INDUSTRIAL AVE,
ITE 3
AHWAH NJ 07430

ONE: 201.684.0055
X: 201.684.0066

Transcend Wireless

March 18, 2022

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

RE: Notice of Exempt Modification
77 Springbrook Road, Old Saybrook, CT, 06475
Latitude: 41.313833333
Longitude: -72.36402778
T-Mobile Site#: CTHA540A - Anchor

Dear Ms. Bachman:

T-Mobile currently maintains nine (9) antennas at the 162' level of the 175' Monopole at the existing facility at 77 Springbrook Road in Old Saybrook, CT. The property is owned by Crossroads Communications of Old Saybrook LLC. The tower is owned by American Tower. T-Mobile now intends to remove three (3) antennas and replace them with (3) L2500/N2500 antennas. The new antennas support 5G services and will be installed at the 162' level of the monopole with a new mount.

Planned Modifications:
Tower:
Install New:
(3) AIR6449 B41 Antennas
(3) Radio 4460 B25 B66
(2) 6x24 Hybrid Cables

Existing to Remain:
(3) APXVAARR24 Antennas
(3) APX16DWV Antennas
(3) Radio 4449 B71 B85
(3) 6x12 Hybrid Cables

To Be Removed:
(3) AIR21 KRC118023 B2P B4A Antennas
(6) Radio 4415s

(1) 9x18 Hybrid Cables

Ground Work:
Install (1) 6160 Cabinet, B160 Battery Cabinet, BB6648, PSU 4813
Remove: (1) RBS 6201 ODE Cabinet

This tower was originally approved by the Town of Old Saybrook on April 28, 2008. Documentation on the original approval of the tower is enclosed with the submission. The proposed modification complies with all previous approvals.

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

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

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

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

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

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

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

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

For the foregoing reasons, 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,
Eric Breun
Transcend Wireless
Cell: 201-658-7728
Email: ebreun@transcendwireless.com

Attachments
cc: Carl P. Fortuna Jr. - First Selectman of Old Saybrook
Christina M. Costa - Town Planner
Crossroads Communications of Old Saybrook - Property Owner
American Tower - Tower Owner

ERIC BREUN
2016587728
1 INTERNATIONAL BLVD.
MAHWAH NJ 07495

1 LBS **1 OF 1**

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

MA 018 9-04

UPS GROUND
TRACKING #: 1Z V25 742 03 9734 7769

BILLING: P/P

Reference #1: CTHA540A

XOL 22.03.13 NV45 12.0A 03/2022*

ERIC BREUN
2016587728
1 INTERNATIONAL BLVD.
MAHWAH NJ 07495

1 LBS **1 OF 1**

SHIP TO:
TOWN PLANNER
CHRISTINA COSTA
302 MAIN STREET
OLD SAYBROOK CT 06475

CT 063 5-02

UPS GROUND
TRACKING #: 1Z V25 742 03 9681 7753

BILLING: P/P

Reference #1: CTHA540A

XOL 22.03.13 NV45 12.0A 03/2022*

ERIC BREUN
2016587728
1 INTERNATIONAL BLVD.
MAHWAH NJ 07495

1 LBS **1 OF 1**

SHIP TO:
FIRST SELECTMAN
CARL FORTUNA JR
302 MAIN STREET
OLD SAYBROOK CT 06475

CT 063 5-02

UPS GROUND
TRACKING #: 1Z V25 742 03 9846 7780

BILLING: P/P

Reference #1: CTHA540A

XOL 22.03.13 NV45 12.0A 03/2022*

ERIC BREUN
2016587728
1 INTERNATIONAL BLVD.
MAHWAH NJ 07495

1 LBS **1 OF 1**

SHIP TO:
CROSSROADS COMM OF OLD SAYBROOK
157 NORTH SEIR HILL ROAD
NORWALK CT 06850

CT 069 9-04

UPS GROUND
TRACKING #: 1Z V25 742 03 9789 7773

BILLING: P/P

Reference #1: CTHA540A

XOL 22.03.13 NV45 12.0A 03/2022*

Hello, your package has been delivered.

Delivery Date: Tuesday, 03/15/2022

Delivery Time: 11:34 AM

Left At: FRONT DESK

Signed by: ID Verified

TRANSCEND WIRELESS

Tracking Number:	1ZV257420397347769
Ship To:	AMERICAN TOWER CORPORATION 10 PRESIDENTIAL WAY WOBURN, MA 01801 US
Number of Packages:	1
UPS Service:	UPS Ground
Package Weight:	1.0 LBS
Reference Number:	CTHA540A

Hello, your package has been delivered.

Delivery Date: Tuesday, 03/15/2022

Delivery Time: 11:59 AM

Left At: RECEIVER

Signed by: KANE

TRANSCEND WIRELESS

Tracking Number:	1ZV257420398467780
Ship To:	CARL FORTUNA JR 302 MAIN STREET OLD SAYBROOK, CT 06475 US
Number of Packages:	1
UPS Service:	UPS Ground
Package Weight:	1.0 LBS
Reference Number:	CTHA540A

Hello, your package has been delivered.

Delivery Date: Tuesday, 03/15/2022

Delivery Time: 12:00 PM

Left At: RECEIVER

Signed by: ANTOLINO

TRANSCEND WIRELESS

Tracking Number:	1ZV257420396817753
Ship To:	CHRISTINA COSTA 302 MAIN STREET OLD SAYBROOK, CT 06475 US
Number of Packages:	1
UPS Service:	UPS Ground
Package Weight:	1.0 LBS
Reference Number:	CTHA540A

Hello, your package has been delivered.

Delivery Date: Tuesday, 03/15/2022

Delivery Time: 4:47 PM

Left At: REAR DOOR

TRANSCEND WIRELESS

Tracking Number:	1ZV257420397897773
Ship To:	CROSSROADS COMM OF OLD SAYBROOK 157 NORTH SEIR HILL ROAD NORWALK, CT 06850 US
Number of Packages:	1
UPS Service:	UPS Ground
Package Weight:	1.0 LBS
Reference Number:	CTHA540A


17-1
17-3
17-4
17
18
19
20
16
24-45
27-1
Liberty Inn
Springbrook Rd
U.S. Rte 1
Boston Post Rd
95
68
78.71
75
15.90
31.54
24.39
51.28
109
133
58
80
82
103.73
497.35
178.41
110
200.17
140
189.96
111.2
49
146.72
60.2
150
292.87
190
90
310.94
172.89

77 SPRINGBROOK RD

Print | Map It

Location	77 SPRINGBROOK RD	**MBLU**	058/ 017/ 0001/ /
Acct#	00598500	**Owner**	CROSSROADS COMMUNICATIONS OF OLD
Assessment	$224,500	**Appraisal**	$320,700
PID	6223	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$141,100	$179,600	$320,700
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$98,800	$125,700	$224,500

Owner of Record

Owner	CROSSROADS COMMUNICATIONS OF OLD	**Sale Price**	$275,000
Co-Owner	SAYBROOK LLC	**Certificate**	
Address	157 NORTH SEIR HILL RD NORWALK, CT 06850	**Book & Page**	0339/0287
		Sale Date	10/28/1996
		Instrument	UNKQ

Ownership History

Ownership History
No Data for Ownership History

Building Information

Building 1 : Section 1

Year Built: 1956
Living Area: 2,044

Building Attributes	
Field	**Description**
STYLE	Office Bldg
MODEL	Commercial
Grade	Average
Stories:	1
Occupancy	1.00
Exterior Wall 1	Aluminum Siding
Exterior Wall 2	
Roof Structure	Gable/Hip
Roof Cover	Asph/F Gls/Cmp
Interior Wall 1	Plywood Panel
Interior Wall 2	Drywall/Sheet
Interior Floor 1	Carpet
Interior Floor 2	
Heating Fuel	Oil
Heating Type	Forced Air-Duc
AC Type	Central
Struct Class	
Bldg Use	RAD/TV TR
Total Rooms	
Total Bedrms	00
Total Baths	0
Usrfld 218	
Usrfld 219	
1st Floor Use:	4330
Heat/AC	NONE
Frame Type	WOOD FRAME
Baths/Plumbing	AVERAGE
Ceiling/Wall	CEIL & WALLS
Rooms/Prtns	AVERAGE

Building Photo

Building Layout

Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	1,586	1,586
SFB	Bsmt, Above grade-Finished	572	458
UST	Utility, Storage, Unfinished	280	0
		2,438	2,044

Land

Land Use

Use Code	4330
Description	RAD/TV TR
Zone	B2

Land Line Valuation

Size (Acres)	0.46
Depth	0
Assessed Value	$125,700
Appraised Value	$179,600

Outbuildings

Outbuildings	Legend
No Data for Outbuildings	

Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2018	$141,100	$179,600	$320,700
2016	$106,700	$217,900	$324,600
2015	$106,700	$217,900	$324,600

Assessment			
Valuation Year	Improvements	Land	Total
2018	$98,800	$125,700	$224,500
2016	$74,700	$152,500	$227,200
2015	$74,700	$152,500	$227,200

TOWN OF OLD SAYBROOK, CONNECTICUT

302 Main Street, Old Saybrook, CT 06475 Phone – 860-395-3130, Fax – 860-395-1216

FOR OFFICE USE : MAP: 58 LOT: 17-1 Building Permit # 24780
FM# 2899 ZC# 05-05-6 Date Received: 4.21.08
FLOOD ZONE:

APPLICATION FOR PLAN EXAMINATION AND BUILDING PERMIT:

LOCATION: 77 SPRINGBROOK ROAD, OLD SAYBROOK, CT

TYPE OF IMPROVEMENT: Construction of a 175' Tower w/ Verizon Collocation and Demo of Existing Guyed Tower

ROOFING -- # SQUARES _____ RIP – YES ___ NO ___

PROPOSED USE: Communications / Commercial
(Residence, Store, Commercial, etc.)

INCLUDE SITE PLAN FOR ALL NEW CONSTRUCTION

COST:

Improvement: $ 138,000
Electrical:$ 12,000 CRS#- Lic Provided when pulling Elect. Permit
Plumbing:$
Heating, A.C.: $

TOTAL:$ 150,000

OWNER OR LESSEE National Tower for Crossroads Communications of Old Saybrook, LLC
Mailing Address: Park Place West 352 Park St. Suite 101
North Reading, MA 01864 Phone# 781-389-6909

CONTRACTOR: Bell Atlantic Inc. / Verizon
Address: 99 East River Drive 9th Floor, East Hartford CT 06108

LICENSE NUMBER 900296 Phone# 860-982-4246

CERTIFICATION

I hereby certify that I am the owner of record of the named property, or that the proposed work is authorized by the owner of record and that I have been authorized by the owner to make this application as his authorized agent and I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in this application is issued, I certify that the code official or the code official's authorized representative shall have the authority to enter areas covered by such permit at any reasonable hour to enforce provisions of the code(s) applicable to such permit.

Any application for which a permit has not been issued within 120 days of the date of application shall be considered void and any fees associated with that application will be forfeited.

Signature of Applicant: _____ Phone# 781-389-6909
Address:
352 Park Street, Suite 101
North Reading MA 01864

$24.-

FOR OFFICE USE: BUILDING PERMIT FEE$ 1539 PAID ISSUED ON: _____
(Includes $.16 per $1000 educational training fee)

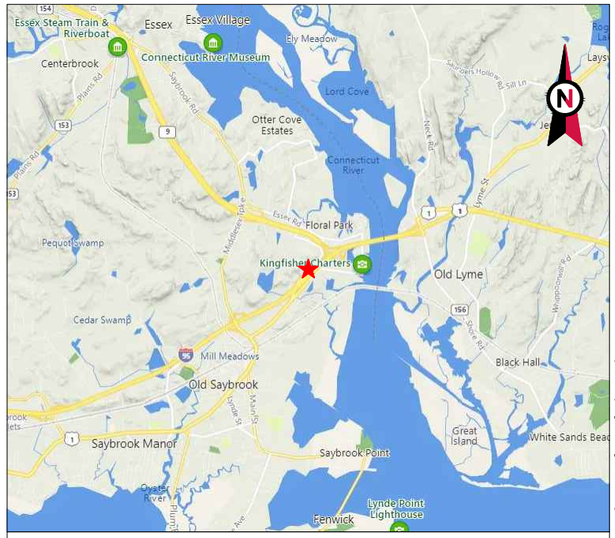
APPROVED BY: _____ 4/28/08 NOTE: No Accessory Structures included in this permit
Building Official/Date

TYPE: 2B USE GROUP: B SEASONAL: _____

NOTE: WORK MUST BEGIN WITHIN 180 CALENDAR DAYS

ORIGINAL

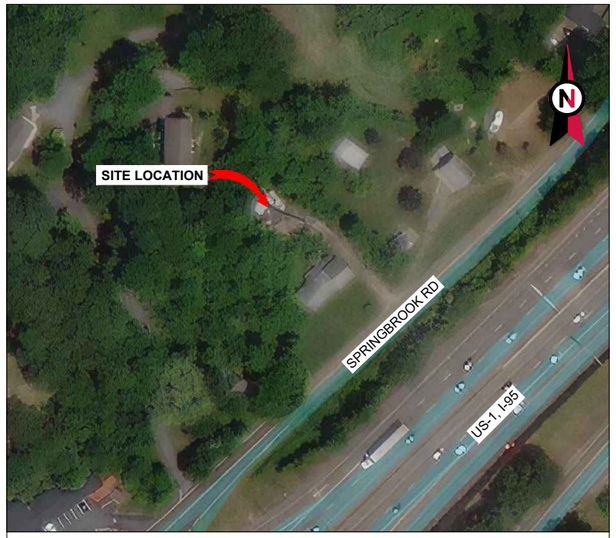
OVER FOR ADDITIONAL INFORMATION



VICINITY MAP

AMERICAN TOWER®

ATC SITE NAME: OLD SAYBROOK
ATC SITE NUMBER: 370625
T-MOBILE SITE NAME: CROWN OLD SAYBROOK MONOPOLE
T-MOBILE SITE NUMBER: CTHA540A
SITE ADDRESS: 77 SPRINGBROOK ROAD
OLD SAYBROOK, CT 06475-0000



LOCATION MAP

T-MOBILE ANCHOR ANTENNA AMENDMENT PLAN
67D5A998E HYBRID 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. 2018 CT STATE BUILDING CODE/ 2015 INTERNATIONAL BUILDING CODE (IBC) W/ CT AMENDMENTS
2. 2018 CT STATE BUILDING CODE / 2017 NATIONAL ELECTRIC CODE (NEC) W/ CT AMENDMENTS
3. LOCAL BUILDING CODE
4. CITY/COUNTY ORDINANCES

UTILITY COMPANIES

POWER COMPANY: NORTHEAST UTILITIES
PHONE: (888) 783-6617

TELEPHONE COMPANY: FRONTIER COMMUNICATIONS
PHONE: (800) 921-8102

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

PROJECT SUMMARY

SITE ADDRESS:

77 SPRINGBROOK ROAD

OLD SAYBROOK, CT 06475-0000

COUNTY: MIDDLESEX

GEOGRAPHIC COORDINATES:

LATITUDE: 41.31383333

LONGITUDE: -72.36402778

GROUND ELEVATION: 53' AMSL

PROJECT TEAM

TOWER OWNER:

AMERICAN TOWER
10 PRESIDENTIAL WAY
WOBURN, MA 01801

APPLICANT:

T-MOBILE
6200 OAK TREE BLVD, STE 125
INDEPENDENCE, OH 44131

ENGINEER:

POWER OF DESIGN GROUP, LLC
11490 BLUEGRASS PKWY
LOUISVILLE, KY 40299

PROPERTY OWNER:

CROSSROADS COMMUNICATIONS OF OLD SAYBROOK
77 SPRINGBROOK ROAD
OLD SAYBROOK, CT 06475

PROJECT LOCATION DIRECTIONS

FROM DOWNTOWN NEW HAVEN CT START OUT GOING NORTHEAST ON CHURCH ST TOWARD WALL ST. CHURCH ST BECOMES WHITNEY AVE. TURN RIGHT ONTO TRUMBULL ST. TAKE THE I-91 S/I-91 N RAMP. MERGE ONTO I-91 S TOWARD I-95/NEW LONDON/N.Y.CITY. MERGE ONTO I-95 N/GOVERNOR JOHN DAVIS LODGE TPKE N VIA THE EXIT ON THE LEFT TOWARD NEW LONDON. TAKE THE CT-154 EXIT, EXIT 67, TOWARD OLD SAYBROOK. MERGE ONTO MIDDLESEX TURNPIKE/CT-154 TOWARD R R STATION. URN LEFT ONTO BOSTON POST RD/US-1 N. TURN LEFT ONTO SPRINGBROOK RD. 77 SPRINGBROOK RD IS ON THE LEFT.

PROJECT DESCRIPTION

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

TOWER WORK:

REMOVE (3) ANTENNA(s), (6) RRH(s), AND (1) HYBRID CABLE(s)

INSTALL (3) ANTENNA(s), (3) RRH(s), (2) HYBRID CABLE(s) AND (1) PLATFORM MOUNT

EXISTING (6) ANTENNA(s), (3) RRH(s) AND (3) HYBRID CABLE(s) TO REMAIN

GROUND WORK:

REMOVE (1) ODE CABINET

RELOCATE (1) BBU CABINET

INSTALL (1) 6160 CABINET, (1) B160 BATTERY CABINET, (1) BB 6648, (1) PSU 4813 vR4A VOLTAGE BOOSTER AND (1) CSR IXRe V2 ROUTER

EXISTING (1) RBS 6102 CABINET, (1) DUW30, (1) BB 6630 AND (1) BB 6648 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.
6. THE PROJECT DEPICTED IN THESE PLANS QUALIFIES AS AN ELIGIBLE FACILITIES REQUEST ENTITLES TO EXPEDITED REVIEW UNDER 47 U.S.C. § 1455(A) AS A MODIFICATION OF AN EXISTING WIRELESS TOWER THAT INVOLVES THE COLLOCATION REMOVAL AND/OR REPLACEMENT OF TRANSMISSION EQUIPMENT THAT IS NOT SUBSTANTIAL CHANGE UNDER CFR § 1.61000 (B)(7).

SHEET INDEX

SHEET NO:	DESCRIPTION:	REV:	DATE:	BY:
G-001	TITLE SHEET	2	03/08/22	AJ
G-002	GENERAL NOTES	0	01/28/22	ADE
C-101	DETAILED SITE PLAN	0	01/28/22	ADE
C-102	DETAILED GROUND PLAN	1	02/15/22	AJ
C-201	TOWER ELEVATION	0	01/28/22	ADE
C-401	ANTENNA INFORMATION & SCHEDULE	2	03/08/22	AJ
C-501	CONSTRUCTION DETAILS	0	01/28/22	ADE
E-501	GROUNDING DETAILS	0	01/28/22	ADE
R-601	SUPPLEMENTAL			
R-602	SUPPLEMENTAL			
R-603	SUPPLEMENTAL			
R-604	SUPPLEMENTAL			
R-605	SUPPLEMENTAL			
R-606	SUPPLEMENTAL			

AMERICAN TOWER®

POD POWER OF DESIGN
11490 BLUEGRASS PKWY
LOUISVILLE, KY 40299
502-437-5252

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	ADE	01/28/22
1	FOR CONSTRUCTION	AJ	02/15/22
2	FOR CONSTRUCTION	AJ	03/08/22

ATC SITE NUMBER:
370625

ATC SITE NAME:
OLD SAYBROOK

T-MOBILE SITE NAME:
CROWN OLD SAYBROOK MONOPOLE

SITE ADDRESS:
77 SPRINGBROOK ROAD
OLD SAYBROOK, CT 06475-0000

SEAL:

03/08/2022

T-Mobile

DATE DRAWN:	01/28/22
ATC JOB NO:	13764580
CUSTOMER ID:	CROWN OLD SAYBROOK MONOPOLE
CUSTOMER #:	CTHA540A

TITLE SHEET

SHEET NUMBER:	REVISION:
G-001	2

GENERAL CONSTRUCTION NOTES:

1. OWNER FURNISHED MATERIALS, T-MOBILE "THE COMPANY" WILL PROVIDE AND THE CONTRACTOR WILL INSTALL
   - A. BTS EQUIPMENT FRAME (PLATFORM) AND ICEBRIDGE SHELTER (GROUND BUILD/CO-LOCATE ONLY)
   - B. AC/TELCO INTERFACE BOX (PPC)
   - C. ICE BRIDGE (CABLE TRAY WITH COVER) (GROUND BUILD/CO-LOCATE ONLY, GC TO FURNISH AND INSTALL FOR ROOFTOP INSTALLATION)
   - D. TOWERS, MONOPOLES
   - E. TOWER LIGHTING
   - F. GENERATORS & LIQUID PROPANE TANK
   - G. ANTENNA STANDARD BRACKETS, FRAMES AND PIPES FOR MOUNTING
   - H. ANTENNAS (INSTALLED BY OTHERS)
   - I. TRANSMISSION LINE
   - J. TRANSMISSION LINE JUMPERS
   - K. TRANSMISSION LINE CONNECTORS WITH WEATHERPROOFING KITS
   - L. TRANSMISSION LINE GROUND KITS
   - M. HANGERS
   - N. HOISTING GRIPS
   - O. BTS EQUIPMENT
2. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL OTHER MATERIALS FOR THE COMPLETE INSTALLATION OF THE SITE INCLUDING, BUT NOT LIMITED TO, SUCH MATERIALS AS FENCING, STRUCTURAL STEEL SUPPORTING SUB-FRAME FOR PLATFORM, ROOFING LABOR AND MATERIALS, GROUNDING RINGS, GROUNDING WIRES, COPPER-CLAD OR XIT CHEMICAL GROUND ROD(S), BUSS BARS, TRANSFORMERS AND DISCONNECT SWITCHES WHERE APPLICABLE, TEMPORARY ELECTRICAL POWER, CONDUIT, LANDSCAPING COMPOUND STONE, CRANES, CORE DRILLING, SLEEPERS AND RUBBER MATTING, REBAR, CONCRETE CAISSONS, PADS AND/OR AUGER MOUNTS, MISCELLANEOUS FASTENERS, CABLE TRAYS, NON-STANDARD ANTENNA FRAMES AND ALL OTHER MATERIAL AND LABOR REQUIRED TO COMPLETE THE JOB ACCORDING TO THE DRAWINGS AND SPECIFICATIONS. IT IS THE POSITION OF T-MOBILE TO APPLY FOR PERMITTING AND CONTRACTOR RESPONSIBLE FOR PICKUP AND PAYMENT OF REQUIRED PERMITS.
3. ALL WORK SHALL CONFORM TO ALL CURRENT APPLICABLE FEDERAL, STATE, AND LOCAL CODES, INCLUDING ANSI/EIA/TIA-222, AND COMPLY WITH ATC CONSTRUCTION SPECIFICATIONS.
4. CONTRACTOR SHALL CONTACT LOCAL 811 FOR IDENTIFICATION OF UNDERGROUND UTILITIES PRIOR TO START OF CONSTRUCTION.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL REQUIRED INSPECTIONS.
6. 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.
7. DO NOT CHANGE SIZE OR SPACING OF STRUCTURAL ELEMENTS.
8. DETAILS SHOWN ARE TYPICAL; SIMILAR DETAILS APPLY TO SIMILAR CONDITIONS UNLESS OTHERWISE NOTED.
9. THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY WHICH SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
10. CONTRACTOR SHALL BRACE STRUCTURES UNTIL ALL STRUCTURAL ELEMENTS NEEDED FOR STABILITY ARE INSTALLED. THESE ELEMENTS ARE AS FOLLOWS: LATERAL BRACING, ANCHOR BOLTS, ETC.
11. CONTRACTOR SHALL DETERMINE EXACT LOCATION OF EXISTING UTILITIES, GROUNDS DRAINS, DRAIN PIPES, VENTS, ETC. BEFORE COMMENCING WORK.
12. INCORRECTLY FABRICATED, DAMAGED, OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE T-MOBILE REP PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH REMEDIAL ACTION SHALL REQUIRE WRITTEN APPROVAL BY THE T-MOBILE REP PRIOR TO PROCEEDING.
13. EACH CONTRACTOR SHALL COOPERATE WITH THE T-MOBILE REP, AND COORDINATE HIS WORK WITH THE WORK OF OTHERS.
14. CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED BY CONSTRUCTION OF THIS PROJECT TO MATCH EXISTING PRE-CONSTRUCTION CONDITIONS TO THE SATISFACTION OF THE T-MOBILE CONSTRUCTION MANAGER.
15. ALL CABLE/CONDUIT ENTRY/EXIT PORTS SHALL BE WEATHERPROOFED DURING INSTALLATION USING A SILICONE SEALANT.
16. WHERE EXISTING CONDITIONS DO NOT MATCH THOSE SHOWN IN THIS PLAN SET, CONTRACTOR SHALL NOTIFY THE T-MOBILE REP AND ENGINEER OF RECORD IMMEDIATELY.
17. CONTRACTOR SHALL ENSURE ALL SUBCONTRACTORS ARE PROVIDED WITH A COMPLETE AND CURRENT SET OF DRAWINGS AND SPECIFICATIONS FOR THIS PROJECT.
18. CONTRACTOR SHALL REMOVE ALL RUBBISH AND DEBRIS FROM THE SITE AT THE END OF EACH DAY.
19. CONTRACTOR SHALL COORDINATE WORK SCHEDULE WITH AMERICAN TOWER CORPORATION (ATC) AND TAKE PRECAUTIONS TO MINIMIZE IMPACT AND DISRUPTION OF OTHER OCCUPANTS OF THE FACILITY.
20. CONTRACTOR SHALL FURNISH T-MOBILE AND AMERICAN TOWER CORPORATION (ATC) WITH A PDF MARKED UP AS-BUILT SET OF DRAWINGS UPON COMPLETION OF WORK.
21. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH T-MOBILE 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.
22. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH T-MOBILE REP TO DETERMINE IF ANY PERMITS WILL BE OBTAINED BY CONTRACTOR. ALL REQUIRED PERMITS NOT OBTAINED BY T-MOBILE MUST BE OBTAINED, AND PAID FOR, BY THE CONTRACTOR.
23. CONTRACTOR SHALL INSTALL ALL SITE SIGNAGE IN ACCORDANCE WITH T-MOBILE SPECIFICATIONS AND REQUIREMENTS.
24. CONTRACTOR SHALL SUBMIT ALL SHOP DRAWINGS TO T-MOBILE FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
25. ALL EQUIPMENT SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND LOCATED ACCORDING TO T-MOBILE SPECIFICATIONS, AND AS SHOWN IN THESE PLANS.
26. 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.
27. CONTRACTOR SHALL NOTIFY T-MOBILE 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.
28. 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.
29. 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.
30. 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 REP. ANY WORK FOUND BY THE T-MOBILE REP TO BE OF INFERIOR QUALITY AND/OR WORKMANSHIP SHALL BE REPLACED AND/OR REWORKED AT CONTRACTOR EXPENSE UNTIL APPROVAL IS OBTAINED.
31. 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.
32. T-MOBILE FURNISHED EQUIPMENT SHALL BE PICKED-UP AT THE T-MOBILE WAREHOUSE, NO LATER THAN 48HR AFTER BEING NOTIFIED INSURED, STORED, UNCRATE, PROTECTED AND INSTALLED BY THE CONTRACTOR WITH ALL APPURTENANCES REQUIRED TO PLACE THE EQUIPMENT IN OPERATION, READY FOR USE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE EQUIPMENT AFTER PICKING IT UP.
33. T-MOBILE OR HIS ARCHITECT/ENGINEER RESERVES THE RIGHT TO REJECT ANY EQUIPMENT OR MATERIALS WHICH, IN HIS OWN OPINION ARE NOT IN COMPLIANCE WITH THE CONTRACT DOCUMENTS, EITHER BEFORE OR AFTER INSTALLATION AND THE EQUIPMENT SHALL BE REPLACED WITH EQUIPMENT CONFORMING TO THE REQUIREMENTS OF THE CONTRACT DOCUMENTS BY THE CONTRACTOR AT NO COST TO T-MOBILE OR THEIR ARCHITECT/ENGINEER.

SPECIAL CONSTRUCTION ANTENNA INSTALLATION NOTES:

1. WORK INCLUDED:
   - A. ANTENNA AND COAXIAL CABLES ARE FURNISHED BY T-MOBILE UNDER A SEPARATE CONTRACT. THE CONTRACTOR SHALL ASSIST ANTENNA INSTALLATION CONTRACTOR IN TERMS OD COORDINATION AND SITE ACCESS. ERECTION SUBCONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF PERSONNEL AND
   - B. INSTALL ANTENNA AS INDICATE ON DRAWINGS AND T-MOBILE SPECIFICATIONS.
   - C. INSTALL GALVANIZED STEEL ANTENNA MOUNTS AS INDICATED ON DRAWINGS
   - D. INSTALL FURNISHED GALVANIZED STEEL OR ALUMINUM WAVEGUIDE.
   - E. CONTRACTOR SHALL PROVIDE FOUR (4) SETS OF SWEEP TESTS USING ANRITZU-PACKARD 8713B RF SCALAR NETWORK ANALYZER. SUBMIT FREQUENCY DOMAIN REFLECTOMETER(FDR) TESTS RESULTS TO THE PROJECT MANAGER. SWEEP TESTS SHALL BE AS PER ATTACHED RFS "MINIMUM FIELD TESTING RECOMMENDED FOR ANTENNA AND HELIAX COAXIAL CABLE SYSTEMS" DATED 10/5/93. TESTING SHALL BE PERFORMED BY AN INDEPENDENT TESTING SERVICE AND BE BOUND AND SUBMITTED WITHIN ONE WEEK OF WORK COMPLETION.
   - F. INSTALL COAXIAL CABLES AND TERMINATING BETWEEN ANTENNAS AND EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS. WEATHERPROOF ALL CONNECTIONS BETWEEN THE ANTENNA AND EQUIPMENT PER MANUFACTURER'S REQUIREMENTS. TERMINATE ALL COAXIAL CABLE THREE (3) FEET IN EXCESS OF ENTRY PORT LOCATION UNLESS OTHERWISE STATED.
   - G. ANTENNA AND COAXIAL CABLE GROUNDING:
2. ALL EXTERIOR #6 GREED GROUND WIRE "DAISY CHAIN" CONNECTIONS ARE TO BE WEATHER SEALED WITH RFS CONNECTORS/SPLICE WEATHERPROOFING KIT #221213 OR EQUAL.
3. ALL COAXIAL CABLE GROUNDING KITS ARE TO BE INSTALLED ON STRAIGHT RUNS OF COAXIAL CABLE (NOT WITHIN BENDS)

ALL DISCREPANCIES FROM WHAT IS SHOWN ON THESE CONSTRUCTION DRAWINGS SHALL BE COMMUNICATED TO ATC ENGINEERING IMMEDIATELY FOR CORRECTION OR RE-DESIGN. FAILURE TO COMMUNICATE DIRECTLY WITH ATC ENGINEERING OR ANY CHANGES FROM THE DESIGN CONDUCTED WITHOUT PRIOR APPROVAL FROM ATC ENGINEERING SHALL BE THE SOLE RESPONSIBILITY OF THE GENERAL CONTRACTOR.

AMERICAN TOWER®

POD
POWER OF DESIGN
11490 BLUEGRASS PKWY
LOUISVILLE, KY 40299
502-437-5252

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	ADE	01/28/22

ATC SITE NUMBER:
370625

ATC SITE NAME:
OLD SAYBROOK

T-MOBILE SITE NAME:
CROWN OLD SAYBROOK MONOPOLE

SITE ADDRESS:
77 SPRINGBROOK ROAD
OLD SAYBROOK, CT 06475-0000

SEAL:

03/08/2022

T-Mobile

DATE DRAWN:	01/28/22
ATC JOB NO:	13764580
CUSTOMER ID:	CROWN OLD SAYBROOK MONOPOLE
CUSTOMER #:	CTHA540A

GENERAL NOTES

SHEET NUMBER:	REVISION:
G-002	0

SITE PLAN NOTES:

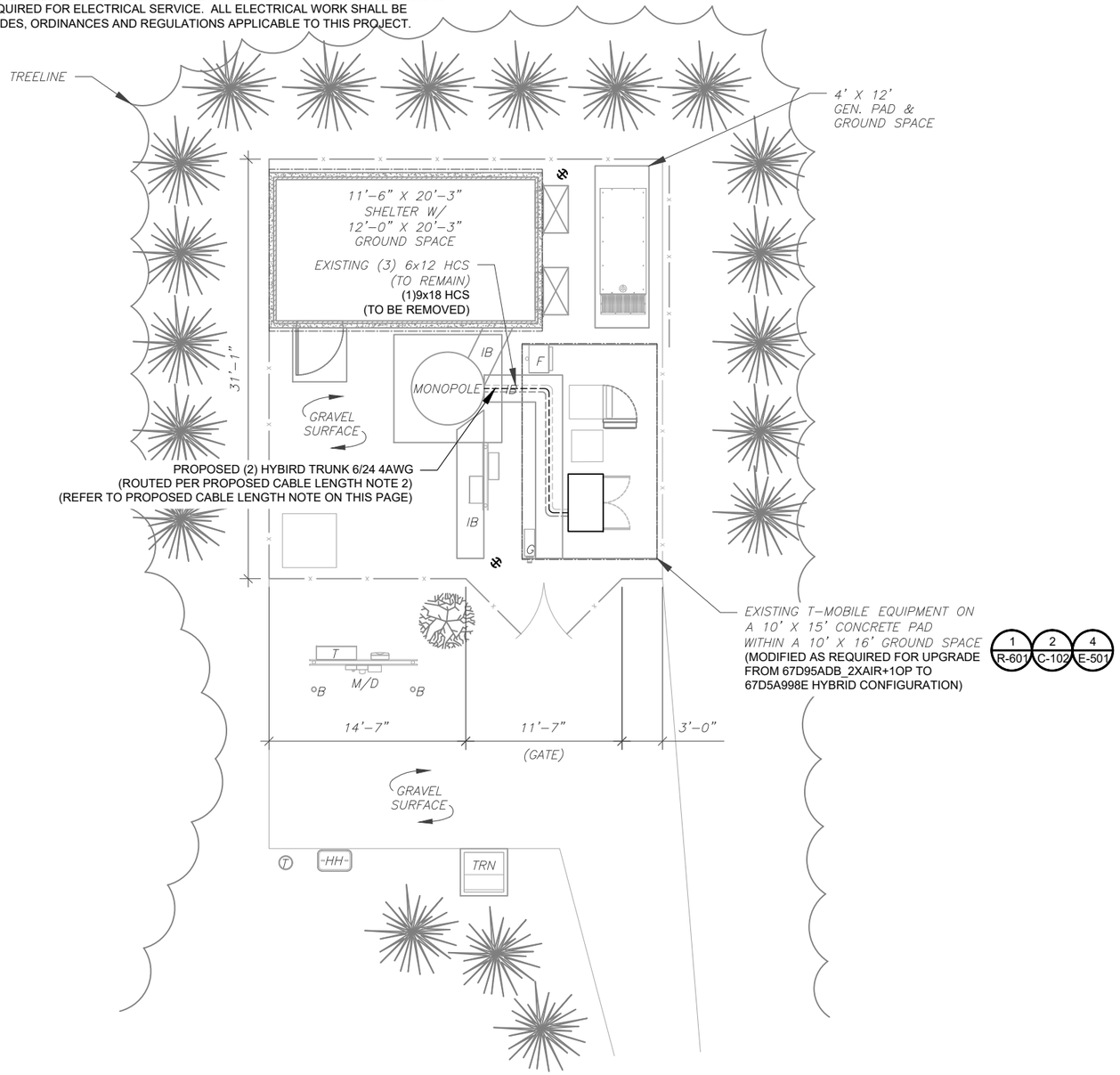
1. THIS SITE PLAN REPRESENTS THE BEST PRESENT KNOWLEDGE AVAILABLE TO THE ENGINEER AT THE TIME OF THIS DESIGN. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO CONSTRUCTION AND VERIFY ALL EXISTING CONDITIONS RELATED TO THE SCOPE OF WORK FOR THIS PROJECT.

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. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH THE T-MOBILE REPRESENTATIVE AND LOCAL UTILITY COMPANY FOR THE INSTALLATION OF CONDUITS, CONDUCTORS, BREAKERS, DISCONNECTS, OR ANY OTHER EQUIPMENT REQUIRED FOR ELECTRICAL SERVICE. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH LATEST EDITION OF THE STATE AND NATIONAL CODES, ORDINANCES AND REGULATIONS APPLICABLE TO THIS PROJECT.

LEGEND

⊗	GROUNDING TEST WELL
ATS	AUTOMATIC TRANSFER SWITCH
B	BOLLARD
CSC	CELL SITE CABINET
D	DISCONNECT
E	ELECTRICAL
F	FIBER
GEN	GENERATOR
G	GENERATOR RECEPTACAL
HH, V	HAND HOLE, VAULT
IB	ICE BRIDGE
K	KENTROX BOX
LC	LIGHTING CONTROL
M	METER
PB	PULL BOX
PP	POWER POLE
T	TELCO
TRN	TRANSFORMER
——x——	CHAINLINK FENCE



1 DETAILED SITE PLAN

GRAPHIC SCALE

10 0 5 10

(IN FEET)
1 UNIT = 10 FEET

PROPOSED CABLE LENGTH:

1. ESTIMATED LENGTH OF PROPOSED CABLE IS **205'**. ESTIMATED LENGTH OF CABLE WAS PROVIDED BY CUSTOMER OR 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), CDS DEFER TO GREATEST CABLE LENGTH.
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.

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502-437-5252

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	ADE	01/28/22

ATC SITE NUMBER:
370625

ATC SITE NAME:
OLD SAYBROOK

T-MOBILE SITE NAME:
CROWN OLD SAYBROOK MONOPOLE

SITE ADDRESS:
77 SPRINGBROOK ROAD
OLD SAYBROOK, CT 06475-0000

SEAL:

03/08/2022

T-Mobile

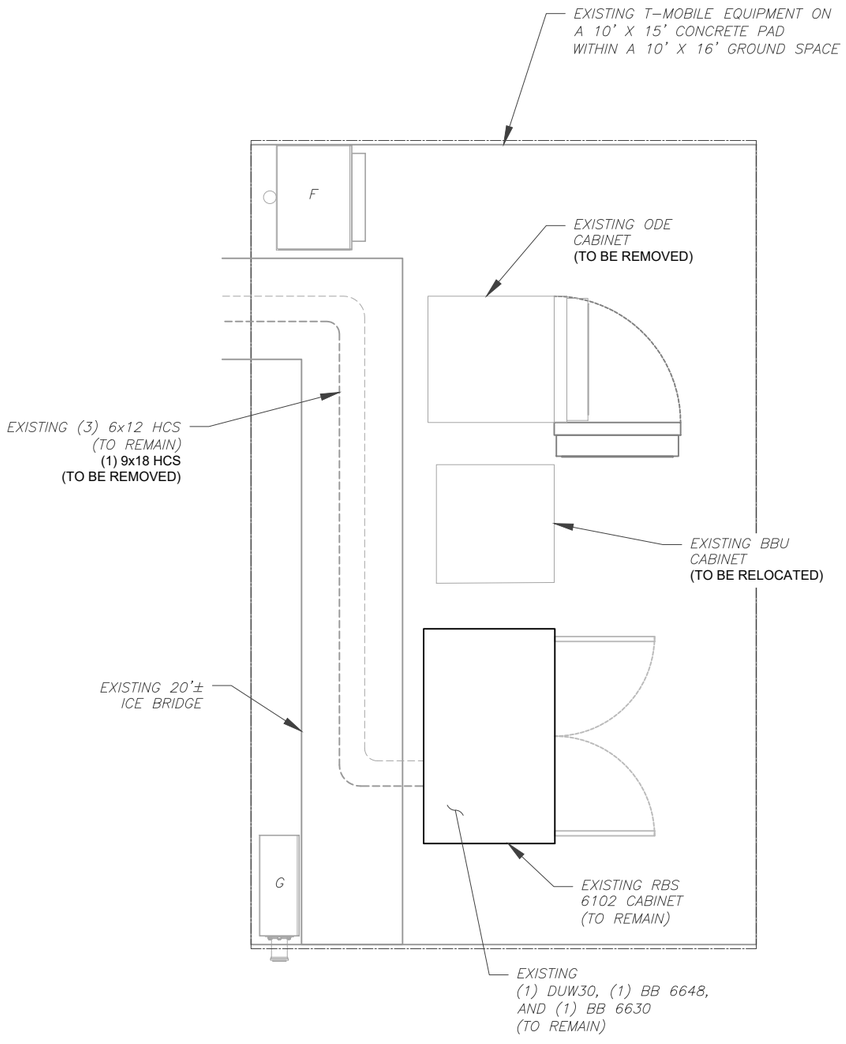
DATE DRAWN:	01/28/22
ATC JOB NO:	13764580
CUSTOMER ID:	CROWN OLD SAYBROOK MONOPOLE
CUSTOMER #:	CTHA540A

DETAILED SITE PLAN

SHEET NUMBER:	REVISION:
C-101	0

SITE PLAN NOTES:

1. CONTRACTOR TO VERIFY THERE IS NO LIVE AAV FIBER RUNNING THROUGH EXISTING DEAD EQUIPMENT. IF SO, THIS WILL NEED TO BE RERUN THROUGH CONDUIT PRIOR TO REMOVING DEAD 2G (6201 CABS) EQUIPMENT.
2. REMOVE EXISTING 2G CABINETS, AND POWER / TELCO WHIPS ASSOCIATED WITH THE DEAD EQUIPMENT IF APPLICABLE.
3. ALL OPEN PORTS NEED TO BE SEALED / WEATHERPROOFED PROPERLY
4. ALL UNNEEDED / EXCESS EQUIPMENT AND GARBAGE TO BE REMOVED FROM EQUIPMENT AREA. DISPOSE OF MATERIALS PROPERLY OFF SITE.

