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November 5, 2024

Via Hand Delivery

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

Re: **Petition No. 1440A – Amended Petition for Declaratory Ruling Filed with the Connecticut Siting Council for the Installation of a Wireless Telecommunications Facility at 115 Peat Meadow Road, New Haven, Connecticut**

Dear Attorney Bachman:

Enclosed is an original and fifteen (15) copies of the above-referenced Amended Petition for Declaratory Ruling filed on behalf of Cellco Partnership d/b/a Verizon Wireless for the installation of a wireless telecommunications facility at 115 Peat Meadow Road, New Haven, Connecticut. Also enclosed is a $625.00 check for the filing fee.

Thank you in advance for your assistance and cooperation.

Sincerely,

Kenneth C. Baldwin

Enclosures

30683090-v1

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

IN RE:	:	
	:	
AMENDED PETITION OF CELLCO PARTNERSHIP D/B/A VERIZON WIRELESS FOR A DECLARATORY RULING ON THE NEED TO OBTAIN A SITING COUNCIL CERTIFICATE TO INSTALL A WIRELESS TELECOMMUNICATIONS FACILITY AT 115 PEAT MEADOW ROAD, NEW HAVEN, CONNECTICUT	:	PETITION NO. 1440A
	:	NOVEMBER 5, 2024

AMENDED PETITION FOR A DECLARATORY RULING:
INSTALLATION HAVING NO
SUBSTANTIAL ADVERSE ENVIRONMENTAL EFFECT

I. Introduction

Pursuant to Sections 16-50j-38 and 16-50j-39 of the Regulations of Connecticut State Agencies ("R.C.S.A."), Cellco Partnership d/b/a Verizon Wireless ("Cellco") hereby petitions the Connecticut Siting Council (the "Council") for a declaratory ruling ("Petition") that no Certificate of Environmental Compatibility and Public Need ("Certificate") is required under Section 16-50k(a) of the Connecticut General Statutes ("C.G.S.") for the installation of a wireless telecommunications facility at 115 Peat Meadow Road in New Haven, Connecticut (the "Property"). Cellco refers to this cell site as its East Haven 5 Facility.

This submission is offered as an Amendment to Petition No. 1440 approved by the Council on May 7, 2021 and incorporates certain facility modifications presented in EM-VER-093-241007 filing, that is no longer pending before the Council.

II. The Property

The Property is a six-acre parcel used for commercial purposes and is the home of the Brandfon Hyundai automobile dealership. The Property is owned 115 Peat Meadows LLC (the "Owner"). The Property is adjacent to Route 1 and Interstate-95, to the south, the New Haven-East

Haven town line and the CarMax automobile dealership to the east, undeveloped land and a bulk fuel-oil storage facility to the north and residential uses to the west. In the southeast corner of the Property is an existing two-sided billboard supported by a steel monopole support structure. The top of the billboard extends to a height of approximately 41 feet above ground level ("AGL"), 59 feet above mean sea level ("AMSL"). The billboard structure is owned by Outfront Media and is managed by Diamond Communications. *See* Attachment 1 – Site Vicinity and Site Schematic Maps (Aerial Photograph).

III. Cellco's Need for Improved Wireless Service

Cellco currently provides wireless service along Interstate-95 between the Quinnipiac River in New Haven and Lake Saltonstall in East Haven from two existing macro-cells, identified on the Site Vicinity Map as the New Haven East cell site, a rooftop installation at 153 Forbes Street in New Haven and the East Haven cell site, a rooftop installation at 65 Messina Drive in East Haven. Between these two existing cell sites, Cellco is experiencing a coverage deficiency and areas of unreliable service along and proximate to Interstate-95. The proposed East Haven 5 Facility, located between these two existing macro-cells, would eliminate these current service deficiencies.

IV. Cellco's Proposed East Haven 5 Facility

The proposed East Haven 5 Facility will involve the installation of a 42-foot extension of the existing billboard's monopole support structure, which would extend approximately 28 feet above the top of the billboard. Cellco would install nine (9) new antennas at the top of the monopole at a centerline height of 67 feet above ground level and six (6) remote radio heads ("RRHs") immediately below the antennas. Two equipment cabinets and associated electric distribution equipment will be located on the ground near to the billboard support pole. Due to concerns raised by the Owner, Cellco has modified the equipment location originally approved in Petition No. 1440, shifting its cabinets to the western side of the previously approved concrete pad, and removing the fence around the cabinets. (*See* Cellco's Project Plans included in Attachment 2). No trees will need to be

removed and no grading will be required to install Cellco's ground-mounted equipment.

Cellco is licensed to provide wireless telecommunications services in the 700 MHz, 850 MHz, 1900 MHz, 2100 MHz and 3700 MHz (5G) frequency ranges in New Haven County and throughout the State of Connecticut. The proposed East Haven 5 Facility will utilize each of Cellco's licensed frequencies to provide 4G and 5G telecommunications services. Specifications for Cellco's antennas and remote radio heads are included in Attachment 3[1]. A Structural Analysis Report and Mount Analysis, that confirms the billboard monopole support structure can adequately support Cellco's proposed improvements are included in Attachment 4.

IV. Discussion

A. The Proposed Facility Will Not Have A Substantial Adverse Environmental Effect

The Public Utility Environmental Standards Act (the "Act"), C.G.S. § 16-50g et seq., provides for the orderly and environmentally compatible development of telecommunications facilities in the state to avoid "a significant impact on the environment and ecology of the State of Connecticut." C.G.S. § 16-50g. To achieve these goals, the Act established the Council, and requires a Certificate of Environmental Compatibility and Public Need for the construction of cellular telecommunication towers "that may, as determined by the council, have a substantial adverse environmental effect". C.G.S. § 16-50k(a).

1. Physical Environmental Effects

Cellco respectfully submits that the proposed facility will not involve a significant alteration in the physical and environmental characteristics of the Property. No trees will be removed to construct the East Haven 5 Facility and minimal ground disturbance is necessary for the installation of Cellco's radio and electrical equipment.

[1] Attachment 3 includes updated antenna and RRH specifications referenced in the now inactive EM-VER-241-241007.

2. Visual Effects

Views of the proposed facility would not significantly change the characteristics of the area. Visibility of the existing billboard and the proposed monopole extension will occur primarily along the Interstate-95 corridor and on the surrounding commercial and industrial properties. Views of the extended monopole and wireless antennas will be obscured within the nearest residential area, to the west of the Property. A Photo Documentation & Simulations report ("Visual Assessment") is included in Attachment 5.

3. FCC Compliance

Radio frequency ("RF") emissions from Cellco's facility will not exceed the maximum permissible exposure limits established by the Federal Communications Commission ("FCC"). Included in Attachment 6 is a Far Field Calculation Table that demonstrates that Cellco's facility will operate within the FCC safety standards.

4. FAA Notification Not Required

According to a Federal Airways & Airspace Summary Report ("FAA Report") the proposed East Haven 5 Facility would not constitute an obstruction or hazard to air navigation. No obstruction marking or lighting is required or proposed and notice to the FAA is not required. A copy of the FAA Report is included in Attachment 7.

B. Notice to the City, Property Owner and Abutting Landowners

On November 5, 2024, a copy of this Amended Petition was sent to New Haven's Mayor, Justin Elicker; Laura Brown, New Haven's Director of City Plan; East Haven's Mayor, Joseph Carfora; East Haven's Zoning/Enforcement Officer, Joseph Budrow; 115 Peat Meadows LLC, the Owner of the Property; Outfront Media, the owner of the billboard structure; and Diamond Communications, the Communications Manager for the billboard structure. Copies of these notice letters are included in Attachment 8.

A copy of this Amended Petition was also sent to the owners of land that is considered to

abut the Property. A sample abutter's letter and the list of those abutting landowners to whom notice was sent is included in Attachment 9.

V. Conclusion

Based on the information provided above, Cellco respectfully requests that the Council issue a determination, in the form of a declaratory ruling, that the extension of the billboard monopole support structure, the installation of antennas and RRHs on the monopole; and the installation of ground-mounted equipment near the base of the billboard, as amended in this Petition, will not have a substantial adverse environmental effect and does not require the issuance of a Certificate of Environmental Compatibility and Public Need pursuant to § 16-50k of the General Statutes.

Respectfully submitted,

CELLCO PARTNERSHIP d/b/a VERIZON WIRELESS

By 

Kenneth C. Baldwin, Esq.
Robinson & Cole LLP
One State Street
Hartford, CT 06103
(860) 275-8200
Its Attorneys

ATTACHMENT 1

Legend

- Proposed Verizon Wireless Facility
- Surrounding Verizon Wireless Facilities
- Municipal Boundary

Base Map Source: CT ECO 2019 Imagery
Map Scale:1 inch = 2,700 feet
Map Date: October 2020

N
W E
S

2,700 1,350 0 2,700
Feet

Site Vicinity Map

Proposed Wireless
Telecommunications Facility
East Haven 5 CT
115 Peat Meadow Road
New Haven, Connecticut

verizon

ALL-POINTS TECHNOLOGY CORPORATION

Legend

- Proposed Verizon Wireless Lease Area
- Proposed Verizon Wireless Equipment
- Proposed Verizon Wireless Fence
- Proposed Verizon Wireless Access Easement
- Proposed Verizon Wireless Utility Easement
- Proposed Verizon Wireless Power and Telco Service
- Existing Utility Pole (By Others)
- Subject Property
- Approximate Parcel Boundary (CTDEEP GIS)

N W E S

100 50 0 100 Feet

Map Notes:
Base Map Source: CT ECO 2019 Aerial Imagery
Map Scale: 1 inch = 100 feet
Map Date: October 2020

Site Schematic

Proposed Wireless
Telecommunications Facility
East Haven 5 CT
115 Peat Meadow Road
New Haven, Connecticut

verizon

ALL-POINTS TECHNOLOGY CORPORATION

ATTACHMENT 2

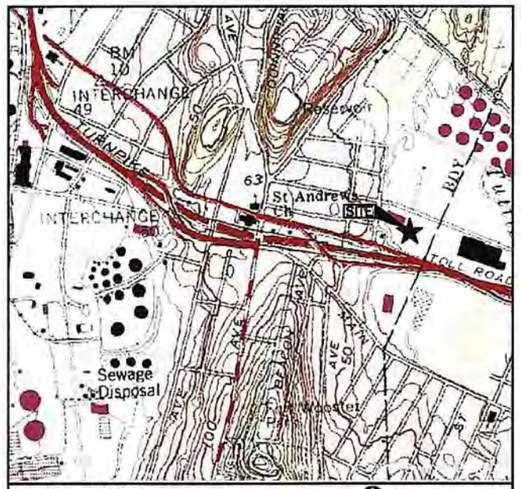
CELLCO PARTNERSHIP

d.b.a. verizon

WIRELESS COMMUNICATIONS FACILITY

EAST HAVEN 5 CT

115 MEADOW ROAD
NEW HAVEN, CT 06513



VICINITY MAP — SCALE: 1"=800'

DIRECTIONS TO SITE: FROM VERIZON WALLINGFORD CT OFFICE

20 ALEXANDER DRIVE, WALLINGFORD, CT 06492

HEAD NORTH ON ALEXANDER DR TOWARD BARNES INDUSTRIAL RD S
TURN RIGHT ONTO BARNES INDUSTRIAL RD S
TURN LEFT AT THE 1ST CROSS STREET ONTO CT-68 W
TURN RIGHT TOWARD US-5 N/N COLONY RD
TURN RIGHT ONTO US-5 N/N COLONY RD
TURN LEFT TO MERGE ONTO CT-15 S TOWARD NEW HAVEN
TAKE EXIT 38 FOR CT-123/NEW CANAAN AVENUE
TURN RIGHT ONTO CT-123 S/NEW CANAAN AVE
ARRIVE AT 284 NEW CANAAN AVENUE, NORWALK, CT ON LEFT

CONSULTANT TEAM

PROJECT ENGINEER

TEP NORTHEAST-TEP.OPCO, LLC.
45 BEECHWOOD DRIVE
NORTH ANDOVER, MA 01845
TEL: 1-(978)-557-5553

SURVEYOR

NORTHEAST SURVEY CONSULTANTS
116 PLEASANT ST. SUITE 302
EASTHAMPTON, MA 01027
TEL: 1-(413)-203-5144

PROJECT SUMMARY

SITE NAME:	EAST HAVEN 5 CT
SITE ADDRESS:	115 MEADOW ROAD NEW HAVEN, CT 06513
APPLICANT:	CELLCO PARTNERSHIP d/b/a VERIZON WIRELESS 20 ALEXANDER DRIVE WALLINGFORD, CT 06492
LATITUDE:	N 41°17'18.81"
LONGITUDE:	W 72°53'08.98"
PARCEL ID:	72/982/300
PROPERTY OWNER:	115 PEAT MEADOWS LLC 515 WEST MAIN STREET BRANFORD, CT 06405

SPECIAL INSPECTIONS/CONSTRUCTION CONTROL NOTES:

WHERE PERMIT APPLICATION IS MADE FOR CONSTRUCTION, THE OWNER OR THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE ACTING AS THE OWNER'S AGENT SHALL EMPLOY ONE OR MORE SPECIAL INSPECTORS TO PERFORM INSPECTIONS DURING CONSTRUCTION ON THE TYPE OF WORK LISTED ON THE STRUCTURAL NOTES & SPECIAL INSPECTIONS PAGE.

SEE SHEET SN-1 FOR FURTHER INFORMATION.

SPECIAL INSPECTIONS/CONSTRUCTION CONTROL NOTES:

WHERE PERMIT APPLICATION IS MADE FOR CONSTRUCTION, THE OWNER OR THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE ACTING AS THE OWNER'S AGENT SHALL EMPLOY ONE OR MORE SPECIAL INSPECTORS TO PERFORM INSPECTIONS DURING CONSTRUCTION ON THE TYPE OF WORK LISTED ON THE STRUCTURAL NOTES & SPECIAL INSPECTIONS PAGE.

780 CMR SECTION 107.6.2.2 CONSTRUCTION. THE REGISTERED DESIGN PROFESSIONALS WHO ARE RESPONSIBLE FOR THE DESIGN, PLANS, CALCULATIONS, AND SPECIFICATIONS, THEIR DESIGNEE OR THE REGISTERED DESIGN PROFESSIONALS WHO HAVE BEEN RETAINED FOR CONSTRUCTION PHASE SERVICES, SHALL PERFORM THE FOLLOWING TASKS:

1. REVIEW, FOR CONFORMANCE TO THIS CODE AND THE DESIGN CONCEPT, SHOP DRAWINGS, SAMPLES AND OTHER SUBMITTALS BY THE CONTRACTOR IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONSTRUCTION DOCUMENTS.
2. PERFORM THE DUTIES FOR REGISTERED DESIGN PROFESSIONALS IN CHAPTER 17: STRUCTURAL TESTS AND SPECIAL INSPECTIONS.
3. BE PRESENT AT INTERVALS APPROPRIATE TO THE STAGE OF CONSTRUCTION TO BECOME GENERALLY FAMILIAR WITH THE PROGRESS AND QUALITY OF THE WORK AND TO DETERMINE IF THE WORK IS BEING PERFORMED IN A MANNER CONSISTENT WITH THE CONSTRUCTION DOCUMENTS AND THIS CODE.

SEE SHEET SN-1 FOR FURTHER INFORMATION.

SHEET INDEX

UNDERGROUND SERVICE ALERT
72 HOURS
CALL BEFORE YOU DIG
CALL TOLL FREE 1-800-922-4455
OR CALL 811

NOTE TO GENERAL CONTRACTOR:

'RF' DESIGN AND EQUIPMENT IS BASED UPON
RFDS ISSUED BY VZW DATED: 3/20/2023 REV 4
THE CONTRACTOR OF RECORD SHALL CONTACT VZW PRIOR TO ANY AND ALL ORDERING/PURCHASING/INSTALLATION OF EQUIPMENT TO VERIFY THAT THE 'RF' LISTED IN THE DRAWING SET IS CURRENT AND UP TO DATE.

FOR CONSTRUCTION

PREPARED FOR: CELLCO PARTNERSHIP D.B.A.
verizon

TEP
TEP OPCO, LLC.
45 BEECHWOOD DR.
NORTH ANDOVER, MA 01845
OFFICE: (978) 557-5553

CONSTRUCTION DRAWINGS ARE VALID FOR SIX MONTHS AFTER ENGINEER OF RECORD'S STAMPED AND SIGNED SUBMITTAL DATE LISTED HEREIN

CHECKED BY: JX

APPROVED BY: DPH

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
5	08/27/24	REMOVED FENCE & REDUCED PAD	SLY
4	05/02/23	REV. POLE HEIGHT & RRH TYPE	SLY
3	11/14/22	ADD. TOWER CONNECT DETAILS	SLY
2	06/24/22	REV. ANTENNA MOUNT	SLY
1	05/13/22	ADDED N77 ANTENNAS	SLY
0	07/19/21	ISSUED FOR CONSTRUCTION	SLY

SITE NAME:
EAST HAVEN 5 CT

SITE ADDRESS:
115 MEADOW ROAD
NEW HAVEN, CT 06513

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

DIVISION 01000 – GENERAL REQUIREMENTS

PART 1 GENERAL

REFER TO VERIZON STANDARD CONSTRUCTION SPECIFICATIONS. IN CASE OF A CONFLICT, VERIZON STANDARD CONSTRUCTION SPECIFICATIONS (LATEST EDITION) SHALL BE FOLLOWED.

PART 2 GENERAL NOTES

1. THE CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY, MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS, AND LOCAL AND STATE JURISDICTIONAL CODES BEARING ON THE PERFORMANCE OF THE WORK. THE WORK PERFORMED ON THE PROJECT AND THE MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES.

2. THE ARCHITECT/ENGINEER HAVE MADE EVERY EFFORT TO SET FORTH IN THE CONSTRUCTION AND CONTRACT DOCUMENTS THE COMPLETE SCOPE OF WORK. THE CONTRACTOR BIDDING THE JOB IS NEVERTHELESS CAUTIONED THAT MINOR OMISSIONS OR ERRORS IN THE DRAWINGS AND OR SPECIFICATIONS SHALL NOT EXCUSE SAID CONTRACTOR FROM COMPLETING THE PROJECT AND IMPROVEMENTS IN ACCORDANCE WITH THE INTENT OF THESE DOCUMENTS.

3. THE CONTRACTOR OR BIDDER SHALL BEAR THE RESPONSIBILITY OF NOTIFYING (IN WRITING) VERIZON'S REPRESENTATIVE OF ANY CONFLICTS, ERRORS OR OMISSIONS PRIOR TO THE SUBMISSION OF CONTRACTOR'S PROPOSAL OR PERFORMANCE OF WORK.

4. THE SCOPE OF WORK SHALL INCLUDE FURNISHING ALL MATERIALS, EQUIPMENT, LABOR AND ALL OTHER MATERIALS AND LABOR DEEMED NECESSARY TO COMPLETE THE WORK/PROJECT AS DESCRIBED HEREIN.

5. THE CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO THE SUBMISSION OF BIDS OR PERFORMING WORK TO FAMILIARIZE THEIRSELF WITH THE FIELD CONDITIONS AND TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONSTRUCTION DRAWINGS.

6. THE CONTRACTOR SHALL OBTAIN AUTHORIZATION TO PROCEED WITH CONSTRUCTION PRIOR TO STARTING WORK ON ANY ITEM NOT CLEARLY DEFINED BY THE CONSTRUCTION DRAWINGS / CONTRACT DOCUMENTS.

7. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS ACCORDING TO THE MANUFACTURER'S / VENDOR'S SPECIFICATIONS UNLESS NOTED OTHERWISE OR WHERE LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.

8. THE CONTRACTOR SHALL MAINTAIN A FULL SET OF CONSTRUCTION DOCUMENTS AT THE SITE UPDATED WITH THE LATEST REVISIONS AND ADDENDUM'S OR CLARIFICATIONS AVAILABLE FOR THE USE OF ALL PERSONNEL INVOLVED WITH THE PROJECT.

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

10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS WHICH MAY BE REQUIRED FOR THE WORK BY THE ARCHITECT/ENGINEER, THE STATE, COUNTY OR LOCAL GOVERNMENT AUTHORITY.

11. THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING SITE CONDITIONS DURING CONSTRUCTION. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL REPAIR ANY DAMAGE THAT MAY HAVE OCCURRED DUE TO CONSTRUCTION ON OR ABOUT THE PROPERTY.

12. THE CONTRACTOR SHALL KEEP THE GENERAL WORK AREA CLEAN AND HAZARD FREE DURING CONSTRUCTION AND DISPOSE OF ALL DIRT, DEBRIS, RUBBISH AND REMOVE ALL UNNECESSARY MATERIAL.

13. THE CONTRACTOR SHALL COMPLY WITH ALL PERTINENT SECTIONS OF THE STATE BASIC BUILDING CODE, LATEST EDITION, AND ALL OSHA REQUIREMENTS AS THEY APPLY TO THIS PROJECT. 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 THE ARCHITECT/ENGINEER.

14. THE CONTRACTOR SHALL NOTIFY VERIZON'S REPRESENTATIVE WHERE A CONFLICT OCCURS ON ANY OF THE CONTRACT DOCUMENTS. THE CONTRACTOR IS NOT TO ORDER MATERIAL OR CONSTRUCT ANY PORTION OF THE WORK THAT IS IN CONFLICT UNTIL THE CONFLICT IS RESOLVED BY VERIZON'S REPRESENTATIVE.

15. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, PROPERTY LINES, ETC. ON THE JOB.

16. THE CONTRACTOR SHALL NOTIFY THE RF ENGINEER FOR ANTENNA AZIMUTH VERIFICATION (DURING ANTENNA INSTALLATION) PRIOR TO CONDUCTING SITE SWEEPING.

17. THE GENERAL CONTRACTOR SHALL IN ALL INSTANCES CONFORM TO THE SPECIFICATIONS ISSUED BY VERIZON.

18. WHERE APPLICABLE
PROVIDE CORE DRILLING AS NECESSARY FOR PENETRATIONS OR RISERS THROUGH THE BUILDING. DO NOT PENETRATE STRUCTURAL MEMBERS WITHOUT STRUCTURAL ENGINEER'S APPROVAL. SLEEVES AND/OR PENETRATIONS IN FIRE RATED CONSTRUCTION SHALL BE PACKED WITH FIRE RATED MATERIAL WHICH SHALL MAINTAIN THE FIRE RATING OF THE STRUCTURE. FILL FOR FLOOR PENETRATIONS SHALL PREVENT PASSAGE OF WATER, SMOKE FIRE AND FUMES. ALL MATERIAL SHALL BE UL APPROVED FOR THIS PURPOSE.

CONCRETE

CAST-IN-PLACE CONCRETE

PART 1 – GENERAL

1.01 DESCRIPTION

WORK INCLUDES CONSTRUCTION OF CAST-IN-PLACED CONCRETE FOUNDATIONS, INCLUDING FURNISHING AND INSTALLING READY-MIX CONCRETE, REINFORCING, FORMWORK, AND ACCESSORY MATERIALS AS SHOWN ON THE DRAWINGS. CAST-IN-PLACE CONCRETE INCLUDES ALL SITE CONCRETE, INCLUDING FOUNDATIONS, SLABS ON GRADE, EQUIPMENT PADS, PIERS AND GUARD POST FOUNDATIONS.

1.02 RELATED WORK

A. COORDINATE UNDER SLAB CONDUITS

B. COORDINATE WITH GROUNDING

1.03 APPLICABLE STANDARDS

A. ACI-301 – SPECIFICATIONS FOR STRUCTURAL CONCRETE BUILDINGS.

B. ACI 347 – GUIDE TO FORMWORK FOR CONCRETE.

C. ASTM C33 – CONCRETE AGGREGATES

D. ASTM C94 – READY-MIXED CONCRETE

E. ASTM C150 – PORTLAND CEMENT

F. ASTM C260 – AIR-ENTRAINING ADMIXTURES FOR CONCRETE.

G. ASTM C309 – LIQUID MEMBRANE FORMING COMPOUNDS FOR CURING CONCRETE.

H. ASTM C494 – CHEMICAL ADMIXTURES FOR CONCRETE.

I. ASTM A615 – DEFORMED STEEL BARS FOR CONCRETE REINFORCEMENT.

J. ASTM A185 – STEEL WELDED WIRE FABRIC FOR CONCRETE REINFORCEMENT

1.04 QUALITY ASSURANCE

CONCRETE MATERIALS AND OPERATIONS SHALL BE TESTED AND INSPECTED BY THE ENGINEER AS DIRECTED BY VERIZON.

1.05 TESTS

CONCRETE TESTS SHALL BE AS DETAILED BELOW OR AS DIRECTED BY VERIZON. CONCRETE MATERIALS AND OPERATIONS SHALL BE TESTED AND INSPECTED BY THE ENGINEER AS THE WORK PROGRESSES. FAILURE TO DETECT ANY DEFECTIVE WORK OR MATERIAL SHALL NOT IN ANY WAY PREVENT LATER REJECTION WHEN SUCH DEFECT IS DISCOVERED NOR SHALL IT OBLIGATE THE ENGINEER FOR FINAL ACCEPTANCE.

A. THREE CONCRETE TEST CYLINDERS SHALL BE TAKEN OF THE TOWER PIER FOUNDATION. ONE SHALL BE TESTED @ THREE DAYS, ONE @ TWENTY-EIGHT DAYS. THE THIRD CYLINDER SHALL BE KEPT SEPARATELY. (IF REQUIRED TO BE USED IN THE FUTURE.)

B. ONE SLUMP TEST SHALL BE TAKEN FOR EACH SET OF TEST CYLINDERS TAKEN. SLUMP SHALL NOT EXCEED 4" UNLESS OTHERWISE NOTED.

PART 2 – PRODUCT

2.01 CONCRETE MATERIALS

CONCRETE SHALL BE COMPOSED OF PORTLAND CEMENT, WATER, FINE AND COARSE AGGREGATES, AND ADMIXTURES AS SPECIFIED BELOW, ALL WELL MIXED AND BROUGHT TO PROPER CONSISTENCY, CLASS I, II, III, OR V.

A. CEMENT: CEMENT SHALL BE TYPE II, GRAY COLOR, LOW-ALKALI PORTLAND CEMENT CONFORMING TO ASTM C150.

B. FINE AND COARSE AGGREGATES: AGGREGATES FOR USE IN CONCRETE SHALL COMPLY WITH ASTM C33.

C. WATER: WATER FOR MIXING AND CURING CONCRETE SHALL BE FREE FROM SEWAGE, OIL, ACID, ALKALI, AND SALTS AND SHALL BE FREE FROM OBJECTIONABLE QUANTITIES OF SILT, ORGANIC MATTER, AND OTHER DELETERIOUS SUBSTANCES.

2.02 ADMIXTURES

A. CHEMICAL ADMIXTURE: ASTM C494, TYPE A– WATER REDUCING OR TYPE D – WATER REDUCING AND RETARDING.

2.03 CURING COMPOUND: ASTM C309, TYPE1. CLASS B; TRANSLUCENT.

2.04 ACCESSORIES

A. NONSHRINK GROUT: PREMIXED COMPOUND CONSISTING OF NONMETALLIC AGGREGATE, CEMENT, WATER REDUCING AND PLASTICIZING AGENTS; CAPABLE OF DEVELOPING MINIMUM COMPRESSIVE STRENGTH OF 7,000 PSI IN 28 DAYS.

B. JOINT FILLER: BITUMINOUS TYPE, ASTM D1751 OR NON-BITUMINOUS TYPE ASTM D1752.

C. ANCHOR BOLTS: ASTM A307. UNPRIMED.

2.05 CONCRETE MIX

A. CONCRETE SHALL BE PROPORTIONED PER REQUIREMENTS OF ACI 301 & VERIZON CONSTRUCTION SPECIFICATIONS FOR DESIGN STRENGTH & WORKABILITY. CONCRETE SHALL BE DELIVERED WITHIN 45 MINUTES OF ADDITION OF WATER TO MIX.

B. THE FOLLOWING STRENGTHS SHALL BE USED:
1. FENCE POST FOUNDATIONS – DESIGN COMPRESSIVE STRENGTH AT 28 DAYS OF 3,000 PSI.
2. EQUIPMENT PLATFORM PIERS FOUNDATION – DESIGN COMPRESSIVE STRENGTH OF 3,000 PSI AT 28 DAYS UNLESS OTHERWISE NOTED. (CONTRACTOR FURNISH 4,000 PSI CONCRETE).

3. CONCRETE STRENGTH FOR MONOPOLE OR TOWER FOUNDATION SHALL BE 1,000 PSI MORE THAN THE MANUFACTURER'S RECOMMENDATIONS, 4,000 PSI MINIMUM.

C. USE ACCELERATING ADMIXTURES IN COLD WEATHER AND RETARDING ADMIXTURES IN HOT WEATHER ONLY WHEN APPROVED BY THE ENGINEER.

D. TOTAL AIR CONTENT SHALL BE 5 PERCENT PLUS OR MINUS 1 PERCENT.

PART 3 – EXECUTION

3.01 INSPECTION

THE CONTRACTOR SHALL VERIFY ANCHORS, SEATS, PENETRATIONS, PLATES, REINFORCEMENT, AND OTHER ITEMS TO CAST INTO CONCRETE ARE ACCURATELY PLACED, HELD SECURELY, AND SHALL NOT CAUSE HARDSHIP IN PLACING CONCRETE.

3.02 PREPARATION

A. THE CONTRACTOR SHALL PREPARE PREVIOUSLY PLACED CONCRETE BY CLEANING WITH STEEL BRUSH AND APPLYING BONDING AGENT. APPLY BONDING AGENT IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

3.03 PLACING CONCRETE

A. THE ENGINEER SHALL BE NOTIFIED NOT LESS THAN 24 HOURS IN ADVANCE OF CONCRETE PLACEMENT. UNLESS INSPECTION IS WAIVED IN EACH CASE, PLACING OF CONCRETE SHALL BE PERFORMED ONLY IN THE PRESENCE OF THE ENGINEER.

CONCRETE SHALL NOT BE PLACED UNTIL ALL FORM WORK, EMBEDDED PARTS, STEEL REINFORCEMENT, FOUNDATION SURFACES, AND JOINTS INVOLVED IN THE PLACING HAVE BEEN APPROVED, AND UNTIL FACILITIES ACCEPTABLE TO THE VERIZON REPRESENTATIVE HAVE BEEN PROVIDED AND MADE READY FOR ACCOMPLISHMENT OF THE WORK AS SPECIFIED. CONCRETE MAY NOT BE ORDERED FOR PLACEMENT UNTIL ALL ITEMS HAVE BEEN APPROVED AND VERIZON HAS PERFORMED A FINAL INSPECTION AND GIVEN APPROVAL TO START PLACEMENT IN WRITING.

B. UNLESS SPECIFIED TO BE BEVELED, EXPOSED EDGES OF FLOATED OR TROWELED SURFACES SHALL BE EDGED WITH A TOOL HAVING A 1/4" CORNER RADIUS.

C. PLACEMENT OF CONCRETE SHALL BE IN ACCORDANCE WITH ACI 301.

D. THE CONTRACTOR SHALL ENSURE THAT REINFORCEMENT, INSERTS, EMBEDDED PARTS, FORMED JOINTS AND VAPOR BARRIERS ARE NOT DISTURBED DURING CONCRETE PLACEMENT.

E. 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.....1 1/2 IN.
CONCRETE NOT EXPOSED TO EARTH OR WEATHER OR NOT CAST AGAINST THE GROUND.
SLAB AND WALL.....3/4 IN.
BEAMS AND COLUMNS.....1 1/2 IN.

3.04 SURFACE FINISHES

A. SURFACES AGAINST WHICH BACK FILL OR CONCRETE SHALL BE PLACED REQUIRE NO TREATMENT EXCEPT REPAIR OF DEFECTIVE AREAS.

B. SURFACES THAT WILL BE PERMANENTLY EXPOSED SHALL PRESENT A UNIFORM FINISH PROVIDED BY THE REMOVAL OF FINS AND THE FILLING OF HOLES AND OTHER IRREGULARITIES WITH DRY PACK GROUT, OR BY SACKING WITH UTILITY OR ORDINARY GROUT.

C. SURFACES THAT WOULD NORMALLY BE LEVEL AND WHICH WILL BE PERMANENTLY EXPOSED TO THE WEATHER SHALL BE SLOPED FOR DRAINAGE. UNLESS ENGINEER'S DESIGN DRAWING SPECIFIES A HORIZONTAL SURFACE OR SHOWS THE SLOPE REQUIRED. THE TOPS OF NARROW SURFACES, SUCH AS STAIR TREADS, WALLS, CURBS, AND PARAPETS SHALL BE SLOPED APPROXIMATELY 3/8" /FT OF WIDTH. BROADER SURFACES SUCH AS WALKS, ROADS, PARKING AREAS AND PLATFORMS SHALL BE SLOPED APPROXIMATELY 1/4" /FT.

D. SURFACES THAT WILL BE COVERED BY BACKFILL OR CONCRETE SHALL BE SMOOTH SCREEDED.

E. EXPOSED SLAB AND PIER SURFACES SHALL BE CONSOLIDATED, SCREEDED, FLOATED, AND "STEEL TROWELED." HAND OR POWER-DRIVEN EQUIPMENT MAY BE USED FOR FLOATINGS WHICH SHALL BE STARTED AS SOON AS THE SCREENED SURFACE HAS ATTAINED A STIFFNESS TO PERMIT FINISHING OPERATIONS. ALL EDGES MUST HAVE A 3/4" CHAMFER. CONCRETE EXPANSION ANCHORS AND EPOXY ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS, SPECIAL INSPECTIONS, REQUIRED BY GOVERNING CODES, SHALL BE PERFORMED IN ORDER TO MAINTAIN MANUFACTURER'S MAXIMUM ALLOWABLE LOADS. MANUFACTURER'S MINIMUM CONCRETE EDGE DISTANCE SHALL BE MAINTAINED DURING INSTALLATION.

3.05 PATCHING

THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY UPON REMOVAL OF THE FORMS TO OBSERVE CONCRETE SURFACE CONDITIONS. IMPERFECTIONS SHALL BE PATCHED ACCORDING TO THE ENGINEERS DIRECTION.

3.06 DEFECTIVE CONCRETE

THE CONTRACTOR SHALL MODIFY OR REPLACE CONCRETE NOT CONFORMING TO REQUIRED LEVELS AND LINES, DETAILS, AND ELEVATIONS AS SPECIFIED IN ACI 301.

3.07 PROTECTION

A. IMMEDIATELY AFTER PLACEMENT, THE CONTRACTOR SHALL PROTECT THE CONCRETE FROM PREMATURE DRYING. EXCESSIVELY HOT OR COLD TEMPERATURES, AND MECHANICAL INJURY. FINISHED WORK SHALL BE PROTECTED.

B. CONCRETE SHALL BE MAINTAINED WITH MINIMAL MOISTURE LOSS AT RELATIVELY CONSTANT TEMPERATURE FOR PERIOD NECESSARY FOR HYDRATION OF CEMENT AND HARDENING OF CONCRETE.

C. ALL CONCRETE SHALL BE WATER CURED PER ACCEPTABLE PRACTICES SPECIFIED BY ACI CODE.

METALS

PART 1 – GENERAL

1.01 WORK INCLUDED

A. THE WORK CONSISTS OF THE FABRICATION AND INSTALLATION OF ALL MATERIALS TO BE FURNISHED, AND WITHOUT LIMITING THE GENERALITY THEREOF, INCLUDES ALL EQUIPMENT, LABOR AND SERVICES REQUIRED FOR ALL STRUCTURAL STEEL WORK, INCLUDING ALL ITEMS INCIDENTAL THERETO AS SPECIFIED HEREIN AND AS SHOWN ON THE DRAWINGS. INCLUDING:

1. STEEL FRAMING INCLUDING BEAMS, ANGLES, CHANNELS AND PLATES.

2. WELDING AND BOLTING OF ATTACHMENTS.

1.02 REFERENCE STANDARDS

A. THE WORK SHALL CONFORM TO THE CODES AND STANDARDS OF THE FOLLOWING AGENCIES AS FURTHER CITED HEREIN:

1. ASTM: AMERICAN SOCIETY FOR TESTING AND MATERIALS, AS PUBLISHED IN "COMPILATION OF ASTM STANDARDS IN BUILDING CODES"

2. AWS: AMERICAN WELDING SOCIETY INC., AS PUBLISHED IN "STANDARD D1.1-2015, STRUCTURAL WELDING CODE".

3. AISC: AMERICAN INSTITUTE FOR STEEL CONSTRUCTION, AS PUBLISHED IN "CODE FOR STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES"; "SPECIFICATIONS FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".

4. EIA/TIA-222-H STRUCTURAL STANDARDS FOR STEEL ANTENNA SUPPORTING STRUCTURES.

PART 2 – STRUCTURAL NOTES

ALL STEEL WORK SHALL BE PAINTED OR GALVANIZED IN ACCORDANCE WITH THE DRAWINGS AND VERIZON SPECIFICATIONS UNLESS OTHERWISE NOTED. STRUCTURAL STEEL SHALL BE ASTM-992-50 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". MISC. STEEL TO BE A36.

1. DESIGN REQUIREMENTS ARE PER STATE BUILDING CODE AND APPLICABLE SUPPLEMENTS, ANSI/TIA-222-H STRUCTURAL STANDARDS FOR STEEL ANTENNA SUPPORTING STRUCTURES.

2. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. ANY UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ATTENTION OF THE CONSTRUCTION MANAGER AND ENGINEER OF RECORD.

3. DESIGN AND CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".

4. STEEL PIPE SHALL CONFORM TO ASTM A500 "COLD-FORMED WELDED & SEAMLESS CARBON STEEL STRUCTURAL TUBING", GRADE A, OR ASTM A53 PIPE STEEL BLACK AND HOT-DIPPED ZINC-COATED WELDED AND SEAMLESS TYPE E OR S, GRADE B. PIPE SIZES INDICATED ARE NOMINAL. ACTUAL OUTSIDE DIAMETER IS LARGER.

5. STRUCTURAL CONNECTION BOLTS SHALL BE HIGH STRENGTH BOLTS (BEARING TYPE)AND CONFORM TO ASTM A325 "HIGH STRENGTH BOLTS FOR STRUCTURAL JOINTS, INCLUDING SUITABLE NUTS AND PLAIN HARDENED WASHERS". UNLESS OTHERWISE NOTED, ALL BOLTS SHALL BE 5/8" DIA TYPE X.

6. ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS". UNLESS OTHERWISE NOTED.

7. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC-COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS OTHERWISE NOTED.

8. FIELD WELDS, DRILL HOLES, SAW CUTS AND ALL DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED WITH AN ORGANIC ZINC REPAIR PAINT COMPLYING WITH REQUIREMENTS OF ASTM A780. GALVANIZING REPAIR PAINT SHALL HAVE 65 PERCENT ZINC BY WEIGHT, ZIRP BY DUNCAN GALVANIZING, GALVA BRIGHT PREMIUM BY CROWN OR EQUAL. THICKNESS OF APPLIED GALVANIZING REPAIR PAINT SHALL BE NOT NOT LESS THAN 4 COATS (ALLOW TIME TO DRY BETWEEN COATS) WITH A RESULTING COATING THICKNESS REQUIRED BY ASTM A123 OR A153 AS APPLICABLE.

9. CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS, AND FOR METHODS USED IN CORRECTING WELDING. ALL WELDERS AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES". ALL WELDING SHALL BE DONE USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND 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.

10. INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE CONSTRUCTION MANAGER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE CONSTRUCTION MANAGER APPROVAL.

11. UNISTRUTS SHALL BE FORMED STEEL CHANNEL STRUT FRAMING AS MANUFACTURED BY UNISTRUT CORP, WAYNE, MI OR EQUAL. STRUT MEMBERS SHALL BE 1 5/8"x1 5/8"x12GA. UNLESS OTHERWISE NOTED, AND SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION FOR EXTERNAL USE APPLICATIONS.

12. UNLESS OTHERWISE NOTED, EPOXY ANCHOR ASSEMBLY SHALL CONSIST OF 1/2" DIAMETER STAINLESS STEEL ANCHOR ROD WITH NUTS & WASHERS. AN INTERNALLY THREADED INSERT, A SCREEN TUBE AND A EPOXY ADHESIVE. THE ANCHORING SYSTEM SHALL BE THE HILTI-HIT HY-270 AND OR HY-200 SYSTEMS (AS SPECIFIED ON DWG.) OR ENGINEERS APPROVED EQUAL WITH 4-1/4" MIN. EMBEDMENT DEPTH.

13. UNLESS OTHERWISE NOTED, EXPANSION BOLTS SHALL CONFORM TO FEDERAL SPECIFICATION FF-S-325, GROUP II, TYPE 4, CLASS 1, HILTI KWIK BOLT II OR APPROVED EQUAL. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. MINIMUM EMBEDMENT SHALL BE THREE AND ONE HALF (3 1/2) INCHES.

WOOD

1. PLYWOOD SHALL MEET THE RECOMMENDATIONS OF THE A.P.A.
2. ALL LUMBER SHALL BE SPRUCE-PINE-FIR (SPF) #1 GRADE.
3. ALL LUMBER SHALL BE PRESSURE TREATED WITH PRESERVATIVES. ALLOWABLE BENDING STRESS: fb mit = 1,000 PSI MODULUS OF ELASTICITY: 1.6x10± PSI
4. ALL JOIST HANGERS, CUP ANGLES AND PLATES TO BE HEAVY GALVANIZED AS MANUFACTURED BY SIMPSON CO., OR APPROVED EQUAL.
5. ALL LVL'S TO BE MANUFACTURED BY BOISE CASCADE OR APPROVED EQUAL.

SPECIAL CONSTRUCTION ANTENNA INSTALLATION

PART 1 – GENERAL

1.01 WORK INCLUDED

A. ANTENNAS AND HYBRIFLEX CABLES SHALL BE AS SPECIFIED ON THESE DRAWINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF PERSONNEL AND PROPERTY. STRICT ADHERENCE TO OSHA STANDARDS IS MANDATED.

B. INSTALL ANTENNAS AS INDICATED ON DRAWINGS AND VERIZON SPECIFICATIONS.

C. INSTALL GALVANIZED STEEL ANTENNA MOUNTS AS INDICATED ON DRAWINGS.

D. INSTALL HYBRIFLEX CABLES AND TERMINATION'S BETWEEN ANTENNAS AND EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS. WEATHERPROOF ALL CONNECTORS BETWEEN THE ANTENNA AND EQUIPMENT PER MANUFACTURER'S REQUIREMENTS. TERMINATE ALL COAXIAL CABLE THREE (3) FEET IN EXCESS OF ENTRY PORT LOCATION UNLESS OTHERWISE STATED.

E. ANTENNA MOUNTS AND HARDWARE SHALL BE PAINTED TO MATCH EXISTING CONDITIONS.

F. ANTENNA AND HYBRIFLEX CABLE GROUNDING:
1. ALL EXTERIOR #6 GREEN GROUND WIRE "DAISY CHAIN" CONNECTIONS ARE TO BE WEATHER SEALED.
2. ALL COAXIAL CABLE GROUNDING KITS ARE TO BE INSTALLED ON STRAIGHT RUNS OF COAXIAL CABLE (NOT WITHIN BENDS).

IF ASSUMED EXISTING CONDITION DIFFERS, ENGINEER MUST BE INFORMED OF ACTUAL FIELD CONDITION. SUBCONTRACTOR TO VERIFY EXISTING DIMENSIONS PRIOR TO STEEL FABRICATION.

FOR CONSTRUCTION

PREPARED FOR: CELLCO PARTNERSHIP D.B.A.

verizon

TEP

TEP OPCO, LLC.
45 BEECHWOOD DR.
NORTH ANDOVER, MA 01845
OFFICE: (978) 557-5553

CONSTRUCTION DRAWINGS ARE VALID FOR SIX MONTHS AFTER ENGINEER OF RECORD'S STAMPED AND SIGNED SUBMITTAL DATE LISTED HEREIN

CHECKED BY: JX

APPROVED BY: DPH

SUBMITTALS

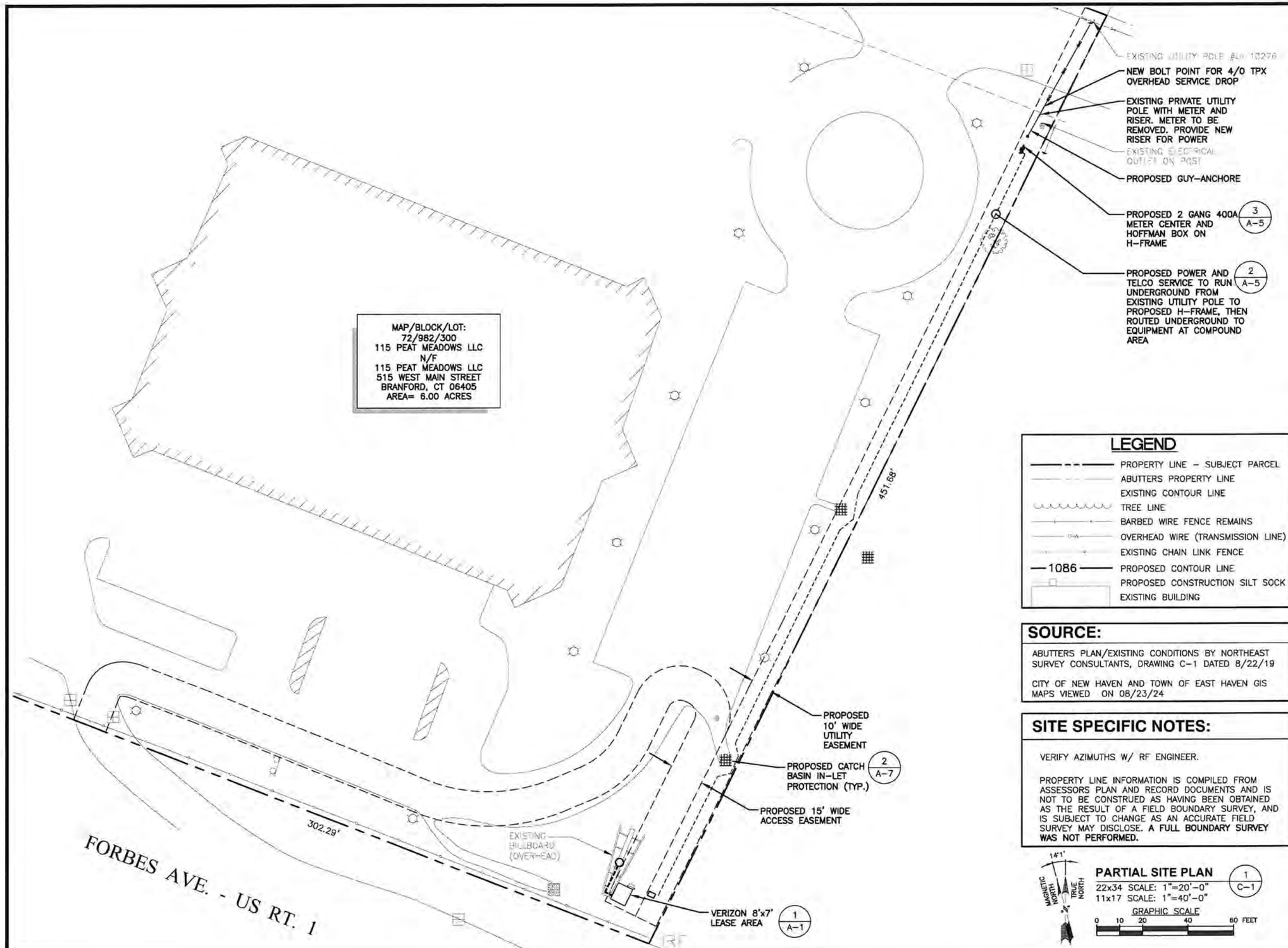
REV.	DATE	DESCRIPTION	BY
5	08/27/24	REMOVED FENCE & REDUCED PAD	SLY
4	05/02/23	REV. POLE HEIGHT & RRH TYPE	SLY
3	11/14/22	ADD. TOWER CONNECT DETAILS	SLY
2	06/24/22	REV. ANTENNA MOUNT	SLY
1	05/13/22	ADDED N77 ANTENNAS	SLY
0	07/19/21	ISSUED FOR CONSTRUCTION	SLY

SITE NAME:
EAST HAVEN 5 CT

SITE ADDRESS:
115 MEADOW ROAD
NEW HAVEN, CT 06513

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-1



LEGEND

- PROPERTY LINE - SUBJECT PARCEL
- ABUTTERS PROPERTY LINE
- EXISTING CONTOUR LINE
- TREE LINE
- BARBED WIRE FENCE REMAINS
- OHW — OVERHEAD WIRE (TRANSMISSION LINE)
- EXISTING CHAIN LINK FENCE
- 1086 — PROPOSED CONTOUR LINE
- PROPOSED CONSTRUCTION SILT SOCK
- EXISTING BUILDING

SOURCE:

ABUTTERS PLAN/EXISTING CONDITIONS BY NORTHEAST SURVEY CONSULTANTS, DRAWING C-1 DATED 8/22/19

CITY OF NEW HAVEN AND TOWN OF EAST HAVEN GIS MAPS VIEWED ON 08/23/24

SITE SPECIFIC NOTES:

VERIFY AZIMUTHS W/ RF ENGINEER.

PROPERTY LINE INFORMATION IS COMPILED FROM ASSESSORS PLAN AND RECORD DOCUMENTS AND IS NOT TO BE CONSTRUED AS HAVING BEEN OBTAINED AS THE RESULT OF A FIELD BOUNDARY SURVEY, AND IS SUBJECT TO CHANGE AS AN ACCURATE FIELD SURVEY MAY DISCLOSE. **A FULL BOUNDARY SURVEY WAS NOT PERFORMED.**

PARTIAL SITE PLAN 1 / C-1

22x34 SCALE: 1"=20'-0"
11x17 SCALE: 1"=40'-0"

GRAPHIC SCALE
0 10 20 40 60 FEET

FOR CONSTRUCTION

PREPARED FOR: CELLCO PARTNERSHIP D.B.A.

verizon

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CHECKED BY:	JX
APPROVED BY:	DPH

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1	05/13/22	ADDED N77 ANTENNAS	SLY
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SITE NAME:
EAST HAVEN 5 CT

SITE ADDRESS:
115 MEADOW ROAD
NEW HAVEN, CT 06513

SHEET TITLE
SITE PLAN

SHEET NUMBER
C-1

LEGEND

- PROPERTY LINE – SUBJECT PARCEL
- ABUTTERS PROPERTY LINE
- EXISTING CONTOUR LINE
- TREE LINE
- BARBED WIRE FENCE REMAINS
- OHW — OVERHEAD WIRE (TRANSMISSION LINE)
- EXISTING CHAIN LINK FENCE
- S — EXISTING UNDERGROUND SEWER LINE
- A–1 / A–2 — DELINEATED WETLAND LINE
- EXISTING BUILDING
- PROPOSED EQUIPMENT CONCRETE PAD
- CB — CATCH BASIN
- CONIFEROUS TREE
- DECIDUOUS TREE
- EXISTING GROUND WELL
- EXISTING SEWER MANHOLE
- STONEWALL
- WELL
- UTILITY POLE
- 1086 — PROPOSED CONTOUR LINE
- PROPOSED CONSTRUCTION SILT SOCK
- PROPOSED TOWER

PROPOSED 15' WIDE ACCES EASEMENT

PROPOSED 10' WIDE UTILITY EASEMENT

EXISTING UNDERGROUND CONDUITS TO REMAIN

EXISTING BILLBOARD SUPPORT POLE

EXISTING CONSTRUCTION SILT SOCK PER 2002 CONNECTICUT GUIDELINES FOR SOIL AND SEDIMENT CONTROL

REMOVE AND DISPOSED EXISTING ICE BRIDGE SUPPORT POST (TYP. OF 2)

18.0'±

7.0'±

9.5'±

8.6'±

8.0'±

REMOVE AND DISPOSE EXISTING CONDUITS

REMOVE AND DISPOSE ICE CANOPY

REMOVE AND DISPOSE EXISTING SUPPORT POST (TYP. 6)

SAW–CUT EXISTING CONCRETE PAD

REMOVE AND DISPOSE EXISTING CHAIN LINK FENCE 53.3 ± L.F.

