Robinson+Cole

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May 25, 2022

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

Re: **Request of Cellco Partnership d/b/a Verizon Wireless for an Order to Approve the Shared Use of an Existing Tower at 63 Woodland Street, Glastonbury, Connecticut**

Dear Attorney Bachman:

Pursuant to Connecticut General Statutes ("C.G.S.") §16-50aa, as amended, Cellco Partnership d/b/a Verizon Wireless ("Cellco") hereby requests an order from the Siting Council ("Council") to approve the shared use of an existing telecommunications tower located on a 177.10-acre parcel at 63 Woodland Street in Glastonbury (the "Property"). The Property is owned by Paul J. Cavanna. The tower is owned by Vertical Bridge Engineering LLC ("Vertical Bridge"). Cellco identifies this site as its "South Glastonbury 3 Facility".

The existing 150-foot monopole tower was approved by the Council in Docket No. 478 (Eco-Site, Inc. and T-Mobile applicants) on March 29, 2018. A copy of the Docket No. 478 Decision and Order is included in Attachment 1.

Cellco requests that the Council find that the proposed shared use of the existing tower satisfies the criteria of C.G.S § 16-50aa and issue an order approving this request. A copy of this filing is being sent to Glastonbury's Town Manager Richard J. Johnson and Rebecca Augur, the Town's Director of Planning and Land Use Services.

Background

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

Cellco proposes to install nine (9) antennas and nine (9) remote radio heads ("RRHs") on the tower at a centerline height of 115 feet above ground level ("AGL"). Cellco will also install two equipment cabinets and a 50-kW diesel-fueled backup generator all within the existing fenced compound. Included in Attachment 3 are Cellco's project plans showing the location of Cellco's proposed site improvements. Attachment 4 contains specifications for Cellco's proposed generator, antennas and RRHs.

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

A. Technical Feasibility. The existing tower is structurally capable of supporting Cellco's antennas, RRHs, antenna platform and related equipment. The proposed shared use of this tower is, therefore, technically feasible. A Structural Analysis Report dated April 8, 2022 (with a stamp date of April 12, 2022) prepared by for Vertical Bridge confirms that the tower can support Cellco's proposed tower loading. A Mount Analysis dated April 15, 2022 was also prepared for the proposed antenna and RRH mounting system and related equipment. Copies of the Structural Analysis Report and Mount Analysis are included in Attachment 5.

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

order by the Council approving the requested shared use would permit the Applicant to obtain a building permit for the proposed installations.

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

1. The proposed installation of nine (9) antennas and nine (9) RRHs on an antenna platform at a height of 115 feet AGL on the existing 150-foot tower would have an insignificant incremental visual impact on the area around the Property. As mentioned above, Cellco's equipment will be located within the existing fenced compound. Cellco's shared use of the existing tower would, therefore, not cause any significant change or alteration in the physical or environmental characteristics of the existing facility.

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

3. Operation of Cellco's antennas at this site would not exceed the RF emissions standards adopted by the Federal Communications Commission ("FCC"). Included in Attachment 6 of this filing is a cumulative power density table that demonstrates that the facility will operate well within the FCC's safety standards.

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

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

D. Economic Feasibility. As previously mentioned, Cellco has entered into an agreement with Vertical Bridge for the shared use of the existing tower subject to mutually agreeable terms. The proposed tower sharing is, therefore, economically feasible.

E. Public Safety Concerns. As discussed above, the tower is structurally capable of supporting Cellco's antennas, antenna mounting frame, RRHs and all related equipment. Cellco is not aware of any public safety concerns relative to the proposed sharing of the existing the Woodland Street tower. In fact, the provision of new and improved wireless service through Cellco's shared use of the existing tower would enhance the safety and welfare of area residents and members of the general public traveling through the Town of Glastonbury.

Conclusion

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

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

Thank you for your consideration of this matter.

Very truly yours,

Kenneth C. Baldwin

Enclosures
Copy to:
Richard J. Johnson, Town Manager
Rebecca Augur, Director of Planning and Land Use Services
Paul Cavanna, Property Owner
Vertical Bridge Engineering LLC, Tower Owner
Tim Parks

ATTACHMENT 1

DOCKET NO. 478 - Eco-Site, Inc. and T-Mobile Northeast, LLC application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a telecommunications facility located at 63 Woodland Street, Glastonbury, Connecticut.	}	Connecticut
	}	Siting
	}	Council

March 29, 2018

Decision and Order

Pursuant to Connecticut General Statutes §16-50p, and the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, maintenance, and operation of a telecommunications facility, including effects on the natural environment, ecological balance, public health and safety, scenic, historic, and recreational values, agriculture, forests and parks, air and water purity, and fish, aquaculture and wildlife are not disproportionate, either alone or cumulatively with other effects, when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application, and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by General Statutes § 16-50k, be issued to Eco-Site, Inc., hereinafter referred to as the Certificate Holder, for a telecommunications facility at 63 Woodland Street, Glastonbury, Connecticut.

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

1. The tower shall be constructed either as a monopine or monopole at a height of 150 feet above ground level (excluding faux monopine branches) to provide the proposed wireless services, sufficient to accommodate the antennas of T-Mobile Northeast, LLC, the Town of Glastonbury, and other entities, both public and private. The height of the tower may be extended after the date of this Decision and Order pursuant to regulations of the Federal Communications Commission. Prior to submission of the Development and Management Plan to the Council, the Certificate Holder shall consult with the Town of Glastonbury in regards to the Town's emergency communication equipment needs and the appropriateness of a monopine design based on those needs. The final tower design, either a monopole or monopine, shall be determined after this consultation.

2. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be served on the Town of Glastonbury for comment, and all parties and intervenors as listed in the service list, and submitted to and approved by the Council prior to the commencement of facility construction and shall include:
    a) final site plan(s) for development of the facility that employ the governing standard in the State of Connecticut for tower design in accordance with the currently adopted International Building Code and include specifications for the tower, tower foundation, antennas, and equipment compound including, but not limited to, fencing, radio equipment, access road, utility line, and emergency backup power source;
    b) construction plans for site clearing, grading, utility installation, water drainage and stormwater control, and erosion and sedimentation controls consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended;
    c) schedule for deployment of T-Mobile Northeast LLC's, and the Town of Glastonbury's equipment; and
    d) hours of construction.

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

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

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

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

7. Any request for extension of the time period referred to in Condition 6 shall be filed with the Council not later than 60 days prior to the expiration date of this Certificate and shall be served on all parties and intervenors, as listed in the service list, and the Town of Glastonbury.

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

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

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

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

12. This Certificate may be transferred in accordance with Conn. Gen. Stat. §16-50k(b), provided both the Certificate Holder/transferor and the transferee are current with payments to the Council for their respective annual assessments and invoices under Conn. Gen. Stat. §16-50v. In addition, both the Certificate Holder/transferor and the transferee shall provide the Council a written agreement as to the entity responsible for any quarterly assessment charges under Conn. Gen. Stat. §16-50v(b)(2) that may be associated with this facility.

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

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

15. This Certificate may be surrendered by the Certificate Holder upon written notification and approval by the Council.

We hereby direct that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed in the Service List, dated October 26, 2017, and notice of issuance published in the Hartford Courant.

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

ATTACHMENT 2

Eco-Site, LLC
750 Park of Commerce Drive
Suite 200
Boca Raton, FL 33487
561-948-6367
VerticalBridge.com

5/25/2022, 2022

Andrew Candiello
Principal Engineer-RE/Regulatory
Cellco Partnership d/b/a Verizon Wireless
20 Alexander Drive
Wallingford, CT 06492

Re: Letter of Authorization - Cellco Partnership d/b/a Verizon Wireless
US-CT-5018 / Hopewell with an address of 63 Woodland Street, Glastonbury, CT

Dear Mr. Candiello:

Eco-Site, LLC, a subsidiary of Vertical Bridge REIT, LLC, hereby authorizes Cellco Partnership d/b/a Verizon Wireless and/or its authorized agents, to file for all necessary permit and approval applications for the installation of antennas and related equipment at an existing telecommunications facility in Glastonbury, CT.

Sincerely,

DocuSigned by:
Tim Tuck
6DCD673D644D4BD...
Vice President - Lease Administration

ATTACHMENT 3

SUPPORTING DOCUMENTS

RADIO FREQUENCY (RF) DESIGN DATE: 12/27/21

ANTENNA MOUNT STRUCTURAL ANALYSIS DATE: 4/15/22

ANTENNA SUPPORT STRUCTURE (150'± MONOPOLE) STRUCTURAL ANALYSIS DATE: 4/12/22 (BY BENNETT & PLESS, INC.)

verizon

20 ALEXANDER DRIVE, 2nd FLOOR, WALLINGFORD, CT 06492

SOUTH GLASTONBURY 3 CT

63 WOODLAND STREET
SOUTH GLASTONBURY, CT 06073

PROJECT TYPE: WIRELESS TELECOMMUNICATIONS
COLLOCATION ON EXISTING 150'± MONOPOLE

SITE INFORMATION:

PARENT PARCEL OWNER:	PAUL J. CAVANNA 80 WOODLAND STREET SOUTH GLASTONBURY, CT 06073
TOWER OWNER:	VERTICAL BRIDGE REIT, LLC 750 PARK OF COMMERCE DRIVE, SUITE 200 BOCA RATON, FL 33487 (561) 948-6367
TOWER OWNER ID:	CT-5018 (HOPEWELL)
APPLICANT:	CELLCO PARTNERSHIP (dba VERIZON WIRELESS) 20 ALEXANDER DRIVE WALLINGFORD, CT 06492
SITE ADDRESS:	63 WOODLAND STREET SOUTH GLASTONBURY, CT 06073
COUNTY:	HARTFORD COUNTY, CT
SITE CONTROL POINT:	CENTER OF EXISTING MONOPOLE N 41°-39-38.85' (41.660792°) (NAD '83) W 72°-34'-26.75' (72.574097°) (NAD '83)
JURISDICTION:	CONNECTICUT SITING COUNCIL
TAX ID PARCEL NUMBER:	MAP G11 STREET 7800 LOT W0002
ARCHITECT / ENGINEER:	CHAPPELL ENGINEERING ASSOCIATES, LLC 201 BOSTON POST ROAD WEST, SUITE 101 MARLBOROUGH, MA 01752
POWER COMPANY:	EVERSOURCE ENERGY 247 STATION DRIVE, SE 210 WESTWOOD, MA 02090 (781) 441-3610
TELEPHONE COMPANY:	VERIZON 185 FRANKLIN STREET BOSTON, MA 02107 (800) 941-9900

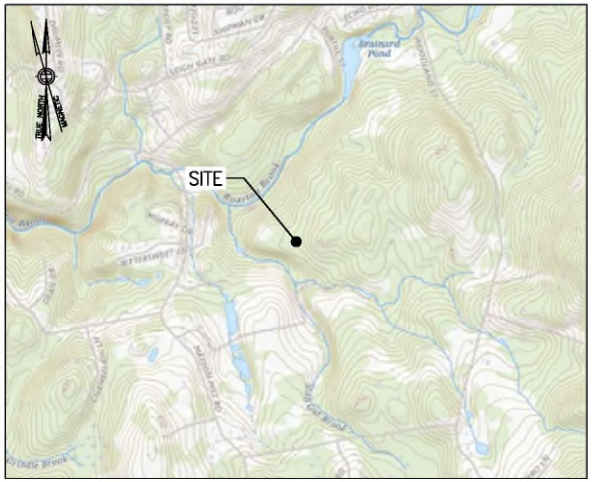
GENERAL NOTES

1. CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, AND CONDITIONS ON JOB SITE. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK. FAILURE TO NOTIFY THE ARCHITECT/ENGINEER PLACES THE RESPONSIBILITY ON THE CONTRACTOR TO CORRECT THE DISCREPANCIES AT THE CONTRACTOR'S EXPENSE.
2. NEW CONSTRUCTION SHALL CONFORM TO ALL APPLICABLE CODES AND ORDINANCES.
   - BUILDING CODE: 2018 CONNECTICUT STATE BUILDING CODE
   - ELECTRICAL CODE: 2017 NATIONAL ELECTRICAL CODE
   - STRUCTURAL CODE: TIA/EIA-222-G STRUCTURAL STANDARDS FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS.

AT LEAST 72 HOURS PRIOR TO DIGGING, THE CONTRACTOR IS REQUIRED TO CALL DIG SAFE AT 811

VICINITY MAP

SCALE: 1"=1000'



DRIVING DIRECTIONS

FROM WALLINGFORD, TAKE I-91 NORTH. TAKE THE EXIT ONTO CT-3 NORTH TOWARD GLASTONBURY. TAKE THE EXIT ONTO CT-2 EAST TOWARD NORWICH. TAKE EXIT 7 ON THE LEFT FOR CT-17 SOUTH TOWARD PORTLAND. CONTINUE ONTO CT-17 S/GLASTONBURY EXPRESSWAY. TURN LEFT ONTO CHESTNUT HILL ROAD. TURN RIGHT ONTO SUNSET DRIVE. TURN LEFT ONTO HOPEWELL ROAD. TURN RIGHT ONTO WOODLAND STREET. THE SITE WILL BE ON THE RIGHT HAND SIDE.

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DO NOT SCALE DRAWINGS

ALL PLANS, EXISTING DIMENSIONS AND CONDITIONS AT THE PROPOSED PROJECT SITE SHALL BE VERIFIED IN THE FIELD DURING THE CONSTRUCTION PHASE. THE PROJECT OWNER'S REPRESENTATIVE SHALL BE NOTIFIED IN WRITING OF ANY DISCREPANCIES IMMEDIATELY PRIOR TO PROCEEDING WITH THE PROPOSED WORK AFFECTED BY SUCH DISCREPANCIES. IN THE EVENT OF LACK OF SUCH NOTIFICATION, SUCH DISCREPANCIES SHALL BECOME THE RESPONSIBILITY OF THE PREVAILING CONTRACTOR RESPONSIBLE FOR CONSTRUCTION.

PROJECT DESCRIPTION

1. THIS IS AN UNMANNED AND RESTRICTED ACCESS EQUIPMENT INSTALLATION AND WILL BE USED FOR THE TRANSMISSION OF RADIO SIGNAL FOR THE PURPOSE OF PROVIDING PUBLIC WIRELESS TELECOMMUNICATIONS SERVICE.
2. THIS FACILITY WILL CONSUME NO UNRECOVERABLE ENERGY.
3. NO POTABLE WATER SUPPLY IS TO BE PROVIDED AT THIS LOCATION.
4. NO WASTE WATER WILL BE GENERATED AT THIS LOCATION.
5. NO SOLID WASTE WILL BE GENERATED AT THIS LOCATION.

CLIENT:

verizon
* Because Better Matters *

ARCHITECT/ENGINEER:

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil · Structural · Land Surveying
R.K. EXECUTIVE CENTRE
201 BOSTON POST ROAD WEST
SUITE 101
MARLBOROUGH, MA 01752
(508) 481-7400
www.chappellengineering.com

SEAL:

ENGINEER/LAND SURVEYOR DATE

DRAWING SCALE NOTE:

THESE DRAWINGS HAVE BEEN PREPARED IN ARCH D (24"x36") FORMAT. AS SUCH, THE WRITTEN SCALES SHOWN ON ANY REPRODUCTIONS OF A CONTRACTORS' SIZE, SHALL BE RENDERED INVALID. ALL BAR SCALES MAY BE USED REGARDLESS OF REPRODUCTION SIZE. WHERE IN CONFLICT, BAR SCALES SHALL SUPERSEDE WRITTEN SCALES.

REVISIONS

NO.	DESCRIPTION	DATE
0	ISSUED FOR REVIEW	1/20/22
1	ISSUED FOR CONSTRUCTION (FINAL)	2/10/22
2	REVISED TSA REFERENCE DATE	4/13/22
3	REVISED MSA REFERENCE DATE	4/15/22

PROJECT NAME:

SOUTH GLASTONBURY 3 CT
63 WOODLAND STREET
SOUTH GLASTONBURY, CT 06073

DRAWING TITLE:

TITLE SHEET

DRAWING NO:

T01

SCALE:	DESIGNED BY: NWC	VZW PROJECT CODE:
AS SHOWN	DRAWN BY: NWC	20212309233
	CHECKED BY: GRS	VZW PROJECT NO:
CEA PROJECT NO.:	ORIGINAL ISSUE DATE:	16085720
96210.404	1/20/22	VZW LOCATION CODE: 708312

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWINGS, THE FOLLOWING DEFINITIONS SHALL APPLY:
   CONTRACTOR – VERIZON WIRELESS
   SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
   OWNER – VERIZON WIRELESS
   OEM – ORIGINAL EQUIPMENT MANUFACTURER

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

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

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

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

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

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

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

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

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

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

12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.

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

14. SUBCONTRACTOR SHALL NOTIFY CHAPPELL ENGINEERING ASSOCIATES, LLC. 48 HOURS IN ADVANCE OF POURING CONCRETE OR BACK FILLING TRENCHES, SEALING ROOF AND WALL PENETRATIONS & POST DOWNS, FINISHING NEW WALLS OR FINAL ELECTRICAL CONNECTIONS FOR ENGINEERING REVIEW.

15. CONSTRUCTION SHALL COMPLY WITH VERIZON WIRELESS NETWORK STANDARD #NSTD123 TO THE MAXIMUM EXTENT FEASIBLE UNLESS PRECLUDED OR LIMITED BY DESIGN SHOWN ON THESE DRAWINGS.

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

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

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

SITE WORK GENERAL NOTES:

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

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

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

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

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

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

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

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

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

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

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

CONCRETE AND REINFORCING STEEL NOTES:

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

2. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS, UNLESS NOTED OTHERWISE. A HIGHER STRENGTH (4000PSI) MAY BE USED. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 381 CODE REQUIREMENTS

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

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

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

6. INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHOR, SHALL BE PER MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO MANUFACTURER'S RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR ENGINEERING APPROVAL WHEN DRILLING HOLES IN CONCRETE. SPECIAL INSPECTIONS, REQUIRED BY GOVERNING CODES, SHALL BE STAINLESS STEEL OR HOT DIPPED GALVANIZED. EXPANSION BOLTS SHALL BE PROVIDED BY RAMSET/REDHEAD OR APPROVED EQUAL.

7. CONCRETE CYLINDER TEST IS NOT REQUIRED FOR SLAB ON GRADE WHEN CONCRETE IS LESS THAN 50 CUBIC YARDS (IBC1905.6.2.3) IN THAT EVENT THE FOLLOWING RECORDS SHALL BE PROVIDED BY THE CONCRETE SUPPLIER;
   (A) RESULTS OF CONCRETE CYLINDER TEST PERFORMED AT THE SUPPLIERS PLANT.
   (B) CERTIFICATION OF MINIMUM COMPRESSIVE STRENGTH FOR THE CONCRETE GRADE SUPPLIED.
FOR GREATER THAN 50 CUBIC YARDS THE GC SHALL PERFORM THE CONCRETE CYLINDER TEST.

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

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

STRUCTURAL STEEL NOTES:

1. ALL STEEL WORK SHALL BE PAINTED OR GALVANIZED IN ACCORDANCE WITH THE DRAWINGS AND VERIZON WIRELESS SPECIFICATION 25252-000-3PS-GET-00001 UNLESS OTHERWISE NOTED. STRUCTURAL STEEL SHALL BE ASTM-A-36 UNLESS OTHERWISE NOTED ON THE SITE SPECIFIC DRAWINGS. STEEL DESIGN, INSTALLATION AND BOLTING SHALL BE IN ACCORDANCE WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) "MANUAL OF STEEL CONSTRUCTION".

2. ALL WELDING SHALL BE PERFORMED USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND AWS D1.1. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION", 9TH EDITION. PAINTED SURFACES SHALL BE TOUCHED UP.

3. BOLTED CONNECTIONS SHALL USE BEARING TYPE ASTM A325 BOLTS (¾"ø) AND SHALL HAVE MINIMUM OF TWO BOLTS UNLESS NOTED OTHERWISE.

4. NON-STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE ⅝" DIA. ASTM A 307 BOLTS UNLESS NOTED OTHERWISE.

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

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

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

SOIL COMPACTION NOTES FOR SLAB ON GRADE:

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

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

3. AS AN ALTERNATE TO INSPECTION AND WRITTEN CERTIFICATION, THE "UNDISTURBED SOIL" BASE SHALL BE COMPACTED WITH "COMPACTION EQUIPMENT", LISTED BELOW, TO AT LEAST 90% MODIFIED PROCTOR MAXIMUM DENSITY PER ASTM D 1557 METHOD C.

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

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

COMPACTION EQUIPMENT:

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

CONSTRUCTION NOTES:

1. FIELD VERIFICATION:
SUBCONTRACTOR SHALL FIELD VERIFY SCOPE OF WORK, VERIZON WIRELESS ANTENNA PLATFORM LOCATION AND ANTENNAS TO BE REPLACED.

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

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

ELECTRICAL INSTALLATION NOTES:

1. WIRING, RACEWAY, AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC AND TELCORDIA.

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

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

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

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

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

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

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

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

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

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

12. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED OUTDOORS, OR BELOW GRADE, SHALL BE SINGLE CONDUCTOR #3 AWG SOLID TINNED COPPER CABLE, UNLESS OTHERWISE SPECIFIED.

13. POWER AND CONTROL WIRING, NOT IN TUBING OR CONDUIT, SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#34 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN-2, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; WITH OUTER JACKET; LISTED OR LABELED FOR THE LOCATION USED, UNLESS OTHERWISE SPECIFIED.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

CLIENT:

verizon
* Because Better Matters *

ARCHITECT/ENGINEER:

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil · Structural · Land Surveying
R.K. EXECUTIVE CENTRE
201 BOSTON POST ROAD WEST
SUITE 101
MARLBOROUGH, MA 01752
(508) 481-7400
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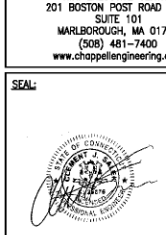
SEAL:



ENGINEER/LAND SURVEYOR DATE

DRAWING SCALE NOTE:

THESE DRAWINGS HAVE BEEN PREPARED IN ARCH D (24"x36") FORMAT. AS SUCH, THE WRITTEN SCALES SHOWN ON ANY REPRODUCTIONS OF A DIFFERENT SIZE SHALL BE CONSIDERED INVALID. ALL BAR SCALES MAY BE USED REGARDLESS OF REPRODUCTION SIZE. WHERE IN CONFLICT, BAR SCALES SHALL SUPERSEDE WRITTEN SCALES.

REVISIONS

NO.	DESCRIPTION	DATE
0	ISSUED FOR REVIEW	1/20/22
1	ISSUED FOR CONSTRUCTION (FINAL)	2/10/22
2	REVISED TSA REFERENCE DATE	4/13/22
3	REVISED MSA REFERENCE DATE	4/15/22

PROJECT NAME:

SOUTH GLASTONBURY 3 CT

63 WOODLAND STREET
SOUTH GLASTONBURY, CT 06073

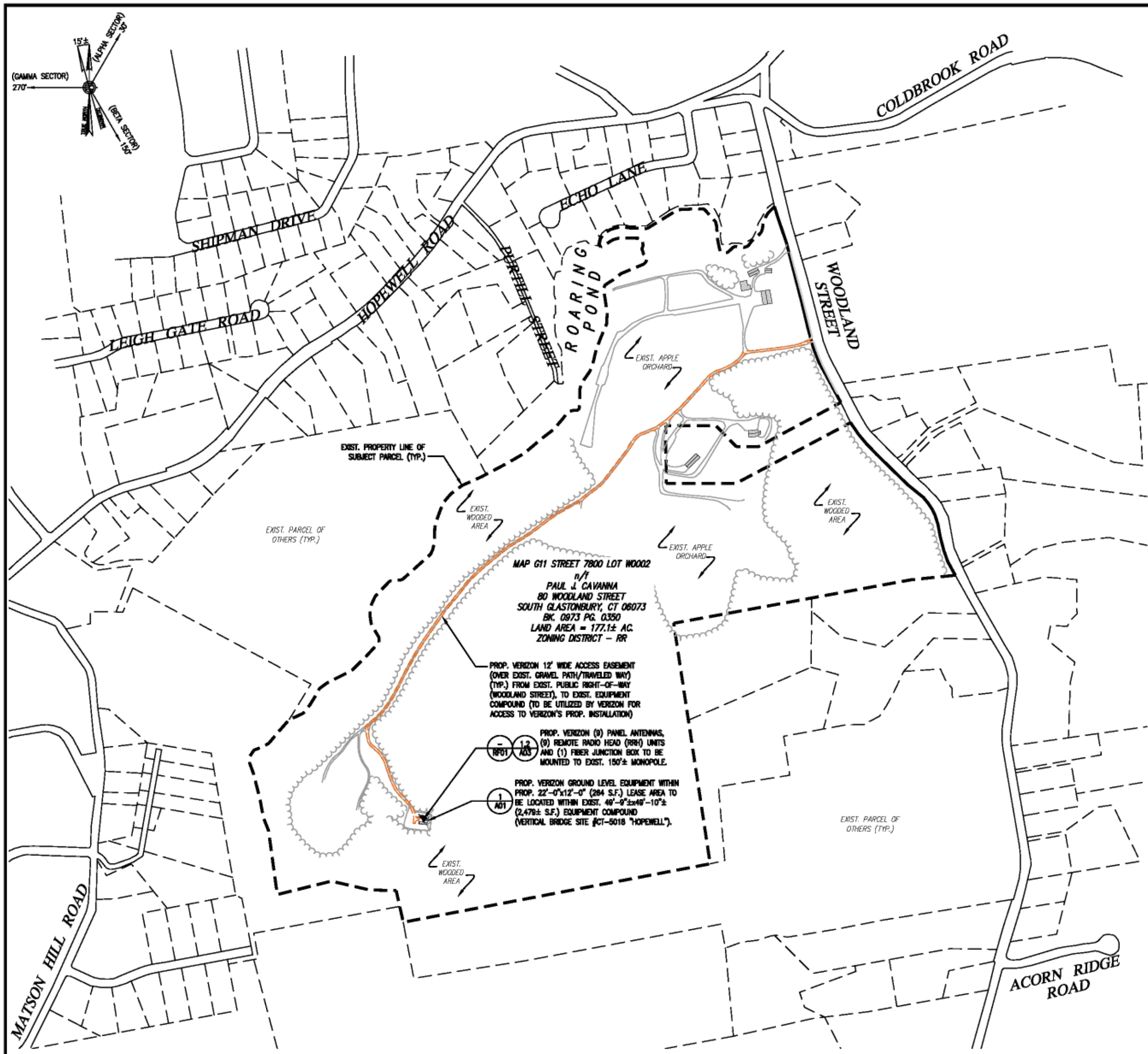
DRAWING TITLE:

GENERAL NOTES

DRAWING NO:

GN01

SCALE: N/A	DESIGNED BY: NWC DRAWN BY: NWC CHECKED BY: GRS	VZW PROJECT CODE: 20212306233
CTA PROJECT NO.: 96210.404	ORIGINAL ISSUE DATE: 1/20/22	VZW PROJECT NO.: 16085720 VZW LOCATION CODE: 708312



PROPERTY PLAN

SCALE: 1" = 300'

1 / C01

GENERAL NOTES:

1. INITIAL DESIGN VISIT DATE: 1/4/22
2. VERTICAL DATUM: NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD '88)
3. HORIZONTAL DATUM: NORTH AMERICAN DATUM OF 1983 (NAD '83)
4. SITE CONTROL POINT: CENTER OF EXISTING MONOPOLE
   LATITUDE: N. 41°–39'–38.85" (41.660792°) (NAD '83)
   LONGITUDE: W. 72°–34'–26.75" (72.574097°) (NAD '83)
5. PARENT PARCEL OWNER: PAUL J. CAVANNA
   80 WOODLAND STREET
   SOUTH GLASTONBURY, CT 06073
6. TOWER OWNER: VERTICAL BRIDGE REIT, LLC
   750 PARK OF COMMERCE DRIVE, SUITE 200
   BOCA RATON, FL 33487
   (561) 948–6367
7. TOWER OWNER ID: CT–5018 (HOPEWELL)
8. SITE ADDRESS: 63 WOODLAND STREET
   SOUTH GLASTONBURY, CT 06073
9. APPLICANT: CELLCO PARTNERSHIP
   (dba VERIZON WIRELESS)
   20 ALEXANDER DRIVE
   WALLINGFORD, CT 06492
10. JURISDICTION: CONNECTICUT SITING COUNCIL
11. TAX ID: MAP G11 STREET 7800 LOT W0002
12. DEED REFERENCE: BK. 0973 PG. 0350
13. PLAN REFERENCES: TOWN OF GLASTONBURY ASSESSOR/GIS MAPS
14. ZONING CLASSIFICATION: RR (RURAL RESIDENCE)
15. ALL UNDERGROUND UTILITY INFORMATION PRESENTED HEREON WAS DETERMINED FROM SURFACE EVIDENCE AND PLANS OF RECORD. ALL UNDERGROUND UTILITIES SHOULD BE LOCATED IN THE FIELD PRIOR TO THE COMMENCEMENT OF ANY SITE WORK. CALL DIGSAFE 1–888–344–7233 A MINIMUM OF 72 HOURS PRIOR TO PLANNED ACTIVITY.
16. THE PROPERTY LINES SHOWN WERE COMPILED UTILIZING TOWN OF GLASTONBURY ASSESSOR'S PLANS, GIS, RECORDED DEEDS AND PLANS OF REFERENCE AS INDICATED. A COMPLETE BOUNDARY SURVEY WAS NOT UTILIZED IN THE PREPARATION OF THESE PLANS.
17. THE SITE IS LOCATED IN FLOOD HAZARD ZONE X (AREA OF MINIMAL FLOOD HAZARD) AS SHOWN ON FLOOD INSURANCE RATE MAP FOR THE TOWN OF GLASTONBURY, (MAP NUMBER 09003C0537F) EFFECTIVE 9/26/2008.
18. BEARING SYSTEM OF THIS PLAN IS BASED ON GRID NORTH. TRUE NORTH WAS ESTABLISHED FROM GPS OBSERVATIONS. IT IS NOT INTENDED TO BE AN EXACT REPRESENTATION OF TRUE NORTH.

LEGEND

- OR STREET — PROPERTY LINE
- ABUTTING PROPERTY LINE
- PROPERTY OFFSET/RADIUS
- EXIST. EASEMENT
- EXIST. CHAIN LINK FENCE
- EXIST. STOCKADE FENCE
- EXIST. EDGE OF PAVEMENT
- OHW — EXIST. OVERHEAD UTILITIES
- APPROXIMATE ZONING BOUNDARY
- APPROXIMATE TOWN LINE

CLIENT:

verizon
" Because Better Matters "

ARCHITECT/ENGINEER:

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201 BOSTON POST ROAD WEST
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MARLBOROUGH, MA 01752
(508) 481–7400
www.chappellengineering.com

SEAL:

ENGINEER/LAND SURVEYOR DATE

DRAWING SCALE NOTE:
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ALL BAR SCALES MAY BE USED REGARDLESS OF REPRODUCTION SIZE. WHERE IN CONFLICT, BAR SCALES SHALL SUPERSEDE WRITTEN SCALES.

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

REVISIONS

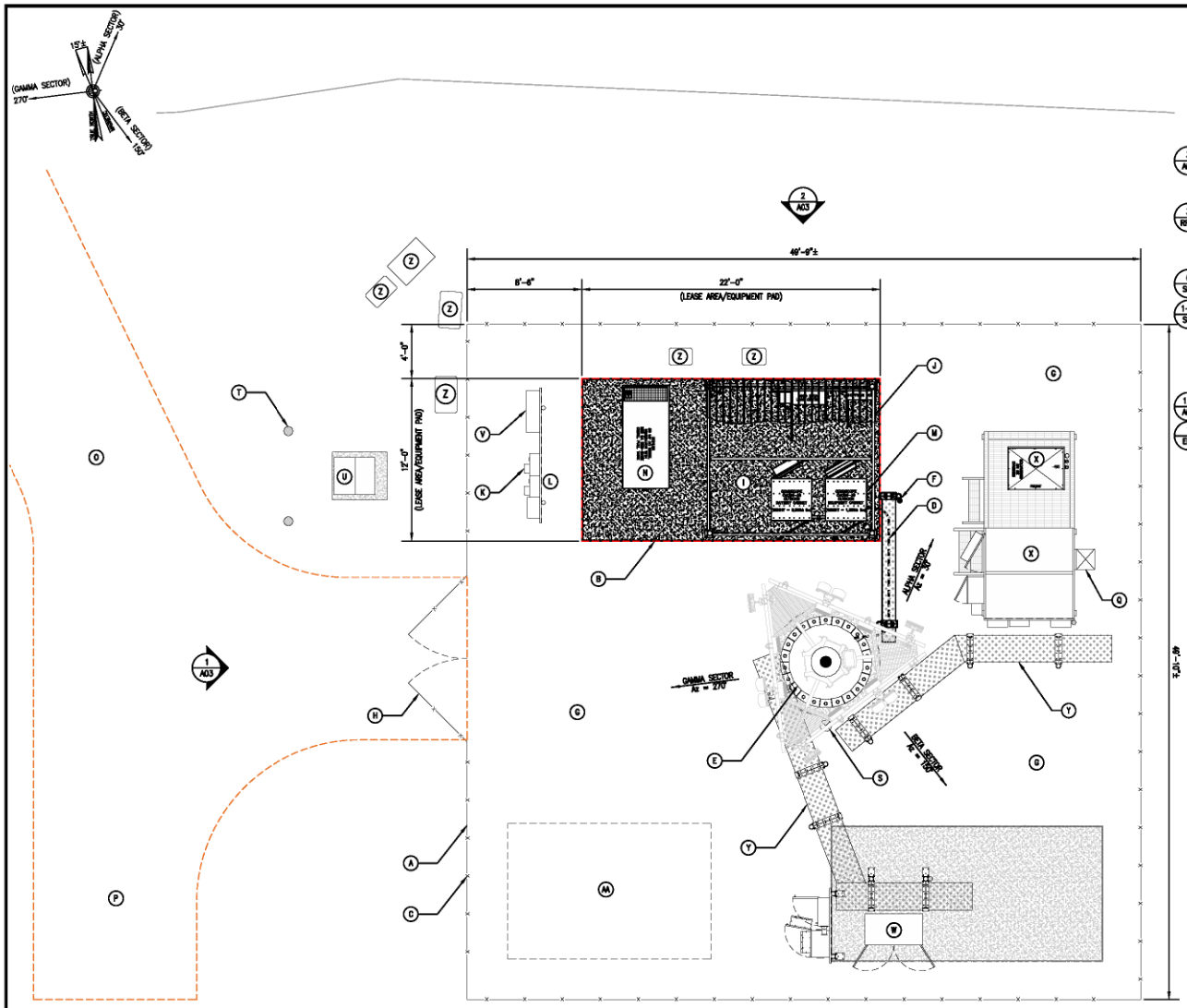
NO.	DESCRIPTION	DATE
0	ISSUED FOR REVIEW	1/20/22
1	ISSUED FOR CONSTRUCTION (FINAL)	2/10/22
2	REVISED TSA REFERENCE DATE	4/13/22
3	REVISED MSA REFERENCE DATE	4/15/22

PROJECT NAME:
SOUTH GLASTONBURY 3 CT
63 WOODLAND STREET
SOUTH GLASTONBURY, CT 06073

DRAWING TITLE:
PROPERTY PLAN

DRAWING NO.:
C01

SCALE: 1" = 300'	DESIGNED BY: NWC DRAWN BY: NWC CHECKED BY: GRS	VZW PROJECT CODE: 20212309233 VZW PROJECT NO.: 16085720
CEA PROJECT NO.: 96210.404	ORIGINAL ISSUE DATE: 1/20/22	VZW LOCATION CODE: 708312



LEGEND

	ITEM	DESCRIPTION
	A	EXIST. 49'-9"±x49'-10"± (2,479± S.F.) EQUIPMENT COMPOUND (VERTICAL BRIDGE SITE #CT-5018 "HOPEWELL")
	B	LIMITS OF VERIZON'S PROP. 22'-0"x12'-0" (264 S.F.) LEASE AREA/EQUIPMENT PAD (TYP.)
	C	EXIST. 7'± CHAIN-LINK FENCE WITH BARBED WIRE RIM SURROUNDING EXIST. 49'-9"±x49'-10"± (2,479± S.F.) EQUIPMENT COMPOUND (TYP.)
3 A02	D	PROP. VERIZON (1)-LOW INDUCTANCE 12x24 HYBRID SIGNAL CABLE ROUTED ALONG PROP. OVERHEAD CABLE ICE BRIDGE (TYP.) FROM VERIZON'S PROP. EQUIPMENT PAD TO EXIST. MONOPOLE AS SHOWN.
	E	EXIST. 150'± MONOPOLE
3 RF01	F	PROP. VERIZON GPS ANTENNA MOUNTED TO PROP. OVERHEAD CABLE ICE BRIDGE. TOP OF GPS ANTENNA SHALL BE MOUNTED 2'-0" ABOVE TOP OF ICE BRIDGE.
	G	EXIST. GRAVEL COVER WITHIN EXIST. COMPOUND
	H	EXIST. 12'± DOUBLE LEAF GATE
6 S01	I	PROP. VERIZON 22'-0"x12'-0" (264 S.F.) REINFORCED CONCRETE EQUIPMENT PAD
1-4 S01	J	PROP. VERIZON 12'-8"x11'-10" (148± S.F.) METAL DECK ICE SHIELD (SHOWN TRANSPARENT FOR CLARITY) ABOVE PROP. EQUIPMENT
	K	EXIST. VACANT METER SOCKET AND DISCONNECT BREAKER KNOCKOUT TO BE UTILIZED FOR VERIZON'S PROP. 200A ELECTRIC SERVICE TO PROP. EQUIPMENT INSTALLATION.
	L	EXIST. 800A 1Ø-3W 120/240 VAC ELECTRIC METER BANK
1,2 A02	M	PROP. VERIZON EQUIPMENT CABINET MOUNTED TO PROP. 22'-0"x12'-0" (264 S.F.) REINFORCED CONCRETE EQUIPMENT PAD (TYP.)
1 E01	N	PROP. VERIZON 50 kW BACK-UP DIESEL GENERATOR MOUNTED TO PROP. 22'-0"x12'-0" (264 S.F.) REINFORCED CONCRETE PAD
	O	PROP. VERIZON 12' WIDE ACCESS EASEMENT (OVER EXIST. GRAVEL PATH/TRAVELED WAY) (TYP.) FROM EXIST. PUBLIC RIGHT-OF-WAY WOODLAND STREET), TO EXIST. EQUIPMENT COMPOUND (TO BE UTILIZED BY VERIZON FOR ACCESS TO VERIZON'S PROP. INSTALLATION). SEE SHEET C01 FOR CONTINUATION TO WOODLAND STREET.
	P	PROP. VERIZON 12'x20' PARKING SPACE OR TURN-AROUND AREA
	Q	EXIST. AT&T WALL-MOUNTED AC UNIT
	R	THIS SPACE INTENTIONALLY LEFT BLANK
	S	EXIST. GROUND TEST WELL
	T	EXIST. BOLLARD (TYP.)
	U	EXIST. ELECTRIC TRANSFORMER ON EXIST. CONCRETE PAD/VAULT
	V	EXIST. TELEPHONE SERVICE CABINET/HANDOFF MOUNTED TO EXIST. FREE-STANDING UTILITY RACK
	W	EXIST. T-MOBILE EQUIPMENT ON EXIST. 20'-0"±x10'-0"± (200± S.F.) CONCRETE PAD
	X	EXIST. AT&T EQUIPMENT CABINET AND BACK-UP DIESEL GENERATOR ON EXIST. 6'-8"±x13'-9"± (92± S.F.) STEEL EQUIPMENT PLATFORM
	Y	EXIST. OVERHEAD CABLE ICE BRIDGE OF OTHERS (TYP.)
	Z	EXIST. UTILITY PULLBOX (6 TOTAL)
	AA	EXIST. 15'-0"x10'-0" (150 S.F.) DISH WIRELESS LEASE AREA

SITE CONTROL POINT:
CENTER OF EXISTING MONOPOLE
N 41°-39'-38.85" (41.660792°) (NAD '83)
W 72°-34'-26.75" (72.574097°) (NAD '83)
ELEV. - 317.7' AMSL (NAVD '88)
PER 1A SURVEY OF OTHERS

EQUIPMENT COMPOUND PLAN (1 / A01)

SCALE: 1/4" = 1'-0"

0 4'-0" 8'-0" 12'-0"

CLIENT:

verizon
* Because Better Matters *

ARCHITECT/ENGINEER:

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil · Structural · Land Surveying
R.K. EXECUTIVE CENTRE
201 BOSTON POST ROAD WEST
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MARLBOROUGH, MA 01752
(508) 481-7400
www.chappellengineering.com

SEAL:

ENGINEER/LAND SURVEYOR DATE

DRAWING SCALE NOTE:

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1	ISSUED FOR CONSTRUCTION (FINAL)	2/10/22
2	REVISED TSA REFERENCE DATE	4/13/22
3	REVISED MSA REFERENCE DATE	4/15/22

PROJECT NAME:

SOUTH GLASTONBURY 3 CT

63 WOODLAND STREET
SOUTH GLASTONBURY, CT 06073

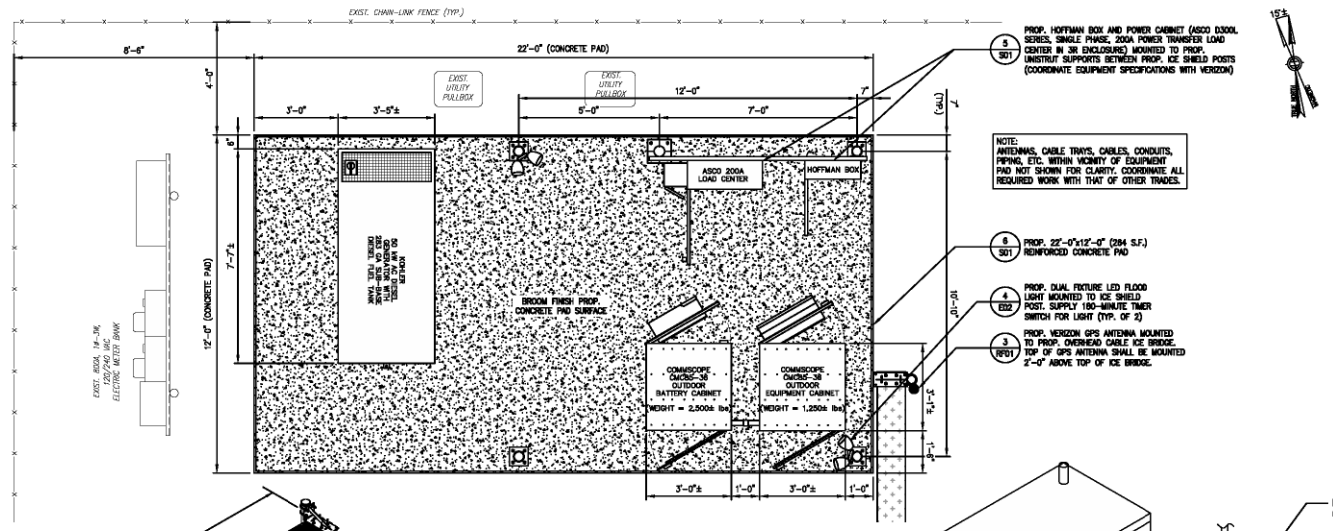
DRAWING TITLE:

EQUIPMENT COMPOUND PLAN

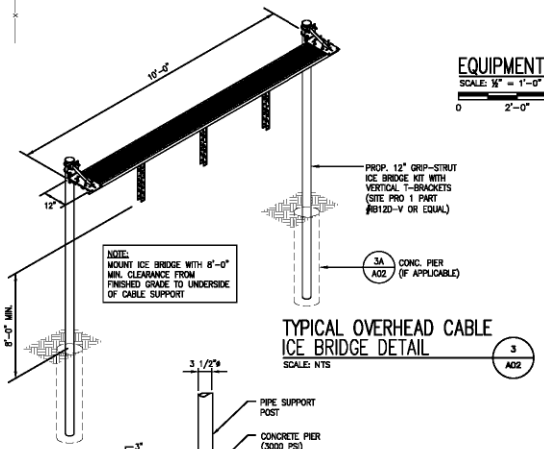
DRAWING NO:

A01

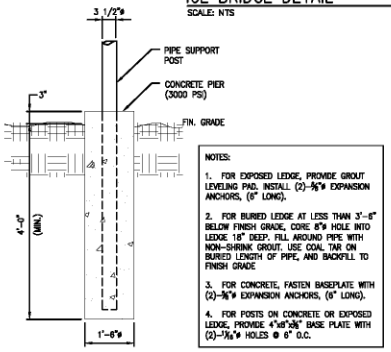
SCALE: 1/4" = 1'-0"	DESIGNED BY: NWC	VZW PROJECT CODE: 20212306233
	DRAWN BY: NWC	
	CHECKED BY: GRS	VZW PROJECT NO.: 16085720
CTA PROJECT NO.: 96210.404	ORIGINAL ISSUE DATE: 1/20/22	VZW LOCATION CODE: 708312



EQUIPMENT AREA PLAN 1 A02
SCALE: 1/8" = 1'-0"
0 2'-0" 4'-0" 6'-0"

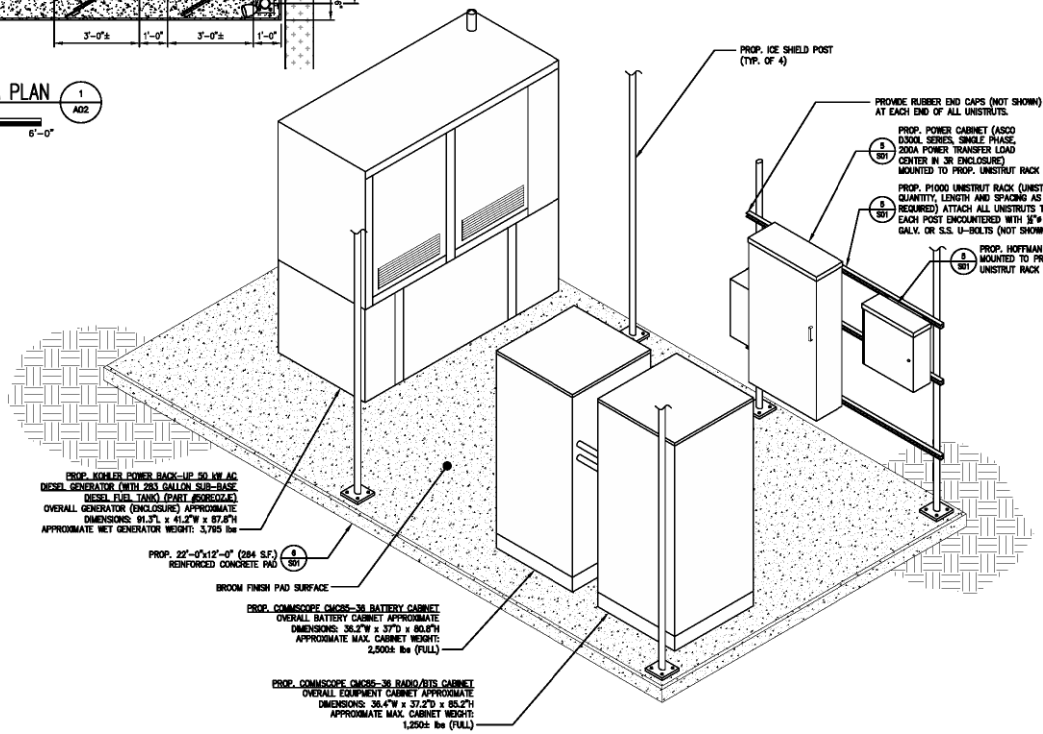


TYPICAL OVERHEAD CABLE ICE BRIDGE DETAIL 3 A02
SCALE: NTS



NOTES:
1. FOR EXPOSED LEDGE, PROVIDE GROUT LEVELING PAD. INSTALL (2)-5/8"ø EXPANSION ANCHORS, (6" LONG).
2. FOR BURIED LEDGE AT LESS THAN 3'-6" BELOW FINISH GRADE, CORE 8"ø HOLE INTO LEDGE 18" DEEP. FILL AROUND PIPE WITH NON-SHRINK GROUT. USE COAL TAR ON BURIED LENGTH OF PIPE, AND BACKFILL TO FINISH GRADE
3. FOR CONCRETE, FASTEN BASEPLATE WITH (2)-5/8"ø EXPANSION ANCHORS, (6" LONG).
4. FOR POSTS ON CONCRETE OR EXPOSED LEDGE, PROVIDE 4"x6"x3/8" BASE PLATE WITH (2)-7/16"ø HOLES @ 6" O.C.

CABLE BRIDGE PIER 3A A02
SCALE: NTS



EQUIPMENT AREA ISOMETRIC VIEW 2 A02
SCALE: NOT APPLICABLE

CLIENT:
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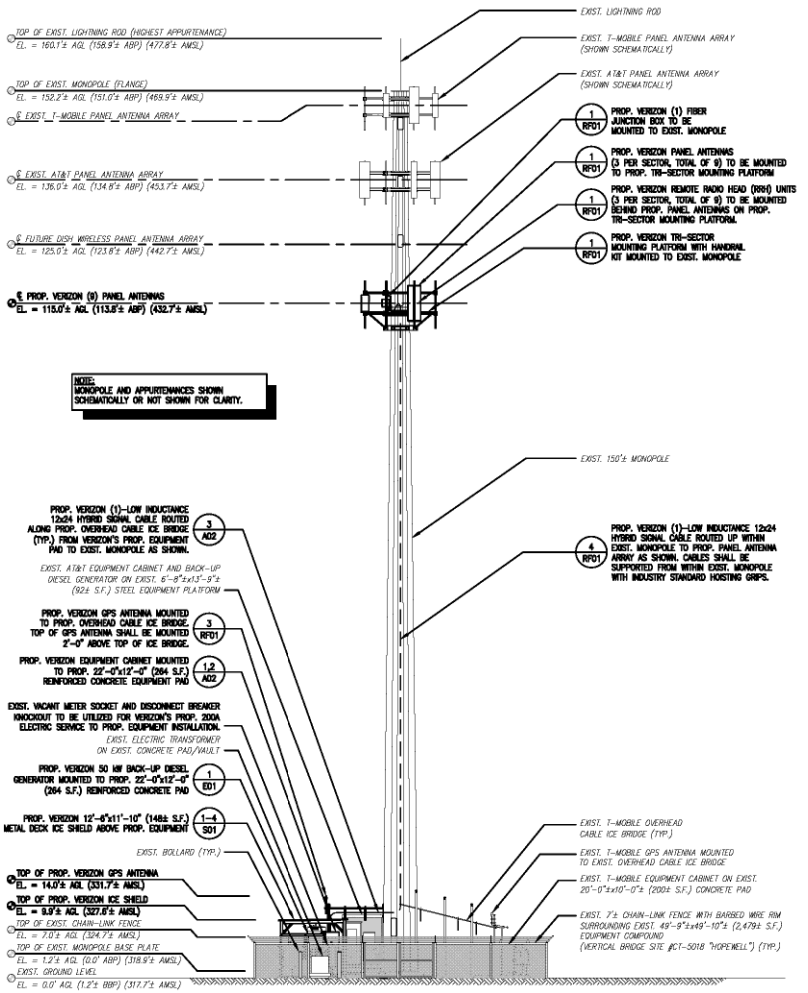
PROJECT NAME:
SOUTH GLASTONBURY 3 CT
63 WOODLAND STREET
SOUTH GLASTONBURY, CT 06073

DRAWING TITLE:
EQUIPMENT AREA PLAN & DETAILS

DRAWING NO:
A02

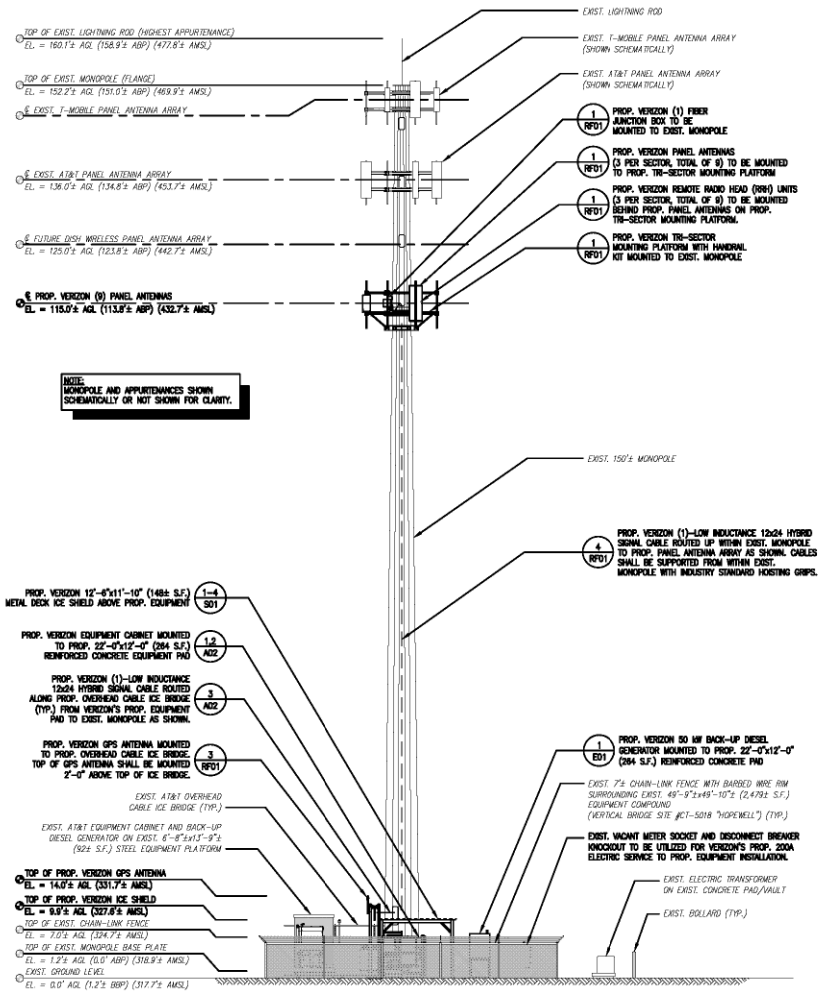
SCALE: AS SHOWN	DESIGNED BY: MWC	VZW PROJECT CODE: 20212306233
	DRAWN BY: MWC	
	CHECKED BY: GBS	VZW PROJECT NO.: 19085720
CEA PROJECT NO.: 96210.404	ORIGINAL ISSUE DATE: 1/20/22	VZW LOCATION CODE: 708312



WEST EQUIPMENT COMPOUND ELEVATION 1 A03

SCALE: 1" = 10'

0 5' 10' 20' 30'



NORTH EQUIPMENT COMPOUND ELEVATION 2 A03

SCALE: 1" = 10'

0 5' 10' 20' 30'

LEGEND	
AGL	ABOVE GROUND LEVEL
ABP	ABOVE MONOPOLE BASE PLATE
BBP	BELOW MONOPOLE BASE PLATE
AMSL	ABOVE MEAN SEA LEVEL

CLIENT:

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PROJECT NAME:

SOUTH GLASTONBURY 3 CT

63 WOODLAND STREET
SOUTH GLASTONBURY, CT 06073

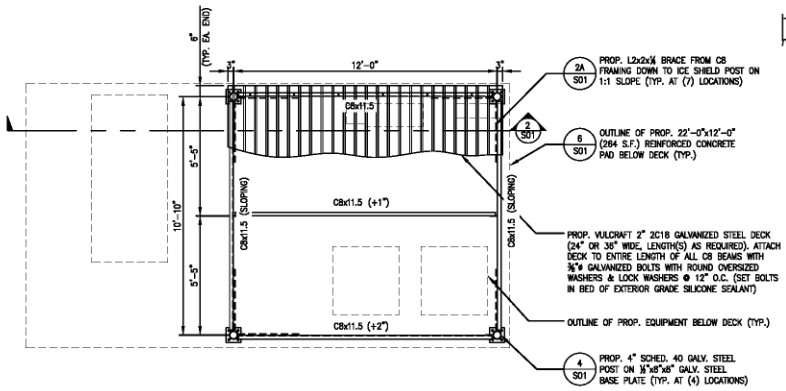
DRAWING TITLE:

WEST AND NORTH EQUIPMENT COMPOUND ELEVATIONS

DRAWING NO:

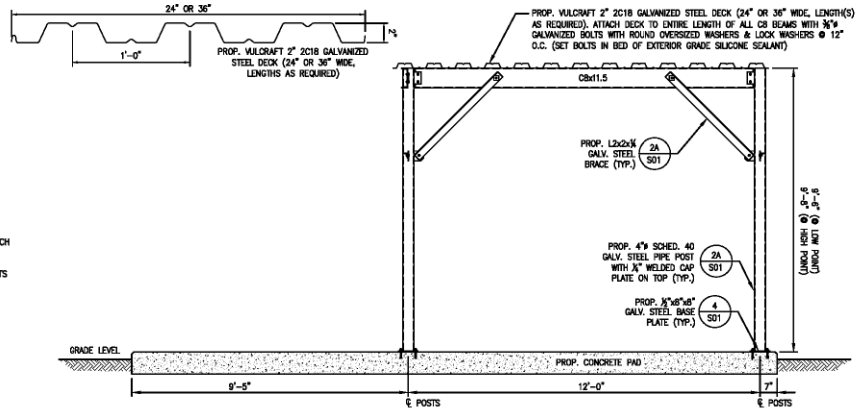
A03

SCALE: 1" = 10'	DESIGNED BY: MWC	VZW PROJECT CODE: 20212306233
	DRAWN BY: MWC	
	CHECKED BY: GBS	VZW PROJECT NO.: 16085720
CEA PROJECT NO.: 96210.404	ORIGINAL ISSUE DATE: 1/20/22	VZW LOCATION CODE: 708312

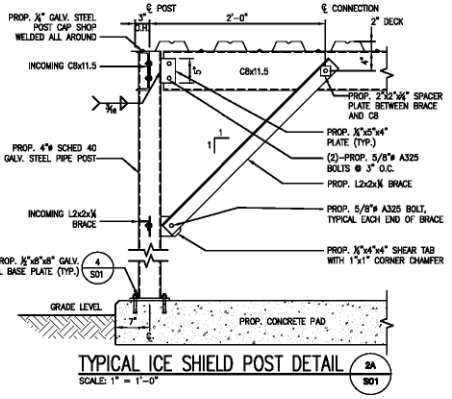


FRAMING PLAN NOTES:
1.) ALL STEEL SHALL BE INSTALLED LEVEL UNLESS OTHERWISE NOTED.
2.) TOP OF NEW STEEL ELEVATION SHALL BE HELD 9'-6" ABOVE EQUIPMENT PAD SURFACE UNLESS OTHERWISE NOTED THUS (±X") INDICATING DISTANCE ABOVE OR BELOW TOP OF STEEL REFERENCE ELEVATION.

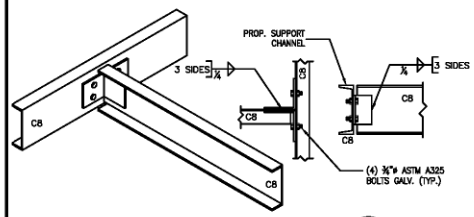
ICE SHIELD FRAMING PLAN (1 S01)
SCALE: 3/8" = 1'-0"



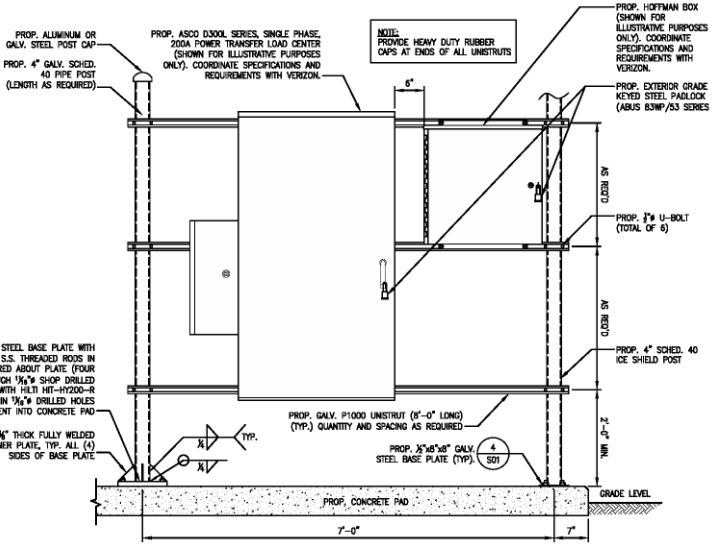
ICE SHIELD SECTION (2 S01)
SCALE: 1/2" = 1'-0"



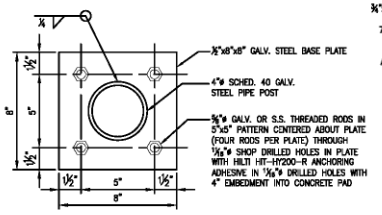
TYPICAL ICE SHIELD POST DETAIL (2A S01)
SCALE: 1" = 1'-0"



TYPICAL BEAM TO BEAM CONN. (3 S01)
SCALE: NOT TO SCALE

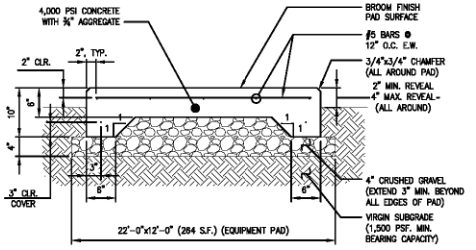


UNISTRUT RACK DETAIL (5 S01)
SCALE: N.T.S.