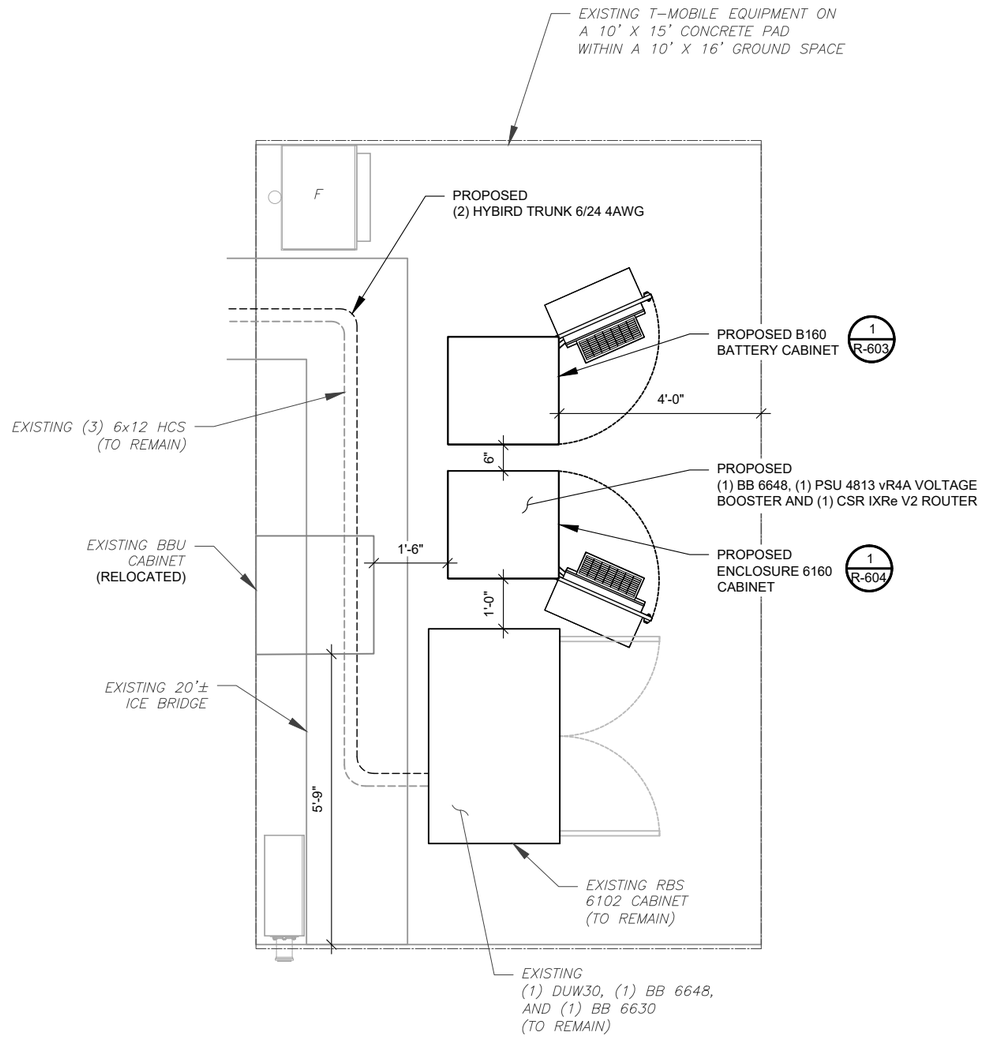


1 EXISTING GROUND EQUIPMENT LAYOUT

0 3' 6'

SCALE: 1"=3' (11X17)
1"=1.5' (22X34)

T-MOBILE CM APPROVAL REQUIRED BEFORE INSTALLING CABINETS



2 PROPOSED GROUND EQUIPMENT LAYOUT

0 3' 6'

SCALE: 1"=3' (11X17)
1"=1.5' (22X34)

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REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	ADE	01/28/22
1	FOR CONSTRUCTION	AJ	02/15/22

ATC SITE NUMBER:
370625

ATC SITE NAME:
OLD SAYBROOK

T-MOBILE SITE NAME:
CROWN OLD SAYBROOK MONOPOLE

SITE ADDRESS:
77 SPRINGBROOK ROAD
OLD SAYBROOK, CT 06475-0000

SEAL:

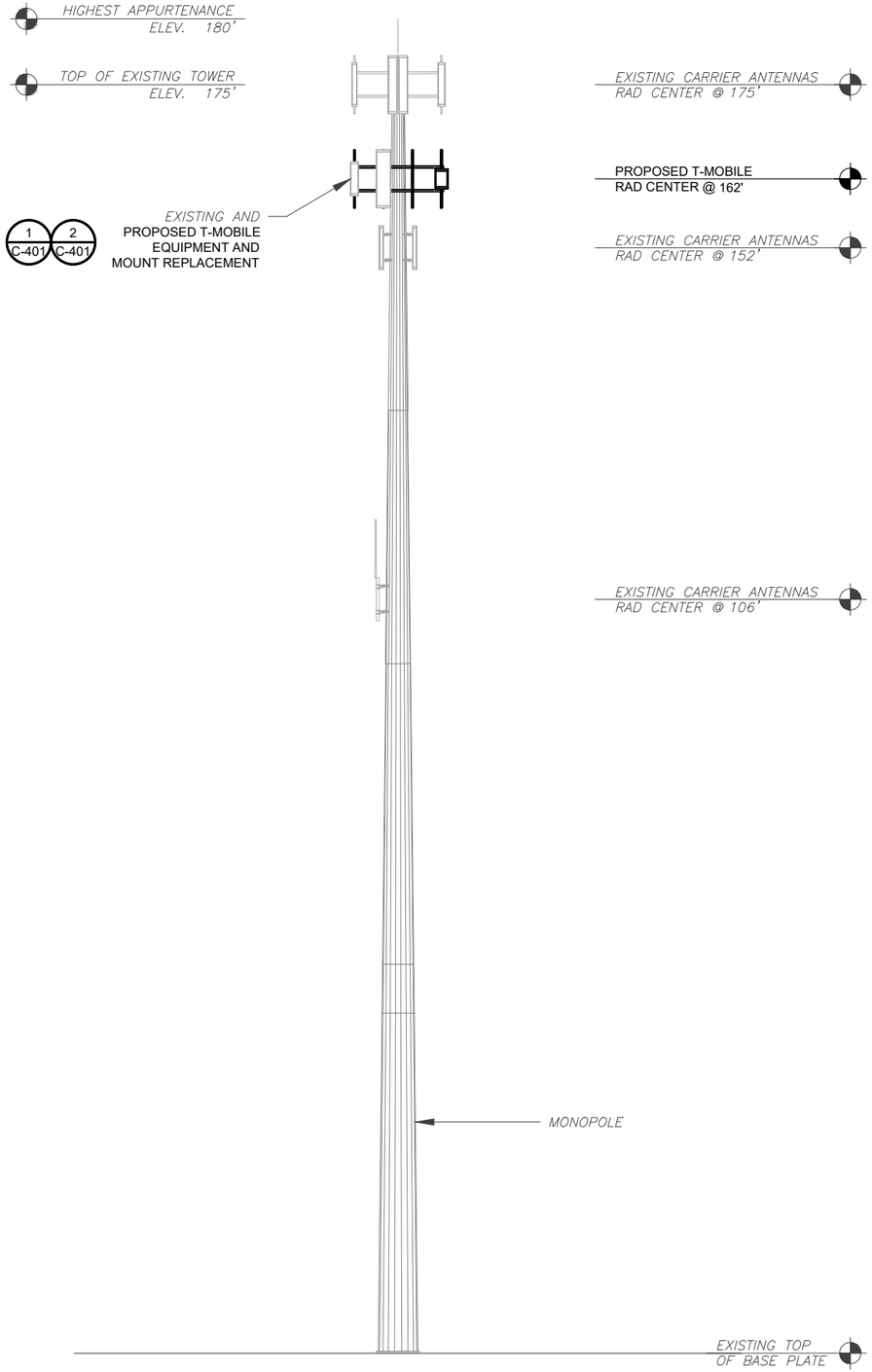
03/08/2022

T-Mobile

DATE DRAWN:	01/28/22
ATC JOB NO:	13764580
CUSTOMER ID:	CROWN OLD SAYBROOK MONOPOLE
CUSTOMER #:	CTHA540A

DETAILED GROUND PLAN

SHEET NUMBER:	REVISION:
C-102	1



1 TOWER ELEVATION
SCALE: N.T.S.

PER MOUNT ANALYSIS COMPLETED BY CLS ENGINEERING, PLLC, DATED JANUARY 7, 2022, THE PROPOSED MOUNT CAN ADEQUATELY SUPPORT THE PROPOSED LOADING

TOWER NOTE:

1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM WITH THE PROJECT 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. WHERE APPLICABLE, ALL NEW ANTENNAS, EQUIPMENT, MOUNTS, CABLING, ETC. SHALL BE PAINTED/SOCKED TO MATCH EXISTING EQUIPMENT IN ACCORDANCE WITH FAA, JURISDICTION, AND/OR OTHER LOCAL REQUIREMENTS.
3. 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.
4. TOWER ELEVATIONS ARE MEASURED FROM TOP OF BASE PLATE TO MATCH STRUCTURAL ANALYSIS. ELEVATIONS DO NOT REFLECT TRUE ABOVE GROUND LEVEL (A.G.L.)
5. TOWER ELEVATION DEPICTION MAY NOT REFLECT ALL EQUIPMENT INCLUDED IN STRUCTURAL ANALYSIS. REFER TO STRUCTURAL ANALYSIS FOR FULL TOWER LOADING.

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ATC SITE NUMBER:
370625

ATC SITE NAME:
OLD SAYBROOK

T-MOBILE SITE NAME:
CROWN OLD SAYBROOK MONOPOLE

SITE ADDRESS:
77 SPRINGBROOK ROAD
OLD SAYBROOK, CT 06475-0000

SEAL:

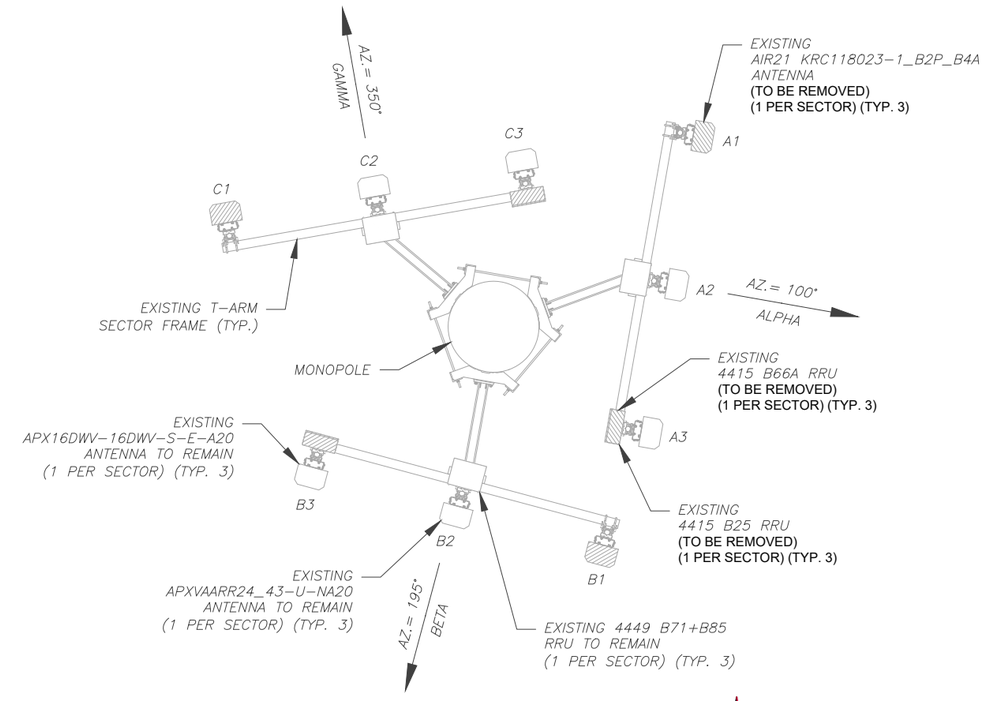
03/08/2022

T-Mobile

DATE DRAWN:	01/28/22
ATC JOB NO:	13764580
CUSTOMER ID:	CROWN OLD SAYBROOK MONOPOLE
CUSTOMER #:	CTHA540A

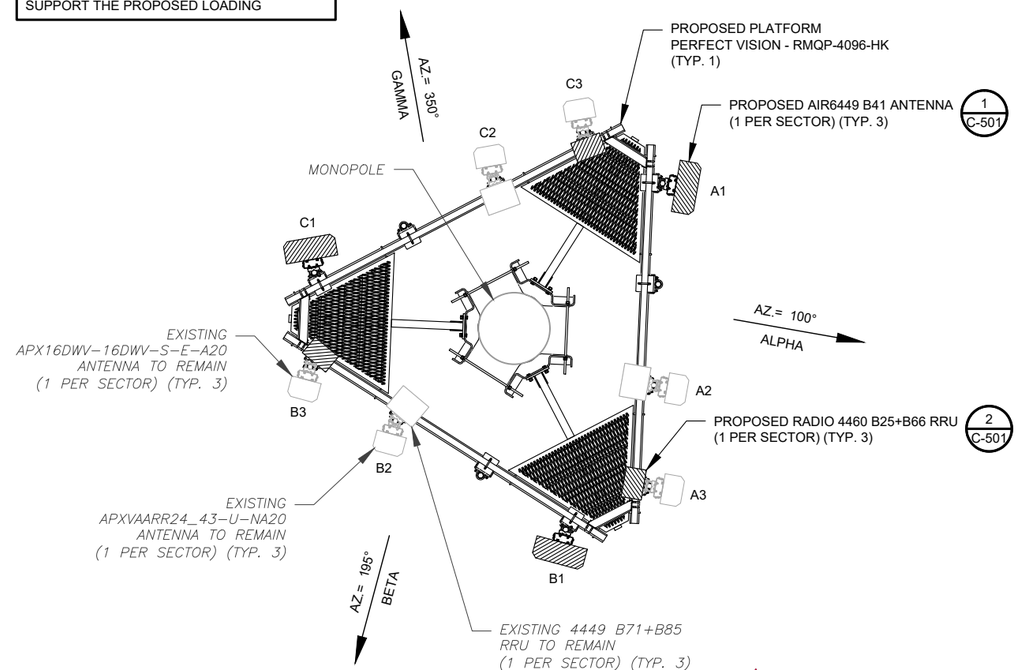
TOWER ELEVATION

SHEET NUMBER:	REVISION:
C-201	0



1 EXISTING ANTENNA PLAN
SCALE: N.T.S.

PER MOUNT ANALYSIS COMPLETED BY CLS ENGINEERING, PLLC, DATED JANUARY 7, 2022, THE PROPOSED MOUNT CAN ADEQUATELY SUPPORT THE PROPOSED LOADING



2 FINAL ANTENNA PLAN
SCALE: N.T.S.

EXISTING ANTENNA SCHEDULE

LOCATION			ANTENNA SUMMARY					NON ANTENNA SUMMARY	
SECTOR	RAD	AZ	POS	ANTENNA	BAND	MECH/ELEC D-TILT	STATUS	ADDITIONAL TOWER MOUNTED EQUIPMENT	STATUS
ALPHA	162'	100°	A1	AIR21 KRC118023-1_B2P_B4A	U2100	0°/2°	RMV	–	–
			A2	APXVAARR24_43-U-NA20	N600/L600/ L700	0°/2°	RMN	(1) RADIO 4449 B71+B85	RMN
			A3	APX16DWV-16DWV-S-E-A20	L1900/L2100	0°/2°	RMN	(1) RADIO 4415 B66A (1) RADIO 4415 B25	RMV RMV
BETA	162'	195°	B1	AIR21 KRC118023-1_B2P_B4A	U2100	0°/2°	RMV	–	–
			B2	APXVAARR24_43-U-NA20	N600/L600/ L700	0°/2°	RMN	(1) RADIO 4449 B71+B85	RMN
			B3	APX16DWV-16DWV-S-E-A20	L1900/L2100	0°/2°	RMN	(1) RADIO 4415 B66A (1) RADIO 4415 B25	RMV RMV
GAMMA	162'	350°	C1	AIR21 KRC118023-1_B2P_B4A	U2100	0°/2°	RMV	–	–
			C2	APXVAARR24_43-U-NA20	N600/L600/ L700	0°/2°	RMN	(1) RADIO 4449 B71+B85	RMN
			C3	APX16DWV-16DWV-S-E-A20	L1900/L2100	0°/2°	RMN	(1) RADIO 4415 B66A (1) RADIO 4415 B25	RMV RMV

NOTES

1. CONFIRM WITH T-MOBILE REP FOR APPLICABLE UPDATES/REVISIONS AND MOST RECENT RFDS FOR NSN CONFIGURATION (CONFIG). GC TO CAP ALL UNUSED PORTS.
2. CONFIRM SPACING OF PROPOSED EQUIP DOES NOT CAUSE TOWER CONFLICTS NOR IMPEDE TOWER CLIMBING PEGS.

STATUS ABBREVIATIONS

RMV: TO BE REMOVED
RMN: TO REMAIN
REL: TO BE RELOCATED
ADD: TO BE ADDED

CABLE LENGTHS FOR JUMPERS

JUNCTION BOX TO RRU: 15'
RRU TO ANTENNA: 10'

FINAL ANTENNA SCHEDULE

LOCATION			ANTENNA SUMMARY					NON ANTENNA SUMMARY	
SECTOR	RAD	AZ	POS	ANTENNA	BAND	MECH/ELEC D-TILT	STATUS	ADDITIONAL TOWER MOUNTED EQUIPMENT	STATUS
ALPHA	162'	100°	A1	AIR6449 B41	L2500/N2500	0°/2°	ADD	-	-
			A2	APXVAARR24_43-U-NA20	N600/L600/ L700	0°/2°	RMN	(1) RADIO 4449 B71+B85	RMN
			A3	APX16DWV-16DWV-S-E-A20	L1900/L2100	0°/2°	RMN	(1) RADIO 4460 B25+B66	ADD
BETA	162'	195°	B1	AIR6449 B41	L2500/N2500	0°/2°	ADD	-	-
			B2	APXVAARR24_43-U-NA20	N600/L600/ L700	0°/2°	RMN	(1) RADIO 4449 B71+B85	RMN
			B3	APX16DWV-16DWV-S-E-A20	L1900/L2100	0°/2°	RMN	(1) RADIO 4460 B25+B66	ADD
GAMMA	162'	350°	C1	AIR6449 B41	L2500/N2500	0°/2°	ADD	-	-
			C2	APXVAARR24_43-U-NA20	N600/L600/ L700	0°/2°	RMN	(1) RADIO 4449 B71+B85	RMN
			C3	APX16DWV-16DWV-S-E-A20	L1900/L2100	0°/2°	RMN	(1) RADIO 4460 B25+B66	ADD

EXISTING FIBER DISTRIBUTION/OVP BOX		EXISTING CABLING SUMMARY		
MODEL NUMBER	STATUS	COAX	HYBRID	STATUS
–	–	–	(3) 6X12	RMN
–	–	–	(1) 9X18	RMV

FINAL FIBER DISTRIBUTION / OVP BOX		FINAL CABLING SUMMARY		
MODEL NUMBER	STATUS	COAX	HYBRID	STATUS
-	-	-	(3) 6X12	RMN
-	-	-	(2) 6/24 4AWG	ADD

3 EQUIPMENT SCHEDULES

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REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	ADE	01/28/22
2	FOR CONSTRUCTION	AJ	03/08/22

ATC SITE NUMBER:
370625

ATC SITE NAME:
OLD SAYBROOK

T-MOBILE SITE NAME:
CROWN OLD SAYBROOK MONOPOLE

SITE ADDRESS:
77 SPRINGBROOK ROAD
OLD SAYBROOK, CT 06475-0000

SEAL:

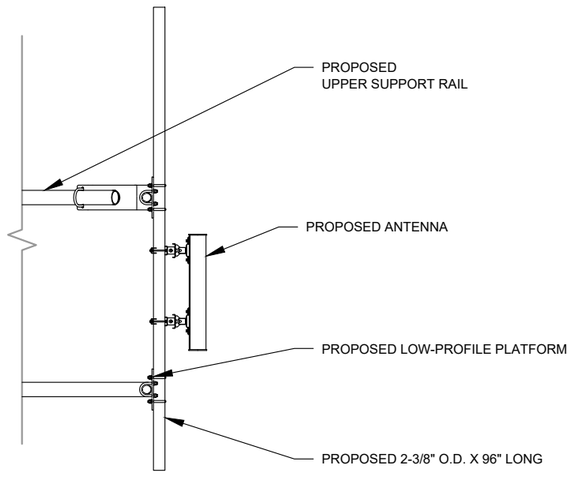
03/08/2022

T-Mobile

DATE DRAWN:	01/28/22
ATC JOB NO:	13764580
CUSTOMER ID:	CROWN OLD SAYBROOK MONOPOLE
CUSTOMER #:	CTHA540A

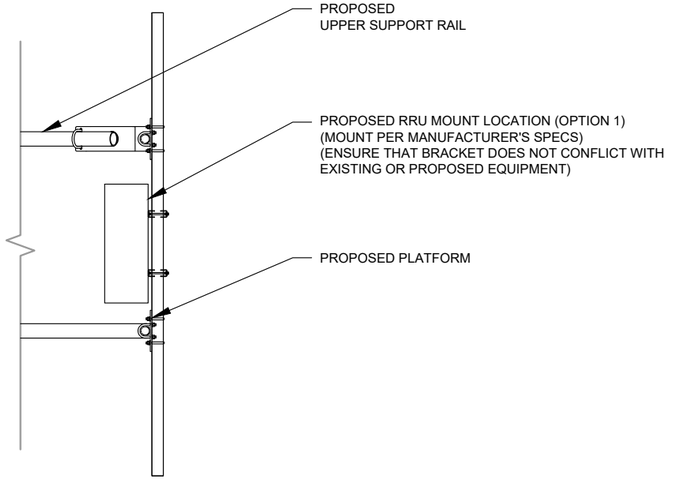
ANTENNA INFORMATION & SCHEDULE

SHEET NUMBER:	REVISION:
C-401	2



2 PROPOSED 5G ANTENNA MOUNTING DETAIL - TYPICAL

SCALE: N.T.S.



3 PROPOSED RRU MOUNTING DETAIL - TYPICAL

SCALE: N.T.S.

AMERICAN TOWER®

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0	FOR CONSTRUCTION	ADE	01/28/22

ATC SITE NUMBER:
370625

ATC SITE NAME:
OLD SAYBROOK

T-MOBILE SITE NAME:
CROWN OLD SAYBROOK MONOPOLE

SITE ADDRESS:
77 SPRINGBROOK ROAD
OLD SAYBROOK, CT 06475-0000

SEAL:

STATE OF CONNECTICUT
MARK E. PATTERSON
No. 31284
LICENSED PROFESSIONAL ENGINEER

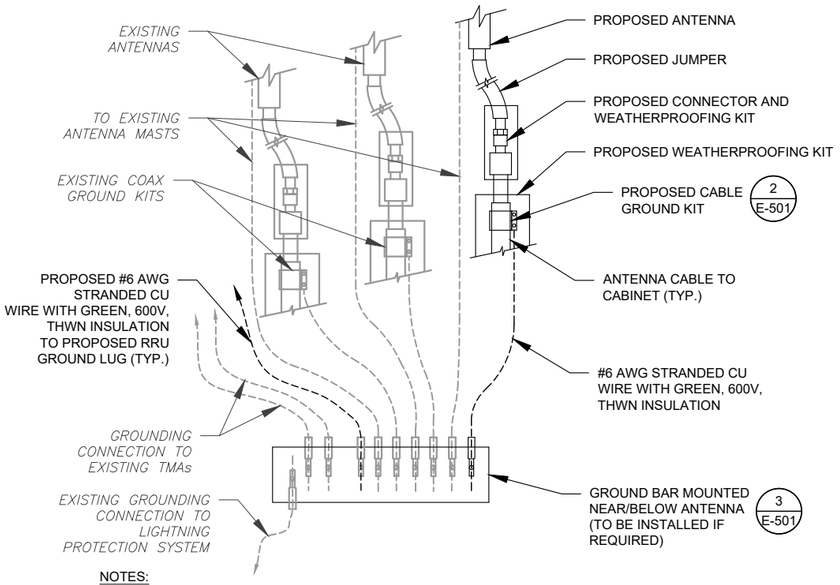
03/08/2022

T-Mobile

DATE DRAWN:	01/28/22
ATC JOB NO:	13764580
CUSTOMER ID:	CROWN OLD SAYBROOK MONOPOLE
CUSTOMER #:	CTHA540A

CONSTRUCTION DETAILS

SHEET NUMBER:	REVISION:
C-501	0

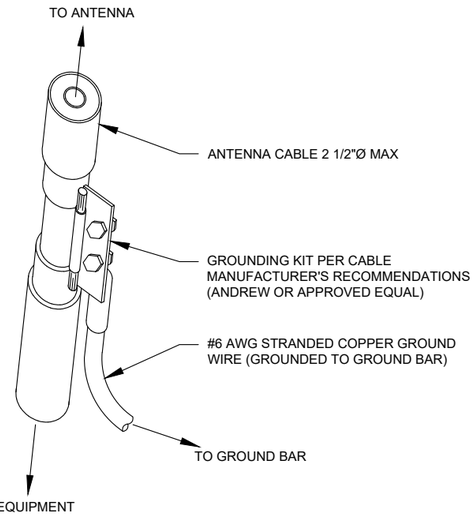


NOTES:

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: N.T.S.

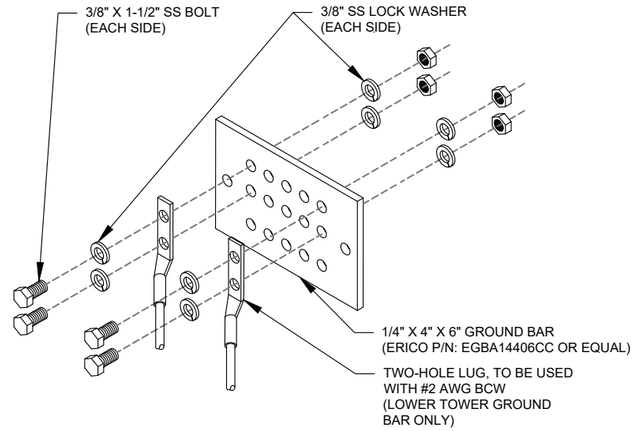


GROUND KIT NOTES:

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: N.T.S.



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.

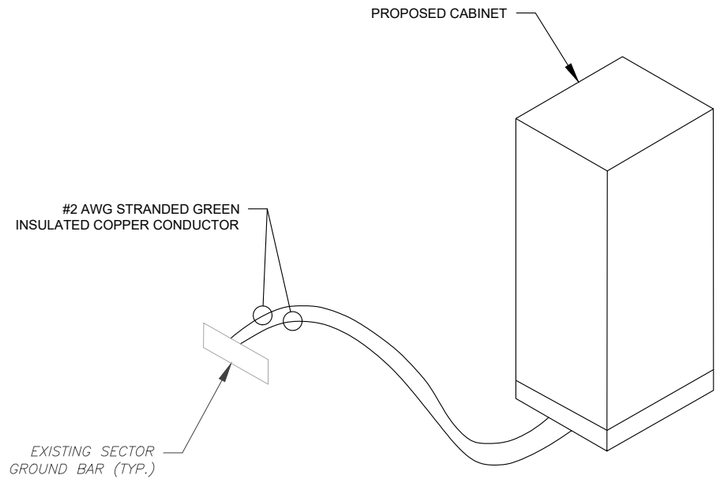
3 TOWER GROUND BAR DETAIL

SCALE: N.T.S.

ELECTRICAL NOTES:

1. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH THE T-MOBILE REPRESENTATIVE AND LOCAL UTILITY COMPANY FOR THE INSTALLATION OF CONDUITS, CONDUCTORS, BREAKERS, DISCONNECTS, OR ANY OTHER EQUIPMENT REQUIRED FOR ELECTRICAL SERVICE. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH LATEST EDITION OF THE STATE AND NATIONAL CODES, ORDINANCES AND REGULATIONS APPLICABLE TO THIS PROJECT.
2. ATC HAS NOT VERIFIED ANY EXISTING T-MOBILE GROUND EQUIPMENT OR ELECTRICAL LOADING. PROPOSED WORK BASED ON INSTALLATION CONFIGURATION PROVIDED BY T-MOBILE. CONTRACTOR TO VERIFY EXISTING T-MOBILE PANEL HAS SUFFICIENT SPACE FOR PROPOSED BREAKER. PROPOSED CABLE AND CONDUIT SHALL BE MINIMUM SIZE PER BELOW IN CHART.
3. FOR SPECIFIC CABINET / ANCILLARY EQUIPMENT WIRING REQUIREMENTS, THE T-MOBILE CONTRACTOR SHOULD REFERENCE DESIGN DOCUMENTS PROVIDED BY T-MOBILE FOR THIS CURRENT PROJECT CONFIGURATION, IN ACCORDANCE WITH LOCAL JURISDICTION REQUIREMENTS & NEC STANDARDS & PRACTICES.

OCPD SIZE	WIRE SIZE	GROUND SIZE	CONDUIT SIZE
80A/2P	2#3 AWG	#8 AWG	1-1/4"
100/2P	2#2 AWG	#8 AWG	1-1/4"
125A/2P	2#1 AWG	#8 AWG	1-1/2"
150A/2P	2#1/0 AWG	#8 AWG	1-1/2"



4 CABINET GROUNDING DETAIL

SCALE: N.T.S.

AMERICAN TOWER®

POD
POWER OF DESIGN
11490 BLUEGRASS PKWY
LOUISVILLE, KY 40299
502-437-5252

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	ADE	01/28/22

ATC SITE NUMBER:
370625

ATC SITE NAME:
OLD SAYBROOK

T-MOBILE SITE NAME:
CROWN OLD SAYBROOK MONOPOLE

SITE ADDRESS:
77 SPRINGBROOK ROAD
OLD SAYBROOK, CT 06475-0000

SEAL:

03/08/2022

T-Mobile

DATE DRAWN:	01/28/22
ATC JOB NO:	13764580
CUSTOMER ID:	CROWN OLD SAYBROOK MONOPOLE
CUSTOMER #:	CTHA540A

GROUNDING DETAILS

SHEET NUMBER:	REVISION:
E-501	0

Proposed RAN Equipment

Template: 67D5A998E Hybrid

Enclosure	1	2	3	4
Enclosure Type	RBS 6102	Ancillary Equipment (Ericsson)	Enclosure 6160 AC V1	B160
Baseband	DUW30 U2100; BB 6648 L700 L600 N600; BB 6630 L2100 L1900		BB 6648 L2500 N2500	
Hybrid Cable System		Ericsson 6x12 HCS *Select Length & AWG* **(x 3)**	PSU 4813 vR4A (Kit); Ericsson Hybrid Trunk 6/24 4AWG 100m **(x 2)**	
Transport System			CSR IXRe V2 (Gen2)	

RAN Scope of Work:

Remove and return all cabinet radios from existing base station cabinet.

Add (1) Enclosure 6160.

Remove existing cabinet 6102 and move the basebands to new enclosure 6160.

Add (1) IXRe Router to new Enclosure 6160.

Add (1) BB6648 for L2500 and N2500 (MMBB - Mixed Mode Baseband) to new Enclosure 6160.

Add (1) PSU4813 Voltage Booster to new Enclosure 6160.

Add (1) Battery Cabinet B160.

Existing : (3) 6X12, (1) 9x18

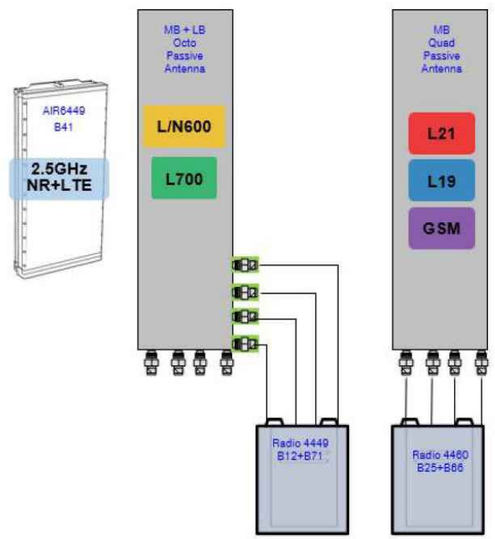
Remove (1) 9x18

Add (1) 6X24 HCS terminating at the Enclosure 6160. Connect DC for the AIR6449 B41 to the PSU4813 Voltage Booster.

1 CABINET CONFIGURATION
SCALE: NOT TO SCALE

Section 3 - Proposed Template Images

67D5998E_1xAIR+1OP+1QP.JPG

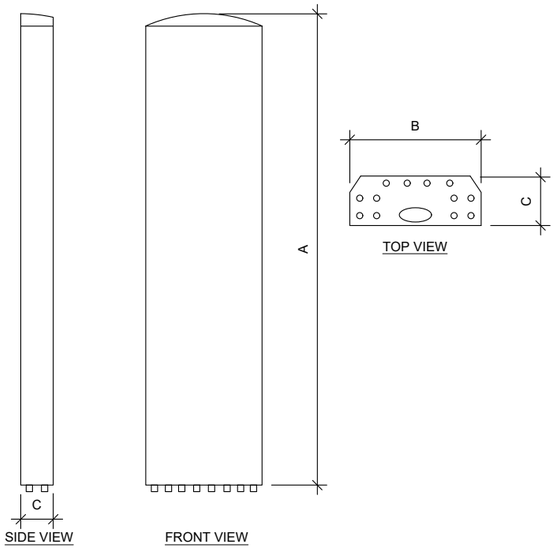


2 ANTENNA CONFIGURATION
SCALE: NOT TO SCALE

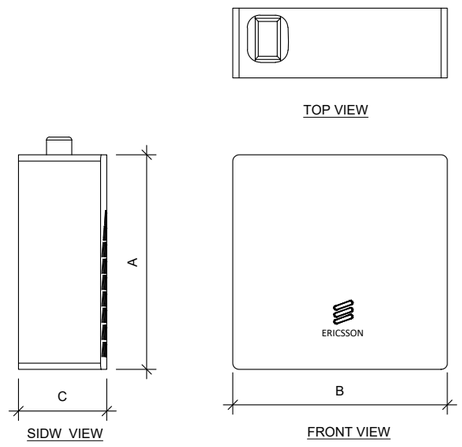
NOTE: THIS SHEET CREATED BY OTHERS AND PROVIDED BY REQUEST OF CUSTOMER WITHOUT EDIT.

SUPPLEMENTAL

SHEET NUMBER:	REVISION:
R-601	0



ANTENNA SPECIFICATIONS				
ANTENNA MODEL	A	B	C	WEIGHT (LBS)
AIR6449 B41	33.1"	20.6"	8.6"	104.0



RRU SPECIFICATIONS				
RRU MODEL	A	B	C	WEIGHT (LBS)
RADIO 4460 B25+B66	19.6"	15.7"	12.1"	109.0

1 EQUIPMENT DETAILS

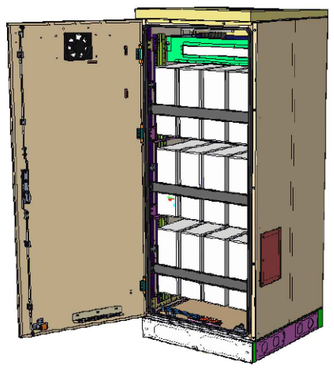
SCALE: NOT TO SCALE

SUPPLEMENTAL

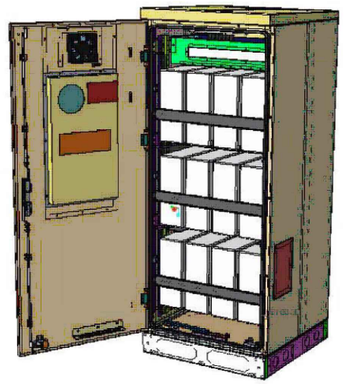
SHEET NUMBER: R-602

REVISION: 0

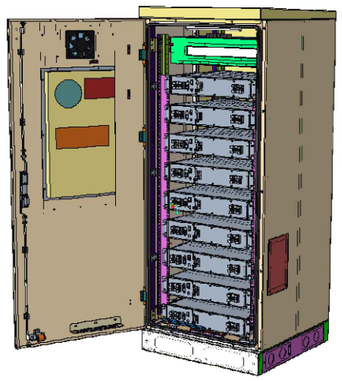
Enclosure B160



Enclosure B160
AirCon + VRLA



Enclosure B160
AirCon + Li-Ion



Enclosure B160
Convection Cooling
+ VRLA

Enclosure B160

Capacity
- VRLA 12V: 100Ah / 150Ah / 170Ah / 190Ah / 210Ah
- Li-Ion: 24U 19" / 23"
- Sodium-Nickel: 3x FIAMM

Electrical specification
- DC Output: -48VDC/200A
- Battery breakers: 2x 125/2p
- Alarms: Door open, Climate failure, MCB Connection

Mechanical specification
- Weight: 134kg
- Dimensions: 63 x 26 x 26 in. (incl. Base frame)
- Base frame height: 6 in.
- Material: Galvanized steel (180g/m^2)
- Color: Powder paint NCS 2002-B
- Door: Front access
- Locking type: Pad lock / cylinder

Environmental specification
- Ingress protection: VRLA/Sodium IP44
Li-Ion IP55
- Relative humidity: 15-100%

Climate system
- Air Conditioner
  - Fan type: DC
  - Cooling capacity: 500W @L35/L35
- Convection cooling
  - Emergency fan

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

SUPPLEMENTAL

SHEET NUMBER:	REVISION:
R-603	0

ERICSSON

Enclosure 6160 AC

The Enclosure 6160 is a multi-purpose site cabinet designed to support a multitude of equipment such as ERS Baseband, Transport, Li-Ion battery and 3PP vendor equipment. It also provides a highly capable power system and battery back-up - all in a streamlined design and minimized footprint to support cost efficient expansion of mobile broadband.

Being an all-in-one enclosure, the Enclosure 6160 is a very fitting choice for all types of sites where the capacity need is large or room for future expansion is needed. It is ideally used for modernizing existing sites or in greenfield scenarios to match both current and future needs.

With a robust design, IP65 compliance and a sealed Heat Exchanger (HEX) climate system the Enclosure 6160 ensures optimal environmental protection of the active equipment - enabling them for a long-lasting service. The complete system is also integrated and verified for the entire Ericsson Radio System and ensures best-in-class service.

The power system offers 31,5kW of power in total and provides 24kW of -48V DC power for both internal and external consumers.

The equipment space allows 19U of rack space ensuring well enough capacity for existing need and future expansion.

One of the main advantages of the Enclosure 6160 is its default integration with ENM - allowing for advanced remote monitoring and control such a fault management (alarms), inventory management and performance measurements. The cabinet also provides an open O&M interface for integration to 3PP O&M systems.

Preliminary technical specification for Enclosure 6160 AC

CAPACITY	
Rack space user equipment	19U (19" rack)
Hardware capabilities	Power and CPRI support for multi-standard remote radios (RRU or AIR)
	ERS Baseband and Transport units
	Li-Ion batteries
	3PP equipment
	Additional power feed available as option
MECHANICAL SPECIFICATION	
Weight	145 kg (excluding active equipment) 320 lbs (excluding active equipment)
Dimension (H x W x D)	1600 x 650 x 650 mm (incl. Base frame) 63 x 26 x 26 in. (incl. Base frame)
Base frame height	150 mm 6 in.
Mounting position	Ground
Enclosure material	Aluminum
Color	Power paint NCS 2002-B
Door	Front access
Rack type	19" (IEC 60297-3-100)
Locking type	Pad lock or Cylinder
POWER SYSTEM	
Input voltage	3P+N+PE: 346/200-415/240 VAC 2P+N+PE: 208/120-220/127 VAC 1P+N+PE: 200-250 VAC
Input power	<33kW
Output load (-48VDC)	24kW
Total capacity (-48VDC)	31.5kW
AC SPD	Class 2/Type 2
DC SPD	Class 2/Type 2
PSU Slots	9x
Service outlet	Optional
Priority load	8x Circuit Breaker
LLVD 1	6x Circuit Breaker
LLVD 2	6x Circuit Breaker
CB ratings	3A / 5A / 10A / 15A / 20A / 25A / 30A / 40A / 50A / 60A / 80A / 100A
Battery Interface	2x Circuit Breaker
Battery Circuit Breaker rating	125A 2pol (200A)
PSU capacity	3500W

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SUPPLEMENTAL

SHEET NUMBER:	REVISION:
R-604	0

AMERICAN TOWER® CORPORATION

This report was prepared for American Tower Corporation by

CLS ENGINEERING PLLC

Antenna Mount Analysis Report

ATC Site Name	:	**Old Saybrook**
ATC Asset Number	:	**370625**
Engineering Number	:	**13764580_C8_01**
Mount Elevation	:	**163.75 ft**
Carrier	:	**T-Mobile**
Carrier Site Name	:	**Crown Old Saybrook Monopole**
Carrier Site Number	:	**CTHA540A**
Site Location	:	**77 Springbrook Road** **Old Saybrook, CT 06475-0000** **41.31383333, -72.36402778**
County	:	**Middlesex**
Date	:	**January 7, 2022**
Max Usage	:	**73%**
Result	:	**Contingent Pass*** ***See conclusion for requirements**

Prepared By:
Snehitha Narava
CLS Engineering, PLLC

Reviewed By:
William Holt, P.E.
CLS Engineering, PLLC

William Holt Digitally signed by William Holt Date: 2022.01.07 17:07:34 -05'00'

STATE OF CONNECTICUT WILLIAM HOLT PEN.35568 LICENSED PROFESSIONAL ENGINEER

William Holt, PE
Director of Engineering
License No. 35568 Expires: 07/31/2023

Conclusion

Based on the analysis, the antenna mount meets the requirements per the applicable codes listed above. 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 Site Pro 1 RMQP-496-HK Platform w/ Support Rails and Kickers.**
- **Install (4) 8 ft. long mount pipes included in platform mount kit at each sector (12 total). Connect to platform base horizontal members and support rails using crossover plates included in the platform mount kit.**
- **All mount pipes are to be installed equidistant from each other as shown in the assembly drawings.**
- **Install existing and proposed antennas such that they are vertically centered on platform base. Install proposed RRUS and TMAs behind the antennas.**

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.

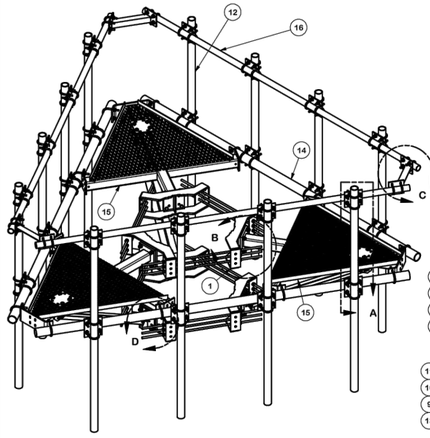
1 MOUNT ANALYSIS

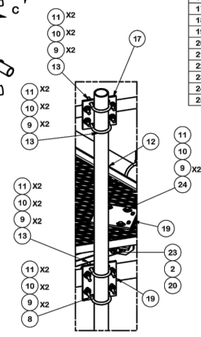
NOTE: THIS SHEET WAS CREATED BY OTHERS AND PROVIDED AT THE REQUEST OF THE CUSTOMER WITHOUT EDIT. PLEASE REFERENCE THE MOUNT ANALYSIS REPORT FOR COMPLETE MOUNT ANALYSIS CALCULATIONS AND DETAILS. SUPPLEMENTAL PAGES INCLUDED IN THE CONSTRUCTION DRAWINGS ARE FOR REFERENCE ONLY. GENERAL CONTRACTOR IS TO VERYIFY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

SUPPLEMENTAL

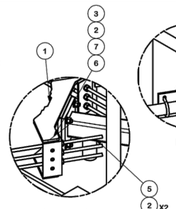
SHEET NUMBER: R-605

REVISION: 0

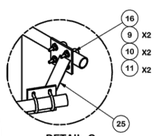




DETAIL A



DETAIL B



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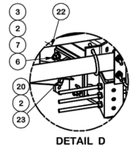
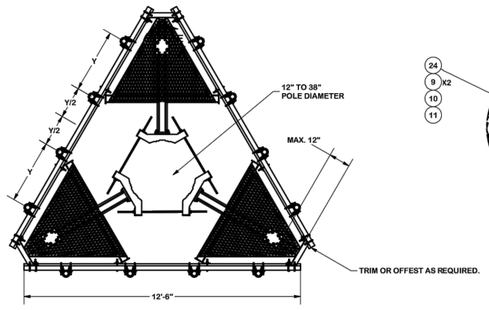
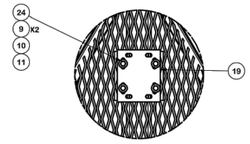


DETAIL D

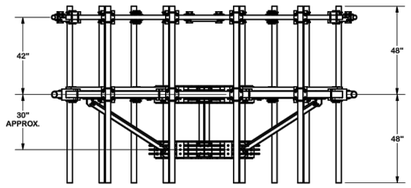
PARTS LIST

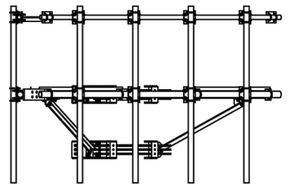
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	6	X-LWRM	RING MOUNT WELDMENT		68.81	412.85
2	66	G58LW	5/8" HDG LOCKWASHER		0.03	1.72
3	60	A58NUT	5/8" HDG A325 HEX NUT		0.13	7.79
4	18	G58R-24	5/8" x 24" THREADED ROD (HDG.)		2.09	37.63
5	18	G58R-48	5/8" x 48" THREADED ROD (HDG.)		4.18	75.27
6	24	A58234	5/8" x 2-3/4" HDG A325 HEX BOLT	2 3/4 in	0.36	8.54
7	24	A58FW	5/8" HDG A325 FLATWASHER		0.03	0.82
8	36	X-UB1306	1/2" X 3-5/8" X 6" X 3" U-BOLT (HDG.)		0.83	29.82
9	264	G12FW	1/2" HDG USS FLATWASHER	3/32 in	0.03	9.00
10	252	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	3.50
11	252	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	18.05
12	12	P3096	2-7/8" X 96" (2-1/2" SCH 40) GALVANIZED PIPE	96 in	49.24	590.88
13	48	X-UB1300	1/2" X 3" X 6" X 2" U-BOLT (HDG.)		0.70	33.45
14	3	P3150	3-1/2" X 150" (3" SCH 40) GALVANIZED PIPE	150 in	94.80	284.40
15	3	X-SV196	LOW PROFILE PLATFORM CORNER		212.10	636.31
16	3	P2150	2-3/8" O.D. X 150" SCH 40 GALVANIZED PIPE	150 in	45.77	137.31
17	12	SCX2	CROSSOVER PLATE	7 in	4.80	57.56
18	36	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" U-BOLT (HDG.)		0.63	22.51
19	15	SCX4	CROSSOVER PLATE	8 1/2 in	6.02	90.32
20	6	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	0.78
21	6	X-253993	PLATFORM REINFORCEMENT KIT ANGLE	52 25/32 in	14.33	85.99
22	6	X-TBW	T-BRACKET WELDMENT		13.60	81.60
23	6	G5802	5/8" x 2" HDG HEX BOLT GR5		0.27	1.62
24	12	G12065	1/2" x 6-1/2" HDG HEX BOLT GR5 FULL THREAD	5 1/2 in	0.41	4.91
25	3	X-AHCP	ANGLE HANDRAIL CORNER PLATE		12.92	38.76
					TOTAL WT. #	2669.03





DETAIL E





TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
SAWED, SHEARED AND GAS CUT EDGES *(± 0.030")*
DRILLED AND GAS CUT HOLES *(± 0.030")* - NO CONING OF HOLES
LASER CUT EDGES AND HOLES *(± 0.010")* - NO CONING OF HOLES
BENDS ARE ± 1/2 DEGREE
ALL OTHER MACHINING *(± 0.030")*
ALL OTHER ASSEMBLY *(± 0.060")*

PROPRIETARY NOTE:
THE DATA AND TECHNIQUES CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF VALMONT INDUSTRIES IS STRICTLY PROHIBITED.

