Lateral
40	M524A	Face horizo...	4.487			Lbyy						Lateral
41	M525A	Face horizo...	4.487			Lbyy						Lateral
42	M526A	Face horizo...	4.487			Lbyy						Lateral
43	M527A	Face horizo...	4.487			Lbyy						Lateral
44	M528A	Face horizo...	4.244			Lbyy						Lateral
45	M417A	Face horizo...	4.468			Lbyy						Lateral
46	M418	Face horizo...	4.487			Lbyy						Lateral
47	M419A	Face horizo...	4.487			Lbyy						Lateral
48	M420	Face horizo...	4.487			Lbyy						Lateral
49	M421A	Face horizo...	4.487			Lbyy						Lateral
50	M422	Face horizo...	4.487			Lbyy						Lateral
51	M423A	Face horizo...	4.487			Lbyy						Lateral
52	M424	Face horizo...	4.487			Lbyy						Lateral
53	M425A	Face horizo...	4.487			Lbyy						Lateral
54	M426	Face horizo...	4.487			Lbyy						Lateral
55	M427A	Face horizo...	4.487			Lbyy						Lateral
56	M428	Face horizo...	4.487			Lbyy						Lateral
57	M429A	Face horizo...	4.487			Lbyy						Lateral
58	M430	Face horizo...	4.244			Lbyy						Lateral
59	M431A	Face horizo...	4.468			Lbyy						Lateral
60	M432	Face horizo...	4.487			Lbyy						Lateral
61	M433A	Face horizo...	4.487			Lbyy						Lateral
62	M434	Face horizo...	4.487			Lbyy						Lateral
63	M435A	Face horizo...	4.487			Lbyy						Lateral
64	M436	Face horizo...	4.487			Lbyy						Lateral
65	M437A	Face horizo...	4.487			Lbyy						Lateral
66	M438	Face horizo...	4.487			Lbyy						Lateral
67	M439A	Face horizo...	4.487			Lbyy						Lateral
68	M440	Face horizo...	4.487			Lbyy						Lateral
69	M441A	Face horizo...	4.487			Lbyy						Lateral
70	M442	Face horizo...	4.487			Lbyy						Lateral
71	M443A	Face horizo...	4.487			Lbyy						Lateral
72	M444	Face horizo...	4.244			Lbyy						Lateral
73	M445A	Face horizo...	4.468			Lbyy						Lateral
74	M446	Face horizo...	4.487			Lbyy						Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torq...	Kyy	Kzz	Cb	Function
75	M447A	Face horizo...	4.487			Lbyy						Lateral
76	M448	Face horizo...	4.487			Lbyy						Lateral
77	M449A	Face horizo...	4.487			Lbyy						Lateral
78	M450	Face horizo...	4.487			Lbyy						Lateral
79	M451A	Face horizo...	4.487			Lbyy						Lateral
80	M452	Face horizo...	4.487			Lbyy						Lateral
81	M453A	Face horizo...	4.487			Lbyy						Lateral
82	M454	Face horizo...	4.487			Lbyy						Lateral
83	M455A	Face horizo...	4.487			Lbyy						Lateral
84	M456	Face horizo...	4.487			Lbyy						Lateral
85	M457A	Face horizo...	4.487			Lbyy						Lateral
86	M458	Face horizo...	4.244			Lbyy						Lateral
87	M459A	Face horizo...	4.468			Lbyy						Lateral
88	M460	Face horizo...	4.487			Lbyy						Lateral
89	M461A	Face horizo...	4.487			Lbyy						Lateral
90	M462	Face horizo...	4.487			Lbyy						Lateral
91	M463A	Face horizo...	4.487			Lbyy						Lateral
92	M464	Face horizo...	4.487			Lbyy						Lateral
93	M465A	Face horizo...	4.487			Lbyy						Lateral
94	M466	Face horizo...	4.487			Lbyy						Lateral
95	M467A	Face horizo...	4.487			Lbyy						Lateral
96	M468	Face horizo...	4.487			Lbyy						Lateral
97	M469A	Face horizo...	4.487			Lbyy						Lateral
98	M470	Face horizo...	4.487			Lbyy						Lateral
99	M471A	Face horizo...	4.487			Lbyy						Lateral
100	M472A	Face horizo...	4.244			Lbyy						Lateral
101	M139	Face horizo...	6.244			Lbyy						Lateral
102	M140	Face horizo...	6.244			Lbyy						Lateral
103	M141	Face horizo...	6.244			Lbyy						Lateral
104	M142	Face horizo...	6.244			Lbyy						Lateral
105	M143	Face horizo...	6.244			Lbyy						Lateral
106	M144	Face horizo...	6.244			Lbyy						Lateral
107	M145	Face horizo...	6.244			Lbyy						Lateral
108	M146	Face horizo...	6.244			Lbyy						Lateral
109	M147	Face horizo...	6.244			Lbyy						Lateral
110	M148	Face horizo...	6.244			Lbyy						Lateral
111	M149	Face horizo...	6.244			Lbyy						Lateral
112	M150	Face horizo...	6.244			Lbyy						Lateral
113	M151	Face horizo...	6.244			Lbyy						Lateral
114	M152	Face horizo...	6.244			Lbyy						Lateral
115	M153	Face horizo...	6.244			Lbyy						Lateral
116	M154	Face horizo...	6.244			Lbyy						Lateral
117	M155	Face horizo...	6.244			Lbyy						Lateral
118	M156	Face horizo...	6.244			Lbyy						Lateral
119	M157	Face horizo...	6.244			Lbyy						Lateral
120	M158	Face horizo...	6.244			Lbyy						Lateral
121	M159	Face horizo...	6.244			Lbyy						Lateral
122	M160	Face horizo...	6.244			Lbyy						Lateral
123	M161	Face horizo...	6.244			Lbyy						Lateral
124	M162	Face horizo...	6.244			Lbyy						Lateral
125	M163	Face horizo...	6.244			Lbyy						Lateral
126	M164	Face horizo...	6.244			Lbyy						Lateral
127	M165	Face horizo...	6.244			Lbyy						Lateral
128	M166	Face horizo...	6.244			Lbyy						Lateral
129	M167	Face horizo...	6.244			Lbyy						Lateral
130	M168	Face horizo...	6.244			Lbyy						Lateral
131	M169	Face horizo...	6.244			Lbyy						Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torq...	Kyy	Kzz	Cb	Function
132	M170	Face horizo...	6.244			Lbyy						Lateral
133	M171	Face horizo...	6.244			Lbyy						Lateral
134	M172	Face horizo...	6.244			Lbyy						Lateral
135	M173	Face horizo...	6.244			Lbyy						Lateral
136	M174	Face horizo...	6.244			Lbyy						Lateral
137	M175	Face horizo...	6.244			Lbyy						Lateral
138	M176	Face horizo...	6.244			Lbyy						Lateral
139	M177	Face horizo...	6.244			Lbyy						Lateral
140	M178	Face horizo...	6.244			Lbyy						Lateral
141	M179	Face horizo...	6.244			Lbyy						Lateral
142	M180	Face horizo...	6.244			Lbyy						Lateral
143	M181	Face horizo...	6.244			Lbyy						Lateral
144	M182	Face horizo...	6.244			Lbyy						Lateral
145	M183	Face horizo...	6.244			Lbyy						Lateral
146	M184	Face horizo...	6.244			Lbyy						Lateral
147	M185A	Face horizo...	6.244			Lbyy						Lateral
148	M186A	Face horizo...	6.244			Lbyy						Lateral
149	M187	Face horizo...	6.244			Lbyy						Lateral
150	M188	Face horizo...	6.244			Lbyy						Lateral
151	M189	Face horizo...	6.244			Lbyy						Lateral
152	M190	Face horizo...	6.244			Lbyy						Lateral
153	M191	Face horizo...	6.244			Lbyy						Lateral
154	M192	Face horizo...	6.61			Lbyy						Lateral
155	M193	Face horizo...	6.244			Lbyy						Lateral
156	M194	Handrail	6.61			Lbyy						Lateral
157	M195	Face horizo...	6.244			Lbyy						Lateral
158	M196	Face horizo...	6.244			Lbyy						Lateral
159	M197	Face horizo...	6.244			Lbyy						Lateral
160	M198	Face horizo...	6.244			Lbyy						Lateral
161	M199	Face horizo...	6.244			Lbyy						Lateral
162	M200	Face horizo...	6.244			Lbyy						Lateral
163	M201	Face horizo...	6.244			Lbyy						Lateral
164	M202	Face horizo...	6.244			Lbyy						Lateral
165	M203	Face horizo...	6.244			Lbyy						Lateral
166	M204	Face horizo...	6.244			Lbyy						Lateral
167	M205	Face horizo...	6.244			Lbyy						Lateral
168	M206	Face horizo...	6.244			Lbyy						Lateral
169	M207	Face horizo...	6.244			Lbyy						Lateral
170	M208	Face horizo...	6.244			Lbyy						Lateral
171	M209	Face horizo...	6.244			Lbyy						Lateral
172	M210	Face horizo...	6.244			Lbyy						Lateral
173	M211	Face horizo...	6.244			Lbyy						Lateral
174	M212	Face horizo...	6.244			Lbyy						Lateral
175	M213	Face horizo...	6.244			Lbyy						Lateral
176	M214	Face horizo...	6.244			Lbyy						Lateral
177	M215	Face horizo...	6.244			Lbyy						Lateral
178	M216	Face horizo...	6.244			Lbyy						Lateral
179	M217	Face horizo...	6.244			Lbyy						Lateral
180	M218	Face horizo...	6.244			Lbyy						Lateral
181	M219	Face horizo...	6.244			Lbyy						Lateral
182	M220	Face horizo...	6.244			Lbyy						Lateral
183	M221	Face horizo...	6.244			Lbyy						Lateral
184	M222	Face horizo...	6.244			Lbyy						Lateral
185	M223	Face horizo...	6.244			Lbyy						Lateral
186	M224	Face horizo...	6.244			Lbyy						Lateral
187	M225	Face horizo...	6.244			Lbyy						Lateral
188	M226	Face horizo...	6.244			Lbyy						Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torq...	Kyy	Kzz	Cb	Function
189	M227	Face horizo...	6.244			Lbyy						Lateral
190	M228	Face horizo...	6.244			Lbyy						Lateral
191	M229	Face horizo...	6.244			Lbyy						Lateral
192	M230	Face horizo...	6.244			Lbyy						Lateral
193	M231	Face horizo...	6.244			Lbyy						Lateral
194	M232	Face horizo...	6.244			Lbyy						Lateral
195	M233	Face horizo...	6.244			Lbyy						Lateral
196	M234	Face horizo...	6.244			Lbyy						Lateral
197	M235	Face horizo...	6.244			Lbyy						Lateral
198	M236	Face horizo...	6.244			Lbyy						Lateral
199	M237	Face horizo...	6.244			Lbyy						Lateral
200	M238	Face horizo...	6.244			Lbyy						Lateral
201	M239	Face horizo...	6.244			Lbyy						Lateral
202	M240	Face horizo...	6.244			Lbyy						Lateral
203	M241	Face horizo...	6.244			Lbyy						Lateral
204	M242	Face horizo...	6.244			Lbyy						Lateral
205	M243	Face horizo...	6.244			Lbyy						Lateral
206	M244	Face horizo...	6.244			Lbyy						Lateral
207	M245	Face horizo...	6.244			Lbyy						Lateral
208	M246	Face horizo...	6.244			Lbyy						Lateral
209	M247	Face horizo...	6.244			Lbyy						Lateral
210	M248	Face horizo...	6.61			Lbyy						Lateral
211	M249	Face horizo...	6.244			Lbyy						Lateral
212	M250	Handrail	6.61			Lbyy						Lateral
213	M251	Face horizo...	6.244			Lbyy						Lateral
214	M252	Face horizo...	6.244			Lbyy						Lateral
215	M253	Face horizo...	6.244			Lbyy						Lateral
216	M254	Face horizo...	6.244			Lbyy						Lateral
217	M255	Face horizo...	6.244			Lbyy						Lateral
218	M256	Face horizo...	6.244			Lbyy						Lateral
219	M257	Face horizo...	6.244			Lbyy						Lateral
220	M258	Face horizo...	6.244			Lbyy						Lateral
221	M259	Face horizo...	6.244			Lbyy						Lateral
222	M260	Face horizo...	6.244			Lbyy						Lateral
223	M261	Face horizo...	6.244			Lbyy						Lateral
224	M262	Face horizo...	6.244			Lbyy						Lateral
225	M263	Face horizo...	6.244			Lbyy						Lateral
226	M264	Face horizo...	6.244			Lbyy						Lateral
227	M265	Face horizo...	6.244			Lbyy						Lateral
228	M266	Face horizo...	6.244			Lbyy						Lateral
229	M267	Face horizo...	6.244			Lbyy						Lateral
230	M268	Face horizo...	6.244			Lbyy						Lateral
231	M269	Face horizo...	6.244			Lbyy						Lateral
232	M270	Face horizo...	6.244			Lbyy						Lateral
233	M271	Face horizo...	6.244			Lbyy						Lateral
234	M272	Face horizo...	6.244			Lbyy						Lateral
235	M273	Face horizo...	6.244			Lbyy						Lateral
236	M274	Face horizo...	6.244			Lbyy						Lateral
237	M275	Face horizo...	6.244			Lbyy						Lateral
238	M276	Face horizo...	6.244			Lbyy						Lateral
239	M277	Face horizo...	6.244			Lbyy						Lateral
240	M278	Face horizo...	6.244			Lbyy						Lateral
241	M279	Face horizo...	6.244			Lbyy						Lateral
242	M280	Face horizo...	6.244			Lbyy						Lateral
243	M281	Face horizo...	6.244			Lbyy						Lateral
244	M282	Face horizo...	6.244			Lbyy						Lateral
245	M283	Face horizo...	6.244			Lbyy						Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torq...	Kyy	Kzz	Cb	Function
246	M284	Face horizo...	6.244			Lbyy						Lateral
247	M285	Face horizo...	6.244			Lbyy						Lateral
248	M286	Face horizo...	6.244			Lbyy						Lateral
249	M287	Face horizo...	6.244			Lbyy						Lateral
250	M288	Face horizo...	6.244			Lbyy						Lateral
251	M289	Face horizo...	6.244			Lbyy						Lateral
252	M290	Face horizo...	6.244			Lbyy						Lateral
253	M291	Face horizo...	6.244			Lbyy						Lateral
254	M292	Face horizo...	6.244			Lbyy						Lateral
255	M293	Face horizo...	6.244			Lbyy						Lateral
256	M294	Face horizo...	6.244			Lbyy						Lateral
257	M295	Face horizo...	6.244			Lbyy						Lateral
258	M296	Face horizo...	6.244			Lbyy						Lateral
259	M297	Face horizo...	6.244			Lbyy						Lateral
260	M298	Face horizo...	6.244			Lbyy						Lateral
261	M299A	Face horizo...	6.244			Lbyy						Lateral
262	M300A	Face horizo...	6.244			Lbyy						Lateral
263	M301	Face horizo...	6.244			Lbyy						Lateral
264	M302	Face horizo...	6.244			Lbyy						Lateral
265	M303	Face horizo...	6.244			Lbyy						Lateral
266	M304	Face horizo...	6.61			Lbyy						Lateral
267	M303B	Standoff Arm	84			Lbyy						Lateral
268	M304B	Standoff Arm	84			Lbyy						Lateral
269	M280A	Mount Pipe	96									Lateral
270	M286A	Mount Pipe	96									Lateral
271	PR5	PKBK	44.066									Lateral
272	PR6	PKBK	44.066									Lateral
273	PR11	PKBK	44.066									Lateral
274	PR12	PKBK	44.066									Lateral
275	PR17	PKBK	44.066									Lateral
276	PR18	PKBK	44.066									Lateral
277	M343	Standoff Tu...	30			Lbyy						Lateral
278	M344	Standoff Tu...	30			Lbyy						Lateral
279	M345	Standoff Tu...	30			Lbyy						Lateral
280	M312B	Mount Pipe	96									Lateral
281	M315A	Mount Pipe	96									Lateral
282	M318	Mount Pipe	96									Lateral
283	M329	Mount Pipe	96									Lateral
284	M332	Mount Pipe	96									Lateral
285	M335	Mount Pipe	96									Lateral

