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March 29, 2023

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

Re: **Request of Cellco Partnership d/b/a Verizon Wireless for an Order to Approve the Shared Use of an Existing Tower at 93 Richards Road, Kent, Connecticut**

Dear Attorney Bachman:

Pursuant to Connecticut General Statutes ("C.G.S.") §16-50aa, as amended, Cellco Partnership d/b/a Verizon Wireless ("Cellco") hereby requests an order from the Siting Council ("Council") to approve the shared use of an existing 135-foot monopole telecommunications tower located at 93 Richards Road in Kent, CT (the "Property"). The Property is owned by Jason S. and Jennifer Dubray. The tower was approved by the Council in Docket No. 488 on December 7, 2020 for Homeland Towers LLC ("Homeland"). On December 28, 2022, Homeland transferred the Docket No. 488 Certificate of Environmental Compatibility and Public Need to Infra Towers, LLC ("Infra"). A copy of the Docket No. 488 Decision and Order is included in Attachment 1.

Cellco requests that the Council find that the proposed shared use of the existing tower satisfies the criteria of C.G.S § 16-50aa and issue an order approving this request. A copy of this filing is being sent to Kent's First Selectman Jean C. Speck and Tai Kern, Land Use Administrator.

Background

Cellco is licensed by the Federal Communications Commission ("FCC") to provide wireless services throughout the State of Connecticut. Cellco and Infra have agreed to the proposed shared use of the Richards Road tower pursuant to mutually acceptable terms and conditions. Likewise, Infra and Cellco have agreed to the proposed installation of equipment on the ground within the fenced compound area. Infra has authorized Cellco to apply for all permits and approvals that may be required for its shared use. (*See* Attachment 2).

Cellco proposes to install nine (9) antennas and six (6) remote radio heads ("RRHs") on a new antenna platform at a height of 121 feet above ground level ("AGL"). Cellco will also install equipment and battery cabinets and a 50-kW diesel-fueled generator all within the existing fenced compound. Included in Attachment 3 are Cellco's project plans showing the location of Cellco's proposed facility improvements and tower elevation drawings. Attachment 4 contains specifications for Cellco's proposed antennas, RRHs and generator.

C.G.S. § 16-50aa(c)(1) provides that, upon written request for approval of a proposed shared use, "if the council finds that the proposed shared use of the facility is technically, legally, environmentally and economically feasible and meets public safety concerns, the council shall issue an order approving such shared use." Cellco respectfully submits that the shared use of the tower satisfies these criteria.

A. Technical Feasibility. The existing tower is structurally capable of supporting Cellco's antennas, RRHs, antenna platform and related equipment. The proposed shared use of the existing tower is, therefore, technically feasible. A Structural Analysis Report ("SA") dated March 23, 2023, prepared by Delta Oaks Group confirms that the tower can support Cellco's proposed tower loading. A separate Mount Analysis Report ("MA"), dated March 9, 2023, prepared by ProTerra Design Group, LLC was also prepared for the proposed antenna and RRH mount assembly. Copies of the SA and MA are included in Attachment 5.

B. Legal Feasibility. Under C.G.S. § 16-50aa, the Council has been authorized to issue orders approving the shared use of an existing tower, such as the existing tower at 93 Richards Road. This authority complements the Council's prior-existing authority under C.G.S. § 16-50p to issue orders approving the construction of new towers that are subject to the Council's jurisdiction. In addition, §16-50x(a) directs the Council to "give such consideration to other state laws and municipal regulations as it shall deem appropriate" in ruling on requests for the shared use of existing tower facilities. Under the statutory authority vested in the Council, an order by the Council approving the requested shared use would permit the Applicant to obtain a

building permit for the proposed installations.

C. Environmental Feasibility. The proposed shared use of the existing tower would have minimal environmental effects, for the following reasons:

1. The proposed installation of nine (9) antennas and six (6) RRHs on a new antenna platform at a height of 121 feet AGL on the existing 135-foot monopole tower would have an insignificant incremental visual impact on the area around the Property. Cellco's shared use of the tower was contemplated during the Docket No. 488 proceeding. As mentioned above, Cellco's ground-based equipment will be located within the existing fenced compound. Cellco's shared use of the existing tower would, therefore, not cause any significant change or alteration in the physical or environmental characteristics of the existing facility, the Property or the surrounding area.

2. Noise associated with Cellco's proposed facility will comply with State and local noise standards. Noise associated with Cellco's emergency backup generator is exempt from state and local noise standards.

3. Operation of Cellco's antennas at this site would not exceed the RF emissions standards adopted by the Federal Communications Commission ("FCC"). Included in Attachment 6 of this filing is a C-Squared Systems Calculated Radio Frequency Emissions Report that demonstrates that the facility will operate well within the FCC's safety standards.

4. Under ordinary operating conditions, the proposed installation would not require the use of any water or sanitary facilities and would not generate air emissions or discharges to water bodies or sanitary facilities. After construction is complete the proposed installations would not generate any increased traffic to the facility other than periodic maintenance visits to the cell site.

The proposed shared use of the existing facility would, therefore, have a minimal environmental effect, and is environmentally feasible.

D. Economic Feasibility. As previously mentioned, Cellco has entered into an agreement with Infra for the shared use of the existing tower subject to mutually agreeable terms.

The proposed tower sharing is, therefore, economically feasible.

E. Public Safety Concerns. As discussed above, the tower is structurally capable of supporting Cellco's antennas, RRHs, antenna platform and all tower-mounted equipment. Cellco is not aware of any public safety concerns relative to the proposed sharing of the existing the Richards Road tower. In fact, the provision of new and improved wireless service through Cellco's shared use of the existing tower would enhance the safety and welfare of area residents and members of the general public living in and traveling through Kent.

Conclusion

A Certificate of Mailing verifying that this filing was sent to municipal officials, the Property owners, and Infra is included in Attachment 7.

For the reasons discussed above, the proposed shared use of the existing tower at the Property satisfies the criteria stated in C.G.S. § 16-50aa and advances the General Assembly's and the Council's goal of preventing the unnecessary proliferation of towers in Connecticut. The Applicant, therefore, respectfully requests that the Council issue an order approving the proposed shared use.

Thank you for your consideration of this matter.

Very truly yours,

Kenneth C. Baldwin

Enclosures
Copy to:
Jean C. Speck, First Selectman
Tai Kern, Land Use Administrator
Jason S. and Jennifer Dubray, Property Owners
Infra Towers, LLC
Tim Parks

ATTACHMENT 1

DOCKET NO. 488 – Homeland Towers, LLC and New Cingular Wireless PCS, LLC d/b/a AT&T application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a telecommunications facility located at one of two sites: Kent Tax Assessor ID #M10, Block 22, Lot 38 Bald Hill Road or 93 Richards Road, Kent, Connecticut.	}	Connecticut
	}	Siting
	}	Council
		December 3, 2020

Decision and Order

Pursuant to Connecticut General Statutes §16-50p, §22a-19 and the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, maintenance, and operation of a telecommunications facility, including effects on the natural environment, ecological balance, public health and safety, scenic, historic, and recreational values, agriculture, forests and parks, air and water purity, and fish, aquaculture and wildlife are not disproportionate, either alone or cumulatively with other effects, when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application, and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by General Statutes **§** 16-50k, be issued to Homeland Towers, LLC, hereinafter referred to as the Certificate Holder, for a telecommunications facility at Site B - 93 Richards Road, Kent. The Council denies certification of Site A located at Kent Tax Assessor ID #M10, Block 22, Lot 38 Bald Hill Road, Kent.

Unless otherwise approved by the Council, the facility shall be constructed, operated, and maintained substantially as specified in the Council's record in this matter, and subject to the following conditions:

1. The tower shall be constructed as a monopole at a height of 135 feet above ground level to provide the proposed wireless services, sufficient to accommodate the antennas of New Cingular Wireless PCS, LLC, and other entities, both public and private. The height of the tower may be extended after the date of this Decision and Order pursuant to regulations of the Federal Communications Commission.

2. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be submitted to and approved by the Council prior to the commencement of facility construction and shall include:
    a) a certified letter from a wireless telecommunications carrier with a firm commitment to install associated wireless equipment at the facility upon completion of construction;
    b) final site plan(s) for development of the facility that employ the governing standard in the State of Connecticut for tower design in accordance with the currently adopted International Building Code and include specifications for the tower, tower foundation, antennas and equipment compound including, but not limited to, fence design, tower finish/color, landscaping including taller plantings to conceal ground equipment and a warranty for the plantings, ground equipment, access road, utility installation and emergency backup generator;
    c) the tower shall be painted a two-tone color scheme with a brown-gray color on the bottom portion and a gray-blue color on the upper portion. Antennas and mounting equipment shall be painted the same color as the upper portion of the tower. Examples of the color scheme shall be provided;
    d) the tower shall be designed with a yield point to ensure that the tower setback radius remains within the boundaries of the subject property;
    e) construction plans for site clearing, grading, landscaping, water drainage and stormwater control, and erosion and sedimentation controls consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended; and

f) construction schedule including hours and days of the week for construction activities, and anticipated construction timeline for both tower/compound construction and installation/operation of carrier antennas.

3. Prior to the commencement of operation, the Certificate Holder shall provide the Council worst-case modeling of the electromagnetic radio frequency power density of all proposed entities' antennas at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin No. 65, August 1997. The Certificate Holder shall ensure a recalculated report of the electromagnetic radio frequency power density be submitted to the Council if and when circumstances in operation cause a change in power density above the levels calculated and provided pursuant to this Decision and Order.

4. Upon the establishment of any new federal radio frequency standards applicable to frequencies of this facility, the facility granted herein shall be brought into compliance with such standards.

5. The Certificate Holder shall provide the Council with a copy of necessary permits from any other state or federal agency with concurrent jurisdiction prior to the commencement of construction.

6. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.

7. Unless otherwise approved by the Council, if the facility authorized herein is not fully constructed with at least one fully operational wireless telecommunications carrier providing wireless service within eighteen months from the date of the mailing of the Council's Findings of Fact, Opinion, and Decision and Order (collectively called "Final Decision"), this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made. The time between the filing and resolution of any appeals of the Council's Final Decision shall not be counted in calculating this deadline. Authority to monitor and modify this schedule, as necessary, is delegated to the Executive Director. The Certificate Holder shall provide written notice to the Executive Director of any schedule changes as soon as is practicable.

8. Any request for extension of the time period referred to in Condition 7 shall be filed with the Council not later than 60 days prior to the expiration date of this Certificate and shall be served on all parties and intervenors, as listed in the service list, and the Town of Kent.

9. If the facility ceases to provide wireless services for a period of one year, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council within 90 days from the one year period of cessation of service. The Certificate Holder may submit a written request to the Council for an extension of the 90 day period not later than 60 days prior to the expiration of the 90 day period.

10. Any nonfunctioning antenna, and associated antenna mounting equipment, on this facility shall be removed within 60 days of the date the antenna ceased to function.

11. In accordance with Section 16-50j-77 of the Regulations of Connecticut State Agencies, the Certificate Holder shall provide the Council with written notice two weeks prior to the commencement of site construction activities. In addition, the Certificate Holder shall provide the Council with written notice of the completion of site construction, and the commencement of site operation.

12. The Certificate Holder shall remit timely payments associated with annual assessments and invoices submitted by the Council for expenses attributable to the facility under Conn. Gen. Stat. §16-50v.

13. This Certificate may be transferred in accordance with Conn. Gen. Stat. §16-50k(b), provided both the Certificate Holder/transferor and the transferee are current with payments to the Council for their respective annual assessments and invoices under Conn. Gen. Stat. §16-50v. In addition, both the Certificate Holder/transferor and the transferee shall provide the Council a written agreement as to the entity responsible for any quarterly assessment charges under Conn. Gen. Stat. §16-50v(b)(2) that may be associated with this facility. If construction has not been completed in accordance with Condition 7 of this Decision and Order at the time the Certificate is requested to be transferred, a certified letter from a wireless telecommunications carrier with a firm commitment to install associated wireless equipment at the facility upon completion of construction shall also be provided.

14. The Certificate Holder shall maintain the facility and associated equipment, including but not limited to, the tower, tower foundation, antennas, equipment compound, radio equipment, access road, utility line and landscaping in a reasonable physical and operational condition that is consistent with this Decision and Order and a Development and Management Plan to be approved by the Council.

15. If the Certificate Holder is a wholly-owned subsidiary of a corporation or other entity and is sold/transferred to another corporation or other entity, the Council shall be notified of such sale and/or transfer and of any change in contact information for the individual or representative responsible for management and operations of the Certificate Holder within 30 days of the sale and/or transfer.

16. This Certificate may be surrendered by the Certificate Holder upon written notification and acknowledgment by the Council.

We hereby direct that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed in the Service List, dated September 18, 2020, and notice of issuance published in the Republican American.

By this Decision and Order, the Council disposes of the legal rights, duties, and privileges of each party named or admitted to the proceeding in accordance with Section 16-50j-17 of the Regulations of Connecticut State Agencies.

ATTACHMENT 2

INFRA
TOWERS

LETTER OF AUTHORIZATION

For
Cellco Partnership d/b/a Verizon Wireless
("LICENSEE")

DATE:	**February 22, 2023**
SITE ID:	**CT757 Kent (Verizon: Kent 2 CT-782596)**
SITE ADDRESS:	**93 Richards Road, South Kent, Litchfield County**
SITE PARCEL ID:	**#1764**

I, **C. Max Lind, Chief Operating Officer for Infra Towers, LLC** ("Infra"), owner of the telecommunications tower facility located at the address identified above (the "Tower Facility"), do hereby authorize the above referenced LICENSEE and its successors, assigns, and/or agents to act as Infra's non-exclusive agent for the sole purpose of filing and consummating any land-use or building permit application(s) as may be required by the applicable permitting authorities for LICENSEE's telecommunications equipment installation. We understand this application may be denied, modified or approved with conditions. This authorization is limited to the acceptance by LICENSEE only of conditions related to LICENSEE's installation and any such conditions of approval or modifications are LICENSEE's sole responsibility.

C. Max Lind
Chief Operating Officer

State of Ohio
County of HAMILTON

On 22nd Feb, 2023, before me, the undersigned Notary Public, personally appeared C. Max Lind, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature: Meenu Gupta
Print Name: Meenu Gupta
My Commission Expires: Feb 08, 2027
Commission No.: 2022-RE-844375

(Affix Notarial Seal)

NOTARY PUBLIC STATE OF OHIO

MEENU GUPTA
Notary Public, State of Ohio
My Commission Expires
February 08, 2027

ATTACHMENT 3

SITE NAME: KENT 2 CT
LOCATION CODE (PSLC): 782596
FUZE ID: 16997348
ADDRESS: 93 RICHARDS ROAD
KENT, CT 06785
CO-LOCATION ON EXISTING MONOPOLE
RFDS DATE: 12/28/22

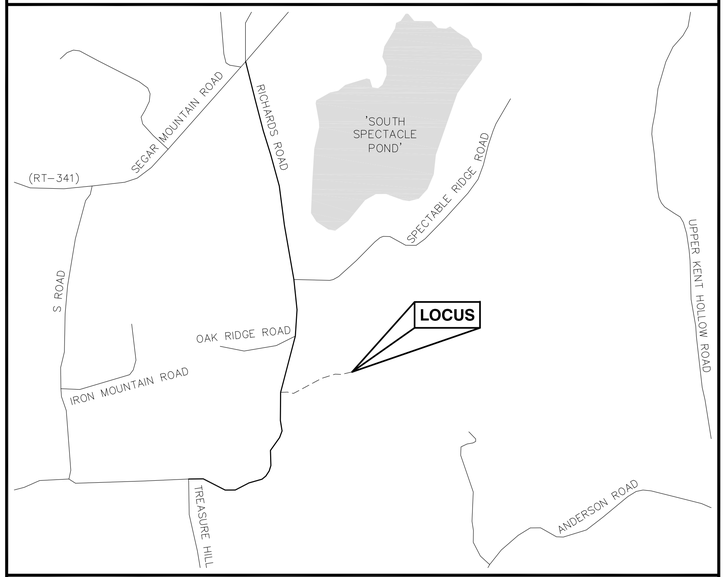
DRAWING INDEX

SHEET	DESCRIPTION	REVISION
T-1	TITLE SHEET	1
GN-1	GENERAL NOTES	1
A-1	SITE PLAN	1
A-2	COMPOUND PLAN AND ELEVATION	1
D-1 TO D-4	DETAILS	1
E-1 TO E-2	ELECTRICAL AND GROUNDING DETAILS	1

GENERAL NOTES

1. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEER & OWNER REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.
2. ALL UNDERGROUND UTILITY INFORMATION WAS DETERMINED FROM SURFACE INVESTIGATIONS AND EXISTING PLANS OF RECORD. THE CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES IN THE FIELD PRIOR TO ANY SITE WORK. CALL DIG-SAFE (888) 344-7233 72-HOURS PRIOR TO ANY EXCAVATION.
3. ALL WORK TO BE PERFORMED IN ACCORDANCE WITH THE LATEST VERIZON WIRELESS CONSTRUCTION GUIDELINES.
4. NEW CONSTRUCTION WILL CONFORM TO ALL APPLICABLE CODES AND ORDINANCES:
   BUILDING CODE: 2022 CONNECTICUT STATE BUILDING CODE (IBC 2021) AND AMENDMENTS
   ELECTRICAL CODE: 2020 NEC (NFPA-70) WITH CONNECTICUT AMENDMENTS
5. THESE CO-LOCATION PLANS ARE DEPENDANT ON A PASSING GLOBAL STRUCTURAL ANALYSIS TO BE PERFORMED BY THE TOWER OWNER PRIOR TO PLACEMENT OF VERIZON EQUIPMENT.
6. A PASSING MOUNT STRUCTURAL ANALYSIS HAS BEEN PERFORMED BY PROTERRA DESIGN GROUP, LLC WITH EFI GLOBAL, INC. DATED MARCH 9, 2023.
7. A PASSING STRUCTURAL ANALYSIS HAS BEEN PERFORMED BY DELTA OAKS GROUP DATED MARCH 23, 2023.
8. THE CONSTRUCTION SHOWN HEREIN MAY REQUIRE SPECIAL INSPECTIONS UNDER THE STATE BUILDING CODE. APPLICANT/CONTRACTOR SHALL VERIFY WITH THE AUTHORITIES HAVING JURISDICTION (AHJ) PRIOR TO CONSTRUCTION AND ENGAGE THE INSPECTOR AND/OR APPROPRIATE 3RD PARTIES AS MAY BE REQUIRED.

VICINITY MAP



SCOPE OF WORK

PROPOSED CABINETS, WEATHER CANOPY AND DIESEL GENERATOR WITH SECONDARY CONTAINMENT ON PROPOSED CONCRETE PAD AT THE GROUND LEVEL WITHIN THE EXISTING FENCED COMPOUND. PROPOSED TOWER TOP RF EQUIPMENT TO BE INSTALLED ON THE ON EXISTING MONOPOLE. TOWER TOP EQUIPMENT TO INCLUDE:

- (1) 12'-6" LOW PROFILE PLATFORM
  (SITEPRO1: RMQP-4096-HK) INCLUDED IN KIT REINFORCEMENT AND HANDRAIL KITS AND (12) 2.5" PIPE NOMINAL DIA. ANTENNA PIPES
- (6) JMA MX06FRO860-03 ANTENNAS MOUNTED ON DUAL MOUNTING BRACKETS
- (3) SAMSUNG MT6407-77A ANTENNAS
- RRH's MOUNTED BEHIND ANTENNA PIPES:
  - (3) SAMSUNG B2/B66A RRH ORAN (RF4439d-25A)
  - (3) SAMSUNG B5/B13 RRH ORAN (RF4440d-13A)
- (1) 12-OVP LARGE JUNCTION BOX WITH SURGE
- (2) 6x12 HYBRID CABLE
- INSTALL RF SIGNAGE PER VERIZON GUIDELINES
- MAINTAIN CLEARANCES TO FALL ARREST CABLE. ADD BRACKETS AS REQUIRED.

PROJECT INFORMATION

SITE TYPE:	CO-LOCATION ON EXISTING MONOPOLE
SCOPE OF WORK:	PROPOSED RF EQUIPMENT MOUNTED ON A EXISTING MONOPOLE WITH GROUND LEVEL EQUIPMENT INSTALLED ON PROPOSED CONCRETE PAD WITHIN A LEASED AREA INSIDE A EXISTING FENCED COMPOUND.
SITE NAME:	KENT 2 CT
LOCATION CODE (PSLC):	782596
FUZE ID:	16997348
RFDS DATE:	12/28/22
SITE ADDRESS:	93 RICHARDS ROAD KENT, CT 06785
COUNTY:	LITCHFIELD
ASSESSOR'S TAX ID#:	17-25-1
TOWER LATITUDE:	41° 42' 31.02"± N (41.708617°± N) (RECORD SURVEY 1-A)
TOWER LONGITUDE:	73° 25' 13.72"± W (73.420478°± W) (RECORD SURVEY 1-A)
TOWER BASE ELEV.:	1345.9'± (RECORD SURVEY 1-A)
DATUM	NAD83/NAVD88
PROPERTY OWNER:	N/F JENNIFER & JASON S. DUBRAY 93 RICHARDS ROAD SOUTH KENT, CT 06785
TOWER OWNER:	INFRA TOWERS, LLC
TOWER OWNER SITE NO.:	CT757
TOWER OWNER SITE NAME:	KENT
TOWER OWNER ADDRESS:	INFRA TOWERS, LLC 1800 DIAGONAL ROAD ALEXANDRIA, VA 22314
APPLICANT:	CELLCO PARTNERSHIP, A DELAWARE GENERAL PARTNERSHIP, dba VERIZON WIRELESS 20 ALEXANDER DRIVE, SECOND FLOOR WALLINGFORD, CT 06492
SITE ENGINEER:	PROTERRA DESIGN GROUP, LLC 4 BAY ROAD BUILDING A, SUITE 200 HADLEY, MA 01035 (413) 320-4918

CONSTRUCTION

ProTerra DESIGN GROUP, LLC
4 Bay Road
Building A; Suite 200
Hadley, MA 01035
Ph: (413) 320-4918

CONSULTANTS:

NO.	DATE	REVISIONS
A	02/23/23	ISSUED FOR REVIEW
0	03/10/23	ISSUED FOR CONSTRUCTION
1	03/27/23	ISSUED FOR CONSTRUCTION

TITLE:
KENT 2 CT
LOCATION CODE: 782596
ADDRESS: 93 RICHARDS ROAD
KENT, CT 06785

APPLICANT:
BELL ATLANTIC MOBILE SYSTEMS, LLC
dba VERIZON WIRELESS
20 ALEXANDER DRIVE,
SECOND FLOOR
WALLINGFORD, CT 06492

STAMP:

DATE: 03/27/23
DRAWN: TBD/PN
CHECK: JMM/TEJ
SCALE: SEE PLAN
JOB NO.: 13-030
SHEET TITLE:

TITLE SHEET

T-1

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWINGS, THE FOLLOWING DEFINITIONS SHALL APPLY:
   CONTRACTOR – AIROSMITH DEVELOPMENT
   SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
   OWNER – VERIZON WIRELESS OR INFRA TOWERS, LLC (AS APPLICABLE)
   OEM – ORIGINAL EQUIPMENT MANUFACTURER

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

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

4. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL, STATE AND FEDERAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

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

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

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

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

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

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

11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY.

12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION AND RETURN DISTURBED AREAS TO ORIGINAL CONDITIONS.

13. THE SUBCONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE SUBCONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.

14. SUBCONTRACTOR SHALL NOTIFY PROTERRA DESIGN GROUP, LLC 48 HOURS IN ADVANCE OF POURING CONCRETE OR BACKFILLING TRENCHES, SEALING ROOF AND WALL PENETRATIONS AND POST DOWNS, FINISHING NEW WALLS OR FINAL ELECTRICAL CONNECTIONS FOR ENGINEERING REVIEW.

15. CONSTRUCTION SHALL COMPLY WITH ALL CARRIER STANDARDS AND SPECIFICATIONS.

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

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

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

SITE WORK GENERAL NOTES:

1. THE SUBCONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.

2. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY ENGINEERS. EXTREME CAUTION SHOULD BE USED BY THE SUBCONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. SUBCONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION.

3. ALL SITE WORK SHALL BE AS INDICATED ON THE DRAWINGS AND PROJECT SPECIFICATIONS.

4. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.

5. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE BTS EQUIPMENT AND TOWER AREAS.

6. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

7. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.

8. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF ENGINEERING, OWNER AND/OR LOCAL UTILITIES.

9. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE AND STABILIZED TO PREVENT EROSION AS SPECIFIED IN THE PROJECT SPECIFICATIONS.

10. SUBCONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.

11. THE SUBCONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE CARRIER SPECIFICATION FOR SITE SIGNAGE.

CONCRETE & REINFORCING STEEL NOTES:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.

2. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4500 PSI AT 28 DAYS, UNLESS NOTED OTHERWISE. **(NOTE: THIS IS SITE CONCRETE, NOT NECESSARILY STRUCTURAL CONCRETE AND SHOULD BE VERIFIED AGAINST MORE STRINGENT).** A HIGHER STRENGTH (4500PSI) MAY BE USED. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 318 CODE REQUIREMENTS.

3. REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60, DEFORMED UNLESS NOTED OTHERWISE. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A 185 WELDED STEEL WIRE FABRIC UNLESS NOTED OTHERWISE. SPLICES SHALL BE CLASS "B" AND ALL HOOKS SHALL BE STANDARD, UNO.

4. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
   CONCRETE CAST AGAINST EARTH.....3 IN.
   CONCRETE EXPOSED TO EARTH OR WEATHER:
   #6 AND LARGER .....2 IN.
   #5 AND SMALLER & WWF .....1½ IN.
   CONCRETE NOT EXPOSED TO EARTH OR WEATHER
   OR NOT CAST AGAINST THE GROUND:
   SLAB AND WALL .....¾ IN.
   BEAMS AND COLUMNS .....1½ IN.

5. A CHAMFER ¾" SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNO, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

6. INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHORS/EPOXY SHALL BE PER MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO THE MANUFACTURERS RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR CONTRACTOR APPROVAL WHEN DRILLING HOLES IN CONCRETE. SPECIAL INSPECTIONS, REQUIRED BY GOVERNING CODES, SHALL BE PERFORMED IN ORDER TO MAINTAIN MANUFACTURER'S MAXIMUM ALLOWABLE LOADS. ALL EXPANSION/WEDGE ANCHORS SHALL BE STAINLESS STEEL OR HOT DIPPED GALVANIZED. EXPANSION BOLTS SHALL BE PROVIDED BY SIMPSON OR APPROVED EQUAL.

7. CONCRETE CYLINDER TESTS NOT REQUIRED FOR SLAB ON GRADE WHEN CONCRETE IS LESS THAN 50 CUBIC YARDS (ACI 318-19 SECTION 26.12 – FREQUENCY OF TESTING) IN THAT EVENT THE FOLLOWING RECORDS SHALL BE PROVIDED BY THE CONCRETE SUPPLIER TO PROVIDE THE BUILDING OFFICIAL:
   (A) RESULTS OF CONCRETE CYLINDER TEST PERFORMED AT THE SUPPLIERS PLANT.
   (B) CERTIFICATION OF MINIMUM COMPRESSIVE STRENGTH FOR THE CONCRETE GRADE SUPPLIED.
FOR GREATER THAN 50 CUBIC YARDS OR WHEN NO EVIDENCE OF STRENGTH TESTS CAN BE PROVIDED TO AHJ, THE GC SHALL PERFORM THE CONCRETE CYLINDER TEST BY AN INDEPENDENT TESTING AGENCY

8. AS AN ALTERNATIVE TO ITEM 7. TEST CYLINDERS SHALL BE TAKEN INITIALLY AND THEREAFTER FOR EVERY 50 YARDS OF CONCRETE FROM EACH DIFFERENT BATCH PLANT.

9. EQUIPMENT SHALL NOT BE PLACED ON NEW PADS OR FOUNDATIONS FOR SEVEN DAYS AFTER PAD IS POURED, UNLESS IT IS VERIFIED BY CYLINDER TESTS THAT COMPRESSIVE STRENGTH HAS BEEN ATTAINED.

STRUCTURAL STEEL NOTES:

1. ALL STEEL WORK SHALL BE PAINTED OR GALVANIZED IN ACCORDANCE WITH THE DRAWINGS AND CARRIER SPECIFICATIONS UNLESS OTHERWISE NOTED. STRUCTURAL STEEL SHALL BE ASTM-A-36 UNLESS OTHERWISE NOTED ON THE SITE SPECIFIC DRAWINGS. STEEL DESIGN, INSTALLATION AND BOLTING SHALL BE IN ACCORDANCE WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) "MANUAL OF STEEL CONSTRUCTION".

2. ALL WELDING SHALL BE PERFORMED USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND AWS D1.1. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION", 14TH EDITION. PAINTED SURFACES SHALL BE TOUCHED UP.

3. BOLTED CONNECTIONS SHALL USE BEARING TYPE ASTM A325 BOLTS (⅞"øOR ⅝"ø) AND SHALL HAVE MINIMUM OF TWO BOLTS UNLESS NOTED OTHERWISE. ALL BOLTS SHALL BE GALVANIZED.

4. NON-STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE ½"ø OR ⅝"ø ASTM A 307 BOLTS (GALV) UNLESS NOTED OTHERWISE.

5. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ENGINEER REVIEW & APPROVAL ON PROJECTS REQUIRING STRUCTURAL STEEL

6. ALL STRUCTURAL STEEL WORK SHALL BE DONE IN ACCORDANCE WITH AISC SPECIFICATIONS.

SOIL COMPACTION NOTES:

1. EXCAVATE AS REQUIRED TO REMOVE VEGETATION AND TOPSOIL TO EXPOSE NATURAL SUBGRADE AND PLACE CRUSHED STONE AS REQUIRED.

2. COMPACTION CERTIFICATION: AN INSPECTION AND WRITTEN CERTIFICATION BY A QUALIFIED GEOTECHNICAL TECHNICIAN OR ENGINEER IS ACCEPTABLE.

3. AS AN ALTERNATE TO INSPECTION AND WRITTEN CERTIFICATION, THE "UNDISTURBED SOIL" BASE SHALL BE COMPACTED WITH "COMPACTION EQUIPMENT", LISTED BELOW, TO AT LEAST 95% MODIFIED PROCTOR MAXIMUM DENSITY PER ASTM D 1557 METHOD C VERIFIED BY A INDEPENDENT THIRD PARTY.

4. COMPACTED SUBBASE SHALL BE UNIFORM AND LEVELED. PROVIDE 6" MINIMUM CRUSHED STONE OR GRAVEL COMPACTED IN 3" LIFTS ABOVE COMPACTED SOIL. GRAVEL SHALL BE NATURAL OR CRUSHED WITH 100% PASSING #1 SIEVE.

5. AS AN ALTERNATE TO ITEMS 2 AND 3, THE SUBGRADE SOILS WITH 5 PASSES OR A MEDIUM SIZED VIBRATORY PLATE COMPACTOR (SUCH AS BOMAG BPR 30/38) OR HAND-OPERATED SINGLE DRUM VIBRATORY ROLLER (SUCH AS BOMAG BW 55E). AND SOFT AREAS THAT ARE ENCOUNTERED SHOULD BE REMOVED AND REPLACED WITH A WELL-GRADED GRANULAR FILL AND COMPACTED AS STATED ABOVE. THIS ALTERNATE NEEDS TO BE CONTINUOUSLY INSPECTED.

COMPACTION EQUIPMENT NOTES:

1. HAND OPERATED DOUBLE DRUM, VIBRATORY ROLLER, VIBRATORY PLATE COMPACTOR OR JUMPING JACK COMPACTOR.

CONSTRUCTION NOTES:

1. FIELD VERIFICATION:
SUBCONTRACTOR SHALL FIELD VERIFY SCOPE OF WORK, CARRIER ANTENNA PLATFORM LOCATION AND UTILITY TRENCHWORK.

2. COORDINATION OF WORK:
SUBCONTRACTOR SHALL COORDINATE RF WORK AND PROCEDURES WITH CONTRACTOR.

3. CABLE LADDER RACK:
SUBCONTRACTOR SHALL FURNISH AND INSTALL CABLE LADDER RACK, CABLE TRAY AND/OR ICE BRIDGE, AND CONDUIT AS REQUIRED TO SUPPORT CABLES TO THE NEW BTS LOCATION.

ELECTRICAL NOTES:

1. WIRING, RACEWAY, AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NATIONAL ELECTRIC CODE 2020 NEC (NFPA-70) WITH CONNECTICUT AMENDMENTS.

2. SUBCONTRACTOR SHALL MODIFY OR INSTALL CABLE TRAY SYSTEM AS REQUIRED TO SUPPORT RF AND TRANSPORT CABLING TO THE NEW BTS EQUIPMENT. SUBCONTRACTOR SHALL SUBMIT MODIFICATIONS TO CONTRACTOR FOR APPROVAL.

3. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC AND TELCORDIA.

4. CABLES SHALL NOT BE ROUTED THROUGH LADDER-STYLE CABLE TRAY RUNGS.

5. EACH END OF EVERY POWER, GROUNDING, AND T1 CONDUCTOR AND CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2 INCH PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA, AND MATCH INSTALLATION REQUIREMENTS.

6. POWER PHASE CONDUCTORS (I.E., HOTS) SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, ½ INCH PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). PHASE CONDUCTOR COLOR CODES SHALL CONFORM WITH THE NEC AND OSHA.

7. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS. ALL EQUIPMENT SHALL BE LABELED WITH THEIR VOLTAGE RATING, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING, AND BRANCH CIRCUIT ID NUMBERS (I.E., PANELBOARD AND CIRCUIT ID'S).

8. PANELBOARDS (ID NUMBERS) AND INTERNAL CIRCUIT BREAKERS (CIRCUIT ID NUMBERS) SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS.

9. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.

10. POWER, CONTROL, AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE CONDUCTOR (SEE ELECTRICAL DETAIL SHEET), 600 V, OIL RESISTANT THHN OR THWN-2, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.

11. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE CONDUCTOR (#6 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN-2 GREEN INSULATION, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.

12. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED OUTDOORS, OR BELOW GRADE, SHALL BE SINGLE CONDUCTOR #2 AWG SOLID TINNED COPPER CABLE, UNLESS OTHERWISE SPECIFIED.

13. POWER AND CONTROL WIRING, NOT IN TUBING OR CONDUIT, SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (SEE ELECTRICAL DETAIL SHEET), 600 V, OIL RESISTANT THHN OR THWN-2, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; WITH OUTER JACKET; LISTED OR LABELED FOR THE LOCATION USED, UNLESS OTHERWISE SPECIFIED.

14. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRENUTS BY HARGER (OR EQUAL). LUGS AND WIRENUTS SHALL BE RATED FOR OPERATION AT NO LESS THAN 75°C (90°C IF AVAILABLE).

15. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.

16. NEW RACEWAY OR CABLE TRAY WILL MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.

17. ELECTRICAL METALLIC TUBING (EMT) OR RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80 FOR LOCATIONS SUBJECT TO PHYSICAL DAMAGE) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.

18. ELECTRICAL METALLIC TUBING (EMT), ELECTRICAL NONMETALLIC TUBING (EMT), OR RIGID NONMETALLIC CONDUIT (RIGID PVC, SCHEDULE 40) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.

19. GALVANIZED STEEL INTERMEDIATE METALLIC CONDUIT (IMC) SHALL BE USED FOR OUTDOOR LOCATIONS ABOVE GRADE.

20. RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80) SHALL BE USED UNDERGROUND; DIRECT BURIED, IN AREAS OF OCCASIONAL LIGHT VEHICLE TRAFFIC OR ENCASED IN REINFORCED CONCRETE IN AREAS OF HEAVY VEHICLE TRAFFIC.

21. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.

22. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SETSCREW FITTINGS ARE NOT ACCEPTABLE.

23. CABINETS, BOXES AND WIREWAYS SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.

24. CABINETS, BOXES AND WIREWAYS TO MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.

25. WIREWAYS SHALL BE EPOXY-COATED (GRAY) AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARD; SHALL BE PANDUIT TYPE E (OR EQUAL); AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS.

26. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES, AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL, SHALL MEET OR EXCEED UL 50, AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS.

27. METAL RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED, OR NON-CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.

28. NONMETALLIC RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.

29. THE SUBCONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CONTRACTOR BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.

30. THE SUBCONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD AGAINST LIFE AND PROPERTY.

31. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE LOCAL CODES.

32. CONDUIT ROUTINGS ARE SCHEMATIC. SUBCONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED.

ProTerra DESIGN GROUP, LLC
4 Bay Road
Building A; Suite 200
Hadley, MA 01035
Ph:(413) 320-4918

CONSULTANTS:

NO.	DATE	REVISIONS
A	02/23/23	ISSUED FOR REVIEW
0	03/10/23	ISSUED FOR CONSTRUCTION
1	03/27/23	ISSUED FOR CONSTRUCTION

TITLE:
KENT 2 CT
LOCATION CODE: 782596
ADDRESS: 93 RICHARDS ROAD
KENT, CT 06785

APPLICANT:
BELL ATLANTIC MOBILE SYSTEMS, LLC
d/b/a VERIZON WIRELESS
20 ALEXANDER DRIVE,
SECOND FLOOR
WALLINGFORD, CT 06492

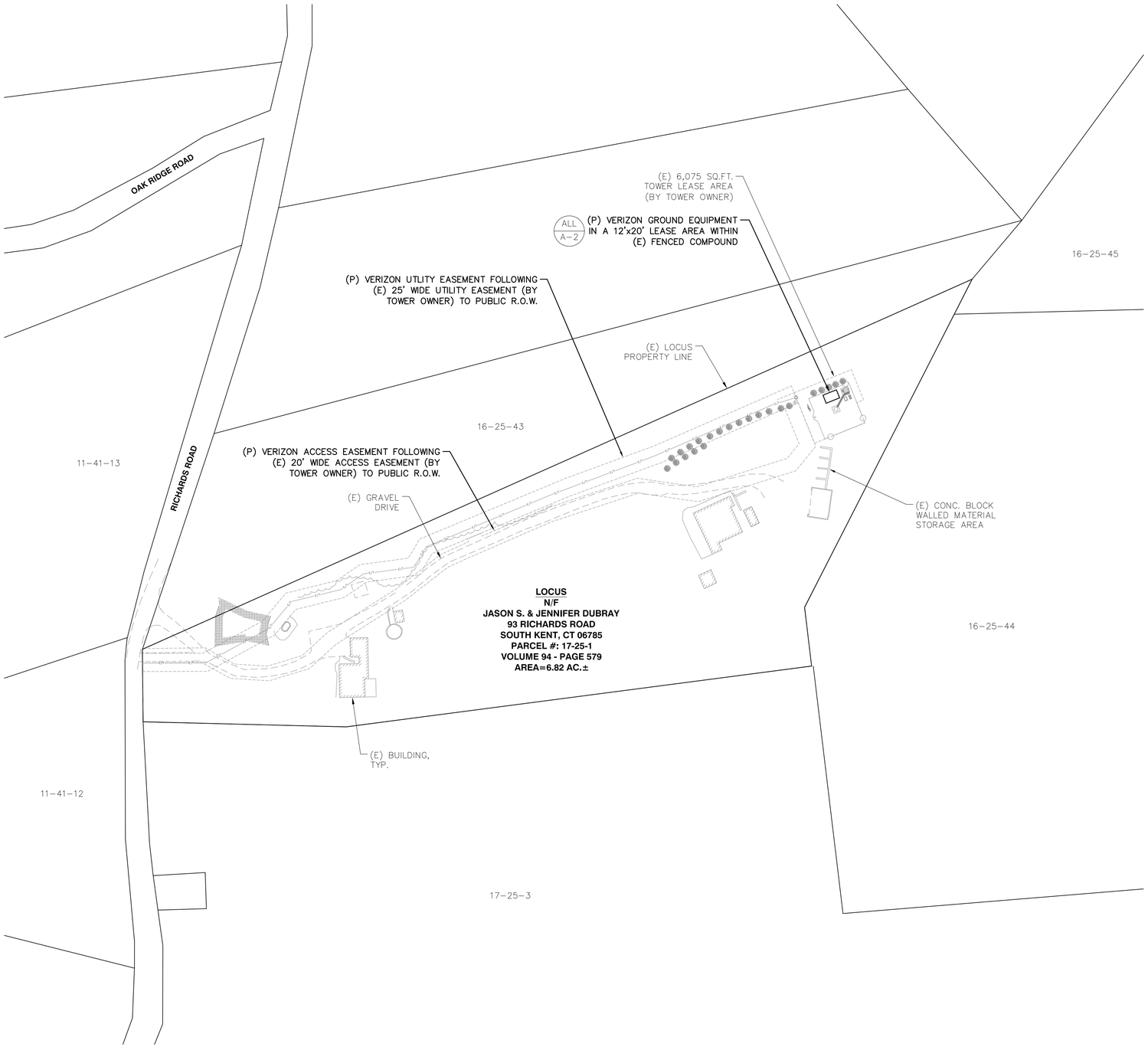
verizon

STAMP:

DATE:	03/27/23
DRAWN:	TBD/PN
CHECK:	JMM/TEJ
SCALE:	SEE PLAN
JOB NO.:	13-030

SHEET TITLE:
GENERAL NOTES

GN-1



N

SITE PLAN

SCALE: 1"=80' (22x34)
1"=160' (11x17)

1
A-1

80 40 0 80 160

(E) EXISTING
(P) PROPOSED
(F) FUTURE

GENERAL NOTES

1. THE TYPE, DIMENSIONS, MOUNTING HARDWARE, AND POSITIONS OF ALL PROJECT OWNER'S EQUIPMENT ARE SHOWN IN ILLUSTRATIVE FASHION. ACTUAL HARDWARE DETAILS AND FINAL LOCATIONS MAY DIFFER SLIGHTLY FROM WHAT IS SHOWN.
2. THE PROJECT OWNER'S PCS FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.
3. THE DESIGN OF THE TOWER, FOUNDATION AND ANTENNA MOUNTING HARDWARE WILL MEET THE ANSI/EIA/TIA-222-H STANDARDS FOR STRUCTURAL STEEL ANTENNA SUPPORTING STRUCTURES AND STATE BUILDING CODE REQUIREMENTS. DETAILED CONSTRUCTION DRAWINGS AND STRUCTURAL CALCULATIONS WILL BE PREPARED BY A REGISTERED PROFESSIONAL ENGINEER AND SUBMITTED WITH A BUILDING PERMIT APPLICATION FOR REVIEW AND APPROVAL BY THE LOCAL BUILDING CODE ENFORCEMENT OFFICIAL.
4. ONCE THE FACILITY BECOMES FULLY OPERATIONAL, NORMAL AND ROUTINE MAINTENANCE BY TOWER OWNER'S AND CARRIER'S TECHNICIANS WILL BE PERFORMED. THE ESTIMATED VEHICULAR TRAFFIC GENERATED BY THESE VISITS IS PREDICTED TO BE LESS THAN THE TYPICAL TRAFFIC GENERATED BY A SINGLE-FAMILY DWELLING.
5. THE PROPOSED INSTALLATION WILL BE CO-LOCATED ON A EXISTING MONOPOLE TOWER AND WITHIN AN EXISTING FENCED COMPOUND. IT HAS BEEN ASSUMED THAT THE EXISTING TOWER AND COMPOUND WAS LAWFULLY APPROVED BY THE AUTHORITIES HAVING JURISDICTION.
6. THE PROPOSED INSTALLATION TO BE IN COMPLIANCE WITH BUILDING CODE 2022 CONNECTICUT STATE BUILDING CODE (IBC 2021) AND AMENDMENTS.

REFERENCES

EXISTING AND PROPOSED FEATURES OF THE INFRA TOWERS, LLC TELECOMMUNICATION FACILITY INCLUDING LOCUS PROPERTY LINES, CONSTRUCTION DRAWINGS CALLED ' HOMELAND TOWERS, LLC WIRELESS TELECOMMUNICATION FACILITY' BY ALL-POINT TECHNOLOGY CORPORATION, P.C. DATED OCTOBER 26, 2021 REV4.

ZONING INFORMATION - 'ZONING MAP TOWN OF KENT, CONNECTICUT', EFFECTIVE DATE JULY 1, 2018 AND 'KENT, CONNECTICUT ZONING REGULATIONS' PLANNING AND ZONING COMMISSION EFFECTIVE - MARCH 26, 2022 FOR KENT CT757.

RECORD FAA 1-A TOWER CERTIFICATION BY WILLIAM J. NAGLE, PLS-CT MURPHY GEOMATICS DATED AUGUST 15, 2022

AS-BUILT SURVEY - 'A PARCEL OF LAND LYING IN THE TOWN OF KENT OF LITCHFIELD COUNTY' PREPARED BY GEOLINE SURVEYING, INC., DATED JANUARY 24, 2023.

TELECOMMUNICATION FACILITY SURVEY: LIMITED COMPASS & TAPE SURVEY PERFORMED BY PROTERRA DESIGN GROUP, LLC ON DECEMBER 29, 2022. ALL PROPOSED EQUIPMENT IS TO BE LOCATED WITHIN EXISTING CONSTRUCTED FENCED COMPOUND AREA.

PROTERRA DESIGN GROUP, LLC DID NOT PERFORM AN ON-THE-GROUND SURVEY IN CONJUNCTION WITH THIS PROJECT. THE PLAN IS INTENDED FOR CO-LOCATION OF WIRELESS INFRASTRUCTURE WITHIN AN EXISTING FENCED COMPOUND & LAWFULLY CONSTRUCTED MONOPOLE. THE PLAN SHALL BE USED FOR NO OTHER PURPOSE.

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DESIGN GROUP, LLC
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Hadley, MA 01035
Ph:(413) 320-4918

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20 ALEXANDER DRIVE, SECOND FLOOR
WALLINGFORD, CT 06492

verizon

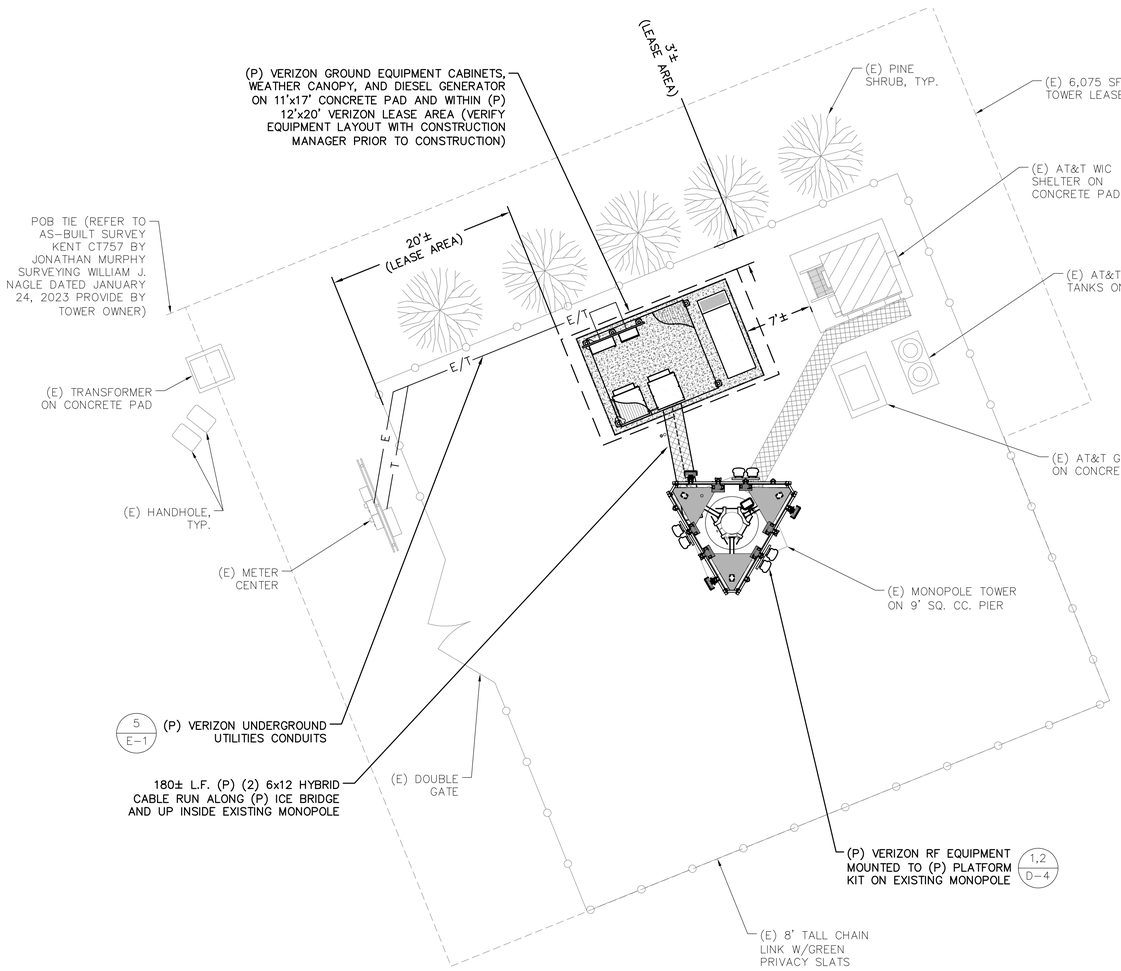
STAMP:

DATE: 03/27/23
DRAWN: TBD/PN
CHECK: JMM/TEJ
SCALE: SEE PLAN
JOB NO.: 13-030

SHEET TITLE:

SITE PLAN

A-1

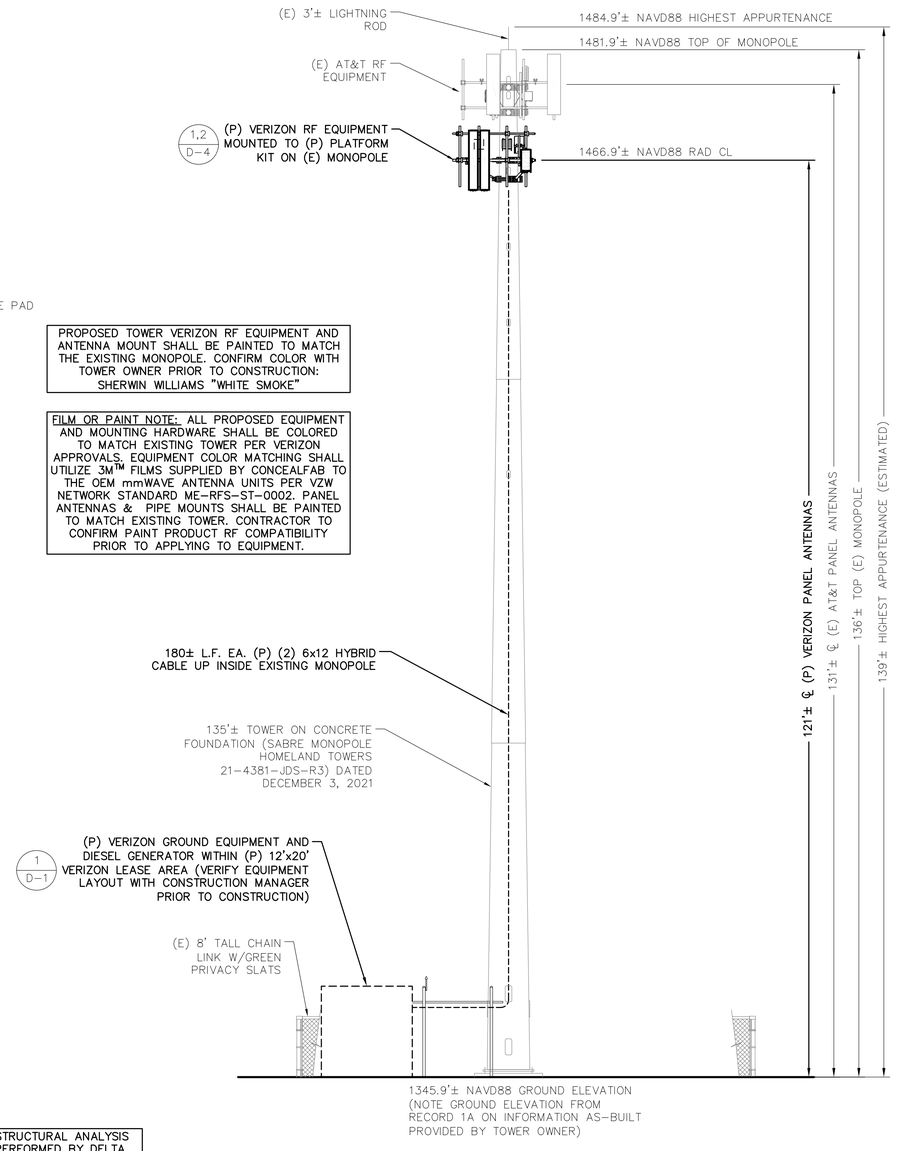


PROPOSED TOWER VERIZON RF EQUIPMENT AND ANTENNA MOUNT SHALL BE PAINTED TO MATCH THE EXISTING MONOPOLE. CONFIRM COLOR WITH TOWER OWNER PRIOR TO CONSTRUCTION: SHERWIN WILLIAMS "WHITE SMOKE"

FILM OR PAINT NOTE: ALL PROPOSED EQUIPMENT AND MOUNTING HARDWARE SHALL BE COLORED TO MATCH EXISTING TOWER PER VERIZON APPROVALS. EQUIPMENT COLOR MATCHING SHALL UTILIZE 3M™ FILMS SUPPLIED BY CONCEALFAB TO THE OEM mmWAVE ANTENNA UNITS PER VZW NETWORK STANDARD ME-RFS-ST-0002. PANEL ANTENNAS & PIPE MOUNTS SHALL BE PAINTED TO MATCH EXISTING TOWER. CONTRACTOR TO CONFIRM PAINT PRODUCT RF COMPATIBILITY PRIOR TO APPLYING TO EQUIPMENT.