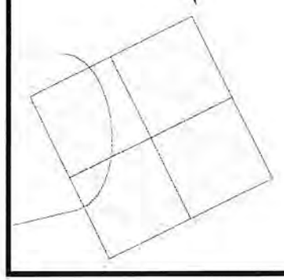
REMOVE AND DISPOSE HOFFMAN BOX AND UNISTRUT

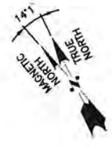
EXISTING ILC FRAME TO BE RELOCATED TO PROPOSED H–FRAME

REMOVE AND DISPOSE PORTION OF EXISTING 8.6'x9.5' CONCRETE PAD

PORTION OF EXISTING CONCRETE PAD TO REMAIN

PROPOSED GRAVEL WITH SILT SACK CATCH BASIN INLET PROTECTION





SITE PREPARATION PLAN (1 / C–2)

22x34 SCALE: 1/2"=1'–0"

11x17 SCALE: 1/4"=1'–0"

GRAPHIC SCALE

0 1 2 4 6 FEET

FOR CONSTRUCTION

PREPARED FOR: CELLCO PARTNERSHIP D.B.A.

verizon

TEP

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45 BEECHWOOD DR.
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CHECKED BY: JX

APPROVED BY: DPH

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
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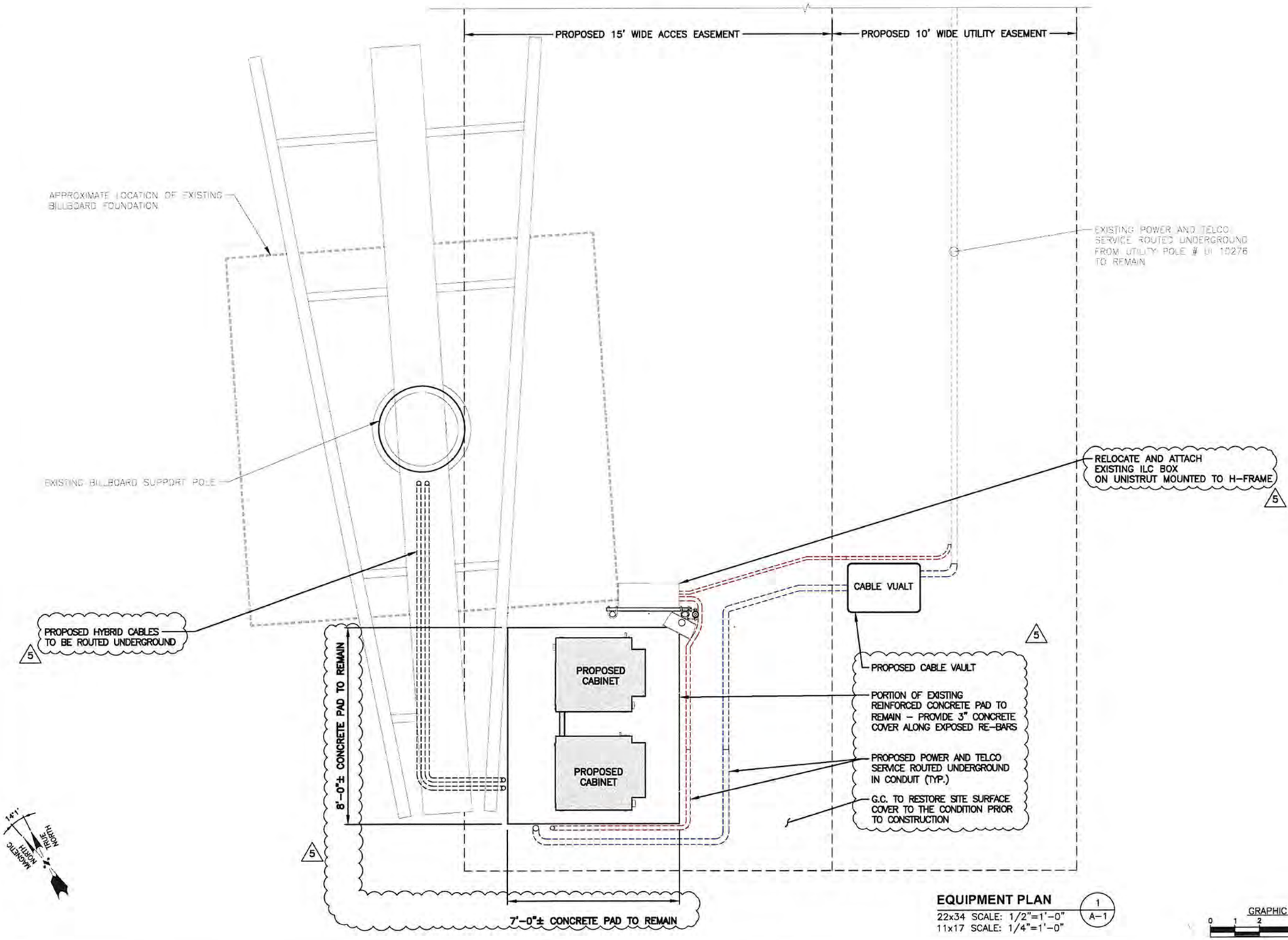
3	11/14/22	ADD. TOWER CONNECT DETAILS	SLY
2	06/24/22	REV. ANTENNA MOUNT	SLY
1	05/13/22	ADDED N77 ANTENNAS	SLY
0	07/19/21	ISSUED FOR CONSTRUCTION	SLY

SITE NAME:
EAST HAVEN 5 CT

SITE ADDRESS:
115 MEADOW ROAD
NEW HAVEN, CT 06513

SHEET TITLE
SITE PREPARATION PLAN

SHEET NUMBER
C-2



EQUIPMENT PLAN (1 / A-1)

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

GRAPHIC SCALE
0 1 2 4 6 FEET

FOR CONSTRUCTION

PREPARED FOR: CELLCO PARTNERSHIP D.B.A.

verizon

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CHECKED BY: JX

APPROVED BY: DPH

SUBMITTALS

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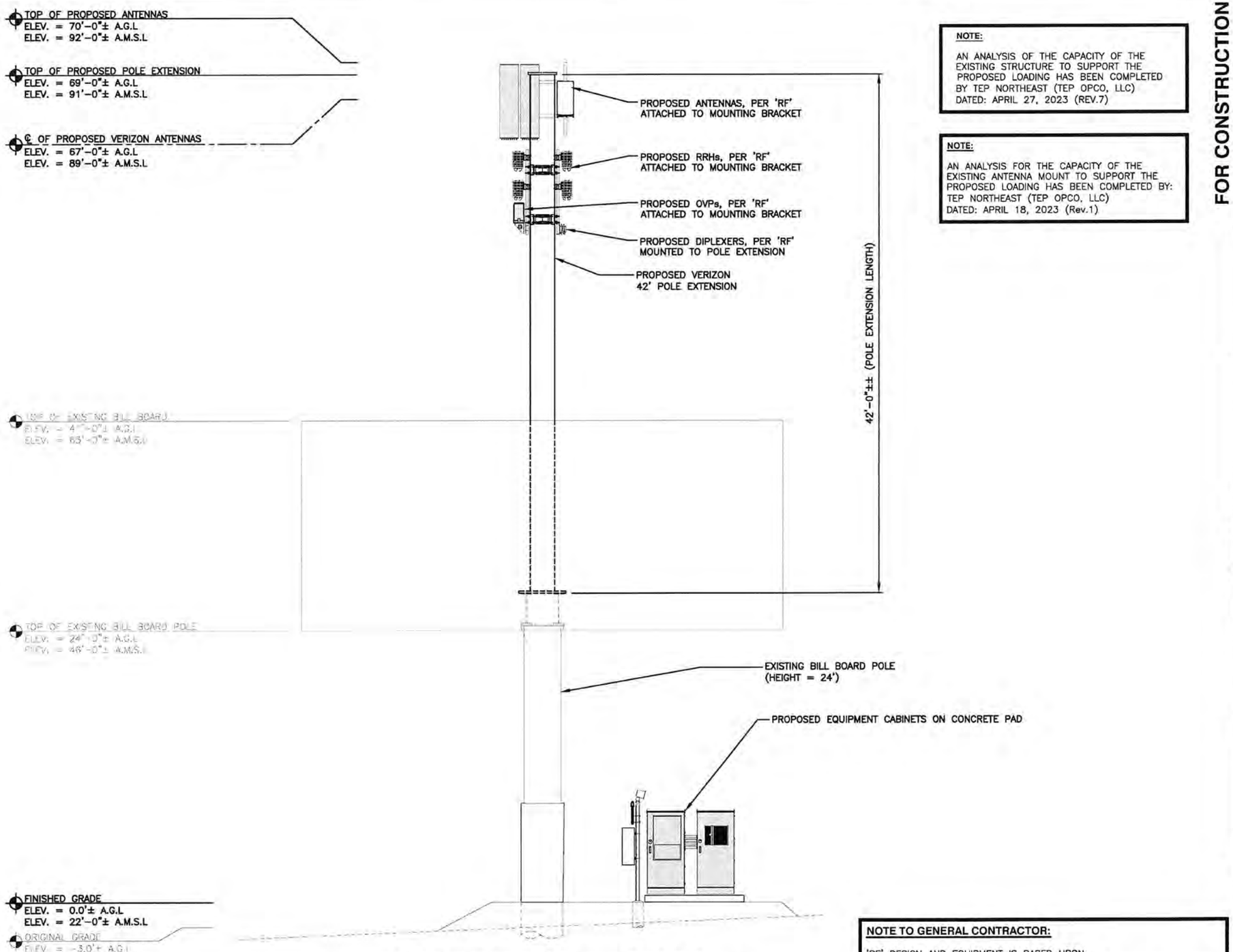
1	05/13/22	ADDED N77 ANTENNAS	SLY
0	07/19/21	ISSUED FOR CONSTRUCTION	SLY

SITE NAME:
EAST HAVEN 5 CT

SITE ADDRESS:
115 MEADOW ROAD
NEW HAVEN, CT 06513

SHEET TITLE
COMPOUND PLAN

SHEET NUMBER
A-1



EAST ELEVATION (1 / A-2)
22x34 SCALE: 1/4"=1'-0"
11x17 SCALE: 1/8"=1'-0"

GRAPHIC SCALE
0 2 4 8 12 FEET

NOTE:

AN ANALYSIS OF THE CAPACITY OF THE EXISTING STRUCTURE TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY TEP NORTHEAST (TEP OPCO, LLC)
DATED: APRIL 27, 2023 (REV.7)

NOTE:

AN ANALYSIS FOR THE CAPACITY OF THE EXISTING ANTENNA MOUNT TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: TEP NORTHEAST (TEP OPCO, LLC)
DATED: APRIL 18, 2023 (Rev.1)

NOTE TO GENERAL CONTRACTOR:

'RF' DESIGN AND EQUIPMENT IS BASED UPON
RFDS ISSUED BY VZW DATED: 3/20/2023 REV 4
THE CONTRACTOR OF RECORD SHALL CONTACT VZW PRIOR TO ANY AND ALL ORDERING/PURCHASING/INSTALLATION OF EQUIPMENT TO VERIFY THAT THE 'RF' LISTED IN THE DRAWING SET IS CURRENT AND UP TO DATE.

FOR CONSTRUCTION

PREPARED FOR: CELLCO PARTNERSHIP D.B.A.
verizon

TEP
TEP OPCO, LLC.
45 BEECHWOOD DR.
NORTH ANDOVER, MA 01845
OFFICE: (978) 557-5553

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CHECKED BY: JX

APPROVED BY: DPH

SUBMITTALS

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1	05/13/22	ADDED N77 ANTENNAS	SLY
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SITE NAME:
EAST HAVEN 5 CT

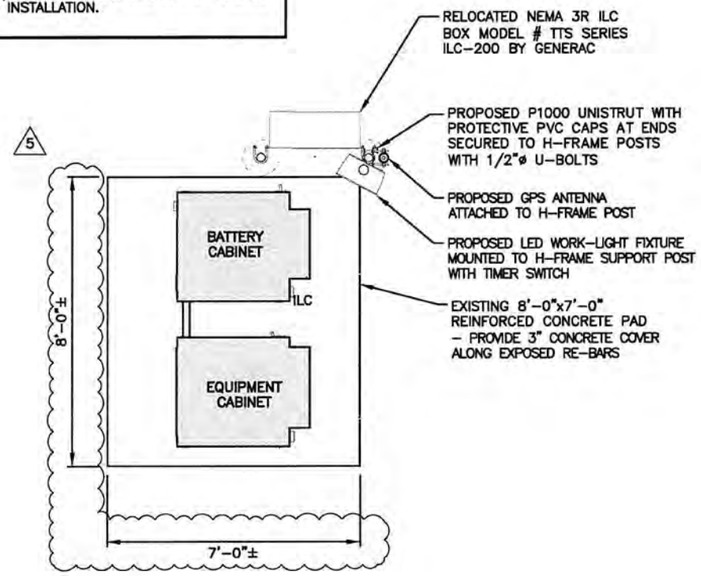
SITE ADDRESS:
115 MEADOW ROAD
NEW HAVEN, CT 06513

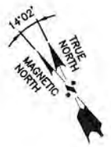
SHEET TITLE
ELEVATION

SHEET NUMBER
A-2

NOTE:

CONTRACTOR SHALL NOT INSTALL ANY HARDWARE/EQUIPMENT IN AND AROUND ANY WORKING AREAS THAT CREATE A TRIP HAZARD. E.O.R. SHALL BE NOTIFIED IF ANY EXISTING HARDWARE/EQUIPMENT CREATES A TRIP HAZARD PRIOR TO INSTALLATION.





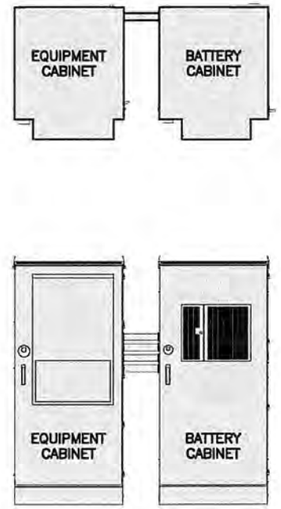
EQUIPMENT PLAN (1 / A-3)
22x34 SCALE: 1/2"=1'-0"
11x17 SCALE: 1/4"=1'-0"

GRAPHIC SCALE
0 1 2 4 6 FEET

COOPER LIGHTING NFFLD NIGHT FALCON
NFFLD-A25-E-UNV-66-S-BK
SLIPFITTER MOUNT AND VANDAL SHIELD

MOUNT PER MANUFACTURER'S SPECIFICATIONS.

LED FLOOD LIGHT DETAIL (3 / A-3)
SCALE: N.T.S



SPECIFICATIONS:
MANUFACTURER: COMMSCOPE
PART NO.: CMC74-36B
BATTERY CABINET
SIZE: 80.75"x36.2"x43.7"
WEIGHT: TBD LBS

SPECIFICATIONS:
MANUFACTURER: COMMSCOPE
PART NO.: CMC74-36E
EQUIPMENT CABINET
SIZE: 80.75"x36.2"x43.7"
WEIGHT: TBD LBS

NOTE:
ANCHOR CABINET TO STEEL PLATFORM PER MANUFACTURERS RECOMMENDATIONS

DUAL CABINET DETAIL (EQUIPMENT & BATTERY) (2 / A-3)
SCALE: N.T.S

INTERMATIC WP1220C

TYPE: DOUBLE GANG
HINGE: VERTICAL
INSERT: WP217
DEPTH: 2-1/4"
COLOR: CLEAR

OR APPROVED EQUIVALENT

INTERMATIC FF6H

TIME CYCLE: 6 HOURS
SWITCH: SPST
HOLD: NO

OR APPROVED EQUIVALENT

SWITCH DETAIL (4 / A-3)
SCALE: N.T.S

FOR CONSTRUCTION

PREPARED FOR: CELLCO PARTNERSHIP D.B.A.

verizon

TEP OPCO, LLC.
45 BEECHWOOD DR.
NORTH ANDOVER, MA 01845
OFFICE: (978) 557-5553

CONSTRUCTION DRAWINGS ARE VALID FOR SIX MONTHS AFTER ENGINEER OF RECORD'S STAMPED AND SIGNED SUBMITTAL DATE LISTED HEREIN

CHECKED BY: JX

APPROVED BY: DPH

SUBMITTALS

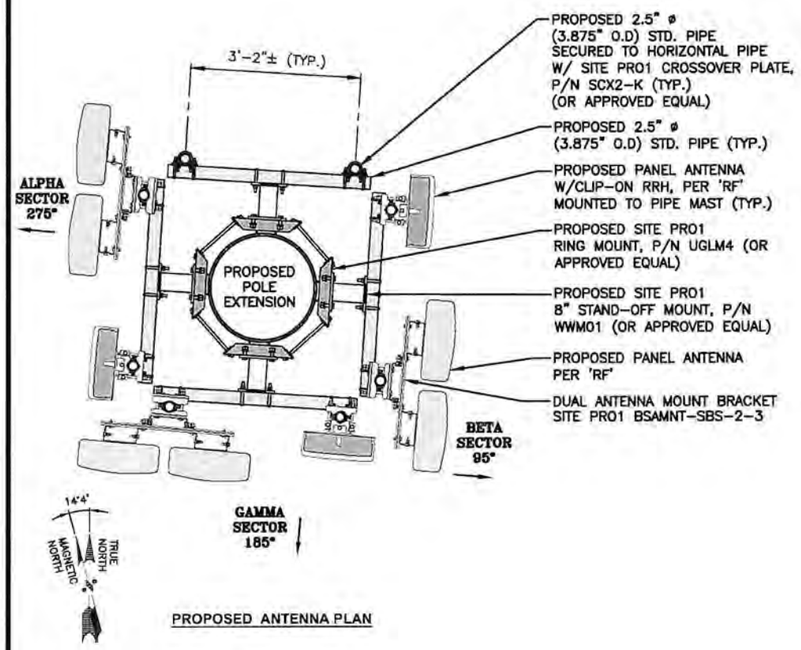
REV.	DATE	DESCRIPTION	BY
5	08/27/24	REMOVED FENCE & REDUCED PAD	SLY
4	05/02/23	REV. POLE HEIGHT & RRH TYPE	SLY
3	11/14/22	ADD. TOWER CONNECT DETAILS	SLY
2	06/24/22	REV. ANTENNA MOUNT	SLY
1	05/13/22	ADDED N77 ANTENNAS	SLY
0	07/19/21	ISSUED FOR CONSTRUCTION	SLY

SITE NAME:
EAST HAVEN 5 CT

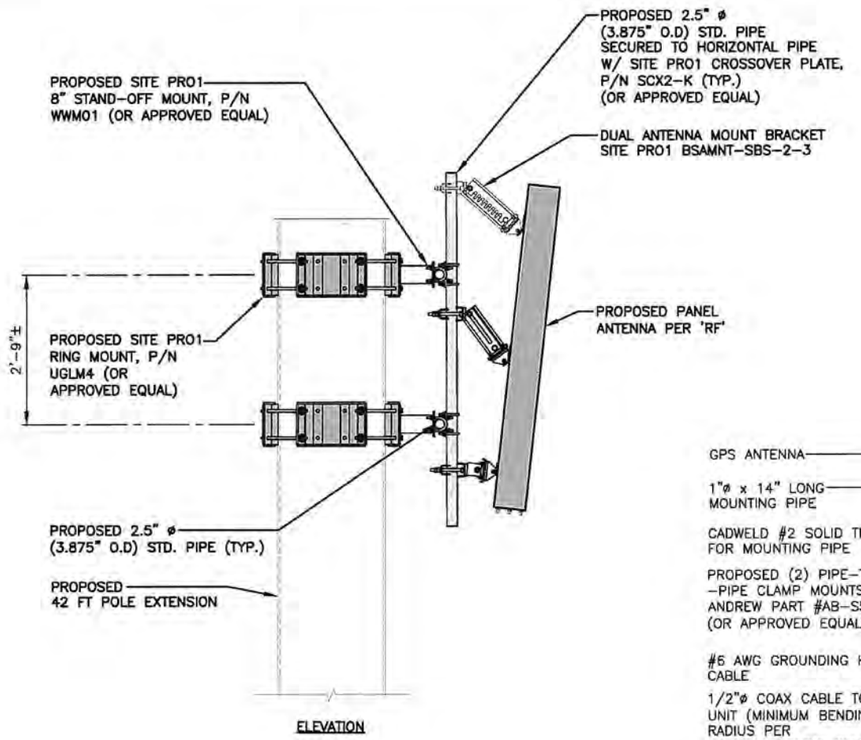
SITE ADDRESS:
115 MEADOW ROAD
NEW HAVEN, CT 06513

SHEET TITLE
EQUIPMENT PLAN AND DETAILS

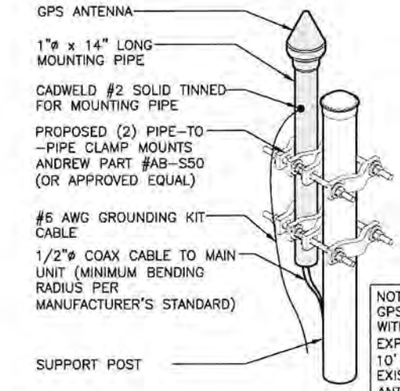
SHEET NUMBER
A-3



PROPOSED ANTENNA PLAN

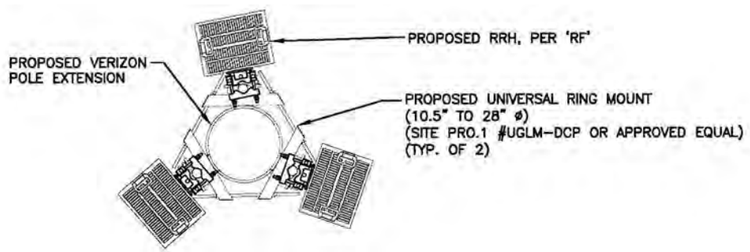


ELEVATION

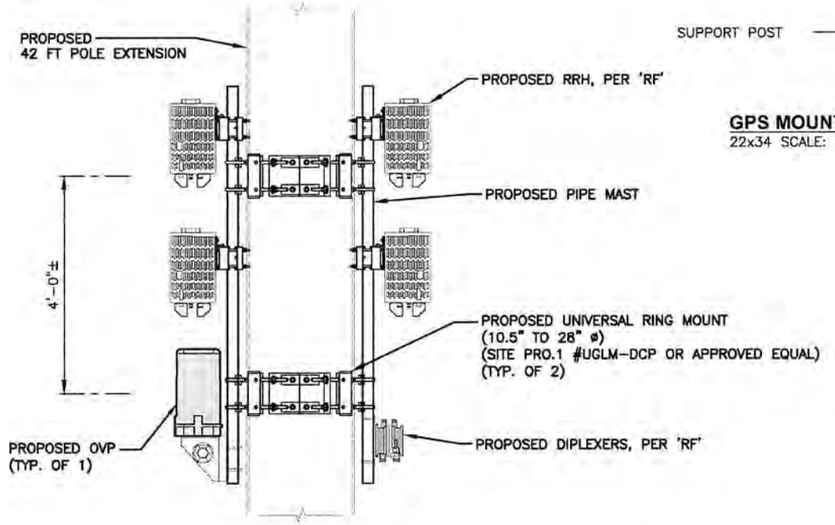


NOTE:
GPS TO BE MOUNTED WITH SOUTHWESTERN EXPOSURE. (MIN. OF 10' AWAY FROM EXISTING GPS ANTENNA)

GPS MOUNTING DETAIL (2 / A-4)
22x34 SCALE: N.T.S



PROPOSED RRH PLAN



ANTENNA, RRH & OVP MOUNTING DETAILS (1 / A-4)
SCALE: N.T.S

FOR CONSTRUCTION

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NEW HAVEN, CT 06513

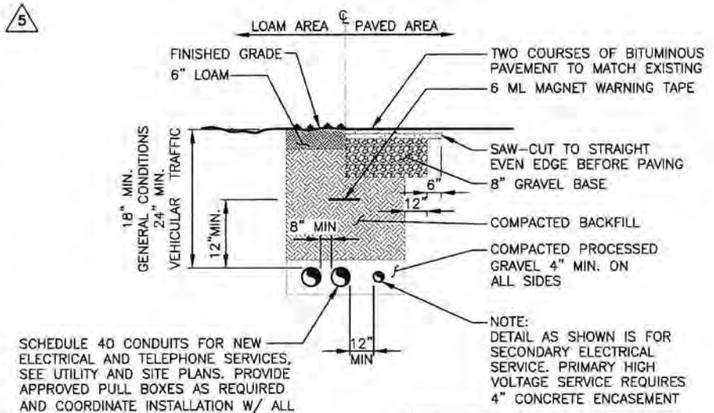
SHEET TITLE
ANTENNA PLAN AND DETAILS

SHEET NUMBER
A-4

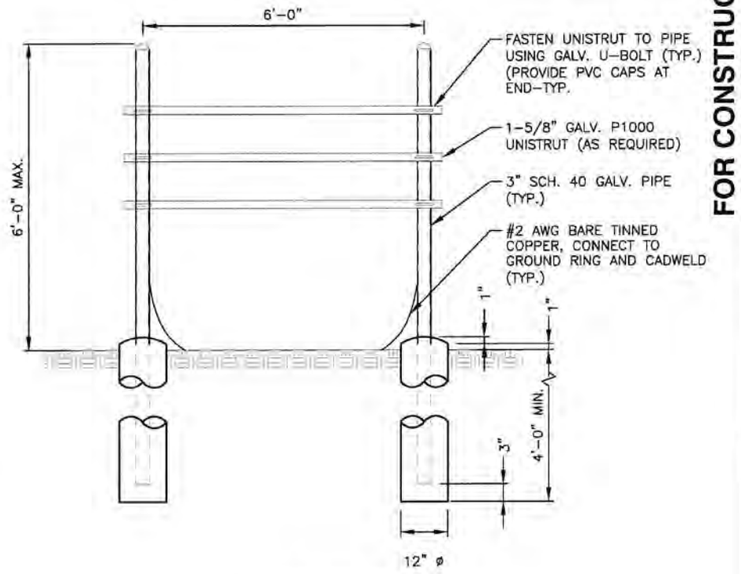
DETAIL DELETED

ICE BRIDGE DETAIL (1 / A-5)
SCALE: N.T.S

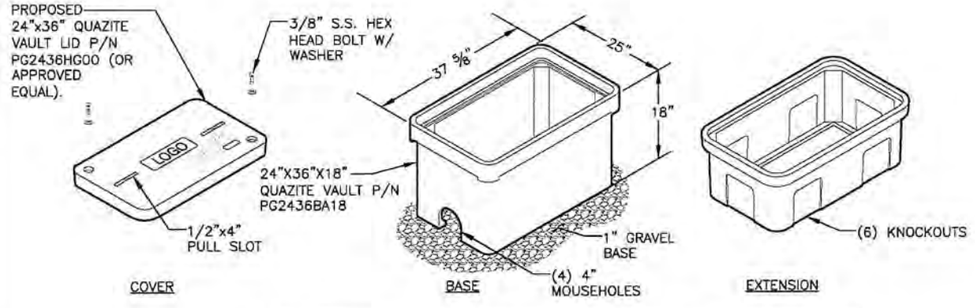
5



BURIED CONDUIT DETAIL (2 / A-5)
SCALE: N.T.S



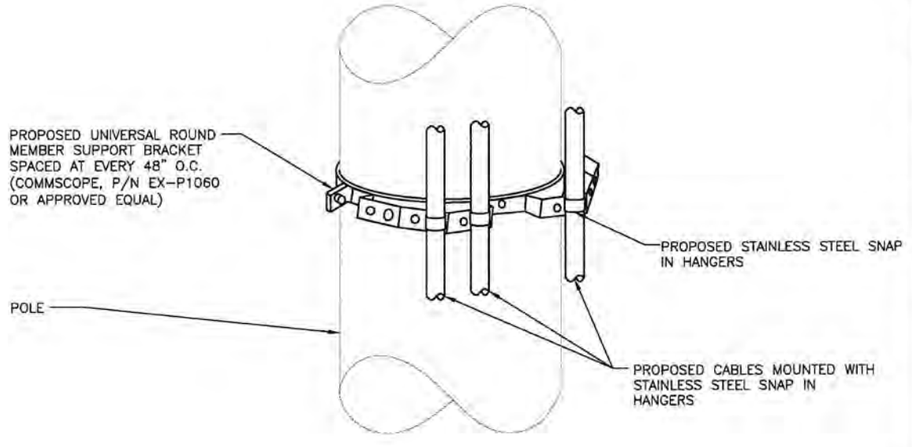
H-FRAME DETAIL (3 / A-5)
SCALE: N.T.S



NOTE:
1. THIS INFORMATION MAY NOT CONTAIN ALL DETAILS REQUIRED FOR CONSTRUCTION. APPROPRIATE MODIFICATION MAY BE REQUIRED TO ENSURE SUITABILITY OF THESE DRAWINGS FOR THE SPECIFIC APPLICATION. SEE SPECIFICATION PROVIDED BY ELECTRICAL DESIGNER FOR FURTHER DETAIL AND INSTALLATION.
2. PROVIDE STANDARD HANDHOLE. COVER COLOR SHALL BE AS SPECIFIED BY THE NIH.
3. PROVIDE 25mm (1") X 10mm (3/8") BELL PULL SLOT FOR EACH HANDHOLE.
4. COVER, RING AND BOX SHALL BE MADE OF SAME MATERIAL.
5. PROVIDE IMPRINTED LOGO TO MATCH.

FOR TELCO AND POWER

HANDHOLE DETAIL (4 / A-5)
SCALE: N.T.S



NOTES:
1. UTILIZE COMMSCOPE KIT# EX-P1060 OR APPROVED EQUAL TO ATTACH BRACKET TO POLE.
2. MOUNTS BRACKETS TO POLE EVERY 4 FT.

CABLE SUPPORT DETAIL AT TOWER LEG (5 / A-5)
SCALE: N.T.S

FOR CONSTRUCTION

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SITE NAME:
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SITE ADDRESS:
115 MEADOW ROAD
NEW HAVEN, CT 06513

SHEET TITLE
CABLE SUPPORT DETAILS

SHEET NUMBER
A-5

FOR CONSTRUCTION

5

DETAIL DELETED

STOCKADE FENCE DETAIL (1 / A-6)

SCALE: N.T.S

PREPARED FOR: CELLCO PARTNERSHIP D.B.A.

verizon

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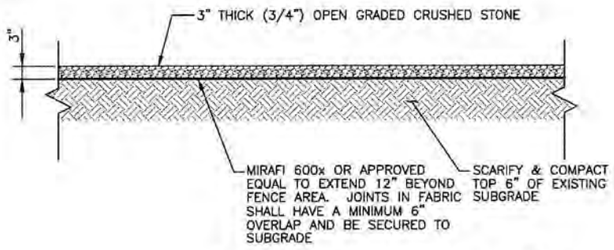
EAST HAVEN 5 CT

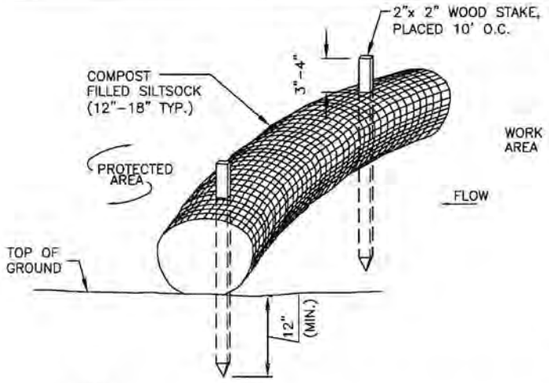
SITE ADDRESS:
115 MEADOW ROAD
NEW HAVEN, CT 06513

SHEET TITLE
FENCE DETAILS

SHEET NUMBER
A-6



COMPOUND SURFACE DETAIL (1 / A-7)
22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"



NOTES:

1. SILTSOCK SHALL BE FILTREXX SILTSOXX, OR APPROVED EQUAL.
2. COMPOST MATERIAL SHALL BE DISPERSED ON SITE, AS DETERMINED BY THE ENGINEER.
3. SILTSOCK SHALL BE INSPECTED PERIODICALLY AND AFTER ALL STORM EVENTS, AND REPAIR OR REPLACEMENT SHALL BE PERFORMED PROMPTLY AS NEEDED.
4. SEE SPECIFICATIONS FOR SOCK SIZE, AND COMPOST FILL, REQUIREMENTS.

SILT SOCK DETAIL (2 / A-7)
SCALE: N.T.S

GENERAL CONSTRUCTION SEQUENCE:

THIS IS A GENERAL CONSTRUCTION SEQUENCE OUTLINE SOME ITEMS OF WHICH MAY NOT APPLY TO PARTICULAR SITES.

1) CLEAR AND GRUB AREAS OF PROPOSED CONSTRUCTION.
2) INSTALL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES AS REQUIRED.
3) REMOVE AND STOCKPILE TOPSOIL. STOCKPILE SHALL BE SEEDED TO PREVENT EROSION.
4) CONSTRUCT CLOSED DRAINAGE SYSTEM. PROTECT CULVERT INLETS AND CATCH BASINS WITH SEDIMENTATION BARRIERS.
5) CONSTRUCT ROADWAYS AND PERFORM SITE GRADING, PLACING HAY BALES AND SILTATION FENCES AS REQUIRED TO CONTROL SOIL EROSION.
6) INSTALL UNDERGROUND UTILITIES.
7) BEGIN TEMPORARY AND PERMANENT SEEDING AND MULCHING. ALL CUT AND FILL SLOPES SHALL BE SEEDED OR MULCHED IMMEDIATELY AFTER THEIR CONSTRUCTION. NO AREA SHALL BE LEFT UNSTABILIZED FOR A TIME PERIOD OF MORE THAN 30 DAYS.
8) DAILY, OR AS REQUIRED, CONSTRUCT, INSPECT, AND IF NECESSARY, RECONSTRUCT TEMPORARY BERMS, DRAINS, DITCHES, SILT FENCES AND SEDIMENT TRAPS INCLUDING MULCHING AND SEEDING.
9) BEGIN EXCAVATION FOR AND CONSTRUCTION OF TOWERS AND PLATFORMS.
10) FINISH PAVING ALL ROADWAYS, DRIVES, AND PARKING AREAS.
11) COMPLETE PERMANENT SEEDING AND LANDSCAPING.
12) NO STORM WATER FLOW SHALL BE DIVERTED TO ANY WETLANDS UNTIL A HEALTHY STAND OF GRASS HAS BEEN ESTABLISHED IN REGRADED AREAS.
13) AFTER GRASS HAS BEEN FULLY GERMINATED IN ALL SEEDED AREAS, REMOVE ALL TEMPORARY EROSION CONTROL MEASURES.

EROSION CONTROL MEASURES:

1) DISTURBED AREAS SHALL BE KEPT TO THE MINIMUM AREA NECCESSARY TO CONSTRUCT THE ROADWAYS AND ASSOCIATED DRAINAGE FACILITIES.
2) HAY BALE BARRIERS AND SEDIMENT TRAPS SHALL BE INSTALLED AS REQUIRED. BARRIERS AND TRAPS ARE TO BE MAINTAINED AND CLEANED UNTIL ALL SLOPES HAVE A HEALTHY STAND OF GRASS.
3) BALED HAY AND MULCH SHALL BE MOWINGS OF ACCEPTABLE HERBACEOUS GROWTH, FREE FROM NOXIOUS WEEDS OR WOODY STEMS, AND SHALL BE DRY. NO SALT HAY SHALL BE USED.
4) FILL MATERIAL SHALL BE FREE FROM STUMPS, WOOD, ROOTS, ETC.
5) STOCKPILED MATERIALS SHALL BE PLACED IN AREAS SHOWN ON THE PLANS. STOCKPILES SHALL BE PROTECTED BY SILTATION FENCE AND SEEDED TO PREVENT EROSION. THESE MEASURES SHALL REMAIN UNTIL ALL MATERIAL HAS BEEN PLACED OR DISPOSED OFF SITE.
6) ALL DISTURBED AREAS SHALL BE LOAMED AND SEEDED. A MINIMUM OF 4 INCHES OF LOAM SHALL BE INSTALLED WITH NOT LESS THAN ONE POUND OF SEED PER 50 SQUARE YARDS OF AREA.
7) APPLICATION OF GRASS SEED, FERTILIZERS AND MULCH SHALL BE ACCOMPLISHED BY BROADCAST SEEDING OR HYDROSEEDING AT THE RATES OUTLINED BELOW:

LIMESTONE: 75-100 LBS./1,000 SQUARE FEET.
FERTILIZER: RATE RECOMMENDED BY MANUFACTURER.
MULCH: HAY MULCH APPROXIMATELY 3 TONS/ACRE UNLESS EROSION CONTROL MATTING IS USED.

SEED MIX (SLOPES LESS THAN 4:1)	LBS./ACRE
CREEPING RED FESCUE	20
TALL FESCUE	20
REDTOP	2
	42

SLOPE MIX (SLOPES GREATER THAN 4:1)	LBS./ACRE
CREEPING RED FESCUE	20
TALL FESCUE	20
BIRDSFOOT TREEFOIL	8
	48

TREATMENT SWALE PLANTING SPECIFICATIONS

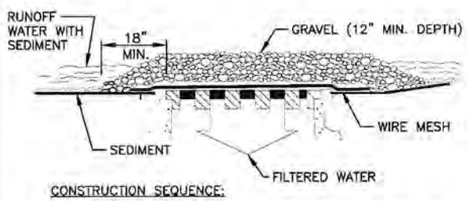
TALL FESCUE	20 LBS/ACRE	OR	0.45 LBS/10,000 SF
CREEPING RED FESCUE	20 LBS/ACRE	OR	0.45 LBS/10,000 SF
BIRDSFOOT TREFOIL	8 LBS/ACRE	OR	0.20 LBS/10,000 SF

LIME AND FERTILIZER SHOULD BE APPLIED PRIOR TO OR AT TIME OF SEEDING AND INCORPORATED INTO THE SOIL. THE FOLLOWING RATES ARE RECOMMENDED:

AGRICULTURAL LIMESTONE	2 TONS/ACRE	OR	100 LBS/1,000 SF
NITROGEN (N)	50 LBS/ACRE	OR	1.1 LBS/10,000 SF
PHOSPHATE (P205)	100 LBS/ACRE	OR	2.2 LBS/10,000 SF
POTASH (K20)	100 LBS/ACRE	OR	2.2 LBS/10,000 SF

(THIS IS EQUIVALENT TO 500 LBS/ACRE OF 10-20-20 FERTILIZER OR 1,000 LBS/ACRE OF 5-10-10).

8) AFTER ALL DISTURBED AREAS HAVE BEEN STABILIZED THE TEMPORARY EROSION CONTROL MEASURES ARE TO BE REMOVED.
9) PAVED ROADWAYS MUST BE KEPT CLEAN AT ALL TIMES.
10) ALL CATCH BASIN INLETS WILL BE PROTECTED WITH LOW POINT SEDIMENTATION BARRIER.
11) ALL STORM DRAINAGE OUTLETS WILL BE STABILIZE AND CLEANED AS REQUIRED, BEFORE THE DISCHARGE POINTS BECOME OPERATIONAL.
12) ALL DEWATERING OPERATIONS MUST DISCHARGE DIRECTLY INTO A SEDIMENT FILTER AREA.
13) NO DISCHARGE SHALL BE DIRECTED TOWARDS ANY PROPOSED DITCHES, SWALES, OR PONDS UNTIL THEY HAVE BEEN PROPERLY STABILIZED.



CONSTRUCTION SEQUENCE:

1. A WIRE MESH SHOULD BE PLACED OVER THE DROP INLET OR CURB OPENING SO THAT THE ENTIRE OPENING AND A MINIMUM OF 12 INCHES AROUND THE OPENING ARE COVERED BY THE MESH. THE MESH MAY BE ORDINARY HARDWARE CLOTH OR WIRE MESH WITH OPENINGS UP TO 1/2 INCH.

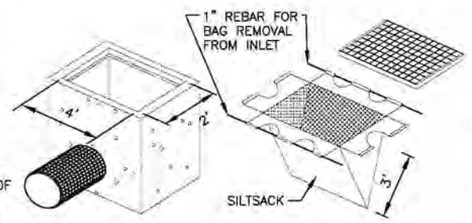
2. THE WIRE MESH SHOULD BE COVERED WITH CLEAN COARSE AGGREGATE SUCH AS SEWER STONE FOR A MINIMUM DEPTH OF 12 INCHES.

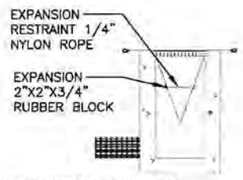
3) THE COARSE AGGREGATE SHOULD EXTEND AT LEAST 18 INCHES ON ALL SIDES OF THE DRAIN OPENING.

MAINTENANCE:

ALL STRUCTURES SHOULD BE INSPECTED AFTER EVERY RAIN STORM AND REPAIRS MADE AS NECESSARY. SEDIMENT SHOULD BE REMOVED FROM THE TRAPPING DEVICES AFTER THE SEDIMENT HAS REACHED A MAXIMUM OF ONE HALF THE DEPTH OF THE TRAP. THE SEDIMENT SHOULD BE DISPOSED OF IN A SUITABLE AREA AND PROTECTED FROM EROSION BY EITHER STRUCTURAL OR VEGETATIVE MEANS. THE TEMPORARY TRAPS SHOULD BE REMOVED AND THE AREA REPAIRED AS SOON AS THE CONTRIBUTING DRAINAGE AREA TO THE INLET HAS BEEN COMPLETELY STABILIZED.

STONE INLET PROTECTION DETAIL-ON SITE (3 / A-7)
SCALE: N.T.S





NOTE: REGULAR FLOW = 40 GAL./MIN./SF.
HIGH = 200 GAL./MIN./SF.

SILKSACK DETAIL - ON OR OFF SITE

FOR CONSTRUCTION

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SITE NAME:
EAST HAVEN 5 CT

SITE ADDRESS:
115 MEADOW ROAD
NEW HAVEN, CT 06513

SHEET TITLE
SITE SURFACE COVER AND EROSION CONTROL DETAILS

SHEET NUMBER
A-7

STRUCTURAL NOTES:

1. DESIGN REQUIREMENTS ARE PER STATE BUILDING CODE AND APPLICABLE SUPPLEMENTS, INTERNATIONAL BUILDING CODE, EIA/TIA-222-H STRUCTURAL STANDARDS FOR STEEL ANTENNA, TOWERS AND ANTENNA SUPPORTING STRUCTURES.
2. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. ANY UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ATTENTION OF THE CONSTRUCTION MANAGER AND ENGINEER OF RECORD.
3. DESIGN AND CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".
4. STRUCTURAL STEEL SHALL CONFORM TO ASTM A992 (Fy=50 ksi), MISCELLANEOUS STEEL SHALL CONFORM TO ASTM A36 UNLESS OTHERWISE INDICATED.
5. STEEL PIPE SHALL CONFORM TO ASTM A500 "COLD-FORMED WELDED & SEAMLESS CARBON STEEL STRUCTURAL TUBING", GRADE B, OR ASTM A53 PIPE STEEL BLACK AND HOT-DIPPED ZINC-COATED WELDED AND SEAMLESS TYPE E OR S, GRADE B. PIPE SIZES INDICATED ARE NOMINAL. ACTUAL OUTSIDE DIAMETER IS LARGER.
6. STRUCTURAL CONNECTION BOLTS SHALL BE HIGH STRENGTH BOLTS (BEARING TYPE) AND CONFORM TO ASTM A325 TYPE-X "HIGH STRENGTH BOLTS FOR STRUCTURAL JOINTS, INCLUDING SUITABLE NUTS AND PLAIN HARDENED WASHERS". ALL BOLTS SHALL BE 3/4" DIA UON.
7. ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS OTHERWISE NOTED.
8. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC-COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS OTHERWISE NOTED.
9. FIELD WELDS, DRILL HOLES, SAW CUTS AND ALL DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED WITH AN ORGANIC ZINC REPAIR PAINT COMPLYING WITH REQUIREMENTS OF ASTM A780. GALVANIZING REPAIR PAINT SHALL HAVE 65 PERCENT ZINC BY WEIGHT, ZIRP BY DUNCAN GALVANIZING, GALVA BRIGHT PREMIUM BY CROWN OR EQUAL. THICKNESS OF APPLIED GALVANIZING REPAIR PAINT SHALL BE NOT NOT LESS THAN 4 COATS (ALLOW TIME TO DRY BETWEEN COATS) WITH A RESULTING COATING THICKNESS REQUIRED BY ASTM A123 OR A153 AS APPLICABLE.
10. CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS, AND FOR METHODS USED IN CORRECTING WELDING. ALL WELDERS AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES". ALL WELDING SHALL BE DONE USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND DI.I. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "STEEL CONSTRUCTION MANUAL". 14TH EDITION.
11. INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON-CONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE CONSTRUCTION MANAGER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE CONSTRUCTION MANAGER APPROVAL.
12. UNISTRUT SHALL BE FORMED STEEL CHANNEL STRUT FRAMING AS MANUFACTURED BY UNISTRUT CORP., WAYNE, MI OR EQUAL. STRUT MEMBERS SHALL BE 1 5/8"x1 5/8"x12GA, UNLESS OTHERWISE NOTED, AND SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.
13. EPOXY ANCHOR ASSEMBLY SHALL CONSIST OF STAINLESS STEEL ANCHOR ROD WITH NUTS & WASHERS. AN INTERNALLY THREADED INSERT, A SCREEN TUBE AND A EPOXY ADHESIVE. THE ANCHORING SYSTEM SHALL BE THE HILTI-HIT HY-70 AND OR HY-200 SYSTEMS (AS SPECIFIED IN DWG.) OR ENGINEERS APPROVED EQUAL.
14. EXPANSION BOLTS SHALL CONFORM TO FEDERAL SPECIFICATION FF-S-325, GROUP II, TYPE 4, CLASS 1, HILTI KWIK BOLT III OR APPROVED EQUAL. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
15. LUMBER SHALL COMPLY WITH THE REQUIREMENTS OF THE AMERICAN INSTITUTE OF TIMBER CONSTRUCTION AND THE NATIONAL FOREST PRODUCTS ASSOCIATION'S NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION. ALL LUMBER SHALL BE PRESSURE TREATED AND SHALL BE STRUCTURAL GRADE NO. 2 OR BETTER.
16. WHERE ROOF PENETRATIONS ARE REQUIRED, THE CONTRACTOR SHALL CONTACT AND COORDINATE RELATED WORK WITH THE BUILDING OWNER AND THE EXISTING ROOF INSTALLER. WORK SHALL BE PERFORMED IN SUCH A MANNER AS TO NOT VOID THE EXISTING ROOF WARRANTY. ROOF SHALL BE WATERTIGHT.
17. ALL FIBERGLASS MEMBERS USED ARE AS MANUFACTURED BY STRONGWELL COMPANY OF BRISTOL, VA 24203. ALL DESIGN CRITERIA FOR THESE MEMBERS IS BASED ON INFORMATION PROVIDED IN THE DESIGN MANUAL. ALL REQUIREMENTS PUBLISHED IN SAID MANUAL MUST BE STRICTLY ADHERED TO.
18. NO MATERIALS TO BE ORDERED AND NO WORK TO BE COMPLETED UNTIL SHOP DRAWINGS HAVE BEEN REVIEWED AND APPROVED IN WRITING.
19. SUBCONTRACTOR SHALL FIREPROOF ALL STEEL TO PRE-EXISTING CONDITIONS.

SPECIAL INSPECTIONS (REFERENCE IBC CHAPTER 17):

GENERAL: WHERE APPLICATION IS MADE FOR CONSTRUCTION, THE OWNER OR THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE ACTING AS THE OWNER'S AGENT SHALL EMPLOY ONE OR MORE APPROVED AGENCIES TO PERFORM INSPECTIONS DURING CONSTRUCTION ON THE TYPES OF WORK LISTED IN THE INSPECTION CHECKLIST ABOVE.

THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE AND ENGINEERS OF RECORD INVOLVED IN THE DESIGN OF THE PROJECT ARE PERMITTED TO ACT AS THE APPROVED AGENCY AND THEIR PERSONNEL ARE PERMITTED TO ACT AS THE SPECIAL INSPECTOR FOR THE WORK DESIGNED BY THEM, PROVIDED THOSE PERSONNEL MEET THE QUALIFICATION REQUIREMENTS.

STATEMENT OF SPECIAL INSPECTIONS: THE APPLICANT SHALL SUBMIT A STATEMENT OF SPECIAL INSPECTIONS PREPARED BY THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE IN ACCORDANCE WITH SECTION 107.1 AS A CONDITION FOR ISSUANCE. THIS STATEMENT SHALL BE IN ACCORDANCE WITH SECTION 1705.

REPORT REQUIREMENT: SPECIAL INSPECTORS SHALL KEEP RECORDS OF INSPECTIONS. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL, AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. REPORTS SHALL INDICATE THAT WORK INSPECTED WAS OR WAS NOT COMPLETED IN CONFORMANCE TO APPROVED CONSTRUCTION DOCUMENTS. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF THEY ARE NOT CORRECTED, THE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. A FINAL REPORT DOCUMENTING REQUIRED SPECIAL INSPECTIONS SHALL BE SUBMITTED.

SPECIAL INSPECTION CHECKLIST

BEFORE CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	ENGINEER OF RECORD APPROVED SHOP DRAWINGS [1]
REQUIRED	MATERIAL SPECIFICATIONS REPORT [2]
N/A	FABRICATOR NDE INSPECTION
REQUIRED	PACKING SLIPS [3]
ADDITIONAL TESTING AND INSPECTIONS:	
DURING CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	STEEL INSPECTIONS
N/A	HIGH STRENGTH BOLT INSPECTIONS
N/A	HIGH WIND ZONE INSPECTIONS [4]
N/A	FOUNDATION INSPECTIONS
N/A	CONCRETE COMP. STRENGTH, SLUMP TESTS AND PLACEMENT
N/A	POST INSTALLED ANCHOR VERIFICATION [5]
N/A	GROUT VERIFICATION
N/A	CERTIFIED WELD INSPECTION
N/A	EARTHWORK: LIFT AND DENSITY
N/A	ON SITE COLD GALVANIZING VERIFICATION
N/A	GUY WIRE TENSION REPORT
ADDITIONAL TESTING AND INSPECTIONS:	
AFTER CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	MODIFICATION INSPECTOR REDLINE OR RECORD DRAWINGS [6]
N/A	POST INSTALLED ANCHOR PULL-OUT TESTING
REQUIRED	PHOTOGRAPHS
ADDITIONAL TESTING AND INSPECTIONS:	

NOTES:

1. REQUIRED FOR ANY NEW SHOP FABRICATED FRP OR STEEL.
2. PROVIDED BY MANUFACTURER, REQUIRED IF HIGH STRENGTH BOLTS OR STEEL.
3. PROVIDED BY GENERAL CONTRACTOR; PROOF OF MATERIALS.
4. HIGH WIND ZONE INSPECTION CATB 120MPH OR CAT C,D 110MPH INSPECT FRAMING OF WALLS, ANCHORING, FASTENING SCHEDULE.
5. ADHESIVE FOR REBAR AND ANCHORS SHALL HAVE BEEN TESTED IN ACCORDANCE WITH ACI 355.4 AND ICC-ES AC308 FOR CRACKED CONCRETE AND SEISMIC APPLICATIONS. DESIGN ADHESIVE BOND STRENGTH HAS BEEN BASED ON ACI 355.4 TEMPERATURE CATEGORY B WITH INSTALLATIONS INTO DRY HOLES DRILLED USING A CARBIDE BIT INTO CRACKED CONCRETE THAT HAS CURED FOR AT LEAST 21 DAYS. ADHESIVE ANCHORS REQUIRING CERTIFIED INSTALLATIONS SHALL BE INSTALLED BY A CERTIFIED ADHESIVE ANCHOR INSTALLER PER ACI 318-11 D.9.2.2. INSTALLATIONS REQUIRING CERTIFIED INSTALLERS SHALL BE INSPECTED PER ACI 318-11 D.8.2.4.
6. AS REQUIRED; FOR ANY FIELD CHANGES TO THE ITEMS IN THIS TABLE.

NOTES:

1. ALL CONNECTIONS TO BE SHOP WELDED & FIELD BOLTED USING 3/4"ø A325-X BOLTS, UNLESS OTHERWISE NOTIFIED.
2. SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED BEFORE ORDERING MATERIAL.
3. SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED PRIOR TO STEEL FABRICATION.
4. VERIFICATION OF EXISTING ROOF CONSTRUCTION IS REQUIRED PRIOR TO THE INSTALLATION OF THE ROOF PLATFORM. ENGINEER OF RECORD IS TO APPROVE EXISTING CONDITIONS IN ORDER TO MOVE FORWARD.
5. CENTERLINE OF PROPOSED STEEL PLATFORM SUPPORT COLUMNS TO BE CENTRALLY LOCATED OVER THE EXISTING BUILDING COLUMNS.
6. EXISTING BRICK MASONRY COLUMNS/BEARING TO BE REPAIRED/REPLACED AT ALL PROPOSED PLATFORM SUPPORT POINTS. ENGINEER OF RECORD TO REVIEW AND APPROVE.