DESCRIPTION: 12' 6" LOW PROFILE PLATFORM WITH TWELVE 2-7/8" ANTENNA MOUNTING PIPES, AND SUPPORT RAIL

SITE PRO 1 — A valmont COMPANY
Engineering Support Team: 1-888-753-7446
Locations: New York, NY; Atlanta, GA; Los Angeles, CA; Plymouth, IN; Salem, OR; Dallas, TX

CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
4488	CEK 3/24/2014		RMQP-4096-HK

CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81	02	CUSTOMER	BMC 7/14/2014	RMQP-4096-HK

SHEET 1 OF 3

REVISION HISTORY

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
C	RELOCATED MOUNT PIPE POSITIONS	4488	JET	5/23/2021
B	CHANGED X-253992 TO X-TBW		CEK	9/20/2018
A	REPLACED HCP WITH X-AHCP	4488	CEK	7/14/2014

TOLERANCE NOTES

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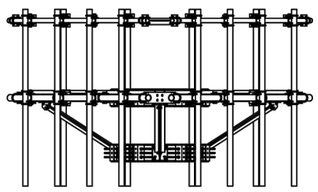
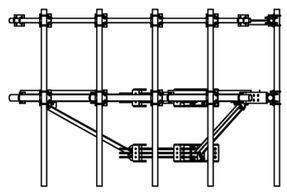
81	02	CUSTOMER	BMC 7/14/2014	RMQP-4096-HK

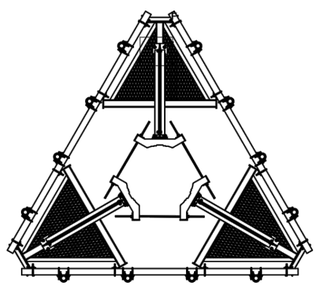
SHEET 2 OF 3

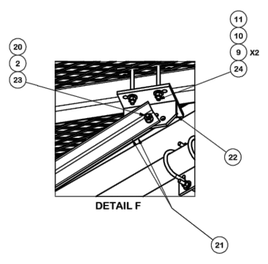
REVISION HISTORY

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
C	RELOCATED MOUNT PIPE POSITIONS	4488	JET	5/23/2021
B	CHANGED X-253992 TO X-TBW		CEK	9/20/2018
A	REPLACED HCP WITH X-AHCP	4488	CEK	7/14/2014









DETAIL F

TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
SAWED, SHEARED AND GAS CUT EDGES *(± 0.030")*
DRILLED AND GAS CUT HOLES *(± 0.030")* - NO CONING OF HOLES
LASER CUT EDGES AND HOLES *(± 0.010")* - NO CONING OF HOLES
BENDS ARE ± 1/2 DEGREE
ALL OTHER MACHINING *(± 0.030")*
ALL OTHER ASSEMBLY *(± 0.060")*

PROPRIETARY NOTE:
THE DATA AND TECHNIQUES CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF VALMONT INDUSTRIES IS STRICTLY PROHIBITED.

DESCRIPTION: 12' 6" LOW PROFILE PLATFORM WITH TWELVE 2-7/8" ANTENNA MOUNTING PIPES, AND SUPPORT RAIL

SITE PRO 1 — A valmont COMPANY
Engineering Support Team: 1-888-753-7446
Locations: New York, NY; Atlanta, GA; Los Angeles, CA; Plymouth, IN; Salem, OR; Dallas, TX

CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
4488	CEK 3/24/2014		RMQP-4096-HK

CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81	02	CUSTOMER	BMC 7/14/2014	RMQP-4096-HK

SHEET 3 OF 3

REVISION HISTORY

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
C	RELOCATED MOUNT PIPE POSITIONS	4488	JET	5/23/2021
B	CHANGED X-253992 TO X-TBW		CEK	9/20/2018
A	REPLACED HCP WITH X-AHCP	4488	CEK	7/14/2014

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

SUPPLEMENTAL

SHEET NUMBER:	REVISION:
R-606	0

AMERICAN TOWER®
CORPORATION

This report was prepared for American Tower Corporation by

CLS ENGINEERING PLLC

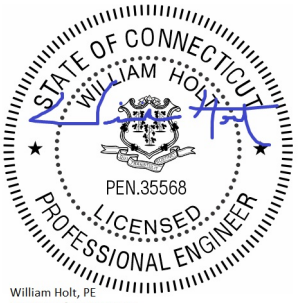
Antenna Mount Analysis Report

ATC Site Name	:	**Old Saybrook**
ATC Asset Number	:	**370625**
Engineering Number	:	**13764580_C8_01**
Mount Elevation	:	**163.75 ft**
Carrier	:	**T-Mobile**
Carrier Site Name	:	**Crown Old Saybrook Monopole**
Carrier Site Number	:	**CTHA540A**
Site Location	:	**77 Springbrook Road** **Old Saybrook, CT 06475-0000** **41.31383333, -72.36402778**
County	:	**Middlesex**
Date	:	**January 7, 2022**
Max Usage	:	**73%**
Result	:	**Contingent Pass*** ***See conclusion for requirements**

Prepared By:
Snehitha Narava
CLS Engineering, PLLC

Reviewed By:
William Holt, P.E.
CLS Engineering, PLLC

William Holt
Digitally signed by William Holt
Date: 2022.01.07 17:07:34 -05'00'



William Holt, PE
Director of Engineering
License No. 35568 Expires: 01/31/2023

Table of Contents

Introduction

The proposed equipment is to be mounted to the proposed Site Pro 1 RMQP-496-HK Platform w/ Support Rails and Kickers. 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.

Supporting Documents

Structural Data	Site Photos dated July 01, 2020 Spec Sheet for Site Pro 1, DWG. #RMQP-496-HK, dated July 14, 2014
Previous Analyses	Structural Analysis by CLS Engineering for American Tower Corporation, Eng. #13730627_C3_01, dated September 16, 2021
Loading Data	ATC Application, Project #13764580, dated January 04, 2022 T-Mobile RFDS, Site ID #CTHA540A, Version 6.00, dated December 10, 2021

Analysis

Codes	TIA-222-H
Basic Wind Speed	125 mph, V_{ult} (3-Second Gust)
Basic Wind Speed w/ Ice	50 mph (3-Second Gust) w/ 1" Radial Ice (Escalating)
Exposure Category	C
Topographic Factor Procedure:	Method 2
Feature:	Flat
Crest Height (H):	0 ft
Crest Length (L):	0 ft
Risk Category	II
Maintenance Live Load	L_M: 500 lb
Spectral Response	S_s: 0.20; S_1: 0.05; Site Class: D

Conclusion

Based on the analysis, the antenna mount meets the requirements per the applicable codes listed above. 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 Site Pro 1 RMQP-496-HK Platform w/ Support Rails and Kickers.**
- **Install (4) 8 ft. long mount pipes included in platform mount kit at each sector (12 total). Connect to platform base horizontal members and support rails using crossover plates included in the platform mount kit.**
- **All mount pipes are to be installed equidistant from each other as shown in the assembly drawings.**
- **Install existing and proposed antennas such that they are vertically centered on platform base. Install proposed RRUS and TMAs behind the antennas.**

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.

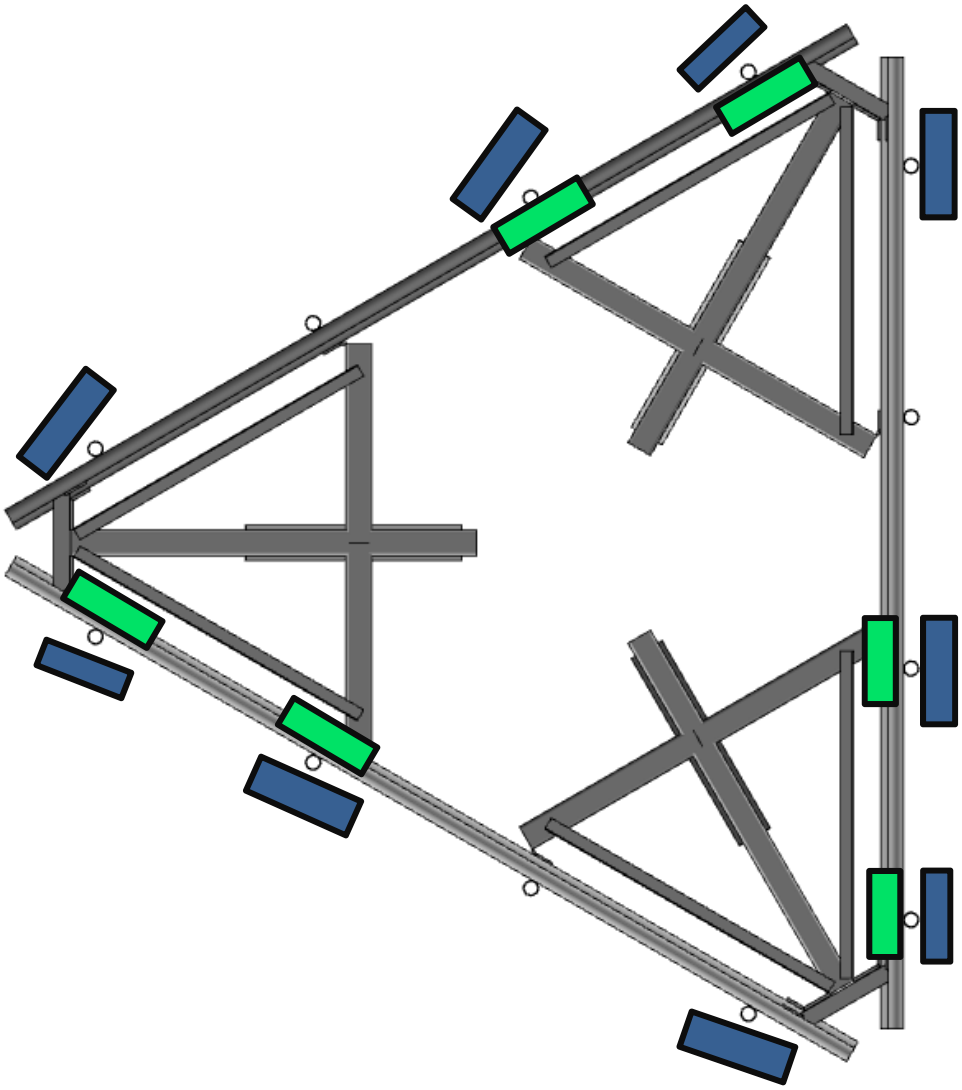
Antenna Loading

Elevation (ft)		Antennas	
Mount	**Rad.**	**#**	**Name**
163.8	162.0	3	RFS APXVAARR24_43-U-NA20
		3	RFS APX16DWV-16DWVS-E-A20
		3	Ericsson Air6449 B41
		3	Ericsson 4460 BAND 2/25
		3	Ericsson RADIO 4449 B71 B85A

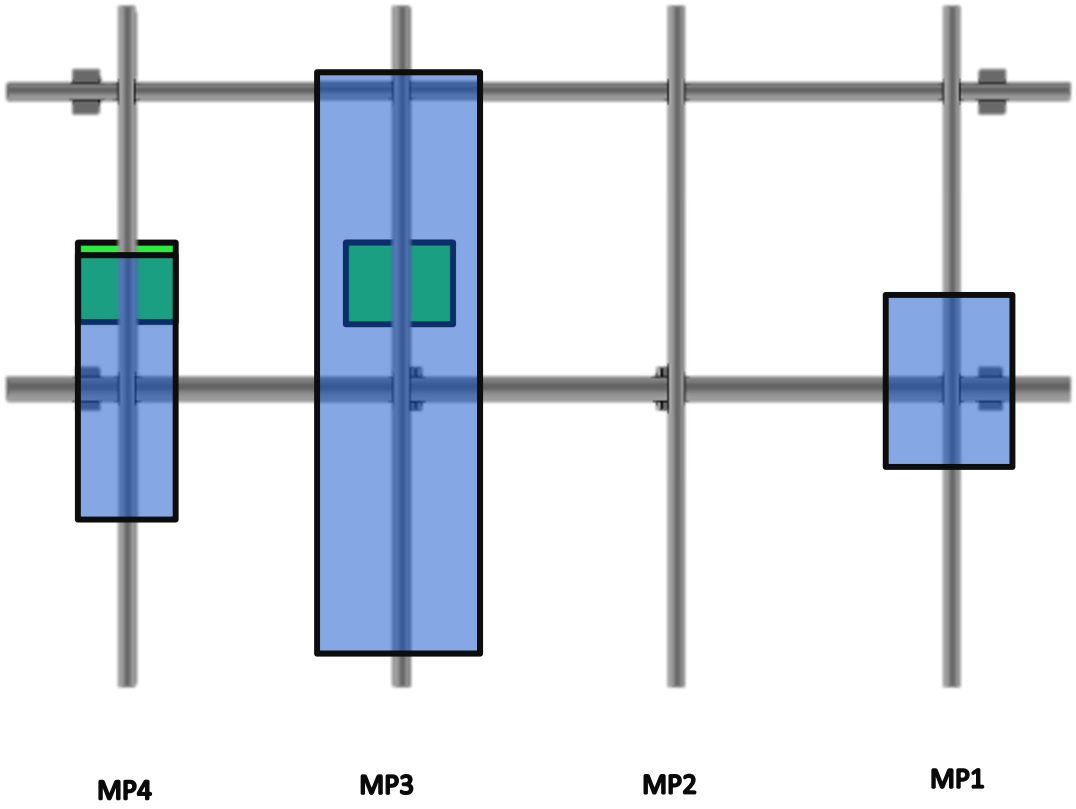
Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Corner Plates	73%	Pass
Mount Pipes	47%	Pass
Support Rail	47%	Pass
Stand-Off Horizontals	19%	Pass
Mount to Tower Plate Connections	18%	Pass
Platform Base	13%	Pass

Equipment Layout Plan View



Equipment Layout Front Elevation View



Total #	Equipment	Mount Pipe Position
3	Ericsson Air6449 B41	P1
3	RFS APXVAARR24_43-U-NA20	P3
3	RFS APX16DWV-16DWVS-E-A20	P4
3	Ericsson RADIO 4449 B71 B85A	P3
3	Ericsson 4460 BAND 2/25	P4

Standard 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:

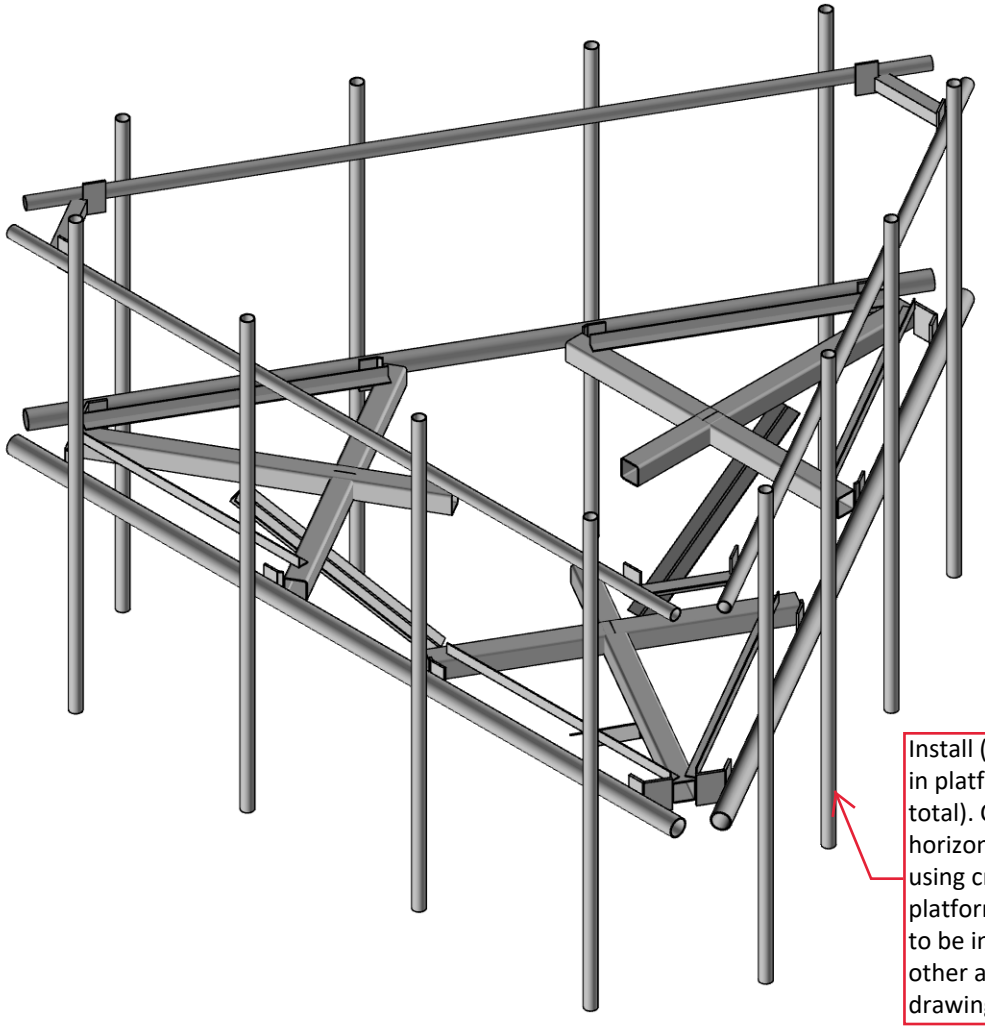
1. The tower or other superstructure and mounts (if existing) were properly constructed as per the original design and have been properly maintained in accordance with applicable code standards.
2. Member sizes and strengths are accurate as supplied or are assumed as stated in the calculations.
3. In 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.
7. Installation of all equipment and steel should be confirmed not to cause tower conflicts nor impede the tower climbing pegs.

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.

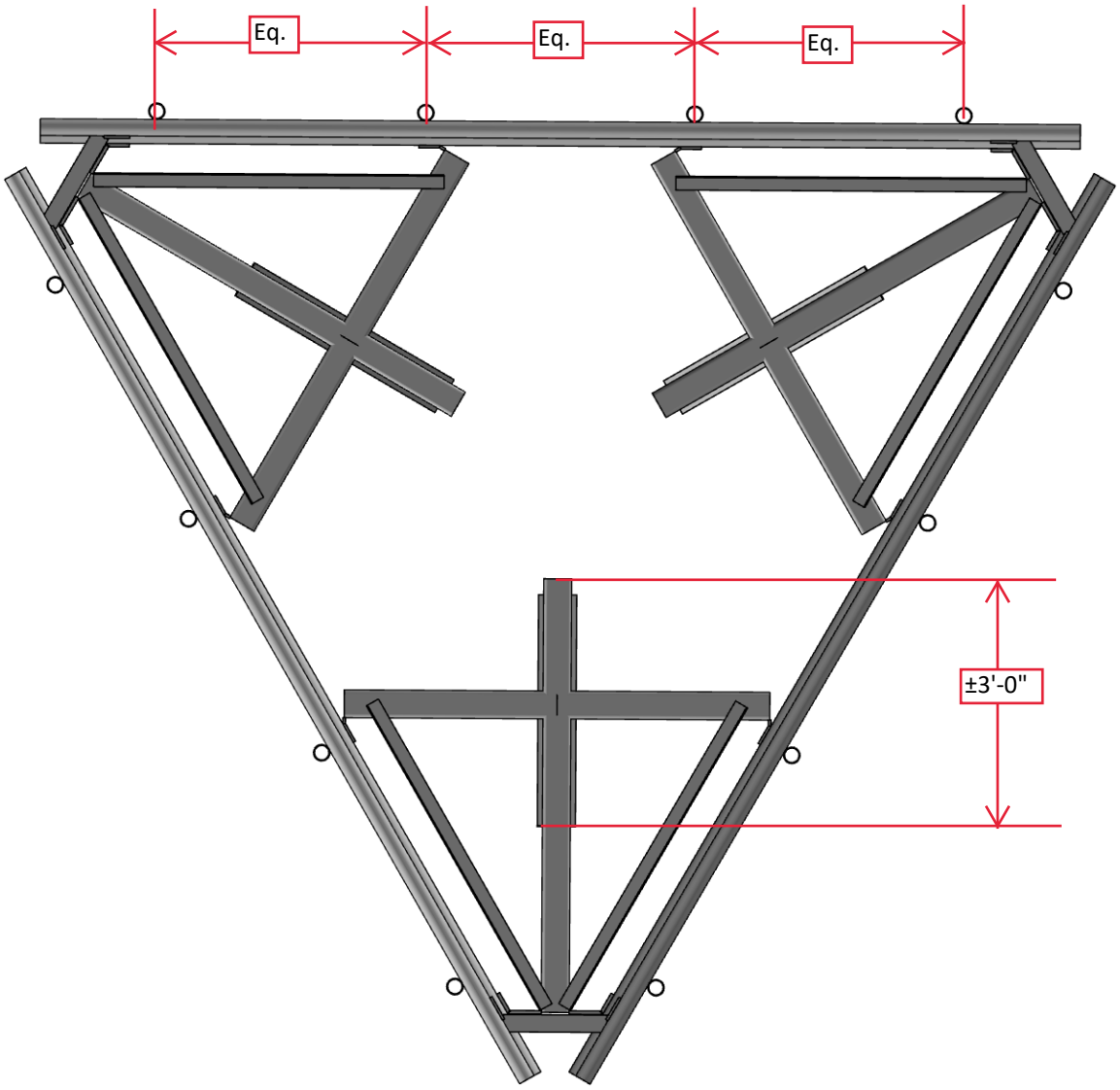
It is not possible to have the fully detailed information necessary to perform a complete and thorough analysis of every structural sub-component of an existing structure. The structural analysis by CLS Engineering, PLLC verifies the adequacy of the primary members of the structure. CLS Engineering,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

Replace existing T-Arm mounts with (1) new Site Pro 1 RMQP-496-HK Platform w/ Support Rails and Kickers.



Install (4) 8 ft. long mount pipes included in platform mount kit at each sector (12 total). Connect to platform base horizontal members and support rails using crossover plates included in the platform mount kit. All mount pipes are to be installed equidistant from each other as shown in the assembly drawings.

Telamon CLS	41124-13764580_C8_01-Old Saybrook	IN-1
SN		Jan 06, 2022
41124-13764580_C8_01-01-MA	Proposed Modifications - ISO View	41124-13764580_C8_01-01-MA.r3d



Telamon CLS	41124-13764580_C8_01-Old Saybrook	IN-2
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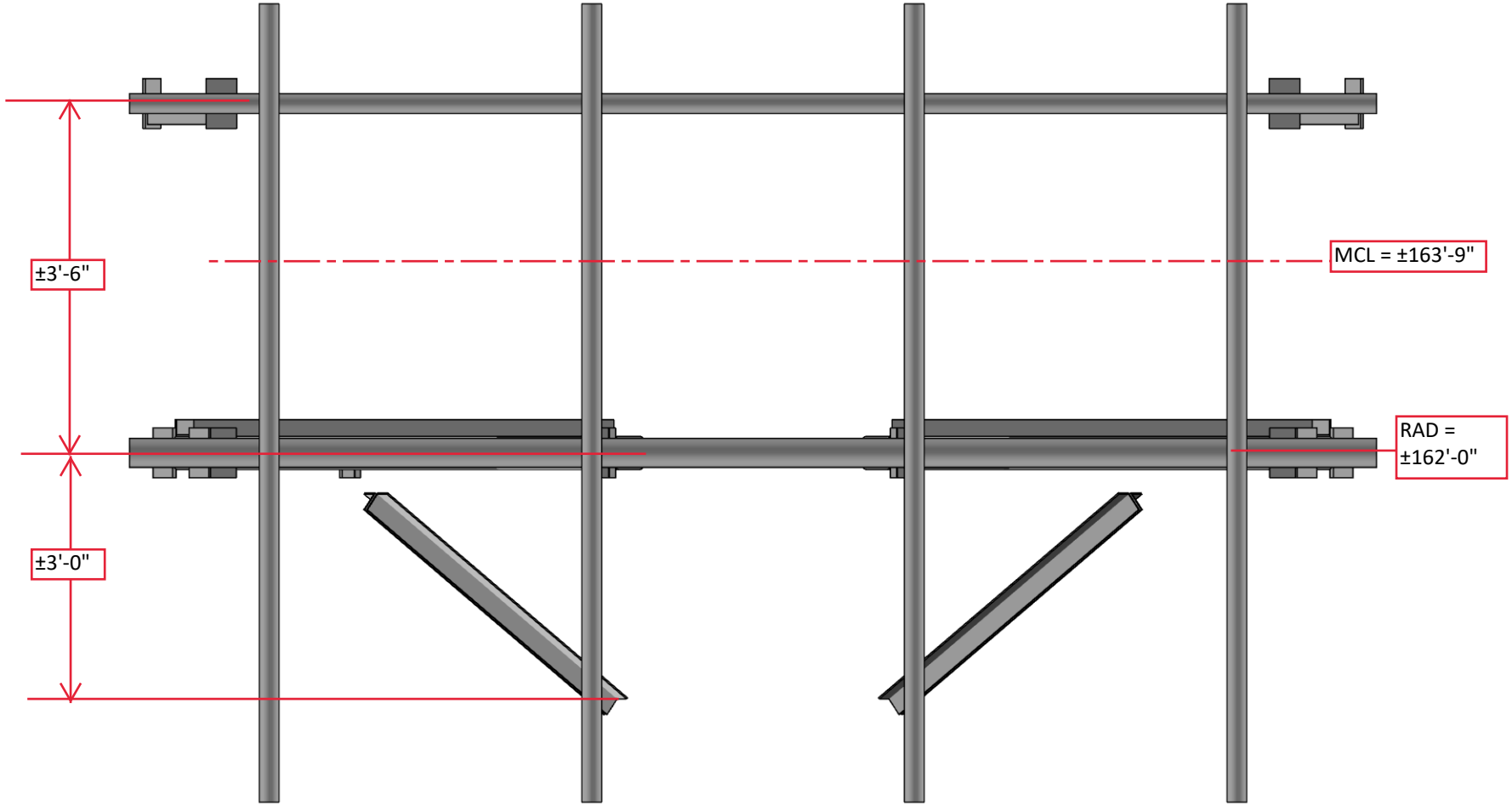

Telamon CLS	41124-13764580_C8_01-Old Saybrook	IN-3
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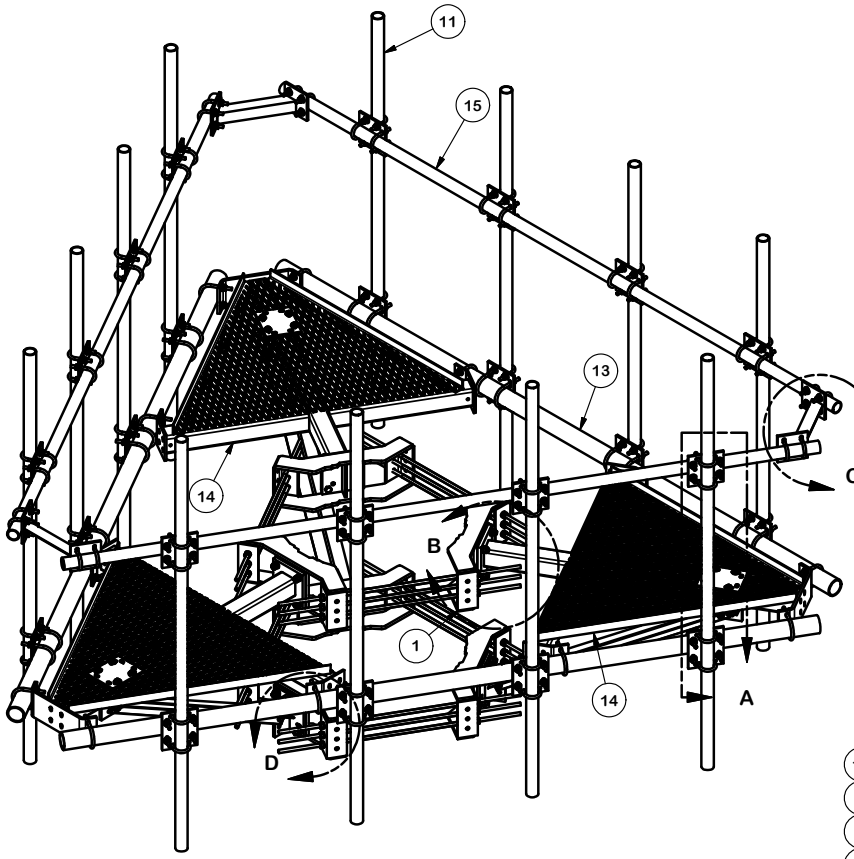
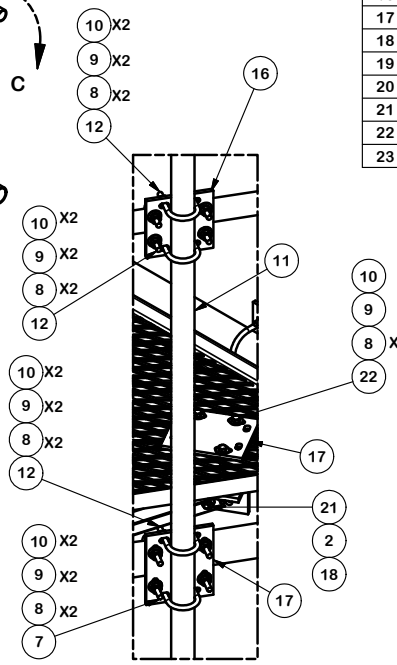
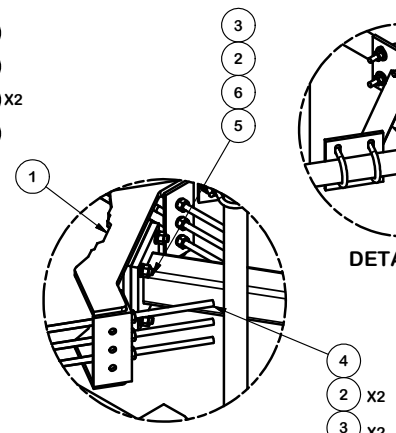


PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	6	X-LWRM	RING MOUNT WELDMENT		68.16	408.95
2	66	G58LW	5/8" HDG LOCKWASHER		0.03	1.72
3	60	A58NUT	5/8" HDG A325 HEX NUT		0.13	7.78
4	18	G58R-24	5/8" x 24" THREADED ROD (HDG.)		0.55	9.88
4	18	G58R-48	5/8" x 48" THREADED ROD (HDG.)		0.55	9.88
5	24	A58234	5/8" x 2-3/4" HDG A325 HEX BOLT	2 3/4 in	0.36	8.53
6	24	A58FW	5/8" HDG A325 FLATWASHER		0.03	0.82
7	36	X-UB1306	1/2" X 3-5/8" X 6" X 3" U-BOLT (HDG.)		0.73	26.34
8	264	G12FW	1/2" HDG USS FLATWASHER		0.03	8.99
9	252	G12LW	1/2" HDG LOCKWASHER		0.01	3.50
10	252	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	18.03
11	12	P296	2-3/8" X 96" SCH. 40 GALVANIZED PIPE	96 in	30.76	369.08
12	84	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" U-BOLT (HDG.)		0.73	61.46
13	3	P3150	3-1/2" X 150" SCH 40 GALVANIZED PIPE	150 in	94.80	284.40
14	3	X-SV196	LOW PROFILE PLATFORM CORNER		212.10	636.31
15	3	P2150	2-3/8" OD X 150" SCH 40 GALVANIZED PIPE	150 in	48.06	144.17
16	12	SCX2	CROSSOVER PLATE	7 in	4.80	57.56
17	15	SCX4	CROSSOVER PLATE	8 1/2 in	6.02	90.32
18	6	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	0.78
19	6	X-253993	PLATFORM REINFORCEMENT KIT ANGLE	52 25/32 in	14.33	85.99
20	6	X-253992	T-BRACKET FOR REINFORCEMENT KIT		13.55	81.27
21	6	G5802	5/8" x 2" HDG HEX BOLT GR5		0.27	1.62
22	12	G12065	1/2" x 6-1/2" HDG HEX BOLT GR5 FULL THREAD	6 1/2 in	0.41	4.91
23	3	X-AHCP	ANGLE HANDRAIL CORNER PLATE		12.92	38.76
					TOTAL WT. #	2448.72



DETAIL A



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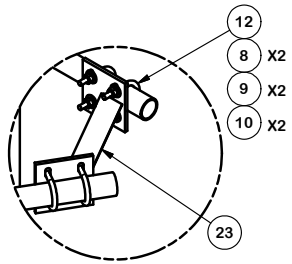
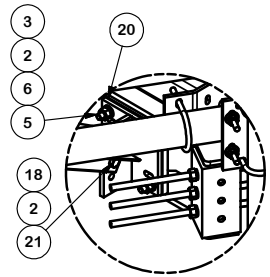


DETAIL C



DETAIL D

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12' 6" LOW PROFILE PLATFORM
WITH TWELVE 2-3/8" ANTENNA MOUTING
PIPES, AND HANDRAIL

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A valmont COMPANY
Engineering Support Team: 1-888-753-7446
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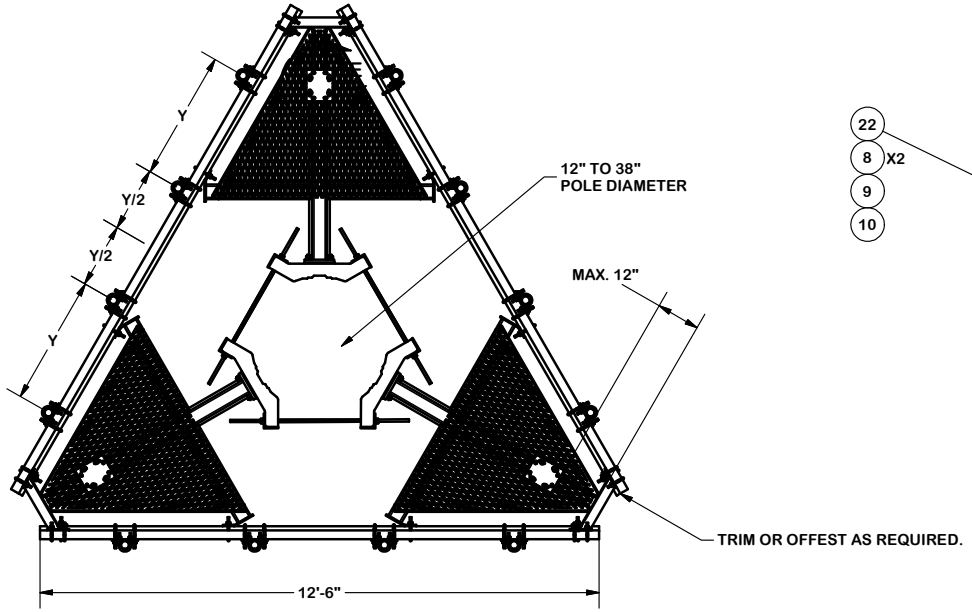
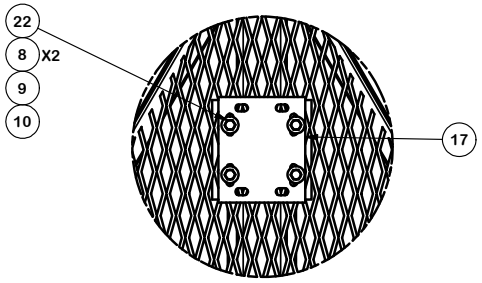
4488	CEK 7/14/2014		RMQP-496-HK	1 OF 3
CLASS / SUB	DRAWING USAGE	CHECKED BY	DWG. NO.	
81 / 02	CUSTOMER	BMC 7/14/2014	RMQP-496-HK	





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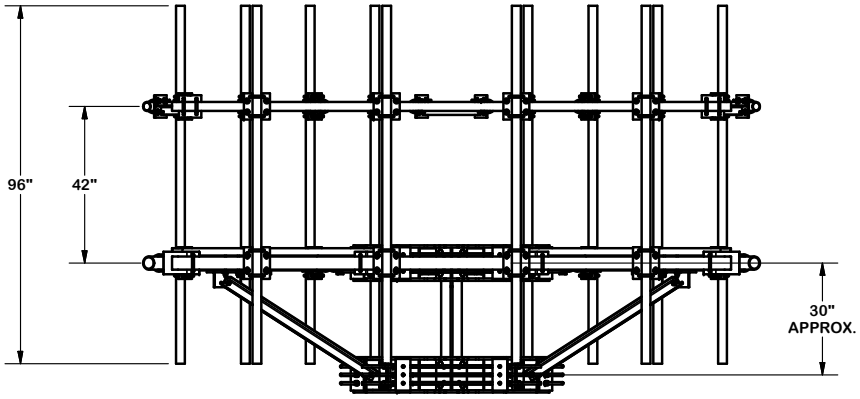

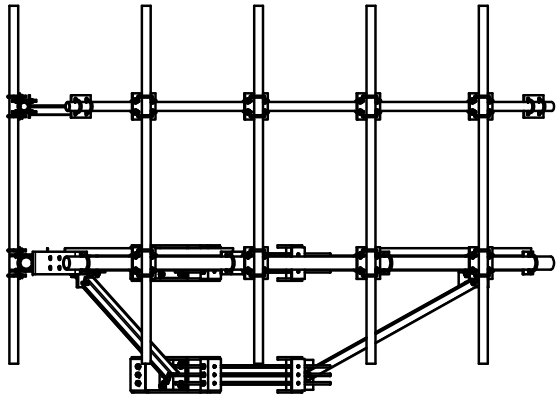

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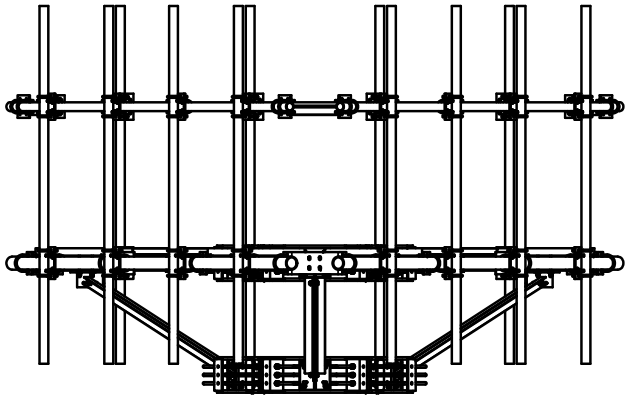

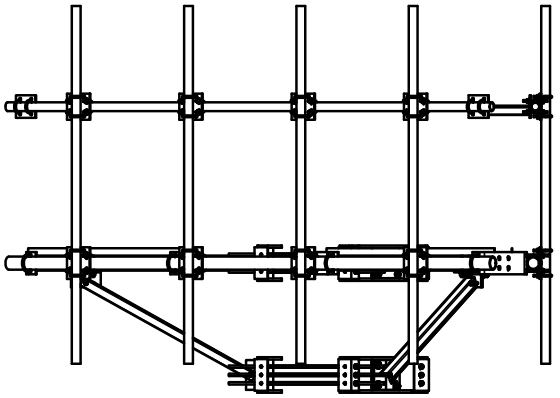

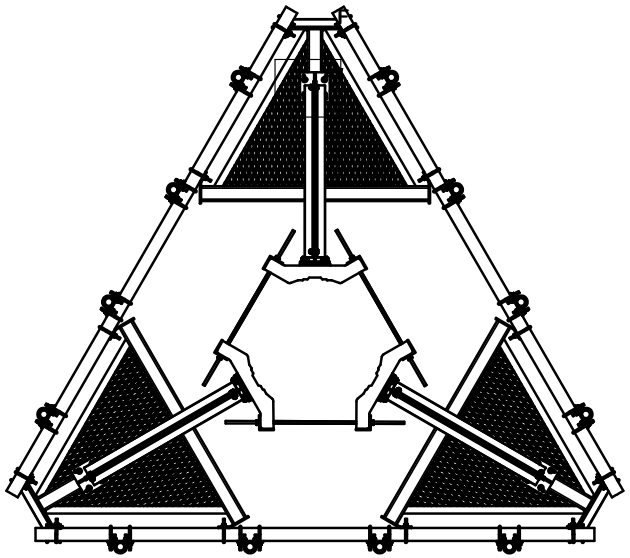

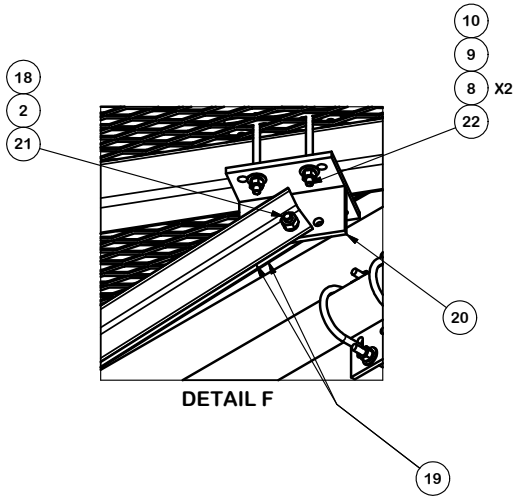

DETAIL F

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Wind & Ice Loading

Nominal Mount Elevation (AGL), z_{mount}	164 ft	**K_a**	0.90
Nominal Rad Elevation (AGL), z_{rad}	162 ft	**K_d**	0.95
Elevation AMSL (ft)	43 ft	**K_e**	1.00
TIA Standard	H	**K_z**	1.40
Basic Wind Speed, V_{ult} (bare)	125 mph	**K_{zt}**	1.00
Basic Wind Speed, V (ice)	50 mph	**K_s**	1.00
Design Ice Thickness, t_i	1 in	**t_{iz}**	1.17 in
Exposure Category	C	**G_h**	1.00
Risk Category	II	**q_z (bare)**	53.3 psf
Seismic Response Coeff., C_s	0.11	**q_z (ice)**	8.5 psf