A PASSING STRUCTURAL ANALYSIS HAS BEEN PERFORMED BY DELTA OAKS GROUP DATED MARCH 9, 2023

A PASSING MOUNT STRUCTURAL ANALYSIS HAS BEEN PERFORMED BY PROTERRA DESIGN GROUP, LLC WITH EFI GLOBAL, INC. DATED MARCH 9, 2023



COMPOUND PLAN

1 / A-2

SCALE: 1"=8' (22x34)
1"=16' (11x17)

8 4 0 8 16

WEST ELEVATION

2 / A-2

SCALE: 1"=10' (22x34)
1"=20' (11x17)

10 5 0 10 20

(E) EXISTING
(P) PROPOSED
(F) FUTURE

(E) = EXISTING
(P) = PROPOSED

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dba VERIZON WIRELESS
20 ALEXANDER DRIVE, SECOND FLOOR
WALLINGFORD, CT 06492

verizon

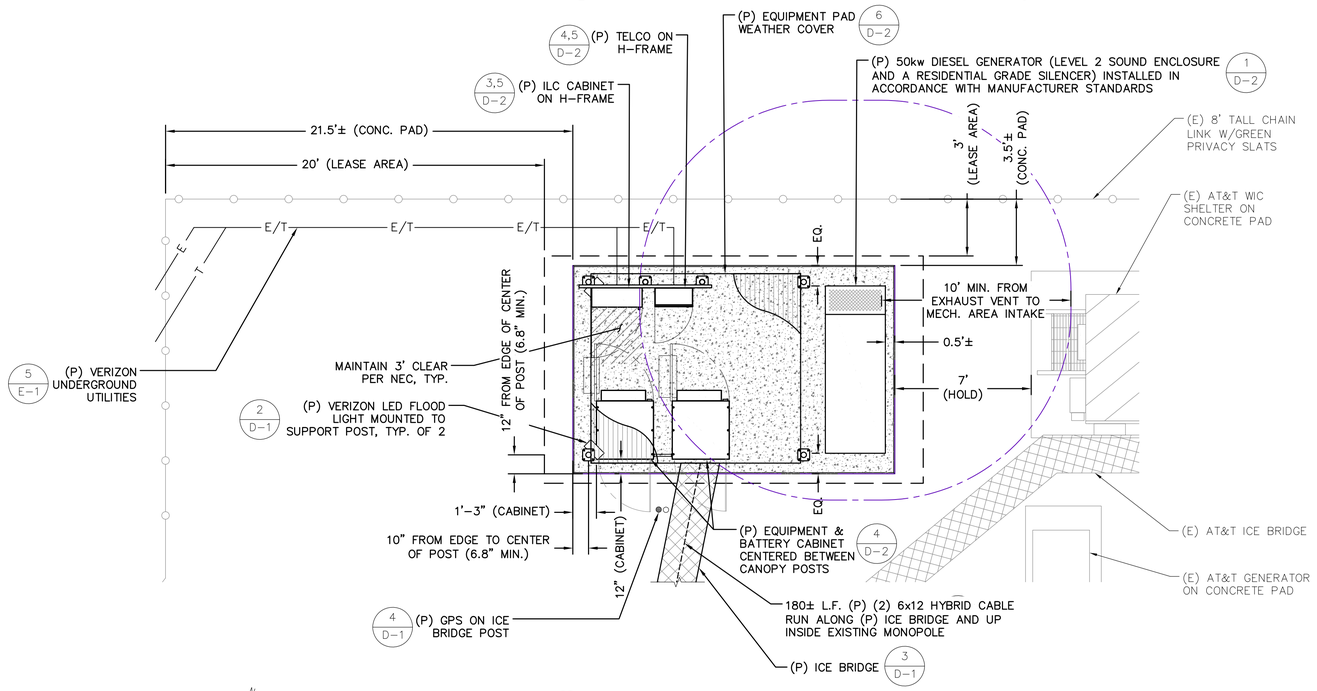
STAMP:

STATE OF CONNECTICUT
JESSE M. MOORE
LICENSED PROFESSIONAL ENGINEER
3-27-2023

DATE: 03/27/23
DRAWN: TBD/PN
CHECK: JMM/TEJ
SCALE: SEE PLAN
JOB NO.: 13-030

SHEET TITLE:
COMPOUND PLAN & ELEVATION

A-2



EQUIPMENT PLAN

1 D-1

SCALE: 1"=4' (22x34)
1"=8' (11x17)

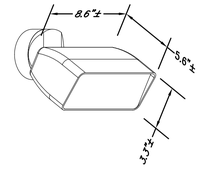
4 2 0 4 8

INTERMATIC FF2H

TIME CYCLE: 2 HOURS
SWITCH: SPST
HOLD: NO

OR APPROVED EQUIVALENT
20 AMP, 125 VAC

TIMER SWITCH DETAIL



RAB LIGHTING – FFLED18N
18W
BRONZE

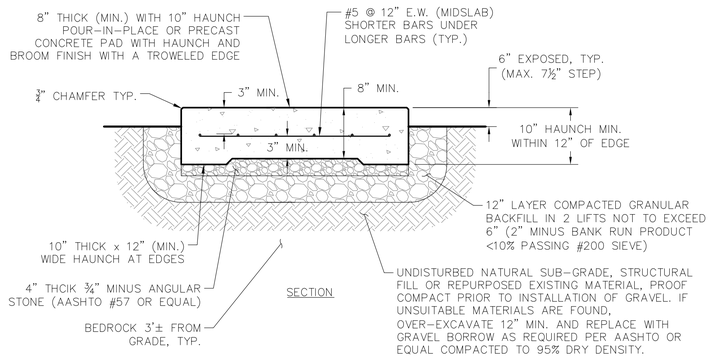
MOUNT PER MANUFACTURER'S SPECIFICATION
125 VAC

LED FLOOD LIGHT DETAIL

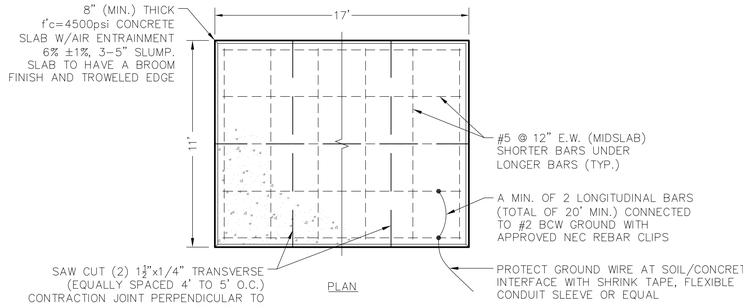
FLOOD LIGHT & SWITCH DETAIL

2 D-1

SCALE: NONE



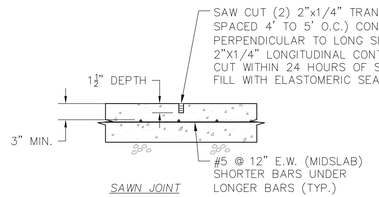
SECTION



PLAN

CONCRETE NOTES:

1. BEARING STRATA MEDIUM TO DENSE INSET GRANULAR MATERIAL OR COMPACTED FILL. 95% COMPACTION.
2. SUBGRADE AND FILL SHALL CONSIST OF CLEAN SOIL. NO DELETERIOUS MATERIALS OR ORGANICS TO BE USED.
3. CONCRETE FORM WORK SHALL BE CONSTRUCTED IN WORKMAN LIKE MANNER. STRIP AND REMOVE UPON COMPLETION.
4. CONCRETE SHALL HAVE 4500PSI 28-DAY COMPRESSIVE STRENGTH WITH 6% ±1% AIR ENTRAINMENT, 4(±1)" SLUMP AND BRISTLE BROOM FINISH AND TROWELED OR CHAMFERED EDGE.
5. SLOPE SURFACE TO DRAIN
6. SEE CONCRETE NOTES ON GN-1.



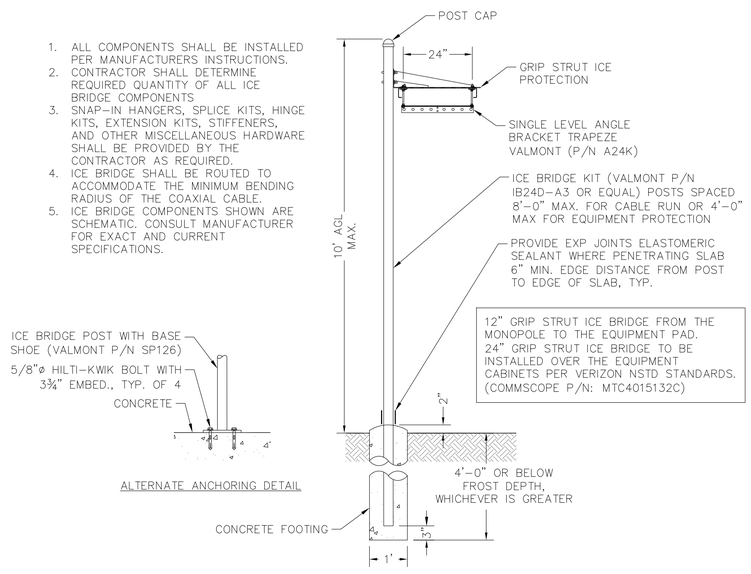
SAWN JOINT

EQUIPMENT CONCRETE PAD

5 D-1

SCALE: NONE

1. ALL COMPONENTS SHALL BE INSTALLED PER MANUFACTURERS INSTRUCTIONS.
2. CONTRACTOR SHALL DETERMINE REQUIRED QUANTITY OF ALL ICE BRIDGE COMPONENTS
3. SNAP-IN HANGERS, SPLICE KITS, HINGE KITS, EXTENSION KITS, STIFFENERS, AND OTHER MISCELLANEOUS HARDWARE SHALL BE PROVIDED BY THE CONTRACTOR AS REQUIRED.
4. ICE BRIDGE SHALL BE ROUTED TO ACCOMMODATE THE MINIMUM BENDING RADIUS OF THE COAXIAL CABLE.
5. ICE BRIDGE COMPONENTS SHOWN ARE SCHEMATIC. CONSULT MANUFACTURER FOR EXACT AND CURRENT SPECIFICATIONS.

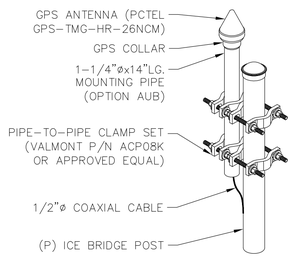


ALTERNATE ANCHORING DETAIL

ICE BRIDGE DETAIL

3 D-1

SCALE: NONE



GPS ANTENNA DETAIL

4 D-1

SCALE: NONE

ProTerra
DESIGN GROUP, LLC
4 Bay Road
Building A; Suite 200
Hadley, MA 01035
Ph:(413) 320-4918

CONSULTANTS:

NO.	DATE	REVISIONS
A	02/23/23	ISSUED FOR REVIEW
0	03/10/23	ISSUED FOR CONSTRUCTION
1	03/27/23	ISSUED FOR CONSTRUCTION

TITLE:

KENT 2 CT
LOCATION CODE: 782596
ADDRESS: 93 RICHARDS ROAD
KENT, CT 06785

APPLICANT:

BELL ATLANTIC MOBILE SYSTEMS, LLC
d/b/a VERIZON WIRELESS
20 ALEXANDER DRIVE, SECOND FLOOR
WALLINGFORD, CT 06492

verizon

STAMP:

DATE: 03/27/23
DRAWN: TBD/PN
CHECK: JMM/TEJ
SCALE: SEE PLAN
JOB NO.: 13-030

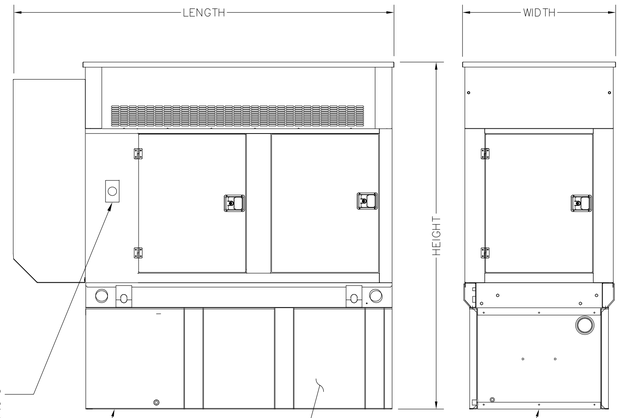
SHEET TITLE:

DETAILS

D-1

INDUSTRIAL DIESEL GENERATOR SPECIFICATIONS

MANUF.	GENERAC
MODEL #	SD050 3.4L (50kW) (LEVEL 2 SOUND ATTENUATED ENCLOSURE)
LENGTH	106"
HEIGHT	99"
WIDTH	38"
WEIGHT	3870± TO 5930± LBS. (TO BE DETERMINED)

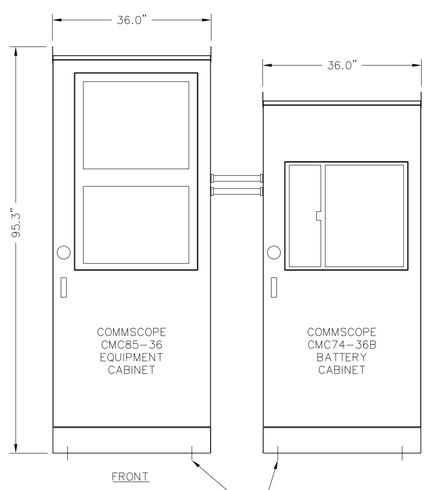


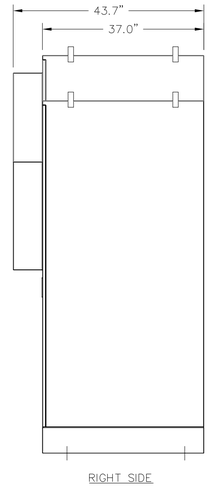
NOTES:

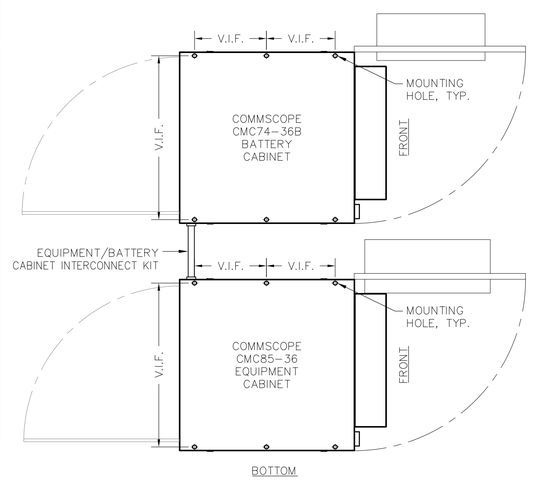
1. "CLASS 2 SOUND ENCLOSURE WITH RESIDENTIAL SILENCER TO MEET PERMITTED DAYTIME SOUND LEVELS AT THE PROPERTY LINE IS REQUIRED" IT IS THE RESPONSIBILITY OF VERIZON WIRELESS TO PERFORM A SOUND STUDY TO DETERMINE IF ANY REQUIRED MITIGATION IS WARRANTED BY THE PERMIT AUTHORITY.
2. 211 GALLON UL 142 RATED FUEL TANK WITHIN ENCLOSURE BELOW GENERATOR.
3. GENERATOR TO BE INSTALLED WITH AN EMERGENCY DISCONNECT AS REQUIRED BY NEC 445.18: DISCONNECTING MEANS AND SHUTDOWN OF PRIME MOVER.
4. AN EXTERNAL EMERGENCY DISCONNECT MAY ALSO BE REQUIRED FOR GENERATORS GREATER THAN 15kW. CONFIRM WITH THE AUTHORITY HAVING JURISDICTION PRIOR TO INSTALLATION.
5. CONTRACTOR TO OBTAIN CAT CUT/DRAWING FROM MANUFACTURER OF GENSET TO DETERMINE STUB UP LOCATION FOR CONDUIT.

50kW AC GENERATOR WITH DIESEL BASE TANK

SCALE: NONE — 1 / D-2



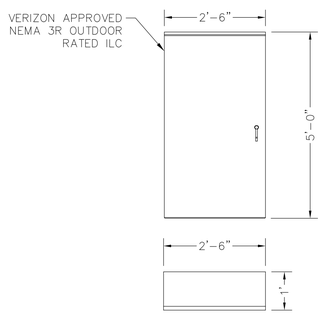




VERIFY WITH CONSTRUCTION MANAGER PRIOR TO INSTALLATION OF CABINETS IF OPTIONAL CABINET PLINTH BASES AND TOPHATS HAVE BEEN ORDERED FOR USE IN LIEU OF OR IN ADDITION TO A STEEL CABINET SKID.

EQUIPMENT & BATTERY CABINET DETAIL

SCALE: NONE — 2 / D-2

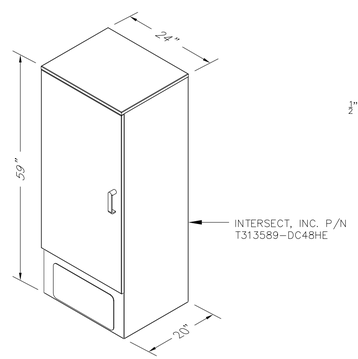


(*) NOTE: GC TO VERIFY ILC MODEL, LOCATION, AND MOUNTING WITH CM AND ADJUST ILC MOUNTING FRAME AS REQUIRED

MODEL	G0048924 NEMA 3 120/240V 200AMP
MANUFACTURER	GENERAC (*)
SIZE (IN.)	60"Hx30"Wx12.7"D

INTEGRATED LOAD CENTER (ILC) CABINET

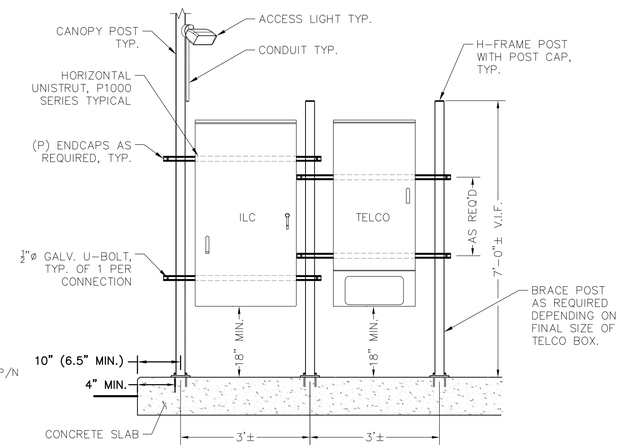
SCALE: NONE — 3 / D-2

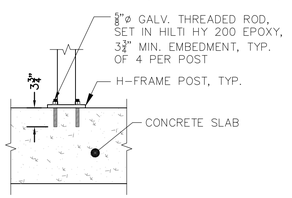


(*) NOTE: GC TO VERIFY MODEL NUMBER, LOCATION, AND MOUNTING WITH CM AND ADJUST TELCO BOX MOUNTING FRAME AS REQUIRED

TELCO CABINET

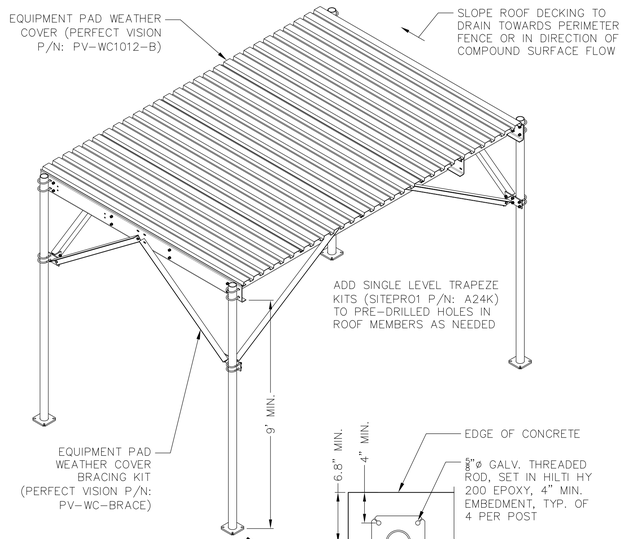
SCALE: NONE — 4 / D-2





UTILITY CABINET MOUNTING DETAIL

SCALE: NONE — 5 / D-2



EQUIPMENT PAD WEATHER COVER DETAIL

SCALE: NONE — 6 / D-2

ProTerra DESIGN GROUP, LLC
4 Bay Road
Building A; Suite 200
Hadley, MA 01035
Ph:(413) 320-4918

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BELL ATLANTIC MOBILE SYSTEMS, LLC dba VERIZON WIRELESS
20 ALEXANDER DRIVE, SECOND FLOOR
WALLINGFORD, CT 06492

verizon

STAMP:

DATE:	03/27/23
DRAWN:	TBD/PN
CHECK:	JMM/TEJ
SCALE:	SEE PLAN
JOB NO.:	13-030

SHEET TITLE:

DETAILS

D-2

700/AWS/PCS LTE AND 850 LTE/5G ANTENNA INFORMATION TABLE

SECTOR	PANEL ANTENNAS					FEEDER	SURGE SUPRESSOR	FROM SURGE SUPPRESSOR	REMOTE RADIO UNIT		FROM REMOTE RADIO UNIT		
	AZIMUTH	QTY.	MAKE & MODEL	RAD. CENTER (AGL)	DOWNTILT	6x12 HYBRID CABLE	QUANTITY	1-PAIR HYBRID CABLE LENGTH	QTY.	MAKE & MODEL	COAX JUMPER QTY. Tx/Rx	COAX JUMPER SIZE	COAX JUMPER LENGTH
ALPHA	0°	2	JMA MX06FRO860-03	121'	0°M/2°E (700) 0°M/2°E (850)	2 PROPOSED 180 LF±	1 PROPOSED 12-0VP	15'±	1	SAMSUNG B5/B13 RRH ORAN (RF4440d-13A)	2,4	1/2" ø	15'±
					0°M/0°E (PCS) 0°M/0°E (AWS)			15'±	1	SAMSUNG B2/B66a RRH ORAN (RF4439d-25A)	2,4	1/2" ø	15'±
BETA	120°	2	JMA MX06FRO860-03	121'	0°M/2°E (700) 0°M/2°E (850)			15'±	1	SAMSUNG B5/B13 RRH ORAN (RF4440d-13A)	2,4	1/2" ø	15'±
					0°M/0°E (PCS) 0°M/0°E (AWS)			15'±	1	SAMSUNG B2/B66a RRH ORAN (RF4439d-25A)	2,4	1/2" ø	15'±
GAMMA	240°	2	JMA MX06FRO860-03	121'	0°M/2°E (700) 0°M/2°E (850)			15'±	1	SAMSUNG B5/B13 RRH ORAN (RF4440d-13A)	2,4	1/2" ø	15'±
					0°M/0°E (PCS) 0°M/0°E (AWS)			15'±	1	SAMSUNG B2/B66a RRH ORAN (RF4439d-25A)	2,4	1/2" ø	15'±

BASED UPON RFDS DATED 12/28/22

L-SUB6/5G ANTENNA INFORMATION TABLE

SECTOR	PANEL ANTENNAS					FEEDER	SURGE SUPRESSOR	FROM SURGE SUPPRESSOR
	AZIMUTH	QTY.	MAKE & MODEL	RAD. CENTER (AGL)	DOWNTILT	6x12 HYBRID CABLE	QUANTITY	1x2 HYBRID CABLE LENGTH
ALPHA	0°	1	SAMSUNG MT6407-77A	121'	0°M/6°E	2 PROPOSED 180 LF± (SHARED)	1 PROPOSED 12-0VP (SHARED)	15'±
BETA	120°	1	SAMSUNG MT6407-77A	121'	0°M/6°E			15'±
GAMMA	240°	1	SAMSUNG MT6407-77A	121'	0°M/6°E			15'±

BASED UPON RFDS DATED 12/28/22

POST MODIFICATION INSPECTION (PMI) REQUIREMENTS:

A POST MODIFICATION INSPECTION (PMI) REPORT IS REQUIRED FOR THE NEW MOUNT AT THIS SITE, CONTRACTOR TO PROVIDE THE FOLLOWING INFORMATION, DOCUMENTS & PHOTOS TO CONFIRM THE MOUNT HAS BEEN COMPLETED PER THE MOUNT MANUFACTURER'S SPECIFICATIONS. ALL PHOTOS AND DOCUMENTS SHALL FOLLOW THE STANDARD VERIZON NAMING CONVENTIONS AND ORGANIZATION TREES.

PURPOSE – TO PROVIDE THE ENGINEER OF RECORD THE PROPER DOCUMENTATION IN ORDER TO COMPLETE THE REQUIRED MOUNT DESKTOP REVIEW OF THE POST MODIFICATION INSPECTION REPORT.

- CONTRACTOR IS RESPONSIBLE FOR MAKING CERTAIN THE PHOTOS PROVIDED AS NOTED BELOW PROVIDE CONFIRMATION THAT THE MODIFICATION/INSTALLATION WAS COMPLETED IN ACCORDANCE WITH THE MOUNT MANUFACTURER'S SPECIFICATIONS.
- CONTRACTOR SHALL RELAY ANY DATA THAT CAN IMPACT THE PERFORMANCE OF THE MOUNT OR THE MOUNT MODIFICATION, THIS INCLUDES SAFETY ISSUES.

BASE REQUIREMENTS:

- PROVIDE "AS BUILT DRAWINGS"SHOWING CONTRACTOR'S NAME, PREPARER'S SIGNATURE, AND DATE. ANY DEVIATIONS FROM THE DRAWINGS (PROPOSED MODIFICATION) MUST BE SHOWN.
- NOTATION THAT ALL HARDWARE WAS PROPERLY INSTALLED, AND THE EXISTING HARDWARE WAS INSPECTED FOR ANY ISSUES.
- VERIFICATION THAT LOADING IS AS COMMUNICATED IN THE DRAWINGS. NOTE: IF LOADING IS DIFFERENT THAN WHAT IS CONVEYED IN THE DRAWING CONTACT THE ENGINEER OF RECORD IMMEDIATELY.
- EACH PHOTO SHOULD BE DATED AND TIME STAMPED.
- PHOTOS SHOULD BE HIGH RESOLUTION AND SUBMITTED IN A .ZIP FILE AND SHOULD BE ORGANIZED IN THE FILE STRUCTURE AS DEPICTED IN THE VERIZON NETWORK STANDARDS PROCESS NSTD446.
- ANY SPECIAL PHOTOS OUTSIDE OF THE STANDARD REQUIREMENTS WILL BE INDICATED ON THE DRAWINGS.
- CONTRACTOR SHALL ENSURE THAT THE SAFETY CLIMB SYSTEM IS SUPPORTED AND NOT ADVERSELY IMPACTED BY THE INSTALLATION OF THE MOUNT. THIS MAY INVOLVE THE INSTALLATION OF WIRE GUIDES, OR OTHER ITEMS TO PROTECT THE SAFETY CLIMB.
- THE PHOTOS IN THE FILE STRUCTURE SHALL BE FORWARDED TO INFO@PROTERRA-DESIGN.COM

MATERIAL CERTIFICATION:

- MATERIALS UTILIZED MUST BE AS PER SPECIFICATION ON THE DRAWINGS OR THE EQUIVALENT AS VALIDATED BY THE ENGINEER OF RECORD.
- SUBMISSION OF SPECIFICATIONS, INVOICES CERTIFYING, AND/OR ENGINEER OF RECORD APPROVAL OF AN "EQUIVALENT" MUST BE SUBMITTED TO THE NOTED EMAIL BOX BY THE PMI CONTRACTOR
- THE CONTRACTOR MUST CERTIFY THAT THE MATERIALS MEET THESE SPECIFICATIONS BY ONE OF THE METHODS BELOW AND SHALL BE SUBMITTED TO THE NOTED EMAIL BOX BY THE PMI CONTRACTOR:

☐ THE MATERIAL UTILIZED WAS AS SPECIFIED ON THE CONSTRUCTION DRAWINGS.

☐ THE MATERIAL UTILIZED WAS AN "EQUIVALENT" AND INCLUDED AS PART OF THE PMI ARE THE CERTIFICATIONS FROM THE ENGINEER OF RECORD, INVOICES, AND/OR SPECIFICATIONS VALIDATING ACCEPTED STATUS.

CERTIFYING INDIVIDUAL: COMPANY _____

NAME _____

SIGNATURE _____

A PASSING STRUCTURAL ANALYSIS HAS BEEN PERFORMED BY DELTA OAKS GROUP DATED MARCH 9, 2023

A PASSING MOUNT STRUCTURAL ANALYSIS HAS BEEN PERFORMED BY PROTERRA DESIGN GROUP, LLC WITH EFI GLOBAL, INC. DATED MARCH 9, 2023

PROPOSED TOWER VERIZON RF EQUIPMENT AND ANTENNA MOUNT SHALL BE PAINTED TO MATCH THE EXISTING MONOPOLE. CONFIRM COLOR WITH TOWER OWNER PRIOR TO CONSTRUCTION: SHERWIN WILLIAMS "WHITE SMOKE"

FILM OR PAINT NOTE: ALL PROPOSED EQUIPMENT AND MOUNTING HARDWARE SHALL BE COLORED TO MATCH EXISTING TOWER PER VERIZON APPROVALS. EQUIPMENT COLOR MATCHING SHALL UTILIZE 3M™ FILMS SUPPLIED BY CONCEALFAB TO THE OEM mmWAVE ANTENNA UNITS PER VZW NETWORK STANDARD ME-RFS-ST-0002. PANEL ANTENNAS & PIPE MOUNTS SHALL BE PAINTED TO MATCH EXISTING TOWER. CONTRACTOR TO CONFIRM PAINT PRODUCT RF COMPATIBILITY PRIOR TO APPLYING TO EQUIPMENT.

PHOTO REQUIREMENTS:

BASE AND "DURING INSTALLATION PHOTOS":

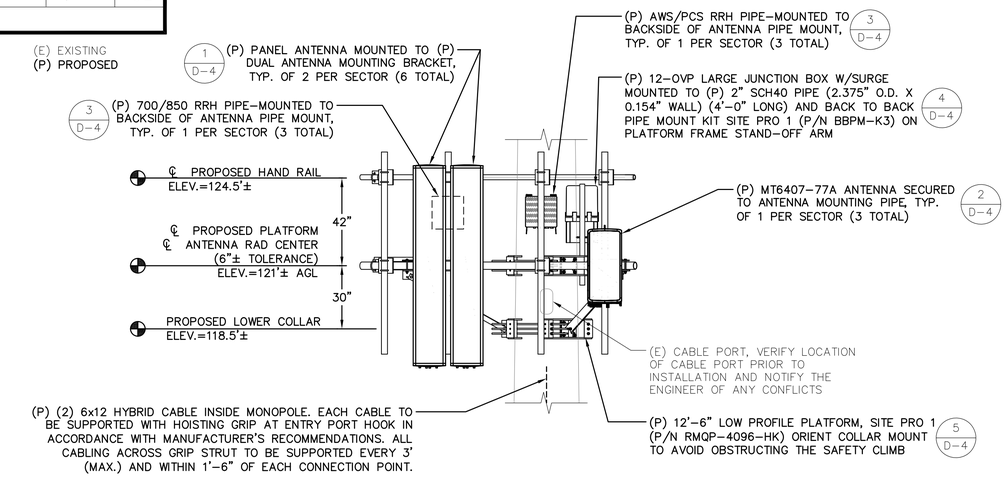
- BASE PICTURES INCLUDE
  - PHOTO OF GATE SIGNS SHOWING THE TOWER OWNER, SITE NAME, AND NUMBER
  - PHOTO OF CARRIER SHELTER SHOWING THE CARRIER SITE NAME AND NUMBER IF AVAILABLE
  - PHOTOS OF THE GALVANIZING COMPOUND AND/OR PAINT USED (IF APPLICABLE), CLEARLY SHOWING THE LABEL AND NAME
  - "DURING INSTALLATION PHOTOS IF PROVIDED – MUST BE PLACED ONLY IN THIS FOLDER

PHOTOS TAKEN AT GROUND LEVEL:

- OVERALL TOWER STRUCTURE BEFORE AND AFTER INSTALLATION OF THE MOUNT
- PHOTOS OF THE APPROPRIATE MOUNT BEFORE AND AFTER INSTALLATION; IF THE MOUNTS ARE AT DIFFERENT RAD ELEVATIONS, PICTURES MUST BE PROVIDED FOR ALL ELEVATIONS THAT THE MODIFICATIONS WERE INSTALLED

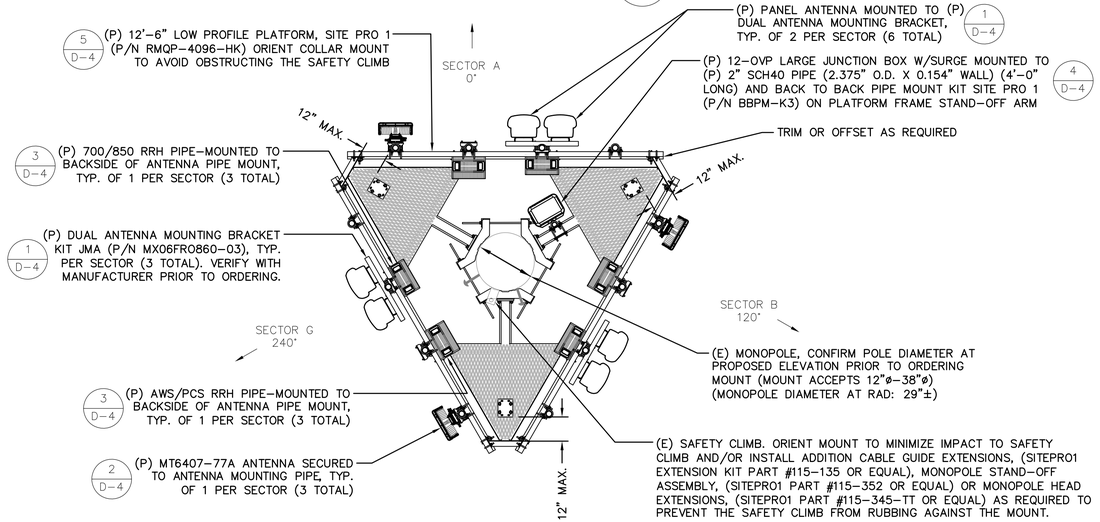
PHOTOS TAKEN AT MOUNT ELEVATION

- PHOTOS SHOWING EACH INDIVIDUAL SECTOR BEFORE AND ALSO AFTER INSTALLATION. EACH ENTIRE SECTOR MUST BE IN ONE PHOTO TO SHOW IN THE INTER-CONNECTION OF MEMBERS.
- CLOSE-UP PHOTOS OF EACH INSTALLED MOUNT COMPONENT PER THE MANUFACTURER'S INSTALLATION DRAWINGS; PICTURES SHOULD ALSO INCLUDE CONNECTION HARDWARE (U-BOLTS, BOLTS, NUTS, ALL-THREADED RODS, ETC.)
- PHOTOS SHOWING THE MEASUREMENTS OF THE INSTALLED MODIFICATION MEMBER SIZES (I.E. LENGTHS, WIDTHS, DEPTHS, DIAMETERS, THICKNESSES)
- PHOTOS SHOWING THE ELEVATION OR DISTANCES OF THE INSTALLED COMPONENTS FROM THE APPROPRIATE REFERENCE LOCATIONS SHOWN IN THE MANUFACTURER'S INSTALLATION DRAWINGS AND/OR THE CONSTRUCTION DRAWINGS SUCH AS:
  - PHOTOS SHOWING THE DISTANCE BETWEEN RING MOUNTS FOR EACH LEVEL;
  - THE SPACING BETWEEN MOUNTING RAILS;
  - LOCATION OF TIE-BACKS ON SECTOR FRAMES INCLUDING SPACING FROM THE KNUCKLE AT THE STANDOFF ARM;
  - SPACING BETWEEN ANTENNAS ON THE FACE;
  - LOCATION OF RAD CENTER IN RELATION TO UPPER AND LOWER CROSS BARS;
  - PHOTOS OF OTHER CRITICAL DIMENSIONS DEPICTED IN THE CONSTRUCTION DRAWINGS MAY BE REQUIRED, (I.E. DISTANCE FROM KICKER BRACE BRACKET TO END OF EQUIPMENT PLATFORM SPADE)
- PHOTOS SHOWING THE INSTALLED COMPONENTS ONTO THE TOWER WITH TAPE DROP MEASUREMENTS (IF APPLICABLE) (I.E. RING/COLLAR MOUNTS, TIE-BACKS, V-BRACING KITS, ETC.); IF THE EXISTING MOUNT ELEVATION NEEDS TO BE CHANGED ACCORDING TO THE CONSTRUCTION DRAWINGS, A TAPE DROP MEASUREMENT SHALL BE PROVIDED BEFORE THE ELEVATION CHANGE
- PHOTOS SHOWING THE SAFETY CLIMB WIRE ROPE ABOVE AND BELOW THE MOUNT PRIOR TO MODIFICATION.
- PHOTOS SHOWING THE SAFETY CLIMB WIRE ROPE ABOVE AND BELOW THE MOUNT POST MODIFICATION.



RF EQUIPMENT ELEVATION 1 D-3

SCALE: 1"=3'



ANTENNA PLAN 2 D-3

SCALE: 1"=3' (22x34)
1"=6" (11x17)

N

3 1.5 0 3 6

ProTerra DESIGN GROUP, LLC
4 Bay Road
Building A; Suite 200
Hadley, MA 01035
Ph:(413) 320-4918

CONSULTANTS:

NO.	DATE	REVISIONS
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TITLE:

KENT 2 CT
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ADDRESS: 93 RICHARDS ROAD
KENT, CT 06785

APPLICANT:

BELL ATLANTIC MOBILE SYSTEMS, LLC
dba VERIZON WIRELESS
20 ALEXANDER DRIVE,
SECOND FLOOR
WALLINGFORD, CT 06492

verizon

STAMP:

DATE: 03/27/23
DRAWN: TBD/PN
CHECK: JMM/TEJ
SCALE: SEE PLAN
JOB NO.: 13-030

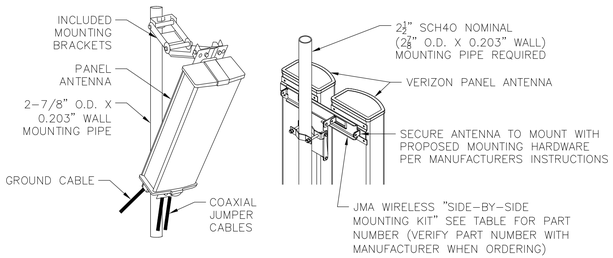
SHEET TITLE:

DETAILS

D-3

PROPOSED TOWER VERIZON RF EQUIPMENT AND ANTENNA MOUNT SHALL BE PAINTED TO MATCH THE EXISTING MONOPOLE. CONFIRM COLOR WITH TOWER OWNER PRIOR TO CONSTRUCTION: SHERWIN WILLIAMS "WHITE SMOKE"

FILM OR PAINT NOTE: ALL PROPOSED EQUIPMENT AND MOUNTING HARDWARE SHALL BE COLORED TO MATCH EXISTING TOWER PER VERIZON APPROVALS. EQUIPMENT COLOR MATCHING SHALL UTILIZE 3M™ FILMS SUPPLIED BY CONCEALFAB TO THE OEM mmWAVE ANTENNA UNITS PER VZW NETWORK STANDARD ME-RFS-ST-0002. PANEL ANTENNAS & PIPE MOUNTS SHALL BE PAINTED TO MATCH EXISTING TOWER. CONTRACTOR TO CONFIRM PAINT PRODUCT RF COMPATIBILITY PRIOR TO APPLYING TO EQUIPMENT.

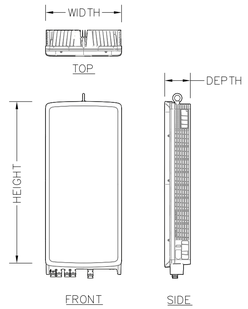


MODEL	HEIGHT	WIDTH	DEPTH	WEIGHT	MOUNT BRACKET
JMA MX06FRO860-03	95.9"	15.4"	10.7"	65±lbs.	JMA 91900318 (TOP & BOTTOM BRACKETS) & 91900319 (CENTER BRACKET)

TYPICAL PANEL ANTENNA DETAIL

SCALE: NONE

1 / D-4

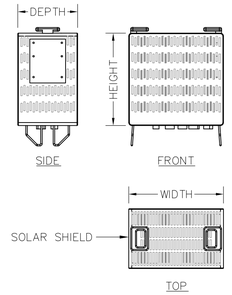


MODEL	HEIGHT	WIDTH	DEPTH	WEIGHT
MT6407-77A - ANTENNA	35.1"±	16.1"±	5.6"±	87.1±lbs.

MT6407-77A ANTENNA DETAIL

SCALE: NONE

2 / D-4

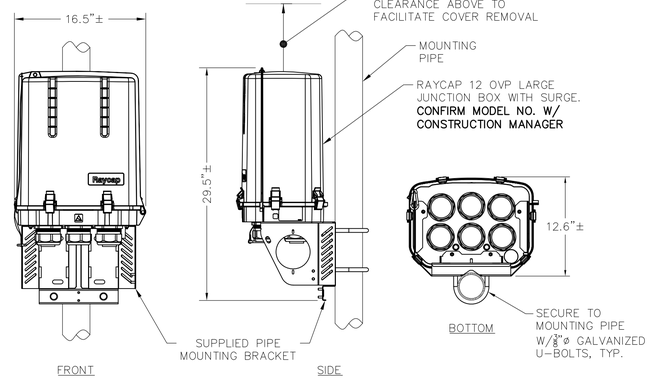


MODEL	HEIGHT	WIDTH	DEPTH	WEIGHT
SAMSUNG B5/B13 RRH ORAN (RF4440d-13A)	14.96"	14.96"	9.05"	70±lbs.
SAMSUNG B2/B66a RRH ORAN (RF4439d-25A)	14.96"	14.96"	10.04"	75±lbs.

(P) RRH DETAIL

SCALE: NONE

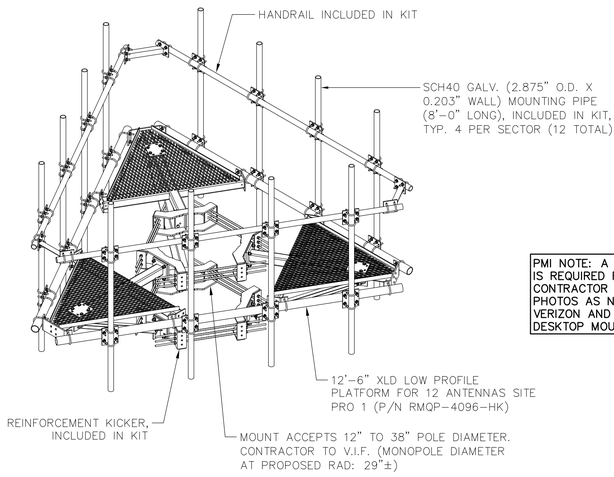
3 / D-4



LARGE JUNCTION BOX WITH SURGE PIPE MOUNTING DETAIL

SCALE: NONE

4 / D-4



PMI NOTE: A POST MODIFICATION INSPECTION (PMI) REPORT IS REQUIRED FOR THE MOUNT MODIFICATIONS AT THIS SITE. CONTRACTOR TO PROVIDE THE INFORMATION, DOCUMENTS & PHOTOS AS NOTED IN THE PMI NOTES ON SHEET D-3 TO VERIZON AND TO THE ENGINEER OF RECORD FOR THE DESKTOP MOUNT MODIFICATION INSPECTION REVIEW.

SECTOR FRAME DETAIL

SCALE: NONE

5 / D-4

ProTerra DESIGN GROUP, LLC
4 Bay Road
Building A; Suite 200
Hadley, MA 01035
Ph: (413) 320-4918

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0	03/10/23	ISSUED FOR CONSTRUCTION
1	03/27/23	ISSUED FOR CONSTRUCTION

TITLE:

KENT 2 CT
LOCATION CODE: 782596
ADDRESS: 93 RICHARDS ROAD
KENT, CT 06785

APPLICANT:

BELL ATLANTIC MOBILE SYSTEMS, LLC
d/b/a VERIZON WIRELESS
20 ALEXANDER DRIVE, SECOND FLOOR
WALLINGFORD, CT 06492

verizon

STAMP:

DATE: 03/27/23
DRAWN: TBD/PN
CHECK: JMM/TEJ
SCALE: SEE PLAN
JOB NO.: 13-030
SHEET TITLE:

DETAILS

D-4

VERIFY ALL CONDUCTOR AND CONDUIT SIZES WITH FINAL EQUIPMENT

MAKE ALL CONNECTIONS AS PER UTILITY COMPANY'S REQUIREMENTS

UTILITY DESIGN PENDING SITE WALK WITH CONSTRUCTION MANAGER & UTILITY PURVEYOR. CONTRACTOR TO VERIFY PRIOR TO INSTALLATION.

VERIZON WIRELESS ELECTRICAL UTILITY BILLING ADDRESS:

VERIZON WIRELESS
P.O. BOX 2375
SPOKANE, WA 99210-2375

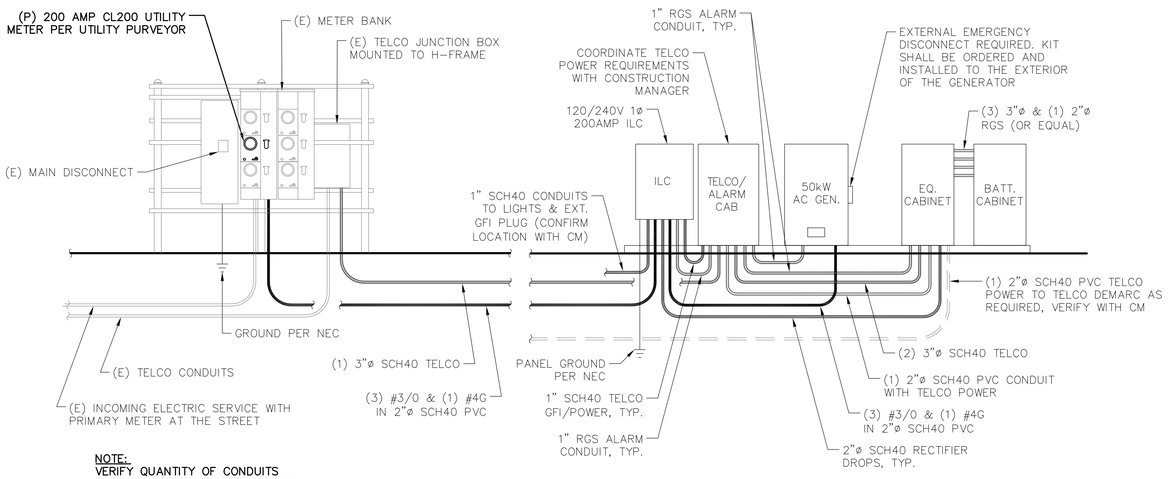
VERIFY WITH CONSTRUCTION MANAGER WHETHER BELOW GRADE OR AT GRADE CONDUIT ROUTING. PAINT ALL CONDUIT ON PAD SURFACE YELLOW

CONTRACTOR SHALL VERIFY WITH CONSTRUCTION MANAGER ON TYPE OF ILC TO BE PROVIDED

LEGEND
- DC POWER
- ALARM
- TELCO
- AC BRANCH
- AC FEED/SUPPLY

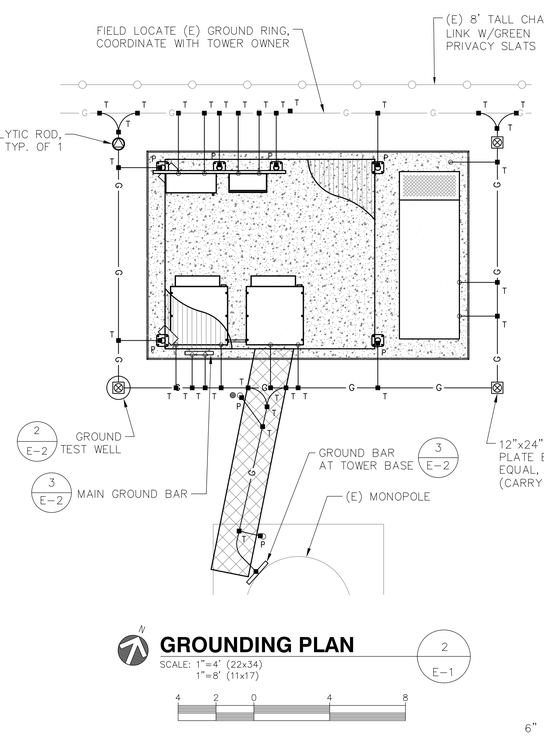
GENERATOR NOTE:
VERIFY REQUIREMENTS FOR ALARM, CONTROL, GROUND AND BATTERY HEATER REQUIREMENTS W/MANUFACTURER & CM

NOTE:
ALL CONDUIT BETWEEN BATTERY AND EQUIPMENT CABINETS SHALL BE SEALED WITH POLYWATER FST DUCT SEALANT OR EQUIVALENT



NOTE:
VERIFY QUANTITY OF CONDUITS AND CONFIGURATION WITH VERIZON CONSTRUCTION MANAGER AND EQUIPMENT MANUFACTURER.

POWER RISER SCHEMATIC
SCALE: NONE — 1 / E-1

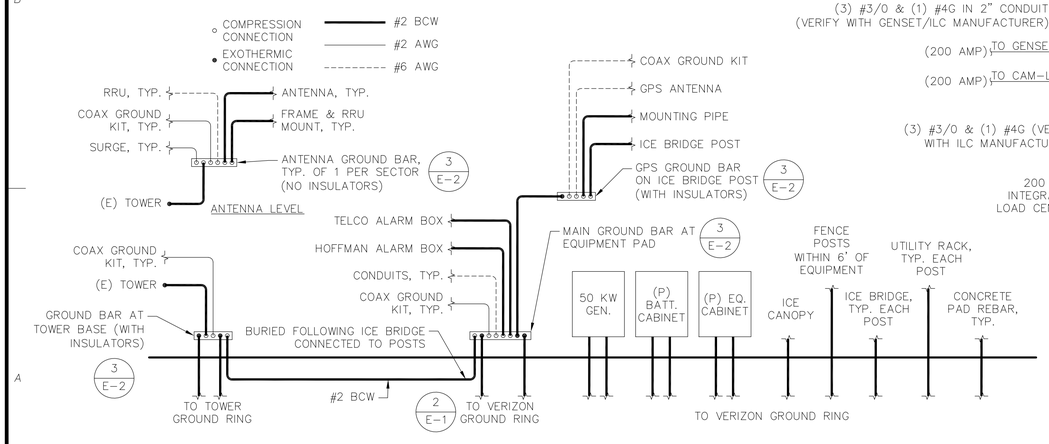


GROUNDING PLAN
SCALE: 1"=4' (22x34) 1"=8' (11x17) — 2 / E-1

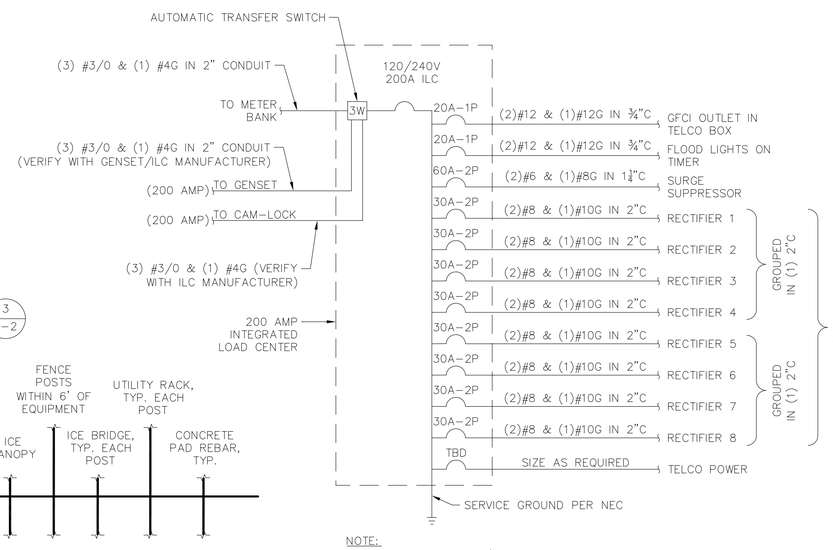
4 2 0 4 8

NOTES:
1. SITE GROUNDING SYSTEM IS A BASIC DESIGN. THE ACTUAL RESISTANCE TO GROUND CANNOT BE CONFIRMED WITHOUT A FIELD TEST. CONTRACTOR TO INSTALL AND PROVIDE DOCUMENTATION AT CLOSEOUT.
2. CONNECT TO (E) GROUND RINGS WITH TWO CONNECTIONS WHEREVER ENCOUNTERED. LOCATION OF (E) GROUND RINGS SHOWN HEREON ARE ESTIMATED.
3. GEOTECH NOTED SHALLOW TO LEDGE SOILS WITHIN 3' OF GRADE.

LEGEND
- ELECTROLYTIC GROUND ELECTRODE, CARRY 1 IN BID
- 12"x24"x1/16"x2T COPPER GROUND PLATE
- T — EXOTHERMIC WELD #2 BCW TO #2 BCW CONDUCTOR PARALLEL
- P — EXOTHERMIC WELD TO #2 BCW CONDUCTOR TO VERTICAL PIPE
- MECHANICAL GROUND CONNECTION
- G — #2 BCW CONDUCTOR WITH 2"x4" BED OF SOIL ENHANCEMENT OR #2/0 STRANDED TINNER

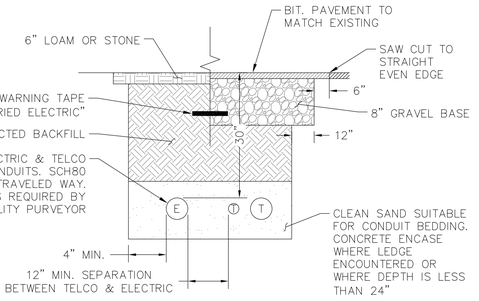


GROUNDING RISER DIAGRAM
SCALE: NONE — 3 / E-1



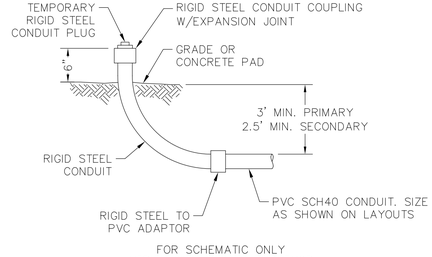
NOTE:
VERIFY ALL FEEDERS W/EQUIPMENT SUPPLIER AND NEC.