FOR CONSTRUCTION

PREPARED FOR: CELLCO PARTNERSHIP D.B.A.

verizon

TEP

TEP OPCO, LLC.
45 BEECHWOOD DR.
NORTH ANDOVER, MA 01845
OFFICE: (978) 557-5553

CONSTRUCTION DRAWINGS ARE VALID FOR SIX MONTHS AFTER ENGINEER OF RECORD'S STAMPED AND SIGNED SUBMITTAL DATE LISTED HEREIN

CHECKED BY: JX

APPROVED BY: DPH

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
5	08/27/24	REMOVED FENCE & REDUCED PAD	SLY
4	05/02/23	REV. POLE HEIGHT & RRH TYPE	SLY
3	11/14/22	ADD. TOWER CONNECT DETAILS	SLY
2	05/24/22	REV. ANTENNA MOUNT	SLY
1	05/13/22	ADDED N77 ANTENNAS	SLY
0	07/19/21	ISSUED FOR CONSTRUCTION	SLY

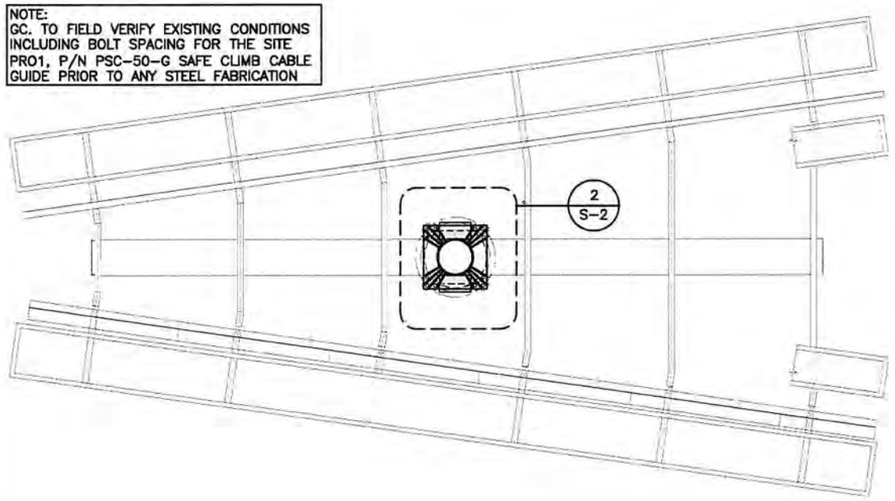
SITE NAME:
EAST HAVEN 5 CT

SITE ADDRESS:
115 MEADOW ROAD
NEW HAVEN, CT 06513

SHEET TITLE
STRUCTURAL NOTES AND SPECIAL INSPECTIONS

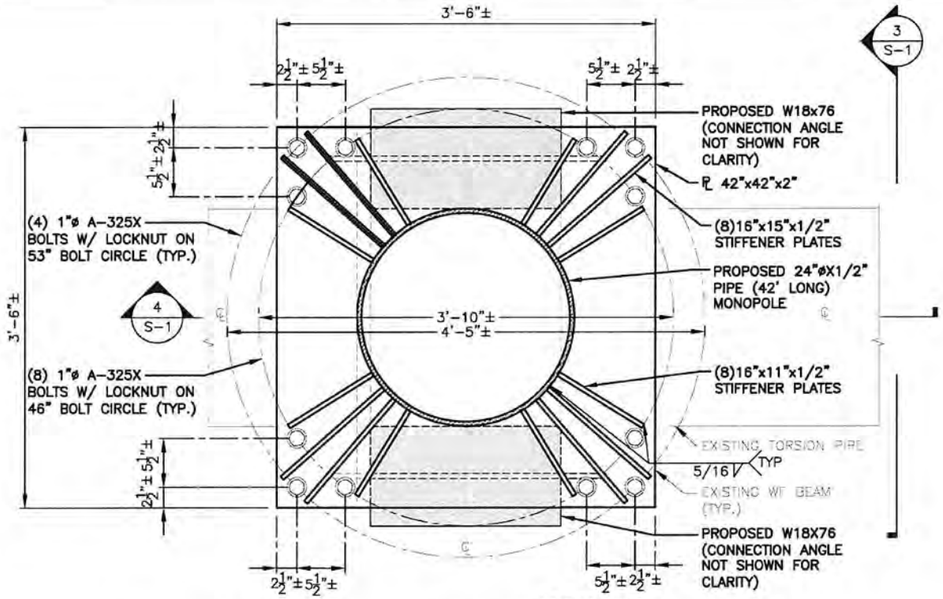
SHEET NUMBER
SN-1

NOTE:
GC. TO FIELD VERIFY EXISTING CONDITIONS INCLUDING BOLT SPACING FOR THE SITE PRO1, P/N PSC-50-G SAFE CLIMB CABLE GUIDE PRIOR TO ANY STEEL FABRICATION



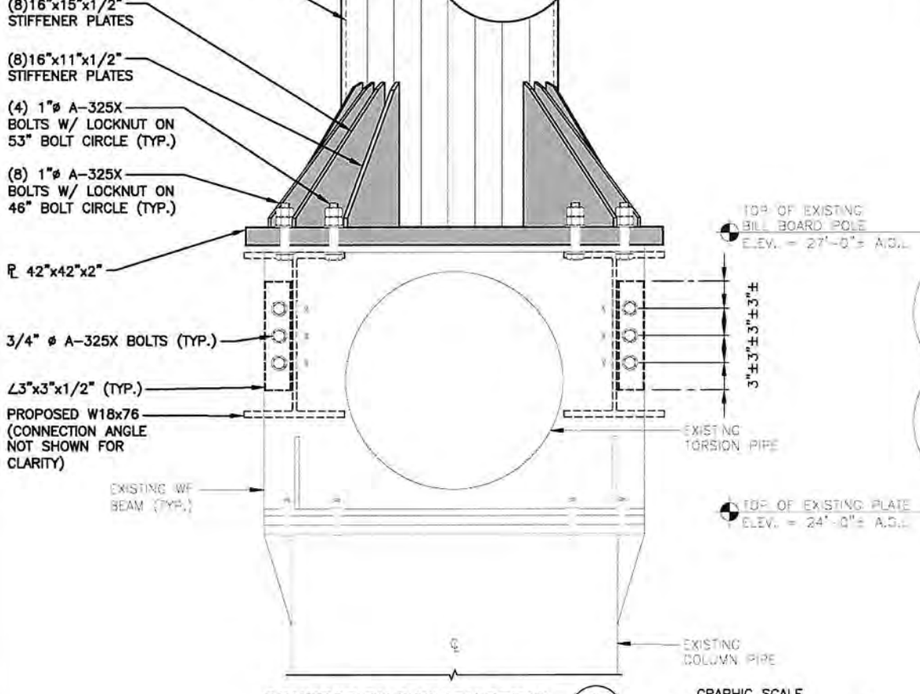
TOWER EXISTING PLAN (1 / S-1)
22x34 SCALE: 1-1/2"=1'-0"
11x17 SCALE: 3/4"=1'-0"

GRAPHIC SCALE
0 2 4 8 12 FEET



CONNECTION PLAN DETAIL (2 / S-1)
22x34 SCALE: 1-1/2"=1'-0"
11x17 SCALE: 3/4"=1'-0"

GRAPHIC SCALE
0 0'-4" 0'-8" 1'-4" 2'-0"



CONNECTION SECTION DETAIL (3 / S-1)
22x34 SCALE: 1-1/2"=1'-0"
11x17 SCALE: 3/4"=1'-0"

GRAPHIC SCALE
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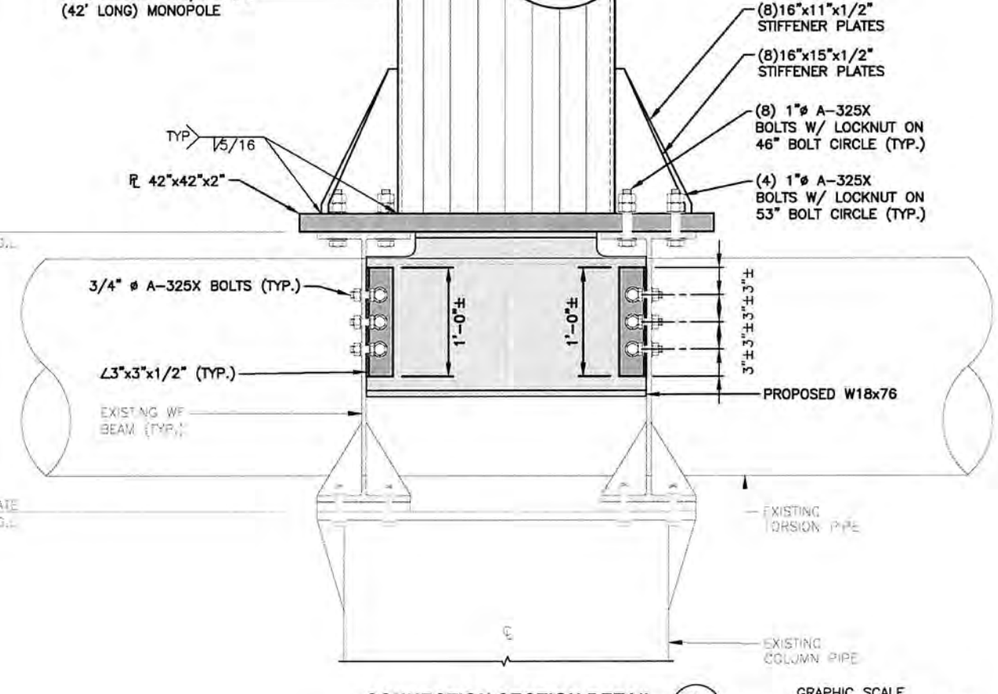

CONNECTION SECTION DETAIL (4 / S-1)
22x34 SCALE: 1-1/2"=1'-0"
11x17 SCALE: 3/4"=1'-0"

GRAPHIC SCALE
0 0'-4" 0'-8" 1'-4" 2'-0"

FOR CONSTRUCTION

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2	06/24/22	REV. ANTENNA MOUNT	SLY
1	05/13/22	ADDED N77 ANTENNAS	SLY
0	07/19/21	ISSUED FOR CONSTRUCTION	SLY

SITE NAME:
EAST HAVEN 5 CT

SITE ADDRESS:
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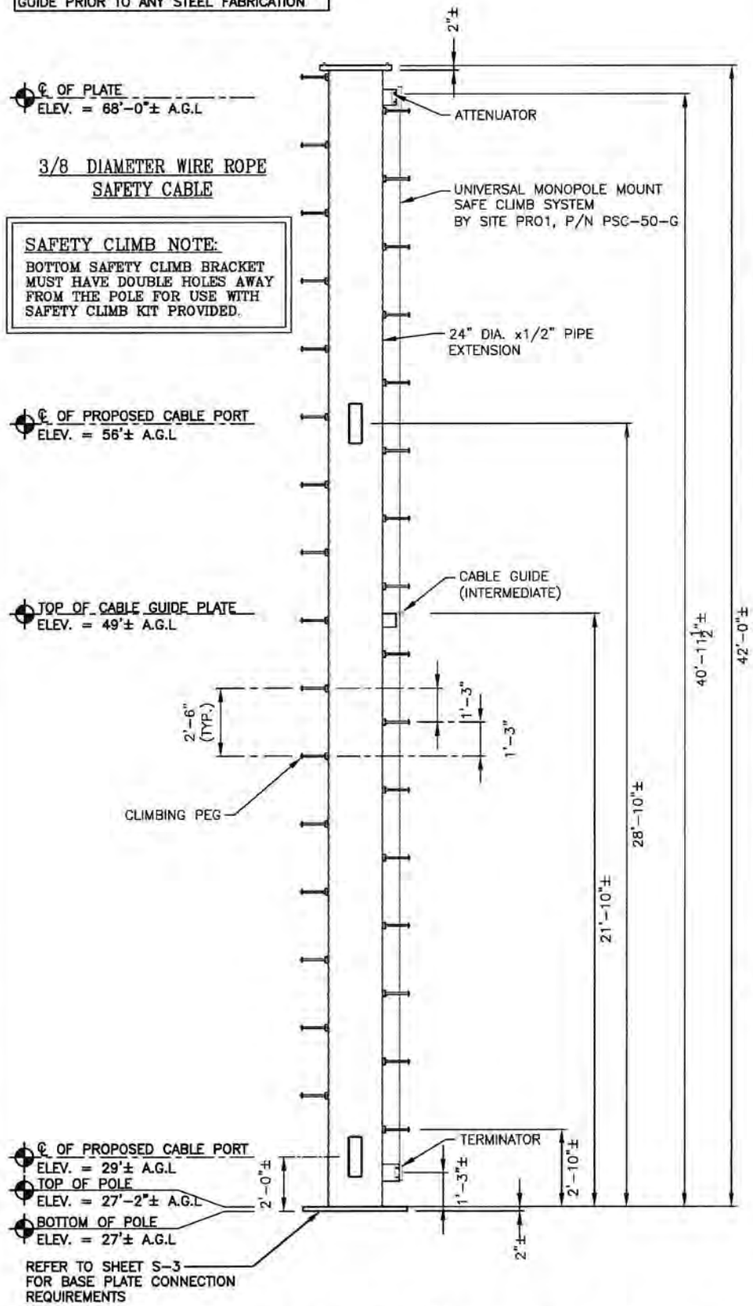
NEW HAVEN, CT 06513

SHEET TITLE
TOWER CONNECTION DETAILS

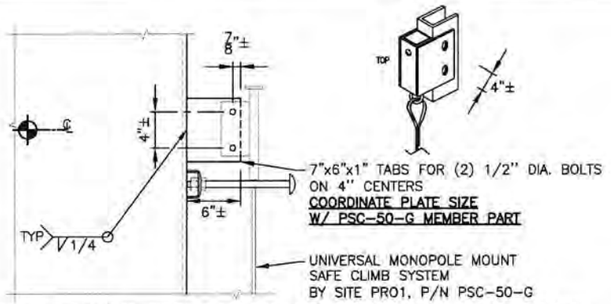
SHEET NUMBER
S-1

NOTE:
GC. TO FIELD VERIFY EXISTING CONDITIONS INCLUDING BOLT SPACING FOR THE SITE PRO1, P/N PSC-50-G SAFE CLIMB CABLE GUIDE PRIOR TO ANY STEEL FABRICATION



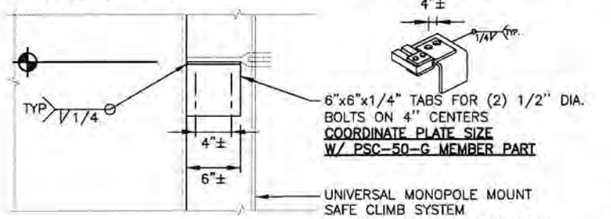
TOWER EXTENSION ELEVATION (1 / S-2)
22x34 SCALE: 1-1/2"=1'-0"
11x17 SCALE: 3/4"=1'-0"

GRAPHIC SCALE 0 0'-4" 0'-8" 1'-4" 2'-0"



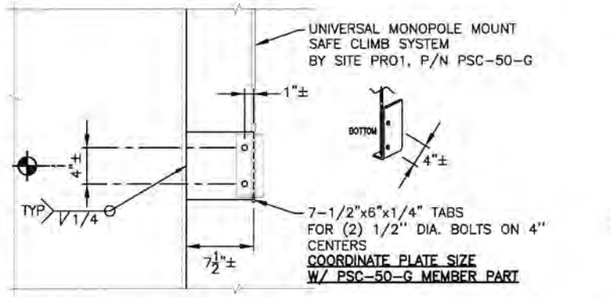
CABLE STOP DETAIL (ATTENUATOR) (2 / S-2)
22x34 SCALE: 1-1/2"=1'-0"
11x17 SCALE: 3/4"=1'-0"

GRAPHIC SCALE 0 0'-4" 0'-8" 1'-4" 2'-0"



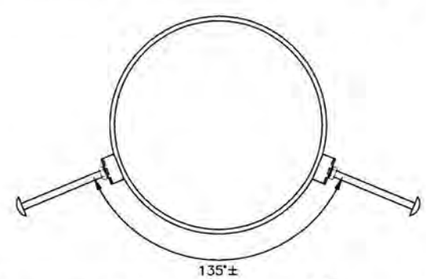
CABLE GUIDE DETAIL (3 / S-2)
22x34 SCALE: 1-1/2"=1'-0"
11x17 SCALE: 3/4"=1'-0"

GRAPHIC SCALE 0 0'-4" 0'-8" 1'-4" 2'-0"



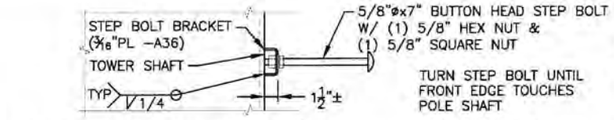
CABLE STOP DETAIL (TERMINATOR) (4 / S-2)
22x34 SCALE: 1-1/2"=1'-0"
11x17 SCALE: 3/4"=1'-0"

GRAPHIC SCALE 0 0'-4" 0'-8" 1'-4" 2'-0"



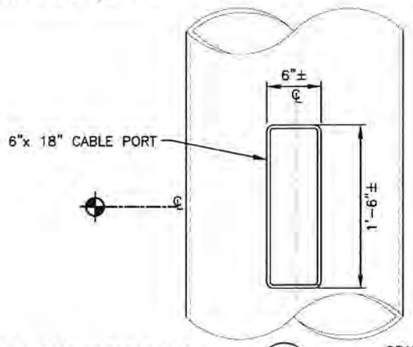
CLIMBING PEG PLAN (5 / S-2)
22x34 SCALE: 1-1/2"=1'-0"
11x17 SCALE: 3/4"=1'-0"

GRAPHIC SCALE 0 0'-4" 0'-8" 1'-4" 2'-0"



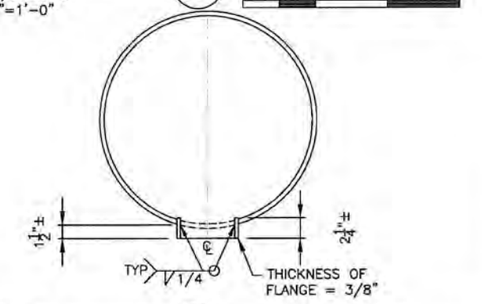
STEP BOLT SECTION (6 / S-2)
22x34 SCALE: 1-1/2"=1'-0"
11x17 SCALE: 3/4"=1'-0"

GRAPHIC SCALE 0 0'-4" 0'-8" 1'-4" 2'-0"



CABLE PORT ELEVATION (7 / S-2)
22x34 SCALE: 1-1/2"=1'-0"
11x17 SCALE: 3/4"=1'-0"

GRAPHIC SCALE 0 0'-4" 0'-8" 1'-4" 2'-0"



CABLE PORT PLAN (8 / S-2)
22x34 SCALE: 1-1/2"=1'-0"
11x17 SCALE: 3/4"=1'-0"

GRAPHIC SCALE 0 0'-4" 0'-8" 1'-4" 2'-0"

FOR CONSTRUCTION

PREPARED FOR: CELLCO PARTNERSHIP D.B.A.
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1	05/13/22	ADDED N77 ANTENNAS	SLY
0	07/19/21	ISSUED FOR CONSTRUCTION	SLY

SITE NAME:
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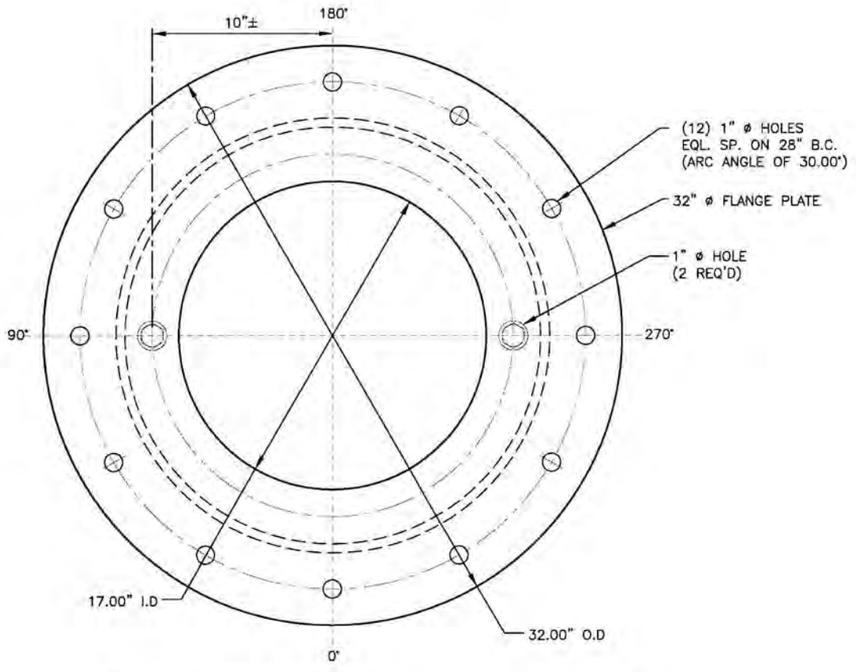
SITE ADDRESS:
115 MEADOW ROAD
NEW HAVEN, CT 06513

SHEET TITLE
TOWER CONNECTION DETAILS

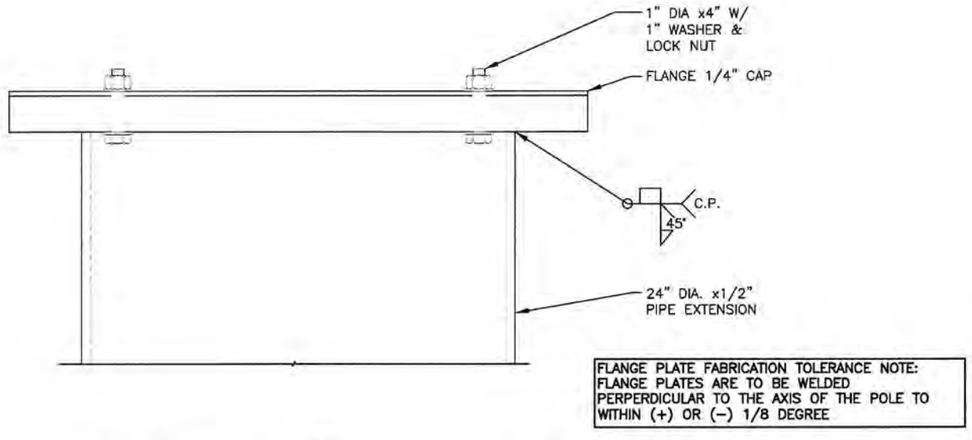
SHEET NUMBER
S-2



FLANGE PLATE DETAIL (2 / S-3)

22x34 SCALE: 3"=1'-0"
11x17 SCALE: 1-1/2"=1'-0"

GRAPHIC SCALE
0 0'-2" 0'-4" 0'-8" 1'-0"



FLANGE PLATE FABRICATION TOLERANCE NOTE:
FLANGE PLATES ARE TO BE WELDED PERPERDICULAR TO THE AXIS OF THE POLE TO WITHIN (+) OR (-) 1/8 DEGREE

TOP CAP COVER (1 / S-3)

22x34 SCALE: 3"=1'-0"
11x17 SCALE: 1-1/2"=1'-0"

GRAPHIC SCALE
0 0'-2" 0'-4" 0'-8" 1'-0"

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SITE NAME:
EAST HAVEN 5 CT

SITE ADDRESS:
115 MEADOW ROAD
NEW HAVEN, CT 06513

SHEET TITLE
FLANGE DETAIL

SHEET NUMBER
S-3

GENERAL NOTES

ELECTRICAL

1. ALL CONDUCTORS SHALL BE COPPER.
2. ALL WIRING DEVICES AND EQUIPMENT SHALL BE SPECIFICATION GRADE AND UL LISTED.
3. ALL UNDERGROUND LINES ON SITE SHALL BE LOCATED PRIOR TO CONSTRUCTION (IF APPLICABLE).
4. THE INSTALLATION OF ALL MATERIALS SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE.
5. ALL MATERIALS SHALL BE NEW.
6. OUTLETS AND JUNCTION BOXES SHALL BE ZINC–COATED OR CADMIUM PLATED SHEET STEEL BOXES NOT LESS THAN FOUR INCHES SQUARE AND SUITABLE FOR THE TYPE OF SERVICE OUTLET. ALL OUTLET AND JUNCTION BOXES SHALL BE SECURELY SURFACE MOUNTED.
7. THE ENTIRE SYSTEM SHALL BE SOLIDLY GROUNDED USING COMPRESSION–TYPE CONDUIT FITTINGS ON CONDUITS AND PROPERLY BONDED GROUND CONDUCTORS. CRIMP–TYPE AND SET SCREW–TYPE CONDUIT FITTINGS ARE NOT ALLOWED. ALL RECEPTACLES AND EQUIPMENT CIRCUITS SHALL BE GROUNDED USING A FULL–SIZE EQUIPMENT GROUNDING CONDUCTOR RUN WITH THE CURRENT CONDUCTORS.
8. ALL WALL PENETRATIONS FOR TELCO, POWER, AND GROUNDING SHALL REQUIRE RIGID STEEL SLEEVES.
9. ALL SWITCHES SHALL BE 48 INCHES A.F.F.
10. ALL RECEPTACLES SHALL BE 18 INCHES A.F.F.
11. ALL T–STATS SHALL BE 60 INCHES A.F.F.

CABLE TRAY

1. BOTTOM OF CABLE TRAY SHALL BE 7'–6" A.F.F.
2. CABLE TRAY ANCHORS SHALL BE MOUNTED TO STRUCTURAL CEILING.
3. AFTER FINAL LEVELING OF CABLE TRAY, CUT THREADED RODS 1/2" BELOW NUT AND CAP OFF.

ALARM AND SIGNAL

1. ALL ALARM WIRES SHALL BE RUN FROM EACH OF THE COMPONENTS TERMINAL STRIP. LEAVE ADDITIONAL ALARM WIRE COILED WITH SUFFICIENT LENGTH TO REACH THE FLOOR.
2. ALL ALARM WIRES SHALL BE TAGGED AND LABELED WITH THE APPROPRIATE ALARM ITEM. ALL CONTRACTORS WILL BE NORMALLY CLOSED, DRY, AND ISOLATED FROM GROUND, U.O.N.
3. ALL ALARM WIRING SHALL BE 1/2"C., (2)#22 AWG, UNLESS OTHERWISE NOTED.
4. ELECTRICAL CONTRACTOR TO CARRY POWER FEED OF LESSEE'S MOD CELL EQUIPMENT.
5. ALL ENCLOSURES TO BE NEMA.
6. INTEGRATED LOAD CENTER ASSEMBLY SUPPLIED BY LESSEE.

ELECTRICAL NOTES

1. UTILITY SERVICES SHOWN ARE PROPOSED, THE ELECTRIC CONTRACTOR SHALL COORDINATE EXACT TELEPHONE AND ELECTRIC SERVICE CONNECTION POINTS, PULL BOXES, ROUTING AND ASSOCIATED REQUIREMENTS WITH OWNER AND LOCAL UTILITY CO.
2. VISIT SITE AND EXAMINE CONDITIONS UNDER WHICH WORK MUST BE PERFORMED. REPORT ADVERSE CONDITIONS IN WRITING TO LICENSEE. COMMENCEMENT OF WORK SHALL BE CONSTRUED AS COMPLETE ACCEPTANCE OF EXISTING CONDITIONS INCLUDING PREPARATORY WORK DONE BY OTHERS.
3. GIVE NOTICES, FILE PLANS, OBTAIN PERMITS AND LICENSES, PAY FEES AND BACK CHARGES, AND OBTAIN NECESSARY APPROVALS FROM AUTHORITIES THAT HAVE JURISDICTION.
4. PERFORM WORK AS REQUIRED BY BOCA AND PER LOCAL LAWS.
5. THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL CONDUIT ROUTING WITH OWNER AND FIELD CONSTRUCTION MANAGER.
6. ALL EXTERIOR WALL PENETRATIONS SHALL BE SILICONE SEALED.
7. MATERIAL AND EQUIPMENT SHALL BE UL, NEMA, ANSI, IEEE, ADA & CBM APPROVED FOR INTENDED SERVICE. INSTALLATION SHALL MEET REQUIREMENTS OF NATIONAL AND STATE ELECTRICAL CODE.
8. ALL ELECTRICAL EQUIPMENT SHALL HAVE AN INTERRUPTING RATING NOT LESS THEN THE MAXIMUM SHORT CIRCUIT CURRENT TO WHICH THEY MAY BE SUBJECTED, AND A MINIMUM OF 10,000 A.I.C..
9. ALL NEW WIRING SHALL BE TYPE THWN RATED 75°C., 600 VOLT. WET OR DRY LOCATIONS. MINIMUM BRANCH CIRCUIT WIRING SHALL BE #12 AWG SOLID COPPER.
10. ALL METALLIC CONDUITS SHALL BE PROVIDED WITH BONDING BUSHINGS.
11. ALL BROCHURES, OPERATING MANUALS, CATALOGS, SHOP DRAWINGS, ETC. SHALL BE TURNED OVER TO THE LICENSEE PROJECT MANAGER AT JOB COMPLETION.
12. PROVIDE THE OWNER WITH ONE SET OF COMPLETE ELECTRICAL "AS BUILT" DRAWINGS AT THE COMPLETION OF THE JOB.
13. GUARANTEE WORK IN WRITING FOR ONE YEAR FROM DATE OF FINAL ACCEPTANCE. REPAIR OR REPLACE DEFECTIVE MATERIALS OR INSTALLATION AT NO COST TO OWNER. CORRECT DAMAGE CAUSED IN MAKING NECESSARY REPAIRS AND REPLACEMENTS UNDER GUARANTEE AT NO COST TO OWNER.
14. CONTRACTOR SHALL CONTACT "DIG SAFE" (1–888–DIG–SAFE) PRIOR TO COMMENCEMENT OF WORK.

ABBREVIATIONS

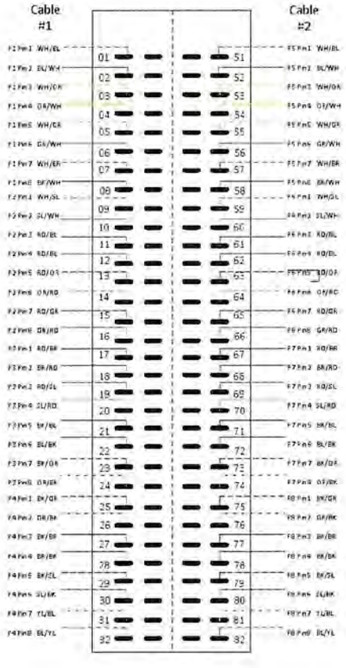
A	AMPERES
AC	ALTERNATING CURRENT
ADA	AMERICANS WITH DISABILITIES ACT
AFF	ABOVE FINISH FLOOR
AGB	COPPER ANTENNA GROUND BAR
AIC	AMPERE INTERRUPTING CAPACITY
AWG	AMERICAN WIRE GAUGE
BCW	BARE COPPER WIRE
BTS	BASE TRANSMISSION SYSTEM
C	CONDUIT
C/B	CIRCUIT BREAKER
CIGBE	COAX INSULATED GROUND BAR EXTERNAL
DC	DIRECT CURRENT
DWG	DRAWING
EMT	ELECTRICAL METALLIC TUBING
FACP	FIRE ALARM CONTROL PANEL
G	GROUND
GEN	GENERATOR
GPS	GLOBAL POSITIONING SYSTEM
GR	GROWTH
HVAC	HEATING VENTILATION AND AIR–CONDITIONING
IEEE	INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS
IGR	INTERNAL GROUND RING (HALO)
kcmil	ONE THOUSAND CIRCULAR MILS
LAGB	LOWER ANTENNA COPPER GROUND BAR
MIGB	MASTER ISOLATED GROUND BAR
NEC	NATIONAL ELECTRIC CODE
NEMA	NATIONAL ELECTRIC MANUFACTURER'S ASSOCIATION
PCS	PERSONAL COMMUNICATION SYSTEM
PH	PHASE
PPC	POWER PROTECTION CABINET
PRC	PRIMARY RADIO CABINET
RGS	RIGID GALVANIZED STEEL
RWY	RACEWAY
TYP	TYPICAL
UAGB	UPPER ANTENNA COPPER GROUND
UL	UNDERWRITERS LABORATORIES
UON	UNLESS OTHERWISE NOTED
V	VOLTS
VA	VOLT–AMPS
W	WATTS

PANEL NAME: PROPOSED AC PANEL

1ø, 3W 120/240V, 200A — MOUNTING: SURFACE — MANUFACTURER: T.B.D.

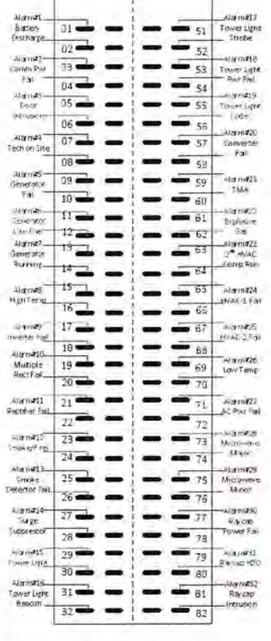
CKT No.	BREAKER AMPS	POLES	LOAD DESCRIPTION	LOAD kVA	BRANCH CKT	CKT No.	BREAKER AMPS	POLES	LOAD DESCRIPTION	LOAD kVA	BRANCH CKT
1	40	2	SURGE	9.6	3#8, 1#8G, 1"C	2					
3						4	40	2	RECTIFIER #5	9.6	3#8, 1#8G, 1"C
5	40	2	RECTIFIER #1	9.6	3#8, 1#8G, 1"C	6					
7						8	40	2	RECTIFIER #6	9.6	3#8, 1#8G, 1"C
9	40	2	RECTIFIER #2	9.6	3#8, 1#8G, 1"C	10					
11						12	40	2	RECTIFIER #7	9.6	3#8, 1#8G, 1"C
13	40	2	RECTIFIER #3	9.6	3#8, 1#8G, 1"C	14					
15						16	40	2	RECTIFIER #8	9.6	3#8, 1#8G, 1"C
17	40	2	RECTIFIER #4	9.6	3#8, 1#8G, 1"C	18	20	1	EQUIPMENT CABINET	2.4	2#12, 1#8G, 3/4"C
19						20	20	1	TELCO/TWISTLOCK	2.4	2#12, 1#8G, 3/4"C
21		1	SPARE			22	20	1	LIGHTING	2.4	2#12, 1#8G, 3/4"C
23		1	SPARE			24		1	SPARE		

Wiring Diagram for Porta Systems Block Model 899A

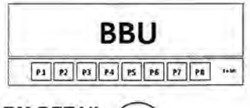


Fuses

Alarm 1	Alarm 1	Alarm 2	Alarm 2	Alarm 3	Alarm 3	Alarm 4	Alarm 4	Alarm 5	Alarm 5
Alarm 6	Alarm 6	Alarm 7	Alarm 7	Alarm 8	Alarm 8	Alarm 9	Alarm 9	Alarm 10	Alarm 10
Alarm 11	Alarm 11	Alarm 12	Alarm 12	Alarm 13	Alarm 13	Alarm 14	Alarm 14	Alarm 15	Alarm 15
Alarm 16	Alarm 16	Spare	Spare	Spare	Spare	Spare	Spare	Spare	Spare
Spare	Spare	Spare	Spare	Spare	Spare	Spare	Spare	Spare	Spare
Alarm 17	Alarm 17	Alarm 18	Alarm 18	Alarm 19	Alarm 19	Alarm 20	Alarm 20	Alarm 21	Alarm 21
Alarm 22	Alarm 22	Alarm 23	Alarm 23	Alarm 24	Alarm 24	Alarm 25	Alarm 25	Alarm 26	Alarm 26
Alarm 27	Alarm 27	Alarm 28	Alarm 28	Alarm 29	Alarm 29	Alarm 30	Alarm 30	Alarm 31	Alarm 31
Alarm 32	Alarm 32	Spare	Spare	Spare	Spare	Spare	Spare	Spare	Spare
Spare	Spare	Spare	Spare	Spare	Spare	Spare	Spare	Spare	Spare



8 - RJ45s
P1 – P8



ALARM DETAIL (1 / E–1)
SCALE: N.T.S

FOR CONSTRUCTION

PREPARED FOR: CELLCO PARTNERSHIP D.B.A.
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45 BEECHWOOD DR.
NORTH ANDOVER, MA 01845
OFFICE: (978) 557-5553

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CHECKED BY: JX

APPROVED BY: DPH

SUBMITTALS

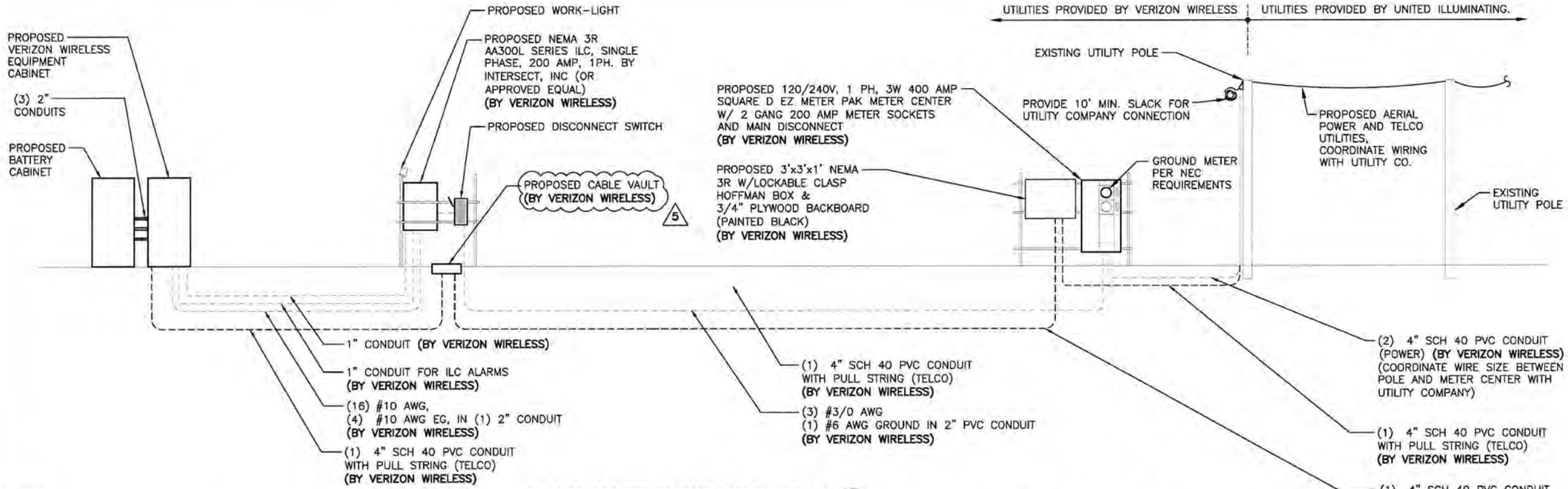
REV.	DATE	DESCRIPTION	BY
5	08/27/24	REMOVED FENCE & REDUCED PAD	SLY
4	05/02/23	REV. POLE HEIGHT & RRH TYPE	SLY
3	11/14/22	ADD. TOWER CONNECT DETAILS	SLY
2	06/24/22	REV. ANTENNA MOUNT	SLY
1	05/13/22	ADDED N77 ANTENNAS	SLY
0	07/19/21	ISSUED FOR CONSTRUCTION	SLY

SITE NAME:
EAST HAVEN 5 CT

SITE ADDRESS:
115 MEADOW ROAD
NEW HAVEN, CT 06513

SHEET TITLE
ELECTRICAL NOTES & WIRING DIAGRAM

SHEET NUMBER
E-1



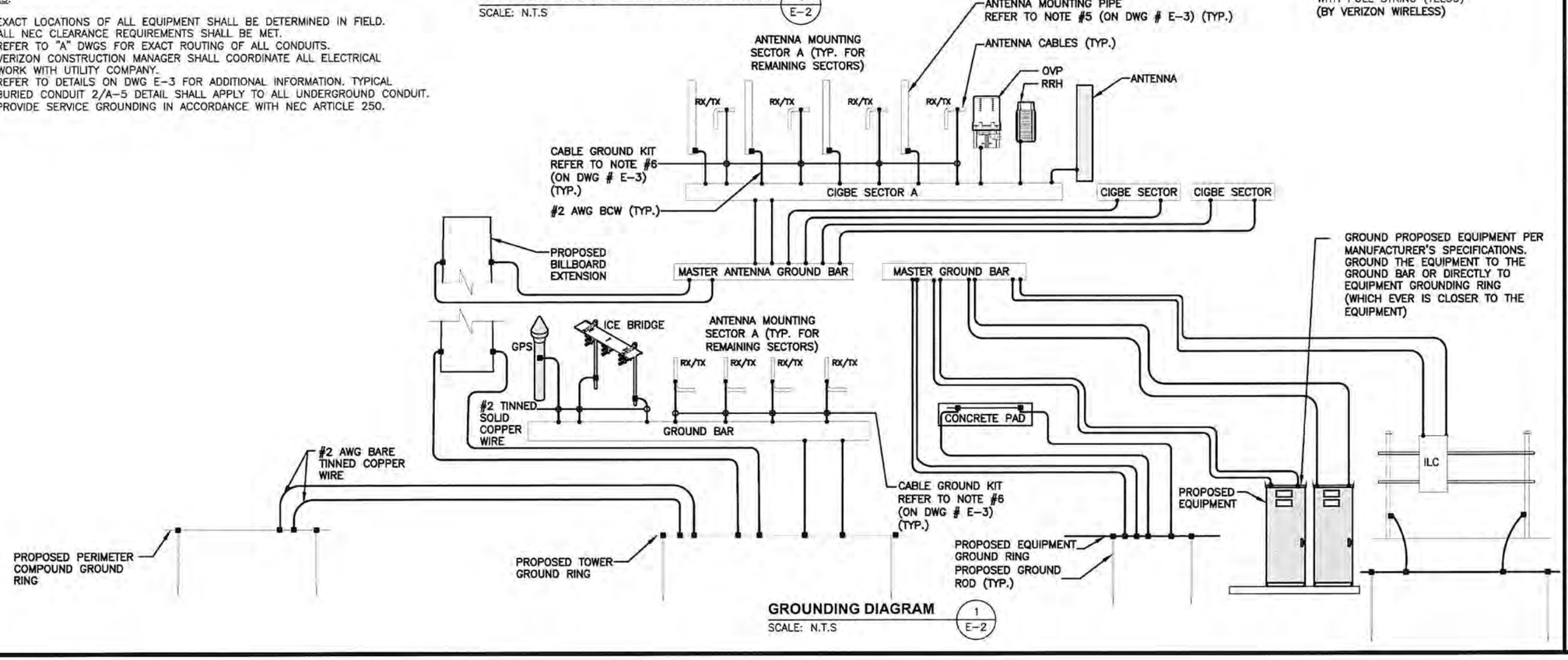
ELECTRICAL/TELCO ONE-LINE DIAGRAM

1 / E-2

SCALE: N.T.S

NOTES:

1. EXACT LOCATIONS OF ALL EQUIPMENT SHALL BE DETERMINED IN FIELD. ALL NEC CLEARANCE REQUIREMENTS SHALL BE MET.
2. REFER TO "A" DWGS FOR EXACT ROUTING OF ALL CONDUITS.
3. VERIZON CONSTRUCTION MANAGER SHALL COORDINATE ALL ELECTRICAL WORK WITH UTILITY COMPANY.
4. REFER TO DETAILS ON DWG E-3 FOR ADDITIONAL INFORMATION. TYPICAL BURIED CONDUIT 2/A-5 DETAIL SHALL APPLY TO ALL UNDERGROUND CONDUIT.
5. PROVIDE SERVICE GROUNDING IN ACCORDANCE WITH NEC ARTICLE 250.



GROUNDING DIAGRAM

1 / E-2

SCALE: N.T.S

FOR CONSTRUCTION

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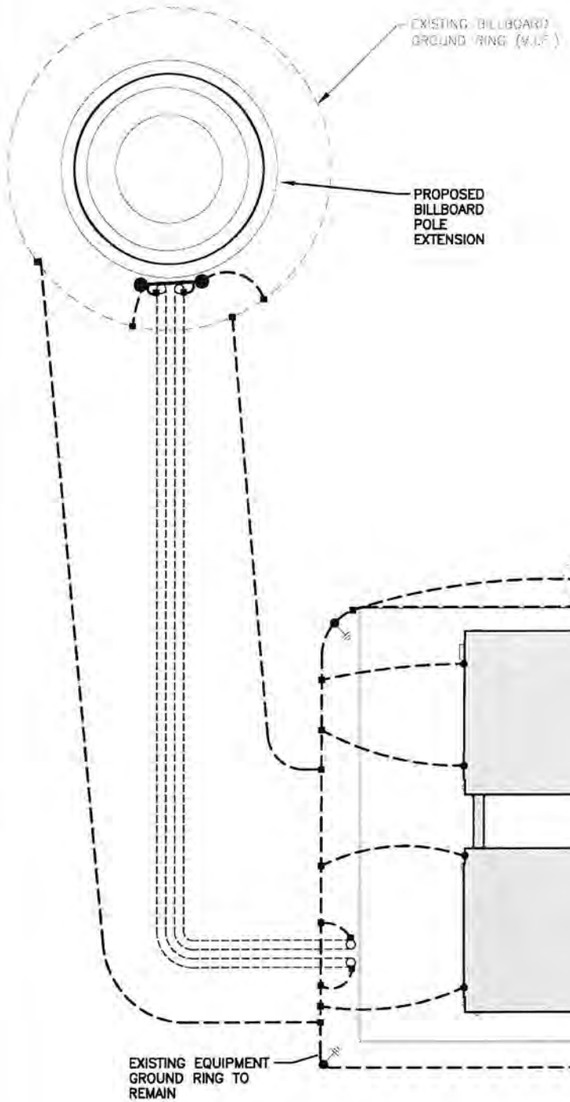
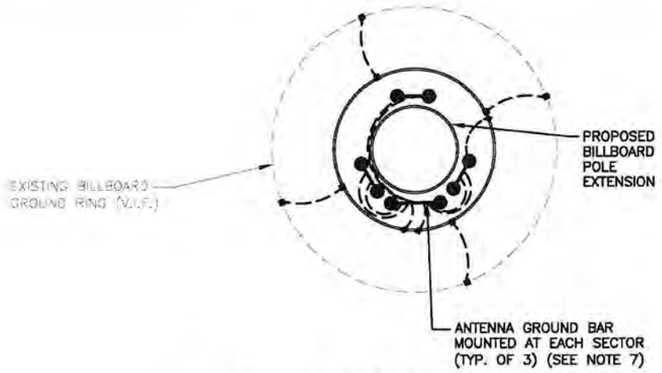
SHEET TITLE
GROUNDING RISER DIAGRAM

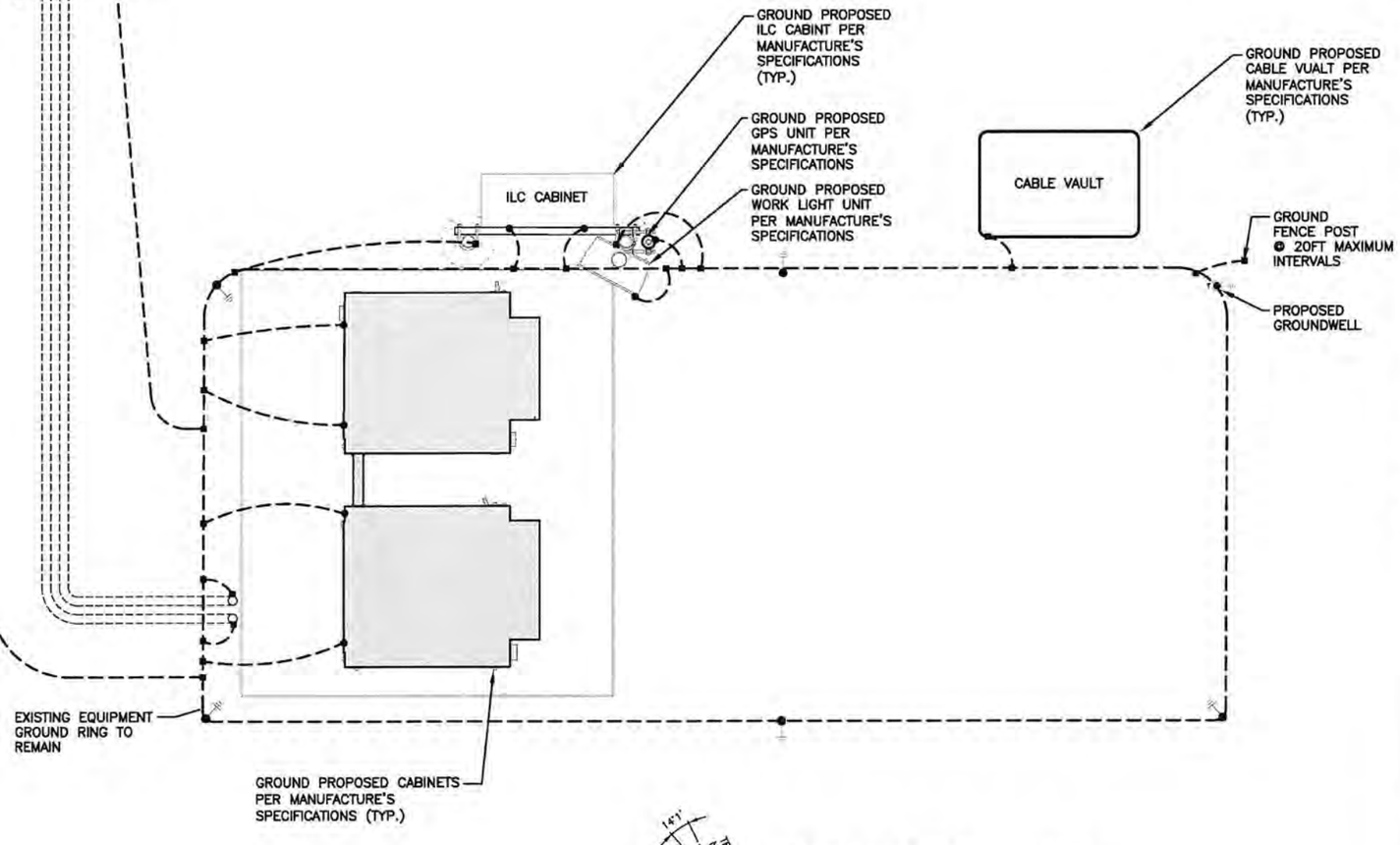
SHEET NUMBER
E-2





GROUNDING PLAN AT ANTENNA LEVEL (2 / E-3)

SCALE: N.T.S



GROUNDING PLAN (1 / E-3)

SCALE: N.T.S

GROUNDING NOTES

1. ALL GROUND WIRE SHALL BE BARE COPPER #2 AWG UNLESS OTHERWISE NOTED.
2. ALL GROUND WIRES SHALL PROVIDE A STRAIGHT, DOWNWARD PATH TO GROUND WITH GRADUAL BENDS AS REQUIRED. GROUND WIRES SHALL NOT BE LOOPED OR SHARPLY BENT.
3. ELECTRICAL CONTRACTOR SHALL COORDINATE INSTALLATION OF GROUND RODS AND GROUND RING WITH FOUNDATION AND UNDERGROUND CONDUIT.
4. EACH EQUIPMENT CABINET SHALL BE CONNECTED TO THE MASTER ISOLATION GROUND BAR (MIGB) WITH #2 AWG INSULATED STRANDED COPPER WIRE. EQUIPMENT CABINETS SHALL EACH HAVE (2) CONNECTIONS.
5. PROVIDE DEDICATED #2 AWG COPPER GROUND WIRE FROM EACH ANTENNA MOUNTING PIPE TO ASSOCIATED CIGBE (TYPICAL FOR FOUR MOUNTING PIPES PER SECTOR).
6. ANTENNA GROUND KITS SHALL BE FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR.
7. COORDINATE NEW LICENSEE GROUND SYSTEM WITH EXISTING SITE GROUND SYSTEM.
8. EACH SECTION OF CABLE TRAY, ICE BRIDGE AND ICE SHIELD SHALL BE CONNECTED IN A FASHION TO PROVIDE A CONTINUOUS GROUND.
9. AT ALL TERMINATIONS AT EQUIPMENT ENCLOSURES, PANELS AND FRAMES OF EQUIPMENT, AND WHERE EXPOSED FOR GROUNDING, CONDUCTOR TERMINATION SHALL BE PERFORMED UTILIZING TWO HOLE BOLTED TONGUE COMPRESSION TYPE WITH STAINLESS STEEL SELF-TAPPING SCREWS.
10. ALL CLAMPS AND SUPPORTS USED TO SUPPORT THE GROUNDING SYSTEM CONDUCTORS AND PVC CONDUITS SHALL BE PVC TYPE (NON CONDUCTIVE). DO NOT USE METAL BRACKETS OR SUPPORTS WHICH WOULD FORM A COMPLETE RING AROUND ANY GROUNDING CONDUCTOR.
11. ALL GROUNDING CONNECTIONS SHALL BE COATED WITH A COPPER SHIELD ANTI-CORROSIVE AGENT SUCH AS T&B KOPR SHIELD. VERIFY PRODUCT WITH LICENSEE PROJECT MANAGER.
12. ALL BOLTS, WASHERS, AND NUTS USED ON GROUNDING CONNECTIONS SHALL BE STAINLESS STEEL.
13. INSTALL GROUND BUSHINGS ON ALL METALLIC CONDUITS AND BOND TO THE EQUIPMENT GROUND BUS IN THE PANELBOARD.
14. GROUND ANTENNA BASES, FRAMES, CABLE RACKS AND OTHER METALLIC COMPONENTS WITH #2 AWG GROUNDING CONDUCTORS AND CONNECT TO INSULATED SURFACE MOUNTED GROUND BARS. CONNECTION DETAILS SHALL FOLLOW MANUFACTURER'S SPECIFICATIONS FOR GROUNDING.
15. GROUND COAXIAL SHIELD AT BOTH ENDS USING MANUFACTURER'S GUIDELINES.
16. REINFORCEMENT IN EQUIPMENT SLAB TO BE WELDED AND REINFORCEMENT TO BE BONDED TO GROUNDING RING.
17. CONCRETE-ENCASED ELECTRODES GREATER THAN 20 S.F. OF SURFACE AREA & 1/2" OR GREATER REINFORCING STEEL MUST BE BONDED TO THE GROUNDING RING PER NEC 250.50.
18. ALL GROUND BARS SHALL BE GALVANIZED WITH ANTI-THEFT HARDWARE.

GROUNDING LEGEND

- COMPRESSION TYPE CONNECTION
- EXOTHERMIC
- CHEMICAL ELECTROLYTIC GROUNDING SYSTEM
- 5/8" X 10'-0" COPPER CLAD GROUND ROD
- T — TEST 5/8" X 10'-0" COPPER CLAD GROUND ROD WITH INSPECTION SLEEVE
- EXOTHERMIC WITH INSPECTION SLEEVE
- #2 SOLID TINNED COPPER WIRE UNLESS OTHERWISE NOTED GROUNDING CONDUCTOR
- GROUNDING BAR
- PIGTAIL GROUND CONDUCTOR

FOR CONSTRUCTION

PREPARED FOR: CELLCO PARTNERSHIP D.B.A.