TYPICAL ICE SHIELD POST BASE PLATE (4 S01)
SCALE: NONE

¾"x10"x10" GALVANIZED STEEL BASE PLATE WITH (4)–⅞"ø GALV. OR S.S. THREADED RODS IN 7"x7" PATTERN CENTERED ABOUT PLATE (FOUR RODS TOTAL) THROUGH 15/16"ø SHOP DRILLED HOLES IN PLATE WITH HILTI HIT-HY200-R ANCHORING ADHESIVE IN 15/16"ø DRILLED HOLES WITH 4" EMBEDMENT INTO CONCRETE PAD
⅜" THICK FULLY WELDED STIFFENER PLATE, TYP. ALL (4) SIDES OF BASE PLATE



REINFORCED CONCRETE PAD DETAIL (6 S01)
SCALE: NONE

CLIENT:
verizon
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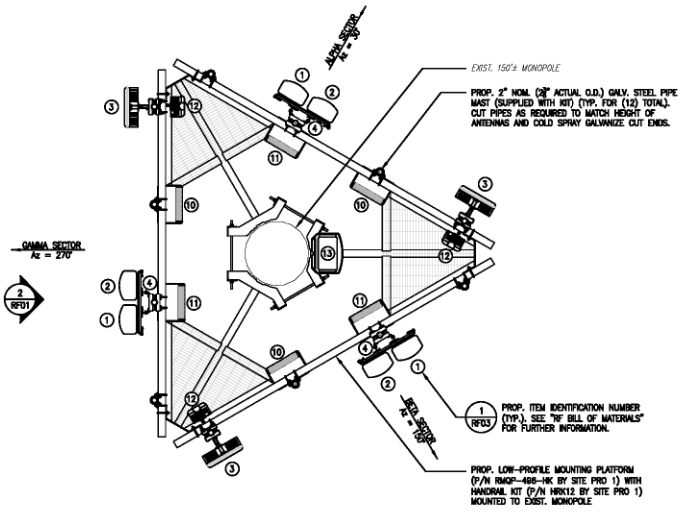
PROJECT NAME:
SOUTH GLASTONBURY 3 CT
63 WOODLAND STREET
SOUTH GLASTONBURY, CT 06073

DRAWING TITLE:
ICE SHIELD FRAMING PLAN & STRUCTURAL DETAILS

DRAWING NO:
S01

SCALE:	DESIGNED BY: NWC	VZW PROJECT CODE:
AS SHOWN	DRAWN BY: NWC	20212306233
	CHECKED BY: GRS	VZW PROJECT NO.:
CTA PROJECT NO.:	ORIGINAL ISSUE DATE:	16085720
96210.404	1/20/22	VZW LOCATION CODE:
		708312



(MONOPOLE PLAN VIEW AT ELEVATION 115.0'± AGL)

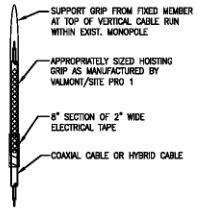
ANTENNA MOUNTING PLAN (1 RFD1)

SCALE: 1/2" = 1'-0"

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

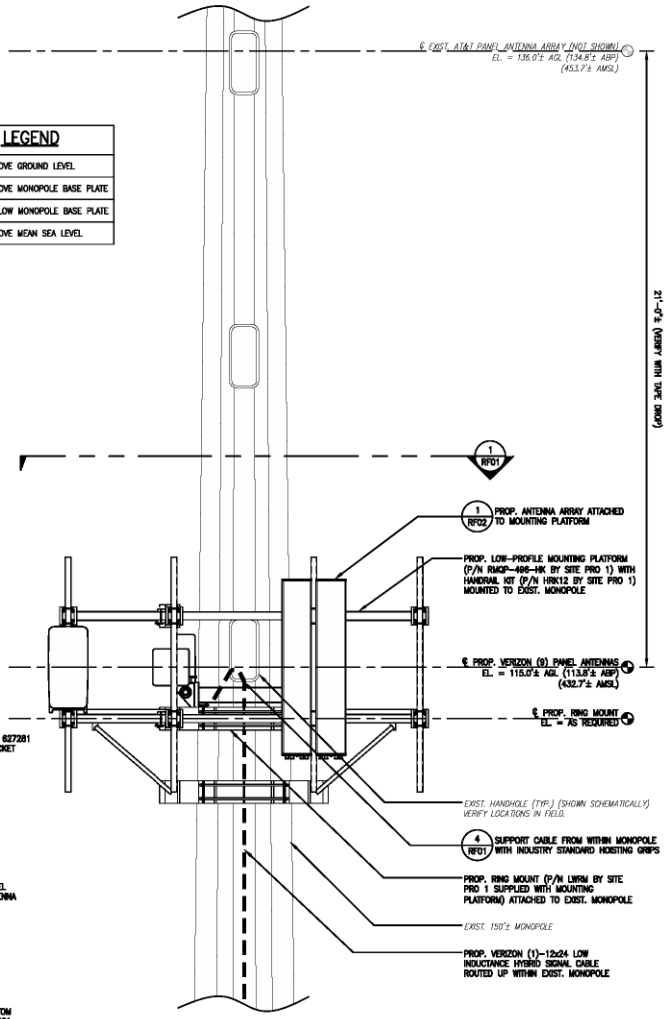
NORTH

LEGEND	
AGL	ABOVE GROUND LEVEL
ABP	ABOVE MONOPOLE BASE PLATE
BBP	BELOW MONOPOLE BASE PLATE
AMSL	ABOVE MEAN SEA LEVEL



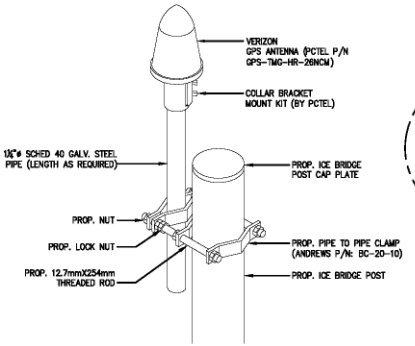
TYPICAL HOISTING GRIP DETAIL (4 RFD1)

SCALE: NONE



ANTENNA MOUNTING PLATFORM MOUNTING DETAIL (2 RFD1)

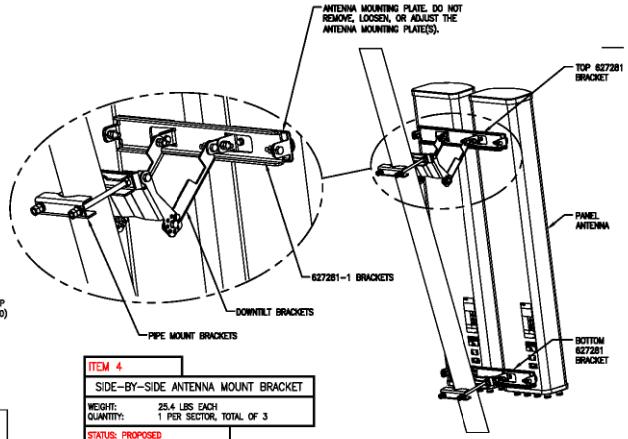
SCALE: 1/2" = 1'-0"



NOTE:
THE GPS ANTENNA MOUNT IS DESIGNED TO FASTEN TO A STANDARD 1"-1½" DIAMETER GALVANIZED STEEL OR STAINLESS STEEL PIPE. THE PIPE MUST NOT BE THREADED AT THE ANTENNA MOUNT END. THE PIPE SHALL BE CUT TO THE REQUIRED LENGTH USING A HAND OR ROTARY PIPE CUTTER TO ASSURE A SMOOTH AND PERPENDICULAR CUT. THE CUT PIPE END SHALL BE DEBURRED AND SMOOTH IN ORDER TO SEAL AGAINST THE NEOPRENE GASKET ATTACHED TO THE ANTENNA MOUNT.

GPS ANTENNA MOUNTING DETAIL (3 RFD1)

SCALE: N.T.S.



ITEM 4.	
SIDE-BY-SIDE ANTENNA MOUNT BRACKET	
WEIGHT:	25.4 LBS EACH
QUANTITY:	1 PER SECTOR, TOTAL OF 3
STATUS: PROPOSED	

MOUNT ANTENNA IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDED PROCEDURE

TYPICAL SIDE-BY-SIDE ANTENNA MOUNT KIT (COMMSCOPE PART #BSAMNT-SBS-1-2) (5 RFD1)

SCALE: NOT TO SCALE

CLIENT:

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PROJECT NAME:

SOUTH GLASTONBURY 3 CT

63 WOODLAND STREET
SOUTH GLASTONBURY, CT 06073

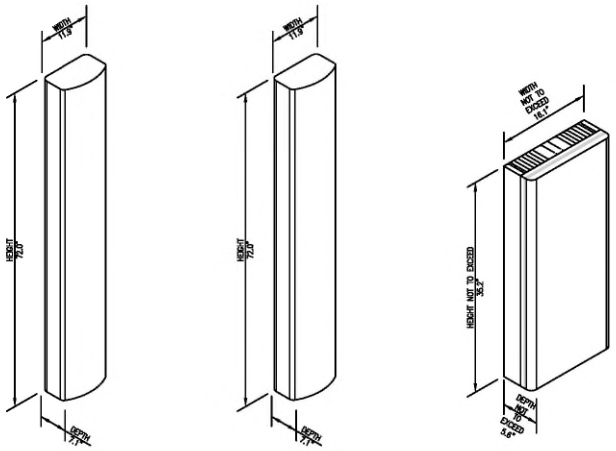
DRAWING TITLE:

ANTENNA MOUNTING PLAN AND DETAILS

DRAWING NO:

RF01

SCALE:	DESIGNED BY: NWC	VZW PROJECT CODE:
AS SHOWN	DRAWN BY: NWC	20212309233
	CHECKED BY: GRS	VZW PROJECT NO:
CEA PROJECT NO.:	ORIGINAL ISSUE DATE:	16085720
96210.404	1/20/22	VZW LOCATION CODE:
		708312



ITEM 1	
LTE (700/850/1900 MHz) PANEL ANTENNA	
DIMENSIONS:	72.0"H x 11.9"W x 7.1"D
WEIGHT:	43.7 LBS EACH
QUANTITY:	1 PER SECTOR, TOTAL OF 3
STATUS: PROPOSED	

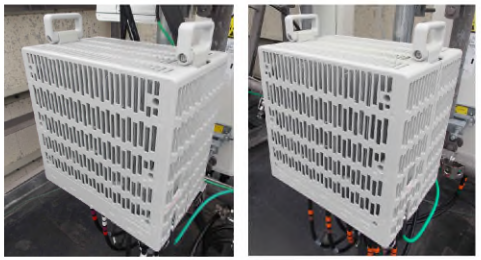
ITEM 2	
LTE (700/850/2100/CBRS MHz) PANEL ANTENNA	
DIMENSIONS:	72.0"H x 11.9"W x 7.1"D
WEIGHT:	48.1 LBS EACH
QUANTITY:	1 PER SECTOR, TOTAL OF 3
STATUS: PROPOSED	

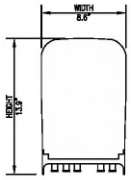
ITEM 3	
MT6407-77A ANTENNA	
MAX. DIMENSIONS:	35.2"H x 16.1"W x 5.6"D
MAX. WEIGHT:	87.1 LBS EACH
QUANTITY:	1 PER SECTOR, TOTAL OF 3
STATUS: PROPOSED	

TYPICAL PROP. PANEL ANTENNA SPECIFICATIONS

SCALE: N.T.S.

1 RF02





ITEM 10	
LTE/NR (700/850 MHz) REMOTE RADIO HEAD UNIT	
DIMENSIONS:	15.0"H x 15.0"W x 9.0"D
WEIGHT:	70.3 LBS
QUANTITY:	1 PER SECTOR, TOTAL OF 3
STATUS: PROPOSED	

ITEM 11	
LTE/NR (1900/2100 MHz) REMOTE RADIO HEAD UNIT	
DIMENSIONS:	15.0"H x 15.0"W x 10.0"D
WEIGHT:	74.7 LBS
QUANTITY:	1 PER SECTOR, TOTAL OF 3
STATUS: PROPOSED	

ITEM 12	
(BAND 48 (3.5 GHz)) NR AU RRH	
DIMENSIONS:	13.9"H x 8.6"W x 4.2"D
WEIGHT:	18.6 LBS EACH
QUANTITY:	1 PER SECTOR, TOTAL OF 3
STATUS: PROPOSED	

TYPICAL REMOTE RADIO HEAD (RRH) UNIT DIMENSIONS

SCALE: N.T.S.

2 RF02

Procedure

Mounting Procedures

4.1 A mounting base is delivered with the unit. The base allows either wall/ladder or pole mounted installation. See picture to identify the holes for each installation method.

4.2 ***Option 1: Pole Mount***
Using supplied hardware, mount Bracket to 2" to 4" diameter pole.

4.3 ***Option 2: Unistrut***

4.4 ***Option 3: Monopole***
Use 1" stainless steel bands (not supplied) through slots on bracket to mount to Monopole.

Gland/Insert Definitions

5.1 See picture to identify Base Gland Assembly Definitions.

Assembled in unit as shipped:

Qty	Connector Size	Pos	Insert P/N	Insert Hole	Cable Type
2	M75	A	190-0760	42mm	6x12 RL
4	M75	B	190-0738	3x 16.5mm	1x2

Included in kit shipped with unit:

Qty	Connector Size	Insert P/N	Insert Hole	Cable Type	Purpose	Pos
2	M75	190-0760	42mm	6x12 RL	2 glands fit 1 each 6/12 Hyb	B
2	M75	190-0747	2x 84.6mm	2x12 DC	2 glands fit 2 each #6 12 cond DC	B
1	M75	190-0805	2x 10.5mm	2x12 Fiber	1 gland fit 2 x 12 fiber trunk	B
1	M75	190-0912	2x 9.5mm	2 ETH	1 gland fits 2 ethernet cable	B

ITEM 13	
FIBER JUNCTION BOX	
DIMENSIONS:	29.56"H x 16.5"W x 12.6"D
WEIGHT:	32.0 LBS
QUANTITY:	TOTAL OF 1
STATUS: PROPOSED	

TYPICAL FIBER JUNCTION BOX DIMENSIONS, SCHEMATIC AND MOUNTING PROCEDURE

SCALE: N.T.S.

3 RF02

CLIENT:

verizon

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ARCHITECT/ENGINEER:

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NO.	DESCRIPTION	DATE
0	ISSUED FOR REVIEW	1/20/22
1	ISSUED FOR CONSTRUCTION (FINAL)	2/10/22
2	REVISED TSA REFERENCE DATE	4/13/22
3	REVISED MSA REFERENCE DATE	4/15/22

PROJECT NAME:

SOUTH GLASTONBURY 3 CT

63 WOODLAND STREET
SOUTH GLASTONBURY, CT 06073

DRAWING TITLE:

ANTENNA DETAILS AND ANCILLARY EQUIPMENT SPECIFICATIONS

DRAWING NO:

RF02

SCALE:	DESIGNED BY: NWC	VZW PROJECT CODE:
AS SHOWN	DRAWN BY: NWC	20212309233
	CHECKED BY: GRS	VZW PROJECT NO:
CEA PROJECT NO.:	ORIGINAL ISSUE DATE:	16085720
96210.404	1/20/22	VZW LOCATION CODE:
		708312

RF BILL OF MATERIALS (PROP. (FINAL) CONFIGURATION)

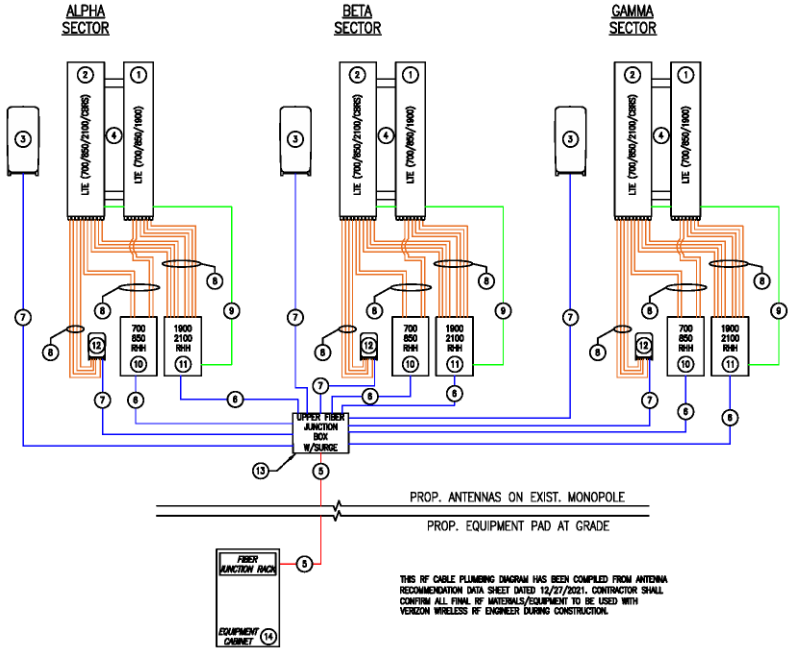
SITE NAME: SOUTH GLASTONBURY 3 CT — A = ALPHA SECTOR B = BETA SECTOR G = GAMMA SECTOR

ITEM (SEE PLAN)		DESCRIPTION	BAND	QTY	STATUS	CABLE LENGTH/UNIT SIZE	COMMENTS
1 RF02	1	PANEL ANTENNA	700/850/1900	3 TOTAL (A,B,G)	PROP.	72.0"H x 11.8"W x7.1"D (43.7 lbs, each)	MOUNT TO PROP. SIDE-BY-SIDE MOUNT
	2	PANEL ANTENNA	700/850/2100/CBRS	3 TOTAL (A,B,G)	PROP.	72.0"H x 11.8"W x7.1"D (46.1 lbs, each)	MOUNT TO PROP. SIDE-BY-SIDE MOUNT
	3	PANEL ANTENNA	3700–3980	3 TOTAL (A,B,G)	PROP.	35.2"H x 16.1"W x 5.6"D (87.1 lbs, each)	MOUNT TO PROP. PIPE MAST
5 RF01	4	SIDE-BY-SIDE ANTENNA MOUNT KIT	–	3 TOTAL (A,B,G)	PROP.	25.4 lbs, each	MOUNT TO PROP. PIPE MAST
	5	12x24 LOW INDUCTANCE HYBRID SIGNAL CABLE (MAIN LINE)	–	1 TOTAL	PROP.	135 FT.±	ROUTE FROM PROP. EQUIPMENT, ALONG PROP. OVERHEAD CABLE ICE BRIDGE TO EXIST. MONOPOLE AND UP WITHIN MONOPOLE TO PROP. FIBER JUNCTION BOX
	6	1x1 HYBRID SIGNAL CABLE (JUMPER)	–	6 TOTAL (2 PER SECTOR)	PROP.	20 FT. MAX. EACH	ROUTE FROM PROP. UPPER FIBER JUNCTION BOX TO PROP. RRH UNITS
	7	1x2 HYBRID SIGNAL CABLE (JUMPER)	–	6 TOTAL (2 PER SECTOR)	PROP.	20 FT. MAX. EACH	ROUTE FROM PROP. UPPER FIBER JUNCTION BOX TO PROP. ANTENNAS/CBRS RRH UNITS
	8	⅜" COAXIAL CABLE (JUMPER)	–	48 TOTAL (16 PER SECTOR)	PROP.	20 FT. MAX. EACH	ROUTE FROM PROP. REMOTE RADIO HEAD (RRH) UNITS TO PROP. PANEL ANTENNAS
	9	RET CONTROL CABLE(S) (JUMPER)	–	PER RF REQ.	PROP.	20 FT. MAX. EACH	ROUTE FROM PROP. REMOTE RADIO HEAD (RRH) UNITS TO PROP. PANEL ANTENNAS
2 RF02	10	REMOTE RADIO HEAD (RRH) UNIT	700/850	3 TOTAL (A,B,G)	PROP.	15.0"H x 15.0"W x 8.0"D (70.3 lbs, each)	MOUNT TO PROP. PIPE MAST
	11	REMOTE RADIO HEAD (RRH) UNIT	1900/2100	3 TOTAL (A,B,G)	PROP.	15.0"H x 15.0"W x 10.0"D (74.7 lbs, each)	MOUNT TO PROP. PIPE MAST
	12	REMOTE RADIO HEAD (RRH) UNIT	BAND 48	3 TOTAL (A,B,G)	PROP.	13.9"H x 8.8"W x 4.2"D (18.6 lbs, each)	MOUNT TO PROP. PIPE MAST
3 RF02	13	UPPER FIBER JUNCTION BOX W/SURGE	–	1 TOTAL	PROP.	29.56"H x 16.5"W x 12.6"D (32.0 lbs, each)	MOUNT TO EXIST. MONOPOLE
	14	LOWER CABINET/FIBER JUNCTION RACK	–	1 TOTAL	PROP.	29.56"H x 16.5"W x 12.6"D (32.0 lbs, each)	MOUNT TO PROP. METAL DECK ICE SHIELD POST

THIS RF BILL OF MATERIALS (BOM) HAS BEEN COMPILED FROM ANTENNA RECOMMENDATION DATA SHEET DATED 12/27/2021. CONTRACTOR SHALL CONFIRM ALL FINAL RF MATERIALS/EQUIPMENT TO BE USED WITH VERIZON WIRELESS RF ENGINEER DURING CONSTRUCTION.

RF BILL OF MATERIALS (FINAL CONFIGURATION) (1 RF03)
SCALE: NONE

NOTE:
ARRANGEMENT OF ANTENNAS, REMOTE RADIO HEAD (RRH) UNITS, FIBER JUNCTION BOXES AND ALL ASSOCIATED WIRING AND ANCILLARY EQUIPMENT SHOWN SCHEMATICALLY ON THIS PLUMBING DIAGRAM. SEE PROP. ANTENNA ORIENTATION PLAN(S) AND CROSS REFERENCE WITH RF BILL OF MATERIALS FOR PROP. ANTENNA/EQUIPMENT PLACEMENT DETAIL.



THIS RF CABLE PLUMBING DIAGRAM HAS BEEN COMPILED FROM ANTENNA RECOMMENDATION DATA SHEET DATED 12/27/2021. CONTRACTOR SHALL CONFIRM ALL FINAL RF MATERIALS/EQUIPMENT TO BE USED WITH VERIZON WIRELESS RF ENGINEER DURING CONSTRUCTION.

RF CABLE PLUMBING DIAGRAM (FINAL CONFIGURATION) (2 RF03)
SCALE:

RADIO FREQUENCY (RF) DESIGN NOTES:
1) ALL RADIO FREQUENCY (RF) DESIGN INFORMATION CONTAINED ON THIS SHEET IS SHOWN SCHEMATICALLY.

2) THE GENERAL CONTRACTOR SHALL CONFIRM ALL RF DESIGN ELEMENTS SHOWN (INCLUDING BUT NOT LIMITED TO PANEL ANTENNA MODELS & ARRANGEMENT, AZIMUTHS, REMOTE RADIO HEAD (RRH) UNIT MODELS & ARRANGEMENT AND CABLING DIAGRAMS/SCHEMATICS) WITH THE VERIZON WIRELESS RF ENGINEER AT THE TIME OF CONSTRUCTION.

LEGEND

- RED — (H) — = HYBRID CABLE (MAIN LINE)
- PURPLE — (H) — = COAXIAL CABLE (MAIN LINE)
- BLUE — (H) — = 1x1 HYBRID CABLE (JUMPER)
- ORANGE — (H) — = 1/2"ø COAXIAL CABLE (JUMPER)
- GREEN — (H) — = RET CONTROL CABLE(S) (JUMPER)

CLIENT:
verizon
* Because Better Matters *

ARCHITECT/ENGINEER:

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil · Structural · Land Surveying
R.K. EXECUTIVE CENTRE
201 BOSTON POST ROAD WEST
SUITE 101
MARLBOROUGH, MA 01752
(508) 481-7400
www.chappellengineering.com

SEAL:

ENGINEER/LAND SURVEYOR DATE

DRAWING SCALE NOTE:
THESE DRAWINGS HAVE BEEN PREPARED IN ARCH D (24"x36") FORMAT. AS SUCH, THE WRITTEN SCALES SHOWN ON ANY REPRODUCTIONS OF A CONTRACTORS' SIZE SHALL BE REVIEWED INVALID. ALL BAR SCALES MAY BE USED REGARDLESS OF REPRODUCTION SIZE. WHERE IN CONFLICT, BAR SCALES SHALL SUPERSEDE WRITTEN SCALES.

REVISIONS

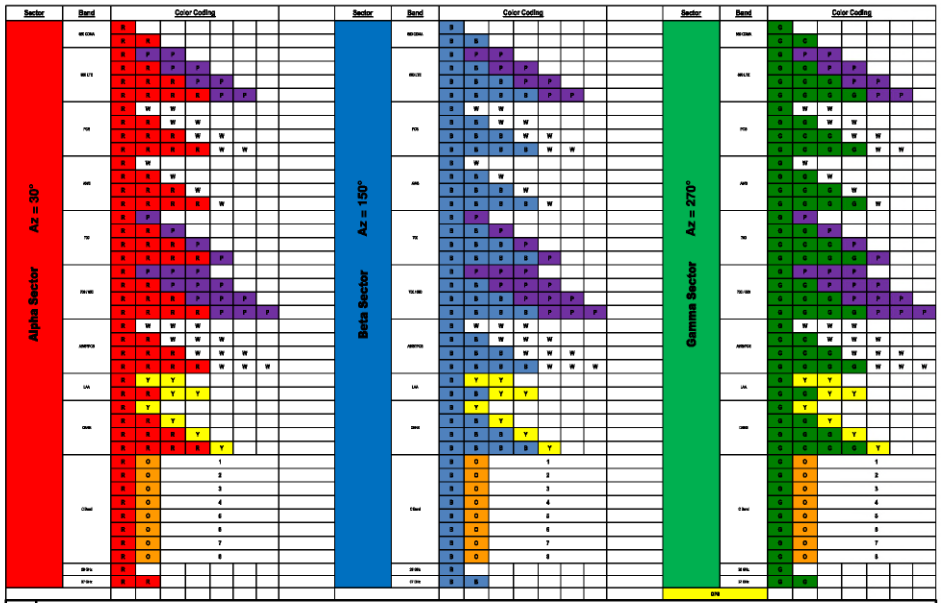
NO.	DESCRIPTION	DATE
0	ISSUED FOR REVIEW	1/20/22
1	ISSUED FOR CONSTRUCTION (FINAL)	2/10/22
2	REVISED TSA REFERENCE DATE	4/13/22
3	REVISED MSA REFERENCE DATE	4/15/22

PROJECT NAME:
SOUTH GLASTONBURY 3 CT
63 WOODLAND STREET
SOUTH GLASTONBURY, CT 06073

DRAWING TITLE:
RF BILL OF MATERIALS AND RF CABLE PLUMBING DIAGRAM

DRAWING NO:
RF03

SCALE: AS SHOWN	DESIGNED BY: NWC DRAWN BY: NWC CHECKED BY: GRS	VZW PROJECT CODE: 20212306233 VZW PROJECT NO.: 16085720
CTA PROJECT NO.: 96210.404	ORIGINAL ISSUE DATE: 1/20/22	VZW LOCATION CODE: 708312



Main Line Cable Length/Information

CABLE LENGTH PROVIDED BELOW IS APPROXIMATE IN NATURE AND REFLECTED AS AN ADJUSTED VALUE TO PROVIDE ADEQUATE LENGTH. ANY FIELD MEASUREMENTS OF ANTICIPATED CABLE LENGTH IS ENCOURAGED IN AN EFFORT TO REDUCE SLACK AND TO OPTIMIZE DESIGN. SUCH FIELD MEASUREMENTS MAY SUPERCEDE THE LENGTH PROVIDED BELOW AT THE DISCRETION OF THE GENERAL CONTRACTOR

135'±

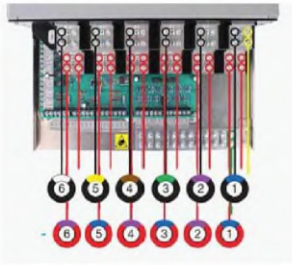
ONE (1) PROPOSED 12x24 LOW INDUCTANCE HYBRID SIGNAL CABLE

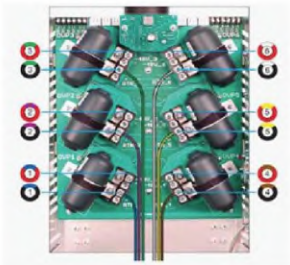
LINE COLOR CODE SPECIFICATIONS (1 / RF04)

Hybrid Cable on Towers

Hybrid Cable 1

Sector	Identification Color	-48V	RTN
700 Alpha	Blue		
AWS Alpha	Violet		
PCS Alpha	Green		
850 Alpha	Brown		
Spare	Yellow		
Spare	White		





HYBRID CABLE COLOR CODE SPECIFICATIONS (2 / RF04)

CLIENT:

verizon
* Because Better Matters *

ARCHITECT/ENGINEER:

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil · Structural · Land Surveying
R.K. EXECUTIVE CENTRE
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SEAL:

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PROJECT NAME:

SOUTH GLASTONBURY 3 CT

63 WOODLAND STREET
SOUTH GLASTONBURY, CT 06073

DRAWING TITLE:

RF COLOR CODE SPECIFICATIONS

DRAWING NO:

RF04

SCALE:	DESIGNED BY: NWC	VZW PROJECT CODE:
N/A	DRAWN BY: NWC	20212306233
	CHECKED BY: GRS	VZW PROJECT NO.:
CFA PROJECT NO.:	ORIGINAL ISSUE DATE:	16085720
96210.404	1/20/22	VZW LOCATION CODE:
		708312

ELECTRICAL SPECIFICATIONS

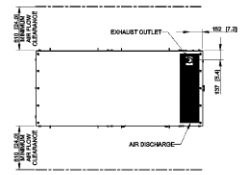
1. FURNISH ALL LABOR, MATERIALS, EQUIPMENT, TOOLS AND INCIDENTALS REQUIRED TO MAKE READY FOR USE THE COMPLETE ELECTRICAL SYSTEMS AS SHOWN ON THE DRAWINGS. MAKE ALL NECESSARY CONNECTIONS AT "PACKAGED" EQUIPMENT.
2. THE ELECTRICAL SYSTEMS SHALL BE SUITABLE IN EVERY WAY FOR THE SERVICE REQUIRED. ALL MATERIAL AND ALL WORK WHICH MAY BE REASONABLY IMPLIED AS BEING INCIDENTAL TO THE WORK SHALL BE FURNISHED AT NO EXTRA COST.
3. FURNISH AND INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH THE REQUIREMENTS OF LOCAL, STATE AND NATIONAL CODES AND STANDARDS, INCLUDING BUT NOT LIMITED TO:
   THE 2018 CONNECTICUT STATE BUILDING CODE
   THE NATIONAL ELECTRICAL CODE (NFPA-70)
   THE CONNECTICUT ELECTRIC CODE
   THE NATIONAL ELECTRICAL SAFETY CODE (ANSI C-2)
   THE LIFE SAFETY CODE (NFPA 101)
   THE STRUCTURAL STANDARDS FOR ANTENNA SUPPORTING STRUCTURE AND ANTENNAS (TIA/EIA-222-G)
4. MATERIALS AND EQUIPMENT SHALL BE NEW, UNUSED AND UNDERWRITERS' LABORATORIES, INC. LISTED. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL MATERIALS IN A TIMELY FASHION, INCLUDING RESPONSIBILITY FOR DETERMINING AVAILABILITY/LEAD TIME FOR ALL NECESSARY EQUIPMENT.
5. CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND PAY ALL FEES FOR PERMITS AND INSPECTIONS. WHERE NEW COMMERCIAL POWER SERVICE IS PROVIDED TO THE SITE, OR EXISTING SERVICE MUST BE MODIFIED, CONTRACTOR SHALL MAKE ALL ARRANGEMENTS WITH THE ELECTRIC UTILITY, SHALL PERFORM ALL OF HIS WORK IN ACCORDANCE WITH THE REQUIREMENTS OF THE UTILITY, AND SHALL PAY ALL UTILITY SERVICE BACK CHARGES.
6. ALL WIRING OUTSIDE SHALL BE INSTALLED IN HEAVY-GAUGE, (SCHEDULE 40) RIGID STEEL CONDUIT, HOT-DIPPED GALVANIZED INSIDE AND OUTSIDE WITH AN ADDITIONAL FACTORY-APPLIED FINISH INSIDE AND OUTSIDE. CUT ENDS SHALL BE REAMED, THREADED AND COLD GALVANIZED. NO COMPRESSION FITTING WILL BE ACCEPTED.
7. UNDERGROUND CONDUITS SHALL BE PVC SCHEDULE 40 AND INSTALLED NOT LESS THAN 30 INCHES BELOW FINISHED GRADE.
8. WIRING INSTALLED IN THE BUILDING THAT IS SHOWN TO BE IN CONDUIT SHALL BE INSTALLED IN EMT. EMT FITTINGS SHALL BE STEEL COMPRESSION TYPE.
9. LIQUID TIGHT, FLEXIBLE METAL CONDUIT SHALL BE USED FOR ALL MOTOR TERMINATIONS AND FOR CONNECTIONS TO EQUIPMENT SUBJECT TO VIBRATION. FLEXIBLE METAL CONDUIT SHALL CONSIST OF A FLEXIBLE, CORROSION RESISTANT METAL CORE WITH AN EXTRUDED, WATERTIGHT, SYNTHETIC JACKET. CONDUITS SMALLER THAN 1-1/2" SHALL HAVE A CONTINUOUS GROUND CONDUCTOR UNDER THE JACKET.
10. NO CONDUIT SMALLER THAN 3/4" ELECTRICAL TRADE SIZE SHALL BE USED, EXCEPT AS OTHERWISE SHOWN ON THE DRAWINGS. BOX SIZES SHALL BE 4" SQUARE MINIMUM, BUT NOT LESS THAN THAT REQUIRED BY THE CONNECTICUT ELECTRICAL CODE.
11. FITTINGS AND EXPOSED SWITCH, OUTLET AND CONTROL STATION BOXES AND OTHER EXPOSED BOXES 4" SQUARE SHALL BE CAST OR MALLEABLE IRON WITH CADMIUM-ZINC FINISH AND CAST COVERS WITH STAINLESS STEEL SCREWS.
12. FLUSH SWITCH AND OUTLET BOXES SHALL BE HOT-DIPPED GALVANIZED, PRESSED STEEL WITH NYLON COVER PLATES, COLOR AS DETERMINED BY THE ENGINEER.
13. EXCEPT AS OTHERWISE SHOWN, TERMINAL, JUNCTION AND PULL BOXES LARGER THAT 4" SQUARE SHALL BE SHEET STEEL. STEEL BOXES SHALL BE HOT-DIPPED GALVANIZED. BOXES AND COVERS SHALL BE NOT LESS THAN 14 GAUGE METAL. COVERS SHALL BE GASKETED AND FASTENED WITH STAINLESS STEEL HARDWARE.
14. FITTINGS USED WITH LIQUID TIGHT, FLEXIBLE CONDUIT SHALL BE OF THE SCREW-IN, COMPRESSION TYPE WITH SEALING RING. FITTINGS LARGER THAN 1-1/4" SHALL BE FURNISHED WITH INTEGRAL GROUND LUGS.
15. HANGERS, RODS, BACK PLATES, BEAM CLAMPS, ETC. SHALL BE GALVANIZED IRON OR STEEL. CONDUITS SHALL BE SUPPORTED AT LEAST EVERY 5 FEET.
16. EXPOSED CONDUITS SHALL BE RUN PARALLEL TO OR AT RIGHT ANGLES TO WALLS. CONDUIT RUNS SHALL BE STRAIGHT AND TRUE. CONDUIT SHALL BE SUPPORTED BY MEANS OF TWO-HOLE PIPE CLAMPS. BACK PLATES SHALL BE INSTALLED WHERE REQUIRED TO RAISE CONDUITS FROM THE SURFACE. MULTIPLE, HORIZONTAL RUNS SHALL BE SUPPORTED ON TRAPEZE HANGERS WITH STEEL. HORIZONTAL MEMBERS AND THREADED RODS NOT LESS THAN 3/8 INCHES IN DIAMETER. HANGERS SHALL BE ATTACHED TO STRUCTURAL STEEL BY MEANS OF BEAM CLAMPS. SPOT TYPE INSERTS SHALL BE USED IN CONCRETE.
17. CONDUIT BENDS SHALL BE CAREFULLY MADE TO PREVENT DISTORTION OF THE CIRCULAR CROSS-SECTION. NO CONDUIT RUN SHALL HAVE MORE THAN THE EQUIVALENT OF THREE 90 DEGREE BENDS BETWEEN PULLING POINTS. CHANGES IN DIRECTION SHALL BE MADE WITH BENDS, STANDARD ELBOWS AND PULLBOXES. BENDS IN PARALLEL RUNS SHALL BE CONCENTRIC.
18. CONDUIT SHALL NOT BE SUPPORTED FROM PIPING, PIPING SUPPORTS, DUCTWORK, SUSPENDED CEILING SUPPORTS OR MECHANICAL EQUIPMENT SUBJECT TO VIBRATION OR REMOVAL.
19. THE ENDS OF ALL CONDUITS SHALL BE TIGHTLY PLUGGED DURING BUILDING CONSTRUCTION UNTIL WIRES ARE TO BE PULLED. SPARE CONDUITS SHALL BE FURNISHED WITH THREADED CAPS.
20. CONDUITS SHALL BE TERMINATED AT UNGASKETED SHEET STEEL BOXES AND ENCLOSURES WITH DOUBLE LOCK NUTS AND SUITABLE BUSHINGS. BUSHINGS INSTALLED ON CONDUITS CONTAINING GROUND WIRES, SHALL BE GROUNDING TYPE. CONDUITS SHALL BE TERMINATED AT GASKETED SHEET METAL BOXES AND ENCLOSURES WITH CONDUIT HUBS.
21. CONDUCTORS SHALL BE ANNEALED, 98 PERCENT CONDUCTIVITY, SOFT-DRAWN COPPER. NO CONDUCTOR SMALLER THAT NO. 12 AWG SHALL BE USED, EXCEPT AS OTHERWISE NOTED.
22. WIRE FOR POWER AND LIGHTING BRANCH CIRCUITS SHALL BE 600 VOLT, TYPE THWN. WIRE FOR CONTROL CIRCUITS SHALL BE 600 VOLT, TYPE THWN, NO. 14 AWG, STRANDED. SERVICE CONDUCTORS AND FEEDERS SHALL BE TYPE XHHW. CONDUCTORS NO. 10 AWG AND SMALLER SHALL BE SOLID. NO. 8 AWG AND LARGER SHALL BE STRANDED..
23. ALL CONDUCTORS SHALL BE CAREFULLY HANDLED TO AVOID KINKS OR DAMAGE TO INSULATION. LUBRICATIONS SHALL BE USED TO FACILITATE WIRE PULLING. LUBRICANTS SHALL BE UL LISTED FOR USE WITH THE INSULATION SPECIFIED.
24. ALL EQUIPMENT AND MATERIALS SHALL BE GROUNDED IN STRICT ACCORDANCE WITH THE CONNECTICUT ELECTRICAL CODE, AND THE STANDARD REQUIREMENTS OF VERIZON WIRELESS AND LUCENT.
25. DISCONNECT SWITCHES SHALL BE 480 OR 240 VOLT, HEAVY-DUTY, QUICK-MAKE, QUICK BREAK, VISIBLE BLADE, 2 POLE WITH EXTERNAL OPERATING HANDLE AND FULL COVER INTERLOCK. SWITCHES INSTALLED OUTSIDE SHALL BE NEMA TYPE 3R ENCLOSED.
26. WALL SWITCHES SHALL BE SINGLE POLE 3-WAY OR 4-WAY, INDICATING, TOGGLE-ACTION, FLUSH, QUIET TYPE, SPECIFICATION GRADE, RATED 20 AMPERE, 120-277 VOLT. COLOR AS DETERMINED BY ENGINEER.
27. GENERAL PURPOSE RECEPTACLES SHALL BE DUPLEX, 2 POLE, 3 WIRE, STRAIGHT BLADE, NYLON FACE, GROUNDING TYPE, 20 AMPERE, 125 VOLT, SPECIFICATION GRADE. COLOR AS DETERMINED BY ENGINEER.
28. PANELS SHALL BE PER DIRECTED BY THESE DRAWINGS WITH TYPED DIRECTORIES.
29. CIRCUIT BREAKERS SHALL BE MOLDED CASE, THERMAL-MAGNETIC TYPE WITH RMS SYMMETRICAL INTERRUPTING RATING OF NOT LESS THAN 22,000 AMPERE FOR 240 VOLT BREAKERS. ENCLOSED BREAKERS SHALL HAVE PADLOCKING PROVISIONS AND EXTERNAL OPERATING HANDLE WITH FULL COVER INTERLOCK. BREAKERS SHALL BE 1" MODULES MINIMUM.
30. NAMEPLATES SHALL BE PROVIDED FOR ALL EQUIPMENT INDICATING VOLTAGE, PHASE, USE AND SOURCE OF ORIGIN. DEVICES SHALL BE LABELED INDICATING VOLTAGE AND BRANCH CIRCUIT. BRANCH CONDUCTORS SHALL BE LABELED INDICATING BRANCH CIRCUIT. FEEDER CONDUCTORS SHALL INDICATE PHASE.
31. ALL EXTERIOR CONDUCTOR/LUG TERMINALS SHALL HAVE AN ANTIOXIDANT APPLIED.
32. ALL SPRING TYPE WIRE CONDUCTORS USED IN EXTERIOR BOXES SHALL BE SILICON FILLED.
33. ELECTRICAL CONTRACTOR SHALL AS PART OF HIS WORK INCLUDE ALL FITTINGS, SLEEVES AND MINOR CUTTING REQUIRED FOR HIS WORK, INCLUDING FIRE-STOPPING.
34. THE ELECTRICAL CONTRACTOR, AT HIS OWN EXPENSE, SHALL PROVIDE HIS OWN, WHERE DIRECTED, STORAGE AND OFFICE SPACE.
35. FIVE COPIES OF SHOP DRAWINGS OF ALL EQUIPMENT SHALL BE PROVIDED TO THE ENGINEER.
36. ELECTRICAL CONTRACTOR'S WORK SHALL INCLUDE ALL LABOR AND MATERIALS, SCAFFOLDING TOOL AND TRANSPORTATION NECESSARY FOR COMPLETE INSTALLATION.
37. ELECTRICAL CONTRACTOR TO FURNISH ENGINEER ONE SET OF MYLARS OF "AS BUILT" DRAWINGS.
38. ELECTRICAL CONTRACTOR SHALL PROVIDE TEMPORARY POWER & LIGHTING AS REQ'D.

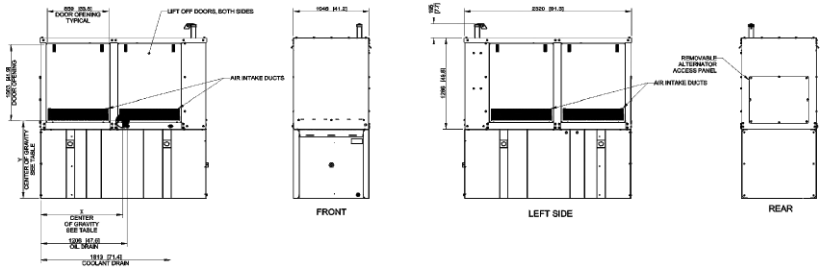
GENERAL NOTES

1. CONTRACTOR SHALL VISIT THE SITE TO MAKE HIMSELF AWARE OF THE EXISTING CONDITIONS.
2. BRANCH CIRCUIT RUNS 100 FT AND OVER SHALL BE #10 AWG CONDUCTORS.
3. THESE DRAWINGS ARE DIAGRAMMATIC ONLY. THE EXACT LOCATION, MOUNTING HEIGHT, SIZE OF EQUIPMENT AND ROUTING OF RACEWAYS SHALL BE COORDINATED AND DETERMINED IN THE FIELD.
4. THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE HVAC AND PLUMBING CONTRACTORS AS TO THE EXACT LOCATION OF THEIR RESPECTIVE EQUIPMENT, THE POWER WIRING, THE CONTROL WIRING AND ALL ELECTRICAL CONNECTIONS REQUIRED BY THIS CONTRACTOR FOR COMPLETELY OPERATIVE HVAC AND PLUMBING SYSTEMS IN CONFORMANCE WITH THE CONTRACT DOCUMENTS.
5. INTERRUPTIONS TO THE EXISTING ELECTRICAL SERVICE FOR SPLICING CONNECTIONS, RENOVATION OF EXISTING DISTRIBUTION, BRANCH CIRCUITS, INSTALLATION OF NEW ELECTRIC SERVICE, AND SHALL BE AS SHORT AS POSSIBLE, AND TO THE CONVENIENCE OF THE OWNER.
6. ALL CONDUIT SHALL BE SURFACE MOUNTED UNLESS OTHERWISE NOTED. NO INTERIOR HORIZONTAL CONDUIT BELOW 7'-8" AFF IN FINISHED SPACES.
7. ALL WIRING TO BE 3/4"C, 2#12 & 1#12 GROUND, UNLESS OTHERWISE NOTED.
8. NO BX OR ROMEX CABLE IS PERMITTED.
9. ALL WIRING DEVICES AND EQUIPMENT SHALL BE 20A SPECIFICATION GRADE AND UL LISTED.
10. ALL OUTLET AND JUNCTION BOXES SHALL BE SECURELY SURFACE MOUNTED.
11. ALL RECEPTACLE AND EQUIPMENT CIRCUITS SHALL BE GROUNDED USING A FULL SIZE EQUIPMENT GROUNDING CONDUCTOR RUN WITH THE CURRENT CONDUCTORS.
12. ALL WALL PENETRATIONS FOR TELCO, POWER, AND GROUNDING SHALL REQUIRE PVC SLEEVES.
13. ALL SWITCHES SHALL BE FORTY-EIGHT (48) INCHES AFF, UNLESS OTHERWISE NOTED.
14. ALL RECEPTACLES SHALL BE EIGHTEEN (18) INCHES AFF, UNLESS OTHERWISE NOTED.
15. ALL WIRING SHALL BE IN METAL RACEWAY & NO. 12 AWG COPPER MIN. UNLESS OTHERWISE NOTED.
16. WIRE COLOR SHALL BE PER STANDARD CODING BY PHASE.
17. FOR UTILITY BILLING, PLEASE SEND TO:
    VERIZON WIRELESS
    20 ALEXANDER DRIVE
    WALLINGFORD, CT 06492

GROUNDING GENERAL NOTES

1. ALL EXTERIOR CONDUCTORS SHALL BE #2 AWG, SOLID, BARE, TINNED COPPER, UNLESS OTHERWISE NOTED. MINIMUM BEND RADIUS SHALL BE EIGHT (8) INCHES.
2. ALL CONNECTIONS TO HALO GROUND RING AND ALL CABLE TRAY JUMPERS SHALL BE #6 AWG, INSULATED, STRANDED, COPPER WIRE.
3. ALL WIRE-TO-WIRE CONNECTIONS SHALL BE THREE-CLAMP, C TAP COMPRESSION (T&B #54740 ORANGE OR EQUIVALENT). ALL GROUND BAR CONNECTIONS SHALL BE TWO-HOLE, LONG-BARREL TYPE COMPRESSION LUGS (T&B OR EQUIVALENT). ALL OTHER CONNECTIONS TO STEEL SURFACES SHALL USE LUG-TYPE CONNECTORS.
4. MECHANICALLY BOND ANTENNA MOUNTS WITH #2 AWG, BARE, STRANDED CONDUCTORS.
5. ALL GROUNDING WORK SHALL COMPLY WITH VERIZON WIRELESS STANDARDS.
6. CONNECT GROUND CONDUCTOR TO EXISTING GROUNDING SYSTEM. ATTACH TO WALLS, PARAPET, CABLE TRAY, ETC. WITH A CLAMPS AS NECESSARY. REMOVE PAINT, FIREPROOFING, MILL SCALE, ETC. TO ACHIEVE GOOD CAD WELD GROUND CONNECTION.
7. CONNECT TO HALO GROUND USING C-TAP (#54730).
8. CONNECT TO ENCLOSURES USING BLUE GROUND LUGS.





KOHLER 50kW DIESEL GENERATOR WITH 283 GA SUB-BASE DIESEL FUEL TANK (PART #50REOZJE)
OVERALL GENERATOR (ENCLOSURE) APPROXIMATE
DIMENSIONS: 91.3"L x 41.2"W x 87.8"H (INCLUDES SUB-BASE DIESEL TANK)
APPROXIMATE MAX. IN-SERVICE WEIGHT: 3,795 lbs

GENERATOR DETAIL (1 / E01)
SCALE: NONE

LEGEND

ELECTRICAL SYMBOLS

- METER
- GROUND ROD/TEST (OBSERVATION) WELL
- GROUND ROD
- CADWELD TYPE CONNECTION
- COMPRESSION TYPE CONNECTION
- GROUNDING WIRE
- (1 / E02) REPRESENTS DETAIL NUMBER
- 1'X4' SURFACE MTD. FLOURESCENT LIGHTING FIXTURE
- SELF CONTAINED EMERG. LIGHTING UNIT
- S 20A-120V-1P TOGGLE SWITCH
- MAGNETIC DOOR SWITCH (DOOR JAMB TYPE)
- 20A-120V QUADRAPLEX RECEPTACLE, GROUNDING TYPE, 2-CKT. NO.
- WP/WR 20A-120V DUPLEX RECEPTACLE, GROUNDING TYPE. WP = WEATHERPROOF GFI = GROUND FAULT
- TL SIMPLEX RECEPTACLE, GROUNDING TYPE. TL = TWIST LOCK
- JUNCTION BOX
- P1 PANELBOARD 'P1'
- * MOTOR - NUMERAL DENOTES HORSEPOWER
- WEATHER PROOF DISCONNECT SWITCH
- FUSED DISCONNECT SWITCH - '3R' & '1' - NEMA ENCLOSURE
- * THERMOSTAT *T_HI - HI TEMPERATURE ALARM THERMOSTAT
- * HUMIDISTAT *H_HI/LO - HI/LO HUMIDITY ALARM HUMIDISTAT
- COMBINATION SMOKE/HEAT DETECTOR WITH MINI HORN SIMPLEX CAT.#2098-9698 WITH FORM A & C CONTACTS
- P1-2 HOMERUN TO PANEL (FURNISH & INSTALLED BY MECHANICAL)
- SURGE ARRESTOR - JOSLYN CAT. NO. 1455-85
- AFF ABOVE FINISHED FLOOR
- * MOTORIZED DAMPER
- 3#12-3/4"C EXPOSED CONDUIT 2#12-3/4"C.
- ALARM TERMINAL CABINET

* EQUIPMENT FURNISHED AND INSTALLED BY OTHERS AND WIRED BY THIS CONTRACTOR

ABBREVIATIONS

AWG	AMERICAN WIRE GAUGE
BCW	BARE COPPER WIRE
GPS	GLOBAL POSITIONING SYSTEM
PCS	PERSONAL COMMUNICATION SYSTEM
RWY	RACEWAY
TYP.	TYPICAL
RGS	RIGID GALVANIZED STEEL
EMT	ELECTRICAL METALLIC TUBING
DWG	DRAWING
EMT	INTERIOR GROUND RING (HALO)
GEN	GENERATOR
GR	GROWTH
CGBE	COAX GROUND BAR EXTERNAL
CIGBE	COAX ISOLATED GROUND BAR EXTERNAL
MGB	MASTER GROUND BAR
PVC	RIGID (SCH. 40) POLYVINYL CHLORIDE CONDUIT
EBH	ETHERNET BACK HAUL

CLIENT:
verizon
* Because Better Matters *

ARCHITECT/ENGINEER:
CHAPPELL ENGINEERING ASSOCIATES, LLC
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SUITE 101
MARLBOROUGH, MA 01752
(508) 481-7400
www.chappellengineering.com

SEAL:

ENGINEER/LAND SURVEYOR DATE

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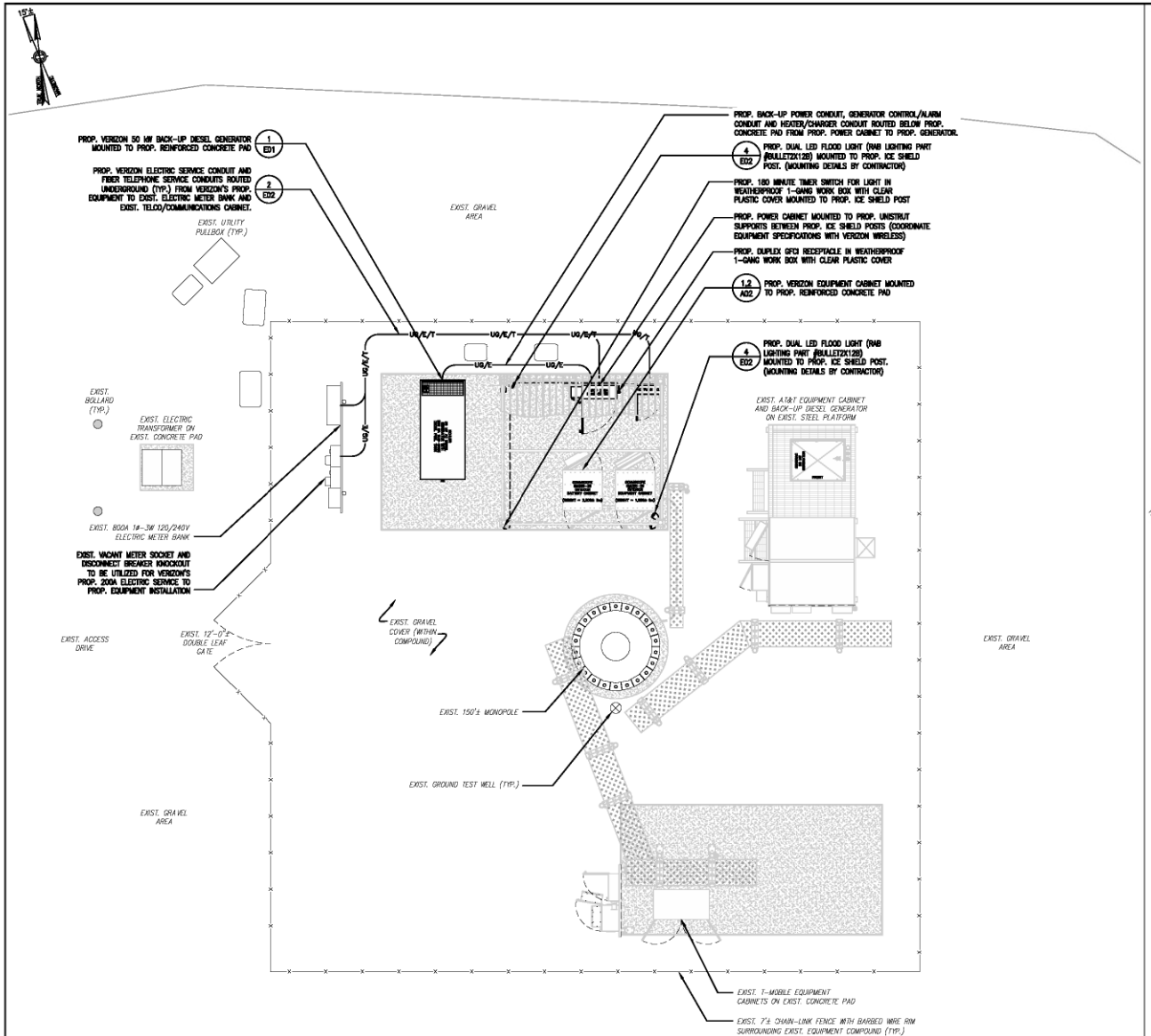
NO.	DESCRIPTION	DATE
0	ISSUED FOR REVIEW	1/20/22
1	ISSUED FOR CONSTRUCTION (FINAL)	2/10/22
2	REVISED TSA REFERENCE DATE	4/13/22
3	REVISED MSA REFERENCE DATE	4/15/22

PROJECT NAME:
SOUTH GLASTONBURY 3 CT
63 WOODLAND STREET
SOUTH GLASTONBURY, CT 06073

DRAWING TITLE:
ELECTRICAL SPECIFICATIONS AND NOTES

DRAWING NO:
E01

SCALE: AS SHOWN	DESIGNED BY: NWC	VZW PROJECT CODE: 20212309233
	DRAWN BY: NWC	
	CHECKED BY: GRS	VZW PROJECT NO: 16085720
CEA PROJECT NO.: 96210.404	ORIGINAL ISSUE DATE: 1/20/22	VZW LOCATION CODE: 708312



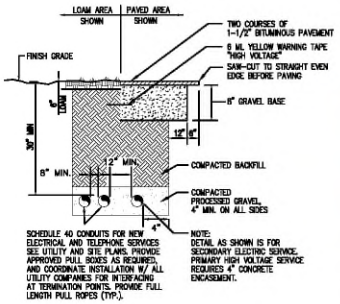
EQUIPMENT COMPOUND UTILITY PLAN 1 E02

SCALE: 1/4" = 1'-0"

0 4'-0" 8'-0" 12'-0"

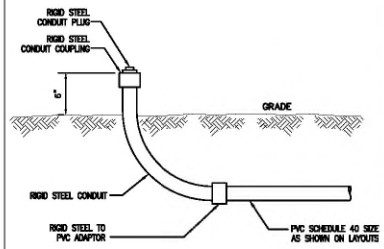
NOTES:

1.) SEE ONE LINE DIAGRAMS ON SHEET E03 FOR FURTHER CONDUIT DETAILS



TYPICAL BURIED CONDUIT DETAIL 2 E02

SCALE: NONE



TYPICAL CONDUIT STUB-UP DETAIL 3 E02

SCALE: NONE

RAB LIGHTING – BULLET2X12B
24W
BLACK

MOUNT PER MANUFACTURER'S SPECIFICATIONS

TYPICAL LED FLOOD LIGHT DETAIL 4 E02

SCALE: N.T.S.

CLIENT:

verizon

* Because Better Matters *

ARCHITECT/ENGINEER:

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PROJECT NAME:

SOUTH GLASTONBURY 3 CT

63 WOODLAND STREET
SOUTH GLASTONBURY, CT 06073

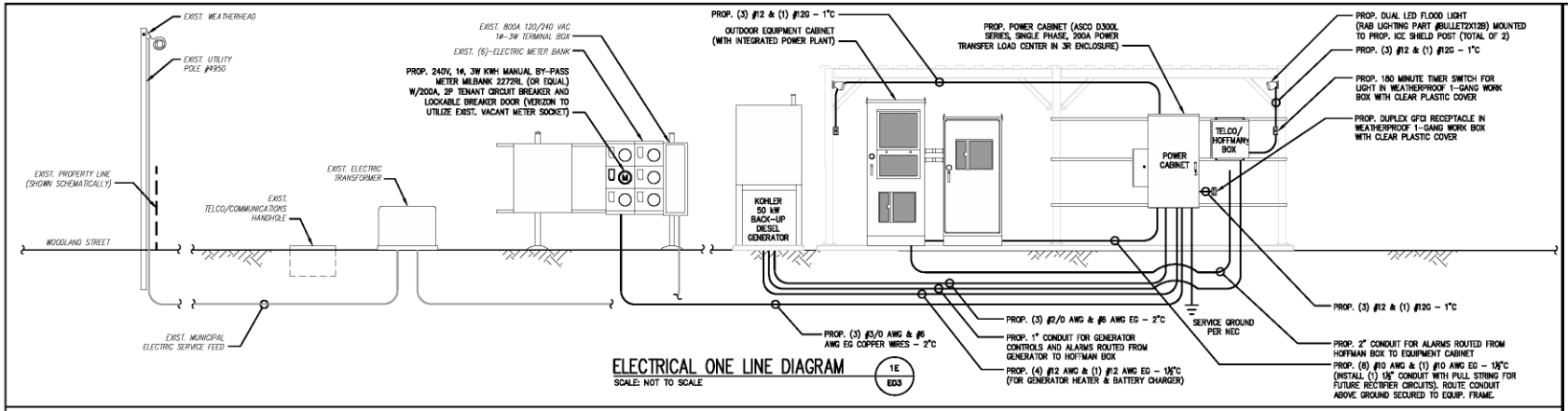
DRAWING TITLE:

EQUIPMENT COMPOUND UTILITY PLAN & DETAILS

DRAWING NO:

E02

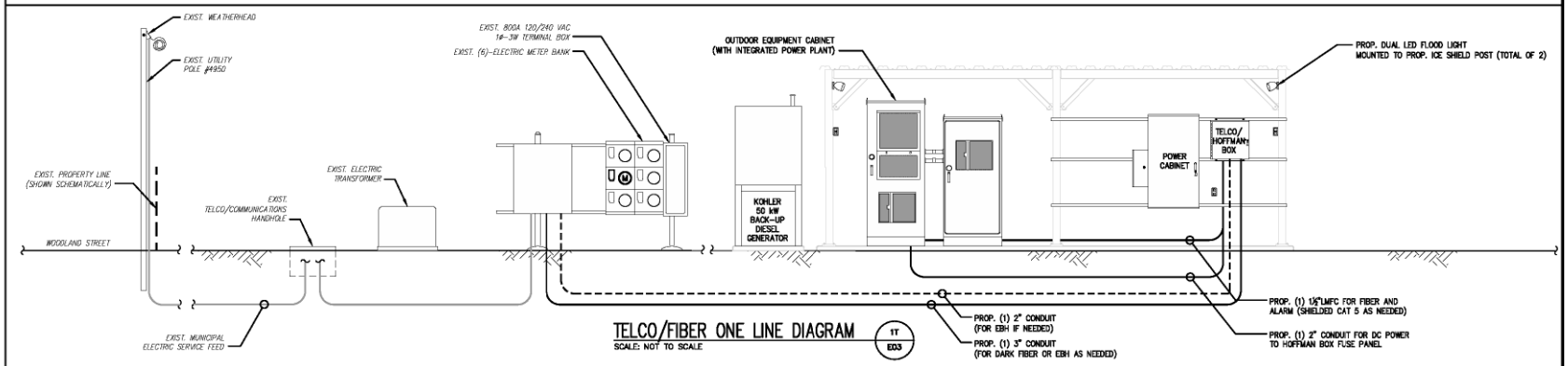
SCALE:	DESIGNED BY: NWC	VZW PROJECT CODE:
AS SHOWN	DRAWN BY: NWC	20212309233
	CHECKED BY: GRS	VZW PROJECT NO.:
CEA PROJECT NO.:	ORIGINAL ISSUE DATE:	16085720
96210.404	1/20/22	VZW LOCATION CODE:
		708312



ELECTRICAL ONE LINE DIAGRAM

SCALE: NOT TO SCALE

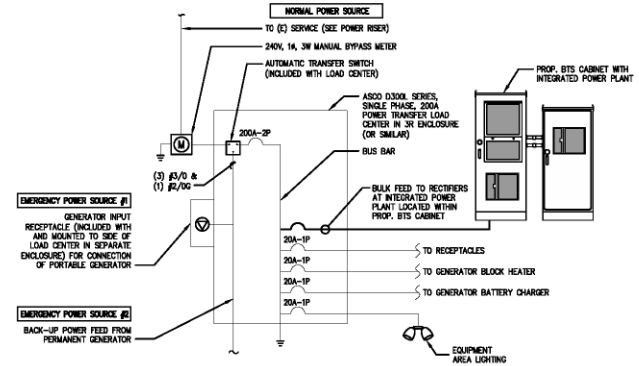
1E / E03



TELCO/FIBER ONE LINE DIAGRAM

SCALE: NOT TO SCALE

1T / E03



POWER SOURCE ONE LINE DIAGRAM

SCALE: NOT TO SCALE

2 / E03

ASCO D300L SERIES, SINGLE PHASE, 200A POWER TRANSFER LOAD CENTER IN 3R ENCLOSURE

ELECTRICAL PANEL SCHEDULE

65,000 A.I.C. NEMA 3R

CKT #	DESCRIPTION	AMP	AMP	DESCRIPTION	CKT #
1	RECTIFIER #1	30	30	FUTURE RECTIFIER	2
3					4
5	RECTIFIER #2	30	30	FUTURE RECTIFIER	6
7					8
9	RECTIFIER #3	30	20	PAD LIGHTING	10
11			–	BLANK	12
13	RECTIFIER #4	30	–	BLANK	14
15			–	BLANK	16
17	GFCI RECEPTACLE/LIGHT	20	–	BLANK	18
19	GENERATOR BLOCK HEATER	20	–	BLANK	20
21	GENERATOR BATTERY CHARGER	20	–	BLANK	22
23	BLANK	–	–	BLANK	24
25	BLANK	–	–	BLANK	26
27	BLANK	–	–	BLANK	28
29	BLANK	–	–	BLANK	30

ELECTRICAL PANEL SCHEDULE

SCALE: NTS

3 / E03

ONE-LINE DIAGRAM NOTES:

1) PROVIDE WEATHER TIGHT SEAL CONNECTORS ON ALL CONNECTIONS INSIDE AND OUT.