ELECTRICAL ONE-LINE SCHEMATIC
SCALE: NONE — 4 / E-1



FOR SCHEMATIC ONLY
VERIFY WITH UTILITY PURVEYOR

SECONDARY POWER/TELCO BURIED CONDUIT SECTION
SCALE: NONE — 5 / E-1



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STUB-UP CONDUIT
SCALE: NONE — 6 / E-1

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BELL ATLANTIC MOBILE SYSTEMS, LLC
dba VERIZON WIRELESS
20 ALEXANDER DRIVE, SECOND FLOOR
WALLINGFORD, CT 06492

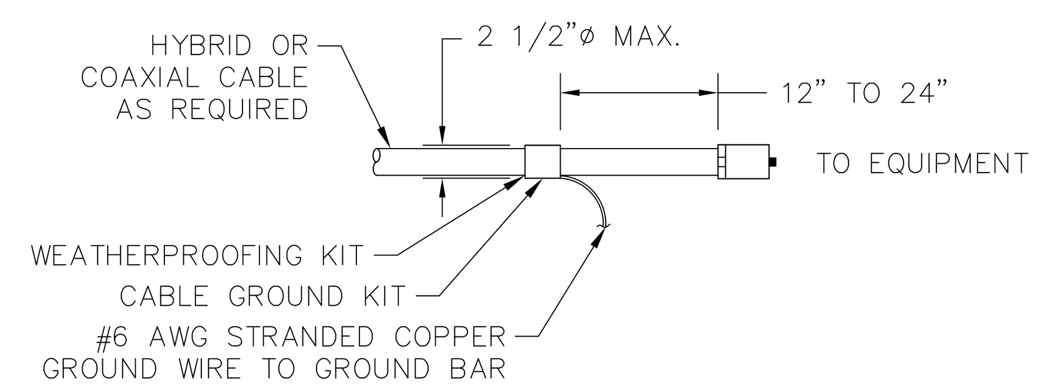
verizon

STAMP:
STATE OF CONNECTICUT — STEPHEN M. MORENCY — No. 24964 — LICENSED PROFESSIONAL ENGINEER — 3-27-2023
FOR SCHEMATIC ONLY

DATE:	03/27/23
DRAWN:	TBD/PN
CHECK:	JMM/TEJ
SCALE:	SEE PLAN
JOB NO.:	13-030

SHEET TITLE:
ELECTRICAL & GROUNDING DETAILS

E-1

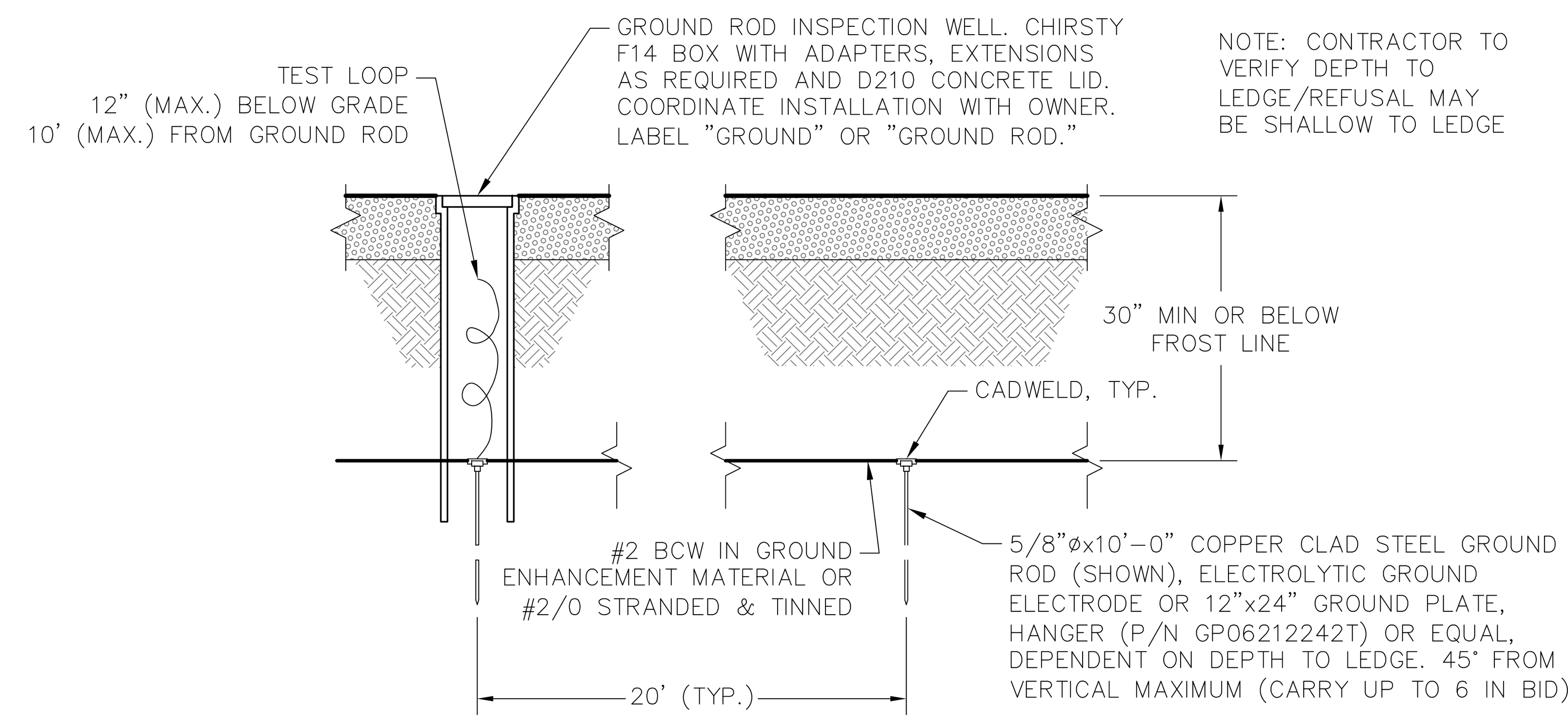


1. GROUND CABLES AT EACH END, ON ANTENNA SIDE OF BUILDING PENETRATIONS, AND ON ANTENNA SIDE OF VERTICAL BENDS.
2. DO NOT INSTALL CABLE GROUND KIT AT A BEND
3. DIRECT GROUND WIRE DOWNWARD TOWARDS GROUND BAR
4. GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER
5. WEATHERPROOFING SHALL BE AS SUPPLIED WITH KIT. COLD SHRINK SHALL NOT BE USED.

CABLE GROUND KIT

SCALE: NONE

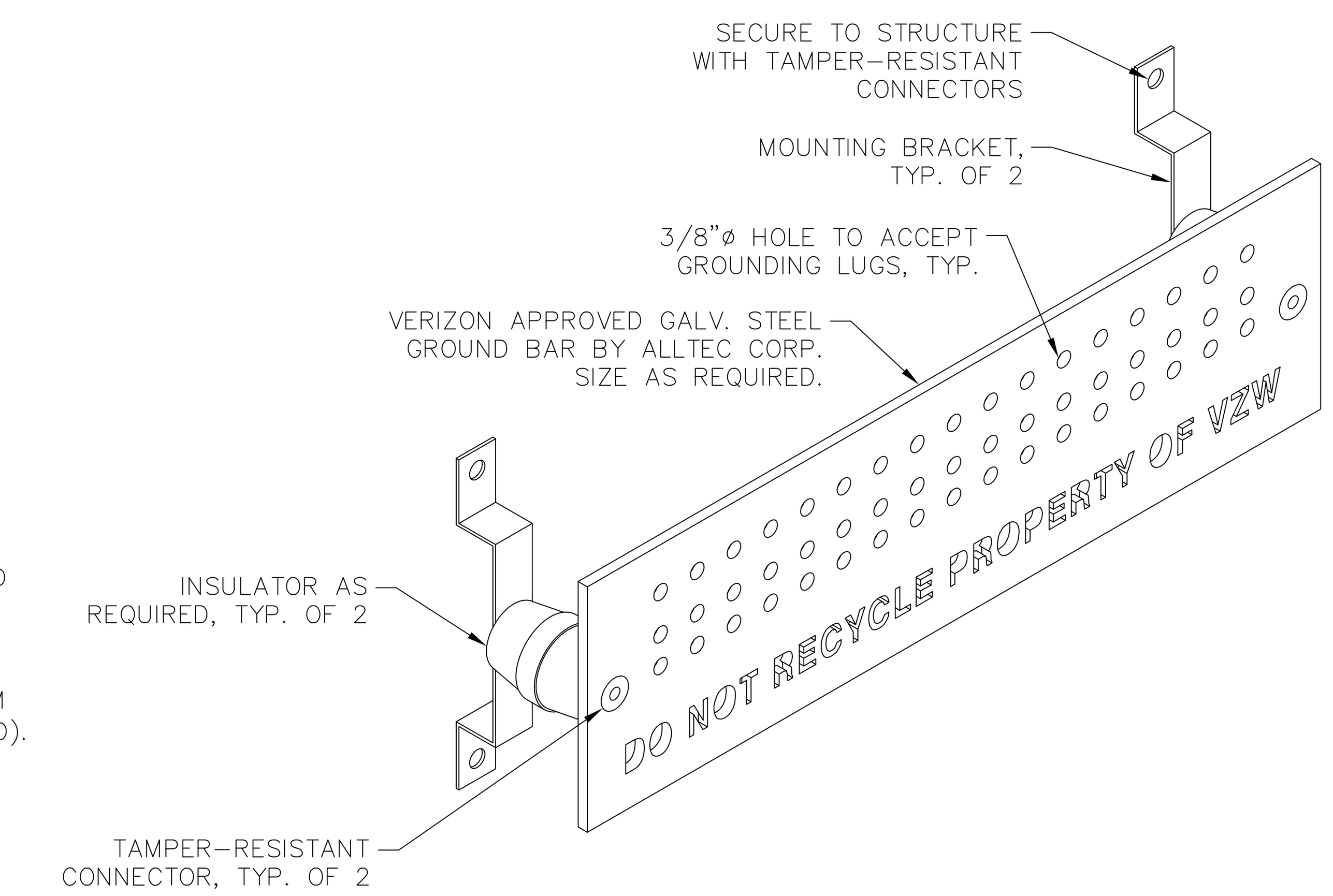
1 / E-2



GROUND ROD WELL

SCALE: NONE

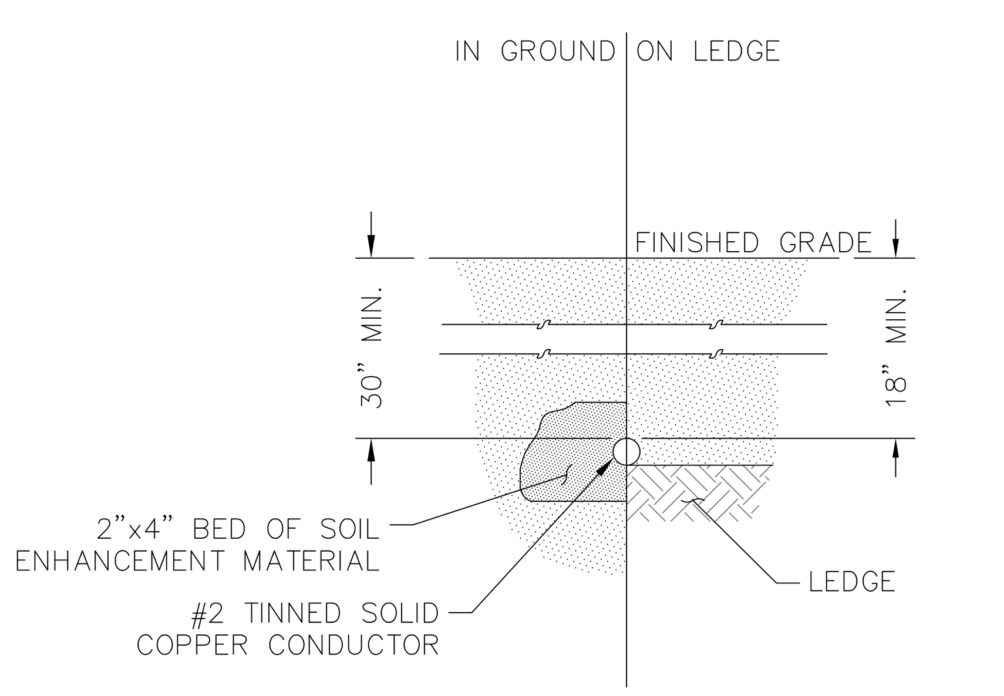
2 / E-2



GROUND BAR DETAIL

SCALE: NONE

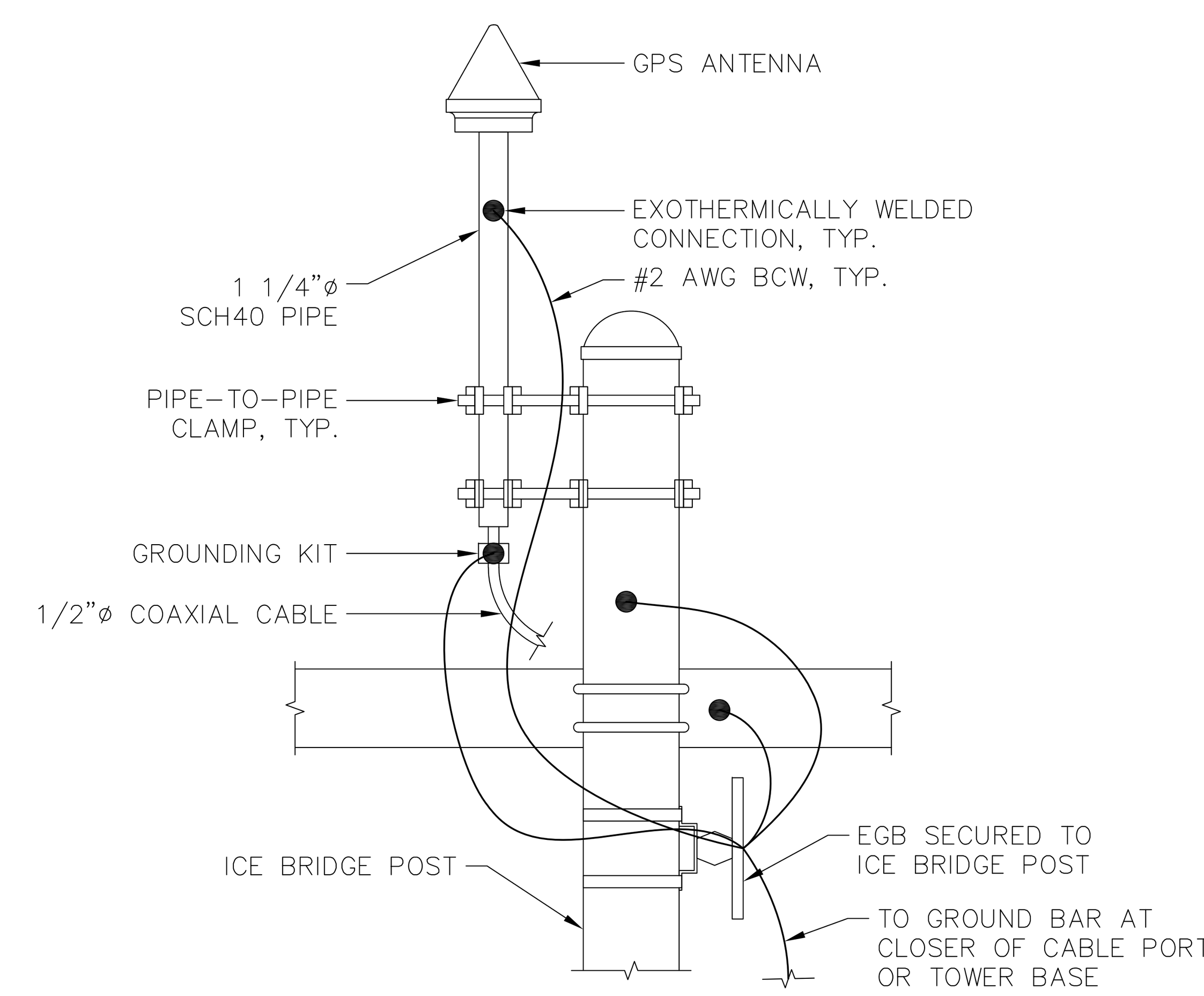
3 / E-2



SOIL ENHANCEMENT

SCALE: NONE

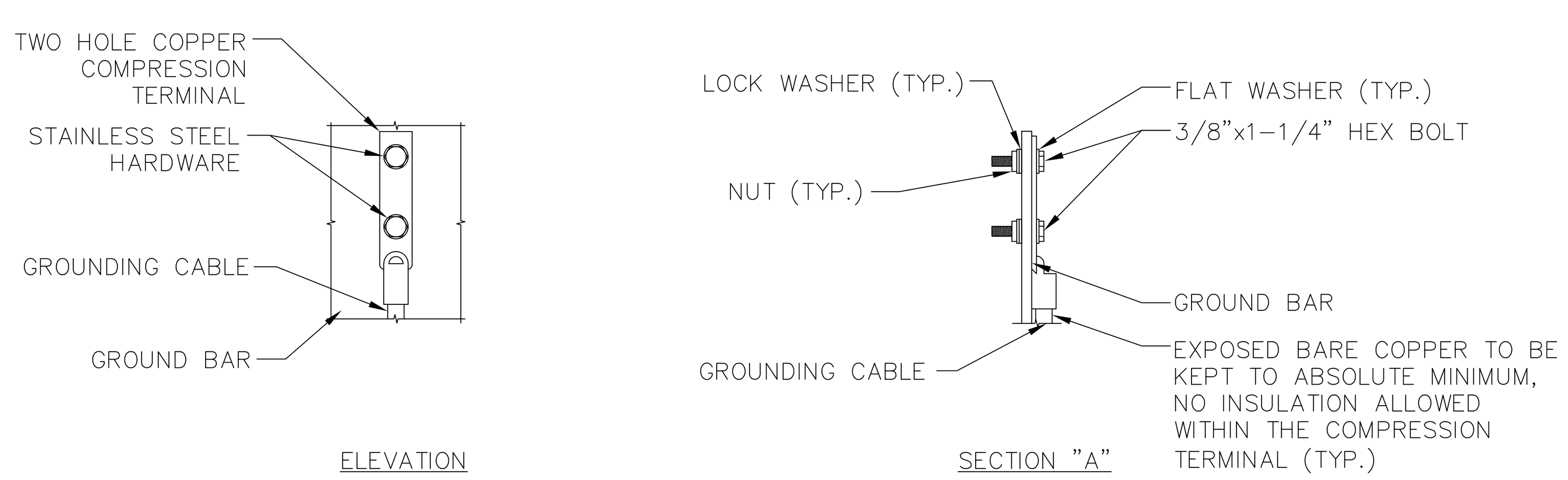
4 / E-2



GPS ANTENNA GROUNDING

SCALE: NONE

5 / E-2

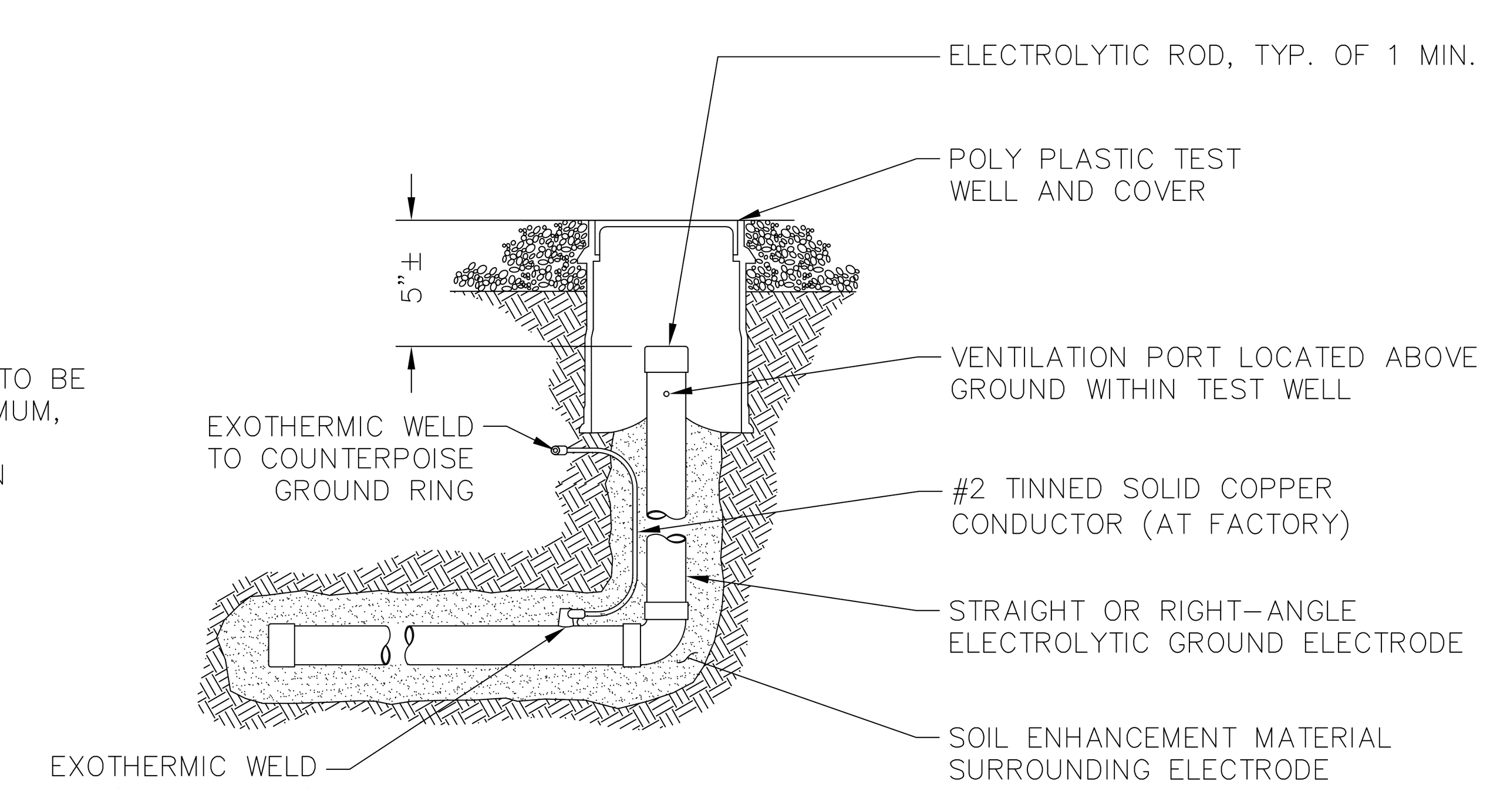


1. "DOUBLING UP" OR "STACKING " OF CONNECTION IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
3. CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB, AND MGB.

GROUND BAR CONNECTION

SCALE: NONE

6 / E-2



ELECTROLYTIC GROUND ELECTRODE

SCALE: NONE

7 / E-2

GROUNDING NOTES

GENERAL
1. GROUNDING SHALL COMPLY WITH ARTICLE (250) OF THE NATIONAL ELECTRIC CODE, EIA/TIA 222 & MOTOROLA R-56 AS REQUIRED.
2. ALL GROUNDING DEVICES SHALL BE U.L. APPROVED OR LISTED FOR THEIR INTENDED USE.
3. THE CONTRACTOR SHALL SECURE A COPY OF ANY SOIL RESISTIVITY AND/OR SITE RESISTANCE TO EARTH TESTING PREVIOUSLY PERFORMED. IF NO RECORDS EXIST THAN A FIELD SOIL RESISTIVITY TEST SHALL BE PERFORMED TO ASSURE 10 OHMS OR LESS IN ACCORDANCE WITH CARRIER SPECIFICATIONS.

GROUND RODS
1. RODS SHALL BE 5/8" DIAMETER, 10' LONG COPPER CLAD STEEL OR SOLID COPPER
2. SHALL BE BURIED 30" (MIN.) OR BELOW PERMANENT MOISTURE LEVEL PENETRATING BELOW FROST LINE
3. RODS SEPARATED 20' (MIN.) TO OTHER GROUND RODS OR ELECTRODES
4. SEPARATION BETWEEN GROUND RODS IN SAME GROUNDING SYSTEM SHALL BE GREATER THAN SUM OF RESPECTIVE LENGTHS
5. GROUND RODS SHALL NOT BE SHORTENED BY CUTTING OR DEFORMED BY DRIVING MACHINERY
6. WHERE CONDITIONS REQUIRE, RODS MAY BE DRIVEN AT ANGLES UP TO 45 DEGREES OR HORIZONTAL ORIENTED PERPENDICULAR TO GROUND RING

ELECTROLYTIC GROUND RODS
1. WHERE CONDITIONS REQUIRE, ELECTROLYTIC GROUND RODS MAY BE USED. INSTALL PER MANUFACTURER'S SPECIFICATIONS
2. L-SHAPED ELECTROLYTIC RODS SHALL BE INSTALLED PERPENDICULAR TO GROUND RING
3. BACKFILL WITH GROUNDING ENCASEMENT MATERIALS

GROUND PLATES
1. ONLY TO BE USED WHERE CONDITIONS PROHIBIT USE OF GROUND RODS
2. 1/16" (MIN.) THICKNESS WITH 2 SQUARE FEET (MIN.) AREA UNPAINTED COPPER CLAD STEEL OR SOLID COPPER
3. TOP EDGE BURIED 30" (MIN.) OR BELOW PERMANENT MOISTURE LEVEL
4. PLATES SHALL BE INSTALLED VERTICALLY
5. BACKFILL WITH GROUNDING ENCASEMENT MATERIALS 6" MINIMUM ON ALL SIDES

RADIAL GROUNDING CONDUCTORS
1. #2/0 AWG TINNED STRANDED COPPER OR #2 BCW IN GROUND ENHANCEMENT MATERIAL
2. CONDUCTORS SHALL RADIATE FROM TOWER CENTER
3. SHALL BE BONDED TO GROUND RING AND DIRECTLY TO TOWER
4. WHERE NOT POSSIBLE TO BOND DIRECTLY TO TOWER, ADDITIONAL #2/0 CONDUCTORS SHALL BE BONDED TO RING
5. BURIED 30" WHERE POSSIBLE, 18" (MIN.)
6. EACH RADIAL CONDUCTOR SHALL BE 25' (MIN.), 80' (MAX.) IN LENGTH
7. WHERE MULTIPLE RADIALS ARE USED, VARY CONDUCTOR LENGTHS

GROUNDING ENCASEMENT MATERIALS
1. PRE-PACKAGED MATERIALS SHALL BE USED
2. ACCEPTABLE MATERIALS: BENTONITE, BENTONITE CONTAINING MATERIALS, CARBON, CONDUCTIVE CONCRETE, CEMENT WITH GRADED GRANULAR CARBONACEOUS AGGREGATE IN PLACE OF SAND OR GRAVEL

CONDUCTORS
1. #2 SOLID TINNED (BCW) IN GROUND ENHANCEMENT MATERIAL OR #2/0 STRANDED TINNED WHERE BELOW GROUND OR PARTIALLY BELOW GROUND
2. #2 OR #6 AWG TINNED SOLID OR STRANDED COPPER WHERE ABOVE GROUND AS NOTED
3. SPLICES SHALL BE EXOTHERMALLY WELDED
4. 8" (MIN.) BENDING RADIUS FOR #2 OR SMALLER. 90 DEGREES (MIN.) BEND. ALL BENDS TOWARDS GROUND LOCATION.
5. #2/0 AWG MIN. STRANDED FOR USE ON BUILDING

CONNECTORS
1. GROUNDING CONNECTIONS SHALL BE EXOTHERMIC UNLESS OTHERWISE NOTED.
2. EXOTHERMIC WELDS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
3. PRIOR TO INSTALLING LUGS ON GROUND WIRES, APPLY THOMAS & BETTS KOPR-SHIELD OR EQUAL.
4. PREPARE ALL BONDING SURFACES FOR GROUNDING CONNECTIONS BY REMOVING ALL PAINT AND CORROSION DOWN TO SHINY METAL
5. FOLLOWING CONNECTION, APPLY APPROPRIATE CONDUCTIVE ANTI-OXIDIZING PAINT.
6. MECHANICAL CONNECTIONS SHALL BE 3 CRIMP STYLE COMPRESSION FIT CRIMPED WITH HYDRAULIC CRIMPING TOOLS OR EQUAL. NO SLIP BOLTS ARE ACCEPTABLE.

ProTerra DESIGN GROUP, LLC
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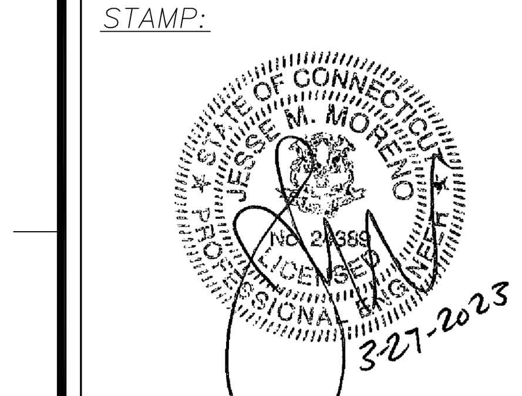

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ELECTRICAL & GROUNDING DETAILS

E-2

ATTACHMENT 4

MX06FRO860-03

NWAV™ X-Pol Hex-Port Antenna

X-Pol Hex-Port 8 ft 60° Fast Roll Off antenna with independent tilt on 700 & 850 MHz:

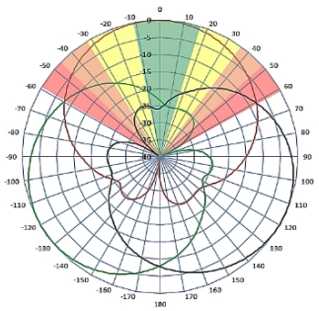
2 ports 698-798, 824-894 MHz and 4 ports 1695-2180 MHz

- Fast Roll Off (FRO™) azimuth beam pattern improves Intra- and Inter-cell SINR
- Compatible with dual band 700/850 MHz radios with independent low band EDT without external diplexers
- Fully integrated (iRETs) with independent RET control for low and high bands for ease of network optimization
- SON-Ready array spacing supports beamforming capabilities
- Suitable for LTE/CDMA/PCS/UMTS/GSM air interface technologies
- Integrated Smart Bias-Ts reduce leasing costs

Fast Roll-Off antennas increase data throughput without compromising coverage

The horizontal beam produced by Fast Roll-Off (FRO) technology increases the Signal to Interference & Noise Ratio (SINR) by eliminating overlap between sectors .

Non-FRO antenna



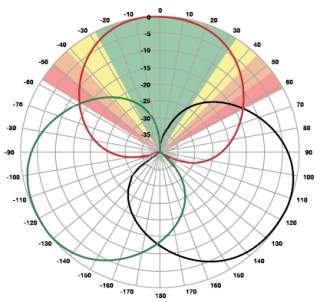
Large traditional antenna pattern overlap creates harmful interference.

JMA's FRO antenna pattern minimizes overlap, thereby minimizing interference.

LTE throughput	SINR	Speed (bps/Hz)	Speed increase	CQI
Excellent	>18	>4.5	333+%	8-10
Good	15-18	3.3-4.5	277%	6-7
Fair	10-15	2-3.3	160%	4-6
Poor	<10	<2	0%	1-3

The LTE radio automatically selects the best throughput based on measured SINR.

JMA FRO antenna



Electrical specification (minimum/maximum)	Ports 1, 2		Ports 3, 4, 5, 6		
Frequency bands, MHz	698-798	824-894	1695-1880	1850-1990	1920-2180
Polarization	± 45°		± 45°		
Average gain over all tilts, dBi	15.3	14.5	17.6	17.9	18.2
Horizontal beamwidth (HBW), degrees	60.0	53.5	55.0	55.0	55.5
Front-to-back ratio, co-polar power @180°± 30°, dB	>22.0	>21.0	>25.0	>25.0	>25.0
X-Pol discrimination (CPR) at boresight, dB	>18.0	>15.0	>18	>18	>15
Sector power ratio, percent	<4.5	<3.5	<3.7	<3.8	<3.6
Vertical beamwidth (VBW), degrees[1]	9.0	8.3	6.0	5.5	5.5
Electrical downtilt (EDT) range, degrees	2-12	2-12	0-9		
First upper side lobe (USLS) suppression, dB[1]	≤-15.0	≤-15.0	≤-16.0	≤-16.0	≤-16.0
Cross-polar isolation, port-to-port, dB[1]	25	25	25	25	25
Max VSWR / return loss, dB	1.5:1 / -14.0		1.5:1 / -14.0		
Max passive intermodulation (PIM), 2x20W carrier, dBc	-153		-153		
Max input power per any port, watts	300		250		
Total composite power all ports, watts	1500				

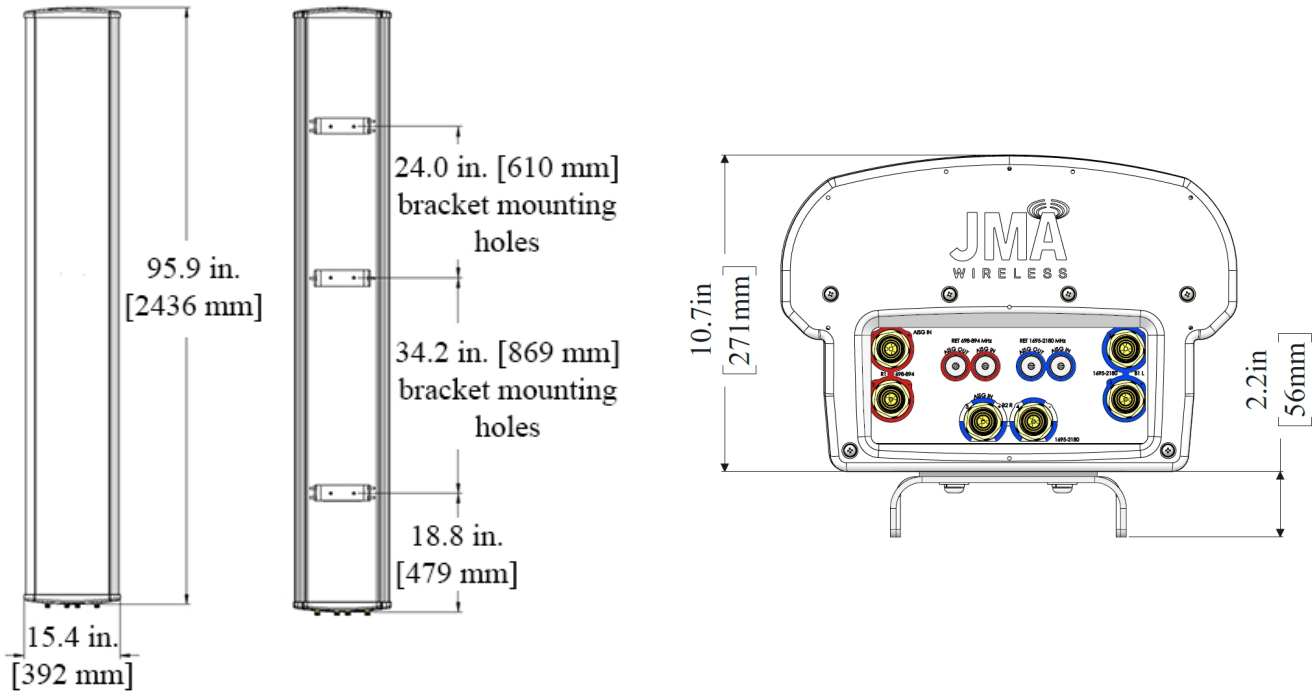
[1] Typical value over frequency and tilt

MX06FRO860-03

NWAV™ X-Pol Hex-Port Antenna

Mechanical specifications	
Dimensions height/width/depth, inches (mm)	95.9/ 15.4/ 10.7 (2436/ 392/ 273)
Shipping dimensions length/width/height, inches (mm)	106/ 20/ 15 (2692/ 508/ 381)
No. of RF input ports, connector type, and location	6 x 4.3-10 female, bottom
RF connector torque	96 lbf·in (10.85 N·m or 8 lbf·ft)
Net antenna weight, lb (kg)	65 (29.5)
Shipping weight, lb (kg)	95 (43.1)
Antenna mounting and downtilt kit included with antenna	91900318, 91900319 (middle bracket)
Net weight of the mounting and downtilt kit, lb (kg)	26 (11.82)
Range of mechanical up/down tilt	-2° to 12°
Rated wind survival speed, mph (km/h)	150 (241)
Frontal and lateral wind loading @ 150 km/h, lbf (N)	141.4 (629.0), 105.8 (470.6)
Equivalent flat plate @ 100 mph and Cd=2, sq ft	3.46
EPA frontal and lateral, ft^2, (m^2)	6.4 (0.59), 3.2 (0.30)

Front view **Back view** **Bottom view**



Ordering information	
Antenna model	**Description**
MX06FRO860-03	8F X-Pol HEX FRO 60° independent tilt 700/850 RET, 4.3-10 & SBT
Optional accessories	
AISG cables	M/F cables for AISG connections
PCU-1000 RET controller	Stand-alone controller for RET control and configurations

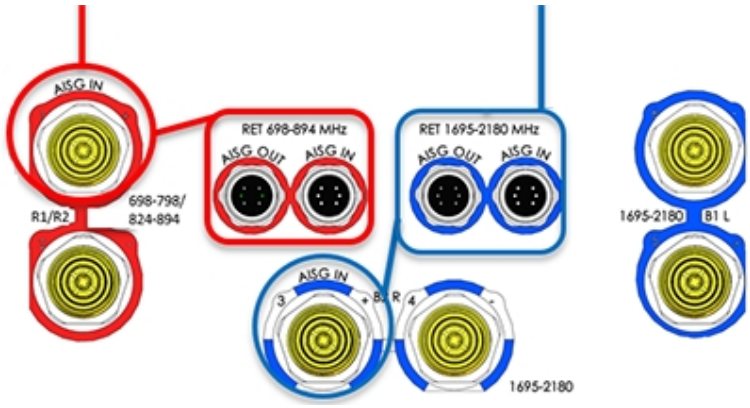
Remote electrical tilt (RET 1000) information	
RET location	Integrated into antenna
RET interface connector type	8-pin AISG connector per IEC 60130-9
RET connector torque	Min 0.5 N·m to max 1.0 N·m (hand pressure & finger tight)
RET interface connector quantity	2 pairs of AISG male/female connectors
RET interface connector location	Bottom of the antenna
Total no. of internal RETs (low bands)	2
Total no. of internal RETs (high bands)	1
RET input operating voltage, vdc	10-30
RET max power consumption, idle state, W	≤ 2.0
RET max power consumption, normal operating conditions, W	≤ 13.0
RET communication protocol	AISG 2.0 / 3GPP

RET and RF connector topology

Each RET device can be controlled either via the designated external AISG connector or RF port as shown below:

RET device	Band	RF port
R1	698-798	1-2
R2	824-894	1-2

RET device	Band	RF port
B1/B2	1695-2180	3-6



Array topology

3 sets of radiating arrays

R1/R2: 698-894 MHz
B1: 1695-2180 MHz
B2: 1695-2180 MHz

Band	RF port
1695-2180	3-4
698-894	1-2
1695-2180	5-6

SAMSUNG

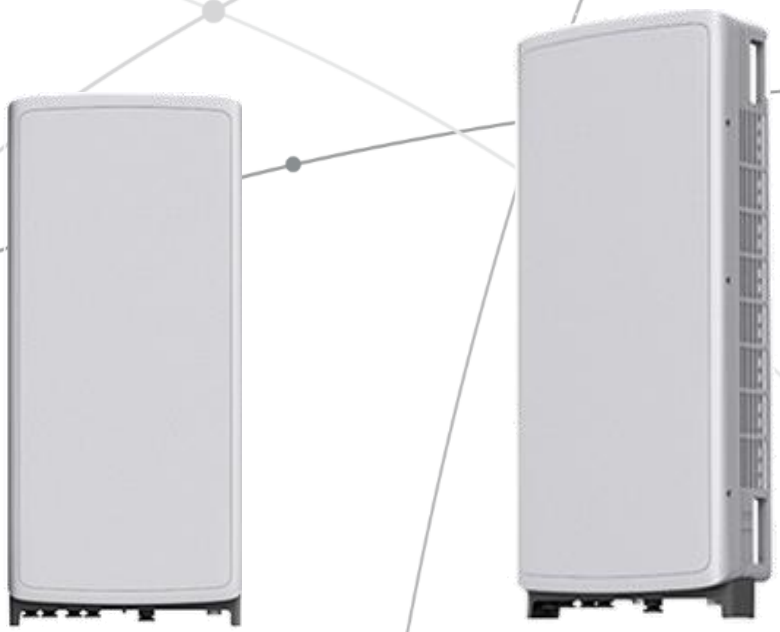
SAMSUNG

C-Band 64T64R Massive MIMO Radio

for High Capacity and Wide Coverage

Samsung C-Band 64T64R Massive MIMO Radio enables mobile operators to increase coverage range, boost data speeds and ultimately offer enriched 5G experiences to users in the U.S..

Model Code : MT6407-77A

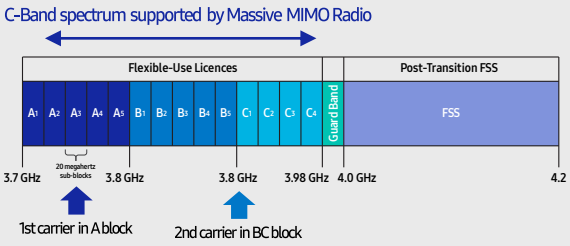


Points of Differentiation

Wide Bandwidth

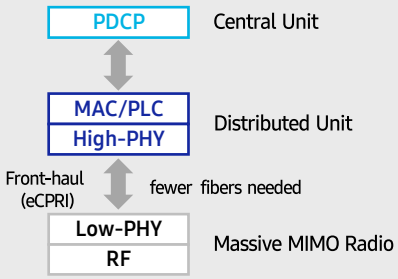
With capability to support up to 2 CC carrier configuration, Samsung C-Band massive MIMO Radio supports 200 MHz bandwidth in the C-Band spectrum.

Samsung C-Band massive MIMO Radio covers the entire C-Band 280 MHz spectrum, so it can meet the operator's needs in current A block and future B/C blocks



Future Proof Product

Samsung C-Band 64T64R Massive MIMO radio supports not only CPRI but also eCPRI as front-haul interface.
It enables operators can cut down on OPEX/CAPEX by reducing front-haul bandwidth through low layer split and using ethernet based higher efficient line.



Enhanced Performance

C-Band massive MIMO Radio creates sharp beams and extends networks' coverage on the critical mid-band spectrum using a large number of antenna elements and high output power to boost data speeds.

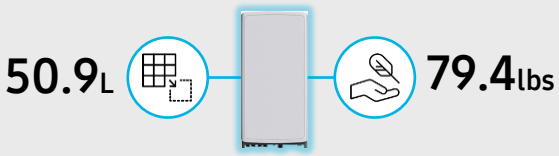
This helps operators reduce their CAPEX as they now need less products to cover the same area than before.

Furthermore, as C-Band massive MIMO Radio supports MU-MIMO(Multi-user MIMO) , it enables to increase user throughput by minimizing interference.

Well Matched Design

Samsung C-Band Massive MIMO radio utilizes 64 antennas, supports up to 280MHz bandwidth, and delivers a 200W output power. despite the above advanced performance, the Radio has a compact size of 50.9L and 79.4lbs. This makes it easy to install the Radio.

It is designed to look solid and compact, with a low profile appearance so that, when installed, harmonizes well with the surrounding environment..



Technical Specifications

Item	Specification
Tech	NR
Band	n77
Frequency Band	3700 - 3980 MHz
EIRP	78.5dBm (53.0 dBm+25.5 dBi)
IBW/OBW	280 MHz / 200 MHz
Installation	Pole/Wall
Size/ Weight	16.06 x 35.06 x 5.51 inch (50.86L)/ 79.4 lbs

SAMSUNG

About Samsung Electronics Co., Ltd.

Samsung inspires the world and shapes the future with transformative ideas and technologies. The company is redefining the worlds of TVs, smartphones, wearable devices, tablets, digital appliances, network systems, and memory, system LSI, foundry and LED solutions.

129 Samsung-ro, Yeongtong-gu, Suwon-si Gyeonggi-do, Korea

SAMSUNG

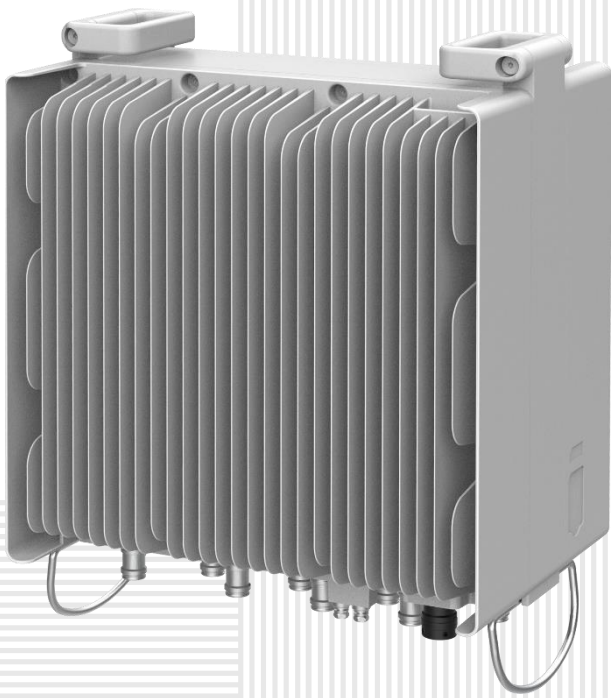
AWS/PCS MACRO RADIO

DUAL-BAND AND HIGH POWER FOR MACRO COVERAGE

Samsung's future proof dual-band radio is designed to help effectively increase the coverage areas in wireless networks. This AWS/PCS 4T4R dual-band radio has 4Tx/4Rx to 2Tx/2Rx RF chains options and a total output power of 320W, making it ideal for macro sites.

57196

Model Code	RF4439d-25A



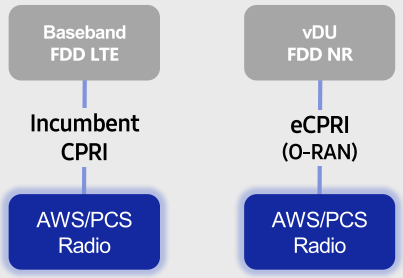
Homepage
samsungnetworks.com

Youtube
www.youtube.com/samsung5g

Points of Differentiation

Continuous Migration

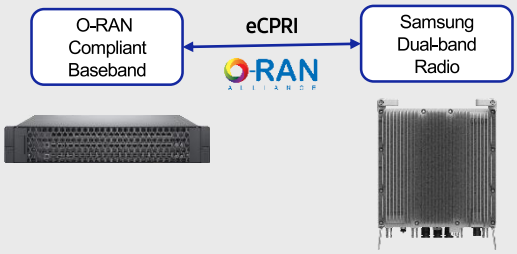
Samsung's AWS/PCS macro radio can support each incumbent CPRI interface as well as advanced eCPRI interfaces. This feature provides installable options for both legacy LTE networks and added NR networks.



O-RAN Compliant

A standardized O-RAN radio can help in implementing cost-effective networks, which are capable of sending more data without compromising additional investments.

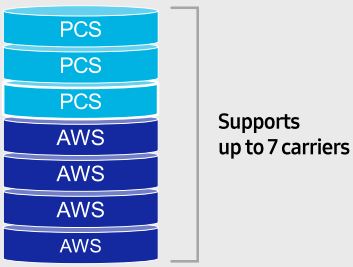
Samsung's state-of-the-art O-RAN technology will help accelerate the effort toward constructing a solid O-RAN ecosystem.



Optimum Spectrum Utilization

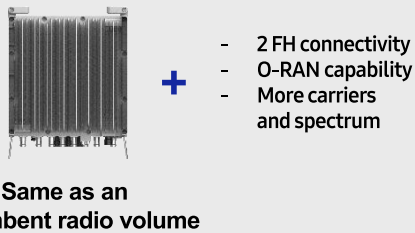
The number of required carriers varies according to site (region). Supporting many carriers is essential for using all frequencies that the operator has available.

The new AWS/PCS dual-band radio can support up to 3 carriers in the PCS (1.9GHz) band and 4 carriers in the AWS (2.1GHz) band, respectively.



Brand New Features in a Compact Size

Samsung's AWS/PCS macro radio offers several features, such as dual connectivity for baseband for both CDU and vDU, O-RAN capability, more carriers and an enlarged PCS spectrum, combined into an incumbent radio volume of 36.8L.



Technical Specifications

Item	Specification
Tech	LTE / NR
Brand	B25(PCS), B66(AWS)
Frequency Band	DL: 1930 – 1995MHz, UL: 1850 – 1915MHz DL: 2110 – 2200MHz, UL: 1710 – 1780MHz
RF Power	(B25) 4 × 40W or 2 × 60W (B66) 4 × 60W or 2 × 80W
IBW/OBW	(B25) 65MHz / 30MHz (B66) DL 90MHz, UL 70MHz / 60MHz
Installation	Pole, Wall
Size/ Weight	14.96 x 14.96 x 10.04inch (36.8L) / 74.7lb

SAMSUNG

700/850MHZ MACRO RADIO

DUAL-BAND AND HIGH POWER FOR MACRO COVERAGE

Samsung's future proof dual-band radio is designed to help effectively increase the coverage areas in wireless networks. This 700/850MHz 4T4R dual-band radio has 4Tx/4Rx to 2Tx/2Rx RF chains options and a total output power of 320W, making it ideal for macro sites.

Model Code	RF4440d-13A

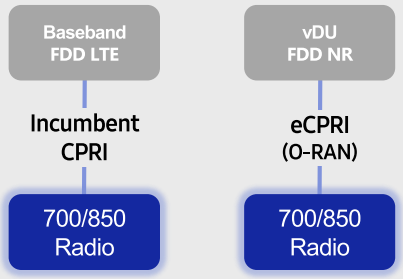
Homepage
samsungnetworks.com

Youtube
www.youtube.com/samsung5g

Points of Differentiation

Continuous Migration

Samsung's 700/850MHz macro radio can support each incumbent CPRI interface as well as an advanced eCPRI interface. This feature provides installable options for both legacy LTE networks and added NR networks.



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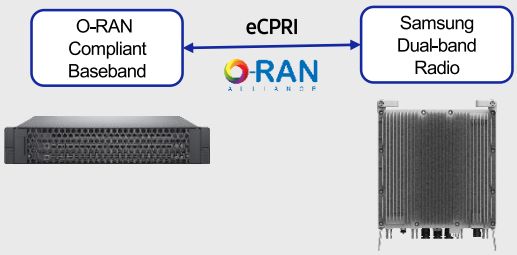
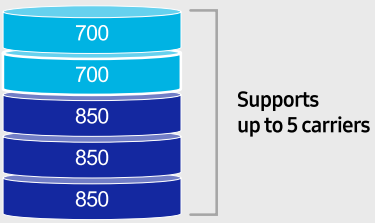


Optimum Spectrum Utilization

The number of required carriers varies according to site (region). The ability to support many carriers is essential for using all frequencies that the operator has available.

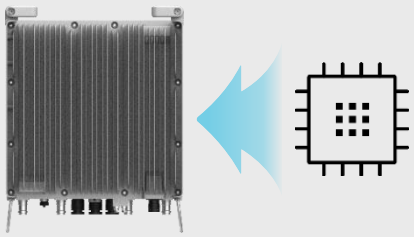
The new 700/850MHz dual-band radio can support up to 2 carriers in the B13 (700MHz) band and 3 carriers in the B5 (850MHz) band, respectively.



Secured Integrity

Access to sensitive data is allowed only to authorized software.

The Samsung radio's CPU can protect root of trust, which is credential information to verify SW integrity, and secure storage provides access control to sensitive data by using dedicated hardware (TPM).



Technical Specifications

Item	Specification
Tech	LTE / NR
Brand	B13(700MHz), B5(850MHz)
Frequency Band	DL: 746 – 756MHz, UL: 777 – 787MHz DL: 869 – 894MHz, UL: 824 – 849MHz
RF Power	(B13) 4 × 40W or 2 × 60W (B5) 4 × 40W or 2 × 60W
IBW/OBW	(B13) 10MHz / 10MHz (B5) 25MHz / 25MHz
Installation	Pole, Wall
Size/ Weight	14.96 x 14.96 x 9.05inch (33.2L) / 70.33 lb

SD050 | 4.5L | 50 kW

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

Standby Power Rating
50 kW, 63 kVA, 60 Hz

Prime Power Rating*
45 kW, 56 kVA, 60 Hz

*Assembled in the USA using domestic and foreign parts

*EPA Certified Prime ratings are not available in the US or its Territories

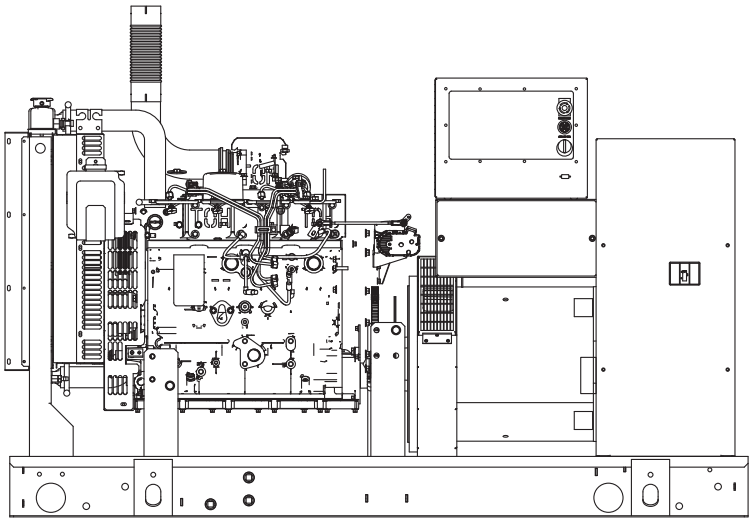


Image used for illustration purposes only

Codes and Standards

Not all codes and standards apply to all configurations. Contact factory for details.