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N2	max	785.453	4	-605.554	11	198.407	8	1848.002	34	772.929	6	6535.916	4
2		min	-3198.585	28	-5065.037	19	-2255.553	32	-279.823	10	-1438.506	14	-6591.018	12
3	N349A	max	5366.978	29	1799.515	15	379.623	3	798.296	6	2190.231	27	5288.173	15
4		min	1257.444	1	-1835.171	7	-2328.996	27	-1204.609	14	-386.395	3	-5414.517	7
5	N351A	max	476.442	18	2169.706	19	449.455	14	324.149	13	477.029	32	2908.492	10
6		min	-1463.142	26	52.337	11	-970.57	6	-1172.52	21	-200.996	41	-2749.88	18
7	P5	max	3158.803	33	5469.125	32	6104.825	32	10.161	9	854.827	31	195.333	4
8		min	53.547	9	112.964	9	170.832	9	-1495.121	33	77.308	7	-200.034	12
9	P13	max	314.543	3	81.298	15	5826.421	27	131.224	16	70.676	3	157.406	16
10		min	-6025.247	27	-82.461	7	-251.291	3	-171.932	8	-1638.681	27	-201.858	8
11	P21	max	1489.906	22	705.168	14	2908.415	22	662.958	22	487.706	22	114.867	10
12		min	-417.442	13	-2579.951	22	-732.46	13	-178.385	13	-107.603	14	-53.414	18