2) COORDINATE ANY FURTHER MISCELLANEOUS WIRING AND CONDUIT REQUIREMENTS WITH VERIZON WIRELESS AND ELECTRIC COMPANY.

3) ALL CONDUIT ROUTING SHOWN ON THESE DIAGRAMS IS SCHEMATIC IN NATURE AND INTENDED TO CONVEY GENERAL INTENT ONLY.

4) ALL PROPOSED UTILITY DESIGN ELEMENTS SHOWN ARE SUBJECT TO CHANGE BASED ON FINAL DESIGN TO BE PROVIDED BY UTILITY PROVIDERS AND VERIZON WIRELESS. CONTRACTOR SHALL OBTAIN A COPY OF THE FINAL UTILITY DESIGN BY UTILITY COMPANY PRIOR TO COMMENCEMENT OF WORK.

UTILITY CONTACTS

ELECTRICAL: EVERSOURCE ENERGY
247 STATION DRIVE, SE 210
WESTWOOD, MA 02090
(781) 441-3610

TELEPHONE: VERIZON
185 FRANKLIN STREET
BOSTON, MA 02107
(800) 941-9900

MAKE ALL CONNECTIONS AS PER UTILITY COMPANY'S REQUIREMENTS.

CLIENT:

verizon
* Because Better Matters *

ARCHITECT/ENGINEER:

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PROJECT NAME:

SOUTH GLASTONBURY 3 CT

63 WOODLAND STREET
SOUTH GLASTONBURY, CT 06073

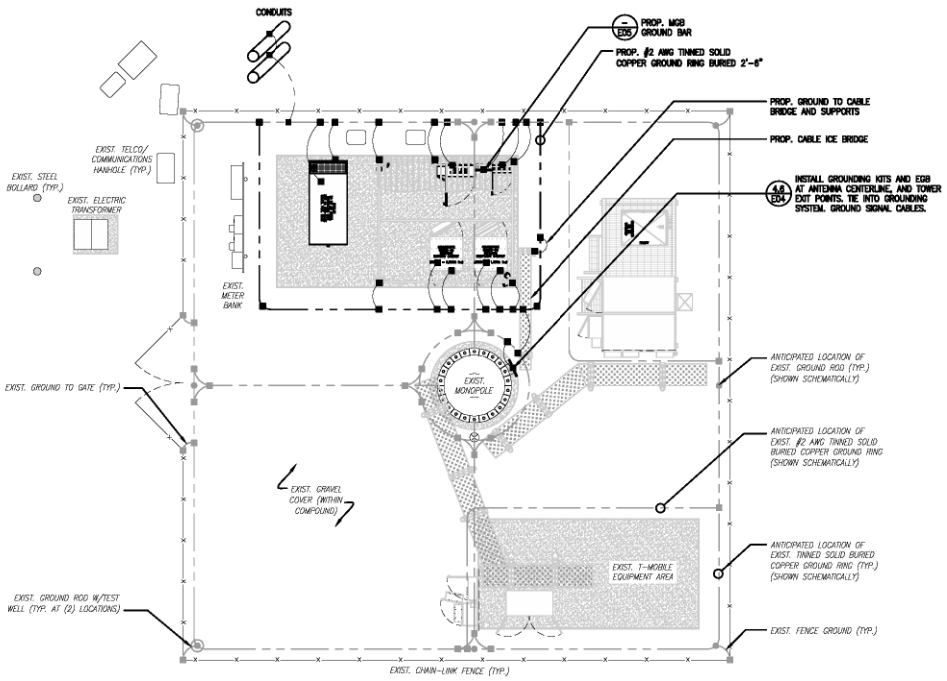
DRAWING TITLE:

ELECTRICAL DIAGRAMS & DETAILS

DRAWING NO:

E03

SCALE:	DESIGNED BY: NWC	VZW PROJECT CODE:
AS SHOWN	DRAWN BY: NWC	20212309233
	CHECKED BY: GRS	VZW PROJECT NO:
CEA PROJECT NO.:	ORIGINAL ISSUE DATE:	16085720
96210.404	1/20/22	VZW LOCATION CODE:
		708312



SCHEMATIC GROUNDING PLAN

SCALE: 3/16" = 1'-0"

0 5'-4" 10'-8" 16'-0"

NORTH

GROUNDING LEGEND

- EXOTHERMIC GROUND
- GROUND ROD
- TEST WELL
- PROP. #2 AWG EQUIPMENT GROUNDING
- PROP. GROUND HALO
- EXIST. SITE GROUNDING (SHOWN SCHEMATICALLY)

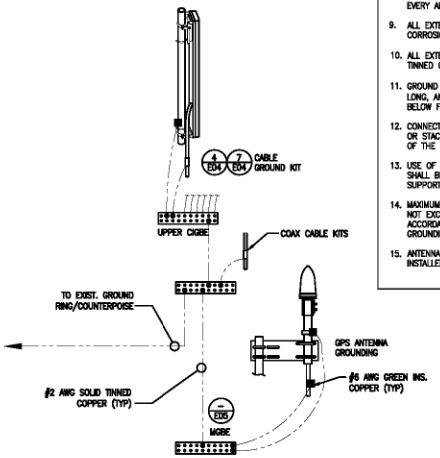
ELECTRICAL AND GROUNDING NOTES:

ELECTRICAL

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND ALL APPLICABLE LOCAL CODES.
2. CONDUIT ROUTINGS ARE SCHEMATIC. SUBCONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED.
3. SERVICE TO EQUIP. SHALL BE 120/240 VAC, 200 AMP, 1ø, 60 Hz.
4. THE SUBCONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT.

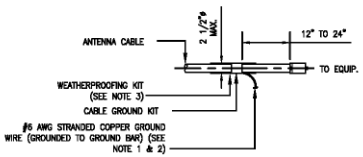
GROUNDING

5. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC (CADWELD) CONNECTIONS.
6. ALL GROUND CONNECTIONS BELOW GRADE SHALL BE EXOTHERMIC (CADWELD).
7. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR & EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
8. ALL EXOTHERMIC CONNECTIONS TO THE GROUND RODS SHALL START AT THE TOP & HAVE A VERTICAL SEPARATION OF 6" FOR EVERY ADDITIONAL CONNECTION.
9. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
10. ALL EXTERIOR GROUND CONDUCTORS SHALL BE #2 AWG SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
11. GROUND RODS SHALL BE COPPER CLAD STEEL, 5/8"ø 10-FT. LONG, AND SHALL BE DRIVEN VERTICALLY WITH THEIR TOPS 48" BELOW FINAL GRADE.
12. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED. BACK TO BACK CONNECTIONS ON OPPOSITE SIDES OF THE GROUND BUS ARE PERMITTED.
13. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
14. MAXIMUM RESISTANCE OF THE COMPLETED GROUND SYSTEM SHALL NOT EXCEED 5 OHMS. TESTING SHALL BE PERFORMED IN ACCORDANCE WITH PROJECT SPECIFICATION FOR FACILITY GROUNDING, USING FALL OF POTENTIAL METHOD.
15. ANTENNA GROUND KITS SHALL BE FURNISHED BY VERIZON AND INSTALLED BY CONTRACTOR.



ANTENNA GROUNDING RISER DIAGRAM

SCALE: NOT TO SCALE



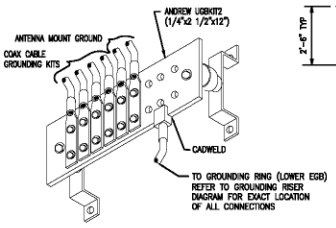
CONNECTION OF CABLE GROUND KIT TO ANTENNA CABLE

NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
3. WEATHER PROOFING SHALL BE TWO-PART TAPE SUPPLIED WITH KIT. COLD SHRINK SHALL NOT BE USED.

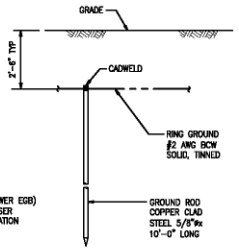
DETAIL 3 E04

SCALE: NOT TO SCALE



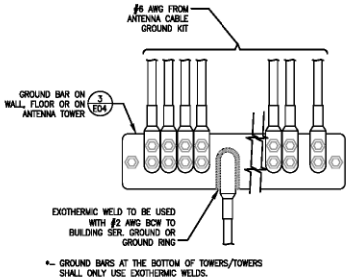
GROUND BAR (EGB)

SCALE: NOT TO SCALE 4 E04



GROUND ROD

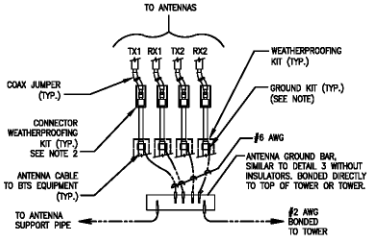
SCALE: NOT TO SCALE 5 E04



INSTALLATION OF GROUND WIRE TO GROUND BAR

DETAIL 6 E04

SCALE: NOT TO SCALE



CONNECTION OF GROUND WIRE TO GROUNDING BAR, TOWER

DETAIL 7 E04

SCALE: NOT TO SCALE

CLIENT:

verizon

* Because Better Matters *

ARCHITECT/ENGINEER:

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PROJECT NAME:

SOUTH GLASTONBURY 3 CT

63 WOODLAND STREET
SOUTH GLASTONBURY, CT 06073

DRAWING TITLE:

SCHEMATIC GROUNDING PLAN & DETAILS

DRAWING NO:

E04

SCALE:	DESIGNED BY: NWC	VZW PROJECT CODE:
AS SHOWN	DRAWN BY: NWC	20212309233
	CHECKED BY: GRS	VZW PROJECT NO.:
CEA PROJECT NO.:	ORIGINAL ISSUE DATE:	16085720
96210.404	1/20/22	VZW LOCATION CODE:
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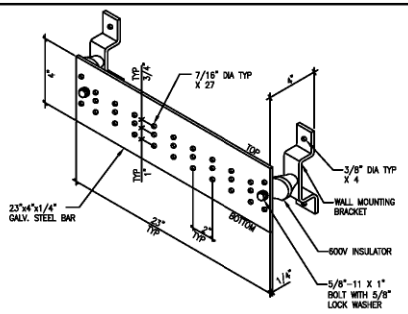
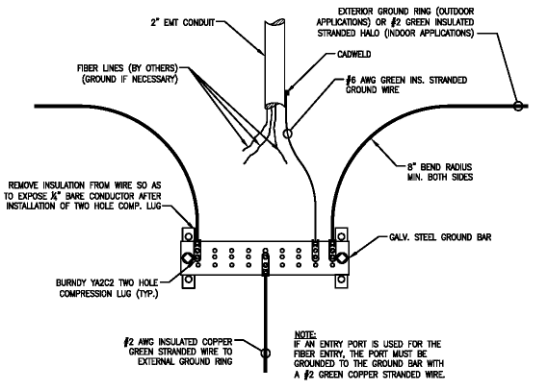
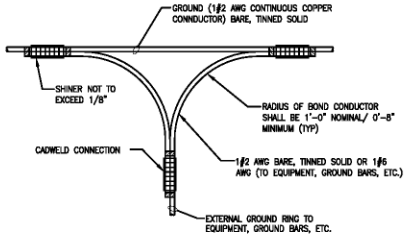


1. SURFACE PREPERATION: ALL CONNECTIONS MADE TO BARE METAL. ALL PAINTED SURFACES SHALL BE MADE BARE TO ENSURE PROPER CONTACT. NO WASHERS SHALL BE ALLOWED BETWEEN THE ITEMS BEING GROUNDED. ALL CONNECTIONS SHALL HAVE AN ANTI-OXIDANT AGENT APPLIED PRIOR TO INSTALLATION.
2. BUSS PREPERATION: ALL GALV. STEEL BUSSES SHALL BE CLEANED, POLISHED AND AN ANTI-OXIDANT APPLIED. NO FINGERPRINTS OR DISCOLORED STEEL WILL BE PERMITTED.
3. TERMINATIONS: ALL EQUIPMENT TERMINATIONS SHALL BE MADE WITH A BURNDY TWO HOLE COMPRESSION LUG WITH 10-24x3/4" LONG S.S. SCREWS, NUTS AND LOCK WASHERS. ALL BUSS TERMINATIONS SHALL BE MADE WITH A CAD-WELD OR BURNDY YC2C2 2 HOLE COMPRESSION LUG OR EQUAL. ALL INTERIOR HALO ATTACHMENTS SHALL BE MADE USING A BURNDY YC2C2 COMPRESSION LUG.

TYP. INTERIOR & EXTERIOR GROUND BAR
SCALE: N.T.S.

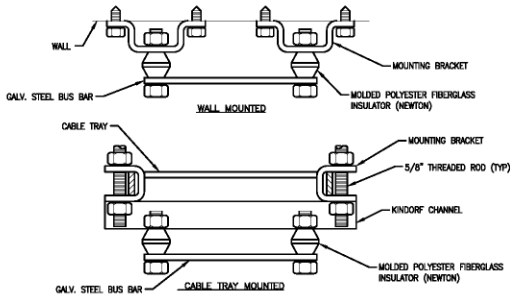


INTERIOR GROUNDING AT TELCO ENTRY
SCALE: N.T.S.

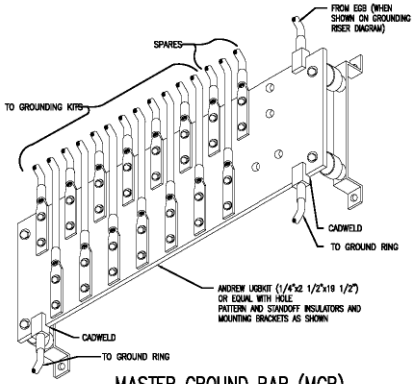


NOTE: ALL CONNECTION TO GROUND SHALL BE NON-DIRECTIONAL

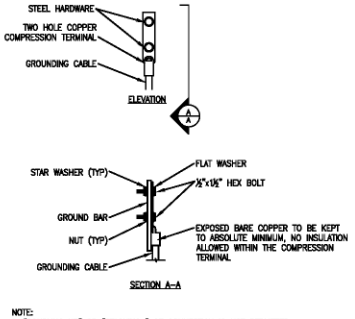
NON-DIRECTIONAL SPLICE
SCALE: N.T.S.



BUS BAR MOUNTING
SCALE: N.T.S.

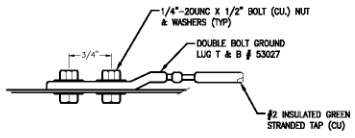


MASTER GROUND BAR (MGB)
SCALE: NOT TO SCALE

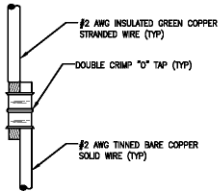


NOTE:
1. "DOUBLING UP" OR "STACKING " OF CONNECTION IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.

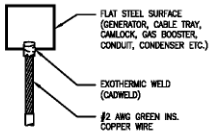
TYPICAL GROUND BAR CONNECTION DETAIL
SCALE: N.T.S.



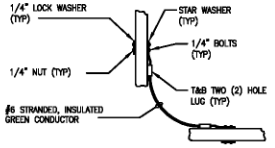
TYPICAL EQUIPMENT GROUND CONNECTION
SCALE: N.T.S.



TYPICAL GROUND CONNECTION SPLICE DETAIL
SCALE: N.T.S.



TYP. CADWELD #2 GREEN TO FLAT STEEL SURFACE
SCALE: NOT TO SCALE



CABLE TRAY GROUNDING
SCALE: N.T.S.

CLIENT:

verizon
* Because Better Matters *

ARCHITECT/ENGINEER:

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil · Structural · Land Surveying
R.K. EXECUTIVE CENTRE
201 BOSTON POST ROAD WEST
SUITE 101
MARLBOROUGH, MA 01752
(508) 481-7400
www.chappellengineering.com

SEAL:

ENGINEER/LAND SURVEYOR DATE

DRAWING SCALE NOTE:
THESE DRAWINGS HAVE BEEN PREPARED IN ARCH D (24"x36") FORMAT. AS SUCH, THE WRITTEN SCALES SHOWN ON ANY REPRODUCTIONS OF A CONTRADICTORY SIZE, SHALL BE RENDERED INVALID. ALL BAR SCALES MAY BE USED REGARDLESS OF REPRODUCTION SIZE. WHERE IN CONFLICT, BAR SCALES SHALL SUPERSEDE WRITTEN SCALES.

REVISIONS

NO.	DESCRIPTION	DATE
0	ISSUED FOR REVIEW	1/20/22
1	ISSUED FOR CONSTRUCTION (FINAL)	2/10/22
2	REVISED TSA REFERENCE DATE	4/13/22
3	REVISED MSA REFERENCE DATE	4/15/22

PROJECT NAME:

SOUTH GLASTONBURY 3 CT

63 WOODLAND STREET
SOUTH GLASTONBURY, CT 06073

DRAWING TITLE:

GROUNDING DETAILS

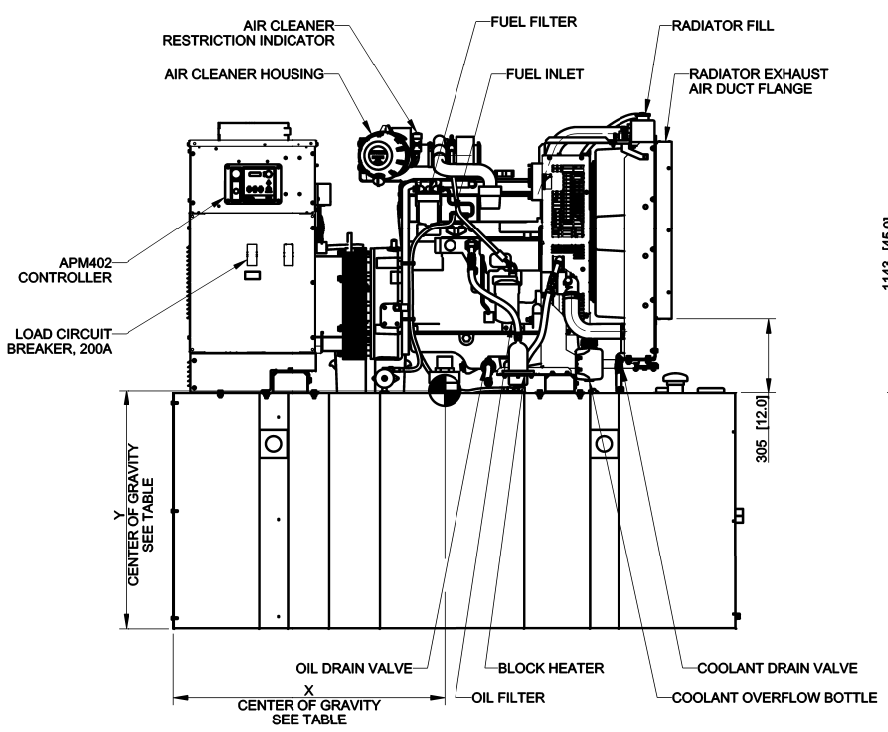
DRAWING NO:

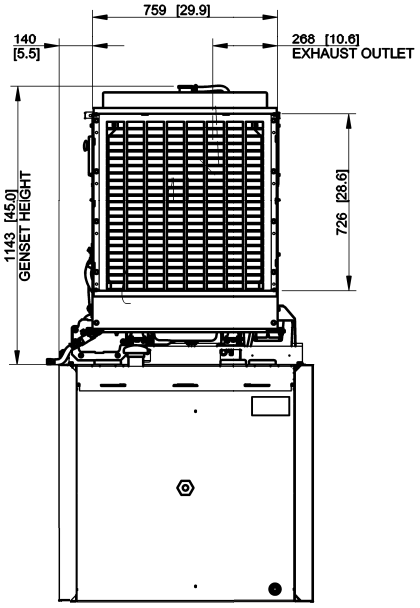
E05

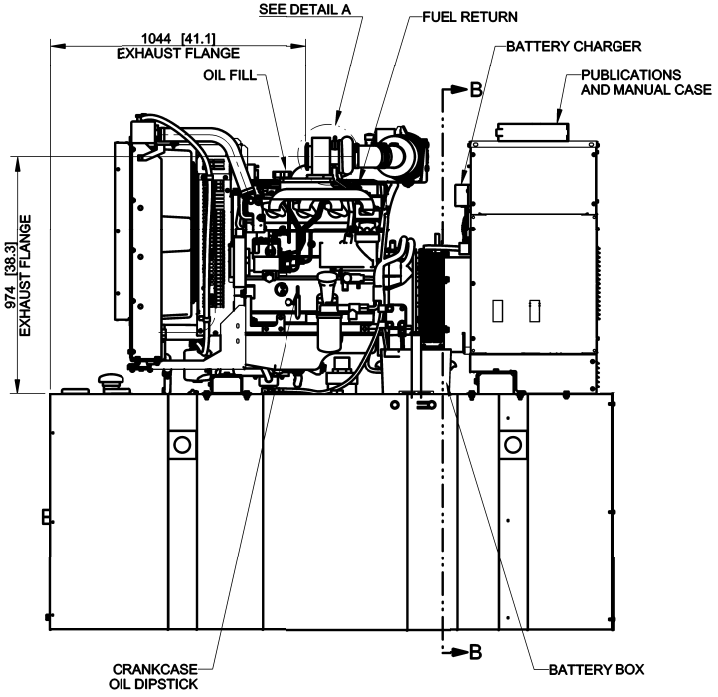
SCALE: AS SHOWN	DESIGNED BY: NWC	VZW PROJECT CODE: 20212309233
	DRAWN BY: NWC	
	CHECKED BY: GRS	VZW PROJECT NO.: 16085720
CEA PROJECT NO.: 96210.404	ORIGINAL ISSUE DATE: 1/20/22	VZW LOCATION CODE: 708312

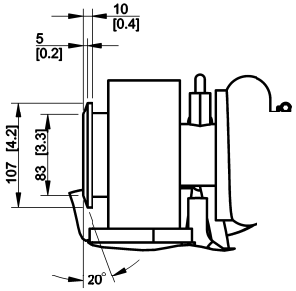
ATTACHMENT 4

MODEL	MODEL NUMBER	DESCRIPTION	CENTER OF GRAVITY		GENSET WEIGHT	ASSEMBLY WEIGHT
			X	Y		
50REOZJE	GM117250-SA3	50REOZJE 12V 1PH RSS OPEN 283 GAL	1110 [43.8]	975 [38.5]	895 KG [1974 LBS]	1460 KG [3225 LBS]

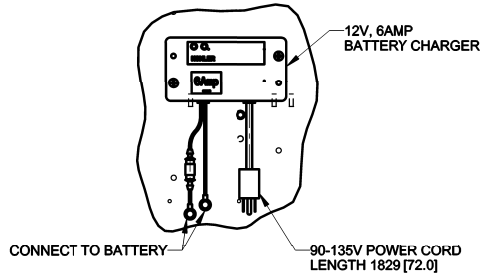








DETAIL A
EXHAUST OUTLET
SCALE 0.200



SECTION B-B
BATTERY CHARGER
SCALE 0.150

NOTES:

1. DIMENSIONS: MILLIMETERS [INCHES]
2. 6 AMP BATTERY CHARGER
3. 120 VAC ENGINE BLOCK HEATER WITH 60-80F THERMOSTAT
4. GENERATOR MUST BE GROUNDED
5. MUST ALLOW FREE FLOW OF DISCHARGE AIR AND EXHAUST
6. MUST ALLOW FREE FLOW OF INTAKE AIR
7. BASE TANK REQUIRES ALL STUB-UPS TO BE IN REAR TANK STUB-UP AREA
8. SEE TABLE FOR SUB-BASE FUEL TANK CAPACITY
9. TANK EQUIPPED WITH FIRE SAFETY VALVE ON FUEL SUPPLY LINE
10. IT IS THE RESPONSIBILITY OF THE INSTALLATION TECHNICIAN TO ENSURE THAT THE GENERATOR INSTALLATION COMPLIES WITH APPLICABLE CODES, STANDARDS, AND REGULATIONS
11. GENERATOR IS INSTALLED ON A UL-142 RATED DOUBLE WALL SUB-BASE FUEL TANK

REV	DATE	CHANGE NUMBER	ON COMPOSITE DWGS, SEE PART NO. FOR REVISION LEVEL ☐ INDICATES PART NUMBERS AFFECTED BY LATEST DRAWING REVISION	BY
-	28SEP2021	CT214961	NEW DRAWING	ZJS

50REOZJE OPEN UNIT SHOWN W/ STANDARD TANK

UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS IN MILLIMETERS GENERAL TOLERANCES: N/A

THIRD ANGLE PROJECTION

MAJOR ○ = 0
CRITICAL ◬ = 0
CHARACTERISTICS COMPLY WITH KPS-80022

DRAWN BY ZJS | DATE:
APPROVED BY WDG | 28SEP2021

DO NOT SCALE.
THIS ASSEMBLY OR PART MUST COMPLY WITH PEP-RML-001.
REFERENCE CAD MODEL FOR UNSPECIFIED DIMENSIONS.

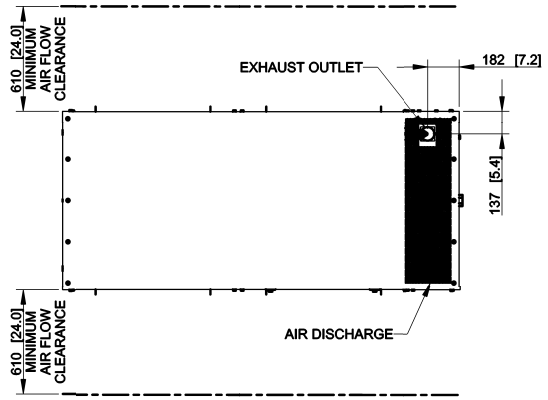
KOHLER
KOHLER, WISCONSIN 53044

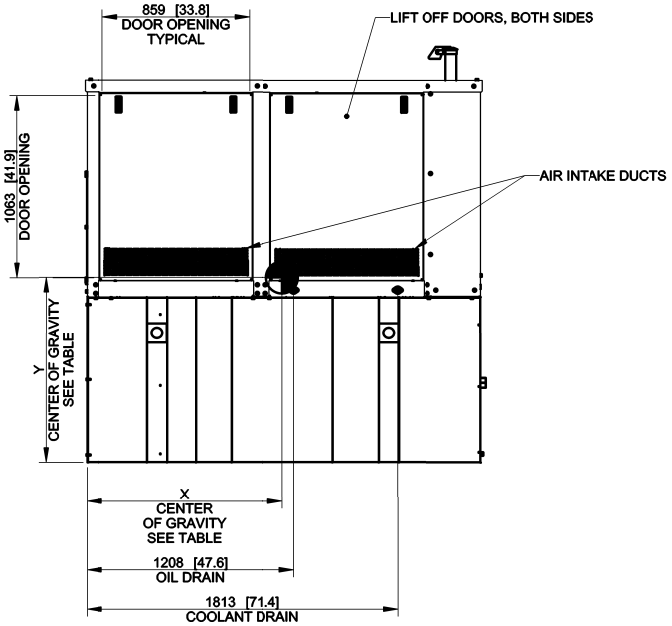
SCALE: 0.050 | SHEET SIZE: B | SHEET 1 OF 4

TITLE:
DIMENSION PRINT, 50REOZJE, VERIZON

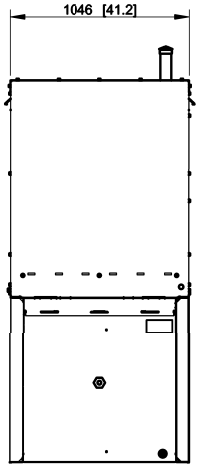
DWG NO.: **ADV-9797**

MODEL	MODEL NUMBER	DESCRIPTION	CENTER OF GRAVITY		ENCLOSURE PART NUMBER	ENCLOSURE WEIGHT	ASSEMBLY WEIGHT
			X	Y			
50REOZJE	GM117250-SA6	50REOZJE 12V 1PH RSS ENCL 283 GAL	1140 [45.0]	1080 [42.5]	GM117346-KA1	250 KG [551 LBS]	1720 KG [3795 LBS]
	GM117250-SA8	50REOZJE 12V 1PH RSS ENCL 234 GAL WA ST	1305 [51.5]	855 [33.8]			1790 KG [3950 LBS]

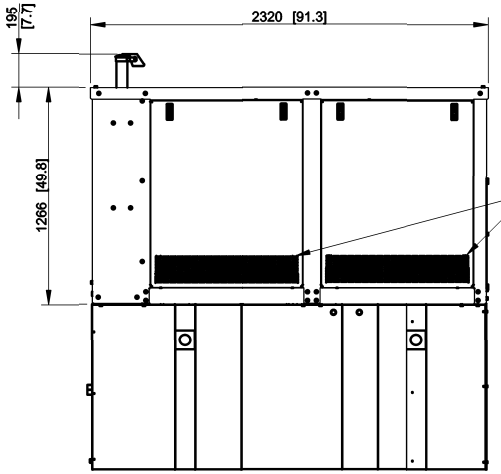




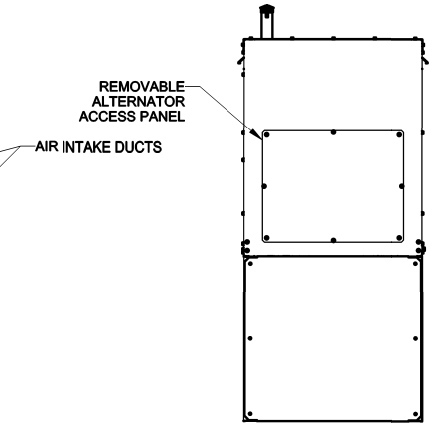
RIGHT SIDE



FRONT



LEFT SIDE



REAR

50REOZJE ENCLOSED UNIT
SHOWN W/ STANDARD TANK

REV	DATE	CHANGE NUMBER	ON COMPOSITE DWGS, SEE PART NO. FOR REVISION LEVEL ☐ INDICATES PART NUMBERS AFFECTED BY LATEST DRAWING REVISION	BY
-	28SEP2021	CT214961	NEW DRAWING	ZJS

UNLESS OTHERWISE SPECIFIED:
ALL DIMENSIONS IN MILLIMETERS
GENERAL TOLERANCES: N/A

THIRD ANGLE PROJECTION

MAJOR ◇ = 0
CRITICAL ◬ = 0
CHARACTERISTICS COMPLY WITH KPS-80022

DRAWN BY ZJS
DATE:
APPROVED BY WDG
28SEP2021

DO NOT SCALE.
THIS ASSEMBLY OR PART MUST COMPLY WITH PEP-RML-001.
REFERENCE CAD MODEL FOR UNSPECIFIED DIMENSIONS.

KOHLER.
KOHLER, WISCONSIN 53044

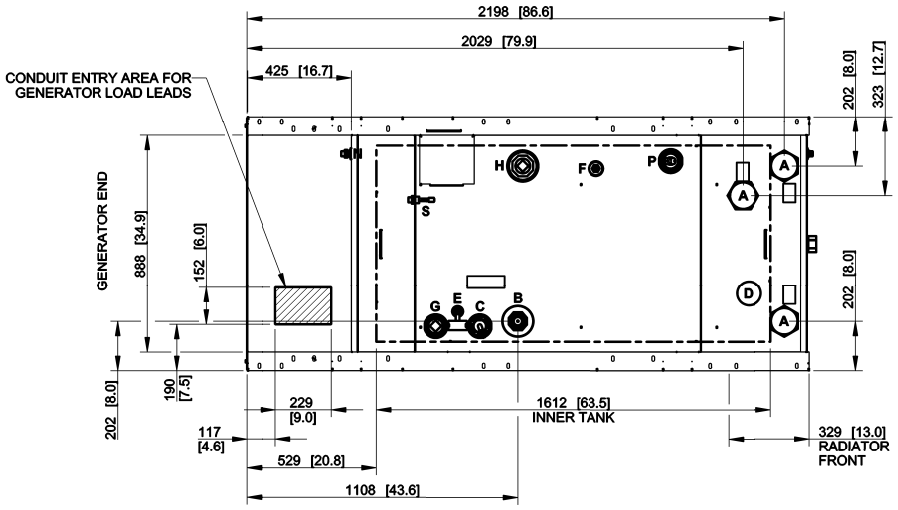
SCALE: 0.035 | SHEET SIZE: B | SHEET 2 OF 4

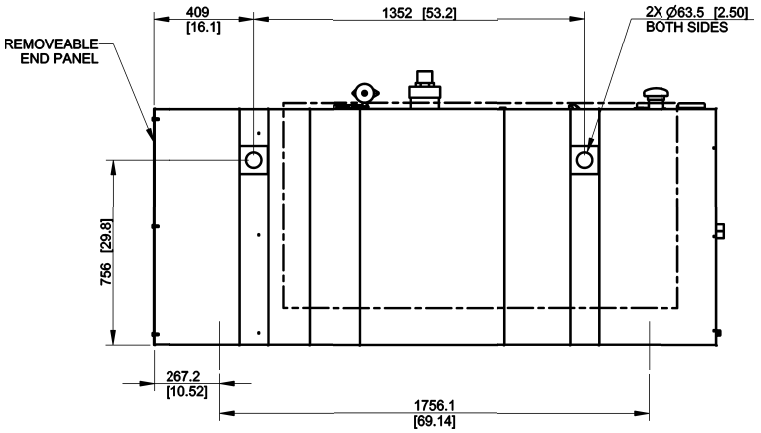
TITLE:
DIMENSION PRINT,
50REOZJE, VERIZON

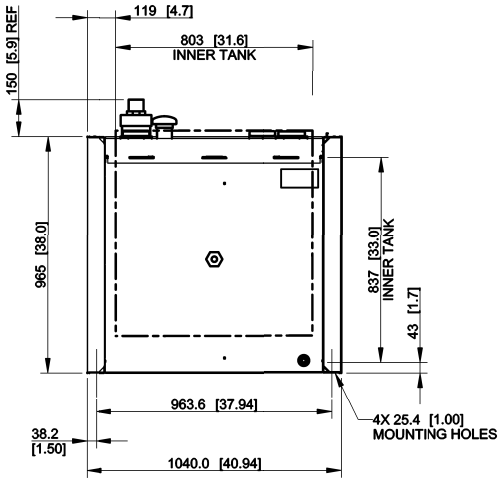
DWG NO.: ADV-9797

TANK SPECIFICATIONS					
MODEL	MODEL NUMBER	TANK PART NUMBER	TANK CAPACITY	FITTING "B"	FITTING "H"
50REOZJE	GM117250-SA3	GM92858-MA7	1073 L [283 GAL]	4" NPT FUEL FILL FITTING WITH 95% OVERFILL PREVENTION VALVE	4"NPT FITTING BUSHED DOWN TO 2" NPT (PIPE PLUGGED)
	GM117250-SA6	GM92858-MA8		2" NPT WATER TIGHT FUEL FILL FITTING WITH LOCKABLE CAP & 2" RISER	NA

TANK FITTINGS:
- A. 3" NPT EMERGENCY VENT FITTING PER NFPA 30 WITH VENT CAPS.
- B. SEE TABLE
- C. 2" NPT FOR FUEL LEVEL SENDING UNIT WITH MECHANICAL INDICATOR NEEDLE.
- D. 2" NPT NORMAL VENT FITTING WITH MUSHROOM VENT CAP AND 5" RISER.
- E. 1/2" NPT FITTING FOR REMOVABLE ENGINE SUPPLY DIP TUBE (3/8" NPT FEMALE WITH CHECK & FIRE SAFETY VALVES AND LOCKOUT COVER).
- F. 3/4" NPT FITTING FOR REMOVABLE FUEL RETURN DIP TUBE (3/8" NPT FEMALE).
- G. 2" NPT ADDITIONAL FITTING FOR OPTIONAL ACCESSORY
- H. SEE TABLE
- M. 1/2" NPT BASIN DRAIN
- N. 1/2" NPT FOR FUEL IN BASIN SWITCH.
- P. 2" NPT FOR HIGH FUEL LEVEL SWITCH AT 90% FULL.
- S. 1/2" NPT FITTING FOR ENGINE FLUID CONTAINMENT BASIN FLOAT SWITCH







REV	DATE	CHANGE NUMBER	ON COMPOSITE DWGS, SEE PART NO. FOR REVISION LEVEL ☐ INDICATES PART NUMBERS AFFECTED BY LATEST DRAWING REVISION	BY
-	28SEP2021	CT214961	NEW DRAWING	ZJS

50REOZJE STANDARD TANK

UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS IN MILLIMETERS GENERAL TOLERANCES: N/A

THIRD ANGLE PROJECTION

MAJOR ○ = 0
CRITICAL ◬ = 0
CHARACTERISTICS COMPLY WITH KPS-80022

DRAWN BY ZJS DATE:
APPROVED BY WDG 28SEP2021

DO NOT SCALE.
THIS ASSEMBLY OR PART MUST COMPLY WITH PEP-RML-001.
REFERENCE CAD MODEL FOR UNSPECIFIED DIMENSIONS.

KOHLER.
KOHLER, WISCONSIN 53044

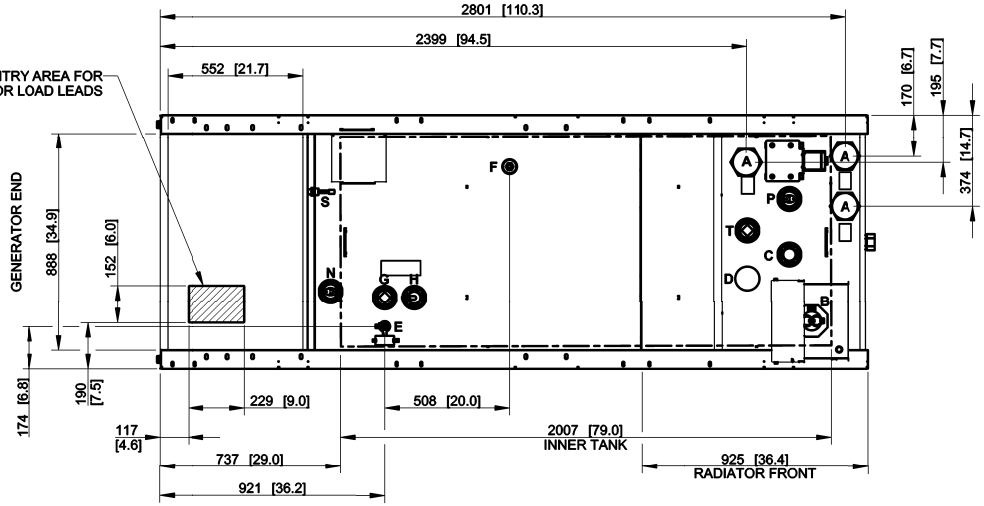
SCALE: 0.050 SHEET SIZE: B SHEET 3 OF 4

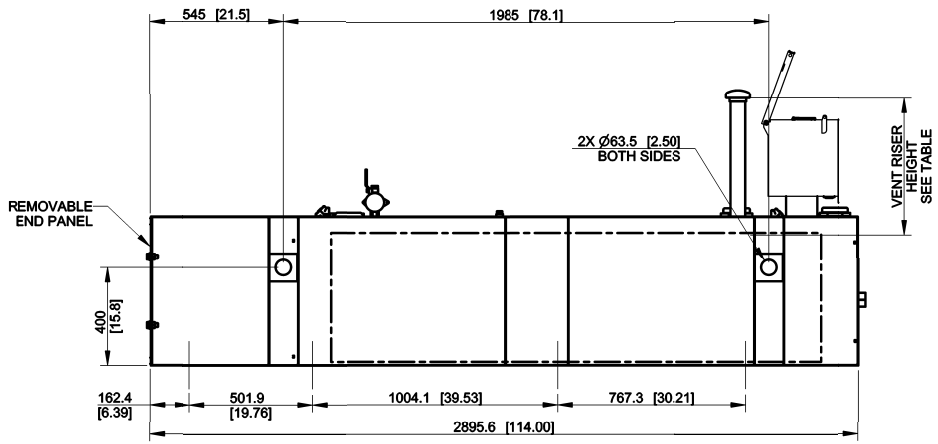
TITLE:
DIMENSION PRINT, 50REOZJE, VERIZON

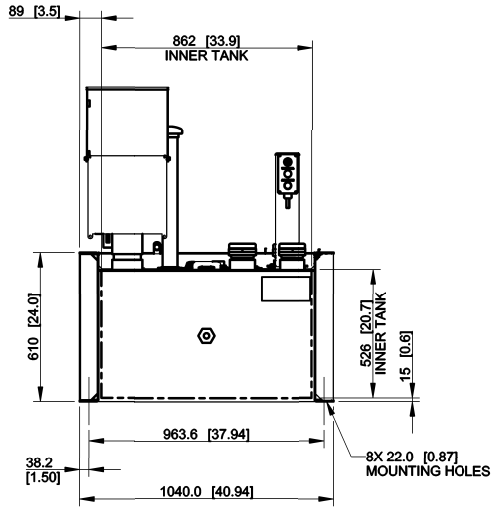
DWG NO.: **ADV-9797**

TANK SPECIFICATIONS					
MODEL	MODEL NUMBER	TANK PART NUMBER	CAPACITY	VENT RISER HEIGHT	FITTING "T"
50REOZJE	GM117250-SA9	GM92858-MA9	886 L [234 GAL]	559 [22.0]	2" NPT FITTING FOR OPTIONAL ACCESSORY
	GM117250-SA8	GM92858-MA10		3505 [138.0]	2" NPT NORMAL VENT FITTING WITH MUSHROOM VENT CAP AND 138" RISER

TANK FITTINGS:
- A. 3" NPT EMERGENCY VENT FITTING PER NFPA 30 WITH VENT CAPS.
- B. 4" NPT FUEL FILL FITTING WITH A 5 GAL SPILL BOX WITH 95% OVERFILL PREVENTION VALVE & FILL PIPE.
- C. 2" NPT FUEL LEVEL GAUGE FITTING WITH DIRECT READING MECHANICAL GAUGE.
- D. 2" NPT NORMAL VENT FITTING WITH MUSHROOM VENT CAP, SEE TABLE FOR RISER HEIGHT.
- E. 1/2" NPT FITTING FOR REMOVABLE FUEL SUPPLY DIP TUBE (3/8" NPT WITH CHECK VALVE, FIRE SAFETY VALVE, & LOCKOUT COVER).
- F. 3/4" NPT FITTING FOR REMOVABLE ENGINE RETURN DIP TUBE (3/8" NPT FEMALE).
- G. 2" NPT ADDITIONAL FITTING FOR OPTIONAL ACCESSORY
- H. 2" NPT FOR FUEL LEVEL GAUGE W/ SENDER
- N. 2" NPT FOR FUEL IN BASIN SWITCH.
- P. 2" NPT FOR HIGH FUEL LEVEL SWITCH AT 90% FULL.
- S. 1/2" NPT FITTING FOR ENGINE FLUID CONTAINMENT BASIN FLOAT SWITCH.
- T. SEE TABLE







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-	28SEP2021	CT214961	NEW DRAWING	ZJS

50REOZJE STATE TANK

UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS IN MILLIMETERS GENERAL TOLERANCES: N/A

THIRD ANGLE PROJECTION

MAJOR ○ = 0
CRITICAL ◬ = 0
CHARACTERISTICS COMPLY WITH KPS-80022

DRAWN BY ZJS
DATE:
APPROVED BY WDG 28SEP2021

DO NOT SCALE. THIS ASSEMBLY OR PART MUST COMPLY WITH PEP-RML-001. REFERENCE CAD MODEL FOR UNSPECIFIED DIMENSIONS.

KOHLER
KOHLER, WISCONSIN 53044

SCALE: 0.050 SHEET SIZE: B SHEET 4 OF 4

TITLE:
DIMENSION PRINT, 50REOZJE, VERIZON

DWG NO.: **ADV-9797**

SAMSUNG

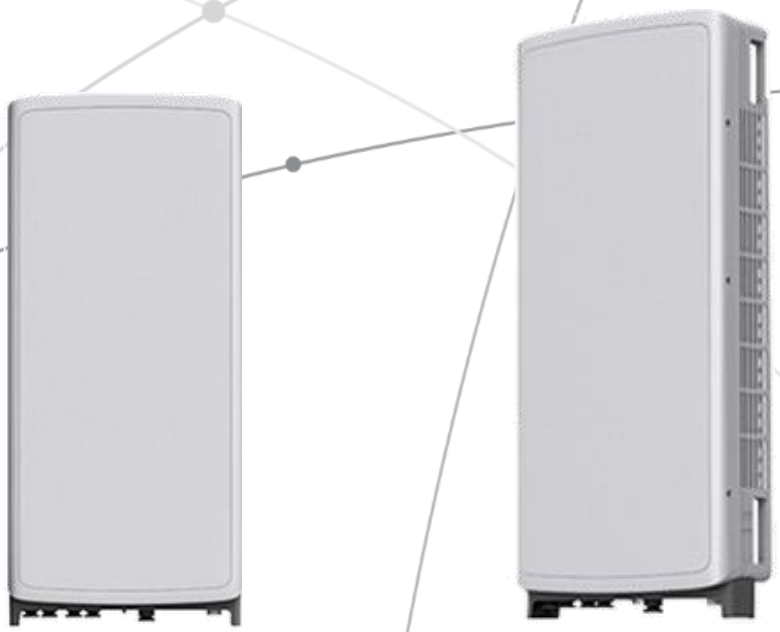
SAMSUNG

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

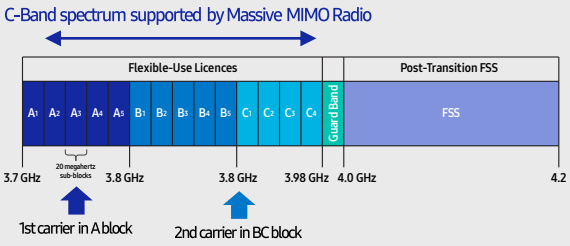


Points of Differentiation

Wide Bandwidth

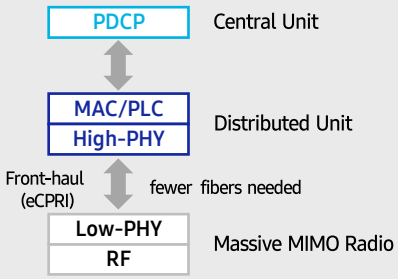
With capability to support up to 2 CC carrier configuration, Samsung C-Band massive MIMO Radio supports 200 MHz bandwidth in the C-Band spectrum.

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.

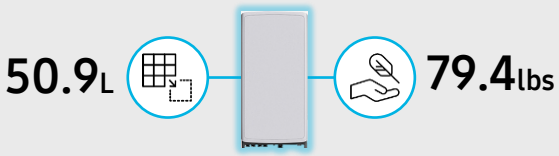
This helps operators reduce their CAPEX as they now need less products to cover the same area than before.

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

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

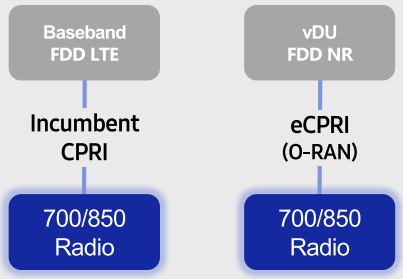
Homepage
samsungnetworks.com

Youtube
www.youtube.com/samsung5g

Points of Differentiation

Continuous Migration

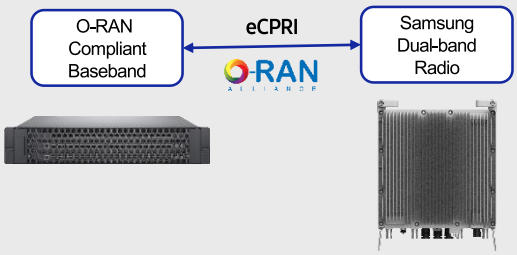
Samsung's 700/850MHz macro radio can support each incumbent CPRI interface as well as an advanced eCPRI interface. This feature provides installable options for both legacy LTE networks and added NR networks.



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.

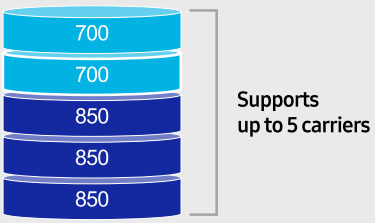
Samsung's state-of-the-art O-RAN technology will help accelerate the effort toward constructing a solid O-RAN ecosystem.



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.

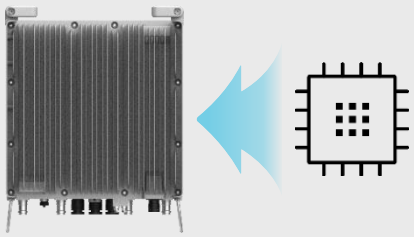
The new 700/850MHz dual-band radio can support up to 2 carriers in the B13 (700MHz) band and 3 carriers in the B5 (850MHz) band, respectively.



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

SAMSUNG

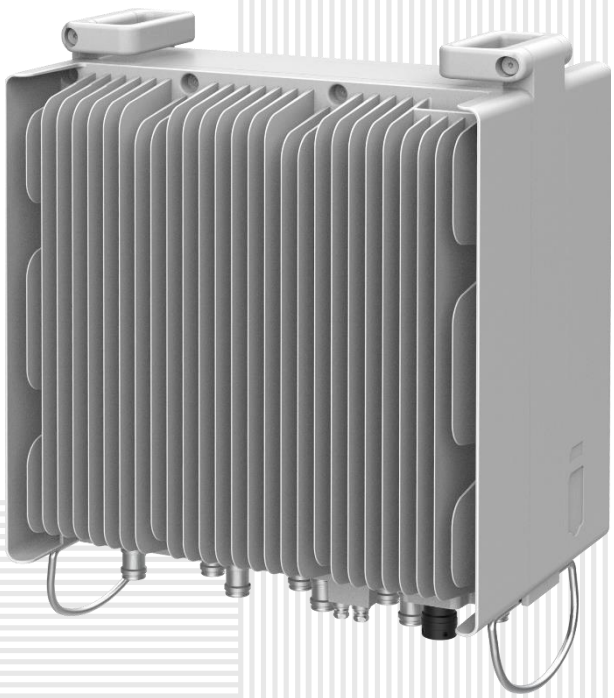
AWS/PCS MACRO RADIO

DUAL-BAND AND HIGH POWER FOR MACRO COVERAGE

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

57196

Model Code	RF4439d-25A



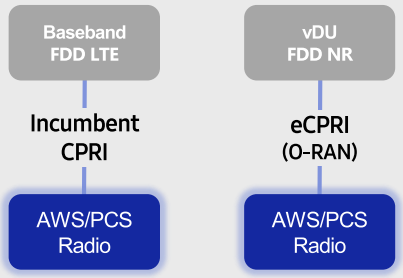
Homepage
samsungnetworks.com

Youtube
www.youtube.com/samsung5g

Points of Differentiation

Continuous Migration

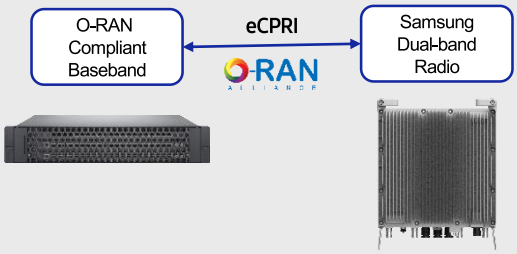
Samsung's AWS/PCS macro radio can support each incumbent CPRI interface as well as advanced eCPRI interfaces. This feature provides installable options for both legacy LTE networks and added NR networks.



O-RAN Compliant

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

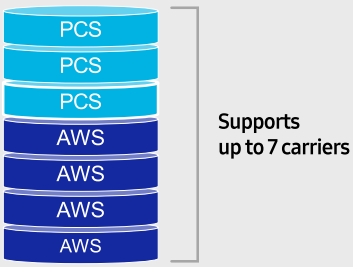
Samsung's state-of-the-art O-RAN technology will help accelerate the effort toward constructing a solid O-RAN ecosystem.



Optimum Spectrum Utilization

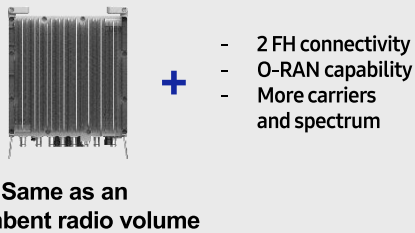
The number of required carriers varies according to site (region). Supporting many carriers is essential for using all frequencies that the operator has available.

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



Brand New Features in a Compact Size

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



Technical Specifications

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

[CBRS] Clip-on Antenna Specifications

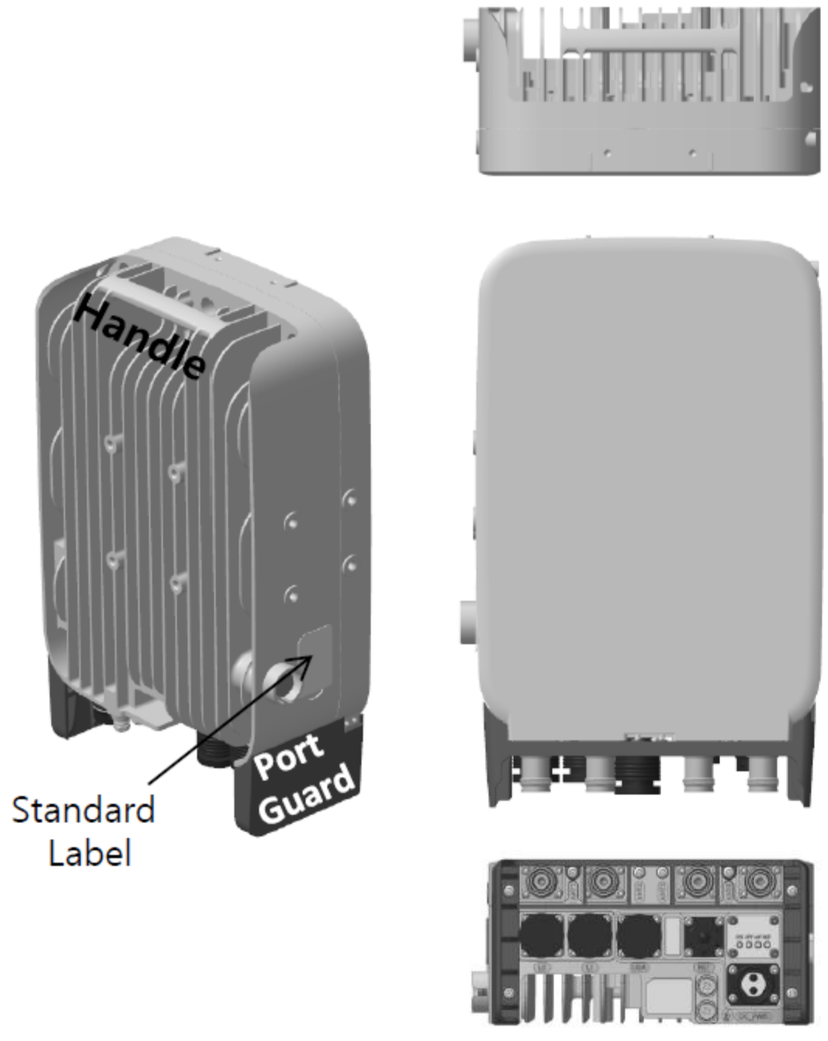
VzW accepted IP45 in FLD, but IP55 is Samsung Spec.

Items	Clip-on Antenna, BASTA**
Antenna Gain	12.5 ± 0.5 dBi (Max 13 dBi)
Horizontal BW (-3dB)	65° ± 5°
Vertical BW (-3dB)	17° ±3°
Electrical Tilt	8° (fixed) ±2°
Front-to-Back Ratio	> 25 dB
Port-to-Port Tracking	< 3 dB
VSWR	< 1.5
Isolation	> 25 dB
Ingress Protection	**IP55**
Size	220(W)×313(H)×34.3(D) mm (*) (8.7 x 12.3 x 1.4 inch.)
Weight	< **2.0** kg [Typ. 1.3 kg]
It is required that the radio should be weatherproofed properly with JMA WPS Boot with external antenna or with Weatherproof Boot for clip-on antennas.	

Antenna includes integrated cable with connector
* Design is subject to minor change

** Ant. spec. follows NGMN recommendations on Base Station Antenna Standards (BASTA). For example, 'mean ± tolerance of 86.6%' is applied to double-sided specification of statistical RF parameters.

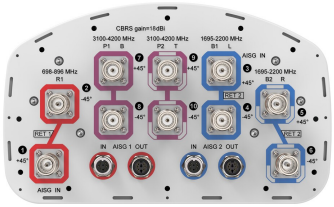
[CBRS RRH] Spec.



Current Size: 216 x 307 x 105.5 mm (6.99L)
(8.5 x 12.1 x 4.1 inch., excluding Port Guard)
Design is subject to minor change

Item	Specification
Band	Band 48 (3.5 GHz)
Frequency	3550~3700 MHz
IBW	150 MHz
OBW	80 MHz
# of Carriers	5/10/15/20 MHz x 4 carriers
RF Chain	4TX / 4RX
RF Output Power & EIRP	4 path x 5 W (Total: 20 W = 43 dBm) (EIRP: 47 dBm / 10 MHz)
RX Sensitivity	Typical : -101.5 dBm @ 1 Rx (3GPP 36.104, Wide Area)
Modulation	256-QAM support (1024-QAM with 1~2dB power back-off)
Input Power	-48 VDC (-38 to -57 VDC, 1 SKU), with clip-on AC-DC converter (Option)
Power Consumption	About 160 Watt @ 100% RF load, typical conditions
Volume	**Under 7L** (w/o Antenna), Under 9.6L (with antenna)
Weight	**Under 8.0 kg** (**18.64** lb) (w/o Antenna), Under 10.5 Kg (with ant.)
Operating Temperature	-40°C (-40°F) ~ 55°C (131°F) (W/o solar load)
Cooling	Natural convection
Unwanted Emission	3GPP 36.104 Category A
	[B48] : FCC 47 CFR 96.41 e)
Optic Interface	20km, 2 ports (9.8Gbps x 2), SFP, single mode, duplex or Bi-Di
CPRI Cascade	Not supported
# of Antenna Port	4
External Alarm (UDA)	4
RET	AISG 2.2
TMA & built-in Bias-T I//F and PIM cancellation	Not supported
Mounting Options	Pole, wall, tower, back to back, side by side (for external ant), 3 RRH with Clip-on Antenna on the pole
Antenna Type	Integrated (Clip-on) antenna (Option), External antenna (Option)
NB-IoT	Not Supported (HW Resource reserved for 1 Guard Band NB-IoT per LTE carrier)
Spectrum Analyzer	TX/RX Support
External Alarm (UDA)	4
5G NR	Support with S/W upgrade
XRAN	Support with S/W upgrade

NHHSS-65B-R2BT4



10-port sector antenna, 2x 698–896, 4x 1695–2200 and 4x 3100-4200 MHz, 65° HPBW, 2x RETs and 2x SBTs. Both high bands share the same electrical tilt.