Live Loading

At Mount Pipes, L_M	500 lb
Joint Labels Considered	1_M1
	1_M2
	1_M3
	1_M4

Member Distributed Loading

Section Set Label	Shape Label	F_A (lb/ft)		Ice Wt. (lb/ft)
		Bare	Ice	
Offset Tube	HSS4X4X4	31.96	2.18	8.99
Offset End Plate	0.5 x 6 Plate	47.94	6.42	7.62
Offset Side Plate	0.38 X 6 Plate	47.94	6.41	7.51
Platform Horizontal Pipe	PIPE_3.0	16.78	4.49	6.70
Grating Angle	L2x2x3	15.98	1.99	5.22
HRKAngle	L2.5x2.5x4	19.98	2.04	6.13
HRK12-U	PIPE_2.0	11.39	3.62	5.09
HRKPlate	0.38 X 6 Plate	47.94	6.41	7.51
MOUNT_PIPE_2.0	PIPE_2.0	11.39	3.62	5.09
PRK-1245	L2.5x2.5x3	19.98	2.04	6.13

Appurtenances

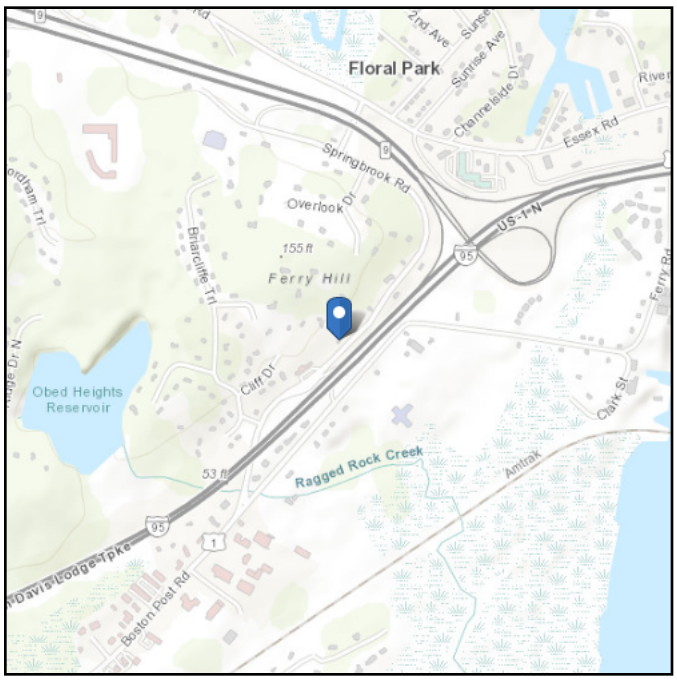
Appurtenance Model	Status	Azimuth Offset (°, ↻)	Rad Elev. Override (ft)	Swap Width & Depth	Area Factor		Qty. per Azimuth			Total Qty. Override	0° Joints		110° Joints		205° Joints		Height (in)	Width (in)	Depth (in)	Weight (Bare) (lb)	Shape	Weight of Ice (lb)	EPA_A (Bare) (ft²)		EPA_A (Ice) (ft²)		F_A (Bare) (lb)		F_A (Ice) (lb)	
					Front	Side	0°	110°	205°		1	2	1	2	1	2							N	T	N	T	N	T	N	T
Air6449 B41				☐			1	1	1	**3**	1_A1T	1_A1B	2_A1T	2_A1B	3_A1T	3_A1B	33.1	20.6	8.6	104	Flat	98.43	5.68	2.49	6.78	3.32	271.81	119.14	51.87	25.42
APXVAARR24_43-U-NA20				☐			1	1	1	**3**	1_A3T	1_A3B	2_A3T	2_A3B	3_A3T	3_A3B	95.9	24	8.7	153.3	Generic	264.02	14.67	5.32	16.45	6.89	701.76	254.49	125.92	52.74
APX16DWV-16DWVS-E-A20				☐			1	1	1	**3**	1_A4T	1_A4B	2_A4T	2_A4B	3_A4T	3_A4B	55.9	13.3	3.2	40.7	Flat	86.65	6.59	2.17	7.94	3.40	315.07	103.93	60.75	26.04
RADIO 4449 B71 B85A				☐	0.85		1	1	1	**3**	1_R3BN		2_R3BN		3_R3BN		14.96	13.19	10.51	74.95	Flat	44.79	1.40	1.31	1.90	1.85	66.86	62.68	14.57	14.19
4460 BAND 2/25				☐	0.85		1	1	1	**3**	1_R4BN		2_R4BN		3_R4BN		19.6	15.7	12.1	109	Flat	64.71	2.18	1.98	2.80	2.64	104.27	94.54	21.47	20.22

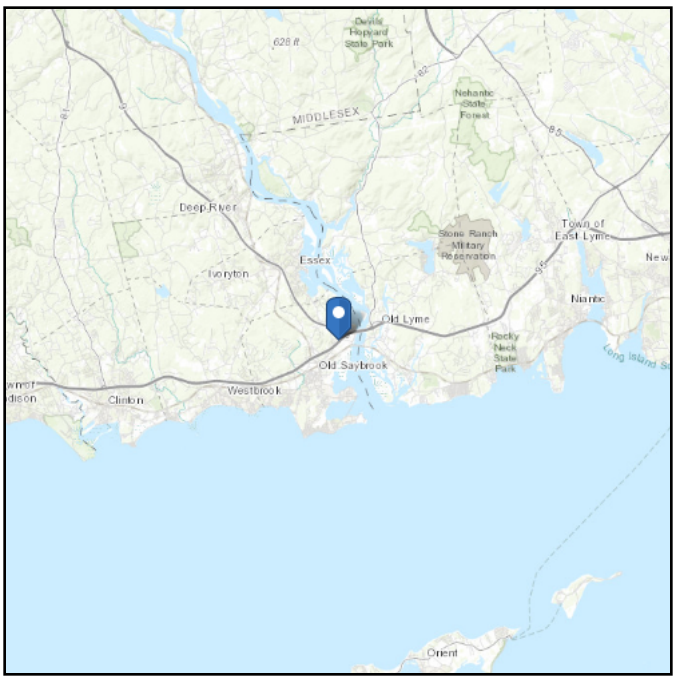
ASCE 7 Hazards Report

Address:
77 Springbrook Rd
Old Saybrook, Connecticut
06475

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Default (see Section 11.4.3)

Elevation: 43.27 ft (NAVD 88)
Latitude: 41.313604
Longitude: -72.363899





Wind

Results:

Wind Speed	125 Vmph
10-year MRI	76 Vmph
25-year MRI	85 Vmph
50-year MRI	96 Vmph
100-year MRI	102 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed: Thu Jan 06 2022

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

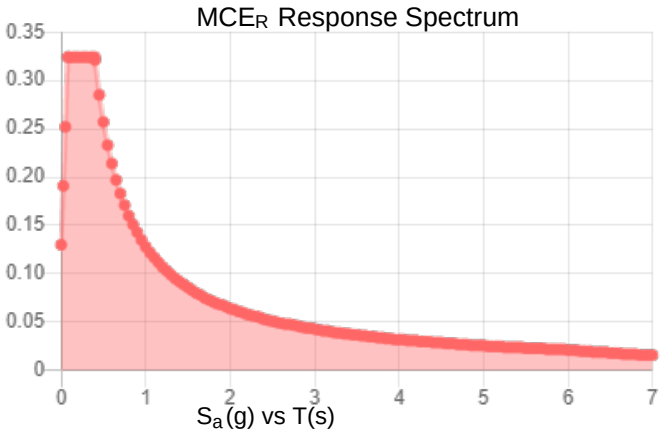
Seismic

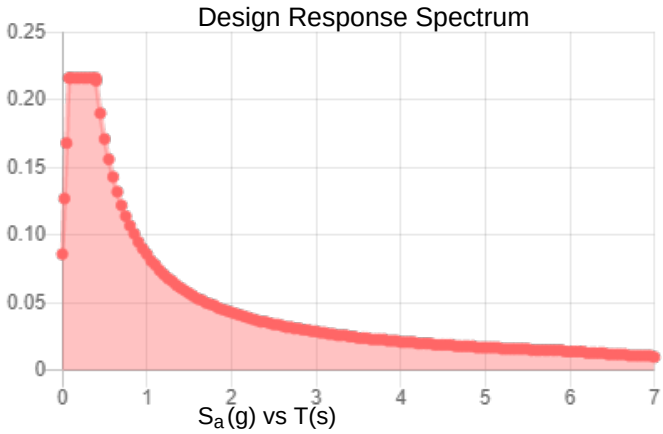
Site Soil Class: D - Default (see Section 11.4.3)

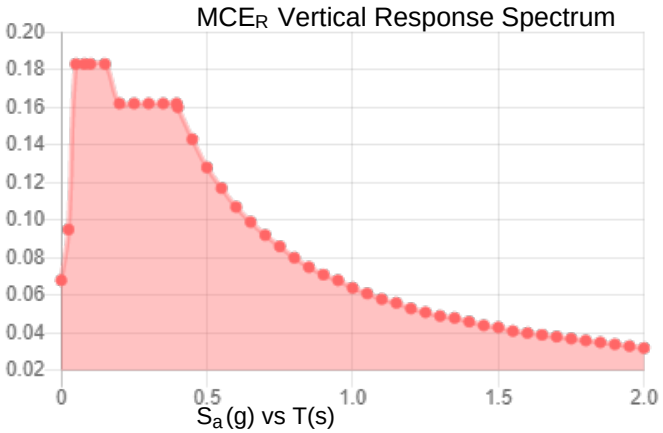
Results:

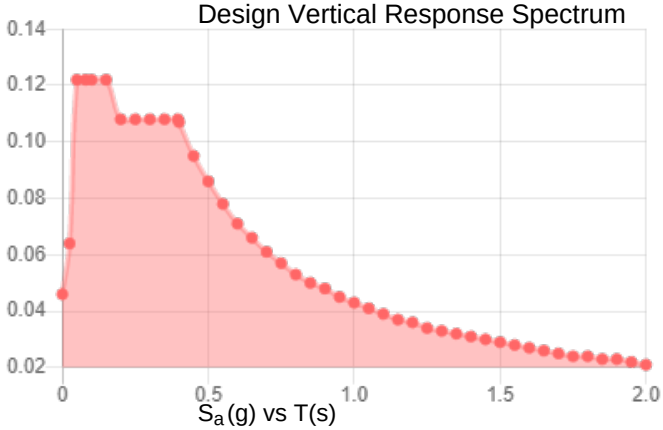
S_S :	0.202	S_{D1} :	0.086
S_1 :	0.053	T_L :	6
F_a :	1.6	PGA :	0.113
F_v :	2.4	PGA_M :	0.178
S_{MS} :	0.324	F_{PGA} :	1.574
S_{M1} :	0.128	I_e :	1
S_{DS} :	0.216	C_v :	0.705

Seismic Design Category B









Data Accessed: **Thu Jan 06 2022**

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-16 and ASCE/SEI 7-16 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-16 Ch. 21 are available from USGS.

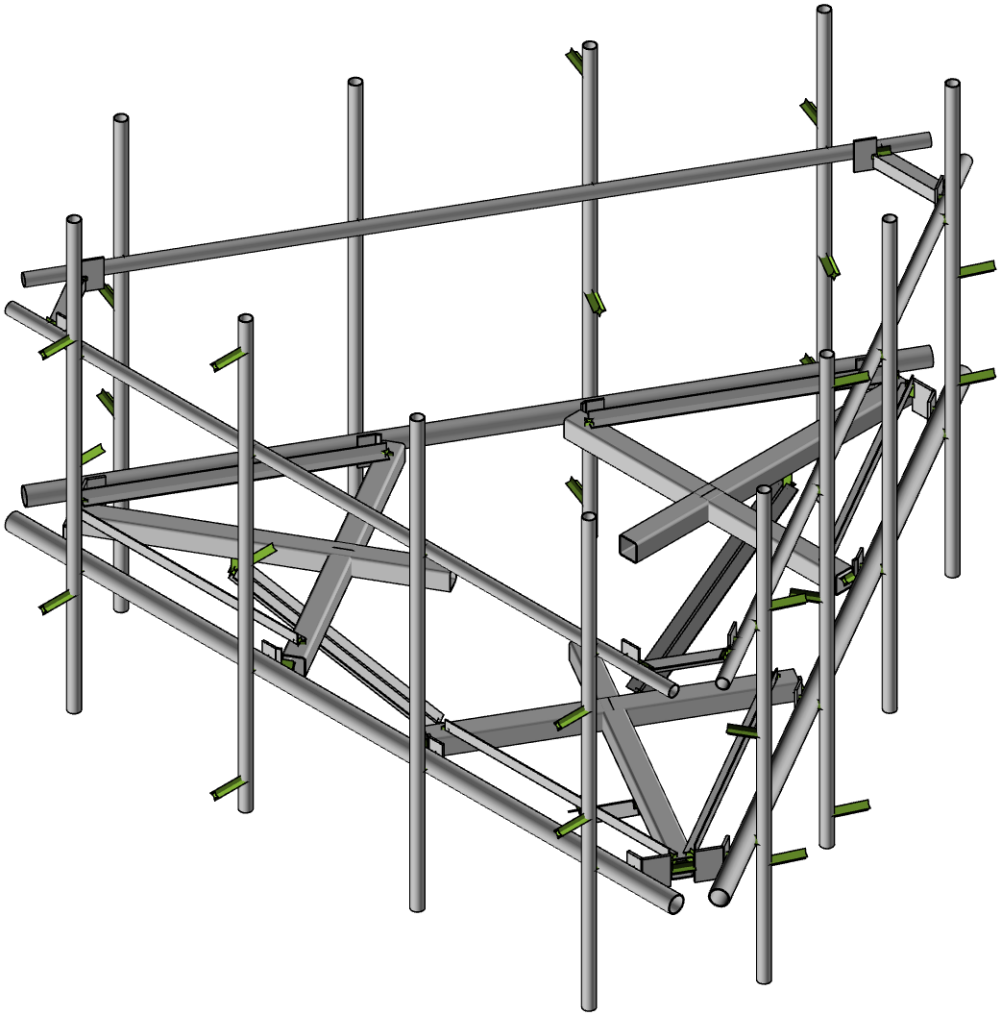
Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	15 F
Gust Speed	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Thu Jan 06 2022

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.



Envelope Only Solution

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SN		Jan 06, 2022
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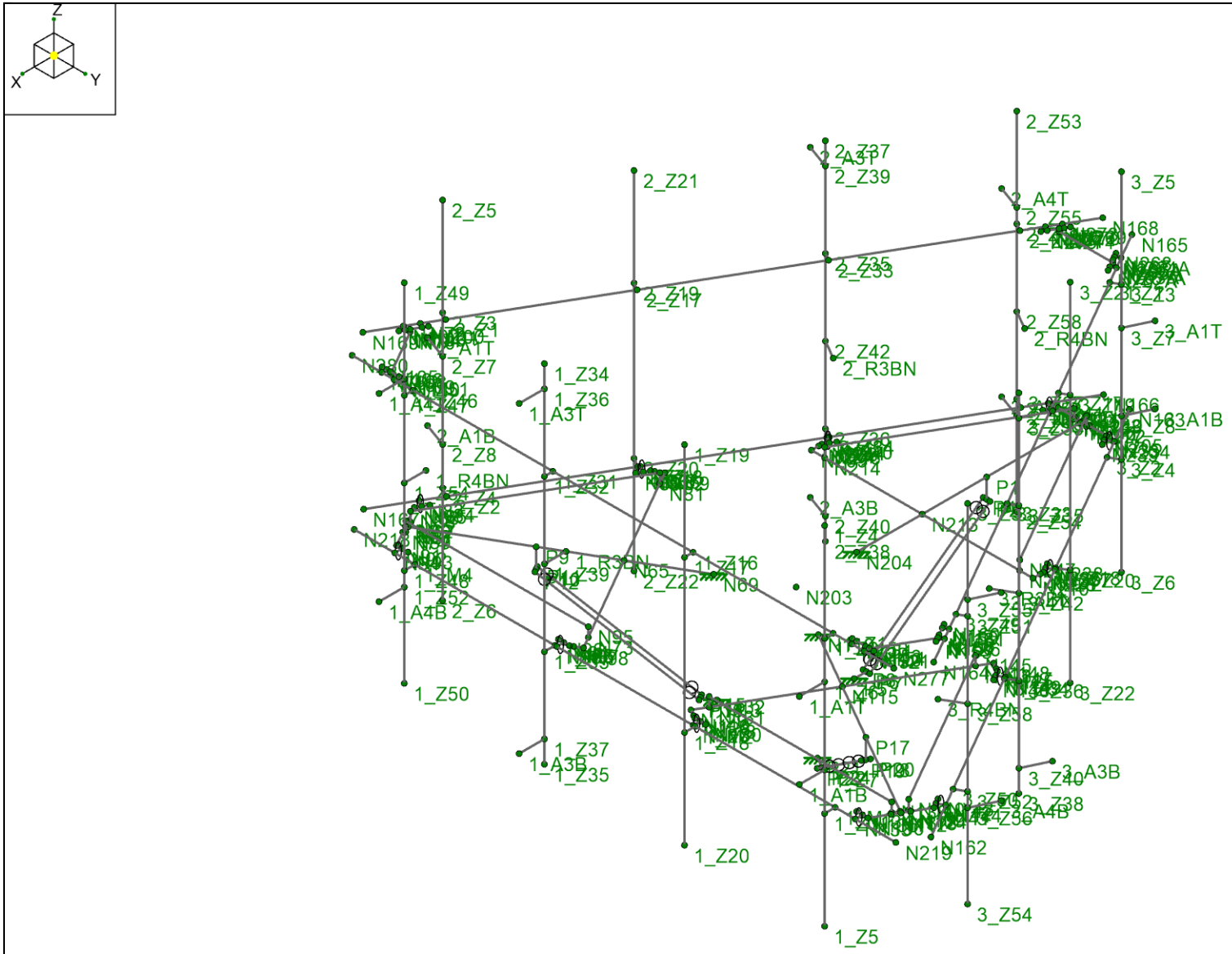

Envelope Only Solution

Telamon CLS	41124-13764580_C8_01-Old Saybrook	SK-2
SN		Jan 06, 2022
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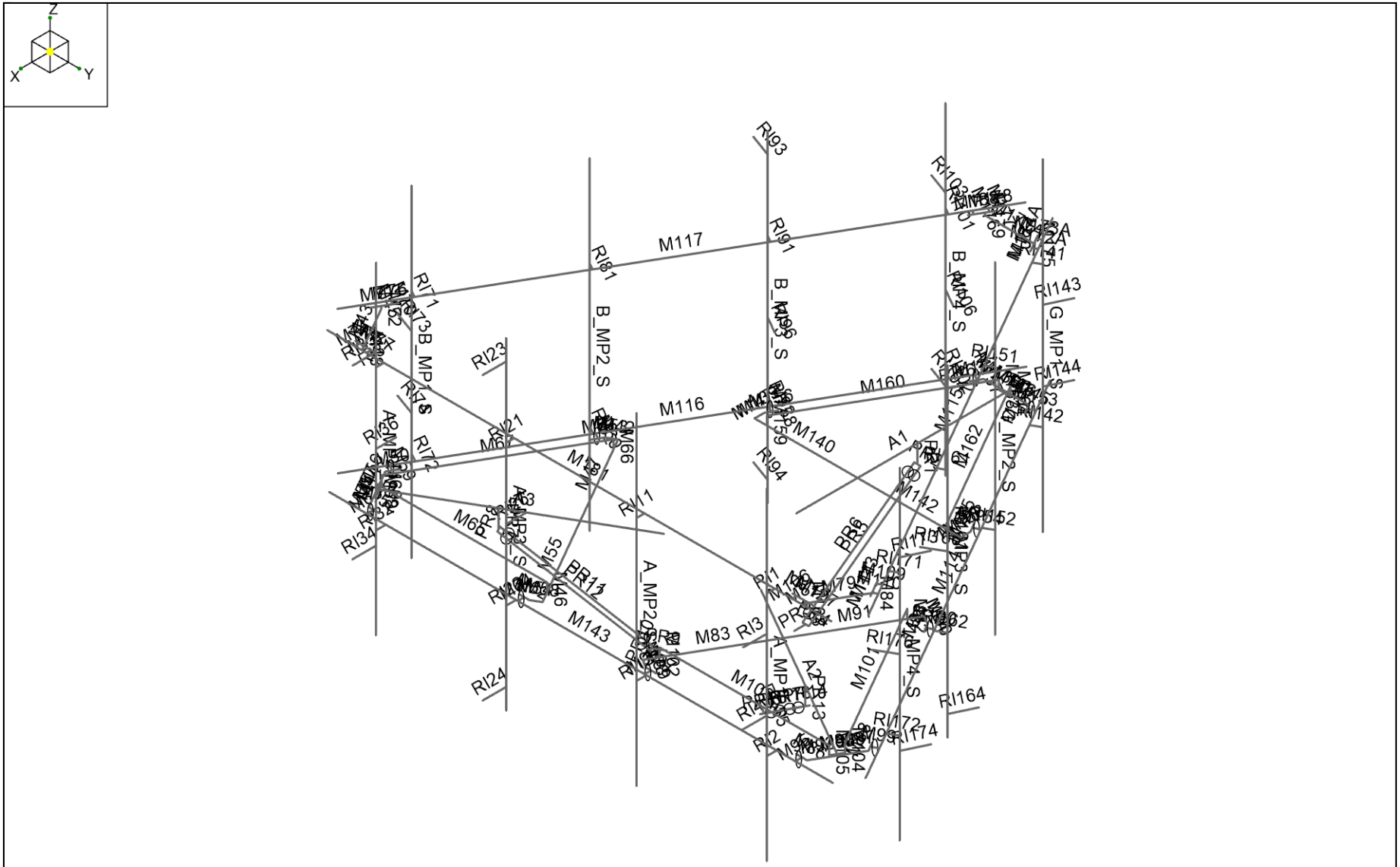
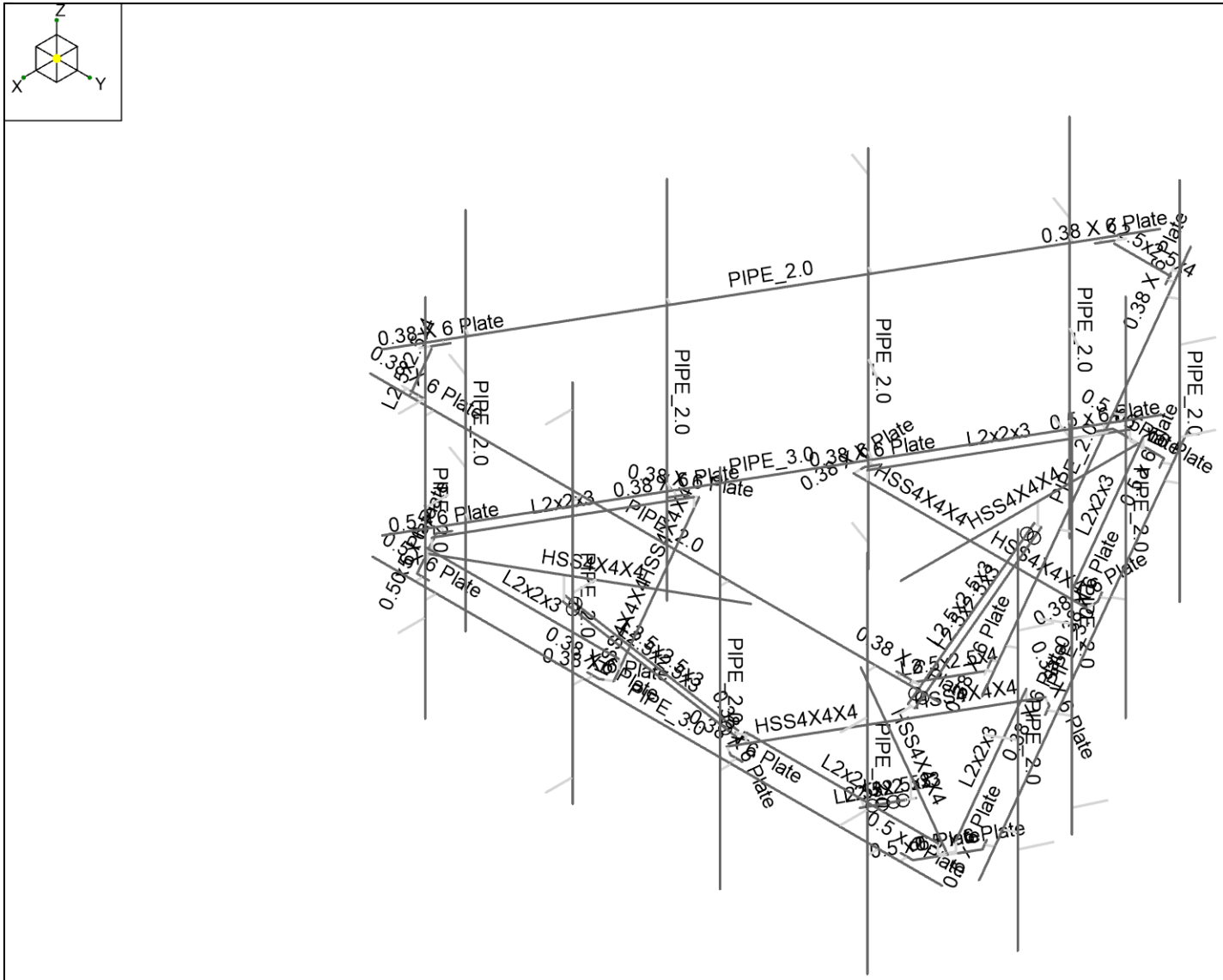


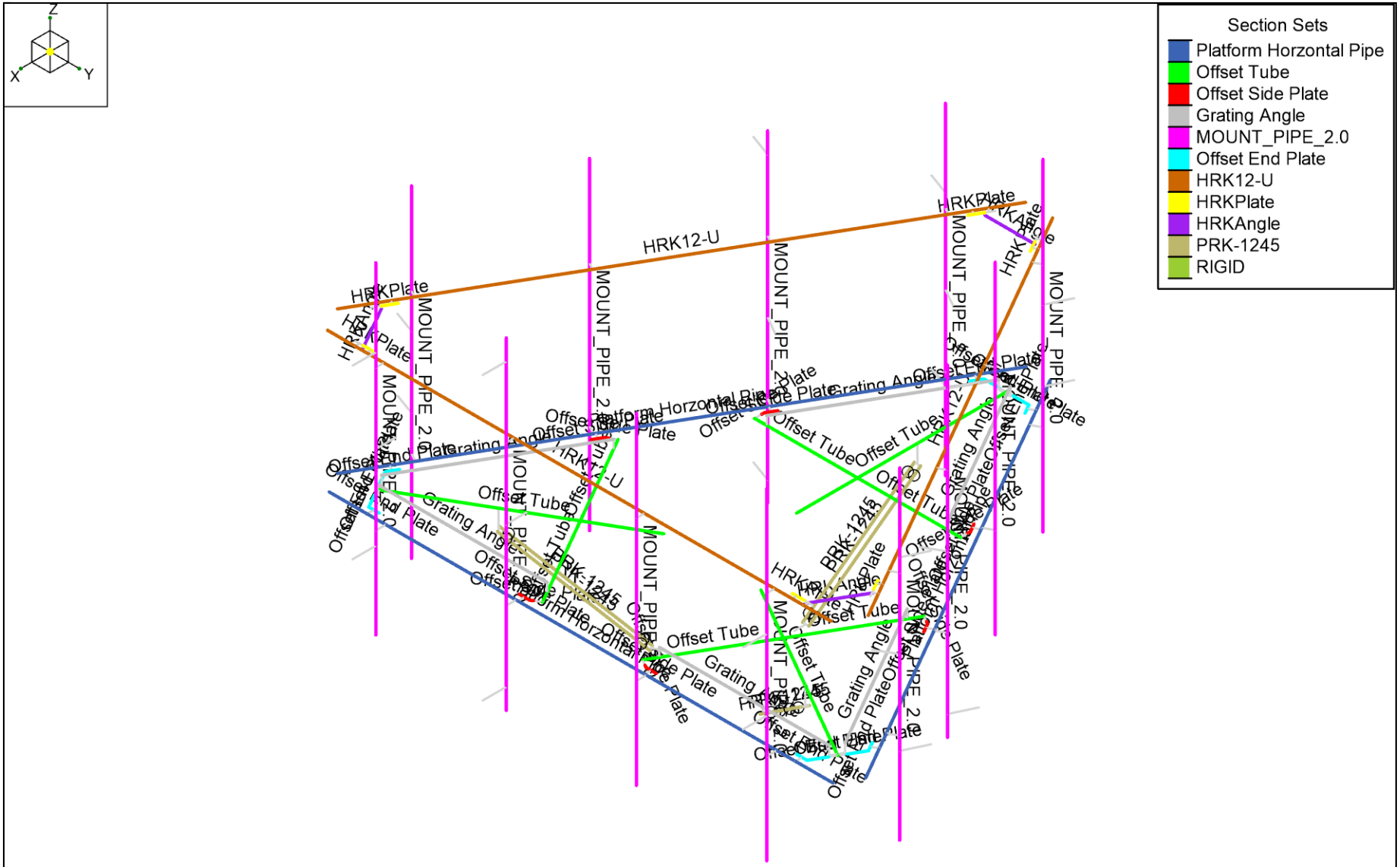
Envelope Only Solution

Telamon CLS	41124-13764580_C8_01-Old Saybrook	SK-3
SN		Jan 06, 2022
41124-13764580_C8_01-01-MA	Member Labels	41124-13764580_C8_01-01-MA.r3d



Envelope Only Solution

Telamon CLS	41124-13764580_C8_01-Old Saybrook	SK-3.1
SN		Jan 06, 2022
41124-13764580_C8_01-01-MA	Member Shapes	41124-13764580_C8_01-01-MA.r3d



Envelope Only Solution

Telamon CLS	41124-13764580_C8_01-Old Saybrook	SK-4
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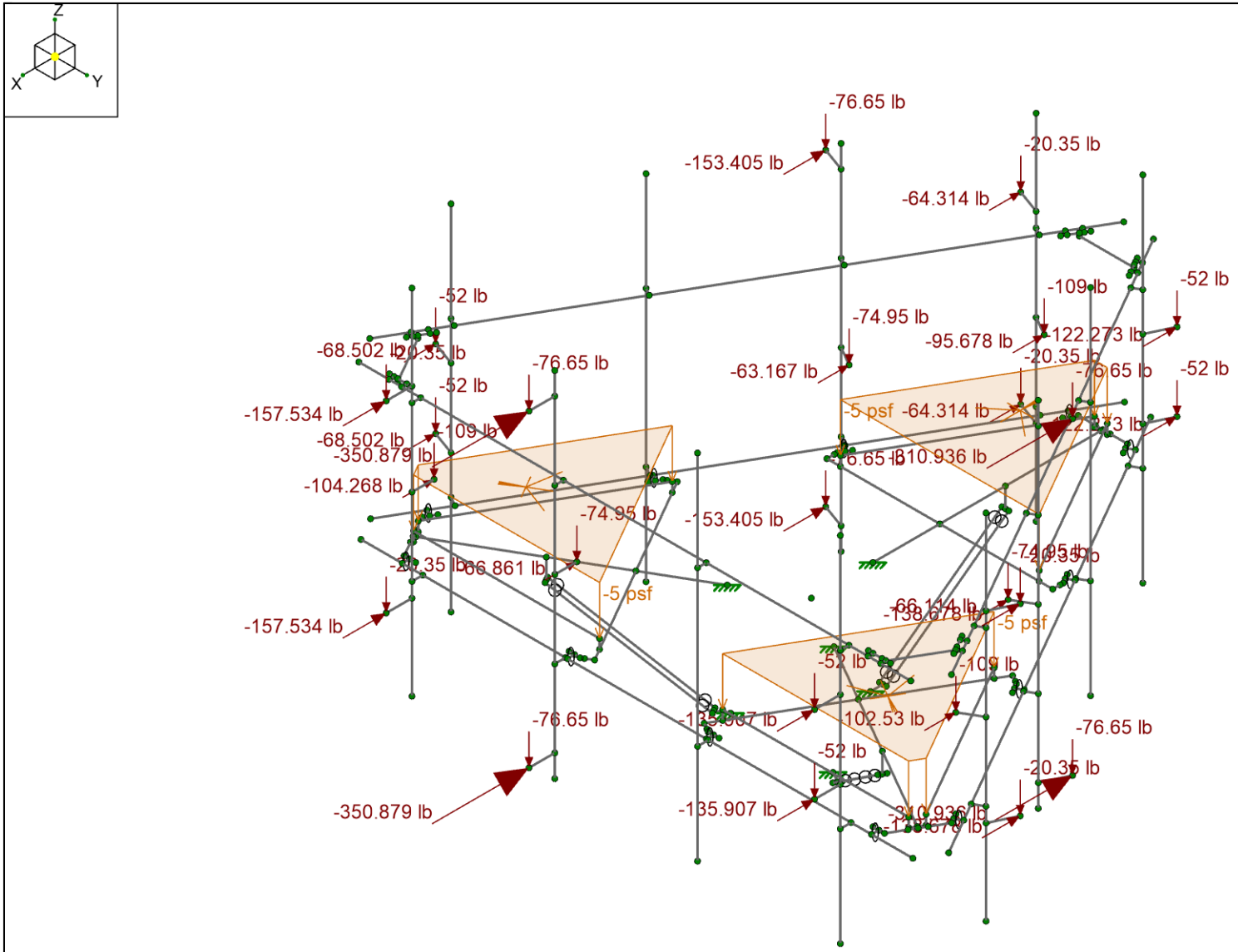
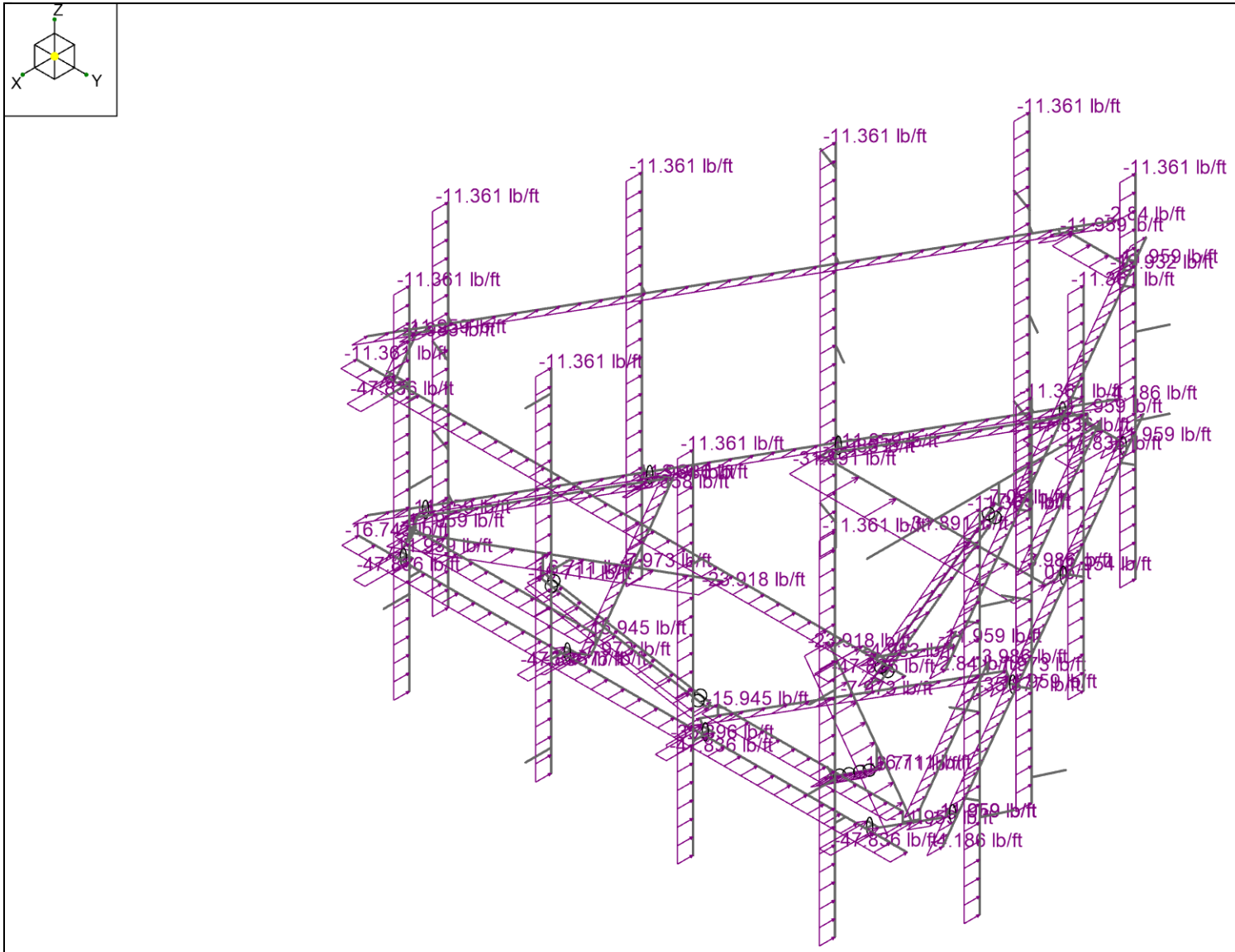
41124-13764580_C8_01-01-MA	Section Sets	41124-13764580_C8_01-01-MA.r3d



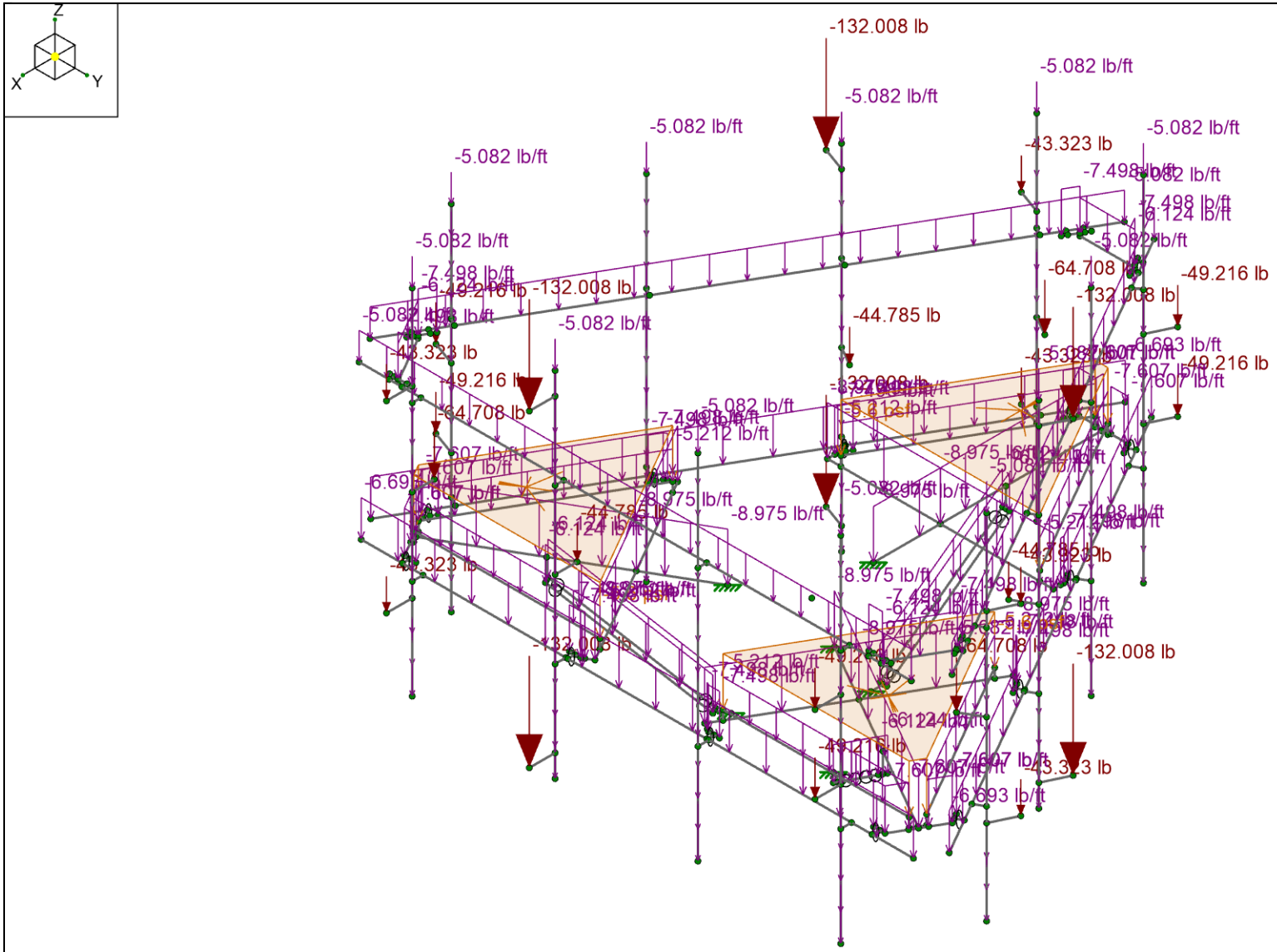
Loads: LC 1, DISPLAY (1.0D + 1.0W_0)
Envelope Only Solution

Telamon CLS	41124-13764580_C8_01-Old Saybrook	SK-5
SN		Jan 06, 2022
41124-13764580_C8_01-01-MA	Joint Loads – Dead and Normal Wind	41124-13764580_C8_01-01-MA.r3d



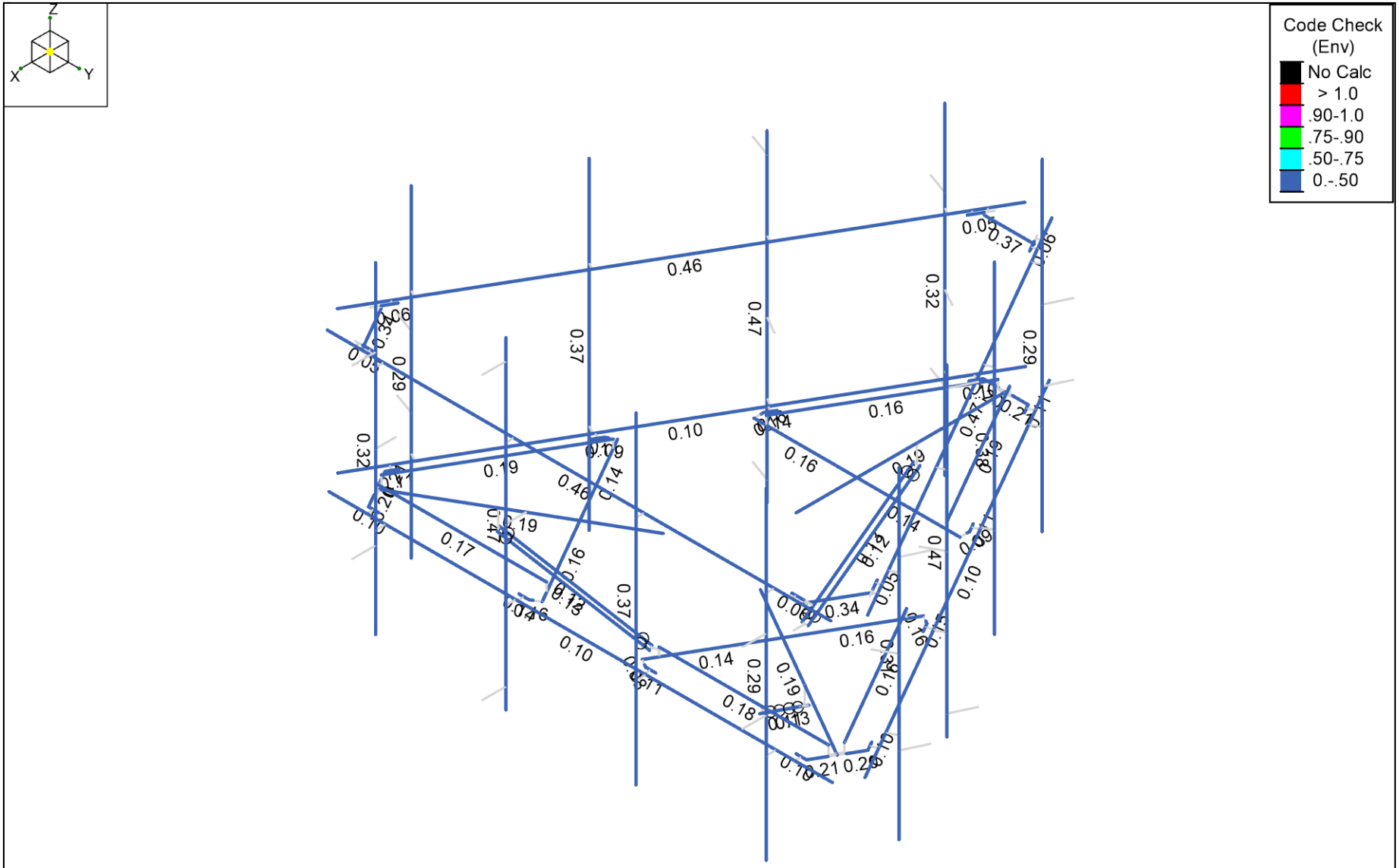
Loads: BLC 5, Structure Wind 0
Envelope Only Solution