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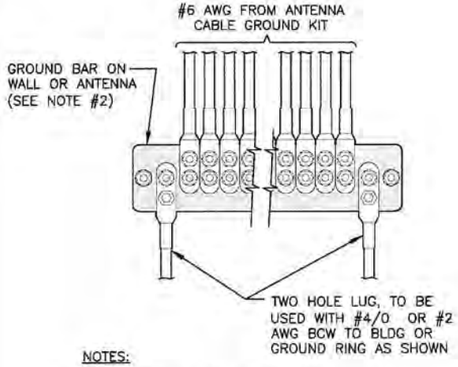
1	05/13/22	ADDED N77 ANTENNAS	SLY
0	07/19/21	ISSUED FOR CONSTRUCTION	SLY

SITE NAME:
EAST HAVEN 5 CT

SITE ADDRESS:
115 MEADOW ROAD
NEW HAVEN, CT 06513

SHEET TITLE
GROUNDING PLAN

SHEET NUMBER
E-3

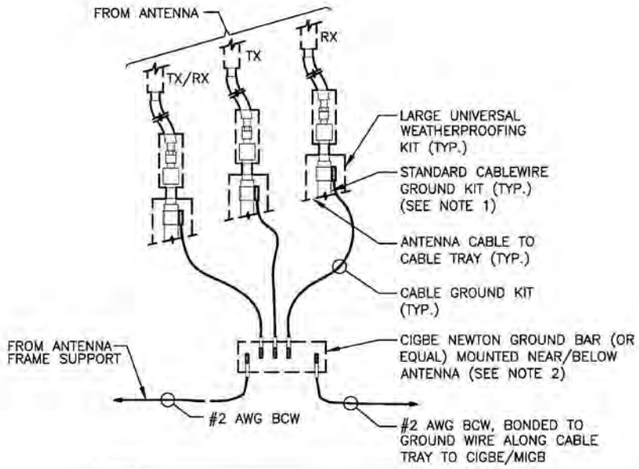


NOTES:

1. CONTRACTOR TO UTILIZE KOPR-SHIELD (THOMAS & BETTS) ON ALL LUG CONNECTIONS.
2. ALL GROUND BARS SHALL BE GALVANIZED WITH ANTI-THEFT HARDWARE.

GROUNDING - STANDARD DETAIL INSTALLATION OF GROUNDWIRE TO GROUND BAR (1 / E-4)

SCALE: N.T.S

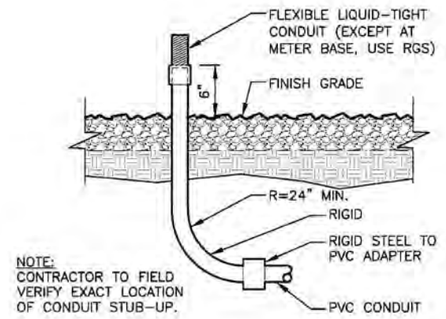


NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE.
2. ALL GROUND BARS SHALL BE GALVANIZED WITH ANTI-THEFT HARDWARE.

GROUNDING - STANDARD DETAIL CONNECTION OF GROUND WIRES TO GROUND BAR (CIGBE) (3 / E-4)

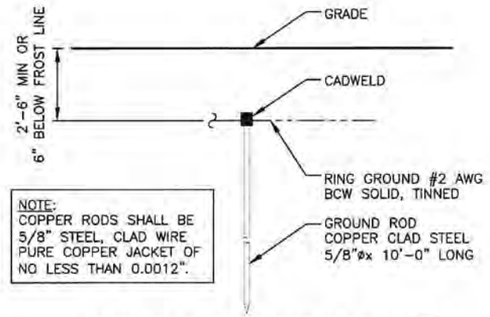
SCALE: N.T.S



NOTE:
CONTRACTOR TO FIELD VERIFY EXACT LOCATION OF CONDUIT STUB-UP.

CONDUIT STUB-UP (5 / E-4)

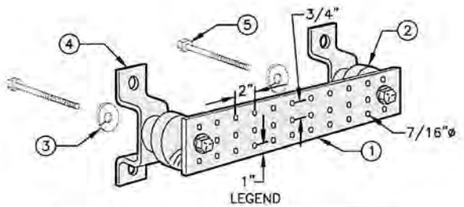
SCALE: N.T.S



NOTE:
COPPER RODS SHALL BE 5/8" STEEL, CLAD WIRE PURE COPPER JACKET OF NO LESS THAN 0.0012".

TYPICAL GROUND ROD DETAIL (6 / E-4)

SCALE: N.T.S



① GALVANIZED STEEL GROUND BAR, 1/4"x4"x20", OR OTHER LENGTH AS REQUIRED, HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION.

② INSULATORS, NEWTON INSTRUMENT CAT. NO. 3061-4 OR EQUAL.

③ 5/8" LOCKWASHERS OR EQUAL.

④ WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT. NO. A-8056 OR EQUAL.

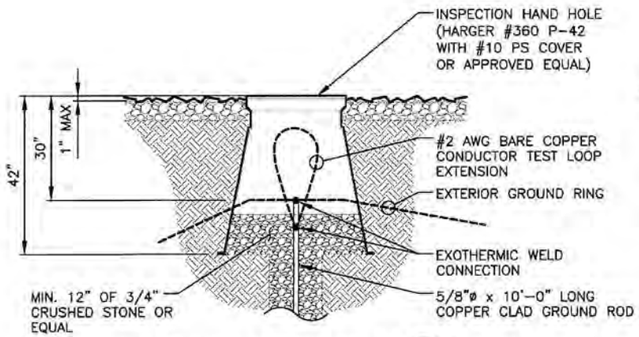
⑤ 5/8-11 x 1" H.H.C.S. BOLTS

NOTES:

1. ALL BOLTS, NUTS, WASHERS, AND LOCK WASHERS SHALL BE 18-8 STAINLESS STEEL.
2. ALL GROUND BARS SHALL BE GALVANIZED WITH ANTI-THEFT HARDWARE.

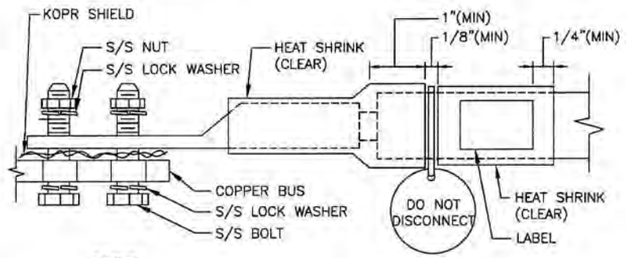
GROUNDING - STANDARD DETAIL GROUND BAR (2 / E-4)

SCALE: N.T.S



GROUNDING WELL DETAIL (4 / E-4)

SCALE: N.T.S



NOTES:

1. ALL HARDWARE 18-8 STAINLESS STEEL INCLUDING LOCK WASHERS, COAT ALL SURFACES WITH KOPR-SHIELD BEFORE MATING.
2. FOR GROUND BOND TO STEEL ONLY: INSERT A DRAGON TOOTH WASHER BETWEEN LUG AND STEEL, COAT ALL SURFACES WITH KOPR-SHIELD.
3. CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB, AND MGB.
4. "DOUBLING UP" OR "STACKING " OF CONNECTION IS NOT PERMITTED.

TYPICAL GROUND BAR CONNECTION DETAIL (7 / E-4)

SCALE: N.T.S

FOR CONSTRUCTION

PREPARED FOR: CELLCO PARTNERSHIP D.B.A.

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1	05/13/22	ADDED N77 ANTENNAS	SLY
0	07/19/21	ISSUED FOR CONSTRUCTION	SLY

SITE NAME:
EAST HAVEN 5 CT

SITE ADDRESS:
115 MEADOW ROAD
NEW HAVEN, CT 06513

SHEET TITLE
GROUNDING DETAILS

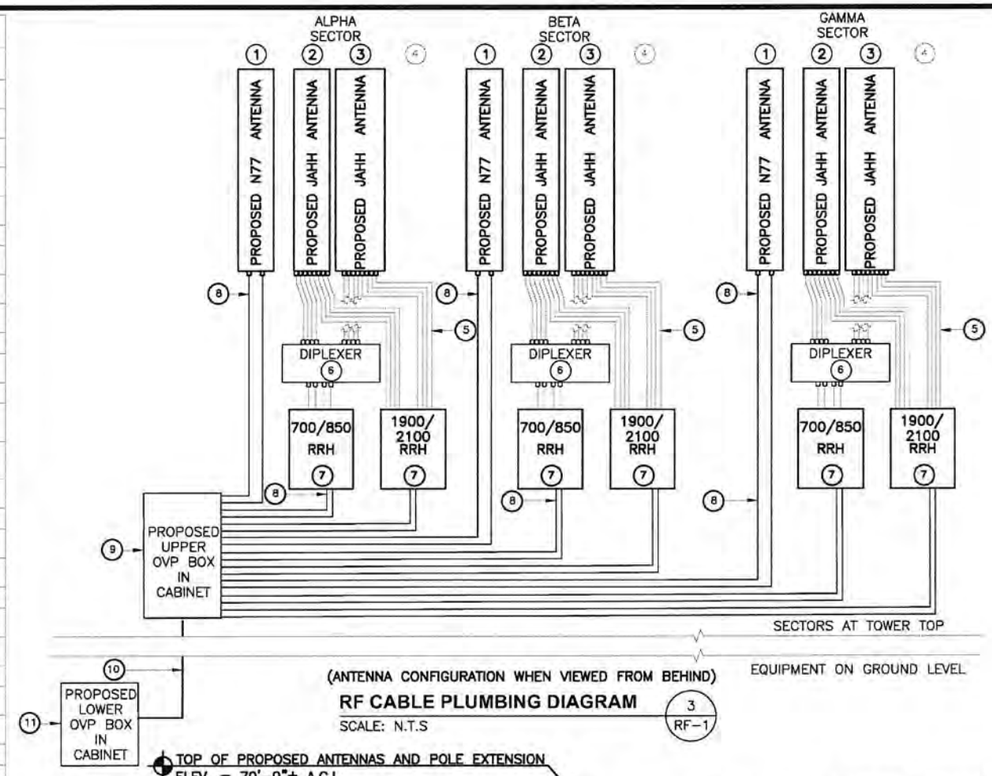
SHEET NUMBER
E-4

BILL OF MATERIALS

SITE NAME: EAST HAVEN 5 CT

ITEM	DESCRIPTION	QTY	LENGTH	COMMENTS
(1)	PROPOSED MT6407-77A ANTENNA W/CLIP-ON RRH	3		MOUNTED TO SECTOR FRAME
(2)	PROPOSED JAHH-45B-R3B ANTENNA	3		MOUNTED TO SECTOR FRAME
(3)	PROPOSED JAHH-45B-R3B ANTENNA	3		MOUNTED TO SECTOR FRAME
(4)				
(5)	PROPOSED 1/2" TOP COAX JUMPERS	20	6 FT.	ROUTE FROM RRH OR DIPLEXER TO ANTENNA
(5)	PROPOSED 1/2" TOP COAX JUMPERS	20	6 FT.	ROUTE FROM RRH OR DIPLEXER TO ANTENNA
(5)	PROPOSED 1/2" TOP COAX JUMPERS	20	6 FT.	ROUTE FROM RRH OR DIPLEXER TO ANTENNA
(6)	PROPOSED DIPLEXER CBC78T-DS-43-2X	3		MOUNTED PIPE MAST
(7)	PROPOSED LTE 700/850 RRH	3		SAMSUNG RRH B5/B13 RRH ORAN (RF4440D-13A) PIPE MOUNTED
(7)	PROPOSED PCS/AWS 1900/2100 RRH	3		SAMSUNG RRH B2/B66A RRH ORAN (RF4439D-25A) PIPE MOUNTED
(7)				
(8)	PROPOSED SAMSUNG FIBER JUMPER CABLES	9	15 FT.	ROUTE FROM OVP TO RRH
(8)	PROPOSED SAMSUNG POWER JUMPER CABLES	9	15 FT.	ROUTE FROM OVP TO RRH
(9)	PROPOSED UPPER OVP	1		MOUNTED TO PIPE MAST
(10)	PROPOSED 12X24 HYBRID CABLE	1	110 FT.	ROUTE FROM EQUIPMENT TO ANTENNA SECTOR
(11)	PROPOSED LOWER OVP	1		RACK MOUNTED INSIDE CABINET

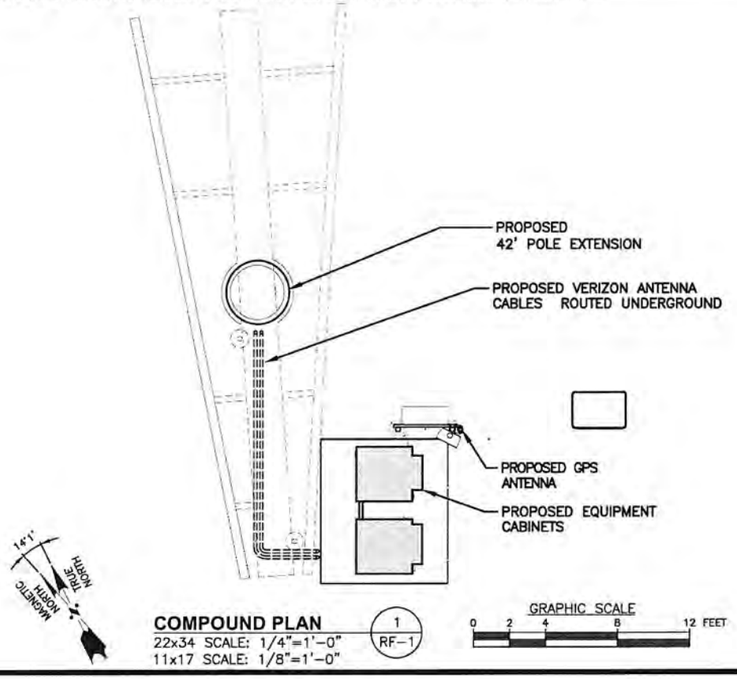
THE ABOVE RF-BOM SHEET IS BASED ON INFORMATION LISTED ON ANTENNA RECOMMENDATION SHEET DATED 3/20/2023 REV 4



(ANTENNA CONFIGURATION WHEN VIEWED FROM BEHIND)

RF CABLE PLUMBING DIAGRAM (3 / RF-1)

SCALE: N.T.S



COMPOUND PLAN (1 / RF-1)

22x34 SCALE: 1/4"=1'-0"
11x17 SCALE: 1/8"=1'-0"

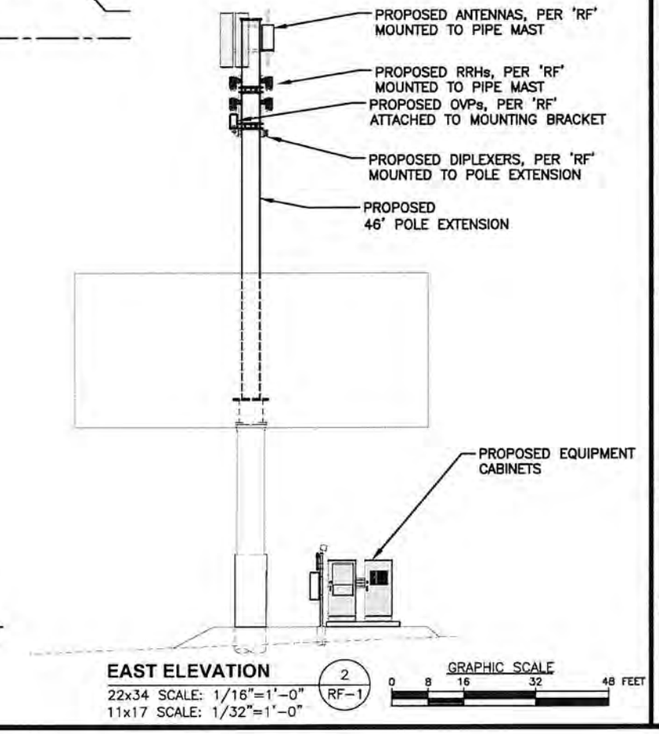
GRAPHIC SCALE 0 2 4 8 12 FEET

TOP OF PROPOSED ANTENNAS AND POLE EXTENSION
ELEV. = 70'-0"± A.G.L
ELEV. = 92'-0"± A.M.S.L

℄ OF PROPOSED VERIZON ANTENNAS
ELEV. = 67'-0"± A.G.L
ELEV. = 89'-0"± A.M.S.L

PROPOSED GRADE
ELEV. = 0.0'± A.G.L
ELEV. = 22'-0"± A.M.S.L

EXISTING GRADE
ELEV. = -3.0'± A.G.L
ELEV. = 19'-0"± A.M.S.L



EAST ELEVATION (2 / RF-1)

22x34 SCALE: 1/16"=1'-0"
11x17 SCALE: 1/32"=1'-0"

GRAPHIC SCALE 0 8 16 32 48 FEET

PREPARED FOR: CELLCO PARTNERSHIP D.B.A.

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SITE ADDRESS:
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NEW HAVEN, CT 06513

SHEET TITLE
RF PLUMBING DIAGRAM AND BILL OF MATERIALS

SHEET NUMBER
RF-1

ATTACHMENT 3

JAHH-45B-R3B

8-port sector antenna, 2x 698–798, 2x 824-894 and 4x 1695–2360 MHz, 45° HPBW, low bands each have a RET and the high bands share a RET. Two internal SBTs.

- Internal SBT on low and high band allow remote RET control from the radio over the RF jumper cable
- One RET for 700MHz, one RET for 850MHz, and one RET for both high bands to ensure same tilt level for 4x Rx or 4x MIMO
- Internal filter on low band and interleaved dipole technology providing for attractive, low wind load mechanical package
- Separate RS-485 RET input/output for low and high band
- Narrow beamwidth capacity antenna for higher level of densification and enhanced data throughput

General Specifications

Antenna Type	Sector
Band	Multiband
Color	Light Gray (RAL 7035)
Grounding Type	RF connector body grounded to reflector and mounting bracket
Performance Note	Outdoor usage | Wind loading figures are validated by wind tunnel measurements described in white paper WP-112534-EN
Radome Material	Fiberglass, UV resistant
Radiator Material	Aluminum | Low loss circuit board
Reflector Material	Aluminum
RF Connector Interface	4.3-10 Female
RF Connector Location	Bottom
RF Connector Quantity, high band	4
RF Connector Quantity, low band	4
RF Connector Quantity, total	8

Remote Electrical Tilt (RET) Information

RET Interface	8-pin DIN Female | 8-pin DIN Male
RET Interface, quantity	2 female | 2 male
Input Voltage	10–30 Vdc
Internal Bias Tee	Port 1 | Port 5

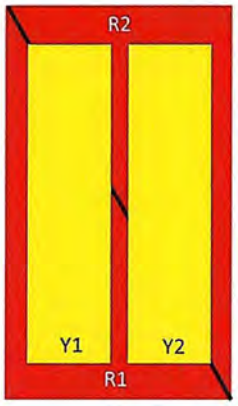
JAHH-45B-R3B

Internal RET	High band (1) | Low band (2)
Power Consumption, idle state, maximum	1 W
Power Consumption, normal conditions, maximum	8 W
Protocol	3GPP/AISG 2.0 (Single RET)

Dimensions

Width	457 mm | 17.992 in
Depth	178 mm | 7.008 in
Length	1829 mm | 72.008 in
Net Weight, without mounting kit	41.5 kg | 91.492 lb

Array Layout

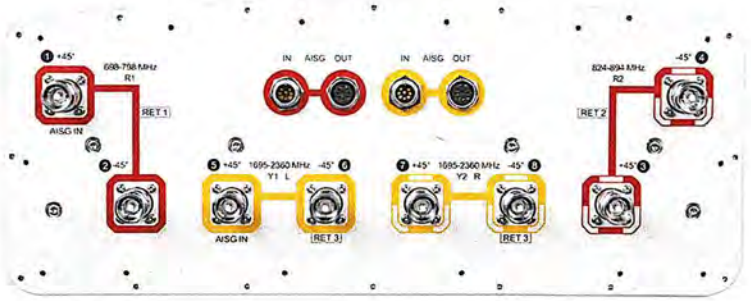


(Sizes of colored boxes are not true depictions of array sizes)

Array	Freq (MHz)	Conns	RET (SRET)	AISG RET UID
R1	698-798	1-2	1	ANxxxxxxxxxxxxxxxx1
R2	824-894	3-4	2	ANxxxxxxxxxxxxxxxx2
Y1	1695-2360	5-6	3	ANxxxxxxxxxxxxxxxx3
Y2	1695-2360	7-8		

Port Configuration

JAHH-45B-R3B



Electrical Specifications

Impedance	50 ohm
Operating Frequency Band	1695 – 2360 MHz | 698 – 798 MHz | 824 – 894 MHz
Polarization	±45°
Total Input Power, maximum	800 W @ 50 °C

Electrical Specifications

Frequency Band, MHz	**698–798**	**824–894**	**1695–1880**	**1850–1990**	**1920–2200**	**2300–2360**
Gain, dBi	16.5	17.2	19.4	20.2	20.5	21.1
Beamwidth, Horizontal, degrees	48	43	44	43	41	38
Beamwidth, Vertical, degrees	12.6	11.2	5.8	5.4	5	4.5
Beam Tilt, degrees	2–14	2–14	0–8	0–8	0–8	0–8
USLS (First Lobe), dB	16	21	18	18	18	18
Front-to-Back Ratio at 180°, dB	32	36	37	37	38	41
Isolation, Cross Polarization, dB	25	25	25	25	25	25
Isolation, Inter-band, dB	30	30	28	28	28	28
VSWR | Return loss, dB	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0

PIM, 3rd Order, 2 x 20 W, dBc	-153	-153	-153	-153	-153	-153
Input Power per Port, maximum, watts	200	200	300	300	300	250

Mechanical Specifications

Effective Projective Area (EPA), frontal	1 m² | 10.764 ft²
Effective Projective Area (EPA), lateral	0.21 m² | 2.26 ft²
Mechanical Tilt Range	0°–15°
Wind Loading @ Velocity, frontal	1,065.0 N @ 150 km/h (239.4 lbf @ 150 km/h)
Wind Loading @ Velocity, lateral	220.0 N @ 150 km/h (49.5 lbf @ 150 km/h)
Wind Loading @ Velocity, maximum	1,065.0 N @ 150 km/h (239.4 lbf @ 150 km/h)
Wind Loading @ Velocity, rear	935.0 N @ 150 km/h (210.2 lbf @ 150 km/h)
Wind Speed, maximum	241 km/h (150 mph)

Packaging and Weights

Width, packed	526 mm | 20.709 in
Depth, packed	283 mm | 11.142 in
Length, packed	1996 mm | 78.583 in
Weight, gross	59.4 kg | 130.954 lb

Regulatory Compliance/Certifications

Agency	**Classification**
ISO 9001:2015	Designed, manufactured and/or distributed under this quality management system

Included Products

BSAMNT-3	–	Wide Profile Antenna Downtilt Mounting Kit for 2.4 - 4.5 in (60 - 115 mm) OD round members. Kit contains one scissor top bracket set and one bottom bracket set.
BSAMNT-M	–	Middle Downtilt Mounting Kit for Long Antennas for 2.4 - 4.5 in (60 - 115 mm) OD round members. Kit contains one scissor bracket set.

* Footnotes

Performance Note	Severe environmental conditions may degrade optimum performance

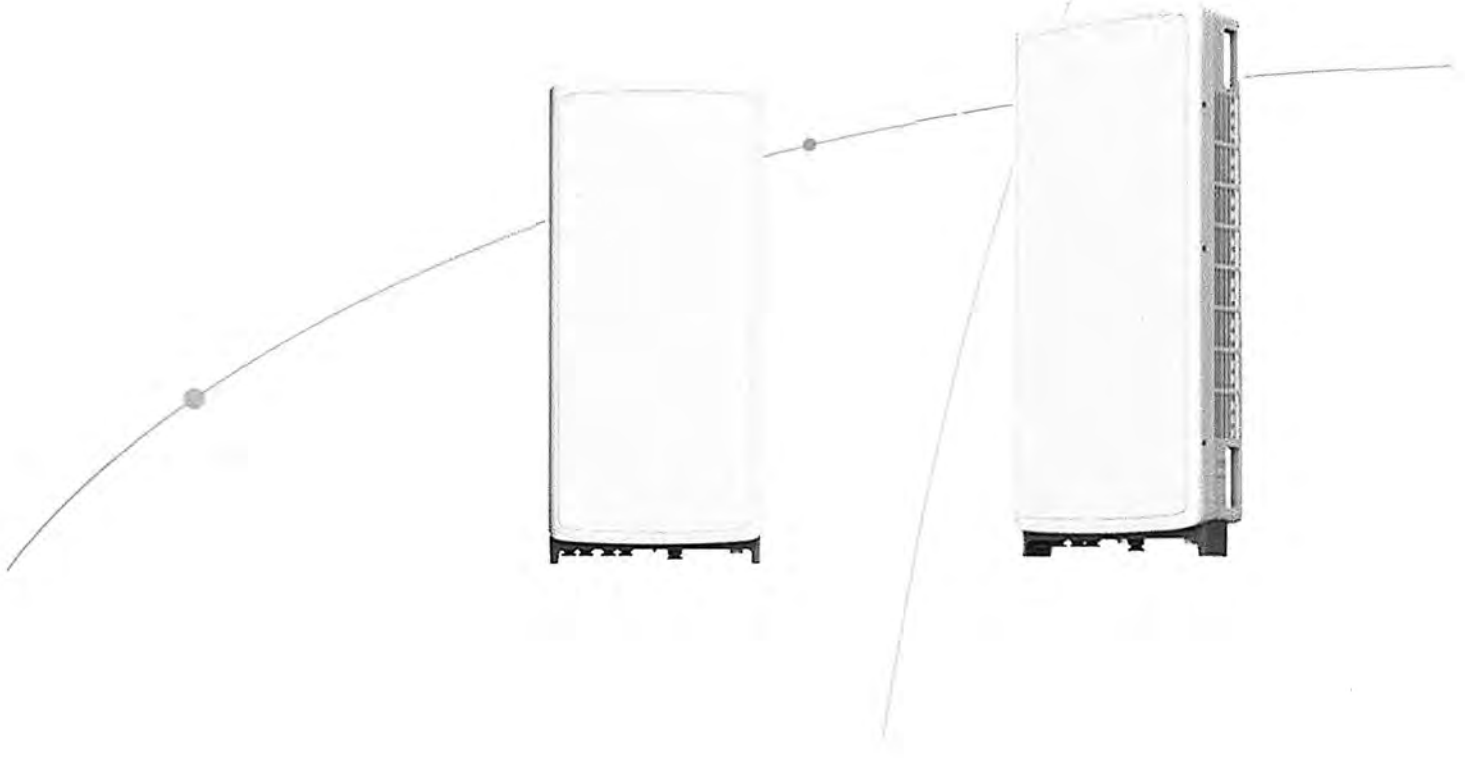
SAMSUNG

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

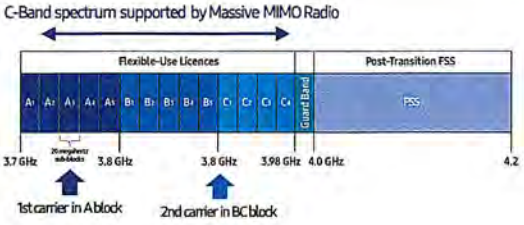


Points of Differentiation

Wide Bandwidth

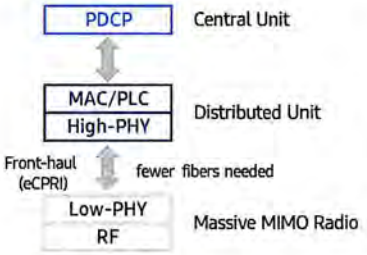
With capability to support up to 2 CC carrier configuration, Samsung C-Band massive MIMO Radio supports 200 MHz bandwidth in the C-Band spectrum.

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.

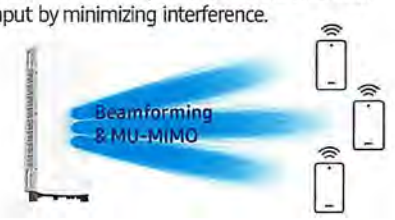


Enhanced Performance

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.

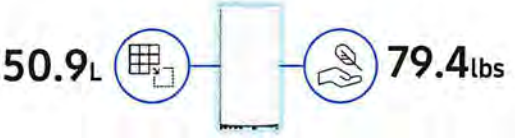
Furthermore, as C-Band massive MIMO Radio supports MU-MIMO(Multi-user MIMO) , it enables to increase user throughput by minimizing interference.



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

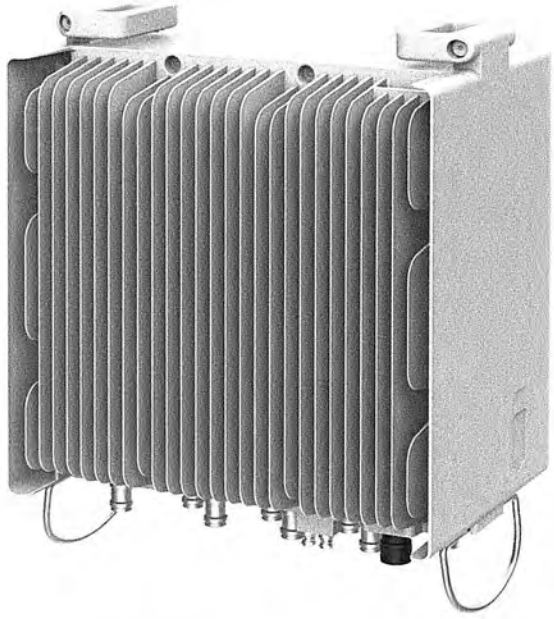
SAMSUNG

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.

Model Code	RF4439d-25A



Homepage
samsungnetworks.com

Youtube
www.youtube.com/samsung5g

Points of Differentiation

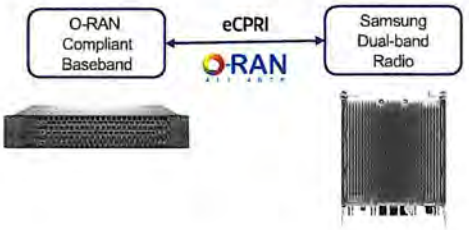
Continuous Migration

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.



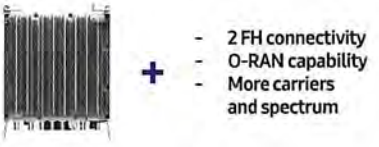
Optimum Spectrum Utilization

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

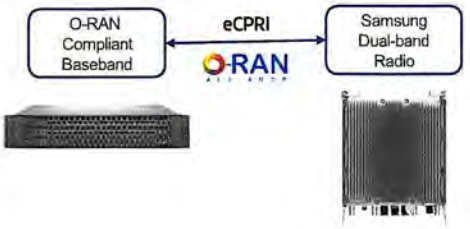
Continuous Migration

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.

O-RAN Compliant

A standardized O-RAN radio can help when implementing cost-effective networks because it is 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

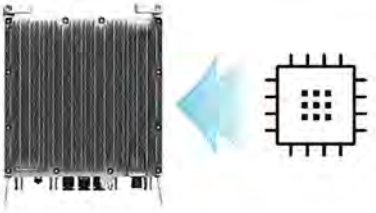
The number of required carriers varies according to site (region). The ability to support many carriers is essential for using all frequencies that the operator has available.

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

ATTACHMENT 4

(REVISED)
STRUCTURAL ANALYSIS REPORT

For

VERIZON SITE NAME: EAST HAVEN 5 CT

TEP PROJECT NUMBER: 0324908. 836288

115 Peat Meadow Road
New Haven, CT 06513

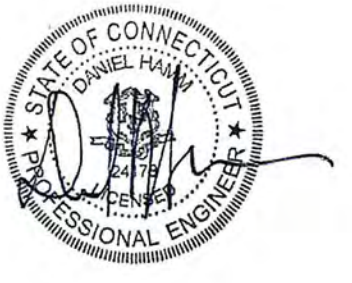
Antennas Mounted on the Monopole Extension

Prepared for:

verizon

20 Alexander Drive, 2nd Floor
Wallingford, CT 06492

Dated: April 27, 2023 (Rev. 7)
March 22, 2023 (Rev. 6)
November 20, 2020



Prepared by:

TEP NORTHEAST

(TEP OPCO, LLC)
45 Beechwood Drive
North Andover, MA 01845
(P) 978.557.5553
www.tepgroup.net

SCOPE OF WORK:

TEP Northeast (TEP NE) has been authorized by Verizon to conduct a structural evaluation of the 24' monopole with a proposed 42' extension supporting the proposed Verizon antennas located at elevation 67' above the ground level.

This report represents this office's findings, conclusions and recommendations pertaining to the support of Verizon's existing and proposed antennas listed below.

The following documents were used for our reference:

- Construction Drawings prepared by Effective Engineering Solution, LTD dated October 15, 2012.
- Structural Analysis report prepared by Hudson Design Group dated January 31, 2018.
- Mount Structural Analysis report prepared by Hudson Design Group dated June 30, 2022.

CONCLUSION SUMMARY:

Based on our evaluation, we have determined that the existing tower **is in conformance** with the ANSI/TIA-222-H Standard for the loading considered under the criteria listed in this report. The tower structure is rated at **84.9 %** - (Monopole Tower Section L2 from EL.0' to EL.10' Controlling).

CONNECTION SUMMARY:

Based on our evaluation, we have determined that the proposed and existing connection **are in conformance** with the ANSI/TIA-222-H Standard for the loading considered under the criteria listed in this report. The connection is rated at **87.5 %**.

APPURTENANCES CONFIGURATION:

Tenant	Appurtenances	Elev.	Mount
Verizon	***(6) JAHH-45B-R3B Antennas***	67'	**BSAMNT-SBS-2-3 on Pipe Mast on Horizontal Pipe**
Verizon	***(3) MT6407-77AAntennas***	67'	**Pipe Mast on Horizontal Pipe**
Verizon	***(3) B2/B66A RRH ORAN RRH's (RF4439d-25A RRH)***	60'	**Pipe Mast on UGLM-DCP**
Verizon	***(3) B5/B13 RRH ORAN RRH's (RF4440d-13A RRH)***	60'	**Pipe Mast on UGLM-DCP**
Verizon	***(3) CBC78T-DS-43-2X Diplexers***	60'	**Pipe Mast on UGLM-DCP**
Verizon	***(1) OVP Box***	60'	**Pipe Mast on UGLM-DCP**

Proposed Verizon Appurtenances shown in Bold.

VERIZON EXISTING/PROPOSED COAX CABLES:

Tenant	Coax Cables	Elev.	Mount
Verizon	***(1) Hybrid Cable***	67'	Inside Monopole

Proposed Verizon Coax Cables shown in Bold.

ANALYSIS RESULTS SUMMARY:

Component	Max. Stress Ratio	Elev. of Component (ft)	Pass/Fail	Comments
Pole Extension	20.6 %	27 – 69	PASS	
Tower Section L1	73.4 %	10 – 24	PASS	
Tower Section L2	**84.9 %**	0 – 10	**PASS**	**Controlling**

CONNECTION RESULTS SUMMARY:

	Stress Ratio	Pass/Fail	Comments
Anchors	65.9 %	PASS	
Plate	66.6 %	PASS	
Stiffener	**87.5 %**	**PASS**	**Controlling**

TOWER FOUNDATION COMPARISON SUMMARY:

	Proposed Reactions	*Previous Reactions	Stress Ratio	Pass/Fail
Shear	43634 lbs	49755 lbs	87.7 %	PASS
Axial	92501 lbs	150000 lbs**	61.7 %	PASS
Moment	1717291 lb-ft	1865196 lb-ft	**92.1 %**	**PASS**

**** Reactions taken from previous HDG Tower Structural Analysis dated January 31, 2018.***
***** Reaction taken from previous HDG Foundation Evaluation dated January 31, 2018.***

DESIGN CRITERIA:

1. EIA/TIA-222-H Structural Standards for Steel Antenna Towers and Antenna Supporting Structures

   County: New Haven
   Wind Load: 125 mph (2022 Connecticut State Building Code)
   Structural Class: II
   Exposure Category: B
   Topographic Category: 1
   Nominal Ice Thickness: 1.0 inch

2. Approximate height above grade to proposed antennas: 67'

***Calculations and referenced documents are attached.**

ASSUMPTIONS:

1. The appurtenances configuration is as stated in this report. All antennas, coax cables and waveguide cables are assumed to be properly installed and supported as per the manufacturer's requirements.

2. The tower and foundation are properly constructed and maintained. All structural members and their connections are assumed to be in good condition and are free from defects with no deterioration to its member capacities.

3. The support mounts and platforms are not analyzed and are considered adequate to support the loading. The analysis is limited to the primary support structure itself.

SUPPORT RECOMMENDATIONS:

TEP NE recommends that the proposed antennas, RRH's and OVP be mounted on the proposed mount supported by the proposed monopole extension.

FIELD PHOTOS:

TEP NORTHEAST

CALCULATIONS

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
3'-6" Face Horizontal	67	MT6407-77A Antenna w/ Mounting Pipe	67
3'-6" Face Horizontal	67		
3'-6" Face Horizontal	67	MT6407-77A Antenna w/ Mounting Pipe	67
3'-6" Face Horizontal	67		
3'-6" Face Horizontal	67	7'x2" Antenna Mount Pipe	60
3'-6" Face Horizontal	67	7'x2" Antenna Mount Pipe	60
3'-6" Face Horizontal	67	7'x2" Antenna Mount Pipe	60
3'-6" Face Horizontal	67	B2/B66A RRH ORAN RRH	60
JAHH-45B-R3B Antenna w/Mounting Pipe	67	B2/B66A RRH ORAN RRH	60
		B2/B66A RRH ORAN RRH	60
JAHH-45B-R3B Antenna w/Mounting Pipe	67	B5/B13 RRH ORAN RRH	60
		B5/B13 RRH ORAN RRH	60
JAHH-45B-R3B Antenna w/Mounting Pipe	67	B5/B13 RRH ORAN RRH	60
		CBC78T-DS-43-2X Diplexer	60
JAHH-45B-R3B Antenna w/Mounting Pipe	67	CBC78T-DS-43-2X Diplexer	60
		CBC78T-DS-43-2X Diplexer	60
JAHH-45B-R3B Antenna w/Mounting Pipe	67	OVP Box	60
		24"x42' Pipe	48
JAHH-45B-R3B Antenna w/Mounting Pipe	67	(2) W30x108 Beams	25.5
		24" Torsion Pipe	25.5
MT6407-77A Antenna w/ Mounting Pipe	67	(2) 14'x48' Billborad	25.5

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A53-B-42	42 ksi	63 ksi			

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 125.0 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50.0 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60.0 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 84.9%

Size	Length (ft)	Grade	Weight (lb)
P36x1/2	14.00	A53-B-42	2656.5
P42x7/16	10.00		1943.9
			4600.4

24.0 ft
10.0 ft
0.0 ft

ALL REACTIONS ARE FACTORED

AXIAL 92501 lb
SHEAR 7434 lb
MOMENT 371077 lb-ft
TORQUE 202 lb-ft
50.0 mph WIND - 1.0000 in ICE

AXIAL 74637 lb
SHEAR 43634 lb
MOMENT 1717291 lb-ft
TORQUE 1001 lb-ft
REACTIONS - 125.0 mph WIND

TEP Northeast
45 Beechwood Drive
North Andover, MA 01845
TEP Northeast
Phone: (978) 557-5553
FAX:

Job: ***EAST HAVEN 5 CT***		
Project: ***24 ft Monopole***		
Client: VERIZON	Drawn by: RL	App'd:
Code: TIA-222-H	Date: 04/26/23	Scale: NTS
Path:		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 New Haven County, Connecticut.
Tower base elevation above sea level: 15.00 ft.
Basic wind speed of 125.0 mph.
Risk Category II.
Exposure Category B.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.00 ft.
Nominal ice thickness of 1.0000 in.
Ice thickness is considered to increase with height.
Ice density of 56.0 pcf.
A wind speed of 50.0 mph is used in combination with ice.
Temperature drop of 50.0 °F.
Deflections calculated using a wind speed of 60.0 mph.
A non-linear (P-delta) analysis was used.
Stress ratio used in pole design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Pole Section Geometry

Section	Elevation ft	Section Length ft	Pole Size	Pole Grade	Socket Length ft
L1	24.00-10.00	14.00	P36x1/2	A53-B-42 (42 ksi)	
L2	10.00-0.00	10.00	P42x7/16	A53-B-42 (42 ksi)	

Tower Elevation ft	Gusset Area (per face) ft²	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 24.00-10.00				1	1	1			
L2 10.00-0.00				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 ft²/ft	Weight plf
12X24 Hybrid Cable	D	No	Yes	Inside Pole	24.00 - 0.00	1	No Ice	0.00	3.20
							1/2" Ice	0.00	3.20
							1" Ice	0.00	3.20
**********									
1 5/8	D	No	Yes	Inside Pole	24.00 - 0.00	10	No Ice	0.00	1.04
							1/2" Ice	0.00	1.04
							1" Ice	0.00	1.04

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	24.00-10.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
		D	0.000	0.000	0.000	0.000	190.40
L2	10.00-0.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
		D	0.000	0.000	0.000	0.000	136.00

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	24.00-10.00	A	0.936	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
		D		0.000	0.000	0.000	0.000	190.40
L2	10.00-0.00	A	0.828	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
		D		0.000	0.000	0.000	0.000	136.00

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
24"x42' Pipe	C	From Centroid-Leg	0.00	0.0000	48.00	No Ice	93.33	93.33	5778.00
			0.00			1/2" Ice	95.86	95.86	6422.49
			0.00			1" Ice	98.39	98.39	7095.23
(2) W30x108 Beams	C	From Centroid-Leg	0.00	0.0000	25.50	No Ice	12.60	12.60	756.00
			0.00			1/2" Ice	13.04	13.04	915.09
			0.00			1" Ice	13.48	13.48	1082.15
********									
3'-6" Face Horizontal	A	From Face	1.50	0.0000	67.00	No Ice	1.05	0.10	20.30
			0.00			1/2" Ice	1.27	0.14	30.29
			1.59			1" Ice	1.50	0.19	43.26
3'-6" Face Horizontal	A	From Face	1.50	0.0000	67.00	No Ice	1.05	0.10	20.30
			0.00			1/2" Ice	1.27	0.14	30.29
			-1.59			1" Ice	1.50	0.19	43.26
3'-6" Face Horizontal	B	From Face	1.50	0.0000	67.00	No Ice	1.05	0.10	20.30
			0.00			1/2" Ice	1.27	0.14	30.29
			1.59			1" Ice	1.50	0.19	43.26
3'-6" Face Horizontal	B	From Face	1.50	0.0000	67.00	No Ice	1.05	0.10	20.30
			0.00			1/2" Ice	1.27	0.14	30.29
			-1.59			1" Ice	1.50	0.19	43.26
3'-6" Face Horizontal	C	From Face	1.50	0.0000	67.00	No Ice	1.05	0.10	20.30
			0.00			1/2" Ice	1.27	0.14	30.29
			1.59			1" Ice	1.50	0.19	43.26

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
3'-6" Face Horizontal	C	From Face	1.50	0.0000	67.00	No Ice	1.05	0.10	20.30
			0.00			1/2" Ice	1.27	0.14	30.29
			-1.59			1" Ice	1.50	0.19	43.26
3'-6" Face Horizontal	D	From Face	1.50	0.0000	67.00	No Ice	1.05	0.10	20.30
			0.00			1/2" Ice	1.27	0.14	30.29
			1.59			1" Ice	1.50	0.19	43.26
3'-6" Face Horizontal	D	From Face	1.50	0.0000	67.00	No Ice	1.05	0.10	20.30
			0.00			1/2" Ice	1.27	0.14	30.29
			-1.59			1" Ice	1.50	0.19	43.26
JAHH-45B-R3B Antenna w/Mounting Pipe	D	From Face	3.00	0.0000	67.00	No Ice	11.40	6.71	113.90
			2.50			1/2" Ice	11.89	7.66	195.38
			0.00			1" Ice	12.38	8.49	285.02
JAHH-45B-R3B Antenna w/Mounting Pipe	D	From Face	3.00	0.0000	67.00	No Ice	11.40	6.71	113.90
			1.00			1/2" Ice	11.89	7.66	195.38
			0.00			1" Ice	12.38	8.49	285.02
JAHH-45B-R3B Antenna w/Mounting Pipe	A	From Face	3.00	0.0000	67.00	No Ice	11.40	6.71	113.90
			2.50			1/2" Ice	11.89	7.66	195.38
			0.00			1" Ice	12.38	8.49	285.02
JAHH-45B-R3B Antenna w/Mounting Pipe	A	From Face	3.00	0.0000	67.00	No Ice	11.40	6.71	113.90
			1.00			1/2" Ice	11.89	7.66	195.38
			0.00			1" Ice	12.38	8.49	285.02
JAHH-45B-R3B Antenna w/Mounting Pipe	B	From Face	3.00	0.0000	67.00	No Ice	11.40	6.71	113.90
			2.50			1/2" Ice	11.89	7.66	195.38
			0.00			1" Ice	12.38	8.49	285.02
JAHH-45B-R3B Antenna w/Mounting Pipe	B	From Face	3.00	0.0000	67.00	No Ice	11.40	6.71	113.90
			1.00			1/2" Ice	11.89	7.66	195.38
			0.00			1" Ice	12.38	8.49	285.02
MT6407-77A Antenna w/ Mounting Pipe	D	From Face	3.00	0.0000	67.00	No Ice	4.94	2.71	101.70
			-1.50			1/2" Ice	5.30	3.17	141.68
			0.00			1" Ice	5.66	3.66	186.81
MT6407-77A Antenna w/ Mounting Pipe	A	From Face	3.00	0.0000	67.00	No Ice	4.94	2.71	101.70
			-1.50			1/2" Ice	5.30	3.17	141.68
			0.00			1" Ice	5.66	3.66	186.81
MT6407-77A Antenna w/ Mounting Pipe	B	From Face	3.00	0.0000	67.00	No Ice	4.94	2.71	101.70
			-1.50			1/2" Ice	5.30	3.17	141.68
			0.00			1" Ice	5.66	3.66	186.81
7'x2" Antenna Mount Pipe	D	From Face	2.00	0.0000	60.00	No Ice	1.66	1.66	26.00
			0.00			1/2" Ice	2.39	2.39	38.58
			0.00			1" Ice	2.83	2.83	55.84
7'x2" Antenna Mount Pipe	A	From Face	2.00	0.0000	60.00	No Ice	1.66	1.66	26.00
			0.00			1/2" Ice	2.39	2.39	38.58
			0.00			1" Ice	2.83	2.83	55.84
7'x2" Antenna Mount Pipe	B	From Face	2.00	0.0000	60.00	No Ice	1.66	1.66	26.00
			0.00			1/2" Ice	2.39	2.39	38.58
			0.00			1" Ice	2.83	2.83	55.84
B2/B66A RRH ORAN RRH	D	From Face	2.00	0.0000	60.00	No Ice	1.87	1.25	74.70
			0.00			1/2" Ice	2.03	1.39	93.02
			2.00			1" Ice	2.21	1.54	114.12
B2/B66A RRH ORAN RRH	A	From Face	2.00	0.0000	60.00	No Ice	1.87	1.25	74.70
			0.00			1/2" Ice	2.03	1.39	93.02
			2.00			1" Ice	2.21	1.54	114.12
B2/B66A RRH ORAN RRH	B	From Face	2.00	0.0000	60.00	No Ice	1.87	1.25	74.70
			0.00			1/2" Ice	2.03	1.39	93.02
			2.00			1" Ice	2.21	1.54	114.12
B5/B13 RRH ORAN RRH	D	From Face	2.00	0.0000	60.00	No Ice	1.87	1.13	70.33
			0.00			1/2" Ice	2.03	1.27	87.65
			0.00			1" Ice	2.21	1.41	107.70

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
B5/B13 RRH ORAN RRH	A	From Face	2.00	0.0000	60.00	No Ice	1.87	1.13	70.33
			0.00			1/2" Ice	2.03	1.27	87.65
			0.00			1" Ice	2.21	1.41	107.70
B5/B13 RRH ORAN RRH	B	From Face	2.00	0.0000	60.00	No Ice	1.87	1.13	70.33
			0.00			1/2" Ice	2.03	1.27	87.65
			0.00			1" Ice	2.21	1.41	107.70
CBC78T-DS-43-2X Diplexer	D	From Face	2.00	0.0000	60.00	No Ice	0.56	0.52	21.00
			0.00			1/2" Ice	0.65	0.61	27.39
			-2.00			1" Ice	0.76	0.71	35.46
CBC78T-DS-43-2X Diplexer	A	From Face	2.00	0.0000	60.00	No Ice	0.56	0.52	21.00
			0.00			1/2" Ice	0.65	0.61	27.39
			-2.00			1" Ice	0.76	0.71	35.46
CBC78T-DS-43-2X Diplexer	B	From Face	2.00	0.0000	60.00	No Ice	0.56	0.52	21.00
			0.00			1/2" Ice	0.65	0.61	27.39
			-2.00			1" Ice	0.76	0.71	35.46
OVP Box	D	From Face	2.00	0.0000	60.00	No Ice	3.78	2.51	32.00
			0.00			1/2" Ice	4.03	2.72	63.40
			-2.00			1" Ice	4.29	2.94	98.56
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24" Torsion Pipe	C	From Centroid-Leg	0.00	0.0000	25.50	No Ice	100.80	4.80	3977.70
			0.00			1/2" Ice	103.74	5.07	4798.29
			0.00			1" Ice	106.68	5.35	5654.85
(2) 14'x48' Billborad	C	From Face	0.00	0.0000	25.50	No Ice	1238.00	78.12	45000.00
			0.00			1/2" Ice	1243.04	79.76	50654.87
			10.00			1" Ice	1247.68	81.40	56365.93

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 45 deg - No Ice
5	0.9 Dead+1.0 Wind 45 deg - No Ice
6	1.2 Dead+1.0 Wind 90 deg - No Ice
7	0.9 Dead+1.0 Wind 90 deg - No Ice
8	1.2 Dead+1.0 Wind 135 deg - No Ice
9	0.9 Dead+1.0 Wind 135 deg - No Ice
10	1.2 Dead+1.0 Wind 180 deg - No Ice
11	0.9 Dead+1.0 Wind 180 deg - No Ice
12	1.2 Dead+1.0 Wind 225 deg - No Ice
13	0.9 Dead+1.0 Wind 225 deg - No Ice
14	1.2 Dead+1.0 Wind 270 deg - No Ice
15	0.9 Dead+1.0 Wind 270 deg - No Ice
16	1.2 Dead+1.0 Wind 315 deg - No Ice
17	0.9 Dead+1.0 Wind 315 deg - No Ice
18	1.2 Dead+1.0 Ice+1.0 Temp
19	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
20	1.2 Dead+1.0 Wind 45 deg+1.0 Ice+1.0 Temp
21	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
22	1.2 Dead+1.0 Wind 135 deg+1.0 Ice+1.0 Temp
23	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
24	1.2 Dead+1.0 Wind 225 deg+1.0 Ice+1.0 Temp
25	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp

Comb. No.	Description
26	1.2 Dead+1.0 Wind 315 deg+1.0 Ice+1.0 Temp
27	Dead+Wind 0 deg - Service
28	Dead+Wind 45 deg - Service
29	Dead+Wind 90 deg - Service
30	Dead+Wind 135 deg - Service
31	Dead+Wind 180 deg - Service
32	Dead+Wind 225 deg - Service
33	Dead+Wind 270 deg - Service
34	Dead+Wind 315 deg - Service

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Pole	Max. Vert	24	92501.12	5086.56	-1491.18
	Max. H_x	15	55977.72	43611.85	1403.72
	Max. H_z	2	74636.95	1403.72	12075.58
	Max. M_x	2	526414.90	1403.72	12075.58
	Max. M_z	6	1716916.66	-43611.85	-1403.72
	Max. Torsion	6	1000.68	-43611.85	-1403.72
	Min. Vert	3	55977.72	1403.72	12075.58
	Min. H_x	6	74636.95	-43611.85	-1403.72
	Min. H_z	10	74636.95	-1403.72	-12075.58
	Min. M_x	10	-526090.00	-1403.72	-12075.58
	Min. M_z	15	-1575609.30	43611.85	1403.72
	Min. Torsion	16	-955.30	31830.81	9531.30

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	62197.46	0.00	0.00	-135.12	-65842.11	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	74636.95	-1403.72	-12075.58	-526414.90	-43134.44	156.49
0.9 Dead+1.0 Wind 0 deg - No Ice	55977.72	-1403.72	-12075.58	-525383.82	-23263.78	127.24
1.2 Dead+1.0 Wind 45 deg - No Ice	74636.95	29845.66	-7546.15	-346809.84	-1211771.15	-851.23
0.9 Dead+1.0 Wind 45 deg - No Ice	55977.72	29845.66	-7546.15	-346108.13	-1189804.68	-868.53
1.2 Dead+1.0 Wind 90 deg - No Ice	74636.95	43611.85	1403.72	35851.80	-1716916.66	-1000.68
0.9 Dead+1.0 Wind 90 deg - No Ice	55977.72	43611.85	1403.72	35837.27	-1694050.08	-996.59
1.2 Dead+1.0 Wind 135 deg - No Ice	74636.95	31830.81	9531.30	397417.13	-1262702.22	-479.51
0.9 Dead+1.0 Wind 135 deg - No Ice	55977.72	31830.81	9531.30	396718.84	-1240657.45	-456.59
1.2 Dead+1.0 Wind 180 deg - No Ice	74636.95	1403.72	12075.58	526090.00	-115164.73	-69.71
0.9 Dead+1.0 Wind 180 deg - No Ice	55977.72	1403.72	12075.58	525140.72	-95183.23	-40.63
1.2 Dead+1.0 Wind 225 deg - No Ice	74636.95	-29845.66	7546.15	346486.04	1053475.91	263.70
0.9 Dead+1.0 Wind 225 deg - No Ice	55977.72	-29845.66	7546.15	345865.85	1071360.59	282.12
1.2 Dead+1.0 Wind 270 deg - No Ice	74636.95	-43611.85	-1403.72	-36176.66	1558625.86	802.18
0.9 Dead+1.0 Wind 270 deg - No Ice	55977.72	-43611.85	-1403.72	-36080.34	1575609.30	798.47
1.2 Dead+1.0 Wind 315 deg - No Ice	74636.95	-31830.81	-9531.30	-397743.08	1104407.49	955.30
0.9 Dead+1.0 Wind 315 deg - No Ice	55977.72	-31830.81	-9531.30	-396962.73	1122213.74	931.46
1.2 Dead+1.0 Ice+1.0 Temp	92501.12	0.00	-0.00	-428.63	-94101.07	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	92501.12	-236.75	-2345.60	-97464.67	-88026.68	-121.29
1.2 Dead+1.0 Wind 45 deg+1.0 Ice+1.0 Temp	92501.12	5086.56	-1491.18	-64745.58	-285624.43	-201.85
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	92501.12	7430.24	236.75	5654.74	-371033.54	-153.76
1.2 Dead+1.0 Wind 135 deg+1.0 Ice+1.0 Temp	92501.12	5421.39	1826.00	72491.47	-294227.69	-13.07
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	92501.12	236.75	2345.60	96607.34	-100192.88	123.95
1.2 Dead+1.0 Wind 225 deg+1.0 Ice+1.0 Temp	92501.12	-5086.56	1491.18	63884.75	97389.33	184.88