- Perfect antenna to add 3.5GHz CBRS to macro sites
- Low band and mid band performance mirrors the performance of existing NHH hex port antennas
- Interleaved dipole technology providing for attractive, low wind load mechanical package
- Internal SBT on low and high band allow remote RET control from the radio over the RF jumper cable
- One LB RET and one HB RET. Both high bands are controlled by one RET to ensure same tilt level for 4x MIMO

General Specifications

Antenna Type	Sector
Band	Multiband
Color	Light gray
Grounding Type	RF connector inner conductor and body grounded to reflector and mounting bracket
Performance Note	Outdoor usage
Radome Material	Fiberglass, UV resistant
Radiator Material	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, mid band	4
RF Connector Quantity, low band	2
RF Connector Quantity, total	10

Remote Electrical Tilt (RET) Information

RET Hardware	CommRET v2
RET Interface	4x 8 pin connector as per IEC 60130-9 Daisy chain in: Male / Daisy chain out: Female Pin3: RS485A(AISG_B), Pin5: RS485B(AISG_A), Pin6: DC 10~30V, Pin7: DC_ Return

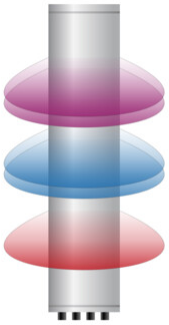
NHHSS-65B-R2BT4

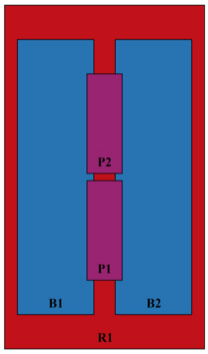
RET Interface, quantity	2 female | 2 male
Input Voltage	10–30 Vdc
Internal RET	High band (1) | Low band (1)
Power Consumption, active state, maximum	10 W
Power Consumption, idle state, maximum	2 W
Protocol	3GPP/AISG 2.0 (Single RET)

Dimensions

Width	301 mm | 11.85 in
Depth	181 mm | 7.126 in
Length	1828 mm | 71.969 in
Net Weight, without mounting kit	23.1 kg | 50.927 lb

Array Layout



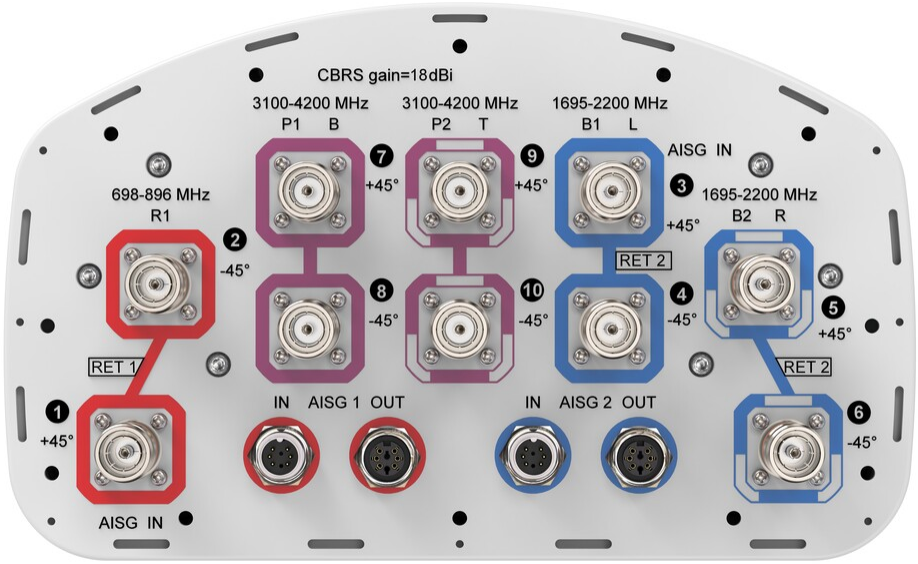


Array ID	Frequency (MHz)	RF Connector	RET (SRET)	AISG No.	AISG RET UID
R1	698-896	1 - 2	1	AISG1	CPxxxxxxxxxxxxxxR1
B1	1695-2200	3 - 4	2	AISG2	CPxxxxxxxxxxxxxxB1
B2	1695-2200	5 - 6			
P1	3100-4200	7 - 8	N/A	NA	N/A
P2	3100-4200	9 - 10			

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

Port Configuration

NHHSS-65B-R2BT4



Electrical Specifications

Impedance	50 ohm
Operating Frequency Band	1695 – 2200 MHz | 3100 – 4200 MHz | 698 – 896 MHz
Polarization	±45°
Total Input Power, maximum	1,000 W @ 50 °C

Electrical Specifications

Frequency Band, MHz	**698–806**	**806–896**	**1695–1880**	**1850–1990**	**1920–2200**	**3100–3550**	**3550–3700**	**3700–4200**
Gain, dBi	14.8	15.2	17.4	17.8	18	17.7	17.3	17.9
Beamwidth, Horizontal, degrees	65	62	66	61	64	54	64	60
Beamwidth, Vertical, degrees	13	11.6	5.5	5.2	4.9	5.7	5.3	4.9
Beam Tilt, degrees	0–14	0–14	0–7	0–7	0–7	4	4	4
USLS (First Lobe), dB	15	15	16	18	18	16	17	18
Front-to-Back Ratio at 180°, dB	26	29	31	28	27	30	33	29
Isolation, Cross Polarization, dB	25	25	25	25	25	25	25	25
Isolation, Inter-band, dB	25	25	25	25	25	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	1.5 | 14.0	1.5 | 14.0
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153	-153	-153	-153	-140	-140	-140

Input Power per Port at 50°C, maximum, watts	300	300	300	300	300	100	100	100

Electrical Specifications, BASTA

Frequency Band, MHz	**698–806**	**806–896**	**1695–1880**	**1850–1990**	**1920–2200**	**3100–3550**	**3550–3700**	**3700–4200**
Gain by all Beam Tilts, average, dBi	14.6	14.8	17	17.5	17.7	17.3	17	17.2
Gain by all Beam Tilts Tolerance, dB	±0.4	±0.4	±0.6	±0.3	±0.4	±0.6	±0.7	±0.8
Gain by Beam Tilt, average, dBi	0 ° | 14.6 7 ° | 14.6 14 ° | 14.4	0 ° | 15.0 7 ° | 14.9 14 ° | 14.5	0 ° | 16.9 3 ° | 17.0 7 ° | 16.8	0 ° | 17.4 3 ° | 17.5 7 ° | 17.4	0 ° | 17.5 3 ° | 17.8 7 ° | 17.6			
Beamwidth, Horizontal Tolerance, degrees	±1.7	±1.3	±7.2	±3.1	±6.2	±10	±6.7	±10.5
Beamwidth, Vertical Tolerance, degrees	±0.8	±0.8	±0.2	±0.2	±0.4	±0.4	±0.3	±0.4
USLS, beampeak to 20° above beampeak, dB	18	16	14	15	17	14		
Front-to-Back Total Power at 180° ± 30°, dB	22	25	25	25	24	26	25	24
CPR at Boresight, dB	24	17	16	21	19	15	17	14
CPR at Sector, dB	12	6	11	10	8	8	9	7

Mechanical Specifications

Wind Loading @ Velocity, frontal	278.0 N @ 150 km/h (62.5 lbf @ 150 km/h)
Wind Loading @ Velocity, lateral	230.0 N @ 150 km/h (51.7 lbf @ 150 km/h)
Wind Loading @ Velocity, maximum	537.0 N @ 150 km/h (120.7 lbf @ 150 km/h)
Wind Loading @ Velocity, rear	287.0 N @ 150 km/h (64.5 lbf @ 150 km/h)
Wind Speed, maximum	241 km/h | 149.75 mph

Packaging and Weights

Width, packed	1973 mm | 77.677 in
Depth, packed	441 mm | 17.362 in
Length, packed	337 mm | 13.268 in
Weight, gross	35.1 kg | 77.382 lb

Regulatory Compliance/Certifications

Agency	**Classification**
CHINA-ROHS	Above maximum concentration value

NHHSS-65B-R2BT4

ROHS	Compliant/Exempted

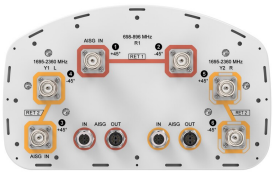
Included Products

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.

* Footnotes

Performance Note	Severe environmental conditions may degrade optimum performance

NHH-65B-R2B



6-port sector antenna, 2x 698–896 and 4x 1695–2360 MHz, 65° HPBW, 2x RET. Both high bands share the same electrical tilt.

- Interleaved dipole technology providing for attractive, low wind load mechanical package
- Internal SBT on low and high band allow remote RET control from the radio over the RF jumper cable
- Separate RS-485 RET input/output for low and high band
- One RET for low band and one RET for both high bands to ensure same tilt level for 4x Rx or 4x MIMO

General Specifications

Antenna Type	Sector
Band	Multiband
Color	Light gray
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	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	2
RF Connector Quantity, total	6

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 3
Internal RET	High band (1) | Low band (1)
Power Consumption, idle state, maximum	2 W
Power Consumption, normal conditions, maximum	13 W

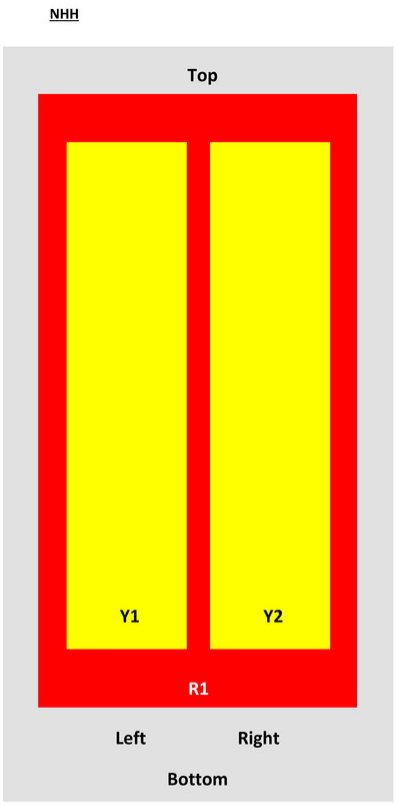
NHH-65B-R2B

Protocol	3GPP/AISG 2.0 (Single RET)

Dimensions

Width	301 mm | 11.85 in
Depth	180 mm | 7.087 in
Length	1828 mm | 71.969 in
Net Weight, without mounting kit	19.8 kg | 43.651 lb

Array Layout



Array	Freq (MHz)	Conns	RET (SRET)	AISG RET UID
R1	698-896	1-2	1	ANxxxxxxxxxxxxxxx1
Y1	1695-2360	3-4	2	ANxxxxxxxxxxxxxxx2
Y2	1695-2360	5-6		

View from the front of the antenna

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

Electrical Specifications

Impedance	50 ohm
Operating Frequency Band	1695 – 2360 MHz | 698 – 896 MHz

NHH-65B-R2B

Polarization	±45°
Total Input Power, maximum	900 W @ 50 °C

Electrical Specifications

Frequency Band, MHz	**698–806**	**806–896**	**1695–1880**	**1850–1990**	**1920–2200**	**2300–2360**
Gain, dBi	14.9	15	17.7	17.9	18.4	18.7
Beamwidth, Horizontal, degrees	65	60	71	69	64	57
Beamwidth, Vertical, degrees	12.4	11.2	5.7	5.2	4.9	4.6
Beam Tilt, degrees	0–14	0–14	0–7	0–7	0–7	0–7
USLS (First Lobe), dB	13	14	18	18	19	18
Front-to-Back Ratio at 180°, dB	30	29	31	30	29	31
Isolation, Cross Polarization, dB	25	25	25	25	25	25
Isolation, Inter-band, dB	30	30	30	30	30	30
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 at 50°C, maximum, watts	300	300	300	300	300	300

Electrical Specifications, BASTA

Frequency Band, MHz	**698–806**	**806–896**	**1695–1880**	**1850–1990**	**1920–2200**	**2300–2360**
Gain by all Beam Tilts, average, dBi	14.5	14.5	17.3	17.7	18.1	18.5
Gain by all Beam Tilts Tolerance, dB	±0.6	±1.1	±0.4	±0.4	±0.5	±0.3
Gain by Beam Tilt, average, dBi	0 ° | 14.4 7 ° | 14.6 14 ° | 14.3	0 ° | 14.7 7 ° | 14.7 14 ° | 14.1	0 ° | 17.2 4 ° | 17.3 7 ° | 17.3	0 ° | 17.6 4 ° | 17.7 7 ° | 17.7	0 ° | 18.0 4 ° | 18.2 7 ° | 18.1	0 ° | 18.3 4 ° | 18.5 7 ° | 18.6
Beamwidth, Horizontal Tolerance, degrees	±2	±2.1	±3	±4.1	±6.5	±2.9
Beamwidth, Vertical Tolerance, degrees	±0.7	±0.7	±0.3	±0.2	±0.3	±0.2
USLS, beampeak to 20° above beampeak, dB	13	14	16	16	17	15
Front-to-Back Total Power at 180° ± 30°, dB	23	22	27	27	25	25
CPR at Boresight, dB	22	21	23	23	22	19

CPR at Sector, dB	10	7	16	13	11	4

Mechanical Specifications

Effective Projective Area (EPA), frontal	0.26 m² | 2.799 ft²
Effective Projective Area (EPA), lateral	0.22 m² | 2.368 ft²
Wind Loading @ Velocity, frontal	278.0 N @ 150 km/h (62.5 lbf @ 150 km/h)
Wind Loading @ Velocity, lateral	230.0 N @ 150 km/h (51.7 lbf @ 150 km/h)
Wind Loading @ Velocity, maximum	537.0 N @ 150 km/h (120.7 lbf @ 150 km/h)
Wind Loading @ Velocity, rear	282.0 N @ 150 km/h (63.4 lbf @ 150 km/h)
Wind Speed, maximum	241 km/h | 149.75 mph

Packaging and Weights

Width, packed	409 mm | 16.102 in
Depth, packed	299 mm | 11.772 in
Length, packed	1952 mm | 76.85 in
Weight, gross	32.3 kg | 71.209 lb

Regulatory Compliance/Certifications

Agency	Classification
CHINA-ROHS	Below maximum concentration value
ISO 9001:2015	Designed, manufactured and/or distributed under this quality management system
ROHS	Compliant

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.

* Footnotes

Performance Note	Severe environmental conditions may degrade optimum performance

ATTACHMENT 5

Structural Analysis Report

Structure	: 150.0 ft Monopole Tower
VB Site Name	: Hopewell
VB Site Number	: US-CT-5018
Proposed Carrier	: Verizon Wireless
Carrier Site Name	: South Glastonbury 3 CT
Carrier Site Number	: 708312
Site Location	: 63 Woodland St Glastonbury, CT 06073 (Hartford County) 41.66079166, -72.57409722
Date	: April 8, 2022
Max Member Stress Level	: 84.1% (Tower) 99.4% (Base Plate - Anchor Bolts) 62.6% (Foundation)
Result	: **PASS**

B&P Job No.: 22.03.006.028

4/12/2022

Prepared For:
Vertical Bridge Engineering, LLC.

Prepared By:
Bennett & Pless, Inc.

Atlanta | Boca Raton | Charlotte | Chattanooga | Nashville | Knoxville | Orlando
750 Park of Commerce Drive | Suite 200 | Boca Raton, FL 33487
www.bennett-pless.com

Table of Contents

Introduction

We have completed our structural analysis of the proposed equipment installation on the foregoing tower to determine its ability to support the loads proposed by Verizon Wireless. The objective of the analysis was to determine if the tower meets the current structural codes and standards with the proposed equipment installation.

Existing Structural Information

The following documents for the existing structure were made available for our structural analysis.

Tower Information	Structural Analysis by Vertical Bridge dated May 20, 2021. Structural Analysis by Ehresmann Engineering, Inc., Job No. 102800, dated December 17, 2018.
Foundation Information	Structural Analysis by Vertical Bridge dated May 20, 2021. Structural Analysis by Ehresmann Engineering, Inc., Job No. 102800, dated December 17, 2018.
Geotechnical Information	FDH Velocitel., Project No. 18PGJC1600, dated April 10, 2018.
Existing Equipment Information	Vertical Bridge Collocation Application #: P-019408 dated January 11, 2022.
Tower Reinforcement Information	Tower has not been previously reinforced.

Final Proposed Equipment Loading for Verizon Wireless

The following proposed loading was obtained from the Vertical Bridge Collocation Application:

Antenna/Equipment					Coax	
Mount (ft).	RAD (ft.)	Qty.	Appurtenance	Type	Qty.	Size/Type
115.0	**-**	**1**	**Platform Mount**	**Mount**	**1**	**1 5/8" Hybrid**
	115.0	**3**	**Commscope NHH-65B-R2B**	**Panel Antenna**		
		3	**Commscope NHHSS-65B-R2BT4**	**Panel Antenna**		
		3	**Samsung MT6407-77A**	**Panel Antenna**		
		3	**Samsung RF4439D-25A**	**RRU**		
		3	**Samsung RF4440D-13A**	**RRU**		
		3	**Samsung MT6407-77A**	**RRU**		
		3	**Samsung CBRS RRH -RT4401-48A**	**RRU**		
		3	**Commscope BASMNT-SBS-1-2**	**Other**		
		1	**Commscope 12 OVP**	**Surge Suppr.**		

Note: All equipment shown in bold is proposed.
Note: All proposed feedlines to be installed on interior of monopole shaft.
Note: All other equipment loading can be found on the tower profile attached.

Design Criteria

The tower was analyzed using tnxTower (Version 8.1.1.0) tower analysis software using the following design criteria.

Building Code	2018 Connecticut State Building Code
TIA/EIA Standard Code	TIA-222-H
Basic Wind Speed	125 MPH V_{ult}
Basic Wind Speed w/ Ice	50 MPH/ 1.5 in Ice
Steel Grade	See Tower profile for steel grade
Exposure Category	C
Topographic Category (height)	1 (0 ft)
Risk Category	II
Ground Elevation	310.0 ft
Ss	0.202
Seismic Design Category	B

Analysis Results

Based on the foregoing information, our structural analysis determined that the existing tower **is structurally capable of supporting the proposed equipment loads.** The existing foundation, base plate, and anchor bolts **were also found to be capable of supporting the proposed equipment loads.** A seismic analysis was performed on this tower and was not controlling.

Assumptions

The below assumptions are true, complete and accurate.

1. The existing tower has been maintained to **manufacturer's specifications and is in good condition.**
2. Foundations are considered to have been properly designed for the original design loads.
3. All member connections are considered to have been designed to meet the load carrying capacity of the connected member.
4. Antenna mount loads have been estimated based on generally accepted industry standards.
5. The mounts for the proposed antennas have been analyzed and designed by others.
6. See additional assumptions contained in the report attached.
7. Tower is within acceptable engineering tolerance at 105%.
8. Foundations are within acceptable engineering tolerance at 110%.
9. Tower has been analyzed at Risk Category II under the condition that no emergency equipment has been part of any previous/current installation.

Conclusions

The existing tower described above **does have sufficient capacity** to support the proposed loading based on the governing Building Code. The existing tower foundation, baseplate, and anchor bolts **were also found to have sufficient capacity** to support the proposed loading.

We appreciate the opportunity of providing our continuing professional services to you. If you have any questions or need further assistance, please call us anytime at 561-288-1187.

Sincerely,

Analysis by:

Michael Hlinka, E.I., M.S.
Design Engineer

Reviewed by:

4/12/2022

Thomas F. Ireland, P.E.
Principal

Standard Conditions

All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but not necessarily limited, to:

- Information supplied by the client regarding the structure itself, the antenna and transmission line loading on the structure and it components, or relevant information.

- Information from drawings in possession of Bennett & Pless, or generated by field inspections or measurements of the structure.

It is the responsibility of the client to ensure that the information provided to Bennett & Pless and used in the performance of our engineering services is correct and complete. In the absence of information contrary, we consider that all structures were constructed in accordance with the drawings and specifications and are in a un-corroded condition and have not deteriorated; and we, therefore consider that their capacity has not significantly changed from the original design condition.

All services will be performed to the codes and standards specified by the client, and we do not imply to meet any other code and standard requirements unless explicitly agreed to in writing. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes and standards, the client shall specify the exact requirements. In the absence of information to the contrary, all work will be performed in accordance with ANSI/TIA/EIA-222-Revision H.

All services are performed, results obtained and recommendations made in accordance with the generally accepted engineering principles and practices. Bennett & Pless is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

Disclaimer of Warranties

Bennett & Pless Inc. makes no warranties, expressed or implied, in connection with this report, and disclaims any liability arising from the ability of the existing structure to support the design loads for which it was originally designed. Bennett & Pless Inc. will not be responsible whatsoever for or on account of, consequential or incidental damages sustained by any person, firm, or organization as a result of any data or conclusions contained in this report. The maximum liability of Bennett & Pless pursuant to this report will be limited to the total fee received for preparation of this report.

Attachment 1:
Calculations

(APPENDIX N) MUNICIPALITY - SPECIFIC STRUCTURAL DESIGN PARAMETERS												
				Wind Design Parameters								
Municipality	**Ground Snow Load** (psf)	**MCE Spectral Accelerations** (%g)		**Ultimate Design Wind Speeds,** V_{ult} (mph)			**Nominal Design Wind Speeds,** V_{asd} (mph)			**Wind-Borne Debris Regions**[1]		**Hurricane-Prone Regions**
		S_s	S_1	Risk Cat.I	Risk Cat.II	Risk Cat III-IV	Risk Cat. I	Risk Cat. II	Risk Cat. III-IV	Risk Cat. II & III except Occup I-2	Risk Cat III Occup I-2 & Risk Cat. IV	
East Hampton	30	0.177	0.062	120	130	140	93	101	108			Yes
East Hartford	30	0.180	0.064	115	125	135	89	97	105			Yes
East Haven	30	0.182	0.062	120	130	140	93	101	108		Type B	Yes
East Lyme	30	0.164	0.059	125	135	145	97	105	112	Type B	Type A	Yes
Easton	30	0.215	0.066	110	120	130	85	93	101			Yes
East Windsor	35	0.177	0.064	115	125	135	89	97	105			Yes
Ellington	35	0.176	0.064	115	125	135	89	97	105			Yes
Enfield	35	0.176	0.065	110	125	130	85	97	101			Yes
Essex	30	0.168	0.059	120	135	145	93	105	112		Type A	Yes
Fairfield	30	0.215	0.065	115	125	135	89	97	105		Type B	Yes
Farmington	35	0.183	0.064	115	125	135	89	97	105			Yes
Franklin	30	0.171	0.061	120	130	140	93	101	108		Type A	Yes
Glastonbury	30	0.180	0.063	115	125	135	89	97	105			Yes
Goshen	40	0.181	0.065	105	115	125	81	89	97			
Granby	35	0.176	0.065	110	120	130	85	93	101			Yes
Greenwich	30	0.259	0.070	110	120	130	85	93	101			Yes
Griswold	30	0.168	0.060	125	135	145	97	105	112		Type A	Yes
Groton	30	0.160	0.058	125	135	145	97	105	112	Type B	Type A	Yes
Guilford	30	0.176	0.061	120	130	140	93	101	108		Type B	Yes
Haddam	30	0.175	0.061	120	130	140	93	101	108			Yes
Hamden	30	0.185	0.063	115	125	135	89	97	105			Yes
Hampton	35	0.172	0.062	120	130	140	93	101	108			Yes
Hartford	30	0.181	0.064	115	125	135	89	97	105			Yes
Hartland	40	0.175	0.065	110	120	125	85	93	97			Yes
Harwinton	35	0.183	0.065	110	120	130	85	93	101			Yes
Hebron	30	0.177	0.063	120	130	140	93	101	108			Yes
Kent	40	0.188	0.065	105	115	120	81	89	93			
Killingly	40	0.171	0.062	120	130	140	93	101	108			Yes
Killingworth	30	0.173	0.061	120	130	140	93	101	108			Yes
Lebanon	30	0.173	0.062	120	130	140	93	101	108			Yes
Ledyard	30	0.163	0.059	125	135	145	97	105	112		Type A	Yes
Lisbon	30	0.169	0.061	125	135	145	97	105	112		Type A	Yes
Litchfield	40	0.184	0.065	110	120	125	85	93	97			Yes
Lyme	30	0.164	0.059	125	135	145	97	105	112		Type A	Yes
Madison	30	0.173	0.060	120	130	140	93	101	108		Type B	Yes
Manchester	30	0.178	0.064	115	125	135	89	97	105			Yes
Mansfield	35	0.173	0.062	120	130	140	93	101	108			Yes
Marlborough	30	0.177	0.062	120	130	140	93	101	108			Yes
Meriden	30	0.183	0.063	115	125	135	89	97	105			Yes
Middlebury	35	0.191	0.064	110	120	130	85	93	101			Yes
Middlefield	30	0.181	0.063	115	125	135	89	97	105			Yes
Middletown	30	0.180	0.063	115	130	135	89	101	105			Yes
Milford	30	0.194	0.063	115	125	135	89	97	105		Type B	Yes
Monroe	30	0.205	0.065	110	120	130	85	93	101			Yes

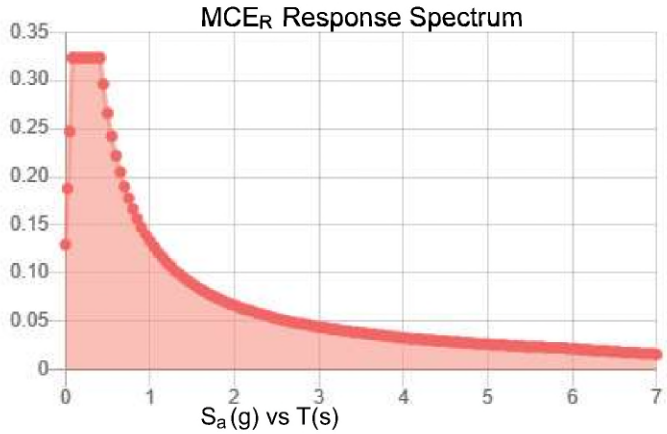
Seismic

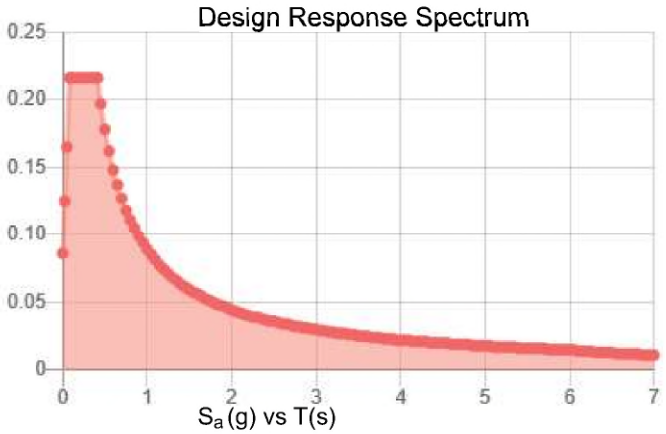
Site Soil Class: D - Default (see Section 11.4.3)

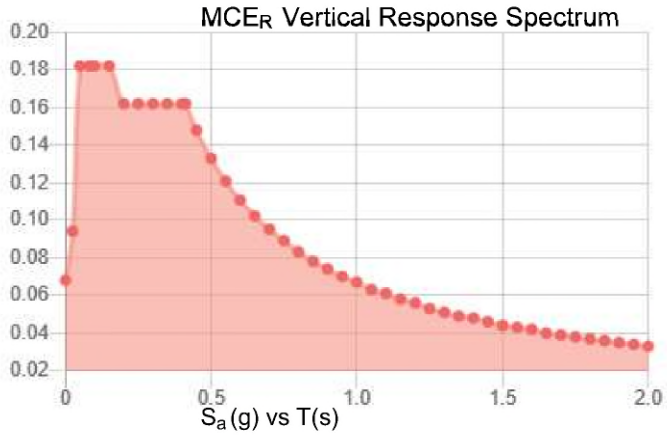
Results:

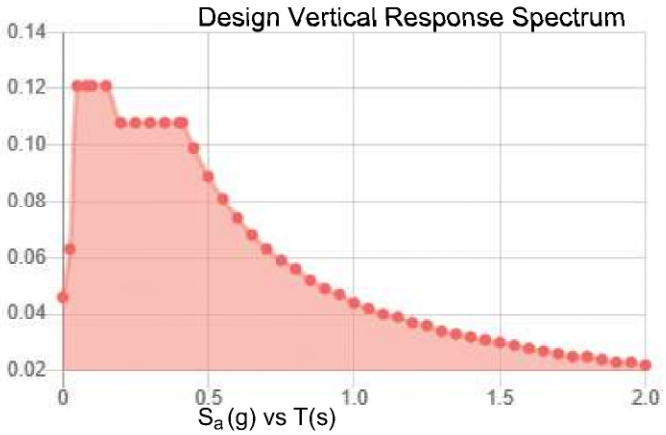
S_S :	0.202	S_{D1} :	0.089
S_1 :	0.056	T_L :	6
F_a :	1.6	PGA :	0.111
F_v :	2.4	PGA_M :	0.175
S_{MS} :	0.323	F_{PGA} :	1.578
S_{M1} :	0.133	I_e :	1
S_{DS} :	0.216	C_v :	0.704

Seismic Design Category B









Data Accessed: Wed May 19 2021

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

Ice

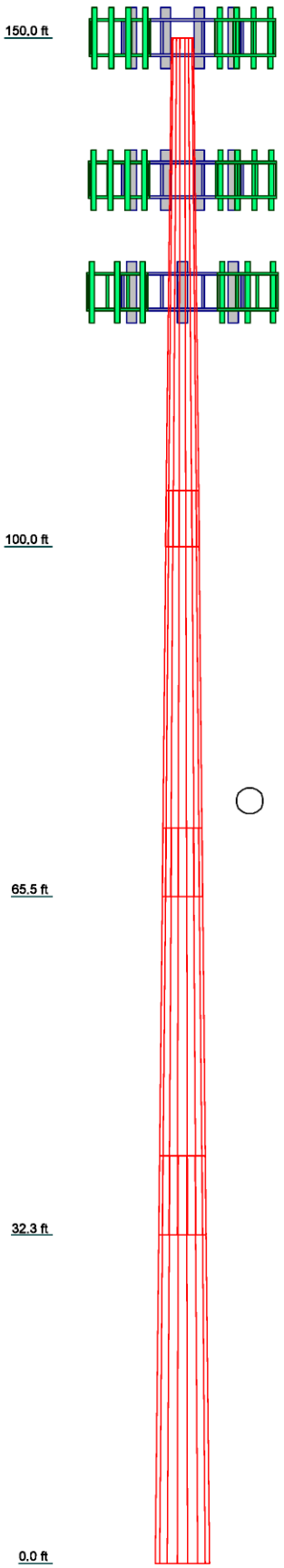
Results:

Ice Thickness:	1.50 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Wed May 19 2021

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

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

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	50.000	18	0.3000	5.500	26.4000	39.6000	A572-65	5.3
2	40.000	18	0.4000	6.800	37.5480	48.3000		7.3
3	40.000	18	0.4000	7.800	45.6722	56.3000		8.7
4	40.100	18	0.4000		53.4276	64.0000		10.1
								31.5



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
AIR32 KRD901146-1_B66A-B2A w/ Mount Pipe	150	HPA65R-BU8A w/Mount Pipe (ATT-E)	136
AIR32 KRD901146-1_B66A-B2A w/ Mount Pipe	150	4478 B14 RRUS (18.1x13.4x8.3x59.4lbs) (ATT-E)	136
AIR32 KRD901146-1_B66A-B2A w/ Mount Pipe	150	4478 B14 RRUS (18.1x13.4x8.3x59.4lbs) (ATT-E)	136
LNX-6515DS-A1M	150	8'x2" STD Pipe Mount (Dish Wireless - P)	125
LNX-6515DS-A1M	150	8'x2" STD Pipe Mount (Dish Wireless - P)	125
LNX-6515DS-A1M	150	8'x2" STD Pipe Mount (Dish Wireless - P)	125
APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	150	1/3 Remaining Reserved Rights (Dish Wireless - R)	125
APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	150	1/3 Remaining Reserved Rights (Dish Wireless - R)	125
APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	150	1/3 Remaining Reserved Rights (Dish Wireless - R)	125
RRUS 11 B12	150	Platfrom w/Handrails (LP 716) (Dish Wireless - P)	125
RRUS 11 B12	150	MX08FRO665-20_V0F w/ Mount Pipe (Dish Wireless - P)	125
RRUS 11 B12	150	MX08FRO665-20_V0F w/ Mount Pipe (Dish Wireless - P)	125
RRUS 11 B4	150	MX08FRO665-20_V0F w/ Mount Pipe (Dish Wireless - P)	125
RRUS 11 B4	150	(2) TA08025-B605 (14.96x15.75x9.06x75lbs) (Dish Wireless - P)	125
RRUS 11 B4	150	(2) TA08025-B605 (14.96x15.75x9.06x75lbs) (Dish Wireless - P)	125
IBR-1300	150	(2) TA08025-B605 (14.96x15.75x9.06x75lbs) (Dish Wireless - P)	125
SM 602-1	150	RDIDC-9181-PF-48 (Dish Wireless - P)	125
SM 602-1	150	Commscope NHH-65B-R2B (Verizon)	115
SM 602-1	150	Commscope NHH-65B-R2B (Verizon)	115
1/3 Remaining Reserved Rights (TMO - R)	150	Commscope NHH-65B-R2B (Verizon)	115
1/3 Remaining Reserved Rights (TMO - R)	150	Commscope NHHSS-65B-R2BT4 (Verizon)	115
1/3 Remaining Reserved Rights (TMO - R)	150	Commscope NHHSS-65B-R2BT4 (Verizon)	115
4478 B14 RRUS (18.1x13.4x8.3x59.4lbs) (ATT-E)	136	Commscope NHHSS-65B-R2BT4 (Verizon)	115
E2-700 (ATT-E)	136	Samsung MT6407-77A (Verizon)	115
E2-700 (ATT-E)	136	Samsung MT6407-77A (Verizon)	115
E2-700 (ATT-E)	136	Samsung MT6407-77A (Verizon)	115
Radio 4415 B30 (16.5x13.4x5.9x46lbs) (ATT-E)	136	Samsung RF4439D-25A (Verizon)	115
Radio 4415 B30 (16.5x13.4x5.9x46lbs) (ATT-E)	136	Samsung RF4439D-25A (Verizon)	115
Radio 4415 B30 (16.5x13.4x5.9x46lbs) (ATT-E)	136	Samsung RF4439D-25A (Verizon)	115
Radio 4449 (15.0x13.2x9.3x74lbs) (ATT-E)	136	Samsung RF4440D-13A (Verizon)	115
Radio 4449 (15.0x13.2x9.3x74lbs) (ATT-E)	136	Samsung RF4440D-13A (Verizon)	115
Radio 4449 (15.0x13.2x9.3x74lbs) (ATT-E)	136	Samsung RF4440D-13A (Verizon)	115
8843 (15x13.2x11.1x75lbs) (ATT-E)	136	Samsung MT6407-77A (Verizon)	115
8843 (15x13.2x11.1x75lbs) (ATT-E)	136	Samsung MT6407-77A (Verizon)	115
8843 (15x13.2x11.1x75lbs) (ATT-E)	136	Samsung MT6407-77A (Verizon)	115
Unknown DC (ATT-E)	136	Commscope OVP12 (Verizon)	115
Unknown DC (ATT-E)	136	Commscope BSAMNT-SBS-1-2 (Verizon)	115
Unknown DC (ATT-E)	136	Commscope BSAMNT-SBS-1-2 (Verizon)	115
SM 602-1 (ATT-E)	136	Commscope BSAMNT-SBS-1-2 (Verizon)	115
SM 602-1 (ATT-E)	136	Samsung CBRS RRH RT4401-48A (Verizon)	115
SM 602-1 (ATT-E)	136	Samsung CBRS RRH RT4401-48A (Verizon)	115
1/3 Remaining Reserved Rights (ATT - R)	136	Samsung CBRS RRH RT4401-48A (Verizon)	115
1/3 Remaining Reserved Rights (ATT - R)	136	Platform w/ Handrails (Verizon)	115
1/3 Remaining Reserved Rights (ATT - R)	136		
(2) TPA65R-BU8D w/ Mount Pipe (ATT-E)	136		
(2) TPA65R-BU8D w/ Mount Pipe (ATT-E)	136		
(2) TPA65R-BU8D w/ Mount Pipe (ATT-E)	136		
HPA65R-BU8A w/Mount Pipe (ATT-E)	136		
HPA65R-BU8A w/Mount Pipe (ATT-E)	136		

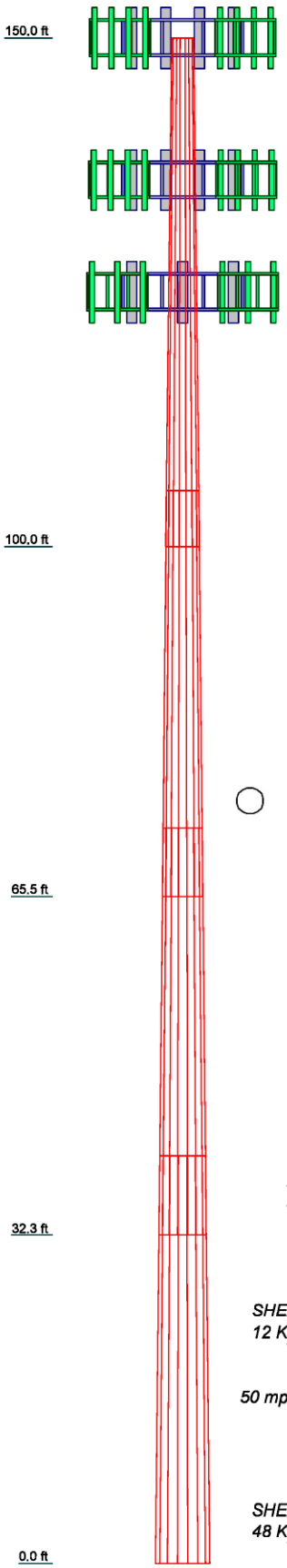
MATERIAL STRENGTH

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

Bennett & Pless
750 Park Commerce Dr #200
Boca Raton, FL 33487
Phone: 561-282-2676
FAX:
Experience Structural Expertise

Job: US-CT-5018			
Project: Monopole Structural Analysis			
Client: Vertical Bridge	Drawn by: gtariq	App'd:	
Code: TIA-222-H	Date: 04/08/22	Scale: NTS	
Path:		Dwg No. E-1	

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	50.000	18	0.3000	5.500	26.4000	39.6000		5.3
2	40.000	18	0.4000	6.800	37.5480	48.3000		7.3
3	40.000	18	0.4000	7.800	45.6722	56.3000	A572-65	8.7
4	40.100	18	0.4000		53.4276	64.0000		10.1
								31.5



MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 125 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.000 ft
8. TOWER RATING: 84.1%

4/12/2022

ALL REACTIONS ARE FACTORED

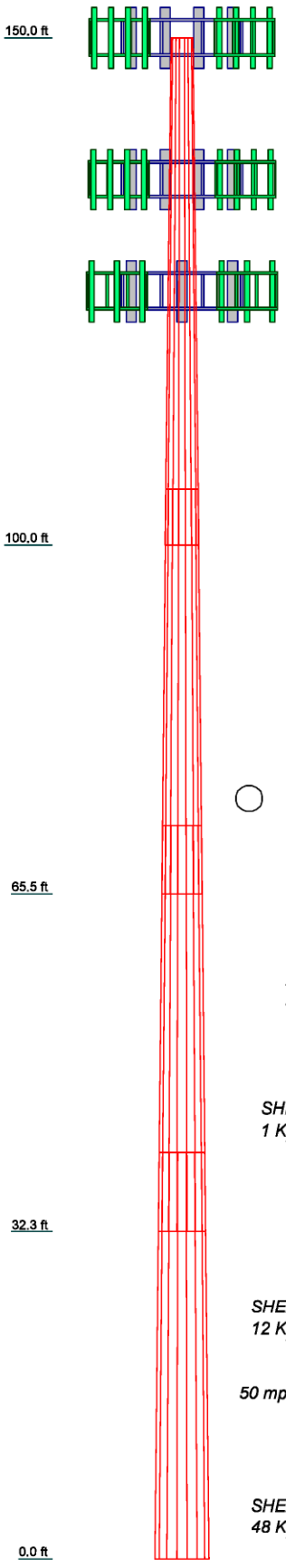
AXIAL 93 K
SHEAR 12 K
MOMENT 1424 kip-ft
TORQUE 2 kip-ft
50 mph WIND - 1.5000 in ICE

AXIAL 54 K
SHEAR 48 K
MOMENT 5402 kip-ft
TORQUE 6 kip-ft
REACTIONS - 125 mph WIND

Bennett & Pless
750 Park Commerce Dr #200
Boca Raton, FL 33487
Phone: 561-282-2676
FAX:
Experience Structural Expertise

Job: *US-CT-5018*			
Project: *Monopole Structural Analysis*			
Client: Vertical Bridge	Drawn by: gtariq		App'd:
Code: TIA-222-H	Date: 04/08/22		Scale: NTS
Path:			Dwg No. E-1

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	50.000	18	0.3000	5.500	26.4000	39.6000		5.3
2	40.000	18	0.4000	6.800	37.5480	48.3000		7.3
3	40.000	18	0.4000	7.800	45.6722	56.3000		8.7
4	40.100	18	0.4000		53.4276	64.0000	A572-65	10.1
								31.5



MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 125 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.000 ft
8. Seismic calculations are in accordance with TIA-222-H.
9. Seismic loads do not control over wind loads.
10. TOWER RATING: 84.1%

ALL REACTIONS ARE FACTORED

AXIAL 56 K
SHEAR 1 K
MOMENT 171 kip-ft
TORQUE 0 kip-ft
SEISMIC

AXIAL 93 K
SHEAR 12 K
MOMENT 1424 kip-ft
TORQUE 2 kip-ft
50 mph WIND - 1.5000 in ICE

AXIAL 54 K
SHEAR 48 K
MOMENT 5402 kip-ft
TORQUE 6 kip-ft
REACTIONS - 125 mph WIND

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Job: *US-CT-5018*			
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Client: Vertical Bridge	Drawn by: gtariq		App'd:
Code: TIA-222-H	Date: 04/08/22		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 Hartford County, Connecticut.
Tower base elevation above sea level: 310.000 ft.
Basic wind speed of 125 mph.
Risk Category II.
Exposure Category C.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.000 ft.
Nominal ice thickness of 1.5000 in.
Ice thickness is considered to increase with height.
Ice density of 56.000 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50.000 °F.
Deflections calculated using a wind speed of 60 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	150.000-100.000	50.000	5.500	18	26.4000	39.6000	0.3000	1.0000	A572-65 (65 ksi)
L2	100.000-65.500	40.000	6.800	18	37.5480	48.3000	0.4000	1.5000	A572-65 (65 ksi)
L3	65.500-32.300	40.000	7.800	18	45.6722	56.3000	0.4000	1.8000	A572-65 (65 ksi)
L4	32.300-0.000	40.100		18	53.4276	64.0000	0.4000	1.8000	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	26.7672	24.8524	2138.8836	9.2655	13.4112	159.4849	4280.5816	12.4286	4.1888	13.963
	40.1708	37.4215	7302.0244	13.9515	20.1168	362.9814	14613.6569	18.7143	6.5120	21.707
L2	39.5698	47.1631	8222.6286	13.1875	19.0744	431.0823	16456.0768	23.5860	5.9396	14.849
	48.9865	60.8138	17628.3191	17.0045	24.5364	718.4558	35279.8341	30.4127	7.8320	19.58
L3	48.1435	57.4775	14883.2580	16.0716	23.2015	641.4794	29786.0998	28.7442	7.2639	18.16
	57.1006	70.9706	28018.1714	19.8445	28.6004	979.6426	56073.2098	35.4921	9.1344	22.836
L4	56.2721	67.3238	23917.1577	18.8248	27.1412	881.2120	47865.7861	33.6683	8.6289	21.572
	64.9194	80.7466	41264.4167	22.5780	32.5120	1269.2057	82583.1303	40.3810	10.4896	26.224

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 150.000-100.000				1	1	1			
L2 100.000-65.500				1	1	1			
L3 65.500-32.300				1	1	1			
L4 32.300-0.000				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
***											

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight klf
***									
1.6" Hybrid (Dish - P)	C	No	No	Inside Pole	125.000 - 0.000	1	No Ice	0.000	0.000
							1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000
							2" Ice	0.000	0.000
***									
5/8" DC (ATT-E)	C	No	No	Inside Pole	136.000 - 0.000	6	No Ice	0.000	0.000
							1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000
							2" Ice	0.000	0.000
3/8" Fiber Cables (ATT-E)	C	No	No	Inside Pole	136.000 - 0.000	2	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
							2" Ice	0.000	0.001
***									
6X12 Hybrid (TMO-E)	C	No	No	Inside Pole	150.000 - 0.000	3	No Ice	0.000	0.000
							1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000
							2" Ice	0.000	0.000
***									
***									
1 5/8 Hybrid Flex (1.98" 1.3lbs) (Verizon)	C	No	No	Inside Pole	115.000 - 0.000	1	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
							2" Ice	0.000	0.001

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 K
L1	150.000-100.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.174
L2	100.000-65.500	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.190
L3	65.500-32.300	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.183
L4	32.300-0.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.178

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 K
L1	150.000-100.000	A	1.712	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft²	A_F ft²	C_AA_A In Face ft²	C_AA_A Out Face ft²	Weight K
		C		0.000	0.000	0.000	0.000	0.174
L2	100.000-65.500	A	1.644	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.190
L3	65.500-32.300	A	1.560	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.183
L4	32.300-0.000	A	1.397	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.178

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	150.000-100.000	0.0000	0.0000	0.0000	0.0000
L2	100.000-65.500	0.0000	0.0000	0.0000	0.0000
L3	65.500-32.300	0.0000	0.0000	0.0000	0.0000
L4	32.300-0.000	0.0000	0.0000	0.0000	0.0000

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

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft²	C_AA_A Side ft²	Weight K
***									
Platfrom w/Handrails (LP 716) (Dish Wireless - P)	A	None		0.0000	125.000	No Ice	26.800	26.800	1.509
						1/2" Ice	32.200	32.200	1.811
						1" Ice	37.600	37.600	2.113
						2" Ice	48.400	48.400	2.717
MX08FRO665-20_V0F w/ Mount Pipe (Dish Wireless - P)	A	From Leg	3.000 0.000 0.000	0.0000	125.000	No Ice	12.964	7.767	0.083
						1/2" Ice	13.668	9.053	0.178
						1" Ice	14.340	10.191	0.282
						2" Ice	15.618	12.139	0.519
MX08FRO665-20_V0F w/ Mount Pipe (Dish Wireless - P)	B	From Leg	3.000 0.000 0.000	0.0000	125.000	No Ice	12.964	7.767	0.083
						1/2" Ice	13.668	9.053	0.178
						1" Ice	14.340	10.191	0.282
						2" Ice	15.618	12.139	0.519
MX08FRO665-20_V0F w/ Mount Pipe (Dish Wireless - P)	C	From Leg	3.000 0.000 0.000	0.0000	125.000	No Ice	12.964	7.767	0.083
						1/2" Ice	13.668	9.053	0.178
						1" Ice	14.340	10.191	0.282
						2" Ice	15.618	12.139	0.519
(2) TA08025-B605 (14.96x15.75x9.06x75lbs)	A	From Leg	3.000 0.000	0.0000	125.000	No Ice	1.964	1.129	0.075
						1/2" Ice	2.138	1.267	0.093

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(Dish Wireless - P)			0.000			1" Ice	2.320	1.411	0.114
						2" Ice	2.705	1.723	0.164
(2) TA08025-B605	B	From Leg	3.000	0.0000	125.000	No Ice	1.964	1.129	0.075
(14.96x15.75x9.06x75lbs)			0.000			1/2" Ice	2.138	1.267	0.093
(Dish Wireless - P)			0.000			1" Ice	2.320	1.411	0.114
						2" Ice	2.705	1.723	0.164
(2) TA08025-B605	C	From Leg	3.000	0.0000	125.000	No Ice	1.964	1.129	0.075
(14.96x15.75x9.06x75lbs)			0.000			1/2" Ice	2.138	1.267	0.093
(Dish Wireless - P)			0.000			1" Ice	2.320	1.411	0.114
						2" Ice	2.705	1.723	0.164
RDIDC-9181-PF-48	C	From Leg	3.000	0.0000	125.000	No Ice	2.561	1.342	0.022
(Dish Wireless - P)			0.000			1/2" Ice	2.760	1.498	0.043
			0.000			1" Ice	2.967	1.662	0.067
						2" Ice	3.402	2.012	0.125
8'x2" STD Pipe Mount	A	From Leg	3.000	0.0000	125.000	No Ice	1.900	1.900	0.029
(Dish Wireless - P)			0.000			1/2" Ice	2.728	2.728	0.044
			0.000			1" Ice	3.401	3.401	0.063
						2" Ice	4.396	4.396	0.119
8'x2" STD Pipe Mount	B	From Leg	3.000	0.0000	125.000	No Ice	1.900	1.900	0.029
(Dish Wireless - P)			0.000			1/2" Ice	2.728	2.728	0.044
			0.000			1" Ice	3.401	3.401	0.063
						2" Ice	4.396	4.396	0.119
8'x2" STD Pipe Mount	C	From Leg	3.000	0.0000	125.000	No Ice	1.900	1.900	0.029
(Dish Wireless - P)			0.000			1/2" Ice	2.728	2.728	0.044
			0.000			1" Ice	3.401	3.401	0.063
						2" Ice	4.396	4.396	0.119
1/3 Remaining Reserved	A	From Leg	3.000	0.0000	125.000	No Ice	5.885	5.885	0.063
Rights			0.000			1/2" Ice	6.905	6.905	0.094
(Dish Wireless - R)			0.000			1" Ice	7.925	7.925	0.126
						2" Ice	9.965	9.965	0.188
1/3 Remaining Reserved	B	From Leg	3.000	0.0000	125.000	No Ice	5.885	5.885	0.063
Rights			0.000			1/2" Ice	6.905	6.905	0.094
(Dish Wireless - R)			0.000			1" Ice	7.925	7.925	0.126
						2" Ice	9.965	9.965	0.188
1/3 Remaining Reserved	C	From Leg	3.000	0.0000	125.000	No Ice	5.885	5.885	0.063
Rights			0.000			1/2" Ice	6.905	6.905	0.094
(Dish Wireless - R)			0.000			1" Ice	7.925	7.925	0.126
						2" Ice	9.965	9.965	0.188
***									
(2) TPA65R-BU8D w/ Mount	A	From Leg	4.000	0.0000	136.000	No Ice	18.089	10.100	0.112
Pipe			0.000			1/2" Ice	18.722	11.522	0.232
(ATT-E)			0.000			1" Ice	19.362	12.796	0.362
						2" Ice	20.662	15.017	0.658
(2) TPA65R-BU8D w/ Mount	B	From Leg	4.000	0.0000	136.000	No Ice	18.089	10.100	0.112
Pipe			0.000			1/2" Ice	18.722	11.522	0.232
(ATT-E)			0.000			1" Ice	19.362	12.796	0.362
						2" Ice	20.662	15.017	0.658
(2) TPA65R-BU8D w/ Mount	C	From Leg	4.000	0.0000	136.000	No Ice	18.089	10.100	0.112
Pipe			0.000			1/2" Ice	18.722	11.522	0.232
(ATT-E)			0.000			1" Ice	19.362	12.796	0.362
						2" Ice	20.662	15.017	0.658
HPA65R-BU8A w/Mount	A	From Leg	0.000	0.0000	136.000	No Ice	18.564	10.575	0.094
Pipe			0.000			1/2" Ice	19.402	12.197	0.219
(ATT-E)			0.000			1" Ice	20.251	13.843	0.355
						2" Ice	21.844	16.531	0.665
HPA65R-BU8A w/Mount	B	From Leg	0.000	0.0000	136.000	No Ice	18.564	10.575	0.094
Pipe			0.000			1/2" Ice	19.402	12.197	0.219

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 K
(ATT-E)			0.000			1" Ice	20.251	13.843	0.355
						2" Ice	21.844	16.531	0.665
HPA65R-BU8A w/Mount Pipe	C	From Leg	0.000	0.0000	136.000	No Ice	18.564	10.575	0.094
			0.000			1/2" Ice	19.402	12.197	0.219
(ATT-E)			0.000			1" Ice	20.251	13.843	0.355
						2" Ice	21.844	16.531	0.665
4478 B14 RRUS (18.1x13.4x8.3x59.4lbs)	A	From Leg	3.000	0.0000	136.000	No Ice	2.021	1.252	0.059
			0.000			1/2" Ice	2.200	1.402	0.077
(ATT-E)			0.000			1" Ice	2.386	1.560	0.097
						2" Ice	2.780	1.898	0.147
4478 B14 RRUS (18.1x13.4x8.3x59.4lbs)	B	From Leg	3.000	0.0000	136.000	No Ice	2.021	1.252	0.059
			0.000			1/2" Ice	2.200	1.402	0.077
(ATT-E)			0.000			1" Ice	2.386	1.560	0.097
						2" Ice	2.780	1.898	0.147
4478 B14 RRUS (18.1x13.4x8.3x59.4lbs)	C	From Leg	3.000	0.0000	136.000	No Ice	2.021	1.252	0.059
			0.000			1/2" Ice	2.200	1.402	0.077
(ATT-E)			0.000			1" Ice	2.386	1.560	0.097
						2" Ice	2.780	1.898	0.147
E2-700	A	From Leg	3.000	0.0000	136.000	No Ice	3.083	1.243	0.052
(ATT-E)			0.000			1/2" Ice	3.301	1.392	0.075
			0.000			1" Ice	3.526	1.553	0.101
						2" Ice	3.998	1.901	0.163
E2-700	B	From Leg	3.000	0.0000	136.000	No Ice	3.083	1.243	0.052
(ATT-E)			0.000			1/2" Ice	3.301	1.392	0.075
			0.000			1" Ice	3.526	1.553	0.101
						2" Ice	3.998	1.901	0.163
E2-700	C	From Leg	3.000	0.0000	136.000	No Ice	3.083	1.243	0.052
(ATT-E)			0.000			1/2" Ice	3.301	1.392	0.075
			0.000			1" Ice	3.526	1.553	0.101
						2" Ice	3.998	1.901	0.163
Radio 4415 B30 (16.5x13.4x5.9x46lbs)	A	From Leg	3.000	0.0000	136.000	No Ice	0.000	0.000	0.000
			0.000			1/2" Ice	0.000	0.000	0.000
(ATT-E)			0.000			1" Ice	0.000	0.000	0.000
						2" Ice	0.000	0.000	0.000
Radio 4415 B30 (16.5x13.4x5.9x46lbs)	B	From Leg	3.000	0.0000	136.000	No Ice	0.000	0.000	0.000
			0.000			1/2" Ice	0.000	0.000	0.000
(ATT-E)			0.000			1" Ice	0.000	0.000	0.000
						2" Ice	0.000	0.000	0.000
Radio 4415 B30 (16.5x13.4x5.9x46lbs)	C	From Leg	3.000	0.0000	136.000	No Ice	0.000	0.000	0.000
			0.000			1/2" Ice	0.000	0.000	0.000
(ATT-E)			0.000			1" Ice	0.000	0.000	0.000
						2" Ice	0.000	0.000	0.000
Radio 4449 (15.0x13.2x9.3x74lbs)	A	From Leg	3.000	0.0000	136.000	No Ice	1.650	1.163	0.074
			0.000			1/2" Ice	1.810	1.301	0.090
(ATT-E)			0.000			1" Ice	1.978	1.447	0.109
						2" Ice	2.336	1.762	0.155
Radio 4449 (15.0x13.2x9.3x74lbs)	B	From Leg	3.000	0.0000	136.000	No Ice	1.650	1.163	0.074
			0.000			1/2" Ice	1.810	1.301	0.090
(ATT-E)			0.000			1" Ice	1.978	1.447	0.109
						2" Ice	2.336	1.762	0.155
Radio 4449 (15.0x13.2x9.3x74lbs)	C	From Leg	3.000	0.0000	136.000	No Ice	1.650	1.163	0.074
			0.000			1/2" Ice	1.810	1.301	0.090
(ATT-E)			0.000			1" Ice	1.978	1.447	0.109
						2" Ice	2.336	1.762	0.155
8843 (15x13.2x11.1x75lbs)	A	From Leg	3.000	0.0000	136.000	No Ice	1.650	1.388	0.075
(ATT-E)			0.000			1/2" Ice	1.810	1.536	0.093
			0.000			1" Ice	1.978	1.692	0.113

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 K
						2" Ice	2.336	2.027	0.164
8843 (15x13.2x11.1x75lbs) (ATT-E)	B	From Leg	3.000 0.000 0.000	0.0000	136.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.650 1.810 1.978 2.336	1.388 1.536 1.692 2.027	0.075 0.093 0.113 0.164
8843 (15x13.2x11.1x75lbs) (ATT-E)	C	From Leg	3.000 0.000 0.000	0.0000	136.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.650 1.810 1.978 2.336	1.388 1.536 1.692 2.027	0.075 0.093 0.113 0.164
Unknown DC (ATT-E)	A	From Leg	3.000 0.000 0.000	0.0000	136.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.547 1.708 1.877 2.237	4.762 5.042 5.328 5.924	0.026 0.063 0.104 0.199
Unknown DC (ATT-E)	B	From Leg	3.000 0.000 0.000	0.0000	136.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.547 1.708 1.877 2.237	4.762 5.042 5.328 5.924	0.026 0.063 0.104 0.199
Unknown DC (ATT-E)	C	From Leg	3.000 0.000 0.000	0.0000	136.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.547 1.708 1.877 2.237	4.762 5.042 5.328 5.924	0.026 0.063 0.104 0.199
SM 602-1 (ATT-E)	A	None		0.0000	136.000	No Ice 1/2" Ice 1" Ice 2" Ice	20.000 24.070 28.330 37.820	8.530 11.090 13.630 18.640	0.513 0.707 0.947 1.562
SM 602-1 (ATT-E)	B	None		0.0000	136.000	No Ice 1/2" Ice 1" Ice 2" Ice	20.000 24.070 28.330 37.820	8.530 11.090 13.630 18.640	0.513 0.707 0.947 1.562
SM 602-1 (ATT-E)	C	None		0.0000	136.000	No Ice 1/2" Ice 1" Ice 2" Ice	20.000 24.070 28.330 37.820	8.530 11.090 13.630 18.640	0.513 0.707 0.947 1.562
1/3 Remaining Reserved Rights (ATT - R)	A	From Leg	3.000 0.000 0.000	0.0000	136.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.149 1.300 1.451 1.753	1.149 1.300 1.451 1.753	0.012 0.018 0.024 0.035
1/3 Remaining Reserved Rights (ATT - R)	B	From Leg	3.000 0.000 0.000	0.0000	136.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.149 1.300 1.451 1.753	1.149 1.300 1.451 1.753	0.012 0.018 0.024 0.035
1/3 Remaining Reserved Rights (ATT - R)	C	From Leg	3.000 0.000 0.000	0.0000	136.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.149 1.300 1.451 1.753	1.149 1.300 1.451 1.753	0.012 0.018 0.024 0.035
***									
AIR32 KRD901146-1_B66A-B2A w/ Mount Pipe	A	From Leg	3.000 0.000 0.000	0.0000	150.000	No Ice 1/2" Ice 1" Ice 2" Ice	7.290 8.007 8.667 9.865	6.612 7.796 8.832 10.574	0.161 0.228 0.303 0.477
AIR32 KRD901146-1_B66A-B2A w/ Mount Pipe	B	From Leg	3.000 0.000 0.000	0.0000	150.000	No Ice 1/2" Ice 1" Ice 2" Ice	7.290 8.007 8.667 9.865	6.612 7.796 8.832 10.574	0.161 0.228 0.303 0.477
AIR32 KRD901146-1_B66A-B2A w/ Mount Pipe	C	From Leg	3.000 0.000 0.000	0.0000	150.000	No Ice 1/2" Ice 1" Ice	7.290 8.007 8.667	6.612 7.796 8.832	0.161 0.228 0.303

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice	9.865	10.574	0.477
LNX-6515DS-A1M	A	From Leg	3.000 0.000 0.000	0.0000	150.000	No Ice 1/2" Ice 1" Ice 2" Ice	11.912 12.733 13.564 15.104	10.071 11.692 13.337 16.021	0.087 0.179 0.281 0.521
LNX-6515DS-A1M	B	From Leg	3.000 0.000 0.000	0.0000	150.000	No Ice 1/2" Ice 1" Ice 2" Ice	11.912 12.733 13.564 15.104	10.071 11.692 13.337 16.021	0.087 0.179 0.281 0.521
LNX-6515DS-A1M	C	From Leg	3.000 0.000 0.000	0.0000	150.000	No Ice 1/2" Ice 1" Ice 2" Ice	11.912 12.733 13.564 15.104	10.071 11.692 13.337 16.021	0.087 0.179 0.281 0.521
APX16DWV-16DWV-S-E-A 20 w/ Mount Pipe	A	From Leg	3.000 0.000 0.000	0.0000	150.000	No Ice 1/2" Ice 1" Ice 2" Ice	9.055 9.778 10.449 11.679	6.507 7.722 8.776 10.545	0.083 0.157 0.239 0.429
APX16DWV-16DWV-S-E-A 20 w/ Mount Pipe	B	From Leg	3.000 0.000 0.000	0.0000	150.000	No Ice 1/2" Ice 1" Ice 2" Ice	9.055 9.778 10.449 11.679	6.507 7.722 8.776 10.545	0.083 0.157 0.239 0.429
APX16DWV-16DWV-S-E-A 20 w/ Mount Pipe	C	From Leg	3.000 0.000 0.000	0.0000	150.000	No Ice 1/2" Ice 1" Ice 2" Ice	9.055 9.778 10.449 11.679	6.507 7.722 8.776 10.545	0.083 0.157 0.239 0.429
RRUS 11 B12	A	From Leg	3.000 0.000 0.000	0.0000	150.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.833 3.043 3.259 3.715	1.182 1.330 1.485 1.826	0.051 0.072 0.095 0.153
RRUS 11 B12	B	From Leg	3.000 0.000 0.000	0.0000	150.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.833 3.043 3.259 3.715	1.182 1.330 1.485 1.826	0.051 0.072 0.095 0.153
RRUS 11 B12	C	From Leg	3.000 0.000 0.000	0.0000	150.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.833 3.043 3.259 3.715	1.182 1.330 1.485 1.826	0.051 0.072 0.095 0.153
RRUS 11 B4	A	From Leg	3.000 0.000 0.000	0.0000	150.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.784 2.992 3.207 3.658	1.187 1.334 1.490 1.833	0.051 0.071 0.095 0.153
RRUS 11 B4	B	From Leg	3.000 0.000 0.000	0.0000	150.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.784 2.992 3.207 3.658	1.187 1.334 1.490 1.833	0.051 0.071 0.095 0.153
RRUS 11 B4	C	From Leg	3.000 0.000 0.000	0.0000	150.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.784 2.992 3.207 3.658	1.187 1.334 1.490 1.833	0.051 0.071 0.095 0.153
IBR-1300	B	From Leg	3.000 0.000 0.000	0.0000	150.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.672 0.776 0.888 1.133	0.307 0.384 0.470 0.668	0.008 0.013 0.020 0.040
SM 602-1	A	None		0.0000	150.000	No Ice 1/2" Ice 1" Ice 2" Ice	20.000 24.070 28.330 37.820	8.530 11.090 13.630 18.640	0.513 0.707 0.947 1.562

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 K
SM 602-1	B	None		0.0000	150.000	No Ice	20.000	8.530	0.513
						1/2" Ice	24.070	11.090	0.707
						1" Ice	28.330	13.630	0.947
						2" Ice	37.820	18.640	1.562
SM 602-1	C	None		0.0000	150.000	No Ice	20.000	8.530	0.513
						1/2" Ice	24.070	11.090	0.707
						1" Ice	28.330	13.630	0.947
						2" Ice	37.820	18.640	1.562
1/3 Remaining Reserved Rights (TMO - R)	A	From Leg	3.000 0.000 0.000	0.0000	150.000	No Ice	22.346	22.346	0.257
						1/2" Ice	28.316	28.316	0.386
						1" Ice	34.287	34.287	0.515
						2" Ice	46.229	46.229	0.772
1/3 Remaining Reserved Rights (TMO - R)	B	From Leg	3.000 0.000 0.000	0.0000	150.000	No Ice	22.346	22.346	0.257
						1/2" Ice	28.316	28.316	0.386
						1" Ice	34.287	34.287	0.515
						2" Ice	46.229	46.229	0.772
1/3 Remaining Reserved Rights (TMO - R)	C	From Leg	3.000 0.000 0.000	0.0000	150.000	No Ice	22.346	22.346	0.257
						1/2" Ice	28.316	28.316	0.386
						1" Ice	34.287	34.287	0.515
						2" Ice	46.229	46.229	0.772
***									
Commscope NHH-65B-R2B (Verizon)	A	From Leg	3.000 0.000 0.000	0.0000	115.000	No Ice	11.187	8.687	0.071
						1/2" Ice	11.691	9.169	0.150
						1" Ice	12.202	9.658	0.236
						2" Ice	13.245	10.658	0.430
Commscope NHH-65B-R2B (Verizon)	B	From Leg	3.000 0.000 0.000	0.0000	115.000	No Ice	11.187	8.687	0.071
						1/2" Ice	11.691	9.169	0.150
						1" Ice	12.202	9.658	0.236
						2" Ice	13.245	10.658	0.430
Commscope NHH-65B-R2B (Verizon)	C	From Leg	3.000 0.000 0.000	0.0000	115.000	No Ice	11.187	8.687	0.071
						1/2" Ice	11.691	9.169	0.150
						1" Ice	12.202	9.658	0.236
						2" Ice	13.245	10.658	0.430
Commscope NHHSS-65B-R2BT4 (Verizon)	A	From Leg	3.000 0.000 0.000	0.0000	115.000	No Ice	8.048	5.356	0.055
						1/2" Ice	8.503	5.810	0.105
						1" Ice	8.966	6.270	0.161
						2" Ice	9.912	7.213	0.292
Commscope NHHSS-65B-R2BT4 (Verizon)	B	From Leg	3.000 0.000 0.000	0.0000	115.000	No Ice	8.048	5.356	0.055
						1/2" Ice	8.503	5.810	0.105
						1" Ice	8.966	6.270	0.161
						2" Ice	9.912	7.213	0.292
Commscope NHHSS-65B-R2BT4 (Verizon)	C	From Leg	3.000 0.000 0.000	0.0000	115.000	No Ice	8.048	5.356	0.055
						1/2" Ice	8.503	5.810	0.105
						1" Ice	8.966	6.270	0.161
						2" Ice	9.912	7.213	0.292
Samsung MT6407-77A (Verizon)	A	From Leg	3.000 0.000 0.000	0.0000	115.000	No Ice	4.700	1.844	0.087
						1/2" Ice	4.988	2.067	0.116
						1" Ice	5.284	2.297	0.150
						2" Ice	5.897	2.777	0.228
Samsung MT6407-77A (Verizon)	B	From Leg	3.000 0.000 0.000	0.0000	115.000	No Ice	4.700	1.844	0.087
						1/2" Ice	4.988	2.067	0.116
						1" Ice	5.284	2.297	0.150
						2" Ice	5.897	2.777	0.228
Samsung MT6407-77A (Verizon)	C	From Leg	3.000 0.000 0.000	0.0000	115.000	No Ice	4.700	1.844	0.087
						1/2" Ice	4.988	2.067	0.116
						1" Ice	5.284	2.297	0.150
						2" Ice	5.897	2.777	0.228