UL2200, UL508, UL489, UL142

CSA C22.2

BS5514 and DIN 6271

SAE J1349

NFPA 37, 70, 99, 110

NEC700, 701, 702, 708

ISO 3046, 7637, 8528, 9001

NEMA ICS10, MG1, 250, ICS6, AB1

ANSI C62.41

IBC 2009, CBC 2010, IBC 2012, ASCE 7-05, ASCE 7-10, ICC-ES AC-156 (2012)

Powering Ahead

For over 50 years, Generac has provided innovative design and superior manufacturing.

Generac ensures superior quality by designing and manufacturing most of its generator components, including alternators, enclosures and base tanks, control systems and communications software.

Generac gensets utilize a wide variety of options, configurations and arrangements, allowing us to meet the standby power needs of practically every application.

Generac searched globally to ensure the most reliable engines power our generators. We choose only engines that have already been proven in heavy-duty industrial applications under adverse conditions.

Generac is committed to ensuring our customers' service support continues after their generator purchase.

SD050 | 4.5L | 50 kW

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

GENERAC | INDUSTRIAL POWER

STANDARD FEATURES

ENGINE SYSTEM

- Oil Drain Extension
- Air Cleaner
- Fan Guard
- Stainless Steel Flexible Exhaust Connection
- Radiator Duct Adapter (Open Set Only)

Fuel System

- Fuel Lockoff Solenoid
- Secondary Fuel Filter

Cooling System

- Closed Coolant Recovery System
- UV/Ozone Resistant Hoses
- Factory-Installed Radiator
- Radiator Drain Extension

Electrical System

- Battery Charging Alternator
- Battery Cables
- Battery Tray
- Rubber-Booted Engine Electrical Connections
- Solenoid Activated Starter Motor

ALTERNATOR SYSTEM

- UL2200 GENprotect™
- Class H Insulation Material
- 2/3 Pitch
- Skewed Stator
- Brushless Excitation
- Sealed Bearing
- Full Load Capacity Alternator
- Protective Thermal Switch

GENERATOR SET

- Genset Vibration Isolation
- Separation of Circuits - High/Low Voltage
- Separation of Circuits - Dual Breakers
- Standard Factory Testing
- 2 Year Limited Warranty (Standby Rated Units)
- 1 Year Limited Warranty (Prime Rated Units)

ENCLOSURE (If Selected)

- Rust-Proof Fasteners with Nylon Washers to Protect Finish
- High Performance Sound-Absorbing Material (Sound Attenuated Enclosures)
- Gasketed Doors
- Stamped Air-Intake Louvers
- Upward Facing Discharge Hoods (Radiator and Exhaust)
- Stainless Steel Lift Off Door Hinges
- Stainless Steel Lockable Handles
- RhinoCoat™ - Textured Polyester Powder Coat Paint

TANKS (If Selected)

- UL 142
- Double Wall
- Vents
- Sloped Top
- Sloped Bottom
- Factory Pressure Tested - 2 psi
- Rupture Basin Alarm
- Fuel Level
- Check Valve In Supply and Return Lines
- RhinoCoat™ - Textured Polyester Powder Coat Paint
- Stainless Steel Hardware

CONTROL SYSTEM

Digital H Control Panel- Dual 4x20 Display

Program Functions

- Programmable Crank Limiter
- 7-Day Programmable Exerciser
- Special Applications Programmable Logic Controller
- RS-232/485 Communications
- All Phase Sensing Digital Voltage Regulator
- 2-Wire Start Capability
- Date/Time Fault History (Event Log)
- Isochronous Governor Control
- Waterproof/Sealed Connectors
- Audible Alarms and Shutdowns
- Not in Auto (Flashing Light)
- Auto/Off/Manual Switch
- E-Stop (Red Mushroom-Type)
- NFPA110 Level I and II (Programmable)
- Customizable Alarms, Warnings, and Events
- Modbus® Protocol
- Predictive Maintenance Algorithm
- Sealed Boards
- Password Parameter Adjustment Protection
- Single Point Ground
- 16 Channel Remote Trending
- 0.2 msec High Speed Remote Trending
- Alarm Information Automatically Annunciated on the Display

Full System Status Display

- Power Output (kW)
- Power Factor
- kW Hours, Total, and Last Run
- Real/Reactive/Apparent Power
- All Phase AC Voltage
- All Phase Currents
- Oil Pressure
- Coolant Temperature
- Coolant Level
- Engine Speed
- Battery Voltage
- Frequency

Alarms and Warnings

- Oil Pressure
- Coolant Temperature
- Coolant Level
- Engine Overspeed
- Battery Voltage
- Alarms and Warnings Time and Date Stamped
- Snap Shots of Key Operation Parameters During Alarms and Warnings
- Alarms and Warnings Spelled Out (No Alarm Codes)

SD050 | 4.5L | 50 kW

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

CONFIGURABLE OPTIONS

ENGINE SYSTEM

- Oil Make-Up System
- Oil Heater
- Industrial Silencer
- Critical Silencer

FUEL SYSTEM

- Flexible Fuel Lines
- Primary Fuel Filter

COOLING SYSTEM

- 120 VAC Coolant Heater
- 208 VAC Coolant Heater
- 240 VAC Coolant Heater

ELECTRICAL SYSTEM

- Battery Box
- Battery Heater
- 10A UL Listed Float/Equalize Battery Charger

ALTERNATOR SYSTEM

- Main Line Circuit Breaker
- 2nd Circuit Breaker
- 3rd Circuit Breaker
- Alternator Upsizing
- Anti-Condensation Heater
- Tropical Coating
- Permanent Magnet Excitation

GENERATOR SET

- Weather Protected Enclosure
- Level 1 Sound Attenuated Enclosure
- Level 2 Sound Attenuated Enclosure
- IBC Seismic Certified/Seismic Rated Vibration Isolators
- Steel Enclosure
- Aluminum Enclosure
- Enclosure Light Kits

CONTROL SYSTEM

- NFPA 110 Level 1 Compliant 21-Light Remote Annunciator
- Remote Relay Assembly (8 or 16)
- Spare Inputs (x4) Outputs (x4)
- Oil Temperature Indication and Alarm
- Remote E-Stop (Break Glass-Type, Surface Mount)
- Remote E-Stop (Red Mushroom-Type, Surface Mount)
- Remote E-Stop (Red Mushroom-Type, Flush Mount)
- Remote Communication - Modem
- 10A Engine Run Relay
- Ground Fault Annunciator
- 100 dB Alarm Horn

WARRANTY (Standby Gensets Only)

- 2 Year Extended Limited Warranty
- 5 Year Limited Warranty
- 5 Year Extended Limited Warranty
- 7 Year Extended Limited Warranty
- 10 Year Extended Limited Warranty

ENGINEERED OPTIONS

ENGINE SYSTEM

- Coolant Heater Ball Valves
- Fluid Containment Pan

CONTROL SYSTEM

- Battery Disconnect Switch

GENERATOR SET

- Special Testing
- Battery Box

ENCLOSURE

- Door Open Alarm
- Enclosure Heater
- Motorized Dampers

TANKS

- Overfill Protection Valve
- ULC S-601
- UL 2085 Tank
- Special Fuel Tanks
- External Vent Extensions
- Tank Risers
- 5 Gallon Spill Box
- Lockable Fuel Fill
- Pipe Flanges
- 90% High Fuel Alarm

SD050 | 4.5L | 50 kW

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

APPLICATION AND ENGINEERING DATA

ENGINE SPECIFICATIONS

General

Make	Iveco/FPT
EPA Emissions Compliance	Stationary Emergency
EPA Emissions Reference	See Emission Data Sheet
Cylinder #	4
Type	In-Line
Displacement - in^3 (L)	274 (4.5)
Bore - in (mm)	4.1 (105)
Stroke - in (mm)	5.2 (132)
Compression Ratio	17.5:1
Intake Air Method	Turbocharged
Cylinder Head Type	2-Valve
Piston Type	Aluminum
Crankshaft Type	Forged Steel

Engine Governing

Governor	Electronic Isochronous
Frequency Regulation (Steady State)	±0.25%

Lubrication System

Oil Pump Type	Gear
Oil Filter Type	Full-Flow Cartridge
Crankcase Capacity - qt (L)	14.4 (13.6)

Cooling System

Cooling System Type	Closed
Water Pump Type	Belt Driven Centrifugal
Fan Type	Pusher
Fan Speed - RPM	2,538
Fan Diameter - in (mm)	26 (660)

Fuel System

Fuel Type	Ultra Low Sulfur Diesel Fuel
Fuel Specifications	ASTM
Fuel Filtering (Microns)	5
Fuel Pump Type	Engine Driven Gear
Injector Type	Mechanical
Fuel Supply Line - in (mm)	0.25 (6.35) NPT
Fuel Return Line - in (mm)	0.25 (6.35) NPT

Engine Electrical System

System Voltage	12 VDC
Battery Charger Alternator	Standard
Battery Size	See Battery Index 0161970SBY
Battery Voltage	12 VDC
Ground Polarity	Negative

ALTERNATOR SPECIFICATIONS

Standard Model	K0050124Y21
Poles	4
Field Type	Revolving
Insulation Class - Rotor	H
Insulation Class - Stator	H
Total Harmonic Distortion	<5%
Telephone Interference Factor (TIF)	<50
Standard Excitation	Synchronous Brushless
Bearings	One, Pre-Lubed and Sealed
Coupling	Direct via Flexible Disc
Prototype Short Circuit Test	Yes
Voltage Regulator Type	Digital
Number of Sensed Phases	3
Regulation Accuracy (Steady State)	±0.25%

SD050 | 4.5L | 50 kW

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

OPERATING DATA

POWER RATINGS

		Standby
Single-Phase 120/240 VAC @1.0pf	50 kW	Amps: 208
Three-Phase 120/208 VAC @0.8pf	50 kW	Amps: 174
Three-Phase 120/240 VAC @0.8pf	50 kW	Amps: 151
Three-Phase 277/480 VAC @0.8pf	50 kW	Amps: 75
Three-Phase 346/600 VAC @0.8pf	50 kW	Amps: 60

MOTOR STARTING CAPABILITIES (skVA)

skVA vs. Voltage Dip

277/480 VAC	30%	208/240 VAC	30%
K0050124Y21	98	K0050124Y21	75

FUEL CONSUMPTION RATES*

Fuel Pump Lift- ft (m)
3 (1)

Total Fuel Pump Flow (Combustion + Return) - gph (Lph)
13.6 (51.5)

Diesel - gph (Lph)

Percent Load	Standby
25%	1.15 (4.35)
50%	2.25 (8.52)
75%	3.21 (12.15)
100%	4.15 (15.75)

* Fuel supply installation must accommodate fuel consumption rates at 100% load.

COOLING

		Standby
Coolant Flow	gpm (Lpm)	32.7 (123.8)
Coolant System Capacity	gal (L)	4.5 (17.44)
Heat Rejection to Coolant	BTU/hr (kW)	121,000 (35.5)
Inlet Air	scfm (m^3/min)	6,360 (180)
Maximum Operating Radiator Air Temperature	°F (°C)	122 (50)
Maximum Ambient Temperature (Before Derate)		See Bulletin No. 0199270SSD
Maximum Radiator Backpressure	in H_2O (kPa)	0.5 (0.12)

COMBUSTION AIR REQUIREMENTS

	Standby	Prime
Flow at Rated Power scfm (m^3/min)	205 (5.80)	189 (5.35)

ENGINE

		Standby
Rated Engine Speed	RPM	1,800
Horsepower at Rated kW**	hp	80
Piston Speed	ft/min (m/min)	1,559 (475)
BMEP	psi (kPa)	128.5 (886)

EXHAUST

		Standby
Exhaust Flow (Rated Output)	scfm (m^3/min)	497 (14.1)
Max. Allowable Backpressure	inHg (kPa)	1.5 (5.1)
Exhaust Temp (Rated Output)	°F (°C)	850 (454)

** Refer to “Emissions Data Sheet” for maximum bHP for EPA and SCAQMD permitting purposes.

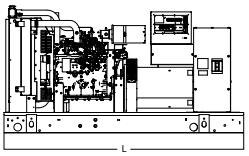
Deration – Operational characteristics consider maximum ambient conditions. Derate factors may apply under atypical site conditions.
Please contact a Generac Power Systems Industrial Dealer for additional details. All performance ratings in accordance with ISO3046, BS5514, ISO8528, and DIN6271 standards.
Standby - See Bulletin 10000018933
Prime - See Bulletin 10000018926

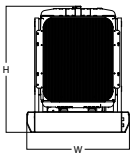
SD050 | 4.5L | 50 kW

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

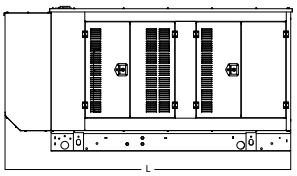
DIMENSIONS AND WEIGHTS*

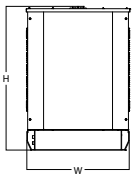




OPEN SET (Includes Exhaust Flex)

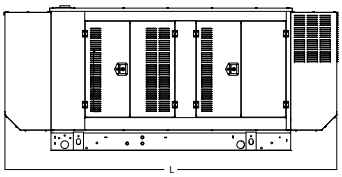
Run Time - Hours	Usable Capacity - Gal (L)	L x W x H - in (mm)	Weight - lbs (kg)
No Tank	-	76.0 (1,930) x 37.0 (940) x 53.0 (1,346)	1,996 (905)
13	54 (204)	76.0 (1,930) x 37.0 (940) x 66.0 (1,676)	2,476 (1,123)
32	132 (500)	76.0 (1,930) x 37.0 (940) x 78.0 (1,981)	2,706 (1,227)
51	211 (799)	76.0 (1,930) x 37.0 (940) x 90.0 (2,286)	2,915 (1,322)
72	300 (1,136)	93.0 (2,362) x 37.0 (940) x 94.0 (2,388)	2,978 (1,351)
122	510 (1,931)	117.0 (2,972) x 47.0 (1,194) x 96.0 (2,438)	3,361 (1,525)

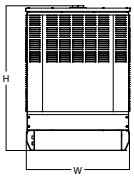




WEATHER PROTECTED ENCLOSURE

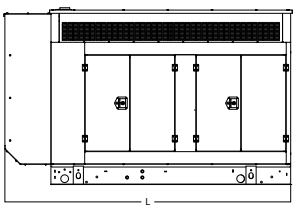
Run Time - Hours	Usable Capacity - Gal (L)	L x W x H - in (mm)	Weight - lbs (kg)
No Tank	-	95.0 (2,413) x 38.0 (965) x 50.0 (1,270)	2,298 (1,042)
13	54 (204)	95.0 (2,413) x 38.0 (965) x 63.0 (1,600)	2,778 (1,260)
32	132 (500)	95.0 (2,413) x 38.0 (965) x 75.0 (1,905)	3,008 (1,364)
51	211 (799)	95.0 (2,413) x 38.0 (965) x 87.0 (2,210)	3,217 (1,459)
72	300 (1,136)	95.0 (2,413) x 38.0 (965) x 91.0 (2,311)	3,280 (1,488)
122	510 (1,931)	117.0 (2,972) x 47.0 (1,194) x 93.0 (2,362)	3,663 (1,662)

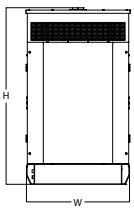




LEVEL 1 SOUND ENCLOSURE

Run Time - Hours	Usable Capacity - Gal (L)	L x W x H - in (mm)	Weight - lbs (kg)
No Tank	-	112.0 (2,845) x 38.0 (965) x 50.0 (1,270)	2,451 (1,112)
13	54 (204)	112.0 (2,845) x 38.0 (965) x 63.0 (1,600)	2,931 (1,329)
32	132 (500)	112.0 (2,845) x 38.0 (965) x 75.0 (1,905)	3,161 (1,434)
51	211 (799)	112.0 (2,845) x 38.0 (965) x 87.0 (2,210)	3,370 (1,529)
72	300 (1,136)	112.0 (2,845) x 38.0 (965) x 91.0 (2,311)	3,433 (1,557)
122	510 (1,931)	135.0 (3,429) x 47.0 (1,194) x 93.0 (2,362)	3,816 (1,731)





LEVEL 2 SOUND ENCLOSURE

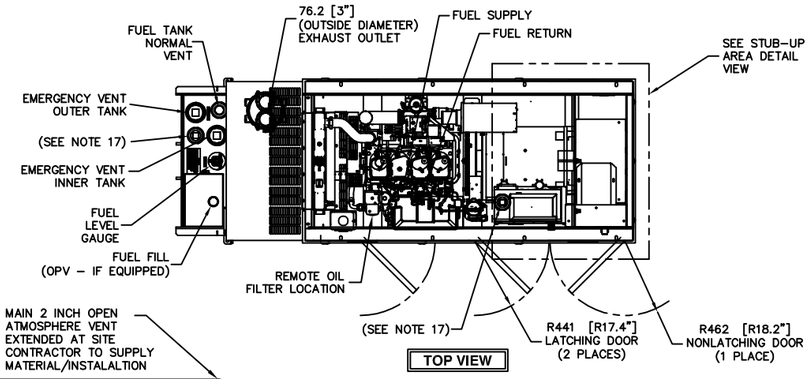
Run Time - Hours	Usable Capacity - Gal (L)	L x W x H - in (mm)	Weight - lbs (kg)
No Tank	-	95.0 (2,413) x 38.0 (965) x 62.0 (1,575)	2,456 (1,114)
13	54 (204)	95.0 (2,413) x 38.0 (965) x 75.0 (1,905)	2,936 (1,332)
32	132 (500)	95.0 (2,413) x 38.0 (965) x 87.0 (2,210)	3,166 (1,436)
51	211 (799)	95.0 (2,413) x 38.0 (965) x 99.0 (2,515)	3,375 (1,531)
72	300 (1,136)	95.0 (2,413) x 38.0 (965) x 103.0 (2,616)	3,438 (1,559)
122	510 (1,931)	117.0 (2,972) x 47.0 (1,194) x 105.0 (2,667)	3,821 (1,733)

* All measurements are approximate and for estimation purposes only. Specification characteristics may change without notice. Please contact a Generac Power Systems Industrial Dealer for detailed installation drawings.

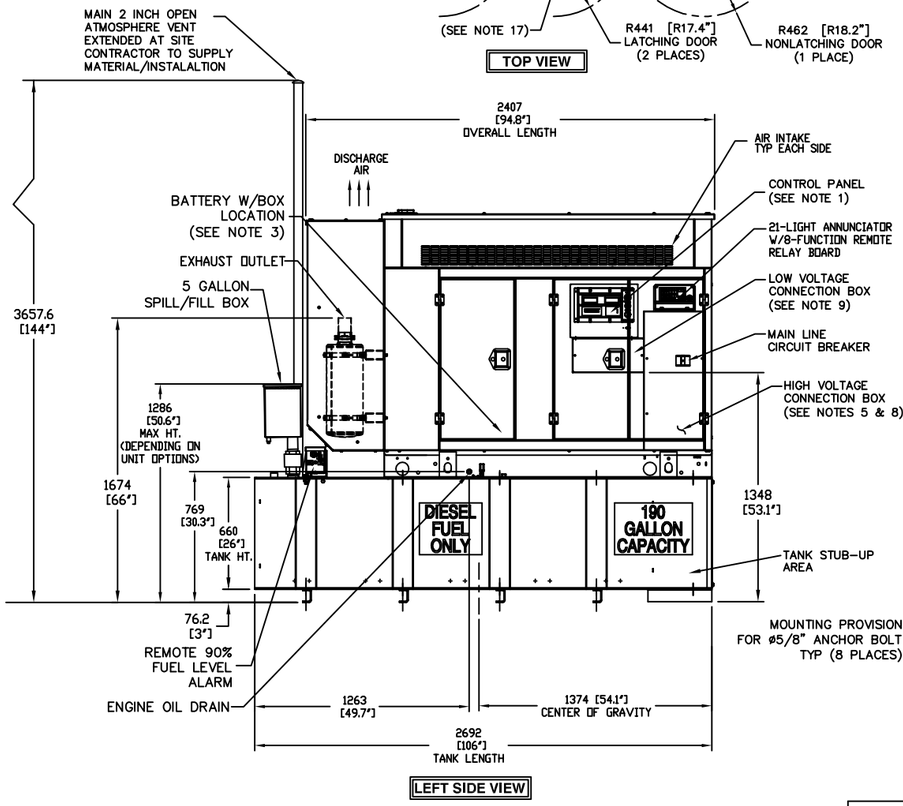
Generac Power Systems, Inc. | P.O.Box 8 | Waukesha, WI 53189
P: (262) 544-4811

Part No. 0191740SBY
Rev. D 04/04/19

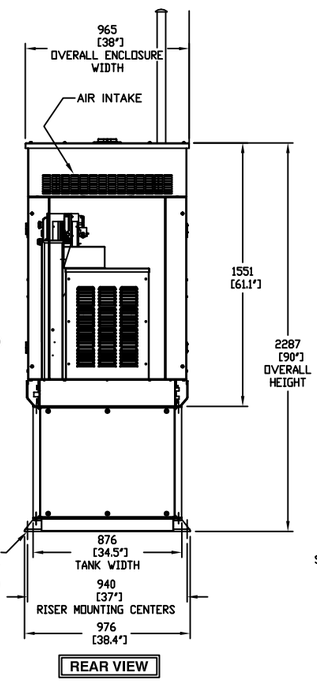
0J8316P-VZW



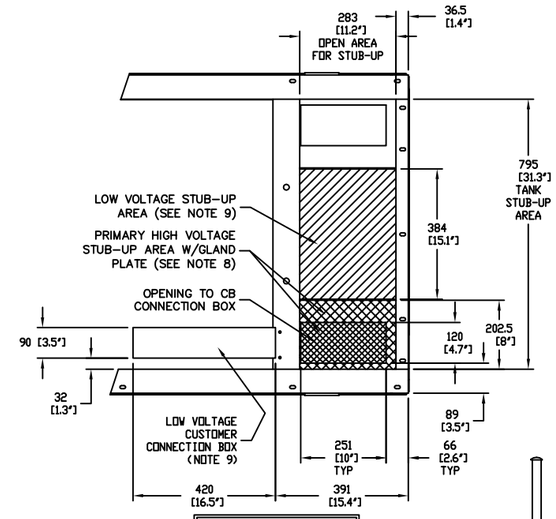
TOP VIEW



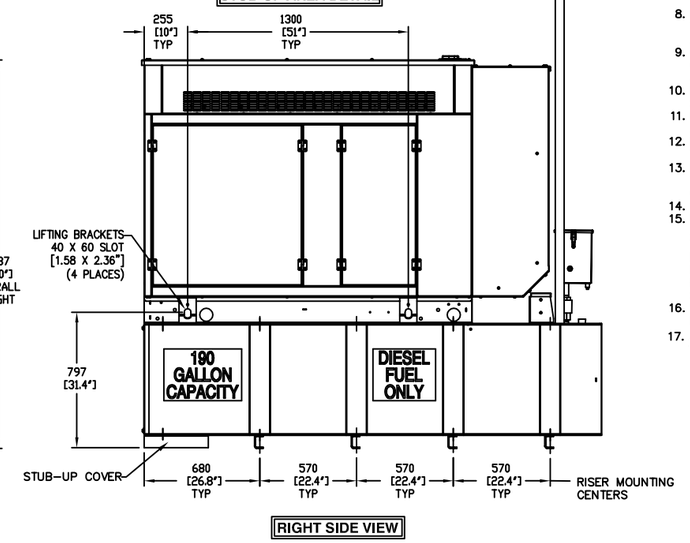
LEFT SIDE VIEW



REAR VIEW



STUB-UP AREA DETAIL



RIGHT SIDE VIEW

RECOMMENDED ELECTRICAL STUB-UPS (SEE DETAILED VIEW & TOP VIEW)	
DESCRIPTION	INSIDE BASE
HIGH VOLTAGE STUB-UP AREA 1) AC LOAD LEAD CONDUIT AREA. 2) 120/240 VAC FROM UTILITY FOR OPTIONAL LOADS SUCH AS GFCI OUTLET, BLOCK HEATER, BATTERY CHARGER, AND OTHER 120/240 VAC OPTIONS. (GLAND PLATE INCLUDED)	
LOW VOLTAGE STUB-UP AREA 1) TRANSFER SWITCH/ COMMUNICATION CONDUITS. COMMUNICATIONS AND 2-WIRE START MUST NOT BE RUN IN CONDUIT WITH AC WIRING. (SEE NOTE 9)	

NOTES:
1. CONTROL PANEL W/BATTERY CHARGER. THREE PRONG CORD COMING OUT OF CONTROL PANEL IS FOR THE BATTERY CHARGER.
2. 1500W 120VAC ENGINE BLOCK HEATER W/CORD.
3. 12 VOLT NEGATIVE GROUND SYSTEM.
4. OPTIONAL REMOTE EMERGENCY STOP SHIPPED LOOSE WITH GENERATOR.
5. GENERATOR MUST BE GROUNDED.
6. CENTER OF GRAVITY & WEIGHT MAY SHIFT SLIGHTLY DUE TO UNIT OPTIONS.
7. STUB-UPS: BASE TANK REQUIRES ALL STUB-UPS TO BE IN THE REAR TANK STUB-UP AREA.
8. HIGH VOLTAGE STUB-UP AREA INCLUDES THE AC LOAD LEAD CONNECTION TO THE MAIN LINE CIRCUIT BREAKER (MLCB), THE NEUTRAL CONNECTION, AND AUXILIARY 120/240V CONNECTION.
9. CONNECTION POINTS FOR CONTROL WIRES. BOTTOM OF LOW VOLTAGE CUSTOMER CONNECTION BOX HAS KNOCKOUTS FOR 1/2" AND 3/4" CONDUIT FITTINGS.
10. MUST ALLOW FREE FLOW OF DISCHARGE AIR AND EXHAUST. SEE SPEC SHEET FOR MINIMUM AIR FLOW AND MAXIMUM RESTRICTION REQUIREMENTS.
11. MUST ALLOW FREE FLOW OF INTAKE AIR. SEE SPEC SHEET FOR MINIMUM AIR FLOW AND MAXIMUM RESTRICTION REQUIREMENTS.
12. ENCLOSED SETS – GENERATOR SET MUST BE INSTALLED SUCH THAT DISCHARGE AIR IS NOT RECIRCULATED.
13. IT IS THE RESPONSIBILITY OF THE INSTALLATION TECHNICIAN TO ENSURE THAT THE GENERATOR INSTALLATION COMPLIES WITH ALL APPLICABLE CODES, STANDARDS, AND REGULATIONS.
14. 190 GALLON USEABLE CAPACITY BASETANK.
15. UNIT IS SHIPPED WITH FUEL SUPPLY AND RETURN LINES DISCONNECTED AND PLUGGED BETWEEN ENGINE AND FUEL TANK. THIS HAS BEEN DONE TO FACILITATE PRESSURE TESTING OF THE TANK IN THE FIELD. FOR INFORMATION REGARDING CONNECTING THE FUEL SUPPLY AND RETURN LINES PRIOR TO START UP, SEE THE FUEL TANK FIELD TESTING PROCEDURE (0E5082) SUPPLIED IN THE TANK LOOSE VENTS KIT, WHICH IS SHIPPED WITH THIS GENERATOR.
16. SEE DRAWING 0C3850 FOR DUCT REMOVAL. REMOVAL OF FRONT DUCT WILL PROVIDE ACCESS TO MUFFLER FOR SERVICING.
17. ADDITIONAL 2" FEMALE NPT PORTS – PLUGGED OR EQUIPPED WITH TOP-MOUNT SWITCHES DEPENDING ON UNIT OPTIONS.

WEIGHT DATA (INCLUDES WOODEN SHIPPING SKID)

ENCLOSED GENERATOR WITH EMPTY FUEL TANK – 1511kg (3331 lbs)

UNITS: mm [INCHES]

INSTALLATION DRAWING

INSTALLATION D4.5L G17 50KW

ENCLOSED LEVEL 2A - SSM Y02

WITH 190 GALLON EXTENDED VENT

& FILL BASETANK ON RISERS

ISSUE DATE: 5/8/14

GENERAC POWER SYSTEMS
Waukesha
P.O. BOX 8
WAUKESHA, WIS. 53187

FILE NAME	0J8316P-VZW.DWG	SIZE	B
SCALE	NTS	FIRST USE	D4.5 Y02 SSM
DWG NO.	0J8316P-VZW	REV	A

ATTACHMENT 5

ProTerra
DESIGN GROUP, LLC

Date: 3/9/2023

verizon

Submitted To: Verizon Wireless
900 Chelmsford St.
Tower 2 Floor 5
Lowell, MA 01851

Subject: **Mount Structural Analysis Report**

Verizon Designation:
Site Name: KENT 2 CT
Location Code: 782596
Fuze ID: 16997348

Site Data: **93 Richards Road, Kent, CT 06785**
Latitude 41° 42' 31.02", Longitude -73° 25' 13.72"

We are pleased to submit this **"Mount Structural Analysis Report"** to determine the structural capacity of the antenna mount utilized by Verizon at the above referenced site.

The purpose of the analysis is to determine acceptability of the mount stress level for the changes proposed by Verizon. Under the following load case we have determined the mount to have:

Proposed Equipment **Adequate Capacity (79.8%)**
Note: See Analysis Criteria for loading configuration

The analysis has been performed in accordance with the TIA-222-H Standard and the 2022 Connecticut State Building Code (2021 IBC).

We appreciate the opportunity of providing our continuing professional services to you. If you have any questions or need further assistance on this or any other projects, please give us a call.

Prepared by Consulting Engineer:

3/9/2023

Ahmet Colakoglu, PE
Connecticut Professional Engineer
License No: 27057
EFI GLOBAL, INC. (PEC 0001245)
1117 Perimeter Center West, Suite E500
Atlanta, GA 30338
Tel: (470) 990-6593

Reviewed By:

Proterra Design Group, LLC

1) ANALYSIS CRITERIA

The analysis was performed for the proposed appurtenances as specified in the loading information referenced below, and per the following loading criteria of Table 1.

Table 1 – Loading and Analysis Criteria

Rad Center	121'-0''
Structure Type	Monopole
Exposure Category	C
Ultimate Wind Speed	115 mph
Ultimate Ice Loading	1.00" with 40 mph Wind
Risk Category	II
Topographic Factor	Kzt = 1.86

Table 1.1 – Proposed and Final Appurtenance Configuration

Qty	Model
6	JMA MX06FRO860-03 – Antennas*
3	Samsung MT6407-77A – Antennas
3	Samsung B5/B13 RRH ORAN – RRUs**
3	Samsung B2/B66A RRH ORAN – RRUs
1	12 OVP Box
1	Valmont/Site Pro 1 12' 6'' Low Profile Platform with Twelve 2-7/8'' Antenna Mounting Pipes, and Support Rail (P/N: RMQP-4096-HK)

***To be mounted to dual antenna mounting bracket.**
****To be mounted behind antennas.**

Table 1.2 – Assumed Material Properties

Member Type	ASTM Material Designation	Fy (ksi)	Fu (ksi)
Pipes	A53 Gr. B	35	60
Angles/Channels	A36	36	58
Rectangular HSS	A500 Gr. B – 46	46	58
Round HSS	A500 Gr. B – 42	42	58
Others (UNO)	A572 Gr. 50	50	65

2) ANALYSIS PROCEDURE

The analysis is based on the following information:

Table 2 – Documents

Document	Provided By	Date
Construction Drawings	ProTerra Design Group, LLC	02/23/2023
RFDS	Verizon	12/28/2022

2.1) Analysis Method

Risa-3D, a commercially available analysis software package, was used to create a three-dimensional model of the mount and calculate member stresses for various loading cases. Selected output from the analysis is included in the Appendix.

2.2) Analysis Conditions and Assumptions

1) The mount was built and installed in accordance with the manufacturer's specifications.
2) The mount has been maintained and will be maintained in accordance with the manufacturer's specifications. All structural members and connections of the mount are in good condition and can achieve theoretical strength.
3) The configuration of antennas is as specified in "1) Analysis Criteria".
4) The analysis was performed for the subject mount only. It does not include an evaluation of the other mounts or the tower, which should be analyzed by others.
5) The evaluation does not include any antenna rigging loads. The equipment should not be rigged using the subject antenna mount as the support.
6) The analysis includes a minimum 250 lbf maintenance point load at the worst-case location on the mount, as well as a minimum 250 lbf maintenance point load at each antenna location in conjunction with a 30 mph wind load.
7) Any steel grating represented in this model is for loading purposes only and it is not considered to provide any structural restraint or support.
8) Member sizes per the mount specifications and assumed based on our experience with similar structures. Please refer to calculation output in the appendix of this report for sizes and lengths assumed.
9) All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.

ProTerra Design Group, LLC must be notified immediately if any of these assumptions are discovered to be incorrect. The results of this analysis may be affected if any of the assumptions are not valid or have been made in error.

3) ANALYSIS RESULTS AND CONCLUSION

The analysis results are shown on the table below.

Table 3.1 – Mount Component Stresses vs. Capacity

Component	% Capacity	Pass / Fail
Platform Base Tube	36.4	Pass
Platform Base Corner Plate	32.0	Pass
Platform Bracing Connection Plate	75.0	Pass
Grating Angle	37.8	Pass
Platform Base Pipe	<20.0	Pass
Antenna Mount Pipe	79.8	Pass
Support Rail Pipe	58.7	Pass
Support Rail Corner Angle	42.1	Pass
Kicker Angle	<20.0	Pass

Platform Mount: The proposed platform mount has **adequate** capacity for the proposed changes by Verizon. For the code specified load combinations and as a maximum, the mount members are stressed to **79.8%** of their structural capacity.

EFI Global, Inc. has assumed that (1) Valmont/Site Pro 1 12' 6'' Low Profile Platform with Twelve 2-7/8'' Antenna Mounting Pipes, and Support Rail (P/N: RMQP-4096-HK, Specs attached) will be installed at this site prior to the equipment installation proposed in this analysis.

The analysis also assumes the following:

- **The base of the platform is installed at 120'-0" A.G.L.**
- **The support rail is installed 42" above the base of the platform.**
- **(4) 96" long 2.5 SCH. 40 mount pipes are equally spaced along the face at each sector.**
- **(1) 48'' long 2.0 SCH. 40 mount pipe should be installed at standoff tube. Proposed mount pipe should be connected to standoff tube using Valmont/Site Pro 1 Back to Back Pipe Mount Kit (P/N: BBPM-K3).**

APPENDIX

INPUT LOADS
ANALYSIS OUTPUT
MOUNT SPECS

CLIENT: ProTerra

PROJECT: Kent 2 CT

SUBJECT: Antenna Loads - TIA 222 H Standard

Tower Height	135.00	ft	Type of Mount: Platform
Ultimate Wind Speed, V	115	mph	
Basic Wind Speed w/ Ice, V_i	40	mph	
Maintanence Load Factor, L_{FM}	0.0681	Load Factor for Maint. Load Cases (Basic Wind Speed=30 mph)	
Ultimate Ice Thickness, t_i	1	inches	

Table 2-3 Importance Factors

Structure Classification	Wind Load Without Ice	Wind Load With Ice	Ice Thickness	Earthquake
III	1	1	1.15	1.25

Table 2-4 Exposure Category Coefficients

Exposure Category	Zg	α	Kzmin	Ke	m
C	900	9.5	0.85	1	0.6

Ground elevation factor, Ke

Zs	1346	**ft**
Ke	0.95	

Table 2-5 Topographic Categories

Kzt 1.860

Figure 2-2 Rooftop Wind Speed-Up Factor

Ks 1.00

Table 2-2 Wind Directionality Factor, Kd

Structure Type	Kd	
Monopole	0.95	DOES NOT CHANGE

Gust Effect Factor Gh

Structure Type	Gh	
Monopole	1.00	DOES NOT CHANGE

Shielding Factor, Ka

Structure Type	Ka	
Monopole	0.90	DOES NOT CHANGE

Seismic Factors

Ss	0.184	
S1	0.054	
Fa	1.6	
Fv	2.4	
R	2	Truss or Pole

CLIENT: ProTerra

PROJECT: Kent 2 CT

SUBJECT: Antenna Loads - TIA 222 H Standard

Rad Center **121.00** ft

Antenna AND Mount Without Ice

Mounting Pole	Height (ft)	Model Number	#	Weight (lbs)	H (in)	*W (in)	D (in)	Ka	**A_N (ft2)	***A_T (ft2)	Aspect (FRONT)	Aspect (SIDE)	Ca (FRONT)	Ca (SIDE)	K_z	q_z (psf)	Pounds: Wind Load (Front)	Wind Load (Side)	Dead Load	Total Wind Load (Front)	Total Wind Load (Side)	Total Dead Load	Lateral Load (Seismic)	Vertical Load (Seismic)
Pos.1	**121.00**	Samsung MT6407-77A	1	81.6	35.1	16.1	5.5	0.90	3.92	1.34	2.18	6.38	1.20	1.37	1.317	75.1	318.2	124.3	81.6	318	124	82	6	3
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
																				160	**63**	**41**	**3**	**2**
Pos. 2		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0	127	84	84	6	3
	121.00	Samsung B2/B66A RRH ORAN	1	84.0	15.0	15.0	10.0	0.90	1.56	1.04	1.00	1.50	1.20	1.20	1.317	75.1	126.7	84.4	84					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
																				64	**43**	**42**	**3**	**2**
Pos. 3	**121.00**	JMA MX06FRO860-03	2	65.0	95.9	15.4	10.7	0.90	10.26	7.13	6.23	8.96	1.37	1.47	1.317	75.1	1892.3	1410.9	130	1892	1479	200	14	8
	121.00	Samsung B5/B13 RRH ORAN	1	70.0	15.0	N/A	8.1	0.90	-	0.84	-	1.85	-	1.20	1.317	75.1	0.0	68.4	70					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
																				947	**740**	**100**	**7**	**4**
Standoff Pipe		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0	274	209	32	2	1
	121.00	12 OVP Box	1	32.0	29.5	16.5	12.6	0.90	3.38	2.58	1.79	2.34	1.20	1.20	1.317	75.1	274.0	209.3	32					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
																				138	**105**	**16**	**1**	**1**

* Enter N/A in the W column for front sheilded apurtanances.

** A_N is the product of H and W

*** A_T is the product of H and D

DL 398

Mount	Height (ft)	Member	*L (in)	D (in)	Weight (lb/ft)	*** Ca	K_z	q_z (psf)	Wind Load (PLF)	Lateral Load (Seismic)	Vertical Load (Seismic)
	121.00	3.0 STD Pipe	12.00	3.50	0.00	1.20	1.317	67.6	24	-	-
	121.00	2.5 STD Pipe	12.00	2.88	0.00	1.20	1.317	67.6	19	-	-
	121.00	2.0 STD Pipe	12.00	2.38	0.00	1.20	1.317	67.6	16	-	-
	121.00	5/8" SR	0.00	0.63	0.00	-	-	-	-	-	-
	121.00	(L2x2)	12.00	2.00	2.00	2.00	1.317	67.6	23	-	-
	121.00	(L2.5x2.5)	12.00	2.50	2.50	2.00	1.317	67.6	28	-	-
	121.00	(L3x1.875)	0.00	3.00	1.88	-	-	-	-	-	-
	121.00	Plate (PL6x1/2)	12.00	6.00	0.50	2.00	1.317	67.6	68	-	-
	121.00	Plate (PL6x3/8)	12.00	6.00	0.38	2.00	1.317	67.6	68	-	-
	121.00	HSS4x4	12.00	4.00	4.00	2.00	1.317	67.6	45	-	-
	121.00	LL(2.5x2.5x3x3)	12.00	5.40	2.50	2.00	1.317	67.6	61	-	-
	121.00	Channel (Unistrut)	0.00	1.63	1.62	-	-	-	-	-	-
	121.00	Channel (C3.5x2x3/16)	0.00	3.50	2.00	-	-	-	-	-	-

* The dimension L is the longest dimension of the member

** The dimension W is the height or width of the member that resists wind load

*** Ca will equal 1.2 for round members and 2.0 for flat members

CLIENT: ProTerra

PROJECT: Kent 2 CT

SUBJECT: Antenna Loads - TIA 222 H Standard

ti (in) 1.627251 Kiz 1.1387467 reduction 0.12098

Antenna AND Mount With Ice

Mounting Pole	Height (ft)	Model Number	#	H (in)	W (in)	D (in)	Ka	*A_N (ft2)	*A_T (ft2)	*Volume Ice (ft3)	*Weight Ice (lbs)	**Ca (FRONT)	**Ca (SIDE)	Kz	q_z (psf)	Pounds: Ice Wind Load (Front)	Ice Wind Load (Side)	Combined Wind Load (Front)	Combined Wind Load (Side)	Ice Dead Load	**Total Wind Load (Front)	**Total Wind Load (Side)	Total Ice Load
Pos.1	**121.00**	Samsung MT6407-77A	1	35.1	16.1	5.5	0.90	1.23	0.99	1.96	109.88	0.70	0.74	1.317	9.1	7.0	6.0	45.5	21.0	110	46	21	110
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
																					23	**11**	**55**
Pos. 2		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0	20	14	70
	121.00	Samsung B2/B66A RRH ORAN	1	15.0	15.0	10.0	0.90	0.75	0.64	1.25	70.22	0.70	0.70	1.317	9.1	4.3	3.7	19.6	13.9	70			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
																					10	**7**	**36**
Pos. 3	**121.00**	JMA MX06FRO860-03	2	95.9	15.4	10.7	0.90	2.59	2.48	5.79	324.36	0.76	0.80	1.317	9.1	32.3	32.6	261.2	203.3	649	261	215	712
	121.00	Samsung B5/B13 RRH ORAN	1	15.0	15.0	8.1	0.90	-	0.60	1.13	63.55	0.70	0.70	1.317	9.1	0.0	3.4	0.0	11.7	64			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
																					131	**108**	**357**
Standoff Pipe		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0	40	31	134
	121.00	12 OVP Box	1	29.5	16.5	12.6	0.90	1.11	1.03	2.39	133.70	0.70	0.70	1.317	9.1	6.4	5.9	39.5	31.2	134			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
																					20	**16**	**67**

* A_N ,A_T, Volume Ice and Weight Ice are calculated per unit

** Ca will equal 1.2 for all ice load calculations

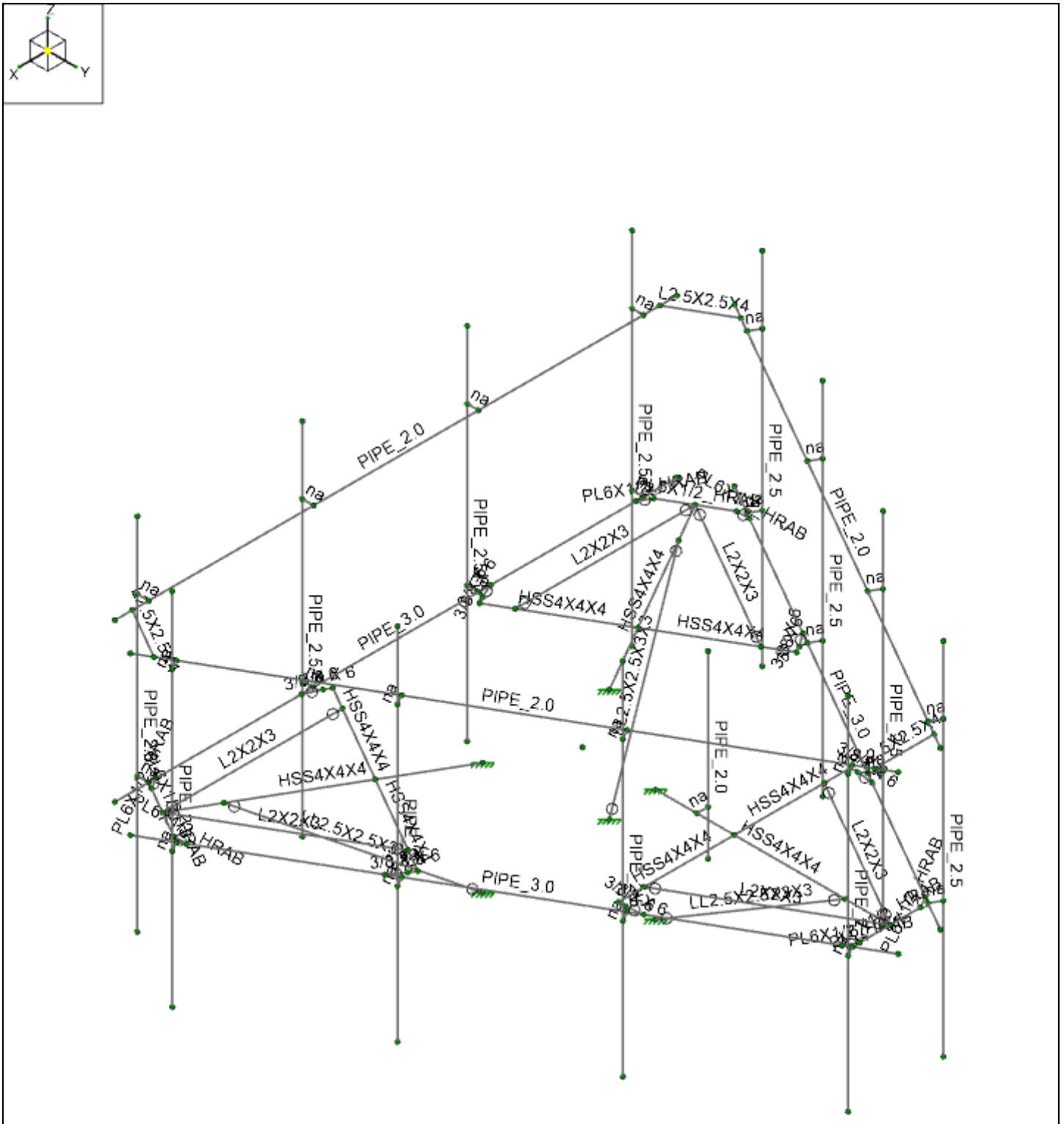
Mount	Height (ft)	Member	*L (in)	**W (in)	D (in)	***A_N (ft2)	Volume Ice (ft3)	Weight Ice (lbs)	****Ca (FRONT)	Kz	q_z (psf)	PLF: Ice Wind Load (Front)	Combined Wind Load (Front)	Ice Dead Load
	121.00	3.0 STD Pipe	12.00	3.50	0.00	0.42	0.18	10.19	1.20	1.317	8.2	4.2	7.0	10
	121.00	2.5 STD Pipe	12.00	2.88	0.00	0.41	0.16	8.95	1.20	1.317	8.2	4.0	6.4	9
	121.00	2.0 STD Pipe	12.00	2.38	0.00	0.40	0.14	7.96	1.20	1.317	8.2	3.9	5.8	8
	121.00	5/8" SR	0.00	0.63	0.00	-	-	-	-	-	-	-	-	-
	121.00	(L2x2)	12.00	2.00	2.00	0.39	0.09	5.06	1.20	1.317	8.2	3.8	6.5	5
	121.00	(L2.5x2.5)	12.00	2.50	2.50	0.40	0.11	6.33	1.20	1.317	8.2	3.9	7.3	6
	121.00	(L3x1.875)	0.00	3.00	1.88	-	-	-	-	-	-	-	-	-
	121.00	Plate (PL6x1/2)	12.00	6.00	0.50	0.48	0.29	16.01	1.20	1.317	8.2	4.7	12.9	16
	121.00	Plate (PL6x3/8)	12.00	6.00	0.38	0.48	0.28	15.73	1.20	1.317	8.2	4.7	12.9	16
	121.00	HSS4x4	12.00	4.00	4.00	0.44	0.35	19.79	1.20	1.317	8.2	4.3	9.7	20
	121.00	LL(2.5x2.5x3x3)	12.00	5.40	2.50	0.47	0.30	16.83	1.20	1.317	8.2	4.6	11.9	17
	121.00	Channel (Unistrut)	0.00	1.63	1.62	-	-	-	-	-	-	-	-	-
	121.00	Channel (C3.5x2x3/16)	0.00	3.50	2.00	-	-	-	-	-	-	-	-	-

* The dimension L is the longest dimension of the member

** The dimension W is the height or width of the member that resists wind load

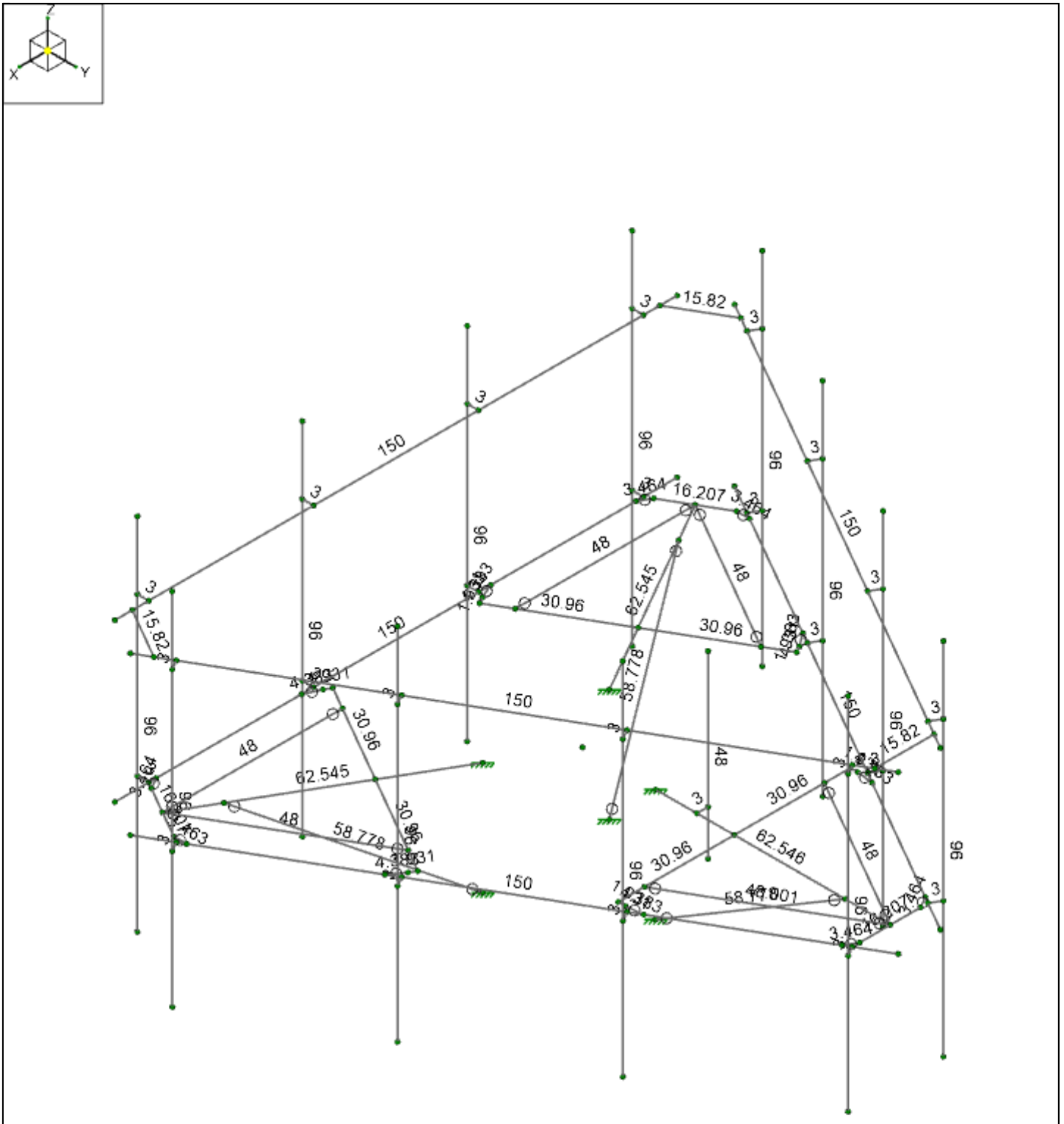
*** A_N is the area of ice built up on the LW plane