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
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	92501.12	-7430.24	-236.75	-6512.12	182803.79	148.02
1.2 Dead+1.0 Wind 315 deg+1.0 Ice+1.0 Temp	92501.12	-5421.39	-1826.00	-73344.89	105992.14	26.97
Dead+Wind 0 deg - Service	62197.46	-289.37	-2489.35	-108479.40	-58435.44	21.00
Dead+Wind 45 deg - Service	62197.46	6152.60	-1555.62	-71504.45	-299060.42	-129.86
Dead+Wind 90 deg - Service	62197.46	8990.47	289.37	7281.59	-403074.08	-189.51
Dead+Wind 135 deg - Service	62197.46	6561.84	1964.85	81723.01	-309549.24	-134.57
Dead+Wind 180 deg - Service	62197.46	289.37	2489.35	108209.12	-73268.38	-17.34
Dead+Wind 225 deg - Service	62197.46	-6152.60	1555.62	71234.20	167351.80	104.95
Dead+Wind 270 deg - Service	62197.46	-8990.47	-289.37	-7551.88	271365.62	181.10
Dead+Wind 315 deg - Service	62197.46	-6561.84	-1964.85	-81993.34	177840.65	154.74

Solution Summary

Load Comb.	Sum of Applied Forces PX lb	PY lb	PZ lb	Sum of Reactions PX lb	PY lb	PZ lb	% Error
1	0.00	-62197.46	0.00	-0.00	62197.46	0.00	0.000%
2	-1403.72	-74636.95	-12075.58	1403.72	74636.95	12075.58	0.000%
3	-1403.72	-55977.72	-12075.58	1403.72	55977.72	12075.58	0.000%
4	29845.66	-74636.95	-7546.15	-29845.66	74636.95	7546.15	0.000%
5	29845.66	-55977.72	-7546.15	-29845.66	55977.72	7546.15	0.000%
6	43611.85	-74636.95	1403.72	-43611.85	74636.95	-1403.72	0.000%
7	43611.85	-55977.72	1403.72	-43611.85	55977.72	-1403.72	0.000%
8	31830.81	-74636.95	9531.30	-31830.81	74636.95	-9531.30	0.000%
9	31830.81	-55977.72	9531.30	-31830.81	55977.72	-9531.30	0.000%
10	1403.72	-74636.95	12075.58	-1403.72	74636.95	-12075.58	0.000%
11	1403.72	-55977.72	12075.58	-1403.72	55977.72	-12075.58	0.000%
12	-29845.66	-74636.95	7546.15	29845.66	74636.95	-7546.15	0.000%
13	-29845.66	-55977.72	7546.15	29845.66	55977.72	-7546.15	0.000%
14	-43611.85	-74636.95	-1403.72	43611.85	74636.95	1403.72	0.000%
15	-43611.85	-55977.72	-1403.72	43611.85	55977.72	1403.72	0.000%
16	-31830.81	-74636.95	-9531.30	31830.81	74636.95	9531.30	0.000%
17	-31830.81	-55977.72	-9531.30	31830.81	55977.72	9531.30	0.000%
18	0.00	-92501.12	0.00	-0.00	92501.12	0.00	0.000%
19	-236.75	-92501.12	-2345.60	236.75	92501.12	2345.60	0.000%
20	5086.56	-92501.12	-1491.18	-5086.56	92501.12	1491.18	0.000%
21	7430.24	-92501.12	236.75	-7430.24	92501.12	-236.75	0.000%
22	5421.38	-92501.12	1826.00	-5421.39	92501.12	-1826.00	0.000%
23	236.75	-92501.12	2345.60	-236.75	92501.12	-2345.60	0.000%
24	-5086.56	-92501.12	1491.18	5086.56	92501.12	-1491.18	0.000%
25	-7430.24	-92501.12	-236.75	7430.24	92501.12	236.75	0.000%
26	-5421.38	-92501.12	-1826.00	5421.39	92501.12	1826.00	0.000%
27	-289.37	-62197.46	-2489.35	289.37	62197.46	2489.35	0.000%
28	6152.60	-62197.46	-1555.62	-6152.60	62197.46	1555.62	0.000%
29	8990.47	-62197.46	289.37	-8990.47	62197.46	-289.37	0.000%
30	6561.84	-62197.46	1964.85	-6561.84	62197.46	-1964.85	0.000%
31	289.37	-62197.46	2489.35	-289.37	62197.46	-2489.35	0.000%
32	-6152.60	-62197.46	1555.62	6152.60	62197.46	-1555.62	0.000%
33	-8990.47	-62197.46	-289.37	8990.47	62197.46	289.37	0.000%
34	-6561.84	-62197.46	-1964.85	6561.84	62197.46	1964.85	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	0.00000001
3	Yes	4	0.00000001	0.00000001
4	Yes	4	0.00000001	0.00000517
5	Yes	4	0.00000001	0.00000301
6	Yes	4	0.00000001	0.00000482
7	Yes	4	0.00000001	0.00000247
8	Yes	4	0.00000001	0.00000510
9	Yes	4	0.00000001	0.00000287
10	Yes	4	0.00000001	0.00000001
11	Yes	4	0.00000001	0.00000001
12	Yes	4	0.00000001	0.00000394
13	Yes	4	0.00000001	0.00000001
14	Yes	4	0.00000001	0.00000428
15	Yes	4	0.00000001	0.00000229
16	Yes	4	0.00000001	0.00000459
17	Yes	4	0.00000001	0.00000278
18	Yes	4	0.00000001	0.00000429
19	Yes	4	0.00000001	0.00000540
20	Yes	4	0.00000001	0.00001111
21	Yes	4	0.00000001	0.00001372
22	Yes	4	0.00000001	0.00001139
23	Yes	4	0.00000001	0.00000565
24	Yes	4	0.00000001	0.00000322
25	Yes	4	0.00000001	0.00000513
26	Yes	4	0.00000001	0.00000359
27	Yes	4	0.00000001	0.00000001
28	Yes	4	0.00000001	0.00000001
29	Yes	4	0.00000001	0.00000001
30	Yes	4	0.00000001	0.00000001
31	Yes	4	0.00000001	0.00000001
32	Yes	4	0.00000001	0.00000001
33	Yes	4	0.00000001	0.00000001
34	Yes	4	0.00000001	0.00000001

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	24 - 10	0.5129	29	0.1963	0.0002
L2	10 - 0	0.0901	29	0.0826	0.0001

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
67.00	3'-6" Face Horizontal	29	0.5129	0.1963	0.0002	12689
60.00	7'x2" Antenna Mount Pipe	29	0.5129	0.1963	0.0002	12689
48.00	24"x42' Pipe	29	0.5129	0.1963	0.0002	12689
25.50	(2) W30x108 Beams	29	0.5129	0.1963	0.0002	12689

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	24 - 10	2.1106	6	0.7891	0.0008
L2	10 - 0	0.3796	6	0.3458	0.0003

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
67.00	3'-6" Face Horizontal	6	2.1106	0.7891	0.0009	3138
60.00	7'x2" Antenna Mount Pipe	6	2.1106	0.7891	0.0009	3138
48.00	24"x42' Pipe	6	2.1106	0.7891	0.0009	3138
25.50	(2) W30x108 Beams	6	2.1106	0.7891	0.0009	3138

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	24 - 10 (1)	P36x1/2	14.00	0.00	0.0	55.7633	-71864.60	2107850.00	0.034
L2	10 - 0 (2)	P42x7/16	10.00	0.00	0.0	57.1254	-74622.00	2028190.00	0.037

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	24 - 10 (1)	P36x1/2	1281750.00	1842816.67	0.696	0.00	1842816.67	0.000
L2	10 - 0 (2)	P42x7/16	1717291.67	2125975.00	0.808	0.00	2125975.00	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	24 - 10 (1)	P36x1/2	43480.90	632356.00	0.069	1000.65	1973650.00	0.001
L2	10 - 0 (2)	P42x7/16	43660.00	647803.00	0.067	1000.63	2367141.67	0.000

tnxTower	Job: EAST HAVEN 5 CT	Page: 9 of 9
TEP Northeast 45 Beechwood Drive North Andover, MA 01845 Phone: (978) 557-5553 FAX:	Project: 24 ft Monopole	Date: 09:38:26 04/26/23
	Client: VERIZON	Designed by: RL

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	24 - 10 (1)	0.034	0.696	0.000	0.069	0.001	0.734 ✔	1.000	4.8.2 ✔
L2	10 - 0 (2)	0.037	0.808	0.000	0.067	0.000	0.849 ✔	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	24 - 10	Pole	P36x1/2	1	-71864.60	2107850.00	73.4	Pass
L2	10 - 0	Pole	P42x7/16	2	-74622.00	2028190.00	84.9	Pass
							Summary	
						Pole (L2)	84.9	Pass
						RATING =	**84.9**	**Pass**

Monopole Base Plate Connection @ 24'

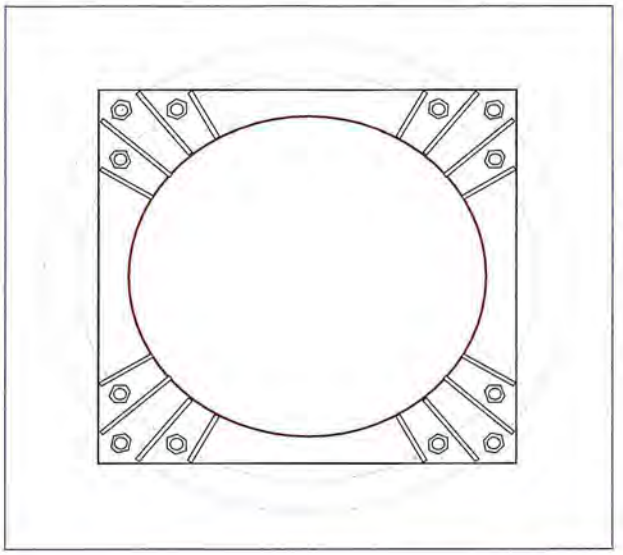
CROWN CASTLE

Site Info	
BU #	324908
Site Name	East Haven 5 CT
Rev.	7

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	See Custom Sheet
l_{gr} (in)	See Custom Sheet

Applied Loads	
Moment (kip-ft)	614.99
Axial Force (kips)	68.50
Shear Force (kips)	40.60

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

GROUP 1: (4) 1-1/4" ø bolts (A325 N; Fy=81 ksi, Fu=105 ksi) on 53" BC
GROUP 2: (8) 1-1/4" ø bolts (A325 N; Fy=81 ksi, Fu=105 ksi) on 46" BC

Base Plate Data

42" W x 1" Plate (A36; Fy=36 ksi, Fu=58 ksi); Clip: 0 in

Stiffener Data

Group 1: (8) 10"H x 6"W x 0.5"T, Notch: 0.25"
plate: Fy= 36 ksi ; weld: Fy= 70 ksi
horiz. weld: 0.25" fillet
vert. weld: 0.25" fillet

Group 2: (8) 10"H x 9"W x 0.5"T, Notch: 0.25"
plate: Fy= 36 ksi ; weld: Fy= 70 ksi
horiz. weld: 0.25" fillet
vert. weld: 0.25" fillet

Pole Data

36" x 0.5" round pole (A36; Fy=36 ksi, Fu=58 ksi)

Analysis Results

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

GROUP 1:

Pu_c = 61.24	ϕPn_c = 89.46	**Stress Rating**
Vu = 3.38	ϕVn = 40.26	**65.9%**
Mu = n/a	ϕMn = n/a	Pass

GROUP 2:

Pu_c = 53.91	ϕPn_c = 89.46	**Stress Rating**
Vu = 3.38	ϕVn = 40.26	**58.1%**
Mu = n/a	ϕMn = n/a	Pass

Base Plate Summary

Max Stress (ksi):	22.65	(Roark's Flexural)
Allowable Stress (ksi):	32.4	
Stress Rating:	**66.6%**	Pass

Stiffener Summary

Horizontal Weld:	**40.9%**	Pass
Vertical Weld:	**50.7%**	Pass
Plate Flexure+Shear:	**38.2%**	Pass
Plate Tension+Shear:	**29.1%**	Pass
Plate Compression:	**87.5%**	Pass

Pole Summary

Punching Shear:	**21.0%**	Pass

CCIplate

Elevation (ft)	0	(Base)

note: Bending interaction not considered when Grout Considered = "Yes"
Grout Considered = "Yes" when Eta >0.5

Bolt Group	Resist Axial	Resist Shear	Induce Plate Bending	Grout Considered	Apply at BARB Elevation	BARB CL Elevation (ft)
1	Yes	Yes	Yes	No	No	
2	Yes	Yes	Yes	No	No	

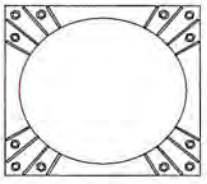
Custom Bolt Connection

Bolt	Bolt Group ID	Location (deg.)	Diameter (in)	Material	Bolt Circle (in)	Eta Factor, η:	L, (in):	Thread Type	Area Override, in^2	Tension Only
1	1	45	1.25	A325	53	0.5	0	N-Included		No
2	1	135	1.25	A325	53	0.5	0	N-Included		No
3	1	225	1.25	A325	53	0.5	0	N-Included		No
4	1	315	1.25	A325	53	0.5	0	N-Included		No
5	2	35	1.25	A325	46	0.5	0	N-Included		No
6	2	125	1.25	A325	46	0.5	0	N-Included		No
7	2	215	1.25	A325	46	0.5	0	N-Included		No
8	2	305	1.25	A325	46	0.5	0	N-Included		No
9	2	55	1.25	A325	46	0.5	0	N-Included		No
10	2	145	1.25	A325	46	0.5	0	N-Included		No
11	2	235	1.25	A325	46	0.5	0	N-Included		No
12	2	325	1.25	A325	46	0.5	0	N-Included		No

Custom Stiffener Connection

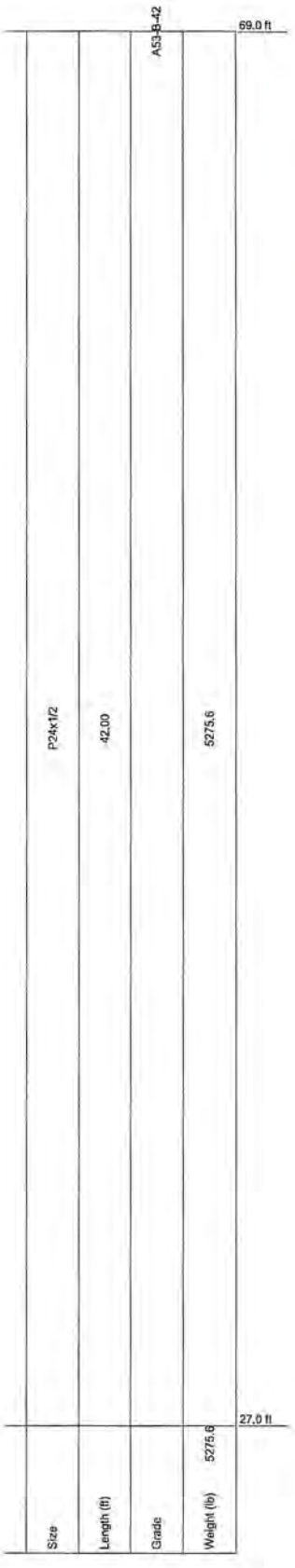
Stiffener	Stiffener Group ID	Location (deg.)	Width (in)	Height (in)	Thickness (in)	H. Notch (in)	V. Notch (in)	Grade (ksi)	Weld Type	Groove Depth (in)	Groove Angle (deg.)	H. Fillet Weld Size (in)	V. Fillet Weld Size (in)	Weld Strength (ksi)
1	1	30	6	10	0.5	0.25	0.25	36	Fillet			0.25	0.25	70
2	1	60	6	10	0.5	0.25	0.25	36	Fillet			0.25	0.25	70
3	1	120	6	10	0.5	0.25	0.25	36	Fillet			0.25	0.25	70
4	1	150	6	10	0.5	0.25	0.25	36	Fillet			0.25	0.25	70
5	1	210	6	10	0.5	0.25	0.25	36	Fillet			0.25	0.25	70
6	1	240	6	10	0.5	0.25	0.25	36	Fillet			0.25	0.25	70
7	1	300	6	10	0.5	0.25	0.25	36	Fillet			0.25	0.25	70
8	1	330	6	10	0.5	0.25	0.25	36	Fillet			0.25	0.25	70
9	2	40	9	10	0.5	0.25	0.25	36	Fillet			0.25	0.25	70
10	2	50	9	10	0.5	0.25	0.25	36	Fillet			0.25	0.25	70
11	2	130	9	10	0.5	0.25	0.25	36	Fillet			0.25	0.25	70
12	2	140	9	10	0.5	0.25	0.25	36	Fillet			0.25	0.25	70
13	2	220	9	10	0.5	0.25	0.25	36	Fillet			0.25	0.25	70
14	2	230	9	10	0.5	0.25	0.25	36	Fillet			0.25	0.25	70
15	2	310	9	10	0.5	0.25	0.25	36	Fillet			0.25	0.25	70
16	2	320	9	10	0.5	0.25	0.25	36	Fillet			0.25	0.25	70

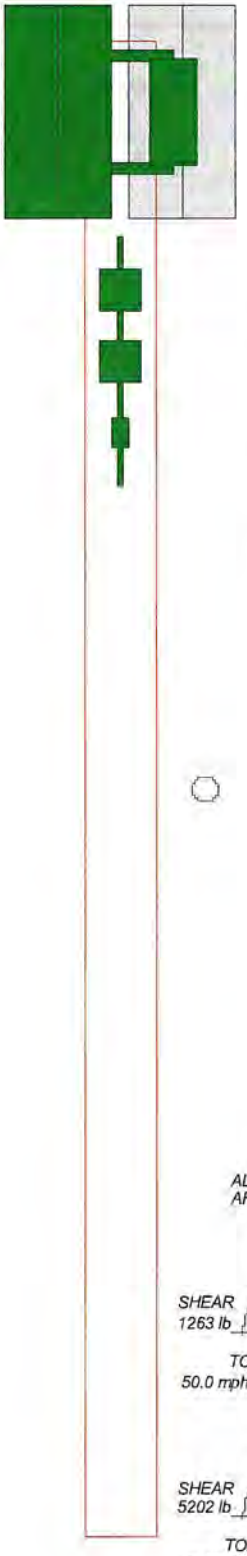
Plot Graphic



TEP NORTHEAST

PROPOSED EXTENSION





DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
3'-6" Face Horizontal	67	MT6407-77A Antenna w/ Mounting Pipe	67
3'-6" Face Horizontal	67	MT6407-77A Antenna w/ Mounting Pipe	67
3'-6" Face Horizontal	67	MT6407-77A Antenna w/ Mounting Pipe	67
3'-6" Face Horizontal	67	7'x2" Antenna Mount Pipe	60
3'-6" Face Horizontal	67	7'x2" Antenna Mount Pipe	60
3'-6" Face Horizontal	67	7'x2" Antenna Mount Pipe	60
3'-6" Face Horizontal	67	B2/B66A RRH ORAN RRH	60
JAHH-45B-R3B Antenna w/Mounting Pipe	67	B2/B66A RRH ORAN RRH	60
JAHH-45B-R3B Antenna w/Mounting Pipe	67	B2/B66A RRH ORAN RRH	60
JAHH-45B-R3B Antenna w/Mounting Pipe	67	B5/B13 RRH ORAN RRH	60
JAHH-45B-R3B Antenna w/Mounting Pipe	67	B5/B13 RRH ORAN RRH	60
JAHH-45B-R3B Antenna w/Mounting Pipe	67	B5/B13 RRH ORAN RRH	60
JAHH-45B-R3B Antenna w/Mounting Pipe	67	CBC78T-DS-43-2X Diplexer	60
JAHH-45B-R3B Antenna w/Mounting Pipe	67	CBC78T-DS-43-2X Diplexer	60
		CBC78T-DS-43-2X Diplexer	60
		OVP Box	60

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A53-B-42	42 ksi	63 ksi			

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 125.0 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50.0 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60.0 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 20.6%

ALL REACTIONS ARE FACTORED

AXIAL 12086 lb

SHEAR 1263 lb *MOMENT 41194 lb-ft*

TORQUE 610 lb-ft
50.0 mph WIND - 1.0000 in ICE

AXIAL 8682 lb

SHEAR 5202 lb *MOMENT 173241 lb-ft*

TORQUE 2867 lb-ft
REACTIONS - 125.0 mph WIND

TEP Northeast
45 Beechwood Drive
North Andover, MA 01845
TEP Northeast Phone: (978) 557-5553
FAX:

Job: ***EAST HAVEN 5 CT***			
Project: ***42 ft Monopole Extension***			
Client: VERIZON	Drawn by: RL	App'd:	
Code: TIA-222-H	Date: 04/26/23	Scale: NTS	
Path:		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 New Haven County, Connecticut.
Tower base elevation above sea level: 69.00 ft.
Basic wind speed of 125.0 mph.
Risk Category II.
Exposure Category B.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.00 ft.
Nominal ice thickness of 1.0000 in.
Ice thickness is considered to increase with height.
Ice density of 56.0 pcf.
A wind speed of 50.0 mph is used in combination with ice.
Temperature drop of 50.0 °F.
Deflections calculated using a wind speed of 60.0 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Pole Section Geometry

Section	Elevation ft	Section Length ft	Pole Size	Pole Grade	Socket Length ft
L1	69.00-27.00	42.00	P24x1/2	A53-B-42 (42 ksi)	

Tower Elevation ft	Gusset Area (per face) ft²	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 69.00-27.00				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 ft²/ft	Weight plf
12X24 Hybrid Cable	D	No	Yes	Inside Pole	67.00 - 27.00	1	No Ice	0.00	3.20
							1/2" Ice	0.00	3.20
							1" Ice	0.00	3.20
**********									
1 5/8	D	No	Yes	Inside Pole	34.00 - 27.00	10	No Ice	0.00	1.04
							1/2" Ice	0.00	1.04
							1" Ice	0.00	1.04

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	69.00-27.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
		D	0.000	0.000	0.000	0.000	200.80

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	69.00-27.00	A	1.040	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
		D		0.000	0.000	0.000	0.000	200.80

Discrete Tower Loads

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
3'-6" Face Horizontal	A	From Face	1.50	0.0000	67.00	No Ice	1.05	0.10	20.30
			0.00			1/2" Ice	1.27	0.14	30.29
			1.59			1" Ice	1.50	0.19	43.26
3'-6" Face Horizontal	A	From Face	1.50	0.0000	67.00	No Ice	1.05	0.10	20.30
			0.00			1/2" Ice	1.27	0.14	30.29
			-1.59			1" Ice	1.50	0.19	43.26
3'-6" Face Horizontal	B	From Face	1.50	0.0000	67.00	No Ice	1.05	0.10	20.30
			0.00			1/2" Ice	1.27	0.14	30.29
			1.59			1" Ice	1.50	0.19	43.26
3'-6" Face Horizontal	B	From Face	1.50	0.0000	67.00	No Ice	1.05	0.10	20.30
			0.00			1/2" Ice	1.27	0.14	30.29
			-1.59			1" Ice	1.50	0.19	43.26
3'-6" Face Horizontal	C	From Face	1.50	0.0000	67.00	No Ice	1.05	0.10	20.30
			0.00			1/2" Ice	1.27	0.14	30.29
			1.59			1" Ice	1.50	0.19	43.26
3'-6" Face Horizontal	C	From Face	1.50	0.0000	67.00	No Ice	1.05	0.10	20.30
			0.00			1/2" Ice	1.27	0.14	30.29
			-1.59			1" Ice	1.50	0.19	43.26
3'-6" Face Horizontal	D	From Face	1.50	0.0000	67.00	No Ice	1.05	0.10	20.30
			0.00			1/2" Ice	1.27	0.14	30.29
			1.59			1" Ice	1.50	0.19	43.26
3'-6" Face Horizontal	D	From Face	1.50	0.0000	67.00	No Ice	1.05	0.10	20.30
			0.00			1/2" Ice	1.27	0.14	30.29
			-1.59			1" Ice	1.50	0.19	43.26
JAHH-45B-R3B Antenna w/Mounting Pipe	D	From Face	3.00	0.0000	67.00	No Ice	11.40	6.71	113.90
			2.50			1/2" Ice	11.89	7.66	195.38
			0.00			1" Ice	12.38	8.49	285.02
JAHH-45B-R3B Antenna w/Mounting Pipe	D	From Face	3.00	0.0000	67.00	No Ice	11.40	6.71	113.90
			1.00			1/2" Ice	11.89	7.66	195.38
			0.00			1" Ice	12.38	8.49	285.02

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
JAHH-45B-R3B Antenna w/Mounting Pipe	A	From Face	3.00	0.0000	67.00	No Ice		11.40	6.71	113.90
			2.50			1/2" Ice		11.89	7.66	195.38
			0.00			1" Ice		12.38	8.49	285.02
JAHH-45B-R3B Antenna w/Mounting Pipe	A	From Face	3.00	0.0000	67.00	No Ice		11.40	6.71	113.90
			1.00			1/2" Ice		11.89	7.66	195.38
			0.00			1" Ice		12.38	8.49	285.02
JAHH-45B-R3B Antenna w/Mounting Pipe	B	From Face	3.00	0.0000	67.00	No Ice		11.40	6.71	113.90
			2.50			1/2" Ice		11.89	7.66	195.38
			0.00			1" Ice		12.38	8.49	285.02
JAHH-45B-R3B Antenna w/Mounting Pipe	B	From Face	3.00	0.0000	67.00	No Ice		11.40	6.71	113.90
			1.00			1/2" Ice		11.89	7.66	195.38
			0.00			1" Ice		12.38	8.49	285.02
MT6407-77A Antenna w/ Mounting Pipe	D	From Face	3.00	0.0000	67.00	No Ice		4.94	2.71	101.70
			-1.50			1/2" Ice		5.30	3.17	141.68
			0.00			1" Ice		5.66	3.66	186.81
MT6407-77A Antenna w/ Mounting Pipe	A	From Face	3.00	0.0000	67.00	No Ice		4.94	2.71	101.70
			-1.50			1/2" Ice		5.30	3.17	141.68
			0.00			1" Ice		5.66	3.66	186.81
MT6407-77A Antenna w/ Mounting Pipe	B	From Face	3.00	0.0000	67.00	No Ice		4.94	2.71	101.70
			-1.50			1/2" Ice		5.30	3.17	141.68
			0.00			1" Ice		5.66	3.66	186.81
7'x2" Antenna Mount Pipe	D	From Face	2.00	0.0000	60.00	No Ice		1.66	1.66	26.00
			0.00			1/2" Ice		2.39	2.39	38.58
			0.00			1" Ice		2.83	2.83	55.84
7'x2" Antenna Mount Pipe	A	From Face	2.00	0.0000	60.00	No Ice		1.66	1.66	26.00
			0.00			1/2" Ice		2.39	2.39	38.58
			0.00			1" Ice		2.83	2.83	55.84
7'x2" Antenna Mount Pipe	B	From Face	2.00	0.0000	60.00	No Ice		1.66	1.66	26.00
			0.00			1/2" Ice		2.39	2.39	38.58
			0.00			1" Ice		2.83	2.83	55.84
B2/B66A RRH ORAN RRH	D	From Face	2.00	0.0000	60.00	No Ice		1.87	1.25	74.70
			0.00			1/2" Ice		2.03	1.39	93.02
			2.00			1" Ice		2.21	1.54	114.12
B2/B66A RRH ORAN RRH	A	From Face	2.00	0.0000	60.00	No Ice		1.87	1.25	74.70
			0.00			1/2" Ice		2.03	1.39	93.02
			2.00			1" Ice		2.21	1.54	114.12
B2/B66A RRH ORAN RRH	B	From Face	2.00	0.0000	60.00	No Ice		1.87	1.25	74.70
			0.00			1/2" Ice		2.03	1.39	93.02
			2.00			1" Ice		2.21	1.54	114.12
B5/B13 RRH ORAN RRH	D	From Face	2.00	0.0000	60.00	No Ice		1.87	1.13	70.33
			0.00			1/2" Ice		2.03	1.27	87.65
			0.00			1" Ice		2.21	1.41	107.70
B5/B13 RRH ORAN RRH	A	From Face	2.00	0.0000	60.00	No Ice		1.87	1.13	70.33
			0.00			1/2" Ice		2.03	1.27	87.65
			0.00			1" Ice		2.21	1.41	107.70
B5/B13 RRH ORAN RRH	B	From Face	2.00	0.0000	60.00	No Ice		1.87	1.13	70.33
			0.00			1/2" Ice		2.03	1.27	87.65
			0.00			1" Ice		2.21	1.41	107.70
CBC78T-DS-43-2X Diplexer	D	From Face	2.00	0.0000	60.00	No Ice		0.56	0.52	21.00
			0.00			1/2" Ice		0.65	0.61	27.39
			-2.00			1" Ice		0.76	0.71	35.46
CBC78T-DS-43-2X Diplexer	A	From Face	2.00	0.0000	60.00	No Ice		0.56	0.52	21.00
			0.00			1/2" Ice		0.65	0.61	27.39
			-2.00			1" Ice		0.76	0.71	35.46
CBC78T-DS-43-2X Diplexer	B	From Face	2.00	0.0000	60.00	No Ice		0.56	0.52	21.00
			0.00			1/2" Ice		0.65	0.61	27.39
			-2.00			1" Ice		0.76	0.71	35.46

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
OVP Box	D	From Face	2.00 0.00 -2.00	0.0000	60.00	No Ice 1/2" Ice 1" Ice	3.78 4.03 4.29	2.51 2.72 2.94	32.00 63.40 98.56

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 45 deg - No Ice
5	0.9 Dead+1.0 Wind 45 deg - No Ice
6	1.2 Dead+1.0 Wind 90 deg - No Ice
7	0.9 Dead+1.0 Wind 90 deg - No Ice
8	1.2 Dead+1.0 Wind 135 deg - No Ice
9	0.9 Dead+1.0 Wind 135 deg - No Ice
10	1.2 Dead+1.0 Wind 180 deg - No Ice
11	0.9 Dead+1.0 Wind 180 deg - No Ice
12	1.2 Dead+1.0 Wind 225 deg - No Ice
13	0.9 Dead+1.0 Wind 225 deg - No Ice
14	1.2 Dead+1.0 Wind 270 deg - No Ice
15	0.9 Dead+1.0 Wind 270 deg - No Ice
16	1.2 Dead+1.0 Wind 315 deg - No Ice
17	0.9 Dead+1.0 Wind 315 deg - No Ice
18	1.2 Dead+1.0 Ice+1.0 Temp
19	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
20	1.2 Dead+1.0 Wind 45 deg+1.0 Ice+1.0 Temp
21	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
22	1.2 Dead+1.0 Wind 135 deg+1.0 Ice+1.0 Temp
23	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
24	1.2 Dead+1.0 Wind 225 deg+1.0 Ice+1.0 Temp
25	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
26	1.2 Dead+1.0 Wind 315 deg+1.0 Ice+1.0 Temp
27	Dead+Wind 0 deg - Service
28	Dead+Wind 45 deg - Service
29	Dead+Wind 90 deg - Service
30	Dead+Wind 135 deg - Service
31	Dead+Wind 180 deg - Service
32	Dead+Wind 225 deg - Service
33	Dead+Wind 270 deg - Service
34	Dead+Wind 315 deg - Service

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Pole	Max. Vert	18	12086.46	0.00	0.00
	Max. H_x	15	6511.86	4679.93	0.00
	Max. H_z	2	8682.48	0.00	5202.04
	Max. M_x	2	173225.54	0.00	5202.04
	Max. M_z	7	150890.42	-4679.93	0.00

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
	Max. Torsion	2	2866.61	0.00	5202.04
	Min. Vert	7	6511.86	-4679.93	0.00
	Min. H_x	6	8682.48	-4679.93	0.00
	Min. H_z	10	8682.48	0.00	-5202.04
	Min. M_x	10	-172862.86	0.00	-5202.04
	Min. M_z	14	-155064.35	4679.93	0.00
	Min. Torsion	10	-2866.66	0.00	-5202.04

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	7235.40	0.00	0.00	-150.42	1897.92	0.02
1.2 Dead+1.0 Wind 0 deg - No Ice	8682.48	-0.00	-5202.04	-173225.54	2287.95	-2866.61
0.9 Dead+1.0 Wind 0 deg - No Ice	6511.86	-0.00	-5202.04	-172983.32	1713.09	-2865.08
1.2 Dead+1.0 Wind 45 deg - No Ice	8682.48	3309.21	-3678.39	-122542.14	-105741.05	-2685.13
0.9 Dead+1.0 Wind 45 deg - No Ice	6511.86	3309.21	-3678.39	-122357.54	-106193.80	-2683.81
1.2 Dead+1.0 Wind 90 deg - No Ice	8682.48	4679.93	-0.00	-181.30	-150488.23	-930.63
0.9 Dead+1.0 Wind 90 deg - No Ice	6511.86	4679.93	-0.00	-135.74	-150890.42	-930.31
1.2 Dead+1.0 Wind 135 deg - No Ice	8682.48	3309.21	3678.39	122179.50	-105741.00	1369.05
0.9 Dead+1.0 Wind 135 deg - No Ice	6511.86	3309.21	3678.39	122086.02	-106193.76	1368.17
1.2 Dead+1.0 Wind 180 deg - No Ice	8682.48	-0.00	5202.04	172862.86	2287.95	2866.66
0.9 Dead+1.0 Wind 180 deg - No Ice	6511.86	-0.00	5202.04	172711.78	1713.09	2865.10
1.2 Dead+1.0 Wind 225 deg - No Ice	8682.48	-3309.21	3678.39	122179.59	110317.01	2685.06
0.9 Dead+1.0 Wind 225 deg - No Ice	6511.86	-3309.21	3678.39	122086.08	109620.04	2683.73
1.2 Dead+1.0 Wind 270 deg - No Ice	8682.48	-4679.93	-0.00	-181.30	155064.35	930.67
0.9 Dead+1.0 Wind 270 deg - No Ice	6511.86	-4679.93	-0.00	-135.74	154316.78	930.34
1.2 Dead+1.0 Wind 315 deg - No Ice	8682.48	-3309.21	-3678.39	-122542.22	110317.06	-1368.89
0.9 Dead+1.0 Wind 315 deg - No Ice	6511.86	-3309.21	-3678.39	-122357.60	109620.07	-1368.03
1.2 Dead+1.0 Ice+1.0 Temp	12086.46	-0.00	-0.00	-483.16	4573.11	0.12
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	12086.46	-0.00	-1262.96	-39485.57	4578.18	-609.42
1.2 Dead+1.0 Wind 45 deg+1.0 Ice+1.0 Temp	12086.46	841.26	-893.05	-28062.19	-21001.03	-541.64
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	12086.46	1189.72	-0.00	-483.70	-31596.28	-156.49
1.2 Dead+1.0 Wind 135 deg+1.0 Ice+1.0 Temp	12086.46	841.26	893.05	27094.79	-21001.03	320.39
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	12086.46	-0.00	1262.96	38518.18	4578.18	609.67
1.2 Dead+1.0 Wind 225 deg+1.0 Ice+1.0 Temp	12086.46	-841.26	893.05	27094.80	30157.38	541.88
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	12086.46	-1189.72	-0.00	-483.70	40752.64	156.74
1.2 Dead+1.0 Wind 315 deg+1.0 Ice+1.0 Temp	12086.46	-841.26	-893.05	-28062.19	30157.39	-320.15
Dead+Wind 0 deg - Service	7235.40	0.00	-1072.39	-35795.78	1904.59	-590.74
Dead+Wind 45 deg - Service	7235.40	682.18	-758.29	-25355.65	-20348.04	-553.35
Dead+Wind 90 deg - Service	7235.40	964.76	0.00	-150.94	-29565.38	-191.80
Dead+Wind 135 deg - Service	7235.40	682.18	758.29	25053.76	-20348.04	282.11
Dead+Wind 180 deg - Service	7235.40	0.00	1072.39	35493.89	1904.59	590.78
Dead+Wind 225 deg - Service	7235.40	-682.18	758.29	25053.76	24157.22	553.38
Dead+Wind 270 deg - Service	7235.40	-964.76	0.00	-150.94	33374.56	191.83
Dead+Wind 315 deg - Service	7235.40	-682.18	-758.29	-25355.65	24157.22	-282.08

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	% Error
1	0.00	-7235.40	0.00	0.00	7235.40	0.00	0.000%
2	0.00	-8682.48	-5202.04	0.00	8682.48	5202.04	0.000%
3	0.00	-6511.86	-5202.04	0.00	6511.86	5202.04	0.000%

Load Comb.	Sum of Applied Forces PX lb	PY lb	PZ lb	Sum of Reactions PX lb	PY lb	PZ lb	% Error
4	3309.21	-8682.48	-3678.39	-3309.21	8682.48	3678.39	0.000%
5	3309.21	-6511.86	-3678.39	-3309.21	6511.86	3678.39	0.000%
6	4679.93	-8682.48	0.00	-4679.93	8682.48	0.00	0.000%
7	4679.93	-6511.86	0.00	-4679.93	6511.86	0.00	0.000%
8	3309.21	-8682.48	3678.39	-3309.21	8682.48	-3678.39	0.000%
9	3309.21	-6511.86	3678.39	-3309.21	6511.86	-3678.39	0.000%
10	0.00	-8682.48	5202.04	0.00	8682.48	-5202.04	0.000%
11	0.00	-6511.86	5202.04	0.00	6511.86	-5202.04	0.000%
12	-3309.21	-8682.48	3678.39	3309.21	8682.48	-3678.39	0.000%
13	-3309.21	-6511.86	3678.39	3309.21	6511.86	-3678.39	0.000%
14	-4679.93	-8682.48	0.00	4679.93	8682.48	0.00	0.000%
15	-4679.93	-6511.86	0.00	4679.93	6511.86	0.00	0.000%
16	-3309.21	-8682.48	-3678.39	3309.21	8682.48	3678.39	0.000%
17	-3309.21	-6511.86	-3678.39	3309.21	6511.86	3678.39	0.000%
18	0.00	-12086.46	0.00	0.00	12086.46	0.00	0.000%
19	0.00	-12086.46	-1262.96	0.00	12086.46	1262.96	0.000%
20	841.26	-12086.46	-893.05	-841.26	12086.46	893.05	0.000%
21	1189.72	-12086.46	0.00	-1189.72	12086.46	0.00	0.000%
22	841.26	-12086.46	893.05	-841.26	12086.46	-893.05	0.000%
23	0.00	-12086.46	1262.96	0.00	12086.46	-1262.96	0.000%
24	-841.26	-12086.46	893.05	841.26	12086.46	-893.05	0.000%
25	-1189.72	-12086.46	0.00	1189.72	12086.46	0.00	0.000%
26	-841.26	-12086.46	-893.05	841.26	12086.46	893.05	0.000%
27	0.00	-7235.40	-1072.39	0.00	7235.40	1072.39	0.000%
28	682.18	-7235.40	-758.29	-682.18	7235.40	758.29	0.000%
29	964.76	-7235.40	0.00	-964.76	7235.40	0.00	0.000%
30	682.18	-7235.40	758.29	-682.18	7235.40	-758.29	0.000%
31	0.00	-7235.40	1072.39	0.00	7235.40	-1072.39	0.000%
32	-682.18	-7235.40	758.29	682.18	7235.40	-758.29	0.000%
33	-964.76	-7235.40	0.00	964.76	7235.40	0.00	0.000%
34	-682.18	-7235.40	-758.29	682.18	7235.40	758.29	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	0.00000001
3	Yes	4	0.00000001	0.00000001
4	Yes	4	0.00000001	0.00000001
5	Yes	4	0.00000001	0.00000001
6	Yes	4	0.00000001	0.00000001
7	Yes	4	0.00000001	0.00000001
8	Yes	4	0.00000001	0.00000001
9	Yes	4	0.00000001	0.00000001
10	Yes	4	0.00000001	0.00000001
11	Yes	4	0.00000001	0.00000001
12	Yes	4	0.00000001	0.00000001
13	Yes	4	0.00000001	0.00000001
14	Yes	4	0.00000001	0.00000001
15	Yes	4	0.00000001	0.00000001
16	Yes	4	0.00000001	0.00000001
17	Yes	4	0.00000001	0.00000001
18	Yes	4	0.00000001	0.00000001
19	Yes	4	0.00000001	0.00000001
20	Yes	4	0.00000001	0.00000001
21	Yes	4	0.00000001	0.00000001
22	Yes	4	0.00000001	0.00000001
23	Yes	4	0.00000001	0.00000001

24	Yes	4	0.00000001	0.00000001
25	Yes	4	0.00000001	0.00000001
26	Yes	4	0.00000001	0.00000001
27	Yes	4	0.00000001	0.00000001
28	Yes	4	0.00000001	0.00000001
29	Yes	4	0.00000001	0.00000001
30	Yes	4	0.00000001	0.00000001
31	Yes	4	0.00000001	0.00000001
32	Yes	4	0.00000001	0.00000001
33	Yes	4	0.00000001	0.00000001
34	Yes	4	0.00000001	0.00000001

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	69 - 27	0.4533	27	0.0745	0.0033

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
67.00	3'-6" Face Horizontal	27	0.4317	0.0710	0.0032	Inf
60.00	7'x2" Antenna Mount Pipe	27	0.3562	0.0585	0.0026	Inf

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	69 - 27	2.1817	2	0.3546	0.0161

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
67.00	3'-6" Face Horizontal	2	2.0778	0.3377	0.0153	Inf
60.00	7'x2" Antenna Mount Pipe	2	1.7142	0.2786	0.0126	Inf

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	69 - 27 (1)	P24x1/2	42.00	0.00	0.0	36.9137	-8680.67	1395340.00	0.006

tnxTower	Job: EAST HAVEN 5 CT	Page: 8 of 8
TEP Northeast 45 Beechwood Drive North Andover, MA 01845 Phone: (978) 557-5553 FAX:	Project: 42 ft Monopole Extension	Date: 10:01:19 04/26/23
	Client: VERIZON	Designed by: RL

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	69 - 27 (1)	P24x1/2	173240.83	869925.00	0.199	0.00	869925.00	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	69 - 27 (1)	P24x1/2	5205.05	418602.00	0.012	2866.60	864866.67	0.003

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	69 - 27 (1)	0.006	0.199	0.000	0.012	0.003	0.206 ✔	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	69 - 27	Pole	P24x1/2	1	-8680.67	1395340.00	20.6	Pass
							Summary	
						Pole (L1)	20.6	Pass
						RATING =	**20.6**	**Pass**

Monopole Base Plate Connection @ 27'

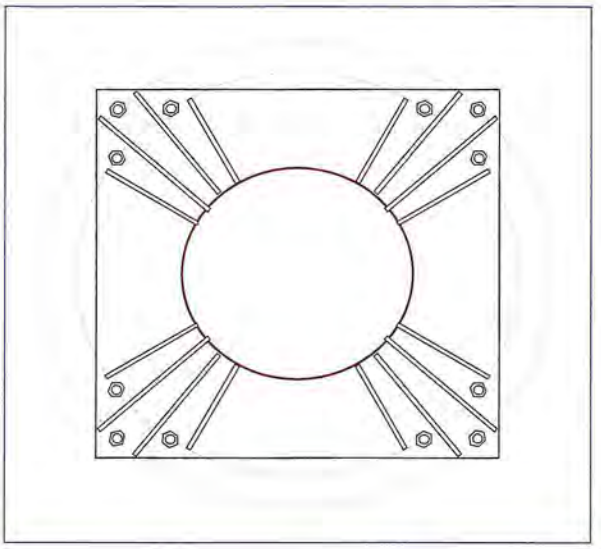
CROWN CASTLE

Site Info	
BU #	324908
Site Name	East Haven 5 CT
Rev.	7

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	See Custom Sheet
l_{ar} (in)	See Custom Sheet

Applied Loads	
Moment (kip-ft)	173.24
Axial Force (kips)	8.68
Shear Force (kips)	5.20

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

GROUP 1: (8) 1" ø bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 46" BC
Anchor Spacing: 4.009 in
GROUP 2: (4) 1" ø bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 53" BC

Base Plate Data

42" W x 2" Plate (A36; Fy=36 ksi, Fu=58 ksi); Clip: 0 in

Stiffener Data

Group 1: (8) 16"H x 11"W x 0.5"T, Notch: 0.25"
plate: Fy= 36 ksi ; weld: Fy= 70 ksi
horiz. weld: 0.25" fillet
vert. weld: 0.25" fillet

Group 2: (8) 16"H x 15"W x 0.5"T, Notch: 0.25"
plate: Fy= 36 ksi ; weld: Fy= 70 ksi
horiz. weld: 0.25" fillet
vert. weld: 0.25" fillet

Pole Data

24" x 0.5" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Analysis Results

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

GROUP 1:		
Pu_t = 12.86	ϕPn_t = 54.54	**Stress Rating**
Vu = 0.43	ϕVn = 35.34	**22.4%**
Mu = n/a	ϕMn = n/a	Pass
GROUP 2:		
Pu_t = 14.92	ϕPn_t = 54.54	**Stress Rating**
Vu = 0.43	ϕVn = 35.34	**26.1%**
Mu = n/a	ϕMn = n/a	Pass

Base Plate Summary

Max Stress (ksi):	0.33	(Shear)
Allowable Stress (ksi):	21.6	
Stress Rating:	**1.5%**	Pass

Stiffener Summary

Horizontal Weld:	**10.4%**	Pass
Vertical Weld:	**13.7%**	Pass
Plate Flexure+Shear:	**8.3%**	Pass
Plate Tension+Shear:	**6.2%**	Pass
Plate Compression:	**24.0%**	Pass

Pole Summary

Punching Shear:	**4.9%**	Pass

CCIplate

Elevation (ft)	0	(Base)

note: Bending interaction not considered when Grout Considered = "Yes"
Grout Considered = "Yes" when Eta >0.5

Bolt Group	Resist Axial	Resist Shear	Induce Plate Bending	Grout Considered	Apply at BARB Elevation	BARB CL Elevation (ft)
1	Yes	Yes	Yes	No	No	
2	Yes	Yes	Yes	No	No	

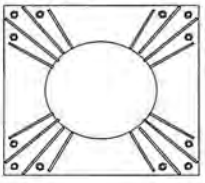
Custom Bolt Connection

Bolt	Bolt Group ID	Location (deg.)	Diameter (in)	Material	Bolt Circle (in)	Eta Factor, η	L_e (in):	Thread Type	Area Override, in^2	Tension Only
1	1	35	1	A325	46	0.5	0	N-Included		No
2	2	45	1	A325	53	0.5	0	N-Included		No
3	1	55	1	A325	46	0.5	0	N-Included		No
4	1	125	1	A325	46	0.5	0	N-Included		No
5	2	135	1	A325	53	0.5	0	N-Included		No
6	1	145	1	A325	46	0.5	0	N-Included		No
7	1	215	1	A325	46	0.5	0	N-Included		No
8	2	225	1	A325	53	0.5	0	N-Included		No
9	1	235	1	A325	46	0.5	0	N-Included		No
10	1	305	1	A325	46	0.5	0	N-Included		No
11	2	315	1	A325	53	0.5	0	N-Included		No
12	1	325	1	A325	46	0.5	0	N-Included		No

Custom Stiffener Connection

Stiffener	Stiffener Group ID	Location (deg.)	Width (in)	Height (in)	Thickness (in)	H. Notch (in)	V. Notch (in)	Grade (ksi)	Weld Type	Groove Depth - (in)	Groove Angle (deg.)	H. Fillet Weld Size (in)	V. Fillet Weld Size (in)	Weld Strength (ksi)
1	1	30	11	16	0.5	0.25	0.25	36	Fillet			0.25	0.25	70
2	2	40	15	16	0.5	0.25	0.25	36	Fillet			0.25	0.25	70
3	2	50	15	16	0.5	0.25	0.25	36	Fillet			0.25	0.25	70
4	1	60	11	16	0.5	0.25	0.25	36	Fillet			0.25	0.25	70
5	1	120	11	16	0.5	0.25	0.25	36	Fillet			0.25	0.25	70
6	2	130	15	16	0.5	0.25	0.25	36	Fillet			0.25	0.25	70
7	2	140	15	16	0.5	0.25	0.25	36	Fillet			0.25	0.25	70
8	1	150	11	16	0.5	0.25	0.25	36	Fillet			0.25	0.25	70
9	1	210	11	16	0.5	0.25	0.25	36	Fillet			0.25	0.25	70
10	2	220	15	16	0.5	0.25	0.25	36	Fillet			0.25	0.25	70
11	2	230	15	16	0.5	0.25	0.25	36	Fillet			0.25	0.25	70
12	1	240	11	16	0.5	0.25	0.25	36	Fillet			0.25	0.25	70
13	1	300	11	16	0.5	0.25	0.25	36	Fillet			0.25	0.25	70
14	2	310	15	16	0.5	0.25	0.25	36	Fillet			0.25	0.25	70
15	2	320	15	16	0.5	0.25	0.25	36	Fillet			0.25	0.25	70
16	1	330	11	16	0.5	0.25	0.25	36	Fillet			0.25	0.25	70

Plot Graphic



TEP NORTHEAST
(TEP OPCO, LLC)

April 18, 2023 (Rev.1)
June 30, 2022

verizon

Verizon Wireless
20 Alexander Drive, 2nd Floor
Wallingford, CT 06492

RE: TEP Project Number: 368254
Site Name: EAST HAVEN 5 CT
Site Address: 115 Peat Meadow Road
New Haven, CT 06513

To Whom It May Concern:

TEP Northeast (TEP NE) has been authorized by Verizon Wireless to perform a mount analysis on the proposed Verizon Wireless antenna/RRH mounts to determine their capability of supporting the following additional loading:

- **(6) JAHH-45B-R3B Antennas (72.0"x18.0"x7.0" – Wt. = 92 lbs. /each)**
- **(3) MT6407-77A Antennas w/ RRH's (Not to Exceed: 35.12"x16.06"x5.51" – Wt. = 87.1 lbs. /each)**
- **(3) B2/B66A RRH ORAN RRH's (RF4439d-25A RRH's) (15.0"x15.0"x10.0" – Wt. = 75 lbs. /each) (separate mount)**
- **(3) B5/B13 RRH ORAN RRH's (RF4440d-25A RRH's) (15.0"x15.0"x9.1" – Wt. = 71 lbs. /each) (separate mount)**
- **(3) CBC78T-DS-43-2X Diplexers (9.6"x6.9"x6.4" – Wt. = 21 lbs. /each) (separate mount)**
- **(1) OVP Box (28.9"x15.7"x10.3" – Wt. = 32 lbs.) (separate mount)**

**Proposed equipment shown in bold*

Mount fabrication drawings prepared by SitePro1, P/N WMM01 dated May 10, 2010; P/N UGLM-DCP dated February 27, 2013; P/N UGLM4 dated June 12, 2017; and mount fabrication drawings prepared by CommScope, P/N BSAMNT-SBS-2-3 dated March 2, 2017, were used to perform this analysis.

Mount Analysis Methods:

- This analysis was conducted in accordance with EIA/TIA-222-H, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, the International Building Code 2021 with 2022 Connecticut State Building Code, and AT&T Mount Technical Directive – R22.
- TEP NE considers this mount to be asymmetrical and has applied wind loads in 30 degree increments all around the mount. Per TIA-222-H and Appendix P of the Connecticut State Building Code, the max basic wind speed for this site is equal to 125 mph with a max basic wind speed with ice of 50 mph and a max ice thickness of 1.0 in. An escalated ice thickness of 1.07 in was used for this analysis.
- TEP NE considers this site to be exposure category B; tower is located in an urban/suburban or wooded area with numerous closely spaced obstructions.
- TEP NE considers this site to be topographic category 1; tower is located on flat terrain or the bottom of a hill or ridge.
- TEP NE considers this site to have a spectral response acceleration parameter at short periods, S_S, of 0.201 and a spectral response acceleration parameter at a period of 1 second, S_1, of 0.054.
- The mount has been analyzed with load combinations consisting of 500 lbs live load using a service wind speed of 30 mph wind on the worst case antenna. Analysis performed on each antenna pipe to determine worst case location; worst case location was antenna position 2.
- The mount has been analyzed with load combinations consisting of a 250 lbs live load in a worst case location on the mount.
- The proposed mounts are to be secured to the existing monopole with ring mounts and threaded rods. TEP NE considers the threaded rods to be the governing connection member.

Based on our evaluation, we have determined that the Proposed SitePro1 P/N UGLM-DC4 collar mounts, Proposed CommScope P/N BSAMNT-SBS-2-3 dual mounts, and Proposed SitePro1 P/N UGLM-DCP collar mounts **ARE CAPABLE** of supporting the proposed installation.

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
Proposed Antenna Mount	1	LC7	25%	**PASS**
Proposed RRH Mount	11	LC10	3%	**PASS**

Reference Documents:

- Fabrication drawings prepared by SitePro1, P/N WMM01 dated May 10, 2010.
- Fabrication drawings prepared by SitePro1, P/N UGLM-DCP dated February 27, 2013.
- Fabrication drawings prepared by SitePro1, P/N UGLM4 dated June 12, 2017.
- Fabrication drawings prepared by CommScope, P/N BSAMNT-SBS-2-3 dated March 2, 2017.