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 K
Samsung RF4439D-25A	A	From Leg	3.000	0.0000	115.000	No Ice	1.865	1.252	0.075
(Verizon)			0.000			1/2" Ice	2.035	1.394	0.093
			0.000			1" Ice	2.212	1.544	0.114
						2" Ice	2.589	1.866	0.166
Samsung RF4439D-25A	B	From Leg	3.000	0.0000	115.000	No Ice	1.865	1.252	0.075
(Verizon)			0.000			1/2" Ice	2.035	1.394	0.093
			0.000			1" Ice	2.212	1.544	0.114
						2" Ice	2.589	1.866	0.166
Samsung RF4439D-25A	C	From Leg	3.000	0.0000	115.000	No Ice	1.865	1.252	0.075
(Verizon)			0.000			1/2" Ice	2.035	1.394	0.093
			0.000			1" Ice	2.212	1.544	0.114
						2" Ice	2.589	1.866	0.166
Samsung RF4440D-13A	A	From Leg	3.000	0.0000	115.000	No Ice	1.865	1.128	0.075
(Verizon)			0.000			1/2" Ice	2.035	1.265	0.092
			0.000			1" Ice	2.212	1.410	0.112
						2" Ice	2.589	1.721	0.161
Samsung RF4440D-13A	B	From Leg	3.000	0.0000	115.000	No Ice	1.865	1.128	0.075
(Verizon)			0.000			1/2" Ice	2.035	1.265	0.092
			0.000			1" Ice	2.212	1.410	0.112
						2" Ice	2.589	1.721	0.161
Samsung RF4440D-13A	C	From Leg	3.000	0.0000	115.000	No Ice	1.865	1.128	0.075
(Verizon)			0.000			1/2" Ice	2.035	1.265	0.092
			0.000			1" Ice	2.212	1.410	0.112
						2" Ice	2.589	1.721	0.161
Samsung MT6407-77A	A	From Leg	3.000	0.0000	115.000	No Ice	4.700	1.844	0.087
(Verizon)			0.000			1/2" Ice	4.988	2.067	0.116
			0.000			1" Ice	5.284	2.297	0.150
						2" Ice	5.897	2.777	0.228
Samsung MT6407-77A	B	From Leg	3.000	0.0000	115.000	No Ice	4.700	1.844	0.087
(Verizon)			0.000			1/2" Ice	4.988	2.067	0.116
			0.000			1" Ice	5.284	2.297	0.150
						2" Ice	5.897	2.777	0.228
Samsung MT6407-77A	C	From Leg	3.000	0.0000	115.000	No Ice	4.700	1.844	0.087
(Verizon)			0.000			1/2" Ice	4.988	2.067	0.116
			0.000			1" Ice	5.284	2.297	0.150
						2" Ice	5.897	2.777	0.228
Commscope OVP12	C	From Leg	3.000	0.0000	115.000	No Ice	0.791	0.791	0.020
(Verizon)			0.000			1/2" Ice	1.274	1.274	0.035
			0.000			1" Ice	1.450	1.450	0.053
						2" Ice	1.831	1.831	0.095
Commscope	A	From Leg	3.000	0.0000	115.000	No Ice	1.320	1.320	0.070
BSAMNT-SBS-1-2			0.000			1/2" Ice	1.580	1.580	0.080
(Verizon)			0.000			1" Ice	1.840	1.840	0.090
						2" Ice	2.360	2.360	0.110
Commscope	B	From Leg	3.000	0.0000	115.000	No Ice	1.320	1.320	0.070
BSAMNT-SBS-1-2			0.000			1/2" Ice	1.580	1.580	0.080
(Verizon)			0.000			1" Ice	1.840	1.840	0.090
						2" Ice	2.360	2.360	0.110
Commscope	C	From Leg	3.000	0.0000	115.000	No Ice	1.320	1.320	0.070
BSAMNT-SBS-1-2			0.000			1/2" Ice	1.580	1.580	0.080
(Verizon)			0.000			1" Ice	1.840	1.840	0.090
						2" Ice	2.360	2.360	0.110
Samsung CBRS RRH	A	From Leg	3.000	0.0000	115.000	No Ice	3.114	2.647	0.052
RT4401-48A			0.000			1/2" Ice	3.960	3.594	0.085
(Verizon)			0.000			1" Ice	4.683	4.393	0.123
						2" Ice	5.862	5.670	0.215
Samsung CBRS RRH	B	From Leg	3.000	0.0000	115.000	No Ice	3.114	2.647	0.052

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 K
RT4401-48A			0.000			1/2" Ice	3.960	3.594	0.085
(Verizon)			0.000			1" Ice	4.683	4.393	0.123
						2" Ice	5.862	5.670	0.215
Samsung CBRS RRH	C	From Leg	3.000	0.0000	115.000	No Ice	3.114	2.647	0.052
RT4401-48A			0.000			1/2" Ice	3.960	3.594	0.085
(Verizon)			0.000			1" Ice	4.683	4.393	0.123
						2" Ice	5.862	5.670	0.215
Platform w/ Handrails	C	From Leg	3.000	0.0000	115.000	No Ice	32.030	32.030	1.340
(Verizon)			0.000			1/2" Ice	38.710	38.710	1.800
			0.000			1" Ice	45.390	45.390	2.260
						2" Ice	58.750	58.750	3.170

Force Totals

Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Overturning Moments, M_x kip-ft	Sum of Overturning Moments, M_z kip-ft	Sum of Torques kip-ft
Leg Weight	31.490					
Bracing Weight	0.000					
Total Member Self-Weight	31.490			3.114	5.337	
Total Weight	44.803			3.114	5.337	
Wind 0 deg - No Ice		0.016	-48.025	-5248.923	3.524	-5.333
Wind 90 deg - No Ice		48.060	-0.016	1.301	-5251.289	3.136
Wind 180 deg - No Ice		-0.016	48.025	5255.152	7.150	5.333
Member Ice	13.659					
Total Weight Ice	82.191			6.989	11.857	
Wind 0 deg - Ice		0.003	-12.366	-1323.754	11.553	-1.455
Wind 90 deg - Ice		12.372	-0.003	6.685	-1319.734	0.859
Wind 180 deg - Ice		-0.003	12.366	1337.732	12.161	1.455
Total Weight	44.803			3.114	5.337	
Wind 0 deg - Service		0.003	-9.900	-1079.579	4.964	-1.099
Wind 90 deg - Service		9.907	-0.003	2.741	-1078.302	0.647
Wind 180 deg - Service		-0.003	9.900	1085.808	5.711	1.099

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 90 deg - No Ice
5	0.9 Dead+1.0 Wind 90 deg - No Ice
6	1.2 Dead+1.0 Wind 180 deg - No Ice
7	0.9 Dead+1.0 Wind 180 deg - No Ice
8	1.2 Dead+1.0 Ice+1.0 Temp

Comb. No.	Description
9	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
10	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
11	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
12	Dead+Wind 0 deg - Service
13	Dead+Wind 90 deg - Service
14	Dead+Wind 180 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	150 - 100	Pole	Max Tension	8	0.000	-0.000	0.000
			Max. Compression	8	-47.818	13.513	-7.961
			Max. Mx	4	-18.516	-989.969	-3.546
			Max. My	6	-18.511	6.461	-999.336
			Max. Vy	4	34.871	-989.969	-3.546
			Max. Vx	6	34.840	6.461	-999.336
			Max. Torque	6			-5.631
L2	100 - 65.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	8	-59.466	13.991	-8.243
			Max. Mx	4	-27.229	-2220.283	-3.135
			Max. My	6	-27.227	7.232	-2228.599
			Max. Vy	4	39.238	-2220.283	-3.135
			Max. Vx	6	39.205	7.232	-2228.599
			Max. Torque	6			-5.622
L3	65.5 - 32.3	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	8	-73.544	14.255	-8.398
			Max. Mx	4	-38.064	-3554.350	-2.677
			Max. My	6	-38.063	7.876	-3561.606
			Max. Vy	4	43.505	-3554.350	-2.677
			Max. Vx	6	43.471	7.876	-3561.606
			Max. Torque	6			-5.611
L4	32.3 - 0	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	8	-93.179	14.253	-8.397
			Max. Mx	4	-53.737	-5395.816	-2.046
			Max. My	6	-53.737	8.552	-5401.698
			Max. Vy	4	48.090	-5395.816	-2.046
			Max. Vx	6	48.055	8.552	-5401.698
			Max. Torque	6			-5.603

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	8	93.179	-0.000	0.000
	Max. H_x	7	40.323	0.016	-48.025
	Max. H_z	3	40.323	-0.016	48.025
	Max. M_x	2	5393.891	-0.016	48.025
	Max. M_z	4	5395.816	-48.060	0.016
	Max. Torsion	2	5.600	-0.016	48.025
	Min. Vert	5	40.323	-48.060	0.016
	Min. H_x	4	53.764	-48.060	0.016
	Min. H_z	7	40.323	0.016	-48.025

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
	Min. M_x	6	-5401.698	0.016	-48.025
	Min. M_z	11	-14.726	0.003	-12.366
	Min. Torsion	6	-5.600	0.016	-48.025

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	44.803	0.000	-0.000	3.192	5.469	-0.000
1.2 Dead+1.0 Wind 0 deg - No Ice	53.764	0.016	-48.025	-5393.891	4.833	-5.600
0.9 Dead+1.0 Wind 0 deg - No Ice	40.323	0.016	-48.025	-5356.102	3.111	-5.521
1.2 Dead+1.0 Wind 90 deg - No Ice	53.764	48.060	-0.016	2.045	-5395.816	3.293
0.9 Dead+1.0 Wind 90 deg - No Ice	40.323	48.060	-0.016	1.046	-5358.690	3.247
1.2 Dead+1.0 Wind 180 deg - No Ice	53.764	-0.016	48.025	5401.698	8.551	5.600
0.9 Dead+1.0 Wind 180 deg - No Ice	40.323	-0.016	48.025	5361.886	6.805	5.521
1.2 Dead+1.0 Ice+1.0 Temp	93.179	0.000	-0.000	8.397	14.253	-0.000
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	93.179	0.003	-12.366	-1407.274	14.083	-1.615
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	93.179	12.372	-0.003	8.165	-1402.248	0.954
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	93.179	-0.003	12.366	1424.248	14.726	1.615
Dead+Wind 0 deg - Service	44.803	0.003	-9.900	-1105.302	5.175	-1.152
Dead+Wind 90 deg - Service	44.803	9.907	-0.003	2.861	-1103.957	0.677
Dead+Wind 180 deg - Service	44.803	-0.003	9.900	1111.787	5.939	1.152

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
1	0.000	-44.803	0.000	-0.000	44.803	0.000	0.000%
2	0.016	-53.764	-48.025	-0.016	53.764	48.025	0.000%
3	0.016	-40.323	-48.025	-0.016	40.323	48.025	0.000%
4	48.060	-53.764	-0.016	-48.060	53.764	0.016	0.000%
5	48.060	-40.323	-0.016	-48.060	40.323	0.016	0.000%
6	-0.016	-53.764	48.025	0.016	53.764	-48.025	0.000%
7	-0.016	-40.323	48.025	0.016	40.323	-48.025	0.000%
8	0.000	-93.179	0.000	-0.000	93.179	0.000	0.000%
9	0.003	-93.179	-12.366	-0.003	93.179	12.366	0.000%
10	12.372	-93.179	-0.003	-12.372	93.179	0.003	0.000%
11	-0.003	-93.179	12.366	0.003	93.179	-12.366	0.000%
12	0.003	-44.803	-9.900	-0.003	44.803	9.900	0.001%
13	9.907	-44.803	-0.003	-9.907	44.803	0.003	0.001%
14	-0.003	-44.803	9.900	0.003	44.803	-9.900	0.001%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	7	0.00000001	0.00003330
3	Yes	7	0.00000001	0.00002331
4	Yes	7	0.00000001	0.00001959
5	Yes	6	0.00000001	0.00007440
6	Yes	7	0.00000001	0.00003388
7	Yes	7	0.00000001	0.00002370
8	Yes	5	0.00000001	0.00004138
9	Yes	8	0.00000001	0.00002297
10	Yes	7	0.00000001	0.00009912
11	Yes	8	0.00000001	0.00002349
12	Yes	5	0.00000001	0.00005838
13	Yes	5	0.00000001	0.00003742
14	Yes	5	0.00000001	0.00005920

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	150 - 100	17.586	14	1.0022	0.0029
L2	105.5 - 65.5	8.917	14	0.7892	0.0022
L3	72.3 - 32.3	4.217	14	0.5415	0.0011
L4	40.1 - 0	1.324	14	0.2946	0.0005

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
150.000	AIR32 KRD901146-1_B66A-B2A w/ Mount Pipe	14	17.586	1.0022	0.0029	60976
136.000	(2) TPA65R-BU8D w/ Mount Pipe	14	14.695	0.9452	0.0027	21777
125.000	Platfrom w/Handrails (LP 716)	14	12.493	0.8961	0.0026	12195
115.000	Commscope NHH-65B-R2B	14	10.594	0.8452	0.0024	8710

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	150 - 100	85.263	6	4.8593	0.0140
L2	105.5 - 65.5	43.277	6	3.8278	0.0106

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L3	72.3 - 32.3	20.481	6	2.6295	0.0053
L4	40.1 - 0	6.434	6	1.4312	0.0023

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
150.000	AIR32 KRD901146-1_B66A-B2A w/ Mount Pipe	6	85.263	4.8593	0.0140	12780
136.000	(2) TPA65R-BU8D w/ Mount Pipe	6	71.264	4.5827	0.0133	4563
125.000	Platfrom w/Handrails (LP 716)	6	60.604	4.3448	0.0126	2553
115.000	Commscope NHH-65B-R2B	6	51.404	4.0987	0.0118	1822

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	150 - 100 (1)	TP39.6x26.4x0.3	50.000	150.000	134.0	36.0389	-18.511	453.637	0.041
L2	100 - 65.5 (2)	TP48.3x37.548x0.4	40.000	150.000	110.1	58.4932	-27.227	1091.020	0.025
L3	65.5 - 32.3 (3)	TP56.3x45.6722x0.4	40.000	150.000	94.2	68.3395	-38.063	1720.030	0.022
L4	32.3 - 0 (4)	TP64x53.4276x0.4	40.100	150.000	79.7	80.7466	-53.737	2581.700	0.021

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	150 - 100 (1)	TP39.6x26.4x0.3	999.358	1921.217	0.520	0.000	1921.217	0.000
L2	100 - 65.5 (2)	TP48.3x37.548x0.4	2228.608	3906.250	0.571	0.000	3906.250	0.000
L3	65.5 - 32.3 (3)	TP56.3x45.6722x0.4	3561.617	5065.300	0.703	0.000	5065.300	0.000
L4	32.3 - 0 (4)	TP64x53.4276x0.4	5401.708	6598.100	0.819	0.000	6598.100	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	150 - 100 (1)	TP39.6x26.4x0.3	34.840	632.482	0.055	5.624	2096.383	0.003

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L2	100 - 65.5 (2)	TP48.3x37.548x0.4	39.205	1026.560	0.038	5.613	4141.917	0.001
L3	65.5 - 32.3 (3)	TP56.3x45.6722x0.4	43.471	1199.360	0.036	5.604	5653.708	0.001
L4	32.3 - 0 (4)	TP64x53.4276x0.4	48.055	1417.100	0.034	5.600	7892.933	0.001

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	150 - 100 (1)	0.041	0.520	0.000	0.055	0.003	0.564 ✔	1.000	4.8.2 ✔
L2	100 - 65.5 (2)	0.025	0.571	0.000	0.038	0.001	0.597 ✔	1.000	4.8.2 ✔
L3	65.5 - 32.3 (3)	0.022	0.703	0.000	0.036	0.001	0.727 ✔	1.000	4.8.2 ✔
L4	32.3 - 0 (4)	0.021	0.819	0.000	0.034	0.001	0.841 ✔	1.000	4.8.2 ✔

Section Capacity Table

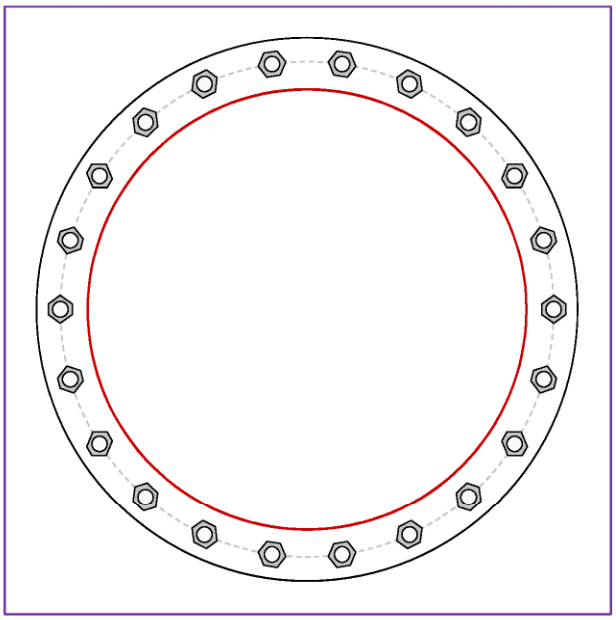
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	150 - 100	Pole	TP39.6x26.4x0.3	1	-18.511	453.637	56.4	Pass
L2	100 - 65.5	Pole	TP48.3x37.548x0.4	2	-27.227	1091.020	59.7	Pass
L3	65.5 - 32.3	Pole	TP56.3x45.6722x0.4	3	-38.063	1720.030	72.7	Pass
L4	32.3 - 0	Pole	TP64x53.4276x0.4	4	-53.737	2581.700	84.1	Pass
							Summary	
						Pole (L4)	84.1	Pass
						RATING =	**84.1**	**Pass**

Monopole Base Plate Connection

Site Info	
BU #	US-CT-5018
Site Name	
Order #	

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	1

Applied Loads	
Moment (kip-ft)	5401.71
Axial Force (kips)	53.74
Shear Force (kips)	48.05



Connection Properties

Anchor Rod Data

(22) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 72" BC

Base Plate Data

79" OD x 2" Plate (A572-50; Fy=50 ksi, Fu=65 ksi)

Stiffener Data

N/A

Pole Data

64" x 0.4" 18-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

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

Pu_c = 166.07	**ϕPn_c = 268.39**	**Stress Rating**
Vu = 2.18	**ϕVn = 120.77**	**61.9%**
Mu = n/a	**ϕMn = n/a**	**Pass**

Base Plate Summary

Max Stress (ksi):	44.71	(Flexural)
Allowable Stress (ksi):	45	
Stress Rating:	**99.4%**	**Pass**

Pier and Pad Foundation

BU # :	US-CT-5018
Site Name:	
App. Number:	

TIA-222 Revision:	H
Tower Type:	Monopole

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

Superstructure Analysis Reactions		
Compression, P_{comp}:	54	kips
Base Shear, Vu_comp:	48	kips
Moment, M_u:	5402	ft-kips
Tower Height, **H**:	150	ft
BP Dist. Above Fdn, bp_{dist}:	0	in

Foundation Analysis Checks				
	Capacity	**Demand**	**Rating**	**Check**
Lateral (Sliding) (kips)	383.67	48.00	**12.5%**	**Pass**
Bearing Pressure (ksf)	22.50	2.39	**10.6%**	**Pass**
*Overturning (kip*ft)*	9522.29	5786.00	**60.8%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	9009.25	5642.00	**62.6%**	**Pass**
Pier Compression (kip)	35992.10	99.24	**0.3%**	**Pass**
*Pad Flexure (kip*ft)*	8139.63	2116.63	**26.0%**	**Pass**
Pad Shear - 1-way (kips)	1051.30	300.76	**28.6%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.201	0.046	**23.1%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	9891.57	3385.20	**34.2%**	**Pass**

Soil Rating:	**60.8%**
Structural Rating:	**62.6%**

Pier Properties		
Pier Shape:	Circular	
Pier Diameter, **dpier**:	8	ft
Ext. Above Grade, **E**:	0.5	ft
Pier Rebar Size, **Sc**:	10	
Pier Rebar Quantity, **mc**:	38	
Pier Tie/Spiral Size, **St**:	5	
Pier Tie/Spiral Quantity, **mt**:	8	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	3	in

Pad Properties		
Depth, **D**:	7.5	ft
Pad Width, W_1:	28	ft
Pad Thickness, **T**:	3	ft
Pad Rebar Size (Bottom dir. 2), Sp_2:	10	
Pad Rebar Quantity (Bottom dir. 2), mp_2:	48	
Pad Clear Cover, cc_{pad}:	3	in

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

Soil Properties		
Total Soil Unit Weight, γ:	105	pcf
Ultimate Gross Bearing, Qult:	30.000	ksf
Cohesion, **Cu**:		ksf
Friction Angle, φ:	38	degrees
SPT Blow Count, N_{blows}:		
Base Friction, μ:	0.4	
Neglected Depth, **N**:	4.00	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, **gw**:	N/A	ft

<--Toggle between Gross and Net

Attachment 2:
Collocation Application

COLOCATION APPLICATION
US-CT-5018
Version 1
Cellco Partnership d/b/a Verizon Wireless

Vertical Bridge REIT, LLC.
750 Park of Commerce Drive
Suite 200
Boca Raton, FL 33487

SUMMARY

PRIMARY INFO

Application #: P-019408
Application Version: 1 (Submitted: 1/11/2022 7:22:00 PM)
Application Type: Broadband
Application Name: Verizon Wireless
Lease Type: New Lease
Description:
Verizon Co-Location

VERTICAL BRIDGE SITE INFO

VB Site #: US-CT-5018
VB Site Name: Hopewell
Latitude: 41.66079166
Longitude: -72.57409722
Structure Type: Monopole
Structure Height: 152.1600
Site Address: 63 Woodland St -
Glastonbury, CT 06073

VERTICAL BRIDGE DEAL TEAM

RLM: Floyd Jenkins
FJenkins@verticalbridge.com
(301) 667-0069

RLS: Sam Bowden
SBowden@verticalbridge.com

ROM: Joe Bascelli
JBascelli@verticalbridge.com
(484) 288-9586

TENANT LEGAL INFO

Tenant Legal Name: Cellco Partnership d/b/a Verizon Wireless
State of Registration: New Jersey
Type of Entity: d/b/a
Carrier NOC #: 8008522671
Tenant Site #: 708312
Tenant Site Name: South Glastonbury 3 CT

APPLICANT

Name: Chuck Bruttomesso
Address 318 West Avenue
Saratoga Sprints, NY 12866
Phone Number:: (860) 306-8355
Email Address: cbruttomesso@airosmithdevelopment.com

FINAL LEASED RIGHTS CONFIGURATION TOTALS

This is a summary of your remaining existing equipment plus the new equipment.

FINAL EQUIPMENT

Qty	Equipment Type
4	Other
9	Panel
12	RRU

FINAL LINES

Qty	Line Type
1	Hybrid

FREQUENCY & TECHNOLOGY INFO

Type of Technology: Wireless/Internet (WISP)

Is TX Frequency Licensed: Yes

TX Frequency: 746-757, 824-835, 845-846.50,1895-1902.50, 3550-3650, 1710-1730, 3700-3860, 27500-27600, 27925-28050, 37600-37700, 38000-38700, 37700-37800

Is RX Frequency Licensed: Yes

RX Frequency: 776-787, 869-880, 890-891.5, 1970-1982.50, 2110-2130, 27700-27925, 28150-28350

MOUNT & STRUCTURAL ANALYSIS

MOUNT ANALYSIS

Provided by Tenant: Yes

To Be Run by VB:

Include Mount Mapping:

STRUCTURAL HARD COPIES

Required: No

Number of Hard Copies

CONTACTS

INVOICE CONTACT

Attention To	Name	Address	Phone Number 1	Phone Number 2	Email 1	Email 2
Chuck Bruttomesso	Chuck Bruttomesso	318 West Avenue Saratoga Sprints, NY 12866	(860) 306-8355		cbruttomesso@airosmithdevelopment.com	cbruttomesso@airosmithdevelopment.com

PO CONTACT

Name	Phone Number	Email
Chuck Bruttomesso	(860) 306-8355	cbruttomesso@airosmithdevelopment.com

LEASING CONTACT

Name	Phone Number	Email
Keith Murray	(203) 241-0262	keith.murray@verizonwireless.com

RF CONTACT

Name	Phone Number	Email
Mark Brauer	(860) 214-8648	mark.brauer2@verizonwireless.com

TENANT CONSTRUCTION MANAGER CONTACT

Name	Phone Number	Email
Bryon Morawski	(860) 604-9142	bmorawski@structureconsulting.net

LINE & EQUIPMENT

Vertical Bridge REIT, LLC.
750 Park of Commerce Drive
Suite 200
Boca Raton, FL 33487

NEW LINE(S)

Qty	Line Type	Line Size(in.)	Line Location	Comments
1	Hybrid	1.625	Interior	

NEW EQUIPMENT

Qty	Equipment Type	RAD Height	Mount (H')	Mount Type	Manufacturer	Model Number	Dimensions (H"xW"xD")	Weight (Lbs.)	Azimuth	Comments
3	Panel	115.00	115.00	Platform	Commscope	NHH-65 B-R2B	71.97 x 11.85 x 7.09	43.65	30, 150, 270	
3	Panel	115.00	115.00	Platform	Commscope	NHHSS-65B-R2 BT4	71.97 x 11.85 x 7.13	50.92	30,150, 270	
3	Panel	115.00	115.00	Platform	Samsung	MT6407 -77A	35.12 x 16.06 x 5.51	87.10	30, 150, 270	
3	RRU	115.00	115.00	Platform	Samsung	RF4439 d-25A	14.96 x 14.96 x 10.04	74.70	30,150, 270	
3	RRU	115.00	115.00	Platform	Samsung	RF4440 d-13A	14.96 x 14.96 x 9.05	70.33	30, 150, 270	
3	RRU	115.00	115.00	Platform	Samsung	MT6407 -77A	35.06 x 16.06 x 5.51	79.40	30, 150, 270	
1	Other	115.00	115.00	Platform	Commscope	12 OVP	29.50 x 16.50 x 12.60	32.00	30, 150, 270	
3	Other	115.00	115.00	Platform	~~Commscope~~ Commscope	Basmnt-SBS-1-2	4.50 x 2.40 x 2.40	25.57	30, 150, 270	
3	RRU	115.00	115.00	Platform	Samsung	CBRS RRH - RT4401 -48A	56.00 x 24.00 x 17.50	14.50	30, 150, 270	

ADDITIONAL SITE REQUIREMENTS

GROUND & INTERIOR SPACE REQUIREMENTS

Requirement Type	Total Lease Area (L x W)	Cabinet Required	Cabinet Area (L x W)	Shelter Required	Shelter Pad (L x W)	Comments
New	22.00 x 12.00		x		x	

GENERATOR REQUIREMENTS

Requirement Type	Fuel Type	Kilowatt Size	Pad Dimensions (L x D)	Generator Manufacturer	Fuel Tank Manufacturer	Comments
New	Diesel	50	5.00 x 8.00	Generac	Generac	

AC POWER REQUIREMENTS

Meter Type	Additional Details	Comments
New Tenant Meter		

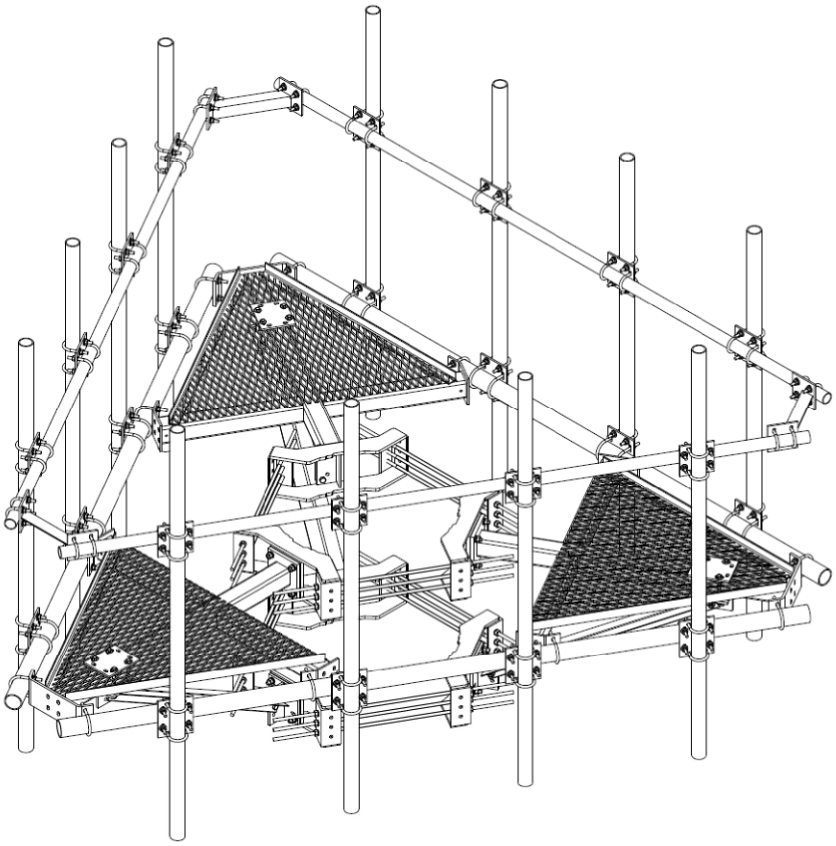
BACKHAUL REQUIREMENTS

Requirement Type	Cable Type	Number Of Points Of Entry	Riser Size (Inches)	Comments
New	Fiber	1	4.00	

verizon

20 Alexander Drive
Wallingford, CT 06492

MOUNT ANALYSIS
SOUTH GLASTONBURY 3 CT



Address:
63 WOODLAND STREET
SOUTH GLASTONBURY, CT 06073
LOCATION CODE: 708312

STATE OF CONNECTICUT
CLEMENT J. SALEK
No. 26876
LICENSED PROFESSIONAL ENGINEER

Date:
APRIL 15, 2022 (REV. 1)

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil • Structural • Land Surveying

R.K. Executive Centre ■ 201 Boston Post Road West ■ Suite 101 ■ Marlborough, MA 01752
t. 508.481.7400 ■ www.chappellengineering.com ■ f. 508.481.7406

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil • Structural • Land Surveying

April 15, 2022

verizon

20 Alexander Drive, 2nd Floor
Wallingford, CT 06492

RE:

Applicant Site Name:	South Glastonbury 3 CT
Applicant Location Code:	708312
Site Address:	63 Woodland Street, South Glastonbury, CT 06073

To whom it may concern:

Chappell Engineering Associates, LLC has performed a structural analysis of the proposed Verizon braced low-profile antenna mounting platform being proposed at the existing 150'+/- monopole located at the above-referenced address at approximately 115 ft AGL to analyze the effect of the proposed Verizon antenna installation on the subject platform.

The proposed antenna support structure will consist of one (1) low-profile antenna frame supporting twelve (12) individual antenna pipe mounts. Our analysis has considered the following total major equipment loads indicated on the antenna design summary (included in this report) to be installed on the proposed low-profile antenna frame:

Appurtenance	Size (HxWxD) (in)	Weight	Location	Status
(3) NHH-65B-R2B Panel Antennas	72.0x11.9x7.1	43.7lbs	Face of Mount	Proposed
(3) NHHSS-65B-R2B R2BT4 Panel Antennas	72.0x11.9x7.1	48.1lbs	Face of Mount	Proposed
(3) MT6407-77A Panel Antennas	35.2x16.1x5.6	87lbs	Face of Mount	Proposed
(3) 700/850 mHz RRH	15.0x15.0x9.0	70.3lbs	Face of Mount	Proposed
(3) 1900/2100 mHz RRH	15.0x15.0x10.0	84.4lbs	Face of Mount	Proposed
(3) RT4401-48A RRH	13.9x8.6x4.2	18.6lbs	Face of Mount	Proposed
(1) Fiber Junction Box	29.6x16.5x12.6	32.0lbs	Face of Mount	Proposed

The proposed antennas and ancillary hardware are shown on the enclosed Lease Exhibits and RF Data Sheets.

We have modeled the entire low-profile antenna frame under both wind and wind/ice loads. Our analysis and results are included in this report.

Based upon our analysis of the antenna mounts being proposed, **we consider the proposed RMQP-496-HK low-profile mounting frame assembly has adequate capacity** to support the proposed antenna configuration as shown on the construction drawings. Our analysis assumes the mount will be installed and maintained according to the manufacturers' recommendations.

If you have any questions regarding this matter, please do not hesitate to call.

Sincerely,
CHAPPELL ENGINEERING ASSOCIATES, LLC

STATE OF CONNECTICUT
CLEMENT J. SALEK
No. 26376
LICENSED PROFESSIONAL ENGINEER

Clement J Salek, P.E.
CJS/cjs

Appendix A – Construction Drawings

SUPPORTING DOCUMENTS

RADIO FREQUENCY (RF) DESIGN DATE: 12/27/21

ANTENNA MOUNT STRUCTURAL ANALYSIS DATE: 4/15/22

ANTENNA SUPPORT STRUCTURE (150'± MONOPOLE) STRUCTURAL ANALYSIS DATE: 4/12/22
(BY BENNETT & PLESS, INC.)

verizon

20 ALEXANDER DRIVE, 2nd FLOOR, WALLINGFORD, CT 06492

SOUTH GLASTONBURY 3 CT

63 WOODLAND STREET
SOUTH GLASTONBURY, CT 06073

PROJECT TYPE: WIRELESS TELECOMMUNICATIONS
COLLOCATION ON EXISTING 150'± MONOPOLE

SITE INFORMATION:

PARENT PARCEL OWNER:	PAUL J. CAVANNA 80 WOODLAND STREET SOUTH GLASTONBURY, CT 06073
TOWER OWNER:	VERTICAL BRIDGE REIT, LLC 750 PARK OF COMMERCE DRIVE, SUITE 200 BOCA RATON, FL 33487 (561) 948-6367
TOWER OWNER ID:	CT-5018 (HOPEWELL)
APPLICANT:	CELLCO PARTNERSHIP (dba VERIZON WIRELESS) 20 ALEXANDER DRIVE WALLINGFORD, CT 06492
SITE ADDRESS:	63 WOODLAND STREET SOUTH GLASTONBURY, CT 06073
COUNTY:	HARTFORD COUNTY, CT
SITE CONTROL POINT:	CENTER OF EXISTING MONOPOLE N 41°-39'-38.85" (41.660792°) (NAD '83) W 72°-34'-26.75" (72.574097°) (NAD '83)
JURISDICTION:	CONNECTICUT SITING COUNCIL
TAX ID PARCEL NUMBER:	MAP G11 STREET 7800 LOT W0002
ARCHITECT / ENGINEER:	CHAPPELL ENGINEERING ASSOCIATES, LLC 201 BOSTON POST ROAD WEST, SUITE 101 MARLBOROUGH, MA 01752
POWER COMPANY:	EVERSOURCE ENERGY 247 STATION DRIVE, SE 210 WESTWOOD, MA 02090 (781) 441-3610
TELEPHONE COMPANY:	VERIZON 185 FRANKLIN STREET BOSTON, MA 02107 (800) 941-9900

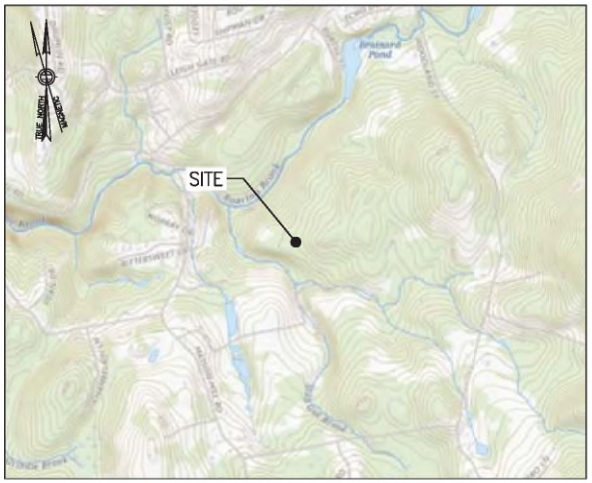
GENERAL NOTES

1. CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, AND CONDITIONS ON JOB SITE. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK. FAILURE TO NOTIFY THE ARCHITECT/ENGINEER PLACES THE RESPONSIBILITY ON THE CONTRACTOR TO CORRECT THE DISCREPANCIES AT THE CONTRACTOR'S EXPENSE.
2. NEW CONSTRUCTION SHALL CONFORM TO ALL APPLICABLE CODES AND ORDINANCES.
   - BUILDING CODE: 2018 CONNECTICUT STATE BUILDING CODE
   - ELECTRICAL CODE: 2017 NATIONAL ELECTRICAL CODE
   - STRUCTURAL CODE: TIA/EIA-222-G STRUCTURAL STANDARDS FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS.

AT LEAST 72 HOURS PRIOR TO DIGGING, THE CONTRACTOR IS REQUIRED TO CALL DIG SAFE AT 811

VICINITY MAP

SCALE: 1"=1000'



DRIVING DIRECTIONS

FROM WALLINGFORD, TAKE I-91 NORTH. TAKE THE EXIT ON/TO CT-3 NORTH TOWARD GLASTONBURY. TAKE THE EXIT ON/TO CT-2 EAST TOWARD NORWICH. TAKE EXIT 7 ON THE LEFT FOR CT-17 SOUTH TOWARD PORTLAND. CONTINUE ONTO CT-17 S/GLASTONBURY EXPRESSWAY. TURN LEFT ONTO CHESTNUT HILL ROAD. TURN RIGHT ONTO SUNSET DRIVE. TURN LEFT ONTO HOPEWELL ROAD. TURN RIGHT ONTO WOODLAND STREET. THE SITE WILL BE ON THE RIGHT HAND SIDE.

SHEET INDEX

DWG.	DESCRIPTION	REV.
T01	TITLE SHEET	3
GN01	GENERAL NOTES	3
C01	PROPERTY PLAN	3
A01	EQUIPMENT COMPOUND PLAN	3
A02	EQUIPMENT AREA PLAN & DETAILS	3
A03	WEST AND NORTH EQUIPMENT COMPOUND ELEVATIONS	3
S01	ICE SHIELD FRAMING PLAN & STRUCTURAL DETAILS	3
RF01	ANTENNA MOUNTING PLAN AND DETAILS	3
RF02	ANTENNA DETAILS AND ANCILLARY EQUIPMENT SPECIFICATIONS	3
RF03	RF BILL OF MATERIALS AND RF CABLE PLUMBING DIAGRAM	3
RF04	RF COLOR CODE SPECIFICATIONS	3
E01	ELECTRICAL SPECIFICATIONS AND NOTES	3
E02	EQUIPMENT COMPOUND UTILITY PLAN & DETAILS	3
E03	ELECTRICAL DIAGRAMS & DETAILS	3
E04	SCHEMATIC GROUNDING PLAN & DETAILS	3
E05	GROUNDING DETAILS	3

DO NOT SCALE DRAWINGS

ALL PLANS, EXISTING DIMENSIONS AND CONDITIONS AT THE PROPOSED PROJECT SITE SHALL BE VERIFIED IN THE FIELD DURING THE CONSTRUCTION PHASE. THE PROJECT OWNER'S REPRESENTATIVE SHALL BE NOTIFIED IN WRITING OF ANY DISCREPANCIES IMMEDIATELY PRIOR TO PROCEEDING WITH THE PROPOSED WORK AFFECTED BY SUCH DISCREPANCIES. IN THE EVENT OF LACK OF SUCH NOTIFICATION, SUCH DISCREPANCIES SHALL BECOME THE RESPONSIBILITY OF THE PREVAILING CONTRACTOR RESPONSIBLE FOR CONSTRUCTION.

PROJECT DESCRIPTION

1. THIS IS AN UNMANNED AND RESTRICTED ACCESS EQUIPMENT INSTALLATION AND WILL BE USED FOR THE TRANSMISSION OF RADIO SIGNAL FOR THE PURPOSE OF PROVIDING PUBLIC WIRELESS TELECOMMUNICATIONS SERVICE.
2. THIS FACILITY WILL CONSUME NO UNRECOVERABLE ENERGY.
3. NO POTABLE WATER SUPPLY IS TO BE PROVIDED AT THIS LOCATION.
4. NO WASTE WATER WILL BE GENERATED AT THIS LOCATION.
5. NO SOLID WASTE WILL BE GENERATED AT THIS LOCATION.

CLIENT:

verizon
* Because Better Matters *

ARCHITECT/ENGINEER:

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil · Structural · Land Surveying
R.K. EXECUTIVE CENTRE
201 BOSTON POST ROAD WEST
SUITE 101
MARLBOROUGH, MA 01752
(508) 481-7400
www.chcppellengineering.com

SEAL:

ENGINEER/LAND SURVEYOR DATE

DRAWING SCALE NOTE:

THESE DRAWINGS HAVE BEEN PREPARED IN ARCH D (24"x36") FORMAT. AS SUCH, THE WRITTEN SCALES SHOWN ON ANY REPRODUCTIONS OF A CONTRACTORS SIZE SHALL BE RENDERED INVALID. ALL BAR SCALES MAY BE USED REGARDLESS OF REPRODUCTION SIZE. WHERE IN CONFLICT, BAR SCALES SHALL SUPERSEDE WRITTEN SCALES.

REVISIONS

NO.	DESCRIPTION	DATE
0	ISSUED FOR REVIEW	1/20/22
1	ISSUED FOR CONSTRUCTION (FINAL)	2/10/22
2	REVISED TSA REFERENCE DATE	4/13/22
3	REVISED MSA REFERENCE DATE	4/15/22

PROJECT NAME:

SOUTH GLASTONBURY 3 CT
63 WOODLAND STREET
SOUTH GLASTONBURY, CT 06073

DRAWING TITLE:

TITLE SHEET

DRAWING NO:

T01

SCALE: AS SHOWN	DESIGNED BY: NWC DRAWN BY: NWC CHECKED BY: GBS	VZW PROJECT CODE: 20212309233 VZW PROJECT NO.: 19085720
CEA PROJECT NO.: 96210.404	ORIGINAL ISSUE DATE: 1/20/22	VZW LOCATION CODE: 708312

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWINGS, THE FOLLOWING DEFINITIONS SHALL APPLY:
   CONTRACTOR – VERIZON WIRELESS
   SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
   OWNER – VERIZON WIRELESS
   OEM – ORIGINAL EQUIPMENT MANUFACTURER

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

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

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

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

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

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

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

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

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

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

12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.

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

14. SUBCONTRACTOR SHALL NOTIFY CHAPPELL ENGINEERING ASSOCIATES, LLC. 48 HOURS IN ADVANCE OF POURING CONCRETE OR BACK FILLING TRENCHES, SEALING ROOF AND WALL PENETRATIONS & POST DOWNS, FINISHING NEW WALLS OR FINAL ELECTRICAL CONNECTIONS FOR ENGINEERING REVIEW.

15. CONSTRUCTION SHALL COMPLY WITH VERIZON WIRELESS NETWORK STANDARD #NSTD123 TO THE MAXIMUM EXTENT FEASIBLE UNLESS PRECLUDED OR LIMITED BY DESIGN SHOWN ON THESE DRAWINGS.

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

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

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

SITE WORK GENERAL NOTES:

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

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

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

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

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

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

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

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

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

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

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

CONCRETE AND REINFORCING STEEL NOTES:

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

2. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS, UNLESS NOTED OTHERWISE. A HIGHER STRENGTH (4000PSI) MAY BE USED. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 381 CODE REQUIREMENTS

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

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

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

6. INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHOR, SHALL BE PER MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO MANUFACTURER'S RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR ENGINEERING APPROVAL. WHEN DRILLING HOLES IN CONCRETE, SPECIAL INSPECTIONS, REQUIRED BY GOVERNING CODES, SHALL BE STAINLESS STEEL OR HOT DIPPED GALVANIZED. EXPANSION BOLTS SHALL BE PROVIDED BY RAWSET/REDHEAD OR APPROVED EQUAL.

7. CONCRETE CYLINDER TEST IS NOT REQUIRED FOR SLAB ON GRADE WHEN CONCRETE IS LESS THAN 50 CUBIC YARDS (IBC1905.6.2.3) IN THAT EVENT THE FOLLOWING RECORDS SHALL BE PROVIDED BY THE CONCRETE SUPPLIER;
   (A) RESULTS OF CONCRETE CYLINDER TEST PERFORMED AT THE SUPPLIERS PLANT.
   (B) CERTIFICATION OF MINIMUM COMPRESSIVE STRENGTH FOR THE CONCRETE GRADE SUPPLIED.
FOR GREATER THAN 50 CUBIC YARDS THE CC SHALL PERFORM THE CONCRETE CYLINDER TEST.

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

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

STRUCTURAL STEEL NOTES:

1. ALL STEEL WORK SHALL BE PAINTED OR GALVANIZED IN ACCORDANCE WITH THE DRAWINGS AND VERIZON WIRELESS SPECIFICATION 25252-000-3PS-GET-00001 UNLESS OTHERWISE NOTED. STRUCTURAL STEEL SHALL BE ASTM-A-36 UNLESS OTHERWISE NOTED ON THE SITE SPECIFIC DRAWINGS. STEEL DESIGN, INSTALLATION AND BOLTING SHALL BE IN ACCORDANCE WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) "MANUAL OF STEEL CONSTRUCTION".

2. ALL WELDING SHALL BE PERFORMED USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND AWS D1.1. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION", 9TH EDITION. PAINTED SURFACES SHALL BE TOUCHED UP.

3. BOLTED CONNECTIONS SHALL USE BEARING TYPE ASTM A325 BOLTS (¾"ø) AND SHALL HAVE MINIMUM OF TWO BOLTS UNLESS NOTED OTHERWISE.

4. NON-STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE ⅝" DIA. ASTM A 307 BOLTS UNLESS NOTED OTHERWISE.

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

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

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

SOIL COMPACTION NOTES FOR SLAB ON GRADE:

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

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

3. AS AN ALTERNATE TO INSPECTION AND WRITTEN CERTIFICATION, THE "UNDISTURBED SOIL" BASE SHALL BE COMPACTED WITH "COMPACTION EQUIPMENT", LISTED BELOW, TO AT LEAST 90% MODIFIED PROCTOR MAXIMUM DENSITY PER ASTM D 1557 METHOD C.

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

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

COMPACTION EQUIPMENT:

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

CONSTRUCTION NOTES:

1. FIELD VERIFICATION:
SUBCONTRACTOR SHALL FIELD VERIFY SCOPE OF WORK, VERIZON WIRELESS ANTENNA PLATFORM LOCATION AND ANTENNAS TO BE REPLACED.

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

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

ELECTRICAL INSTALLATION NOTES:

1. WIRING, RACEWAY, AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC AND TELCORDIA.

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

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

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

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

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

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

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

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

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

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

12. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED OUTDOORS, OR BELOW GRADE, SHALL BE SINGLE CONDUCTOR #3 AWG SOLID TINNED COPPER CABLE, UNLESS OTHERWISE SPECIFIED.

13. POWER AND CONTROL WIRING, NOT IN TUBING OR CONDUIT, SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#34 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN-2, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; WITH OUTER JACKET; LISTED OR LABELED FOR THE LOCATION USED, UNLESS OTHERWISE SPECIFIED.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

CLIENT:

verizon
"Because Better Matters"

ARCHITECT/ENGINEER:

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil · Structural · Land Surveying
R.K. EXECUTIVE CENTRE
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(508) 481-7400
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SEAL:

ENGINEER/LAND SURVEYOR DATE

DRAWING SCALE NOTE:

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REVISIONS

NO.	DESCRIPTION	DATE
0	ISSUED FOR REVIEW	1/20/22
1	ISSUED FOR CONSTRUCTION (FINAL)	2/10/22
2	REVISED TSA REFERENCE DATE	4/13/22
3	REVISED MSA REFERENCE DATE	4/15/22

PROJECT NAME:

SOUTH GLASTONBURY 3 CT

63 WOODLAND STREET
SOUTH GLASTONBURY, CT 06073

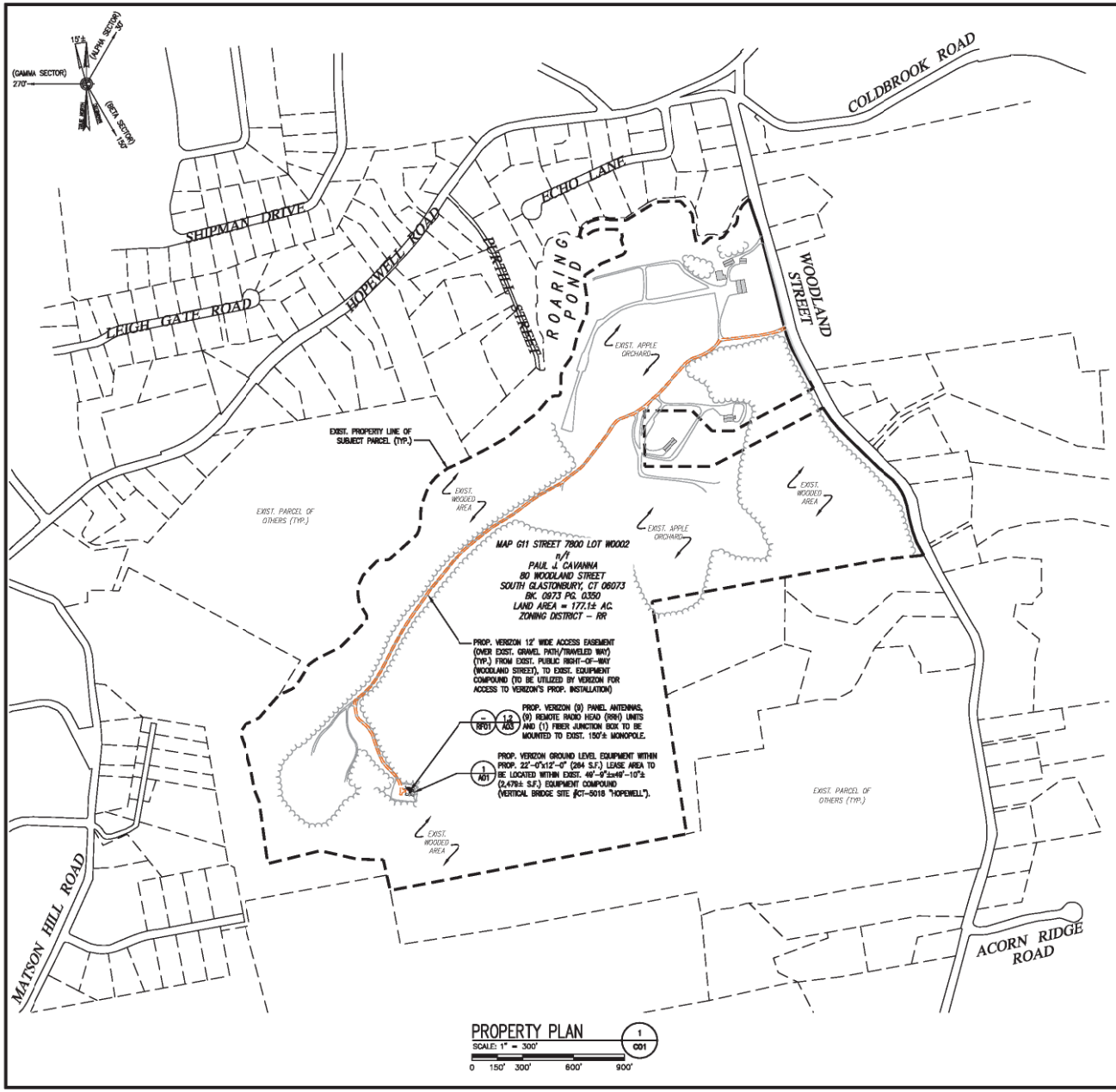
DRAWING TITLE:

GENERAL NOTES

DRAWING NO:

GN01

SCALE: N/A	DESIGNED BY: NMC DRAWN BY: NMC CHECKED BY: GRS	VZW PROJECT CODE: 22212308233 VZW PROJECT NO.: 16085720
CEA PROJECT NO.: 96210.404	ORIGINAL ISSUE DATE: 1/20/22	VZW LOCATION CODE: 708312



GENERAL NOTES:

1.	INITIAL DESIGN VISIT DATE:	1/4/22
2.	VERTICAL DATUM:	NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD '88)
3.	HORIZONTAL DATUM:	NORTH AMERICAN DATUM OF 1983 (NAD '83)
4.	SITE CONTROL POINT:	CENTER OF EXISTING MONOPOLE LATITUDE: N. 41°-39'-38.85" (41.660792°) (NAD '83) LONGITUDE: W. 72°-34'-28.75" (72.574097°) (NAD '83)
5.	PARENT PARCEL OWNER:	PAUL J. CAVANNA 80 WOODLAND STREET SOUTH GLASTONBURY, CT 06073
6.	TOWER OWNER:	VERTICAL BRIDGE REIT, LLC 750 PARK OF COMMERCE DRIVE, SUITE 200 BOCA RATON, FL 33487 (561) 948-6367
7.	TOWER OWNER ID:	CT-5018 (HOPEWELL)
8.	SITE ADDRESS:	63 WOODLAND STREET SOUTH GLASTONBURY, CT 06073
9.	APPLICANT:	CELLCO PARTNERSHIP (dba VERIZON WIRELESS) 20 ALEXANDER DRIVE WALLINGFORD, CT 06492
10.	JURISDICTION:	CONNECTICUT SITING COUNCIL
11.	TAX ID:	MAP G11 STREET 7800 LOT W0002
12.	DEED REFERENCE:	BK. 0973 PG. 0350
13.	PLAN REFERENCES:	TOWN OF GLASTONBURY ASSESSOR/GIS MAPS
14.	ZONING CLASSIFICATION:	RR (RURAL RESIDENCE)

15. ALL UNDERGROUND UTILITY INFORMATION PRESENTED HEREON WAS DETERMINED FROM SURFACE EVIDENCE AND PLANS OF RECORD. ALL UNDERGROUND UTILITIES SHOULD BE LOCATED IN THE FIELD PRIOR TO THE COMMENCEMENT OF ANY SITE WORK. CALL DIGSAFE 1-888-344-7233 A MINIMUM OF 72 HOURS PRIOR TO PLANNED ACTIVITY.
16. THE PROPERTY LINES SHOWN WERE COMPILED UTILIZING TOWN OF GLASTONBURY ASSESSOR'S PLANS, GIS, RECORDED DEEDS AND PLANS OF REFERENCE AS INDICATED. A COMPLETE BOUNDARY SURVEY WAS NOT UTILIZED IN THE PREPARATION OF THESE PLANS.
17. THE SITE IS LOCATED IN FLOOD HAZARD ZONE X (AREA OF MINIMAL FLOOD HAZARD) AS SHOWN ON FLOOD INSURANCE RATE MAP FOR THE TOWN OF GLASTONBURY, (MAP NUMBER 09003C0537F) EFFECTIVE 9/26/2008.
18. BEARING SYSTEM OF THIS PLAN IS BASED ON GRID NORTH. TRUE NORTH WAS ESTABLISHED FROM GPS OBSERVATIONS. IT IS NOT INTENDED TO BE AN EXACT REPRESENTATION OF TRUE NORTH.