**** Ca will equal 1.2 for all ice load calculations



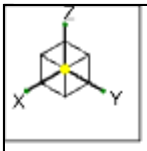
Envelope Only Solution

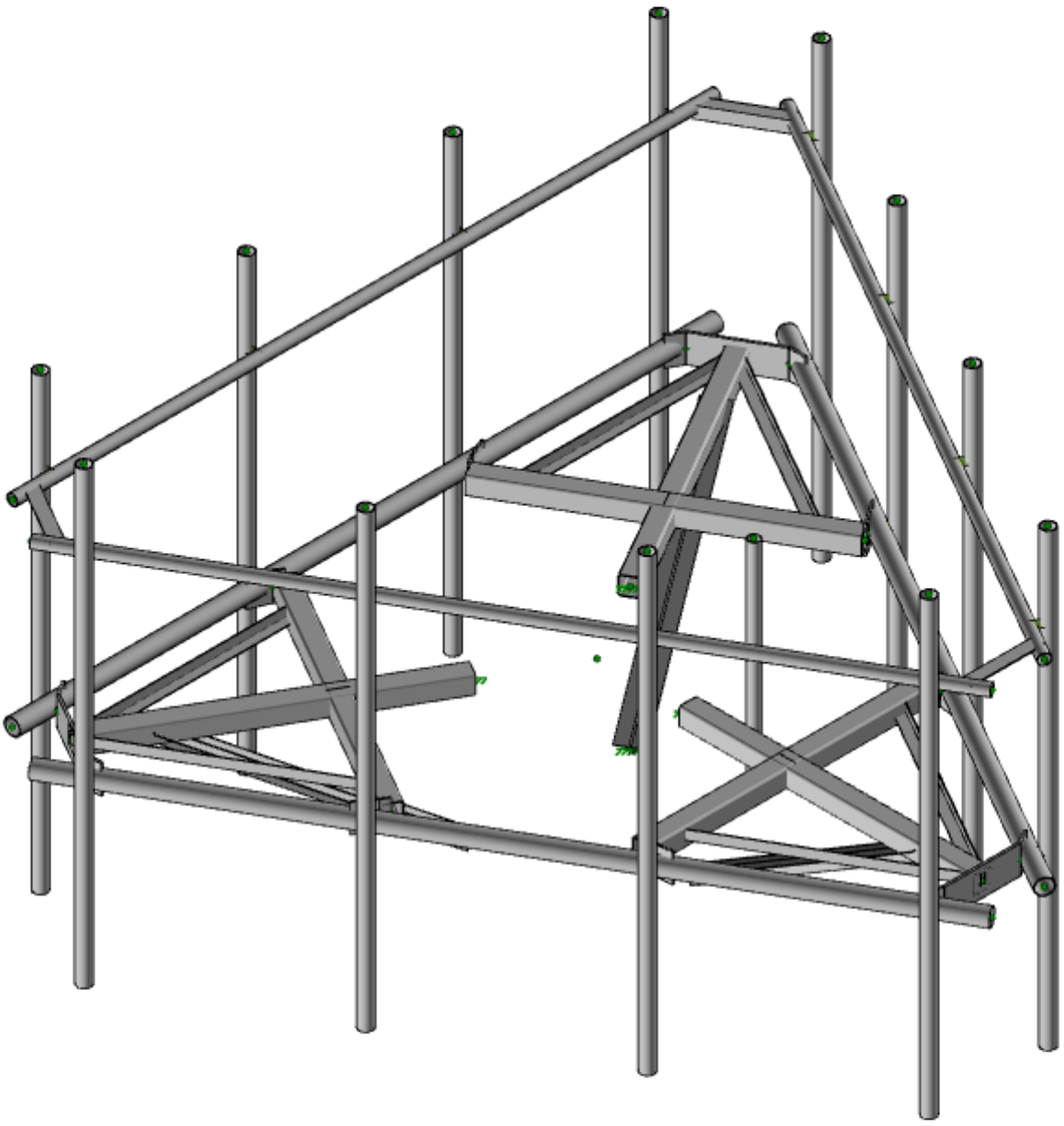
ProTerra/EFI	Kent 2 CT	SK-1
WB		Mar 09, 2023
2378002		Kent 2 CT.r3d



Member Length (in) Displayed
Envelope Only Solution

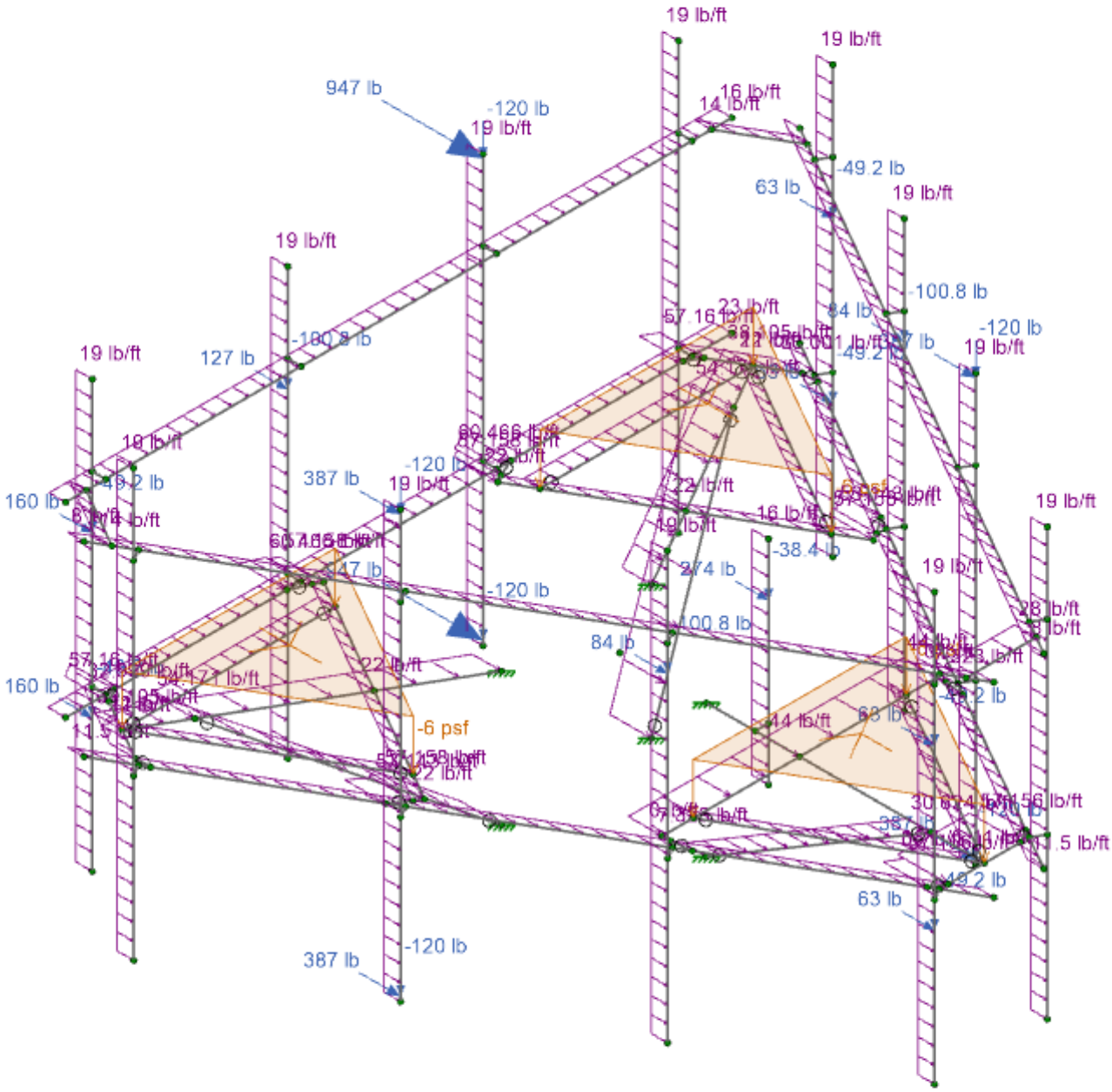
ProTerra/EFI	Kent 2 CT	SK-2
WB		Mar 09, 2023
2378002		Kent 2 CT.r3d





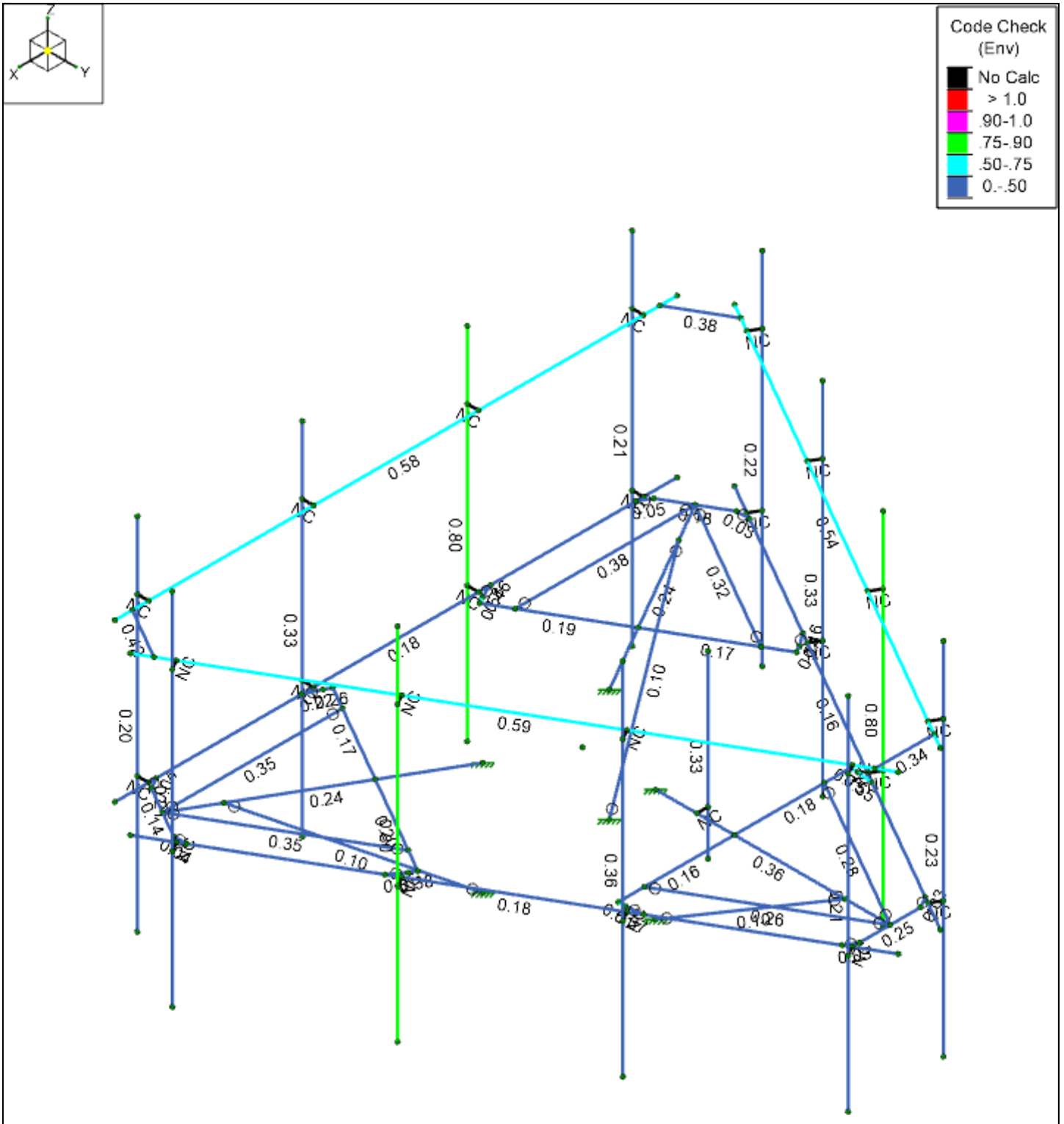
Envelope Only Solution

ProTerra/EFI	Kent 2 CT	SK-3
WB		Mar 09, 2023
2378002		Kent 2 CT.r3d

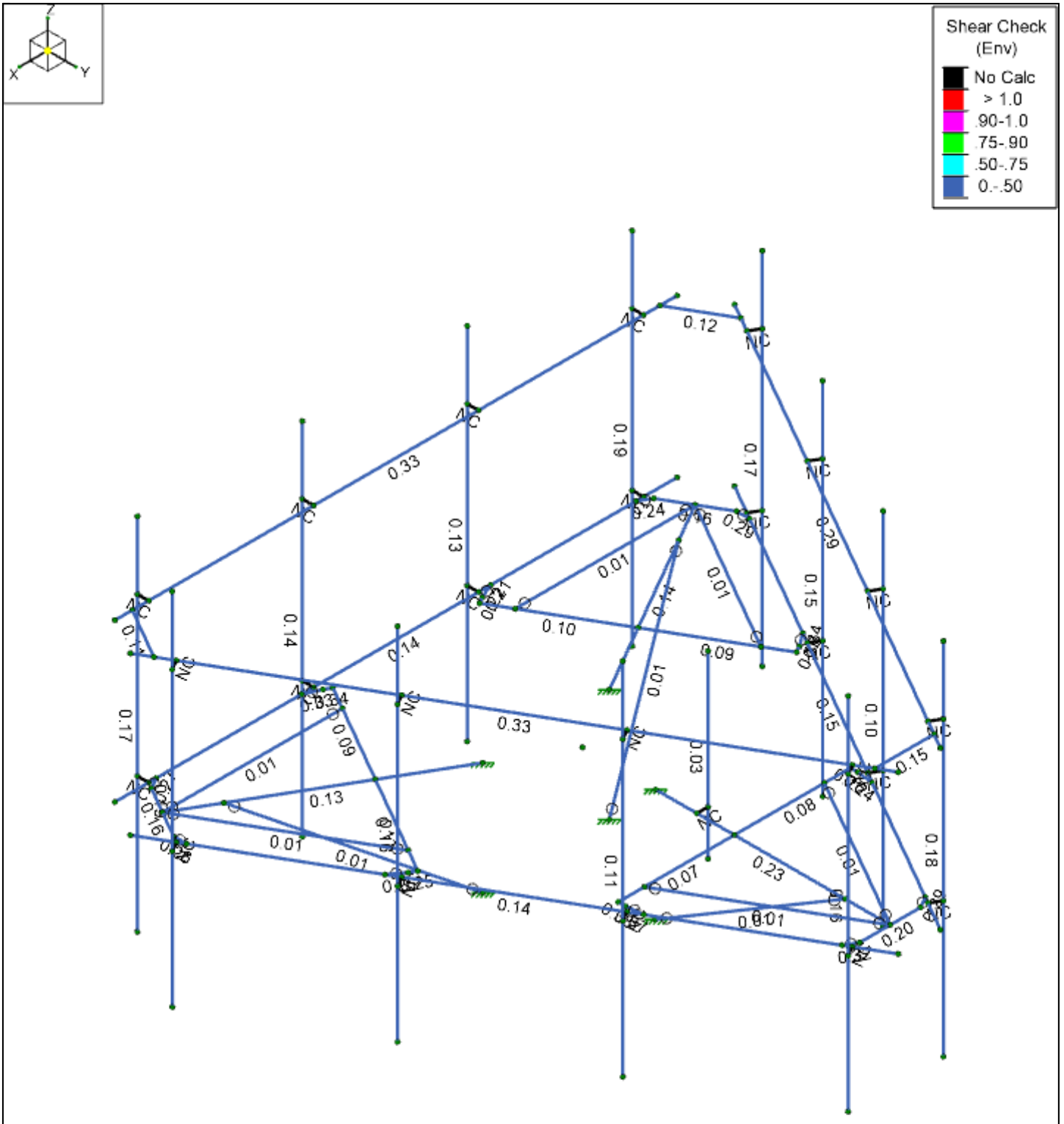


Loads: LC 1, DL + WL (NO ICE) 0 Degree
Envelope Only Solution

ProTerra/EFI	Kent 2 CT	SK-4
WB		Mar 09, 2023
2378002		Kent 2 CT.r3d

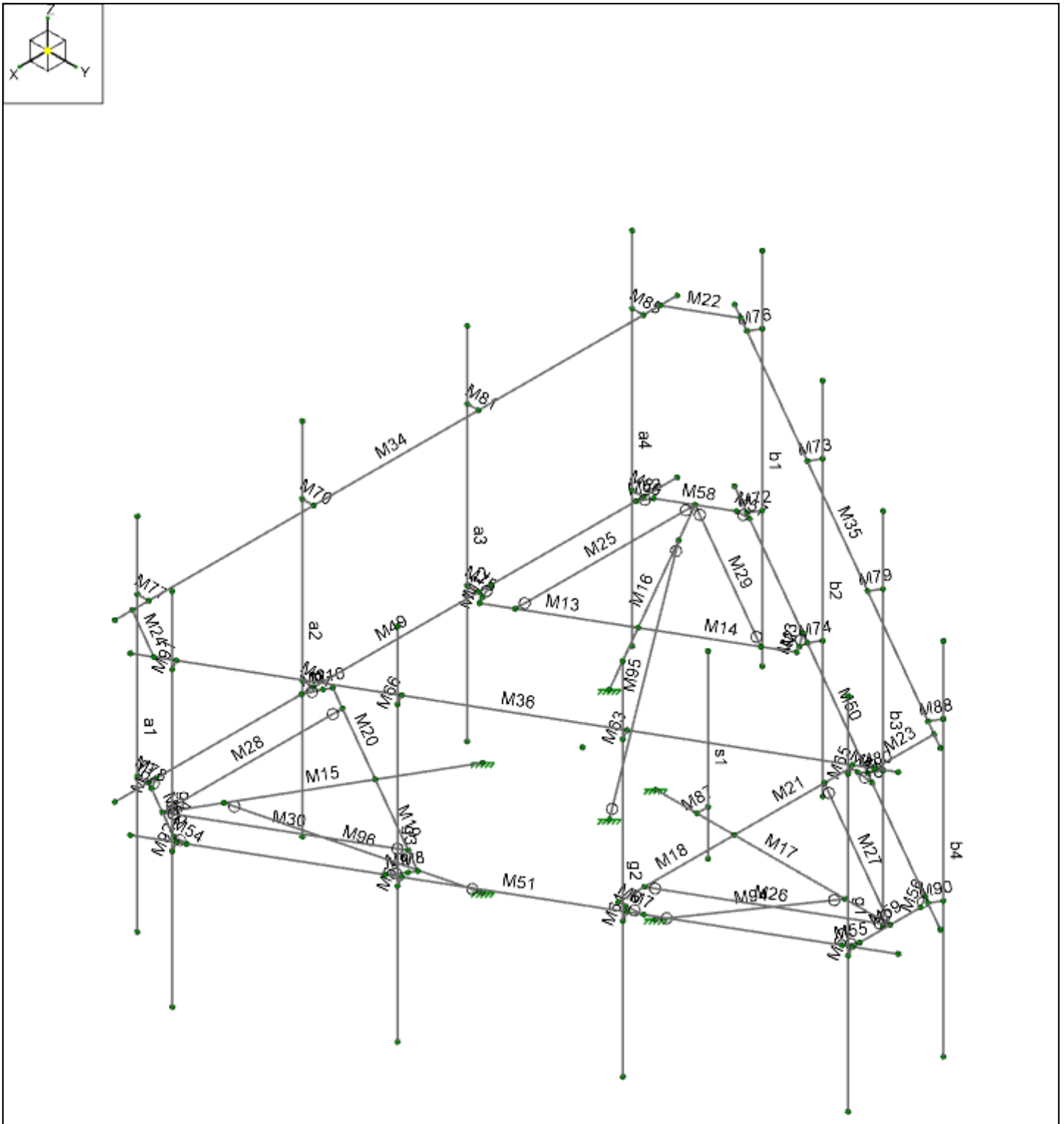


ProTerra/EFI	Kent 2 CT	SK-5
WB		Mar 09, 2023
2378002		Kent 2 CT.r3d



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

ProTerra/EFI	Kent 2 CT	SK-6
WB		Mar 09, 2023
2378002		Kent 2 CT.r3d



Envelope Only Solution

ProTerra/EFI	Kent 2 CT	SK-7
WB		Mar 09, 2023
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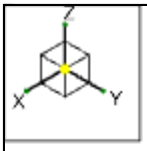
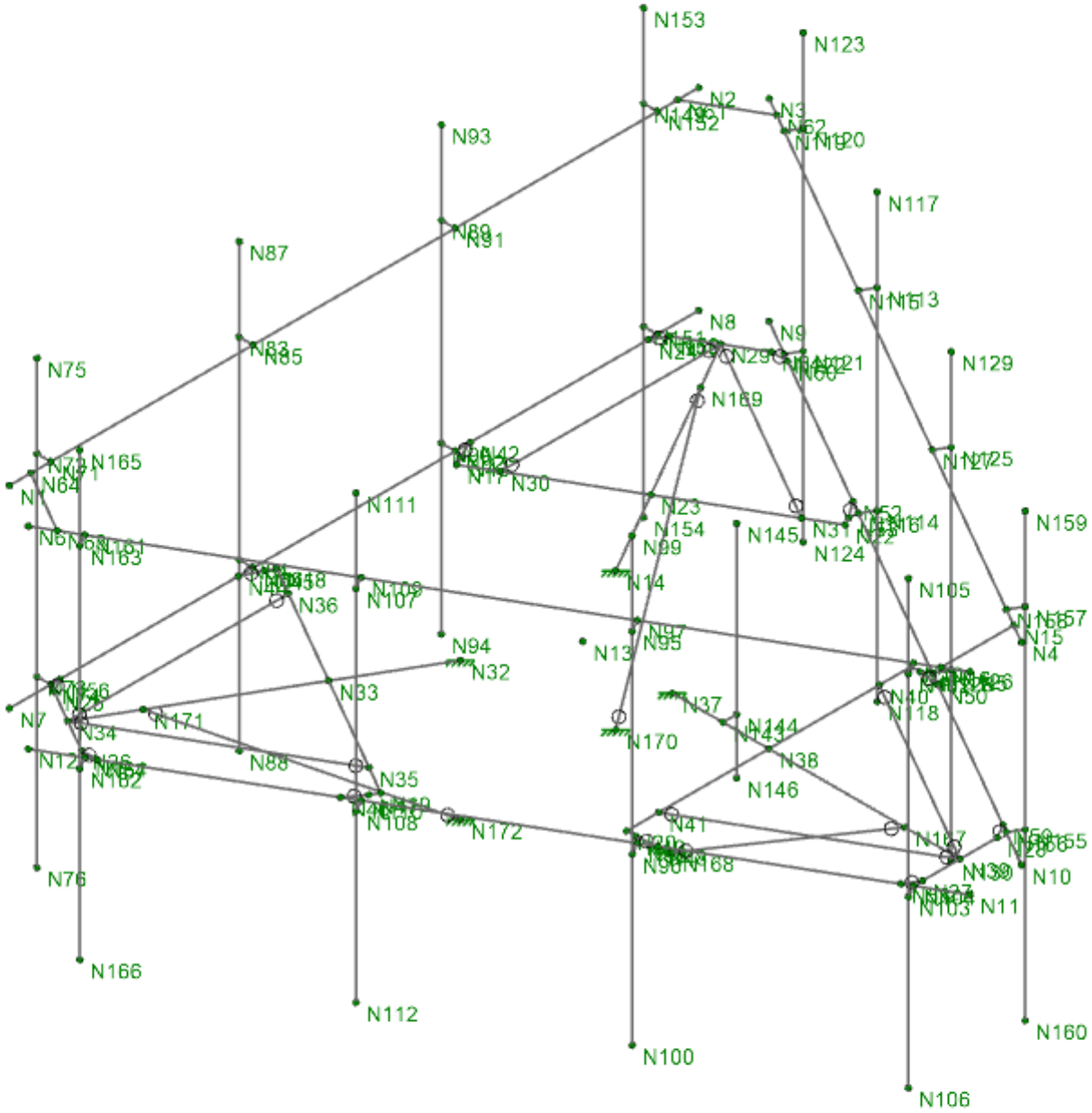




Envelope Only Solution

ProTerra/EFI	Kent 2 CT	SK-8
WB		Mar 09, 2023
2378002		Kent 2 CT.r3d

Model Settings

Solution

Members

Number of Reported Sections	5
Number of Internal Sections	100
Member Area Load Mesh Size (in^2)	144
Consider Shear Deformation	Yes
Consider Torsional Warping	Yes

Wall Panels

Approximate Mesh Size (in)	12
Transfer Forces Between Intersecting Wood Walls	Yes
Increase Wood Wall Nailing Capacity for Wind Loads	Yes
Include P-Delta for Walls	Yes
Optimize Masonry and Wood Walls	No
Maximum Number of Iterations	3

Processor Core Utilization

Single	No
Multiple (Optimum)	Yes
Maximum	No

Axis

Vertical Global Axis

Global Axis corresponding to vertical direction	Z
Convert Existing Data	Yes

Default Member Orientation

Default Global Plane for z-axis	XY

Plate Axis

Plate Local Axis Orientation	Nodal

Codes

Hot Rolled Steel	AISC 15th (360-16): LRFD
Stiffness Adjustment	Yes (Iterative)
Notional Annex	None
Connections	AISC 13th (360-05): LRFD
Cold Formed Steel	AISI NAS-01: ASD
Stiffness Adjustment	Yes (Iterative)
Wood	AF&PA NDS-05/08: ASD
Temperature	< 100F
Concrete	ACI 318-05
Masonry	ACI 530-05: ASD
Aluminum	AA ADM1-05: ASD
Structure Type	Building
Stiffness Adjustment	Yes (Iterative)
Stainless	AISC 14th (360-10): ASD
Stiffness Adjustment	Yes (Iterative)

Concrete

Column Design

Analysis Methodology	PCA Load Contour Method
Parme Beta Factor	0.65

Compression Stress Block	Rectangular Stress Block
Analyze using Cracked Sections	Yes
Leave room for horizontal rebar splices (2*d bar spacing)	No
List forces which were ignored for design in the Detail Report	Yes

Rebar

Column Min Steel	1
Column Max Steel	8
Rebar Material Spec	ASTM A615
Warn if beam-column framing arrangement is not understood	No

Model Settings (Continued)

Shear Reinforcement

Number of Shear Regions	4
Region 2 & 3 Spacing Increase Increment (in)	4

Seismic

RISA-3D Seismic Load Options

Code	UBC 1997
Occupancy Cat	4
Seismic Zone	3
Base Elevation (ft)	
Include the weight of the structure in base shear calcs	No

Site Parameters

C_a	0.36
C_v	0.54

Structure Characteristics

T Z (sec)	
T X (sec)	
C_tX	0.035
R Z	8.5
R X	8.5
Ω_0Z	1
Ω_0X	1
ρ Z	1
ρ X	1

Project Grid Lines

No Data to Print...

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	1.2
3	A992	29000	11154	0.3	0.65	0.49	50	1.1	65	1.2
4	A500 Gr.42	29000	11154	0.3	0.65	0.49	42	1.3	58	1.1
5	A500 Gr.46	29000	11154	0.3	0.65	0.49	46	1.2	58	1.1
6	A53 Gr.B	29000	11154	0.3	0.65	0.49	35	1.5	60	1.2
7	Q235	29000	11154	0.3	0.65	0.49	34	1.5	58	1.2
8	A500 Gr.B RND	29000	11154	0.3	0.65	0.527	42	1.4	58	1.3
9	A500 Gr.B Rect	29000	11154	0.3	0.65	0.527	46	1.4	58	1.3
10	A1085	29000	11154	0.3	0.65	0.49	50	1.4	65	1.3

Member Primary Data

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
1	M61	N86	N84		RIGID	None	None	RIGID	Typical
2	M67	N110	N108		RIGID	None	None	RIGID	Typical
3	M62	N104	N103		RIGID	None	None	RIGID	Typical
4	M80	N128	N126		RIGID	None	None	RIGID	Typical
5	M65	N101	N102		RIGID	None	None	RIGID	Typical
6	M64	N98	N96		RIGID	None	None	RIGID	Typical
7	M91	N161	N163		RIGID	None	None	RIGID	Typical
8	M90	N156	N155		RIGID	None	None	RIGID	Typical
9	M88	N158	N157		RIGID	None	None	RIGID	Typical
10	M85	N152	N149		RIGID	None	None	RIGID	Typical
11	M86	N150	N151		RIGID	None	None	RIGID	Typical
12	M79	N127	N125		RIGID	None	None	RIGID	Typical
13	M78	N74	N73		RIGID	None	None	RIGID	Typical
14	M76	N119	N120		RIGID	None	None	RIGID	Typical
15	M72	N122	N121		RIGID	None	None	RIGID	Typical
16	M75	N92	N90		RIGID	None	None	RIGID	Typical
17	M63	N97	N95		RIGID	None	None	RIGID	Typical
18	M77	N71	N72		RIGID	None	None	RIGID	Typical
19	M66	N109	N107		RIGID	None	None	RIGID	Typical
20	M87	N143	N144		RIGID	None	None	RIGID	Typical
21	M73	N115	N113		RIGID	None	None	RIGID	Typical
22	M81	N91	N89		RIGID	None	None	RIGID	Typical
23	M92	N164	N162		RIGID	None	None	RIGID	Typical
24	M74	N116	N114		RIGID	None	None	RIGID	Typical
25	M70	N85	N83		RIGID	None	None	RIGID	Typical
26	M58	N54	N55		PL6X1/2_HRAB	Beam	RECT	A36 Gr.36	Typical
27	M59	N27	N28		PL6X1/2_HRAB	Beam	RECT	A36 Gr.36	Typical
28	M55	N27	N58		PL6X1/2_HRAB	Beam	RECT	A36 Gr.36	Typical
29	M57	N54	N60		PL6X1/2_HRAB	Beam	RECT	A36 Gr.36	Typical
30	M52	N55	N24		PL6X1/2_HRAB	Beam	RECT	A36 Gr.36	Typical
31	M53	N25	N56		PL6X1/2_HRAB	Beam	RECT	A36 Gr.36	Typical
32	M56	N28	N59		PL6X1/2_HRAB	Beam	RECT	A36 Gr.36	Typical
33	M60	N25	N26		PL6X1/2_HRAB	Beam	RECT	A36 Gr.36	Typical
34	M54	N26	N57		PL6X1/2_HRAB	Beam	RECT	A36 Gr.36	Typical
35	M49	N8	N7		PIPE_3.0	Beam	Pipe	A53 Gr.B	Typical
36	M51	N12	N11		PIPE_3.0	Beam	Pipe	A53 Gr.B	Typical
37	M50	N10	N9		PIPE_3.0	Beam	Pipe	A53 Gr.B	Typical
38	a2	N87	N88		PIPE_2.5	Beam	Pipe	A53 Gr.B	Typical
39	g1	N105	N106		PIPE_2.5	Beam	Pipe	A53 Gr.B	Typical
40	g2	N99	N100		PIPE_2.5	Beam	Pipe	A53 Gr.B	Typical
41	g3	N111	N112		PIPE_2.5	Beam	Pipe	A53 Gr.B	Typical
42	b2	N117	N118		PIPE_2.5	Beam	Pipe	A53 Gr.B	Typical
43	a1	N75	N76		PIPE_2.5	Beam	Pipe	A53 Gr.B	Typical
44	a3	N93	N94		PIPE_2.5	Beam	Pipe	A53 Gr.B	Typical
45	a4	N153	N154		PIPE_2.5	Beam	Pipe	A53 Gr.B	Typical
46	b4	N159	N160		PIPE_2.5	Beam	Pipe	A53 Gr.B	Typical
47	g4	N165	N166		PIPE_2.5	Beam	Pipe	A53 Gr.B	Typical

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
48	b3	N129	N130		PIPE_2.5	Beam	Pipe	A53 Gr.B	Typical
49	b1	N123	N124		PIPE_2.5	Beam	Pipe	A53 Gr.B	Typical
50	M35	N4	N3		PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical
51	s1	N145	N146		PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical
52	M36	N6	N5		PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical
53	M34	N2	N1		PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical
54	M95	N169	N170		LL2.5X2.5X3X3	Beam	Double Angle (No Gap)	A36 Gr.36	Typical
55	M94	N167	N168		LL2.5X2.5X3X3	Beam	Double Angle (No Gap)	A36 Gr.36	Typical
56	M96	N171	N172		LL2.5X2.5X3X3	Beam	Double Angle (No Gap)	A36 Gr.36	Typical
57	M29	N29	N31		L2X2X3	Beam	Single Angle	A36 Gr.36	Typical
58	M30	N34	N35	270	L2X2X3	Beam	Single Angle	A36 Gr.36	Typical
59	M26	N39	N41		L2X2X3	Beam	Single Angle	A36 Gr.36	Typical
60	M28	N34	N36		L2X2X3	Beam	Single Angle	A36 Gr.36	Typical
61	M27	N39	N40	270	L2X2X3	Beam	Single Angle	A36 Gr.36	Typical
62	M25	N29	N30	270	L2X2X3	Beam	Single Angle	A36 Gr.36	Typical
63	M24	N63	N64	180	L2.5X2.5X4	Beam	Single Angle	A36 Gr.36	Typical
64	M22	N61	N62	180	L2.5X2.5X4	Beam	Single Angle	A36 Gr.36	Typical
65	M23	N15	N16	180	L2.5X2.5X4	Beam	Single Angle	A36 Gr.36	Typical
66	M16	N29	N14		HSS4X4X4	Beam	Tube	Q235	Typical
67	M19	N19	N33		HSS4X4X4	Beam	Tube	Q235	Typical
68	M20	N33	N18		HSS4X4X4	Beam	Tube	Q235	Typical
69	M14	N23	N22		HSS4X4X4	Beam	Tube	Q235	Typical
70	M17	N39	N37		HSS4X4X4	Beam	Tube	Q235	Typical
71	M15	N34	N32		HSS4X4X4	Beam	Tube	Q235	Typical
72	M18	N38	N20		HSS4X4X4	Beam	Tube	Q235	Typical
73	M21	N21	N38		HSS4X4X4	Beam	Tube	Q235	Typical
74	M13	N17	N23		HSS4X4X4	Beam	Tube	Q235	Typical
75	M2	N22	N53	90	3/8 X 6	Beam	RECT	A36 Gr.36	Typical
76	M12	N43	N42	90	3/8 X 6	Beam	RECT	A36 Gr.36	Typical
77	M10	N18	N45	90	3/8 X 6	Beam	RECT	A36 Gr.36	Typical
78	M9	N47	N46	90	3/8 X 6	Beam	RECT	A36 Gr.36	Typical
79	M8	N19	N47	90	3/8 X 6	Beam	RECT	A36 Gr.36	Typical
80	M6	N20	N49	90	3/8 X 6	Beam	RECT	A36 Gr.36	Typical
81	M4	N21	N51	90	3/8 X 6	Beam	RECT	A36 Gr.36	Typical
82	M11	N17	N43	90	3/8 X 6	Beam	RECT	A36 Gr.36	Typical
83	M5	N51	N50	90	3/8 X 6	Beam	RECT	A36 Gr.36	Typical
84	M7	N49	N48	90	3/8 X 6	Beam	RECT	A36 Gr.36	Typical
85	M1	N45	N44	90	3/8 X 6	Beam	RECT	A36 Gr.36	Typical
86	M3	N53	N52	90	3/8 X 6	Beam	RECT	A36 Gr.36	Typical

Member Advanced Data

	Label	I Release	J Release	Physical	Deflection Ratio Options	Seismic DR
1	M61			Yes	** NA **	None
2	M67			Yes	** NA **	None
3	M62			Yes	** NA **	None
4	M80			Yes	** NA **	None
5	M65			Yes	** NA **	None
6	M64			Yes	** NA **	None
7	M91			Yes	** NA **	None
8	M90			Yes	** NA **	None
9	M88			Yes	** NA **	None
10	M85			Yes	** NA **	None
11	M86			Yes	** NA **	None
12	M79			Yes	** NA **	None
13	M78			Yes	** NA **	None
14	M76			Yes	** NA **	None
15	M72			Yes	** NA **	None
16	M75			Yes	** NA **	None
17	M63			Yes	** NA **	None
18	M77			Yes	** NA **	None
19	M66			Yes	** NA **	None
20	M87			Yes	** NA **	None
21	M73			Yes	** NA **	None
22	M81			Yes	** NA **	None

Member Advanced Data (Continued)

	Label	I Release	J Release	Physical	Deflection Ratio Options	Seismic DR
23	M92			Yes	** NA **	None
24	M74			Yes	** NA **	None
25	M70			Yes	** NA **	None
26	M58			Yes	Default	None
27	M59			Yes		None
28	M55		BenPIN	Yes		None
29	M57		BenPIN	Yes		None
30	M52		BenPIN	Yes		None
31	M53		BenPIN	Yes		None
32	M56		BenPIN	Yes		None
33	M60			Yes		None
34	M54		BenPIN	Yes		None
35	M49			Yes		None
36	M51			Yes		None
37	M50			Yes		None
38	a2			Yes	Default	None
39	g1			Yes	Default	None
40	g2			Yes	Default	None
41	g3			Yes	Default	None
42	b2			Yes	Default	None
43	a1			Yes	Default	None
44	a3			Yes	Default	None
45	a4			Yes	Default	None
46	b4			Yes	Default	None
47	g4			Yes	Default	None
48	b3			Yes	Default	None
49	b1			Yes	Default	None
50	M35			Yes		None
51	s1			Yes	Default	None
52	M36			Yes		None
53	M34			Yes		None
54	M95	BenPIN	BenPIN	Yes	Default	None
55	M94	BenPIN	BenPIN	Yes	Default	None
56	M96	BenPIN	BenPIN	Yes	Default	None
57	M29	BenPIN	BenPIN	Yes		None
58	M30	BenPIN	BenPIN	Yes		None
59	M26	BenPIN	BenPIN	Yes		None
60	M28	BenPIN	BenPIN	Yes		None
61	M27	BenPIN	BenPIN	Yes		None
62	M25	BenPIN	BenPIN	Yes		None
63	M24			Yes	Default	None
64	M22			Yes	Default	None
65	M23			Yes	Default	None
66	M16			Yes	Default	None
67	M19			Yes	Default	None
68	M20			Yes	Default	None
69	M14			Yes	Default	None
70	M17			Yes	Default	None
71	M15			Yes	Default	None
72	M18			Yes	Default	None
73	M21			Yes	Default	None
74	M13			Yes	Default	None
75	M2			Yes		None
76	M12		BenPIN	Yes		None
77	M10			Yes		None
78	M9		BenPIN	Yes		None
79	M8			Yes		None
80	M6			Yes		None
81	M4			Yes		None
82	M11			Yes		None
83	M5		BenPIN	Yes		None
84	M7		BenPIN	Yes		None
85	M1		BenPIN	Yes		None
86	M3		BenPIN	Yes		None

Hot Rolled Steel Design Parameters

	Label	Shape	Length [in]	Lcomp top [in]	Function
1	M58	PL6X1/2_HRAB	16.207	Lbyy	Lateral
2	M59	PL6X1/2_HRAB	16.207	Lbyy	Lateral
3	M55	PL6X1/2_HRAB	3.464	Lbyy	Lateral
4	M57	PL6X1/2_HRAB	3.464	Lbyy	Lateral
5	M52	PL6X1/2_HRAB	3.464	Lbyy	Lateral
6	M53	PL6X1/2_HRAB	3.464	Lbyy	Lateral
7	M56	PL6X1/2_HRAB	3.464	Lbyy	Lateral
8	M60	PL6X1/2_HRAB	16.207	Lbyy	Lateral
9	M54	PL6X1/2_HRAB	3.463	Lbyy	Lateral
10	M49	PIPE_3.0	150	Lbyy	Lateral
11	M51	PIPE_3.0	150	Lbyy	Lateral
12	M50	PIPE_3.0	150	Lbyy	Lateral
13	a2	PIPE_2.5	96	Lbyy	Lateral
14	g1	PIPE_2.5	96	Lbyy	Lateral
15	g2	PIPE_2.5	96	Lbyy	Lateral
16	g3	PIPE_2.5	96	Lbyy	Lateral
17	b2	PIPE_2.5	96	Lbyy	Lateral
18	a1	PIPE_2.5	96	Lbyy	Lateral
19	a3	PIPE_2.5	96	Lbyy	Lateral
20	a4	PIPE_2.5	96	Lbyy	Lateral
21	b4	PIPE_2.5	96	Lbyy	Lateral
22	g4	PIPE_2.5	96	Lbyy	Lateral
23	b3	PIPE_2.5	96	Lbyy	Lateral
24	b1	PIPE_2.5	96	Lbyy	Lateral
25	M35	PIPE_2.0	150	Lbyy	Lateral
26	s1	PIPE_2.0	48	Lbyy	Lateral
27	M36	PIPE_2.0	150	Lbyy	Lateral
28	M34	PIPE_2.0	150	Lbyy	Lateral
29	M95	LL2.5X2.5X3X3	58.778	Lbyy	Lateral
30	M94	LL2.5X2.5X3X3	58.778	Lbyy	Lateral
31	M96	LL2.5X2.5X3X3	58.778	Lbyy	Lateral
32	M29	L2X2X3	48	Lbyy	Lateral
33	M30	L2X2X3	48	Lbyy	Lateral
34	M26	L2X2X3	48.001	Lbyy	Lateral
35	M28	L2X2X3	48	Lbyy	Lateral
36	M27	L2X2X3	48	Lbyy	Lateral
37	M25	L2X2X3	48	Lbyy	Lateral
38	M24	L2.5X2.5X4	15.82	Lbyy	Lateral
39	M22	L2.5X2.5X4	15.82	Lbyy	Lateral
40	M23	L2.5X2.5X4	15.82	Lbyy	Lateral
41	M16	HSS4X4X4	62.545	Lbyy	Lateral
42	M19	HSS4X4X4	30.96	Lbyy	Lateral
43	M20	HSS4X4X4	30.96	Lbyy	Lateral
44	M14	HSS4X4X4	30.96	Lbyy	Lateral
45	M17	HSS4X4X4	62.546	Lbyy	Lateral
46	M15	HSS4X4X4	62.545	Lbyy	Lateral
47	M18	HSS4X4X4	30.96	Lbyy	Lateral
48	M21	HSS4X4X4	30.96	Lbyy	Lateral
49	M13	HSS4X4X4	30.96	Lbyy	Lateral
50	M2	3/8 X 6	1.931	Lbyy	Lateral
51	M12	3/8 X 6	4.383	Lbyy	Lateral
52	M10	3/8 X 6	1.931	Lbyy	Lateral
53	M9	3/8 X 6	4.383	Lbyy	Lateral
54	M8	3/8 X 6	1.931	Lbyy	Lateral
55	M6	3/8 X 6	1.931	Lbyy	Lateral
56	M4	3/8 X 6	1.931	Lbyy	Lateral
57	M11	3/8 X 6	1.931	Lbyy	Lateral
58	M5	3/8 X 6	4.383	Lbyy	Lateral
59	M7	3/8 X 6	4.383	Lbyy	Lateral
60	M1	3/8 X 6	4.383	Lbyy	Lateral
61	M3	3/8 X 6	4.383	Lbyy	Lateral

Node Coordinates

	Label	X [in]	Y [in]	Z [in]	Detach From Diaphragm
1	N1	74.999812	-49.771426	42	
2	N2	-74.999811	-49.771426	42	
3	N3	-80.603226	-40.066028	42	
4	N4	-5.603414	89.837456	42	
5	N5	5.603415	89.837456	42	
6	N6	80.603226	-40.066028	42	
7	N7	74.999812	-49.771426	0	
8	N8	-74.999811	-49.771426	0	
9	N9	-80.603226	-40.066028	0	
10	N10	-5.603414	89.837456	0	
11	N11	5.603415	89.837456	0	
12	N12	80.603226	-40.066028	0	
13	N13	0	0	0	
14	N14	-16.885785	-9.749013	0	
15	N15	-7.910025	85.842289	42	
16	N16	7.910025	85.842289	42	
17	N17	-19.57149	-47.049228	0	
18	N18	19.571747	-47.049377	0	
19	N19	50.531572	6.575207	0	
20	N20	30.960082	40.474007	0	
21	N21	-30.960082	40.474007	0	
22	N22	-50.531829	6.575058	0	
23	N23	-35.051644	-20.237113	0	
24	N24	-63.999811	-49.771426	0	
25	N25	67.000113	-48.039441	0	
26	N26	75.103433	-34.003555	0	
27	N27	8.103264	82.043553	0	
28	N28	-8.103264	82.043553	0	
29	N29	-71.051612	-41.021777	0	
30	N30	-23.05148	-41.021777	0	
31	N31	-47.051902	0.547715	0	
32	N32	16.885785	-9.749013	0	
33	N33	35.051676	-20.237058	0	
34	N34	71.051707	-41.021613	0	
35	N35	47.051617	0.547681	0	
36	N36	23.05184	-41.021613	0	
37	N37	0	19.498025	0	
38	N38	0	40.474007	0	
39	N39	0	82.043553	0	
40	N40	-24.000142	40.474007	0	
41	N41	24.000447	40.474007	0	
42	N42	-25.259122	-49.771426	0	
43	N43	-21.243698	-48.014678	0	
44	N44	25.259122	-49.771426	0	
45	N45	21.243698	-48.014678	0	
46	N46	55.732883	3.01067	0	
47	N47	52.20378	5.609757	0	
48	N48	30.473758	46.760757	0	
49	N49	30.960082	42.404921	0	
50	N50	-30.473758	46.760756	0	
51	N51	-30.960082	42.404921	0	
52	N52	-55.732882	3.010671	0	
53	N53	-52.20378	5.609757	0	
54	N54	-75.103386	-34.004161	0	
55	N55	-66.999659	-48.039704	0	
56	N56	63.999811	-49.771426	0	
57	N57	75.103433	-30.540108	0	
58	N58	11.103416	80.311174	0	
59	N59	-11.103415	80.311175	0	
60	N60	-75.103386	-30.540027	0	
61	N61	-70.386591	-49.771426	42	
62	N62	-78.296615	-36.070862	42	
63	N63	78.296616	-36.070862	42	
64	N64	70.386591	-49.771426	42	
65	N71	66	-49.771426	42	

Node Coordinates (Continued)

	Label	X [in]	Y [in]	Z [in]	Detach From Diaphragm
66	N72	66	-52.771426	42	
67	N73	66	-52.771426	0	
68	N74	66	-49.771426	0	
69	N75	66	-52.771426	60	
70	N76	66	-52.771426	-36	
71	N83	22	-52.771426	42	
72	N84	22	-52.771426	0	
73	N85	22	-49.771426	42	
74	N86	22	-49.771426	0	
75	N87	22	-52.771426	60	
76	N88	22	-52.771426	-36	
77	N89	-22	-52.771426	42	
78	N90	-22	-52.771426	0	
79	N91	-22	-49.771426	42	
80	N92	-22	-49.771426	0	
81	N93	-22	-52.771426	60	
82	N94	-22	-52.771426	-36	
83	N95	34.701396	45.438272	42	
84	N96	34.701396	45.438272	0	
85	N97	32.10332	43.938272	42	
86	N98	32.10332	43.938272	0	
87	N99	34.701396	45.438272	60	
88	N100	34.701396	45.438272	-36	
89	N101	10.10332	82.04339	42	
90	N102	12.701396	83.54339	42	
91	N103	12.701396	83.54339	0	
92	N104	10.10332	82.04339	0	
93	N105	12.701396	83.54339	60	
94	N106	12.701396	83.54339	-36	
95	N107	56.701396	7.333154	42	
96	N108	56.701396	7.333154	0	
97	N109	54.10332	5.833155	42	
98	N110	54.10332	5.833155	0	
99	N111	56.701396	7.333154	60	
100	N112	56.701396	7.333154	-36	
101	N113	-56.701396	7.333154	42	
102	N114	-56.701396	7.333154	0	
103	N115	-54.10332	5.833155	42	
104	N116	-54.10332	5.833155	0	
105	N117	-56.701396	7.333154	60	
106	N118	-56.701396	7.333154	-36	
107	N119	-76.10332	-32.271963	42	
108	N120	-78.701396	-30.771964	42	
109	N121	-78.701396	-30.771964	0	
110	N122	-76.10332	-32.271963	0	
111	N123	-78.701396	-30.771964	60	
112	N124	-78.701396	-30.771964	-36	
113	N125	-34.701396	45.438272	42	
114	N126	-34.701396	45.438272	0	
115	N127	-32.10332	43.938272	42	
116	N128	-32.10332	43.938272	0	
117	N129	-34.701396	45.438272	60	
118	N130	-34.701396	45.438272	-36	
119	N149	-66	-52.771426	42	
120	N150	-66	-49.771426	0	
121	N151	-66	-52.771426	0	
122	N152	-66	-49.771426	42	
123	N153	-66	-52.771426	60	
124	N154	-66	-52.771426	-36	
125	N155	-12.701396	83.54339	0	
126	N156	-10.10332	82.04339	0	
127	N157	-12.701396	83.54339	42	
128	N158	-10.10332	82.04339	42	
129	N159	-12.701396	83.54339	60	
130	N160	-12.701396	83.54339	-36	

Node Coordinates (Continued)

	Label	X [in]	Y [in]	Z [in]	Detach From Diaphragm
131	N161	76.10332	-32.271963	42	
132	N162	78.701396	-30.771964	0	
133	N163	78.701396	-30.771964	42	
134	N164	76.10332	-32.271963	0	
135	N165	78.701396	-30.771964	60	
136	N166	78.701396	-30.771964	-36	
137	N167	0	70.043553	0	
138	N168	0	19.498025	-30	
139	N169	-60.659496	-35.021777	0	
140	N170	-16.885785	-9.749013	-30	
141	N171	60.659496	-35.021777	0	
142	N172	16.885785	-9.749013	-30	
143	N143	0	30.474007	0	
144	N144	-3	30.474007	0	
145	N145	-3	30.474007	36	
146	N146	-3	30.474007	-12	

Node Boundary Conditions

	Y [k/in]	X Rot [k-ft/rad]	X [k/in]	Z Rot [k-ft/rad]	Z [k/in]	Node Label	Y Rot [k-ft/rad]
1	Reaction	Reaction	Reaction	Reaction	Reaction	N14	Reaction
2	Reaction	Reaction	Reaction	Reaction	Reaction	N32	Reaction
3	Reaction	Reaction	Reaction	Reaction	Reaction	N37	Reaction
4	Reaction	Reaction	Reaction	Reaction	Reaction	N168	Reaction
5	Reaction	Reaction	Reaction	Reaction	Reaction	N170	Reaction
6	Reaction	Reaction	Reaction	Reaction	Reaction	N172	Reaction

Basic Load Cases

	BLC Description	Category	Z Gravity	Nodal	Point	Distributed	Area(Member)
1	DEAD LOAD	None	-1		16		3
2	DEAD LOAD ICE	None			16	61	3
3	WIND LOAD (NO ICE) FRONT	None			16	61	
4	WIND LOAD (NO ICE) SIDE	None			16	61	
5	WIND LOAD (ICE) FRONT	None			16	61	
6	WIND LOAD (ICE) SIDE	None			16	61	
7	LIVE LOAD1	None		1			
8	LIVE LOAD2	None		1			
9	LIVE LOAD3	None		1			
10	MAINTENANCE LOAD1	None		1			
11	MAINTENANCE LOAD2	None		1			
12	MAINTENANCE LOAD3	None		1			
13	MAINTENANCE LOAD4	None		1			
14	BLC 1 Transient Area Loads	None				21	
15	BLC 2 Transient Area Loads	None				21	

Node Loads and Enforced Displacements (BLC 7 : LIVE LOAD1)

	Node Label	L, D, M	Direction	Magnitude [(lb, k-ft), (in, rad), (lb*s²/in, lb*s²*in)]
1	N7	L	Z	-250

Node Loads and Enforced Displacements (BLC 8 : LIVE LOAD2)

	Node Label	L, D, M	Direction	Magnitude [(lb, k-ft), (in, rad), (lb*s²/in, lb*s²*in)]
1	N9	L	Z	-250

Node Loads and Enforced Displacements (BLC 9 : LIVE LOAD3)

	Node Label	L, D, M	Direction	Magnitude [(lb, k-ft), (in, rad), (lb*s²/in, lb*s²*in)]
1	N11	L	Z	-250

Node Loads and Enforced Displacements (BLC 10 : MAINTENANCE LOAD1)

	Node Label	L, D, M	Direction	Magnitude [(lb, k-ft), (in, rad), (lb*s²/in, lb*s²*in)]
1	N76	L	Z	-500

Node Loads and Enforced Displacements (BLC 11 : MAINTENANCE LOAD2)

	Node Label	L, D, M	Direction	Magnitude [(lb, k-ft), (in, rad), (lb*s²/in, lb*s²*in)]
1	N154	L	Z	-500

Node Loads and Enforced Displacements (BLC 12 : MAINTENANCE LOAD3)

	Node Label	L, D, M	Direction	Magnitude [(lb, k-ft), (in, rad), (lb*s²/in, lb*s²*in)]
1	N88	L	Z	-500

Node Loads and Enforced Displacements (BLC 13 : MAINTENANCE LOAD4)

	Node Label	L, D, M	Direction	Magnitude [(lb, k-ft), (in, rad), (lb*s²/in, lb*s²*in)]
1	N94	L	Z	-500

Member Point Loads (BLC 1 : DEAD LOAD)

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(in, %)]
1	a1	Z	-41	30
2	a1	Z	-41	66
3	a2	Z	-84	24
4	a3	Z	-100	1
5	a3	Z	-100	95
6	b1	Z	-41	30
7	b1	Z	-41	66
8	b2	Z	-84	24
9	b3	Z	-100	1
10	b3	Z	-100	95
11	g1	Z	-41	30
12	g1	Z	-41	66
13	g2	Z	-84	24
14	g3	Z	-100	1
15	g3	Z	-100	95
16	s1	Z	-32	12

Member Point Loads (BLC 2 : DEAD LOAD ICE)

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(in, %)]
1	a1	Z	-55	30
2	a1	Z	-55	66
3	a2	Z	-70	24
4	a3	Z	-357	1
5	a3	Z	-357	95
6	b1	Z	-55	30
7	b1	Z	-55	66
8	b2	Z	-70	24
9	b3	Z	-357	1
10	b3	Z	-357	95
11	g1	Z	-55	30
12	g1	Z	-55	66
13	g2	Z	-70	24
14	g3	Z	-357	1
15	g3	Z	-357	95
16	s1	Z	-134	12

Member Point Loads (BLC 3 : WIND LOAD (NO ICE) FRONT)

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(in, %)]
1	a1	Y	160	30
2	a1	Y	160	66
3	a2	Y	127	24
4	a3	Y	947	1
5	a3	Y	947	95
6	b1	Y	63	30
7	b1	Y	63	66
8	b2	Y	84	24
9	b3	Y	387	1
10	b3	Y	387	95
11	g1	Y	63	30
12	g1	Y	63	66
13	g2	Y	84	24
14	g3	Y	387	1
15	g3	Y	387	95
16	s1	Y	274	12

Member Point Loads (BLC 4 : WIND LOAD (NO ICE) SIDE)

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(in, %)]
1	a1	X	63	30
2	a1	X	63	66
3	a2	X	84	24
4	a3	X	387	1
5	a3	X	387	95
6	b1	X	160	30
7	b1	X	160	66
8	b2	X	127	24
9	b3	X	947	1
10	b3	X	947	95
11	g1	X	160	30
12	g1	X	160	66
13	g2	X	127	24
14	g3	X	947	1
15	g3	X	947	95
16	s1	X	209	12

Member Point Loads (BLC 5 : WIND LOAD (ICE) FRONT)