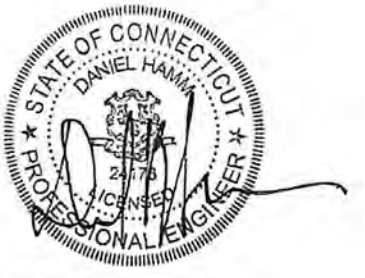
This determination was based on the following limitations and assumptions:

1. TEP NE is not responsible for any modifications completed prior to and hereafter which TEP NE was not directly involved.
2. All structural members and their connections are assumed to be in good condition and are free from defects with no deterioration to its member capacities.
3. All antennas, coax cables and waveguide cables are assumed to be properly installed and supported as per the manufacturer's requirements.
4. The proposed mount has been adequately secured to the tower structure per the mount manufacturer's specifications.
5. All components pertaining to Verizon's mounts must be tightened and re-plumbed prior to the installation of new appurtenances.
6. TEP NE performed a localized analysis on the mount itself and not on the supporting tower structure.

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

Respectfully Submitted,
TEP Northeast

Michael Cabral
Director



Daniel P. Hamm, PE
Vice President

TEP NORTHEAST

Wind & Ice Calculations

Date: 4/18/2023
Project Name: EAST HAVEN 5 CT
Designed By: CL **Checked By:** MSC

TEP NORTHEAST

2.6.5.2 Velocity Pressure Coeff:

$K_z = 2.01\ (z/z_g)^{2/\alpha}$

K_z= **0.881**

z= 67 (ft)
z_g= 1200 (ft)
α= 7.0

Kzmin ≤ Kz ≤ 2.01

Table 2-4

Exposure	Z_g	α	K_{zmin}	K_c
B	1200 ft	7.0	0.70	0.9
C	900 ft	9.5	0.85	1.0
D	700 ft	11.5	1.03	1.1

2.6.6.2 Topographic Factor:

Table 2-5

Topo. Category	K_t	f
2	0.43	1.25
3	0.53	2.0
4	0.72	1.5

$K_{zt} = [1+(K_c K_t/K_h)]^2$

$K_h = e^{(f*z/H)}$

K_{zt}= **1**

(If Category 1 then K_{zt}=1.0)

Category= 1

K_h= 1
K_c= 0.9 (from Table 2-4)
K_t= 0 (from Table 2-5)
f= 0 (from Table 2-5)
z= 67
z_s= 15 (Mean elevation of base of structure above sea level)
H= 0 (Ht. of the crest above surrounding terrain)
K_{zt}= 1.00 (from 2.6.6.2.1)
K_e= 1.00 (from 2.6.8)

2.6.10 Design Ice Thickness

Max Ice Thickness = t_i = 1.00 in
Importance Factor = I= 1.00 (from Table 2-3)
K_{iz} = 1.07 (from Sec. 2.6.10)

$t_{iz} = t_i * I * K_{iz} * (K_{zt})^{0.35}$

t_{iz} = 1.07 in

Date: 4/18/2023
Project Name: EAST HAVEN 5 CT
Designed By: CL Checked By: MSC

2.6.9 Gust Effect Factor

2.6.9.1 Self Supporting Lattice Structures

G_h = 1.0 Latticed Structures > 600 ft

G_h = 0.85 Latticed Structures 450 ft or less

G_h = 0.85 + 0.15 [h/150 - 3.0] h= ht. of structure

h= 69 G_h= 0.85

2.6.9.2 Guyed Masts G_h= 0.85

2.6.9.3 Pole Structures G_h= 1.1

2.6.9 Appurtenances G_h= 1.0

2.6.9.4 Structures Supported on Other Structures
(Cantilivered tubular or latticed spines, pole, structures on buildings (ht. : width ratio > 5)

G_h= 1.35 Gh= 1.00

2.6.11.2 Design Wind Force on Appurtenances

$F = q_z * G_h * (EPA)_A$

$q_z = 0.00256 * K_z * K_{zt} * K_s * K_e * K_d * V_{max}^2$

		K_z=	0.881	(from 2.6.5.2)
		K_{zt}=	1.0	(from 2.6.6.2.1)
		K_s=	1.0	(from 2.6.7)
q_z=	33.47	K_e=	1.00	(from 2.6.8)
$q_{z\,(ice)}$=	5.36	K_d=	0.95	(from Table 2-2)
$q_{z\,(30)}$=	1.93	V_{max}=	125	mph (Ultimate Wind Speed)
		$V_{max\,(ice)}$=	50	mph
		V_{30}=	30	mph

Table 2-2

Structure Type	Wind Direction Probability Factor, Kd
Latticed structures with triangular, square or rectangular cross sections	0.85
Tubular pole structures, latticed structures with other cross sections, appurtenances	0.95
Tubular pole structures supporting antennas enclosed within a cylindrical shroud	1.00

Date: 4/18/2023
Project Name: EAST HAVEN 5 CT
Designed By: CL Checked By: MSC

Determine Ca:

Table 2-9

Force Coefficients (Ca) for Appurtenances				
Member Type		Aspect Ratio ≤ 2.5	Aspect Ratio = 7	Aspect Ratio ≥ 25
		Ca	Ca	Ca
Flat		1.2	1.4	2.0
Square/Rectangular HSS		1.2 - 2.8(r_s) ≥ 0.85	1.4 - 4.0(r_s) ≥ 0.90	2.0 - 6.0(r_s) ≥ 1.25
Round	C < 39 (Subcritical)	0.7	0.8	1.2
	39 ≤ C ≤ 78 (Transitional)	$4.14/(C^{0.485})$	$3.66/(C^{0.415})$	$46.8/(C^{1.0})$
	C > 78 (Supercritical)	0.5	0.6	0.6

Aspect Ratio is the overall length/width ratio in the plane normal to the wind direction.
(Aspect ratio is independent of the spacing between support points of a linear appurtenance.

Note: Linear interpolation may be used for aspect ratios other than those shown.

Ice Thickness = **1.07 in** **Angle = 0 (deg)** **Equivalent Angle = 180 (deg)**

Appurtenances	Height	Width	Depth	Flat Area	Aspect Ratio	Ca	Force (lbs)	Force (lbs) (w/ Ice)	Force (lbs) (30 mph)
JAHH-45B-R3B Antenna	72.0	18.0	7.0	9.00	4.00	1.27	382	70	22
MT6407-77A Antenna w/ RRH	35.1	16.1	5.5	3.92	2.19	1.20	157	30	9
B5/B13 RRH ORAN (RF4440D-13A) RRH	15.0	15.0	9.1	1.56	1.00	1.20	63	13	4
B2/B66A RRH ORAN (RF4439D-25A) RR	15.0	15.0	10.0	1.56	1.00	1.20	63	13	4
CBC78T-DS-43-2X Diplexer	9.7	6.9	6.4	0.46	1.41	1.20	19	5	1
OVP Box	28.9	15.7	10.3	3.15	1.84	1.20	127	25	7
2-1/2" Pipe	2.9	12.0		0.24	0.24	1.20	10		
HSS 4x4	4.0	12.0		0.33	0.33	2.00	22		

Date: 4/18/2023
Project Name: EAST HAVEN 5 CT
Designed By: CL Checked By: MSC

TEP NORTHEAST

WIND LOADS

Angle =	30	(deg)	Ice Thickness =	1.07	in.	Equivalent Angle =	210	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Aspect Ratio	Aspect Ratio	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
JAHH-45B-R3B Antenna	72.0	18.0	7.0	9.00	3.50	4.00	10.29	1.27	1.51	382	177	330
MT6407-77A Antenna w/ RRH	35.1	16.1	5.5	3.92	1.34	2.19	6.37	1.20	1.37	157	62	133
B5/B13 RRH ORAN (RF4440D-13A) R	15.0	15.0	9.1	1.56	0.95	1.00	1.65	1.20	1.20	63	38	57
B2/B66A RRH ORAN (RF4439D-25A)	15.0	15.0	10.0	1.56	1.04	1.00	1.50	1.20	1.20	63	42	58
CBC78T-DS-43-2X Diplexer	9.7	6.9	6.4	0.46	0.43	1.41	1.52	1.20	1.20	19	17	18
OVP Box	28.9	15.7	10.3	3.15	2.07	1.84	2.81	1.20	1.21	127	84	116

WIND LOADS WITH ICE:

JAHH-45B-R3B Antenna	74.1	20.1	9.1	10.37	4.71	3.68	8.11	1.25	1.44	70	36	61
MT6407-77A Antenna w/ RRH	37.3	18.2	7.7	4.71	1.98	2.05	4.87	1.20	1.31	30	14	26
B5/B13 RRH ORAN (RF4440D-13A) R	17.1	17.1	11.2	2.04	1.34	1.00	1.52	1.20	1.20	13	9	12
B2/B66A RRH ORAN (RF4439D-25A)	17.1	17.1	12.1	2.04	1.45	1.00	1.41	1.20	1.20	13	9	12
CBC78T-DS-43-2X Diplexer	11.8	9.0	8.5	0.74	0.70	1.31	1.39	1.20	1.20	5	5	5
OVP Box	31.0	17.8	12.4	3.85	2.68	1.74	2.49	1.20	1.20	25	17	23

WIND LOADS AT 30 MPH:

JAHH-45B-R3B Antenna	72.0	18.0	7.0	9.00	3.50	4.00	10.29	1.27	1.51	22	10	19
MT6407-77A Antenna w/ RRH	35.1	16.1	5.5	3.92	1.34	2.19	6.37	1.20	1.37	9	4	8
B5/B13 RRH ORAN (RF4440D-13A) R	15.0	15.0	9.1	1.56	0.95	1.00	1.65	1.20	1.20	4	2	3
B2/B66A RRH ORAN (RF4439D-25A)	15.0	15.0	10.0	1.56	1.04	1.00	1.50	1.20	1.20	4	2	3
CBC78T-DS-43-2X Diplexer	9.7	6.9	6.4	0.46	0.43	1.41	1.52	1.20	1.20	1	1	1
OVP Box	28.9	15.7	10.3	3.15	2.07	1.84	2.81	1.20	1.21	7	5	7

Date: 4/18/2023
Project Name: EAST HAVEN 5 CT
Designed By: CL Checked By: MSC

TEP NORTHEAST

WIND LOADS

Angle =	60	(deg)	Ice Thickness =	1.07	in.	Equivalent Angle =	240	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
JAHH-45B-R3B Antenna	72.0	18.0	7.0	9.00	3.50	4.00	10.29	1.27	1.51	382	177	228
MT6407-77A Antenna w/ RRH	35.1	16.1	5.5	3.92	1.34	2.19	6.37	1.20	1.37	157	62	86
B5/B13 RRH ORAN (RF4440D-13A) R	15.0	15.0	9.1	1.56	0.95	1.00	1.65	1.20	1.20	63	38	44
B2/B66A RRH ORAN (RF4439D-25A)	15.0	15.0	10.0	1.56	1.04	1.00	1.50	1.20	1.20	63	42	47
CBC78T-DS-43-2X Diplexer	9.7	6.9	6.4	0.46	0.43	1.41	1.52	1.20	1.20	19	17	18
OVP Box	28.9	15.7	10.3	3.15	2.07	1.84	2.81	1.20	1.21	127	84	95

WIND LOADS WITH ICE:

JAHH-45B-R3B Antenna	74.1	20.1	9.1	10.37	4.71	3.68	8.11	1.25	1.44	70	36	45
MT6407-77A Antenna w/ RRH	37.3	18.2	7.7	4.71	1.98	2.05	4.87	1.20	1.31	30	14	18
B5/B13 RRH ORAN (RF4440D-13A) R	17.1	17.1	11.2	2.04	1.34	1.00	1.52	1.20	1.20	13	9	10
B2/B66A RRH ORAN (RF4439D-25A)	17.1	17.1	12.1	2.04	1.45	1.00	1.41	1.20	1.20	13	9	10
CBC78T-DS-43-2X Diplexer	11.8	9.0	8.5	0.74	0.70	1.31	1.39	1.20	1.20	5	5	5
OVP Box	31.0	17.8	12.4	3.85	2.68	1.74	2.49	1.20	1.20	25	17	19

WIND LOADS AT 30 MPH:

JAHH-45B-R3B Antenna	72.0	18.0	7.0	9.00	3.50	4.00	10.29	1.27	1.51	22	10	13
MT6407-77A Antenna w/ RRH	35.1	16.1	5.5	3.92	1.34	2.19	6.37	1.20	1.37	9	4	5
B5/B13 RRH ORAN (RF4440D-13A) R	15.0	15.0	9.1	1.56	0.95	1.00	1.65	1.20	1.20	4	2	3
B2/B66A RRH ORAN (RF4439D-25A)	15.0	15.0	10.0	1.56	1.04	1.00	1.50	1.20	1.20	4	2	3
CBC78T-DS-43-2X Diplexer	9.7	6.9	6.4	0.46	0.43	1.41	1.52	1.20	1.20	1	1	1
OVP Box	28.9	15.7	10.3	3.15	2.07	1.84	2.81	1.20	1.21	7	5	5

Date: 4/18/2023
Project Name: EAST HAVEN 5 CT
Designed By: CL Checked By: MSC

WIND LOADS

Angle =	90	(deg)	Ice Thickness =	1.07	in.	Equivalent Angle =	270	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
JAHH-45B-R3B Antenna	72.0	18.0	7.0	9.00	3.50	4.00	10.29	1.27	1.51	382	177	177
MT6407-77A Antenna w/ RRH	35.1	16.1	5.5	3.92	1.34	2.19	6.37	1.20	1.37	157	62	62
B5/B13 RRH ORAN (RF4440D-13A) R	15.0	15.0	9.1	1.56	0.95	1.00	1.65	1.20	1.20	63	38	38
B2/B66A RRH ORAN (RF4439D-25A)	15.0	15.0	10.0	1.56	1.04	1.00	1.50	1.20	1.20	63	42	42
CBC78T-DS-43-2X Diplexer	9.7	6.9	6.4	0.46	0.43	1.41	1.52	1.20	1.20	19	17	17
OVP Box	28.9	15.7	10.3	3.15	2.07	1.84	2.81	1.20	1.21	127	84	84

WIND LOADS WITH ICE:

JAHH-45B-R3B Antenna	74.1	20.1	9.1	10.37	4.71	3.68	8.11	1.25	1.44	70	36	36
MT6407-77A Antenna w/ RRH	37.3	18.2	7.7	4.71	1.98	2.05	4.87	1.20	1.31	30	14	14
B5/B13 RRH ORAN (RF4440D-13A) R	17.1	17.1	11.2	2.04	1.34	1.00	1.52	1.20	1.20	13	9	9
B2/B66A RRH ORAN (RF4439D-25A)	17.1	17.1	12.1	2.04	1.45	1.00	1.41	1.20	1.20	13	9	9
CBC78T-DS-43-2X Diplexer	11.8	9.0	8.5	0.74	0.70	1.31	1.39	1.20	1.20	5	5	5
OVP Box	31.0	17.8	12.4	3.85	2.68	1.74	2.49	1.20	1.20	25	17	17

WIND LOADS AT 30 MPH:

JAHH-45B-R3B Antenna	72.0	18.0	7.0	9.00	3.50	4.00	10.29	1.27	1.51	22	10	10
MT6407-77A Antenna w/ RRH	35.1	16.1	5.5	3.92	1.34	2.19	6.37	1.20	1.37	9	4	4
B5/B13 RRH ORAN (RF4440D-13A) R	15.0	15.0	9.1	1.56	0.95	1.00	1.65	1.20	1.20	4	2	2
B2/B66A RRH ORAN (RF4439D-25A)	15.0	15.0	10.0	1.56	1.04	1.00	1.50	1.20	1.20	4	2	2
CBC78T-DS-43-2X Diplexer	9.7	6.9	6.4	0.46	0.43	1.41	1.52	1.20	1.20	1	1	1
OVP Box	28.9	15.7	10.3	3.15	2.07	1.84	2.81	1.20	1.21	7	5	5

Date: 4/18/2023
Project Name: EAST HAVEN 5 CT
Designed By: CL Checked By: MSC

TEP NORTHEAST

WIND LOADS

Angle = 120 (deg)

Ice Thickness = 1.07 in.

Equivalent Angle = 300 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
JAHH-45B-R3B Antenna	72.0	18.0	7.0	9.00	3.50	4.00	10.29	1.27	1.51	382	177	228
MT6407-77A Antenna w/ RRH	35.1	16.1	5.5	3.92	1.34	2.19	6.37	1.20	1.37	157	62	86
B5/B13 RRH ORAN (RF4440D-13A) R	15.0	15.0	9.1	1.56	0.95	1.00	1.65	1.20	1.20	63	38	44
B2/B66A RRH ORAN (RF4439D-25A)	15.0	15.0	10.0	1.56	1.04	1.00	1.50	1.20	1.20	63	42	47
CBC78T-DS-43-2X Diplexer	9.7	6.9	6.4	0.46	0.43	1.41	1.52	1.20	1.20	19	17	18
OVP Box	28.9	15.7	10.3	3.15	2.07	1.84	2.81	1.20	1.21	127	84	95

WIND LOADS WITH ICE:

JAHH-45B-R3B Antenna	74.1	20.1	9.1	10.37	4.71	3.68	8.11	1.25	1.44	70	36	45
MT6407-77A Antenna w/ RRH	37.3	18.2	7.7	4.71	1.98	2.05	4.87	1.20	1.31	30	14	18
B5/B13 RRH ORAN (RF4440D-13A) R	17.1	17.1	11.2	2.04	1.34	1.00	1.52	1.20	1.20	13	9	10
B2/B66A RRH ORAN (RF4439D-25A)	17.1	17.1	12.1	2.04	1.45	1.00	1.41	1.20	1.20	13	9	10
CBC78T-DS-43-2X Diplexer	11.8	9.0	8.5	0.74	0.70	1.31	1.39	1.20	1.20	5	5	5
OVP Box	31.0	17.8	12.4	3.85	2.68	1.74	2.49	1.20	1.20	25	17	19

WIND LOADS AT 30 MPH:

JAHH-45B-R3B Antenna	72.0	18.0	7.0	9.00	3.50	4.00	10.29	1.27	1.51	22	10	13
MT6407-77A Antenna w/ RRH	35.1	16.1	5.5	3.92	1.34	2.19	6.37	1.20	1.37	9	4	5
B5/B13 RRH ORAN (RF4440D-13A) R	15.0	15.0	9.1	1.56	0.95	1.00	1.65	1.20	1.20	4	2	3
B2/B66A RRH ORAN (RF4439D-25A)	15.0	15.0	10.0	1.56	1.04	1.00	1.50	1.20	1.20	4	2	3
CBC78T-DS-43-2X Diplexer	9.7	6.9	6.4	0.46	0.43	1.41	1.52	1.20	1.20	1	1	1
OVP Box	28.9	15.7	10.3	3.15	2.07	1.84	2.81	1.20	1.21	7	5	5

Date: 4/18/2023
Project Name: EAST HAVEN 5 CT
Designed By: CL Checked By: MSC

TEP NORTHEAST

WIND LOADS

Angle =	150	(deg)	Ice Thickness =	1.07	in.	Equivalent Angle =	330	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
JAHH-45B-R3B Antenna	72.0	18.0	7.0	9.00	3.50	4.00	10.29	1.27	1.51	382	177	330
MT6407-77A Antenna w/ RRH	35.1	16.1	5.5	3.92	1.34	2.19	6.37	1.20	1.37	157	62	133
B5/B13 RRH ORAN (RF4440D-13A) RI	15.0	15.0	9.1	1.56	0.95	1.00	1.65	1.20	1.20	63	38	57
B2/B66A RRH ORAN (RF4439D-25A) I	15.0	15.0	10.0	1.56	1.04	1.00	1.50	1.20	1.20	63	42	58
CBC78T-DS-43-2X Diplexer	9.7	6.9	6.4	0.46	0.43	1.41	1.52	1.20	1.20	19	17	18
OVP Box	28.9	15.7	10.3	3.15	2.07	1.84	2.81	1.20	1.21	127	84	116

WIND LOADS WITH ICE:

JAHH-45B-R3B Antenna	74.1	20.1	9.1	10.37	4.71	3.68	8.11	1.25	1.44	70	36	61
MT6407-77A Antenna w/ RRH	37.3	18.2	7.7	4.71	1.98	2.05	4.87	1.20	1.31	30	14	26
B5/B13 RRH ORAN (RF4440D-13A) RI	17.1	17.1	11.2	2.04	1.34	1.00	1.52	1.20	1.20	13	9	12
B2/B66A RRH ORAN (RF4439D-25A) I	17.1	17.1	12.1	2.04	1.45	1.00	1.41	1.20	1.20	13	9	12
CBC78T-DS-43-2X Diplexer	11.8	9.0	8.5	0.74	0.70	1.31	1.39	1.20	1.20	5	5	5
OVP Box	31.0	17.8	12.4	3.85	2.68	1.74	2.49	1.20	1.20	25	17	23

WIND LOADS AT 30 MPH:

JAHH-45B-R3B Antenna	72.0	18.0	7.0	9.00	3.50	4.00	10.29	1.27	1.51	22	10	19
MT6407-77A Antenna w/ RRH	35.1	16.1	5.5	3.92	1.34	2.19	6.37	1.20	1.37	9	4	8
B5/B13 RRH ORAN (RF4440D-13A) RI	15.0	15.0	9.1	1.56	0.95	1.00	1.65	1.20	1.20	4	2	3
B2/B66A RRH ORAN (RF4439D-25A) I	15.0	15.0	10.0	1.56	1.04	1.00	1.50	1.20	1.20	4	2	3
CBC78T-DS-43-2X Diplexer	9.7	6.9	6.4	0.46	0.43	1.41	1.52	1.20	1.20	1	1	1
OVP Box	28.9	15.7	10.3	3.15	2.07	1.84	2.81	1.20	1.21	7	5	7

Date: 4/18/2023
Project Name: EAST HAVEN 5 CT
Designed By: CL **Checked By:** MSC

ICE WEIGHT CALCULATIONS

Thickness of ice:	1.07	in.
Density of ice:	56	pcf

JAHH-45B-R3B Antenna

Weight of ice based on total radial SF area:

Height (in):	72.0	
Width (in):	18.0	
Depth (in):	7.0	
Total weight of ice on object:		160 lbs
Weight of object:	92.0	lbs
Combined weight of ice and object:		252 lbs

MT6407-77A Antenna w/ RRH

Weight of ice based on total radial SF area:

Height (in):	35.1	
Width (in):	16.1	
Depth (in):	5.5	
Total weight of ice on object:		69 lbs
Weight of object:	87.1	lbs
Combined weight of ice and object:		156 lbs

B5/B13 RRH ORAN (RF4440D-13A) RRH

Weight of ice based on total radial SF area:

Height (in):	15.0	
Width (in):	15.0	
Depth (in):	9.1	
Total weight of ice on object:		30 lbs
Weight of object:	71.0	lbs
Combined weight of ice and object:		101 lbs

B2/B66A RRH ORAN (RF4439D-25A) RRH

Weight of ice based on total radial SF area:

Height (in):	15.0	
Width (in):	15.0	
Depth (in):	10.0	
Total weight of ice on object:		31 lbs
Weight of object:	75.0	lbs
Combined weight of ice and object:		106 lbs

CBC78T-DS-43-2X Diplexer

Weight of ice based on total radial SF area:

Height (in):	9.7	
Width (in):	6.9	
Depth (in):	6.4	
Total weight of ice on object:		11 lbs
Weight of object:	21.0	lbs
Combined weight of ice and object:		32 lbs

OVP Box

Weight of ice based on total radial SF area:

Height (in):	28.9	
Width (in):	15.7	
Depth (in):	10.3	
Total weight of ice on object:		62 lbs
Weight of object:	32.0	lbs
Combined weight of ice and object:		94 lbs

2-1/2" Pipe

Per foot weight of ice:

diameter (in):	2.88	
Per foot weight of ice on object:		5 plf

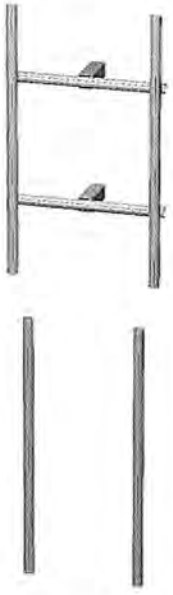
HSS 4x4

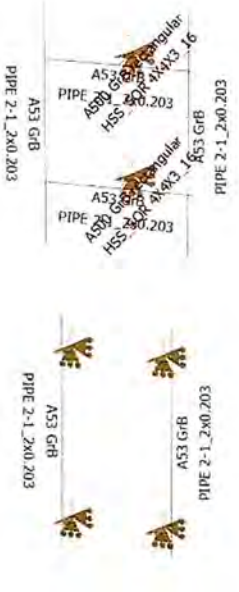
Weight of ice based on total radial SF area:

Height (in):	4	
Width (in):	4	
Per foot weight of ice on object:		9 plf

TEP NORTHEAST

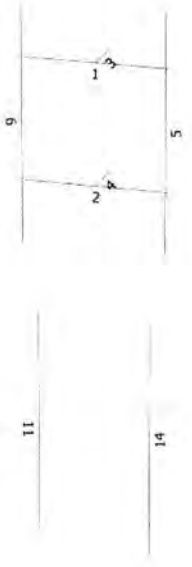
Mount Calculations
(Proposed Conditions)


Z
X


A53 GrB
PIPE 2-1_2x0.203
A53 GrB
PIPE 2-1_2x0.203
A53 GrB
PIPE 2-1_2x0.203
A53 GrB
PIPE 2-1_2x0.203


Y
X
Z

Design status
- Not designed
- Error on design
- Design O.K.
- With warnings


3
1
6
5
4
2
11
14
Y
X
Z

RAM Elements
CONNECT Edition

Current Date: 4/18/2023 12:34 PM
Units system: English

Load data

GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

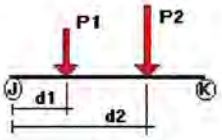
Condition	Description	Comb.	Category
D	Dead Load	No	DL
Wo	Wind Load (NO ICE)	No	WIND
W30	WL 30deg	No	WIND
W60	WL 60deg	No	WIND
W90	WL 90deg	No	WIND
W120	WL 120deg	No	WIND
W150	WL 150deg	No	WIND
Di	Ice Load	No	LL
WI0	WL ICE 0deg	No	WIND
WI30	WL ICE 30deg	No	WIND
WI60	WL ICE 60deg	No	WIND
WI90	WL ICE 90deg	No	WIND
WI120	WL ICE 120deg	No	WIND
WI150	WL ICE 150deg	No	WIND
WL0	WL 30 mph 0deg	No	WIND
WL30	WL 30 mph 30deg	No	WIND
WL60	WL 30 mph 60deg	No	WIND
WL90	WL 30 mph 90deg	No	WIND
WL120	WL 30 mph 120deg	No	WIND
WL150	WL 30 mph 150deg	No	WIND
LL1	250 lb Live Load Center of Mount	No	LL
LL2	250 lb Live Load Right End of Mount	No	LL
LL3	250 lb Live Load Left End of Mount	No	LL
LLa1	500 lb Live Load Antenna 1	No	LL
LLa2	500 lb Live Load Antenna 2	No	LL

Distributed force on members

Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
Wo	1	z	-0.01	-0.01	0.00	No	100.00	Yes
	2	z	-0.01	-0.01	0.00	No	100.00	Yes
	11	z	-0.01	-0.01	0.00	No	100.00	Yes
	14	z	-0.01	-0.01	0.00	No	100.00	Yes
W30	1	z	-0.01	-0.01	0.00	No	100.00	Yes

	2	z	-0.01	-0.01	0.00	No	100.00	Yes
	11	z	-0.01	-0.01	0.00	No	100.00	Yes
	14	z	-0.01	-0.01	0.00	No	100.00	Yes
W60	3	x	-0.022	-0.022	0.00	No	100.00	Yes
	4	x	-0.022	-0.022	0.00	No	100.00	Yes
	5	x	-0.01	-0.01	0.00	No	100.00	Yes
	6	x	-0.01	-0.01	0.00	No	100.00	Yes
	11	x	-0.01	-0.01	0.00	No	100.00	Yes
	14	x	-0.01	-0.01	0.00	No	100.00	Yes
W90	3	x	-0.022	-0.022	0.00	No	100.00	Yes
	4	x	-0.022	-0.022	0.00	No	100.00	Yes
	5	x	-0.01	-0.01	0.00	No	100.00	Yes
	6	x	-0.01	-0.01	0.00	No	100.00	Yes
	11	x	-0.01	-0.01	0.00	No	100.00	Yes
	14	x	-0.01	-0.01	0.00	No	100.00	Yes
W120	3	x	-0.022	-0.022	0.00	No	100.00	Yes
	4	x	-0.022	-0.022	0.00	No	100.00	Yes
	5	x	-0.01	-0.01	0.00	No	100.00	Yes
	6	x	-0.01	-0.01	0.00	No	100.00	Yes
	11	x	-0.01	-0.01	0.00	No	100.00	Yes
	14	x	-0.01	-0.01	0.00	No	100.00	Yes
W150	1	z	0.01	0.01	0.00	No	100.00	Yes
	2	z	0.01	0.01	0.00	No	100.00	Yes
	5	z	0.01	0.01	0.00	No	100.00	Yes
	6	z	0.01	0.01	0.00	No	100.00	Yes
	11	z	0.01	0.01	0.00	No	100.00	Yes
	14	z	0.01	0.01	0.00	No	100.00	Yes
Di	1	y	-0.005	-0.005	0.00	No	100.00	Yes
	2	y	-0.005	-0.005	0.00	No	100.00	Yes
	3	y	-0.009	-0.009	0.00	No	100.00	Yes
	4	y	-0.009	-0.009	0.00	No	100.00	Yes
	5	y	-0.005	-0.005	0.00	No	100.00	Yes
	6	y	-0.005	-0.005	0.00	No	100.00	Yes
	11	y	-0.005	-0.005	0.00	No	100.00	Yes
	14	y	-0.005	-0.005	0.00	No	100.00	Yes

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
D	5	y	-0.044	1.00	No
		y	-0.044	4.00	No
	6	y	-0.036	0.50	No
		y	-0.036	3.00	No
		y	-0.036	5.50	No
		y	-0.092	0.50	No
		y	-0.092	5.50	No
	11	y	-0.075	0.50	No
		y	-0.071	2.50	No
		y	-0.021	3.75	No

		y	-0.032	5.50	No
	14	y	-0.075	0.50	No
		y	-0.071	2.50	No
		y	-0.021	3.75	No
		y	-0.021	5.50	No
Wo	5	z	-0.079	1.00	No
		z	-0.079	4.00	No
	6	z	-0.382	0.50	No
		z	-0.382	5.50	No
	11	z	-0.063	0.50	No
		z	-0.063	2.50	No
		z	-0.019	3.75	No
		z	-0.127	5.50	No
	14	z	-0.063	0.50	No
		z	-0.063	2.50	No
		z	-0.019	3.75	No
		z	-0.019	5.50	No
W30	5	3	-0.067	1.00	No
		3	-0.067	4.00	No
	6	3	-0.33	0.50	No
		3	-0.33	5.50	No
	11	3	-0.058	0.50	No
		3	-0.057	2.50	No
		3	-0.018	3.75	No
		3	-0.116	5.50	No
	14	3	-0.058	0.50	No
		3	-0.057	2.50	No
		3	-0.018	3.75	No
		3	-0.018	5.50	No
W60	5	3	-0.043	1.00	No
		3	-0.043	4.00	No
	6	3	-0.228	0.50	No
		3	-0.228	5.50	No
	11	3	-0.047	0.50	No
		3	-0.044	2.50	No
		3	-0.018	3.75	No
		3	-0.095	5.50	No
	14	3	-0.047	0.50	No
		3	-0.044	2.50	No
		3	-0.018	3.75	No
		3	-0.018	5.50	No
W90	5	x	-0.031	1.00	No
		x	-0.031	4.00	No
	6	x	-0.177	0.50	No
		x	-0.177	5.50	No
	11	x	-0.042	0.50	No
		x	-0.038	2.50	No
		x	-0.017	3.75	No
		x	-0.084	5.50	No
	14	x	-0.042	0.50	No
		x	-0.038	2.50	No
		x	-0.017	3.75	No
		x	-0.017	5.50	No
W120	5	2	-0.043	1.00	No
		2	-0.043	4.00	No
	6	2	-0.228	0.50	No
		2	-0.228	5.50	No
	11	2	-0.047	0.50	No
		2	-0.044	2.50	No
		2	-0.018	3.75	No

		2	-0.095	5.50	No
	14	2	-0.047	0.50	No
		2	-0.044	2.50	No
		2	-0.018	3.75	No
		2	-0.018	5.50	No
W150	5	2	-0.067	1.00	No
		2	-0.067	4.00	No
	6	2	-0.33	0.50	No
		2	-0.33	5.50	No
	11	2	-0.058	0.50	No
		2	-0.057	2.50	No
		2	-0.018	3.75	No
		2	-0.116	5.50	No
	14	2	-0.058	0.50	No
		2	-0.057	2.50	No
		2	-0.018	3.75	No
		2	-0.018	5.50	No
Di	5	y	-0.035	1.00	No
		y	-0.035	4.00	No
	6	y	-0.16	0.50	No
		y	-0.16	5.50	No
	11	y	-0.031	0.50	No
		y	-0.03	2.50	No
		y	-0.011	3.75	No
		y	-0.062	5.50	No
	14	y	-0.031	0.50	No
		y	-0.03	2.50	No
		y	-0.011	3.75	No
		y	-0.011	5.50	No
WI0	5	z	-0.015	1.00	No
		z	-0.015	4.00	No
	6	z	-0.07	0.50	No
		z	-0.07	5.50	No
	11	z	-0.013	0.50	No
		z	-0.013	2.50	No
		z	-0.005	3.75	No
		z	-0.025	5.50	No
	14	z	-0.013	0.50	No
		z	-0.013	2.50	No
		z	-0.005	3.75	No
		z	-0.005	5.50	No
WI30	5	3	-0.013	1.00	No
		3	-0.013	4.00	No
	6	3	-0.061	0.50	No
		3	-0.061	5.50	No
	11	3	-0.012	0.50	No
		3	-0.012	2.50	No
		3	-0.005	3.75	No
		3	-0.023	5.50	No
	14	3	-0.012	0.50	No
		3	-0.012	2.50	No
		3	-0.005	3.75	No
		3	-0.005	5.50	No
WI60	5	3	-0.009	1.00	No
		3	-0.009	4.00	No
	6	3	-0.045	0.50	No
		3	-0.045	5.50	No
	11	3	-0.01	0.50	No
		3	-0.01	2.50	No
		3	-0.005	3.75	No

		3	-0.019	5.50	No
	14	3	-0.01	0.50	No
		3	-0.01	2.50	No
		3	-0.005	3.75	No
		3	-0.005	5.50	No
WI90	5	x	-0.007	1.00	No
		x	-0.007	4.00	No
	6	x	-0.036	0.50	No
		x	-0.036	5.50	No
	11	x	-0.009	0.50	No
		x	-0.009	2.50	No
		x	-0.005	3.75	No
		x	-0.017	5.50	No
	14	x	-0.009	0.50	No
		x	-0.009	2.50	No
		x	-0.005	3.75	No
		x	-0.005	5.50	No
WI120	5	2	-0.009	1.00	No
		2	-0.009	4.00	No
	6	2	-0.045	0.50	No
		2	-0.045	5.50	No
	11	2	-0.01	0.50	No
		2	-0.01	2.50	No
		2	-0.005	3.75	No
		2	-0.019	5.50	No
	14	2	-0.01	0.50	No
		2	-0.01	2.50	No
		2	-0.005	3.75	No
		2	-0.005	5.50	No
WI150	5	2	-0.013	1.00	No
		2	-0.013	4.00	No
	6	2	-0.061	0.50	No
		2	-0.061	5.50	No
	11	2	-0.012	0.50	No
		2	-0.012	2.50	No
		2	-0.005	3.75	No
		2	-0.023	5.50	No
	14	2	-0.012	0.50	No
		2	-0.012	2.50	No
		2	-0.005	3.75	No
		2	-0.005	5.50	No
WL0	5	z	-0.005	1.00	No
		z	-0.005	4.00	No
	6	z	-0.022	0.50	No
		z	-0.022	5.50	No
	11	z	-0.004	0.50	No
		z	-0.004	2.50	No
		z	-0.001	3.75	No
		z	-0.007	5.50	No
	14	z	-0.004	0.50	No
		z	-0.004	2.50	No
		z	-0.001	3.75	No
		z	-0.001	5.50	No
WL30	5	3	-0.004	1.00	No
		3	-0.004	4.00	No
	6	3	-0.019	0.50	No
		3	-0.019	5.50	No
	11	3	-0.003	0.50	No
		3	-0.003	2.50	No
		3	-0.001	3.75	No

		3	-0.007	5.50	No
	14	3	-0.003	0.50	No
		3	-0.003	2.50	No
		3	-0.001	3.75	No
		3	-0.001	5.50	No
WL60	5	3	-0.003	1.00	No
		3	-0.003	4.00	No
	6	3	-0.013	0.50	No
		3	-0.013	5.50	No
	11	3	-0.003	0.50	No
		3	-0.003	2.50	No
		3	-0.001	3.75	No
		3	-0.005	5.50	No
	14	3	-0.003	0.50	No
		3	-0.003	2.50	No
		3	-0.001	3.75	No
		3	-0.001	5.50	No
WL90	5	x	-0.002	1.00	No
		x	-0.002	4.00	No
	6	x	-0.01	0.50	No
		x	-0.01	5.50	No
	11	x	-0.002	0.50	No
		x	-0.002	2.50	No
		x	-0.001	3.75	No
		x	-0.005	5.50	No
	14	x	-0.002	0.50	No
		x	-0.002	2.50	No
		x	-0.001	3.75	No
		x	-0.001	5.50	No
WL120	5	2	-0.003	1.00	No
		2	-0.003	4.00	No
	6	2	-0.013	0.50	No
		2	-0.013	5.50	No
	11	2	-0.003	0.50	No
		2	-0.003	2.50	No
		2	-0.001	3.75	No
		2	-0.005	5.50	No
	14	2	-0.003	0.50	No
		2	-0.003	2.50	No
		2	-0.001	3.75	No
		2	-0.001	5.50	No
WL150	5	2	-0.004	1.00	No
		2	-0.004	4.00	No
	6	2	-0.019	0.50	No
		2	-0.019	5.50	No
	11	2	-0.003	0.50	No
		2	-0.003	2.50	No
		2	-0.001	3.75	No
		2	-0.007	5.50	No
	14	2	-0.003	0.50	No
		2	-0.003	2.50	No
		2	-0.001	3.75	No
		2	-0.001	5.50	No
LL1	1	y	-0.25	50.00	Yes
LL2	1	y	-0.25	0.00	Yes
LL3	1	y	-0.25	100.00	Yes
LLa1	5	y	-0.50	50.00	Yes
LLa2	6	y	-0.50	50.00	Yes

Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
D	Dead Load	No	0.00	-1.00	0.00
Wo	Wind Load (NO ICE)	No	0.00	0.00	0.00
W30	WL 30deg	No	0.00	0.00	0.00
W60	WL 60deg	No	0.00	0.00	0.00
W90	WL 90deg	No	0.00	0.00	0.00
W120	WL 120deg	No	0.00	0.00	0.00
W150	WL 150deg	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00
WI0	WL ICE 0deg	No	0.00	0.00	0.00
WI30	WL ICE 30deg	No	0.00	0.00	0.00
WI60	WL ICE 60deg	No	0.00	0.00	0.00
WI90	WL ICE 90deg	No	0.00	0.00	0.00
WI120	WL ICE 120deg	No	0.00	0.00	0.00
WI150	WL ICE 150deg	No	0.00	0.00	0.00
WL0	WL 30 mph 0deg	No	0.00	0.00	0.00
WL30	WL 30 mph 30deg	No	0.00	0.00	0.00
WL60	WL 30 mph 60deg	No	0.00	0.00	0.00
WL90	WL 30 mph 90deg	No	0.00	0.00	0.00
WL120	WL 30 mph 120deg	No	0.00	0.00	0.00
WL150	WL 30 mph 150deg	No	0.00	0.00	0.00
LL1	250 lb Live Load Center of Mount	No	0.00	0.00	0.00
LL2	250 lb Live Load Right End of Mount	No	0.00	0.00	0.00
LL3	250 lb Live Load Left End of Mount	No	0.00	0.00	0.00
LLa1	500 lb Live Load Antenna 1	No	0.00	0.00	0.00
LLa2	500 lb Live Load Antenna 2	No	0.00	0.00	0.00

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Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

LC1=1.2D+Wo
LC2=1.2D+W30
LC3=1.2D+W60
LC4=1.2D+W90
LC5=1.2D+W120
LC6=1.2D+W150
LC7=1.2D-Wo
LC8=1.2D-W30
LC9=1.2D-W60
LC10=1.2D-W90
LC11=1.2D-W120
LC12=1.2D-W150
LC13=0.9D+Wo
LC14=0.9D+W30
LC15=0.9D+W60
LC16=0.9D+W90
LC17=0.9D+W120
LC18=0.9D+W150
LC19=0.9D-Wo
LC20=0.9D-W30
LC21=0.9D-W60
LC22=0.9D-W90
LC23=0.9D-W120
LC24=0.9D-W150
LC25=1.2D+Di+WI0
LC26=1.2D+Di+WI30
LC27=1.2D+Di+WI60
LC28=1.2D+Di+WI90
LC29=1.2D+Di+WI120
LC30=1.2D+Di+WI150
LC31=1.2D+Di-WI0
LC32=1.2D+Di-WI30
LC33=1.2D+Di-WI60
LC34=1.2D+Di-WI90
LC35=1.2D+Di-WI120
LC36=1.2D+Di-WI150
LC37=1.2D+1.6LL1
LC38=1.2D+1.6LL2
LC39=1.2D+1.6LL3
LC40=1.2D+WL0+1.6LLa1
LC41=1.2D+WL30+1.6LLa1
LC42=1.2D+WL60+1.6LLa1
LC43=1.2D+WL90+1.6LLa1
LC44=1.2D+WL120+1.6LLa1
LC45=1.2D+WL150+1.6LLa1
LC46=1.2D-WL0+1.6LLa1
LC47=1.2D-WL30+1.6LLa1
LC48=1.2D-WL60+1.6LLa1
LC49=1.2D-WL90+1.6LLa1
LC50=1.2D-WL120+1.6LLa1
LC51=1.2D-WL150+1.6LLa1
LC52=1.2D+WL0+1.6LLa2
LC53=1.2D+WL30+1.6LLa2
LC54=1.2D+WL60+1.6LLa2

LC55=1.2D+WL90+1.6LLa2
LC56=1.2D+WL120+1.6LLa2
LC57=1.2D+WL150+1.6LLa2
LC58=1.2D-WL0+1.6LLa2
LC59=1.2D-WL30+1.6LLa2
LC60=1.2D-WL60+1.6LLa2
LC61=1.2D-WL90+1.6LLa2
LC62=1.2D-WL120+1.6LLa2
LC63=1.2D-WL150+1.6LLa2

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	HSS_SQR 4X4X3_16	**3**	LC1 at 100.00%	0.07	OK	
		4	LC7 at 100.00%	**0.07**	**OK**	
	PIPE 2-1_2x0.203	**1**	LC7 at 50.00%	**0.25**	**OK**	
		2	LC1 at 50.00%	0.25	OK	
		5	LC46 at 27.08%	0.18	OK	
		6	LC53 at 27.08%	0.22	OK	
		11	LC10 at 81.25%	0.03	OK	
		14	LC10 at 16.67%	0.03	OK	

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Geometry data

GLOSSARY

Cb22, Cb33	: Moment gradient coefficients
Cm22, Cm33	: Coefficients applied to bending term in interaction formula
d0	: Tapered member section depth at J end of member
DJX	: Rigid end offset distance measured from J node in axis X
DJY	: Rigid end offset distance measured from J node in axis Y
DJZ	: Rigid end offset distance measured from J node in axis Z
DKX	: Rigid end offset distance measured from K node in axis X
DKY	: Rigid end offset distance measured from K node in axis Y
DKZ	: Rigid end offset distance measured from K node in axis Z
dL	: Tapered member section depth at K end of member
Ig factor	: Inertia reduction factor (Effective Inertia/Gross Inertia) for reinforced concrete members
K22	: Effective length factor about axis 2
K33	: Effective length factor about axis 3
L22	: Member length for calculation of axial capacity
L33	: Member length for calculation of axial capacity
LB pos	: Lateral unbraced length of the compression flange in the positive side of local axis 2
LB neg	: Lateral unbraced length of the compression flange in the negative side of local axis 2
RX	: Rotation about X
RY	: Rotation about Y
RZ	: Rotation about Z
TO	: 1 = Tension only member 0 = Normal member
TX	: Translation in X
TY	: Translation in Y
TZ	: Translation in Z

Nodes

Node	X [ft]	Y [ft]	Z [ft]	Rigid Floor
1	0.00	1.375	0.00	0
2	0.00	1.375	1.00	0
3	-1.75	1.375	1.00	0
4	1.75	1.375	1.00	0
5	-1.585	1.375	1.00	0
6	1.585	1.375	1.00	0
7	0.00	-1.375	0.00	0
8	0.00	-1.375	1.00	0
9	-1.75	-1.375	1.00	0
10	1.75	-1.375	1.00	0
11	-1.585	-1.375	1.00	0
12	1.585	-1.375	1.00	0
13	-1.585	1.375	1.20	0
14	-1.585	-1.375	1.20	0
15	1.585	1.375	1.20	0
16	1.585	-1.375	1.20	0
17	-1.585	3.00	1.20	0
18	-1.585	-3.00	1.20	0
19	1.585	3.00	1.20	0
20	1.585	-3.00	1.20	0
26	-1.25	-4.00	1.20	0
27	-1.25	-10.00	1.20	0
34	1.25	-4.00	1.20	0

35	1.25	-10.00	1.20	0
36	-1.25	-5.00	1.20	0
37	1.25	-5.00	1.20	0
38	-1.25	-9.00	1.20	0
39	1.25	-9.00	1.20	0
40	-1.05	-5.00	1.20	0
41	-1.05	-9.00	1.20	0
42	1.05	-5.00	1.20	0
43	1.05	-9.00	1.20	0

Restraints

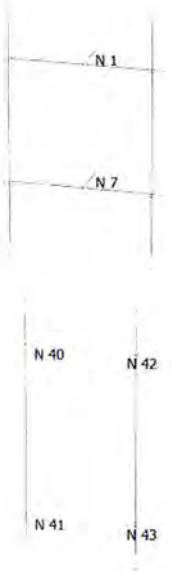
Node	TX	TY	TZ	RX	RY	RZ
1	1	1	1	0	1	0
7	1	1	1	0	1	0
40	1	1	1	0	1	0
41	1	1	1	0	1	0
42	1	1	1	0	1	0
43	1	1	1	0	1	0

Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	lg factor
1	4	3		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
2	10	9		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
3	1	2		HSS_SQR 4X4X3_16	A500 GrB rectangular	0.00	0.00	0.00
4	7	8		HSS_SQR 4X4X3_16	A500 GrB rectangular	0.00	0.00	0.00
5	19	20		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
6	17	18		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
11	26	27		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
14	34	35		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00

Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
5	315.00	0	0.00	0.00	0.00
6	315.00	0	0.00	0.00	0.00
11	315.00	0	0.00	0.00	0.00
14	315.00	0	0.00	0.00	0.00


N 1
N 7
N 40
N 42
N 41
N 43
Y
Z
X

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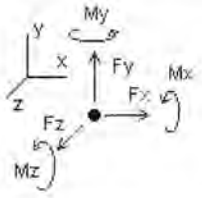
Analysis result

Reactions



Direction of positive forces and moments

Node	Forces [Kip] FX	FY	FZ	Moments [Kip*ft] MX	MY	MZ
Condition **LC1=1.2D+Wo**						
1	0.14108	0.41205	0.26877	0.00000	0.58327	0.00000
7	-0.14108	0.19325	0.72323	0.00000	0.37784	0.00000
40	0.01395	0.14379	0.13031	0.00000	0.02717	0.00000
41	-0.01395	0.13661	0.20169	0.00000	0.03923	0.00000
42	-0.01329	0.13794	0.14381	0.00000	-0.02778	0.00000
43	0.01329	0.12926	0.08019	0.00000	-0.01702	0.00000
SUM	0.00000	1.15290	1.54800	0.00000	0.98271	0.00000
Condition **LC2=1.2D+W30**						
1	0.43890	0.35462	0.07720	0.00000	0.76065	0.00000
7	0.12254	0.25068	0.55425	0.00000	0.50215	0.00000
40	0.07900	0.12088	0.09505	0.00000	0.01972	0.00000
41	0.09707	0.15952	0.14102	0.00000	0.02749	0.00000
42	0.06043	0.09880	0.10371	0.00000	-0.02011	0.00000
43	0.04635	0.16840	0.06306	0.00000	-0.01324	0.00000
SUM	0.84429	1.15290	1.03429	0.00000	1.27665	0.00000
Condition **LC3=1.2D+W60**						
1	0.42566	0.33859	-0.05289	0.00000	0.64859	0.00000
7	0.12159	0.26671	0.43614	0.00000	0.39176	0.00000
40	0.09636	0.15555	0.05242	0.00000	0.01109	0.00000
41	0.10789	0.12485	0.09183	0.00000	0.01776	0.00000
42	0.07593	0.07742	0.05922	0.00000	-0.01140	0.00000
43	0.07387	0.18978	0.03058	0.00000	-0.00656	0.00000
SUM	0.90130	1.15290	0.61730	0.00000	1.05124	0.00000
Condition **LC4=1.2D+W90**						
1	0.44225	0.29169	-0.25533	0.00000	0.47052	0.00000
7	0.13775	0.31361	0.25533	0.00000	0.19463	0.00000
40	0.10976	0.15078	0.00000	0.00000	0.00000	0.00000
41	0.13124	0.12962	0.00000	0.00000	0.00000	0.00000
42	0.09090	0.07096	0.00000	0.00000	0.00000	0.00000
43	0.08310	0.19624	0.00000	0.00000	0.00000	0.00000
SUM	0.99500	1.15290	0.00000	0.00000	0.66516	0.00000

Condition	**LC5=1.2D+W120**					
1	0.42568	0.24688	-0.45777	0.00000	0.25287	0.00000
7	0.12157	0.35842	0.07451	0.00000	-0.04128	0.00000
40	0.09636	0.15555	-0.05242	0.00000	-0.01109	0.00000
41	0.10789	0.12485	-0.09183	0.00000	-0.01776	0.00000
42	0.07593	0.07742	-0.05922	0.00000	0.01140	0.00000
43	0.07387	0.18978	-0.03058	0.00000	0.00656	0.00000
SUM	0.90130	1.15290	-0.61730	0.00000	0.20070	0.00000
Condition	**LC6=1.2D+W150**					
1	0.43892	0.21821	-0.64775	0.00000	0.20083	0.00000
7	0.12252	0.38709	-0.10370	0.00000	-0.11585	0.00000
40	0.07900	0.12088	-0.09505	0.00000	-0.01972	0.00000
41	0.09707	0.15952	-0.14102	0.00000	-0.02749	0.00000
42	0.06043	0.09880	-0.10371	0.00000	0.02011	0.00000
43	0.04635	0.16840	-0.06306	0.00000	0.01324	0.00000
SUM	0.84429	1.15290	-1.15429	0.00000	0.07113	0.00000
Condition	**LC7=1.2D-Wo**					
1	0.14111	0.19434	-0.77937	0.00000	-0.32874	0.00000
7	-0.14111	0.41096	-0.21263	0.00000	-0.63118	0.00000
40	0.01395	0.14379	-0.13031	0.00000	-0.02717	0.00000
41	-0.01395	0.13661	-0.20169	0.00000	-0.03923	0.00000
42	-0.01329	0.13794	-0.14381	0.00000	0.02778	0.00000
43	0.01329	0.12926	-0.08019	0.00000	0.01702	0.00000
SUM	0.00000	1.15290	-1.54800	0.00000	-0.98153	0.00000
Condition	**LC8=1.2D-W30**					
1	-0.15671	0.25180	-0.58782	0.00000	-0.50720	0.00000
7	-0.40473	0.35351	-0.04363	0.00000	-0.75655	0.00000
40	-0.05110	0.16670	-0.09505	0.00000	-0.01972	0.00000
41	-0.12496	0.11370	-0.14102	0.00000	-0.02749	0.00000
42	-0.08700	0.17707	-0.10371	0.00000	0.02011	0.00000
43	-0.01977	0.09013	-0.06306	0.00000	0.01324	0.00000
SUM	-0.84429	1.15290	-1.03429	0.00000	-1.27761	0.00000
Condition	**LC9=1.2D-W60**					
1	-0.14347	0.26776	-0.45774	0.00000	-0.39491	0.00000
7	-0.40378	0.33755	0.07449	0.00000	-0.64594	0.00000
40	-0.06846	0.13203	-0.05242	0.00000	-0.01109	0.00000
41	-0.13579	0.14837	-0.09183	0.00000	-0.01776	0.00000
42	-0.10251	0.19845	-0.05922	0.00000	0.01140	0.00000
43	-0.04730	0.06875	-0.03058	0.00000	0.00656	0.00000
SUM	-0.90130	1.15290	-0.61730	0.00000	-1.05174	0.00000
Condition	**LC10=1.2D-W90**					
1	-0.16006	0.31460	-0.25530	0.00000	-0.21666	0.00000
7	-0.41994	0.29070	0.25530	0.00000	-0.44860	0.00000
40	-0.08186	0.13680	0.00000	0.00000	0.00000	0.00000
41	-0.15914	0.14360	0.00000	0.00000	0.00000	0.00000
42	-0.11747	0.20491	0.00000	0.00000	0.00000	0.00000
43	-0.05653	0.06229	0.00000	0.00000	0.00000	0.00000
SUM	-0.99500	1.15290	0.00000	0.00000	-0.66526	0.00000