LEGEND

- PROPERTY LINE (OR STREET)
- ABUTTING PROPERTY LINE
- PROPERTY OFFSET/RADIUS
- EXIST. EASEMENT
- EXIST. CHAIN LINK FENCE
- EXIST. STOCKADE FENCE
- EXIST. EDGE OF PAVEMENT
- EXIST. OVERHEAD UTILITIES (OHW)
- APPROXIMATE ZONING BOUNDARY
- APPROXIMATE TOWN LINE

CLIENT:

verizon
"Because Better Matters"

ARCHITECT/ENGINEER:

CHAPPELL ENGINEERING ASSOCIATES, LLC
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R.K. EXECUTIVE CENTRE
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SUITE 101
MARLBOROUGH, MA 01752
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www.chappellengineering.com

SEAL:

ENGINEER/LAND SURVEYOR DATE

DRAWING SCALE NOTE:

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REVISIONS

NO.	DESCRIPTION	DATE
0	ISSUED FOR REVIEW	1/20/22
1	ISSUED FOR CONSTRUCTION (FINAL)	2/10/22
2	REVISED TSA REFERENCE DATE	4/13/22
3	REVISED MSA REFERENCE DATE	4/15/22

PROJECT NAME:

SOUTH GLASTONBURY 3 CT
63 WOODLAND STREET
SOUTH GLASTONBURY, CT 06073

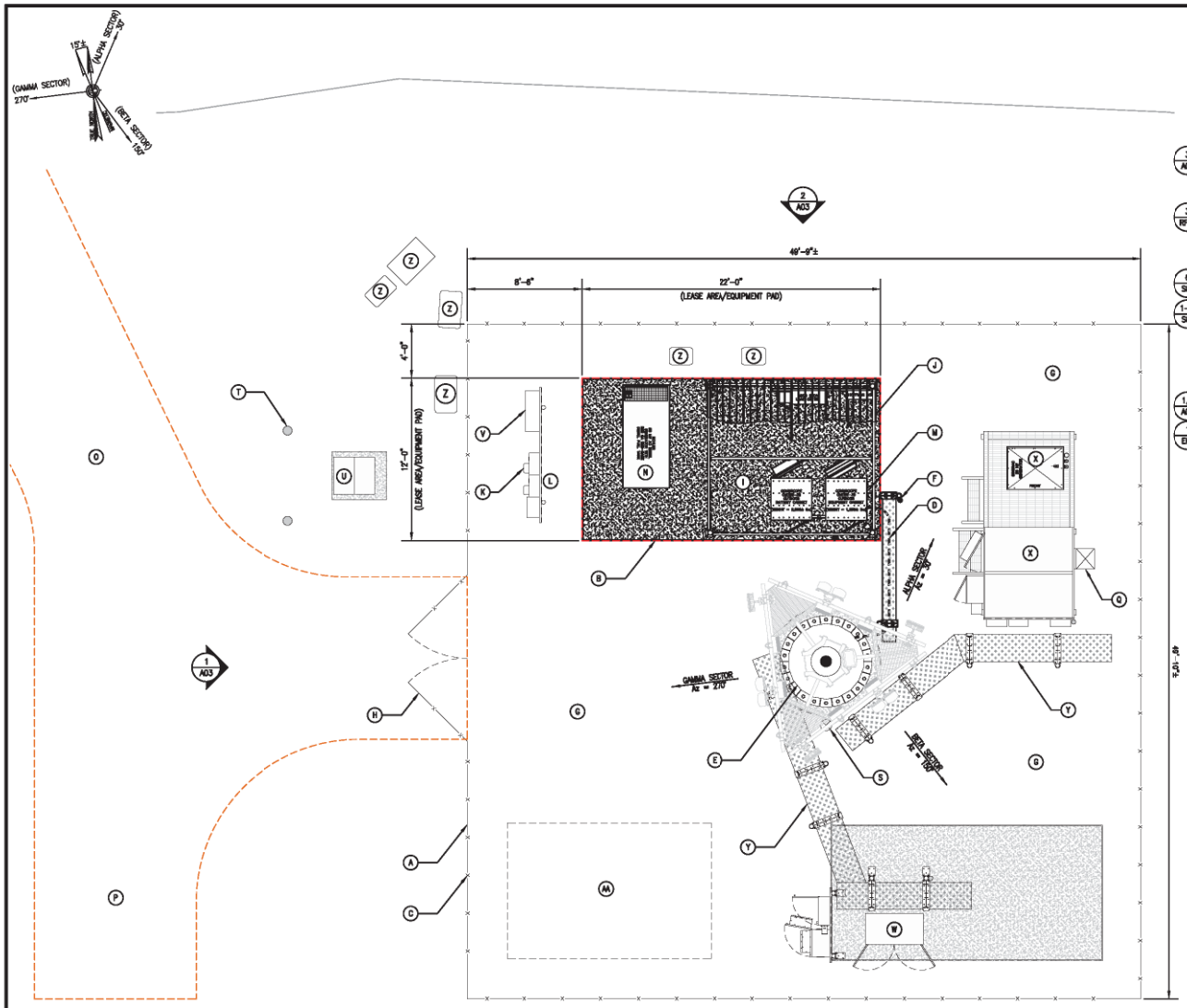
DRAWING TITLE:

PROPERTY PLAN

DRAWING NO:

C01

SCALE: 1" = 300'	DESIGNED BY: NMC DRAWN BY: NMC CHECKED BY: GRS	VZW PROJECT CODE: 20212308233 VZW PROJECT NO.: 16085720
CEA PROJECT NO.: 96210.404	ORIGINAL ISSUE DATE: 1/20/22	VZW LOCATION CODE: 708312



LEGEND

ITEM	DESCRIPTION
A	EXIST. 49'-9"±x49'-10"± (2,479± S.F.) EQUIPMENT COMPOUND (VERTICAL BRIDGE SITE #CT-5016 "HOPEWELL")
B	LIMITS OF VERIZON'S PROP. 22'-0"x12'-0" (264 S.F.) LEASE AREA/EQUIPMENT PAD (TYP.)
C	EXIST. 7'± CHAIN-LINK FENCE WITH BARBED WIRE RIM SURROUNDING EXIST. 49'-9"±x49'-10"± (2,479± S.F.) EQUIPMENT COMPOUND (TYP.)
3 A02 D	PROP. VERIZON (1)-LOW INDUCTANCE 12x24 HYBRID SIGNAL CABLE ROUTED ALONG PROP. OVERHEAD CABLE ICE BRIDGE (TYP.) FROM VERIZON'S PROP. EQUIPMENT PAD TO EXIST. MONOPOLE AS SHOWN.
E	EXIST. 150'± MONOPOLE
3 RF01 F	PROP. VERIZON GPS ANTENNA MOUNTED TO PROP. OVERHEAD CABLE ICE BRIDGE. TOP OF GPS ANTENNA SHALL BE MOUNTED 2'-0" ABOVE TOP OF ICE BRIDGE.
G	EXIST. GRAVEL COVER WITHIN EXIST. COMPOUND
H	EXIST. 12'± DOUBLE LEAF GATE
6 S01 I	PROP. VERIZON 22'-0"x12'-0" (264 S.F.) REINFORCED CONCRETE EQUIPMENT PAD
1-4 S01 J	PROP. VERIZON 12'-6"x11'-10" (148± S.F.) METAL DECK ICE SHIELD (SHOWN TRANSPARENT FOR CLARITY) ABOVE PROP. EQUIPMENT
K	EXIST. VACANT METER SOCKET AND DISCONNECT BREAKER KNOCKOUT TO BE UTILIZED FOR VERIZON'S PROP. 200A ELECTRIC SERVICE TO PROP. EQUIPMENT INSTALLATION.
L	EXIST. 800A 1Ø-3W 120/240 VAC ELECTRIC METER BANK
1,2 A02 M	PROP. VERIZON EQUIPMENT CABINET MOUNTED TO PROP. 22'-0"x12'-0" (264 S.F.) REINFORCED CONCRETE EQUIPMENT PAD (TYP.)
1 E01 N	PROP. VERIZON 50 kW BACK-UP DIESEL GENERATOR MOUNTED TO PROP. 22'-0"x12'-0" (264 S.F.) REINFORCED CONCRETE PAD
O	PROP. VERIZON 12' WIDE ACCESS EASEMENT (OVER EXIST. GRAVEL PATH/TRAVELED WAY) (TYP.) FROM EXIST. PUBLIC RIGHT-OF-WAY WOODLAND STREET), TO EXIST. EQUIPMENT COMPOUND (TO BE UTILIZED BY VERIZON FOR ACCESS TO VERIZON'S PROP. INSTALLATION). SEE SHEET C01 FOR CONTINUATION TO WOODLAND STREET.
P	PROP. VERIZON 12'x20' PARKING SPACE OR TURN-AROUND AREA
Q	EXIST. AT&T WALL-MOUNTED AC UNIT
R	THIS SPACE INTENTIONALLY LEFT BLANK
S	EXIST. GROUND TEST WELL
T	EXIST. BOLLARD (TYP.)
U	EXIST. ELECTRIC TRANSFORMER ON EXIST. CONCRETE PAD/VAULT
V	EXIST. TELEPHONE SERVICE CABINET/HANDOFF MOUNTED TO EXIST. FREE-STANDING UTILITY RACK
W	EXIST. T-MOBILE EQUIPMENT ON EXIST. 20'-0"±x10'-0"± (200± S.F.) CONCRETE PAD
X	EXIST. AT&T EQUIPMENT CABINET AND BACK-UP DIESEL GENERATOR ON EXIST. 6'-8"±x13'-9"± (92± S.F.) STEEL EQUIPMENT PLATFORM
Y	EXIST. OVERHEAD CABLE ICE BRIDGE OF OTHERS (TYP.)
Z	EXIST. UTILITY PULLBOX (6 TOTAL)
AA	EXIST. 15'-0"x10'-0" (150 S.F.) DISH WIRELESS LEASE AREA

SITE CONTROL POINT:
CENTER OF EXISTING MONOPOLE
N 41°-39'-38.85" (41.660792°) (NAD '83)
W 72°-34'-26.75" (72.574097°) (NAD '83)
ELEV. = 317.7' AMSL (NAVD '88)
PER 1A SURVEY OF OTHERS

EQUIPMENT COMPOUND PLAN

1 A01

SCALE: 1/4" = 1'-0"

0 4'-0" 8'-0" 12'-0"

CLIENT:

verizon
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ARCHITECT/ENGINEER:

CHAPPELL ENGINEERING ASSOCIATES, LLC
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MARLBOROUGH, MA 01752
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SEAL:

ENGINEER/LAND SURVEYOR DATE

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IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

REVISIONS

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3	REVISED MSA REFERENCE DATE	4/15/22

PROJECT NAME:

SOUTH GLASTONBURY 3 CT

63 WOODLAND STREET
SOUTH GLASTONBURY, CT 06073

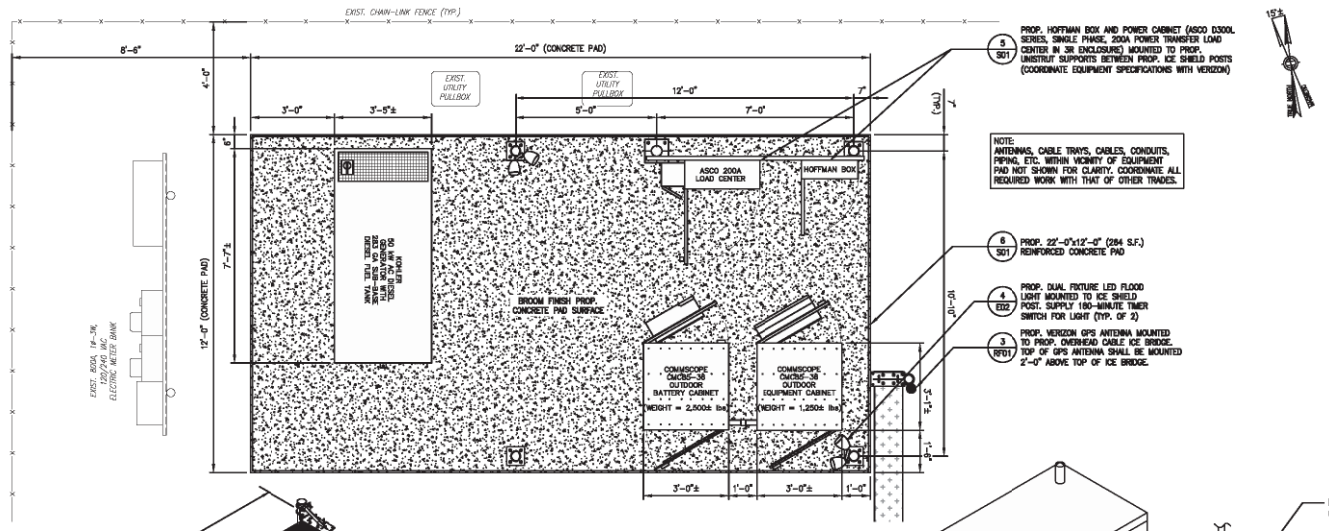
DRAWING TITLE:

EQUIPMENT COMPOUND PLAN

DRAWING NO:

A01

SCALE: X" = 1'-0"	DESIGNED BY: NWC	VZW PROJECT CODE: 20212308233
	DRAWN BY: NWC	
	CHECKED BY: GRS	VZW PROJECT NO.: 16085720
CEA PROJECT NO.: 96210.404	ORIGINAL ISSUE DATE: 1/20/22	VZW LOCATION CODE: 708312



5 / SD1 PROP. HOFFMAN BOX AND POWER CABINET (ASCO D300L SERIES, SINGLE PHASE, 200A POWER TRANSFER LOAD CENTER IN 3R ENCLOSURE) MOUNTED TO PROP. UNISTRUT SUPPORTS BETWEEN PROP. ICE SHIELD POSTS (COORDINATE EQUIPMENT SPECIFICATIONS WITH VERIZON)

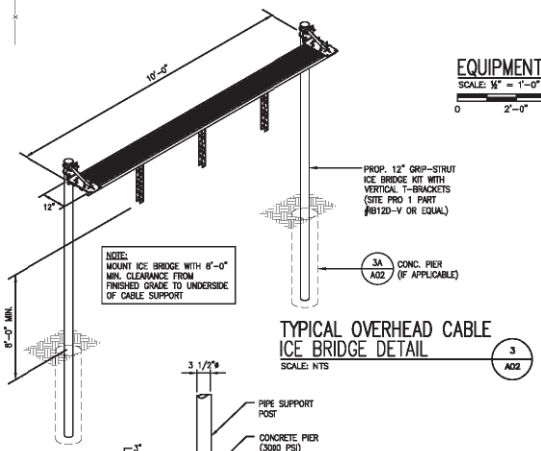
NOTE: ANTENNAS, CABLE TRAYS, CABLES, CONDUITS, PIPING, ETC. WITHIN VICINITY OF EQUIPMENT PAD NOT SHOWN FOR CLARITY. COORDINATE ALL REQUIRED WORK WITH THAT OF OTHER TRADES.

6 / SD1 PROP. 22'-0"x12'-0" (284 S.F.) REINFORCED CONCRETE PAD

4 / ED2 PROP. DUAL FIXTURE LED FLOOD LIGHT MOUNTED TO ICE SHIELD POST. SUPPLY 180-MINUTE TIMER SWITCH FOR LIGHT (TYP. OF 2)

3 / RF01 PROP. VERIZON GPS ANTENNA MOUNTED TO PROP. OVERHEAD CABLE ICE BRIDGE. TOP OF GPS ANTENNA SHALL BE MOUNTED 2'-0" ABOVE TOP OF ICE BRIDGE.

EQUIPMENT AREA PLAN 1 / A02
SCALE: ⅛" = 1'-0"
0 2'-0" 4'-0" 6'-0"

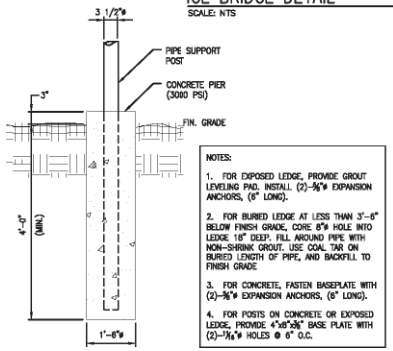


PROP. 12" GRIP-STRUT ICE BRIDGE KIT WITH VERTICAL T-BRACKETS (SITE PRO 1 PART #B12D-V OR EQUAL)

3A / A02 CONC. PIER (IF APPLICABLE)

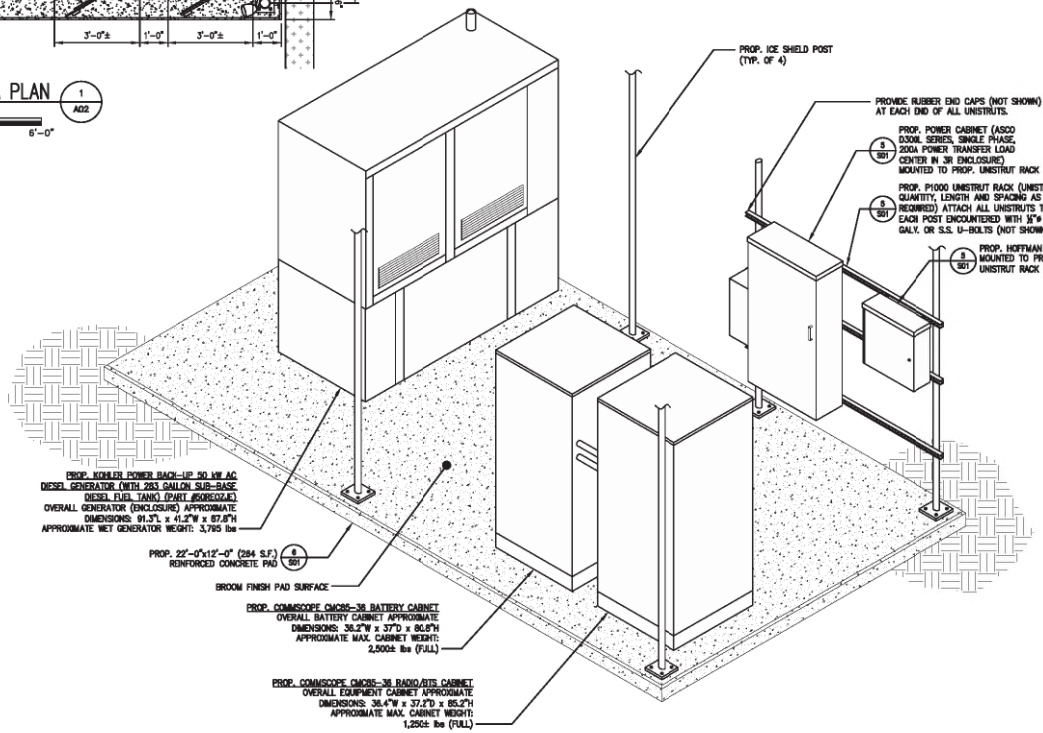
NOTE: MOUNT ICE BRIDGE WITH 8'-0" MIN. CLEARANCE FROM FINISHED GRADE TO UNDERSIDE OF CABLE SUPPORT

TYPICAL OVERHEAD CABLE ICE BRIDGE DETAIL 3 / A02
SCALE: NTS



NOTES:
1. FOR EXPOSED LEDGE, PROVIDE GROUT LEVELING PAD. INSTALL (2)-⅝"ø EXPANSION ANCHORS, (6" LONG).
2. FOR BURIED LEDGE AT LESS THAN 3'-6" BELOW FINISH GRADE, CORE 8"ø HOLE INTO LEDGE 18" DEEP. FILL AROUND PIPE WITH NON-SHRINK GROUT. USE COAL TAR ON BURIED LENGTH OF PIPE, AND BACKFILL TO FINISH GRADE
3. FOR CONCRETE, FASTEN BASEPLATE WITH (2)-⅝"ø EXPANSION ANCHORS, (6" LONG).
4. FOR POSTS ON CONCRETE OR EXPOSED LEDGE, PROVIDE 4"x6"x⅜" BASE PLATE WITH (2)-1⅛"ø HOLES @ 6" O.C.

CABLE BRIDGE PIER 3A / A02
SCALE: NTS



EQUIPMENT AREA ISOMETRIC VIEW 2 / A02
SCALE: NOT APPLICABLE

CLIENT:
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ARCHITECT/ENGINEER:
CHAPPELL ENGINEERING ASSOCIATES, LLC
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SEAL:

ENGINEER/LAND SURVEYOR DATE

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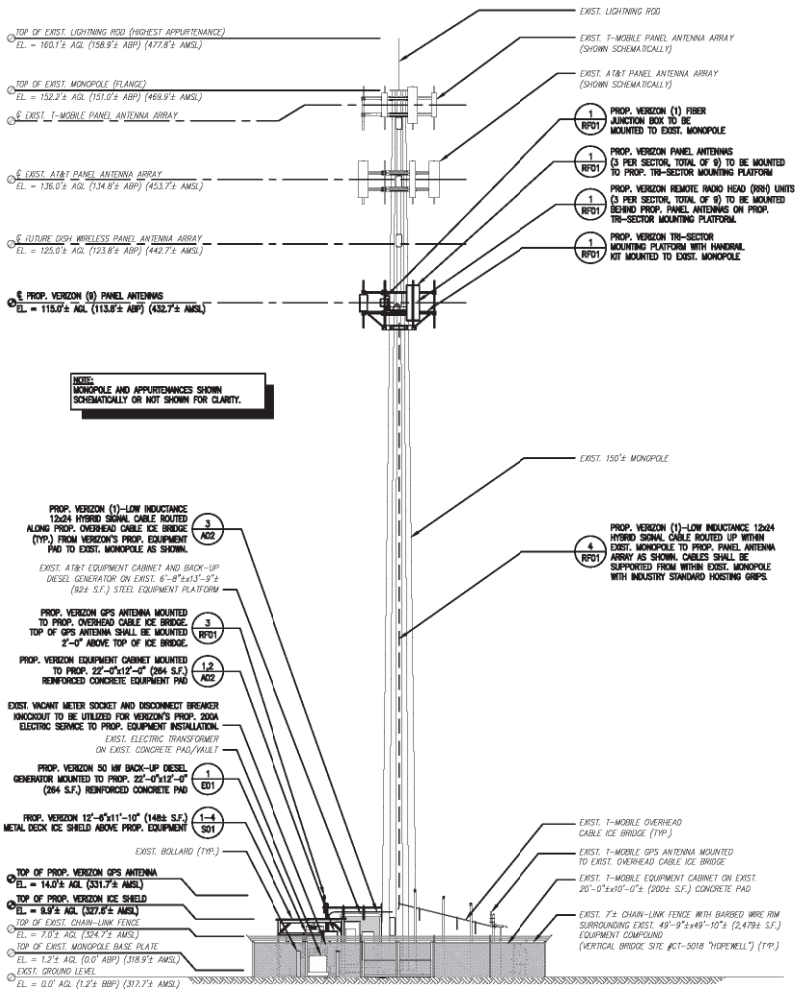
3	REVISED MSA REFERENCE DATE	4/15/22

PROJECT NAME:
SOUTH GLASTONBURY 3 CT
63 WOODLAND STREET
SOUTH GLASTONBURY, CT 06073

DRAWING TITLE:
EQUIPMENT AREA PLAN & DETAILS

DRAWING NO:
A02

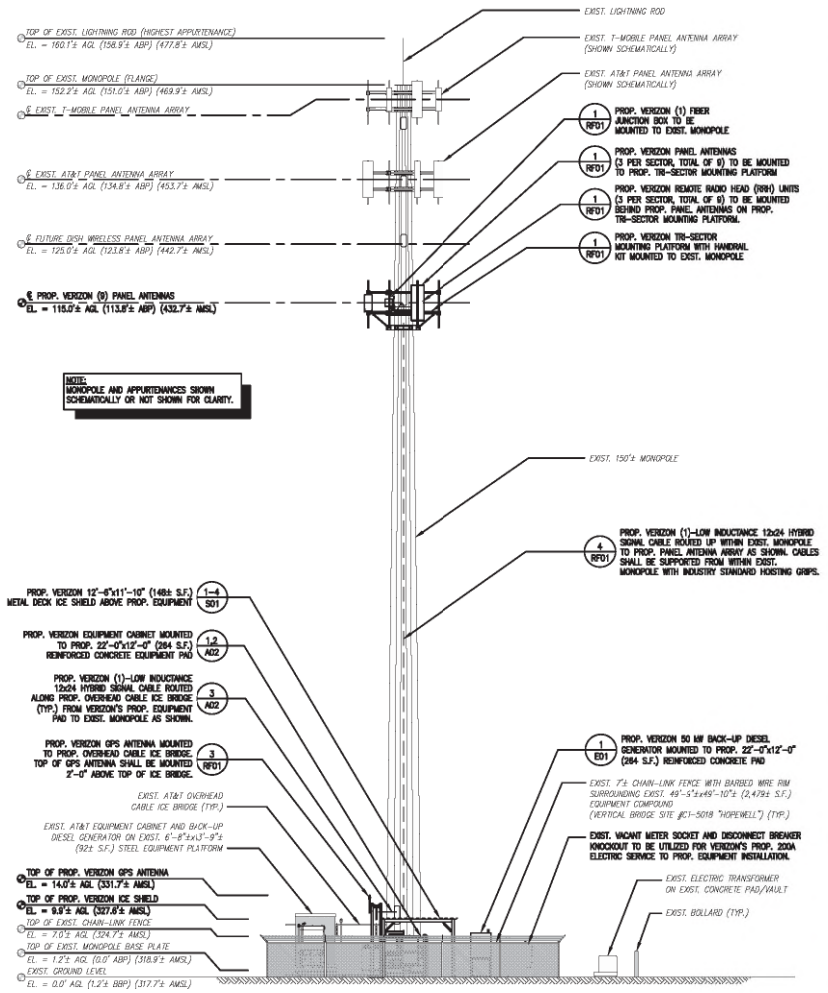
SCALE: AS SHOWN	DESIGNED BY: MWC	VZW PROJECT CODE: 20212309233
	DRAWN BY: MWC	
	CHECKED BY: GRB	VZW PROJECT NO.: 16085720
CEA PROJECT NO.: 98210.404	ORIGINAL ISSUE DATE: 1/20/22	VZW LOCATION CODE: 708312



WEST EQUIPMENT COMPOUND ELEVATION 1 A03

SCALE: 1" = 10'

0 5' 10' 20' 30'



NORTH EQUIPMENT COMPOUND ELEVATION 2 A03

SCALE: 1" = 10'

0 5' 10' 20' 30'

LEGEND	
AGL	ABOVE GROUND LEVEL
ABP	ABOVE MONOPOLE BASE PLATE
BBP	BELOW MONOPOLE BASE PLATE
AMSL	ABOVE MEAN SEA LEVEL

CLIENT:

verizon

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ARCHITECT/ENGINEER:

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3	REVISED MSA REFERENCE DATE	4/15/22

PROJECT NAME:

SOUTH GLASTONBURY 3 CT

63 WOODLAND STREET
SOUTH GLASTONBURY, CT 06073

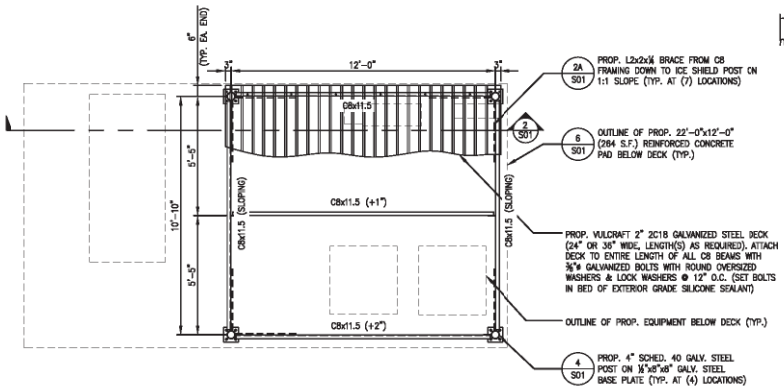
DRAWING TITLE:

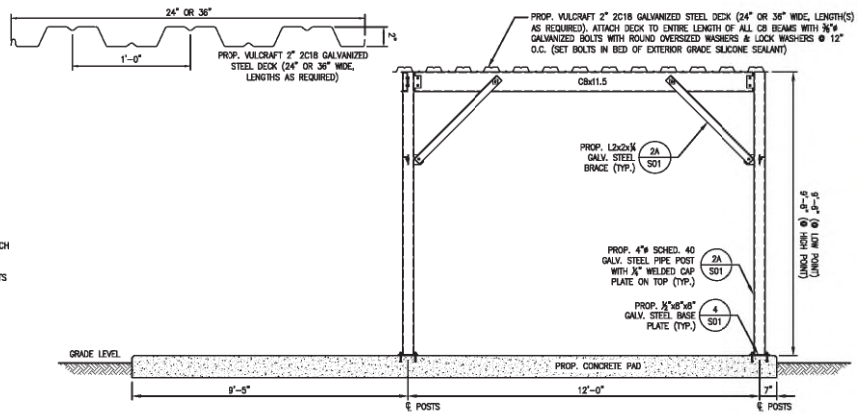
WEST AND NORTH EQUIPMENT COMPOUND ELEVATIONS

DRAWING NO:

A03

SCALE: 1" = 10'	DESIGNED BY: MWC	VZW PROJECT CODE: 20212309233
	DRAWN BY: MWC	
	CHECKED BY: GRB	VZW PROJECT NO.: 16085720
CEA PROJECT NO.: 98210.404	ORIGINAL ISSUE DATE: 1/20/22	VZW LOCATION CODE: 708312

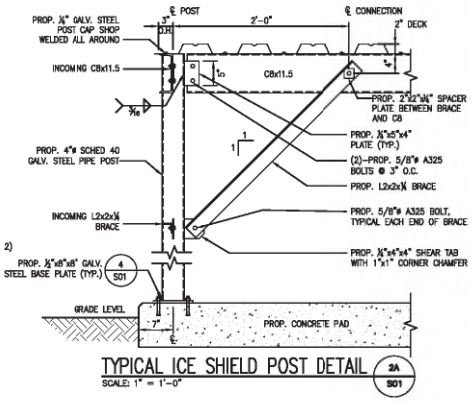




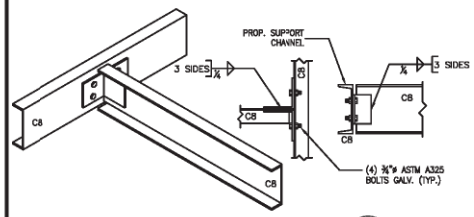
FRAMING PLAN NOTES:
1.) ALL STEEL SHALL BE INSTALLED LEVEL UNLESS OTHERWISE NOTED.
2.) TOP OF NEW STEEL ELEVATION SHALL BE HELD 9'-6" ABOVE EQUIPMENT PAD SURFACE UNLESS OTHERWISE NOTED THUS (±X") INDICATING DISTANCE ABOVE OR BELOW TOP OF STEEL REFERENCE ELEVATION.

ICE SHIELD FRAMING PLAN
1 S01
SCALE: 3/8" = 1'-0"
NORTH
0 2'-8" 5'-4" 8'-0"

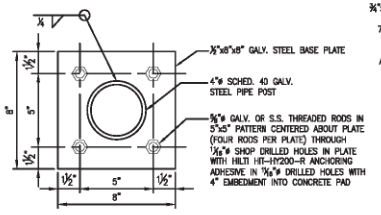
ICE SHIELD SECTION
2 S01
SCALE: 1/2" = 1'-0"



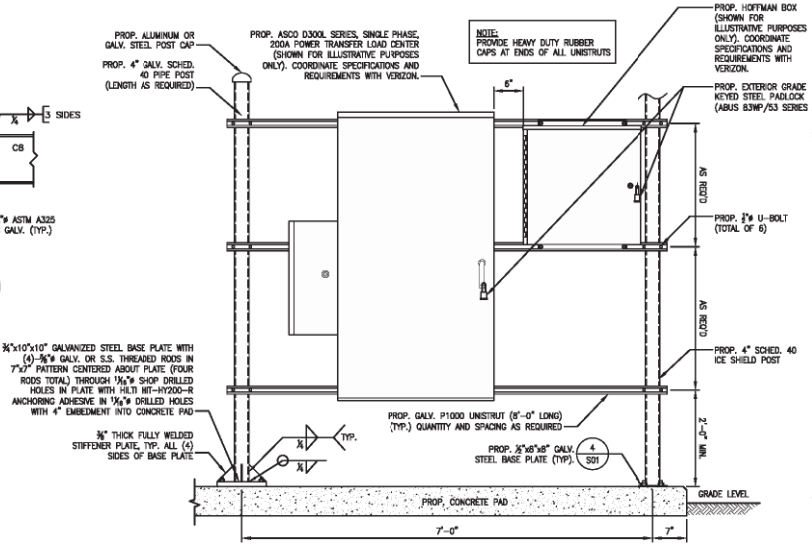
TYPICAL ICE SHIELD POST DETAIL
2A S01
SCALE: 1" = 1'-0"



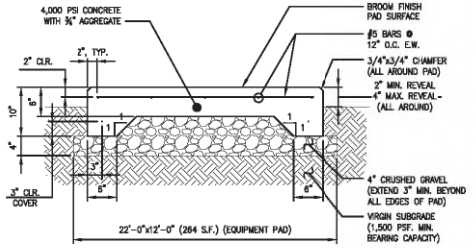
TYPICAL BEAM TO BEAM CONN.
3 S01
SCALE: NOT TO SCALE



TYPICAL ICE SHIELD POST BASE PLATE
4 S01
SCALE: NONE



UNISTRUT RACK DETAIL
5 S01
SCALE: N.T.S.



REINFORCED CONCRETE PAD DETAIL
6 S01
SCALE: NONE

CLIENT:
verizon
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ARCHITECT/ENGINEER:
CHAPPELL ENGINEERING ASSOCIATES, LLC
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SEAL:

ENGINEER/LAND SURVEYOR DATE

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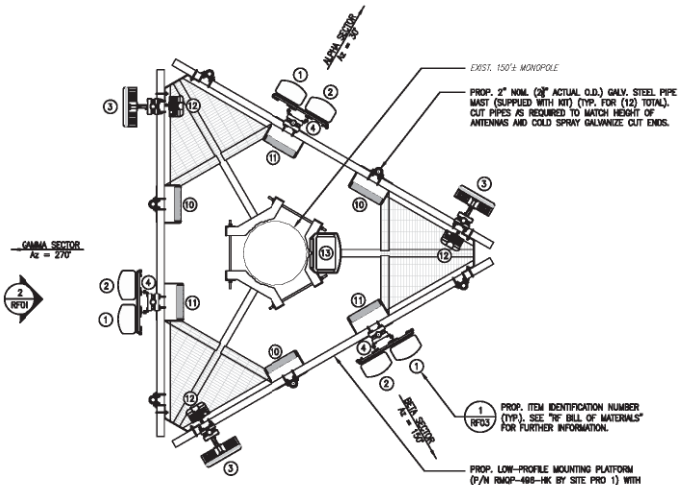
3	REVISED MSA REFERENCE DATE	4/15/22

PROJECT NAME:
SOUTH GLASTONBURY 3 CT
63 WOODLAND STREET
SOUTH GLASTONBURY, CT 06073

DRAWING TITLE:
ICE SHIELD FRAMING PLAN & STRUCTURAL DETAILS

DRAWING NO:
S01

SCALE: AS SHOWN	DESIGNED BY: MMC		VZW PROJECT CODE: 22212308233
	DRAWN BY: MMC		
	CHECKED BY: GRS		VZW PROJECT NO.: 16085720
CEA PROJECT NO.: 96210.404	ORIGINAL ISSUE DATE: 1/20/22		VZW LOCATION CODE: 708312



(MONOPOLE PLAN VIEW AT ELEVATION 115.0'± AGL)

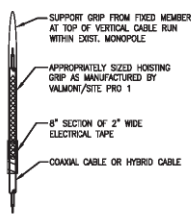
ANTENNA MOUNTING PLAN 1 RFD1

SCALE: 1/2" = 1'-0"

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

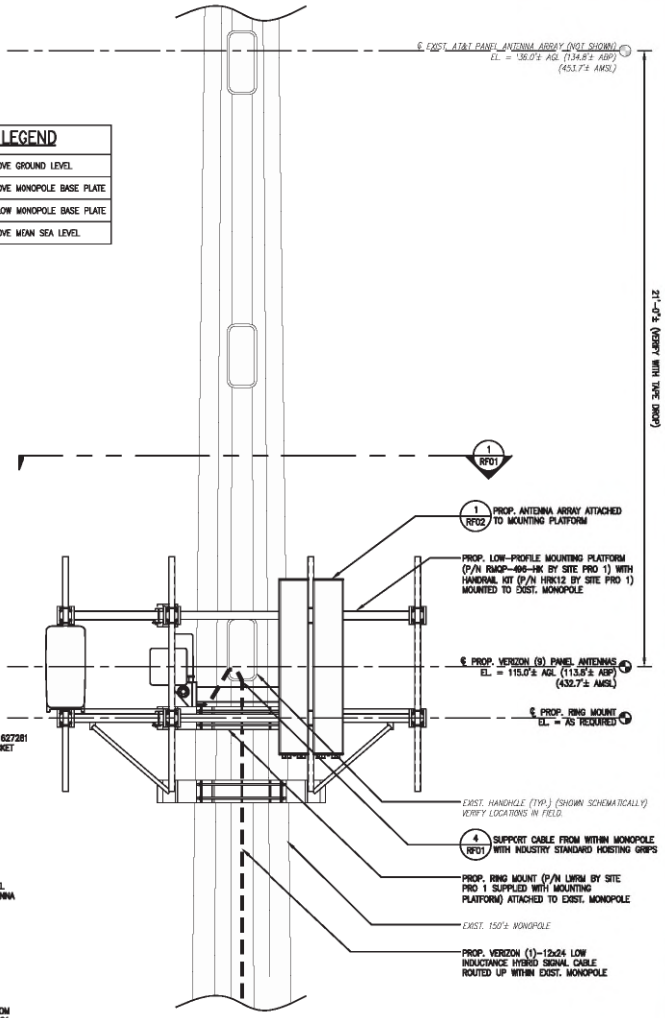
NORTH

LEGEND	
AGL	ABOVE GROUND LEVEL
ABP	ABOVE MONOPOLE BASE PLATE
BBP	BELOW MONOPOLE BASE PLATE
AMSL	ABOVE MEAN SEA LEVEL



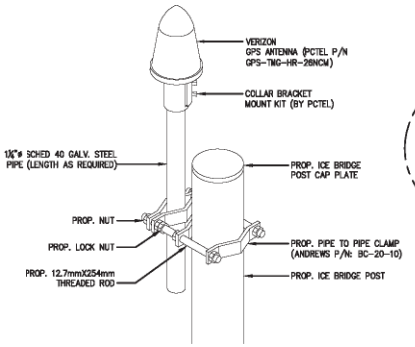
TYPICAL HOISTING GRIP DETAIL 4 RFD1

SCALE: NONE



ANTENNA MOUNTING PLATFORM MOUNTING DETAIL 2 RFD1

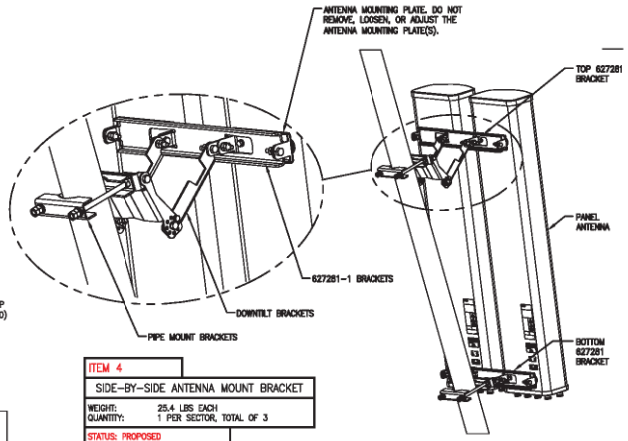
SCALE: 1/2" = 1'-0"



NOTE:
THE GPS ANTENNA MOUNT IS DESIGNED TO FASTEN TO A STANDARD 1"-1½" DIAMETER GALVANIZED STEEL OR STAINLESS STEEL PIPE. THE PIPE MUST NOT BE THREADED AT THE ANTENNA MOUNT END. THE PIPE SHALL BE CUT TO THE REQUIRED LENGTH USING A HAND OR ROTARY PIPE CUTTER TO ASSURE A SMOOTH AND PERPENDICULAR CUT. THE CUT PIPE END SHALL BE DEBURRED AND SMOOTH IN ORDER TO SEAL AGAINST THE NEOPRENE GASKET ATTACHED TO THE ANTENNA MOUNT.

GPS ANTENNA MOUNTING DETAIL 3 RFD1

SCALE: N.T.S.



ITEM 4	
SIDE-BY-SIDE ANTENNA MOUNT BRACKET	
WEIGHT:	25.4 LBS EACH
QUANTITY:	1 PER SECTOR, TOTAL OF 3
STATUS: PROPOSED	

MOUNT ANTENNA IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDED PROCEDURE

TYPICAL SIDE-BY-SIDE ANTENNA MOUNT KIT (COMMSCOPE PART #BSAMNT-SBS-1-2) 6 RFD1

SCALE: NOT TO SCALE

CLIENT:

verizon
* Because Better Matters *

ARCHITECT/ENGINEER:

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil · Structural · Land Surveying
R.K. EXECUTIVE CENTRE
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SUITE 101
MARLBOROUGH, MA 01752
(508) 481-7400
www.chcppellengineering.com

SEAL:

ENGINEER/LAND SURVEYOR DATE

DRAWING SCALE NOTE:

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REVISIONS

NO.	DESCRIPTION	DATE
0	ISSUED FOR REVIEW	1/20/22
1	ISSUED FOR CONSTRUCTION (FINAL)	2/10/22
2	REVISED TSA REFERENCE DATE	4/13/22
3	REVISED MSA REFERENCE DATE	4/15/22

PROJECT NAME:

SOUTH GLASTONBURY 3 CT

63 WOODLAND STREET
SOUTH GLASTONBURY, CT 06073

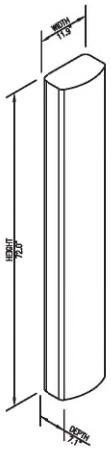
DRAWING TITLE:

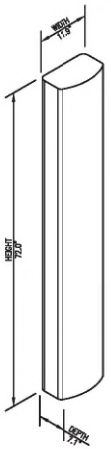
ANTENNA MOUNTING PLAN AND DETAILS

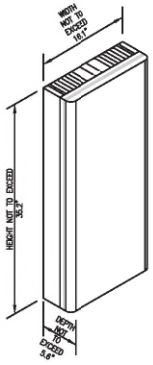
DRAWING NO:

RF01

SCALE:	DESIGNED BY: NWC	VZW PROJECT CODE:
AS SHOWN	DRAWN BY: NWC	20212306233
	CHECKED BY: GRR	VZW PROJECT NO.:
CEA PROJECT NO.:	ORIGINAL ISSUE DATE:	19085720
96210.404	1/20/22	VZW LOCATION CODE:
		708312







ITEM 1	
LTE (700/850/1900 MHz) PANEL ANTENNA	
DIMENSIONS:	72.0"H x 11.9"W x 7.1"D
WEIGHT:	43.7 LBS EACH
QUANTITY:	1 PER SECTOR, TOTAL OF 3
STATUS: PROPOSED	

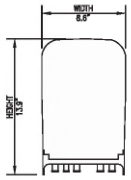
ITEM 2	
LTE (700/850/2100/CBRS MHz) PANEL ANTENNA	
DIMENSIONS:	72.0"H x 11.8"W x 7.1"D
WEIGHT:	48.1 LBS EACH
QUANTITY:	1 PER SECTOR, TOTAL OF 3
STATUS: PROPOSED	

ITEM 3	
MT6407-77A ANTENNA	
MAX. DIMENSIONS:	35.2"H x 16.1"W x 5.6"D
MAX. WEIGHT:	67.1 LBS EACH
QUANTITY:	1 PER SECTOR, TOTAL OF 3
STATUS: PROPOSED	

TYPICAL PROP. PANEL ANTENNA SPECIFICATIONS

SCALE: N.T.S.

1 RF02



ITEM 10	
LTE/NR (700/850 MHz) REMOTE RADIO HEAD UNIT	
DIMENSIONS:	15.0"H x 15.0"W x 9.0"D
WEIGHT:	70.3 LBS
QUANTITY:	1 PER SECTOR, TOTAL OF 3
STATUS: PROPOSED	

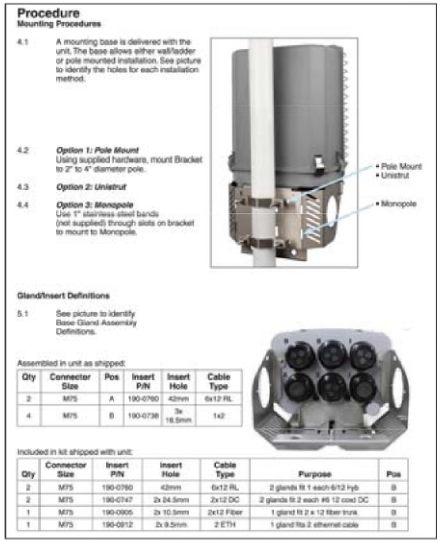
ITEM 11	
LTE/NR (1900/2100 MHz) REMOTE RADIO HEAD UNIT	
DIMENSIONS:	15.0"H x 15.0"W x 10.0"D
WEIGHT:	74.7 LBS
QUANTITY:	1 PER SECTOR, TOTAL OF 3
STATUS: PROPOSED	

ITEM 12	
(BAND 48 (3.5 GHz)) NR AU RRH	
DIMENSIONS:	13.9"H x 8.6"W x 4.2"D
WEIGHT:	18.6 LBS EACH
QUANTITY:	1 PER SECTOR, TOTAL OF 3
STATUS: PROPOSED	

TYPICAL REMOTE RADIO HEAD (RRH) UNIT DIMENSIONS

SCALE: N.T.S.

2 RF02



Procedure

Mounting Procedures

4.1 A mounting base is delivered with the unit. The base allows either wall/ladder or pole mounted installation. See picture to identify the holes for each installation method.

4.2 ***Option 1: Pole Mount***
Using supplied hardware, mount Bracket to 2" to 4" diameter pole.

4.3 ***Option 2: Unistrut***

4.4 ***Option 3: Monopole***
Use 1" stainless-steel bands (not supplied) through slots on bracket to mount to Monopole.

Gland/Insert Definitions

5.1 See picture to identify Base Gland Assembly Definitions.

Assembled in unit as shipped:

Qty	Connector Size	Pos	Insert P/N	Insert Hole	Cable Type
2	M75	A	190-0760	42mm	6x12 RL
4	M75	B	190-0738	3x 16.5mm	1x2

Included in kit shipped with unit:

Qty	Connector Size	Insert P/N	Insert Hole	Cable Type	Purpose	Pos
2	M75	190-0760	42mm	6x12 RL	2 glands fit 1 each-6/12 hyb	B
2	M75	190-0747	2x 24.5mm	2x12 DC	2 glands fit 2 each #6 12 cond DC	B
1	M75	190-0905	2x 10.5mm	2x12 Fiber	1 gland fit 2 x 12 fiber trunk	B
1	M75	190-0812	2x 9.5mm	2 ETH	1 gland fits 2 ethernet cable	B

ITEM 13	
FIBER JUNCTION BOX	
DIMENSIONS:	29.58"H x 16.5"W x 12.6"D
WEIGHT:	32.0 LBS
QUANTITY:	TOTAL OF 1
STATUS: PROPOSED	

TYPICAL FIBER JUNCTION BOX DIMENSIONS, SCHEMATIC AND MOUNTING PROCEDURE

SCALE: N.T.S.

3 RF02

CLIENT:

verizon

* Because Better Matters *

ARCHITECT/ENGINEER:

CHAPPELL ENGINEERING ASSOCIATES, LLC
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R.K. EXECUTIVE CENTRE
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SEAL:

ENGINEER/LAND SURVEYOR DATE

DRAWING SCALE NOTE:

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REVISIONS

NO.	DESCRIPTION	DATE
0	ISSUED FOR REVIEW	1/20/22
1	ISSUED FOR CONSTRUCTION (FINAL)	2/10/22
2	REVISED TSA REFERENCE DATE	4/13/22
3	REVISED MSA REFERENCE DATE	4/15/22

PROJECT NAME:

SOUTH GLASTONBURY 3 CT

63 WOODLAND STREET
SOUTH GLASTONBURY, CT 06073

DRAWING TITLE:

ANTENNA DETAILS AND ANCILLARY EQUIPMENT SPECIFICATIONS

DRAWING NO:

RF02

SCALE:	DESIGNED BY: NWC	VZW PROJECT CODE:
AS SHOWN	DRAWN BY: NWC	20212306233
	CHECKED BY: GBR	VZW PROJECT NO.:
CEA PROJECT NO.:	ORIGINAL ISSUE DATE:	19085720
96210.404	1/20/22	VZW LOCATION CODE: 708312

RF BILL OF MATERIALS (PROP. (FINAL) CONFIGURATION)

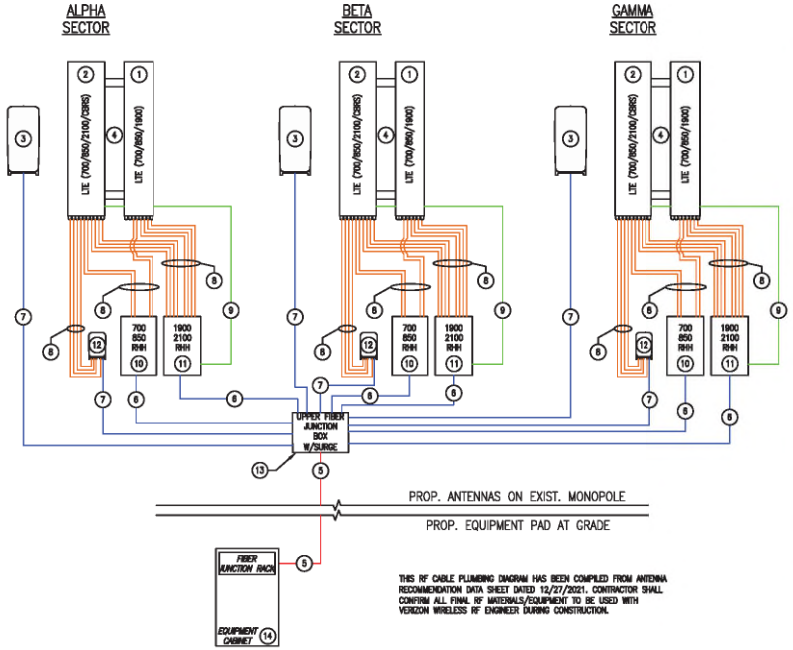
SITE NAME: SOUTH GLASTONBURY 3 CT — A = ALPHA SECTOR B = BETA SECTOR G = GAMMA SECTOR

ITEM (SEE PLAN)		DESCRIPTION	BAND	QTY	STATUS	CABLE LENGTH/UNIT SIZE	COMMENTS
1 / RF02	1	PANEL ANTENNA	700/850/1900	3 TOTAL (A,B,G)	PROP.	72.0"H x 11.9"W x7.1"D (43.7 lbs, each)	MOUNT TO PROP. SIDE-BY-SIDE MOUNT
	2	PANEL ANTENNA	700/850/2100/CBRS	3 TOTAL (A,B,G)	PROP.	72.0"H x 11.9"W x7.1"D (48.1 lbs, each)	MOUNT TO PROP. SIDE-BY-SIDE MOUNT
	3	PANEL ANTENNA	3700-3980	3 TOTAL (A,B,G)	PROP.	35.2"H x 16.1"W x 5.6"D (87.1 lbs, each)	MOUNT TO PROP. PIPE MAST
5 / RF01	4	SIDE-BY-SIDE ANTENNA MOUNT KIT	–	3 TOTAL (A,B,G)	PROP.	25.4 lbs, each	MOUNT TO PROP. PIPE MAST
	5	12x24 LOW INDUCTANCE HYBRID SIGNAL CABLE (MAIN LINE)	–	1 TOTAL	PROP.	135 FT.±	ROUTE FROM PROP. EQUIPMENT, ALONG PROP. OVERHEAD CABLE ICE BRIDGE TO EXIST. MONOPOLE AND UP WITHIN MONOPOLE TO PROP. FIBER JUNCTION BOX
	6	1x1 HYBRID SIGNAL CABLE (JUMPER)	–	6 TOTAL (2 PER SECTOR)	PROP.	20 FT. MAX. EACH	ROUTE FROM PROP. UPPER FIBER JUNCTION BOX TO PROP. RRH UNITS
	7	1x2 HYBRID SIGNAL CABLE (JUMPER)	–	6 TOTAL (2 PER SECTOR)	PROP.	20 FT. MAX. EACH	ROUTE FROM PROP. UPPER FIBER JUNCTION BOX TO PROP. ANTENNAS/CBRS RRH UNITS
	8	⅞" COAXIAL CABLE (JUMPER)	–	48 TOTAL (16 PER SECTOR)	PROP.	20 FT. MAX. EACH	ROUTE FROM PROP. REMOTE RADIO HEAD (RRH) UNITS TO PROP. PANEL ANTENNAS
	9	RET CONTROL CABLE(S) (JUMPER)	–	PER RF REQ.	PROP.	20 FT. MAX. EACH	ROUTE FROM PROP. REMOTE RADIO HEAD (RRH) UNITS TO PROP. PANEL ANTENNAS
2 / RF02	10	REMOTE RADIO HEAD (RRH) UNIT	700/850	3 TOTAL (A,B,G)	PROP.	15.0"H x 15.0"W x 9.0"D (70.3 lbs, each)	MOUNT TO PROP. PIPE MAST
	11	REMOTE RADIO HEAD (RRH) UNIT	1900/2100	3 TOTAL (A,B,G)	PROP.	15.0"H x 15.0"W x 10.0"D (74.7 lbs, each)	MOUNT TO PROP. PIPE MAST
	12	REMOTE RADIO HEAD (RRH) UNIT	BAND 48	3 TOTAL (A,B,G)	PROP.	13.8"H x 8.6"W x 4.2"D (18.6 lbs, each)	MOUNT TO PROP. PIPE MAST
3 / RF02	13	UPPER FIBER JUNCTION BOX W/SURGE	–	1 TOTAL	PROP.	29.56"H x 16.5"W x 12.6"D (32.0 lbs, each)	MOUNT TO EXIST. MONOPOLE
	14	LOWER CABINET/FIBER JUNCTION RACK	–	1 TOTAL	PROP.	29.56"H x 16.5"W x 12.6"D (32.0 lbs, each)	MOUNT TO PROP. METAL DECK ICE SHIELD POST

THIS RF BILL OF MATERIALS (BOM) HAS BEEN COMPILED FROM ANTENNA RECOMMENDATION DATA SHEET DATED 12/27/2021. CONTRACTOR SHALL CONFIRM ALL FINAL RF MATERIALS/EQUIPMENT TO BE USED WITH VERIZON WIRELESS RF ENGINEER DURING CONSTRUCTION.

RF BILL OF MATERIALS (FINAL CONFIGURATION) — 1 / RF03
SCALE: NONE

NOTE:
ARRANGEMENT OF ANTENNAS, REMOTE RADIO HEAD (RRH) UNITS, FIBER JUNCTION BOXES AND ALL ASSOCIATED WIRING AND ANCILLARY EQUIPMENT SHOWN SCHEMATICALLY ON THIS PLUMBING DIAGRAM. SEE PROP. ANTENNA ORIENTATION PLAN(S) AND CROSS REFERENCE WITH RF BILL OF MATERIALS FOR PROP. ANTENNA/EQUIPMENT PLACEMENT DETAIL.



THIS RF CABLE PLUMBING DIAGRAM HAS BEEN COMPILED FROM ANTENNA RECOMMENDATION DATA SHEET DATED 12/27/2021. CONTRACTOR SHALL CONFIRM ALL FINAL RF MATERIALS/EQUIPMENT TO BE USED WITH VERIZON WIRELESS RF ENGINEER DURING CONSTRUCTION.

RF CABLE PLUMBING DIAGRAM (FINAL CONFIGURATION) — 2 / RF03
SCALE:

RADIO FREQUENCY (RF) DESIGN NOTES:
1) ALL RADIO FREQUENCY (RF) DESIGN INFORMATION CONTAINED ON THIS SHEET IS SHOWN SCHEMATICALLY.

2) THE GENERAL CONTRACTOR SHALL CONFIRM ALL RF DESIGN ELEMENTS SHOWN (INCLUDING BUT NOT LIMITED TO PANEL ANTENNA MODELS & ARRANGEMENT, AZIMUTHS, REMOTE RADIO HEAD (RRH) UNIT MODELS & ARRANGEMENT AND CABLING DIAGRAMS/SCHEMATICS) WITH THE VERIZON WIRELESS RF ENGINEER AT THE TIME OF CONSTRUCTION.

LEGEND

- RED — = HYBRID CABLE (MAIN LINE)
- PURPLE — = COAXIAL CABLE (MAIN LINE)
- BLUE — = 1x1 HYBRID CABLE (JUMPER)
- ORANGE — = 1/2"ø COAXIAL CABLE (JUMPER)
- GREEN — = RET CONTROL CABLE(S) (JUMPER)

CLIENT:
verizon
"Because Better Matters"

ARCHITECT/ENGINEER:

CHAPPELL ENGINEERING ASSOCIATES, LLC
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SEAL:

ENGINEER/LAND SURVEYOR — DATE

DRAWING SCALE NOTE:
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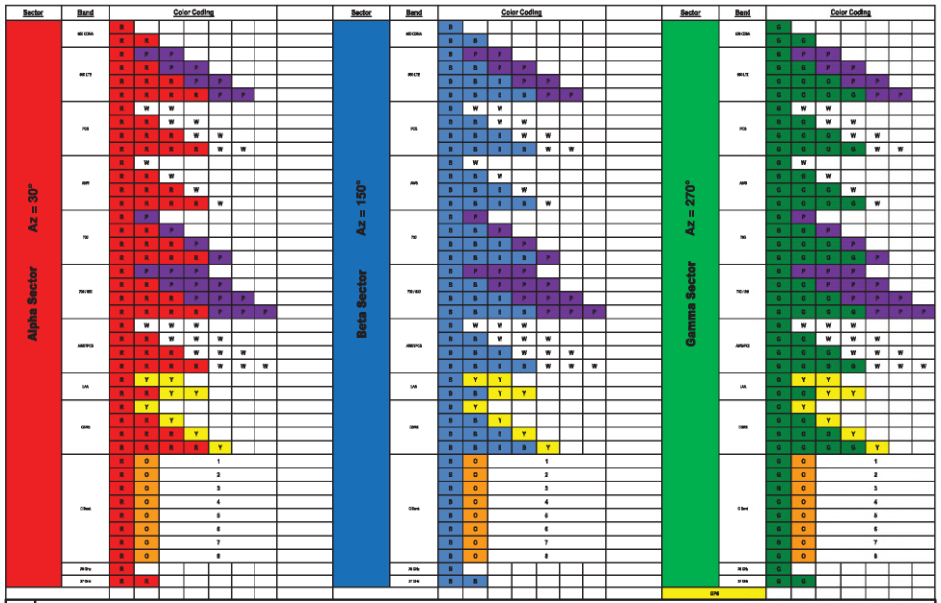
NO.	DESCRIPTION	DATE
0	ISSUED FOR REVIEW	1/20/22
1	ISSUED FOR CONSTRUCTION (FINAL)	2/10/22
2	REVISED TSA REFERENCE DATE	4/13/22
3	REVISED MSA REFERENCE DATE	4/15/22

PROJECT NAME:
SOUTH GLASTONBURY 3 CT
63 WOODLAND STREET
SOUTH GLASTONBURY, CT 06073

DRAWING TITLE:
RF BILL OF MATERIALS AND RF CABLE PLUMBING DIAGRAM

DRAWING NO:
RF03

SCALE: AS SHOWN	DESIGNED BY: NMC	VZW PROJECT CODE: 20212308233
	DRAWN BY: NMC	
	CHECKED BY: GRS	VZW PROJECT NO.: 16085720
CEA PROJECT NO.: 96210.404	ORIGINAL ISSUE DATE: 1/20/22	VZW LOCATION CODE: 708312



Main Line Cable Length/Information

CABLE LENGTH PROVIDED BELOW IS APPROXIMATE IN NATURE AND REFLECTED AS AN ADJUSTED VALUE TO PROVIDE ADEQUATE LENGTH. ANY FIELD MEASUREMENTS OF ANTICIPATED CABLE LENGTH IS ENCOURAGED IN AN EFFORT TO REDUCE SLACK AND TO OPTIMIZE DESIGN. SUCH FIELD MEASUREMENTS MAY SUPERCEDE THE LENGTH PROVIDED BELOW AT THE DISCRETION OF THE GENERAL CONTRACTOR

135'±

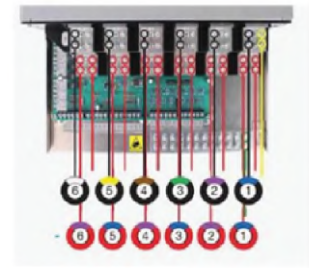
ONE (1) PROPOSED 12x24 LOW INDUCTANCE HYBRID SIGNAL CABLE

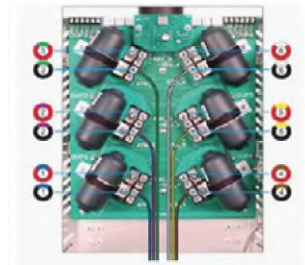
LINE COLOR CODE SPECIFICATIONS 1 RF04

Hybrid Cable on Towers

Hybrid Cable 1

Sector	Identification Color	-48V	RTN
700 Alpha	Blue		
AWS Alpha	Violet		
PCS Alpha	Green		
850 Alpha	Brown		
Spare	Yellow		
Spare	White		





HYBRID CABLE COLOR CODE SPECIFICATIONS 2 RF04

CLIENT:

verizon
"Because Better Matters"

ARCHITECT/ENGINEER:

CHAPPELL ENGINEERING ASSOCIATES, LLC
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PROJECT NAME:

SOUTH GLASTONBURY 3 CT

63 WOODLAND STREET
SOUTH GLASTONBURY, CT 06073

DRAWING TITLE:

RF COLOR CODE SPECIFICATIONS

DRAWING NO:

RF04

SCALE:	DESIGNED BY: NMC	VZW PROJECT CODE:
N/A	DRAWN BY: NMC	20212308233
	CHECKED BY: GRS	VZW PROJECT NO.:
CEA PROJECT NO.:	ORIGINAL ISSUE DATE:	16085720
96210.404	1/20/22	VZW LOCATION CODE:
		708312

ELECTRICAL SPECIFICATIONS

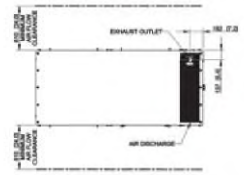
1. FURNISH ALL LABOR, MATERIALS, EQUIPMENT, TOOLS AND INCIDENTALS REQUIRED TO MAKE READY FOR USE THE COMPLETE ELECTRICAL SYSTEMS AS SHOWN ON THE DRAWINGS. MAKE ALL NECESSARY CONNECTIONS AT "PACKAGED" EQUIPMENT.
2. THE ELECTRICAL SYSTEMS SHALL BE SUITABLE IN EVERY WAY FOR THE SERVICE REQUIRED. ALL MATERIAL AND ALL WORK WHICH MAY BE REASONABLY IMPLIED AS BEING INCIDENTAL TO THE WORK SHALL BE FURNISHED AT NO EXTRA COST.
3. FURNISH AND INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH THE REQUIREMENTS OF LOCAL, STATE AND NATIONAL CODES AND STANDARDS, INCLUDING BUT NOT LIMITED TO:
   THE 2018 CONNECTICUT STATE BUILDING CODE
   THE NATIONAL ELECTRICAL CODE (NFPA-70)
   THE CONNECTICUT ELECTRIC CODE
   THE NATIONAL ELECTRICAL SAFETY CODE (ANSI C-2)
   THE LIFE SAFETY CODE (NFPA 101)
   THE STRUCTURAL STANDARDS FOR ANTENNA SUPPORTING STRUCTURE AND ANTENNAS (TIA/EIA-222-G)
4. MATERIALS AND EQUIPMENT SHALL BE NEW, UNUSED AND UNDERWRITERS' LABORATORIES, INC. LISTED. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL MATERIALS IN A TIMELY FASHION, INCLUDING RESPONSIBILITY FOR DETERMINING AVAILABILITY/LEAD TIME FOR ALL NECESSARY EQUIPMENT.
5. CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND PAY ALL FEES FOR PERMITS AND INSPECTIONS. WHERE NEW COMMERCIAL POWER SERVICE IS PROVIDED TO THE SITE, OR EXISTING SERVICE MUST BE MODIFIED, CONTRACTOR SHALL MAKE ALL ARRANGEMENTS WITH THE ELECTRIC UTILITY, SHALL PERFORM ALL OF HIS WORK IN ACCORDANCE WITH THE REQUIREMENTS OF THE UTILITY, AND SHALL PAY ALL UTILITY SERVICE BACK CHARGES.
6. ALL WIRING OUTSIDE SHALL BE INSTALLED IN HEAVY-GAUGE, (SCHEDULE 40) RIGID STEEL CONDUIT, HOT-DIPPED GALVANIZED INSIDE AND OUTSIDE WITH AN ADDITIONAL FACTORY-APPLIED FINISH INSIDE AND OUTSIDE. CUT ENDS SHALL BE REAMED, THREADED AND COLD GALVANIZED. NO COMPRESSION FITTING WILL BE ACCEPTED.
7. UNDERGROUND CONDUITS SHALL BE PVC SCHEDULE 40 AND INSTALLED NOT LESS THAN 30 INCHES BELOW FINISHED GRADE.
8. WIRING INSTALLED IN THE BUILDING THAT IS SHOWN TO BE IN CONDUIT SHALL BE INSTALLED IN EMT. EMT FITTINGS SHALL BE STEEL COMPRESSION TYPE.
9. LIQUID TIGHT, FLEXIBLE METAL CONDUIT SHALL BE USED FOR ALL MOTOR TERMINATIONS AND FOR CONNECTIONS TO EQUIPMENT SUBJECT TO VIBRATION. FLEXIBLE METAL CONDUIT SHALL CONSIST OF A FLEXIBLE, CORROSION RESISTANT METAL CORE WITH AN EXTRUDED, WATERTIGHT, SYNTHETIC JACKET. CONDUITS SMALLER THAN 1-1/2" SHALL HAVE A CONTINUOUS GROUND CONDUCTOR UNDER THE JACKET.
10. NO CONDUIT SMALLER THAN 3/4" ELECTRICAL TRADE SIZE SHALL BE USED, EXCEPT AS OTHERWISE SHOWN ON THE DRAWINGS. BOX SIZES SHALL BE 4" SQUARE MINIMUM, BUT NOT LESS THAN THAT REQUIRED BY THE CONNECTICUT ELECTRICAL CODE.
11. FITTINGS AND EXPOSED SWITCH, OUTLET AND CONTROL STATION BOXES AND OTHER EXPOSED BOXES 4" SQUARE SHALL BE CAST OR MALLEABLE IRON WITH CADMIUM-ZINC FINISH AND CAST COVERS WITH STAINLESS STEEL SCREWS.
12. FLUSH SWITCH AND OUTLET BOXES SHALL BE HOT-DIPPED GALVANIZED, PRESSED STEEL WITH NYLON COVER PLATES, COLOR AS DETERMINED BY THE ENGINEER.
13. EXCEPT AS OTHERWISE SHOWN, TERMINAL, JUNCTION AND PULL BOXES LARGER THAT 4" SQUARE SHALL BE SHEET STEEL. STEEL BOXES SHALL BE HOT-DIPPED GALVANIZED. BOXES AND COVERS SHALL BE NOT LESS THAN 14 GAUGE METAL. COVERS SHALL BE GASKETED AND FASTENED WITH STAINLESS STEEL HARDWARE.
14. FITTINGS USED WITH LIQUID TIGHT, FLEXIBLE CONDUIT SHALL BE OF THE SCREW-IN, COMPRESSION TYPE WITH SEALING RING. FITTINGS LARGER THAN 1-1/4" SHALL BE FURNISHED WITH INTEGRAL GROUND LUGS.
15. HANGERS, RODS, BACK PLATES, BEAM CLAMPS, ETC. SHALL BE GALVANIZED IRON OR STEEL. CONDUITS SHALL BE SUPPORTED AT LEAST EVERY 5 FEET.
16. EXPOSED CONDUITS SHALL BE RUN PARALLEL TO OR AT RIGHT ANGLES TO WALLS. CONDUIT RUNS SHALL BE STRAIGHT AND TRUE. CONDUIT SHALL BE SUPPORTED BY MEANS OF TWO-HOLE PIPE CLAMPS. BACK PLATES SHALL BE INSTALLED WHERE REQUIRED TO RAISE CONDUITS FROM THE SURFACE. MULTIPLE, HORIZONTAL RUNS SHALL BE SUPPORTED ON TRAPEZE HANGERS WITH STEEL. HORIZONTAL MEMBERS AND THREADED RODS NOT LESS THAN 3/8 INCHES IN DIAMETER. HANGERS SHALL BE ATTACHED TO STRUCTURAL STEEL BY MEANS OF BEAM CLAMPS. SPOT TYPE INSERTS SHALL BE USED IN CONCRETE.
17. CONDUIT BENDS SHALL BE CAREFULLY MADE TO PREVENT DISTORTION OF THE CIRCULAR CROSS-SECTION. NO CONDUIT RUN SHALL HAVE MORE THAN THE EQUIVALENT OF THREE 90 DEGREE BENDS BETWEEN PULLING POINTS. CHANGES IN DIRECTION SHALL BE MADE WITH BENDS, STANDARD ELBOWS AND PULLBOXES. BENDS IN PARALLEL RUNS SHALL BE CONCENTRIC.
18. CONDUIT SHALL NOT BE SUPPORTED FROM PIPING, PIPING SUPPORTS, DUCTWORK, SUSPENDED CEILING SUPPORTS OR MECHANICAL EQUIPMENT SUBJECT TO VIBRATION OR REMOVAL.
19. THE ENDS OF ALL CONDUITS SHALL BE TIGHTLY PLUGGED DURING BUILDING CONSTRUCTION UNTIL WIRES ARE TO BE PULLED. SPARE CONDUITS SHALL BE FURNISHED WITH THREADED CAPS.
20. CONDUITS SHALL BE TERMINATED AT UNGASKETED SHEET STEEL BOXES AND ENCLOSURES WITH DOUBLE LOCK NUTS AND SUITABLE BUSHINGS. BUSHINGS INSTALLED ON CONDUITS CONTAINING GROUND WIRES SHALL BE GROUNDING TYPE. CONDUITS SHALL BE TERMINATED AT GASKETED SHEET METAL BOXES AND ENCLOSURES WITH CONDUIT HUBS.
21. CONDUCTORS SHALL BE ANNEALED, 98 PERCENT CONDUCTIVITY, SOFT-DRAWN COPPER. NO CONDUCTOR SMALLER THAT NO. 12 AWG SHALL BE USED, EXCEPT AS OTHERWISE NOTED.
22. WIRE FOR POWER AND LIGHTING BRANCH CIRCUITS SHALL BE 600 VOLT, TYPE THWN. WIRE FOR CONTROL CIRCUITS SHALL BE 600 VOLT, TYPE THWN, NO. 14 AWG, STRANDED. SERVICE CONDUCTORS AND FEEDERS SHALL BE TYPE XHHW. CONDUCTORS NO. 10 AWG AND SMALLER SHALL BE SOLID. NO. 8 AWG AND LARGER SHALL BE STRANDED..
23. ALL CONDUCTORS SHALL BE CAREFULLY HANDLED TO AVOID KINKS OR DAMAGE TO INSULATION. LUBRICATIONS SHALL BE USED TO FACILITATE WIRE PULLING. LUBRICANTS SHALL BE UL LISTED FOR USE WITH THE INSULATION SPECIFIED.
24. ALL EQUIPMENT AND MATERIALS SHALL BE GROUNDED IN STRICT ACCORDANCE WITH THE CONNECTICUT ELECTRICAL CODE, AND THE STANDARD REQUIREMENTS OF VERIZON WIRELESS AND LUCENT.
25. DISCONNECT SWITCHES SHALL BE 480 OR 240 VOLT, HEAVY-DUTY, QUICK-MAKE, QUICK BREAK, VISIBLE BLADE, 2 POLE WITH EXTERNAL OPERATING HANDLE AND FULL COVER INTERLOCK. SWITCHES INSTALLED OUTSIDE SHALL BE NEMA TYPE 3R ENCLOSED.
26. WALL SWITCHES SHALL BE SINGLE POLE 3-WAY OR 4-WAY, INDICATING, TOGGLE-ACTION, FLUSH, QUIET TYPE, SPECIFICATION GRADE, RATED 20 AMPERE, 120-277 VOLT. COLOR AS DETERMINED BY ENGINEER.
27. GENERAL PURPOSE RECEPTACLES SHALL BE DUPLEX, 2 POLE, 3 WIRE, STRAIGHT BLADE, NYLON FACE, GROUNDING TYPE, 20 AMPERE, 125 VOLT, SPECIFICATION GRADE. COLOR AS DETERMINED BY ENGINEER.
28. PANELS SHALL BE PER DIRECTED BY THESE DRAWINGS WITH TYPED DIRECTORIES.
29. CIRCUIT BREAKERS SHALL BE MOLDED CASE, THERMAL-MAGNETIC TYPE WITH RMS SYMMETRICAL INTERRUPTING RATING OF NOT LESS THAN 22,000 AMPERE FOR 240 VOLT BREAKERS. ENCLOSED BREAKERS SHALL HAVE PADLOCKING PROVISIONS AND EXTERNAL OPERATING HANDLE WITH FULL COVER INTERLOCK. BREAKERS SHALL BE 1" MODULES MINIMUM.
30. NAMEPLATES SHALL BE PROVIDED FOR ALL EQUIPMENT INDICATING VOLTAGE, PHASE, USE AND SOURCE OF ORIGIN. DEVICES SHALL BE LABELED INDICATING VOLTAGE AND BRANCH CIRCUIT. BRANCH CONDUCTORS SHALL BE LABELED INDICATING BRANCH CIRCUIT. FEEDER CONDUCTORS SHALL INDICATE PHASE.
31. ALL EXTERIOR CONDUCTOR/LUG TERMINALS SHALL HAVE AN ANTIOXIDANT APPLIED.
32. ALL SPRING TYPE WIRE CONDUCTORS USED IN EXTERIOR BOXES SHALL BE SILICON FILLED.
33. ELECTRICAL CONTRACTOR SHALL AS PART OF HIS WORK INCLUDE ALL FITTINGS, SLEEVES AND MINOR CUTTING REQUIRED FOR HIS WORK, INCLUDING FIRE-STOPPING.
34. THE ELECTRICAL CONTRACTOR, AT HIS OWN EXPENSE, SHALL PROVIDE HIS OWN, WHERE DIRECTED, STORAGE AND OFFICE SPACE.
35. FIVE COPIES OF SHOP DRAWINGS OF ALL EQUIPMENT SHALL BE PROVIDED TO THE ENGINEER.
36. ELECTRICAL CONTRACTOR'S WORK SHALL INCLUDE ALL LABOR AND MATERIALS, SCAFFOLDING TOOL AND TRANSPORTATION NECESSARY FOR COMPLETE INSTALLATION.
37. ELECTRICAL CONTRACTOR TO FURNISH ENGINEER ONE SET OF MYLARS OF "AS BUILT" DRAWINGS.
38. ELECTRICAL CONTRACTOR SHALL PROVIDE TEMPORARY POWER & LIGHTING AS REQ'D.