Telamon CLS	41124-13764580_C8_01-Old Saybrook	SK-6
SN		Jan 06, 2022
41124-13764580_C8_01-01-MA	Distributed Load – Normal Wind	41124-13764580_C8_01-01-MA.r3d



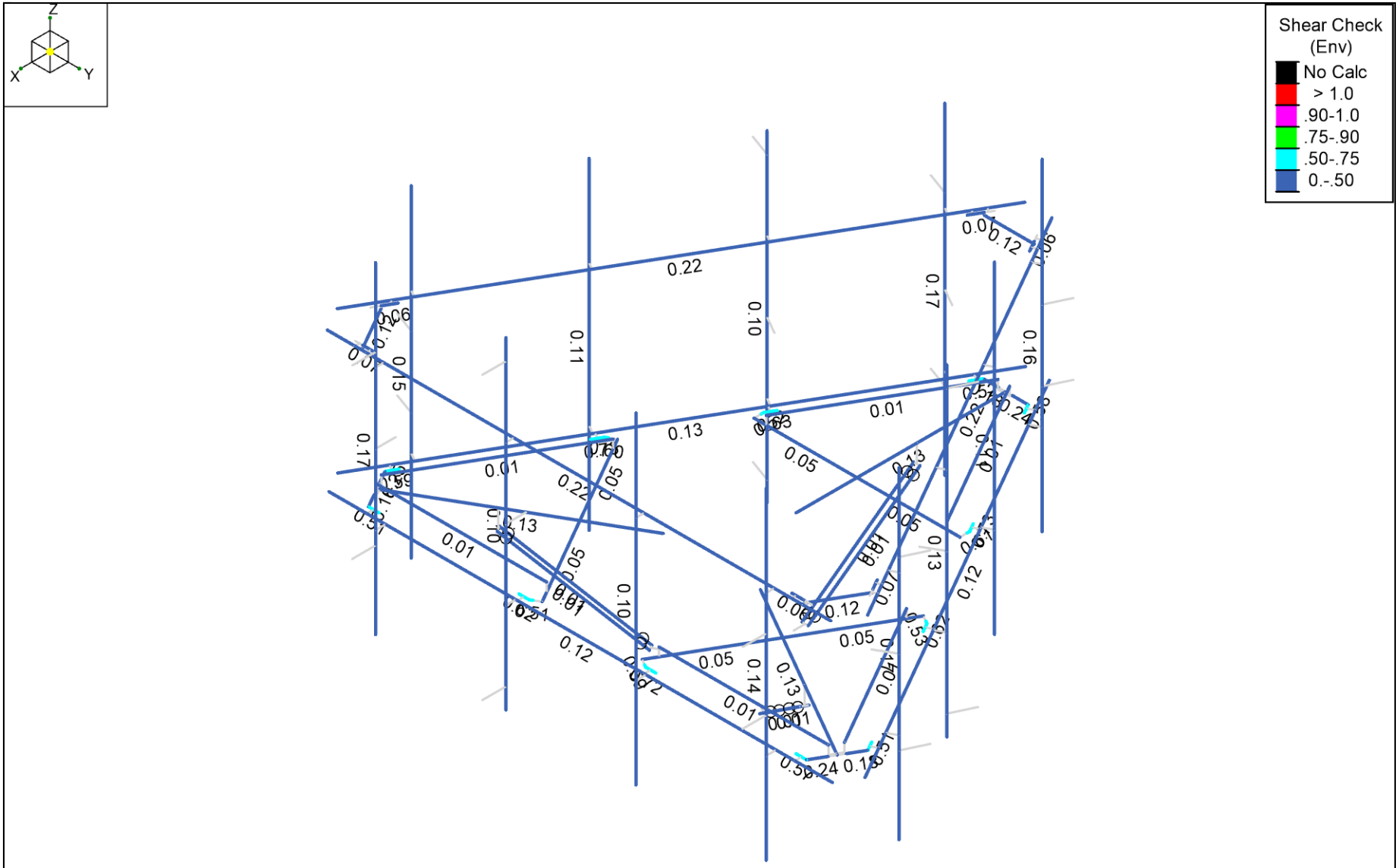
Loads: BLC 2, Ice Dead
Envelope Only Solution

Telamon CLS	41124-13764580_C8_01-Old Saybrook	SK-7
SN		Jan 06, 2022
41124-13764580_C8_01-01-MA	Ice Dead Loads	41124-13764580_C8_01-01-MA.r3d



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Telamon CLS	41124-13764580_C8_01-Old Saybrook	SK-8
SN		Jan 07, 2022
41124-13764580_C8_01-01-MA	Envelope Member Unity Check Results – Bending	41124-13764580_C8_01-01-MA.r3d



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

Telamon CLS	41124-13764580_C8_01-Old Saybrook	SK-9
SN		Jan 07, 2022
41124-13764580_C8_01-01-MA	Envelope Member Check Results – Shear	41124-13764580_C8_01-01-MA.r3d

Basic Load Cases

	BLC Description	Category	Z Gravity	Nodal	Distributed	Area(Member)
1	Dead	DL	-1	24		3
2	Ice Dead	RL		24	72	3
3	BLC 1 Transient Area Loads	None			30	
4	BLC 2 Transient Area Loads	None			30	
5	Structure Wind 0°	None			70	
6	Structure Wind 30°	None			115	
7	Structure Wind 45°	None			144	
8	Structure Wind 60°	None			140	
9	Structure Wind 90°	None			58	
10	Structure Wind 120°	None			140	
11	Structure Wind 135°	None			144	
12	Structure Wind 150°	None			115	
13	Structure Wind 180°	None			70	
14	Structure Wind 210°	None			115	
15	Structure Wind 225°	None			144	
16	Structure Wind 240°	None			140	
17	Structure Wind 270°	None			58	
18	Structure Wind 300°	None			140	
19	Structure Wind 315°	None			144	
20	Structure Wind 330°	None			115	
21	Structure Wind w/ Ice 0°	None			70	
22	Structure Wind w/ Ice 30°	None			118	
23	Structure Wind w/ Ice 45°	None			144	
24	Structure Wind w/ Ice 60°	None			140	
25	Structure Wind w/ Ice 90°	None			59	
26	Structure Wind w/ Ice 120°	None			140	
27	Structure Wind w/ Ice 135°	None			144	
28	Structure Wind w/ Ice 150°	None			118	
29	Structure Wind w/ Ice 180°	None			70	
30	Structure Wind w/ Ice 210°	None			118	
31	Structure Wind w/ Ice 225°	None			144	
32	Structure Wind w/ Ice 240°	None			140	
33	Structure Wind w/ Ice 270°	None			59	
34	Structure Wind w/ Ice 300°	None			140	
35	Structure Wind w/ Ice 315°	None			144	
36	Structure Wind w/ Ice 330°	None			118	
37	Antenna Wind 0°	None		24		
38	Antenna Wind 30°	None		48		
39	Antenna Wind 45°	None		48		
40	Antenna Wind 60°	None		48		
41	Antenna Wind 90°	None		24		
42	Antenna Wind 120°	None		48		
43	Antenna Wind 135°	None		48		
44	Antenna Wind 150°	None		48		
45	Antenna Wind 180°	None		24		
46	Antenna Wind 210°	None		48		
47	Antenna Wind 225°	None		48		
48	Antenna Wind 240°	None		48		
49	Antenna Wind 270°	None		24		
50	Antenna Wind 300°	None		48		
51	Antenna Wind 315°	None		48		
52	Antenna Wind 330°	None		48		
53	Antenna Wind w/ Ice 0°	None		24		
54	Antenna Wind w/ Ice 30°	None		48		
55	Antenna Wind w/ Ice 45°	None		48		

Basic Load Cases (Continued)

	BLC Description	Category	Z Gravity	Nodal	Distributed	Area(Member)
56	Antenna Wind w/ Ice 60°	None		48		
57	Antenna Wind w/ Ice 90°	None		24		
58	Antenna Wind w/ Ice 120°	None		48		
59	Antenna Wind w/ Ice 135°	None		48		
60	Antenna Wind w/ Ice 150°	None		48		
61	Antenna Wind w/ Ice 180°	None		24		
62	Antenna Wind w/ Ice 210°	None		48		
63	Antenna Wind w/ Ice 225°	None		48		
64	Antenna Wind w/ Ice 240°	None		48		
65	Antenna Wind w/ Ice 270°	None		24		
66	Antenna Wind w/ Ice 300°	None		48		
67	Antenna Wind w/ Ice 315°	None		48		
68	Antenna Wind w/ Ice 330°	None		48		
69	Seismic X	ELX		24	72	
70	Seismic Y	ELY		24	72	
71	Seismic Z	ELZ		24	72	
72	Maintenance Live 500 (1)	OL1		1		
73	Maintenance Live 500 (2)	OL2		1		
74	Maintenance Live 500 (3)	OL3		1		
75	Maintenance Live 500 (4)	OL4		1		

Load Combinations

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	DISPLAY (1.0D + 1.0W_0°)	Yes	Y	DL	1	37	1				
2	1.4D	Yes	Y	DL	1.4						
3	1.2D + 1.0W_0°	Yes	Y	DL	1.2	5	1	37	1		
4	1.2D + 1.0W_30°	Yes	Y	DL	1.2	6	1	38	1		
5	1.2D + 1.0W_45°	Yes	Y	DL	1.2	7	1	39	1		
6	1.2D + 1.0W_60°	Yes	Y	DL	1.2	8	1	40	1		
7	1.2D + 1.0W_90°	Yes	Y	DL	1.2	9	1	41	1		
8	1.2D + 1.0W_120°	Yes	Y	DL	1.2	10	1	42	1		
9	1.2D + 1.0W_135°	Yes	Y	DL	1.2	11	1	43	1		
10	1.2D + 1.0W_150°	Yes	Y	DL	1.2	12	1	44	1		
11	1.2D + 1.0W_180°	Yes	Y	DL	1.2	13	-1	45	-1		
12	1.2D + 1.0W_210°	Yes	Y	DL	1.2	14	-1	46	-1		
13	1.2D + 1.0W_225°	Yes	Y	DL	1.2	15	-1	47	-1		
14	1.2D + 1.0W_240°	Yes	Y	DL	1.2	16	-1	48	-1		
15	1.2D + 1.0W_270°	Yes	Y	DL	1.2	17	-1	49	-1		
16	1.2D + 1.0W_300°	Yes	Y	DL	1.2	18	-1	50	-1		
17	1.2D + 1.0W_315°	Yes	Y	DL	1.2	19	-1	51	-1		
18	1.2D + 1.0W_330°	Yes	Y	DL	1.2	20	-1	52	-1		
19	1.2D + 1.0Di + 1.0Wi_0°	Yes	Y	DL	1.2	21	1	53	1	RL	1
20	1.2D + 1.0Di + 1.0Wi_30°	Yes	Y	DL	1.2	22	1	54	1	RL	1
21	1.2D + 1.0Di + 1.0Wi_45°	Yes	Y	DL	1.2	23	1	55	1	RL	1
22	1.2D + 1.0Di + 1.0Wi_60°	Yes	Y	DL	1.2	24	1	56	1	RL	1
23	1.2D + 1.0Di + 1.0Wi_90°	Yes	Y	DL	1.2	25	1	57	1	RL	1
24	1.2D + 1.0Di + 1.0Wi_120°	Yes	Y	DL	1.2	26	1	58	1	RL	1
25	1.2D + 1.0Di + 1.0Wi_135°	Yes	Y	DL	1.2	27	1	59	1	RL	1
26	1.2D + 1.0Di + 1.0Wi_150°	Yes	Y	DL	1.2	28	1	60	1	RL	1
27	1.2D + 1.0Di + 1.0Wi_180°	Yes	Y	DL	1.2	29	-1	61	-1	RL	1
28	1.2D + 1.0Di + 1.0Wi_210°	Yes	Y	DL	1.2	30	-1	62	-1	RL	1
29	1.2D + 1.0Di + 1.0Wi_225°	Yes	Y	DL	1.2	31	-1	63	-1	RL	1
30	1.2D + 1.0Di + 1.0Wi_240°	Yes	Y	DL	1.2	32	-1	64	-1	RL	1
31	1.2D + 1.0Di + 1.0Wi_270°	Yes	Y	DL	1.2	33	-1	65	-1	RL	1
32	1.2D + 1.0Di + 1.0Wi_300°	Yes	Y	DL	1.2	34	-1	66	-1	RL	1

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
33	1.2D + 1.0Di + 1.0Wi_315°	Yes	Y	DL	1.2	35	-1	67	-1	RL	1
34	1.2D + 1.0Di + 1.0Wi_330°	Yes	Y	DL	1.2	36	-1	68	-1	RL	1
35	1.2D + 1.0Ev + 1.0Eh_0°	Yes	Y	DL	1.243	ELX	-1	ELY			
36	1.2D + 1.0Ev + 1.0Eh_30°	Yes	Y	DL	1.243	ELX	-0.866	ELY	0.5		
37	1.2D + 1.0Ev + 1.0Eh_45°	Yes	Y	DL	1.243	ELX	-0.707	ELY	0.707		
38	1.2D + 1.0Ev + 1.0Eh_60°	Yes	Y	DL	1.243	ELX	-0.5	ELY	0.866		
39	1.2D + 1.0Ev + 1.0Eh_90°	Yes	Y	DL	1.243	ELX		ELY	1		
40	1.2D + 1.0Ev + 1.0Eh_120°	Yes	Y	DL	1.243	ELX	0.5	ELY	0.866		
41	1.2D + 1.0Ev + 1.0Eh_135°	Yes	Y	DL	1.243	ELX	0.707	ELY	0.707		
42	1.2D + 1.0Ev + 1.0Eh_150°	Yes	Y	DL	1.243	ELX	0.866	ELY	0.5		
43	1.2D + 1.0Ev + 1.0Eh_180°	Yes	Y	DL	1.243	ELX	1	ELY			
44	1.2D + 1.0Ev + 1.0Eh_210°	Yes	Y	DL	1.243	ELX	0.866	ELY	-0.5		
45	1.2D + 1.0Ev + 1.0Eh_225°	Yes	Y	DL	1.243	ELX	0.707	ELY	-0.707		
46	1.2D + 1.0Ev + 1.0Eh_240°	Yes	Y	DL	1.243	ELX	0.5	ELY	-0.866		
47	1.2D + 1.0Ev + 1.0Eh_270°	Yes	Y	DL	1.243	ELX		ELY	-1		
48	1.2D + 1.0Ev + 1.0Eh_300°	Yes	Y	DL	1.243	ELX	-0.5	ELY	-0.866		
49	1.2D + 1.0Ev + 1.0Eh_315°	Yes	Y	DL	1.243	ELX	-0.707	ELY	-0.707		
50	1.2D + 1.0Ev + 1.0Eh_330°	Yes	Y	DL	1.243	ELX	-0.866	ELY	-0.5		
51	0.9D - 1.0Ev + 1.0Eh_0°	Yes	Y	DL	0.857	ELX	-1	ELY			
52	0.9D - 1.0Ev + 1.0Eh_30°	Yes	Y	DL	0.857	ELX	-0.866	ELY	0.5		
53	0.9D - 1.0Ev + 1.0Eh_45°	Yes	Y	DL	0.857	ELX	-0.707	ELY	0.707		
54	0.9D - 1.0Ev + 1.0Eh_60°	Yes	Y	DL	0.857	ELX	-0.5	ELY	0.866		
55	0.9D - 1.0Ev + 1.0Eh_90°	Yes	Y	DL	0.857	ELX		ELY	1		
56	0.9D - 1.0Ev + 1.0Eh_120°	Yes	Y	DL	0.857	ELX	0.5	ELY	0.866		
57	0.9D - 1.0Ev + 1.0Eh_135°	Yes	Y	DL	0.857	ELX	0.707	ELY	0.707		
58	0.9D - 1.0Ev + 1.0Eh_150°	Yes	Y	DL	0.857	ELX	0.866	ELY	0.5		
59	0.9D - 1.0Ev + 1.0Eh_180°	Yes	Y	DL	0.857	ELX	1	ELY			
60	0.9D - 1.0Ev + 1.0Eh_210°	Yes	Y	DL	0.857	ELX	0.866	ELY	-0.5		
61	0.9D - 1.0Ev + 1.0Eh_225°	Yes	Y	DL	0.857	ELX	0.707	ELY	-0.707		
62	0.9D - 1.0Ev + 1.0Eh_240°	Yes	Y	DL	0.857	ELX	0.5	ELY	-0.866		
63	0.9D - 1.0Ev + 1.0Eh_270°	Yes	Y	DL	0.857	ELX		ELY	-1		
64	0.9D - 1.0Ev + 1.0Eh_300°	Yes	Y	DL	0.857	ELX	-0.5	ELY	-0.866		
65	0.9D - 1.0Ev + 1.0Eh_315°	Yes	Y	DL	0.857	ELX	-0.707	ELY	-0.707		
66	0.9D - 1.0Ev + 1.0Eh_330°	Yes	Y	DL	0.857	ELX	-0.866	ELY	-0.5		
67	1.2D + 1.5Lm_1 + 1.0Wm_0°	Yes	Y	DL	1.2	5	0.061	37	0.061	OL1	1.5
68	1.2D + 1.5Lm_1 + 1.0Wm_30°	Yes	Y	DL	1.2	6	0.061	38	0.061	OL1	1.5
69	1.2D + 1.5Lm_1 + 1.0Wm_45°	Yes	Y	DL	1.2	7	0.061	39	0.061	OL1	1.5
70	1.2D + 1.5Lm_1 + 1.0Wm_60°	Yes	Y	DL	1.2	8	0.061	40	0.061	OL1	1.5
71	1.2D + 1.5Lm_1 + 1.0Wm_90°	Yes	Y	DL	1.2	9	0.061	41	0.061	OL1	1.5
72	1.2D + 1.5Lm_1 + 1.0Wm_120°	Yes	Y	DL	1.2	10	0.061	42	0.061	OL1	1.5
73	1.2D + 1.5Lm_1 + 1.0Wm_135°	Yes	Y	DL	1.2	11	0.061	43	0.061	OL1	1.5
74	1.2D + 1.5Lm_1 + 1.0Wm_150°	Yes	Y	DL	1.2	12	0.061	44	0.061	OL1	1.5
75	1.2D + 1.5Lm_1 + 1.0Wm_180°	Yes	Y	DL	1.2	13	-0.061	45	-0.061	OL1	1.5
76	1.2D + 1.5Lm_1 + 1.0Wm_210°	Yes	Y	DL	1.2	14	-0.061	46	-0.061	OL1	1.5
77	1.2D + 1.5Lm_1 + 1.0Wm_225°	Yes	Y	DL	1.2	15	-0.061	47	-0.061	OL1	1.5
78	1.2D + 1.5Lm_1 + 1.0Wm_240°	Yes	Y	DL	1.2	16	-0.061	48	-0.061	OL1	1.5
79	1.2D + 1.5Lm_1 + 1.0Wm_270°	Yes	Y	DL	1.2	17	-0.061	49	-0.061	OL1	1.5
80	1.2D + 1.5Lm_1 + 1.0Wm_300°	Yes	Y	DL	1.2	18	-0.061	50	-0.061	OL1	1.5
81	1.2D + 1.5Lm_1 + 1.0Wm_315°	Yes	Y	DL	1.2	19	-0.061	51	-0.061	OL1	1.5
82	1.2D + 1.5Lm_1 + 1.0Wm_330°	Yes	Y	DL	1.2	20	-0.061	52	-0.061	OL1	1.5
83	1.2D + 1.5Lm_2 + 1.0Wm_0°	Yes	Y	DL	1.2	5	0.061	37	0.061	OL2	1.5
84	1.2D + 1.5Lm_2 + 1.0Wm_30°	Yes	Y	DL	1.2	6	0.061	38	0.061	OL2	1.5
85	1.2D + 1.5Lm_2 + 1.0Wm_45°	Yes	Y	DL	1.2	7	0.061	39	0.061	OL2	1.5
86	1.2D + 1.5Lm_2 + 1.0Wm_60°	Yes	Y	DL	1.2	8	0.061	40	0.061	OL2	1.5
87	1.2D + 1.5Lm_2 + 1.0Wm_90°	Yes	Y	DL	1.2	9	0.061	41	0.061	OL2	1.5

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
88	1.2D + 1.5Lm_2 + 1.0Wm_120°	Yes	Y	DL	1.2	10	0.061	42	0.061	OL2	1.5
89	1.2D + 1.5Lm_2 + 1.0Wm_135°	Yes	Y	DL	1.2	11	0.061	43	0.061	OL2	1.5
90	1.2D + 1.5Lm_2 + 1.0Wm_150°	Yes	Y	DL	1.2	12	0.061	44	0.061	OL2	1.5
91	1.2D + 1.5Lm_2 + 1.0Wm_180°	Yes	Y	DL	1.2	13	-0.061	45	-0.061	OL2	1.5
92	1.2D + 1.5Lm_2 + 1.0Wm_210°	Yes	Y	DL	1.2	14	-0.061	46	-0.061	OL2	1.5
93	1.2D + 1.5Lm_2 + 1.0Wm_225°	Yes	Y	DL	1.2	15	-0.061	47	-0.061	OL2	1.5
94	1.2D + 1.5Lm_2 + 1.0Wm_240°	Yes	Y	DL	1.2	16	-0.061	48	-0.061	OL2	1.5
95	1.2D + 1.5Lm_2 + 1.0Wm_270°	Yes	Y	DL	1.2	17	-0.061	49	-0.061	OL2	1.5
96	1.2D + 1.5Lm_2 + 1.0Wm_300°	Yes	Y	DL	1.2	18	-0.061	50	-0.061	OL2	1.5
97	1.2D + 1.5Lm_2 + 1.0Wm_315°	Yes	Y	DL	1.2	19	-0.061	51	-0.061	OL2	1.5
98	1.2D + 1.5Lm_2 + 1.0Wm_330°	Yes	Y	DL	1.2	20	-0.061	52	-0.061	OL2	1.5
99	1.2D + 1.5Lm_3 + 1.0Wm_0°	Yes	Y	DL	1.2	5	0.061	37	0.061	OL3	1.5
100	1.2D + 1.5Lm_3 + 1.0Wm_30°	Yes	Y	DL	1.2	6	0.061	38	0.061	OL3	1.5
101	1.2D + 1.5Lm_3 + 1.0Wm_45°	Yes	Y	DL	1.2	7	0.061	39	0.061	OL3	1.5
102	1.2D + 1.5Lm_3 + 1.0Wm_60°	Yes	Y	DL	1.2	8	0.061	40	0.061	OL3	1.5
103	1.2D + 1.5Lm_3 + 1.0Wm_90°	Yes	Y	DL	1.2	9	0.061	41	0.061	OL3	1.5
104	1.2D + 1.5Lm_3 + 1.0Wm_120°	Yes	Y	DL	1.2	10	0.061	42	0.061	OL3	1.5
105	1.2D + 1.5Lm_3 + 1.0Wm_135°	Yes	Y	DL	1.2	11	0.061	43	0.061	OL3	1.5
106	1.2D + 1.5Lm_3 + 1.0Wm_150°	Yes	Y	DL	1.2	12	0.061	44	0.061	OL3	1.5
107	1.2D + 1.5Lm_3 + 1.0Wm_180°	Yes	Y	DL	1.2	13	-0.061	45	-0.061	OL3	1.5
108	1.2D + 1.5Lm_3 + 1.0Wm_210°	Yes	Y	DL	1.2	14	-0.061	46	-0.061	OL3	1.5
109	1.2D + 1.5Lm_3 + 1.0Wm_225°	Yes	Y	DL	1.2	15	-0.061	47	-0.061	OL3	1.5
110	1.2D + 1.5Lm_3 + 1.0Wm_240°	Yes	Y	DL	1.2	16	-0.061	48	-0.061	OL3	1.5
111	1.2D + 1.5Lm_3 + 1.0Wm_270°	Yes	Y	DL	1.2	17	-0.061	49	-0.061	OL3	1.5
112	1.2D + 1.5Lm_3 + 1.0Wm_300°	Yes	Y	DL	1.2	18	-0.061	50	-0.061	OL3	1.5
113	1.2D + 1.5Lm_3 + 1.0Wm_315°	Yes	Y	DL	1.2	19	-0.061	51	-0.061	OL3	1.5
114	1.2D + 1.5Lm_3 + 1.0Wm_330°	Yes	Y	DL	1.2	20	-0.061	52	-0.061	OL3	1.5
115	1.2D + 1.5Lm_4 + 1.0Wm_0°	Yes	Y	DL	1.2	5	0.061	37	0.061	OL4	1.5
116	1.2D + 1.5Lm_4 + 1.0Wm_30°	Yes	Y	DL	1.2	6	0.061	38	0.061	OL4	1.5
117	1.2D + 1.5Lm_4 + 1.0Wm_45°	Yes	Y	DL	1.2	7	0.061	39	0.061	OL4	1.5
118	1.2D + 1.5Lm_4 + 1.0Wm_60°	Yes	Y	DL	1.2	8	0.061	40	0.061	OL4	1.5
119	1.2D + 1.5Lm_4 + 1.0Wm_90°	Yes	Y	DL	1.2	9	0.061	41	0.061	OL4	1.5
120	1.2D + 1.5Lm_4 + 1.0Wm_120°	Yes	Y	DL	1.2	10	0.061	42	0.061	OL4	1.5
121	1.2D + 1.5Lm_4 + 1.0Wm_135°	Yes	Y	DL	1.2	11	0.061	43	0.061	OL4	1.5
122	1.2D + 1.5Lm_4 + 1.0Wm_150°	Yes	Y	DL	1.2	12	0.061	44	0.061	OL4	1.5
123	1.2D + 1.5Lm_4 + 1.0Wm_180°	Yes	Y	DL	1.2	13	-0.061	45	-0.061	OL4	1.5
124	1.2D + 1.5Lm_4 + 1.0Wm_210°	Yes	Y	DL	1.2	14	-0.061	46	-0.061	OL4	1.5
125	1.2D + 1.5Lm_4 + 1.0Wm_225°	Yes	Y	DL	1.2	15	-0.061	47	-0.061	OL4	1.5
126	1.2D + 1.5Lm_4 + 1.0Wm_240°	Yes	Y	DL	1.2	16	-0.061	48	-0.061	OL4	1.5
127	1.2D + 1.5Lm_4 + 1.0Wm_270°	Yes	Y	DL	1.2	17	-0.061	49	-0.061	OL4	1.5
128	1.2D + 1.5Lm_4 + 1.0Wm_300°	Yes	Y	DL	1.2	18	-0.061	50	-0.061	OL4	1.5
129	1.2D + 1.5Lm_4 + 1.0Wm_315°	Yes	Y	DL	1.2	19	-0.061	51	-0.061	OL4	1.5
130	1.2D + 1.5Lm_4 + 1.0Wm_330°	Yes	Y	DL	1.2	20	-0.061	52	-0.061	OL4	1.5

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [1e⁵°F⁻¹]	Density [k/ft³]	Yield [ksi]	Ry	Fu [ksi]	Rt
1	A36 Gr.36	29000	11154	0.3	0.65	0.49	36	1.5	58	1.2
2	A572 Gr.50	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
3	A992	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	0.3	0.65	0.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	0.3	0.65	0.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	0.3	0.65	0.49	35	1.6	60	1.2
7	A1085	29000	11154	0.3	0.65	0.49	50	1.4	65	1.3

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rule	Area [in²]	Iyy [in⁴]	Izz [in⁴]	J [in⁴]
1	Platform Horizontal Pipe	PIPE_3.0	Beam	Pipe	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
2	Offset Tube	HSS4X4X4	Beam	SquareTube	A36 Gr.36	Typical	3.37	7.8	7.8	12.8
3	Offset Side Plate	0.38 X 6 Plate	Beam	RECT	A36 Gr.36	Typical	2.28	0.027	6.84	0.105
4	Grating Angle	L2x2x3	Beam	Single Angle	A36 Gr.36	Typical	0.722	0.271	0.271	0.009
5	MOUNT_PIPE_2.0	PIPE_2.0	None	None	A53 Gr.B	Typical	1.02	0.627	0.627	1.25
6	Offset End Plate	0.5 x 6 Plate	Beam	RECT	A36 Gr.36	Typical	3	0.063	9	0.237
7	HRK12-U	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	0.627	0.627	1.25
8	HRKPlate	0.38 X 6 Plate	Beam	RECT	A36 Gr.36	Typical	2.28	0.027	6.84	0.105
9	HRKAngle	L2.5x2.5x4	Beam	Single Angle	A36 Gr.36	Typical	1.19	0.692	0.692	0.026
10	PRK-1245	L2.5x2.5x3	Beam	None	A36 Gr.36	Typical	0.901	0.535	0.535	0.011
11	HR1	L2.5x2.5x3	Beam	None	A36 Gr.36	Typical	0.901	0.535	0.535	0.011

Hot Rolled Steel Design Parameters

	Label	Shape	Length [in]	Lb y-y [in]	Lb z-z [in]	Function
1	A1	Offset Tube	62.5			Lateral
2	M135	Offset End Plate	3.122			Lateral
3	M136	Offset End Plate	4.688			Lateral
4	M137	Offset End Plate	3.122			Lateral
5	M138	Offset Side Plate	0.875			Lateral
6	M139	Offset Side Plate	0.875			Lateral
7	M140	Offset Tube	30.688			Lateral
8	M142	Offset Tube	30.687			Lateral
9	M143	Platform Horizontal Pipe	150	44.894	38.8	Lateral
10	M145	Offset End Plate	4.688			Lateral
11	M155	Offset Side Plate	3			Lateral
12	M156	Offset Side Plate	3			Lateral
13	M160	Grating Angle	50.542			Lateral
14	M162	Grating Angle	50.542			Lateral
15	M171A	HRKAngle	14.902			Lateral
16	M181	HRK12-U	150		38.8	Lateral
17	M187	HRKPlate	3.711			Lateral
18	M188	HRKPlate	3.711			Lateral
19	M43	HRKAngle	14.902			Lateral
20	M47	Offset Tube	30.687			Lateral
21	A3	Offset Tube	62.5			Lateral
22	M50	Offset End Plate	3.122			Lateral
23	M51	Offset End Plate	4.688			Lateral
24	M52	Offset End Plate	3.122			Lateral
25	M53	Offset Side Plate	0.875			Lateral
26	M54	Offset Side Plate	0.875			Lateral
27	M55	Offset Tube	30.688			Lateral
28	M56	Offset End Plate	4.688			Lateral
29	M61	Offset Side Plate	3			Lateral
30	M62	Offset Side Plate	3			Lateral
31	M65	Grating Angle	50.542			Lateral
32	M67	Grating Angle	50.542			Lateral
33	M76	HRKPlate	3.711			Lateral
34	M77	HRKPlate	3.711			Lateral
35	M79	HRKAngle	14.902			Lateral
36	M83	Offset Tube	30.687			Lateral
37	A2	Offset Tube	62.5			Lateral
38	M86	Offset End Plate	3.122			Lateral
39	M87	Offset End Plate	4.688			Lateral
40	M88	Offset End Plate	3.122			Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length [in]	Lb y-y [in]	Lb z-z [in]	Function
41	M89	Offset Side Plate	0.875			Lateral
42	M90	Offset Side Plate	0.875			Lateral
43	M91	Offset Tube	30.688			Lateral
44	M92	Offset End Plate	4.688			Lateral
45	M97	Offset Side Plate	3			Lateral
46	M98	Offset Side Plate	3			Lateral
47	M101	Grating Angle	50.542			Lateral
48	M103	Grating Angle	50.542			Lateral
49	M112	HRKPlate	3.711			Lateral
50	M113	HRKPlate	3.711			Lateral
51	M114	Platform Horizontal Pipe	150	44.894	38.8	Lateral
52	M115	HRK12-U	150		38.8	Lateral
53	M116	Platform Horizontal Pipe	150	44.894	38.8	Lateral
54	M117	HRK12-U	150		38.8	Lateral
55	A_MP1_S	MOUNT_PIPE_2.0	96			Lateral
56	A_MP2_S	MOUNT_PIPE_2.0	96			Lateral
57	A_MP3_S	MOUNT_PIPE_2.0	96			Lateral
58	A_MP4_S	MOUNT_PIPE_2.0	96			Lateral
59	B_MP1_S	MOUNT_PIPE_2.0	96			Lateral
60	B_MP2_S	MOUNT_PIPE_2.0	96			Lateral
61	B_MP3_S	MOUNT_PIPE_2.0	96			Lateral
62	B_MP4_S	MOUNT_PIPE_2.0	96			Lateral
63	G_MP1_S	MOUNT_PIPE_2.0	96			Lateral
64	G_MP2_S	MOUNT_PIPE_2.0	96			Lateral
65	G_MP3_S	MOUNT_PIPE_2.0	96			Lateral
66	G_MP4_S	MOUNT_PIPE_2.0	96			Lateral
67	PR5	PRK-1245	41.404			Lateral
68	PR6	PRK-1245	41.404			Lateral
69	PR11	PRK-1245	41.404			Lateral
70	PR12	PRK-1245	41.404			Lateral
71	PR17	PRK-1245	41.404			Lateral
72	PR18	PRK-1245	41.404			Lateral

Member Advanced Data

	Label	I Release	J Release	Physical	Deflection Ratio Options	Seismic DR
1	A1			Yes	Default	None
2	M135			Yes	N/A	None
3	M136			Yes	N/A	None
4	M137			Yes	N/A	None
5	M138			Yes	N/A	None
6	M139			Yes	N/A	None
7	M140			Yes	N/A	None
8	M141			Yes	** NA **	None
9	M142			Yes	N/A	None
10	M143			Yes	Default	None
11	M145			Yes	N/A	None
12	M146			Yes	** NA **	None
13	M147			Yes	** NA **	None
14	M148			Yes	** NA **	None
15	M153		OOOXOO	Yes	** NA **	None
16	M154		OOOXOO	Yes	** NA **	None
17	M155			Yes	N/A	None
18	M156			Yes	N/A	None
19	M157		OOOXOO	Yes	** NA **	None
20	M158		OOOXOO	Yes	** NA **	None

Member Advanced Data (Continued)

	Label	I Release	J Release	Physical	Deflection Ratio Options	Seismic DR
21	M159			Yes	** NA **	None
22	M160			Yes	N/A	None
23	M161			Yes	** NA **	None
24	M162			Yes	N/A	None
25	M163			Yes	** NA **	None
26	M164			Yes	** NA **	None
27	M171A			Yes	N/A	None
28	M172A			Yes	** NA **	None
29	M173A			Yes	** NA **	None
30	M174A			Yes	** NA **	None
31	M175			Yes	** NA **	None
32	M176			Yes	** NA **	None
33	M177			Yes	** NA **	None
34	M178			Yes	** NA **	None
35	M179			Yes	** NA **	None
36	M181			Yes	Default	None
37	M187			Yes	N/A	None
38	M188			Yes	N/A	None
39	M42			Yes	** NA **	None
40	M43			Yes	N/A	None
41	M44			Yes	** NA **	None
42	M45			Yes	** NA **	None
43	M46			Yes	** NA **	None
44	M47			Yes	N/A	None
45	M48			Yes	** NA **	None
46	A3			Yes	Default	None
47	M50			Yes	N/A	None
48	M51			Yes	N/A	None
49	M52			Yes	N/A	None
50	M53			Yes	N/A	None
51	M54			Yes	N/A	None
52	M55			Yes	N/A	None
53	M56			Yes	N/A	None
54	M57			Yes	** NA **	None
55	M58			Yes	** NA **	None
56	M59		OOOXOO	Yes	** NA **	None
57	M60		OOOXOO	Yes	** NA **	None
58	M61			Yes	N/A	None
59	M62			Yes	N/A	None
60	M63		OOOXOO	Yes	** NA **	None
61	M64		OOOXOO	Yes	** NA **	None
62	M65			Yes	N/A	None
63	M66			Yes	** NA **	None
64	M67			Yes	N/A	None
65	M68			Yes	** NA **	None
66	M69			Yes	** NA **	None
67	M70			Yes	** NA **	None
68	M71			Yes	** NA **	None
69	M72			Yes	** NA **	None
70	M73			Yes	** NA **	None
71	M74			Yes	** NA **	None
72	M75			Yes	** NA **	None
73	M76			Yes	N/A	None
74	M77			Yes	N/A	None
75	M78			Yes	** NA **	None

Member Advanced Data (Continued)

	Label	I Release	J Release	Physical	Deflection Ratio Options	Seismic DR
76	M79			Yes	N/A	None
77	M80			Yes	** NA **	None
78	M81			Yes	** NA **	None
79	M82			Yes	** NA **	None
80	M83			Yes	N/A	None
81	M84			Yes	** NA **	None
82	A2			Yes	Default	None
83	M86			Yes	N/A	None
84	M87			Yes	N/A	None
85	M88			Yes	N/A	None
86	M89			Yes	N/A	None
87	M90			Yes	N/A	None
88	M91			Yes	N/A	None
89	M92			Yes	N/A	None
90	M93			Yes	** NA **	None
91	M94			Yes	** NA **	None
92	M95		OOOXOO	Yes	** NA **	None
93	M96		OOOXOO	Yes	** NA **	None
94	M97			Yes	N/A	None
95	M98			Yes	N/A	None
96	M99		OOOXOO	Yes	** NA **	None
97	M100		OOOXOO	Yes	** NA **	None
98	M101			Yes	N/A	None
99	M102			Yes	** NA **	None
100	M103			Yes	N/A	None
101	M104			Yes	** NA **	None
102	M105			Yes	** NA **	None
103	M106			Yes	** NA **	None
104	M107			Yes	** NA **	None
105	M108			Yes	** NA **	None
106	M109			Yes	** NA **	None
107	M110			Yes	** NA **	None
108	M111			Yes	** NA **	None
109	M112			Yes	N/A	None
110	M113			Yes	N/A	None
111	M114			Yes	Default	None
112	M115			Yes	Default	None
113	M116			Yes	Default	None
114	M117			Yes	Default	None
115	RI2			Yes	** NA **	None
116	RI1			Yes	** NA **	None
117	A_MP1_S			Yes	** NA **	None
118	RI3			Yes	** NA **	None
119	RI4			Yes	** NA **	None
120	RI12			Yes	** NA **	None
121	RI11			Yes	** NA **	None
122	A_MP2_S			Yes	** NA **	None
123	RI22			Yes	** NA **	None
124	RI21			Yes	** NA **	None
125	A_MP3_S			Yes	** NA **	None
126	RI23			Yes	** NA **	None
127	RI24			Yes	** NA **	None
128	RI26			Yes	** NA **	None
129	RI32			Yes	** NA **	None
130	RI31			Yes	** NA **	None

Member Advanced Data (Continued)

	Label	I Release	J Release	Physical	Deflection Ratio Options	Seismic DR
131	A_MP4_S			Yes	** NA **	None
132	RI33			Yes	** NA **	None
133	RI34			Yes	** NA **	None
134	RI36			Yes	** NA **	None
135	RI72			Yes	** NA **	None
136	RI71			Yes	** NA **	None
137	B_MP1_S			Yes	** NA **	None
138	RI73			Yes	** NA **	None
139	RI74			Yes	** NA **	None
140	RI82			Yes	** NA **	None
141	RI81			Yes	** NA **	None
142	B_MP2_S			Yes	** NA **	None
143	RI92			Yes	** NA **	None
144	RI91			Yes	** NA **	None
145	B_MP3_S			Yes	** NA **	None
146	RI93			Yes	** NA **	None
147	RI94			Yes	** NA **	None
148	RI96			Yes	** NA **	None
149	RI102			Yes	** NA **	None
150	RI101			Yes	** NA **	None
151	B_MP4_S			Yes	** NA **	None
152	RI103			Yes	** NA **	None
153	RI104			Yes	** NA **	None
154	RI106			Yes	** NA **	None
155	RI142			Yes	** NA **	None
156	RI141			Yes	** NA **	None
157	G_MP1_S			Yes	** NA **	None
158	RI143			Yes	** NA **	None
159	RI144			Yes	** NA **	None
160	RI152			Yes	** NA **	None
161	RI151			Yes	** NA **	None
162	G_MP2_S			Yes	** NA **	None
163	RI162			Yes	** NA **	None
164	RI161			Yes	** NA **	None
165	G_MP3_S			Yes	** NA **	None
166	RI163			Yes	** NA **	None
167	RI164			Yes	** NA **	None
168	RI166			Yes	** NA **	None
169	RI172			Yes	** NA **	None
170	RI171			Yes	** NA **	None
171	G_MP4_S			Yes	** NA **	None
172	RI173			Yes	** NA **	None
173	RI174			Yes	** NA **	None
174	RI176			Yes	** NA **	None
175	PR1			Yes	** NA **	None
176	PR2			Yes	** NA **	None
177	PR3			Yes	** NA **	None
178	PR4			Yes	** NA **	None
179	PR5	BenPIN	BenPIN	Yes	N/A	None
180	PR6	BenPIN	BenPIN	Yes	N/A	None
181	PR7			Yes	** NA **	None
182	PR8			Yes	** NA **	None
183	PR9			Yes	** NA **	None
184	PR10			Yes	** NA **	None
185	PR11	BenPIN	BenPIN	Yes	N/A	None

Member Advanced Data (Continued)

	Label	I Release	J Release	Physical	Deflection Ratio Options	Seismic DR
186	PR12	BenPIN	BenPIN	Yes	N/A	None
187	PR13			Yes	** NA **	None
188	PR14			Yes	** NA **	None
189	PR15			Yes	** NA **	None
190	PR16			Yes	** NA **	None
191	PR17	BenPIN	BenPIN	Yes	N/A	None
192	PR18	BenPIN	BenPIN	Yes	N/A	None

Node Boundary Conditions

	Node Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot [k-ft/rad]	Y Rot [k-ft/rad]	Z Rot [k-ft/rad]
1	N204	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	N69	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	N119	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
4	P13	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
5	P5	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
6	P21	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Envelope Node Reactions

	Node Label		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N204	max	4812.649	3	1770.501	15	415.76	27	596.141	7	526.743	27	2125.962	7
2		min	-3133.05	11	-1775.718	7	12.24	3	-789.109	15	110.891	3	-2125.917	15
3	N69	max	1871.978	3	4087.354	14	452.186	102	224.772	11	394.446	18	2119.684	18
4		min	-2712.95	11	-2616.291	6	8.353	14	-540.985	3	-873.673	106	-2116.463	10
5	N119	max	1468.271	16	2802.15	16	461.07	97	616.933	20	585.642	5	2027.444	12
6		min	-2281.46	8	-4200.946	8	15.125	9	-83.275	12	-708.616	93	-2028.136	4
7	P5	max	103.974	11	68.111	15	2175.936	19	72.041	7	611.982	19	115.809	7
8		min	-2891.821	19	-68.059	7	-82.26	11	-82.498	15	-23.136	11	-129.68	15
9	P13	max	1453.365	30	81.711	6	2187.234	30	18.854	6	9.61	6	115.669	18
10		min	-47.174	6	-2517.717	30	-75.141	6	-526.525	30	-318.352	30	-129.308	10
11	P21	max	1409.193	24	2440.392	24	2121.364	24	522.55	24	16.75	16	112.411	12
12		min	-67.329	16	-116.627	16	-104.966	16	-24.418	16	-288.763	72	-125.624	4
13	Totals:	max	5960.915	3	5961.241	15	6814.801	19						
14		min	-5960.91	11	-5961.239	7	2458.855	59						