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(in, %)]
1	a1	Y	23	30
2	a1	Y	23	66
3	a2	Y	20	24
4	a3	Y	131	1
5	a3	Y	131	95
6	b1	Y	11	30
7	b1	Y	11	66
8	b2	Y	14	24
9	b3	Y	57	1
10	b3	Y	57	95
11	g1	Y	11	30
12	g1	Y	11	66
13	g2	Y	14	24
14	g3	Y	57	1
15	g3	Y	57	95
16	s1	Y	40	12

Member Point Loads (BLC 6 : WIND LOAD (ICE) SIDE)

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(in, %)]
1	a1	X	11	30
2	a1	X	11	66
3	a2	X	14	24

Member Point Loads (BLC 6 : WIND LOAD (ICE) SIDE) (Continued)

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(in, %)]
4	a3	X	57	1
5	a3	X	57	95
6	b1	X	23	30
7	b1	X	23	66
8	b2	X	20	24
9	b3	X	131	1
10	b3	X	131	95
11	g1	X	23	30
12	g1	X	23	66
13	g2	X	20	24
14	g3	X	131	1
15	g3	X	131	95
16	s1	X	31	12

Member Distributed Loads (BLC 2 : DEAD LOAD ICE)

	Member Label	Direction	Start Magnitude [lb/ft, F, psf, k-ft/in]	End Magnitude [lb/ft, F, psf, k-ft/in]	Start Location [(in, %)]	End Location [(in, %)]
1	M58	Z	-16	-16	0	%100
2	M59	Z	-16	-16	0	%100
3	M55	Z	-16	-16	0	%100
4	M57	Z	-16	-16	0	%100
5	M52	Z	-16	-16	0	%100
6	M53	Z	-16	-16	0	%100
7	M56	Z	-16	-16	0	%100
8	M60	Z	-16	-16	0	%100
9	M54	Z	-16	-16	0	%100
10	M49	Z	-10	-10	0	%100
11	M51	Z	-10	-10	0	%100
12	M50	Z	-10	-10	0	%100
13	a2	Z	-9	-9	0	%100
14	g1	Z	-9	-9	0	%100
15	g2	Z	-9	-9	0	%100
16	g3	Z	-9	-9	0	%100
17	b2	Z	-9	-9	0	%100
18	a1	Z	-9	-9	0	%100
19	a3	Z	-9	-9	0	%100
20	a4	Z	-9	-9	0	%100
21	b4	Z	-9	-9	0	%100
22	g4	Z	-9	-9	0	%100
23	b3	Z	-9	-9	0	%100
24	b1	Z	-9	-9	0	%100
25	M35	Z	-8	-8	0	%100
26	s1	Z	-8	-8	0	%100
27	M36	Z	-8	-8	0	%100
28	M34	Z	-8	-8	0	%100
29	M95	Z	-17	-17	0	%100
30	M94	Z	-17	-17	0	%100
31	M96	Z	-17	-17	0	%100
32	M29	Z	-5	-5	0	%100
33	M30	Z	-5	-5	0	%100
34	M26	Z	-5	-5	0	%100
35	M28	Z	-5	-5	0	%100
36	M27	Z	-5	-5	0	%100
37	M25	Z	-5	-5	0	%100
38	M24	Z	-6	-6	0	%100
39	M22	Z	-6	-6	0	%100
40	M23	Z	-6	-6	0	%100
41	M16	Z	-20	-20	0	%100
42	M19	Z	-20	-20	0	%100
43	M20	Z	-20	-20	0	%100
44	M14	Z	-20	-20	0	%100
45	M17	Z	-20	-20	0	%100
46	M15	Z	-20	-20	0	%100
47	M18	Z	-20	-20	0	%100
48	M21	Z	-20	-20	0	%100

Member Distributed Loads (BLC 2 : DEAD LOAD ICE) (Continued)

	Member Label	Direction	Start Magnitude [lb/ft, F, psf, k-ft/in]	End Magnitude [lb/ft, F, psf, k-ft/in]	Start Location [(in, %)]	End Location [(in, %)]
49	M13	Z	-20	-20	0	%100
50	M2	Z	-16	-16	0	%100
51	M12	Z	-16	-16	0	%100
52	M10	Z	-16	-16	0	%100
53	M9	Z	-16	-16	0	%100
54	M8	Z	-16	-16	0	%100
55	M6	Z	-16	-16	0	%100
56	M4	Z	-16	-16	0	%100
57	M11	Z	-16	-16	0	%100
58	M5	Z	-16	-16	0	%100
59	M7	Z	-16	-16	0	%100
60	M1	Z	-16	-16	0	%100
61	M3	Z	-16	-16	0	%100

Member Distributed Loads (BLC 3 : WIND LOAD (NO ICE) FRONT)

	Member Label	Direction	Start Magnitude [lb/ft, F, psf, k-ft/in]	End Magnitude [lb/ft, F, psf, k-ft/in]	Start Location [(in, %)]	End Location [(in, %)]
1	M58	PY	66	66	0	%100
2	M59	PY	66	66	0	%100
3	M55	PY	66	66	0	%100
4	M57	PY	66	66	0	%100
5	M52	PY	66	66	0	%100
6	M53	PY	66	66	0	%100
7	M56	PY	66	66	0	%100
8	M60	PY	66	66	0	%100
9	M54	PY	66	66	0	%100
10	M49	PY	23	23	0	%100
11	M51	PY	23	23	0	%100
12	M50	PY	23	23	0	%100
13	a2	PY	19	19	0	%100
14	g1	PY	19	19	0	%100
15	g2	PY	19	19	0	%100
16	g3	PY	19	19	0	%100
17	b2	PY	19	19	0	%100
18	a1	PY	19	19	0	%100
19	a3	PY	19	19	0	%100
20	a4	PY	19	19	0	%100
21	b4	PY	19	19	0	%100
22	g4	PY	19	19	0	%100
23	b3	PY	19	19	0	%100
24	b1	PY	19	19	0	%100
25	M35	PY	16	16	0	%100
26	s1	PY	16	16	0	%100
27	M36	PY	16	16	0	%100
28	M34	PY	16	16	0	%100
29	M95	PY	60	60	0	%100
30	M94	PY	60	60	0	%100
31	M96	PY	60	60	0	%100
32	M29	PY	22	22	0	%100
33	M30	PY	22	22	0	%100
34	M26	PY	22	22	0	%100
35	M28	PY	22	22	0	%100
36	M27	PY	22	22	0	%100
37	M25	PY	22	22	0	%100
38	M24	PY	28	28	0	%100
39	M22	PY	28	28	0	%100
40	M23	PY	28	28	0	%100
41	M16	PY	44	44	0	%100
42	M19	PY	44	44	0	%100
43	M20	PY	44	44	0	%100
44	M14	PY	44	44	0	%100
45	M17	PY	44	44	0	%100
46	M15	PY	44	44	0	%100
47	M18	PY	44	44	0	%100
48	M21	PY	44	44	0	%100

Member Distributed Loads (BLC 3 : WIND LOAD (NO ICE) FRONT) (Continued)

	Member Label	Direction	Start Magnitude [lb/ft, F, psf, k-ft/in]	End Magnitude [lb/ft, F, psf, k-ft/in]	Start Location [(in, %)]	End Location [(in, %)]
49	M13	PY	44	44	0	%100
50	M2	PY	66	66	0	%100
51	M12	PY	66	66	0	%100
52	M10	PY	66	66	0	%100
53	M9	PY	66	66	0	%100
54	M8	PY	66	66	0	%100
55	M6	PY	66	66	0	%100
56	M4	PY	66	66	0	%100
57	M11	PY	66	66	0	%100
58	M5	PY	66	66	0	%100
59	M7	PY	66	66	0	%100
60	M1	PY	66	66	0	%100
61	M3	PY	66	66	0	%100

Member Distributed Loads (BLC 4 : WIND LOAD (NO ICE) SIDE)

	Member Label	Direction	Start Magnitude [lb/ft, F, psf, k-ft/in]	End Magnitude [lb/ft, F, psf, k-ft/in]	Start Location [(in, %)]	End Location [(in, %)]
1	M58	PX	66	66	0	%100
2	M59	PX	66	66	0	%100
3	M55	PX	66	66	0	%100
4	M57	PX	66	66	0	%100
5	M52	PX	66	66	0	%100
6	M53	PX	66	66	0	%100
7	M56	PX	66	66	0	%100
8	M60	PX	66	66	0	%100
9	M54	PX	66	66	0	%100
10	M49	PX	23	23	0	%100
11	M51	PX	23	23	0	%100
12	M50	PX	23	23	0	%100
13	a2	PX	19	19	0	%100
14	g1	PX	19	19	0	%100
15	g2	PX	19	19	0	%100
16	g3	PX	19	19	0	%100
17	b2	PX	19	19	0	%100
18	a1	PX	19	19	0	%100
19	a3	PX	19	19	0	%100
20	a4	PX	19	19	0	%100
21	b4	PX	19	19	0	%100
22	g4	PX	19	19	0	%100
23	b3	PX	19	19	0	%100
24	b1	PX	19	19	0	%100
25	M35	PX	16	16	0	%100
26	s1	PX	16	16	0	%100
27	M36	PX	16	16	0	%100
28	M34	PX	16	16	0	%100
29	M95	PX	60	60	0	%100
30	M94	PX	60	60	0	%100
31	M96	PX	60	60	0	%100
32	M29	PX	22	22	0	%100
33	M30	PX	22	22	0	%100
34	M26	PX	22	22	0	%100
35	M28	PX	22	22	0	%100
36	M27	PX	22	22	0	%100
37	M25	PX	22	22	0	%100
38	M24	PX	28	28	0	%100
39	M22	PX	28	28	0	%100
40	M23	PX	28	28	0	%100
41	M16	PX	44	44	0	%100
42	M19	PX	44	44	0	%100
43	M20	PX	44	44	0	%100
44	M14	PX	44	44	0	%100
45	M17	PX	44	44	0	%100
46	M15	PX	44	44	0	%100
47	M18	PX	44	44	0	%100
48	M21	PX	44	44	0	%100

Member Distributed Loads (BLC 4 : WIND LOAD (NO ICE) SIDE) (Continued)

	Member Label	Direction	Start Magnitude [lb/ft, F, psf, k-ft/in]	End Magnitude [lb/ft, F, psf, k-ft/in]	Start Location [(in, %)]	End Location [(in, %)]
49	M13	PX	44	44	0	%100
50	M2	PX	66	66	0	%100
51	M12	PX	66	66	0	%100
52	M10	PX	66	66	0	%100
53	M9	PX	66	66	0	%100
54	M8	PX	66	66	0	%100
55	M6	PX	66	66	0	%100
56	M4	PX	66	66	0	%100
57	M11	PX	66	66	0	%100
58	M5	PX	66	66	0	%100
59	M7	PX	66	66	0	%100
60	M1	PX	66	66	0	%100
61	M3	PX	66	66	0	%100

Member Distributed Loads (BLC 5 : WIND LOAD (ICE) FRONT)

	Member Label	Direction	Start Magnitude [lb/ft, F, psf, k-ft/in]	End Magnitude [lb/ft, F, psf, k-ft/in]	Start Location [(in, %)]	End Location [(in, %)]
1	M58	PY	12.9	12.9	0	%100
2	M59	PY	12.9	12.9	0	%100
3	M55	PY	12.9	12.9	0	%100
4	M57	PY	12.9	12.9	0	%100
5	M52	PY	12.9	12.9	0	%100
6	M53	PY	12.9	12.9	0	%100
7	M56	PY	12.9	12.9	0	%100
8	M60	PY	12.9	12.9	0	%100
9	M54	PY	12.9	12.9	0	%100
10	M49	PY	7	7	0	%100
11	M51	PY	7	7	0	%100
12	M50	PY	7	7	0	%100
13	a2	PY	6.4	6.4	0	%100
14	g1	PY	6.4	6.4	0	%100
15	g2	PY	6.4	6.4	0	%100
16	g3	PY	6.4	6.4	0	%100
17	b2	PY	6.4	6.4	0	%100
18	a1	PY	6.4	6.4	0	%100
19	a3	PY	6.4	6.4	0	%100
20	a4	PY	6.4	6.4	0	%100
21	b4	PY	6.4	6.4	0	%100
22	g4	PY	6.4	6.4	0	%100
23	b3	PY	6.4	6.4	0	%100
24	b1	PY	6.4	6.4	0	%100
25	M35	PY	5.8	5.8	0	%100
26	s1	PY	5.8	5.8	0	%100
27	M36	PY	5.8	5.8	0	%100
28	M34	PY	5.8	5.8	0	%100
29	M95	PY	11.9	11.9	0	%100
30	M94	PY	11.9	11.9	0	%100
31	M96	PY	11.9	11.9	0	%100
32	M29	PY	6.5	6.5	0	%100
33	M30	PY	6.5	6.5	0	%100
34	M26	PY	6.5	6.5	0	%100
35	M28	PY	6.5	6.5	0	%100
36	M27	PY	6.5	6.5	0	%100
37	M25	PY	6.5	6.5	0	%100
38	M24	PY	7.3	7.3	0	%100
39	M22	PY	7.3	7.3	0	%100
40	M23	PY	7.3	7.3	0	%100
41	M16	PY	9.7	9.7	0	%100
42	M19	PY	9.7	9.7	0	%100
43	M20	PY	9.7	9.7	0	%100
44	M14	PY	9.7	9.7	0	%100
45	M17	PY	9.7	9.7	0	%100
46	M15	PY	9.7	9.7	0	%100
47	M18	PY	9.7	9.7	0	%100
48	M21	PY	9.7	9.7	0	%100

Member Distributed Loads (BLC 5 : WIND LOAD (ICE) FRONT) (Continued)

	Member Label	Direction	Start Magnitude [lb/ft, F, psf, k-ft/in]	End Magnitude [lb/ft, F, psf, k-ft/in]	Start Location [(in, %)]	End Location [(in, %)]
49	M13	PY	9.7	9.7	0	%100
50	M2	PY	12.9	12.9	0	%100
51	M12	PY	12.9	12.9	0	%100
52	M10	PY	12.9	12.9	0	%100
53	M9	PY	12.9	12.9	0	%100
54	M8	PY	12.9	12.9	0	%100
55	M6	PY	12.9	12.9	0	%100
56	M4	PY	12.9	12.9	0	%100
57	M11	PY	12.9	12.9	0	%100
58	M5	PY	12.9	12.9	0	%100
59	M7	PY	12.9	12.9	0	%100
60	M1	PY	12.9	12.9	0	%100
61	M3	PY	12.9	12.9	0	%100

Member Distributed Loads (BLC 6 : WIND LOAD (ICE) SIDE)

	Member Label	Direction	Start Magnitude [lb/ft, F, psf, k-ft/in]	End Magnitude [lb/ft, F, psf, k-ft/in]	Start Location [(in, %)]	End Location [(in, %)]
1	M58	PX	12.9	12.9	0	%100
2	M59	PX	12.9	12.9	0	%100
3	M55	PX	12.9	12.9	0	%100
4	M57	PX	12.9	12.9	0	%100
5	M52	PX	12.9	12.9	0	%100
6	M53	PX	12.9	12.9	0	%100
7	M56	PX	12.9	12.9	0	%100
8	M60	PX	12.9	12.9	0	%100
9	M54	PX	12.9	12.9	0	%100
10	M49	PX	7	7	0	%100
11	M51	PX	7	7	0	%100
12	M50	PX	7	7	0	%100
13	a2	PX	6.4	6.4	0	%100
14	g1	PX	6.4	6.4	0	%100
15	g2	PX	6.4	6.4	0	%100
16	g3	PX	6.4	6.4	0	%100
17	b2	PX	6.4	6.4	0	%100
18	a1	PX	6.4	6.4	0	%100
19	a3	PX	6.4	6.4	0	%100
20	a4	PX	6.4	6.4	0	%100
21	b4	PX	6.4	6.4	0	%100
22	g4	PX	6.4	6.4	0	%100
23	b3	PX	6.4	6.4	0	%100
24	b1	PX	6.4	6.4	0	%100
25	M35	PX	5.8	5.8	0	%100
26	s1	PX	5.8	5.8	0	%100
27	M36	PX	5.8	5.8	0	%100
28	M34	PX	5.8	5.8	0	%100
29	M95	PX	11.9	11.9	0	%100
30	M94	PX	11.9	11.9	0	%100
31	M96	PX	11.9	11.9	0	%100
32	M29	PX	6.5	6.5	0	%100
33	M30	PX	6.5	6.5	0	%100
34	M26	PX	6.5	6.5	0	%100
35	M28	PX	6.5	6.5	0	%100
36	M27	PX	6.5	6.5	0	%100
37	M25	PX	6.5	6.5	0	%100
38	M24	PX	7.3	7.3	0	%100
39	M22	PX	7.3	7.3	0	%100
40	M23	PX	7.3	7.3	0	%100
41	M16	PX	9.7	9.7	0	%100
42	M19	PX	9.7	9.7	0	%100
43	M20	PX	9.7	9.7	0	%100
44	M14	PX	9.7	9.7	0	%100
45	M17	PX	9.7	9.7	0	%100
46	M15	PX	9.7	9.7	0	%100
47	M18	PX	9.7	9.7	0	%100
48	M21	PX	9.7	9.7	0	%100

Member Distributed Loads (BLC 6 : WIND LOAD (ICE) SIDE) (Continued)

	Member Label	Direction	Start Magnitude [lb/ft, F, psf, k-ft/in]	End Magnitude [lb/ft, F, psf, k-ft/in]	Start Location [(in, %)]	End Location [(in, %)]
49	M13	PX	9.7	9.7	0	%100
50	M2	PX	12.9	12.9	0	%100
51	M12	PX	12.9	12.9	0	%100
52	M10	PX	12.9	12.9	0	%100
53	M9	PX	12.9	12.9	0	%100
54	M8	PX	12.9	12.9	0	%100
55	M6	PX	12.9	12.9	0	%100
56	M4	PX	12.9	12.9	0	%100
57	M11	PX	12.9	12.9	0	%100
58	M5	PX	12.9	12.9	0	%100
59	M7	PX	12.9	12.9	0	%100
60	M1	PX	12.9	12.9	0	%100
61	M3	PX	12.9	12.9	0	%100

Member Distributed Loads (BLC 14 : BLC 1 Transient Area Loads)

	Member Label	Direction	Start Magnitude [lb/ft, F, psf, k-ft/in]	End Magnitude [lb/ft, F, psf, k-ft/in]	Start Location [(in, %)]	End Location [(in, %)]
1	M29	Z	-0.704	-2.37	0	24
2	M29	Z	-2.37	-4.036	24	48
3	M25	Z	-0.704	-2.37	0	24
4	M25	Z	-2.37	-4.036	24	48
5	M16	Z	-5.32	-5.32	12.094	31.297
6	M14	Z	-3.846	-3.846	0	11.177
7	M13	Z	-3.846	-3.846	19.783	30.96
8	M30	Z	-0.704	-2.37	0	24
9	M30	Z	-2.37	-4.036	24	48
10	M28	Z	-0.712	-2.362	0	24
11	M28	Z	-2.362	-4.012	24	48
12	M19	Z	-3.846	-3.846	19.783	30.96
13	M20	Z	-3.862	-3.862	0	11.218
14	M15	Z	-5.322	-5.322	12.094	31.297
15	M26	Z	-0.704	-2.37	0	24
16	M26	Z	-2.37	-4.036	24	48.001
17	M27	Z	-0.762	-2.357	0	24
18	M27	Z	-2.357	-3.951	24	48
19	M17	Z	-5.31	-5.31	12.063	31.389
20	M18	Z	-3.846	-3.846	0	11.177
21	M21	Z	-3.845	-3.845	19.727	30.96

Member Distributed Loads (BLC 15 : BLC 2 Transient Area Loads)

	Member Label	Direction	Start Magnitude [lb/ft, F, psf, k-ft/in]	End Magnitude [lb/ft, F, psf, k-ft/in]	Start Location [(in, %)]	End Location [(in, %)]
1	M29	Z	-1.071	-3.603	0	24
2	M29	Z	-3.603	-6.135	24	48
3	M25	Z	-1.071	-3.603	0	24
4	M25	Z	-3.603	-6.135	24	48
5	M16	Z	-8.086	-8.086	12.094	31.297
6	M14	Z	-5.846	-5.846	0	11.177
7	M13	Z	-5.846	-5.846	19.783	30.96
8	M30	Z	-1.071	-3.603	0	24
9	M30	Z	-3.603	-6.135	24	48
10	M28	Z	-1.082	-3.591	0	24
11	M28	Z	-3.591	-6.099	24	48
12	M19	Z	-5.846	-5.846	19.783	30.96
13	M20	Z	-5.871	-5.871	0	11.218
14	M15	Z	-8.09	-8.09	12.094	31.297
15	M26	Z	-1.071	-3.603	0	24
16	M26	Z	-3.603	-6.135	24	48.001
17	M27	Z	-1.158	-3.582	0	24
18	M27	Z	-3.582	-6.006	24	48
19	M17	Z	-8.071	-8.071	12.063	31.389
20	M18	Z	-5.846	-5.846	0	11.177
21	M21	Z	-5.844	-5.844	19.727	30.96

Member Area Loads (BLC 1 : DEAD LOAD)

	Node A	Node B	Node C	Node D	Direction	Load Direction	Magnitude [psf]
1	N31	N29	N30	N31	Z	Two Way	-5
2	N35	N36	N34	N35	Z	Two Way	-5
3	N40	N41	N39	N40	Z	Two Way	-5

Member Area Loads (BLC 2 : DEAD LOAD ICE)

	Node A	Node B	Node C	Node D	Direction	Load Direction	Magnitude [psf]
1	N31	N29	N30	N31	Z	Two Way	-7.6
2	N35	N36	N34	N35	Z	Two Way	-7.6
3	N40	N41	N39	N40	Z	Two Way	-7.6

Load Combinations

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	DL + WL (NO ICE) 0 Degree	Yes	Y	1	1.2			3	1		
2	DL + WL (NO ICE) 30 Degree	Yes	Y	1	1.2			3	0.866	4	0.5
3	DL + WL (NO ICE) 60 Degree	Yes	Y	1	1.2			3	0.5	4	0.866
4	DL + WL (NO ICE) 90 Degree	Yes	Y	1	1.2					4	1
5	DL + WL (NO ICE) 120 Degree	Yes	Y	1	1.2			3	-0.5	4	0.866
6	DL + WL (NO ICE) 150 Degree	Yes	Y	1	1.2			3	-0.866	4	0.5
7	DL + WL (NO ICE) 180 Degree	Yes	Y	1	1.2			3	-1		
8	DL + WL (NO ICE) 210 Degree	Yes	Y	1	1.2			3	-0.866	4	-0.5
9	DL + WL (NO ICE) 240 Degree	Yes	Y	1	1.2			3	-0.5	4	-0.866
10	DL + WL (NO ICE) 270 Degree	Yes	Y	1	1.2					4	-1
11	DL + WL (NO ICE) 300 Degree	Yes	Y	1	1.2			3	0.5	4	-0.866
12	DL + WL (NO ICE) 330 Degree	Yes	Y	1	1.2			3	0.866	4	-0.5
13	DL + DL ICE + WL (ICE) 0 Degree	Yes	Y	1	1.2	2	1	5	1		
14	DL + DL ICE + WL (ICE) 30 Degree	Yes	Y	1	1.2	2	1	5	0.866	6	0.5
15	DL + DL ICE + WL (ICE) 60 Degree	Yes	Y	1	1.2	2	1	5	0.5	6	0.866
16	DL + DL ICE + WL (ICE) 90 Degree	Yes	Y	1	1.2	2	1			6	1
17	DL + DL ICE + WL (ICE) 120 Degree	Yes	Y	1	1.2	2	1	5	-0.5	6	0.866
18	DL + DL ICE + WL (ICE) 150 Degree	Yes	Y	1	1.2	2	1	5	-0.866	6	0.5
19	DL + DL ICE + WL (ICE) 180 Degree	Yes	Y	1	1.2	2	1	5	-1		
20	DL + DL ICE + WL (ICE) 210 Degree	Yes	Y	1	1.2	2	1	5	-0.866	6	-0.5
21	DL + DL ICE + WL (ICE) 240 Degree	Yes	Y	1	1.2	2	1	5	-0.5	6	-0.866
22	DL + DL ICE + WL (ICE) 270 Degree	Yes	Y	1	1.2	2	1			6	-1
23	DL + DL ICE + WL (ICE) 300 Degree	Yes	Y	1	1.2	2	1	5	0.5	6	-0.866
24	DL + DL ICE + WL (ICE) 330 Degree	Yes	Y	1	1.2	2	1	5	0.866	6	-0.5
25	DEAD LOAD + LIVE LOAD1	Yes	Y	1	1.2					7	1.5
26	DEAD LOAD + LIVE LOAD2	Yes	Y	1	1.2					8	1.5
27	DEAD LOAD + LIVE LOAD3	Yes	Y	1	1.2					9	1.5
28	DL + MAIN L1+30MPH WL FRONT	Yes	Y	1	1.2	10	1.5	3	0.069		
29	DL + MAIN L2+30MPH WL FRONT	Yes	Y	1	1.2	11	1.5	3	0.069		
30	DL + MAIN L3+30MPH WL FRONT	Yes	Y	1	1.2	12	1.5	3	0.069		
31	DL + MAIN L4+30MPH WL FRONT	Yes	Y	1	1.2	13	1.5	3	0.069		
32	DL + MAIN L1+30MPH WL SIDE	Yes	Y	1	1.2	10	1.5	4	0.069		
33	DL + MAIN L2+30MPH WL SIDE	Yes	Y	1	1.2	11	1.5	4	0.069		
34	DL + MAIN L3+30MPH WL SIDE	Yes	Y	1	1.2	12	1.5	4	0.069		
35	DL + MAIN L4+30MPH WL SIDE	Yes	Y	1	1.2	13	1.5	4	0.069		
36	DL + MAIN L1+30MPH WL FRONT (REVERSED)	Yes	Y	1	1.2	10	1.5	3	-0.069		
37	DL + MAIN L2+30MPH WL FRONT (REVERSED)	Yes	Y	1	1.2	11	1.5	3	-0.069		
38	DL + MAIN L3+30MPH WL FRONT (REVERSED)	Yes	Y	1	1.2	12	1.5	3	-0.069		
39	DL + MAIN L4+30MPH WL FRONT (REVERSED)	Yes	Y	1	1.2	13	1.5	3	-0.069		
40	DL + MAIN L1+30MPH WL SIDE (REVERSED)	Yes	Y	1	1.2	10	1.5	4	-0.069		
41	DL + MAIN L2+30MPH WL SIDE (REVERSED)	Yes	Y	1	1.2	11	1.5	4	-0.069		
42	DL + MAIN L3+30MPH WL SIDE (REVERSED)	Yes	Y	1	1.2	12	1.5	4	-0.069		
43	DL + MAIN L4+30MPH WL SIDE (REVERSED)	Yes	Y	1	1.2	13	1.5	4	-0.069		

Envelope Node Reactions

	Node Label		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N14	max	6416.657	9	4794.9	8	887.26	15	0.442	1	0.939	24	2.001	2
2		min	-4305.345	3	-3537.281	2	190.037	41	-0.912	39	-0.025	7	-2.008	8

Envelope Node Reactions (Continued)

	Node Label		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
3	N32	max	4589.088	11	4196.023	6	880.291	23	0.465	2	0.038	9	1.481	6
4		min	-6709.727	5	-2960.921	12	192.003	32	-0.858	42	-1.161	15	-1.461	12
5	N37	max	2825.765	10	4162.946	7	1102.889	19	1.302	13	1.327	10	3.82	4
6		min	-2811.161	4	-6645.251	1	159.347	1	0.197	7	-1.261	4	-3.812	10
7	N168	max	144.374	10	3773.222	13	2306.558	13	0	43	0.001	10	0	10
8		min	-144.784	4	-240.054	7	-169.036	7	0	1	-0.001	4	0	4
9	N170	max	198.173	3	96.508	3	2282.761	21	0.001	12	0.001	12	0.001	6
10		min	-3228.449	21	-1861.814	21	-175.899	3	-0.001	6	-0.001	6	-0.001	12
11	N172	max	3219.315	17	68.917	11	2276.474	17	0.001	3	0.001	9	0.001	3
12		min	-150.183	11	-1856.424	17	-143.033	11	-0.001	9	-0.001	3	-0.001	9
13	Totals:	max	10880.485	10	9771.573	7	9031.36	16						
14		min	-10880.493	4	-9771.617	1	3327.522	10						

Envelope Node Displacements

	Node Label		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotation [rad]	LC	Z Rotation [rad]	LC
1	N1	max	0.086	4	0.251	1	0.048	1	6.704e-3	7	2.381e-3	6	1.215e-2	8
2		min	-0.087	10	-0.252	7	-0.07	7	-6.666e-3	1	-2.605e-3	12	-1.199e-2	2
3	N2	max	0.086	4	0.279	2	0.066	2	9.814e-3	7	3.544e-3	2	1.434e-2	12
4		min	-0.087	10	-0.276	8	-0.084	8	-1.012e-2	1	-3.432e-3	8	-1.446e-2	6
5	N3	max	0.197	5	0.269	2	0.058	5	2.563e-3	7	6.967e-3	5	1.222e-2	11
6		min	-0.198	11	-0.268	8	-0.08	11	-2.81e-3	1	-6.931e-3	11	-1.2e-2	5
7	N4	max	0.492	4	0.167	12	0.07	5	8.208e-3	5	8.666e-3	4	1.142e-2	4
8		min	-0.489	10	-0.168	6	-0.089	11	-8.001e-3	11	-8.51e-3	10	-1.159e-2	10
9	N5	max	0.5	4	0.163	2	0.062	9	5.986e-3	9	7.18e-3	4	9.37e-3	4
10		min	-0.498	10	-0.163	8	-0.084	3	-5.836e-3	3	-7.016e-3	10	-9.199e-3	10
11	N6	max	0.199	3	0.241	12	0.066	10	2.598e-3	8	9.345e-3	3	1.506e-2	9
12		min	-0.201	9	-0.242	6	-0.085	4	-2.573e-3	2	-9.612e-3	9	-1.522e-2	3
13	N7	max	0.069	10	0.142	10	0.03	12	9.563e-3	8	1.61e-3	4	4.07e-3	9
14		min	-0.07	4	-0.14	4	-0.059	36	-9.128e-3	2	-1.726e-3	10	-3.905e-3	3
15	N8	max	0.069	10	0.145	5	0.053	2	8.712e-3	7	2.16e-3	4	5.373e-3	12
16		min	-0.07	4	-0.141	11	-0.066	8	-8.341e-3	1	-1.71e-3	10	-5.468e-3	6
17	N9	max	0.051	12	0.142	4	0.034	4	5.192e-3	6	8.163e-3	5	3.387e-3	11
18		min	-0.048	6	-0.141	10	-0.056	10	-5.537e-3	12	-8.515e-3	11	-3.24e-3	5
19	N10	max	0.072	4	0.087	4	0.048	6	4.907e-3	5	9.46e-3	4	3.137e-3	4
20		min	-0.07	10	-0.086	10	-0.061	11	-4.734e-3	11	-1.006e-2	10	-3.221e-3	10
21	N11	max	0.096	4	0.062	11	0.037	9	5.416e-3	9	1.115e-2	4	1.154e-3	5
22		min	-0.096	10	-0.064	5	-0.059	3	-5.546e-3	3	-1.071e-2	10	-1.01e-3	11
23	N12	max	0.086	9	0.152	10	0.055	10	4.497e-3	8	8.002e-3	3	5.609e-3	9
24		min	-0.087	3	-0.154	4	-0.068	4	-5.11e-3	2	-7.858e-3	9	-5.731e-3	3
25	N13	max	0	43	0	43	0	43	0	43	0	43	0	43
26		min	0	1	0	1	0	1	0	1	0	1	0	1
27	N14	max	0	3	0	2	0	41	0	39	0	7	0	8
28		min	0	9	0	8	0	15	0	1	0	24	0	2
29	N15	max	0.537	4	0.185	12	0.056	5	8.208e-3	5	8.666e-3	4	1.142e-2	4
30		min	-0.535	10	-0.186	6	-0.075	11	-8.001e-3	11	-8.51e-3	10	-1.159e-2	10
31	N16	max	0.537	4	0.175	2	0.053	9	5.986e-3	9	7.18e-3	4	9.371e-3	4
32		min	-0.535	10	-0.175	8	-0.076	3	-5.836e-3	3	-7.016e-3	10	-9.2e-3	10
33	N17	max	0.063	11	0.027	12	0.026	1	3.029e-3	19	5.926e-4	6	2.284e-3	11
34		min	-0.065	5	-0.028	6	-0.073	39	-5.211e-4	1	-7.813e-4	12	-2.309e-3	5
35	N18	max	0.066	9	0.027	2	0.027	2	2.652e-3	38	9.113e-4	3	2.36e-3	9
36		min	-0.067	3	-0.027	8	-0.069	38	-5.304e-4	2	-6.446e-4	9	-2.422e-3	3
37	N19	max	0.086	4	0.069	10	0.028	9	9.861e-4	9	2.639e-3	16	4.449e-3	10
38		min	-0.085	10	-0.07	4	-0.073	15	-1.683e-3	3	-1.726e-4	10	-4.456e-3	4
39	N20	max	0.036	4	0.053	11	0.046	10	-2.581e-4	7	2.62e-3	4	1.791e-3	11
40		min	-0.036	10	-0.052	4	-0.076	4	-1.414e-3	13	-1.515e-3	10	-1.819e-3	5
41	N21	max	0.036	4	0.056	3	0.036	5	-2.025e-4	8	1.136e-3	5	1.845e-3	9
42		min	-0.036	10	-0.053	9	-0.075	23	-1.556e-3	14	-2.67e-3	23	-1.903e-3	3
43	N22	max	0.079	4	0.068	4	0.027	6	1.035e-3	6	1.591e-5	6	4.197e-3	10
44		min	-0.079	10	-0.067	10	-0.058	12	-1.534e-3	12	-1.977e-3	23	-4.27e-3	4
45	N23	max	0.009	9	0.02	3	-0.003	3	1.302e-3	7	4.942e-4	6	2.03e-3	10
46		min	-0.01	3	-0.02	9	-0.01	21	-1.052e-3	1	-7.852e-4	12	-2.065e-3	4
47	N24	max	0.069	10	0.098	4	0.041	1	8.626e-3	7	1.986e-3	4	5.221e-3	12
48		min	-0.07	4	-0.096	10	-0.06	7	-8.243e-3	1	-1.479e-3	10	-5.307e-3	6
49	N25	max	0.067	10	0.105	10	0.026	1	5.237e-3	8	2.069e-3	6	1.028e-3	9

Envelope Node Displacements (Continued)

	Node Label		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotation [rad]	LC	Z Rotation [rad]	LC
50		min	-0.068	4	-0.106	4	-0.046	7	-5.21e-3	2	-2.537e-3	12	-1.428e-3	3
51	N26	max	0.039	9	0.124	10	0.035	9	1.857e-3	36	4.967e-3	3	4.4e-3	11
52		min	-0.039	3	-0.125	4	-0.053	3	-1.829e-3	2	-5.239e-3	9	-4.235e-3	5
53	N27	max	0.115	4	0.04	11	0.035	9	4.971e-3	9	5.433e-3	4	5.735e-3	11
54		min	-0.113	10	-0.04	5	-0.056	3	-4.58e-3	3	-5.166e-3	10	-6.046e-3	5
55	N28	max	0.115	4	0.049	3	0.042	5	3.913e-3	5	5.337e-3	4	7.631e-3	10
56		min	-0.113	10	-0.048	9	-0.06	11	-3.629e-3	11	-5.291e-3	10	-7.588e-3	4
57	N29	max	0.056	10	0.108	4	0.017	3	3.633e-3	7	1.764e-3	5	2.674e-3	10
58		min	-0.058	4	-0.107	10	-0.036	9	-3.439e-3	1	-2.46e-3	11	-2.724e-3	4
59	N30	max	0.051	10	0.019	12	0.02	1	2.842e-3	19	6.2e-4	6	2.312e-3	11
60		min	-0.053	4	-0.02	6	-0.055	39	-5.422e-4	1	-7.106e-4	12	-2.349e-3	5
61	N31	max	0.053	4	0.053	4	0.021	6	9.756e-4	6	6.001e-5	6	3.906e-3	10
62		min	-0.053	10	-0.053	10	-0.044	12	-1.496e-3	12	-1.773e-3	23	-3.962e-3	4
63	N32	max	0	5	0	12	0	32	0	42	0	15	0	12
64		min	0	11	0	6	0	23	0	2	0	9	0	6
65	N33	max	0.008	11	0.017	11	-0.002	11	1.18e-3	8	9.055e-4	3	2.098e-3	10
66		min	-0.008	5	-0.018	5	-0.01	17	-1.066e-3	2	-5.38e-4	9	-2.113e-3	4
67	N34	max	0.059	10	0.11	10	0.016	11	3.448e-3	8	2.606e-3	3	2.785e-3	10
68		min	-0.058	4	-0.111	4	-0.035	5	-2.966e-3	2	-2.069e-3	9	-2.808e-3	4
69	N35	max	0.058	4	0.053	10	0.021	9	9.393e-4	9	2.405e-3	15	4.17e-3	10
70		min	-0.057	10	-0.054	4	-0.055	15	-1.661e-3	3	-1.941e-4	9	-4.189e-3	4
71	N36	max	0.054	10	0.018	2	0.021	2	2.516e-3	38	8.385e-4	3	2.394e-3	9
72		min	-0.053	4	-0.019	8	-0.052	38	-5.393e-4	2	-6.592e-4	9	-2.44e-3	3
73	N37	max	0	4	0	1	0	1	0	7	0	4	0	10
74		min	0	10	0	7	0	19	0	13	0	10	0	4
75	N38	max	0.035	4	0.002	1	-0.001	7	-3.83e-5	7	1.83e-3	4	1.977e-3	10
76		min	-0.035	10	-0.001	7	-0.011	13	-5.788e-4	13	-1.922e-3	10	-2.004e-3	4
77	N39	max	0.115	4	0.005	1	0.013	7	6.313e-4	7	5.224e-3	4	1.959e-3	10
78		min	-0.113	10	-0.003	7	-0.032	1	-1.334e-3	1	-5.078e-3	10	-1.999e-3	4
79	N40	max	0.036	4	0.043	3	0.029	5	-1.684e-4	8	1.124e-3	5	1.728e-3	9
80		min	-0.036	10	-0.041	9	-0.058	11	-1.336e-3	14	-2.582e-3	23	-1.794e-3	3
81	N41	max	0.036	4	0.042	10	0.035	10	-2.087e-4	7	2.533e-3	4	1.701e-3	11
82		min	-0.035	10	-0.042	4	-0.058	4	-1.227e-3	13	-1.477e-3	10	-1.716e-3	5
83	N42	max	0.069	10	0.095	1	0.022	1	8.057e-3	7	1.11e-3	11	1.582e-3	12
84		min	-0.07	4	-0.094	7	-0.082	19	-7.299e-3	1	-6.339e-4	5	-1.62e-3	6
85	N43	max	0.063	10	0.031	12	0.025	1	3.455e-3	7	1.249e-3	7	8.821e-3	8
86		min	-0.065	4	-0.032	6	-0.076	19	-2.126e-3	1	-1.699e-3	1	-8.984e-3	2
87	N44	max	0.069	10	0.047	1	0.022	2	1.199e-2	7	3.511e-4	4	2.166e-3	8
88		min	-0.07	4	-0.048	7	-0.075	38	-1.132e-2	1	-9.367e-4	23	-2.178e-3	2
89	N45	max	0.067	9	0.026	2	0.026	2	4.163e-3	7	2.316e-3	2	3.412e-3	12
90		min	-0.068	3	-0.026	8	-0.071	38	-3.032e-3	1	-1.834e-3	8	-3.666e-3	6
91	N46	max	0.097	3	0.066	11	0.024	9	4.377e-3	9	7.649e-3	3	2.784e-3	10
92		min	-0.095	9	-0.066	5	-0.082	15	-5.195e-3	3	-7.187e-3	9	-2.828e-3	4
93	N47	max	0.084	4	0.072	10	0.027	9	2.912e-3	9	2.643e-3	3	4.526e-3	1
94		min	-0.083	10	-0.072	4	-0.076	15	-3.207e-3	3	-1.259e-3	9	-4.297e-3	7
95	N48	max	0.119	4	0.046	11	0.04	10	6.533e-3	9	1.177e-2	3	8.498e-4	3
96		min	-0.117	10	-0.045	5	-0.077	4	-6.495e-3	3	-1.091e-2	9	-8.326e-4	9
97	N49	max	0.048	4	0.053	11	0.045	10	-2.686e-4	7	5.465e-3	4	1.036e-2	10
98		min	-0.047	10	-0.052	4	-0.077	4	-1.455e-3	13	-4.727e-3	10	-1.064e-2	4
99	N50	max	0.155	4	0.046	3	0.032	5	5.526e-3	4	7.115e-3	5	7.841e-4	7
100		min	-0.155	10	-0.043	9	-0.084	23	-5.523e-3	10	-8.072e-3	11	-8.663e-4	1
101	N51	max	0.053	4	0.056	3	0.036	5	-2.098e-4	8	3.311e-3	5	1.494e-2	10
102		min	-0.052	10	-0.053	9	-0.078	23	-1.603e-3	14	-4.267e-3	11	-1.497e-2	4
103	N52	max	0.067	5	0.097	3	0.021	6	5.466e-3	5	1.048e-2	5	2.818e-3	10
104		min	-0.068	11	-0.093	9	-0.058	12	-6.236e-3	11	-1.089e-2	11	-2.796e-3	4
105	N53	max	0.075	4	0.075	4	0.026	6	3.527e-3	5	1.569e-3	5	5.475e-3	9
106		min	-0.075	10	-0.074	10	-0.059	12	-3.696e-3	11	-2.807e-3	11	-5.997e-3	3
107	N54	max	0.026	11	0.128	4	0.029	5	1.887e-3	7	5.508e-3	6	6.176e-3	9
108		min	-0.027	5	-0.126	10	-0.05	11	-2.346e-3	1	-5.33e-3	12	-6.575e-3	3
109	N55	max	0.066	10	0.102	4	0.036	2	4.919e-3	7	1.647e-3	33	2.576e-3	8
110		min	-0.068	4	-0.101	10	-0.054	8	-5.145e-3	1	-1.141e-3	9	-2.561e-3	2
111	N56	max	0.069	10	0.102	10	0.027	1	9.591e-3	8	1.393e-3	4	3.989e-3	9
112		min	-0.07	4	-0.101	4	-0.053	36	-9.154e-3	2	-1.547e-3	10	-3.832e-3	3
113	N57	max	0.033	8	0.124	10	0.039	9	4.371e-3	8	7.921e-3	3	5.416e-3	9
114		min	-0.034	2	-0.125	4	-0.058	3	-5.039e-3	2	-7.796e-3	9	-5.529e-3	3

Envelope Node Displacements (Continued)

	Node Label		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotation [rad]	LC	Z Rotation [rad]	LC
115	N58	max	0.105	4	0.057	11	0.039	9	5.459e-3	9	1.108e-2	4	1.092e-3	5
116		min	-0.104	10	-0.058	5	-0.062	3	-5.559e-3	3	-1.062e-2	10	-9.558e-4	11
117	N59	max	0.102	4	0.071	3	0.05	5	4.881e-3	5	9.253e-3	4	3.005e-3	4
118		min	-0.1	10	-0.07	9	-0.069	11	-4.663e-3	11	-9.89e-3	10	-3.079e-3	10
119	N60	max	0.022	1	0.128	4	0.03	5	5.113e-3	6	8.222e-3	5	3.213e-3	11
120		min	-0.021	7	-0.126	10	-0.053	11	-5.492e-3	12	-8.557e-3	11	-3.074e-3	5
121	N61	max	0.086	4	0.338	1	0.049	2	9.814e-3	7	3.545e-3	2	1.435e-2	12
122		min	-0.087	10	-0.335	7	-0.068	8	-1.012e-2	1	-3.432e-3	8	-1.446e-2	6
123	N62	max	0.245	5	0.275	2	0.047	5	2.563e-3	7	6.967e-3	5	1.222e-2	11
124		min	-0.247	11	-0.273	8	-0.07	11	-2.81e-3	1	-6.931e-3	11	-1.2e-2	5
125	N63	max	0.26	3	0.24	12	0.05	10	2.597e-3	8	9.345e-3	3	1.506e-2	9
126		min	-0.262	9	-0.242	6	-0.069	4	-2.573e-3	2	-9.612e-3	9	-1.522e-2	3
127	N64	max	0.086	4	0.294	1	0.039	1	6.704e-3	7	2.38e-3	6	1.216e-2	8
128		min	-0.087	10	-0.296	7	-0.062	7	-6.666e-3	1	-2.605e-3	12	-1.199e-2	2
129	N71	max	0.086	4	0.335	1	0.032	1	7.512e-3	8	2.618e-3	5	1.084e-2	8
130		min	-0.087	10	-0.338	7	-0.056	7	-7.546e-3	2	-2.784e-3	11	-1.061e-2	2
131	N72	max	0.075	5	0.335	1	0.054	1	7.512e-3	8	2.618e-3	5	1.084e-2	8
132		min	-0.074	11	-0.338	7	-0.078	7	-7.546e-3	2	-2.784e-3	11	-1.061e-2	2
133	N73	max	0.08	10	0.109	10	0.054	1	9.563e-3	8	1.608e-3	4	4.071e-3	9
134		min	-0.081	4	-0.108	4	-0.077	7	-9.128e-3	2	-1.727e-3	10	-3.907e-3	3
135	N74	max	0.069	10	0.109	10	0.027	1	9.563e-3	8	1.608e-3	4	4.071e-3	9
136		min	-0.07	4	-0.108	4	-0.054	36	-9.128e-3	2	-1.727e-3	10	-3.907e-3	3
137	N75	max	0.122	5	0.469	1	0.054	1	7.552e-3	8	2.658e-3	5	1.084e-2	8
138		min	-0.125	11	-0.471	7	-0.078	7	-7.586e-3	2	-2.824e-3	11	-1.061e-2	2
139	N76	max	0.131	10	0.389	8	0.054	1	9.166e-3	8	1.208e-3	4	4.071e-3	9
140		min	-0.128	4	-0.374	2	-0.077	7	-8.731e-3	2	-1.326e-3	10	-3.907e-3	3
141	N83	max	0.089	5	0.763	1	0.054	2	1.936e-2	7	2.088e-3	5	7.845e-3	7
142		min	-0.089	11	-0.78	7	-0.094	8	-1.919e-2	1	-2.134e-3	11	-7.721e-3	1
143	N84	max	0.071	10	0.054	1	0.054	2	1.229e-2	7	5.682e-4	4	2.178e-3	8
144		min	-0.072	4	-0.055	7	-0.094	8	-1.16e-2	1	-9.992e-4	10	-2.194e-3	2
145	N85	max	0.085	4	0.763	1	0.006	3	1.936e-2	7	2.088e-3	5	7.845e-3	7
146		min	-0.086	10	-0.78	7	-0.078	42	-1.919e-2	1	-2.134e-3	11	-7.721e-3	1
147	N86	max	0.069	10	0.054	1	0.022	2	1.229e-2	7	5.682e-4	4	2.178e-3	8
148		min	-0.07	4	-0.055	7	-0.077	38	-1.16e-2	1	-9.992e-4	10	-2.194e-3	2
149	N87	max	0.127	5	1.109	1	0.054	2	1.941e-2	7	2.131e-3	4	7.845e-3	7
150		min	-0.128	11	-1.13	7	-0.094	8	-1.924e-2	1	-2.174e-3	11	-7.721e-3	1
151	N88	max	0.097	10	0.377	7	0.054	2	1.192e-2	7	2.021e-4	4	2.178e-3	8
152		min	-0.082	4	-0.354	1	-0.094	8	-1.123e-2	1	-9.014e-4	43	-2.194e-3	2
153	N89	max	0.09	4	0.952	1	0.042	1	2.914e-2	7	3.943e-3	4	4.223e-3	2
154		min	-0.091	10	-0.968	7	-0.094	19	-2.897e-2	1	-3.885e-3	10	-4.452e-3	8
155	N90	max	0.069	10	0.1	1	0.042	1	8.053e-3	7	1.129e-3	11	1.203e-3	1
156		min	-0.071	4	-0.099	7	-0.093	19	-7.266e-3	1	-7.764e-4	5	-1.239e-3	7
157	N91	max	0.086	4	0.952	1	-0.003	7	2.914e-2	7	3.943e-3	4	4.223e-3	2
158		min	-0.086	10	-0.968	7	-0.082	31	-2.897e-2	1	-3.885e-3	10	-4.452e-3	8
159	N92	max	0.069	10	0.1	1	0.02	1	8.053e-3	7	1.129e-3	11	1.203e-3	1
160		min	-0.07	4	-0.099	7	-0.084	19	-7.266e-3	1	-7.764e-4	5	-1.239e-3	7
161	N93	max	0.182	4	1.527	1	0.042	1	3.326e-2	7	5.653e-3	4	4.223e-3	2
162		min	-0.183	10	-1.546	7	-0.094	19	-3.31e-2	1	-5.595e-3	10	-4.452e-3	8
163	N94	max	0.138	4	0.271	1	0.042	1	1.034e-2	1	8.48e-3	10	1.203e-3	1
164		min	-0.152	10	-0.242	7	-0.094	19	-9.55e-3	7	-8.124e-3	4	-1.239e-3	7
165	N95	max	0.82	4	0.347	3	0.078	10	1.028e-2	9	1.763e-2	4	5.372e-3	3
166		min	-0.805	10	-0.337	9	-0.119	4	-1.036e-2	3	-1.746e-2	10	-5.204e-3	9
167	N96	max	0.121	4	0.044	11	0.078	10	6.555e-3	9	1.201e-2	3	1.124e-3	2
168		min	-0.118	10	-0.044	5	-0.119	4	-6.553e-3	3	-1.115e-2	9	-1.08e-3	8
169	N97	max	0.826	4	0.333	3	0.019	10	1.028e-2	9	1.763e-2	4	5.372e-3	3
170		min	-0.811	10	-0.324	9	-0.059	4	-1.036e-2	3	-1.746e-2	10	-5.204e-3	9
171	N98	max	0.122	4	0.045	11	0.041	10	6.555e-3	9	1.201e-2	3	1.124e-3	2
172		min	-0.119	10	-0.044	5	-0.079	4	-6.553e-3	3	-1.115e-2	9	-1.08e-3	8
173	N99	max	1.138	4	0.534	3	0.078	10	1.03e-2	9	1.767e-2	4	5.372e-3	3
174		min	-1.12	10	-0.523	9	-0.119	4	-1.038e-2	3	-1.75e-2	10	-5.204e-3	9
175	N100	max	0.294	9	0.259	10	0.078	10	6.371e-3	9	1.169e-2	3	1.124e-3	2
176		min	-0.323	3	-0.258	4	-0.119	4	-6.369e-3	3	-1.083e-2	9	-1.08e-3	8
177	N101	max	0.57	4	0.187	2	0.045	9	5.769e-3	9	8.792e-3	4	8.018e-3	4
178		min	-0.567	10	-0.186	8	-0.069	3	-5.621e-3	3	-8.738e-3	10	-7.796e-3	10
179	N102	max	0.558	4	0.2	2	0.073	9	5.769e-3	9	8.792e-3	4	8.018e-3	4

Envelope Node Displacements (Continued)