Condition	**LC11=1.2D-W120**					
1	-0.14349	0.35939	-0.05286	0.00000	0.00141	0.00000
7	-0.40376	0.24592	0.43612	0.00000	-0.21227	0.00000
40	-0.06846	0.13203	0.05242	0.00000	0.01109	0.00000
41	-0.13579	0.14837	0.09183	0.00000	0.01776	0.00000
42	-0.10251	0.19845	0.05922	0.00000	-0.01140	0.00000
43	-0.04730	0.06875	0.03058	0.00000	-0.00656	0.00000
SUM	-0.90130	1.15290	0.61730	0.00000	-0.19996	0.00000
Condition	**LC12=1.2D-W150**					
1	-0.15674	0.38803	0.13713	0.00000	0.05385	0.00000
7	-0.40471	0.21727	0.61431	0.00000	-0.13729	0.00000
40	-0.05110	0.16670	0.09505	0.00000	0.01972	0.00000
41	-0.12496	0.11370	0.14102	0.00000	0.02749	0.00000
42	-0.08700	0.17707	0.10371	0.00000	-0.02011	0.00000
43	-0.01977	0.09013	0.06306	0.00000	-0.01324	0.00000
SUM	-0.84429	1.15290	1.15429	0.00000	-0.06958	0.00000
Condition	**LC13=0.9D+Wo**					
1	0.10581	0.33619	0.33277	0.00000	0.55151	0.00000
7	-0.10581	0.11779	0.65923	0.00000	0.40956	0.00000
40	0.01046	0.10784	0.13031	0.00000	0.02717	0.00000
41	-0.01046	0.10246	0.20169	0.00000	0.03923	0.00000
42	-0.00997	0.10346	0.14381	0.00000	-0.02778	0.00000
43	0.00997	0.09694	0.08019	0.00000	-0.01702	0.00000
SUM	0.00000	0.86468	1.54800	0.00000	0.98267	0.00000
Condition	**LC14=0.9D+W30**					
1	0.40366	0.27876	0.14114	0.00000	0.72893	0.00000
7	0.15778	0.17522	0.49030	0.00000	0.53383	0.00000
40	0.07551	0.08494	0.09505	0.00000	0.01972	0.00000
41	0.10055	0.12536	0.14102	0.00000	0.02749	0.00000
42	0.06375	0.06432	0.10371	0.00000	-0.02011	0.00000
43	0.04302	0.13608	0.06306	0.00000	-0.01324	0.00000
SUM	0.84429	0.86468	1.03429	0.00000	1.27661	0.00000
Condition	**LC15=0.9D+W60**					
1	0.39042	0.26272	0.01100	0.00000	0.61685	0.00000
7	0.15683	0.19126	0.37225	0.00000	0.42345	0.00000
40	0.09287	0.11961	0.05241	0.00000	0.01109	0.00000
41	0.11137	0.09069	0.09183	0.00000	0.01776	0.00000
42	0.07925	0.04294	0.05922	0.00000	-0.01140	0.00000
43	0.07055	0.15746	0.03058	0.00000	-0.00656	0.00000
SUM	0.90130	0.86468	0.61730	0.00000	1.05120	0.00000
Condition	**LC16=0.9D+W90**					
1	0.40700	0.21581	-0.19150	0.00000	0.43879	0.00000
7	0.17300	0.23816	0.19150	0.00000	0.22633	0.00000
40	0.10627	0.11483	0.00000	0.00000	0.00000	0.00000
41	0.13473	0.09547	0.00000	0.00000	0.00000	0.00000
42	0.09422	0.03648	0.00000	0.00000	0.00000	0.00000
43	0.07978	0.16393	0.00000	0.00000	0.00000	0.00000
SUM	0.99500	0.86468	0.00000	0.00000	0.66512	0.00000

Condition **LC17=0.9D+W120**

1	0.39043	0.17100	-0.39399	0.00000	0.22114	0.00000
7	0.15682	0.28298	0.01074	0.00000	-0.00958	0.00000
40	0.09287	0.11961	-0.05241	0.00000	-0.01109	0.00000
41	0.11137	0.09069	-0.09183	0.00000	-0.01776	0.00000
42	0.07925	0.04294	-0.05922	0.00000	0.01140	0.00000
43	0.07055	0.15746	-0.03058	0.00000	0.00656	0.00000
SUM	0.90130	0.86468	-0.61730	0.00000	0.20066	0.00000

Condition **LC18=0.9D+W150**

1	0.40368	0.14232	-0.58404	0.00000	0.16910	0.00000
7	0.15777	0.31165	-0.16740	0.00000	-0.08415	0.00000
40	0.07551	0.08494	-0.09505	0.00000	-0.01972	0.00000
41	0.10055	0.12536	-0.14102	0.00000	-0.02749	0.00000
42	0.06375	0.06432	-0.10371	0.00000	0.02011	0.00000
43	0.04302	0.13608	-0.06306	0.00000	0.01324	0.00000
SUM	0.84429	0.86468	-1.15429	0.00000	0.07109	0.00000

Condition **LC19=0.9D-Wo**

1	0.10584	0.11845	-0.71570	0.00000	-0.36051	0.00000
7	-0.10584	0.33553	-0.27630	0.00000	-0.59945	0.00000
40	0.01046	0.10784	-0.13031	0.00000	-0.02717	0.00000
41	-0.01046	0.10246	-0.20169	0.00000	-0.03923	0.00000
42	-0.00997	0.10346	-0.14381	0.00000	0.02778	0.00000
43	0.00997	0.09694	-0.08019	0.00000	0.01702	0.00000
SUM	0.00000	0.86468	-1.54800	0.00000	-0.98156	0.00000

Condition **LC20=0.9D-W30**

1	-0.19202	0.17591	-0.52409	0.00000	-0.53900	0.00000
7	-0.36942	0.27807	-0.10735	0.00000	-0.72479	0.00000
40	-0.05459	0.13075	-0.09505	0.00000	-0.01972	0.00000
41	-0.12148	0.07955	-0.14102	0.00000	-0.02749	0.00000
42	-0.08368	0.14259	-0.10371	0.00000	0.02011	0.00000
43	-0.02309	0.05781	-0.06306	0.00000	0.01324	0.00000
SUM	-0.84429	0.86468	-1.03429	0.00000	-1.27764	0.00000

Condition **LC21=0.9D-W60**

1	-0.17878	0.19187	-0.39397	0.00000	-0.42670	0.00000
7	-0.36847	0.26210	0.01072	0.00000	-0.61418	0.00000
40	-0.07195	0.09608	-0.05241	0.00000	-0.01109	0.00000
41	-0.13230	0.11422	-0.09183	0.00000	-0.01776	0.00000
42	-0.09919	0.16396	-0.05922	0.00000	0.01140	0.00000
43	-0.05062	0.03644	-0.03058	0.00000	0.00656	0.00000
SUM	-0.90130	0.86468	-0.61730	0.00000	-1.05177	0.00000

Condition **LC22=0.9D-W90**

1	-0.19537	0.23873	-0.19147	0.00000	-0.24845	0.00000
7	-0.38463	0.21525	0.19147	0.00000	-0.41685	0.00000
40	-0.08535	0.10086	0.00000	0.00000	0.00000	0.00000
41	-0.15565	0.10944	0.00000	0.00000	0.00000	0.00000
42	-0.11415	0.17042	0.00000	0.00000	0.00000	0.00000
43	-0.05985	0.02998	0.00000	0.00000	0.00000	0.00000
SUM	-0.99500	0.86468	0.00000	0.00000	-0.66529	0.00000

Condition	**LC23=0.9D-W120**					
1	-0.17879	0.28352	0.01103	0.00000	-0.03037	0.00000
7	-0.36846	0.17046	0.37223	0.00000	-0.18052	0.00000
40	-0.07195	0.09608	0.05241	0.00000	0.01109	0.00000
41	-0.13230	0.11422	0.09183	0.00000	0.01776	0.00000
42	-0.09919	0.16396	0.05922	0.00000	-0.01140	0.00000
43	-0.05062	0.03644	0.03058	0.00000	-0.00656	0.00000
SUM	-0.90130	0.86468	0.61730	0.00000	-0.20000	0.00000
Condition	**LC24=0.9D-W150**					
1	-0.19204	0.31217	0.20109	0.00000	0.02206	0.00000
7	-0.36940	0.14181	0.55035	0.00000	-0.10554	0.00000
40	-0.05459	0.13075	0.09505	0.00000	0.01972	0.00000
41	-0.12148	0.07955	0.14102	0.00000	0.02749	0.00000
42	-0.08368	0.14259	0.10371	0.00000	-0.02011	0.00000
43	-0.02309	0.05781	0.06306	0.00000	-0.01324	0.00000
SUM	-0.84429	0.86468	1.15429	0.00000	-0.06962	0.00000
Condition	**LC25=1.2D+Di+WI0**					
1	0.28519	0.54558	-0.35124	0.00000	0.33937	0.00000
7	-0.28519	0.50272	0.52124	0.00000	-0.16469	0.00000
40	0.02065	0.20921	0.02119	0.00000	0.00445	0.00000
41	-0.02065	0.20519	0.03481	0.00000	0.00675	0.00000
42	-0.01744	0.18076	0.02369	0.00000	-0.00456	0.00000
43	0.01744	0.16944	0.01231	0.00000	-0.00264	0.00000
SUM	0.00000	1.81290	0.26200	0.00000	0.17868	0.00000
Condition	**LC26=1.2D+Di+WI30**					
1	0.34081	0.53514	-0.38597	0.00000	0.37379	0.00000
7	-0.23616	0.51316	0.49062	0.00000	-0.14032	0.00000
40	0.03457	0.20674	0.01392	0.00000	0.00292	0.00000
41	0.00220	0.20766	0.02285	0.00000	0.00443	0.00000
42	-0.00193	0.17184	0.01551	0.00000	-0.00299	0.00000
43	0.02597	0.17836	0.00853	0.00000	-0.00181	0.00000
SUM	0.16546	1.81290	0.16546	0.00000	0.23602	0.00000
Condition	**LC27=1.2D+Di+WI60**					
1	0.32565	0.53263	-0.40111	0.00000	0.34324	0.00000
7	-0.24929	0.51568	0.47747	0.00000	-0.17060	0.00000
40	0.03245	0.20817	0.01180	0.00000	0.00248	0.00000
41	-0.00134	0.20623	0.01931	0.00000	0.00375	0.00000
42	-0.00440	0.17294	0.01304	0.00000	-0.00253	0.00000
43	0.02561	0.17726	0.00818	0.00000	-0.00171	0.00000
SUM	0.12869	1.81290	0.12869	0.00000	0.17462	0.00000
Condition	**LC28=1.2D+Di+WI90**					
1	0.33070	0.52330	-0.44152	0.00000	0.31085	0.00000
7	-0.24470	0.52500	0.44152	0.00000	-0.20734	0.00000
40	0.03584	0.20874	0.00000	0.00000	0.00000	0.00000
41	0.00416	0.20566	0.00000	0.00000	0.00000	0.00000
42	-0.00075	0.17049	0.00000	0.00000	0.00000	0.00000
43	0.02875	0.17971	0.00000	0.00000	0.00000	0.00000
SUM	0.15400	1.81290	0.00000	0.00000	0.10351	0.00000

Condition **LC29=1.2D+Di+WI120**

1	0.32566	0.51451	-0.48194	0.00000	0.26646	0.00000
7	-0.24929	0.53379	0.40558	0.00000	-0.25519	0.00000
40	0.03245	0.20817	-0.01180	0.00000	-0.00248	0.00000
41	-0.00134	0.20623	-0.01931	0.00000	-0.00375	0.00000
42	-0.00440	0.17294	-0.01304	0.00000	0.00253	0.00000
43	0.02561	0.17726	-0.00818	0.00000	0.00171	0.00000
SUM	0.12869	1.81290	-0.12869	0.00000	0.00929	0.00000

Condition **LC30=1.2D+Di+WI150**

1	0.34082	0.51055	-0.49709	0.00000	0.27185	0.00000
7	-0.23617	0.53775	0.39243	0.00000	-0.25353	0.00000
40	0.03457	0.20674	-0.01392	0.00000	-0.00292	0.00000
41	0.00220	0.20766	-0.02285	0.00000	-0.00443	0.00000
42	-0.00193	0.17184	-0.01551	0.00000	0.00299	0.00000
43	0.02597	0.17836	-0.00853	0.00000	0.00181	0.00000
SUM	0.16546	1.81290	-0.16546	0.00000	0.01578	0.00000

Condition **LC31=1.2D+Di-WI0**

1	0.28520	0.50567	-0.53180	0.00000	0.17422	0.00000
7	-0.28520	0.54264	0.36180	0.00000	-0.34824	0.00000
40	0.02065	0.20921	-0.02119	0.00000	-0.00445	0.00000
41	-0.02065	0.20519	-0.03481	0.00000	-0.00675	0.00000
42	-0.01744	0.18076	-0.02369	0.00000	0.00456	0.00000
43	0.01744	0.16944	-0.01231	0.00000	0.00264	0.00000
SUM	0.00000	1.81290	-0.26200	0.00000	-0.17803	0.00000

Condition **LC32=1.2D+Di-WI30**

1	0.22957	0.51611	-0.49707	0.00000	0.13976	0.00000
7	-0.33422	0.53220	0.39242	0.00000	-0.37265	0.00000
40	0.00673	0.21169	-0.01392	0.00000	-0.00292	0.00000
41	-0.04350	0.20271	-0.02285	0.00000	-0.00443	0.00000
42	-0.03295	0.18968	-0.01551	0.00000	0.00299	0.00000
43	0.00891	0.16052	-0.00853	0.00000	0.00181	0.00000
SUM	-0.16546	1.81290	-0.16546	0.00000	-0.23544	0.00000

Condition **LC33=1.2D+Di-WI60**

1	0.24473	0.51862	-0.48193	0.00000	0.17032	0.00000
7	-0.32110	0.52968	0.40557	0.00000	-0.34236	0.00000
40	0.00885	0.21026	-0.01180	0.00000	-0.00248	0.00000
41	-0.03996	0.20414	-0.01931	0.00000	-0.00375	0.00000
42	-0.03048	0.18857	-0.01304	0.00000	0.00253	0.00000
43	0.00926	0.16163	-0.00818	0.00000	0.00171	0.00000
SUM	-0.12869	1.81290	-0.12869	0.00000	-0.17402	0.00000

Condition **LC34=1.2D+Di-WI90**

1	0.23969	0.52795	-0.44151	0.00000	0.20271	0.00000
7	-0.32569	0.52036	0.44151	0.00000	-0.30561	0.00000
40	0.00546	0.20969	0.00000	0.00000	0.00000	0.00000
41	-0.04546	0.20471	0.00000	0.00000	0.00000	0.00000
42	-0.03413	0.19103	0.00000	0.00000	0.00000	0.00000
43	0.00613	0.15917	0.00000	0.00000	0.00000	0.00000
SUM	-0.15400	1.81290	0.00000	0.00000	-0.10290	0.00000

Condition	LC35=1.2D+Di-WI120					
1	0.24473	0.53673	-0.40110	0.00000	0.24712	0.00000
7	-0.32109	0.51157	0.47746	0.00000	-0.25774	0.00000
40	0.00885	0.21026	0.01180	0.00000	0.00248	0.00000
41	-0.03996	0.20414	0.01931	0.00000	0.00375	0.00000
42	-0.03048	0.18857	0.01304	0.00000	-0.00253	0.00000
43	0.00926	0.16163	0.00818	0.00000	-0.00171	0.00000
SUM	-0.12869	1.81290	0.12869	0.00000	-0.00865	0.00000

Condition	LC36=1.2D+Di-WI150					
1	0.22956	0.54069	-0.38595	0.00000	0.24173	0.00000
7	-0.33422	0.50761	0.49061	0.00000	-0.25939	0.00000
40	0.00673	0.21169	0.01392	0.00000	0.00292	0.00000
41	-0.04350	0.20271	0.02285	0.00000	0.00443	0.00000
42	-0.03295	0.18968	0.01551	0.00000	-0.00299	0.00000
43	0.00891	0.16052	0.00853	0.00000	-0.00181	0.00000
SUM	-0.16546	1.81290	0.16546	0.00000	-0.01512	0.00000

Condition	LC37=1.2D+1.6LL1					
1	0.14112	0.54856	-0.40078	0.00000	0.12706	0.00000
7	-0.14112	0.45674	0.40078	0.00000	-0.12692	0.00000
40	0.01395	0.14379	0.00000	0.00000	0.00000	0.00000
41	-0.01395	0.13661	0.00000	0.00000	0.00000	0.00000
42	-0.01329	0.13794	0.00000	0.00000	0.00000	0.00000
43	0.01329	0.12926	0.00000	0.00000	0.00000	0.00000
SUM	0.00000	1.55290	0.00000	0.00000	0.00015	0.00000

Condition	LC38=1.2D+1.6LL2					
1	-0.11344	0.51413	-0.40087	0.00000	-0.12375	0.00000
7	0.11344	0.49117	0.40087	0.00000	0.12367	0.00000
40	0.01395	0.14379	0.00000	0.00000	0.00000	0.00000
41	-0.01395	0.13661	0.00000	0.00000	0.00000	0.00000
42	-0.01329	0.13794	0.00000	0.00000	0.00000	0.00000
43	0.01329	0.12926	0.00000	0.00000	0.00000	0.00000
SUM	0.00000	1.55290	0.00000	0.00000	-0.00008	0.00000

Condition	LC39=1.2D+1.6LL3					
1	0.39564	0.51426	-0.40084	0.00000	0.37785	0.00000
7	-0.39564	0.49104	0.40084	0.00000	-0.37750	0.00000
40	0.01395	0.14379	0.00000	0.00000	0.00000	0.00000
41	-0.01395	0.13661	0.00000	0.00000	0.00000	0.00000
42	-0.01329	0.13794	0.00000	0.00000	0.00000	0.00000
43	0.01329	0.12926	0.00000	0.00000	0.00000	0.00000
SUM	0.00000	1.55290	0.00000	0.00000	0.00035	0.00000

Condition	LC40=1.2D+WL0+1.6LLa1					
1	-0.32000	0.71174	-0.57571	0.00000	-0.26272	0.00000
7	0.32000	0.69356	0.62971	0.00000	0.31615	0.00000
40	0.01395	0.14379	0.00644	0.00000	0.00134	0.00000
41	-0.01395	0.13661	0.00956	0.00000	0.00186	0.00000
42	-0.01329	0.13794	0.00719	0.00000	-0.00137	0.00000
43	0.01329	0.12926	0.00281	0.00000	-0.00063	0.00000
SUM	0.00000	1.95290	0.08000	0.00000	0.05462	0.00000

Condition **LC41=1.2D+WL30+1.6LLa1**

1	-0.30269	0.70842	-0.58720	0.00000	-0.25164	0.00000
7	0.33521	0.69688	0.61972	0.00000	0.32383	0.00000
40	0.01726	0.14211	0.00331	0.00000	0.00071	0.00000
41	-0.00736	0.13829	0.00658	0.00000	0.00127	0.00000
42	-0.00944	0.13582	0.00384	0.00000	-0.00074	0.00000
43	0.01510	0.13138	0.00181	0.00000	-0.00039	0.00000
SUM	0.04808	1.95290	0.04808	0.00000	0.07303	0.00000

Condition **LC42=1.2D+WL60+1.6LLa1**

1	-0.30790	0.70750	-0.59238	0.00000	-0.26323	0.00000
7	0.33053	0.69781	0.61501	0.00000	0.31233	0.00000
40	0.01744	0.14337	0.00349	0.00000	0.00072	0.00000
41	-0.00895	0.13703	0.00499	0.00000	0.00098	0.00000
42	-0.00944	0.13582	0.00384	0.00000	-0.00074	0.00000
43	0.01510	0.13138	0.00181	0.00000	-0.00039	0.00000
SUM	0.03677	1.95290	0.03677	0.00000	0.04966	0.00000

Condition **LC43=1.2D+WL90+1.6LLa1**

1	-0.30726	0.70482	-0.60442	0.00000	-0.27301	0.00000
7	0.33126	0.70049	0.60442	0.00000	0.30133	0.00000
40	0.01714	0.14242	0.00000	0.00000	0.00000	0.00000
41	-0.00714	0.13798	0.00000	0.00000	0.00000	0.00000
42	-0.00960	0.13573	0.00000	0.00000	0.00000	0.00000
43	0.01560	0.13147	0.00000	0.00000	0.00000	0.00000
SUM	0.04000	1.95290	0.00000	0.00000	0.02833	0.00000

Condition **LC44=1.2D+WL120+1.6LLa1**

1	-0.30790	0.70224	-0.61647	0.00000	-0.28435	0.00000
7	0.33053	0.70306	0.59384	0.00000	0.28861	0.00000
40	0.01744	0.14337	-0.00349	0.00000	-0.00072	0.00000
41	-0.00895	0.13703	-0.00499	0.00000	-0.00098	0.00000
42	-0.00944	0.13582	-0.00384	0.00000	0.00074	0.00000
43	0.01510	0.13138	-0.00181	0.00000	0.00039	0.00000
SUM	0.03677	1.95290	-0.03677	0.00000	0.00370	0.00000

Condition **LC45=1.2D+WL150+1.6LLa1**

1	-0.30269	0.70077	-0.62166	0.00000	-0.28354	0.00000
7	0.33522	0.70453	0.58913	0.00000	0.28847	0.00000
40	0.01726	0.14211	-0.00331	0.00000	-0.00071	0.00000
41	-0.00736	0.13829	-0.00658	0.00000	-0.00127	0.00000
42	-0.00944	0.13582	-0.00384	0.00000	0.00074	0.00000
43	0.01510	0.13138	-0.00181	0.00000	0.00039	0.00000
SUM	0.04808	1.95290	-0.04808	0.00000	0.00409	0.00000

Condition **LC46=1.2D-WL0+1.6LLa1**

1	-0.32001	0.69918	-0.63314	0.00000	-0.31356	0.00000
7	0.32001	0.70612	0.57914	0.00000	0.25919	0.00000
40	0.01395	0.14379	-0.00644	0.00000	-0.00134	0.00000
41	-0.01395	0.13661	-0.00956	0.00000	-0.00186	0.00000
42	-0.01329	0.13794	-0.00719	0.00000	0.00137	0.00000
43	0.01329	0.12926	-0.00281	0.00000	0.00063	0.00000
SUM	0.00000	1.95290	-0.08000	0.00000	-0.05557	0.00000

Condition	**LC47=1.2D-WL30+1.6LLa1**					
1	-0.33732	0.70250	-0.62165	0.00000	-0.32464	0.00000
7	0.30479	0.70280	0.58912	0.00000	0.25151	0.00000
40	0.01063	0.14547	-0.00331	0.00000	-0.00071	0.00000
41	-0.02053	0.13493	-0.00658	0.00000	-0.00127	0.00000
42	-0.01713	0.14006	-0.00384	0.00000	0.00074	0.00000
43	0.01148	0.12714	-0.00181	0.00000	0.00039	0.00000
SUM	-0.04808	1.95290	-0.04808	0.00000	-0.07398	0.00000
Condition	**LC48=1.2D-WL60+1.6LLa1**					
1	-0.33210	0.70343	-0.61646	0.00000	-0.31305	0.00000
7	0.30948	0.70188	0.59383	0.00000	0.26301	0.00000
40	0.01046	0.14421	-0.00349	0.00000	-0.00072	0.00000
41	-0.01894	0.13619	-0.00499	0.00000	-0.00098	0.00000
42	-0.01713	0.14006	-0.00384	0.00000	0.00074	0.00000
43	0.01148	0.12714	-0.00181	0.00000	0.00039	0.00000
SUM	-0.03677	1.95290	-0.03677	0.00000	-0.05061	0.00000
Condition	**LC49=1.2D-WL90+1.6LLa1**					
1	-0.33275	0.70611	-0.60442	0.00000	-0.30328	0.00000
7	0.30875	0.69920	0.60442	0.00000	0.27400	0.00000
40	0.01076	0.14516	0.00000	0.00000	0.00000	0.00000
41	-0.02076	0.13524	0.00000	0.00000	0.00000	0.00000
42	-0.01698	0.14015	0.00000	0.00000	0.00000	0.00000
43	0.01098	0.12705	0.00000	0.00000	0.00000	0.00000
SUM	-0.04000	1.95290	0.00000	0.00000	-0.02927	0.00000
Condition	**LC50=1.2D-WL120+1.6LLa1**					
1	-0.33210	0.70868	-0.59238	0.00000	-0.29193	0.00000
7	0.30947	0.69663	0.61500	0.00000	0.28672	0.00000
40	0.01046	0.14421	0.00349	0.00000	0.00072	0.00000
41	-0.01894	0.13619	0.00499	0.00000	0.00098	0.00000
42	-0.01713	0.14006	0.00384	0.00000	-0.00074	0.00000
43	0.01148	0.12714	0.00181	0.00000	-0.00039	0.00000
SUM	-0.03677	1.95290	0.03677	0.00000	-0.00464	0.00000
Condition	**LC51=1.2D-WL150+1.6LLa1**					
1	-0.33732	0.71015	-0.58719	0.00000	-0.29275	0.00000
7	0.30479	0.69515	0.61971	0.00000	0.28687	0.00000
40	0.01063	0.14547	0.00331	0.00000	0.00071	0.00000
41	-0.02053	0.13493	0.00658	0.00000	0.00127	0.00000
42	-0.01713	0.14006	0.00384	0.00000	-0.00074	0.00000
43	0.01148	0.12714	0.00181	0.00000	-0.00039	0.00000
SUM	-0.04808	1.95290	0.04808	0.00000	-0.00503	0.00000
Condition	**LC52=1.2D+WL0+1.6LLa2**					
1	0.60219	0.71197	-0.57571	0.00000	0.56767	0.00000
7	-0.60219	0.69333	0.62971	0.00000	-0.51289	0.00000
40	0.01395	0.14379	0.00644	0.00000	0.00134	0.00000
41	-0.01395	0.13661	0.00956	0.00000	0.00186	0.00000
42	-0.01329	0.13794	0.00719	0.00000	-0.00137	0.00000
43	0.01329	0.12926	0.00281	0.00000	-0.00063	0.00000
SUM	0.00000	1.95290	0.08000	0.00000	0.05598	0.00000

Condition **LC53=1.2D+WL30+1.6LLa2**

1	0.61943	0.70865	-0.58720	0.00000	0.57869	0.00000
7	-0.58690	0.69665	0.61973	0.00000	-0.50514	0.00000
40	0.01726	0.14211	0.00331	0.00000	0.00071	0.00000
41	-0.00736	0.13829	0.00658	0.00000	0.00127	0.00000
42	-0.00944	0.13582	0.00384	0.00000	-0.00074	0.00000
43	0.01510	0.13138	0.00181	0.00000	-0.00039	0.00000
SUM	0.04808	1.95290	0.04808	0.00000	0.07440	0.00000

Condition **LC54=1.2D+WL60+1.6LLa2**

1	0.61424	0.70772	-0.59239	0.00000	0.56714	0.00000
7	-0.59162	0.69758	0.61501	0.00000	-0.51668	0.00000
40	0.01744	0.14337	0.00349	0.00000	0.00072	0.00000
41	-0.00895	0.13703	0.00499	0.00000	0.00098	0.00000
42	-0.00944	0.13582	0.00384	0.00000	-0.00074	0.00000
43	0.01510	0.13138	0.00181	0.00000	-0.00039	0.00000
SUM	0.03677	1.95290	0.03677	0.00000	0.05103	0.00000

Condition **LC55=1.2D+WL90+1.6LLa2**

1	0.61488	0.70504	-0.60443	0.00000	0.55737	0.00000
7	-0.59088	0.70026	0.60443	0.00000	-0.52768	0.00000
40	0.01714	0.14242	0.00000	0.00000	0.00000	0.00000
41	-0.00714	0.13798	0.00000	0.00000	0.00000	0.00000
42	-0.00960	0.13573	0.00000	0.00000	0.00000	0.00000
43	0.01560	0.13147	0.00000	0.00000	0.00000	0.00000
SUM	0.04000	1.95290	0.00000	0.00000	0.02969	0.00000

Condition **LC56=1.2D+WL120+1.6LLa2**

1	0.61425	0.70247	-0.61647	0.00000	0.54605	0.00000
7	-0.59162	0.70283	0.59384	0.00000	-0.54042	0.00000
40	0.01744	0.14337	-0.00349	0.00000	-0.00072	0.00000
41	-0.00895	0.13703	-0.00499	0.00000	-0.00098	0.00000
42	-0.00944	0.13582	-0.00384	0.00000	0.00074	0.00000
43	0.01510	0.13138	-0.00181	0.00000	0.00039	0.00000
SUM	0.03677	1.95290	-0.03677	0.00000	0.00507	0.00000

Condition **LC57=1.2D+WL150+1.6LLa2**

1	0.61944	0.70100	-0.62166	0.00000	0.54685	0.00000
7	-0.58691	0.70431	0.58913	0.00000	-0.54054	0.00000
40	0.01726	0.14211	-0.00331	0.00000	-0.00071	0.00000
41	-0.00736	0.13829	-0.00658	0.00000	-0.00127	0.00000
42	-0.00944	0.13582	-0.00384	0.00000	0.00074	0.00000
43	0.01510	0.13138	-0.00181	0.00000	0.00039	0.00000
SUM	0.04808	1.95290	-0.04808	0.00000	0.00546	0.00000

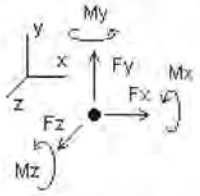
Condition **LC58=1.2D-WL0+1.6LLa2**

1	0.60220	0.69941	-0.63314	0.00000	0.51691	0.00000
7	-0.60220	0.70589	0.57914	0.00000	-0.56991	0.00000
40	0.01395	0.14379	-0.00644	0.00000	-0.00134	0.00000
41	-0.01395	0.13661	-0.00956	0.00000	-0.00186	0.00000
42	-0.01329	0.13794	-0.00719	0.00000	0.00137	0.00000
43	0.01329	0.12926	-0.00281	0.00000	0.00063	0.00000
SUM	0.00000	1.95290	-0.08000	0.00000	-0.05420	0.00000

Condition	**LC59=1.2D-WL30+1.6LLa2**					
1	0.58496	0.70273	-0.62165	0.00000	0.50589	0.00000
7	-0.61749	0.70258	0.58912	0.00000	-0.57766	0.00000
40	0.01063	0.14547	-0.00331	0.00000	-0.00071	0.00000
41	-0.02053	0.13493	-0.00658	0.00000	-0.00127	0.00000
42	-0.01713	0.14006	-0.00384	0.00000	0.00074	0.00000
43	0.01148	0.12714	-0.00181	0.00000	0.00039	0.00000
SUM	-0.04808	1.95290	-0.04808	0.00000	-0.07262	0.00000
Condition	**LC60=1.2D-WL60+1.6LLa2**					
1	0.59015	0.70365	-0.61646	0.00000	0.51745	0.00000
7	-0.61277	0.70165	0.59384	0.00000	-0.56613	0.00000
40	0.01046	0.14421	-0.00349	0.00000	-0.00072	0.00000
41	-0.01894	0.13619	-0.00499	0.00000	-0.00098	0.00000
42	-0.01713	0.14006	-0.00384	0.00000	0.00074	0.00000
43	0.01148	0.12714	-0.00181	0.00000	0.00039	0.00000
SUM	-0.03677	1.95290	-0.03677	0.00000	-0.04924	0.00000
Condition	**LC61=1.2D-WL90+1.6LLa2**					
1	0.58951	0.70633	-0.60442	0.00000	0.52722	0.00000
7	-0.61351	0.69897	0.60442	0.00000	-0.55513	0.00000
40	0.01076	0.14516	0.00000	0.00000	0.00000	0.00000
41	-0.02076	0.13524	0.00000	0.00000	0.00000	0.00000
42	-0.01698	0.14015	0.00000	0.00000	0.00000	0.00000
43	0.01098	0.12705	0.00000	0.00000	0.00000	0.00000
SUM	-0.04000	1.95290	0.00000	0.00000	-0.02791	0.00000
Condition	**LC62=1.2D-WL120+1.6LLa2**					
1	0.59014	0.70890	-0.59238	0.00000	0.53854	0.00000
7	-0.61277	0.69640	0.61501	0.00000	-0.54238	0.00000
40	0.01046	0.14421	0.00349	0.00000	0.00072	0.00000
41	-0.01894	0.13619	0.00499	0.00000	0.00098	0.00000
42	-0.01713	0.14006	0.00384	0.00000	-0.00074	0.00000
43	0.01148	0.12714	0.00181	0.00000	-0.00039	0.00000
SUM	-0.03677	1.95290	0.03677	0.00000	-0.00328	0.00000
Condition	**LC63=1.2D-WL150+1.6LLa2**					
1	0.58495	0.71038	-0.58719	0.00000	0.53774	0.00000
7	-0.61748	0.69492	0.61972	0.00000	-0.54226	0.00000
40	0.01063	0.14547	0.00331	0.00000	0.00071	0.00000
41	-0.02053	0.13493	0.00658	0.00000	0.00127	0.00000
42	-0.01713	0.14006	0.00384	0.00000	-0.00074	0.00000
43	0.01148	0.12714	0.00181	0.00000	-0.00039	0.00000
SUM	-0.04808	1.95290	0.04808	0.00000	-0.00367	0.00000

Envelope for nodal reactions

Note.- **Ic** is the controlling load condition



Direction of positive forces and moments

Envelope of nodal reactions for :

LC1=1.2D+Wo
LC2=1.2D+W30
LC3=1.2D+W60
LC4=1.2D+W90
LC5=1.2D+W120
LC6=1.2D+W150
LC7=1.2D-Wo
LC8=1.2D-W30
LC9=1.2D-W60
LC10=1.2D-W90
LC11=1.2D-W120
LC12=1.2D-W150
LC13=0.9D+Wo
LC14=0.9D+W30
LC15=0.9D+W60
LC16=0.9D+W90
LC17=0.9D+W120
LC18=0.9D+W150
LC19=0.9D-Wo
LC20=0.9D-W30
LC21=0.9D-W60
LC22=0.9D-W90
LC23=0.9D-W120
LC24=0.9D-W150
LC25=1.2D+Di+WI0
LC26=1.2D+Di+WI30
LC27=1.2D+Di+WI60
LC28=1.2D+Di+WI90
LC29=1.2D+Di+WI120
LC30=1.2D+Di+WI150
LC31=1.2D+Di-WI0
LC32=1.2D+Di-WI30
LC33=1.2D+Di-WI60
LC34=1.2D+Di-WI90
LC35=1.2D+Di-WI120
LC36=1.2D+Di-WI150
LC37=1.2D+1.6LL1
LC38=1.2D+1.6LL2
LC39=1.2D+1.6LL3
LC40=1.2D+WL0+1.6LLa1
LC41=1.2D+WL30+1.6LLa1
LC42=1.2D+WL60+1.6LLa1
LC43=1.2D+WL90+1.6LLa1
LC44=1.2D+WL120+1.6LLa1
LC45=1.2D+WL150+1.6LLa1
LC46=1.2D-WL0+1.6LLa1
LC47=1.2D-WL30+1.6LLa1
LC48=1.2D-WL60+1.6LLa1
LC49=1.2D-WL90+1.6LLa1
LC50=1.2D-WL120+1.6LLa1
LC51=1.2D-WL150+1.6LLa1

LC52=1.2D+WL0+1.6LLa2
LC53=1.2D+WL30+1.6LLa2
LC54=1.2D+WL60+1.6LLa2
LC55=1.2D+WL90+1.6LLa2
LC56=1.2D+WL120+1.6LLa2
LC57=1.2D+WL150+1.6LLa2
LC58=1.2D-WL0+1.6LLa2
LC59=1.2D-WL30+1.6LLa2
LC60=1.2D-WL60+1.6LLa2
LC61=1.2D-WL90+1.6LLa2
LC62=1.2D-WL120+1.6LLa2
LC63=1.2D-WL150+1.6LLa2

Node		Forces						Moments					
		Fx [Kip]	lc	Fy [Kip]	lc	Fz [Kip]	lc	Mx [Kip*ft]	lc	My [Kip*ft]	lc	Mz [Kip*ft]	lc
1	Max	0.619	LC57	0.712	LC52	0.333	LC13	0.00000	LC1	0.76065	LC2	0.00000	LC1
	Min	-0.337	LC47	0.118	LC19	-0.779	LC7	0.00000	LC1	-0.53900	LC20	0.00000	LC1
7	Max	0.335	LC45	0.706	LC46	0.723	LC1	0.00000	LC1	0.53383	LC14	0.00000	LC1
	Min	-0.617	LC59	0.118	LC13	-0.276	LC19	0.00000	LC1	-0.75655	LC8	0.00000	LC1
40	Max	0.110	LC4	0.212	LC32	0.130	LC1	0.00000	LC1	0.02717	LC13	0.00000	LC1
	Min	-0.085	LC22	0.085	LC18	-0.130	LC7	0.00000	LC1	-0.02717	LC19	0.00000	LC1
41	Max	0.135	LC16	0.208	LC26	0.202	LC13	0.00000	LC1	0.03923	LC1	0.00000	LC1
	Min	-0.159	LC10	0.080	LC20	-0.202	LC19	0.00000	LC1	-0.03923	LC7	0.00000	LC1
42	Max	0.094	LC16	0.205	LC10	0.144	LC13	0.00000	LC1	0.02778	LC19	0.00000	LC1
	Min	-0.117	LC10	0.036	LC16	-0.144	LC19	0.00000	LC1	-0.02778	LC13	0.00000	LC1
43	Max	0.083	LC4	0.196	LC4	0.080	LC1	0.00000	LC1	0.01702	LC7	0.00000	LC1
	Min	-0.060	LC22	0.030	LC22	-0.080	LC7	0.00000	LC1	-0.01702	LC1	0.00000	LC1

TEP NORTHEAST

Connection Check

Date: 4/18/2023
Project Name: EAST HAVEN 5 CT
Designed By: CL **Checked By:** MSC

CHECK THRU BOLT CONNECTION CAPACITY → PROPOSED ANCHORS AT ANTENNA MOUNT

Reference: AISC Steel Construction Manual 14th Edition (ASD)

Bolt Type = A325 5/8" Threaded Rod

Allowable Tensile Load =

F_{Tall} = 13806 lbs.

Allowable Shear Load =

F_{vall} = 8283 lbs.

CONNECTION PLATE CONFIGURATION (4-BOLTS)

$N_{BOLT\ ROWS}$	=	2	rows	d_Y	=	6 in	(Min.)
N_{BOLTS}	=	2	bolts/row	d_X	=	6 in	(Min.)

TENSILE FORCES

Moment in X axis:	0 lb-ft.	(See Bentley Output)
Couple Reaction from M_X:	0 lbs.	
Moment in Y axis:	761 lb-ft.	(See Bentley Output)
Couple Reaction from M_Y:	3044 lbs.	
Reaction in Z direction:	779 lbs.	(See Bentley Output)

Resultant per bolt: 1717 lbs.

SHEAR FORCES

Moment in Z axis:	0 lb-ft.	(See Bentley Output)
Couple Reaction from M_Z:	0 lbs.	
Reaction in X direction:	619 lbs.	(See Bentley Output)
Reaction in Y direction:	712 lbs.	(See Bentley Output)

Resultant per bolt: 236 lbs.

Tension Design Load /Bolts =

f_t= 1716.75 lbs. < 13806 lbs. **Therefore, OK !**

Shear Design Load / Bolts=

f_v= 235.86 lbs. < 8283.5 lbs. **Therefore, OK !**

CHECK COMBINED TENSION AND SHEAR

f_t / F_T	+	f_v / F_V	≤	1.0			
0.124	+	0.028	=	0.153	<	1.0	**Therefore, OK !**

Date: 4/18/2023
Project Name: EAST HAVEN 5 CT
Designed By: CL **Checked By:** MSC

CHECK THRU BOLT CONNECTION CAPACITY → PROPOSED ANCHORS AT RRH MOUNT

Reference: AISC Steel Construction Manual 14th Edition (ASD)

Bolt Type = A36 5/8" Threaded Rod

Allowable Tensile Load =
F_{Tall} = 6673 lbs.

Allowable Shear Load =
F_{vall} = 4004 lbs.

CONNECTION PLATE CONFIGURATION (2-BOLTS)

$N_{BOLT\ ROWS}$	=	2	rows
N_{BOLTS}	=	1	bolts/row
d_y	=	6	in

TENSILE FORCES

Moment in Y axis:	39	lb-ft.	(See Bentley Output)
Couple Reaction from M_y:	156	lbs.	
Reaction in Z direction:	202	lbs.	(See Bentley Output)
Resultant per bolt:	257	lbs.	

SHEAR FORCES

Reaction in X direction:	159	lbs.	(See Bentley Output)
Reaction in Y direction:	208	lbs.	(See Bentley Output)
Resultant per bolt:	131	lbs.	

Tension Design Load /Bolts =

f_t= 257.00 lbs. < 6673 lbs. **Therefore, OK !**

Shear Design Load / Bolts=

f_v= 130.91 lbs. < 4004 lbs. **Therefore, OK !**

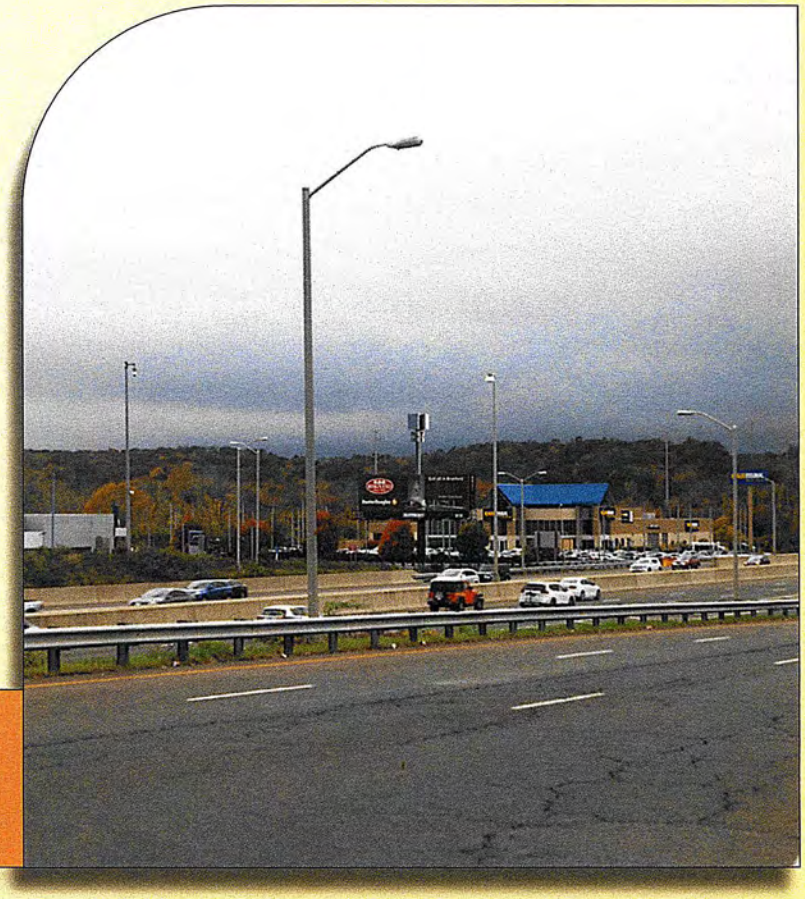
CHECK COMBINED TENSION AND SHEAR

f_t / F_T	+	f_v / F_V	≤	1.0			
0.039	+	0.033	=	0.071	<	1.0	**Therefore, OK !**

ATTACHMENT 5

Photographic Documentation & Simulations

EAST HAVEN 5 CT
115 PEAT MEADOW ROAD
NEW HAVEN, CT 06513



Prepared in January 2021 by:
All-Points Technology Corporation, P.C.
567 Vauxhall Street Extension – Suite 311
Waterford, CT 06385

Prepared for Verizon Wireless

ALL-POINTS
TECHNOLOGY CORPORATION

VISUAL ASSESSMENT & PHOTO-SIMULATIONS

Cellco Partnership, d/b/a Verizon Wireless is seeking approval for the installation of a wireless communications facility (the "Facility") at 115 Peat Meadow Road in New Haven, Connecticut. At the request of Verizon Wireless, All-Points Technology Corporation, P.C. ("APT") completed this visibility assessment and prepared computer-generated photo-simulations depicting the Facility.

Project Undertaking

The Facility would be located on a proposed extension to an existing billboard support structure. A 16" diameter mast pipe would be installed on the existing monopole support. The billboard currently extends to a height of ±45' 6" above ground level ("AGL"); the proposed mast would extend to a height of ±70' AGL. Verizon Wireless would install six (6) panel antennas at the top of the mast, at an approximate centerline height of 67' above ground level ("AGL"). Six (6) remote radio heads ("RRHs") would be mounted below the antennas. A ±8' 8" by ±19' 6" wood fence-enclosed compound would be located at the base of the billboard.

Please refer to the Site Drawings prepared by Hudson Design Group, LLC, Rev. 4, dated January 5, 2021, and provided under separate cover, for details regarding the proposed installation.

Project Vicinity

The existing billboard is located north of Frontage Road, Interstate 95 ("I-95") and U.S. Route 1 in the southeast corner of a property developed as a car dealership. Industrial development and a City of New Haven park are located to the north. Commercial development, consisting primarily of big box retail businesses and car dealerships, extends along both the north and south sides of the I-95 corridor to the east. Dense residential development is to the west. The municipal boundary between the City of New Haven and the Town of East Haven is immediately to the east.

Field Reconnaissance

APT completed field reconnaissance in the vicinity of the Facility to record existing conditions, inventory visible and non-visible locations, and provide photographic documentation from publicly accessible areas. The field reconnaissance was completed on October 23, 2020.

Photographic Documentation and Simulations

During the field reconnaissance, APT obtained photographs from representative locations where the billboard is currently visible. At each photo location, the geographic coordinates of the camera's position were logged using global positioning system ("GPS") technology. Photographs were taken with a Canon EOS 6D digital camera body[1] and Canon EF 24 to 105 millimeter ("mm") zoom lens. APT used a standard focal length of 50mm to present a consistent field of view.

Photographic simulations were generated to portray scaled renderings of the proposed Facility from six (6) locations presented herein where the Facility may be recognizable. Using field data, Site plan information and 3-dimensional (3D) modeling software, spatially referenced models of the Facility were generated and merged. The geographic coordinates obtained in the field for the photograph locations were incorporated into the model to produce virtual camera positions within the spatial 3D model. Photo-simulations were then created using a combination of renderings generated in the 3D model and photo-rendering software programs, which were ultimately composited and merged with the existing conditions photographs (using Photoshop image editing software). The scale of the subjects in the photograph (the billboard) and the corresponding simulation (depicting the Facility components) is proportional to their surroundings.

For presentation purposes in this report, the photographs were produced in an approximate 7-inch by 10.5-inch format. When reproducing the images in this format size, we believe it is important to present the largest view while providing key contextual landscape elements (existing developments, street signs, utility poles, etc.) so that the viewer can determine the proportionate scale of each object within the scene. Photographs presented in the attachment at the end of this report include documentation of existing conditions and photo-simulations of the modified Facility. The photo-simulations are intended to provide the reader with a general understanding of the different view characteristics associated with the Facility from various locations. Photographs were taken from publicly-accessible areas and unobstructed view lines were chosen wherever possible.

The table on the following page summarizes the photographs and simulations presented in the attachment to this report, and includes a description of each location, view orientation, and distance from where the photo was taken relative to the proposed Facility. The photo locations are depicted on the photolog provided as an attachment to this report.

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[1] The Canon EOS 6D is a full-framed camera which includes a lens receptor of the same size as the film used in 35mm cameras. As such, the images produced are comparable to those taken with a conventional 35mm camera.

Table 1 – Photo Locations

Photo	Location	Orientation	Distance to Site
1	Carmax Entrance at Frontage Road	Northwest	± 0.23 Mile
2	Access Road behind Host Property	Southwest	± 491 Feet
3	Host Property	Northwest	± 0.38 Mile
4	U.S. Route 1	Northeast	± 0.14 Mile
5	U.S. Route 1	Northwest	± 0.11 Mile
6	U.S. Route 1	Northwest	± 0.26 Mile

Conclusions

As presented on the attached photo-simulations, views of the proposed Facility would not significantly change the characteristics of the area. The visibility of the existing billboard occurs primarily along the transportation corridor travel ways and within the adjoining commercial/industrial properties. Where visible, the monopole structure extension and proposed antennas will be seen among other existing infrastructure and development. It is anticipated that visibility to the west within most of the residential areas will be obscured by intervening vegetation, including mature trees.

Limitations

The photo-simulations provide a representation of the Facility under similar settings as those encountered during the field review and reconnaissance. Views of the Facility can change throughout the seasons and the time of day, and are dependent on weather and other atmospheric conditions (e.g., haze, fog, clouds); the location, angle and intensity of the sun; and the specific viewer location. Weather conditions on the day of the field review included variable winds and cloudy skies.