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

	Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [lb-ft]	phi*Mn z-z [lb-ft]	Cb	Eqn
1	M61	0.38 X 6 Plate	0.113	1.5	10	0.726	3	y	16	71020.258	73872	584.82	9234	3	H1-1b
2	M155	0.38 X 6 Plate	0.115	1.5	15	0.726	3	y	6	71020.258	73872	584.82	9234	3	H1-1b
3	M97	0.38 X 6 Plate	0.106	1.5	4	0.721	3	y	11	71020.258	73872	584.82	9234	3	H1-1b
4	M156	0.38 X 6 Plate	0.144	1.5	7	0.627	3	y	16	71019.885	73872	584.82	9234	3	H1-1b
5	M98	0.38 X 6 Plate	0.151	1.5	13	0.623	3	y	6	71019.885	73872	584.82	9234	3	H1-1b
6	M62	0.38 X 6 Plate	0.142	1.5	18	0.622	3	y	11	71019.885	73872	584.82	9234	3	H1-1b
7	M138	0.38 X 6 Plate	0.086	0.875	7	0.607	0.875	y	14	73624.978	73872	584.82	9234	1.024	H1-1b
8	M53	0.38 X 6 Plate	0.092	0.875	17	0.603	0.875	y	17	73624.978	73872	584.82	9234	1.028	H1-1b
9	M89	0.38 X 6 Plate	0.083	0.875	12	0.595	0.875	y	11	73624.978	73872	584.82	9234	1.023	H1-1b
10	M50	0.5 x 6 Plate	0.107	0	13	0.591	0	y	17	94834.571	97200	1012.5	12150	3	H1-1b
11	M135	0.5 x 6 Plate	0.106	0	18	0.579	0	y	6	94834.571	97200	1012.5	12150	3	H1-1b
12	M86	0.5 x 6 Plate	0.105	0	7	0.575	0	y	11	94834.571	97200	1012.5	12150	3	H1-1b
13	M90	0.38 X 6 Plate	0.156	0.875	5	0.529	0.875	y	14	73624.978	73872	584.82	9234	1.038	H1-1b
14	M139	0.38 X 6 Plate	0.157	0.875	16	0.516	0.875	y	8	73624.978	73872	584.82	9234	1.043	H1-1b
15	M137	0.5 x 6 Plate	0.099	0	12	0.515	0	y	16	94834.571	97200	1012.5	12150	3	H1-1b
16	M54	0.38 X 6 Plate	0.158	0.875	11	0.515	0.875	y	3	73624.978	73872	584.82	9234	1.044	H1-1b

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

	Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [lb-ft]	phi*Mn z-z [lb-ft]	Cb	Eqn
17	M52	0.5 x 6 Plate	0.099	0	15	0.512	0	y	11	94834.571	97200	1012.5	12150	3	H1-1b
18	M88	0.5 x 6 Plate	0.102	0	9	0.508	0	y	6	94834.571	97200	1012.5	12150	3	H1-1b
19	M56	0.5 x 6 Plate	0.207	0	14	0.248	0	y	17	91950.093	97200	1012.5	12150	1.22	H1-1b
20	M145	0.5 x 6 Plate	0.209	0	3	0.237	0	y	7	91950.093	97200	1012.5	12150	1.221	H1-1b
21	M92	0.5 x 6 Plate	0.206	0	8	0.236	0	y	12	91950.093	97200	1012.5	12150	1.22	H1-1b
22	M117	PIPE_2.0	0.462	141.316	11	0.222	17.368		16	6295.422	32130	1871.625	1871.625	3	H1-1a
23	M181	PIPE_2.0	0.458	141.316	6	0.222	17.368		11	6295.422	32130	1871.625	1871.625	3	H1-1a
24	M115	PIPE_2.0	0.468	141.316	17	0.222	17.368		6	6295.422	32130	1871.625	1871.625	3	H1-1a
25	M87	0.5 x 6 Plate	0.203	4.688	8	0.184	4.688	y	5	91950.093	97200	1012.5	12150	1.251	H1-1b
26	M136	0.5 x 6 Plate	0.203	4.688	3	0.183	4.688	y	16	91950.093	97200	1012.5	12150	1.25	H1-1b
27	M51	0.5 x 6 Plate	0.204	4.688	14	0.181	4.688	y	11	91950.093	97200	1012.5	12150	1.251	H1-1b
28	G_MP4_S	PIPE_2.0	0.314	68.716	11	0.17	68.716		5	14916.096	32130	1871.625	1871.625	1.821	H1-1b
29	B_MP4_S	PIPE_2.0	0.318	68.716	6	0.168	68.716		16	14916.096	32130	1871.625	1871.625	3	H1-1b
30	A_MP4_S	PIPE_2.0	0.32	68.716	16	0.167	68.716		11	14916.096	32130	1871.625	1871.625	3	H1-1b
31	G_MP1_S	PIPE_2.0	0.294	68.716	16	0.159	37.389		7	14916.096	32130	1871.625	1871.625	3	H1-1b
32	B_MP1_S	PIPE_2.0	0.294	68.716	11	0.15	27.284		17	14916.096	32130	1871.625	1871.625	2.514	H1-1b
33	A_MP1_S	PIPE_2.0	0.288	68.716	6	0.142	37.389		12	14916.096	32130	1871.625	1871.625	3	H1-1b
34	A1	HSS4X4X4	0.192	0	15	0.133	0	z	15	99905.429	109188	12663	12663	2.616	H1-1b
35	A3	HSS4X4X4	0.191	0	10	0.132	0	z	10	99905.429	109188	12663	12663	2.615	H1-1b
36	A2	HSS4X4X4	0.187	36.184	8	0.131	0	z	4	99905.429	109188	12663	12663	2.203	H1-1b
37	G_MP3_S	PIPE_2.0	0.473	68.716	14	0.127	26.779		15	14916.096	32130	1871.625	1871.625	1.534	H1-1b
38	M116	PIPE_3.0	0.104	93.947	12	0.126	93.947		9	60498.121	65205	5748.75	5748.75	2.569	H1-1b
39	M79	L2.5x2.5x4	0.34	0	6	0.125	0	z	13	36663.9	38556	1113.554	2537.388	1.5	H2-1
40	M43	L2.5x2.5x4	0.344	0	11	0.122	0	z	18	36663.9	38556	1113.554	2537.388	1.5	H2-1
41	M114	PIPE_3.0	0.104	93.947	18	0.122	93.947		15	60498.121	65205	5748.75	5748.75	2.596	H1-1b
42	M171A	L2.5x2.5x4	0.367	0	17	0.122	0	z	7	36663.9	38556	1113.554	2537.388	1.5	H2-1
43	M143	PIPE_3.0	0.103	93.947	7	0.12	93.947		4	60498.121	65205	5748.75	5748.75	2.552	H1-1b
44	G_MP2_S	PIPE_2.0	0.379	68.716	15	0.112	68.716		5	14916.096	32130	1871.625	1871.625	3	H1-1b
45	B_MP2_S	PIPE_2.0	0.375	68.716	10	0.106	68.716		16	14916.096	32130	1871.625	1871.625	2.31	H1-1b
46	A_MP2_S	PIPE_2.0	0.372	68.716	5	0.105	68.716		11	14916.096	32130	1871.625	1871.625	3	H1-1b
47	B_MP3_S	PIPE_2.0	0.47	68.716	8	0.1	26.779		10	14916.096	32130	1871.625	1871.625	1.45	H1-1b
48	A_MP3_S	PIPE_2.0	0.468	68.716	3	0.097	48		13	14916.096	32130	1871.625	1871.625	3	H1-1b
49	M113	0.38 X 6 Plate	0.049	2.422	13	0.074	0	y	13	69552.723	73872	584.82	9234	1.653	H1-1b
50	M77	0.38 X 6 Plate	0.049	2.422	18	0.074	0	y	18	69552.723	73872	584.82	9234	1.653	H1-1b
51	M188	0.38 X 6 Plate	0.048	2.422	7	0.073	0	y	7	69552.723	73872	584.82	9234	1.653	H1-1b
52	M187	0.38 X 6 Plate	0.06	0	17	0.06	0	y	15	69552.723	73872	584.82	9234	1.656	H1-1b
53	M76	0.38 X 6 Plate	0.06	0	11	0.06	0	y	10	69552.723	73872	584.82	9234	1.658	H1-1b
54	M112	0.38 X 6 Plate	0.059	0	6	0.06	0	y	5	69552.723	73872	584.82	9234	1.66	H1-1b
55	M140	HSS4X4X4	0.16	30.688	18	0.055	30.688	y	20	106874.106	109188	12663	12663	1.488	H1-1b
56	M55	HSS4X4X4	0.159	30.688	12	0.055	30.688	y	31	106874.106	109188	12663	12663	1.489	H1-1b
57	M91	HSS4X4X4	0.159	30.688	7	0.054	30.688	y	26	106874.106	109188	12663	12663	1.49	H1-1b
58	M142	HSS4X4X4	0.138	0	4	0.052	0	y	34	106874.166	109188	12663	12663	1.473	H1-1b
59	M47	HSS4X4X4	0.138	0	15	0.052	0	y	28	106874.166	109188	12663	12663	1.47	H1-1b
60	M83	HSS4X4X4	0.138	0	9	0.051	0	y	23	106874.166	109188	12663	12663	1.526	H1-1b
61	M162	L2x2x3	0.188	50.542	32	0.011	50.542	z	31	9618.956	23392.8	557.717	1137.588	1.5	H2-1
62	M67	L2x2x3	0.187	50.542	27	0.011	50.542	z	26	9618.956	23392.8	557.717	1137.588	1.5	H2-1
63	M103	L2x2x3	0.182	50.542	22	0.011	50.542	z	21	9618.956	23392.8	557.717	1137.588	1.5	H2-1
64	M101	L2x2x3	0.165	50.542	27	0.01	50.542	y	28	9618.888	23392.8	557.717	1137.587	1.5	H2-1
65	M65	L2x2x3	0.165	50.542	33	0.01	50.542	y	34	9618.888	23392.8	557.717	1137.587	1.5	H2-1
66	M160	L2x2x3	0.164	50.542	22	0.01	50.542	y	23	9618.888	23392.8	557.717	1137.587	1.5	H2-1
67	PR18	L2.5x2.5x3	0.129	20.702	5	0.006	41.404	y	4	19795.328	29192.4	872.574	1770.859	1.136	H2-1
68	PR17	L2.5x2.5x3	0.114	20.702	12	0.006	41.404	z	4	19795.328	29192.4	872.574	1770.859	1.136	H2-1
69	PR6	L2.5x2.5x3	0.125	20.484	16	0.006	41.404	y	15	19795.328	29192.4	872.574	1770.859	1.136	H2-1
70	PR5	L2.5x2.5x3	0.117	20.702	7	0.006	41.404	z	15	19795.328	29192.4	872.574	1770.859	1.136	H2-1
71	PR11	L2.5x2.5x3	0.121	20.702	17	0.006	41.404	z	10	19795.328	29192.4	872.574	1770.859	1.136	H2-1

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

	Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [lb-ft]	phi*Mn z-z [lb-ft]	Cb	Eqn
72	PR12	L2.5x2.5x3	0.126	20.484	11	0.006	41.404	y	10	19795.328	29192.4	872.574	1770.859	1.136	H2-1

TOWER-MOUNT CONNECTION ANALYSIS

v.1.0.0

319 Chapanoke Road, Suite 118
Raleigh, NC 27603
Office: (405) 348-5460
Fax: (405) 341-6334

SITE INFORMATION	
Site ID	370625
Site Name	Old Saybrook
Project ID	41124-13764580_C8_01-01-MA

ANALYSIS PARAMETERS	
TIA Revision	H

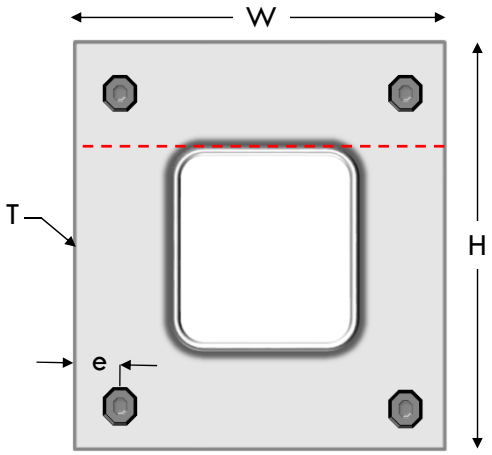
APPLIED FORCES FROM R3D		
Member Label		A1-LC7
Member End Label		I
Force-X	Fx, lbs	-603.2
Force-Y	Fy, lbs	169.1
Force-Z	Fz, lbs	-1775.2
Moment X-X	Mx, lbs-ft	-596.1
Moment Y-Y	My, lbs-ft	2126.0
Moment Z-Z	Mz, lbs-ft	244.0

STANDOFF MEMBER PROPERTIES	
Standoff Member Type	Square/Rect. HSS
Standoff Member Shape	HSS4X4X1/4
Standoff Member Grade	A36
Member to Plate Weld Size, in	3/16

BOLT & PLATE PROPERTIES	
Bolt Quantity	4
Bolt Edge Distance (e), in	1.00
Nominal Bolt Diameter (ØDb), in	0.625
Bolt Grade	A325
Plate Height (H), in	8.00
Plate Width (W), in	8.00
Plate Thickness (T), in	0.75
Plate Grade	A36

BOLT ANALYSIS		
Shear Demand (Vu), k	0.55	
Shear Capacity (ΦRnv), k	13.81	
Tension Demand (Tu), k	3.18	
Tension Capacity (ΦRnt), k	20.34	
Shear Utilization	4.0%	
Tension Utilization	15.6%	PASS
Interaction Utilization	2.6%	

PLATE ANALYSIS		
Moment Demand (Mu), k-in	4.49	
Flexural Capacity (ΦMn), k-in	25.77	
Plate Utilization	17.4%	PASS



MATERIAL PROPERTIES	
Standoff Member - Yield Strength (Fy), ksi	36
Standoff Member - Ultimate Strength (Fu), ksi	58
Bolt - Yield Strength (Fy), ksi	92
Bolt - Tensile Strength (Fu), ksi	120
Plate - Yield Strength (Fy), ksi	36
Plate - Ultimate Strength (Fu), ksi	58

AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure	:	**175 ft Monopole**
ATC Site Name	:	**Old Saybrook,CT**
ATC Site Number	:	**370625**
Engineering Number	:	**13764580_C3_03**
Proposed Carrier	:	**T-MOBILE**
Carrier Site Name	:	**Crown Old Saybrook Monopole**
Carrier Site Number	:	**CTHA540A**
Site Location	:	**77 Springbrook Road** **Old Saybrook, CT 06475-0000** **41.3139, -72.3641**
County	:	**Middlesex**
Date	:	**January 14, 2022**
Max Usage	:	**80%**
Result	:	**Pass**

Prepared By:

Joe Bochicchio, EI
ETS

Joseph M. Bochicchio

Reviewed By:
Frederic Bost, PE
ETS Job No. 22101455.STR.8025

STATE OF CONNECTICUT
FREDERIC BOST
PEN.0029529
LICENSED
PROFESSIONAL ENGINEER

Frederic Bost

1/14/22

Table of Contents

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 175 ft Monopole to reflect the change in loading by T-MOBILE.

Supporting Documents

Tower Drawings	DaVinci, Valmont Job #08242-1120, dated April 17, 2008
Foundation Drawing	DaVinci, Valmont Job #08242-1120, dated April 17, 2008
Geotechnical Report	JGI Project #J2085121, dated March 12, 2008

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

Conclusion

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

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

Existing and Reserved Equipment

Elev.[1] (ft)	Qty	Equipment	Mount Type	Lines	Carrier
178.0	3	Samsung B2/B66A RRH-BR049	Triangular Platform with Handrails	(18) 1 5/8" Coax (2) 1 5/8" (1.63"-41.3mm) Fiber	VERIZON WIRELESS
177.5	2	RFS DB-B1-6C-12AB-0Z (32 lbs.)			
175.1	6	Generic 72" x 12" x 7" Panel			
173.0	3	Samsung B5/B13 RRH-BR04C			
	3	Antel BXA-80063/4CF			
	3	Samsung MT6407-77A			
	6	Commscope JAHH-65B-R3B			
	3	Commscope CBC78T-DS-43-2X			
162.0	3	RFS APX16DWV-16DWVS-E-A20	Circular Platform with Handrails	(3) 1 5/8" (1.63"-41.3mm) Fiber	T-MOBILE
	3	Ericsson Radio 4449 B71 B85A			
	3	RFS APXVAARR24_43-U-NA20			
152.5	3	RFS APXV18-206517S-C	Flush	(6) 1 5/8" Coax	METRO PCS INC
140.0	1	Commscope RDIDC-9181-PF-48	Triangular Platform with Handrails	(1) 1.60" (40.6mm) Hybrid	DISH WIRELESS L.L.C.
	3	Fujitsu TA08025-B605			
	3	Fujitsu TA08025-B604			
	3	JMA Wireless MX08FRO665-21			
104.0	1	Generic 7' Omni	Side Arm	(1) 7/8" Coax	OTHER

Equipment to be Removed

Elev.[1] (ft)	Qty	Equipment	Mount Type	Lines	Carrier
162.0	3	Ericsson RRUS 4415 B66	-	(1) 1 5/8" (1.63"-41.3mm) Fiber	T-MOBILE
	3	Ericsson AIR 21, 1.3M, B4A B2P			
	3	Ericsson RRUS 4415 B25			

Proposed Equipment

Elev.[1] (ft)	Qty	Equipment	Mount Type	Lines	Carrier
162.0	3	Ericsson 4460 BAND 2/25	Circular Platform with Handrails	(2) 1.99" (50.7mm) Hybrid	T-MOBILE
	3	Ericsson Air6449 B41			

[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	28%	Pass
Shaft	80%	Pass
Base Plate	49%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Download (Kips)	55.3	2%
Moment (Kips-Ft)	4598.6	34%
Shear (Kips)	38.0	4%

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, Twist and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
162.0	Ericsson Air6449 B41	T-MOBILE	1.853	1.440
	Ericsson 4460 BAND 2/25			

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

Standard Conditions

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

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

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

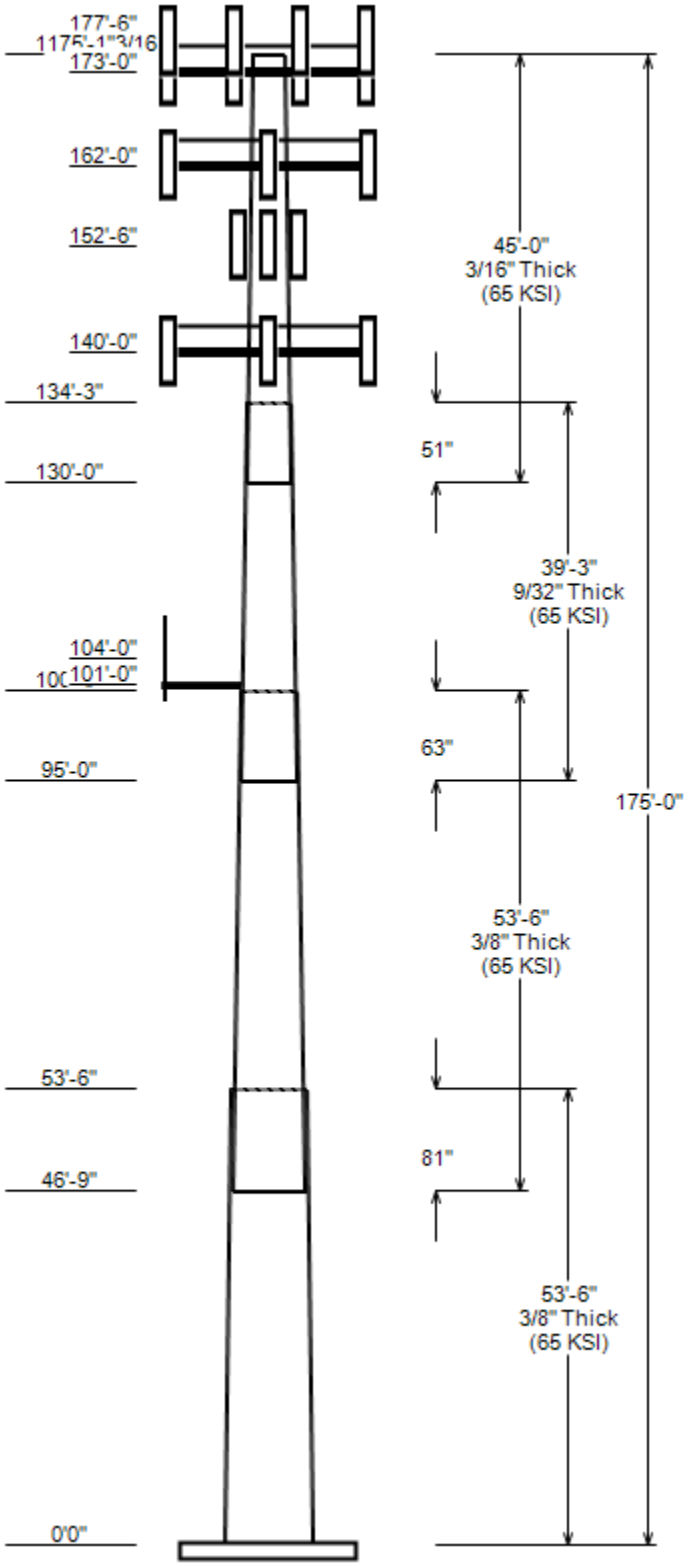
All assets of American Tower Corporation, its affiliates, and subsidiaries (collectively "American Tower") are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with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

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

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

JOB INFORMATION

Asset :	370625, Old Saybrook	Height :	175 ft
Client :	T-MOBILE	Base Width :	64.69
Code :	ANSI/TIA-222-H	Shape :	18 Sides



SITE PARAMETERS

Base Elev (ft):	0.00	Structure Class:	II
Taper :	0.26500 (In/ft)	Exposure :	C
Topographic Category :	1	Topographic Feature:	
Topo Method :	Method 1		

SECTION PROPERTIES

Shaft Section	Length (ft)	Diameter (in) Across Flats Top	Diameter (in) Across Flats Bottom	Thick (in)	Joint Type	Overlap Length (in)	Shape	Steel Grade (ksi)
1	53.500	50.51	64.69	0.375		0.000	18 Sides	65
2	53.500	38.87	53.05	0.375	Slip Joint	81.000	18 Sides	65
3	39.250	30.42	40.83	0.281	Slip Joint	63.000	18 Sides	65
4	45.000	20.00	31.93	0.188	Slip Joint	51.000	18 Sides	65

DISCRETE APPURTENANCE

Attach Elev (ft)	Force Elev (ft)	Qty	Description
178.0	180.0	3	Samsung B2/B66A RRH-BR049
177.5	177.5	2	RFS DB-B1-6C-12AB-0Z (32 lbs.)
175.1	175.1	6	Generic 72" x 12" x 7" Panel
173.0	173.0	3	Commscope CBC78T-DS-43-2X
173.0	173.0	3	Samsung B5/B13 RRH-BR04C
173.0	175.0	3	Antel BXA-80063/4CF
173.0	173.0	3	Samsung MT6407-77A
173.0	175.0	6	Commscope JAHH-65B-R3B
173.0	173.0	1	Generic Flat Platform with Han
162.0	162.0	3	Ericsson Radio 4449 B71 B85A
162.0	162.0	3	Ericsson 4460 BAND 2/25
162.0	162.0	3	Ericsson Air6449 B41
162.0	162.0	3	RFS APX16DWV-16DWVS-E-A20
162.0	162.0	3	RFS APXVAARR24_43-U-NA20
162.0	162.0	1	Generic Circular Platform with
152.5	152.5	3	RFS APXV18-206517S-C
140.0	140.0	1	Commscope RDIDC-9181-PF-48
140.0	140.0	3	Fujitsu TA08025-B605
140.0	140.0	3	Fujitsu TA08025-B604
140.0	140.0	3	JMA Wireless MX08FRO665-21
140.0	140.0	1	Generic Flat Platform with Han
104.0	104.0	1	Generic 7' Omni
101.0	101.0	1	Generic Round Side Arm

LINEAR APPURTENANCE

Elev From (ft)	Elev To (ft)	Description	Exp To Wind
0.0	176.0	1 5/8" Coax	No
0.0	173.0	1 5/8" Coax	No
0.0	173.0	1 5/8" (1.63"-41.3mm) Fiber	No
0.0	162.0	1.99" (50.7mm) Hybrid	No
0.0	162.0	1 5/8" (1.63"-41.3mm) Fiber	No
0.0	152.0	1 5/8" Coax	No
0.0	140.0	1.60" (40.6mm) Hybrid	No
0.0	104.0	7/8" Coax	No

LOAD CASES

1.2D + 1.0W Normal	125 mph wind with no ice
0.9D + 1.0W Normal	125 mph wind with no ice
1.2D + 1.0Di + 1.0Wi Nor	50 mph wind with 1" radial ice
1.2D + 1.0Ev + 1.0Eh Nor	Seismic
0.9D - 1.0Ev + 1.0Eh Nor	Seismic (Reduced DL)
1.0D + 1.0W Service Norm	60 mph Wind with No Ice

JOB INFORMATION			
Asset :	370625, Old Saybrook	Height :	175 ft
Client :	T-MOBILE	Base Width :	64.69
Code :	ANSI/TIA-222-H	Shape :	18 Sides

REACTIONS

Load Case	Moment (kip-ft)	Shear (Kip)	Axial (Kip)
1.2D + 1.0W Normal	4598.56	38.05	55.33
0.9D + 1.0W Normal	4542.71	38.03	41.48
1.2D + 1.0Di + 1.0Wi Normal	1147.45	9.61	72.20
1.2D + 1.0Ev + 1.0Eh Normal	203.86	1.39	55.56
0.9D - 1.0Ev + 1.0Eh Normal	200.63	1.39	38.30
1.0D + 1.0W Service Normal	941.82	7.84	46.15

DISH DEFLECTIONS

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

ANALYSIS PARAMETERS

Location:	Middlesex County,CT	**Height:**	175 ft
Type and Shape:	Taper, 18 Sides	**Base Diameter:**	64.69 in
Manufacturer:	Valmont	**Top Diameter:**	20.00 in
K_d (non-service):	0.95	**Taper:**	0.2650 in/ft
K_e:	1.00	**Rotation:**	0.000°

ICE & WIND PARAMETERS

Exposure Category:	C	**Design Wind Speed w/o Ice:**	125 mph
Risk Category:	II	**Design Wind Speed w/Ice:**	50 mph
Topo Factor Procedure:	Method 1	**Operational Wind Speed:**	60 mph
Topographic Category:	1	**Design Ice Thickness:**	1.00 in
Crest Height:	0 ft	**HMSL:**	53.00 ft

SEISMIC PARAMETERS

Analysis Method:	Equivalent Lateral Force Method				
Site Class:	D - Stiff Soil			**Period Based on Rayleigh Method (sec):**	2.65
T_L (sec):	6	**P:**	1	**C_s:**	0.030
S_s:	0.202	**S_1:**	0.053	**C_s Max:**	0.030
F_a:	1.600	**F_v:**	2.400	**C_s Min:**	0.030
S_{ds}:	0.215	**S_{d1}:**	0.085		

LOAD CASES

1.2D + 1.0W Normal	125 mph wind with no ice
0.9D + 1.0W Normal	125 mph wind with no ice
1.2D + 1.0Di + 1.0Wi Normal	50 mph wind with 1" radial ice
1.2D + 1.0Ev + 1.0Eh Normal	Seismic
0.9D - 1.0Ev + 1.0Eh Normal	Seismic (Reduced DL)
1.0D + 1.0W Service Normal	60 mph Wind with No Ice

SHAFT SECTION PROPERTIES

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint len (in)	Weight (lb)	Bottom Dia (in)	Bottom Elev (ft)	Bottom Area (in²)	Bottom Ix (in⁴)	Bottom W/t Ratio	Bottom D/t Ratio	Top Dia (in)	Top Elev (in)	Top Area (in²)	Top Ix (in⁴)	Top W/t Ratio	Top D/t Ratio	Taper (in/ft)
1-18	53.50	0.3750	65		0.00	12,399	64.69	0.000	76.55	40,004.8	28.65	172.51	50.51	53.50	59.67	18,951.5	21.99	134.70	0.2650
2-18	53.50	0.3750	65	Slip	81.00	9,877	53.05	46.750	62.69	21,978.8	23.18	141.47	38.87	100.25	45.82	8,579.6	16.51	103.66	0.2650
3-18	39.25	0.2813	65	Slip	63.00	4,214	40.83	95.000	36.20	7,518.4	23.83	145.13	30.42	134.25	26.91	3,089.4	17.31	108.15	0.2650
								130.00								584.7			
4-18	45.00	0.1875	65	Slip	51.00	2,349	31.93	0	18.89	2,403.8	28.26	170.27	20.00	175.00	11.79		17.05	106.67	0.2650
				Shaft Weight		28,839													

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
178.00	Samsung B2/B66A RRH-BR049	3	0.75	2.000	84.40	1.875	0.50	127.65	2.487	0.50
177.50	RFS DB-B1-6C-12AB-0Z (32 lbs.)	2	0.75	0.000	32.00	2.512	0.50	86.13	3.218	0.50
175.10	Generic 72" x 12" x 7" Panel	6	0.75	0.000	45.00	8.133	0.69	163.18	10.023	0.69
173.00	Generic Flat Platform with Han	1	1.00	0.000	2500.00	42.400	1.00	3702.75	56.599	1.00
173.00	Samsung MT6407-77A	3	0.75	0.000	81.60	4.709	0.61	150.61	5.737	0.61
173.00	Antel BXA-80063/4CF	3	0.75	2.000	9.90	4.708	0.65	77.80	5.954	0.65
173.00	Samsung B5/B13 RRH-BR04C	3	0.75	0.000	70.30	1.875	0.50	109.03	2.486	0.50
173.00	Commscope CBC78T-DS-43-2X	3	0.75	0.000	20.70	0.552	0.50	35.66	0.896	0.50
173.00	Commscope JAHH-65B-R3B	6	0.75	2.000	60.60	9.113	0.69	197.57	10.991	0.69
162.00	Generic Circular Platform with	1	1.00	0.000	2900.00	33.900	1.00	4354.36	77.435	1.00
162.00	RFS APXVAARR24_43-U-NA20	3	0.75	0.000	127.90	20.243	0.63	392.02	22.738	0.63
162.00	Ericsson Air6449 B41	3	0.75	0.000	104.00	5.682	0.63	195.69	6.750	0.63
162.00	Ericsson 4460 BAND 2/25	3	0.75	0.000	109.00	2.564	0.67	168.47	3.273	0.67
162.00	Ericsson Radio 4449 B71 B85A	3	0.75	0.000	75.00	1.650	0.50	115.46	2.222	0.50
162.00	RFS APX16DWV-16DWVS-E-A20	3	0.75	0.000	40.70	6.586	0.60	119.29	8.043	0.60
152.50	RFS APXV18-206517S-C	3	1.00	0.000	26.40	5.160	0.68	88.35	6.741	0.68
140.00	Generic Flat Platform with Han	1	1.00	0.000	2500.00	42.400	1.00	3676.47	56.289	1.00
140.00	JMA Wireless MX08FRO665-21	3	0.75	0.000	64.50	12.489	0.64	234.71	14.350	0.64
140.00	Fujitsu TA08025-B604	3	0.75	0.000	63.90	1.962	0.50	102.52	2.571	0.50
140.00	Fujitsu TA08025-B605	3	0.75	0.000	75.00	1.962	0.50	116.49	2.571	0.50
140.00	Commscope RDIDC-9181-PF-48	1	0.75	0.000	21.90	1.867	0.50	59.59	2.463	0.50
104.00	Generic 7' Omni	1	1.00	0.000	25.00	2.100	1.00	59.44	3.302	1.00
101.00	Generic Round Side Arm	1	1.00	0.000	187.50	5.200	1.00	246.19	6.944	1.00
Totals	Num Loadings: 23	62			11,691.90			20,536.81		

LINEAR APPURTENANCE PROPERTIES

Load Case Azimuth (deg) : 0.00

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Dia (in)	Coax Wt (lb/ft)	Flat	Max Coax/ Row	Dist Between Rows(in)	Dist Between Cols(in)	Azimuth (deg)	Dist From Face (in)	Exposed To Wind	Carrier
0.00	176.00	2	1 5/8" Coax	1.98	0.82	N	0	0	0	0	0	N	VERIZON WIREL
0.00	173.00	16	1 5/8" Coax	1.98	0.82	N	0	0	0	0	0	N	VERIZON WIREL
0.00	173.00	2	1 5/8" (1.63"-41.3mm)	1.63	1.61	N	0	0	0	0	0	N	VERIZON WIREL
0.00	162.00	3	1 5/8" (1.63"-41.3mm)	1.63	1.61	N	0	0	0	0	0	N	T-MOBILE
0.00	162.00	2	1.99" (50.7mm) Hybrid	1.99	1.9	N	0	0	0	0	0	N	T-MOBILE
0.00	152.00	6	1 5/8" Coax	1.98	0.82	N	0	0	0	0	0	N	METRO PCS INC
0.00	140.00	1	1.60" (40.6mm) Hybrid	1.6	2.34	N	0	0	0	0	0	N	DISH WIRELESS
0.00	104.00	1	7/8" Coax	1.09	0.33	N	0	0	0	0	0	N	Other

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)
0.00		0.3750	64.690	76.548	40,004.80	28.65	172.51	67.7	1218.0	0.0	0.0
5.00		0.3750	63.365	74.971	37,582.80	28.03	168.97	68.4	1168.2	0.0	1,289.0
10.00		0.3750	62.040	73.394	35,260.50	27.41	165.44	69.2	1119.4	0.0	1,262.1
15.00		0.3750	60.715	71.817	33,036.00	26.79	161.91	69.9	1071.7	0.0	1,235.3
20.00		0.3750	59.390	70.240	30,907.00	26.16	158.37	70.6	1025.0	0.0	1,208.5
25.00		0.3750	58.065	68.663	28,871.50	25.54	154.84	71.4	979.4	0.0	1,181.6
30.00		0.3750	56.740	67.086	26,927.40	24.92	151.31	72.1	934.7	0.0	1,154.8
35.00		0.3750	55.414	65.508	25,072.60	24.29	147.77	72.8	891.2	0.0	1,128.0
40.00		0.3750	54.089	63.931	23,305.00	23.67	144.24	73.6	848.6	0.0	1,101.1
45.00		0.3750	52.764	62.354	21,622.40	23.05	140.70	74.3	807.1	0.0	1,074.3
46.75	Bot - Section 2	0.3750	52.301	61.802	21,053.30	22.83	139.47	74.6	792.9	0.0	369.7
50.00		0.3750	51.439	60.777	20,022.90	22.42	137.17	75	766.7	0.0	1,365.5
53.50	Top - Section 1	0.3750	51.262	60.566	19,814.80	22.34	136.70	75.1	761.3	0.0	1,445.2
55.00		0.3750	50.864	60.093	19,354.00	22.15	135.64	75.3	749.4	0.0	307.9
60.00		0.3750	49.539	58.516	17,869.90	21.53	132.10	76.1	710.5	0.0	1,009.0
65.00		0.3750	48.214	56.938	16,463.60	20.91	128.57	76.8	672.6	0.0	982.2
70.00		0.3750	46.889	55.361	15,133.10	20.28	125.04	77.5	635.7	0.0	955.3
75.00		0.3750	45.564	53.784	13,876.20	19.66	121.50	78.3	599.8	0.0	928.5
80.00		0.3750	44.239	52.207	12,691.00	19.04	117.97	79	565.0	0.0	901.7
85.00		0.3750	42.914	50.630	11,575.30	18.42	114.44	79.7	531.3	0.0	874.8
90.00		0.3750	41.589	49.053	10,526.90	17.79	110.90	80.5	498.5	0.0	848.0
95.00	Bot - Section 3	0.3750	40.264	47.476	9,543.80	17.17	107.37	81.2	466.9	0.0	821.2
100.00		0.3750	38.939	45.899	8,624.00	16.55	103.84	81.9	436.2	0.0	1,400.2
100.25	Top - Section 2	0.2813	39.435	34.957	6,770.60	22.96	140.19	74.4	338.2	0.0	68.8
101.00		0.2813	39.236	34.779	6,668.10	22.83	139.48	74.5	334.7	0.0	89.0
104.00		0.2813	38.441	34.070	6,268.10	22.33	136.66	75.1	321.2	0.0	351.4
105.00		0.2813	38.176	33.833	6,138.40	22.17	135.71	75.3	316.7	0.0	115.5
110.00		0.2813	36.851	32.650	5,516.70	21.34	131.00	76.3	294.9	0.0	565.6
115.00		0.2813	35.526	31.467	4,938.50	20.51	126.29	77.3	273.8	0.0	545.4
120.00		0.2813	34.201	30.284	4,402.20	19.67	121.58	78.3	253.5	0.0	525.3
125.00		0.2813	32.876	29.101	3,906.10	18.84	116.87	79.2	234.0	0.0	505.2
130.00	Bot - Section 4	0.2813	31.551	27.918	3,448.90	18.01	112.16	80.2	215.3	0.0	485.1
134.25	Top - Section 3	0.1875	30.799	18.217	2,156.80	27.20	164.26	69.4	137.9	0.0	664.8
135.00		0.1875	30.601	18.099	2,115.10	27.01	163.20	69.6	136.1	0.0	46.3
140.00		0.1875	29.276	17.310	1,850.50	25.77	156.14	71.1	124.5	0.0	301.2
145.00		0.1875	27.951	16.522	1,609.00	24.52	149.07	72.6	113.4	0.0	287.8
150.00		0.1875	26.625	15.733	1,389.40	23.28	142.00	74	102.8	0.0	274.4
152.50		0.1875	25.963	15.339	1,287.50	22.65	138.47	74.8	97.7	0.0	132.2
155.00		0.1875	25.300	14.945	1,190.80	22.03	134.94	75.5	92.7	0.0	128.8
160.00		0.1875	23.975	14.156	1,012.10	20.78	127.87	77	83.1	0.0	247.6
162.00		0.1875	23.445	13.841	945.90	20.28	125.04	77.5	79.5	0.0	95.3
165.00		0.1875	22.650	13.368	852.20	19.54	120.80	78.4	74.1	0.0	138.9
170.00		0.1875	21.325	12.579	710.10	18.29	113.73	79.9	65.6	0.0	220.7
173.00		0.1875	20.530	12.106	632.90	17.54	109.49	80.8	60.7	0.0	126.0
175.00		0.1875	20.000	11.791	584.70	17.05	106.67	81.4	57.6	0.0	81.3
									Totals:		28,840.5

Load Case: 1.2D + 1.0W Normal 125 mph wind with no ice 25 Iterations
Gust Response Factor: 1.10
Dead load Factor: 1.20
Wind Load Factor: 1.00

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-55.33	-38.05	0.00	-4,598.6	0.00	4,598.56	4,663.96	1,343.42	7,803.58	6,184.38	0	0	0.756
5.00	-53.47	-37.50	0.00	-4,408.3	0.00	4,408.32	4,617.32	1,315.74	7,485.37	5,995.65	0.09	-0.16	0.748
10.00	-51.65	-36.97	0.00	-4,220.8	0.00	4,220.81	4,568.59	1,288.06	7,173.78	5,806.85	0.34	-0.32	0.739
15.00	-49.86	-36.42	0.00	-4,036.0	0.00	4,035.99	4,517.79	1,260.39	6,868.82	5,618.13	0.77	-0.49	0.730
20.00	-48.11	-35.86	0.00	-3,853.9	0.00	3,853.87	4,464.90	1,232.71	6,570.48	5,429.68	1.38	-0.66	0.721
25.00	-46.38	-35.28	0.00	-3,674.6	0.00	3,674.55	4,409.93	1,205.03	6,278.76	5,241.66	2.16	-0.83	0.712
30.00	-44.70	-34.67	0.00	-3,498.2	0.00	3,498.17	4,352.89	1,177.35	5,993.67	5,054.25	3.13	-1.01	0.703
35.00	-43.04	-34.06	0.00	-3,324.8	0.00	3,324.80	4,293.76	1,149.67	5,715.20	4,867.62	4.28	-1.19	0.694
40.00	-41.43	-33.43	0.00	-3,154.5	0.00	3,154.52	4,232.55	1,121.99	5,443.35	4,681.93	5.63	-1.37	0.684
45.00	-39.87	-32.99	0.00	-2,987.4	0.00	2,987.38	4,169.26	1,094.32	5,178.13	4,497.36	7.17	-1.56	0.675
46.75	-39.31	-32.68	0.00	-2,929.6	0.00	2,929.65	4,146.62	1,084.63	5,086.87	4,433.06	7.75	-1.63	0.671
50.00	-37.48	-32.21	0.00	-2,823.4	0.00	2,823.45	4,103.89	1,066.64	4,919.53	4,314.09	8.91	-1.76	0.665
53.50	-35.56	-31.85	0.00	-2,710.7	0.00	2,710.71	4,094.98	1,062.93	4,885.39	4,289.64	10.25	-1.89	0.642
55.00	-35.08	-31.44	0.00	-2,662.9	0.00	2,662.94	4,074.88	1,054.63	4,809.36	4,234.99	10.85	-1.95	0.638
60.00	-33.58	-30.77	0.00	-2,505.8	0.00	2,505.75	4,006.53	1,026.95	4,560.26	4,053.87	13	-2.14	0.627
65.00	-32.13	-30.11	0.00	-2,351.9	0.00	2,351.89	3,936.10	999.27	4,317.79	3,874.45	15.35	-2.34	0.616
70.00	-30.71	-29.45	0.00	-2,201.3	0.00	2,201.33	3,863.58	971.59	4,081.94	3,696.92	17.9	-2.53	0.604
75.00	-29.32	-28.80	0.00	-2,054.1	0.00	2,054.07	3,788.99	943.91	3,852.71	3,521.44	20.66	-2.73	0.592
80.00	-27.97	-28.15	0.00	-1,910.1	0.00	1,910.09	3,712.32	916.23	3,630.10	3,348.18	23.63	-2.94	0.579
85.00	-26.65	-27.50	0.00	-1,769.4	0.00	1,769.36	3,633.57	888.56	3,414.12	3,177.31	26.82	-3.14	0.565
90.00	-25.37	-26.86	0.00	-1,631.9	0.00	1,631.86	3,552.73	860.88	3,204.76	3,009.01	30.22	-3.35	0.550
95.00	-24.12	-26.23	0.00	-1,497.6	0.00	1,497.55	3,469.82	833.20	3,002.03	2,843.45	33.84	-3.56	0.535
100.00	-22.21	-25.81	0.00	-1,366.4	0.00	1,366.41	3,384.83	805.52	2,805.92	2,680.80	37.69	-3.78	0.517
100.25	-22.11	-25.75	0.00	-1,360.0	0.00	1,359.96	2,340.74	613.49	2,169.55	1,886.99	37.89	-3.79	0.732
101.00	-21.74	-25.25	0.00	-1,340.6	0.00	1,340.65	2,333.44	610.38	2,147.58	1,871.49	38.48	-3.82	0.727
104.00	-21.15	-24.89	0.00	-1,264.9	0.00	1,264.91	2,303.79	597.92	2,060.82	1,809.73	40.94	-3.99	0.710
105.00	-20.92	-24.56	0.00	-1,240.0	0.00	1,240.02	2,293.74	593.77	2,032.30	1,789.23	41.78	-4.05	0.704
110.00	-19.97	-23.98	0.00	-1,117.2	0.00	1,117.22	2,242.24	573.01	1,892.67	1,687.44	46.16	-4.32	0.673
115.00	-19.05	-23.41	0.00	-997.3	0.00	997.32	2,188.66	552.24	1,758.02	1,586.98	50.83	-4.59	0.639
120.00	-18.16	-22.85	0.00	-880.3	0.00	880.27	2,133.00	531.48	1,628.33	1,488.02	55.78	-4.86	0.602
125.00	-17.30	-22.30	0.00	-766.0	0.00	766.03	2,075.26	510.72	1,503.61	1,390.72	61.01	-5.13	0.561
130.00	-16.48	-21.79	0.00	-654.5	0.00	654.54	2,015.44	489.96	1,383.85	1,295.25	66.51	-5.39	0.515
134.25	-15.49	-21.46	0.00	-561.9	0.00	561.94	1,137.98	319.71	883.94	718.00	71.4	-5.6	0.801
135.00	-15.37	-21.20	0.00	-545.8	0.00	545.84	1,134.17	317.64	872.50	710.93	72.28	-5.64	0.786
140.00	-11.40	-16.63	0.00	-439.8	0.00	439.82	1,107.59	303.80	798.14	663.83	78.36	-5.97	0.676
145.00	-10.84	-16.14	0.00	-356.7	0.00	356.69	1,078.93	289.96	727.09	617.01	84.77	-6.28	0.591
150.00	-10.31	-15.76	0.00	-276.0	0.00	276.02	1,048.19	276.12	659.34	570.62	91.48	-6.56	0.497
152.50	-10.03	-14.91	0.00	-236.6	0.00	236.62	1,032.03	269.20	626.71	547.65	94.94	-6.69	0.445
155.00	-9.79	-14.57	0.00	-199.4	0.00	199.36	1,015.36	262.28	594.91	524.86	98.47	-6.81	0.393
160.00	-9.35	-14.23	0.00	-126.5	0.00	126.49	980.46	248.44	533.80	479.88	105.69	-7	0.276
162.00	-4.71	-8.44	0.00	-98.0	0.00	98.02	965.92	242.91	510.28	462.14	108.63	-7.06	0.218
165.00	-4.51	-8.09	0.00	-72.7	0.00	72.71	943.48	234.60	475.99	435.85	113.09	-7.14	0.173
170.00	-4.17	-7.74	0.00	-32.2	0.00	32.25	904.42	220.76	421.50	392.96	120.6	-7.23	0.088
173.00	-0.57	-1.90	0.00	-4.9	0.00	4.86	879.98	212.46	390.39	367.83	125.14	-7.25	0.014
175.00	0.00	-1.81	0.00	-1.1	0.00	1.06	863.27	206.92	370.31	351.36	128.17	-7.26	0.003