	Node Label		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotation [rad]	LC	Z Rotation [rad]	LC
180		min	-0.556	10	-0.198	8	-0.097	3	-5.621e-3	3	-8.738e-3	10	-7.796e-3	10
181	N103	max	0.102	4	0.055	11	0.072	9	5.417e-3	9	1.115e-2	4	1.156e-3	5
182		min	-0.102	10	-0.056	5	-0.096	3	-5.545e-3	3	-1.071e-2	10	-1.012e-3	11
183	N104	max	0.104	4	0.058	11	0.039	9	5.417e-3	9	1.115e-2	4	1.156e-3	5
184		min	-0.103	10	-0.059	5	-0.061	3	-5.545e-3	3	-1.071e-2	10	-1.012e-3	11
185	N105	max	0.717	4	0.289	2	0.073	9	5.792e-3	9	8.838e-3	4	8.018e-3	4
186		min	-0.714	10	-0.29	8	-0.097	3	-5.644e-3	3	-8.784e-3	10	-7.796e-3	10
187	N106	max	0.271	10	0.233	10	0.072	9	5.214e-3	9	1.07e-2	4	1.156e-3	5
188		min	-0.286	4	-0.238	4	-0.096	3	-5.342e-3	3	-1.025e-2	10	-1.012e-3	11
189	N107	max	0.858	3	0.383	2	0.05	9	1.225e-2	9	2.44e-2	3	6.995e-3	10
190		min	-0.84	9	-0.374	8	-0.099	3	-1.242e-2	3	-2.423e-2	9	-7.218e-3	4
191	N108	max	0.109	4	0.068	11	0.05	9	4.561e-3	9	7.677e-3	3	2.684e-3	10
192		min	-0.107	10	-0.068	5	-0.099	3	-5.288e-3	3	-7.128e-3	9	-2.737e-3	4
193	N109	max	0.849	3	0.391	2	-0.006	34	1.225e-2	9	2.44e-2	3	6.995e-3	10
194		min	-0.832	9	-0.381	8	-0.081	24	-1.242e-2	3	-2.423e-2	9	-7.218e-3	4
195	N110	max	0.104	4	0.062	11	0.025	9	4.561e-3	9	7.677e-3	3	2.684e-3	10
196		min	-0.103	10	-0.062	5	-0.084	15	-5.288e-3	3	-7.128e-3	9	-2.737e-3	4
197	N111	max	1.343	3	0.61	2	0.05	9	1.311e-2	9	2.842e-2	4	6.995e-3	10
198		min	-1.322	9	-0.597	8	-0.099	3	-1.328e-2	3	-2.831e-2	10	-7.218e-3	4
199	N112	max	0.342	5	0.269	11	0.05	9	7.153e-3	12	1.255e-2	11	2.684e-3	10
200		min	-0.357	11	-0.295	5	-0.099	3	-7.864e-3	6	-1.205e-2	5	-2.737e-3	4
201	N113	max	0.701	5	0.345	12	0.053	6	8.758e-3	5	1.642e-2	5	9.194e-3	10
202		min	-0.72	11	-0.334	6	-0.094	12	-8.92e-3	11	-1.662e-2	11	-9.017e-3	4
203	N114	max	0.079	5	0.1	3	0.053	6	5.644e-3	5	1.071e-2	5	3.118e-3	10
204		min	-0.081	11	-0.096	9	-0.094	12	-6.401e-3	11	-1.116e-2	11	-3.102e-3	4
205	N115	max	0.689	5	0.357	12	0.011	7	8.758e-3	5	1.642e-2	5	9.194e-3	10
206		min	-0.708	11	-0.346	6	-0.055	13	-8.92e-3	11	-1.662e-2	11	-9.017e-3	4
207	N116	max	0.075	5	0.093	3	0.021	6	5.644e-3	5	1.071e-2	5	3.118e-3	10
208		min	-0.076	11	-0.089	9	-0.06	12	-6.401e-3	11	-1.116e-2	11	-3.102e-3	4
209	N117	max	0.997	5	0.5	12	0.053	6	8.781e-3	5	1.646e-2	5	9.194e-3	10
210		min	-1.019	11	-0.486	6	-0.094	12	-8.943e-3	11	-1.666e-2	11	-9.017e-3	4
211	N118	max	0.312	11	0.261	5	0.053	6	5.46e-3	5	1.039e-2	5	3.118e-3	10
212		min	-0.298	5	-0.285	11	-0.094	12	-6.217e-3	11	-1.084e-2	11	-3.102e-3	4
213	N119	max	0.289	5	0.278	2	0.037	5	3.929e-3	7	7.332e-3	5	1.12e-2	11
214		min	-0.292	11	-0.276	8	-0.061	11	-4.08e-3	1	-7.242e-3	11	-1.09e-2	5
215	N120	max	0.306	5	0.276	2	0.059	5	3.929e-3	7	7.332e-3	5	1.12e-2	11
216		min	-0.308	11	-0.274	8	-0.083	11	-4.08e-3	1	-7.242e-3	11	-1.09e-2	5
217	N121	max	0.023	1	0.138	4	0.059	5	5.191e-3	6	8.164e-3	5	3.39e-3	11
218		min	-0.022	7	-0.136	10	-0.082	11	-5.539e-3	12	-8.514e-3	11	-3.243e-3	5
219	N122	max	0.026	1	0.131	4	0.031	5	5.191e-3	6	8.164e-3	5	3.39e-3	11
220		min	-0.025	7	-0.129	10	-0.053	11	-5.539e-3	12	-8.514e-3	11	-3.243e-3	5
221	N123	max	0.438	5	0.338	2	0.059	5	3.975e-3	7	7.372e-3	5	1.12e-2	11
222		min	-0.439	11	-0.333	8	-0.083	11	-4.125e-3	1	-7.282e-3	11	-1.09e-2	5
223	N124	max	0.315	12	0.267	5	0.059	5	4.841e-3	6	7.768e-3	5	3.39e-3	11
224		min	-0.3	6	-0.278	11	-0.082	11	-5.189e-3	12	-8.118e-3	11	-3.243e-3	5
225	N125	max	0.901	4	0.409	11	0.054	5	1.298e-2	5	2.48e-2	4	3.464e-3	7
226		min	-0.917	10	-0.397	5	-0.103	11	-1.306e-2	11	-2.504e-2	10	-3.742e-3	1
227	N126	max	0.156	4	0.049	3	0.054	5	5.616e-3	4	7.025e-3	5	1.012e-3	8
228		min	-0.155	10	-0.046	9	-0.103	11	-5.736e-3	10	-7.946e-3	11	-1.113e-3	2
229	N127	max	0.902	4	0.403	11	-0.013	9	1.298e-2	5	2.48e-2	4	3.464e-3	7
230		min	-0.918	10	-0.392	5	-0.081	24	-1.306e-2	11	-2.504e-2	10	-3.742e-3	1
231	N128	max	0.155	4	0.047	3	0.027	5	5.616e-3	4	7.025e-3	5	1.012e-3	8
232		min	-0.155	10	-0.044	9	-0.086	23	-5.736e-3	10	-7.946e-3	11	-1.113e-3	2
233	N129	max	1.4	4	0.655	11	0.054	5	1.384e-2	5	2.892e-2	4	3.464e-3	7
234		min	-1.421	10	-0.642	5	-0.103	11	-1.392e-2	11	-2.916e-2	10	-3.742e-3	1
235	N130	max	0.4	3	0.289	3	0.054	5	7.94e-3	2	1.134e-2	9	1.012e-3	8
236		min	-0.369	9	-0.29	9	-0.103	11	-8.039e-3	8	-1.223e-2	3	-1.113e-3	2
237	N149	max	0.08	3	0.396	1	0.068	1	1.076e-2	7	3.117e-3	2	1.358e-2	12
238		min	-0.081	9	-0.394	7	-0.086	7	-1.106e-2	1	-2.984e-3	8	-1.38e-2	6
239	N150	max	0.069	10	0.104	4	0.042	1	8.712e-3	7	2.161e-3	4	5.376e-3	12
240		min	-0.07	4	-0.102	10	-0.06	7	-8.341e-3	1	-1.709e-3	10	-5.471e-3	6
241	N151	max	0.078	10	0.104	4	0.067	1	8.712e-3	7	2.161e-3	4	5.376e-3	12
242		min	-0.08	4	-0.102	10	-0.086	7	-8.341e-3	1	-1.709e-3	10	-5.471e-3	6
243	N152	max	0.086	4	0.396	1	0.034	1	1.076e-2	7	3.117e-3	2	1.358e-2	12
244		min	-0.086	10	-0.394	7	-0.054	7	-1.106e-2	1	-2.984e-3	8	-1.38e-2	6

Envelope Node Displacements (Continued)

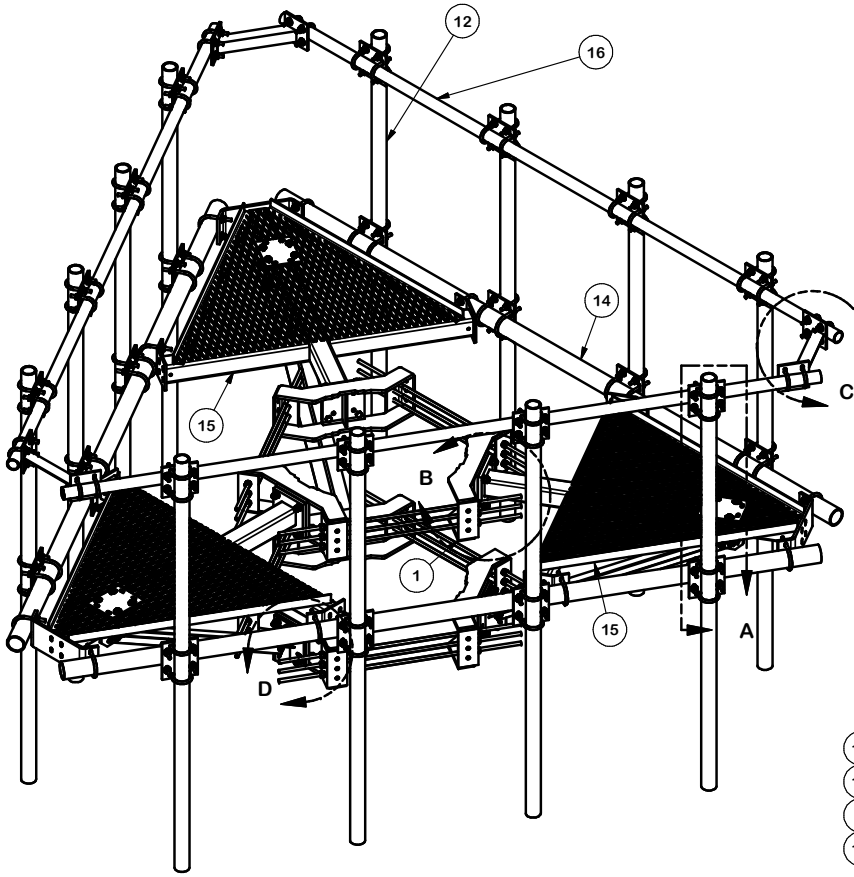
	Node Label		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotation [rad]	LC	Z Rotation [rad]	LC
245	N153	max	0.137	3	0.596	1	0.068	1	1.08e-2	7	3.153e-3	3	1.358e-2	12
246		min	-0.136	9	-0.588	7	-0.086	7	-1.111e-2	1	-3.017e-3	9	-1.38e-2	6
247	N154	max	0.13	10	0.356	6	0.067	1	8.345e-3	7	1.794e-3	4	5.376e-3	12
248		min	-0.148	4	-0.341	12	-0.086	7	-7.974e-3	1	-1.343e-3	10	-5.471e-3	6
249	N155	max	0.092	4	0.067	3	0.08	5	4.909e-3	5	9.46e-3	4	3.14e-3	4
250		min	-0.09	10	-0.066	9	-0.099	11	-4.733e-3	11	-1.006e-2	10	-3.224e-3	10
251	N156	max	0.097	4	0.073	3	0.049	5	4.909e-3	5	9.46e-3	4	3.14e-3	4
252		min	-0.095	10	-0.073	9	-0.067	11	-4.733e-3	11	-1.006e-2	10	-3.224e-3	10
253	N157	max	0.563	4	0.223	12	0.08	5	7.992e-3	5	1.043e-2	4	1.076e-2	4
254		min	-0.562	10	-0.223	6	-0.1	11	-7.765e-3	11	-1.028e-2	10	-1.101e-2	10
255	N158	max	0.579	4	0.203	12	0.044	5	7.992e-3	5	1.043e-2	4	1.076e-2	4
256		min	-0.578	10	-0.203	6	-0.064	11	-7.765e-3	11	-1.028e-2	10	-1.101e-2	10
257	N159	max	0.752	4	0.348	11	0.08	5	8.015e-3	5	1.048e-2	4	1.076e-2	4
258		min	-0.747	10	-0.35	5	-0.1	11	-7.788e-3	11	-1.033e-2	10	-1.101e-2	10
259	N160	max	0.262	10	0.217	5	0.08	5	4.725e-3	5	9.092e-3	4	3.14e-3	4
260		min	-0.238	4	-0.21	11	-0.099	11	-4.549e-3	11	-9.691e-3	10	-3.224e-3	10
261	N161	max	0.317	3	0.24	1	0.036	9	3.93e-3	8	9.778e-3	3	1.448e-2	9
262		min	-0.318	9	-0.241	7	-0.056	3	-3.924e-3	2	-1.006e-2	9	-1.474e-2	3
263	N162	max	0.034	8	0.142	10	0.067	9	4.496e-3	8	8.001e-3	3	5.611e-3	9
264		min	-0.035	2	-0.144	4	-0.086	3	-5.111e-3	2	-7.858e-3	9	-5.734e-3	3
265	N163	max	0.339	3	0.242	12	0.067	9	3.93e-3	8	9.778e-3	3	1.448e-2	9
266		min	-0.34	9	-0.243	6	-0.086	3	-3.924e-3	2	-1.006e-2	9	-1.474e-2	3
267	N164	max	0.042	9	0.129	10	0.041	9	4.496e-3	8	8.001e-3	3	5.611e-3	9
268		min	-0.042	3	-0.13	4	-0.058	3	-5.111e-3	2	-7.858e-3	9	-5.734e-3	3
269	N165	max	0.516	3	0.29	1	0.067	9	3.97e-3	8	9.818e-3	3	1.448e-2	9
270		min	-0.522	9	-0.292	7	-0.086	3	-3.964e-3	2	-1.01e-2	9	-1.474e-2	3
271	N166	max	0.308	9	0.254	9	0.067	9	4.178e-3	8	7.682e-3	3	5.611e-3	9
272		min	-0.313	3	-0.278	3	-0.086	3	-4.793e-3	2	-7.54e-3	9	-5.734e-3	3
273	N167	max	0.092	4	0.004	1	0.006	7	4.919e-4	7	4.244e-3	4	1.844e-3	10
274		min	-0.091	10	-0.003	7	-0.017	13	-9.073e-4	1	-4.167e-3	10	-1.881e-3	4
275	N168	max	0	4	0	7	0	7	0	43	0	4	0	4
276		min	0	10	0	13	0	13	0	1	0	10	0	10
277	N169	max	0.041	10	0.08	4	0.007	3	2.919e-3	7	1.44e-3	5	2.594e-3	10
278		min	-0.043	4	-0.079	10	-0.018	9	-2.805e-3	1	-1.853e-3	11	-2.641e-3	4
279	N170	max	0	21	0	21	0	3	0	6	0	6	0	12
280		min	0	3	0	3	0	21	0	12	0	12	0	6
281	N171	max	0.043	10	0.08	10	0.007	11	2.741e-3	8	2.037e-3	3	2.744e-3	10
282		min	-0.042	4	-0.082	4	-0.018	5	-2.461e-3	2	-1.714e-3	9	-2.764e-3	4
283	N172	max	0	11	0	17	0	11	0	9	0	3	0	9
284		min	0	17	0	11	0	17	0	3	0	9	0	3
285	N143	max	0.014	4	0.001	1	0	7	3.793e-5	7	1.163e-3	4	1.839e-3	10
286		min	-0.014	10	-0.001	7	-0.005	13	-6.091e-4	13	-1.224e-3	10	-1.849e-3	4
287	N144	max	0.014	4	0.006	4	0.002	5	3.793e-5	7	1.163e-3	4	1.839e-3	10
288		min	-0.014	10	-0.005	10	-0.006	23	-6.091e-4	13	-1.224e-3	10	-1.849e-3	4
289	N145	max	0.192	4	0.189	1	0.002	5	6.181e-3	7	6.02e-3	4	1.839e-3	10
290		min	-0.194	10	-0.175	7	-0.006	23	-6.572e-3	1	-6.08e-3	10	-1.849e-3	4
291	N146	max	0.003	14	0.003	5	0.002	5	1.153e-5	7	1.137e-3	4	1.839e-3	10
292		min	-0.001	6	-0.007	11	-0.006	23	-5.996e-4	13	-1.198e-3	10	-1.849e-3	4

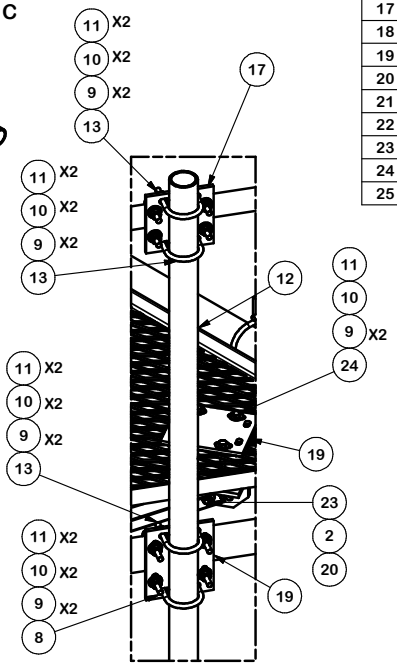
Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks

	Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
1	b3	PIPE_2.5	0.798	60	10	0.1	60		11	30038.461	50715	3.596	3.596	1.456	H1-1b
2	g3	PIPE_2.5	0.796	60	4	0.156	60		4	30038.461	50715	3.596	3.596	1.778	H1-1b
3	a3	PIPE_2.5	0.795	60	7	0.129	60		8	30038.461	50715	3.596	3.596	1.605	H1-1b
4	M4	3/8 X 6	0.75	0	4	0.262	0	y	5	71689.135	72900	9.113	0.57	1.15	H1-1b
5	M36	PIPE_2.0	0.587	51.562	4	0.329	9.375		4	6295.454	32130	1.872	1.872	3	H3-6
6	M34	PIPE_2.0	0.582	51.562	7	0.334	9.375		7	6295.454	32130	1.872	1.872	3	H3-6
7	M11	3/8 X 6	0.578	0	7	0.222	0	y	1	71689.153	72900	9.113	0.57	1.131	H1-1b
8	M5	3/8 X 6	0.55	0	4	0.245	0	y	5	66872.734	72900	9.113	0.57	1.669	H1-1b
9	M35	PIPE_2.0	0.537	51.562	10	0.293	4.687		10	6295.454	32130	1.872	1.872	2.7	H3-6
10	M6	3/8 X 6	0.507	0	4	0.379	0	y	9	71689.135	72900	9.113	0.57	1.117	H1-1b
11	M12	3/8 X 6	0.458	0	1	0.212	0	y	1	66872.738	72900	9.113	0.57	1.67	H1-1b
12	M24	L2.5X2.5X4	0.421	15.82	4	0.111	0	y	2	36430.264	38556	1.114	2.537	1.5	H2-1
13	M22	L2.5X2.5X4	0.379	0	9	0.12	0	y	6	36430.264	38556	1.114	2.537	1.007	H2-1

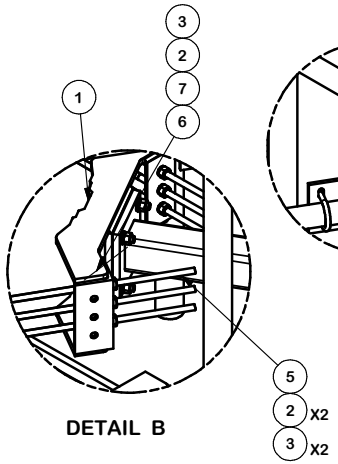
Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks (Continued)

	Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
14	M8	3/8 X 6	0.379	0	3	0.254	0	y	9	71689.153	72900	9.113	0.57	1.13	H1-1b
15	M25	L2X2X3	0.378	24	8	0.011	48	y	1	10494.637	23392.8	0.558	1.084	1.137	H2-1
16	M7	3/8 X 6	0.366	0	4	0.366	0	y	9	66872.731	72900	9.113	0.57	1.671	H1-1b
17	M17	HSS4X4X4	0.364	62.546	4	0.231	62.546	z	10	94810.336	103122	11.96	11.96	2.282	H1-1b
18	g2	PIPE_2.5	0.363	60	11	0.109	60		3	30038.461	50715	3.596	3.596	2.219	H1-1b
19	M30	L2X2X3	0.353	24	4	0.01	48	y	9	10494.646	23392.8	0.558	1.084	1.137	H2-1
20	M28	L2X2X3	0.349	24	6	0.01	48	z	1	10494.731	23392.8	0.558	1.084	1.137	H2-1
21	M23	L2.5X2.5X4	0.342	0	10	0.146	0	y	10	36430.264	38556	1.114	2.537	1.5	H2-1
22	s1	PIPE_2.0	0.332	36	1	0.033	36		1	26521.424	32130	1.872	1.872	1.664	H1-1b
23	a2	PIPE_2.5	0.327	60	2	0.14	60		6	30038.461	50715	3.596	3.596	2.268	H1-1b
24	b2	PIPE_2.5	0.326	60	9	0.154	60		10	30038.461	50715	3.596	3.596	1.977	H1-1b
25	M29	L2X2X3	0.322	24	10	0.009	48	z	5	10494.652	23392.8	0.558	1.084	1.137	H2-1
26	M9	3/8 X 6	0.305	0	9	0.246	0	y	9	66872.731	72900	9.113	0.57	1.671	H1-1b
27	M27	L2X2X3	0.275	24	12	0.011	48	y	4	10494.56	23392.8	0.558	1.084	1.138	H2-1
28	M10	3/8 X 6	0.264	0	7	0.344	0	y	1	71689.523	72900	9.113	0.57	1.122	H1-1b
29	M26	L2X2X3	0.257	24	2	0.01	48.001	z	10	10494.506	23392.8	0.558	1.084	1.138	H2-1
30	M59	PL6X1/2_HRAB	0.251	8.103	3	0.203	8.103	y	10	50316.618	97200	1.012	12.15	1.406	H1-1b
31	M2	3/8 X 6	0.242	0	1	0.356	1.931	y	5	71689.523	72900	9.113	0.57	1.127	H1-1b
32	M15	HSS4X4X4	0.238	41.697	9	0.134	62.545	z	2	94810.377	103122	11.96	11.96	2.052	H1-1b
33	M16	HSS4X4X4	0.237	62.545	8	0.142	62.545	z	7	94810.377	103122	11.96	11.96	2.058	H1-1b
34	b4	PIPE_2.5	0.225	18	3	0.179	60		4	30038.461	50715	3.596	3.596	2.37	H1-1b
35	M1	3/8 X 6	0.22	0	7	0.334	0	y	1	66872.738	72900	9.113	0.57	1.67	H1-1b
36	b1	PIPE_2.5	0.216	60	8	0.171	60		11	30038.461	50715	3.596	3.596	2.027	H1-1b
37	g1	PIPE_2.5	0.211	60	12	0.164	60		10	30038.461	50715	3.596	3.596	2.088	H1-1b
38	g4	PIPE_2.5	0.209	60	6	0.186	60		3	30038.461	50715	3.596	3.596	1.974	H1-1b
39	a4	PIPE_2.5	0.207	60	10	0.186	60		12	30038.461	50715	3.596	3.596	2.051	H1-1b
40	M19	HSS4X4X4	0.204	30.96	4	0.107	6.773	z	4	101020.375	103122	11.96	11.96	1.619	H1-1b
41	a1	PIPE_2.5	0.204	60	4	0.167	60		2	30038.461	50715	3.596	3.596	2.164	H1-1b
42	M13	HSS4X4X4	0.189	30.96	19	0.103	6.773	z	8	101020.375	103122	11.96	11.96	1.715	H1-1b
43	M49	PIPE_3.0	0.185	100	5	0.138	100		6	28250.673	65205	5.749	5.749	2.343	H1-1b
44	M21	HSS4X4X4	0.183	30.96	24	0.078	6.773	z	12	101020.37	103122	11.96	11.96	1.716	H1-1b
45	M51	PIPE_3.0	0.181	53.125	3	0.141	96.875		10	28250.673	65205	5.749	5.749	2.154	H1-1b
46	M58	PL6X1/2_HRAB	0.18	7.935	9	0.159	0	y	6	50314.686	97200	1.012	12.15	1.214	H1-1b
47	M14	HSS4X4X4	0.174	0	22	0.09	24.188	z	10	101020.366	103122	11.96	11.96	1.709	H1-1b
48	M20	HSS4X4X4	0.167	0	19	0.089	24.188	z	6	101020.366	103122	11.96	11.96	1.706	H1-1b
49	M18	HSS4X4X4	0.163	0	14	0.069	24.188	z	2	101020.37	103122	11.96	11.96	1.71	H1-1b
50	M3	3/8 X 6	0.159	0	1	0.341	0	y	11	66872.734	72900	9.113	0.57	1.672	H1-1b
51	M50	PIPE_3.0	0.157	51.562	9	0.149	100		10	28250.673	65205	5.749	5.749	1.735	H1-1b
52	M60	PL6X1/2_HRAB	0.141	8.104	6	0.157	0	y	2	50314.302	97200	1.012	12.15	1.66	H1-1b
53	M94	LL2.5X2.5X3X3	0.103	58.778	13	0.012	58.778	z	4	42947.61	58320	3.954	2.549	1	H1-1b*
54	M95	LL2.5X2.5X3X3	0.102	58.778	21	0.012	58.778	z	12	42947.61	58320	3.954	2.549	1.136	H1-1b*
55	M96	LL2.5X2.5X3X3	0.101	58.778	17	0.012	58.778	z	8	42947.61	58320	3.954	2.549	1.136	H1-1b*
56	M52	PL6X1/2_HRAB	0.049	0	9	0.245	0	y	7	94320.006	97200	1.012	12.15	1.668	H1-1b
57	M53	PL6X1/2_HRAB	0.045	0	4	0.267	0	y	7	94319.146	97200	1.012	12.15	1.669	H1-1b
58	M54	PL6X1/2_HRAB	0.036	0	5	0.261	0	y	3	94320.593	97200	1.012	12.15	1.668	H1-1b
59	M56	PL6X1/2_HRAB	0.035	0	1	0.286	0	y	11	94319.038	97200	1.012	12.15	1.668	H1-1b
60	M55	PL6X1/2_HRAB	0.032	0	1	0.32	0	y	3	94319.037	97200	1.012	12.15	1.668	H1-1b
61	M57	PL6X1/2_HRAB	0.03	0	8	0.286	0	y	11	94319.468	97200	1.012	12.15	1.669	H1-1b

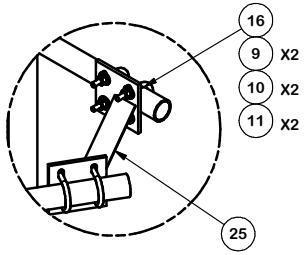




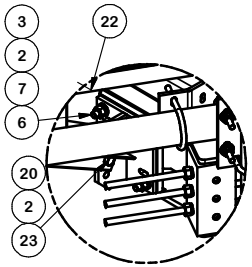
DETAIL A



DETAIL B



DETAIL C



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 5" 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

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

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")*

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

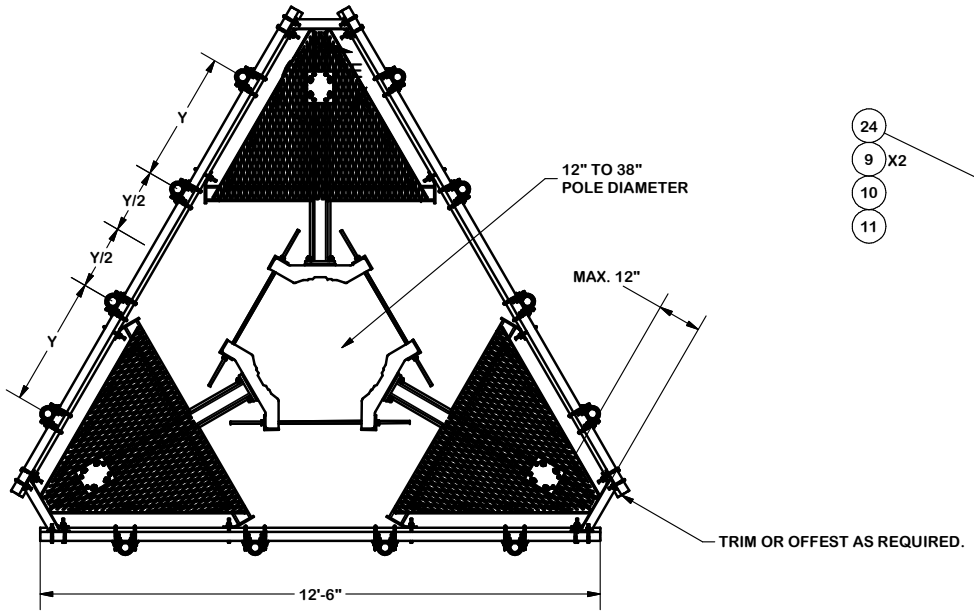
SITE PRO 1
A valmont COMPANY

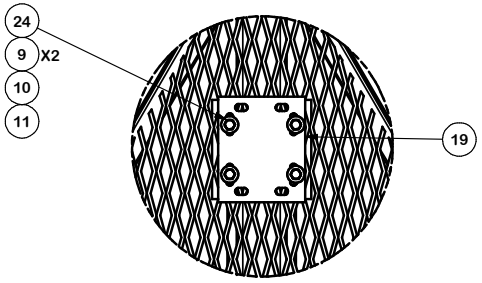
Engineering Support Team:
1-888-753-7446

Locations:
New York, NY
Atlanta, GA
Los Angeles, CA
Plymouth, IN
Salem, OR
Dallas, TX

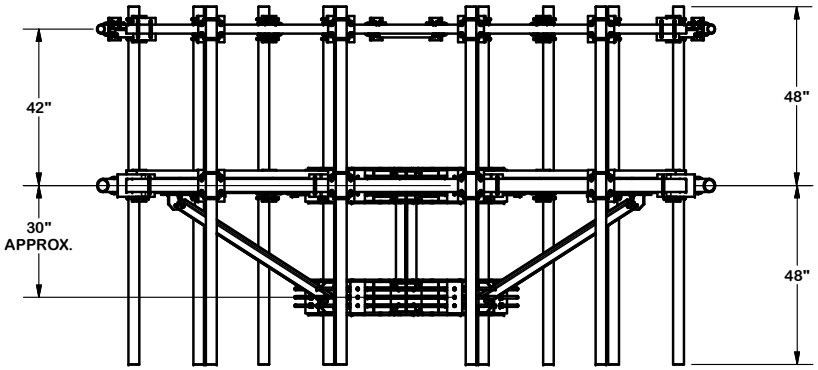
CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.	PAGE
4488	CEK 3/24/2014		RMQP-4096-HK	1 OF 3

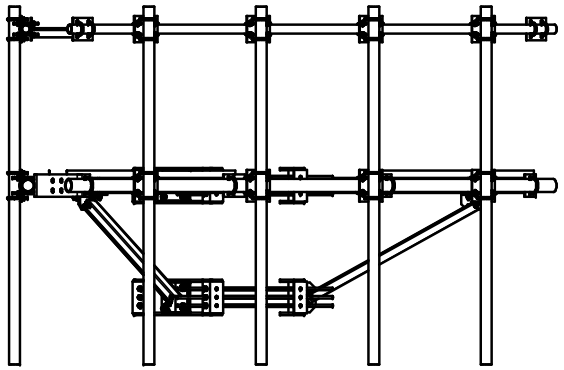
CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81	02	CUSTOMER	BMC 7/14/2014	RMQP-4096-HK





DETAIL E





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

REVISION HISTORY

TOLERANCE NOTES

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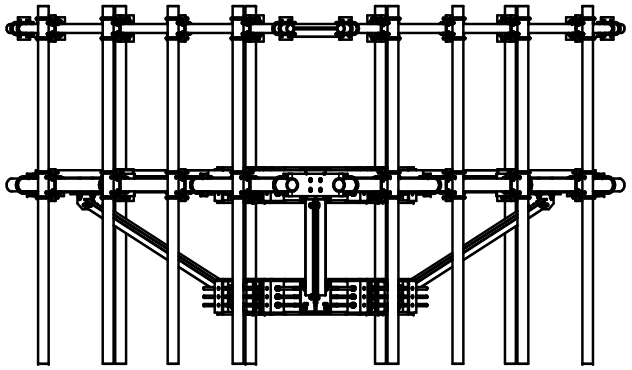
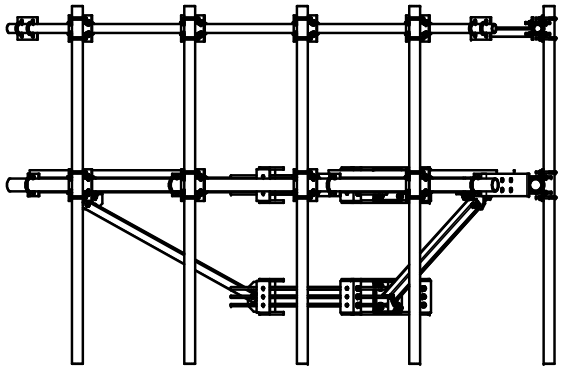
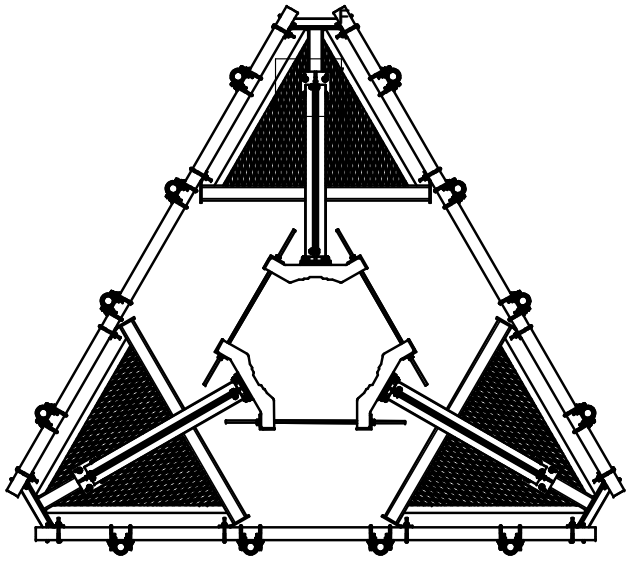
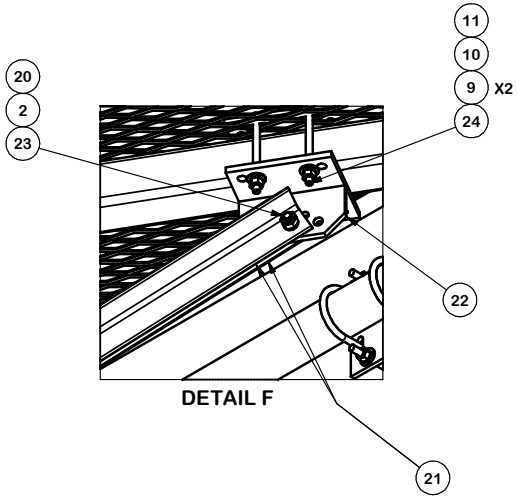
81	02	CUSTOMER	BMC 7/14/2014	RMQP-4096-HK









DETAIL F

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PASS
(Tower, 34% capacity)
(Foundation, 39% capacity)

March 23, 2023

Tierney Rowe
Vice President Tower Development
Infra Towers, LLC
1800 Diagonal Road, Suite 600
Alexandria, VA 22314

Subject	**Comprehensive Structural Analysis**
Carrier Designation	**Verizon Wireless, Collocation** **Site Number: 16997348** **Site Name: Kent 2 CT**
Client Designation	**Site Number: CT757** **Site Name: Kent**
Engineering Firm Designation	**Delta Oaks Group Project Number: STR23-18711-02**
Site Data	**93 Richards Road, Kent, Litchfield County, CT 06785** **Latitude: 41.7086° ± Longitude: -73.4204° ±** **Elevation: 1347-ft ±, Topography Category: 5; Crest Height: 717-ft;** **Exposure Category: "C"; Structure Class/Risk Category "II";** **135-ft Self-Supporting Pole Structure (Monopole)**

Dear Tierney Rowe,

To your request, we present our comprehensive structural analysis. Our work indicates that with the proposed appurtenance configuration, the tower and foundation **will** satisfy the structural strength requirements of ANSI/TIA-222-H / *2022 Connecticut State Building Code* (2021 IBC) / ASCE 7-16 for:

- V= 114-mph three-second gust basic design wind speed [per ASCE 7-16]
- 40-mph three-second gust basic wind speed with 1-in radial ice
- Earthquake design parameters and loading, per USGS Ground Motion Parameter Calculator (ASCE 7-16) and industry standard, respectively, including:
  - S_s = 0.184 g, S_1 = 0.054 g

Delta Oaks Group appreciates the opportunity to be of service to Infra Towers, LLC. Please do not hesitate to contact us if you have any questions or require any additional information.

Sincerely,

Yamini Rajakumar

Yamini Rajakumar
Structural Engineer I

Reviewed by: MTL

STATE OF CONNECTICUT
MICHAEL L. LASSITER
No. 25064
LICENSED
PROFESSIONAL ENGINEER

Michael L. Lassiter

Michael L. Lassiter, SE, PE
VP | Chief Structural Engineer
CT PE License 25064

Table 1: Existing, Proposed and Reserved Appurtenance Configuration

Elevation (AGL, ft)	Carrier	Mount	Equipment	Feedlines	Location
131[1]	AT&T [Existing]	(3) 12' Sector Frames [Site Pro 1 P/N VFA-12-M3-WLL]	(6) KMW EPBQ-654L8H8-L2 (3) CCI HPA65R-BU8A (3) Ericsson RRUS 4478 B14 (3) Ericsson RRUS 32 (3) Ericsson RRUS 4449 B5/B12 (3) Ericsson RRUS 4415 B25 (2) Raycap DC9-48-60-24-8C-EV	(2) 1/2 Fiber (4) 1" DC (3) 2" Conduits	Inside
121[2]	***Verizon [Proposed]***	***(1) 12.5' Platform w/ Handrails [Site Pro 1 P/N RMQP-4096-HK]***	***(6) JMA MX06FRO860-03*** ***(3) Samsung MT6407-77A*** ***(3) Samsung B5/B13 RRH ORAN (RF4440d-13A)*** ***(3) Samsung B2/B66A RRH ORAN (RF4439d-25A)*** ***(1) 12 OVP Box***	***(2) 6x12 Hybrid***	***Inside***

1. Existing AT&T loading per Construction Drawings by All-Points Technology, dated 03/15/2022.
2. Proposed Verizon loading Construction Drawings by ProTerra Design Group, dated 03/10/2023.

Table 2: Serviceability Requirements: Limit State Deformations[1]

Elevation (AGL, ft)	Equipment	Twist (deg)[2]	Sway (deg)[2]	Deflection (in)	Deflection Limit (in)[3]	Result
134	Structure	0.0003	0.5573	8.463	48.24	O. K.

1. See program output for supporting details.
2. Per TIA-222-H Section 2.8.2.1 rotation about the vertical axis (twist) or any horizontal axis (sway) of the structure shall not exceed 4 degrees.
3. Per TIA-222-H Section 2.8.2.2 horizontal displacement shall not exceed 3% of the height of the structure.

Table 3: Tower Structure Results Summary, Percent Capacity Utilized[1]

Shaft Section (ft)	Percent Capacity	Result	Connection Capacity	Result
135.0 – 91.5	23	O. K.	--	--
91.5 – 43.5	31	O. K.	--	--
43.5 – 1.0	33	O. K.	**34**	**O. K.**

1. Detailed results and capacities available in the TNX Tower output attached. Percent utilized less than 105% is considered acceptable.

Table 4: Foundation Results, Percent Capacity Utilized

Component	Percent Utilized	Result
Max Utilization – Soil	34	O. K.
Max Utilization - Structure	**39**	**O. K.**

ASSUMPTIONS

This comprehensive structural analysis is based on the theoretical capacity of the members and is not a condition assessment of the tower. This analysis is from information supplied, and therefore, its results are based on and are as accurate as that supplied data. Delta Oaks Group ("DOG") has made no independent determination, nor is it required to, of its accuracy. The following assumptions were made for this structural analysis.

1. The tower member sizes and shapes are considered accurate as supplied. The material grade is as per data supplied and/or as assumed based on industry standards.
2. The antenna configuration is as supplied and/or as modeled in the analysis. It is assumed to be complete and accurate. All antennas, mounts, coax and waveguides are assumed to be properly installed and supported as per manufacturer requirements.
3. Some assumptions are made regarding antennas and mount sizes and their projected areas based on best interpretation of data supplied and of best knowledge of antenna type and industry practice.
4. All mounts, if applicable, are considered adequate to support the loading. No actual analysis of the mount(s) is performed. This analysis is limited to analyzing the tower only.
5. The soil parameters are as per data supplied or as assumed and stated in the calculations.
6. Foundations are properly designed and constructed to resist the original design loads indicated in the documents provided.
7. The tower and structures have been properly maintained in accordance with TIA Standards and/or with manufacturer's specifications.
8. All welds and connections are assumed to develop at least the member capacity unless determined otherwise and explicitly stated in this report.
9. All prior structural modifications are assumed to be as per data supplied/available and to have been properly installed.
10. Loading interpreted from photos is accurate to ±5' AGL, antenna size accurate to ±3.3 sf, and coax equal to the number of existing antennas without reserve.
11. Documents reviewed and used in this structural analysis were provided by CLIENT.

If any of these assumptions are not valid or have been made in error, this analysis may be affected, and DOG should be allowed to review any new information to determine its effect on the structural integrity of the tower.

DISCLAIMER OF WARRANTIES

Delta Oaks Group ("DOG") has not performed a detailed site visit to the tower to verify the member sizes or antenna/coax loading. If the existing conditions are not as represented on the tower elevation contained in this report, we should be contacted immediately to evaluate the significance of the discrepancy. This is not a condition assessment of the tower or foundation. This report does not replace a full tower inspection. The tower and foundations are assumed to have been properly fabricated, erected, maintained, in good condition, twist free, and plumb.

The engineering services rendered by DOG in connection with this Comprehensive Structural Analysis are limited to a computer analysis of the tower structure and theoretical capacity of its main structural members. All tower components have been assumed to only resist dead loads when no other loads are applied. No allowance was made for any damaged, bent, missing, loose, or rusted members (above and below ground). No allowance was made for loose bolts or cracked welds.

DOG does not analyze the fabrication of the structure (including welding). It is not possible to have all the very detailed information needed to perform a thorough analysis of every structural sub-component and connection of an existing tower. DOG provides a limited scope of service in that we cannot verify the adequacy of every weld, plate connection detail, etc. The purpose of this report is to assess the feasibility of adding appurtenances usually accompanied by transmission lines to the structure.

It is the owner's responsibility to determine the amount of ice accumulation in excess of the specified code recommended amount, if any, that should be considered in the structural analysis.

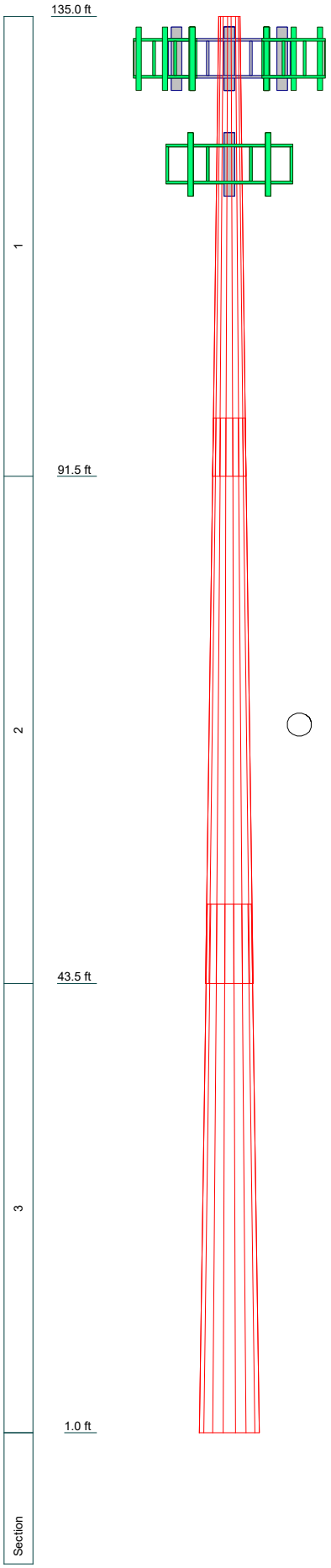
The attached sketches are a schematic representation of the analyzed tower. If any material is fabricated from these sketches, the contractor shall be responsible for field verifying the existing conditions, proper fit, and clearance in the field. Any mentions of structural modifications are reasonable estimates and should not be used as a precise construction document. Precise modification drawings are obtainable from DOG, but are beyond the scope of this report.

Miscellaneous items such as antenna mounts, etc., have not been designed or detailed as a part of our work. We recommend that material of adequate size and strength be purchased from a reputable tower manufacturer.

DOG makes no warranties, expressed and/or implied, in connection with this report and disclaim any liability arising from material, fabrication, and erection of this tower. DOG will not be responsible whatsoever for, or on account of, consequential or incidental damages sustained by any person, firm, or organization as a result of any data or conclusions contained in this report. The maximum liability of DOG pursuant to this report will be limited to the total fee received for preparation of this report.

Attachments:

- Program Input and Output – Wind
- Anchor Rod and Base Plate Calculations
- Foundation Calculations



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION
(2) KMW EPBQ-654L8H8-L2 w/ mp (ATI)	131
(2) KMW EPBQ-654L8H8-L2 w/ mp (ATI)	131
(2) KMW EPBQ-654L8H8-L2 w/ mp (ATI)	131
CCI HPA65R-BU8A w/MP (ATI)	131
CCI HPA65R-BU8A w/MP (ATI)	131
CCI HPA65R-BU8A w/MP (ATI)	131
Ericsson RRUS 4478 B14 (ATI)	131
Ericsson RRUS 4478 B14 (ATI)	131
Ericsson RRUS 4478 B14 (ATI)	131
Ericsson RRUS 32 (ATI)	131
Ericsson RRUS 32 (ATI)	131
Ericsson RRUS 32 (ATI)	131
Ericsson RRUS 4449 B5/B12 (ATI)	131
Ericsson RRUS 4449 B5/B12 (ATI)	131
Ericsson RRUS 4449 B5/B12 (ATI)	131
Ericsson RRUS 4415 B25 (ATI)	131
Ericsson RRUS 4415 B25 (ATI)	131
Ericsson RRUS 4415 B25 (ATI)	131
Raycap DC9-48-60-24-8C-EV (ATI)	131
Raycap DC9-48-60-24-8C-EV (ATI)	131
Site Pro 1 VFA12-HD [1] (ATI)	131
Site Pro 1 VFA12-HD [1] (ATI)	131

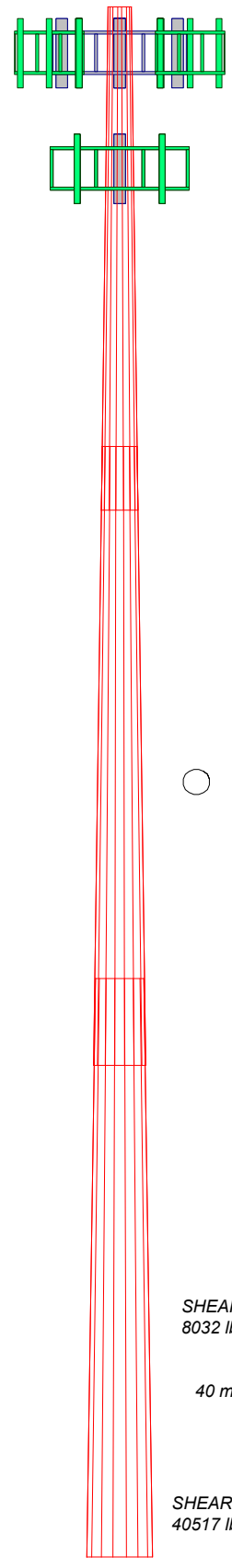
TYPE	ELEVATION
Site Pro 1 VFA12-HD [1] (ATI)	131
(2) JMA MX06FR0860-03 w/ MP (VZW)	121
(2) JMA MX06FR0860-03 w/ MP (VZW)	121
(2) JMA MX06FR0860-03 w/ MP (VZW)	121
Samsung MT6407-77A w/ MP (VZW)	121
Samsung MT6407-77A w/ MP (VZW)	121
Samsung MT6407-77A w/ MP (VZW)	121
Samsung B5/B13 RRH ORAN RF 440D-13A (VZW)	121
Samsung B5/B13 RRH ORAN RF 440D-13A (VZW)	121
Samsung B5/B13 RRH ORAN RF 440D-13A (VZW)	121
Samsung B2/B66A RRH ORAN RF4439d-25A (VZW)	121
Samsung B2/B66A RRH ORAN RF4439d-25A (VZW)	121
Samsung B2/B66A RRH ORAN RF4439d-25A (VZW)	121
Raycap OVP-12 (VZW)	121
Site Pro 1 RMQP-xxx-HK (VZW)	121

DELTA OAKS GROUP
CLIENT FOCUSED -- EMPLOYEE DRIVEN

Delta Oaks Group
4904 Professional Court, Second Floor
Raleigh, NC 27609
Phone: 919-342-8247
FAX:

Job: ***CT757, Kent***			
Project: ***STR23-18711-02***			
Client: Infra Holdings LLC	Drawn by: YR	App'd:	
Code: TIA-222-H	Date: 03/23/23	Scale: NTS	
Path: P:\2023 Projects\23-18711 Kent CT757\STR\Models\SAR\CT757-ERP.er		Dwg No. E-1	

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (lb)
1	43.50	18	0.4375	5.50	24.1200	38.7900		6375.5
2	53.50	18	0.5000	7.50	36.0602	54.1100	A572-65	12881.2
3	50.00	18	0.5625		50.5797	67.4400		17754.1
								37010.8



MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in Litchfield County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 114 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 40 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 5 with Crest Height of 717.00 ft
8. TOWER RATING: 33%

ALL REACTIONS ARE FACTORED

AXIAL 71177 lb

SHEAR 8032 lb *MOMENT 699655 lb-ft*

TORQUE 50 lb-ft
40 mph WIND - 1.0000 in ICE

AXIAL 53766 lb

SHEAR 40517 lb *MOMENT 3690053 lb-ft*

TORQUE 482 lb-ft
REACTIONS - 114 mph WIND

DELTA OAKS GROUP
CLIENT FOCUSED -- EMPLOYEE DRIVEN

Delta Oaks Group
4904 Professional Court, Second Floor
Raleigh, NC 27609
Phone: 919-342-8247
FAX:

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Project: *STR23-18711-02*			
Client: Infra Holdings LLC	Drawn by: YR	App'd:	
Code: TIA-222-H	Date: 03/23/23	Scale: NTS	
Path: P:\2023 Projects\23-18711 Kent CT757\STR\Models\SAR\CT757-ERP.er		Dwg No. E-1	

Tower Input Data

The tower is a monopole.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:

Tower is located in Litchfield County, Connecticut.
Tower base elevation above sea level: 1348.00 ft.
Basic wind speed of 114 mph.
Risk Category II.
Exposure Category C.
Crest Height: 717.00 ft.
Rigorous Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Feature: Hill.
Slope Distance L: 2958.00 ft.
Distance from Crest x: 190.00 ft.
Horizontal Distance Downwind: Yes.
Nominal ice thickness of 1.0000 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 40 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.
Tower analysis based on target reliabilities in accordance with Annex S.
Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
Maximum demand-capacity ratio is: 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs	Distribute Leg Loads As Uniform	Use ASCE 10 X-Brace Ly Rules
Consider Moments - Horizontals	Assume Legs Pinned	Calculate Redundant Bracing Forces
Consider Moments - Diagonals	√ Assume Rigid Index Plate	Ignore Redundant Members in FEA
Use Moment Magnification	√ Use Clear Spans For Wind Area	SR Leg Bolts Resist Compression
√ Use Code Stress Ratios	Use Clear Spans For KL/r	All Leg Panels Have Same Allowable
Use Code Safety Factors - Guys	Retension Guys To Initial Tension	Offset Girt At Foundation
Escalate Ice	√ Bypass Mast Stability Checks	√ Consider Feed Line Torque
Always Use Max Kz	√ Use Azimuth Dish Coefficients	Include Angle Block Shear Check
Use Special Wind Profile	√ Project Wind Area of Appurt.	Use TIA-222-H Bracing Resist. Exemption
Include Bolts In Member Capacity	Autocalc Torque Arm Areas	Use TIA-222-H Tension Splice Exemption
Leg Bolts Are At Top Of Section	Add IBC .6D+W Combination	Poles
Secondary Horizontal Braces Leg	Sort Capacity Reports By Component	√ Include Shear-Torsion Interaction
Use Diamond Inner Bracing (4 Sided)	Triangulate Diamond Inner Bracing	Always Use Sub-Critical Flow
SR Members Have Cut Ends	Treat Feed Line Bundles As Cylinder	Use Top Mounted Sockets
SR Members Are Concentric	Ignore KL/ry For 60 Deg. Angle Legs	√ Pole Without Linear Attachments
		Pole With Shroud Or No Appurtenances
		Outside and Inside Corner Radii Are Known

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	135.00-91.50	43.50	5.50	18	24.1200	38.7900	0.4375	1.7500	A572-65 (65 ksi)
L2	91.50-43.50	53.50	7.50	18	36.0602	54.1100	0.5000	2.0000	A572-65 (65 ksi)
L3	43.50-1.00	50.00		18	50.5797	67.4400	0.5625	2.2500	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	24.4246	32.8861	2330.2637	8.4073	12.2530	190.1797	4663.5936	16.4462	3.4751	7.943
	39.3209	53.2572	9896.9976	13.6151	19.7053	502.2500	19807.0180	26.6337	6.0570	13.845
L2	38.4235	56.4340	9015.8349	12.6239	18.3186	492.1692	18043.5331	28.2224	5.4666	10.933
	54.8676	85.0791	30892.4106	19.0315	27.4879	1123.8557	61825.4702	42.5476	8.6434	17.287
L3	53.8412	89.2994	28224.3360	17.7561	25.6945	1098.4599	56485.8103	44.6582	7.9120	14.066
	68.3936	119.4014	67469.4220	23.7415	34.2595	1969.3627	135027.622 0	59.7121	10.8794	19.341

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1				1	1	1			
135.00-91.50									
L2 91.50-43.50				1	1	1			
L3 43.50-1.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
0.5" Fiber trunk (AT&T)	A	No	No	Inside Pole	131.00 - 6.00	2	No Ice	0.00	0.13
							1/2" Ice	0.00	0.13
							1" Ice	0.00	0.13
1" (AT&T)	A	No	No	Inside Pole	131.00 - 6.00	4	No Ice	0.00	0.50
							1/2" Ice	0.00	0.50
							1" Ice	0.00	0.50
2" Conduit (AT&T)	A	No	No	Inside Pole	131.00 - 6.00	3	No Ice	0.00	1.00
							1/2" Ice	0.00	1.00
							1" Ice	0.00	1.00
**********									
1-5/8 Hybrid	B	No	No	Inside Pole	121.00 - 6.00	2	No Ice	0.00	0.82

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
(VZW)							1/2" Ice	0.00	0.82
							1" Ice	0.00	0.82

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
L1	135.00-91.50	A	0.000	0.000	0.000	0.000	207.61
		B	0.000	0.000	0.000	0.000	48.38
		C	0.000	0.000	0.000	0.000	0.00
L2	91.50-43.50	A	0.000	0.000	0.000	0.000	252.29
		B	0.000	0.000	0.000	0.000	78.72
		C	0.000	0.000	0.000	0.000	0.00
L3	43.50-1.00	A	0.000	0.000	0.000	0.000	197.10
		B	0.000	0.000	0.000	0.000	61.50
		C	0.000	0.000	0.000	0.000	0.00

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
L1	135.00-91.50	A	1.183	0.000	0.000	0.000	0.000	207.61
		B		0.000	0.000	0.000	0.000	48.38
		C		0.000	0.000	0.000	0.000	0.00
L2	91.50-43.50	A	1.149	0.000	0.000	0.000	0.000	252.29
		B		0.000	0.000	0.000	0.000	78.72
		C		0.000	0.000	0.000	0.000	0.00
L3	43.50-1.00	A	1.055	0.000	0.000	0.000	0.000	197.10
		B		0.000	0.000	0.000	0.000	61.50
		C		0.000	0.000	0.000	0.000	0.00

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	135.00-91.50	0.0000	0.0000	0.0000	0.0000
L2	91.50-43.50	0.0000	0.0000	0.0000	0.0000
L3	43.50-1.00	0.0000	0.0000	0.0000	0.0000

Note: For pole sections, center of pressure calculations do not consider feed line shielding.