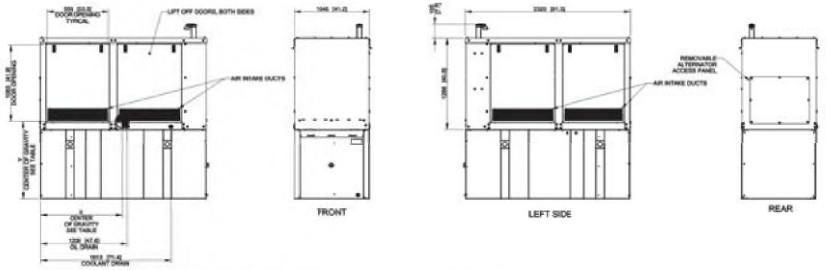
GENERAL NOTES

1. CONTRACTOR SHALL VISIT THE SITE TO MAKE HIMSELF AWARE OF THE EXISTING CONDITIONS.
2. BRANCH CIRCUIT RUNS 100 FT AND OVER SHALL BE #10 AWG CONDUCTORS.
3. THESE DRAWINGS ARE DIAGRAMMATIC ONLY. THE EXACT LOCATION, MOUNTING HEIGHT, SIZE OF EQUIPMENT AND ROUTING OF RACEWAYS SHALL BE COORDINATED AND DETERMINED IN THE FIELD.
4. THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE HVAC AND PLUMBING CONTRACTORS AS TO THE EXACT LOCATION OF THEIR RESPECTIVE EQUIPMENT, THE POWER WIRING, THE CONTROL WIRING AND ALL ELECTRICAL CONNECTIONS REQUIRED BY THIS CONTRACTOR FOR COMPLETELY OPERATIVE HVAC AND PLUMBING SYSTEMS IN CONFORMANCE WITH THE CONTRACT DOCUMENTS.
5. INTERRUPTIONS TO THE EXISTING ELECTRICAL SERVICE FOR SPLICING CONNECTIONS, RENOVATION OF EXISTING DISTRIBUTION, BRANCH CIRCUITS, INSTALLATION OF NEW ELECTRIC SERVICE, AND SHALL BE AS SHORT AS POSSIBLE, AND TO THE CONVENIENCE OF THE OWNER.
6. ALL CONDUIT SHALL BE SURFACE MOUNTED UNLESS OTHERWISE NOTED. NO INTERIOR HORIZONTAL CONDUIT BELOW 7'-8" AFF IN FINISHED SPACES.
7. ALL WIRING TO BE 3/4"C, 2#12 & 1#12 GROUND, UNLESS OTHERWISE NOTED.
8. NO BX OR ROMEX CABLE IS PERMITTED.
9. ALL WIRING DEVICES AND EQUIPMENT SHALL BE 20A SPECIFICATION GRADE AND UL LISTED.
10. ALL OUTLET AND JUNCTION BOXES SHALL BE SECURELY SURFACE MOUNTED.
11. ALL RECEPTACLE AND EQUIPMENT CIRCUITS SHALL BE GROUNDED USING A FULL SIZE EQUIPMENT GROUNDING CONDUCTOR RUN WITH THE CURRENT CONDUCTORS.
12. ALL WALL PENETRATIONS FOR TELCO, POWER, AND GROUNDING SHALL REQUIRE PVC SLEEVES.
13. ALL SWITCHES SHALL BE FORTY-EIGHT (48) INCHES AFF, UNLESS OTHERWISE NOTED.
14. ALL RECEPTACLES SHALL BE EIGHTEEN (18) INCHES AFF, UNLESS OTHERWISE NOTED.
15. ALL WIRING SHALL BE IN METAL RACEWAY & NO. 12 AWG COPPER MIN. UNLESS OTHERWISE NOTED.
16. WIRE COLOR SHALL BE PER STANDARD CODING BY PHASE.
17. FOR UTILITY BILLING, PLEASE SEND TO:
    VERIZON WIRELESS
    2C ALEXANDER DRIVE
    WALLINGFORD, CT 06492

GROUNDING GENERAL NOTES

1. ALL EXTERIOR CONDUCTORS SHALL BE #2 AWG, SOLID, BARE, TINNED COPPER, UNLESS OTHERWISE NOTED. MINIMUM BEND RADIUS SHALL BE EIGHT (8) INCHES.
2. ALL CONNECTIONS TO HALO GROUND RING AND ALL CABLE TRAY JUMPERS SHALL BE #6 AWG, INSULATED, STRANDED, COPPER WIRE.
3. ALL WIRE-TO-WIRE CONNECTIONS SHALL BE THREE-CLAMP, C TAP COMPRESSION (T&B #54740 ORANGE OR EQUIVALENT). ALL GROUND BAR CONNECTIONS SHALL BE TWO-HOLE, LONG-BARREL TYPE COMPRESSION LUGS (T&B OR EQUIVALENT). ALL OTHER CONNECTIONS TO STEEL SURFACES SHALL USE LUG-TYPE CONNECTORS.
4. MECHANICALLY BOND ANTENNA MOUNTS WITH #2 AWG, BARE, STRANDED CONDUCTORS.
5. ALL GROUNDING WORK SHALL COMPLY WITH VERIZON WIRELESS STANDARDS.
6. CONNECT GROUND CONDUCTOR TO EXISTING GROUNDING SYSTEM. ATTACH TO WALLS, PARAPET, CABLE TRAY, ETC. WITH A CLAMPS AS NECESSARY. REMOVE PAINT, FIREPROOFING, MILL SCALE, ETC. TO ACHIEVE GOOD CAD WELD GROUND CONNECTION.
7. CONNECT TO HALO GROUND USING C-TAP (#54730).
8. CONNECT TO ENCLOSURES USING BLUE GROUND LUGS.





KOHLER 50kW DIESEL GENERATOR WITH 283 GA SUB-BASE DIESEL FUEL TANK (PART #50REOZJE)
OVERALL GENERATOR (ENCLOSURE) APPROXIMATE
DIMENSIONS: 91.3"L x 41.2"W x 87.8"H (INCLUDES SUB-BASE DIESEL TANK)
APPROXIMATE MAX. IN-SERVICE WEIGHT: 3,795 lbs

GENERATOR DETAIL (1 / E01)
SCALE: NONE

LEGEND

ELECTRICAL SYMBOLS

- METER
- GROUND ROD/TEST (OBSERVATION) WELL
- GROUND ROD
- CADWELD TYPE CONNECTION
- COMPRESSION TYPE CONNECTION
- GROUNDING WIRE
- (1 / E02) REPRESENTS DETAIL NUMBER
- 1'X4' SURFACE MTD. FLOURESCENT LIGHTING FIXTURE
- SELF CONTAINED EMERG. LIGHTING UNIT
- S 20A-120V-1P TOGGLE SWITCH
- MAGNETIC DOOR SWITCH (DOOR JAMB TYPE)
- 20A-120V QUADRAPLEX RECEPTACLE, GROUNDING TYPE, 2-CKT. NO.
- 20A-120V DUPLEX RECEPTACLE, GROUNDING TYPE. WP = WEATHERPROOF GFI = GROUND FAULT
- SIMPLEX RECEPTACLE, GROUNDING TYPE. TL = TWIST LOCK
- JUNCTION BOX
- P1 PANELBOARD 'P1'
- * MOTOR - NUMERAL DENOTES HORSEPOWER
- WEATHER PROOF DISCONNECT SWITCH
- FUSED DISCONNECT SWITCH - '3R' & '1' - NEMA ENCLOSURE
- * THERMOSTAT *T_H - HI TEMPERATURE ALARM THERMOSTAT
- * HUMIDISTAT *$H_{H/O}$ - HI/LO HUMIDITY ALARM HUMIDISTAT
- COMBINATION SMOKE/HEAT DETECTOR WITH MINI HORN SIMPLEX CAT.#2098-9898 WITH FORM A & C CONTACTS
- P1-2 HOMERUN TO PANEL (FURNISH & INSTALLED BY MECHANICAL)
- SURGE ARRESTOR - JOSLYN CAT. NO. 1455-85
- AFF ABOVE FINISHED FLOOR
- * MOTORIZED DAMPER
- #3-3/4"C EXPOSED CONDUIT 2#12-3/4"C.
- ALARM TERMINAL CABINET

* EQUIPMENT FURNISHED AND INSTALLED BY OTHERS AND WIRED BY THIS CONTRACTOR

ABBREVIATIONS

AWG	AMERICAN WIRE GAUGE
BCW	BARE COPPER WIRE
GPS	GLOBAL POSITIONING SYSTEM
PCS	PERSONAL COMMUNICATION SYSTEM
RWY	RACEWAY
TYP.	TYPICAL
RGS	RIGID GALVANIZED STEEL
EMT	ELECTRICAL METALLIC TUBING
DWG	DRAWING
IMT	INTERIOR GROUND RING (HALO)
GEN	GENERATOR
GR	GROWTH
CGBE	COAX GROUND BAR EXTERNAL
CIGBE	COAX ISOLATED GROUND BAR EXTERNAL
MGB	MASTER GROUND BAR
PVC	RIGID (SCH. 40) POLYVINYL CHLORIDE CONDUIT
EBH	ETHERNET BACK HAUL

CLIENT:
verizon
* Because Better Matters *

ARCHITECT/ENGINEER:
CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil · Structural · Land Surveying
R.K. EXECUTIVE CENTRE
201 BOSTON POST ROAD WEST
SUITE 101
MARLBOROUGH, MA 01752
(508) 481-7400
www.chcppellengineering.com

SEAL:

ENGINEER/LAND SURVEYOR DATE

DRAWING SCALE NOTE:
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REVISIONS

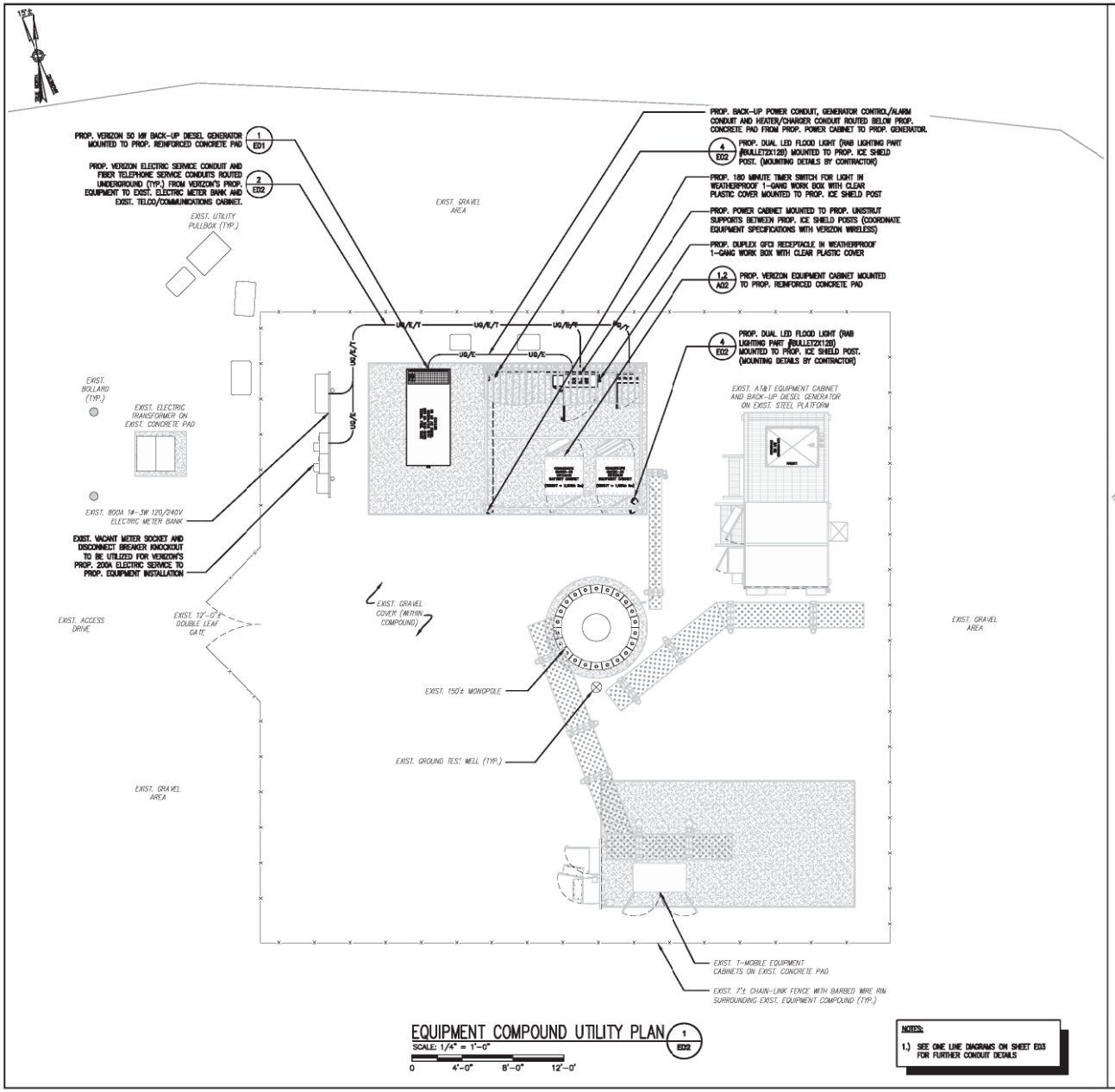
NO.	DESCRIPTION	DATE
0	ISSUED FOR REVIEW	1/20/22
1	ISSUED FOR CONSTRUCTION (FINAL)	2/10/22
2	REVISED TSA REFERENCE DATE	4/13/22
3	REVISED MSA REFERENCE DATE	4/15/22

PROJECT NAME:
SOUTH GLASTONBURY 3 CT
63 WOODLAND STREET
SOUTH GLASTONBURY, CT 06073

DRAWING TITLE:
ELECTRICAL SPECIFICATIONS AND NOTES

DRAWING NO:
E01

SCALE: AS SHOWN	DESIGNED BY: NWC	VZW PROJECT CODE: 20212306233
	DRAWN BY: NWC	
	CHECKED BY: GRS	VZW PROJECT NO.: 19085720
CEA PROJECT NO.: 96210.404	ORIGINAL ISSUE DATE: 1/20/22	VZW LOCATION CODE: 708312



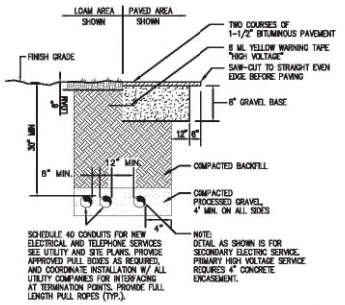
EQUIPMENT COMPOUND UTILITY PLAN 1 E02

SCALE: 1/4" = 1'-0"

0 4'-0" 8'-0" 12'-0"

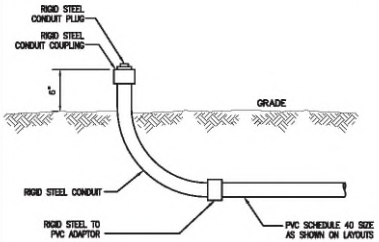
NOTES:

1.) SEE ONE LINE DIAGRAMS ON SHEET E03 FOR FURTHER CONDUIT DETAILS



TYPICAL BURIED CONDUIT DETAIL 2 E02

SCALE: NONE



TYPICAL CONDUIT STUB-UP DETAIL 3 E02

SCALE: NONE

RAB LIGHTING - BULLET2X12B
24W
BLACK

MOUNT PER MANUFACTURER'S SPECIFICATIONS

TYPICAL LED FLOOD LIGHT DETAIL 4 E02

SCALE: N.T.S.

CLIENT:

verizon

* Because Better Matters *

ARCHITECT/ENGINEER:

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil · Structural · Land Surveying
R.K. EXECUTIVE CENTRE
201 BOSTON POST ROAD WEST
SUITE 101
MARLBOROUGH, MA 01752
(508) 481-7400
www.chcppellengineering.com

SEAL:

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0	ISSUED FOR REVIEW	1/20/22
1	ISSUED FOR CONSTRUCTION (FINAL)	2/10/22
2	REVISED TSA REFERENCE DATE	4/13/22
3	REVISED MSA REFERENCE DATE	4/15/22

PROJECT NAME:

SOUTH GLASTONBURY 3 CT

63 WOODLAND STREET
SOUTH GLASTONBURY, CT 06073

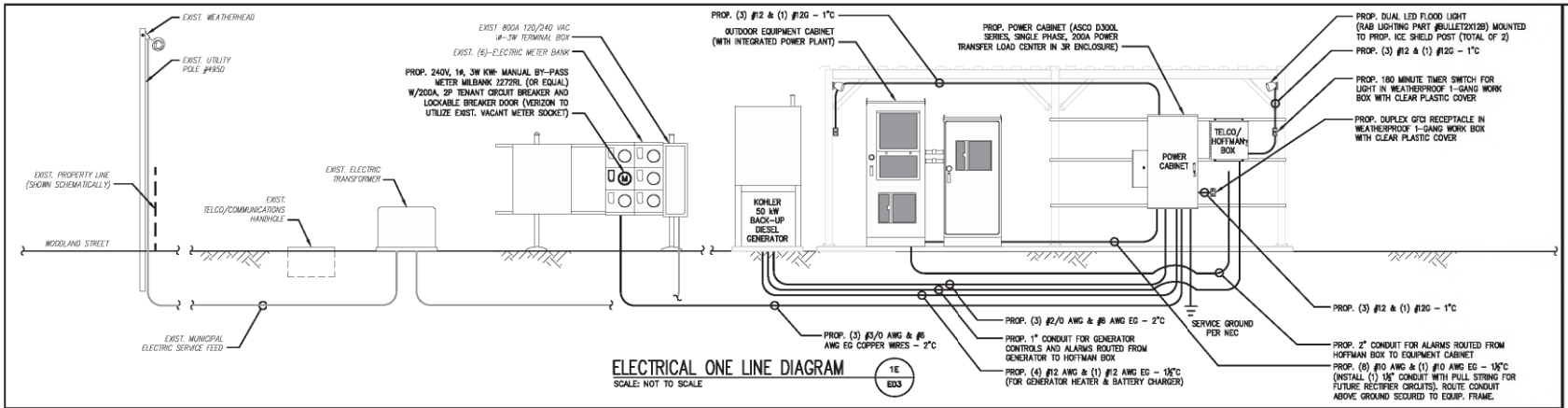
DRAWING TITLE:

EQUIPMENT COMPOUND UTILITY PLAN & DETAILS

DRAWING NO:

E02

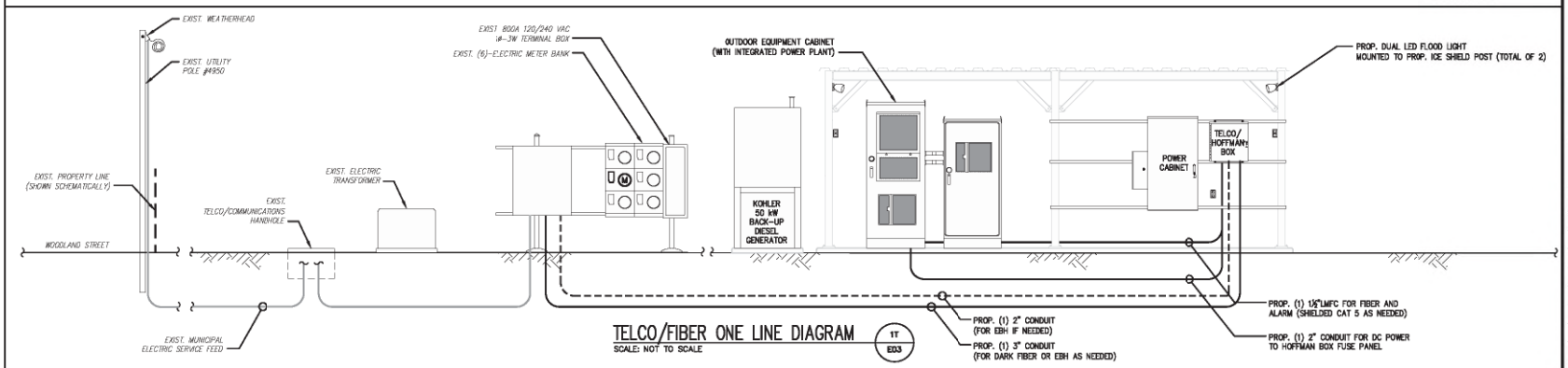
SCALE:	DESIGNED BY: NWC	VZW PROJECT CODE:
AS SHOWN	DRAWN BY: NWC	20212309233
	CHECKED BY: GRR	VZW PROJECT NO.:
CEA PROJECT NO.:	ORIGINAL ISSUE DATE:	19085720
96210.404	1/20/22	VZW LOCATION CODE:
		708312



ELECTRICAL ONE LINE DIAGRAM

SCALE: NOT TO SCALE

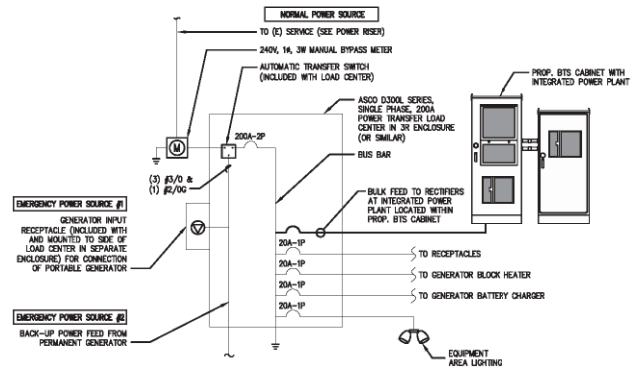
1E / E03



TELCO/FIBER ONE LINE DIAGRAM

SCALE: NOT TO SCALE

1T / E03



POWER SOURCE ONE LINE DIAGRAM

SCALE: NOT TO SCALE

2 / E03

ASCO D300L SERIES, SINGLE PHASE, 200A POWER TRANSFER LOAD CENTER IN 3R ENCLOSURE

ELECTRICAL PANEL SCHEDULE

65,000 A.I.C. NEMA 3R

CKT #	DESCRIPTION	AMP	AMP	DESCRIPTION	CKT #
1	RECTIFIER #1	30	30	FUTURE RECTIFIER	2
3					4
5	RECTIFIER #2	30	30	FUTURE RECTIFIER	6
7					8
9	RECTIFIER #3	30	20	PAD LIGHTING	10
11			–	BLANK	12
13	RECTIFIER #4	30	–	BLANK	14
15			–	BLANK	16
17	GFCI RECEPTACLE/LIGHT	20	–	BLANK	18
19	GENERATOR BLOCK HEATER	20	–	BLANK	20
21	GENERATOR BATTERY CHARGER	20	–	BLANK	22
23	BLANK	–	–	BLANK	24
25	BLANK	–	–	BLANK	26
27	BLANK	–	–	BLANK	28
29	BLANK	–	–	BLANK	30

ELECTRICAL PANEL SCHEDULE

SCALE: NTS

3 / E03

ONE-LINE DIAGRAM NOTES:

1) PROVIDE WEATHER TIGHT SEAL CONNECTORS ON ALL CONNECTIONS INSIDE AND OUT.

2) COORDINATE ANY FURTHER MISCELLANEOUS WIRING AND CONDUIT REQUIREMENTS WITH VERIZON WIRELESS AND ELECTRIC COMPANY.

3) ALL CONDUIT ROUTING SHOWN ON THESE DIAGRAMS IS SCHEMATIC IN NATURE AND INTENDED TO CONVEY GENERAL INTENT ONLY.

4) ALL PROPOSED UTILITY DESIGN ELEMENTS SHOWN ARE SUBJECT TO CHANGE BASED ON FINAL DESIGN TO BE PROVIDED BY UTILITY PROVIDERS AND VERIZON WIRELESS. CONTRACTOR SHALL OBTAIN A COPY OF THE FINAL UTILITY DESIGN BY UTILITY COMPANY PRIOR TO COMMENCEMENT OF WORK.

UTILITY CONTACTS

ELECTRICAL: EVERSOURCE ENERGY
247 STATION DRIVE, SE 210
WESTWOOD, MA 02090
(781) 441-3610

TELEPHONE: VERIZON
185 FRANKLIN STREET
BOSTON, MA 02107
(800) 941-9900

MAKE ALL CONNECTIONS AS PER UTILITY COMPANY'S REQUIREMENTS.

CLIENT:

verizon
* Because Better Matters *

ARCHITECT/ENGINEER:

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2	REVISED TSA REFERENCE DATE	4/13/22
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PROJECT NAME:

SOUTH GLASTONBURY 3 CT

63 WOODLAND STREET
SOUTH GLASTONBURY, CT 06073

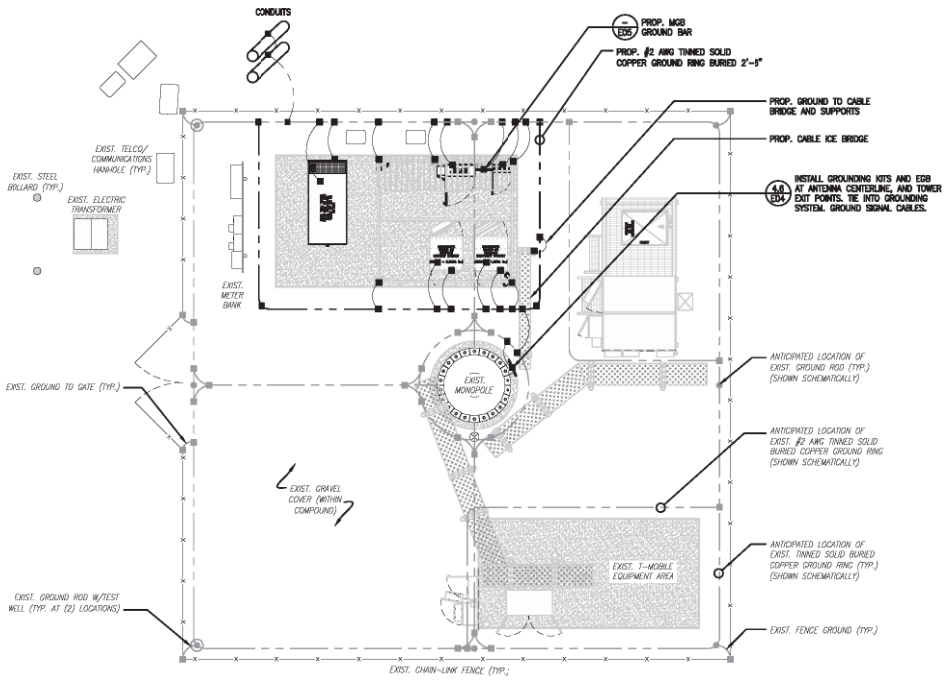
DRAWING TITLE:

ELECTRICAL DIAGRAMS & DETAILS

DRAWING NO:

E03

SCALE: AS SHOWN	DESIGNED BY: NWC	VZW PROJECT CODE: 20212309233
	DRAWN BY: NWC	
	CHECKED BY: GBR	VZW PROJECT NO.: 19085720
CEA PROJECT NO.: 96210.404	ORIGINAL ISSUE DATE: 1/20/22	VZW LOCATION CODE: 708312



SCHEMATIC GROUNDING PLAN (1/E04)

SCALE: 3/16" = 1'-0"

0 5'-4" 10'-8" 16'-0"

NORTH

GROUNDING LEGEND

- EXOTHERMIC GROUND
- GROUND ROD
- TEST WELL
- PROP. #2 AWG EQUIPMENT GROUNDING
- PROP. GROUND HALO
- EXIST. SITE GROUNDING (SHOWN SCHEMATICALLY)

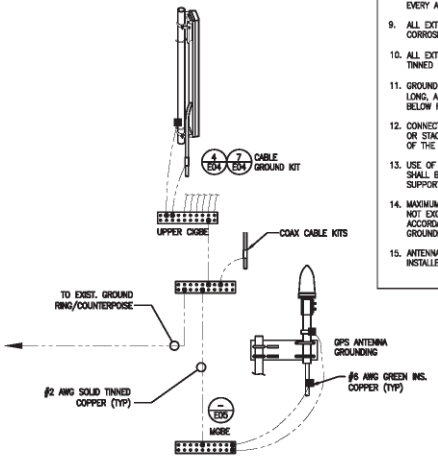
ELECTRICAL AND GROUNDING NOTES:

ELECTRICAL

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND ALL APPLICABLE LOCAL CODES.
2. CONDUIT ROUTINGS ARE SCHEMATIC. SUBCONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED.
3. SERVICE TO EQUIP. SHALL BE 120/240 VAC, 200 AMP, 1Ø, 60 Hz.
4. THE SUBCONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT.

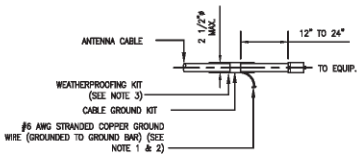
GROUNDING

5. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC (CADWELD) CONNECTIONS.
6. ALL GROUND CONNECTIONS BELOW GRADE SHALL BE EXOTHERMIC (CADWELD).
7. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR & EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
8. ALL EXOTHERMIC CONNECTIONS TO THE GROUND RODS SHALL START AT THE TOP & HAVE A VERTICAL SEPARATION OF 6" FOR EVERY ADDITIONAL CONNECTION.
9. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
10. ALL EXTERIOR GROUND CONDUCTORS SHALL BE #2 AWG SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
11. GROUND RODS SHALL BE COPPER CLAD STEEL, 5/8"ø 10-FT. LONG, AND SHALL BE DRIVEN VERTICALLY WITH THEIR TOPS 48" BELOW FINAL GRADE.
12. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED. BACK TO BACK CONNECTIONS ON OPPOSITE SIDES OF THE GROUND BUS ARE PERMITTED.
13. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
14. MAXIMUM RESISTANCE OF THE COMPLETED GROUND SYSTEM SHALL NOT EXCEED 5 OHMS. TESTING SHALL BE PERFORMED IN ACCORDANCE WITH PROJECT SPECIFICATION FOR FACILITY GROUNDING, USING FALL OF POTENTIAL METHOD.
15. ANTENNA GROUND KITS SHALL BE FURNISHED BY VERIZON AND INSTALLED BY CONTRACTOR.



ANTENNA GROUNDING RISER DIAGRAM (2/E04)

SCALE: NOT TO SCALE



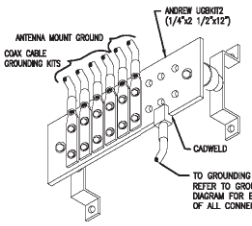
CONNECTION OF CABLE GROUND KIT TO ANTENNA CABLE

NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
3. WEATHER PROOFING SHALL BE TWO-PART TAPE SUPPLIED WITH KIT. COLD SHRINK SHALL NOT BE USED.

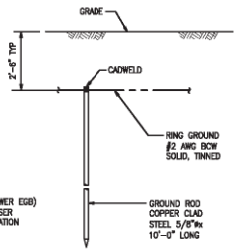
DETAIL (3/E04)

SCALE: NOT TO SCALE



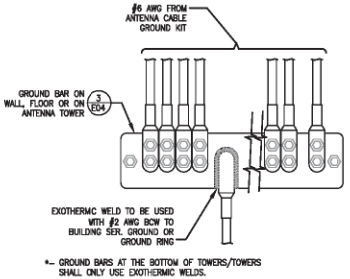
GROUND BAR (EGB) (4/E04)

SCALE: NOT TO SCALE



GROUND ROD (5/E04)

SCALE: NOT TO SCALE

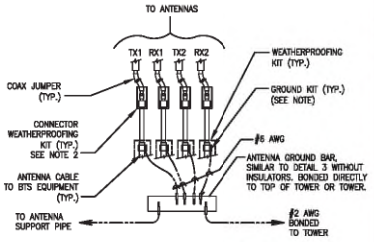


*- GROUND BARS AT THE BOTTOM OF TOWERS/TOWERS SHALL ONLY USE EXOTHERMIC WELDS.

INSTALLATION OF GROUND WIRE TO GROUND BAR

DETAIL (6/E04)

SCALE: NOT TO SCALE



CONNECTION OF GROUND WIRE TO GROUNDING BAR, TOWER

DETAIL (7/E04)

SCALE: NOT TO SCALE

CLIENT:

verizon

* Because Better Matters *

ARCHITECT/ENGINEER:

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil · Structural · Land Surveying
R.K. EXECUTIVE CENTRE
201 BOSTON POST ROAD WEST
SUITE 101
MARLBOROUGH, MA 01752
(508) 481-7400
www.chcppellengineering.com

SEAL:

ENGINEER/LAND SURVEYOR DATE

DRAWING SCALE NOTE:

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REVISIONS

NO.	DESCRIPTION	DATE
0	ISSUED FOR REVIEW	1/20/22
1	ISSUED FOR CONSTRUCTION (FINAL)	2/10/22
2	REVISED TSA REFERENCE DATE	4/13/22
3	REVISED MSA REFERENCE DATE	4/15/22

PROJECT NAME:

SOUTH GLASTONBURY 3 CT

63 WOODLAND STREET
SOUTH GLASTONBURY, CT 06073

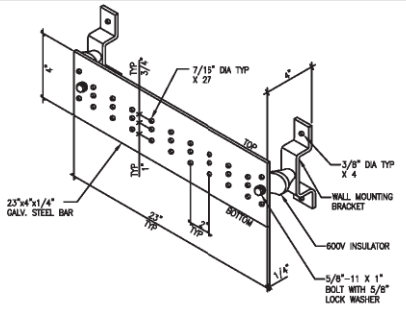
DRAWING TITLE:

SCHEMATIC GROUNDING PLAN & DETAILS

DRAWING NO:

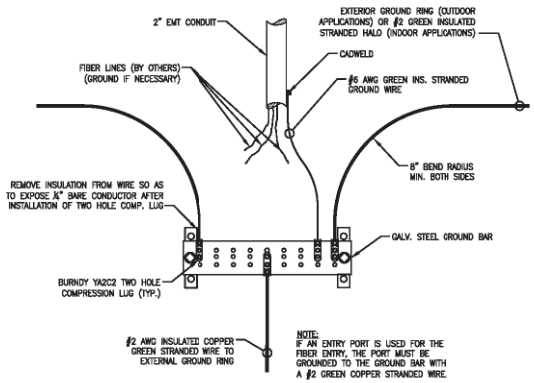
E04

SCALE: AS SHOWN	DESIGNED BY: NWC	VZW PROJECT CODE: 20212309233
	DRAWN BY: NWC	
	CHECKED BY: GRS	VZW PROJECT NO.: 19085720
CEA PROJECT NO.: 96210.404	ORIGINAL ISSUE DATE: 1/20/22	VZW LOCATION CODE: 708312

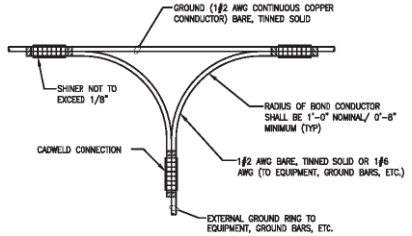


1. SURFACE PREPERATION: ALL CONNECTIONS MADE TO BARE METAL. ALL PAINTED SURFACES SHALL BE MADE BARE TO ENSURE PROPER CONTACT. NO WASHERS SHALL BE ALLOWED BETWEEN THE ITEMS BEING GROUNDED. ALL CONNECTIONS SHALL HAVE AN ANTI-OXIDANT AGENT APPLIED PRIOR TO INSTALLATION.
2. BUSS PREPERATION: ALL GALV. STEEL BUSSES SHALL BE CLEANED, POLISHED AND AN ANTI-OXIDANT APPLIED. NO FINGERPRINTS OR DISCOLORED STEEL WILL BE PERMITTED.
3. TERMINATIONS: ALL EQUIPMENT TERMINATIONS SHALL BE MADE WITH A BURNDY TWO HOLE COMPRESSION LUG WITH 10-24x3/4" LONG S.S. SCREWS, NUTS AND LOCK WASHERS. ALL BUSS TERMINATIONS SHALL BE MADE WITH A CAD-WELD OR BURNDY YC2C2 2 HOLE COMPRESSION LUG OR EQUAL. ALL INTERIOR HALO ATTACHMENTS SHALL BE MADE USING A BURNDY YC2C2 COMPRESSION LUG.

TYP. INTERIOR & EXTERIOR GROUND BAR
SCALE: N.T.S.

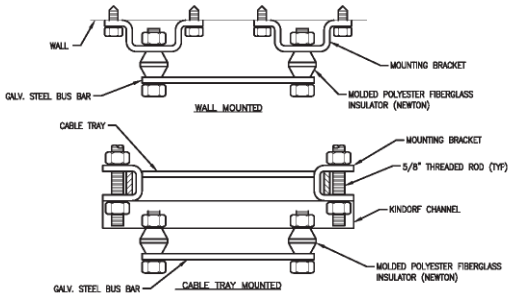


INTERIOR GROUNDING AT TELCO ENTRY
SCALE: N.T.S.

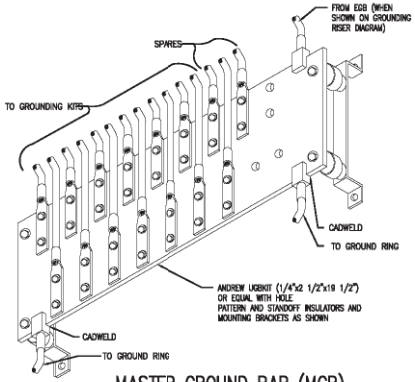


NOTE: ALL CONNECTION TO GROUND SHALL BE NON-DIRECTIONAL

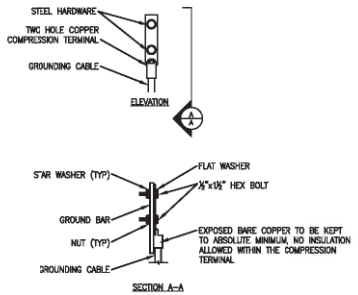
NON-DIRECTIONAL SPLICE
SCALE: N.T.S.



BUS BAR MOUNTING
SCALE: N.T.S.

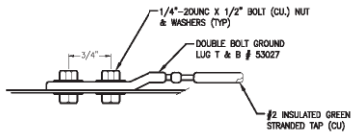


MASTER GROUND BAR (MGB)
SCALE: NOT TO SCALE

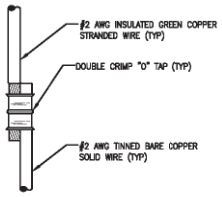


NOTE:
1. "DOUBLING UP" OR "STACKING " OF CONNECTION IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.

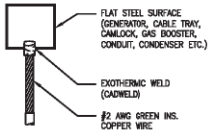
TYPICAL GROUND BAR CONNECTION DETAIL
SCALE: N.T.S.



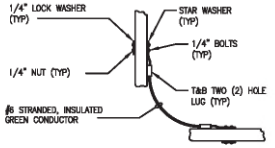
TYPICAL EQUIPMENT GROUND CONNECTION
SCALE: N.T.S.



TYPICAL GROUND CONNECTION SPLICE DETAIL
SCALE: N.T.S.



TYP. CADWELD #2 GREEN TO FLAT STEEL SURFACE
SCALE: NOT TO SCALE



CABLE TRAY GROUNDING
SCALE: N.T.S.

CLIENT:
verizon
* Because Better Matters *

ARCHITECT/ENGINEER:
CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil · Structural · Land Surveying
R.K. EXECUTIVE CENTRE
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MARLBOROUGH, MA 01752
(508) 481-7400
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SEAL:

ENGINEER/LAND SURVEYOR DATE

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REVISIONS

NO.	DESCRIPTION	DATE
0	ISSUED FOR REVIEW	1/20/22
1	ISSUED FOR CONSTRUCTION (FINAL)	2/10/22
2	REVISED TSA REFERENCE DATE	4/13/22
3	REVISED MSA REFERENCE DATE	4/15/22

PROJECT NAME:
SOUTH GLASTONBURY 3 CT
63 WOODLAND STREET
SOUTH GLASTONBURY, CT 06073

DRAWING TITLE:
GROUNDING DETAILS

DRAWING NO:
E05

SCALE: AS SHOWN	DESIGNED BY: NWC	VZW PROJECT CODE: 20212309233
	DRAWN BY: NWC	
	CHECKED BY: GRR	VZW PROJECT NO.: 19085720
CEA PROJECT NO.: 96210.404	ORIGINAL ISSUE DATE: 1/20/22	VZW LOCATION CODE: 708312

Appendix B – Mount Analysis

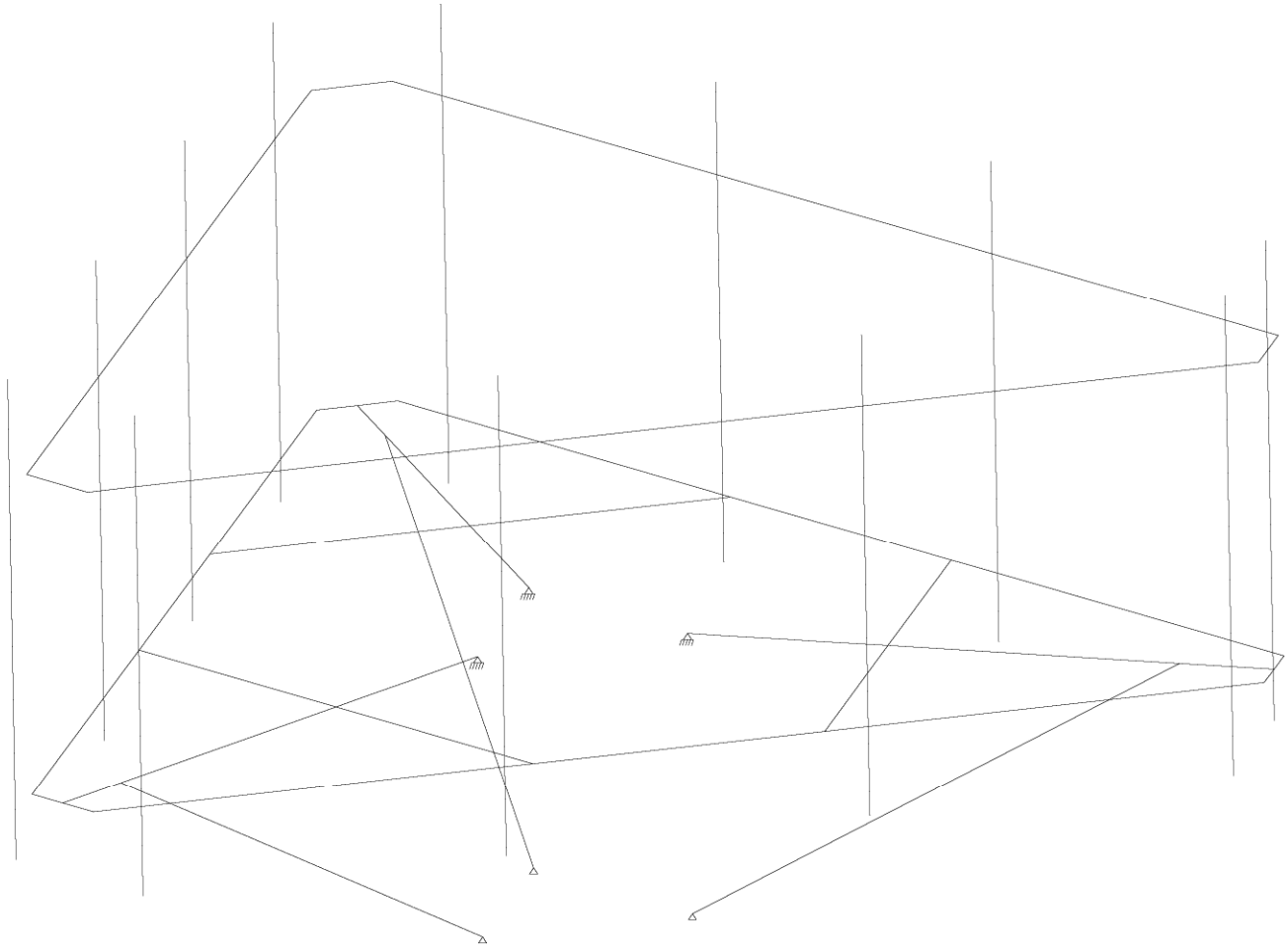
South Glastonbury 3 CT Mount Analysis

View: Steel Beam Design

X3
X2
X1

SCALE = 1:27

DATE: 2/ 9/22



South Glastonbury 3 CT Mount Analysis

Prepared by:

Load no. 1: Front No Ice (units - kips ft.)

/ JOINT LOADS
/ BEAM LOADS
/ JOINT LOADS
/ BEAM LOADS
/ JOINT LOADS

/ BEAM LOADS
/ JOINT LOADS
/ JOINT LOADS
/ JOINT LOADS
/ JOINT LOADS

FX2 0.073 FX3 -0.045 N 70 26
FX2 0.025 FX3 -0.045 N 84 54 76 38
FX2 0.047 FX3 -0.023 N 132
FX2 0.047 FX3 -0.023 N 133 135
FX2 0.22 FX3 -0.045 N 28 27

FX2 0.143 FX3 -0.045 N 48 47 64 63
FX2 0.57 FX3 -0.084 N 126 131 127 136 125 134
/ END

F O R C E S U M M A T I O N

FX1=0. kip
FX2=4.819 kip
FX3=-1.113 kip

Load no. 2: Side No Ice (units - kips ft.)

/ JOINT LOADS
/ BEAM LOADS
/ JOINT LOADS
/ BEAM LOADS
/ JOINT LOADS

/ BEAM LOADS
/ JOINT LOADS
/ BEAM LOADS
/ JOINT LOADS
/ JOINT LOADS

/ JOINT LOADS
FX1 0.025 FX3 -0.044 N 70 26 76 38 84 54
FX1 0.047 FX3 -0.023 N 132 135 133
FX1 0.143 FX3 -0.045 N 28 27 48 47 64 63
FX1 0.057 FX3 -0.084 N 126 127 125

FX1 0.057 FX3 -0.084 N 131 136 134
/ END

F O R C E S U M M A T I O N

FX1=1.491 kip
FX2=0. kip
FX3=-1.107 kip

Load no. 3: Front Ice (units - kips ft.)

```
/ JOINT LOADS
/ BEAM LOADS
/ JOINT LOADS
/ BEAM LOADS
/ JOINT LOADS
```

```
/ JOINT LOADS
/ BEAM LOADS
/ JOINT LOADS
/ JOINT LOADS
/ JOINT LOADS
```

```
FX2 0.021 FX3 -0.075 N 70 26
FX2 0.01 FX3 -0.075 N 76 38 84 54
FX2 0.016 FX3 -0.049 N 132 135 133
FX2 0.065 FX3 -0.156 N 28 27 48 47 64 63
FX2 0.02 FX3 -0.123 N 126 127 125 134 131 136
```

```
/ END
```

F O R C E S U M M A T I O N

FX1=0. kip
FX2=0.64 kip
FX3=-2.271 kip

Load no. 4: Side Ice (units - kips ft.)

```
/ JOINT LOADS
/ BEAM LOADS
/ JOINT LOADS
/ BEAM LOADS
/ JOINT LOADS
```

```
/ BEAM LOADS
/ JOINT LOADS
/ JOINT LOADS
/ JOINT LOADS
FX1 0.01 FX3 -0.075 N 70 26 38 76 84 54
```

```
FX1 0.01 FX3 -0.049 N 132 135 133
FX1 0.048 FX3 -0.156 N 28 27 48 47 64 63
FX1 0.014 FX3 -0.123 N 126 127 125 134 131 136
/ END
```

F O R C E S U M M A T I O N

FX1=0.462 kip
FX2=0. kip
FX3=-2.271 kip

Load no. 5: Selfweight (units - kips ft.)

```
/ BEAM LOADS
SELF  X3 -1. B 1 TO 138 142 TO 150
/ GLOBAL LOADS
/ GLOBAL LOADS
/ GLOBAL LOADS
DIST FX3 -0.003 PLANE -7.25 4.763 0.   -1.805 4.763 0.   -5.028 -0.818
0.   PT -0.5 0.866 BEAMS
DIST FX3 -0.003 PLANE 1.805 4.763 0.   7.25 4.763 0.   7.75 3.897 0.   PT
3.223 5.581 BEAMS
DIST FX3 -0.003 PLANE -3.222 -3.945 0.   3.222 -3.945 0.   0.5 -8.66
0.   PT 2.722 4.715 BEAMS
/ END

F O R C E   S U M M A T I O N

FX1=0. kip
FX2=0. kip
FX3=-1.4597 kip
```

Load no. 6: Front Frame Ice (units - kips ft.)

```
/ BEAM LOADS
DIST GL FX2 -0.002 B 1 4 5 13 TO 35 BY 2 49 TO 51 55 56 63 64 66 71 TO 74
76 TO 81 83 TO 88 90 TO 115 117 133 TO 135 142 TO 150
/ END

F O R C E   S U M M A T I O N

FX1=0. kip
FX2=-0.3127 kip
FX3=0. kip
```

Load no. 7: Side Frame Ice (units - kips ft.)

```
/ BEAM LOADS
/ BEAM LOADS
DIST GL FX1 -0.002 B 4 5 13 TO 35 BY 2 50 51 63 64 66 71 72 TO 78 BY 2
79 TO 81 83 TO 88 90 91 93 94 TO 100 BY 2 101 TO 115 117 133 TO 135
142 TO 150
/ END

F O R C E   S U M M A T I O N

FX1=-0.2564 kip
FX2=0. kip
FX3=0. kip
```

Load no. 8: Front Frame No Ice (units - kips ft.)

```
/ BEAM LOADS
/ BEAM LOADS
DIST GL FX2 -0.005 B 1 4 5 13 TO 35 BY 2 49 TO 51 55 56 63 64 66 71 TO 74
76 TO 81 83 TO 88 90 TO 115 117 133 TO 135 142 TO 150
/ END
```

F O R C E S U M M A T I O N

FX1=0. kip
FX2=-0.7817 kip
FX3=0. kip

Load no. 9: Side Frame No Ice (units - kips ft.)

```
/ BEAM LOADS
/ BEAM LOADS
/ BEAM LOADS
DIST GL FX1 -0.005 B 4 5 13 TO 35 BY 2 50 51 63 64 66 71 72 TO 78 BY 2
79 TO 81 83 TO 88 90 91 93 94 TO 100 BY 2 101 TO 115 117 133 TO 135
142 TO 150
/ END STATIC
```