Load Case: 0.9D + 1.0W Normal 125 mph wind with no ice 25 Iterations
Gust Response Factor: 1.10
Dead load Factor: 0.90
Wind Load Factor: 1.00

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-41.48	-38.03	0.00	-4,542.7	0.00	4,542.71	4,663.96	1,343.42	7,803.58	6,184.38	0	0	0.744
5.00	-40.07	-37.44	0.00	-4,352.6	0.00	4,352.57	4,617.32	1,315.74	7,485.37	5,995.65	0.09	-0.16	0.735
10.00	-38.68	-36.87	0.00	-4,165.4	0.00	4,165.36	4,568.59	1,288.06	7,173.78	5,806.85	0.34	-0.32	0.727
15.00	-37.31	-36.29	0.00	-3,981.0	0.00	3,981.01	4,517.79	1,260.39	6,868.82	5,618.13	0.76	-0.48	0.718
20.00	-35.97	-35.70	0.00	-3,799.6	0.00	3,799.55	4,464.90	1,232.71	6,570.48	5,429.68	1.36	-0.65	0.709
25.00	-34.66	-35.08	0.00	-3,621.1	0.00	3,621.06	4,409.93	1,205.03	6,278.76	5,241.66	2.13	-0.82	0.700
30.00	-33.37	-34.45	0.00	-3,445.7	0.00	3,445.66	4,352.89	1,177.35	5,993.67	5,054.25	3.09	-1	0.690
35.00	-32.11	-33.80	0.00	-3,273.4	0.00	3,273.43	4,293.76	1,149.67	5,715.20	4,867.62	4.23	-1.17	0.681
40.00	-30.87	-33.15	0.00	-3,104.4	0.00	3,104.42	4,232.55	1,121.99	5,443.35	4,681.93	5.55	-1.35	0.671
45.00	-29.69	-32.69	0.00	-2,938.7	0.00	2,938.68	4,169.26	1,094.32	5,178.13	4,497.36	7.07	-1.54	0.661
46.75	-29.26	-32.37	0.00	-2,881.5	0.00	2,881.47	4,146.62	1,084.63	5,086.87	4,433.06	7.65	-1.61	0.658
50.00	-27.88	-31.89	0.00	-2,776.3	0.00	2,776.29	4,103.89	1,066.64	4,919.53	4,314.09	8.78	-1.73	0.651
53.50	-26.43	-31.53	0.00	-2,664.7	0.00	2,664.66	4,094.98	1,062.93	4,885.39	4,289.64	10.1	-1.87	0.629
55.00	-26.05	-31.10	0.00	-2,617.4	0.00	2,617.37	4,074.88	1,054.63	4,809.36	4,234.99	10.7	-1.92	0.625
60.00	-24.92	-30.42	0.00	-2,461.9	0.00	2,461.87	4,006.53	1,026.95	4,560.26	4,053.87	12.82	-2.11	0.614
65.00	-23.81	-29.74	0.00	-2,309.8	0.00	2,309.78	3,936.10	999.27	4,317.79	3,874.45	15.13	-2.3	0.603
70.00	-22.73	-29.07	0.00	-2,161.1	0.00	2,161.07	3,863.58	971.59	4,081.94	3,696.92	17.64	-2.49	0.591
75.00	-21.67	-28.40	0.00	-2,015.7	0.00	2,015.73	3,788.99	943.91	3,852.71	3,521.44	20.36	-2.69	0.579
80.00	-20.65	-27.74	0.00	-1,873.7	0.00	1,873.74	3,712.32	916.23	3,630.10	3,348.18	23.28	-2.89	0.566
85.00	-19.64	-27.08	0.00	-1,735.0	0.00	1,735.05	3,633.57	888.56	3,414.12	3,177.31	26.42	-3.09	0.552
90.00	-18.67	-26.44	0.00	-1,599.6	0.00	1,599.63	3,552.73	860.88	3,204.76	3,009.01	29.77	-3.3	0.538
95.00	-17.72	-25.80	0.00	-1,467.4	0.00	1,467.45	3,469.82	833.20	3,002.03	2,843.45	33.33	-3.5	0.522
100.00	-16.29	-25.40	0.00	-1,338.5	0.00	1,338.47	3,384.83	805.52	2,805.92	2,680.80	37.11	-3.71	0.505
100.25	-16.21	-25.33	0.00	-1,332.1	0.00	1,332.12	2,340.74	613.49	2,169.55	1,886.99	37.31	-3.72	0.715
101.00	-15.93	-24.83	0.00	-1,313.1	0.00	1,313.12	2,333.44	610.38	2,147.58	1,871.49	37.89	-3.76	0.710
104.00	-15.48	-24.47	0.00	-1,238.6	0.00	1,238.63	2,303.79	597.92	2,060.82	1,809.73	40.31	-3.92	0.693
105.00	-15.30	-24.13	0.00	-1,214.2	0.00	1,214.16	2,293.74	593.77	2,032.30	1,789.23	41.13	-3.98	0.687
110.00	-14.58	-23.54	0.00	-1,093.5	0.00	1,093.52	2,242.24	573.01	1,892.67	1,687.44	45.44	-4.24	0.656
115.00	-13.87	-22.96	0.00	-975.8	0.00	975.84	2,188.66	552.24	1,758.02	1,586.98	50.02	-4.51	0.623
120.00	-13.20	-22.39	0.00	-861.0	0.00	861.05	2,133.00	531.48	1,628.33	1,488.02	54.89	-4.78	0.587
125.00	-12.54	-21.84	0.00	-749.1	0.00	749.09	2,075.26	510.72	1,503.61	1,390.72	60.02	-5.04	0.547
130.00	-11.91	-21.33	0.00	-639.9	0.00	639.92	2,015.44	489.96	1,383.85	1,295.25	65.43	-5.29	0.502
134.25	-11.17	-21.01	0.00	-549.3	0.00	549.28	1,137.98	319.71	883.94	718.00	70.23	-5.5	0.779
135.00	-11.07	-20.74	0.00	-533.5	0.00	533.53	1,134.17	317.64	872.50	710.93	71.09	-5.53	0.764
140.00	-8.17	-16.26	0.00	-429.8	0.00	429.82	1,107.59	303.80	798.14	663.83	77.06	-5.86	0.658
145.00	-7.75	-15.77	0.00	-348.5	0.00	348.52	1,078.93	289.96	727.09	617.01	83.35	-6.16	0.575
150.00	-7.35	-15.39	0.00	-269.7	0.00	269.68	1,048.19	276.12	659.34	570.62	89.94	-6.43	0.483
152.50	-7.15	-14.55	0.00	-231.2	0.00	231.20	1,032.03	269.20	626.71	547.65	93.33	-6.56	0.432
155.00	-6.98	-14.21	0.00	-194.8	0.00	194.83	1,015.36	262.28	594.91	524.86	96.79	-6.68	0.381
160.00	-6.65	-13.88	0.00	-123.8	0.00	123.77	980.46	248.44	533.80	479.88	103.88	-6.87	0.268
162.00	-3.31	-8.25	0.00	-96.0	0.00	96.01	965.92	242.91	510.28	462.14	106.76	-6.93	0.212
165.00	-3.17	-7.91	0.00	-71.3	0.00	71.26	943.48	234.60	475.99	435.85	111.13	-7	0.168
170.00	-2.92	-7.57	0.00	-31.7	0.00	31.69	904.42	220.76	421.50	392.96	118.5	-7.09	0.085
173.00	-0.38	-1.87	0.00	-4.8	0.00	4.81	879.98	212.46	390.39	367.83	122.95	-7.11	0.014
175.00	0.00	-1.81	0.00	-1.1	0.00	1.06	863.27	206.92	370.31	351.36	125.93	-7.12	0.003

Load Case: 1.2D + 1.0Di + 1.0Wi Normal		50 mph wind with 1" radial ice			24 Iterations
Gust Response Factor:	1.10	Ice Dead Load Factor	1.00		
Dead load Factor:	1.20			Ice Importance Factor	1.00
Wind Load Factor:	1.00				

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-72.20	-9.61	0.00	-1,147.4	0.00	1,147.45	4,663.96	1,343.42	7,803.58	6,184.38	0	0	0.201
5.00	-70.13	-9.47	0.00	-1,099.4	0.00	1,099.40	4,617.32	1,315.74	7,485.37	5,995.65	0.02	-0.04	0.199
10.00	-68.06	-9.34	0.00	-1,052.0	0.00	1,052.04	4,568.59	1,288.06	7,173.78	5,806.85	0.09	-0.08	0.196
15.00	-66.02	-9.20	0.00	-1,005.4	0.00	1,005.36	4,517.79	1,260.39	6,868.82	5,618.13	0.19	-0.12	0.194
20.00	-64.00	-9.05	0.00	-959.4	0.00	959.38	4,464.90	1,232.71	6,570.48	5,429.68	0.34	-0.16	0.191
25.00	-62.02	-8.90	0.00	-914.1	0.00	914.12	4,409.93	1,205.03	6,278.76	5,241.66	0.54	-0.21	0.189
30.00	-60.06	-8.75	0.00	-869.6	0.00	869.61	4,352.89	1,177.35	5,993.67	5,054.25	0.78	-0.25	0.186
35.00	-58.15	-8.58	0.00	-825.9	0.00	825.89	4,293.76	1,149.67	5,715.20	4,867.62	1.07	-0.3	0.183
40.00	-56.27	-8.42	0.00	-783.0	0.00	782.97	4,232.55	1,121.99	5,443.35	4,681.93	1.4	-0.34	0.181
45.00	-54.42	-8.31	0.00	-740.9	0.00	740.86	4,169.26	1,094.32	5,178.13	4,497.36	1.79	-0.39	0.178
46.75	-53.78	-8.22	0.00	-726.3	0.00	726.33	4,146.62	1,084.63	5,086.87	4,433.06	1.93	-0.41	0.177
50.00	-51.78	-8.10	0.00	-699.6	0.00	699.60	4,103.89	1,066.64	4,919.53	4,314.09	2.22	-0.44	0.175
53.50	-49.66	-8.01	0.00	-671.2	0.00	671.25	4,094.98	1,062.93	4,885.39	4,289.64	2.55	-0.47	0.169
55.00	-49.12	-7.90	0.00	-659.2	0.00	659.24	4,074.88	1,054.63	4,809.36	4,234.99	2.7	-0.49	0.168
60.00	-47.37	-7.72	0.00	-619.7	0.00	619.74	4,006.53	1,026.95	4,560.26	4,053.87	3.24	-0.53	0.165
65.00	-45.65	-7.55	0.00	-581.1	0.00	581.13	3,936.10	999.27	4,317.79	3,874.45	3.82	-0.58	0.162
70.00	-43.97	-7.37	0.00	-543.4	0.00	543.39	3,863.58	971.59	4,081.94	3,696.92	4.45	-0.63	0.158
75.00	-42.33	-7.20	0.00	-506.5	0.00	506.52	3,788.99	943.91	3,852.71	3,521.44	5.14	-0.68	0.155
80.00	-40.73	-7.03	0.00	-470.5	0.00	470.53	3,712.32	916.23	3,630.10	3,348.18	5.88	-0.73	0.152
85.00	-39.17	-6.85	0.00	-435.4	0.00	435.40	3,633.57	888.56	3,414.12	3,177.31	6.67	-0.78	0.148
90.00	-37.65	-6.68	0.00	-401.1	0.00	401.14	3,552.73	860.88	3,204.76	3,009.01	7.51	-0.83	0.144
95.00	-36.17	-6.51	0.00	-367.7	0.00	367.73	3,469.82	833.20	3,002.03	2,843.45	8.41	-0.88	0.140
100.00	-34.00	-6.40	0.00	-335.2	0.00	335.17	3,384.83	805.52	2,805.92	2,680.80	9.36	-0.94	0.135
100.25	-33.89	-6.38	0.00	-333.6	0.00	333.57	2,340.74	613.49	2,169.55	1,886.99	9.41	-0.94	0.191
101.00	-33.44	-6.26	0.00	-328.8	0.00	328.78	2,333.44	610.38	2,147.58	1,871.49	9.56	-0.95	0.190
104.00	-32.67	-6.17	0.00	-310.0	0.00	309.99	2,303.79	597.92	2,060.82	1,809.73	10.17	-0.99	0.186
105.00	-32.44	-6.08	0.00	-303.8	0.00	303.82	2,293.74	593.77	2,032.30	1,789.23	10.37	-1	0.184
110.00	-31.28	-5.93	0.00	-273.4	0.00	273.41	2,242.24	573.01	1,892.67	1,687.44	11.46	-1.07	0.176
115.00	-30.16	-5.77	0.00	-243.8	0.00	243.77	2,188.66	552.24	1,758.02	1,586.98	12.61	-1.13	0.167
120.00	-29.08	-5.62	0.00	-214.9	0.00	214.90	2,133.00	531.48	1,628.33	1,488.02	13.84	-1.2	0.158
125.00	-28.02	-5.47	0.00	-186.8	0.00	186.78	2,075.26	510.72	1,503.61	1,390.72	15.13	-1.27	0.148
130.00	-27.00	-5.34	0.00	-159.4	0.00	159.41	2,015.44	489.96	1,383.85	1,295.25	16.49	-1.33	0.137
134.25	-25.83	-5.25	0.00	-136.7	0.00	136.74	1,137.98	319.71	883.94	718.00	17.7	-1.38	0.213
135.00	-25.71	-5.18	0.00	-132.8	0.00	132.81	1,134.17	317.64	872.50	710.93	17.91	-1.39	0.210
140.00	-19.65	-4.15	0.00	-106.9	0.00	106.92	1,107.59	303.80	798.14	663.83	19.41	-1.47	0.179
145.00	-18.90	-4.01	0.00	-86.2	0.00	86.17	1,078.93	289.96	727.09	617.01	20.99	-1.54	0.157
150.00	-18.18	-3.91	0.00	-66.1	0.00	66.11	1,048.19	276.12	659.34	570.62	22.65	-1.61	0.133
152.50	-17.59	-3.71	0.00	-56.4	0.00	56.35	1,032.03	269.20	626.71	547.65	23.5	-1.64	0.120
155.00	-17.26	-3.61	0.00	-47.1	0.00	47.09	1,015.36	262.28	594.91	524.86	24.37	-1.67	0.107
160.00	-16.62	-3.51	0.00	-29.0	0.00	29.03	980.46	248.44	533.80	479.88	26.15	-1.72	0.078
162.00	-8.89	-1.93	0.00	-22.0	0.00	22.01	965.92	242.91	510.28	462.14	26.87	-1.73	0.057
165.00	-8.55	-1.83	0.00	-16.2	0.00	16.21	943.48	234.60	475.99	435.85	27.96	-1.75	0.046
170.00	-8.02	-1.73	0.00	-7.0	0.00	7.05	904.42	220.76	421.50	392.96	29.81	-1.77	0.027
173.00	-1.60	-0.42	0.00	-1.1	0.00	1.06	879.98	212.46	390.39	367.83	30.92	-1.77	0.005
175.00	0.00	-0.37	0.00	-0.2	0.00	0.22	863.27	206.92	370.31	351.36	31.66	-1.77	0.001

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

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-46.15	-7.84	0.00	-941.8	0.00	941.82	4,663.96	1,343.42	7,803.58	6,184.38	0	0	0.162
5.00	-44.69	-7.72	0.00	-902.6	0.00	902.62	4,617.32	1,315.74	7,485.37	5,995.65	0.02	-0.03	0.160
10.00	-43.25	-7.61	0.00	-864.0	0.00	864.01	4,568.59	1,288.06	7,173.78	5,806.85	0.07	-0.07	0.158
15.00	-41.84	-7.49	0.00	-826.0	0.00	825.97	4,517.79	1,260.39	6,868.82	5,618.13	0.16	-0.1	0.156
20.00	-40.46	-7.37	0.00	-788.5	0.00	788.52	4,464.90	1,232.71	6,570.48	5,429.68	0.28	-0.14	0.154
25.00	-39.10	-7.25	0.00	-751.7	0.00	751.67	4,409.93	1,205.03	6,278.76	5,241.66	0.44	-0.17	0.152
30.00	-37.77	-7.12	0.00	-715.4	0.00	715.44	4,352.89	1,177.35	5,993.67	5,054.25	0.64	-0.21	0.150
35.00	-36.47	-6.99	0.00	-679.8	0.00	679.85	4,293.76	1,149.67	5,715.20	4,867.62	0.88	-0.24	0.148
40.00	-35.19	-6.85	0.00	-644.9	0.00	644.92	4,232.55	1,121.99	5,443.35	4,681.93	1.15	-0.28	0.146
45.00	-33.94	-6.76	0.00	-610.6	0.00	610.65	4,169.26	1,094.32	5,178.13	4,497.36	1.47	-0.32	0.144
46.75	-33.51	-6.70	0.00	-598.8	0.00	598.81	4,146.62	1,084.63	5,086.87	4,433.06	1.59	-0.33	0.143
50.00	-32.03	-6.60	0.00	-577.0	0.00	577.05	4,103.89	1,066.64	4,919.53	4,314.09	1.82	-0.36	0.142
53.50	-30.46	-6.52	0.00	-554.0	0.00	553.95	4,094.98	1,062.93	4,885.39	4,289.64	2.1	-0.39	0.137
55.00	-30.10	-6.44	0.00	-544.2	0.00	544.17	4,074.88	1,054.63	4,809.36	4,234.99	2.22	-0.4	0.136
60.00	-28.92	-6.30	0.00	-512.0	0.00	511.98	4,006.53	1,026.95	4,560.26	4,053.87	2.66	-0.44	0.134
65.00	-27.76	-6.16	0.00	-480.5	0.00	480.48	3,936.10	999.27	4,317.79	3,874.45	3.14	-0.48	0.131
70.00	-26.63	-6.02	0.00	-449.7	0.00	449.67	3,863.58	971.59	4,081.94	3,696.92	3.66	-0.52	0.129
75.00	-25.53	-5.89	0.00	-419.6	0.00	419.55	3,788.99	943.91	3,852.71	3,521.44	4.23	-0.56	0.126
80.00	-24.46	-5.75	0.00	-390.1	0.00	390.11	3,712.32	916.23	3,630.10	3,348.18	4.84	-0.6	0.123
85.00	-23.41	-5.62	0.00	-361.3	0.00	361.34	3,633.57	888.56	3,414.12	3,177.31	5.49	-0.64	0.120
90.00	-22.39	-5.49	0.00	-333.2	0.00	333.24	3,552.73	860.88	3,204.76	3,009.01	6.18	-0.69	0.117
95.00	-21.39	-5.36	0.00	-305.8	0.00	305.80	3,469.82	833.20	3,002.03	2,843.45	6.92	-0.73	0.114
100.00	-19.82	-5.27	0.00	-279.0	0.00	279.01	3,384.83	805.52	2,805.92	2,680.80	7.71	-0.77	0.110
100.25	-19.74	-5.26	0.00	-277.7	0.00	277.70	2,340.74	613.49	2,169.55	1,886.99	7.75	-0.77	0.156
101.00	-19.44	-5.16	0.00	-273.8	0.00	273.75	2,333.44	610.38	2,147.58	1,871.49	7.87	-0.78	0.155
104.00	-18.96	-5.08	0.00	-258.3	0.00	258.27	2,303.79	597.92	2,060.82	1,809.73	8.38	-0.82	0.151
105.00	-18.81	-5.02	0.00	-253.2	0.00	253.19	2,293.74	593.77	2,032.30	1,789.23	8.55	-0.83	0.150
110.00	-18.07	-4.90	0.00	-228.1	0.00	228.11	2,242.24	573.01	1,892.67	1,687.44	9.44	-0.88	0.143
115.00	-17.35	-4.78	0.00	-203.6	0.00	203.63	2,188.66	552.24	1,758.02	1,586.98	10.4	-0.94	0.136
120.00	-16.66	-4.66	0.00	-179.7	0.00	179.74	2,133.00	531.48	1,628.33	1,488.02	11.41	-0.99	0.129
125.00	-15.98	-4.55	0.00	-156.4	0.00	156.42	2,075.26	510.72	1,503.61	1,390.72	12.48	-1.05	0.120
130.00	-15.32	-4.45	0.00	-133.7	0.00	133.67	2,015.44	489.96	1,383.85	1,295.25	13.61	-1.1	0.111
134.25	-14.52	-4.38	0.00	-114.8	0.00	114.77	1,137.98	319.71	883.94	718.00	14.61	-1.14	0.173
135.00	-14.44	-4.33	0.00	-111.5	0.00	111.48	1,134.17	317.64	872.50	710.93	14.79	-1.15	0.170
140.00	-10.85	-3.39	0.00	-89.8	0.00	89.84	1,107.59	303.80	798.14	663.83	16.03	-1.22	0.145
145.00	-10.41	-3.29	0.00	-72.9	0.00	72.87	1,078.93	289.96	727.09	617.01	17.34	-1.28	0.128
150.00	-9.98	-3.22	0.00	-56.4	0.00	56.40	1,048.19	276.12	659.34	570.62	18.72	-1.34	0.108
152.50	-9.69	-3.04	0.00	-48.4	0.00	48.35	1,032.03	269.20	626.71	547.65	19.43	-1.37	0.098
155.00	-9.49	-2.97	0.00	-40.8	0.00	40.75	1,015.36	262.28	594.91	524.86	20.15	-1.39	0.087
160.00	-9.11	-2.91	0.00	-25.9	0.00	25.88	980.46	248.44	533.80	479.88	21.63	-1.43	0.063
162.00	-4.72	-1.73	0.00	-20.1	0.00	20.07	965.92	242.91	510.28	462.14	22.23	-1.44	0.048
165.00	-4.53	-1.66	0.00	-14.9	0.00	14.89	943.48	234.60	475.99	435.85	23.14	-1.46	0.039
170.00	-4.22	-1.58	0.00	-6.6	0.00	6.61	904.42	220.76	421.50	392.96	24.68	-1.48	0.022
173.00	-0.66	-0.39	0.00	-1.0	0.00	1.00	879.98	212.46	390.39	367.83	25.61	-1.48	0.003
175.00	0.00	-0.37	0.00	-0.2	0.00	0.22	863.27	206.92	370.31	351.36	26.23	-1.48	0.001

EQUIVALENT LATERAL FORCES METHOD ANALYSIS

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

Spectral Response Acceleration for Short Period (S_S):	0.202
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.053
Long-Period Transition Period (T_L – Seconds):	6
Importance Factor (I_e):	1.000
Site Coefficient F_a:	1.600
Site Coefficient F_v:	2.400
Response Modification Coefficient (R):	1.500
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.215
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.085
Seismic Response Coefficient (C_s):	0.030
Upper Limit C_S:	0.030
Lower Limit C_S:	0.030
Period based on Rayleigh Method (sec):	2.650
Redundancy Factor (p):	1.000
Seismic Force Distribution Exponent (k):	2.000
Total Unfactored Dead Load:	46.150 k
Seismic Base Shear (E):	1.380 k

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

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
44	174	85	2,561	0.005	7	105
43	171.5	180	5,292	0.010	14	224
42	167.5	311	8,715	0.017	23	386
41	163.5	193	5,154	0.010	14	240
40	161	148	3,849	0.007	10	185
39	157.5	381	9,442	0.018	25	473
38	153.75	195	4,618	0.009	12	243
37	151.25	209	4,770	0.009	13	259
36	147.5	432	9,400	0.018	25	537
35	142.5	445	9,046	0.017	24	554
34	137.5	471	8,897	0.017	24	585
33	134.625	72	1,300	0.002	3	89
32	132.125	809	14,118	0.027	37	1,005
31	127.5	654	10,638	0.020	28	813
30	122.5	675	10,122	0.019	27	839
29	117.5	695	9,591	0.018	25	864
28	112.5	715	9,047	0.017	24	889
27	107.5	735	8,493	0.016	23	914
26	104.5	149	1,631	0.003	4	186
25	102.5	454	4,770	0.009	13	564
24	100.625	115	1,161	0.002	3	143
23	100.125	77	775	0.002	2	96
22	97.5	1,571	14,936	0.029	40	1,953
21	92.5	992	8,489	0.016	22	1,233
20	87.5	1,019	7,802	0.015	21	1,267
19	82.5	1,046	7,118	0.014	19	1,300
18	77.5	1,073	6,443	0.012	17	1,333
17	72.5	1,099	5,779	0.011	15	1,367
16	67.5	1,126	5,132	0.010	14	1,400
15	62.5	1,153	4,505	0.009	12	1,433
14	57.5	1,180	3,901	0.008	10	1,467
13	54.25	359	1,057	0.002	3	447
12	51.75	1,565	4,191	0.008	11	1,945
11	48.375	1,477	3,456	0.007	9	1,836

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
10	45.875	430	904	0.002	2	534
9	42.5	1,245	2,249	0.004	6	1,548
8	37.5	1,272	1,789	0.003	5	1,581
7	32.5	1,299	1,372	0.003	4	1,615
6	27.5	1,326	1,003	0.002	3	1,648
5	22.5	1,353	685	0.001	2	1,681
4	17.5	1,379	422	0.001	1	1,715
3	12.5	1,406	220	0.000	1	1,748
2	7.5	1,433	81	0.000	0	1,782
1	2.5	1,460	9	0.000	0	1,815
Samsung B2/B66A RRH-BR049	175	253	7,754	0.015	21	315
RFS DB-B1-6C-12AB-0Z (32 lbs.)	175	64	1,960	0.004	5	80
Generic 72" x 12" x 7" Panel	175	270	8,269	0.016	22	336
Commscope CBC78T-DS-43-2X	173	62	1,859	0.004	5	77
Samsung B5/B13 RRH-BR04C	173	211	6,312	0.012	17	262
Antel BXA-80063/4CF	173	30	889	0.002	2	37
Samsung MT6407-77A	173	245	7,327	0.014	19	304
Commscope JAHH-65B-R3B	173	364	10,882	0.021	29	452
Generic Flat Platform with Handrails	173	2,500	74,822	0.143	198	3,108
Generic Flat Platform with Handrails	140	2,500	49,000	0.094	130	3,108
Ericsson Radio 4449 B71 B85A	162	225	5,905	0.011	16	280
Ericsson 4460 BAND 2/25	162	327	8,582	0.016	23	406
Ericsson Air6449 B41	162	312	8,188	0.016	22	388
RFS APX16DWV-16DWVS-E-A20	162	122	3,204	0.006	8	152
RFS APXVAARR24_43-U-NA20	162	384	10,070	0.019	27	477
Generic Circular Platform with Handrails	162	2,900	76,108	0.146	202	3,605
RFS APXV18-206517S-C	152.5	79	1,842	0.004	5	98
Commscope RDIDC-9181-PF-48	140	22	429	0.001	1	27
Fujitsu TA08025-B605	140	225	4,410	0.008	12	280
Fujitsu TA08025-B604	140	192	3,757	0.007	10	238
JMA Wireless MX08FRO665-21	140	194	3,793	0.007	10	241
Generic 7' Omni	104	25	270	0.000	1	31
Generic Round Side Arm	101	188	1,913	0.004	5	233
		46,154	522,476	1.000	1,385	57,373

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

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
44	174	85	2,561	0.005	7	72
43	171.5	180	5,292	0.010	14	154
42	167.5	311	8,715	0.017	23	266
41	163.5	193	5,154	0.010	14	165
40	161	148	3,849	0.007	10	127
39	157.5	381	9,442	0.018	25	326
38	153.75	195	4,618	0.009	12	167
37	151.25	209	4,770	0.009	13	179
36	147.5	432	9,400	0.018	25	370
35	142.5	445	9,046	0.017	24	382
34	137.5	471	8,897	0.017	24	403
33	134.625	72	1,300	0.002	3	61
32	132.125	809	14,118	0.027	37	693
31	127.5	654	10,638	0.020	28	561
30	122.5	675	10,122	0.019	27	578
29	117.5	695	9,591	0.018	25	595
28	112.5	715	9,047	0.017	24	613
27	107.5	735	8,493	0.016	23	630
26	104.5	149	1,631	0.003	4	128
25	102.5	454	4,770	0.009	13	389
24	100.625	115	1,161	0.002	3	98
23	100.125	77	775	0.002	2	66
22	97.5	1,571	14,936	0.029	40	1,346
21	92.5	992	8,489	0.016	22	850

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
20	87.5	1,019	7,802	0.015	21	873
19	82.5	1,046	7,118	0.014	19	896
18	77.5	1,073	6,443	0.012	17	919
17	72.5	1,099	5,779	0.011	15	942
16	67.5	1,126	5,132	0.010	14	965
15	62.5	1,153	4,505	0.009	12	988
14	57.5	1,180	3,901	0.008	10	1,011
13	54.25	359	1,057	0.002	3	308
12	51.75	1,565	4,191	0.008	11	1,341
11	48.375	1,477	3,456	0.007	9	1,265
10	45.875	430	904	0.002	2	368
9	42.5	1,245	2,249	0.004	6	1,067
8	37.5	1,272	1,789	0.003	5	1,090
7	32.5	1,299	1,372	0.003	4	1,113
6	27.5	1,326	1,003	0.002	3	1,136
5	22.5	1,353	685	0.001	2	1,159
4	17.5	1,379	422	0.001	1	1,182
3	12.5	1,406	220	0.000	1	1,205
2	7.5	1,433	81	0.000	0	1,228
1	2.5	1,460	9	0.000	0	1,251
Samsung B2/B66A RRH-BR049	175	253	7,754	0.015	21	217
RFS DB-B1-6C-12AB-0Z (32 lbs.)	175	64	1,960	0.004	5	55
Generic 72" x 12" x 7" Panel	175	270	8,269	0.016	22	231
Commscope CBC78T-DS-43-2X	173	62	1,859	0.004	5	53
Samsung B5/B13 RRH-BR04C	173	211	6,312	0.012	17	181
Antel BXA-80063/4CF	173	30	889	0.002	2	25
Samsung MT6407-77A	173	245	7,327	0.014	19	210
Commscope JAHH-65B-R3B	173	364	10,882	0.021	29	312
Generic Flat Platform with Handrails	173	2,500	74,822	0.143	198	2,142
Generic Flat Platform with Handrails	140	2,500	49,000	0.094	130	2,142
Ericsson Radio 4449 B71 B85A	162	225	5,905	0.011	16	193
Ericsson 4460 BAND 2/25	162	327	8,582	0.016	23	280
Ericsson Air6449 B41	162	312	8,188	0.016	22	267
RFS APX16DWV-16DWVS-E-A20	162	122	3,204	0.006	8	105
RFS APXVAARR24_43-U-NA20	162	384	10,070	0.019	27	329
Generic Circular Platform with Handrails	162	2,900	76,108	0.146	202	2,485
RFS APXV18-206517S-C	152.5	79	1,842	0.004	5	68
Commscope RDIDC-9181-PF-48	140	22	429	0.001	1	19
Fujitsu TA08025-B605	140	225	4,410	0.008	12	193
Fujitsu TA08025-B604	140	192	3,757	0.007	10	164
JMA Wireless MX08FRO665-21	140	194	3,793	0.007	10	166
Generic 7' Omni	104	25	270	0.000	1	21
Generic Round Side Arm	101	188	1,913	0.004	5	161
		46,154	522,476	1.000	1,385	39,549

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

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-55.56	-1.39	0.00	-203.86	0.00	203.86	4,663.96	1,343.42	7,804	6,184.38	0.00	0.00	0.05
5.00	-53.78	-1.39	0.00	-196.93	0.00	196.93	4,617.32	1,315.74	7,485	5,995.65	0.00	-0.01	0.04
10.00	-52.03	-1.40	0.00	-189.96	0.00	189.96	4,568.59	1,288.06	7,174	5,806.85	0.02	-0.01	0.04
15.00	-50.31	-1.40	0.00	-182.96	0.00	182.96	4,517.79	1,260.39	6,869	5,618.13	0.03	-0.02	0.04
20.00	-48.63	-1.41	0.00	-175.94	0.00	175.94	4,464.90	1,232.71	6,570	5,429.68	0.06	-0.03	0.04
25.00	-46.98	-1.41	0.00	-168.90	0.00	168.90	4,409.93	1,205.03	6,279	5,241.66	0.10	-0.04	0.04
30.00	-45.37	-1.41	0.00	-161.85	0.00	161.85	4,352.89	1,177.35	5,994	5,054.25	0.14	-0.05	0.04
35.00	-43.79	-1.41	0.00	-154.79	0.00	154.79	4,293.76	1,149.67	5,715	4,867.62	0.19	-0.05	0.04
40.00	-42.24	-1.41	0.00	-147.72	0.00	147.72	4,232.55	1,121.99	5,443	4,681.93	0.25	-0.06	0.04
45.00	-41.70	-1.41	0.00	-140.66	0.00	140.66	4,169.26	1,094.32	5,178	4,497.36	0.32	-0.07	0.04
46.75	-39.87	-1.41	0.00	-138.19	0.00	138.19	4,146.62	1,084.63	5,087	4,433.06	0.35	-0.07	0.04
50.00	-37.92	-1.40	0.00	-133.62	0.00	133.62	4,103.89	1,066.64	4,920	4,314.09	0.40	-0.08	0.04
53.50	-37.48	-1.40	0.00	-128.74	0.00	128.74	4,094.98	1,062.93	4,885	4,289.64	0.47	-0.09	0.04
55.00	-36.01	-1.39	0.00	-126.64	0.00	126.64	4,074.88	1,054.63	4,809	4,234.99	0.49	-0.09	0.04

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
60.00	-34.58	-1.38	0.00	-119.71	0.00	119.71	4,006.53	1,026.95	4,560	4,053.87	0.59	-0.10	0.04
65.00	-33.18	-1.37	0.00	-112.83	0.00	112.83	3,936.10	999.27	4,318	3,874.45	0.70	-0.11	0.04
70.00	-31.81	-1.35	0.00	-105.99	0.00	105.99	3,863.58	971.59	4,082	3,696.92	0.82	-0.12	0.04
75.00	-30.48	-1.34	0.00	-99.22	0.00	99.22	3,788.99	943.91	3,853	3,521.44	0.95	-0.13	0.04
80.00	-29.18	-1.32	0.00	-92.53	0.00	92.53	3,712.32	916.23	3,630	3,348.18	1.09	-0.14	0.04
85.00	-27.91	-1.30	0.00	-85.91	0.00	85.91	3,633.57	888.56	3,414	3,177.31	1.24	-0.15	0.04
90.00	-26.67	-1.28	0.00	-79.40	0.00	79.40	3,552.73	860.88	3,205	3,009.01	1.40	-0.16	0.03
95.00	-24.72	-1.24	0.00	-72.98	0.00	72.98	3,469.82	833.20	3,002	2,843.45	1.57	-0.17	0.03
100.00	-24.63	-1.24	0.00	-66.77	0.00	66.77	3,384.83	805.52	2,806	2,680.80	1.75	-0.18	0.03
100.25	-24.48	-1.24	0.00	-66.46	0.00	66.46	2,340.74	613.49	2,170	1,886.99	1.76	-0.18	0.05
101.00	-23.69	-1.22	0.00	-65.53	0.00	65.53	2,333.44	610.38	2,148	1,871.49	1.79	-0.18	0.05
104.00	-23.47	-1.22	0.00	-61.87	0.00	61.87	2,303.79	597.92	2,061	1,809.73	1.90	-0.19	0.04
105.00	-22.55	-1.20	0.00	-60.65	0.00	60.65	2,293.74	593.77	2,032	1,789.23	1.94	-0.19	0.04
110.00	-21.67	-1.17	0.00	-54.68	0.00	54.68	2,242.24	573.01	1,893	1,687.44	2.15	-0.20	0.04
115.00	-20.80	-1.15	0.00	-48.81	0.00	48.81	2,188.66	552.24	1,758	1,586.98	2.37	-0.22	0.04
120.00	-19.96	-1.12	0.00	-43.07	0.00	43.07	2,133.00	531.48	1,628	1,488.02	2.61	-0.23	0.04
125.00	-19.15	-1.10	0.00	-37.45	0.00	37.45	2,075.26	510.72	1,504	1,390.72	2.86	-0.24	0.04
130.00	-18.14	-1.06	0.00	-31.96	0.00	31.96	2,015.44	489.96	1,384	1,295.25	3.12	-0.26	0.03
134.25	-18.06	-1.06	0.00	-27.47	0.00	27.47	1,137.98	319.71	884	718.00	3.35	-0.27	0.05
135.00	-17.47	-1.03	0.00	-26.67	0.00	26.67	1,134.17	317.64	872	710.93	3.40	-0.27	0.05
140.00	-13.02	-0.83	0.00	-21.51	0.00	21.51	1,107.59	303.80	798	663.83	3.69	-0.29	0.04
145.00	-12.49	-0.80	0.00	-17.36	0.00	17.36	1,078.93	289.96	727	617.01	3.99	-0.30	0.04
150.00	-12.23	-0.79	0.00	-13.34	0.00	13.34	1,048.19	276.12	659	570.62	4.32	-0.31	0.04
152.50	-11.89	-0.77	0.00	-11.36	0.00	11.36	1,032.03	269.20	627	547.65	4.48	-0.32	0.03
155.00	-11.41	-0.75	0.00	-9.43	0.00	9.43	1,015.36	262.28	595	524.86	4.65	-0.33	0.03
160.00	-11.23	-0.74	0.00	-5.69	0.00	5.69	980.46	248.44	534	479.88	5.00	-0.34	0.02
162.00	-5.68	-0.40	0.00	-4.21	0.00	4.21	965.92	242.91	510	462.14	5.14	-0.34	0.02
165.00	-5.30	-0.37	0.00	-3.02	0.00	3.02	943.48	234.60	476	435.85	5.35	-0.34	0.01
170.00	-5.07	-0.36	0.00	-1.17	0.00	1.17	904.42	220.76	422	392.96	5.71	-0.34	0.01
173.00	-0.73	-0.05	0.00	-0.10	0.00	0.10	879.98	212.46	390	367.83	5.93	-0.35	0.00
175.00	0.00	-0.05	0.00	0.00	0.00	0.00	863.27	206.92	370	351.36	6.07	-0.35	0.00

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

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-38.30	-1.39	0.00	-200.63	0.00	200.63	4,663.96	1,343.42	7,804	6,184.38	0.00	0.00	0.04
5.00	-37.07	-1.39	0.00	-193.70	0.00	193.70	4,617.32	1,315.74	7,485	5,995.65	0.00	-0.01	0.04
10.00	-35.86	-1.39	0.00	-186.75	0.00	186.75	4,568.59	1,288.06	7,174	5,806.85	0.01	-0.01	0.04
15.00	-34.68	-1.40	0.00	-179.78	0.00	179.78	4,517.79	1,260.39	6,869	5,618.13	0.03	-0.02	0.04
20.00	-33.52	-1.40	0.00	-172.80	0.00	172.80	4,464.90	1,232.71	6,570	5,429.68	0.06	-0.03	0.04
25.00	-32.39	-1.40	0.00	-165.80	0.00	165.80	4,409.93	1,205.03	6,279	5,241.66	0.10	-0.04	0.04
30.00	-31.27	-1.40	0.00	-158.80	0.00	158.80	4,352.89	1,177.35	5,994	5,054.25	0.14	-0.04	0.04
35.00	-30.18	-1.40	0.00	-151.80	0.00	151.80	4,293.76	1,149.67	5,715	4,867.62	0.19	-0.05	0.04
40.00	-29.12	-1.40	0.00	-144.81	0.00	144.81	4,232.55	1,121.99	5,443	4,681.93	0.25	-0.06	0.04
45.00	-28.75	-1.40	0.00	-137.83	0.00	137.83	4,169.26	1,094.32	5,178	4,497.36	0.32	-0.07	0.04
46.75	-27.48	-1.39	0.00	-135.38	0.00	135.38	4,146.62	1,084.63	5,087	4,433.06	0.35	-0.07	0.04
50.00	-26.14	-1.38	0.00	-130.87	0.00	130.87	4,103.89	1,066.64	4,920	4,314.09	0.40	-0.08	0.04
53.50	-25.83	-1.38	0.00	-126.05	0.00	126.05	4,094.98	1,062.93	4,885	4,289.64	0.46	-0.09	0.04
55.00	-24.82	-1.37	0.00	-123.99	0.00	123.99	4,074.88	1,054.63	4,809	4,234.99	0.49	-0.09	0.04
60.00	-23.83	-1.36	0.00	-117.15	0.00	117.15	4,006.53	1,026.95	4,560	4,053.87	0.58	-0.10	0.04
65.00	-22.87	-1.35	0.00	-110.37	0.00	110.37	3,936.10	999.27	4,318	3,874.45	0.69	-0.11	0.03
70.00	-21.93	-1.33	0.00	-103.64	0.00	103.64	3,863.58	971.59	4,082	3,696.92	0.81	-0.12	0.03
75.00	-21.01	-1.32	0.00	-96.98	0.00	96.98	3,788.99	943.91	3,853	3,521.44	0.93	-0.13	0.03
80.00	-20.11	-1.30	0.00	-90.39	0.00	90.39	3,712.32	916.23	3,630	3,348.18	1.07	-0.13	0.03
85.00	-19.24	-1.28	0.00	-83.90	0.00	83.90	3,633.57	888.56	3,414	3,177.31	1.21	-0.14	0.03
90.00	-18.39	-1.26	0.00	-77.50	0.00	77.50	3,552.73	860.88	3,205	3,009.01	1.37	-0.15	0.03
95.00	-17.04	-1.22	0.00	-71.21	0.00	71.21	3,469.82	833.20	3,002	2,843.45	1.54	-0.16	0.03
100.00	-16.97	-1.22	0.00	-65.12	0.00	65.12	3,384.83	805.52	2,806	2,680.80	1.72	-0.17	0.03
100.25	-16.88	-1.21	0.00	-64.82	0.00	64.82	2,340.74	613.49	2,170	1,886.99	1.72	-0.18	0.04
101.00	-16.33	-1.20	0.00	-63.91	0.00	63.91	2,333.44	610.38	2,148	1,871.49	1.75	-0.18	0.04
104.00	-16.18	-1.19	0.00	-60.32	0.00	60.32	2,303.79	597.92	2,061	1,809.73	1.87	-0.18	0.04
105.00	-15.55	-1.17	0.00	-59.13	0.00	59.13	2,293.74	593.77	2,032	1,789.23	1.91	-0.19	0.04
110.00	-14.93	-1.15	0.00	-53.28	0.00	53.28	2,242.24	573.01	1,893	1,687.44	2.11	-0.20	0.04
115.00	-14.34	-1.12	0.00	-47.54	0.00	47.54	2,188.66	552.24	1,758	1,586.98	2.33	-0.21	0.04
120.00	-13.76	-1.10	0.00	-41.93	0.00	41.93	2,133.00	531.48	1,628	1,488.02	2.56	-0.23	0.04
125.00	-13.20	-1.07	0.00	-36.44	0.00	36.44	2,075.26	510.72	1,504	1,390.72	2.80	-0.24	0.03