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
********** ********** ********** *********									
(2) KMW EPBQ-654L8H8-L2 w/ mp (AT&T)	A	From Leg	3.00 0.00 0.00	0.0000	131.00	No Ice 1/2" Ice 1" Ice	18.09 18.72 19.36	8.46 9.54 10.51	107.90 217.04 336.04
(2) KMW EPBQ-654L8H8-L2 w/ mp (AT&T)	B	From Leg	3.00 0.00 0.00	0.0000	131.00	No Ice 1/2" Ice 1" Ice	18.09 18.72 19.36	8.46 9.54 10.51	107.90 217.04 336.04
(2) KMW EPBQ-654L8H8-L2 w/ mp (AT&T)	C	From Leg	3.00 0.00 0.00	0.0000	131.00	No Ice 1/2" Ice 1" Ice	18.09 18.72 19.36	8.46 9.54 10.51	107.90 217.04 336.04
CCI HPA65R-BU8A w/MP (AT&T)	A	From Leg	3.00 0.00 0.00	0.0000	131.00	No Ice 1/2" Ice 1" Ice	11.23 11.85 12.47	9.94 11.37 12.64	86.20 173.99 271.54
CCI HPA65R-BU8A w/MP (AT&T)	B	From Leg	3.00 0.00 0.00	0.0000	131.00	No Ice 1/2" Ice 1" Ice	11.23 11.85 12.47	9.94 11.37 12.64	86.20 173.99 271.54
CCI HPA65R-BU8A w/MP (AT&T)	C	From Leg	3.00 0.00 0.00	0.0000	131.00	No Ice 1/2" Ice 1" Ice	11.23 11.85 12.47	9.94 11.37 12.64	86.20 173.99 271.54
Ericsson RRUS 4478 B14 (AT&T)	A	From Leg	3.00 0.00 0.00	0.0000	131.00	No Ice 1/2" Ice 1" Ice	1.73 1.90 2.07	1.07 1.20 1.35	60.00 75.49 93.57
Ericsson RRUS 4478 B14 (AT&T)	B	From Leg	3.00 0.00 0.00	0.0000	131.00	No Ice 1/2" Ice 1" Ice	1.73 1.90 2.07	1.07 1.20 1.35	60.00 75.49 93.57
Ericsson RRUS 4478 B14 (AT&T)	C	From Leg	3.00 0.00 0.00	0.0000	131.00	No Ice 1/2" Ice 1" Ice	1.73 1.90 2.07	1.07 1.20 1.35	60.00 75.49 93.57
Ericsson RRUS 32 (AT&T)	A	From Leg	3.00 0.00 0.00	0.0000	131.00	No Ice 1/2" Ice 1" Ice	2.70 2.92 3.15	1.65 1.84 2.03	53.00 73.87 97.92
Ericsson RRUS 32 (AT&T)	B	From Leg	3.00 0.00 0.00	0.0000	131.00	No Ice 1/2" Ice 1" Ice	2.70 2.92 3.15	1.65 1.84 2.03	53.00 73.87 97.92
Ericsson RRUS 32 (AT&T)	C	From Leg	3.00 0.00 0.00	0.0000	131.00	No Ice 1/2" Ice 1" Ice	2.70 2.92 3.15	1.65 1.84 2.03	53.00 73.87 97.92
Ericsson RRUS 4449 B5/B12 (AT&T)	A	From Leg	3.00 0.00 0.00	0.0000	131.00	No Ice 1/2" Ice 1" Ice	1.95 2.13 2.31	0.97 1.10 1.23	75.00 92.95 113.69
Ericsson RRUS 4449 B5/B12 (AT&T)	B	From Leg	3.00 0.00 0.00	0.0000	131.00	No Ice 1/2" Ice 1" Ice	1.95 2.13 2.31	0.97 1.10 1.23	75.00 92.95 113.69
Ericsson RRUS 4449 B5/B12 (AT&T)	C	From Leg	3.00 0.00 0.00	0.0000	131.00	No Ice 1/2" Ice 1" Ice	1.95 2.13 2.31	0.97 1.10 1.23	75.00 92.95 113.69
Ericsson RRUS 4415 B25 (AT&T)	A	From Leg	3.00 0.00 0.00	0.0000	131.00	No Ice 1/2" Ice 1" Ice	1.63 1.78 1.95	0.64 0.75 0.86	44.00 55.96 70.25

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
Ericsson RRUS 4415 B25	B	From Leg	3.00		0.0000	131.00	No Ice	1.63	0.64	44.00
(AT&T)			0.00				1/2" Ice	1.78	0.75	55.96
			0.00				1" Ice	1.95	0.86	70.25
Ericsson RRUS 4415 B25	C	From Leg	3.00		0.0000	131.00	No Ice	1.63	0.64	44.00
(AT&T)			0.00				1/2" Ice	1.78	0.75	55.96
			0.00				1" Ice	1.95	0.86	70.25
Raycap	A	From Leg	3.00		0.0000	131.00	No Ice	1.14	1.14	28.70
DC9-48-60-24-8C-EV			0.00				1/2" Ice	1.79	1.79	49.00
(AT&T)			0.00				1" Ice	2.00	2.00	72.08
Raycap	B	From Leg	3.00		0.0000	131.00	No Ice	1.14	1.14	28.70
DC9-48-60-24-8C-EV			0.00				1/2" Ice	1.79	1.79	49.00
(AT&T)			0.00				1" Ice	2.00	2.00	72.08
Site Pro 1 VFA12-HD [1]	A	From Leg	1.75		0.0000	131.00	No Ice	13.20	9.20	658.00
(AT&T)			0.00				1/2" Ice	19.50	14.60	804.00
			0.00				1" Ice	25.80	19.50	1015.00
Site Pro 1 VFA12-HD [1]	B	From Leg	1.75		0.0000	131.00	No Ice	13.20	9.20	658.00
(AT&T)			0.00				1/2" Ice	19.50	14.60	804.00
			0.00				1" Ice	25.80	19.50	1015.00
Site Pro 1 VFA12-HD [1]	C	From Leg	1.75		0.0000	131.00	No Ice	13.20	9.20	658.00
(AT&T)			0.00				1/2" Ice	19.50	14.60	804.00
			0.00				1" Ice	25.80	19.50	1015.00
**********										
**********										
**********										
(2) JMA MX06FR0860-03 w/	A	From Leg	3.00		0.0000	121.00	No Ice	14.01	12.34	94.20
MP			0.00				1/2" Ice	14.61	13.78	205.74
(VZW)			0.00				1" Ice	15.22	15.07	327.46
(2) JMA MX06FR0860-03 w/	B	From Leg	3.00		0.0000	121.00	No Ice	14.01	12.34	94.20
MP			0.00				1/2" Ice	14.61	13.78	205.74
(VZW)			0.00				1" Ice	15.22	15.07	327.46
(2) JMA MX06FR0860-03 w/	C	From Leg	3.00		0.0000	121.00	No Ice	14.01	12.34	94.20
MP			0.00				1/2" Ice	14.61	13.78	205.74
(VZW)			0.00				1" Ice	15.22	15.07	327.46
Samsung MT6407-77A w/	A	From Leg	3.00		0.0000	121.00	No Ice	5.68	3.53	112.65
MP			0.00				1/2" Ice	6.39	4.48	160.62
(VZW)			0.00				1" Ice	6.94	5.15	214.35
Samsung MT6407-77A w/	B	From Leg	3.00		0.0000	121.00	No Ice	5.68	3.53	112.65
MP			0.00				1/2" Ice	6.39	4.48	160.62
(VZW)			0.00				1" Ice	6.94	5.15	214.35
Samsung MT6407-77A w/	C	From Leg	3.00		0.0000	121.00	No Ice	5.68	3.53	112.65
MP			0.00				1/2" Ice	6.39	4.48	160.62
(VZW)			0.00				1" Ice	6.94	5.15	214.35
Samsung B5/B13 RRH	A	From Leg	3.00		0.0000	121.00	No Ice	1.87	1.13	70.00
ORAN RF 440D-13A			0.00				1/2" Ice	2.03	1.27	87.32
(VZW)			0.00				1" Ice	2.21	1.41	107.37
Samsung B5/B13 RRH	B	From Leg	3.00		0.0000	121.00	No Ice	1.87	1.13	70.00
ORAN RF 440D-13A			0.00				1/2" Ice	2.03	1.27	87.32
(VZW)			0.00				1" Ice	2.21	1.41	107.37
Samsung B5/B13 RRH	C	From Leg	3.00		0.0000	121.00	No Ice	1.87	1.13	70.00
ORAN RF 440D-13A			0.00				1/2" Ice	2.03	1.27	87.32
(VZW)			0.00				1" Ice	2.21	1.41	107.37
Samsung B2/B66A RRH	A	From Leg	3.00		0.0000	121.00	No Ice	1.87	1.25	75.00
ORAN RF4439d-25A			0.00				1/2" Ice	2.03	1.39	93.32
(VZW)			0.00				1" Ice	2.21	1.54	114.42
Samsung B2/B66A RRH	B	From Leg	3.00		0.0000	121.00	No Ice	1.87	1.25	75.00
ORAN RF4439d-25A			0.00				1/2" Ice	2.03	1.39	93.32
(VZW)			0.00				1" Ice	2.21	1.54	114.42

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
Samsung B2/B66A RRH	C	From Leg	3.00		0.0000	121.00	No Ice	1.87	1.25	75.00
ORAN RF4439d-25A			0.00				1/2" Ice	2.03	1.39	93.32
(VZW)			0.00				1" Ice	2.21	1.54	114.42
Raycap OVP-12	C	From Leg	3.00		0.0000	121.00	No Ice	3.98	3.04	32.00
(VZW)			0.00				1/2" Ice	4.23	3.27	67.93
			0.00				1" Ice	4.50	3.51	107.82
Site Pro 1 RMQP-xxx-HK	C	None			0.0000	121.00	No Ice	34.54	31.94	1945.00
(VZW)							1/2" Ice	42.04	39.46	2335.00
							1" Ice	49.60	47.16	2845.00

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp

Comb. No.	Description
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Pole	Max. Vert	26	71177.32	0.00	0.00
	Max. H_x	20	53766.00	40502.85	-24.19
	Max. H_z	2	53766.00	-24.19	40474.91
	Max. M_x	2	3684922.70	-24.19	40474.91
	Max. M_z	8	3688312.79	-40502.85	24.19
	Max. Torsion	24	482.09	20230.47	35040.21
	Min. Vert	13	40324.50	-20230.47	-35040.21
	Min. H_x	8	53766.00	-40502.85	24.19
	Min. H_z	14	53766.00	24.19	-40474.91
	Min. M_x	14	-3684944.67	24.19	-40474.91
	Min. M_z	20	-3688350.84	40502.85	-24.19
	Min. Torsion	12	-482.08	-20230.47	-35040.21

Tower Mast Reaction Summary

Load Combination	Vertical lb	$Shear_x$ lb	$Shear_z$ lb	Overturning Moment, M_x lb-ft	Overturning Moment, M_z lb-ft	Torque lb-ft
Dead Only	44805.00	0.00	0.00	8.95	15.50	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	53766.00	24.19	-40474.91	-3684922.70	-2925.63	-417.49
0.9 Dead+1.0 Wind 0 deg - No Ice	40324.50	24.19	-40474.91	-3672735.08	-2919.74	-417.35
1.2 Dead+1.0 Wind 30 deg - No Ice	53766.00	20272.37	-35064.40	-3192705.84	-1846696.87	-241.03
0.9 Dead+1.0 Wind 30 deg - No Ice	40324.50	20272.37	-35064.40	-3182146.17	-1840591.12	-240.95
1.2 Dead+1.0 Wind 60 deg - No Ice	53766.00	35088.59	-20258.41	-1845004.46	-3195641.46	-0.01
0.9 Dead+1.0 Wind 60 deg - No Ice	40324.50	35088.59	-20258.41	-1838902.87	-3185073.19	-0.00
1.2 Dead+1.0 Wind 90 deg - No Ice	53766.00	40502.85	-24.19	-2933.48	-3688312.79	241.04
0.9 Dead+1.0 Wind 90 deg - No Ice	40324.50	40502.84	-24.19	-2925.59	-3676114.98	240.96
1.2 Dead+1.0 Wind 120 deg -	53766.00	35064.40	20216.51	1839927.68	-3192699.49	417.50

Load Combination	Vertical lb	$Shear_x$ lb	$Shear_z$ lb	Overturning Moment, M_x lb-ft	Overturning Moment, M_z lb-ft	Torque lb-ft
No Ice						
0.9 Dead+1.0 Wind 120 deg - No Ice	40324.50	35064.40	20216.51	1833838.97	-3182141.75	417.36
1.2 Dead+1.0 Wind 150 deg - No Ice	53766.00	20230.47	35040.21	3189785.47	-1841598.76	482.08
0.9 Dead+1.0 Wind 150 deg - No Ice	40324.50	20230.47	35040.21	3179230.83	-1835511.33	481.92
1.2 Dead+1.0 Wind 180 deg - No Ice	53766.00	-24.19	40474.91	3684944.67	2962.75	417.50
0.9 Dead+1.0 Wind 180 deg - No Ice	40324.50	-24.19	40474.91	3672751.46	2947.42	417.36
1.2 Dead+1.0 Wind 210 deg - No Ice	53766.00	-20272.37	35064.40	3192728.08	1846734.45	241.05
0.9 Dead+1.0 Wind 210 deg - No Ice	40324.50	-20272.37	35064.40	3182162.75	1840619.15	240.97
1.2 Dead+1.0 Wind 240 deg - No Ice	53766.00	-35088.59	20258.41	1845026.43	3195679.51	-0.01
0.9 Dead+1.0 Wind 240 deg - No Ice	40324.50	-35088.59	20258.41	1838919.25	3185101.57	-0.00
1.2 Dead+1.0 Wind 270 deg - No Ice	53766.00	-40502.85	24.19	2954.91	3688350.84	-241.05
0.9 Dead+1.0 Wind 270 deg - No Ice	40324.50	-40502.84	24.19	2941.57	3676143.35	-240.96
1.2 Dead+1.0 Wind 300 deg - No Ice	53766.00	-35064.40	-20216.51	-1839906.53	3192737.08	-417.50
0.9 Dead+1.0 Wind 300 deg - No Ice	40324.50	-35064.40	-20216.51	-1833823.20	3182169.78	-417.36
1.2 Dead+1.0 Wind 330 deg - No Ice	53766.00	-20230.47	-35040.21	-3189764.04	1841635.88	-482.09
0.9 Dead+1.0 Wind 330 deg - No Ice	40324.50	-20230.47	-35040.21	-3179214.85	1835539.00	-481.93
1.2 Dead+1.0 Ice+1.0 Temp	71177.32	0.00	0.00	96.70	167.50	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	71177.32	3.14	-8026.06	-698685.35	-211.12	-43.36
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	71177.32	4017.56	-6952.34	-605258.51	-349775.04	-25.03
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	71177.32	6955.48	-4015.75	-349626.17	-605570.29	-0.00
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	71177.32	8029.69	-3.14	-284.81	-699056.76	25.03
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	71177.32	6952.34	4010.31	349159.84	-605184.82	43.36
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	71177.32	4012.12	6949.20	605074.38	-349107.37	50.06
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	71177.32	-3.14	8026.06	698886.70	559.85	43.36
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	71177.32	-4017.56	6952.34	605459.87	350123.78	25.03
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	71177.32	-6955.48	4015.75	349827.52	605919.04	-0.00
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	71177.32	-8029.69	3.14	486.15	699405.51	-25.03
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	71177.32	-6952.34	-4010.31	-348958.51	605533.56	-43.36
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	71177.32	-4012.12	-6949.20	-604873.04	349456.10	-50.06
Dead+Wind 0 deg - Service	44805.00	6.31	-10560.01	-959462.20	-750.65	-108.48
Dead+Wind 30 deg - Service	44805.00	5289.11	-9148.39	-831300.60	-480826.11	-62.63
Dead+Wind 60 deg - Service	44805.00	9154.70	-5285.47	-480390.27	-832060.35	-0.00
Dead+Wind 90 deg - Service	44805.00	10567.29	-6.31	-757.32	-960340.49	62.63
Dead+Wind 120 deg - Service	44805.00	9148.39	5274.54	479081.02	-831293.97	108.48

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	lb	lb	lb	lb-ft	lb-ft	lb-ft
Dead+Wind 150 deg - Service	44805.00	5278.18	9142.08	830552.45	-479498.64	125.27
Dead+Wind 180 deg - Service	44805.00	-6.31	10560.01	959480.46	782.21	108.48
Dead+Wind 210 deg - Service	44805.00	-5289.11	9148.39	831318.87	480857.69	62.63
Dead+Wind 240 deg - Service	44805.00	-9154.70	5285.47	480408.52	832091.96	-0.00
Dead+Wind 270 deg - Service	44805.00	-10567.29	6.31	775.54	960372.11	-62.63
Dead+Wind 300 deg - Service	44805.00	-9148.39	-5274.54	-479062.81	831325.55	-108.48
Dead+Wind 330 deg - Service	44805.00	-5278.18	-9142.08	-830534.23	479530.20	-125.27

Solution Summary

Load Comb.	Sum of Applied Forces PX	PY	PZ	Sum of Reactions PX	PY	PZ	% Error
	lb	lb	lb	lb	lb	lb	
1	0.00	-44805.00	0.00	0.00	44805.00	0.00	0.000%
2	24.19	-53766.00	-40474.91	-24.19	53766.00	40474.91	0.000%
3	24.19	-40324.50	-40474.91	-24.19	40324.50	40474.91	0.000%
4	20272.37	-53766.00	-35064.40	-20272.37	53766.00	35064.40	0.000%
5	20272.37	-40324.50	-35064.40	-20272.37	40324.50	35064.40	0.000%
6	35088.59	-53766.00	-20258.41	-35088.59	53766.00	20258.41	0.000%
7	35088.59	-40324.50	-20258.41	-35088.59	40324.50	20258.41	0.000%
8	40502.84	-53766.00	-24.19	-40502.85	53766.00	24.19	0.000%
9	40502.84	-40324.50	-24.19	-40502.84	40324.50	24.19	0.000%
10	35064.40	-53766.00	20216.51	-35064.40	53766.00	-20216.51	0.000%
11	35064.40	-40324.50	20216.51	-35064.40	40324.50	-20216.51	0.000%
12	20230.47	-53766.00	35040.21	-20230.47	53766.00	-35040.21	0.000%
13	20230.47	-40324.50	35040.21	-20230.47	40324.50	-35040.21	0.000%
14	-24.19	-53766.00	40474.91	24.19	53766.00	-40474.91	0.000%
15	-24.19	-40324.50	40474.91	24.19	40324.50	-40474.91	0.000%
16	-20272.37	-53766.00	35064.40	20272.37	53766.00	-35064.40	0.000%
17	-20272.37	-40324.50	35064.40	20272.37	40324.50	-35064.40	0.000%
18	-35088.59	-53766.00	20258.41	35088.59	53766.00	-20258.41	0.000%
19	-35088.59	-40324.50	20258.41	35088.59	40324.50	-20258.41	0.000%
20	-40502.84	-53766.00	24.19	40502.85	53766.00	-24.19	0.000%
21	-40502.84	-40324.50	24.19	40502.84	40324.50	-24.19	0.000%
22	-35064.40	-53766.00	-20216.51	35064.40	53766.00	20216.51	0.000%
23	-35064.40	-40324.50	-20216.51	35064.40	40324.50	20216.51	0.000%
24	-20230.47	-53766.00	-35040.21	20230.47	53766.00	35040.21	0.000%
25	-20230.47	-40324.50	-35040.21	20230.47	40324.50	35040.21	0.000%
26	0.00	-71177.32	0.00	0.00	71177.32	0.00	0.000%
27	3.14	-71177.32	-8026.05	-3.14	71177.32	8026.06	0.000%
28	4017.56	-71177.32	-6952.33	-4017.56	71177.32	6952.34	0.000%
29	6955.48	-71177.32	-4015.75	-6955.48	71177.32	4015.75	0.000%
30	8029.68	-71177.32	-3.14	-8029.69	71177.32	3.14	0.000%
31	6952.33	-71177.32	4010.30	-6952.34	71177.32	-4010.31	0.000%
32	4012.12	-71177.32	6949.19	-4012.12	71177.32	-6949.20	0.000%
33	-3.14	-71177.32	8026.05	3.14	71177.32	-8026.06	0.000%
34	-4017.56	-71177.32	6952.33	4017.56	71177.32	-6952.34	0.000%
35	-6955.48	-71177.32	4015.75	6955.48	71177.32	-4015.75	0.000%
36	-8029.68	-71177.32	3.14	8029.69	71177.32	-3.14	0.000%
37	-6952.33	-71177.32	-4010.30	6952.34	71177.32	4010.31	0.000%
38	-4012.12	-71177.32	-6949.19	4012.12	71177.32	6949.20	0.000%
39	6.31	-44805.00	-10560.01	-6.31	44805.00	10560.01	0.000%
40	5289.11	-44805.00	-9148.39	-5289.11	44805.00	9148.39	0.000%
41	9154.70	-44805.00	-5285.47	-9154.70	44805.00	5285.47	0.000%
42	10567.29	-44805.00	-6.31	-10567.29	44805.00	6.31	0.000%
43	9148.39	-44805.00	5274.54	-9148.39	44805.00	-5274.54	0.000%
44	5278.18	-44805.00	9142.08	-5278.18	44805.00	-9142.08	0.000%
45	-6.31	-44805.00	10560.01	6.31	44805.00	-10560.01	0.000%

Load Comb.	Sum of Applied Forces PX	PY	PZ	Sum of Reactions PX	PY	PZ	% Error
	lb	lb	lb	lb	lb	lb	
46	-5289.11	-44805.00	9148.39	5289.11	44805.00	-9148.39	0.000%
47	-9154.70	-44805.00	5285.47	9154.70	44805.00	-5285.47	0.000%
48	-10567.29	-44805.00	6.31	10567.29	44805.00	-6.31	0.000%
49	-9148.39	-44805.00	-5274.54	9148.39	44805.00	5274.54	0.000%
50	-5278.18	-44805.00	-9142.08	5278.18	44805.00	9142.08	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00001082
3	Yes	4	0.00000001	0.00000608
4	Yes	4	0.00000001	0.00024978
5	Yes	4	0.00000001	0.00015453
6	Yes	4	0.00000001	0.00025200
7	Yes	4	0.00000001	0.00015594
8	Yes	4	0.00000001	0.00000909
9	Yes	4	0.00000001	0.00000481
10	Yes	4	0.00000001	0.00025474
11	Yes	4	0.00000001	0.00015777
12	Yes	4	0.00000001	0.00024653
13	Yes	4	0.00000001	0.00015251
14	Yes	4	0.00000001	0.00001151
15	Yes	4	0.00000001	0.00000656
16	Yes	4	0.00000001	0.00025416
17	Yes	4	0.00000001	0.00015733
18	Yes	4	0.00000001	0.00025202
19	Yes	4	0.00000001	0.00015595
20	Yes	4	0.00000001	0.00000957
21	Yes	4	0.00000001	0.00000516
22	Yes	4	0.00000001	0.00024715
23	Yes	4	0.00000001	0.00015289
24	Yes	4	0.00000001	0.00025528
25	Yes	4	0.00000001	0.00015813
26	Yes	4	0.00000001	0.00000001
27	Yes	4	0.00000001	0.00013709
28	Yes	4	0.00000001	0.00013993
29	Yes	4	0.00000001	0.00013997
30	Yes	4	0.00000001	0.00013715
31	Yes	4	0.00000001	0.00013986
32	Yes	4	0.00000001	0.00013985
33	Yes	4	0.00000001	0.00013718
34	Yes	4	0.00000001	0.00014011
35	Yes	4	0.00000001	0.00014016
36	Yes	4	0.00000001	0.00013731
37	Yes	4	0.00000001	0.00013995
38	Yes	4	0.00000001	0.00013987
39	Yes	4	0.00000001	0.00000001
40	Yes	4	0.00000001	0.00000634
41	Yes	4	0.00000001	0.00000647
42	Yes	4	0.00000001	0.00000001
43	Yes	4	0.00000001	0.00000670
44	Yes	4	0.00000001	0.00000620
45	Yes	4	0.00000001	0.00000001
46	Yes	4	0.00000001	0.00000661

47	Yes	4	0.00000001	0.00000647
48	Yes	4	0.00000001	0.00000001
49	Yes	4	0.00000001	0.00000623
50	Yes	4	0.00000001	0.00000674

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	135 - 91.5	8.463	47	0.5573	0.0003
L2	97 - 43.5	4.317	47	0.4436	0.0002
L3	51 - 1	1.125	47	0.2071	0.0000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
131.00	(2) KMW EPBQ-654L8H8-L2 w/ mp	47	7.999	0.5477	0.0003	83763
121.00	(2) JMA MX06FR0860-03 w/ MP	47	6.852	0.5224	0.0002	29915

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	135 - 91.5	32.512	18	2.1417	0.0011
L2	97 - 43.5	16.583	18	1.7048	0.0007
L3	51 - 1	4.320	18	0.7958	0.0002

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
131.00	(2) KMW EPBQ-654L8H8-L2 w/ mp	18	30.731	2.1045	0.0011	21854
121.00	(2) JMA MX06FR0860-03 w/ MP	18	26.323	2.0076	0.0009	7804

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
L1	135 - 91.5 (1)	TP38.79x24.12x0.4375	43.50	0.00	0.0	50.6816	-14384.80	2964870.00	0.005
L2	91.5 - 43.5 (2)	TP54.11x36.0602x0.5	53.50	0.00	0.0	81.0634	-29100.90	4742210.00	0.006
L3	43.5 - 1 (3)	TP67.44x50.5797x0.5625	50.00	0.00	0.0	119.401 0	-53753.60	6984980.00	0.008

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} lb-ft	ϕM_{nx} lb-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} lb-ft	ϕM_{ny} lb-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	135 - 91.5 (1)	TP38.79x24.12x0.4375	637371.67	2814441.67	0.226	0.00	2814441.67	0.000
L2	91.5 - 43.5 (2)	TP54.11x36.0602x0.5	1893600.00	6201483.33	0.305	0.00	6201483.33	0.000
L3	43.5 - 1 (3)	TP67.44x50.5797x0.5625	3690050.00	11464166.67	0.322	0.00	11464166.67	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u lb	ϕV_n lb	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u lb-ft	ϕT_n lb-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	135 - 91.5 (1)	TP38.79x24.12x0.4375	23631.40	889462.00	0.027	0.00	2842975.00	0.000
L2	91.5 - 43.5 (2)	TP54.11x36.0602x0.5	31260.70	1422660.00	0.022	0.01	6364000.00	0.000
L3	43.5 - 1 (3)	TP67.44x50.5797x0.5625	40533.30	2095490.00	0.019	0.01	12272916.00	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	135 - 91.5 (1)	0.005	0.226	0.000	0.027	0.000	0.232 ✔	1.000	4.8.2 ✔
L2	91.5 - 43.5 (2)	0.006	0.305	0.000	0.022	0.000	0.312 ✔	1.000	4.8.2 ✔
L3	43.5 - 1 (3)	0.008	0.322	0.000	0.019	0.000	0.330 ✔	1.000	4.8.2 ✔

Section Capacity Table

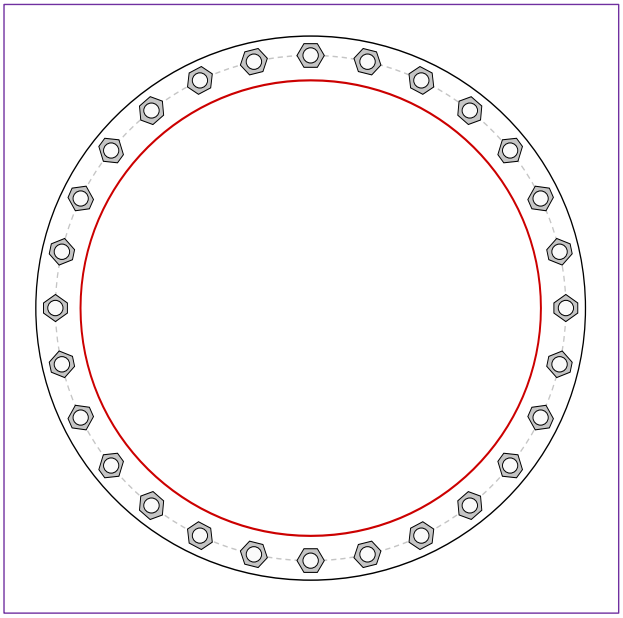
Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
L1	135 - 91.5	Pole	TP38.79x24.12x0.4375	1	-14384.80	2964870.00	23.2	Pass
L2	91.5 - 43.5	Pole	TP54.11x36.0602x0.5	2	-29100.90	4742210.00	31.2	Pass
L3	43.5 - 1	Pole	TP67.44x50.5797x0.5625	3	-53753.60	6984980.00	33.0	Pass
							Summary	
						Pole (L3)	33.0	Pass
						RATING =	**33.0**	**Pass**

Monopole Base Plate Connection

Site Info	
Site #	CT757
Site Name	Kent
Proj.#	STR23-18711-02

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	2.25

Applied Loads	
Moment (kip-ft)	3690.05
Axial Force (kips)	53.75
Shear Force (kips)	40.53



Connection Properties

Anchor Rod Data

(28) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 74.75" BC

Base Plate Data

80.5" OD x 2.75" Plate (A572-50; Fy=50 ksi, Fu=65 ksi)

Stiffener Data

N/A

Pole Data

67.44" x 0.5625" 18-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

Anchor Rod Summary *(units of kips, kip-in)*

Pu_t = 82.68	ϕPn_t = 243.75	**Stress Rating**
Vu = 1.45	ϕVn = 149.1	**33.9%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	13.83	(Flexural)
Allowable Stress (ksi):	45	
Stress Rating:	**30.7%**	**Pass**

Analysis Date: 3/23/2023

Pier and Pad Foundation

Site # :	CT757
Site Name:	Kent
Proj. Number:	STR23-18711-02

TIA-222 Revision:	H
Tower Type:	Monopole

Top & Bot. Pad Rein. Different?:	☐
Block Foundation?:	☐
Rectangular Pad?:	☐

Superstructure Analysis Reactions		
Compression, P_{comp}:	53.77	kips
Base Shear, Vu_comp:	40.52	kips
Moment, M_u:	3690.05	ft-kips
Tower Height, **H**:	135	ft
BP Dist. Above Fdn, bp_{dist}:	4.5	in

Pier Properties		
Pier Shape:	Circular	
Pier Diameter, **dpier**:	9	ft
Ext. Above Grade, **E**:	0.5	ft
Pier Rebar Size, **Sc**:	11	
Pier Rebar Quantity, **mc**:	56	
Pier Tie/Spiral Size, **St**:	5	
Pier Tie/Spiral Quantity, **mt**:	16	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	3	in

Pad Properties		
Depth, **D**:	6	ft
Pad Width, W_1:	31.5	ft
Pad Thickness, **T**:	2.25	ft
Pad Rebar Size (Bottom dir. 2), Sp_2:	10	
Pad Rebar Quantity (Bottom dir. 2), mp_2:	50	
Pad Clear Cover, cc_{pad}:	3	in

Material Properties		
Rebar Grade, **Fy**:	60	ksi
Concrete Compressive Strength, **F'c**:	4.5	ksi
Dry Concrete Density, δ**c**:	150	pcf

Soil Properties		
Total Soil Unit Weight, γ:	130	pcf
Ultimate Net Bearing, Qnet:	30.000	ksf
Cohesion, **Cu**:	0.000	ksf
Friction Angle, φ:	40	degrees
SPT Blow Count, N_{blows}:		
Base Friction, μ:	0.35	
Neglected Depth, **N**:	3.30	ft
Foundation Bearing on Rock?	Yes	
Groundwater Depth, **gw**:	N/A	ft

<--Toggle between Gross and Net

Foundation Analysis Checks	Capacity	Demand	Rating	Check
Lateral (Sliding) (kips)	367.56	40.52	**11.0%**	**Pass**
Bearing Pressure (ksf)	23.09	1.86	**8.1%**	**Pass**
*Overturning (kip*ft)*	11848.99	3968.63	**33.5%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	17747.34	3862.26	**21.8%**	**Pass**
Pier Compression (kip)	45552.50	102.44	**0.2%**	**Pass**
*Pad Flexure (kip*ft)*	5937.15	1288.06	**21.7%**	**Pass**
Pad Shear - 1-way (kips)	840.39	177.83	**21.2%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.201	0.046	**23.1%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	5932.80	2317.36	**39.1%**	**Pass**

Structural Rating:	**39.1%**
Soil Rating:	**33.5%**

ATTACHMENT 6

C Squared Systems, LLC
65 Dartmouth Drive
Auburn, NH 03032
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Calculated Radio Frequency Emissions Report

Kent 2

93 Richards Road, Kent, CT 06785

February 22, 2023

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List of Figures

List of Tables

1. Introduction

The purpose of this report is to investigate compliance with applicable FCC regulations for the proposed installation of Verizon's antenna arrays to be mounted at 121' AGL on an existing monopole located at 93 Richards Road in Kent, CT. The coordinates of the rooftop are 41° 42' 30.99" N, 73° 25' 13.71" W.

Verizon is proposing the following:

1) Install six (6) multi-band antennas (three per sector) to support its commercial LTE network and the FirstNet National Public Safety Broadband Network ("NPSBN").

This report considers the planned antenna configuration for Verizon[1] to derive the resulting % MPE of its proposed installation.

2. FCC Guidelines for Evaluating RF Radiation Exposure Limits

In 1985, the FCC established rules to regulate radio frequency (RF) exposure from FCC licensed antenna facilities. In 1996, the FCC updated these rules, which were further amended in August 1997 by OET Bulletin 65 Edition 97-01. These new rules include Maximum Permissible Exposure (MPE) limits for transmitters operating between 300 kHz and 100 GHz. The FCC MPE limits are based upon those recommended by the National Council on Radiation Protection and Measurements (NCRP), developed by the Institute of Electrical and Electronics Engineers, Inc., (IEEE) and adopted by the American National Standards Institute (ANSI).

The FCC general population/uncontrolled limits set the maximum exposure to which most people may be subjected. General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

Public exposure to radio frequencies is regulated and enforced in units of milliwatts per square centimeter (mW/cm^2). The general population exposure limits for the various frequency ranges are defined in the attached "FCC Limits for Maximum Permissible Exposure (MPE)" in Attachment C of this report.

Higher exposure limits are permitted under the occupational/controlled exposure category, but only for persons who are exposed as a consequence of their employment and who have been made fully aware of the potential for exposure, and they must be able to exercise control over their exposure. General population/uncontrolled limits are five times more stringent than the levels that are acceptable for occupational, or radio frequency trained individuals. Attachment C contains excerpts from OET Bulletin 65 and defines the Maximum Exposure Limit.

Finally, it should be noted that the MPE limits adopted by the FCC for both general population/uncontrolled exposure and for occupational/controlled exposure incorporate a substantial margin of safety and have been established to be well below levels generally accepted as having the potential to cause adverse health effects.

[1] As referenced to Verizon's Radio Frequency Design Sheet updated 12/28/2022.

3. RF Exposure Prediction Methods

The emission field calculation results displayed in the following figures were generated using the following formula as outlined in FCC bulletin OET 65:

$$\text{Power Density} = \left(\frac{EIRP}{\pi \times R^2} \right) \times \text{Off Beam Loss}$$

Where:

EIRP = Effective Isotropic Radiated Power

R = Radial Distance = $\sqrt{\left(H^2 + V^2\right)}$

H = Horizontal Distance from antenna in meters

V = Vertical Distance from radiation center of antenna in meters

Off Beam Loss is determined by the selected antenna patterns

Ground reflection factor of 1.6

These calculations assume that the antennas are operating at 100 percent capacity, that all antenna channels are transmitting simultaneously, and that the radio transmitters are operating at full power. Obstructions (trees, buildings, etc.) that would normally attenuate the signal are not taken into account. The calculations assume even terrain in the area of study and do not take into account actual terrain elevations which could attenuate the signal. As a result, the predicted signal levels reported below are much higher than the actual signal levels will be from the final installations.

4. Antenna Inventory

Table 1 below outlines Verizon's proposed antenna configuration for the site. The associated data sheets and antenna patterns for these specific antenna models are included in Attachments C.

Operator	Sector / Call Sign	TX Freq (MHz)	Power at Antenna (Watts)	Ant Gain (dBi)	Power EIRP (Watts)	Antenna Model	Beam Width	Mech. Tilt	Length (ft)	Antenna Centerline Height (ft)
Verizon	Alpha / 0°	746	160	15.3	5421	MX06FRO860-03	60.0	0	7.99	121
		850	160	14.5	4509		53.5			
		1900	160	17.9	9865		55.0			
		2100	240	18.2	15856		55.5			
		3700	200	25.6	72615	MT6407-77A	-	0	2.92	121
	Beta / 120°	746	160	15.3	5421	MX06FRO860-03	60.0	0	7.99	121
		850	160	14.5	4509		53.5			
		1900	160	17.9	9865		55.0			
		2100	240	18.2	15856		55.5			
		3700	200	25.6	72615	MT6407-77A	-	0	2.92	121
	Gamma / 240°	746	160	15.3	5421	MX06FRO860-03	60.0	0	7.99	121
		850	160	14.5	4509		53.5			
		1900	160	17.9	9865		55.0			
		2100	240	18.2	15856		55.5			
		3700	200	25.6	72615	MT6407-77A	-	0	2.5	121

Table 1: Proposed Antenna Inventory[2] [3]

[2] Antenna heights are in reference to Verizon's Radio Frequency Design Sheet updated 12/28/2022.

[3] Transmit power assumes 0 dB of cable loss.

5. Calculation Results

The calculated power density results are shown in Figure 1 below. For completeness, the calculations for this analysis range from 0 feet horizontal distance (directly below the antennas) to a value of 3,000 feet horizontal distance from the site. In addition to the other worst-case scenario considerations that were previously mentioned, the power density calculations to each horizontal distance point away from the antennas was completed using a local maximum off beam antenna gain (within ± 5 degrees of the true mathematical angle) to incorporate a realistic worst-case scenario.

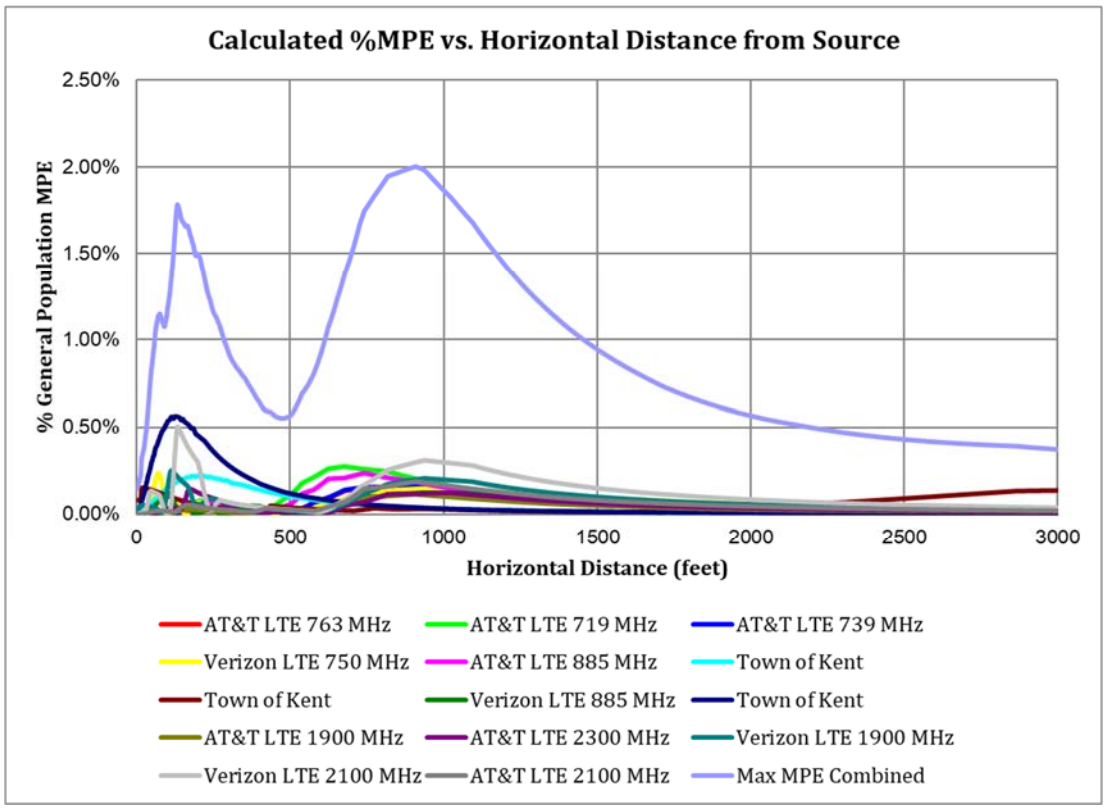

Figure 1: Graph of General Population % MPE vs. Distance

The highest percent of MPE (2.00**%** of the General Population limit) is calculated to occur at a horizontal distance of 909 feet from antennas. Please note that the percent of MPE calculations close to the site take into account off beam loss, which is determined from the vertical pattern of the antennas used. Therefore, RF power density levels may increase as the distance from the site increases. At distances of approximately 1500 feet and beyond, one would now be in the main beam of the antenna pattern and off beam loss is no longer considered. Beyond this point, RF levels become calculated solely on distance from the site and the percent of MPE decreases significantly as distance from the site increases.

Table 2 below lists percent of MPE values as well as the associated parameters that were included in the calculations. The highest percent of MPE value was calculated to occur at a horizontal distance of 909 feet from the site (reference Figure 1).

As stated in Section 3, all calculations assume that the antennas are operating at 100 percent capacity, that all antenna channels are transmitting simultaneously, and that the radio transmitters are operating at full power. Obstructions (trees, buildings etc.) that would normally attenuate the signal are not taken into account. In addition, a six foot height offset was considered in this analysis to account for average human height. As a result, the predicted signal levels are significantly higher than the actual signal levels will be from the final configuration. The results presented in Figure 1 and Table 2 assume level ground elevation from the base of the tower out to the horizontal distances calculated.

Carrier	Number of Transmitters	Power out of Base Station Per Transmitter (Watts)	Antenna Height (Feet)	Distance to the Base of Antennas (Feet)	Power Density (mW/cm^2)	Limit (mW/cm^2)	% MPE
AT&T LTE 1900 MHz	1	160.0	150.0	909	0.001146	1.000	0.11%
AT&T LTE 2100 MHz	1	240.0	150.0	909	0.001879	1.000	0.19%
AT&T LTE 2300 MHz	1	160.0	150.0	909	0.001180	1.000	0.12%
AT&T LTE 719 MHz	1	160.0	150.0	909	0.000982	0.479	0.20%
AT&T LTE 739 MHz	1	160.0	150.0	909	0.000794	0.493	0.16%
AT&T LTE 763 MHz	1	160.0	150.0	909	0.000794	0.509	0.16%
AT&T LTE 885 MHz	1	160.0	150.0	909	0.001104	0.590	0.19%
Town of Kent	3	100.0	156.0	909	0.000075	0.200	0.04%
Town of Kent	1	100.0	156.0	909	0.000306	1.000	0.03%
Town of Kent	3	100.0	100.0	909	0.000079	0.200	0.04%
Verizon LTE 1900 MHz	1	160.0	121.0	909	0.002000	1.000	0.20%
Verizon LTE 2100 MHz	1	240.0	121.0	909	0.002986	1.000	0.30%
Verizon LTE 750 MHz	1	160.0	121.0	909	0.000724	0.497	0.15%
Verizon LTE 885 MHz	1	160.0	121.0	909	0.000717	0.590	0.12%
						Total	**2.00%**

Table 2: Maximum Percent of General Population Exposure Values[4]

[4] Antenna information for AT&T was taken from Connecticut Siting Council Docket No. 488 – Attachment 9: Power Density Analyses for Site A and Site B

6. Conclusion

The above analysis verifies that RF exposure levels from the site with Verizon's proposed antenna configuration will be well below the maximum permissible levels as outlined by the FCC in the OET Bulletin 65 Ed. 97-01. Using the conservative calculation methods and parameters detailed above, the maximum cumulative percent of MPE in consideration of all transmitters is calculated to be **2.0% of the FCC limit (General Population/Uncontrolled)**. This maximum cumulative percent of MPE value is calculated to occur 909 feet away from the site.

7. Statement of Certification

I certify to the best of my knowledge that the statements in this report are true and accurate. The calculations follow guidelines set forth in ANSI/IEEE Std. C95.3, ANSI/IEEE Std. C95.1 and FCC OET Bulletin 65 Edition 97-01.

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RF Engineer 1
C Squared Systems, LLC

February 20, 2023
Date

Reviewed/Approved By: Martin J. Lavin
Senior RF Engineer
C Squared Systems, LLC

February 22, 2023
Date

Attachment A: References

OET Bulletin 65 - Edition 97-01 - August 1997 Federal Communications Commission Office of Engineering & Technology

IEEE C95.1-2005, IEEE Standard Safety Levels With Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz IEEE-SA Standards Board

IEEE C95.3-2002 (R2008), IEEE Recommended Practice for Measurements and Computations of Radio Frequency Electromagnetic Fields With Respect to Human Exposure to Such Fields, 100 kHz-300 GHz IEEE-SA Standards Board

Attachment B: FCC Limits for Maximum Permissible Exposure (MPE)

(A) Limits for Occupational/Controlled Exposure[5]

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	($900/f^2$)*	6
30-300	61.4	0.163	1.0	6
300-1500	-	-	f/300	6
1500-100,000	-	-	5	6

(B) Limits for General Population/Uncontrolled Exposure[6]

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	($180/f^2$)*	30
30-300	27.5	0.073	0.2	30
300-1500	-	-	f/1500	30
1500-100,000	-	-	1.0	30

f = frequency in MHz * Plane-wave equivalent power density

Table 3: FCC Limits for Maximum Permissible Exposure

[5] Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

[6] General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

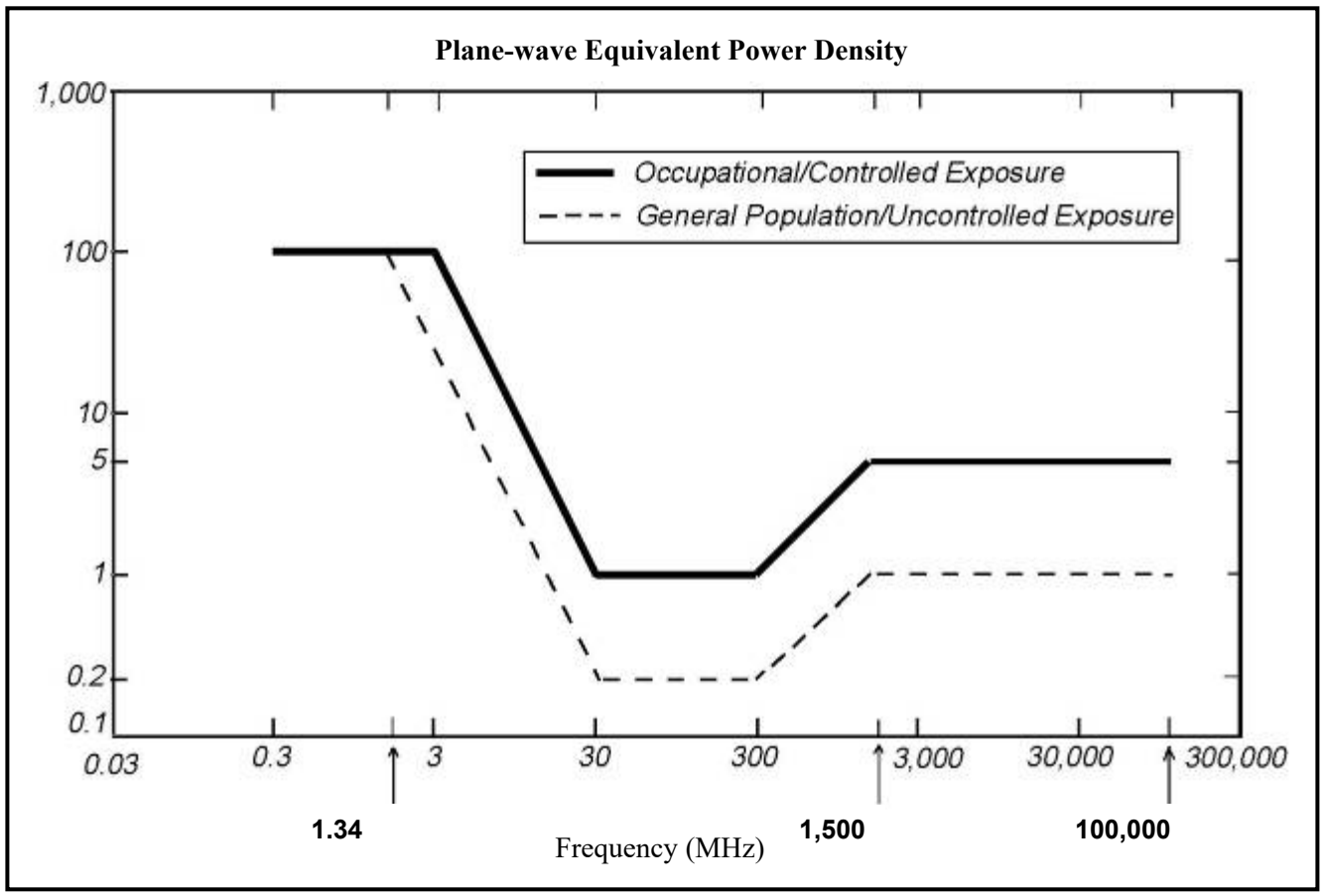
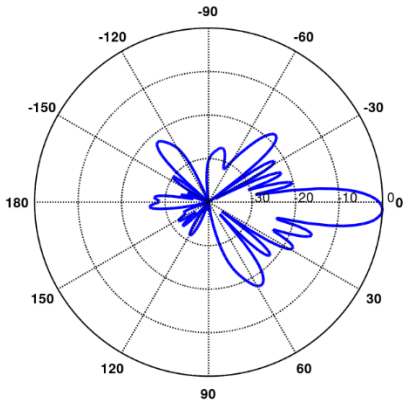


Figure 2: Graph of FCC Limits for Maximum Permissible Exposure (MPE)

Attachment C: Verizon Antenna Model Data Sheets and Electrical Patterns

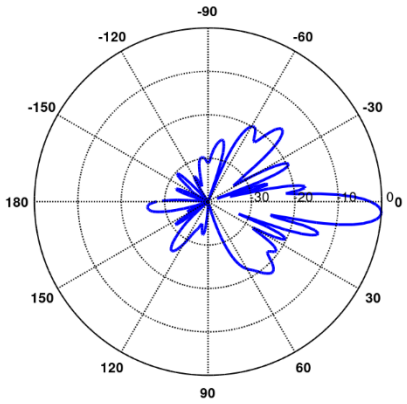
750 MHz

Manufacturer:	JMA
Model #:	MX06FRO860-03
Frequency Band:	698-798 MHz
Gain:	15.3 dBi
Vertical Beamwidth:	9.0°
Horizontal Beamwidth:	60.0°
Polarization:	±45°
Dimensions (L x W x D):	95.9” x 15.4” x 10.7”



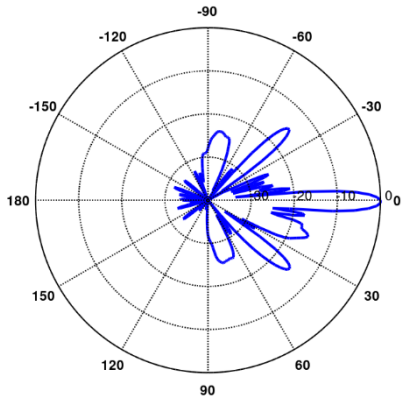
885 MHz

Manufacturer:	JMA
Model #:	MX06FRO860-03
Frequency Band:	824-894 MHz
Gain:	14.5 dBi
Vertical Beamwidth:	8.3°
Horizontal Beamwidth:	53.5°
Polarization:	±45°
Dimensions (L x W x D):	95.9” x 15.4” x 10.7”



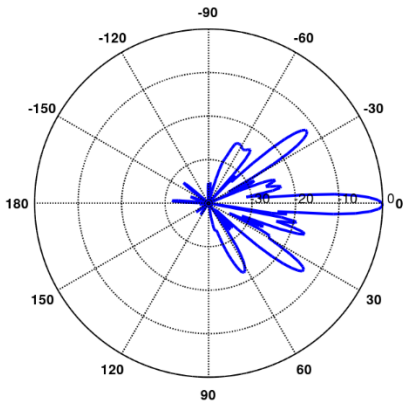
1900 MHz

Manufacturer:	JMA
Model #:	MX06FRO860-03
Frequency Band:	1850-1990 MHz
Gain:	17.6 dBi
Vertical Beamwidth:	5.5°
Horizontal Beamwidth:	55.0°
Polarization:	±45°
Dimensions (L x W x D):	95.9” x 15.4” x 10.7”



2100 MHz

Manufacturer:	JMA
Model #:	MX06FRO860-03
Frequency Band:	1920-2180 MHz
Gain:	18.2 dBi
Vertical Beamwidth:	5.5°
Horizontal Beamwidth:	55.5°
Polarization:	±45°
Dimensions (L x W x D):	95.9” x 15.4” x 10.7”



ATTACHMENT 7

Verizon/Kent 2 08989.5361

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3.	Jason S. and Jennifer Dubray 93 Richards Road South Kent, CT 06785				
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