ATTACHMENTS

PHOTO LOG

Legend

Site ○ Visible ▭ Municipal Boundary

1 inch = 250 feet

250 125 0 250 Feet

ALL-POINTS TECHNOLOGY CORPORATION

verizon

PHOTOGRAPHED ON 10/23/2020

EXISTING

PHOTO	LOCATION	DISTANCE TO SITE	ORIENTATION
1	**CARMAX ENTRANCE AT FRONTAGE ROAD**	**+/- 0.23 MILE**	**NORTHWEST**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

PROPOSED

PHOTO	LOCATION	DISTANCE TO SITE	ORIENTATION
1	**CARMAX ENTRANCE AT FRONTAGE ROAD**	**+/- 0.23 MILE**	**NORTHWEST**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

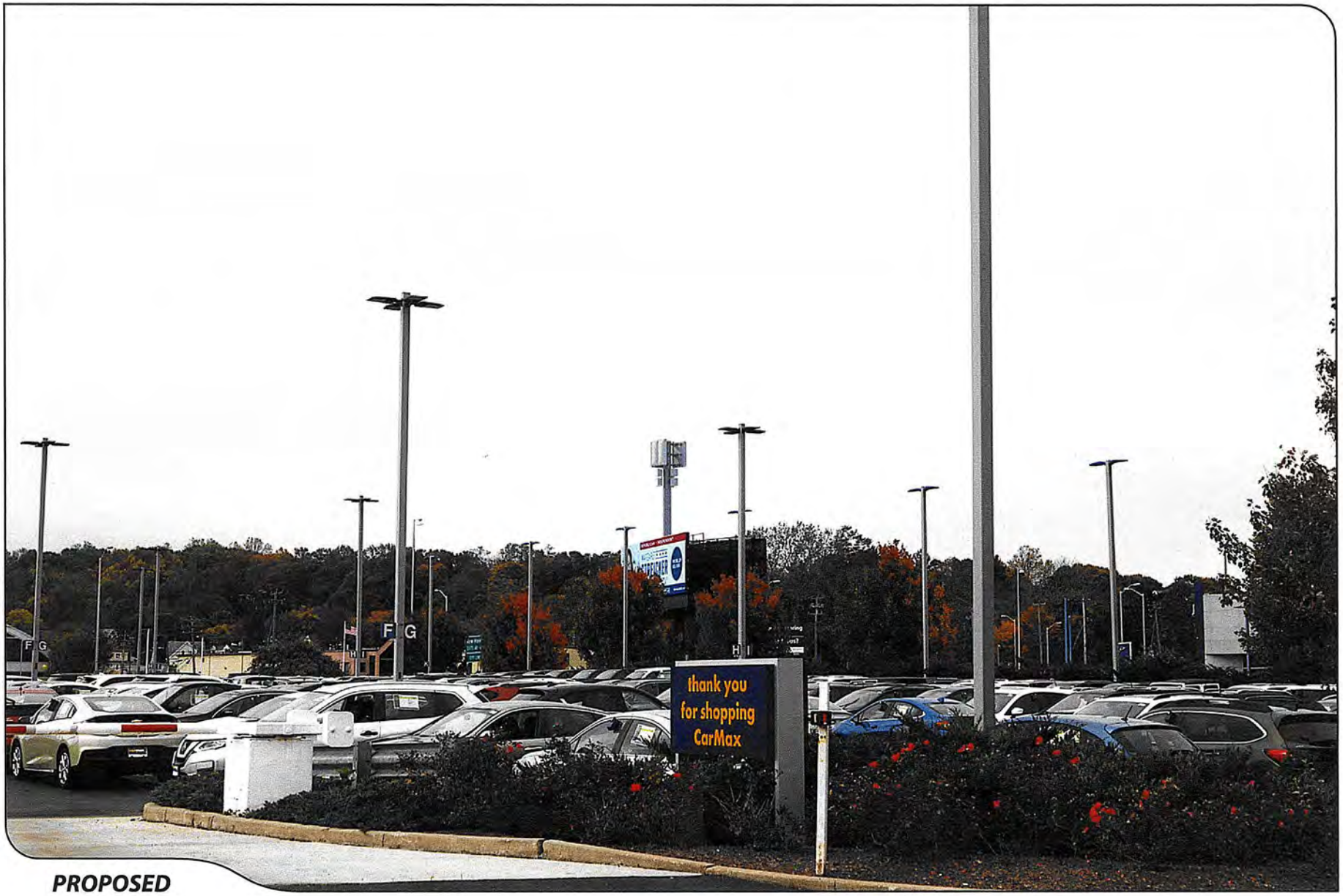
PHOTOGRAPHED ON 10/23/2020

EXISTING

PHOTO	LOCATION	DISTANCE TO SITE	ORIENTATION
2	**ACCESS ROAD BEHIND HOST PROPERTY**	**+/- 491 FEET**	**SOUTHWEST**

ALL-POINTS TECHNOLOGY CORPORATION

verizon



PROPOSED

PHOTO	LOCATION	DISTANCE TO SITE	ORIENTATION
2	**ACCESS ROAD BEHIND HOST PROPERTY**	**+/- 491 FEET**	**SOUTHWEST**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

PHOTOGRAPHED ON 10/23/2020

EXISTING

PHOTO	LOCATION	DISTANCE TO SITE	ORIENTATION
3	**HOST PROPERTY**	**+/- 491 FEET**	**SOUTHEAST**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

PROPOSED

PHOTO	LOCATION	DISTANCE TO SITE	ORIENTATION
3	**HOST PROPERTY**	**+/- 491 FEET**	**SOUTHEAST**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

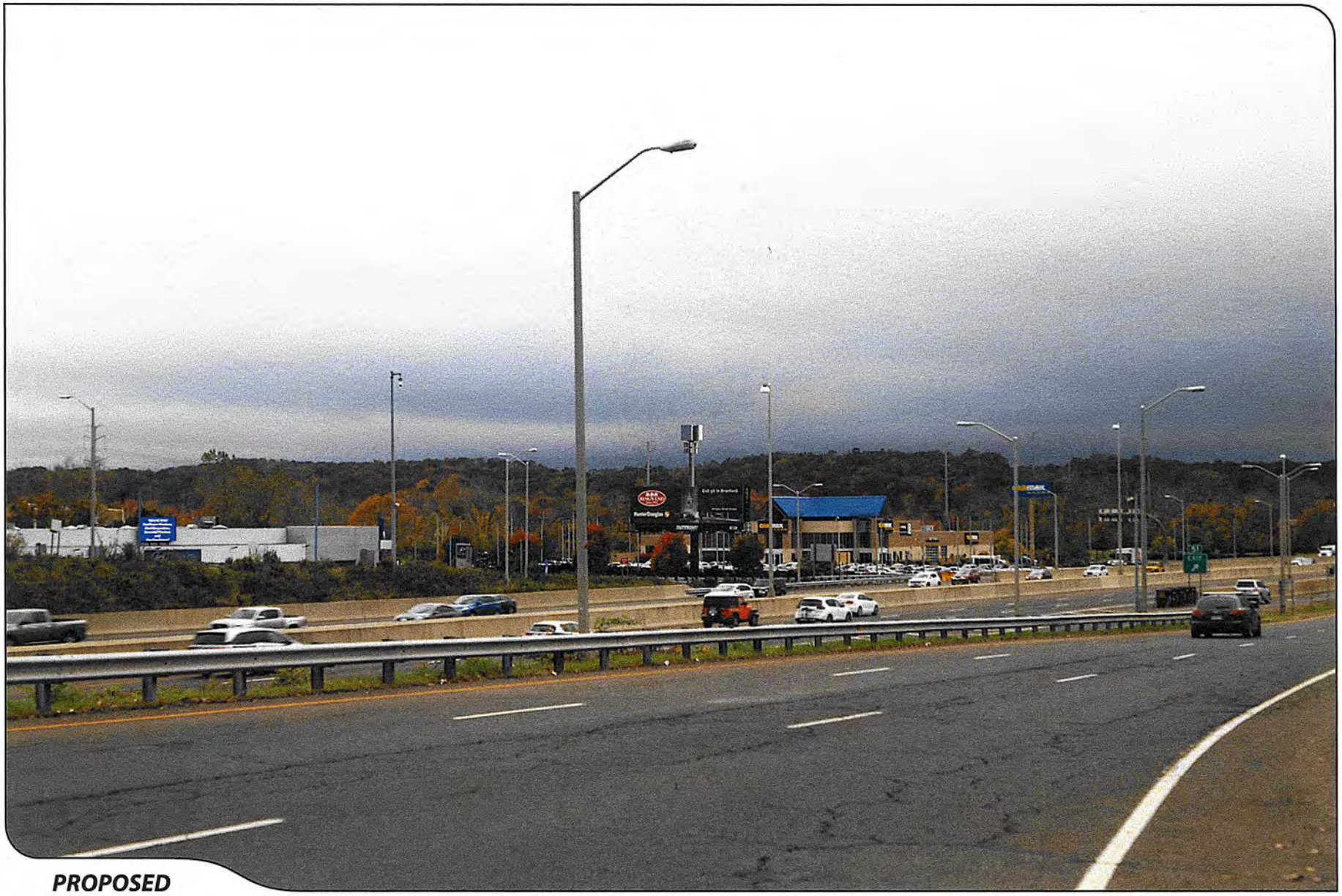
PHOTOGRAPHED ON 10/23/2020

EXISTING

PHOTO	LOCATION	DISTANCE TO SITE	ORIENTATION
4	**U.S. ROUTE 1**	**+/- 0.14 MILE**	**NORTHEAST**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

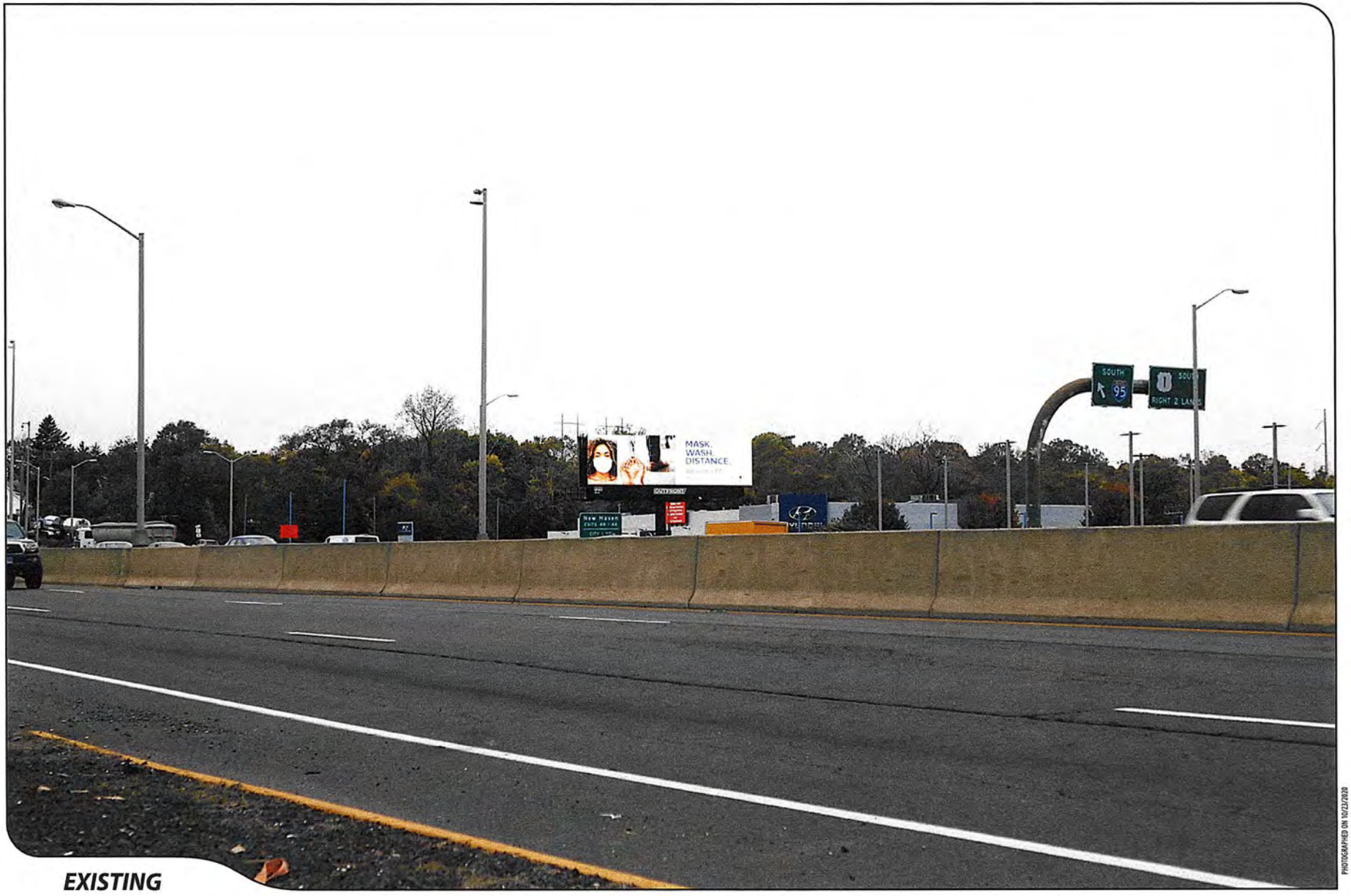


PROPOSED

PHOTO	LOCATION	DISTANCE TO SITE	ORIENTATION
4	**U.S. ROUTE 1**	**+/- 0.14 MILE**	**NORTHEAST**

ALL-POINTS TECHNOLOGY CORPORATION

verizon



PHOTOGRAPHED ON 10/23/2020

EXISTING

PHOTO	LOCATION	DISTANCE TO SITE	ORIENTATION
5	**U.S. ROUTE 1**	**+/- 0.11 MILE**	**NORTHWEST**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

PROPOSED

PHOTO	LOCATION	DISTANCE TO SITE	ORIENTATION
5	**U.S. ROUTE 1**	**+/- 0.11 MILE**	**NORTHWEST**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

PHOTOGRAPHED ON 10/23/2020

EXISTING

PHOTO	LOCATION	DISTANCE TO SITE	ORIENTATION
6	**U.S. ROUTE 1**	**+/- 0.26 MILE**	**NORTHWEST**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

PROPOSED

PHOTO	LOCATION	DISTANCE TO SITE	ORIENTATION
6	**U.S. ROUTE 1**	**+/- 0.26 MILE**	**NORTHWEST**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

ATTACHMENT 6

Location	EAST HAVEN 5 CT				
Date	10/30/2024				
Band	C-Band	AWS	PCS	850	700
Operating Frequency (MHz)	3,700	2,145	1,970	880	746
General Population MPE (mW/cm^2)	1	1	1	0.58666667	0.49733333
ERP Per Transmitter (Watts)	34,473	10,947	10,947	5,120	4,358
Number of Transmitters	2	1	1	1	1
Antenna Centerline (CL) (feet)	67	67	67	67	67
Total ERP (Watts)	68,945	10,947	10,947	5,120	4,358
Total ERP (dBm)	78	70	70	67	66
Maximum % of General Population Limit	13.5%				

*Guidelines adopted by the FCC on August 1, 1996, 47 CFR Section 1.1310 based on NCRP Report 86, 1986 and generally on ANSI/IEEE C95.1-1992

MHz = Megahertz
mW/cm^2 = milliwatts per square centimeter
ERP = Effective Radiated Power

Absolute worst case maximum values used, including the following assumptions:
1. closest accessible point is distance from antenna to base of pole;
2. continuous transmission from all available channels at full power for indefinite time period;
3. calculation takes into account a point of interest of 2m or 6.56ft

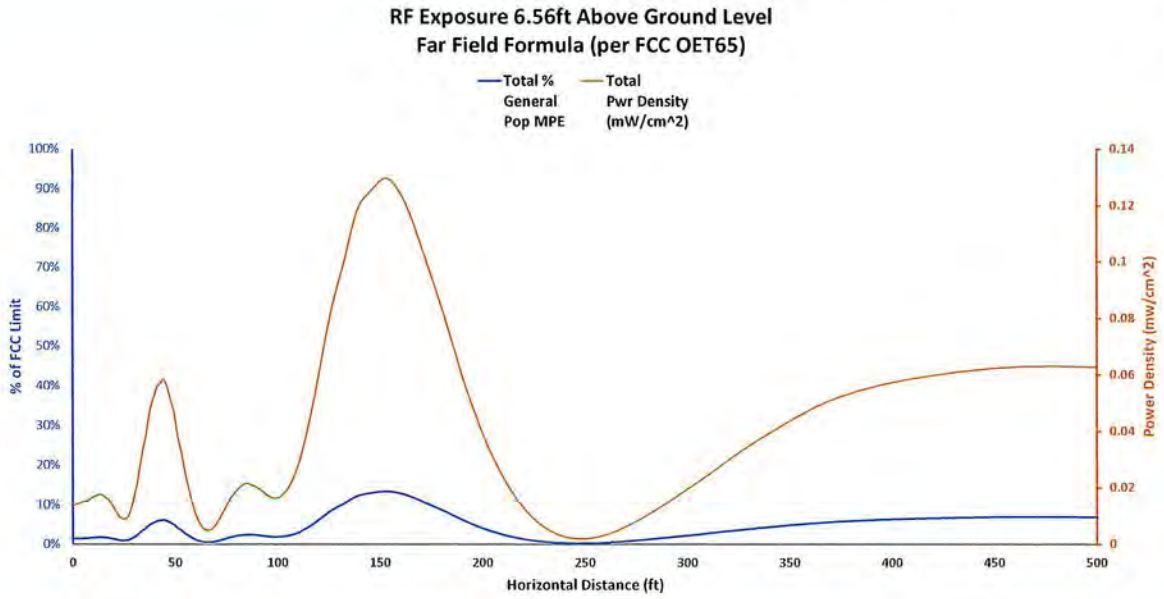
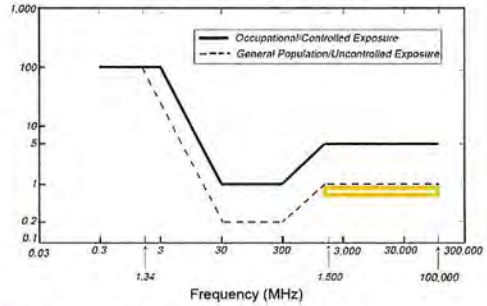
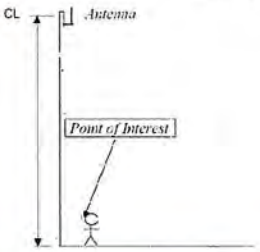


Figure 1. FCC Limits for Maximum Permissible Exposure (MPE)





Angle Below Horizon	Power Density (mW/cm^2)					Percent of General Population MPE									Distance	Total Pwr Density (mW/cm^2)	Total % General Pop MPE
	C-Band	AWS	PCS	850-LTE	700 MHz	39GHz	28GHz	C-Band	CBRS	AWS	PCS	Cellular	CDMA	700 MHz			
90	0.0132342	0.000105068	1.20357E-05	0.000607395	2.31991E-05	0.00%	0.00%	1.32%	0.00%	0.01%	0.00%	0.10%	0.00%	0.00%	0	0.013981898	1.44%
89	0.013230359	8.45951E-05	1.47688E-05	0.00061425	1.70744E-05	0.00%	0.00%	1.32%	0.00%	0.01%	0.00%	0.10%	0.00%	0.00%	1.029848831	0.013961047	1.44%
88	0.013526746	7.29402E-05	7.2438E-06	0.000608088	1.20217E-05	0.00%	0.00%	1.35%	0.00%	0.01%	0.00%	0.10%	0.00%	0.00%	2.0603254	0.01422704	1.47%
87	0.013821734	8.75661E-05	1.21153E-05	0.000590658	8.34326E-06	0.00%	0.00%	1.38%	0.00%	0.01%	0.00%	0.10%	0.00%	0.00%	3.092058978	0.014520416	1.49%
86	0.014114932	9.49406E-05	1.42054E-05	0.000566829	6.11578E-06	0.00%	0.00%	1.41%	0.00%	0.01%	0.00%	0.10%	0.00%	0.00%	4.125681905	0.014797023	1.52%
85	0.014405937	7.28308E-05	1.61553E-05	0.000539902	5.16791E-06	0.00%	0.00%	1.44%	0.00%	0.01%	0.00%	0.09%	0.00%	0.00%	5.161831148	0.015039993	1.54%
84	0.014694333	3.98037E-05	1.89637E-05	0.000517515	5.2957E-06	0.00%	0.00%	1.47%	0.00%	0.00%	0.00%	0.09%	0.00%	0.00%	6.201149881	0.015275911	1.56%
83	0.014638714	2.71817E-05	2.15912E-05	0.000504982	6.34273E-06	0.00%	0.00%	1.46%	0.00%	0.00%	0.00%	0.09%	0.00%	0.00%	7.244289093	0.015198812	1.56%
82	0.01526158	3.21642E-05	2.56078E-05	0.000505095	8.13529E-06	0.00%	0.00%	1.53%	0.00%	0.00%	0.00%	0.09%	0.00%	0.00%	8.291909247	0.015832582	1.62%
81	0.015901505	3.35129E-05	3.48507E-05	0.000521449	1.07947E-05	0.00%	0.00%	1.59%	0.00%	0.00%	0.00%	0.09%	0.00%	0.00%	9.344681979	0.016502112	1.69%
80	0.016181457	3.30972E-05	5.31852E-05	0.000553084	1.55522E-05	0.00%	0.00%	1.62%	0.00%	0.00%	0.01%	0.09%	0.00%	0.00%	10.40329186	0.016836376	1.72%
79	0.016456443	3.75932E-05	7.98196E-05	0.000598562	2.35564E-05	0.00%	0.00%	1.65%	0.00%	0.00%	0.01%	0.10%	0.00%	0.00%	11.46843824	0.017195974	1.76%
78	0.016725969	5.90425E-05	0.00010744	0.000654884	3.42898E-05	0.00%	0.00%	1.67%	0.00%	0.01%	0.01%	0.11%	0.00%	0.01%	12.54083714	0.017581626	1.81%
77	0.016602807	0.000134263	0.00013242	0.000716069	4.65538E-05	0.00%	0.00%	1.66%	0.00%	0.01%	0.01%	0.12%	0.00%	0.01%	13.62122328	0.017632113	1.82%
76	0.016095495	0.000244049	0.000157935	0.000780688	5.89492E-05	0.00%	0.00%	1.61%	0.00%	0.02%	0.02%	0.13%	0.00%	0.01%	14.71035217	0.017337116	1.79%
75	0.015239025	0.000294938	0.000185665	0.000842812	7.04256E-05	0.00%	0.00%	1.52%	0.00%	0.03%	0.02%	0.14%	0.00%	0.01%	15.80900235	0.016632865	1.73%
74	0.014754935	0.000254513	0.000207831	0.000903048	8.12289E-05	0.00%	0.00%	1.48%	0.00%	0.03%	0.02%	0.15%	0.00%	0.02%	16.91797776	0.016201556	1.69%
73	0.01363458	0.000180474	0.000209612	0.000958109	9.19211E-05	0.00%	0.00%	1.36%	0.00%	0.02%	0.02%	0.16%	0.00%	0.02%	18.03811021	0.015074696	1.58%

72	0.012591207	0.000132081	0.000184859	0.001011209	0.000103954	0.00%	0.00%	1.26%	0.00%	0.01%	0.02%	0.17%	0.00%	0.02%	19.17026208	0.014023309	1.48%
71	0.011097129	0.000137399	0.000144206	0.001061656	0.000119394	0.00%	0.00%	1.11%	0.00%	0.01%	0.01%	0.18%	0.00%	0.02%	20.31532918	0.012559785	1.34%
70	0.009551419	0.000212247	0.000108603	0.001111325	0.000140877	0.00%	0.00%	0.96%	0.00%	0.02%	0.01%	0.19%	0.00%	0.03%	21.47424382	0.011124471	1.20%
69	0.008215523	0.000262065	9.08675E-05	0.001159868	0.000171953	0.00%	0.00%	0.82%	0.00%	0.03%	0.01%	0.20%	0.00%	0.03%	22.64797807	0.009900276	1.09%
68	0.007394493	0.00023157	7.52804E-05	0.001206929	0.000217111	0.00%	0.00%	0.74%	0.00%	0.02%	0.01%	0.21%	0.00%	0.04%	23.83754732	0.009125383	1.02%
67	0.007126609	0.000175249	3.96877E-05	0.00125215	0.000279677	0.00%	0.00%	0.71%	0.00%	0.02%	0.00%	0.21%	0.00%	0.06%	25.04401416	0.008873373	1.00%
66	0.007354515	0.000153577	2.19446E-05	0.001295172	0.000365029	0.00%	0.00%	0.74%	0.00%	0.02%	0.00%	0.22%	0.00%	0.07%	26.26849243	0.009190238	1.05%
65	0.008316042	0.000171668	0.000105121	0.001326447	0.000474996	0.00%	0.00%	0.83%	0.00%	0.02%	0.01%	0.23%	0.00%	0.10%	27.51215183	0.010394275	1.18%
64	0.010788608	0.000204521	0.000251038	0.001345051	0.000611982	0.00%	0.00%	1.08%	0.00%	0.02%	0.03%	0.23%	0.00%	0.12%	28.77622273	0.0132012	1.48%
63	0.013986032	0.000201589	0.000439003	0.00135353	0.000775297	0.00%	0.00%	1.40%	0.00%	0.02%	0.04%	0.23%	0.00%	0.16%	30.06200152	0.016755451	1.85%
62	0.018117484	0.000163633	0.000663546	0.001342367	0.00095691	0.00%	0.00%	1.81%	0.00%	0.02%	0.07%	0.23%	0.00%	0.19%	31.37085647	0.021243941	2.32%
61	0.023451417	0.0001592	0.000893187	0.001324166	0.001150648	0.00%	0.00%	2.35%	0.00%	0.02%	0.09%	0.23%	0.00%	0.23%	32.70423404	0.026978617	2.91%
60	0.028966849	0.000208293	0.001063346	0.001299196	0.001344852	0.00%	0.00%	2.90%	0.00%	0.02%	0.11%	0.22%	0.00%	0.27%	34.06366588	0.032882536	3.52%
59	0.033364693	0.000251803	0.001094109	0.001285466	0.001527779	0.00%	0.00%	3.34%	0.00%	0.03%	0.11%	0.22%	0.00%	0.31%	35.45077652	0.037523849	4.00%
58	0.040208606	0.000258876	0.000950807	0.001294471	0.001686912	0.00%	0.00%	4.02%	0.00%	0.03%	0.10%	0.22%	0.00%	0.34%	36.86729176	0.044399673	4.70%
57	0.045184423	0.000244209	0.000740904	0.00134203	0.001806185	0.00%	0.00%	4.52%	0.00%	0.02%	0.07%	0.23%	0.00%	0.36%	38.315048	0.049317751	5.21%
56	0.048449315	0.000231239	0.00056242	0.001435691	0.001879581	0.00%	0.00%	4.84%	0.00%	0.02%	0.06%	0.24%	0.00%	0.38%	39.79600249	0.052558246	5.55%
55	0.051904681	0.000256437	0.000337272	0.00158482	0.001892256	0.00%	0.00%	5.19%	0.00%	0.03%	0.03%	0.27%	0.00%	0.38%	41.31224475	0.055975465	5.90%
54	0.053056139	0.000298201	9.17295E-05	0.001780365	0.001847179	0.00%	0.00%	5.31%	0.00%	0.03%	0.01%	0.30%	0.00%	0.37%	42.86600915	0.057073613	6.02%
53	0.054183198	0.000270793	3.29335E-05	0.002012046	0.001736353	0.00%	0.00%	5.42%	0.00%	0.03%	0.00%	0.34%	0.00%	0.35%	44.45968896	0.058235325	6.14%
52	0.051592018	0.000160826	0.000147013	0.002245721	0.001564429	0.00%	0.00%	5.16%	0.00%	0.02%	0.01%	0.38%	0.00%	0.31%	46.09585196	0.055710008	5.89%
51	0.046868127	5.80298E-05	0.000235316	0.002452737	0.001347879	0.00%	0.00%	4.69%	0.00%	0.01%	0.02%	0.42%	0.00%	0.27%	47.77725796	0.050962089	5.41%
50	0.04253412	1.43058E-05	0.000294789	0.002585299	0.001100299	0.00%	0.00%	4.25%	0.00%	0.00%	0.03%	0.44%	0.00%	0.22%	49.50687824	0.046528813	4.95%
49	0.034367573	5.76663E-06	0.000313995	0.002611694	0.00083931	0.00%	0.00%	3.44%	0.00%	0.00%	0.03%	0.45%	0.00%	0.17%	51.28791753	0.038138337	4.08%
48	0.029046762	1.09615E-05	0.000267221	0.002505366	0.000590026	0.00%	0.00%	2.90%	0.00%	0.00%	0.03%	0.43%	0.00%	0.12%	53.12383861	0.032420337	3.48%
47	0.021855918	4.06764E-05	0.000255471	0.002256017	0.000380489	0.00%	0.00%	2.19%	0.00%	0.00%	0.03%	0.38%	0.00%	0.08%	55.01839008	0.024788573	2.68%
46	0.016052653	0.000123971	0.000263828	0.001889384	0.000232445	0.00%	0.00%	1.61%	0.00%	0.01%	0.03%	0.32%	0.00%	0.05%	56.97563771	0.01856228	2.01%
45	0.010740238	0.000253389	0.000259889	0.001434786	0.000163602	0.00%	0.00%	1.07%	0.00%	0.03%	0.03%	0.24%	0.00%	0.03%	59	0.012851903	1.40%
44	0.006698106	0.0003713	0.000514903	0.000952194	0.00018652	0.00%	0.00%	0.67%	0.00%	0.04%	0.05%	0.16%	0.00%	0.04%	61.09628851	0.008723023	0.96%
43	0.003718275	0.000502476	0.000993379	0.000511817	0.00029793	0.00%	0.00%	0.37%	0.00%	0.05%	0.10%	0.09%	0.00%	0.06%	63.26975389	0.006023878	0.67%
42	0.002014473	0.000860865	0.001415582	0.000181943	0.000486334	0.00%	0.00%	0.20%	0.00%	0.09%	0.14%	0.03%	0.00%	0.10%	65.52613837	0.004959197	0.56%
41	0.0013103S6	0.001683305	0.001581841	3.13446E-05	0.000728053	0.00%	0.00%	0.13%	0.00%	0.17%	0.16%	0.01%	0.00%	0.15%	67.87173603	0.005334899	0.61%
40	0.001949849	0.002956475	0.001441366	8.08675E-05	0.0009926	0.00%	0.00%	0.19%	0.00%	0.30%	0.14%	0.01%	0.00%	0.20%	70.31346196	0.007421157	0.85%
39	0.003564264	0.004372635	0.001070886	0.000250463	0.001243779	0.00%	0.00%	0.36%	0.00%	0.44%	0.11%	0.04%	0.00%	0.25%	72.85893224	0.010502028	1.19%
38	0.006071113	0.005495936	0.000626674	0.000644231	0.001445578	0.00%	0.00%	0.61%	0.00%	0.55%	0.06%	0.11%	0.00%	0.29%	75.5165563	0.014283532	1.62%
37	0.008587477	0.005870012	0.000333149	0.001173921	0.001569058	0.00%	0.00%	0.86%	0.00%	0.59%	0.03%	0.20%	0.00%	0.32%	78.29564448	0.017533618	1.99%
36	0.011059332	0.005242064	0.000300263	0.001751872	0.001590385	0.00%	0.00%	1.11%	0.00%	0.52%	0.03%	0.30%	0.00%	0.32%	81.20653331	0.019943916	2.28%
35	0.013577582	0.003746242	0.000485955	0.002294013	0.001508675	0.00%	0.00%	1.36%	0.00%	0.37%	0.05%	0.39%	0.00%	0.30%	84.2607324	0.021612467	2.48%
34	0.014161436	0.002079125	0.00069005	0.002715693	0.001336228	0.00%	0.00%	1.42%	0.00%	0.21%	0.07%	0.46%	0.00%	0.27%	87.47109714	0.020982533	2.42%
33	0.014078006	0.001024034	0.000659651	0.002953347	0.001107426	0.00%	0.00%	1.41%	0.00%	0.10%	0.07%	0.50%	0.00%	0.22%	90.85203287	0.019822464	2.30%
32	0.013033998	0.000387125	0.000369701	0.002970647	0.000864671	0.00%	0.00%	1.30%	0.00%	0.04%	0.04%	0.51%	0.00%	0.17%	94.41973721	0.017626143	2.06%
31	0.012608579	0.000255529	6.11561E-05	0.002776128	0.000664415	0.00%	0.00%	1.26%	0.00%	0.03%	0.01%	0.47%	0.00%	0.13%	98.19248946	0.016365808	1.90%
30	0.0139717S4	0.000278628	5.42031E-05	0.002415596	0.000561079	0.00%	0.00%	1.40%	0.00%	0.03%	0.01%	0.41%	0.00%	0.11%	102.1909976	0.01728126	1.96%
29	0.018568233	0.000145728	0.000334614	0.001974895	0.000595037	0.00%	0.00%	1.86%	0.00%	0.01%	0.03%	0.34%	0.00%	0.12%	106.4388176	0.021618507	2.36%
28	0.026987166	6.38162E-06	0.000680661	0.001566501	0.00078692	0.00%	0.00%	2.70%	0.00%	0.00%	0.07%	0.27%	0.00%	0.16%	110.9628615	0.030027629	3.19%
27	0.040957723	0.000199117	0.00080188	0.001294521	0.00113008	0.00%	0.00%	4.10%	0.00%	0.02%	0.08%	0.22%	0.00%	0.23%	115.7940198	0.044383321	4.64%
26	0.05918646	0.000657651	0.000597029	0.001233093	0.001581233	0.00%	0.00%	5.92%	0.00%	0.07%	0.06%	0.21%	0.00%	0.32%	120.9679267	0.063255466	6.57%
25	0.079565237	0.000894328	0.00023254	0.001407657	0.002072511	0.00%	0.00%	7.96%	0.00%	0.09%	0.02%	0.24%	0.00%	0.42%	126.5259083	0.084172271	8.73%
24	0.095002207	0.000659944	3.51162E-05	0.001780357	0.002520618	0.00%	0.00%	9.50%	0.00%	0.07%	0.00%	0.30%	0.00%	0.51%	132.5161697	0.099998242	10.38%
23	0.113014683	0.000238731	0.000155922	0.002258958	0.002830794	0.00%	0.00%	11.30%	0.00%	0.02%	0.02%	0.39%	0.00%	0.57%	138.9952896	0.118499089	12.30%
22	0.119341801	2.44662E-05	0.000608928	0.002713726	0.002934715	0.00%	0.00%	11.93%	0.00%	0.00%	0.06%	0.46%	0.00%	0.59%	146.0301244	0.125623637	13.05%
21	0.122617879	0.000156073	0.001072327	0.003022228	0.002801091	0.00%	0.00%	12.26%	0.00%	0.02%	0.11%	0.52%	0.00%	0.56%	153.7002548	0.129669597	13.46%
20	0.114351813	0.000555925	0.001142922	0.003083305	0.002432296	0.00%	0.00%	11.44%	0.00%	0.06%	0.11%	0.53%	0.00%	0.49%	162.1011677	0.121566261	12.62%
19	0.096751545	0.0007969S	0.000731866	0.002840739	0.001889867	0.00%	0.00%	9.68%	0.00%	0.08%	0.07%	0.48%	0.00%	0.38%	171.3484418	0.103010967	10.69%
18	0.075956171	0.000617073	0.000199222	0.002329895	0.001271559	0.00%	0.00%	7.60%	0.00%	0.06%	0.02%	0.40%	0.00%	0.26%	181.5833287	0.08037392	8.33%
17	0.050429291	0.000182161	2.13529E-05	0.00165751	0.000698966	0.00%	0.00%	5.04%	0.00%	0.02%	0.00%	0.28%	0.00%	0.14%	192.9803045	0.052989282	5.49%
16	0.028293814	2.06284E-05	0.00027382	0.000978284	0.000289378	0.00%	0.00%	2.83%	0.00%	0.00%	0.03%	0.17%	0.00%	0.06%	205.7574522	0.029855923	3.08%
15	0.011148078	0.000285742	0.000620831	0.000463419	0.000131818	0.00%	0.00%	1.11%	0.00%	0.03%	0.06%	0.08%	0.00%	0.03%	220.1909976	0.012649887	1.31%
14	0.001654775	0.000666058	0.000623035	0.000262127	0.000275748	0.00%	0.00%	0.17%	0.00%	0.07%	0.06%	0.04%	0.00%	0.06%	236.6360751	0.003481743	0.39%
13	0.000473952	0.000613066	0.000293432	0.000432024	0.00072029	0.00%	0.00%	0.05%	0.00%	0.06%	0.03%	0.07%	0.00%	0.14%	255.5570766	0.002532764	0.36%
12	0.006568615	0.000207132	4.44884E-05	0.000973301	0.001390744	0.00%	0.00%	0.66%	0.00%	0.02%	0.00%	0.17%	0.00%	0.28%	277.5731765	0.009184281	1.13%
11	0.017102505	6.22061E-05	0.000162867	0.001789918	0.002171866	0.00%	0.00%	1.71%	0.00%	0.01%	0.02%	0.33%	0.00%	0.44%	303.5286869	0.021289363	2.47%
10	0.030292596	0.000463564	0.000587638	0.002704642	0.002911454	0.00%	0.00%	3.03%	0.00%	0.05%	0.06%	0.46%	0.00%	0.59%	334.6056274	0.036959894	4.18%
9	0.042734898	0.001105493	0.000858136	0.003512012	0.003487836	0.00%	0.00%	4.27%	0.00%	0.11%	0.09%	0.60%	0.00%	0.70%	372.5113394	0.051698375	5.77%
8	0.050042358	0.00129155	0.000685664	0.004046794	0.003776688	0.00%	0.00%	5.00%	0.00%	0.13%	0.07%	0.69%	0.00%	0.76%	419.8068136	0.059843055	6.65%
7	0.054214187	0.000825822	0.000238719	0.004167603	0.003731525	0.00%	0.00%	5.42%	0.00%	0.08%	0.02%	0.71%	0.00%	0.75%	480.5164393	0.063177855	6.99%
6	0.051389847	0.000183084	6.40694E-06	0.003860564	0.00336241	0.00%	0.00%	5.14%	0.00%	0.02%	0.00%	0.66%	0.00%	0.68%	561.3475028	0.058802312	6.49%
5	0.041982823	3.58794E-05	0.000245383	0.003197754	0.002734293	0.00%	0.00%	4.20%	0.00%	0.00%	0.02%	0.55%	0.00%	0.55%	674.3730859	0.048196132	5.32%
4	0.031601466	0.000428036	0.000809992	0.002314625	0.001961014	0.00%	0.00%	3.16%	0.00%	0.04%	0.08%	0.39%	0.00%	0.39%	843.7393091	0.037115132	4.07%
3	0.018628768	0.000876915	0.0011349	0.00140591	0.001188386	0.00%	0.00%	1.86%	0.00%	0.09%	0.11%	0.24%	0.00%	0.24%	1125.787065	0.023234879	2.54%
2	0.008477246	0.00080173	0.000885173	0.000644211	0.000548313	0.00%	0.00%	0.85%	0.00%	0.08%	0.09%	0.11%	0.00%	0.11%	1689.538944	0.011356673	1.24%
1	0.002169435	0.000297249	0.000304874	0.000158899	0.000137126	0.00%	0.00%	0.22%	0.00%	0.03%	0.03%	0.03%	0.00%	0.03%	3380.107736	0.003067582	0.33%

ATTACHMENT 7

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**************************************************
                    *           Federal Airways & Airspace
*
                    *        Summary Report: New Construction
*
                    *                Antenna Structure
*

**************************************************

                    Airspace User: Not Identified

                    File: EASTHAVEN5CT

                    Location:  New Haven, CT

                    Latitude:  41°-17'-18.81"        Longitude:
72°-53'-8.98"

                    SITE ELEVATION AMSL.....18 ft.
                    STRUCTURE HEIGHT.....70 ft.
                    OVERALL HEIGHT AMSL.....88 ft.

     NOTICE CRITERIA
       FAR 77.9(a): NNR (DNE 200 ft AGL)
       FAR 77.9(b): NR  (Exceeds Notice Slope, Maximum: 75 ft.)
       FAR 77.9(c): NNR (Not a Traverse Way)
       FAR 77.9:    NR  Exceeds HVN Rwy 20, TERPS analysis
required.
       FAR 77.9:    NNR (No Expected TERPS® impact BDR)
       FAR 77.9(d): NNR (Off Airport Construction)

       NR  = Notice Required
       NNR = Notice Not Required
       PNR = Possible Notice Required (depends upon actual IFR
procedure)
             For new construction review Air Navigation
Facilities at bottom
             of this report.

       Notice to the FAA is required because height exceeds
Notice Slope criteria.
       Notice is required. Height exceeds FAA IFR straight-in
screening criteria.
       The maximum height to avoid notice is: 75 ft AMSL.

     OBSTRUCTION STANDARDS
       FAR 77.17(a)(1): DNE 499 ft AGL
       FAR 77.17(a)(2): DNE - Airport Surface
       FAR 77.19(a):    DNE - Horizontal Surface
       FAR 77.19(b):    DNE - Conical Surface
```

FAR 77.19(c): DNE - Primary Surface
FAR 77.19(d): DNE - Approach Surface
FAR 77.19(e): DNE - Approach Transitional Surface
FAR 77.19(e): DNE - Abeam Transitional Surface

VFR TRAFFIC PATTERN AIRSPACE FOR: HVN: TWEED-NEW HAVEN
Type: A RD: 6263.607 RE: 12.6
FAR 77.17(a)(1): DNE
FAR 77.17(a)(2): DNE - Height No Greater Than 200 feet AGL.
VFR Horizontal Surface: DNE
VFR Conical Surface: DNE
VFR Primary Surface: DNE
VFR Approach Surface: DNE
VFR Transitional Surface: DNE

The structure is within VFR - Traffic Pattern Airspace Climb/Descent Area.
Structures exceeding the greater of 350' AAE, 77.17(a)(2), or VFR horizontal
and conical surfaces will receive a hazard determination from the FAA.
Maximum AMSL of Climb/Descent Area is 363 feet.

VFR TRAFFIC PATTERN AIRSPACE FOR: BDR: IGOR I SIKORSKY MEMORIAL
Type: A RD: 78218.16 RE: 6.5
FAR 77.17(a)(1): DNE
FAR 77.17(a)(2): DNE - Greater Than 5.99 NM.
VFR Horizontal Surface: DNE
VFR Conical Surface: DNE
VFR Primary Surface: DNE
VFR Approach Surface: DNE
VFR Transitional Surface: DNE

TERPS DEPARTURE PROCEDURE (FAA Order 8260.3, Volume 4)
FAR 77.17(a)(3) Departure Surface Criteria (40:1)
DNE Departure Surface

MINIMUM OBSTACLE CLEARANCE ALTITUDE (MOCA)
FAR 77.17(a)(4) MOCA Altitude Enroute Criteria
The Maximum Height Permitted is 500 ft AMSL

PRIVATE LANDING FACILITIES

FACIL IDENT	TYP	NAME	BEARING To FACIL	RANGE IN NM	DELTA ELEVATION	ARP IFR	FAA
1CT2	HEL	YALE NEW HAVEN HOSPITAL	292.52	2.49	-131		

No Impact to Private Landing Facility
Structure 131 ft below heliport.

CT40 HEL BOB THOMAS FORD 343.75 5.07
+8
No Impact to Private Landing Facility
Structure is beyond notice limit by 25806 feet.

CT84 HEL PARTYKA CHEVROLET 348.59 5.2
+38
No Impact to Private Landing Facility
Structure is beyond notice limit by 26596 feet.

AIR NAVIGATION ELECTRONIC FACILITIES

FAC IDNT	TYPE	AT	FREQ	VECTOR	DIST (ft)	DELTA ELEVA	ST	LOCATION	GRND ANGLE	APCH BEAR
HVN	LOCALIZER	I	109.1	183.55	5324	+71	CT	RWY 02 TWEED-NEW	.76	16

Warning! Notice Required For new construction. Possible ILS/LOC approach impact.
Exceeds Localizer Critical Area limits as defined by FAA Order 6750.16D, ILS
Siting Criteria. Requires additional study to determine impact to Back
Course, if any.

HVN	ATCT	I	A/G	178.17	8314	-3	CT	TWEED-NEW HAVEN	-.02	

Notice Required. Exceeds Communication Facility EMI Notice Criteria.

MAD	VOR/DME	R	110.4	80.11	53999	-128	CT	MADISON	-.14	
JWE	NDB	D	36	298.85	71011	-483	CT	CLERA	-.39	
BDR	VOR/DME	R	108.8	234.55	80507	+79	CT	BRIDGEPORT	.06	
CCC	VOR/DME	R	117.2	169.64	132961	+3	NY	CALVERTON	0.00	
KOKX	RADAR WXL	Y		177.76	154239	-107	NY	NEW YORK	-.04	
HFD	VOR/DME	R	114.9	35.72	158439	-761	CT	HARTFORD	-.28	
QVH	RADAR ARSR	Y	1326.9	159.93	159052	-263	NY	RIVERHEAD	-.09	
FOK	TACAN	R	111.0	156.99	178562	+38	NY	SUFFOLK CO	.01	
ISP	RADAR	I	2735.	198.15	184993	-94	NY	LONG		

```
ISLAND MacAR    -.03
       CMK  VOR/DME      R   116.6 268.85 191177  -606 NY
CARMEL                -.18
       HTO  VORTAC       R   113.6 130.83 206728   +66 NY
HAMPTON                .02
       HPN  RADAR        I   2735. 250.73 241515  -422 NY
WESTCHESTER COUNT      -.1
```

SECTION 2110 FAA EXTENSION, SAFETY AND SECURITY ACT - RURAL AREA ANALYSIS

Object Not Located Within Rural Area. User has identified location is not
on or adjacent to Agricultural Land.

******** Rural Tower Registration with the FAA is not Required. ********

CFR Title 47, §1.30000-§1.30004
AM STUDY NOT REQUIRED: Structure is not near a FCC licensed AM station.
Movement Method Proof as specified in §73.151(c) is not required.
Please review 'AM Station Report' for details.

Nearest AM Station: WAVZ @ 5051 meters.

Airspace® Summary Version 20.9.584

10-28-2020
13:27:39

ATTACHMENT 8

Robinson+Cole

KENNETH C. BALDWIN

One State Street
Hartford, CT 06103
Main (860) 275-8200
Fax (860) 275-8299
kbaldwin@rc.com
Direct (860) 275-8345

Also admitted in Massachusetts
and New York

November 5, 2024

Via Certificate of Mailing

Justin Elicker, Mayor
City of New Haven
165 Church Street
New Haven, CT 06510

Re: **Petition No. 1440A – Amended Petition for Declaratory Ruling Filed with the Connecticut Siting Council for the Installation of a Wireless Telecommunications Facility at 115 Peat Meadow Road, New Haven, Connecticut**

Dear Mayor Elicker:

This firm represents Cellco Partnership d/b/a Verizon Wireless ("Cellco"). Today, Cellco filed an Amended Petition for Declaratory Ruling ("Amended Petition") with the Connecticut Siting Council ("Council") seeking approval to establish a new telecommunications facility on an existing billboard sign structure at Brandfon Hyundai at 115 Peat Meadow Road in New Haven (the "Property"). This Amended Petition incorporates minor modification to the equipment location and antenna specifications referenced in Petition No. 1440, approved by the Council on May 6, 2021.

The facility will consist of nine (9) panel antennas and six (6) remote radio heads ("RRHs") attached to a 42-foot tower extension of the existing billboard support structure. Equipment associated with Cellco's antennas and battery cabinet will be located near the base of the billboard. A copy of the Amended Petition is attached for your review. Landowners whose parcels are considered to abut the Property were also sent notice of this filing along with a copy of the Amended Petition.

Please contact me if you have any questions regarding this proposal.

Sincerely,

Kenneth C. Baldwin

Attachment
30645738-v1

Robinson+Cole

KENNETH C. BALDWIN

One State Street
Hartford, CT 06103
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Direct (860) 275-8345

Also admitted in Massachusetts and New York

November 5, 2024

Via Certificate of Mailing

Laura Brown, Director of City Plan
City of New Haven
165 Church Street
New Haven, CT 06510

Re: **Petition No. 1440A – Amended Petition for Declaratory Ruling Filed with the Connecticut Siting Council for the Installation of a Wireless Telecommunications Facility at 115 Peat Meadow Road, New Haven, Connecticut**

Dear Ms. Brown:

This firm represents Cellco Partnership d/b/a Verizon Wireless ("Cellco"). Today, Cellco filed an Amended Petition for Declaratory Ruling ("Amended Petition") with the Connecticut Siting Council ("Council") seeking approval to establish a new telecommunications facility on an existing billboard sign structure at Brandfon Hyundai at 115 Peat Meadow Road in New Haven (the "Property"). This Amended Petition incorporates minor modification to the equipment location and antenna specifications referenced in Petition No. 1440, approved by the Council on May 6, 2021.

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Please contact me if you have any questions regarding this proposal.

Sincerely,

Kenneth C. Baldwin

Attachment

30645935-v1

Robinson+Cole

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Also admitted in Massachusetts
and New York

November 5, 2024

Via Certificate of Mailing

Joseph Carfora, Mayor
Town of East Haven
250 Main Street
East Haven, CT 06512

Re: **Petition No. 1440A – Amended Petition for Declaratory Ruling Filed with the Connecticut Siting Council for the Installation of a Wireless Telecommunications Facility at 115 Peat Meadow Road, New Haven, Connecticut**

Dear Mayor Carfora:

This firm represents Cellco Partnership d/b/a Verizon Wireless ("Cellco"). Today, Cellco filed an Amended Petition for Declaratory Ruling ("Amended Petition") with the Connecticut Siting Council ("Council") seeking approval to establish a new telecommunications facility on an existing billboard sign structure at Brandfon Hyundai at 115 Peat Meadow Road in New Haven (the "Property"). This Amended Petition incorporates minor modification to the equipment location and antenna specifications referenced in Petition No. 1440, approved by the Council on May 6, 2021.

The facility will consist of nine (9) panel antennas and six (6) remote radio heads ("RRHs") attached to a 42-foot tower extension of the existing billboard support structure. Equipment associated with Cellco's antennas and battery cabinet will be located near the base of the billboard. A copy of the Amended Petition is attached for your review. Landowners whose parcels are considered to abut the Property were also sent notice of this filing along with a copy of the Amended Petition.

Please contact me if you have any questions regarding this proposal.

Sincerely,

Kenneth C. Baldwin

Attachment
30645820-v1

Robinson+Cole

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Also admitted in Massachusetts and New York

November 5, 2024

Via Certificate of Mailing

Joseph Budrow, Zoning/Enforcement Officer
Town of East Haven
250 Main Street
East Haven, CT 06512

Re: **Petition No. 1440A – Amended Petition for Declaratory Ruling Filed with the Connecticut Siting Council for the Installation of a Wireless Telecommunications Facility at 115 Peat Meadow Road, New Haven, Connecticut**

Dear Mr. Budrow:

This firm represents Cellco Partnership d/b/a Verizon Wireless ("Cellco"). Today, Cellco filed an Amended Petition for Declaratory Ruling ("Amended Petition") with the Connecticut Siting Council ("Council") seeking approval to establish a new telecommunications facility on an existing billboard sign structure at Brandfon Hyundai at 115 Peat Meadow Road in New Haven (the "Property"). This Amended Petition incorporates minor modification to the equipment location and antenna specifications referenced in Petition No. 1440, approved by the Council on May 6, 2021.

The facility will consist of nine (9) panel antennas and six (6) remote radio heads ("RRHs") attached to a 42-foot tower extension of the existing billboard support structure. Equipment associated with Cellco's antennas and battery cabinet will be located near the base of the billboard. A copy of the Amended Petition is attached for your review. Landowners whose parcels are considered to abut the Property were also sent notice of this filing along with a copy of the Amended Petition.

Please contact me if you have any questions regarding this proposal.

Sincerely,

Kenneth C. Baldwin

Attachment
30646043-v1

Robinson+Cole

KENNETH C. BALDWIN

One State Street
Hartford, CT 06103
Main (860) 275-8200
Fax (860) 275-8299
kbaldwin@rc.com
Direct (860) 275-8345

Also admitted in Massachusetts and New York

November 5, 2024

Via Certificate of Mailing

115 Peat Meadows LLC
515 West Main Street
Branford, CT 06405

Re: **Petition No. 1440A – Amended Petition for Declaratory Ruling Filed with the Connecticut Siting Council for the Installation of a Wireless Telecommunications Facility at 115 Peat Meadow Road, New Haven, Connecticut**

Dear Sir or Madam:

This firm represents Cellco Partnership d/b/a Verizon Wireless ("Cellco"). Today, Cellco filed an Amended Petition for Declaratory Ruling ("Amended Petition") with the Connecticut Siting Council ("Council") seeking approval to establish a new telecommunications facility on an existing billboard sign structure at Brandfon Hyundai at 115 Peat Meadow Road in New Haven (the "Property"). This Amended Petition incorporates minor modification to the equipment location and antenna specifications referenced in Petition No. 1440, approved by the Council on May 6, 2021.

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Please contact me if you have any questions regarding this proposal.

Sincerely,

Kenneth C. Baldwin

Attachment
30646176-v1

Robinson+Cole

KENNETH C. BALDWIN

One State Street
Hartford, CT 06103
Main (860) 275-8200
Fax (860) 275-8299
kbaldwin@rc.com
Direct (860) 275-8345

Also admitted in Massachusetts
and New York

November 5, 2024

Via Certificate of Mailing

Outfront Media
Richard Bourne, Operations Manager
355 Washington Avenue
New Haven, CT 06473

Re: **Petition No. 1440A – Amended Petition for Declaratory Ruling Filed with the Connecticut Siting Council for the Installation of a Wireless Telecommunications Facility at 115 Peat Meadow Road, New Haven, Connecticut**

Dear Mr. Bourne:

This firm represents Cellco Partnership d/b/a Verizon Wireless ("Cellco"). Today, Cellco filed an Amended Petition for Declaratory Ruling ("Amended Petition") with the Connecticut Siting Council ("Council") seeking approval to establish a new telecommunications facility on an existing billboard sign structure at Brandfon Hyundai at 115 Peat Meadow Road in New Haven (the "Property"). This Amended Petition incorporates minor modification to the equipment location and antenna specifications referenced in Petition No. 1440, approved by the Council on May 6, 2021.

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Please contact me if you have any questions regarding this proposal.

Sincerely,

Kenneth C. Baldwin

Attachment

30646116-v1

Robinson+Cole

KENNETH C. BALDWIN

One State Street
Hartford, CT 06103
Main (860) 275-8200
Fax (860) 275-8299
kbaldwin@rc.com
Direct (860) 275-8345

Also admitted in Massachusetts and New York

November 5, 2024

Via Certificate of Mailing

Diamond Communications
Tyler Peters, Operations Analyst
820 Morris Tpke, Ste 104
Short Hills, NJ 07078

Re: **Petition No. 1440A – Amended Petition for Declaratory Ruling Filed with the Connecticut Siting Council for the Installation of a Wireless Telecommunications Facility at 115 Peat Meadow Road, New Haven, Connecticut**

Dear Mr. Peters:

This firm represents Cellco Partnership d/b/a Verizon Wireless ("Cellco"). Today, Cellco filed an Amended Petition for Declaratory Ruling ("Amended Petition") with the Connecticut Siting Council ("Council") seeking approval to establish a new telecommunications facility on an existing billboard sign structure at Brandfon Hyundai at 115 Peat Meadow Road in New Haven (the "Property"). This Amended Petition incorporates minor modification to the equipment location and antenna specifications referenced in Petition No. 1440, approved by the Council on May 6, 2021.

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Please contact me if you have any questions regarding this proposal.

Sincerely,

Kenneth C. Baldwin

Attachment

30646184-v1

ATTACHMENT 9

Robinson+Cole

KENNETH C. BALDWIN

One State Street
Hartford, CT 06103
Main (860) 275-8200
Fax (860) 275-8299
kbaldwin@rc.com
Direct (860) 275-8345

Also admitted in Massachusetts
and New York

November 5, 2024

Via Certificate of Mailing

«Name_and_Address»

Re: **Petition No. 1440A – Amended Petition for Declaratory Ruling Filed with the Connecticut Siting Council for the Installation of a Wireless Telecommunications Facility at 115 Peat Meadow Road, New Haven, Connecticut**

Dear «Salutation»:

This firm represents Cellco Partnership d/b/a Verizon Wireless ("Cellco"). Today, Cellco filed an Amended Petition for Declaratory Ruling ("Amended Petition") with the Connecticut Siting Council ("Council") seeking approval to establish a new telecommunications facility on an existing billboard sign structure at Brandfon Hyundai at 115 Peat Meadow Road in New Haven (the "Property"). This Amended Petition incorporates minor modification to the equipment location and antenna specifications referenced in Petition No. 1440, approved by the Council on May 6, 2021.

The facility will consist of nine (9) panel antennas and six (6) remote radio heads ("RRHs") attached to a 42-foot tower extension of the existing billboard support structure. Equipment associated with Cellco's antennas and battery cabinet will be located near the base of the billboard. A copy of the Amended Petition is attached for your review.

This notice is being sent to you because you are listed on the City Assessor's records as an owner of land that abuts the Property. If you have any questions regarding the Amended Petition, the Council's process for reviewing the Amended Petition or the details of the filing itself, please feel free to contact me at the number listed above. You may also contact the Council directly at 860-827-2935.

Sincerely,

Kenneth C. Baldwin

Attachment

30646218-v1

CELLCO PARTNERSHIP D/B/A VERIZON WIRELESS

ABUTTING PROPERTY OWNERS

115 PEAT MEADOW ROAD
NEW HAVEN, CONNECTICUT

NEW HAVEN

	Property Address	Owner's and Mailing Address
1.	Peat Meadow Road	City of New Haven Park Department 720 Edgewood Avenue New Haven, CT 06513
2.	Peat Meadow Road	New Haven Terminal, Inc. 100 Waterfront Road New Haven, CT 06513
3.	610 Forbes Avenue	610 Forbes Avenue LLC 100 Warwick Street New Haven, CT 06513
4.	Ashland Place	Norma Angelica Villegas 115 Ashland Place New Haven, CT 06512
5.	116 Ashland Place	Edwin Echevarria 116 Ashland Place New Haven, CT 06513
6.	113 Irvington Street	Juanita Jones 113 Irvington Street New Haven, CT 06513
7.	118 Irvington Street	Gerald Viglione 118 Irvington Street New Haven, CT 06513
8.	Peat Meadow Road	Outfront Media, LLC 50 Mitchell Drive, Suite 105 New Haven, CT 06511

EAST HAVEN

	Property Address	**Owner's and Mailing Address**
1.	119 Frontage Road	New Haven Terminal, Inc. 100 Waterfront Street New Haven, CT 06513
2.	121 Frontage Road	Carmax Auto Super Stores, Inc. PO Box 29954 Richmond, VA 23242
3.	655 Main Street	655 East Haven Realty, LLC 1124 Route 202 South, Suite B9 Raritan, NJ 08869