Envelope Joint Reactions (Continued)

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
13	Totals:	max	5558.109	3	4993.758	15	8597.213	22						
14		min	-5558.094	11	-4993.758	7	2742.275	1						

Envelope AISC 14th(360-10): LRFD Steel Code Checks

	Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*Pn...	phi*Pn...	phi*Mn...	phi*Mn...	Eqn
1	M329	PIPE_2.0	.656	48	11	.082	82.286		31	14916...	32130	1871.6...	1871.6...	H1-1b
2	M537	PIPE_2.0	.652	48	11	.112	48		12	14916...	32130	1871.6...	1871.6...	H1-1b
3	M312B	PIPE_2.0	.622	48	15	.084	82.286		34	14916...	32130	1871.6...	1871.6...	H1-1b
4	M151	PIPE 3.0 SCH10	.579	6.244	31	.281	6.244		19	48085...	48165...	4320.2...	4320.2...	H1-1b
5	M152	PIPE 3.0 SCH10	.559	0	34	.252	0		30	48085...	48165...	4320.2...	4320.2...	H1-1b
6	M208	PIPE 3.0 SCH10	.496	0	12	.169	0		24	48085...	48165...	4320.2...	4320.2...	H1-1b
7	M315A	PIPE_2.0	.473	82.286	19	.092	48		26	14916...	32130	1871.6...	1871.6...	H1-1b
8	M263	PIPE 3.0 SCH10	.469	6.244	5	.123	6.244		23	48085...	48165...	4320.2...	4320.2...	H1-1b
9	M335	PIPE_2.0	.436	82.286	30	.116	82.286		29	14916...	32130	1871.6...	1871.6...	H1-1b
10	M207	PIPE 3.0 SCH10	.432	6.244	10	.230	6.244		31	48085...	48165...	4320.2...	4320.2...	H1-1b
11	M153	PIPE 3.0 SCH10	.415	0	34	.222	0		29	48085...	48165...	4320.2...	4320.2...	H1-1b
12	M11	PL4.5x0.375	.411	23.85	11	.182	5.963	y	22	7853.7...	54675	427.148	5125.7...	H1-1b
13	M7	PL4.5x0.375	.408	17.888	8	.054	17.888	y	11	7853.7...	54675	427.148	5125.7...	H1-1b
14	M8	PL4.5x0.375	.407	23.85	8	.092	5.963	y	4	7853.7...	54675	427.148	5125.7...	H1-1b
15	M3	PL4.5x0.375	.406	17.888	5	.119	5.963	y	31	7853.7...	54675	427.148	4766.25...	H1-1b
16	M12	PL4.5x0.375	.400	17.888	11	.146	0	y	21	7853.7...	54675	427.148	4322.7...	H1-1b
17	M4	PL4.5x0.375	.399	23.85	4	.121	0	y	30	7853.7...	54675	427.148	5125.7...	H1-1b
18	M150	PIPE 3.0 SCH10	.397	6.244	31	.254	6.244		20	48085...	48165...	4320.2...	4320.2...	H1-1b
19	M209	PIPE 3.0 SCH10	.368	0	12	.147	0		23	48085...	48165...	4320.2...	4320.2...	H1-1b
20	M262	PIPE 3.0 SCH10	.358	6.244	4	.099	6.244		23	48085...	48165...	4320.2...	4320.2...	H1-1b
21	M264	PIPE 3.0 SCH10	.351	0	7	.135	0		21	48085...	48165...	4320.2...	4320.2...	H1-1b
22	M303B	HSS4X4X6	.348	35.143	27	.107	35.143	y	29	15876...	197892	22045.5	22045.5...	H1-1b
23	M472	PIPE 3.0 SCH10	.347	34.75	4	.108	34.75		3	45731...	48165...	4320.2...	4320.2...	H1-1b
24	M1	HSS4X4X6	.342	35.143	32	.096	0	z	4	15876...	197892	22045.5	22045.5...	H1-1b
25	M318	PIPE_2.0	.304	82.286	10	.084	82.286		11	14916...	32130	1871.6...	1871.6...	H1-1b
26	M132	PIPE 3.0 SCH10	.303	34.75	30	.126	34.75		30	45731...	48165...	4320.2...	4320.2...	H1-1b
27	M286A	PIPE_2.0	.302	48	11	.088	82.286		6	14916...	32130	1871.6...	1871.6...	H1-1b
28	M280A	PIPE_2.0	.301	48	11	.053	48		15	14916...	32130	1871.6...	1871.6...	H1-1b
29	M542A	PIPE 3.0 SCH10	.289	4.244	13	.126	4.244		19	48128...	48165...	4320.2...	4320.2...	H1-1b
30	M515A	PIPE 3.0 SCH10	.283	0	3	.143	0		30	48124...	48165...	4320.2...	4320.2...	H1-1b
31	M127	PIPE 3.0 SCH10	.280	34.75	19	.114	34.75		34	45731...	48165...	4320.2...	4320.2...	H1-1b
32	M541A	PIPE 3.0 SCH10	.279	4.487	13	.109	4.487		19	48124...	48165...	4320.2...	4320.2...	H1-1b
33	M154	PIPE 3.0 SCH10	.274	0	3	.203	0		29	48085...	48165...	4320.2...	4320.2...	H1-1b
34	M516A	PIPE 3.0 SCH10	.273	0	3	.124	0		30	48124...	48165...	4320.2...	4320.2...	H1-1b
35	M206	PIPE 3.0 SCH10	.272	6.244	9	.224	6.244		31	48085...	48165...	4320.2...	4320.2...	H1-1b
36	M332	PIPE_2.0	.271	82.286	7	.108	82.286		6	14916...	32130	1871.6...	1871.6...	H1-1b
37	M265	PIPE 3.0 SCH10	.268	0	7	.122	0		20	48085...	48165...	4320.2...	4320.2...	H1-1b
38	M149	PIPE 3.0 SCH10	.267	6.244	14	.242	6.244		20	48085...	48165...	4320.2...	4320.2...	H1-1b
39	M157	PIPE 3.0 SCH10	.266	3.122	31	.217	0		29	48085...	48165...	4320.2...	4320.2...	H1-1b
40	M257	PIPE 3.0 SCH10	.266	0	23	.098	6.244		25	48085...	48165...	4320.2...	4320.2...	H1-1b
41	M540A	PIPE 3.0 SCH10	.265	4.487	13	.092	4.487		19	48124...	48165...	4320.2...	4320.2...	H1-1b
42	M517A	PIPE 3.0 SCH10	.261	0	3	.106	0		30	48124...	48165...	4320.2...	4320.2...	H1-1b
43	M261	PIPE 3.0 SCH10	.257	6.244	4	.085	6.244		25	48085...	48165...	4320.2...	4320.2...	H1-1b
44	M210	PIPE 3.0 SCH10	.254	0	13	.135	0		5	48085...	48165...	4320.2...	4320.2...	H1-1b
45	M431A	PIPE 3.0 SCH10	.251	0	14	.102	0		25	48124...	48165...	4320.2...	4320.2...	H1-1b
46	M298	PIPE 3.0 SCH10	.250	0	4	.055	6.244		11	48085...	48165...	4320.2...	4320.2...	H1-1b
47	M539A	PIPE 3.0 SCH10	.250	4.487	13	.077	4.487		19	48124...	48165...	4320.2...	4320.2...	H1-1b
48	M471	PIPE 3.0 SCH10	.249	34.75	7	.082	34.75		7	45731...	48165...	4320.2...	4320.2...	H1-1b
49	M518A	PIPE 3.0 SCH10	.247	0	3	.089	0		30	48124...	48165...	4320.2...	4320.2...	H1-1b
50	M430	PIPE 3.0 SCH10	.243	4.244	8	.106	4.244		29	48128...	48165...	4320.2...	4320.2...	H1-1b

Envelope AISC 14th(360-10): LRFD Steel Code Checks (Continued)

	Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*Pn...	phi*Pn...	phi*Mn...	phi*Mn.....	Eqn
51	M432	PIPE 3.0 SCH10	.241	0	14	.088	0		24	48124...	48165...	4320.2...	4320.2.....	H1-1b
52	M226	PIPE 3.0 SCH10	.238	2.74	4	.078	2.74		11	48085...	48165...	4320.2...	4320.2.....	H1-1b
53	M538A	PIPE 3.0 SCH10	.233	4.487	13	.067	4.487		4	48124...	48165...	4320.2...	4320.2.....	H1-1b
54	M519A	PIPE 3.0 SCH10	.231	0	3	.074	0		30	48124...	48165...	4320.2...	4320.2.....	H1-1b
55	M429A	PIPE 3.0 SCH10	.231	4.487	8	.097	4.487		29	48124...	48165...	4320.2...	4320.2.....	H1-1b
56	M233	PIPE 3.0 SCH10	.230	2.74	12	.171	2.74		12	48085...	48165...	4320.2...	4320.2.....	H1-1b
57	M433A	PIPE 3.0 SCH10	.229	0	14	.075	0		24	48124...	48165...	4320.2...	4320.2.....	H1-1b
58	M458	PIPE 3.0 SCH10	.227	4.244	3	.067	4.244		23	48128...	48165...	4320.2...	4320.2.....	H1-1b
59	M225	PIPE 3.0 SCH10	.225	6.244	4	.063	6.244		11	48085...	48165...	4320.2...	4320.2.....	H1-1b
60	M457A	PIPE 3.0 SCH10	.220	4.487	3	.054	4.487		23	48124...	48165...	4320.2...	4320.2.....	H1-1b
61	M428	PIPE 3.0 SCH10	.216	4.487	8	.089	4.487		29	48124...	48165...	4320.2...	4320.2.....	H1-1b
62	M434	PIPE 3.0 SCH10	.216	0	14	.064	0		24	48124...	48165...	4320.2...	4320.2.....	H1-1b
63	M299	PIPE 3.0 SCH10	.215	0	12	.070	34.75		11	45731...	48165...	4320.2...	4320.2.....	H1-1b
64	M537A	PIPE 3.0 SCH10	.214	4.487	13	.065	4.487		4	48124...	48165...	4320.2...	4320.2.....	H1-1b
65	M520A	PIPE 3.0 SCH10	.213	0	3	.064	0		13	48124...	48165...	4320.2...	4320.2.....	H1-1b
66	M456	PIPE 3.0 SCH10	.210	4.487	3	.043	4.487		24	48124...	48165...	4320.2...	4320.2.....	H1-1b
67	M232	PIPE 3.0 SCH10	.209	6.244	12	.154	6.244		12	48085...	48165...	4320.2...	4320.2.....	H1-1b
68	M299A	PIPE 3.0 SCH10	.209	0	4	.043	6.244		11	48085...	48165...	4320.2...	4320.2.....	H1-1b
69	M175	PIPE 3.0 SCH10	.209	1.147	32	.147	1.179		14	48085...	48165...	4320.2...	4320.2.....	H1-1b
70	M459A	PIPE 3.0 SCH10	.205	0	7	.078	0		4	48124...	48165...	4320.2...	4320.2.....	H1-1b
71	M300	PIPE 3.0 SCH10	.202	34.75	10	.047	34.75		10	45731...	48165...	4320.2...	4320.2.....	H1-1b
72	M191	PIPE 3.0 SCH10	.202	3.122	12	.146	0		3	48085...	48165...	4320.2...	4320.2.....	H1-1b
73	M427A	PIPE 3.0 SCH10	.201	4.487	8	.081	4.487		29	48124...	48165...	4320.2...	4320.2.....	H1-1b
74	M156	PIPE 3.0 SCH10	.201	6.244	31	.201	0		29	48085...	48165...	4320.2...	4320.2.....	H1-1b
75	M435A	PIPE 3.0 SCH10	.200	0	14	.056	0		7	48124...	48165...	4320.2...	4320.2.....	H1-1b
76	M455A	PIPE 3.0 SCH10	.199	4.487	3	.034	4.487		10	48124...	48165...	4320.2...	4320.2.....	H1-1b
77	M282	PIPE 3.0 SCH10	.199	3.122	6	.156	6.244		3	48085...	48165...	4320.2...	4320.2.....	H1-1b
78	M205	PIPE 3.0 SCH10	.198	6.244	9	.130	6.244		30	48085...	48165...	4320.2...	4320.2.....	H1-1b
79	M213	PIPE 3.0 SCH10	.196	3.473	75	.137	0		23	48085...	48165...	4320.2...	4320.2.....	H1-1b
80	M536A	PIPE 3.0 SCH10	.193	4.487	13	.064	4.487		4	48124...	48165...	4320.2...	4320.2.....	H1-1b
81	M521A	PIPE 3.0 SCH10	.193	0	3	.062	0		12	48124...	48165...	4320.2...	4320.2.....	H1-1b
82	M224	PIPE 3.0 SCH10	.193	6.244	4	.053	0		10	48085...	48165...	4320.2...	4320.2.....	H1-1b
83	M266	PIPE 3.0 SCH10	.192	0	7	.112	0		20	48085...	48165...	4320.2...	4320.2.....	H1-1b
84	M460	PIPE 3.0 SCH10	.191	0	7	.068	0		4	48124...	48165...	4320.2...	4320.2.....	H1-1b
85	M255	PIPE 3.0 SCH10	.191	3.122	6	.058	3.122		28	48085...	48165...	4320.2...	4320.2.....	H1-1b
86	M174	PIPE 3.0 SCH10	.188	6.244	32	.131	6.244		30	48085...	48165...	4320.2...	4320.2.....	H1-1b
87	M148	PIPE 3.0 SCH10	.187	1.179	3	.244	6.244		20	48085...	48165...	4320.2...	4320.2.....	H1-1b
88	M454	PIPE 3.0 SCH10	.186	4.487	3	.034	4.487		10	48124...	48165...	4320.2...	4320.2.....	H1-1b
89	M270	PIPE 3.0 SCH10	.186	6.244	4	.112	0		19	48085...	48165...	4320.2...	4320.2.....	H1-1b
90	M258	PIPE 3.0 SCH10	.185	0	7	.085	6.244		26	48085...	48165...	4320.2...	4320.2.....	H1-1b
91	M426	PIPE 3.0 SCH10	.185	4.487	8	.074	4.487		29	48124...	48165...	4320.2...	4320.2.....	H1-1b
92	M168	PIPE 3.0 SCH10	.184	.446	14	.164	6.244		14	48085...	48165...	4320.2...	4320.2.....	H1-1b
93	M155	PIPE 3.0 SCH10	.183	0	3	.196	0		29	48085...	48165...	4320.2...	4320.2.....	H1-1b
94	M436	PIPE 3.0 SCH10	.183	0	14	.056	0		7	48124...	48165...	4320.2...	4320.2.....	H1-1b
95	M234	PIPE 3.0 SCH10	.183	0	10	.135	6.244		18	48085...	48165...	4320.2...	4320.2.....	H1-1b
96	M283	PIPE 3.0 SCH10	.183	6.244	6	.149	6.244		3	48085...	48165...	4320.2...	4320.2.....	H1-1b
97	M281	PIPE 3.0 SCH10	.181	6.244	6	.112	6.244		10	48085...	48165...	4320.2...	4320.2.....	H1-1b
98	M245	PIPE 3.0 SCH10	.181	1.179	10	.124	0		7	48085...	48165...	4320.2...	4320.2.....	H1-1b
99	M190	PIPE 3.0 SCH10	.179	6.244	3	.145	0		3	48085...	48165...	4320.2...	4320.2.....	H1-1b
100	M186A	PIPE 3.0 SCH10	.179	0	31	.132	0		3	48085...	48165...	4320.2...	4320.2.....	H1-1b
101	M461A	PIPE 3.0 SCH10	.177	0	7	.058	0		4	48124...	48165...	4320.2...	4320.2.....	H1-1b
102	M167	PIPE 3.0 SCH10	.176	6.244	15	.096	0		7	48085...	48165...	4320.2...	4320.2.....	H1-1b
103	M271	PIPE 3.0 SCH10	.175	0	4	.063	6.244		27	48085...	48165...	4320.2...	4320.2.....	H1-1b
104	M254	PIPE 3.0 SCH10	.172	6.244	6	.043	6.244		23	48085...	48165...	4320.2...	4320.2.....	H1-1b
105	M453A	PIPE 3.0 SCH10	.172	4.487	3	.037	4.487		3	48124...	48165...	4320.2...	4320.2.....	H1-1b
106	M192	PIPE 3.0 SCH10	.172	0	3	.120	6.61		11	48075...	48165...	4320.2...	4320.2.....	H1-1b
107	M522A	PIPE 3.0 SCH10	.170	0	3	.060	0		12	48124...	48165...	4320.2...	4320.2.....	H1-1b

Envelope AISC 14th(360-10): LRFD Steel Code Checks (Continued)

	Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*Pn...	phi*Pn...	phi*Mn...	phi*Mn.....	Eqn
108	M535A	PIPE 3.0 SCH10	.170	4.487	13	.062	4.487		4	48124...	48165...	4320.2...	4320.2.....	H1-1b
109	M199	PIPE 3.0 SCH10	.170	2.74	4	.067	0		3	48085...	48165...	4320.2...	4320.2.....	H1-1b
110	M304B	HSS4X4X6	.169	35.143	5	.087	35.143	y	21	15876...	197892	22045.5	22045.5...	H1-1b
111	M300A	PIPE 3.0 SCH10	.167	0	4	.045	0		6	48085...	48165...	4320.2...	4320.2.....	H1-1b
112	M425A	PIPE 3.0 SCH10	.167	4.487	8	.068	4.487		30	48124...	48165...	4320.2...	4320.2.....	H1-1b
113	M437A	PIPE 3.0 SCH10	.165	0	14	.056	0		7	48124...	48165...	4320.2...	4320.2.....	H1-1b
114	M260	PIPE 3.0 SCH10	.165	6.244	3	.078	6.244		26	48085...	48165...	4320.2...	4320.2.....	H1-1b
115	M144	PIPE 3.0 SCH10	.164	6.244	17	.105	6.244		23	48085...	48165...	4320.2...	4320.2.....	H1-1b
116	M176	PIPE 3.0 SCH10	.163	0	14	.133	0		13	48085...	48165...	4320.2...	4320.2.....	H1-1b
117	M462	PIPE 3.0 SCH10	.162	0	7	.051	0		3	48124...	48165...	4320.2...	4320.2.....	H1-1b
118	M218	PIPE 3.0 SCH10	.162	1.179	3	.070	6.244		4	48085...	48165...	4320.2...	4320.2.....	H1-1b
119	M215	PIPE 3.0 SCH10	.160	0	11	.054	6.244		3	48085...	48165...	4320.2...	4320.2.....	H1-1b
120	M211	PIPE 3.0 SCH10	.160	0	14	.134	0		5	48085...	48165...	4320.2...	4320.2.....	H1-1b
121	M223	PIPE 3.0 SCH10	.159	6.244	4	.056	0		7	48085...	48165...	4320.2...	4320.2.....	H1-1b
122	M198	PIPE 3.0 SCH10	.158	6.244	4	.057	0		3	48085...	48165...	4320.2...	4320.2.....	H1-1b
123	M228	PIPE 3.0 SCH10	.158	0	12	.144	6.244		11	48085...	48165...	4320.2...	4320.2.....	H1-1b
124	M452	PIPE 3.0 SCH10	.155	4.487	3	.045	4.487		3	48124...	48165...	4320.2...	4320.2.....	H1-1b
125	M184	PIPE 3.0 SCH10	.155	3.122	12	.151	3.122		4	48085...	48165...	4320.2...	4320.2.....	H1-1b
126	M231	PIPE 3.0 SCH10	.154	6.244	12	.143	6.244		11	48085...	48165...	4320.2...	4320.2.....	H1-1b
127	PR12	L3X3X3	.154	22.483	26	.014	0	z	15	24564...	35316	1320.0...	2617.8.....	H2-1
128	M280	PIPE 3.0 SCH10	.153	6.244	6	.109	6.244		11	48085...	48165...	4320.2...	4320.2.....	H1-1b
129	M178	PIPE 3.0 SCH10	.153	6.244	32	.123	6.244		5	48085...	48165...	4320.2...	4320.2.....	H1-1b
130	M179	PIPE 3.0 SCH10	.153	0	31	.121	6.244		5	48085...	48165...	4320.2...	4320.2.....	H1-1b
131	M292	PIPE 3.0 SCH10	.152	0	4	.064	0		3	48085...	48165...	4320.2...	4320.2.....	H1-1b
132	M272	PIPE 3.0 SCH10	.152	0	4	.060	6.244		27	48085...	48165...	4320.2...	4320.2.....	H1-1b
133	M291	PIPE 3.0 SCH10	.152	6.244	4	.065	0		3	48085...	48165...	4320.2...	4320.2.....	H1-1b
134	M180	PIPE 3.0 SCH10	.151	0	15	.122	6.244		4	48085...	48165...	4320.2...	4320.2.....	H1-1b
135	M293	PIPE 3.0 SCH10	.149	0	4	.066	0		3	48085...	48165...	4320.2...	4320.2.....	H1-1b
136	M424	PIPE 3.0 SCH10	.149	4.487	8	.063	4.487		30	48124...	48165...	4320.2...	4320.2.....	H1-1b
137	M158	PIPE 3.0 SCH10	.149	6.244	29	.119	0		29	48085...	48165...	4320.2...	4320.2.....	H1-1b
138	M177	PIPE 3.0 SCH10	.149	6.244	31	.126	6.244		5	48085...	48165...	4320.2...	4320.2.....	H1-1b
139	M290	PIPE 3.0 SCH10	.148	6.244	4	.067	0		3	48085...	48165...	4320.2...	4320.2.....	H1-1b
140	M250	PIPE 3.0 SCH10	.148	0	3	.118	6.61		11	48075...	48165...	4320.2...	4320.2.....	H1-1b
141	M166	PIPE 3.0 SCH10	.148	6.244	15	.092	0		7	48085...	48165...	4320.2...	4320.2.....	H1-1b
142	M141	PIPE 3.0 SCH10	.147	.446	14	.103	6.244		19	48085...	48165...	4320.2...	4320.2.....	H1-1b
143	M212	PIPE 3.0 SCH10	.147	6.244	75	.132	0		5	48085...	48165...	4320.2...	4320.2.....	H1-1b
144	M523A	PIPE 3.0 SCH10	.147	0	3	.059	0		12	48124...	48165...	4320.2...	4320.2.....	H1-1b
145	M463A	PIPE 3.0 SCH10	.146	0	7	.045	0		3	48124...	48165...	4320.2...	4320.2.....	H1-1b
146	M438	PIPE 3.0 SCH10	.146	0	15	.056	0		7	48124...	48165...	4320.2...	4320.2.....	H1-1b
147	M534A	PIPE 3.0 SCH10	.146	4.487	13	.062	4.487		12	48124...	48165...	4320.2...	4320.2.....	H1-1b
148	M235	PIPE 3.0 SCH10	.146	0	10	.127	6.244		17	48085...	48165...	4320.2...	4320.2.....	H1-1b
149	M159	PIPE 3.0 SCH10	.146	0	31	.091	0		26	48085...	48165...	4320.2...	4320.2.....	H1-1b
150	M181	PIPE 3.0 SCH10	.146	0	15	.126	6.244		4	48085...	48165...	4320.2...	4320.2.....	H1-1b
151	M240	PIPE 3.0 SCH10	.146	3.473	8	.133	3.473		15	48085...	48165...	4320.2...	4320.2.....	H1-1b
152	M183	PIPE 3.0 SCH10	.144	6.244	12	.140	6.244		4	48085...	48165...	4320.2...	4320.2.....	H1-1b
153	M246	PIPE 3.0 SCH10	.144	0	10	.094	0		7	48085...	48165...	4320.2...	4320.2.....	H1-1b
154	M253	PIPE 3.0 SCH10	.143	6.244	5	.046	6.244		23	48085...	48165...	4320.2...	4320.2.....	H1-1b
155	PR5	L3X3X3	.143	22.483	34	.015	44.066	y	12	24564...	35316	1320.0...	2617.8.....	H2-1
156	M169	PIPE 3.0 SCH10	.143	0	14	.160	6.244		14	48085...	48165...	4320.2...	4320.2.....	H1-1b
157	M140	PIPE 3.0 SCH10	.143	6.244	15	.085	0		23	48085...	48165...	4320.2...	4320.2.....	H1-1b
158	M171	PIPE 3.0 SCH10	.142	6.244	18	.153	6.244		14	48085...	48165...	4320.2...	4320.2.....	H1-1b
159	M200	PIPE 3.0 SCH10	.142	6.244	3	.060	6.244		11	48085...	48165...	4320.2...	4320.2.....	H1-1b
160	M189	PIPE 3.0 SCH10	.141	6.244	3	.143	0		3	48085...	48165...	4320.2...	4320.2.....	H1-1b
161	PR6	L3X3X3	.141	22.483	29	.015	44.066	z	12	24564...	35316	1320.0...	2617.8.....	H2-1
162	M294	PIPE 3.0 SCH10	.141	0	4	.070	0		3	48085...	48165...	4320.2...	4320.2.....	H1-1b
163	M289	PIPE 3.0 SCH10	.139	6.244	4	.071	0		3	48085...	48165...	4320.2...	4320.2.....	H1-1b
164	M451A	PIPE 3.0 SCH10	.138	4.487	3	.051	4.487		3	48124...	48165...	4320.2...	4320.2.....	H1-1b

Envelope AISC 14th(360-10): LRFD Steel Code Checks (Continued)

	Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*Pn...	phi*Pn...	phi*Mn...	phi*Mn.....	Eqn
165	M204	PIPE 3.0 SCH10	.135	6.244	8	.128	6.244		30	48085...	48165...	4320.2...	4320.2.....	H1-1b
166	M182	PIPE 3.0 SCH10	.135	0	15	.132	6.244		4	48085...	48165...	4320.2...	4320.2.....	H1-1b
167	M219	PIPE 3.0 SCH10	.134	0	3	.069	6.244		4	48085...	48165...	4320.2...	4320.2.....	H1-1b
168	M269	PIPE 3.0 SCH10	.133	6.244	4	.107	0		19	48085...	48165...	4320.2...	4320.2.....	H1-1b
169	M201	PIPE 3.0 SCH10	.133	0	46	.138	6.244		30	48085...	48165...	4320.2...	4320.2.....	H1-1b
170	M464	PIPE 3.0 SCH10	.131	0	7	.040	0		18	48124...	48165...	4320.2...	4320.2.....	H1-1b
171	M143	PIPE 3.0 SCH10	.131	6.244	16	.108	6.244		23	48085...	48165...	4320.2...	4320.2.....	H1-1b
172	M423A	PIPE 3.0 SCH10	.130	4.487	8	.058	4.487		30	48124...	48165...	4320.2...	4320.2.....	H1-1b
173	M242	PIPE 3.0 SCH10	.129	0	10	.125	0		7	48085...	48165...	4320.2...	4320.2.....	H1-1b
174	M279	PIPE 3.0 SCH10	.129	6.244	6	.112	6.244		11	48085...	48165...	4320.2...	4320.2.....	H1-1b
175	M273	PIPE 3.0 SCH10	.128	0	5	.058	0		22	48085...	48165...	4320.2...	4320.2.....	H1-1b
176	M164	PIPE 3.0 SCH10	.128	3.122	30	.087	3.122		30	48085...	48165...	4320.2...	4320.2.....	H1-1b
177	M197	PIPE 3.0 SCH10	.128	6.244	4	.056	6.244		15	48085...	48165...	4320.2...	4320.2.....	H1-1b
178	M301	PIPE 3.0 SCH10	.127	0	5	.054	0		6	48085...	48165...	4320.2...	4320.2.....	H1-1b
179	M172	PIPE 3.0 SCH10	.127	0	34	.138	6.244		30	48085...	48165...	4320.2...	4320.2.....	H1-1b
180	M214	PIPE 3.0 SCH10	.127	6.244	24	.093	0		23	48085...	48165...	4320.2...	4320.2.....	H1-1b
181	M142	PIPE 3.0 SCH10	.127	0	7	.107	6.244		23	48085...	48165...	4320.2...	4320.2.....	H1-1b
182	M439A	PIPE 3.0 SCH10	.126	0	15	.056	0		7	48124...	48165...	4320.2...	4320.2.....	H1-1b
183	M295	PIPE 3.0 SCH10	.126	0	5	.074	0		3	48085...	48165...	4320.2...	4320.2.....	H1-1b
184	M278	PIPE 3.0 SCH10	.126	0	3	.115	6.244		11	48085...	48165...	4320.2...	4320.2.....	H1-1b
185	M129	PIPE 3.0 SCH10	.126	6.61	14	.089	0		7	48075...	48165...	4320.2...	4320.2.....	H1-1b
186	M216	PIPE 3.0 SCH10	.125	0	3	.047	6.244		3	48085...	48165...	4320.2...	4320.2.....	H1-1b
187	M145	PIPE 3.0 SCH10	.125	0	18	.117	6.244		19	48085...	48165...	4320.2...	4320.2.....	H1-1b
188	M288	PIPE 3.0 SCH10	.125	6.244	4	.077	0		3	48085...	48165...	4320.2...	4320.2.....	H1-1b
189	M239	PIPE 3.0 SCH10	.124	6.244	7	.125	6.244		15	48085...	48165...	4320.2...	4320.2.....	H1-1b
190	M222	PIPE 3.0 SCH10	.124	6.244	4	.060	0		6	48085...	48165...	4320.2...	4320.2.....	H1-1b
191	M267	PIPE 3.0 SCH10	.123	0	7	.107	0		19	48085...	48165...	4320.2...	4320.2.....	H1-1b
192	M259	PIPE 3.0 SCH10	.123	0	9	.080	6.244		11	48085...	48165...	4320.2...	4320.2.....	H1-1b
193	M524A	PIPE 3.0 SCH10	.121	0	3	.059	0		4	48124...	48165...	4320.2...	4320.2.....	H1-1b
194	M533A	PIPE 3.0 SCH10	.121	4.487	13	.066	4.487		12	48124...	48165...	4320.2...	4320.2.....	H1-1b
195	M284	PIPE 3.0 SCH10	.118	0	3	.110	6.244		3	48085...	48165...	4320.2...	4320.2.....	H1-1b
196	M450	PIPE 3.0 SCH10	.118	4.487	3	.057	4.487		3	48124...	48165...	4320.2...	4320.2.....	H1-1b
197	M187	PIPE 3.0 SCH10	.118	0	31	.136	0		3	48085...	48165...	4320.2...	4320.2.....	H1-1b
198	M248	PIPE 3.0 SCH10	.118	6.61	14	.088	0		7	48075...	48165...	4320.2...	4320.2.....	H1-1b
199	M217	PIPE 3.0 SCH10	.116	0	4	.044	6.244		3	48085...	48165...	4320.2...	4320.2.....	H1-1b
200	M465A	PIPE 3.0 SCH10	.115	0	7	.039	0		18	48124...	48165...	4320.2...	4320.2.....	H1-1b
201	M252	PIPE 3.0 SCH10	.115	6.244	5	.047	6.244		23	48085...	48165...	4320.2...	4320.2.....	H1-1b
202	PR11	L3X3X3	.114	22.483	31	.014	44.066	y	15	24564...	35316	1320.0...	2617.8.....	H2-1
203	M146	PIPE 3.0 SCH10	.114	0	18	.108	6.244		19	48085...	48165...	4320.2...	4320.2.....	H1-1b
204	M236	PIPE 3.0 SCH10	.113	0	11	.122	6.244		17	48085...	48165...	4320.2...	4320.2.....	H1-1b
205	M229	PIPE 3.0 SCH10	.112	0	12	.138	6.244		11	48085...	48165...	4320.2...	4320.2.....	H1-1b
206	M344	HSS4.75x4.75x4	.111	0	28	.054	0	y	29	18299...	186300	26225...	26225.....	H1-1b
207	M147	PIPE 3.0 SCH10	.111	6.244	4	.103	6.244		19	48085...	48165...	4320.2...	4320.2.....	H1-1b
208	M422	PIPE 3.0 SCH10	.110	4.487	8	.054	4.487		30	48124...	48165...	4320.2...	4320.2.....	H1-1b
209	M247	PIPE 3.0 SCH10	.110	6.244	14	.090	0		7	48085...	48165...	4320.2...	4320.2.....	H1-1b
210	M163	PIPE 3.0 SCH10	.110	6.244	11	.093	0		28	48085...	48165...	4320.2...	4320.2.....	H1-1b
211	M230	PIPE 3.0 SCH10	.109	6.244	12	.138	6.244		11	48085...	48165...	4320.2...	4320.2.....	H1-1b
212	M160	PIPE 3.0 SCH10	.108	0	18	.096	0		27	48085...	48165...	4320.2...	4320.2.....	H1-1b
213	M244	PIPE 3.0 SCH10	.108	6.244	13	.122	0		7	48085...	48165...	4320.2...	4320.2.....	H1-1b
214	M139	PIPE 3.0 SCH10	.107	6.244	15	.084	0		23	48085...	48165...	4320.2...	4320.2.....	H1-1b
215	M274	PIPE 3.0 SCH10	.107	0	5	.058	0		20	48085...	48165...	4320.2...	4320.2.....	H1-1b
216	M296	PIPE 3.0 SCH10	.107	0	5	.080	0		3	48085...	48165...	4320.2...	4320.2.....	H1-1b
217	M188	PIPE 3.0 SCH10	.106	6.244	3	.140	0		3	48085...	48165...	4320.2...	4320.2.....	H1-1b
218	M287	PIPE 3.0 SCH10	.106	6.244	4	.084	6.244		3	48085...	48165...	4320.2...	4320.2.....	H1-1b
219	M440	PIPE 3.0 SCH10	.105	0	15	.057	0		14	48124...	48165...	4320.2...	4320.2.....	H1-1b
220	M162	PIPE 3.0 SCH10	.104	6.244	11	.097	0		27	48085...	48165...	4320.2...	4320.2.....	H1-1b
221	M220	PIPE 3.0 SCH10	.104	0	4	.069	6.244		4	48085...	48165...	4320.2...	4320.2.....	H1-1b

Envelope AISC 14th(360-10): LRFD Steel Code Checks (Continued)

	Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*Pn...	phi*Pn...	phi*Mn...	phi*Mn.....	Eqn
222	M343	HSS4.75x4.75x4	.103	0	31	.043	0	z	5	18299...	186300	26225...	26225.....	H1-1b
223	M256	PIPE 3.0 SCH10	.103	0	13	.038	0		10	48085...	48165...	4320.2...	4320.2.....	H1-1b
224	M170	PIPE 3.0 SCH10	.102	0	15	.157	6.244		14	48085...	48165...	4320.2...	4320.2.....	H1-1b
225	M285	PIPE 3.0 SCH10	.102	0	11	.100	6.244		3	48085...	48165...	4320.2...	4320.2.....	H1-1b
226	M161	PIPE 3.0 SCH10	.101	0	18	.099	0		27	48085...	48165...	4320.2...	4320.2.....	H1-1b
227	M297	PIPE 3.0 SCH10	.100	6.244	10	.087	0		3	48085...	48165...	4320.2...	4320.2.....	H1-1b
228	M466	PIPE 3.0 SCH10	.100	0	8	.038	0		18	48124...	48165...	4320.2...	4320.2.....	H1-1b
229	M286	PIPE 3.0 SCH10	.099	0	11	.091	6.244		3	48085...	48165...	4320.2...	4320.2.....	H1-1b
230	M449A	PIPE 3.0 SCH10	.098	4.487	3	.061	4.487		3	48124...	48165...	4320.2...	4320.2.....	H1-1b
231	M196	PIPE 3.0 SCH10	.098	6.244	3	.060	6.244		15	48085...	48165...	4320.2...	4320.2.....	H1-1b
232	PR17	L3X3X3	.096	22.483	22	.008	0	y	18	24564...	35316	1320.0...	2617.8.....	H2-1
233	M237	PIPE 3.0 SCH10	.096	0	11	.119	6.244		17	48085...	48165...	4320.2...	4320.2.....	H1-1b
234	M227	PIPE 3.0 SCH10	.095	6.244	6	.063	6.244		35	48085...	48165...	4320.2...	4320.2.....	H1-1b
235	M525A	PIPE 3.0 SCH10	.095	0	3	.062	0		4	48124...	48165...	4320.2...	4320.2.....	H1-1b
236	M532A	PIPE 3.0 SCH10	.095	4.487	13	.070	4.487		13	48124...	48165...	4320.2...	4320.2.....	H1-1b
237	M173	PIPE 3.0 SCH10	.091	6.244	33	.138	6.244		30	48085...	48165...	4320.2...	4320.2.....	H1-1b
238	M275	PIPE 3.0 SCH10	.091	0	7	.059	0		20	48085...	48165...	4320.2...	4320.2.....	H1-1b
239	M421A	PIPE 3.0 SCH10	.090	4.487	8	.051	4.487		30	48124...	48165...	4320.2...	4320.2.....	H1-1b
240	M302	PIPE 3.0 SCH10	.090	0	5	.061	0		6	48085...	48165...	4320.2...	4320.2.....	H1-1b
241	M251	PIPE 3.0 SCH10	.089	6.244	12	.048	6.244		23	48085...	48165...	4320.2...	4320.2.....	H1-1b
242	M194	PIPE 3.0 SCH10	.089	6.61	4	.064	0		6	48075...	48165...	4320.2...	4320.2.....	H1-1b
243	M241	PIPE 3.0 SCH10	.088	6.244	11	.130	6.244		18	48085...	48165...	4320.2...	4320.2.....	H1-1b
244	M202	PIPE 3.0 SCH10	.088	0	46	.133	6.244		30	48085...	48165...	4320.2...	4320.2.....	H1-1b
245	M238	PIPE 3.0 SCH10	.087	6.244	7	.120	6.244		15	48085...	48165...	4320.2...	4320.2.....	H1-1b
246	M268	PIPE 3.0 SCH10	.087	6.244	3	.106	0		19	48085...	48165...	4320.2...	4320.2.....	H1-1b
247	M243	PIPE 3.0 SCH10	.087	0	11	.122	0		7	48085...	48165...	4320.2...	4320.2.....	H1-1b
248	M467A	PIPE 3.0 SCH10	.084	0	8	.037	0		17	48124...	48165...	4320.2...	4320.2.....	H1-1b
249	M441A	PIPE 3.0 SCH10	.082	0	15	.060	0		14	48124...	48165...	4320.2...	4320.2.....	H1-1b
250	M203	PIPE 3.0 SCH10	.082	6.244	15	.129	6.244		30	48085...	48165...	4320.2...	4320.2.....	H1-1b
251	M165	PIPE 3.0 SCH10	.081	0	11	.079	0		14	48085...	48165...	4320.2...	4320.2.....	H1-1b
252	M276	PIPE 3.0 SCH10	.077	0	7	.059	0		20	48085...	48165...	4320.2...	4320.2.....	H1-1b
253	M448	PIPE 3.0 SCH10	.077	4.487	3	.065	4.487		3	48124...	48165...	4320.2...	4320.2.....	H1-1b
254	M195	PIPE 3.0 SCH10	.076	6.244	10	.063	6.244		15	48085...	48165...	4320.2...	4320.2.....	H1-1b
255	M15	PIPE 3.0 SCH10	.071	6.244	14	.084	0		23	48085...	48165...	4320.2...	4320.2.....	H1-1b
256	M185A	PIPE 3.0 SCH10	.071	6.244	33	.123	0		19	48085...	48165...	4320.2...	4320.2.....	H1-1b
257	M420	PIPE 3.0 SCH10	.070	4.487	8	.048	4.487		30	48124...	48165...	4320.2...	4320.2.....	H1-1b
258	M221	PIPE 3.0 SCH10	.069	0	5	.070	6.244		4	48085...	48165...	4320.2...	4320.2.....	H1-1b
259	M468	PIPE 3.0 SCH10	.069	0	8	.038	0		17	48124...	48165...	4320.2...	4320.2.....	H1-1b
260	M531A	PIPE 3.0 SCH10	.067	4.487	13	.072	4.487		13	48124...	48165...	4320.2...	4320.2.....	H1-1b
261	M526A	PIPE 3.0 SCH10	.067	0	3	.064	0		4	48124...	48165...	4320.2...	4320.2.....	H1-1b
262	M304	PIPE 3.0 SCH10	.064	6.61	12	.066	0		6	48075...	48165...	4320.2...	4320.2.....	H1-1b
263	M193	PIPE 3.0 SCH10	.062	6.244	9	.066	0		15	48085...	48165...	4320.2...	4320.2.....	H1-1b
264	M345	HSS4.75x4.75x4	.062	0	4	.044	0	y	20	18299...	186300	26225...	26225.....	H1-1b
265	PR18	L3X3X3	.061	22.258	3	.008	0	z	18	24564...	35316	1320.0...	2617.8.....	H2-1
266	M249	PIPE 3.0 SCH10	.061	6.244	11	.047	6.244		23	48085...	48165...	4320.2...	4320.2.....	H1-1b
267	M277	PIPE 3.0 SCH10	.061	0	8	.061	6.244		22	48085...	48165...	4320.2...	4320.2.....	H1-1b
268	M303	PIPE 3.0 SCH10	.060	0	13	.065	0		6	48085...	48165...	4320.2...	4320.2.....	H1-1b
269	M442	PIPE 3.0 SCH10	.058	0	15	.062	0		14	48124...	48165...	4320.2...	4320.2.....	H1-1b
270	M447A	PIPE 3.0 SCH10	.054	4.487	3	.068	4.487		3	48124...	48165...	4320.2...	4320.2.....	H1-1b
271	M469A	PIPE 3.0 SCH10	.053	0	8	.038	0		8	48124...	48165...	4320.2...	4320.2.....	H1-1b
272	M419A	PIPE 3.0 SCH10	.050	4.487	8	.047	4.487		15	48124...	48165...	4320.2...	4320.2.....	H1-1b
273	M530A	PIPE 3.0 SCH10	.039	4.487	13	.074	4.487		13	48124...	48165...	4320.2...	4320.2.....	H1-1b
274	M470	PIPE 3.0 SCH10	.038	0	7	.039	0		8	48124...	48165...	4320.2...	4320.2.....	H1-1b
275	M527A	PIPE 3.0 SCH10	.038	0	3	.066	0		4	48124...	48165...	4320.2...	4320.2.....	H1-1b
276	M443A	PIPE 3.0 SCH10	.033	0	7	.063	0		14	48124...	48165...	4320.2...	4320.2.....	H1-1b
277	M446	PIPE 3.0 SCH10	.031	4.487	3	.070	4.487		3	48124...	48165...	4320.2...	4320.2.....	H1-1b
278	M418	PIPE 3.0 SCH10	.030	4.487	8	.046	4.487		15	48124...	48165...	4320.2...	4320.2.....	H1-1b

Envelope AISC 14th(360-10): LRFD Steel Code Checks (Continued)

	Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*Pn...	phi*Pn...	phi*Mn...	phi*Mn...	...	Eqn
279	M471A	PIPE 3.0 SCH10	.024	0	7	.040	0		8	48124...	48165...	4320.2...	4320.2...	...	H1-1b
280	M528A	PIPE 3.0 SCH10	.023	4.244	3	.066	0		4	48128...	48165...	4320.2...	4320.2...	...	H1-1b
281	M444	PIPE 3.0 SCH10	.022	4.244	15	.064	0		14	48128...	48165...	4320.2...	4320.2...	...	H1-1b
282	M16	PIPE 3.0 SCH10	.019	0	13	.074	4.468		13	48124...	48165...	4320.2...	4320.2...	...	H1-1b
283	M445A	PIPE 3.0 SCH10	.019	0	18	.070	4.468		3	48124...	48165...	4320.2...	4320.2...	...	H1-1b
284	M417A	PIPE 3.0 SCH10	.011	0	15	.046	4.468		15	48124...	48165...	4320.2...	4320.2...	...	H1-1b
285	M472A	PIPE 3.0 SCH10	.010	0	6	.040	0		8	48128...	48165...	4320.2...	4320.2...	...	H1-1b

EBI Consulting

environmental | engineering | due diligence

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

T-Mobile Existing Facility

Site ID: CTNH102C

CT102/BranfordAmericanTwr
405 Brushy Plain Road
Branford, Connecticut 06405

June 5, 2019

EBI Project Number: 6219001985

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**8.07%**

June 5, 2019

T-Mobile
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, Connecticut 06002

Emissions Analysis for Site: CTNH102C - CT102/BranfordAmericanTwr

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **405 Brushy Plain Road** in **Branford, Connecticut** for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at 405 Brushy Plain Road in Branford, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

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

1) 2 LTE channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

2) 2 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

3) 4 GSM channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

4) 2 UMTS channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

5) 2 UMTS channels (AWS Band - 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

6) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

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

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

9) The antennas used in this modeling are the Ericsson AIR21 B2A_B4P for the 1900 MHz / 1900 MHz / 2100 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 700 MHz channel(s), the for the 2100 MHz channel(s) in Sector A, the Ericsson AIR21 B2A_B4P for the 1900 MHz / 1900 MHz / 2100 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 700 MHz channel(s), the Ericsson AIR21 B2P_B4A for the 2100 MHz channel(s) in Sector B, the Ericsson AIR21 B2A_B4P for the 1900 MHz / 1900 MHz / 2100 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 700 MHz channel(s), the Ericsson AIR21 B2P_B4A for the 2100 MHz channel(s) in Sector C.

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

11) The antenna mounting height centerline of the proposed antennas is 140 feet above ground level (AGL).

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

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

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	Ericsson AIR21 B2A_B4P	Make / Model:	Ericsson AIR21 B2A_B4P	Make / Model:	Ericsson AIR21 B2A_B4P
Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz
Gain:	15.35 dBd / 15.35 dBd / 15.35 dBd	Gain:	15.35 dBd / 15.35 dBd / 15.35 dBd	Gain:	15.35 dBd / 15.35 dBd / 15.35 dBd
Height (AGL):	140 feet	Height (AGL):	140 feet	Height (AGL):	140 feet
Channel Count:	8	Channel Count:	8	Channel Count:	8
Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts
ERP (W):	8,226.43	ERP (W):	8,226.43	ERP (W):	8,226.43
Antenna A1 MPE %:	**1.51%**	Antenna B1 MPE %:	**1.51%**	Antenna C1 MPE %:	**1.51%**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20
Frequency Bands:	600 MHz / 700 MHz	Frequency Bands:	600 MHz / 700 MHz	Frequency Bands:	600 MHz / 700 MHz
Gain:	12.95 dBd / 13.35 dBd	Gain:	12.95 dBd / 13.35 dBd	Gain:	12.95 dBd / 13.35 dBd
Height (AGL):	140 feet	Height (AGL):	140 feet	Height (AGL):	140 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts
ERP (W):	2,481.08	ERP (W):	2,481.08	ERP (W):	2,481.08
Antenna A2 MPE %:	**1.05%**	Antenna B2 MPE %:	**1.05%**	Antenna C2 MPE %:	**1.05%**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	Ericsson AIR21 B2P_B4A	Make / Model:	Ericsson AIR21 B2P_B4A	Make / Model:	Ericsson AIR21 B2P_B4A
Frequency Bands:	2100 MHz	Frequency Bands:	2100 MHz	Frequency Bands:	2100 MHz
Gain:	15.35 dBd	Gain:	15.35 dBd	Gain:	15.35 dBd
Height (AGL):	140 feet	Height (AGL):	140 feet	Height (AGL):	140 feet
Channel Count:	2	Channel Count:	2	Channel Count:	2
Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts
ERP (W):	4,113.21	ERP (W):	4,113.21	ERP (W):	4,113.21
Antenna A3 MPE %:	**0.75%**	Antenna B3 MPE %:	**0.75%**	Antenna C3 MPE %:	**0.75%**

Site Composite MPE %	
Carrier	MPE %
T-Mobile (Max at Sector A):	3.32%
Clearwire	0.12%
Verizon	3.55%
Branford FD	0.06%
PageNet	1.02%
Site Total MPE % :	8.07%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	3.32%
T-Mobile Sector B Total:	3.32%
T-Mobile Sector C Total:	3.32%
Site Total MPE % :	8.07%

T-Mobile Maximum MPE Power Values (Sector A)

T-Mobile Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
T-Mobile 1900 MHz UMTS	2	1028.30	140.0	3.77	1900 MHz UMTS	1000	0.38%
T-Mobile 1900 MHz GSM	4	1028.30	140.0	7.54	1900 MHz GSM	1000	0.75%
T-Mobile 2100 MHz UMTS	2	1028.30	140.0	3.77	2100 MHz UMTS	1000	0.38%
T-Mobile 600 MHz LTE	2	591.73	140.0	2.17	600 MHz LTE	400	0.54%
T-Mobile 700 MHz LTE	2	648.82	140.0	2.38	700 MHz LTE	467	0.51%
T-Mobile 2100 MHz LTE	2	2056.61	140.0	7.54	2100 MHz LTE	1000	0.75%
						Total:	**3.32%**

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

Summary

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

The anticipated maximum composite contributions from the T-Mobile facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

T-Mobile Sector	Power Density Value (%)
Sector A:	3.32%
Sector B:	3.32%
Sector C:	3.32%
T-Mobile Maximum MPE % (Sector A):	3.32%
Site Total:	8.07%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **8.07%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

NEIL GUERRIERO
3473040176
TRANSCEND WIRELESS
10 INDUSTRIAL AVE
MAHWAH NJ 07430

2 LBS

1 OF 1

DWT: 13,11,2

SHIP TO:
KRISTEN JACONETTE
405 BRUSHY PLAIN ROAD
BRANFORD CT 06405

CT 065 2-01

UPS 2ND DAY AIR

2

TRACKING #: 1Z V25 742 02 9968 8416

BILLING: P/P

XOL 19.08.02 NV45 15.0A 07/2019

NEIL GUERRIERO
3473040176
TRANSCEND WIRELESS
10 INDUSTRIAL AVE
MAHWAH NJ 07430

2 LBS

1 OF 1

DWT: 13,11,2

SHIP TO:
AMERICAN TOWER CORPORATION
10 PRESIDENTIAL WAY
WOBURN MA 01801

MA 018 9-04

UPS 2ND DAY AIR

TRACKING #: 1Z V25 742 02 9785 8405

2

BILLING: P/P

XOL 19.08.02 NV45 15.0A 07/2019

NEIL GUERRIERO
3473040176
TRANSCEND WIRELESS
10 INDUSTRIAL AVE
MAHWAH NJ 07430

2 LBS

1 OF 1

DWT: 13,11,2

SHIP TO:
TOWN PLANNER
(203) 488-8394
DAVID ANDERSON
1019 MAIN STREET
BRANFORD CT 06405

CT 065 2-01

UPS 2ND DAY AIR **2**

TRACKING #: 1Z V25 742 02 9181 3759

BILLING: P/P

XOL 19.08.02 NV45 15.0A 07/2019

NEIL GUERRIERO
3473040176
TRANSCEND WIRELESS
10 INDUSTRIAL AVE
MAHWAH NJ 07430

2 LBS

1 OF 1

DWT: 13,11,2

SHIP TO:
FIRST SELECTMAN
(203) 488-8394
JAMES B. COSGROVE
1019 MAIN STREET
BRANFORD CT 06405

CT 065 2-01

UPS 2ND DAY AIR **2**

TRACKING #: 1Z V25 742 02 9211 1747

BILLING: P/P

XOL 19.08.02 NV45 15.0A 07/2019