F O R C E S U M M A T I O N

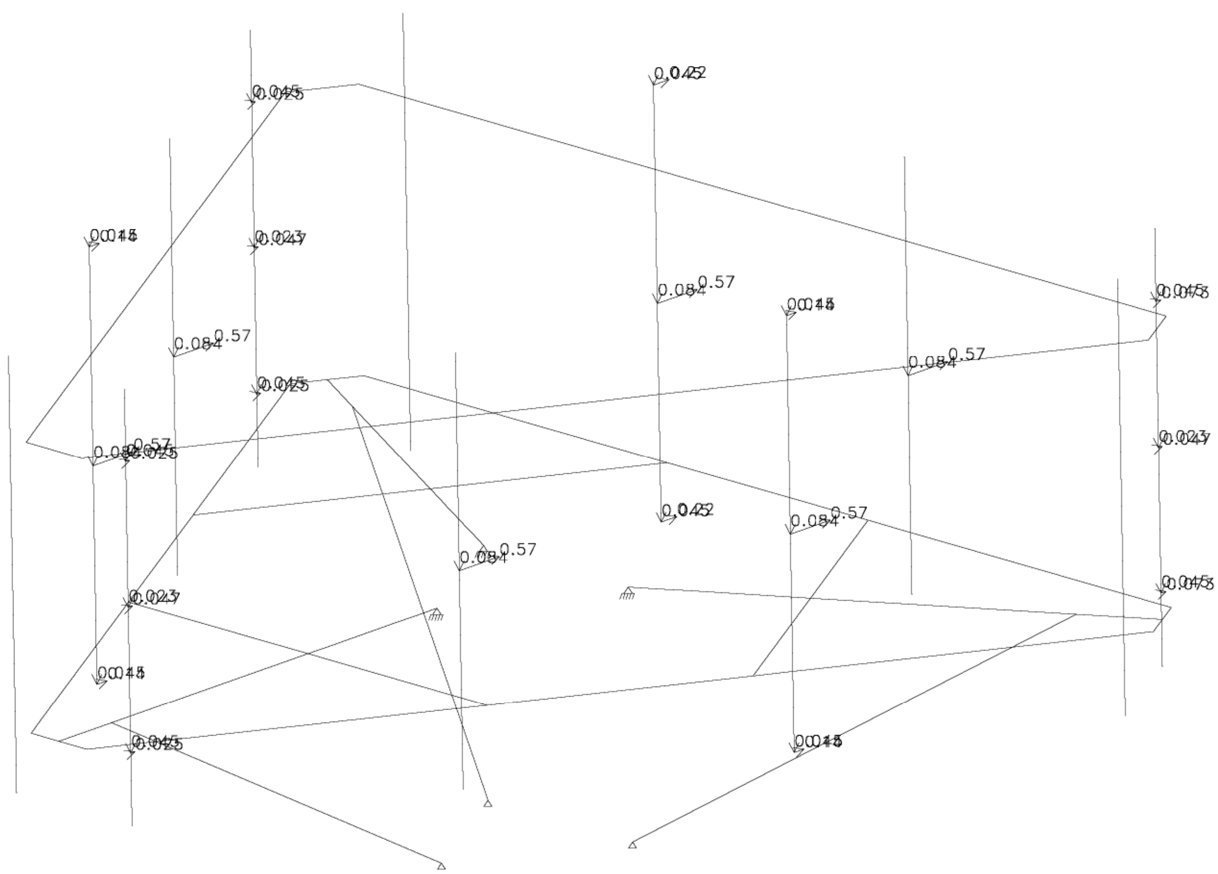
FX1=-0.6411 kip
FX2=0. kip
FX3=0. kip

South Glastonbury 3 CT Mount Analysis

Load 1: Front No Ice

SCALE = 1:30	UNITS: kip ft	DATE: 2/ 9/22

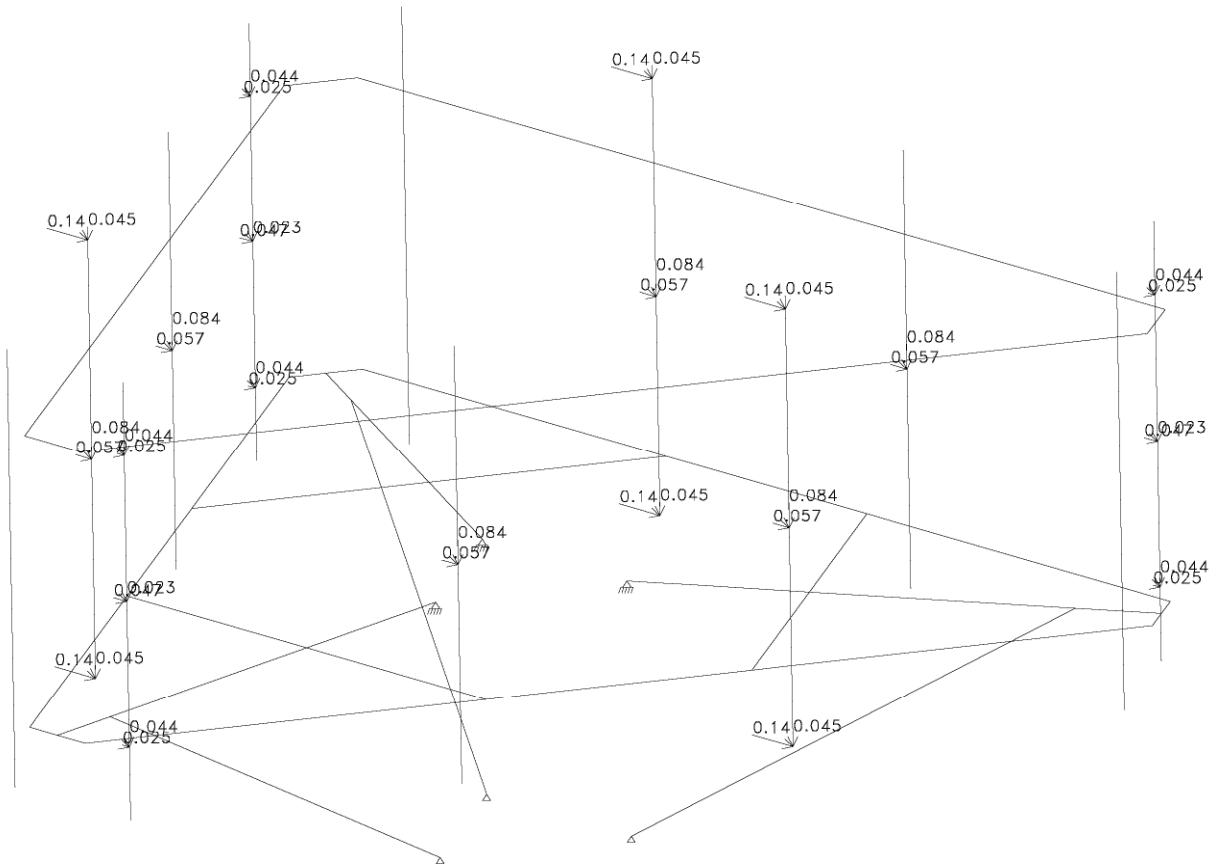
X3
X2
X1



South Glastonbury 3 CT Mount Analysis

Load 2: Side No Ice

SCALE = 1:30	UNITS: kip ft	DATE: 2/ 9/22

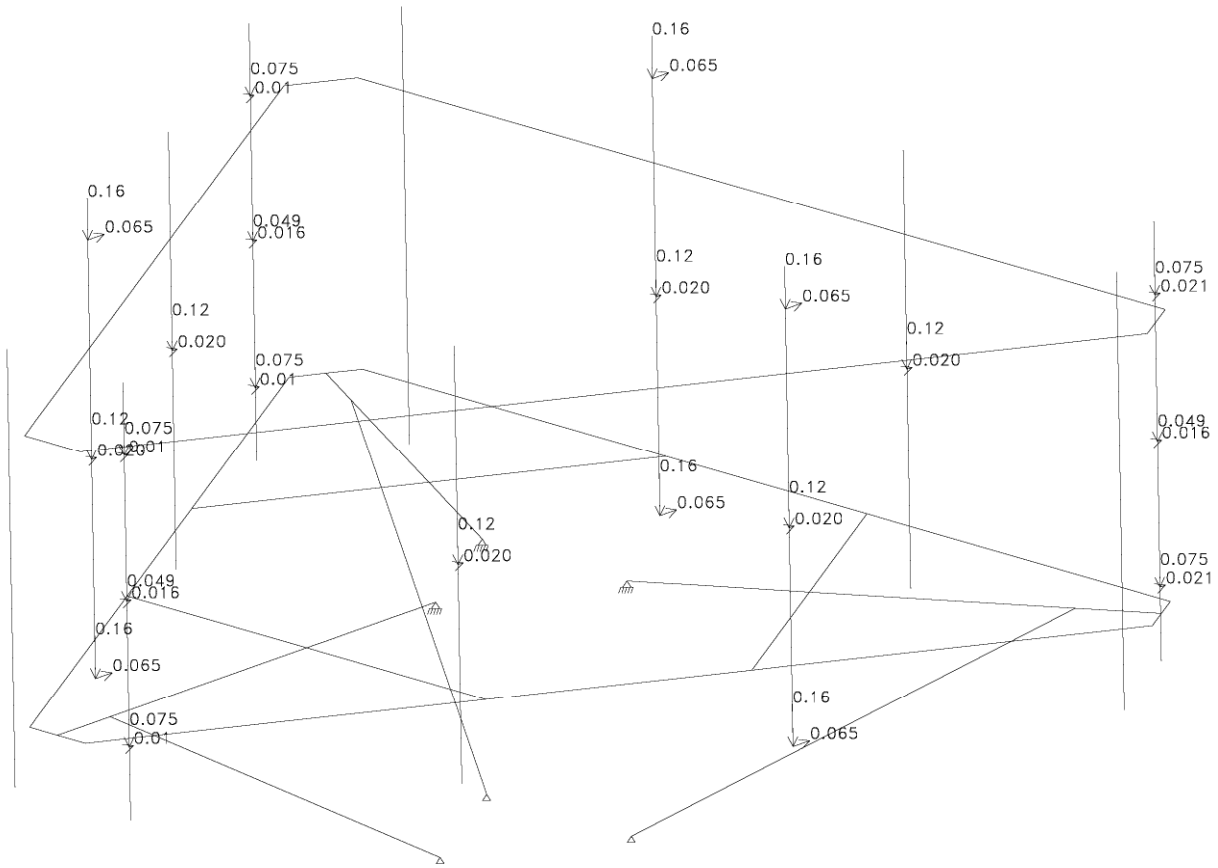


South Glastonbury 3 CT Mount Analysis

Load 3: Front Ice

X3
X2
X1

SCALE = 1:30	UNITS: kip ft	DATE: 2/ 9/22

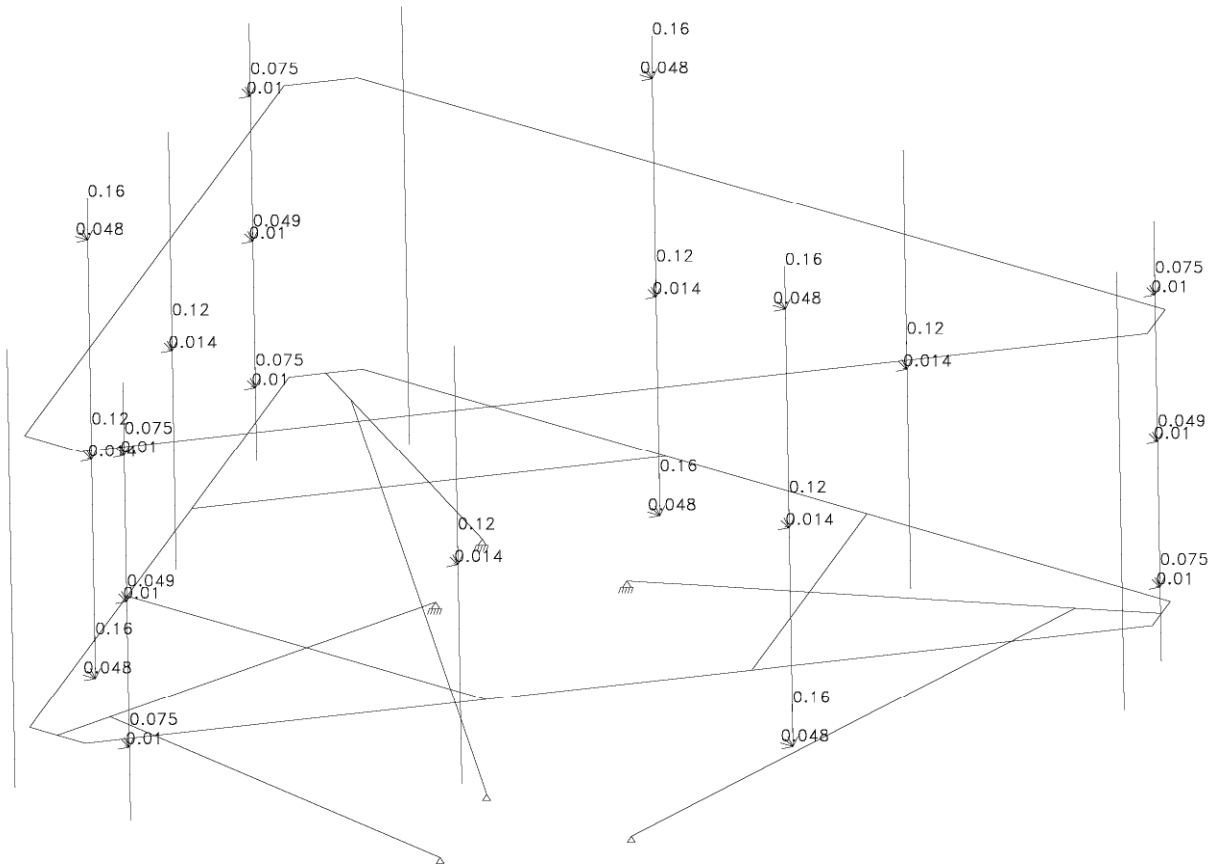


South Glastonbury 3 CT Mount Analysis

Load 4: Side Ice

X3
X2
X1

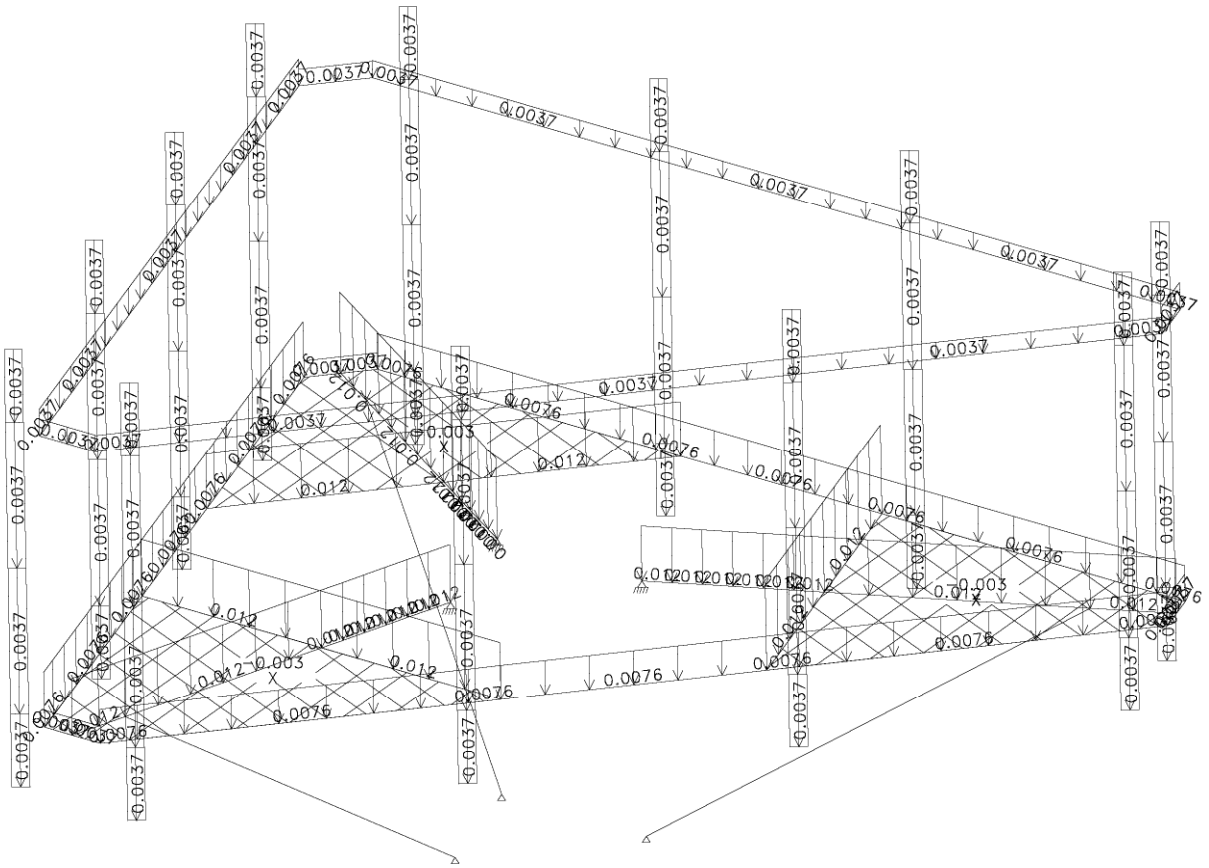
SCALE = 1:30	UNITS: kip ft	DATE: 2/ 9/22



South Glastonbury 3 CT Mount Analysis

Load 5: Selfweight

SCALE = 1:30 | UNITS: kip ft | DATE: 2/ 9/22

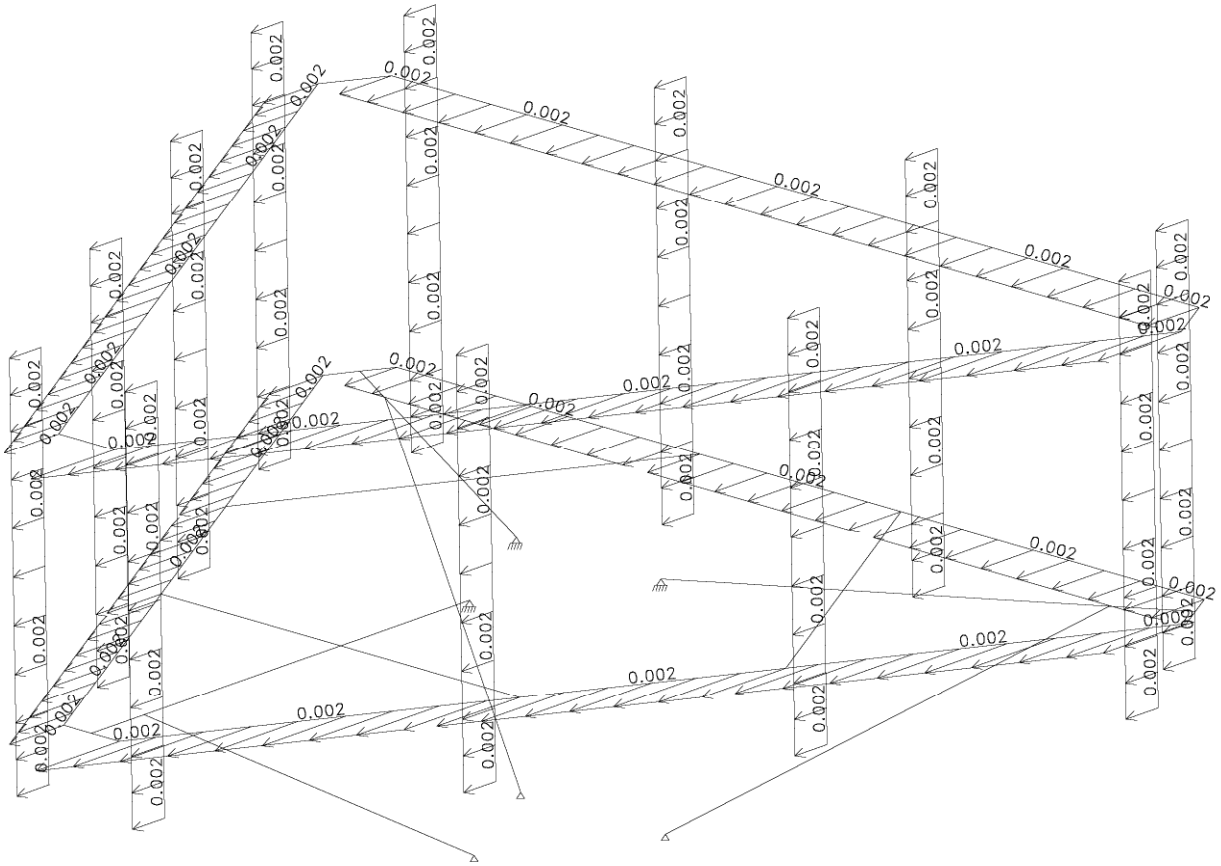


South Glastonbury 3 CT Mount Analysis

Load 6: Front Frame Ice

X3
X2
X1

SCALE = 1:30	UNITS: kip ft	DATE: 2/ 9/22

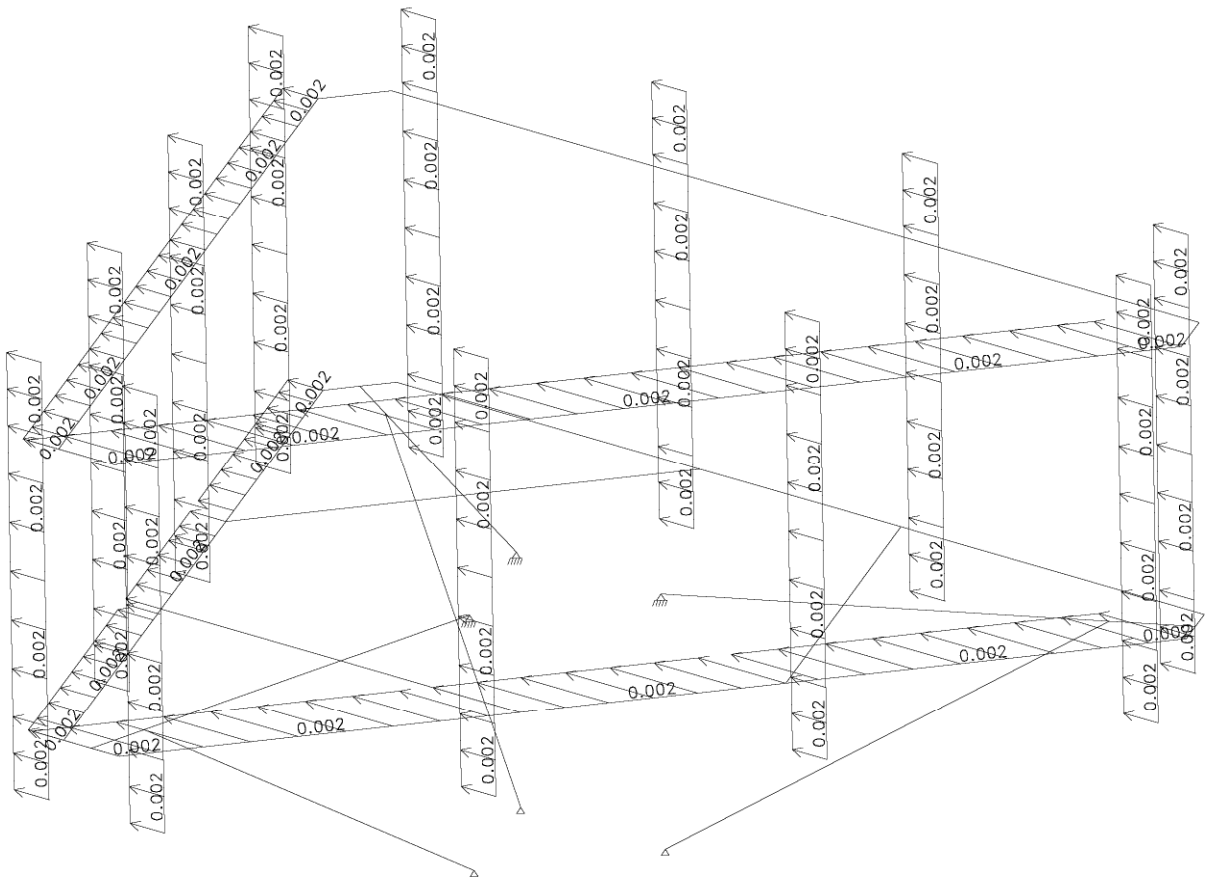


South Glastonbury 3 CT Mount Analysis

Load 7: Side Frame Ice

X3
X2
X1

SCALE = 1:30	UNITS: kip ft	DATE: 2/ 9/22

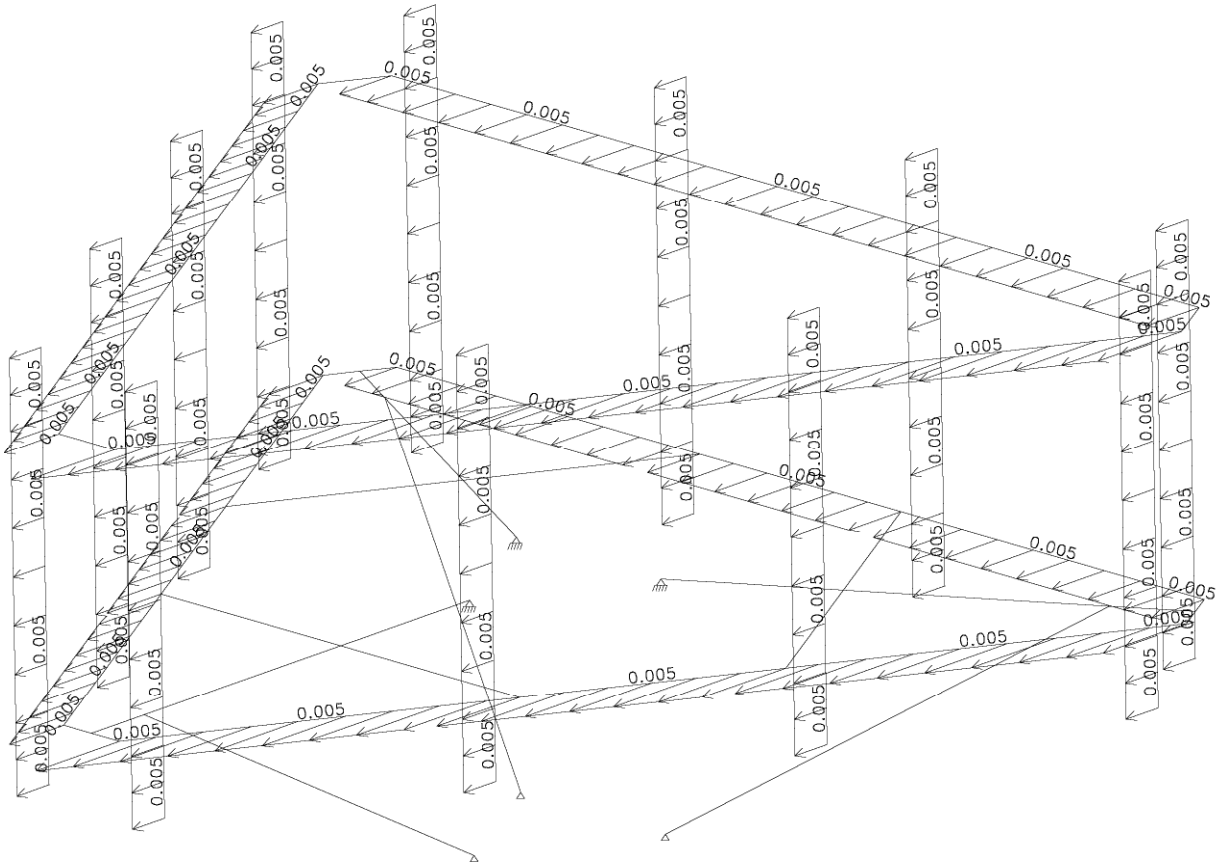


South Glastonbury 3 CT Mount Analysis

Load 8: Front Frame No Ice

X3
X2
X1

SCALE = 1:30 | UNITS: kip ft | DATE: 2/ 9/22

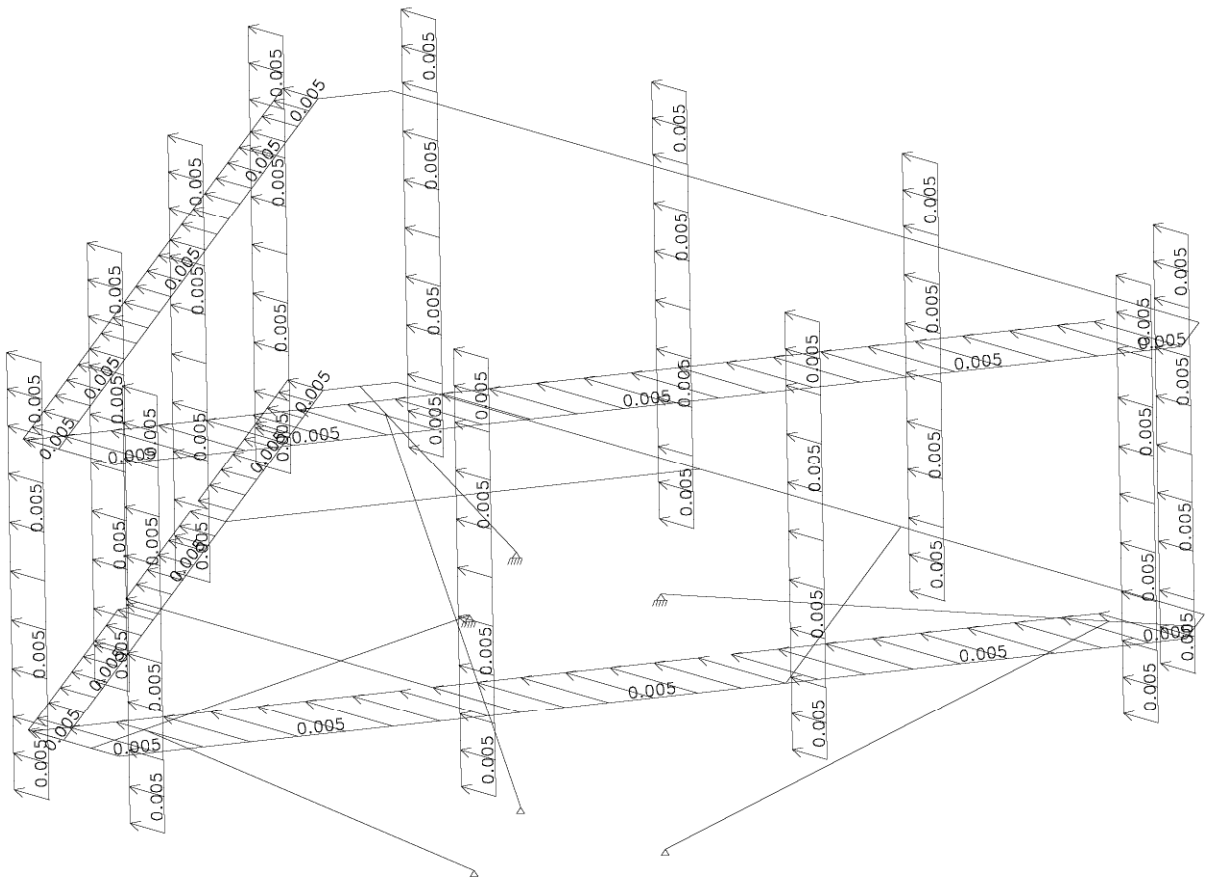


South Glastonbury 3 CT Mount Analysis

Load 9: Side Frame No Ice

X3
X2
X1

SCALE = 1:30	UNITS: kip ft	DATE: 2/ 9/22



South Glastonbury 3 CT Mount Analysis **Code:** AISC-LRFD

Prepared by: **Date:** 2/ 9/22

Results Summary Table

Beam	Section	Com	Defl L/	Slen	CAPACITY Axial	Dir	Shear	Mom	LTB	Combined Axial+Mom	
1	PIPE 3	1	518	150	0.01	MJ	0.02	0.13	0.13	0.20	
						MI	0.03	0.07	0.00		
2	TS 4x4x1/4	1	2962	57	0.02	MJ	0.03	0.08	0.08	0.27	
						MI	0.03	0.20	0.00		
3	TS 4x4x1/4	1	3294	57	0.02	MJ	0.03	0.08	0.08	0.26	
						MI	0.03	0.19	0.00		
6	PIPE 2	1	7444	8	-0.01	MJ	0.04	0.14	0.14	0.18	
						MI	0.01	0.04	0.00		
7	PIPE 2	1	9999	8	0.00	MJ	0.05	0.14	0.14	0.17	
						MI	0.01	0.03	0.00		
8	PIPE 2	1	9999	8	0.01	MJ	0.04	0.12	0.12	0.18	
						MI	0.04	0.13	0.00		
9	TS 4x4x1/4	4	3861	45	-0.01	MJ	0.03	0.07	0.07	0.08	
						MI	0.00	0.03	0.00		
10	TS 4x4x1/4	3	9999	26	0.01	MI	0.00	0.00	0.00	0.01	
11	TS 4x4x1/4	4	9999	26	0.00	MI	0.00	0.00	0.00	0.00	
12	TS 4x4x1/4	1	9999	26	0.00	MI	0.00	0.00	0.00	0.00	
49	PIPE 2	1	403	201	-0.06	MJ	0.02	0.16	0.16	0.38	***
						MI	0.01	0.18	0.00		
52	PIPE 2	1	9999	15	0.00	MJ	0.02	0.06	0.06	0.06	
53	PIPE 2	1	9999	15	0.00	MJ	0.02	0.07	0.07	0.07	
54	PIPE 2	2	9999	15	0.00	MJ	0.00	0.01	0.01	0.01	
57	PIPE 2	1	6219	8	-0.01	MJ	0.03	0.15	0.15	0.17	
						MI	0.01	0.03	0.00		
59	TS 4x4x1/4	1	9999	26	0.00	MI	0.00	0.00	0.00	0.00	
60	PIPE 2	1	4173	8	-0.01	MJ	0.04	0.26	0.26	0.30	
						MI	0.01	0.04	0.00		
62	TS 4x4x1/4	1	9999	26	0.00	MI	0.00	0.00	0.00	0.00	
67	PIPE 2	1	9999	8	0.01	MJ	0.03	0.10	0.10	0.16	
						MI	0.04	0.13	0.00		
69	TS 4x4x1/4	1	9999	26	0.00	MI	0.00	0.00	0.00	0.00	
80	PIPE 3	4	643	150	0.01	MJ	0.02	0.13	0.13	0.17	
						MI	0.01	0.06	0.00		
87	PIPE 3	4	645	150	0.01	MJ	0.02	0.13	0.13	0.16	
						MI	0.01	0.04	0.00		
93	PIPE 2	1	177	88	-0.02	MJ	0.01	0.20	0.20	0.25	***
						MI	0.00	0.04	0.00		
94	PIPE 2	1	157	88	-0.03	MJ	0.01	0.19	0.19	0.27	***
						MI	0.00	0.07	0.00		
96	PIPE 2	1	87	69	-0.01	MJ	0.01	0.13	0.13	0.51	***
						MI	0.03	0.37	0.00		
98	PIPE 2	1	92	91	0.00	MJ	0.01	0.14	0.14	0.45	***
						MI	0.03	0.31	0.00		
101	PIPE 2	1	427	86	-0.01	MJ	0.01	0.13	0.13	0.27	
						MI	0.01	0.14	0.00		
102	PIPE 2	1	193	91	-0.01	MJ	0.01	0.08	0.08	0.28	***
						MI	0.02	0.26	0.00		
103	PIPE 2	4	680	205	-0.05	MJ	0.02	0.16	0.16	0.23	***
						MI	0.01	0.06	0.00		
104	PIPE 2	1	225	68	0.00	MJ	0.01	0.08	0.08	0.28	***
						MI	0.03	0.24	0.00		
106	PIPE 2	1	175	68	-0.01	MJ	0.01	0.09	0.09	0.39	***
						MI	0.03	0.33	0.00		
109	PIPE 2	1	227	91	-0.01	MJ	0.01	0.07	0.07	0.28	***
						MI	0.02	0.25	0.00		
110	PIPE 2	1	411	87	-0.01	MJ	0.01	0.14	0.14	0.29	
						MI	0.01	0.15	0.00		
111	PIPE 2	3	686	209	-0.06	MJ	0.02	0.15	0.15	0.21	***
						MI	0.01	0.05	0.00		
112	PIPE 2	1	195	66	0.00	MJ	0.00	0.05	0.05	0.35	***
						MI	0.03	0.30	0.00		
114	PIPE 2	1	214	74	-0.01	MJ	0.01	0.12	0.12	0.31	***
						MI	0.03	0.26	0.00		

South Glastonbury 3 CT Mount Analysis **Code:** AISC-LRFD

Prepared by: **Date:** 2/ 9/22

Results Summary Table

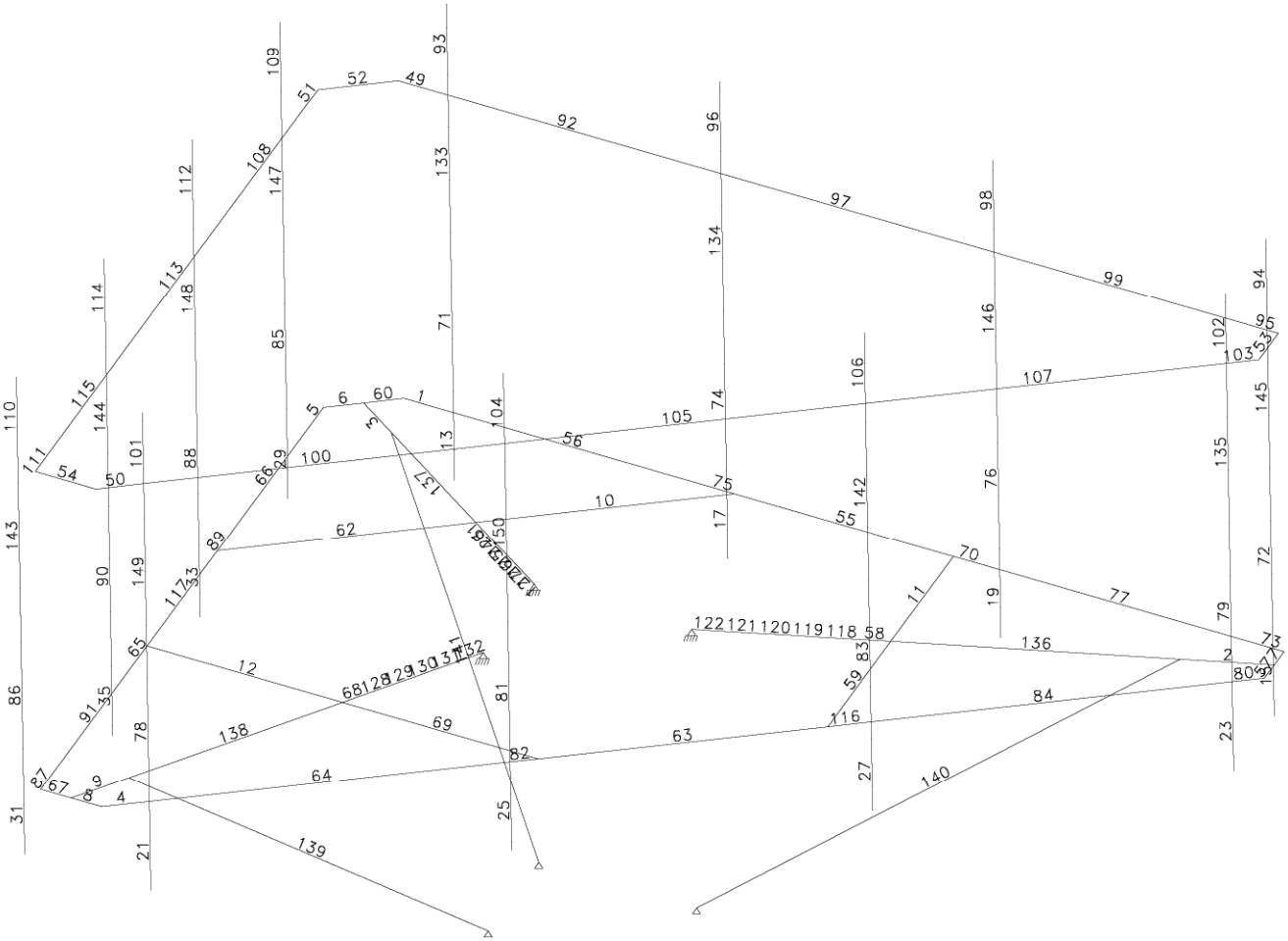
Beam	Section	Com	Defl L/	Slen	CAPACITY					
					Axial	Dir	Shear	Mom	LTB	Combined Axial+Mom
139	2L 3x3x1/4	4	9999	91	-0.05	MI	0.00	0.00	0.00	0.05
140	2L 3x3x1/4	4	9999	90	-0.05	MI	0.00	0.00	0.00	0.05
141	2L 3x3x1/4	3	9999	90	-0.05	MI	0.00	0.00	0.00	0.05

South Glastonbury 3 CT Mount Analysis

View: Steel Beam Design

SCALE = 1:27

DATE: 2/ 9/22



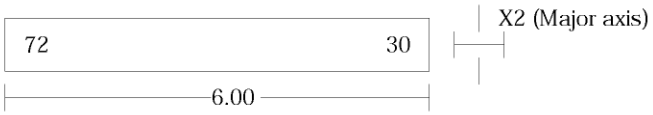
South Glastonbury 3 CT Mount Analysis **Code:** AISC-LRFD

Prepared by: **Date:** 2/ 9/22

Detailed Results Table for Beam 96 - 17

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

Beam: 96, 74, 134, 17



CONSTRAINTS

- Sections : Check
- Steel Grade: A500C

DESIGN DATA

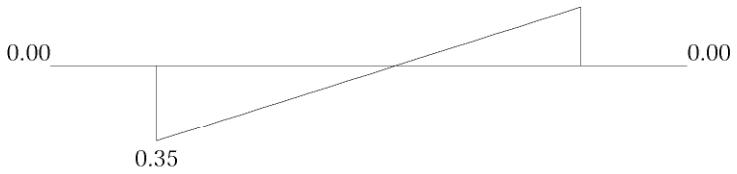
- Kx = 1.00 - Ky = 1.00
- Allow. Slend. : 200 (compr.) 300 (tens.)
- Allowable Deflection : 1/240
- Tension Area Reduction Factor : 1.00
- Building type : Unbraced

Section: PIPE 2

Ix = 0.67 Iy = 0.67in4 Zx = 0.76 Zy = 0.76in3 Area = 1.07
D = 2.37 t = 0.15in
J = 1.33 Cw = 0.00in6

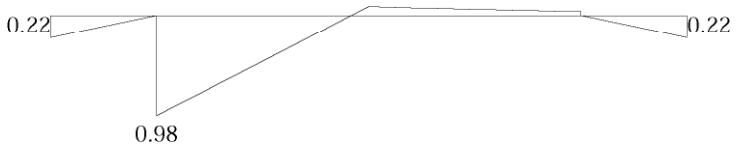
DESIGN COMBINATION = 1

M2 Moment Diagram



Max. AXIAL Force = 0.09 (tens.), -0.05 (compr.) Max. SHEAR Force = 0.15

M3 Moment Diagram



Max. AXIAL Force = 0.09 (tens.), -0.05 (compr.) Max. SHEAR Force = 0.54

SECTION CLASSIFICATION: *** COMPACT ***

Limiting Ratios: Compact Non-Compact
d/t= 15.46 < 45.0 71.7 (Fy= 46.0 R = -0.002)

DESIGN	EQUATION	FACTORS	VALUES	RESULT
V2 Shear (F2-1)	Vu/(.9*Vn)<1.00 Vn=0.6*Fy*Av	Av = 0.64	Vu = 0.54 Vn = 17.81	0.03
M3 Moment (A-F1-1) without LTB	$\frac{M}{0.9Mn} < 1.00$	Z = 0.76	M = 0.98 Mn = 2.92	0.37
V3 Shear (F2-1)	Vu/(.9*Vn)<1.00 Vn=0.6*Fy*Av	Av = 0.64	Vu = 0.15 Vn = 17.81	0.01

South Glastonbury 3 CT Mount Analysis **Code:** AISC-LRFD

Prepared by: **Date:** 2/ 9/22

Detailed Results Table for Beam 96 - 17

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

DESIGN	EQUATION	FACTORS	VALUES	RESULT
M2 Moment (A-F1-1) without LTB	$\frac{M}{0.9Mn} < 1.00$	Z = 0.76	M = 0.35 Mn = 2.92	0.13
Deflection	$\frac{defl.}{L / 240} < 1.00$		defl = 0.82553	2.75
Axial Force (D1-1)	$\frac{Pu}{0.90AgFy} < 1.00$	(kL/r)x =31 (kL/r)y =31	Pu = 0.09 Ag = 1.07 Fy = 46.00	0.00
Combined Forces (compress.) (H1-1b)	$\frac{Pu}{2\phi Pn} + \frac{Mux}{\phi Mnx} + \frac{Muy}{\phi Mny} < 1.00$	Cmx = 1.00 Cmy = 1.00 Pex = 321.36 Pey = 321.36	Mux = 0.35 Muy = 0.98 B1x = 1.00 B1y = 1.00	0.51

Detailed Results Table for Beam 98 - 19

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

Beam: 98, 76, 146, 19

CONSTRAINTS

- Sections : Check
- Steel Grade: A500C

DESIGN DATA

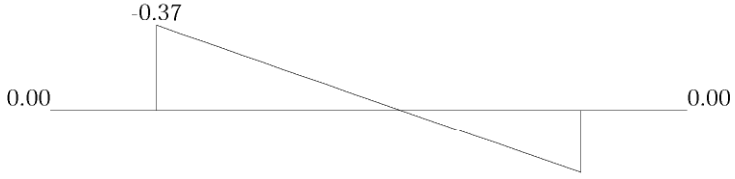
- Kx = 1.00 - Ky = 1.00
- Allow. Slend. : 200 (compr.) 300 (tens.)
- Allowable Deflection : 1/240
- Tension Area Reduction Factor : 1.00
- Building type : Unbraced

Section: PIPE 2

Ix = 0.67 Iy = 0.67in4 Zx = 0.76 Zy = 0.76in3 Area = 1.07
D = 2.37 t = 0.15in
J = 1.33 Cw = 0.00in6

DESIGN COMBINATION = 1

M2 Moment Diagram



Max. AXIAL Force = 0.16 (tens.), 0.00 (compr.) Max. SHEAR Force = 0.16

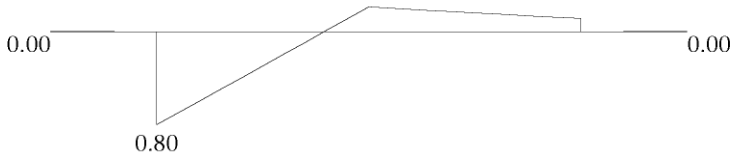
South Glastonbury 3 CT Mount Analysis **Code:** AISC-LRFD

Prepared by: **Date:** 2/ 9/22

Detailed Results Table for Beam 98 - 19

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

M3 Moment Diagram



Max. AXIAL Force = 0.16 (tens.), 0.00 (compr.) Max. SHEAR Force = 0.51

SECTION CLASSIFICATION: *** COMPACT ***

Limiting Ratios: Compact Non-Compact
d/t= 15.46 < 45.0 71.7 (Fy= 46.0 R = -0.003)

DESIGN	EQUATION	FACTORS	VALUES	RESULT
V2 Shear (F2-1)	Vu/(.9*Vn)<1.00 Vn=0.6*Fy*Av	Av = 0.64	Vu = 0.51 Vn = 17.81	0.03
M3 Moment (A-F1-1) without LTB	$\frac{M}{0.9Mn} < 1.00$	Z = 0.76	M = 0.80 Mn = 2.92	0.31
V3 Shear (F2-1)	Vu/(.9*Vn)<1.00 Vn=0.6*Fy*Av	Av = 0.64	Vu = 0.16 Vn = 17.81	0.01
M2 Moment (A-F1-1) without LTB	$\frac{M}{0.9Mn} < 1.00$	Z = 0.76	M = 0.37 Mn = 2.92	0.14
Deflection	$\frac{defl.}{L / 240} < 1.00$		defl = 0.78578	2.62
Axial Force (D1-1)	$\frac{Pu}{0.90AgFy} < 1.00$	(kL/r)x =91 (kL/r)y =91	Pu = 0.16 Ag = 1.07 Fy = 46.00	0.00
Combined Forces (compress.) (H1-1b)	$\frac{Pu}{2\phi Pn} + \frac{Mux}{\phi Mnx} + \frac{Muy}{\phi Mny} < 1.00$	Cmx = 1.00 Cmy = 1.00 Pex = 37.29 Pey = 37.29	Mux = 0.37 Muy = 0.80 B1x = 1.00 B1y = 1.00	0.45

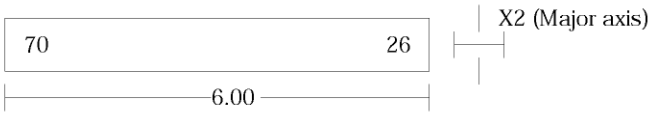
South Glastonbury 3 CT Mount Analysis **Code:** AISC-LRFD

Prepared by: **Date:** 2/ 9/22

Detailed Results Table for Beam 94 - 15

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

Beam: 94, 72, 145, 15



CONSTRAINTS

- Sections : Check
- Steel Grade: A500C

DESIGN DATA

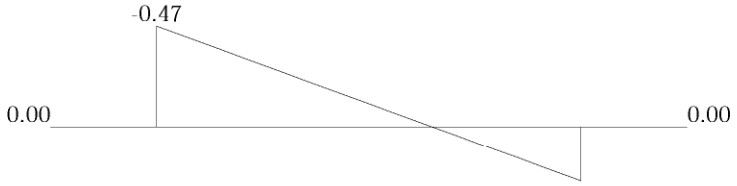
- Kx = 1.00 - Ky = 1.00
- Allow. Slend. : 200 (compr.) 300 (tens.)
- Allowable Deflection : 1/240
- Tension Area Reduction Factor : 1.00
- Building type : Unbraced

Section: PIPE 2

Ix = 0.67 Iy = 0.67in4 Zx = 0.76 Zy = 0.76in3 Area = 1.07
D = 2.37 t = 0.15in
J = 1.33 Cw = 0.00in6

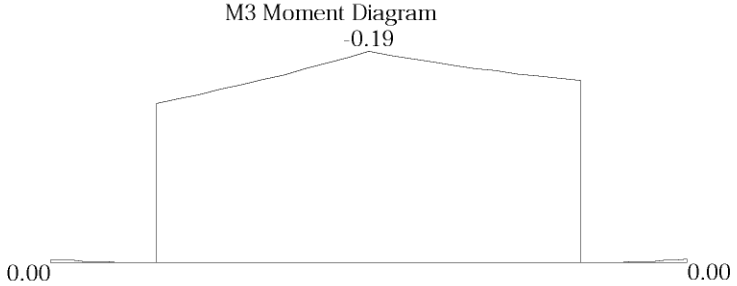
DESIGN COMBINATION = 1

M2 Moment Diagram



Max. AXIAL Force = 0.00 (tens.), -0.63 (compr.) Max. SHEAR Force = 0.18

M3 Moment Diagram



Max. AXIAL Force = 0.00 (tens.), -0.63 (compr.) Max. SHEAR Force = 0.03

SECTION CLASSIFICATION: *** COMPACT ***

Limiting Ratios:		Compact	Non-Compact	
d/t= 15.46	<	45.0	71.7	(Fy= 46.0 R = 0.013)

DESIGN	EQUATION	FACTORS	VALUES	RESULT
M3 Moment (A-F1-1) without LTB	$\frac{M}{0.9Mn} < 1.00$	Z = 0.76	M = 0.19 Mn = 2.92	0.07
V3 Shear (F2-1)	Vu/(.9*Vn)<1.00 Vn=0.6*Fy*Av	Av = 0.64	Vu = 0.18 Vn = 17.81	0.01
M2 Moment (A-F1-1) without LTB	$\frac{M}{0.9Mn} < 1.00$	Z = 0.76	M = 0.47 Mn = 2.92	0.18

South Glastonbury 3 CT Mount Analysis **Code:** AISC-LRFD

Prepared by: **Date:** 2/ 9/22

Detailed Results Table for Beam 94 - 15

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

DESIGN	EQUATION	FACTORS	VALUES	RESULT
Deflection	$\frac{\text{defl.}}{L/240} < 1.00$		defl = 0.45714	1.52
Axial Force (E2-1)	$\frac{Pu}{0.85AgFcr} < 1.00$	(kL/r)x =88 (kL/r)y =88 λc = 1.11	Pu = 0.63 Ag = 1.07 Fcr = 27.37	0.03
Combined Forces (compress.) (H1-1b)	$\frac{Pu}{2\phi Pn} + \frac{Mux}{\phi Mnx} + \frac{Muy}{\phi Mny} < 1.00$	Cmx = 1.00 Cmy = 1.00 Pex = 39.88 Pey = 39.88	Mux = 0.48 Muy = 0.20 B1x = 1.02 B1y = 1.02	0.27

Detailed Results Table for Beam 2 - 122

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

Beam: 2, 136, 58, 118, 119, 120, 121, 122

CONSTRAINTS

- Sections : Check
- Steel Grade: A500B

DESIGN DATA

- Kx = 1.00 - Ky = 1.00
- Allow. Slend. : 200 (compr.) 300 (tens.)
- Allowable Deflection : 1/240
- Tension Area Reduction Factor : 1.00
- Building type : Unbraced

INTERMEDIATE SUPPORTS

L =	1.17	4.71	5.12	5.50	5.92	6.29	6.71
Lat.-Tors.							
Compress.	X	X	X	X	X	X	X

Section: TS 4x4x1/4

Ix = 8.22 Iy = 8.22in4 Zx = 4.97 Zy = 4.97in3 Area = 3.59
h = 4.00 b = 4.00in t = 0.25in
J = 13.50 Cw = 0.00in6

South Glastonbury 3 CT Mount Analysis **Code:** AISC-LRFD

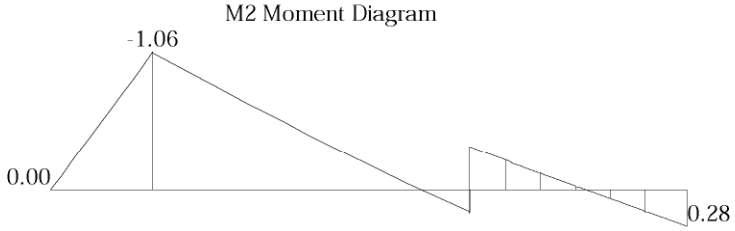
Prepared by: **Date:** 2/ 9/22

Detailed Results Table for Beam 2 - 122

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

DESIGN COMBINATION = 1

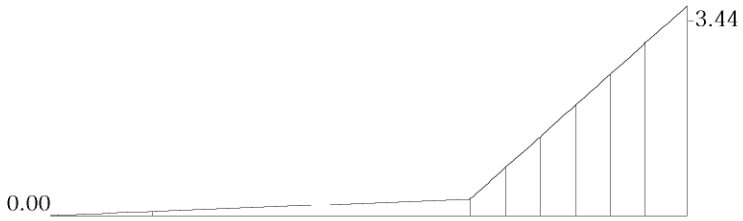
M2 Moment Diagram



Moments at Intermediate Supports:
-1.05 0.17 -0.13 0.07
-0.23 -0.02 0.17

Max. AXIAL Force = 2.51 (tens.) Max. SHEAR Force = 0.92

M3 Moment Diagram



Moments at Intermediate Supports:
-0.07 -0.28 -1.29 -2.32
-0.81 -1.83 -2.85

Max. AXIAL Force = 2.51 (tens.) Max. SHEAR Force = 1.29

SECTION CLASSIFICATION: *** COMPACT ***

Limiting Ratios:		Compact	Non-Compact	
d/t= 13.13	<	35.2	35.2	(Fy= 46.0 R = -0.015)
b/t= 13.13	<	28.1	35.2	

DESIGN	EQUATION	FACTORS	VALUES	RESULT
V2 Shear (F2-1)	Vu/(.9*Vn)<1.00 Vn=0.6*Fy*Av	Av = 1.79	Vu = 1.29 Vn = 49.60	0.03
M3 Moment (A-F1-1) without LTB	M / 0.9Mn < 1.00	Z = 4.97	M = 3.44 Mn = 19.07	0.20
V3 Shear (F2-1)	Vu/(.9*Vn)<1.00 Vn=0.6*Fy*Av	Av = 1.79	Vu = 0.92 Vn = 49.60	0.02
M2 Moment (A-F1-1) without LTB	M / 0.9Mn < 1.00	Z = 4.97	M = 1.06 Mn = 19.07	0.06
Deflection	defl. / L / 240 < 1.00		defl = 0.02900	0.08
Axial Force (D1-1)	Pu / 0.90AgFy < 1.00	(kL/r)x =28 (kL/r)y =57	Pu = 2.51 Ag = 3.59 Fy = 46.00	0.02

South Glastonbury 3 CT Mount Analysis **Code:** AISC-LRFD

Prepared by: **Date:** 2/ 9/22

Detailed Results Table for Beam 2 - 122

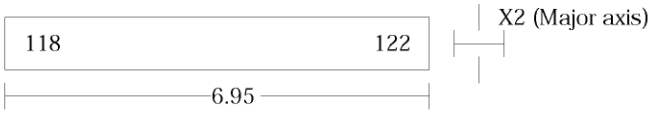
*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

DESIGN	EQUATION	FACTORS	VALUES	RESULT
Lateral Torsional Buckling	$\frac{M}{0.9Mn} < 1.00$ Critical Segment from 0.00 to 7.16 on -z flange Segment End Moments: 0.00 and 0.28	Lb = 7.16 Lp = 14.40	M = 1.06 Mn = 19.07	0.06
Combined Forces (tension) (H1-1b)	$\frac{Pu}{2\phi Pn} + \frac{Mux}{\phi Mnx} + \frac{Muy}{\phi Mny} < 1.00$		Mux = 1.06 Muy = 3.44	0.27

Detailed Results Table for Beam 140

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

Beam: 140



CONSTRAINTS

- Sections : Check
- Steel Grade: A36

DESIGN DATA

- Kx = 1.00 - Ky = 1.00
- Allow. Slend. : 200 (compr.) 300 (tens.)
- Allowable Deflection : 1/240
- Tension Area Reduction Factor : 1.00
- Building type : Unbraced

Connectors spacing = default (= 3.32)(welded)

Section: 2L 3x3x1/4

Ix = 2.49 Iy = 5.56in4 Sx = 1.15 Sy = 1.75in3 Area = 2.88
h = 3.00 b = 6.37in t = 0.25 ey = 2.16in
J = 0.06 Cw = 0.00in6

DESIGN COMBINATION = 4

Max. AXIAL Force = -3.12 (compr.) Max. SHEAR Force = 0.00

SECTION CLASSIFICATION: *** COMPACT ***

Limiting Ratios:		Compact	Non-Compact	
d/t= 12.10	<	12.8	12.8	(Fy= 36.0 R = 0.030)
b/t= 12.10	<	15.3	12.8	

DESIGN	EQUATION	FACTORS	VALUES	RESULT
Axial Force (E2-1)	$\frac{Pu}{0.85AgFcr} < 1.00$	(kL/r)x =90 (kL/r)y =66 λc = 1.01	Pu = 3.12 Ag = 2.88 Fcr = 23.54	0.05

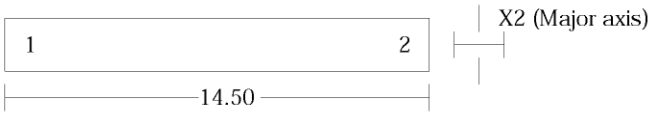
South Glastonbury 3 CT Mount Analysis **Code:** AISC-LRFD

Prepared by: **Date:** 2/ 9/22

Detailed Results Table for Beam 1 - 73

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

Beam: 1, 56, 75, 55, 70, 77, 73



CONSTRAINTS

- Sections : Check
- Steel Grade: A500C

DESIGN DATA

- Kx = 1.00 - Ky = 1.00
- Allow. Slend. : 200 (compr.) 300 (tens.)
- Allowable Deflection : 1/240
- Tension Area Reduction Factor : 1.00
- Building type : Unbraced

Section: PIPE 3

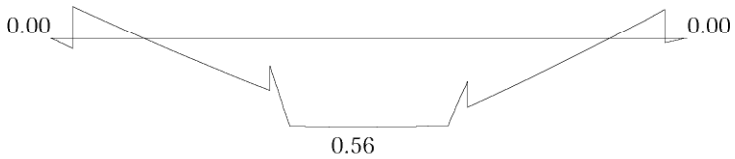
Ix = 3.02 Iy = 3.02in4 Zx = 2.33 Zy = 2.33in3 Area = 2.23
D = 3.50 t = 0.22in
J = 6.03 Cw = 0.00in6

DESIGN COMBINATION = 1

M2 Moment Diagram

Max. AXIAL Force = 0.50 (tens.), -0.31 (compr.) Max. SHEAR Force = 0.73

M3 Moment Diagram



Max. AXIAL Force = 0.50 (tens.), -0.31 (compr.) Max. SHEAR Force = 0.85

SECTION CLASSIFICATION: *** COMPACT ***

Limiting Ratios: Compact Non-Compact
d/t= 16.16 < 45.0 71.7 (Fy= 46.0 R = -0.005)

DESIGN	EQUATION	FACTORS	VALUES	RESULT
V2 Shear (F2-1)	Vu/(.9*Vn)<1.00 Vn=0.6*Fy*Av	Av = 1.34	Vu = 0.85 Vn = 36.95	0.03
M3 Moment (A-F1-1) without LTB	$\frac{M}{0.9Mn} < 1.00$	Z = 2.33	M = 0.56 Mn = 8.95	0.07
V3 Shear (F2-1)	Vu/(.9*Vn)<1.00 Vn=0.6*Fy*Av	Av = 1.34	Vu = 0.73 Vn = 36.95	0.02

South Glastonbury 3 CT Mount Analysis **Code:** AISC-LRFD

Prepared by: **Date:** 2/ 9/22

Detailed Results Table for Beam 1 - 73

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

DESIGN	EQUATION	FACTORS	VALUES	RESULT
M2 Moment (A-F1-1) without LTB	$\frac{M}{0.9Mn} < 1.00$	Z = 2.33	M = 1.07 Mn = 8.95	0.13
Deflection	$\frac{defl.}{L / 240} < 1.00$		defl = 0.33567	0.46
Axial Force (D1-1)	$\frac{Pu}{0.90AgFy} < 1.00$	(kL/r)x =60 (kL/r)y =60	Pu = 0.50 Ag = 2.23 Fy = 46.00	0.01
Combined Forces (compress.) (H1-1b)	$\frac{Pu}{2\phi Pn} + \frac{Mux}{\phi Mnx} + \frac{Muy}{\phi Mny} < 1.00$	Cmx = 1.00 Cmy = 1.00 Pex = 178.01 Pey = 178.01	Mux = 1.07 Muy = 0.56 B1x = 1.00 B1y = 1.00	0.20

Detailed Results Table for Beam 49 - 95

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

Beam: 49, 92, 97, 99, 95

CONSTRAINTS

- Sections : Check
- Steel Grade: A500C

DESIGN DATA

- Kx = 1.00 - Ky = 1.00
- Allow. Slend. : 200 (compr.) 300 (tens.)
- Allowable Deflection : 1/240
- Tension Area Reduction Factor : 1.00
- Building type : Unbraced

Section: PIPE 2

Ix = 0.67 Iy = 0.67in4 Zx = 0.76 Zy = 0.76in3 Area = 1.07
D = 2.37 t = 0.15in
J = 1.33 Cw = 0.00in6

DESIGN COMBINATION = 1

M2 Moment Diagram

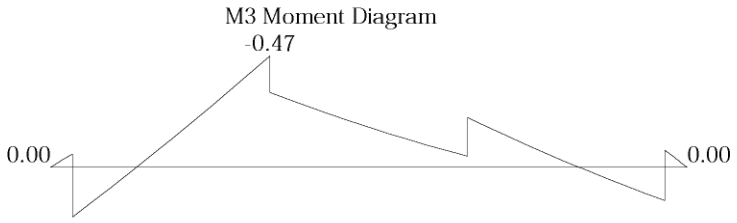
Max. AXIAL Force = 0.08 (tens.), -0.26 (compr.) Max. SHEAR Force = 0.35

South Glastonbury 3 CT Mount Analysis **Code:** AISC-LRFD

Prepared by: **Date:** 2/ 9/22

Detailed Results Table for Beam 49 - 95

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*



Max. AXIAL Force = 0.08 (tens.), -0.26 (compr.) Max. SHEAR Force = 0.16

SECTION CLASSIFICATION: *** COMPACT ***

Limiting Ratios: Compact Non-Compact
d/t= 15.46 < 45.0 71.7 (Fy= 46.0 R = 0.005)

DESIGN	EQUATION	FACTORS	VALUES	RESULT
V2 Shear (F2-1)	Vu/(.9*Vn)<1.00 Vn=0.6*Fy*Av	Av = 0.64	Vu = 0.16 Vn = 17.81	0.01
M3 Moment (A-F1-1) without LTB	$\frac{M}{0.9Mn} < 1.00$	Z = 0.76	M = 0.47 Mn = 2.92	0.18
V3 Shear (F2-1)	Vu/(.9*Vn)<1.00 Vn=0.6*Fy*Av	Av = 0.64	Vu = 0.35 Vn = 17.81	0.02
M2 Moment (A-F1-1) without LTB	$\frac{M}{0.9Mn} < 1.00$	Z = 0.76	M = 0.43 Mn = 2.92	0.16
Deflection	$\frac{defl.}{L / 240} < 1.00$		defl = 0.43143	0.60
Axial Force (E2-1)	$\frac{Pu}{0.85AgFcr} < 1.00$	(kL/r)x =192 (kL/r)y =192 λc = 2.43	Pu = 0.26 Ag = 1.07 Fcr = 6.83	0.04
Combined Forces (compress.) (H1-1b)	$\frac{Pu}{2\phi Pn} + \frac{Mux}{\phi Mnx} + \frac{Muy}{\phi Mny} < 1.00$	Cmx = 1.00 Cmy = 1.00 Pex = 8.38 Pey = 8.38	Mux = 0.45 Muy = 0.49 B1x = 1.03 B1y = 1.03	0.38

ATTACHMENT 6

	General	Power	Density					
Site Name: South Glastonbury 3								
Tower Height: Verizon @ 115ft								
CARRIER	**# OF CHAN.**	**WATTS ERP**	**HEIGHT**	**FREQ.**	**CALC. POWER DENS**	**MAX. PERMISS.EXP.**	**FRACTION MPE**	**Total**
*DISH	4	224	125	600	0.0228	0.4000	0.57%	
*DISH	4	543	125	1900	0.0552	1.0000	0.55%	
*DISH	4	543	125	2100	0.0552	1.0000	0.55%	
*AT&T	1	1730	136	722	0.0368	0.4813	0.76%	
*AT&T	1	3541	136	739	0.0753	0.4927	1.53%	
*AT&T	1	3541	136	763	0.0753	0.5087	1.48%	
*AT&T	1	4257	136	885	0.0906	0.5900	1.54%	
*AT&T	1	6297	136	1900	0.1340	1.0000	1.34%	
*AT&T	1	9890	136	2100	0.2105	1.0000	2.10%	
*AT&T	1	6153	136	2300	0.1309	1.0000	1.31%	
*T-Mobile	2	3928	143	2100	0.1505	1.0000	1.51%	
*T-Mobile	2	3421	143	1900	0.1311	1	1.31%	
*T-Mobile	1	419	143	700	0.008	0.4667	0.17%	
*T-Mobile	2	2281	143	2100	0.0874	1	0.87%	
*T-Mobile	2	2281	143	2100	0.0874	1	0.87%	
VZW 700	**4**	**689**	**115**	**751**	**0.0075**	**0.5007**	**1.50%**	
VZW Cellular	**4**	**700**	**115**	**869**	**0.0076**	**0.5793**	**1.31%**	
VZW PCS	**4**	**1500**	**115**	**1980**	**0.0163**	**1.0000**	**1.63%**	
VZW AWS	**4**	**1496**	**115**	**2125**	**0.0163**	**1.0000**	**1.63%**	
VZW CBAND	**4**	**6531**	**115**	**3730**	**0.0710**	**1.0000**	**7.10%**	
VZW CBRS	**2**	**12**	**115**	**3625**	**0.0001**	**1.0000**	**0.01%**	
								29.64%
* Source: Siting Council								

ATTACHMENT 7

UNITED STATES POSTAL SERVICE®

SOUTH GLASTONBURY 3

Certificate of Mailing — Firm

Name and Address of Sender	TOTAL NO. of Pieces Listed by Sender	TOTAL NO. of Pieces Received at Post Office™	Affix Stamp Here *Postmark with Date of Receipt.*
Kenneth C. Baldwin, Esq. Robinson & Cole LLP 280 Trumbull Street Hartford, CT 06103		4	neopost 05/25/2022 US POSTAGE $003.35[0] ZIP 06103 041L12203937
	Postmaster, per *(name of receiving employee)*		

USPS® Tracking Number / Firm-specific Identifier	Address (Name, Street, City, State, and ZIP Code™)	Postage	Fee	Special Handling	Parcel Airlift
1.	Richard J. Johnson, Town Manger Town of Glastonbury 2155 Main Street Glastonbury, CT 06033				
2.	Rebecca Augur, Director of Planning and Land Use Services Town of Glastonbury 2155 Main Street Glastonbury, CT 06033				
3.	Paul Cavanna 80 Woodland Street South Glastonbury, CT 06073				
4.	Vertical Bridge Engineering LLC 750 Park of Commerce Drive, #200 Boca Raton, FL 33487				
5.					
6.					

OLD STATE HOUSE STATION 06103 MAY 25 2022 USPS