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
130.00	-12.51	-1.03	0.00	-31.10	0.00	31.10	2,015.44	489.96	1,384	1,295.25	3.06	-0.25	0.03
134.25	-12.44	-1.03	0.00	-26.71	0.00	26.71	1,137.98	319.71	884	718.00	3.28	-0.26	0.05
135.00	-12.04	-1.01	0.00	-25.94	0.00	25.94	1,134.17	317.64	872	710.93	3.33	-0.26	0.05
140.00	-8.98	-0.81	0.00	-20.91	0.00	20.91	1,107.59	303.80	798	663.83	3.61	-0.28	0.04
145.00	-8.61	-0.78	0.00	-16.88	0.00	16.88	1,078.93	289.96	727	617.01	3.91	-0.29	0.04
150.00	-8.43	-0.77	0.00	-12.97	0.00	12.97	1,048.19	276.12	659	570.62	4.22	-0.31	0.03
152.50	-8.19	-0.75	0.00	-11.04	0.00	11.04	1,032.03	269.20	627	547.65	4.39	-0.31	0.03
155.00	-7.87	-0.73	0.00	-9.16	0.00	9.16	1,015.36	262.28	595	524.86	4.55	-0.32	0.03
160.00	-7.74	-0.72	0.00	-5.52	0.00	5.52	980.46	248.44	534	479.88	4.89	-0.33	0.02
162.00	-3.92	-0.38	0.00	-4.09	0.00	4.09	965.92	242.91	510	462.14	5.03	-0.33	0.01
165.00	-3.65	-0.36	0.00	-2.94	0.00	2.94	943.48	234.60	476	435.85	5.24	-0.33	0.01
170.00	-3.50	-0.35	0.00	-1.14	0.00	1.14	904.42	220.76	422	392.96	5.59	-0.34	0.01
173.00	-0.50	-0.05	0.00	-0.10	0.00	0.10	879.98	212.46	390	367.83	5.80	-0.34	0.00
175.00	0.00	-0.05	0.00	0.00	0.00	0.00	863.27	206.92	370	351.36	5.94	-0.34	0.00

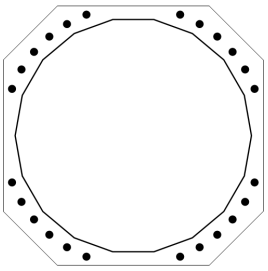
ANALYSIS SUMMARY

	Reactions						Max Usage	
Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.0W Normal	38.05	0.00	55.33	0.00	0.00	4598.56	134.25	0.8
0.9D + 1.0W Normal	38.03	0.00	41.48	0.00	0.00	4542.71	134.25	0.78
1.2D + 1.0Di + 1.0Wi Normal	9.61	0.00	72.20	0.00	0.00	1147.45	134.25	0.21
1.2D + 1.0Ev + 1.0Eh Normal	1.41	0.00	55.56	0.00	0.00	203.86	134.25	0.05
0.9D - 1.0Ev + 1.0Eh Normal	1.40	0.00	38.30	0.00	0.00	200.63	134.25	0.05
1.0D + 1.0W Service Normal	7.84	0.00	46.15	0.00	0.00	941.82	134.25	0.17

BASE PLATE ANALYSIS @ 0 FT

PLATE PARAMETERS (ID# 13393)

Width:	72	in
Shape:	Square	
Thickness:	2.75	in
Grade:	A572-50	
Yield Strength:	50	ksi
Tensile Strength:	65	ksi
Clip Length:	15	in
Rod Detail Type:	d	
Clear Distance	3	in
Base Weld Size:	0.125	in
Orientation Offset:	-	°
Analysis Type:	Plastic	
Neutral Axis:	220	°



ANCHOR ROD PARAMETERS

Class	Arrangement	Quantity	Diameter (in)	Circle (in)	Grade	Fy (ksi)	Fu (ksi)	Spacing (in)	Offset (°)
Original [ID# 6577]	Cluster	24	2.25	72	A615-75	75	100	6	-

ANCHOR ROD GEOMETRY AND APPLIED LOADS --- ORIGINAL (24) 2.25"ø [ID 6577]

GEOMETRY AND APPLIED LOADS (UNFACTORED)

Position	Radians	X (in)	Y (in)	Moment Arm (in)	Inertia (in^4)	Axial Load (k)	Shear Load (k)
1	0.369	33.58	12.98	11.221	409.728	114.92	2.50
2	0.535	30.96	18.37	5.620	103.414	114.92	2.60
3	0.702	27.49	23.25	-0.136	0.900	-105.70	2.64
4	0.869	23.25	27.49	-5.889	113.470	-105.70	2.60
5	1.035	18.37	30.96	-11.478	428.734	-105.70	2.49
6	1.202	12.98	33.58	-16.750	911.984	-105.70	2.31
7	1.940	-12.98	33.58	-32.823	3499.646	-105.70	0.85
8	2.106	-18.37	30.96	-34.229	3805.958	-105.70	0.43
9	2.273	-23.25	27.49	-34.687	3908.473	-105.70	0.01
10	2.440	-27.49	23.25	-34.184	3795.901	-105.70	0.45
11	2.606	-30.96	18.37	-32.733	3480.639	-105.70	0.87
12	2.773	-33.58	12.98	-30.376	2997.389	-105.70	1.27
13	3.510	-33.58	-12.98	-11.221	409.727	-105.70	2.50
14	3.677	-30.96	-18.37	-5.620	103.413	-105.70	2.60
15	3.844	-27.49	-23.25	0.136	0.900	114.92	2.64
16	4.010	-23.25	-27.49	5.889	113.471	114.92	2.60
17	4.177	-18.37	-30.96	11.478	428.735	114.92	2.49
18	4.344	-12.98	-33.58	16.750	911.982	114.92	2.31
19	5.081	12.98	-33.58	32.823	3499.645	114.92	0.85
20	5.248	18.37	-30.96	34.229	3805.959	114.92	0.43
21	5.414	23.25	-27.49	34.687	3908.473	114.92	0.01
22	5.581	27.49	-23.25	34.184	3795.902	114.92	0.45
23	5.748	30.96	-18.37	32.733	3480.638	114.92	0.87
24	5.914	33.58	-12.98	30.376	2997.388	114.92	1.27

REACTION DISTRIBUTION

Component	ID	Moment Mu (k-ft)	Axial Load Pu (k)	Shear Vu (k)	Moment Factor
Pole	64.69"ø x 0.375" (18 Sides)	4598.6	55.33	38.05	1.000
Bolt Group	Original (24) 2.25"ø	4598.6	-	38.05	1.000
	TOTALS	**4598.56**	**55.33**	**38.05**	

COMPONENT PROPERTIES

Component	ID	Gross Area (in^2)	Net Area (in^2)	Individual Inertia (in^4)	Moment of Inertia (in^4)	Threads/in
Pole	64.69"ø x 0.375" (18 Sides)	75.3852	-	-	38981.66	-
Bolt Group	Original (24) 2.25"ø	3.9761	3.2477	0.8393	46912.47	4.5

EXTERNAL BASE PLATE BEND LINE ANALYSIS @ 0 FT

POLE PROPERTIES

Flat-to-Flat Diameter:	64.82	in
Point-to-Point Diameter:	65.82	in
Flat Width:	11.429	in
Flat Radians:	0.349	rad

PLATE PROPERTIES

Neutral Axis:	220	°
Bend Line Lower Limit:		rad
Bend Line Upper Limit:	-0.113	rad

Bend Line	Chord Length (in)	Additional Length (in)	Section Modulus (in^3)	Applied Moment Mu (k-in)	Moment Capacity ϕMn (k-in)	Ratio
Flat	37.008	0.00	69.969	880.3	3148.6	0.280
Corner	36.009	0.00	68.079	585.5	3063.5	0.191

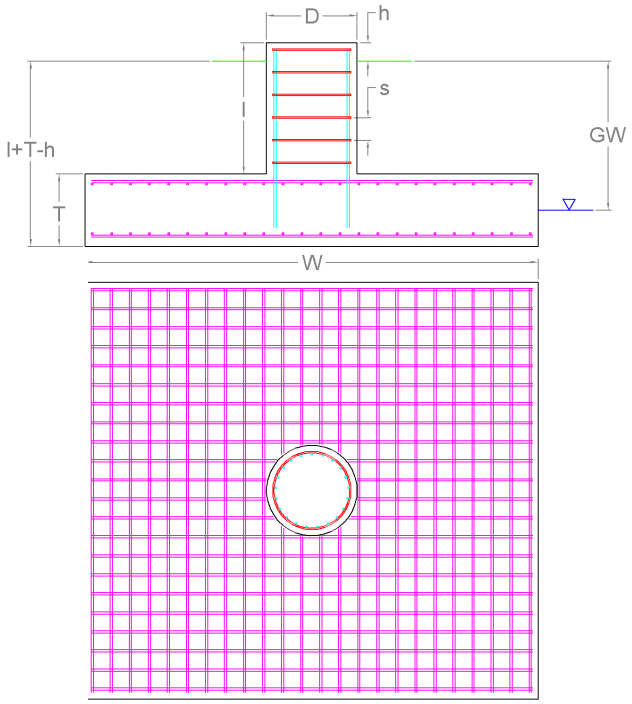
PLASTIC ANCHOR ROD ANALYSIS

Class	Group Quantity	Rod Diameter (in)	Applied Axial Load Pu (k)	Applied Shear Load Vu (k)	Compressive Capacity ϕPn (k)	Ratio
Original	24	2.25	115.0	2.6	243.6	0.493

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

Foundation & Soil Parameters			
Ignore Rebar?		N	
Pier Diameter	*D*	10.20	ft
Pier Height Above Ground	*h*	0.5	ft
Pad Base Depth	*l+T-h*	6.0	ft
Pad Width	*W*	27.0	ft
Pad Thickness	*T*	4.0	ft
Water Table Depth [BGL]	*GW*	5	ft
Unit Weight of Concrete		150	pcf
Unit Weight of Soil Above Water Table		120.0	pcf
Unit Weight of Water		62.4	pcf
Unit Weight of Soil [Submerged]		57.6	pcf
Cohesion		0	psf
Friction Angle		0	°
Ultimate Skin Friction		0	psf
Ultimate Bearing Pressure		16,000	psf
Conical Failure Angle		30	°
Soil Uplift at _____ of Pad		Top	
Capacity Increase (Transient Loads)		1.00	
Bearing Strength Reduction Factor, ϕ_s		0.75	
Uplift Strength Reduction Factor, ϕ_s		0.75	

Reactions		
Moment, M_u	4598.6	k-ft
Shear, V_u	38.1	k
Compression, P_u	55.3	k
Uplift, T_u	0.0	k



Soil Axial Capacities and Design Moment		
Weight of Concrete [Buoyancy Considered]	422.6	k
Weight of Soil [Buoyancy Considered]	170.7	k
Skin Friction Resistance	0.0	k
Controlling Failure Mode	Top	
Compressive Force, P_u	173.5	k
Nominal Compressive Capacity per Leg, $\phi_s P_n$	8,748.0	k
P_u / $\phi_s P_n$	**2.0%**	
Inflection Point [BGL]	6.0	ft
Design Moment at Inflection Point, M_u	4,781.1	k-ft

Pad Reinforcement Parameters		
Concrete Compressive Strength, f'_c	4,000	psi
Pad Rebar Size #	10	
Pad Rebar Area (Single)	1.27	in^2
Pad Rebar Quantity [Upper]	27	
Pad Rebar Quantity [Lower]	27	
Pad Rebar Yield Strength, F_y	60	ksi
Pad Clear Cover	3	in
Bending Reduction Factor, ϕ_B	0.90	
Shear Reduction Factor, ϕ_V	0.75	
Compression Reduction Factor, ϕ_C	0.65	
Steel Elastic Modulus	29,000	ksi

Pad Reinforcement Capacities		
Compression Zone Factor, β_1	0.85	
Lower Reinforcement Steel Area	34.29	
Upper Reinforcement Steel Area	34.29	
Lower Reinforcement Spacing	12.2	in
Upper Reinforcement Spacing	12.2	in
One Way Design Shear, V_u	26.8	k
One Way Shear Capacity, ϕV_c	1381.6	k
$V_u / \phi V_c$	**1.9%**	
Punching Design Shear Stress, v_u	2.1	psi
Punching Shear Capacity, $\phi_c V_n$	189.7	psi
$v_u / \phi_c V_n$	**1.1%**	
Moment Transfer Flexural Ratio, γ_f	0.60	
Neutral Axis Depth	51.38	In
Moment Transfer Flexural Capacity, $\phi M_{sc,f}$	944,005	k-in
$\gamma_f M_{sc} / \phi M_{sc,f}$	**3.6%**	
Flexure Due to Soil Pressure, M_u	201.0	k-ft
Lower Steel Pad Moment Capacity, ϕM_n	6,703.2	k-ft
$M_u / \phi M_n$	**3.0%**	

Pier Reinforcement Parameters		
Concrete Compressive Strength (f'_c)	4,000	psi
Pier Rebar Size #	10	
Pier Rebar Area	1.27	in^2
Pier Rebar Quantity	44	
Pier Rebar Yield Strength (F_y)	60	ksi
Tie Rebar Size #	5	
Tie Rebar Area (Single)	0.31	in^2
Tie Rebar Spacing	6.0	in
Tie Rebar Yield Strength (F_y)	40	ksi
Rebar Cage Diameter	113.88	in

Pier Reinforcement Capacities		
Design Moment (M_u)	4,781.1	k-ft
Nominal Moment Capacity ($\phi_B M_n$)	14,002.6	k-ft
$M_u / \phi_B M_n$	**34.1%**	
Design Shear (V_u)	38.1	k
Nominal Shear Capacity ($\phi_V V_n$)	1,521.0	k
$V_u / \phi_V V_n$	**2.5%**	
Design Compression (P_u)	55.3	k
Nominal Compression Capacity ($\phi_P P_n$)	22,448.1	k
$P_u / \phi_P P_n$	**0.2%**	
Pier Reinforcement Ratio	0.005	-

RAN Template:	A&L Template:
67D5A998E Hybrid	67D5998E_1xAIR+1OP+1QP

CTHA540A_Anchor_6_draft

Print Name: Preliminary (For_Scoping)
PORs: Anchor_Phase 3

Section 1 - Site Information

Site ID: CTHA540A
Status: Draft
Version: 6
Project Type: Anchor
Approved: Not Approved
Approved By: Not Approved
Last Modified: 12/10/2021 8:46:07 AM
Last Modified By: Pratik.Patil30@T-Mobile.com

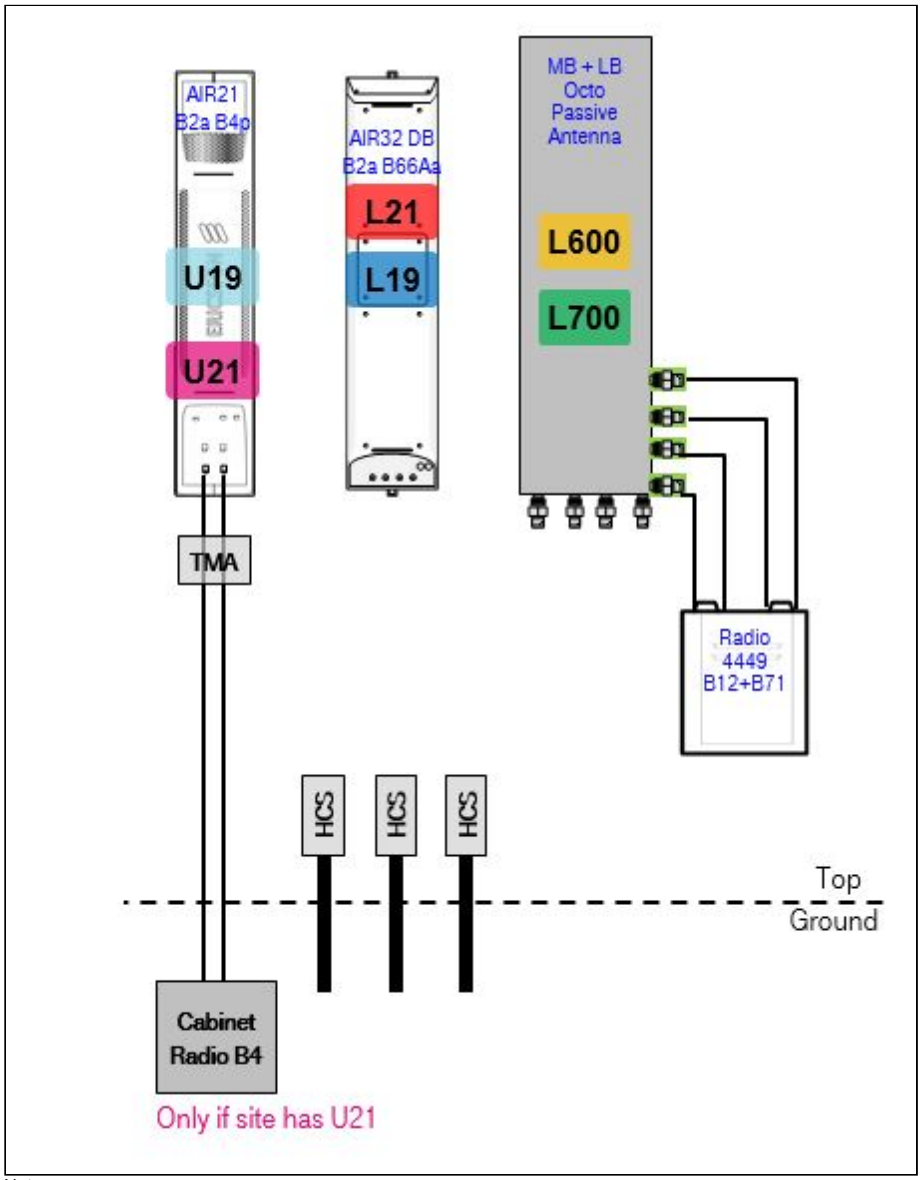
Site Name: Crown Old Saybrook Monopole
Site Class: Monopole
Site Type: Structure Non Building
Plan Year: 2022
Market: CONNECTICUT CT
Vendor: Ericsson
Landlord: <undefined>

Latitude: 41.31390000
Longitude: -72.36420000
Address: 85 Springbrook Rd
City, State: Old Saybrook, CT
Region: NORTHEAST

RAN Template: 67D5A998E Hybrid			AL Template: 67D5998E_1xAIR+1OP+1QP	
Sector Count: 3	**Antenna Count:** 9	**Coax Line Count:** 0	**TMA Count:** 0	**RRU Count:** 6

Section 2 - Existing Template Images

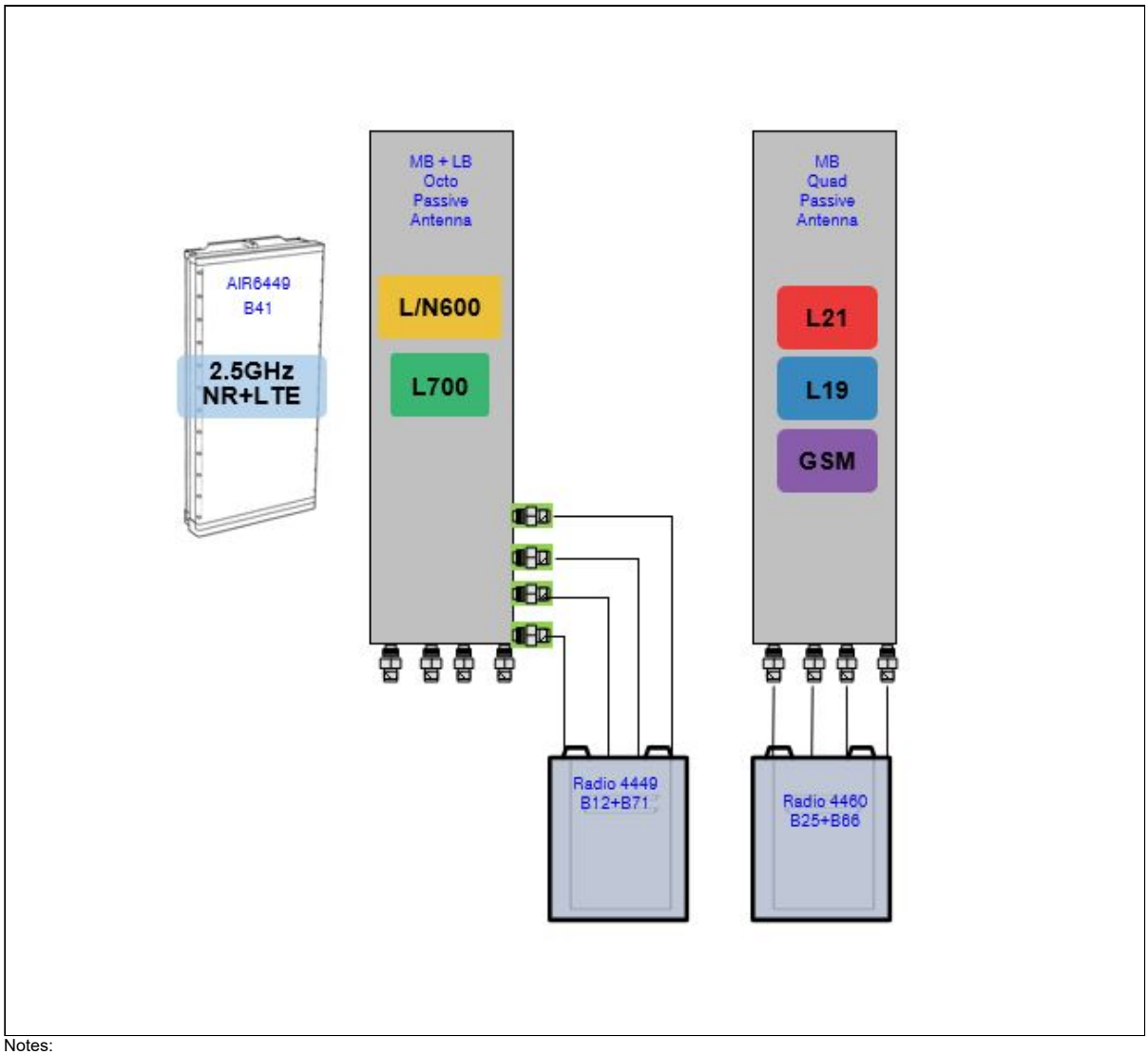
67D95ADB_2xAIR+1OP.JPG



Notes:

Section 3 - Proposed Template Images

67D5998E_1xAIR+1OP+1QP.JPG



Notes:

Section 4 - Siteplan Images

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RAN Template:	A&L Template:
67D5A998E Hybrid	67D5998E_1xAIR+1OP+1QP

CTHA540A_Anchor_6_draft

Print Name: Preliminary (For_Scoping)
PORs: Anchor_Phase 3

Section 5 - RAN Equipment

Existing RAN Equipment

Template: 67D97C-U21

Enclosure	1
Enclosure Type	RBS 6102
Baseband	DUW30 (U2100); BB 6630 (L2100, L1900); BB 6648 (N600, L700, L600)
Hybrid Cable System	Ericsson 9x18 HCS *Select Length*; Ericsson 6x12 HCS *Select Length & AWG* **(x 3)**

Proposed RAN Equipment

Template: 67D5A998E Hybrid

Enclosure	1	2	3	4
Enclosure Type	RBS 6102	Ancillary Equipment (Ericsson)	Enclosure 6160 AC V1	B160
Baseband	DUW30 (U2100); BB 6648 (L700, L600, N600); BB 6630 (L2100, L1900)		BB 6648 (L2500, N2500)	
Hybrid Cable System		Ericsson 6x12 HCS *Select Length & AWG* **(x 3)**	PSU 4813 vR4A (Kit); Ericsson Hybrid Trunk 6/24 4AWG 100m **(x 2)**	
Transport System			CSR IXRe V2 (Gen2)	

RAN Scope of Work:

Remove and return all cabinet radios from existing base station cabinet.

Add (1) Enclosure 6160.

Remove existing cabinet 6102 and move the basebands to new enclosure 6160.

Add (1) iXRe Router to new Enclosure 6160.

Add (1) BB6648 for L2500 and N2500 (MMBB - Mixed Mode Baseband) to new Enclosure 6160.

Add (1) PSU4813 Voltage Booster to new Enclosure 6160.

Add (1) Battery Cabinet B160.

Existing : (3) 6X12, (1) 9x18

Remove (1) 9x18

Add (1) 6X24 HCS terminating at the Enclosure 6160. Connect DC for the AIR6449 B41 to the PSU4813 Voltage Booster.

RAN Template:	A&L Template:
67D5A998E Hybrid	67D5998E_1xAIR+1OP+1QP

CTHA540A_Anchor_6_draft

Print Name: Preliminary (For_Scoping)
PORs: Anchor_Phase 3

Section 6 - A&L Equipment

Existing Template: 67D97C-U21_1QP_1OP
Proposed Template: 67D5998E_1xAIR+1OP+1QP

Sector 1 (Existing) view from behind

Coverage Type	A - Outdoor Macro							
Antenna	1		2				3	
Antenna Model	Ericsson - AIR21 KRC118023-1_B2P_B4A (Quad)		RFS - APXVAARR24_43-U-NA20 (Octo)				RFS - APX16DWV-16DWV-S-E-A20 (Quad)	
Azimuth	100		100				100	
M. Tilt	0		0				0	
Height	163		163				163	
Ports	P1	P2	P3	P4	P5	P6	P7	P8
Active Tech.	U2100		N600 L700 L600	N600 L700 L600			L2100	L1900
Dark Tech.								
Restricted Tech.								
Decomm. Tech.								
E. Tilt	2		2	2			2	2
Cables	Fiber Jumper - 15 ft.		Coax Jumper **(x2)** Fiber Jumper - 15 ft.	Coax Jumper **(x2)**			Fiber Jumper - 15 ft.	
TMAs								
Diplexers / Combiners								
Radio			Radio 4449 B71+B85 (At Antenna)	SHARED Radio 4449 B71+B85 (At Antenna)			Radio 4415 B66A (At Antenna)	Radio 4415 B25 (At Antenna)
Sector Equipment								

Unconnected Equipment:

Cable: Fiber Jumper - 15 ft.

Scope of Work:

Remove coaxial lines for LB Dual in Position 2.
Replace LB Dual in Position 2 with (1) LB/MB Octo.
Add (1) Radio 4449 B71+B12 to Position 2 for L600 and L700.

*A dashed border indicates shared equipment. Any connected equipment is denoted with the SHARED keyword.

RAN Template:	A&L Template:
67D5A998E Hybrid	67D5998E_1xAIR+1OP+1QP

CTHA540A_Anchor_6_draft

Print Name: Preliminary (For_Scoping)
PORs: Anchor_Phase 3

Sector 1 (Proposed) view from behind

Coverage Type	A - Outdoor Macro							
Antenna	1		2				3	
Antenna Model	Ericsson - AIR6449 B41 (Active Antenna - Massive MIMO)		RFS - APXVAARR24_43-U-NA20 (Octo)				RFS - APX16DWV-16DWV-S-E-A20 (Quad)	
Azimuth	100		100				100	
M. Tilt	0		0				0	
Height	162		162				162	
Ports	P1	P2	P3	P4	P5	P6	P7	P8
Active Tech.	L2500 N2500	L2500 N2500	L700 L600 N600	L700 L600 N600			U2100 L2100 L1900	U2100 L2100 L1900
Dark Tech.								
Restricted Tech.								
Decomm. Tech.								
E. Tilt	2	2	2	2			2	2
Cables	Fiber Jumper **(x2)**	Fiber Jumper **(x2)**	Coax Jumper **(x2)** Fiber Jumper	Coax Jumper **(x2)** Fiber Jumper			Coax Jumper **(x2)** Fiber Jumper	Coax Jumper **(x2)** Fiber Jumper
TMAs								
Diplexers / Combiners								
Radio			Radio 4449 B71+B85 (At Antenna)	SHARED Radio 4449 B71+B85 (At Antenna)			Radio 4460 B25+B66 (At Antenna)	SHARED Radio 4460 B25+B66 (At Antenna)
Sector Equipment								

Unconnected Equipment:

Scope of Work:

**Rad is 162

There will be Three antennae per sector.

Remove AIR21 B2P/B4A from Position 1.

Install (1) AIR6449 B41 for L2500 and N2500 in Position 1.

Replace Radio 4415 B66 and Radio 4415 B25 with (1) Radio 4460 B25+B66 for L2100, L1900 (Both carriers), and U2100 to Position 3 at antenna.

Ensure RET control is enabled for all technology layers according to the Design Documents

*A dashed border indicates shared equipment. Any connected equipment is denoted with the SHARED keyword.

RAN Template:	A&L Template:
67D5A998E Hybrid	67D5998E_1xAIR+1OP+1QP

CTHA540A_Anchor_6_draft

Print Name: Preliminary (For_Scoping)
PORs: Anchor_Phase 3

Sector 2 (Existing) view from behind

Coverage Type	A - Outdoor Macro							
Antenna	1		2				3	
Antenna Model	Ericsson - AIR21 KRC118023-1_B2P_B4A (Quad)		RFS - APXVAARR24_43-U-NA20 (Octo)				RFS - APX16DWV-16DWV-S-E-A20 (Quad)	
Azimuth	195		195				195	
M. Tilt	0		0				0	
Height	163		163				163	
Ports	P1	P2	P3	P4	P5	P6	P7	P8
Active Tech.	U2100		N600 L700 L600	N600 L700 L600			L2100	L1900
Dark Tech.								
Restricted Tech.								
Decomm. Tech.								
E. Tilt	2		2	2			2	2
Cables	Fiber Jumper - 15 ft.		Coax Jumper **(x2)** Fiber Jumper	Coax Jumper **(x2)**			Fiber Jumper - 15 ft.	
TMAs								
Diplexers / Combiners								
Radio			Radio 4449 B71+B85 (At Antenna)	SHARED Radio 4449 B71+B85 (At Antenna)			Radio 4415 B66A (At Antenna)	Radio 4415 B25 (At Antenna)
Sector Equipment								

Unconnected Equipment:

Cable: Fiber Jumper - 15 ft.

Scope of Work:

Remove coaxial lines for LB Dual in Position 2.
Replace LB Dual in Position 2 with (1) LB/MB Octo.
Add (1) Radio 4449 B71+B12 to Position 2 for L600 and L700.

*A dashed border indicates shared equipment. Any connected equipment is denoted with the SHARED keyword.

RAN Template:	A&L Template:
67D5A998E Hybrid	67D5998E_1xAIR+1OP+1QP

CTHA540A_Anchor_6_draft

Print Name: Preliminary (For_Scoping)
PORs: Anchor_Phase 3

Sector 2 (Proposed) view from behind

Coverage Type	A - Outdoor Macro							
Antenna	1		2				3	
Antenna Model	Ericsson - AIR6449 B41 (Active Antenna - Massive MIMO)		RFS - APXVAARR24_43-U-NA20 (Octo)				RFS - APX16DWV-16DWV-S-E-A20 (Quad)	
Azimuth	195		195				195	
M. Tilt	0		0				0	
Height	162		162				162	
Ports	P1	P2	P3	P4	P5	P6	P7	P8
Active Tech.	L2500 N2500	L2500 N2500	L700 L600 N600	L700 L600 N600			U2100 L2100 L1900	U2100 L2100 L1900
Dark Tech.								
Restricted Tech.								
Decomm. Tech.								
E. Tilt	2	2	2	2			2	2
Cables	Fiber Jumper **(x2)**	Fiber Jumper **(x2)**	Coax Jumper **(x2)** Fiber Jumper	Coax Jumper **(x2)** Fiber Jumper			Coax Jumper **(x2)** Fiber Jumper	Coax Jumper **(x2)** Fiber Jumper
TMAs								
Diplexers / Combiners								
Radio			Radio 4449 B71+B85 (At Antenna)	SHARED Radio 4449 B71+B85 (At Antenna)			Radio 4460 B25+B66 (At Antenna)	SHARED Radio 4460 B25+B66 (At Antenna)
Sector Equipment								

Unconnected Equipment:

Scope of Work:

**Rad is 162

There will be Three antennae per sector.

Remove AIR21 B2P/B4A from Position 1.

Install (1) AIR6449 B41 for L2500 and N2500 in Position 1.

Replace Radio 4415 B66 and Radio 4415 B25 with (1) Radio 4460 B25+B66 for L2100, L1900 (Both carriers), and U2100 to Position 3 at antenna.

Ensure RET control is enabled for all technology layers according to the Design Documents

*A dashed border indicates shared equipment. Any connected equipment is denoted with the SHARED keyword.

RAN Template:	A&L Template:
67D5A998E Hybrid	67D5998E_1xAIR+1OP+1QP

CTHA540A_Anchor_6_draft

Print Name: Preliminary (For_Scoping)
PORs: Anchor_Phase 3

Sector 3 (Existing) view from behind

Coverage Type	A - Outdoor Macro							
Antenna	1		2				3	
Antenna Model	Ericsson - AIR21 KRC118023-1_B2P_B4A (Quad)		RFS - APXVAARR24_43-U-NA20 (Octo)				RFS - APX16DWV-16DWV-S-E-A20 (Quad)	
Azimuth	350		350				350	
M. Tilt	0		0				0	
Height	163		163				163	
Ports	P1	P2	P3	P4	P5	P6	P7	P8
Active Tech.	U2100		N600 L700 L600	N600 L700 L600			L2100	L1900
Dark Tech.								
Restricted Tech.								
Decomm. Tech.								
E. Tilt	2		2	2			2	2
Cables	Fiber Jumper - 15 ft.		Coax Jumper **(x2)** Fiber Jumper - 15 ft.	Coax Jumper **(x2)**			Fiber Jumper - 15 ft.	
TMAs								
Diplexers / Combiners								
Radio			Radio 4449 B71+B85 (At Antenna)	SHARED Radio 4449 B71+B85 (At Antenna)			Radio 4415 B66A (At Antenna)	Radio 4415 B25 (At Antenna)
Sector Equipment								

Unconnected Equipment:

Cable: Fiber Jumper - 15 ft.

Scope of Work:

Remove coaxial lines for LB Dual in Position 2.
Replace LB Dual in Position 2 with (1) LB/MB Octo.
Add (1) Radio 4449 B71+B12 to Position 2 for L600 and L700.

*A dashed border indicates shared equipment. Any connected equipment is denoted with the SHARED keyword.

RAN Template:	A&L Template:
67D5A998E Hybrid	67D5998E_1xAIR+1OP+1QP

CTHA540A_Anchor_6_draft

Print Name: Preliminary (For_Scoping)
PORs: Anchor_Phase 3

Sector 3 (Proposed) view from behind

Coverage Type	A - Outdoor Macro							
Antenna	1		2				3	
Antenna Model	Ericsson - AIR6449 B41 (Active Antenna - Massive MIMO)		RFS - APXVAARR24_43-U-NA20 (Octo)				RFS - APX16DWV-16DWV-S-E-A20 (Quad)	
Azimuth	350		350				350	
M. Tilt	0		0				0	
Height	162		162				162	
Ports	P1	P2	P3	P4	P5	P6	P7	P8
Active Tech.	L2500 N2500	L2500 N2500	L700 L600 N600	L700 L600 N600			U2100 L2100 L1900	U2100 L2100 L1900
Dark Tech.								
Restricted Tech.								
Decomm. Tech.								
E. Tilt	2	2	2	2			2	2
Cables	Fiber Jumper **(x2)**	Fiber Jumper **(x2)**	Coax Jumper **(x2)** Fiber Jumper	Coax Jumper **(x2)** Fiber Jumper			Coax Jumper **(x2)** Fiber Jumper	Coax Jumper **(x2)** Fiber Jumper
TMAs								
Diplexers / Combiners								
Radio			Radio 4449 B71+B85 (At Antenna)	SHARED Radio 4449 B71+B85 (At Antenna)			Radio 4460 B25+B66 (At Antenna)	SHARED Radio 4460 B25+B66 (At Antenna)
Sector Equipment								

Unconnected Equipment:

Scope of Work:

**Rad is 162

There will be Three antennae per sector.

Remove AIR21 B2P/B4A from Position 1.

Install (1) AIR6449 B41 for L2500 and N2500 in Position 1.

Replace Radio 4415 B66 and Radio 4415 B25 with (1) Radio 4460 B25+B66 for L2100, L1900 (Both carriers), and U2100 to Position 3 at antenna.

Ensure RET control is enabled for all technology layers according to the Design Documents

*A dashed border indicates shared equipment. Any connected equipment is denoted with the SHARED keyword.

RAN Template:	A&L Template:
67D5A998E Hybrid	67D5998E_1xAIR+1OP+1QP

CTHA540A_Anchor_6_draft

Print Name: Preliminary (For_Scoping)
PORs: Anchor_Phase 3

Section 7 - Power Systems Equipment

Existing Power Systems Equipment
----- This section is intentionally blank. -----

	Proposed Power Systems Equipment
Enclosure	1
Enclosure Type	Enclosure 6160 AC V1

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: CTHA540A

Crown Old Saybrook Monopole
85 Springbrook Road
Old Saybrook, Connecticut 06475

February 6, 2022

EBI Project Number: 6222000662

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**10.43%**

21 B Street, Burlington, MA 01803 · Tel: (781) 273.2500 · Fax: (781) 273.3311

February 6, 2022

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

Emissions Analysis for Site: CTHA540A - Crown Old Saybrook Monopole

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **85 Springbrook Road** in **Old Saybrook, 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 85 Springbrook Road in Old Saybrook, 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 power density calculations, the broadcast footprint of the AIR6449 antenna has been considered. Due to the beamforming nature of this antenna, the actual beam locations vary depending on demand and are narrow in nature. Using the broadcast footprint accounts for the potential location of beams at any given time.

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) 1 NR channel (600 MHz Band) was considered for each sector of the proposed installation. This Channel has a transmit power of 80 Watts.

3) 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.

4) 2 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 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) 1 LTE Traffic channel (LTE 1C and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 60 Watts.

8) 1 LTE Broadcast channel (LTE 1C and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 20 Watts.

9) 1 NR Traffic channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 120 Watts.

10) 1 NR Broadcast channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 40 Watts.

11) 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.

12) 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.

13) The antennas used in this modeling are the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s), the RFS APX16DWV-16DWVS-E-A20 for the 1900 MHz / 2100 MHz / 2100 MHz channel(s) in Sector A, the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s), the RFS APX16DWV-16DWVS-E-A20 for the 1900 MHz / 2100 MHz / 2100 MHz channel(s) in Sector B, the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s), the RFS APX16DWV-16DWVS-E-A20 for the 1900 MHz / 2100 MHz / 2100 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated

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

14) The antenna mounting height centerline of the proposed antennas is 162 feet above ground level (AGL).

15) 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.

16) 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 AIR 6449	Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449
Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz
Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd	Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd	Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd
Height (AGL):	162 feet	Height (AGL):	162 feet	Height (AGL):	162 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts
ERP (W):	36,356.09	ERP (W):	36,356.09	ERP (W):	36,356.09
Antenna A1 MPE %:	**5.37%**	Antenna B1 MPE %:	**5.37%**	Antenna C1 MPE %:	**5.37%**
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 / 600 MHz / 700 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd
Height (AGL):	162 feet	Height (AGL):	162 feet	Height (AGL):	162 feet
Channel Count:	5	Channel Count:	5	Channel Count:	5
Total TX Power (W):	200 Watts	Total TX Power (W):	200 Watts	Total TX Power (W):	200 Watts
ERP (W):	4,059.02	ERP (W):	4,059.02	ERP (W):	4,059.02
Antenna A2 MPE %:	**1.43%**	Antenna B2 MPE %:	**1.43%**	Antenna C2 MPE %:	**1.43%**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	RFS APX16DWV-16DWVS-E-A20	Make / Model:	RFS APX16DWV-16DWVS-E-A20	Make / Model:	RFS APX16DWV-16DWVS-E-A20
Frequency Bands:	1900 MHz / 2100 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 2100 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 2100 MHz / 2100 MHz
Gain:	15.9 dBd / 15.9 dBd / 15.9 dBd	Gain:	15.9 dBd / 15.9 dBd / 15.9 dBd	Gain:	15.9 dBd / 15.9 dBd / 15.9 dBd
Height (AGL):	162 feet	Height (AGL):	162 feet	Height (AGL):	162 feet
Channel Count:	6	Channel Count:	6	Channel Count:	6
Total TX Power (W):	300 Watts	Total TX Power (W):	300 Watts	Total TX Power (W):	300 Watts
ERP (W):	11,671.35	ERP (W):	11,671.35	ERP (W):	11,671.35
Antenna A3 MPE %:	**1.72%**	Antenna B3 MPE %:	**1.72%**	Antenna C3 MPE %:	**1.72%**

Site Composite MPE %	
Carrier	**MPE %**
T-Mobile (Max at Sector A):	8.53%
Verizon	1.9%
Site Total MPE % :	10.43%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	8.53%
T-Mobile Sector B Total:	8.53%
T-Mobile Sector C Total:	8.53%
Site Total MPE % :	10.43%

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 2500 MHz LTE 1C & 2C Traffic	1	11044.63	162.0	16.32	2500 MHz LTE 1C & 2C Traffic	1000	1.63%
T-Mobile 2500 MHz LTE 1C & 2C Broadcast	1	1074.06	162.0	1.59	2500 MHz LTE 1C & 2C Broadcast	1000	0.16%
T-Mobile 2500 MHz NR Traffic	1	22089.26	162.0	32.63	2500 MHz NR Traffic	1000	3.26%
T-Mobile 2500 MHz NR Broadcast	1	2148.13	162.0	3.17	2500 MHz NR Broadcast	1000	0.32%
T-Mobile 600 MHz LTE	2	591.73	162.0	1.75	600 MHz LTE	400	0.44%
T-Mobile 600 MHz NR	1	1577.94	162.0	2.33	600 MHz NR	400	0.58%
T-Mobile 700 MHz LTE	2	648.82	162.0	1.92	700 MHz LTE	467	0.41%
T-Mobile 1900 MHz LTE	2	2334.27	162.0	6.90	1900 MHz LTE	1000	0.69%
T-Mobile 2100 MHz UMTS	2	1167.14	162.0	3.45	2100 MHz UMTS	1000	0.34%
T-Mobile 2100 MHz LTE	2	2334.27	162.0	6.90	2100 MHz LTE	1000	0.69%
						Total:	**8.53%**

• 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:	8.53%
Sector B:	8.53%
Sector C:	8.53%
T-Mobile Maximum MPE % (Sector A):	8.53%
Site Total:	10.43%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **10.43%** 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.